Juvenile Salmonid Dietary Investigation for Lower Otter Creek on Joint Base Elmendorf-Richardson, Alaska

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INTRODUCTION

Cook Inlet beluga whale populations have declined by 75% since 1979 and were listed as endangered in 2008. NOAA has identified priority actions to assist in the recovery of Cook Inlet belugas over the five years from 2016 to 2020 which includes ensuring that healthy and plentiful prey are available (https://repository.library.noaa.gov/view/noaa/10747). Salmon are one important food source for these animals and are found in drainages throughout the Cook Inlet basin. Variation in foraging performance of stream-rearing juvenile salmon can affect their survival and abundance (Kennedy et al. 2008), and availability as a food resource for belugas. Limitations in juvenile salmon food resources may lead to reduced fitness as a result of expending more energy to obtain food (Giacomini et al. 2013), a lengthening of the time they are susceptible to size-dependent predation (Sogard 1997), the adoption of riskier behaviors to obtain food that leaves them more susceptible to predation (Biro et al. 2003), or starvation (Kennedy et al. 2008).

Not much is known about the health and abundance of salmon that rear in five streams on Joint Base Elmendorf-Richardson (JBER) in Anchorage, Alaska. In 2017, we investigated juvenile Coho diets in three JBER streams: Otter Creek, South Fork Chester Creek, and Sixmile Creek (Bogan et al. 2018). This study expanded upon that work by further investigating the diets of juvenile Coho salmon rearing in the lower portion of Otter Creek, including inter-tidal reaches in the Eagle River Flats. Documenting Coho prey diversity, quantity and origin will provide useful baseline data for future investigations into the fitness and overall condition of Coho rearing in JBER waters.

OBJECTIVE

The main objective of this study was to document the type and quantity of food that juvenile Coho are consuming in lower Otter Creek. The study was designed to investigate changes in Coho prey preferences from May through October, and differences in prey preferences between Coho feeding in intertidal reaches and Coho feeding above tidal influence.

METHODS

Identifying stream study reaches

In 2015, Schoofs and Zonneville (2016) performed assessments of physical habitat, benthic macroinvertebrates and fish in JBER streams, including Otter Creek. As part of their study, they caught Coho (along with other fish) with a backpack electrofisher. In 2017, we investigated juvenile Coho diets in stream reaches that were easily accessible and either in or adjacent to their study reaches that

yielded the highest density of Coho (Bogan et al. 2018). Schoofs and Zonneville (2016) also found abundant juvenile Coho in the intertidal portion of Otter Creek. A reconnaissance trip to identify potential study reaches was conducted in spring 2018 and four reaches were selected for this study (Figure 1).

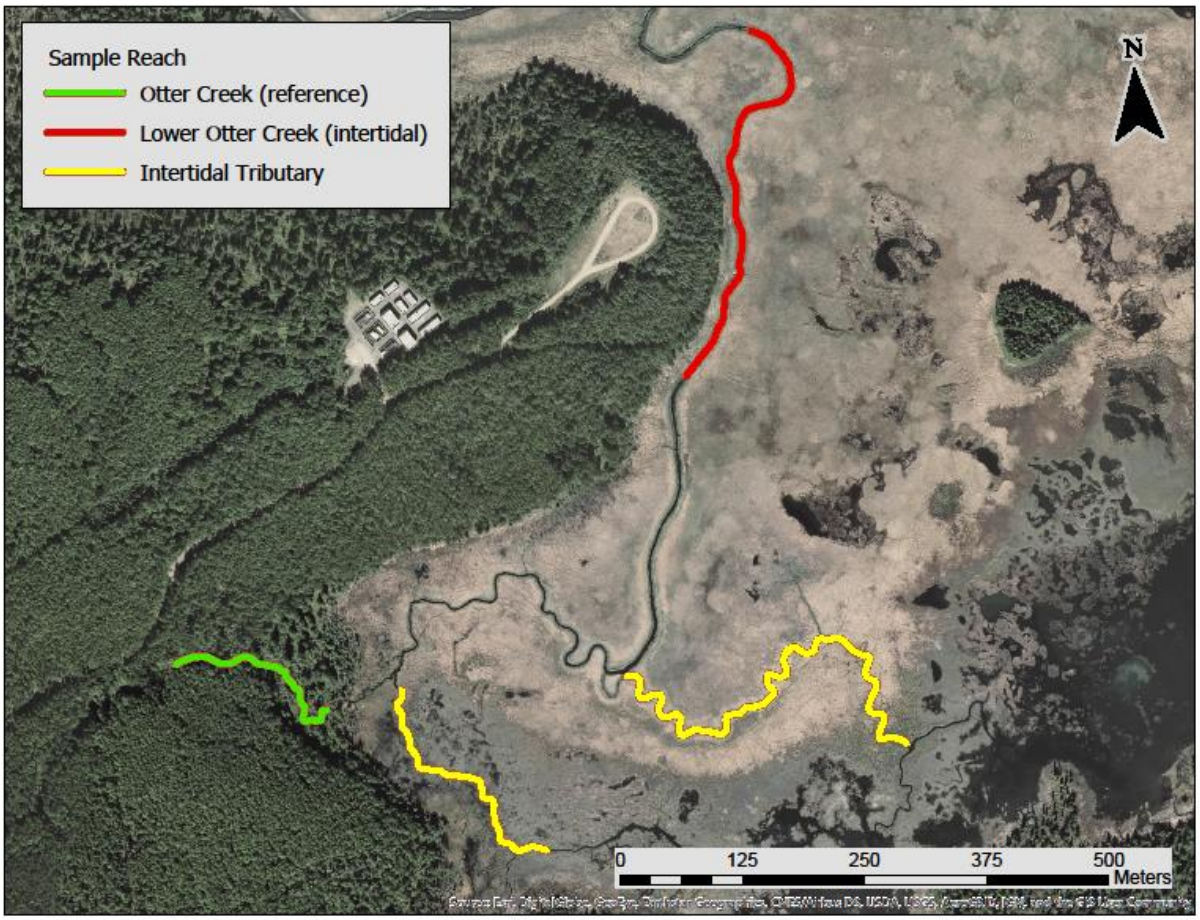

Figure 1. Study reaches on Otter Creek, JBER.

Measuring continuous water temperature

Prior to sampling, we deployed temperature loggers within each of the three reaches, including the northeastern intertidal tributary. We used Onset Hobo Water Temperature Pro v2 Data Loggers, set to collect temperature measurements every 15 minutes. They were deployed using ¼ inch coated cable attached using u-bolts to either riparian trees, cinder blocks on the stream bottom, or bridge abutments. Data loggers were checked during each fish collection event (about every five weeks), to make sure that they were in the water and not buried by sediment or debris. Loggers were retrieved on the last sampling day in October from each stream reach. Data were downloaded, checked for errors, and converted to daily means for all days with 96 measurements. Guidance for minimum data standards and protocols came from Mauger et al. (2014).

Coho field sampling

Juvenile Coho were caught using minnow traps baited with commercially cured salmon roe monthly from May through October (Table 1). Traps used were 16.5 x 8.5 inches, with one-inch openings and ¼ inch steel wire mesh. Traps were attached to riparian vegetation with nylon cord. Each trap was numbered and labelled with the ADFG Fish Resource Permit number and contact information and affiliation of the Principal Investigator. Trap locations were marked with flagging tape. The deployment time for each trap was recorded on a data sheet (Appendix C).

Minnow traps were placed in pools, along undercut banks, and in backwater habitats likely to contain juvenile Coho salmon (Figure 2). Traps were checked on a regular basis depending on catch rates, typically anywhere from 30 minutes to two hours. Fish from each trap were identified and enumerated by species. All captured fish were removed from the traps and placed in a five-gallon (holding) bucket filled with aerated stream water. All non-target species were removed from the holding bucket and placed in a second five-gallon (recovery) bucket with aerated stream water. Minnow traps were redeployed until the target number of 100 Coho, of which 30 were 56mm fork length or longer, were captured or catch rates approached zero.

Coho were removed from the holding bucket, no more than five at a time, with an aquarium net and placed in a small container with a buffered 70 mg/L solution of MS-222. The solution was made by pre-weighing 70 mg of MS-222 in the lab and placing the powder in a one-liter insulated Nalgene container that was then filled with stream water. The pH of the resulting solution was measured with pH paper and adjusted to circumneutral with a small amount of sodium bicarbonate, if necessary. Once Coho began to lose their equilibrium, they were measured (fork length) and weighed. Prior research helped us set a minimum fork length size of 56 mm for gastric lavage. If the Coho had a fork length of 56 mm or longer, we removed its stomach contents by holding the fish, head down, over a plastic funnel leading into an open Whirl-Pak, and flushing it with 20 ml of stream water from a syringe with a 7cm (1.7mm diameter) catheter (Figure 3). The fish was then visually inspected and any remaining debris was removed with an additional stream water rinse and was then placed into the recovery bucket. Approximately 50 ml of 95% ethanol was added to the whirl-pak, along with an identifying label, and tightly closed. This procedure was then repeated for all anesthetized fish, 56 mm in length or greater, until the contents of 30 stomachs were collected. Each anesthetized Coho less than 56 mm in length was measured and weighed and placed into the recovery bucket. Once fish processing was complete, Coho were returned to the stream, spread throughout the sampling reach.

Figure 2. Setting minnow traps in the NE intertidal tributary to Otter Creek

Figure 3. Gastric lavage being performed on a juvenile Coho on the bank of Otter Creek in September 2017.

Invertebrate drift field sampling

At most sampling events, two drift nets (0.3 x 0.3m, 350 µm mesh) were deployed side-by-side in the thalweg within the sampling reach for 30 to 85 minutes. On one occasion, a single net was used. Drift samples were collected in the morning while the minnow traps were soaking. Drift nets were secured in the stream using rebar, attached to bridges, or otherwise secured to the stream bank (Figure 4). They were deployed to capture all drifting debris and organisms between the streambed and surface in the reference reach, and in the top foot of water in the intertidal reaches. Deployment in the intertidal reaches was always conducted while the tide was out (current moving downstream). Deployment time, depth and stream velocity were recorded. Velocity was measured with a Marsh-McBirney flow meter at a mid-water depth at each of the net mouths. Contents of the nets were transferred to a Nalgene bottle and preserved with 70% ethanol.

Figure 4. Collecting drifting invertebrates at the lower Otter Creek reach.

Lab methods for Coho stomach contents

Stomach contents from each Coho were emptied into a Petri dish and sorted by taxon. Each aquatic taxon (orders Ephemeroptera, Plecoptera, Trichoptera, Diptera, Coleoptera, Hemiptera, and Collembola) was identified to the lowest practical level, typically genus or family, using standard taxonomic keys (Merritt et al. 2008, Wiggins 2000, and Stewart and Oswood 2006) for organisms (or organism parts) that were identifiable under a Leica MZ6 dissecting scope. Taxa that originated from the terrestrial environment and aquatic non-insects were enumerated and identified at higher levels

using standard taxonomic keys (Marshall 2006, Thorp and Covich 2010, Collet 2008, and Cole 1969). For intact organisms, body length was measured to the nearest 0.1 mm for those <2mm long and to the nearest 0.5 mm for all others. For partial organisms, estimates of body length were made, if possible. For the final analysis, we ended up with 31 prey categories (see Table 2 and Appendix A). Life stage information (e.g., larva, pupa, adult) was merged for each category. We categorized prey organisms based on their origin: organisms originating from the stream (e.g., Chironomidae, Trichoptera), organisms originating from the terrestrial environment (e.g., Aranae, Terrestrial Hemiptera), organisms originating from a marine environment (salmon eggs), and organisms of unknown origin (e.g., Nematoda, Oligochaeta, some Diptera). Plant material found in stomach contents was recorded but not included in the analysis.

Lab methods for invertebrate drift samples

Drift samples were subsampled in the lab to reach a fixed count of 300 organisms using a Caton grid sampler, enumerated and identified to the lowest practical level, following the same taxonomic guidance used for the prey taxa. All information from the drift sample processing is stored in an MS Excel spreadsheet.

Coho prey data analysis

Lengths were converted to biomass (mg) using length-mass coefficients obtained from Bob Wisseman with Aquatic Biology Associates, Inc. Biomasses were summed to obtain a total biomass for each prey taxon in each fish stomach. Prey taxa were grouped into 31 higher taxonomic levels further separated by their origin (aquatic or terrestrial) for further data analysis. The origin of Nematoda and Oligochaeta were considered unknown. Prey data are provided in Appendix A.

Three metrics were calculated for each of the 31 taxa groups for two sample groupings: site and date (n = 15) and sites only (n = 3). Percent frequency of occurrence (%O) is the number of fish stomachs a prey taxon occurred in divided by the total number of fish stomachs. All fish were used in the denominator for %O, which included 21 fish with empty stomachs. Percent by number (%N) is the total count for a prey taxon divided by the total count of all prey organisms. Percent by mass (%M) is the total biomass for a prey taxon divided by the total biomass of all prey organisms. We also calculated the index of relative importance (IRI) for each prey taxon in each group as IRI = %O x (%N + %M) (Cailliet et al. 1986; Eidam et al. 2016). The IRI was converted to a percentage as the IRI/total IRI for each group. We selected important prey taxa as those with IRI% > 2 in at least one site using the site groupings.

