

Summary of the Queen Charlotte Sound Synoptic Bottom Trawl Survey, July 2-28, 2013

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SURVEY,
JULY 2-28, 2013

by

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ABSTRACT

Nottingham, M. K., Williams, D. C., Wyeth, M. R., and Olsen, N. 2018. Summary of the Queen Charlotte Sound synoptic bottom trawl survey, July 2 - 28, 2013. Can. Manusc. Rep. Fish. Aquat. Sci. 3135: viii + 71 p.

A bottom trawl survey of Queen Charlotte Sound and southern Hecate Strait was conducted on the fishing vessel Nordic Pearl between July 2 and July 28, 2013. The survey was jointly conducted and funded by the Canadian Groundfish Research and Conservation Society (CGRCS) and Fisheries and Oceans Canada (DFO), and was the seventh in a series of surveys that began in 2003. The survey was conducted annually between 2003 and 2005 and biennially on the odd-numbered years after that. 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. Two hundred and forty-one (84.3%) of the 286 blocks assessed in 2013 were successfully fished. The mean catch per tow was 397 kg, with between 5 and 50 species per tow. The average number of species per tow was 22. The most abundant fish species encountered was Silvergray Rockfish (*Sebastes brevispinus*), followed by Pacific Ocean Perch (*Sebastes alutus*), Arrowtooth Flounder (*Atheresthes stomias*), North Pacific Spiny Dogfish (*Squalus suckleyi*) and Yellowtail Rockfish (*Sebastes flavidus*). Biological data, including individual length, weight, sex, maturity, and ageing structures were collected from selected species. Samples were collected from a total of 71 different species of fish. Oceanographic and fishing gear data including water temperature, depth, salinity, and dissolved oxygen, footrope to headline distance and dissolved oxygen were also recorded for most tows.

RÉSUMÉ

Nottingham, M. K., Williams, D. C., Wyeth, M. R. and Olsen, N. 2018. Sommaire du relevé synoptique au chalut de fond effectué entre le 2 et 28 juillet 2013 dans le détroit de la Reine Charlotte. Can. Manusc. Rep. Fish. Aquat. Sci. 3135: viii + 71 p.

Un relevé au chalut de fond a été effectué par le navire de pêche Nordic Pearl dans le détroit de la Reine Charlotte et dans le sud du détroit d'Hécate entre le 2 et le 28 juillet 2013. Le relevé a été réalisé et financé conjointement par la Canadian Groundfish Research and Conservation Society (CGRCS) et Pêches et Océans Canada (MPO). Il s'agit du septième relevé d'une série qui a commencé en 2003. Le relevé a été effectué chaque année entre 2003 et 2005, et aux deux ans, lors des années impaires, par la suite. Ce relevé 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 286 blocs évalués en 2013, 241 (84.3 %) ont fait l'objet d'une pêche. La moyenne des prises par trait était de 397 kg, avec une moyenne de 22 espèces différentes de poissons et d'invertébrés par trait. Les espèces de poissons capturées le plus fréquemment étaient le sébaste argenté (*Sebastes brevispinus*), suivi par le sébaste à longue mâchoire (*Sebastes alutus*), la plie à grande bouche (*Atheresthes stomias*), l'aiguillat commun du Pacifique Nord (*Squalus suckleyi*) et le sébaste à queue jaune (*Sebastes flavidus*). On a recueilli des données biologiques sur certaines espèces, notamment la longueur, le poids, le sexe, la maturité et l'âge. Les échantillons ont été prélevés sur un total de 71 espèces de poissons différentes. Les données océanographiques et sur les engins de pêche, 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 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.

In February 2003, funding was committed by the Canadian Groundfish Research and Conservation Society for the principal portion of the required vessel and net costs in addition to a significant portion of the scientific staff needed to conduct the survey and analyze the results. Funding by the Science Branch of Fisheries and Oceans Canada (DFO) was committed for additional scientific and sampling staff, and to provide the scientific sampling equipment.

The first Queen Charlotte Sound (QCS) synoptic bottom trawl survey was successfully completed in the summer of 2003 (Olsen et al. 2007a). 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 QCS and HS surveys conducted in odd-numbered years and the WCVI and WCHG 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 QCS survey was conducted annually from 2003 to 2005 (Olsen et al. 2007a, 2007b, and 2007c) and has since been scheduled to occur every second year. This document provides a brief summary of the results and methods from the seventh QCS synoptic bottom trawl survey which occurred between July 2 and July 28, 2013. It is not intended as a comprehensive review of the survey, nor does it provide interpretive analysis of the survey results. Summaries of the previous Queen Charlotte Sound surveys are given in Olsen et al. 2007a, Olsen et al. 2007b, Olsen et al. 2007c, Olsen et al. 2007d, Olsen et al. 2009 and Williams et al. 2017.

METHODS

SURVEY DESIGN

The survey area is Queen Charlotte Sound and the southern part of Hecate Strait excluding near-shore waters and inlets, areas closed to fishing, and protected sponge reef areas (Figure 1). The southern portion of Hecate Strait is included in order to provide coverage contiguous with the Hecate Strait synoptic bottom trawl survey.

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 QCS synoptic bottom trawl survey are 50-125m, 125-200m, 200-330m, and 330-500m (Table 1). Unlike the other synoptic survey areas where there is only a single spatial stratum, the QCS survey area was split along the Mitchell and Reed Troughs creating northern and southern areas (Figure 2). The combination of two spatial strata and four depth strata yields a total of eight strata (Table 1). For each survey in the QCS series, blocks are randomly selected within each stratum.

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 (predicted adjustment). 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 has been 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 tow in each strata should match the initial target allocation that was modeled based on the commercial fishing data.

For the 2013 QCS survey, 287 blocks were randomly selected based on a target of 240 useable tows (Table 1).

VESSEL

The survey was conducted aboard the F/V Nordic Pearl, a 35 m commercial stern trawler (Figure 3).

FISHING GEAR

The research trawl was an Atlantic Western IIA box trawl net connected to 800 kg Thyboron Type II 104 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 includes 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 has an 11 mm long-link steel chain frame and is 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 are constructed from single 4.5 mm strand 4 ½ inch web (Figure 8). All web in the main body and lengthening pieces is constructed from a compacted strand braided polyethylene (Euroline Premium). The codend is 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 includes flying wing, mid wing, bunt wing and bosom sections (Figure 9). The bosom section is built from 16 inch diameter (worn 18 inch) aircraft tires while the bunt and mid wing sections have 16 inch Rockhopper disks. The flying wings have 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 two sections or “legs” of two weeks in duration with five science staff each. Crew change was on July 15 (Table 3).

FISHING PROTOCOL

Fishing was carried out during daylight hours, commencing approximately 30 minutes after sunrise and ending 30 minutes before sunset each day. An average working day length of 15 hours, starting at approximately 0600 hrs in the morning and ending at 2100 hrs in the evening was typical.

Prior to fishing, the selected blocks were reviewed by the captain and chief scientist to determine a candidate set to visit throughout each day. During this review process, one or more blocks might be determined not fishable by the captain based on his 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 would be planned.

The captain 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, follow the same track so as to minimize the survey footprint.
3. If a block had not been fished in a previous year, 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, 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, make a tow such that at least 50 % of the tow is within the block.

The target tow length 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. Approximately one minute before the target tow length was completed, net haul back was initiated. The extra minute was intended to account for uptake of slack in the main warps. Although the target on-bottom time was 20 minutes, tows that were at least 14 minutes in length were accepted. This was a pragmatic decision that allowed for 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 captain 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”. The vessel would move 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 either “successfully fished on first attempt”, “successfully fished after multiple attempts”, or “rejected after last attempt failed”. Rejected blocks were removed from the sampling frame for all future surveys. This will increase the efficiency of subsequent surveys, as less time will be spent inspecting blocks that cannot be fished. Some selected blocks may

not have been fished but may also not have been rejected. This could occur 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 would be 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 in a lab below the trawl deck. Catch was sorted 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 large numbers of small individuals, some method of total catch estimation and sub-sampling for species composition was conducted. 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 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, each species had a minimum catch level that had to be exceeded in the tow before biological samples would be

collected. For rare species or species of special conservation concern the minimum number could be one fish, whereas for common and abundant species the number might be 25 or 50. The choice of the species to collect age samples from depended on the size of the catch of the species and the “desirability” of the species. The size 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 any conservation concerns and whether or not the species is commercially exploited. Biological samples were typically not collected from unusable tows.

Individual fish were measured to fork length, total length, standard length or other length depending on the species. Length measurements were collected to the nearest 1 cm for length samples, and 0.5 cm for age samples 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 the age of the fish (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 elongates*) 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 2013, tissue for DNA analysis was collected from Pacific Cod (*Gadus macrocephalus*) and English Sole (*Parophrys vetulus*).

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 since 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, beginning with the 2010 WCHG survey, biological samples were collected from every catch 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, which continues to be recorded as *S. aleutianus*, can then be partitioned into the two species using either the visual assessment or the results of genetic analyses. We do 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 Notus trawl mensuration system. Sensors attached to the net use acoustic signals to communicate with each other and the vessel and provide real-time net geometry including headline height and depth, as well as doorspread which is used to calculate swept area. The Notus 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 trails behind the footrope. The Hobo recorder measures acceleration in three axes which can then be converted into angles. The recorder is mounted in the sled such that the x-axis tilt indicates the angle of the steel sled. When the footgear contacts the bottom, the sled angle is approximately 80 degrees. When the footrope is off the bottom, the sled hangs down and the angle is approximately 40 degrees. These data are 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. The Hobo recorder was activated prior to the first tow of the day and downloaded at the end of each day.

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. Both the SBE39 and SBE19plus 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 2013 QCS synoptic bottom trawl survey was divided into two legs of two weeks each. From a total of 27 survey days, two days were required for travel and loading at the start of the survey and 2 days at the end of the survey, two days were required for offloading catch and changing crews. Thus, there was a total of about 21 full fishing days (Table 3).

From a total of 287 blocks selected for the 2013 survey, 241 blocks were successfully fished, 24 were rejected based on on-ground inspection and 21 blocks were rejected after one or more failed fishing attempts, while one block remained unassessed (Table 4 and Figure 10).

A total of 281 tows, of which 241 were useable and 40 were not useable were completed during the 23 days that some fishing occurred. Table 5 shows tow results by stratum for this survey. The scope (ratio of warp length to bottom depth) used for tows in 2013 is shown in Table 6 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 104,806 kg of fish and invertebrates was caught during the 2013 QCS survey. The total catch weight for useable tows was typically less than 1,000 kg per tow, and averaged 398 kg per tow (Figure 12). The majority of the catch (103,441 kg, 99%) consisted of 132 different species of fish, including 33 rockfish and 14 flatfish species. The remainder (1,365 kg) consisted of 164 invertebrate groups. The average number of species identified in useable tows was 20 with the minimum species count being five and the maximum count being 50 per tow (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 7. Of the fish species caught, Silvergray Rockfish (*Sebastes brevispinu*), was the most dominant by weight, followed by Pacific Ocean Perch (*Sebastes alutus*), Arrowtooth Flounder (*Atheresthes stomias*), North Pacific Spiny Dogfish (*Squalus suckleyi*) and Yellowtail Rockfish (*Sebastes flavidus*). Catch weights by tow for the 50 most commonly encountered species in this survey are included in Appendix B.

Commercially marketable fish were retained and sold with the proceeds going to the Canadian Groundfish Conservation and Research Society (Table 8).

BIOLOGICAL SAMPLING

Biological samples were collected from a total of 29,263 individuals of 71 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

Net mensuration and doorspread information was collected using Notus net sensors. Net headrope to bottom distance was collected from 144 tows, net headline depth from 150 tows and door spread information from 265 tows (Table 11).

Seabird SBE39 data (water temperature and depth) were collected from 267 tows while Seabird SBE19plus and SBE43 data (conductivity, water temperature, depth, and dissolved oxygen) were collected from 240 tows (Table 11 and Figure 14).

BCS data were collected from 251 tows (Table 11). An example of data collected by the BCS is show in Figure 15.

Global positioning system (GPS) data and bottom sounder data are available for all 281 tows.

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Table 1. 2013 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).

Area	Depth Stratum (m)	Target Tows	Predicted Adjustment	Total Block Allocation
South	50 - 125	32	0.20	40
	125 - 200	63	0.14	73
	200 - 330	27	0.23	35
	330 - 500	8	0.20	10
North	50 - 125	11	0.08	12
	125 - 200	49	0.20	61
	200 - 330	43	0.10	48
	330 - 500	7	0.13	8
Total		240		287

Table 2. Atlantic Western IIA box trawl net specifications on the 2013 QCS 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	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. Summary of operations during the 2013 QCS synoptic bottom trawl survey.

Date	Fishing			Blocks Assessed	Tows			Notes
	Start	End	Hours		Useable	Not Useable	Total	
7/2/2013	-	-	-	-	-	-	-	Load, set-up and travel
7/3/2013	-	-	-	-	-	-	-	travel
7/4/2013	5:59	20:41	15	6	6	3	9	
7/5/2013	6:17	20:54	14	15	14	0	14	
7/6/2013	6:23	21:18	15	6	5	0	5	
7/7/2013	5:57	20:15	15	16	16	0	16	
7/8/2013	6:15	19:05	13	16	13	1	14	
7/9/2013	6:02	21:26	15	13	12	1	13	
7/10/2013	6:27	21:15	15	18	16	0	16	
7/11/2013	6:18	20:50	14	14	14	1	15	
7/12/2013	6:01	20:49	14	15	14	2	16	
7/13/2013	6:04	19:00	13	14	14	0	14	
7/14/2013	6:45	21:07	15	14	13	2	15	
7/15/2013	21:00	21:19	0	1	1	0	1	science and boat crew change
7/16/2013	6:02	21:02	15	15	10	4	14	
7/17/2013	6:27	20:52	14	13	9	6	15	
7/18/2013	6:20	19:45	13	13	10	3	13	
7/19/2013	6:19	20:48	14	16	12	1	13	
7/20/2013	6:31	21:04	15	14	11	2	13	
7/21/2013	6:26	16:15	10	11	4	4	8	
7/22/2013	18:34	20:29	2	2	1	2	3	offload
7/23/2013	6:13	20:12	14	14	12	1	13	
7/24/2013	6:15	20:37	14	12	8	5	13	
7/25/2013	6:18	20:46	14	15	15	0	15	
7/26/2013	6:22	19:07	13	14	11	2	13	
7/27/2013	-	-	-	-	-	-	-	offload and travel
7/28/2013	-	-	-	-	-	-	-	travel
Total				287	241	40	281	
Average Per Day				12	10	2	12	

Table 4. Block results by stratum for the 2013 QCS synoptic bottom trawl survey.

Area	Depth Stratum (m)	Successful	Rejected Prior	Rejected Inspected	Rejected Failed	Not Assessed	Total
South	50 - 125	32	0	4	4	0	40
	125 - 200	66	0	2	5	0	73
	200 - 330	29	0	4	2	0	35
	330 - 500	10	0	0	0	0	10
North	50 - 125	9	0	3	0	0	12
	125 - 200	46	0	8	7	0	61
	200 - 330	44	0	2	1	1	48
	330 - 500	5	0	1	2	0	8
Total		241	0	24	21	1	287

Table 5. Tow results by stratum for the 2013 QCS synoptic bottom trawl survey.

Area	Depth Stratum (m)	Useable	Not Useable
South	50 - 125	32	7
	125 - 200	66	11
	200 - 330	29	2
	330 - 500	10	0
North	50 - 125	9	0
	125 - 200	46	15
	200 - 330	44	2
	330 - 500	5	3
Total		241	40

Table 6, Mean warp length and scope by 50 meter depth interval for the 2013 QCS synoptic bottom trawl survey.

Depth (m)	Mean Warp (m)	Mean Scope
0-50	183	3.98
50-100	227	3.29
100-150	382	2.92
150-200	495	2.88
200-250	628	2.79
250-300	752	2.78
300-350	872	2.75
350-400	926	2.56
400-450	1006	2.47
450-500	1097	2.21
500-550	1097	2.18
550-600	1280	2.23

Table 7. Frequency of occurrence, maximum catch weight, mean catch weight per tow, and total survey catch weight of each species captured during the 2013 QCS 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				
Silvergray Rockfish	<i>Sebastes brevispinis</i>	169	7330.00	135.86	23095.67
Pacific Ocean Perch	<i>Sebastes alutus</i>	147	1964.00	102.42	15260.01
Sharpchin Rockfish	<i>Sebastes zacentrus</i>	124	674.27	25.88	3157.44
Redbanded Rockfish	<i>Sebastes babcocki</i>	120	134.85	12.30	1475.61
Greenstriped Rockfish	<i>Sebastes elongatus</i>	95	37.09	4.34	412.68
Shortspine Thornyhead	<i>Sebastolobus alascanus</i>	93	117.08	17.89	1664.07
Redstripe Rockfish	<i>Sebastes proriger</i>	83	1077.63	83.82	6957.34
Yellowmouth Rockfish	<i>Sebastes reedi</i>	81	493.14	27.14	2198.31
Canary Rockfish	<i>Sebastes pinniger</i>	67	501.28	38.43	2575.09
Rosethorn Rockfish	<i>Sebastes helvomaculatus</i>	65	62.04	2.74	175.66
Rougheyeye Rockfish	<i>Sebastes aleutianus</i>	62	293.99	17.20	1066.32
Yelloweye Rockfish	<i>Sebastes ruberrimus</i>	50	18.32	5.11	255.70
Splitnose Rockfish	<i>Sebastes diploproa</i>	47	804.29	25.14	1156.57
Yellowtail Rockfish	<i>Sebastes flavidus</i>	46	1253.94	92.42	4251.18
Pygmy Rockfish	<i>Sebastes wilsoni</i>	42	5.84	0.42	17.74
Darkblotched Rockfish	<i>Sebastes crameri</i>	22	16.34	1.66	34.86
Quillback Rockfish	<i>Sebastes maliger</i>	20	34.40	6.03	120.57
Widow Rockfish	<i>Sebastes entomelas</i>	18	31.92	6.47	116.42
Harlequin Rockfish	<i>Sebastes variegatus</i>	15	41.84	3.57	53.54
Bocaccio	<i>Sebastes paucispinis</i>	10	266.38	36.22	362.18
Longspine Thornyhead	<i>Sebastolobus altivelis</i>	7	10.82	4.65	32.58
Rockfishes	Sebastinae (Sub Family)	7	0.03	0.02	0.04
Shorthead Rockfish	<i>Sebastes borealis</i>	5	31.16	14.74	73.71
Puget Sound Rockfish	<i>Sebastes emphaeus</i>	5	1.82	0.85	3.39
Shortbelly Rockfish	<i>Sebastes jordani</i>	4	0.48	0.24	0.97
Vermilion Rockfish	<i>Sebastes miniatus</i>	3	4.56	2.55	7.64
Aurora Rockfish	<i>Sebastes aurora</i>	3	2.50	1.54	4.62
Copper Rockfish	<i>Sebastes caurinus</i>	2	0.92	0.72	1.44
Scorpionfishes	Scorpaenidae (Family)	1	-	-	-
Chilipepper	<i>Sebastes goodei</i>	1	2.06	2.06	2.06
China Rockfish	<i>Sebastes nebulosus</i>	1	3.32	3.32	3.32
Stripetail Rockfish	<i>Sebastes saxicola</i>	1	0.14	0.14	0.14
Northern Rockfish	<i>Sebastes polyspinis</i>	1	-	-	-
Flatfishes	Order Pleuronectiformes				
Arrowtooth Flounder	<i>Atheresthes stomias</i>	243	1496.63	63.60	15392.28
Rex Sole	<i>Glyptocephalus zachirus</i>	226	156.06	13.22	2988.60
Dover Sole	<i>Microstomus pacificus</i>	175	127.76	13.79	2413.50
Slender Sole	<i>Lyopsetta exilis</i>	138	12.64	0.89	121.93
Petrale Sole	<i>Eopsetta jordani</i>	108	148.22	5.10	550.31
Flathead Sole	<i>Hippoglossoides elassodon</i>	100	193.18	10.96	1096.4
Pacific Halibut	<i>Hippoglossus stenolepis</i>	78	242.59	16.72	1304.07
English Sole	<i>Parophrys vetulus</i>	74	230.35	17.11	1249.02
Southern Rock Sole	<i>Lepidopsetta bilineata</i>	35	114.27	15.38	538.22
Pacific Sanddab	<i>Citharichthys sordidus</i>	21	214.56	18.51	388.78
Curlfin Sole	<i>Pleuronichthys decurrens</i>	12	4.15	1.39	16.70
Starry Flounder	<i>Platichthys stellatus</i>	1	4.50	4.50	4.50
Butter Sole	<i>Isopsetta isolepis</i>	1	0.11	0.11	0.11
Deepsea Sole	<i>Embassichthys bathybius</i>	1	0.74	0.74	0.74

Common Name	Scientific Name	Number of Tows	Catch Weight (kg)		
			Max	Mean	Total
Cod-Like Fishes		Order Gadiformes			
Pacific Cod	<i>Gadus macrocephalus</i>	150	142.18	8.59	1288.96
Walleye Pollock	<i>Gadus chalcogrammus</i>	117	240.71	17.27	2003.53
Pacific Hake	<i>Merluccius productus</i>	61	190.34	18.49	1127.67
Pacific Tomcod	<i>Microgadus proximus</i>	1	0.06	0.06	0.06
Bearded Rattail	<i>Coryphaenoides liocephalus</i>	1	9.24	9.24	9.24
Giant Grenadier	<i>Albatrossia pectoralis</i>	1	5.28	5.28	5.28
Cartilaginous Fish		Class Chondrichthyes			
Spotted Ratfish	<i>Hydrolagus colliei</i>	221	859.03	11.63	2570.39
North Pacific Spiny Dogfish	<i>Squalus suckleyi</i>	154	1411.12	22.21	3419.77
Longnose Skate	<i>Raja rhina</i>	78	22.3	6.62	516.62
Sandpaper Skate	<i>Bathyraja interrupta</i>	27	4.10	1.08	29.16
Big Skate	<i>Beringraja binoculata</i>	7	52.66	13.71	95.98
Alaska Skate	<i>Bathyraja parmifera</i>	5	2.18	1.14	5.71
Aleutian Skate	<i>Bathyraja aleutica</i>	3	8.42	5.78	17.34
Brown Cat Shark	<i>Apristurus brunneus</i>	1	0.32	0.32	0.32
Greenlings		Family Hexagrammidae			
Lingcod	<i>Ophiodon elongatus</i>	60	47.20	8.14	488.62
Kelp Greenling	<i>Hexagrammos decagrammus</i>	7	6.48	1.64	11.50
Sculpins		Family Cottidae			
Darkfin Sculpin	<i>Malacocottus zonurus</i>	39	1.08	0.28	8.65
Threadfin Sculpin	<i>Icelinus filamentosus</i>	21	4.63	0.65	13.58
Spotfin Sculpin	<i>Icelinus tenuis</i>	11	0.10	0.04	0.33
Tadpole Sculpin	<i>Psychrolutes paradoxus</i>	9	0.07	0.07	0.07
Slim Sculpin	<i>Radulinus asprellus</i>	9	0.14	0.11	0.21
Bigmouth Sculpin	<i>Hemitripterus bolini</i>	4	4.25	3.63	10.9
Roughspine Sculpin	<i>Triglops macellus</i>	3	0.06	0.04	0.13
Spinyhead Sculpin	<i>Dasycottus setiger</i>	3	0.06	0.06	0.06
Roughback Sculpin	<i>Chitonotus pugetensis</i>	2	0.13	0.13	0.13
Northern Sculpin	<i>Icelinus borealis</i>	2	0.03	0.03	0.03
Dusky Sculpin	<i>Icelinus burchami</i>	2	0.02	0.02	0.03
Thorny Sculpin	<i>Icelus spiniger</i>	1	-	-	-
Blackfin Sculpin	<i>Malacocottus kincaidi</i>	1	0.08	0.08	0.08
Buffalo Sculpin	<i>Enophrys bison</i>	1	0.09	0.09	0.09
Eelpouts		Family Zoarcidae			
Blackbelly Eelpout	<i>Lycodes pacificus</i>	85	36.34	1.98	154.8
Black Eelpout	<i>Lycodes diapterus</i>	33	1.80	0.29	7.83
Bigfin Eelpout	<i>Lycodes corteziianus</i>	26	2.49	0.72	17.89
Shortfin Eelpout	<i>Lycodes brevipes</i>	3	0.18	0.13	0.40
Wattled Eelpout	<i>Lycodes palearis</i>	2	0.05	0.05	0.09
Twoline Eelpout	<i>Bothrocara brunneum</i>	1	0.80	0.80	0.80
Pallid Eelpout	<i>Lycodapus mandibularis</i>	1	0.08	0.08	0.08
Poachers		Family Agonidae			
Bigeye Poacher	<i>Bathyagonus pentacanthus</i>	41	0.14	0.04	0.91
Smootheye Poacher	<i>Xeneretmus leiops</i>	17	0.08	0.05	0.54
Blacktip Poacher	<i>Xeneretmus latifrons</i>	3	0.10	0.04	0.13
Sturgeon Poacher	<i>Podotheucus accipenserinus</i>	2	0.68	0.39	0.77
Northern Spearnose Poacher	<i>Agonopsis vulsa</i>	1	-	-	-
Spinycheek Starsnout	<i>Bathyagonus infraspinnatus</i>	1	-	-	-
Blackfin Poacher	<i>Bathyagonus nigripinnis</i>	1	0.01	0.01	0.01
Gray Starsnout	<i>Bathyagonus alascanus</i>	3	-	-	-
Pygmy Poacher	<i>Odontopyxis trispinosa</i>	1	-	-	-
Lanternfishes		Family Myctophidae			
Lanternfish	<i>Tarletonbeania (Genus)</i>	5	-	-	-

