Keystone Environmental
Knowledge-Driven Results

MARCH 28, 2025

2024 MARINE FISH AND FISH HABITAT ENVIRONMENTAL EFFECTS ANNUAL MONITORING REPORT

Woodfibre
Squamish, BC

Prepared For: Woodfibre LNG Limited Partnership

Project No: 20327-104
March 2025

EXECUTIVE SUMMARY

Woodfibre LNG Limited Partnership (Woodfibre LNG) commenced construction of a liquefied natural gas (LNG) export facility and loading facility (the Project) at Woodfibre BC in Nexwnéwu7ts

Átlk'a7tsem (Howe Sound) in November 2023. The facility is located at the former Woodfibre Pulp and Paper Mill site (the Project), approximately seven kilometres southwest of Squamish, British Columbia (BC). The Project is on the historical location of a Skwxwú7mesh Úxwumixw (Squamish Nation) village known as Swiẏát. The planned construction includes both marine and freshwater components.

This report summarises the results of the first year (i.e., 2024) of environmental effects monitoring (EEM) conducted during the Project's construction phase in accordance with the Marine Fish and Fish Habitat Environmental Effects Monitoring Plan (MFFH EEMP). In alignment with the objectives and Guiding Principles established in collaboration between Woodfibre LNG and the Skwxwú7mesh Úxwumixw (Squamish Nation), the MFFH EEMP was developed to fulfill the monitoring requirements of the Project's Federal Decision Statement (FDS) to assess project-level effects. The MFFH EEMP is a companion document to the overarching Marine Fish and Fish Habitat Management and Monitoring Plan (MFFHMMP).

The results of this report are organised by key performance indicators (KPIs) that were assessed following a study approach defined in the MFFH EEMP. The KPIs were established to monitor potential project effects identified in the Project's *Fisheries Act* Authorization:

- Change in fish behaviour – Pacific herring spawning
  - Monitored through **KPI1** (Pacific herring spawn intensity)
- Change in fish abundance – presence and migration,
  - Monitored through **KPI2** (Pacific herring, juvenile salmonid, forage fish, and pelagic fish Catch per Unit Area)
- Change in fish behaviour – salmon spawning and outmigration from Mill Creek
  - Monitored through **KPI3** (salmon spawner counts, fyke net Catch per Unit Effort, minnow trap Catch per Unit Effort, and electrofishing Catch per Unit Effort)
- Introduction of invasive species from ballast water exchange
  - Monitored through **KPI4** sessile invasive species counts and Catch per Trap Effort of European Green Crab)

For each KPI, the monitoring methodology is summarised and any deviations to the methodology are reported. Results are presented based on the metrics determined for each KPI. Finally, if applicable, recommendations are provided for each study approach to improve the quality of data collected in future years of the EEM program.

Overall, the findings of the 2024 EEM program did not indicate notable changes to KPIs compared to observations collected during baseline studies. As this sampling and monitoring program was in its first year, additional years of data collection are required to detect any trends or measurable differences in the measured KPIs.

AUTHORSHIP STATEMENT

This report, summarizing the 2024 annual fish and fish habitat monitoring results, is the product of a collaborative effort between two independent consulting firms: Keystone Environmental Ltd. (KEL) And LGL Environmental Research Company (LGL). Both firms bring specialized expertise to the scope of work and reporting to ensure a comprehensive and scientifically rigorous assessment of fish and fish habitat. This collaborative relationship is a result of Woodfibre LNG and Squamish Nation convening a joint Technical Advisory Committee to provide technical oversight to the development and implementation of a robust and long-term fish and fish habitat monitoring program.

KEL is the lead author of this report and provided critical expertise in the design and execution of field sampling programs and survey protocols. KEL's experience in managing and conducting the fieldwork ensures that the data gathered is representative and accurate, supporting the integrity of the overall study results and interpretation. LGL provided expertise in data analysis offering advanced statistical analyses and methodologies required for interpreting the survey data. Their contribution ensures that the findings are robust and statistically valid, providing a solid foundation for the report's conclusions and detection of any adverse impacts on fish and fish habitat.

In Summary, a task breakdown for compilation of this report included:

	KEL (lead author)	LGL (contributing author)
Preparation of SOPs for field sampling	X	
Review of SOPs		X
Field data collection	X	
Data entry and initial quality review	X	
Data Analysis		X
Preparation of graphics and statistical analysis		X
Interpretation of results	X	X
Discussion on Regional Account aspects	X	X

Together, LGL and Keystone have combined their unique skills to produce a comprehensive, scientifically sound report that reflects the latest insights into fish and fish habitat trends at the Woodfibre LNG project site.

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AIS	Aquatic Invasive Species
AUC	Area-Under-The-Curve
ATU	Accumulated Thermal Units
BACI	Before After Control Impact
CD	Chart Datum
CPA	Certified Project Area
CPUE	Catch Per Unit Effort
CPUA	Catch Per Unit Area
EEM	Environmental Effects Monitoring
EGC	European Green Crab
EWG	Environmental Working Group
FDS	Federal Decision Statement
KEL	Keystone Environmental Ltd.
KPIs	Key Performance Indices
LGL	LGL Environmental Research Company
LNG	Liquified Natural Gas
MFFH	Marine Fish and Fish Habitat
MFFH EEMP	Marine Fish and Fish Habitat Environmental Effects Monitoring Plan
MFFHMMP	Marine Fish and Fish Habitat Management and Monitoring Plan
MFFH OEMP	Marine Fish and Fish Habitat Offsetting Effectiveness Monitoring Plan
MSI	Howe Sound Marine Stewardship Initiative
NIS	Non-Indigenous Species
PPIA	Project Potential Impact Area
PVC	Polyvinyl Chloride
R.P. Bio	Registered Professional Biologist
SCUBA	Self-Contained Underwater Breathing Apparatus
TAC	Technical Advisory Committee
QP	Qualified Professional
Woodfibre LNG	Woodfibre LNG Limited Partnership

1. INTRODUCTION

Woodfibre LNG Limited Partnership (Woodfibre LNG) commenced construction in November 2023 of a liquefied natural gas (LNG) export facility (the Project) on the former Woodfibre Pulp Mill site (the Site) in Nexwnéwu7ts Átlḵ'a7tsem (Howe Sound), approximately seven kilometres south of Squamish. The Project is on the historical location of a Skwxwú7mesh Úxwumixw (Squamish Nation) village known as Swiy̓át. Swiy̓át and Nexwnéwu7ts Átlḵ'a7tsem (Howe Sound) are tied to the cultural well-being of Skwxwú7mesh Úxwumixw (Squamish Nation) members, their ancestors, and their descendants. Woodfibre LNG recognizes the importance of these areas to the Skwxwú7mesh stélmexw (Squamish People) and seeks to construct and operate the LNG facility and export terminal in a manner that is respectful of Skwxwú7mesh Úxwumixw (Squamish Nation) values.

The Project area is located at the former Woodfibre Pulp Mill site; a fee simple, industrially zoned brownfield site with more than 100 years of industrial use and deep-water marine access. The community of Shisháyu7ay (Britannia Beach) is approximately 5.5 km southeast of the Project area; Kwtsá7tsutsin (Darrell Bay) is approximately 6.2 km to the east; and K'ík'elxn (Port Mellon) is approximately 22 km southwest. K'emk'emeláy (Vancouver) is situated approximately 50 km southeast of the Project area. The Project location, Certified Project Area (CPA) and Project Potential Impact Area (PPIA) are shown on **Figure 1-1.** The Project layout and detailed delineation of the PPIA are shown on **Figure 1-2**.

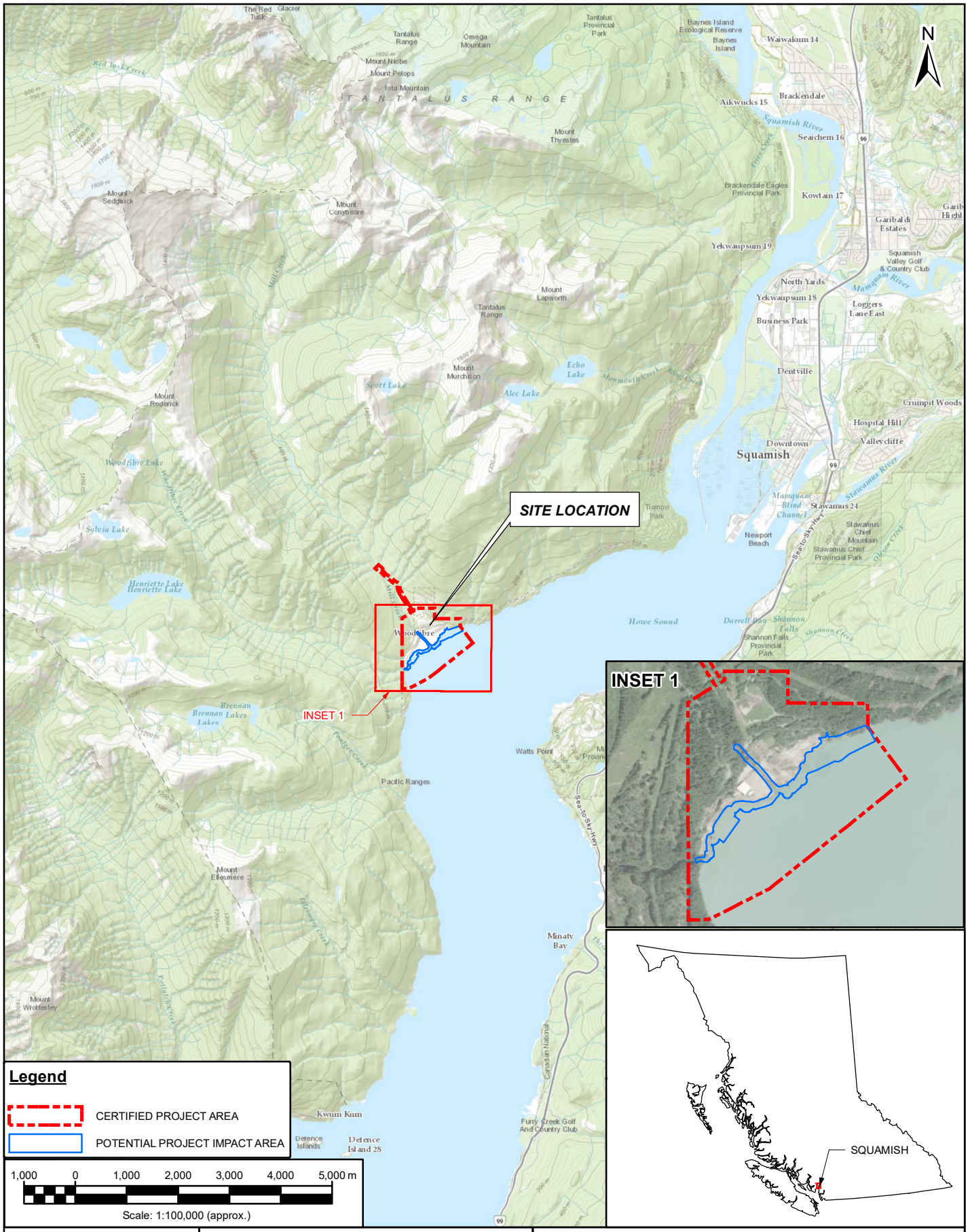
1.1 Background

In October 2023, a Technical Advisory Committee (TAC) was convened with the Skwxwú7mesh Úxwumixw (Squamish Nation) Environmental Working Group (EWG), Woodfibre LNG, and selected Qualified Professionals (QPs) to collaboratively develop detailed monitoring plans and survey protocols based on agreed-upon objectives, performance indices, and methodologies. A Guiding Principles document provides direction to the TAC, acknowledging the shared values of transparency, honesty, stewardship, and Indigenous rights and cultural values.

In alignment with the objectives and Guiding Principles established in collaboration between Woodfibre LNG and the Skwxwú7mesh Úxwumixw (Squamish Nation), the Marine Fish and Fish Habitat Environmental Effects Monitoring Plan (MFFH EEMP; hereafter referred to as the EEMP) (Keystone Environmental Ltd. 2024a) was developed to fulfill the monitoring requirements of the Project's Federal Decision Statement (FDS) and addresses subtopics including (but not limited to) key monitoring objectives and performance indices, work plans for monitoring programs, sampling and reporting frequency and duration, and decision-making criteria for future adaptations to the EEMP. The EEMP is a companion document to the overarching Marine Fish and Fish Habitat Management and Monitoring Plan (MFFHMMP), which required written approval from sḵwx̱wú7mesh Úxwumixw (Squamish Nation) prior to the start of the construction phase of the Project.

For each potential effect, a list of variables/Key Performance Indices (KPIs) has been defined in the EEMP. For each variable, the general study approach has been defined. In preparation of the list of variables**,** existing data collected during the Project's baseline studies (Keystone Environmental Ltd. 2024b) and ongoing monitoring programs have also been considered to achieve a higher degree of certainty in the detection of any potential effects of the Project on fish and fish habitat.

Project construction is expected to take four to five years. This monitoring report presents the first year (i.e. 2024) of monitoring results conducted in accordance with the EEMP.



Keystone Environmental

Woodfibre
Squamish, B C
Woodfibre LNG Limited

REVISION No.	DATE	PROJECT No.
00	Feb. 2025	20327-104

Figure 1-1
Location Plan

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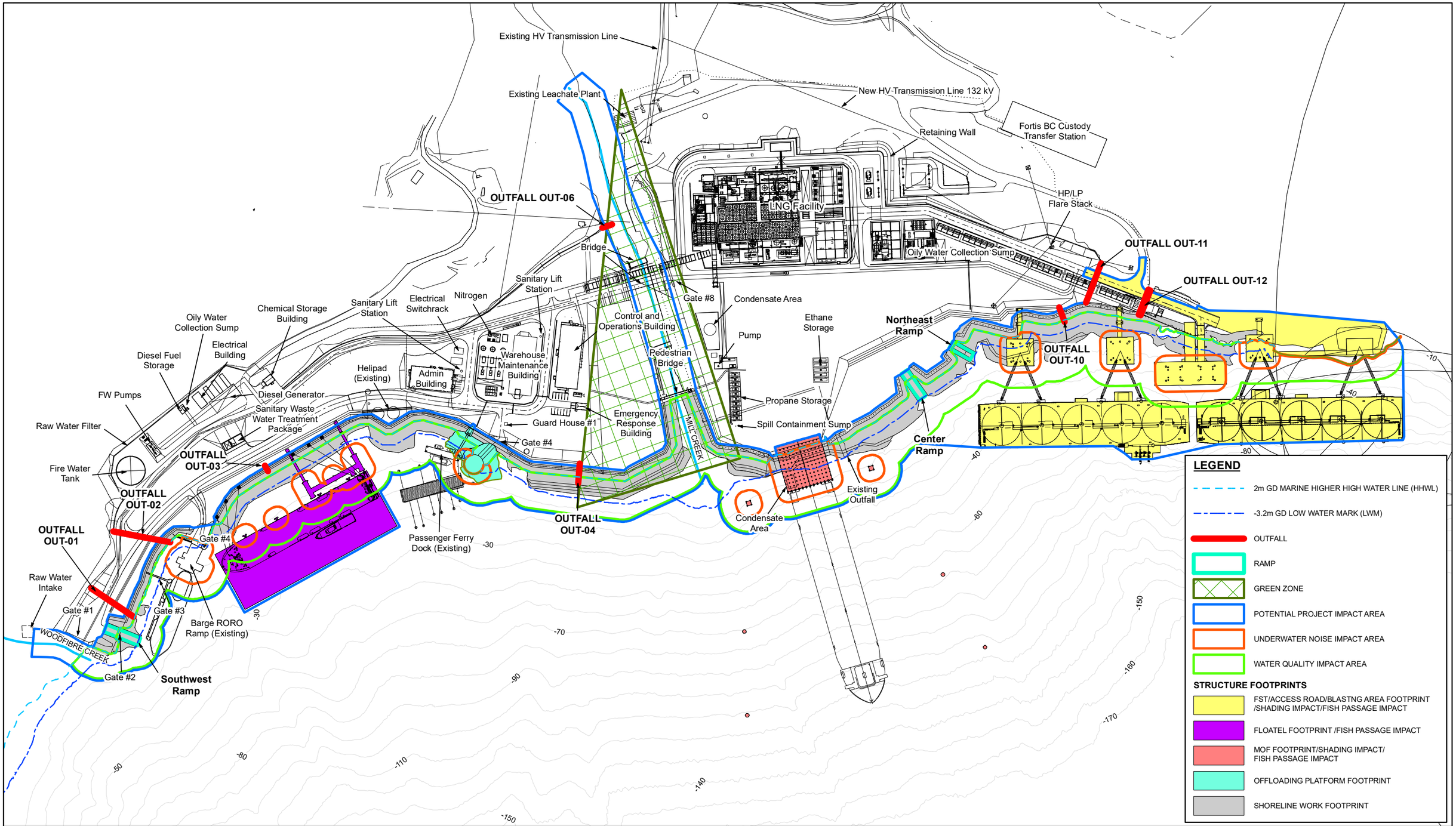

Keystone Environmental

NOTES:
1. *THIS DRAWING IS FOR GENERAL INFORMATION ONLY. LOT BOUNDARIES AND FEATURES ARE APPROXIMATE.*
2. *DATE OF AERIAL PHOTO IS 2016.*
3. *CONTOUR ELEVATION IS IN CHART DATUM (CD).*
4. *SPILLS FROM INDUSTRIAL EQUIPMENT OR CONCRETE IS AN ADDITIONAL POTENTIAL PROJECT IMPACT TO NOT SHOWN. IF THERE IS A SPILL, IT WILL BE INVESTIGATED AND MONITORING SEPARATELY.*

25 0 125 m

SCALE: 1:3,500 (approx.)

Woodfibre
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REVISION No.	DATE	PROJECT No.
00	Feb. 2025	18785-104

Figure 1-2

Project Layout and Potential Project Impact Area

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1.2 Regulatory Context

The relationship between regulatory requirements, the various management and monitoring plans, and the resulting report outputs is outlined on **Figure 1-3.** The TAC produced a consolidated pre-construction baseline report along with the management and monitoring plans. These plans guide the implementation of fisheries data collection to assess project-related effects on fish and fish habitat, as outlined in the EEMP, and to evaluate the effectiveness of habitat offset mitigation, as described in the MFFH Offsetting Effectiveness Monitoring Plan (MFFH OEMP, hereafter referred to as the OEMP).

Annual reports are produced to consolidate the fisheries data for each year of Project construction and for at least seven years after habitat offsets are installed. Where possible, the EEMP and OEMP annual reports will also provide a comparative analysis of annual survey data relative to reference site conditions, pre-construction baseline conditions, and regional trends related to fish and fish habitat. This analysis is used to inform mitigation effectiveness and adaptive management as required.

As the construction phase of the Project approaches conclusion, a construction phase project effects assessment, or Synthesis Report, is intended to consolidate, analyze and assess all survey data collected as per metrics outlined in the EEMP and methods outlined in Standard Operating Procedures appended to the EEMP. This includes a detailed comparative analysis of annual survey data relative to reference site conditions, pre-construction baseline conditions, and regional trends related to fish and fish habitat. The Synthesis Report is anticipated to be a detailed analysis to support verification of construction-related project effects predicted in the Project's environmental assessment. This, in turn, would inform adaptive management in terms of additional mitigation measures during the operational phase of the Project.

Initial habitat offset installations are expected to begin as marine construction is approaching its conclusion. An as-built report will be produced to summarize all constructed marine infrastructure to determine whether revisions to the OEMP may be required prior to finalizing the habitat offset installation.

Annual OEMP reporting in years 1, 2, 3, 5 and 7 begins after the habitat offsets are installed to assess habitat function as per metrics outlined in the OEMP, which again inform adaptive management as required. Subsequent synthesis reporting is anticipated once habitat offsets are deemed functional,

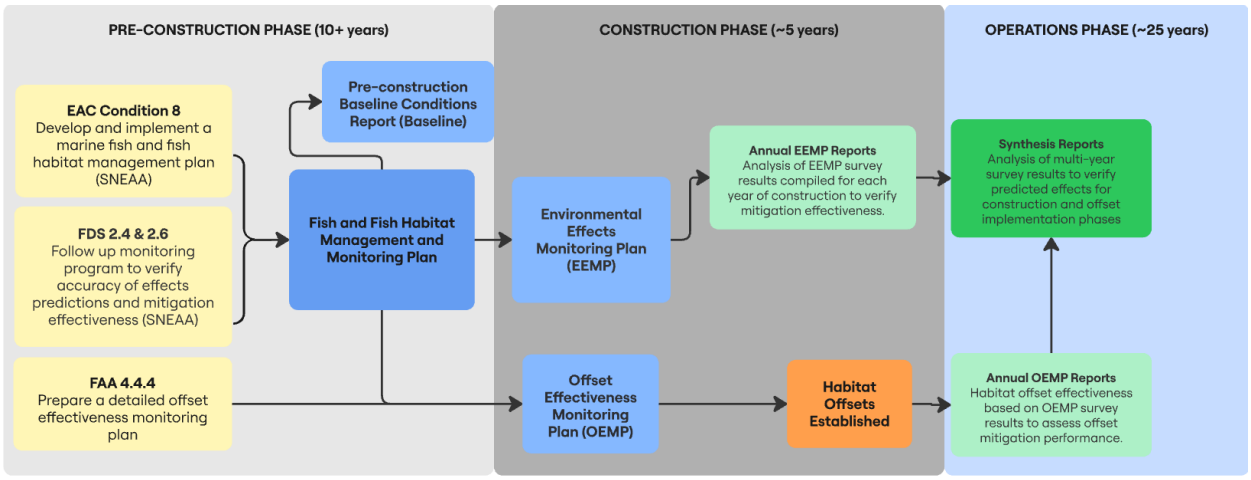


Figure 1-3 Relationship between regulatory conditions, implementation plans, and reporting requirements overseen by the TAC.

1.3 Objectives

The objective of this report is to present the results of the implementation of the first year of the EEMP. The EEMP is based on a Before After Control Impact (BACI) approach but is modified in two key ways. First, the "after" period consists of three different treatments: a construction period, an offset implementation period, and an operations period. Each of these would impose different sources or intensities of potential environmental effect pathways. Pre-construction baseline data is compiled in the MFFH Pre-Construction Baseline Report (Keystone Environmental Ltd. 2024b). Second, the monitoring design in the EEMP was refined after the commencement of Project construction. Accordingly, the data being collected through the refined EEMP, initiated in 2024, may not be available in the pre-construction baseline data collected until November 2023. This applies to various topics in terms of data collection frequency, methodology, and in the case of control (reference) sites, locations of data collection. Regardless, the discrepancies are accounted for in the analytical approach and interpretation of results. The overlying objective of the EEMP is to provide annual and eventually final conclusions on Project-induced changes to KPIs through Construction and Operations, after accounting to the extent possible for regional trends. As such, priority on data collection going forward has been emphasized.

In general, hypotheses posed in the EEMP acknowledge that pre-construction conditions within the Project area were influenced by legacy pulp mill operations and that prior to and during the construction phase of the Project, Woodfibre LNG has been reclaiming and remediating these legacy impacts. In addition, habitat offsetting is planned within the Project area to further improve fish and fish habitat.

This monitoring report is the first report of a series of annual reports that document the conditions in the CPA and reference sites in the construction phase. In consideration of the construction schedule for the Project at this time, it is anticipated that two more annual reports for the construction phase of the Project will be prepared. Each annual report will present the results of the EEMP for their respective years. Additionally, the annual reports will provide a comparison with the results documented in previous years. As data collection continues, detection of patterns and trends in fish and fish habitat conditions are anticipated if trends are occurring and exceed the statistical power of the study design.

This report is organized based on KPIs. Sampling methods and respective results and discussions have been presented independently for each KPI.

1.4 Study Area

Woodfibre LNG has undertaken numerous baseline environmental studies during the Project's pre-construction phase between 2013 and 2023, which document marine fish and fish habitat within the CPA and also at off-Site reference locations. During the development of the EEMP, the PPIA was defined to support sampling and survey design to ensure potential project effects were adequately accounted for (**Figure 1-2)**.

The boundaries of the PPIA are within the CPA (**Figure 1-1)** and are derived from the assessment of potential Project effects (as described in the Project's Aquatic Effects Assessment, Keystone Environmental 2023) that relate to fish and fish habitat, and encompass the following smaller impact areas:

- Water Quality Impact Area - based on the distance from in-water works with the potential to change water quality (e.g., shoreline works) where water quality criteria must be met.

- Underwater Noise Impact Area (for fish) – based on compliance with underwater noise criteria within 10 metres (m) from a sound source.
- Structure Footprints/Fish Passage and/or Shading Impact Areas- impacts to fish habitat defined by the structure footprints. Impacts to fish passage and/or impacts from shading are also within the footprints of the structures.
- Fish Passage Impact Area also included Mill Creek up to the barrier to fish passage (approximately 415 m upstream from the Howe Sound Confluence).

The PPIA was developed as an exercise to ensure that adequate impact sampling locations existed within the EEMP. As shown on **Figure 1-1**, the CPA sample sites are inclusive of the PPIA. For each KPI, sample sites within the CPA were selected as the "impact sites" while sample sites outside the CPA were selected as the "reference sites". The PPIA is predictive and may be updated in subsequent years as further sampling data is collected to account for realized project effects to fish and fish habitat. To assist with the comparison to baseline data, sampling locations were also selected to be consistent with previous baseline studies conducted for the Project (from 2013 to 2023). As a result, some "impact" sampling locations are located within the CPA, but outside the PPIA as defined on **Figure 1-1**.

For consistency across all surveys, the CPA will be considered the primary study area for the initial detection of any project-related impacts for all KPIs. If a potential effect is identified in comparison to reference sites, further analysis will be required to determine the cause and the location of the effect in relation to the Project construction activities.

2. METHODS, RESULTS AND DISCUSSION FOR EACH KPI

Methods, results, discussion and recommendations for each KPI are provided in the below sections. Additional details on sampling methodology can be found in the MFFH EEMP (Keystone Environmental 2024a). **Table 2-1** presents a summary of potential project effects derived from the Project's *Fisheries Act* Authorization, the EEMP and the KPIs defined for each, in addition to the relevant sections of this report.

Table 2-1 Summary of Metrics and Related KPIs

Metric (from FAA and EEM)	KPI/Variable		Report Section
Pelagic Waters			
Primary Metric			
Change in fish behaviour - Pacific herring (*Clupea pallasii*) spawning	KPI 1a	Pacific herring spawn intensity - spawn area - Horizontal Spatial Distribution	**Section 2.1**
	KPI 1b	Pacific herring spawn intensity - average quadrat spawn percent coverage (mean across PPIA) - with qualitative layer metric included.	
	KPI 1c	Pacific herring spawn intensity - Spawn Vertical Distribution	
Change in fish abundance - presence and migration through PPIA	KPI 2a	Pacific Herring Catch per unit [Beach Seine and Purse Seine] area	**Section 2.2**
	KPI 2b	Juvenile salmonids Catch per unit [Beach Seine and Purse Seine] area (overall and for each salmonid species captured)	
	KPI 2c	Forage fish Catch per unit [Beach Seine and Purse Seine] area	
	KPI 2d	Pelagic fish Catch per unit [Beach Seine and Purse Seine] area	
Mill Creek			
Primary Metric			
Change in fish behaviour - salmon (*Oncorhynchus spp.*) spawning in Mill Creek	KPI 3a	Spawner counts (pink salmon, chum salmon and coho salmon) and the area-under-the curve estimation method	**Section 2.3**
	KPI 3b	-Fyke net catch per unit Effort (Juvenile outmigration) -Minnow trap Catch per unit Effort (Juvenile salmonid and resident species habitat use) and -Electrofishing Catch per unit Effort (Juvenile salmonid and resident species habitat use)	
Invasive Species			
Primary Metric			
Introduction of invasive species from ballast water exchange	KPI 4a	Sessile Invasive Species Counts	**Section 2.4**
	KPI 4b	Catch per trap Effort of European green crab (Carcinus maenas)	

2.1 KPI1: Change in Fish Behaviour – Pacific Herring Spawning

The potential for adverse effects to herring habitat use during construction or operation phases arises due to various activities that may impede the availability or quality of spawning habitat. The potential for positive project effects to habitat are also intended through the creation of additional spawning habitat through project design (e.g., additional hard substrate created as part of the shoreline works), as well as extensive marine habitat offsetting works focused on herring spawning, at the late stages of construction or early operation. Offsetting-specific monitoring details are addressed in the OEMP (Keystone Environmental Ltd. 2024c), in part to satisfy the Project's *Fisheries Act* Authorization. Whereas the OEMP will document the specific performance of the offsetting habitat, the EEMP is structured to encompass the full suite of potential

effects (adverse or positive) through construction and operations: in this way, the OEMP is nested within the EEMP. It is the TAC's collective intention that the net result of individual pathways on herring spawning is positive: habitat quantity and quality will be definitively improved, with actual usage by herring beyond Project control. This overall context is embedded into the study objective and hypothesis below.

Study objective: To assess potential changes in Pacific herring habitat use of the CPA for spawning and identify trends (if any) from pre-construction, construction and into operational phases.

Hypothesis: Herring spawn intensity within the CPA remains within the historical range of natural variation[1] and shows a sustained net gain during the life of the Project when compared to reference sites and within Howe Sound generally.

KPIs: Three KPIs have been defined to detect potential changes in Pacific herring spawning:

- **KPI1a**: Pacific Herring Spawn Intensity – Spawn Area – Horizontal Spatial Distribution
- **KPI1b**: Pacific Herring Spawn Intensity Average Quadrat Spawn Density (Mean Across CPA) – with Qualitative Layer Metric Included
- **KPI1c:** Pacific Herring Spawn Intensity – Spawn Vertical Distribution

2.1.1 Methods

To evaluate the established KPIs for Pacific herring spawning, bi-weekly Self-Contained Underwater Breathing Apparatus (SCUBA) surveys were conducted by KEL in the CPA between February 16 and June 18, 2024 (**Figure 2-1**). SCUBA surveys were not conducted at reference sites in 2024. Modifications to the survey methodology to include assessment of reference sites were made in later revisions to the MFFH EEMP, which was finalised after the completion of the 2024 surveys and will be implemented in 2025 (see **Section 2.1.3**). The survey team consisted of three Keystone Environmental WorkSafeBC-certified commercial diver biologists (R.P Bio) and one boat operator.

SCUBA surveys included two stages:

- **Distribution Mapping** – This stage included SCUBA surveys to identify and map the presence/ absence and distribution of Pacific herring spawn horizontally along the shoreline within the CPA.
- **Detailed Data Collection** – If Pacific herring spawn was observed in the first stage, detailed data was collected at the observation sites, using a transect and quadrat-based approach.

[1] Natural variation to be defined using the MFFH Pre-Construction Baseline Report (Keystone Environmental, 2024b) and/or regional data (e.g. herring surveys conducted by MSI)

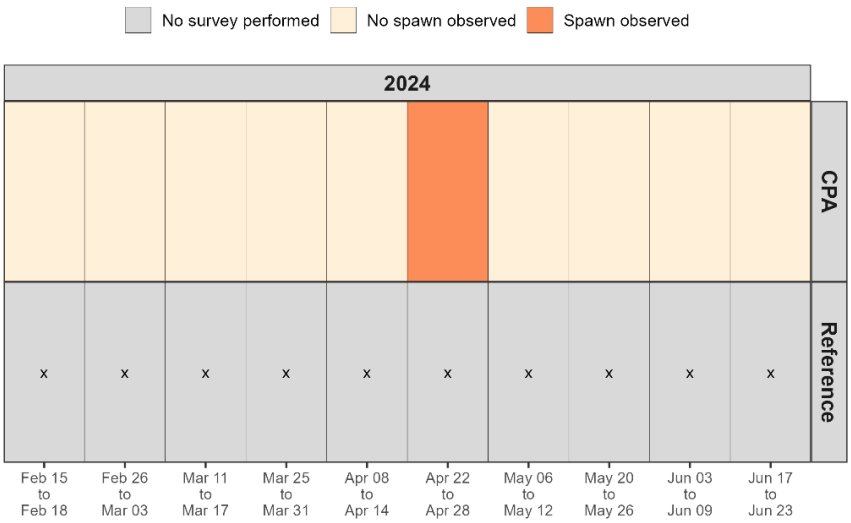


Figure 2-1 Bi-weekly Pacific herring spawn survey coverage and spawn observations. Surveys of reference sites will begin in 2025.

2.1.1.1 Distribution Mapping

Distribution mapping was completed by a pair of divers swimming throughout the entire survey area to map spawn presence and distribution, while the third diver acted as tender and supervisor on board the vessel. For each survey, the entire length of shoreline within the CPA was surveyed[2], including up to 20 m upstream of Mill Creek and Woodfibre Creek (**Figure 2-2**), if safe access was possible (due to ongoing construction activities within the CPA). Along with herring egg mass identification, divers also recorded the locations of incidental observations of marine fish and fish habitat use – this includes, but is not limited to, lingcod egg masses based on baseline knowledge of CPA habitat.

The divers swam in a sinuous pattern from the water's surface to a maximum lower depth of approximately -10 m chart datum (CD). Typically, one diver covered the lower depth range while the other diver covered the upper depth range, with some overlap between divers to ensure adequate coverage.

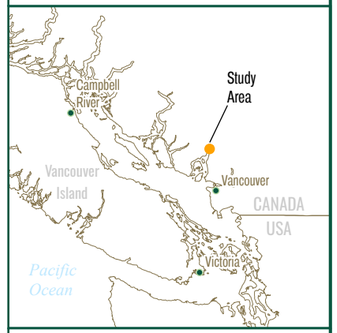
When either diver identified the presence of herring spawn within the survey area, they recorded the general location, elevation, and spawning substrate on an underwater slate. When any of the divers identified the presence of eggs, the diver surfaced and indicated to the dive tender (onboard the dive vessel) the presence of either herring spawn or incidental observations such as lingcod egg masses. The dive tender mapped the location of the observation using a handheld Global Positioning System (GPS) unit or relative to permanent infrastructure along the shoreline. In the case of herring spawn, the location of egg presence along the shoreline was mapped. The divers then continued swimming along the shoreline and notified the dive tender of the end of that section of spawn such that the start and end points of any areas of herring spawn were identified linearly along the shoreline within the survey areas. Once the start and end points had been mapped, the divers would continue swimming throughout the survey area until the entire length of the shoreline was surveyed.

[2] Shoreline survey also includes any fixed marine infrastructure within the CPA, subject to safety constraints. In mid-2024, a cruise ship (the "Floatel") was moored at site as fixed infrastructure for the duration of Construction. Time of arrival in 2024 rendered the Floatel irrelevant for herring spawn surveys in 2024.

2024 Pacific Herring Egg Mass Survey Sites and Horizontal Spatial Distribution

Legend

- Lingcod Egg Masses
- Herring Spawn Density and Vertical Distribution Transects
- Herring Spawn (147 m), April 25, KEL
- Herring Spawn (1650 m), April 13, MSI
- Horizontal Spawn Distribution Survey Sites



N

0 0.5 1 1.5 km

NAD 1983 UTM Zone 10N

Data sources: GeoBC, LGL Limited

Certified Project Area (CPA) was fully surveyed by Keystone Environmental Limited (KEL) in 2024. Reference Sites were added after 2024 surveys by KEL. Reference 1 was fully surveyed, and Reference 2 was partially surveyed by the Howe Sound Marine Stewardship Initiative (MSI) and are included on this figure to present all available regional data for 2024 in evaluation of KPI1. Detailed MSI data are available on the Átl'ka7tsem/Howe Sound Marine Reference Guide.

Project Code EA4577	**Date** 2025-03-19
Figure 2-2	**Scale** 1:40,000
Project Manager CN	**Prepared by** JN

LGL Est. 1971 LIMITED

LGL Limited 2025-03-19 Julio Novoa W:\EA4577_WLNG\Maps\EA4577.aprx\2024 Pacific Herring Egg Mass - 11x17 in\

2.1.1.2 Detailed Data Collection

Detailed data collection occurred within sections where herring spawn were observed during the distribution mapping stage. For the detailed data collection stage, within the area where eggs were present, the divers installed transects perpendicular to the shoreline. The starting point of each transect was mapped with a handheld GPS or relative to a permanent landmark. An ad-hoc sampling design was employed to select transect locations within the section where spawn was observed. Safe access was also a consideration (e.g. there was limited safe access to spawn in areas of vertical bedrock at low tide). The EEMP (Keystone Environmental 2024a) specifies that 1-2 transects be placed within each section where spawn was observed. As such, two transects were placed within the approximately 22 m southernmost section of the survey area where spawn was observed (**Figure 2-2**).

To assess Pacific herring spawn vertical distribution, the lengths of the transects perpendicular to shore covered the full vertical extent of the egg spawning mass from the upper to lower elevation range. In addition to collecting the vertical distribution of spawn at each transect, habitat attribute data were collected using quadrats. Along each transect, 0.5 m^2 quadrats were evenly distributed across the vertical extent of the spawn and placed on the left and right sides of the transect tape. At each quadrat, the diver recorded the time, transect number, position along the transect, depth (m), elevation (m CD), substrate type, vegetation percent cover and species, egg percent cover on both substrate and vegetation (if present), the number of egg lays, and egg viability. Photos were also taken of quadrats. Substrate categories were adapted from Wentworth (1922).

2.1.1.3 Sampling Locations and Timing

Dive surveys were conducted in the CPA between mid-February and mid-June, at a frequency of approximately once every two weeks, on February 16, March 1, March 13, March 27, April 12, April 26, May 8, May 21, June 5, and June 18, 2024 (**Figure 2-1**).

The entire length of the shoreline within the CPA was surveyed as the impact site, including up to 20 m upstream of the mouth of Mill Creek and up to the tree drip line on the south side of Woodfibre Creek.

SCUBA surveys were not conducted by Project personnel at reference locations during the 2024 monitoring year[3].

2.1.1.4 Data Analysis

Average Spawn Density within CPA spawning areas (i.e., average percent cover within spawn areas) was calculated. First, for each transect segment within a transect, left and right quadrat values were averaged together to generate an average and standard error estimate. Segment-specific estimates within a transect were averaged together. Finally, transect-specific estimates were averaged, and errors were appropriately combined to produce an estimate of the average spawn density within the spawning area. In total, there were 26 quadrats (transect 1: n=12; transect 2: n=14) sampled in the spawn area.

[3] Modifications have been made to the dive survey methodology that will be implemented in 2025 and thereafter, which included the addition of reference sites shown on **Figure 2-2.**

The Spawn Vertical Distribution was defined as the difference between the upper elevation of spawn (m CD) and the lower elevation of spawn (m below CD). To generate an average estimate within the spawn area, the vertical elevation range was first determined for each transect and then averaged across transects.

The average Spawn Vertical Distribution was determined as a weighted average of the vertical distribution recorded for each transect in the CPA (i.e., n=2 transects) as follows. Within each transect, the segment-specific total coverage (percent cover) estimate was generated by averaging left and right quadrats at each distance along the transect. Then, segment weights were determined as the segment coverage divided by the sum of segment coverages expressed as a proportion (e.g., if each segment had the same coverage, then each segment would be given an equal weighting, whereas segments with higher percent coverage estimates would be given more weight). The segment weight was then combined with the corresponding depth measurement (i.e., m CD) to generate an average spawn vertical elevation range estimate for each transect. Transect-specific estimates were then averaged, and errors were appropriately combined to generate the CPA average.

Finally, elevation specific estimates by spawn coverage type (i.e., coverage on macroalgae, coverage on substrate were determined for each transect by first averaging the coverage in the left and right quadrats, then averaging any segments within a transect that had the same elevation (m CD) measurement. Finally, the transect-specific estimates were averaged to produce the overall CPA average. Errors were appropriately combined following the same ordering.

2.1.1.5 Supporting Data

In consideration of broader regional herring spawn monitoring in Howe Sound, Woodfibre LNG sought in 2024 to align data collection with regional efforts by other parties. Specifically for 2024, this included communication and coordinated field effort with the Howe Sound Marine Stewardship Initiative (MSI), as well as a general commitment to periodically review regional publications for relevant supporting data.

While EEM dive surveys in reference sites did not commence in 2024, comparable surveys were carried out by MSI in two reference sites that will be used in subsequent years of this EEMP. The MSI data retrieved from Átl'ka7tsem/Howe Sound Marine Reference Guide (MSI 2024a) are incorporated into the 2024 results (see **Figure 2-4**).

In addition, as part of the beach seine program to assess KPI2 (see **Section 2.2),** incidental observations of herring spawn were collected at beach seine sampling sites.

Collectively, the MSI and incidental Keystone data did allow for qualitative results in or in proximity to the reference sites in 2024.

2.1.2 Results and Discussion

A total of ten herring spawn surveys were completed within the CPA in 2024. Two distinct occurrences of spawn were observed (April 26, 2024). These occurrences were observed south of Woodfibre creek (**Figure 2-2**). While the horizontal distribution of the observed spawn was continuous (147 m), it is noted as two distinct spawn occurrences as eggs were deposited at different times, as discussed further below.

Spawn was primarily observed on rockweed (*Fucus distichus*), boulder, and bedrock in the lower intertidal (0.5 m to 1.8 m CD) and sugar wrack kelp (*Saccharina latissima*) in the shallow subtidal. Representative photographs are provided in **Appendix A.**

Horizontal Spatial Distribution - The first observed occurrence of Pacific herring spawn was within the CPA, but outside of the PPIA, approximately 240 m south of Woodfibre Creek and extended south for approximately 125 m (**Figure 2-2).** Spawn in this area was observed on a narrow band of sparse (<25% coverage approximate) sugar wrack kelp in the shallow subtidal zone (**Photograph A1).** Eggs in this section had already hatched at the time of the survey, therefore, detailed data collection was not possible. Spawning had likely occurred shortly after the previous dive survey on April 12. It is expected that the bi-weekly methodology may occasionally encounter such results based on variability in egg incubation time[4]. Based on qualitative observations of the dive team, the density of the spawn on the kelp was sparse (5-25% coverage) and one layer thick.

The second observed occurrence of Pacific herring spawn began approximately 365 m south of Woodfibre Creek, starting 22 m north of the southwest boundary of the CPA and extending further south outside of the CPA (**Figure 2-2**). Eggs observed in this section primarily occurred on rockweed growing on bedrock and boulder substrate and appeared to be recently deposited **(Photograph A2)**. Two transects were placed in this area, and detailed data was collected in this southernmost 22 m section of Pacific herring spawn (**Figure 2-2**). Transect 1 was placed at the northern limit of this spawn. Transect 2 was located just outside of the CPA as the detailed information was collected at low tide, and safe access points were limited along the steep bedrock shoreline.

Spawn Intensity - In the detailed quadrat surveys, eggs appeared to be clear and recently spawned with 1 to 3 layers of eggs observed. Overall, the average Spawn Intensity (percent cover) within the observed spawn area was 8.29% (95% CI: 4.98% to 11.60%). This can be used as the basis of KPI1b Average Quadrat Spawn Intensity when comparing spawn in the CPA (inclusive of PPIA) to the reference area. Because reference areas were not sampled in 2024, further comparison could not be performed.

Spawn Vertical Distribution – Pacific Herring spawn was observed between 0.5 m and 1.8 m CD. The average Spawn Vertical Distribution between the two transects was 0.8 m (however, spawn depth occurred at slightly different depths for the two transects (Transect 1: 1.3 to 0.5 m CD; Transect 2: 1.8 to 1 m CD)) (**Figure 2-3**). It is likely that Pacific Herring spawn cover is relatively higher on macroalgae than on bedrock and peaked between 1.0 m and 0.6 m above CD on both substrates. The average Spawn Vertical Elevation was 1.03 m CD (95% CI: 0.60 m to 1.47 m). Detailed transect and quadrat data are provided in **Appendix B**. Photographs of each quadrat are provided in **Appendix C.**

[4] Herring eggs typically hatch 2 to 3 weeks post spawning dependent on water temperature (between 5 to 9 ºC), with warmer temperatures resulting in short incubation time (Fort et al. 2013). Water temperature recorded on April 12 and 26 was 8-9 ºC (**Appendix B**) suggesting an incubation time around 14 days.

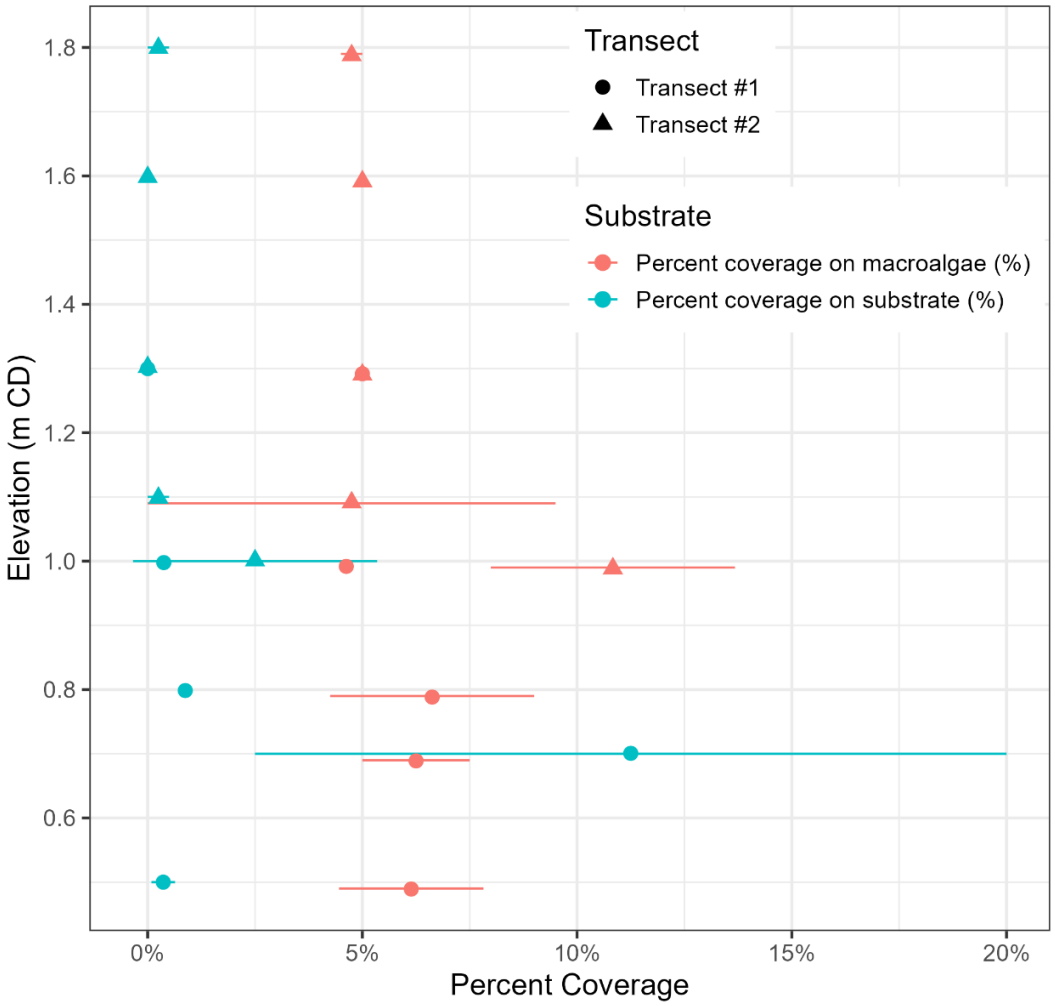


Figure 2-3 **Pacific Herring spawn percent coverage and vertical distribution of the April 26, 2024 spawn event.**

Other Observations

Pacific herring spawn was observed on April 18 and May 2, 2024, during the beach seine sampling program at the BS-SR reference site. At this location, Pacific herring spawn was observed on rockweed growing on bedrock substrate (**Photograph A3**). BS-SR is located approximately 500 m south of the CPA boundary and 800 m north of Foulger Creek, which is noted in the baseline report (Keystone Environmental 2024b) as a high-density herring spawn area in proximity to the CPA based on regional surveys completed by MSI. BS-SR is located approximately 100 m north of the proposed start location of Reference site 1 where sampling will begin in 2025 (**Figure 2-4**).

2.1.2.1 Regional data and comparison to previous years

Figure 2-4 shows Pacific herring spawn distribution in the northern region of Howe Sound from 2021 to 2024. Data for 2021 to 2023 is based on MSI surveys (2024a), while data for 2024 shows combined findings from KEL surveys (this study, see **Figure 2-2)** and MSI (2024a).

In 2024, herring spawn was documented on 147 m of shoreline within the CPA survey area (this study). MSI observed Pacific herring spawn along the same stretch of shoreline in 2021 which was approximately equal in length (**Figure 2-4**). MSI (2024a) documented 1650 m of shoreline herring spawn at Reference site 1 (south of the CPA), and 0 m of shoreline herring spawn at Reference site 2 (north of the CPA, **Figure 2-4**).

From 2021 to 2023, spawning at Reference site 2 has been inconsistent, with MSI only documenting spawn in 2021. At Reference site 1, more consistent spawning has been observed. In addition to 2024, MSI data shows extensive spawn from 2021 to 2023 (**Figure 2-4**).

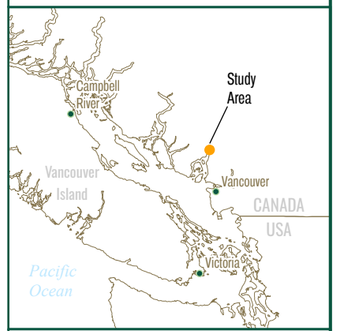
2021-2024 Pacific Herring Spawn Distribution in Northern Howe Sound

Legend

- Horizontal Spawn Distribution Survey Sites

Survey Year

- 2021
- 2022
- 2023
- 2024



N

0 0.5 1 1.5 km

NAD 1983 UTM Zone 10N

Data sources: GeoBC, LGL Limited

Data for 2021-2023 shows herring spawn distribution from the Howe Sound Marine Stewardship Initiative (MSI) retrieved from the Átl'ka7tsem/Howe Sound Marine Reference Guide. Data for 2024 shows combined herring spawn distribution from KEL surveys (this report, see Figure 2-2) and MSI data retrieved from the Howe Sound Marine Reference Guide. Lines that follow shoreline topography show precise spawn distributions, while straight lines (near the Squamish River estuary and the shore near Murrin Park) denote patchy spawn within the noted region.

Project Code EA4577	**Date** 2025-03-19
Figure 2-4	**Scale** 1:40,000
Project Manager CN	**Prepared by** JN

LGL Est. 1971 LIMITED

2.1.2.2 KPI1 Statement

Consistent with the hypothesis for KPI1, it is believed that Pacific herring spawn horizontal spatial distribution (KPI1a) within the PPIA remains within the historical range of natural variation at this site. However, there is insufficient information to determine how spawn intensity (KPI1b) and vertical distribution (KPI1c) compare to previous years because this is the first year that these data were collected per the EEMP, and the reference sites were not surveyed because they were added to the EEMP after the Pacific herring surveys were completed. Of the seven years that baseline surveys have been conducted in the CPA (2015, 2016, 2019, 2020, 2021, 2023 and 2023), there have been variations in survey frequency, and spawn intensity and vertical distribution were not consistently reported in all surveys (Keystone Environmental Ltd. 2024b). Preliminary analysis of trends for KPI1b and KPI1c are expected next year in the 2025 annual report with further consideration in the synthesis report after construction is completed.

2.1.3 Recommendations

As per recommendations from the TAC, starting in 2025, Pacific herring dive surveys will be conducted every two weeks within the CPA and at two reference sites. In addition, Pacific herring spawn distribution mapping will increase its survey coverage from 20 m to 50 m upstream of Mill Creek and Woodfibre Creek confluences. During the 2024 monitoring program, Woodfibre Creek was not consistently accessible by divers due to tidal elevations and/or high-water flows at the time of the surveys. The modified 2025 methodology proposes that divers remove their SCUBA gear and walk the proposed 50 m stretch from the confluence if the upstream portions of the survey area within either creek are not accessible.

The above-recommended revisions to the methodology have been captured in Revision 3 of the EEMP (dated July 17, 2024) and Revision 3 of the SOP (dated July 5, 2024). No further revisions to the survey method are recommended at this time.

2.2 KPI2: Change in Fish Abundance – Presence and Migration Through PPIA

The potential for adverse effects on fish abundance during the construction or operation phases arises due to various activities that may affect fish passage and result in alteration of migration patterns, changes in access to habitats or increased opportunities for predation. Four sub-KPIs for KPI2 have been established to assess the relative abundance of four main fish groups: Pacific herring, juvenile salmonids (*Oncorhynchus spp.*), Forage fish (e.g., surf smelt [*Hypomesus pretiosus*], sand lance [*Ammodytes hexapterus*], Northern anchovy [*Engraulis mordax*]) and Pelagic fish. The establishment of these groups is based on focal groups identified in the Project's environmental assessment.

Although minor changes in fish passage through the Site may occur such as swimming around structures (e.g. around the MOF or FST terminal) or fish holding temporarily due to shading from overhead structures, it is the TAC's collective intention that the net result of individual pathways on fish abundance is neutral. Adverse effects are expected to be avoided by the implementation of mitigation measures outlined in the MFFHMMP and marine habitat offsetting works focused on improvements to fish passage. This overall context is embedded into the study objective and hypothesis below.

Study objective: To assess potential changes in abundance of Pacific herring and other marine fish species groups (i.e., juvenile salmonids, forage fish and pelagic species) in CPA from pre-construction, construction and into operational phases

Hypothesis: Pacific herring, juvenile salmonids, Forage fish and Pelagic fish species relative abundance within the CPA remains within the historical range of natural variation[5] during the life of the Project when compared to reference sites and within Howe Sound generally.

KPIs: Four KPIs have been defined to detect potential project effects on fish abundance:

- **KPI 2a**: Pacific herring catch per unit effort (in Beach Seine and Purse Seine) in the study area,
- **KPI 2b**: Juvenile salmonids catch per unit effort for each salmonid species captured (in Beach Seine and Purse Seine), in the study area
- **KPI 2c**: Forage fish catch per unit effort (in Beach Seine and Purse Seine) in the study area
- **KPI 2d**: Pelagic fish catch per unit effort (in Beach Seine and Purse Seine) in the study area

2.2.1 Methods

Two sampling methods were used to evaluate the established KPIs for fish abundance. Bi-weekly beach seining and purse seining were conducted between February 20, 2024, and July 24, 2024. While beach seining is preferential to target demersal fish and age-0 juvenile salmonids in the shallow nearshore areas of the CPA, purse seines can better target offshore schooling fish such as herring or salmonids species that transit through the CPA.

2.2.1.1 Beach Seining

Beach seining was conducted per methods outlined in the EEMP (Keystone Environmental 2024a). The beach seine net used was 15 m long and 3.5 m deep (total sampling area of 52.5 m^2) with a bunt size mesh of 0.1 cm and a wing mesh size of 0.3 cm. The net was weighted on the bottom (lead line), and the top was supported with floats (float line). A 4 m bridle was attached to each end of the lead and float lines on the net. A 25 m haul line was attached to each bridle. A propellor-driven boat (approximately 5 m long) with a centrally mounted tow post on the bow and stern was used to complete each beach seine set.

Each beach seine sampling event was completed with a crew of four Keystone Environmental biologists and one boat operator. Two consecutive sets (i.e., beach seine deployments) were completed at each sampling location. Each beach seine set was conducted by deploying the net approximately 20 m offshore with the boat, with one end of the net's haul line held at a stationary point on shore. One person remained on the boat to ensure that the net was pulled out in the proper orientation (i.e., the lead line on the bottom, float line on the surface, no tangles or twists in the net). Once the entire net was pulled from the boat, the boat operator turned parallel to shore creating a sweeping arc that aimed to encircle fish. The other end of the haul line was secured to the centrally mounted tow post. Once the arc was created, the boat "nosed" into the shore and the biologist on board transferred the haul line to a second biologist waiting on shore. The biologists on shore pulled the haul lines simultaneously, keeping the wings of the net parallel. Once the net was pulled into an appropriate depth (approximately equal to the depth of the net), a third biologist pulled the lead line in simultaneously, being sure to keep the lead line flush with substrate to not allow fish to escape under the net.

Captured fish were retained in an oxygenated bucket of marine water. To avoid re-capture, fish collected from the first set were retained during the second set. Fish identification and enumeration occurred upon completion of both sets. All fish captured during sampling activities were identified and enumerated by

[5] Natural variation to be defined using the MFFH Pre-Construction Baseline Report (Keystone Environmental, 2024) and/or reference sites and/or trends observed in data collected during construction and operational phases.

species and life stage. Fork length (mm, or total length for species without a forked caudal fin) and weight (g) were recorded. In the event of a high yield (>100 individuals per species), a subsample of 10% for each species was measured and weighed. The number of remaining fish for each species present in the set was counted.

2.2.1.2 Purse Seining

The purse seine net used was 36 m long and 5 m deep (total sampling area of 180 m^2) with a bunt size mesh of 0.3 cm and a wing size mesh of 1 cm. The net was weighted on the bottom (lead line), with pursing line that runs through rings attached to the lead line, and the top was supported with floats (float line). A 25 m haul line was attached to each end of the seine. A propellor-drive boat (approximately 5 m long) with a centrally mounted tow post on the bow and one landing craft style boat (approximately 10 m long) were used to complete each purse seine set.

Each purse seine sampling event was completed with a crew of four Keystone biologists and two boat operators. Two consecutive sets (i.e., purse seine deployments) were completed at each sampling location. Each purse seine set was conducted by deploying the net off the bow of the landing craft (boat 1). The smaller boat (boat 2) received one end of the haul line from the crew on boat 1 and pulled the entirety of the net from the bow into the water. Once the entirety of the net was in the water, boat 2 would turn and pull the net into an arc shape, bringing the ends of the net together on boat 1 in a semi-circle formation. Once the net was set in this formation, it was closed at the bottom via the purse line and gradually pulled into the boat to concentrate captured fish into the bunt.