Invertebrate drift data analysis

Taxa abundance in each 300-organism pick was mathematically extrapolated (based on the number of grids subsampled) to represent the complete drift sample. Organism density was calculated using the following formula:

$$Drift\ density\ \left(\frac{count}{100\ m^3}\right) = \frac{(N)(100)}{(t)(W)(H)(V)\frac{3600\ s}{hr}}$$

where N represents the taxon abundance in the sample; t is the number of hours the net was deployed in the stream; W is the combined width of the nets in meters; H is the mean height of the water column

in the net mouth in meters; and V is the water velocity at the net mouth in meters per second. Invertebrate drift data are provided in Appendix B.

We compared differences between prey taxon found in the fish stomachs to prey taxon found in the drift from the same site and date using relative abundances and the Jaccard similarity coefficient. Drift samples were not collected in July at the Lower Otter Creek and Tributaries to Otter Creek sites. Drift taxa were summed for each site and date using the same 31 taxa groups used for the prey data so they were comparable. Drift densities were further converted to percent by number (%N, i.e. relative abundance) by dividing each drift taxon density by the total density of all drift organisms for that site and date.

The Jaccard similarity coefficient is the proportion of combined abundance that is shared (McCune and Grace 2002):

$$JS_{ih} = \frac{\sum_{j=1}^{p} min(a_{ij}, a_{hj})}{\sum_{j=1}^{p} a_{ij} + \sum_{j=1}^{p} a_{hj} - \sum_{i=1}^{p} \min(a_{ij}, a_{hj})}$$

where a_{ij} is the abundance of species j in sample unit i (one site and date) and there are a total of p species in the drift sample and stomach samples being compared.

All data analyses were run in the R statistical platform (R Core Team 2019) using the tidyverse (Wickham 2017) and vegan packages (Oksanen et al. 2019).

RESULTS

Water temperature

Stream temperatures in the northeast intertidal tributary were much colder than temperatures in lower Otter Creek (intertidal), which were lower than water temperatures in the reference site (Figure 5). Mean daily temperature peaked on July 6 at 22.0°C for the Otter Creek reference site, which was seven degrees warmer than the mean daily temperature at lower Otter Creek, and over ten degrees warmer than the mean daily temperature in the northeast intertidal tributary on the same day. Mean daily temperatures peaked at the intertidal sites in mid-July (July 18 and 19) at 17.3°C at the lower Otter Creek site and over 13.7°C at the northeast intertidal tributary.

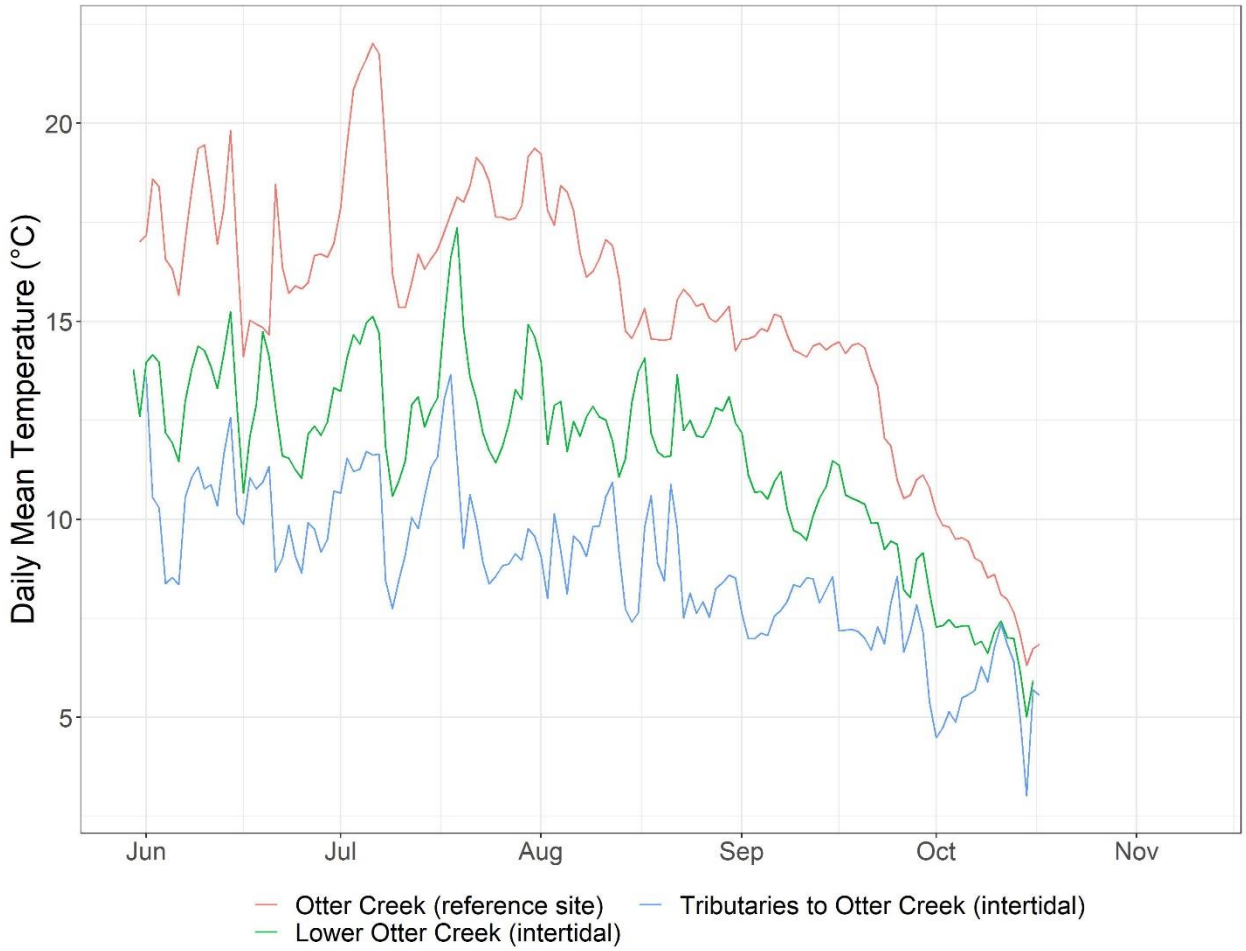

Figure 5. Daily mean stream temperatures calculated from hourly logged temperatures at the three Otter Creek sites.

Coho trapping rates and size comparisons

Coho catch rates varied from site to site and month to month (Table 1). Catch rates were low at all sites in late May/early June, with a high of 0.5 Coho per hour in the reference site, resulting in 28 Coho large enough to lavage (≥56mm, FL) and a low of 0.2 Coho per hour in the intertidal tributaries, resulting in only nine Coho large enough for diet analysis. In July, trapping rates increased at the reference and lower Otter Creek sites, enabling us to reach our target of 30 Coho for diet analysis at both sites, but remained low in the intertidal tributaries. Trapping rates peaked at all sites in September, ranging from 2.1 Coho per hour in the intertidal tributaries to 3.5 Coho per hour in the lower Otter Creek reach, with the appearance of abundant young of the year Coho at all sites. Catch rates were always lower in the intertidal tributaries.

In total, we caught 254 Coho in the reference reach, of which 148 were large enough for diet analysis; 235 Coho in Lower Otter Creek, of which 138 were used in the diet analysis; and 190 Coho in the inter-tidal tributaties, of which 92 were used in the diet analysis (Table 1).

Table 1. Coho caught, lavaged, trap hours and catch rates for each sampling event at the three Otter Creek sites on JBER															
	Otter Creek (Reference)					Lower Otter Creek (Inter-tidal)					Intertidal Tributaries to Otter Creek				
	5/30 2018	7/3 2018	8/16 2018	9/6 2018	10/17 2018	5/31 2018	7/2 2018	8/15 2018	9/5 2018	10/17 2018	6/1 2018	7/3 2018	8/16-17/18	9/5 2018	10/16-17/18
Coho caught	34	46	64	73	37	22	31	49	103	30	9	9	36	110	26
Coho lavaged	28	30	30	30	30	20	30	30	29	29	9	9	30	28	16
Trap hours	65.3	25.6	81.5	32.6	32.7	65.4	40.5	56.1	29.5	34.7	56.4	63.1	77.3	52.9	43.1
Catch rate (Coho/ trap hr)	0.5	1.8	0.8	2.2	1.1	0.3	0.8	0.9	3.5	0.9	0.2	0.1	0.5	2.1	0.6

We caught Coho smolts, based on their silvery appearance, at all sites throughout the study. They comprised 47% of the catch at the reference site, 69% of the catch in lower Otter Creek, and 86% of the catch in the inter-tidal tributaries. Coho smolts had fork lengths between 70 and 80mm and weights from 3 to 5 grams.

Figure 6. Coho fork length frequencies by date at each of the three sites: Otter Creek (reference), Lower Otter Creek (intertidal), and Intertidal Tributaries to Otter Creek.

Coho prey diversity

Stomach contents from the three streams included invertebrates from 24 different orders, along with fish (Pisces), and plant material. Most Coho had a variety of prey items in their stomachs. The average number of organisms in each Coho stomach ranged from four to six (out of 31 prey groups) across sites

and dates. Prey diversity varied seasonally by site, peaking in August with 5 to 6 different prey groups in the average Coho stomach, and reaching a low in September with 2.5 to 4 prey groups (Figure 7).

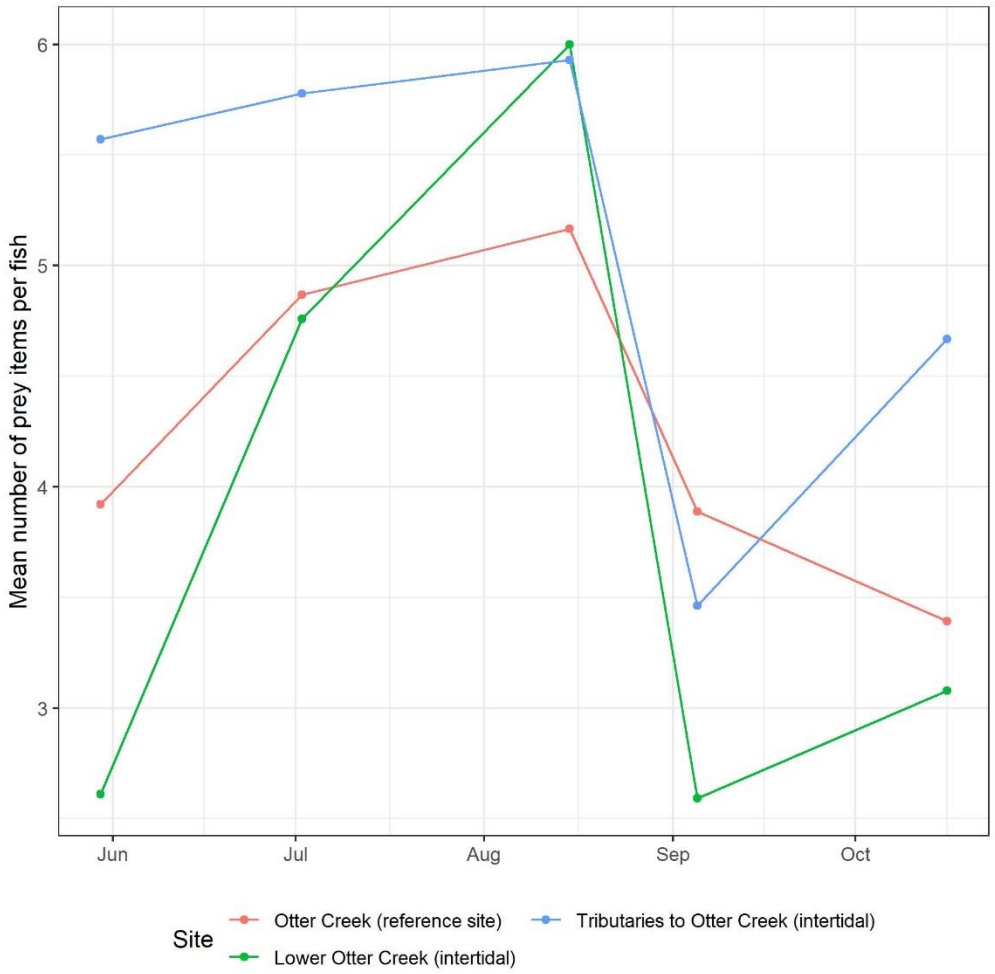

Figure 7. Mean number of different taxa groups found in Coho stomachs by date at each of the three sites on Otter Creek.

Almost 48% of the 6292 prey items identified were members of the order Diptera, which includes taxa that originate in both aquatic and terrestrial habitats. Chironomidae (non-biting midges) is a family in the order Diptera with aquatic larval stages that accounted for more than 28% of the prey items identified by count, and were the most frequently eaten prey item, found in over 63% of the Coho stomachs. The next most common prey item, found in over 56% of Coho stomachs, were non-chironomid aquatic dipterans, including the families Simuliidae, Tipulidae, Ceratopogonidae, Psychodidae, Empididae, Culicidae, Dixidae, Doloichopodidae, and Ephydridae. Beyond these top two prey taxa groups, which were important prey items at all three sites, prey taxa importance varied between sites (Table 2).