Common Name	Scientific Name	Number of Tows	Catch Weight (kg)		
			Max	Mean	Total
Northern Lampfish	<i>Stenobranchius leucopsarus</i>	2	0.03	0.03	0.03
California Headlightfish	<i>Diaphus theta</i>	1	-	-	-
Other Fish					
Sablefish	<i>Anoplopoma fimbria</i>	95	162.76	8.30	788.08
Eulachon	<i>Thaleichthys pacificus</i>	67	39.28	3.03	203.12
Pacific Sand Lance	<i>Ammodytes personatus</i>	12	2.00	0.58	5.84
Northern Ronquil	<i>Ronquilus jordani</i>	10	0.19	0.04	0.29
Pacific Herring	<i>Clupea pallasii</i>	9	1.56	0.54	4.90
Pacific Lamprey	<i>Entosphenus tridentatus</i>	5	0.04	0.03	0.12
Pacific Viperfish	<i>Chauliodus macouni</i>	5	-	-	-
Snake Prickleback	<i>Lumpenus sagitta</i>	5	0.05	0.04	0.13
Hagfishes	Myxinidae (Family)	5	0.50	0.15	0.74
Pearly Prickleback	<i>Bryzoichthys marjorius</i>	4	0.06	0.04	0.08
Daubed Shanny	<i>Leptoclinus maculatus</i>	4	-	-	-
Pacific Spiny Lumpsucker	<i>Eumicrotremus orbis</i>	3	-	-	-
Snailfishes	<i>Liparis</i> (Genus)	3	-	-	-
Black Hagfish	<i>Eptatretus deani</i>	3	0.50	0.33	1.00
Pink Salmon	<i>Oncorhynchus gorbuscha</i>	2	2.89	2.29	4.59
Dwarf Wrymouth	<i>Cryptacanthodes aleutensis</i>	2	0.06	0.05	0.09
Sand Lances	Ammodytidae (Family)	1	-	-	-
Smalldisk Snailfish	<i>Careproctus gilberti</i>	1	-	-	-
Blacktail Snailfish	<i>Careproctus melanurus</i>	1	0.50	0.50	0.50
Golden Trout	<i>Oncorhynchus mykiss aguabonita</i>	1	0.07	0.07	0.07
Chum Salmon	<i>Oncorhynchus keta</i>	1	4.24	4.24	4.24
Sockeye Salmon	<i>Oncorhynchus nerka</i>	1	0.01	0.01	0.01
Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	1	7.58	7.58	7.58
Deepsea Smelts	Bathylagidae (Family)	1	-	-	-
Whitebarred Prickleback	<i>Poroclinus rothrocki</i>	1	0.01	0.01	0.01
Wolf Eel	<i>Anarrhichthys ocellatus</i>	1	6.66	6.66	6.66
Giant Wrymouth	<i>Cryptacanthodes giganteus</i>	1	2.25	2.25	2.25
Shining Tubeshoulder	<i>Sagamichthys abei</i>	1	0.03	0.03	0.03
Blue-eyed Searcher	<i>Bathymaster signatus</i>	1	-	-	-
Pricklebacks	Stichaeidae (Family)	1	0.14	0.14	0.14
Crabs and Shrimp					
Class Malacostraca					
Pink Shrimp (Smooth)	<i>Pandalus jordani</i>	131	11.36	1.35	155.44
Prawn	<i>Pandalus platyceros</i>	100	2.75	0.32	30.08
Sidestripe Shrimp	<i>Pandalopsis dispar</i>	78	6.04	0.64	43.16
Squat Lobster	<i>Munida quadrispina</i>	22	0.13	0.03	0.27
Yellowleg Shrimp	<i>Pandalus tridens</i>	19	0.20	0.13	0.25
Northern Crangon	<i>Crangon alaskensis</i>	15	-	-	-
Spike Shrimp (Horned Shrimp)	<i>Paracrangon echinata</i>	13	-	-	-
Crangons	<i>Crangon</i> (Genus)	9	-	-	-
Common Two-spined Crangon	<i>Neocrangon communis</i>	9	-	-	-
Graceful Decorator Crab	<i>Oregonia gracilis</i>	9	0.04	0.03	0.05
Redclaw Crab	<i>Chorilia longipes</i>	8	-	-	-
Brown Box Crab	<i>Lopholithodes foraminatus</i>	7	3.44	0.99	6.91
Glass Shrimp	<i>Pasiphaea pacifica</i>	6	-	-	-
Northern Argid	<i>Argis lar</i>	6	-	-	-
Common Argid	<i>Argis alaskensis</i>	5	-	-	-
Right-handed Hermits	Paguridae (Family)	5	1.66	0.45	1.8
Brown King Crab	<i>Paralithodes brevipes</i>	4	2.76	1.68	6.70
Cancer Crabs	Cancriidae (Family)	4	-	-	-
Barbed Eualid	<i>Eualus barbatus</i>	4	-	-	-
Coonstripe Shrimp	<i>Pandalus danae</i>	3	0.01	0.01	0.01

Common Name	Scientific Name	Number of Tows	Catch Weight (kg)		
			Max	Mean	Total
Dungeness Crab	<i>Metacarcinus magister</i>	3	1.53	0.79	2.37
Inshore Tanner Crab	<i>Chionoecetes bairdi</i>	2	0.16	0.16	0.16
Decorator Crabs	<i>Oregonia</i> (Genus)	2	0.13	0.08	0.15
Furrowed Rock Crab	<i>Cancer branneri</i>	2	-	-	-
-	<i>Pagurus</i> (Genus)	2	0.02	0.02	0.02
Scaled Crab	<i>Placetron wosnessenskii</i>	2	0.10	0.10	0.10
Bristly Crab	<i>Acantholithodes hispidus</i>	2	0.05	0.05	0.09
-	<i>Eualus</i> (Genus)	2	-	-	-
Isopods	Isopoda (Order)	2	-	-	-
Pandalid Shrimp	Pandalidae (Family)	1	-	-	-
Pink Shrimp	<i>Pandalus borealis</i>	1	-	-	-
Deepsea Eualid	<i>Eualus biunguis</i>	1	-	-	-
Nelson's Argid	<i>Argis levior</i>	1	-	-	-
-	<i>Argis</i> (Genus)	1	-	-	-
Bluespot Shrimp	<i>Pandalus stenolepis</i>	1	-	-	-
-	<i>Lithodes</i> (Genus)	1	0.05	0.05	0.05
Pygmy Rock Crab	<i>Glebocarcinus oregonensis</i>	1	-	-	-
Sea Stars	Class Asteroidea				
Rose Starfish	<i>Crossaster papposus</i>	41	0.09	0.04	0.53
-	<i>Henricia</i> (Genus)	31	0.53	0.18	1.23
-	<i>Poraniopsis inflatus inflatus</i>	29	0.44	0.20	5.31
Mud Star	<i>Ctenodiscus crispatus</i>	26	8.01	1.04	16.76
-	<i>Cheiraster dawsoni</i>	21	0.30	0.07	0.97
Vermillion Starfish	<i>Mediaster aequalis</i>	18	0.90	0.14	1.66
Spiny Red Sea Star	<i>Hippasteria spinosa</i>	14	0.38	0.26	3.42
Fish-eating Star	<i>Stylasterias forreri</i>	12	0.40	0.17	1.39
Sand Star	<i>Luidia foliolata</i>	11	3.40	0.50	5.00
Cookie Star	<i>Ceramaster patagonicus</i>	9	0.17	0.09	0.52
Cushion Star	<i>Pteraster tessellatus</i>	9	2.57	0.56	4.51
-	<i>Diplopteraster multipes</i>	6	0.07	0.07	0.13
-	<i>Solaster</i> (Genus)	6	0.09	0.09	0.09
Long-armed Sea Star	<i>Orthasterias koehleri</i>	6	0.47	0.20	0.60
-	<i>Leptychaster arcticus</i>	6	-	-	-
Blood Star	<i>Henricia spiculifera</i>	4	-	-	-
-	<i>Dipsacaster borealis</i>	3	0.22	0.16	0.48
-	<i>Pseudarchaster dissonus</i>	3	0.05	0.04	0.07
Starfish	Asteroidea (Class)	3	-	-	-
-	<i>Hippasteria</i> (Genus)	2	0.15	0.11	0.21
-	<i>Mediaster</i> (Genus)	2	-	-	-
-	<i>Nearchaster aciculosus</i>	2	0.06	0.06	0.06
-	<i>Dipsacaster</i> (Genus)	2	0.25	0.17	0.33
-	Solasteridae (Family)	2	-	-	-
-	Pterasteridae (Family)	2	-	-	-
-	<i>Lophaster furcilliger</i>	2	0.03	0.03	0.03
-	<i>Lophaster</i> (Genus)	2	0.03	0.03	0.03
-	<i>Henricia aspera</i>	2	-	-	-
-	<i>Astrocles</i> (Genus)	2	0.20	0.14	0.28
Sunflower Starfish	<i>Pycnopodia helianthoides</i>	2	4.09	2.21	4.41
Pink Short-spined Star	<i>Pisaster brevispinus</i>	1	0.46	0.46	0.46
Mottled Star	<i>Evasterias troschelii</i>	1	-	-	-
-	<i>Pedicellaster magister</i>	1	-	-	-
-	<i>Pedicellaster</i> (Genus)	1	-	-	-
-	<i>Pteraster marsippus</i>	1	0.06	0.06	0.06
-	<i>Pteraster</i> (Genus)	1	0.01	0.10	0.10

Common Name	Scientific Name	Number of Tows	Catch Weight (kg)		
			Max	Mean	Total
Morning Sun Starfish	<i>Solaster dawsoni</i>	1	0.06	0.06	0.06
Striped Sun Starfish	<i>Solaster stimpsoni</i>	1	-	-	-
-	<i>Solaster paxillatus</i>	1	0.30	0.30	0.03
-	<i>Lophaster furcilliger vexator</i>	1	0.13	0.13	0.13
-	<i>Cheiraster</i> (Genus)	1	-	-	-
-	<i>Diplopteraster</i> (Genus)	1	0.31	0.31	0.31
-	Echinasteridae (Family)	1	-	-	-
-	Luidiidae (Family)	1	-	-	-
Brittle Stars	Class Ophiuroidea				
-	<i>Ophiura sarsi</i>	43	0.13	0.06	0.62
Basket Star	<i>Gorgonocephalus eucnemis</i>	34	0.96	0.31	10.08
-	Ophiactidae (Family)	31	1.03	1.03	1.03
-	<i>Amphiophiura</i> (Genus)	4	0.16	0.16	0.16
-	<i>Amphiophiura ponderosa</i>	4	0.13	0.10	0.19
-	Ophiuridae (Family)	2	0.12	0.12	0.12
Basket Stars	Euryalina (Sub Order)	1	0.25	0.25	0.25
-	<i>Ophiacantha</i> (Genus)	1	-	-	-
-	<i>Ophiacantha rhachophora</i>	1	-	-	-
Sea Cucumbers	Class Holothuroidea				
Whitespotted Sea Cucumber	<i>Parastichopus leukothele</i>	37	12.30	0.90	32.20
Soft Sea Cucumber	<i>Pseudostichopus mollis</i>	26	2.00	0.30	8.20
Papillose Sea Cucumber	<i>Synallactes challengerii</i>	23	0.10	0.10	0.80
Giant Red Sea Cucumber	<i>Parastichopus californicus</i>	7	0.90	0.30	2.10
Sweet Potato Sea Cucumber	<i>Molpadia intermedia</i>	4	0.30	0.30	0.50
Sea Cucumbers	Holothuroidea (Class)	3	0.16	0.16	0.16
Armoured Sea Cucumber	<i>Psolus chitinoides</i>	1	-	-	-
Smoothplated Pentamera	<i>Pentamera lissoplaca</i>	1	-	-	-
Octopuses and Squid	Class Cephalopoda				
Pacific Bobtail Squid	<i>Rossia pacifica</i>	83	0.39	0.06	1.99
Schoolmaster Gonate Squid	<i>Berryteuthis magister</i>	44	8.04	1.52	66.84
Giant Pacific Octopus	<i>Enteroctopus dofleini</i>	5	1.86	0.69	3.45
Squids	Teuthida (Order)	4	0.71	0.31	0.93
Opalescent Inshore Squid	<i>Doryteuthis opalescens</i>	3	1.79	0.96	1.91
-	<i>Benthoctopus</i> (Genus)	3	0.10	0.08	0.16
Smoothskin Octopus	<i>Benthoctopus leioderma</i>	2	0.07	0.07	0.07
Octopus	<i>Octopus</i> (Genus)	2	-	-	-
Sea Urchins	Super Order Echinacea				
Fragile Urchin	<i>Allocentrotus fragilis</i>	113	3.39	0.54	54.06
Pallid Urchin	<i>Strongylocentrotus pallidus</i>	34	1.23	0.21	4.19
Jellyfish	Phylum Cnidaria				
Lions Mane	<i>Cyanea capillata</i>	45	4.48	0.73	31.58
Jellyfish	Scyphozoa (Class)	21	0.87	0.25	1.51
-	<i>Periphylla periphylla</i>	6	-	-	-
Fried Egg Jellyfish, Egg Yolk Jelly	<i>Phacellophora camtschatica</i>	2	1.39	1.02	2.05
-	<i>Chrysaora melanaster</i>	1	0.61	0.61	0.61
Anemones and Corals	Class Anthozoa				
Sea Whip	<i>Balticina septentrionalis</i>	31	1.26	0.20	5.74
-	<i>Primnoa</i> (Genus)	20	156.48	17.50	350.01
-	<i>Metridium</i> (Genus)	17	9.50	2.24	38.05
-	Hormathiidae (Family)	12	1.26	0.31	2.81
-	<i>Stomphia</i> (Genus)	9	0.16	0.07	0.33
Sea Pen	<i>Ptilosarcus gurneyi</i>	7	0.44	0.15	1.02
Bubble Gum Coral	<i>Paragorgia arborea</i>	6	5.55	1.74	10.44
-	Liponematidae (Family)	5	0.56	0.23	0.93

Common Name	Scientific Name	Number of Tows	Catch Weight (kg)		
			Max	Mean	Total
Anemone	Actiniaria (Order)	4	0.20	0.15	0.44
-	<i>Anthoptilum grandiflorum</i>	2	0.03	0.03	0.05
-	<i>Urticina</i> (Genus)	1	0.09	0.09	0.09
-	<i>Pachycerianthus</i> (Genus)	1	-	-	-
-	<i>Paragorgia pacifica</i>	1	0.30	0.30	0.30
Snails and Slugs	Class Gastropoda				
Oregontriton	<i>Fusitriton oregonensis</i>	34	1.00	0.14	2.31
White Night Doris	<i>Doris odhneri</i>	12	0.01	0.01	0.01
Adams Spiny Margarite	<i>Cidarina cidaris</i>	11	-	-	-
Gastropods	Gastropoda (Class)	5	0.12	0.12	0.12
Silvery Topsnail	<i>Calliostoma platinum</i>	3	-	-	-
Whelks	Buccinidae (Family)	3	0.02	0.02	0.02
-	<i>Neptunea</i> (Genus)	3	0.05	0.04	0.11
-	<i>Aplysiopsis</i> (Genus)	1	-	-	-
Giant Orange Tochui	<i>Tochuina tetraquetra</i>	1	0.48	0.48	0.48
California Armina	<i>Armina californica</i>	1	-	-	-
Rosy Tritonia	<i>Tritonia diomedea</i>	1	0.39	0.39	0.39
-	Trichotropididae (Family)	1	0.06	0.06	0.06
-	<i>Fusitriton</i> (Genus)	1	0.08	0.08	0.08
Rock Snails	Muricidae (Family)	1	-	-	-
Vortex Margarite	<i>Margarites vorticifer</i>	1	-	-	-
Other Invertebrate Species					
Glass Sponges	Hexactinellida (Class)	99	100.68	3.54	332.77
-	Antedonidae (Family)	30	0.16	0.09	0.17
Bath Sponges	Demospongiae (Class)	20	9.95	1.44	28.78
Salp	<i>Pegea confederata</i>	18	0.24	0.11	0.85
Heart Urchins	Atelostomata (Super Order)	16	3.88	0.84	9.21
Peanutworms	Sipuncula (Phylum)	14	0.03	0.02	0.05
Sea Mouse	<i>Aphrodita</i> (Genus)	13	0.20	0.07	0.44
Pink Scallop, (aka Reddish Scallop)	<i>Chlamys rubida</i>	7	34.25	5.86	35.17
Spiny Scallop	<i>Chlamys hastata</i>	4	13.19	6.21	18.63
Polychaete Worms	Polychaeta (Class)	4	0.08	0.04	0.08
Proboscis Worm	<i>Nemertea</i> (Phylum)	3	0.03	0.02	0.04
Lampshells	Brachiopoda (Phylum)	3	-	-	-
Hydrocorals	Stylasteridae (Family)	2	0.06	0.06	0.06
-	Flatworms (Phylum)	2	0.03	0.02	0.04
Scallop	<i>Pectinidae</i> (Family)	2	0.18	0.12	0.23
-	<i>Halocynthia</i> (Genus)	2	0.06	0.06	0.06
-	Echinoidea (Class)	1	-	-	-
Ascidians And Tunicates	Asciacea (Class)	1	0.04	0.04	0.04
-	<i>Molgula</i> (Genus)	1	-	-	-
Bivalve Molluscs	Bivalvia (Class)	1	-	-	-
-	Palaeotaxodonta (Sub Class)	1	1.42	1.42	1.42
-	Bryozoa (Phylum)	1	-	-	-
-	<i>Sarsia</i> (Genus)	1	0.02	0.02	0.02

Table 8. Offloaded catch weight by species by the F/V Nordic Pearl during the 2013 QCS synoptic bottom trawl survey.

Species	Weight (kg)
Bocaccio	79.9
Canary Rockfish	1,803.3
Darkblotched Rockfish	17.8
Dover Sole	1,143.1
English Sole	252.2
Flathead Sole	2.2
Greenstriped Rockfish	4.4
Lingcod	11.5
Pacific Cod	305.0
Pacific Ocean Perch	12,674.5
Petrale Sole	142.5
Quillback Rockfish	8.9
Redbanded Rockfish	549.2
Redstripe Rockfish	4,791.4
Rex Sole	78.1
Rosethorn Rockfish	3.6
Rougeye Rockfish	685.0
Sablefish	243.5
Sharpchin Rockfish	701.4
Shortspine Thornyhead	1,147.1
Silvergray Rockfish	19,749.6
Southern Rock Sole	276.6
Splitnose Rockfish	553.1
Walleye Pollock	698.3
Widow Rockfish	40.4
Yelloweye Rockfish	10.7
Yellowmouth Rockfish	1,287.0
Yellowtail Rockfish	3,756.2
Total	51,016.5

Table 9. Species sampled during the 2013 QCS synoptic bottom trawl survey. The number of samples and number of recorded biological attributes are shown for each species.

Common Name	Scientific Name	Number of Samples	Number of Recorded Biological Attributes				
			Length	Weight	Sex	Maturity	Age
Alaska Skate	<i>Bathyraja parmifera</i>	5	7	7	7	0	0
Aleutian Skate	<i>Bathyraja aleutica</i>	3	3	3	3	0	0
Arrowtooth Flounder	<i>Atheresthes stomias</i>	134	3371	3371	3372	1428	1433
Aurora Rockfish	<i>Sebastes aurora</i>	3	8	8	8	0	0
Big Skate	<i>Beringraja binoculata</i>	5	7	7	7	0	0
Bigfin Eelpout	<i>Lycodes cortezianus</i>	1	11	11	0	0	0
Bigmouth Sculpin	<i>Hemitripterus bolini</i>	1	1	1	0	0	0
Black Eelpout	<i>Lycodes diapterus</i>	4	57	0	0	0	0
Blackbelly Eelpout	<i>Lycodes pacificus</i>	13	284	0	0	0	0
Bocaccio	<i>Sebastes paucispinis</i>	7	34	34	34	34	34
Brown Cat Shark	<i>Apristurus brunneus</i>	1	1	1	1	0	0
Butter Sole	<i>Isopsetta isolepis</i>	1	1	1	1	0	0
Canary Rockfish	<i>Sebastes pinniger</i>	52	481	481	481	368	368
Chilipepper	<i>Sebastes goodei</i>	1	3	3	3	0	0
China Rockfish	<i>Sebastes nebulosus</i>	1	5	5	5	0	0
Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	1	1	1	1	0	0
Chum Salmon	<i>Oncorhynchus keta</i>	1	1	1	1	0	0
Copper Rockfish	<i>Sebastes caurinus</i>	2	2	2	2	0	0
Curlfin Sole	<i>Pleuronichthys decurrens</i>	11	55	55	55	0	0
Darkblotched Rockfish	<i>Sebastes crameri</i>	18	55	55	55	0	0
Deepsea Sole	<i>Embassichthys bathybius</i>	1	1	1	1	0	0
Dover Sole	<i>Microstomus pacificus</i>	74	1570	1570	1570	964	964
English Sole	<i>Parophrys vetulus</i>	35	825	825	825	659	659
Eulachon	<i>Thaleichthys pacificus</i>	24	582	22	0	0	0
Flathead Sole	<i>Hippoglossoides elassodon</i>	51	1201	1202	1202	254	256
Greenstriped Rockfish	<i>Sebastes elongatus</i>	40	627	627	627	93	93
Harlequin Rockfish	<i>Sebastes variegatus</i>	12	88	88	88	34	34
Kelp Greenling	<i>Hexagrammos decagrammus</i>	5	18	18	18	0	0
Lingcod	<i>Ophiodon elongatus</i>	57	141	141	142	69	70
Longnose Skate	<i>Raja rhina</i>	71	117	117	117	0	0
Longspine Thornyhead	<i>Sebastolobus altivelis</i>	5	94	94	93	0	79
North Pacific Spiny Dogfish	<i>Squalus suckleyi</i>	33	345	345	345	129	44
Pacific Cod	<i>Gadus macrocephalus</i>	132	1040	1041	1041	616	616
Pacific Hake	<i>Merluccius productus</i>	8	177	177	177	99	100
Pacific Halibut	<i>Hippoglossus stenolepis</i>	72	233	233	64	0	0
Pacific Herring	<i>Clupea pallasii</i>	1	16	16	0	0	0
Pacific Ocean Perch	<i>Sebastes alutus</i>	96	2199	2201	2199	1715	1722
Pacific Sanddab	<i>Citharichthys sordidus</i>	10	231	231	231	100	100
Petrale Sole	<i>Eopsetta jordani</i>	103	490	490	490	215	215
Pink Salmon	<i>Oncorhynchus gorbuscha</i>	2	3	3	3	0	0
Puget Sound Rockfish	<i>Sebastes emphaeus</i>	4	63	63	49	23	23
Pygmy Rockfish	<i>Sebastes wilsoni</i>	16	95	95	95	0	0
Quillback Rockfish	<i>Sebastes maliger</i>	17	103	103	103	52	52
Redbanded Rockfish	<i>Sebastes babcocki</i>	85	902	902	902	662	662
Redstripe Rockfish	<i>Sebastes proriger</i>	37	893	893	893	591	593
Rex Sole	<i>Glyptocephalus zachirus</i>	91	2247	2248	2248	921	921
Rosethorn Rockfish	<i>Sebastes helvomaculatus</i>	18	291	291	291	60	60
Roughey Rockfish	<i>Sebastes aleutianus</i>	59	334	335	335	334	335
Sablefish	<i>Anoplopoma fimbria</i>	87	379	381	378	28	28

Common Name	Scientific Name	Number of Samples	Number of Recorded Biological Attributes				
			Length	Weight	Sex	Maturity	Age
Sandpaper Skate	<i>Bathyraja interrupta</i>	26	35	35	35	0	0
Sharpchin Rockfish	<i>Sebastes zacentrus</i>	58	1078	1078	1078	262	255
Shortbelly Rockfish	<i>Sebastes jordani</i>	1	3	3	3	0	0
Shortfin Eelpout	<i>Lycodes brevipes</i>	1	12	0	0	0	0
Shortraker Rockfish	<i>Sebastes borealis</i>	5	17	17	17	17	17
Shortspine Thornyhead	<i>Sebastolobus alascanus</i>	69	1696	1698	1693	0	908
Silvergray Rockfish	<i>Sebastes brevispinis</i>	90	1415	1415	1415	786	786
Slender Sole	<i>Lyopsetta exilis</i>	52	673	673	672	0	0
Sockeye Salmon	<i>Oncorhynchus nerka</i>	1	1	1	1	0	0
Southern Rock Sole	<i>Lepidopsetta bilineata</i>	31	369	369	369	173	173
Splitnose Rockfish	<i>Sebastes diploproa</i>	15	307	307	307	134	134
Spotted Ratfish	<i>Hydrolagus colliei</i>	87	2015	2016	2016	0	0
Stripetail Rockfish	<i>Sebastes saxicola</i>	1	1	1	1	0	0
Sturgeon Poacher	<i>Podothecus accipenserinus</i>	1	13	0	0	0	0
Threadfin Sculpin	<i>Icelinus filamentosus</i>	1	18	18	0	0	0
Vermilion Rockfish	<i>Sebastes miniatus</i>	2	4	4	4	0	0
Walleye Pollock	<i>Gadus chalcogrammus</i>	51	882	882	882	256	256
Widow Rockfish	<i>Sebastes entomelas</i>	12	55	55	55	21	21
Wolf Eel	<i>Anarrhichthys ocellatus</i>	1	1	1	0	0	0
Yelloweye Rockfish	<i>Sebastes ruberrimus</i>	44	79	79	79	78	78
Yellowmouth Rockfish	<i>Sebastes reedi</i>	38	686	686	686	439	439
Yellowtail Rockfish	<i>Sebastes flavidus</i>	10	210	210	198	134	134
Total		2108	29263	28348	28074	11748	12662

Table 10. Summary of biological data collected during the 2013 QCS 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 female proportion is shown. Weights less than 0.1 kg are entered as <0.1 and no data collected is -.

