

# **Summary of the Hecate Strait Synoptic Bottom Trawl Survey, May 28 – June 23, 2013**

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by

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## ABSTRACT

Williams, D.C., Nottingham, M.K., Olsen, N. and Wyeth, M.R. 2017. Summary of the Hecate Strait synoptic bottom trawl survey, May 28 – June 23, 2013. Can. Manusc. Rep. Fish. Aquat. Sci. 3142: viii + 60 p.

A bottom trawl survey of Hecate Strait was conducted on the Canadian Coast Guard Ship W. E. Ricker between May 28 and June 23, 2013. The Hecate Strait synoptic bottom trawl survey was first conducted in 2005, and has been repeated every second year since. This survey is one of a set of long-term and coordinated surveys that together cover the continental shelf and upper slope of most of the British Columbia coast. The objectives of these surveys are to provide fishery-independent abundance indices of all demersal fish species available to bottom trawling and to collect biological samples of selected species.

The survey follows a random depth-stratified design and the sampling units are 2 km by 2 km blocks. One hundred and seventy-five (90.7 %) of the 193 blocks assessed in 2013 were successfully fished. The mean catch per tow was 463 kg. The average number of species per tow was 22. The most abundant fish species encountered was Arrowtooth Flounder (*Reinhardtius stomias*), followed by Spotted Ratfish (*Hydrolagus colliei*), English Sole (*Parophrys vetulus*), Dover Sole (*Microstomus pacificus*), and Southern Rock Sole (*Lepidopsetta bilineata*). Biological data including individual length, weight, sex, maturity, and ageing structures were collected from selected species. Biological samples were collected from a total of 68 different species of fish. Oceanographic data, including water temperature, depth, salinity, and dissolved oxygen were also recorded for most tows.



## RÉSUMÉ

Williams, D.C., Nottingham, M.K., Olsen, N. and Wyeth, M.R. 2017. Relevé synoptique au chalut de fond dans le détroit d'Hecate, du 28 mai - 23 Juin 2013. Rapp. manus. can. sci. halieut. Aquat. 3142: viii + 60 p.

Un relevé au chalut de fond dans le détroit d'Hecate a été effectué par le navire de la Garde côtière canadienne *W. E. Ricker* entre le 28 mai et le 23 juin 2013. Le premier relevé synoptique au chalut de fond dans le détroit d'Hecate a été réalisé en 2005, et depuis l'opération est répétée tous les deux ans. Le relevé du détroit d'Hecate fait partie d'un ensemble de relevés à long terme et coordonnés couvrant le plateau continental et le haut du talus continental 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 sur des 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 193 blocs évalués en 2013, 175 (90.7 %) ont fait l'objet d'une pêche. La moyenne de prises par trait était de 463 kg. Le nombre moyen d'espèces par trait était de 22. Les espèces de poissons capturées le plus fréquemment étaient la plie à grande bouche (*Reinhardtius stomias*), suivi de la chimère tachetée (*Hydrolagus colliei*), de la sole limande (*Parophrys vetulus*), de la sole de Douvres (*Microstomus pacificus*), et de la sole du Pacifique (*Lepidopsetta bilineata*). On a recueilli les données biologiques des espèces sélectionnées, notamment la longueur, le poids, le sexe, la maturité et la structure par âge. Les échantillons ont été prélevés sur un total de 68 espèces de poissons différentes. Les données océanographiques, notamment la température de l'eau, la profondeur, la salinité et la teneur en oxygène dissous, ont également été consignées pour la plupart des traits.

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## INTRODUCTION

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

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

The first HS synoptic bottom trawl survey was successfully completed in 2005 (Workman et al. 2008) and has been repeated every second year since. This document provides a brief summary of the results and methods from the fifth HS synoptic bottom trawl survey which occurred between May 28 and June 23, 2013. It is not intended as a comprehensive review of the survey, nor does it provide interpretive analysis of the survey results. Previous HS synoptic bottom trawl surveys are summarized in Workman et al. 2008, Olsen et al. 2009a, Olsen et al. 2009b and Nottingham et al. 2017.

## **METHODS**

### **SURVEY DESIGN**

The survey area is Hecate Strait, from approximately 52° 40' North latitude to 54° 40' North latitude and westward into Dixon Entrance to approximately 133° 00' West longitude. The southern region of this survey is nearly contiguous with the most northerly extent of the Queen Charlotte Sound survey (Figure 1).

### **Depth Strata**

All of the synoptic bottom trawl surveys along the British Columbia coast have followed the same random depth-stratified design. Each survey area is divided into 2 km by 2 km blocks and each block is assigned one of four depth strata based on the average bottom depth in the block. The four depth strata vary between areas. The depth strata for the HS synoptic bottom trawl survey are 10-70 m, 70-130 m, 130-220 m, and 220-500 m (Table 1). For each survey in the HS series, blocks are randomly selected within each depth strata.

### **Block Allocation**

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

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

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

numbers of tows are tested until the total allocated blocks matches the number of blocks that can be assessed in the time available.

As indicated above, the start and end dates for trips on Canadian Coast Guard ships are determined in advance. However, it may not be possible to fish on some days due to weather, mechanical breakdowns, or unforeseen events such as responding to search and rescue calls. Those days are lost, so if the entire set of selected blocks is started and it is not possible to fish on a number of days, part of the survey area could be missed. To avoid such a situation, the selected blocks are divided into a primary set and a secondary set. The primary set consists of two-thirds of the total blocks and is visited first. In early years of the survey, both the primary and secondary tows of blocks were created before the start of the survey. The primary set was visited first and then the secondary set would be visited once the primary set was almost completed. The secondary set could be adjusted by randomly either adding or removing blocks, depending on the remaining fishing days. This method invariably created some confusion on board the vessel when the secondary set was adjusted mid-trip. In 2011, the practice was slightly altered. Improvements to the at-sea software facilitated the generation of blocks so at the start of the survey only the primary set of blocks was created. The secondary set of blocks was then added once the primary set was nearly complete. The number of blocks in secondary set would be based on the number of remaining fishing days.

For the 2013 HS survey, 198 blocks were randomly selected based on 9 blocks a day and 22 days available for fishing (Table 1). The primary set consisted of 132 blocks while the secondary set was anticipated to be 66 blocks.

## **VESSEL**

The survey was conducted aboard the Canadian Coast Guard Ship W.E. Ricker, a 58 m research stern trawler (Figure 2).

## **FISHING GEAR**

The research trawl was an Atlantic Western IIA box trawl net connected to 1,100 kg U.S.A. Jet doors (Figure 3). 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 4 and Figure 5). 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 6). The intermediate sections are constructed from single 4.5 mm strand 4½ inch web (Figure 7). 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 7).

The Rockhopper footgear includes flying wing, mid wing, bunt wing, and bosom sections (Figure 8). 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 6 through Figure 8.

## **SCHEDULE**

The survey was split into two sections or “legs” of 13-15 days in duration with six to seven science staff on each. The science crew change was on June 6 (Table 3).

## **FISHING PROTOCOL**

Fishing operations were carried out based on the ship’s 12 hour crew rotation commencing at approximately 0700 hrs and ending at approximately 2000 hrs each day. By following this schedule, survey fishing was limited to daylight hours. Catch processing often continued after fishing operations were completed for the day.

Prior to fishing, the selected blocks were reviewed by the fishing master and chief scientist to determine a candidate set to visit each day. During this review process, one or more blocks might be determined not fishable by the fishing master 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 fishing master was asked to inspect each selected block and find a suitable tow location using the following criteria:

1. All tows should follow a depth contour.
2. If a block had been fished in a previous year, 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 point 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. After 19 minutes had elapsed, 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 fishing master was asked to maintain a water velocity through the net that was consistent with the rest of the tow.

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

If it was not possible to find a suitable tow location then the block was marked as “rejected based on on-ground inspection.” The vessel would then 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 successfully 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 which emptied into the wetlab below the trawl deck. Catch was sorted in the wetlab by species into separate baskets as it moved along a conveyor system. The catch from all tows, including both useable and unusable tows was recorded. Unusable tows, although not sampled for biological data, were recorded to track catch amounts. Whenever possible, the catch was completely sorted and weighed. However, for large catches in excess of 2000 kg or for catches with 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 some young-of-the-year rockfish may have only been identified to genus or family. In some cases a few representative individuals may have been frozen for later identification. Invertebrates may have only been identified to phylum or order.

## **BIOLOGICAL SAMPLING**

While the primary purpose of the survey was to generate fishery-independent indices of relative abundance, the secondary goal was to collect biological information to characterize the size, sex, and age-composition of each species caught. Two types of biological samples were conducted: “Length” samples, consisting of individual fish length and sex, and “Age” samples, consisting of length, sex, weight, maturity, and age structure. In an effort to maintain a manageable workload, 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. All 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, samples of whole Spotted Ratfish (*Hydrolagus colliei*), Greenstriped Rockfish (*Sebastes elongates*), Yellowtail Rockfish (*Sebastes flavidus*), and Arrowtooth Flounder (*Reinhardtius stomias*) were collected. Tissue for DNA analysis was collected from English Sole (*Parophrys vetulus*), Pacific Cod (*Gadus microcephalus*), and Blackspotted (*Sebastes melanostictus*) /Rougheye Rockfish (*Sebastes aleutianus*).

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

## **NET-MOUNTED SENSORS AND DATA RECORDERS**

The W.E. Ricker was equipped with a Notus trawl mensuration system (previous survey years used a Simrad ITI 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 and wingspread which are 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.

A Seabird SBE39 temperature and pressure recorder (TDR) was attached to the starboard wing of the trawl. A Seabird SBE19plus recorder (CTD) with a SBE43 dissolved oxygen sensor was attached to the center of the headline. The SBE19plus

recorded conductivity, temperature and pressure data with derived values for salinity (Seabird, 1989) and depth (Seabird, 2002). The SBE43 recorded oxygen voltage output data with calculated values for dissolved oxygen (ml/l) using temperature, pressure, and salinity data (Seabird, 2012). The SBE39 was activated prior to the first tow of the day and turned off after the last tow of the day, while the SBE19plus and SBE43 were turned on and off manually before and after each tow.

All data recorders were downloaded at the end of each day.

## **DATA RECORDING**

All the fishing, catch, and biological data were recorded directly into a Microsoft SQL Server database. 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 database called “GFBIO”, maintained at the Pacific Biological Station in Nanaimo, BC.

## **RESULTS**

### **FISHING**

The 2013 HS synoptic bottom trawl survey was divided into two legs of approximately two weeks. From a total of 28 allotted survey days, three days were required for travel and gear loading/unloading at the start and end of the survey, one day was used to conduct three test sets in Queen Charlotte Strait using the new Notus net mensuration system, and one day was required for science crew change (Table 3).

The initial plan was to assess 198 blocks based on 9 blocks per day and 22 fishing days. However, after completing the primary set of blocks it was clear that there was insufficient time remaining to complete the anticipated secondary set of 66 blocks. Therefore, the secondary set that was actually added consisted of 63 blocks (Table 4).

From the adjusted target of 195 blocks, two were not fished due to time constraints. Of the 193 blocks that were assessed, 175 were successfully fished, 16 were rejected based on on-ground inspections, and two were rejected after one or more failed fishing attempts (Table 4 and Figure 9).

A total of 182 tows, of which 175 were useable, were completed during the 21.5 days that fishing occurred. Table 5 shows tow results by stratum for this survey. Seven tows were not useable due to hang-ups, tear-ups, or insufficient bottom time. The scope (ratio of warp length to bottom depth) used for tows in 2013 is shown in

Table 6 and Figure 10. 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 80,559 kg of fish and invertebrates was caught during the 2013 HS survey. The total catch weight for useable tows was typically less than 600 kg per tow and averaged 463 kg per tow (Figure 11). The majority of the catch (78,811 kg, 97.8 %)

consisted of 110 different species of fish, including 28 rockfish and 15 flatfish species. The remainder (1,748 kg) consisted of 132 invertebrate groups. The average number of species identified in useable tows was 22 (Figure 12). 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, Arrowtooth Flounder (*Reinhardtius stomias*), was the most dominant by weight, followed by Spotted Ratfish (*Hydrolagus colliei*), English Sole (*Parophrys vetulus*), Dover Sole (*Microstomus pacificus*), and Southern Rock Sole (*Lepidopsetta bilineata*). Catch weights by tow for the 50 most commonly encountered species in this survey are included in Appendix B.

## **BIOLOGICAL SAMPLES AND SPECIMENS**

Biological samples were collected from a total of 30,672 individuals of 68 species of fish. The number of samples and recorded biological attributes per species is shown in Table 8. A summary of the biological data collected for each species is shown in Table 9.

## **NET-MOUNTED SENSORS AND DATA RECORDERS**

Notus net mensuration data were collected from 179 tows (Table 10).

Seabird SBE39 data (water temperature and depth), Seabird SBE19plus and SBE43 data (conductivity, water temperature, depth and dissolved oxygen) were collected from 182 tows (Table 10 and Figure 13).

BCS data were collected from 171 tows (Table 10). An example of data collected by the BCS is shown in Figure 14.

Global positioning system (GPS) data and bottom sounder data are available for all 182 tows.

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Table 1. The 2013 HS synoptic bottom trawl survey design showing block allocation per stratum based on the target allocation and the predicted failure and revisit rates (Predicted Adjustment).

Depth Stratum (m)	Target Allocation	Target Tows	Predicted Adjustment	Total Block Allocation	Primary Set	Secondary Set	Revised Secondary Set
10-70	0.38	62	0.26	84	56	28	27
70-130	0.28	46	0.11	51	34	17	16
130-220	0.25	41	0.12	46	31	15	15
220-500	0.09	15	0.13	17	11	6	5
<b>Total</b>	<b>1.0</b>	<b>164</b>		<b>198</b>	<b>132</b>	<b>66</b>	<b>63</b>

Table 2. Atlantic Western Iia box trawl net specifications for the 2013 HS synoptic bottom trawl survey.

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

Table 3. Summary of operations during the 2013 HS synoptic bottom trawl survey.

Date	Fishing			Blocks Assessed	Tows			Notes
	Start	End	Hours		Useable	Not Useable	Total	
05/28/2013	-	-	-	-	-	-	-	load the vessel
05/29/2013	15:55	18:30	3	-	-	3	3	test sets in QCS
05/30/2013	7:23	18:40	11	9	8	0	8	
05/31/2013	7:07	18:59	11	9	9	1	10	
06/01/2013	7:03	16:50	9	10	10	0	10	
06/02/2013	7:14	17:04	10	8	8	0	8	
06/03/2013	7:17	18:26	11	9	9	1	10	
06/04/2013	7:05	19:13	12	10	9	0	9	
06/05/2013	7:06	18:22	11	10	9	0	9	
06/06/2013	7:08	18:23	11	8	9	0	9	
06/07/2013	7:20	19:19	12	8	8	2	10	
06/08/2013	7:13	16:11	9	9	6	0	6	
06/09/2013	7:05	17:05	10	10	10	0	10	
06/10/2013	7:16	12:37	5	4	4	1	5	
06/11/2013	-	-	-	-	-	-	-	science crew change
06/12/2013	12:03	18:34	6	6	4	1	5	
06/13/2013	7:04	18:46	11	11	10	0	10	
06/14/2013	7:13	19:13	12	12	8	0	8	
06/15/2013	7:38	17:55	10	9	9	0	9	
06/16/2013	7:15	15:01	8	7	7	0	7	
06/17/2013	7:05	18:58	11	8	8	0	8	
06/18/2013	8:31	18:40	10	8	7	0	7	
06/19/2013	7:25	17:54	10	9	6	0	6	
06/20/2013	7:14	18:09	11	10	8	0	8	
06/21/2013	7:09	18:58	11	11	9	1	10	
06/22/2013	-	-	-	-	-	-	-	travel
06/23/2013	-	-	-	-	-	-	-	unload the vessel
<b>Total</b>				<b>195</b>	<b>175</b>	<b>10</b>	<b>185</b>	
<b>Average Per Day</b>				<b>8.9</b>	<b>8.0</b>	<b>0.4</b>	<b>8.0</b>	

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

Depth Stratum (m)	Primary Set	Secondary Set	Successful	Rejected Prior	Rejected Inspected	Rejected Failed	Not Assessed	Total
10-70	56	27	74	0	7	0	2	83
70-130	34	16	42	0	7	1	0	50
130-220	31	15	43	0	3	0	0	46
220-500	11	5	16	0	0	0	0	16
<b>Total</b>	<b>132</b>	<b>63</b>	<b>175</b>	<b>0</b>	<b>17</b>	<b>1</b>	<b>2</b>	<b>195</b>

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

Depth Stratum (m)	Useable	Not Useable
10-70	74	2
70-130	42	4
130-220	43	1
220-500	16	0
<b>Total</b>	<b>175</b>	<b>7</b>

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

Depth (m)	Mean Warp (m)	Mean Scope
0-50	102	3.09
50-100	202	2.81
100-150	348	2.81
150-200	450	2.59
200-250	513	2.31
250-300	557	2.09
300-350	800	2.48

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 HS 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
<b>Rockfishes</b>					
<b>Family Scorpaenidae</b>					
Pacific Ocean Perch	<i>Sebastes alutus</i>	64	400.88	19.76	1264.87
Silvergray Rockfish	<i>Sebastes brevispinis</i>	52	114.41	12.17	620.76
Quillback Rockfish	<i>Sebastes maliger</i>	49	150.24	13.44	658.38
Redbanded Rockfish	<i>Sebastes babcocki</i>	45	44.58	8.97	403.49
Shortspine Thornyhead	<i>Sebastolobus alascanus</i>	37	97.07	11.58	428.45
Yellowtail Rockfish	<i>Sebastes flavidus</i>	29	191.36	18.04	523.23
Greenstriped Rockfish	<i>Sebastes elongatus</i>	22	7.64	1.17	25.69
Canary Rockfish	<i>Sebastes pinniger</i>	18	145.20	14.23	256.23
Rougheye Rockfish	<i>Sebastes aleutianus</i>	18	11.54	1.66	29.92
Copper Rockfish	<i>Sebastes caurinus</i>	15	89.42	15.38	230.68
Sharpchin Rockfish	<i>Sebastes zacentrus</i>	14	7.22	1.40	14.04
Redstripe Rockfish	<i>Sebastes proriger</i>	13	280.79	46.06	598.72
Yellowmouth Rockfish	<i>Sebastes reedi</i>	10	26.36	5.53	55.34
Yelloweye Rockfish	<i>Sebastes ruberrimus</i>	7	6.67	4.97	34.80
Pygmy Rockfish	<i>Sebastes wilsoni</i>	7	0.30	0.18	1.27
Splitnose Rockfish	<i>Sebastes diploproa</i>	5	0.44	0.37	1.46
Widow Rockfish	<i>Sebastes entomelas</i>	5	69.66	15.38	76.88
Black Rockfish	<i>Sebastes melanops</i>	2	5.12	2.66	5.32
Bocaccio	<i>Sebastes paucispinis</i>	2	9.10	6.73	13.46
Harlequin Rockfish	<i>Sebastes variegatus</i>	2	0.26	0.19	0.38
Darkblotched Rockfish	<i>Sebastes crameri</i>	2	1.25	1.20	2.39
Shorthead Rockfish	<i>Sebastes borealis</i>	1	7.98	7.98	7.98
Rockfishes	Sebastinae (Sub Family)	1	0.14	0.14	0.14
Rosethorn Rockfish	<i>Sebastes helvomaculatus</i>	1	1.46	1.46	1.46
China Rockfish	<i>Sebastes nebulosus</i>	1	1.23	1.23	1.23
Tiger Rockfish	<i>Sebastes nigrocinctus</i>	1	1.20	1.20	1.20
Puget Sound Rockfish	<i>Sebastes emphaeus</i>	1	8.54	8.54	8.54
Longspine Thornyhead	<i>Sebastolobus altivelis</i>	1	0.16	0.16	0.16
<b>Flatfishes</b>					
<b>Order Pleuronectiformes</b>					
Arrowtooth Flounder	<i>Reinhardtius stomias</i>	139	2422.64	141.02	19601.22
Pacific Halibut	<i>Hippoglossus stenolepis</i>	124	236.02	28.85	3576.84
Rex Sole	<i>Glyptocephalus zachirus</i>	121	300.31	33.04	3997.43
English Sole	<i>Parophrys vetulus</i>	117	683.66	70.61	8261.52
Dover Sole	<i>Microstomus pacificus</i>	112	803.65	55.77	6245.84
Southern Rock Sole	<i>Lepidopsetta bilineata</i>	98	787.40	41.40	4056.88
Petrale Sole	<i>Eopsetta jordani</i>	80	60.66	6.85	548.17
Flathead Sole	<i>Hippoglossoides elassodon</i>	65	215.84	14.22	924.02
Sand Sole	<i>Psettichthys melanostictus</i>	53	208.11	14.29	757.29
Butter Sole	<i>Isopsetta isolepis</i>	45	50.26	6.51	292.98
Curlfin Sole	<i>Pleuronichthys decurrens</i>	41	28.86	3.06	125.62
Slender Sole	<i>Lyopsetta exilis</i>	39	14.58	1.37	52.24
Pacific Sanddab	<i>Citharichthys sordidus</i>	29	268.31	15.54	450.76
Starry Flounder	<i>Platichthys stellatus</i>	11	181.06	27.28	300.04
Speckled Sanddab	<i>Citharichthys stigmaeus</i>	2	0.28	0.16	0.32
<b>Cod-Like Fishes</b>					
<b>Order Gadiformes</b>					
Pacific Cod	<i>Gadus macrocephalus</i>	137	441.50	19.42	2641.44
Walleye Pollock	<i>Theragra chalcogramma</i>	106	255.04	23.31	2470.86
Pacific Tomcod	<i>Microgadus proximus</i>	33	12.70	2.16	69.24
Pacific Hake	<i>Merluccius productus</i>	2	5.25	3.27	6.55