Coho prey taxa by site

At the Otter Creek reference site, chironomids comprised 39% of all prey organisms identified and had a % IRI of 36. Another important taxon group in the reference reach was the broad non-chironomid aquatic dipteran group, which was found in 68% of stomachs, and had a %IRI of 30. Pisces, primarily three-spine stickleback, and Hymenoptera comprised about one-third of the biomass in stomach contents (16% each), but were found in relatively few Coho stomachs (2 and 10% respectively). Trichopterans were also important prey items for Coho in the reference reach, accounting for 13% of biomass, with a % IRI of 9.

In the lower Otter Creek intertidal reach, prey taxa were more evenly distributed. Non-Chironomid aquatic Dipterans were found in just under one half of the stomachs (50%) and had a % IRI of 19.5. Chironomids were present in even more Coho stomachs, with a frequency of 53% and a % IRI of 17. Isopoda was another important prey group, found in 35% of stomachs, with a % IRI of 17. Terrestrial Hemipterans were the other important taxa group in Lower Otter Creek, found in 37% of Coho stomachs, with a % IRI of 15. Together, these four groups accounted for 67% of the organisms found in Coho stomachs, and a total % IRI of 68.

Chironomids were the most abundant prey taxon in the intertidal tributaries, found in 72% of Coho stomachs, accounting for 30% of prey organisms, and a % IRI of 38. Non-Chironomid aquatic Dipterans was another important prey group, found in 47% of stomachs with a % IRI of 11. Aquatic Collembola, primarily in the family Sminthuridae, was another important prey group in the intertidal tributaries, accounting for 24% of all prey organisms, with a % IRI of 11. Pisces, while only found in 7% of stomachs, accounted for 28% of prey biomass in the intertidal tributaries. Another important prey group in all three stream study reaches was terrestrial Mollusca (slugs), which accounted for more than 10% of prey biomass at all three sites. Prey percent frequency, number, biomass and IRI can all be found in Table 2.

Table 2. Juvenile Coho prey group statistics for 30 prey groups. % Frequency = percent of Coho stomachs prey taxa group was found; % Number = percentage of the total prey organism count; % Mass = percentage of the biomass of Coho stomach contents; % IRI = percentage of the Index of Relative Importance of each taxa group.

	Otter Creek (Reference)				Lower Otter Creek (Intertidal)				Otter Creek Tributaries (Intertidal)			
Prey group	% Freq	% No.	% Mass	% IRI	% Freq	% No.	% Mass	% IRI	% Freq	% No.	% Mass	% IRI
Chironomidae	63.5	39.4	2.3	35.9	53.3	16.8	1.1	17.1	72.2	30.3	1.2	38.1
Non-Chironomid Aquatic Diptera	67.6	21.1	14.7	29.8	49.6	17.2	6.8	19.5	47.2	9.3	7.3	10.6
Hymenoptera	31.1	10.0	16.3	11.1	13.1	2.9	5.2	1.9	17.5	1.3	1.8	0.9
Trichoptera	37.2	4.7	13.2	9.0	12.4	0.8	5.2	1.3	29.9	2.2	9.1	5.6
Plecoptera	31.1	5.0	5.2	4.3	9.5	0.8	0.3	0.2	6.2	1.0	0.5	0.2
Terrestrial Diptera	25.7	2.9	2.7	2.0	28.5	4.2	7.8	6.1	32.0	3.2	1.9	2.7
Pisces	5.4	2.3	16.4	1.4	1.5	0.1	1.9	0.1	7.2	1.2	27.9	3.5
Terrestrial Mollusca	8.1	0.6	11.6	1.4	14.6	1.8	21.6	6.1	7.2	0.5	10.3	1.3
Araneae	19.6	1.7	3.0	1.2	19.7	1.7	5.2	2.4	27.8	2.0	7.1	4.2
Terrestrial Hemiptera	20.3	2.1	2.1	1.1	37.2	14.8	7.0	14.5	42.3	6.4	3.9	7.2
Ephemeroptera	21.6	3.3	0.5	1.1	0.7	0.0	0.0	0.0	4.1	0.4	0.2	0.0
Oligochaeta	12.8	1.6	1.5	0.5	NA	NA	NA	NA	7.2	0.4	0.7	0.1
Terrestrial Coleoptera	8.8	0.8	2.7	0.4	32.1	3.4	10.8	8.2	30.9	2.8	9.1	6.2
Aquatic Coleoptera	9.5	0.7	0.5	0.2	9.5	4.3	1.4	1.0	26.8	7.6	5.7	6.0
Lepidoptera	3.4	0.2	3.3	0.2	0.7	0.0	0.1	0.0	1.0	0.0	0.7	0.0
Aquatic Collembola	7.4	0.6	0.0	0.1	17.5	6.5	0.0	2.0	26.8	23.9	0.0	10.7
Terrestrial Collembola	6.8	0.7	0.2	0.1	12.4	2.2	0.0	0.5	15.5	2.0	0.0	0.5
Isopoda	0.7	0.0	0.1	0.0	35.0	18.0	8.5	16.6	17.5	2.5	2.6	1.5
Amphipoda	1.4	0.1	0.6	0.0	10.9	1.7	8.1	1.9	6.2	0.3	1.1	0.1
Aquatic Mollusca	4.1	0.5	0.4	0.0	4.4	0.9	3.3	0.3	10.3	0.7	0.3	0.2
Hirudinida	NA	NA	NA	NA	2.9	0.2	5.6	0.3	4.1	0.2	0.0	0.0
Terrestrial mites	4.7	0.4	0.0	0.0	5.1	0.9	0.0	0.1	6.2	0.7	0.0	0.1
Odonata	1.4	0.1	1.9	0.0	NA	NA	NA	NA	1.0	0.1	8.4	0.1
Aquatic mites	3.4	0.2	0.0	0.0	2.2	0.4	0.0	0.0	4.1	0.5	0.0	0.0
Ostracoda	2.0	0.1	0.0	0.0	0.7	0.0	0.0	0.0	1.0	0.0	0.0	0.0
Nematoda	4.7	0.4	0.2	0.0	2.2	0.1	0.1	0.0	NA	NA	NA	NA
Cladocera	1.4	0.1	0.0	0.0	NA	NA	NA	NA	2.1	0.1	0.0	0.0
Aquatic Hemiptera	0.7	0.0	0.3	0.0	NA	NA	NA	NA	3.1	0.1	0.2	0.0
Psocodea	0.7	0.0	0.1	0.0	NA	NA	NA	NA	NA	NA	NA	NA
Thysanoptera	NA	NA	NA	NA	NA	NA	NA	NA	1.0	0.0	0.0	0.0

Coho prey taxa by site and month

Dominant prey taxa groups varied throughout the growing season (Figures 8, 9 and 10). On May 31, over 70% of all prey organisms from the Otter Creek reference site were aquatic Dipterans, accounting for almost 50% of prey biomass. In addition, 24% of prey biomass came from Plecoptera, and 12% came from Trichoptera. One month later, Hymenoptera, which were not present in any stomachs in May, accounted for 46% of the prey biomass. On August 16, Hymenoptera remained an important taxon along with Trichoptera, each accounting for about 24% of the prey biomass. On September 6, salmon eggs were found in 13% of Coho stomachs and accounted for over 40% of the total prey biomass. On that day, terrestrial molluscs (slugs) accounted for 24% of the prey biomass, occurring in 24% of Coho stomachs. A three-spine stickleback found in one Coho stomach accounted for over 30% of the pooled prey biomass on October 17, and terrestrial molluscs accounted for just under 20%. Aquatic Dipterans, especially Chironomidae, were important prey taxa throughout the study period, accounting for over 50% of the total prey organisms found in Coho stomachs at the reference site in every month except

October, when they accounted for 31%. On that sampling day (October 17) over 27% of prey organisms were Plecoptera, primarily *Zapada sp.*

Coho diets in the intertidal Lower Otter Creek site differed from the reference site, with the marine Isopod *Gnorimosphaeroma sp.* accounting for about half of prey organisms in May and September. Terrestrial Coleoptera were also found more abundantly in Lower Otter Creek Coho stomachs, comprising between 25 and 45% of the pooled biomass on each of the five sampling dates. Terrestrial molluscs also appeared in Lower Otter Creek Coho diets in August and September, when they comprised 38% and 36% of the pooled prey biomass, respectively. Hymenoptera were important prey taxa in July, accounting for over 26% of pooled prey biomass. Aquatic Diptera, including Chironomidae, were found in over 50% of Coho stomachs every month, but never accounted for more than 16% of the pooled prey biomass. Terrestrial hemipterans were another important prey taxon group at the lower Otter Creek site (IRI=15%), which were seasonally abundant there, especially in August. The availability of Isopods and Hemipterans dampened the importance of Chironomids (IRI=17%) and other aquatic Dipterans (IRI=20%), which were both more important in the reference reach.

Aquatic Diptera, including Chironomidae, were also important prey taxa for Coho captured in the intertidal tributaries, present in well over 50% of salmon stomachs on each of the five sampling events, although the pooled biomass of these organisms never exceeded 20% of the total. On June 1, both terrestrial Coleoptera and Aranae (primarily spiders), made up over 20% of the pooled prey biomass. One Coho stomach on that day contained the remnants of what looked to be a three-spine stickleback, and since only nine Coho were lavaged from the tributaries that day, made up over 23% of the pooled prey biomass. In August, salmon eggs in one Coho stomach and what looked to be partially digested three-spine sticklebacks in two other Coho stomachs accounted for 13% of the pooled prey biomass, and in September, three-spine sticklebacks were found in three Coho stomachs and accounted for over 48% of the pooled prey biomass. No fish or fish eggs were found in Coho stomachs in July and October. Coleoptera (terrestrial and aquatic) are another combined taxa group that accounted for over 20% of the pooled prey biomass of Coho caught in the tributaries in every month except September. Aquatic Collembola in the family Sminthuridae were also frequently found in Coho stomachs from the intertidal tributaries, found in over 26% of Coho stomachs and comprising over 23% of the total number of prey organisms, yet their diminutive size limited their combined total prey biomass to less than 0.1%.

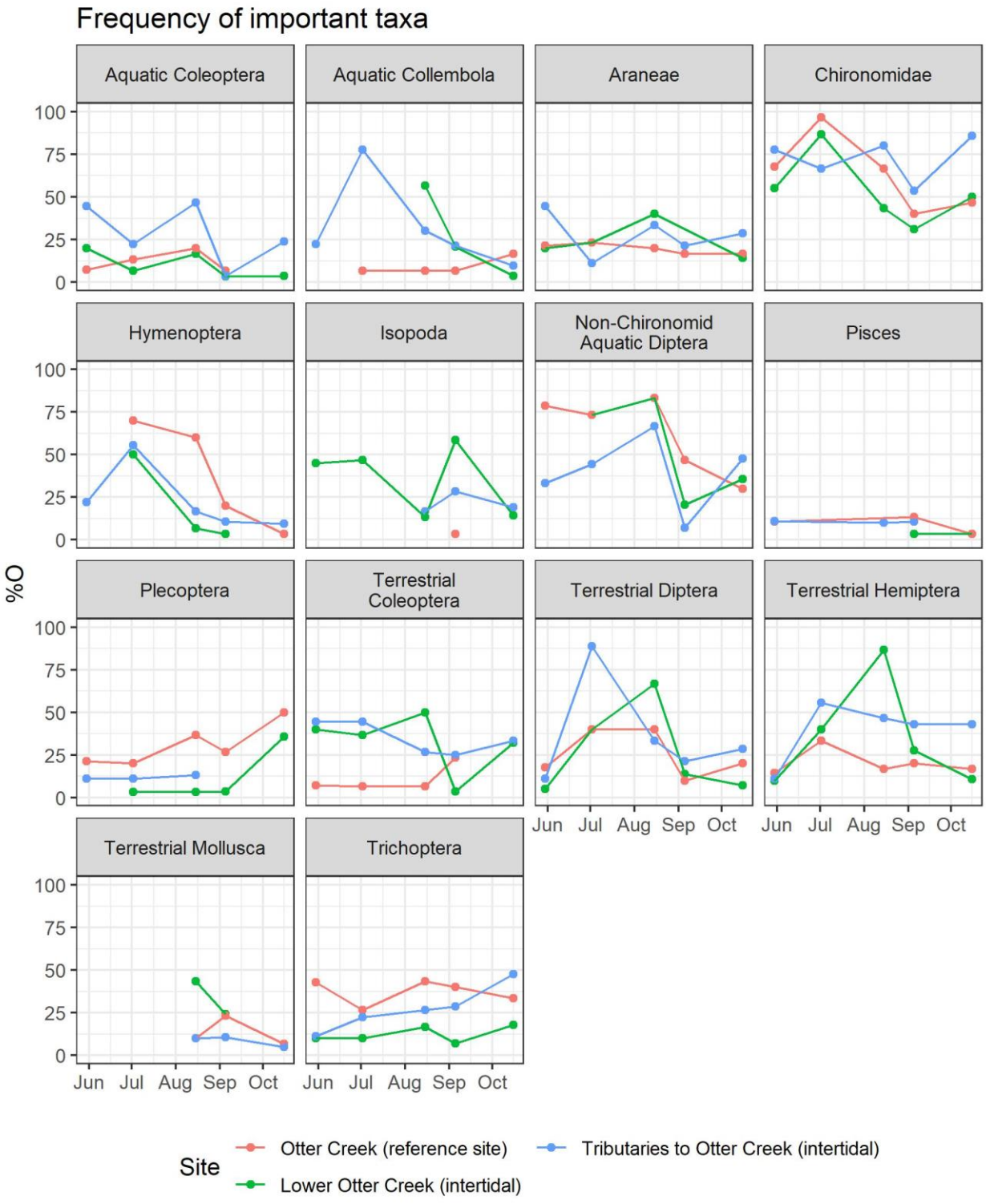

Figure 8. Percent frequency of important prey taxa found in Coho stomachs by site and month.