Common Name	Scientific Name	Number of		Length Type	Length (cm)			Weight (kg)			Female Proportion
		Samples	Specimens		Min.	Max.	Mean	Min.	Max.	Mean	
Alaska Skate	<i>Bathyraja parmifera</i>	5	7	Total	42	62	53.0	0.4	1.2	0.8	0.57
Aleutian Skate	<i>Bathyraja aleutica</i>	3	3	Total	70	117	97.0	1.6	8.4	5.8	0.67
Arrowtooth Flounder	<i>Atheresthes stomias</i>	134	3372	Fork	12	81	34.0	<0.1	5.1	0.5	0.53
Aurora Rockfish	<i>Sebastes aurora</i>	3	8	Fork	27	38	31.0	0.3	0.9	0.5	1.00
Big Skate	<i>Beringraja binoculata</i>	5	7	Total	45	128	82.0	0.8	16.6	6.1	0.71
Bigfin Eelpout	<i>Lycodes cortezianus</i>	1	11	Total	25	42	32.0	0.1	0.3	0.2	-
Bigmouth Sculpin	<i>Hemitripterus bolini</i>	1	1	Total	54	54	54.0	2.8	2.8	2.8	-
Black Eelpout	<i>Lycodes diapterus</i>	4	57	Total	8	34	19.0	-	-	-	-
Blackbelly Eelpout	<i>Lycodes pacificus</i>	13	284	Total	9	26	18.0	-	-	-	-
Bocaccio	<i>Sebastes paucispinis</i>	7	34	Fork	37	84	67.0	0.7	8.5	4	0.35
Brown Cat Shark	<i>Apristurus brunneus</i>	1	1	Total	44	44	44.0	0.3	0.3	0.3	1.00
Butter Sole	<i>Isopsetta isolepis</i>	1	1	Total	23	23	23.0	0.1	0.1	0.1	1.00
Canary Rockfish	<i>Sebastes pinniger</i>	52	481	Fork	18	66	47.0	0.1	4.3	1.8	0.39
Chilipepper	<i>Sebastes goodei</i>	1	3	Fork	35	37	36.0	0.6	0.8	0.7	0
China Rockfish	<i>Sebastes nebulosus</i>	1	5	Fork	28	33	32.0	0.4	0.8	0.7	0.6
Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	1	1	Fork	79	79	79.0	7.5	7.5	7.5	1.00
Chum Salmon	<i>Oncorhynchus keta</i>	1	1	Fork	67	67	67.0	4.2	4.2	4.2	1.00
Copper Rockfish	<i>Sebastes caurinus</i>	2	2	Fork	31	36	33.0	0.4	0.8	0.6	0.50
Curlfin Sole	<i>Pleuronichthys decurrens</i>	11	55	Total	19	35	27.0	0.1	0.6	0.3	0.38
Darkblotched Rockfish	<i>Sebastes crameri</i>	18	55	Fork	10	50	30.0	<0.1	1.8	0.6	0.46
Deepsea Sole	<i>Embassichthys bathybius</i>	1	1	Total	39	39	39.0	0.7	0.7	0.7	0
Dover Sole	<i>Microstomus pacificus</i>	74	1570	Total	17	61	37.0	0.0	2.3	0.5	0.41
English Sole	<i>Parophrys vetulus</i>	35	825	Total	20	46	33.0	0.1	1.0	0.3	0.57
Eulachon	<i>Thaleichthys pacificus</i>	24	582	Standard	9	21	16.0	<0.1	0.1	<0.1	-
Flathead Sole	<i>Hippoglossoides elassodon</i>	51	1202	Total	10	40	27.0	<0.1	0.6	0.2	0.55
Greenstriped Rockfish	<i>Sebastes elongatus</i>	40	627	Fork	14	39	27.0	<0.1	0.9	0.3	0.52
Harlequin Rockfish	<i>Sebastes variegatus</i>	12	88	Fork	16	34	24.0	<0.1	0.5	0.2	0.57
Kelp Greenling	<i>Hexagrammos decagrammus</i>	5	18	Fork	32	37	34.0	0.4	0.6	0.5	0.72
Lingcod	<i>Ophiodon elongatus</i>	57	141	Fork	44	104	70.0	0.6	11.3	3.3	0.77
Longnose Skate	<i>Raja rhina</i>	71	117	Total	29	129	80.0	0.1	13.6	3.9	0.54
Longspine Thornyhead	<i>Sebastolobus altivelis</i>	5	94	Total	9	30	22.0	<0.1	0.3	0.1	0.47

Common Name	Scientific Name	Number of		Length Type	Length (cm)			Weight (kg)			Female Proportion
		Samples	Specimens		Min.	Max.	Mean	Min.	Max.	Mean	
North Pacific Spiny Dogfish	<i>Squalus suckleyi</i>	33	345	Total	45	96	68.0	0.3	4.2	1.3	0.34
Pacific Cod	<i>Gadus macrocephalus</i>	132	1041	Fork	20	80	41.0	0.1	5.9	0.8	0.54
Pacific Hake	<i>Merluccius productus</i>	8	177	Fork	42	69	55.0	0.4	2.3	1.1	0.79
Pacific Halibut	<i>Hippoglossus stenolepis</i>	72	233	Fork	58	129	74.0	2.0	29.8	5.3	0.56
Pacific Herring	<i>Clupea pallasii</i>	1	16	Standard	17	20	18.0	0.1	0.1	0.1	-
Pacific Ocean Perch	<i>Sebastes alutus</i>	96	2201	Fork	9	50	36.0	<0.1	1.8	0.7	0.46
Pacific Sanddab	<i>Citharichthys sordidus</i>	10	231	Total	11	31	20.0	<0.1	0.3	0.1	0.38
Petrale Sole	<i>Eopsetta jordani</i>	103	490	Total	23	58	40.0	0.1	2.6	0.8	0.36
Pink Salmon	<i>Oncorhynchus gorbuscha</i>	2	3	Fork	49	53	50.0	1.2	1.7	1.5	0.67
Puget Sound Rockfish	<i>Sebastes emphaeus</i>	4	63	Fork	6	19	11.0	<0.1	0.1	<0.1	0.38
Pygmy Rockfish	<i>Sebastes wilsoni</i>	16	95	Fork	10	24	15.0	<0.1	0.1	0	0.52
Quillback Rockfish	<i>Sebastes maliger</i>	17	103	Fork	19	43	34.0	0.1	1.6	0.8	0.56
Redbanded Rockfish	<i>Sebastes babcocki</i>	85	902	Fork	10	61	39.0	<0.1	4.3	1.2	0.49
Redstripe Rockfish	<i>Sebastes proriger</i>	37	893	Fork	7	41	29.0	<0.1	0.9	0.4	0.44
Rex Sole	<i>Glyptocephalus zachirus</i>	91	2248	Total	11	44	31.0	<0.1	0.6	0.2	0.39
Rosethorn Rockfish	<i>Sebastes helvomaculatus</i>	18	291	Fork	14	36	25.0	<0.1	0.7	0.2	0.47
Rougheyeye Rockfish	<i>Sebastes aleutianus</i>	59	335	Fork	11	65	37.0	<0.1	5.8	1	0.48
Sablefish	<i>Anoplopoma fimbria</i>	87	381	Fork	32	84	55.0	0.3	6.0	1.7	0.37
Sandpaper Skate	<i>Bathyraja interrupta</i>	26	35	Total	15	68	49.0	<0.1	1.5	0.8	0.54
Sharpchin Rockfish	<i>Sebastes zacentrus</i>	58	1078	Fork	6	41	23.0	<0.1	1.0	0.2	0.50
Shortbelly Rockfish	<i>Sebastes jordani</i>	1	3	Fork	23	24	23.0	0.1	0.2	0.1	0.33
Shortfin Eelpout	<i>Lycodes brevipes</i>	1	12	Total	13	18	16.0	-	-	-	-
Shortraker Rockfish	<i>Sebastes borealis</i>	5	17	Fork	37	86	61.0	0.8	11.0	4.3	0.53
Shortspine Thornyhead	<i>Sebastolobus alascanus</i>	69	1698	Total	8	66	26.0	<0.1	5.3	0.3	0.47
Silvergray Rockfish	<i>Sebastes brevispinis</i>	90	1415	Fork	26	67	49.0	0.2	3.9	1.6	0.35
Slender Sole	<i>Lyopsetta exilis</i>	52	673	Total	5	41	23.0	<0.1	0.3	0.1	0.64
Sockeye Salmon	<i>Oncorhynchus nerka</i>	1	1	Fork	13	13	13.0	<0.1	<0.1	0	-
Southern Rock Sole	<i>Lepidopsetta bilineata</i>	31	369	Total	8	70	33.0	<0.1	2.1	0.6	0.65
Splitnose Rockfish	<i>Sebastes diploproa</i>	15	307	Fork	11	38	24.0	<0.1	0.9	0.3	0.44
Spotted Ratfish	<i>Hydrolagus colliei</i>	87	2016	2nd Dorsal	9	51	27.0	<0.1	1.3	0.3	0.53
Stripetail Rockfish	<i>Sebastes saxicola</i>	1	1	Fork	21	21	21.0	0.1	0.1	0.1	0
Sturgeon Poacher	<i>Podothecus accipenserinus</i>	1	13	Total	19	23	21.0	-	-	-	-
Threadfin Sculpin	<i>Icelinus filamentosus</i>	1	18	Total	24	32	27.0	0.2	0.5	0.3	-
Vermilion Rockfish	<i>Sebastes miniatus</i>	2	4	Fork	42	45	44.0	1.4	1.7	1.5	0.25
Walleye Pollock	<i>Gadus chalcogrammus</i>	51	882	Fork	16	62	34.0	<0.1	2.2	0.4	0.64

Common Name	Scientific Name	Number of		Length Type	Length (cm)			Weight (kg)			Female Proportion
		Samples	Specimens		Min.	Max.	Mean	Min.	Max.	Mean	
Widow Rockfish	<i>Sebastes entomelas</i>	12	55	Fork	31	57	44	0.4	2.2	1.2	0.49
Wolf Eel	<i>Anarrhichthys ocellatus</i>	1	1	Total	16	16	16	6.7	6.7	6.7	-
Yelloweye Rockfish	<i>Sebastes ruberrimus</i>	44	79	Fork	18	69	52	0.1	6.6	2.9	0.44
Yellowmouth Rockfish	<i>Sebastes reedi</i>	38	686	Fork	10	52	33	<0.1	2.3	0.7	0.50
Yellowtail Rockfish	<i>Sebastes flavidus</i>	10	210	Fork	31	56	45	0.4	2.7	1.5	0.44

Table 11. Data collected from net sensors during the 2013 QCS bottom trawl survey, showing the number of tows from which each data type was collected (total number of survey tows is 281; 241 successful).

Sensor	Attribute	Number of	
		Tows	Records
Hobo Pendant Acceleration Data Logger	Bottom contact sensor X tilt angle	251	75222
Depth Sounder - Unknown Type	Bottom depth (m)	275	472019
Seabird Sbe19plus Seacat Profiler S/N 5130	Conductivity of sea water (S/m)/ Salinity (PSU)	146	28281
	Pressure (db)/ depth (m)	146	28281
	Water temperature (°C)	146	28281
Seabird Sbe19plus Seacat Profiler S/N 6035	Conductivity of sea water (S/m)/ Salinity (PSU)	94	19648
	Pressure (db)/ depth (m)	94	19648
	Water temperature (°C)	94	19648
Seabird Sbe39 Temperature and Pressure Sensor S/N	Pressure (db)/ depth (m)	267	118183
	Water temperature (°C)	267	118183
Seabird SBE43	Oxygen voltage (V)/ Dissolved oxygen (ml/L)	240	47929
Notus Net Sensors	Distance to port-side trawl door (m)	256	26630
	Distance to starboard-side trawl door (m)	256	26630
	Headline depth (m)	150	30498
	Doorspread (m)	265	51441
	Headrope to bottom distance (m)	144	22558

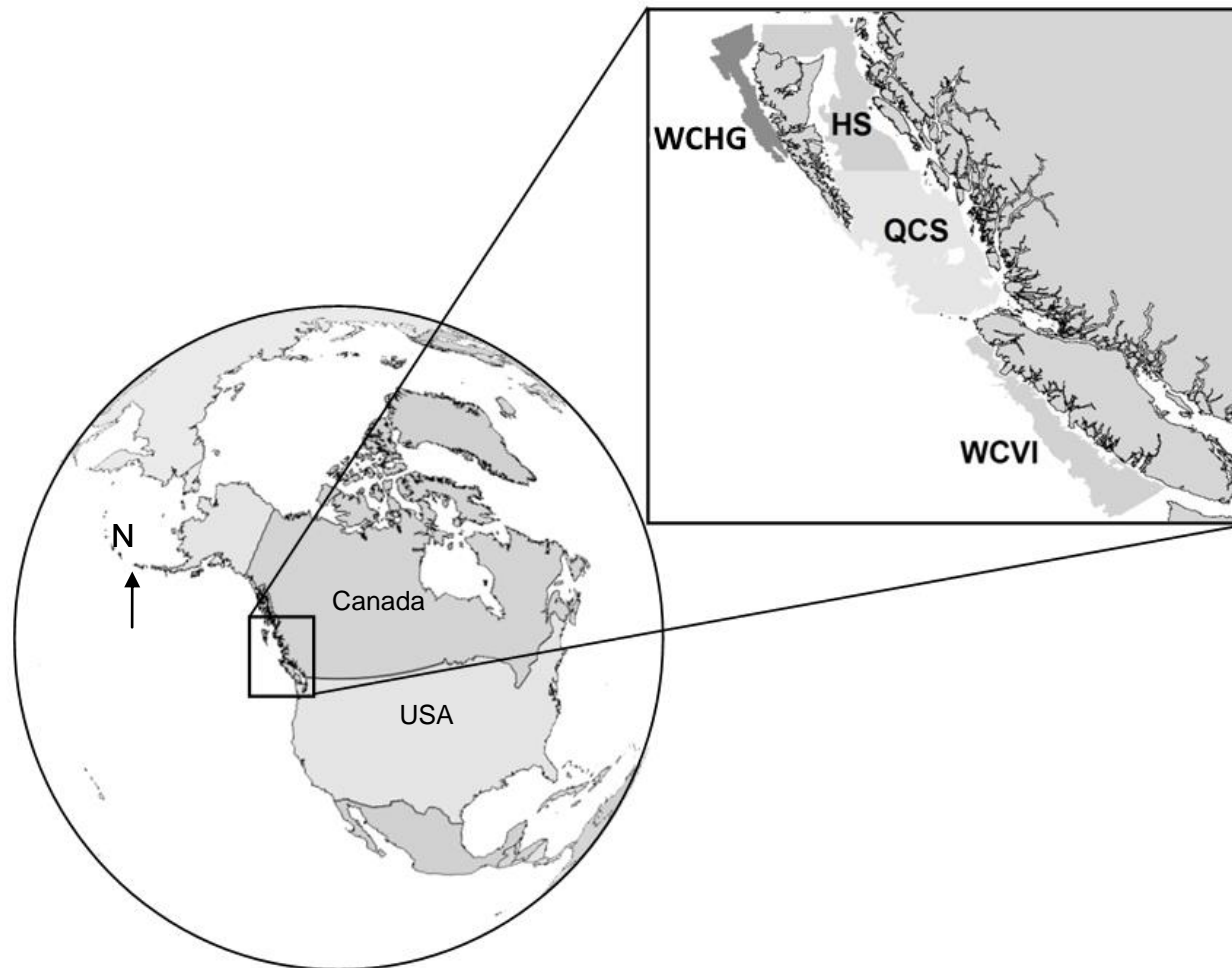


Figure 1. Locations of the current synoptic bottom trawl surveys on the coast of British Columbia, Canada. WCHG = West Coast Haida Gwaii; HS = Hecate Strait; QCS = Queen Charlotte Sound; WCVI = West Coast Vancouver Island.

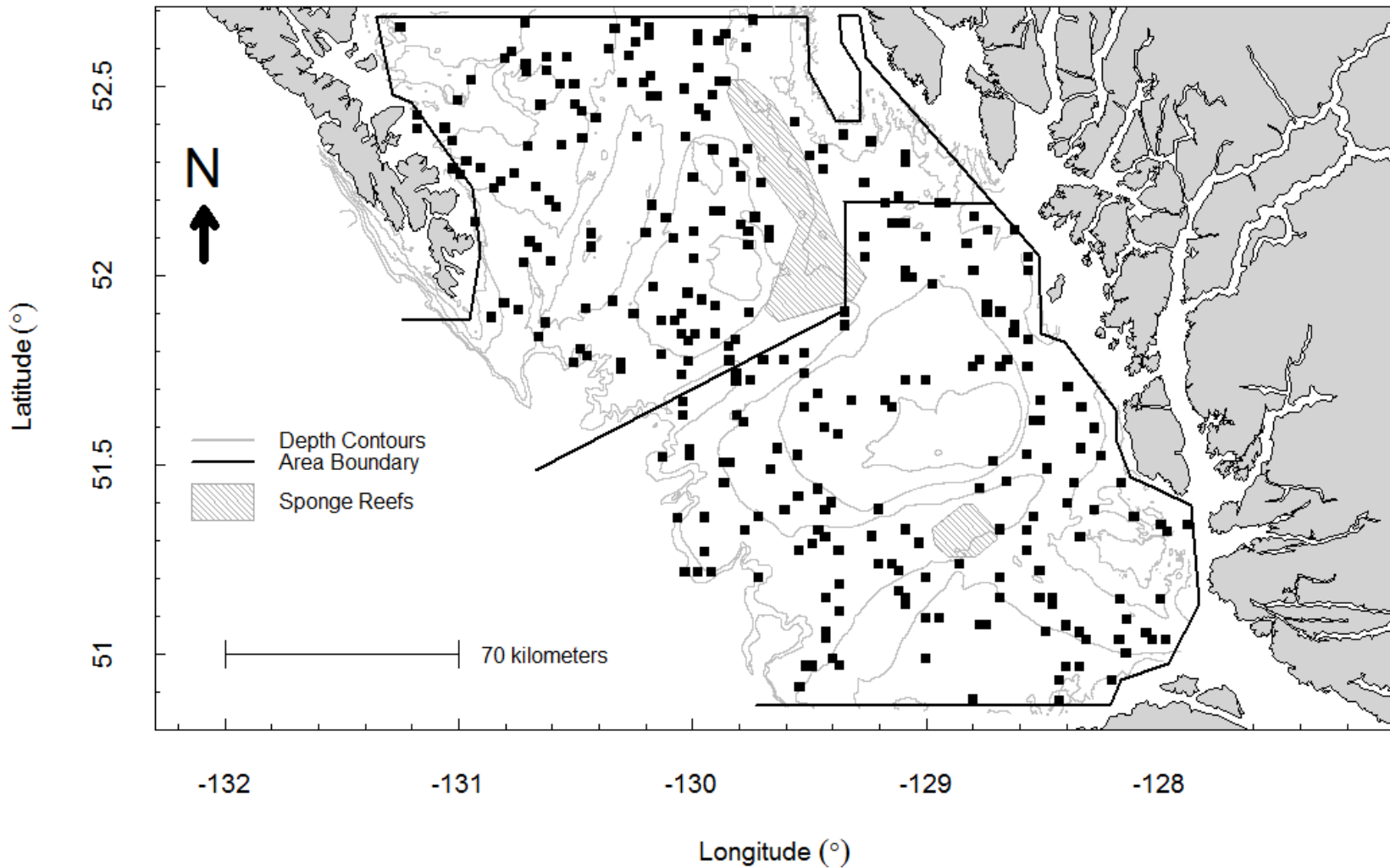


Figure 2. The QCS synoptic bottom trawl survey area showing the 287 randomly selected blocks with area boundary of the north and south subareas, sponge reef protected area, and depth contours for the 2013 survey.



Figure 3. The commercial stern trawler F/V Nordic Pearl used for the 2013 QCS synoptic bottom trawl survey. (Photo: Schon Acheson).

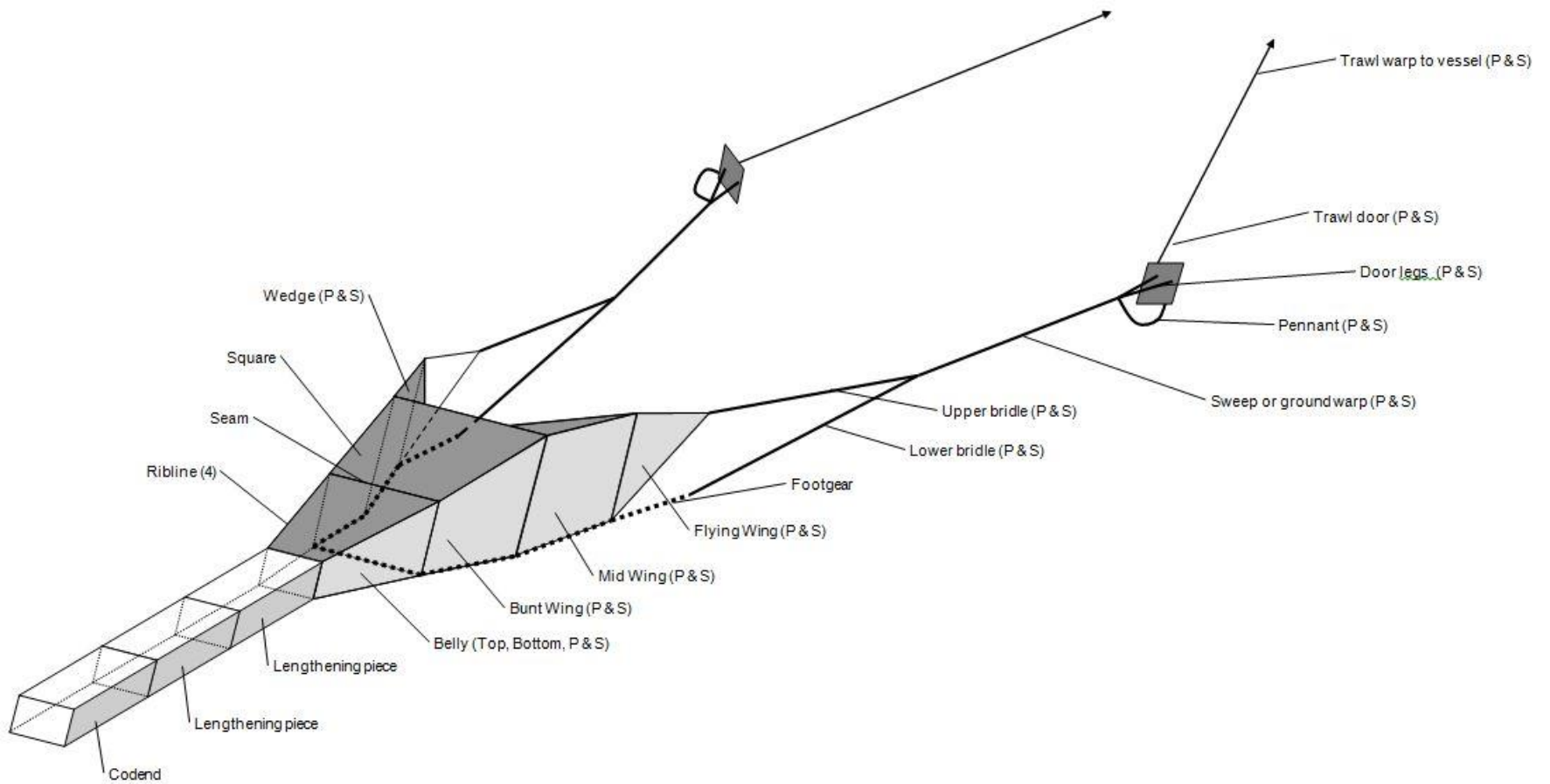


Figure 4. Overview diagram of the Atlantic Western IIA box trawl used on the 2013 QCS synoptic bottom trawl survey.

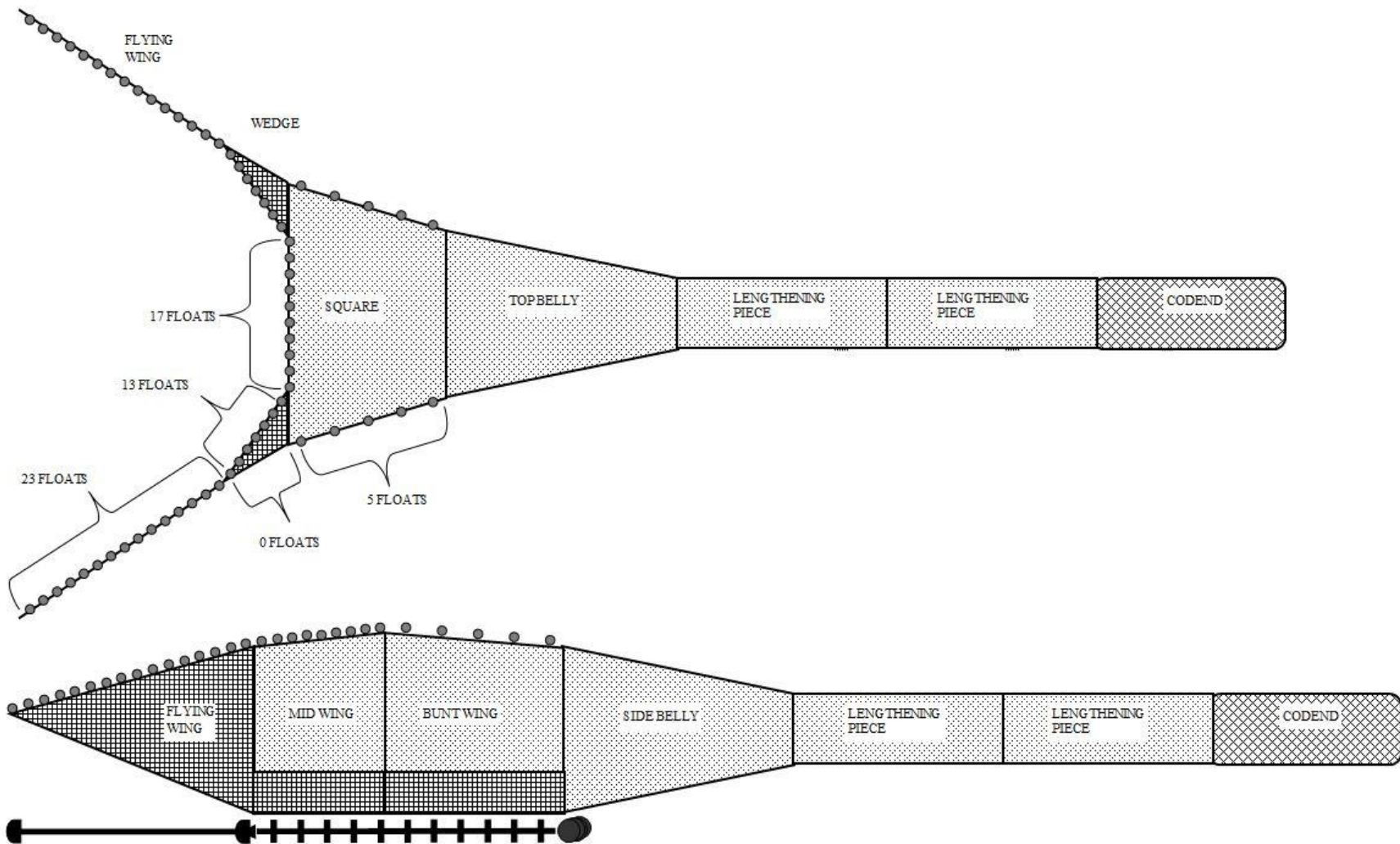


Figure 5. Top and side view of the Atlantic Western Ila box trawl used on the 2013 QCS synoptic bottom trawl survey.

