



NOAA Technical Memorandum NMFS-AFSC-81

The 1996 Pacific West Coast
Upper Continental Slope Trawl Survey of
Groundfish Resources off
Washington and Oregon: Estimates of
Distribution, Abundance, and Length
Composition

by
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U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Alaska Fisheries Science Center

September 1997

NOAA Technical Memorandum NMFS

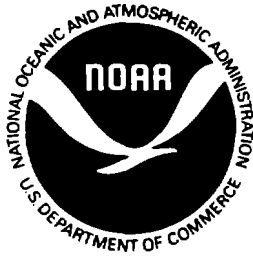
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This document should be cited as follows:

Lauth, R. R. 1997. The 1996 Pacific West Coast upper continental slope trawl survey of groundfish resources off Washington and Oregon: Estimates of distribution, abundance, and length composition. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-81, 156 p.

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ABSTRACT

The Alaska Fisheries Science Center (AFSC) conducted a groundfish bottom trawl survey of the West Coast upper continental slope (WCUCS) off Washington and Oregon in 1996. The survey area stretched from the U.S. -Canada border (near Nitinat Canyon) to lat. 43°00' N (near Cape Blanco) in waters from 183 to 1,280 m deep. This was the ninth survey in an ongoing series to monitor long-term trends in the distribution and abundance of WCUCS groundfish populations. This year the survey period was increased from 1 month to 6 weeks so that a larger area could be surveyed, and it is the second survey using the modified trawl gear and sampling protocols established in 1995. Sampling was conducted aboard the NOAA ship *Miller Freeman*. We successfully sampled 203 of the 225 stations that we had established. Catches included 119 different species of fishes and 106 different species of invertebrates.

The survey design and the methods used are described, the data collected are summarized, and the results of analyses of distribution, abundance, and biological parameters are presented. Data on water temperature, catch composition, relative abundance, and geographic distribution are reported. Estimates of biomass, population abundance, and length composition are also presented. Appendices include position and catch listings for each haul, catch rates of fish and invertebrates, and population size compositions.

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INTRODUCTION

Fishery-independent data obtained from the Alaska Fisheries Science Center's (AFSC) West Coast upper continental slope (WCUCS) groundfish trawl surveys are used by fishery managers to assess stock condition and to establish annual harvest guidelines for several commercially valuable WCUCS fish species including sablefish (*Anoplopoma fimbria*), shortspine thornyhead (*Sebastolobus alascanus*), longspine thornyhead (*S. altivelis*), and Dover sole (*Microstomus pacificus*). The Resource Assessment and Conservation Engineering (RACE) Division of the AFSC conducted its first groundfish assessment survey of the WCUCS in 1984 and has done so annually since 1988. The WCUCS covers habitat 183-1,280 m deep from the U.S.-Canada border to lat. 32°30'N and is divided into five International North Pacific Fisheries Commission (INPFC) statistical areas including the U.S. Vancouver, Columbia, Eureka, Monterey, and Conception areas (Fig. 1). Due to limited vessel time each year, surveying all West Coast INPFC areas within the same year has not been possible, so groundfish trawl surveys to date have covered different contiguous sections of the WCUCS. The U.S. Vancouver area was surveyed in 1993 and various sections of the Columbia area were surveyed in 1984, 1988, 1989, 1992, and 1993 (Raymore et al. 1990, Parks et al. 1993, Lauth et al. 1997). The Eureka area was surveyed in 1990 (Lauth et al. 1997) and again in 1995 (Lauth 1997), and the northern section of the Monterey area (lat. 38°20'N to 40°30'N) was surveyed in 1991 (Lauth et al. 1997).

Two other groundfish bottom trawl surveys covering parts of the Conception area between lat. 34°30' N and lat. 36°30' N were conducted by the Southwest Fisheries Science Center (SWFSC) in 1987 and 1988 (Butler et al. 1989)

During the 1993 AFSC survey, concerns were raised about the poor performance of the slope survey trawl and, consequently, the validity of slope survey data. Following that survey, letters from the fishing industry to the Pacific Fishery Management Council, National Marine Fisheries Service (NMFS), and other government officials prompted an external review of the slope survey' by a panel of fishery scientists in July 1995. The panel criticized the lack of synopticity in survey coverage and the performance of survey gear (Parma et al. 1995). Survey gear performance was investigated during an experimental gear cruise aboard the NOAA ship *Miller Freeman* in 1994. During that cruise we experimented with ways to stabilize the sampling trawl, learned more about how to evaluate trawl performance, and investigated alternative methods of surveying groundfish resources using a video camera sled. Regular survey work resumed in 1995 after several changes were made to the sampling trawl and to towing protocol. The changes stabilized the slope trawl and resulted in more consistent trawl performance (Lauth, Unpub. manuscr.).

This year the survey period was increased from 1 month to 6 weeks so that the entire U.S. Vancouver and Columbia INPFC areas could be surveyed. It is the largest section of WCUCS to

be surveyed by NMFS within a single year since the inception of the WCUCS groundfish bottom trawl surveys.

The objective of this report is to document the survey design and field procedures, summarize the survey data, and present the results of the standard RACE analyses for the 1996 WCUCS survey of the INPFC U.S. Vancouver and Columbia areas. Included are summaries of catches, distribution, abundance, and size composition for major components of the community, as well as analyses of age-length and length-weight relationships of selected species.

SURVEY METHODS

Survey Period and Sampling Area

The INPFC U.S. Vancouver and Columbia areas (U.S.-Canada border to to 43°00'N lat.) were surveyed between 15 October and 26 November. Survey sampling began near Nitinat Canyon (48°05'N lat.) and progressed southward to Cape Blanco (Fig. 2). Water depth at survey stations ranged between 183 and 1,280 m (100-700 fm).

Vessels and Sampling Gear

The NOAA Ship *Miller Freeman* is a 65.5 m stern trawler powered by a 2,300 continuous horsepower engine. The ship is equipped with dual net reels, a Rapp-Hydema warp tensioning system, Wesmar Fish Eye net sonar system, Furuno netsonde, EQ-50 depth sounder, and Global Positioning System (GPS) navigational aids. The trawl net and accessories were the same as those used for the 1995 WCUCS survey. A high-opening Nor'eastern trawl (Fig. 3) constructed of polyethylene mesh and equipped with mudsweep roller gear (Fig. 4) was used to collect all samples. This trawl, built and rigged to RACE Division gear standards, has a 27.2 m headrope and a 37.4 m footrope. The body is constructed of 127 mm stretched-mesh polyethylene netting, 89 mm stretched-mesh web in the codend, and a 32 mm stretched-mesh codend liner. Three 55 m dandylines made of 16 mm galvanized steel cable lead from each wing to a pair of 1.8 x 2.7 m steel V-doors weighing

1,000 kg each. Each door has a 4-point bridle on its backside made with 13 mm long link chain having 33 links forward and 22 links aft in both the top and bottom. Instruments attached to the trawl gear to monitor gear performance included the SCANMAR equipment for measuring net dimensions, a Furuno wireless netsonde for real-time monitoring of the headrope height, and two bottom contact sensors on the footrope. A Wesmar net sonar was attached to the net headrope and used to assure that the trawl gear was performing to engineering specifications during the wire marking procedure and during the initial gear calibration. A Richard Brancker XL-200 submersible data logger was attached to the trawl and used in conjunction with a Trimble Global Positioning System (GPS) unit to record data on the time, depth, water temperature, and geodetic position during each trawl. These data were combined with fishing dimensions of the net, producing a comprehensive set of haul data describing gear performance in space and time.

Trawl Station Allocation

The stations targeted for this year's survey were the same as those sampled during the 1988-1993 WCUCS bottom trawl surveys of the U.S. Vancouver and Columbia areas (Lauth et al. 1997, Parks et al. 1993). There were 225 stations along 34 east-west tracklines spaced 16.7 km apart between the U.S.-Canada border and lat. 43°00'N near Cape Blanco. A combined systematic and random design was used for selecting the stations for the 1988-

1993 WCUCS bottom trawl surveys. Sampling was conducted between 183 and 1,280 m in six strata of 183 m (100 fm) depth intervals (183-365 m, 366-547 m, 548-730 m, 731-913 m, 914-1,095 m, and 1,096-1,280 m). The number of sampling stations within each depth stratum were allocated proportional to the trackline length across each depth interval at the rate of one station per 13.0 km of linear trackline length (e.g., 3 stations would be allocated to a stratum with a trackline length of 30 km). Tracklines were 16.7 km apart and positioned roughly perpendicular to the coastline. To assure even depth coverage within a stratum, the depth range of each stratum was divided into a number of bins equal to the number of stations scheduled to be surveyed that year. Nominally, a bin was identified by its midpoint target depth. Stations were then randomly assigned to tracklines by picking target depths without replacement.

Trawling Procedures

Sampling was done on a 24-hour basis. Stations were located by GPS and echosounder and then surveyed prior to towing. If the terrain was determined to be too rough or too steep to allow the successful completion of a tow, we searched for an alternate site within a 10 km radius of the original. If no favorable ground was located the station was declared untrawlable and abandoned. If the gear was damaged during the tow severely enough to affect catch composition, or if the gear performance was in any way judged to be unacceptable (e.g., mud, large trap entangled in the

net), the haul was considered unsatisfactory and the station was either repeated or abandoned. Unsuccessful tows were not used in later analyses.

Catch Sampling Procedures and Biological Data Collection

Standard PACE catch sampling procedures were followed as described by Smith and Bakkala (1982). Catches less than 1 metric ton (t) were dumped directly onto a sorting table for processing. Catches larger than 1 t were weighed by an electronic load cell and then dumped onto the deck, into the fish bin, onto the sorting table, or any combination of the three. In all cases, the entire catch was processed. Large catches were made more manageable for processing by weighing and measuring a random subsample of the dominant fish species (e.g., Pacific hake or spiny dogfish) and discarding the remainder of that species overboard. The non-subsample catch weight for that species was the difference between the sum of the subsample weight for that species and the catch weights for all other species and the total catch weight measured by the electronic load cell. Fishes and invertebrates were identified to species as time and expertise permitted. After the catches were sorted by species, weighed, and enumerated, biological data and specimens were collected. Samples of all fish species were measured to characterize how their size composition varies with depth. Sex determination and fork length measurements were done for up to 200 specimens of each of the primary target species, rockfishes, and flatfishes

from each haul. The same was done for grenadiers except they were measured from the tip of their snout to the base of the first anal fin ray. Other non-target species were measured as unsexed and all skates and rays were measured from wingtip-to-wingtip. Otoliths, used for age determination, were collected from sablefish, Dover sole, arrowtooth flounder (*Atheresthes stomias*), shortspine thornyhead, and longspine thornyhead. To assure that sampling effort was spread evenly over the range of the survey, six biological sampling strata were assigned. There were three depth strata (183-549 m, 550-914 m, and 915-1,280 m) established in a northern and southern area separated by lat. 45°25'N. Otoliths were collected from stratified samples of 5 fish per sex/centimeter interval per biological sampling stratum.

Additional biological collections were made in cooperation with staff and colleagues from NMFS and other institutions or agencies. These collections were taken for studies involving age and growth, genetics, and other fish life history parameters.

Oceanographic Data Collection

Sea surface temperatures were taken at all stations using a bucket thermometer. Bottom temperatures were measured using a Richard Brancker XL-200 data logger mounted to the trawl. headrope. Additional information on temperature profiles from these cruises is available on request from the authors.

Data Analysis

Several analyses are performed routinely on RACE survey data. These include:

- 1) estimation of relative abundance,
- 2) estimation of population biomass,
- 3) estimation of population numbers, and
- 4) estimation of the population's size composition.

We used the area-swept method as described by Gunderson and Sample (1980) to estimate population biomass and numbers. Briefly, this method entails standardizing samples from each station into catch per unit of effort (CPUE) in terms of either kilograms or numbers per hectare (kg/ha, no./ha) and calculating the arithmetic mean for each sampling stratum. Length-frequency data were weighted by CPUE (no./ha) and expanded to the total estimated population abundance **to estimate** the population size composition for each species. Selected size composition **estimates** were applied to age-length keys to obtain estimated age compositions. Unless otherwise noted, all analyses were computed for the INPFC U.S. Vancouver and Columbia statistical areas by depth stratum and by all depth strata combined.

RESULTS

Haul, Catch, and Biological Data

Two-hundred-fifty tows were attempted during the survey. Out of 225 possible stations, 203 stations were sampled successfully (Fig. 2). Twenty-two stations were abandoned because the bottom was too rough or too steep. One additional qualitative deep tow was done at 1,450 m to collect biological specimens. The remainder of the attempted tows were unsuccessful due to hang-ups, rips, bad bottom, excessive mud in the tows, crossing into the wrong stratum, large catches of dogfish, or gear problems. SCANMAR net mensuration data were obtained from 207 tows, submersible bathythermograph and bottom contact sensor data from 243 tows, bottom contact sensor data from 227 tows, and GPS course and position data from 249 tows.

Mean net widths were calculated for each trawl haul. The relationship between mean net width and depth, and mean net width and wire length was constant. An overall mean path width of 17.6 m was calculated for the entire survey using 170 of the 207 tows with good performance. The range of average net widths for these 170 tows was 15.8 m to 19.6 m and the standard deviation was 0.7 m. The overall mean path width was used in area-swept calculations for hauls where actual horizontal measurements were unavailable.

Table 1 summarizes the biological data collected from fish species. Specimen ages from collected otoliths were determined

by researchers from the Pacific States Marine Fisheries Commission. We also collected data and specimens for several special studies requested by colleagues in other agencies or institutions, who will report the results of their studies elsewhere.

A total of 119 fish species representing 50 fish families were identified over the course of the survey. Table 2 lists the frequencies of occurrence, depth range, and the latitudinal range for all fishes identified in trawl samples. Similarly, Table 3 shows ranges and frequencies of occurrence for invertebrates representing 9 phyla and 18 classes. Of the 190 invertebrates listed, 106 were identified to species. Appendix A presents detailed station information for each haul and catch weights of the major fish and invertebrate species caught in each haul. The number of individual fish length observations of each fish species are reported in Tables 4 and 5 by depth stratum for the U.S. Vancouver and Columbia areas, respectively.

Temperature Data

Sea surface and bottom temperatures were collected during the survey. Sea surface temperatures ranged from 9.5° to 14.5°C, and bottom temperatures ranged from 3.2° to 8.4°C (Fig. 5). Mean sea surface temperature was 12.3°C, and mean bottom temperature was 5.1°C. Sea surface temperatures generally increased and were more variable with increasing latitude. Bottom temperatures generally decreased with increasing depth within the survey area.

Relative Density and Distribution of Species

The 20 most abundant groundfish and selected crab species are presented by area and stratum in Tables 6-8. Pacific hake (*Merluccius productus*), spiny dogfish (*Squalus acanthias*), Dover sole, longspine thornyhead, and sablefish had the five highest mean catch rates in both the U.S. Vancouver and Columbia areas for all depth strata combined. Spiny dogfish, Pacific hake, and Dover sole were the dominant species in Strata 1 and 2 for both areas. Longspine thornyhead was the most abundant in the deepest four strata for both areas, except for Stratum 3 in the U.S. Vancouver area where Dover sole mean CPUE was highest. The complete listings of relative abundance of all fish and invertebrate species ranked by mean CPUE, depth stratum, and area are presented in Appendix B.

Maps of the geographical distribution and relative catch rates of arrowtooth flounder, darkblotched rockfish (*Sebastes crameri*), Dover sole, giant grenadier (*Albatrossia pectoralis*), longspine thornyhead, Pacific grenadier (*Coryphaenoides acrolepis*), Pacific hake, Pacific ocean perch (*Sebastes alutus*), sablefish, shortspine thornyhead, spiny dogfish, splitnose rockfish (*Sebastes diploproa*), and true Tanner crab (*Chionoecetes tanneri*) are presented in Figures 6-18 in alphabetical order. These maps show the locations of hauls with positive catches of the species. Catch rates were categorized as: 1) greater than zero and less than or equal to the mean; 2) greater than the mean

and less than or equal to one standard deviation from the mean;
3) between one and two standard deviations greater than the mean;
and 4) over two standard deviations greater than the mean.

Biomass and Population Estimates

Abundance estimates of biomass (t) and associated coefficients of variation (CV) are presented for various taxa by stratum and area in Tables 9 and 10. Similarly, estimates of population numbers with associated CVs are presented for important species groups in Tables 11 and 12. The total number of hauls and hauls with catch weight, catch number, and length data by stratum and area for the various taxa are represented in Tables 13 and 14. Biomass estimates for the four commercially important species varied by species and by stratum. Spiny dogfish, Pacific hake, and Dover sole dominated the shallower depth strata while longspine thornyheads were more abundant in the deeper strata.

Readers should be aware that the biomass and population estimates presented here are not absolute estimates since herding by doors and bridles and escapement underneath the trawl's roller gear, around the net's opening, and through the net's meshes can affect the bottom trawl catches (Gunderson 1993). For lack of data on species-by-species catchability, abundance calculations are based on the assumption that all fish in front of the trawl and between the wingtips are captured. The degree of bias introduced by this assumption will vary among species. For

instance, the ability of a fish to avoid the net will depend on the fish's shape, size, speed, and its reaction to the part of the net encountered. Furthermore, the survey covers limited portions of the depth and geographic range of some of these species. As mentioned previously, this survey targets many species and provides general information where it lacks in specific information. These surveys are the only fishery-independent source of information on the abundance, distribution, and length and age-composition for many of these species. Stock assessment scientists utilize our survey results, along with commercial catch data, in order to set the most appropriate catch levels.

Size and Age Composition

Estimated population length compositions for several groundfish species are presented in Figures 19-32 by species and -by depth stratum. For more detail, Appendix C contains listings of estimated length compositions for major species by sex and by stratum.

At the time this report was prepared, the only age data available for analyses were Dover sole. Population estimates by age group and mean length at age are presented in Tables 15-16 for the U.S. Vancouver and Columbia areas using an age-length key for all depths, sexes, and areas combined. Lengths at age were different between the sexes and were more variable at greater depths for Dover sole so further analyses were done using three

depth-specific and sex-specific age-length keys. The depth strata used for the age-length keys were the same as the biological sampling strata except the north and south geographic areas were combined to increase the sample size. Results from these analyses are presented in graphical format in Figures 33 and 34.

Dover sole age data and results of growth rate, population age composition, and biomass-at-age analyses can be obtained upon request from the authors in either printed or electronic form. Age data and results from other species can be obtained as it becomes available.

Length-Weight Relationships

From the individual fish weight samples, we determined length-weight relationships for arrowtooth flounder, Dover sole, sablefish, shortspine thornyhead, and longspine thornyhead using a non-linear least squares regression model. Table 17 summarizes the length-weight relationships by sex and for all sexes combined (including unsexed fish).

ACKNOWLEDGMENTS

I would like to thank all the cruise participants for their hard work during the 1996 West Coast upper continental slope groundfish survey. Participants included (in alphabetical order) Bruce Pederson, Roger Clark, Yvonne Dereynier, Jeff Drazen, Bill Flerx, Robin Harrison, Allen Harvison, Dan Kamikawa, Dave King, Coalter Lathrop, Mike MacEwan, Marion Mann, Michael Martin, Joe O'Malley, Tom Morrison, Danny Parker, Jay Orr, Jim Smart, Kelly Smotherman, Jim Stark, and Mark Zimmermann. I would also like to express my appreciation to the officers, the survey department, the electronics department, and the rest of the crew of the NOAA ship Miller *Freeman* for their valuable assistance during the 1996 West Coast continental slope groundfish trawl survey. Thanks especially to Commander John Clary who was motivated, cooperative, and conscientious while completing the ambitious survey work. Thanks also to Gary Mundell for data editing and Dave Roetcisoender for help with the gear mensuration equipment. Special thanks to Dave King and his net shed crew for all their help supplying and maintaining the trawl nets and accessories that we used for this survey.

TABLES

Table 1. --Biological data collected during the 1996 West Coast upper continental slope bottom trawl survey of the International North Pacific Fisheries Commission U.S. Vancouver and Columbia areas.

Common Name of Fish Species	Age Structures	Maturities	Weights	Ovaries	Tissue Samples
Brown cat shark			208		
Bering skate			16		
Black skate			60		
Arrowtooth flounder	340	538	549		
English sole					15
Dover sole	1,202	1,797	1,831		15
Deepsea sole					15
Rex sole					15
California slickhead			161		15
Threadfin slickhead			104		
Sablefish	1,495	2,338	2,288	326	15
Pacific grenadier			44		30
Giant grenadier					16
Popeye grenadier					27
Pacific flatnose			192		15
Pacific hake					100
Twoline eelpout			184		
Snakehead eelpout			60		
Bigfin eelpout			222		
Black eelpout			98		
Shortspine thornyhead	1,544	2,328	2,408		15
Longspine thornyhead	998	1,451	1,523		15
Aurora rockfish			61		
Splitnose rockfish					15

Table 2.--Frequency of occurrence, depth, and latitude ranges for fish species caught during the 1996 West Coast upper continental slope bottom trawl survey of the International North Pacific Fisheries Commission U.S. Vancouver and Columbia areas.

Family and Species ^a	Common Name	Frequency of Occurrence	Depth (m)			Latitude Range (ddmm)*	
			Min.	Max.	Mean	South	North
Myxinidae							
<i>Eptatretus deani</i>	Black hagfish	172	185	1255	737	4306	4804
Chimeridae							
<i>Hydrolagus colliei</i>	Spotted ratfish	46	174	885	276	4306	4807
Scyliorhinidae							
<i>Apristurus brunneus</i>	Brown cat shark	153	194	1208	662	4306	4759
Squalidae							
<i>Squalus acanthias</i>	Spiny dogfish	87	174	1065	356	4306	4807
<i>Somniosus pacificus</i>	Pacific sleeper shark	3	695	1208	892	4442	4628
Rajidae							
<i>Bathyraja abyssicola</i> ^b	Deepsea skate	3	1141	1243	1181	4446	4715
<i>Bathyraja interrupta</i>	Bering skate	91	174	885	345	4306	4807
<i>Raja rhina</i>	Longnose skate	87	174	603	342	4306	4807
<i>Bathyraja trachura</i>	Black skate	96	414	1255	937	4307	4804
<i>Bathyraja aleutica</i>	Aleutian skate	6	339	501	403	4324	4548
Nemichthyidae							
Nemichthyidae unident.	Snipe eel unident.	4	480	1197	863	4331	4754
<i>Nemichthys scolopaceus</i>	Slender snipe eel	2	641	1185	913	4526	4735
<i>Avocettina infans</i> ^b	Blackline snipe eel	2	681	988	835	4351	4639
Serrivomeridae^b							
<i>Serrivomer sector</i> ^b	Sawtooth eel	7	809	1214	1055	4316	4712
Clupeidae							
<i>Clupea pallasii</i>	Pacific herring	3	204	456	314	4750	4807
<i>Alosa sapidissima</i>	American shad	2	184	204	194	4642	4807
Engraulidae							
<i>Engraulis mordax</i>	Northern anchovy	1	387	387	387	4617	4617
Bathylagidae							
<i>Bathylagus sp.</i>	Blacksmelt unident.	138	404	1255	888	4306	4804
<i>Leuroglossus sp.</i>		7	592	1040	752	4311	4736
<i>Leuroglossus stilbius</i>	California smoothtongue	2	746	1115	931	4504	4518
Osmeridae							
<i>Thaleichthys pacificus</i>	Eulachon	2	366	387	377	4456	4617
Opisthoproctidae							
<i>Dolichopteryx sp.</i>		3	828	1107	991	4352	4804
<i>Dolichopteryx longipes</i> ^b	Brownsnout spookfish	2	743	1216	980	4435	4534
<i>Macropinna microstoma</i>	Barreleye	11	747	1202	970	4307	4714
<i>Bathylchnops sp.</i>		1	1067	1067	1067	4307	4307
Alepocephalidae^b							
<i>Alepocephalus tenebrosus</i>	California slickhead	108	505	1243	917	4307	4804
<i>Talismania bifurcata</i>	Threadfin slickhead	77	407	1185	847	4315	4746
<i>Bathylaco nigricans</i>	Bonythroat	1	1187	1187	1187	4410	4410
Searsiidae^b							
<i>Searsiidae</i>	Tube-shoulder unident.	1	1019	1019	1019	4334	4334
<i>Sagamichthys abei</i>	Shining tube-shoulder	20	491	1203	799	4307	4736
Salmonidae							
<i>Oncorhynchus tshawytscha</i>	Chinook salmon	6	184	332	219	4307	4642
Sternoptychidae^b							
Sternoptychidae unident.	Hatchetfish unident.	1	1203	1203	1203	4421	4421
<i>Argyropelecus affinis</i>	Slender hatchetfish	2	795	1184	990	4320	4417
Gonostomatidae							
Gonostomatidae	Bristlemouth unident.	2	1171	1185	1178	4648	4735
Stomiidae							
<i>Aristostomias scintillans</i> ^b	Shining loosejaw	25	480	1184	760	4314	4804

Table 2.--Continued.

Family and Species ^a	Common Name	Frequency of Occurrence	Depth (m)			Latitude Range (ddmm) ^a	
			Min.	Max.	Mean	South	North
<i>Tactostoma macropus</i>	Longfin dragonfish	88	194	1243	845	4307	4759
<i>Bathophilus flemingi</i> ^b	Highfin dragonfish	2	480	935	708	4644	4754
<i>Idiacanthus antrostomus</i> ^b	Pacific blackdragon	3	503	1040	820	4331	4426
<i>Chauliodon macouni</i>	Pacific viperfish	135	369	1255	864	4307	4804
Scopelarchidae							
<i>Benthalbella sp.</i>		23	592	1243	936	4307	4804
<i>Benthalbella dentata</i>	Northern pearleye	8	574	1208	804	4437	4737
Paralepididae							
<i>Paralepididae</i>	Barracudina unident.	2	469	840	655	4306	4442
<i>Lestidiops ringens</i>	Slender barracudina	1	828	828	828	4456	4456
Anopteropterae							
<i>Anopterus pharao</i>	Daggertooth	1	1141	1141	1141	4647	4647
Alepisauridae							
<i>Alepisaurus ferox</i>	Longnose lancetfish	3	613	795	683	4328	4437
Neoscopelidae							
<i>Scopelogadus tristis</i>	Blackchin	4	592	1167	907	4331	4515
Myctophidae							
<i>Myctophidae</i>	Lanternfish unident.	143	192	1255	832	4306	4804
<i>Stenobrachius sp.</i>		1	767	767	767	4421	4421
<i>Diaphus sp.</i>		13	387	1107	736	4315	4804
<i>Lampanyctus sp.</i>		91	387	1255	899	4307	4746
<i>Lampanyctus ritteri</i>	Broadfin lanternfish	17	628	1243	934	4446	4759
<i>Tarletonbeania crenularis</i>	Blue lanternfish	25	391	1243	783	4314	4736
<i>Symbolophorus californiensis</i>	California lanternfish	1	854	854	854	4343	4343
Moridae							
<i>Antimora microlepis</i>	Pacific flatnose	153	411	1255	861	4306	4804
<i>Halargyreus sp.</i>		5	755	988	865	4456	4714
Gadidae							
<i>Merluccius productus</i>	Pacific hake	192	174	1255	596	4306	4807
<i>Gadus macrocephalus</i>	Pacific cod	2	174	194	184	4646	4757
<i>Theragra chalcogramma</i>	Walleye pollock	1	327	327	327	4617	4617
Macrouridae							
<i>Nesumia stelgidolepis</i>	California grenadier	3	387	798	533	4432	4617
<i>Coryphaenoides acrolepis</i>	Pacific grenadier	152	387	1255	868	4306	4804
<i>Albatrossia pectoralis</i>	Giant grenadier	141	387	1255	891	4307	4804
<i>Coryphaenoides cinereus</i>	Popeye grenadier	23	641	1218	972	4314	4804
<i>Coryphaenoides filifera</i>	Filamented grenadier	1	803	803	803	4746	4746
Ophidiidae							
<i>Lamprogrammus niger</i>	Paperbone cusk-eel	1	624	624	624	4513	4513
Bythitidae							
<i>Cataetx rubrirostris</i> ^b	Rubynose brotula	1	592	592	592	4419	4419
<i>Brosomphycis marginata</i>	Red brotula	1	192	192	192	4652	4652
Oneirodidae							
<i>Oneirodidae</i>	Dreamer unident.	4	749	1005	908	4503	4759
<i>Oneirodes sp.</i>		1	918	918	918	4602	4602
Scomberesocidae							
<i>Cololabis saira</i>	Pacific saury	6	265	1243	706	4407	4610
Trachipteridae							
<i>Trachipterus altivelis</i>	King-of-the-salmon	6	340	1067	678	4306	4755
Anoplogastridae ^b							
<i>Anoplogaster cornuta</i>	Fangtooth	8	798	1255	1049	4317	4715
Melamphidae ^b							
<i>Melamphidae</i>	Bigscale unident.	2	1013	1197	1105	4737	4743
<i>Foromitra crassiceps</i>	Crested bigscale	15	625	1185	1063	4307	4741
Cetomimidae ^b							
<i>Rondeletia loricata</i>	Armored redmouth whalefish	1	1153	1153	1153	4446	4446
Oreosomatidae ^b							
<i>Allocyttus folletti</i>	Oxeye oreo	1	601	601	601	4716	4716

Table 2.--Continued.

Family and Species ^a	Common Name	Frequency of Occurrence	Depth (m)			Latitude Range (dmm) [*]	
			Min.	Max.	Mean	South	North
Scorpaenidae							
<i>Sebastolobus alascanus</i>	Shortspine thornyhead	233	180	1255	676	4306	4807
<i>Sebastolobus altivelis</i>	Longspine thornyhead	167	188	1255	827	4306	4804
<i>Sebastes</i> sp.	Rockfish unident.	10	180	393	229	4343	4757
<i>Sebastes aleutianus</i>	Rougheye rockfish	35	188	540	362	4306	4755
<i>Sebastes alutus</i>	Pacific ocean perch	60	174	540	312	4312	4807
<i>Sebastes aurora</i>	Aurora rockfish	38	242	505	391	4306	4751
<i>Sebastes brevispinis</i>	Silvergray rockfish	3	192	337	251	4446	4652
<i>Sebastes crameri</i>	Darkblotched rockfish	43	174	419	286	4307	4807
<i>Sebastes diploproa</i>	Splitnose rockfish	49	174	434	287	4306	4807
<i>Sebastes elongatus</i>	Greenstriped rockfish	23	174	339	211	4326	4807
<i>Sebastes entomelas</i>	Widow rockfish	24	180	393	248	4326	4807
<i>Sebastes flavidus</i>	Yellowtail rockfish	6	174	211	191	4412	4715
<i>Sebastes helvomaculatus</i>	Rosethorn rockfish	27	174	382	248	4326	4807
<i>Sebastes jordani</i>	Shortbelly rockfish	2	237	263	250	4454	4546
<i>Sebastes melanostomus</i>	Blackgill rockfish	1	437	437	437	4638	4638
<i>Sebastes paucispinis</i>	Bocaccio	4	192	237	211	4546	4807
<i>Sebastes pinniger</i>	Canary rockfish	3	194	208	200	4412	4757
<i>Sebastes proriger</i>	Redstripe rockfish	13	174	327	209	4307	4807
<i>Sebastes babcocki</i>	Redbanded rockfish	38	174	389	295	4312	4807
<i>Sebastes saxicola</i>	Stripetail rockfish	13	174	283	208	4307	4650
<i>Sebastes zacentrus</i>	Sharpchin rockfish	37	174	426	251	4307	4807
<i>Sebastes rufus</i>	Bank rockfish	1	313	313	313	4411	4411
<i>Sebastes borealis</i>	Shorotraker rockfish	7	194	480	357	4538	4754
<i>Sebastes reedi</i>	Yellowmouth rockfish	2	200	263	232	4454	4657
Anoplopomatidae							
<i>Anoplopoma fimbria</i>	Sablefish	238	174	1255	669	4306	4807
Hexagrammidae							
<i>Ophiodon elongatus</i>	Lingcod	12	184	225	200	4412	4757
Cottidae							
<i>Icelinus filamentosus</i>	Threadfin sculpin	13	174	480	226	4326	4757
<i>Malacocottus kincaidi</i>	Blackfin sculpin	1	263	263	263	4454	4454
<i>Malacocottus zonurus</i>	Darkfin sculpin	1	421	421	421	4715	4715
<i>Chitonotus pugetensis</i>	Roughback sculpin	2	184	208	196	4642	4650
<i>Myoxocephalus polyacanthocephalus</i>	Great sculpin	1	548	548	548	4306	4306
<i>Psychrolutes phrictus</i>	Blob sculpin	5	1040	1218	1152	4323	4735
<i>Paricelinus hopliticus</i>	Thornback sculpin	1	192	192	192	4652	4652
Agonidae							
<i>Xeneretmus latifrons</i>	Blacktip poacher	10	186	421	279	4326	4715
<i>Xeneretmus leiops</i>	Smootheye poacher	8	192	327	234	4351	4757
<i>Bathyagonus</i> sp.	Starsnout poacher unident.	3	1043	1157	1111	4307	4358
<i>Bathyagonus infraspinus</i>	Spinycheek starsnout	7	197	404	276	4404	4657
<i>Bathyagonus pentacanthus</i>	Bigeye poacher	22	184	811	335	4351	4713
<i>Bathyagonus nigripinnis</i>	Blackfin poacher	42	266	860	520	4306	4755
Cyclopteridae							
Cyclopteridae (Liparidinae)							
<i>Liparis</i> sp.	Snailfish unident.	6	409	1185	819	4324	4733
<i>Careproctus</i> sp.		1	1214	1214	1214	4422	4422
<i>Careproctus melanurus</i>	Blacktail snailfish	24	389	1255	906	4306	4759
<i>Careproctus cypselurus</i>	Blackfinned snailfish	124	185	1167	587	4306	4804
<i>Paraliparis cephalus</i>	Blackfinned snailfish	13	917	1214	1092	4316	4633
<i>Paraliparis sp.</i>	Swellhead snailfish	7	640	1214	923	4334	4736
<i>Paraliparis sp.</i>		8	641	1203	893	4339	4602
<i>Rhinoliparis attenuatus</i>	Slim snailfish	1	1040	1040	1040	4339	4339
Carangidae							
<i>Trachurus symmetricus</i>	Jack mackerel	8	180	363	221	4326	4657

Table 2.--Continued.