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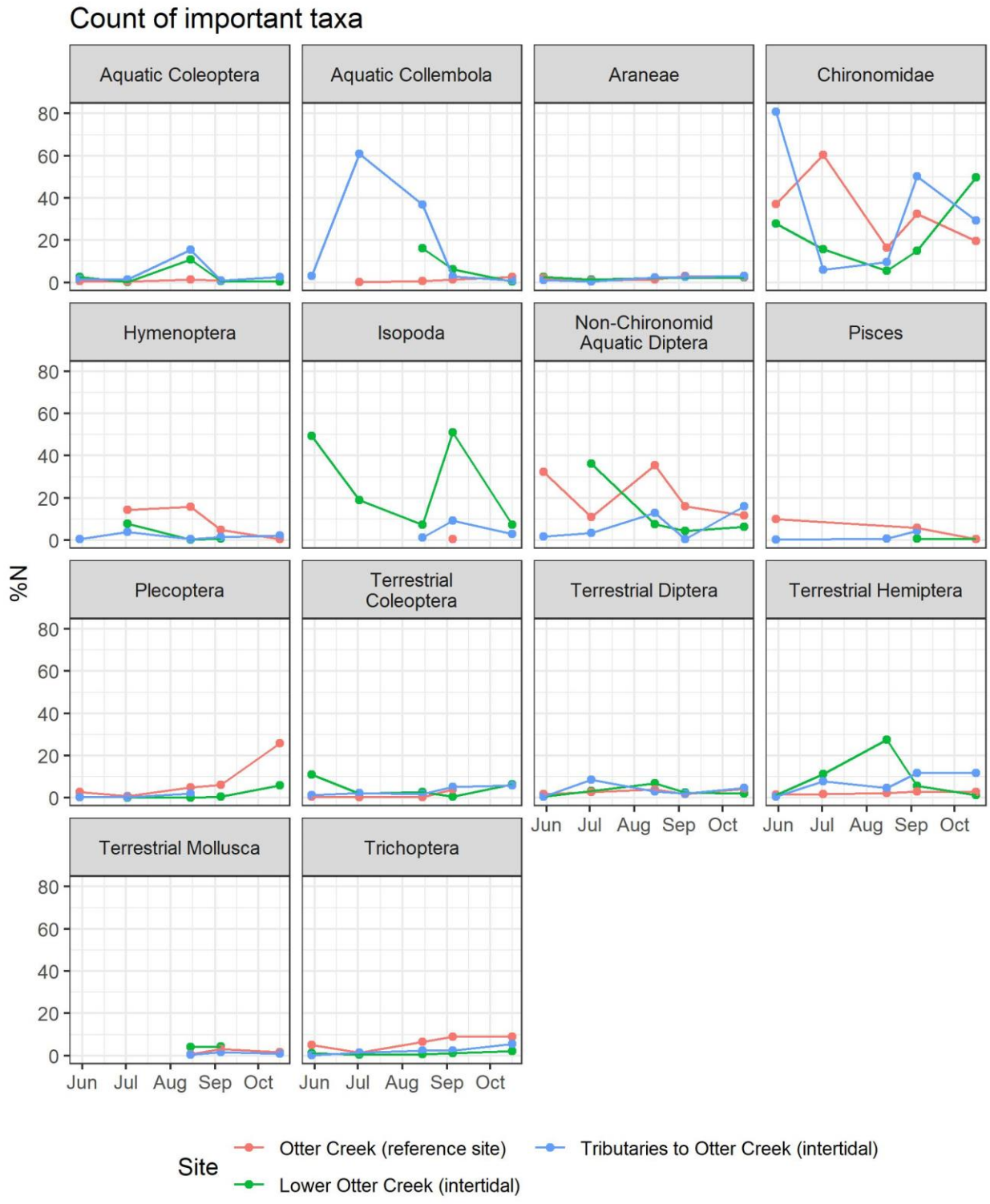

Figure 9. Percent number of important prey taxa found in Coho stomachs by site and month.

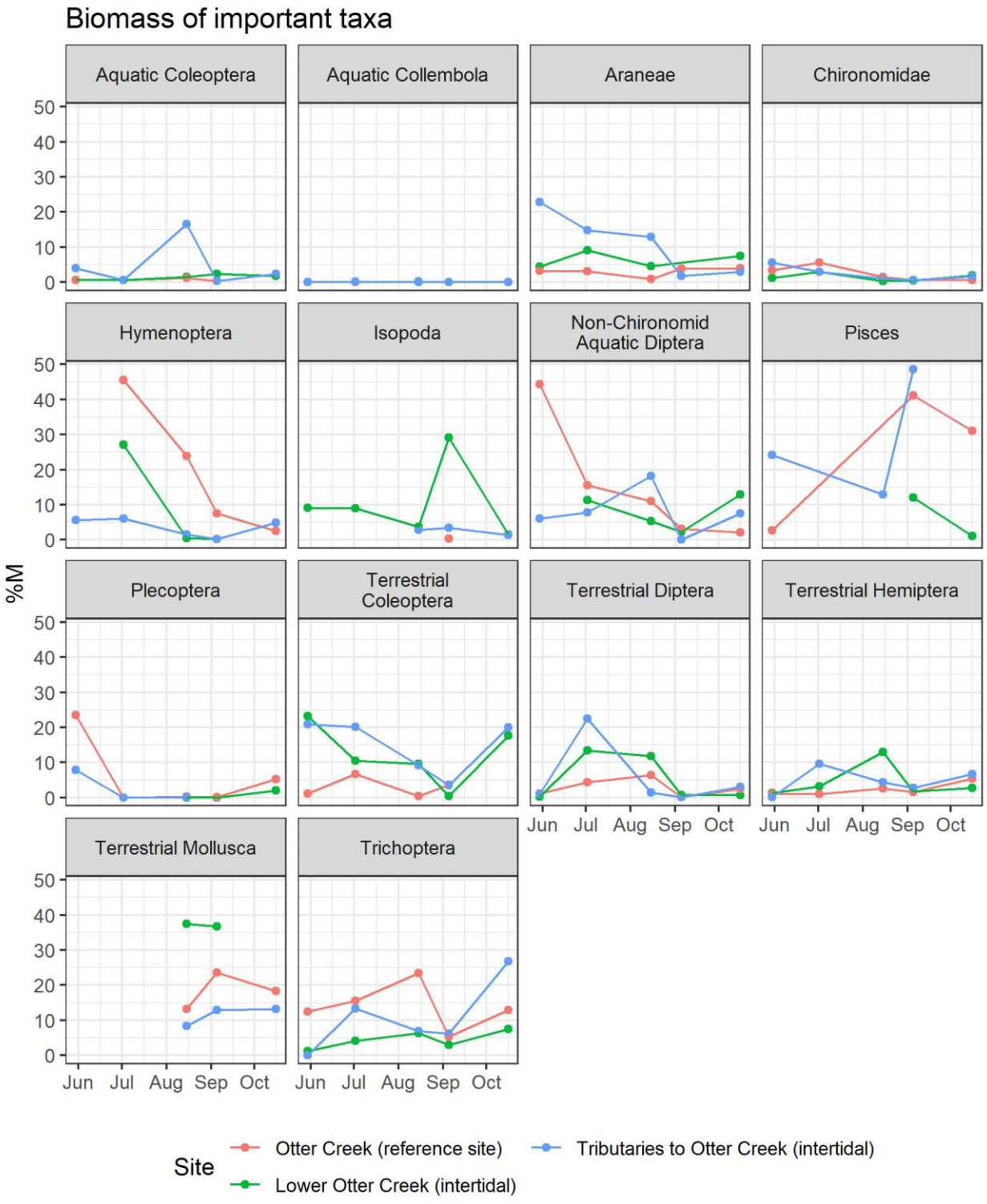

Figure 10. Percent biomass of important prey taxa found in Coho stomachs by site and month.

Coho prey taxa by origin

Based on total counts, Coho relied mostly on prey taxa of aquatic origin at all three sites for every month (Figure 11). The biomass of the prey species by origin shows different trends (Figure 12). In the Otter Creek reference reach, biomass of terrestrial origin was greater than the aquatic origin biomass in July and August. At the intertidal Lower Otter Creek site, aquatic biomass exceeded the terrestrial biomass in every month except July and August, when biomass of terrestrial origin was about three times that of aquatic origin biomass, due largely to the prevalence of terrestrial molluscs (slugs) in Coho stomachs. In the intertidal tributaries, biomass of terrestrial and aquatic origin was roughly equal in June, July and October. The spike in the biomass from aquatic origin in August and September was due largely to the appearance of three-spine sticklebacks in Coho stomachs.

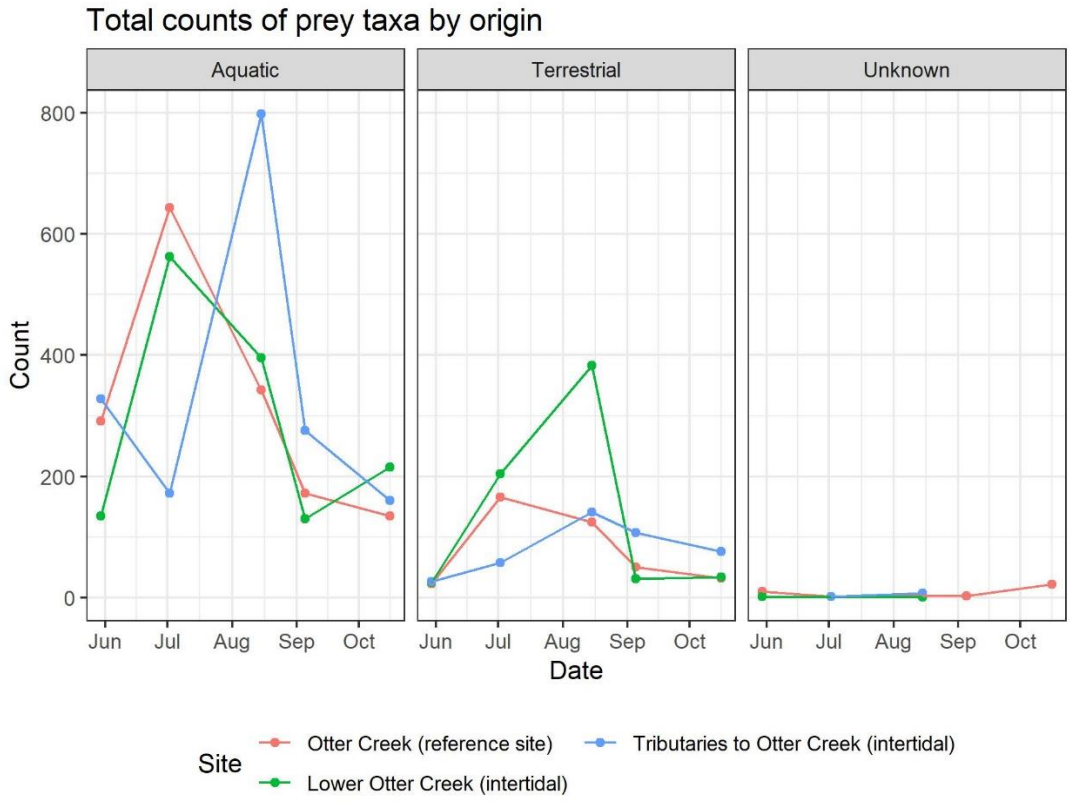

Figure 11. Total counts of Coho prey items by stream and month based on origin of taxa.

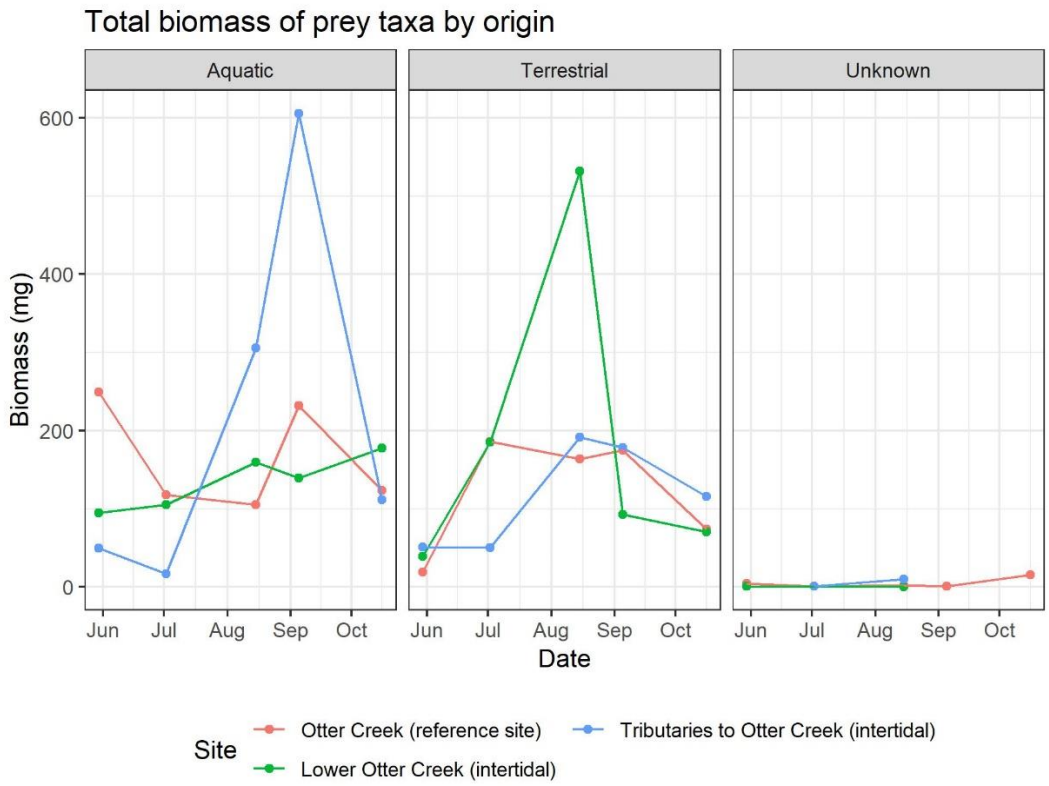

Figure 12. Total biomass of Coho prey items by stream and month based on origin of taxa.