Common Name	Scientific Name	Number of Tows	Catch Weight (kg)		
			Max	Mean	Total
<b>Cartilaginous Fish</b>	<b>Class Chondrichthyes</b>				
Spotted Ratfish	<i>Hydrolagus colliei</i>	180	2619.00	86.97	15653.82
North Pacific Spiny Dogfish	<i>Squalus suckleyi</i>	132	254.34	16.17	2135.08
Longnose Skate	<i>Raja rhina</i>	39	31.50	8.92	347.74
Big Skate	<i>Raja binoculata</i>	38	151.06	28.36	1077.57
Sandpaper Skate	<i>Bathyraja interrupta</i>	13	4.86	1.42	18.46
Aleutian Skate	<i>Bathyraja aleutica</i>	1	14.26	14.26	14.26
<b>Greenlings</b>	<b>Family Hexagrammidae</b>				
Lingcod	<i>Ophiodon elongatus</i>	27	14.27	4.61	124.53
Kelp Greenling	<i>Hexagrammos decagrammus</i>	26	20.04	4.14	107.70
<b>Sculpins</b>	<b>Family Cottidae</b>				
Roughback Sculpin	<i>Chitonotus pugetensis</i>	34	1.34	0.40	8.04
Buffalo Sculpin	<i>Enophrys bison</i>	21	1.25	0.36	7.21
Darkfin Sculpin	<i>Malacocottus zonurus</i>	18	1.42	0.48	6.23
Tadpole Sculpin	<i>Psychrolutes paradoxus</i>	14	-	-	-
Roughspine Sculpin	<i>Triglops macellus</i>	11	0.18	0.11	0.33
Red Irish Lord	<i>Hemilepidotus hemilepidotus</i>	10	1.34	0.76	6.05
Bigmouth Sculpin	<i>Hemitripterus bolini</i>	7	13.41	5.65	33.91
Slim Sculpin	<i>Radulinus asprellus</i>	7	-	-	-
	<i>Myoxocephalus</i>				
Great Sculpin	<i>polyacanthocephalus</i>	7	1.95	0.65	3.87
Whitetail Sculpin	<i>Malacocottus aleuticus</i>	4	-	-	-
Threadfin Sculpin	<i>Icelinus filamentosus</i>	4	1.04	0.66	1.98
Soft Sculpin	<i>Psychrolutes sigalutes</i>	3	-	-	-
Spinynose Sculpin	<i>Asemichthys taylori</i>	3	-	-	-
Pacific Staghorn Sculpin	<i>Leptocottus armatus</i>	3	0.44	0.39	1.18
Cabezon	<i>Scorpaenichthys marmoratus</i>	1	3.26	3.26	3.26
Slimy Sculpin	<i>Cottus cognatus</i>	1	-	-	-
Sculpins	Cottidae (Family)	1	-	-	-
Spotfin Sculpin	<i>Icelinus tenuis</i>	1	-	-	-
Thorny Sculpin	<i>Icelus spiniger</i>	1	-	-	-
Northern Sculpin	<i>Icelinus borealis</i>	1	-	-	-
<b>Eelpouts</b>	<b>Family Zoarcidae</b>				
Blackbelly Eelpout	<i>Lycodes pacificus</i>	20	1.76	0.82	8.17
Shortfin Eelpout	<i>Lycodes brevipes</i>	9	0.24	0.13	0.65
Black Eelpout	<i>Lycodes diapterus</i>	8	0.50	0.29	1.72
Wattled Eelpout	<i>Lycodes palearis</i>	8	1.26	0.48	3.87
Bigfin Eelpout	<i>Lycodes cortezianus</i>	5	0.56	0.35	1.73
Eelpouts	Zoarcidae (Family)	1	-	-	-
<b>Poachers</b>	<b>Family Agonidae</b>				
Sturgeon Poacher	<i>Podothecus accipenserinus</i>	58	3.88	0.60	33.10
Bigeye Poacher	<i>Bathyagonus pentacanthus</i>	12	0.25	0.21	0.41
Northern Spearnose Poacher	<i>Agonopsis vulsa</i>	5	0.16	0.16	0.16
Poachers	Agonidae (Family)	2	-	-	-
Smooth Alligatorfish	<i>Anoplagonus inermis</i>	2	-	-	-
Pygmy Poacher	<i>Odontopyxis trispinosa</i>	1	-	-	-
<b>Lanternfishes</b>	<b>Family Myctophidae</b>				
Lanternfishes	Myctophidae (Family)	2	-	-	-
California Headlightfish	<i>Diaphus theta</i>	1	-	-	-
<b>Other Fish</b>					
Pacific Herring	<i>Clupea pallasii</i>	68	38.48	4.84	314.57
Sablefish	<i>Anoplopoma fimbria</i>	58	137.70	9.75	565.72
Eulachon	<i>Thaleichthys pacificus</i>	54	12.47	1.97	98.59
Snake Prickleback	<i>Lumpenus sagitta</i>	48	2.74	0.52	8.76

Common Name	Scientific Name	Number of Tows	Catch Weight (kg)		
			Max	Mean	Total
Pacific Sand Lance	<i>Ammodytes hexapterus</i>	28	107.92	10.54	263.62
Pacific Sandfish	<i>Trichodon trichodon</i>	16	5.50	0.72	10.75
Northern Ronquil	<i>Ronquilus jordani</i>	12	2.56	0.59	4.14
Wolf Eel	<i>Anarrhichthys ocellatus</i>	3	7.26	5.25	15.74
Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	3	7.12	3.76	11.28
Northern Smoothtongue	<i>Leuroglossus schmidtii</i>	2	1.74	0.98	1.95
Pacific Viperfish	<i>Chauliodus macouni</i>	2	-	-	-
Tube Snout	<i>Aulorhynchus flavidus</i>	2	-	-	-
Shiner Perch	<i>Cymatogaster aggregata</i>	2	0.06	0.06	0.06
Pearly Prickleback	<i>Bryozoichthys marjorius</i>	2	0.26	0.18	0.36
Prowfish	<i>Zaprora silenus</i>	2	0.66	0.59	1.18
Pacific Spiny Lumpsucker	<i>Eumicrotremus orbis</i>	2	-	-	-
Giant Wrymouth	<i>Cryptacanthodes giganteus</i>	1	15.00	15.00	15.00
Pricklebacks	Stichaeidae (Family)	1	-	-	-
Whitebarred Prickleback	<i>Poroclinus rothrocki</i>	1	-	-	-
Ronquils	Bathymasteridae (Family)	1	0.54	0.54	0.54
Black Hagfish	<i>Eptatretus deani</i>	1	0.35	0.35	0.35
<b>Crabs and Shrimp</b>	<b>Class Malacostraca</b>				
Pink Shrimp (smooth)	<i>Pandalus jordani</i>	67	3.62	1.21	61.72
Sidestripe Shrimp	<i>Pandalopsis dispar</i>	51	7.16	0.99	46.35
Northern Crangon	<i>Crangon alaskensis</i>	20	0.01	0.01	0.01
Common Two-spined Crangon	<i>Neocrangon communis</i>	18	-	-	-
Graceful Decorator Crab	<i>Oregonia gracilis</i>	18	0.18	0.14	0.28
Prawn	<i>Pandalus platyceros</i>	18	1.68	0.49	7.32
Furrowed Rock Crab	<i>Cancer branneri</i>	12	0.30	0.14	0.55
Spike Shrimp (horned Shrimp)	<i>Paracrangon echinata</i>	11	-	-	-
Nelson's Argid	<i>Argis levior</i>	10	-	-	-
Dungeness Crab	<i>Metacarcinus magister</i>	10	7.58	1.95	19.53
Yellowleg Shrimp	<i>Pandalus tridens</i>	10	0.26	0.15	0.30
Coonstripe Shrimp	<i>Pandalus danae</i>	9	1.06	0.35	2.11
Glass Shrimp	<i>Pasiphaea pacifica</i>	8	-	-	-
Three-spined Coastal Shrimp	<i>Heptacarpus tridens</i>	7	0.14	0.14	0.14
Isopods	Isopoda (Order)	5	-	-	-
Euphausiids	Euphausiacea (Order)	5	3.80	1.93	3.85
Right-handed Hermits	Paguridae (Family)	4	-	-	-
Northern Argid	<i>Argis lar</i>	4	-	-	-
Common Argid	<i>Argis alaskensis</i>	4	-	-	-
Redclaw Crab	<i>Chorilia longipes</i>	4	-	-	-
Decorator Crabs	<i>Oregonia</i> (Genus)	2	0.07	0.07	0.07
Aleutian Hermit	<i>Pagurus aleuticus</i>	2	-	-	-
Barbed Eualid	<i>Eualus barbatus</i>	2	-	-	-
Ghost Shrimp	<i>Callianassa</i> (Genus)	1	-	-	-
Bristly Crab	<i>Acantholithodes hispidus</i>	1	0.08	0.08	0.08
Butterfly Crab	<i>Cryptolithodes typicus</i>	1	-	-	-
Golden King Crab	<i>Lithodes aequispinus</i>	1	2.52	2.52	2.52
-	Cheiragonidae (Family)	1	-	-	-
Cancer Crabs	Cancridae (Family)	1	-	-	-
Arctic Argid	<i>Argis dentata</i>	1	-	-	-
Crangons	<i>Crangon</i> (Genus)	1	-	-	-
Fuzzy Hooded Shrimp	<i>Betaeus setosus</i>	1	-	-	-
Deepwater Decorator Crab	<i>Oregonia bifurca</i>	1	-	-	-
Kelp Crabs	<i>Pugettia</i> (Genus)	1	-	-	-
Pygmy Rock Crab	<i>Cancer oregonensis</i>	1	-	-	-
Red Rock Crab	<i>Cancer productus</i>	1	-	-	-

Common Name	Scientific Name	Number of Tows	Catch Weight (kg)		
			Max	Mean	Total
Graceful Crab	<i>Cancer gracilis</i>	1	-	-	-
-	<i>Euphausia</i> (Genus)	1	1.02	1.02	1.02
<b>Sea Stars</b>	<b>Class Asteroidea</b>				
Sunflower Starfish	<i>Pycnopodia helianthoides</i>	36	11.19	2.36	84.79
Pink Short-spined Star	<i>Pisaster brevispinus</i>	30	60.48	3.87	108.42
Mud Star	<i>Ctenodiscus crispatus</i>	23	4.21	1.03	18.62
Sand Star	<i>Luidia foliolata</i>	18	0.78	0.36	6.09
Cushion Star	<i>Pteraster tesselatus</i>	18	0.46	0.25	1.24
-	<i>Henricia</i> (Genus)	15	0.29	0.18	0.53
Rose Starfish	<i>Crossaster papposus</i>	14	0.16	0.11	0.22
Long-armed Sea Star	<i>Orthasterias koehleri</i>	14	0.44	0.16	1.15
-	<i>Cheiraster dawsoni</i>	12	2.86	0.55	4.94
-	<i>Gephyreaster swifti</i>	5	0.48	0.48	0.48
Morning Sun Starfish	<i>Solaster dawsoni</i>	5	0.12	0.08	0.16
Fish-eating Star	<i>Stylasterias forreri</i>	5	0.42	0.42	0.42
Spiny Red Sea Star	<i>Hippasteria spinosa</i>	4	0.40	0.20	0.78
Leather Star	<i>Dermasterias imbricata</i>	3	0.68	0.49	1.48
-	<i>Poraniopsis inflatus inflatus</i>	2	0.66	0.46	0.92
-	<i>Solaster paxillatus</i>	2	0.20	0.20	0.20
Vermillion Starfish	<i>Mediaster aequalis</i>	2	0.10	0.10	0.10
-	<i>Pteraster</i> (Genus)	1	-	-	-
Purple Starfish	<i>Pisaster ochraceus</i>	1	-	-	-
Cookie Star	<i>Ceramaster patagonicus</i>	1	0.36	0.36	0.36
-	<i>Dipsacaster</i> (Genus)	1	0.22	0.22	0.22
Starfish	Asteroidea (Class)	1	-	-	-
<b>Brittle Stars</b>	<b>Class Ophiuroidea</b>				
Basket Star	<i>Gorgonocephalus eucnemis</i>	14	0.34	0.20	2.41
-	<i>Ophiura</i> (Genus)	13	-	-	-
-	<i>Ophiura sarsi</i>	5	-	-	-
-	Ophiuridae (Family)	4	-	-	-
-	<i>Ophiacantha</i> (Genus)	3	-	-	-
-	<i>Amphiophiura ponderosa</i>	2	0.11	0.07	0.14
Basket Stars	Euryalina (Sub Order)	1	0.20	0.20	0.20
-	Ophiacanthidae (Family)	1	-	-	-
<b>Sea Cucumbers</b>	<b>Class Holothuroidea</b>				
Giant Red Sea Cucumber	<i>Parastichopus californicus</i>	19	3.38	1.26	22.74
Whitespotted Sea Cucumber	<i>Parastichopus leukothele</i>	4	0.46	0.27	0.82
Soft Sea Cucumber	<i>Pseudostichopus mollis</i>	3	2.28	1.19	2.38
Sea Cucumbers	Holothuroidea (Class)	3	0.96	0.58	1.74
Papillose Sea Cucumber	<i>Synallactes challengerii</i>	1	-	-	-
Sweet Potato Sea Cucumber	<i>Molpadia intermedia</i>	1	-	-	-
<b>Octopuses and Squid</b>	<b>Class Cephalopoda</b>				
Pacific Bobtail Squid	<i>Rossia pacifica</i>	38	0.30	0.19	0.58
Schoolmaster Gonate Squid	<i>Beryteuthis magister</i>	22	84.78	12.38	272.40
Opalescent Inshore Squid	<i>Doryteuthis opalescens</i>	7	11.86	2.07	12.41
Octopus	Octopoda (Order)	2	-	-	-
Giant Pacific Octopus	<i>Enteroctopus dofleini</i>	2	6.74	6.11	12.22
Squids	Teuthida (Order)	2	0.68	0.68	0.68
Smoothskin Octopus	<i>Benthoctopus leioderma</i>	1	0.27	0.27	0.27
<b>Sea Urchins</b>	<b>Super Order Echinacea</b>				
Fragile Urchin	<i>Allocentrotus fragilis</i>	48	10.13	1.29	55.49
Pallid Urchin	<i>Strongylocentrotus pallidus</i>	17	4.80	0.58	6.93
Red Urchin	<i>Strongylocentrotus franciscanus</i>	1	-	-	-
Purple Sea Urchins	<i>Strongylocentrotus purpuratus</i>	1	0.26	0.26	0.26

Common Name	Scientific Name	Number of Tows	Catch Weight (kg)		
			Max	Mean	Total
<b>Jellyfish</b>	<b>Phylum Cnidaria</b>				
Lions Mane	<i>Cyanea capillata</i>	92	84.84	3.54	265.51
Jellyfish	Scyphozoa (Class)	40	3.58	0.98	5.86
-	<i>Periphylla periphylla</i>	6	-	-	-
Egg Yolk Jelly	<i>Phacellophora camtschatica</i>	3	0.39	0.39	0.39
Sea Nettle	<i>Chrysaora quinquecirrha</i>	2	-	-	-
<b>Anemones and Corals</b>	<b>Class Anthozoa</b>				
-	<i>Metridium</i> (Genus)	48	62.94	6.59	303.22
Sea Pen	<i>Ptilosarcus gurneyi</i>	22	40.64	2.73	54.50
Anemone	Actiniaria (Order)	18	0.54	0.33	2.31
Sea Whip	<i>Balticina septentrionalis</i>	13	0.42	0.16	1.10
-	<i>Primnoa</i> (Genus)	12	77.92	13.41	160.97
-	<i>Paragorgia</i> (Genus)	1	2.68	2.68	2.68
-	<i>Swiftia</i> (Genus)	1	-	-	-
-	Liponematidae (Family)	1	0.36	0.36	0.36
<b>Snails and Slugs</b>	<b>Class Gastropoda</b>				
Oregontriton	<i>Fusitriton oregonensis</i>	21	0.42	0.21	3.09
California Armina	<i>Armina californica</i>	21	0.64	0.19	1.31
Seaslugs	Nudibranchia (Order)	15	0.20	0.12	0.24
Rosy Tritonia	<i>Tritonia diomedea</i>	11	0.16	0.15	0.30
Turban Snails	Turbinidae (Family)	2	-	-	-
Lewis Moonsnail	<i>Euspira lewisii</i>	2	-	-	-
-	<i>Neptunea</i> (Genus)	1	-	-	-
Whelks	Buccinidae (Family)	1	-	-	-
Gastropods	Gastropoda (Class)	1	-	-	-
<b>Other Invertebrate Species</b>					
Sponges	Porifera (Phylum)	57	14.72	1.11	43.39
-	<i>Aequorea</i> (Genus)	29	3.08	0.66	7.31
-	Tunicata (Sub Phylum)	28	0.97	0.37	1.86
-	Bryozoa (Phylum)	23	0.20	0.16	0.62
-	<i>Mitrocoma</i> (Genus)	21	3.82	1.11	7.77
Pink Scallop, (aka Reddish Scallop)	<i>Chlamys rubida</i>	21	0.76	0.34	3.44
Spiny Scallop	<i>Chlamys hastata</i>	18	3.95	1.15	10.35
Glass Sponges	Hexactinellida (Class)	11	36.15	10.85	86.80
Heart Urchins	Atelostomata (Super Order)	10	8.87	1.26	12.63
Polychaete Worms	Polychaeta (Class)	4	-	-	-
Sea Lilies And Feather Stars	Crinoidea (Class)	3	-	-	-
Sea Mouse	<i>Aphrodita</i> (Genus)	2	-	-	-
Lampshells	Brachiopoda (Phylum)	2	-	-	-
Giant Barnacle	<i>Balanus nubilis</i>	2	2.64	2.34	4.68
Giant Rock-scallop (aka Purplehinged Rockscallop)	<i>Crassadoma gigantea</i>	2	1.08	0.61	1.21
Barnacles	Cirripedia (Infraclass)	1	2.76	2.76	2.76
Acorn Barnacle	<i>Balanus glandula</i>	1	3.50	3.50	3.50
Salps	Thaliacea (Class)	1	0.12	0.12	0.12
Hydroid	Hydrozoa (Class)	1	-	-	-
Scale Worms	<i>Polynoe</i> (Genus)	1	-	-	-
Tube Worms	Sedentaria (Sub Class)	1	6.27	6.27	6.27
Bivalve Molluscs	<i>Bivalvia</i> (Class)	1	-	-	-
-	<i>Yoldia</i> (Genus)	1	-	-	-
-	<i>Polyorchis</i> (Genus)	1	-	-	-
-	<i>Eutonina</i> (Genus)	1	-	-	-

Table 8. Species sampled during the 2013 HS 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
Aleutian Skate	<i>Bathyraja aleutica</i>	1	2	0	2	0	0
Arrowtooth Flounder	<i>Reinhardtius stomias</i>	112	2800	924	2800	835	835
Big Skate	<i>Raja binoculata</i>	37	127	0	127	0	0
Bigmouth Sculpin	<i>Hemitripterus bolini</i>	3	4	0	2	0	0
Black Eelpout	<i>Lycodes diapterus</i>	1	10	0	0	0	0
Black Rockfish	<i>Sebastes melanops</i>	1	2	0	2	0	0
Blackbelly Eelpout	<i>Lycodes pacificus</i>	1	19	0	0	0	0
Bocaccio	<i>Sebastes paucispinis</i>	2	3	3	3	3	3
Butter Sole	<i>Isopsetta isolepis</i>	38	665	75	665	75	75
Cabezon	<i>Scorpaenichthys marmoratus</i>	1	1	0	0	0	0
Canary Rockfish	<i>Sebastes pinniger</i>	16	119	80	119	80	80
China Rockfish	<i>Sebastes nebulosus</i>	1	3	0	3	0	0
Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	2	2	0	2	0	0
Copper Rockfish	<i>Sebastes caurinus</i>	15	158	124	158	124	123
Curlfin Sole	<i>Pleuronichthys decurrens</i>	39	192	47	192	47	47
Darkblotched Rockfish	<i>Sebastes crameri</i>	2	5	0	5	0	0
Dover Sole	<i>Microstomus pacificus</i>	76	1712	708	1713	707	708
English Sole	<i>Parophrys vetulus</i>	90	2421	862	2421	820	815
Eulachon	<i>Thaleichthys pacificus</i>	24	802	0	0	0	0
Flathead Sole	<i>Hippoglossoides elassodon</i>	33	808	170	808	170	170
Greenstriped Rockfish	<i>Sebastes elongatus</i>	18	77	0	77	0	0
Harlequin Rockfish	<i>Sebastes variegatus</i>	2	2	0	2	0	0
Kelp Greenling	<i>Hexagrammos decagrammus</i>	23	245	0	245	0	0
Lingcod	<i>Ophiodon elongatus</i>	25	52	0	51	0	0
Longnose Skate	<i>Raja rhina</i>	35	57	0	57	0	0
North Pacific Spiny Dogfish	<i>Squalus suckleyi</i>	120	961	74	961	25	25
Northern Ronquil	<i>Ronquilus jordani</i>	2	3	3	3	0	0
Northern Smoothtongue	<i>Leuroglossus schmidti</i>	1	27	0	0	0	0
Pacific Cod	<i>Gadus macrocephalus</i>	126	1755	912	1353	910	910
Pacific Halibut	<i>Hippoglossus stenolepis</i>	120	649	119	559	0	0
Pacific Herring	<i>Clupea pallasii</i>	38	889	0	0	0	0
Pacific Ocean Perch	<i>Sebastes alutus</i>	53	775	285	775	285	285
Pacific Sand Lance	<i>Ammodytes hexapterus</i>	17	592	0	0	0	0
Pacific Sanddab	<i>Citharichthys sordidus</i>	12	327	28	327	28	28
Pacific Tomcod	<i>Microgadus proximus</i>	16	439	0	439	0	0
Petrale Sole	<i>Eopsetta jordani</i>	76	538	371	538	371	371
Prowfish	<i>Zaprora silenus</i>	1	1	0	1	0	0
Puget Sound Rockfish	<i>Sebastes emphaeus</i>	1	34	34	34	34	34
Pygmy Rockfish	<i>Sebastes wilsoni</i>	5	8	0	8	0	0
Quillback Rockfish	<i>Sebastes maliger</i>	43	397	272	397	272	272
Red Irish Lord	<i>Hemilepidotus hemilepidotus</i>	1	3	0	0	0	0
Redbanded Rockfish	<i>Sebastes babcocki</i>	41	272	217	272	217	217
Redstripe Rockfish	<i>Sebastes proriger</i>	8	203	131	176	128	131
Rex Sole	<i>Glyptocephalus zachirus</i>	90	2401	362	2401	278	278
Roughback Sculpin	<i>Chitonotus pugetensis</i>	1	23	0	0	0	0
Rougheye Rockfish	<i>Sebastes aleutianus</i>	17	44	44	44	44	44
Sablefish	<i>Anoplopoma fimbria</i>	53	312	72	312	72	72
Sand Sole	<i>Psetticthys melanostictus</i>	45	772	176	772	142	142
Sandpaper Skate	<i>Bathyraja interrupta</i>	12	16	0	16	0	0
Schoolmaster Gonate Squid	<i>Berryteuthis magister</i>	1	33	33	0	0	0
Sharpchin Rockfish	<i>Sebastes zacentrus</i>	6	69	0	69	0	0