Family and Species ^a	Common Name	Frequency of Occurrence	Depth (m)			Latitude Range (dmm) *	
			Min.	Max.	Mean	South	North
Zoarcidae							
<i>Bothrocara brunneum</i>	Twoline eelpout	139	174	1255	846	4306	4804
<i>Embryx crotalinus</i>	Snakehead eelpout	104	327	1216	893	4307	4759
<i>Lycodes cortexianus</i>	Bigfin eelpout	93	174	608	345	4306	4757
<i>Lycenchelys</i> sp.		2	803	925	864	4746	4759
<i>Lycodes diapterus</i>	Black eelpout	86	281	777	469	4306	4755
<i>Lycodes pacificus</i>	Blackbelly eelpout	9	185	242	208	4307	4715
<i>Lycodapus</i> sp.		31	385	1243	923	4306	4746
Icosteidae							
<i>Icosteus aenigmaticus</i>	Ragfish	1	809	809	809	4435	4435
Chiasmodontidae^b							
Chiasmodontidae unident.	Swallower unident.	1	954	954	954	4610	4610
<i>Chiasmodon niger</i>		1	891	891	891	4733	4733
Trichiuridae							
Trichiuridae unident.		1	920	920	920	4440	4440
Centrolophidae							
<i>Icichthys lockingtoni</i>	Medusafish	4	426	1197	905	4320	4737
Pleuronectidae							
<i>Atheresthes stomias</i>	Arrowtooth flounder	83	184	563	343	4306	4807
<i>Hippoglossus stenolepis</i>	Pacific halibut	21	180	434	289	4342	4757
<i>Hippoglossoides elassodon</i>	Flathead sole	1	327	327	327	4617	4617
<i>Lycopsetta exilis^b</i>	Slender sole	89	174	505	330	4306	4807
<i>Eopsetta jordani</i>	Petrals sole	43	174	480	273	4306	4757
<i>Parophrys vetulus^b</i>	English sole	25	174	331	232	4307	4807
<i>Microstomus pacificus</i>	Dover sole	196	174	1218	589	4306	4807
<i>Embassichthys bathybius</i>	Deepsea sole	144	419	1255	881	4307	4804
<i>Glyptocephalus zachirus^b</i>	Rex sole	107	174	641	365	4306	4807
<i>Pleuronichthys decurrens</i>	Curfin sole	1	211	211	211	4710	4710

^a Nomenclature from Robins (1990) unless otherwise noted.

^b Nomenclature from Eschmeyer and Herald (1983).

^c Nomenclature from Nelson (1984).

* Degrees and minutes of latitude.

Table 3.--Frequency of occurrence and depth and latitude ranges for invertebrate species caught during the 1996 West Coast upper continental slope bottom trawl survey of the International North Pacific Fisheries Commission U.S. Vancouver and Columbia areas.

Phylum and Class	Species	Frequency of Occurrence	Depth (m)			Latitude Range (dmm)*	
			Min.	Max.	Mean	South	North
Porifera							
Hexactinellida							
	<i>Aphrocallistes vastus</i>	81	200	1185	536	4306	4755
	Hexactinellida unident.	3	264	1167	622	4331	4446
	<i>Hylonema</i> sp.	23	558	1255	978	4601	4804
	<i>Mycale loveni</i>	3	194	1167	667	4328	4757
	Porifera unident.	37	263	1187	725	4320	4751
Cnidaria							
Scyphozoa							
	Scyphozoa unident.	114	196	1243	734	4306	4804
Anthozoa							
	Actiniaria unident.	214	184	1255	713	4306	4804
	Alcyonacea unident.	1	1144	1144	1144	4741	4741
	<i>Anthomastus</i> sp.	7	263	1200	610	4316	4714
	<i>Antipathes</i> sp.	36	407	1255	908	4307	4652
	<i>Bathypathes</i> sp.	15	387	1216	921	4317	4804
	<i>Calcigorgia spiculifera</i>	1	1153	1153	1153	4446	4446
	<i>Callogorgia</i> sp.	3	1141	1159	1151	4446	4647
	Gorgonacea unident.	9	331	1203	904	4312	4714
	<i>Liponemis brevicornis</i>	123	184	1255	595	4306	4807
	<i>Paragorgia</i> sp.	2	641	1167	904	4331	4544
	<i>Parantipathes</i> sp.	2	1159	1216	1188	4435	4446
	Pennatulacea unident.	120	184	1255	793	4307	4755
	Scleractinia unident.	1	367	367	367	4548	4548
	<i>Stylatula</i> sp.	38	425	1255	945	4317	4743
	<i>Swiftia</i> sp.	8	503	1218	938	4323	4712
	<i>Umbellula</i> sp.	29	484	1243	844	4307	4737
Annelida							
Polychaeta							
	Aphroditidae unident.	47	174	1185	459	4306	4755
	<i>Eunoe depressa</i>	5	592	1218	801	4357	4421
	<i>Eunoe nodosa</i>	2	197	208	203	4412	4650
	Polychaeta unident.	11	337	1255	719	4331	4617
	Tube worm unident.	1	1243	1243	1243	4542	4542
Arthropoda							
Cirripedia							
	<i>Balanus</i> sp.	3	918	1185	1026	4426	4735
Malacostraca							
	Albuneidae unident.	2	974	1167	1071	4323	4622
	<i>Calastacus investigatoris</i>	1	954	954	954	4610	4610
	<i>Callianassa californiensis</i>	1	577	577	577	4630	4630
	<i>Cancer magister</i>	29	184	434	283	4307	4652
	<i>Chionoecetes angulatus</i>	6	211	1214	763	4316	4710
	<i>Chionoecetes bairdi</i>	3	237	404	325	4411	4755
	<i>Chionoecetes</i> sp.	1	680	680	680	4314	4314
	<i>Chionoecetes tanneri</i>	177	200	1255	801	4306	4807
	<i>Chorilia longipes</i>	23	263	1115	648	4331	4748
	<i>Crangon communis</i>	8	184	387	249	4307	4650
	<i>Crangon</i> sp.	1	331	331	331	4529	4529
	<i>Eualus barbatus</i>	1	363	363	363	4600	4600
	<i>Eualus macrophthalmus</i>	49	331	1255	830	4306	4741
	<i>Eualus</i> sp.	4	419	628	547	4449	4513

Table 3.--Continued.

Phylum and Class	Species	Frequency of Occurrence	Depth (m)			Latitude Range (ddmm) *	
			Min.	Max.	Mean	South	North
	<i>Isopoda unident.</i>	2	501	798	650	4419	4612
	<i>Lithodes couesi</i>	46	665	1197	984	4307	4804
	<i>Lopholithodes foraminatus</i>	16	180	404	270	4353	4807
	<i>Munida quadrispina</i>	3	221	832	543	4630	4714
	<i>Notostomus japonicus</i>	18	625	1243	962	4307	4715
	Paguridae unident.	68	186	1243	668	4307	4759
	<i>Pagurus capillatus</i>	4	184	387	244	4412	4650
	<i>Pagurus confragosus</i>	27	332	1187	650	4306	4617
	<i>Pagurus tanneri</i>	2	335	336	336	4755	4755
	Pandalidae unident.	1	327	327	327	4351	4351
	<i>Pandalopsis dispar</i>	17	200	366	286	4343	4755
	<i>Pandalus jordani</i>	17	184	335	224	4307	4807
	<i>Pandalus platyceros</i>	13	174	266	205	4326	4807
	<i>Pandalus sp.</i>	2	426	480	453	4450	4754
	<i>Pandalus tridens</i>	3	404	1167	913	4323	4411
	<i>Paralomis multispina</i>	29	745	1255	1132	4307	4804
	<i>Pasiphaea pacifica</i>	36	335	1043	568	4306	4755
	<i>Pasiphaea tarda</i>	90	200	1255	921	4306	4755
	Pasiphaeidae unident.	1	988	988	988	4639	4639
	Sergestidae unident.	1	999	999	999	4617	4617
	Shrimp unident.	15	380	1243	897	4307	4748
Sipuncula							
	<i>Sipuncula unident.</i>	7	174	1243	432	4404	4646
Mollusca							
Aplacophora							
	<i>Aplacophora unident.</i>	7	388	798	600	4325	4736
Gastropoda							
	<i>Antiplanes sp.</i>	4	338	973	563	4445	4751
	<i>Bathybembix bairdii</i>	116	421	1214	857	4307	4804
	<i>Boreotrophon sp.</i>	1	601	601	601	4716	4716
	<i>Buccinum viridum</i>	66	360	1255	961	4307	4759
	<i>Buccinum sp.</i>	22	188	1243	782	4317	4804
	<i>Buccinum strigillatum</i>	10	281	1110	424	4435	4750
	<i>Calliostoma platinum</i>	1	411	411	411	4713	4713
	Chiton unident.	1	484	484	484	4651	4651
	<i>Colus sp.</i>	5	337	1110	626	4445	4517
	<i>Exilicidea kelseyi</i>	1	742	742	742	4504	4504
	<i>Exilicidea rectirostris</i>	1	1110	1110	1110	4517	4517
	<i>Fusitriton oregonensis</i>	25	194	667	369	4412	4757
	Gastropod unident.	10	480	1159	917	4340	4755
	Muricidae unident.	1	612	612	612	4649	4649
	<i>Natica clausa</i>	1	449	449	449	4530	4530
	<i>Natica sp.</i>	10	206	1187	744	4307	4446
	Naticidae unident.	1	803	803	803	4746	4746
	<i>Neptunea amianta</i>	158	332	1255	825	4306	4804
	<i>Neptunea lyrata</i>	1	471	471	471	4754	4754
	<i>Neptunea pribiloffensis</i>	57	215	1187	507	4306	4754
	<i>Neptunea sp.</i>	22	264	1218	584	4342	4755
	Nudibranch unident.	51	186	1243	905	4307	4746
	<i>Plicifusus griseus</i>	17	324	1133	899	4307	4738
	<i>Polinices sp.</i>	3	805	1013	893	4738	4746
	Snail eggs unident.	36	360	1203	791	4317	4759
	<i>Tritonia sp.</i>	21	185	1185	753	4307	4759
Bivalvia							
	<i>Chlamys sp.</i>	1	1167	1167	1167	4323	4323
	<i>Cyclocardia sp.</i>	1	393	393	393	4445	4445

Table 3.--Continued.

Phylum and Class	Species	Frequency of Occurrence	Depth (m)			Latitude Range (ddmm)*	
			Min.	Max.	Mean	South	North
	<i>Mytilidae</i> unident.	1	742	742	742	4504	4504
	<i>Panopea abrupta</i>	1	387	387	387	4617	4617
	<i>Parvaunusium alaskensis</i>	1	1141	1141	1141	4715	4715
	Pectinid unident.	1	988	988	988	4639	4639
	Pelecypoda unident.	14	337	1208	828	4331	4530
	<i>Solemya</i> sp.	6	331	1133	731	4307	4715
	<i>Yoldia</i> sp.	4	434	1243	964	4342	4427
Scaphopoda							
	<i>Dentalium</i> sp.	1	360	360	360	4603	4603
Cephalopoda							
	<i>Berryteuthis magister</i>	33	215	1218	552	4343	4755
	<i>Loligo opalescens</i>	3	188	749	432	4603	4715
	<i>Moroteuthis robusta</i>	2	391	680	536	4314	4445
	Octopus unident.	88	174	1243	601	4306	4757
	Onychoteuthidae unident.	3	854	1184	1035	4307	4343
	<i>Onychoteuthis borealijaponicus</i>	1	283	283	283	4353	4353
	<i>Opisthoteuthis californiana</i>	42	327	1218	733	4306	4759
	<i>Rossia pacifica</i>	1	206	206	206	4540	4540
	Squid unident.	111	200	1255	809	4314	4759
	<i>Taningia danae</i>	24	548	1214	900	4306	4804
	<i>Vampyroteuthis infernalis</i>	47	563	1243	981	4307	4746
Echinodermata							
Crinoidea							
	Crinoid unident.	18	501	1203	938	4331	4743
	<i>Florimetra</i> sp.	4	558	1038	817	4557	4804
	<i>Florimetra serratissima</i>	3	954	1159	1089	4446	4610
Asteroidea							
	<i>Ampheraster marianus</i>	76	324	1112	752	4315	4804
	<i>Brisingella exilis</i>	4	553	885	667	4521	4748
	<i>Ceramaster japonicus</i>	2	641	680	661	4314	4328
	<i>Ceramaster patagonicus</i>	1	200	200	200	4657	4657
	<i>Crossaster borealis</i>	151	188	1255	811	4307	4759
	<i>Crossaster papposus</i>	4	188	885	372	4657	4734
	<i>Crossaster</i> sp.	3	803	941	868	4736	4746
	<i>Cryptopeltaster lepidonotus</i>	6	188	1203	709	4421	4715
	<i>Ctenodiscus crispatus</i>	28	281	1243	458	4312	4755
	<i>Diplopteraster multipes</i>	40	194	1214	395	4324	4755
	<i>Dipsacaster borealis</i>	3	735	1141	905	4311	4715
	<i>Gephyreaster swifti</i>	1	1187	1187	1187	4410	4410
	<i>Henricia aspera</i>	2	456	1144	800	4741	4751
	<i>Henricia</i> sp.	16	194	1167	762	4322	4757
	<i>Heterozonias alternatus</i>	162	194	1255	798	4306	4804
	<i>Hippasteria californica</i>	122	174	1243	822	4307	4759
	<i>Hippasteria</i> sp.	1	891	891	891	4733	4733
	<i>Hippasteria spinosa</i>	20	186	1185	421	4326	4807
	<i>Leptasterias arctica</i>	1	845	845	845	4551	4551
	<i>Leptychaster arcticus</i>	7	338	1065	504	4317	4638
	<i>Leptychaster pacificus</i>	2	558	1114	836	4609	4731
	<i>Lophaster furcilliger</i>	27	194	1243	821	4316	4757
	<i>Lophaster</i> sp.	4	645	1038	874	4712	4804
	<i>Luidia foliata</i>	55	184	925	367	4306	4750
	<i>Luidiaster dawsoni</i>	32	184	1013	438	4357	4755
	<i>Mediaster</i> sp.	2	747	1208	978	4509	4652
	<i>Myoxoderma platyacanthum rhomaleum</i>	32	327	1218	561	4306	4751
	<i>Myoxoderma sacculatum</i>	29	404	1255	1054	4307	4743
	<i>Nearchaster aciculosus</i>	123	184	1255	883	4307	4804
	<i>Poraniopsis inflata</i>	4	184	411	283	4446	4713
	<i>Pseudarchaster parelii</i>	13	221	641	386	4317	4755

TABLE 3. CONTINUED.

Phylum and Class	Species	Frequency of Occurrence	Depth (m)			Latitude Range (ddmm)*	
			Min.	Max.	Mean	South	North
	<i>Pseudarchaster parelii alascensis</i>	46	184	845	372	4306	4750
	<i>Pseudarchaster</i> sp.	1	973	973	973	4512	4512
	<i>Pteraster militaris</i>	16	324	1214	917	4323	4743
	<i>Pteraster</i> sp.	8	200	1197	927	4322	4737
	<i>Pteraster tessellatus</i>	3	215	1171	727	4417	4734
	<i>Pycnopia helianthoides</i>	2	188	211	200	4710	4715
	<i>Rathbunaster californicus</i>	38	185	1141	446	4306	4755
	<i>Solaster</i> sp.	9	200	1184	873	4315	4657
	Starfish unident.	10	266	1184	649	4320	4755
	<i>Stylasterias forreri</i>	19	174	1171	367	4307	4807
	<i>Thrissacanthias penicillatus</i>	168	188	1243	760	4306	4759
	<i>Zoraster evermanni mordax</i>	111	200	1255	864	4306	4759
	Zoroasteridae unident.	5	553	954	809	4610	4746
Echinoidea							
	<i>Allocentrotus fragilis</i>	97	174	667	383	4306	4807
	<i>Brisaster latifrons</i>	43	185	1114	434	4306	4755
	Heart urchin unident.	3	774	1163	1013	4625	4628
	<i>Strongylocentrotus droebachiensis</i>	1	215	215	215	4734	4734
Ophiuroidea							
	<i>Amphiophiura ponderosa</i>	33	449	1203	671	4320	4755
	<i>Asteronyx loveni</i>	26	188	1255	816	4435	4759
	<i>Gorgonocephalus caryi</i>	7	825	1185	1059	4617	4735
	<i>Ophiopholis aculeata</i>	26	335	1167	566	4317	4804
	<i>Ophiura sarsi</i>	36	281	795	418	4306	4755
	Ophiuroid unident.	25	347	1243	703	4331	4748
Holothuroidea							
	Holothuroidea unident.	12	174	1197	654	4435	4755
	<i>Molpadia intermedia</i>	2	389	419	404	4405	4449
	<i>Molpadia</i> sp.	23	186	1243	543	4326	4755
	<i>Pannychia moseleyi</i>	43	367	1203	784	4306	4804
	<i>Parastichopus californicus</i>	15	184	1214	494	4312	4652
	<i>Parastichopus leucothele</i>	12	200	1141	473	4306	4715
	<i>Parastichopus</i> sp.	16	174	365	266	4435	4715
	<i>Pentamera lissoplaca</i>	2	389	393	391	4405	4445
	<i>Pseudostichopus mollis</i>	65	188	1185	484	4411	4755
	<i>Psolus</i> sp.	11	266	1167	847	4331	4738
	<i>Psolus squamatus</i>	6	832	1167	975	4322	4804
	<i>Scotoplanes theeli</i>	31	515	1255	1083	4307	4804
Brachiopoda							
	Brachiopod unident.	6	335	1167	515	4331	4755
	<i>Laqueus californianus</i>	5	393	469	428	4306	4503
	<i>Terebratulina unguicula</i>	1	393	393	393	4503	4503
Urochordata							
Ascidiacea							
	Ascidian unident.	4	211	1144	489	4520	4741
	Compound ascidian unident.	1	363	363	363	4500	4500
Thaliacea							
	Thaliacea unident.	74	184	1243	716	4306	4804

* Degrees and minutes of latitude.

Table 4.--Number of length frequency measurements collected by stratum for the 1996 West Coast upper continental slope bottom trawl survey of the International North Pacific Fisheries Commission U.S. Vancouver area.

Species	Stratum 1 183-366 m	Stratum 2 367-549 m	Stratum 3 550-732 m	Stratum 4 733-914 m	Stratum 5 915-1,097 m	Stratum 6 1,098-1,280 m
Brown cat shark	3	93	1	9	4	0
Spiny dogfish	550	10	0	0	2	0
Bering skate	142	10	0	1	0	0
Longnose skate	55	7	3	0	0	0
Black skate	0	0	0	7	16	20
Spotted ratfish	153	0	0	2	0	0
Arrowtooth flounder	145	6	0	0	0	0
Pacific halibut	12	0	0	0	0	0
Slender sole	522	159	0	0	0	0
Petrale sole	24	1	0	0	0	0
English sole	49	0	277	0	0	0
Dover sole	738	501	56	17	4	0
Deepsea sole	0	3	0	69	79	8
Rex sole	571	114	2	0	0	0
Blackfin poacher	5	4	0	0	0	0
California slickhead	0	0	0	11	58	3
Threadfin slickhead	0	0	93	9	7	0
Sablefish	176	33	175	16	68	45
Pacific grenadier	0	1	18	131	503	311
Giant grenadier	0	2	0	30	107	192
Popeye grenadier	0	0	0	1	1	1
Filamented grenadier	0	0	0	2	0	0
Blob sculpin	0	0	0	0	0	1
Pacific cod	6	0	261	0	0	0
Pacific flatnose	0	34	0	49	90	41
Lingcod	1	0	30	0	0	0
Blacktail snailfish	6	19	30	6	0	0
Pacific hake	1,136	443	60	2	5	1
Twoline eelpout	0	17	43	82	65	14
Snakehead eelpout	0	9	1	40	28	4
Bigfin eelpout	108	63	179	0	0	0
Black eelpout	8	275	127	0	0	0
Shortspine thornyhead	572	1,018	1,316	46	64	27
Longspine thornyhead	5	146	0	890	989	901
Rougheye rockfish	32	7	0	0	0	0
Pacific ocean perch	498	6	0	0	0	0
Aurora rockfish	1	5	0	0	0	0
Darkblotched rockfish	29	0	0	0	0	0
Splitnose rockfish	478	0	0	0	0	0
Greenstriped rockfish	238	0	0	0	0	0
Widow rockfish	7	0	0	0	0	0
Rosethorn rockfish	129	0	0	0	0	0
Bocaccio	4	0	0	0	0	0
Canary rockfish	2	0	0	0	0	0
Redstripe rockfish	3	0	0	0	0	0
Redbanded rockfish	14	0	0	0	0	0
Sharpchin rockfish	86	0	0	0	0	0
Shortraker rockfish	2	2	9	0	0	0

Table 5.--Number of length frequency measurements collected by stratum for the 1996 West Coast upper continental slope bottom trawl survey of the International North Pacific Fisheries Commission Columbia area.

Species	Stratum 1 183-366 m	Stratum 2 367-549 m	Stratum 3 550-732 m	Stratum 4 733-914 m	Stratum 5 915-1,097 m	Stratum 6 1,098-1,280 m
Brown cat shark	32	495	680	406	82	14
Spiny dogfish	4,013	453	4	0	1	0
Deepsea skate	0	0	0	0	0	3
Bering skate	535	202	4	0	0	0
Longnose skate	253	85	8	0	0	0
Black skate	0	2	50	16	89	222
Spotted ratfish	846	6	0	0	0	0
Arrowtooth flounder	220	367	17	0	0	0
Pacific halibut	21	28	0	0	0	0
Slender sole	3,745	1,231	4	0	0	0
Petrale sole	184	6	0	0	0	0
English sole	200	0	0	0	0	0
Dover sole	5,059	3,787	1,234	693	349	287
Deepsea sole	0	12	188	434	356	352
Rex sole	3,602	2,332	183	0	0	0
Blacktip poacher	10	0	0	0	0	0
Smootheye poacher	4	0	0	0	0	0
Bigeye poacher	23	4	0	0	0	0
Blackfin poacher	1	16	20	3	0	0
California slickhead	0	0	342	850	513	108
Threadfin slickhead	0	0	33	387	259	4
Fangtooth	0	0	0	1	0	1
Sablefish	849	474	845	408	430	673
Jack mackerel	146	2	0	0	0	0
California grenadier	0	1	0	2	0	0
Pacific grenadier	0	12	1,311	974	2,288	3,528
Giant grenadier	0	5	658	470	795	1,636
Popeye grenadier	0	0	2	3	10	37
Threadfin sculpin	29	0	0	0	0	0
Blob sculpin	0	0	0	0	1	2
Pacific flatnose	0	129	1,713	541	924	1,384
Lingcod	86	0	0	0	0	0
Blacktail snailfish	55	143	202	71	13	2
Pacific hake	8,074	5,331	470	72	46	37
Chinook salmon	16	0	0	0	0	0
Twoline eelpout	0	32	182	127	213	188
Snakehead eelpout	49	0	50	158	232	74
Bigfin eelpout	1,276	888	20	0	0	0
Black eelpout	259	1,322	1,093	2	0	0
Blackbelly eelpout	50	0	0	0	0	0
Shortspine thornyhead	4,812	5,915	1,231	206	230	222
Longspine thornyhead	13	1,509	8,469	8,268	6,145	6,124
Rougheye rockfish	23	38	2	0	0	0
Pacific ocean perch	743	138	11	0	0	0
Aurora rockfish	28	205	2	0	0	0
Silvergray rockfish	1	0	0	0	0	0
Darkblotched rockfish	500	10	0	0	0	0
Splitnose rockfish	1,799	15	0	0	0	0
Greenstriped rockfish	628	0	0	0	0	0
Widow rockfish	41	1	0	0	0	0
Yellowtail rockfish	15	0	0	0	0	0
Rosethorn rockfish	128	1	0	0	0	0
Shortbelly rockfish	129	0	0	0	0	0
Blackgill rockfish	0	1	0	0	0	0
Bocaccio	2	0	0	0	0	0
Canary rockfish	5	0	0	0	0	0
Redstripe rockfish	17	0	0	0	0	0
Redbanded rockfish	57	6	0	0	0	0
Stripetail rockfish	463	0	0	0	0	0
Sharpchin rockfish	688	3	0	0	0	0
Bank rockfish	1	0	0	0	0	0
Shortraker rockfish	3	1	0	0	0	0
Yellowmouth rockfish	1	0	0	0	0	0

Table 6.--Mean CPUE (kg/ha) of the 20 most abundant groundfish and selected crab species caught in the International North Pacific Fisheries Commission U.S. Vancouver and Columbia areas during the 1996 West Coast upper continental slope groundfish survey for all strata combined.

U.S. Vancouver		Columbia	
Species	All Strata 183-1,280 □	Species	All strata 183-1,280 m
Pacific hake	24.96	Pacific hake	61.81
Spiny dogfish	23.30	Spiny dogfish	52.28
Longspine thornyhead	13.26	Dover sole	15.08
Dover sole	11.81	Longspine thornyhead	14.92
Sablefish	7.37	Sablefish	9.64
Pacific ocean perch	5.73	True Tanner crab	7.80
True Tanner crab	4.11	Giant grenadier	5.83
Shortspine thornyhead	4.04	Shortspine thornyhead	5.32
Giant grenadier	3.64	Pacific grenadier	3.68
Slender sole	3.15	Rex sole	3.57
Pacific grenadier	2.16	Longnose skate	1.77
Greenstriped rockfish	2.13	Jack mackerel	1.46
Spotted ratfish	1.84	Arrowtooth flounder	1.26
Arrowtooth flounder	1.48	Slender sole	1.25
Rex sole	1.46	Splitnose rockfish	0.92
Longnose skate	1.28	Black skate	0.92
Deepsea sole	0.99	Pacific ocean perch	0.91
Pacific halibut	0.94	Bering skate	0.84
Twoline eelpout	0.86	Darkblotched rockfish	0.79
Bering skate	0.80	Deepsea sole	0.73
Number of hauls	26	Number of hauls	177

Table 7.--Mean CPUE (kg/ha) of the 20 most abundant groundfish and selected crab species caught in the International North Pacific Fisheries Commission U.S. Vancouver area during the 1996 West Coast upper continental slope groundfish survey.

Species	Stratum 1 183-366 m	Species	Stratum 2 367-549 m	Species	Stratum 3 550-732 m
Spiny dogfish	100.31	Dover sole	36.09	Dover sole	10.04
Pacific hake	88.73	Pacific hake	27.28	Longspine thornyhead	9.81
Pacific ocean perch	24.56	Shortspine thornyhead	7.88	True tanner crab	8.26
Dover sole	19.56	Sablefish	4.63	Shortspine thornyhead	4.02
Slender sole	13.19	Brown cat shark	2.38	Deepsea sole	1.76
Sablefish	10.38	Longspine thornyhead	2.37	Twoline eelpout	1.63
Greenstriped rockfish	9.23	Bigfin eelpout	1.71	Pacific hake	1.54
Spotted ratfish	7.92	Rex sole	1.65	Pacific grenadier	1.14
Arrowtooth flounder	6.18	Black eelpout	1.65	Giant grenadier	1.13
Rex sole	5.24	Twoline eelpout	1.07	Pacific flatnose	1.09
Longnose skate	4.88	Longnose skate	0.98	Black eelpout	0.98
Shortspine thornyhead	4.10	Spiny dogfish	0.82	King-of-the-salmon	0.49
Pacific halibut	4.05	Rougheye rockfish	0.80	Brown cat shark	0.41
Bering skate	2.95	Bering skate	0.77	Black skate	0.35
Splitnose rockfish	1.88	Slender sole	0.68	Blacktail snailfish	0.35
Rosethorn rockfish	1.84	Shortraker rockfish	0.55	Snakehead eelpout	0.28
English sole	1.41	True tanner crab	0.43	Black hagfish	0.08
<i>Lopholithodes foraminatus</i>	1.27	Pacific ocean perch	0.39	Pacific viperfish	0.05
Petrals sole	1.16	Arrowtooth flounder	0.36	Spiny dogfish	0.04
Bigfin eelpout	1.08	Blacktail snailfish	0.34	Longfin dragonfish	0.04
Number of hauls	6	Number of hauls	4	Number of hauls	4

Species	Stratum 4 733-914 m	Species	Stratum 5 915-1,097 m	Species	Stratum 6 1,098-1,280
Longspine thornyhead	22.23	Longspine thornyhead	30.22	Longspine thornyhead	18.65
True tanner crab	9.90	Sablefish	6.26	Giant grenadier	17.48
Shortspine thornyhead	2.52	Giant grenadier	5.69	Sablefish	10.07
Giant grenadier	2.09	Pacific grenadier	5.24	Pacific grenadier	7.56
Deepsea sole	1.80	True tanner crab	5.07	True tanner crab	2.34
Sablefish	1.51	Shortspine thornyhead	3.24	Shortspine thornyhead	2.20
Dover sole	0.98	Deepsea sole	1.98	Black skate	1.98
Twoline eelpout	0.70	Twoline eelpout	1.33	Pacific flatnose	0.84
Pacific grenadier	0.64	California slickhead	1.03	Twoline eelpout	0.71
Black hagfish	0.52	Black skate	0.90	Blob sculpin	0.31
Snakehead eelpout	0.26	Pacific flatnose	0.32	Deepsea sole	0.29
Black skate	0.19	<i>Lithodes couesi</i>	0.27	Blacksmelt unident.	0.09
Brown cat shark	0.13	Dover sole	0.24	Pacific hake	0.08
California slickhead	0.12	Snakehead eelpout	0.17	California slickhead	0.08
Blacksmelt unident.	0.08	Pacific hake	0.13	<i>Lithodes couesi</i>	0.06
Pacific hake	0.08	Black hagfish	0.11	Lanternfish unident.	0.06
Pacific flatnose	0.08	Spiny dogfish	0.08	Pacific viperfish	0.05
Spotted ratfish	0.06	Blacksmelt unident.	0.07	Black hagfish	0.05
Blacktail snailfish	0.05	Brown cat shark	0.07	Snakehead eelpout	0.05
Threadfin slickhead	0.03	<i>Careproctus</i> sp.	0.05	Crested bigscale	0.02
Number of hauls	4	Number of hauls	5	Number of hauls	3

Table 8.--Mean CPUE (kg/ha) of the 20 most abundant groundfish and selected crab species caught in the International North Pacific Fisheries Commission Columbia area during the 1996 West Coast upper continental slope groundfish survey.