Drift taxa compared to prey taxa

The number of potential prey organisms drifting in each of the three stream reaches showed substantial monthly variation. In the reference site, Invertebrate drift started at 288 organisms/m^3 in May, peaked at 2055 organisms/m^3 in September, before dropping to 830 organisms/m^3 in October. Invertebrate drift at the lower Otter Creek site was measured to be under 130 organisms/m^3 in May, September and October, with a peak in August of 947 organisms/m^3. Drift densities in the intertidal tributaries varied between 207 organisms/m^3 in September to a high of 558 organisms/m^3 in October (Figure 13).

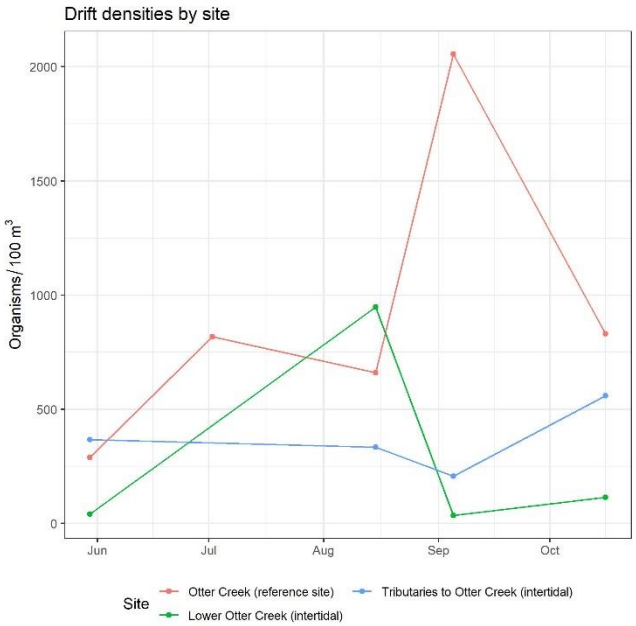

Figure 13. Invertebrate drift rates in the three streams by month

Drifting invertebrates most closely mirrored prey organisms in the reference reach, with Jaccard similarities ranging from 29% in August to over 50% in both May and September. In the intertidal reaches, prey and prey field similarity ranged from 5% in the tributaries in May, to 40% in lower Otter Creek in October (Figure 14). More detailed invertebrate drift data can be found in Appendix B.

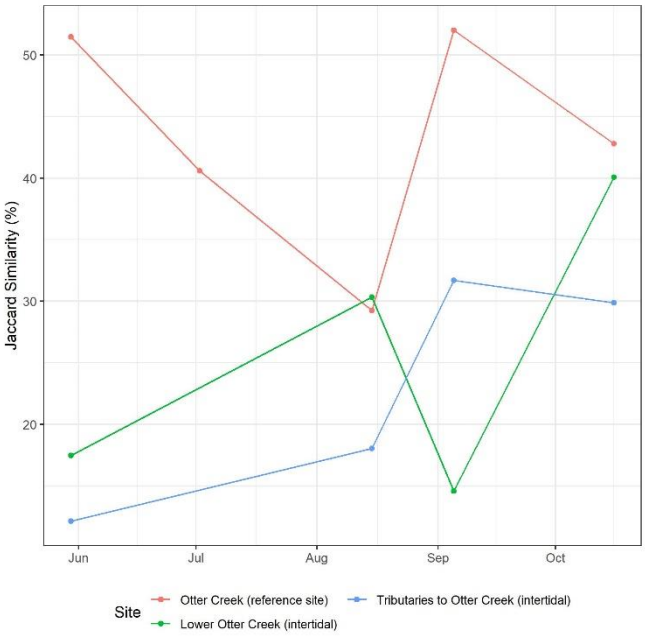

Figure 14. Jaccard Similarity (%) between drift invertebrates and prey organisms.

DISCUSSION

The diet of juvenile Coho in the three different reaches of Otter Creek varied based on the availability of the resources in these three systems. The reference stream reach we sampled was above tidal influence with a gravel/cobble streambed and a combination of riffles and shallow pools. Coho diets in the reference reach were mostly aquatic invertebrates (eg. Diptera, Trichoptera, Plecoptera) comprising over 78% of the prey organisms identified and a combined IRI of over 81%. Riparian grasses, shrubs (eg. alders and willows) and trees (eg. spruce and cottonwood) overhang the steam bed throughout the reach, providing both cover to Coho rearing in the stream and a source of food as terrestrial invertebrates fall into the stream. The largest terrestrial source of Coho diets came from Hymenoptera (primarily sawflies) which accounted for 10% of the prey organisms identified, and over 16% of the total prey biomass for this reach. Alder-eating sawflies are common defoliators in southcentral Alaska (Kruse et al. 2012) and appear to also be a significant portion of juvenile Coho diets in Otter Creek.

The Lower Otter Creek and tributary reaches are low gradient, tidally influenced and soft-bottomed, with deep low-gradient runs and pools. Overhanging vegetation from the deeply incised stream banks consists primarily of sedges and grasses. The prey field for Coho in these intertidal reaches includes organisms drifting down stream as well as organisms originating in the water and riparian vegetation of these reaches. In addition, organisms from the estuarine environment are transported into these reaches during high incoming tides, providing additional food resources for rearing Coho. This expanded prey pool results in a more even distribution of prey taxa groups at the lower Otter Creek site, with no one taxa group accounting for more than 20% of either the number of prey organisms or IRI in Coho diets (Table 2). One important prey taxon found in over a third of the Coho stomachs in the lower Otter Creek reach with an IRI of 16.6% is the benthic isopod *Gnorimosphaeroma sp.*, commonly found in intertidal zones throughout the Pacific Northwest coast (Thorp & Rogers 2010). Despite its prevalence in Coho diets, *Gnorimosphaeroma sp.* never appeared in the lower Otter Creek drift samples, possibly for two reasons; 1) drift nets deployed at this site never went all the way to the bottom of this deep reach and 2) drifting invertebrates were only collected while the tide was out. This might also explain the relatively low Jaccard similarity between invertebrates caught in the drift and found in Coho stomachs at the intertidal Otter Creek sites. In contrast, the Mysid *Neomysis sp.* was captured in the drift at the lower Otter Creek site in both August and October and in the NE intertidal tributary in October, but it did not show up in any of the Coho stomachs. This is another potential estuarine food resource that Coho smolt should be able to exploit, particularly as they get larger.

Juvenile Coho tended to be bigger in the intertidal reaches, with a higher proportion of them appearing to be smolt, based on their faded parr marks and silvery appearance (Weiss 2003). Other fish are important food resources for Coho smolt, especially as they move out into the estuary (Daly, et al. 2009, Keeley & Grant 2001). The spike in total prey biomass in September (Fig. 10) can be largely attributed to three Coho smolt (fork length 120-148mm) from the NE intertidal tributary that had a combined total of eight three-spine sticklebacks in their stomachs. Additional analysis of this dataset might reveal other dietary differences between Coho parr and smolt in Otter Creek.

There were noticeable differences in the two intertidal reaches, that are not born out in this report, since the two reaches were pooled for data analysis. The SW tributary was further upstream, with less intertidal influence than the NE tributary. This played an obvious role in prey field diversity, with only one Coho from the SW tributary having *Gnorimosphaeroma sp.* in its stomach (September), while

Gnorimosphaeroma sp. was a common prey item for Coho in the NE tributary August through October. The SW tributary was downstream from a small unnamed stream, which would have provided some stream rearing invertebrates to its prey field, while the NE tributary was downstream from a shallow wetland complex that would not have provided those same prey. Evidence for this can be found in the stream-rearing Simuliidae larvae which were found in abundance in Coho stomachs and drift samples from the reference reach, lower Otter Creek reach, and to a lesser extent the SW tributary, but not in the NE tributary.

Chironomids were the most abundant food source for Coho in all three stream reaches. They were found in over 63% of all stomachs and comprised more than 28% of all identified prey organisms. Yet, because of their diminutive size, they accounted for less than 2% of the total prey biomass. They were present in Coho diets in every month at every life stage (larva, pupa, adult). They were the most important taxa group (as indicated by IRI) in the reference reach and the intertidal tributaries, and second only to the broad non-Chironomidae aquatic Diptera group in the lower Otter Creek reach.

Nematoda, parasites commonly found in aquatic invertebrates, were not commonly found in Coho stomachs in this study. Nematodes were more commonly found in Otter Creek Coho stomachs in 2017 (Bogan et al. 2018) and seemed to be more abundant when stream temperature were higher. In 2018, we did not encounter nematodes in any of the Coho stomachs caught in the much cooler intertidal tributaries, yet most of the nematodes found were from Coho caught in May (5 from the reference site and 2 from the lower Otter Creek site) when water temperatures were well below their maxima (Fig. 5).

Results of this study also illustrate the well documented importance of terrestrial invertebrates to Coho diets in certain systems (Wipfli 1997, Rine et al. 2016). While prey of aquatic origin were generally more abundant in Coho diets in all three reaches, prey biomass of terrestrial origin was greater in the reference reach and in lower Otter Creek in July and August. August is the month that terrestrial Molluscs (slugs) appeared in Coho stomachs, which corresponded to when they were noticed in the riparian vegetation (personal observation). Slugs were found in over 10% of Coho stomachs at all three sites in August and September and accounted for over 35% of total prey biomass in the lower Otter Creek reach during those months, although they were never detected in the drift samples at any site.

CONCLUSION AND FUTURE RECOMMENDATIONS

This study provides a follow up investigation into the diets of juvenile Coho in Otter Creek on JBER, with a preliminary study of juvenile Coho diets in the Otter Creek estuary. Coho rearing in the Otter Creek estuary tended to be larger than those found in the reference reach, with a higher percentage of fish that had smolted. Coho in the estuary had access to food resources floating downstream, as evidenced by the large number of Simuliidae larvae found both in Coho stomachs and in the drift net samples from lower Otter Creek in July. They also had access to food resources originating in the intertidal reaches and associated riparian zone that would not be available to fish in the reference reach, as evidenced by the large number of the intertidal *Gnorimosphaeroma sp.* found in Coho stomachs in the lower Otter Creek reach, but not in the reference reach.

Patterns of fork length frequencies did not clearly tract the growth of different Cohorts throughout the summer. This may be partly due to sampling sizes, as we were not able to sample our target of 100 Coho at most of our sites and dates. It may also be complicated by Coho moving between the three reaches throughout the study.

Fork length frequencies demonstrated that juvenile Cohorts were increasing in size throughout the summer, while stomach content analysis demonstrated that Coho were preying on available taxa in the different systems. Additional analysis of this extensive dataset could include a look at other prey metrics including preferred prey size, the dietary differences between smolt and pre-smolt Coho, and bioenergetics modeling. Recommended future research on Coho diets include

1. investigating Coho diets as they relate to Coho movement throughout Otter Creek and the Otter Creek estuary;
2. investigating how long Coho smolt are staying in Otter Creek, with emphasis on assessing the importance of piscivory prior to out-migration;
3. using bioenergetics modeling to determine whether or not food supply is limiting Coho growth in Otter Creek.

Improvements on this study could be made by increasing the time and time of day drift nets are deployed in the streams to more accurately describe invertebrate drift composition and densities, and to deploy drift nets throughout the water column at the lower Otter Creek site, including collecting drifting invertebrates on an in-coming tide.

REFERENCES

Biro P.A., J.R. Post, and E.A. Parkinson. 2003. From individuals to populations: prey fish risk-taking mediatesd mortality in whole system experiments. *Ecology* 84:2419-2431.

Bogan, D., R. Shaftel, and D. Merrigan. 2018. Juvenile Salmonid Dietary Investigation for Three Streams on Joint Base Elmendorf-Richardson, Alaska. Alaska Center for Conservation Science, University of Alaska Anchorage.

Calliet, G., M. Love, and A. Ebeling. 1986. Fishes—a field and laboratory manual on their structure, identification and natural history. Waveland Press, Prospect Heights, Illinois.

Cole, F.R. 1969. The Flies of Western North America. University of California Press.

Collet, D.M. 2008. Insects of South-central Alaska. Kenai Watershed Forum.