Common Name	Scientific Name	Number of Samples	Number of Recorded Biological Attributes				
			Length	Weight	Sex	Maturity	Age
Shortraker Rockfish	<i>Sebastes borealis</i>	1	1	1	1	1	1
Shortspine Thornyhead	<i>Sebastolobus alascanus</i>	36	585	237	585	0	237
Silvergray Rockfish	<i>Sebastes brevispinis</i>	47	335	79	335	79	79
Slender Sole	<i>Lyopsetta exilis</i>	12	202	0	202	0	0
Snake Prickleback	<i>Lumpenus sagitta</i>	1	23	0	0	0	0
Southern Rock Sole	<i>Lepidopsetta bilineata</i>	87	1939	844	1939	802	802
Speckled Sanddab	<i>Citharichthys stigmaeus</i>	1	4	0	4	0	0
Splitnose Rockfish	<i>Sebastes diploproa</i>	4	11	0	11	0	0
Spotted Ratfish	<i>Hydrolagus colliei</i>	124	3901	532	3901	0	0
Starry Flounder	<i>Platichthys stellatus</i>	11	67	63	67	25	25
Sturgeon Poacher	<i>Podothecus accipenserinus</i>	1	39	0	0	0	0
Tiger Rockfish	<i>Sebastes nigrocinctus</i>	1	1	0	1	0	0
Walleye Pollock	<i>Theragra chalcogramma</i>	67	1341	213	1340	135	136
Widow Rockfish	<i>Sebastes entomelas</i>	3	32	30	32	30	30
Yelloweye Rockfish	<i>Sebastes ruberrimus</i>	6	8	7	8	7	7
Yellowmouth Rockfish	<i>Sebastes reedi</i>	8	91	28	91	28	28
Yellowtail Rockfish	<i>Sebastes flavidus</i>	23	261	77	195	77	76
<b>Total</b>		<b>1937</b>	<b>30672</b>	<b>8237</b>	<b>27623</b>	<b>6851</b>	<b>7086</b>

Table 9. Summary of biological data collected during the 2013 HS synoptic bottom trawl survey. For each species the number of samples and specimens, the minimum, maximum, and mean length, the minimum, maximum, and mean weight, and proportion of females is shown. Weights less than 0.1 kg are entered as <0.1 and no data collected is entered as -.

Common Name	Scientific Name	Number of		Length Type	Length (cm)			Weight (kg)			Female Proportion
		Samples	Specimens		Min.	Max.	Mean	Min.	Max.	Mean	
Aleutian Skate	<i>Bathyraja aleutica</i>	1	2	Total	107	109	108	-	-	-	0.50
Arrowtooth Flounder	<i>Reinhardtius stomias</i>	112	2800	Fork	12	82	39	0.0	2.8	0.8	0.60
Big Skate	<i>Raja binoculata</i>	37	127	Total	6	187	72	-	-	-	0.39
Bigmouth Sculpin	<i>Hemitripterus bolini</i>	3	4	Total	49	61	55	-	-	-	1.00
Black Eelpout	<i>Lycodes diapterus</i>	1	10	Total	12	33	21	-	-	-	-
Black Rockfish	<i>Sebastes melanops</i>	1	2	Fork	52	56	54	-	-	-	0.00
Blackbelly Eelpout	<i>Lycodes pacificus</i>	1	19	Total	15	23	18	-	-	-	-
Bocaccio	<i>Sebastes paucispinis</i>	2	3	Fork	69	74	72	3.6	5.5	4.5	0.00
Butter Sole	<i>Isopsetta isolepis</i>	38	665	Total	11	41	27	0.0	0.5	0.2	0.56
Cabezon	<i>Scorpaenichthys marmoratus</i>	1	1	Total	56	56	56	-	-	-	-
Canary Rockfish	<i>Sebastes pinniger</i>	16	119	Fork	20	56	33	0.2	1.2	0.6	0.47
China Rockfish	<i>Sebastes nebulosus</i>	1	3	Fork	25	29	27	-	-	-	0.67
Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	2	2	Fork	35	73	54	-	-	-	0.00
Copper Rockfish	<i>Sebastes caurinus</i>	15	158	Fork	19	47	35	0.3	1.9	0.8	0.49
Curlfin Sole	<i>Pleuronichthys decurrens</i>	39	192	Total	17	43	31	0.3	1.2	0.6	0.57
Darkblotched Rockfish	<i>Sebastes crameri</i>	2	5	Fork	26	32	29	-	-	-	0.60
Dover Sole	<i>Microstomus pacificus</i>	76	1713	Total	17	63	35	0.2	2.2	0.6	0.50
English Sole	<i>Parophrys vetulus</i>	90	2421	Total	12	47	26	0.0	1.1	0.2	0.54
Eulachon	<i>Thaleichthys pacificus</i>	24	802	Standard	6	20	14	-	-	-	-
Flathead Sole	<i>Hippoglossoides elassodon</i>	33	808	Total	9	47	27	0.0	0.5	0.2	0.46
Greenstriped Rockfish	<i>Sebastes elongatus</i>	18	77	Fork	20	36	27	-	-	-	0.48
Harlequin Rockfish	<i>Sebastes variegatus</i>	2	2	Fork	21	25	23	-	-	-	0.50
Kelp Greenling	<i>Hexagrammos decagrammus</i>	23	245	Fork	18	44	30	-	-	-	0.59
Lingcod	<i>Ophiodon elongatus</i>	25	52	Fork	30	93	56	-	-	-	0.73
Longnose Skate	<i>Raja rhina</i>	35	57	Total	47	140	86	-	-	-	0.42
North Pacific Spiny Dogfish	<i>Squalus suckleyi</i>	120	961	Total	6	109	71	0.4	5.5	1.3	0.57
Northern Ronquil	<i>Ronquilus jordani</i>	2	3	Total	12	16	14	0.0	0	0	1.00
Northern Smoothtongue	<i>Leuroglossus schmidti</i>	1	27	Total	8	15	11	-	-	-	-
Pacific Cod	<i>Gadus macrocephalus</i>	126	1755	Fork	2	84	33	0.0	5.5	1.0	0.50
Pacific Halibut	<i>Hippoglossus stenolepis</i>	120	649	Fork	12	144	71	0.1	13.9	3.7	0.43
Pacific Herring	<i>Clupea pallasii</i>	38	889	Standard	11	27	19	-	-	-	-

Common Name	Scientific Name	Number of		Length Type	Length (cm)			Weight (kg)			Female Proportion
		Samples	Specimens		Min.	Max.	Mean	Min.	Max.	Mean	
Pacific Ocean Perch	<i>Sebastes alutus</i>	53	775	Fork	9	49	31	0.0	1.6	0.7	0.39
Pacific Sand Lance	<i>Ammodytes hexapterus</i>	17	592	Standard	9	20	15	-	-	-	-
Pacific Sanddab	<i>Citharichthys sordidus</i>	12	327	Total	16	37	27	0.2	0.5	0.3	0.47
Pacific Tomcod	<i>Microgadus proximus</i>	16	439	Fork	14	29	21	-	-	-	0.55
Petrale Sole	<i>Eopsetta jordani</i>	75	538	Total	20	60	40	0.1	3.0	0.9	0.55
Prowfish	<i>Zaprora silenus</i>	1	1	Fork	36	36	36	-	-	-	0.00
Puget Sound Rockfish	<i>Sebastes emphaeus</i>	1	34	Fork	11	20	15	0.0	0.1	0.0	0.71
Pygmy Rockfish	<i>Sebastes wilsoni</i>	5	8	Fork	16	23	19	-	-	-	0.75
Quillback Rockfish	<i>Sebastes maliger</i>	43	397	Fork	13	43	32	0.0	1.7	0.7	0.49
Red Irish Lord	<i>Hemilepidotus hemilepidotus</i>	1	3	Total	19	35	25	-	-	-	-
Redbanded Rockfish	<i>Sebastes babcocki</i>	41	272	Fork	12	64	42	0.0	4.6	1.4	0.38
Redstripe Rockfish	<i>Sebastes proriger</i>	8	203	Fork	6	42	24	0.0	1.0	0.3	0.49
Rex Sole	<i>Glyptocephalus zachirus</i>	90	2401	Total	9	50	31	0.0	0.7	0.2	0.55
Roughback Sculpin	<i>Chitonotus pugetensis</i>	1	23	Total	8	15	10	-	-	-	-
Rougheye Rockfish	<i>Sebastes aleutianus</i>	17	44	Fork	16	62	31	0.0	3.8	0.6	0.48
Sablefish	<i>Anoplopoma fimbria</i>	53	312	Fork	29	79	50	0.2	5.0	1.6	0.45
Sand Sole	<i>Psetichthys melanostictus</i>	45	772	Total	12	45	28	0.0	1.1	0.4	0.63
Sandpaper Skate	<i>Bathyraja interrupta</i>	12	16	Total	15	66	53	-	-	-	0.69
Schoolmaster Gonate Squid	<i>Berryteuthis magister</i>	1	33	-	-	-	-	0.0	1.0	0.1	-
Sharpchin Rockfish	<i>Sebastes zacentrus</i>	6	69	Fork	10	33	22	-	-	-	0.43
Shortraker Rockfish	<i>Sebastes borealis</i>	1	1	Fork	77	77	77	7.8	7.8	7.8	0.00
Shortspine Thornyhead	<i>Sebastolobus alascanus</i>	36	585	Total	9	55	28	0.0	2.8	0.4	0.49
Silvergray Rockfish	<i>Sebastes brevispinis</i>	47	335	Fork	24	68	48	0.5	2.9	1.6	0.25
Slender Sole	<i>Lyopsetta exilis</i>	12	202	Total	14	35	27	-	-	-	0.57
Snake Prickleback	<i>Lumpenus sagitta</i>	1	23	Total	14	30	21	-	-	-	-
Southern Rock Sole	<i>Lepidopsetta bilineata</i>	87	1939	Total	8	53	26	0.0	1.9	0.3	0.58
Speckled Sanddab	<i>Citharichthys stigmaeus</i>	1	4	Total	16	19	18	-	-	-	0.50
Splitnose Rockfish	<i>Sebastes diploproa</i>	4	11	Fork	11	24	17	-	-	-	0.50
Spotted Ratfish	<i>Hydrolagus colliei</i>	124	3901	2nd Dorsal	8	54	31	0.1	1.4	0.4	0.48
Starry Flounder	<i>Platichthys stellatus</i>	11	67	Total	46	70	58	1.4	4.6	2.9	0.85
Sturgeon Poacher	<i>Podothecus accipenserinus</i>	1	39	Total	11	20	15	-	-	-	-
Tiger Rockfish	<i>Sebastes nigrocinctus</i>	1	1	Fork	39	39	39	-	-	-	0.00
Walleye Pollock	<i>Theragra chalcogramma</i>	67	1341	Fork	14	72	33	0.0	2.3	0.5	0.59
Widow Rockfish	<i>Sebastes entomelas</i>	3	32	Fork	18	40	25	0.1	0.4	0.2	0.44
Yelloweye Rockfish	<i>Sebastes ruberrimus</i>	6	8	Fork	41	68	55	1.4	4.4	3.3	0.38



Common Name	Scientific Name	Number of		Length Type	Length (cm)			Weight (kg)			Female Proportion
		Samples	Specimens		Min.	Max.	Mean	Min.	Max.	Mean	
Yellowmouth Rockfish	<i>Sebastes reedi</i>	8	91	Fork	19	35	30	0.3	0.6	0.5	0.53
Yellowtail Rockfish	<i>Sebastes flavidus</i>	23	261	Fork	5	57	35	1.0	2.8	2.0	0.47

Table 10. Summary of data from net-mounted recorders during the 2013 HS synoptic bottom trawl survey, showing the number of tows and total number of records. A total of 182 survey tows were conducted, of which 175 were useable.

Data Recorder	Attribute	Number of	
		Tows	Records
Mac Marine Industries Bottom Contact Sensor	Bottom Contact Sensor tilt angle	171	43297
Notus Trawl Mensuration System	Doorspread (m)	179	34010
	Headline height above bottom (m)	179	34010
Seabird Sbe19plus Seacat Profiler	Conductivity of sea water (S/m)/ salinity (PSU)	182	34276
	Water temperature (°C)	182	34276
	Pressure (db)/ depth (m)	182	34276
Seabird SBE43	Oxygen voltage (V)/ dissolved oxygen (ml/L)	182	34276
Seabird SBE39 Temperature And Pressure Recorder	Water temperature (°C)	182	67690
	Pressure (db)/ depth (m)	182	67690

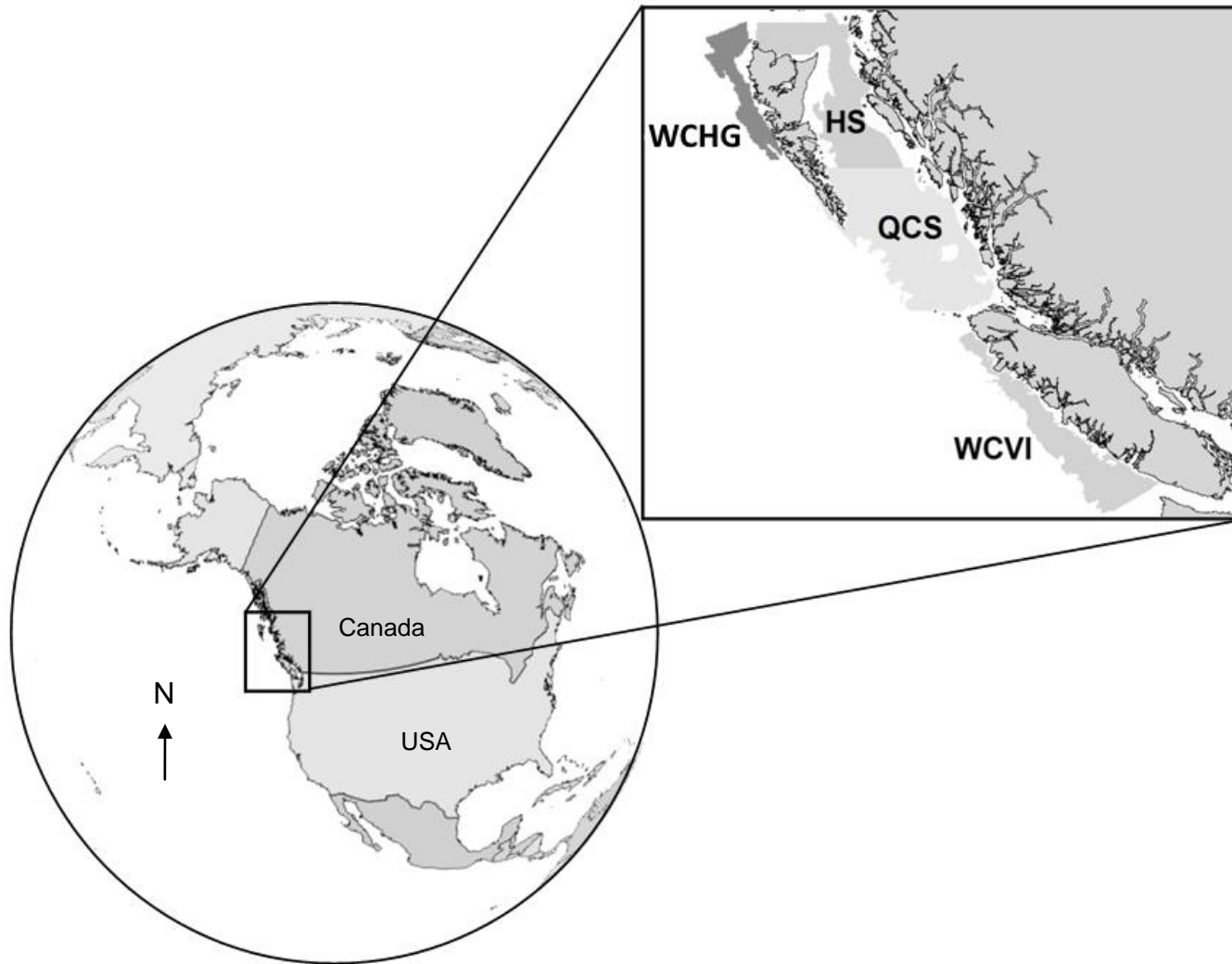


Figure 1. Locations of the current synoptic bottom trawl surveys on the coast of British Columbia, Canada. WCHG = West Coast Haida Gwaii; HS = Hecate Strait; QCS = Queen Charlotte Sound; WCVI = West Coast Vancouver Island.



Figure 2. The Canadian Coast Guard Ship W.E. Ricker used for the 2013 HS synoptic bottom trawl survey.

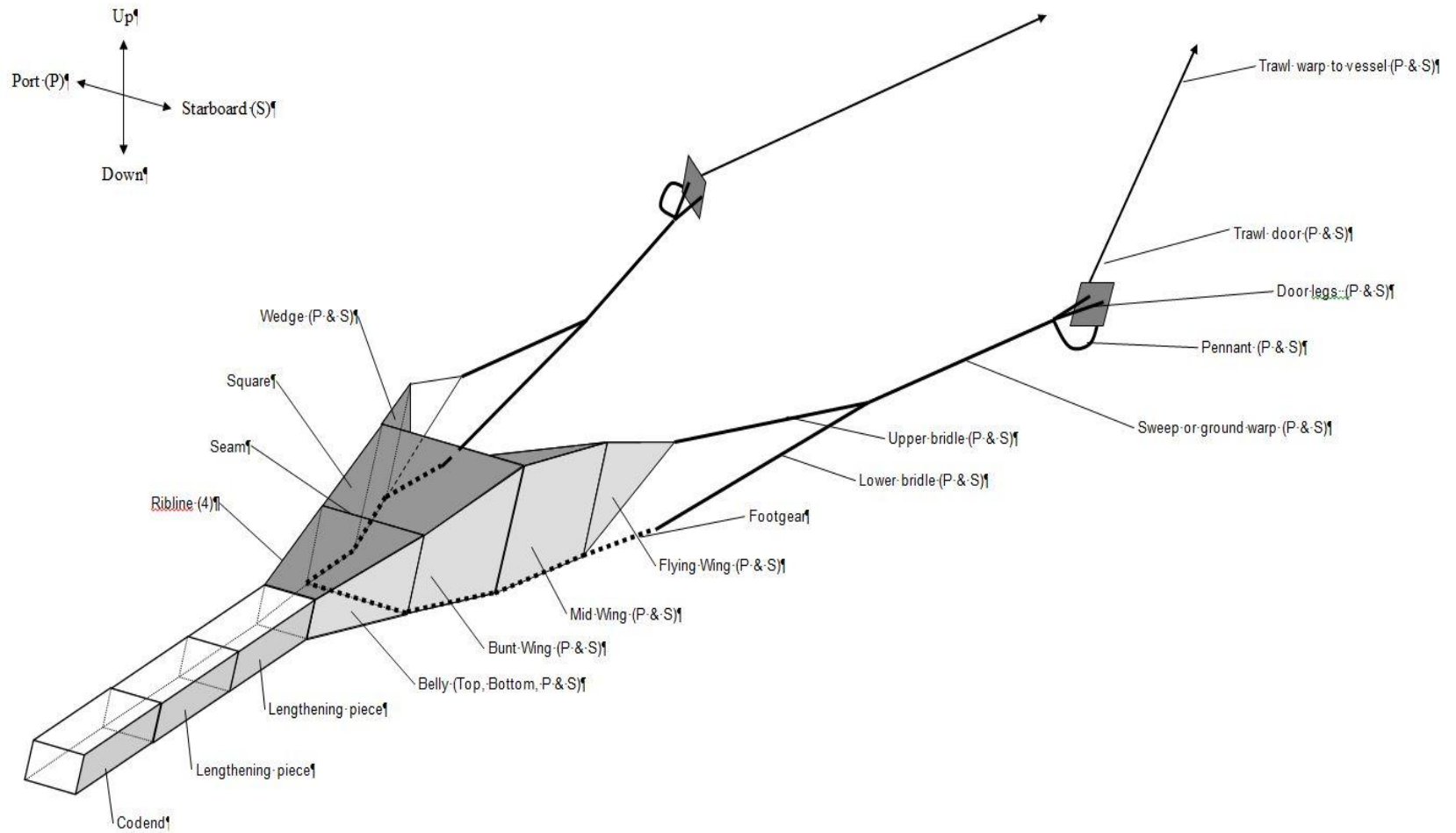


Figure 3. Overview diagram of the Atlantic Western IIA box trawl used on the 2013 HS synoptic bottom trawl survey.

