Summary of the West Coast Vancouver Island Synoptic Bottom Trawl Survey, May 18 - June 14, 2018

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ABSTRACT

Williams, D.C., Olsen, N., and Wyeth, M.R. 2020. Summary of the West Coast Vancouver Island synoptic bottom trawl survey, May 18 - June 14, 2018. Can. Manuscr. Rep. Fish. Aquat. Sci. 3195: viii + 60 p.

A bottom trawl survey off the west coast of Vancouver Island was conducted on the FV Nordic Pearl between May 18 and June 14, 2018. The West Coast Vancouver Island synoptic bottom trawl survey was first conducted in 2004, and has been repeated every second year since that time. This survey is one of a set of long-term and coordinated surveys that together cover the continental shelf and upper slope of most of the British Columbia coast. The objectives of these surveys are to provide fishery-independent abundance indices of all demersal fish species available to bottom trawling and to collect biological samples of selected species.

The survey follows a random depth-stratified design and the sampling units are 2 km by 2 km blocks. One hundred and ninety (84.1%) of the 226 blocks assessed in 2018 were successfully fished. The mean catch per tow was 768 kg with an average of 26 species per tow. The most abundant fish species encountered by weight was North Pacific Spiny Dogfish (*Squalus suckleyi*) followed by Sharpchin Rockfish (*Sebastes zacentrus*), Sablefish (*Anoplopoma fimbria*), Splitnose Rockfish (*Sebastes diploproa*), and Canary Rockfish (*Sebastes pinniger*). Biological data including individual length, weight, sex, maturity, and ageing structures were collected from 50 different species of fish. Oceanographic data, including water temperature, depth, salinity, and dissolved oxygen were also recorded for most tows.

RÉSUMÉ

Williams, D.C., Olsen, N., and Wyeth, M.R. 2020. Summary of the West Coast Vancouver Island synoptic bottom trawl survey, May 18 - June 14, 2018. Can. Manuscr. Rep. Fish. Aquat. Sci. 3195: viii + 60 p.

Un relevé au chalut de fond de la côte ouest de l'île de Vancouver a été effectué par le navire de pêche Nordic Pearl entre le 18 mai et le 14 juin 2018. Le premier relevé synoptique au chalut de fond de la côte ouest de l'île de Vancouver a été réalisé en 2004, puis on a répété l'opération tous les deux ans depuis. Le relevé de la côte ouest de l'île de Vancouver fait partie d'un ensemble de relevés à long terme coordonnés qui couvre le plateau continental et le haut du talus de la majorité de la côte de la Colombie-Britannique. Ces relevés servent à obtenir des indices d'abondance indépendants de la pêche pour toutes les espèces de poissons démersaux pouvant être pêchées au chalut de fond, ainsi qu'à prélever des échantillons biologiques d'espèces précises.

Ce relevé est réalisé selon un plan d'échantillonnage aléatoire stratifié, et les unités d'échantillonnage sont des blocs de deux kilomètres carrés. Parmi les 226 blocs retenus en 2018, 190 (84.1%) ont fait l'objet d'une pêche avec succès. La moyenne de prises par trait était de 768 kg, avec le nombre moyen d'espèces par trait était de 26. Les espèces de poissons capturées le plus fréquemment étaient Aiguillat du Pacifique (*Squalus suckleyi*), suivi du sébaste à menton pointu (*Sebastes zacentrus*), du morue charbonniére (*Anoplopoma fimbria*), du sébaste à bec-de-lièvre (*Sebastes diploproa*), du sébaste à raie rouge (*Sebastes proriger*), et sébaste canari (*Sebastes pinniger*). On a recueilli les données biologiques des espèces sélectionnées, notamment la longueur, le poids, le sexe, la maturité et la structure par âge. Les échantillons ont été prélevés sur un total de soixante 50 espèces de poissons différentes. Les données océanographiques, notamment la température de l'eau, la profondeur, la salinité et la teneur en oxygène dissous, ont également été consignées pour la plupart des traits.

INTRODUCTION

In 2003, a report by the Pacific Scientific Advice Review Committee recommended development of fishery-independent relative abundance indices using bottom trawl surveys in British Columbia waters (Sinclair et al. 2003). The report recommended that, as an initial step, a pilot survey be conducted in Queen Charlotte Sound (Figure 1). The survey design was synoptic in that it was intended to provide indices for as many species as possible rather than focusing on a limited number of target species.

The first Queen Charlotte Sound synoptic bottom trawl survey (QCS) was successfully completed in the summer of 2003 (Olsen et al. 2007). Following that, additional surveys were planned for the west coast of Vancouver Island (WCVI) beginning in 2004, Hecate Strait (HS) beginning in 2005, and the west coast of Haida Gwaii (WCHG) (previously Queen Charlotte Islands) beginning in 2006. These surveys are conducted on a rotating biennial schedule with the Queen Charlotte Sound and Hecate Strait surveys conducted in odd-numbered years and the West Coast Vancouver Island and West Coast Haida Gwaii surveys conducted in even-numbered years. These four synoptic bottom trawl surveys provide comprehensive coverage of the continental shelf and upper slope of the British Columbia coast (Figure 1). Surveys are conducted on both chartered commercial fishing vessels as well as Canadian Coast Guard research trawlers.

The first WCVI synoptic bottom trawl survey was successfully completed in 2004 (Workman et al. 2008a) and has been repeated every second year since. This document provides a brief summary of the results and methods from the seventh WCVI synoptic bottom trawl survey which occurred between May 24 and June 15, 2018. It is not intended as a comprehensive review of the survey, nor does it provide interpretive analysis of the survey results. Previous WCVI synoptic bottom trawl surveys are summarized in Workman et al. (2008a), Workman et al. (2008b), Olsen et al. (2009), Wyeth et al. (2016), Williams et al. (2017) and Nottingham et al. (2017).

METHODS

SURVEY DESIGN

The survey area is the west coast of Vancouver Island from approximately 49° 12' to 50° 36' North latitude and approximately 124° 48' to 128° 30' West longitude. The southern boundary is contiguous with the Canada/U.S. boundary (Figure 1).

Depth Strata

All of the synoptic bottom trawl surveys along the British Columbia coast have followed the same random depth-stratified design. Each survey area is divided into 2 km by 2 km blocks and each block is assigned one of four depth strata based on the average bottom depth in the block. The four depth strata vary between areas. The depth strata for the WCVI synoptic bottom trawl survey are 50-125 m, 125-200 m, 200-330 m, and 330-500 m (Table 1). For each survey in the WCVI series, blocks are randomly selected within each depth strata.

Block Allocation

Following the methods in Sinclair et al. (2003), commercial fishery catch data were used to model the expected groundfish catches prior to the first survey in each area. The target number of tows in each stratum was based on providing the most precise catch rate indices for as many species as possible. However, in any given year, not all of the randomly selected blocks will be fishable. Further, after the inaugural survey, a block that has been fished in a previous year may be re-selected. The results of previous surveys in each area are used to estimate both the expected proportion of blocks in each stratum that would not result in a useable tow (predicted failure rate) as well as the expected probability of returning to a block that was successfully fished in a previous survey (predicted revisit rate). The predicted failure and revisit rates are combined into a single probability for each survey area and depth stratum. These probabilities are then used to calculate the anticipated number of blocks per stratum required to complete the target number of tows.

When a synoptic bottom trawl survey is conducted on a chartered commercial fishing vessel the contract is structured such that the survey will continue until the entire set of blocks that have been selected are assessed. Assuming that the predicted failure and revisit rates prove to be accurate, at the end of the survey the final distribution of tows in each strata should match the initial target allocation that was modeled based on the commercial fishing data.

Canadian Coast Guard (CCG) research vessel time is allocated amongst various users so each year only a set number of days are available for the synoptic bottom trawl surveys. The operational model that is used for chartered vessels will not work in such a scenario. Instead, we try to fish as many blocks as possible while maintaining the target relative allocation of tows amongst strata. First, the total number of blocks that can be assessed in the number of available fishing days is estimated. Then, using the target relative allocation of tows and the predicted failure and revisit rates, various total "target" numbers of tows are tested until the total allocated blocks matches the number of blocks

that can be assessed in the time available. In 2018, there was no CCG ship available for the WCVI survey so a charter vessel was used. The schedule was not modified from survey years when a CCG vessel was used.

As indicated above, the start and end dates for trips on CCG ships were determined in advance. However, it may not be possible to fish on some days due to weather, mechanical breakdowns, or unforeseen events such as responding to search and rescue calls. Those days would be lost, so if the entire set of selected blocks was started and it was not possible to fish on a number of days, part of the survey area could be missed. To avoid such a situation, the selected blocks were divided into a primary set and a secondary set. The primary set consisted of the majority of total blocks and was visited first. The secondary set of blocks was then added once the primary set was nearly completed. The number of blocks in secondary set was based on the number of remaining fishing days.

For the 2018 WCVI survey, 226 blocks were randomly selected (Figure 2 and Table 1). The primary set consisted of 137 blocks while the secondary set was anticipated to be 89 blocks.

VESSEL

The survey was conducted aboard the chartered fishing vessel Nordic Pearl, a 35 m commercial stern trawler (Figure 2) contracted to replace the CCG Research vessel W.E. Ricker.

FISHING GEAR

The research trawl was an Atlantic Western IIA box trawl net connected to 963 kg Thyboron Type II heavy duty 107 doors (Figure 4). The net was thoroughly cleaned between tows to prevent cross-contamination of catches. The net was also inspected for damage after every tow. If the net was damaged, it was repaired and restored to its original dimensions prior to resuming fishing. Two nets were rigged at the start of the survey so that if one net was damaged beyond what could be immediately repaired, the second one could be used.

The net included a main body (wing and belly sections), two lengthening pieces, and a codend with liner (Figure 5 and Figure 6). The main body of the net had an 11 mm long-link steel chain frame and was constructed from a mix of double 4.5 mm strand 5 inch web, single 3.5 mm strand 5 inch web, and single 3.5 mm strand 4 ½ inch web (Figure 7). The intermediate sections were constructed from single 4.5 mm strand 4½ inch web (Figure 8). All web in the main body and lengthening pieces was constructed from a compacted strand braided polyethylene (Euroline Premium). The codend was constructed from double 5 mm strand 4 inch regular braided polyethylene web with a ½ inch 210/20 knotless nylon liner (Figure 8).

The Rockhopper footgear included flying wing, mid wing, bunt wing, and bosom sections (Figure 9). The bosom section was built from 16 inch diameter (worn 18 inch) aircraft tires, while the bunt and mid wing sections had 16 inch Rockhopper disks. The flying wings had 5 inch rubber disks with swivel center 16 inch solid bunt bobbins at each end.

The specifications of net and footgear components are shown in Table 2 and dimensions for the assembled trawl pieces are shown in Figure 7 through Figure 9.

SCHEDULE

The survey was split into three sections or "legs" of seven to 11 days in duration with six or seven science staff on each leg and two science crew changes.

FISHING PROTOCOL

Fishing operations were carried out on the F/V Nordic Pearl following procedures developed for the Canadian Coast Guard ship's 12 hour crew rotation commencing at approximately 0700 hrs and ending at approximately 2000 hrs each day. By following this schedule, survey fishing was limited to daylight hours. Catch processing often continued after fishing operations were completed for the day.

Prior to fishing, the selected blocks were reviewed by the fishing master and chief scientist to determine a candidate set to visit each day. During this review process, one or more blocks might be determined not fishable based on the fishing master's experience and knowledge of the area. In such cases the blocks were marked as "rejected based on prior knowledge". After compiling a list of blocks to be visited, the most efficient route of travel between blocks was planned.

The fishing master was asked to inspect each selected block and find a suitable tow location using the following criteria:

1. All tows should follow a depth contour.
2. If a block had been fished in a previous year then follow the same track so as to minimize the survey footprint.
3. If a block had not been fished in a previous year then make a tow entirely within the block and pass through the center of the block.
4. If it is not possible to make a tow through the center of the block then make a tow entirely within the block that passes as close to the center as possible.
5. If it is not possible to make a tow entirely within the block then make a tow such that at least 50 % of the tow is within the block.

The target tow duration was 20 minutes long. The tow start was defined as the time at which the net mensuration data indicated stable bottom contact and the headline collapsed to 3-4 m above the bottom. After 20 minutes had elapsed, net haul back was initiated. Although the target on-bottom time was 20 minutes, tows that were at least 15 minutes in duration were accepted. This pragmatic approach allowed for the retention of many tows that would otherwise have been unusable due to hang-ups or early haul-backs.

Tows were conducted at a target speed of 2.8 to 3.0 nautical miles per hour (5.2 - 5.6 km/hr). When retrieving the net, the fishing master was asked to maintain a water velocity through the net that was consistent with the rest of the tow.

Tows were made in the target depth stratum of the block. If the only possible tow was in a different depth stratum than that assigned to the block, then the tow was conducted, and the block was reassigned to the appropriate depth stratum.

If it was not possible to find a suitable tow location then the block was marked as "rejected based on on-ground inspection" and the vessel moved on to the next selected block.

The result of trawling was either a useable or unusable tow. The most common reasons for deeming a tow unusable were a hang-up of the fishing gear, tear-up of the trawl net, or not achieving the minimum bottom contact time. In the event of an unusable tow, additional attempts to fish the block could be made at either the same location or a different location within the block. Alternatively, the block could be deemed unfishable, in which case it was rejected.

If fishing was attempted in a block, the final status of the block would be recorded as "successfully fished on first attempt", "successfully fished after multiple attempts", or "rejected after last attempt failed". Rejected blocks are removed from the sampling frame for all future surveys to increase the survey efficiency as less time will be spent inspecting blocks that cannot be fished. Some selected blocks were neither successfully fished nor rejected. This result occurred when a temporary obstacle (e.g. trap fishing gear, another vessel, or strong tidal currents) prevents fishing, or when there was insufficient time available to fish a block without spending another day in the area, or if fishing was attempted and although the tow was not successful, the block was not rejected. These blocks were considered unassessed at the end of the survey and have a final status of "block not fished but remains in sampling frame" or "not rejected but last attempt failed".

Fishing Data

The start and end positions, times, and bottom depths, as well as the direction, vessel speed, weather and environmental conditions, and warp length were recorded for every tow. In addition, global positioning system (GPS) data and bottom sounder data were logged continuously for the duration of the survey.

CATCH PROCESSING

At the end of each tow the net was retrieved and the catch dumped into a hopper which emptied into the wetlab below the trawl deck. Catch was sorted in the wetlab by species into separate baskets as it moved along a conveyor system. The catch from all tows, including both useable and unusable tows was recorded. Unusable tows, although not sampled for biological data, were recorded to track catch amounts. Whenever possible, the catch was completely sorted and weighed. However, for large catches in excess of 2,000 kg or for catches with large numbers of small individuals, some method of total catch estimation and sub-sampling for species composition was conducted and the method used was recorded. The specific method of catch estimation and sub-sampling varied based on the total weight and volume of the catch being subsampled as well as the composition of the catch. Large catches were typically visually estimated, although volumetric estimates were sometimes used. In all cases a representative sample of the catch was sorted to determine species composition and to provide individuals for biological sampling.

Baskets of species were weighed to the nearest 0.02 kg using a motion-compensating electronic balance. For small catches the number of individuals was often

recorded in addition to the weight. Weights less than 0.02 kg were recorded as trace amounts. Catch was sorted to the lowest taxonomic group possible. For most fishes this was to the level of species although small and fragile species such as snailfish, lantern fish, or some young-of-the-year rockfish may have only been identified to genus or family. In some cases a few representative individuals may have been frozen for later identification. Invertebrates may have only been identified to phylum or order.

BIOLOGICAL SAMPLING

While the primary purpose of the survey was to generate fishery-independent indices of relative abundance, the secondary goal was to collect biological information to characterize the size, sex, and age-composition of each species caught. Two types of biological samples were conducted: "Length" samples, consisting of individual fish length and sex, and "Age" samples, consisting of length, sex, weight, maturity, and age structure. In an effort to maintain a manageable workload, a minimum catch threshold was established for each species that triggered biological sampling. For rare species or species of special conservation concern the minimum catch could be one fish, whereas for common and abundant species the number might be 25 or 50. The choice of the species from which age samples were collected depended on the weight caught and the "desirability" of the species. The weight of the catch was considered because the intent was to collect age structures from the largest catches of each species in each stratum over the survey. The "desirability" of the species was based on knowledge of conservation concerns and whether or not the species was commercially exploited. Biological samples were typically not collected from unusable tows.

There are some species that are unlikely to ever be assessed using age-structured models. The list includes species such as North Pacific Spiny Dogfish (*Squalus suckleyi*) where the cost of ageing the spines is prohibitive. Other species such as Flathead Sole (*Hippoglossoides elassodon*), Pacific Sanddab (*Citharichthys sordidus*), Greenstriped Rockfish (*Sebastes elongatus*), or Pygmy Rockfish (*Sebastes wilsoni*) are also unlikely candidates for an age-structured assessment as they are not exploited by the commercial fishery. Starting in 2016, a new length-stratified age sample protocol was implemented for these species. The intent of the new protocol was that the data could be used to construct age-at-maturity or growth curves. There were 22 species identified for the length-stratified ageing protocol and each survey year three or four species will be targeted (Table 3). Given the rotating schedule of the surveys, each species will be targeted for one or two years at a time and then will not be targeted for another nine years. The species targeted in the 2018 synoptic bottom trawl surveys were Curlfin Sole (*Pleuronichthys decurrens*), Greenstriped Rockfish (*Sebastes elongatus*), Pacific Flatnose (*Antimora microlepis*), Pacific Tomcod (*Microgadus proximus*), and Shortbelly Rockfish (*Sebastes jordani*).

Individual fish were measured to fork length, total length, standard length or other length depending on the species. All length measurements were collected to the nearest 0.5 cm using an electronic fish measuring board. Fish were weighed using a motion-compensating electronic balance. Measurements were to the nearest 1, 2, or 5 grams depending on the size of the fish as well as the model and weight range of the scale in use.

There are a variety of hard parts of a fish that can be used to determine its age (Chilton and Beamish 1982). The specific structure that provides the most accurate and efficient estimate of age varies by species but all the structures have the common trait of a series of annular rings that can be counted. Sagittal otoliths (calcareous accretions of the inner ear) were collected from rockfish and flatfish species while fin rays were taken from Walleye Pollock (*Theragra chalcogramma*), Lingcod (*Ophiodon elongatus*) and Pacific Cod (*Gadus macrocephalus*). Dorsal spines were collected from North Pacific Spiny Dogfish (*Squalus suckleyi*). All age samples collected on this survey were submitted to the Sclerochronology Lab located at the Pacific Biological Station in Nanaimo, BC for storage and future analysis. In addition to the biological sampling described above, specific data, specimens or tissue samples are routinely collected following requests from other institutions or researchers. In 2018, genetic tissue from Eulachon (*Thaleichthys pacificus*), Yelloweye Rockfish (*Sebastes ruberrimus*) and Quillback Rockfish (*Sebastes maliger*), and Blackspotted (*Sebastes melanostictus*) /Rougheye Rockfish (*Sebastes aleutianus*) complex were collected. Mixed fish species tissue samples were also collected for research into the Piscine Orthoreovirus (PRV) presence in captured fish by the Aquatic Animal Health Unit at the Pacific Biological Station in Nanaimo, BC.

Until the mid-2000s, Rougheye Rockfish (*Sebastes aleutianus*) was considered to be a single, highly variable species with light and dark colour morphs. Genetic and morphological analysis has confirmed that there are two distinct species (Orr and Hawkins 2008): Rougheye Rockfish (*S. aleutianus*) and Blackspotted Rockfish (*S. melanostictus*). Historical biological and catch information for *S. aleutianus* must now be considered to be the aggregate of both species. During the 2008 WCHG survey an attempt was made to differentiate between the two species. That preliminary work showed that the two species cannot be reliably distinguished in the field because the morphological characteristics overlap. Further, there is evidence that the two species hybridize (Gharrett et al. 2005). Given that the historical data is recorded as *S. aleutianus* and that attempting to separate the species at the catch level is both time consuming and unreliable, starting in the fall of 2010, the catch for all surveys was simply recorded as *S. aleutianus*. Then biological samples were collected from every specimen that included both a visual assessment of the species (*S. aleutianus* or *S. melanostictus*) as well as a tissue sample for genetic confirmation of the species. The survey catch data can then be partitioned into the two species using either the visual assessment or the results of genetic analyses. We did not attempt to partition the catch data for this report.

NET-MOUNTED SENSORS AND DATA RECORDERS

The F/V Nordic Pearl was equipped with a Scanmar trawl mensuration system. Sensors attached to the net used acoustic signals to communicate with each other and the vessel and provided real-time net geometry including headline height and depth, as well as doorspread and wingspread which were used to calculate swept area. The Scanmar output was logged continuously during the survey and monitored in real-time during fishing operations.

A Mac Marine Industries Bottom Contact Sensor (BCS) was attached to the footrope to record contact with the sea floor. The BCS consists of a pressure housing

with an Onset Hobo data recorder in a stainless steel sled that trailed behind the footrope. The Hobo recorder measured acceleration in three axes which was then converted into angles. The recorder was mounted in the sled such that the x-axis tilt indicated the angle of the steel sled. When the footgear contacted the bottom, the sled angle was approximately 80 degrees. When the footrope was off the bottom, the sled hung down and the angle was approximately 40 degrees. These data were used to determine the exact times in each tow that the trawl net first and last contacted the sea floor, thus providing an accurate measure of total bottom contact time.

A Seabird SBE39 temperature and pressure recorder (TDR) was attached to the starboard wing of the trawl. A Seabird SBE19plus recorder (CTD) equipped with a SBE43 dissolved oxygen sensor was attached to the center of the headline. The SBE19plus recorded conductivity, temperature and pressure data with derived values for salinity (Seabird, 1989) and depth (Seabird 2002). The SBE43 recorded oxygen voltage output data with calculated values for dissolved oxygen (ml/l) using temperature, pressure, and salinity data (Seabird 2012). The SBE39 was activated prior to the first tow of the day and turned off after the last tow of the day, while the SBE19plus and SBE43 were turned on and off manually before and after each tow. All data recorders were downloaded at the end of each day.

DATA RECORDING

All the fishing, catch, and biological data were recorded directly into a Microsoft SQL Server database through a Microsoft Access interface. Details of the electronic data acquisition system used for this survey can be found in Olsen (2010).

All the data from the survey are archived in an Oracle relational database called "GFBio", the Groundfish Biological Samples database maintained by the Groundfish Data Unit (Fisheries and Oceans Canada, Science Branch, Pacific Region) located at the Pacific Biological Station in Nanaimo, BC.

RESULTS

FISHING

The 2018 WCVI synoptic bottom trawl survey was divided into three legs of seven to twelve days each. From a total of 27 allotted survey days, 2.5 days were required for travel and gear loading/unloading at the start and end of the survey, with one full day and one partial day for science crew changes (Table 4).

From the target of 226 blocks assessed, 190 were successfully fished, 3 were rejected based on the fishing master's prior knowledge, 28 were rejected based on on-ground inspections, and 5 blocks were rejected after one or more failed fishing attempts (Table 5 and Figure 10).

A total of 202 tows, of which 190 were useable, were completed during the 24 days that fishing occurred. Table 6 shows tow results by stratum for this survey. Twelve tows were not useable due to hang-ups, tear-ups or insufficient bottom time. The scope (ratio of warp length to bottom depth) used for tows in 2018 is shown in Table 7 and

Figure 11. Complete information for each tow including date, duration, location, average depth, average speed, warp, total catch weight and usability is presented in Appendix A.

CATCH

A total of 155,085 kg of fish and invertebrates were caught during the 2018 WCVI survey. The total catch weight for tows was typically less than 1000 kg per tow and averaged 768 kg per tow (Figure 12). The majority of the catch (153,474 kg, 98.9%) consisted of 109 different species of fish, including 30 rockfish and 14 flatfish species. The remainder (1,611 kg) consisted of 118 invertebrate groups. The average number of species identified in useable tows was 26 (Figure 13).

The frequency of occurrence, maximum catch weight, mean catch weight per tow, and total survey catch weight of each species are shown in Table 8. Of the fish species caught, North Pacific Spiny Dogfish (*Squalus suckleyi*) was the most dominant species by weight (18,790 kg) followed by Sharpchin Rockfish (*Sebastes zacentrus*; 16,964 kg), Sablefish (*Anoplopoma fimbria*; 15,919 kg.), Splitnose Rockfish (*Sebastes diploproa*; 9735 kg), and Canary Rockfish (*Sebastes pinniger*; 8869 kg). The most dominant species by occurrence was Rex Sole (*Glyptocephalus zachirus*; n=189 tows) followed by Spotted Ratfish (*Hydrolagus colliei*; n=185), Dover Sole (*Microstomus pacificus*; n=184), Arrowtooth Flounder (*Atheresthes stomias*; n=177), and Slender Sole (*Lyopsetta exilis*; n=143). Catch weights by tow for the 50 most commonly encountered species in this survey are included in Appendix B.