The procedure for fish processing closely followed the methods used for beach seining (**Section 2.2.1.1**). However, weight (g) measurements were not conducted due to the inherent challenges of obtaining accurate scale readings on the boat. Unlike beach seining, where processing was conducted onshore at a stable station, purse seining required fish to be processed aboard the vessel, where wave action and boat motion compromised the precision of weight recordings.

2.2.1.3 Sampling Locations and Timing

Beach seining and purse seining were conducted at five locations within the CPA and three reference locations outside of the CPA (**Figure 2-5**). Purse seine locations mirrored beach seine locations but were approximately 150 m offshore. Sampling locations were consistent with previous baseline studies conducted within and adjacent to the CPA (Keystone Environmental 2024b).

During the 2024 beach seine and purse seine sampling, the sample location of BS-5 was slightly adjusted as a result of changes in site conditions due to ongoing construction activities. On April 4, 2024, the location of BS-5 was adjusted, with the updated location approximately 100 m west (**Figure 2-5**) of the previous location. This adjustment was made due to changing site conditions from shoreline construction works. Recently placed riprap in the intertidal zone at the original location of BS-5 resulted in a steep riprap slope with large boulder-sized substrate. The adjusted location had a gentler slope that allowed safer access for the field crew. Primary habitat characteristics (riprap with rockweed) were consistent between the original and updated locations.

Eleven beach seine and purse seine sampling events occurred bi-weekly between February 20, 2024 and July 12, 2024 (**Figure 2-6, Figure 2-7)**. Each bi-weekly sampling program consisted of 4 days of sampling: two consecutive days of purse seining followed by two consecutive days of beach seining. However, in three instances, beach seining was not possible:

- On April 18, 2024, and May 2, 2024, BS-SR was not sampled due to the presence of herring eggs (see discussion in **Section 2.1.2)**
- On May 17, 2024, BS-4 (located at barge ramp) was not sampled due to barge activity (no access).
- On June 14, 2024, BS-AR was not sampled due to strong winds (Beaufort scale >3).

2.2.1.4 Data analysis

At each sampling site, catch per unit area (CPUA) was calculated for beach and purse seine catch data. CPUA for each sampling method was calculated for each group of fish (i.e., Pacific herring, juvenile salmonids, forage fish, and pelagic fish). On each survey, catch from both sets were combined and divided by the survey area (i.e., 52.5 m^2 and 187.2 m^2 for beach and purse seine respectively). As each site was sampled once on each bi-weekly period, CPUA values for sites within an area (i.e., CPA and reference) were averaged together to provide a bi-weekly CPUA estimate for each fish group by area. Error estimates for site-specific bi-weekly averages were also calculated based on the site-to-site variation in CPUA values. These estimates were used for all plots showing bi-weekly survey values.

Area specific differences (i.e., CPA versus reference) by fish group (i.e., Pacific herring, salmonids, forage fish, and pelagic fish) were determined by fitting linear models, then generating estimated marginal mean estimates (i.e., least square estimates) by gear type (i.e., beach seine and purse seine) (see Lenth 2024). This allowed for information to be combined across fish groups, improving estimate precision by area and fish group and allowing for improved statistical power to detect area specific differences by fish groups. Both linear and mixed effect models were considered, but a multivariate linear model was found to be sufficient as there was very little autocorrelation between bi-weekly CPUA values (i.e., under 10%), and as such, further accommodations for the repeated sampling structure were not needed.

A multivariate linear model was used to predict the site-specific fish group bi-weekly CPUA values as a function of the area where the site occurred (i.e., CPA or reference), the fish group being predicted and an interaction between area and fish group to allow for the possibility that CPUA values may vary differently within each area by fish group. This was repeated for each gear type (i.e., beach seine and purse seine) using the following general model formulation:

$$\textit{Bi-weekly Site CPUA} = \textit{Area} + \textit{FishGroup} + \textit{Area:FishGroup}$$

where *Bi-weekly CPUA* represents the observed bi-weekly CPUA by site and fish group, *Area* represents a fixed effect (i.e., average difference) between the CPA and reference areas, *FishGroup* represents the average CPUA difference between fish groups, and *Area:FishGroup* is an interaction term that represents fish group by site differences. The model was used to generate area specific estimates for each fish group using estimated marginal means (Lenth 2024).

Differences between area and fish group specific average CPUA estimates were then assessed using pair-wise contrasts, with adjusted p-values to control for family-wise error rate using Tukey's method. Statistically significant differences at the $\alpha = 0.05$ level between area and fish group specific estimates were indicated by compact letter display (Piepho 2004). This allowed for area specific estimates to be directly compared across all fish groups. Finally, as the model assumes a Gaussian error distribution (i.e., Normal), there were no constraints to enforce positive estimated CPUA values for 95% confidence intervals; as such, negative regions were not reported. This region is not a physically feasible response.

480600.000000 481200.000000 481800.000000 482400.000000 483000.000000 483600.000000

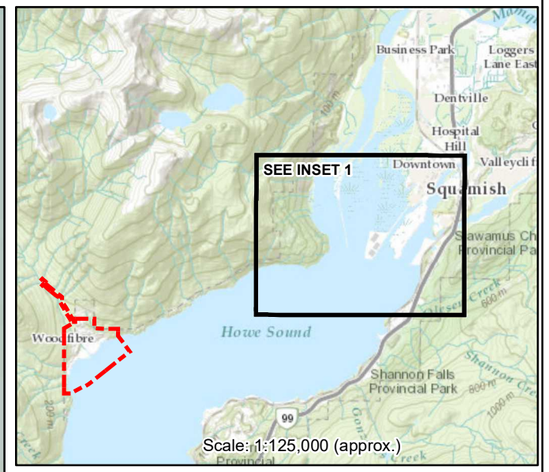
5502000.000000 5501600.000000 5501200.000000 5500800.000000 5500400.000000 5500000.000000

N

MILL CREEK

WOODFIBRE CREEK

BS-NR
PS-NR
BS-4
PS-4
BS-3
PS-3
BS-2
BS-5 (Initial)
BS-5 (Updated April 2024)
PS-2
PS-5
BS-1
PS-1
BS-SR
PS-SR



INSET 1

LEGEND

- POTENTIAL PROJECT IMPACT AREA
- CERTIFIED PROJECT AREA
- STREAM
- BEACH SEINE SAMPLING LOCATION
- PURSE SEINE SAMPLING LOCATION

Keystone Environmental

NOTES:
1. THIS DRAWING IS FOR GENERAL INFORMATION ONLY. LOT BOUNDARIES AND FEATURES ARE APPROXIMATE.
2. THE DATE OF AERIAL PHOTO IS 2020.

100 0 500 m

Scale: 1:10,000 (approx.)

Woodfibre
Squamish, B C
Woodfibre LNG Limited

REVISION No.	DATE	PROJECT No.
A	Feb. 2025	20327-104C

Figure 2-5
2024 Beach Seine and Purse Seine Sampling Locations

DRAWN BY: LW/CS/PY Document Path: I:\0-GIS\1-Projects\1-WLNG\GIS_CADD\18785\00104\2025_02Feb_AnnualReport\Fig2-5-SeiningSites-RA.mxd

2.2.2 Results and Discussion

Figure 2-6 and **Figure 2-7** illustrate bi-weekly purse seine and beach seine sampling effort and their overall fish capture distribution by total number of fish for each gear type in CPA and reference sites. For beach seine, the highest number of fish capture was observed from April 14 to 18 at BS-AR. Most beach seine hauls captured 10-99 fish. The number of hauls with "no catch" is observed to be higher in CPA sampling sites. For purse seine surveys, the highest number of fish capture was observed at PS-5 in late April 2024. Supplementary figures illustrating the beach seine and purse seine survey results can be found in **Appendix D** (**Figures D-1 to D-7**). Detailed site and fish capture data are presented in **Appendix E.**

Over the survey period, a total of 19 species were captured within the CPA and 11 species were captured at reference sites. Not all species were shared between CPA and reference sites. At CPA sampling sites, nine species[6] were captured that were not captured in the reference sites. Only one species (Pacific lamprey, *Entosphenus tridentatus*) was captured at the reference sites that were not captured in CPA sampling sites (**Appendix E**).

In beach seine surveys, the most common fish group captured across the CPA and reference sites was juvenile salmonids (**Figure 2-8**, **Figure 2-9**, **Figure 2-10**). In purse seine surveys, either juvenile salmonids or Pacific herring were the most abundant group captured (**Figure 2-8**, **Figure 2-9**).

High catches of some other non-target species occurred periodically throughout the sampling period. High numbers of threespine stickleback (*Gasterosteus aculeatus*) were captured on March 19-20, May 1 and May 29 in the purse seine. Sculpin spp (superfamily *Cottidea*) were consistently captured in the beach seine throughout the monitoring period (**Appendix E)**.

A high-level summary of the sampling results for each fish group is presented below.

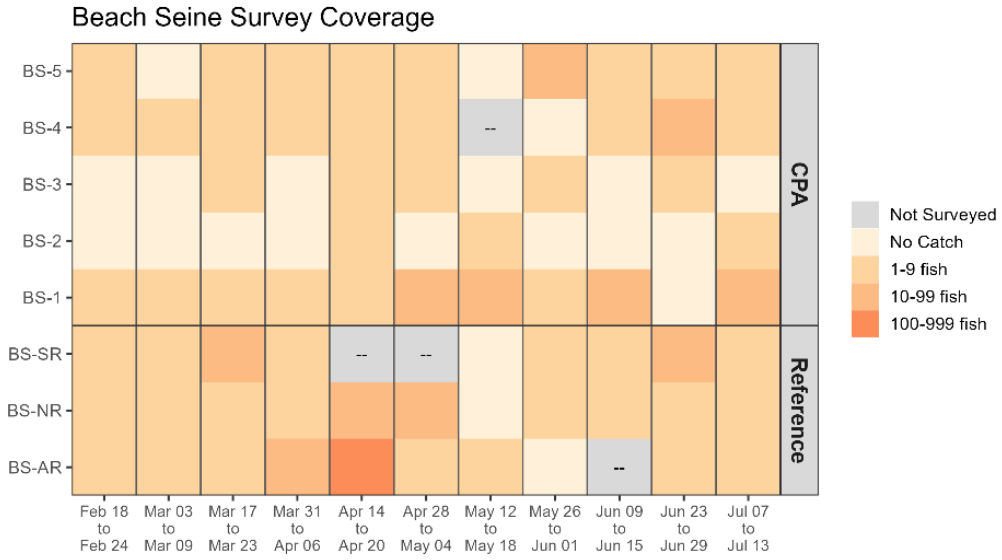


Figure 2-6 Bi-weekly beach seine survey coverage and overall catch in 2024.

[6] Nine species captured included: bay pipefish *Syngnathus californiensis*), coastrange sculpin (*Cottus aleuticus*), gunnel spp. (*Pholis* spp.), marbled snailfish (*Liparis dennyi*), pile perch (*Rhacochilus vacca*), prickly sculpin (*Cottus asper*), shiner perch (*Cymatogaster aggregate*), starry flounder (*Platichthys stellatus*) and striped perch (*Embiotoca lateralis*)

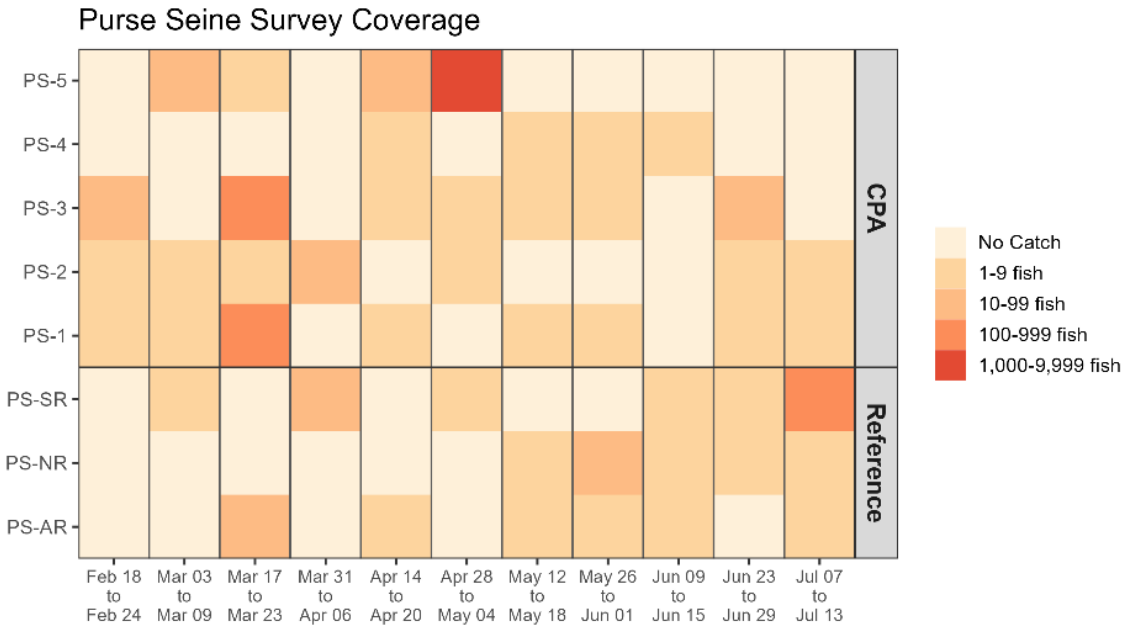


Figure 2-7 Bi-weekly purse seine survey coverage and overall catch in 2024.

Pacific Herring

Pacific herring capture showed a high level of variation between sites and over time (**Figure 2-8**). Pacific herring were first observed within the CPA on March 20th, 2024, at a purse seine site (**Figure 2-9**). However, they were not captured at beach seine sites until mid-May 2024 (**Figure 2-9**). Average annual CPUA for Pacific herring did not show a considerable difference between the CPA and reference sites in 2024 (**Figure 2-10**).

In purse seine surveys, all Pacific herring captured were adults, with the exception of a school of 99 juveniles that were captured at the reference site PS-SR on July 9, 2024.

In beach seine surveys, most herring captured were larvae, which were captured mid and late May and at the end of June. All Pacific herring larvae were captured within the CPA. Single adult Pacific herring were captured on three occasions (June 14 and June 24 at BS-SR and July 11 at BS-5).

Juvenile Salmonids

Salmonids were the most common group encountered across the survey area (**Figure 2-8**). Salmonid catches were all classified as juveniles and were dominated by pink and chum salmon in the early part of the sampling period from February to April, after which Chinook salmon became more common. Coho salmon were first encountered in April and became more common after mid-May (**Figures D-5 to D-7**). CPUA of juvenile salmonids were higher in the March-April 2024 period with their relative abundance being consistently higher in Beach seine at reference sites (**Figure 2-9**).

Salmonid CPUA was variable between sites and dates. It is believed that mean abundance is often influenced by high catches at a single site, as shown by the variable and sometimes large confidence intervals in **Figures D-5** and **D-6**. Average annual CPUA for salmonids was higher in the reference sites at beach seine sites but not at purse seine sites in 2024 (**Figure 2-10**).

Various life stages of salmonids were captured, dominated by fry in the early part of the sampling period (mid-February to April). After this period, young salmonids (parr and smolts) became more common (**Photographs A8 to A16)**.

Forage Fish

Forage fish contribution to the total beach seine catch in the CPA was the highest in the reference site beach seine in mid-April 2024 (**Figure 2-8** and **Figure 2-9**). Northern anchovy was the only species of forage fish (excluding herring) captured during the survey period. At reference sites, Northern anchovy were captured in low numbers periodically throughout the sampling window. Within the CPA, single fish were captured on three occasions (April 17, May 1, and May 29, 2024) (**Figure D-3**). Average CPUA for forage fish did not considerably differ between the CPA and reference sites in 2024 (**Figure 2-10**).

Both adult and fry Northern anchovy were captured over the monitoring period. In purse seine surveys, all anchovy captured were adults (**Photograph A16)**. In beach seine surveys, most anchovy captured were fry. All fish captured in beach seine surveys were captured at reference sites. On April 19, 2024, a school of 100 fry were captured at BS-AR, and 11 fry were captured at BS-NR. Single fry were captured on May 30 (BS-NR) and July 11, 2024 (BS-AR) (**Photograph A17, A18**). A single adult was captured at BS-AR on March 7, 2024.

Pelagic Fish

Pelagic species (excluding herring and other forage fish) were not captured at reference sites and were rarely captured within the CPA (**Figure 2-8**). No pelagic fish were captured at purse seine sites (**Figure 2-9**). Pelagic fish captured were perch species: striped perch, pile perch and shiner perch in very small numbers (**Photograph A19)**. Average CPUA for pelagic fish was not considerably different between the CPA and reference sites in 2024 (**Figure 2-10**).

Figure 2-8 Bi-weekly beach seine and purse seine catch composition pooled within PPIA and reference sites in 2024 sampling.

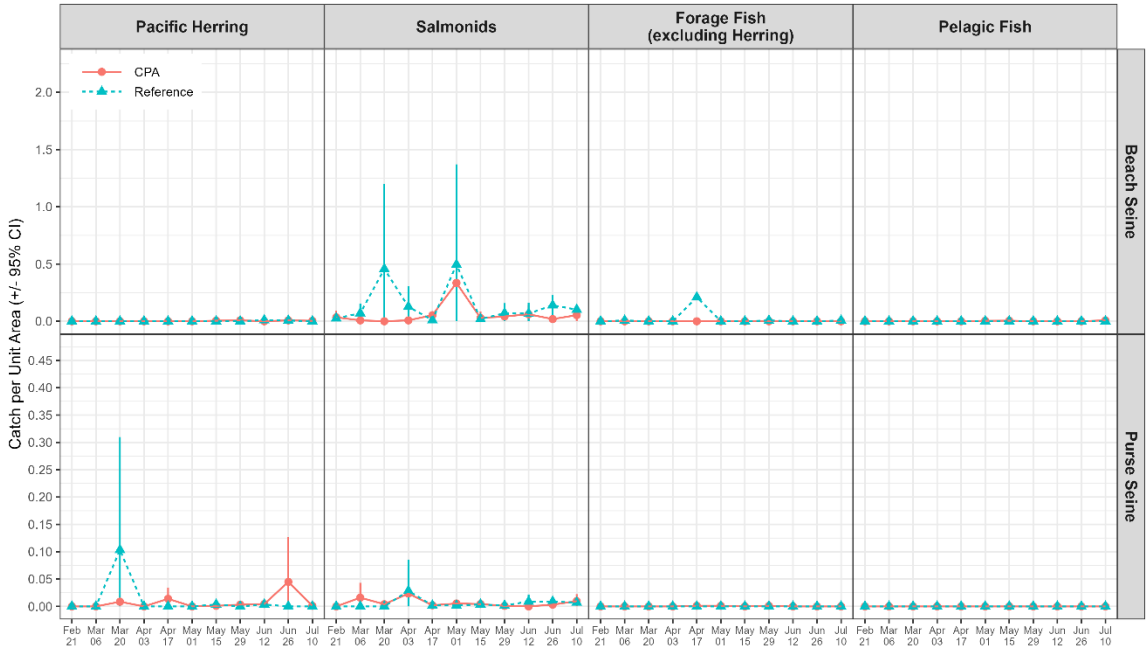


Figure 2-9 **Average bi-weekly catch per unit area (CPUA +/- 95% confidence interval) for fish groups and gear type in 2024 sampling year.**

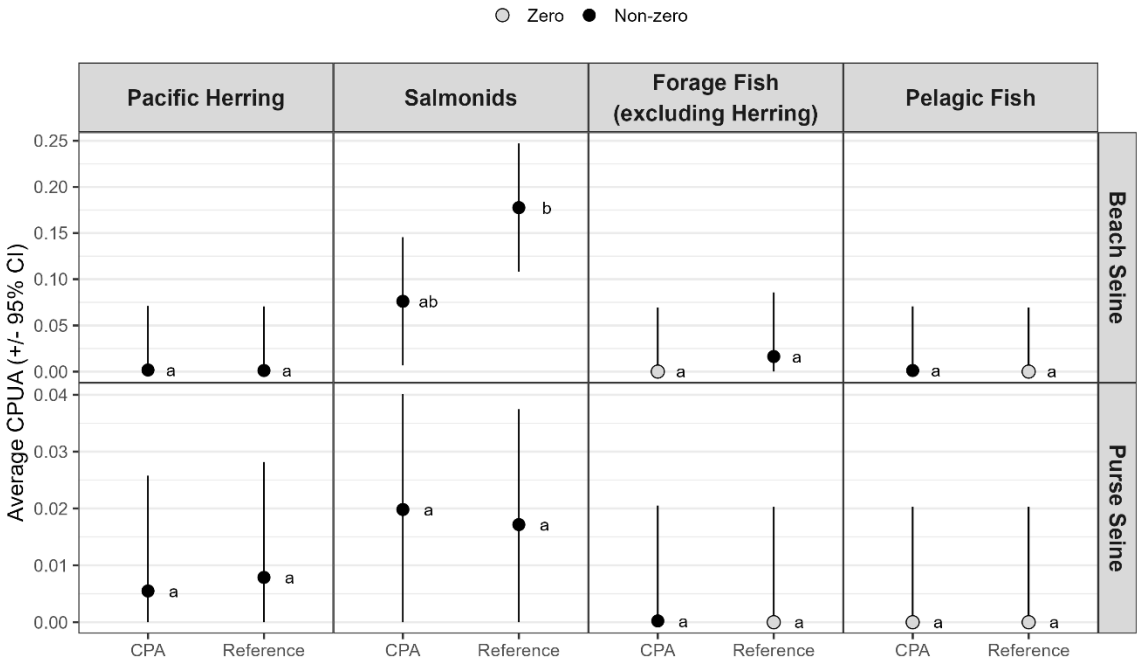


Figure 2-10 **Average annual catch per unit area (CPUA +/- 95% confidence interval) for targeted fish groups (KPI2) in 2024 sampling. Letters denote significant difference between pooled PPIA and Reference site means within each fish group.**

2.2.2.1 Regional Data and comparison to previous years

Determining whether the relative abundance of the target fish groups within the CPA remains within the historical range of natural variation through the construction phase will require additional years of sampling within the study area. Baseline surveys conducted between 2020 to 2023 were less frequent and varied in timing across study years (Keystone Environmental 2024b). However, a general comparison between the 2024 survey period (this study), MSI sampling programs and baseline surveys are summarised below.

Overall, species composition captured in beach seine and purse seine surveys was similar to baseline survey results. New species captured in 2024 included kelp greenling (*Hexagrammos decagrammus*) and marbled snailfish (*Liparis dennyi*). Both species are non-target and demersal fish species captured in low numbers.

Pacific Herring

Overall, Pacific herring larvae were captured infrequently in both 2024 and baseline surveys. In 2024, MSI observed new herring spawn around Howe Sound from February 16 through to April 26 (MSI 2024b). This corresponds with the time that herring larvae were captured in the CPA later in the season, which occurred between May 17 and June 27, 2024[7]. However, Pacific herring larvae were captured in low numbers (one to two larvae captured per sampling period). Pacific herring larvae were not captured at reference sites in 2024. Capture of herring larvae during baseline surveys was limited to one sampling event in April 2021, which occurred at reference sites. However, sampling during baseline surveys primarily occurred during summer months (late June and July), with limited sampling effort in other seasons. As noted in the baseline report, herring larvae originating from spawn occurrence near the Squamish terminal may be dispersed through the CPA based on surface current patterns described in Howe Sound[8]. Additional data is needed to detect any difference in the dispersal of Pacific herring larvae between the CPA and reference sites.
The sporadic capture data of Pacific herring larvae observed in 2024 surveys and baseline surveys may be because the CPA is located outside of the most active spawning areas within Howe Sound. Although a high-density herring spawn area is located immediately south of the CPA near Foulger Creek, water currents likely disperse larvae originating from this spawn further south, bypassing the CPA.

In general, presence of adult Pacific herring during the 2024 surveys followed similar trends as what was observed in baseline surveys. Adult Pacific herring were captured within the CPA and reference sites during the 2024 and baseline surveys. In 2024, adult Pacific herring were captured between March 19 and July 11, 2024, whereas in baseline surveys they were captured between May and July. As mentioned above, there was limited sampling conducted between February to April during baseline surveys.

Juvenile Salmonids

Overall, presence of juvenile salmonids followed similar trends compared to what was observed in baseline surveys, with relative abundance of pink and chum salmon being the highest from February to April, after which relative abundance of chinook and coho salmon increased **(Figure D-7**).

[7] Herring eggs typically hatch 2 to 3 weeks following spawning, while herring are present in larval stage from hatching to 10 weeks.
[8] See inset 4-12 within the Pre-Construction Baseline Report (Keystone Environmental Ltd. 2024b) which reviews the predicted dispersal of herring larvae based on active spawning areas and surface current patterns in Howe Sound.

In both 2024 and baseline surveys, juvenile chum salmon's peak abundance (measured as CPUA) was observed between February and April. However, they were also captured regularly between May to July but with lower abundance, predominantly at beach seine sites **(Figure D-5**, Keystone Environmental 2024b). This suggests juvenile chum salmon reliance on estuarine habitats within the CPA throughout the spring and summer. In both 2024 sampling and baseline surveys, juvenile pink salmon abundance (measured as CPUA) decreased to near zero after the beginning of May (**Figure D-5**), suggesting most juvenile pink salmon have migrated further offshore and outside of the CPA by summer.

Forage Fish

During the 2024 surveys, Northern anchovy was the only forage fish species that was captured, which is consistent with observations from baseline surveys. The only additional forage species captured during baseline surveys was Pacific sand lance, which was captured in September. Capture of Pacific sand lance during the 2024 survey period was not expected, as Pacific sand lance begin migrations to preferred spawning grounds in the fall.

The 2024 survey period was the first time that adult Northern anchovy have been captured within the CPA. They were captured between April 17 and May 29 in the CPA and at a reference site on March 7, 2024. However, MSI reported incidental observations of adult Northern anchovy within or near the CPA in 2023 on March 10, April 14, and May 1st (MSI 2023). Lack of capture of adult anchovy during baseline surveys is likely due to less frequent sampling events.

The average CPUA of Northern anchovy was higher in several baseline surveys compared to any from the 2024 surveys. The highest average CPUA recorded in 2024 occurred on April 17 at beach seine reference sites (~0.2 fish/m^2, **Figure D-3**). In contrast, there were several occasions where average CPUA was above 0.2 fish/m^2 during baseline surveys, including (but not limited to), May 2020 (beach seine CPA and reference sites) and July 2023 (purse seine and beach seine reference sites). However, average CPUA of Northern anchovy is often influenced by high catches of schools of larval young fish at one or two sampling sites. Adult anchovy are broadcast spawners and eggs hatch into larvae that are pelagic and free-floating, making capture somewhat opportunistic and potentially inconsistent. Therefore, further sampling is needed to understand trends of Northern anchovy within the CPA.

Pelagic Fish

Overall, pelagic fish were captured infrequently in both 2024 and baseline surveys. Pelagic fish captured in 2024 and baseline surveys were perch species, including striped perch, pile perch and shiner perch in small numbers.

2.2.2.2 KPI2 Statements

Consistent with the hypothesis for KPI2, it is believed that fish abundance and migration through PPIA remained within the historical range of natural variation in 2024. However, there is insufficient information to determine how fish abundance compares to previous years or if patterns of use differ between control and impact sites because this is the first year that these data were collected bi-weekly between mid-February and the end of July.

2.2.3 Recommendations

At this time, there are no recommended revisions to the survey methodology for the assessment of KPI2. Additional years of bi-weekly sampling over a larger seasonal range will continue to provide verification that fish abundance and migration through CPA remains within the historical range of natural variation.

2.3 KPI 3: Change in Fish Behaviour – Pacific Salmon Spawners, Juvenile Presence (and Habitat Use) and Outmigration from Mill Creek

The potential for adverse effects to salmon spawning during the construction or operations phases arises due to activities that may impede the availability or quality of spawning habitat or affect fish passage and corresponding migration patterns of adult spawner returns and/or juvenile outmigration (e.g. unintended release of sediment to Mill Creek from terrestrial works, shoreline works near the mouth of Mill Creek). The potential for positive project effects to habitat are also intended through the implementation of the Green Zone to be completed in partnership with Skwxwú7mesh Úxwumixw (Squamish Nation) as outlined in the Squamish Nation Environmental Assessment Agreement. Following the completion of construction of the Project, a Green Zone Restoration Plan will be developed to restore Mill Creek riparian habitat (within the Green Zone) and is expected to include measures to improve instream fish habitat (including the riparian habitat).

It is the TAC's collective intention that the net result of individual pathways of effects on Pacific salmon spawning and outmigration are neutral to positive.

Study objective:

To assess potential relative changes in salmon spawners, juvenile salmonids outmigration and relative abundance and habitat use of resident species in Mill Creek from pre-construction, construction and into operational phases

Hypothesis:

The number of salmon spawners (i.e., pink, coho, and chum) remains within or above the historical range of natural variation for Mill Creek and in relation to Howe Sound.

Juvenile salmonid outmigration, relative abundance and habitat use of resident species in Mill Creek remain at pre-construction levels during the life of the Project.

KPIs: Two KPIs have been defined to detect potential project effects on salmon spawning in Mill Creek:

- **KPI 3a**: Salmon spawner counts in Mill Creek,
- **KPI 3b**: Salmon juvenile presence (and habitat use) and outmigration from Mill Creek, including:
- Fyke net catch per unit effort (juvenile outmigration)
- Minnow trap catch per unit effort (juvenile salmonid and resident species habitat use)
- Electrofishing catch per unit effort (juvenile salmonid and resident species habitat use)

2.3.1 Methods

Four sampling methods were used to evaluate the established KPIs for Pacific salmon spawners, juvenile presence and outmigration from Mill Creek. KPI3a was evaluated by spawner count surveys to estimate the number and species of salmonids entering Mill Creek for spawning, and was conducted during the spawning period for pink, coho, and chum salmon (August to December). KPI 3b was evaluated using three sampling methods:

- Fyke net surveys to assess juvenile salmon outmigration from Mill Creek; and
- Electrofishing and minnow trapping to assess juvenile salmon and resident species relative abundance and habitat use of Mill Creek.

2.3.1.1 Salmon Spawner Count Surveys

Salmon spawner count surveys were conducted weekly between August 30, 2024, and December 19, 2024, using visual assessments. Visual assessments were completed along all accessible sections of Mill Creek up to the first barrier falls, approximately 450 m upstream from the confluence of Howe Sound. This accessible length was divided into six segments for the spawning counts (**Figure 2-11**). These segments have been delineated based on distinct landmarks, such as the existing infrastructure and other visual markers in the field to aid in counts. The lower 300 m of Mill Creek can be assessed throughout the spawning season regardless of water levels and flow intensity, however, the upper 100 m segment to the barrier can only be assessed when water levels and/or bear activity within Mill Creek are low.

Within each segment, species of spawning salmon were recorded along with tally counts of:

- Live males,
- Live females,
- Carcass males,
- Carcass females, and
- Carcass unknown.

Each round of visual assessment was completed by two KEL biologists. Biologists walked along the west bank of the creek, starting either at the downstream end of Segment 1 and travelling upstream or at the upstream end of Segment 5/6 and travelling downstream. In addition to surveying along the banks, observations were made from the pedestrian bridge and 36-tonne bridge to gain additional vantage points **(Figure 2-11**). In addition to salmon spawner counts, *in situ* water quality parameters were measured at Segment 1, Segment 3, and Segment 5.

2.3.1.2 Fyke Net Surveys

Juvenile salmon outmigration in Mill Creek was conducted by weekly deployment of a fyke net for four weeks between March 27, 2024, and April 23, 2024 (**Figure 2-14**). The fyke net had two wings, each with a length of 10 m. A funnel connected the wings to a 1.2m X 1.2m X 1.4m box trap. The fyke net has a mesh size of 3 mm in the wings and box trap component. The fyke net was installed approximately 50 m upstream from the confluence with Howe Sound (**Figure 2-11**). For each round of deployment, the net was set at low

tide and left for approximately 24 hours to encompass an entire tidal cycle. Fish were captured in accordance with the provincial collection methods and standards (RISC 1997; 2008) and under federal and provincial fish collection permits. Captured fish were temporarily retained in an oxygenated bucket of stream water for identification and enumeration and subsequently released to the capture location. Each captured fish was identified and enumerated by species and life stage, and length (mm) and weight (g) were recorded.

2.3.1.3 Electrofishing and Minnow Trapping Surveys

Minnow trapping and electrofishing surveys were conducted twice in late spring (June 11 to 13, 2024) and summer (July 30 to August 1, 2024). As per recommendations from the TAC, the methods for electrofishing were modified between the spring and summer surveys.

During the spring survey, electrofishing was conducted as per Revision 1 of the SOP (dated May 7, 2024). One electrofishing session was completed on June 13, 2024. Electrofishing was conducted from the downstream end of the sampling area in Mill Creek, with the crew moving slowly upstream. A minimum of 1,000 seconds of electrofishing was conducted. Two passes of 916 and 254 electrofishing seconds were completed. The electrofishing assessment area is shown on **Figure 2-11.**

During the summer survey, electrofishing was conducted as per Revision 2 of the SOP (dated July 4, 2024). Electrofishing was conducted in upper sections of Mill Creek during low tide. Electrofishing was conducted using a modified closed site multi-pass removal method. Fish exclusion netting was installed at both ends of the sampling section and multi-pass removal approach was used. The revised electrofishing assessment area is shown on **Figure 2-11.**

Two electrofishing sessions were completed on July 31 and August 1, 2024. As per the SOP, a minimum of two passes of electrofishing were conducted in the assessment area. If the number of fish capture was declining in the second pass, a third pass was not conducted. On July 31st, the number of fish captured increased between the first and second pass, but a third pass was not possible due to construction activities on site (blasting) that led to time constraints (see **Figure 2-16**). Therefore, an additional electrofishing session was completed on August 1, 2024.

Minnow trapping was conducted by deploying 10 Gee-style minnow traps throughout lower Mill Creek (an approximate length of 250 m), from approximately 80 m to 330 m upstream of Howe Sound (**Figure 2-11).** These trap locations have been used in past assessments. Traps were deployed near the banks in pools or between boulders where there was refuge habitat. Water quality parameters were collected at MCMT01, MCMT03, and MCMT08 during the trapping session using a handheld YSI unit. Captured fish were identified and numerated. Length and weight measurements were also conducted for the captured fish.

2.3.1.4 Sample Locations and Timing

Thirteen salmon spawner surveys were completed between August 30, 2024, to December 19, 2024, at a frequency of approximately every 7 to 10 days **(Figure 2-12)**.

Six salmon spawner assessment segments from the mouth of Mill Creek to approximately 400 m upstream were delineated based on clear infrastructure and visual markers in the field **(Figure 2-11)**. Although the lower 300 m (i.e., Segments 1 to 5) could be assessed throughout the spawning season, the upper 100 m (approximately) segment (i.e., Segment 6) to the barrier could only be assessed when water levels within Mill Creek were low. To access the upstream extent of Segment 6, biologists must cross with chest waders from the west to east bank of the creek near the border between Segment 5 and 6, which is only feasible when water levels are low. Segment 6 was not accessible in surveys on or later than October 18, 2024.

Minnow trapping and electrofishing surveys were conducted twice in late spring (June 11-13) and summer (July 30-August 1). Both minnow trapping sampling sessions consisted of two consecutive 24-hour sets of 10 Gee-minnow traps. As noted in the MFFH EEMP (Keystone Environmental 2024a), the established minnow trap locations are MCMT 1 through MCMT 10. During the late spring surveys, the flows at two of the established locations (MCMT 3 and MCMT4) were too high to set traps. MCMT03 and MCMT04 consist of glide channel morphology over cobble with minimal substrate cover, causing traps to get carried downstream during periods of high flow. Instead, they were replaced by MCMT11 and MCMT12 (**Figure 2-11)**. During the summer sampling period, the established trap locations MCMT 1 to MCMT 10 were used.

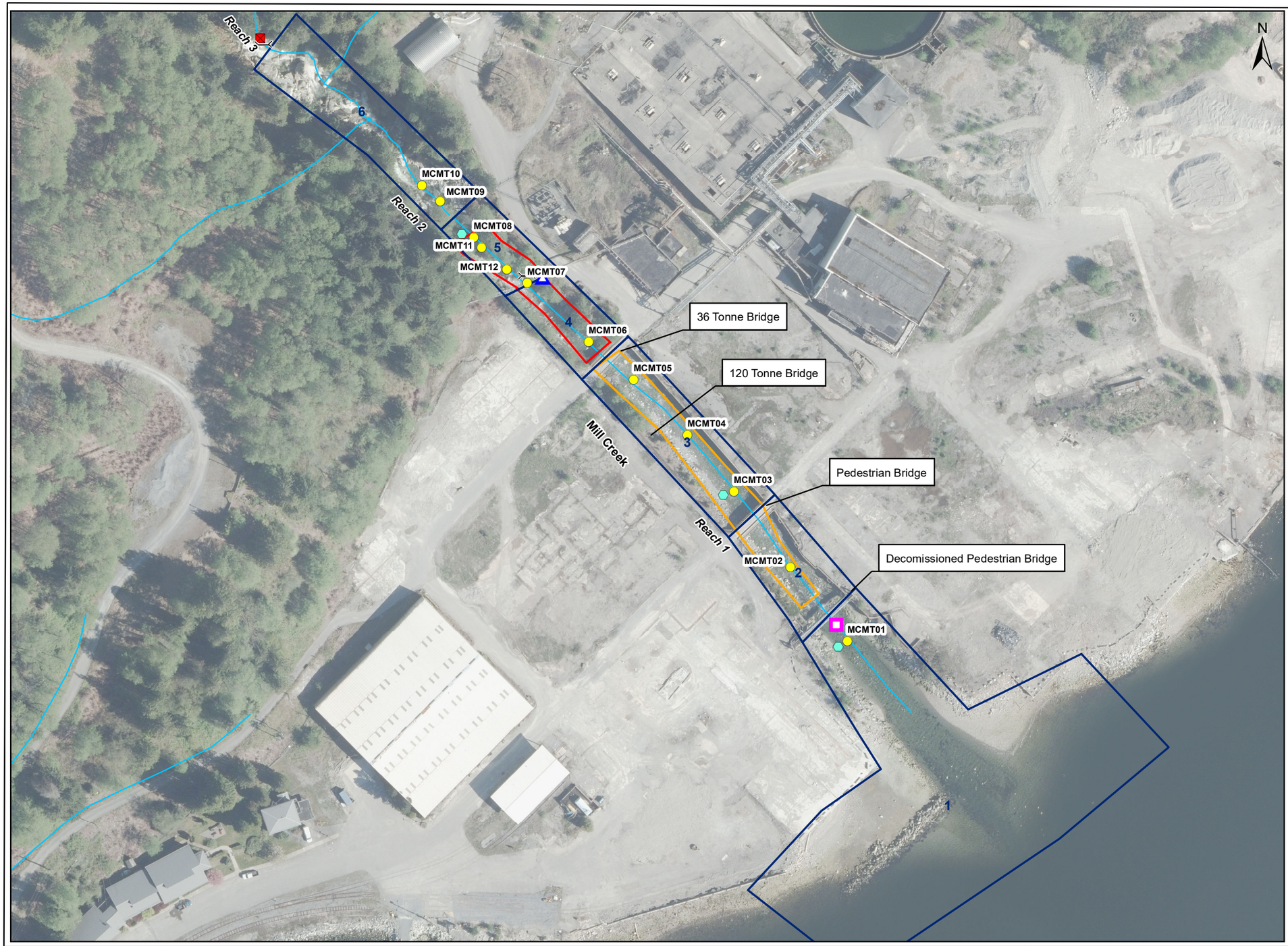
Electrofishing was conducted from approximately 8 m upstream of the Decommissioned Pedestrian Bridge to the 36 Tonne Bridge during the spring sampling session **(Figure 2-11)**. The spring electrofishing reach was approximately 125 m in length. During the summer sampling session electrofishing was conducted from the downstream stop net installed under the 36 Tonne Bridge to the stop net 70 m upstream, which was immediately downstream of a large pool.

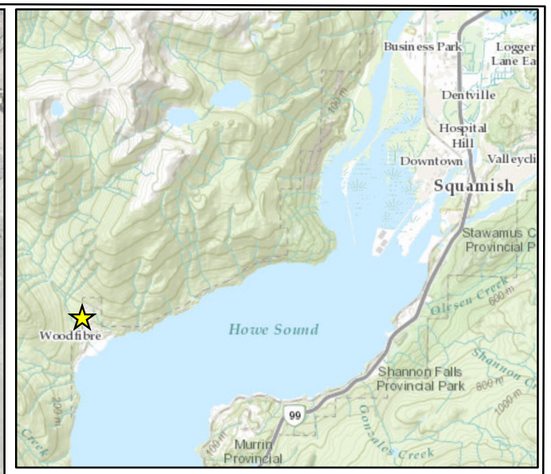
Surveying of reference sites outside of the CPA did not occur. As stated in the MFFH EEMP (Keystone Environmental 2024a), the DFO New Salmonid Escapement Database (NuSEDS) would be used to compare data collected in Mill Creek to other streams within Howe Sound in vicinity to Mill Creek. However, as of March 2025 the NuSEDS database does not have updated data for applicable streams (NuSEDS Database 2025).

2.3.1.5 Data Analysis

Catch per unit effort (CPUE) was determined for fyke netting, electrofishing and minnow trapping data on a per sampling day basis. In all cases CPUE was determined on a per species basis for juvenile salmon (when available) and for resident fish species by dividing daily counts by a measure of survey effort. For fyke netting, effort was determined as the total soak time of the net in hours. For electrofishing, effort was number of passes performed on a given sampling day and for minnow trapping effort was determined as total soak time in hours across all sampling locations on a given sampling day.

Due to infrequent and low quantity observations of salmon spawners in 2024, total spawner counts were reported, and an additional index for relative abundance was not calculated. The MFFH EEMP (Keystone Environmental 2024a) specifies the use of an area-under-the-curve (AUC) approach as a possible method to estimate salmon spawner abundance. Revisions of the methodology to estimate spawning abundance using AUC are in development by LGL and KEL for surveys starting in 2025.





Legend

- MINNOW TRAP LOCATIONS
- FYKE NET LOCATION
- WATER QUALITY LOCATION (IN SITU)
- EXTENT OF TIDAL INFLUENCE
- BARRIER TO FISH PASSAGE
- REACH BREAK
- WATERCOURSE
- JUNE ELECTROFISHING ASSESSMENT AREA
- JULY/AUGUST ELECTROFISHING ASSESSMENT AREA
- SPAWNING SALMON ASSESSMENT SEGMENT

Keystone Environmental

NOTES:
1. *THIS DRAWING IS FOR GENERAL INFORMATION ONLY. LOT BOUNDARIES AND FEATURES ARE APPROXIMATE.*
2. *THE DATE OF AERIAL PHOTO IS 2019.*

0 15 30 60 90 120 Meters

SCALE: 1:1,500 (approx)

Woodfibre
Squamish, B C
Woodfibre LNG Limited

REVISION No.	DATE	PROJECT No.
A	Mar. 2025	20327

FIGURE 2-11
2024 Mill Creek Salmonid and Resident Fish Surveys

DRAWN BY: NL Document Path: I:\18700-18799\18785 WLNG\104 Bioinventory\Resident Fish Habitat Use\Figures\MXDs\20327_2024MillCreek_Salmonid_ResidentFish_Surveys.mxd

2.3.2 Results and Discussion

This section presents the results of sampling conducted in Mill Creek to assess salmon spawner return and juvenile outmigration, in addition to the presence and relative abundance of resident fish in Mill Creek. Four types of surveys (spawner surveys, fyke net sampling, electrofishing and minnow trapping) were conducted in Mill Creek to investigate its habitat use. This KPI is comprised of three variables that include salmon spawner counts, salmon juvenile outmigration and resident fish relative abundance and habitat use. Detailed site and fish capture data are presented in **Appendix F.**

2.3.2.1 Salmon spawners

Salmon spawner surveys were conducted from late August 2024 to late December 2024 on a weekly basis. **Figure 2-12** illustrates the timing of these surveys and a summary of the results. Pink salmon spawning run did not occur in 2024, because in Mill Creek, pink salmon only spawns in odd years, a pattern that is widespread amongst pink salmon populations in southern British Columbia (Irvine et al. 2014). All observed salmon spawners were chum salmon. The highest number of spawners observed (five live spawners) was in the week of October 28, 2024. Additional live chum salmon spawners were observed from late October to early November. Dead chum spawners were observed from mid to late November.

Figure 2-13 presents the chum salmon spawner count by sex over the survey period. The highest number of female spawners (three fish) was observed in late October 2024 and the highest number of males (two fish) was observed during the same period.

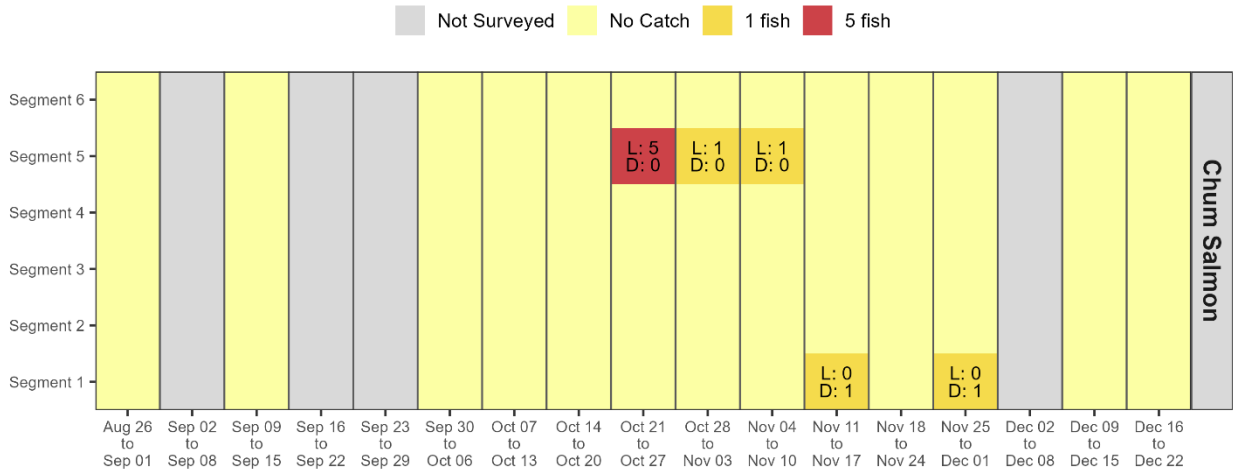


Figure 2-12 Weekly salmon spawner count (by segment for 2024, L=live spawners and D=Dead spawners). Only chum salmon spawners were observed.

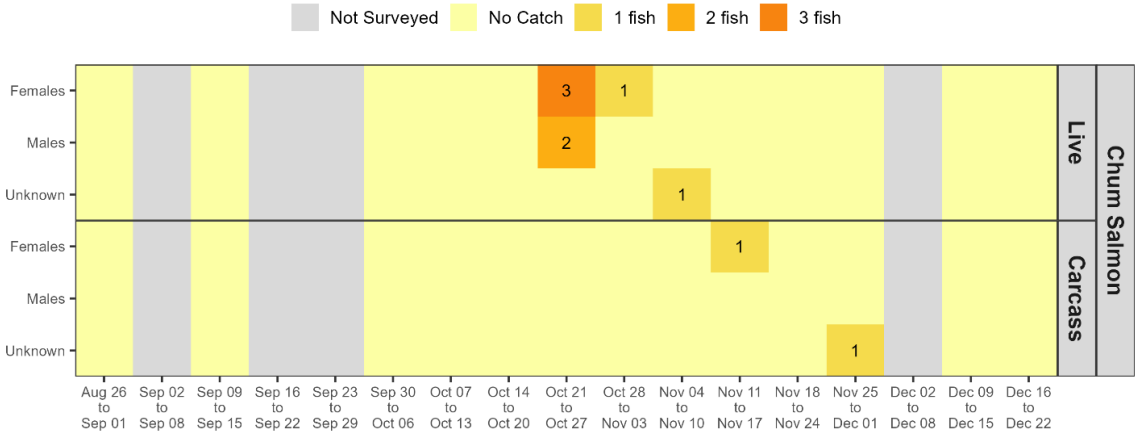


Figure 2-13 Weekly salmon spawner counts in Mill Creek for 2024 by sex and status (i.e. live or dead). Only chum salmon spawners were observed.

2.3.2.2 Juvenile salmon outmigration

Juvenile salmon outmigration was assessed using fyke net. **Figure 2-14** illustrates the temporal distribution of fyke net sampling in Mill Creek and the total number of juveniles captured. **Figure 2-15** illustrates the juvenile salmonid and resident fish CPUE (number of fish captured per hour of fyke net deployment) from the fyke net surveys.

All fish captured in fyke net sampling were juvenile salmonids (pink salmon and chum salmon), with the exception of one shiner perch captured on March 27, 2024, and one sculpin spp. captured on April 18, 2024. were captured during fyke net surveys (**Figure 2-15)**.

The highest number of juvenile salmonids was observed during the initial survey on March 28, 2024. After the observed peak on March 28, 2024, the number of observed juveniles showed a somewhat declining trend. Pink salmon were captured between March 28 and April 11, 2024, with a peak CPUE of 1.36 fish per hour. Chum salmon were captured between March 28 and April 18, 2024 with a peak CPUE of 0.14 (fish per hour, **Figure 2-15).**

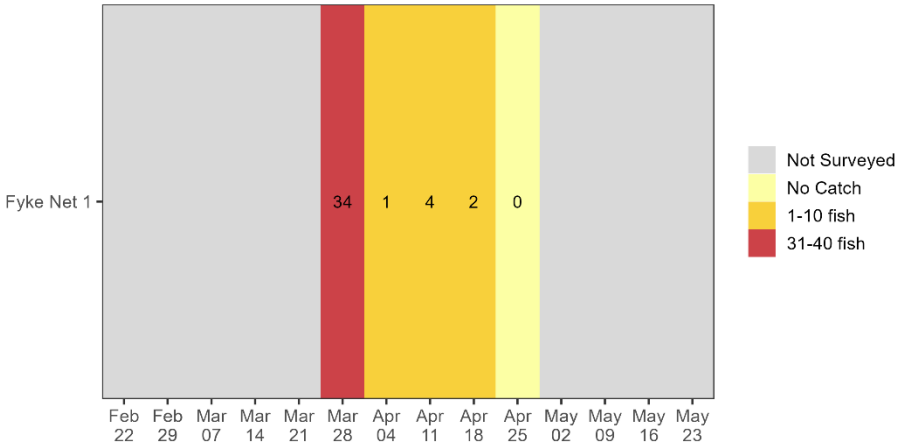


Figure 2-14 Weekly fyke net survey timing and number of captured chum salmon in 2024.

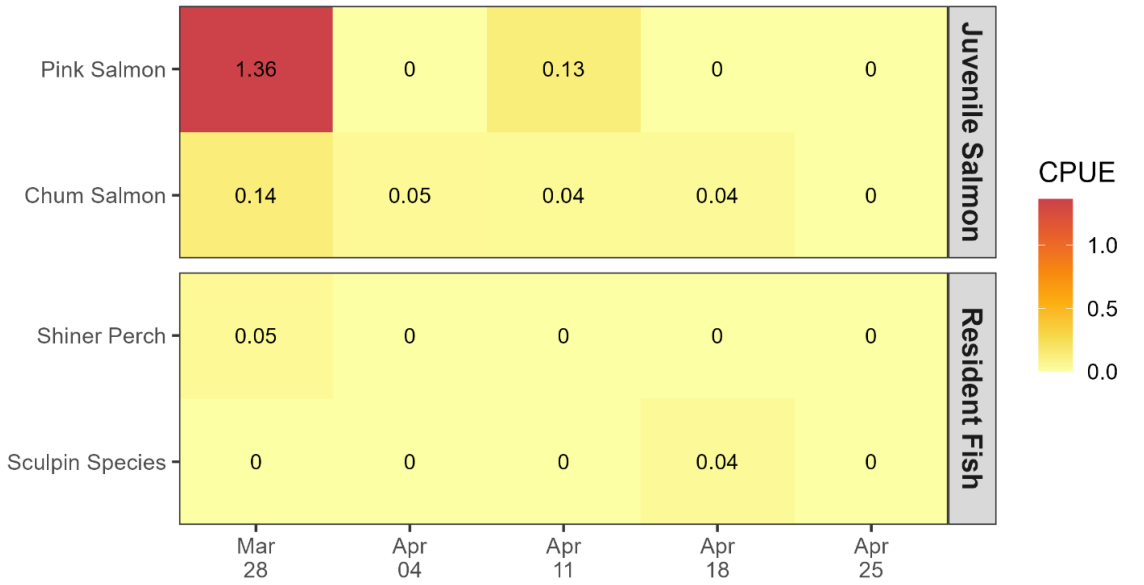


Figure 2-15 Juvenile salmon outmigration and resident fish CPUE from weekly fyke net surveys in Mill Creek for 2024. CPUE measures the total species count per hour of net deployment on a given sampling day.

A considerably high mortality rate of pink salmon was observed during fyke net surveys. The average percent mortality of juvenile salmonids was 33% across the sampling period (**Appendix F**). As per recommendations from the TAC, modifications to the survey methodology will be implemented prior to 2025 surveys to reduce sampling-induced mortality (see Section 2.3.3).

2.3.2.3 Juvenile Salmonid and Resident Species Habitat Use

Figure 2-16 illustrates the results of electrofishing surveys in Mill Creek (the total number of fish captured)**. Figure 2-17** illustrates the timing and distribution of minnow trapping effort in Mill Creek and the total number of fish captured. **Figures 2-18** and **2-19** illustrate the resident fish CPUE from the electrofishing and minnow trapping surveys, respectively,

Over the survey period, four resident species were captured in Mill Creek, including two species of salmonids: Dolly Varden (*Salvelinus malma*) and rainbow trout (*Oncorhynchus mykiss*). Of the species captured, prickly sculpin, Dolly Varden and coastrange sculpin were captured in both the electrofishing and minnow trapping methods, while rainbow trout was captured only during minnow trapping. In addition, unidentified Sculpin spp. were captured in electrofishing (**Figure 2-18**, **Figure 2-19**).

In electrofishing surveys, coastrange sculpin was the most abundant fish captured in late spring, while Dolly Varden was the most abundant fish captured in Summer (**Figure 2-18**). Prickly sculpin, coastrange sculpin, and sculpin spp. were captured in both seasons while Dolly Varden was only captured during summer surveys. All Dolly Varden captured were fry (**Appendix F, Photograph A20).**

In minnow trapping surveys, prickly sculpin was the most abundant fish captured in both seasons, followed by rainbow trout **(Figure 2-19**). Rainbow trout captured in late spring and summer were juvenile parrs (**Appendix F, Photograph A21)**. All rainbow trout were captured at either MCMT-09 or MCMT-11 within cascade habitat with large boulder, situated above the extent of tidal influence (**Figure 2-11)**. One juvenile Dolly Varden was captured during summer surveys at MCMT-10, within pool habitat with large boulder, situated upstream of the extent of tidal influence. Sculpins (prickly sculpin, coastrange sculpin) were captured across minnow trap sampling locations upstream and downstream of the extent of tidal influence but were most abundant at locations closest to the confluence of Mill Creek (MCMT 1 to MCMT 4, **Figure 2-11)**.

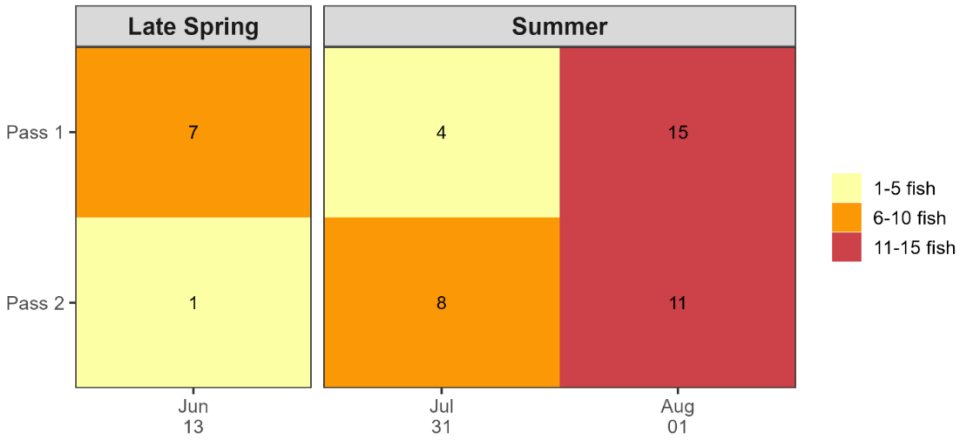


Figure 2-16 Total number of fish captured during electrofishing surveys in late spring and summer of 2024 in Mill Creek.

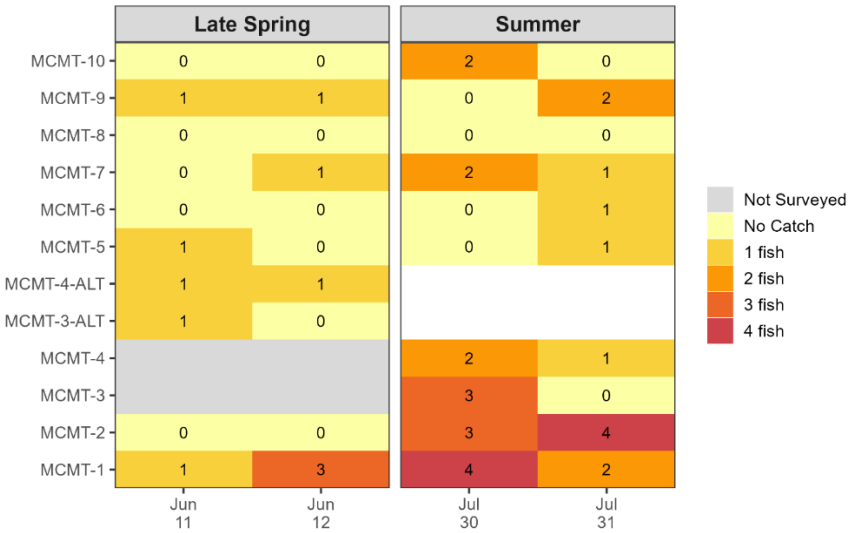


Figure 2-17 Minnow trapping survey coverage and overall catch in Mill Creek for 2024. MCMT-3 and MCMT-4 were not surveyed in June due to high flow, so traps were placed nearby in the nearby habitat where flow was lower (labelled as MCMT-11 and MCMT-12). See Figure 2-11 for minnow trapping locations.