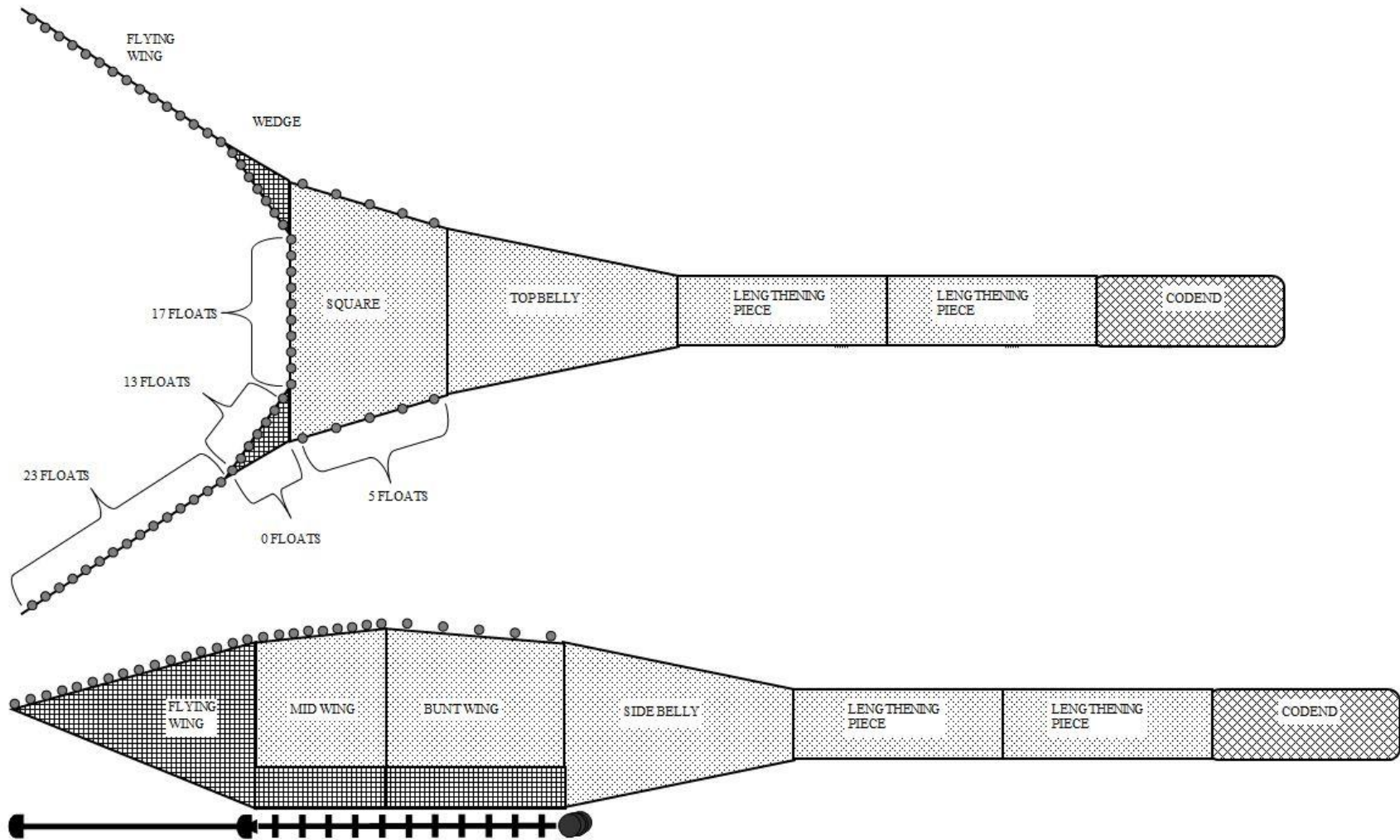


Figure 4. Top and side view of the Atlantic Western Iia box trawl used on the 2013 HS synoptic bottom trawl survey.

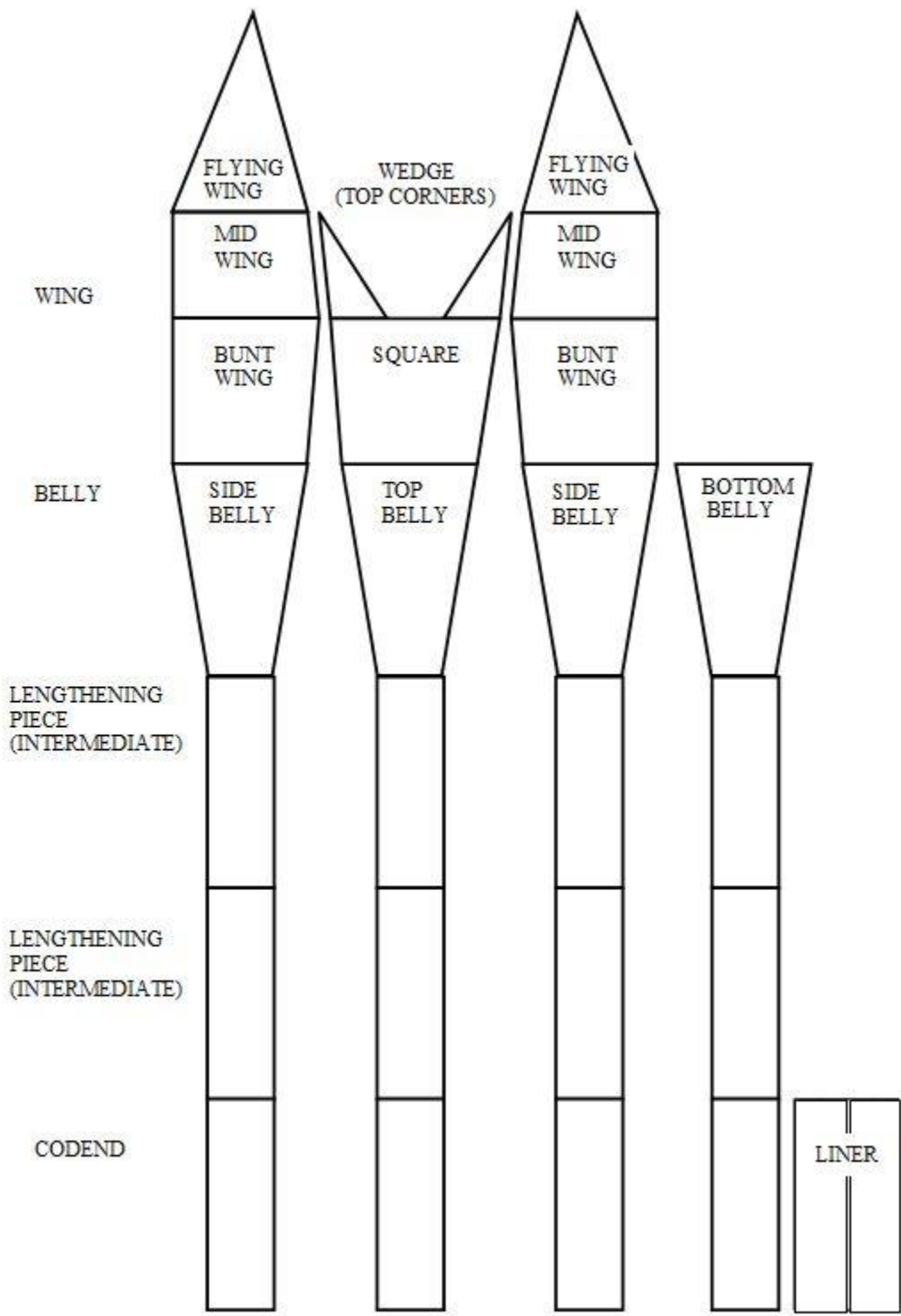


Figure 5. Diagram of the net panels with section names for the Atlantic Western Ila box trawl used on the 2013 HS synoptic bottom trawl survey.

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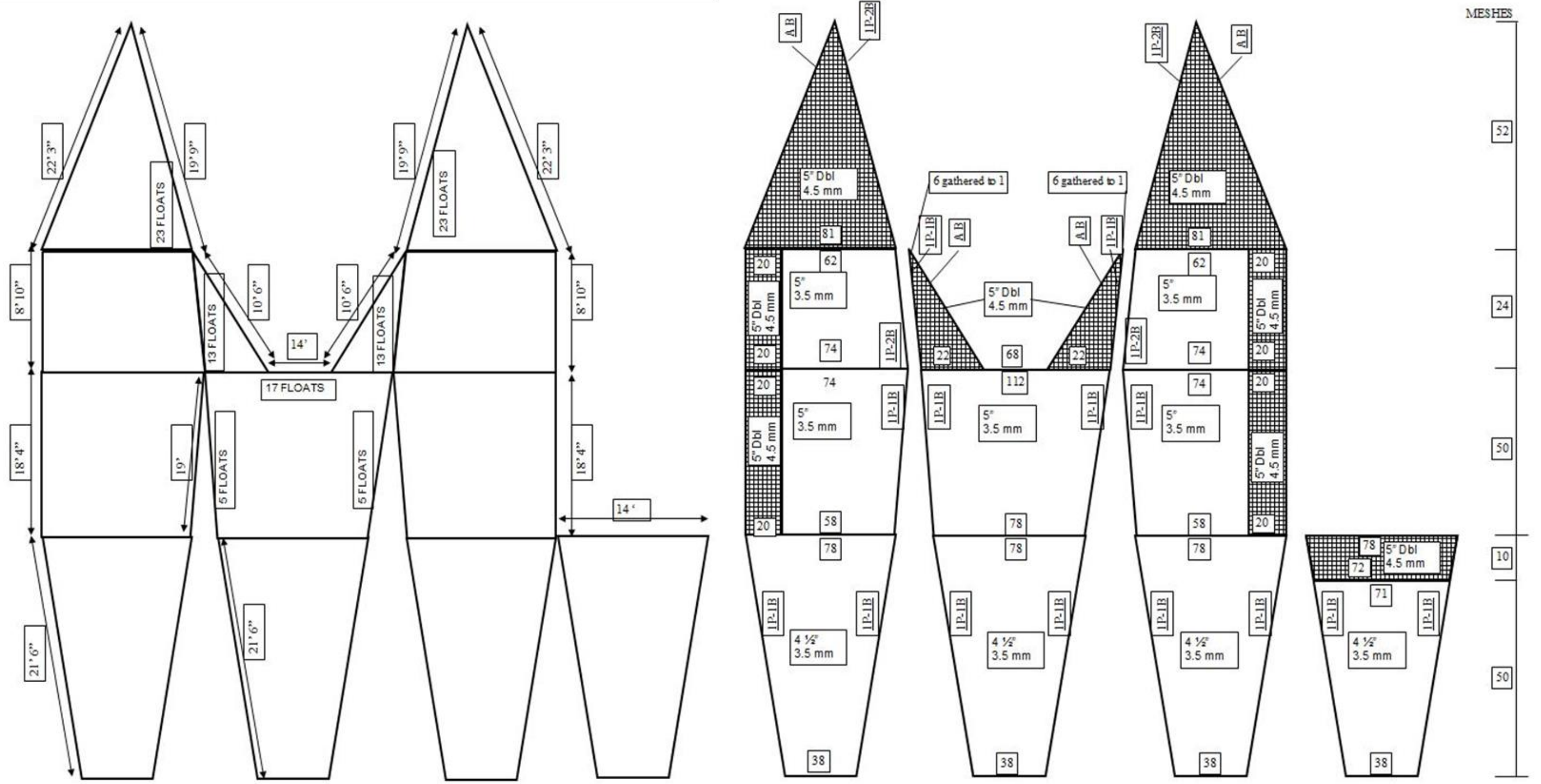


Figure 6. Details of the wing and belly sections of the Atlantic Western Ila box trawl used on the 2013 HS synoptic bottom trawl survey. Dimensions and the float arrangement are shown on the left while netting details, mesh counts, and mesh cuts are shown on the right side of the diagram.

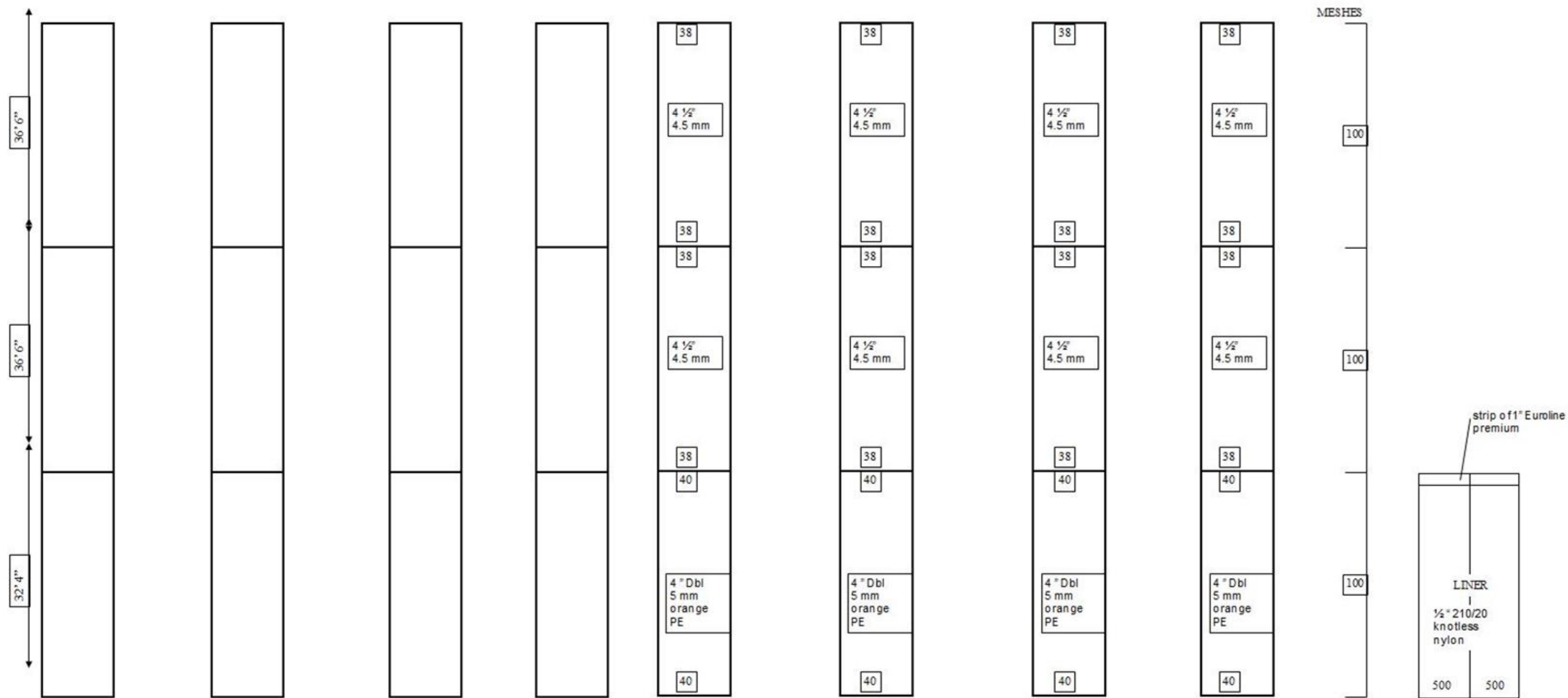


Figure 7. Details of the lengthening (intermediate) pieces and codend sections of the Atlantic Western IIA box trawl used on the 2013 HS synoptic bottom trawl survey. Dimensions are shown on the left while netting details, mesh counts, and mesh cuts including the codend liner are shown on the right side of the diagram.

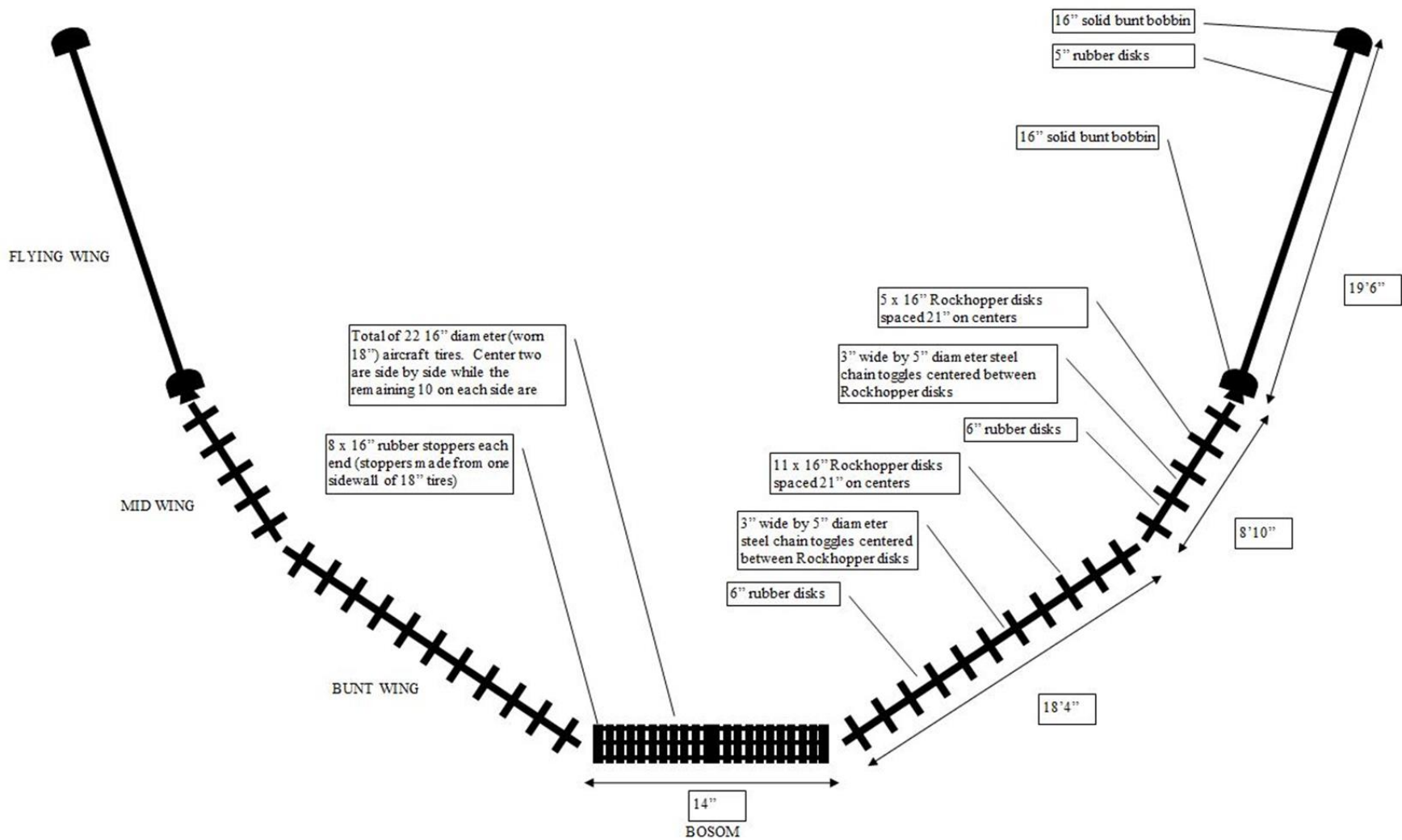


Figure 8. Details of the Rockhopper foot gear for the Atlantic Western Ila box trawl used on the 2013 HS synoptic bottom trawl survey.

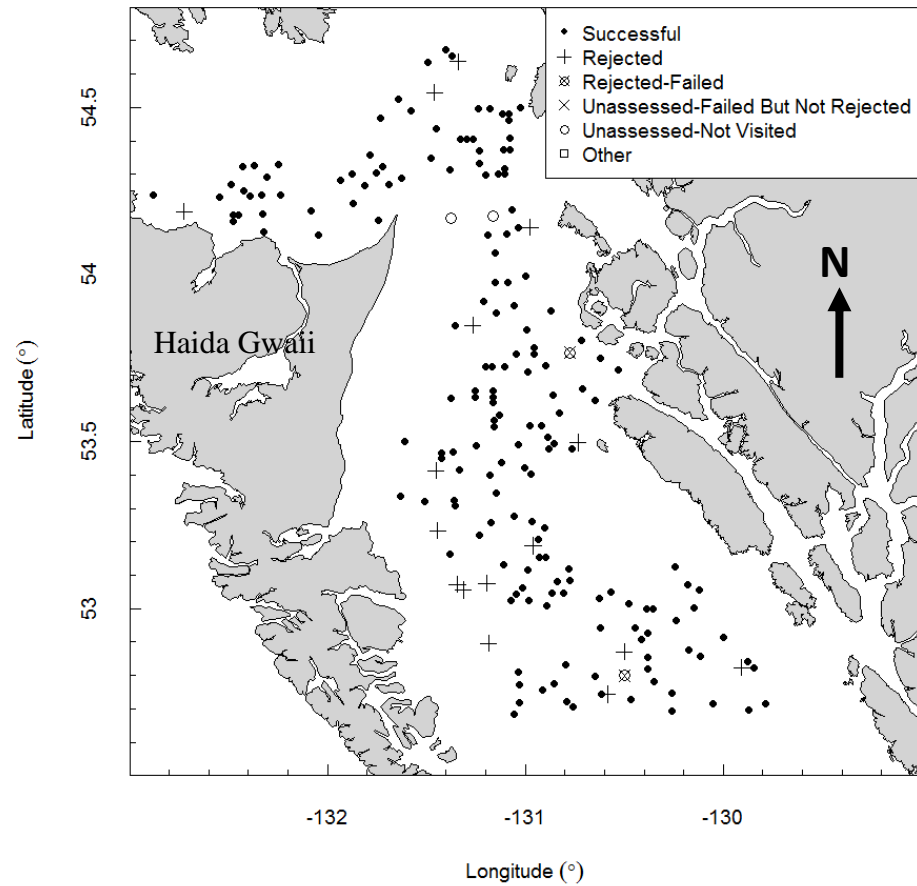


Figure 9. Final status of the 2013 HS synoptic bottom trawl survey showing 175 blocks that were fished successfully, 16 blocks rejected after inspection, two blocks rejected after multiple failed fishing attempts and two blocks unassessed.