Species	Stratum 1 183-366 m	Species	Stratum 2 367-549 m	Species	Stratum 3 550-732 m
Spiny dogfish	246.27	Pacific hake	88.29	Longspine thornyhead	14.36
Pacific hake	218.30	Dover sole	25.62	True Tanner crab	13.28
Dover sole	36.83	Shortspine thornyhead	9.62	Sablefish	12.92
Rex sole	10.89	Rex sole	7.09	Dover sole	8.47
Sablefish	9.82	Sablefish	6.03	Shortspine thornyhead	5.41
Jack mackerel	6.96	Arrowtooth flounder	4.62	Giant grenadier	5.23
Shortspine thornyhead	6.77	Spiny dogfish	4.50	Pacific hake	3.59
Longnose skate	5.74	Longnose skate	3.01	Brown cat shark	0.90
Slender sole	5.27	Pacific halibut	2.15	Pacific flatnose	0.82
Splitnose rockfish	4.36	Bigfin eelpout	1.61	Black eelpout	0.81
Darkblotched rockfish	3.72	Brown cat shark	1.60	Black skate	0.80
Pacific ocean perch	3.57	Bering skate	1.50	Deepsea sole	0.76
Bering skate	2.73	Black eelpout	1.23	Twoline eelpout	0.73
Spotted ratfish	2.59	Longspine thornyhead	1.10	Pacific grenadier	0.60
Arrowtooth flounder	1.94	Pacific ocean perch	0.84	California slickhead	0.35
Bigfin eelpout	1.92	Slender sole	0.83	Rex sole	0.30
Sharpchin rockfish	1.72	<i>Lopholithodes foraminatus</i>	0.70	Arrowtooth flounder	0.27
Lingcod	1.57	Aurora rockfish	0.64	Longnose skate	0.27
Petrale sole	1.54	Rougheye rockfish	0.56	Black hagfish	0.26
Shortbelly rockfish	1.36	True Tanner crab	0.48	Blacktail snailfish	0.16
Number of hauls	37	Number of hauls	31	Number of hauls	29

Species	Stratum 4 733-914 m	Species	Stratum 5 915-1,097 m	Species	Stratum 6 1,098-1,280m
Longspine thornyhead	23.81	Longspine thornyhead	32.22	Longspine thornyhead	26.39
True Tanner crab	14.87	True Tanner crab	12.42	Giant grenadier	22.60
Sablefish	5.88	Pacific grenadier	8.30	Sablefish	16.31
Dover sole	4.29	Sablefish	7.39	Pacific grenadier	15.34
Giant grenadier	3.82	Giant grenadier	7.06	True Tanner crab	9.24
Shortspine thornyhead	1.81	Shortspine thornyhead	3.84	Black skate	3.66
Deepsea sole	1.18	Dover sole	2.91	Shortspine thornyhead	3.30
California slickhead	1.13	Black skate	1.38	Pacific flatnose	3.30
Pacific grenadier	0.68	California slickhead	1.35	Dover sole	2.73
Threadfin slickhead	0.47	Deepsea sole	1.31	Deepsea sole	1.51
Brown cat shark	0.43	Twoline eelpout	0.58	Twoline eelpout	1.08
Black hagfish	0.38	Pacific flatnose	0.49	<i>Paralomis multispina</i>	0.55
Pacific hake	0.38	Black hagfish	0.39	Deepsea skate	0.44
Twoline eelpout	0.30	Threadfin slickhead	0.27	California slickhead	0.36
Ragfish	0.25	Pacific hake	0.23	Triangle Tanner crab	0.20
Black skate	0.23	Snakehead eelpout	0.23	Pacific hake	0.20
Pacific sleeper shark	0.19	Brown cat shark	0.20	Blacksmelt unident.	0.17
Blacksmelt unident.	0.17	Blacksmelt unident.	0.17	Blob sculpin	0.17
Pacific flatnose	0.16	<i>Lithodes couesi</i>	0.06	Pacific sleeper shark	0.12
Snakehead eelpout	0.14	Blob sculpin	0.05	Black hagfish	0.11
Number of hauls	28	Number of hauls	26	Number of hauls	26

Table 9.--Estimates of fish biomass (metric tons) and coefficient of variation (CV) by stratum for the International North Pacific Fisheries Commission U.S. Vancouver area from the 1996 West Coast upper continental slope bottom trawl survey. Differences in totals result from rounding.

Species	Stratum 1 183-366 m		Stratum 2 367-549 m		Stratum 3 550-732 m		Stratum 4 733-914 m	
	Biomass (t)	CV	Biomass (t)	CV	Biomass (t)	CV	Biomass (t)	CV
Brown cat shark	35	67%	891	45%	107	45%	30	64%
Spiny dogfish	40,374	70%	305	88%	11	100%	-	0%
Bering skate	1,186	37%	286	30%	-	0%	2	100%
Longnose skate	1,963	26%	368	28%	-	0%	-	0%
Black skate	-	0%	-	0%	90	59%	46	97%
Pacific hake	35,715	20%	10,204	38%	401	39%	18	100%
Pacific grenadier	-	0%	6	100%	298	39%	150	29%
Giant grenadier	-	0%	75	58%	294	58%	492	40%
Shortspine thornyhead	1,650	44%	2,948	23%	1,048	9%	594	18%
Longspine thornyhead	5	100%	885	96%	2,561	29%	5,233	11%
Pacific ocean perch	9,885	43%	145	100%	-	0%	-	0%
Aurora rockfish	11	100%	90	100%	-	0%	-	0%
Darkblotched rockfish	191	49%	-	0%	-	0%	-	0%
Splitnose rockfish	755	64%	-	0%	-	0%	-	0%
Redbanded rockfish	100	38%	-	0%	-	0%	-	0%
Sablefish	4,178	58%	1,732	29%	2,823	59%	356	33%
Twoline eelpout	-	0%	402	25%	427	50%	164	51%
Bigfin eelpout	434	42%	638	38%	8	100%	-	0%
Black eelpout	11	85%	616	54%	257	72%	-	0%
<i>Lycenchelys</i> spp.	-	0%	19	100%	72	100%	62	28%
Arrowtooth flounder	2,486	34%	136	100%	-	0%	-	0%
Slender sole	5,309	48%	253	79%	-	0%	-	0%
Dover sole	7,871	26%	13,502	37%	2,621	33%	231	100%
Deepsea sole	-	0%	63	66%	458	37%	424	10%
Rex sole	2,111	34%	617	35%	-	0%	-	0%

Species	Stratum 5 915-1,097 m		Stratum 6 1,098-1,280 m		All Strata 183-1,280 m	
	Biomass (t)	CV	Biomass (t)	CV	Biomass (t)	CV
Brown cat shark	16	75%	-	0%	1,078	38%
Spiny dogfish	20	100%	-	0%	40,710	69%
Bering skate	-	0%	-	0%	1,475	30%
Longnose skate	-	0%	-	0%	2,331	22%
Black skate	213	48%	474	31%	823	23%
Pacific hake	30	44%	20	100%	46,389	17%
Pacific grenadier	1,250	21%	1,810	12%	3,513	10%
Giant grenadier	1,357	31%	4,182	19%	6,399	15%
Shortspine thornyhead	773	15%	527	50%	7,541	14%
Longspine thornyhead	7,201	9%	4,463	23%	20,347	9%
Pacific ocean perch	-	0%	-	0%	10,030	0.42
Aurora rockfish	-	0%	-	0%	101	90%
Darkblotched rockfish	-	0%	-	0%	191	49%
Splitnose rockfish	-	0%	-	0%	755	64%
Redbanded rockfish	-	0%	-	0%	100	38%
Sablefish	1,491	18%	2,410	29%	12,989	24%
Twoline eelpout	318	42%	169	58%	1,479	20%
Bigfin eelpout	-	0%	-	0%	1,080	28%
Black eelpout	-	0%	-	0%	883	43%
<i>Lycenchelys</i> spp.	41	43%	11	50%	205	39%
Arrowtooth flounder	-	0%	-	0%	2,622	33%
Slender sole	-	0%	-	0%	5,562	46%
Dover sole	58	80%	-	0%	24,283	22%
Deepsea sole	473	49%	69	57%	1,486	20%
Rex sole	-	0%	-	0%	2,728	28%

Table 10.--Estimates of fish biomass (metric tons) and coefficient of variation (CV) by stratum for the International North Pacific Fisheries Commission Columbia area from the 1996 West Coast upper continental slope bottom trawl survey. Differences in totals result from rounding.

Species	Stratum 1 183-366 m		Stratum 2 367-549 m		Stratum 3 550-732 m		Stratum 4 733-914 m	
	Biomass (t)	CV	Biomass (t)	CV	Biomass (t)	CV	Biomass (t)	CV
Brown cat shark	95	31%	598	28%	236	19%	101	21%
Spiny dogfish	99,120	25%	1,685	35%	11	73%	-	0%
Bering skate	1,100	13%	562	31%	10	58%	-	0%
Longnose skate	2,309	17%	1,126	24%	70	54%	-	0%
Black skate	-	0%	14	70%	209	25%	55	29%
Pacific hake	87,866	27%	33,033	25%	938	63%	89	21%
Pacific grenadier	-	0%	6	63%	156	20%	159	16%
Giant grenadier	-	0%	15	83%	1,366	22%	899	28%
Shortspine thornyhead	2,723	15%	3,601	14%	1,411	24%	426	14%
Longspine thornyhead	1	77%	411	48%	3,748	13%	5,604	8%
Pacific ocean perch	1,437	49%	316	40%	19	73%	-	0%
Aurora rockfish	30	72%	241	30%	1	100%	-	0%
Darkblotched rockfish	1,495	57%	28	33%	-	0%	-	0%
Splitnose rockfish	1,756	35%	17	61%	-	0%	-	0%
Redbanded rockfish	75	27%	17	55%	-	0%	-	0%
Sablefish	3,951	15%	2,256	14%	3,371	12%	1,385	13%
Twoline eelpout	1	100%	65	73%	192	20%	70	20%
Bigfin eelpout	7	100%	-	100%	11	39%	34	22%
Black eelpout	135	58%	459	30%	211	33%	-	100%
Lycenchelys spp.	771	20%	603	16%	19	69%	-	0%
Arrowtooth flounder	779	17%	1,729	48%	71	96%	-	0%
Slender sole	2,120	19%	310	30%	-	100%	-	0%
Dover sole	14,823	16%	9,585	24%	2,211	21%	1,010	23%
Deepsea sole	-	0%	16	75%	198	38%	278	12%
Rex sole	4,383	23%	2,651	31%	78	38%	-	0%

Species	Stratum 5 915-1,097 m		Stratum 6 1,098-1,280 m		All Strata 183-1,280 m	
	Biomass (t)	CV	Biomass (t)	CV	Biomass (t)	CV
Brown cat shark	47	21%	9	48%	1,086	17%
Spiny dogfish	1	100%	-	0%	100,818	25%
Bering skate	-	0%	-	0%	1,672	14%
Longnose skate	-	0%	-	0%	3,505	14%
Black skate	329	24%	876	21%	1,484	14%
Pacific hake	55	25%	47	23%	122,028	20%
Pacific grenadier	1,977	20%	3,671	13%	5,969	10%
Giant grenadier	1,681	15%	5,407	14%	9,368	9%
Shortspine thornyhead	916	19%	790	14%	9,867	8%
Longspine thornyhead	7,678	7%	6,314	13%	23,757	5%
Pacific ocean perch	-	0%	-	0%	1,772	0.4
Aurora rockfish	-	0%	-	0%	273	28%
Darkblotched rockfish	-	0%	-	0%	1,524	56%
Splitnose rockfish	-	0%	-	0%	1,773	35%
Redbanded rockfish	-	0%	-	0%	92	24%
Sablefish	1,761	15%	3,903	21%	16,628	7%
Twoline eelpout	137	27%	258	23%	723	13%
Bigfin eelpout	55	21%	22	34%	129	14%
Black eelpout	-	0%	-	0%	805	22%
Lycenchelys spp.	-	0%	-	0%	1,393	13%
Arrowtooth flounder	-	0%	-	0%	2,579	32%
Slender sole	-	0%	-	0%	2,430	17%
Dover sole	692	32%	654	31%	28,976	12%
Deepsea sole	313	14%	362	21%	1,166	10%
Rex sole	-	0%	-	0%	7,112	18%

Table 11.--Estimates of fish population and coefficient of variation (CV) by stratum for the International North Pacific Fisheries Commission U.S. Vancouver area from the 1996 West Coast upper continental slope bottom trawl survey. Differences in totals result from rounding.

Species	Stratum 1 183-366 m		Stratum 2 367-549 m		Stratum 3 550-732 m		Stratum 4 733-914 m	
	Population (number)	CV	Population (number)	CV	Population (number)	CV	Population (number)	CV
Brown cat shark	50,562	70%	2,391,444	48%	682,529	64%	127,931	72%
Spiny dogfish	54,774,476	73%	268,816	88%	17,414	100%	-	0%
Bering skate	2,500,992	39%	251,317	25%	0	0%	13,046	100%
Longnose skate	940,638	25%	177,209	27%	0	0%	-	0%
Black skate	0	0%	0	0%	51,215	63%	92,377	81%
Pacific hake	66,412,834	26%	16,240,147	39%	507,734	33%	27,569	100%
Pacific grenadier	0	0%	24,425	100%	3,006,973	33%	1,804,508	17%
Giant grenadier	0	0%	50,947	58%	310,191	54%	414,207	37%
Shortspine thornyhead	13,143,911	40%	25,445,090	26%	2,153,821	2%	638,103	15%
Longspine thornyhead	94,147	100%	12,588,344	95%	66,236,581	34%	67,083,820	9%
Pacific ocean perch	12,602,995	41%	162,927	100%	0	0%	-	0%
Aurora rockfish	15,877	100%	135,772	100%	0	0%	-	0%
Darkblotched rockfish	510,682	64%	0	0%	0	0%	-	0%
Splitnose rockfish	8,491,403	55%	0	0%	0	0%	-	0%
Redbanded rockfish	259,653	48%	0	0%	0	0%	-	0%
Sablefish	3,118,058	57%	841,748	26%	1,580,378	61%	220,939	23%
Twoline eelpout	0	0%	423,759	26%	1,017,813	54%	1,149,413	42%
Bigfin eelpout	1,978,448	49%	1,624,525	37%	17,414	100%	-	0%
Black eelpout	128,480	85%	7,008,487	54%	3,032,717	72%	-	0%
<i>Lycenchelys</i> spp.	0	0%	219,829	100%	748,794	100%	554,984	29%
Arrowtooth flounder	3,634,389	70%	162,927	100%	0	0%	-	0%
Slender sole	51,088,504	43%	4,231,863	80%	0	0%	-	0%
Dover sole	18,824,785	27%	36,897,321	44%	4,702,200	26%	239,736	100%
Deepsea sole	0	0%	75,454	65%	953,515	28%	956,317	11%
Rex sole	12,231,683	31%	2,824,546	37%	0	0%	-	0%

Species	Stratum 5 915-1,097 m		Stratum 6 1,098-1,280 m		All Strata 183-1,280 m	
	Population (number)	CV	Population (number)	CV	Population (number)	CV
Brown cat shark	46,759	74%	0	0%	3,299,225	37%
Spiny dogfish	24,560	100%	0	0%	55,085,266	73%
Bering skate	0	0%	0	0%	2,765,355	36%
Longnose skate	0	0%	0	0%	1,117,847	21%
Black skate	183,971	35%	381,083	30%	708,645	22%
Pacific hake	54,098	45%	19,041	100%	83,261,422	22%
Pacific grenadier	5,760,007	24%	6,827,997	10%	17,423,912	11%
Giant grenadier	1,214,026	30%	3,663,700	14%	5,653,071	12%
Shortspine thornyhead	724,790	12%	517,952	52%	42,623,667	20%
Longspine thornyhead	70,390,870	10%	52,150,012	16%	268,543,773	11%
Pacific ocean perch	0	0%	0	0%	12,765,922	40%
Aurora rockfish	0	0%	0	0%	151,649	90%
Darkblotched rockfish	0	0%	0	0%	510,682	64%
Splitnose rockfish	0	0%	0	0%	8,491,403	55%
Redbanded rockfish	0	0%	0	0%	259,653	48%
Sablefish	774,011	10%	856,716	30%	7,391,849	28%
Twoline eelpout	764,201	35%	266,027	43%	3,621,213	22%
Bigfin eelpout	0	0%	0	0%	3,620,387	32%
Black eelpout	0	0%	0	0%	10,169,684	43%
<i>Lycenchelys</i> spp.	316,605	42%	76,641	50%	1,916,853	42%
Arrowtooth flounder	0	0%	0	0%	3,797,316	67%
Slender sole	0	0%	0	0%	55,320,366	41%
Dover sole	47,887	75%	0	0%	60,711,929	28%
Deepsea sole	935,312	44%	153,376	54%	3,073,974	17%
Rex sole	0	0%	0	0%	15,056,229	26%

Table 12.--Estimates of fish population and coefficient of variation (CV) by stratum for the International North Pacific Fisheries Commission Columbia area from the 1996 West Coast upper continental slope bottom trawl survey. Differences in totals result from rounding.

Species	Stratum 1 183-366 m		Stratum 2 367-549 m		Stratum 3 550-732 m		Stratum 4 733-914 m	
	Population (number)	CV	Population (number)	CV	Population (number)	CV	Population (number)	CV
Brown cat shark	202,508	37%	1,576,675	24%	1,535,033	32%	847,641	40%
Spiny dogfish	124,305,776	28%	1,746,814	39%	9,136	47%	-	0%
Bering skate	1,838,029	13%	692,508	31%	9,428	59%	-	0%
Longnose skate	837,094	14%	304,127	28%	18,731	58%	-	0%
Black skate	0	0%	6,270	70%	113,861	27%	32,456	26%
Pacific hake	193,802,312	26%	68,152,948	25%	1,597,682	64%	148,067	22%
Pacific grenadier	0	0%	41,005	78%	2,953,377	26%	2,045,605	12%
Giant grenadier	0	0%	14,586	81%	1,465,875	22%	985,253	29%
Shortspine thornyhead	24,814,009	18%	38,544,465	14%	2,853,172	22%	425,024	18%
Longspine thornyhead	35,454	81%	9,067,406	42%	63,455,039	13%	74,235,801	7%
Pacific ocean perch	2,436,348	44%	444,661	39%	26,646	73%	-	0%
Aurora rockfish	80,895	67%	667,108	29%	4,929	100%	-	0%
Darkblotched rockfish	2,750,576	52%	33,299	33%	0	0%	-	0%
Splitnose rockfish	14,743,822	31%	47,092	58%	0	0%	-	0%
Redbanded rockfish	186,155	23%	22,891	43%	0	0%	-	0%
Sablefish	2,768,873	18%	1,493,229	21%	1,924,410	12%	844,789	14%
Twoline eelpout	3,128	100%	97,861	77%	413,444	19%	269,300	22%
Bigfin eelpout	139,095	100%	2,989	100%	121,784	43%	344,702	21%
Black eelpout	2,453,644	59%	8,214,501	31%	3,561,595	36%	4,349	100%
<i>Lycenchelys</i> spp.	6,798,024	21%	3,307,244	20%	48,090	66%	-	0%
Arrowtooth flounder	769,531	18%	1,581,850	48%	41,643	89%	-	0%
Slender sole	60,417,117	24%	7,714,383	29%	9,858	100%	-	0%
Dover sole	45,849,692	18%	28,258,936	32%	3,252,274	21%	1,468,078	28%
Deepsea sole	0	0%	37,229	83%	534,755	44%	918,633	12%
Rex sole	32,105,406	20%	17,670,023	31%	400,804	39%	-	0%

Species	Stratum 5 915-1,097 m		Stratum 6 1,098-1,280 m		All Strata 183-1,280 m	
	Population (number)	CV	Population (number)	CV	Population (number)	CV
Brown cat shark	180,068	21%	31,603	47%	4,373,529	16%
Spiny dogfish	2,155	100%	0	0%	126,063,881	28%
Bering skate	0	0%	0	0%	2,539,965	12%
Longnose skate	0	0%	0	0%	1,159,952	12%
Black skate	191,464	21%	517,737	22%	861,787	15%
Pacific hake	102,606	26%	80,798	23%	263,884,413	20%
Pacific grenadier	5,165,472	12%	10,339,585	12%	20,545,044	8%
Giant grenadier	1,719,136	15%	4,469,740	17%	8,654,590	11%
Shortspine thornyhead	496,209	15%	519,319	15%	67,652,197	10%
Longspine thornyhead	72,964,675	4%	63,167,376	14%	282,925,750	5%
Pacific ocean perch	0	0%	0	0%	2,907,656	37%
Aurora rockfish	0	0%	0	0%	752,932	27%
Darkblotched rockfish	0	0%	0	0%	2,783,875	51%
Splitnose rockfish	0	0%	0	0%	14,790,913	31%
Redbanded rockfish	0	0%	0	0%	209,045	21%
Sablefish	932,486	15%	1,513,747	20%	9,477,534	8%
Twoline eelpout	445,585	42%	435,658	23%	1,664,976	15%
Bigfin eelpout	501,536	19%	169,266	32%	1,279,372	15%
Black eelpout	0	0%	0	0%	14,234,089	22%
<i>Lycenchelys</i> spp.	0	0%	0	0%	10,153,358	16%
Arrowtooth flounder	0	0%	0	0%	2,393,024	32%
Slender sole	0	0%	0	0%	68,141,359	22%
Dover sole	801,670	35%	671,811	31%	80,302,461	15%
Deepsea sole	781,208	14%	788,823	25%	3,060,648	11%
Rex sole	0	0%	0	0%	50,176,234	17%

Table 15.--Population estimates for Dover sole by age group and mean length at age for the International North Pacific Fisheries Commission U.S. Vancouver area for all depth strata (183-1,280 m) from the 1996 West Coast upper continental slope bottom trawl survey.

Age	Year Class	Population Number	Mean Length (cm)	Standard Deviation
3	1993	8,618	21.83	1.07
4	1992	60,210	27.59	2.58
5	1991	292,925	29.75	2.67
6	1990	509,281	31.09	2.80
7	1989	916,426	30.71	2.32
8	1988	1,044,512	31.80	2.65
9	1987	1,188,481	32.68	2.71
10	1986	731,481	32.24	2.94
11	1985	959,229	33.72	2.91
12	1984	968,689	33.56	3.22
13	1983	582,467	35.03	3.88
14	1982	593,994	34.88	3.62
15	1981	546,478	35.80	3.18
16	1980	365,554	35.24	4.87
17	1979	390,892	37.21	4.32
18	1978	104,464	38.93	4.66
19	1977	163,581	38.99	4.32
20	1976	130,330	39.02	4.22
21	1975	131,211	38.73	4.03
22	1974	146,950	37.01	4.23
23	1973	73,643	42.82	5.71
24	1972	57,008	43.67	2.64
25	1971	44,934	41.40	4.03
26	1970	76,894	43.71	5.43
27	1969	61,197	44.41	3.53
28	1968	41,342	44.35	3.85
29	1967	43,166	43.89	5.43
30	1966	57,484	44.84	5.19
31	1965	32,568	44.40	5.28
32	1964	39,435	41.41	4.12
33	1963	18,320	44.20	4.64
34	1962	22,724	44.13	3.15
35	1961	26,861	46.56	3.81
36	1960	13,763	46.72	3.01
37	1959	14,809	48.79	3.42
38	1958	20,330	45.99	3.71
39	1957	11,359	49.12	3.29
40	1956	13,405	49.92	3.86
41	1955	6,828	43.86	2.00
42	1954	9,182	43.29	1.30
43	1953	9,575	46.82	4.24
44	1952	12,257	45.39	4.39
45	1951	8,526	43.16	3.41
46	1950	4,850	46.33	1.49
47	1949	10,111	48.08	3.20
48	1948	6,185	43.63	4.17
49	1947	3,861	49.21	2.99
51	1945	967	56.00	0.00
52	1944	3,120	51.00	0.00
53	1943	4,394	48.51	0.50
54	1942	5,491	49.40	2.08
55	1941	830	57.00	0.00
Above, below, or between key lengths		2,690	62.00	0.00
Total		10,593,882	34.24	-

Table 16.--Population estimates for Dover sole by age group and mean length at age for the International North Pacific Fisheries Commission Columbia area for all depth strata (183-1,280 m) from the 1996 West Coast upper continental slope bottom trawl survey.

Age	Year Class	Population Number	Mean Length (cm)	Standard Deviation
3	1993	267,138	21.97	1.41
4	1992	1,402,482	25.59	3.06
5	1991	4,913,324	27.76	2.71
6	1990	6,313,494	28.73	3.16
7	1989	10,309,468	29.27	2.55
8	1988	9,350,801	30.51	2.77
9	1987	8,734,951	31.29	2.97
10	1986	5,663,701	31.37	2.76
11	1985	5,856,179	32.84	2.99
12	1984	5,971,578	32.58	3.37
13	1983	3,050,919	34.61	3.98
14	1982	3,265,268	34.46	4.01
15	1981	2,554,173	35.65	3.68
16	1980	2,137,618	34.68	5.01
17	1979	1,994,996	37.04	4.64
18	1978	581,653	40.33	5.27
19	1977	834,497	39.63	4.29
20	1976	742,802	39.32	4.28
21	1975	692,225	39.57	4.38
22	1974	794,411	37.07	4.68
23	1973	432,320	42.22	4.75
24	1972	390,528	44.13	2.87
25	1971	320,233	43.02	4.25
26	1970	468,767	43.26	4.23
27	1969	433,895	45.05	3.58
28	1968	245,470	44.26	3.82
29	1967	276,857	45.73	6.15
30	1966	321,996	43.99	3.79
31	1965	215,279	44.75	5.05
32	1964	259,485	43.03	3.96
33	1963	145,386	45.61	5.03
34	1962	192,280	45.53	3.27
35	1961	149,552	46.19	3.34
36	1960	106,129	46.65	3.11
37	1959	48,499	48.98	3.39
38	1958	113,542	46.76	3.05
39	1957	84,613	48.60	3.61
40	1956	55,448	51.96	6.80
41	1955	40,303	44.92	1.77
42	1954	46,475	43.88	1.30
43	1953	58,641	48.09	3.77
44	1952	51,641	45.50	4.38
45	1951	48,997	44.21	3.84
46	1950	9,123	45.58	1.19
47	1949	35,905	47.74	3.26
48	1948	42,210	45.49	5.07
49	1947	11,454	49.64	2.93
51	1945	11,301	56.00	0.00
52	1944	12,834	51.00	0.00
53	1943	7,966	48.78	0.42
54	1942	29,297	49.24	1.63
55	1941	7,032	57.00	0.00
Above, below, or between key lengths		197,327	35.20	7.91
Total		80,302,463	32.38	-

Table 17.--The length-weight relationships for the International North Pacific Fisheries Commission U.S. Vancouver and Columbia areas from the 1996 West Coast upper continental slope survey using nonlinear regression fit for the equation:

$$\text{Fish weight (g)} = a \cdot \text{fork length (cm)}^b$$

Species	Sex	Number Sampled	Length-Weight Coefficients		Predicted Weight at Length		
			a	b	(g)		
Arrowtooth flounder	M	117	0.006000	3.105600	40 cm	60 cm	80 cm
	F	223	0.002100	3.419200	566.9	1997.0	4879.6
	T	340	0.001800	3.440300	630.9	2523.9	6749.4
Dover sole	M	512	0.003200	3.301600	602.1	2437.1	6572.0
	F	689	0.003700	3.266800	20 cm	40 cm	60 cm
	T	1201	0.003400	3.287100	63.2	623.0	2376.3
Sablefish	M	602	0.003200	3.285800	65.8	633.6	2302.7
	F	861	0.002500	3.354000	64.3	627.5	2379.2
	T	1468	0.002600	3.337900	40 cm	60 cm	80 cm
Shortspine thornyhead	M	670	0.003200	3.285800	587.8	2227.4	5732.2
	F	791	0.004400	3.282400	590.5	2300.7	6038.1
	U	46	0.913300	2.613600	578.7	2240.1	5951.9
	T	1507	0.005100	3.242800	20 cm	40 cm	60 cm
Longspine thornyhead	M	403	0.004500	3.298300	84.2	796.1	2963.5
	F	382	0.004600	3.287200	02.0	799.1	3020.3
	U	179	0.021400	2.680500	2296.1		
	T	964	0.007100	3.146100	84.4	799.3	2976.9
Longspine thornyhead	M	403	0.004500	3.298300	10 cm	20 cm	30 cm
	F	382	0.004600	3.287200	8.9	88.0	335.1
	U	179	0.021400	2.680500	0.9	87.0	329.9
	T	964	0.007100	3.146100	10.3	65.7	
					9.9	88.0	315.1

s

FIGURES

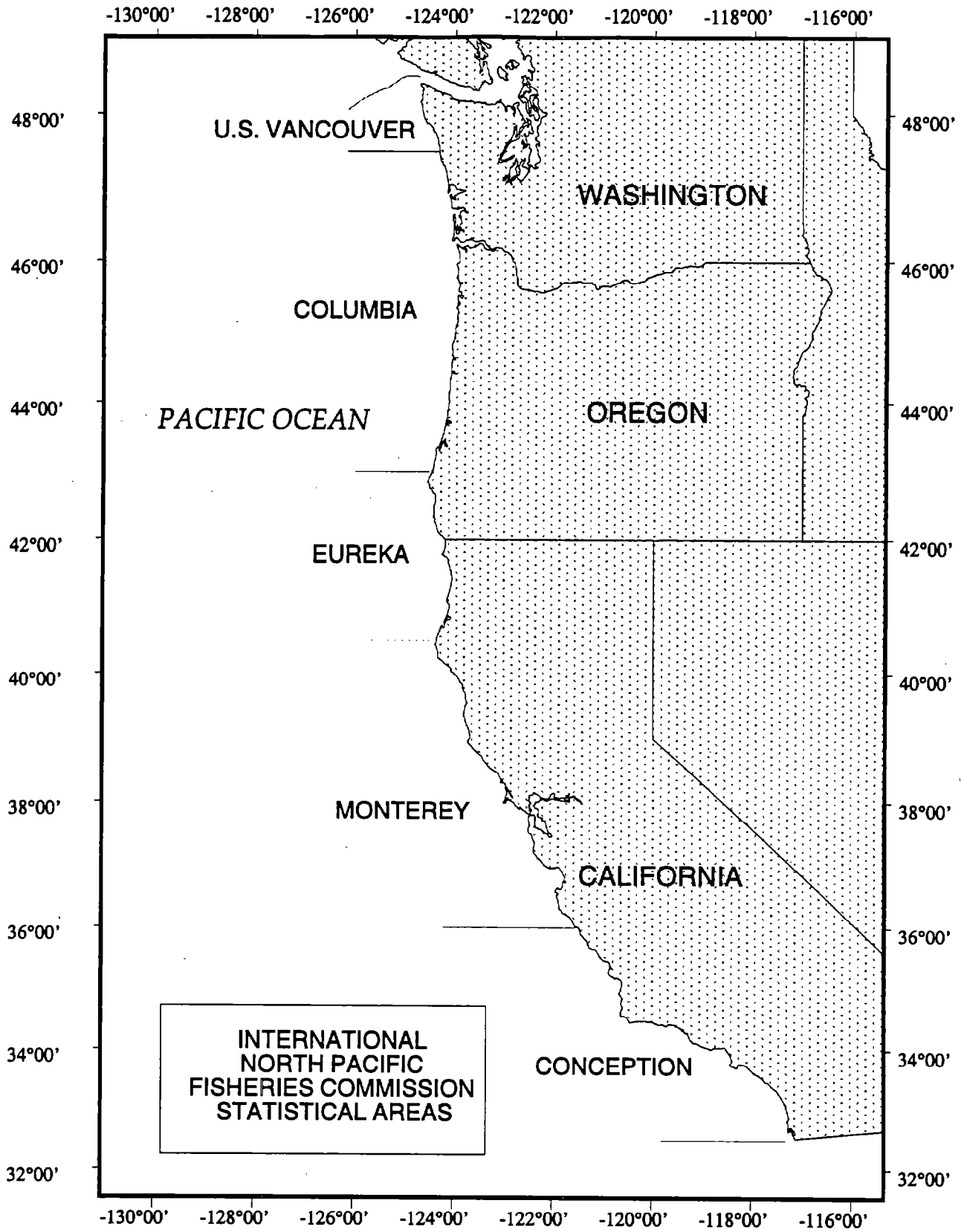


Figure 1.--Map showing the latitudinal boundaries for the West Coast International North Pacific Fisheries Commission (INPFC) statistical areas.

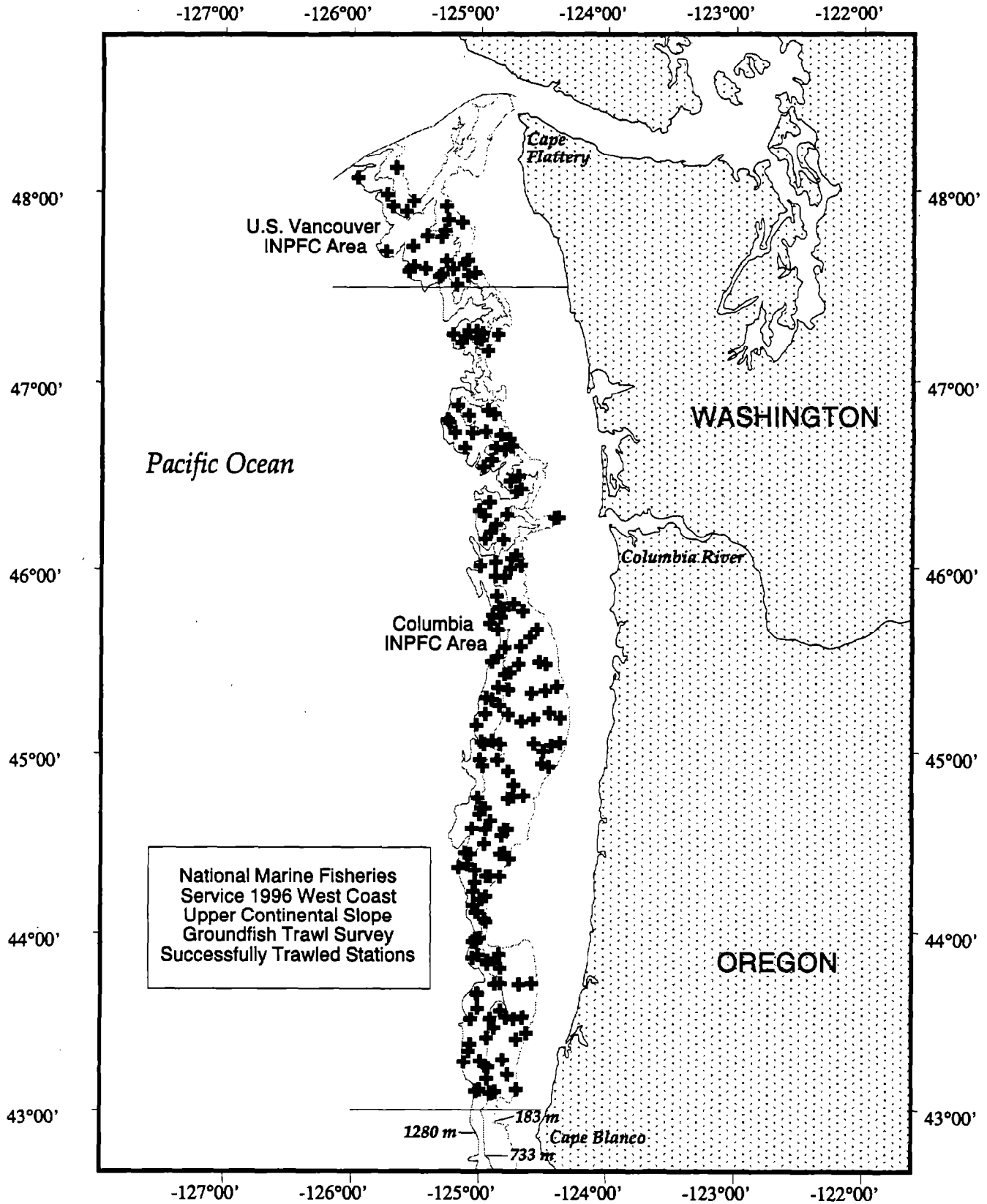
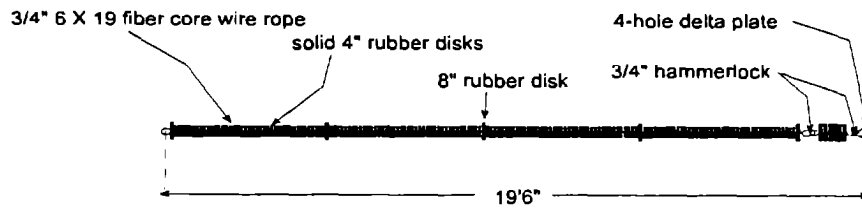


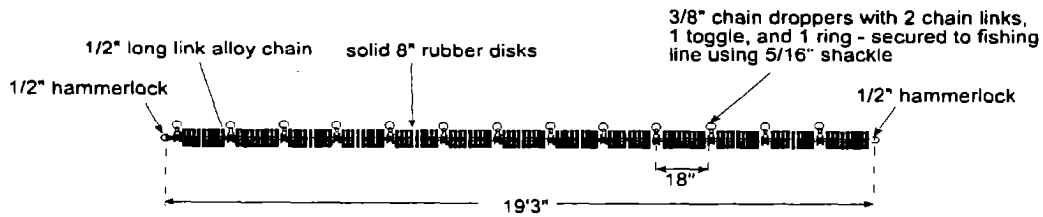
Figure 2.--Map showing the location of 203 successful bottom trawl tows sampled during the 1996 West Coast upper continental slope groundfish survey.