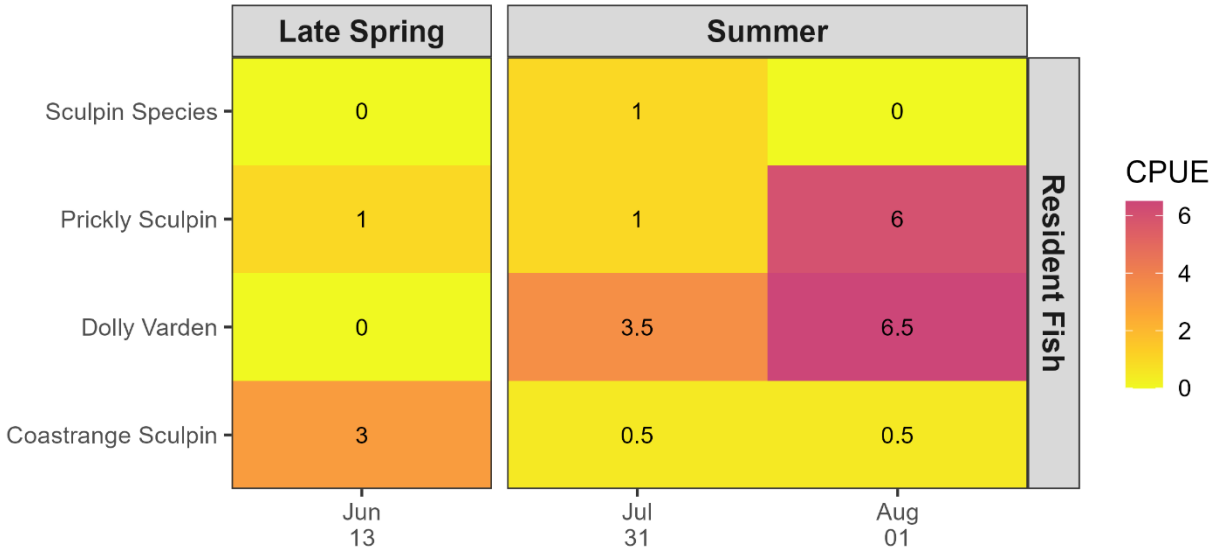


Figure 2-18 **Electrofishing survey results in Mill Creek for 2024. CPUE measures the total species count per electrofishing pass.**

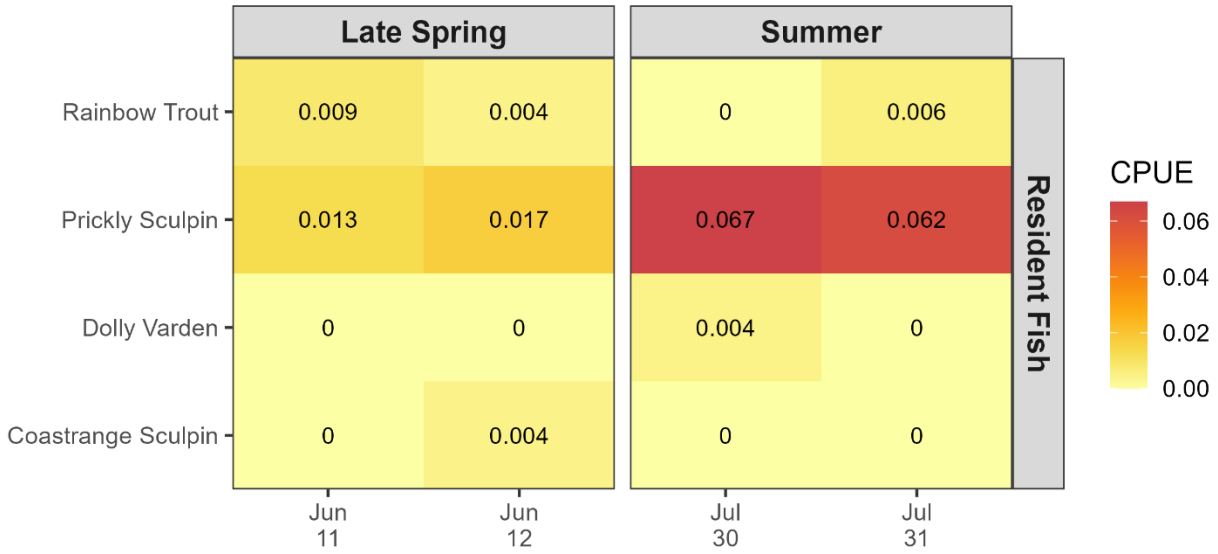


Figure 2-19 **Resident fish CPUE from minnow trap surveys in Mill Creek for 2024 (total species count per hour of soak time).**

2.3.2.4 Regional Data and comparison to previous years

Determining whether the relative abundance of salmon spawners, juvenile salmonids outmigration and resident fish species remains within the historical range of natural variation will require additional years of sampling within the study area. Baseline surveys in Mill Creek were less frequent and varied in timing, sampling methodology, and level of effort (Keystone Environmental 2024b). However, a general comparison between the 2024 survey period (this study) and baseline surveys is summarised below.

Salmon Spawners

2024 was the first year that salmon spawner surveys were conducted in an even calendar year. In baseline surveys, spawner surveys were conducted in 2013, 2021, and 2023, coinciding with the odd-year pink salmon run (Keystone Environmental 2024b). The results of the 2024 surveys indicate that a very small number of chum salmon use Mill Creek for spawning, where the peak of spawning was observed on October 28 (**Figure 2-12)**. Prior to 2024, chum salmon were not observed during spawner surveys, however, incidental observations of chum spawners (<10 total) in Mill Creek were made by KEL field staff on November 9, 2022 (Keystone Environmental 2024b). Salmon escapement data from DFO recorded one spawning event in Mill Creek when eight returning chum salmon were documented between November 25 and December 5, 1985 (DFO 2024). Chum salmon smolts were captured in fyke net surveys between March 28 and April 18, 2024. This indicates that although no chum salmon spawners were observed during baseline spawning surveys in 2023, they were present in low numbers and likely missed in visual surveys due to high concentrations of pink salmon spawners.

Juvenile Salmon Outmigration

The peak abundance of out-migrating juvenile salmonids was observed on March 28, 2024, after which the abundance of salmonids declined. By April 25, the abundance of juvenile salmonids reached zero. Pink salmon were captured between March 28 and April 11, 2024. Just one previous year of outmigration studies was completed by Hemmera in 2016 during baseline surveys (Keystone Environmental 2024b). During baseline surveys, pink salmon were captured within a similar time frame (i.e., between March 22 and April 6, 2016). It is probable that 2024 (and probably 2016) surveys missed the peak of the pink salmon outmigration period, as the initial sampling date was March 28, 2024.

During the first week of seining in Howe Sound (February 20-23, 2024), pink salmon fry were captured only at sites located north of Mill Creek (BS-4 and BS-NR, **Table 1a, Appendix E)**. This observation may indicate that they originated from other tributaries of the Squamish River Estuary north of the CPA. By the following week (March 5 to 8, 2024), pink salmon were captured at sites located both north and south of the Mill Creek confluence. However, since no coinciding outmigration surveys were conducted, their origin of emergence is not clear. Revisions have been made to the methodology to better capture the peak outmigration timing of juvenile salmonids; see **Section 2.3.3.**

Juvenile Salmonid and Resident Species Habitat Use

Overall, the species composition captured in minnow trapping and electrofishing surveys was similar to baseline surveys. New species captured in 2024 within the study area included Dolly Varden fry. Minnow trapping conducted by Knight Piesold in 2017 in support of the Project's Water Management Plan yielded a single capture of Dolly Varden, located upstream of the barrier to fish passage and thus outside of the study area (Knight Piésold 2022).

Rainbow trout have been captured on multiple occasions within the study area during baseline surveys in 2014, 2020, and 2023 (Keystone Environmental Ltd. 2024b).

Juvenile salmonids (coho salmon and chinook salmon) were captured during baseline minnow trapping surveys but were not captured in 2024. However, baseline trapping occurred during different seasons (late August, September, Keystone Environmental Ltd. 2024b). It is likely that presence of coho salmon and chinook salmon is a result of non-natal habitat use, and observations may be considered occasional and low-density. This is supported by observations from other EEMP surveys in which juvenile coho salmon and chinook salmon were captured along the shoreline within the CPA in beach seine and purse seine but not observed in spawner or juvenile outmigration surveys in 2024.

2.3.2.5 KPI3 Statements

Existing sampling results are not adequate to draw any conclusion with regards to any potential existing trends or characterization of fish populations and habitat use in Mill Creek. However, there are some observations that may warrant additional studies. These observations include the presence of Dolly Varden and Rainbow trout in the study area in Mill Creek, as described below.

Both Dolly Varden and rainbow trout have been reported in Mill Creek upstream of the impassable fish barrier (Knight Piésold 2022). It is likely that the presence of Dolly Varden fry in the study area (i.e. the lower Mill Creek) may be the result of fry being washed downstream during high flow periods.

Fish habitat in the lower reaches of Mill Creek can be separated into three distinct categories that include freshwater habitat in the upper section, brackish water habitat at the interface of the tidal influence point and freshwater and high salinity marine habitat. The high variability in salinity observed in Mill Creek's lower reaches is expected to impact fish habitat suitability for freshwater and marine species and is more favourable for species that are able to adjust to an environment with highly variable salinity.

It is also likely that the productive capacity of Mill Creek lower reaches is significantly limited by the presence of consistent freshwater habitat in the upper 150 m (approximately) of Mill Creek. It is likely that the number of pink salmon spawners, far exceeds the available spawning and rearing habitat. Based on previous baseline studies and our professional opinion, we believe that larval pink salmon immediately migrate downstream to the ocean environment after their emergence.

2.3.3 Recommendations

Upon the completion of the 2024 fyke net surveys, the TAC recommended a site visit between LGL and Keystone Environmental to understand challenges with the fyke netting methodology, to increase reliability

of juvenile salmon outmigration estimates and reduce sampling induced mortality. Following this site visit that occurred on December 2, 2024, the following changes to the SOP were recommended by LGL and agreed upon by the TAC:

- Revisions to fyke net design:
  - Custom fabricate a new fyke net to site-specific conditions. This includes wings that span the entire channel width during high discharge and tidal events, a mesh size of 6 mm stretched, and baffles incorporated in the box trap design.
- Revisions to fyke net sample location and timing:
  - Change the fyke net location to just above the pedestrian bridge (**Figure 2-11)**. The revised location will reduce tidal influence on the net and increase net efficiency.
  - Estimate pink and chum salmon fry hatch timing using the accumulated-thermal-units (ATU) calculation method and initiate program sampling based upon those calculations. Surveys will start up to 10 days prior to the calculated start date.
  - Increased frequency of sampling from weekly to daily over the duration of the juvenile salmonid outmigration program. Sampling daily would ensure that pulses of juvenile outmigration would not be missed.

The revised methodology will be used to estimate juvenile pink salmon outmigration abundance starting in 2026. In consideration of the very small numbers of chum salmon using Mill Creek for spawning annually (e.g. <10 adults in 2024), fyke net surveys will not be conducted in odd years. However, surveys will be conducted in 2025 to field test the new equipment and methodology. This will occur over a five-day period, with the initial start date based on ATU calculations.

To facilitate ATU calculations, a temperature data logger was installed by KEL in Mill Creek on November 20, 2024.

LGL prepared an analysis of outmigration timing of Chum and Pink Salmon based on an ATU approach using available data for Mill Creek (Neufeld 2025). Water quality data from previous spawner surveys (e.g. between October and November 2024) was used to fill in gaps in stream temperature measurements, using a linear decline in temperature from an estimated 12 ºC on September 1st to the measured 6.7 ºC when the datalogger was first installed in Mill Creek. A water temperature of 4 ºC was assumed after February 20th in calculations. Results of the analysis revealed that the timing of emergence estimate of pink salmon is heavily dependent on spawning timing. A 15-day delay in spawning can be translated into a 60-day delay in estimated emergence timing. Results suggest that there is potential that the fyke net program may start between January 1 to March 1 to capture peak Pink Salmon outmigration and is highly dependent on the past season's spawning timing and recorded water temperature, highlighting the importance of using ATU to estimate start dates of surveys.

The ATU calculations will be used to estimate the start date of fyke net surveys in 2025 based on the ATU for chum salmon (845 – 1126) and the initial observation of chum salmon spawners (October 25, 2024). The fyke netting program in 2026 (i.e., the next year with expected emergence of pink salmon) will begin depending on the past season's spawning timing and recorded water temperature from the temperature logger.

The above recommendations have been incorporated into the latest revision of the Juvenile Salmon Outmigration SOP (Revision 4, February 4, 2025). Updates to the MFFH EEMP are required to reflect modifications to the sample location and timings.

We recommend that this sampling program to be continued using consistent sampling methodologies as described above, in order to be able to identify potential trends in the collected data such as number of spawners that migrate to Mill Creek annually, relative abundance of resident fish species in Mill Creek and outmigration of juvenile salmonids timing and density.

2.4 KPI4: Introduction of Invasive Species from Ballast Water Exchange or Other Means

The potential for the introduction of Aquatic Invasive Species (AIS) during the construction or operations phases arises due to various project activities that increase the vector pressure for introductions. Commercial shipping activities (e.g. ballast water discharge, hull fouling) are identified as introduction vectors for non-indigenous species (NIS), and artificial structures (e.g. docks and pilings) at shipping terminals provide sufficient substrate to aid successful invasions of non-indigenous fouling organisms. Notably, the detection of species can be difficult, and non-detections do not necessarily confirm species absence. In addition, detection of NIS or AIS does not demonstrate causation by the Project. However, monitoring works can provide critical regional baseline data for comparison with other regions and for anticipating AIS impacts. This overall context is embedded into the study objective and hypothesis below.

- **Study objective:** To detect the presence of AIS within the CPA
- **Hypothesis:** AIS presence and abundance is kept to zero throughout the life of the Project
- **KPIs:** Two KPIs have been defined to detect potential presence of AIS within the CPA:
  - KPI4a: Sessile Invasive Species Counts
  - KPI 4b: Catch per Trap Effort of European Gren Crab (EGC, *Carcinus meanus*)

2.4.1 Methods

Two sampling methods were used to evaluate the established KPIs for AIS presence within the CPA. To evaluate KPI 4a, sessile AIS were monitored using the collector plate method. The collector plate method is a passive monitoring technique that assesses the presence of marine fouling organisms. To evaluate KPI 4b, crab trapping was conducted to detect the potential presence of EGC.

2.4.1.1 Collector-plate Arrays

Five collector-plate arrays were deployed at various locations within and outside of the CPA for the prescribed monitoring period of six months. Each collector-plate array consisted of:

a. a lead core sinking rope line weighted at the bottom with a cinderblock to ensure that collector-plate arrays hang vertically in the water column,

b. three 15 cm x 15 cm square, sanded polyvinyl chloride (PVC) plates with holes drilled in the centre of each plate so they could be threaded onto the rope line at target depths, and

c. a marker buoy tied to the top of the rope line so the plates remained at a consistent depth and submerged below the water surface with changes in tide height (**Photograph A22).**

In-situ water quality measurements were collected to field verify the appropriate target depths that the PVC plates would be deployed below the water surface, so the top plate targeted the freshwater layer (i.e., above the halocline) while the bottom two plates targeted the marine layer (i.e., below the halocline). In accordance with SOP, the top plate was deployed at 1 m, the middle plate was deployed at 5 m, and the bottom plate was deployed at 6 m below the water surface at all deployment locations with exception to AIS-2. The depth of the plates at AIS-2 had to be revised due to lack of sufficient water depth. At this location, the plates were deployed at 1 m, 2 m, and 3 m below the water surface. The array could not be placed deeper because other locations in its proximity would either be within the footprint of the floatel or interfere with site operations and constructions. The plate arrays were deployed in the subtidal zone at depths ranging from 7 to 15 m, so the plates remained off the seabed at low tide.

Following deployment for the prescribed monitoring period, plate arrays were recovered and preserved in 10% formalin. The plates were sent to Biologica Environmental Services Ltd. (Biologica) for taxonomic identification to the lowest practicable level. At the laboratory, the top and bottom surface of each plate were processed by a taxonomist to identify epifaunal taxa, including invertebrates. All colonial organisms and abundant sessile (attached/encrusting) organisms, including barnacles and mussels, were recorded as percent cover. Organisms were considered abundant if newly settled individuals were present or individuals were too numerous to accurately be enumerated. All other organisms including solitary and mobile organisms (worms, amphipods, chironomids etc.) were identified and individually counted. Specimens that received individual counts were not given a percent cover category designation. Detailed enumeration and identification methods completed by Biologica are provided in **Appendix G.**

2.4.1.2 Crab Trapping

Crab trapping was conducted to detect the potential presence of EGC within the CPA on December 17, 2024.

Collapsible crab traps (24" x 18" x 8") with a mesh size of approximately 2 cm and two entrances of 18" were deployed at each sampling location. Cat food was used as bait and inserted into mesh bait bags attached to the inside of each trap prior to deployment.

Traps were deployed in the shallow subtidal zone, in maximum depths of 6 m to capture potential EGC habitat (DFO 2023a). Traps were set for a minimum soak time of 24 hours at each sampling location.

Following retrieval of the traps, captured crabs and/or bycatch were temporarily retained in an oxygenated bucket of marine water. If EGC were to be captured, they would be identified and enumerated by species and life stage. Data collected for each crab would include carapace width (mm) and sex, weight (g), and indicators of maturity (e.g. claw size, female abdomen size, colour). Additional bycatch within traps (e.g. fish, other crabs or invertebrates) were identified to species as incidental observations and total length (mm) or carapace width (mm) was measured.

2.4.1.3 Sample Locations and Timing

Collector Plate Arrays

Collector plate arrays were deployed at 3 locations within the CPA and at two reference locations located north and south of the CPA respectively (**Figure 2-20).** Locations were selected within the CPA to be in proximity to areas onsite where ships and barges will frequent and were subject to locations approved by Woodfibre LNG that did not interfere with site construction, operations or safety. AIS-1, located south of Woodfibre Creek is in proximity to the existing roll-on and roll-off facility (Ro-Ro), AIS-2, located north of the Floatel is in proximity to the Floatel and passenger ferry dock. AIS-3 is located in proximity to the northeast barge ramp.

Collector plate arrays were deployed twice in 2024 in April and October. The first deployment (i.e., deployment 1) was completed on April 9, 2024. The arrays were retrieved approximately 6 months following (October 4, 2024), allowing sufficient time for species recruitment and community development. The second deployment was completed on October 4, 2024; arrays remain deployed and will be retrieved in 2025; thus, the results of this monitoring report focus on deployment 1.

European Green Crab

Traps to detect the presence of EGC were set at 5 locations within the CPA (**Figure 2-20).** Trapping locations were spaced accordingly to capture the area of the CPA and were subject to locations approved by Woodfibre LNG that did not interfere with site construction, operations or safety. Traps were set on December 17, 2024, and retrieved on December 18, 2024; one crab trap was set at each sample location with a soak time between 24 to 26 hours.

Surveying of reference sites outside the CPA did not occur as there have been no confirmed sightings of EGC within Howe Sound, as determined by regional data sources. According to monitoring completed by the DFO Aquatic Invasive Species Program (mapping last updated January 17, 2025), the closest observations have been on the Sunshine Coast south of Sechelt and in Boundary Bay (Pacific Salmon Foundation 2025).

2.4.2 Results and Discussion

2.4.2.1 Collector Plate Arrays

Detailed laboratory results provided by Biologica for deployment 1 are provided in **Appendix H.** Some challenges were experienced with collector plates going missing throughout the deployment period. At the end of the prescribed monitoring period for deployment 1, just two arrays remained: AIS-1 and AIS-2. As a result, several modifications were made to the deployment method to reduce the likelihood of lost arrays for proceeding deployments, adaptive management measurements are further described in **Section 2.4.3.**

At AIS-1, the top plate (AIS 1-1) contained 8 unique taxa, the middle plate (AIS 1-2) contained 9 unique taxa, and the bottom plate (AIS 1-3) contained 4 unique taxa. Total abundance was 12,630, 11,962, and 1962 for the top, middle, and bottom plate respectively.

480600.000000 481200.000000 481800.000000 482400.000000 483000.000000

5502000.000000 5501600.000000 5501200.000000 5500800.000000 5500400.000000 5500000.000000

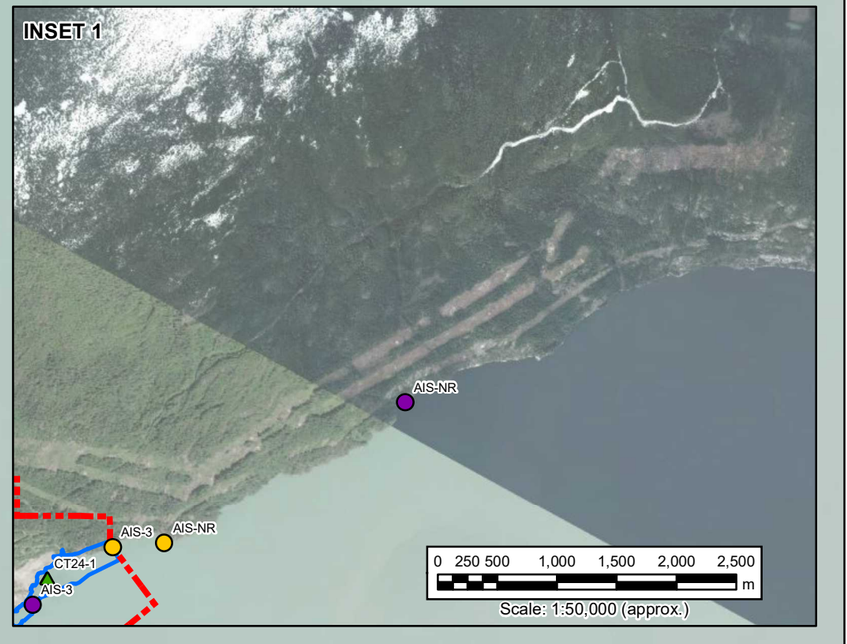
N

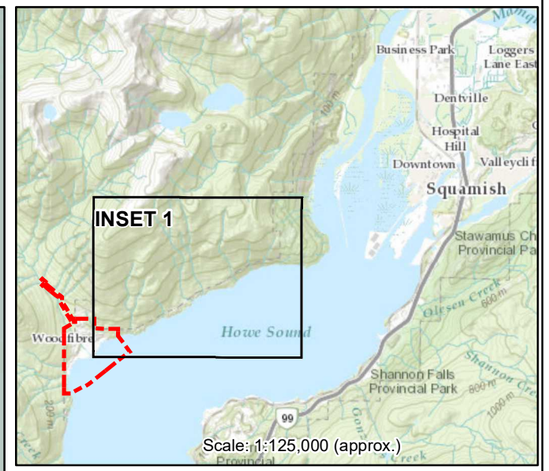
MILL CREEK

WOODFIBRE CREEK

AIS-1
AIS-2
AIS-3
AIS-NR
AIS-SR
AIS-SR
CT24-1
CT24-2
CT24-3
CT24-4
CT24-5

INSET 1





LEGEND

- AIS PLATE DEPLOYMENT (APRIL 2024)
- AIS PLATE DEPLOYMENT (OCTOBER 2024)
- CRAB TRAP DEPLOYMENT (DEC 2024)
- POTENTIAL PROJECT IMPACT AREA
- CERTIFIED PROJECT AREA
- STREAM

Keystone Environmental

NOTES:
1. THIS DRAWING IS FOR GENERAL INFORMATION ONLY. LOT BOUNDARIES AND FEATURES ARE APPROXIMATE.
2. THE DATE OF AERIAL PHOTO IS 2020.

100 0 500 m

Scale: 1:10,000 (approx.)

Woodfibre
Squamish, B C
Woodfibre LNG Limited

REVISION No.	DATE	PROJECT No.
A	Feb. 2025	20327-104G

Figure 2-20
2024 Aquatic Invasive Species Deployment Locations

DRAWN BY: LW/CS/PY Document Path: I:\0-GIS\1-Projects\1-WLNG\GIS_CADD\18785\00104\2025_02Feb_AnnualReport\Fig2-12-AquaticInvasiveSpeciesDeployment-RA.mxd

At AIS-2, the top plate (AIS 2-1) contained 10 unique taxa, the middle plate (AIS 2-2) contained 14 unique taxa, and the bottom plate (AIS 2-3) contained 3 unique taxa. Total abundance was 1096, 6808, and 42 for the top, middle, and bottom plate respectively.

One invasive species taxon, *Polydora cornuata* was identified at the AIS-1 sample location. In total, 2 individuals were observed on the middle plate deployed at 5 m below the water surface. Further description of *Polydora cornuata* is provided below.

Some additional taxa groups were identified that include both invasive and native species, but individuals were not identified down to the species level. This included:

- The family/genus Corophiidae/Monocorophium (amphipods), but organisms were too immature (juveniles) to confirm identification. Adults are required to identify to species level due to lack of distinguishing features in juveniles. In total, two individuals were identified on AIS 2-2 (middle plate 2 m below the surface).
- The family/genus Mytilidae/Mytilus (mussels), but it was confirmed by Biologica it is difficult to discern species due to historical introductions of similar species/hybridization. Would need DNA to make positive identification. Mytilidae was identified on all collector plates.
- The family Balanidae/genus Bugula (barnacles) was identified, however, abundance was limited to one fragment on AIS 2-3, identification to species level was not possible.

Description of Polydora Cornuta

Polydora cornuata is an estuarine tube-dwelling polychaete capable of reaching 32 mm in length with up to 90 segments (Fofonoff et al. 2024). *P. cornuata* is not listed as a controlled species under the *Aquatic Invasive Species Regulation* (SOR/2015-121), regulated under the *Fisheries Act*. Its biogeographic origin remains uncertain; however, it was first recorded along the U.S. East Coast and has since been documented from the Gulf of St. Lawrence to the Gulf of Mexico. Its global distribution includes the Black and Mediterranean Seas, the Southwestern Atlantic, and the Northeast, Northwest, and Southwest Pacific (Molnar et al. 2008; Fofonoff et al. 2024). Uncertainties regarding its invasion status persist due to morphological variability and taxonomic overlap with *P. ciliata*. Populations exhibit phenotypic differences across regions, suggesting underlying genetic and environmental influences.

P. cornuata is considered a biofouling species in bivalve aquaculture, as dense aggregations can smother oyster and mussel shells with accumulated sediment excreted from their tubes. Unlike *P. ciliata*, it does not burrow into shells (Fofonoff et al. 2024). The species demonstrates high environmental tolerance, withstanding broad fluctuations in temperature, salinity, and oxygen levels. Its capacity for both deposit and suspension feeding facilitates colonization in disturbed or eutrophic environments, often resulting in dominance within impacted benthic communities (Fofonoff et al. 2024).

Due to its rapid reproductive cycle and resilience to environmental stressors, *P. cornuata* is frequently an early colonizer of newly available substrates. Taxonomic ambiguity and morphological plasticity complicate assessments of its invasion status. No eradication measures are currently available for established populations. Primary introduction vectors include bivalve aquaculture (oyster and scallop transfers), hull fouling, and ballast water transport (Molnar et al. 2008).

There are several previous records of *P. cornuata* in BC within the Burrard Inlet and Vancouver Harbour (E-fauna BC n.d.; Lu et al., 2007).

2.4.2.2 European Green Crab

EGC were not captured during trapping. Incidental bycatch captured during trapping included staghorn sculpin (*Leptocottus armatus*), coonstripe shrimp (*Pandalus hypsinotus*), prickly sculpin and juvenile dungeness crab (*Metacarcinus magister*) (**Table 2-2**). Detailed trapping data is provided in **Appendix I.**

Table 2-2 Incidental bycatch captured during EGC trapping within the CPA on December 18, 2024.

Site ID	Species	Total Capture
CT24-1	Staghorn Sculpin	1
	Coonstripe Shrimp	1
CT24-2	Prickly Sculpin	2
	Dungeness Crab	2
CT24-3	Staghorn Sculpin	1
	Prickly Sculpin	1
	Dungeness Crab	2
CT24-4	Staghorn Sculpin	3
	Prickly Sculpin	10
CT24-5	*No catch*	

2.4.2.3 Regional data and comparison to previous years

Collector-plate Arrays

One invasive taxon (*P. cornuta*) was identified within the CPA in 2024 (this study). This species was not identified during baseline studies (Keystone Environmental 2024b). Based on limited baseline sample size, it can not be conclusively stated whether this invasive taxon was introduced by the Project or not. Notably, regional introduction of this species is known, but its range and invasion status are uncertain due to confusion with morphologically similar species and its phenotypic variability.

During baseline studies, the majority of organisms identified on the collector plates were not identifiable to the species level. As recommended in the MFFH baseline report (Keystone Environmental 2024b), the MFFH EEMP made several modifications to the method to improve species identification:

- Deployment time was increased from 3-4 to 6 months to allow organisms more time to mature.
- Plate arrays were modified to place one plate above the halocline and two plates below the halocline to determine whether organisms prefer marine or freshwater/brackish environments (plates during baseline studies were all placed within the top 2 m of the water column).
- Retrieved plates with formalin preservative were stored in sealed containers as opposed to ziplock bags to ensure preservation and prevent leaks of formalin during shipment to the laboratory.

Overall, the proposed modifications had a positive effect on the quality and clarity of the results and it is recommended they be carried forward for future deployment events:

- The increased deployment time was successful in improving species identification. More taxa were able to be identified down to the species level, while total abundance additionally increased on plates. The average total abundance recorded per plate was 624 during baseline studies, compared to 5737 in 2024.
- The laboratory reported that samples were received in good condition, and cases that organisms were listed as damaged or fragmented were limited and usually from the flocculent of the sample, which is to be expected (T. Macdonald, personal communication, February 5, 2025).
- The results of deployment 1 did not provide a strong indication that freshwater input was a detriment to the settlement of marine organisms. As just two locations were collected for taxonomic identification, further years of sampling at all proposed locations will provide further indication.

EGC

EGC were not detected within the PPIA in 2024 (this study). Since 2021, the Sea to Sky Invasive Species Council in collaboration with DFO has conducted an annual EGC monitoring program in Howe Sound. The 2024 program included monthly monitoring from May to September at four sites, located at the Mamquam Blind Channel, Cattermole Slough, Furry Creek, and Porteau Cove. Evidence of EGC was not observed in 2024 surveys, nor in surveys conducted from 2021 to 2023 (SSISC 2025).

2.4.2.4 KPI4 Statement

Inconsistent with the hypothesis for KPI4, AIS presence and abundance was not kept to zero throughout the life of the Project.

However, priority species regulated under the DFO *Aquatic Invasive Species Regulation* were not observed (e.g. EGC, tunicate species). Little is understood about the invasion status of the observed AIS (*Polydora cornuta)* and management strategies for established populations are not known. At this point, just two individuals of *P. Cornuta* were observed, thus it does not appear to be a dominant species that has negatively impacted diversity of the epifaunal invertebrate community within the CPA. Additional years of AIS monitoring will provide insight on *P. cornuta* establishment within the CPA and potential impacts on native species.

2.4.3 Recommendations

As noted in **Section 2.4.1.3**, at the end of prescribed monitoring period for deployment 1, just two arrays remained: AIS-1 and AIS-2. The root cause of the missing arrays (AIS-3, AIS-NR, AIS-SR) was not known, but the following possible causes were considered:

- The steep bathymetry of the seabed in Howe Sound leads to minimal optimal locations to deploy the collector plate arrays. Narrow flat benches of shallow depth (e.g. <15 m) often lead to steep drop offs (e.g. >50 m). Arrays deployed on narrow benches could naturally shift further offshore over time and be lost, or arrays placed on slopes could gradually sink downwards and pull the buoy underwater.

- AIS-SR and AIS-NR were deployed in locations consistent with those from baseline studies. The location of AIS-3 had to be adjusted due to interference with marine construction activities within the CPA. As noted in the baseline report, recommended modifications to the methods include assuring that at least two of the three collector plates were placed below the halocline to determine whether organisms prefer marine or freshwater/brackish environments. As a result, the buoys had to be deployed at greater depths compared to depths deployed for baseline studies, in which there were less options of flat benches. The best option was chosen but there was still risk of anchor movement down slope.
- Higher site activity and marine traffic in the area compared to baseline studies. This leads to greater risk of intentional and/or accidental damage (e.g. sinking line entanglement with boat propellers causing line to cut, barge collisions with buoys).

As a result, the following modifications to the methodology were made prior to deployment 2:

- Full cinderblocks were used as opposed to half cinderblocks to anchor the array, to provide more weight and less potential that the array could shift on the seabed
- Buoys were switched to larger buoys that were more visible. Reflective tape was also added around the buoy so they would be more visible during night shifts.
- Bathymetry data was reviewed prior to the field visit and field-verified prior to deploying buoys. Modified locations prioritised finding areas with larger shelves/a more gradual slope on the seabed.

Revised locations for AIS-SR, AIS-NR and AIS-3 for deployment 2 (October 2024) are shown on **Figure 2-12.** AIS-1 and AIS-2 were deployed in the same location as deployment 1 (April 2024). The buoys remain deployed, results for deployment 2 will be presented in the 2025 annual report. To maintain consistency between results, it is recommended that the revised deployment locations be carried forward for all future deployment events as feasible.

It is recommended that the MFFH EEMP and corresponding SOP is revised to capture the above recommendations to the AIS collector plate methodology.

2.5 Incidental Observations

The following section summarises notable incidental observations recorded during the 2024 EEMP surveys for lingcod, glass sponge reefs, and Northern anchovy. Although the following observations are non-target and not directly tested by KPIs, they are acknowledged as species of interest due to their sensitivity, and ecological and cultural significance.

Lingcod egg masses were observed within the CPA during herring dive surveys on March 1st, 13th, and 27th, and May 8th and 21st, 2024 (**Figure 2-2, Photograph A4**). Observations were concentrated near the northeast corner of the CPA, among large boulder and bedrock crevices near the FST footprint. Baseline dive surveys from 2015, 2016, 2019, and 2023 (Keystone Environmental Ltd. 2024b) also show repeated egg mass occurrences in this location, indicating its regular use during a sensitive life stage. Potential effects from FST construction include physical disturbance or sediment deposition. However, as required by the Project's *Fisheries Act Authorization*, construction is conducted within the marine least risk window (August 16 to January 31) when lingcod egg masses are not expected to be present.

Glass sponge individuals or reefs (class *Hexaactinellida*) were not observed in any surveys conducted in 2024, nor during offsetting-specific dive surveys conducted under the OEMP (Keystone Environmental Ltd. 2024c). As noted in the Pre-construction Baseline report (Keystone Environmental Ltd. 2024b), records of glass sponges were observed at depths ranging from 38 to 175 m near "Woodfibre" in 1984 (Leys et al., 2004). Observations did not represent a fully intact reef, but rather mostly dead specimens, with only one recorded live occurrence in water shallower than 100 m (Leys et al., 2004). An updated desktop search confirmed no additional regional document of Glass sponges near the CPA. The closest documented living glass sponge reef is located approximately 10 km south of the CPA at East Defence Island (DFO 2023b). The presence of glass sponge reefs will continue to be monitored incidentally during the EEMP surveys, and the TAC acknowledges the high sensitivity and critical ecological role they play in Howe Sound.

As noted in **Section 2.2.2,** Northern anchovy was captured during seining surveys within the CPA and reference sites at both the adult and fry life stages. After over a decade of no sightings, anecdotal evidence of large numbers of schooling juvenile anchovies in Howe Sound has been reported in news articles since 2016, and anchovy has been captured in baseline seining surveys since 2020 (Keystone Environmental 2024b). It is believed that the increase in Northern anchovy abundance in Howe Sound (and more broadly the Salish Sea) is correlated to elevated ocean temperature, particularly the elevated ocean temperatures observed from 2014 to 2016 (Duguid et al. 2019). The Northern anchovy is traditionally a southern species centred in California, where BC was considered the northern end of their range. The relative abundance of Northern anchovy within the CPA and reference sites will continue to be monitored under KPI2c: Forage Fish, and if of interest could be revised into a separate quantitative sub-KPI.

3. SUMMARY AND CONCLUSIONS

Woodfibre LNG commenced construction in November 2023 of an LNG export facility on the former Woodfibre Pulp Mill site in Howe Sound. Project construction is expected to take four to five years. This monitoring report presents the first year (i.e. 2024) of monitoring results conducted in accordance with the MFFH EEMP.

This report presents the results of the 2024 monitoring program, based on four main KPIs that were selected to test project-level effects as defined in the MFFH EEMP (Keystone Environmental Ltd. 2024a):

- KPI1: Change in fish behaviour- Pacific herring spawning
- KPI2: Change in fish abundance – presence and migration through the CPA
- KPI3: Change in fish behaviour: salmon spawning and outmigration from Mill Creek
- KPI4: Introduction of invasive species from ballast water exchange (or other means)

Consistent with the hypotheses established for each KPI, it is believed that the results recorded in the CPA remain within the historical range of natural variation and no preliminary observations of project-level effects were observed. Notably, as this was the first year that the monitoring design in the EEMP was employed, additional years of data collection are required to make observations beyond qualitative comparisons to baseline data collection. A preliminary analysis of trends for each KPI is expected next year in the 2025 annual report with further consideration in the synthesis report after construction is completed.

At this time, there are no suggested modifications to mitigation measures outlined in MFFHMMP as they pertain to general works, timing windows, and other measures to mitigate effects on fish and fish habitat.

Key observations made during the 2024 monitoring program include:

- Pacific herring uses boulder and bedrock habitat in the southwest corner of the CPA for spawning with preference of substrate covered with macroalgae. Pacific herring may spawn in the CPA throughout the spawning season (February to May), however additional years of data will help refine the timing that herring are most likely to spawn in the CPA.
- Juvenile Pacific salmonids, including chum salmon, coho salmon, chinook salmon and pink salmon are consistently present in the CPA throughout the sampling period (February to July).
- Pacific herring capture showed a high level of variation between CPA sites and over time but were present in various levels of abundance between March and July.
- A notable forage fish, Northern anchovy, was captured in low numbers periodically throughout the sampling period predominantly at reference sites, while single captures occurred in the CPA in April and May.
- Pink salmon and chum salmon spawn in Mill Creek and outmigration begins the following year as early as March. Modifications to the monitoring method are required to refine the sampling period to ensure the window of outmigration is adequately captured. Recommendations are outlined in **Section 2.3.3**.
- Priority invasive species regulated under the DFO *Aquatic Invasive Species Regulation* were not observed (e.g. EGC, tunicate species). Modifications to the monitoring method are required to ensure the successful deployment of collector plate arrays. Recommendations are outlined in **Section 2.4.3.**
- Critical or sensitive habitats, including glass sponge reefs or eelgrass beds were not observed.

4. PROFESSIONAL STATEMENT

Keystone Environmental Ltd. confirms that this report titled *2024 Marine Fish and Fish Habitat Environmental Effects Annual Report* has been prepared in general conformance with the *Marine Fish and Fish Habitat Management and Monitoring Plan and the Marine Fish and Fish Habitat Environmental Effects Monitoring Plan*. This report has also been prepared in a manner consistent with that level of care and skill normally exercised by other members of the environmental science and engineering profession practising under similar circumstances in the area at the time of the performance of the work.

Recommendations and guidelines presented in this report are based upon (i) a review of available documentation and records, (ii) discussions with available personnel and regulatory representatives, (iii) review of the terms and conditions for planned construction, and (iv) observations of the Site and surrounding lands. Consequently, while the recommendations and guidelines presented in this report have been prepared in a manner consistent with that level of care and skill normally exercised by other members of the environmental science and engineering profession practicing under similar circumstances in the area at the time of the performance of the work, this report is intended to provide information to inform mitigative strategies to reduce, but not necessarily eliminate, the potential for environmental impacts to occur as a result of planned work activities at the Site. This report is meant to inform guidance on the environmental protection measures that can be implemented during routine Marine Project activities, as well as unanticipated events or requirements that may arise during the course of construction.

This report has been prepared solely for the internal use of the Woodfibre LNG Limited Partnership pursuant to the agreement between Keystone Environmental Ltd. and Woodfibre LNG Limited Partnership. Any use which other parties make of this report, or any reliance on, or decisions made based on it, are the responsibility of such parties. By using the report, Woodfibre LNG Limited Partnership agrees that it will review and use the report in its entirety. Keystone Environmental Ltd. accepts no responsibility for damages, if any, suffered by other parties as a result of decisions made or actions based on this report.

This report was written by Caitlin Belz with input from the Technical Advisory Committee (LGL, PGL, Woodfibre LNG, Squamish Nation). Professionals of Record and Senior reviewer(s) Afshin Parsamanesh, Duncan Clark and Warren Appleton, have demonstrable experience in monitoring project effects on marine and freshwater fish and fish habitat and are familiar with the monitoring protocols carried out at the Site.

Technical content of this report involves areas of practice requiring more than one Professional of Record as follows:

- Duncan Clark is Professional of Record for Sections 2.1, 2.2, 2.4 and 2.5.
- Afshin Parsamanesh is Professional of Record for Section 2.3.

If you have questions regarding the information contained in this report, please contact the undersigned.

March 28, 2025
Date

Keystone Environmental Ltd.

_____

Afshin Parsamanesh M.Sc., R.P.Bio.
Senior Project Manager/ Fisheries Biologist

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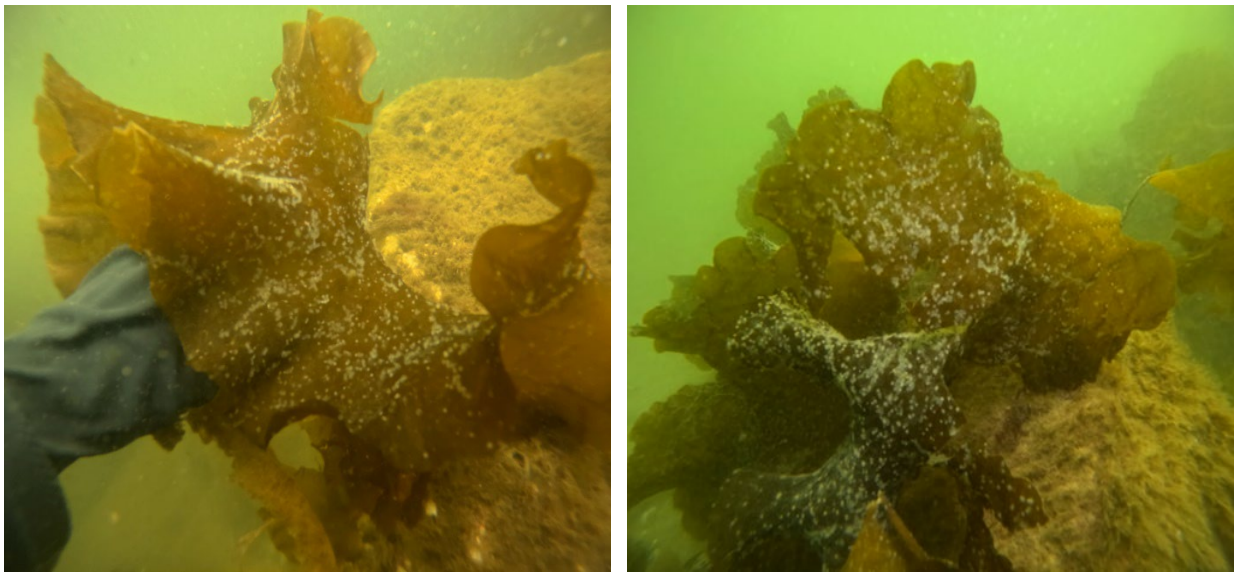
APPENDIX A

PHOTOGRAPHS

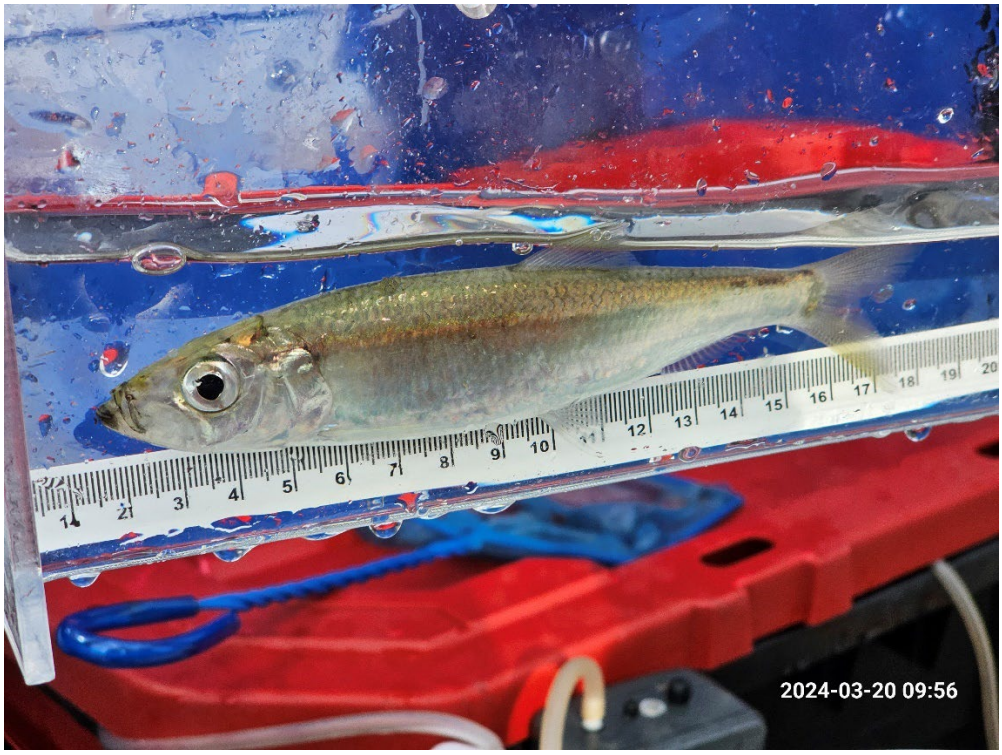


Photograph A1: Hatched herring egg masses observed in the shallow subtidal zone on sugar wrack kelp (April 26, 2024).

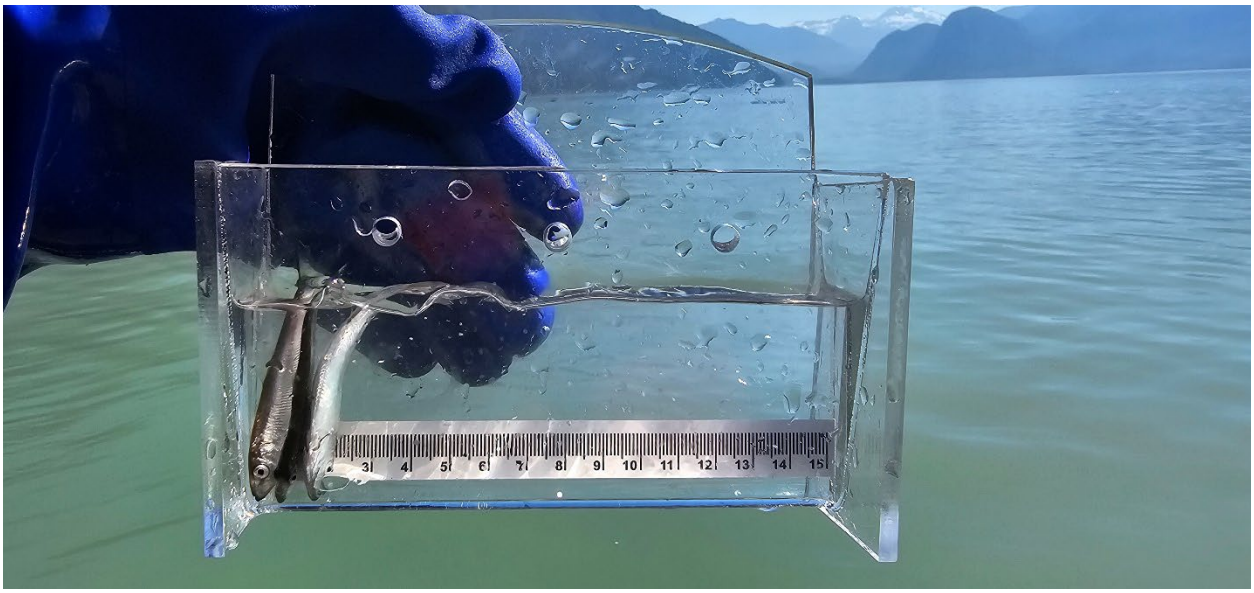
Photograph A2: Herring egg masses observed in the lower intertidal zone on fucus with boulder and bedrock substrate, detailed data was collected in this section of herring spawn (April 26, 2024).

Photograph A3: Observation of herring spawn at beach seine BS-SR reference site (April 18, 2024).

Photograph A4: Example of lingcod (*Ophiodon elongatus*) egg masses observed within the CPA between March 1, 2024 and May 21, 2024. Observations were made incidentally during Herring Dive Surveys. Spawn locations were located along the northeast corner of the CPA (March 1, 2024 (left) & March 27, 2024 (right)).

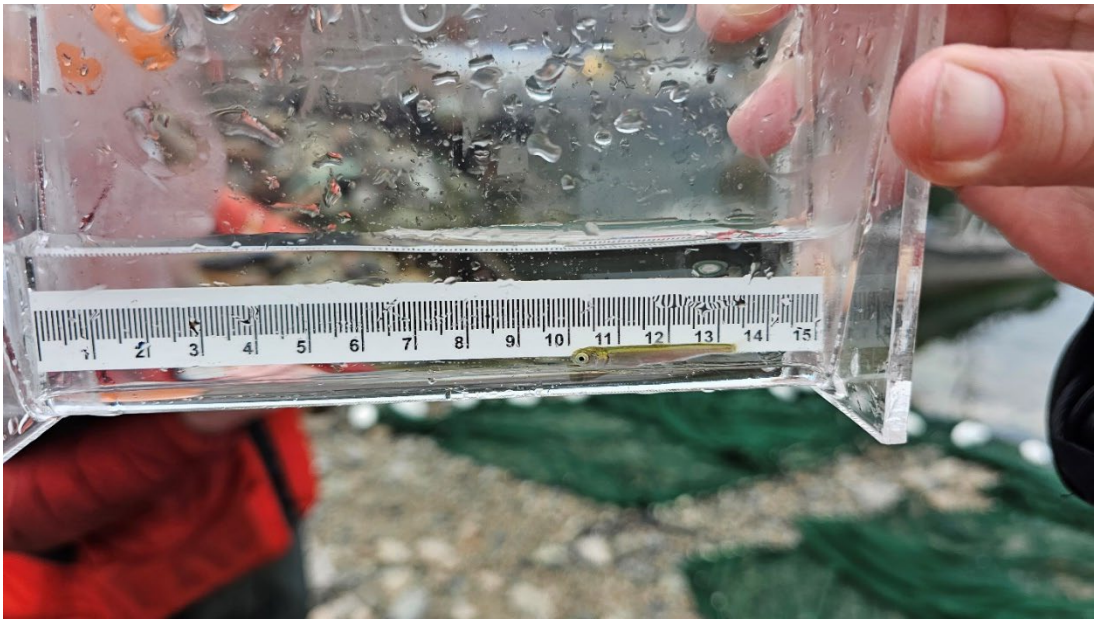


Photograph A5: Adult Pacific herring (*Clupea pallasii*) captured within the PPIA during purse seine at PS-2 (March 20, 2024).



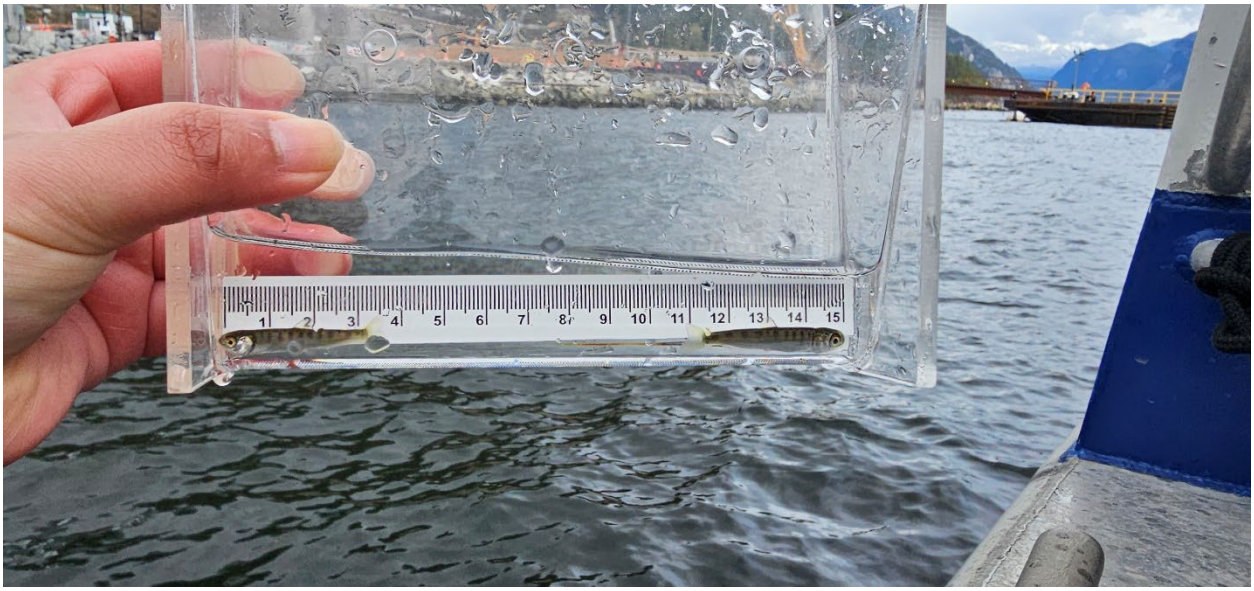
Photograph A6: Juvenile Pacific herring, school of 99 were captured during purse seine at reference site PS-SR (July 9, 2024).

Photograph A7: Pacific herring with lamprey wound captured during beach seine at reference site BS-SR (June 27, 2024).



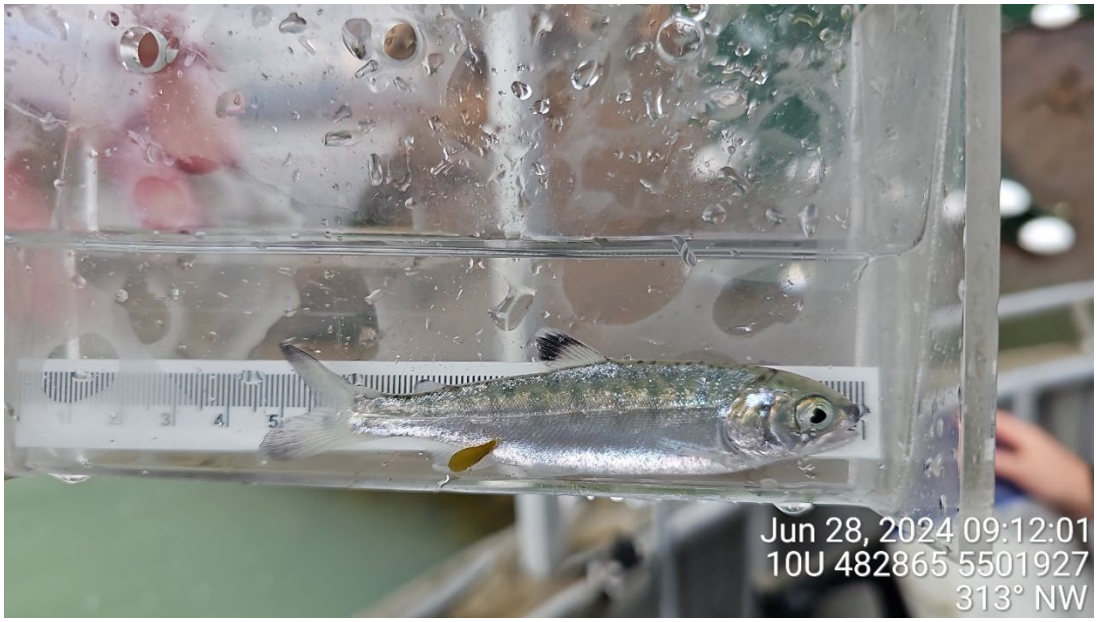
Photograph A8: Pink salmon fry (*Oncorhynchus gorbuscha*) captured within the PPIA during beach seine at BS-4 (February 23, 2024).

Photograph A9: Juvenile Pink salmon smolt captured during beach seine at reference site BS-SR (July 11, 2024).