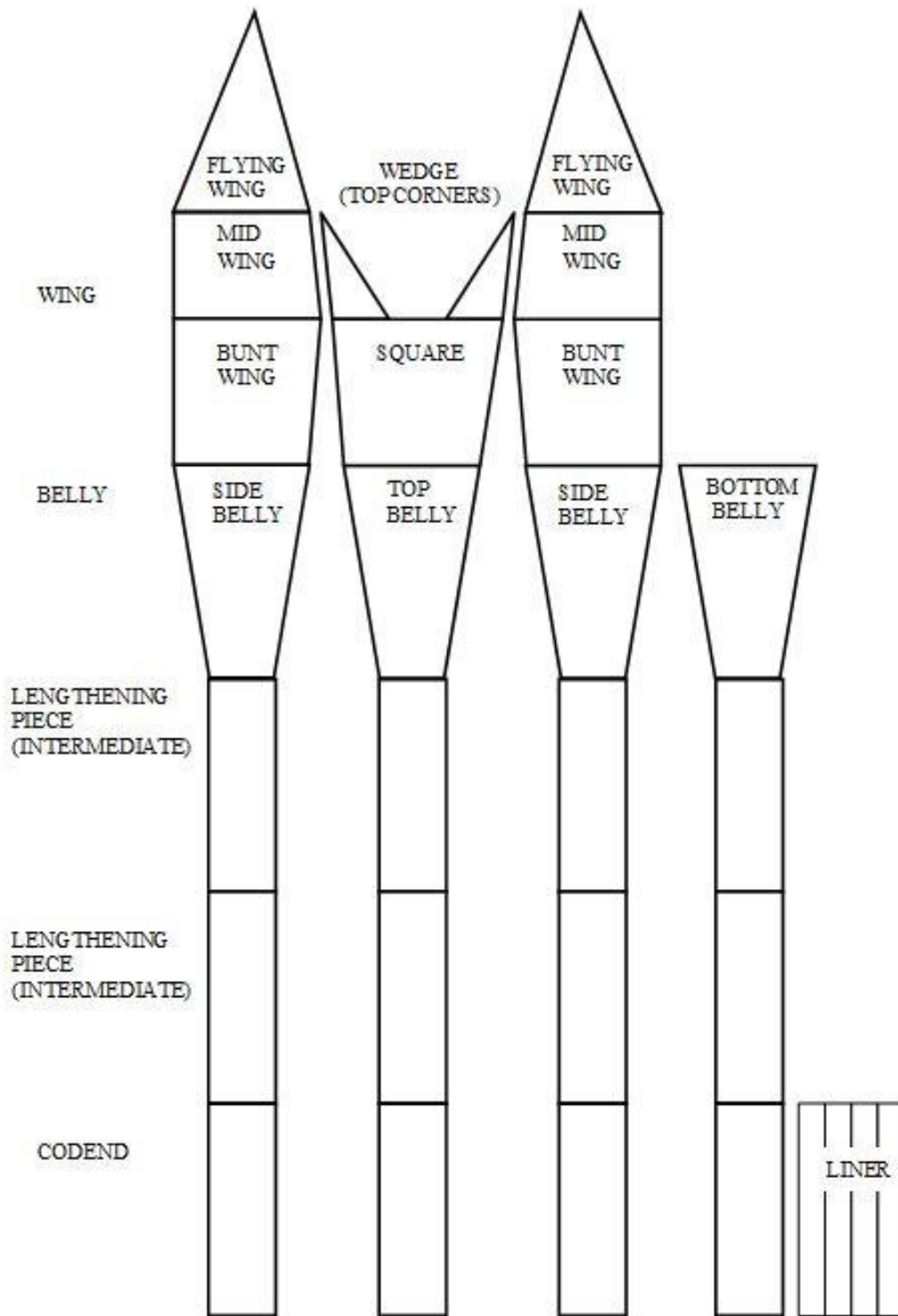


Figure 6. Diagram of the net panels with section names for the Atlantic Western IIa box trawl used on the 2013 QCS synoptic bottom trawl survey.

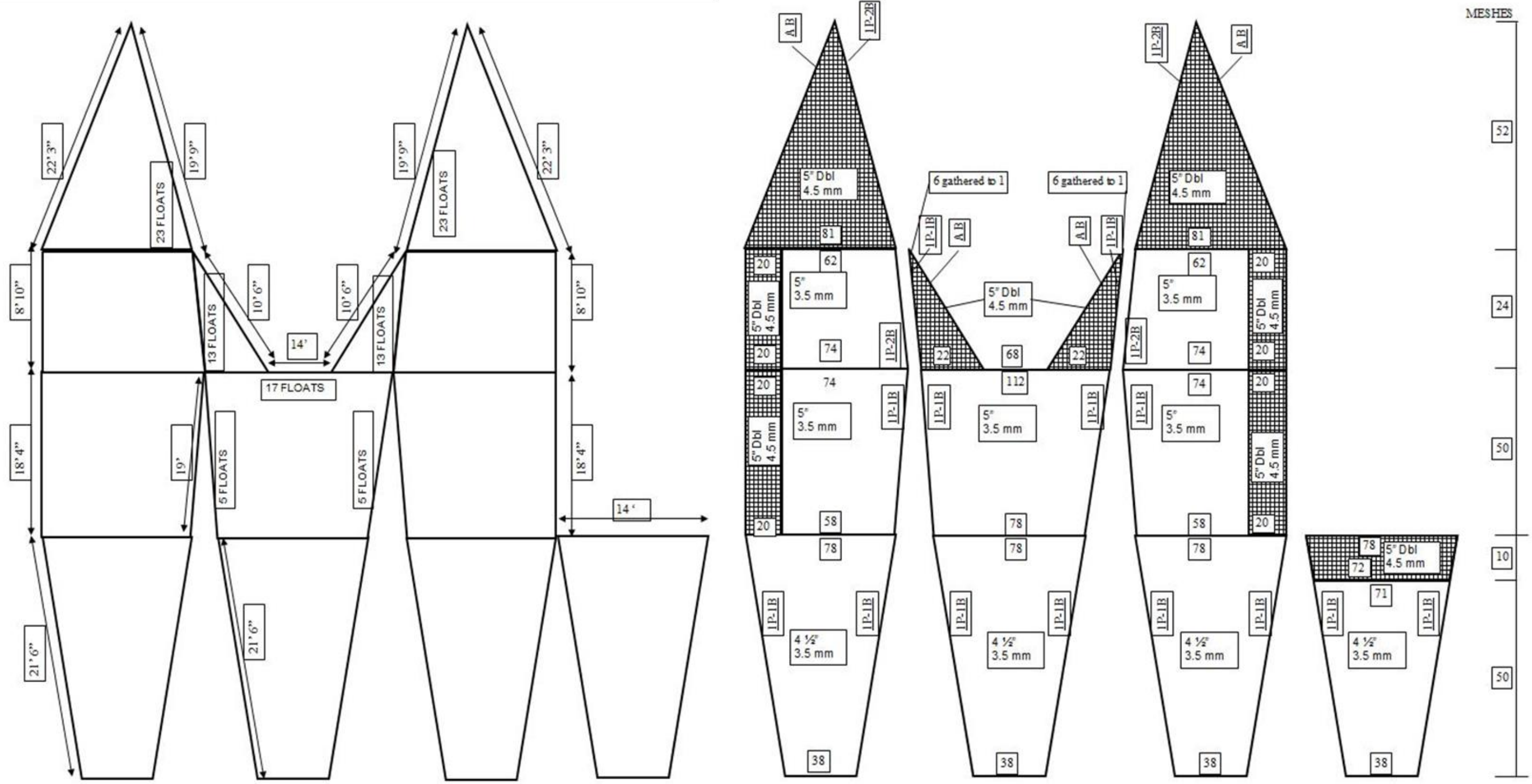


Figure 7. Schematics of the wing and belly sections of the Atlantic Western IIA box trawl used on the 2013 QCS synoptic bottom trawl survey. Dimensions and the float arrangement are shown on the left while netting details, mesh counts, and mesh cuts are shown on the right side of the diagram.

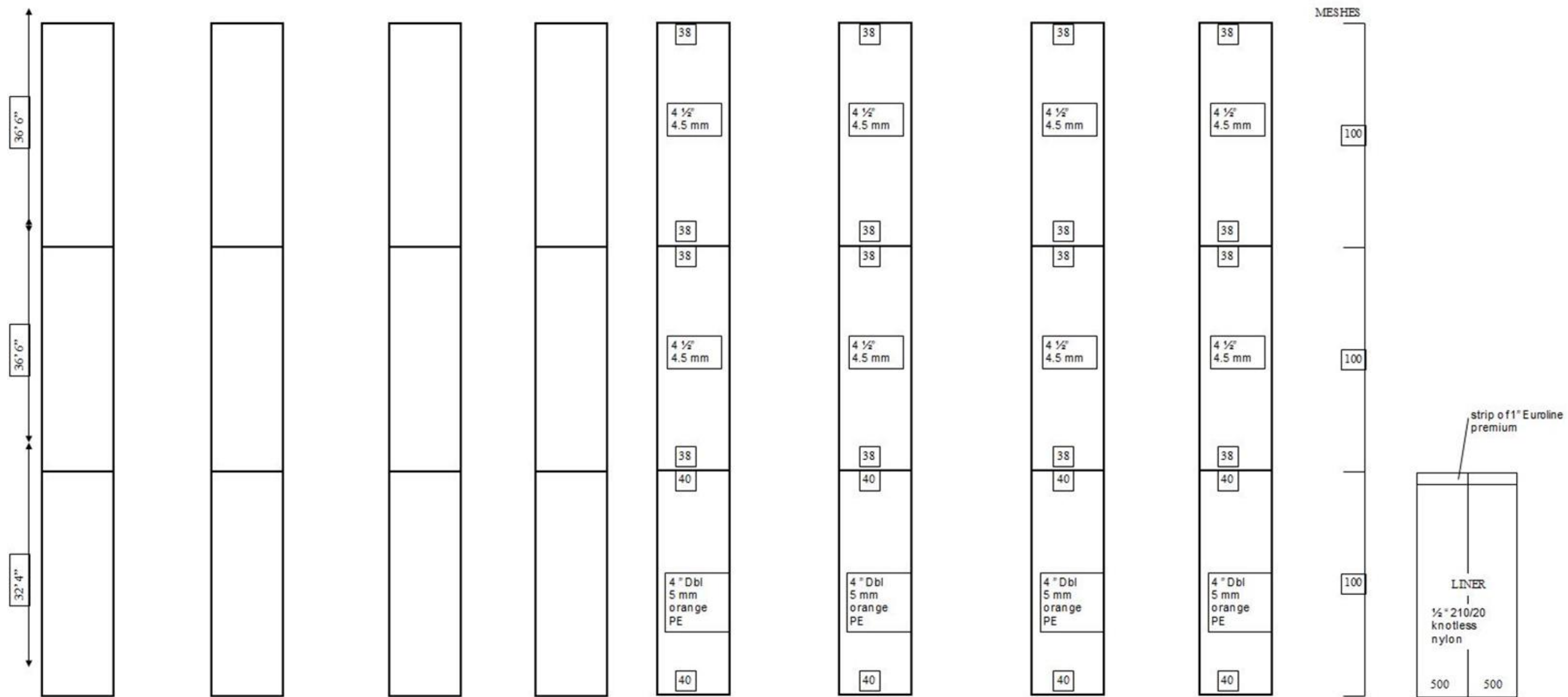


Figure 8. Details of the lengthening (intermediate) pieces and codend sections of the Atlantic Western IIa box trawl used on the 2013 QCS synoptic bottom trawl survey. Dimensions are shown on the left while netting details, mesh counts, and mesh cuts including the codend liner are shown on the right side of the diagram.

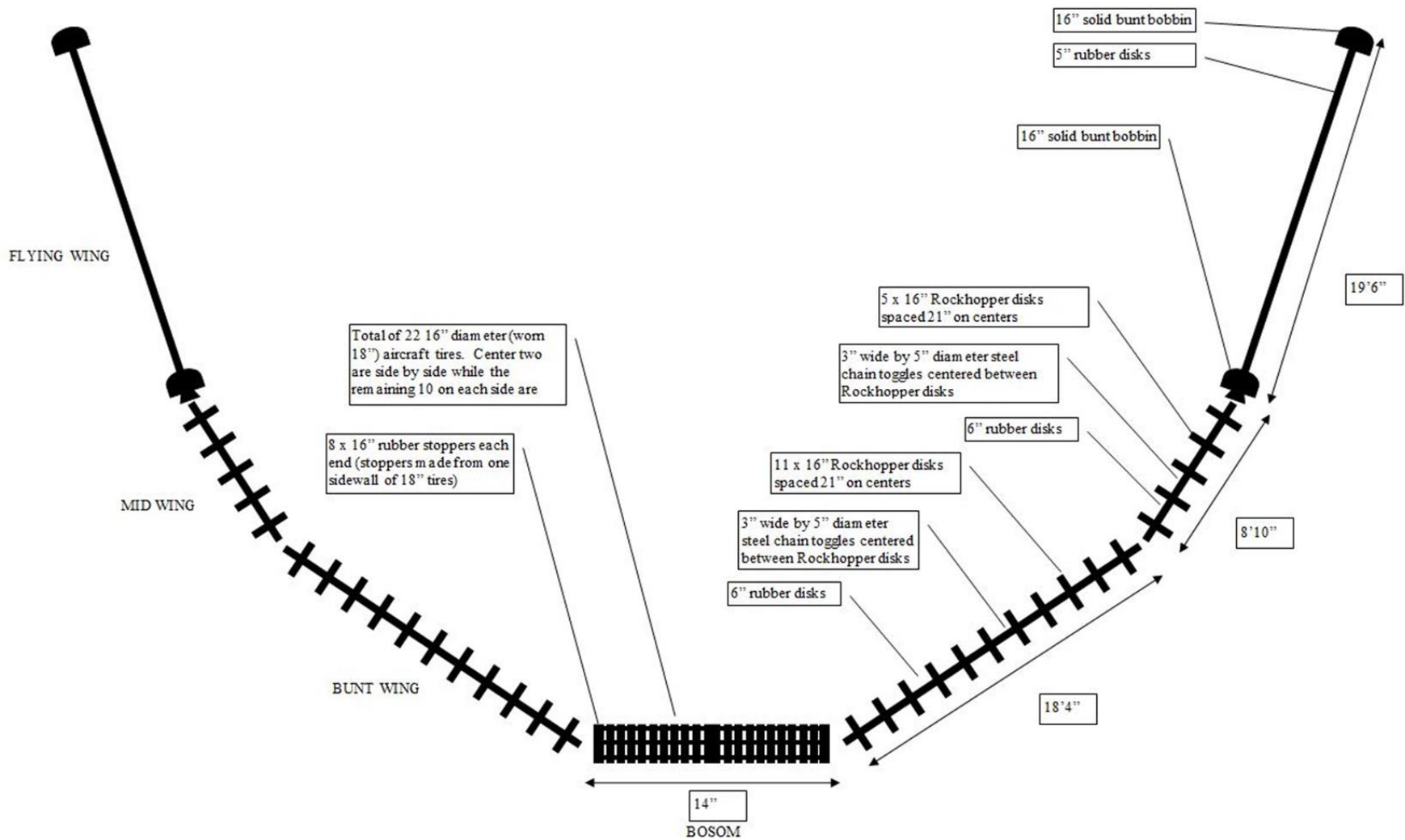


Figure 9. Details of the Rockhopper foot gear for the Atlantic Western Ila box trawl used on the 2013 QCS synoptic bottom trawl.

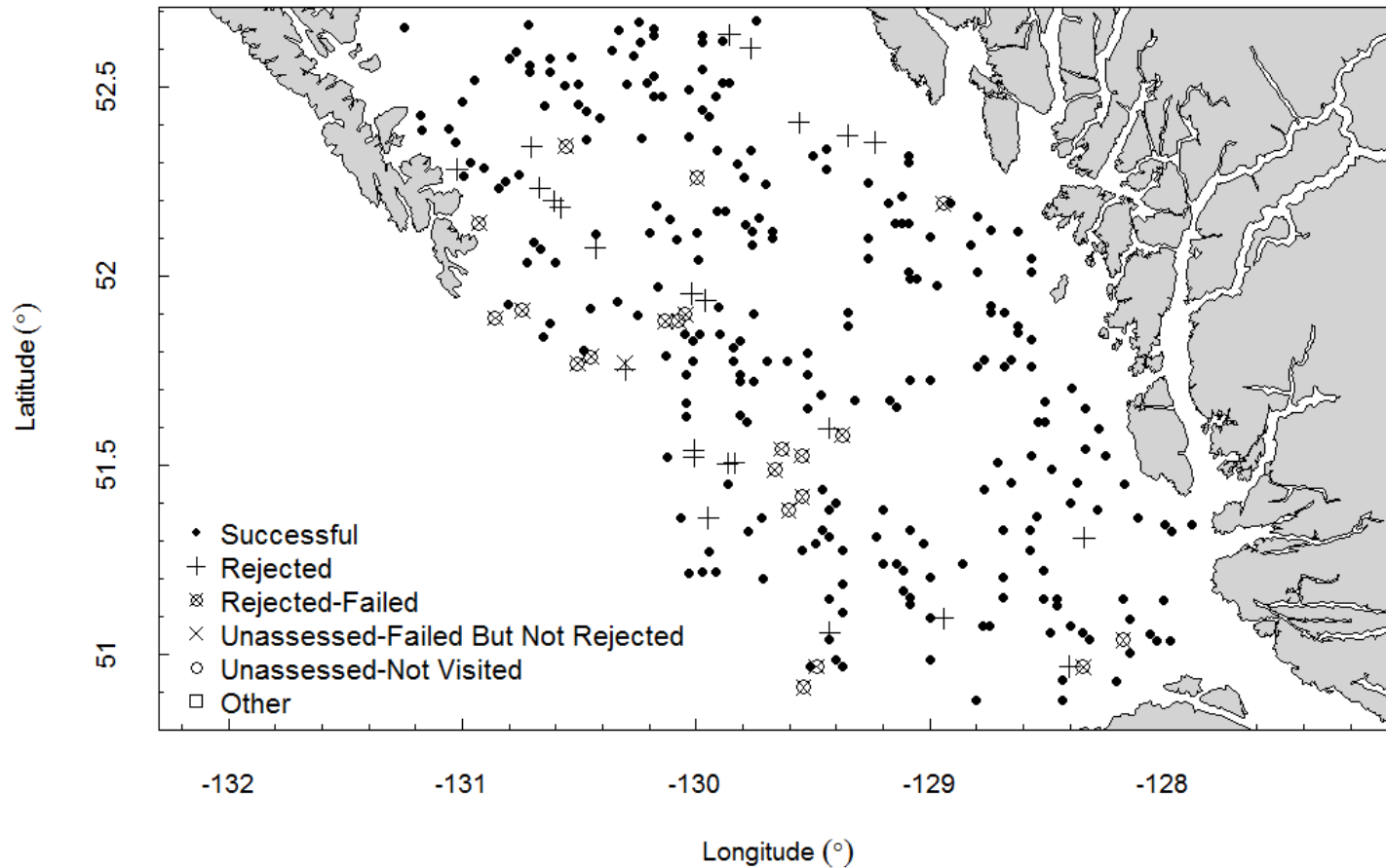


Figure 10. Final status of the 2013 QCS synoptic bottom trawl survey showing 241 successfully fished blocks (Successful), 24 blocks rejected after inspection (Rejected), 21 blocks rejected after one or more failed fishing attempts (Rejected-Failed) and one block that was not removed from the sampling frame although the last attempt failed (Unassessed-Failed but not Rejected).

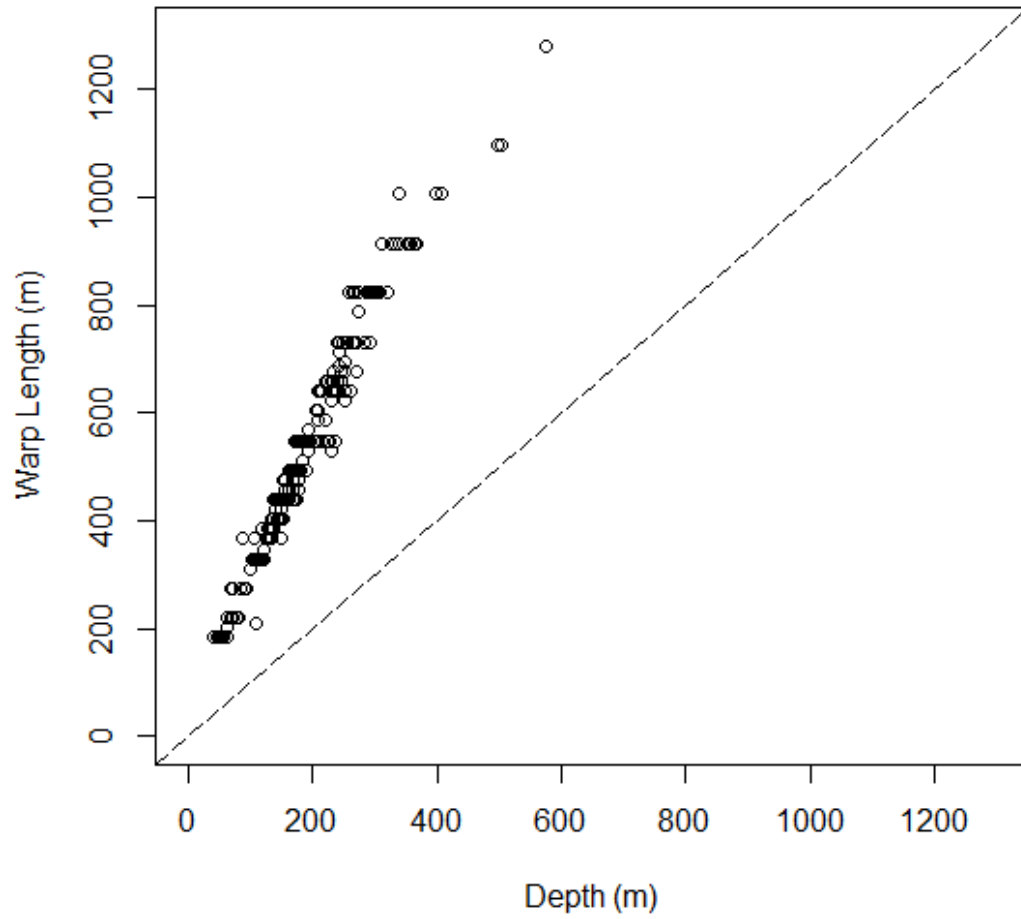


Figure 11. Warp length versus starting depth for each tow during the 2013 QCS synoptic bottom trawl survey.

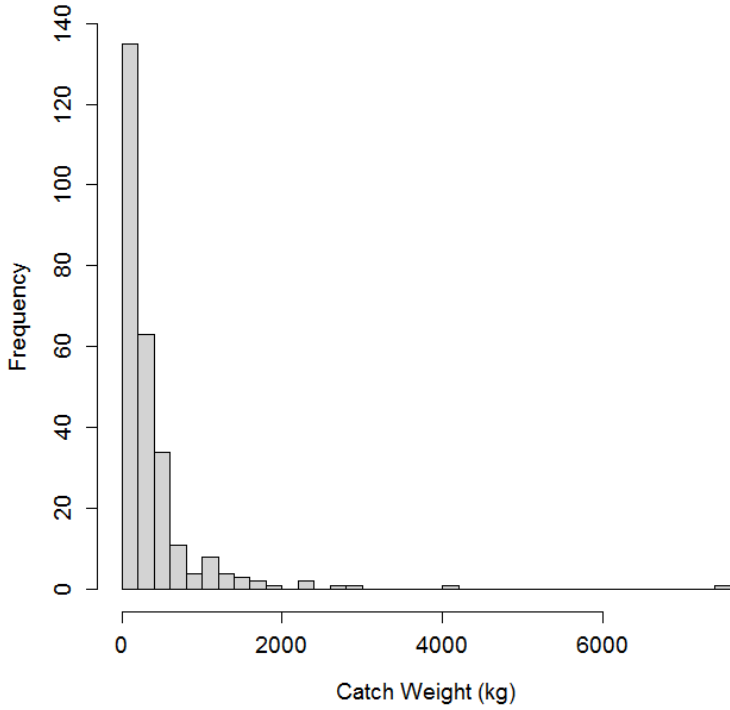


Figure 12. Histogram of catch weight (kg) per useable tow during the 2013 QCS synoptic bottom trawl survey.

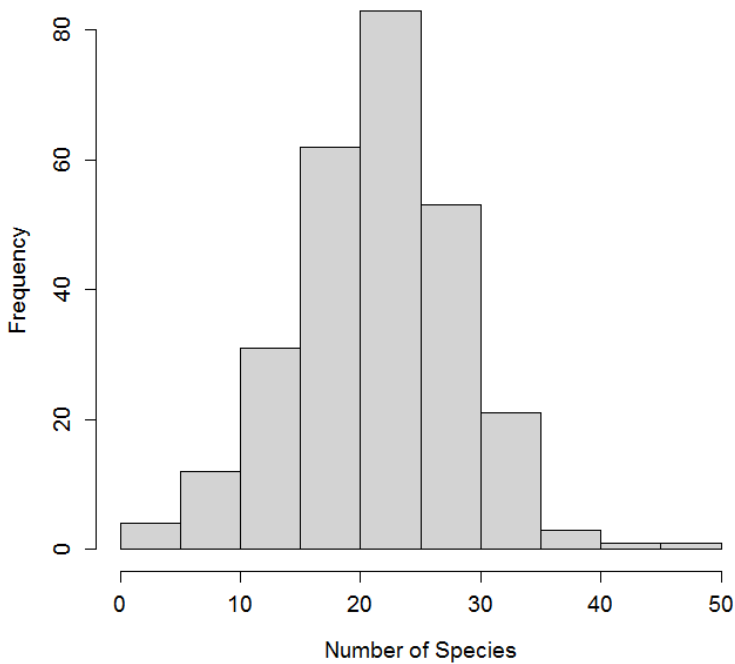


Figure 13. Histogram of the number of species caught per useable tow during the 2013 QCS synoptic bottom trawl survey.

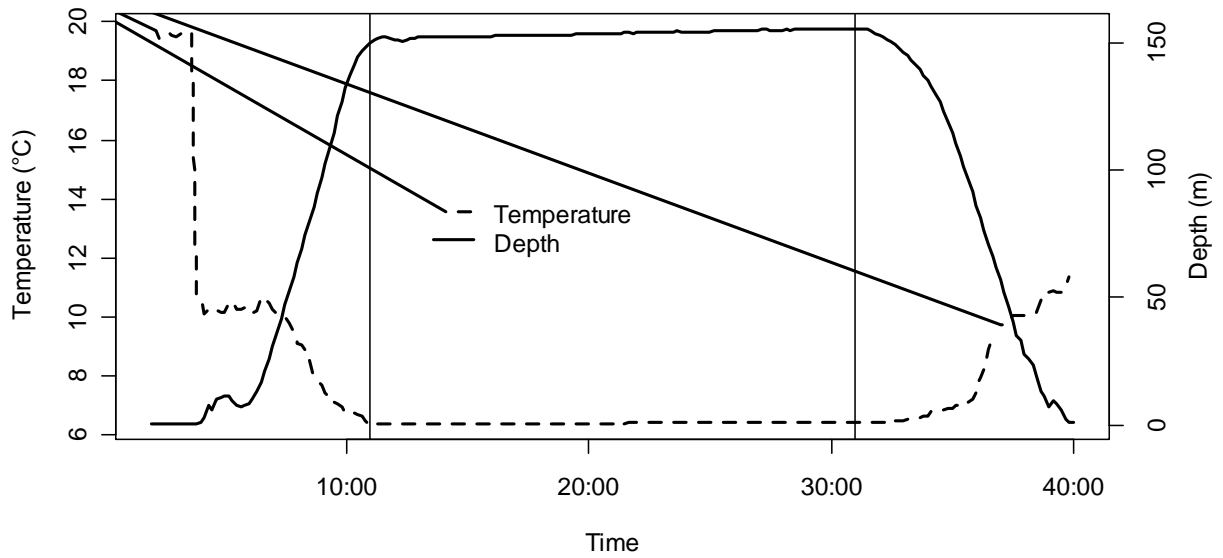


Figure 14. Example of a Seabird 39 temperature and depth profile collected during a synoptic bottom trawl survey. The vertical lines indicate the start and end of net contact with the sea floor.