BIOLOGICAL SAMPLES AND SPECIMENS

Biological samples were collected from a total of 39,229 individual specimens of 50 species of fish. The number of samples and recorded biological attributes per species is shown in Table 9. A summary of the biological data collected for each species is shown in Table 10.

NET-MOUNTED SENSORS AND DATA RECORDERS

Seabird SBE39 data (water temperature and depth) were collected from 159 tows while Seabird SBE19plus and SBE43 data (conductivity, water temperature, depth and dissolved oxygen) were collected from 202 tows (Table 11 and Figure 14).

Bottom contact sensor (BCS) data were collected from 202 tows (Table 11). An example of data collected by the BCS is shown in Figure 15.

Global positioning system (GPS) data, Scanmar net mensuration data, and Simrad bottom sounder data are available for all 202 tows.

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Table 1. The 2018 WCVI synoptic bottom trawl survey design showing block allocation per stratum based on the target allocation and the combined predicted failure and revisit rates (predicted adjustment).

Depth Stratum (m)	Target Allocation	Target Tows	Predicted Adjustment	Total Block Allocation	Primary Set	Secondary Set
50-125	0.37	61	0.33	91	55	36
125-200	0.32	53	0.25	71	43	28
200-330	0.18	30	0.17	36	22	14
330-500	0.13	21	0.25	28	17	11
Total	**1**	**165**		**226**	**137**	**89**

Table 2. Atlantic Western IIa box trawl net specifications for the 2018 WCVI synoptic bottom trawl survey.

Component	Dimension
Wings, square, and bottom belly netting	combination of 5 inch double strand 4.5mm Euroline Premium and 5 inch single strand 3.5 mm Euroline Premium
Belly netting	4 ½ inch single strand 3.5mm Euroline Premium
Lengthening piece netting	4 ½ inch single strand 4.5 mm Euroline Premium
Codend netting	4 inch double 5 mm orange braided polyethylene
Codend liner	½ inch 210/20 knotless nylon
Floats	8 inch diameter center hole rated to 2000 m
Net frame chain	11 mm long link (64 mm inner length) grade 80 steel chain
Net frame rope	1 inch 3-strand twisted Polysteel
Net frame rope to chain lashing	3/8 inch 3-strand twisted Esterpro
Riblines	1 ¼ inch 3-strand twisted Polysteel
Footgear bosom	16 inch diameter tires (worn 18 inch aircraft tires)
Rubber spacers	4 inch, 5 inch, and 6 inch diameter disks cut from tires
Footgear wing center chain	16 mm mid link (65 mm inner length) grade 80 steel chain
Footgear wing top chain	11 mm long link (64 mm inner length) grade 80 steel chain
Rockhopper disk	16 inch diameter
Solid rubber bunt bobbin with steel tube center	16 inch diameter by 10 inch
Steel toggles	5 inch diameter by 3 inch long with 13 inches of chain (from center of toggle)

Table 3. Length-stratified species age sample schedule by year for all Pacific synoptic bottom trawl surveys.

Species	Scientific Name	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Butter Sole	*Isopsetta isolepis*						x				
Curlfin Sole	*Pleuronichthys decurrens*			x	x						
Darkblotched Rockfish	*Sebastes crameri*							x	x		
Flathead Sole	*Hippoglossoides elassodon*					x	x				
Giant Grenadier	*Albatrossia pectoralis*	x									
Greenstriped Rockfish	*Sebastes elongatus*			x	x						
Harlequin Rockfish	*Sebastes variegatus*					x	x				
North Pacific Spiny Dogfish	*Squalus suckleyi*	x	x								
Pacific Flatnose	*Antimora microlepis*			x							
Pacific Grenadier	*Coryphaenoides acrolepis*					x					
Pacific Sanddab	*Citharichthys sordidus*									x	x
Pacific Tomcod	*Microgadus proximus*			x	x						
Popeye Grenadier	*Coryphaenoides cinereus*							x			
Puget Sound Rockfish	*Sebastes emphaeus*	x	x								
Pygmy Rockfish	*Sebastes wilsoni*					x	x				
Rosethorn Rockfish	*Sebastes helvomaculatus*							x	x		
Sand Sole	*Psettichthys melanostictus*		x								
Sharpchin Rockfish	*Sebastes zacentrus*									x	x
Shortbelly Rockfish	*Sebastes jordani*			x	x						
Slender Sole	*Lyopsetta exilis*							x	x		
Splitnose Rockfish	*Sebastes diploproa*	x	x								
Stripetail Rockfish	*Sebastes saxicola*									x	x

Table 4. Summary of operations during the 2018 WCVI synoptic bottom trawl survey.

	Fishing				Tows			
Date	Start	End	Hours	Blocks Assessed	Useable	Not Useable	Total	Notes
2018-05-18	-	-	-	-	-	-	-	finish set-up and depart Nanaimo
2018-05-19	8:22	18:37	10	9	9	0	9	start fishing operations
2018-05-20	7:02	18:34	11	11	9	0	9	
2018-05-21	7:12	18:45	11	12	8	1	9	
2018-05-22	7:10	18:21	11	9	8	3	11	
2018-05-23	7:07	18:18	11	11	10	0	10	
2018-05-24	7:05	18:40	11	10	10	0	10	
2018-05-25	7:06	11:15	4	5	5	0	5	partial science crew change Ucluelet
2018-05-26	7:06	18:00	11	11	11	0	11	
2018-05-27	7:03	18:42	11	10	10	0	10	
2018-05-28	7:11	16:55	9	14	9	0	9	
2018-05-29	7:07	17:02	10	17	7	1	8	
2018-05-30	7:05	18:10	11	13	8	0	8	
2018-05-31	7:05	13:59	6	8	7	0	7	
2018-06-01	-	-	-	-	-	-	-	science crew change Ucluelet
2018-06-02	7:10	17:27	10	7	7	0	7	
2018-06-03	8:35	19:05	11	7	6	2	8	
2018-06-04	7:11	19:36	12	9	9	0	9	
2018-06-05	7:08	11:39	4	4	4	1	5	
2018-06-06	7:06	19:08	12	11	11	1	12	
2018-06-07	7:16	17:20	10	8	8	0	8	
2018-06-08	7:07	16:59	9	7	7	0	7	
2018-06-09	7:04	17:53	10	10	9	0	9	
2018-06-10	7:09	18:49	11	8	8	0	8	
2018-06-11	7:14	17:23	10	10	6	2	8	
2018-06-12	7:06	12:33	5	5	4	1	5	conclude fishing operations
2018-06-13	-	-	-	-	-	-	-	arrive at Nanaimo for offload
2018-06-14	-	-	-	-	-	-	-	installation/ calibration of echosounder
Total				**226**	**190**	**12**	**202**	
Average Per Day				**9.5**	**8.0**	**0.5**	**8.5**	

Table 5. Block results by stratum for the 2018 WCVI synoptic bottom trawl survey.

Depth Stratum (m)	Successful	Rejected Prior	Rejected Inspected	Rejected Failed	Not Rejected Failed	Not Assessed	Total
50-125	69	1	18	3	0	0	91
125-200	64	1	4	2	0	0	71
200-330	36	0	0	0	0	0	36
330-500	21	1	6	0	0	0	28
Total	**190**	**3**	**28**	**5**	**0**	**0**	**226**

Table 6. Tow results by stratum for the 2018 WCVI synoptic bottom trawl survey.

Depth Stratum (m)	Useable	Not Useable
50-125	69	8
125-200	64	4
200-330	36	0
330-500	21	0
Total	**190**	**12**

Table 7. Mean warp length and scope by 50 meter depth interval for the 2018 WCVI synoptic bottom trawl survey.

Depth (m)	Mean Warp (m)	Mean Scope
0-50	165	3.62
50-100	244	3.07
100-150	362	2.88
150-200	486	2.87
200-250	606	2.67
250-300	748	2.69
300-350	834	2.54
350-400	911	2.46
400-450	1014	2.36
450-500	1073	2.29

Table 8. Frequency of occurrence, maximum catch weight, mean catch weight per tow, and total survey catch weight of each species captured during the 2018 WCVI synoptic bottom trawl survey. Trace amounts (<0.02 kg) are entered as -.

Common Name	Scientific Name	Number of Tows	Catch Weight (kg) Max	Mean	Total
Rockfishes	**Family Scorpaenidae**				
Greenstriped Rockfish	*Sebastes elongatus*	110	191.86	19.67	2164.07
Yellowtail Rockfish	*Sebastes flavidus*	90	862.20	55.79	4965.37
Canary Rockfish	*Sebastes pinniger*	75	4156.37	118.26	8869.48
Sharpchin Rockfish	*Sebastes zacentrus*	75	3143.85	238.93	16963.73
Darkblotched Rockfish	*Sebastes crameri*	70	34.48	3.73	250.01
Redbanded Rockfish	*Sebastes babcocki*	62	224.51	14.33	859.69
Pacific Ocean Perch	*Sebastes alutus*	61	1447.84	136.83	8209.70
Rosethorn Rockfish	*Sebastes helvomaculatus*	59	69.07	7.00	406.13
Bocaccio	*Sebastes paucispinis*	56	592.30	21.89	1225.59
Shortspine Thornyhead	*Sebastolobus alascanus*	55	168.04	24.40	1317.80
Silvergray Rockfish	*Sebastes brevispinis*	55	1314.28	70.49	3876.90
Redstripe Rockfish	*Sebastes proriger*	54	2331.71	133.98	7234.83
Rougheye Rockfish	*Sebastes aleutianus/melanostictus*	41	61.66	8.68	356.07
Splitnose Rockfish	*Sebastes diploproa*	37	3883.43	270.43	9735.44
Widow Rockfish	*Sebastes entomelas*	29	24.26	3.78	102.00
Shortbelly Rockfish	*Sebastes jordani*	27	147.64	9.22	221.28
Yelloweye Rockfish	*Sebastes ruberrimus*	27	28.78	7.02	189.64
Rockfishes	*Sebastes (Genus)*	22	0.24	0.11	0.79
Pygmy Rockfish	*Sebastes wilsoni*	21	7.84	2.03	38.60
Stripetail Rockfish	*Sebastes saxicola*	16	0.98	0.38	3.39
Shortraker Rockfish	*Sebastes borealis*	12	66.11	11.95	143.38
Aurora Rockfish	*Sebastes aurora*	12	16.54	4.42	53.00
Quillback Rockfish	*Sebastes maliger*	8	36.68	6.24	49.90
Yellowmouth Rockfish	*Sebastes reedi*	7	149.93	27.94	195.60
Harlequin Rockfish	*Sebastes variegatus*	2	2.34	1.24	2.47
Greenspotted Rockfish	*Sebastes chlorostictus*	1	2.22	2.22	2.22
Longspine Thornyhead	*Sebastolobus altivelis*	1	0.60	0.60	0.60
Chilipepper	*Sebastes goodei*	1	0.11	0.11	0.11
Puget Sound Rockfish	*Sebastes emphaeus*	1	0.09	0.09	0.09
Copper Rockfish	*Sebastes caurinus*	1	0.03	0.03	0.03
Flatfishes	**Order Pleuronectiformes**				
Rex Sole	*Glyptocephalus zachirus*	189	296.33	46.30	8749.97
Dover Sole	*Microstomus pacificus*	184	310.88	37.75	6946.04
Arrowtooth Flounder	*Atheresthes stomias*	177	537.71	46.99	8316.52
Slender Sole	*Lyopsetta exilis*	143	35.42	4.80	658.18
English Sole	*Parophrys vetulus*	138	156.06	22.32	3080.38
Petrale Sole	*Eopsetta jordani*	126	160.80	11.30	1423.42
Flathead Sole	*Hippoglossoides elassodon*	121	126.07	22.11	2675.84
Pacific Sanddab	*Citharichthys sordidus*	74	243.64	30.13	2229.52
Pacific Halibut	*Hippoglossus stenolepis*	59	154.88	12.27	723.85
Southern Rock Sole	*Lepidopsetta bilineata*	40	84.00	13.53	541.26
Curlfin Sole	*Pleuronichthys decurrens*	36	5.98	1.51	54.50
Sand Sole	*Psettichthys melanostictus*	2	1.35	0.89	1.77
Deepsea Sole	*Embassichthys bathybius*	1	1.50	1.50	1.50
Speckled Sanddab	*Citharichthys stigmaeus*	1	-	-	-
Cod-Like Fishes	**Order Gadiformes**				
Pacific Hake	*Merluccius productus*	122	1902.91	48.03	5907.57
Pacific Cod	*Gadus macrocephalus*	95	223.04	12.68	1204.57

Common Name	Scientific Name	Number of Tows	Catch Weight (kg) Max	Mean	Total
Walleye Pollock	*Gadus chalcogrammus*	92	103.50	6.42	591.05
Pacific Tomcod	*Microgadus proximus*	27	19.98	2.77	66.57
Giant Grenadier	*Albatrossia pectoralis*	1	5.43	5.43	5.43
Cartilaginous Fish	**Class Chondrichthyes**				
Spotted Ratfish	*Hydrolagus colliei*	185	405.47	22.46	4154.51
North Pacific Spiny Dogfish	*Squalus suckleyi*	136	9705.30	138.16	18789.68
Longnose Skate	*Raja rhina*	107	56.34	11.53	1233.46
Sandpaper Skate	*Bathyraja interrupta*	26	9.12	1.82	47.41
Big Skate	*Beringraja binoculata*	25	43.92	11.25	281.17
Brown Cat Shark	*Apristurus brunneus*	5	4.18	1.71	8.54
Greenlings	**Family Hexagrammidae**				
Lingcod	*Ophiodon elongatus*	114	148.08	15.34	1748.35
Kelp Greenling	*Hexagrammos decagrammus*	10	3.65	1.09	10.86
Sculpins	**Family Cottidae**				
Threadfin Sculpin	*Icelinus filamentosus*	58	5.90	0.63	29.46
Slim Sculpin	*Radulinus asprellus*	12	0.10	0.06	0.11
Roughspine Sculpin	*Triglops macellus*	5	2.17	0.77	3.06
Darkfin Sculpin	*Malacocottus zonurus*	3	0.45	0.30	0.91
Roughback Sculpin	*Chitonotus pugetensis*	2	0.14	0.09	0.17
Brown Irish Lord	*Hemilepidotus spinosus*	2	-	-	-
Pacific Staghorn Sculpin	*Leptocottus armatus*	1	0.38	0.38	0.38
Northern Sculpin	*Icelinus borealis*	1	-	-	-
Red Irish Lord	*Hemilepidotus hemilepidotus*	1	-	-	-
Eelpouts	**Family Zoarcidae**				
Blackbelly Eelpout	*Lycodes pacificus*	69	42.08	3.34	190.21
Bigfin Eelpout	*Lycodes cortezianus*	22	4.36	1.59	33.49
Black Eelpout	*Lycodes diapterus*	14	2.76	0.90	9.93
Eelpout	*Lycenchelys* (Genus)	1	3.42	3.42	3.42
Pallid Eelpout	*Lycodapus mandibularis*	1	-	-	-
Poachers	**Family Agonidae**				
Bigeye Poacher	*Bathyagonus pentacanthus*	18	0.14	0.05	0.29
Smootheye Poacher	*Xeneretmus leiops*	15	0.13	0.09	0.34
Poachers	Agonidae (Family)	6	-	-	-
Northern Spearnose Poacher	*Agonopsis vulsa*	4	0.20	0.20	0.20
Blacktip Poacher	*Xeneretmus latifrons*	3	0.04	0.04	0.04
Blackfin Poacher	*Bathyagonus nigripinnis*	1	-	-	-
Lanternfishes	**Family Myctophidae**				
Northern Lampfish	*Stenobrachius leucopsarus*	2	0.06	0.06	0.06
Blue Lanternfish	*Tarletonbeania crenularis*	2	-	-	-
Lanternfishes	Myctophidae (Family)	2	-	-	-
Other Fish					
Sablefish	*Anoplopoma fimbria*	141	1874.28	112.90	15919.46
Eulachon	*Thaleichthys pacificus*	75	74.11	3.84	245.66
Pacific Herring	*Clupea pallasii*	62	3.10	0.52	29.56
American Shad	*Alosa sapidissima*	34	5.52	1.40	47.60
Whitebarred Prickleback	*Poroclinus rothrocki*	16	0.07	0.03	0.20
Plainfin Midshipman	*Porichthys notatus*	15	4.10	1.14	16.01
Shiner Perch	*Cymatogaster aggregata*	13	0.42	0.13	0.63
Northern Ronquil	*Ronquilus jordani*	13	0.24	0.10	0.48
Pacific Lamprey	*Entosphenus tridentatus*	10	0.18	0.06	0.24
Chinook Salmon	*Oncorhynchus tshawytscha*	9	7.10	2.78	25.06
Black Hagfish	*Eptatretus deani*	9	1.48	0.52	4.70
Blacktail Snailfish	*Careproctus melanurus*	4	1.18	0.60	2.38
Pacific Hagfish	*Eptatretus stoutii*	4	0.21	0.14	0.43

Common Name	Scientific Name	Number of Tows	Catch Weight (kg) Max	Mean	Total
Pacific Viperfish	*Chauliodus macouni*	3	0.20	0.20	0.20
Green Sturgeon	*Acipenser medirostris*	1	15.84	15.84	15.84
Giant Wrymouth	*Cryptacanthodes giganteus*	1	2.68	2.68	2.68
Striped Seaperch	*Embiotoca lateralis*	1	0.72	0.72	0.72
Hagfishes	Myxinidae (Family)	1	0.16	0.16	0.16
White Croaker	*Genyonemus lineatus*	1	0.07	0.07	0.07
Snake Prickleback	*Lumpenus sagitta*	1	0.05	0.05	0.05
Northern Smoothtongue	*Leuroglossus schmidti*	1	0.03	0.03	0.03
Tubeshoulders	Platytroctidae (Family)	1	-	-	-
Shining Tubeshoulder	*Sagamichthys abei*	1	-	-	-
Crested Bigscale	*Poromitra crassiceps*	1	-	-	-
Surfperches	Embiotocidae (Family)	1	-	-	-
Quillfish	*Ptilichthys goodei*	1	-	-	-
Snailfishes	Liparidae (Family)	1	-	-	-
Lampreys	Petromyzontidae (Family)	1	-	-	-
Longfin Dragonfish	*Tactostoma macropus*	1	-	-	-
Crabs and Shrimp	**Class Malacostraca**				
Prawn	*Pandalus platyceros*	52	1.77	0.57	16.61
Pink Shrimp (smooth)	*Pandalus jordani*	41	61.00	5.10	112.26
Dungeness Crab	*Metacarcinus magister*	32	37.08	4.00	127.96
Sidestripe Shrimp	*Pandalopsis dispar*	15	0.68	0.23	0.93
Crangons	*Crangon* (Genus)	15	-	-	-
Spike Shrimp (horned Shrimp)	*Paracrangon echinata*	6	-	-	-
Isopods	Isopoda (Order)	6	-	-	-
Brown Box Crab	*Lopholithodes foraminatus*	4	1.72	1.13	4.52
Inshore Tanner Crab	*Chionoecetes bairdi*	4	0.21	0.13	0.40
Grooved Tanner Crab	*Chionoecetes tanneri*	4	2.28	1.56	6.24
Redclaw Crab	*Chorilia longipes*	4	-	-	-
Glass Shrimp	*Pasiphaea pacifica*	3	-	-	-
Right-handed Hermits	Paguridae (Family)	2	-	-	-
Yellowleg Shrimp	*Pandalus tridens*	2	-	-	-
Squat Lobster	*Munida quadrispina*	2	-	-	-
Bristly Crab	*Acantholithodes hispidus*	1	0.36	0.36	0.36
Box Crabs	*Lopholithodes* (Genus)	1	0.34	0.34	0.34
Tanner Crabs	*Chionoecetes* (Genus)	1	0.30	0.30	0.30
Large Eyed Eualid	*Eualus macropthalmus*	1	-	-	-
Decorator Crabs	*Oregonia* (Genus)	1	-	-	-
Kelp Crabs	*Pugettia* (Genus)	1	-	-	-
-	*Argis* (Genus)	1	-	-	-
Pandalid Shrimp	*Pandalidae (Family)*	1	-	-	-
Coonstripe Shrimp	*Pandalus danae*	1	-	-	-
Sea Stars	**Class Asteroidea**				
Sand Star	*Luidia foliolata*	65	3.48	0.50	22.86
Fish-eating Star	*Stylasterias forreri*	30	2.23	0.47	6.55
Vermillion Starfish	*Mediaster aequalis*	19	1.89	0.36	2.15
Spiny Red Sea Star	*Hippasteria spinosa*	16	2.40	0.52	7.77
-	*Hippasteria* (Genus)	14	0.50	0.30	2.66
Mud Star	*Ctenodiscus crispatus*	14	25.35	8.57	25.70
-	*Solaster* (Genus)	11	0.12	0.08	0.32
Rose Starfish	Crossaster papposus	9	0.14	0.08	0.16
Cushion Star	*Pteraster tesselatus*	8	0.24	0.09	0.52
-	*Rathbunaster californicus*	5	0.58	0.42	0.84
Long-armed Sea Star	*Orthasterias koehleri*	4	-	-	-
-	*Cheiraster dawsoni*	4	0.22	0.17	0.50

Common Name	Scientific Name	Number of Tows	Catch Weight (kg) Max	Mean	Total
Starfish	Asteroidea (Class)	3	-	-	-
-	*Poraniopsis inflatus inflatus* (Sub Spp)	3	5.82	2.94	5.88
-	*Henricia* (Genus)	3	-	-	-
-	*Pedicellaster magister*	3	0.04	0.04	0.04
-	Solasteridae (Family)	2	0.20	0.20	0.20
Leather Star	*Dermasterias imbricata*	1	0.42	0.42	0.42
-	*Pteraster jordani*	1	0.16	0.16	0.16
-	*Diplopteraster multipes*	1	0.13	0.13	0.13
Northern Sun Star	*Solaster borealis*	1	-	-	-
Cookie Star	*Ceramaster patagonicus*	1	-	-	-
-	*Leptychaster arcticus*	1	-	-	-
Six-rayed Starfish	*Leptasterias hexactis*	1	-	-	-
-	*Lophaster furcilliger vexator* (Sub Spp)	1	-	-	-
-	*Heterozonias alternatus*	1	-	-	-
Brittle Stars	**Class Ophiuroidea**				
Basket Star	*Gorgonocephalus eucnemis*	11	0.21	0.12	0.59
-	*Ophiura sarsi*	8	-	-	-
-	Ophiuroidea (Class)	2	-	-	-
Basket Stars	Euryalina (Sub Order)	1	-	-	-
-	*Ophiura* (Genus)	1	-	-	-
Sea Cucumbers	**Class Holothuroidea**				
Whitespotted Sea Cucumber	*Apostichopus leukothele*	51	6.36	0.79	32.28
Giant Red Sea Cucumber	*Apostichopus californicus*	15	5.08	1.20	16.79
Soft Sea Cucumber	*Pseudostichopus mollis*	10	4.18	0.71	6.39
Sea Cucumbers	Holothuroidea (Class)	6	-	-	-
Peppered Sea Cucumber	*Cucumaria piperata*	3	0.08	0.08	0.08
Pale Sea Cucumber	*Cucumaria pallida*	2	-	-	-
Papillose Sea Cucumber	*Synallactes challengeri*	2	-	-	-
Armoured Sea Cucumber	*Psolus chitinoides*	1	-	-	-
-	Cucumariidae (Family)	1	-	-	-
Sweet Potato Sea Cucumber	*Molpadia intermedia*	1	-	-	-
Octopuses and Squid	**Class Cephalopoda**				
Pacific Bobtail Squid	*Rossia pacifica*	31	0.12	0.11	0.21
Opalescent Inshore Squid	*Doryteuthis opalescens*	13	0.41	0.16	0.96
Schoolmaster Gonate Squid	*Berryteuthis magister*	13	5.00	1.19	14.27
Smoothskin Octopus	*Benthoctopus leioderma*	3	1.10	1.10	2.20
Giant Pacific Octopus	*Enteroctopus dofleini*	1	8.44	8.44	8.44
Flapjack Devilfish	*Opisthoteuthis californiana*	1	1.24	1.24	1.24
Octopus	*Octopus* (Genus)	1	0.22	0.22	0.22
-	*Stigmatoteuthis dofleini*	1	0.10	0.10	0.10
Sea Urchins	**Super Order Echinacea**				
Fragile Urchin	*Allocentrotus fragilis*	114	16.19	2.02	171.38
Pallid Urchin	*Strongylocentrotus pallidus*	7	0.36	0.24	0.73
Jellyfish	**Phylum Cnidaria**				
Jellyfish	Scyphozoa (Class)	41	2.87	0.88	9.66
-	*Chrysaora melanaster*	1	4.94	4.94	4.94
Fried Egg Jellyfish	*Phacellophora camtschatica*	1	4.62	4.62	4.62
-	*Periphylla periphylla*	1	-	-	-
Anemones and Corals	**Class Anthozoa**				
Anemone	Actiniaria (Order)	45	12.68	2.06	61.77
Sea Whip	*Balticina septentrionalis*	23	0.21	0.10	0.69
-	*Metridium* (Genus)	9	11.86	3.20	28.76
-	Hormathiidae (Family)	5	8.02	2.73	10.94

Common Name	Scientific Name	Number of Tows	Catch Weight (kg) Max	Mean	Total
-	*Anthoptilum grandiflorum*	3	0.16	0.10	0.30
-	Paragorgiidae (Family)	2	-	-	-
-	Anthozoa (Class)	1	-	-	-
Snails and Slugs	**Class Gastropoda**				
Oregontriton	*Fusitriton oregonensis*	26	2.32	0.40	5.58
Rosy Tritonia	*Tritonia diomedea*	10	0.16	0.07	0.44
-	Neptuneidae (Family)	3	1.06	1.06	1.06
Topshells	Trochidae (Family)	3	-	-	-
-	*Neptunea* (Genus)	2	-	-	-
Whelks	Buccinidae (Family)	2	-	-	-
Gastropods	Gastropoda (Class)	2	-	-	-
California Armina	*Armina californica*	2	-	-	-
Seaslugs	Nudibranchia (Order)	2	0.04	0.04	0.04
-	*Turbonilla middendorffi*	1	-	-	-
Adams Spiny Margarite	*Cidarina cidaris*	1	-	-	-
Topsnails	Calliostomatidae (Family)	1	-	-	-
Other Invertebrate Species					
Pyrosomes	*Pyrosoma* (Genus)	132	256.33	4.99	658.72
Heart Urchin	*Brisaster latifrons*	21	50.70	6.13	55.16
Sponges	Porifera (Phylum)	8	131.22	25.75	154.51
Salps	Thaliacea (Class)	7	0.12	0.12	0.12
Sea Mouse	*Aphrodita* (Genus)	6	0.45	0.28	1.39
Glass Sponges	Hexactinellida (Class)	5	4.54	4.54	4.54
Pink Scallop, (aka Reddish)	*Chlamys rubida*	5	1.37	0.88	3.53
Salp	*Cyclosalpa affinis*	5	0.20	0.15	0.45
Lampshells	Brachiopoda (Phylum)	4	-	-	-
Spiny Scallop	*Chlamys hastata*	4	0.23	0.11	0.44
-	Echiura (Phylum)	2	-	-	-
-	*Suberites domuncula latus*	2	-	-	-
Bath Sponges	Demospongiae (Class)	1	0.68	0.68	0.68
-	Ctenophora (Phylum)	1	-	-	-
Sea Lilies And Feather Stars	Crinoidea (Class)	1	-	-	-
Proboscis Worm	Nemertea (Phylum)	1	-	-	-
Ringed Lucine	*Lucinoma annulatum*	1	-	-	-
-	Tunicata (Sub Phylum)	1	-	-	-
-	Echinoidea (Class)	1	-	-	-
Peanutworms	Sipuncula (Phylum)	1	-	-	-

Table 9. Species sampled during the 2018 WCVI synoptic bottom trawl survey. The number of samples and recorded biological attributes are shown for each species.