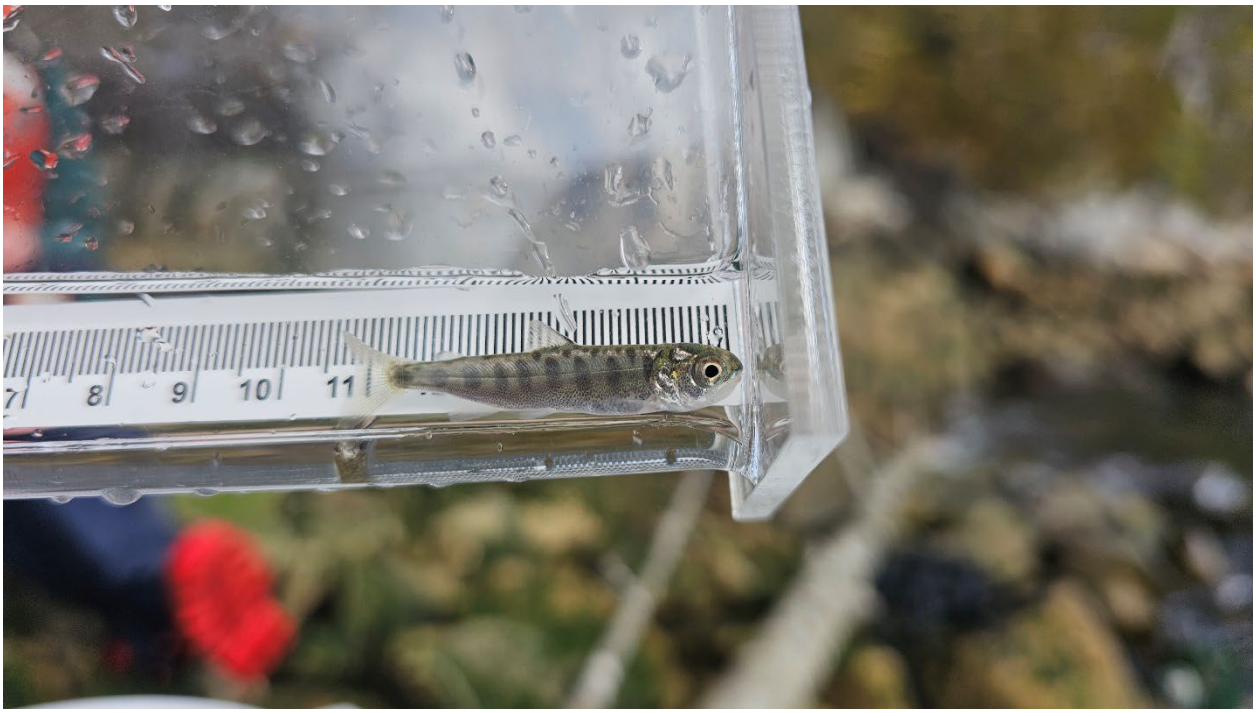
Photograph A10: Chum salmon (*Oncorhynchus keta*) fry captured within the PPIA during purse seine at PS-2 (April 3, 2024).

Photograph A11: Chum salmon (*Oncorhynchus keta*) smolt captured within the PPIA during beach seine at BS-1 (June 13, 2024).



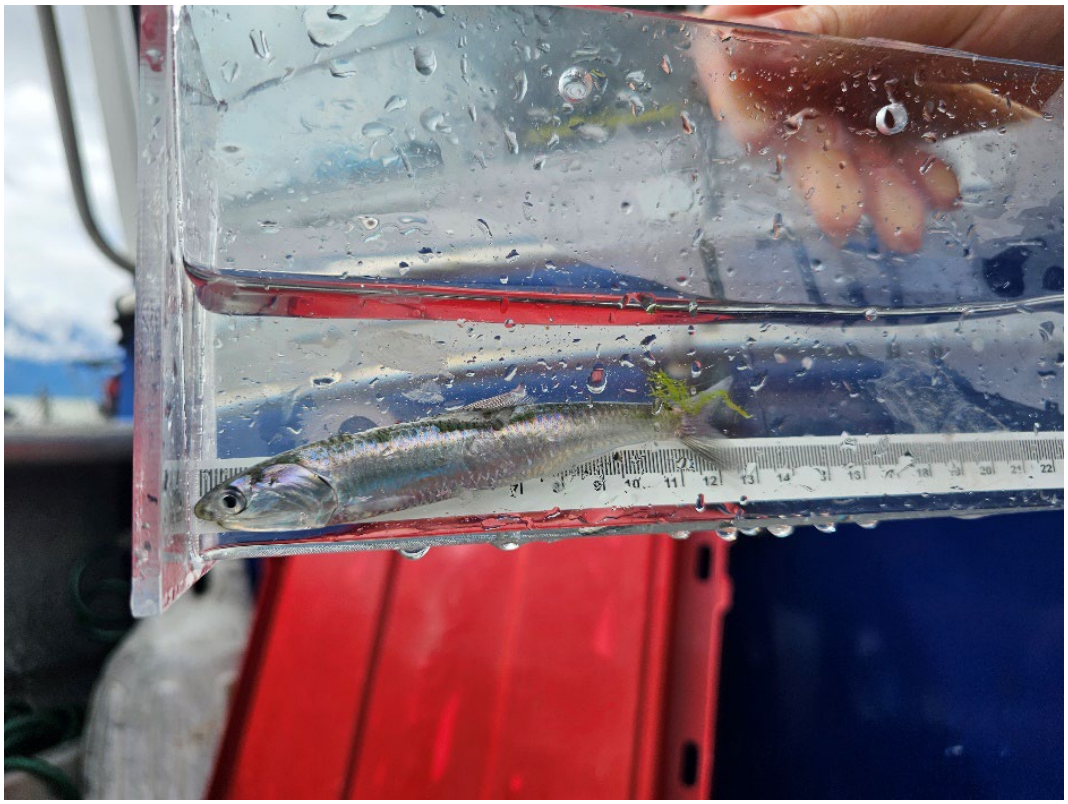
Photograph A12: Coho salmon (*Oncorhynchus kisutch*) smolt captured during beach seine at reference site BS-NR (June 28, 2024).

Photograph A13: Coho salmon (*Oncorhynchus kisutch*) parr captured within the PPIA during beach seine at BS-AR (June 28, 2024).

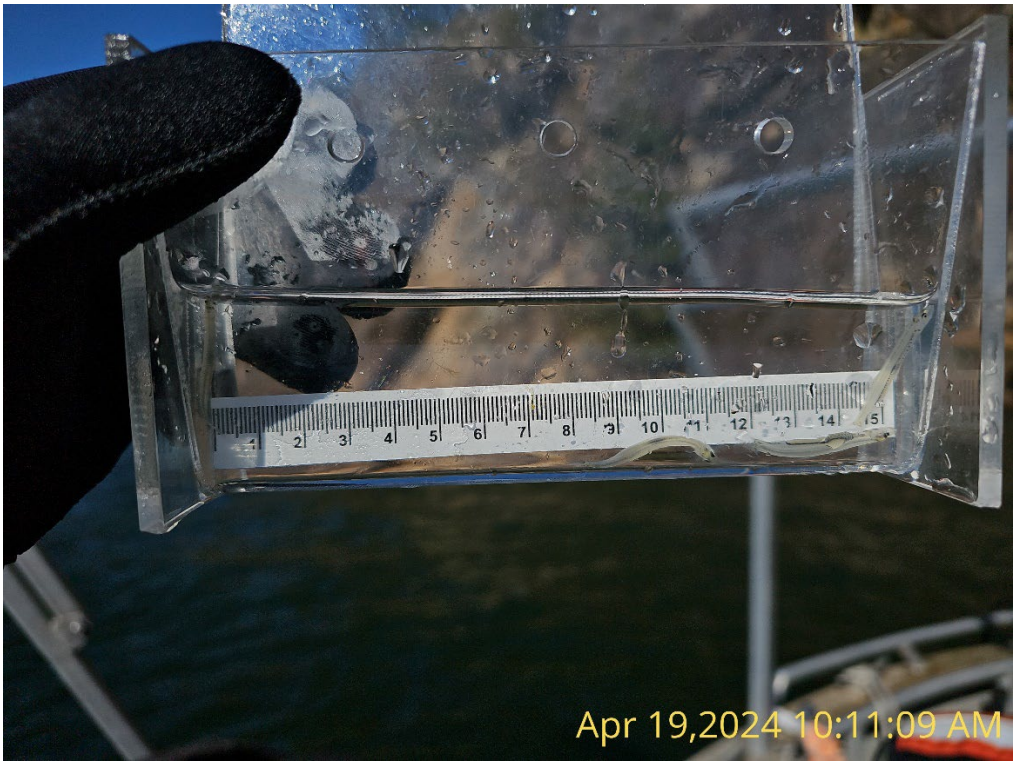


Photograph A14: Chinook salmon (*Oncorhynchus tshawytscha*) fry captured during beach seine at reference site BS-AR (February 23, 2024).

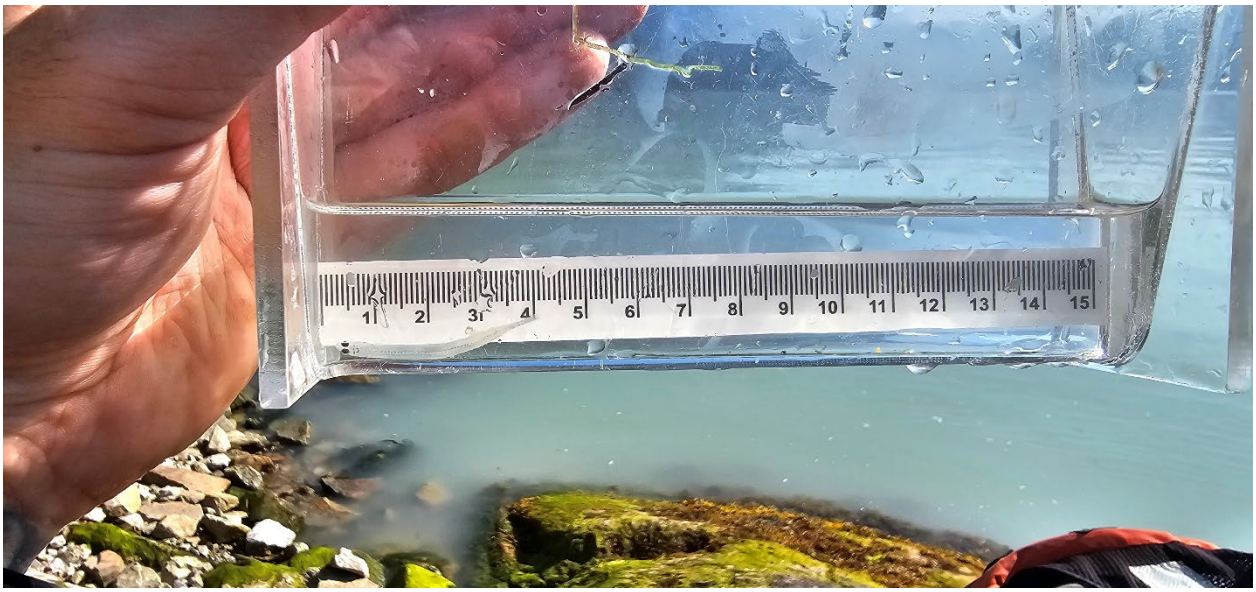
Photograph A15: Chinook salmon (*Oncorhynchus tshawytscha*) smolt captured during purse seine within the PPIA at PS-3. Clipped adipose fin indicates farm fish (May 14, 2024).



Photograph A16: Northern Anchovy (Engraulis mordax) adult captured within the PPIA during purse seine at PS-4 (May 29, 2024).

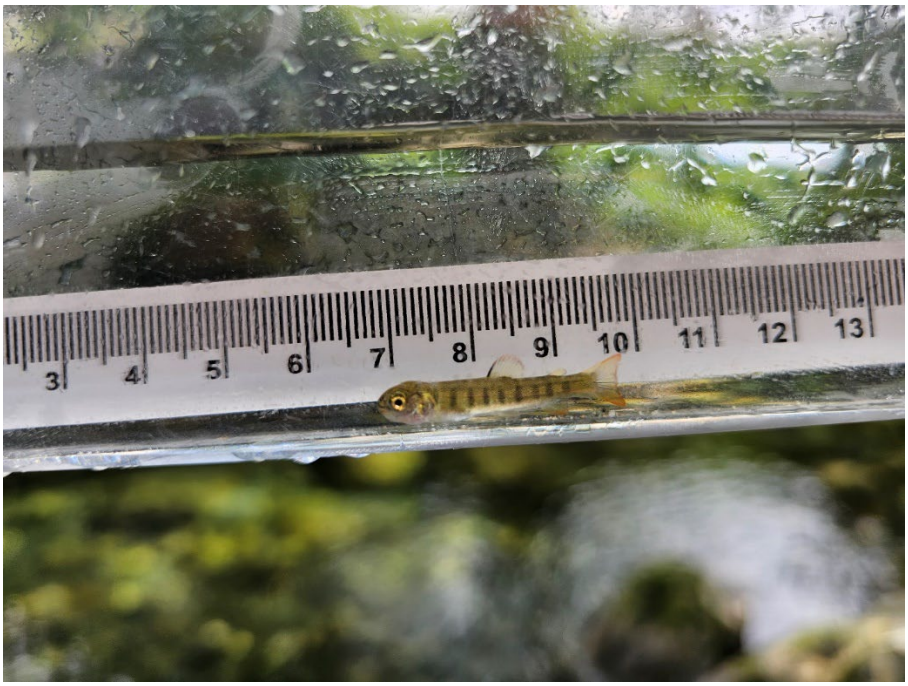


Photograph A17: Northern Anchovy (Engraulis mordax) fry, school of 100 were captured at reference site at BS-AR (April 19, 2024)



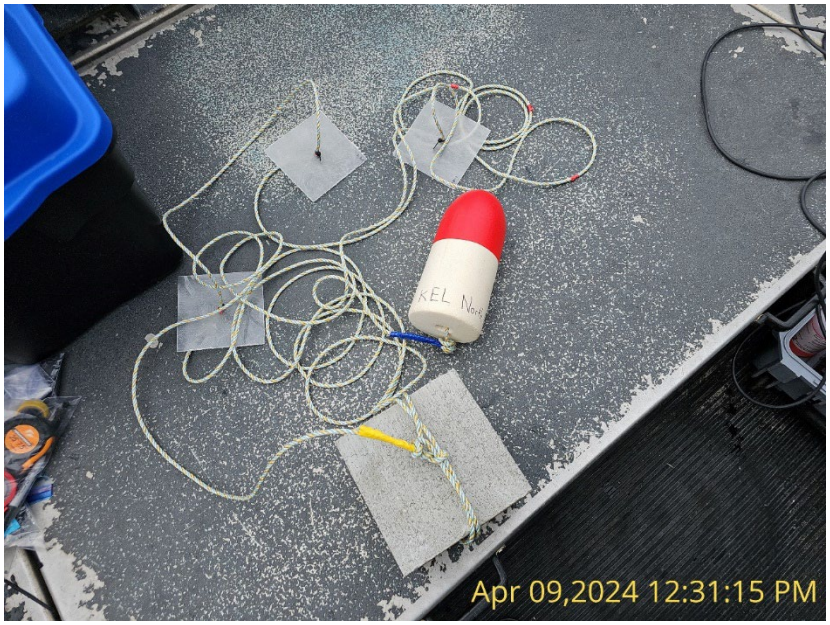
Photograph A18: Northern Anchovy (Engraulis mordax) fry captured during beach seine at reference site BS-SR (July 11, 2024).

Photograph A19: Striped perch (*Embiotoca lateralis*) captured within the CPA during beach seine at BS-5 (May 3, 2024).



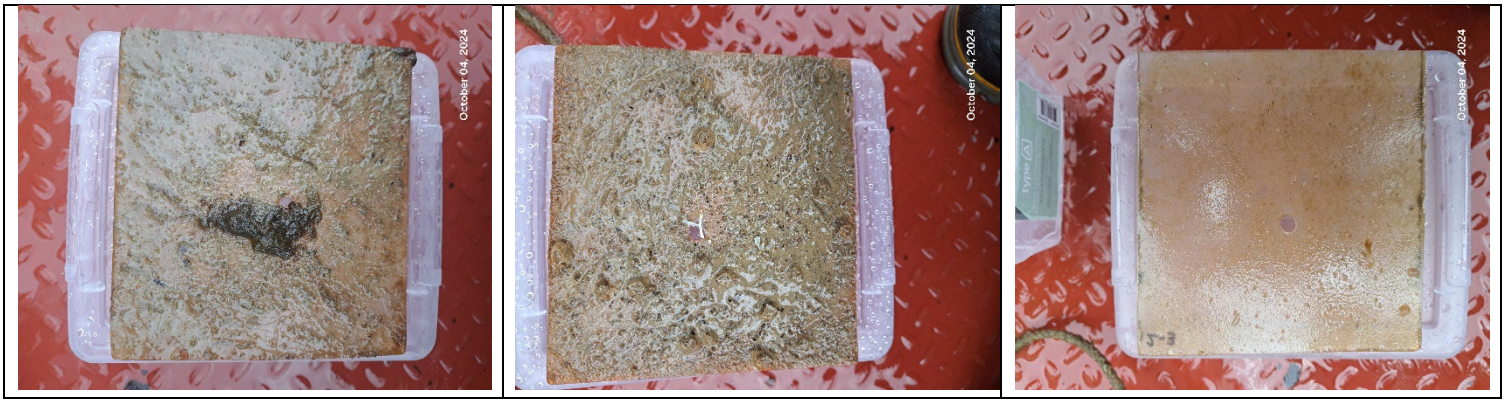
Photograph A20: Dolly Varden (*Salvelinus malma*) captured in Mill Creek during electrofishing (July 31, 2024).

Photograph A21: Dolly Varden (*Oncorhynchus mykiss*) captured in Mill Creek during minnow trapping at MCMT09 (August 1, 2024).



Photograph A22: Aquatic Invasive Species Collector Plate Array Deployed at the North Reference Site. Each collector plate included a marker buoy attached to lead-core sinking rope line. Sanded PVC plates were threaded on the rope line and secured at desired depths with zip ties. Each array was weighted at the bottom with a concrete cinder block.

Photograph A23: Aquatic Invasive Species Collector Plates deployed April 9, 2024, and collected October 4, 2024, at AIS-1 (in proximity to Woodfibre Creek and Ro-Ro). The top plate (left) was deployed 1 m below the water surface, the middle plate (middle) was deployed 5 m below the water surface, and the bottom plate (right) was deployed 6 m below the water surface.



Photograph A24: Aquatic Invasive Species Collector Plates deployed April 9, 2024, and collected October 4, 2024, at AIS-2 (in proximity to the floatel). The top plate (left) was deployed 1 m below the water surface, the middle plate (middle) was deployed 2 m below the water surface, and the bottom plate (right) was deployed 3 m below the water surface.

APPENDIX B

KPI1 TASKS

Table 1a: Raw data table for herring spawn distribution surveys.

Date	Dive Number	Location	Dive Start Time	Dive End Time	Dive Start Coordinates	Dive End Coordinates	Area Surveyed	Weather (sea state, beaufort scale)	Direction of Tide	Visibility (m) Surface	Visibility (m) at Depth	Water temperature (C)	Spawn Observed	Notes
2024-02-15	1	CPA	9:50	11:09	(49.668789, -123.244568)	(49.664431, -123.254644)	Area 9 through 4		Ebb				FALSE	
2024-02-15	2	CPA	11:41	12:24	(49.664431, -123.254644)	(49.660541, -123.259209)	4 to lockblock.		Ebb				FALSE	
2024-02-15	3	CPA	13:15	14:10	(49.660541, -123.259209)	(49.657972, -123.258468)	Lock block to southend of CPA		Ebb				FALSE	
2024-02-29	1	CPA	10:00	11:14	(49.668789, -123.244568)	(49.664431, -123.254644)	Area 9 through 4		Ebb				FALSE	
2024-02-29	2	CPA	12:12	12:55	(49.664431, -123.254644)	(49.660541, -123.259209)	4 to lockblock		Ebb				FALSE	
2024-02-29	3	CPA	13:11	13:34	(49.660541, -123.259209)	(49.657972, -123.258468)	Lock block to southend of CPA		Ebb				FALSE	
2024-03-12	1	CPA	9:49	11:10	(49.668789, -123.244568)	(49.664431, -123.254644)	Area 9 through 4	0	Ebb	1	2	6	FALSE	Marine organism salvage: 4 mottle sea star adults, 3 juvenile mottle sea stars, 2 green sea urchin. Removed from the temporary access dock piles. Log abutting east mooring pile at sea bed approximate 0.5m diameter. Large Lingcod egg mass start of dive 5C at a depth of 3m. No obstructions swam up mill creek to the first bridge. New RipRap at mill creek with 100% of filimenteous diatoms and 40% coverage of ulva intestinalis.
2024-03-12	2	CPA	11:59	13:10	(49.664431, -123.254644)	(49.657972, -123.258468)	Area 3 through southend of CPA.	0	Ebb	1	2	5	FALSE	South Barge empty. Could only access Woodfibre Creek up to the evergreen tree line. Water level too low at mouth of river to reach higher.Welding occuring on floatel.
2024-03-26	1	CPA	9:29	10:21	(49.668789, -123.244568)	(49.664431, -123.254644)	Area 9 through 4	0	Ebb	3	3	9	FALSE	Started by inspecting mooring line of WSP for eggs, north end of Site (Jeff Prowse). Sea lions present. KEL doing Fyke net in mill creek. No eggs.
2024-03-26	2	CPA	11:23	12:33	(49.664431, -123.254644)	(49.657972, -123.258468)	Area 3 through southend of CPA. Not able to dive south barge ramp.	0	Ebb	1.5	1.5	8	FALSE	Only inaccessable area was south barge ramp. Stayed inside of flexi floats near floatel (between opsdock and RoRo).
2024-04-11	1	CPA	9:53	10:44	(49.668789, -123.244568)	(49.664431, -123.254644)	Area 9 through 4	0-0.5	Ebb	5.2	5.2	8	FALSE	No marine activities planned for the day except for crewboats, barge and environmental WQ sampling. Able to look up to first bridge on mill creek, nothing @ north barge ramp. No egg masses or herring eggs. Buffalo sculpin on eggs.
2024-04-11	2	CPA	11:31	12:30	(49.664431, -123.254644)	(49.657972, -123.258468)	Area 3 through southend of CPA	0	Ebb	1.5	1.5	8	FALSE	MSI was on site, we said hi. South of Woodfibre creek. Could only get up to the mouth of woodfibre creek. No eggs observed.
2024-04-25	1	CPA	9:49	10:42	(49.668789, -123.244568)	(49.664431, -123.254644)	Area 9 through 4. Not able to dive two barges at North barge ramp.	0-0.5	Ebb	1.5	1.5	9	FALSE	Not able to survey north sheet pile wall or north barge ramp due to presence of barges and tugs. Went up to sheet pile started again south of north barge ramp. Dove up to the first bridge at milll creek. Whale noises heard throughout dive. Large group of sea lions at mill creek.
2024-04-25	2	CPA	11:46	12:55	(49.664431, -123.254644)	(49.657972, -123.258468)	Area 3 through southend of CPA	0	Ebb	1.5	1.5	9	TRUE	Bubble curtain off at RoRo to allow piles to be inspected. No herring spawn. Salvaged some urchins and mottled stars. No barge at south ramp. Lots of herring spawn found on sugar kelp and on fucus. Eggs already hatched at time of survey. Detailed transect data not collected. Density of spawn on kelp ranged from 5-25%. One layer thick.
2024-04-25	2	CPA	11:46	12:55	(49.664431, -123.254644)	(49.657972, -123.258468)	Area 3 through southend of CPA	0	Ebb	1.5	1.5	9	TRUE	Transects conducted in drysuit and fins. Detailed transect data collected (see detailed data collection). The complete length of spawn extended south outside of CPA. No diving south of the CPA.
2024-05-07	1	CPA	9:23	10:15	(49.668789, -123.244568)	(49.664431, -123.254644)	Area 9 through 4. Not able to dive north sheet pile wall and north barge ramp.	0	Ebb	1.2	4.9	10	FALSE	North barge ramp busy. 3 barges and tugs. Divers stopped before sheet pile wall. Restarted south of barge ramp. Mill creek was inaccessible due to low tide 10:00
2024-05-07	2	CPA	11:00	12:10	(49.664431, -123.254644)	(49.657972, -123.258468)	Area 3 through southend of CPA	0	Ebb	0.3	4.6	10	FALSE	Bubble curtains on at RoRo. South barge ramp open woodfibre creek not accessible low tide. One diver got out of water and walked the shoreline where herring spawn was observed at previous survey. Hatched eggs observed in and out of the water.
2024-05-20	1	CPA	9:22	10:08	(49.668789, -123.244568)	(49.664431, -123.254644)	Area 9 through 4. Not able to dive north barge area.	0	Ebb	0.3	7.6	9	FALSE	North barge area not accessible due to barges. Made it 30' north of sheet pile wall. Mill creek not accessible due to low tide.
2024-05-20	2	CPA	10:40	12:10	(49.664431, -123.254644)	(49.657972, -123.258468)	Area 3 through southend of CPA	0	Flood	0.3	7.6	12	FALSE	Yellow railing barge dock start. South barge was open. Couldn't access woodfibre creek due to low tide.
2024-06-04	1	CPA	8:55	9:40	(49.668789, -123.244568)	(49.664431, -123.254644)	Area 9 through 4. Not able to dive north barge ramp.	0	Ebb	0.6	7.6	9	FALSE	Barges and tugs at North ramp= not accessible. Mill creek not accessible, water level too low.
2024-06-04	2	CPA	10:30	11:29	(49.664431, -123.254644)	(49.657972, -123.258468)	Area 3 through southend of CPA	0	Flood	0.6	7.6	10	FALSE	South barge ramp not accessible. Tug and barge and woodifbre not accessible due to water level.
2024-06-17	1	CPA	9:25	10:08	(49.668789, -123.244568)	(49.664431, -123.254644)	Area 9 through 4. Not able to dive north barge ramp.	0	Flood	0.3	3	14	FALSE	North barge not accessible due to multiple barges and tugs. Got to the start of sheet pile wall, and got to the yellow railing barge.
2024-06-17	2	CPA	10:50	11:53	(49.664431, -123.254644)	(49.657972, -123.258468)	Area 3 through southend of CPA	1	Flood	0.3	3	14	FALSE	No barges @ south ramp, bubble curtains on around temp dock piles. Woodfibre creek not accessible due to low tide, mitch took off fins and looked on the beach.

Table 1b: Raw data table for herring spawn distribution surveys where spawning was observed.

Date	Dive Number	Dive Start Time	Dive End Time	Start Coordinate of Observed Spawn along Shoreline	End Coordinate of Observed Spawn along Shoreline	Spawn Horizontal length (m)	Detailed Data Collected? (Yes/No)	Egg layer viability	Predominant Attachment substrate
2024-04-25	2	11:46	12:55	(49.65924, -123.25916)	(49.65819, -123.25866)	125	No, eggs already hatched at time of observation.	Hatched	Sugar wrack kelp
2024-04-25	2	11:46	12:55	(49.65819, -123.25866)	(49.65795, -123.25848)	22	Yes	Viable	Fucus/Boulder Fucus/Bedrock

Table 2a: Raw data table for herring transects in which quadrat surveys occurred.

Date	Transect Upslope Coordinates	Transect Downslope Coordinates	Location	Area	Transect #	# of Quadrats Sampled	Water temp (°C)	Weather (sea state, Beaufort scale)	Water Visibility at depth (m)	Water visibility at surface (m)	Comments
2024-04-25	(49.65819,-123.25866)	(49.65819,-123.25858)	CPA	1	1	12	9	0	1.5	1.5	
2024-04-25	(49.65791,-123.25839)	(49.65795,-123.25831)	CPA	1	2	14	9	0	1.5	1.5	Transect 2 was located just outside of the CPA as detailed information was collected at low tide and safe access points were limited along steep bedrock shoreline.

Table 2b: Raw data table for herring transects in which quadrat surveys occurred.

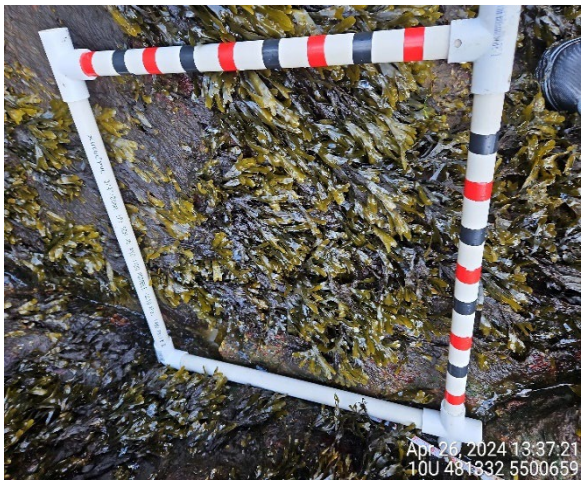
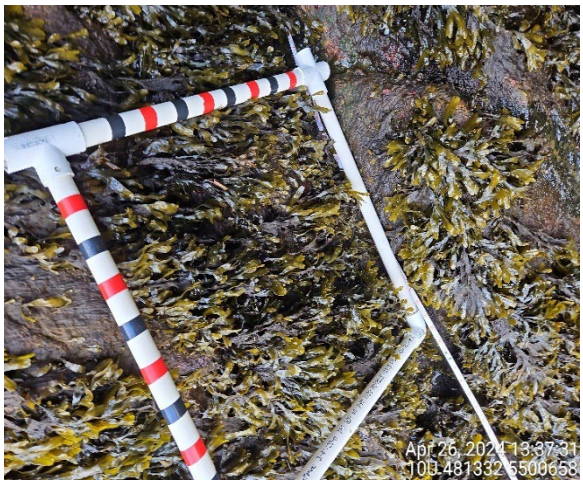
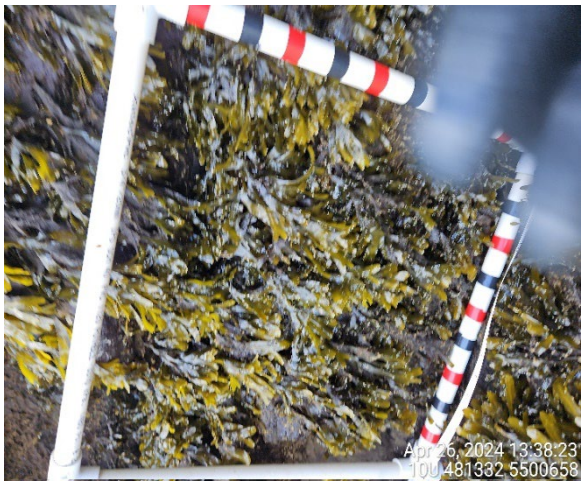
Date	Time	Location	Area	Transect #	Quadrat #	Distance on Transect (m)	Depth (m)	Elevation (m CD)	Attachment Substrate	Percent coverage of substrate type in quadrat	Percent coverage of macroalgae in quadrat Rockweed	Percent coverage of macroalgae in quadrat Ulva intestinalis	Percent coverage of macroalgae in quadrat diatoms	Overall Percent coverage (%)	Percent coverage on substrate (%)	Percent coverage on macroalgae (%)	Number of Spawn Layers	Comments
2024-04-25	13:37:21	CPA	1	1	Q1-L	0	0	1.3	Fucus/Bedrock	Bedrock 100%	80	0	0	5	0	5	1	
2024-04-25	13:37:31	CPA	1	1	Q1-R	0	0	1.3	Fucus/Bedrock	Bedrock 100%	98	0	0	5	0	5	1	
2024-04-25	13:38:23	CPA	1	1	Q2-L	1	0	1	Fucus/Bedrock	Bedrock 100%	95	0	0	5	0.5	4.5	1	Predominantly 1 layer, max 2
2024-04-25	13:38:42	CPA	1	1	Q2-R	1	0	1	Fucus/Bedrock	Bedrock 100%	50	0	0	5	0.25	4.75	1	Predominantly 1 layer, max 2
2024-04-25	13:39:28	CPA	1	1	Q3-L	2	0	0.8	Fucus/Bedrock	Bedrock 100%	70	0	0	10	1	9	1	
2024-04-25	13:39:32	CPA	1	1	Q3-R	2	0	0.8	Fucus/Bedrock	Bedrock 100%	40	20	0	5	0.75	4.25	1	
2024-04-25	13:39:58	CPA	1	1	Q4-L	3	0	0.7	Fucus/Boulder/Diatom	Boulder 100%	30	5	70	10	2.5	7.5	1	
2024-04-25	13:40:04	CPA	1	1	Q4-R	3	0	0.7	Fucus/Boulder/Diatom	Boulder 100%	10	0	60	25	20	5	1	
2024-04-25	13:41:41	CPA	1	1	Q5-L	4	0	0.5	Fucus/Boulder/Diatom	Boulder 100%	45	0	45	10	0.2	9.8	2	
2024-04-25	13:41:48	CPA	1	1	Q5-R	4	0	0.5	Fucus/Boulder/Diatom	Boulder 100%	20	0	80	10	0	10	2	
2024-04-25	13:42:20	CPA	1	1	Q6-L	5	0	0.5	Boulder/diatom	Boulder 100%	0	0	95	5	0.25	4.75	1	
2024-04-25	13:42:36	CPA	1	1	Q6-R	5	0	0.5	Boulder/diatom	Boulder 100%	0	0	40	1	1	0	1	
2024-04-25	13:55:14	CPA	1	2	Q1-L	0	0	1.8	Fucus/Bedrock	Bedrock 100%	95	0	0	5	0	5	1	
2024-04-25	13:55:18	CPA	1	2	Q1-R	0	0	1.8	Fucus/Bedrock	Bedrock 100%	80	0	0	5	0.5	4.5	1	
2024-04-25	13:55:35	CPA	1	2	Q2-L	1	0	1.6	Fucus/Bedrock	Bedrock 100%	75	0	0	5	0	5	1	
2024-04-25	13:55:39	CPA	1	2	Q2-R	1	0	1.6	Fucus/Bedrock	Bedrock 100%	85	0	0	5	0	5	1	
2024-04-25	13:55:53	CPA	1	2	Q3-L	2	0	1.3	Fucus/Bedrock	Bedrock 100%	95	0	0	5	0	5	1	
2024-04-25	13:55:57	CPA	1	2	Q3-R	2	0	1.3	Fucus/Bedrock	Bedrock 100%	95	0	0	5	0	5	1	
2024-04-25	13:56:19	CPA	1	2	Q4-L	3	0	1.1	Fucus/Bedrock/Diatom	Bedrock 100%	90	0	0	10	0.5	9.5	3	
2024-04-25	13:56:24	CPA	1	2	Q4-R	3	0	1.1	Fucus/Bedrock/Diatom	Bedrock 100%	0	0	0	0	0	0	3	
2024-04-25	13:56:53	CPA	1	2	Q5-L	4	0	1	Fucus/Bedrock/Diatom	Bedrock 100%	100	0	0	15	0	15	3	

Date	Time	Location	Area	Transect #	Quadrat #	Distance on Transect (m)	Depth (m)	Elevation (m CD)	Attachment Substrate	Percent coverage of substrate type in quadrat	Percent coverage of macroalgae in quadrat Rockweed	Percent coverage of macroalgae in quadrat Ulva intestinalis	Percent coverage of macroalgae in quadrat diatoms	Overall Percent coverage (%)	Percent coverage on substrate (%)	Percent coverage on macroalgae (%)	Number of Spawn Layers	Comments
2024-04-25	13:56:56	CPA	1	2	Q5-R	4	0	1	Fucus/Bedrock/Diatom	Bedrock 100%	100	0	0	10	0	10	3	
2024-04-25	13:57:54	CPA	1	2	Q6-L	5	0	1	Fucus/Bedrock/Diatom	Bedrock 100%	45	0	40	10	0	10	3	
2024-04-25	13:58:01	CPA	1	2	Q6-R	5	0	1	Fucus/Bedrock	Bedrock 100%	90	0	0	20	4	16	3	
2024-04-25	13:58:40	CPA	1	2	Q7-L	6	0	1	Ulva/Fucus/Diatoms/Bedrock	Bedrock 100%	10	5	30	20	10	10	2	
2024-04-25	13:58:49	CPA	1	2	Q7-R	6	0	1	Ulva/Fucus	Bedrock 100%	20	0	0	5	1	4	2	

APPENDIX C

HERRING SPAWN QUADRAT PHOTOGRAPHS

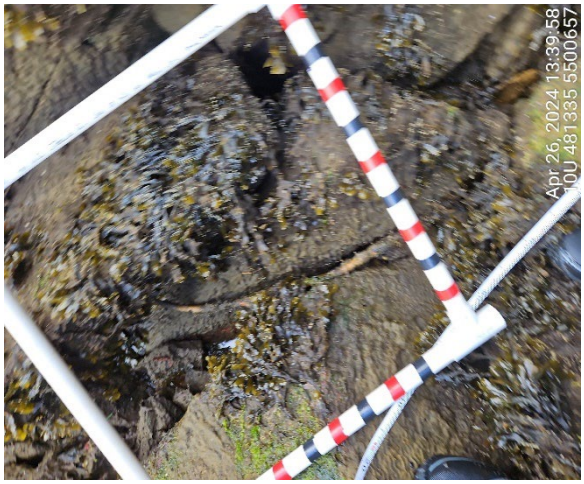
Herring Dive Survey Quadrat Photographs

Transect 1	
	
Q1-L	**Q1-R**
	
Q2-L	**Q2-R**

Transect 1

Q3-L

Q3-R



Q4-L

Q4-R

Q5-L

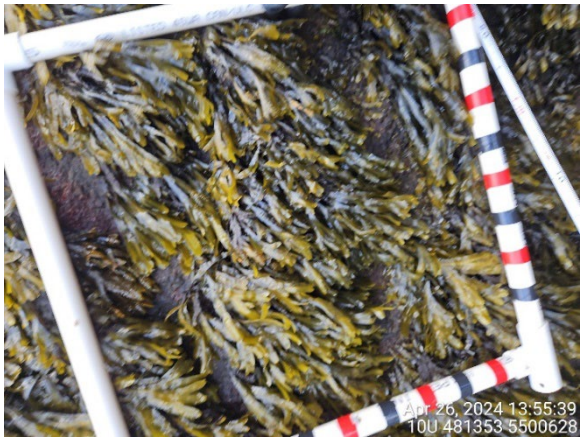
Q5-R

Transect 1	
	
Q6-L	**Q6-R**

Transect 2	
	
Q1-L	**Q1-R**

Transect 2

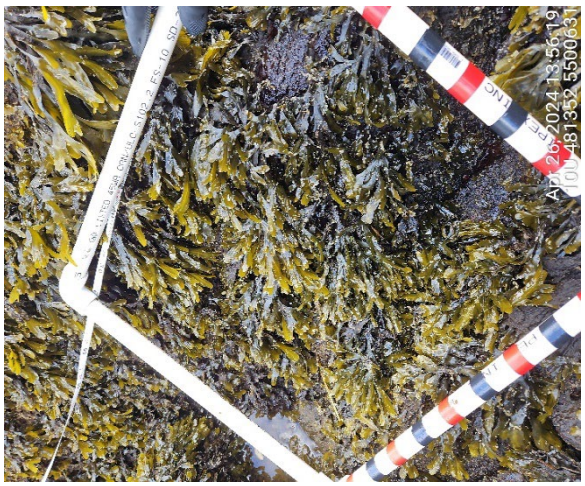
Q2-L



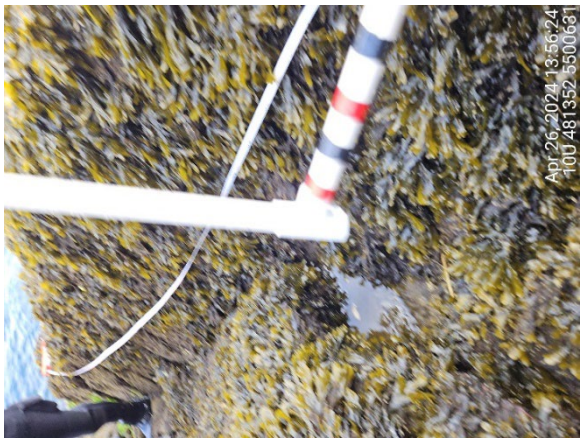
Q2-R

Q3-L

Q3-R



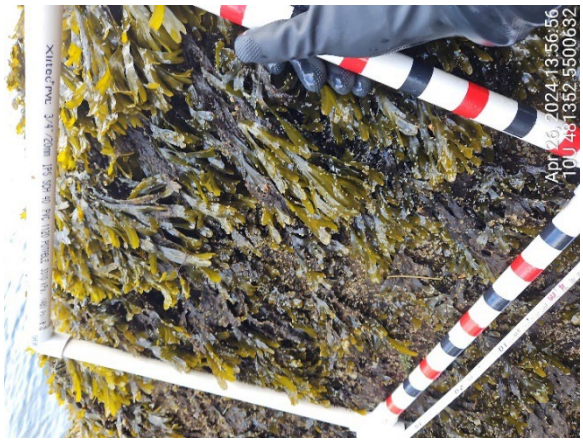
Q4-L



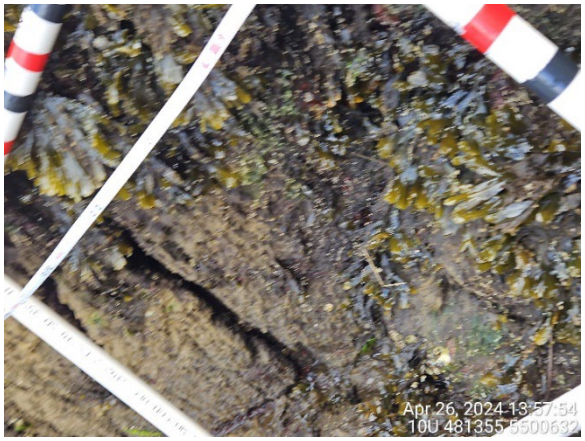
Q4-R

Transect 2

Q5-L



Q5-R



Q6-L

Q6-R

Q7-L

Q7-R

APPENDIX D

KP12 SUPPLEMENTARY FIGURES

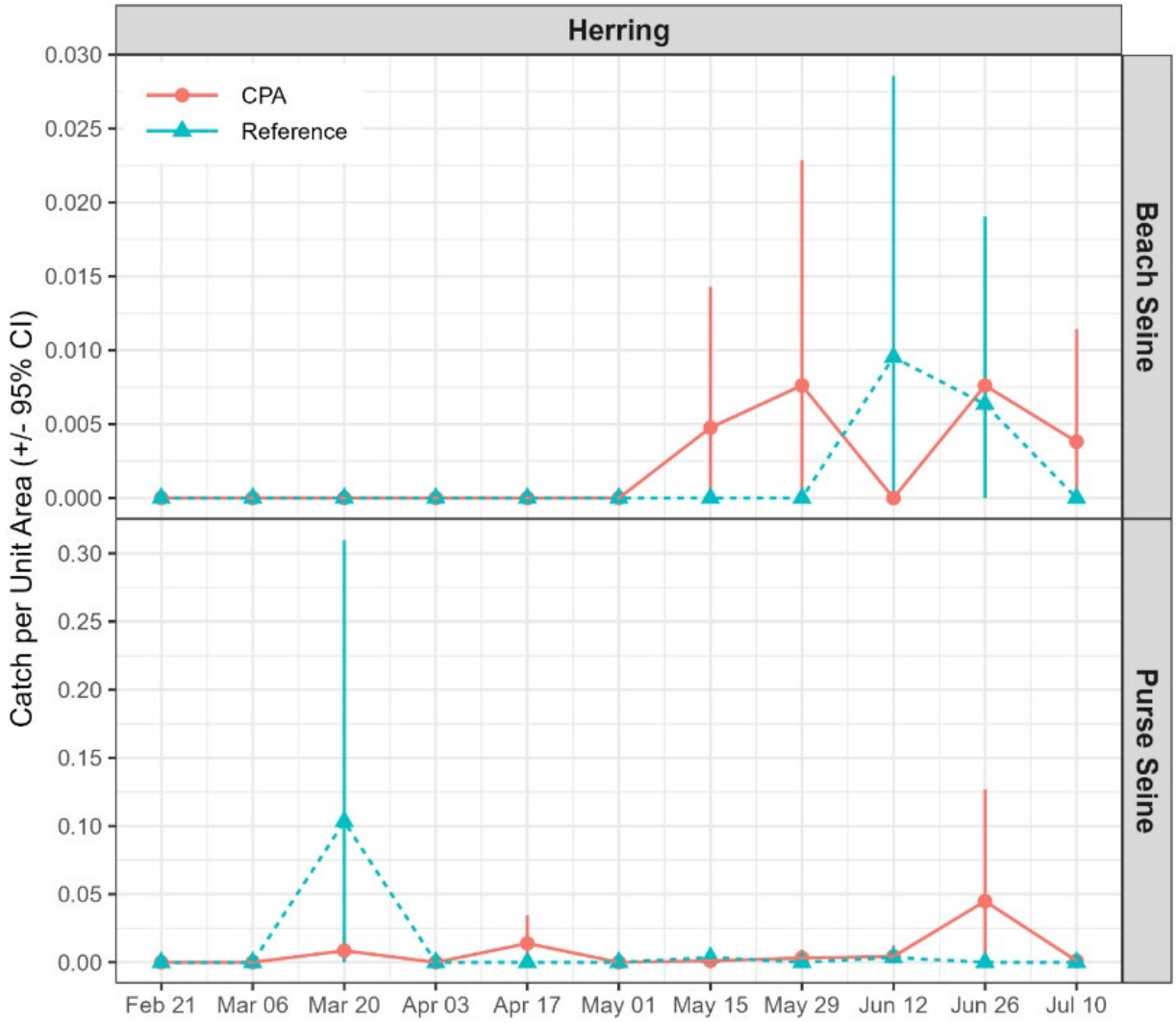


Figure D-1 Bi-weekly beach- and purse seine herring catch. Points represent bi-weekly averages pooled separately for CPA and reference sites (+/- 95% confidence intervals).

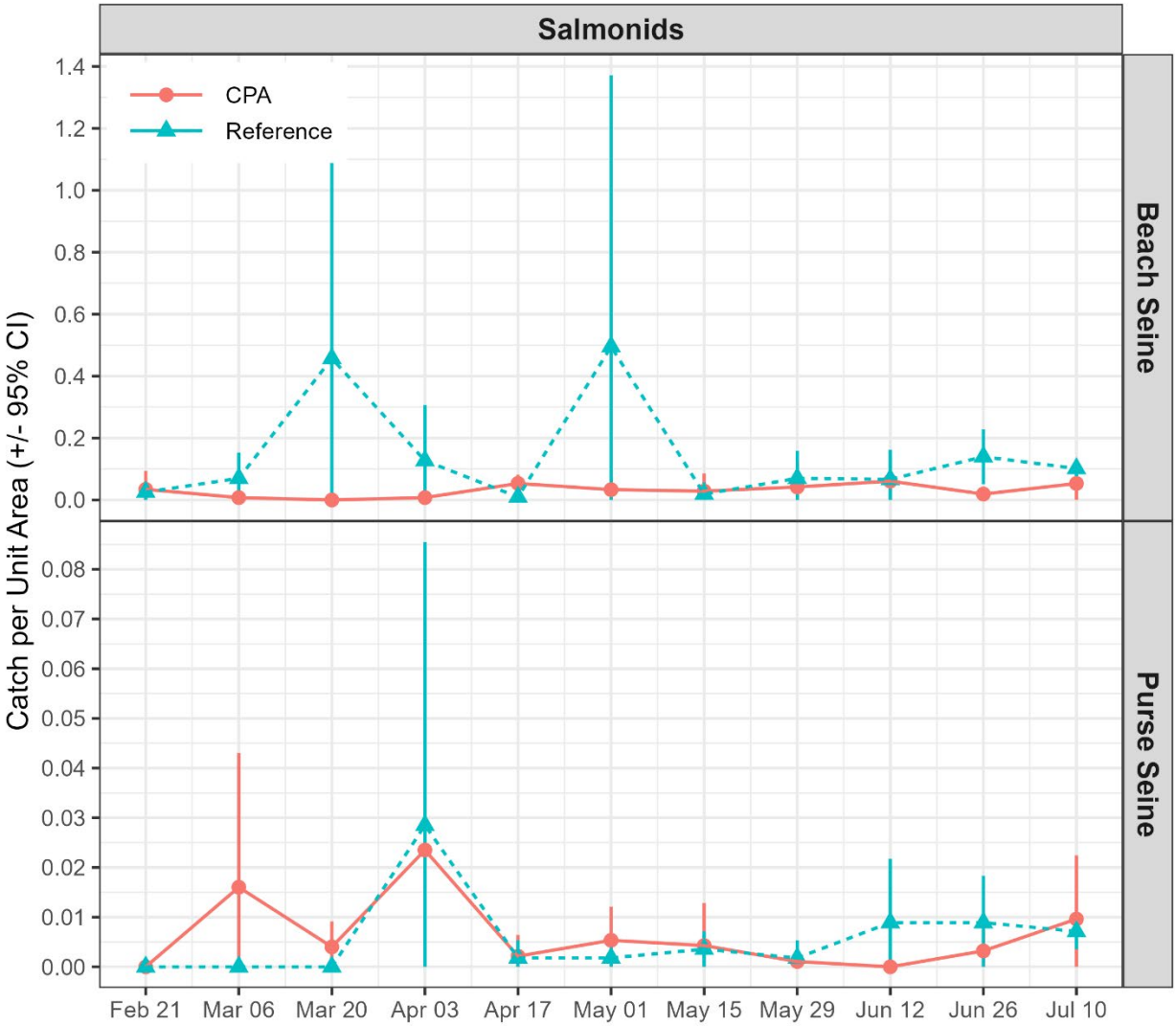


Figure D-2 Bi-weekly beach- and purse seine salmonid catch. Points represent bi-weekly averages pooled separately for CPA and reference sites (+/- 95% confidence intervals).

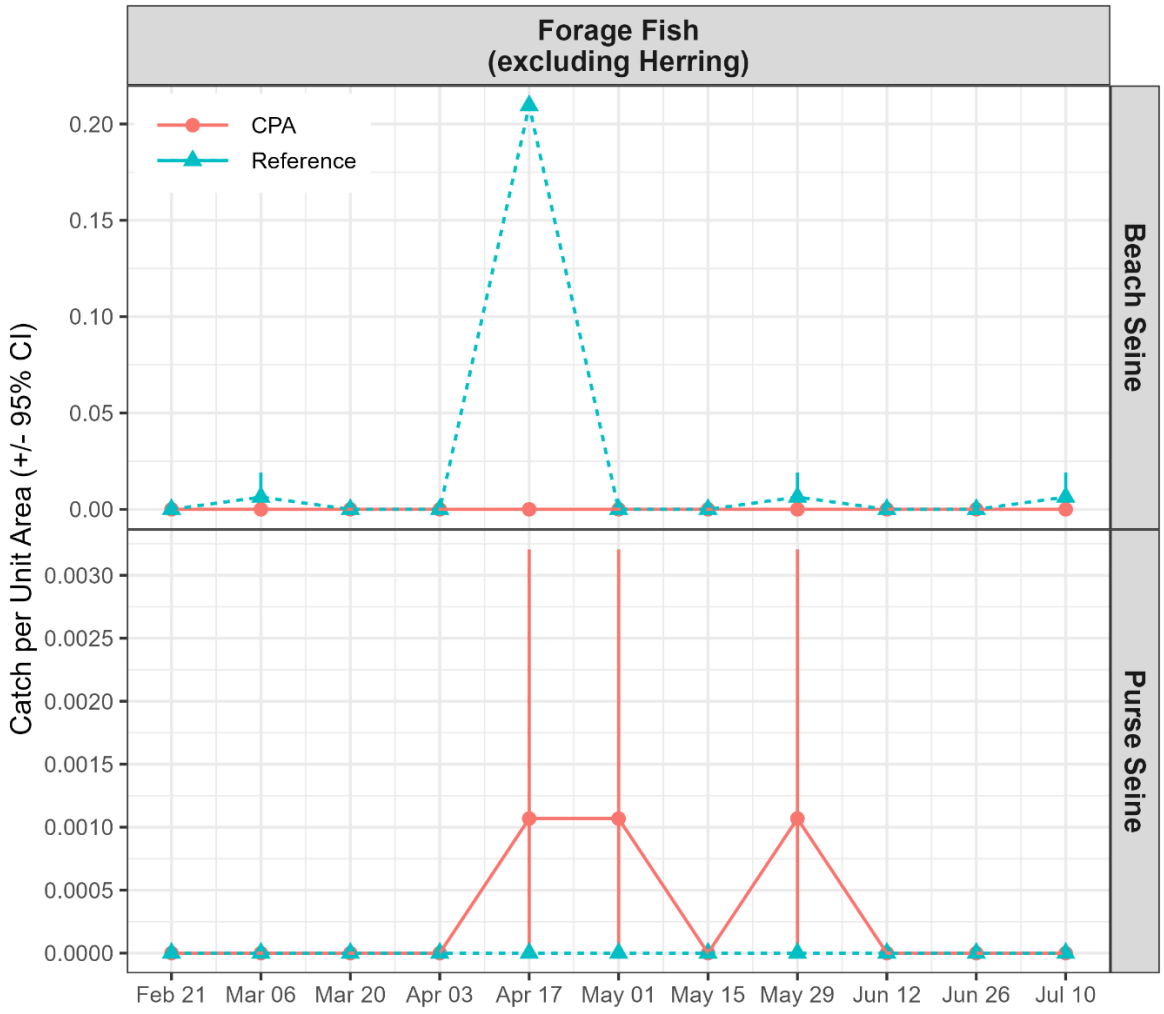


Figure D-3 Bi-weekly beach- and purse seine forage fish catch. Points represent bi-weekly averages pooled separately for CPA and reference sites (+/- 95% confidence intervals).

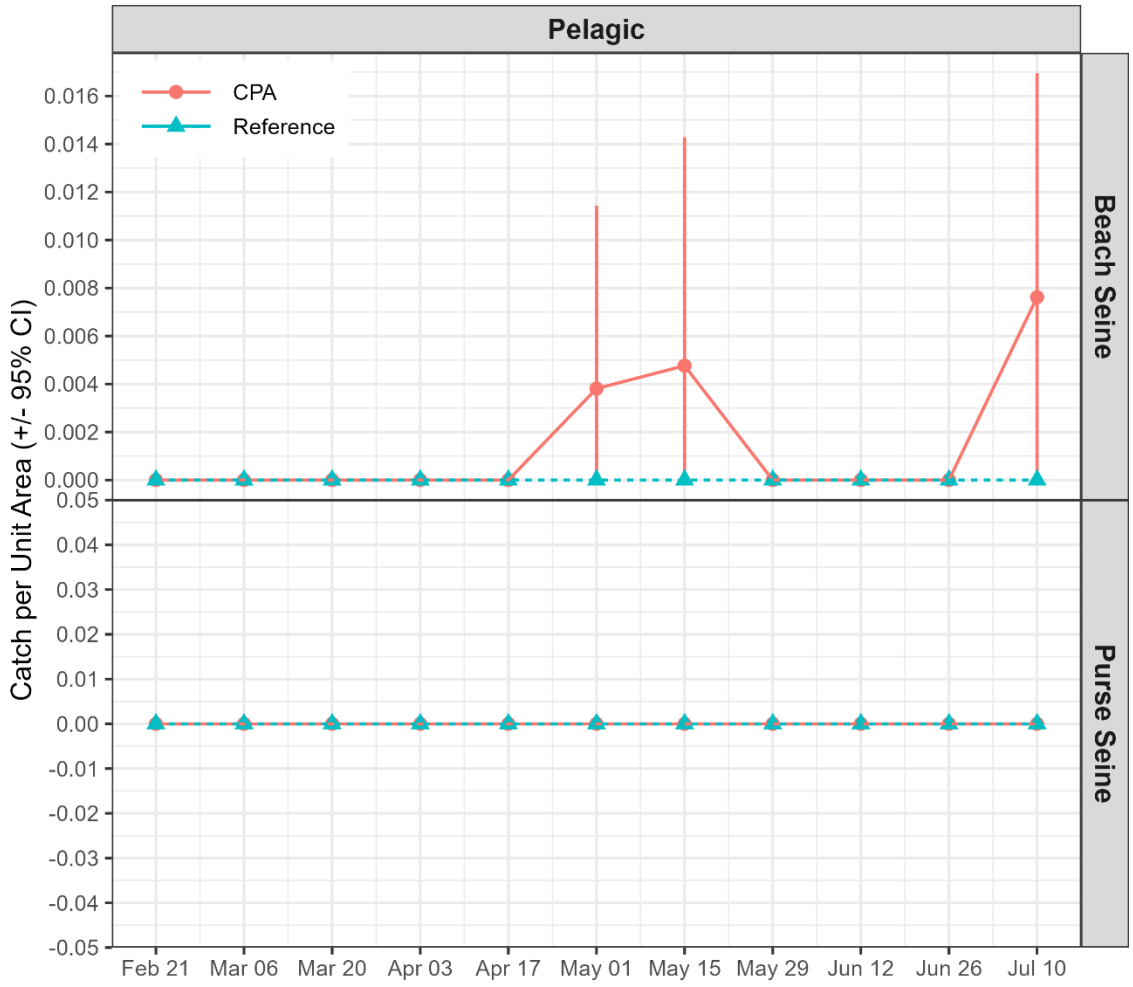


Figure D-4 Bi-weekly beach- and purse seine pelagic fish species catch. Points represent bi-weekly averages pooled separately for CPA and reference sites (+/- 95% confidence intervals).