West Coast Upper
Continental Slope
Bottom Trawl Survey
Ground Gear

Outboard section



Middle section



Inboard section

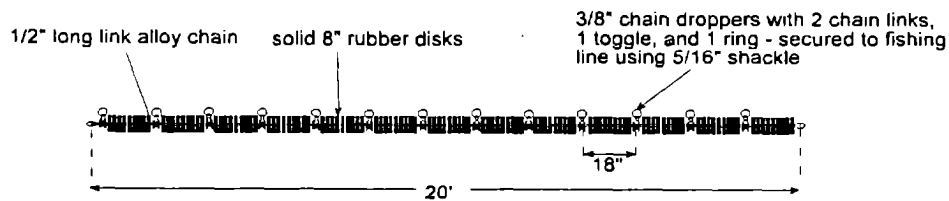


Figure 4. --The groundgear used during the 1996 West Coast upper continental slope bottom trawl survey.

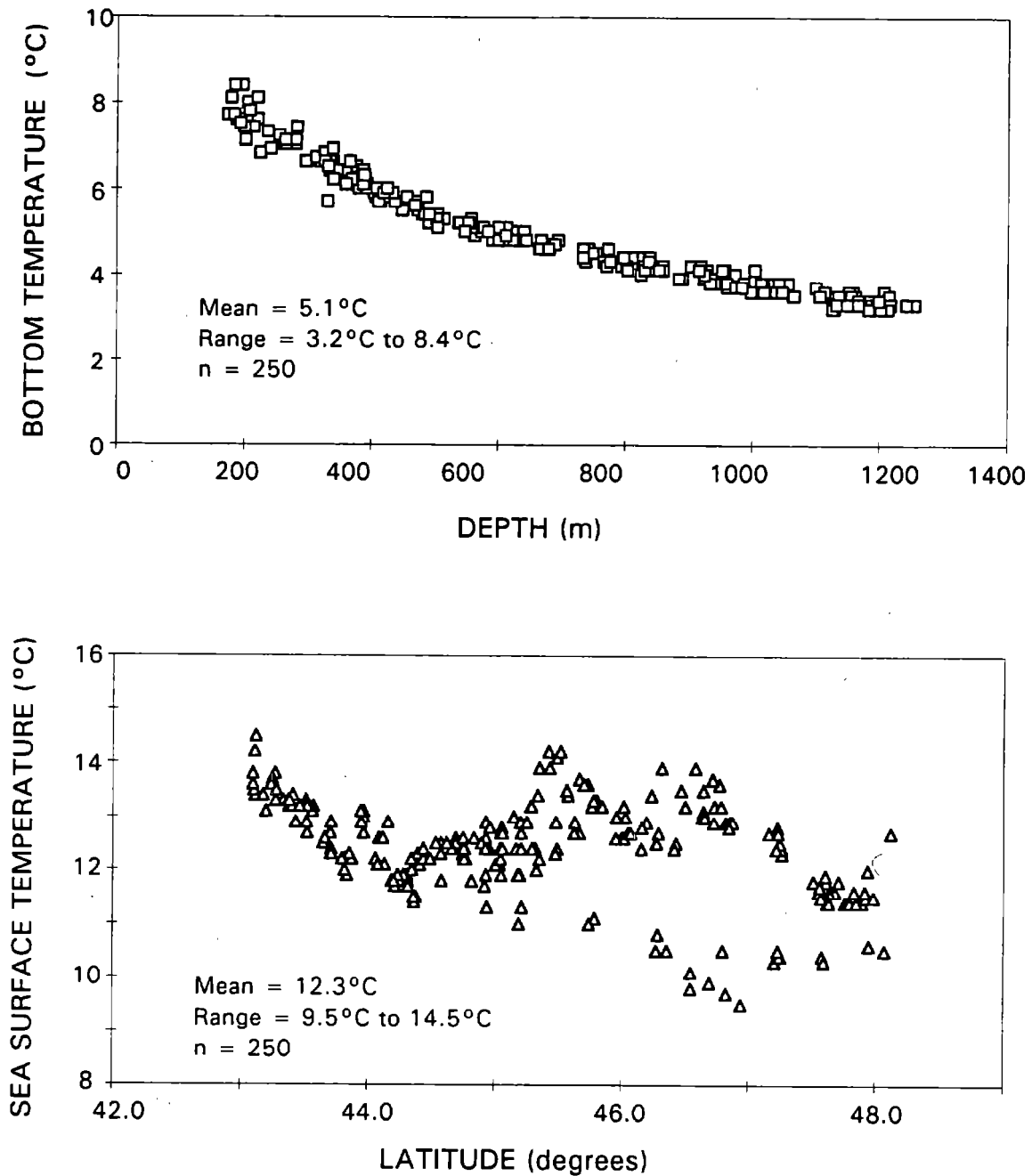


Figure 5.--Observed bottom and sea surface temperatures during the 1996 West Coast upper continental slope bottom trawl survey of the International North Pacific Fisheries Commission U.S. Vancouver and Columbia areas.

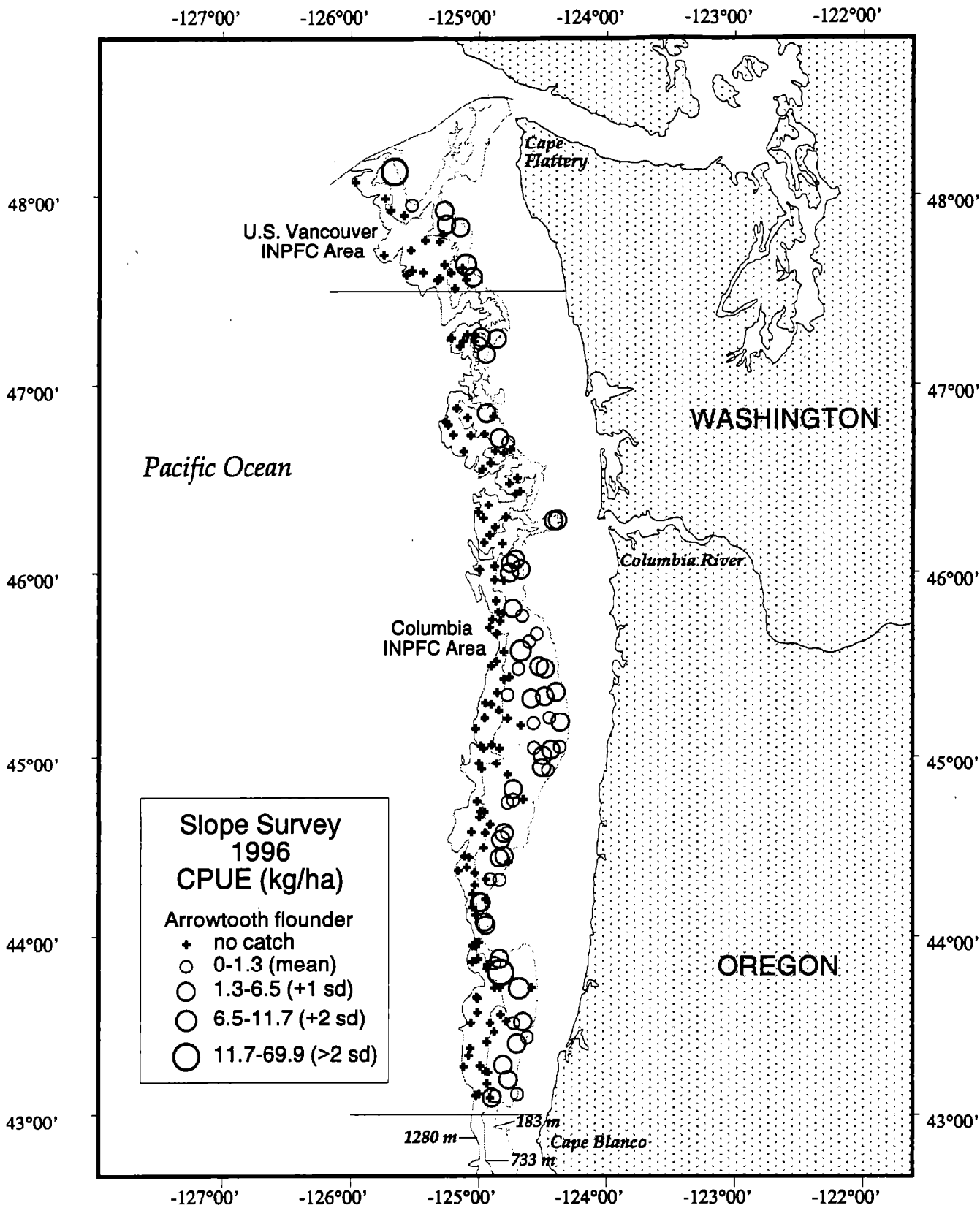


Figure 6. --Arrowtooth flounder distribution and relative abundance (kg/ha) from the 1996 West Coast upper continental slope bottom trawl survey.

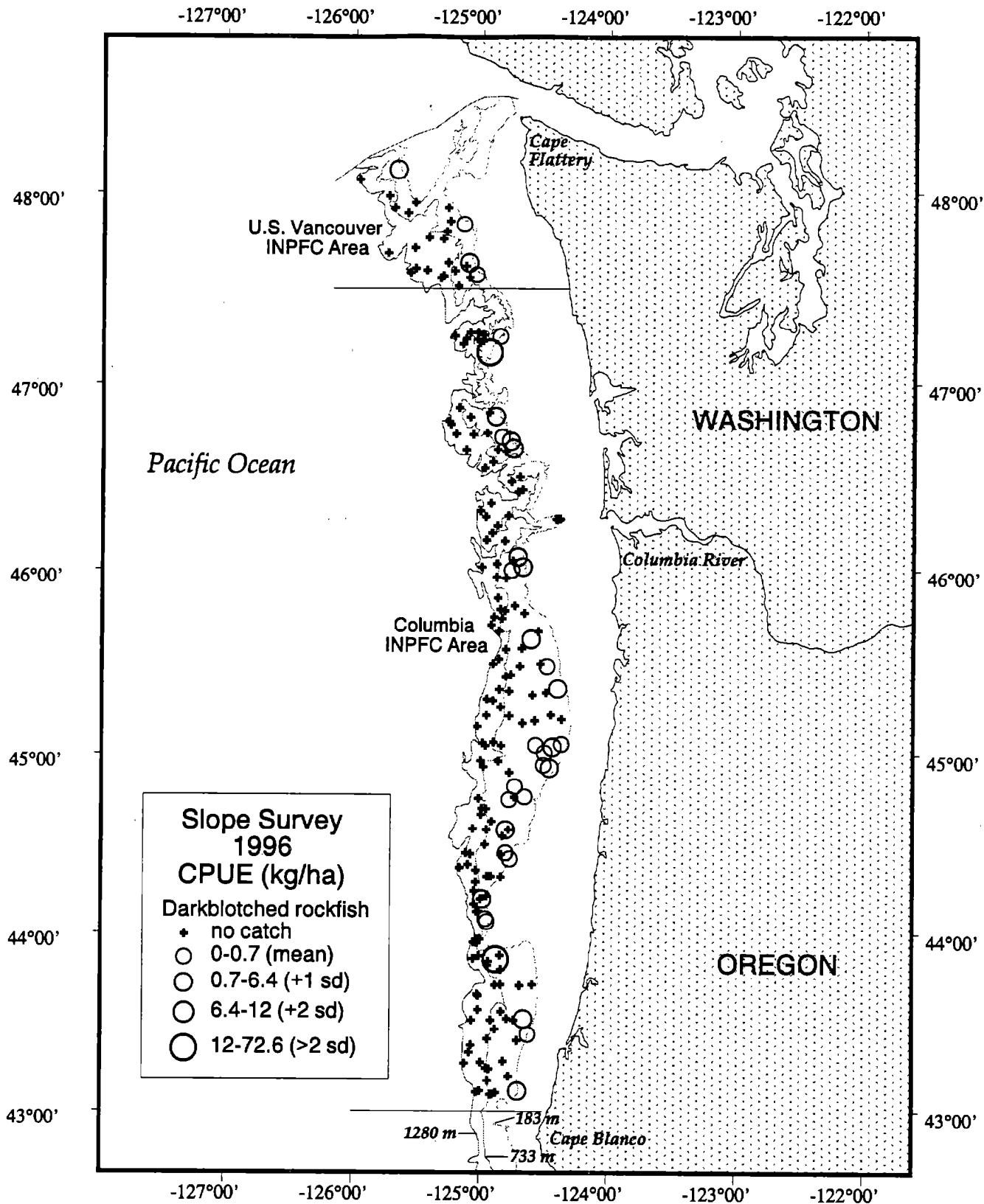


Figure 7.--Darkblotched rockfish distribution and relative abundance (kg/ha) from the 1996 West Coast upper continental slope bottom trawl survey.

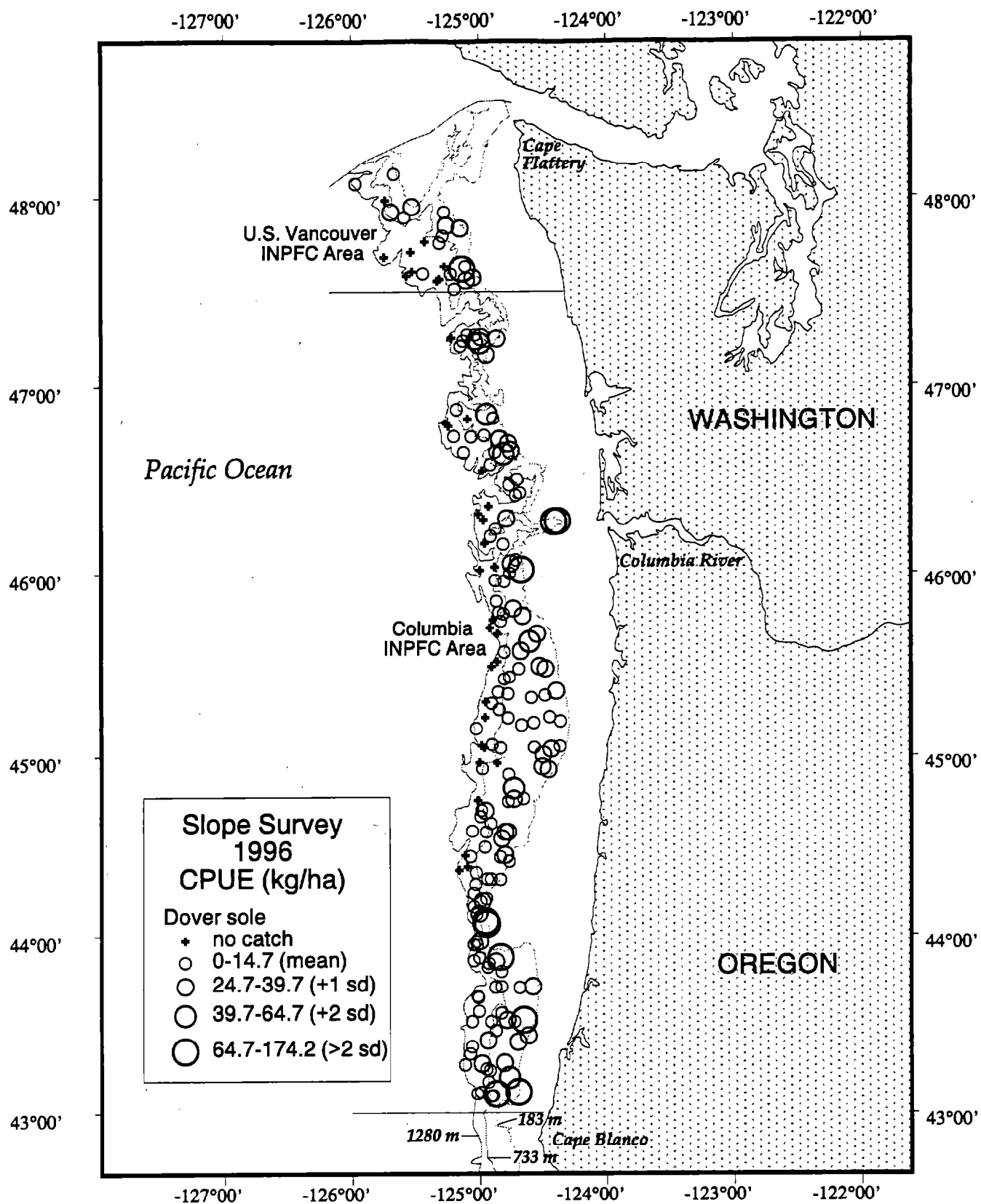


Figure 8. --Dover sole distribution and relative abundance (kg/ha) from the 1996 West Coast upper continental slope bottom trawl survey.

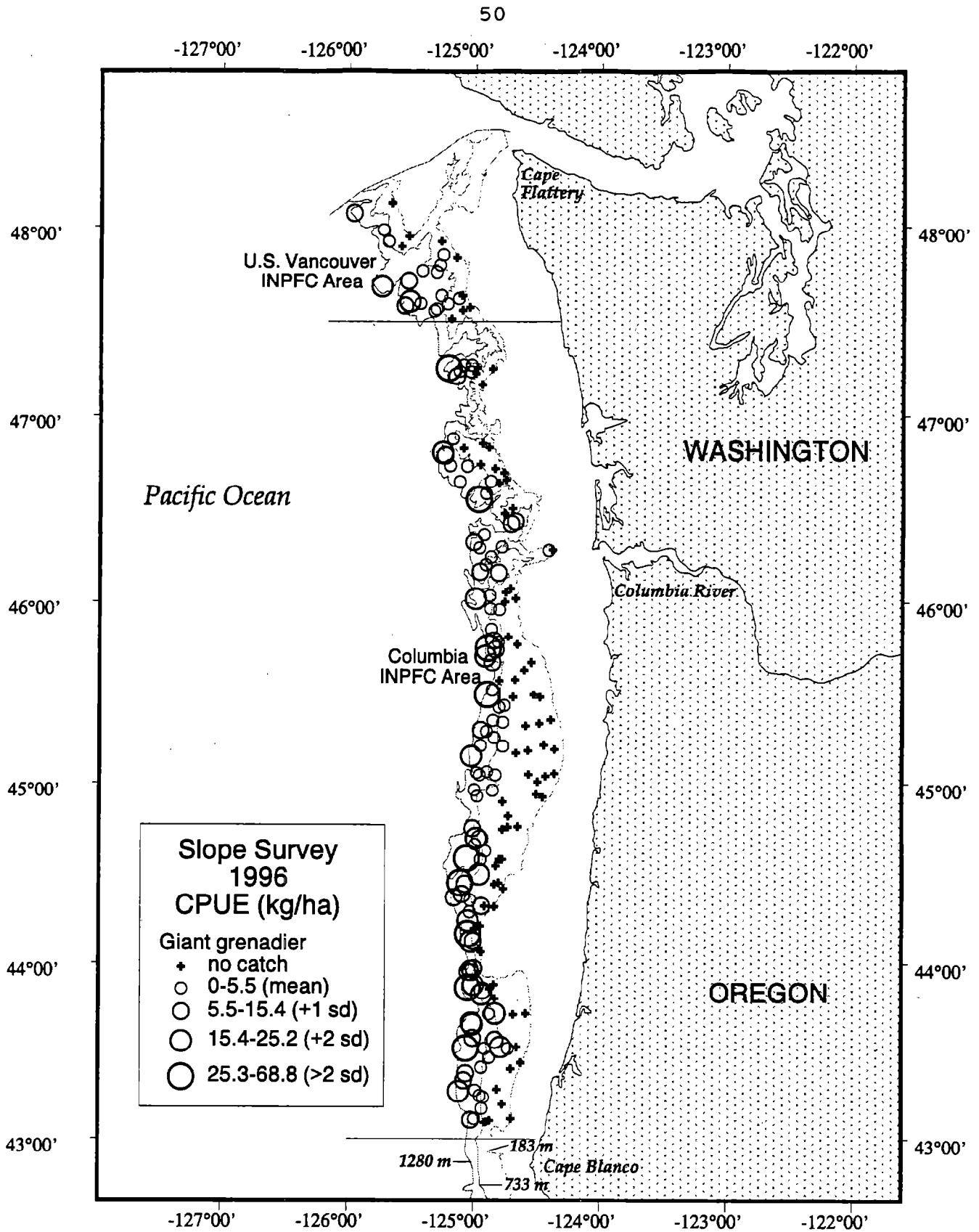


Figure 9. --Giant grenadier distribution and relative abundance (kg/ha) from the 1996 West Coast upper continental slope bottom trawl survey.

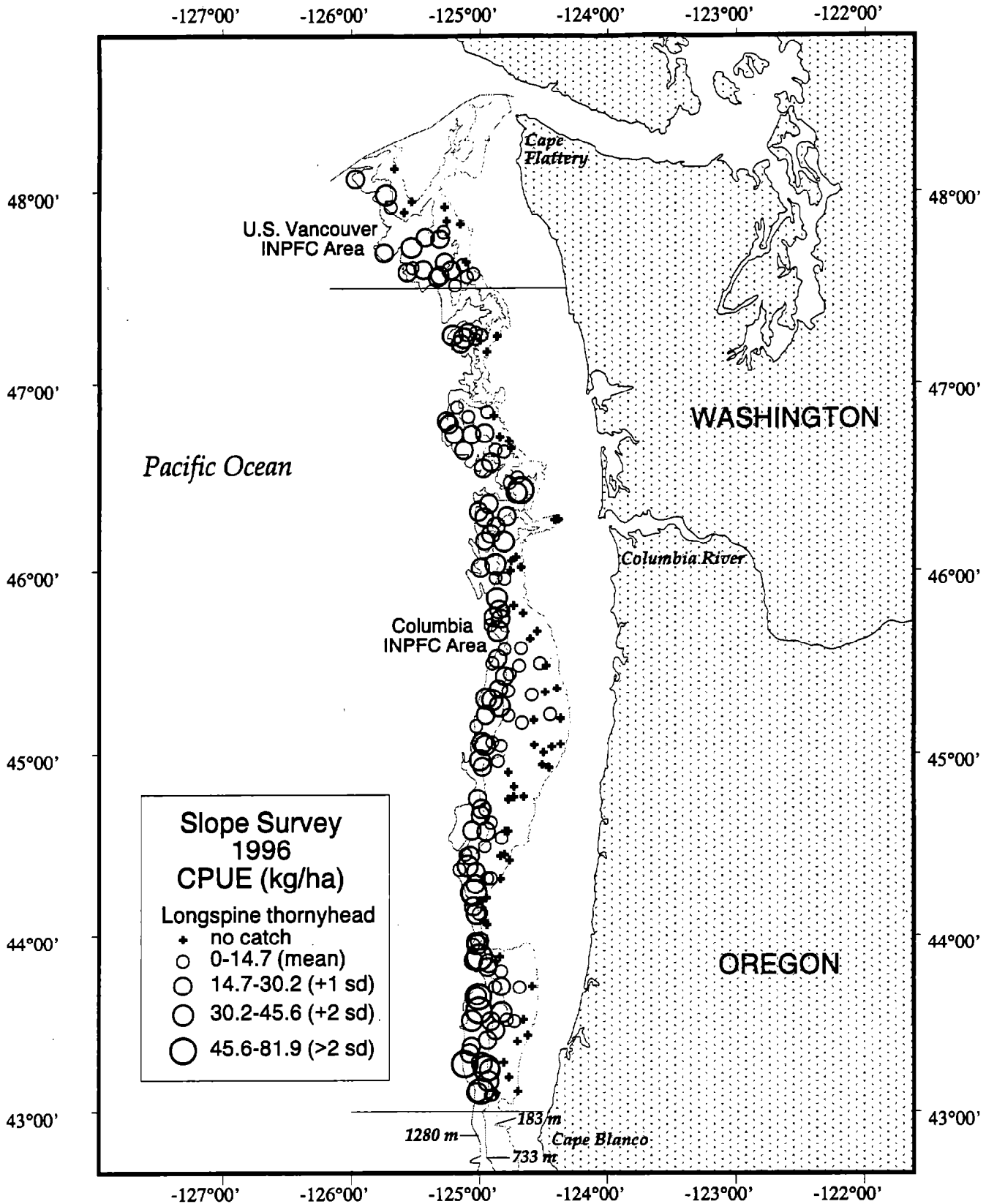


Figure 10. --Longspine thornyhead distribution and relative abundance (kg/ha) from the 1996 West Coast upper continental slope bottom trawl survey.

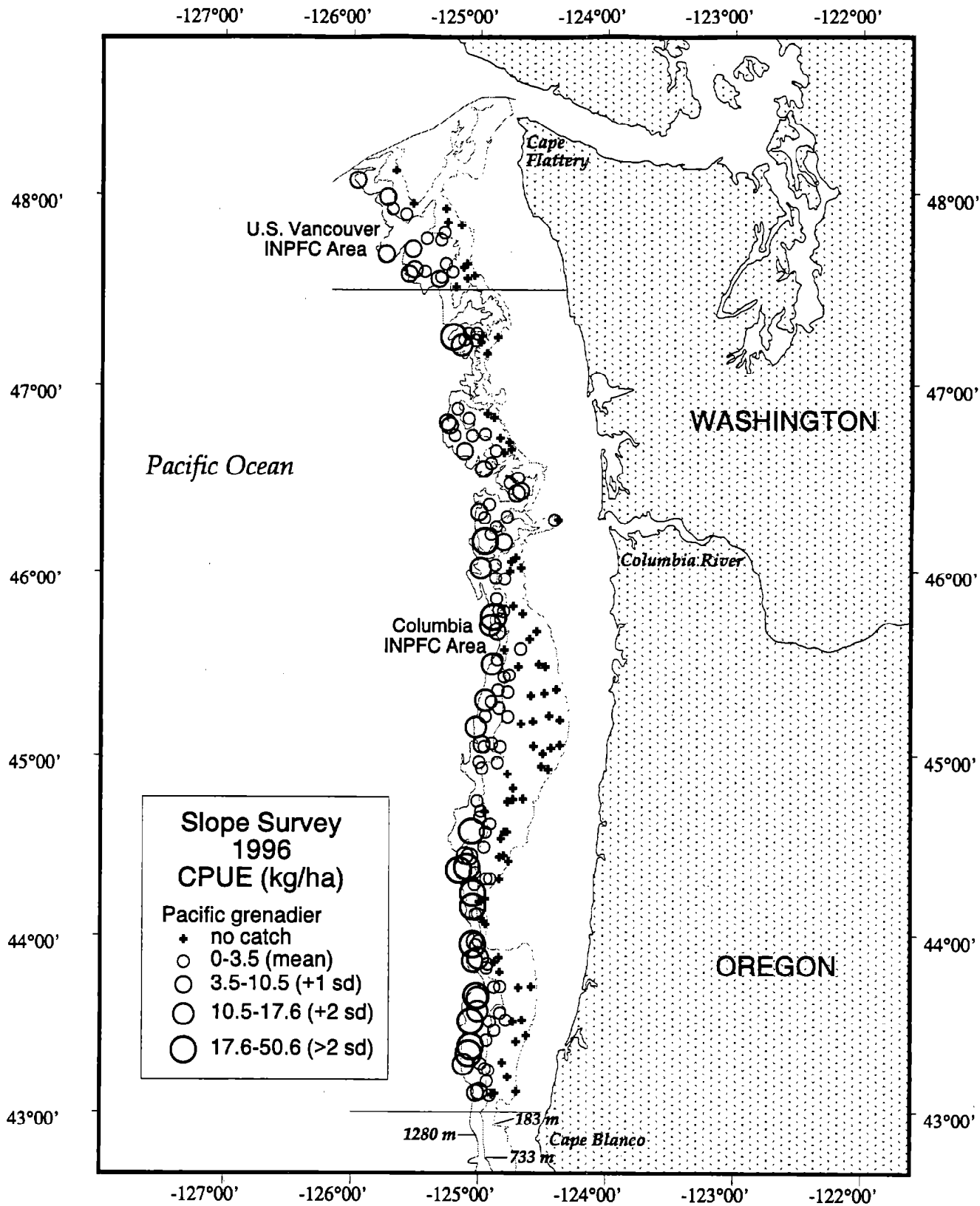


Figure 11.--Pacific grenadier distribution and relative abundance (kg/ha) from the 1996 West Coast upper continental slope bottom trawl survey.

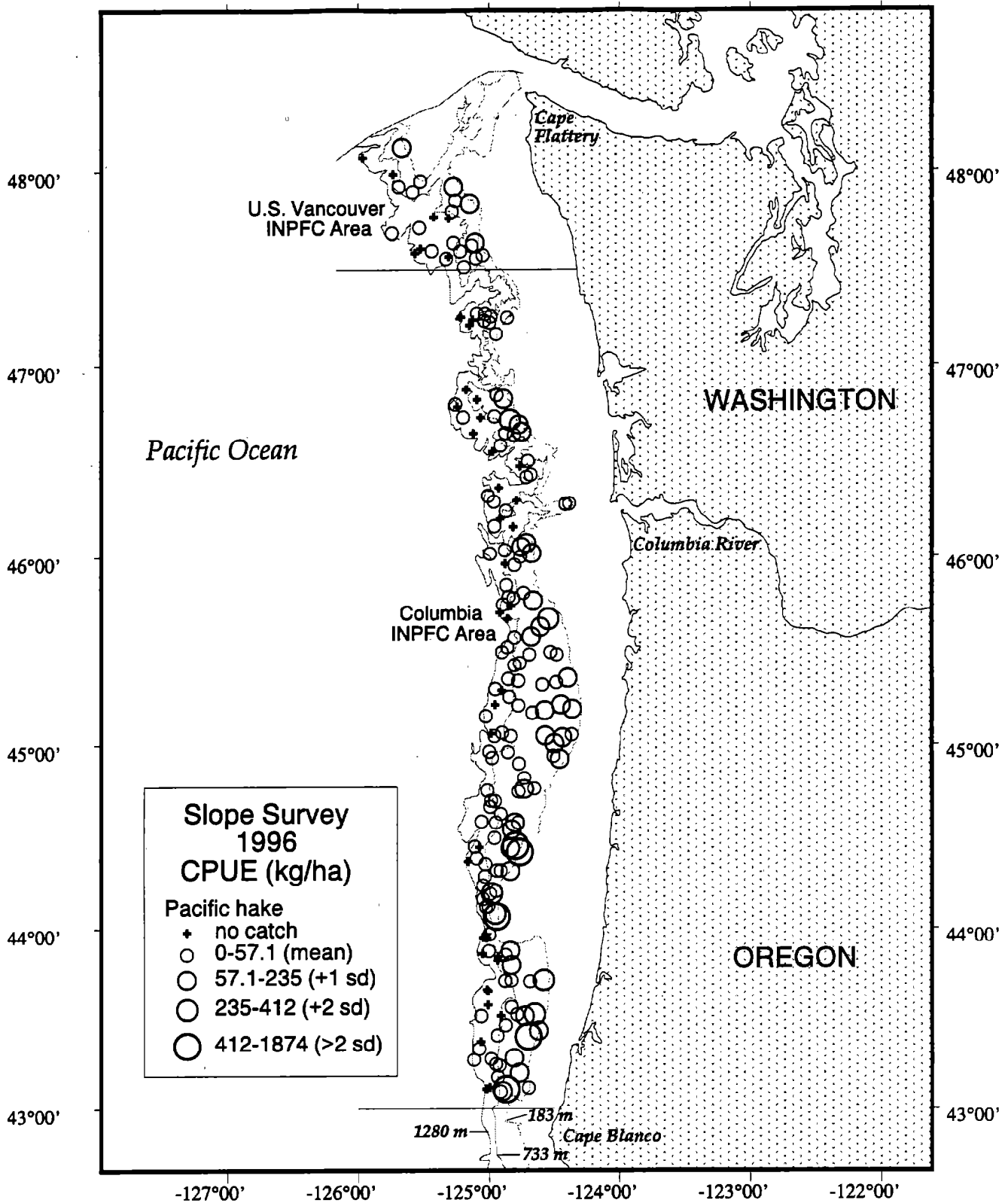


Figure 12. --Pacific hake distribution and relative abundance (kg/ha) from the 1996 West Coast upper continental slope bottom trawl survey.