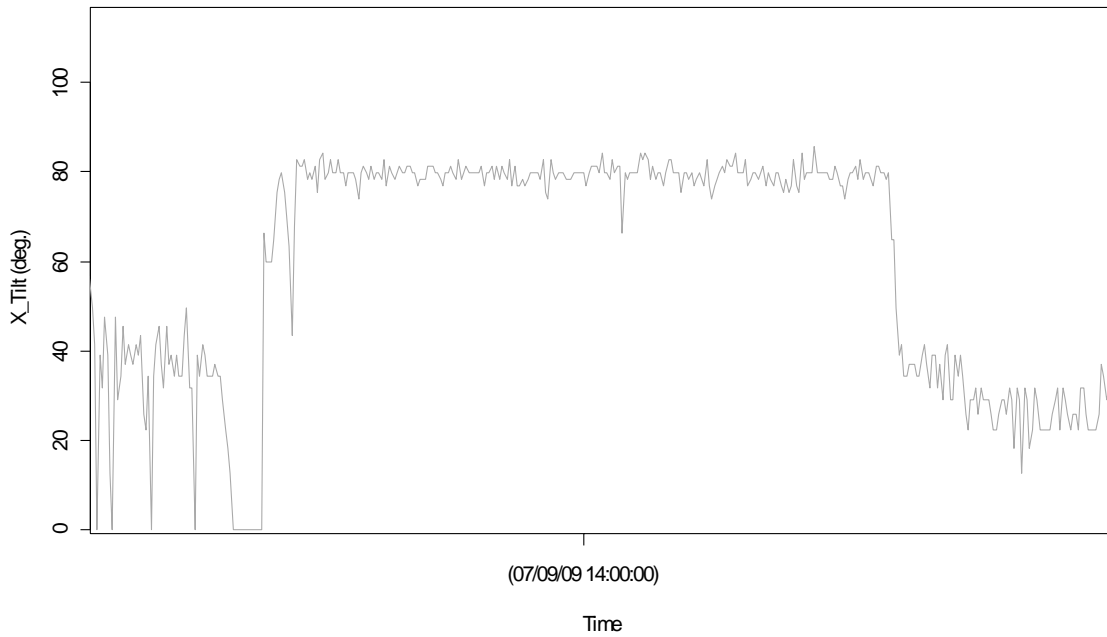


Figure 15. Example of a Mac Marine Industries bottom contact sensor profile collected during a bottom trawl survey. The raised segment in the middle of the profile at approximately 80° indicates where the net made contact with the sea floor.

APPENDIX A: QCS 2013 SURVEY BRIDGE LOG

Tow	Date	Start Time	Start Latitude	Start Longitude	Average Depth (m)	Bottom Duration (min)	Speed (km/h)	Warp (ftm)	Catch (kg)	Usable
1	Jul-04	5:56	51.3571	127.8883	126.0	0	2.1	210	0	No
2	Jul-04	6:33	51.3514	127.8899	128.0	22	5.8	210	207.3	Yes
3	Jul-04	11:38	51.3319	127.9578	159.1	3	5.9	250	23.9	No
4	Jul-04	12:49	51.3322	127.9935	170.4	20		270	495.6	Yes
5	Jul-04	13:40	51.3216	127.9781	159.6	17		260	240.5	Yes
6	Jul-04	17:19	51.3658	128.1312	140.1	20	5.6	210	228.8	Yes
7	Jul-04	18:39	51.3709	128.2670	129.4	19	5.5	200	265.5	Yes
8	Jul-04	19:31	51.3860	128.3750	124.0	14	5.6	210	510.6	No
9	Jul-04	20:15	51.4066	128.3857	125.0	18		210	837.5	Yes
10	Jul-05	6:13	51.4596	128.1861	107.8	21	5.9	180	110.9	Yes
11	Jul-05	8:07	51.4446	128.3832	154.0	21	5	275	331.8	Yes
12	Jul-05	9:16	51.5131	128.2538	97.0	19	5.1	280	8.9	Yes
13	Jul-05	10:15	51.5329	128.3273	153.0	28	5.2	270	173.7	Yes
14	Jul-05	11:16	51.5844	128.2812	151.1	21	5.7	270	259.5	Yes
15	Jul-05	12:20	51.6416	128.3207	140.0	19	5.3	240	375.6	Yes
16	Jul-05	13:29	51.7093	128.3779	137.0	20	5.1	240	220.8	Yes
17	Jul-05	14:38	51.6817	128.5040	135.0	19	6.2	240	489.0	Yes
18	Jul-05	15:29	51.6268	128.4995	141.0	18	5.7	240	1545.4	Yes
19	Jul-05	16:12	51.6035	128.5367	150.7	20	5.4	240	310.0	Yes
20	Jul-05	17:26	51.5310	128.5705	161.0	18	5.8	270	476.1	Yes
21	Jul-05	18:20	51.4924	128.4966	187.0	19	5.6	300	568.2	Yes
22	Jul-05	19:38	51.3652	128.5343	170.0	20	5.9	300	1157.3	Yes
23	Jul-05	20:29	51.3317	128.5608	146.0	19	6.4	280	199.3	Yes
24	Jul-06	6:16	51.1458	128.1845	121.0	19	5.8	210	189.0	Yes
25	Jul-06	7:26	51.0838	128.1363	147.0	19	5.5	240	243.3	Yes
26	Jul-06	8:28	51.0502	128.0753	142.0	19	6.2	240	442.8	Yes
27	Jul-06	9:12	51.0353	128.0429	143.0	19	5.6	240	245.9	Yes
28	Jul-06	20:54	51.1497	127.9982	113.0	20	5.5	200	574.7	Yes
29	Jul-07	5:52	51.7506	128.5579	147.4	19	4.9	240	376.5	Yes
30	Jul-07	6:39	51.7647	128.6257	97.2	22	6.5	200	180.6	Yes
31	Jul-07	7:24	51.7667	128.6832	73.1	20	5.8	150	35.1	Yes
32	Jul-07	8:31	51.8250	128.5630	134.2	19	5.3	210	369.8	Yes
33	Jul-07	9:12	51.8404	128.6122	137.1	19	5.6	220	412.1	Yes
34	Jul-07	9:56	51.8628	128.6249	140.4	19	5.4	220	491.5	Yes
35	Jul-07	10:42	51.8960	128.6651	145.5	19	5.2	240	238.3	Yes
36	Jul-07	11:28	51.9008	128.7209	140.8	19	5.7	240	426.7	Yes
37	Jul-07	12:08	51.9142	128.7454	144.1	19	6	220	107.9	Yes
38	Jul-07	13:41	52.0157	128.5719	136.4	19	6.2	210	1582.1	Yes
39	Jul-07	14:49	52.0402	128.5573	74.5	15	5.8	120	50.8	Yes
40	Jul-07	16:00	52.1263	128.6100	212.1	20	5.3	350	294.5	Yes
41	Jul-07	17:04	52.1158	128.7361	193.8	19	5.1	310	139.2	Yes
42	Jul-07	17:54	52.1514	128.7854	219.8	21	5.7	360	90.4	Yes
43	Jul-07	18:55	52.0852	128.8190	181.4	20	5.6	300	62.7	Yes
44	Jul-07	19:49	52.0198	128.7978	176.6	20	5.2	300	283.2	Yes
45	Jul-08	6:11	51.9751	128.9594	108.9	20	5.7	180	27.7	Yes
46	Jul-08	7:03	51.9904	129.0642	169.7	18	6	270	121.5	Yes
47	Jul-08	7:45	52.0014	129.0766	175.1	18	5.2	270	89.5	Yes
48	Jul-08	8:30	52.0040	129.1040	173.3	18	6.6	270	64.5	Yes
49	Jul-08	9:37	52.0964	129.0043	175.5	20	5.9	270	115.1	Yes

Tow	Date	Start Time	Start Latitude	Start Longitude	Average Depth (m)	Bottom Duration (min)	Speed (km/h)	Warp (ftm)	Catch (kg)	Usable
50	Jul-08	10:56	52.1854	128.9189	137.1	20	5.8	210	324.0	Yes
51	Jul-08	11:44	52.1867	128.9458	129.8	10	5.5	210	90.1	No
52	Jul-08	12:48	52.1416	129.0765	136.0	20	6.3		49.3	Yes
53	Jul-08	13:33	52.1360	129.1173	130.2	21	5.2	210	32.3	Yes
54	Jul-08	14:32	52.1304	129.1601	140.0	21	6.4	240	63.7	Yes
55	Jul-08	15:33	52.1893	129.1844	161.6	20	5.6	240	111.6	Yes
56	Jul-08	16:20	52.2034	129.1303	167.8	21	6.2	270	42.3	Yes
57	Jul-08	17:42	52.3052	129.0776	160.9	20		270	100.2	Yes
58	Jul-08	18:40	52.3207	129.0815	151.7	21	6.1	240	158.8	Yes
59	Jul-09	5:56	52.0407	129.2470	171.5	21	6.1	270	833.6	No
60	Jul-09	7:09	52.0530	129.2680	175.5	16	5.8	270	95.7	Yes
61	Jul-09	7:57	52.0947	129.2510	167.5	21	6.8	270	48.8	Yes
62	Jul-09	9:45	52.2482	129.2686	168.8	16	6.5	270	85.0	Yes
63	Jul-09	11:37	52.2700	129.4435	177.3	16	6.1	300	67.5	Yes
64	Jul-09	12:34	52.3295	129.4320	159.1	17	6.4	240	494.0	Yes
65	Jul-09	13:19	52.3218	129.4984	181.4	20		300	422.0	Yes
66	Jul-09	14:41	52.2443	129.6941	211.4	20	3.1	320	97.6	Yes
67	Jul-09	15:58	52.2537	129.7943	183.9	20	5.7	300	136.6	Yes
68	Jul-09	16:41	52.2876	129.8227	183.9	20	5.4	300	422.3	Yes
69	Jul-09	17:44	52.3260	129.9003	165.3	21	5.5	240	61.9	Yes
70	Jul-09	18:46	52.3620	130.0263	238.8	21	5.7	360	57.3	Yes
71	Jul-09	21:01	52.3154	129.7621	206.2	22	5.6	330	228.4	Yes
72	Jul-10	6:13	52.6673	129.7477	175.1	17	4.9	300	101.0	Yes
73	Jul-10	7:44	52.6268	129.8934	250.0	20		400	127.4	Yes
74	Jul-10	8:50	52.6347	129.9683	264.8	22	5.5	450	104.6	Yes
75	Jul-10	9:42	52.6272	129.9703	266.6	21	5.4	450	78.8	Yes
76	Jul-10	10:43	52.5574	129.9681	262.9	19	5.5	400	93.8	Yes
77	Jul-10	11:43	52.5229	129.8840	234.0	20	7.8	370	71.3	Yes
78	Jul-10	12:33	52.5100	129.8542	230.0	21	5.4	360	212.3	Yes
79	Jul-10	13:35	52.4861	129.9021	232.9	21	5.5	360	286.8	Yes
80	Jul-10	14:24	52.4344	129.9267	230.4	20		360	67.5	Yes
81	Jul-10	15:13	52.4309	129.9661	241.0	20	5.7	390	74.7	Yes
82	Jul-10	16:13	52.4888	130.0278	264.8	20	5.2	400	83.5	Yes
83	Jul-10	17:25	52.4763	130.1443	292.2	20	6.9	450	61.1	Yes
84	Jul-10	18:13	52.4631	130.1651	296.9	20	5.5	450	67.3	Yes
85	Jul-10	18:59	52.4997	130.1905	300.2	20	5.8	450	53.9	Yes
86	Jul-10	19:48	52.5150	130.1967	296.6	20	5	450	86.4	Yes
87	Jul-10	20:47	52.5142	130.2815	280.2	20	5	430	455.0	Yes
88	Jul-11	6:09	52.5740	130.2830	250.5	20	5.8	380	86.4	Yes
89	Jul-11	6:58	52.6049	130.2489	247.2	20	5.5	370	180.3	Yes
90	Jul-11	7:48	52.6237	130.1965	250.5	20	6	370	173.7	Yes
91	Jul-11	8:50	52.6452	130.1902	250.5	20	5.5	340	58.5	Yes
92	Jul-11	9:43	52.6764	130.2297	241.0	22	5.7	360	86.1	Yes
93	Jul-11	10:58	52.6610	130.3439	184.2	20	6.5	300	444.9	Yes
94	Jul-11	12:14	52.6054	130.3654	179.5	19	6.4	280	531.5	Yes
95	Jul-11	13:40	52.5867	130.5219	163.8	20	6.2	270	516.2	Yes
96	Jul-11	14:57			140.8	2		240	0	No
97	Jul-11	15:50	52.5161	130.5795	126.9	19	5.7	210	111.4	Yes
98	Jul-11	16:37	52.5109	130.5032	163.1	22	5.9	270	275.6	Yes
99	Jul-11	17:23	52.4602	130.4973	165.6	20	6.2	270	2670.1	Yes
100	Jul-11	18:09	52.4384	130.4758	193.8	18	6.1	290	250.3	Yes
101	Jul-11	19:00	52.4258	130.4170	224.2	20	5.5	290	276.3	Yes
102	Jul-11	20:21	52.3670	130.2360	356.9	20	5.6	500	140.1	Yes
103	Jul-12	5:55	52.2484	130.0114	327.9	10	5.5	240	42.6	No

Tow	Date	Start Time	Start Latitude	Start Longitude	Average Depth (m)	Bottom Duration (min)	Speed (km/h)	Warp (ftm)	Catch (kg)	Usable
104	Jul-12	7:05	52.1945	130.1678	310.8	21	5.9	450	69.5	Yes
105	Jul-12	7:58	52.1213	130.1945	302.8	20	6.1	450	76.9	Yes
106	Jul-12	9:02	52.1404	130.1209	234.4	21	5.5	340	90.5	Yes
107	Jul-12	10:20	52.0972	130.0988	192.0	20	5.5	270	99.7	Yes
108	Jul-12	11:21	52.1207	129.9805	152.1	20	5.8	240	67.7	Yes
109	Jul-12	12:24	52.1683	129.9268	148.5	17	5.6	220	637.4	Yes
110	Jul-12	13:17	52.1622	129.8920	148.1	9	5.8	200	81.8	No
111	Jul-12	13:49	52.1653	129.8887	149.0	20	5.5	200	363.3	Yes
112	Jul-12	14:36	52.1467	129.8008	198.2	19	5.4	300	98.4	Yes
113	Jul-12	15:33	52.1187	129.7759	183.6	21	5.2	300	32.1	Yes
114	Jul-12	16:21	52.0866	129.7518	111.1	20	6	114	489.9	Yes
115	Jul-12	17:06	52.0873	129.6891	207.7	20	5.5	350	50.5	Yes
116	Jul-12	17:51	52.1077	129.6667	216.8	20	5.1	350	108.8	Yes
117	Jul-12	18:38	52.1429	129.7128	210.3	20	5.9	350	105.6	Yes
118	Jul-12	20:23	52.0529	129.9800	129.0	21	5.8	210	70.2	Yes
119	Jul-13	6:00	51.7850	128.7825	72.4	20	5.7	120	9.8	Yes
120	Jul-13	6:37	51.7617	128.7842	64.7	19	6	120	24.1	Yes
121	Jul-13	8:03	51.7280	129.0019	79.0	19	5.5	120	112.2	Yes
122	Jul-13	8:47	51.7210	129.0778	92.1	19	5.9	150	69.6	Yes
123	Jul-13	9:56	51.6416	129.1380	56.2	17			508.7	Yes
124	Jul-13	10:40	51.6771	129.1696	53.7	20	6	100	802.4	Yes
125	Jul-13	11:30	51.6720	129.2962	50.4	20	5.4	100	1789.3	Yes
126	Jul-13	12:32	51.6966	129.4455	87.7	20	5.8	150	161.0	Yes
127	Jul-13	13:15	51.6647	129.5028	95.8	19	5.4	150	300.6	Yes
128	Jul-13	14:18	51.7356	129.5219	134.5	20	5.9	210	79.7	Yes
129	Jul-13	15:21	51.7720	129.6032	260.0	19	5.5	350	204.5	Yes
130	Jul-13	16:08	51.7869	129.5308	232.9	20	6	350	391.8	Yes
131	Jul-13	17:49	51.8603	129.3541	208.1	22	5.6	350	628.5	Yes
132	Jul-13	18:34	51.8972	129.3374	212.5	21		350	345.2	Yes
133	Jul-14	6:41	51.5140	128.6940	78.6	20	5.7	150	506.4	Yes
134	Jul-14	7:33	51.4416	128.7580	190.1	19	5.9	300	323.1	Yes
135	Jul-14	8:32	51.4483	128.6653	203.3	20	5.6	300	261.7	Yes
136	Jul-14	10:06	51.3236	128.6907	192.0	20	5.6	300	349.5	Yes
137	Jul-14	11:07	51.2744	128.5817	178.7	20	5.9	270	130.9	Yes
138	Jul-14	11:54	51.2223	128.5324	197.1	20	5.7	300	437.9	Yes
139	Jul-14	12:50	51.1520	128.5288	168.9	19	6	270	500.5	Yes
140	Jul-14	13:37	51.1416	128.4667	181.4	22	5.8	300	687.2	Yes
141	Jul-14	14:25	51.1229	128.4425	175.5	23	5.1	300	756.1	Yes
142	Jul-14	15:17	51.0806	128.4209	152.1	20	6.2	240	593.1	Yes
143	Jul-14	16:01	51.0642	128.3632	152.8	22	5.4	240	4003.6	Yes
144	Jul-14	16:55	51.0417	128.3058	144.1	20	5.7	240	825.4	Yes
145	Jul-14	18:34	51.0313	128.1753	145.3	9	5	240	2264.5	No
146	Jul-14	19:27	51.0293	128.1798	141.7	11	5.2	240	1113.7	No
147	Jul-14	20:39	51.0280	127.9957	144.8	23	5.6	240	707.7	Yes
148	Jul-15	20:56	50.9996	128.1343	108.9	20	6.2	180	383.7	Yes
149	Jul-16	5:59	51.5730	129.3563	50.0	14	5.7	100	13.8	No
150	Jul-16	7:39	51.5168	129.5344	94.0	3	4.1	170	4.3	No
151	Jul-16	8:29	51.5358	129.6103	122.0	20	5.6	210	5.4	No
152	Jul-16	10:02	51.6084	129.7936	183.0	22	5.1	300	203.0	Yes
153	Jul-16	11:00	51.6202	129.8276	201.0	22	5.2	330	130.8	Yes
154	Jul-16	12:10	51.7167	129.8154	326.0	23	5.5	500	263.6	Yes
155	Jul-16	13:02	51.7321	129.8161	329.0	24	5.7	500	228.4	Yes
156	Jul-16	14:01	51.7152	129.7628	305.0	23	5.8	500	143.9	Yes
157	Jul-16	14:56	51.7676	129.7070	296.0	23	5.5	450	275.2	Yes

Tow	Date	Start Time	Start Latitude	Start Longitude	Average Depth (m)	Bottom Duration (min)	Speed (km/h)	Warp (ftm)	Catch (kg)	Usable
158	Jul-16	16:15	51.7690	129.8440	327.0	24	5.8	500	192.2	Yes
159	Jul-16	17:05	51.8096	129.8517	259.0	21	6	450	120.6	Yes
160	Jul-16	17:51	51.8246	129.8264	239.0	21	5.5	400	97.3	Yes
161	Jul-16	19:45	51.9144	129.8866	131.0	2	4.3	210	0	No
162	Jul-16	20:39	51.9164	129.8809	129.0	18	5.7	210	40.9	Yes
163	Jul-17	6:15	51.9095	129.7357	133.0	20	6.2	240	1419.7	Yes
164	Jul-17	8:01	51.8473	129.8886	150.0	19	6.2	240	512.2	Yes
165	Jul-17	9:02	51.8439	129.9726	161.0	15	13.4	270	341.1	Yes
166	Jul-17	9:48	51.8354	130.0183	171.0	3	4.6	270	0	No
167	Jul-17	10:20	51.8391	130.0439	169.0	16	6.3	260	1388.7	Yes
168	Jul-17	11:07	51.8398	130.0367	170.0	19	6.1	250	211.0	Yes
169	Jul-17	12:15	51.7651	130.0275	207.0	21	5.7	300	1186.0	Yes
170	Jul-17	13:00	51.7464	130.0279	285.0	23	81.8	450	111.4	Yes
171	Jul-17	14:16	51.7944	130.1380	200.0	20	5.8	300	379.3	Yes
172	Jul-17	15:45	51.8886	130.1481	172.0	5		260	437.1	No
173	Jul-17	16:32	51.8809	130.0635	154.0	4	5.5	250	54.5	No
174	Jul-17	17:00	51.8750	130.0627	162.0	6	4.9	250	5.8	No
175	Jul-17	18:21	51.9091	130.0339	153.0	8	3.7	220	0	No
176	Jul-17	19:35	51.9795	130.1599	160.0	12	5.2	260	130.8	No
177	Jul-17	20:28	51.9665	130.1649	166.0	18	5.5	240	137.1	Yes
178	Jul-18	6:17	52.6786	130.7096	120.0	20	5.7	200	324.0	Yes
179	Jul-18	7:09	52.6056	130.7719	119.0	20	5.6	200	339.5	Yes
180	Jul-18	8:04	52.5700	130.8146	154.0	4	4.2	250	25.8	No
181	Jul-18	8:35	52.5818	130.7935	126.0	20	5.6	220	89.4	Yes
182	Jul-18	9:42	52.5303	130.7119	128.0	19	5.8	200	53.6	Yes
183	Jul-18	10:20	52.5477	130.7034	124.0	20	5.8	200	78.4	Yes
184	Jul-18	11:05	52.5813	130.6415	126.0	20	5.7	200	104.1	Yes
185	Jul-18	11:49	52.5486	130.6230	116.0	19	6.3	180	127.3	Yes
186	Jul-18	13:24	52.4581	130.6426	113.0	20	6.3	180	48.3	Yes
187	Jul-18	15:13	52.3456	130.4751	166.0	21	6.1	270	2876.8	Yes
188	Jul-18	16:25	52.3314	130.5712	159.0	1	4.2	270	11.7	No
189	Jul-18	17:00	52.3328	130.5688	157.0	12	5.9	270	1162.6	No
190	Jul-18	19:24	52.2764	130.7705	164.0	15	5.5	240	164.2	Yes
191	Jul-19	6:14	52.6547	131.2410	112.0	20	5.6	180	223.2	Yes
192	Jul-19	8:46	52.5253	130.9415	106.0	20	5.9	180	313.6	Yes
193	Jul-19	9:36	52.4733	131.0084	131.0	20	5.1	210	106.8	Yes
194	Jul-19	10:58	52.4171	131.1786	74.0	20	5.7	120	441.2	Yes
195	Jul-19	11:55	52.3824	131.1925	150.0	19		240	374.2	Yes
196	Jul-19	13:05	52.4002	131.0389	122.0	19	6.2	190	117.0	Yes
197	Jul-19	13:43	52.3644	131.0310	121.0	20	5.9	210	199.5	Yes
198	Jul-19	15:04	52.2512	130.9694	171.0	22	5.8	300	760.2	Yes
199	Jul-19	15:51	52.2893	130.9674	146.0	20	6	240	188.8	Yes
200	Jul-19	16:45	52.2806	130.9190	164.0	20	5.9	270	7507.0	Yes
201	Jul-19	17:57	52.2471	130.7974	176.0	20	5.4	300	364.8	Yes
202	Jul-19	18:48	52.2288	130.8543	188.0	20		300	682.2	Yes
203	Jul-19	20:33	52.1421	130.9181	185.0	8	5.1	300	82.8	No
204	Jul-20	6:21	52.1141	130.4251	345.0	20	5.1	500	182.2	Yes
205	Jul-20	8:53	52.0465	130.6074	253.0	19	5.4	400	155.0	Yes
206	Jul-20	9:40	52.0662	130.6435	227.0	19	6.3	350	1986.1	Yes
207	Jul-20	10:44	52.0947	130.7114	228.0	19	6.2	350	203.6	Yes
208	Jul-20	11:45	52.0405	130.7373	292.0	21	5.6	450	340.7	Yes
209	Jul-20	13:19	51.9225	130.8081	227.0	21	5.8	350	768.4	Yes
210	Jul-20	14:29	51.8864	130.8468	161.0	9	5.1	250	205.3	No
211	Jul-20	15:33	51.9126	130.7451	229.0	6		375	411.2	No

Tow	Date	Start Time	Start Latitude	Start Longitude	Average Depth (m)	Bottom Duration (min)	Speed (km/h)	Warp (ftm)	Catch (kg)	Usable
212	Jul-20	16:41	51.8403	130.6422	308.0	16	5.8	450	575.9	Yes
213	Jul-20	17:32	51.8714	130.6295	355.0	23	5.7	500	774.9	Yes
214	Jul-20	18:41	51.9058	130.4635	340.0	20	5.6	500	221.9	Yes
215	Jul-20	19:38	51.9255	130.3478	289.0	20	5.8	450	60.0	Yes
216	Jul-20	20:41	51.9035	130.2593	197.0	14	5.6	300	45.5	Yes
217	Jul-21	6:16	51.7726	130.4958	339.0	7	4.3	500	0	No
218	Jul-21	7:44	51.7823	130.4896	307.0	3	4.7	450	0	No
219	Jul-21	8:23	51.8161	130.4763	268.0	17	5.1	400	372.4	Yes
220	Jul-21	9:32	51.7812	130.4573	471.0	11	3.5	600	37.5	No
221	Jul-21	11:16	51.7691	130.2955	219.0	17	5.5	300	223.4	No
222	Jul-21	12:58	51.6648	130.0475	352.0	21	5.1	500	366.1	Yes
223	Jul-21	13:48	51.6347	130.0295	348.0	21	5.2	500	191.2	Yes
224	Jul-21	15:43	51.5074	130.1433	370.0	21	5.1	500	740.2	Yes
225	Jul-22	18:31	50.9297	128.1927	34.0	1	4.4	100	0	No
226	Jul-22	19:13	50.9175	128.2133	46.0	19	5.6	100	67.5	Yes
227	Jul-22	20:25	50.9653	128.3597	45.0	3	3.4	100	11.6	No
228	Jul-23	6:06	51.0570	128.5024	106.0	23	5.8	180	471.9	Yes
229	Jul-23	7:32	50.9381	128.4229	49.0	19	6.5	100	139.4	Yes
230	Jul-23	8:18	50.8863	128.4352	52.0	20	6.4	100	107.1	Yes
231	Jul-23	10:36	50.8730	128.8102	55.0	6	4.8	100	0	No
232	Jul-23	11:00	50.8928	128.8038	56.0	19	8.1	120	87.3	Yes
233	Jul-23	12:39	50.9790	128.9936	72.0	20	5.5	120	160.8	Yes
234	Jul-23	13:44	51.0842	129.0155	107.0	19	5.4	180	127.7	Yes
235	Jul-23	15:29	51.0829	128.7758	58.0	19	5.6	110	277.0	Yes
236	Jul-23	16:04	51.0691	128.7520	57.0	20	5.6	110	128.1	Yes
237	Jul-23	16:56	51.1399	128.7017	104.0	20	5.5	180	34.0	Yes
238	Jul-23	17:38	51.1941	128.6773	161.0	22	5.4	270	378.2	Yes
239	Jul-23	18:44	51.2317	128.8343	177.0	20	5.5	300	1722.9	Yes
240	Jul-23	19:47	51.2058	128.9794	137.0	20	5.6	240	122.7	Yes
241	Jul-24	6:11	51.3859	129.1896	151.0	20	6.6	240	1104.7	Yes
242	Jul-24	7:19	51.3903	129.3842	129.0	20	5.6	210	68.9	Yes
243	Jul-24	7:58	51.3912	129.4307	140.0	19	5.8	220	133.7	Yes
244	Jul-24	8:46	51.4268	129.4442	121.0	20	6.7	210	111.3	Yes
245	Jul-24	9:54	51.4171	129.5382	142.0	8	5.5	240	24.1	No
246	Jul-24	11:07	51.3958	129.5886	157.0	13	4.8	270	95.4	No
247	Jul-24	12:56	51.5013	129.6729	146.0	5	3.9	260	4.0	No
248	Jul-24	13:33	51.4747	129.6597	154.0	11	4.5	260	1106.9	No
249	Jul-24	14:08	51.4836	129.6535	149.0	6	4.5	260	18.9	No
250	Jul-24	15:56	51.4597	129.8814	221.7	20		340	87.7	Yes
251	Jul-24	17:33	51.3609	130.0544	367.0	22	5.2	550	482.9	Yes
252	Jul-24	18:48	51.2783	129.9632	267.0	23	5.9	450	1310.5	Yes
253	Jul-24	20:04	51.2260	130.0284	473.0	21	5	600	184.8	Yes
254	Jul-25	6:05	51.2196	129.9923	419.0	23	5.5	550	551.4	Yes
255	Jul-25	7:00	51.2170	129.9407	330.0	19	4.9	550	1183.6	Yes
256	Jul-25	8:23	51.2033	129.7254	686.0	19	4.3	700	272.0	Yes
257	Jul-25	10:15	51.3205	129.7603	231.0	22	5.6	350	246.0	Yes
258	Jul-25	11:02	51.3548	129.7388	208.0	20	5.9	350	135.2	Yes
259	Jul-25	12:20	51.2793	129.5622	240.0	19	6.4	350	2362.6	Yes
260	Jul-25	13:10	51.2893	129.5028	249.0	20	5.5	350	159.7	Yes
261	Jul-25	14:03	51.3321	129.4690	203.0	20	5.6	300	616.1	Yes
262	Jul-25	14:49	51.3164	129.4500	229.0	19	5.8	300	266.1	Yes
263	Jul-25	15:32	51.2858	129.3922	276.0	23	5.4	450	358.0	Yes
264	Jul-25	16:36	51.2995	129.2524	216.0	22	5.4	450	339.4	Yes
265	Jul-25	17:42	51.3256	129.1052	250.0	20	5.3	400	554.9	Yes