Daly, E.A., R.D. Brodeur, and L.A. Weitkamp. 2009. Ontogenetic shifts in diets of juvenile and subadult Coho and Chinook salmon in coastal marine waters: Important for marine survival? *Transactions of the American Fisheries Society* 138:1420-1438.

Eidam, D.M., F.A. von Hippel, M.L. Carlson, D.R. Lassuy, J.A. Lopez. 2016. Trophic ecology of introduced populations of Alaska blackfish (*Dallia pectoralis*) in the Cook Inlet Basin, Alaska. *Environmental Biology of Fishes* 99:557-569.

Gerking, S.D. 1994. Feeding Ecology of Fish. Academic Press, San Diego, CA.

Giacomini H.C., B.J. Shuter, and N.P. Lester. 2013. Predator bioenergetics and prey size spectrum: do foraging costs determine fish production?. *Journal of Theoretical Biology* 67:100-110.

.

Keeley, E.R. and J.W.A. Grant. 2001. Prey size of salmonid fishes in streams, lakes, and oceans. *Canadian Journal of Fisheries and Aquatic Sciences* 58: 1122-1132.

Kennedy, B.P., K.H. Nislow, and C.L. Folt. 2008. Habitat-mediated foraging limitations drive survival bottlenecks for juvenile salmon. *Ecology* 89: 2529-2541.

Kruse, J., K. Zogas, N. Lisuzzo, and S. Swenson. 2012. Alder-feeding Sawflies of Alaska. US Forest Service, Alaska Region. Leaflet R10-TP-154.

Mauger, S., R. Shaftel, E.J. Trammell, M. Giest, and D. Bogan. 2014. Stream temperature data collection standards and protocol for Alaska: minimum standards to generate data useful for regional-scale analyses. Cook Inletkeeper, Homer, AK and Alaska Natural Heritage Program, UAA, Anchorage, AK. 53 pp.

Marshall, S.A. 2006. Insects: Their Natural History and Diversity. Firefly Books.

Merritt, R.W., Cummins, K.W. and M.B. Berg. 2008. An Introduction to the Aquatic Insects of North America, fourth ed. Kendall Hunt.

Oksanen, J., F.G. Blanchet, M. Friendly, R. Kindt, P. Legendre, D. McGlinn, P.R. Minchin, R.B. O'Hara, G.L. Simpson, P. Solymos, M. Henry, H. Stevens, E. Szoecs and H. Wagner. 2019. vegan: Community Ecology Package. R package version 2.5-4. https://CRAN.R-project.org/package=vegan.

R Core Team. 2019. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL https://www.R-project.org/.

Rine, K.M., M.S. Wipfli, E.R. Shoen, T.L. Nightengale, and C.A. Stricker. 2016. Trophic pathways supporting juvenile Chinook and Coho salmon in the glacial Susitna River, Alaska: patterns of freshwater, marine, and terrestrial food resource use across a seasonally dynamic habitat mosaic. *Canadian Journal of Fisheries and Aquatic Sciences* 73(11): 1626-1641.

Schoofs C. and K. Zonneville. 2016. Stream and lake habitat; benthic macroinvertebrate survey report, Joint Base Elmendorf-Richardson, Alaska, 2015. Center for Environmental Management of Military Lands, Colorado State University.

Sogard S.M. 1997. Size selective mortality in the juvenile stage of teleost fishes: a review. *Bulletin of Marine Science* 60: 1129-1157.

Stewart, K.W. and M.W. Oswood. 2006. The Stoneflies (Plecoptera) of Alaska and Western Canada. The Caddis Press.

Thorp, J.H. and A.P. Covich. 2010. Ecology and Classification of North American Freshwater Invertebrates, third ed. Elsevier.

Thorp, J.H. and D.C. Rogers. 2010. Field Guide to Freshwater Invertebrates of North America, first ed. Academic Press.

Weiss, E. 2003. Juvenile Salmonid and Small Fish Identification Aid. Alaska Department of Fish & Game, Habitat & Restoration Division. https://www.adfg.alaska.gov/static/home/library/pdfs/habitat/adfg_hr_id_cards_v1.1.pdf

Wickham, H. 2017. tidyverse: Easily Install and Load the 'Tidyverse'. R package version 1.2.1. https://CRAN.R-project.org/package=tidyverse.

Wiggins, G.B. 2000. Larvae of the North American Caddisfly Genera (Trichoptera), second ed. University of Toronto Press.

Wipfli, M.A. 1997. Terrestrial invertebrates as salmonid prey and nitrogen sources in streams: contrasting old-growth and young-growth riparian forests in southeastern Alaska, U.S.A. *Canadian Journal of Fisheries and Aquatic Sciences* 54(6): 1259-1269.

Appendix A. Prey Item Frequency	Otter Creek (reference)					Lower Otter Creek (intertidal)					Intertidal tributaries				
2018	31-May	3-Jul	16-Aug	6-Sep	17-Oct	30-May	2-Jul	15-Aug	5-Sep	16-Oct	1-Jun	3-Jul	16-Aug	5-Sep	16-Oct
# of Coho stomachs sampled	28	30	30	30	30	20	30	30	29	29	9	9	30	28	21
Empty stomachs	3			3	3	2	1		1	2	2			2	
Aquatic															
Aquatic Coleoptera						1									
Dytiscidae									1	1		1	7		1
Agabus sp.				1											
Ilybius sp.													1		
Helophoridae							1	1					2	1	
Hydrophilidae		2									2		2		
Scirtidae		1						1					4	1	
Staphylinidae*	2	1	6	2		3	1	4			3	1	2		4
Aquatic Hemiptera															
Corixidae															2
Gerridae					1								1		
Ephemeroptera							1								
Baetidae *Baetis sp.*	3	13	14		1								2	1	1
Odonata															
Aeshnidae *Aeshna sp.*														1	
Corduliidae/Libellulidae	1														
Plecoptera	3										1				
Nemouridae	3														
Zapada sp.		6	11	8	15		1	1	1	10		1	4		
Trichoptera	5	4	4				1	5	1	1		2	5	6	4
Glossosomatidae *Glossosoma sp.*				1											
Hydropsychidae *Hydropsyche sp.*	9	5	11	12	7	1							1		
Lepidostomatidae *Lepidostoma sp.*										1					
Leptoceridae *Ceraclea sp.*			1	1			2								
Limnephilidae					3	1			1	3	1				6
Onocosmoecus sp.					1										
Psychoglypha sp.					1								3	2	2
Aquatic Diptera															
Chironomidae	19	29	20	12	14	11	26	13	9	14	7	6	24	15	18
Ceratopogonidae	13	3	6	4	3	2	2			2	2	1	3	1	7
Canaceidae *Canaceoides sp.*			1					6					4		
Dixidae *Dixella sp.*													1		
Dolichopodidae	2			1			2	2				2	2		2
Empididae	1	8	3				2	2				1			
Chelifera/Metachela sp.		1	1												
Hemerodromia sp.										1					
Neoplasta sp.	2			1						1					
Psychodidae *Pericoma/Telmatoscopus sp.*				2	1										
Sciomyzidae								16	6	7			8		2
Simuliidae	20	18	25	5	3		19	2			1	2	2	1	1
Syrphidae								5		2			6		2
Tipulidae	2	1	2	3	2		3	3			3		2	1	1
Dicranota sp.	10	3	14	7	1								1		
Molophilus sp.				1											
Pedicia sp.								1					1		
Prionocera sp.													6		
Tipula sp.				2											2
Acari															
Sarcoptiformes		1		1			1					1			
Trombidiformes		1	1				1								
Hygrobates sp.										1					1
Lebertia sp.							1								2
Amphipoda				1											
Gammaridae *Gammarus sp.*					1	1		2	1	11			2		2
Hyalellidae *Hyalella sp.*															2
Aquatic Collembola															
Poduridae				1				2							
Sminthuridae		2	2	1	5			16	6	1	2	7	9	7	2
Aquatic Gastropoda		1													
Lymnaeidae			1					3	1		1		5		
Planorbidae			1												1
Valvatidae *Valvata sp.*				3											
Isopoda															
Sphaeromatidae *Gnorimosphaeroma sp.*				1		9	14	4	17	4			5	8	4
Bivalvia Psidiidae								2					3	1	
Cladocera			1		1								2		
Ostracoda		2		1			1						1		
Hirudinida						1									
Erpobdellidae							1								
Glossiphoniidae *Helobdella stagnalis*								1		1			2		1
Pisces									1	1	1		2		
Gasterosteus aculeatus					1									3	
Oncorhynchus sp. (eggs)	3			4									1		
Terrestrial															
Coleoptera	2		1	6		3	2	7	1	1	1	1	3	3	2
Cantharidae		1					1								
Carabidae		1		1		7	1	7		8	2	4	5	3	6
Chrysomelidae						1								1	
Coccinellidae						1	1							1	
Curculionidae											1				
Heteroceridae						1	7	4					2		
Nitidulidae			1											1	
Terrestrial Diptera															
Brachycera	4	7	7	2	3	1	9	21	4	1	1	6	9	4	6
Nematocera	1	5	3	1			4					1	4	1	
Cecidomyiidae		4	2												
Mycetophilidae			2		3					1					
Sciaridae		2	1				3	2				2			
Terrestrial Hemiptera															
Auchenorryncha		1					2	4					9	1	
Cercopidae								2		1					2
Cicadellidae		1	1		3		1	21	1	1		3	8	4	3
Delphacidae			1				1	13	5					9	5
Heteroptera	1					1		2					1		
Acanthosomatidae					1										1
Miridae													5		
Saldidae				4				2					1		
Sternorrhyncha		2	2				1				1	1			
Aphididae	3	7	2	3	1	1	10	16	2	1		3	4	1	1
Hymenoptera		1		5	1		2					1	2		
Apocrita		4	1	1			3				2	4	3	3	2
Formicidae							3	2	1						
Symphyta		21	17				14					1			
Thysanoptera															1
Lepidoptera	1	1	1	1	1		1							1	
Psocoptera		1													
Terrestrial Collembola	2		1		3		5	7	3	2	5	3	3	1	3
Araneae	6	7	6	5	5	4	7	12		4	4	1	10	6	6
Acari			3		3			3					2		1
Parasitiformes			2					3	1					2	
Terrestrial Gastropoda			3	7				13	7				3	3	1
Uncertain origin															
Nematoda	4	1	2			2		1							
Oligochaeta	3	1	2	2	11							2	5		
Plant material	3	2	5	19	3	1	1	2	2		4		3	8	9
Seeds			1						1						

* Some may be terrestrial in origin

Appendix B. Invert drift densities (org/100m^3)	Otter Creek (reference)					Lower Otter Creek (intertidal)					Intertidal tributaries					
2018	31-May	3-Jul	16-Aug	6-Sep	17-Oct	31-May	2-Jul	15-Aug	5-Sep	16-Oct	1-Jun (SW)	16-Aug(SW)	5-Sep (NE)	6-Sep (SW)	16-Oct(SW)	16-Oct (NE)
Aquatic																
Aquatic Coleoptera																
Dytiscidae																
Agabus sp.	0.5															
Haliplidae *Haliplus sp.*	1.5															
Staphylinidae*	0.5	5.1									1.9				1.8	
Ephemeroptera																
Baetidae *Baetis sp.*		28.0	8.4	5.8	26.1										1.8	
Odonata																
Libellulidae *Leucorrhinia sp.*															1.8	
Plecoptera																
Nemouridae	7.0															
Zapada sp.		86.6	42.2	325.2	156.6			11.8				4.6				
Trichoptera						1.8										
Brachycentridae *Brachycentrus sp.*			2.1													
Hydropsychidae *Hydropsyche sp.*	0.5	10.2	14.8	34.8	7.8			2.9								
Hydroptilidae *Agraylea sp.*												10.8				
Leptoceridae *Ceraclea sp.*	1.0	2.5	8.3													
Limnephilidae	38.1		4.2	180.0	18.3					1.9	1.9		3.0	8.8	16.0	
Onocosmoecus sp.	0.5				5.2					5.8					3.6	
Limnephilus sp.					2.6										3.6	
Psychoglypha sp.																
Aquatic Diptera																
Chironomidae	152.8	305.8	358.9	830.3	250.6	9.1	**	385.5	7.0	69.4	52.6	180.6	43.9	28.6	17.8	279.5
Ceratopogonidae	1.0		2.1					2.9			9.7	3.1	1.5			1.6
Dixidae *Dixella sp.*								5.9						2.2		
Empididae																
Neoplasta sp.	0.5		2.1													
Psychodidae *Pericoma/Telmatoscopus sp.*	1.0	2.5		23.2		1.8										
Sciomyzidae			2.1					5.9		1.9		1.5	1.5			4.7
Simuliidae	59.1	321.0	84.4	499.3	295.0		**	29.4				6.2	3.0	39.6	12.5	9.3
Stratiomyidae												1.5				
Syrphidae								2.9								
Tipulidae									3.5							
Dicranota sp.	1.0		2.1	7.4	5.2											
Tipula sp.																
Acari																
Sarcoptiformes	5.5	7.6	17.0	5.8		5.4		20.6	3.5			9.3		4.4		4.7
Trombidiformes		2.5	2.1					5.9	7.0			12.3	1.5			6.2
Arrenurus sp.	2.0															
Hygrobates sp.					2.6					3.9		4.6				
Lebertia sp.					5.2											
Limnesia sp.											11.7					
Oxidae											1.9					
Sperchon sp.	0.5	2.5		5.8								7.7		2.2		1.6
Amphipoda																
Gammaridae *Gammarus sp.*										1.9						1.6
Hyalellidae *Hyalella sp.*											5.8					
Mysida																
Mysidae *Neomysis sp.*								2.9		7.7						3.1
Aquatic Collembola																
Poduridae	0.5	2.5	2.1		2.6			158.9	3.5			6.2				
Sminthuridae	1.5	2.5						44.1				3.1				1.6
Aquatic Gastropoda																
Lymnaeidae								5.9				3.1				
Planorbidae				5.8							1.9					1.6
Valvatidae *Valvata sp.*																1.6
Isopoda																
Sphaeromatidae *Gnorimosphaeroma sp.*							**						3.0			1.6
Bivalvia Pisidiidae	1.5			23.2	5.2						11.7					4.7
Cladocera											1.9					
Ostracoda	1.5					18.2					218.3					
Hirudinida																
Erpobdellidae																1.6
Glossiphoniidae *Helobdella stagnalis*											1.9					
Terrestrial														4.4		
Coleoptera		2.5				1.8						1.5				
Cryptophagidae		2.5														
Trogossitidae					2.6											
Ptiliidae		2.5	2.1													
Terrestrial Diptera																
Brachycera			2.1					2.9				1.5				1.6
Nematocera																
Cecidomyiidae		5.1												2.2		
Mycetophilidae		2.5														
Sciaridae		2.5						2.9								
Terrestrial Hemiptera											3.9					
Auchenorrhyncha																
Cicadellidae												7.7				
Delphacidae												3.1		2.2		
Heteroptera											1.9					
Sternorrhyncha																
Aphididae		10.2	4.2	5.8				123.6			1.9	15.4				1.6
Hymenoptera				5.8	7.8											
Apocrita				11.6						1.9		13.9		8.8		4.7
Formicidae	0.5															
Symphyta		2.5	2.1													
Thysanoptera	0.5	2.5										1.5				1.6
Lepidoptera			2.1													
Terrestrial Collembola			4.2	5.8	2.6			85.3		7.7	13.6	21.6	1.5			1.6
Araneae					5.2			2.9				3.1		2.2	1.8	3.1
Acari	3.5	2.5	4.2	11.6				14.7		1.9	19.5	3.1		2.2		1.6
Parasitiformes													1.5			
Uncertain origin																
Nematoda						1.8										1.6
Oligochaeta	6.0	2.5	52.8	40.6	28.7					9.6	1.9	1.5		6.6	12.5	139.7