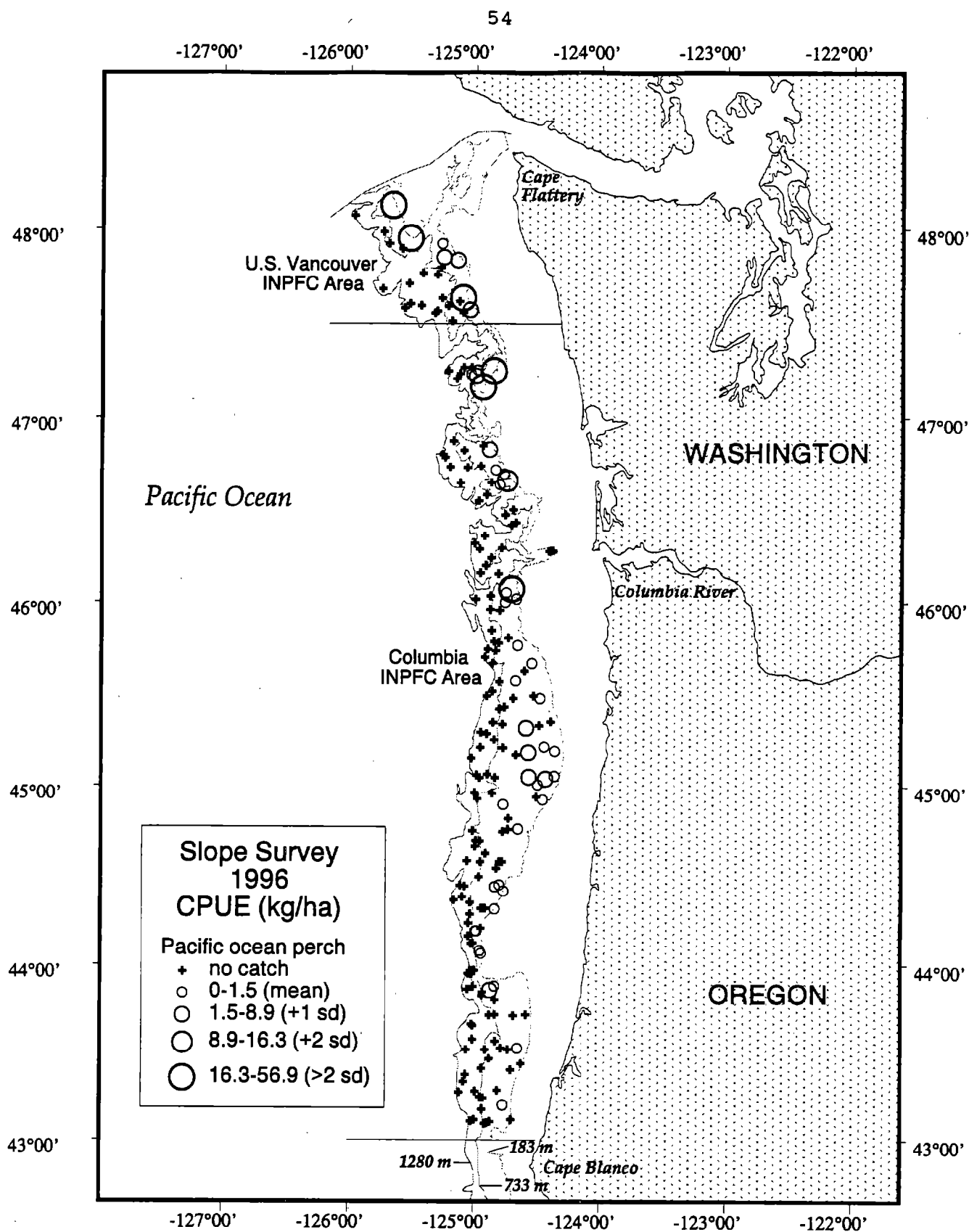


Figure 13.--Pacific ocean perch distribution and relative abundance (kg/ha) from the 1996 West Coast upper continental slope bottom trawl survey.

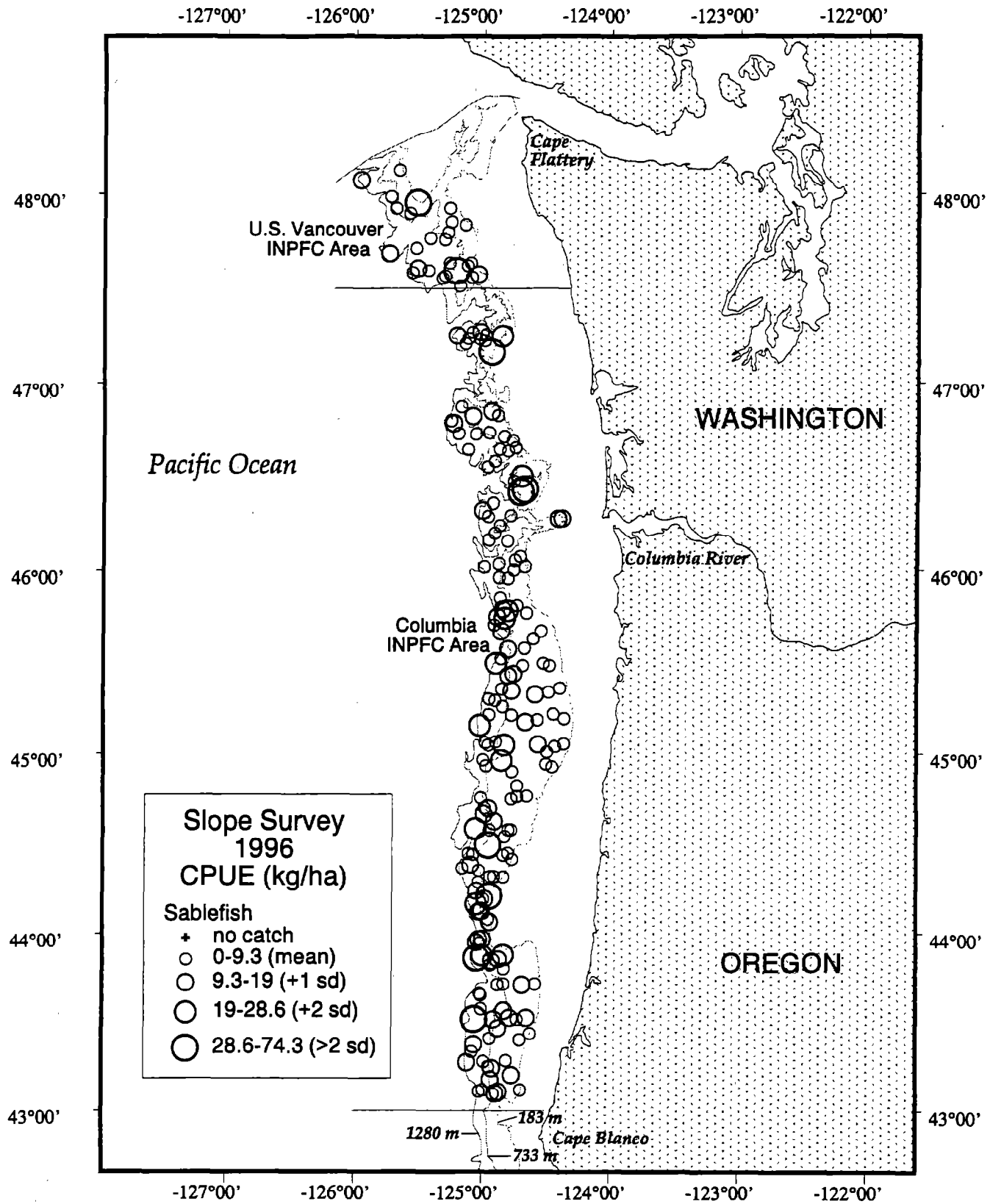


Figure 14.--Sablefish distribution and relative abundance (kg/ha) from the 1996 West Coast upper continental slope bottom trawl survey.

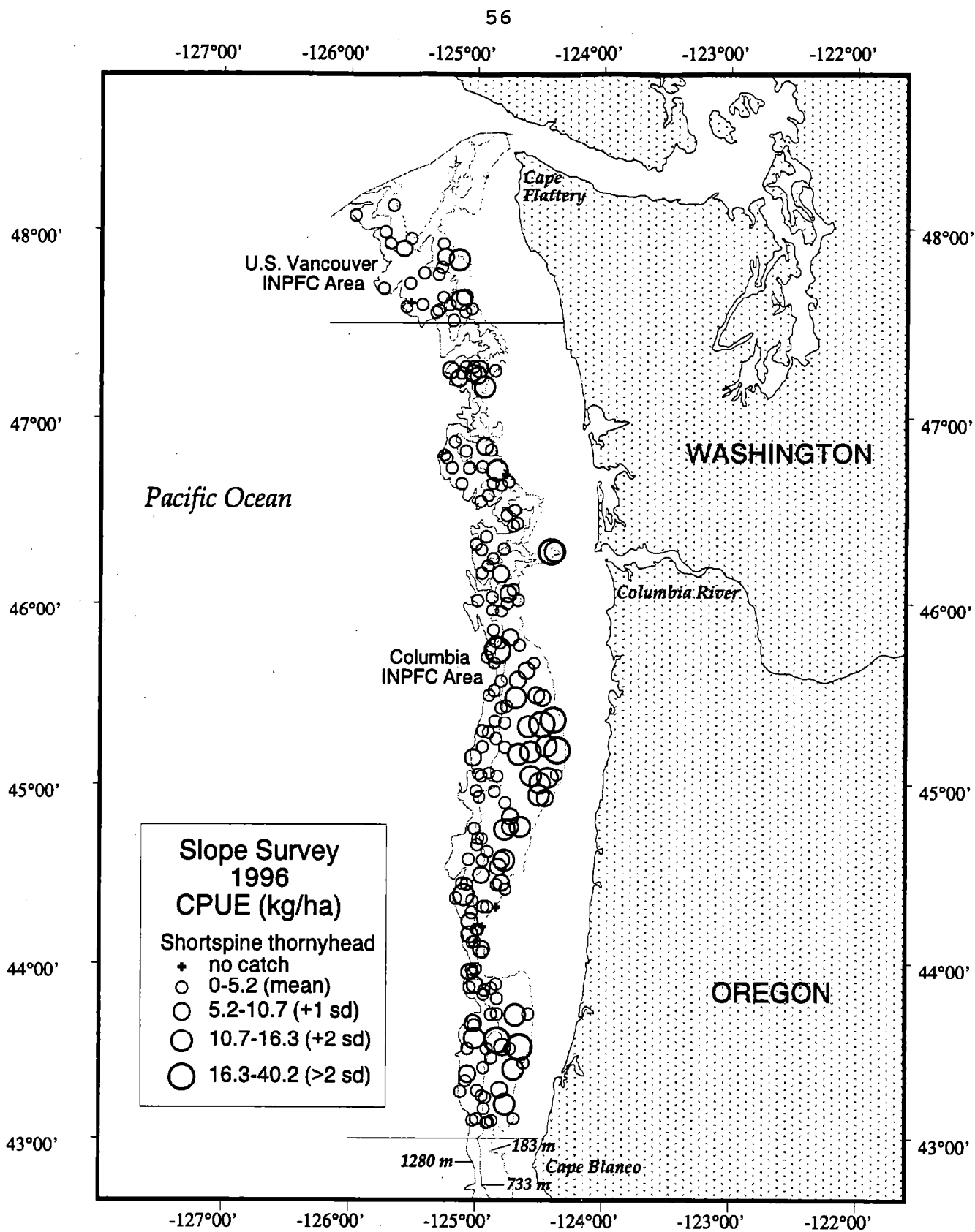


Figure 15.--Shortspine thornyhead distribution and relative abundance (kg/ha) from the 1996 West Coast upper continental slope bottom trawl survey.

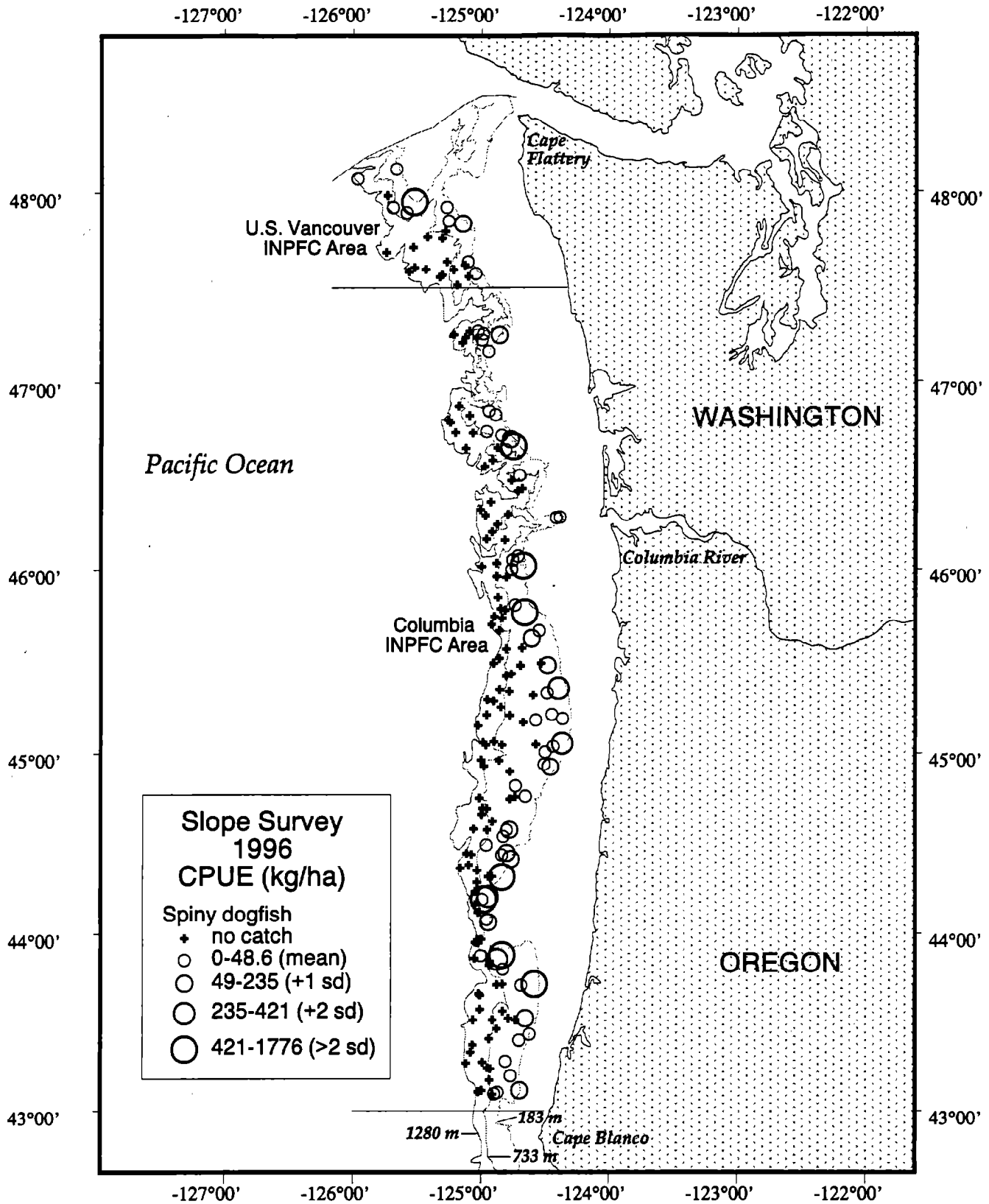


Figure 16. --Spiny dogfish distribution and relative abundance (kg/ha) from the 1996 West Coast upper continental slope bottom trawl survey.

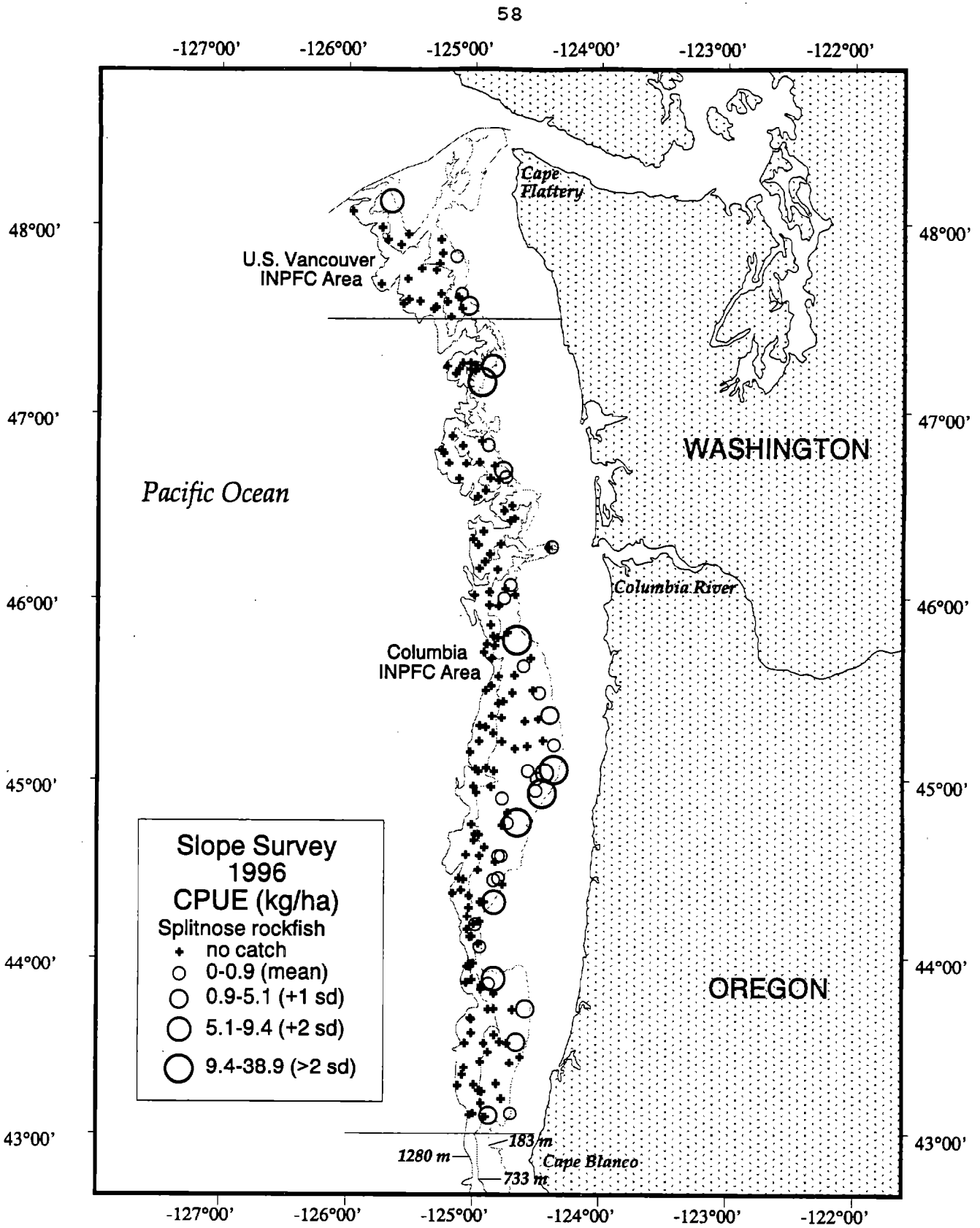


Figure 17. --Splitnose rockfish distribution and relative abundance (kg/ha) from the 1996 West Coast upper continental slope bottom trawl survey.

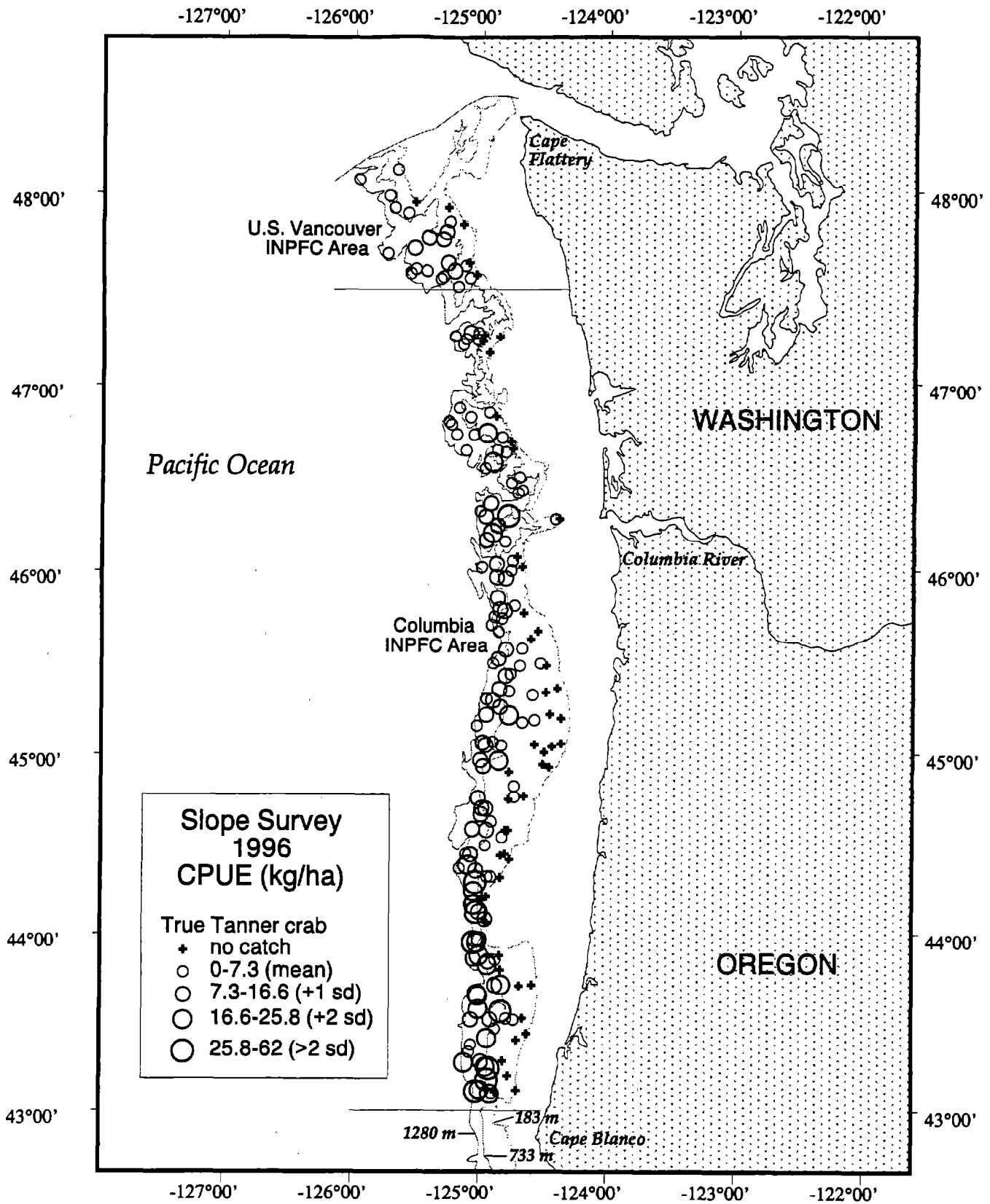


Figure 18.--True Tanner crab distribution and relative abundance (kg/ha) from the 1996 West Coast upper continental slope bottom trawl survey.

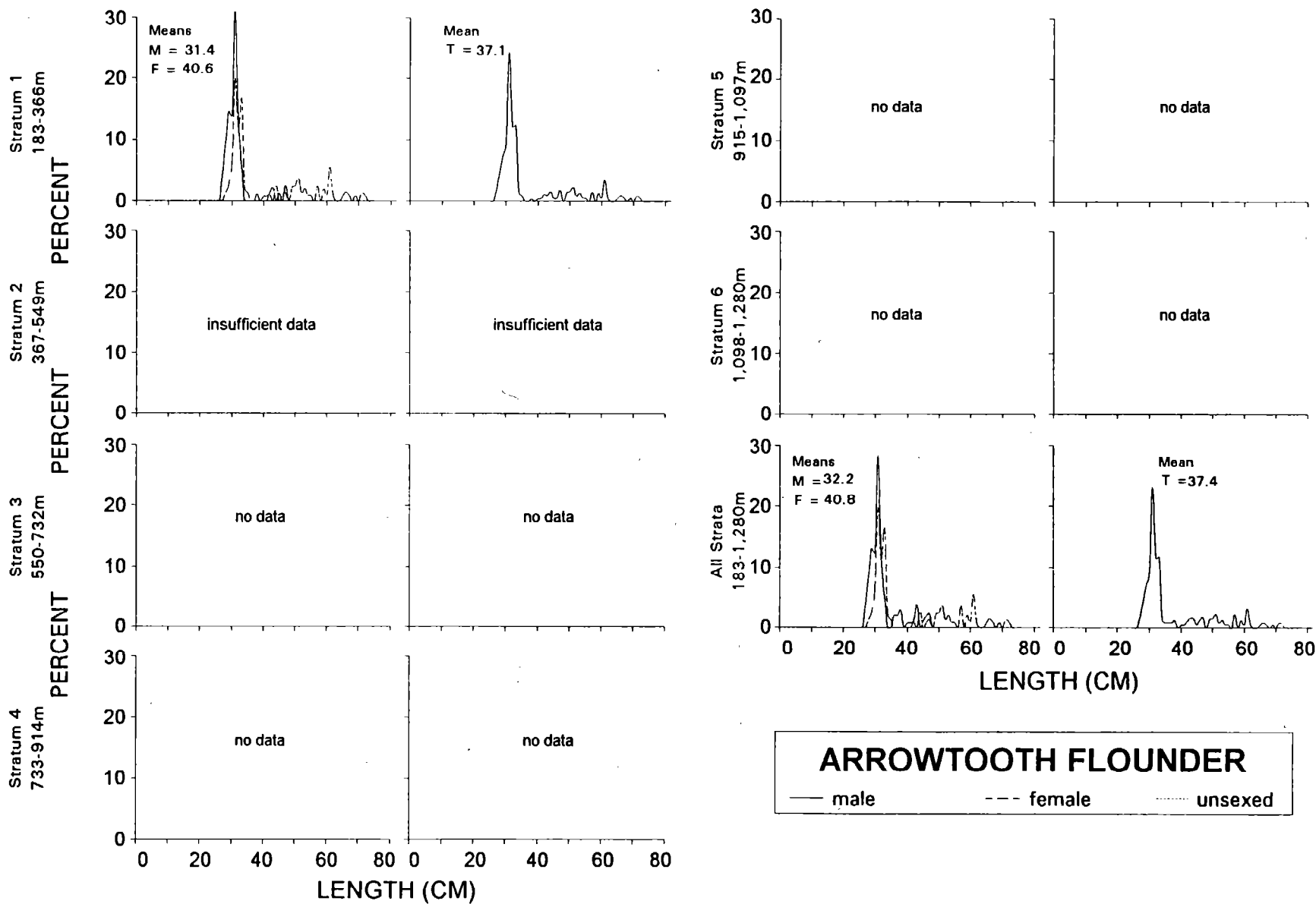


Figure 19. --Estimated population size composition and mean lengths (cm) of arrowtooth flounder by stratum and by sex for the International North Pacific Fisheries Commission U.S. Vancouver area for all depths sampled (183-1,280 m) from the 1996 West Coast upper continental slope bottom trawl survey.

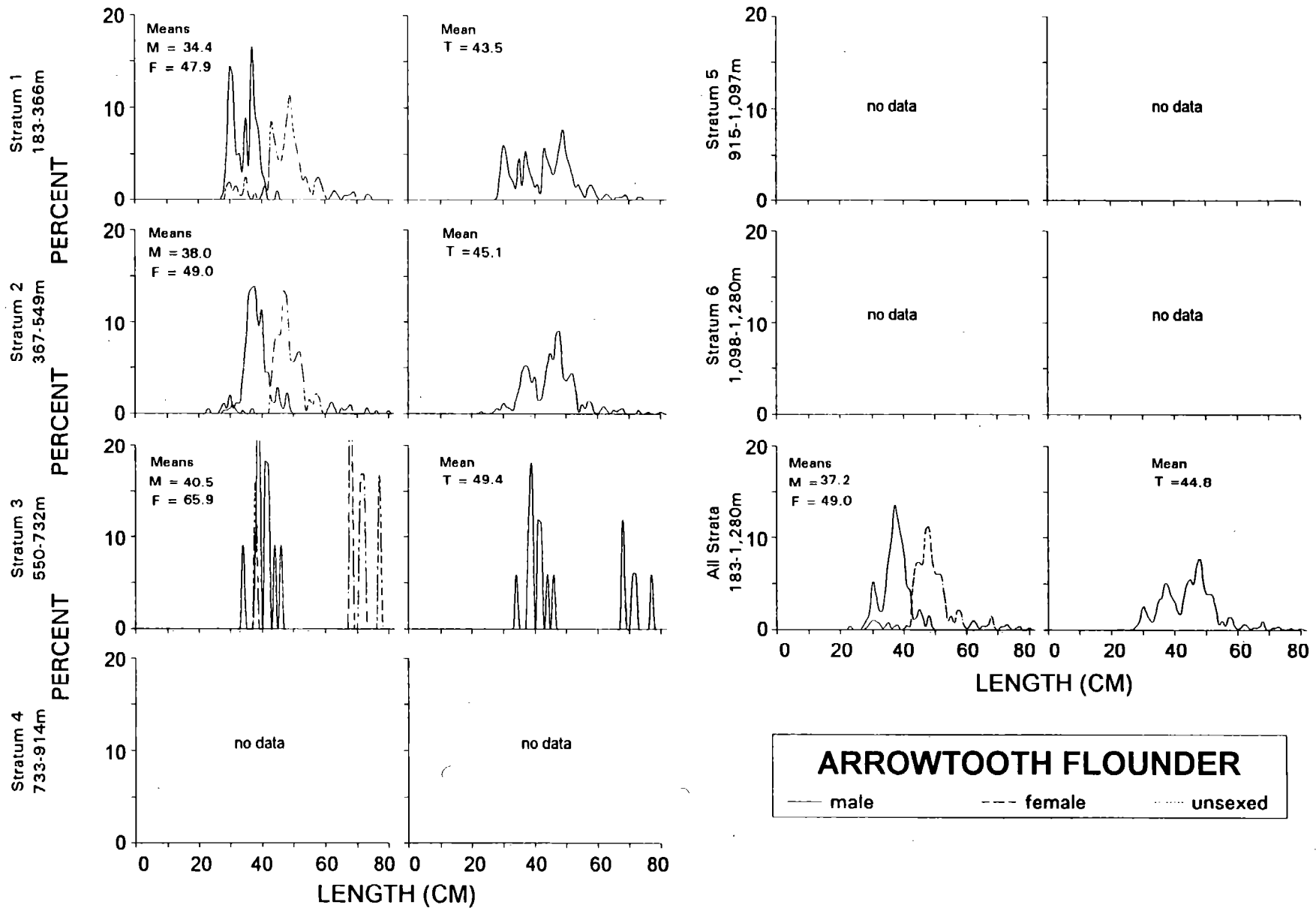


Figure 20. --Estimated population size composition and mean lengths (cm) of arrowtooth flounder by stratum and by sex for the International North Pacific Fisheries Commission Columbia area for all depths sampled (183-1,280 m) from the 1996 West Coast upper continental slope bottom trawl survey.