Species Name		Number of	Number of Recorded Biological Attributes				
Common	**Scientific**	**Samples**	**Length**	**Weight**	**Sex**	**Maturity**	**Age**
Arrowtooth Flounder	*Atheresthes stomias*	80	2136	2084	2135	198	832
Aurora Rockfish	*Sebastes aurora*	3	43	43	43	0	0
Big Skate	*Beringraja binoculata*	25	41	36	41	0	17
Bocaccio	*Sebastes paucispinis*	53	417	416	417	417	446
Brown Cat Shark	*Apristurus brunneus*	4	20	20	20	0	0
Canary Rockfish	*Sebastes pinniger*	38	729	729	729	646	700
Curlfin Sole	*Pleuronichthys decurrens*	13	140	140	77	55	44
Darkblotched Rockfish	*Sebastes crameri*	30	554	554	554	0	190
Dover Sole	*Microstomus pacificus*	112	3153	3130	3154	874	1935
English Sole	*Parophrys vetulus*	74	2231	2230	2231	653	1194
Eulachon	*Thaleichthys pacificus*	39	1085	102	0	0	412
Flathead Sole	*Hippoglossoides elassodon*	64	1729	1728	1730	0	446
Giant Wrymouth	*Cryptacanthodes giganteus*	1	1	1	0	0	1
Green Sturgeon	*Acipenser medirostris*	1	1	1	0	0	0
Greenstriped Rockfish	*Sebastes elongatus*	56	1285	1284	1285	355	553
Kelp Greenling	*Hexagrammos decagrammus*	3	26	26	26	0	26
Lingcod	*Ophiodon elongatus*	77	599	599	546	490	751
Longnose Skate	*Raja rhina*	103	369	360	367	0	144
North Pacific Spiny Dogfish	*Squalus suckleyi*	44	1006	1008	1007	0	465
Pacific Cod	*Gadus macrocephalus*	35	369	368	369	236	369
Pacific Hake	*Merluccius productus*	64	1784	1756	1784	162	872
Pacific Halibut	*Hippoglossus stenolepis*	59	122	77	21	0	34
Pacific Ocean Perch	*Sebastes alutus*	38	983	983	981	616	752
Pacific Sanddab	*Citharichthys sordidus*	54	1558	1557	1558	0	460
Pacific Tomcod	*Microgadus proximus*	16	506	506	506	0	292
Petrale Sole	*Eopsetta jordani*	70	1070	1070	1070	690	756
Pygmy Rockfish	*Sebastes wilsoni*	5	121	121	121	0	59
Quillback Rockfish	*Sebastes maliger*	8	40	40	40	39	40
Redbanded Rockfish	*Sebastes babcocki*	34	473	473	473	473	471
Redstripe Rockfish	*Sebastes proriger*	24	649	648	649	308	465
Rex Sole	*Glyptocephalus zachirus*	142	4021	4017	4021	451	2029
Rosethorn Rockfish	*Sebastes helvomaculatus*	32	764	764	759	0	319
Rougheye Rockfish	*Sebastes aleutianus/melanostictus*	41	239	239	239	239	281
Sablefish	*Anoplopoma fimbria*	84	1742	1742	1742	893	1256
Sandpaper Skate	*Bathyraja interrupta*	26	52	52	52	0	15
Sharpchin Rockfish	*Sebastes zacentrus*	40	1089	1087	1089	0	465
Shortbelly Rockfish	*Sebastes jordani*	13	237	236	236	148	184
Shortraker Rockfish	*Sebastes borealis*	12	31	31	31	31	31
Shortspine Thornyhead	*Sebastolobus alascanus*	38	1040	1040	1019	0	523
Silvergray Rockfish	*Sebastes brevispinis*	21	432	432	432	236	320
Slender Sole	*Lyopsetta exilis*	69	2002	1999	1968	0	822
Southern Rock Sole	*Lepidopsetta bilineata*	21	496	496	496	263	430
Splitnose Rockfish	*Sebastes diploproa*	26	663	663	663	0	303
Spotted Ratfish	*Hydrolagus colliei*	40	1288	1287	1289	0	437
Stripetail Rockfish	*Sebastes saxicola*	1	22	22	22	0	22
Walleye Pollock	*Gadus chalcogrammus*	34	838	839	839	0	283
Widow Rockfish	*Sebastes entomelas*	4	40	40	40	0	40
Yelloweye Rockfish	*Sebastes ruberrimus*	26	77	77	77	77	125
Yellowmouth Rockfish	*Sebastes reedi*	3	33	33	33	17	17
Yellowtail Rockfish	*Sebastes flavidus*	44	883	882	883	256	480
	Total	**1944**	**39229**	**38068**	**37864**	**8823**	**21108**

Table 10. Summary of biological data collected during the 2018 WCVI synoptic bottom trawl survey. For each species the number of samples and specimens, the minimum, maximum, and mean length, the minimum, maximum, and mean weight, and proportion of females is shown. Weights less than 0.1 kg are entered as <0.1 and no data collected is entered as -.

		Number of			Length (cm)			Weight (kg)			
Common Name	Scientific Name	Samples	Specimens	Length Type	Min.	Max.	Mean	Min.	Max.	Mean	Female Proportion
Arrowtooth Flounder	*Atheresthes stomias*	80	2136	Fork	9	70	43	<0.1	3.4	0.9	0.62
Aurora Rockfish	*Sebastes aurora*	3	43	Fork	27	36	31	0.3	0.9	0.5	0.53
Big Skate	*Beringraja binoculata*	25	41	Total	30	179	84	0.1	20.2	5.7	0.63
Bocaccio	*Sebastes paucispinis*	53	417	Fork	28	80	39	0.2	6.2	0.9	0.45
Brown Cat Shark	*Apristurus brunneus*	4	20	Total	40	64	49	0.2	0.8	0.4	0.25
Canary Rockfish	*Sebastes pinniger*	37	729	Fork	10	64	42	<0.1	4.2	1.4	0.42
Curlfin Sole	*Pleuronichthys decurrens*	13	140	Total	17	37	26	0.1	0.8	0.3	0.39
Darkblotched Rockfish	*Sebastes crameri*	30	554	Fork	9	48	23	<0.1	2.2	0.3	0.47
Dover Sole	*Microstomus pacificus*	112	3154	Total	1	62	33	<0.1	2.4	0.4	0.44
English Sole	*Parophrys vetulus*	74	2231	Total	13	45	30	<0.1	0.8	0.3	0.68
Eulachon	*Thaleichthys pacificus*	39	1085	Standard	6	49	14	<0.1	0.1	<0.1	-
Flathead Sole	*Hippoglossoides elassodon*	64	1730	Total	16	45	31	<0.1	0.8	0.3	0.47
Giant Wrymouth	*Cryptacanthodes giganteus*	1	1	Standard	90	90	90	2.7	2.7	2.7	-
Green Sturgeon	*Acipenser medirostris*	1	1	Total	153	153	153	15.8	15.8	15.8	-
Greenstriped Rockfish	*Sebastes elongatus*	56	1285	Fork	14	38	28	<0.1	0.9	0.3	0.54
Kelp Greenling	*Hexagrammos decagrammus*	3	26	Fork	23	41	30	0.2	0.9	0.4	0.77
Lingcod	*Ophiodon elongatus*	77	599	Fork	30	101	61	0.2	10.2	2.4	0.79
Longnose Skate	*Raja rhina*	103	369	Total	10	132	72	0.1	17.3	3.1	0.60
North Pacific Spiny Dogfish	*Squalus suckleyi*	44	1008	Total	27	120	71	0.1	6.8	1.6	0.40
Pacific Cod	*Gadus macrocephalus*	35	369	Fork	24	82	49	0.1	5.7	1.7	0.54
Pacific Hake	*Merluccius productus*	64	1784	Fork	15	77	38	<0.1	3.2	0.5	0.64
Pacific Halibut	*Hippoglossus stenolepis*	59	122	Fork	11	110	78	2.0	15.7	5.8	0.18
Pacific Ocean Perch	*Sebastes alutus*	38	983	Fork	9	56	35	<0.1	1.6	0.7	0.46
Pacific Sanddab	*Citharichthys sordidus*	54	1558	Total	9	35	23	<0.1	0.6	0.2	0.58
Pacific Tomcod	*Microgadus proximus*	16	506	Fork	12	26	17	<0.1	0.1	<0.1	0.59
Petrale Sole	*Eopsetta jordani*	70	1070	Total	18	60	38	<0.1	2.9	0.8	0.64
Pygmy Rockfish	*Sebastes wilsoni*	5	121	Fork	13	24	18	<0.1	0.2	0.1	0.71
Quillback Rockfish	*Sebastes maliger*	8	40	Fork	20	47	38	0.1	2.2	1.2	0.55
Redbanded Rockfish	*Sebastes babcocki*	34	473	Fork	9	65	37	<0.1	4.9	1.0	0.49
Redstripe Rockfish	*Sebastes proriger*	24	649	Fork	11	41	28	<0.1	1.0	0.3	0.48

Common Name	Scientific Name	Number of		Length Type	Length (cm)			Weight (kg)			Female Proportion
		Samples	Specimens		Min.	Max.	Mean	Min.	Max.	Mean	
Rex Sole	*Glyptocephalus zachirus*	142	4021	Total	11	51	30	<0.1	1.0	0.2	0.50
Rosethorn Rockfish	*Sebastes helvomaculatus*	32	765	Fork	13	103	22	<0.1	0.6	0.2	0.48
Rougheye Rockfish Complex	*Sebastes aleutianus/melanostictus*	40	239	Fork	11	60	42	<0.1	3.0	1.3	0.50
Sablefish	*Anoplopoma fimbria*	84	1742	Fork	30	90	47	0.2	7.0	1.1	0.48
Sandpaper Skate	*Bathyraja interrupta*	26	52	Total	21	65	52	0.1	1.6	0.9	0.31
Sharpchin Rockfish	*Sebastes zacentrus*	40	1089	Fork	12	38	26	<0.1	1.0	0.3	0.49
Shortbelly Rockfish	*Sebastes jordani*	13	237	Fork	12	29	20	<0.1	0.2	0.1	0.55
Shortraker Rockfish	*Sebastes borealis*	12	31	Fork	43	87	64	1.3	9.9	4.6	0.39
Shortspine Thornyhead	*Sebastolobus alascanus*	38	1040	Total	7	58	24	<0.1	3.4	0.2	0.45
Silvergray Rockfish	*Sebastes brevispinis*	21	432	Fork	39	62	50	0.7	3.6	1.7	0.38
Slender Sole	*Lyopsetta exilis*	69	2002	Total	7	34	21	<0.1	0.3	0.1	0.54
Southern Rock Sole	*Lepidopsetta bilineata*	21	496	Total	17	46	30	<0.1	1.2	0.3	0.72
Splitnose Rockfish	*Sebastes diploproa*	26	663	Fork	14	37	24	<0.1	1.1	0.3	0.39
Spotted Ratfish	*Hydrolagus colliei*	40	1289	2rd Dorsal	9	60	34	<0.1	1.6	0.5	0.40
Stripetail Rockfish	*Sebastes saxicola*	1	22	Fork	13	19	14	<0.1	0.1	<0.1	0.36
Walleye Pollock	*Gadus chalcogrammus*	34	839	Fork	16	63	32	<0.1	2.0	0.3	0.62
Widow Rockfish	*Sebastes entomelas*	4	40	Fork	29	55	38	0.3	2.3	0.9	0.55
Yelloweye Rockfish	*Sebastes ruberrimus*	26	77	Fork	19	68	47	0.1	6.6	2.4	0.64
Yellowmouth Rockfish	*Sebastes reedi*	3	33	Fork	33	53	47	0.6	2.3	1.7	0.27
Yellowtail Rockfish	*Sebastes flavidus*	43	883	Fork	17	56	42	0.1	2.5	1.2	0.34

Table 11. Summary of data from net-mounted recorders during the 2018 WCVI synoptic bottom trawl survey, showing the number of tows and total number of records. A total of 202 survey tows were conducted, of which 190 were useable.

		Number of	
Data Recorder	**Attribute**	**Tows**	**Records**
Hobo Pendant Acceleration Data Logger	Trawl Net Angle	202	975767
Seabird Sbe19plus Seacat Profiler S/N 5130	Conductivity of sea water (S/m)	202	367680
	Pressure (db)/ Depth (m)	202	367680
	Salinity (PSU)	202	367680
	Water temperature (°C)	202	367680
Seabird SBE43	Oxygen Voltage (V)/ Dissolved Oxygen (ml/L)	202	735360
Seabird SBE39 Temperature And Pressure Recorder	Water temperature (°C)	159	588573
	Depth (m)	159	588573

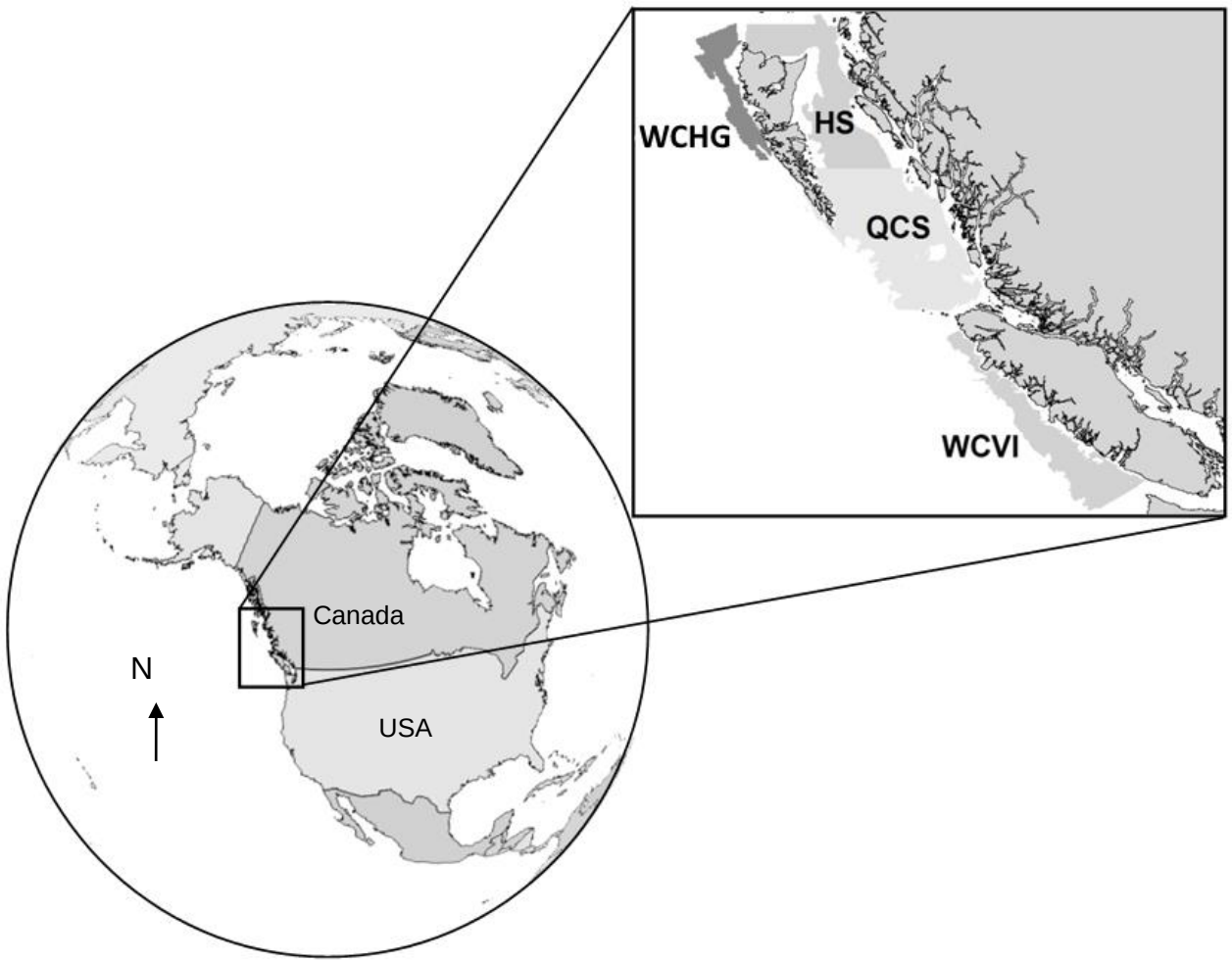

Figure 1. Locations of the current synoptic bottom trawl surveys on the coast of British Columbia, Canada. WCHG = West Coast Haida Gwaii; HS = Hecate Strait; QCS = Queen Charlotte Sound; WCVI = West Coast Vancouver Island.

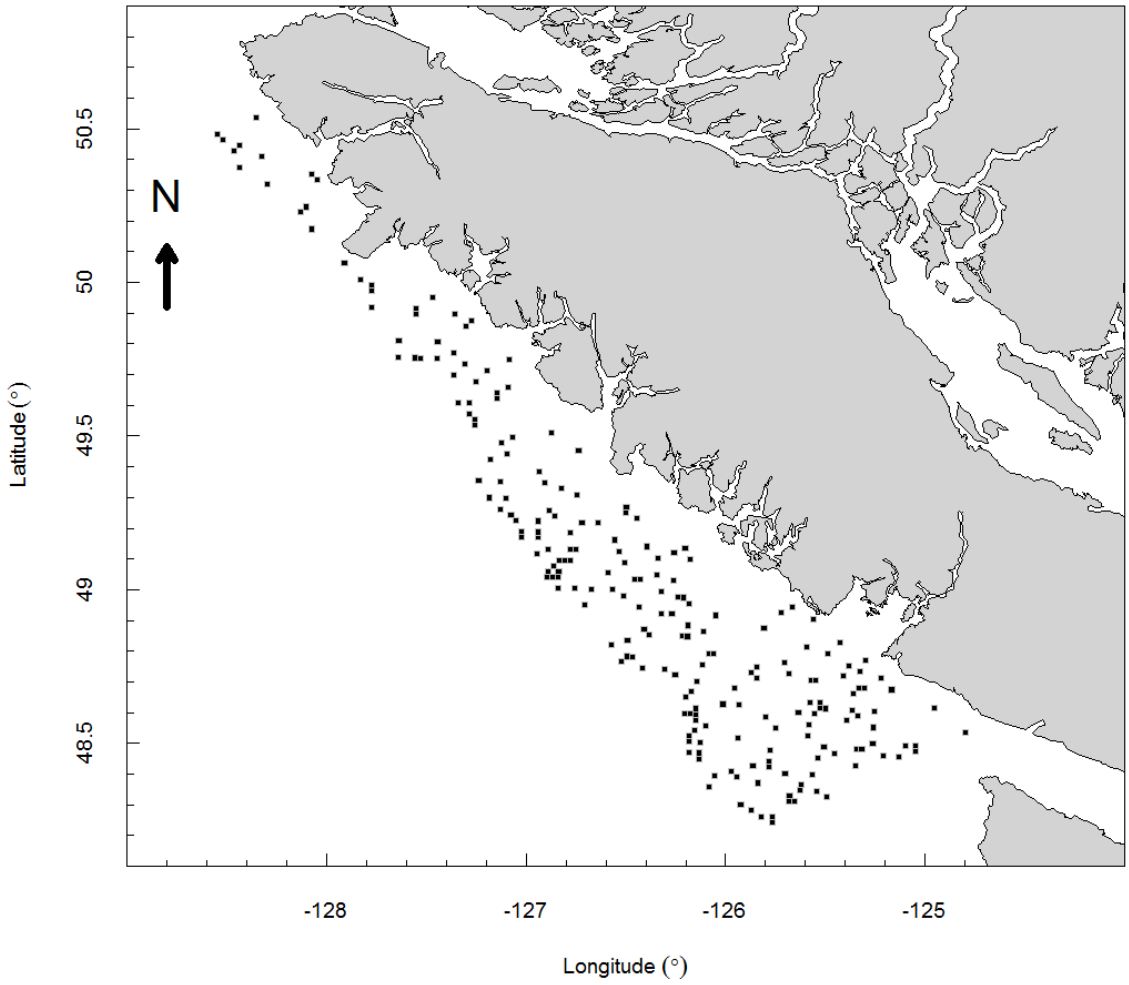

Figure 2. The 2018 WCVI synoptic bottom trawl survey area showing the 226 randomly selected blocks.

Figure 3. The FV Nordic Pearl used for the 2018 WCVI synoptic bottom trawl survey (photo Schon Acheson).