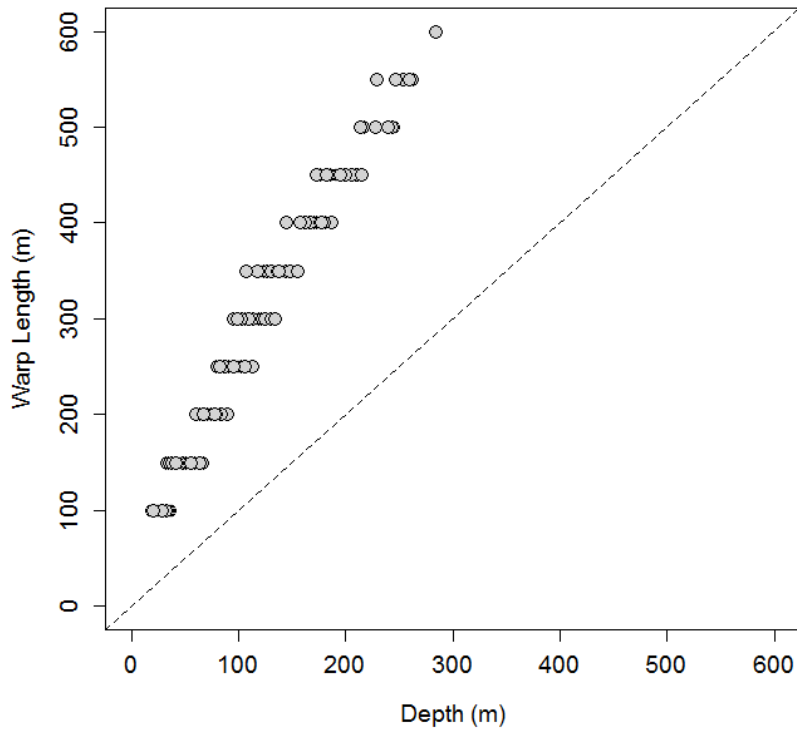


Figure 10. Warp length versus starting depth for each tow during the 2013 HS synoptic bottom trawl survey.

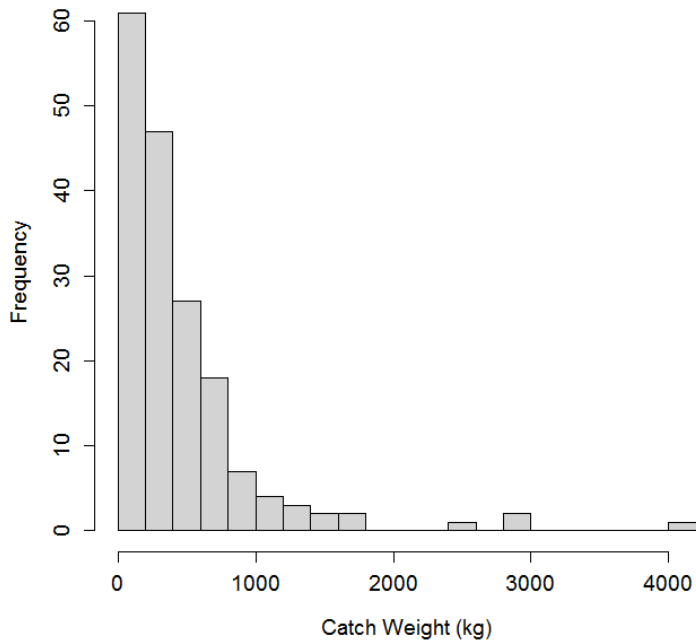


Figure 11. Histogram of catch weights caught in useable tows during the 2013 HS synoptic bottom trawl survey.

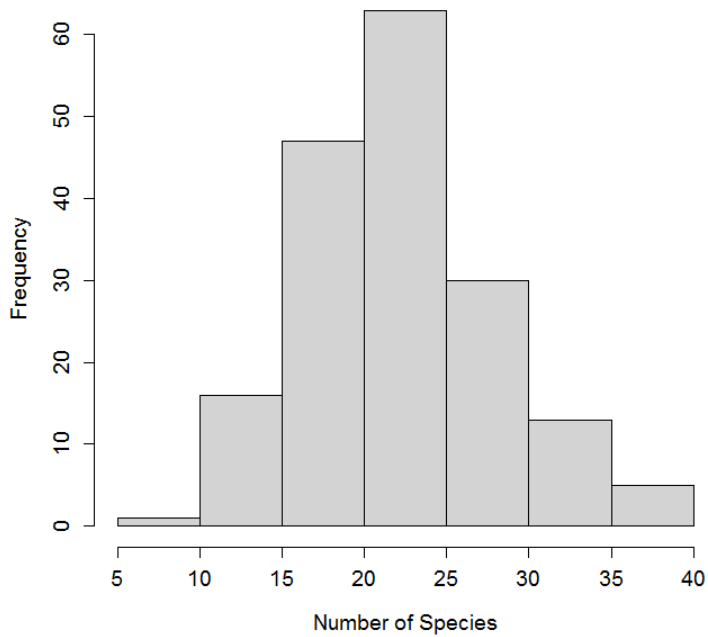


Figure 12. Histogram of number of species caught in useable tows during the 2013 HS synoptic bottom trawl survey

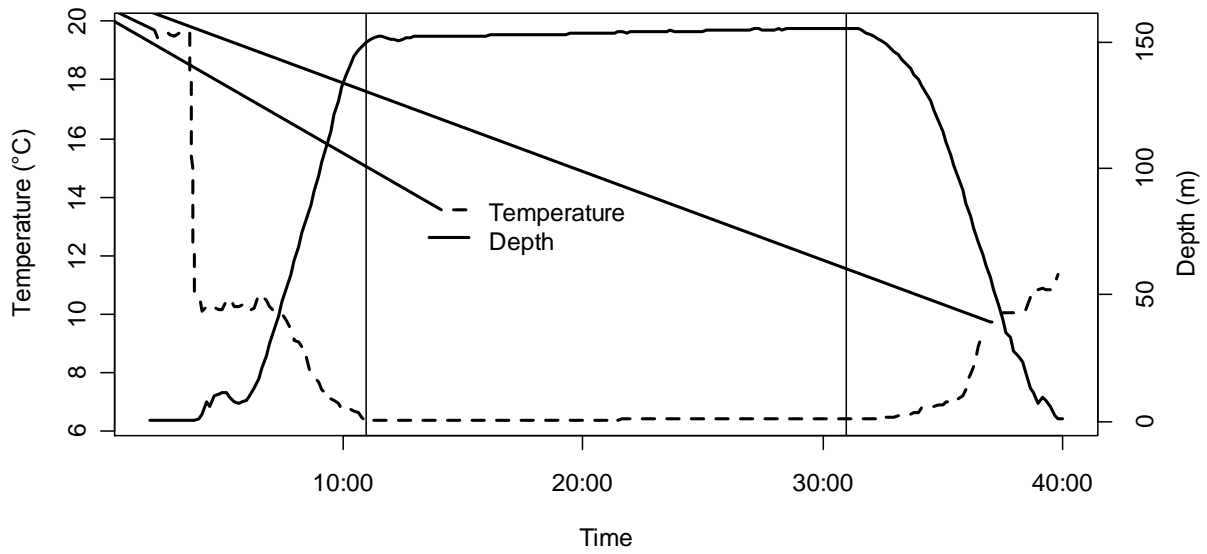


Figure 13. Example of a Seabird 39 temperature and pressure profile collected during a synoptic bottom trawl survey. The vertical lines indicate the start and end of net contact with the sea floor.

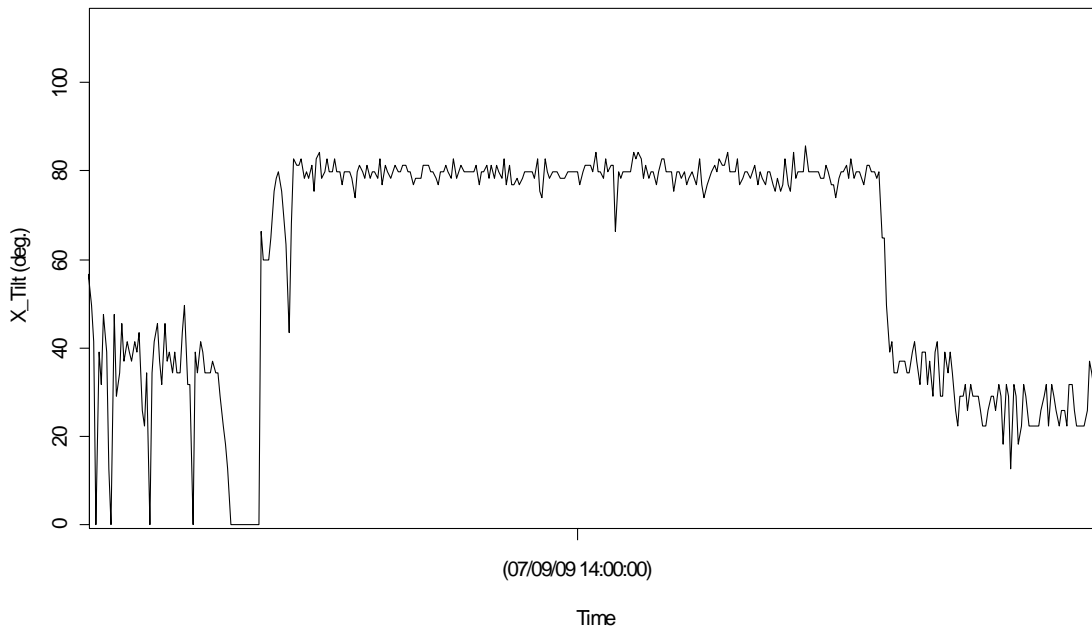


Figure 14. Example of a Mac Marine Industries bottom contact sensor profile collected during a synoptic bottom trawl survey. The raised segment in the middle of the profile at approximately 80° indicates where the net made contact with the sea floor.

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## APPENDIX A: HS 2013 SURVEY BRIDGE LOG

Tow	Date	Start Time	Start Latitude	Start Longitude	Average Depth (m)	Bottom Duration (min)	Speed (km/h)	Warp (m)	Catch (kg)	Useable
1	May-29	15:53	51.3350	127.9807	162	17	5.2	350	325.3	No
2	May-29	16:46	51.3388	127.9728	163	25	5.2	350		No
3	May-29	18:01	51.3294	127.9910	164	24	5.2	350		No
4	May-30	7:19	52.9044	129.9791	257	17	5.3	500	291.4	Yes
5	May-30	9:15	52.8390	129.8713	173	19	5.2	400	231.1	Yes
6	May-30	10:38	52.8191	129.8358	130	19	5.4	350	82.1	Yes
7	May-30	12:08	52.7141	129.7812	214	16	5.6	450	186.1	Yes
8	May-30	13:17	52.6962	129.8702	261	15	5.5	500	348.3	Yes
9	May-30	15:00	52.7188	130.0478	266	17	5.2	550	140.9	Yes
10	May-30	16:52	52.6896	130.2562	242	17	5.1	500	184.7	Yes
11	May-30	18:18	52.7570	130.2585	238	17	5.3	500	150.0	Yes
12	May-31	7:03	52.7361	130.6260	126	19	5.3	350	115.5	Yes
13	May-31	8:10	52.8054	130.6418	111	20	5.7	300	153.4	Yes
14	May-31	9:26	52.7015	130.7697	106	18	5.6	300	117.8	Yes
15	May-31	10:50	52.7503	130.9234	58	19	5.6	150	159.6	Yes
16	May-31	12:25	52.6903	131.0468	55	19	5.3	150	292.8	Yes
17	May-31	13:47	52.7806	131.0210	32	8	5.6	100	13.6	No
18	May-31	14:25	52.7826	131.0211	34	20	5.6	100	42.0	Yes
19	May-31	15:56	52.8195	131.0222	31	20	5.0	100	125.4	Yes
20	May-31	17:34	52.7826	130.8635	67	19	5.4	175	283.7	Yes
21	May-31	18:37	52.8365	130.8054	63	20	5.6	175	382.6	Yes
22	Jun-01	7:00	53.0163	130.9036	31	20	5.4	100	121.4	Yes
23	Jun-01	8:11	53.0320	130.9697	36	20	5.2	100	80.8	Yes
24	Jun-01	9:00	53.0481	131.0544	35	21	5.5	100	111.1	Yes
25	Jun-01	10:00	53.0576	131.0082	53	19	5.4	150	687.1	Yes
26	Jun-01	11:02	53.1107	130.9944	59	19	5.3	150	46.1	Yes
27	Jun-01	12:13	53.1371	131.1171	36	19	5.4	100	134.7	Yes
28	Jun-01	13:38	53.2221	131.2385	30	20	5.3	100	219.5	Yes
29	Jun-01	14:33	53.2610	131.1776	38	19	5.4	100	364.8	Yes
30	Jun-01	15:33	53.2817	131.0648	62	22	5.3	175	105.6	Yes
31	Jun-01	16:28	53.2535	130.9657	89	18	5.3	250	261.3	Yes
32	Jun-02	7:12	53.3510	131.1577	38	19	5.3	100	231.5	Yes
33	Jun-02	8:27	53.4059	131.1927	30	20	5.4	100	215.9	Yes
34	Jun-02	9:33	53.4282	131.1273	46	21	5.4	150	132.5	Yes
35	Jun-02	10:52	53.5003	131.0229	47	19	5.5	175	224.6	Yes
36	Jun-02	12:07	53.5200	130.8755	88	20	5.4	250	347.6	Yes
37	Jun-02	13:24	53.5540	130.9079	66	19	5.5	175	84.2	Yes
38	Jun-02	15:11	53.6297	130.6392	68	19	5.6	200	180.1	Yes
39	Jun-02	16:43	53.7111	130.5229	59	20	5.4	150	676.4	Yes
40	Jun-03	7:15	53.7574	130.6331	103	20	5.2	300	154.6	Yes
41	Jun-03	8:14	53.7598	130.7635	127	8	4.7	350	229.1	No
42	Jun-03	9:17	53.8075	130.7227	108	19	5.6	300	560.8	Yes
43	Jun-03	10:54	53.8967	130.8822	74	19	5.6	200	414.6	Yes
44	Jun-03	12:05	53.8290	130.9976	60	18	5.4	175	347.2	Yes
45	Jun-03	12:54	53.8980	131.0483	69	19	5.3		507.7	Yes
46	Jun-03	14:04	54.0029	130.9933	56	19	5.5	150	185.4	Yes
47	Jun-03	15:25	54.0716	131.1542	36	20	5.6	100	263.7	Yes
48	Jun-03	16:29	54.1312	131.0416	107	19	5.4	300	2557.6	Yes
49	Jun-03	18:04	54.1853	131.0716	85	20	5.3	275	2810.7	Yes
50	Jun-04	7:03	54.2907	131.1054	59	19	5.6	175	1495.3	Yes
51	Jun-04	8:12	54.3654	131.0780	95	20	5.6	275	1135.3	Yes

<b>Tow</b>	<b>Date</b>	<b>Start Time</b>	<b>Start Latitude</b>	<b>Start Longitude</b>	<b>Average Depth (m)</b>	<b>Bottom Duration (min)</b>	<b>Speed (km/h)</b>	<b>Warp (m)</b>	<b>Catch (kg)</b>	<b>Useable</b>
52	Jun-04	9:05	54.3643	131.0994	108	20	5.3	300	1773.0	Yes
53	Jun-04	10:51	54.4026	131.0897	123	20	5.6	350	1374.4	Yes
54	Jun-04	12:39	54.5053	131.0220	130	19	5.4	350	638.3	Yes
55	Jun-04	13:43	54.4888	131.0729	147	21	5.4	400	1212.1	Yes
56	Jun-04	15:20	54.4750	131.1250	139	18	5.6	350	638.3	Yes
57	Jun-04	16:27	54.5013	131.2489	123	21	5.5	350	856.4	Yes
58	Jun-04	18:52	54.6727	131.3912	228	18	5.7	550	379.7	Yes
59	Jun-05	7:02	54.6429	131.4817	161	20	5.8	400	362.5	Yes
60	Jun-05	8:37	54.4866	131.5745	283	19	5.3	600	332.0	Yes
61	Jun-05	10:16	54.4329	131.4412	289	21	5.1	650	628.1	Yes
62	Jun-05	12:24	54.3531	131.7908	217	19	5.5	500	547.9	Yes
63	Jun-05	13:22	54.3282	131.7095	187	19	5.3	450	143.6	Yes
64	Jun-05	14:13	54.2744	131.7974	175	19	5.3	450	519.2	Yes
65	Jun-05	15:19	54.2889	131.9190	225	19	5.5	550	152.0	Yes
66	Jun-05	16:31	54.1921	132.0716	88	20	5.2	250	1619.0	Yes
67	Jun-05	17:58	54.1831	132.3340	107	21	5.4	300	463.0	Yes
68	Jun-06	7:06	54.1558	132.4668	62	19		150	204.7	Yes
69	Jun-06	8:15	54.1820	132.4518	90	21	5.3	275	385.6	Yes
70	Jun-06	9:33	54.2317	132.3377	145	20	5.2	400	404.3	Yes
71	Jun-06	10:41	54.2931	132.3138	214	21	5.6		188.5	Yes
72	Jun-06	12:25	54.3283	132.2299	233	20	5.4	550	193.2	Yes
73	Jun-06	13:23	54.3189	132.3511	217	20	5.6	500	150.9	Yes
74	Jun-06	14:23	54.3217	132.4445	227	20	5.2	550	192.4	Yes
75	Jun-06	16:09	54.2278	132.5359	129	20	5.4	350	361.3	Yes
76	Jun-06	17:59	54.2407	132.8921	256	19		550	410.6	Yes
77	Jun-07	7:18	54.1847	132.4894	82	19	5.4	250	218.0	No
78	Jun-07	8:50	54.1823	132.4601	83	20	5.2	250	123.1	Yes
79	Jun-07	9:58	54.2668	132.5008	160	19	5.5	450	260.1	Yes
80	Jun-07	10:49	54.2288	132.4024	139	19	5.4	400	257.8	Yes
81	Jun-07	12:18	54.2356	132.2550	149	21	5.5	450	371.8	Yes
82	Jun-07	13:59	54.1198	132.0307	25	20		125	533.9	Yes
83	Jun-07	15:18	54.2082	131.8827	124	20	5.3	350	506.0	Yes
84	Jun-07	16:34	54.1687	131.7337	25	21	5.4	100	72.6	No
85	Jun-07	17:52	54.2653	131.7017	144	21	5.3	450	290.0	Yes
86	Jun-07	18:57	54.2940	131.6158	148	20	5.4	450	249.4	Yes
87	Jun-08	7:10	54.4026	131.2705	158	20	5.3	450	976.0	Yes
88	Jun-08	8:04	54.3764	131.2365	84	21	5.4	250	2902.2	Yes
89	Jun-08	9:54	54.2987	131.1818	58	19	5.3	150	489.7	Yes
90	Jun-08	12:53	54.1132	131.2011	33	19	5.7	100	668.1	Yes
91	Jun-08	14:26	53.9828	131.1532	42	20	5.6	125	122.4	Yes
92	Jun-08	15:51	53.8923	131.1345	50	20	5.5	150	306.8	Yes
93	Jun-09	7:04	53.7167	131.1856	39	20	5.6	100	103.5	Yes
94	Jun-09	7:49	53.7153	131.1809	36	20		100	171.0	Yes
95	Jun-09	9:09	53.7562	131.0389	47	20	5.5	150	270.3	Yes
96	Jun-09	10:16	53.7721	130.9584	52	20	5.6	150	350.3	Yes
97	Jun-09	11:10	53.7047	130.9864	43	20	5.5	125	876.2	Yes
98	Jun-09	12:33	53.6588	131.1768	46	19	5.4	125	671.3	Yes
99	Jun-09	13:45	53.6565	131.2678	26	19	5.2	100	110.8	Yes
100	Jun-09	14:44	53.6371	131.3848	23	20	5.5	75	160.7	Yes
101	Jun-09	15:43	53.6389	131.2527	26	21	5.6	100	171.2	Yes
102	Jun-09	16:44	53.6215	131.1722	46	20	5.6	150	793.6	Yes
103	Jun-10	7:11	53.1286	130.2525	187	18		500	220.2	Yes
104	Jun-10	8:06	53.0689	130.1912	202	20	5.5	500	846.6	Yes