Tow	Date	Start Time	Start Latitude	Start Longitude	Average Depth (m)	Bottom Duration (min)	Speed (km/h)	Warp (ftm)	Catch (kg)	Usable
266	Jul-25	18:35	51.2992	129.0185	238.0	22	5.3	400	436.4	Yes
267	Jul-25	19:35	51.2485	129.1267	237.0	19	5.4	370	218.2	Yes
268	Jul-25	20:19	51.2379	129.1842	260.0	19	5.1	370	301.0	Yes
269	Jul-26	6:16	50.9209	129.5329	218.0	10	4.9	320	203.3	No
270	Jul-26	6:57	50.9614	129.5197	223.0	15	4.9	300	93.9	Yes
271	Jul-26	8:11	50.9634	129.4935	210.0	13	4.5	300	0	No
272	Jul-26	9:37	50.9660	129.3754	178.0	19	5.6	280	290.0	Yes
273	Jul-26	11:22	50.9809	129.4086	191.0	20	5.6	300	1183.3	Yes
274	Jul-26	12:23	51.0366	129.4357	226.0	20	5.6	340	446.3	Yes
275	Jul-26	13:31	51.1031	129.3853	232.0	20	5.3	350	1307.2	Yes
276	Jul-26	14:20	51.1418	129.4163	276.0	17	5	400	160.4	Yes
277	Jul-26	15:03	51.1767	129.3851	285.0	15	5.5	400	179.9	Yes
278	Jul-26	16:32	51.2128	129.1212	229.0	20	5.8	350	1370.3	Yes
279	Jul-26	17:22	51.1758	129.1140	149.0	17	5.3	240	152.3	Yes
280	Jul-26	17:59	51.1590	129.1014	144.0	19	5.1	230	112.0	Yes
281	Jul-26	18:43	51.1350	129.0692	134.0	18	6	230	188.0	Yes

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

Common Name	Scientific Name	Total Weight (Kg)							
			1	2	3	4	5	6	7
Aleutian Skate	<i>Bathyraja aleutica</i>	17.3							
Arrowtooth Flounder	<i>Atheresthes stomias</i>	15392.3		74.7	5.5	182.7	93.5	73.5	130.0
Big Skate	<i>Raja binoculata</i>	96.0							
Bigfin Eelpout	<i>Lycodes cortezianus</i>	17.9							
Bigmouth Sculpin	<i>Hemitripterus bolini</i>	10.9							
Blackbelly Eelpout	<i>Lycodes pacificus</i>	154.8		7.2	0.4	11.0	10.4	9.4	1.8
Bocaccio	<i>Sebastes paucispinis</i>	362.2							
Canary Rockfish	<i>Sebastes pinniger</i>	2575.1							
Curlfin Sole	<i>Pleuronichthys decurrens</i>	16.7							
Darkblotched Rockfish	<i>Sebastes crameri</i>	34.9		0.3				0.3	
Dover Sole	<i>Microstomus pacificus</i>	2413.5		19.7	2.8	46.4	28.9	21.3	7.0
English Sole	<i>Parophrys vetulus</i>	1249.0							1.4
Eulachon	<i>Thaleichthys pacificus</i>	203.1		16.2	2.0	39.3	4.3	37.3	0.7
Flathead Sole	<i>Hippoglossoides elassodon</i>	1096.4		22.6	1.9	26.9	30.4	30.8	106.8
Greenstriped Rockfish	<i>Sebastes elongatus</i>	412.7							
Harlequin Rockfish	<i>Sebastes variegatus</i>	53.5							
Kelp Greenling	<i>Hexagrammos decagrammus</i>	11.5							
Lingcod	<i>Ophiodon elongatus</i>	488.6							
Longnose Skate	<i>Raja rhina</i>	516.6		1.6		3.9	3.4	1.6	2.9
Longspine Thornyhead	<i>Sebastolobus altivelis</i>	32.6							
North Pacific Spiny Dogfish	<i>Squalus suckleyi</i>	3419.8				4.3	3.8	4.6	
Pacific Cod	<i>Gadus macrocephalus</i>	1289.0		4.9	1.0	1.1	0.7		
Pacific Hake	<i>Merluccius productus</i>	1127.7					0.2		
Pacific Halibut	<i>Hippoglossus stenolepis</i>	1304.1		3.6					
Pacific Ocean Perch	<i>Sebastes alutus</i>	15260.0							
Pacific Sanddab	<i>Citharichthys sordidus</i>	388.8							
Petrale Sole	<i>Eopsetta jordani</i>	550.3		0.8			1.1		
Pygmy Rockfish	<i>Sebastes wilsoni</i>	17.7							
Quillback Rockfish	<i>Sebastes maliger</i>	120.6							
Redbanded Rockfish	<i>Sebastes babcocki</i>	1475.6							
Redstripe Rockfish	<i>Sebastes proriger</i>	6957.3							
Rex Sole	<i>Glyptocephalus zachirus</i>	2988.6		1.3		6.2	0.5	13.5	5.7
Rosethorn Rockfish	<i>Sebastes helvomaculatus</i>	175.7							
Rougheye Rockfish	<i>Sebastes aleutianus</i>	1066.3		1.1		0.4			
Sablefish	<i>Anoplopoma fimbria</i>	788.1						3.3	3.2
Sandpaper Skate	<i>Bathyraja interrupta</i>	29.2				0.7			
Sharpchin Rockfish	<i>Sebastes zacentrus</i>	3157.4		0.1					
Shortraker Rockfish	<i>Sebastes borealis</i>	73.7							
Shortspine Thornyhead	<i>Sebastolobus alascanus</i>	1664.1							
Silvergray Rockfish	<i>Sebastes brevispinis</i>	23095.7							
Slender Sole	<i>Lyopsetta exilis</i>	121.9		0.4		4.5	1.0	3.2	1.2
Southern Rock Sole	<i>Lepidopsetta bilineata</i>	538.2							
Splitnose Rockfish	<i>Sebastes diploproa</i>	1156.6		0.2					
Spotted Ratfish	<i>Hydrolagus colliei</i>	2570.4		15.5		24.3	27.2	19.3	4.4
Threadfin Sculpin	<i>Icelinus filamentosus</i>	13.6							
Walleye Pollock	<i>Theragra chalcogramma</i>	2003.5		32.5	6.9	117.9	12.8	7.5	
Widow Rockfish	<i>Sebastes entomelas</i>	116.4							
Yelloweye Rockfish	<i>Sebastes ruberrimus</i>	255.7							
Yellowmouth Rockfish	<i>Sebastes reedi</i>	2198.3							
Yellowtail Rockfish	<i>Sebastes flavidus</i>	4251.2							
Other		1474.9		5.0	3.0	26.0	22.0	3.0	1.0
Total		104805.9	0.0	207.3	23.9	495.6	241.0	229.0	265.5

Common Name	8	9	10	11	12	13	14	15	16	17	18	19
Aleutian Skate							7.4					
Arrowtooth Flounder	115.4	641.5	60.7	135.5		110.4	149.8	277.0	103.7	412.5	103.5	107.2
Big Skate												
Bigfin Eelpout												
Bigmouth Sculpin												
Blackbelly Eelpout	0.1			0.3		1.6	21.6		36.3	1.6	1.6	2.0
Bocaccio	4.3											
Canary Rockfish	1.6	11.3		9.9				2.6				
Curlfin Sole												
Darkblotched Rockfish						0.5	0.4	0.2				
Dover Sole	5.2	0.9	0.6	62.1		8.5	7.6	5.9	17.9	2.5	17.3	97.5
English Sole			1.3						0.2	25.6	0.7	0.9
Eulachon	0.2	0.1	0.1	0.6	0.1	10.5	19.5	0.3				
Flathead Sole	10.4	0.2	3.3	24.4		6.7	30.9	16.5	10.3	13.7	10.3	3.0
Greenstriped Rockfish	0.5	1.4		4.6				0.4			0.9	
Harlequin Rockfish												0.2
Kelp Greenling												
Lingcod	4.0	17.1		4.0	1.8							
Longnose Skate						5.7	3.1	16.3	4.0			
Longspine Thornyhead												
North Pacific Spiny Dogfish	1.9			4.5	1.7		2.3	5.4	12.1	3.9	2.7	1.0
Pacific Cod	2.3	22.4	26.1	29.1					0.7	9.9	0.3	4.4
Pacific Hake								1.8				
Pacific Halibut												
Pacific Ocean Perch				1.1		0.3			3.5		16.8	18.9
Pacific Sanddab										0.2	0.2	
Petrale Sole	2.3		5.5	5.5	1.8			2.2		0.8		
Pygmy Rockfish	0.1										0.1	-
Quillback Rockfish		0.8	1.8	1.0	1.0							
Redbanded Rockfish								1.2				
Redstripe Rockfish	153.8	83.3		17.6				2.6			60.8	2.7
Rex Sole	15.2	2.2	1.8	17.7		0.9	5.4	2.4	0.5	3.9	4.4	11.5
Rosethorn Rockfish												
Rougheye Rockfish	0.4			0.2		0.8	0.2					
Sablefish				1.2			1.4		1.5			
Sandpaper Skate												
Sharpchin Rockfish	0.3	0.2		0.2							1.2	
Shortraker Rockfish												
Shortspine Thornyhead												
Silvergray Rockfish	41.5	26.8						26.3	11.9		37.8	3.0
Slender Sole	0.4			2.2		0.8	1.1	0.3	0.5	0.8	0.4	0.5
Southern Rock Sole			0.3									
Splitnose Rockfish						0.1						
Spotted Ratfish	8.7	2.2	7.0	5.5	2.1	8.2	4.8	9.1	16.3	13.5	23.5	2.8
Threadfin Sculpin			0.2									
Walleye Pollock			0.4						0.1			5.7
Widow Rockfish	21.1	9.0									1.6	
Yelloweye Rockfish	3.0	7.3						2.3			7.1	
Yellowmouth Rockfish												
Yellowtail Rockfish	110.5	8.6		2.2							1253.9	48.8
Other	7.2	2.0	2.0	2.0	-	19.0	4.0	3.0	1.0	-	-	-
Total	510.6	837.5	110.9	331.8	8.9	173.7	259.5	375.6	220.8	489.0	1545.0	310.0

Common Name	20	21	22	23	24	25	26	27	28	29	30	31
Aleutian Skate												
Arrowtooth Flounder	129.0	357.8	124.0	117.3	87.2	88.8	143.7	81.6	114.9	296.7	11.3	1.2
Big Skate			52.7									0.8
Bigfin Eelpout												
Bigmouth Sculpin												
Blackbelly Eelpout	1.6				0.8		0.2	4.1	22.8	0.1		
Bocaccio												
Canary Rockfish		1.0	99.8									
Curlfin Sole												0.3
Darkblotched Rockfish			0.4									
Dover Sole	36.2	45.1	34.1	1.0	10.6	13.9	18.9	24.7	17.6	9.7		
English Sole				0.8			0.4		0.5	22.7	1.5	0.2
Eulachon						0.2	0.6					
Flathead Sole	9.9	44.2	6.9		4.5	1.0	3.6	10.7	193.2	4.2		
Greenstriped Rockfish	6.3					1.8	0.4		0.7			
Harlequin Rockfish												
Kelp Greenling												
Lingcod						4.8				2.1		
Longnose Skate	4.1	5.2	12.1	22.3								
Longspine Thornyhead												
North Pacific Spiny Dogfish		1.1			3.0					3.7		
Pacific Cod	3.9		18.8	22.2	3.8	9.1	3.0	0.9	4.5	12.8		
Pacific Hake		8.7										
Pacific Halibut		2.8		7.5					6.5	2.5	37.6	14.9
Pacific Ocean Perch	51.3	30.7	720.5	5.7								
Pacific Sanddab											120.2	1.5
Petrale Sole	0.6		6.9	4.6	2.6				4.5	0.5	8.0	2.7
Pygmy Rockfish					-				-			
Quillback Rockfish												
Redbanded Rockfish	74.2	34.7	5.5									
Redstripe Rockfish	77.0		2.7		12.5	48.1	8.2		183.0			
Rex Sole	15.3	6.1	16.1	2.4	53.9	28.5	72.5	29.5	11.4	4.9	-	
Rosethorn Rockfish	0.6											
Rougheye Rockfish			0.4									
Sablefish	14.1	6.2	5.3			1.1	1.9	2.2	0.9			
Sandpaper Skate												
Sharpchin Rockfish	9.6	1.1			0.2	14.7	2.1		0.1	-		
Shortraker Rockfish												
Shortspine Thornyhead		5.2	0.7									
Silvergray Rockfish	13.9		33.2	1.7		4.6	1.9		0.4	2.7		
Slender Sole	1.9	0.4	0.7		0.6	0.6	0.6	2.8	2.5	0.2		
Southern Rock Sole											2.0	10.8
Splitnose Rockfish		0.8	0.5									
Spotted Ratfish		16.7	3.5	11.8	2.4	4.4	3.5	5.0	10.9	12.8		2.7
Threadfin Sculpin												
Walleye Pollock					3.9	20.3	176.5	81.2				
Widow Rockfish												
Yelloweye Rockfish	9.1											
Yellowmouth Rockfish			2.0									
Yellowtail Rockfish	4.6											
Other	13.0	0.3	11.0	2.0	3.0	1.0	1.0	3.0	-	1.0		-
Total	476.1	568.2	1157	199.3	189.0	243.3	439.3	245.9	574.7	376.5	180.6	35.1

Common Name	32	33	34	35	36	37	38	39	40	41	42	43
Aleutian Skate												
Arrowtooth Flounder	270.3	360.7	401.4	176.7	356.7	60.7	1496.6		135.8	21.2	21.9	26.1
Big Skate												
Bigfin Eelpout												
Bigmouth Sculpin												
Blackbelly Eelpout				-		-				0.3	6.0	1.5
Bocaccio												
Canary Rockfish							2.9					
Curlfin Sole												
Darkblotched Rockfish				-	0.1	0.1						
Dover Sole				3.0	0.3	0.2			0.4		1.7	
English Sole		1.1	2.5	6.9	8.3	7.8	1.8					
Eulachon										11.1	4.9	
Flathead Sole	0.4	0.6	0.4	12.2	2.8	1.9	1.1		0.7	0.2	14.2	0.5
Greenstriped Rockfish	0.9						0.2					
Harlequin Rockfish												
Kelp Greenling								0.6				
Lingcod	8.4						6.9	11.5				
Longnose Skate		4.7			3.6		0.7		8.1	1.4	8.5	
Longspine Thornyhead												
North Pacific Spiny Dogfish	4.6	4.2	8.7	10.9	19.8	8.4			2.4	3.1	3.0	6.2
Pacific Cod	47.6	15.3	5.0	1.3	13.5	5.3	5.2			5.1		
Pacific Hake												
Pacific Halibut							40.8				2.5	
Pacific Ocean Perch						-			2.3	0.9		
Pacific Sanddab												
Petrals Sole	6.6		2.5	3.1	3.9	6.4	2.5					
Pygmy Rockfish	0.3											
Quillback Rockfish	6.8	3.7		1.2			6.3	3.7				
Redbanded Rockfish			0.3						2.9	59.5	3.2	2.8
Redstripe Rockfish	0.4	0.2	8.2					30.4				
Rex Sole	1.3	2.6	2.3	7.8	2.3	6.1	0.5			-	1.1	0.1
Rosethorn Rockfish									0.6	0.5		
Rougheye Rockfish									0.5	0.5	5.9	5.9
Sablefish									3.8			
Sandpaper Skate									-			1.6
Sharpchin Rockfish	0.9	0.1	-				0.2	0.2	2.9	1.5		
Shortraker Rockfish												
Shortspine Thornyhead									1.5			
Silvergray Rockfish	1.2	4.2	4.9	8.4	7.7	3.6	11.0	2.6			2.6	
Slender Sole	0.3			0.2	0.1				0.1	0.1	0.3	0.1
Southern Rock Sole						0.6						
Splitnose Rockfish										0.1		
Spotted Ratfish	3.2	5.7	4.9	5.8	5.1	6.2	3.9	0.7	9.8	1.6	6.9	4.9
Threadfin Sculpin	0.4						0.1					
Walleye Pollock	2.9	0.3					-					
Widow Rockfish												
Yelloweye Rockfish	10.0	7.1	5.0		2.2					3.7		
Yellowmouth Rockfish	1.7	0.5					0.8					0.2
Yellowtail Rockfish								0.9				
Other	2.0	1.0	1.3	1.0	-	1.0	-	-	123.0	26.0	10.0	13.0
Total	369.8	412.1	491.5	238.3	426.7	107.9	1582.0	50.8	294.5	139.2	90.4	62.7

Common Name	44	45	46	47	48	49	50	51	52	53	54	55
Aleutian Skate												
Arrowtooth Flounder	201.0	0.8	24.5	15.78	5.6	8.5	28.3	2.2	9.0	3.5	13.5	23.6
Big Skate												
Bigfin Eelpout												
Bigmouth Sculpin												
Blackbelly Eelpout	0.5		-	-	-							0.3
Bocaccio							0.8					
Canary Rockfish		15.7	4.1			1.7	52.3	9.6				1.6
Curlfin Sole												
Darkblotched Rockfish	-											
Dover Sole	5.7		1.0	2.17	0.6	2.6						
English Sole			19.4	8.84					1.1			
Eulachon						0.1						0.2
Flathead Sole	36.8		1.4	0.99		0.4				0.4		2.0
Greenstriped Rockfish			4.7	1.13		6.7	3.4		2.0	1.5	5.4	1.2
Harlequin Rockfish								1.7	0.7			
Kelp Greenling												
Lingcod		3.2	3.2		4.1		20.7	7.1				
Longnose Skate	15.3			3.11								3.4
Longspine Thornyhead												
North Pacific Spiny Dogfish	1.2	2.9	9.0	13.86	5.0	2.0		1.4	3.4	4.3	13.9	6.7
Pacific Cod		0.2	7.5	2.74	8.2	2.8	2.9	0.8	7.9	2.1	5.2	7.8
Pacific Hake				1.08								
Pacific Halibut			4.4				3.8			8.9		
Pacific Ocean Perch						0.3	0.3		0.1		0.1	0.2
Pacific Sanddab												
Petrale Sole		1.8	6.1	4.51	2.1	5.4	0.9		6.2	0.8	2.3	
Pygmy Rockfish							0.5	1.1	0.2		0.1	
Quillback Rockfish								1.9				
Redbanded Rockfish	2.7		3.7	3.51	3.3	17.3	3.5					3.3
Redstripe Rockfish						6.6	82.0	49.6	5.8			19.3
Rex Sole	2.0	0.4	8.2	16.51	26.5	3.0	0.8		2.1	0.3	1.6	0.4
Rosethorn Rockfish			0.9			0.1						
Rougheye Rockfish	1.8			0.98								
Sablefish					1.7	2.0						
Sandpaper Skate												
Sharpchin Rockfish			0.9		0.6	3.8	0.9	0.1	0.1		0.1	0.3
Shortraker Rockfish												
Shortspine Thornyhead					0.1							
Silvergray Rockfish	2.9		13.3	8.62		14.2	22.5	5.4		4.7	15.6	14.4
Slender Sole	0.3		1.0	0.64	0.2	0.8	0.2				0.2	0.3
Southern Rock Sole		0.4										
Splitnose Rockfish	0.4											
Spotted Ratfish	12.5	2.5	2.5	4.4	3.0	2.8	18.5	0.2	5.1	5.9	1.8	3.9
Threadfin Sculpin												
Walleye Pollock					0.2	2.6	0.1		1.9		0.4	2.5
Widow Rockfish												
Yelloweye Rockfish						12.1	2.8	2.6	2.6		3.1	10.2
Yellowmouth Rockfish			0.4		0.1	12.7	77.8	6.1	0.6		0.2	0.9
Yellowtail Rockfish			2.2									2.0
Other	-	-	3.0	0.7	3.0	7.0	1.0	-	-	-	-	7.0
Total	283.2	27.7	121.5	89.5	64.5	115.1	324.0	90.1	49.3	32.3	63.7	111.6

Common Name	56	57	58	59	60	61	62	63	64	65	66	67
Aleutian Skate												
Arrowtooth Flounder	26.5	61.8	88.9	5.8	18.3	14.6	35.0	8.2	294.4	24.7	71.1	5.3
Big Skate				0.1								
Bigfin Eelpout												
Bigmouth Sculpin			-									
Blackbelly Eelpout		2.1	0.3	-	0.1	-	0.1	-				
Bocaccio												
Canary Rockfish	1.1		8.3	5.2					7.8	3.9		3.4
Curlfin Sole		0.1										
Darkblotched Rockfish			0.1									
Dover Sole		0.3		2.3	7.5		1.9	0.7			2.7	
English Sole												
Eulachon		0.6	0.1			0.1	0.1					
Flathead Sole	1.0	3.2	6.9	0.1	1.3	0.1	1.4	0.2	0.1		3.7	
Greenstriped Rockfish			0.3	19.8		0.6		0.2	0.6	3.3		
Harlequin Rockfish												
Kelp Greenling												
Lingcod									9.3			
Longnose Skate		9.7			3.0		13.0			3.7		
Longspine Thornyhead												
North Pacific Spiny Dogfish	1.2	3.8	1.6	8.9	7.3	4.7	3.7	9.0	16.8	9.8	1.5	5.3
Pacific Cod		7.6	14.1	4.7		4.3	4.8	10.3	11.5	33.6		37.6
Pacific Hake												
Pacific Halibut												2.1
Pacific Ocean Perch	0.2	0.1	0.9	286.1	32.7		0.5	6.6		277.0	1.8	0.4
Pacific Sanddab												
Petrale Sole				9.6	5.3	1.6	1.7		1.7		1.3	0.5
Pygmy Rockfish				0.3								
Quillback Rockfish												
Redbanded Rockfish			13.8	49.4	5.4	2.0	6.1	9.4	12.2	8.3	1.9	
Redstripe Rockfish	2.1			334.1				0.4		1.0		
Rex Sole	0.2	2.2	7.6	7.1	4.9	1.0	1.5	2.5	1.3	1.0	2.6	13.3
Rosethorn Rockfish				1.4	0.5							
Rougheye Rockfish												
Sablefish				4.1		1.3						
Sandpaper Skate												
Sharpchin Rockfish	0.3		0.2	6.0	-	-	-	0.7	0.9	1.4	0.1	
Shortraker Rockfish												
Shortspine Thornyhead												
Silvergray Rockfish	2.3		4.9	31.4		5.1		3.3	100.4	21.7	1.8	66.4
Slender Sole	0.6	1.1	2.0	0.3	0.1	0.2	0.1	-			0.2	-
Southern Rock Sole												
Splitnose Rockfish												
Spotted Ratfish	4.9	2.0	1.5	4.8	3.2	3.7	1.0	-	2.2	0.6	3.5	0.2
Threadfin Sculpin												
Walleye Pollock					0.1	0.3		2.0	2.8	9.1		0.8
Widow Rockfish									0.9	2.6		
Yelloweye Rockfish			2.7	6.5					0.8			
Yellowmouth Rockfish				6.2	0.7		6.5	2.4		9.4	1.0	0.9
Yellowtail Rockfish			2.2	8.1		4.8	3.2	4.1	12.0		1.9	
Other	2.0	6.0	3.0	31.0	5.3	4.0	4.0	7.0	18.0	11.0	3.0	-
Total	42.3	100.2	158.8	833.6	95.7	48.8	85.0	67.5	494.0	422.0	97.6	136.6