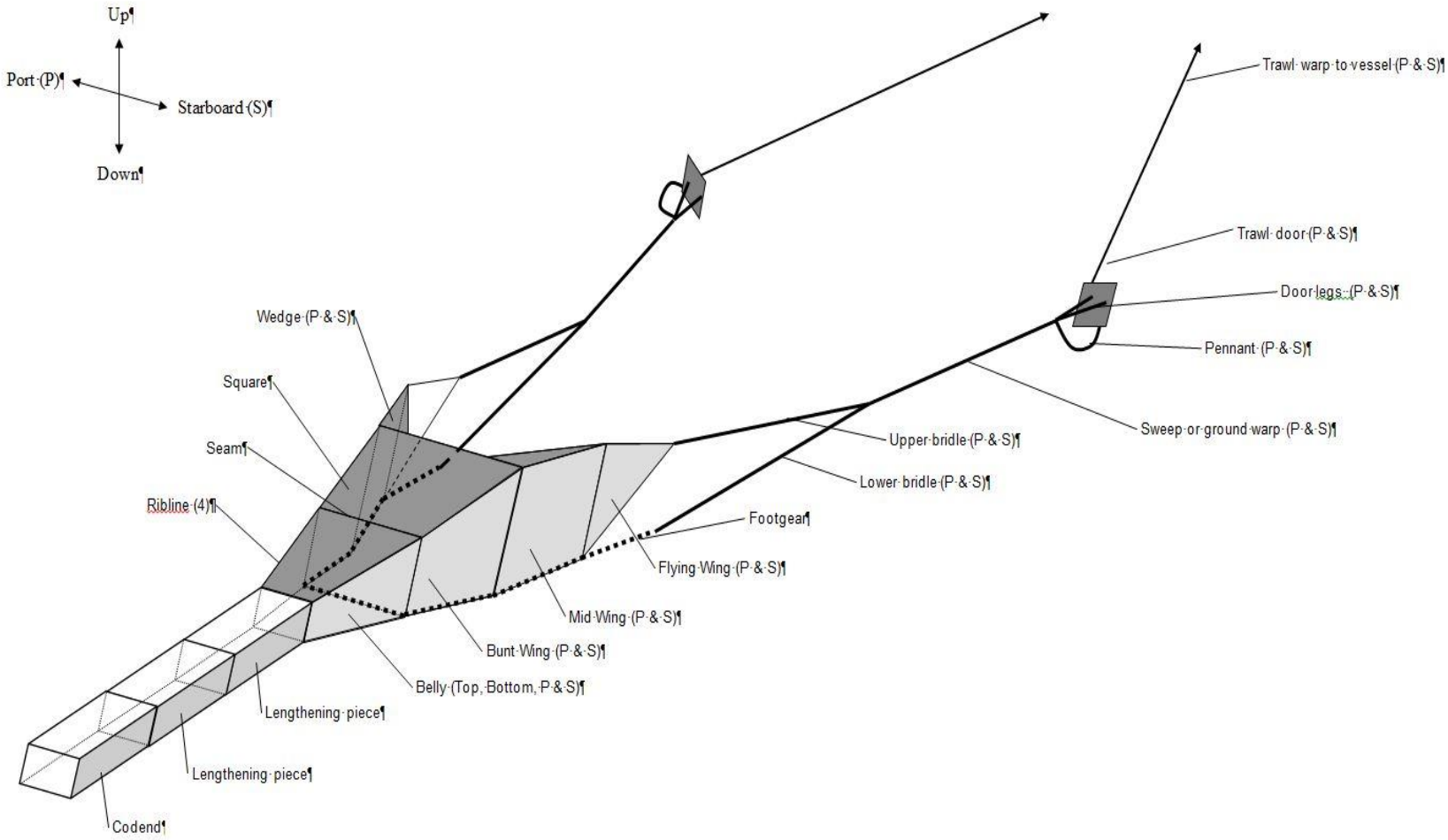

Figure 4. Overview diagram of the Atlantic Western IIa box trawl used on the 2018 WCVI synoptic bottom trawl survey.

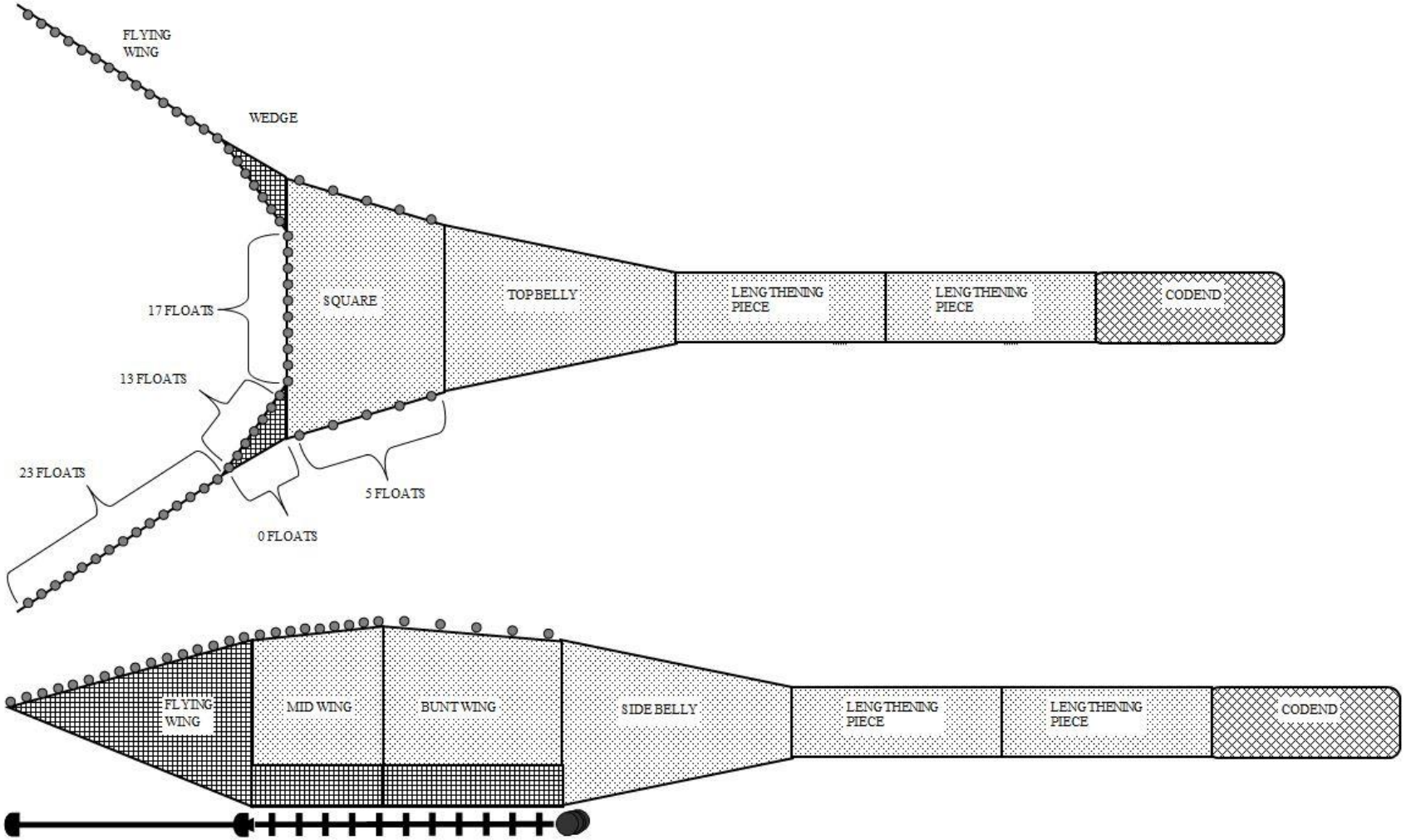

Figure 5. Top and side view of the Atlantic Western IIa box trawl used on the 2018 WCVI synoptic bottom trawl survey.

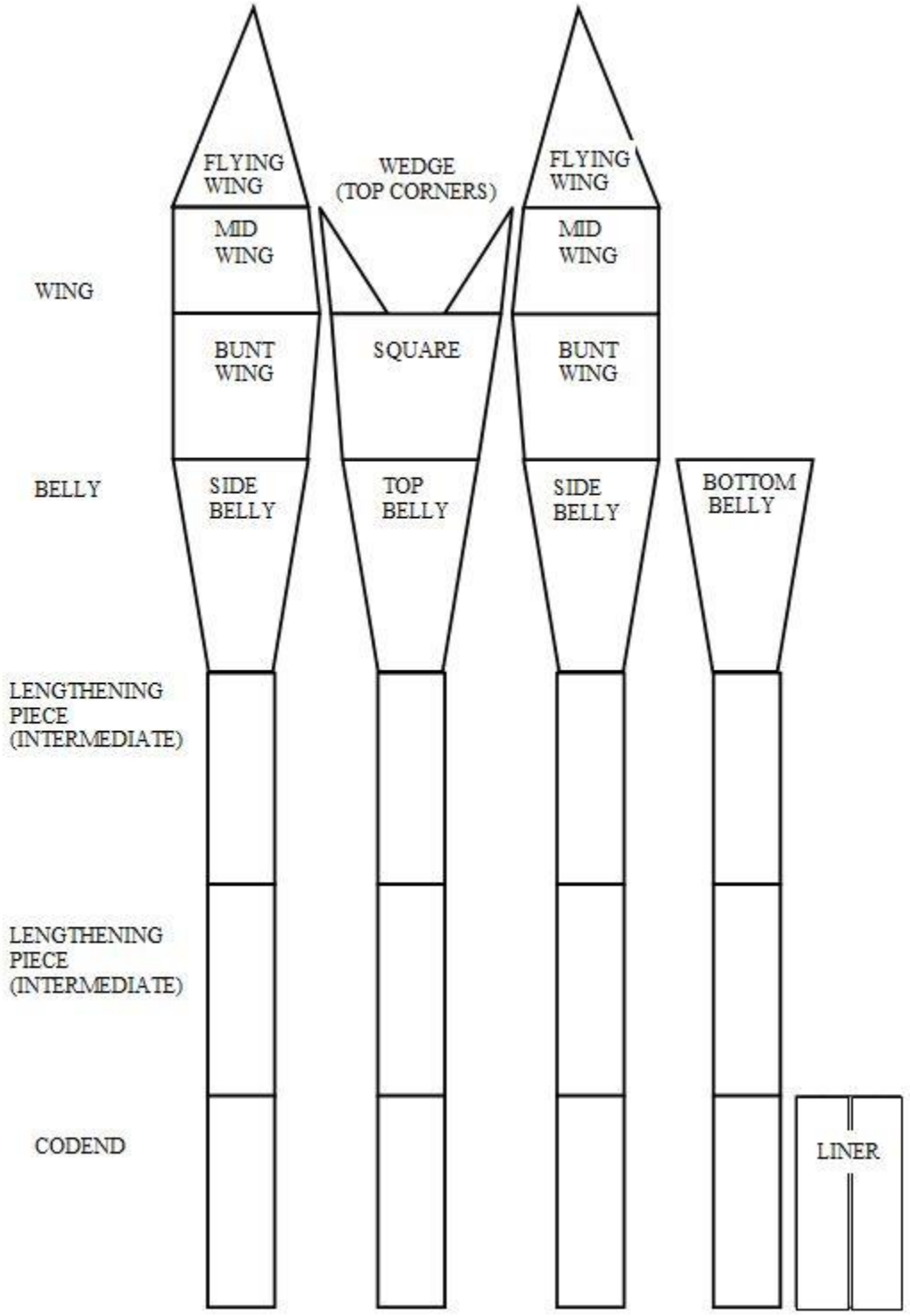

Figure 6. Diagram of the net panels with section names for the Atlantic Western IIa box trawl used on the 2018 WCVI synoptic bottom trawl survey.

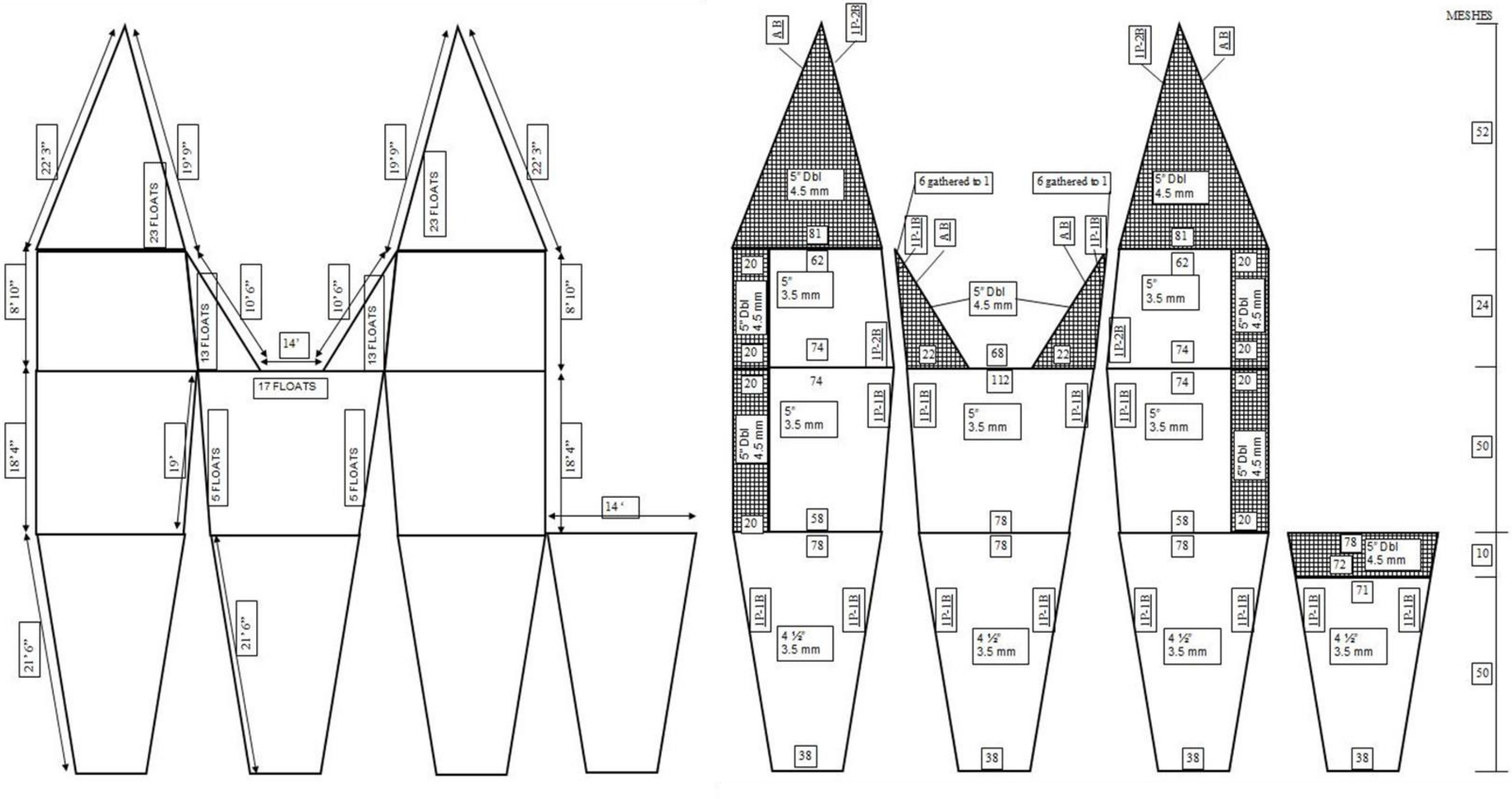

Figure 7. Details of the wing and belly sections of the Atlantic Western IIa box trawl used on the 2018 WCVI synoptic bottom trawl survey. Dimensions and the float arrangement are shown on the left while netting details, mesh counts, and mesh cuts are shown on the right side of the diagram.

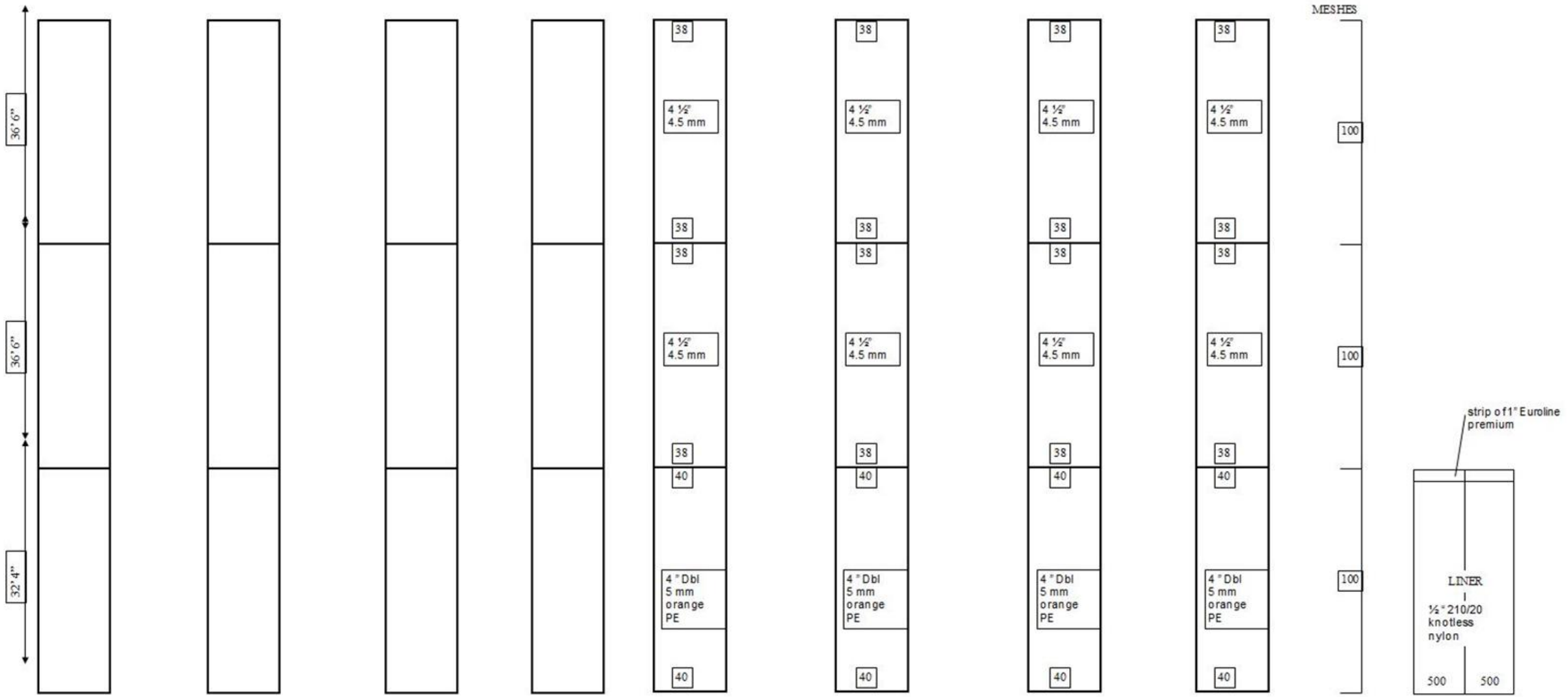

Figure 8. Details of the lengthening (intermediate) pieces and codend sections of the Atlantic Western IIa box trawl used on the 2018 WCVI synoptic bottom trawl survey. Dimensions are shown on the left while netting details, mesh counts, and mesh cuts including the codend liner are shown on the right side of the diagram.

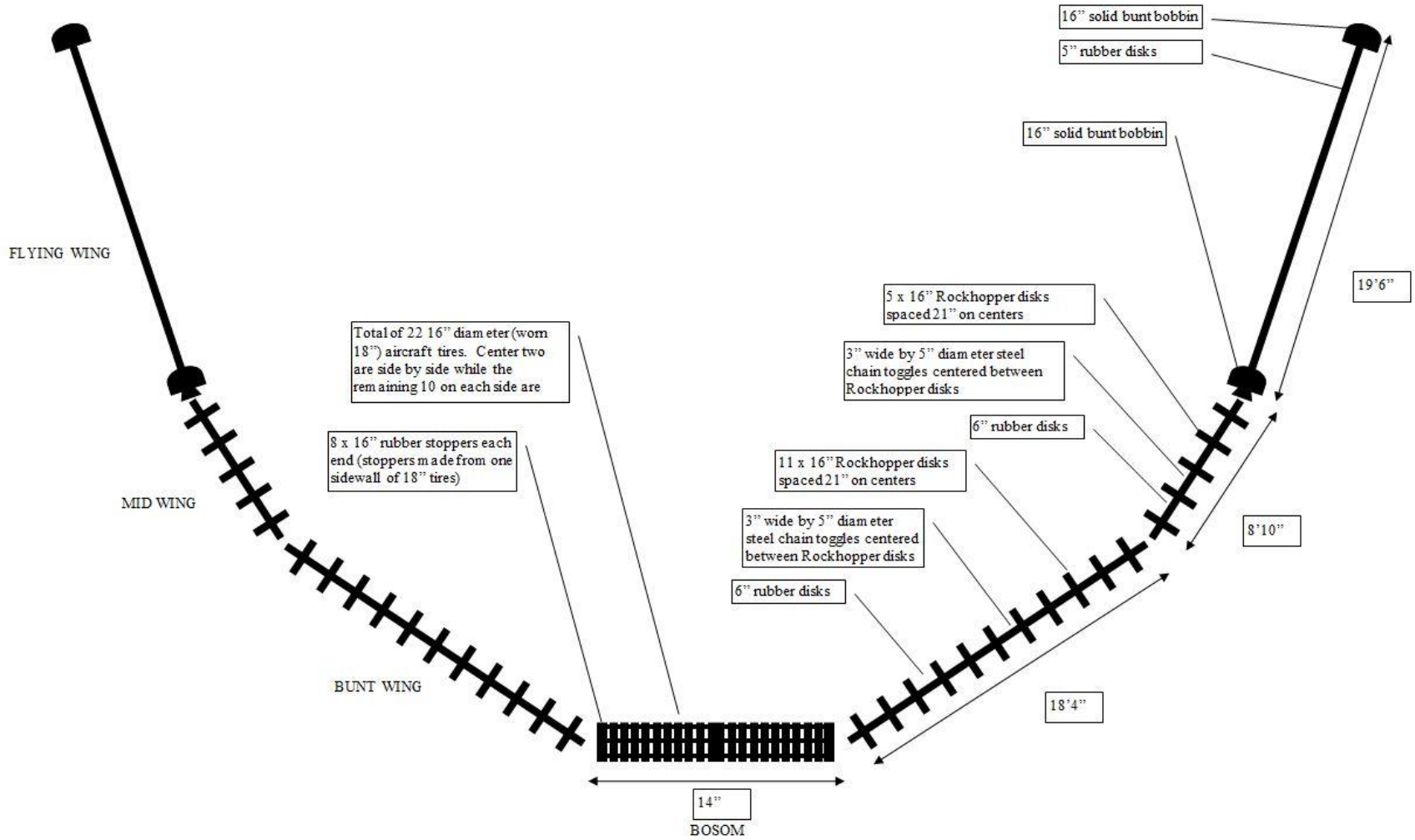

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Figure 9. Details of the Rockhopper foot gear for the Atlantic Western IIa box trawl used on the 2018 WCVI synoptic bottom trawl survey.

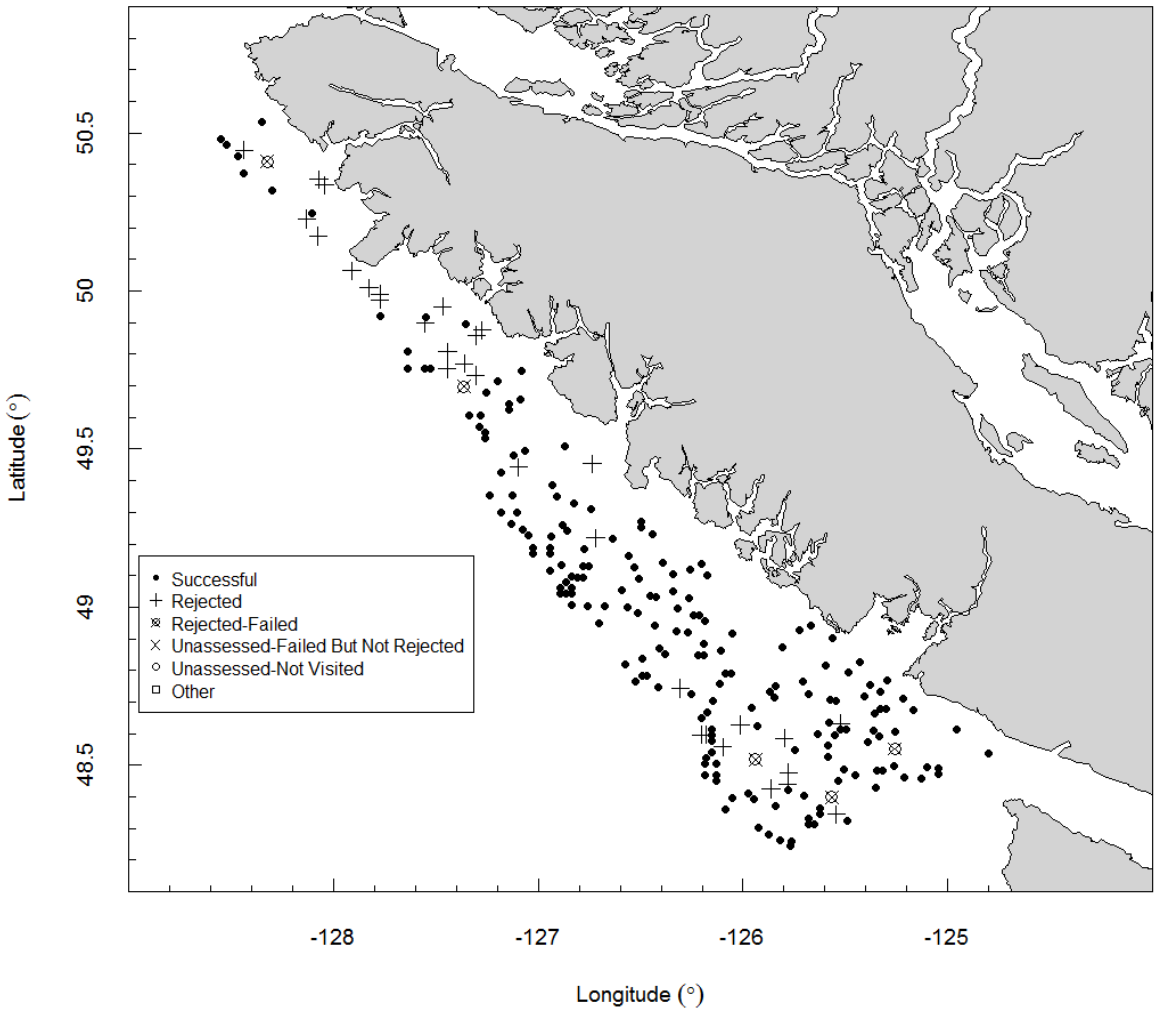

Figure 10. Final status of the 2018 WCVI synoptic bottom trawl survey showing 190 blocks that were fished successfully, 3 that were rejected prior to fishing, 28 rejected after inspection, and 5 blocks that were abandoned after one or more failed fishing attempts.