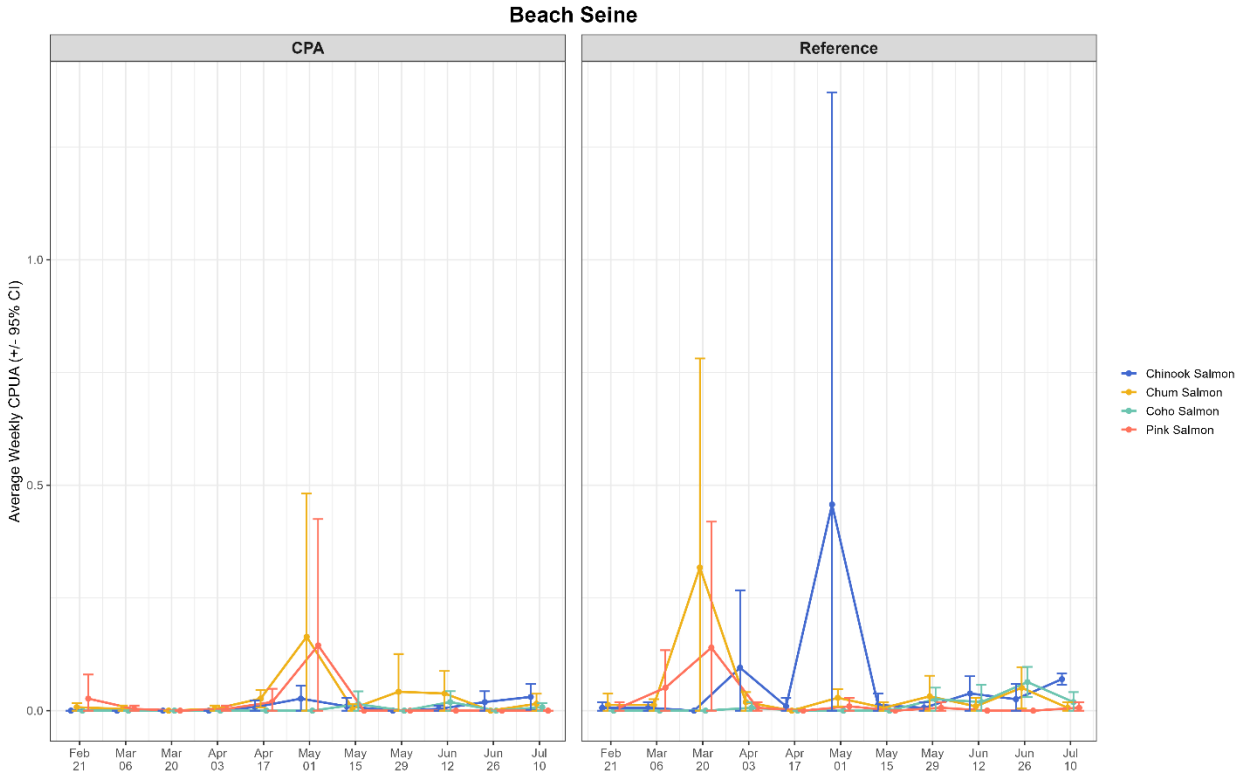


Figure D-5 Bi-weekly beach seine salmonid species catch. Points represent bi-weekly averages pooled by site, for CPA and reference sites (+/- 95% confidence intervals).

Figure D-6 Bi-weekly purse seine salmonid species catch. Points represent bi-weekly averages pooled by site, for CPA and reference sites (+/- 95% confidence intervals).

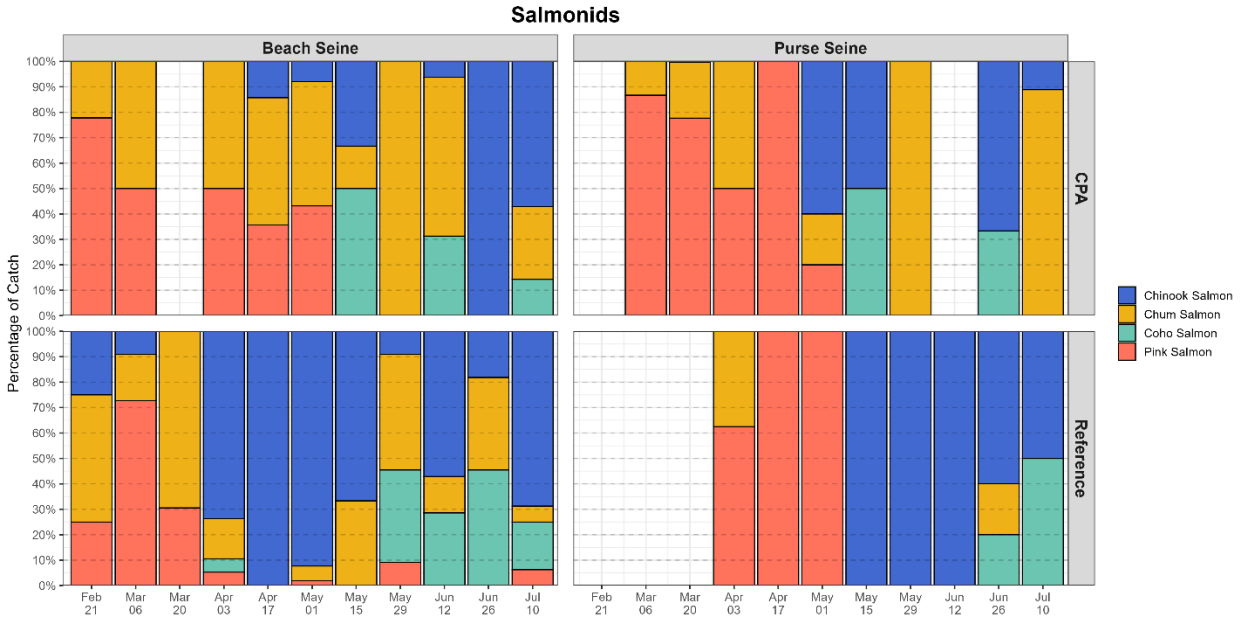


Figure D-7 Bi-weekly beach- and purse seine salmonid catch composition for four species of salmon observed in the study area during the 2024 survey period.

APPENDIX E

KP12 TASKS

Table 1a: Summary table of raw beach seine data

Date	Set Net Start Time	Set Net End Time	Site ID	Set (Count)	Ebb / Flood Tide	Tide Height (m)	Total Unique Species Caught	Notes / Unique Species
2024-02-22	10:03	10:09	BS-SR	Set 1	Ebb	3.56	0	
2024-02-22	10:12	10:20	BS-SR	Set 2	Ebb	3.52	1	Fluffy Sculpin
2024-02-22	11:15	11:21	BS-3	Set 1	Flood	3.38	0	
2024-02-22	11:34	11:44	BS-3	Set 2	Flood	3.38	0	
2024-02-22	12:45	13:00	BS-1	Set 1	Flood	3.55	0	
2024-02-22	13:03	13:14	BS-1	Set 2	Flood	3.6	3	Chum Salmon, Bay Pipefish, Fluffy Sculpin
2024-02-22	13:55	14:05	BS-2	Set 1	Flood	3.76	0	
2024-02-22	14:10	14:20	BS-2	Set 2	Flood	3.81	0	
2024-02-23	08:57	09:05	BS-4	Set 1	Ebb	3.86	1	Pink Salmon
2024-02-23	09:08	09:18	BS-4	Set 2	Ebb	3.8	2	Chum Salmon, Pink Salmon
2024-02-23	10:05	10:15	BS-NR	Set 1	Ebb	3.45	3	Kelp Greenling, Fluffy Sculpin, Sculpin Species
2024-02-23	10:32	10:42	BS-NR	Set 2	Ebb	3.3	2	Pink Salmon, Three Spine Stickleback
2024-02-23	11:59	12:09	BS-5	Set 1	Flood	3.12	1	Sculpin Species
2024-02-23	12:19	12:30	BS-5	Set 2	Flood	3.15	1	Fluffy Sculpin
2024-02-23	13:06	13:13	BS-AR	Set 1	Flood	3.3	2	Chum Salmon, Chinook Salmon
2024-02-23	13:15	13:26	BS-AR	Set 2	Flood	3.33	0	
2024-03-07	09:31	09:37	BS-SR	Set 1	Ebb	3.52	3	Chum Salmon, Pink Salmon, Three Spine Stickleback
2024-03-07	09:41	09:49	BS-SR	Set 2	Ebb	3.46	0	
2024-03-07	10:51	10:59	BS-NR	Set 1	Flood	3.46	0	
2024-03-07	11:01	11:10	BS-NR	Set 2	Flood	3.58	1	Pink Salmon
2024-03-07	11:56	12:06	BS-AR	Set 1	Flood	3.66	3	Northern Anchovy, Chinook Salmon, Chum Salmon
2024-03-07	12:10	12:17	BS-AR	Set 2	Flood	3.7	0	
2024-03-07	14:05	14:22	BS-3	Set 1	Ebb	3.88	0	
2024-03-07	14:22	14:35	BS-3	Set 2	Ebb	3.85	0	
2024-03-07	15:19	15:24	BS-2	Set 1	Ebb	3.69	0	
2024-03-07	15:32	15:43	BS-2	Set 2	Ebb	3.57	0	
2024-03-08	08:52	09:02	BS-4	Set 1	Ebb	3.45	2	Coastrange Sculpin, Chum Salmon
2024-03-08	09:04	09:12	BS-4	Set 2	Ebb	3.37	2	Kelp Greenling, Fluffy Sculpin
2024-03-08	09:53	10:04	BS-1	Set 1	Ebb	3.18	1	Pink Salmon
2024-03-08	10:06	10:15	BS-1	Set 2	Ebb	3.16	1	Prickly Sculpin
2024-03-08	12:35	12:45	BS-5	Set 1	Flood	3.54	0	
2024-03-08	12:54	13:03	BS-5	Set 2	Flood	3.63	0	
2024-03-21	08:57	09:02	BS-AR	Set 1	Ebb	3.25	1	Chum Salmon
2024-03-21	09:07	09:17	BS-AR	Set 2	Ebb	3.21	1	Chum Salmon
2024-03-21	09:43	09:53	BS-NR	Set 2	Ebb	3.27	0	
2024-03-21	09:55	10:01	BS-NR	Set 1	Ebb	3.21	2	Three Spine Stickleback, Chum Salmon
2024-03-21	11:14	11:22	BS-4	Set 1	Flood	3.09	1	Coastrange Sculpin
2024-03-21	11:27	11:33	BS-4	Set 2	Flood	3.11	2	Coastrange Sculpin, Sculpin Species
2024-03-21	13:07	13:15	BS-2	Set 1	Flood	3.4	0	
2024-03-21	13:17	13:25	BS-2	Set 2	Flood	3.41	0	
2024-03-21	13:59	14:10	BS-1	Set 1	Flood	3.37	0	
2024-03-21	14:13	14:25	BS-1	Set 2	Flood	3.73	1	Fluffy Sculpin
2024-03-22	09:01	09:09	BS-SR	Set 1	Ebb	3.76	2	Chum Salmon, Pink Salmon
2024-03-22	09:35	09:45	BS-SR	Set 2	Ebb	3.03	0	
2024-03-22	10:25	10:33	BS-3	Set 1	Ebb	2.89	1	Three Spine Stickleback
2024-03-22	10:35	10:46	BS-3	Set 2	Ebb	2.87	0	
2024-03-22	11:43	11:48	BS-5	Set 1	Flood	2.83	1	Coastrange Sculpin
2024-03-22	11:50	11:58	BS-5	Set 2	Flood	2.88	0	
2024-04-04	08:48	08:58	BS-AR	Set 1	Ebb	3.26	3	Coho Salmon, Chinook Salmon, Chum Salmon
2024-04-04	09:04	09:14	BS-AR	Set 2	Ebb	3.21	1	Chinook Salmon
2024-04-04	09:57	10:06	BS-NR	Set 1	Flood	3.29	1	Chum Salmon
2024-04-04	10:10	10:17	BS-NR	Set 2	Flood	3.29	1	Pink Salmon
2024-04-04	10:45	10:52	BS-3	Set 1	Flood	3.23	0	
2024-04-04	11:03	11:10	BS-3	Set 2	Flood	3.27	0	
2024-04-04	12:20	12:27	BS-5	Set 1	Flood	3.53	1	Pink Salmon
2024-04-04	12:30	12:37	BS-5	Set 2	Flood	3.55	1	Chum Salmon
2024-04-04	13:00	13:08	BS-2	Set 1	Ebb	3.55	0	
2024-04-04	13:13	13:18	BS-2	Set 2	Ebb	3.55	0	
2024-04-05	08:37	08:43	BS-SR	Set 1	Ebb	2.98	0	
2024-04-05	08:51	08:57	BS-SR	Set 2	Ebb	2.92	1	Chinook Salmon
2024-04-05	09:18	09:29	BS-1	Set 1	Flood	2.89	0	
2024-04-05	09:32	09:42	BS-1	Set 2	Flood	2.89	1	Three Spine Stickleback
2024-04-05	10:43	10:48	BS-4	Set 1	Flood	3.07	0	
2024-04-05	10:50	10:58	BS-4	Set 2	Flood	3.12	1	Sculpin Species
2024-04-18	--	--	BS-SR	Set 1	--	--	--	No survey performed
2024-04-18	09:24	09:32	BS-1	Set 1	Ebb	2.63	0	
2024-04-18	09:42	09:47	BS-1	Set 2	Ebb	2.6	1	Chum Salmon
2024-04-18	10:10	10:16	BS-5	Set 1	Flood	2.66	1	Chum Salmon
2024-04-18	10:29	10:35	BS-5	Set 2	Flood	2.68	1	Pink Salmon
2024-04-18	10:57	11:03	BS-2	Set 1	Flood	2.62	3	Coastrange Sculpin, Chum Salmon, Sculpin Species
2024-04-18	11:09	11:12	BS-2	Set 2	Flood	2.64	1	Sculpin Species
2024-04-18	12:21	12:29	BS-4	Set 1	Flood	2.84	2	Chum Salmon, Chinook Salmon
2024-04-18	12:31	12:42	BS-4	Set 2	Flood	2.87	2	Three Spine Stickleback, Chinook Salmon
2024-04-19	08:53	08:58	BS-AR	Set 1	Ebb	2.7	1	Northern Anchovy
2024-04-19	09:15	09:21	BS-AR	Set 2	Ebb	2.59	0	
2024-04-19	09:51	09:59	BS-NR	Set 1	Ebb	2.45	0	
2024-04-19	10:00	10:08	BS-NR	Set 2	Ebb	2.41	2	Chinook Salmon, Northern Anchovy
2024-04-19	10:31	10:36	BS-3	Set 1	Ebb	2.37	1	Pink Salmon
2024-04-19	10:39	10:47	BS-3	Set 2	Ebb	2.32	0	
2024-05-02	08:14	08:15	BS-SR	Set 1	Ebb	3.07	0	
2024-05-02	08:30	08:43	BS-1	Set 1	Flood	3.05	5	Chum Salmon, Pink Salmon, Bay Pipefish, Chinook Salmon, Sculpin Species
2024-05-02	08:46	08:51	BS-1	Set 2	Ebb	3.05	1	Sculpin Species
2024-05-02	09:45	09:52	BS-4	Set 1	Flood	3.11	2	Chum Salmon, Chinook Salmon
2024-05-02	09:54	09:59	BS-4	Set 2	Flood	3.12	2	Gunnel Species, Coastrange Sculpin
2024-05-02	10:18	10:28	BS-NR	Set 1	Flood	3.16	1	Chinook Salmon
2024-05-02	10:30	10:40	BS-NR	Set 2	Flood	3.18	1	Chum Salmon
2024-05-02	11:12	11:25	BS-2	Set 1	Flood	3.23	0	
2024-05-02	11:30	11:37	BS-2	Set 2	Flood	3.26	0	
2024-05-03	09:15	09:25	BS-AR	Set 1	Ebb	2.61	2	Chum Salmon, Pink Salmon
2024-05-03	09:26	09:30	BS-AR	Set 2	Ebb	2.61	0	
2024-05-03	09:50	09:58	BS-3	Set 1	Flood	2.65	1	Pink Salmon
2024-05-03	09:59	10:07	BS-3	Set 2	Flood	3.67	1	Gunnel Species
2024-05-03	10:15	10:25	BS-5	Set 1	Flood	2.71	1	Striped Perch
2024-05-03	10:35	10:42	BS-5	Set 2	Flood	2.76	1	Chinook Salmon
2024-05-17	08:22	08:35	BS-AR	Set 1	Ebb	2.5	1	Chinook Salmon
2024-05-17	08:37	08:46	BS-AR	Set 2	Ebb	2.45	3	Chinook Salmon, Three Spine Stickleback, Chum Salmon
2024-05-17	09:08	09:15	BS-NR	Set 1	Ebb	2.39	0	
2024-05-17	09:18	09:25	BS-NR	Set 2	Ebb	2.39	0	
2024-05-17	09:40	09:50	BS-3	Set 1	Flood	2.4	0	
2024-05-17	09:53	10:00	BS-3	Set 2	Flood	2.42	0	
2024-05-17	10:05	10:15	BS-2	Set 1	Flood	2.43	0	
2024-05-17	10:19	10:29	BS-2	Set 2	Flood	2.45	1	Sculpin Species

Date	Set Net Start Time	Set Net End Time	Site ID	Set (Count)	Ebb / Flood Tide	Tide Height (m)	Total Unique Species Caught	Notes / Unique Species
2024-05-17	10:45	10:50	BS-5	Set 1	Flood	2.51	0	
2024-05-17	10:52	11:02	BS-5	Set 2	Flood	2.53	0	
2024-05-17	11:32	11:45	BS-SR	Set 1	Flood	2.68	0	
2024-05-17	11:48	11:52	BS-SR	Set 2	Flood	2.73	0	
2024-05-17	12:00	12:00	BS-4	Set 1	Flood	3.01	0	
2024-05-17	12:00	12:08	BS-1	Set 1	Flood	2.78	5	Pile Perch, Coho Salmon, Chinook Salmon, Pacific Herring, Sculpin Species
2024-05-17	12:10	12:17	BS-1	Set 2	Flood	2.81	4	Coho Salmon, Chum Salmon, Chinook Salmon, Sculpin Species
2024-05-30	08:33	08:39	BS-AR	Set 1	Flood	3.03	0	
2024-05-30	08:42	08:46	BS-AR	Set 2	Flood	3.04	0	
2024-05-30	09:03	09:16	BS-NR	Set 1	Flood	3.09	3	Three Spine Stickleback, Chum Salmon, Coho Salmon
2024-05-30	09:20	09:24	BS-NR	Set 2	Flood	3.12	1	Northern Anchovy
2024-05-30	09:51	09:56	BS-SR	Set 1	Flood	3.19	2	Chinook Salmon, Coho Salmon
2024-05-30	10:00	10:05	BS-SR	Set 2	Flood	3.21	2	Pink Salmon, Chum Salmon
2024-05-30	10:37	10:40	BS-2	Set 1	Ebb	3.24	0	
2024-05-30	11:00	11:08	BS-2	Set 2	Ebb	3.23	0	
2024-05-30	11:24	11:29	BS-5	Set 1	Ebb	3.22	2	Chum Salmon, Fluffy Sculpin
2024-05-30	11:33	11:42	BS-5	Set 2	Ebb	3.18	1	Chum Salmon
2024-05-31	08:45	08:49	BS-1	Set 1	Flood	2.49	2	Fluffy Sculpin, Coastrange Sculpin
2024-05-31	08:53	08:57	BS-1	Set 2	Flood	2.51	1	Coastrange Sculpin
2024-05-31	09:17	09:21	BS-4	Set 1	Flood	2.58	0	
2024-05-31	09:27	09:27	BS-4	Set 2	Flood	2.61	0	
2024-05-31	09:46	09:52	BS-3	Set 1	Flood	2.67	0	
2024-05-31	09:57	10:04	BS-3	Set 2	Flood	2.73	1	Pacific Herring
2024-06-13	08:35	08:44	BS-4	Set 1	Ebb	3	3	Chum Salmon, Fluffy Sculpin, Three Spine Stickleback
2024-06-13	08:47	08:55	BS-4	Set 2	Flood	3.02	1	Coho Salmon
2024-06-13	09:23	09:30	BS-1	Set 1	Flood	3.07	3	Chinook Salmon, Three Spine Stickleback, Sculpin Species
2024-06-13	09:32	09:41	BS-1	Set 2	Flood	3.09	3	Chum Salmon, Coho Salmon, Sculpin Species
2024-06-13	10:13	10:23	BS-5	Set 1	Ebb	3.09	2	Chum Salmon, Fluffy Sculpin
2024-06-13	10:27	10:32	BS-5	Set 2	Ebb	3.07	1	Chum Salmon
2024-06-13	10:48	10:55	BS-3	Set 1	Ebb	3.04	0	
2024-06-13	11:00	11:08	BS-3	Set 2	Ebb	2.97	0	
2024-06-14	08:30	08:45	BS-SR	Set 1	Flood	2.69	2	Pacific Herring, Chinook Salmon
2024-06-14	08:46	08:54	BS-SR	Set 2	Flood	2.71	5	Coho Salmon, Chinook Salmon, Three Spine Stickleback, Sculpin Species, Chum Salmon
2024-06-14	09:23	09:28	BS-2	Set 1	Flood	2.81	0	
2024-06-14	09:29	09:34	BS-2	Set 2	Flood	2.83	0	
2024-06-14	09:46	09:54	BS-NR	Set 1	Flood	2.86	0	
2024-06-14	10:00	10:00	BS-AR	Set 1	Ebb	3	0	
2024-06-14	10:02	10:10	BS-NR	Set 2	Flood	2.92	1	Chinook Salmon
2024-06-27	09:00	09:10	BS-SR	Set 1	Flood	3.6	6	Pacific Lamprey, Chinook Salmon, Chum Salmon, Pacific Herring, Coho Salmon, Fluffy Sculpin
2024-06-27	09:13	09:23	BS-SR	Set 2	Ebb	3.63	3	Chinook Salmon, Coho Salmon, Fluffy Sculpin
2024-06-27	09:55	10:03	BS-4	Set 1	Ebb	3.63	4	Chinook Salmon, Three Spine Stickleback, Fluffy Sculpin, Pacific Herring
2024-06-27	10:05	10:15	BS-4	Set 2	Ebb	3.62	1	Chinook Salmon
2024-06-27	10:30	10:38	BS-3	Set 1	Ebb	3.55	2	Chinook Salmon, Pacific Herring
2024-06-27	10:40	10:48	BS-3	Set 2	Ebb	3.51	1	Chinook Salmon
2024-06-27	10:50	11:00	BS-2	Set 1	Ebb	3.46	0	
2024-06-27	11:02	11:12	BS-2	Set 2	Ebb	3.42	0	
2024-06-28	08:20	20:25	BS-AR	Set 1	Flood	2.85	1	Coho Salmon
2024-06-28	08:26	08:33	BS-AR	Set 2	Flood	2.88	3	Chum Salmon, Chinook Salmon, Coho Salmon
2024-06-28	08:55	09:02	BS-NR	Set 1	Flood	3.02	1	Chum Salmon
2024-06-28	09:05	09:10	BS-NR	Set 2	Flood	3.07	1	Coho Salmon
2024-06-28	09:22	09:30	BS-1	Set 1	Flood	3.14	0	
2024-06-28	09:33	09:40	BS-1	Set 2	Flood	3.19	0	
2024-06-28	09:54	10:00	BS-5	Set 1	Flood	3.26	1	Fluffy Sculpin
2024-06-28	10:02	10:06	BS-5	Set 2	Flood	3.28	0	
2024-07-11	09:22	09:26	BS-SR	Set 1	Ebb	3.6	4	Chum Salmon, Fluffy Sculpin, Northern Anchovy, Coho Salmon
2024-07-11	09:30	09:35	BS-SR	Set 2	Ebb	3.56	2	Chinook Salmon, Pink Salmon
2024-07-11	10:00	22:05	BS-1	Set 1	Ebb	3.4	5	Shiner Perch, Chum Salmon, Coho Salmon, Chinook Salmon, Sculpin Species
2024-07-11	10:08	10:16	BS-1	Set 2	Ebb	3.32	2	Chinook Salmon, Chum Salmon
2024-07-11	10:38	10:42	BS-5	Set 1	Ebb	3.19	2	Pacific Herring, Chinook Salmon
2024-07-11	10:44	10:47	BS-5	Set 2	Ebb	3.11	2	Chinook Salmon, Coho Salmon
2024-07-11	11:01	11:10	BS-2	Set 1	Ebb	2.95	2	Chinook Salmon, Shiner Perch
2024-07-11	11:13	11:17	BS-2	Set 2	Ebb	2.87	1	Sculpin Species
2024-07-12	09:05	09:08	BS-4	Set 1	Ebb	3.67	2	Chum Salmon, Shiner Perch
2024-07-12	09:10	09:18	BS-4	Set 2	Ebb	3.64	1	Sculpin Species
2024-07-12	09:33	21:36	BS-3	Set 1	Ebb	3.56	0	
2024-07-12	09:40	09:44	BS-3	Set 2	Ebb	3.52	0	
2024-07-12	10:15	10:19	BS-NR	Set 1	Ebb	3.32	3	Coho Salmon, Chinook Salmon, Three Spine Stickleback
2024-07-12	10:24	10:29	BS-NR	Set 2	Ebb	3.25	1	Chinook Salmon
2024-07-12	10:57	11:03	BS-AR	Set 1	Ebb	3.04	1	Chinook Salmon
2024-07-12	11:04	11:08	BS-AR	Set 2	Ebb	2.95	2	Chinook Salmon, Sculpin Species

Table 1b: Individual measurements of raw beach seine data

Date	Site ID	Set (Count)	Common Name	Scientific Name	Life Stage	Count	Weight (g)	Length (mm)	Measurement Type
2024-02-22	BS-1	Set 2	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		43	Fork Length
2024-02-22	BS-1	Set 2	Bay Pipefish	*Syngnathus leptorhynchus*	Juvenile	1		76	Total Length
2024-02-22	BS-1	Set 2	Fluffy Sculpin	*Oligocottus snyderi*	Adult	1	1.2	46	Total Length
2024-02-22	BS-1	Set 2	Fluffy Sculpin	*Oligocottus snyderi*	Adult	1	0.7	41	Total Length
2024-02-22	BS-SR	Set 2	Fluffy Sculpin	*Oligocottus snyderi*	Adult	1	1.3	45	Total Length
2024-02-23	BS-4	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1	1	34	Fork Length
2024-02-23	BS-4	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1	1	33	Fork Length
2024-02-23	BS-4	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1	1	34	Fork Length
2024-02-23	BS-4	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1	1	35	Fork Length
2024-02-23	BS-4	Set 2	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		35	Fork Length
2024-02-23	BS-4	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		32	Fork Length
2024-02-23	BS-4	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		35	Fork Length
2024-02-23	BS-4	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		32	Fork Length
2024-02-23	BS-5	Set 1	Sculpin Species	*Superfamily Cottoidea*	Juvenile	1		18	Total Length
2024-02-23	BS-5	Set 2	Fluffy Sculpin	*Oligocottus snyderi*	Adult	1		44	Total Length
2024-02-23	BS-AR	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		44	Fork Length
2024-02-23	BS-AR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Larva / Fry	1		39	Fork Length
2024-02-23	BS-AR	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		44	Fork Length
2024-02-23	BS-NR	Set 1	Kelp Greenling	*Hexagrammos decagrammus*	Juvenile	1		54	Total Length
2024-02-23	BS-NR	Set 1	Kelp Greenling	*Hexagrammos decagrammus*	Juvenile	1		45	Total Length
2024-02-23	BS-NR	Set 1	Fluffy Sculpin	*Oligocottus snyderi*	Adult	1		49	Total Length
2024-02-23	BS-NR	Set 1	Sculpin Species	*Superfamily Cottoidea*		1		42	Total Length
2024-02-23	BS-NR	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		36	Fork Length
2024-02-23	BS-NR	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		40	Total Length
2024-03-07	BS-AR	Set 1	Northern Anchovy	*Engraulis mordax*	Adult	1	1.6	64	Fork Length
2024-03-07	BS-AR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	3.7	59	Fork Length
2024-03-07	BS-AR	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		35	Fork Length
2024-03-07	BS-NR	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		32	Fork Length
2024-03-07	BS-SR	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1	1.3	36	Fork Length
2024-03-07	BS-SR	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1	0.6	34	Fork Length
2024-03-07	BS-SR	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		36	Fork Length
2024-03-07	BS-SR	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		33	Fork Length
2024-03-07	BS-SR	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1	1.2	33	Fork Length
2024-03-07	BS-SR	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		34	Fork Length
2024-03-07	BS-SR	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1	1.5	43	Total Length
2024-03-07	BS-SR	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		32	Fork Length
2024-03-07	BS-SR	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		34	Fork Length
2024-03-08	BS-1	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		33	Fork Length
2024-03-08	BS-1	Set 2	Prickly Sculpin	*Cottus asper*	Adult	1		65	Total Length
2024-03-08	BS-4	Set 1	Coastrange Sculpin	*Cottus aleuticus*		1	1.7	50	Total Length
2024-03-08	BS-4	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		38	Fork Length
2024-03-08	BS-4	Set 2	Kelp Greenling	*Hexagrammos decagrammus*	Juvenile	1		49	Total Length
2024-03-08	BS-4	Set 2	Kelp Greenling	*Hexagrammos decagrammus*	Juvenile	1		51	Total Length
2024-03-08	BS-4	Set 2	Fluffy Sculpin	*Oligocottus snyderi*	Adult	1		59	Total Length
2024-03-21	BS-1	Set 2	Fluffy Sculpin	*Oligocottus snyderi*	Adult	1		46	Total Length
2024-03-21	BS-4	Set 1	Coastrange Sculpin	*Cottus aleuticus*	Adult	1	0.97	43	Total Length
2024-03-21	BS-4	Set 2	Coastrange Sculpin	*Cottus aleuticus*	Adult	1	1.58	51	Total Length
2024-03-21	BS-4	Set 2	Coastrange Sculpin	*Cottus aleuticus*	Adult	1	1.09	41	Total Length
2024-03-21	BS-4	Set 2	Sculpin Species	*Superfamily Cottoidea*	Adult	1			Total Length
2024-03-21	BS-AR	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		40	Fork Length
2024-03-21	BS-AR	Set 2	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		36	Fork Length
2024-03-21	BS-AR	Set 2	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		37	Fork Length
2024-03-21	BS-AR	Set 2	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		39	Fork Length
2024-03-21	BS-AR	Set 2	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		38	Fork Length
2024-03-21	BS-NR	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*		1		26	Total Length
2024-03-21	BS-NR	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		39	Fork Length
2024-03-21	BS-NR	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		38	Fork Length
2024-03-21	BS-NR	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		37	Fork Length
2024-03-21	BS-NR	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		37	Fork Length
2024-03-22	BS-3	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		26	Total Length
2024-03-22	BS-3	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		26	Total Length
2024-03-22	BS-5	Set 1	Coastrange Sculpin	*Cottus aleuticus*	Adult	1		77	Total Length
2024-03-22	BS-SR	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1	0.62	42	Fork Length
2024-03-22	BS-SR	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1	0.33	38	Fork Length
2024-03-22	BS-SR	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1	0.4	36	Fork Length
2024-03-22	BS-SR	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1	0.26	32	Fork Length
2024-03-22	BS-SR	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1	0.38	36	Fork Length
2024-03-22	BS-SR	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1	0.35	35	Fork Length
2024-03-22	BS-SR	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1	0.39	36	Fork Length
2024-03-22	BS-SR	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1	0.35	33	Fork Length
2024-03-22	BS-SR	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1	0.42	34	Fork Length
2024-03-22	BS-SR	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1	0.44	38	Fork Length
2024-03-22	BS-SR	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1	0.36	37	Fork Length
2024-03-22	BS-SR	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1	0.24	31	Fork Length
2024-03-22	BS-SR	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1	0.27	35	Fork Length
2024-03-22	BS-SR	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1	0.31	32	Fork Length
2024-03-22	BS-SR	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1	0.21	34	Fork Length
2024-03-22	BS-SR	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1	0.23	36	Fork Length
2024-03-22	BS-SR	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1	0.23	33	Fork Length
2024-03-22	BS-SR	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		35	Fork Length
2024-03-22	BS-SR	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		36	Fork Length
2024-03-22	BS-SR	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		41	Fork Length
2024-03-22	BS-SR	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		43	Fork Length
2024-03-22	BS-SR	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1	0.24	31	Fork Length
2024-03-22	BS-SR	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	29	0	0	-
2024-03-22	BS-SR	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Juvenile	12	0	0	-
2024-04-04	BS-5	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1	0.64	40	Fork Length
2024-04-04	BS-5	Set 2	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1	0.28	39	Fork Length
2024-04-04	BS-AR	Set 1	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1	1.9	55	Fork Length
2024-04-04	BS-AR	Set 1	Chinook Salmon		Juvenile	1	5.09	85	Fork Length
2024-04-04	BS-AR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		56	Fork Length
2024-04-04	BS-AR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	2.06	55	Fork Length
2024-04-04	BS-AR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	2.51	63	Fork Length
2024-04-04	BS-AR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	2	54	Fork Length
2024-04-04	BS-AR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	1.7	52	Fork Length
2024-04-04	BS-AR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	5.5	78	Fork Length
2024-04-04	BS-AR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	2.45	58	Fork Length
2024-04-04	BS-AR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	4.48	78	Fork Length
2024-04-04	BS-AR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	6.9	63	Fork Length
2024-04-04	BS-AR	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1	0.66	36	Fork Length
2024-04-04	BS-AR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	3	0	0	-
2024-04-04	BS-AR	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	5.1	81	Fork Length
2024-04-04	BS-AR	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	1.7	54	Fork Length
2024-04-04	BS-NR	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1	0.82	43	Fork Length
2024-04-04	BS-NR	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1	0.58	40	Fork Length
2024-04-04	BS-NR	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1	0.31	37	Fork Length
2024-04-05	BS-1	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1	0.98	44	Total Length
2024-04-05	BS-4	Set 2	Sculpin Species	*Superfamily Cottoidea*	Juvenile	1		25	Total Length
2024-04-05	BS-SR	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	5.16	108	Fork Length
2024-04-18	BS-1	Set 2	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		32	Fork Length
2024-04-18	BS-2	Set 1	Coastrange Sculpin	*Cottus aleuticus*	Adult	1	2.39	41	Total Length
2024-04-18	BS-2	Set 1	Coastrange Sculpin	*Cottus aleuticus*	Adult	1	0.3	32	Total Length
2024-04-18	BS-2	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1	0.42	32	Fork Length
2024-04-18	BS-2	Set 1	Sculpin Species	*Superfamily Cottoidea*	Adult	1		50	Total Length
2024-04-18	BS-2	Set 1	Sculpin Species	*Superfamily Cottoidea*	Adult	1		26	Total Length
2024-04-18	BS-2	Set 1	Sculpin Species	*Superfamily Cottoidea*	Adult	1		50	Total Length
2024-04-18	BS-2	Set 2	Sculpin Species	*Superfamily Cottoidea*	Adult	1		30	Total Length
2024-04-18	BS-2	Set 2	Sculpin Species	*Superfamily Cottoidea*	Adult	1		28	Total Length
2024-04-18	BS-4	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		45	Fork Length

Date	Site ID	Set (Count)	Common Name	Scientific Name	Life Stage	Count	Weight (g)	Length (mm)	Measurement Type
2024-04-18	BS-4	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		65	Fork Length
2024-04-18	BS-4	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		47	Fork Length
2024-04-18	BS-4	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		69	Total Length
2024-04-18	BS-4	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		66	Fork Length
2024-04-18	BS-4	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		46	Total Length
2024-04-18	BS-4	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		56	Total Length
2024-04-18	BS-4	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		54	Total Length
2024-04-18	BS-4	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		47	Total Length
2024-04-18	BS-5	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1	1.06	47	Fork Length
2024-04-18	BS-5	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1	0.46	41	Fork Length
2024-04-18	BS-5	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1	0.19	36	Fork Length
2024-04-18	BS-5	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1	0.3	35	Fork Length
2024-04-19	BS-3	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		39	Fork Length
2024-04-19	BS-3	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		32	Fork Length
2024-04-19	BS-3	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		39	Fork Length
2024-04-19	BS-3	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		30	Fork Length
2024-04-19	BS-AR	Set 1	Northern Anchovy	*Engraulis mordax*	Larva / Fry	1		31	Fork Length
2024-04-19	BS-AR	Set 1	Northern Anchovy	*Engraulis mordax*	Larva / Fry	1		30	Fork Length
2024-04-19	BS-AR	Set 1	Northern Anchovy	*Engraulis mordax*	Larva / Fry	1		28	Fork Length
2024-04-19	BS-AR	Set 1	Northern Anchovy	*Engraulis mordax*	Larva / Fry	1		32	Fork Length
2024-04-19	BS-AR	Set 1	Northern Anchovy	*Engraulis mordax*	Larva / Fry	1		25	Fork Length
2024-04-19	BS-AR	Set 1	Northern Anchovy	*Engraulis mordax*	Larva / Fry	1		27	Fork Length
2024-04-19	BS-AR	Set 1	Northern Anchovy	*Engraulis mordax*	Larva / Fry	1		28	Fork Length
2024-04-19	BS-AR	Set 1	Northern Anchovy	*Engraulis mordax*	Larva / Fry	1		26	Fork Length
2024-04-19	BS-AR	Set 1	Northern Anchovy	*Engraulis mordax*	Larva / Fry	1		31	Fork Length
2024-04-19	BS-AR	Set 1	Northern Anchovy	*Engraulis mordax*	Larva / Fry	1		29	Fork Length
2024-04-19	BS-AR	Set 1	Northern Anchovy	*Engraulis mordax*	Larva / Fry	1		31	Fork Length
2024-04-19	BS-AR	Set 1	Northern Anchovy	*Engraulis mordax*	Larva / Fry	1		29	Fork Length
2024-04-19	BS-AR	Set 1	Northern Anchovy	*Engraulis mordax*	Larva / Fry	90	0	0	-
2024-04-19	BS-NR	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		70	Fork Length
2024-04-19	BS-NR	Set 2	Northern Anchovy	*Engraulis mordax*	Larva / Fry	1		35	Fork Length
2024-04-19	BS-NR	Set 2	Northern Anchovy	*Engraulis mordax*	Larva / Fry	1		34	Fork Length
2024-04-19	BS-NR	Set 2	Northern Anchovy	*Engraulis mordax*	Larva / Fry	1		28	Fork Length
2024-04-19	BS-NR	Set 2	Northern Anchovy	*Engraulis mordax*	Larva / Fry	1		30	Fork Length
2024-04-19	BS-NR	Set 2	Northern Anchovy	*Engraulis mordax*	Larva / Fry	1		33	Fork Length
2024-04-19	BS-NR	Set 2	Northern Anchovy	*Engraulis mordax*	Larva / Fry	1		35	Fork Length
2024-04-19	BS-NR	Set 2	Northern Anchovy	*Engraulis mordax*	Larva / Fry	1		28	Fork Length
2024-04-19	BS-NR	Set 2	Northern Anchovy	*Engraulis mordax*	Larva / Fry	1		31	Fork Length
2024-04-19	BS-NR	Set 2	Northern Anchovy	*Engraulis mordax*	Larva / Fry	1		28	Fork Length
2024-04-19	BS-NR	Set 2	Northern Anchovy	*Engraulis mordax*	Larva / Fry	1		31	Fork Length
2024-04-19	BS-NR	Set 2	Northern Anchovy	*Engraulis mordax*	Larva / Fry	1		38	Fork Length
2024-05-02	BS-1	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1	0.43	56	Fork Length
2024-05-02	BS-1	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1	0.8	45	Fork Length
2024-05-02	BS-1	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1	0.2	36	Fork Length
2024-05-02	BS-1	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1	0.31	38	Fork Length
2024-05-02	BS-1	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1	0.36	38	Fork Length
2024-05-02	BS-1	Set 1	Bay Pipefish	*Syngnathus leptorhynchus*	Adult	1	1.74	154	Total Length
2024-05-02	BS-1	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1	0.77	43	Fork Length
2024-05-02	BS-1	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1	0.18	38	Fork Length
2024-05-02	BS-1	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1	0.55	41	Fork Length
2024-05-02	BS-1	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1	0.47	41	Fork Length
2024-05-02	BS-1	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1	0.29	30	Fork Length
2024-05-02	BS-1	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1	0.18	32	Fork Length
2024-05-02	BS-1	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1	0.18	31	Fork Length
2024-05-02	BS-1	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1	0.68	48	Fork Length
2024-05-02	BS-1	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1	0.45	46	Fork Length
2024-05-02	BS-1	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1	0.24	34	Fork Length
2024-05-02	BS-1	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1	0.16	34	Fork Length
2024-05-02	BS-1	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	7.9	85	Fork Length
2024-05-02	BS-1	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1	0.22	35	Fork Length
2024-05-02	BS-1	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1	0.25	34	Fork Length
2024-05-02	BS-1	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1	0.26	34	Fork Length
2024-05-02	BS-1	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1	0.17	29	Fork Length
2024-05-02	BS-1	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	4.58	75	Fork Length
2024-05-02	BS-1	Set 1	Sculpin Species	*Superfamily Cottoidea*		1	0.24	32	Total Length
2024-05-02	BS-1	Set 1	Sculpin Species	*Superfamily Cottoidea*		1	0.29	34	Total Length
2024-05-02	BS-1	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	27	0	0	-
2024-05-02	BS-1	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	32	0	0	-
2024-05-02	BS-1	Set 2	Sculpin Species	*Superfamily Cottoidea*		1		26	Total Length
2024-05-02	BS-4	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1	1.22	54	Fork Length
2024-05-02	BS-4	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	5.36	82	Fork Length
2024-05-02	BS-4	Set 2	Gunnel Species	*Family Pholidae*	Larva / Fry	1		38	Total Length
2024-05-02	BS-4	Set 2	Coastrange Sculpin	*Cottus aleuticus*	Juvenile	1	0.27	33	Total Length
2024-05-02	BS-NR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	5.44	76	Fork Length
2024-05-02	BS-NR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	7.06	82	Fork Length
2024-05-02	BS-NR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	6.44	78	Fork Length
2024-05-02	BS-NR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	7.93	88	Fork Length
2024-05-02	BS-NR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	8	88	Fork Length
2024-05-02	BS-NR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	10.3	134	Fork Length
2024-05-02	BS-NR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	7.86	87	Fork Length
2024-05-02	BS-NR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	5.69	83	Fork Length
2024-05-02	BS-NR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	7.2	122	Fork Length
2024-05-02	BS-NR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	9.51	120	Fork Length
2024-05-02	BS-NR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	38	0	0	-
2024-05-02	BS-NR	Set 2	Chum Salmon	*Oncorhynchus keta*	Juvenile	1	0.28	35	Fork Length
2024-05-03	BS-3	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1	0.42	35	Fork Length
2024-05-03	BS-3	Set 2	Gunnel Species	*Family Pholidae*	Larva / Fry	1		28	Total Length
2024-05-03	BS-3	Set 2	Gunnel Species	*Family Pholidae*	Larva / Fry	1		48	Total Length
2024-05-03	BS-5	Set 1	Striped Perch	*Embiotoca lateralis*	Adult	1	38	155	Fork Length
2024-05-03	BS-5	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	3.8	84	Fork Length
2024-05-03	BS-5	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	4.3	74	Fork Length
2024-05-03	BS-5	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	2.8	62	Fork Length
2024-05-03	BS-5	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	4.9	98	Fork Length
2024-05-03	BS-AR	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1	0.47	37	Fork Length
2024-05-03	BS-AR	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Juvenile	1	0.32	35	Fork Length
2024-05-03	BS-AR	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1	0.76	43	Fork Length
2024-05-17	BS-1	Set 1	Pile Perch	*Damalichthys vacca*	Adult	1	427	280	Fork Length
2024-05-17	BS-1	Set 1	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1	6.8	73	Fork Length
2024-05-17	BS-1	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	12.51	101	Fork Length
2024-05-17	BS-1	Set 1	Pacific Herring	*Clupea pallasii*	Larva / Fry	1		36	Fork Length
2024-05-17	BS-1	Set 1	Sculpin Species	*Superfamily Cottoidea*		1	6.13	83	Total Length
2024-05-17	BS-1	Set 1	Sculpin Species	*Superfamily Cottoidea*		1	1	40	Total Length
2024-05-17	BS-1	Set 1	Sculpin Species	*Superfamily Cottoidea*		1	0.39	39	Total Length
2024-05-17	BS-1	Set 1	Sculpin Species	*Superfamily Cottoidea*		1	0.92	48	Total Length
2024-05-17	BS-1	Set 1	Sculpin Species	*Superfamily Cottoidea*		1	0.85	46	Total Length
2024-05-17	BS-1	Set 1	Sculpin Species	*Superfamily Cottoidea*		1	1.48	54	Total Length
2024-05-17	BS-1	Set 2	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1	3.62	76	Fork Length
2024-05-17	BS-1	Set 2	Chum Salmon	*Oncorhynchus keta*	Juvenile	1	1.66	56	Fork Length
2024-05-17	BS-1	Set 2	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1	4.6	79	Fork Length
2024-05-17	BS-1	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	7.1	92	Fork Length
2024-05-17	BS-1	Set 2	Sculpin Species	*Superfamily Cottoidea*		1	0.75	43	Total Length
2024-05-17	BS-1	Set 2	Sculpin Species	*Superfamily Cottoidea*	Juvenile	1	0.67	41	Total Length
2024-05-17	BS-2	Set 2	Sculpin Species	*Superfamily Cottoidea*		1		22	Total Length
2024-05-17	BS-AR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	5.24	76	Fork Length
2024-05-17	BS-AR	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	11.5	101	Fork Length
2024-05-17	BS-AR	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1	1.1	57	Total Length
2024-05-17	BS-AR	Set 2	Chum Salmon	*Oncorhynchus keta*	Juvenile	1	0.37	34	Fork Length
2024-05-30	BS-5	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1	2.5	59	Fork Length
2024-05-30	BS-5	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1	12.05	58	Fork Length
2024-05-30	BS-5	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1	0.81	54	Fork Length
2024-05-30	BS-5	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1	0.76	51	Fork Length
2024-05-30	BS-5	Set 1	Fluffy Sculpin	*Oligocottus snyderi*	Juvenile	1		23	Total Length

Date	Site ID	Set (Count)	Common Name	Scientific Name	Life Stage	Count	Weight (g)	Length (mm)	Measurement Type
2024-05-30	BS-5	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		54	Fork Length
2024-05-30	BS-5	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		44	Fork Length
2024-05-30	BS-5	Set 2	Chum Salmon	*Oncorhynchus keta*	Juvenile	1	4.7	56	Fork Length
2024-05-30	BS-5	Set 2	Chum Salmon	*Oncorhynchus keta*	Juvenile	1	5.85	54	Fork Length
2024-05-30	BS-5	Set 2	Chum Salmon	*Oncorhynchus keta*	Juvenile	1	3	46	Fork Length
2024-05-30	BS-5	Set 2	Chum Salmon	*Oncorhynchus keta*	Juvenile	1	1.2	39	Fork Length
2024-05-30	BS-5	Set 2	Chum Salmon	*Oncorhynchus keta*	Juvenile	1	2.8	53	Fork Length
2024-05-30	BS-NR	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		58	Total Length
2024-05-30	BS-NR	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		72	Fork Length
2024-05-30	BS-NR	Set 1	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1		84	Fork Length
2024-05-30	BS-NR	Set 1	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1		83	Fork Length
2024-05-30	BS-NR	Set 2	Northern Anchovy	*Engraulis mordax*	Larva / Fry	1		35	Fork Length
2024-05-30	BS-SR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1	44.56	98	Fork Length
2024-05-30	BS-SR	Set 1	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1	36.95	99	Fork Length
2024-05-30	BS-SR	Set 1	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1	69.35	98	Fork Length
2024-05-30	BS-SR	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Juvenile	1	0.43	33	Fork Length
2024-05-30	BS-SR	Set 2	Chum Salmon	*Oncorhynchus keta*	Juvenile	1	0.62	40	Fork Length
2024-05-30	BS-SR	Set 2	Chum Salmon	*Oncorhynchus keta*	Juvenile	1	0.77	45	Fork Length
2024-05-30	BS-SR	Set 2	Chum Salmon	*Oncorhynchus keta*	Juvenile	1	0.28	37	Fork Length
2024-05-30	BS-SR	Set 2	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		44	Fork Length
2024-05-31	BS-1	Set 1	Fluffy Sculpin	*Oligocottus snyderi*	Juvenile	1		24	Total Length
2024-05-31	BS-1	Set 1	Coastrange Sculpin	*Cottus aleuticus*	Juvenile	1	3.1	45	Total Length
2024-05-31	BS-1	Set 1	Fluffy Sculpin	*Oligocottus snyderi*	Juvenile	1		18	Total Length
2024-05-31	BS-1	Set 1	Coastrange Sculpin	*Cottus aleuticus*	Juvenile	1	2.03	44	Total Length
2024-05-31	BS-1	Set 1	Coastrange Sculpin	*Cottus aleuticus*	Juvenile	1	2.85	53	Total Length
2024-05-31	BS-1	Set 2	Coastrange Sculpin	*Cottus aleuticus*	Juvenile	1	4.05	40	Total Length
2024-05-31	BS-3	Set 2	Pacific Herring	*Clupea pallasii*	Larva / Fry	1			Fork Length
2024-05-31	BS-3	Set 2	Pacific Herring	*Clupea pallasii*	Larva / Fry	1			Fork Length
2024-06-13	BS-1	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		72	Fork Length
2024-06-13	BS-1	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		61	Total Length
2024-06-13	BS-1	Set 1	Sculpin Species	*Superfamily Cottoidea*	Adult	1		51	Total Length
2024-06-13	BS-1	Set 1	Sculpin Species	*Superfamily Cottoidea*	Adult	1		40	Total Length
2024-06-13	BS-1	Set 2	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		72	Fork Length
2024-06-13	BS-1	Set 2	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		54	Fork Length
2024-06-13	BS-1	Set 2	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		61	Fork Length
2024-06-13	BS-1	Set 2	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1		72	Fork Length
2024-06-13	BS-1	Set 2	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1		75	Fork Length
2024-06-13	BS-1	Set 2	Sculpin Species	*Superfamily Cottoidea*	Adult	1		52	Total Length
2024-06-13	BS-1	Set 2	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1		78	Fork Length
2024-06-13	BS-1	Set 2	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		49	Fork Length
2024-06-13	BS-1	Set 2	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		44	Fork Length
2024-06-13	BS-1	Set 2	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		40	Fork Length
2024-06-13	BS-1	Set 2	Chum Salmon	*Oncorhynchus keta*	Juvenile	1	0	0	-
2024-06-13	BS-4	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		32	Fork Length
2024-06-13	BS-4	Set 1	Fluffy Sculpin	*Oligocottus snyderi*	Juvenile	1		19	Total Length
2024-06-13	BS-4	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Juvenile	1		27	Total Length
2024-06-13	BS-4	Set 2	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1		68	Fork Length
2024-06-13	BS-4	Set 2	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1		89	Fork Length
2024-06-13	BS-5	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		51	Fork Length
2024-06-13	BS-5	Set 1	Fluffy Sculpin	*Oligocottus snyderi*	Juvenile	1		27	Total Length
2024-06-13	BS-5	Set 2	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		37	Fork Length
2024-06-14	BS-NR	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		107	Fork Length
2024-06-14	BS-SR	Set 1	Pacific Herring	*Clupea pallasii*	Adult	1		162	Fork Length
2024-06-14	BS-SR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		95	Fork Length
2024-06-14	BS-SR	Set 2	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1		70	Fork Length
2024-06-14	BS-SR	Set 2	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1		74	Fork Length
2024-06-14	BS-SR	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		67	Fork Length
2024-06-14	BS-SR	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		79	Fork Length
2024-06-14	BS-SR	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		60	Total Length
2024-06-14	BS-SR	Set 2	Sculpin Species	*Superfamily Cottoidea*	Juvenile	1		22	Total Length
2024-06-14	BS-SR	Set 2	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		53	Fork Length
2024-06-27	BS-3	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		86	Fork Length
2024-06-27	BS-3	Set 1	Pacific Herring	*Clupea pallasii*	Larva / Fry	1			Fork Length
2024-06-27	BS-3	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		76	Fork Length
2024-06-27	BS-4	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		111	Fork Length
2024-06-27	BS-4	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		63	Total Length
2024-06-27	BS-4	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		62	Total Length
2024-06-27	BS-4	Set 1	Fluffy Sculpin	*Oligocottus snyderi*	Juvenile	1		23	Total Length
2024-06-27	BS-4	Set 1	Fluffy Sculpin	*Oligocottus snyderi*	Juvenile	1		24	Total Length
2024-06-27	BS-4	Set 1	Fluffy Sculpin	*Oligocottus snyderi*	Juvenile	1		29	Total Length
2024-06-27	BS-4	Set 1	Fluffy Sculpin	*Oligocottus snyderi*	Juvenile	1		32	Total Length
2024-06-27	BS-4	Set 1	Pacific Herring	*Clupea pallasii*	Larva / Fry	1			Fork Length
2024-06-27	BS-4	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		86	Fork Length
2024-06-27	BS-4	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		87	Fork Length
2024-06-27	BS-SR	Set 1	Pacific Lamprey		Juvenile	1		124	
2024-06-27	BS-SR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		69	Fork Length
2024-06-27	BS-SR	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		74	Fork Length
2024-06-27	BS-SR	Set 1	Pacific Herring	*Clupea pallasii*	Juvenile	1		135	Fork Length
2024-06-27	BS-SR	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		64	Fork Length
2024-06-27	BS-SR	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		78	Fork Length
2024-06-27	BS-SR	Set 1	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1		59	Fork Length
2024-06-27	BS-SR	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		72	Fork Length
2024-06-27	BS-SR	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		75	Fork Length
2024-06-27	BS-SR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		78	Fork Length
2024-06-27	BS-SR	Set 1	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1		85	Fork Length
2024-06-27	BS-SR	Set 1	Fluffy Sculpin	*Oligocottus snyderi*	Juvenile	1		35	Total Length
2024-06-27	BS-SR	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		94	Fork Length
2024-06-27	BS-SR	Set 2	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1		76	Fork Length
2024-06-27	BS-SR	Set 2	Fluffy Sculpin	*Oligocottus snyderi*	Juvenile	1		33	Total Length
2024-06-27	BS-SR	Set 2	Fluffy Sculpin	*Oligocottus snyderi*	Juvenile	1		24	Total Length
2024-06-28	BS-5	Set 1	Fluffy Sculpin	*Oligocottus snyderi*	Juvenile	1		27	Total Length
2024-06-28	BS-5	Set 1	Fluffy Sculpin	*Oligocottus snyderi*	Juvenile	1		31	Total Length
2024-06-28	BS-5	Set 1	Fluffy Sculpin	*Oligocottus snyderi*	Juvenile	1		35	Total Length
2024-06-28	BS-AR	Set 1	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1		56	Fork Length
2024-06-28	BS-AR	Set 1	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1		53	Fork Length
2024-06-28	BS-AR	Set 1	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1		78	Fork Length
2024-06-28	BS-AR	Set 1	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1		65	Fork Length
2024-06-28	BS-AR	Set 2	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		57	Fork Length
2024-06-28	BS-AR	Set 2	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		59	Fork Length
2024-06-28	BS-AR	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		96	Fork Length
2024-06-28	BS-AR	Set 2	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1		74	Fork Length
2024-06-28	BS-NR	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		69	Fork Length
2024-06-28	BS-NR	Set 2	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1		91	Fork Length
2024-06-28	BS-NR	Set 2	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1		94	Fork Length
2024-07-11	BS-1	Set 1	Shiner Perch	*Cymatogaster aggregata*	Adult	1		91	Fork Length
2024-07-11	BS-1	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		57	Fork Length
2024-07-11	BS-1	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		84	Fork Length
2024-07-11	BS-1	Set 1	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1		51	Fork Length
2024-07-11	BS-1	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		84	Fork Length
2024-07-11	BS-1	Set 1	Sculpin Species	*Superfamily Cottoidea*	Adult	1		104	Total Length
2024-07-11	BS-1	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		86	Fork Length
2024-07-11	BS-1	Set 1	Shiner Perch	*Cymatogaster aggregata*	Adult	1		87	Fork Length
2024-07-11	BS-1	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		82	Fork Length
2024-07-11	BS-1	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		76	Fork Length
2024-07-11	BS-1	Set 2	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		62	Fork Length
2024-07-11	BS-2	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		91	Fork Length
2024-07-11	BS-2	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		87	Fork Length
2024-07-11	BS-2	Set 1	Shiner Perch	*Cymatogaster aggregata*	Adult	1		92	Fork Length
2024-07-11	BS-2	Set 2	Sculpin Species	*Superfamily Cottoidea*	Adult	1		65	Total Length
2024-07-11	BS-2	Set 2	Sculpin Species	*Superfamily Cottoidea*	Adult	1		53	Total Length

Date	Site ID	Set (Count)	Common Name	Scientific Name	Life Stage	Count	Weight (g)	Length (mm)	Measurement Type
2024-07-11	BS-5	Set 1	Pacific Herring	*Clupea pallasii*	Adult	1		154	Fork Length
2024-07-11	BS-5	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		114	Fork Length
2024-07-11	BS-5	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		93	Fork Length
2024-07-11	BS-5	Set 2	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1		63	Fork Length
2024-07-11	BS-SR	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		47	Fork Length
2024-07-11	BS-SR	Set 1	Fluffy Sculpin	*Oligocottus snyderi*	Adult	1		33	Total Length
2024-07-11	BS-SR	Set 1	Northern Anchovy	*Engraulis mordax*	Larva / Fry	1		41	Fork Length
2024-07-11	BS-SR	Set 1	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1		73	Fork Length
2024-07-11	BS-SR	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		82	Fork Length
2024-07-11	BS-SR	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		72	Fork Length
2024-07-11	BS-SR	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Juvenile	1		56	Fork Length
2024-07-11	BS-SR	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		87	Fork Length
2024-07-12	BS-4	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		56	Fork Length
2024-07-12	BS-4	Set 1	Shiner Perch	*Cymatogaster aggregata*	Adult	1		53	Fork Length
2024-07-12	BS-4	Set 2	Sculpin Species	*Superfamily Cottoidea*	Adult	1		99	Total Length
2024-07-12	BS-4	Set 2	Sculpin Species	*Superfamily Cottoidea*	Adult	1		136	Total Length
2024-07-12	BS-AR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		88	Fork Length
2024-07-12	BS-AR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		120	Fork Length
2024-07-12	BS-AR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		93	Fork Length
2024-07-12	BS-AR	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		86	Fork Length
2024-07-12	BS-AR	Set 2	Sculpin Species	*Superfamily Cottoidea*	Adult	1		68	Total Length
2024-07-12	BS-NR	Set 1	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1		82	Fork Length
2024-07-12	BS-NR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		76	Fork Length
2024-07-12	BS-NR	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Juvenile	1		20	Total Length
2024-07-12	BS-NR	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Juvenile	1		20	Total Length
2024-07-12	BS-NR	Set 1	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1		71	Fork Length
2024-07-12	BS-NR	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		89	Fork Length
2024-07-12	BS-NR	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		121	Fork Length
2024-07-12	BS-NR	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		96	Fork Length