Common Name	68	69	70	71	72	73	74	75	76	77	78	79
Aleutian Skate												
Arrowtooth Flounder	8.6	0.9	3.1	35.2	10.4	32.7	22.7	13.8	33.3	36.7	11.2	11.9
Big Skate												
Bigfin Eelpout									0.3			
Bigmouth Sculpin					3.7							
Blackbelly Eelpout			0.2	0.1					-	0.3		-
Bocaccio												
Canary Rockfish												
Curlfin Sole												
Darkblotched Rockfish												
Dover Sole			0.9	6.8		4.1	3.9	6.0	4.0		1.4	0.5
English Sole	1.9		2.1									
Eulachon				-		2.5	3.9	8.3	9.3	0.6		0.1
Flathead Sole				5.1			0.9		1.8	0.5		1.9
Greenstriped Rockfish												
Harlequin Rockfish												
Kelp Greenling												
Lingcod	4.6			9.8								
Longnose Skate			9.7			7.3	3.6	3.4				
Longspine Thornyhead												
North Pacific Spiny Dogfish	5.1	2.1		8.3	6.7	1.2	3.4	5.3	5.6	7.3	2.8	7.0
Pacific Cod	12.6	1.9		5.7	7.4	0.7					1.0	1.4
Pacific Hake						1.3	4.5	1.3	5.5			
Pacific Halibut		21.8										
Pacific Ocean Perch	0.2		12.5	2.9	1.5	5.4	2.8	1.4	0.6	2.1	128.0	203.2
Pacific Sanddab												
Petrale Sole				1.7						1.2		1.2
Pygmy Rockfish												
Quillback Rockfish												
Redbanded Rockfish			7.9	85.7	14.9	18.9	34.0	11.2	10.0	5.1	27.5	13.8
Redstripe Rockfish				1.6								
Rex Sole	5.1		4.9	17.4	3.8	4.2	3.2	3.2	2.6	4.8	7.9	11.2
Rosethorn Rockfish						0.6					1.6	
Rougheye Rockfish						6.5	8.7				-	
Sablefish					2.1	6.5	4.7	7.3	2.8	4.5		
Sandpaper Skate						1.4	1.3	1.0	4.1			
Sharpchin Rockfish					0.3	0.7					2.1	
Shortraker Rockfish												
Shortspine Thornyhead			0.5			19.1	4.8	2.1	3.3	1.0	5.8	0.6
Silvergray Rockfish	381.4	34.7	8.8	35.6	31.2	10.4				2.4	11.7	16.3
Slender Sole				0.8		-	0.9	0.5	0.5	0.4	0.2	1.0
Southern Rock Sole												
Splitnose Rockfish												
Spotted Ratfish	0.9	0.4	0.6	6.6	0.9		0.4	0.5			0.4	
Threadfin Sculpin												
Walleye Pollock			3.6	2.3	4.7						4.9	8.8
Widow Rockfish												
Yelloweye Rockfish												
Yellowmouth Rockfish	1.7			1.6	5.2						0.6	6.4
Yellowtail Rockfish												
Other	-	-	2.0	1.0	8.0	4.0	1.0	14.0	10.0	5.0	5.0	1.0
Total	422.3	61.9	57.3	228.4	101.0	127.4	104.6	78.8	93.8	71.3	212.3	286.8

Common Name	80	81	82	83	84	85	86	87	88	89	90	91
Aleutian Skate												
Arrowtooth Flounder	2.9	10.4	29.2	10.7	5.6	7.6	9.8	15.6	10.9	9.7	6.1	5.5
Big Skate												
Bigfin Eelpout							0.3			0.2		
Bigmouth Sculpin												
Blackbelly Eelpout	-	0.1	-									
Bocaccio												
Canary Rockfish												
Curlfin Sole												
Darkblotched Rockfish							1.3					
Dover Sole	3.1	1.9	1.5	2.8	5.4	1.9	3.2	6.4	3.3	1.4		1.8
English Sole	0.7	0.4										
Eulachon		0.1	8.0	0.9	0.4	0.5	0.6	0.3	0.2	0.1		0.5
Flathead Sole	1.0	2.3										
Greenstriped Rockfish												
Harlequin Rockfish												
Kelp Greenling												
Lingcod												
Longnose Skate				1.8	12.4		2.6	6.5	13.3		8.6	
Longspine Thornyhead												
North Pacific Spiny Dogfish	3.7	2.1	2.8	2.8			4.6					
Pacific Cod	2.9								4.6	5.9	5.6	
Pacific Hake			2.6	6.6	16.0	20.2	12.9	2.4		1.4	7.0	4.5
Pacific Halibut								29.8				
Pacific Ocean Perch	18.7	21.5	0.8	2.8	2.5	2.1	15.2	254.6	14.2	56.8	40.5	12.3
Pacific Sanddab												
Petrale Sole				0.5						0.8		
Pygmy Rockfish												
Quillback Rockfish												
Redbanded Rockfish		4.6	7.9	3.4		3.1	4.3	25.0	6.5	22.0	16.2	
Redstripe Rockfish												
Rex Sole	12.7	4.9	1.2	3.2	2.2	0.8	0.6	5.3	5.1	9.7	3.2	1.0
Rosethorn Rockfish								1.0	0.8	0.6	0.7	
Rougheye Rockfish					1.3	2.9	8.2	23.5	1.8	1.9	2.7	1.1
Sablefish			2.6	11.4	7.5	6.7	5.1	12.8	4.1		4.1	3.4
Sandpaper Skate								0.8				
Sharpchin Rockfish			0.1									
Shortraker Rockfish												
Shortspine Thornyhead		0.1	3.5	9.2	10.3	6.2	12.7	40.8	12.0	14.8	8.9	5.9
Silvergray Rockfish	12.3	18.7	11.8	1.9					-	18.6	23.4	14.9
Slender Sole	0.1	0.6	1.0	0.4							0.2	
Southern Rock Sole												
Splitnose Rockfish					0.3				0.4			
Spotted Ratfish	4.8	0.2		1.6	0.9		1.1		1.6		1.4	
Threadfin Sculpin												
Walleye Pollock	3.7				0.9			2.0	2.7	4.7	8.4	0.7
Widow Rockfish												
Yelloweye Rockfish												
Yellowmouth Rockfish	0.8	5.6	0.6							0.6		
Yellowtail Rockfish												
Other	-	1.0	10.0	1.0	2.0	2.0	3.9	28.0	5.0	31.0	37.0	7.0
Total	67.5	74.7	83.5	61.1	67.3	53.9	86.4	455.0	86.4	180.3	173.7	58.5

Common Name	92	93	94	95	96	97	98	99	100	101	102	103
Aleutian Skate												
Arrowtooth Flounder	16.4	8.6	31.1	17.3		103.3	28.0	3.4	21.9	69.8	6.5	5.9
Big Skate												
Bigfin Eelpout												
Bigmouth Sculpin												
Blackbelly Eelpout		-							0.1	0.5	0.1	
Bocaccio								8.7				
Canary Rockfish			0.7	31.7				143.0	2.2			2.4
Curlfin Sole												
Darkblotched Rockfish												
Dover Sole	4.6	0.3		2.4			3.6	0.8	33.7	16.2	0.6	
English Sole												
Eulachon	1.2		-									
Flathead Sole		5.1		9.0			2.6	1.4	0.7	2.3		
Greenstriped Rockfish			5.2	2.5				1.1				0.4
Harlequin Rockfish								0.9				
Kelp Greenling												
Lingcod								3.5				
Longnose Skate								3.7			11.7	1.2
Longspine Thornyhead												
North Pacific Spiny Dogfish	2.1		2.5				2.1	0.9	3.0	1.4	1.3	1.9
Pacific Cod	0.8	5.0	6.8			0.7	50.0	2.0	3.0			3.0
Pacific Hake	1.9										20.5	5.9
Pacific Halibut											3.3	11.5
Pacific Ocean Perch	14.2	98.3	32.6	1.7			0.2	0.7	23.5	23.6	17.4	
Pacific Sanddab												0.2
Petrals Sole		1.2	0.7	0.9			148.2	15.9	1.0			4.1
Pygmy Rockfish				0.2								
Quillback Rockfish												
Redbanded Rockfish	7.2	134.9	5.2	1.6					1.0	10.3	6.5	
Redstripe Rockfish			5.0	45.6				552.1	5.9			
Rex Sole	0.6	5.2	14.7	26.9		0.2	12.8	5.6	38.4	55.0	0.7	
Rosethorn Rockfish												
Rougheye Rockfish											5.5	
Sablefish	16.5	2.9		6.3						1.5	24.4	
Sandpaper Skate												
Sharpchin Rockfish	0.2	4.5	1.4	0.8			0.1	5.2				
Shortraker Rockfish											11.1	
Shortspine Thornyhead	4.3	1.4								1.9	11.6	
Silvergray Rockfish	7.2	115.8	393.1	56.4			14.0	1894.0	107.2	84.2	15.3	4.7
Slender Sole		0.8		0.3					1.2	2.1	0.5	
Southern Rock Sole												0.8
Splitnose Rockfish	0.1	20.4										
Spotted Ratfish	0.4	0.7	0.2	1.3		5.1	3.6	0.1	0.3	1.3	1.8	0.8
Threadfin Sculpin												
Walleye Pollock	2.7	28.2	19.4			0.3	4.1	8.8	0.6	5.4		
Widow Rockfish								0.6				
Yelloweye Rockfish		3.5	5.7					4.5				
Yellowmouth Rockfish								5.9	0.8			
Yellowtail Rockfish				306.3			1.6	2.1	3.3			
Other	6.0	8.0	7.0	5.0		2.0	5.0	4.8	3.0	1.0	1.0	
Total	86.1	444.9	531.5	516.2	0.0	111.4	275.6	2670.0	250.3	276.3	140.1	42.6

Common Name	104	105	106	107	108	109	110	111	112	113	114	115
Aleutian Skate												
Arrowtooth Flounder	16.7	21.0	0.7	17.5	6.6	2.1	1.7	2.6	54.6	6.8	2.8	18.7
Big Skate												
Bigfin Eelpout												
Bigmouth Sculpin												
Blackbelly Eelpout									-			-
Bocaccio												
Canary Rockfish	6.0					143.2	6.9	64.0	3.9		445.8	8.8
Curlfin Sole												
Darkblotched Rockfish												
Dover Sole	5.7	2.6		1.4								
English Sole												0.5
Eulachon	0.3	0.3										0.4
Flathead Sole									1.6	0.1		
Greenstriped Rockfish			0.2		2.2	2.1	1.2	2.7		0.3		
Harlequin Rockfish								0.3				
Kelp Greenling												
Lingcod											3.5	
Longnose Skate		3.0							0.5			3.7
Longspine Thornyhead												
North Pacific Spiny Dogfish							2.1	1.2	6.6	4.7	3.2	6.2
Pacific Cod			6.6	6.0	11.4	3.6	3.2	13.9				
Pacific Hake	2.6	1.3										
Pacific Halibut						5.7		40.4	3.5		4.2	
Pacific Ocean Perch	6.9	11.6	39.0	39.7	11.2				0.1	5.5		0.1
Pacific Sanddab												
Petrale Sole					0.5						2.8	
Pygmy Rockfish						-						
Quillback Rockfish												
Redbanded Rockfish	3.3	1.9	5.1	0.3			2.6					0.9
Redstripe Rockfish												
Rex Sole	1.7	0.7	1.0	28.4	3.2	1.5	0.8	0.1	1.0	4.9		
Rosethorn Rockfish			1.5	0.2				0.5				
Rougheye Rockfish		1.7	1.5									
Sablefish	12.7	7.0	2.3									
Sandpaper Skate									0.9			
Sharpchin Rockfish			1.6			0.8	0.1	1.2	0.3	0.1		-
Shortraker Rockfish												
Shortspine Thornyhead	12.5	22.6	9.2	1.1					0.5			
Silvergray Rockfish			1.5		15.9	444.2	56.1	108.0	15.5	2.1	2.8	6.1
Slender Sole	0.3	-	-	-				0.1	1.0	0.1	-	-
Southern Rock Sole												
Splitnose Rockfish	0.7	1.3	8.9									-
Spotted Ratfish		1.1	1.2	1.0	3.0	3.0	1.1	2.2	1.4	1.2	24.9	3.4
Threadfin Sculpin												
Walleye Pollock		0.6	3.4	1.1	0.5					0.1		
Widow Rockfish												
Yelloweye Rockfish					5.2	18.3	5.0	2.1				
Yellowmouth Rockfish			1.0									0.2
Yellowtail Rockfish					3.5	4.9		122.6	1.7	1.7		
Other	-	-	6.0	3.0	5.0	8.0	1.0	2.0	5.4	5.0	-	2.0
Total	69.5	76.9	90.5	99.7	67.7	637.4	81.8	363.3	98.4	32.1	489.9	50.5

Common Name	116	117	118	119	120	121	122	123	124	125	126	127
Aleutian Skate												
Arrowtooth Flounder	33.5	84.2	5.4			0.1	1.4					
Big Skate									5.0			
Bigfin Eelpout												
Bigmouth Sculpin												
Blackbelly Eelpout	0.2	0.1										
Bocaccio												
Canary Rockfish	6.7											
Curlfin Sole				4.2	0.5		0.9				0.3	
Darkblotched Rockfish												
Dover Sole	0.9	0.3										
English Sole				0.1			0.2					
Eulachon	1.3	0.5	-									
Flathead Sole		0.2										
Greenstriped Rockfish												
Harlequin Rockfish												
Kelp Greenling						1.6						
Lingcod			3.4							43.8	3.3	47.2
Longnose Skate	11.0	0.6	10.7									6.6
Longspine Thornyhead												
North Pacific Spiny Dogfish		0.7				30.0	35.0	461.6	778.2	1411.0	54.8	14.1
Pacific Cod			3.8									
Pacific Hake												
Pacific Halibut			11.5		6.5	6.8	7.5	31.4	15.9	242.6	84.5	149.6
Pacific Ocean Perch	0.6											
Pacific Sanddab				1.5	1.1	0.8	0.1				0.1	
Petrale Sole			0.4				12.9			1.0	1.0	6.9
Pygmy Rockfish						0.2						
Quillback Rockfish						30.1						
Redbanded Rockfish												
Redstripe Rockfish						22.7						
Rex Sole	0.1	0.1		0.1								
Rosethorn Rockfish												
Rougheye Rockfish	0.3											
Sablefish												
Sandpaper Skate												
Sharpchin Rockfish	0.5											
Shortraker Rockfish												
Shortspine Thornyhead												
Silvergray Rockfish	2.1	3.7	11.5									
Slender Sole		-										
Southern Rock Sole				4.0	4.1		6.5	7.0	2.8	83.0	16.4	75.0
Splitnose Rockfish		0.1										
Spotted Ratfish	1.7	3.0	20.0		11.6	4.9	4.3					
Threadfin Sculpin												
Walleye Pollock			1.7									
Widow Rockfish												
Yelloweye Rockfish						9.9						
Yellowmouth Rockfish	42.0	7.8										
Yellowtail Rockfish	1.8									1.5		
Other	6.0	4.0	2.0		-	5.0	1.0	9.0	-	6.2	1.0	1.0
Total	108.8	105.6	70.2	9.8	24.1	112.2	69.6	508.7	802.4	1789.0	161.0	300.6

Common	128	129	130	131	132	133	134	135	136	137	138	139
Aleutian Skate												
Arrowtooth Flounder	14.7	29.7	17.9	25.1	77.4	1.8	134.1	108.3	18.4	16.6	213.2	298.9
Big Skate											14.1	
Bigfin Eelpout												
Bigmouth Sculpin				2.9								
Blackbelly Eelpout			-	0.2			0.9				0.4	0.1
Bocaccio												
Canary Rockfish		1.4										
Curlfin Sole												
Darkblotched Rockfish					0.7			2.0				
Dover Sole		4.7	2.2	1.9	12.3	5.5	85.2	75.4	3.0	1.0	79.3	42.4
English Sole	7.0	1.4		8.1	0.7	230.4			0.7			
Eulachon		0.1	0.4	0.6	0.3		0.2	1.6			8.5	0.1
Flathead Sole					0.8		24.7	2.8	0.7	0.3	1.9	7.9
Greenstriped Rockfish	0.1								37.1	9.9		0.9
Harlequin Rockfish												
Kelp Greenling												
Lingcod				2.0		23.5			9.0	4.3		7.5
Longnose Skate				4.6			10.0	14.8	6.4	1.9	2.4	
Longspine Thornyhead												
North Pacific Spiny Dogfish	3.6	6.7	6.8	4.2	1.3	10.5	2.1	1.6	1.6	1.9	2.8	1.5
Pacific Cod	3.6			1.1	0.8	0.3			32.8	6.1	0.6	
Pacific Hake			10.2	127.7	162.9			2.8			2.9	
Pacific Halibut	14.6						3.5					
Pacific Ocean Perch		117.3	258.7	412.9	45.9		1.9	7.5	33.4	9.3	28.7	1.7
Pacific Sanddab						214.6						
Petrals Sole	0.5		0.6		1.6	1.2		1.1	1.8			1.5
Pygmy Rockfish												
Quillback Rockfish												
Redbanded Rockfish		15.6	63.3	11.2	7.8		7.6	1.2	10.6		6.2	
Redstripe Rockfish	-								76.9	20.1		0.5
Rex Sole	1.1	0.2		12.3	1.9	0.1	17.1	2.3	14.4	5.6	39.3	90.2
Rosethorn Rockfish									5.8	6.3		
Rougheye Rockfish			2.2		11.5		3.7	1.8	0.6			
Sablefish	4.1	4.1		1.4			4.6	9.2	3.2	5.2	0.9	0.5
Sandpaper Skate		0.2		0.5							0.7	-
Sharpchin Rockfish				0.1					29.6	10.1		0.6
Shortraker Rockfish												
Shortspine Thornyhead		13.0	1.3				20.2	14.7	10.2	6.2		
Silvergray Rockfish	27.1	4.2		5.4	9.3				2.3	11.9	3.0	1.8
Slender Sole				0.7			1.6	0.4	1.4	0.1	1.6	2.4
Southern Rock Sole	2.4					8.4						
Splitnose Rockfish		0.3	0.6	0.1			-					
Spotted Ratfish			2.0	0.2	0.6	8.5	3.1	3.2	11.6	2.6	12.6	17.0
Threadfin Sculpin									4.6	0.4		
Walleye Pollock	0.7		1.8	0.9							10.0	23.1
Widow Rockfish												
Yelloweye Rockfish									5.0	5.9		
Yellowmouth Rockfish		3.0	20.8	3.5					0.7			
Yellowtail Rockfish												1.7
Other	-	3.0	3.0	1.0	1.0	2.0	3.0	11.0	28.0	5.0	8.9	-
Total	79.7	204.5	391.8	628.5	336.7	506.4	323.1	261.7	349.5	130.9	437.9	500.5

Common Name	140	141	142	143	144	145	146	147	148	149	150	151
Aleutian Skate												
Arrowtooth Flounder	130.6	347.9	395.4	413.6	228.1	52.0	63.5	129.5	90.1			
Big Skate												
Bigfin Eelpout												
Bigmouth Sculpin												
Blackbelly Eelpout	0.1	0.2	0.1		0.4	0.1		1.6	-			
Bocaccio				266.4		29.6	19.6					
Canary Rockfish				8.5		49.8	13.9					
Curlfin Sole												
Darkblotched Rockfish												
Dover Sole	28.5	39.2	28.0	41.9	71.4	5.4	13.6	127.8	62.8			
English Sole			0.1							23.0		
Eulachon								0.8				
Flathead Sole	9.2	14.2	23.0	31.3	120.2	7.0	6.2	17.1	4.7			
Greenstriped Rockfish				4.5		19.0	20.3	1.7				
Harlequin Rockfish												
Kelp Greenling										1.1	0.4	
Lingcod		5.4	5.7	33.8	7.6		4.4					
Longnose Skate								6.3				
Longspine Thornyhead												
North Pacific Spiny Dogfish	0.9	7.1		2.7		1.8					1.7	1.1
Pacific Cod	9.8	10.7	10.2	6.1	8.8	7.3	26.6	9.6	1.1			2.4
Pacific Hake												
Pacific Halibut	3.2			14.1			3.7	13.7				
Pacific Ocean Perch	246.1	57.1	14.8									
Pacific Sanddab												
Petrale Sole		0.5			0.8							
Pygmy Rockfish				5.8		0.9	0.7	0.1		0.1		0.1
Quillback Rockfish										3.7		
Redbanded Rockfish												
Redstripe Rockfish				150.6		21.1	18.6	29.0		0.9		0.7
Rex Sole	88.7	84.0	72.0	52.3	119.8	7.0		156.1	110.0			0.7
Rosethorn Rockfish											0.3	
Rougheye Rockfish												
Sablefish	1.0	1.1		0.4	1.3	1.2		4.3	3.7			
Sandpaper Skate												
Sharpchin Rockfish	0.1			178.4		134.5	45.0	2.5	-			-
Shortraker Rockfish												
Shortspine Thornyhead												
Silvergray Rockfish	1.9	9.2	18.9	2228.8		657.9	431.5	29.9				
Slender Sole	2.6	1.6	1.6	1.1	12.6	1.1		6.9	4.0			
Southern Rock Sole										-		
Splitnose Rockfish												
Spotted Ratfish	13.0	13.3	20.9	32.3	11.3	6.5	3.4	14.7	20.2	3.9	0.6	0.1
Threadfin Sculpin	0.3			0.2	1.4	1.7	1.5	0.1				
Walleye Pollock	148.4	164.0	1.1	21.7	240.7	22.5	43.4	155.5	63.8			
Widow Rockfish				1.0		10.3	5.5					
Yelloweye Rockfish				1.8		1.7				2.4		
Yellowmouth Rockfish												
Yellowtail Rockfish	1.6			505.5		1225.5	391.8					
Other	1.0	-	1.0	1.0	1.0	1.0	-	1.0	-	2.0	1.0	0.2
Total	687.2	756.1	593.1	4004.0	825.4	2264.0	1114.0	707.7	383.7	13.8	4.3	5.4

Common Name	152	153	154	155	156	157	158	159	160	161	162	163
Aleutian Skate						1.6						
Arrowtooth Flounder	24.7	11.7	65.5	48.4	31.7	78.8	13.5	22.0	21.8		0.4	3.7
Big Skate												
Bigfin Eelpout			0.3	0.3		0.4	0.3					
Bigmouth Sculpin												
Blackbelly Eelpout									0.1			
Bocaccio												
Canary Rockfish	1.7		2.0									501.3
Curlfin Sole												
Darkblotched Rockfish												
Dover Sole	20.6	2.1	12.2	29.8	5.3	10.2	5.6	2.8	2.5			
English Sole												
Eulachon			0.2	0.1	0.2	0.2						
Flathead Sole												
Greenstriped Rockfish	9.5	5.9									1.3	8.4
Harlequin Rockfish								0.2				
Kelp Greenling												
Lingcod	4.1										2.3	
Longnose Skate			3.2			0.9	1.6					
Longspine Thornyhead												
North Pacific Spiny Dogfish	2.4	1.6		2.5	0.7			1.7				7.7
Pacific Cod	17.1										1.1	12.0
Pacific Hake			2.8	7.0	1.2	8.2	8.7	3.9	1.0			
Pacific Halibut	20.0							2.2			18.3	11.2
Pacific Ocean Perch	0.2	26.4	132.1	62.6	66.4	124.9	115.7	55.2	26.3			
Pacific Sanddab											0.7	
Petrale Sole	0.6										6.3	2.7
Pygmy Rockfish	0.2											
Quillback Rockfish												
Redbanded Rockfish		0.9	1.3			6.3	9.2	2.6	12.1			
Redstripe Rockfish	16.1	3.0										
Rex Sole	17.0	9.5	0.4	0.2	0.4		0.3	0.6	1.9			
Rosethorn Rockfish	0.5	0.2										
Rougheye Rockfish			19.2	11.2	7.6	15.5	7.1					
Sablefish	7.1		2.7	1.3			7.0	2.3	0.9			
Sandpaper Skate									0.3			
Sharpchin Rockfish	1.0	46.1						0.1	0.2			
Shortraker Rockfish												
Shortspine Thornyhead		0.9	15.9	21.7	23.9	20.3	16.9	19.4	11.3			
Silvergray Rockfish	25.1	8.4						1.5				12.3
Slender Sole	0.3	0.1						0.9	1.2			
Southern Rock Sole											1.6	
Splitnose Rockfish					1.3	1.3	0.6	2.1	11.8			
Spotted Ratfish	0.6			40.9	3.2	3.5	1.9				2.4	859.0
Threadfin Sculpin												
Walleye Pollock	1.4	5.0										0.1
Widow Rockfish												
Yelloweye Rockfish												
Yellowmouth Rockfish	30.4	8.6							2.5			
Yellowtail Rockfish												
Other	2.0	-	6.0	2.0	2.0	3.0	4.0	3.0	3.0		7.0	1.0
Total	203.0	130.8	263.6	228.4	143.9	275.2	192.2	120.6	97.3	0.0	40.9	1420

Common Name	164	165	166	167	168	169	170	171	172	173	174	175
Aleutian Skate												
Arrowtooth Flounder	0.5	2.6		1.1	1.7	3.5	4.4	1.2	0.8			
Big Skate												
Bigfin Eelpout							0.6					
Bigmouth Sculpin												
Blackbelly Eelpout												
Bocaccio				6.6		2.6						
Canary Rockfish	117.2	139.9		53.7	6.9						2.2	
Curlfin Sole												
Darkblotched Rockfish												
Dover Sole						1.4						
English Sole												
Eulachon												
Flathead Sole												
Greenstriped Rockfish	22.0	2.5		0.2	0.8	0.9		4.7	0.6		0.2	
Harlequin Rockfish		0.1		5.5	0.3	0.4			0.1	0.2		
Kelp Greenling												
Lingcod	18.5					7.8						
Longnose Skate		3.4										
Longspine Thornyhead												
North Pacific Spiny Dogfish					0.9	2.3		2.5				
Pacific Cod	7.4	4.6			1.0			1.2				
Pacific Hake							1.3					
Pacific Halibut		5.3				3.7	3.1					
Pacific Ocean Perch						39.4	28.2	24.4				
Pacific Sanddab												
Petrale Sole	4.4	0.4										
Pygmy Rockfish	0.1			0.9	1.1	0.2			0.1	0.1	-	
Quillback Rockfish												
Redbanded Rockfish						14.3	2.2	1.9				
Redstripe Rockfish	310.6	152.9		1045.4	130.0	30.9		127.0	372.2	46.7	2.5	
Rex Sole	2.7	0.8		0.6	1.2	12.3	0.7	11.7	0.7			
Rosethorn Rockfish	0.4	0.4		0.1	0.2	25.0	1.0	2.5	1.0	-	0.5	
Rougheye Rockfish												
Sablefish						4.9	4.7					
Sandpaper Skate								1.7				
Sharpchin Rockfish	0.7	0.9		85.4	13.5	674.3	27.7	133.3	44.6	4.9	0.2	
Shortraker Rockfish												
Shortspine Thornyhead						7.0	19.7	1.1				
Silvergray Rockfish	4.7	5.6		36.0	16.8	14.1		9.4	11.8			
Slender Sole					0.1			-				
Southern Rock Sole												
Splitnose Rockfish							0.6					
Spotted Ratfish	14.6	4.0		0.7	1.0	0.6	0.4	1.3			-	
Threadfin Sculpin	0.6											
Walleye Pollock	0.1	0.2			0.5	0.7		0.6				
Widow Rockfish				1.8		13.5						
Yelloweye Rockfish	3.0	12.8		7.7								
Yellowmouth Rockfish		4.6		142.4	35.0	322.3	9.3	53.3	5.4		-	
Yellowtail Rockfish												
Other	4.8	-		1.0	-	4.0	7.0	2.0		3.0	-	
Total	512.2	341.1	0.0	1389.0	211.0	1186.0	111.4	379.3	437.1	54.5	5.8	0.0