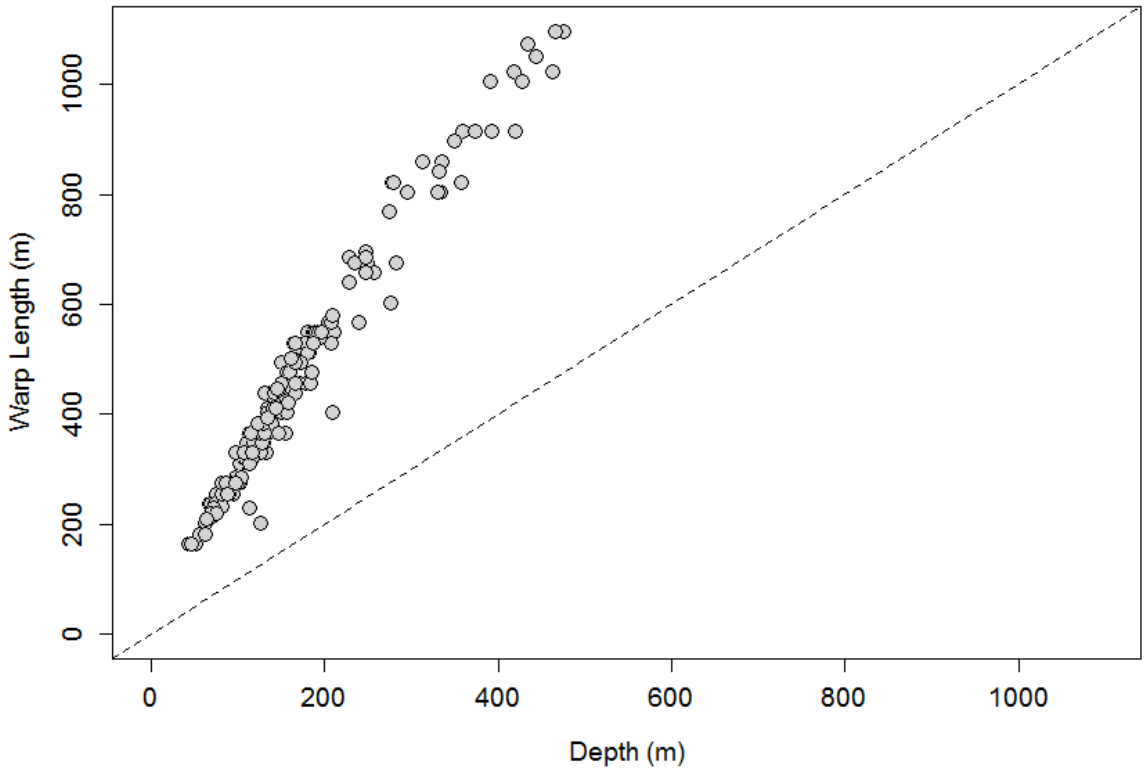

Figure 11. Warp length versus median depth for each tow during the 2018 WCVI synoptic bottom trawl survey. The dotted line represents a ratio of 1:1.

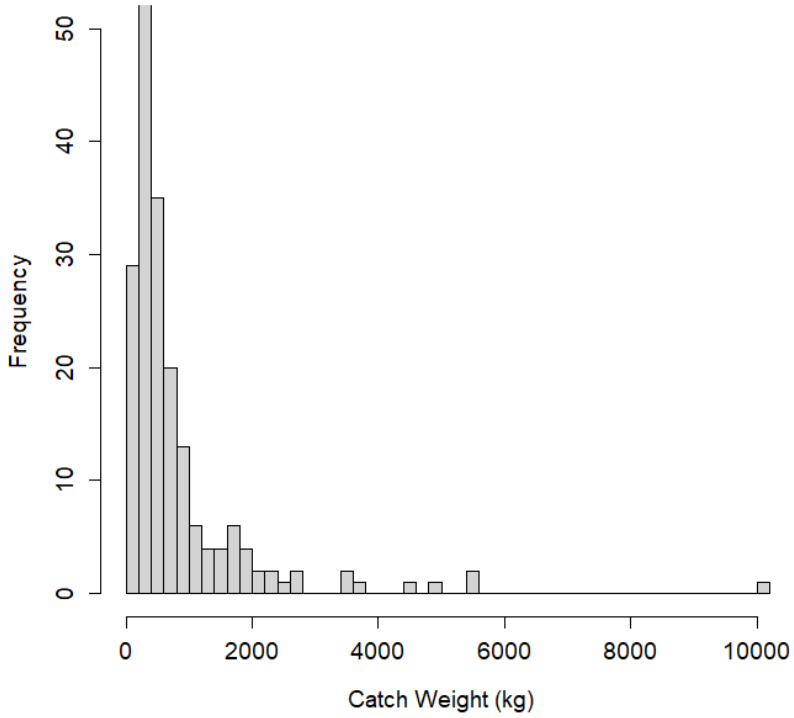

Figure 12. Histogram of catch weight per useable tow during the 2018 WCVI synoptic bottom trawl survey.

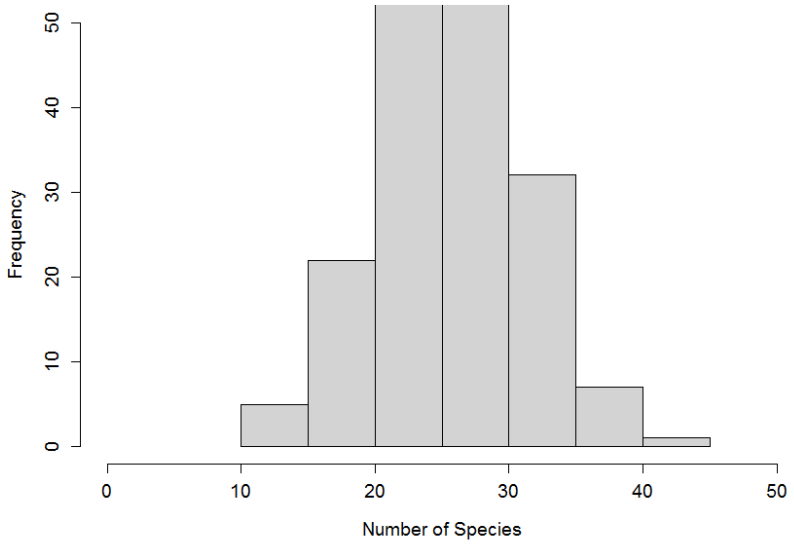

Figure 13. Histogram of number of species caught per useable tow during the 2018 WCVI synoptic bottom trawl survey.

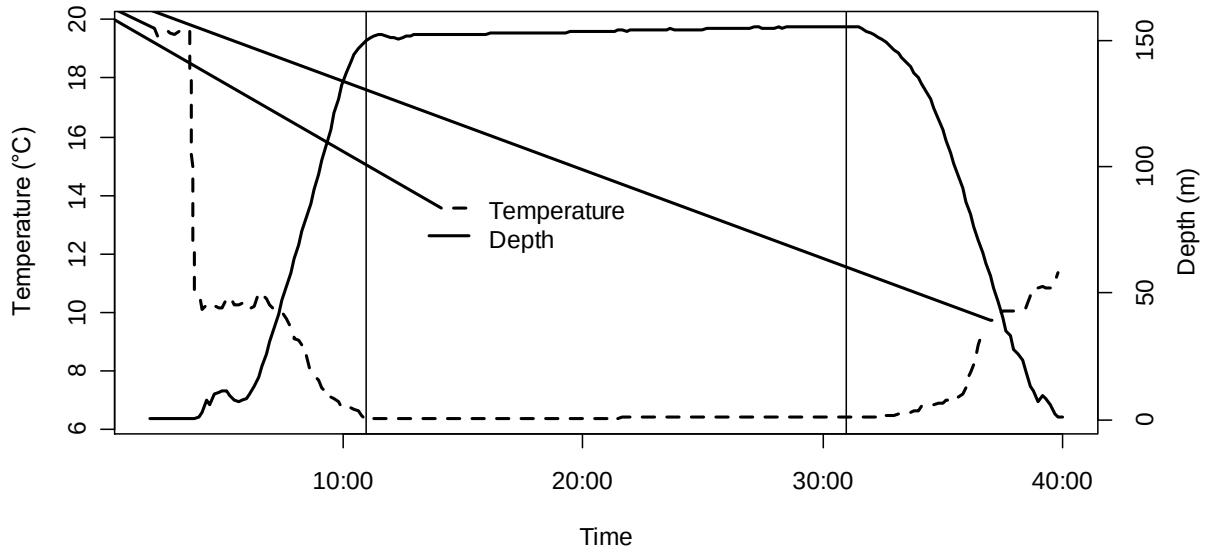

Figure 14. Example of a Seabird 39 temperature and pressure profile collected during a synoptic bottom trawl survey. The vertical lines indicate the start and end of net contact with the sea floor.

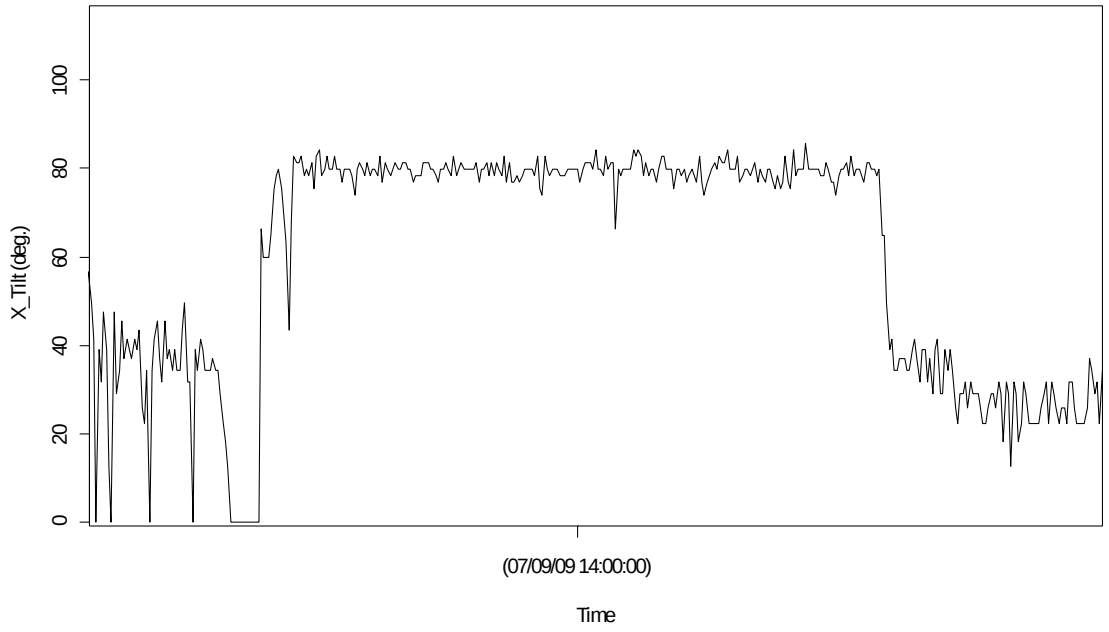

Figure 15. Example of a bottom contact sensor profile collected during a synoptic bottom trawl survey. The raised segment in the middle of the profile at approximately 80° indicates where the net made contact with the sea floor.

APPENDIX A: WCVI 2018 SURVEY BRIDGE LOG

Tow	Date	Time	Latitude	Longitude	Depth (m)	Duration (min)	Speed (km/h)	Warp (m)	Catch (kg)	Usable
1	19-May	8:16	48.5358	124.7874	160	21	5.8	476	1963	Yes
2	19-May	10:15	48.4999	125.0637	134	22	5.2	412	1282	Yes
3	19-May	11:30	48.4712	125.0476	134	21	5.6	406	1744	Yes
4	19-May	12:28	48.4926	125.0911	146	22	5.4	446	763	Yes
5	19-May	13:50	48.4812	125.3090	151	21	5.7	457	725	Yes
6	19-May	14:41	48.4886	125.3457	150	23	5.8	457	1225	Yes
7	19-May	15:38	48.4268	125.3382	169	22	5.5	512	1076	Yes
8	19-May	17:04	48.4732	125.4421	147	22	5.7	444	835	Yes
9	19-May	18:11	48.4581	125.5229	112	21	5.6	311	588	Yes
10	20-May	6:57	48.3243	125.4775	127	23	5.4	366	1021	Yes
11	20-May	8:15	48.3312	125.6648	137	22	5.7	412	863	Yes
12	20-May	9:17	48.2643	125.7588	195	21	5.4	540	843	Yes
13	20-May	10:11	48.2451	125.7728	360	25	5.1	914	570	Yes
14	20-May	11:31	48.2598	125.8151	247	23	5.4	695	3699	Yes
15	20-May	13:15	48.3602	125.8493	152	21	5.6	457	1944	Yes
16	20-May	14:40	48.3971	125.9455	392	24	5.5	1006	794	Yes
17	20-May	16:19	48.4094	125.9827	187	21	5.8	549	2636	Yes
18	20-May	18:09	48.3954	125.6896	136	21	5.2	412	751	Yes
19	21-May	7:08	48.5158	125.9342	107	1	5.0	329	-	No
20	21-May	8:35	48.4653	126.1287	229	25	5.6	686	1078	Yes
21	21-May	9:54	48.4710	126.1909	435	26	5.2	1074	624	Yes
22	21-May	11:20	48.5094	126.1883	444	21	5.3	1052	530	Yes
23	21-May	12:44	48.5356	126.1539	190	23	5.5	549	9000	Yes
24	21-May	14:18	48.5699	126.1505	188	23	5.5	549	10000	Yes
25	21-May	16:05	48.6035	126.1492	180	22	5.5	549	1175	Yes
26	21-May	17:22	48.6409	126.1907	193	23	5.6	549	1677	Yes
27	21-May	18:20	48.6570	126.1682	156	23	5.9	476	968	Yes
28	22-May	7:00	48.8239	126.5709	313	23	5.4	860	997	Yes
29	22-May	8:14	48.7880	126.5023	280	22	5.8	823	1037	Yes
30	22-May	9:13	48.7822	126.4708	278	23	5.7	823	1455	Yes
31	22-May	10:39	48.7451	126.4142	475	21	5.1	1097	266	Yes
32	22-May	12:24	48.7122	126.1532	135	22	5.6	412	425	Yes
33	22-May	13:34	48.6369	126.0273	112	4	5.4	329	33	No
34	22-May	14:25	48.6327	125.9356	93	21	5.8	274	334	Yes
35	22-May	16:15	48.5953	125.6469	117	23	5.3	320	767	Yes
36	22-May	17:15	48.5682	125.6024	54	4	7.5		-	No
37	22-May	17:31	48.5637	125.5931	65	5	5.9	229	116	No
38	22-May	17:55	48.5508	125.5748	80	25	5.6	229	400	Yes
39	23-May	7:03	48.7055	125.2142	74	23	5.5	229	218	Yes
40	23-May	8:25	48.6092	125.2433	111	23	5.8	329	379	Yes
41	23-May	9:35	48.5650	125.3863	132	21	5.7	439	490	Yes
42	23-May	10:47	48.5936	125.5428	130	22	5.6	384	631	Yes
43	23-May	12:41	48.6559	125.3782	73	22	5.6	220	164	Yes
44	23-May	13:21	48.6711	125.3386	71	22	5.7	220	189	Yes
45	23-May	14:17	48.6707	125.3188	82	22	5.4	247	194	Yes
46	23-May	15:23	48.7461	125.3674	96	22	5.6	274	348	Yes
47	23-May	16:34	48.7648	125.2873	82	22	5.7	232	542	Yes
48	23-May	17:56	48.8254	125.4207	91	21	5.6	274	202	Yes
49	24-May	7:01	48.9025	125.5763	96	22	5.4	274	857	Yes
50	24-May	8:20	48.8034	125.4859	101	22	5.6	274	256	Yes
51	24-May	9:32	48.7032	125.5644	130	21	5.4	348	312	Yes
52	24-May	11:16	48.7682	125.6897	104	22	5.6	285	233	Yes

Tow	Date	Time	Latitude	Longitude	Depth (m)	Duration (min)	Speed (km/h)	Warp (m)	Catch (kg)	Usable
53	24-May	12:17	48.7475	125.8270	87	22	5.7	274	292	Yes
54	24-May	12:58	48.7427	125.8538	76	22	5.8	220	292	Yes
55	24-May	14:03	48.7103	125.8270	70	22	5.3	216	129	Yes
56	24-May	15:36	48.7827	126.0571	92	21	5.4	274	305	Yes
57	24-May	16:19	48.7994	126.0823	97	22	5.7	274	259	Yes
58	24-May	18:13	48.8436	126.3715	171	23	5.4	521	751	Yes
59	25-May	7:00	48.9090	126.3087	136	23	5.5	412	474	Yes
60	25-May	7:48	48.9207	126.2856	127	23	5.2	201	946	Yes
61	25-May	8:41	48.8936	126.1989	111	22	5.8	329	250	Yes
62	25-May	9:42	48.9457	126.1774	98	21	5.4	285	619	Yes
63	25-May	10:50	48.9204	126.0648	72	21	5.4	229	119	Yes
64	26-May	7:01	48.9676	126.2292	107	22	6.0	320	162	Yes
65	26-May	7:53	48.9860	126.3104	121	22	5.5	329	408	Yes
66	26-May	8:45	49.0406	126.3430	117	21	5.3	329	373	Yes
67	26-May	9:43	49.0396	126.4113	134	21	5.7	384	2185	Yes
68	26-May	10:50	49.0275	126.4489	141	21	5.7	412	652	Yes
69	26-May	11:57	49.0493	126.5856	142	21	5.7	439	996	Yes
70	26-May	13:33	49.0343	126.8274	295	22	5.5	805	1584	Yes
71	26-May	14:39	49.0462	126.8638	335	22	5.5	860	573	Yes
72	26-May	15:35	49.0352	126.8830	428	22	5.4	1006	449	Yes
73	26-May	16:46	49.0844	126.8708	248	21	5.6	686	1600	Yes
74	26-May	17:33	49.0670	126.8397	228	21	5.3	640	2987	Yes
75	27-May	6:59	49.0907	126.7678	159	0		476	585	Yes
76	27-May	8:50	49.1206	126.7735	143	22	5.5	439	240	Yes
77	27-May	10:05	49.1659	126.9321	212	22	5.5		4718	Yes
78	27-May	11:19	49.1691	127.0137	393	20	5.4	914	655	Yes
79	27-May	12:21	49.1834	127.0188	332	21	5.3	841	802	Yes
80	27-May	14:04	49.2175	126.9247	173	21	5.5	494	510	Yes
81	27-May	15:04	49.2175	127.0378	249	22	5.7	677	1073	Yes
82	27-May	16:06	49.2918	127.0868	183	20	5.8	512	602	Yes
83	27-May	17:07	49.2963	127.1768	466	23	5.2	1097	434	Yes
84	27-May	18:12	49.3521	127.2291	350	22	5.3	896	228	Yes
85	28-May	7:06	49.4178	127.1752	159	21	5.4	476	4500	Yes
86	28-May	8:20	49.4673	127.1164	140	28	5.3	412	223	Yes
87	28-May	9:26	49.4844	127.0627	130	22	5.4	366	249	Yes
88	28-May	10:52	49.5256	127.2501	181	21	5.5	512	1441	Yes
89	28-May	11:38	49.5433	127.2541	161	23	5.6	503	20000	Yes
90	28-May	13:10	49.6027	127.2823	144	22	5.4	412	519	Yes
91	28-May	14:26	49.6095	127.1494	122	22	5.5	366	159	Yes
92	28-May	15:23	49.6494	127.0856	103	21	5.6	311	315	Yes
93	28-May	16:33	49.7045	127.1829	109	21	5.6	320	182	Yes
94	29-May	7:03	50.5404	128.3507	113	21	5.3	229	234	Yes
95	29-May	8:30	50.4848	128.5483	208	21	5.9	567	658	Yes
96	29-May	9:20	50.4686	128.5334	210	23	5.4	402	593	Yes
97	29-May	10:08	50.4295	128.4787	209	21	5.2	580	139	Yes
98	29-May	11:24	50.3760	128.4443	235	21	5.5	677	269	Yes
99	29-May	12:50	50.4148	128.3389	184	9	5.2	503	110	No
100	29-May	14:01	50.3179	128.2857	211	22	5.4	549	7200	Yes
101	29-May	16:35	50.2490	128.1059	154	21	6.0	450	408	Yes
102	30-May	7:00	49.9241	127.7810	163	21	5.9	457	10800	Yes
103	30-May	8:47	49.9084	127.5579	63	20	5.6	183	42	Yes
104	30-May	10:26	49.9034	127.3469	62	21	5.5	201	99	Yes
105	30-May	12:24	49.7521	127.0945	64	20	5.6	209	154	Yes
106	30-May	13:36	49.6515	127.1468	117	21	5.8	329	297	Yes