Appendix C. Minnow Trap Deployment Datasheet

Minnow Trap Data				Site:_____				Date:_____				
Trap #	Time IN	Time OUT	# Coho caught	Time IN	Time OUT	# Coho caught	Time IN	Time OUT	# Coho caught	Time IN	Time OUT	# Coho caught
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												

Appendix D. Fish Resource Permit Report to Alaska Department of Fish and Game

Fish Resource Permit report of collection activities — Data Submission Form (dsf).

As required by Stipulation #2 of your Fish Resource Permit, this data submission form should be filled out as completely as possible and returned to the Permit Coordinator (dfg.dsf.permitcoordinator@alaska.gov) within 30 days of permit expiration. **Include data for ALL fish captured or handled under your permit,** including incidentally caught or non-target species.

ADF&G Fish Resource Permit #: SF201X-XXX (FILL IN)

The area biologist was contacted on: TIME/DATE (FILL IN)

**Click on cell headers (rows 6/7) for description of data to be entered. **Choose from cell drop downs where present. **Scroll right to see all data columns. **See Instructions worksheet and Cell Drop Down List worksheet for further details.

Location ID (optional)	Latitude (decimal degrees)	Longitude (decimal degrees)	Datum	Coordinate determination method	Name of water body	Date	Observer name (the first and last name of the person handling fish)	Fish collection method	Species	Life stage	If in only if data was collected, otherwise leave blan Length (mm) (NO estimates or ranges)	Length method	Weight (g)	Sex	Additional count (1)	Disposition (1)
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	5/30/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	122	Fork	18.1	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	5/30/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	129	Fork	20.8	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	5/30/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	97	Fork	8.9	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	5/30/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	148	Fork	33.8	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	5/30/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	148	Fork	34.3	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	5/30/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	129	Fork	21	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	5/30/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	126	Fork	19.4	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	5/30/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	99	Fork	9.4	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	5/30/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	132	Fork	22.5	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	5/30/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	125	Fork	17.2	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	5/30/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	148	Fork	29.8	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	5/30/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	102	Fork	9.9	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	5/30/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	130	Fork	20.2	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	5/30/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	106	Fork	10.6	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	5/30/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	133	Fork	20.4	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	5/30/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	131	Fork	19.9	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	5/30/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	124	Fork	17.6	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	5/30/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	147	Fork	32.3	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	5/30/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	108	Fork	14	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	5/30/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	130	Fork	22.5	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	5/30/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	155	Fork	34	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	64	Fork	2.9	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	69	Fork	3.4	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	66	Fork	3.1	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	120	Fork	18.5	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	74	Fork	6.2	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	73	Fork	4.4	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	123	Fork	18.3	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	97	Fork	10	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	84	Fork	6.8	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	85	Fork	6.5	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	103	Fork	11.4	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	96	Fork	13.5	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	68	Fork	3.8	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	114	Fork	13.1	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	117	Fork	15.6	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	61	Fork	2.5	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	121	Fork	22.3	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	78	Fork	5.3	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	123	Fork	18.7	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	98	Fork	11	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	127	Fork	20.2	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	76	Fork	5.3	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	128	Fork	15.6	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	73	Fork	4.3	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	103	Fork	13.8	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	66	Fork	3.2	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	73	Fork	5.6	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	73	Fork	4.1	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	67	Fork	2.9	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	64	Fork	2.8	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	50	Fork	1.4	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	49	Fork	1.3	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	114	Fork	18.1	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	125	Fork	22.3	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	83	Fork	6.3	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	84	Fork	6.9	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	108	Fork	14.3	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	87	Fork	6.4	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	85	Fork	6.5	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	138	Fork	31.4	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	57	Fork	2.1	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	79	Fork	5.7	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	99	Fork	11.9	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	91	Fork	9.8	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	11	Fork	15.3	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	106	Fork	14.3	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	107	Fork	14.3	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	76	Fork	5.3	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	128	Fork	25.8	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	67	Fork	3.8	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	116	Fork	18.6	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	86	Fork	7.1	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	135	Fork	30.6	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	93	Fork	9.6	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	93	Fork	9.3	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	137	Fork	29.7	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	95	Fork	9	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	103	Fork	11.9	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	99	Fork	11.9	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	90	Fork	8.6	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	115	Fork	19.7	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	84	Fork	7.2	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	55	Fork	1.5	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	54	Fork	1.6	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	96	Fork	9.9	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	68	Fork	3.4	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	133	Fork	26.7	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	116	Fork	13.4	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	105	Fork	13.2	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	100	Fork	12	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	70	Fork	4.2	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	82	Fork	6.4	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	84	Fork	7	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	102	Fork	10.9	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	133	Fork	24.1	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	102	Fork	11.4	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	127	Fork	25.1	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	59	Fork	2.1	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	117	Fork	18.6	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	69	Fork	3.6	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	110	Fork	13.5	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	114	Fork	16.9	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	94	Fork	8.7	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	95	Fork	9.3	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	86	Fork	5.9	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	64	Fork	2.8	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	121	Fork	22.1	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	126	Fork	23.4	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	113	Fork	16.5	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	114	Fork	17.1	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	149	Fork	42.1	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	100	Fork	10.6	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	62	Fork	2.5	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	131	Fork	26.6	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	85	Fork	7.3	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	123	Fork	22.1	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	59	Fork	2.3	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	100	Fork	11.5	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	91	Fork	7.3	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	84	Fork	6.2	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	107	Fork	14.7	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	65	Fork	2.8	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	128	Fork	27.6	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	105	Fork	12.6	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	93	Fork	7.8	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	128	Fork	24.1	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	118	Fork	17.3	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	90	Fork	6	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	79	Fork	5.5	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	67	Fork	3.1	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	121	Fork	21.1	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	143	Fork	35.8	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	54	Fork	1.6	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	105	Fork	14.3	Unknown		Measured and Released

LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	62	Fork	2.6	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	89	Fork	7	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	105	Fork	12	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	98	Fork	9.4	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	97	Fork	10.9	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	69	Fork	3.6	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	110	Fork	16	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	84	Fork	6.3	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	125	Fork	24.2	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	86	Fork	6.4	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	104	Fork	11.5	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	80	Fork	5.1	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	55	Fork	1.6	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	99	Fork	14.3	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	111	Fork	15.3	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	57	Fork	1.8	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	60	Fork	2.4	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	75	Fork	4.4	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	99	Fork	14.2	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	86	Fork	5.9	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	64	Fork	2.6	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	87	Fork	6.7	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	78	Fork	4.9	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	106	Fork	19.8	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	104	Fork	15.1	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	92	Fork	7.6	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	103	Fork	17.9	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	71	Fork	3.9	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	70	Fork	3.3	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	118	Fork	19	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	98	Fork	11.2	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	70	Fork	2.8	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	95	Fork	9.3	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	88	Fork	6.2	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	94	Fork	9	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	70	Fork	3.6	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	95	Fork	9.1	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	69	Fork	3.5	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	105	Fork	11	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	65	Fork	2.8	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	113	Fork	16.8	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	60	Fork	2.3	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	115	Fork	15.1	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	76	Fork	4.2	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	91	Fork	8.8	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	116	Fork	13.4	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	102	Fork	11.9	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	114	Fork	16.9	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	90	Fork	7.7	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	96	Fork	9.6	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	106	Fork	14.5	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	102	Fork	18	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	89	Fork	6.9	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	76	Fork	4.7	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	96	Fork	12.9	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	125	Fork	20.4	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	98	Fork	11	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	104	Fork	16.9	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	114	Fork	16.6	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	76	Fork	5.1	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	120	Fork	20.2	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	74	Fork	4.8	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	97	Fork	10.6	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	103	Fork	13.1	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	115	Fork	17.8	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	92	Fork	8.2	Unknown		Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	125	Fork	20.1	Unknown	5	Measured and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	90	Fork	6.7	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	78	Fork	5.2	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	85	Fork	6.2	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	86	Fork	6.6	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	83	Fork	6.4	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	68	Fork	3.2	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	99	Fork	9.6	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	75	Fork	4.9	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	84	Fork	6.8	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	84	Fork	6	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	78	Fork	5.5	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	100	Fork	10.3	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	93	Fork	8.6	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	90	Fork	7.3	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	101	Fork	9.9	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	68	Fork	3.3	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	108	Fork	13.5	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	112	Fork	14.1	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	77	Fork	4.7	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	87	Fork	7.1	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	71	Fork	3.5	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	82	Fork	6	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	90	Fork	6.6	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	73	Fork	3.9	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	84	Fork	6.6	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	110	Fork	15	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	63	Fork	2.6	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	80	Fork	5.3	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	105	Fork	11.8	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	91	Fork	7.6	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	65	Fork	3.3	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	66	Fork	3.9	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	83	Fork	6.7	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	113	Fork	14.1	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	64	Fork	3.1	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	126	Fork	18.3	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	121	Fork	16.3	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	62	Fork	2.3	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	114	Fork	12.5	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	62	Fork	1.4	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	142	Fork	26.7	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	75	Fork	3.3	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	100	Fork	10.1	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	66	Fork	2.7	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	57	Fork	1.8	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	96	Fork	8.8	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	66	Fork	2.6	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	94	Fork	8.7	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	149	Fork	32.9	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	72	Fork	3.6	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	62	Fork	2.3	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	83	Fork	4.8	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	96	Fork	9.5	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	129	Fork	19.2	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	64	Fork	2.5	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	100	Fork	10.6	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	77	Fork	4.8	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	92	Fork	8.2	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	50	Fork	1.4	Unknown		Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	80	Fork	6.1	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	92	Fork	7	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	88	Fork	5.8	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	103	Fork	11.7	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	60	Fork	2.7	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	66	Fork	2.9	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	65	Fork	3.2	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	70	Fork	4.1	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	117	Fork	15.1	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	78	Fork	4.9	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	56	Fork	1.8	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	83	Fork	6.7	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	72	Fork	4	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	74	Fork	3.7	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	88	Fork	6.2	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	63	Fork	2.8	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	86	Fork	6.6	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	75	Fork	4.2	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	89	Fork	7.6	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	68	Fork	3.5	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	60	Fork	2.3	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	71	Fork	3.1	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	87	Fork	6.3	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	113	Fork	12.4	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	69	Fork	3.8	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	65	Fork	2.7	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	70	Fork	3.8	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	57	Fork	2	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	73	Fork	4.3	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	63	Fork	2.7	Unknown		Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	54	Fork	2	Unknown		Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	54	Fork	1.7	Unknown		Measured and Released

OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	55	Fork	1.9	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	46	Fork	1.1	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	53	Fork	1.7	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	43	Fork	0.8	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	49	Fork	1	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	55	Fork	2	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	51	Fork	1.2	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	48	Fork	0.9	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	59	Fork	1.7	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	68	Fork	7.4	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	66	Fork	2.9	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	51	Fork	1.2	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	51	Fork	0.6	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	51	Fork	1	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	52	Fork	1.7	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	79	Fork	3.8	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	78	Fork	4.1	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	87	Fork	7.9	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	63	Fork	3.2	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	72	Fork	4.5	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	89	Fork	8.3	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	79	Fork	5.8	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	68	Fork	3.9	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	95	Fork	10.1	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	88	Fork	8.3	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	93	Fork	8.5	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	101	Fork	12.8	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	85	Fork	7	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	72	Fork	4.4	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	81	Fork	7.1	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	84	Fork	5.9	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	99	Fork	12.3	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	76	Fork	5.3	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	73	Fork	4.7	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	59	Fork	2.6	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	94	Fork	8.9	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	78	Fork	6.1	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	74	Fork	5.2	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	84	Fork	7	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	123	Fork	15.6	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	78	Fork	5.7	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	64	Fork	3.7	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	82	Fork	5.9	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	80	Fork	6.8	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	65	Fork	3.7	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	76	Fork	5.4	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	74	Fork	4.9	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	55	Fork	2.4	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	45	Fork	0.9	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	51	Fork	1.9	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	56	Fork	3.1	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	75	Fork	4.3	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	90	Fork	8	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	87	Fork	5.4	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	87	Fork	6.7	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	52	Fork	1.9	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	90	Fork	5.6	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	65	Fork	3.2	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	70	Fork	3.7	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	87	Fork	7.4	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	108	Fork	14.2	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	82	Fork	6.4	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	81	Fork	6.2	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	93	Fork	8.2	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	86	Fork	7.5	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	65	Fork	3.2	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	54	Fork	1.8	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	67	Fork	3.9	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	76	Fork	5	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	60	Fork	2.4	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	94	Fork	8.7	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	64	Fork	3.2	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	65	Fork	3.1	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	65	Fork	3.1	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	78	Fork	5.7	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	81	Fork	6.3	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	75	Fork	4	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	82	Fork	6.7	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	69	Fork	4.2	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	65	Fork	3.2	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	68	Fork	3.7	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	69	Fork	3.7	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	57	Fork	2.3	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	86	Fork	7.1	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	94	Fork	8	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	57	Fork	2.1	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	62	Fork	2.6	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	64	Fork	2.6	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	60	Fork	2.2	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	77	Fork	5.4	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	105	Fork	12	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	95	Fork	9.2	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	104	Fork	12.7	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	103	Fork	11.1	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	75	Fork	4	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	116	Fork	16.6	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	105	Fork	12.5	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	102	Fork	11.2	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	81	Fork	6.2	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	77	Fork	5.9	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	115	Fork	16.5	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	96	Fork	10.5	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	85	Fork	5.9	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	57	Fork	1.7	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	75	Fork	4.5	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	95	Fork	7.8	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	89	Fork	7.3	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	64	Fork	2.5	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	85	Fork	7	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	93	Fork	7.9	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	72	Fork	4.1	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	52	Fork	1.4	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	53	Fork	1.4	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	77	Fork	5.4	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	52	Fork	1.4	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	61	Fork	2.4	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	80	Fork	5.5	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	63	Fork	2.5	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	54	Fork	1.4	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	89	Fork	6.4	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	96	Fork	8.9	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	90	Fork	7.6	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	81	Fork	5.1	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	64	Fork	2.9	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	63	Fork	2.7	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	79	Fork	4.8	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	62	Fork	2.3	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	100	Fork	10.5	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	79	Fork	5.3	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	67	Fork	3.8	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	85	Fork	6	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	66	Fork	3.1	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	57	Fork	2	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	58	Fork	1.9	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	66	Fork	3.2	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	82	Fork	5.6	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	87	Fork	6.4	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	66	Fork	2.8	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	64	Fork	2.7	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	75	Fork	3.9	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	82	Fork	4.8	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	89	Fork	7.3	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	74	Fork	3.5	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	75	Fork	4.6	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	73	Fork	3.6	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	78	Fork	4.8	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	70	Fork	4	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	94	Fork	8.5	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	61	Fork	2.5	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	74	Fork	4.2	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	9/6/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	69	Fork	3.4	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	91	Fork	8.1	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	60	Fork	2.8	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	68	Fork	3.3	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	70	Fork	3.4	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	84	Fork	5.6	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	62	Fork	2.7	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	89	Fork	7.2	Unknown	Gastric Lavage

OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	59	Fork	2.3	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	59	Fork	1.9	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	111	Fork	14.2	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	80	Fork	5.2	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	75	Fork	4.6	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	59	Fork	2.2	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	80	Fork	4.9	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	119	Fork	16.8	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	75	Fork	4.4	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	109	Fork	14	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	128	Fork	24.2	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	102	Fork	9.9	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	85	Fork	6	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	67	Fork	3	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	72	Fork	3.9	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	123	Fork	18.3	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	88	Fork	6.8	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	92	Fork	7.7	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	69	Fork	3.5	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	75	Fork	4.6	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	80	Fork	5.6	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	75	Fork	4.8	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	72	Fork	3.5	Unknown	Gastric Lavage
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	62	Fork	2.4	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	53	Fork	1.6	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	47	Fork	1.1	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	56	Fork	1.8	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	65	Fork	2.7	Unknown	Measured and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	55	Fork	1.6	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	6/1/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	130	Fork	20.7	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	6/1/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	105	Fork	9.3	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	8/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	102	Fork	12.1	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	8/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	95	Fork	10.1	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	8/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	110	Fork	15.9	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	8/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	93	Fork	9.8	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	8/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	134	Fork	28.4	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	8/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	103	Fork	13.1	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	8/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	108	Fork	14.7	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	8/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	104	Fork	13.5	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	8/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	68	Fork	5	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	8/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	86	Fork	6.2	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	8/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	105	Fork	12.9	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	8/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	67	Fork	4.3	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	8/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	97	Fork	11.7	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	8/17/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	66	Fork	2.9	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	8/17/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	135	Fork	28.7	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	8/17/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	95	Fork	10.5	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	8/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	103	Fork	12.7	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	8/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	80	Fork	4.7	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	8/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	97	Fork	10	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	8/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	100	Fork	10.8	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	8/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	92	Fork	8.7	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	121	Fork	19.8	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	75	Fork	4	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	119	Fork	18.9	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	115	Fork	15.6	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	116	Fork	17.5	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	148	Fork	39.9	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	120	Fork	19.4	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	87	Fork	6.5	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	66	Fork	2.9	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	67	Fork	2.7	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	100	Fork	11.3	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	148	Fork	39.1	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	104	Fork	10.4	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	82	Fork	5.7	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	119	Fork	18.1	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	110	Fork	13.3	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	51	Fork	1.2	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	90	Fork	7.2	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	102	Fork	11.4	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	134	Fork	27	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	100	Fork	10.8	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	65	Fork	2.7	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	93	Fork	9	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	108	Fork	14.5	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	117	Fork	17	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	102	Fork	11.4	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	101	Fork	10.9	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	114	Fork	17.8	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	83	Fork	6.3	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	76	Fork	5.5	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	106	Fork	12.9	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	88	Fork	8.3	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	119	Fork	17.8	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	91	Fork	8.1	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	105	Fork	12.1	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	121	Fork	19.6	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	115	Fork	16.4	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	110	Fork	15.2	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	106	Fork	14	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	113	Fork	16	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	100	Fork	11	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	95	Fork	9.3	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	90	Fork	8.1	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	106	Fork	18.4	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	112	Fork	17.2	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	68	Fork	2.9	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	72	Fork	3.8	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	99	Fork	12.5	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	94	Fork	9.2	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	106	Fork	13.4	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	96	Fork	9.6	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	99	Fork	8.7	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	112	Fork	14	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	96	Fork	12.2	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	100	Fork	10.6	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	126	Fork	24.8	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	90	Fork	7.2	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	115	Fork	19.4	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	116	Fork	19.2	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	82	Fork	6.1	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	92	Fork	8.8	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	98	Fork	11.8	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	99	Fork	11.4	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	101	Fork	11.9	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	105	Fork	12.1	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	138	Fork	29.4	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	100	Fork	10.6	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	111	Fork	16.5	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	125	Fork	22.6	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	85	Fork	6.5	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	108	Fork	14.1	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	130	Fork	24.3	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	66	Fork	3	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	104	Fork	10.8	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	80	Fork	5.8	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	79	Fork	5.1	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	117	Fork	17.4	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	90	Fork	7.5	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	100	Fork	10.8	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	85	Fork	5.8	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	100	Fork	9	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	106	Fork	13.8	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	119	Fork	19.4	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	105	Fork	13	Unknown	Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	109	Fork	12.3	Unknown	10 Measured and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	75	Fork	4.5	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	106	Fork	12.6	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	91	Fork	7.5	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	74	Fork	4.2	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	75	Fork	4.4	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	108	Fork	10.8	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	92	Fork	8.1	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	73	Fork	3.3	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	76	Fork	4.5	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	113	Fork	15.7	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	115	Fork	15.3	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	87	Fork	6.2	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	104	Fork	10.8	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	114	Fork	15.4	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	76	Fork	4.2	Unknown	Gastric Lavage
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	114	Fork	15.2	Unknown	Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	6/1/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	79	Fork	6.1	Unknown	Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	6/1/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	80	Fork	5.7	Unknown	Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	6/1/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	115	Fork	16	Unknown	Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	6/1/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	100	Fork	10.8	Unknown	Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	6/1/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	113	Fork	15.7	Unknown	Gastric Lavage

TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	6/1/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	93	Fork	8.3	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	6/1/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	100	Fork	11.2	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	81	Fork	4.8	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	83	Fork	6.4	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	94	Fork	8.6	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	66	Fork	3	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	82	Fork	5.9	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	69	Fork	3.6	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	67	Fork	3.1	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	83	Fork	5.5	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	57	Fork	2	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	100	Fork	11.6	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	98	Fork	11.9	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	98	Fork	10.2	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	98	Fork	9.6	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	116	Fork	16.8	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	125	Fork	23.4	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	130	Fork	27.4	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	86	Fork	7.4	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	82	Fork	5.8	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	115	Fork	14.4	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	103	Fork	12.9	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	99	Fork	11.9	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	128	Fork	24.4	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	97	Fork	10.2	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	76	Fork	5.3	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	92	Fork	7.9	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	74	Fork	4.3	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	74	Fork	3.8	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	86	Fork	5.7	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	100	Fork	11.5	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	111	Fork	15.2	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	66	Fork	3	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	104	Fork	11.4	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	67	Fork	2.6	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	63	Fork	2.6	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	86	Fork	6.8	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	91	Fork	7.9	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	53	Fork	2	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	87	Fork	6.6	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	77	Fork	4.4	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	smolt	88	Fork	6.7	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	59	Fork	1.8	Unknown		Gastric Lavage
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	coho salmon	juvenile	75	Fork	4.3	Unknown		Gastric Lavage
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	7/2/2018	Dan Bogan	Minnow Trap	stickleback-unspecified	adult					72	ID'ed and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	Chinook salmon	juvenile					1	ID'ed and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	stickleback-unspecified	adult					1	ID'ed and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	slimy sculpin	adult					1	ID'ed and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	8/15/2018	Dan Bogan	Minnow Trap	Dolly Varden	juvenile					2	ID'ed and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	stickleback-unspecified	adult					24	ID'ed and Released
LOC	61.302469	-149.705578	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	Dolly Varden	juvenile					1	ID'ed and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	stickleback-unspecified	adult					276	ID'ed and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	5/31/2018	Dan Bogan	Minnow Trap	Dolly Varden	juvenile					3	ID'ed and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	stickleback-unspecified	adult					22	ID'ed and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	stickleback-unspecified	adult					22	ID'ed and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	8/16/2018	Dan Bogan	Minnow Trap	Dolly Varden	juvenile					1	ID'ed and Released
OC	61.299316	-149.716254	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	stickleback-unspecified	adult					28	ID'ed and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	6/1/2018	Dan Bogan	Minnow Trap	stickleback-unspecified	adult					338	ID'ed and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	6/1/2018	Dan Bogan	Minnow Trap	Chinook salmon	juvenile					2	ID'ed and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	Dolly Varden	juvenile					1	ID'ed and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	8/17/2018	Dan Bogan	Minnow Trap	Dolly Varden	juvenile					1	ID'ed and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	stickleback-unspecified	adult					2	ID'ed and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	slimy sculpin	adult					1	ID'ed and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	Dolly Varden	juvenile					5	ID'ed and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	Chinook salmon	juvenile					3	ID'ed and Released
TOC N	61.298476	-149.707589	WGS84	GPS	Otter Creek	10/16/2018	Dan Bogan	Minnow Trap	stickleback-unspecified	adult					18	ID'ed and Released
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	6/1/2018	Dan Bogan	Minnow Trap	stickleback-unspecified	adult					302	ID'ed and Released
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	7/3/2018	Dan Bogan	Minnow Trap	slimy sculpin	adult					1	ID'ed and Released
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	9/5/2018	Dan Bogan	Minnow Trap	stickleback-unspecified	adult					34	ID'ed and Released
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	stickleback-unspecified	adult					158	ID'ed and Released
TOC S	61.298057	-149.711895	WGS84	GPS	Otter Creek	10/17/2018	Dan Bogan	Minnow Trap	Chinook salmon	juvenile					2	ID'ed and Released