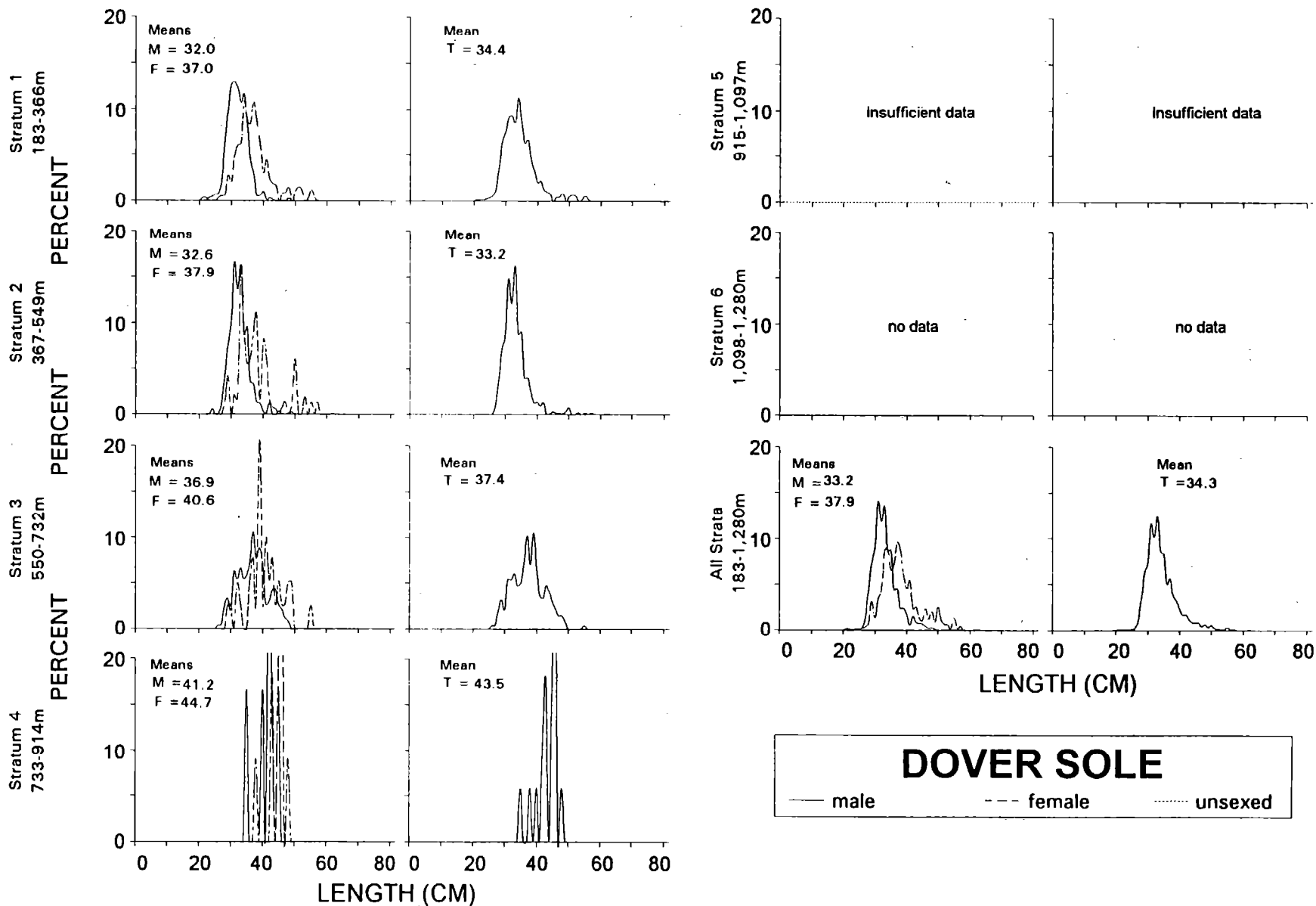


Figure 21. --Estimated population size composition and mean lengths (cm) of Dover sole by stratum and by sex for the International North Pacific Fisheries Commission U.S. Vancouver area for all depths sampled (183-1,280 m) from the 1996 West Coast upper continental slope bottom trawl survey.

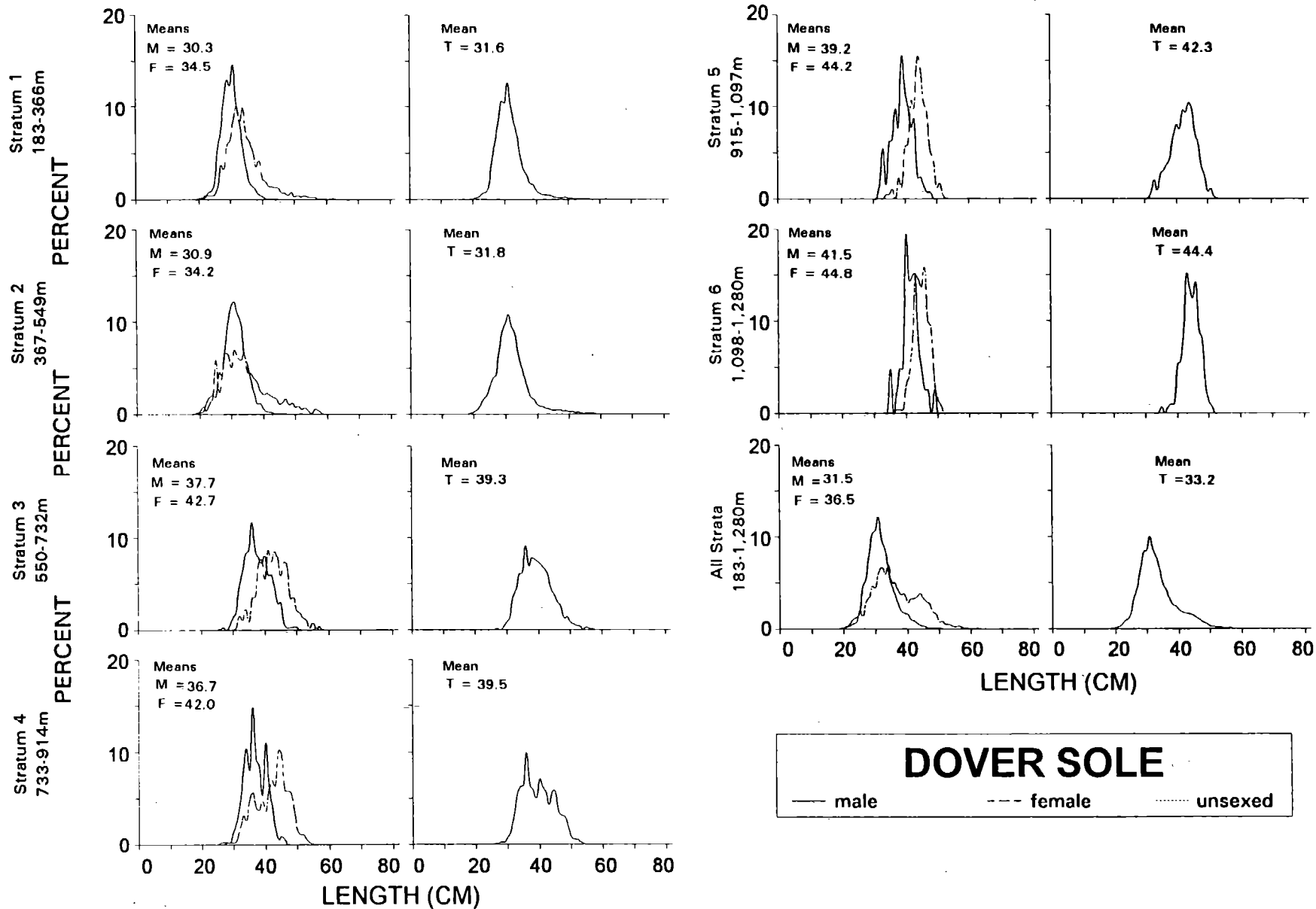


Figure 22. --Estimated population size composition and mean lengths (cm) of Dover sole by stratum and by sex for the International North Pacific Fisheries Commission Columbia area for all depths sampled (183-1,280 m) from the 1996 West Coast upper continental slope bottom trawl survey.

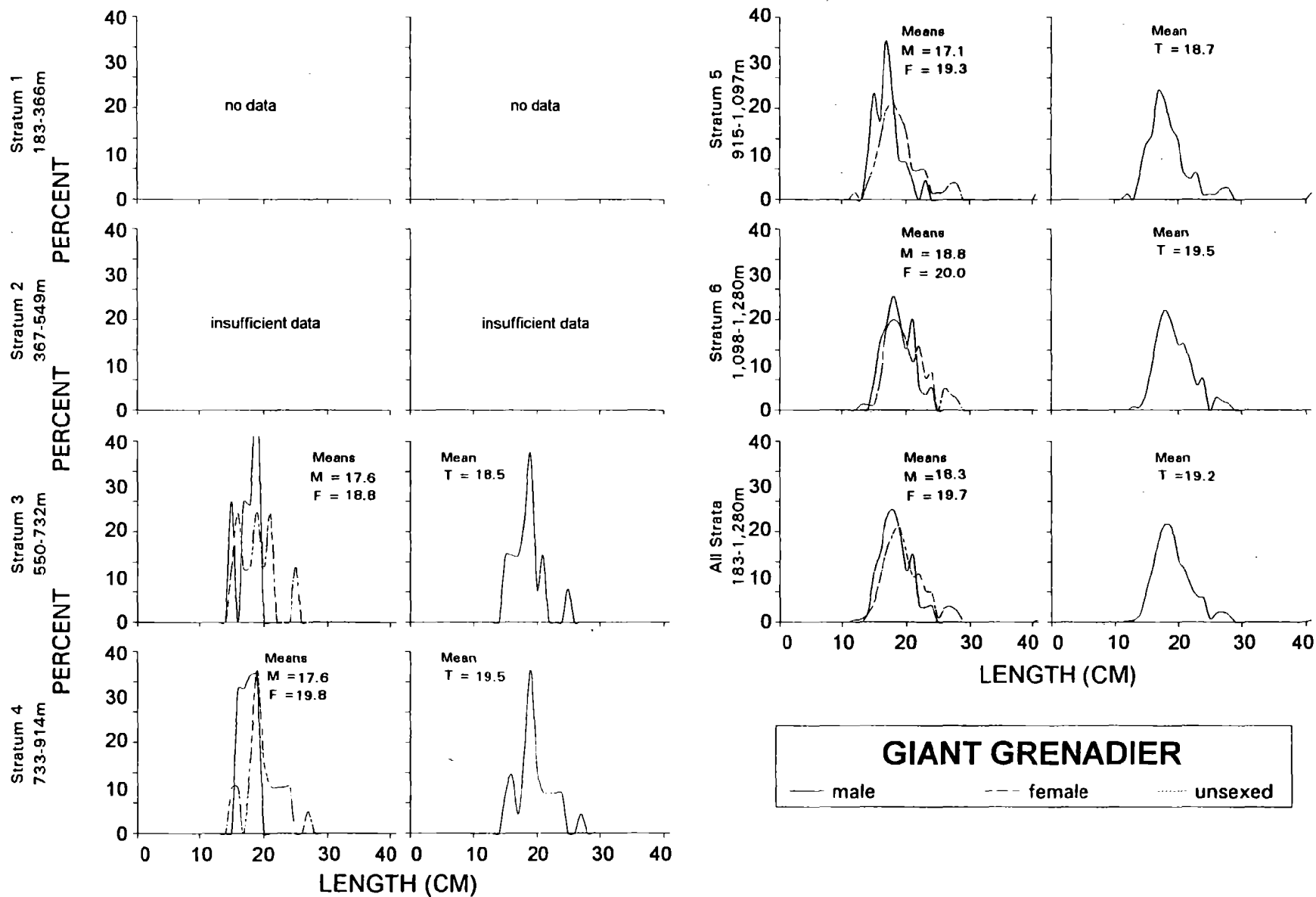


Figure 23.--Estimated population size composition (snout-to-anal fin) and mean lengths (cm) of giant grenadier by stratum and by sex for the International North Pacific Fisheries Commission U.S. Vancouver area for all depths sampled (183-1,280 m) from the 1996 West Coast upper continental slope bottom trawl survey.

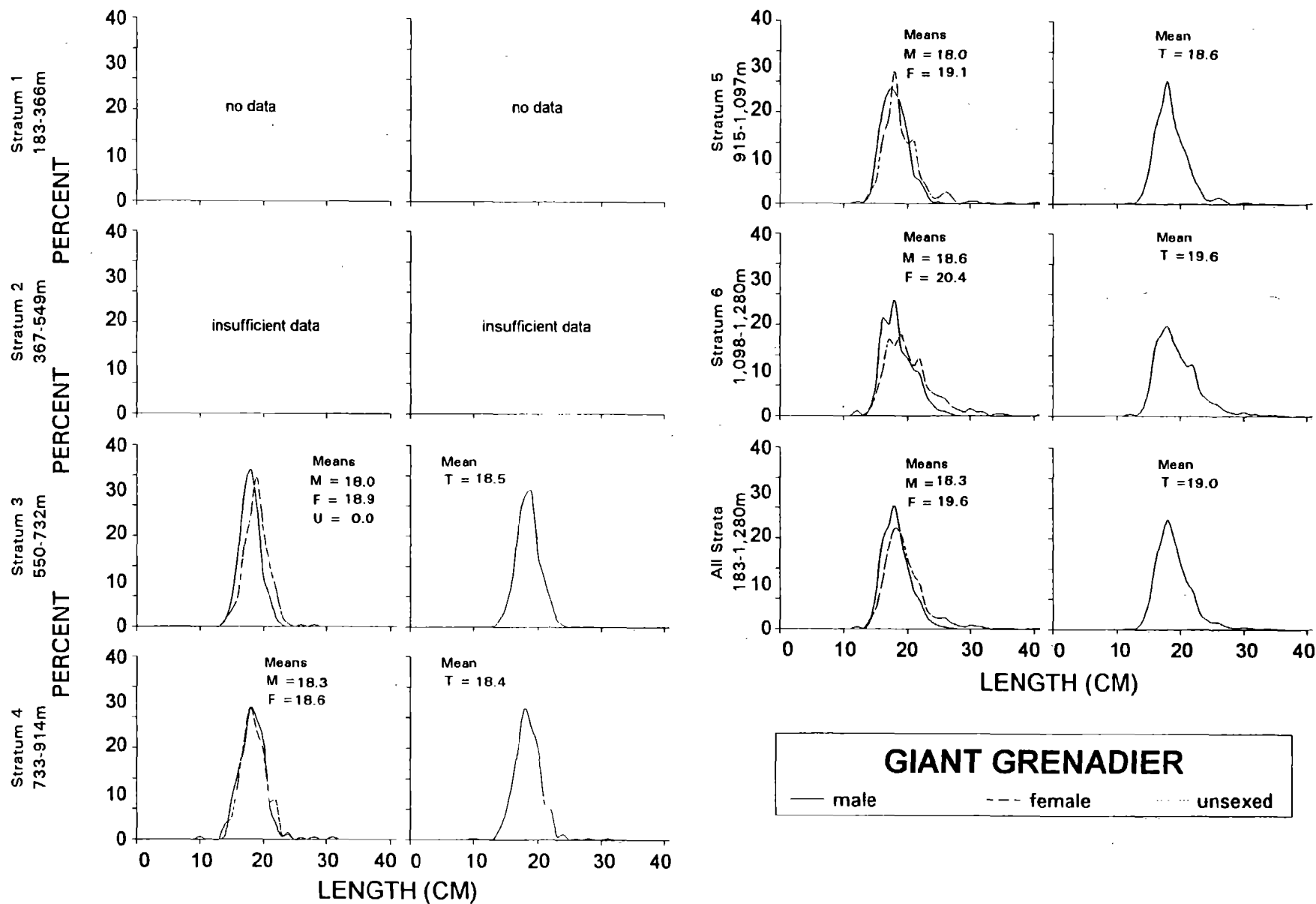


Figure 24.--Estimated population size composition (snout-to-anal fin) and mean lengths (cm) of giant grenadier by stratum and by sex for the International North Pacific Fisheries Commission Columbia area for all depths sampled (183-1,280 m) from the 1996 West Coast upper continental slope bottom trawl survey.

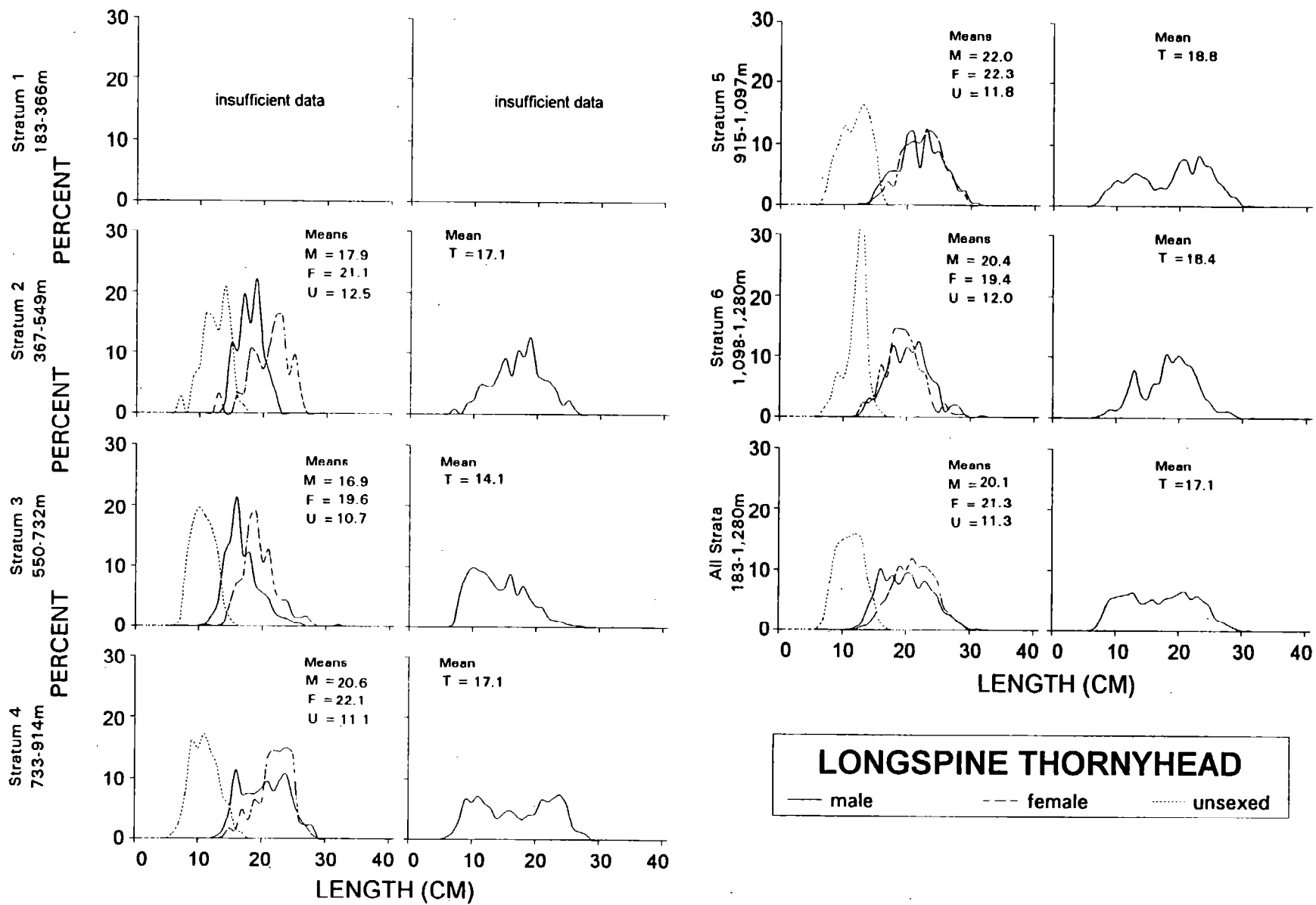


Figure 25.--Estimated population size composition and mean lengths (an) of longspine thornyhead by stratum and by sex for the International North Pacific Fisheries Commission U.S. Vancouver area for all depths sampled (183-1,280 m) from the 1996 West Coast upper continental slope bottom trawl survey.

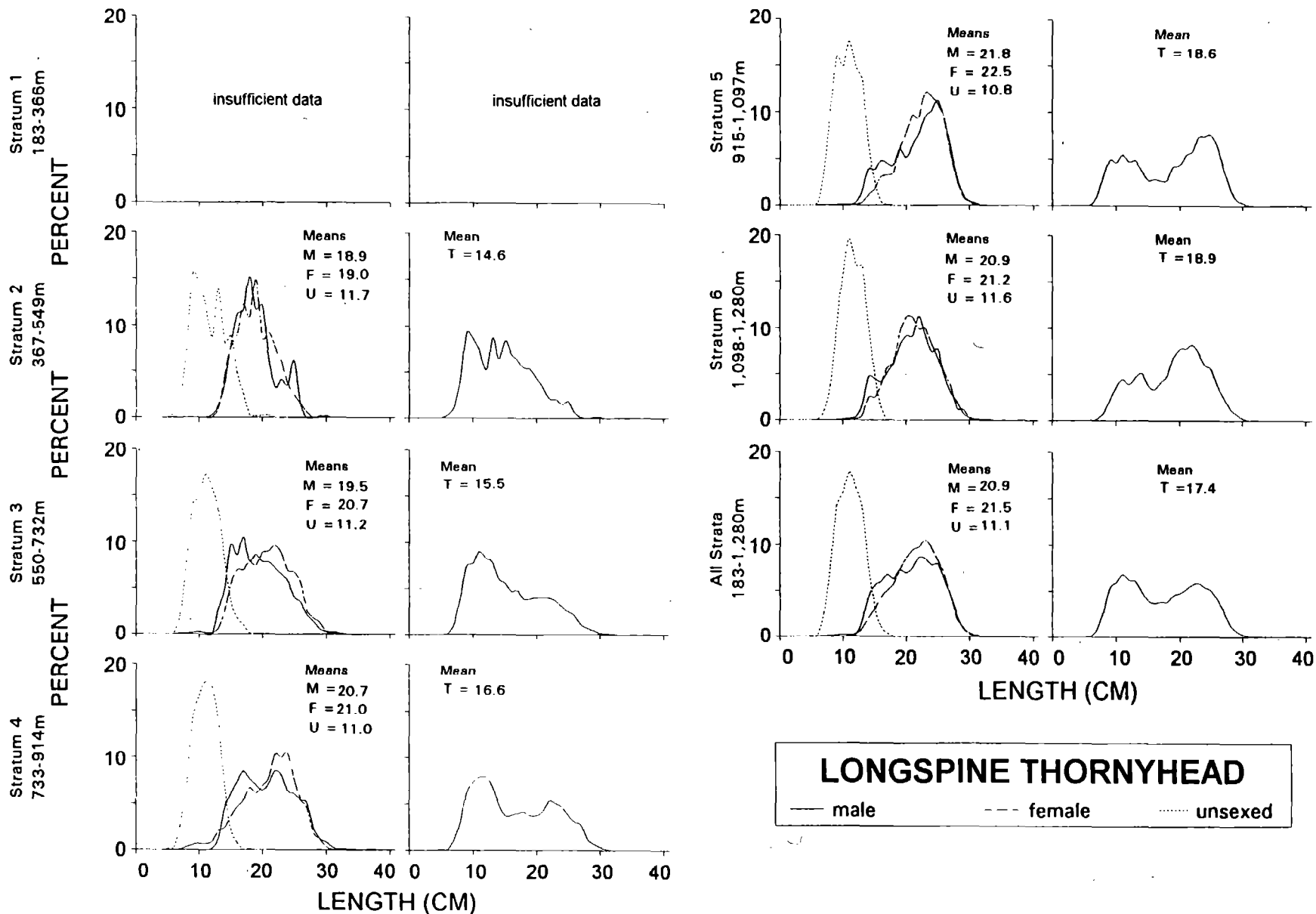


Figure 26. --Estimated population size composition and mean lengths (cm) of longspine thornyhead by stratum and by sex for the International North Pacific Fisheries Commission Columbia area for all depths sampled (183-1,280 m) from the 1996 West Coast upper continental slope bottom trawl survey.

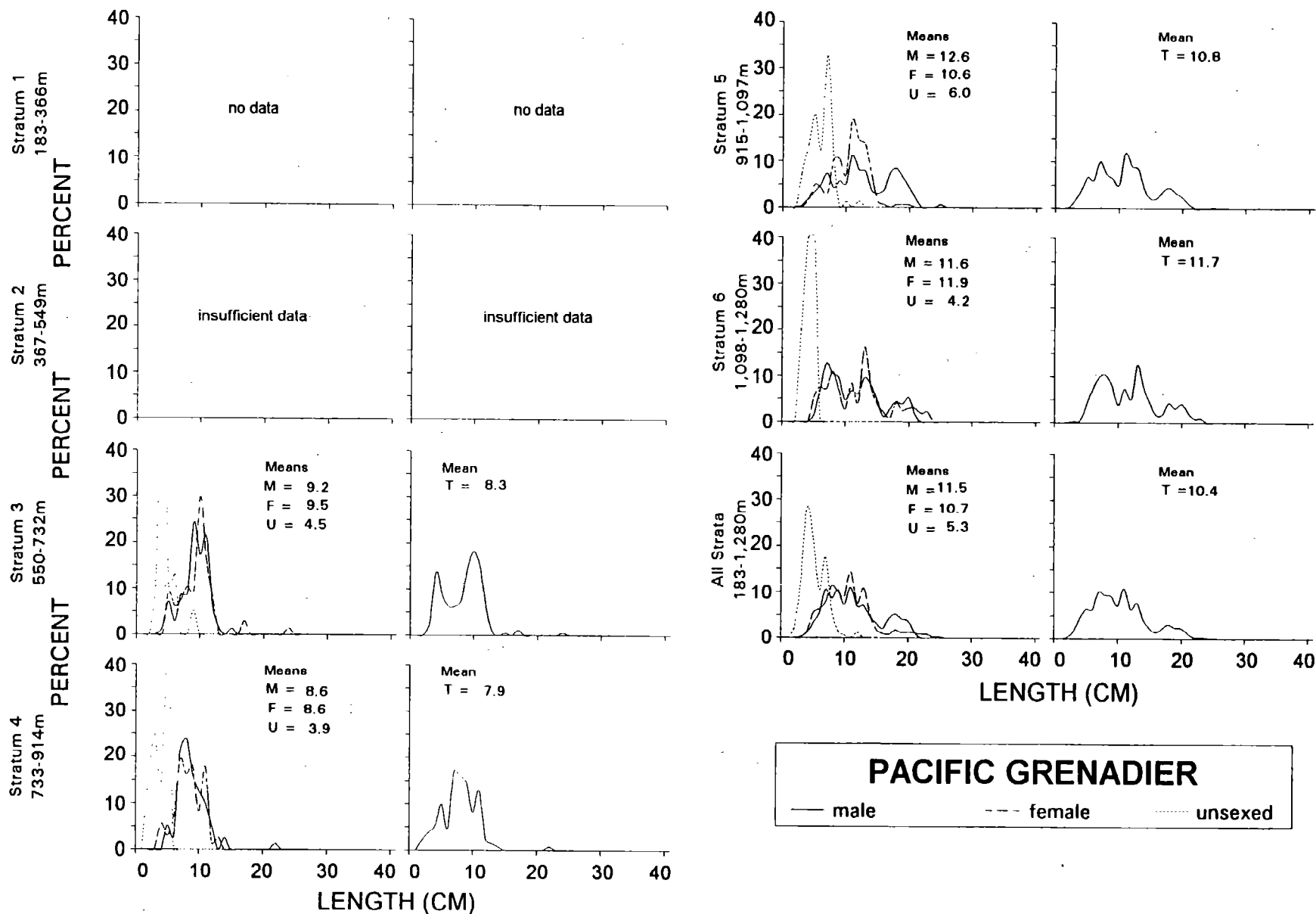


Figure 27.--Estimated population size composition (snout-to-anal fin) and mean lengths (cm) of Pacific grenadier by stratum and by sex for the International North Pacific Fisheries Commission U.S. Vancouver area for all depths sampled (183-1,280 m) from the 1996 West Coast upper continental slope bottom trawl survey.

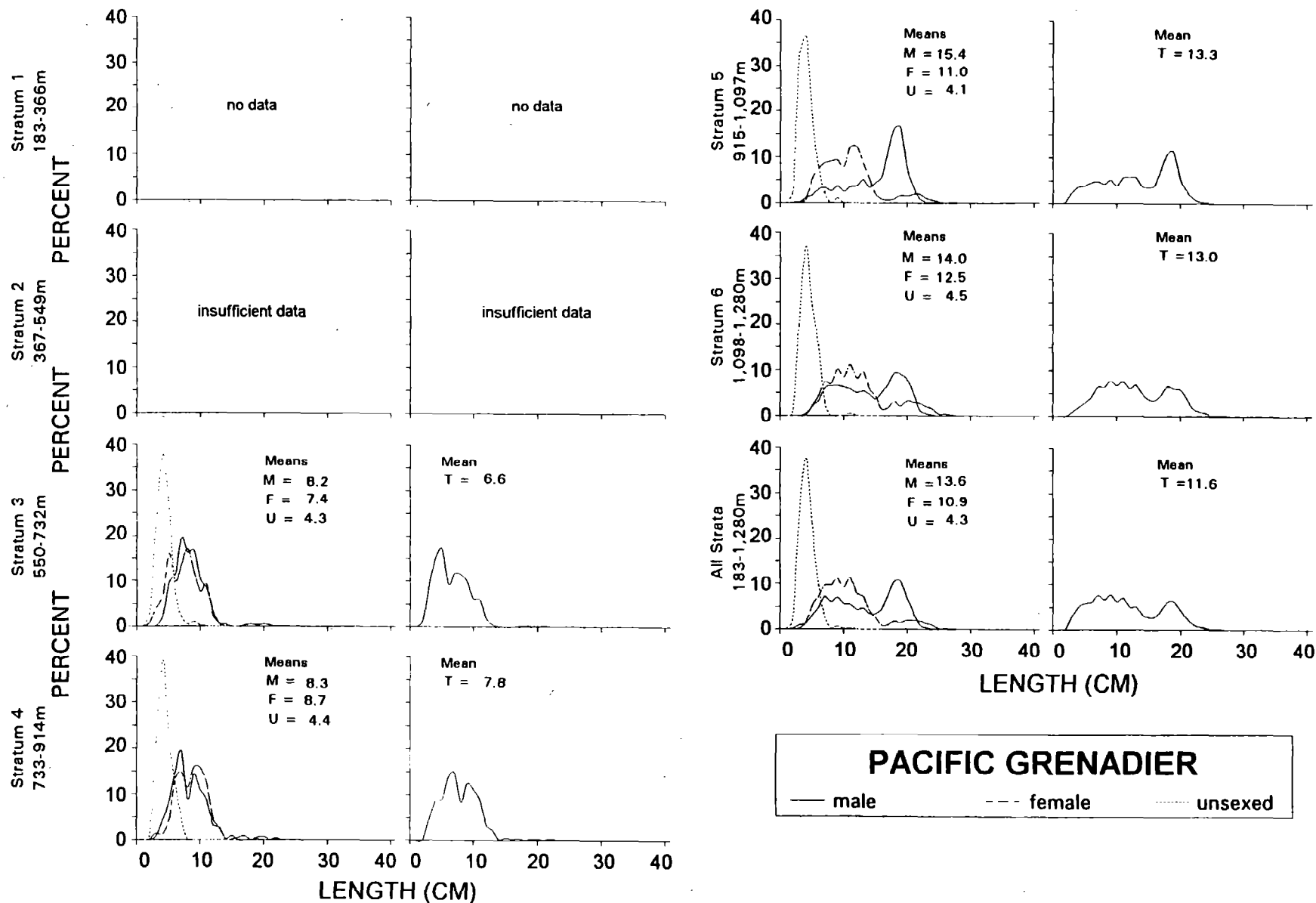


Figure 28.--Estimated population size composition (snout-to-anal fin) and mean lengths (cm) of pacific grenadier by stratum and by sex for the International North Pacific Fisheries Commission Columbia area for all depths sampled (183-1,280 m) from the 1996 West Coast upper continental slope bottom trawl survey.