Tow	Date	Time	Latitude	Longitude	Depth (m)	Duration (min)	Speed (km/h)	Warp (m)	Catch (kg)	Usable
107	30-May	15:43	49.4963	126.8676	86	21	5.6	274	255	Yes
108	30-May	17:02	49.3924	126.9337	134	21	5.5	393	308	Yes
109	30-May	17:45	49.3545	126.9180	141	21	5.5	421	374	Yes
110	31-May	7:01	49.3070	126.7250	108	21	5.4	329	214	Yes
111	31-May	8:07	49.3348	126.8345	120	21	5.8	338	696	Yes
112	31-May	9:13	49.2622	126.8878	140	20	5.8	412	588	Yes
113	31-May	9:56	49.2449	126.8642	142	21	5.8	412	457	Yes
114	31-May	11:27	49.2186	126.6500	115	21	5.9	366	146	Yes
115	31-May	12:46	49.2407	126.4922	85	23	5.7	274	206	Yes
116	31-May	13:35	49.2781	126.5072	69	21	5.9	238	65	Yes
117	02-Jun	7:07	48.9457	125.6606	84	21	5.2	256	340	Yes
118	02-Jun	8:50	48.9292	125.7108	90	22	5.5	256	333	Yes
119	02-Jun	10:37	48.8836	125.7983	44	21	5.4	165	115	Yes
120	02-Jun	12:55	48.8552	126.1078	85	21	5.1	256	272	Yes
121	02-Jun	14:25	48.8557	126.1965	114	21	5.3	366	334	Yes
122	02-Jun	15:07	48.8378	126.2119	124	22	5.3	384	334	Yes
123	02-Jun	17:00	48.9675	126.2173	98	21	5.7	329	379	Yes
124	03-Jun	8:26	49.8037	127.6433	154	2	5.1	421	22	No
125	03-Jun	8:52	49.8065	127.6498	158	21	5.3	421	652	Yes
126	03-Jun	10:15	49.7621	127.6299	208	21	5.8	530	7260	Yes
127	03-Jun	12:56	49.7579	127.5403	187	21	5.3	530	5444	Yes
128	03-Jun	15:09	49.7572	127.5356	166	22	5.7	494	772	Yes
129	03-Jun	16:47	49.6961	127.3415	126	6	5.3	348	110	No
130	03-Jun	17:20	49.6853	127.2669	118	20	5.8	348	205	Yes
131	03-Jun	18:36	49.6149	127.3466	155	22	5.7	366	4536	Yes
132	04-Jun	7:06	49.5681	127.2683	171	21	5.2	457	549	Yes
133	04-Jun	9:03	49.3573	127.1371	139	19	6.0	384	702	Yes
134	04-Jun	9:59	49.2665	127.1262	358	24	5.0	823	431	Yes
135	04-Jun	10:57	49.2357	127.0717	280	21	5.2	823	1937	Yes
136	04-Jun	13:19	49.1952	126.9546	196	20	5.6	549	963	Yes
137	04-Jun	14:28	49.1226	126.9424	334	20	5.5	805	835	Yes
138	04-Jun	15:54	49.1223	126.8886	205	21	5.7	567	1983	Yes
139	04-Jun	17:39	49.1058	126.8341	177	20	5.2	530	661	Yes
140	04-Jun	19:06	49.1734	126.7767	126	22	5.3	348	242	Yes
141	05-Jun	7:03	49.0862	126.4913	124	21	5.6	366	129	Yes
142	05-Jun	7:46	49.1175	126.5241	118	22	5.6	366	170	Yes
143	05-Jun	8:26	49.1499	126.5446	111	21	5.5	329	125	Yes
144	05-Jun	9:46	49.2398	126.4621	67	21	5.8	238	94	Yes
145	05-Jun	11:15	49.1536	126.4009	84	22	5.6	256	-	No
146	06-Jun	7:02	49.1518	126.3984	87	21	5.5	274	202	Yes
147	06-Jun	7:47	49.1096	126.3521	88	16	5.6		-	No
148	06-Jun	8:22	49.112	126.3545	88	21	5.3	256	138	Yes
149	06-Jun	9:16	49.1124	126.2652	62	20	5.1	183	66	Yes
150	06-Jun	10:11	49.1463	126.2138	52	21	5.0		42	Yes
151	06-Jun	10:49	49.109	126.1917	51	17	4.9	165	39	Yes
152	06-Jun	11:47	49.0368	126.2759	90	21	5.2	256	97	Yes
153	06-Jun	13:16	48.936	126.4266	147	21	5.4	366	276	Yes
154	06-Jun	14:05	48.9711	126.5	151	21	5.8	402	2185	Yes
155	06-Jun	15:53	48.9948	126.5606	157	20	5.7	402	508	Yes
156	06-Jun	16:47	49.0055	126.6644	184	22	5.3	457	453	Yes
157	06-Jun	18:42	49.1214	126.7411	135	20	5.6	402	216	Yes
158	07-Jun	7:10	49.0984	126.8115	167	23	5.6	530	7000	Yes
159	07-Jun	8:59	49.067	126.89	331	20	5.6	805	430	Yes
160	07-Jun	10:12	49.007	126.8449	463	21	5.2	1024	224	Yes

Tow	Date	Time	Latitude	Longitude	Depth (m)	Duration (min)	Speed (km/h)	Warp (m)	Catch (kg)	Usable
161	07-Jun	11:15	49.0123	126.7653	258	21	5.5	658	2516	Yes
162	07-Jun	12:36	48.9543	126.7117	418	21	5.3	1024	308	Yes
163	07-Jun	14:29	48.8785	126.4096	156	21	5.8	439	244	Yes
164	07-Jun	15:45	48.8462	126.4938	185	20	5.3	476	191	Yes
165	07-Jun	16:50	48.7726	126.5346	374	21	5.1	914	480	Yes
166	08-Jun	7:01	48.7163	126.2451	179	21	5.6	457	3166	Yes
167	08-Jun	8:34	48.7648	126.1247	110	22	5.4	329	242	Yes
168	08-Jun	10:13	48.69	125.9739	82	21	5.4	274	132	Yes
169	08-Jun	11:56	48.7294	125.6937	164	24	5.4	530	296	Yes
170	08-Jun	13:38	48.8186	125.5736	47	22	5.8	165	70	Yes
171	08-Jun	15:26	48.7034	125.5676	110	21	5.4	348	240	Yes
172	08-Jun	16:31	48.7273	125.4246	108	21	5.0	311	250	Yes
173	09-Jun	6:58	48.7416	125.3196	103	21	5.2	274	304	Yes
174	09-Jun	8:40	48.6133	125.3473	113	21	5.6	311	407	Yes
175	09-Jun	9:25	48.5952	125.3562	120	21	5.0	348	363	Yes
176	09-Jun	11:12	48.6072	125.4889	167	21	5.5	439	461	Yes
177	09-Jun	12:56	48.6099	125.5149	150	21	4.8	494	563	Yes
178	09-Jun	13:56	48.6302	125.5946	94	21	5.4	256	484	Yes
179	09-Jun	15:31	48.5476	125.7618	75	21	5.0	256	443	Yes
180	09-Jun	16:31	48.5244	125.6041	74	21	5.4	238	472	Yes
181	09-Jun	17:28	48.4778	125.5104	82	21	5.6	256	228	Yes
182	10-Jun	7:03	48.6031	126.1469	167	20	5.4	457	896	Yes
183	10-Jun	8:16	48.514	126.1718	283	21	5.5	677	11000	Yes
184	10-Jun	10:26	48.5134	126.1419	187	20	5.6	530	590	Yes
185	10-Jun	11:15	48.4597	126.1432	247	21	5.1	658	486	Yes
186	10-Jun	12:57	48.3959	126.046	239	21	5.3	567	3075	Yes
187	10-Jun	15:01	48.3558	126.0934	420	24	4.9	914	456	Yes
188	10-Jun	16:37	48.3069	125.9138	277	21	5.1	604	641	Yes
189	10-Jun	18:22	48.2908	125.8665	275	21	5.3	768	2660	Yes
190	11-Jun	7:02	48.419	125.7969	127	20	5.3	329	731	Yes
191	11-Jun	8:37	48.3094	125.6658	133	21	5.9	329	898	Yes
192	11-Jun	10:06	48.322	125.6585	128	21	5.4	348	292	Yes
193	11-Jun	11:18	48.3428	125.6343	132	21	5.2	366	279	Yes
194	11-Jun	12:49	48.3748	125.6115	127	11	5.2	366	43	No
195	11-Jun	13:29	48.3776	125.636	135	20	5.4	366	294	Yes
196	11-Jun	14:47	48.4031	125.5542	118	4	4.0	348	-	No
197	11-Jun	16:58	48.4528	125.143	150	21	5.1	439	564	Yes
198	12-Jun	7:01	48.461	125.2269	144	21	5.6	439	354	Yes
199	12-Jun	8:19	48.4949	125.2528	135	21	5.8	439	354	Yes
200	12-Jun	9:22	48.5424	125.2743	100	9	6.1	293	52	No
201	12-Jun	10:42	48.6799	125.1841	69	21	5.4	220	113	Yes
202	12-Jun	12:10	48.6125	124.971	57	20	5.7	183	154	Yes

APPENDIX B: CATCH BY TOW (KG) <0.1 KG ENTERED AS –

Common Name	Scientific Name	Total Weight (Kg)	1	2	3	4	5
Arrowtooth Flounder	*Atheresthes stomias*	8316.5	12.1	23.5	21.0	129.0	86.8
Aurora Rockfish	*Sebastes aurora*	53.0					
Big Skate	*Beringraja binoculata*	281.2					14.3
Bigfin Eelpout	*Lycodes cortezianus*	33.5					
Blackbelly Eelpout	*Lycodes pacificus*	190.2					7.1
Bocaccio	*Sebastes paucispinis*	1225.6					
Canary Rockfish	*Sebastes pinniger*	8869.5					
Curlfin Sole	*Pleuronichthys decurrens*	54.5					
Darkblotched Rockfish	*Sebastes crameri*	250.0			0.2	1.5	3.7
Dover Sole	*Microstomus pacificus*	6946.0	135.5	71.1	96.2	116.4	91.8
English Sole	*Parophrys vetulus*	3080.4	118.7	2.8	3.0	1.6	
Eulachon	*Thaleichthys pacificus*	245.7	-			0.7	2.0
Flathead Sole	*Hippoglossoides elassodon*	2675.8					53.5
Green Sturgeon	*Acipenser medirostris*	15.8					
Greenstriped Rockfish	*Sebastes elongatus*	2164.1			33.6	5.6	0.5
Kelp Greenling	*Hexagrammos decagrammus*	10.9					
Lingcod	*Ophiodon elongatus*	1748.4	9.4		4.6		27.8
Longnose Skate	*Raja rhina*	1233.5	3.5		4.1	0.7	35.4
North Pacific Spiny Dogfish	*Squalus suckleyi*	18789.7			14.2	9.6	25.8
Pacific Cod	*Gadus macrocephalus*	1204.6	6.4	13.5	8.2	14.1	
Pacific Hake	*Merluccius productus*	5907.6				11.0	147.3
Pacific Halibut	*Hippoglossus stenolepis*	723.9	2.6				25.4
Pacific Ocean Perch	*Sebastes alutus*	8209.7			0.4	0.6	0.5
Pacific Sanddab	*Citharichthys sordidus*	2229.5					
Pacific Tomcod	*Microgadus proximus*	66.6					
Petrale Sole	*Eopsetta jordani*	1423.4	49.4	10.6	29.4	11.2	1.0
Plainfin Midshipman	*Porichthys notatus*	16.0					
Pygmy Rockfish	*Sebastes wilsoni*	38.6					
Quillback Rockfish	*Sebastes maliger*	49.9					
Redbanded Rockfish	*Sebastes babcocki*	859.7					
Redstripe Rockfish	*Sebastes proriger*	7234.8					
Rex Sole	*Glyptocephalus zachirus*	8750.0	52.8	3.8	29.9	40.5	123.8
Rosethorn Rockfish	*Sebastes helvomaculatus*	406.1					
Rougheye Rockfish	*S. aleutianus/ melanostictus*	356.1					
Sablefish	*Anoplopoma fimbria*	15919.5	1528.5	1084.4	1399.1	322.3	7.9
Sandpaper Skate	*Bathyraja interrupta*	47.4					
Sharpchin Rockfish	*Sebastes zacentrus*	16963.7					
Shortraker Rockfish	*Sebastes borealis*	143.4					
Shortspine Thornyhead	*Sebastolobus alascanus*	1317.8					
Silvergray Rockfish	*Sebastes brevispinis*	3876.9					
Slender Sole	*Lyopsetta exilis*	658.2			0.9	1.0	35.4
Southern Rock Sole	*Lepidopsetta bilineata*	541.3					
Splitnose Rockfish	*Sebastes diploproa*	9735.4					0.0
Spotted Ratfish	*Hydrolagus colliei*	4154.5	27.3	64.0	93.4	53.9	21.8
Threadfin Sculpin	*Icelinus filamentosus*	29.5					
Walleye Pollock	*Gadus chalcogrammus*	591.1	14.2	2.0	0.4	27.2	2.8
Widow Rockfish	*Sebastes entomelas*	102.0					
Yelloweye Rockfish	*Sebastes ruberrimus*	189.6					
Yellowmouth Rockfish	*Sebastes reedi*	195.6					
Yellowtail Rockfish	*Sebastes flavidus*	4965.4		5.5	3.8	13.8	8.2
Other Species		1993.4	2.4	0.8	1.6	2.0	2.5
Total			**1962.8**	**1282.0**	**1744.1**	**762.5**	**725.2**

Common Name	6	7	8	9	10	11	12	13	14	15	16
Arrowtooth Flounder	264.2	58.0	43.3	45.2	25.9	26.2	30.3	125.7	157.8	14.9	104.0
Aurora Rockfish								3.6			3.7
Big Skate	37.0										
Bigfin Eelpout								2.3			3.9
Blackbelly Eelpout	3.2		0.1		0.0						
Bocaccio			22.1	43.8	3.1	38.2	2.6			4.0	
Canary Rockfish			4.1	3.4	0.6		8.9			103.1	
Curlfin Sole											
Darkblotched Rockfish	2.6	0.6	0.3					8.2			0.7
Dover Sole	92.6	310.9	217.8	58.9	185.5	90.9	0.8	60.8	13.9	4.3	148.6
English Sole		4.2	1.0	77.7	81.2	123.2	1.9			48.6	1.0
Eulachon	1.4	0.7	6.0	0.5	0.2						
Flathead Sole	112.7	19.2	65.9	24.1	76.3	30.7	0.8				
Green Sturgeon											
Greenstriped Rockfish	0.9			1.8	0.7	1.3	32.0		4.1	120.9	
Kelp Greenling											
Lingcod	11.2			6.0			26.2		4.5	50.2	
Longnose Skate	39.2	41.0	16.4	7.2	8.1			2.9	25.2		15.4
North Pacific Spiny Dogfish	6.3	31.1	4.7	1.7	44.5	46.7	430.5	33.9	153.3	1192.0	30.8
Pacific Cod			10.8	0.5	40.2					16.2	
Pacific Hake	438.6	196.5	177.8	65.8	86.4	5.6		45.8	2.9	2.3	7.5
Pacific Halibut	16.8	8.3					154.9				13.1
Pacific Ocean Perch							29.7	77.2	866.7	19.7	7.6
Pacific Sanddab				0.4							
Pacific Tomcod											
Petrale Sole	6.2		4.7	60.9	37.4	22.5				48.1	7.7
Plainfin Midshipman											
Pygmy Rockfish						0.1					
Quillback Rockfish											
Redbanded Rockfish		0.7					4.6	9.6	14.0		6.5
Redstripe Rockfish				0.3	5.2	134.1	9.0		4.4	50.2	
Rex Sole	125.9	296.3	117.5	93.4	207.8	3.9	0.8	20.2	2.9	4.2	27.1
Rosethorn Rockfish							16.4		5.5	5.0	
Rougheye Rockfish	0.4	0.4						4.8			11.5
Sablefish	2.0	18.5	0.9	3.8	34.5	119.3		13.1	75.7	148.6	42.1
Sandpaper Skate		1.0			0.2	1.3		0.5			9.1
Sharpchin Rockfish						4.0	54.6		139.5	5.1	
Shortraker Rockfish									5.8		6.3
Shortspine Thornyhead							0.1	107.3	36.7	1.4	168.0
Silvergray Rockfish								1.8		21.2	1.9
Slender Sole	25.4	16.1	11.5	5.0	6.9	0.4	0.1	2.4	2.8		0.2
Southern Rock Sole											
Splitnose Rockfish	0.2							34.0	543.3		
Spotted Ratfish	34.9	43.8	28.7	30.1	5.6	4.0	22.5	1.4	26.1	30.7	
Threadfin Sculpin			0.1				0.6				
Walleye Pollock		20.9	11.2	22.3	16.2	0.9		1.0			
Widow Rockfish						0.5					
Yelloweye Rockfish							5.2			3.4	
Yellowmouth Rockfish											
Yellowtail Rockfish		3.3	80.9	31.9	153.7	203.2	9.0		5.7	39.3	
Other Species	3.6	4.6	8.9	3.0	1.4	6.3	2.1	14.0	-	11.0	92.7
Total	1225.3	1076.1	834.7	587.5	1021.5	863.3	843.4	570.5	2090.7	1944.5	709.4

Common Name	17	18	19	20	21	22	23	24	25	26	27
Arrowtooth Flounder	16.9	25.1		57.5	4.4	0.8	133.9	158.9	152.3	286.7	23.8
Aurora Rockfish					12.2	5.4					
Big Skate											
Bigfin Eelpout					2.3	0.9					
Blackbelly Eelpout											
Bocaccio	4.5	0.7		0.3			4.5	9.4	1.9	1.8	21.6
Canary Rockfish	321.0	32.9					86.8	1330.0	159.4	13.4	7.4
Curlfin Sole											
Darkblotched Rockfish										7.4	1.1
Dover Sole	3.2	133.7		6.4	157.6	126.5			6.6	24.7	11.4
English Sole	0.5	34.0							3.2	3.0	33.1
Eulachon		1.0									-
Flathead Sole		10.1								2.3	2.2
Green Sturgeon											
Greenstriped Rockfish	110.1	2.6		13.3			69.9	8.2	79.2	39.2	2.7
Kelp Greenling											
Lingcod	4.3			4.2			42.5	101.0	73.1	12.2	3.4
Longnose Skate					56.3	44.0	6.8	22.5	5.4		3.9
North Pacific Spiny Dogfish	1813.8	23.1		114.4	11.3	3.1	159.0	499.5	300.9	87.3	86.0
Pacific Cod	7.2	6.6					11.6			3.4	1.8
Pacific Hake		172.3		4.4	12.1	4.8					
Pacific Halibut								22.6	4.2	16.9	2.8
Pacific Ocean Perch	6.3			101.1			546.9	11.9		2.7	
Pacific Sanddab											
Pacific Tomcod											
Petrale Sole	7.7	28.0							2.0	2.4	12.8
Plainfin Midshipman											
Pygmy Rockfish									-		
Quillback Rockfish											
Redbanded Rockfish	9.1	1.3		7.3				22.4	4.1	11.6	
Redstripe Rockfish	5.1	0.7					976.8	43.6	9.8	160.4	
Rex Sole	7.7	185.6		2.7	18.4	21.8			21.3	48.9	56.3
Rosethorn Rockfish	9.5	0.1		0.2			69.1	16.7	17.4	14.7	
Rougheye Rockfish	3.6				4.3	9.2	4.0				
Sablefish	14.4	21.6		629.8	251.9	159.5	223.8	54.8	2.1	6.6	7.0
Sandpaper Skate		1.1			5.7						
Sharpchin Rockfish	59.4	0.9		5.3			1890.2	2273.0	279.8	893.5	12.3
Shortraker Rockfish					3.2	66.1	8.5				
Shortspine Thornyhead	3.6			1.9	51.9	61.3					
Silvergray Rockfish	88.6			2.1			190.2	286.0	12.4	2.3	
Slender Sole	0.4	9.5		0.3	0.0				3.2	2.5	8.8
Southern Rock Sole											
Splitnose Rockfish				65.7							
Spotted Ratfish	107.0	0.9		50.7			19.5	85.9	21.4	21.2	13.0
Threadfin Sculpin	0.5								-		-
Walleye Pollock		2.0								0.2	
Widow Rockfish		0.5					3.7	2.5			1.9
Yelloweye Rockfish	2.3						1.3	6.5	5.6	4.9	
Yellowmouth Rockfish											
Yellowtail Rockfish	23.9	50.5					51.0	43.4	5.5	4.1	647.5
Other Species	5.9	6.1		10.6	32.2	27.0	-	1.2	4.3	2.9	7.6
Total	**2636.5**	**750.9**	**0.0**	**1078.2**	**623.7**	**530.3**	**4500.0**	**5000.0**	**1175.1**	**1677.3**	**968.2**

Common Name	28	29	30	31	32	33	34	35	36	37	38
Arrowtooth Flounder	41.2	63.6	67.0	21.3	21.0	0.4	0.3	8.9		3.9	28.8
Aurora Rockfish				4.9	1.4						
Big Skate							16.4	5.9			
Bigfin Eelpout	1.1	0.9	0.4								
Blackbelly Eelpout			0.0		0.1						
Bocaccio											
Canary Rockfish											
Curlfin Sole							2.9			0.4	0.7
Darkblotched Rockfish	2.6	4.8	11.0		0.7						
Dover Sole	39.5	13.4	12.7	73.3	93.6	1.7	1.8	215.8		1.0	3.8
English Sole					11.0	1.6	11.7	156.1		7.3	21.5
Eulachon					1.4			11.9			0.7
Flathead Sole	0.4	1.4	14.1	0.9	28.1	1.4		64.9			38.7
Green Sturgeon											
Greenstriped Rockfish					1.7	0.4	0.5				
Kelp Greenling											
Lingcod			3.2		2.2		2.8				
Longnose Skate		25.8	9.8	2.5				7.3		0.2	
North Pacific Spiny Dogfish		4.2	4.1		17.0	10.9					
Pacific Cod					25.7	0.4	0.8	1.8		14.8	12.7
Pacific Hake	53.9	2.2		4.3	5.4			17.8			
Pacific Halibut		17.2					5.6	10.0			3.0
Pacific Ocean Perch	743.2	181.0	125.0								
Pacific Sanddab							29.4	2.5		42.0	169.8
Pacific Tomcod											
Petrale Sole	2.2				4.9			14.2		3.0	40.5
Plainfin Midshipman											
Pygmy Rockfish											
Quillback Rockfish											
Redbanded Rockfish	6.1	9.5	11.0	0.8							
Redstripe Rockfish								0.1			
Rex Sole	3.3	4.6	10.6	1.2	123.0	4.7	15.7	162.7			10.0
Rosethorn Rockfish	0.7	0.4									
Rougheye Rockfish	4.3	1.1	0.6	4.8							
Sablefish	37.6	459.8	373.1	92.7	38.5			5.8			9.9
Sandpaper Skate											
Sharpchin Rockfish					0.1		-				
Shortraker Rockfish				2.7	7.0						
Shortspine Thornyhead	19.0	15.1	7.8	41.1	5.5						
Silvergray Rockfish		2.1	2.5								
Slender Sole	0.3	1.3	1.3	0.2	5.1	0.4		6.6			3.0
Southern Rock Sole							5.2			38.7	38.1
Splitnose Rockfish	21.6	216.7	795.1								
Spotted Ratfish	1.4	4.7	1.6		11.9	2.5	6.2	54.1		4.8	16.1
Threadfin Sculpin		0.2									0.8
Walleye Pollock					5.4			2.6			
Widow Rockfish											
Yelloweye Rockfish											
Yellowmouth Rockfish											
Yellowtail Rockfish	14.8										
Other Species	3.5	7.3	4.2	15.5	14.2	8.3	234.6	18.6		0.1	2.0
Total	**996.7**	**1037.2**	**1455.1**	**266.3**	**424.7**	**32.8**	**333.8**	**767.5**	**0.0**	**116.2**	**400.1**

Common Name	39	40	41	42	43	44	45	46	47	48	49
Arrowtooth Flounder	5.3	7.2	55.6	56.1	2.3	0.8	7.2	1.1	4.9		2.4
Aurora Rockfish											
Big Skate	2.0							1.0	17.5	10.0	43.9
Bigfin Eelpout											
Blackbelly Eelpout		2.0		0.6	-			10.0	3.8	16.0	42.1
Bocaccio					0.4						
Canary Rockfish											
Curlfin Sole	1.6				1.7	1.8	3.3	0.5	0.3	0.2	
Darkblotched Rockfish		0.1	0.4	0.0					0.1		
Dover Sole	1.0	73.7	103.7	97.2	1.2	0.7	0.6	14.2	11.8	6.5	12.5
English Sole	55.1	1.2	8.3	3.9	4.6	0.9	15.0	39.8	112.3	21.5	67.1
Eulachon	0.2	0.6	0.5	-	-		0.1	4.3	0.8	2.7	19.9
Flathead Sole	12.4	86.0	16.5	21.4	16.9	1.3	72.9	41.8	65.2	22.4	80.3
Green Sturgeon											
Greenstriped Rockfish			1.1	3.8	1.3	0.1					
Kelp Greenling					0.5	0.1					
Lingcod	5.0			5.6		0.8			9.1	7.4	1.1
Longnose Skate		2.2	3.0	45.5	7.0			4.7	4.0		26.1
North Pacific Spiny Dogfish											
Pacific Cod			4.9	8.6	0.9	1.1	2.0				
Pacific Hake		1.2	7.7	47.9	0.3			1.3	2.9	2.0	7.9
Pacific Halibut		2.6	16.4	25.5							
Pacific Ocean Perch											
Pacific Sanddab	27.9		0.2	0.1	56.7	24.6	36.3	51.5	78.8	7.9	53.9
Pacific Tomcod	11.4							-	0.8	0.1	3.5
Petrale Sole	22.6	28.7	16.0	16.8	4.5	4.6	11.4	39.3	54.5	7.5	34.1
Plainfin Midshipman	0.4							0.9	0.8	3.7	4.1
Pygmy Rockfish											
Quillback Rockfish							2.8				
Redbanded Rockfish											
Redstripe Rockfish											
Rex Sole	11.2	82.4	114.5	102.9	1.9		7.8	8.0	19.4	12.6	18.8
Rosethorn Rockfish											
Rougheye Rockfish					0.8						
Sablefish			9.6	6.6					3.0		2.3
Sandpaper Skate											
Sharpchin Rockfish											
Shortraker Rockfish											
Shortspine Thornyhead											
Silvergray Rockfish											
Slender Sole	0.8	25.5	14.5	14.1		0.0	0.5	3.5	6.0	1.8	1.7
Southern Rock Sole	2.5			0.5	30.9	84.0	3.5			1.0	
Splitnose Rockfish											
Spotted Ratfish	52.1	46.3	93.1	143.4	27.0	54.1	21.9	88.5	77.7	69.0	405.5
Threadfin Sculpin	0.4			0.2	1.3	2.4	1.2	0.8	-		
Walleye Pollock	1.8	16.2	4.6	14.8	0.4	3.0	6.7	0.1	0.5	0.2	2.4
Widow Rockfish						0.2			0.2		
Yelloweye Rockfish											
Yellowmouth Rockfish											
Yellowtail Rockfish			15.9	8.1							
Other Species	4.7	3.3	3.9	7.7	3.1	8.7	0.6	37.2	67.7	9.5	27.2
Total	**218.4**	**379.1**	**490.5**	**631.4**	**163.7**	**189.1**	**193.8**	**348.3**	**541.9**	**201.9**	**856.7**