Table 2a: Summary table of raw beach purse seine data

Date	Set Net Start Time	Set Net End Time	Site ID	Set (Count)	Ebb / Flood Tide	Tide Height (m)	Total Unique Species Caught	Notes / Unique Species
2024-02-20	10:55	11:06	PS-AR	Set 1	Flood	3.76	0	
2024-02-20	11:36	11:45	PS-AR	Set 2	Flood	3.84	0	
2024-02-20	12:08	12:18	PS-NR	Set 1	Flood	3.88	0	
2024-02-20	12:26	12:34	PS-NR	Set 2	Flood	3.91	0	
2024-02-20	13:09	13:18	PS-4	Set 1	Flood	3.97	0	
2024-02-20	13:25	13:33	PS-4	Set 2	Flood	3.98	0	
2024-02-20	14:03	14:12	PS-2	Set 1	Ebb	3.96	1	Three Spine Stickleback
2024-02-20	14:20	14:38	PS-2	Set 2	Ebb	3.93	0	
2024-02-21	08:58	09:09	PS-SR	Set 1	Ebb	3.91	0	
2024-02-21	09:19	09:26	PS-SR	Set 2	Ebb	3.83	0	
2024-02-21	09:43	09:55	PS-1	Set 1	Ebb	3.75	1	Three Spine Stickleback
2024-02-21	09:58	10:11	PS-1	Set 2	Ebb	3.72	0	
2024-02-21	11:17	11:26	PS-5	Set 1	Flood	3.67	0	
2024-02-21	11:25	11:39	PS-5	Set 2	Flood	3.68	0	
2024-02-21	11:54	12:03	PS-3	Set 1	Flood	3.74	0	
2024-02-21	12:10	12:20	PS-3	Set 2	Flood	3.78	1	Three Spine Stickleback
2024-03-05	11:05	11:16	PS-AR	Set 1	Ebb	3.89	0	
2024-03-05	11:27	11:37	PS-AR	Set 2	Flood	3.89	0	
2024-03-05	12:05	12:16	PS-NR	Set 1	Ebb	3.77	0	
2024-03-05	12:25	12:35	PS-NR	Set 2	Ebb	3.77	0	
2024-03-05	14:03	14:14	PS-SR	Set 1	Ebb	3.15	1	Three Spine Stickleback
2024-03-05	14:22	14:30	PS-SR	Set 2	Ebb	3.15	0	
2024-03-06	08:59	09:06	PS-3	Set 1	Ebb	3.68	0	
2024-03-06	09:13	09:20	PS-3	Set 2	Ebb	3.68	0	
2024-03-06	10:23	10:32	PS-4	Set 1	Flood	3.73	0	
2024-03-06	10:43	10:52	PS-4	Set 2	Flood	3.77	0	
2024-03-06	11:10	11:20	PS-2	Set 1	Flood	3.8	1	Three Spine Stickleback
2024-03-06	11:26	11:35	PS-2	Set 2	Flood	3.8	0	
2024-03-06	11:50	12:00	PS-5	Set 1	Flood	3.82	2	Chum Salmon, Pink Salmon
2024-03-06	12:13	12:21	PS-5	Set 2	Flood	3.83	0	
2024-03-06	12:41	12:58	PS-1	Set 1	Ebb	3.8	0	
2024-03-06	13:04	13:15	PS-1	Set 2	Ebb	3.79	1	Pink Salmon
2024-03-19	09:52	10:00	PS-AR	Set 1	Flood	3.46	1	Pacific Herring
2024-03-19	10:32	10:42	PS-AR	Set 2	Flood	3.4	0	
2024-03-19	11:00	11:13	PS-NR	Set 1	Flood	3.43	0	
2024-03-19	11:18	11:28	PS-NR	Set 2	Flood	3.61	0	
2024-03-19	12:24	12:32	PS-4	Set 1	Flood	3.44	0	
2024-03-19	12:42	12:55	PS-4	Set 2	Ebb	3.45	0	
2024-03-19	13:09	13:18	PS-3	Set 1	Flood	3.57	1	Three Spine Stickleback
2024-03-19	13:24	13:33	PS-3	Set 2	Flood	3.6	3	Three Spine Stickleback, Chum Salmon, Pink Salmon
2024-03-20	08:31	08:51	PS-SR	Set 1	Ebb	4.21	0	
2024-03-20	08:55	09:05	PS-SR	Set 2	Ebb	4.19	0	
2024-03-20	09:17	09:21	PS-1	Set 1	Ebb	3.91	1	Pacific Herring
2024-03-20	09:31	09:53	PS-1	Set 2	Ebb	3.9	4	Pink Salmon, Chum Salmon, Chinook Salmon, Three Spine Stickleback
2024-03-20	11:29	11:41	PS-2	Set 1	Flood	3.39	1	Pacific Herring
2024-03-20	11:47	11:55	PS-2	Set 2	Flood	3.44	1	Pink Salmon
2024-03-20	12:11	12:22	PS-5	Set 1	Flood	3.45	3	Marbled Snailfish, Three Spine Stickleback, Pacific Herring
2024-03-20	12:30	12:35	PS-5	Set 2	Flood	3.47	1	Three Spine Stickleback
2024-04-02	09:29	09:43	PS-AR	Set 1	Flood	3.66	0	
2024-04-02	09:50	10:00	PS-AR	Set 2	Flood	3.66	0	
2024-04-02	10:05	10:29	PS-NR	Set 1	Flood	3.57	0	
2024-04-02	10:35	10:43	PS-NR	Set 2	Ebb	3.66	0	
2024-04-02	11:37	11:44	PS-4	Set 2	Ebb	3.54	0	
2024-04-02	11:50	11:56	PS-4	Set 1	Ebb	3.47	0	
2024-04-02	12:10	12:18	PS-1	Set 1	Ebb	3.38	0	
2024-04-02	12:23	12:32	PS-1	Set 2	Ebb	3.3	0	
2024-04-03	08:57	09:08	PS-SR	Set 1	Flood	3.4	2	Pink Salmon, Chum Salmon
2024-04-03	09:17	09:28	PS-SR	Set 2	Flood	3.48	3	Chum Salmon, Three Spine Stickleback, Pink Salmon
2024-04-03	10:03	10:12	PS-5	Set 1	Flood	3.47	0	
2024-04-03	10:18	10:28	PS-5	Set 2	Flood	3.47	0	
2024-04-03	11:37	11:43	PS-3	Set 1	Ebb	3.48	0	
2024-04-03	11:50	11:59	PS-3	Set 2	Ebb	3.48	0	
2024-04-03	12:15	12:30	PS-2	Set 1	Ebb	3.42	3	Chum Salmon, Pink Salmon, Three Spine Stickleback
2024-04-03	12:33	12:49	PS-2	Set 2	Ebb	3.45	0	
2024-04-16	10:48	11:00	PS-AR	Set 1	Flood	3.17	0	
2024-04-16	11:15	11:20	PS-AR	Set 2	Flood	3.2	1	Pink Salmon
2024-04-17	08:30	08:38	PS-NR	Set 1	Ebb	2.91	0	
2024-04-17	08:42	08:49	PS-NR	Set 2	Ebb	2.88	0	
2024-04-17	09:08	09:16	PS-4	Set 1	Ebb	2.88	0	
2024-04-17	09:20	09:30	PS-4	Set 2	Ebb	2.82	2	Chum Salmon, Pink Salmon
2024-04-17	09:42	09:53	PS-3	Set 1	Ebb	1	1	Three Spine Stickleback
2024-04-17	09:58	10:07	PS-3	Set 2	Flood	2.8	0	
2024-04-17	10:18	10:26	PS-2	Set 1	Flood	2.81	0	
2024-04-17	10:30	10:38	PS-2	Set 2	Flood	2.83	0	
2024-04-17	10:44	10:52	PS-5	Set 1	Flood	2.84	1	Three Spine Stickleback
2024-04-17	10:56	11:06	PS-5	Set 2	Flood	2.86	2	Pacific Herring, Three Spine Stickleback
2024-04-17	11:19	11:26	PS-1	Set 1	Flood	2.9	0	
2024-04-17	11:31	11:34	PS-1	Set 2	Flood	2.42	2	Northern Anchovy, Pacific Herring
2024-04-17	12:29	12:40	PS-SR	Set 1	Flood	3.03	0	
2024-04-17	12:43	12:53	PS-SR	Set 2	Flood	3.09	0	
2024-04-30	09:38	09:53	PS-AR	Set 1	Ebb	3.647	0	
2024-04-30	10:00	10:06	PS-AR	Set 2	Ebb	3.59	0	
2024-04-30	10:24	10:30	PS-NR	Set 1	Ebb	3.522	0	
2024-04-30	10:36	10:44	PS-NR	Set 2	Ebb	3.444	0	
2024-04-30	10:55	11:06	PS-4	Set 1	Ebb	3.334	0	
2024-04-30	11:08	11:18	PS-4	Set 2	Ebb	3.267	0	
2024-04-30	11:28	11:39	PS-3	Set 1	Ebb	3.129	1	Chum Salmon
2024-04-30	11:44	11:54	PS-3	Set 2	Ebb	2.994	1	Pink Salmon
2024-05-01	09:16	09:25	PS-SR	Set 1	Flood	3.36	1	Pink Salmon
2024-05-01	09:30	09:38	PS-SR	Set 2	Flood	3.37	0	
2024-05-01	09:49	09:59	PS-1	Set 1	Flood	3.38	0	
2024-05-01	10:04	10:14	PS-1	Set 2	Flood	3.9	0	
2024-05-01	10:20	10:33	PS-5	Set 1	Ebb	3.4	2	Northern Anchovy, Three Spine Stickleback

Date	Set Net Start Time	Set Net End Time	Site ID	Set (Count)	Ebb / Flood Tide	Tide Height (m)	Total Unique Species Caught	Notes / Unique Species
2024-05-01	10:40	10:50	PS-5	Set 2	Ebb	3.38	0	
2024-05-01	11:23	11:33	PS-2	Set 1	Ebb	3.31	1	Chinook Salmon
2024-05-01	11:38	11:48	PS-2	Set 2	Ebb	3.26	1	Chinook Salmon
2024-05-14	09:32	09:37	PS-AR	Set 1	Ebb	3.31	0	
2024-05-14	09:43	09:50	PS-AR	Set 2	Ebb	3.3	3	Chinook Salmon, Three Spine Stickleback, Pacific Herring
2024-05-14	10:09	10:17	PS-NR	Set 1	Ebb	3.3	1	Chinook Salmon
2024-05-14	10:21	10:28	PS-NR	Set 2	Ebb	3.28	1	Three Spine Stickleback
2024-05-14	10:39	10:47	PS-4	Set 1	Ebb	3.25	0	
2024-05-14	10:52	11:01	PS-4	Set 2	Ebb	3.21	1	Pacific Herring
2024-05-14	11:11	11:18	PS-3	Set 1	Ebb	3.16	3	Three Spine Stickleback, Chinook Salmon, Coho Salmon
2024-05-14	11:22	11:30	PS-3	Set 2	Ebb	3.13	1	Coho Salmon
2024-05-15	08:40	08:48	PS-SR	Set 1	Flood	3.02	0	
2024-05-15	08:52	08:59	PS-SR	Set 2	Flood	3.03	0	
2024-05-15	09:13	09:18	PS-1	Set 1	Flood	3.04	0	
2024-05-15	09:20	09:28	PS-1	Set 2	Flood	3.04	1	Starry Flounder
2024-05-15	09:39	09:46	PS-5	Set 1	Flood	3.04	0	
2024-05-15	09:50	09:58	PS-5	Set 2	Flood	3.08	0	
2024-05-15	10:22	10:32	PS-2	Set 1	Flood	3.1	0	
2024-05-15	10:35	10:43	PS-2	Set 2	Flood	3.12	0	
2024-05-28	11:15	11:26	PS-SR	Set 1	Ebb	2.83	0	
2024-05-28	11:28	11:33	PS-SR	Set 2	Ebb	2.74	0	
2024-05-28	11:49	11:56	PS-1	Set 1	Ebb	2.53	1	Three Spine Stickleback
2024-05-28	12:02	12:04	PS-1	Set 2	Ebb	2.41	0	
2024-05-28	12:19	12:26	PS-5	Set 1	Ebb	2.2	0	
2024-05-28	12:31	12:38	PS-5	Set 2	Ebb	2.08	0	
2024-05-28	12:46	12:52	PS-2	Set 1	Ebb	1.92	0	
2024-05-28	12:57	13:04	PS-2	Set 2	Ebb	1.82	0	
2024-05-29	08:39	08:50	PS-AR	Set 1	Flood	3.54	1	Chum Salmon
2024-05-29	08:57	09:05	PS-AR	Set 2	Ebb	3.55	0	
2024-05-29	09:21	09:31	PS-NR	Set 1	Ebb	3.56	1	Three Spine Stickleback
2024-05-29	09:36	09:43	PS-NR	Set 2	Ebb	3.54	1	Chinook Salmon
2024-05-29	09:52	10:03	PS-4	Set 1	Ebb	3.57	2	Northern Anchovy, Pacific Herring
2024-05-29	10:08	10:15	PS-4	Set 2	Ebb	3.47	0	
2024-05-29	10:24	10:31	PS-3	Set 1	Ebb	3.41	2	Chum Salmon, Three Spine Stickleback
2024-05-29	10:38	10:45	PS-3	Set 2	Ebb	3.36	0	
2024-06-11	09:30	09:39	PS-AR	Set 1	Ebb	3.57	0	
2024-06-11	09:46	09:55	PS-AR	Set 2	Ebb	3.55	1	Chinook Salmon
2024-06-11	10:20	10:29	PS-NR	Set 1	Ebb	3.3	1	Chinook Salmon
2024-06-11	10:34	10:47	PS-NR	Set 2	Ebb	3.25	2	Chinook Salmon, Three Spine Stickleback
2024-06-11	11:05	11:12	PS-5	Set 1	Ebb	2.33	0	
2024-06-11	11:19	11:27	PS-5	Set 2	Ebb	2.33	0	
2024-06-11	11:35	11:44	PS-1	Set 1	Ebb	2.22	0	
2024-06-11	11:49	11:53	PS-1	Set 2	Ebb	2.22	0	
2024-06-12	08:46	08:54	PS-SR	Set 1	Flood	3.34	0	
2024-06-12	08:59	09:07	PS-SR	Set 2	Flood	3.35	1	Pacific Herring
2024-06-12	09:24	09:32	PS-2	Set 1	Ebb	3.36	0	
2024-06-12	09:37	09:45	PS-2	Set 2	Ebb	3.35	0	
2024-06-12	09:52	10:00	PS-3	Set 1	Ebb	3.35	0	
2024-06-12	10:04	10:11	PS-3	Set 2	Ebb	3.33	0	
2024-06-12	10:20	10:31	PS-4	Set 1	Ebb	3.29	0	
2024-06-12	10:36	10:46	PS-4	Set 2	Ebb	3.25	1	Pacific Herring
2024-06-25	09:06	09:15	PS-SR	Set 1	Ebb	3.626	1	Chinook Salmon
2024-06-25	09:21	09:30	PS-SR	Set 2	Ebb	3.496	0	
2024-06-25	09:46	09:54	PS-1	Set 1	Ebb	3.271	0	
2024-06-25	10:00	10:07	PS-1	Set 2	Ebb	3.136	1	Pacific Herring
2024-06-25	10:18	10:27	PS-5	Set 1	Ebb	2.949	0	
2024-06-25	10:30	10:40	PS-5	Set 2	Ebb	2.832	0	
2024-06-25	10:50	10:58	PS-3	Set 1	Ebb	2.616	1	Chinook Salmon
2024-06-25	11:02	11:15	PS-3	Set 2	Ebb	2.471	1	Pacific Herring
2024-06-26	08:20	08:29	PS-AR	Set 1	Ebb	3.816	0	
2024-06-26	08:35	08:45	PS-AR	Set 2	Ebb	3.916	0	
2024-06-26	08:55	09:02	PS-NR	Set 1	Ebb	3.863	0	
2024-06-26	09:08	09:18	PS-NR	Set 2	Ebb	3.826	3	Chinook Salmon, Chum Salmon, Coho Salmon
2024-06-26	09:35	09:44	PS-4	Set 1	Ebb	3.697	0	
2024-06-26	09:50	10:00	PS-4	Set 2	Ebb	3.614	0	
2024-06-26	10:10	10:20	PS-2	Set 1	Ebb	3.484	2	Pacific Herring, Coho Salmon
2024-06-26	10:24	10:34	PS-2	Set 2	Ebb	3.382	2	Pacific Herring, Chinook Salmon
2024-07-09	09:15	09:28	PS-SR	Set 1	Ebb	3.49	1	Coho Salmon
2024-07-09	09:33	09:49	PS-SR	Set 2	Ebb	3.24	1	Pacific Herring
2024-07-09	10:08	10:17	PS-1	Set 1	Ebb	3.06	1	Chum Salmon
2024-07-09	10:20	10:35	PS-1	Set 2	Ebb	2.97	0	
2024-07-09	10:44	10:49	PS-5	Set 1	Ebb	2.79	0	
2024-07-09	11:01	10:07	PS-5	Set 2	Ebb	2.59	0	
2024-07-09	11:17	11:23	PS-2	Set 1	Ebb	2.48	2	Chinook Salmon, Chum Salmon
2024-07-09	11:25	11:32	PS-2	Set 2	Ebb	2.87	2	Chum Salmon, Pacific Herring
2024-07-10	09:10	09:16	PS-AR	Set 1	Ebb	3.64	1	Three Spine Stickleback
2024-07-10	09:21	09:24	PS-AR	Set 2	Ebb	3.6	1	Chinook Salmon
2024-07-10	09:44	09:50	PS-NR	Set 1	Ebb	3.52	0	
2024-07-10	09:54	10:00	PS-NR	Set 2	Ebb	3.46	2	Coho Salmon, Chinook Salmon
2024-07-10	10:15	10:21	PS-4	Set 1	Ebb	3.32	0	
2024-07-10	10:44	10:50	PS-3	Set 1	Ebb	3.11	0	
2024-07-10	10:55	11:01	PS-3	Set 2	Ebb	3.03	0	
2024-07-10	11:26	10:34	PS-4	Set 2	Ebb	3.25	0	

Table 2b: Individual measurements table of raw beach purse seine data

Date	Site ID	Set (Count)	Common Name	Scientific Name	Life Stage	Count	Weight (g)	Length (mm)	Measurement Type
2024-02-20	PS-2	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1	3.2	50	Total Length
2024-02-20	PS-2	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1	2.5	47	Total Length
2024-02-20	PS-2	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		52	Total Length
2024-02-20	PS-2	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		45	Total Length
2024-02-21	PS-1	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		38	Total Length
2024-02-21	PS-3	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		36	Total Length
2024-02-21	PS-3	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		41	Total Length
2024-02-21	PS-3	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		40	Total Length
2024-02-21	PS-3	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		35	Total Length
2024-02-21	PS-3	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		36	Total Length
2024-02-21	PS-3	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		33	Total Length
2024-02-21	PS-3	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		42	Total Length
2024-02-21	PS-3	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		35	Total Length
2024-02-21	PS-3	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		30	Total Length
2024-02-21	PS-3	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		40	Total Length
2024-03-05	PS-SR	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*		1			Total Length
2024-03-06	PS-1	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		31	Fork Length
2024-03-06	PS-1	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		34	Fork Length
2024-03-06	PS-2	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		32	Total Length
2024-03-06	PS-2	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		35	Total Length
2024-03-06	PS-2	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		35	Total Length
2024-03-06	PS-5	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		32	Fork Length
2024-03-06	PS-5	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		33	Fork Length
2024-03-06	PS-5	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		34	Fork Length
2024-03-06	PS-5	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		36	Fork Length
2024-03-06	PS-5	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		32	Fork Length
2024-03-06	PS-5	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		34	Fork Length
2024-03-06	PS-5	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		34	Fork Length
2024-03-06	PS-5	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		35	Fork Length
2024-03-06	PS-5	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		33	Fork Length
2024-03-06	PS-5	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		33	Fork Length
2024-03-06	PS-5	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		36	Fork Length
2024-03-06	PS-5	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		36	Fork Length
2024-03-06	PS-5	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		31	Fork Length
2024-03-19	PS-3	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		27	Total Length
2024-03-19	PS-3	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		29	Total Length
2024-03-19	PS-3	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		31	Total Length
2024-03-19	PS-3	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		32	Total Length
2024-03-19	PS-3	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		29	Total Length
2024-03-19	PS-3	Set 2	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		31	Fork Length
2024-03-19	PS-3	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		31	Fork Length
2024-03-19	PS-3	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		52	Total Length
2024-03-19	PS-3	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		45	Total Length
2024-03-19	PS-3	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		46	Total Length
2024-03-19	PS-3	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		52	Total Length
2024-03-19	PS-3	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		54	Total Length
2024-03-19	PS-3	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		51	Total Length
2024-03-19	PS-3	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		55	Total Length
2024-03-19	PS-3	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		57	Total Length
2024-03-19	PS-3	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		52	Total Length
2024-03-19	PS-3	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		55	Total Length
2024-03-19	PS-3	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	84	0	0	-
2024-03-19	PS-AR	Set 1	Pacific Herring	*Clupea pallasii*	Adult	1		148	Fork Length
2024-03-19	PS-AR	Set 1	Pacific Herring	*Clupea pallasii*	Adult	1		152	Fork Length
2024-03-19	PS-AR	Set 1	Pacific Herring	*Clupea pallasii*	Adult	1		184	Fork Length
2024-03-19	PS-AR	Set 1	Pacific Herring	*Clupea pallasii*	Adult	1		139	Fork Length
2024-03-19	PS-AR	Set 1	Pacific Herring	*Clupea pallasii*	Adult	1		132	Fork Length
2024-03-19	PS-AR	Set 1	Pacific Herring	*Clupea pallasii*	Adult	1		151	Fork Length
2024-03-19	PS-AR	Set 1	Pacific Herring	*Clupea pallasii*	Adult	1		146	Fork Length
2024-03-19	PS-AR	Set 1	Pacific Herring	*Clupea pallasii*	Adult	1		157	Fork Length
2024-03-19	PS-AR	Set 1	Pacific Herring	*Clupea pallasii*	Adult	1		141	Fork Length
2024-03-19	PS-AR	Set 1	Pacific Herring	*Clupea pallasii*	Adult	1		143	Fork Length
2024-03-19	PS-AR	Set 1	Pacific Herring	*Clupea pallasii*	Adult	48	0	0	-
2024-03-20	PS-1	Set 1	Pacific Herring	*Clupea pallasii*	Adult	1		148	Fork Length
2024-03-20	PS-1	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		41	Fork Length
2024-03-20	PS-1	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		26	Fork Length
2024-03-20	PS-1	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		28	Fork Length
2024-03-20	PS-1	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		30	Fork Length
2024-03-20	PS-1	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		28	Fork Length
2024-03-20	PS-1	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		26	Fork Length
2024-03-20	PS-1	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		27	Fork Length
2024-03-20	PS-1	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		30	Fork Length
2024-03-20	PS-1	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		28	Fork Length
2024-03-20	PS-1	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		27	Fork Length
2024-03-20	PS-1	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		25	Fork Length
2024-03-20	PS-1	Set 2	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		33	Fork Length
2024-03-20	PS-1	Set 2	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		34	Fork Length
2024-03-20	PS-1	Set 2	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		31	Fork Length
2024-03-20	PS-1	Set 2	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		30	Fork Length
2024-03-20	PS-1	Set 2	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		33	Fork Length
2024-03-20	PS-1	Set 2	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		36	Fork Length
2024-03-20	PS-1	Set 2	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		36	Fork Length
2024-03-20	PS-1	Set 2	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		32	Fork Length
2024-03-20	PS-1	Set 2	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		30	Fork Length
2024-03-20	PS-1	Set 2	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		32	Fork Length
2024-03-20	PS-1	Set 2	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		30	Fork Length
2024-03-20	PS-1	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		32	Fork Length
2024-03-20	PS-1	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		38	Total Length
2024-03-20	PS-1	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		28	Total Length
2024-03-20	PS-1	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		28	Total Length
2024-03-20	PS-1	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		33	Total Length
2024-03-20	PS-1	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		30	Total Length
2024-03-20	PS-1	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		35	Total Length
2024-03-20	PS-1	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		33	Total Length
2024-03-20	PS-1	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		30	Total Length
2024-03-20	PS-1	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		35	Total Length
2024-03-20	PS-1	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		26	Total Length
2024-03-20	PS-1	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	405	0	0	-
2024-03-20	PS-1	Set 2	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	107	0	0	-
2024-03-20	PS-1	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	131	0	0	-
2024-03-20	PS-2	Set 1	Pacific Herring	*Clupea pallasii*	Adult	1		144	Fork Length
2024-03-20	PS-2	Set 1	Pacific Herring	*Clupea pallasii*	Adult	1		121	Fork Length

Date	Site ID	Set (Count)	Common Name	Scientific Name	Life Stage	Count	Weight (g)	Length (mm)	Measurement Type
2024-03-20	PS-2	Set 1	Pacific Herring	*Clupea pallasii*	Adult	1		128	Fork Length
2024-03-20	PS-2	Set 1	Pacific Herring	*Clupea pallasii*	Adult	1		158	Fork Length
2024-03-20	PS-2	Set 1	Pacific Herring	*Clupea pallasii*	Adult	1		124	Fork Length
2024-03-20	PS-2	Set 1	Pacific Herring	*Clupea pallasii*	Adult	1		124	Fork Length
2024-03-20	PS-2	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		29	Fork Length
2024-03-20	PS-5	Set 1	Marbled Snailfish	*Liparis dennyi*	Juvenile	1		46	Total Length
2024-03-20	PS-5	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		69	Total Length
2024-03-20	PS-5	Set 1	Pacific Herring	*Clupea pallasii*	Adult	1		136	Fork Length
2024-03-20	PS-5	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		43	Total Length
2024-03-20	PS-5	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		36	Total Length
2024-04-03	PS-2	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		35	Fork Length
2024-04-03	PS-2	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		45	Fork Length
2024-04-03	PS-2	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		33	Fork Length
2024-04-03	PS-2	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		36	Fork Length
2024-04-03	PS-2	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		36	Fork Length
2024-04-03	PS-2	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		38	Fork Length
2024-04-03	PS-2	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		37	Fork Length
2024-04-03	PS-2	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		39	Fork Length
2024-04-03	PS-2	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		31	Fork Length
2024-04-03	PS-2	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		37	Fork Length
2024-04-03	PS-2	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		33	Fork Length
2024-04-03	PS-2	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		37	Fork Length
2024-04-03	PS-2	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		33	Fork Length
2024-04-03	PS-2	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		37	Fork Length
2024-04-03	PS-2	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		39	Fork Length
2024-04-03	PS-2	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		41	Fork Length
2024-04-03	PS-2	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		26	Fork Length
2024-04-03	PS-2	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		34	Fork Length
2024-04-03	PS-2	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		37	Fork Length
2024-04-03	PS-2	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		28	Fork Length
2024-04-03	PS-2	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		32	Fork Length
2024-04-03	PS-2	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		29	Total Length
2024-04-03	PS-2	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		28	Fork Length
2024-04-03	PS-2	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		14	Fork Length
2024-04-03	PS-SR	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		35	Fork Length
2024-04-03	PS-SR	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		46	Fork Length
2024-04-03	PS-SR	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		36	Fork Length
2024-04-03	PS-SR	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		38	Fork Length
2024-04-03	PS-SR	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		35	Fork Length
2024-04-03	PS-SR	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		41	Fork Length
2024-04-03	PS-SR	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		44	Fork Length
2024-04-03	PS-SR	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		34	Fork Length
2024-04-03	PS-SR	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		35	Fork Length
2024-04-03	PS-SR	Set 2	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		38	Fork Length
2024-04-03	PS-SR	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		35	Total Length
2024-04-03	PS-SR	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		33	Fork Length
2024-04-03	PS-SR	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		31	Fork Length
2024-04-03	PS-SR	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		34	Total Length
2024-04-03	PS-SR	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		34	Fork Length
2024-04-03	PS-SR	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		41	Total Length
2024-04-03	PS-SR	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		37	Total Length
2024-04-03	PS-SR	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		41	Total Length
2024-04-03	PS-SR	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		37	Total Length
2024-04-03	PS-SR	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		30	Fork Length
2024-04-03	PS-SR	Set 2	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		41	Fork Length
2024-04-03	PS-SR	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		38	Fork Length
2024-04-16	PS-AR	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		33	Fork Length
2024-04-17	PS-1	Set 2	Northern Anchovy	*Engraulis mordax*	Adult	1		123	Fork Length
2024-04-17	PS-1	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		156	Fork Length
2024-04-17	PS-1	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		131	Fork Length
2024-04-17	PS-1	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		142	Fork Length
2024-04-17	PS-3	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		65	Total Length
2024-04-17	PS-3	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		65	Total Length
2024-04-17	PS-4	Set 2	Chum Salmon		Larva / Fry	1		37	Fork Length
2024-04-17	PS-4	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		34	Fork Length
2024-04-17	PS-5	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		52	Total Length
2024-04-17	PS-5	Set 2	Three Spine Stickleback		Adult	1		46	Total Length
2024-04-17	PS-5	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		145	Fork Length
2024-04-17	PS-5	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		131	Fork Length
2024-04-17	PS-5	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		145	Fork Length
2024-04-17	PS-5	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		130	Fork Length
2024-04-17	PS-5	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		134	Fork Length
2024-04-17	PS-5	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		115	Fork Length
2024-04-17	PS-5	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		123	Fork Length
2024-04-17	PS-5	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		119	Fork Length
2024-04-17	PS-5	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		126	Fork Length
2024-04-17	PS-5	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		123	Fork Length
2024-04-17	PS-5	Set 2	Pacific Herring	*Clupea pallasii*	Adult	8	0	0	-
2024-04-30	PS-3	Set 1	Chum Salmon	*Oncorhynchus keta*	Larva / Fry	1		37	Fork Length
2024-04-30	PS-3	Set 2	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		32	Fork Length
2024-05-01	PS-2	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		83	Fork Length
2024-05-01	PS-2	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		126	Fork Length
2024-05-01	PS-2	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		126	Fork Length
2024-05-01	PS-2	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		83	Fork Length
2024-05-01	PS-5	Set 1	Northern Anchovy	*Engraulis mordax*	Adult	1		71	Fork Length
2024-05-01	PS-5	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		43	Total Length
2024-05-01	PS-5	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		51	Total Length
2024-05-01	PS-5	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		61	Total Length
2024-05-01	PS-5	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		53	Total Length
2024-05-01	PS-5	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		54	Total Length
2024-05-01	PS-5	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		45	Total Length
2024-05-01	PS-5	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		60	Total Length
2024-05-01	PS-5	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		62	Total Length
2024-05-01	PS-5	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		46	Total Length
2024-05-01	PS-5	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		48	Total Length
2024-05-01	PS-5	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1094	0	0	-
2024-05-01	PS-SR	Set 1	Pink Salmon	*Oncorhynchus gorbuscha*	Larva / Fry	1		31	Fork Length
2024-05-14	PS-3	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		41	Total Length
2024-05-14	PS-3	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		121	Fork Length
2024-05-14	PS-3	Set 1	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1		86	Fork Length
2024-05-14	PS-3	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		114	Fork Length
2024-05-14	PS-3	Set 2	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1		74	Fork Length
2024-05-14	PS-4	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		105	Fork Length

Date	Site ID	Set (Count)	Common Name	Scientific Name	Life Stage	Count	Weight (g)	Length (mm)	Measurement Type
2024-05-14	PS-AR	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		75	Fork Length
2024-05-14	PS-AR	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		67	Total Length
2024-05-14	PS-AR	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		140	Fork Length
2024-05-14	PS-AR	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		134	Fork Length
2024-05-14	PS-AR	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1	0	0	-
2024-05-14	PS-NR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		125	Fork Length
2024-05-14	PS-NR	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		48	Total Length
2024-05-15	PS-1	Set 2	Starry Flounder	*Platichthys stellatus*	Adult	1		185	Total Length
2024-05-28	PS-1	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		65	Total Length
2024-05-29	PS-3	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		84	Fork Length
2024-05-29	PS-3	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		66	Total Length
2024-05-29	PS-4	Set 1	Northern Anchovy	*Engraulis mordax*	Adult	1		117	Fork Length
2024-05-29	PS-4	Set 1	Pacific Herring	*Clupea pallasii*	Adult	1		119	Fork Length
2024-05-29	PS-4	Set 1	Pacific Herring	*Clupea pallasii*	Adult	1		134	Fork Length
2024-05-29	PS-4	Set 1	Pacific Herring	*Clupea pallasii*	Adult	1		134	Fork Length
2024-05-29	PS-4	Set 1	Pacific Herring	*Clupea pallasii*	Adult	1		127	Fork Length
2024-05-29	PS-AR	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		84	Fork Length
2024-05-29	PS-NR	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		63	Total Length
2024-05-29	PS-NR	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		64	Total Length
2024-05-29	PS-NR	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		65	Total Length
2024-05-29	PS-NR	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		67	Total Length
2024-05-29	PS-NR	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		64	Total Length
2024-05-29	PS-NR	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		67	Total Length
2024-05-29	PS-NR	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		64	Total Length
2024-05-29	PS-NR	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		64	Total Length
2024-05-29	PS-NR	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		65	Total Length
2024-05-29	PS-NR	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		62	Total Length
2024-05-29	PS-NR	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		62	Total Length
2024-05-29	PS-NR	Set 1	Three Spine Stickleback		Adult	1		63	Total Length
2024-05-29	PS-NR	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	4	0	0	-
2024-05-29	PS-NR	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		89	Fork Length
2024-06-11	PS-AR	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		74	Fork Length
2024-06-11	PS-NR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		85	Fork Length
2024-06-11	PS-NR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		84	Fork Length
2024-06-11	PS-NR	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		83	Fork Length
2024-06-11	PS-NR	Set 2	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		64	Total Length
2024-06-11	PS-NR	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		77	Fork Length
2024-06-12	PS-4	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		124	Fork Length
2024-06-12	PS-4	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		163	Fork Length
2024-06-12	PS-4	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		135	Fork Length
2024-06-12	PS-4	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		125	Fork Length
2024-06-12	PS-SR	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		136	Fork Length
2024-06-12	PS-SR	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		127	Fork Length
2024-06-25	PS-1	Set 2	Pacific Herring	*Clupea pallasii*		1			Fork Length
2024-06-25	PS-3	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		76	Fork Length
2024-06-25	PS-3	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		123	Fork Length
2024-06-25	PS-3	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		125	Fork Length
2024-06-25	PS-3	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		137	Fork Length
2024-06-25	PS-3	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		126	Fork Length
2024-06-25	PS-3	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		122	Fork Length
2024-06-25	PS-3	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		123	Fork Length
2024-06-25	PS-3	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		146	Fork Length
2024-06-25	PS-3	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		124	Fork Length
2024-06-25	PS-3	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		137	Fork Length
2024-06-25	PS-3	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		124	Fork Length
2024-06-25	PS-3	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		137	Fork Length
2024-06-25	PS-3	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		133	Fork Length
2024-06-25	PS-3	Set 2	Pacific Herring	*Clupea pallasii*	Adult	27	0	0	-
2024-06-25	PS-3	Set 2	Pacific Herring	*Clupea pallasii*	Adult	2	0	0	-
2024-06-25	PS-SR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		95	Fork Length
2024-06-25	PS-SR	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		96	Fork Length
2024-06-26	PS-2	Set 1	Pacific Herring	*Clupea pallasii*	Adult	1		161	Fork Length
2024-06-26	PS-2	Set 1	Pacific Herring	*Clupea pallasii*	Adult	1		157	Fork Length
2024-06-26	PS-2	Set 1	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1		82	Fork Length
2024-06-26	PS-2	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		154	Fork Length
2024-06-26	PS-2	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		103	Fork Length
2024-06-26	PS-NR	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		103	Fork Length
2024-06-26	PS-NR	Set 2	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		84	Fork Length
2024-06-26	PS-NR	Set 2	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1		87	Fork Length
2024-07-09	PS-1	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		83	Fork Length
2024-07-09	PS-1	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		74	Fork Length
2024-07-09	PS-1	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		79	Fork Length
2024-07-09	PS-1	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		61	Fork Length
2024-07-09	PS-1	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		71	Fork Length
2024-07-09	PS-1	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		76	Fork Length
2024-07-09	PS-2	Set 1	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		101	Fork Length
2024-07-09	PS-2	Set 1	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		79	Fork Length
2024-07-09	PS-2	Set 2	Chum Salmon	*Oncorhynchus keta*	Juvenile	1		91	Fork Length
2024-07-09	PS-2	Set 2	Pacific Herring	*Clupea pallasii*	Adult	1		132	Fork Length
2024-07-09	PS-SR	Set 1	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1		101	Fork Length
2024-07-09	PS-SR	Set 2	Pacific Herring	*Clupea pallasii*	Juvenile	1		57	Fork Length
2024-07-09	PS-SR	Set 2	Pacific Herring	*Clupea pallasii*	Juvenile	1		59	Fork Length
2024-07-09	PS-SR	Set 2	Pacific Herring	*Clupea pallasii*	Juvenile	1		75	Fork Length
2024-07-09	PS-SR	Set 2	Pacific Herring	*Clupea pallasii*	Juvenile	1		61	Fork Length
2024-07-09	PS-SR	Set 2	Pacific Herring	*Clupea pallasii*	Juvenile	1		65	Fork Length
2024-07-09	PS-SR	Set 2	Pacific Herring	*Clupea pallasii*	Juvenile	1		61	Fork Length
2024-07-09	PS-SR	Set 2	Pacific Herring	*Clupea pallasii*	Juvenile	1		65	Fork Length
2024-07-09	PS-SR	Set 2	Pacific Herring	*Clupea pallasii*	Juvenile	1		61	Fork Length
2024-07-09	PS-SR	Set 2	Pacific Herring	*Clupea pallasii*	Juvenile	1		57	Fork Length
2024-07-09	PS-SR	Set 2	Pacific Herring	*Clupea pallasii*	Juvenile	1		63	Fork Length
2024-07-09	PS-SR	Set 2	Pacific Herring	*Clupea pallasii*	Juvenile	1		72	Fork Length
2024-07-09	PS-SR	Set 2	Pacific Herring	*Clupea pallasii*	Juvenile	1		62	Fork Length
2024-07-09	PS-SR	Set 2	Pacific Herring	*Clupea pallasii*	Juvenile	89	0	0	-
2024-07-10	PS-AR	Set 1	Three Spine Stickleback	*Gasterosteus aculeatus*	Adult	1		74	Total Length
2024-07-10	PS-AR	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		146	Fork Length
2024-07-10	PS-NR	Set 2	Coho Salmon	*Oncorhynchus kisutch*	Juvenile	1		79	Fork Length
2024-07-10	PS-NR	Set 2	Chinook Salmon	*Oncorhynchus tshawytscha*	Juvenile	1		114	Fork Length

APPENDIX F

KP13 TASKS

Salmon Spawner Counts

Date	Site ID	Channel Morphology	Ebb / Flood Tide	Tide Height (m)	Weather	Species Caught	Note
2024-08-30	Segment 1	Riffle,Run	Flood	1.00	Hot,Sunny	--	--
2024-08-30	Segment 2	Riffle	Flood	1.04	Warm,Sunny	--	--
2024-08-30	Segment 3	Glide	Flood	1.09	Warm,Sunny	--	--
2024-08-30	Segment 4	Pool,Run	Flood	1.22	Warm,Sunny	--	--
2024-08-30	Segment 5	Cascade,Pool	Flood	1.28	Warm,Sunny	--	Cascade located at border between segment 5 and 6
2024-08-30	Segment 6	Cascade,Pool	--	--	--	--	Total extent of segment 6 not sampled (to deep and field staff has not procured waders to wade). however, observed cascade at border to segment 6 and did not see sign of spawners in motion.
2024-09-13	Segment 1	Run	Flood	4.00	Overcast	--	No water quality data collected
2024-09-13	Segment 2	Glide	Flood	3.90	Overcast	--	No water quality data taken.
2024-09-13	Segment 3	Glide	Flood	3.90	Overcast	--	No water quality taken.
2024-09-13	Segment 4	--	Flood	3.90	Overcast	--	--
2024-09-13	Segment 5	Cascade,Pool	Flood	3.80	Overcast	--	No water quality data taken.
2024-09-13	Segment 6	--	--	--	--	--	Segment 6 not assessed
2024-10-01	Segment 1	Riffle	Ebb	1.86	Cold,Overcast	--	Clear water visibility wq data was not collected.
2024-10-01	Segment 2	Riffle	Ebb	1.87	Cool,Overcast	--	--
2024-10-01	Segment 3	Glide	Ebb	1.88	Cloudy,Overcast	--	Clear visibility in creek. wq data was not collected during this spawner survey.
2024-10-01	Segment 4	Riffle	Ebb	1.89	Cool,Overcast	--	--
2024-10-01	Segment 5	Cascade,Pool	Ebb	1.93	Cool,Overcast	--	Wq data was not collected during this spawner survey (ysi required servicing).
2024-10-01	Segment 6	Cascade,Pool	Ebb	2.05	Cool,Overcast	--	--
2024-10-08	Segment 1	Run	Ebb	3.60	Cool,Cloudy	--	Corresponding wq data not collected this week.
2024-10-08	Segment 2	Glide	Ebb	3.60	Cool,Cloudy	--	--
2024-10-08	Segment 3	Glide	Ebb	3.60	Cloudy,Overcast	--	Wq data was not collected during this spawner survey
2024-10-08	Segment 4	Riffle	Ebb	3.60	Cloudy,Overcast	--	--
2024-10-08	Segment 5	Cascade,Pool	Ebb	3.60	Cool,Overcast	--	--
2024-10-08	Segment 6	Cascade,Pool	Flood	3.70	--	--	Approximately half of segment six was accessed by wading with boot waders, before water levels were too high to safely access.
2024-10-18	Segment 1	Run	Ebb	2.90	Cool,Heavy Rain	--	--
2024-10-18	Segment 2	Riffle	Ebb	3.00	Cool,Heavy Rain	--	--
2024-10-18	Segment 3	Glide	Ebb	3.10	--	--	--
2024-10-18	Segment 4	Pool,Run	Ebb	3.10	Cool,Heavy Rain	--	--
2024-10-18	Segment 5	Cascade,Pool	Ebb	3.30	Cool,Heavy Rain	--	--
2024-10-18	Segment 6	--	--	--	--	--	Due to recent heavy rain, assessment of segment 6 was not able to be completed, however, no spawners were observed attempting to access cascade between segment 5 and segment 6
2024-10-25	Segment 1	Run	Flood	3.10	Cool,Overcast	--	--
2024-10-25	Segment 2	--	Flood	3.00	--	--	Channel morphology not confirmed
2024-10-25	Segment 3	--	Flood	2.80	Cool,Overcast	--	Channel morphology not confirmed water quality data not collected at this segment
2024-10-25	Segment 4	--	Flood	2.80	Cool,Overcast	--	Channel morphology not confirmed
2024-10-25	Segment 5	Cascade,Pool,Riffle	Flood	2.50	Cool,Overcast	Chum Salmon	--
2024-10-25	Segment 6	--	--	--	--	--	Not accessible due to flows to high
2024-11-01	Segment 1	Run	Flood	3.10	Cool,Rain	--	--
2024-11-01	Segment 2	Glide,Riffle	Flood	3.10	Rain	--	Tide is around slack tide about to turn to flood
2024-11-01	Segment 3	Glide,Riffle	Ebb	3.10	Rain	--	--
2024-11-01	Segment 4	Cascade,Riffle	Ebb	3.10	Rain	--	--
2024-11-01	Segment 5	Cascade,Pool,Riffle	Ebb	3.20	Rain	Chum Salmon	--
2024-11-01	Segment 6	--	--	--	--	--	Segment not accessible
2024-11-08	Segment 1	Run	Ebb	4.50	Overcast	--	--
2024-11-08	Segment 2	Glide	Flood	4.50	Overcast	--	--
2024-11-08	Segment 3	Glide	Flood	4.50	Overcast	--	Flood tide, approaching high slack tide of the day
2024-11-08	Segment 4	Cascade,Riffle	Flood	4.50	Overcast	--	Flood - close to high slack tide of the day
2024-11-08	Segment 5	Cascade,Pool,Riffle	Flood	4.50	Overcast	Chum Salmon	--
2024-11-08	Segment 6	--	--	--	--	--	Segment not accessible
2024-11-15	Segment 1	Run	Ebb	3.20	Sunny,Cloudy	Chum Salmon	--
2024-11-15	Segment 2	Riffle	Ebb	3.20	Sunny,Cloudy	--	--
2024-11-15	Segment 3	Run	--	3.30	Sunny,Cloudy	--	--
2024-11-15	Segment 4	Cascade,Riffle	Ebb	3.30	Sunny,Cloudy	--	--
2024-11-15	Segment 5	Cascade,Pool,Riffle	Ebb	3.30	Sunny,Overcast	--	--
2024-11-15	Segment 6	--	--	--	--	--	Segment 6 not accessible
2024-11-20	Segment 1	Run	Ebb	4.10	Rain	--	--
2024-11-20	Segment 2	Glide	Ebb	4.20	Rain	--	--
2024-11-20	Segment 3	Glide	Ebb	4.40	Rain	--	--
2024-11-20	Segment 4	Cascade,Riffle	Ebb	4.50	Rain	--	--
2024-11-20	Segment 5	Cascade,Pool,Riffle	Ebb	4.70	Rain	--	Tidbit temperature logger installed - set to record water temperature at hourly intervals. see photo 114823 turbidity higher than previous weeks, visibility moderate
2024-11-20	Segment 6	--	--	--	--	--	Segment 6 not accessible
2024-11-28	Segment 1	Run	Flood	4.30	Overcast	Chum Salmon	Segment 1 has strong odor of carcass decay
2024-11-28	Segment 2	Glide	Flood	4.20	Overcast	--	--
2024-11-28	Segment 3	Glide	Flood	4.20	Overcast	--	--
2024-11-28	Segment 4	Cascade,Riffle	Flood	4.20	Overcast	--	--
2024-11-28	Segment 5	Cascade,Pool,Riffle	Flood	4.10	Overcast	--	--
2024-11-28	Segment 6	--	--	--	--	--	Segment 6 not accessible
2024-12-13	Segment 1	Run	Flood	3.70	Rain	--	--
2024-12-13	Segment 2	Glide	Flood	3.70	Rain	--	--
2024-12-13	Segment 3	Glide	Flood	3.70	Rain	--	--
2024-12-13	Segment 4	Cascade,Riffle	Flood	3.70	--	--	--
2024-12-13	Segment 5	Cascade,Pool,Riffle	Ebb	3.60	Rain	--	Segment 5 not completely accessible due to presence of red chain fence. still sufficient to see segment but could not take wq. the issue was brought up with the wlng em coordinator but was not resolved in time to access.
2024-12-13	Segment 6	--	--	--	--	--	Segment 6 not accessible
2024-12-19	Segment 1	Run	Ebb	4.13	Light Rain	--	--
2024-12-19	Segment 2	Glide	Ebb	4.25	Rain	--	--
2024-12-19	Segment 3	Glide	Ebb	4.28	Rain	--	No fish observed
2024-12-19	Segment 4	Cascade,Riffle	Ebb	4.31	Rain	--	--
2024-12-19	Segment 5	Cascade,Pool,Riffle	Ebb	4.38	Rain	--	--
2024-12-19	Segment 6	Cascade	Ebb	4.38	Rain	--	Segment 6 not accessible

Juvenile Outmigration Surveys

Date	Site ID	Coordinates	Time In	Time Out	Total Soak Time (Hours)	Tide Height at Start (m)	Tide Height at End (m)	Weather at Start	Weather at End	Total Unique Species Caught	Unique Species
2024-03-27	Fyke Net 1	(49.666, -123.253)	14:45	12:45	22.00	1.97	2.03	Rain	Overcast,Rain	3	Shiner Perch, Pink Salmon, Chum Salmon
2024-04-03	Fyke Net 1	(49.666, -123.253)	16:30	14:20	21.83	2.14	3.17	Overcast	Overcast	1	Chum Salmon
2024-04-09	Fyke Net 1	(49.666, -123.253)	10:55	09:50	22.92	2.02	3.09	Light Rain	Sunny	2	Chum Salmon, Pink Salmon
2024-04-17	Fyke Net 1	(49.666, -123.253)	10:02	10:52	24.83	2.85	2.61	Sunny	Sunny	2	Chum Salmon, Sculpin Species
2024-04-23	Fyke Net 1	(49.666, -123.253)	11:00	11:10	24.17	1.65	1.59	Cloudy	Overcast,Light Rain	0	--

Date	Site ID	Time In	Time Out	Common Name	Scientific Name	Alive / Dead	Life Stage	Count	Weight (g)	Length (mm)	Measurement Type (Fork Length or Total Length)
2024-03-27	Fyke Net 1	14:45	12:45	Shiner Perch	*Cymatogaster aggregata*	Alive	Adult	1	30.40	126	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Pink Salmon	*Oncorhynchus gorbuscha*	Alive	Larva / Fry	1	0.26	35	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Pink Salmon	*Oncorhynchus gorbuscha*	Alive	Larva / Fry	1	0.21	34	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Pink Salmon	*Oncorhynchus gorbuscha*	Alive	Larva / Fry	1	0.25	32	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Pink Salmon	*Oncorhynchus gorbuscha*	Alive	Larva / Fry	1	0.15	33	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Pink Salmon	*Oncorhynchus gorbuscha*	Alive	Larva / Fry	1	0.35	33	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Pink Salmon	*Oncorhynchus gorbuscha*	Alive	Larva / Fry	1	0.29	33	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Chum Salmon	*Oncorhynchus keta*	Alive	Larva / Fry	1	0.33	35	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Pink Salmon	*Oncorhynchus gorbuscha*	Alive	Larva / Fry	1	0.34	32	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Chum Salmon	*Oncorhynchus keta*	Alive	Larva / Fry	1	0.21	33	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Pink Salmon	*Oncorhynchus gorbuscha*	Alive	Larva / Fry	1	0.23	34	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Pink Salmon	*Oncorhynchus gorbuscha*	Alive	Larva / Fry	1	0.24	31	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Pink Salmon	*Oncorhynchus gorbuscha*	Alive	Larva / Fry	1	0.24	33	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Pink Salmon	*Oncorhynchus gorbuscha*	Alive	Larva / Fry	1	0.25	35	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Pink Salmon	*Oncorhynchus gorbuscha*	Alive	Larva / Fry	1	0.21	35	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Pink Salmon	*Oncorhynchus gorbuscha*	Alive	Larva / Fry	1	0.22	33	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Pink Salmon	*Oncorhynchus gorbuscha*	Dead	Larva / Fry	1	0.26	34	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Pink Salmon	*Oncorhynchus gorbuscha*	Alive	Larva / Fry	1	0.28	32	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Pink Salmon	*Oncorhynchus gorbuscha*	Alive	Larva / Fry	1	0.25	35	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Pink Salmon	*Oncorhynchus gorbuscha*	Alive	Larva / Fry	1	0.27	33	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Pink Salmon	*Oncorhynchus gorbuscha*	Alive	Larva / Fry	1	0.29	33	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Chum Salmon	*Oncorhynchus keta*	Alive	Larva / Fry	1	0.24	34	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Pink Salmon	*Oncorhynchus gorbuscha*	Dead	Larva / Fry	1	0.24	34	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Chum Salmon	*Oncorhynchus keta*	Alive	Larva / Fry	1	0.24	34	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Pink Salmon	*Oncorhynchus gorbuscha*	Dead	Larva / Fry	1	0.24	33	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Pink Salmon	*Oncorhynchus gorbuscha*	Dead	Larva / Fry	1	0.24	35	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Pink Salmon	*Oncorhynchus gorbuscha*	Dead	Larva / Fry	1	0.23	33	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Pink Salmon	*Oncorhynchus gorbuscha*	Dead	Larva / Fry	1	0.23	34	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Pink Salmon	*Oncorhynchus gorbuscha*	Dead	Larva / Fry	1	0.25	33	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Pink Salmon	*Oncorhynchus gorbuscha*	Dead	Larva / Fry	1	0.26	32	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Pink Salmon	*Oncorhynchus gorbuscha*	Dead	Larva / Fry	1	0.22	33	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Pink Salmon	*Oncorhynchus gorbuscha*	Dead	Larva / Fry	1	0.26	34	Fork Length
2024-03-27	Fyke Net 1	14:45	12:45	Pink Salmon	*Oncorhynchus gorbuscha*	Dead	Larva / Fry	1	0.27	35	Fork Length
2024-04-03	Fyke Net 1	16:30	14:20	Chum Salmon	*Oncorhynchus keta*	Alive	Larva / Fry	1	0.23	34	Fork Length
2024-04-09	Fyke Net 1	10:55	09:50	Chum Salmon	*Oncorhynchus keta*	Alive	Larva / Fry	1	0.18	32	Fork Length
2024-04-09	Fyke Net 1	10:55	09:50	Pink Salmon	*Oncorhynchus gorbuscha*	Alive	Larva / Fry	1	0.23	35	Fork Length
2024-04-09	Fyke Net 1	10:55	09:50	Pink Salmon	*Oncorhynchus gorbuscha*	Dead	Larva / Fry	1	0.16	32	Fork Length
2024-04-09	Fyke Net 1	10:55	09:50	Pink Salmon	*Oncorhynchus gorbuscha*	Dead	Larva / Fry	1	0.20	34	Fork Length
2024-04-17	Fyke Net 1	10:02	10:52	Chum Salmon	*Oncorhynchus keta*	Alive	Larva / Fry	1	0.35	37	Fork Length
2024-04-17	Fyke Net 1	10:02	10:52	Sculpin Species	*Superfamily Cottoidea*	Dead	Adult	1	--	--	Total Length

Minnow Trap Surveys

Date	Site ID	Coordinates	Time In	Time Out	Total Soak Time (Hours)	Bait Type	Weather Notes	Mesohabitat Type	Channel Morphology Type	Total Unique Species Caught	Unique Species
2024-06-11	MCMT-1	(49.666, -123.253)	10:54	11:04	24.17	Cat Food	Overcast	Large boulder	Pool	1	Prickly Sculpin
2024-06-11	MCMT-2	(49.666, -123.253)	11:15	11:22	24.10	Cat Food	Overcast	Other	Run	0	--
2024-06-11	MCMT-3	(49.666, -123.254)	11:30	11:30	0.00	Cat Food	Overcast	Other	Glide	Site Not Sampled	Trap not set due to high velocity in area
2024-06-11	MCMT-4	(49.666, -123.254)	11:35	11:35	0.00	Cat Food	Overcast	Other	Glide	Site Not Sampled	Trap not set due to high velocity in area
2024-06-11	MCMT-5	(49.667, -123.254)	12:10	11:40	23.50	Cat Food	Overcast	Other	Riffle	1	Prickly Sculpin
2024-06-11	MCMT-6	(49.667, -123.255)	12:12	11:43	23.50	Cat Food	Overcast	Undercut banks	Pool	0	--
2024-06-11	MCMT-7	(49.667, -123.255)	12:42	12:29	23.77	Cat Food	Overcast	Large boulder	Cascade	0	--
2024-06-11	MCMT-8	(49.667, -123.255)	12:50	12:30	23.65	Cat Food	Overcast	Large boulder	Pool	0	--
2024-06-11	MCMT-9	(49.667, -123.255)	13:03	12:05	23.03	Cat Food	Overcast	Large boulder	Cascade	1	Rainbow Trout
2024-06-11	MCMT-10	(49.667, -123.255)	13:08	12:10	23.02	Cat Food	Overcast	Large boulder	Pool	0	--
2024-06-11	MCMT-11	(49.667, -123.255)	13:15	12:15	22.98	Cat Food	Overcast	Large boulder	Cascade	1	Rainbow Trout
2024-06-11	MCMT-12	(49.667, -123.255)	13:18	12:20	23.02	Cat Food	Overcast	Large boulder	Pool	1	Prickly Sculpin
2024-06-12	MCMT-3	(49.666, -123.254)	00:00	00:00	0.00	Cat Food	Cloudy	Other	Glide	Site Not Sampled	Trap not set due to high velocity in area
2024-06-12	MCMT-4	(49.666, -123.254)	00:00	00:00	0.00	Cat Food	Cloudy	Other	Glide	Site Not Sampled	Trap not set due to high velocity in area
2024-06-12	MCMT-1	(49.666, -123.253)	11:08	09:30	22.37	Cat Food	Cloudy	Large boulder	Pool	1	Prickly Sculpin
2024-06-12	MCMT-2	(49.666, -123.253)	11:23	09:40	22.27	Cat Food	Cloudy	Other	Run	0	--
2024-06-12	MCMT-5	(49.667, -123.254)	11:41	11:02	23.35	Cat Food	Cloudy	Other	Riffle	0	--
2024-06-12	MCMT-6	(49.667, -123.255)	11:44	11:04	23.33	Cat Food	Cloudy	Undercut banks	Pool	0	--
2024-06-12	MCMT-9	(49.667, -123.255)	12:08	11:34	23.42	Cat Food	Cloudy	Large boulder	Cascade	1	Rainbow Trout
2024-06-12	MCMT-10	(49.667, -123.255)	12:11	11:40	23.47	Cat Food	Cloudy	Large boulder	Pool	0	--
2024-06-12	MCMT-11	(49.667, -123.255)	12:18	11:42	23.40	Cat Food	Cloudy	Large boulder	Cascade	0	--
2024-06-12	MCMT-12	(49.667, -123.255)	12:22	11:45	23.37	Cat Food	Cloudy	Large boulder	Pool	1	Prickly Sculpin
2024-06-12	MCMT-7	(49.667, -123.255)	12:31	11:19	22.80	Cat Food	Cloudy	Large boulder	Cascade	1	Coastrange Sculpin
2024-06-12	MCMT-8	(49.667, -123.255)	12:32	11:25	22.87	Cat Food	Cloudy	Large boulder	Pool	0	--
2024-07-30	MCMT-1	(49.666, -123.253)	10:34	09:04	22.50	Cat Food	Overcast	Large boulder	Pool	1	Prickly Sculpin
2024-07-30	MCMT-2	(49.666, -123.253)	10:54	09:51	22.93	Cat Food	Overcast	Other	Run	1	Prickly Sculpin
2024-07-30	MCMT-3	(49.666, -123.254)	11:01	09:34	22.55	Cat Food	Overcast	Other	Glide	1	Prickly Sculpin
2024-07-30	MCMT-4	(49.666, -123.254)	11:06	09:44	22.62	Cat Food	Overcast	Other	Glide	1	Prickly Sculpin
2024-07-30	MCMT-5	(49.667, -123.254)	11:30	09:57	22.45	Cat Food	Overcast	Other	Riffle	0	--
2024-07-30	MCMT-6	(49.667, -123.255)	11:38	09:58	22.33	Cat Food	Overcast	Undercut banks	Pool	0	--
2024-07-30	MCMT-7	(49.667, -123.255)	12:01	10:18	22.27	Cat Food	Overcast	Large boulder	Cascade	1	Prickly Sculpin
2024-07-30	MCMT-8	(49.667, -123.255)	12:08	10:27	22.32	Cat Food	Overcast	Large boulder	Pool	0	--
2024-07-30	MCMT-9	(49.667, -123.255)	12:23	10:32	22.13	Cat Food	Overcast	Large boulder	Cascade	0	--
2024-07-30	MCMT-10	(49.667, -123.255)	12:25	10:34	22.13	Cat Food	Overcast	Large boulder	Pool	2	Prickly Sculpin, Dolly Varden
2024-07-31	MCMT-1	(49.666, -123.253)	16:42	08:20	15.63	Cat Food	Sunny,Cloudy	Large boulder	Pool	1	Prickly Sculpin
2024-07-31	MCMT-2	(49.666, -123.253)	16:50	08:34	15.73	Cat Food	Sunny,Cloudy	Other	Run	1	Prickly Sculpin
2024-07-31	MCMT-3	(49.666, -123.254)	16:53	08:36	15.72	Cat Food	Sunny,Cloudy	Other	Glide	0	--
2024-07-31	MCMT-4	(49.666, -123.254)	16:57	08:52	15.92	Cat Food	Sunny,Cloudy	Other	Glide	1	Prickly Sculpin
2024-07-31	MCMT-6	(49.667, -123.255)	17:04	09:03	15.97	Cat Food	Sunny,Cloudy	Other	Riffle	1	Prickly Sculpin
2024-07-31	MCMT-6	(49.667, -123.255)	17:04	09:04	15.98	Cat Food	Sunny,Cloudy	Undercut banks	Pool	0	--
2024-07-31	MCMT-5	(49.667, -123.254)	17:04	09:03	15.97	Cat Food	Sunny,Cloudy	Other	Riffle	1	Prickly Sculpin
2024-07-31	MCMT-7	(49.667, -123.255)	17:09	09:18	16.13	Cat Food	Sunny,Cloudy	Large boulder	Cascade	1	Prickly Sculpin
2024-07-31	MCMT-8	(49.667, -123.255)	17:12	09:24	16.18	Cat Food	Sunny,Cloudy	Large boulder	Pool	0	--
2024-07-31	MCMT-9	(49.667, -123.255)	17:14	10:06	16.87	Cat Food	Sunny,Cloudy	Large boulder	Cascade	2	Prickly Sculpin, Rainbow Trout
2024-07-31	MCMT-10	(49.667, -123.255)	17:16	10:18	17.02	Cat Food	Sunny,Cloudy	Large boulder	Pool	0	--