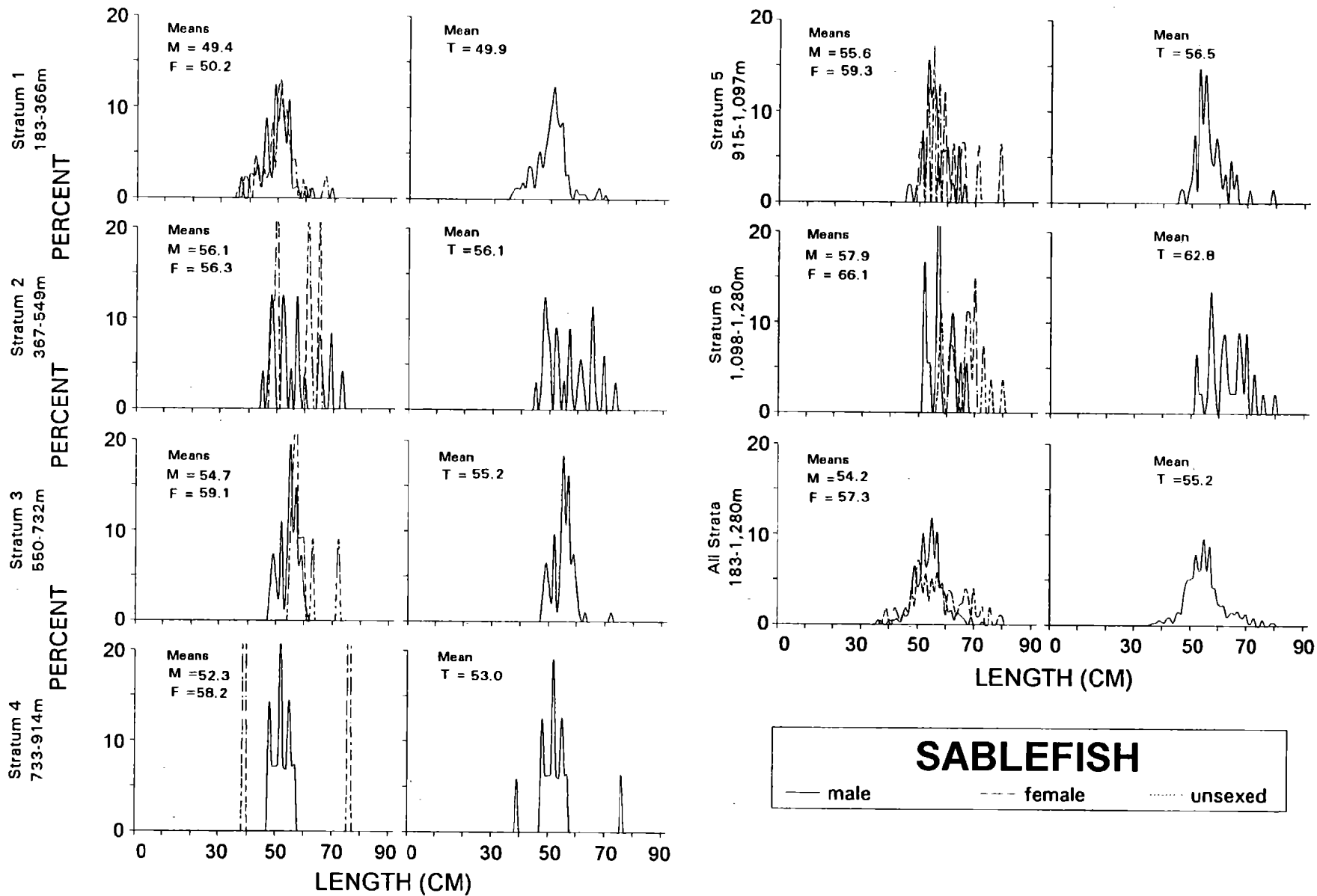


Figure 29.--Estimated population size composition and mean lengths (cm) of sablefish by stratum and by sex for the International North Pacific Fisheries Commission U.S. Vancouver area for all depths sampled (183-1,280 m) from the 1996 West Coast upper continental slope bottom trawl survey.

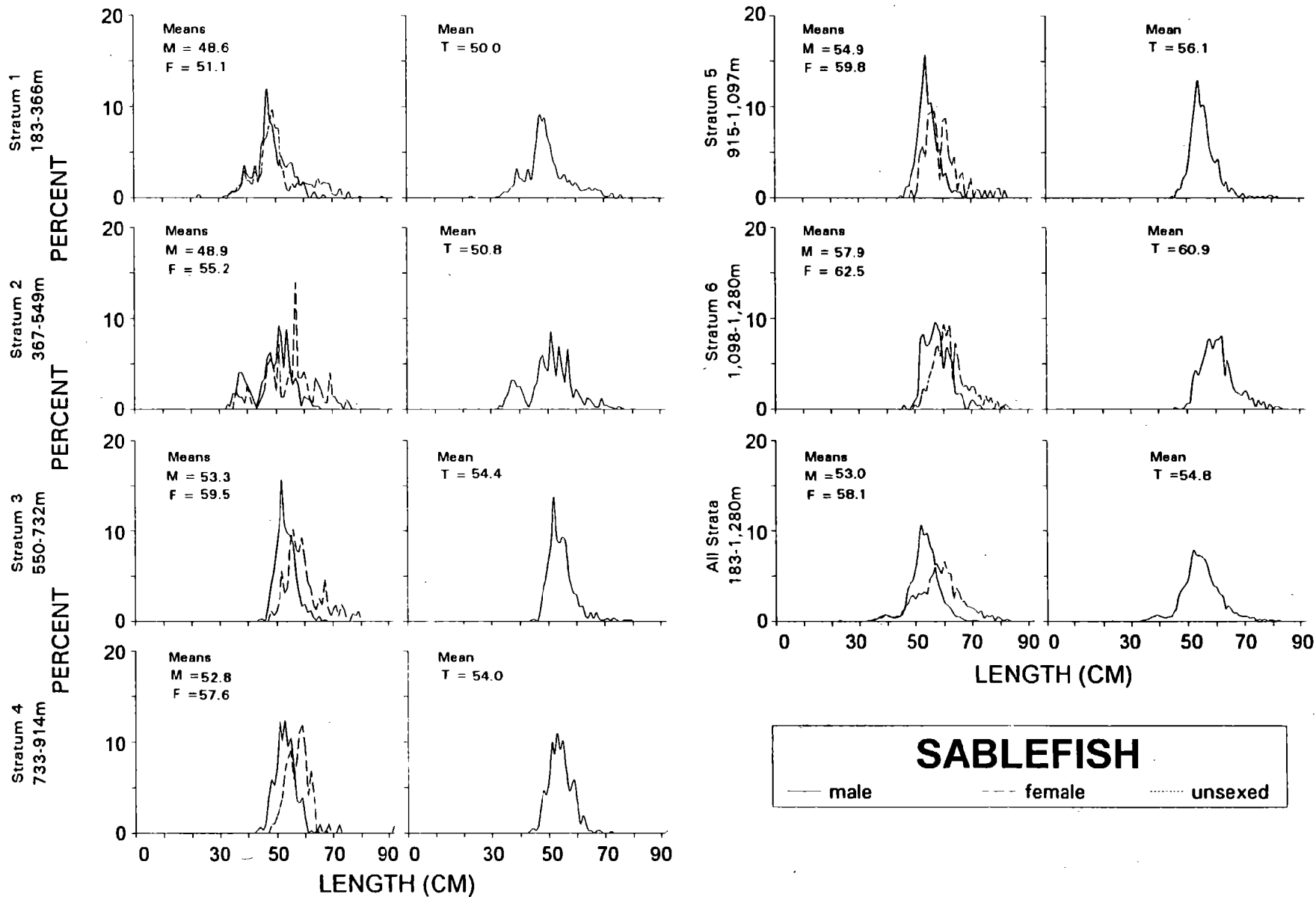


Figure 30.--Estimated population size composition and mean lengths (cm) of sablefish by stratum and by sex for the International North Pacific Fisheries Commission Columbia area for all depths sampled (183-1,280 m) from the 1996 West Coast upper continental slope bottom trawl survey.

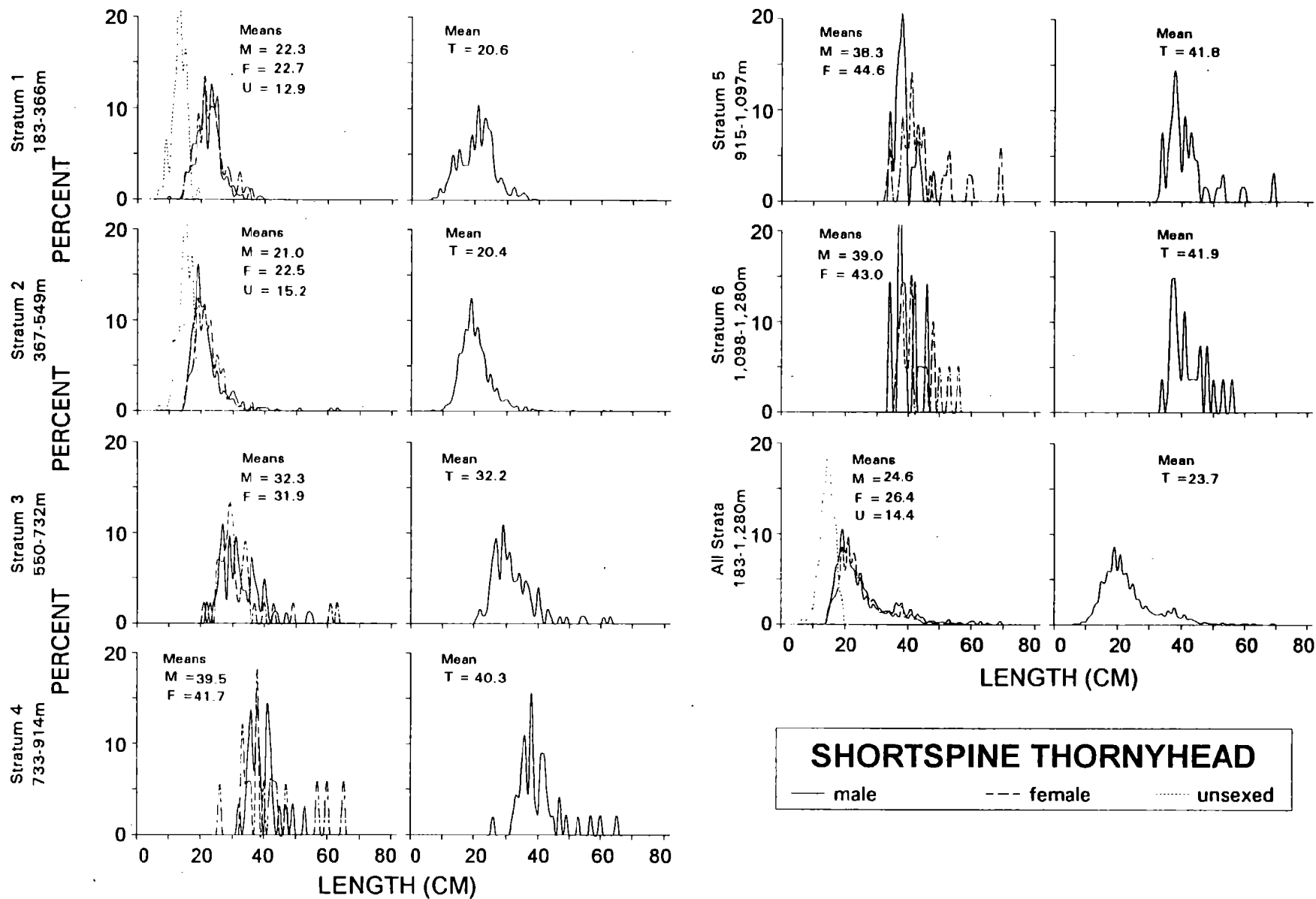


Figure 31.--Estimated population size composition and mean lengths (cm) of shortspine thornyhead by stratum and by sex for the International North Pacific Fisheries Commission U.S. Vancouver area for all depths sampled (183-1,280 m) from the 1996 West Coast upper continental slope bottom trawl survey.

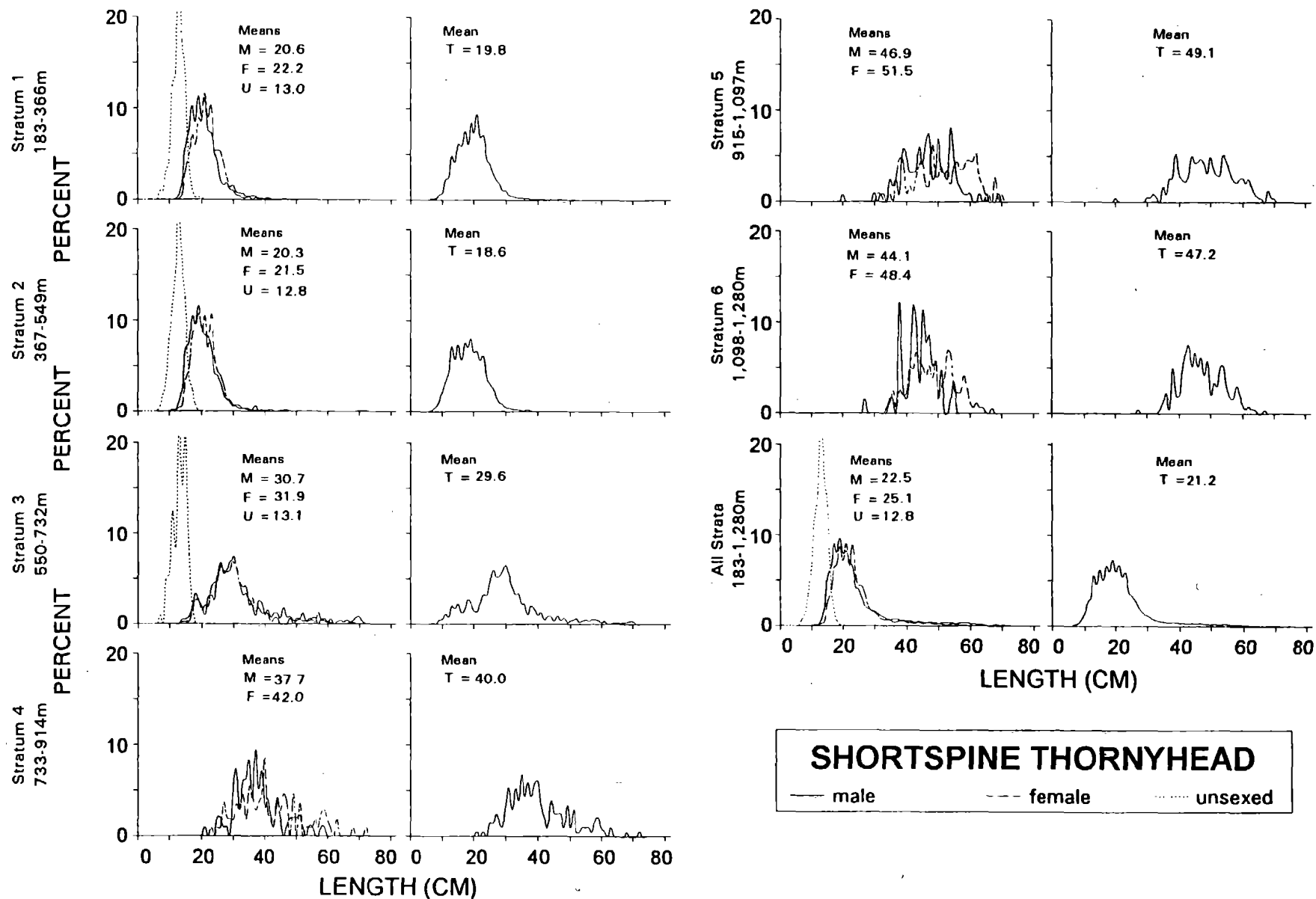


Figure 32.--Estimated population size composition and mean lengths (cm) of shortspine thornyhead by stratum and by sex for the International North Pacific Fisheries Commission Columbia area for all depths sampled (183-1,280 m) from the 1996 West Coast upper continental slope bottom trawl survey.

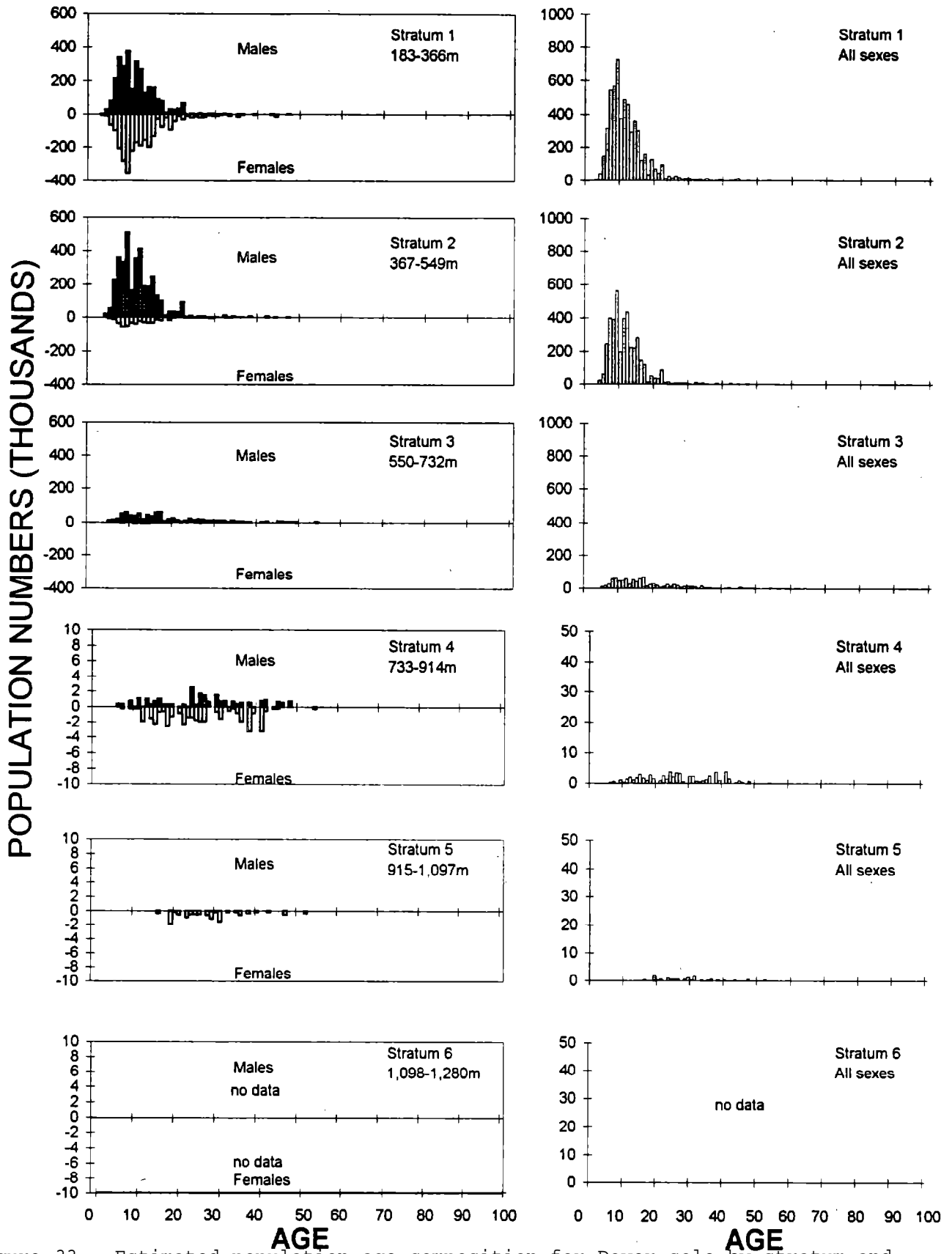


Figure 33.-- Estimated population age composition for Dover sole by stratum and by sex for the International North Pacific Fisheries Commission U.S. Vancouver area from the 1996 West Coast upper continental slope bottom trawl survey.

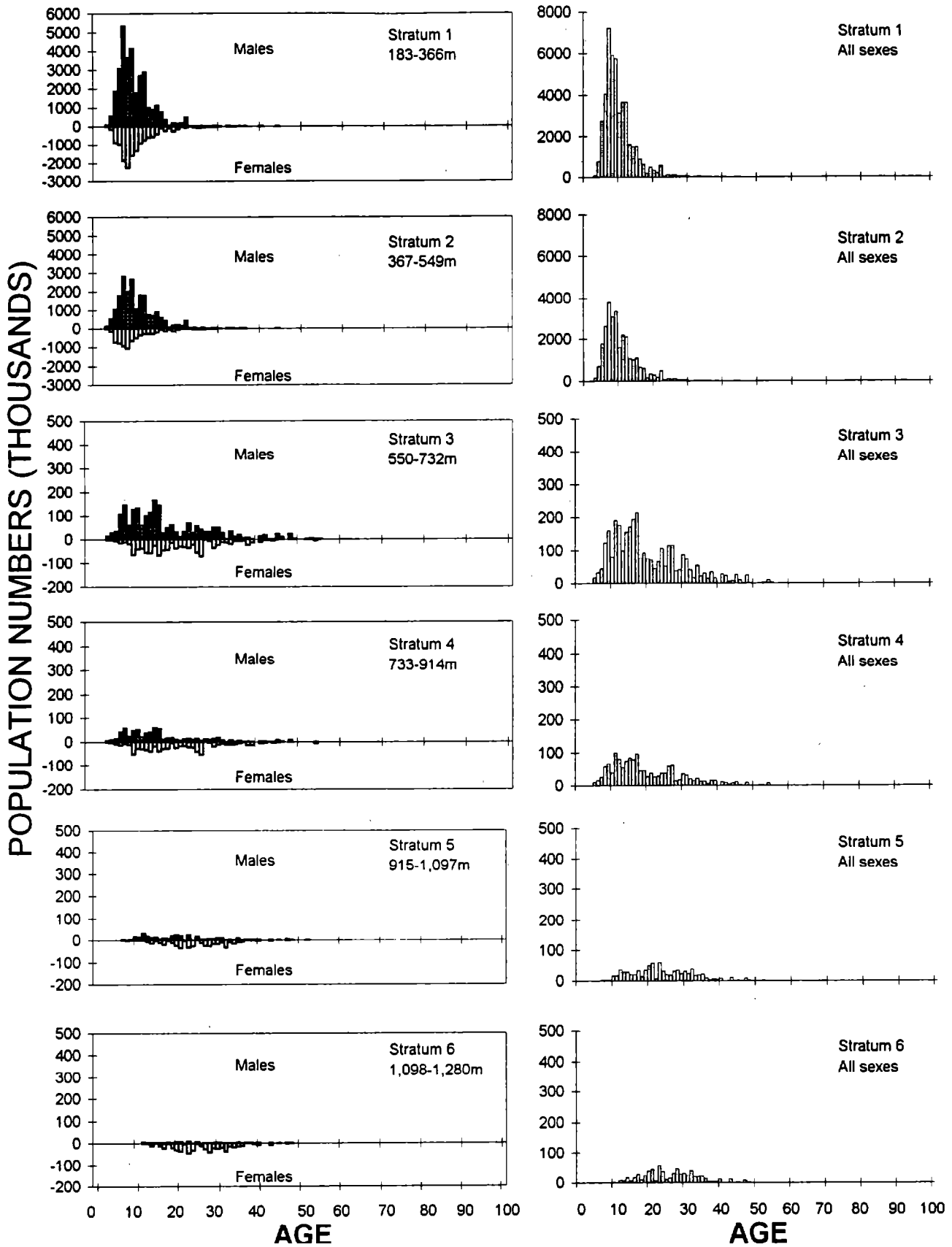


Figure 34. --Estimated population age composition for Dover sole by stratum and by sex for the International North Pacific Fisheries Commission Columbia area from the 1996 West Coast upper continental slope bottom trawl survey.

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APPENDIX A

Haul and Catch Information

Appendix A contains listings of station data and catch data for all hauls from the 1996 West Coast upper continental slope bottom trawl survey of the International North Pacific Fisheries Commission (INPFC) U.S. Vancouver and Columbia statistical areas. The depths are reported in meters, the distances fished in kilometers, and catches are in kilograms. Only catches with a performance value less than or equal to 4 were used for further data analysis.

A-1. Station and catch data for the NOAA ship *Miller Freeman* during the 1996 West Coast upper continental slope bottom trawl survey.....80

Table A1.--Station and catch data for the NOAA ship Miller Freeman during the 1996 West Coast upper continental slope bottom trawl

Haul number	1	2	3	4	5	6	7	8	9	10	11
Start date and time	10/16 22:50	10/17 2:24	10/18 18:05	10/18 21:09	10/19 1:30	10/19 5:06	10/19 8:22	10/19 10:46	10/19 13:57	10/19 18:42	10/19 22:31
Start latitude	4807.3	4756.4	4755.0	4755.1	4755.3	4753.8	4753.7	4755.4	4759.0	4741.1	4742.7
Start longitude	12540.0	12533.5	12516.4	12516.4	12516.5	12535.9	12535.3	12541.6	12544.2	12544.6	12532.1
End latitude	4808.3	4756.9	4756.2	4756.2	4756.4	4754.0	4754.1	4756.2	4759.6	4742.4	4743.7
End longitude	12541.0	12534.7	12516.6	12516.6	12516.8	12536.3	12536.8	12542.8	12545.7	12544.5	12530.8
Bottom depth (m)	211	209	341	341	343	477	486	615	931	1150	1020
Duration (h)	0.51	0.65	0.53	0.53	0.51	0.26	0.50	0.51	0.53	0.58	0.62
Distance fished (km)	2.25	2.45	2.23	2.15	2.20	0.77	2.17	2.16	2.27	2.38	2.49
Net width (m)	17.439	15.641	16.831	17.057	17.614	17.614	17.614	17.378	17.617	17.614	18.226
Net measured?	Y	Y	Y	Y	N	N	N	Y	Y	N	Y
Performance	0	6	5	5	0	7	0	0	0	0	0
Gear	172	172	172	172	172	172	172	172	172	172	172
Hagfish					0.2			0.3	0.8	0.4	
Brown catshark				0.5	1.3	1.8	2.7	1.5	1.0		
Spiny dogfish	127.5			377.1	107.8		1.2	0.6			
Skates	19.9			144.0	40.6	3.4	6.3	3.0	0.1	11.5	4.1
Other elasmobranchs	5.1										
Arrowtooth flounder	60.8			27.8	16.0						
Petrale sole							1.4				
Dover sole	14.3			32.5	37.6	14.3	53.5	66.7			
Deepsea sole								13.5	11.4	2.4	5.0
Rex sole	36.2			22.0	46.7	4.3	12.5				
Other flatfish	143.0			87.1	88.1	0.2	0.6				
Sablefish	4.4			11.2	4.3		3.7	24.7	26.7	50.3	28.1
Pacific grenadier							0.2	3.5	27.8	24.2	30.3
Giant grenadier								11.2	7.2	88.2	45.5
Other grenadiers								0.2	0.2	0.2	0.2
Pacific flatnose						0.4	1.4	5.2	1.4	6.0	1.0
Slickheads									3.7		3.6
Eelpouts				2.3	1.4	6.7	8.5	8.7	10.6	2.1	3.5
Snailfish				0.5	1.4	0.2	1.5	1.4	1.0	0.1	
Pacific hake	342.5			353.4	653.8	124.8	215.4	5.4		1.1	1.0
Other roundfish	23.3						0.1	7.9	0.7	1.4	0.3
Shortspine thornyhead	6.1			5.6	11.5	10.3	36.7	16.3	6.3	14.9	14.5
Longspine thornyhead								15.8	141.7	112.2	173.1
Rougheye rockfish				11.2	15.4		3.9				
Pacific ocean perch	220.1			3.6	2.9						
Aurora rockfish											
Darkblotched rockfish	5.0										
Splitnose rockfish	29.6										
Greenstriped rockfish	5.9										
Other rockfish	26.8			0.9	0.3		3.0				
True tanner crab	0.3						1.7	13.1	11.8	8.4	45.4
Sea urchins	0.2			0.6	0.1	1.9	0.1	0.1			
Sea stars	2.6			8.7	7.3	0.0	0.7	6.0	4.7	7.1	1.3
Other invertebrates	25.6			14.4	19.0	1.9	14.0	8.5	10.3	51.5	18.2
Total catch weight	1,099.2			1,103.3	1,055.6	170.1	368.9	213.4	267.3	381.9	375.2

Table A1.--Continued.

Haul number	1	2	3	4	5	6	7	8	9	10	11
Start date and time	10/16 22:50	10/17 2:24	10/18 18:05	10/18 21:09	10/19 1:30	10/19 5:06	10/19 8:22	10/19 10:46	10/19 13:57	10/19 18:42	10/19 22:31
Start latitude	4807.3	4756.4	4755.0	4755.1	4755.3	4753.8	4753.7	4755.4	4759.0	4741.1	4742.7
Start longitude	12540.0	12533.5	12516.4	12516.4	12516.5	12535.9	12535.3	12541.6	12544.2	12544.6	12532.1
End latitude	4808.3	4756.9	4756.2	4756.2	4756.4	4754.0	4754.1	4756.2	4759.6	4742.4	4743.7
End longitude	12541.0	12534.7	12516.6	12516.6	12516.8	12536.3	12536.8	12542.8	12545.7	12544.5	12530.8
Bottom depth (m)	211	209	341	341	343	477	486	615	931	1150	1020
Duration (h)	0.51	0.65	0.53	0.53	0.51	0.26	0.50	0.51	0.53	0.58	0.62
Distance fished (km)	2.25	2.45	2.23	2.15	2.20	0.77	2.17	2.16	2.27	2.38	2.49
Net width (m)	17.439	15.641	16.831	17.057	17.614	17.614	17.614	17.378	17.617	17.614	18.226
Net measured?	Y	Y	Y	Y	N	N	N	Y	Y	N	Y
Performance	0	6	5	5	0	7	0	0	0	0	0
Gear	172	172	172	172	172	172	172	172	172	172	172
Hagfish					0.2			0.3	0.8	0.4	
Brown catshark				0.5	1.3	1.8	2.7	1.5	1.0		
Spiny dogfish	127.5			377.1	107.8		1.2	0.6			
Skates	19.9			144.0	40.6	3.4	6.3	3.0	0.1	11.5	4.1
Other elasmobranchs	5.1										
Arrowtooth flounder	60.8			27.8	16.0						
Petrale sole							1.4				
Dover sole	14.3			32.5	37.6	14.3	53.5	66.7			
Deepsea sole								13.5	11.4	2.4	5.0
Rex sole	36.2			22.0	46.7	4.3	12.5				
Other flatfish	143.0			87.1	88.1	0.2	0.6				
Sablefish	4.4			11.2	4.3		3.7	24.7	26.7	50.3	28.1
Pacific grenadier							0.2	3.5	27.8	24.2	30.3
Giant grenadier								11.2	7.2	88.2	45.5
Other grenadiers									0.2	0.2	0.2
Pacific flatnose						0.4	1.4	5.2	1.4	6.0	1.0
Slickheads									3.7		3.6
Eelpouts				2.3	1.4	6.7	8.5	8.7	10.6	2.1	3.5
Snailfish				0.5	1.4	0.2	1.5	1.4	1.0	0.1	
Pacific hake	342.5			353.4	653.8	124.8	215.4	5.4		1.1	1.0
Other roundfish	23.3						0.1	7.9	0.7	1.4	0.3
Shortspine thornyhead	6.1			5.6	11.5	10.3	36.7	16.3	6.3	14.9	14.5
Longspine thornyhead								15.8	141.7	112.2	173.1
Rougheye rockfish				11.2	15.4		3.9				
Pacific ocean perch	220.1			3.6	2.9						
Aurora rockfish											
Darkblotched rockfish	5.0										
Splitnose rockfish	29.6										
Greenstriped rockfish	5.9										
Other rockfish	26.8			0.9	0.3		3.0				
True tanner crab	0.3						1.7	13.1	11.8	8.4	45.4
Sea urchins	0.2			0.6	0.1	1.9	0.1	0.1			
Sea stars	2.6			8.7	7.3	0.0	0.7	6.0	4.7	7.1	1.3
Other invertebrates	25.6			14.4	19.0	1.9	14.0	8.5	10.3	51.5	18.2
Total catch weight	1,099.2			1,103.3	1,055.6	170.1	368.9	213.4	267.3	381.9	375.2

Table Al.--Continued.

Haul number	12	13	14	15	16	17	18	19	20	21	22
Start date and time	10/20 1:44	10/20 4:32	10/20 7:14	10/20 9:29	10/20 12:15	10/20 15:36	10/20 17:39	10/20 20:40	10/20 23:20	10/21 2:34	10/21 5:52
Start latitude	4745.6	4745.9	4747.7	4751.0	4750.1	4738.2	4737.1	4737.3	4738.2	4735.8	4736.7
Start longitude	12518.6	12525.5	12517.0	12515.5	12509.0	12506.5	12508.1	12510.5	12516.4	12526.4	12531.7
End latitude	4746.8	4747.2	4748.5	4750.4	4750.9	4737.2	4735.9	4736.1	4736.9	4734.6	4735.8
End longitude	12518.7	12525.5	12518.2	12516.9	12510.5	12505.6	12508.0	12510.4	12516.6	12527.1	12530.4
Bottom depth (m)	867	810	671	462	287	273	480	580	811	947	1203
Duration (h)	0.55	0.54	0.50	0.48	0.53	0.50	0.53	0.52	0.55	0.61	0.58
Distance fished (km)	2.27	2.41	2.09	2.03	2.41	2.13	2.35	2.20	2.35	2.40	2.33
Net width (m)	18.362	17.088	18.255	16.951	17.539	16.111	16.728	18.021	18.193	18.005	17.614
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Performance	0	0	0	0	0	0	0	0	0	0	5
Gear	172	172	172	172	172	172	172	172	172	172	172
Magfish	2.0	3.5	0.5	0.8				0.2		1.4	
Brown catshark	0.5	1.5	3.6	17.8	0.8		11.7	0.6	0.2		0.4
Spiny dogfish				10.2	355.4	25.3		0.7			
Skates	0.1			5.8	41.4	20.6	6.7	1.3			7.4
Other elasmobranchs					2.3	13.6					
Arrowtooth flounder				5.0	21.8	24.2					
Petrale sole					5.2	4.9					
Dover sole	16.4		10.4	126.9	126.2	43.6	287.7			0.9	
Deepsea sole	9.2	7.8	2.6				0.8	0.5	7.7	1.2	1.3
Rex sole				4.3	3.2	10.3	5.8				
Other flatfish				7.8	142.4	33.9	1.1				
Sablefish	10.9	2.4	22.6	14.7	12.4	20.6	24.5	57.4	9.0	19.9	27.1
Pacific grenadier	1.1	3.6	7.9					0.3	1.6	6.2	27.7
Giant grenadier	3.4	16.7	1.9	1.3			1.7	12.4	2.7	18.9	97.7
Other grenadiers		0.3									
Pacific flatnose		0.8	1.0	0.2			0.7	3.2	0.1	0.9	1.8
Slickheads	0.4	0.5							0.1	2.3	
Eelpouts	2.6	8.4	14.5	28.2	10.6	8.9	23.8	12.0	2.3	2.9	0.7
Snailfish	0.2	0.2	0.5	0.6	0.3		2.2	0.9	0.2	0.1	0.0
Pacific hake			1.2	96.4	406.9	249.8	46.8	8.0	1.3	1.2	0.6
Other roundfish	0.9	0.7	0.6	0.6	0.1	0.1	0.0	0.1	0.4	0.6	1.1
Shortspine thornyhead	13.0	7.6	12.1	28.6	48.5	24.7	42.8	17.1	14.8	18.6	12.1
Longspine thornyhead	117.4	88.0	25.9				1.0	45.6	99.9	119.5	61.8
Rougheye rockfish				7.5	8.8						
Pacific ocean perch				5.4	7.1	117.3					
Aurora rockfish				3.3	0.7						
Darkblotched rockfish					1.4	3.8					
Splitnose rockfish					3.3	1.6					
Greenstriped rockfish											
Other rockfish				4.9	11.0	1.3					
True tanner crab	49.3	50.2	62.6	2.2			0.6	16.5	36.0	26.4	9.9
Sea urchins				8.2	14.2	0.1	0.3	0.5	0.0		
Sea stars	1.0	2.0	6.3	4.8	57.7	11.4	4.5	4.9	3.3	3.4	9.5
Other invertebrates	2.4	15.4	6.6	35.4	6.1	9.2	46.5	26.7	16.9	11.9	14.4
Total catch weight	230.8	209.4	180.6	420.8	1,287.8	625.1	509.2	209.0	197.9	235.2	273.1

Table Al.--Continued.