Common Name	176	177	178	179	180	181	182	183	184	185	186	187
Aleutian Skate												
Arrowtooth Flounder	2.2	7.2	52.6	69.8	3.7	11.4	8.8	14.8	22.4	18.6	14.6	16.8
Big Skate												
Bigfin Eelpout												
Bigmouth Sculpin												
Blackbelly Eelpout			-	-	0.2		-	-				
Bocaccio												8.5
Canary Rockfish	1.6	45.6	11.0								3.3	19.6
Curlfin Sole												
Darkblotched Rockfish			0.5									
Dover Sole			4.1	1.4		0.2		0.3		0.3		
English Sole			15.8	148.9	4.3	3.5	13.6	10.0	5.8	1.1		
Eulachon												
Flathead Sole			4.7					0.2	1.9	0.5		
Greenstriped Rockfish	5.2	12.5		0.4		0.2						
Harlequin Rockfish						0.6						
Kelp Greenling												
Lingcod		7.6										
Longnose Skate				0.9	10.4							6.4
Longspine Thornyhead												
North Pacific Spiny Dogfish			12.3		2.1	1.6	4.0	3.0	6.1	2.3	3.9	2.7
Pacific Cod	3.6	7.7	19.8	1.5		1.1						6.4
Pacific Hake												
Pacific Halibut				16.0		28.8					8.6	30.7
Pacific Ocean Perch		0.1				0.3						0.2
Pacific Sanddab												
Petrale Sole			19.8	5.7		0.3	0.7	1.8	6.7	1.3	0.6	0.7
Pygmy Rockfish	0.2	0.6				0.4	0.2		0.1			
Quillback Rockfish						6.7						
Redbanded Rockfish					0.3							
Redstripe Rockfish	2.5	3.7				0.2						
Rex Sole	0.7	1.3	44.5	63.9	2.6	2.1	9.8	6.7	28.2	9.6	3.4	3.2
Rosethorn Rockfish		0.6				0.6	0.3					
Rougheye Rockfish												
Sablefish												1.9
Sandpaper Skate												
Sharpchin Rockfish	0.4	0.2				4.7	0.5					
Shortraker Rockfish												
Shortspine Thornyhead												
Silvergray Rockfish	103.1	43.4	124.7	27.9		14.3	10.2	36.9	26.9	89.0	7.4	2763.2
Slender Sole	0.1	0.2	0.6	0.1	0.1		0.1	-				
Southern Rock Sole												
Splitnose Rockfish												
Spotted Ratfish	0.6	0.7	0.8	1.4	0.2	4.7	2.8	2.3	1.8	2.2	4.4	1.6
Threadfin Sculpin						0.1						
Walleye Pollock		0.7			0.2	1.8			0.3	0.1	1.2	10.8
Widow Rockfish												
Yelloweye Rockfish	6.4	3.3				0.1						2.9
Yellowmouth Rockfish						5.6	0.8					1.2
Yellowtail Rockfish			3.3						1.8			
Other	4.0	1.6	10.0	2.0	2.0	-	2.0	2.0	2.0	2.0	1.0	-
Total	130.8	137.1	324.0	339.5	25.8	89.4	53.6	78.4	104.1	127.3	48.3	2877.0

Common	188	189	190	191	192	193	194	195	196	197	198	199
Aleutian Skate												
Arrowtooth Flounder		1.1	1.6	8.4	2.3	23.3		9.7	3.3	36.4	547.0	49.0
Big Skate								21.0				
Bigfin Eelpout												
Bigmouth Sculpin												
Blackbelly Eelpout				0.1					1.3	0.1		
Bocaccio		15.2										
Canary Rockfish		13.8					2.3				2.6	
Curlfin Sole							0.3	4.0	0.4			
Darkblotched Rockfish												
Dover Sole			0.2	10.5		3.2		12.7	3.3	3.6	37.9	2.4
English Sole				79.0		33.5	1.4	41.0	16.2	54.7	50.1	44.5
Eulachon												
Flathead Sole									0.2	0.6		
Greenstriped Rockfish	0.1	0.8	0.2									
Harlequin Rockfish												
Kelp Greenling												
Lingcod					3.8							2.1
Longnose Skate												
Longspine Thornyhead												
North Pacific Spiny Dogfish		5.7	2.3	13.4	7.6	9.8	2.3	8.7	2.7	4.3	4.5	
Pacific Cod		3.7	5.8	14.5	23.4	3.2	1.1	40.9	0.3	0.5	1.0	13.8
Pacific Hake												
Pacific Halibut				15.3			22.8	6.2		12.2		10.0
Pacific Ocean Perch	0.1		1.4								0.3	
Pacific Sanddab				0.5								
Petrale Sole				1.1	4.1	1.3	1.8	7.5		14.5	1.5	0.5
Pygmy Rockfish		0.2										
Quillback Rockfish						0.4						
Redbanded Rockfish		14.6	1.9									
Redstripe Rockfish	0.5	911.3	3.1									
Rex Sole	1.4	1.8	2.7	15.1		23.5		25.2	37.8	30.0	88.5	28.0
Rosethorn Rockfish		0.2										
Rougheye Rockfish			0.2									
Sablefish											4.0	
Sandpaper Skate								0.2				
Sharpchin Rockfish	0.1	2.0	0.3						-	-	0.2	
Shortraker Rockfish												
Shortspine Thornyhead												
Silvergray Rockfish	9.0	177.0	15.2		61.0	1.9	3.4		40.6	39.5	12.0	33.9
Slender Sole				-				0.1	0.1	-	1.1	
Southern Rock Sole				0.4	1.1		10.6	3.4				
Splitnose Rockfish												
Spotted Ratfish				0.6	14.6	0.4	393.4	59.4	6.5	1.3	3.7	1.5
Threadfin Sculpin												
Walleye Pollock			0.1	57.5	192.0	5.7		129.2	2.5	0.3	2.2	0.6
Widow Rockfish												
Yelloweye Rockfish		8.9										
Yellowmouth Rockfish		0.6	0.2									
Yellowtail Rockfish		5.2	127.4	0.5					0.6			
Other	1.0	-	1.7	6.0	4.0	1.0	2.0	5.0	1.0	2.0	3.0	3.0
Total	11.7	1163.0	164.3	223.2	313.6	106.8	441.2	374.2	117	199.5	760.2	188.8

Common Name	200	201	202	203	204	205	206	207	208	209	210	211
Aleutian Skate												
Arrowtooth Flounder	74.4	20.0	26.6	16.1	3.2		5.7	14.8	13.0	8.2		
Big Skate												
Bigfin Eelpout			0.4			0.2						
Bigmouth Sculpin				4.3								
Blackbelly Eelpout	0.2											
Bocaccio												
Canary Rockfish	4.2						3.0					
Curlfin Sole												
Darkblotched Rockfish												
Dover Sole	7.6	1.6	2.7	2.2	31.0	1.7	0.2	1.1	10.1			
English Sole	20.2	1.6	0.4	0.7								
Eulachon					0.4							
Flathead Sole												
Greenstriped Rockfish		0.7					0.6	0.7				
Harlequin Rockfish										0.5	41.8	
Kelp Greenling												
Lingcod										4.1		
Longnose Skate									13.4	7.8		
Longspine Thornyhead												
North Pacific Spiny Dogfish				1.6								
Pacific Cod	0.7	11.5	4.9				2.2	0.7		2.0		
Pacific Hake	1.2	84.4	190.3		11.5				183.6	13.0		
Pacific Halibut	9.4		11.3					2.7				
Pacific Ocean Perch	1.3	48.8	145.3		18.5	30.9	1152.4	109.5	33.7	23.9		14.9
Pacific Sanddab												
Petrale Sole	2.6	1.1	1.1									
Pygmy Rockfish												-
Quillback Rockfish												
Redbanded Rockfish		0.1	0.8			13.6	33.4	8.6	5.5	2.0		6.8
Redstripe Rockfish							10.7			13.9	84.0	8.7
Rex Sole	14.1	6.7	2.7	11.4	2.4	4.1	1.9	1.0	4.6	2.4		
Rosethorn Rockfish							1.2		0.6	0.2		0.1
Rougheye Rockfish					2.9	2.5			2.8	0.7		0.1
Sablefish					31.4	3.5		4.2	11.6			
Sandpaper Skate					2.2							
Sharpchin Rockfish		0.2	0.6				469.7			61.7	15.6	261.9
Shortraker Rockfish												
Shortspine Thornyhead					10.8	2.0	9.3	5.7	40.6	2.5		1.2
Silvergray Rockfish	7366.3	176.3	289.8	32.1		7.3	262.6	37.7	8.4	453.8	63.8	51.3
Slender Sole			0.1				0.2	0.2				
Southern Rock Sole												
Splitnose Rockfish						68.5	8.7	0.9	0.7			
Spotted Ratfish	0.2	1.5	0.3	0.7	3.3	0.3	0.4	3.4	2.6			
Threadfin Sculpin												
Walleye Pollock		3.7	1.9		0.3	12.4	5.6	11.9	6.6	11.8		
Widow Rockfish												2.4
Yelloweye Rockfish			0.6									
Yellowmouth Rockfish							16.9			1.5		63.6
Yellowtail Rockfish	3.5	1.5	2.0	12.3								
Other	1.0	5.0	-	1.5	64.0	8.0	1.0	1.0	3.0	158.0		-
Total	7507.0	364.8	682.2	82.8	182.2	155.0	1986.0	203.6	340.7	768.4	205.3	411.2

Common Name	212	213	214	215	216	217	218	219	220	221	222	223
Aleutian Skate		8.4										
Arrowtooth Flounder	13.8	26.2	9.0	-	3.3			2.3	1.4		13.0	8.6
Big Skate												
Bigfin Eelpout			0.6	-							0.7	
Bigmouth Sculpin												
Blackbelly Eelpout												
Bocaccio												
Canary Rockfish												
Curlfin Sole												
Darkblotched Rockfish	1.5											
Dover Sole	2.5	51.8	26.6	4.4	2.0			1.2	0.6	0.6	36.6	21.1
English Sole				1.6								
Eulachon												
Flathead Sole												
Greenstriped Rockfish					0.1			0.2				
Harlequin Rockfish												
Kelp Greenling												
Lingcod					4.4							
Longnose Skate												15.0
Longspine Thornyhead									-			
North Pacific Spiny Dogfish	2.0									4.1		
Pacific Cod					1.2					0.7		
Pacific Hake	5.2	2.1									12.6	20.3
Pacific Halibut		6.5	21.9		2.8						7.2	3.2
Pacific Ocean Perch	448.9	509.8	82.5	22.5	0.1			268.4	22.7	2.2	117.9	24.4
Pacific Sanddab												
Petrale Sole												
Pygmy Rockfish												
Quillback Rockfish												
Redbanded Rockfish	13.5	12.6	0.9					5.5		1.9	17.9	6.2
Redstripe Rockfish					0.8					35.0	7.5	
Rex Sole	1.7	1.6	17.5	4.7	1.5					0.6	17.0	13.1
Rosethorn Rockfish		1.6			1.5			3.7		0.8	1.3	
Rougheye Rockfish	4.5	9.1	0.4								13.0	4.1
Sablefish	3.9	14.9	6.8						3.2		28.7	24.2
Sandpaper Skate		1.8										
Sharpchin Rockfish	0.5				11.6			68.6	1.2	76.9	36.6	0.3
Shortraker Rockfish												
Shortspine Thornyhead	49.1	117.1	53.3	3.3	1.8			14.0	5.2	0.4	34.2	49.0
Silvergray Rockfish	13.3				8.1			5.5	2.6	1.2		
Slender Sole				-								
Southern Rock Sole												
Splitnose Rockfish				23.0	1.1			0.5				
Spotted Ratfish	1.1	6.9	0.5								1.8	0.3
Threadfin Sculpin												
Walleye Pollock			1.2	0.6								
Widow Rockfish										31.9	4.2	
Yelloweye Rockfish										66.8	9.3	
Yellowmouth Rockfish	5.3				4.3			1.1				
Yellowtail Rockfish												
Other	9.0	5.0	1.0	-	1.2			2.0	1.0	-	7.0	1.0
Total	575.9	774.9	221.9	60.0	45.5	0.0	0.0	372.4	37.5	223.4	366.1	191.2

Common	224	225	226	227	228	229	230	231	232	233	234	235
Aleutian Skate												
Arrowtooth Flounder	4.8				362.8	18.0				2.3	6.3	17.5
Big Skate										2.4		
Bigfin Eelpout												
Bigmouth Sculpin												
Blackbelly Eelpout												
Bocaccio												
Canary Rockfish						0.7			0.3		32.2	1.4
Curlfin Sole			0.9				1.3			3.6		
Darkblotched Rockfish	1.7								-			
Dover Sole	14.0				13.9						0.1	
English Sole			0.4		20.2	1.8			-	90.0	22.2	0.2
Eulachon												
Flathead Sole					2.7							
Greenstriped Rockfish											7.0	0.1
Harlequin Rockfish												
Kelp Greenling						6.5	0.6		0.6			
Lingcod			1.4		5.7		2.5			3.2	12.3	9.6
Longnose Skate												
Longspine Thornyhead	0.9											
North Pacific Spiny Dogfish												
Pacific Cod			4.5		7.6	25.2	0.7			0.3	0.5	
Pacific Hake	23.4											
Pacific Halibut					3.9				5.7	2.4	2.8	2.3
Pacific Ocean Perch	254.9											
Pacific Sanddab			0.6		0.6	0.1	4.2			39.0	0.6	0.8
Petrale Sole					12.9					4.4	19.8	2.8
Pygmy Rockfish												
Quillback Rockfish			4.2	6.1		34.4	1.6		1.7		3.6	
Redbanded Rockfish	31.3											
Redstripe Rockfish			0.1			7.6	0.1		5.8			
Rex Sole	10.5				16.5					1.1	3.7	
Rosethorn Rockfish	2.4											
Rougheye Rockfish	294.0											
Sablefish	28.0											
Sandpaper Skate	1.4											
Sharpchin Rockfish												
Shortraker Rockfish												
Shortspine Thornyhead	58.4											
Silvergray Rockfish											12.8	5.2
Slender Sole					0.2							
Southern Rock Sole			11.8			1.3	52.0		3.1	11.1	1.8	114.3
Splitnose Rockfish	0.4											
Spotted Ratfish	10.4		37.0	4.2	17.5	18.9	39.7		16.0	1.1	0.1	122.1
Threadfin Sculpin											0.3	0.1
Walleye Pollock							-		-			
Widow Rockfish												
Yelloweye Rockfish						1.4						
Yellowmouth Rockfish												
Yellowtail Rockfish												
Other	4.0		7.0	1.0	8.0	23.5	4.0		54.0		2.0	1.0
Total	740.2	0.0	67.5	11.6	471.9	139.4	107.1	0.0	87.3	160.8	127.7	277.0

Common	236	237	238	239	240	241	242	243	244	245	246	247
Aleutian Skate												
Arrowtooth Flounder	8.1	3.6	98.3	59.0	72.1	156.5	7.9	2.1	2.3	4.6		
Big Skate												
Bigfin Eelpout												
Bigmouth Sculpin												
Blackbelly Eelpout			-									
Bocaccio												
Canary Rockfish				71.4		149.7		4.6	0.6			
Curlfin Sole												
Darkblotched Rockfish												
Dover Sole			23.3	0.5	0.5	2.0		1.4				
English Sole			4.9	3.5	9.7	23.6	3.2	60.2	47.6	1.1		
Eulachon			0.1									
Flathead Sole			46.2	2.3								
Greenstriped Rockfish	0.3		0.5	0.4	5.5	7.0		3.4	10.4	3.7	0.2	
Harlequin Rockfish												
Kelp Greenling												
Lingcod	4.4	14.3	4.2	6.9		1.9	5.8		4.4			
Longnose Skate												
Longspine Thornyhead												
North Pacific Spiny Dogfish			4.0	1.2	2.1	4.1		8.2	2.1			
Pacific Cod			9.4	142.2	3.0	11.8	18.0	1.6	0.4	1.0		
Pacific Hake												
Pacific Halibut		6.2			6.6	9.1	25.4		18.2			
Pacific Ocean Perch												
Pacific Sanddab	1.3											
Petrale Sole			0.7	38.8	8.5	5.3	0.6	3.7	17.3			
Pygmy Rockfish										0.7	0.7	
Quillback Rockfish												
Redbanded Rockfish												
Redstripe Rockfish										0.8	82.3	1.0
Rex Sole			121.9	18.6	4.8	15.9	0.3	9.4	2.0	0.5		
Rosethorn Rockfish										0.2	0.6	
Rougheye Rockfish												
Sablefish												
Sandpaper Skate												
Sharpchin Rockfish		0.6								-	5.4	
Shortraker Rockfish												
Shortspine Thornyhead												
Silvergray Rockfish			44.5	1365.3		714.4		34.1	1.3	4.2	3.4	3.0
Slender Sole			4.1	3.0		0.7						
Southern Rock Sole	88.2	6.3			0.7		5.0	0.4	0.9			
Splitnose Rockfish												
Spotted Ratfish	25.8	3.0	11.7	7.9	5.7	1.3	1.6	2.6	1.0	0.1	0.3	
Threadfin Sculpin						0.1						
Walleye Pollock				0.6		1.2		1.2				
Widow Rockfish												
Yelloweye Rockfish									2.1	4.2	2.3	
Yellowmouth Rockfish										-		
Yellowtail Rockfish												
Other	-	-	4.0	1.0	3.0	-	1.1	1.0	1.0	3.0	-	-
Total	128.1	34.0	378.2	1723.0	122.7	1105.0	68.9	133.7	111.3	24.1	95.4	4.0

Common Name	248	249	250	251	252	253	254	255	256	257	258	259
Aleutian Skate												
Arrowtooth Flounder	1.2	0.1	3.6	11.4	4.7		12.8	34.8		8.3	4.4	13.3
Big Skate												
Bigfin Eelpout			0.7					0.3			0.6	1.1
Bigmouth Sculpin												
Blackbelly Eelpout			0.2								0.2	
Bocaccio												
Canary Rockfish	1.8											
Curlfin Sole												
Darkblotched Rockfish								16.3				7.0
Dover Sole			16.9	52.4	0.3	25.7	40.8	18.7	34.2	19.2	9.4	4.9
English Sole												
Eulachon												
Flathead Sole												
Greenstriped Rockfish	0.6	2.1	1.2							5.9	1.9	8.5
Harlequin Rockfish												
Kelp Greenling												
Lingcod												2.5
Longnose Skate				13.6			12.7		3.5		3.5	
Longspine Thornyhead				10.8		8.2	1.4		10.6	0.6		
North Pacific Spiny Dogfish	1.9		3.2		1.1						8.2	
Pacific Cod	0.4											2.5
Pacific Hake				8.0	9.7	11.8	14.0	9.5				
Pacific Halibut						15.4	23.7	11.4		5.4		7.9
Pacific Ocean Perch			2.8	46.1	287.8		55.9	869.1		74.0	59.6	1983.4
Pacific Sanddab												
Petrale Sole												
Pygmy Rockfish	0.6											
Quillback Rockfish												
Redbanded Rockfish				14.2	1.6	1.2	3.2	3.4		5.9	2.6	25.6
Redstripe Rockfish	1077.6	15.6									2.1	
Rex Sole	3.9	0.7	15.0	14.6	1.3	9.7	18.7	3.9	0.5	26.0	28.0	9.1
Rosethorn Rockfish	0.3			-	5.9			1.1		1.6		62.0
Rougheye Rockfish				153.1	2.7	9.3	269.1	112.1		0.3		
Sablefish				25.5	1.3	14.7	24.6	36.3	162.8		1.2	
Sandpaper Skate							0.8	0.9				0.5
Sharpchin Rockfish	3.1		3.1		2.7					25.8	0.2	88.7
Shortraker Rockfish				10.2		31.2	13.7	7.6				
Shortspine Thornyhead			1.8	100.0	18.8	53.7	54.8	50.3	43.5	12.2	4.9	30.7
Silvergray Rockfish	5.9		2.0		4.3					1.3		
Slender Sole	-		0.7					0.3		1.0	1.9	
Southern Rock Sole												
Splitnose Rockfish			0.1		804.3			0.9		42.0	3.8	82.7
Spotted Ratfish	0.1	0.2		1.8			0.8	2.0		0.3		0.5
Threadfin Sculpin												
Walleye Pollock		0.2	1.1							0.8	0.2	10.6
Widow Rockfish	2.4											
Yelloweye Rockfish	3.6											
Yellowmouth Rockfish	1.6		31.2	6.3	159.2						1.2	9.5
Yellowtail Rockfish	1.3											
Other	1.0	-	4.0	15.0	5.0	4.0	4.0	4.5	17.0	15.0	1.0	11.0
Total	1107.0	18.9	87.7	482.9	1310.0	184.8	551.4	1184.0	272.0	246.0	135.2	2363.0

Common Name	260	261	262	263	264	265	266	267	268	269	270	271
Aleutian Skate												
Arrowtooth Flounder	13.3	12.9	54.3	35.1	20.0	22.0	38.6	28.8	33.9	1.4	2.1	
Big Skate												
Bigfin Eelpout	2.5		1.8	0.5	1.7	2.1	0.2	1.0	0.4			
Bigmouth Sculpin												
Blackbelly Eelpout		-	-				-					-
Bocaccio												
Canary Rockfish			1.8							7.0		
Curlfin Sole												
Darkblotched Rockfish							0.5			0.9		
Dover Sole	21.8	18.0	23.4	51.7	23.6	7.9	2.3	13.2	45.6	0.8	2.8	
English Sole												
Eulachon	0.1	0.2		0.3								
Flathead Sole		1.7				3.4						
Greenstriped Rockfish		17.8	1.9							1.5	2.9	
Harlequin Rockfish												
Kelp Greenling												
Lingcod			8.9	4.1								
Longnose Skate				0.5	6.3	12.0	8.5	14.5	9.6	1.2		
Longspine Thornyhead												
North Pacific Spiny Dogfish	4.2	1.4							2.9			
Pacific Cod		1.7					1.4	48.8		0.9		
Pacific Hake	3.0	0.9	2.8		13.9	8.8	2.9					
Pacific Halibut									3.5			
Pacific Ocean Perch	28.0	254.6	90.1	135.9	172.3	399.6	298.7	51.9	133.4	86.5	35.3	
Pacific Sanddab												
Petrale Sole			0.7		0.5							
Pygmy Rockfish												
Quillback Rockfish												
Redbanded Rockfish	1.4	23.1	27.3	3.5	4.9	32.2	26.1	11.4	6.2	2.9	3.5	
Redstripe Rockfish		19.1								3.0		
Rex Sole	3.4	23.7	5.5	1.6	29.2	10.9	24.4	25.0	36.7		5.6	
Rosethorn Rockfish	-	7.1								0.2	0.5	
Rougheye Rockfish				2.8	2.3	3.9	5.7	3.1				
Sablefish	1.4		4.9	3.7	18.5	2.5			1.1			
Sandpaper Skate		0.8	3.1	0.7			0.6	1.1				
Sharpchin Rockfish		141.7	4.6	0.2						7.1	7.2	
Shortraker Rockfish												
Shortspine Thornyhead	37.7	16.3	26.0	84.8	35.2	29.0	20.2	7.1	21.5	2.2	3.4	
Silvergray Rockfish		3.3				2.9		1.8		2.4	2.9	
Slender Sole	0.9		1.7		0.4	1.4	0.9	2.7	0.9	0.2	0.1	
Southern Rock Sole												
Splitnose Rockfish	37.2	3.1	0.2	18.1	6.6	0.7			0.3			
Spotted Ratfish			0.5	1.6	1.9	1.2	2.2	5.1			0.4	
Threadfin Sculpin												
Walleye Pollock	0.9	0.7						1.3				
Widow Rockfish										4.3	1.9	
Yelloweye Rockfish		13.3										
Yellowmouth Rockfish		52.8		0.5		1.6			3.2	79.3	20.3	
Yellowtail Rockfish												
Other	4.0	2.0	7.0	12.0	2.0	13.0	3.0	1.0	1.9	1.0	5.0	
Total	159.7	616.1	266.1	358.0	339.4	554.9	436.4	218.2	301.0	203.3	93.9	0.0

Common	272	273	274	275	276	277	278	279	280	281
Aleutian Skate										
Arrowtooth Flounder	37.0	84.4	23.6	7.0	1.4	1.4	86.5	20.6	10.8	24.9
Big Skate										
Bigfin Eelpout							0.4			
Bigmouth Sculpin										
Blackbelly Eelpout	0.4	-					-			
Bocaccio										
Canary Rockfish	7.8	181.8								
Curlfin Sole										
Darkblotched Rockfish										
Dover Sole	4.1	4.8	6.5	1.9	1.7		44.8	7.1	12.0	2.1
English Sole									8.8	13.1
Eulachon										
Flathead Sole	0.7		0.2					0.2		0.2
Greenstriped Rockfish	7.4	27.1	5.8	5.4				16.5	4.9	4.3
Harlequin Rockfish										
Kelp Greenling										
Lingcod								2.6		8.6
Longnose Skate	15.0		8.7			10.6	0.7			
Longspine Thornyhead										
North Pacific Spiny Dogfish		1.6		3.8		1.9		8.1	9.1	1.3
Pacific Cod	4.0	3.0			0.7		17.8	1.0	0.9	
Pacific Hake	1.8				5.4	13.9	3.0			
Pacific Halibut			5.5							2.4
Pacific Ocean Perch	3.3	10.6	123.4	845.7	91.7	105.1	1114.9	39.4		
Pacific Sanddab										
Petrale Sole	3.0	1.1						0.5		1.2
Pygmy Rockfish	-	0.1						0.3	-	
Quillback Rockfish										
Redbanded Rockfish	3.7	23.7	4.9	6.3	0.5	5.2	46.6			
Redstripe Rockfish	142.7	98.1	2.3					0.3	7.5	28.5
Rex Sole	17.0	11.4	8.2	6.6	4.9	0.3	32.3	44.0	26.8	72.7
Rosethorn Rockfish		1.3	2.7	10.3	5.9	3.3		0.5	0.5	0.3
Rougheye Rockfish						0.5				
Sablefish	8.8	18.6			1.5			1.2	1.8	
Sandpaper Skate										
Sharpchin Rockfish	5.6	28.6	188.9	118.8				0.4	1.3	3.6
Shortraker Rockfish										
Shortspine Thornyhead			9.2	11.5	38.1	34.4	1.4			
Silvergray Rockfish	20.5	137.4	8.1	25.3			10.3	4.1	21.8	13.5
Slender Sole	1.2	0.7	0.2				2.2	0.4	0.6	0.5
Southern Rock Sole										
Splitnose Rockfish				0.1						
Spotted Ratfish	1.8	4.0	4.1		1.1		0.5	1.6	1.0	1.7
Threadfin Sculpin		0.2	0.2					0.5	0.2	0.5
Walleye Pollock	0.4			0.2			1.1			
Widow Rockfish					1.5					
Yelloweye Rockfish		4.8	3.5						3.5	
Yellowmouth Rockfish		493.1	36.8	260.4	3.3		7.1			
Yellowtail Rockfish	2.6	34.0								8.0
Other	1.0	12.6	3.6	3.9	2.5	3.5	0.8	3.2	0.5	0.8
Total	290.0	1183.3	446.3	1307.2	160.4	179.9	1370.3	152.3	112.0	188.0