Common Name	50	51	52	53	54	55	56	57	58	59	60
Arrowtooth Flounder	0.1	2.4	0.2				0.2	1.5	64.4	27.4	37.3
Aurora Rockfish											
Big Skate	5.1						3.2	6.7			27.4
Bigfin Eelpout									0.8		
Blackbelly Eelpout	3.6	3.3	0.4							3.6	6.6
Bocaccio											0.4
Canary Rockfish											
Curlfin Sole				0.4	1.6	4.5	0.3	1.3			
Darkblotched Rockfish	-	0.4	0.1						8.6	3.8	3.4
Dover Sole	10.5	74.4	5.3	1.6	1.4	0.4	4.3	3.0	271.6	97.7	133.1
English Sole	37.0	42.8	85.7	19.0	24.3	3.9	79.6	49.5		1.3	10.3
Eulachon	42.3	74.1	1.1	0.1					0.8	3.6	2.2
Flathead Sole	69.5	33.3	9.1	1.2	0.4	0.4	3.5	5.5	2.4	10.1	45.1
Green Sturgeon											
Greenstriped Rockfish									7.3	2.9	0.8
Kelp Greenling											
Lingcod		0.8	5.7		5.7	5.8	1.2		2.8	8.9	7.6
Longnose Skate	3.0	6.5	3.9				2.7		16.1	4.8	20.5
North Pacific Spiny Dogfish									97.5	18.5	4.4
Pacific Cod					4.6	5.4		0.3		2.9	19.7
Pacific Hake	2.5	3.2							54.1	125.3	469.5
Pacific Halibut					6.9	7.7					6.9
Pacific Ocean Perch									31.2		
Pacific Sanddab	9.5		56.1	243.6	144.6	22.0	95.1	118.1			
Pacific Tomcod			-				0.9	0.2			
Petrale Sole	3.2	4.2	7.3	6.8	0.2		0.8	3.3	2.0	3.9	9.3
Plainfin Midshipman	3.3	0.3	1.5								
Pygmy Rockfish									0.1		
Quillback Rockfish											
Redbanded Rockfish										1.4	
Redstripe Rockfish											
Rex Sole	4.9	13.3	44.2	11.3	1.9	1.1	62.6	29.7	125.6	119.6	89.9
Rosethorn Rockfish											
Rougheye Rockfish										0.2	
Sablefish	0.8	1.9							19.4	0.5	3.7
Sandpaper Skate											
Sharpchin Rockfish										-	
Shortraker Rockfish											
Shortspine Thornyhead											
Silvergray Rockfish											
Slender Sole	1.5	2.7	0.1				7.6	3.4	3.9	8.1	11.6
Southern Rock Sole	0.3		0.7	3.8	66.2	58.6	8.4				
Splitnose Rockfish											
Spotted Ratfish	55.9	19.5	7.5	3.8	32.7	15.0	5.7	7.9	12.8	13.5	7.3
Threadfin Sculpin					0.5	0.3					
Walleye Pollock	0.4	1.6	0.8		0.1				5.3	0.5	0.3
Widow Rockfish											
Yelloweye Rockfish											
Yellowmouth Rockfish											
Yellowtail Rockfish										4.8	25.1
Other Species	2.8	27.0	3.1	0.5	0.9	3.8	29.2	28.9	24.3	10.7	3.9
Total	**256.1**	**311.6**	**232.9**	**292.1**	**291.8**	**128.8**	**305.4**	**259.4**	**751.0**	**474.2**	**946.3**

Common Name	61	62	63	64	65	66	67	68	69	70	71
Arrowtooth Flounder	4.5	2.2		3.8	14.0	5.4	23.0	9.2	42.6	18.0	30.4
Aurora Rockfish											
Big Skate	2.5						10.9				
Bigfin Eelpout										2.0	0.1
Blackbelly Eelpout	0.6	-		2.8	3.2	7.2	1.1	0.7			
Bocaccio			0.4						592.3		
Canary Rockfish		3.7							4.7	0.7	
Curlfin Sole											
Darkblotched Rockfish	0.1			0.2	1.7	1.3	0.9	1.2	0.3	9.9	0.8
Dover Sole	9.4	2.0	-	21.3	172.1	85.5	82.0	47.3	9.2	13.0	56.3
English Sole	43.8	46.7	1.7	14.1	6.8	13.7	1.7	3.5	19.4		
Eulachon				1.3	0.6	2.2	0.2	0.1			
Flathead Sole	6.9	2.1	0.2	7.2	43.7	109.2	45.7	30.3	5.8	0.9	
Green Sturgeon											
Greenstriped Rockfish					0.1	0.1	0.1	3.9	21.2		
Kelp Greenling											
Lingcod		26.7	1.0		0.8			7.4	25.9		
Longnose Skate					4.0	0.8	6.3	0.6	13.3		3.0
North Pacific Spiny Dogfish	10.7			3.9	5.1	1.0	15.3	12.9	24.6		
Pacific Cod	7.9	9.3	4.7	5.0	3.4	9.8	5.5	4.7	26.5		
Pacific Hake	19.1	2.0		9.5	23.9	21.3	1902.9	379.2	4.3	14.0	60.2
Pacific Halibut	3.4		14.5		8.9		3.9			11.0	
Pacific Ocean Perch										325.7	84.8
Pacific Sanddab	47.0	66.0	6.1	26.1		14.6					
Pacific Tomcod		1.5									
Petrale Sole	2.4	12.3		3.6	11.6	4.7	6.3	8.4	19.1		
Plainfin Midshipman											
Pygmy Rockfish									0.3		
Quillback Rockfish											
Redbanded Rockfish										35.0	0.8
Redstripe Rockfish											
Rex Sole	50.9	79.9	1.2	36.0	56.3	44.1	56.0	120.6	45.0	2.9	18.1
Rosethorn Rockfish									0.1	0.3	
Rougheye Rockfish											27.0
Sablefish	2.6			0.4	4.1	2.8	1.1	0.9		423.2	246.0
Sandpaper Skate				1.0	1.4						
Sharpchin Rockfish									1.0		
Shortraker Rockfish											
Shortspine Thornyhead										18.1	33.7
Silvergray Rockfish									5.7		
Slender Sole	4.8	1.4		4.0	3.1	4.8	2.5	8.1	2.7	0.8	0.1
Southern Rock Sole			29.2								
Splitnose Rockfish										693.2	5.6
Spotted Ratfish	9.4	8.9	28.9	13.2	14.3	24.2	9.4	5.5	4.6	0.9	1.3
Threadfin Sculpin		0.2							0.8	-	
Walleye Pollock	10.1			5.0	5.5	11.0	2.7	2.6			
Widow Rockfish		1.0								1.5	
Yelloweye Rockfish									0.3		
Yellowmouth Rockfish											
Yellowtail Rockfish	2.5	314.0	19.0		6.1	0.5	3.4	3.0	118.5		
Other Species	11.9	39.5	12.2	3.2	17.8	9.1	3.7	1.9	8.0	13.0	4.3
Total	**250.4**	**619.3**	**119.0**	**161.6**	**408.5**	**373.2**	**2184.7**	**651.9**	**996.2**	**1584.0**	**572.7**

Common Name	72	73	74	75	76	77	78	79	80	81	82
Arrowtooth Flounder	2.7	19.0	19.5	32.8	40.8	239.8	29.8	75.1	205.2	50.0	14.1
Aurora Rockfish	0.9										
Big Skate											
Bigfin Eelpout	0.5	0.1					2.2	2.2			
Blackbelly Eelpout										0.2	0.1
Bocaccio			7.5	1.5	0.6						
Canary Rockfish											14.2
Curlfin Sole											
Darkblotched Rockfish	1.5	34.5				8.3	1.2	2.8	0.9	2.1	
Dover Sole	48.0	3.7	9.6	9.2	10.4		89.5	63.6	17.6	25.9	17.0
English Sole				4.7	14.8	12.2			6.0		1.9
Eulachon											
Flathead Sole									7.6	1.0	
Green Sturgeon											
Greenstriped Rockfish		1.5	5.6	60.6	14.1	12.2			8.7	3.8	59.5
Kelp Greenling											
Lingcod				25.0	3.0	1.0			1.0		14.4
Longnose Skate	12.1	15.4			2.0		0.9	10.1	4.9	5.7	8.0
North Pacific Spiny Dogfish		1.9		19.6	13.8	93.7	8.6	6.5	22.9	347.1	61.1
Pacific Cod					31.0				20.8		
Pacific Hake	114.7		0.7				10.9	13.1	0.9	3.8	26.0
Pacific Halibut			6.5						5.5		
Pacific Ocean Perch	19.6	254.7	182.6	10.1		37.2	16.2	163.7		211.4	42.0
Pacific Sanddab											
Pacific Tomcod											
Petrale Sole			0.8	2.4	3.8				2.7		1.6
Plainfin Midshipman											
Pygmy Rockfish				1.2							2.2
Quillback Rockfish											
Redbanded Rockfish		12.5	224.5	11.0		31.8	8.5	4.3	4.7	39.7	2.1
Redstripe Rockfish				67.5							44.0
Rex Sole	42.3	1.5	0.8	80.3	78.7	38.7	166.2	127.9	133.5	52.5	112.4
Rosethorn Rockfish		2.5	22.7	3.2						6.3	8.7
Rougheye Rockfish	28.8						1.8	2.9			
Sablefish	119.7	832.8	285.2	4.0	4.3	1874.3	261.2	264.0	10.9	64.2	9.0
Sandpaper Skate							4.9	4.1			
Sharpchin Rockfish		363.1	573.3	181.7						203.9	59.7
Shortraker Rockfish											
Shortspine Thornyhead	50.1	5.4					46.3	51.3	1.7	15.3	0.7
Silvergray Rockfish		5.3	34.2	11.7	2.1	1.6		2.1	11.8	8.6	4.5
Slender Sole		0.2	-	0.6	2.9				21.1	4.0	6.2
Southern Rock Sole											
Splitnose Rockfish		20.7	9.2			65.3	1.7	1.2		15.1	0.8
Spotted Ratfish	1.1	1.0	1.8	4.0	2.5	5.1	3.2	5.6	1.7	8.9	5.7
Threadfin Sculpin				0.1			-				0.5
Walleye Pollock		0.6			0.4	7.5				1.7	
Widow Rockfish											
Yelloweye Rockfish				28.8							5.2
Yellowmouth Rockfish		17.2	149.9	1.8							
Yellowtail Rockfish				6.1		1.5					75.0
Other Species	7.3	6.7	-	17.0	14.8	-	1.8	1.6	20.1	1.6	5.6
Total	**449.3**	**1600.3**	**1534.4**	**584.6**	**239.9**	**2430.1**	**655.0**	**802.1**	**510.2**	**1072.6**	**602.4**

Common Name	83	84	85	86	87	88	89	90	91	92	93
Arrowtooth Flounder	21.4	27.6	36.4	27.3	29.0	98.1	20.8	118.3	11.2	11.6	11.9
Aurora Rockfish	1.2										
Big Skate										2.9	
Bigfin Eelpout		0.7									
Blackbelly Eelpout				0.3	0.3				0.2	-	-
Bocaccio			19.1								
Canary Rockfish			5.4			80.3	31.3	14.0	2.6		
Curlfin Sole											
Darkblotched Rockfish									0.1		
Dover Sole	106.3	63.0	12.1	23.3	17.4	7.4	14.7	56.0	20.3	20.5	13.2
English Sole				2.1	3.9			82.7	13.1	43.4	20.3
Eulachon					0.2				0.1	0.1	
Flathead Sole				53.0	126.1	18.8			30.8	29.3	60.3
Green Sturgeon											
Greenstriped Rockfish			191.9	1.7	0.1	6.9		0.2	0.7		0.3
Kelp Greenling											
Lingcod	6.1		11.5	1.0		13.9	55.3	5.4	2.9	17.1	3.6
Longnose Skate	15.6	27.5	9.3		0.8	12.4					
North Pacific Spiny Dogfish	14.5		6.0	3.6		887.8	9705.3	5.7		5.5	
Pacific Cod			41.6	2.8	10.3				10.0	16.4	3.2
Pacific Hake	0.1	0.5	2.9	4.1	6.1	0.6			11.6	0.4	
Pacific Halibut			9.0	9.6		17.6					
Pacific Ocean Perch		5.0			0.0						
Pacific Sanddab				0.1	4.5				11.8	78.2	18.0
Pacific Tomcod										1.3	
Petrale Sole	1.4		1.5		0.5	4.4		57.5	2.2	5.5	0.3
Plainfin Midshipman											
Pygmy Rockfish			7.5	0.5							
Quillback Rockfish											
Redbanded Rockfish		2.0				0.1					
Redstripe Rockfish			1594.0								
Rex Sole	3.6	12.6	32.4	77.5	17.4	4.8		164.1	36.4	35.7	39.1
Rosethorn Rockfish			6.0		0.1	2.0	-				
Rougheye Rockfish	3.4	21.8	7.7								
Sablefish	211.3	34.5	1.5	0.4	3.0	0.5	16.7	1.4		0.7	0.6
Sandpaper Skate		5.9									
Sharpchin Rockfish			48.5	0.3		32.6					
Shortraker Rockfish	5.0	12.1	2.1								
Shortspine Thornyhead	23.8	7.3	2.0			0.8	-				
Silvergray Rockfish			22.1	3.0		189.0		5.8			
Slender Sole		0.2		3.0	1.9	0.3		0.6	1.9	1.0	2.1
Southern Rock Sole											
Splitnose Rockfish											
Spotted Ratfish		3.4	5.1	0.6	5.0	53.1	153.7	4.8	1.8	34.7	6.3
Threadfin Sculpin				0.2	0.1	0.4					
Walleye Pollock				0.5	1.1				0.1	0.1	0.1
Widow Rockfish			-								
Yelloweye Rockfish			7.9	1.0							
Yellowmouth Rockfish											
Yellowtail Rockfish			160.2	4.1	10.4	7.9					
Other Species	20.5	4.2	6.1	3.2	10.7	1.5	2.2	2.4	1.5	10.7	3.0
Total	**434.3**	**228.3**	**2250.0**	**223.2**	**248.8**	**1441.3**	**10000**	**518.9**	**159.4**	**315.1**	**182.3**

Common Name	94	95	96	97	98	99	100	101	102	103	104
Arrowtooth Flounder	9.6	50.8	14.4	6.0	24.8	10.6	276.2	68.0	35.1		
Aurora Rockfish											
Big Skate											
Bigfin Eelpout											
Blackbelly Eelpout	1.9	-									
Bocaccio	1.1	0.4	1.0				8.4		21.0		
Canary Rockfish		16.7	13.5	8.4	12.9	2.2	19.9	2.5	4156.4		
Curlfin Sole	0.1									0.6	6.0
Darkblotched Rockfish											
Dover Sole	2.7	1.7	0.4	2.8	5.0	7.0	3.7	38.4	24.0		
English Sole	73.4	2.9						6.1	48.2		23.1
Eulachon	-										
Flathead Sole	10.0	1.4						1.7			
Green Sturgeon											
Greenstriped Rockfish	1.9	33.8	26.8	2.7	4.2	2.8	21.3	11.5	21.1		
Kelp Greenling										0.3	
Lingcod	1.8			0.8	11.8		109.4	22.5	35.6	3.1	4.5
Longnose Skate				18.3			41.1	6.5	2.4		
North Pacific Spiny Dogfish	1.2	28.0	26.3	7.9	77.4		5.8	10.3	8.9		0.2
Pacific Cod	11.6	2.8				1.7		3.3			
Pacific Hake	10.8	5.0	3.1		8.7	0.8	1.2				
Pacific Halibut	3.0	10.1	21.3		12.7		13.2		21.2	3.5	3.6
Pacific Ocean Perch		4.1	5.9	2.7	5.7						
Pacific Sanddab	0.8									0.2	44.0
Pacific Tomcod											1.0
Petrale Sole	3.0							9.0	75.3	0.3	
Plainfin Midshipman											
Pygmy Rockfish		0.1	0.1			0.2					
Quillback Rockfish										1.7	
Redbanded Rockfish		2.4	4.7	0.5	27.6	7.4	112.2				
Redstripe Rockfish		3.8	5.2	1.5		42.2	27.7	3.4	58.3		
Rex Sole	16.8	18.1	20.3	3.1	1.2	13.5	13.0	186.6	100.8		0.7
Rosethorn Rockfish		12.1	15.7	1.7	4.5	1.7	5.7		2.5		
Rougheye Rockfish											
Sablefish	7.3	25.0	12.9	1.7	7.7	1.9					
Sandpaper Skate											
Sharpchin Rockfish		361.3	337.0	55.3	6.2	8.8	2596.0		138.3		
Shortraker Rockfish											
Shortspine Thornyhead		11.3	16.0	2.0	17.5	1.9	24.5				
Silvergray Rockfish		25.6	28.1	5.1	1.6	1.5	305.4	11.0	621.5		
Slender Sole	1.4				0.5	-		16.2	2.9		
Southern Rock Sole										18.7	11.8
Splitnose Rockfish		2.4	15.0	2.7	0.3						
Spotted Ratfish	0.7	23.2	12.9	5.7	32.0	3.8	8.7	8.9	18.1	6.1	1.2
Threadfin Sculpin		0.5	0.1	-	-			0.2			
Walleye Pollock	74.7	1.4	0.7		2.6						
Widow Rockfish									-		
Yelloweye Rockfish									8.4		
Yellowmouth Rockfish		9.3	7.6	3.3			6.6				
Yellowtail Rockfish		1.5							-		
Other Species	0.3	2.5	4.1	6.4	4.7	2.0	-	2.1	-	7.7	2.8
Total	**234.2**	**658.1**	**593.4**	**138.6**	**269.4**	**110.0**	**3600.0**	**408.1**	**5400.0**	**42.1**	**98.9**

Common Name	105	106	107	108	109	110	111	112	113	114	115
Arrowtooth Flounder		19.7	4.9	17.2	50.6	5.2	16.0	18.6	119.1	4.2	1.9
Aurora Rockfish											
Big Skate	14.4	10.5	14.1								
Bigfin Eelpout											
Blackbelly Eelpout		0.3		2.6	3.7	0.1	0.1			0.5	0.1
Bocaccio				0.9	0.4	6.3	0.4			0.4	0.3
Canary Rockfish					1.0	21.8	28.7	425.2	42.6		
Curlfin Sole	0.7		1.4								
Darkblotched Rockfish				1.3	2.9				2.1	0.0	
Dover Sole	0.3	19.4	4.4	23.2	31.3	2.2	22.0	2.3	13.8	5.0	2.9
English Sole	47.9	27.6	25.4	3.2	2.4	4.7	15.4		3.9	14.8	58.9
Eulachon				3.3	2.0	0.1	0.0			0.2	0.0
Flathead Sole		40.2	2.5	37.1	83.9	9.2	61.2	8.0	7.6	7.2	2.4
Green Sturgeon		15.8									
Greenstriped Rockfish		0.3	-			4.8	0.3	8.6	73.7	2.6	
Kelp Greenling								0.4			
Lingcod	0.4	18.2	22.1	10.2	35.8	7.3	18.7	54.6	1.0	3.3	9.4
Longnose Skate		6.8			1.1			2.8			
North Pacific Spiny Dogfish	5.5	9.2	4.0	36.1	8.4	13.4	14.9	8.0	16.9	21.1	3.7
Pacific Cod		1.7	0.4	58.4		21.8	7.9		85.9	9.7	0.7
Pacific Hake		9.0		14.5	7.5	16.2	6.0				
Pacific Halibut						4.7		6.9			
Pacific Ocean Perch											
Pacific Sanddab	41.8	26.3	9.0			1.7	21.8	0.4		34.2	39.9
Pacific Tomcod	0.1	0.1	20.0								5.3
Petrale Sole	0.1	5.0	3.5	0.4			5.3	0.3	3.2	0.3	4.4
Plainfin Midshipman											0.0
Pygmy Rockfish								7.8			
Quillback Rockfish											
Redbanded Rockfish											
Redstripe Rockfish						38.9	2.9	0.3	0.5		
Rex Sole	18.4	77.5	129.6	84.6	93.6	12.1	30.6	17.1	69.9	25.9	57.8
Rosethorn Rockfish							0.7	0.5			
Rougheye Rockfish					0.2						
Sablefish		0.3		2.0	4.3		0.3			0.9	0.4
Sandpaper Skate			1.0								
Sharpchin Rockfish		0.1		0.1	0.1			0.4			
Shortraker Rockfish											
Shortspine Thornyhead											
Silvergray Rockfish											
Slender Sole		1.1		4.4	9.4	0.1	3.0	1.2	10.6	2.2	0.5
Southern Rock Sole	1.6		3.0								0.7
Splitnose Rockfish											
Spotted Ratfish	10.9	5.0	7.8	4.6	3.4	3.4	10.0	0.5	3.1	7.5	11.9
Threadfin Sculpin							0.1			0.1	
Walleye Pollock		0.6		1.1	0.6		0.3			2.6	
Widow Rockfish											
Yelloweye Rockfish							6.2	4.5			
Yellowmouth Rockfish											
Yellowtail Rockfish					29.1	38.4	421.3	16.4		0.4	
Other Species	11.5	2.7	2.2	3.0	2.8	1.4	1.5	3.1	3.3	2.7	5.4
Total	**153.7**	**297.3**	**255.2**	**308.4**	**374.3**	**213.6**	**695.7**	**587.9**	**457.2**	**145.8**	**206.5**

Common Name	116	117	118	119	120	121	122	123	124	125	126
Arrowtooth Flounder					12.4	17.4	9.7	4.8	1.3	14.9	25.2
Aurora Rockfish											
Big Skate		0.2	5.5	0.3							
Bigfin Eelpout			0.0								
Blackbelly Eelpout		4.4	0.7		0.3	7.2	3.5		-		
Bocaccio						0.4					7.5
Canary Rockfish					0.2					274.9	49.1
Curlfin Sole	0.6	0.4		0.3							
Darkblotched Rockfish					0.0	0.6	0.3	0.3	0.1		
Dover Sole	0.2	11.5	13.4		1.1	160.1	102.9	14.4		9.9	21.6
English Sole	24.4	93.6	17.1	4.9	48.8	2.3		55.7		0.6	
Eulachon		15.6	7.8		0.2	0.4	0.4	0.7			
Flathead Sole		10.6	4.8		16.6	4.6	6.0	15.9	0.1		
Green Sturgeon											
Greenstriped Rockfish					0.4		1.5		0.7	93.2	5.9
Kelp Greenling				2.6							
Lingcod	4.5	8.7	3.4	1.3	5.0	0.8	2.5	1.0		29.1	64.6
Longnose Skate		5.7	19.0	18.2			10.7	18.3	2.7	11.1	9.8
North Pacific Spiny Dogfish			5.4				6.4	7.4		35.7	126.9
Pacific Cod				0.4				1.4		3.9	0.6
Pacific Hake		3.4	4.1		7.5	24.6	41.9	155.2	5.1		
Pacific Halibut				15.7				4.1		6.2	
Pacific Ocean Perch											1.0
Pacific Sanddab	16.9	17.5	20.5	9.6	102.1	0.9		1.0			
Pacific Tomcod	0.0	5.6	7.0	0.0							
Petrale Sole	0.1	20.3	1.7		4.5		0.7	6.2		7.7	2.2
Plainfin Midshipman		0.3	0.3								
Pygmy Rockfish											
Quillback Rockfish			1.5	4.1							
Redbanded Rockfish											15.1
Redstripe Rockfish								0.2			
Rex Sole	12.7	22.8	15.1	0.9	39.8	86.4	115.5	57.5	2.4	25.4	13.8
Rosethorn Rockfish										5.5	16.3
Rougheye Rockfish											
Sablefish					6.6	1.7	2.4	0.8			10.5
Sandpaper Skate											
Sharpchin Rockfish						0.0	0.0				3143.9
Shortraker Rockfish											
Shortspine Thornyhead											12.1
Silvergray Rockfish										92.2	61.4
Slender Sole		0.5	0.4		7.8	5.3	9.2	7.4	0.1	1.8	3.3
Southern Rock Sole	3.8	0.7	0.5	13.8							
Splitnose Rockfish											
Spotted Ratfish	0.8	93.8	172.0	38.3	10.4	8.3	7.6	7.1		9.4	26.2
Threadfin Sculpin											-
Walleye Pollock		0.1	1.0			0.9		9.8			0.4
Widow Rockfish											
Yelloweye Rockfish										19.0	12.6
Yellowmouth Rockfish											
Yellowtail Rockfish						3.3	7.9			2.5	
Other Species	1.1	24.7	31.4	4.9	8.9	8.4	4.8	9.7	9.5	8.8	-
Total	**65.2**	**340.4**	**332.5**	**115.2**	**272.5**	**333.7**	**333.9**	**379.0**	**22.1**	**651.6**	**3630.0**