<b>Tow</b>	<b>Date</b>	<b>Start Time</b>	<b>Start Latitude</b>	<b>Start Longitude</b>	<b>Average Depth (m)</b>	<b>Bottom Duration (min)</b>	<b>Speed (km/h)</b>	<b>Warp (m)</b>	<b>Catch (kg)</b>	<b>Useable</b>
105	Jun-10	9:24	53.0586	130.1318	209	20	5.6	500	492.5	Yes
106	Jun-10	10:44	52.9584	130.2331	223	20	5.6	550	182.7	Yes
107	Jun-10	12:20	52.9358	130.3818	163	14	5.3	450	302.7	No
108	Jun-12	12:01	52.7260	131.0190	44	20	5.6	150	305.2	Yes
109	Jun-12	13:31	52.7289	130.7971	95	20		300	80.5	Yes
110	Jun-12	15:29	52.7172	130.4571	150	20	5.6	400	61.3	Yes
111	Jun-12	16:49	52.7751	130.3544	199	20	5.5	500	721.7	Yes
112	Jun-12	18:21	52.7933	130.5073	133	10	5.2	350	154.5	No
113	Jun-13	7:01	52.8216	130.3722	177	20	5.6	450	513.8	Yes
114	Jun-13	8:10	52.8582	130.3765	170	21	5.6	450	537.8	Yes
115	Jun-13	10:17	52.9145	130.4044	131	20	5.4	350	233.1	Yes
116	Jun-13	11:45	52.9190	130.3751	168	20	5.5	450	423.1	Yes
117	Jun-13	12:48	52.9518	130.4446	126	20	5.4	350	165.4	Yes
118	Jun-13	13:58	53.0066	130.3962	177	20	5.2	450	117.6	Yes
119	Jun-13	14:55	53.0125	130.4704	122	20	5.5	350	403.7	Yes
120	Jun-13	15:58	53.0248	130.6360	103	19	5.6	300	292.8	Yes
121	Jun-13	17:24	53.0875	130.8477	101	20	5.2	300	203.4	Yes
122	Jun-13	18:24	53.1247	130.7791	130	20	5.4	350	367.3	Yes
123	Jun-14	7:10	53.2340	130.9065	103	20	5.4	300	697.3	Yes
124	Jun-14	8:10	53.1991	130.9243	93	20	5.3	275	406.3	Yes
125	Jun-14	9:33	53.1607	130.8897	96	21	5.5	275	92.8	Yes
126	Jun-14	10:48	53.1461	130.9201	84	20	5.5	300	339.4	Yes
127	Jun-14	13:52	53.1721	131.3700	26	19	5.4	75	62.3	Yes
128	Jun-14	15:45	53.3153	131.5190	24	20	5.4	75	669.7	Yes
129	Jun-14	17:33	53.4448	131.4154	30	20	5.3	100	248.3	Yes
130	Jun-14	18:53	53.5014	131.6206	24	20	5.6	75	177.6	Yes
131	Jun-15	7:36	53.5506	131.1484	66	18	5.7	175	788.6	Yes
132	Jun-15	8:32	53.5564	131.1486	66	18	5.4	175	904.9	Yes
133	Jun-15	9:57	53.5859	131.1391	60	19	5.5	150	605.1	Yes
134	Jun-15	10:53	53.6282	131.1692	46	19	5.3	125	698.6	Yes
135	Jun-15	12:30	53.5551	130.9734	55	20	5.5	150	121.3	Yes
136	Jun-15	13:52	53.4986	130.8481	97	20	5.6	300	497.3	Yes
137	Jun-15	14:42	53.4714	130.8939	98	21	5.4	300	192.5	Yes
138	Jun-15	15:55	53.4104	130.9816	96	20	5.5	275	211.5	Yes
139	Jun-15	17:34	53.4167	131.0140	80	20	5.6	225	290.4	Yes
140	Jun-16	7:14	53.3139	131.3499	33	20	5.6	100	94.0	Yes
141	Jun-16	7:55	53.3172	131.3576	30	20	5.6	100	105.7	Yes
142	Jun-16	9:08	53.4070	131.3324	28	20	5.5	75	179.9	Yes
143	Jun-16	10:28	53.4803	131.2552	27	19	5.4	75	191.6	Yes
144	Jun-16	11:49	53.4753	131.3775	25	19	5.5	75	194.8	Yes
145	Jun-16	12:53	53.4584	131.4369	26	20	5.6	75	280.2	Yes
146	Jun-16	14:40	53.3441	131.6401	26	19	5.5	75	194.6	Yes
147	Jun-17	7:03	54.3005	131.1223	56	19	5.6	150	1538.5	Yes
148	Jun-17	7:48	54.3240	131.1184	83	19	5.5	200	4054.9	Yes
149	Jun-17	9:57	54.4911	131.1676	132	20	5.6	350	731.5	Yes
150	Jun-17	11:56	54.6489	131.3809	178	22	5.5	500	549.9	Yes
151	Jun-17	13:58	54.5162	131.6438	321	20	5.4	750	293.6	Yes
152	Jun-17	15:24	54.4640	131.7376	324	22	5.7	850	175.7	Yes
153	Jun-17	17:33	54.3135	131.7382	188	21	5.4	500	163.4	Yes
154	Jun-17	18:34	54.3114	131.8597	215	21	5.6	500	101.3	Yes
155	Jun-18	8:27	54.2467	132.4376	150	20	5.7	400	432.9	Yes
156	Jun-18	10:02	54.1343	132.3329	57	19	5.4	150	1165.5	Yes
157	Jun-18	12:26	54.1540	131.7556	25	20	5.6	75	329.5	Yes

<b>Tow</b>	<b>Date</b>	<b>Start Time</b>	<b>Start Latitude</b>	<b>Start Longitude</b>	<b>Average Depth (m)</b>	<b>Bottom Duration (min)</b>	<b>Speed (km/h)</b>	<b>Warp (m)</b>	<b>Catch (kg)</b>	<b>Useable</b>
158	Jun-18	14:16	54.3468	131.4947	197	20	5.5	500	552.9	Yes
159	Jun-18	15:35	54.3979	131.3109	204	19	5.6	500	838.1	Yes
160	Jun-18	16:34	54.4071	131.2864	199	18	5.5	450	1103.3	Yes
161	Jun-18	18:17	54.4581	131.0911	150	20	5.6	400	454.4	Yes
162	Jun-19	7:23	54.3394	131.2251	74	20	5.5	200	1210.0	Yes
163	Jun-19	8:33	54.3187	131.3668	139	19	5.5	350	499.4	Yes
164	Jun-19	13:01	54.1269	131.1060	28	21	5.7	100	94.5	Yes
165	Jun-19	14:22	53.9713	131.0825	72	20	5.4	200	539.0	Yes
166	Jun-19	15:54	53.9148	131.2176	35	19	5.6	100	208.7	Yes
167	Jun-19	17:33	53.8387	131.3662	26	20	5.6	75	508.7	Yes
168	Jun-20	7:11	53.7184	131.0992	53	20	5.6	150	1070.2	Yes
169	Jun-20	8:33	53.7738	130.9468	60	19	5.7	150	497.3	Yes
170	Jun-20	9:30	53.7343	130.9037	50	19	5.5	150	904.1	Yes
171	Jun-20	10:40	53.6706	130.7207	145	20	5.5	400	785.0	Yes
172	Jun-20	12:06	53.6437	130.8517	52	20	5.7	150	611.5	Yes
173	Jun-20	13:03	53.5941	130.8211	72	19	5.6	200	157.9	Yes
174	Jun-20	14:52	53.4864	130.7735	162	20	5.7	450	387.8	Yes
175	Jun-20	17:46	53.0881	130.7857	123	20	5.5	350	574.0	Yes
176	Jun-21	7:07	53.0309	131.0672	29	20	5.7	75	299.1	Yes
177	Jun-21	8:50	53.0399	130.8823	60	20	5.6	175	276.4	Yes
178	Jun-21	9:56	53.0532	130.8173	94	3	4.7	300	29.0	No
179	Jun-21	10:36	53.0582	130.8130	100	20	5.5	300	217.6	Yes
180	Jun-21	12:09	52.9342	130.6307	86	20	5.6	250	754.9	Yes
181	Jun-21	13:12	53.0406	130.5755	91	19	5.6	250	113.5	Yes
182	Jun-21	14:31	53.0090	130.3557	194	19	5.5	450	185.7	Yes
183	Jun-21	16:00	53.0084	130.1444	227	18	5.7	500	158.6	Yes
184	Jun-21	17:33	52.8862	130.1720	241	17	5.5	500	78.2	Yes
185	Jun-21	18:35	52.8529	130.1044	250	18	5.7	550	112.7	Yes

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

Common Name	Scientific Name	Total Weight (Kg)	1	2	3	4	5
Aleutian Skate	<i>Bathyraja aleutica</i>	14.3					
Arrowtooth Flounder	<i>Reinhardtius stomias</i>	19601.2	93.0			192.4	100.6
Big Skate	<i>Raja binoculata</i>	1077.6					
Bigmouth Sculpin	<i>Hemitripterus bolini</i>	33.9					7.9
Bocaccio	<i>Sebastes paucispinis</i>	13.5					
Butter Sole	<i>Isopsetta isolepis</i>	293.0					
Canary Rockfish	<i>Sebastes pinniger</i>	256.2					2.2
Copper Rockfish	<i>Sebastes caurinus</i>	230.7					
Curlfin Sole	<i>Pleuronichthys decurrens</i>	125.6					
Dover Sole	<i>Microstomus pacificus</i>	6245.8	8.1			60.3	1.2
English Sole	<i>Parophrys vetulus</i>	8261.5					0.3
Eulachon	<i>Thaleichthys pacificus</i>	98.6	0.2			4.0	
Flathead Sole	<i>Hippoglossoides elassodon</i>	924.0	2.6			1.5	0.5
Giant Wrymouth	<i>Cryptacanthodes giganteus</i>	15.0					
Greenstriped Rockfish	<i>Sebastes elongatus</i>	25.7					7.6
Kelp Greenling	<i>Hexagrammos decagrammus</i>	107.7					
Lingcod	<i>Ophiodon elongatus</i>	124.5					
Longnose Skate	<i>Raja rhina</i>	347.7	7.4			7.7	
North Pacific Spiny Dogfish	<i>Squalus suckleyi</i>	2135.1					20.7
Pacific Cod	<i>Gadus macrocephalus</i>	2641.4					9.2
Pacific Halibut	<i>Hippoglossus stenolepis</i>	3576.8					
Pacific Ocean Perch	<i>Sebastes alutus</i>	1264.9				0.7	12.5
Pacific Sand Lance	<i>Ammodytes hexapterus</i>	263.6					
Pacific Sanddab	<i>Citharichthys sordidus</i>	450.8					
Pacific Sandfish	<i>Trichodon trichodon</i>	10.8					
Pacific Tomcod	<i>Microgadus proximus</i>	69.2					
Petrale Sole	<i>Eopsetta jordani</i>	548.2				3.3	0.8
Quillback Rockfish	<i>Sebastes maliger</i>	658.4					
Redbanded Rockfish	<i>Sebastes babcocki</i>	403.5				9.4	4.7
Redstripe Rockfish	<i>Sebastes proriger</i>	598.7					0.8
Rex Sole	<i>Glyptocephalus zachirus</i>	3997.4	2.7			1.8	36.5
Rougheye Rockfish	<i>Sebastes aleutianus</i>	29.9	0.9				
Sablefish	<i>Anoplopoma fimbria</i>	565.7					
Sand Sole	<i>Psettichthys melanostictus</i>	757.3					
Sandpaper Skate	<i>Bathyraja interrupta</i>	18.5					
Sharpchin Rockfish	<i>Sebastes zacentrus</i>	14.0					0.4
Shortspine Thornyhead	<i>Sebastolobus alascanus</i>	428.5				1.1	
Silvergray Rockfish	<i>Sebastes brevispinis</i>	620.8					
Slender Sole	<i>Lyopsetta exilis</i>	52.2	0.2			1.4	0.7
Snake Prickleback	<i>Lumpenus sagitta</i>	8.8					0.0
Southern Rock Sole	<i>Lepidopsetta bilineata</i>	4056.9					
Spotted Ratfish	<i>Hydrolagus colliei</i>	15653.8	54.3			3.7	14.3
Starry Flounder	<i>Platichthys stellatus</i>	300.0					
Sturgeon Poacher	<i>Podothecus accipenserinus</i>	33.1					
Walleye Pollock	<i>Theragra chalcogramma</i>	2470.9	153.5				5.0
Widow Rockfish	<i>Sebastes entomelas</i>	76.9					
Wolf Eel	<i>Anarrhichthys ocellatus</i>	15.7					
Yelloweye Rockfish	<i>Sebastes ruberrimus</i>	34.8					
Yellowmouth Rockfish	<i>Sebastes reedi</i>	55.3					2.1
Yellowtail Rockfish	<i>Sebastes flavidus</i>	523.2					
Other		2190.9	2.3			4.1	3.2
<b>Total</b>		<b>82322.6</b>	<b>325.3</b>			<b>291.4</b>	<b>231.1</b>

Common Name	6	7	8	9	10	11	12	13	14	15	16
Aleutian Skate											
Arrowtooth Flounder	24.4	150.9	264.8	99.3	76.1	95.7	23.4	19.7	8.1		
Big Skate											
Bigmouth Sculpin											
Bocaccio											
Butter Sole											
Canary Rockfish							12.3	3.9			17.3
Copper Rockfish											
Curlfin Sole											
Dover Sole		7.1	24.1	14.9	7.8	13.1	2.7	0.8	1.7		
English Sole							0.9	45.8	13.3		0.2
Eulachon			3.1	9.3	1.4	2.0					
Flathead Sole			0.3					5.3	1.3		
Giant Wrymouth											
Greenstriped Rockfish	1.8	0.8					0.6				
Kelp Greenling											3.2
Lingcod							14.3		8.9		
Longnose Skate		1.2	2.9	1.9	11.6	17.0					
North Pacific Spiny Dogfish	1.7		13.6	3.7	5.8	3.9	8.8	7.9			
Pacific Cod	11.8		0.8		11.6		3.5		1.6	0.1	
Pacific Halibut							6.6	5.8	22.8		
Pacific Ocean Perch	2.3	0.4	1.5	1.6	22.3	2.2	0.3				
Pacific Sand Lance											46.0
Pacific Sanddab											1.0
Pacific Sandfish											
Pacific Tomcod									0.2		
Petrale Sole	0.6	0.7			1.2			22.0	39.7	4.7	
Quillback Rockfish							1.2	1.2		-	22.2
Redbanded Rockfish		0.6	6.0	4.0	5.1	1.8					
Redstripe Rockfish											116.4
Rex Sole	7.6	0.5	3.4	0.6	0.9	0.4	17.3	25.5	5.0		
Rougheye Rockfish			0.6		0.4	0.8					
Sablefish			4.4		1.4	3.2					
Sand Sole											1.2
Sandpaper Skate					2.7		1.4				
Sharpchin Rockfish	0.3										
Shortspine Thornyhead			2.5	0.2	2.5	1.7					
Silvergray Rockfish	4.4	0.6			11.4		5.7	4.5			
Slender Sole		0.3	0.8		0.1	-	0.3	0.8	0.1		
Snake Prickleback		0.0					0.1	0.0	0.0		
Southern Rock Sole							0.2		2.4	44.7	3.7
Spotted Ratfish	18.0	7.6	5.1	0.7	6.0	3.5	10.6	6.5	9.3	33.1	50.8
Starry Flounder											
Sturgeon Poacher									0.4	0.6	-
Walleye Pollock	1.8		1.3				3.0	0.3	0.7		
Widow Rockfish											69.7
Wolf Eel											
Yelloweye Rockfish											
Yellowmouth Rockfish	0.4	1.8	3.2								
Yellowtail Rockfish		6.8									
Other	7.1	6.8	10.0	4.7	16.5	4.7	2.4	3.3	2.4	28.0	9.3
<b>Total</b>	<b>82.1</b>	<b>186.1</b>	<b>348.3</b>	<b>140.9</b>	<b>184.7</b>	<b>150.0</b>	<b>115.5</b>	<b>153.4</b>	<b>117.8</b>	<b>159.6</b>	<b>292.8</b>

Common Name	17	18	19	20	21	22	23	24	25	26	27
Aleutian Skate											
Arrowtooth Flounder				0.1	-				0.5	0.6	
Big Skate				2.6					43.0		
Bigmouth Sculpin											
Bocaccio											
Butter Sole									0.5		
Canary Rockfish					145.2						
Copper Rockfish		3.8	56.7	3.0	89.4						1.3
Curlfin Sole				1.1	1.7	2.1	5.8	4.4	7.3		
Dover Sole				-	0.1				4.4	0.3	
English Sole				7.0	40.2	2.8	35.4	4.6	379.4	10.6	3.8
Eulachon											
Flathead Sole											
Giant Wrymouth											
Greenstriped Rockfish											
Kelp Greenling			1.9		3.5						1.4
Lingcod											
Longnose Skate											
North Pacific Spiny Dogfish								0.6	17.4	5.7	4.2
Pacific Cod				11.8	1.1	0.3			3.8		0.4
Pacific Halibut				11.5		23.2	6.3	10.5	14.9	13.3	13.8
Pacific Ocean Perch											
Pacific Sand Lance	0.3	0.6		0.1		10.0	5.0	0.3			
Pacific Sanddab				7.1	0.2				17.7		
Pacific Sandfish							0.0				
Pacific Tomcod					0.0				8.8		0.2
Petrale Sole				5.4	0.4				9.1	3.0	0.2
Quillback Rockfish	0.6		10.3	0.4	7.0						1.7
Redbanded Rockfish											
Redstripe Rockfish	2.9										
Rex Sole				0.3	0.1				0.3	0.2	
Rougheye Rockfish											
Sablefish											
Sand Sole				1.7		12.1	7.4	15.8	41.7		0.3
Sandpaper Skate											
Sharpchin Rockfish											
Shortspine Thornyhead											
Silvergray Rockfish											
Slender Sole											
Snake Prickleback		0.1							0.0	0.0	0.0
Southern Rock Sole	3.2	10.3	11.2	147.4	9.8	64.7	15.2	56.6	12.9	4.3	14.5
Spotted Ratfish	5.3	23.5	35.8	18.4	36.0	1.2		5.8	116.9	7.2	92.6
Starry Flounder											
Sturgeon Poacher						0.4	3.9	0.9	1.5	0.5	0.1
Walleye Pollock										0.2	
Widow Rockfish	0.3										
Wolf Eel											
Yelloweye Rockfish											
Yellowmouth Rockfish											
Yellowtail Rockfish	0.3		2.6		1.7						
Other	0.8	3.8	6.8	65.7	46.1	4.8	1.8	11.8	6.9	0.3	0.3
<b>Total</b>	<b>13.6</b>	<b>42.0</b>	<b>125.4</b>	<b>283.7</b>	<b>382.6</b>	<b>121.4</b>	<b>80.8</b>	<b>111.1</b>	<b>687.1</b>	<b>46.1</b>	<b>134.7</b>

Common Name	28	29	30	31	32	33	34	35	36	37	38
Aleutian Skate											
Arrowtooth Flounder			6.7	22.9					29.0	1.9	58.7
Big Skate		8.8				2.1					
Bigmouth Sculpin											
Bocaccio											
Butter Sole			1.7						5.1	0.4	
Canary Rockfish								0.5			
Copper Rockfish	7.6					20.5	1.1	18.3	2.6		
Curlfin Sole	0.9	28.9	1.5		3.2	0.7	2.1	0.8		0.5	
Dover Sole		0.1							0.1		
English Sole		61.4	57.2	71.6	0.8	0.3			25.2	0.9	0.9
Eulachon									0.0		
Flathead Sole											
Giant Wrymouth											
Greenstriped Rockfish											
Kelp Greenling	1.0					11.7		2.6	1.2		
Lingcod				11.1		5.0	1.0	2.5			8.2
Longnose Skate											3.1
North Pacific Spiny Dogfish	28.9	11.1	6.4	51.8		7.1	8.4	11.5	2.6	1.7	16.9
Pacific Cod	0.8	4.9		31.0	0.2	0.4	0.3		16.4	1.2	28.2
Pacific Halibut	8.8	30.7	4.4	6.9	25.4	13.8		7.5	20.4	15.3	18.0
Pacific Ocean Perch											
Pacific Sand Lance	27.8	0.2				-	0.4				
Pacific Sanddab		0.3	0.5						24.7		
Pacific Sandfish						0.2					
Pacific Tomcod		0.3	0.9		0.3				2.0		
Petrale Sole			3.8	6.7					2.4		15.3
Quillback Rockfish	14.2	3.1		0.1		4.8	1.3	36.2	1.0		0.3
Redbanded Rockfish											
Redstripe Rockfish											
Rex Sole			0.3	2.8					2.2		
Rougheye Rockfish											
Sablefish									0.5		
Sand Sole	3.3	32.6	0.8		0.7	2.0	7.6				
Sandpaper Skate											
Sharpchin Rockfish											
Shortspine Thornyhead											
Silvergray Rockfish											
Slender Sole											
Snake Prickleback										0.0	
Southern Rock Sole	23.8	119.0	2.5	1.2	21.6	57.1	31.5	0.7	0.9	3.3	6.6
Spotted Ratfish	85.4	37.6	2.8	39.7	175.6	83.9	55.9	108.2	7.8	55.3	18.3
Starry Flounder											
Sturgeon Poacher		1.6	0.8	0.2	0.7	0.2			0.3		
Walleye Pollock			0.6	1.4	0.1	0.2	0.2		198.0		
Widow Rockfish											
Wolf Eel											
Yelloweye Rockfish											
Yellowmouth Rockfish											
Yellowtail Rockfish								13.7			
Other	17.0	24.3	14.6	2.1	3.0	5.9	22.7		5.2	3.9	5.6
<b>Total</b>	<b>219.5</b>	<b>364.8</b>	<b>105.6</b>	<b>249.4</b>	<b>231.5</b>	<b>215.9</b>	<b>132.5</b>	<b>224.6</b>	<b>347.6</b>	<b>84.2</b>	<b>180.1</b>