Date	Site ID	Time In	Time Out	Fish Mortality	Common Name	Scientific Name	Life Stage	Count	Weight (g)	Length (mm)	Measurement Type
2024-06-11	MCMT-1	10:54	11:04	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	--	122	Total Length
2024-06-11	MCMT-5	12:10	11:40	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	--	104	Total Length
2024-06-11	MCMT-9	13:03	12:05	Alive	Rainbow Trout	*Oncorhynchus mykiss*	Juvenile	1	--	95	Fork Length
2024-06-11	MCMT-11	13:15	12:15	Alive	Rainbow Trout	*Oncorhynchus mykiss*	Juvenile	1	--	96	Fork Length
2024-06-11	MCMT-12	13:18	12:20	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	--	88	Total Length
2024-06-12	MCMT-1	11:08	09:30	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	3.38	67	Total Length
2024-06-12	MCMT-1	11:08	09:30	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	10.48	99	Total Length
2024-06-12	MCMT-1	11:08	09:30	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	21.40	116	Total Length
2024-06-12	MCMT-9	12:08	11:34	Alive	Rainbow Trout	*Oncorhynchus mykiss*	Juvenile	1	10.29	99	Fork Length
2024-06-12	MCMT-12	12:22	11:45	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	--	79	Total Length
2024-06-12	MCMT-7	12:31	11:19	Alive	Coastrange Sculpin	*Cottus aleuticus*	Adult	1	4.06	76	Total Length
2024-07-30	MCMT-1	10:34	09:04	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	15.57	110	Total Length
2024-07-30	MCMT-1	10:34	09:04	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	6.18	76	Total Length
2024-07-30	MCMT-1	10:34	09:04	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	5.44	80	Total Length
2024-07-30	MCMT-1	10:34	09:04	--	Prickly Sculpin	*Cottus asper*	Adult	1	9.62	105	Total Length
2024-07-30	MCMT-2	10:54	09:51	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	16.47	101	Total Length
2024-07-30	MCMT-2	10:54	09:51	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	13.00	109	Total Length
2024-07-30	MCMT-2	10:54	09:51	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	16.72	117	Total Length
2024-07-30	MCMT-3	11:01	09:34	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	11.39	100	Total Length
2024-07-30	MCMT-3	11:01	09:34	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	15.09	98	Total Length
2024-07-30	MCMT-3	11:01	09:34	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	9.34	88	Total Length
2024-07-30	MCMT-4	11:06	09:44	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	12.53	113	Total Length
2024-07-30	MCMT-4	11:06	09:44	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	10.60	90	Total Length
2024-07-30	MCMT-7	12:01	10:18	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	10.32	93	Total Length
2024-07-30	MCMT-7	12:01	10:18	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	19.03	106	Total Length
2024-07-30	MCMT-10	12:25	10:34	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	17.57	116	Total Length
2024-07-30	MCMT-10	12:25	10:34	Alive	Dolly Varden	*Salvelinus malma*	Juvenile	1	11.40	109	Fork Length
2024-07-31	MCMT-1	16:42	08:20	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	7.55	116	Total Length
2024-07-31	MCMT-1	16:42	08:20	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	27.12	128	Total Length
2024-07-31	MCMT-2	16:50	08:34	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	12.22	102	Total Length
2024-07-31	MCMT-2	16:50	08:34	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	8.03	94	Total Length
2024-07-31	MCMT-2	16:50	08:34	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	7.86	86	Total Length
2024-07-31	MCMT-2	16:50	08:34	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	--	106	Total Length
2024-07-31	MCMT-4	16:57	08:52	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	6.62	85	Total Length
2024-07-31	MCMT-6	17:04	09:03	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	15.13	109	Total Length
2024-07-31	MCMT-5	17:04	09:03	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	15.13	109	Total Length
2024-07-31	MCMT-7	17:09	09:18	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	11.06	95	Total Length
2024-07-31	MCMT-9	17:14	10:06	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	11.23	98	Total Length
2024-07-31	MCMT-9	17:14	10:06	Alive	Rainbow Trout	*Oncorhynchus mykiss*	Juvenile	1	14.69	114	Fork Length

Electrofishing Surveys

Date	eFishing Pass	Start Time	End Time	Electrofishing Seconds	Voltage (V)	Frequency (Hz)	Pulse (%)	Specific Conductivity (µS/cm)	Tide Height(m)	Water Temperature (°C)	Channel Morphology Type	Weather Notes	Total Unique Species Caught	Unique Species
2024-06-13	1	12:54	14:11	916	800	30	12	15.7	2.2	8.7	Glide,Riffle	Sunny	2	Prickly Sculpin, Coastrange Sculpin
2024-06-13	2	14:28	14:59	254	800	30	12	5.1	2.2	9.6	Cascade,Riffle	Sunny	1	Coastrange Sculpin
2024-07-31	1	13:14	16:16	312	800	30	12	15.7	3.47	14.4	Cascade,Glide	Sunny,Cloudy	3	Dolly Varden, Coastrange Sculpin, Prickly Sculpin
2024-07-31	2	15:32	16:22	245	800	30	12	14.2	4.53	14.4	Cascade,Glide	Sunny,Cloudy	3	Dolly Varden, Sculpin Species, Prickly Sculpin
2024-08-01	1	11:19	12:52	693	850	30	12	17.3	2.5	14.5	Cascade,Glide	Warm,Sunny	2	Dolly Varden, Prickly Sculpin
2024-08-01	2	13:42	15:17	693	850	30	12	16.8	4.16	14.5	Cascade,Glide	Sunny	3	Dolly Varden, Coastrange Sculpin, Prickly Sculpin

Date	eFishing Pass	Start Time	End Time	Electrofishing Seconds	Fish Mortality	Common Name	Scientific Name	Life Stage	Count	Weight (g)	Length (mm)	Measurement Type
2024-06-13	1	12:54	14:11	916	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	11.00	96	Total Length
2024-06-13	1	12:54	14:11	916	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	7.00	86	Total Length
2024-06-13	1	12:54	14:11	916	Alive	Coastrange Sculpin	*Cottus aleuticus*	Adult	1	13.10	95	Total Length
2024-06-13	1	12:54	14:11	916	Alive	Coastrange Sculpin	*Cottus aleuticus*	Juvenile	1	1.10	48	Total Length
2024-06-13	1	12:54	14:11	916	Alive	Coastrange Sculpin	*Cottus aleuticus*	Juvenile	1	--	32	Total Length
2024-06-13	1	12:54	14:11	916	Alive	Coastrange Sculpin	*Cottus aleuticus*	Juvenile	1	--	33	Total Length
2024-06-13	1	12:54	14:11	916	Alive	Coastrange Sculpin	*Cottus aleuticus*	Juvenile	1	--	36	Total Length
2024-06-13	2	14:28	14:59	254	Alive	Coastrange Sculpin	*Cottus aleuticus*	Adult	1	--	94	Total Length
2024-07-31	1	13:14	16:16	312	Alive	Dolly Varden	*Salvelinus malma*	Larva / Fry	1	0.30	28	Fork Length
2024-07-31	1	13:14	16:16	312	Alive	Dolly Varden	*Salvelinus malma*	Larva / Fry	1	0.36	38	Fork Length
2024-07-31	1	13:14	16:16	312	Alive	Coastrange Sculpin	*Cottus aleuticus*	Adult	1	5.55	77	Total Length
2024-07-31	1	13:14	16:16	312	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	10.11	100	Total Length
2024-07-31	2	15:32	16:22	245	Dead	Dolly Varden	*Salvelinus malma*	Larva / Fry	1	--	29	Fork Length
2024-07-31	2	15:32	16:22	245	Alive	Dolly Varden	*Salvelinus malma*	Larva / Fry	1	0.69	38	Fork Length
2024-07-31	2	15:32	16:22	245	Alive	Sculpin Species	*Superfamily Cottoidea*	Juvenile	1	--	22	Total Length
2024-07-31	2	15:32	16:22	245	Alive	Sculpin Species	*Superfamily Cottoidea*	Juvenile	1	--	29	Total Length
2024-07-31	2	15:32	16:22	245	Alive	Dolly Varden	*Salvelinus malma*	Larva / Fry	1	0.55	31	Fork Length
2024-07-31	2	15:32	16:22	245	Alive	Dolly Varden	*Salvelinus malma*	Larva / Fry	1	0.80	42	Fork Length
2024-07-31	2	15:32	16:22	245	Alive	Dolly Varden	*Salvelinus malma*	Larva / Fry	1	0.43	31	Fork Length
2024-07-31	2	15:32	16:22	245	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	17.54	102	Total Length
2024-08-01	1	11:19	12:52	693	Alive	Dolly Varden	*Salvelinus malma*	Larva / Fry	1	0.44	35	Fork Length
2024-08-01	1	11:19	12:52	693	Alive	Dolly Varden	*Salvelinus malma*	Larva / Fry	1	0.68	34	Fork Length
2024-08-01	1	11:19	12:52	693	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	8.28	84	Total Length
2024-08-01	1	11:19	12:52	693	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	11.99	100	Total Length
2024-08-01	1	11:19	12:52	693	Alive	Prickly Sculpin	*Cottus asper*	Juvenile	1	1.18	47	Total Length
2024-08-01	1	11:19	12:52	693	Alive	Dolly Varden	*Salvelinus malma*	Larva / Fry	1	1.04	39	Fork Length
2024-08-01	1	11:19	12:52	693	Dead	Dolly Varden	*Salvelinus malma*	Larva / Fry	1	--	--	Fork Length
2024-08-01	1	11:19	12:52	693	Dead	Dolly Varden	*Salvelinus malma*	Larva / Fry	1	--	--	Fork Length
2024-08-01	1	11:19	12:52	693	Alive	Dolly Varden	*Salvelinus malma*	Larva / Fry	1	0.30	31	Fork Length
2024-08-01	1	11:19	12:52	693	Alive	Dolly Varden	*Salvelinus malma*	Larva / Fry	1	0.99	32	Fork Length
2024-08-01	1	11:19	12:52	693	Alive	Dolly Varden	*Salvelinus malma*	Larva / Fry	1	0.60	30	Fork Length
2024-08-01	1	11:19	12:52	693	Alive	Dolly Varden	*Salvelinus malma*	Larva / Fry	1	0.48	33	Fork Length
2024-08-01	1	11:19	12:52	693	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	9.83	93	Total Length
2024-08-01	1	11:19	12:52	693	Alive	Prickly Sculpin	*Cottus asper*	Juvenile	1	1.12	46	Total Length
2024-08-01	1	11:19	12:52	693	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	14.36	104	Total Length
2024-08-01	2	13:42	15:17	693	Alive	Dolly Varden	*Salvelinus malma*	Larva / Fry	1	0.39	25	Fork Length
2024-08-01	2	13:42	15:17	693	Alive	Coastrange Sculpin	*Cottus aleuticus*	Larva / Fry	1	--	50	Total Length
2024-08-01	2	13:42	15:17	693	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	6.29	82	Total Length
2024-08-01	2	13:42	15:17	693	Alive	Prickly Sculpin	*Cottus asper*	Juvenile	1	--	35	Total Length
2024-08-01	2	13:42	15:17	693	Dead	Dolly Varden	*Salvelinus malma*	Larva / Fry	1	--	--	Fork Length
2024-08-01	2	13:42	15:17	693	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	--	71	Total Length
2024-08-01	2	13:42	15:17	693	Alive	Prickly Sculpin	*Cottus asper*	Juvenile	1	--	52	Total Length
2024-08-01	2	13:42	15:17	693	Alive	Prickly Sculpin	*Cottus asper*	Juvenile	1	--	54	Total Length
2024-08-01	2	13:42	15:17	693	Alive	Prickly Sculpin	*Cottus asper*	Adult	1	--	100	Total Length
2024-08-01	2	13:42	15:17	693	Alive	Dolly Varden	*Salvelinus malma*	Larva / Fry	1	--	49	Fork Length
2024-08-01	2	13:42	15:17	693	Alive	Dolly Varden	*Salvelinus malma*	Larva / Fry	1	--	29	Fork Length

Water Quality Surveys

Date / Time	Site ID	Coordinates	Weather Notes	Depth (m)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	Salinity (ppt)	Turbidity (NTU)	pH	Temp (°C)	Specific Conductivity (µS/cm)	Notes
2024-02-20	PS-AR	(49.682, -123.198)	Rain	1.00	93.70	9.69	24.24	0.70	7.68	7.00	25299	--
2024-02-20	PS-NR	(49.669, -123.237)	Rain	1.00	95.70	10.02	20.90	0.60	7.75	6.70	36500	--
2024-02-20	PS-4	(49.667, -123.25)	Rain	1.00	95.70	10.44	16.53	0.95	7.76	6.20	19400	--
2024-02-20	PS-2	(49.665, -123.253)	Light Rain	1.00	95.80	10.34	20.30	0.79	7.75	6.70	19753	--
2024-02-21	PS-SR	(49.653, -123.258)	Light Rain	1.00	94.90	10.02	22.21	0.62	7.73	6.80	23130	--
2024-02-21	PS-1	(49.661, -123.259)	Rain	1.10	96.60	10.44	18.50	0.80	7.73	6.60	21050	--
2024-02-21	PS-5	(49.665, -123.256)	Overcast,Light Rain	1.20	96.50	10.20	24.93	0.59	7.73	7.30	22478	--
2024-02-21	PS-3	(49.666, -123.251)	Overcast	1.10	94.80	10.01	21.36	0.55	7.76	6.90	22368	--
2024-02-22	BS-SR	(49.653, -123.259)	Overcast	1.00	88.90	8.95	27.94	0.49	7.69	7.70	29196	--
2024-02-22	BS-3	(49.666, -123.251)	Overcast	1.00	92.60	9.61	23.66	0.58	7.73	7.40	23425	--
2024-02-22	BS-1	(49.661, -123.259)	Overcast	1.20	94.70	9.52	26.50	0.42	7.72	7.70	27360	--
2024-02-22	BS-2	(49.665, -123.253)	Overcast	1.00	94.00	9.39	27.71	0.38	7.76	7.70	28954	--
2024-02-23	BS-4	(49.667, -123.25)	Overcast	1.00	89.20	8.91	26.66	0.35	7.70	7.70	28256	--
2024-02-23	BS-NR	(49.67, -123.237)	Overcast	1.00	93.50	8.71	22.70	0.63	7.73	7.60	23143	--
2024-02-23	BS-5	(49.665, -123.256)	Cloudy	1.00	93.30	9.68	24.18	0.53	7.73	7.40	22370	--
2024-02-23	BS-AR	(49.682, -123.198)	Cloudy	1.00	97.30	9.66	26.92	0.37	7.82	7.80	28477	--
2024-03-05	PS-AR	(49.682, -123.198)	Cloudy	1.00	104.40	10.58	26.00	0.48	8.04	7.60	27431	--
2024-03-05	PS-NR	(49.669, -123.237)	Sunny	1.08	103.10	11.16	21.47	0.48	8.10	6.00	22081	--
2024-03-05	PS-SR	(49.653, -123.258)	Sunny	1.00	104.70	11.77	21.16	0.62	8.21	6.60	22055	--
2024-03-06	PS-3	(49.665, -123.25)	Cloudy	1.00	104.50	11.53	20.48	0.88	8.11	6.40	19346	--
2024-03-06	PS-4	(49.667, -123.244)	Overcast	1.00	108.30	11.80	18.32	0.76	8.15	5.90	17479	--
2024-03-06	PS-2	(49.664, -123.255)	Overcast	1.00	106.30	11.61	22.60	0.67	8.14	6.60	22423	--
2024-03-06	PS-5	(49.662, -123.256)	Overcast	1.07	109.20	11.98	19.30	1.29	8.20	6.10	20672	--
2024-03-06	PS-1	(49.66, -123.258)	Overcast	1.03	108.10	10.87	27.36	0.14	8.02	7.70	28547	--
2024-03-07	BS-SR	(49.653, -123.259)	Cloudy	1.02	106.20	12.01	16.39	0.89	8.20	5.20	17218	--
2024-03-07	BS-NR	(49.67, -123.237)	Sunny,Cloudy	1.00	-99.00	-99.00	22.98	0.97	8.33	6.80	36645	Do probe required servicing. readings are not reliable
2024-03-07	BS-AR	(49.682, -123.198)	Sunny,Cloudy	1.00	-99.00	-99.00	26.87	0.42	8.23	7.90	42425	Do probe required servicing. readings were unreliable.
2024-03-07	BS-3	(49.666, -123.251)	Cloudy	1.07	-99.00	-99.00	25.17	1.43	8.21	7.40	26337	Do probe required servicing; readings are unreliable
2024-03-07	BS-2	(49.665, -123.253)	Rain	1.00	-99.00	-99.00	25.97	0.43	8.16	7.50	27455	Do probe requires servicing. readings are unreliable
2024-03-08	BS-4	(49.667, -123.25)	Rain	1.00	-99.00	-99.00	18.67	0.85	8.09	6.60	19086	Do probe required servicing. readings were unreliable.
2024-03-08	BS-1	(49.661, -123.259)	Rain	1.00	112.80	12.88	16.23	0.28	7.91	5.70	15842	Suspect do %. switched out ysi new rental from hoskin but still read as high value.
2024-03-08	BS-5	(49.665, -123.256)	Rain	1.00	111.50	12.29	16.13	0.95	8.27	6.00	17891	Suspect do%. switched out ysi new rental from hoskin but still read as high value.
2024-03-19	PS-AR	(49.682, -123.198)	Sunny	1.10	113.70	11.43	24.55	1.15	7.99	8.60	27030	No site photos taken.
2024-03-19	PS-NR	(49.669, -123.237)	Sunny	1.00	108.80	11.87	15.30	1.80	8.07	8.00	18999	No site photos taken.
2024-03-19	PS-4	(49.667, -123.244)	Sunny	1.00	118.00	12.46	17.10	1.60	8.19	8.00	19960	No site photos taken.
2024-03-19	PS-3	(49.665, -123.25)	Sunny	1.10	107.70	11.06	25.50	0.95	8.08	8.60	27325	No site photos.
2024-03-20	PS-SR	(49.653, -123.258)	Cloudy	1.00	106.90	12.10	8.41	1.50	7.95	7.50	10295	No site photos.
2024-03-20	PS-1	(49.66, -123.258)	Cloudy	1.00	103.10	12.33	4.59	1.92	7.48	6.60	5166	No site photo taken.
2024-03-20	PS-2	(49.664, -123.255)	Cloudy	1.00	103.50	11.86	9.99	1.36	7.95	7.10	11377	No site photos taken.
2024-03-20	PS-5	(49.662, -123.256)	Cloudy	1.00	109.40	11.89	12.23	1.32	8.03	7.30	26675	No site photos taken.
2024-03-21	BS-AR	(49.682, -123.198)	Sunny,Windy	1.00	112.80	12.65	9.22	1.90	8.14	8.00	15718	--
2024-03-21	BS-SR	(49.653, -123.259)	Cloudy,Light Breeze	1.00	107.10	12.32	11.30	1.30	8.15	7.20	-99	--
2024-03-21	BS-NR	(49.67, -123.237)	Sunny,Windy	1.00	104.20	12.51	3.93	1.66	7.75	6.30	7284	--
2024-03-21	BS-4	(49.667, -123.25)	Cloudy	1.00	103.40	12.33	4.69	1.52	7.05	6.60	8396	--
2024-03-21	BS-2	(49.665, -123.253)	Cloudy	1.00	112.40	12.84	7.75	1.53	8.21	7.50	-99	--
2024-03-21	BS-1	(49.661, -123.259)	Cloudy	1.00	111.00	12.84	7.09	1.52	8.03	6.80	8321	--
2024-03-22	BS-3	(49.666, -123.251)	Overcast,Light Rain	1.00	123.90	13.68	9.33	1.27	8.28	7.50	16553	--
2024-03-22	BS-5	(49.665, -123.256)	Overcast	1.00	115.80	12.08	12.97	1.23	8.25	7.80	14944	--
2024-03-27	Fyke Net 1	(49.666, -123.253)	Rain	0.32	102.10	13.11	0.01	0.44	6.78	4.80	11.5	--
2024-03-28	Fyke Net 1	(49.666, -123.253)	Overcast,Light Rain	0.20	101.70	12.99	0.01	0.19	6.49	5.00	14.2	--
2024-04-02	PS-AR	(49.682, -123.198)	Cloudy	1.00	128.00	12.77	24.59	0.27	8.27	9.70	24900	--
2024-04-02	PS-NR	(49.669, -123.237)	Cloudy	1.00	134.00	13.14	24.10	0.30	8.42	9.60	26761	--
2024-04-02	PS-4	(49.667, -123.244)	Overcast,Rain	1.00	120.30	12.34	25.21	0.33	8.42	9.50	27668	No site photos taken.
2024-04-02	PS-1	(49.66, -123.258)	Overcast,Rain	1.00	123.70	12.90	25.46	0.48	8.37	9.20	40047	--
2024-04-03	PS-SR	(49.653, -123.258)	Sunny,Cloudy	1.00	101.20	11.20	10.04	0.88	7.89	8.40	11813	--
2024-04-03	PS-5	(49.662, -123.256)	Cloudy	1.00	103.50	11.34	10.75	0.80	8.04	8.50	12290	--
2024-04-03	PS-3	(49.665, -123.25)	Sunny,Cloudy	1.00	98.90	11.24	5.90	1.46	7.80	7.90	11492	--
2024-04-03	PS-2	(49.664, -123.255)	Cloudy	1.00	104.40	11.76	9.24	1.34	8.01	8.20	7458	--
2024-04-03	Fyke Net 1	(49.666, -123.253)	Overcast	0.40	99.80	12.75	0.03	0.28	7.41	5.00	57.5	--
2024-04-04	BS-AR	(49.682, -123.198)	Cloudy	1.00	114.90	11.55	20.96	0.50	8.40	9.60	23635	--
2024-04-04	BS-NR	(49.67, -123.237)	Cloudy	1.00	106.00	11.68	10.20	2.65	8.30	7.90	12530	--
2024-04-04	BS-3	(49.666, -123.251)	Sunny,Cloudy	1.00	104.50	11.57	11.36	2.40	8.25	8.00	17623	--
2024-04-04	BS-5	(49.665, -123.256)	Sunny,Cloudy	1.00	103.10	11.88	6.81	3.60	8.18	7.40	10058	--
2024-04-04	BS-2	(49.665, -123.253)	Sunny,Cloudy	1.00	107.30	20.78	5.38	2.82	8.38	6.50	8897	--
2024-04-04	Fyke Net 1	(49.666, -123.253)	Overcast	0.19	102.50	12.94	0.85	0.41	7.14	5.30	1683	--
2024-04-05	BS-SR	(49.653, -123.259)	Sunny	1.10	112.80	11.65	18.90	0.72	8.27	8.40	20939	--
2024-04-05	BS-1	(49.661, -123.259)	Sunny	1.00	107.60	10.74	24.77	0.48	8.10	8.70	38524	--
2024-04-05	BS-4	(49.667, -123.25)	Sunny	1.00	104.60	11.01	18.11	0.85	8.30	8.10	19947	--
2024-04-09	Fyke Net 1	(49.666, -123.253)	Sunny,Light Rain	0.19	97.70	12.48	0.02	0.16	6.65	5.00	29.7	--
2024-04-10	Fyke Net 1	(49.666, -123.253)	Sunny	0.43	99.20	12.81	0.06	0.13	6.35	4.60	104.5	--
2024-04-16	PS-AR	(49.682, -123.198)	Sunny	1.00	134.50	12.94	22.22	1.18	8.55	10.90	25487	--
2024-04-17	PS-NR	(49.669, -123.237)	Sunny	1.00	110.00	11.75	10.94	1.16	8.47	9.70	16750	No site photos taken.
2024-04-17	PS-4	(49.667, -123.244)	Sunny	1.10	123.50	12.05	22.78	0.80	8.61	10.90	26424	No site photo taken.
2024-04-17	PS-3	(49.665, -123.25)	Sunny	1.00	131.30	13.04	10.13	1.08	8.60	9.30	26863	No site photo taken.
2024-04-17	PS-2	(49.664, -123.255)	Sunny	1.00	110.00	11.24	21.00	1.05	8.49	10.20	30598	No site photos taken.
2024-04-17	PS-5	(49.662, -123.256)	Sunny	1.00	114.50	11.49	23.20	0.70	8.56	10.80	35502	No site photo.
2024-04-17	PS-1	(49.66, -123.258)	Sunny	1.00	126.90	12.57	13.66	0.98	8.57	9.80	24400	No site photos taken.
2024-04-17	Fyke Net 1	(49.666, -123.253)	Sunny	0.54	101.20	12.62	2.42	0.12	7.82	5.10	5523	--
2024-04-17	PS-SR	(49.653, -123.258)	Sunny	1.00	127.10	12.44	23.37	0.88	8.56	10.80	26359	No site photo taken.

Date / Time	Site ID	Coordinates	Weather Notes	Depth (m)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	Salinity (ppt)	Turbidity (NTU)	pH	Temp (°C)	Specific Conductivity (µS/cm)	Notes
2024-04-18	BS-1	(49.661, -123.259)	Sunny	1.00	110.20	11.20	16.02	1.12	8.51	10.20	18755	--
2024-04-18	BS-5	(49.665, -123.256)	Sunny	1.00	112.10	11.43	14.97	0.96	8.48	10.30	17458	--
2024-04-18	BS-2	(49.665, -123.253)	Sunny,Light Breeze	1.00	109.30	11.17	14.36	1.00	8.45	10.40	17071	--
2024-04-18	Fyke Net 1	(49.666, -123.253)	Sunny	0.30	90.70	11.67	0.02	0.14	6.64	4.70	30.5	--
2024-04-18	BS-4	(49.667, -123.25)	Sunny	1.00	112.00	11.44	17.71	0.82	8.51	10.70	16117	--
2024-04-19	BS-AR	(49.682, -123.198)	Sunny,Light Breeze	1.00	130.90	12.59	21.68	0.72	8.50	10.70	27067	--
2024-04-19	BS-NR	(49.67, -123.237)	Sunny,Light Breeze	1.00	106.80	11.17	17.70	0.82	8.56	10.20	23088	--
2024-04-19	BS-3	(49.666, -123.251)	Sunny,Light Breeze	1.00	112.90	11.32	17.75	0.77	8.55	10.20	20177	--
2024-04-23	Fyke Net 1	(49.666, -123.253)	Cloudy	-99.00	101.70	12.86	0.02	0.00	6.96	5.40	51.9	--
2024-04-24	Fyke Net 1	(49.666, -123.253)	Overcast,Light Rain	-99.00	99.90	12.49	0.02	0.63	6.89	5.90	32.9	--
2024-04-30	PS-AR	(49.682, -123.198)	Sunny	1.00	105.80	11.38	9.41	1.06	8.15	9.80	11229	--
2024-04-30	PS-NR	(49.669, -123.237)	Sunny,Cloudy	1.00	106.20	11.54	8.28	1.28	8.22	9.60	1048	--
2024-04-30	PS-4	(49.667, -123.244)	Sunny	1.00	107.80	11.60	8.98	1.22	8.27	9.60	10048	--
2024-04-30	PS-3	(49.665, -123.25)	Sunny	1.00	106.40	11.50	8.47	1.13	8.25	9.70	10236	--
2024-05-01	PS-SR	(49.653, -123.258)	Cloudy	1.00	104.10	11.41	6.24	1.02	7.78	9.70	7732	--
2024-05-01	PS-1	(49.66, -123.258)	Sunny	1.00	104.00	11.48	5.84	1.06	7.93	9.50	6766	--
2024-05-01	PS-5	(49.662, -123.256)	Sunny	1.00	104.20	11.37	6.77	0.96	8.03	9.70	11770	--
2024-05-01	PS-2	(49.664, -123.255)	Sunny	1.00	111.20	11.78	10.32	0.70	8.13	9.90	12485	--
2024-05-02	BS-SR	(49.653, -123.259)	Sunny	1.00	104.80	11.14	7.90	0.80	7.97	10.00	10034	--
2024-05-02	BS-1	(49.661, -123.259)	Sunny	1.00	105.60	11.26	8.08	0.82	8.12	10.30	9808	--
2024-05-02	BS-4	(49.667, -123.25)	Sunny	1.00	111.80	11.37	13.44	0.30	8.31	11.10	16304	--
2024-05-02	BS-2	(49.665, -123.253)	Sunny	1.00	116.20	11.63	15.99	0.46	8.35	11.10	18842	--
2024-05-02	BS-NR	(49.67, -123.237)	Sunny	1.00	110.40	11.22	12.26	0.34	8.33	11.20	15003	--
2024-05-03	BS-AR	(49.682, -123.198)	Sunny	1.00	125.70	12.14	22.20	0.00	8.20	11.60	24698	Inaccurate reading of turbidity
2024-05-03	BS-3	(49.666, -123.251)	Sunny	1.00	105.60	11.12	8.83	0.52	8.19	10.60	10948	--
2024-05-03	BS-5	(49.665, -123.256)	Sunny	1.00	107.30	11.15	9.87	0.41	8.24	10.90	12190	--
2024-05-14	PS-AR	(49.682, -123.198)	Cloudy	1.00	106.20	11.60	3.90	8.74	7.33	10.50	5265	--
2024-05-14	PS-NR	(49.669, -123.237)	Cloudy	1.00	106.10	11.64	3.71	8.62	6.85	10.20	4572	--
2024-05-14	PS-4	(49.667, -123.244)	Cloudy	1.00	105.20	11.64	5.95	7.45	7.20	10.70	5894	--
2024-05-14	PS-3	(49.665, -123.25)	Cloudy	1.00	103.50	11.55	1.38	10.99	6.59	10.40	2055	--
2024-05-15	PS-SR	(49.653, -123.258)	Cloudy	1.00	109.40	11.36	8.02	5.68	7.96	11.00	10250	--
2024-05-15	PS-1	(49.66, -123.258)	Cloudy	1.00	110.20	11.40	6.65	4.25	8.02	10.70	10360	--
2024-05-15	PS-5	(49.662, -123.256)	Cloudy	1.00	109.50	11.44	8.21	5.57	7.89	11.10	10461	--
2024-05-15	PS-2	(49.664, -123.255)	Cloudy	1.00	108.40	11.69	4.78	7.05	7.72	10.50	6328	--
2024-05-17	BS-AR	(49.682, -123.198)	Sunny	1.00	99.20	11.48	1.35	17.51	7.34	8.90	1255	--
2024-05-17	BS-NR	(49.67, -123.237)	Sunny	1.00	101.80	11.22	1.80	11.24	7.34	9.80	3214	--
2024-05-17	BS-3	(49.666, -123.251)	Sunny,Light Breeze	1.00	102.80	12.01	0.91	10.74	7.18	8.70	1310	--
2024-05-17	BS-2	(49.665, -123.253)	Sunny	1.00	101.20	12.71	0.01	0.08	7.48	5.70	10.2	--
2024-05-17	BS-5	(49.665, -123.256)	Sunny	1.00	101.50	11.43	1.23	12.32	7.27	9.60	167.3	--
2024-05-17	BS-SR	(49.653, -123.259)	Sunny	1.00	102.70	11.43	1.63	15.90	7.36	10.20	1571	--
2024-05-17	BS-1	(49.661, -123.259)	Sunny	1.00	105.50	11.56	1.11	13.85	7.40	11.40	1598	--
2024-05-28	PS-1	(49.66, -123.258)	Cloudy,Rain	1.00	104.10	11.58	5.21	3.47	7.13	9.20	6505	--
2024-05-28	PS-5	(49.662, -123.256)	Rain	1.00	105.50	11.50	7.72	2.84	7.50	9.50	9251	--
2024-05-28	PS-2	(49.664, -123.255)	Rain	1.00	104.20	11.67	5.08	3.07	7.30	9.10	6165	--
2024-05-29	PS-AR	(49.682, -123.198)	Rain	1.00	104.60	11.48	6.26	5.09	7.16	9.40	7775	--
2024-05-29	PS-NR	(49.669, -123.237)	Overcast,Light Rain	1.00	101.50	11.68	3.67	6.10	7.01	8.50	4615	--
2024-05-29	PS-4	(49.667, -123.244)	Sunny,Cloudy	1.00	103.00	11.74	3.09	6.25	7.10	8.60	4627	--
2024-05-29	PS-3	(49.665, -123.25)	Overcast	1.00	103.10	11.66	3.39	6.26	7.08	9.00	4392	--
2024-05-29	PS-SR	(49.653, -123.258)	Rain	1.00	102.60	11.38	5.44	5.60	6.57	10.41	8960	--
2024-05-30	BS-AR	(49.682, -123.198)	Sunny,Cloudy	1.00	101.20	11.21	4.13	4.96	5.91	9.60	5274	--
2024-05-30	BS-NR	(49.67, -123.237)	Cloudy	1.00	101.70	11.48	2.49	5.63	6.65	9.40	3179	--
2024-05-30	BS-SR	(49.653, -123.259)	Sunny,Cloudy	1.00	103.10	11.68	1.85	4.33	6.76	9.20	2428	--
2024-05-30	BS-2	(49.665, -123.253)	Sunny,Cloudy	1.00	102.10	12.06	0.02	0.52	6.97	6.90	127.8	--
2024-05-30	BS-5	(49.665, -123.256)	Sunny,Cloudy,Light Rain	1.00	103.40	11.76	1.83	4.48	6.73	9.30	2536	--
2024-05-31	BS-1	(49.661, -123.259)	Sunny	1.00	104.40	11.65	2.38	3.92	6.66	9.80	3200	--
2024-05-31	BS-4	(49.667, -123.25)	Sunny	1.00	103.30	11.61	2.24	3.64	6.57	9.60	2987	--
2024-05-31	BS-3	(49.666, -123.251)	Sunny	1.00	104.30	11.80	2.32	3.15	6.86	9.40	3027	--
2024-06-11	PS-AR	(49.682, -123.198)	Overcast	1.00	103.50	10.98	1.27	12.70	6.21	12.30	2493	--
2024-06-11	PS-NR	(49.669, -123.237)	Overcast	1.00	102.90	11.05	0.99	14.64	6.45	11.90	1891	--
2024-06-11	MCMT 1	(49.666, -123.253)	Overcast	-99.00	101.20	11.69	0.02	2.86	6.52	9.00	37.4	--
2024-06-11	PS-5	(49.662, -123.256)	Overcast,Light Rain	1.00	102.90	10.99	1.27	13.92	6.25	12.20	2435	--
2024-06-11	PS-1	(49.66, -123.258)	Rain	1.00	103.20	11.03	1.07	12.27	6.58	12.10	2065	--
2024-06-11	MCMT-4	(49.666, -123.254)	Overcast	-99.00	101.70	11.82	0.00	2.86	6.44	8.80	5.5	--
2024-06-11	MCMT-8	(49.667, -123.255)	Overcast	-99.00	102.60	11.90	0.00	3.61	6.61	8.90	5.6	--
2024-06-12	PS-SR	(49.653, -123.258)	Sunny,Cloudy	1.00	102.30	11.34	1.35	21.24	6.15	10.30	2562	--
2024-06-12	PS-2	(49.664, -123.255)	Sunny,Cloudy	1.00	101.90	11.43	1.35	24.69	6.20	10.00	2240	--
2024-06-12	PS-3	(49.665, -123.25)	Light Rain	1.00	102.90	11.39	1.82	25.92	6.25	10.40	2294	--
2024-06-12	PS-4	(49.667, -123.244)	Sunny,Cloudy	1.00	102.90	11.30	2.17	18.20	6.60	10.50	4120	--
2024-06-12	MCMT 1	(49.666, -123.253)	Overcast	-99.00	100.80	11.88	0.01	2.95	6.65	8.20	16.5	--
2024-06-12	MCMT-4	(49.666, -123.254)	Cloudy	-99.00	100.50	11.87	0.00	0.97	6.50	8.10	5.1	--
2024-06-12	MCMT-8	(49.667, -123.255)	Cloudy	-99.00	101.50	11.94	0.00	1.01	6.54	8.30	6	--
2024-06-13	BS-4	(49.667, -123.25)	Sunny	1.00	102.40	11.21	1.46	17.13	6.30	10.80	2788	--
2024-06-13	BS-1	(49.661, -123.259)	Sunny	1.00	102.20	11.14	1.21	18.78	6.56	11.30	2448	--
2024-06-13	MCMT 1	(49.666, -123.253)	Cloudy	-99.00	100.60	11.94	0.01	3.71	6.62	7.90	21.8	--
2024-06-13	BS-5	(49.665, -123.256)	Sunny	1.00	105.00	11.34	1.22	14.50	6.50	11.80	2352	--
2024-06-13	BS-3	(49.666, -123.251)	Sunny	1.00	103.30	11.31	1.19	15.40	6.68	11.10	2318	--
2024-06-13	MCMT-4	(49.666, -123.254)	Cloudy	-99.00	98.40	11.72	0.00	1.19	6.67	7.80	6.6	--
2024-06-13	MCMT-8	(49.667, -123.255)	Cloudy	-99.00	99.50	11.77	0.00	0.89	6.62	8.00	6.9	--
2024-06-14	BS-SR	(49.653, -123.259)	Overcast	1.00	103.70	10.90	2.25	15.41	6.79	12.50	4165	--
2024-06-14	BS-2	(49.665, -123.253)	Light Rain	1.00	101.70	11.55	0.44	5.28	6.74	9.60	1134	--
2024-06-14	BS-NR	(49.67, -123.237)	Light Rain	1.00	100.30	10.93	1.20	19.02	6.50	11.30	2311	--
2024-06-25	PS-SR	(49.653, -123.258)	Sunny	1.00	101.40	10.67	3.79	13.03	6.39	12.00	5177	--
2024-06-25	PS-1	(49.66, -123.258)	Sunny	1.00	101.90	10.74	3.55	11.25	7.00	12.00	4820	--

Date / Time	Site ID	Coordinates	Weather Notes	Depth (m)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	Salinity (ppt)	Turbidity (NTU)	pH	Temp (°C)	Specific Conductivity (µS/cm)	Notes
2024-06-25	PS-5	(49.662, -123.256)	Sunny	1.00	100.60	10.55	3.78	13.51	6.39	12.40	5185	--
2024-06-25	PS-3	(49.665, -123.25)	Sunny	1.00	102.80	10.63	4.95	13.28	6.68	12.50	6743	--
2024-06-26	PS-AR	(49.682, -123.198)	Overcast	1.00	106.20	10.63	5.05	10.91	7.04	13.90	7080	--
2024-06-26	PS-NR	(49.669, -123.237)	Overcast	1.00	104.40	10.66	3.72	12.95	6.82	13.40	5671	--
2024-06-26	PS-4	(49.667, -123.244)	Cloudy,Overcast	1.00	104.90	10.68	4.45	12.50	6.76	13.40	7891	--
2024-06-26	PS-2	(49.664, -123.255)	Cloudy,Overcast	1.00	103.50	10.73	3.51	13.58	6.44	12.80	4944	--
2024-06-27	BS-SR	(49.653, -123.259)	Overcast	1.00	101.00	10.83	2.33	13.35	6.25	11.70	3175	--
2024-06-27	BS-4	(49.667, -123.25)	Overcast	1.00	100.00	10.81	1.53	16.28	6.01	11.50	2165	--
2024-06-27	BS-3	(49.666, -123.251)	Overcast,Light Rain	1.00	99.10	10.72	1.62	16.30	6.00	11.50	2265	--
2024-06-27	BS-2	(49.665, -123.253)	Light Rain	1.00	99.80	11.19	0.95	10.57	5.97	10.50	1230	--
2024-06-28	BS-AR	(49.682, -123.198)	Overcast	1.00	100.90	11.16	1.07	19.98	6.23	10.60	1601	--
2024-06-28	BS-NR	(49.67, -123.237)	Overcast	1.00	100.40	11.21	1.01	21.38	6.25	10.20	1427	--
2024-06-28	BS-1	(49.661, -123.259)	Overcast	1.00	100.60	11.27	0.72	21.41	6.06	10.10	1019	--
2024-06-28	BS-5	(49.665, -123.256)	Overcast	1.00	102.30	11.25	0.85	18.36	5.94	10.50	1207	--
2024-07-09	PS-SR	(49.653, -123.258)	Sunny	1.00	99.80	10.01	3.99	11.88	7.54	14.30	5841	--
2024-07-09	PS-1	(49.66, -123.258)	Sunny	1.00	101.90	10.20	3.72	12.96	7.53	14.40	5186	--
2024-07-09	PS-5	(49.662, -123.256)	Sunny	1.00	103.30	10.34	2.75	15.76	7.56	14.40	4055	--
2024-07-09	PS-2	(49.664, -123.255)	Sunny	1.00	102.40	10.29	2.76	14.55	7.56	14.50	4068	--
2024-07-10	PS-AR	(49.682, -123.198)	Sunny	1.00	96.50	9.69	1.71	17.75	7.51	14.80	2600	--
2024-07-10	PS-NR	(49.669, -123.237)	Sunny	1.00	95.60	9.56	2.26	12.44	7.66	15.00	3435	--
2024-07-10	PS-4	(49.667, -123.244)	Sunny	1.00	96.00	9.58	2.45	12.45	7.65	14.90	3713	--
2024-07-10	PS-3	(49.665, -123.25)	Sunny	1.00	96.90	9.64	2.36	14.17	7.68	15.10	3545	--
2024-07-11	BS-SR	(49.653, -123.259)	Sunny	1.00	102.50	10.34	2.07	20.80	7.01	14.40	3098	--
2024-07-11	BS-1	(49.661, -123.259)	Sunny	1.00	100.60	10.32	0.82	22.25	6.96	13.80	1226	--
2024-07-11	BS-5	(49.665, -123.256)	Sunny	1.00	100.70	10.17	1.68	14.61	7.01	14.40	2593	--
2024-07-11	BS-2	(49.665, -123.253)	Sunny	1.00	96.90	9.98	1.19	26.20	7.15	14.00	18.56	--
2024-07-12	BS-4	(49.667, -123.25)	Sunny	1.00	101.60	10.44	0.67	22.50	7.01	14.00	1060	--
2024-07-12	BS-3	(49.666, -123.251)	Sunny	1.00	102.20	10.53	0.79	20.82	7.00	13.90	1225	--
2024-07-12	BS-NR	(49.67, -123.237)	Sunny	1.00	104.00	10.59	1.30	19.76	7.04	14.20	1990	--
2024-07-12	BS-AR	(49.682, -123.198)	Sunny	1.00	103.60	10.37	2.31	12.71	7.20	15.00	3.42	--
2024-07-30	MCMT 1	(49.666, -123.253)	Overcast	-99.00	101.10	10.39	0.01	1.11	6.71	14.10	19.5	--
2024-07-30	MCMT-4	(49.666, -123.254)	Overcast	-99.00	101.10	10.41	0.00	0.00	6.64	14.00	13.4	--
2024-07-30	MCMT-8	(49.667, -123.255)	Overcast	-99.00	100.70	10.37	0.00	0.00	7.43	14.10	13.3	--
2024-07-31	MCMT 1	(49.666, -123.253)	Sunny,Cloudy	-99.00	100.30	10.25	0.02	0.00	6.69	14.40	43.4	--
2024-07-31	MCMT-4	(49.666, -123.254)	Sunny,Cloudy	-99.00	97.70	10.01	0.01	0.00	6.57	14.40	14.1	--
2024-07-31	MCMT-8	(49.667, -123.255)	Sunny,Cloudy	-99.00	99.10	10.13	0.01	0.00	6.61	14.40	14.2	--
2024-08-01	MCMT 1	(49.666, -123.253)	Sunny,Cloudy	-99.00	100.80	10.26	0.13	0.00	6.83	14.50	271.9	--
2024-08-01	MCMT-4	(49.666, -123.254)	Sunny,Cloudy	-99.00	95.30	9.71	0.01	0.00	6.46	14.50	17.3	--
2024-08-01	MCMT-8	(49.667, -123.255)	Sunny,Cloudy	-99.00	100.70	10.26	0.01	0.00	6.75	14.50	16.8	--
2024-08-30	Segment 1	(49.666, -123.253)	Warm,Sunny	-99.00	101.00	10.65	0.11	0.55	7.30	12.90	247.9	--
2024-08-30	Segment 3	(49.667, -123.254)	Warm,Sunny	-99.00	100.60	10.60	0.01	0.04	7.55	13.00	27.9	--
2024-08-30	Segment 5	(49.667, -123.255)	Warm,Sunny	-99.00	100.80	10.61	0.01	0.00	7.43	13.00	23	--
2024-10-18	Segment 5	(49.667, -123.255)	Cool,Heavy Rain	-99.00	103.20	12.10	0.01	0.22	6.10	8.40	21	--
2024-10-18	Segment 3	(49.667, -123.254)	Cool,Heavy Rain	-99.00	103.10	12.08	0.07	8.40	6.30	8.40	134	--
2024-10-18	Segment 1	(49.666, -123.253)	Cool,Heavy Rain	-99.00	101.20	10.79	8.90	4.50	6.38	9.80	15286	--
2024-10-25	Segment 5	(49.667, -123.255)	Cool,Overcast	0.27	103.50	12.64	0.01	1.56	6.86	6.70	17.4	--
2024-10-25	Segment 1	(49.666, -123.253)	Cool,Overcast	0.70	96.30	10.40	9.90	5.40	7.50	9.30	16814.7	--
2024-11-01	Segment 5	(49.667, -123.255)	Cool,Rain	0.46	101.30	12.29	0.01	1.02	6.74	7.00	15.2	--
2024-11-01	Segment 3	(49.667, -123.254)	Rain	0.08	99.40	11.99	0.03	1.81	6.43	7.20	57.4	--
2024-11-01	Segment 1	(49.666, -123.253)	Rain	0.24	101.60	12.10	1.25	0.67	6.86	7.40	2434	--
2024-11-08	Segment 5	(49.667, -123.255)	Overcast	0.42	103.60	12.54	0.00	0.16	6.98	7.10	11.1	--
2024-11-08	Segment 3	(49.667, -123.254)	Overcast	-99.00	101.40	12.77	0.62	0.13	6.59	7.30	1985	--
2024-11-08	Segment 1	(49.666, -123.253)	Overcast	0.50	89.60	9.51	13.23	0.41	7.54	9.00	22045	--
2024-11-15	Segment 5	(49.667, -123.255)	Sunny,Cloudy	0.24	104.60	13.04	0.00	1.38	6.19	6.00	11.9	--
2024-11-15	Segment 3	(49.667, -123.254)	Sunny,Cloudy	-99.00	103.50	12.89	-99.00	0.51	6.49	6.00	13.1	--
2024-11-15	Segment 1	(49.666, -123.253)	Sunny,Cloudy	0.18	104.70	12.98	0.09	0.54	6.73	6.10	190.2	--
2024-11-20	Segment 5	(49.667, -123.255)	Rain	0.47	99.90	12.84	0.01	0.04	6.73	4.80	18.5	Turbidity higher than previous weeks, visibility moderate
2024-11-20	Segment 3	(49.667, -123.254)	Rain	0.88	83.90	8.54	20.94	2.16	6.88	8.70	33597	--
2024-11-20	Segment 1	(49.666, -123.253)	Rain	0.80	82.60	8.35	21.51	0.99	7.55	8.80	34574	--
2024-11-28	Segment 5	(49.667, -123.255)	Overcast	0.97	106.90	13.96	0.01	0.00	7.89	4.10	19.5	Ph reading seems abnormally high. let stabilize in water for quite some time, number was dropping but eventually dropping slowed. was recently calibrated (previous night), unclear if probe issue, could also be a result of carcass decay?
2024-11-28	Segment 3	(49.667, -123.254)	Overcast	0.78	105.80	13.57	1.91	0.00	6.87	4.30	3648	--
2024-11-28	Segment 1	(49.666, -123.253)	Overcast	1.09	93.50	10.31	16.60	0.00	7.32	6.50	27307	Turbidity read negative so typed 0. overall, water visually is quite clear.
2024-12-13	Segment 1	(49.666, -123.253)	Rain	0.41	86.50	9.50	16.31	0.06	7.34	6.70	26851	--
2024-12-13	Segment 3	(49.667, -123.254)	Rain	-99.00	95.60	11.19	9.68	0.00	7.01	5.50	8382	--
2024-12-13	Independent Sample	(49.667, -123.254)	Rain	0.01	96.10	12.40	0.01	0.00	6.79	4.60	19.6	Segment 5 was not accessible to collect wq sample during salmon spawner survey (construction site had put up red chain preventing access which was not resolved time to complete sample). took from segment 4 south border from light duty bridge.
2024-12-19	Segment 5	(49.667, -123.255)	Rain	0.52	102.80	13.11	0.01	0.00	6.60	5.10	13.9	--
2024-12-19	Segment 3	(49.667, -123.254)	Rain	0.90	102.20	13.03	0.01	0.00	6.58	5.10	22.7	--
2024-12-19	Segment 1	(49.666, -123.253)	Light Rain	0.89	94.30	10.90	10.82	0.55	7.43	6.10	17405	--
2025-02-18	PS-AR	(49.682, -123.198)	Cloudy,Overcast	1.00	97.40	10.10	24.43	1.19	7.57	6.90	38288	--
2025-02-18	PS-NR	(49.669, -123.237)	Cloudy,Cool,Overcast	1.00	99.40	10.46	23.26	1.21	7.66	6.50	36881	--
2025-02-18	PS-4	(49.667, -123.244)	Cloudy,Overcast	1.00	99.00	9.47	22.41	1.26	7.68	6.60	35541	--
2025-02-18	PS-3	(49.665, -123.25)	Cloudy,Overcast	1.00	98.70	10.53	22.40	1.21	7.71	6.50	35852	--
2025-02-19	PS-SR	(49.653, -123.258)	Heavy Rain,Cool	1.00	102.50	10.89	21.92	1.59	7.35	6.60	35344	--
2025-02-19	PS-1	(49.66, -123.258)	Very Cold,Heavy_Rain	1.00	102.60	10.77	23.67	151.00	7.63	6.80	37741	--

Date / Time	Site ID	Coordinates	Weather Notes	Depth (m)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	Salinity (ppt)	Turbidity (NTU)	pH	Temp (°C)	Specific Conductivity (µS/cm)	Notes
2025-02-19	PS-5	(49.662, -123.256)	Very Cold,Heavy_Rain	1.00	103.50	10.95	22.46	1.47	7.77	6.70	36190	--
2025-02-19	PS-2	(49.664, -123.255)	Very Cold,Heavy_Rain	1.00	103.20	10.91	22.82	1.37	7.79	6.60	36763	--
2025-02-20	BS-4	(49.667, -123.25)	Cool	1.00	102.90	10.73	24.90	1.41	6.24	6.90	39575	--
2025-02-20	BS-AR	(49.682, -123.198)	Cool	1.00	102.60	11.44	16.48	1.46	6.83	6.10	28159	--
2025-02-20	BS-NR	(49.67, -123.237)	Cool	1.00	103.30	11.23	20.32	1.54	7.43	6.90	32541	--
2025-02-20	BS-1	(49.661, -123.259)	Cool,Light Rain	1.00	107.40	11.23	23.77	1.39	7.44	6.80	38061	--
2025-02-20	BS-SR	(49.653, -123.259)	Cool,Light Rain	1.00	103.70	11.43	18.73	1.50	7.80	6.10	30244	--
2025-02-21	BS-5	(49.665, -123.256)	Heavy Rain,Cool	1.00	105.00	12.42	11.44	1.53	7.09	5.00	16890	--
2025-02-21	BS-2	(49.665, -123.253)	Heavy Rain	1.00	107.50	11.40	22.57	1.94	7.33	5.70	35034	--
2025-03-03	PS-AR	(49.682, -123.198)	Sunny,Calm	1.00	131.80	13.56	24.80	1.45	8.09	7.40	39270	--
2025-03-03	PS-NR	(49.669, -123.237)	Sunny,Calm	1.00	104.80	12.32	17.20	1.22	8.13	6.50	24600	--
2025-03-03	PS-4	(49.667, -123.244)	Sunny,Calm	1.00	125.00	13.09	23.47	1.64	8.21	7.40	37119	--
2025-03-03	PS-3	(49.665, -123.25)	Sunny	1.00	113.90	12.51	22.37	1.30	8.20	7.10	35600	--
2025-03-04	PS-SR	(49.653, -123.258)	Cold,Calm,Overcast	1.00	122.60	13.35	15.65	1.59	8.13	7.40	25818	--
2025-03-04	PS-1	(49.66, -123.258)	Cold,Light Rain,Mist,Overcast	1.00	124.40	12.92	18.09	1.53	8.28	7.30	38031	--
2025-03-04	PS-5	(49.662, -123.256)	Cold,Overcast	1.00	115.80	12.71	18.88	1.51	8.16	7.00	21420	--
2025-03-04	PS-2	(49.664, -123.255)	Cold,Calm,Overcast	1.00	121.40	12.70	23.53	1.23	8.19	7.20	24687	--

APPENDIX G

BIOLOGICA AIS SETTLEMENT PLATES METHODS

Marine Benthic Enumeration and Identification Methods
Client: Keystone Environmental
Project: Aquatic Invasive Species 2024
Settlement Plates

Sample Inventory

Sample arrival: 8-Oct-2024
Number of samples: 7
Number of bags: 7
Lab screen size: 45 µm
Biologica project number: mb24-254

The chain of custody documents were checked and approved with the client. Samples were stored in 10% Formalin in Ziplock bags, and each sample was provided a unique identification number and placed in the queue for analysis.

Table 1. Summary of settlement plates processed for Keystone Environmental Aquatic Invasive Species, 2024.

Client Sample ID	Date Sampled	Biologica Sample ID	Comment
1-1	04-Oct-24	mb24-254-001	Analyzed
1-2	04-Oct-24	mb24-254-002	Analyzed
1-3	04-Oct-24	mb24-254-003	Analyzed
1-rope	04-Oct-24	mb24-254-004	On Hold
2-1	04-Oct-24	mb24-254-005	Analyzed
2-2	04-Oct-24	mb24-254-006	Analyzed
2-3	04-Oct-24	mb24-254-007	Analyzed

Sample Processing

Plates were removed and processed in water. Formalin was screened through a 45 µm geological screen to collect unattached organisms. The top and bottom surface of each plate was scanned to identify epifaunal taxa, including invertebrates. Each taxon attached to the plate was assigned a value to categorize the percent coverage (Table 2).

Table 2. Percent cover categories for Keystone Aquatic Invasive Species, 2024.