Common Name	127	128	129	130	131	132	133	134	135	136	137
Arrowtooth Flounder	357.0	102.0	10.4	33.2	120.6	167.8	8.7	49.8	67.1	44.9	34.6
Aurora Rockfish								2.4		0.4	
Big Skate											
Bigfin Eelpout									3.8		
Blackbelly Eelpout				-							
Bocaccio	207.4		0.6	0.4	93.5					0.5	
Canary Rockfish	112.2	49.1	4.7		662.7	51.8	305.8	10.3	2.6	3.0	
Curlfin Sole											
Darkblotched Rockfish									33.4	7.5	
Dover Sole	41.0	29.2	7.2		1.8	43.6		78.6	68.6	10.6	61.4
English Sole	11.5	5.5	23.2	52.4						11.3	
Eulachon				0.0							
Flathead Sole	2.4	0.6		17.4						1.5	
Green Sturgeon											
Greenstriped Rockfish	14.4	163.5	8.9	2.8	10.5	23.3	0.8			0.6	
Kelp Greenling											
Lingcod	148.1	32.5	0.9	7.3	28.3	26.5	3.3		5.4		
Longnose Skate	21.9	2.2			4.1	25.2		34.5	6.1		
North Pacific Spiny Dogfish	94.7	57.7	13.7	12.8	184.0	69.0	3.7	1.2		85.9	7.7
Pacific Cod	129.7	223.0	3.2		0.6						
Pacific Hake		2.5		4.8				1.8	6.1	27.0	26.4
Pacific Halibut				6.2	15.1	16.5		7.4			12.4
Pacific Ocean Perch	1.9							3.8	1016.4	86.9	332.6
Pacific Sanddab											
Pacific Tomcod											
Petrale Sole	22.7	20.0	4.1	0.3	160.8	1.2					
Plainfin Midshipman											
Pygmy Rockfish							0.7				
Quillback Rockfish											
Redbanded Rockfish	6.9				3.3	0.2		5.9	6.6	33.1	8.3
Redstripe Rockfish			1.5		20.1						
Rex Sole	184.3	31.3	15.7	49.1		25.7	1.1	9.2	32.7	46.3	89.0
Rosethorn Rockfish			0.9		2.2	3.0	3.5		0.4		
Rougheye Rockfish								27.9	34.0		9.1
Sablefish				3.8				168.2	274.5	493.5	194.8
Sandpaper Skate		0.1						1.6	1.3		1.6
Sharpchin Rockfish	23.3	0.8			29.0	59.7	13.0	0.3			
Shortraker Rockfish								15.8	8.9		
Shortspine Thornyhead		0.2						8.4	53.5	0.7	51.2
Silvergray Rockfish	1314.3	17.7		3.0	37.4	23.9	191.1		2.1		
Slender Sole		4.8	0.1	2.2					0.5	0.8	0.4
Southern Rock Sole											
Splitnose Rockfish									285.3	101.1	2.2
Spotted Ratfish	19.2	6.0	1.1	1.4	9.5	3.9	5.2	2.3	26.7		3.4
Threadfin Sculpin						0.6		0.3	-		
Walleye Pollock	6.4	1.6		0.5						3.3	
Widow Rockfish					16.7		0.3			1.0	
Yelloweye Rockfish							22.8				
Yellowmouth Rockfish											
Yellowtail Rockfish			12.9	5.7	862.2		1.7			2.9	
Other Species	2.9	21.5	0.6	1.5	5.5	7.1	140.5	1.8	0.7	0.8	-
Total	**2722.0**	**771.9**	**109.8**	**204.8**	**2268.0**	**549.0**	**702.3**	**431.4**	**1936.8**	**963.5**	**834.9**

Common Name	138	139	140	141	142	143	144	145	146	147	148
Arrowtooth Flounder	16.5	15.5	44.9	9.8	7.5				8.3		7.1
Aurora Rockfish											
Big Skate											
Bigfin Eelpout											
Blackbelly Eelpout			-	0.4	0.7	0.3			0.7		1.0
Bocaccio	2.4	21.8	1.1	0.8							
Canary Rockfish	3.0		3.0								
Curlfin Sole							0.7		0.4		0.2
Darkblotched Rockfish											0.2
Dover Sole	11.7	12.4	10.3	36.3	24.0	14.2			7.5		3.8
English Sole		7.1	10.0		0.8	6.5	19.7		42.4		26.0
Eulachon			0.6	0.8	0.7	0.4			0.1		
Flathead Sole			10.2	3.6	13.0	10.5	0.3		8.7		13.2
Green Sturgeon											
Greenstriped Rockfish	44.2	38.1	1.5		0.2	0.2					
Kelp Greenling											
Lingcod	4.2	1.3				4.6	22.3		11.2		17.9
Longnose Skate	18.7	5.5									0.6
North Pacific Spiny Dogfish	97.8	120.7	19.7	6.9		5.5					
Pacific Cod	4.5		4.7	8.9	24.2	16.7	0.3		8.2		2.6
Pacific Hake			7.1	2.6	15.0	2.9			3.0		14.8
Pacific Halibut			4.4			4.5					
Pacific Ocean Perch	7.1		1.3								
Pacific Sanddab				0.1	0.5	1.9	14.6		40.0		12.7
Pacific Tomcod							0.7				
Petrale Sole			1.4			1.8	2.1		1.4		3.1
Plainfin Midshipman							0.2				
Pygmy Rockfish		0.1									
Quillback Rockfish											
Redbanded Rockfish	27.8	0.3									
Redstripe Rockfish	129.5	66.1	1.9	0.2		0.1					
Rex Sole	47.2	75.3	97.8	50.6	62.0	36.9	20.9		43.7		8.7
Rosethorn Rockfish	3.4	0.8									
Rougheye Rockfish	2.0										
Sablefish	27.5	16.3	1.9		0.3				0.4		1.6
Sandpaper Skate		0.5									
Sharpchin Rockfish	671.6	111.6	1.2	0.6	0.2	0.1					
Shortraker Rockfish											
Shortspine Thornyhead	2.6										
Silvergray Rockfish	13.7	4.5									
Slender Sole			3.7	3.7	7.5	6.2			7.5		5.6
Southern Rock Sole							2.6				0.8
Splitnose Rockfish	87.2	1.4									
Spotted Ratfish	11.9	4.3	2.2	1.3	1.6	3.4	3.6		8.0		6.1
Threadfin Sculpin		0.0									
Walleye Pollock		0.4	0.5		0.3	0.6			0.2		0.6
Widow Rockfish	0.5	0.5									
Yelloweye Rockfish	2.5										
Yellowmouth Rockfish											
Yellowtail Rockfish		5.1	1.1	0.7	11.3	4.3	0.8				
Other Species	1.7	151.1	12.0	1.1	0.5	3.3	5.0		10.4		11.2
Total	**1239.2**	**660.7**	**242.5**	**128.6**	**170.3**	**125.0**	**93.8**	**0.0**	**202.0**	**0.0**	**137.7**

Common Name	149	150	151	152	153	154	155	156	157	158	159
Arrowtooth Flounder				4.3	61.7	54.1	385.8	29.1	50.9	63.7	17.9
Aurora Rockfish											
Big Skate							13.6	15.9			
Bigfin Eelpout											
Blackbelly Eelpout				0.3							
Bocaccio					0.4	1.0		0.4		40.8	
Canary Rockfish		0.5	4.7	1.2		81.9	2.9	36.2	4.8	24.2	
Curlfin Sole	2.1	3.3	0.8	0.4							
Darkblotched Rockfish				0.4							0.6
Dover Sole	0.1	-		3.4	13.2	6.9	18.4	0.6	11.5	15.2	31.6
English Sole	6.8	1.9		13.4	1.2		2.0	1.9	5.1	4.0	0.1
Eulachon				0.5							
Flathead Sole	4.4			2.8	3.0			0.3			
Green Sturgeon											
Greenstriped Rockfish				0.1	50.7	13.9	8.9	34.7	3.7	64.8	
Kelp Greenling		0.1	3.7								
Lingcod					18.5	18.9	1.5	62.1	1.9	31.0	
Longnose Skate	1.0							15.4	2.2		
North Pacific Spiny Dogfish	5.7				1.2	18.2	43.3	44.4	7.6	113.6	4.6
Pacific Cod			0.1		6.6				3.9	6.7	
Pacific Hake				27.4	0.7						32.5
Pacific Halibut								5.9			
Pacific Ocean Perch								0.4			81.4
Pacific Sanddab	26.9	6.8	1.3	0.5					0.1		
Pacific Tomcod	1.4	0.8	0.1	-							
Petrale Sole	-	0.1					1.5	4.7	0.3		
Plainfin Midshipman											
Pygmy Rockfish					4.9	5.7	0.2	2.3	0.1	4.5	
Quillback Rockfish			1.1	1.7							
Redbanded Rockfish					2.7	0.1	0.4	8.2	1.2	3.2	5.2
Redstripe Rockfish			0.1		8.8	716.9	2.9			2331.7	
Rex Sole	3.8	2.2	1.5	12.1	65.1	26.7	18.2	34.1	60.2	40.1	35.5
Rosethorn Rockfish					1.2	7.8		5.3	0.1	11.3	
Rougheye Rockfish											61.7
Sablefish				1.3	4.0	6.6	1.5	0.5	5.7	7.2	126.2
Sandpaper Skate					1.1						
Sharpchin Rockfish					17.2	244.5	1.8	91.5	4.4	601.4	
Shortraker Rockfish											
Shortspine Thornyhead											26.0
Silvergray Rockfish							1.4	45.4	24.1	97.0	2.4
Slender Sole				1.1	2.9		0.2	0.2	6.0		
Southern Rock Sole	6.4	12.5	9.9	1.7							
Splitnose Rockfish											
Spotted Ratfish	2.7	10.0	7.9	6.0	2.6	6.7	0.2	3.4	4.1	0.2	
Threadfin Sculpin			0.1		0.2	0.2	0.2	1.0		0.4	0.3
Walleye Pollock				7.5							
Widow Rockfish		0.2				24.3				2.4	
Yelloweye Rockfish						22.8		1.4		8.9	
Yellowmouth Rockfish											
Yellowtail Rockfish			2.4	0.4	3.9	88.2		1.5		2.3	
Other Species	4.8	3.5	5.4	11.0	4.2		2.7	6.5	17.6	25.4	4.1
Total	**66.0**	**41.8**	**38.8**	**97.3**	**275.9**	**1345.4**	**507.6**	**453.1**	**215.5**	**3500.0**	**430.0**

Common Name	160	161	162	163	164	165	166	167	168	169	170
Arrowtooth Flounder	2.3	13.8	4.0	19.4	26.5	14.6	235.0	8.0	2.6	10.2	
Aurora Rockfish			0.4								
Big Skate											
Bigfin Eelpout		0.3				1.3					
Blackbelly Eelpout			1.1					2.2		-	
Bocaccio				0.7			1.4				
Canary Rockfish				2.0	6.9	1.6	107.6	12.1			
Curlfin Sole									2.2		
Darkblotched Rockfish		0.4		14.6				2.2		0.2	
Dover Sole	40.7	8.9	66.9	21.8	5.0	56.8	23.6	21.2	4.8	62.2	
English Sole			1.2	0.2				8.8	4.4	0.5	0.2
Eulachon				0.2				2.4		9.7	0.1
Flathead Sole				0.3				3.5	3.0	1.5	
Green Sturgeon											
Greenstriped Rockfish		1.4		1.8	72.9	5.7	122.2	2.6			
Kelp Greenling											
Lingcod				1.0	7.6		44.6	3.8			4.7
Longnose Skate	5.8	2.1	44.6	8.0		12.9	12.4			5.6	1.3
North Pacific Spiny Dogfish		5.1			1.1		34.7	19.4	5.5		
Pacific Cod					1.0		1.4		2.3	2.7	12.6
Pacific Hake	2.6	3.3	3.0	0.3	0.9	107.9	19.6	8.8		31.2	
Pacific Halibut							11.1				
Pacific Ocean Perch	3.3	89.0	2.3	77.0	28.0	11.6	12.1	3.3			
Pacific Sanddab									52.8		2.0
Pacific Tomcod									2.0		-
Petrale Sole		1.0	2.4		0.2		13.5		3.1	1.9	
Plainfin Midshipman										0.1	
Pygmy Rockfish											
Quillback Rockfish											
Redbanded Rockfish		10.2				1.4	19.2				
Redstripe Rockfish							466.7				
Rex Sole	4.7	13.7	8.5	58.3	10.3	34.7	53.8	46.6	26.4	105.8	
Rosethorn Rockfish					10.6		14.8				
Rougheye Rockfish	2.4	10.7	25.0	7.0	3.1	5.1	3.6				
Sablefish	135.7	360.7	107.4	22.9	11.4	194.2	30.1	3.4	2.5	1.7	
Sandpaper Skate			0.4								
Sharpchin Rockfish		17.0	0.4		0.1		502.4	4.5			
Shortraker Rockfish											
Shortspine Thornyhead	18.0	17.5	28.7	2.9		28.7	0.5				
Silvergray Rockfish							3.5	3.1			
Slender Sole		0.5		0.5	0.2		3.0	4.0	2.2	0.8	
Southern Rock Sole									2.9		9.4
Splitnose Rockfish		1050.2	9.8	1.0							
Spotted Ratfish					1.3	1.2	10.3	12.6	3.4	43.7	38.6
Threadfin Sculpin					0.5						
Walleye Pollock								6.9		15.1	
Widow Rockfish							9.9				
Yelloweye Rockfish							5.8				
Yellowmouth Rockfish											
Yellowtail Rockfish					1.2		216.5	31.4	4.1		
Other Species	8.9	2.2	1.6	4.1	2.3	2.8	1.1	31.0	8.3	3.3	1.2
Total	**224.3**	**1607.9**	**307.9**	**244.0**	**191.1**	**480.4**	**1980.5**	**241.9**	**132.5**	**296.1**	**70.1**

Common Name	171	172	173	174	175	176	177	178	179	180	181
Arrowtooth Flounder	8.5	5.0	1.5	27.5	28.8	27.9	39.1	99.9	3.5	39.1	12.7
Aurora Rockfish											
Big Skate			0.2								
Bigfin Eelpout											
Blackbelly Eelpout	1.5	11.6	0.8	2.6	1.8		0.1				
Bocaccio								1.4			
Canary Rockfish							0.8	0.4	18.1	1.4	0.6
Curlfin Sole									4.2	1.0	
Darkblotched Rockfish				0.1	3.0	0.7	0.7				
Dover Sole	31.9	46.7	20.9	99.4	31.1	69.4	79.8	43.7	0.1	5.6	4.9
English Sole	54.2	5.6	53.0	2.2	0.4			14.0	28.1	67.2	24.4
Eulachon	2.0	4.0	4.1			0.1		0.2	0.6		
Flathead Sole	53.6	42.3	91.8	27.4	46.8	4.6	1.6	78.1	3.9	69.4	9.5
Green Sturgeon											
Greenstriped Rockfish								12.2	0.5		1.3
Kelp Greenling									0.3		
Lingcod				3.4				16.3	8.9		
Longnose Skate	1.3	15.2	8.9	7.0	2.5	12.7	6.1	4.9	6.7		
North Pacific Spiny Dogfish	1.3	2.3		7.1	17.8	8.5	6.8	3.3	1.5	3.8	8.4
Pacific Cod							2.8	15.9	0.7	2.9	0.8
Pacific Hake	2.1	2.5	1.2	10.3	90.4	78.9	28.4	8.1	1.3		
Pacific Halibut				6.0				4.2		17.3	6.9
Pacific Ocean Perch											
Pacific Sanddab	2.2	0.9	0.5	1.7	2.5				43.2	39.5	14.0
Pacific Tomcod											
Petrale Sole	8.8	3.6	0.1	0.9	3.8	1.4		29.4	10.8	63.1	8.4
Plainfin Midshipman	0.1										
Pygmy Rockfish											
Quillback Rockfish									0.3		
Redbanded Rockfish											
Redstripe Rockfish											
Rex Sole	20.9	26.9	11.9	117.9	66.4	179.9	221.4	45.1	19.8	9.3	1.0
Rosethorn Rockfish											
Rougheye Rockfish						0.2	3.5	0.4			
Sablefish	6.2		0.9	5.9	19.2			18.1	1.0	31.7	1.4
Sandpaper Skate			0.9								
Sharpchin Rockfish				-				0.7			
Shortraker Rockfish											
Shortspine Thornyhead											
Silvergray Rockfish											
Slender Sole	2.5	22.1	18.0	31.8	10.9	0.3	1.8	9.2		2.9	5.6
Southern Rock Sole	0.4								3.1	52.6	5.6
Splitnose Rockfish								0.7			
Spotted Ratfish	25.8	45.3	82.9	47.0	28.3	39.8	60.4	46.8	10.9	55.9	112.5
Threadfin Sculpin	0.4							1.3	0.3	0.5	5.9
Walleye Pollock	11.0	1.1	1.1	2.3	4.1	34.8	103.5	19.8			
Widow Rockfish								0.3	2.8		
Yelloweye Rockfish											
Yellowmouth Rockfish											
Yellowtail Rockfish				2.9	1.8		2.9	5.8	260.7	8.6	3.1
Other Species	4.8	15.3	5.1	3.8	4.0	1.7	3.0	3.7	11.7	0.5	1.6
Total	**239.6**	**250.1**	**303.9**	**407.2**	**363.4**	**460.6**	**562.6**	**483.8**	**442.8**	**472.2**	**228.4**

Common Name	182	183	184	185	186	187	188	189	190	191	192
Arrowtooth Flounder	537.7	20.2	49.4	16.9	9.0	2.2	19.2	30.6	53.8	98.3	22.3
Aurora Rockfish						16.5					
Big Skate											
Bigfin Eelpout					0.6	2.8		4.4			
Blackbelly Eelpout							-				
Bocaccio									5.6	9.9	4.5
Canary Rockfish	18.8	7.1	4.5						4.5	1.0	1.8
Curlfin Sole											
Darkblotched Rockfish		13.8		0.8			18.1	10.8			
Dover Sole	9.2	5.9	2.1	11.7	3.9	128.4	12.1	16.3	37.5	3.7	10.1
English Sole	23.9						1.3	2.7	46.3	3.6	5.3
Eulachon									0.0		
Flathead Sole									17.1	3.2	0.3
Green Sturgeon											
Greenstriped Rockfish	61.9	4.6	53.4	22.8					1.0	36.3	12.9
Kelp Greenling											
Lingcod	5.8		19.0	3.0						5.1	4.0
Longnose Skate	5.0					29.4			0.4		
North Pacific Spiny Dogfish	80.6	36.3	56.1	66.3	3.1		5.4	4.6	20.5	187.6	24.3
Pacific Cod			14.8						9.2	9.4	1.2
Pacific Hake		18.5	13.6	0.1		120.0		8.4	7.6		3.4
Pacific Halibut					6.4						
Pacific Ocean Perch		1447.8	27.3	87.8	496.6	20.6	69.5	171.0	5.5		
Pacific Sanddab	0.4										
Pacific Tomcod											
Petrale Sole	2.3								26.7	2.7	4.6
Plainfin Midshipman											
Pygmy Rockfish											-
Quillback Rockfish											
Redbanded Rockfish	0.2	-	-	3.1	30.4		3.9	10.9			
Redstripe Rockfish	0.9			0.6					0.4	105.5	13.0
Rex Sole	47.2	8.0	18.6	3.5	3.4	26.5	21.9	9.3	82.1	2.8	2.7
Rosethorn Rockfish	1.4	1.2	11.6	9.0	18.1	0.2	10.4	12.8		1.0	0.2
Rougheye Rockfish						9.8					
Sablefish	4.3	4.4	253.8	180.6	55.0	27.7	55.7	153.6	1.9	322.1	141.6
Sandpaper Skate		1.5				0.2					
Sharpchin Rockfish	0.5		22.7	52.1	734.4	7.4	8.7	7.4	0.3	0.8	2.1
Shortraker Rockfish											
Shortspine Thornyhead		39.0		5.9	68.5	48.1	17.2	35.6	2.2		
Silvergray Rockfish			8.8	8.0	1.7					1.9	
Slender Sole	3.3			0.3		0.1	5.4	3.9	1.4	-	
Southern Rock Sole											
Splitnose Rockfish		3883.4	3.6		282.2	4.6	388.4	1116.6	7.8		
Spotted Ratfish	19.9	4.5	2.0	13.1	3.7	0.4	1.3	0.9	1.1	12.0	2.7
Threadfin Sculpin	1.8	1.0	0.9		-				0.8	-	0.1
Walleye Pollock											
Widow Rockfish		1.2			6.5	1.9	1.6		3.4	13.4	3.2
Yelloweye Rockfish			1.7								
Yellowmouth Rockfish											
Yellowtail Rockfish	64.0	1.6	1.5		1.8			1.7	392.6	67.9	23.4
Other Species	7.0	-	25.0	0.1	-	8.9	0.9	-	1.1	9.6	8.1
Total	**896.0**	**5500.0**	**590.4**	**485.6**	**1725.2**	**455.7**	**641.2**	**1601.6**	**730.8**	**897.7**	**291.7**

Common Name	193	194	195	196	197	198	199	200	201	202
Arrowtooth Flounder	28.1	0.8	26.1		159.5	69.0	69.0	6.3		
Aurora Rockfish										
Big Skate										
Bigfin Eelpout										
Blackbelly Eelpout					-	5.4	15.1	-		
Bocaccio	1.3		0.6							
Canary Rockfish								1.1	0.6	10.1
Curlfin Sole							0.1		3.5	4.3
Darkblotched Rockfish					4.2	0.3	0.4			
Dover Sole	23.2	0.6	46.3		23.4	22.5	36.3	1.3	-	
English Sole	33.0	2.1	16.4		1.6	0.4	0.3	0.7	26.4	6.6
Eulachon	0.6	-	1.8		0.6	0.7				-
Flathead Sole	4.2	0.1	4.7		16.6	7.8	6.4	7.1	3.4	0.9
Green Sturgeon										
Greenstriped Rockfish	1.7	3.1	1.2		0.4					0.7
Kelp Greenling								0.5		2.7
Lingcod										2.2
Longnose Skate					7.2	15.6	16.0	3.8		
North Pacific Spiny Dogfish	25.4	7.2	12.9		9.3	8.6	32.8	7.8	4.0	4.9
Pacific Cod	6.3		2.6							1.5
Pacific Hake	5.8				2.9	1.3	0.9	1.9		
Pacific Halibut					11.8				2.4	
Pacific Ocean Perch					1.3					
Pacific Sanddab									24.8	8.1
Pacific Tomcod									2.7	
Petrale Sole	6.1		0.5				0.4		6.2	1.5
Plainfin Midshipman										0.1
Pygmy Rockfish										
Quillback Rockfish										36.7
Redbanded Rockfish										
Redstripe Rockfish	19.7	3.3	42.2		2.8	0.4		8.2	0.5	0.8
Rex Sole	41.5	2.4	78.0		92.9	34.3	52.9	6.4	16.7	3.7
Rosethorn Rockfish								0.4		
Rougheye Rockfish		0.7			5.9	0.8				
Sablefish	1.4		4.9		165.1	163.3	87.7	0.8		
Sandpaper Skate					0.3	0.8			0.2	
Sharpchin Rockfish		0.7						0.1		
Shortraker Rockfish										
Shortspine Thornyhead										
Silvergray Rockfish										
Slender Sole	0.4	-	0.7		18.1	10.4	15.7	3.0	0.1	
Southern Rock Sole	0.6								0.2	6.8
Splitnose Rockfish										
Spotted Ratfish	0.4	1.1	0.4		16.5	6.9	15.6	1.9	5.8	48.6
Threadfin Sculpin										0.1
Walleye Pollock	2.0	0.8	1.2		14.1	0.8	0.5	0.1	15.2	0.1
Widow Rockfish										
Yelloweye Rockfish								0.2	0.5	0.2
Yellowmouth Rockfish										
Yellowtail Rockfish	77.4	20.2	53.3		5.0	2.9				
Other Species	0.2	-	-		4.3	1.7	3.5	0.6	0.1	13.1
Total	**279.4**	**42.9**	**293.7**	**0.0**	**563.8**	**353.8**	**353.6**	**52.2**	**113.2**	**153.6**