Common Name	39	40	41	42	43	44	45	46	47	48	49
Aleutian Skate											
Arrowtooth Flounder	52.1	58.9	97.7	138.8	285.6	15.7	79.0	3.9	0.1	2020.1	204.7
Big Skate						1.5			7.8		11.0
Bigmouth Sculpin				-							
Bocaccio											
Butter Sole						5.5	25.1		1.8		
Canary Rockfish											
Copper Rockfish											
Curlfin Sole	1.4				0.7						
Dover Sole	3.0	2.1	32.2	10.5	2.4	0.2	1.1			63.5	519.8
English Sole	31.0	2.9	0.9	3.2	19.2	200.6	200.4	2.6	37.1	28.8	128.7
Eulachon		2.2								1.4	1.3
Flathead Sole	5.2	46.5	38.3	9.4	0.4					2.0	6.1
Giant Wrymouth											
Greenstriped Rockfish			0.5								
Kelp Greenling					0.9		0.3	20.0			
Lingcod										1.0	
Longnose Skate											4.0
North Pacific Spiny Dogfish	59.7	7.8		6.5						10.1	3.5
Pacific Cod	12.0	6.8	10.4	14.0	21.8	5.1	13.8	0.4	39.3	24.2	30.4
Pacific Halibut				5.1	30.7	37.4	11.3	33.0	26.8	41.0	97.8
Pacific Ocean Perch			0.3	0.2						0.3	0.5
Pacific Sand Lance					0.0						
Pacific Sanddab	268.3				0.9	0.6	29.6				
Pacific Sandfish									0.2		
Pacific Tomcod	0.8	1.5		0.1		12.7	6.1		0.5		0.5
Petrale Sole	38.0				0.9	1.9	2.1	0.4			1.2
Quillback Rockfish			3.1	1.3				25.2	1.2	9.6	1.3
Redbanded Rockfish			0.6								
Redstripe Rockfish				280.8							
Rex Sole	4.2	13.4	23.5	38.3	0.8	0.4	9.4			24.3	222.7
Rougheye Rockfish											
Sablefish	0.5	0.5		0.4		0.2	48.2			13.4	
Sand Sole						6.4	55.6		32.2		
Sandpaper Skate											
Sharpchin Rockfish											
Shortspine Thornyhead											
Silvergray Rockfish			2.2	0.3							
Slender Sole		0.1	0.9	0.6	0.6						
Snake Prickleback		-					-		-		
Southern Rock Sole	4.0		0.4	0.1	25.9	34.7	12.4	6.1	94.2		
Spotted Ratfish	34.2	8.6	9.6	7.2	6.7	6.3	4.1	84.1	8.8	240.6	1405.2
Starry Flounder											
Sturgeon Poacher	0.4				0.1	0.3	0.8		0.0		
Walleye Pollock	153.4	1.6	5.8	34.4	16.6		6.4		0.6	74.9	149.7
Widow Rockfish				0.5							
Wolf Eel								1.7			
Yelloweye Rockfish				4.1							
Yellowmouth Rockfish											
Yellowtail Rockfish			2.6	4.5							
Other	8.1	1.9	0.0	0.6	0.2	17.7	2.0	8.1	13.0	2.6	22.3
<b>Total</b>	<b>676.4</b>	<b>154.6</b>	<b>229.1</b>	<b>560.8</b>	<b>414.6</b>	<b>347.2</b>	<b>507.7</b>	<b>185.4</b>	<b>263.7</b>	<b>2557.6</b>	<b>2810.7</b>

Common Name	50	51	52	53	54	55	56	57	58	59	60
Aleutian Skate											
Arrowtooth Flounder	275.4	536.0	304.8	329.0	207.8	162.3	118.1	440.4	51.9	100.9	74.9
Big Skate	107.0		5.6					56.0			
Bigmouth Sculpin				3.1							
Bocaccio											
Butter Sole	10.2	0.4									
Canary Rockfish											
Copper Rockfish											
Curlfin Sole											
Dover Sole	7.5	123.8	337.1	246.0	85.8	803.7	223.0	127.9	83.7	88.8	63.0
English Sole	332.3	12.8	55.0	8.4	21.4	26.8	68.1	3.8			
Eulachon		0.0	0.3	0.3	1.3	1.3	2.4	0.2	4.3	4.0	1.4
Flathead Sole	7.4	2.1	2.1	0.6	7.1	2.3	22.0	12.1		0.7	
Giant Wrymouth											
Greenstriped Rockfish											
Kelp Greenling											
Lingcod							2.4				
Longnose Skate		1.6		31.5		6.2	5.3		6.7		4.1
North Pacific Spiny Dogfish	10.4	10.8	25.1	7.4	6.7	11.5	3.0	3.9	5.4	3.5	2.2
Pacific Cod	20.8	8.9	54.2	11.9	1.5	11.8	8.8	26.5	7.0	1.9	
Pacific Halibut	140.0	14.0	8.0	18.8	3.6	42.8	65.7	40.0	28.9	38.0	
Pacific Ocean Perch		0.3	0.4	0.5	0.3					0.4	
Pacific Sand Lance											
Pacific Sanddab											
Pacific Sandfish											
Pacific Tomcod	0.6										
Petrale Sole	5.8		2.2	5.1	4.6						
Quillback Rockfish		1.7		2.2	1.2						
Redbanded Rockfish									4.7		
Redstripe Rockfish											
Rex Sole	90.5	6.2	71.1	35.0	24.0	86.4	80.4	93.1	72.8	15.4	14.3
Rougheye Rockfish										1.8	
Sablefish		2.8	14.8	9.9	2.8		11.2	9.3	40.2	11.2	16.0
Sand Sole											
Sandpaper Skate			1.5		-	1.7					1.6
Sharpchin Rockfish											
Shortspine Thornyhead									1.5	4.6	23.4
Silvergray Rockfish			0.8	0.8	0.9						
Slender Sole					2.2	0.4				0.2	0.3
Snake Prickleback		0.0									
Southern Rock Sole	0.2	0.2	0.1	0.1		0.5				1.0	
Spotted Ratfish	425.3	200.5	800.9	649.2	217.9	31.9	7.4	59.5	59.3	77.6	34.9
Starry Flounder	53.0										
Sturgeon Poacher											
Walleye Pollock	3.5	212.1	70.1	10.3	45.8	9.4	6.1	10.3	0.3	3.2	5.3
Widow Rockfish											
Wolf Eel											
Yelloweye Rockfish											
Yellowmouth Rockfish											
Yellowtail Rockfish							2.2				
Other	5.1	1.1	19.1	4.3	3.3	13.1	12.0	7.3	13.0	9.3	90.6
<b>Total</b>	<b>1495.3</b>	<b>1135.3</b>	<b>1773.0</b>	<b>1374.4</b>	<b>638.3</b>	<b>1212.1</b>	<b>638.3</b>	<b>890.4</b>	<b>379.7</b>	<b>362.5</b>	<b>332.0</b>

Common Name	61	62	63	64	65	66	67	68	69	70	71
Aleutian Skate	14.3										
Arrowtooth Flounder	171.8	32.9	58.3	156.3	14.5	1209.6	262.7		28.9	162.0	24.6
Big Skate						13.2					
Bigmouth Sculpin	2.5										
Bocaccio											
Butter Sole						0.1					
Canary Rockfish								0.1		4.6	
Copper Rockfish											
Curlfin Sole											
Dover Sole	26.5	11.2	8.1	5.7	32.7		5.8			9.0	6.0
English Sole						5.7	113.6		0.2	16.1	
Eulachon	0.8	0.4	0.1	0.1							
Flathead Sole											
Giant Wrymouth											
Greenstriped Rockfish									0.1		
Kelp Greenling								7.1	0.8		
Lingcod				2.7				6.0	10.2		4.4
Longnose Skate		10.2								6.3	
North Pacific Spiny Dogfish	7.2	3.7	3.6	12.5	11.9	9.7	14.1	7.9	14.6	10.4	10.2
Pacific Cod		0.8		20.7			8.2		6.0	25.8	1.2
Pacific Halibut	8.1					236.0		42.2	57.4		
Pacific Ocean Perch		400.9	28.0	233.0	14.4	11.0				13.4	15.5
Pacific Sand Lance											
Pacific Sanddab											
Pacific Sandfish											
Pacific Tomcod											
Petrale Sole						0.7	4.0			15.2	
Quillback Rockfish								82.4	150.2	9.2	
Redbanded Rockfish	1.5	1.3		12.3						14.1	39.4
Redstripe Rockfish								17.2	3.3		
Rex Sole	8.4	9.2	15.1	15.4	21.9	1.0	9.9			17.5	4.9
Rougheye Rockfish	11.5	2.3									
Sablefish	137.7	3.0			1.4						4.5
Sand Sole											
Sandpaper Skate										0.8	
Sharpchin Rockfish											
Shortspine Thornyhead	97.1	6.0	0.2	2.1	6.0						15.5
Silvergray Rockfish		10.0	13.3	24.0			7.5	4.5	16.8	28.5	10.7
Slender Sole			0.5								
Snake Prickleback											
Southern Rock Sole								0.2	0.1		
Spotted Ratfish	31.6	47.4	7.4	15.7	40.0	131.4	36.2	31.2	87.9	19.0	41.9
Starry Flounder											
Sturgeon Poacher											
Walleye Pollock	9.2	2.9	3.6	15.1	1.0		0.7		7.7	37.2	5.3
Widow Rockfish											
Wolf Eel											
Yelloweye Rockfish								5.2			
Yellowmouth Rockfish											
Yellowtail Rockfish										14.3	2.3
Other	99.9	5.9	5.5	3.4	8.2	0.5	0.4	0.9	1.5	1.1	1.9
<b>Total</b>	<b>628.1</b>	<b>547.9</b>	<b>143.6</b>	<b>519.2</b>	<b>152.0</b>	<b>1619.0</b>	<b>463.0</b>	<b>204.7</b>	<b>385.6</b>	<b>404.3</b>	<b>188.5</b>

Common Name	72	73	74	75	76	77	78	79	80	81	82
Aleutian Skate											
Arrowtooth Flounder	13.7	23.4	10.7	76.5	152.0	5.9	2.2	22.7	66.7	174.3	
Big Skate											5.0
Bigmouth Sculpin								13.4			
Bocaccio											
Butter Sole											1.4
Canary Rockfish					1.4	1.2					
Copper Rockfish											
Curlfin Sole											
Dover Sole	8.9	0.8	2.6		28.3			3.3	3.1	25.1	
English Sole									0.6	2.1	
Eulachon		0.1	1.8	0.0							
Flathead Sole											
Giant Wrymouth											
Greenstriped Rockfish			0.1	2.1			1.1	1.8	0.7		
Kelp Greenling											
Lingcod						7.3	2.3	1.5			
Longnose Skate		8.5	14.2		11.9	14.8	3.2				
North Pacific Spiny Dogfish	5.8	6.8	0.7	4.5	1.4	1.7		3.4	16.2	10.3	
Pacific Cod	3.8	2.4	3.3	78.4	1.9	1.4	1.3	42.7	33.4	40.0	31.9
Pacific Halibut				3.6	16.5		18.1	8.3	21.1	8.5	7.3
Pacific Ocean Perch	39.8	14.5	42.3	5.8	95.2	5.2		10.0	7.0	2.1	
Pacific Sand Lance											
Pacific Sanddab											
Pacific Sandfish											
Pacific Tomcod											
Petrale Sole			1.1	3.8	1.2						19.0
Quillback Rockfish						117.5	46.4	9.0			1.5
Redbanded Rockfish	15.6	21.9	19.5		12.6	1.3		0.6			4.5
Redstripe Rockfish						10.2	7.0				
Rex Sole	4.0	5.4	3.8	0.1	7.8			5.1	2.2	28.1	0.1
Rougheye Rockfish	2.1	0.6	3.1								
Sablefish	1.1	1.3			3.0						
Sand Sole											7.0
Sandpaper Skate								1.3			
Sharpchin Rockfish	0.0					0.0	0.1		0.0		
Shortspine Thornyhead	55.4	24.9	13.1		35.7			5.3			
Silvergray Rockfish	6.2	2.6	2.8	61.4	11.6	10.4		12.4	11.2	13.6	3.8
Slender Sole											0.4
Snake Prickleback											
Southern Rock Sole											11.1
Spotted Ratfish	34.0	32.8	15.4	53.4	6.1	11.1	33.6	61.4	60.1	20.9	445.6
Starry Flounder											11.0
Sturgeon Poacher											
Walleye Pollock		2.2	4.6	13.0	3.5	23.8	2.2	2.3	25.4	17.9	
Widow Rockfish			0.8								
Wolf Eel											6.8
Yelloweye Rockfish						4.9	4.5	5.2			
Yellowmouth Rockfish											
Yellowtail Rockfish				58.8	11.2			45.2	9.5	0.9	
Other	2.9	3.0	52.6	0.0	9.2	1.3	1.3	5.2	0.6	2.5	2.8
<b>Total</b>	<b>193.2</b>	<b>150.9</b>	<b>192.4</b>	<b>361.3</b>	<b>410.6</b>	<b>218.0</b>	<b>123.1</b>	<b>260.1</b>	<b>257.8</b>	<b>371.8</b>	<b>533.9</b>

Common Name	83	84	85	86	87	88	89	90	91	92	93
Aleutian Skate											
Arrowtooth Flounder	238.0		86.7	67.6	396.0	2422.6	97.6	1.6		0.2	
Big Skate							16.0	56.5		42.4	3.2
Bigmouth Sculpin											
Bocaccio	9.1		4.4								
Butter Sole		0.3					20.3	8.8			
Canary Rockfish											
Copper Rockfish											
Curlfin Sole									1.3		1.2
Dover Sole	47.8	1.5	55.8	14.5	172.5	3.3	1.2	0.2			
English Sole		0.4				288.7	166.5	215.1	5.7	3.8	2.6
Eulachon					0.4						
Flathead Sole	3.8		0.6	0.2	0.4	1.0					
Giant Wrymouth											
Greenstriped Rockfish											
Kelp Greenling									1.0	18.1	
Lingcod			4.6							1.8	
Longnose Skate				8.1	18.3						
North Pacific Spiny Dogfish	18.0		14.3	22.1	10.0		4.5				
Pacific Cod	3.7		10.1	2.8	5.9	14.2	24.8	0.7	0.4	62.8	1.2
Pacific Halibut	7.7		8.9	7.8	194.2	24.0	50.0	73.0	8.4	60.8	0.6
Pacific Ocean Perch			5.8	2.2	3.2	0.5					
Pacific Sand Lance				0.0							
Pacific Sanddab								0.2			
Pacific Sandfish											
Pacific Tomcod								7.1	0.1		
Petrale Sole	6.5		2.1		3.4	9.8	1.0				
Quillback Rockfish										14.9	
Redbanded Rockfish											
Redstripe Rockfish											
Rex Sole	44.8	0.4	38.6	53.1	63.3	30.6	18.8				
Rougheye Rockfish											
Sablefish					11.0	0.9					
Sand Sole							0.2	8.1	7.0	0.6	0.4
Sandpaper Skate				0.2							
Sharpchin Rockfish											
Shortspine Thornyhead					2.7						
Silvergray Rockfish	4.6	1.0	8.8	8.8	5.0						
Slender Sole	0.0										
Snake Prickleback		0.0				0.0		0.2	0.1		2.7
Southern Rock Sole		3.7					2.9	205.9	30.0	22.1	33.9
Spotted Ratfish	28.2	59.8	19.8	26.6	85.4	100.3	1.1	55.6	63.4	60.4	36.1
Starry Flounder								2.1			
Sturgeon Poacher								0.2	0.2	0.3	0.5
Walleye Pollock	70.8		24.1	30.5	1.9	5.1					
Widow Rockfish											
Wolf Eel											
Yelloweye Rockfish											
Yellowmouth Rockfish											
Yellowtail Rockfish	22.7			1.6							
Other	0.3	5.5	5.3	3.4	2.4	1.1	84.8	32.9	4.7	18.4	21.1
<b>Total</b>	<b>506.0</b>	<b>72.6</b>	<b>290.0</b>	<b>249.4</b>	<b>976.0</b>	<b>2902.2</b>	<b>489.7</b>	<b>668.1</b>	<b>122.4</b>	<b>306.8</b>	<b>103.5</b>

<b>Common Name</b>	<b>94</b>	<b>95</b>	<b>96</b>	<b>97</b>	<b>98</b>	<b>99</b>	<b>100</b>	<b>101</b>	<b>102</b>	<b>103</b>	<b>104</b>
Aleutian Skate											
Arrowtooth Flounder		0.2	15.9							65.0	487.5
Big Skate				17.0		28.6	3.4	52.1			
Bigmouth Sculpin											
Bocaccio											
Butter Sole							0.5				
Canary Rockfish											
Copper Rockfish					13.8				6.3		
Curlfin Sole	0.6	2.2	1.3	3.5					1.2		
Dover Sole										8.8	4.6
English Sole	0.1	2.1	3.8	0.2	4.1	0.5	0.4	0.2	1.1		
Eulachon										0.5	
Flathead Sole										99.2	3.6
Giant Wrymouth											
Greenstriped Rockfish											0.5
Kelp Greenling		4.0			8.4				7.6		
Lingcod		0.5	0.4		1.1						
Longnose Skate											
North Pacific Spiny Dogfish		5.1			0.5	1.0	3.7	2.2		2.4	3.9
Pacific Cod	3.8		220.0	4.2	204.5	0.0	0.5	5.4	12.7	0.8	1.6
Pacific Halibut	15.1	38.8	4.5	17.6	21.6	36.9	31.4	57.3	17.1		22.5
Pacific Ocean Perch											84.7
Pacific Sand Lance		0.2		5.2			0.7	-			
Pacific Sanddab								-			
Pacific Sandfish						0.4	5.5	0.6			
Pacific Tomcod		0.2	0.5			0.2	0.2				
Petrale Sole	0.2	2.6	12.3							0.7	1.2
Quillback Rockfish		1.2			7.4				7.8		
Redbanded Rockfish										5.6	18.8
Redstripe Rockfish											
Rex Sole										1.9	3.5
Rougheye Rockfish											0.9
Sablefish			0.5							2.4	1.2
Sand Sole	0.6	0.8	0.7	18.1		2.6	14.4	7.6			
Sandpaper Skate											
Sharpchin Rockfish											7.2
Shortspine Thornyhead											12.7
Silvergray Rockfish										5.2	44.7
Slender Sole										1.4	
Snake Prickleback	1.5	0.0			0.0			0.1			
Southern Rock Sole	32.1	35.6	20.2	787.4	23.1	22.3	68.3	31.7	30.7		
Spotted Ratfish	107.6	141.8	63.4	22.1	374.1	3.1	0.9	7.5	704.8	7.8	9.5
Starry Flounder						10.4	24.0	4.5			
Sturgeon Poacher	0.5	0.2	0.2		0.2	0.3		0.0	0.1		
Walleye Pollock			0.3		0.3						1.3
Widow Rockfish											
Wolf Eel											
Yelloweye Rockfish											
Yellowmouth Rockfish											3.9
Yellowtail Rockfish										4.6	25.4
Other	8.9	34.9	6.0	1.0	12.2	4.6	6.8	2.2	4.3	13.9	107.5
<b>Total</b>	<b>171.0</b>	<b>270.3</b>	<b>350.3</b>	<b>876.2</b>	<b>671.3</b>	<b>110.8</b>	<b>160.7</b>	<b>171.2</b>	<b>793.6</b>	<b>220.2</b>	<b>846.6</b>

Common Name	105	106	107	108	109	110	111	112	113	114	115
Aleutian Skate											
Arrowtooth Flounder	266.6	60.7	62.0		3.7	14.6	483.1	6.5	71.9	26.8	77.4
Big Skate											
Bigmouth Sculpin											
Bocaccio											
Butter Sole											
Canary Rockfish				1.9				6.0			
Copper Rockfish				1.6							
Curlfin Sole				0.3	1.2						
Dover Sole	8.2	39.4	5.4		0.3	2.3	21.0		55.5	32.8	0.3
English Sole					14.9			0.8			3.5
Eulachon	4.8	5.6	0.2				6.2	0.1	0.5	0.0	
Flathead Sole	1.8	3.8	26.0			0.6	18.7	0.8	51.9	43.3	7.0
Giant Wrymouth											
Greenstriped Rockfish	0.4		0.8				0.6	1.5	0.2	0.5	
Kelp Greenling				1.8							
Lingcod						4.7					
Longnose Skate	2.7	1.8				2.1					
North Pacific Spiny Dogfish	24.0	32.4	31.9		13.5	9.5	19.4	1.9	15.7	30.7	23.4
Pacific Cod	8.7		4.2			3.1		1.0	5.6	4.5	0.7
Pacific Halibut	21.3			95.2	23.0						4.0
Pacific Ocean Perch	50.0	4.7	7.7				1.1	0.2	1.2	45.9	2.1
Pacific Sand Lance				107.9							
Pacific Sanddab					1.0						
Pacific Sandfish											
Pacific Tomcod											
Petrale Sole	0.6				3.6				1.0		6.9
Quillback Rockfish				4.7				9.0			
Redbanded Rockfish	33.4	11.8	1.6				3.6		2.0	3.0	
Redstripe Rockfish			10.5	0.4				40.0		12.5	
Rex Sole	1.6	2.5	122.8		9.9	13.3	41.0	3.4	272.9	300.3	49.7
Rougheye Rockfish	0.3	0.6									
Sablefish		1.4							0.5	2.3	
Sand Sole											
Sandpaper Skate											
Sharpchin Rockfish	1.7		1.1			0.0		0.8	0.2	0.2	
Shortspine Thornyhead	5.0	1.7									
Silvergray Rockfish	25.9		0.0				114.4	14.8	9.6	9.5	3.7
Slender Sole		2.0	0.2		-	0.2	0.6		6.0	4.9	0.2
Snake Prickleback					-						
Southern Rock Sole				4.6	4.7						0.1
Spotted Ratfish	6.1	6.4	3.9	83.5	3.5	7.5	3.8	0.6	2.2	2.0	9.2
Starry Flounder											
Sturgeon Poacher					0.9	0.1					
Walleye Pollock	2.1		11.2			0.5	2.4	0.2	11.7	2.0	42.5
Widow Rockfish								5.6			
Wolf Eel											
Yelloweye Rockfish										4.3	
Yellowmouth Rockfish	8.7		1.9					1.2		5.8	
Yellowtail Rockfish	2.4		5.3	0.3				57.3		1.8	
Other	16.1	7.8	6.0	3.2	0.2	2.8	6.0	2.8	5.3	4.9	2.3
<b>Total</b>	<b>492.5</b>	<b>182.7</b>	<b>302.7</b>	<b>305.2</b>	<b>80.5</b>	<b>61.3</b>	<b>721.7</b>	<b>154.5</b>	<b>513.8</b>	<b>537.8</b>	<b>233.1</b>