Category	Percent Cover
1	Covering <5% of surfaces
2	Covering 5-10% of surfaces
3	Covering 10-25% of surfaces
4	Covering 25-50% of surfaces
5	Covering 50-75% of surfaces
6	Covering 75-100% of surfaces

All colonial organisms and abundant sessile (attached/encrusting) organisms, including barnacles and Mytilidae, were recorded as percent cover. Organisms were considered abundant if newly settled individuals were present or individuals were too numerous to accurately be enumerated. All other organisms including solitary and mobile organisms (worms, amphipods, chironomids etc.) were identified and individually counted. Specimens that received individual counts were not given a percent cover category designation.

Sample plates that contained a covering of diatoms – both solitary and colonial filaments, or macroalgae, were assigned a percent cover category but were not identified.

All taxa were reviewed for inclusion of possible aquatic invasive species (AIS) (Jennifer L Molnar, Rebecca L Gamboa, Carmen Revenga, Mark D Spalding. 2008). One species, *Polydora cornuta*, is noted as invasive.

Taxonomic Description:

Polydora cornuta is an estuarine tube-dwelling polychaete that may have up to 90 segments and may grow to 32 mm in length (Fofonoff et al., 2024). Its distinguishing features include a lateral incision on the prostomium forming two lobes with a prolonged back to chaetiger 3 as a caruncle. Specimens generally display four eyes in a trapezoidal arrangement with small, triangular posteriorly-located occipital tentacles. Populations around the world show small differences in morphology and substantial differences in size, which may indicate both genetic and environmental differences (Fofonoff et al., 2024; Radashevsky, 2005).

Geographic Extent:

The origin of this species is uncertain. It was first reported on the East Coast of the United States and subsequently found from the Gulf of St. Lawrence to the Gulf of Mexico. Its range and invasion status are uncertain due to confusion with similar species such as *P. ciliata*. Its presence has been confirmed in the Black and Mediterranean Seas, the Southwestern Atlantic, as well as the Northeast, Northwest and Southwest Pacific (Molnar et al., 2008; Fofonoff et al., 2024). Populations from different areas show differences in morphology which may indicate genetic and environmental differences within this species.

Ecological Impact:

P. cornuta is considered a pest of oysters and mussels as this species will often become so abundant that they smother the shells of the bivalve molluscs with several inches of mud excreted from their tubes. This species, unlike the morphologically similar *P. ciliata*, does not burrow into the shells of bivalve molluscs (Fofonoff et al., 2024). *P. cornuta* has a known tolerance of environmental extremes for temperature, salinity, and oxygen, and has flexibility in its feeding behaviours as both a deposit-feeder and suspension-feeder that allow it to proliferate and colonize areas where other species have declined. As a result, it frequently dominates biological communities affected by disturbance and eutrophication (Fofonoff et al., 2024).

Invasive Potential:

P. cornuta has rapid reproduction and a wide environmental tolerance that allow it to be among the first colonizers of available substrates in disturbed areas (Fofonoff et al., 2024). The confusion between similar species (e.g., P. ciliata) and the range in morphological characters within this species makes it difficult to determine the invasion status of *P. cornuta*. Its introduction pathways include oyster and scallop plantings, hull surface fouling, and ballast water (Molnar et al. 2008).

Management Difficulty:

There are no known eradication methods for established populations (Molnar et al., 2008).

Some additional taxa groups include invasive species, the family/genus Corophiidae/*Monocorophium* (amphipods), family/genus Mytilidae/*Mytilus* (mussels), family Balanidae (barnacles), order Isopoda and genus *Bugula*; however, the specimens were too immature or damaged to be able to determine genus or species identifications. Two taxa, *Paleanotus bellis* and *Platynereis bicanaliculata* are cosmopolitan taxa not considered NIS by Molnar et al. (2008) but recorded as native to Canadian coasts.

Data

Results were provided to the Keystone Environmental project manager in Excel spreadsheets via email.

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APPENDIX H

KP14A TASKS

biologica

Abbreviations & Definitions

Worksheets:

1. Abbreviations & Definitions	Glossary of terms and outline of report.
2. Data-Matrix	Total abundance data in matrix format, including total taxa count per sample.
3. Data-Long	Raw abundance data in long format.

Percent Cover:

1	<5%
2	5-10%
3	10-25%
4	25-50%
5	50-75%
6	75-10%

Life Stages:

A	Adult
Int	Intermediate - has adult features but not of typical reproductive size
J	Juvenile
L	Larvae
N	Nymph
P	Pupa
Col	Colony
Deut	Deutonymph
MEMO	Incidental taxa/fragments not included in data, or whose abundance is not generally captured accurately by 1.0mm screen.
Total Number of Taxa	Number of unique taxa (=species richness), not including higher-order taxa for which there exists a lower-order identification (e.g. not including *Lumbrineris* sp. if there exists *Lumbrineris cruzensis* in the data)
Total Number of Organisms	Total Abundance, not including incidental taxa

Biologica Coding

Major Taxonomic Groups:

Taxa Group	Group Code	Taxonomic Group
Annelida	ANHI	Annelida Hirudinea
Annelida	ANOL	Annelida Oligochaeta
Annelida	ANXX	Annelida
Annelida	POER	Polychaeta Errantia
Annelida	POSE	Polychaeta Sedentaria
Annelida	POXX	Polychaeta
Arthropoda	CHAR	Chelicerata Arachnida (Acari)
Arthropoda	CHPY	Chelicerata Pycnogonida
Arthropoda	CHXX	Chelicerata
Arthropoda	CRAM	Crustacea Amphipoda
Arthropoda	CRCI	Crustacea Cirripedia
Arthropoda	CRCL	Crustacea Cladocera
Arthropoda	CRCO	Crustacea Copepoda
Arthropoda	CRCU	Crustacea Cumacea
Arthropoda	CRDE	Crustacea Decapoda
Arthropoda	CRDI	Crustacea Diplostraca
Arthropoda	CREU	Crustacea Euphausiacea
Arthropoda	CRIS	Crustacea Isopoda
Arthropoda	CRLE	Crustacea Leptostraca
Arthropoda	CRMY	Crustacea Mysidacea
Arthropoda	CROS	Crustacea Ostracoda
Arthropoda	CRTA	Crustacea Tanaidacea

Arthropoda	CRXX	Crustacea
Arthropoda	INCM	Insecta Collembola
Arthropoda	INCO	Insecta Coleoptera
Arthropoda	INDI	Insecta Diptera
Arthropoda	INEP	Insecta Ephemeroptera
Arthropoda	INHM	Insecta Hemiptera
Arthropoda	INHY	Insecta Hymenoptera
Arthropoda	INLE	Insecta Lepidoptera
Arthropoda	INMG	Insecta Megaloptera
Arthropoda	INNE	Insecta Neuroptera
Arthropoda	INOD	Insecta Odonata
Arthropoda	INPL	Insecta Plecoptera
Arthropoda	INTH	Insecta Thysanoptera
Arthropoda	INTR	Insecta Tricoptera
Arthropoda	INXX	Insecta
Arthropoda	MYCH	Chilopoda
Arthropoda	MYDI	Diplopoda
Echinodermata	ECAS	Echinodermata Asteroidea
Echinodermata	ECCR	Echinodermata Crinoidea
Echinodermata	ECEC	Echinodermata Echinoidea
Echinodermata	ECHO	Echinodermata Holothuroidea
Echinodermata	ECOP	Echinodermata Ophiuroidea
Miscellaneous	ACAN	Acanthocephala
Miscellaneous	AMPH	Amphibia
Miscellaneous	BRAC	Brachiopoda
Miscellaneous	BRYO	Bryozoa
Miscellaneous	CHAE	Chaetognatha
Miscellaneous	CILI	Ciliophora Ciliophora
Miscellaneous	CNAN	Cnidaria Anthozoa
Miscellaneous	CNHY	Cnidaria Hydrozoa
Miscellaneous	CNSC	Cnidaria Scyphozoa
Miscellaneous	CNXX	Cnidaria
Miscellaneous	CTEN	Ctenophora
Miscellaneous	ENTO	Entoprocta
Miscellaneous	EURA	Echiura
Miscellaneous	FORA	Foraminifera
Miscellaneous	HEMI	Hemichordata
Miscellaneous	KINO	Kinorhyncha
Miscellaneous	NODA	Nemata
Miscellaneous	NTEA	Nemertea
Miscellaneous	PHOR	Phoronida
Miscellaneous	PIXX	Pisces
Miscellaneous	PLTY	Platyhelminthes
Miscellaneous	PORI	Porifera
Miscellaneous	PRIA	Priapulida
Miscellaneous	ROTI	Rotifera
Miscellaneous	SIPN	Sipuncula
Miscellaneous	TARD	Tardigrada
Miscellaneous	URAP	Appendicularia
Miscellaneous	URAS	Ascidiacea
Miscellaneous	URTH	Thaliacea
Mollusca	MOAP	Mollusca Aplacophora
Mollusca	MOBI	Mollusca Bivalvia
Mollusca	MOCE	Mollusca Cephalopoda
Mollusca	MOGA	Mollusca Gastropoda
Mollusca	MOPO	Mollusca Polyplacophora
Mollusca	MOSC	Mollusca Scaphopoda

Mollusca	MOXX	Mollusca

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Abundance and percent cover data in matrix format, including total taxa count per sample for Keystone Environmental Aquatic Invasive Species, 2024.

Sample Location							**AIS-1**	**AIS-1**	**AIS-1**	**AIS-2**	**AIS-2**	**AIS-2**
Plate ID							**1-1**	**1-2**	**1-3**	**2-1**	**2-2**	**2-3**
Note							**Upper plate 1 m**	**Middle Plate 5 m**	**Bottom Plate 6 m**	**Upper plate 1 m**	**Middle plate 2 m**	**Lower plate 3 m**
Date Sampled							**04-Oct-24**	**04-Oct-24**	**04-Oct-24**	**04-Oct-24**	**04-Oct-24**	**04-Oct-24**
Plate Side	**Organism Type**	**Phylum**	**Class**	**Order**	**Family**	**Taxon**	**Total Abundance**	**Total Abundance**	**Total Abundance**	**Total Abundance**	**Total Abundance**	**Total Abundance**
Bottom	Mobile	Annelida	Clitellata	Tubificida	Naididae	Nais elinguis	3					
Bottom	Mobile	Annelida	Polychaeta	Spionida	Spionidae	Prionospio sp.		2				
Bottom	Mobile	Annelida	Polychaeta		Opheliidae	Armandia brevis		10			1	
Bottom	Mobile	Annelida	Polychaeta		Opheliidae	Opheliidae indet.		4				
Bottom	Mobile	Arthropoda	Malacostraca	Amphipoda	Anisogammaridae	Eogammarus confervicolus	5					
Bottom	Mobile	Arthropoda	Malacostraca	Amphipoda	Corophiidae	Americorophium spinicorne	165					
Bottom	Mobile	Arthropoda	Malacostraca	Amphipoda	Corophiidae	Corophiidae indet.	26					
Bottom	Mobile	Platyhelminthes	Rhabditophora	Polycladida	Notoplanidae	Notoplana sp.		4				
Bottom	Mobile	Platyhelminthes				Platyhelminthes indet.					1	
						Bottom Plate Total Abundance:	**199**	**20**			**2**	
Flocculent	Attached	Bryozoa	Gymnolaemata	Cheilostomatida	Bugulidae	Bugula sp.						1
Flocculent	Attached	Arthropoda	Thecostraca	Balanomorpha	Balanidae	Balanidae indet.					7	
Flocculent	Attached	Cnidaria	Hydrozoa	Anthoathecata		Anthoathecata indet.	1			1		
Flocculent	Attached	Cnidaria	Hydrozoa	Leptothecata	Campanulariidae	Clytia sp.		1				
Flocculent	Attached	Mollusca	Bivalvia	Adapedonta	Hiatellidae	Hiatellidae indet.		90	2			1
Flocculent	Attached	Mollusca	Bivalvia	Mytilida	Mytilidae	Mytilidae indet.	5,940	7,560	500	1,000	6,000	17
Flocculent	Attached	Mollusca	Bivalvia	Mytilida	Mytilidae	Mytilus sp.	2,148	3,395	38		4	
Flocculent	Mobile	Annelida	Clitellata	Tubificida	Naididae	Nais elinguis	25	1				
Flocculent	Mobile	Annelida	Clitellata	Tubificida	Naididae	Nais sp.	1					
Flocculent	Mobile	Annelida	Polychaeta	Phyllodocida	Chrysopetalidae	Paleanotus bellis		14			2	
Flocculent	Mobile	Annelida	Polychaeta	Phyllodocida	Hesionidae	Hesionidae indet.		1				
Flocculent	Mobile	Annelida	Polychaeta	Phyllodocida	Hesionidae	Micropodarke dubia		30			5	
Flocculent	Mobile	Annelida	Polychaeta	Phyllodocida	Nereididae	Nereididae indet.					2	
Flocculent	Mobile	Annelida	Polychaeta	Phyllodocida	Nereididae	Platynereis bicanaliculata		1	1		1	
Flocculent	Mobile	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eulalia sp.		4				
Flocculent	Mobile	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Phyllodocidae indet.					1	
Flocculent	Mobile	Annelida	Polychaeta	Phyllodocida	Polynoidae	Polynoinae indet.		1				
Flocculent	Mobile	Annelida	Polychaeta	Spionida	Spionidae	Prionospio sp.		8			14	
Flocculent	Mobile	Annelida	Polychaeta	Spionida	Spionidae	Spionidae indet.					6	
Flocculent	Mobile	Annelida	Polychaeta		Opheliidae	Armandia brevis		343		1	36	
Flocculent	Mobile	Annelida	Polychaeta		Opheliidae	Opheliidae indet.	4	105			204	
Flocculent	Mobile	Arthropoda	Arachnida	Trombidiformes	Halacaridae	Halacaridae indet.						5
Flocculent	Mobile	Arthropoda	Malacostraca	Amphipoda	Anisogammaridae	Eogammarus confervicolus	99	5		2		
Flocculent	Mobile	Arthropoda	Malacostraca	Amphipoda	Corophiidae	Americorophium spinicorne	2,539	11		9	1	
Flocculent	Mobile	Arthropoda	Malacostraca	Amphipoda	Corophiidae	Corophiidae indet.	1,159				11	
Flocculent	Mobile	Arthropoda	Malacostraca	Amphipoda	Corophiidae	Monocorophium sp.					2	
Flocculent	Mobile	Arthropoda	Malacostraca	Amphipoda		Amphipoda indet.	2	1				
Flocculent	Mobile	Arthropoda	Hexanauplia	Harpacticoida		Harpacticoida indet.	1	3		1	4	2
Flocculent	Mobile	Arthropoda	Malacostraca	Cumacea	Nannastacidae	Cumella vulgaris					20	
Flocculent	Mobile	Arthropoda	Malacostraca	Isopoda	Sphaeromatidae	Gnorimosphaeroma oregonense	7	2				
Flocculent	Mobile	Arthropoda	Malacostraca	Isopoda		Isopoda indet.	3					
Flocculent	Mobile	Arthropoda	Ostracoda			Ostracoda indet.		110				
Flocculent	Mobile	Arthropoda	Ostracoda			Ostracoda indet.			20		25	
Flocculent	Mobile	Arthropoda	Insecta	Diptera	Chironomidae	Thalassosmittia sp.	1	4				
Flocculent	Mobile	Echinodermata	Echinoidea			Echinoidea indet.		4			7	1
Flocculent	Mobile	Nemertea				Nemertea indet.	1	1				
Flocculent	Mobile	Platyhelminthes	Rhabditophora	Polycladida	Notoplanidae	Notoplana sp.		39	5			
Flocculent	Mobile	Platyhelminthes				Platyhelminthes indet.				1		
Flocculent	Mobile	Mollusca	Bivalvia	Cardiida	Cardiidae	Clinocardiinae indet.		1				2
Flocculent	Mobile	Mollusca	Bivalvia	Carditida	Astartidae	Astarte sp.		24				
Flocculent	Mobile	Mollusca	Bivalvia			Bivalvia indet.		1				11
Flocculent	Mobile	Mollusca	Gastropoda	Nudibranchia		Aeolidioidea indet.		59				2
Flocculent	Mobile	Mollusca	Gastropoda	Nudibranchia		Doridina indet.					15	
Flocculent	Mobile	Mollusca	Gastropoda	Nudibranchia		Nudibranchia indet.			9		7	
Flocculent	Mobile	Mollusca	Gastropoda		Pyramidellidae	Odostomia sp.		4	1			
Flocculent	Mobile	Mollusca	Gastropoda			Gastropoda indet.	1					
						Flocculent Total Abundance:	**11,932**	**11,823**	**576**	**1,015**	**6,374**	**42**
Rope	Attached	Arthropoda	Thecostraca	Balanomorpha	Balanidae	Balanidae indet.					1	
Rope	Attached	Mollusca	Bivalvia	Adapedonta	Hiatellidae	Hiatellidae indet.			11			
Rope	Attached	Mollusca	Bivalvia	Mytilida	Mytilidae	Mytilidae indet.			1000		275	
Rope	Attached	Mollusca	Bivalvia	Mytilida	Mytilidae	Mytilus sp.			375		154	
						Rope Total Abundance			**1,386**		**430**	
Top	Mobile	Annelida	Clitellata	Tubificida	Naididae	Nais elinguis	5					

Top	Mobile	Annelida	Polychaeta	Phyllodocida	Chrysopetalidae	Paleanotus bellis		7				
Top	Mobile	Annelida	Polychaeta	Phyllodocida	Hesionidae	Micropodarke dubia		2				
Top	Mobile	Annelida	Polychaeta	Phyllodocida	Phyllodocidae	Eulalia sp.		1				
Top	Mobile	Annelida	Polychaeta	Spionida	Spionidae	Polydora cornuta		2				
Top	Mobile	Annelida	Polychaeta	Spionida	Spionidae	Prionospio sp.		4				
Top	Mobile	Annelida	Polychaeta		Opheliidae	Armandia brevis		66				
Top	Mobile	Annelida	Polychaeta		Opheliidae	Opheliidae indet.		21				
Top	Mobile	Arthropoda	Malacostraca	Amphipoda	Corophiidae	Americorophium spinicorne	443					
Top	Mobile	Arthropoda	Malacostraca	Amphipoda	Corophiidae	Corophiidae indet.	10					
Top	Mobile	Arthropoda	Malacostraca	Amphipoda		Amphipoda indet.	35					
Top	Mobile	Arthropoda	Hexanauplia	Harpacticoida		Harpacticoida indet.	1					
Top	Mobile	Arthropoda	Malacostraca	Isopoda	Sphaeromatidae	Gnorimosphaeroma oregonense	3					
Top	Mobile	Arthropoda	Malacostraca	Isopoda		Isopoda indet.	2					
Top	Mobile	Platyhelminthes	Rhabditophora	Polycladida	Notoplanidae	Notoplana sp.		2				
Top	Mobile	Platyhelminthes	Rhabditophora	Polycladida		Polycladida indet.				1		
Top	Mobile	Mollusca	Bivalvia	Carditida	Astartidae	Astarte sp.		9				
Top	Mobile	Mollusca	Gastropoda	Nudibranchia	Onchidoridae	Onchidoris sp.					2	
Top	Mobile	Mollusca	Gastropoda	Nudibranchia		Aeolidioidea indet.		5				
						Top Plate Total Abundance:	**499**	**119**		**1**	**2**	
Bottom	Attached	Arthropoda	Thecostraca	Balanomorpha	Balanidae	Balanidae indet.					Present	
Bottom	Attached	Arthropoda	Thecostraca	Balanomorpha	Balanidae	Balanus crenatus	Present					
Bottom	Attached	Bryozoa	Gymnolaemata	Cheilostomatida	Electridae	Electra sp.	Present			Present	Present	
Bottom	Attached	Cnidaria	Hydrozoa	Anthoathecata		Anthoathecata indet.	Present			Present		
Bottom	Attached	Cnidaria	Hydrozoa	Leptothecata	Campanulariidae	Campanulariidae indet.					Present	
Bottom	Attached	Cnidaria	Hydrozoa	Leptothecata	Campanulariidae	Clytia sp.		Present			Present	
Bottom	Attached	Cnidaria	Hydrozoa	Leptothecata		Leptothecata indet.			Present			
Bottom	Attached	Cnidaria	Hydrozoa			Hydrozoa indet.				Present		
Bottom	Attached	Mollusca	Bivalvia	Adapedonta	Hiatellidae	Hiatellidae indet.		Present			Present	
Bottom	Attached	Mollusca	Bivalvia	Mytilida	Mytilidae	Mytilidae indet.	Present	Present	Present	Present	Present	Present
Bottom	Attached	Mollusca	Bivalvia	Mytilida	Mytilidae	Mytilus sp.	Present	Present				
Bottom	Attached	Mollusca	Gastropoda			Patellogastropoda indet.					Present	
Top	Attached	Arthropoda	Thecostraca	Balanomorpha	Balanidae	Balanidae indet.				Present	Present	
Top	Attached	Arthropoda	Thecostraca	Balanomorpha	Balanidae	Balanus crenatus		Present		Present	Present	
Top	Attached	Bryozoa	Gymnolaemata	Cheilostomatida	Electridae	Electra sp.				Present	Present	
Top	Attached	Cnidaria	Hydrozoa	Anthoathecata		Anthoathecata indet.	Present			Present		
Top	Attached	Cnidaria	Hydrozoa	Leptothecata	Campanulariidae	Campanulariidae indet.					Present	
Top	Attached	Cnidaria	Hydrozoa	Leptothecata	Campanulariidae	Clytia sp.		Present			Present	
Top	Attached	Cnidaria	Hydrozoa	Leptothecata		Leptothecata indet.			Present			
Top	Attached	Cnidaria	Hydrozoa			Hydrozoa indet.				Present		
Top	Attached	Mollusca	Bivalvia	Adapedonta	Hiatellidae	Hiatellidae indet.		Present				Present
Top	Attached	Mollusca	Bivalvia	Mytilida	Mytilidae	Mytilidae indet.	Present	Present	Present	Present	Present	Present
Top	Attached	Mollusca	Bivalvia	Mytilida	Mytilidae	Mytilus sp.	Present	Present				
Top	Attached	Mollusca	Gastropoda			Patellogastropoda indet.					Present	
						Total Unique Attached Taxa Presence	**8**	**9**	**4**	**10**	**14**	**3**
						Total Abundance	**12,630**	**11,962**	**1,962**	**1,016**	**6,808**	**42**
						Total Unique Taxa per plate	**13**	**26**	**8**	**9**	**21**	**8**
Incidental taxa:												
Bottom	Mobile					Egg/egg mass		2			10	1
Bottom	Mobile					Nematoda indet.		2				
Flocculent	Mobile					Egg/egg mass	548				3	3
Flocculent	Mobile					Nematoda indet.	416	5			1	2
Top	Mobile					Egg/egg mass		1			1	1
Top	Mobile					Nematoda indet.		2				
Bottom	Attached					Algae	Present					
Bottom	Attached					Filamentous algae		Present		Present		
Bottom	Attached					Film of diatoms	Present					
Flocculent	Attached					Algae			Present		Present	
Flocculent	Attached					Filamentous algae			Present	Present	Present	
Flocculent	Attached					Film of diatoms		Present				
Rope	Attached					Filamentous algae			Present			
Top	Attached					Algae	Present				Present	
Top	Attached					Filamentous algae	Present	Present		Present	Present	
Top	Attached					Film of diatoms	Present					

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Client	Date Sampled	Plate Side	Organism Type	Family	Taxon	A	Int	J	L	Total Abundance	% Cover	Unique Taxa	Comments	NIS	Organism Comments
AIS 1-1	04-Oct-24	Bottom	Mobile	Naididae	Nais elinguis	3				3		1		No	Small oligochaete worms (<0.5mm). Not generaly typical of marine settlment plates
AIS 1-1	04-Oct-24	Flocculent	Mobile	Naididae	Nais elinguis	25				25				No	Small oligochaete worms (<0.5mm). Not generaly typical of marine settlment plates
AIS 1-1	04-Oct-24	Top	Mobile	Naididae	Nais elinguis	5				5				No	Small oligochaete worms (<0.5mm). Not generaly typical of marine settlment plates
AIS 1-1	04-Oct-24	Flocculent	Mobile	Naididae	Nais sp.	1				1				No	Small oligochaete worms (<0.5mm). Not generaly typical of marine settlment plates
AIS 1-1	04-Oct-24	Flocculent	Mobile	Opheliidae	Opheliidae indet.			4		4		1	Possibly Armandia brevis	No	Juvenile typically identifiable if non-juvenile (intermediates, adults)
AIS 1-1	04-Oct-24	Bottom	Mobile	Anisogammaridae	Eogammarus confervicolus	2	2	1		5		1		No	Native amphipod. Distinctive enough to be identified when immature.
AIS 1-1	04-Oct-24	Flocculent	Mobile	Anisogammaridae	Eogammarus confervicolus	40	20	39		99				No	Native amphipod. Distinctive enough to be identified when immature.
AIS 1-1	04-Oct-24	Bottom	Mobile	Corophiidae	Americorophium spinicorne	165				165		1		No	This family contains the historically introduced Monocorophium ascherucium
AIS 1-1	04-Oct-24	Flocculent	Mobile	Corophiidae	Americorophium spinicorne	1013	1216	310		2539			Count estimated	No	This family contains the historically introduced Monocorophium ascherucium
AIS 1-1	04-Oct-24	Top	Mobile	Corophiidae	Americorophium spinicorne	441	2			443				No	This family contains the historically introduced Monocorophium ascherucium
AIS 1-1	04-Oct-24	Bottom	Mobile	Corophiidae	Corophiidae indet.			26		26				Family contains potential invasive species (Monocorophium acherusicum and M. insidiosum (Gartner (2016), Molnar (2008)))	This family contains the historically introduced Monocorophium ascherucium. Intermediates/Juveniles left at Family level due to lack of distinguishing characters. The species in this family are ver morphologically similar.
AIS 1-1	04-Oct-24	Flocculent	Mobile	Corophiidae	Corophiidae indet.			1159		1159			Count estimated	Family contains potential invasive species (Monocorophium acherusicum and M. insidiosum (Gartner (2016), Molnar (2008)))	This family contains the historically introduced Monocorophium ascherucium. Intermediates/Juveniles left at Family level due to lack of distinguishing characters. The species in this family are ver morphologically similar.
AIS 1-1	04-Oct-24	Top	Mobile	Corophiidae	Corophiidae indet.			10		10				Family contains potential invasive species (Monocorophium acherusicum and M. insidiosum (Gartner (2016), Molnar (2008)))	This family contains the historically introduced Monocorophium ascherucium. Intermediates/Juveniles left at Family level due to lack of distinguishing characters. The species in this family are ver morphologically similar.
AIS 1-1	04-Oct-24	Flocculent	Mobile		Amphipoda indet.			2		2			Possibly Eogammarus confervicolus	Indeterminate	Juvenile/larval/too immature
AIS 1-1	04-Oct-24	Top	Mobile		Amphipoda indet.				35	35				Indeterminate	Juvenile/larval/too immature
AIS 1-1	04-Oct-24	Bottom	Attached	Balanidae	Balanus crenatus		Present	Present		Present	1	1		No	
AIS 1-1	04-Oct-24	Flocculent	Mobile		Harpacticoida indet.	1				1		1		No	Small copeopods generally considered meiofauna/incidental
AIS 1-1	04-Oct-24	Top	Mobile		Harpacticoida indet.	1				1				No	Small copeopods generally considered meiofauna/incidental
AIS 1-1	04-Oct-24	Flocculent	Mobile	Sphaeromatidae	Gnorimosphaeroma oregonense		7			7		1		No	
AIS 1-1	04-Oct-24	Top	Mobile	Sphaeromatidae	Gnorimosphaeroma oregonense		3			3				No	
AIS 1-1	04-Oct-24	Flocculent	Mobile		Isopoda indet.				3	3			Possibly Gnorimosphaeroma oregonense	Order does contain invasive species; Sphaeroma quoianum and Sphaeroma quoyanum (Linley et al (2013), Molnar (2008))	Jveniles/intermediates difficult to identify, however not likely to be invasive genera, more likely to be Gnorimosphaeroma
AIS 1-1	04-Oct-24	Top	Mobile		Isopoda indet.				2	2			Possibly Gnorimosphaeroma oregonense	Order does contain invasive species; Sphaeroma quoianum and Sphaeroma quoyanum (Linley et al (2013), Molnar (2008))	Jveniles/intermediates difficult to identify, however not likely to be invasive genera, more likely to be Gnorimosphaeroma
AIS 1-1	04-Oct-24	Flocculent	Mobile	Chironomidae	Thalassosmittia sp.				1	1		1		No	Estuarine chironomids (non-biting midges) evidence of lower salinity
AIS 1-1	04-Oct-24	Bottom	Attached		Algae	Present				Present	1			n/a	Not identified but does contain potenital invasive taxa
AIS 1-1	04-Oct-24	Top	Attached		Algae	Present				Present	1			n/a	Not identified but does contain potenital invasive taxa
AIS 1-1	04-Oct-24	Flocculent	Mobile		Egg/egg mass			548		548			Count estimated	n/a	Incidental
AIS 1-1	04-Oct-24	Top	Attached		Filamentous algae	Present				Present	1			n/a	Not identified but does contain potenital invasive taxa
AIS 1-1	04-Oct-24	Bottom	Attached		Film of diatoms	Present				Present	2			n/a	Incidental
AIS 1-1	04-Oct-24	Top	Attached		Film of diatoms	Present				Present	4			n/a	Incidental
AIS 1-1	04-Oct-24	Flocculent	Mobile		Nematoda indet.			416		416			Count estimated	n/a	Considered incidental for macroinvertebrate surveys. Nematode taxonomy requires advanced microscopy
AIS 1-1	04-Oct-24	Bottom	Attached	Electridae	Electra sp.	Present				Present	1	1	Possibly Electra crustulenta	No	This genus is not known to contain AIS
AIS 1-1	04-Oct-24	Bottom	Attached		Anthoathecata indet.	Present				Present	1	1	Possibly Cordylophora caspia	Indeterminate	Damaged/small pieces of hydroid. Hydroids are often one of the first colonizers on settlement plates and can create habitat for other organisms.
AIS 1-1	04-Oct-24	Flocculent	Attached		Anthoathecata indet.	1				1				Indeterminate	Damaged/small pieces of hydroid. Hydroids are often one of the first colonizers on settlement plates and can create habitat for other organisms.
AIS 1-1	04-Oct-24	Top	Attached		Anthoathecata indet.	Present				Present	1			Indeterminate	Damaged/small pieces of hydroid. Hydroids are often one of the first colonizers on settlement plates and can create habitat for other organisms.
AIS 1-1	04-Oct-24	Flocculent	Mobile		Nemertea indet.			1		1		1		Indeterminate	Juveniles/intermediates - not possible to discern species morphologically
AIS 1-1	04-Oct-24	Bottom	Attached	Mytilidae	Mytilidae indet.			Present		Present	2			Family contains potential invasive species (Mytilus galloprovincialis (Shields et al. (2010)) and Musculista senhousia (Gillespie (2007), Molnar (2008)))	Family contains known invasives. These can be difficult to discern as adults due to historical introductions of similar species and hybridization. Would likely need DNA to make positive identificati individual species.
AIS 1-1	04-Oct-24	Flocculent	Attached	Mytilidae	Mytilidae indet.			5940		5940			Count estimated	Family contains potential invasive species (Mytilus galloprovincialis (Shields et al. (2010)) and Musculista senhousia (Gillespie (2007), Molnar (2008)))	Family contains known invasives. These can be difficult to discern as adults due to historical introductions of similar species and hybridization. Would likely need DNA to make positive identificati individual species.
AIS 1-1	04-Oct-24	Top	Attached	Mytilidae	Mytilidae indet.			Present		Present	2			Family contains potential invasive species (Mytilus galloprovincialis (Shields et al. (2010)) and Musculista senhousia (Gillespie (2007), Molnar (2008)))	Family contains known invasives. These can be difficult to discern as adults due to historical introductions of similar species and hybridization. Would likely need DNA to make positive identificati individual species.
AIS 1-1	04-Oct-24	Bottom	Attached	Mytilidae	Mytilus sp.		Present	Present		Present	3	1		Genus contains potential invasive species (Mytilus galloprovincialis (Shields et al. (2010)))	Genus contains known invasives. These can be difficult to discern as adults due to historical introductions of similar species and hybridization. Would likely need DNA to make positive identificati individual species.
AIS 1-1	04-Oct-24	Flocculent	Attached	Mytilidae	Mytilus sp.		163	1985		2148			Count estimated	Genus contains potential invasive species (Mytilus galloprovincialis (Shields et al. (2010)))	Genus contains known invasives. These can be difficult to discern as adults due to historical introductions of similar species and hybridization. Would likely need DNA to make positive identificati individual species.
AIS 1-1	04-Oct-24	Top	Attached	Mytilidae	Mytilus sp.		Present	Present		Present	5			Genus contains potential invasive species (Mytilus galloprovincialis (Shields et al. (2010)))	Genus contains known invasives. These can be difficult to discern as adults due to historical introductions of similar species and hybridization. Would likely need DNA to make positive identificati individual species.
AIS 1-1	04-Oct-24	Flocculent	Mobile		Gastropoda indet.			1		1		1		Indeterminate	Juveniles/intermediates - not possible to discern species morphologically
AIS 1-2	04-Oct-24	Flocculent	Mobile	Naididae	Nais elinguis	1				1		1		No	Small oligochaete worms (<0.5mm). Not generaly typical of marine settlment plates
AIS 1-2	04-Oct-24	Flocculent	Mobile	Chrysopetalidae	Paleanotus bellis	10	3	1		14		1		Non-native to Canada	
AIS 1-2	04-Oct-24	Top	Mobile	Chrysopetalidae	Paleanotus bellis	7				7				Non-native to Canada	
AIS 1-2	04-Oct-24	Flocculent	Mobile	Hesionidae	Hesionidae indet.			1		1				Indeterminate	Juvenile typically identifiable if non-juvenile (intermediates, adults)
AIS 1-2	04-Oct-24	Flocculent	Mobile	Hesionidae	Micropodarke dubia		4	26		30		1		No	
AIS 1-2	04-Oct-24	Top	Mobile	Hesionidae	Micropodarke dubia	2				2				No	
AIS 1-2	04-Oct-24	Flocculent	Mobile	Nereididae	Platynereis bicanaliculata			1		1		1		Non-native to Canada	
AIS 1-2	04-Oct-24	Flocculent	Mobile	Phyllodocidae	Eulalia sp.			4		4		1	Possibly Eulalia quadrioculata	No	Damaged
AIS 1-2	04-Oct-24	Top	Mobile	Phyllodocidae	Eulalia sp.	1				1			Possibly Eulalia quadrioculata	No	Damaged
AIS 1-2	04-Oct-24	Flocculent	Mobile	Polynoidae	Polynoinae indet.			1		1		1		No	Juvenile typically identifiable if non-juvenile (intermediates, adults)
AIS 1-2	04-Oct-24	Top	Mobile	Spionidae	Polydora cornuta	2				2		1		Yes (DFO (2007), Molnar (2008))	
AIS 1-2	04-Oct-24	Bottom	Mobile	Spionidae	Prionospio sp.			2		2		1		No	
AIS 1-2	04-Oct-24	Flocculent	Mobile	Spionidae	Prionospio sp.		3	5		8				No	
AIS 1-2	04-Oct-24	Top	Mobile	Spionidae	Prionospio sp.			4		4				No	
AIS 1-2	04-Oct-24	Bottom	Mobile	Opheliidae	Armandia brevis		6	4		10		1		No	
AIS 1-2	04-Oct-24	Flocculent	Mobile	Opheliidae	Armandia brevis	15	293	35		343				No	
AIS 1-2	04-Oct-24	Top	Mobile	Opheliidae	Armandia brevis		13	53		66				No	
AIS 1-2	04-Oct-24	Bottom	Mobile	Opheliidae	Opheliidae indet.			4		4				No	Juvenile typically identifiable if non-juvenile (intermediates, adults)
AIS 1-2	04-Oct-24	Flocculent	Mobile	Opheliidae	Opheliidae indet.			105		105				No	Juvenile typically identifiable if non-juvenile (intermediates, adults)
AIS 1-2	04-Oct-24	Top	Mobile	Opheliidae	Opheliidae indet.			21		21				No	Juvenile typically identifiable if non-juvenile (intermediates, adults)
AIS 1-2	04-Oct-24	Flocculent	Mobile	Anisogammaridae	Eogammarus confervicolus		3	2		5		1		No	Native amphipod. Distinctive enough to be identified when immature.
AIS 1-2	04-Oct-24	Flocculent	Mobile	Corophiidae	Americorophium spinicorne	2	5	4		11		1		No	This family contains the historically introduced Monocorophium ascherucium
AIS 1-2	04-Oct-24	Flocculent	Mobile		Amphipoda indet.			1		1				Indeterminate	Juvenile/larval/too immature
AIS 1-2	04-Oct-24	Top	Attached	Balanidae	Balanus crenatus		Present			Present	1	1		No	
AIS 1-2	04-Oct-24	Flocculent	Mobile		Harpacticoida indet.	3				3		1		No	Small copeopods generally considered meiofauna/incidental
AIS 1-2	04-Oct-24	Flocculent	Mobile	Sphaeromatidae	Gnorimosphaeroma oregonense		2			2		1		No	
AIS 1-2	04-Oct-24	Flocculent	Mobile		Ostracoda indet.	110				110		1		Indeterminate	Incidental for macroinvertebrate surveys- generally considered meiofauna (<0.5 mm)
AIS 1-2	04-Oct-24	Flocculent	Mobile	Chironomidae	Thalassosmittia sp.				4	4		1		No	Estuarine chironomids (non-biting midges) evidence of lower salinity
AIS 1-2	04-Oct-24	Flocculent	Mobile		Echinoidea indet.			4		4		1		Indeterminate	Very immature, likely only settled for a day or two
AIS 1-2	04-Oct-24	Bottom	Mobile		Egg/egg mass	2				2				n/a	Incidental
AIS 1-2	04-Oct-24	Top	Mobile		Egg/egg mass	1				1				n/a	Incidental
AIS 1-2	04-Oct-24	Bottom	Attached		Filamentous algae	Present				Present	1			n/a	Not identified but does contain potenital invasive taxa
AIS 1-2	04-Oct-24	Top	Attached		Filamentous algae	Present				Present	4			n/a	Not identified but does contain potenital invasive taxa
AIS 1-2	04-Oct-24	Flocculent	Attached		Film of diatoms	Present				Present	1			n/a	Incidental
AIS 1-2	04-Oct-24	Bottom	Mobile		Nematoda indet.	2				2				n/a	Considered incidental for macroinvertebrate surveys. Nematode taxonomy requires advanced microscopy
AIS 1-2	04-Oct-24	Flocculent	Mobile		Nematoda indet.	5				5				n/a	Considered incidental for macroinvertebrate surveys. Nematode taxonomy requires advanced microscopy
AIS 1-2	04-Oct-24	Top	Mobile		Nematoda indet.	2				2				n/a	Considered incidental for macroinvertebrate surveys. Nematode taxonomy requires advanced microscopy
AIS 1-2	04-Oct-24	Bottom	Attached	Campanulariidae	Clytia sp.	Present				Present	1	1		No	
AIS 1-2	04-Oct-24	Flocculent	Attached	Campanulariidae	Clytia sp.	1				1				No	
AIS 1-2	04-Oct-24	Top	Attached	Campanulariidae	Clytia sp.	Present				Present	1			No	
AIS 1-2	04-Oct-24	Flocculent	Mobile		Nemertea indet.			1		1		1		Indeterminate	Juveniles/intermediates - not possible to discern species morphologically
AIS 1-2	04-Oct-24	Bottom	Mobile	Notoplanidae	Notoplana sp.			4		4		1		No	
AIS 1-2	04-Oct-24	Flocculent	Mobile	Notoplanidae	Notoplana sp.	13	5	21		39				No	
AIS 1-2	04-Oct-24	Top	Mobile	Notoplanidae	Notoplana sp.			2		2				No	
AIS 1-2	04-Oct-24	Bottom	Attached	Hiatellidae	Hiatellidae indet.			Present		Present	1	1		No	Juvenile, family not known to contain invasive species
AIS 1-2	04-Oct-24	Flocculent	Attached	Hiatellidae	Hiatellidae indet.			90		90				No	Juvenile, family not known to contain invasive species
AIS 1-2	04-Oct-24	Top	Attached	Hiatellidae	Hiatellidae indet.			Present		Present	2			No	Juvenile, family not known to contain invasive species
AIS 1-2	04-Oct-24	Flocculent	Mobile	Cardiidae	Clinocardiinae indet.			1		1		1		No	Juveniles/intermediates - not possible to discern species morphologically
AIS 1-2	04-Oct-24	Flocculent	Mobile	Astartidae	Astarte sp.			24		24		1		No	Juveniles/intermediates - not possible to discern species morphologically
AIS 1-2	04-Oct-24	Top	Mobile	Astartidae	Astarte sp.			9		9				No	Juveniles/intermediates - not possible to discern species morphologically
AIS 1-2	04-Oct-24	Bottom	Attached	Mytilidae	Mytilidae indet.			Present		Present	3			Family contains potential invasive species (Mytilus galloprovincialis (Shields et al. (2010)) and Musculista senhousia (Gillespie (2007), Molnar (2008)))	Family contains known invasives. These can be difficult to discern as adults due to historical introductions of similar species and hybridization. Would likely need DNA to make positive identificati individual species.
AIS 1-2	04-Oct-24	Flocculent	Attached	Mytilidae	Mytilidae indet.			7560		7560			Count estimated	Family contains potential invasive species (Mytilus galloprovincialis (Shields et al. (2010)) and Musculista senhousia (Gillespie (2007), Molnar (2008)))	Family contains known invasives. These can be difficult to discern as adults due to historical introductions of similar species and hybridization. Would likely need DNA to make positive identificati individual species.
AIS 1-2	04-Oct-24	Top	Attached	Mytilidae	Mytilidae indet.			Present		Present	3			Family contains potential invasive species (Mytilus galloprovincialis (Shields et al. (2010)) and Musculista senhousia (Gillespie (2007), Molnar (2008)))	Family contains known invasives. These can be difficult to discern as adults due to historical introductions of similar species and hybridization. Would likely need DNA to make positive identificati individual species.
AIS 1-2	04-Oct-24	Bottom	Attached	Mytilidae	Mytilus sp.		Present	Present		Present	3	1		Genus contains potential invasive species (Mytilus galloprovincialis (Shields et al. (2010)))	Genus contains known invasives. These can be difficult to discern as adults due to historical introductions of similar species and hybridization. Would likely need DNA to make positive identificati individual species.
AIS 1-2	04-Oct-24	Flocculent	Attached	Mytilidae	Mytilus sp.		154	3241		3395			Count estimated	Genus contains potential invasive species (Mytilus galloprovincialis (Shields et al. (2010)))	Genus contains known invasives. These can be difficult to discern as adults due to historical introductions of similar species and hybridization. Would likely need DNA to make positive identificati individual species.
AIS 1-2	04-Oct-24	Top	Attached	Mytilidae	Mytilus sp.		Present	Present		Present	4			Genus contains potential invasive species (Mytilus galloprovincialis (Shields et al. (2010)))	Genus contains known invasives. These can be difficult to discern as adults due to historical introductions of similar species and hybridization. Would likely need DNA to make positive identificati individual species.
AIS 1-2	04-Oct-24	Flocculent	Mobile		Bivalvia indet.			1		1				Indeterminate	Juveniles/intermediates - not possible to discern species morphologically
AIS 1-2	04-Oct-24	Flocculent	Mobile		Aeolidioidea indet.		23	36		59		1		No	Juveniles/intermediates - not possible to discern species morphologically
AIS 1-2	04-Oct-24	Top	Mobile		Aeolidioidea indet.			5		5				No	Juveniles/intermediates - not possible to discern species morphologically
AIS 1-2	04-Oct-24	Flocculent	Mobile	Pyramidellidae	Odostomia sp.			4		4		1		No	Juveniles/intermediates - not possible to discern species morphologically
AIS 1-3	04-Oct-24	Flocculent	Mobile	Nereididae	Platynereis bicanaliculata			1		1		1		Non-native to Canada	
AIS 1-3	04-Oct-24	Flocculent	Mobile		Ostracoda indet.	20				20		1		Indeterminate	Incidental for macroinvertebrate surveys- generally considered meiofauna (<0.5 mm)
AIS 1-3	04-Oct-24	Flocculent	Attached		Algae	Present				Present	1			n/a	Not identified but does contain potenital invasive taxa
AIS 1-3	04-Oct-24	Flocculent	Attached		Filamentous algae	Present				Present	1			n/a	Not identified but does contain potenital invasive taxa
AIS 1-3	04-Oct-24	Rope	Attached		Filamentous algae	Present				Present	1		Attached to a piece of rope	n/a	Not identified but does contain potenital invasive taxa
AIS 1-3	04-Oct-24	Bottom	Attached		Leptothecata indet.	Present				Present	1	1	Very little on the plate, no hydranths present, only stolons	Indeterminate	Damaged/small pieces of hydroid. Hydroids are often one of the first colonizers on settlement plates and can create habitat for other organisms.
AIS 1-3	04-Oct-24	Top	Attached		Leptothecata indet.	Present				Present	1		Very little on the plate, no hydranths present, only stolons	Indeterminate	Damaged/small pieces of hydroid. Hydroids are often one of the first colonizers on settlement plates and can create habitat for other organisms.
AIS 1-3	04-Oct-24	Flocculent	Mobile	Notoplanidae	Notoplana sp.	2	3			5		1		No	
AIS 1-3	04-Oct-24	Flocculent	Attached	Hiatellidae	Hiatellidae indet.			2		2		1		No	Juvenile, family not known to contain invasive species
AIS 1-3	04-Oct-24	Rope	Attached	Hiatellidae	Hiatellidae indet.			11		11			Attached to a piece of rope	No	Juvenile, family not known to contain invasive species
AIS 1-3	04-Oct-24	Bottom	Attached	Mytilidae	Mytilidae indet.			Present		Present	1			Family contains potential invasive species (Mytilus galloprovincialis (Shields et al. (2010)) and Musculista senhousia (Gillespie (2007), Molnar (2008)))	Family contains known invasives. These can be difficult to discern as adults due to historical introductions of similar species and hybridization. Would likely need DNA to make positive identificati individual species.
AIS 1-3	04-Oct-24	Flocculent	Attached	Mytilidae	Mytilidae indet.			500		500			Count estimated	Family contains potential invasive species (Mytilus galloprovincialis (Shields et al. (2010)) and Musculista senhousia (Gillespie (2007), Molnar (2008)))	Family contains known invasives. These can be difficult to discern as adults due to historical introductions of similar species and hybridization. Would likely need DNA to make positive identificati individual species.
AIS 1-3	04-Oct-24	Rope	Attached	Mytilidae	Mytilidae indet.			1000		1000			Count estimated	Family contains potential invasive species (Mytilus galloprovincialis (Shields et al. (2010)) and Musculista senhousia (Gillespie (2007), Molnar (2008)))	Family contains known invasives. These can be difficult to discern as adults due to historical introductions of similar species and hybridization. Would likely need DNA to make positive identificati individual species.
AIS 1-3	04-Oct-24	Top	Attached	Mytilidae	Mytilidae indet.			Present		Present	1			Family contains potential invasive species (Mytilus galloprovincialis (Shields et al. (2010)) and Musculista senhousia (Gillespie (2007), Molnar (2008)))	Family contains known invasives. These can be difficult to discern as adults due to historical introductions of similar species and hybridization. Would likely need DNA to make positive identificati individual species.
AIS 1-3	04-Oct-24	Flocculent	Attached	Mytilidae	Mytilus sp.		3	35		38		1	5-20mm in length	Genus contains potential invasive species (Mytilus galloprovincialis (Shields et al. (2010)))	Genus contains known invasives. These can be difficult to discern as adults due to historical introductions of similar species and hybridization. Would likely need DNA to make positive identificati individual species.

A3.1.1	04-Oct-24	Piper	Attached	Mytilidae	Mytilus sp.			10		10			Attached to a piece of rope, 5-20 mm in length, count estimated	Genus contains potential invasive species (Mytilus galloprovincialis (Shields et al. (2020))	Genus contains known invasives. These can be difficult to discern as adults due to historical introductions of similar species and hybridization. Would likely need DNA to make positive identificatio
A3.1.2	04-Oct-24	Miscellaneous	Motile		Acanthamoeba castellanii			1		1			Possibly Acanthida castellanii	Yes	Juveniles/intermediates - not possible to discern species morphologically
A3.1.3	04-Oct-24	Miscellaneous	Motile		Tardigrada class			1		1			Possibly Tardigrada class	Yes	Juveniles/intermediates - not possible to discern species morphologically
A3.1.4	04-Oct-24	Miscellaneous	Motile		Ciliophora class			1		1				Yes	Juveniles/intermediates - not possible to discern species morphologically
A3.1.5	04-Oct-24	Miscellaneous	Motile	Gastrotricha order	Gastrotricha sp.			1		1				Yes	
A3.2.1	04-Oct-24	Miscellaneous	Motile	Oligochaeta order	Oligochaeta juveniles			1		1				Yes	
A3.2.2	04-Oct-24	Miscellaneous	Motile	Nematoda order	Nematoda juveniles			1		1				Yes	Genus unidentified, but does contain potential invasive species
A3.2.3	04-Oct-24	Miscellaneous	Motile	Turbellaria order	Turbellaria juveniles			1		1				Yes	Genus unidentified, but does contain potential invasive species
A3.2.4	04-Oct-24	Miscellaneous	Motile	Gastrotricha order	Gastrotricha juveniles			1		1				Yes	
A3.2.5	04-Oct-24	Miscellaneous	Motile	Rotifera class	Rotifera juveniles			1		1				Yes	
A3.2.6	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.2.7	04-Oct-24	Miscellaneous	Motile	Amphipoda order	Amphipoda juveniles			1		1				Yes	
A3.2.8	04-Oct-24	Miscellaneous	Motile	Isopoda order	Isopoda juveniles			1		1				Yes	
A3.2.9	04-Oct-24	Miscellaneous	Motile	Decapoda order	Decapoda juveniles			1		1				Yes	
A3.3.1	04-Oct-24	Miscellaneous	Motile	Polychaeta order	Polychaeta juveniles			1		1				Yes	
A3.3.2	04-Oct-24	Miscellaneous	Motile	Copepoda order	Copepoda juveniles			1		1				Yes	
A3.3.3	04-Oct-24	Miscellaneous	Motile	Ostracoda order	Ostracoda juveniles			1		1				Yes	
A3.3.4	04-Oct-24	Miscellaneous	Motile	Cumacea order	Cumacea juveniles			1		1				Yes	
A3.3.5	04-Oct-24	Miscellaneous	Motile	Mysida order	Mysida juveniles			1		1				Yes	
A3.3.6	04-Oct-24	Miscellaneous	Motile	Tanaidacea order	Tanaidacea juveniles			1		1				Yes	
A3.3.7	04-Oct-24	Miscellaneous	Motile	Gastropoda class	Gastropoda juveniles			1		1				Yes	
A3.3.8	04-Oct-24	Miscellaneous	Motile	Bivalvia class	Bivalvia juveniles			1		1				Yes	
A3.3.9	04-Oct-24	Miscellaneous	Motile	Cephalopoda class	Cephalopoda juveniles			1		1				Yes	
A3.4.1	04-Oct-24	Miscellaneous	Motile	Echinodermata phylum	Echinodermata juveniles			1		1				Yes	
A3.4.2	04-Oct-24	Miscellaneous	Motile	Chordata phylum	Chordata juveniles			1		1				Yes	
A3.4.3	04-Oct-24	Miscellaneous	Motile	Arthropoda phylum	Arthropoda juveniles			1		1				Yes	
A3.4.4	04-Oct-24	Miscellaneous	Motile	Annelida phylum	Annelida juveniles			1		1				Yes	
A3.4.5	04-Oct-24	Miscellaneous	Motile	Mollusca phylum	Mollusca juveniles			1		1				Yes	
A3.4.6	04-Oct-24	Miscellaneous	Motile	Porifera phylum	Porifera juveniles			1		1				Yes	
A3.4.7	04-Oct-24	Miscellaneous	Motile	Cnidaria phylum	Cnidaria juveniles			1		1				Yes	
A3.4.8	04-Oct-24	Miscellaneous	Motile	Platyhelminthes order	Platyhelminthes juveniles			1		1				Yes	
A3.4.9	04-Oct-24	Miscellaneous	Motile	Nemertea order	Nemertea juveniles			1		1				Yes	
A3.5.1	04-Oct-24	Miscellaneous	Motile	Chaetognatha order	Chaetognatha juveniles			1		1				Yes	
A3.5.2	04-Oct-24	Miscellaneous	Motile	Cnidaria order	Cnidaria juveniles			1		1				Yes	
A3.5.3	04-Oct-24	Miscellaneous	Motile	Ctenophora order	Ctenophora juveniles			1		1				Yes	
A3.5.4	04-Oct-24	Miscellaneous	Motile	Appendicularia class	Appendicularia juveniles			1		1				Yes	
A3.5.5	04-Oct-24	Miscellaneous	Motile	Thaliacea class	Thaliacea juveniles			1		1				Yes	
A3.5.6	04-Oct-24	Miscellaneous	Motile	Pteropoda class	Pteropoda juveniles			1		1				Yes	
A3.5.7	04-Oct-24	Miscellaneous	Motile	Heteropoda class	Heteropoda juveniles			1		1				Yes	
A3.5.8	04-Oct-24	Miscellaneous	Motile	Salpida class	Salpida juveniles			1		1				Yes	
A3.5.9	04-Oct-24	Miscellaneous	Motile	Doliolida class	Doliolida juveniles			1		1				Yes	
A3.6.1	04-Oct-24	Miscellaneous	Motile	Foraminifera class	Foraminifera juveniles			1		1				Yes	
A3.6.2	04-Oct-24	Miscellaneous	Motile	Radiolaria class	Radiolaria juveniles			1		1				Yes	
A3.6.3	04-Oct-24	Miscellaneous	Motile	Acantharea class	Acantharea juveniles			1		1				Yes	
A3.6.4	04-Oct-24	Miscellaneous	Motile	Phaeodaria class	Phaeodaria juveniles			1		1				Yes	
A3.6.5	04-Oct-24	Miscellaneous	Motile	Dinoflagellata phylum	Dinoflagellata juveniles			1		1				Yes	
A3.6.6	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.6.7	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.6.8	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.6.9	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.7.1	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.7.2	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.7.3	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.7.4	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.7.5	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.7.6	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.7.7	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.7.8	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.7.9	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.8.1	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.8.2	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.8.3	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.8.4	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.8.5	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.8.6	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.8.7	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.8.8	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.8.9	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.9.1	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.9.2	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.9.3	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.9.4	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.9.5	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.9.6	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.9.7	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.9.8	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	
A3.9.9	04-Oct-24	Miscellaneous	Motile	Ciliophora class	Ciliophora juveniles			1		1				Yes	

APPENDIX I

KP14B TASKS

Table 1a: Summary table of raw EGC trapping data

Site ID	Latitude	Longitude	Date and Time Trap Set	Date and Time Trap Pull	Total Soak Time (h)	Bait Type	Tide Height (Set)	Tide Height (Pull)	Total Unique Species	Unique Species
CT24-1	49.6671492	-123.24931	2024-12-17 12:48	2024-12-18 13:05	24.28	Cat food	3.79	3.78	2	Staghorn Sculpin, Coonstripe Shrimp
CT24-2	49.6646287	-123.25253	2024-12-17 12:56	2024-12-18 13:18	24.37	Cat food	3.79	3.78	2	Prickly Sculpin, Dungeness Crab
CT24-3	49.6641498	-123.25659	2024-12-17 13:04	2024-12-18 13:32	24.45	Cat food	3.79	3.71	3	Staghorn Sculpin, Prickly Sculpin, Dungeness Crab
CT24-4	49.6619518	-123.25824	2024-12-17 13:10	2024-12-18 13:48	24.62	Cat food	3.79	3.68	2	Staghorn Sculpin, Prickly Sculpin
CT24-5	49.6594385	-123.25904	2024-12-17 12:00	2024-12-18 14:06	26.1	Cat food	3.79	3.67	0	

Table 1b: Individual measurements of raw EGC trapping data

Site ID	Common Name	Scientific Name	Life Stage	Carapace Width (cm)	Length (mm)
CT24-1	Staghorn Sculpin	*Leptocottus armatus*			119
CT24-1	Coonstripe Shrimp	*Pandalus hypsinotus*			125
CT24-2	Prickly Sculpin	*Cottus asper*			131
CT24-2	Prickly Sculpin	*Cottus asper*			122
CT24-2	Dungeness Crab	*Metacarcinus magister*	Juvenile	82	
CT24-2	Dungeness Crab	*Metacarcinus magister*	Adult	124	
CT24-3	Staghorn Sculpin	*Leptocottus armatus*			177
CT24-3	Prickly Sculpin	*Cottus asper*			132
CT24-3	Dungeness Crab	*Metacarcinus magister*	Juvenile	130	
CT24-3	Dungeness Crab	*Metacarcinus magister*	Juvenile	92	
CT24-4	Staghorn Sculpin	*Leptocottus armatus*			136
CT24-4	Prickly Sculpin	*Cottus asper*			152
CT24-4	Prickly Sculpin	*Cottus asper*			79
CT24-4	Prickly Sculpin	*Cottus asper*			99
CT24-4	Prickly Sculpin	*Cottus asper*			110
CT24-4	Prickly Sculpin	*Cottus asper*			109
CT24-4	Prickly Sculpin	*Cottus asper*			116
CT24-4	Prickly Sculpin	*Cottus asper*			111
CT24-4	Prickly Sculpin	*Cottus asper*			114
CT24-4	Prickly Sculpin	*Cottus asper*			111
CT24-4	Staghorn Sculpin	*Leptocottus armatus*			108
CT24-4	Staghorn Sculpin	*Leptocottus armatus*			106
CT24-4	Prickly Sculpin	*Cottus asper*			101
CT24-5			*No catch*		