<b>Common Name</b>	<b>116</b>	<b>117</b>	<b>118</b>	<b>119</b>	<b>120</b>	<b>121</b>	<b>122</b>	<b>123</b>	<b>124</b>	<b>125</b>	<b>126</b>
Aleutian Skate											
Arrowtooth Flounder	25.1	33.8	38.3	343.1	62.0	28.2	121.7	496.1	54.1	13.2	3.2
Big Skate					30.3						
Bigmouth Sculpin											
Bocaccio											
Butter Sole									1.2		1.0
Canary Rockfish		7.8									44.0
Copper Rockfish											
Curlfin Sole											
Dover Sole	5.2	1.0	32.9	0.9	1.5	8.1	28.5	11.4	0.2		
English Sole		3.9		0.8	38.2	42.3	37.1	31.9	142.9	0.6	215.0
Eulachon	0.2	0.2	2.1	0.1							
Flathead Sole	47.2	3.4	4.6	5.6		0.5	12.0	7.3			
Giant Wrymouth											
Greenstriped Rockfish	0.4	0.4									
Kelp Greenling											
Lingcod						3.1				6.5	
Longnose Skate											
North Pacific Spiny Dogfish	16.8	20.7	20.6	4.6	88.9	61.7	21.0	23.6	42.7	17.8	21.4
Pacific Cod	9.3	1.9			14.8	4.1	7.3	21.2	82.6	8.5	0.3
Pacific Halibut					3.2	4.5				21.3	10.2
Pacific Ocean Perch	12.6	0.6	0.4								
Pacific Sand Lance											
Pacific Sanddab											
Pacific Sandfish											
Pacific Tomcod											0.1
Petrale Sole	0.8	8.0	0.9	1.6	24.5	3.2	4.7	2.9	60.7	2.1	25.9
Quillback Rockfish											6.7
Redbanded Rockfish	2.2		3.3								
Redstripe Rockfish	96.8										
Rex Sole	127.9	40.6	6.7	20.1	5.8	39.0	118.5	91.8	12.9		0.1
Rougheye Rockfish											
Sablefish	1.2		1.0	3.5	0.8			0.4	0.3		
Sand Sole											
Sandpaper Skate											
Sharpchin Rockfish	2.1										
Shortspine Thornyhead											
Silvergray Rockfish	14.1	23.4	1.5	6.0							
Slender Sole	1.3		0.2		0.1		3.8				
Snake Prickleback				-				-	-		
Southern Rock Sole										0.5	
Spotted Ratfish	5.1	17.5	1.8	13.7	22.0	8.0	9.9	10.1	5.7	20.1	2.8
Starry Flounder											
Sturgeon Poacher								0.2			
Walleye Pollock	4.1	1.5		3.1	0.6	0.4	0.1	0.2	0.8		
Widow Rockfish											
Wolf Eel											
Yelloweye Rockfish											
Yellowmouth Rockfish	26.4										
Yellowtail Rockfish											5.4
Other	24.2	0.7	3.2	0.6	0.2	0.2	2.6	0.2	2.2	2.2	3.2
<b>Total</b>	<b>423.1</b>	<b>165.4</b>	<b>117.6</b>	<b>403.7</b>	<b>292.8</b>	<b>203.4</b>	<b>367.3</b>	<b>697.3</b>	<b>406.3</b>	<b>92.8</b>	<b>339.4</b>



Common Name	127	128	129	130	131	132	133	134	135	136	137
Aleutian Skate											
Arrowtooth Flounder					19.6	4.7	2.8	0.2	0.1	101.1	33.7
Big Skate		0.7	38.0	40.8	50.1	151.1	33.6				
Bigmouth Sculpin											
Bocaccio											
Butter Sole			0.5	1.3	5.1	5.0	4.2	-		15.7	3.6
Canary Rockfish											
Copper Rockfish	1.4										
Curlfin Sole			0.1		3.5	1.7		4.1	1.7		
Dover Sole					9.7	8.7	1.9			1.1	
English Sole	0.1		17.0	1.8	331.3	542.7	251.8	17.6		115.9	43.5
Eulachon											
Flathead Sole										1.4	1.1
Giant Wrymouth											
Greenstriped Rockfish										0.2	
Kelp Greenling											
Lingcod											
Longnose Skate											
North Pacific Spiny Dogfish		16.1	3.0	12.3	8.7		5.8			7.1	5.3
Pacific Cod	0.1		7.0	9.8	6.7	5.2	122.1	9.1	0.2	99.2	33.0
Pacific Halibut	10.1	10.4	13.0	58.9	34.5	58.0	29.0	29.9	20.6	17.6	5.3
Pacific Ocean Perch										0.3	
Pacific Sand Lance	19.7										
Pacific Sanddab		0.2	-		12.8	9.6	8.3			2.0	1.5
Pacific Sandfish			0.1	0.5	0.2	1.3					
Pacific Tomcod					5.4	5.6	0.2				
Petrale Sole							2.5		2.4	7.2	3.6
Quillback Rockfish										3.7	1.5
Redbanded Rockfish											
Redstripe Rockfish											
Rex Sole					0.1	0.2	0.1			18.3	25.6
Rougheye Rockfish											
Sablefish											0.6
Sand Sole		208.1	16.1	10.2	64.6	14.4	3.3	0.3	0.2		
Sandpaper Skate											
Sharpchin Rockfish											
Shortspine Thornyhead											
Silvergray Rockfish											
Slender Sole											
Snake Prickleback	0.2		0.1	0.3		0.0	0.0	0.5			
Southern Rock Sole	28.6	389.2	69.0	22.5	76.7	59.1	86.7	60.9	2.3		
Spotted Ratfish			3.3	0.7	53.9	17.5	41.9	541.9	90.3	4.1	5.1
Starry Flounder											
Sturgeon Poacher			0.5	0.1	2.5	2.3	1.9	0.5			
Walleye Pollock			0.2	-	96.2	5.8	0.6			101.8	26.7
Widow Rockfish											
Wolf Eel											
Yelloweye Rockfish											
Yellowmouth Rockfish											
Yellowtail Rockfish											
Other	2.3	45.0	80.5	18.3	7.0	12.0	8.4	33.6	3.5	0.8	2.4
<b>Total</b>	<b>62.3</b>	<b>669.7</b>	<b>248.3</b>	<b>177.6</b>	<b>788.6</b>	<b>904.9</b>	<b>605.1</b>	<b>698.6</b>	<b>121.3</b>	<b>497.3</b>	<b>192.5</b>

<b>Common Name</b>	<b>138</b>	<b>139</b>	<b>140</b>	<b>141</b>	<b>142</b>	<b>143</b>	<b>144</b>	<b>145</b>	<b>146</b>	<b>147</b>	<b>148</b>
Aleutian Skate											
Arrowtooth Flounder	40.4	16.9								213.4	253.1
Big Skate					11.2	3.1		33.4	49.1	23.0	31.7
Bigmouth Sculpin											
Bocaccio											
Butter Sole		1.3		2.1	0.2		4.6	9.4	2.8	20.9	
Canary Rockfish											
Copper Rockfish											
Curlfin Sole			0.7	3.2			0.1				
Dover Sole	0.3	0.1								23.5	150.3
English Sole	81.8	160.0	0.8	0.2	2.6	0.2	12.4	18.8	17.5	683.7	653.8
Eulachon											
Flathead Sole	2.3									0.7	7.0
Giant Wrymouth											
Greenstriped Rockfish											
Kelp Greenling											
Lingcod											
Longnose Skate											
North Pacific Spiny Dogfish	3.7	11.0	0.7	1.1	5.3	1.5	1.3	9.5	30.4	9.1	5.5
Pacific Cod		6.2	0.2	2.2	2.0	0.1		2.4	1.5	20.8	3.8
Pacific Halibut	1.0	24.1	11.8	2.6	19.4	0.2	21.3	66.2	15.5	16.1	4.6
Pacific Ocean Perch											
Pacific Sand Lance			6.2	1.7	7.3	0.3			4.4		
Pacific Sanddab	2.0	28.4			0.1			0.2			
Pacific Sandfish							0.1	1.0	0.2		
Pacific Tomcod		4.4					-				
Petrale Sole	11.5	9.2								20.3	
Quillback Rockfish											
Redbanded Rockfish											
Redstripe Rockfish											
Rex Sole	38.3	6.4								97.9	245.1
Rougheye Rockfish											
Sablefish	0.8										
Sand Sole			14.7	4.7	4.3	3.0	5.9	34.8	16.3		
Sandpaper Skate											
Sharpchin Rockfish											
Shortspine Thornyhead											
Silvergray Rockfish											
Slender Sole	0.1										
Snake Prickleback	0.0	0.0		0.1	0.2			0.0			
Southern Rock Sole		1.4	36.2	51.3	65.7	42.3	69.2	94.0	52.2	1.1	
Spotted Ratfish	6.4	4.1	20.7	32.2	39.4	116.8	51.6	1.7	1.5	214.6	2619.0
Starry Flounder							3.2			181.1	5.0
Sturgeon Poacher	0.2	0.4	0.4	0.2	0.5	0.9	0.1	0.4	0.3		
Walleye Pollock	21.2	16.1		0.1	-					2.0	4.3
Widow Rockfish											
Wolf Eel											
Yelloweye Rockfish											
Yellowmouth Rockfish											
Yellowtail Rockfish											
Other	1.5	0.6	1.7	4.0	21.7	23.4	24.9	8.4	3.0	10.4	71.7
<b>Total</b>	<b>211.5</b>	<b>290.4</b>	<b>94.0</b>	<b>105.7</b>	<b>179.9</b>	<b>191.6</b>	<b>194.8</b>	<b>280.2</b>	<b>194.6</b>	<b>1538.5</b>	<b>4054.9</b>

Common Name	149	150	151	152	153	154	155	156	157	158	159
Aleutian Skate											
Arrowtooth Flounder	144.1	59.2	47.6	19.9	57.4	23.9	14.5	17.0	17.9	124.5	142.5
Big Skate											10.5
Bigmouth Sculpin					4.5						
Bocaccio											
Butter Sole								0.3	1.1		
Canary Rockfish							2.3	1.8			
Copper Rockfish											
Curlfin Sole								4.7			
Dover Sole	304.5	300.5	96.2	8.6	18.9	9.4	5.0			264.5	458.9
English Sole	4.4								0.1		
Eulachon	1.4	1.0		0.1	0.3	0.5				1.4	0.4
Flathead Sole	5.9	0.6					1.8				
Giant Wrymouth											
Greenstriped Rockfish							3.0				
Kelp Greenling								0.3			
Lingcod							3.4	8.8			
Longnose Skate	4.4	2.8	1.6				10.3			9.2	10.3
North Pacific Spiny Dogfish	23.0	9.6	1.6					3.8	6.8	6.1	
Pacific Cod	6.3				2.5	1.0	42.3	11.1	3.4		5.5
Pacific Halibut	38.7	2.5			7.0		10.0	30.8	47.9		7.9
Pacific Ocean Perch					9.0	11.7	11.4			0.4	0.5
Pacific Sand Lance									3.2		
Pacific Sanddab									0.5		
Pacific Sandfish											
Pacific Tomcod							0.2				
Petrale Sole									7.1		
Quillback Rockfish								3.6			
Redbanded Rockfish		2.8			0.5	5.9	2.2			9.8	22.8
Redstripe Rockfish											
Rex Sole	70.1	28.6	4.4	5.0	22.2	9.2	6.9			28.9	43.9
Rougheye Rockfish						0.7	0.3				
Sablefish	1.4	4.5	32.9	36.8		3.2				9.7	27.7
Sand Sole											
Sandpaper Skate	1.7										
Sharpchin Rockfish											
Shortspine Thornyhead		7.9	10.4	35.3	9.8	9.0	1.0		1.0	18.1	1.6
Silvergray Rockfish							25.9	1.9			
Slender Sole					1.1						
Snake Prickleback									0.0		
Southern Rock Sole								2.5	5.0		
Spotted Ratfish	113.4	122.8	26.8	34.0	16.1	16.8	20.5	1061.6	204.0	75.8	93.7
Starry Flounder									3.1		
Sturgeon Poacher									0.0		
Walleye Pollock	5.3	2.8	3.9		2.0		76.2	1.0		2.1	6.6
Widow Rockfish											
Wolf Eel											
Yelloweye Rockfish											
Yellowmouth Rockfish											
Yellowtail Rockfish							191.4	4.5			
Other	6.8	4.3	68.2	35.8	12.0	9.9	4.5	11.6	28.4	2.2	5.5
<b>Total</b>	<b>731.5</b>	<b>549.9</b>	<b>293.6</b>	<b>175.7</b>	<b>163.4</b>	<b>101.3</b>	<b>432.9</b>	<b>1165.5</b>	<b>329.5</b>	<b>552.9</b>	<b>838.1</b>

<b>Common Name</b>	<b>160</b>	<b>161</b>	<b>162</b>	<b>163</b>	<b>164</b>	<b>165</b>	<b>166</b>	<b>167</b>	<b>168</b>	<b>169</b>	<b>170</b>
Aleutian Skate											
Arrowtooth Flounder	339.1	89.2	560.5	125.9		136.7			4.6	139.4	52.6
Big Skate				49.9				14.1			21.8
Bigmouth Sculpin											
Bocaccio											
Butter Sole			2.2	0.3		7.9	0.2	39.0		50.3	10.8
Canary Rockfish								1.8			
Copper Rockfish							3.2				
Curlfin Sole									14.8	1.1	5.8
Dover Sole	411.8	148.7	7.1	35.0		7.8			0.7		0.7
English Sole		1.8	246.8	17.5	0.4	159.6	7.0	13.3	250.0	112.2	360.8
Eulachon		4.2				0.1					
Flathead Sole		1.8	2.4			82.0			0.3		
Giant Wrymouth		15.0									
Greenstriped Rockfish											
Kelp Greenling							6.3	0.3	0.7		
Lingcod									0.8		
Longnose Skate	25.3	7.0	23.6	4.2							
North Pacific Spiny Dogfish		4.5		3.6		14.0		11.1			
Pacific Cod		27.7	27.6	20.4		28.2	22.4	30.4	441.5	4.3	71.2
Pacific Halibut	80.2	14.1	52.1	89.4	14.0	23.7	18.5	91.0	57.0	42.9	39.9
Pacific Ocean Perch	3.8	2.5									
Pacific Sand Lance											
Pacific Sanddab											30.2
Pacific Sandfish						0.2		0.1			0.3
Pacific Tomcod						4.0		1.6	2.6		
Petrale Sole		1.3	5.3			0.5			1.4	10.5	5.6
Quillback Rockfish							9.4	0.9	2.9		
Redbanded Rockfish	6.5	3.8	1.7								
Redstripe Rockfish											
Rex Sole	86.7	46.9	46.8	77.5		28.2				0.2	0.9
Rougheye Rockfish											
Sablefish	9.9	1.5		41.8		8.5					0.4
Sand Sole					1.0		1.6	30.4	2.6	1.3	1.7
Sandpaper Skate		4.9									
Sharpchin Rockfish											
Shortspine Thornyhead	7.6										
Silvergray Rockfish											
Slender Sole											
Snake Prickleback			0.3			0.2		1.8	0.1		
Southern Rock Sole			0.2		11.9	1.4	57.4	110.4	96.0	29.8	31.3
Spotted Ratfish	124.0	33.8	133.8	7.0	36.6	15.5	65.8	114.4	163.8	5.5	4.8
Starry Flounder					2.6						
Sturgeon Poacher						1.0	0.3	0.2	0.4	0.2	1.6
Walleye Pollock	2.6	28.7	97.9	23.6		7.5				97.0	255.0
Widow Rockfish											
Wolf Eel					7.3						
Yelloweye Rockfish											
Yellowmouth Rockfish											
Yellowtail Rockfish									0.3		
Other	5.7	17.2	1.6	3.2	20.6	12.1	16.6	47.9	29.8	2.6	8.5
<b>Total</b>	<b>1103.3</b>	<b>454.4</b>	<b>1210.0</b>	<b>499.4</b>	<b>94.5</b>	<b>539.0</b>	<b>208.7</b>	<b>508.7</b>	<b>1070.2</b>	<b>497.3</b>	<b>904.1</b>

<b>Common Name</b>	<b>171</b>	<b>172</b>	<b>173</b>	<b>174</b>	<b>175</b>	<b>176</b>	<b>177</b>	<b>178</b>	<b>179</b>	<b>180</b>	<b>181</b>
Aleutian Skate											
Arrowtooth Flounder	301.9		18.1	158.1	117.3		0.1	0.3	5.5	359.2	7.1
Big Skate							2.6				
Bigmouth Sculpin				2.4							
Bocaccio											
Butter Sole		0.2	11.7	0.8						7.2	
Canary Rockfish						2.0					
Copper Rockfish											
Curlfin Sole			0.2			6.1	1.0				1.1
Dover Sole	142.8			33.7	14.8			0.2			
English Sole	1.4	503.3	65.2	6.3	55.5	97.6	5.1	0.7	26.9	54.4	5.6
Eulachon	0.5										
Flathead Sole	215.8			17.1	16.5		0.2				
Giant Wrymouth											
Greenstriped Rockfish											
Kelp Greenling		0.8					1.8	1.0			
Lingcod											
Longnose Skate										30.3	
North Pacific Spiny Dogfish	2.6		4.2		254.3	11.8	81.2	10.8	149.5	108.6	43.4
Pacific Cod		4.3	3.5	18.0	1.3	0.7	3.3			1.5	
Pacific Halibut		16.9	24.7		7.6	33.0	72.8			6.0	7.5
Pacific Ocean Perch				1.9	-						
Pacific Sand Lance						15.3	0.6			0.4	
Pacific Sanddab		2.4	0.5								
Pacific Sandfish											
Pacific Tomcod		1.3									
Petrale Sole		1.2	5.7				6.0	0.8	2.5	9.9	19.8
Quillback Rockfish							4.6	6.1	5.4		
Redbanded Rockfish				3.7							
Redstripe Rockfish											
Rex Sole	71.8		0.2	126.9	95.1				21.5	3.0	
Rougheye Rockfish											
Sablefish				10.1							
Sand Sole		12.6	0.4			15.5					
Sandpaper Skate				-							
Sharpchin Rockfish											
Shortspine Thornyhead											
Silvergray Rockfish				1.6	0.5						
Slender Sole	14.6										
Snake Prickleback				0.0	0.0	0.0	0.0		0.0		
Southern Rock Sole		30.5	3.4			61.3	8.1	0.4	1.3	168.7	8.8
Spotted Ratfish	5.0	19.9	8.5	3.6	4.3	43.5	71.8	2.5	1.9	2.0	17.7
Starry Flounder											
Sturgeon Poacher						0.4	0.3				
Walleye Pollock				0.4					1.5		
Widow Rockfish											
Wolf Eel											
Yelloweye Rockfish					6.7						
Yellowmouth Rockfish											
Yellowtail Rockfish	23.6										
Other	5.0	17.9	11.6	3.2	0.0	12.1	16.9	6.1	1.6	3.8	2.4
<b>Total</b>	<b>785.0</b>	<b>611.5</b>	<b>157.9</b>	<b>387.8</b>	<b>574.0</b>	<b>299.1</b>	<b>276.4</b>	<b>29.0</b>	<b>217.6</b>	<b>754.9</b>	<b>113.5</b>

<b>Common Name</b>	<b>182</b>	<b>183</b>	<b>184</b>	<b>185</b>
Aleutian Skate				
Arrowtooth Flounder	74.8	62.9	14.9	11.2
Big Skate				
Bigmouth Sculpin				
Bocaccio				
Butter Sole				
Canary Rockfish				
Copper Rockfish				
Curlfin Sole				
Dover Sole	44.3	18.9	1.2	2.1
English Sole				
Eulachon	0.5	12.5	5.3	6.2
Flathead Sole	24.0	18.8	1.5	3.4
Giant Wrymouth				
Greenstriped Rockfish				
Kelp Greenling				
Lingcod				
Longnose Skate				4.5
North Pacific Spiny Dogfish	17.3	11.9	4.1	9.5
Pacific Cod				
Pacific Halibut				
Pacific Ocean Perch	1.3	9.5	3.9	0.9
Pacific Sand Lance				
Pacific Sanddab				
Pacific Sandfish				
Pacific Tomcod				
Petrale Sole				
Quillback Rockfish				
Redbanded Rockfish	2.4	1.1	29.1	44.6
Redstripe Rockfish				
Rex Sole	1.3	6.3	0.8	1.6
Rougheye Rockfish	0.3		2.2	0.5
Sablefish	1.4	3.1		1.2
Sand Sole				
Sandpaper Skate	0.6			
Sharpchin Rockfish				
Shortspine Thornyhead	0.6	0.7	1.4	3.0
Silvergray Rockfish	5.1		2.1	
Slender Sole		1.7		2.8
Snake Prickleback				
Southern Rock Sole				
Spotted Ratfish	6.6	0.9	0.6	2.3
Starry Flounder				
Sturgeon Poacher				
Walleye Pollock				
Widow Rockfish				
Wolf Eel				
Yelloweye Rockfish				
Yellowmouth Rockfish				
Yellowtail Rockfish				
Other	5.0	10.3	11.2	19.0
<b>Total</b>	<b>185.7</b>	<b>158.6</b>	<b>78.2</b>	<b>112.7</b>