Haul number	23	24	25	26	27	28	29	30	31	32	33
Start date and time	10/21 9:54	10/21 16:54	10/21 20:45	10/21 23:49	10/22 2:11	10/22 5:41	10/22 10:18	10/22 13:40	10/22 16:24	10/22 19:35	10/22 22:06
Start latitude	4736.4	4733.3	4730.8	4733.5	4734.4	4733.9	4716.1	4716.1	4715.4	4715.0	4709.8
Start longitude	12531.6	12519.7	12511.5	12506.1	12502.9	12510.7	12505.7	12501.9	12459.1	12451.0	12456.7
End latitude	4735.3	4732.1	4729.8	4733.0	4733.4	4734.3	4714.9	4715.6	4714.8	4715.6	4710.6
End longitude	12530.5	12519.4	12510.7	12507.5	12501.9	12520.5	12506.2	12503.4	12500.6	12453.4	12457.9
Bottom depth (m)	1172	897	565	494	223	892	744	607	427	194	218
Duration (h)	0.58	0.57	0.53	0.52	0.52	0.61	0.54	0.50	0.53	0.52	0.52
Distance fished (km)	2.39	2.36	2.24	2.12	2.25	2.45	2.33	2.10	2.30	2.51	2.16
Net width (m)	17.614	18.375	17.731	17.056	15.848	18.445	17.972	17.402	16.946	17.583	16.623
Net measured?	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	0	0	0
Gear	172	172	172	172	172	172	172	172	172	172	172
Hagfish	0.2	0.5				2.0		0.6	0.1		
Brown catshark		0.3	0.6	2.5			1.7	3.0	0.5		
Spiny dogfish					13.9			0.2	0.6	502.5	56.0
Skates	10.7	5.3		7.1	15.8	3.6	5.2	8.5		23.8	21.4
Other elasmobranchs					26.7	1.1				0.4	41.1
Arrowtooth flounder					17.9				7.3	8.3	16.4
Petrale sole					9.8					4.5	7.3
Dover sole			25.9	73.7	97.1		4.1	34.7	92.9	119.5	134.5
Deepsea sole		1.3	4.8	1.7		5.8	7.8	1.3	3.7		
Rex sole				2.2	12.5				6.4	6.4	39.0
Other flatfish					19.5					75.8	26.1
Sablefish	58.4	16.1	4.4	25.6	40.9	3.3	38.2	35.8	10.9	109.8	118.2
Pacific grenadier	36.8	18.5	0.1			4.6	2.6	2.1			
Giant grenadier	86.3	10.8				12.9	0.9	3.1			
Other grenadiers											
Pacific flatnose	2.0	0.7	2.5	1.8		0.4	0.6	6.8			
Slickheads		1.5				1.6	1.9				
Eelpouts	6.6	1.6	5.4	5.2	2.8	2.9	1.0	9.8	4.9	3.1	4.8
Snailfish		0.4	0.3	0.8	0.3	0.3	0.3	0.9			
Pacific hake		0.6	4.9	47.0	178.7		1.3	1.4	14.3	145.4	156.8
Other roundfish	0.7	0.3	0.8	0.1		0.5	0.6	0.5	0.4	12.0	0.7
Shortspine thornyhead		13.3	14.6	10.0	4.6	7.5	14.7	15.0	28.2	15.1	39.1
Longspine thornyhead	52.9	105.0	42.9	33.3	0.3	72.3	79.5	33.8	39.1	0.2	
Rougheye rockfish									9.8	2.0	
Pacific ocean perch					12.6				1.4	86.4	204.2
Aurora rockfish									0.6		
Darkblotched rockfish					0.5					2.0	125.3
Splitnose rockfish					8.8					25.6	139.7
Greenstriped rockfish					2.6					1.2	7.7
Other rockfish					4.0					32.0	83.2
True tanner crab	9.7	22.2	6.9	1.9		32.3	47.1	26.0			
Sea urchins			0.6	37.0	7.6	0.0		0.0	2.0	4.7	1.0
Sea stars	2.6	5.0	9.4	3.0	10.4	0.8	5.2	11.4	10.4	8.2	2.6
Other invertebrates	21.6	8.6	19.7	23.4	11.5	11.0	4.6	13.5	6.8	12.3	6.3
Total catch weight	288.5	212.0	143.7	276.3	498.8	163.1	217.9	208.1	240.1	1,201.3	1,231.3

Table A1.--Continued.

Haul number	34		35		36		37		38		39		40		41		42		43		44	
Start date and time	10/23 2:42	10/23 4:47	10/23 7:08	10/23 11:48	10/23 14:59	10/23 17:21	10/23 19:30	10/23 22:02	10/24 5:51	10/24 8:13	10/24 10:55											
Start latitude	4713.8	4713.4	4714.0	4652.3	4649.3	4651.3	4650.9	4652.5	4646.3	4643.0	4644.2											
Start longitude	12502.3	12459.8	12502.2	12510.7	12505.5	12456.6	12456.6	12453.7	12449.7	12450.6	12457.6											
End latitude	4715.0	4714.5	4715.1	4652.9	4648.2	4650.7	4649.8	4651.2	4647.3	4643.8	4645.0											
End longitude	12501.9	12500.5	12501.9	12512.2	12505.0	12457.0	12457.1	12453.7	12450.7	12451.9	12458.9											
Bottom depth (m)	545	418	546	753	617	473	490	199	181	394	674											
Duration (h)	0.54	0.53	0.55	0.52	0.52	0.29	0.52	0.55	0.56	0.52	0.52											
Distance fished (km)	2.33	2.31	2.20	2.22	2.15	1.25	2.09	2.40	2.35	2.17	2.18											
Net width (m)	17.38	17.414	17.441	17.828	17.761	17.226	17.251	15.91	15.652	17.376	17.894											
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y											
Performance	0	0	0	0	0	5	0	7	7	0	0											
Gear	172	172	172	172	172	172	172	172	172	172	172											
Hagfish	0.9		0.5	0.2	0.1		0.5			0.8	1.2											
Brown catshark	6.5	10.2		1.9	7.3		6.5			9.6	0.9											
Spiny dogfish		0.4					2.8	583.4	339.0	80.7	0.4											
Skates	4.9	14.9	9.2				6.4	5.7	40.6	3.9												
Other elasmobranchs								15.6	11.6													
Arrowtooth flounder		1.0					6.3	2.1		20.1												
Petrale sole								0.6	2.7													
Dover sole	80.0	209.7	68.5	9.4			168.3	52.3	102.5	121.6	0.6											
Deepsea sole	6.2		2.7	3.9	1.5						2.0											
Rex sole	0.7	20.8	1.5					5.9	17.6	21.2	46.0											
Other flatfish		0.0						0.1	65.0	24.8	27.5											
Sablefish	36.7	19.5	26.9	11.0	59.0		36.1	58.7	12.2	2.5	15.2											
Pacific grenadier	1.3		1.0	1.8	1.3						2.6											
Giant grenadier	5.7		1.2	1.0																		
Other grenadiers																						
Pacific flatnose	8.8	0.4	6.6	1.5	7.2		3.3				0.7											
Slickheads				7.7																		
Eelpouts	11.6	10.3	8.1	0.5	0.8		11.6	1.0	1.0	22.0	4.2											
Snailfish	0.8	0.4	0.1				2.5	0.2		0.2	0.2											
Pacific hake	8.7	28.3	1.3				53.8	54.4	129.8	1,005.8	1.0											
Other roundfish	0.1	0.1	7.0	1.1	0.4		0.1	6.8	3.7	0.0	0.4											
Shortspine thornyhead	31.8	28.6	29.4	0.5	6.6		32.9	2.3		58.8	18.8											
Longspine thornyhead	35.1		27.0	57.6	52.2		0.9				74.1											
Rougheye rockfish			1.6					3.2		5.1												
Pacific ocean perch		22.9	2.8					184.6	0.5	0.7												
Aurora rockfish		0.9																				
Darkblotched rockfish								0.4	1.3	1.1												
Splitnose rockfish								5.1	0.8													
Greenstriped rockfish								7.8	37.4													
Other rockfish								379.7	37.6	1.5												
True tanner crab	14.0		16.9	27.6	23.5		1.0			0.3	93.2											
Sea urchins	78.4	5.3	50.4				0.0	51.0	81.7	1.6												
Sea stars	7.6	6.6	7.8	8.4	8.5		8.2		0.9	4.8	2.2											
Other invertebrates	80.3	20.8	56.7	17.2	24.8		36.7	16.9	52.7	46.6	6.4											
Total catch weight	420.0	401.2	327.3	151.2	193.3		383.8	1,514.4	901.9	1,461.2	224.0											

Table A1.--Continued.

Haul number	45	46	47	48	49	50	51	52	53	54	55
Start date and time	10/24 13:54	10/24 16:49	10/24 21:39	10/25 1:41	10/25 5:08	10/25 8:47	10/25 11:10	10/25 14:06	10/25 17:32	10/25 20:21	10/25 23:57
Start latitude	4643.7	4643.9	4647.1	4638.8	4635.1	4639.0	4638.3	4639.4	4630.1	4628.5	4625.8
Start longitude	12503.9	12512.1	12514.5	12507.4	12454.8	12452.6	12448.5	12445.2	12442.2	12446.0	12440.9
End latitude	4642.7	4642.7	4647.8	4639.4	4635.9	4637.8	4638.3	4640.1	4629.5	4629.4	4626.1
End longitude	12505.0	12512.2	12516.2	12509.0	12456.1	12452.7	12450.2	12446.6	12443.7	12446.9	12442.6
Bottom depth (m)	803	940	1147	995	777	559	443	228	583	780	1107
Duration (h)	0.56	0.56	0.62	0.60	0.52	0.52	0.52	0.52	0.52	0.51	0.59
Distance fished (km)	2.37	2.36	2.57	2.40	2.36	2.20	2.22	2.25	2.21	2.15	2.29
Net width (m)	17.85	17.951	17.614	18.424	18.348	18.185	17.217	17.021	17.76	18.741	17.614
Net measured?	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	N
Performance	0	0	3	0	0	0	0	0	0	0	0
Gear	172	172	172	172	172	172	172	172	172	172	172
Hagfish	0.2	1.4	0.3	2.0	0.6	0.2	0.2		0.2	0.7	0.8
Brown catshark	0.2	1.9				7.2	12.7		0.5	0.3	0.5
Spiny dogfish							6.4	2,826.5	0.8		
Skates	0.9	0.8	3.1	13.0	0.4			57.5	8.0		3.1
Other elasmobranchs								38.8		21.8	
Arrowtooth flounder											
Petrale sole								12.3			
Dover sole	7.3	0.8		37.0	1.3	0.8	172.3	125.0	2.2	0.7	12.1
Deepsea sole	3.8	1.7	7.1	3.9	5.1	0.6	0.8		2.5	2.6	2.1
Rex sole							24.0	3.3			
Other flatfish							0.3	23.7			
Sablefish	3.0	33.4	43.7	21.4	30.8	21.3	13.5	31.6	76.9	10.1	227.7
Pacific grenadier	4.4	14.8	44.9	22.3	2.7	1.9			3.0	1.2	17.3
Giant grenadier	6.1	11.1	37.2	19.6	1.3	10.4					33.9
Other grenadiers											1.2
Pacific flatnose	1.0	0.9	7.8	2.0	0.9	2.4			2.7	1.4	1.1
Slickheads	4.3	1.7	1.1	11.3	3.1					1.1	1.1
Eelpouts	1.6	1.1	2.4	1.4	0.5	7.4	5.6	1.4	8.4	2.1	5.7
Snailfish	0.1				0.0		0.9	0.5	0.3	0.3	
Pacific hake		1.3			0.6	14.5	106.8	285.0	9.9		0.6
Other roundfish	0.6	0.4	0.7	0.8	0.7	0.2		7.0	0.2	0.5	0.4
Shortspine thornyhead	9.1	2.7	5.8	6.2	17.8	8.7	19.6	16.2	14.3	4.0	19.9
Longspine thornyhead	90.4	108.2	93.2	102.4	124.2	28.4	21.1		27.8	30.2	235.5
Rougheye rockfish							2.0				
Pacific ocean perch							4.5	56.1			
Aurora rockfish							3.6				
Darkblotched rockfish								16.6			
Splitnose rockfish								0.7			
Greenstriped rockfish								0.9			
Other rockfish							15.8	15.4			
True tanner crab	30.0	22.6	24.7	22.7	88.5	12.7	1.1		9.3	8.5	28.8
Sea urchins						0.2	3.0	2.5	0.3	0.0	0.2
Sea stars	1.6	1.7	7.7	3.0	1.5	3.4	7.1	2.3	1.5	2.6	8.2
Other invertebrates	22.6	23.5	26.4	27.1	24.6	13.7	53.2	11.7	5.1	6.9	3.3
Total catch weight	187.2	230.0	306.1	296.0	304.7	133.8	474.5	3,535.0	173.8	95.1	603.5

Table Al.--Continued.

Haul number	56	57	58	59	60	61	62	63	64	65	66
Start date and time	10/26 3:16	10/26 8:07	10/26 12:37	10/26 15:28	10/26 19:18	10/26 21:52	10/27 2:40	10/27 5:06	10/27 8:24	10/27 11:08	10/27 14:18
Start latitude	4625.1	4619.1	4614.4	4617.6	4616.6	4616.7	4603.1	4604.3	4609.4	4612.0	4609.7
Start longitude	12442.9	12500.5	12452.4	12447.3	12424.5	12423.2	12445.3	12443.0	12448.9	12454.8	12457.6
End latitude	4625.7	4619.3	4615.5	4617.7	4616.5	4615.9	4603.9	4605.4	4609.7	4612.7	4610.8
End longitude	12444.4	12502.1	12452.9	12448.2	12425.8	12424.5	12446.5	12443.6	12450.5	12456.0	12458.6
Bottom depth (m)	1169	1143	755	672	390	333	366	271	1120	804	960
Duration (h)	0.60	0.52	0.52	0.28	0.40	0.50	0.51	0.51	0.56	0.50	0.58
Distance fished (km)	2.28	2.14	2.15	1.16	1.79	2.24	2.11	2.38	2.08	2.00	2.41
Net width (m)	17.614	17.614	18.051	17.658	14.605	17.146	17.096	17.794	17.614	17.799	18.782
Net measured?	N	N	Y	Y	Y	Y	Y	Y	N	Y	Y
Performance	0	0	0	0	5	0	0	0	0	0	0
Gear	172	172	172	172	172	172	172	172	172	172	172
Hagfish		0.2	0.2				0.2			1.2	0.8
Brown catshark	0.8		0.9	1.6	3.3	1.8	15.9	2.0	0.2	0.6	0.7
Spiny dogfish						7.4	19.6	191.1			
Skates		3.8		0.3	10.3	12.4	3.8	32.0	2.1		0.5
Other elasmobranchs						1.1		11.8			
Arrowtooth flounder					3.0	19.3	6.0	12.4			
Petrale sole					0.7		0.5	0.6			
Dover sole	5.5		2.5	35.2	235.1	667.6	62.7	46.3	36.9	8.9	
Deepsea sole	15.3	2.4	9.0	17.0					7.7	10.6	2.5
Rex sole					60.9	244.9	13.1	7.4			
Other flatfish					0.7	5.8	17.4	18.2			
Sablefish	121.0	58.1	33.5	4.1	36.3	51.7	18.7	20.3	19.8	11.9	8.5
Pacific grenadier	21.6	29.3	1.7	0.4					37.2	4.2	83.8
Giant grenadier	42.0	48.2	2.4	4.3					34.4	10.5	33.5
Other grenadiers	3.9								1.5	0.1	1.0
Pacific flatnose	1.7	5.1	0.6	1.7					0.1	1.1	1.8
Slickheads	1.5	0.7	3.7	0.3					0.5	2.7	2.3
Eelpouts	8.6	0.9	3.5	0.3	1.0	2.4	3.9	8.0	17.5	6.3	2.1
Snailfish	0.2		0.3	0.5					0.4	0.2	
Pacific hake	1.2	0.6	0.6		3.0	17.7	258.5	881.3			0.5
Other roundfish	0.7	0.9	1.0	0.5		2.1		0.1	1.0	0.7	1.5
Shortspine thornyhead	12.8	6.3	2.1	7.7	33.7	47.5	25.6	20.2	20.7	1.6	10.7
Longspine thornyhead	137.5	68.0	96.1	48.9					149.0	52.7	85.2
Rougheye rockfish					0.4	2.7	19.7	0.4			
Pacific ocean perch							5.5	105.9			
Aurora rockfish							2.1				
Darkblotched rockfish								6.1			
Splitnose rockfish						0.9		1.2			
Greenstriped rockfish								0.6			
Other rockfish						22.2		1.2			
True tanner crab	7.7	16.5	43.2	73.2			0.2		25.2	71.9	55.8
Sea urchins	0.0			1.8	144.7	130.1	3.9	12.7	0.1	0.0	
Sea stars	20.0	4.4	3.5	16.3	146.5	110.4	9.6	12.0	8.7	9.1	4.9
Other invertebrates	2.7	14.1	5.7	4.6	11.5	9.1	39.3	6.0	10.2	6.1	19.6
Total catch weight	404.7	259.5	210.4	218.5	691.0	1,357.1	526.2	1,397.9	373.0	200.4	315.7

Table A1.--Continued.

Haul number	67	68	69	70	71	72	73	74	75	76	77
Start date and time	10/27 17:48	10/27 20:43	10/27 23:33	10/28 2:38	10/28 4:32	10/28 6:14	10/28 9:48	10/28 12:39	10/28 15:31	10/28 18:20	10/28 20:43
Start latitude	4601.0	4602.0	4557.6	4557.3	4600.1	4601.1	4546.1	4548.5	4550.9	4546.8	4544.3
Start longitude	12459.8	12452.7	12452.7	12448.4	12445.7	12440.5	12439.7	12444.1	12452.1	12448.8	12450.1
End latitude	4602.1	4603.3	4558.5	4558.1	4601.2	4602.2	4546.9	4549.5	4550.4	4546.0	4545.5
End longitude	12500.4	12453.3	12453.9	12449.7	12446.6	12441.3	12440.2	12444.8	12453.7	12448.5	12450.0
Bottom depth (m)	1261	924	761	564	369	200	243	373	851	620	647
Duration (h)	0.52	0.57	0.51	0.55	0.52	0.51	0.34	0.51	0.52	0.38	0.53
Distance fished (km)	2.18	2.56	2.24	2.18	2.40	2.29	1.58	2.18	2.25	1.57	2.26
Net width (m)	17.614	17.594	17.877	17.916	17.315	17.352	17.378	17.729	17.651	17.77	17.594
Net measured?	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	0	0	0
Gear	172	172	172	172	172	172	172	172	172	172	172
Hagfish	0.2	2.0	0.5		0.1	0.2		0.8	0.3		0.5
Brown catshark		1.7	6.8	9.3	2.5	0.6			0.9	1.8	2.4
Spiny dogfish					7.3	2,602.2	1,597.9	6.4			
Skates	13.1	2.3		5.8	13.3	55.3	17.7	22.7		0.1	7.6
Other elasmobranchs						14.2	5.8				
Arrowtooth flounder					11.8	6.2	1.7	11.3			
Petrale sole						2.1	3.1				
Dover sole			0.5	37.3	29.8	272.6	50.9	82.5	16.6	0.9	44.0
Deepsea sole	1.5	4.4	0.7						5.1		9.5
Rex sole					31.9	32.1	18.3	12.2			
Other flatfish					0.8	26.1	19.4	1.5			
Sablefish	2.8	22.9	14.3	35.6	27.6	26.5	6.3	23.9	21.2	55.2	101.3
Pacific grenadier	41.2	2.8	4.4	1.4					3.0	1.7	5.3
Giant grenadier	59.5	5.5	1.5	0.5					4.4	7.0	53.7
Other grenadiers											
Pacific flatnose	4.3	1.1	1.9	5.5					0.6	1.9	9.3
Slickheads		10.8	8.6						5.2	2.1	1.3
Eelpouts	5.3	19.3	2.5	8.9	2.5	4.8	0.6	8.4	3.0	4.0	9.6
Snailfish	0.7	0.2	0.3	2.3	0.7			1.2	0.2	0.6	0.4
Pacific hake	0.5	2.1		3.2	105.6	896.8	527.1	119.3	4.7	2.5	
Other roundfish	1.1	1.0	0.8	0.3		2.5	0.0	0.0	1.7	0.1	0.1
Shortspine thornyhead	4.8	4.7	4.1	5.5	6.3	2.9	7.9	23.8	12.6	2.6	136.6
Longspine thornyhead	67.5	161.1	46.6	4.5					160.2	26.1	112.3
Rougheye rockfish								1.5			
Pacific ocean perch					2.5	2.4	0.7				
Aurora rockfish								0.5			
Darkblotched rockfish					1.7	5.6					
Splitnose rockfish					0.7	0.1	87.4				
Greenstriped rockfish						14.6	1.7				
Other rockfish						22.3	141.8				
True tanner crab	8.2	67.3	45.4	42.0	2.3			0.2	42.5	41.5	21.4
Sea urchins					21.2	188.1	231.7	20.7			
Sea stars	3.5	1.5	1.6	2.3	17.3	2.2	1.1	6.9	1.2	2.4	5.4
Other invertebrates	44.1	3.1	6.4	28.3	22.7	9.7	8.8	46.2	11.3	7.6	253.6
Total catch weight	258.3	313.7	146.8	192.7	308.6	4,190.0	2,730.0	390.0	294.6	158.1	774.2

Table A1.--Continued.

Haul number	78	79	80	81	82	83	84	85	86	87	88
Start date and time	10/29 0:05	10/29 2:52	10/29 5:10	10/29 7:30	10/29 9:37	10/29 13:26	10/29 16:24	10/29 19:24	10/29 22:37	10/30 1:02	10/30 3:34
Start latitude	4540.2	4534.7	4538.0	4540.2	4537.7	4534.3	4531.2	4529.7	4525.5	4526.1	4528.9
Start longitude	12451.6	12440.7	12436.6	12433.0	12436.5	12448.3	12451.7	12454.3	12448.3	12446.0	12441.6
End latitude	4541.4	4535.8	4538.8	4540.7	4538.1	4535.4	4532.5	4530.9	4526.8	4527.4	4529.8
End longitude	12451.8	12440.8	12437.7	12433.6	12437.1	12448.8	12451.0	12453.7	12448.2	12446.7	12442.8
Bottom depth (m)	1041	413	330	212	341	749	1063	1191	769	647	496
Duration (h)	0.61	0.52	0.51	0.31	0.26	0.52	0.61	0.61	0.54	0.61	0.51
Distance fished (km)	2.38	2.13	2.18	1.36	1.19	2.13	2.51	2.44	2.42	2.63	2.24
Net width (m)	17.969	17.159	17.523	17.609	17.771	18.15	17.614	17.614	17.603	17.795	17.28
Net measured?	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y
Performance	0	0	7	0	0	0	0	0	0	0	0
Gear	172	172	172	172	172	172	172	172	172	172	172
Hagfish	0.3	0.2	0.3			0.5	1.0		0.8	0.2	0.3
Brown catshark	0.6					1.4	0.5		1.2	1.5	7.1
Spiny dogfish			397.8	49.8	121.3						
Skates	0.0	9.4	30.0	18.5	5.3	0.7		2.1			1.7
Other elasmobranchs				3.8							
Arrowtooth flounder		27.9	6.9	1.6	1.7						0.6
Petrale sole			5.6	5.2							
Dover sole		78.5	172.7	46.6	101.1	19.5			9.5	4.6	4.1
Deepsea sole	2.6					2.9	3.0	0.6	4.4	0.5	
Rex sole		1.0	20.9	14.8	11.0					0.4	0.4
Other flatfish		0.2	3.5	9.2	1.5						
Sablefish	71.7	15.3	10.4	8.9	7.3	55.2	10.5	98.8	50.5	59.1	19.4
Pacific grenadier	34.8	4.5				0.1	12.9	49.1	1.3	1.6	
Giant grenadier	42.4						15.8	121.7	3.2	3.1	
Other grenadiers							0.4	0.2		0.0	
Pacific flatnose	0.7					0.1	0.6	9.9	0.6	1.3	
Slickheads	1.5	0.2				1.9	3.2	2.5	7.4	0.9	
Eelpouts	0.6	3.3	10.7	0.1	3.5	0.9	2.6	5.8	1.4	1.2	4.4
Snailfish		0.5				0.0	0.1	0.0		0.0	1.1
Pacific hake		242.6	307.9	734.6	212.8	1.2	0.7	2.0	1.6	3.8	108.2
Other roundfish	0.6	0.0	0.2	5.8		0.1	0.9	0.3	2.1	0.4	0.2
Shortspine thornyhead	18.8	20.2	45.3	1.8	19.3	8.6	8.0	6.1	4.1	16.9	43.5
Longspine thornyhead	159.9	12.6	0.0			56.6	87.0	37.2	80.5	50.0	7.2
Rougheye rockfish		2.2	4.4		1.9						
Pacific ocean perch		5.1	1.4	0.6							
Aurora rockfish		0.6	0.5								
Darkblotched rockfish			6.7		2.7						
Splitnose rockfish			8.5		0.8						
Greenstriped rockfish				10.4							
Other rockfish			38.6	16.8	0.7						
True tanner crab	25.5	0.9				33.5	46.2	16.7	51.1	20.2	1.6
Sea urchins		20.3	0.0	7.4	1.2						2.2
Sea stars	2.4	5.5	15.5	0.8	9.8	1.7	3.6	5.5	5.7	1.7	16.3
Other invertebrates	6.9	18.6	37.8	2.1	9.2	6.7	7.7	32.3	6.7	11.3	25.6
Total catch weight	369.3	469.3	1,125.6	938.8	511.0	191.6	204.5	390.8	231.9	178.7	243.9

Table A1.--Continued.

Haul number	89	90	91	92	93	94	95	96	97	98	99
Start date and time	10/30 6:11	10/30 8:09	10/30 10:21	10/30 12:17	10/30 14:26	10/30 16:54	10/30 19:19	10/30 21:43	10/31 0:22	10/31 3:30	10/31 6:44
Start latitude	4529.6	4528.9	4521.4	4520.0	4519.3	4520.5	4521.1	4517.3	4517.4	4515.4	4509.2
Start longitude	12431.9	12429.0	12423.9	12429.2	12435.7	12446.7	12451.3	12454.3	12457.2	12450.8	12501.6
End latitude	4530.8	4529.6	4521.9	4520.8	4519.7	4521.7	4519.9	4518.5	4518.5	4516.3	4510.4
End longitude	12431.9	12429.1	12424.3	12430.4	12437.1	12446.5	12451.1	12455.0	12456.8	12451.8	12502.2
Bottom depth (m)	456	337	287	386	413	569	820	948	1116	811	1214
Duration (h)	0.57	0.29	0.26	0.53	0.51	0.52	0.52	0.56	0.51	0.54	0.58
Distance fished (km)	2.34	1.33	1.18	2.16	2.11	2.20	2.25	2.40	2.09	2.23	2.42
Net width (m)	16.945	17.946	17.474	18.064	17.133	17.525	18.102	18.364	17.614	18.67	17.614
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N
Performance	0	0	0	0	0	0	0	0	5	0	0
Gear	172	172	172	172	172	172	172	172	172	172	172
Hagfish	0.4	0.1	0.1	0.4	0.3	0.6	0.3	2.0	0.8		0.5
Brown catshark	4.5					4.4	1.9	0.5	0.2	0.6	0.1
Spiny dogfish		186.2	519.0	7.2							
Skates	12.7	7.9	7.0	13.3	40.7		0.0		3.9		32.0
Other elasmobranchs			3.7								12.8
Arrowtooth flounder	21.4	11.2	3.8	22.0	9.7	1.1					
Petrale sole		1.9			4.0						
Dover sole	78.2	85.8	78.0	29.5	14.6	39.9	9.0	3.2		14.0	0.4
Deepsea sole						0.9	1.8	4.0	4.8	0.3	0.4
Rex sole	0.5	17.0	32.0	14.9		5.6					
Other flatfish	0.7	3.1	9.1	4.9							
Sablefish	28.4	16.9	11.4	32.7	40.8	70.2	22.4	13.8	28.6	28.0	100.4
Pacific grenadier						0.3	0.7	2.2	18.9	1.9	58.5
Giant grenadier						12.9	4.3	10.9	49.3	6.1	98.2
Other grenadiers										0.1	
Pacific flatnose						3.7	0.2	0.4	2.6	0.1	16.3
Slickheads							19.3	8.7	6.6	1.8	2.6
Eelpouts	2.6	6.4	2.5	9.2	2.4	2.8	0.2	2.5	15.6	1.5	3.0
Snailfish	0.6	0.1				0.1	0.0		0.2	0.1	0.0
Pacific hake	139.0	88.7	260.8	204.5	154.6	7.3	1.8		1.3	1.9	1.9
Other roundfish	0.1	0.0		0.0		0.1	2.1	1.0	0.4	0.7	0.8
Shortspine thornyhead	29.1	22.6	38.1	72.8	50.5	13.5	13.8	11.7	16.9	9.6	25.4
Longspine thornyhead	4.3					0.9	5.2	79.8	166.1	56.1	159.0
Rougheye rockfish				1.9	1.4						
Pacific ocean perch		1.3			29.4						
Aurora rockfish	7.3	0.9		0.6	5.5						
Darkblotched rockfish		0.6	5.3								
Splitnose rockfish		0.6	6.0								
Greenstriped rockfish											
Other rockfish		0.3	1.1	0.3							
True tanner crab	0.4			0.1	0.4	4.0	46.9	43.7	14.4	33.7	23.4
Sea urchins	9.8	2.1	2.3	16.3	14.3	51.4					
Sea stars	21.7	26.3	5.7	0.9	9.3	6.2	2.9	3.0	5.1	2.8	4.5
Other invertebrates	30.4	8.0	4.0	38.9	21.1	4.9	4.8	13.5	125.4	5.0	57.5
Total catch weight	392.2	488.0	990.0	470.4	399.8	235.1	212.2	287.1	351.0	267.1	497.5

Table A1.--Continued.

Haul number	100	101	102	103	104	105	106	107	108	109	110	111
Start date and time	10/31 9:37	10/31 12:48	10/31 15:09	10/31 17:08	10/31 19:22	10/31 21:26	10/31 23:57	11/1 2:10	11/1 3:54	11/1 6:23	11/1 9:02	11/1 11:40
Start latitude	4512.3	4512.5	4510.2	4511.0	4512.1	4511.5	4503.2	4502.3	4500.4	4502.9	4502.7	4503.8
Start longitude	12457.7	12446.6	12440.3	12434.6	12427.3	12422.0	12422.1	12426.2	12430.1	12434.3	12450.3	12453.9
End latitude	4513.5	4513.7	4511.1	4511.4	4513.0	4512.1	4504.4	4503.0	4501.4	4503.7	4503.9	4504.9
End longitude	12457.6	12446.6	12441.4	12436.2	12427.1	12422.0	12421.7	12425.8	12430.7	12435.6	12450.4	12454.5
Bottom depth (m)	979	630	521	371	389	353	231	303	369	399	634	747
Duration (h)	0.53	0.51	0.51	0.53	0.38	0.28	0.52	0.36	0.51	0.51	0.55	0.57
Distance fished (km)	2.17	2.26	2.25	2.30	1.59	1.17	2.36	1.43	2.19	2.26	2.20	2.21
Net width (m)	17.033	18.493	17.658	17.268	16.09	16.111	17.658	18.06	16.336	17.56	19.288	17.672
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	5	0	0	0	5	5	0	0	0	0	0	5
Gear	172	172	172	172	172	172	172	172	172	172	172	172
Hagfish	1.2	0.2	0.4		0.2			0.1	4.1	0.2	0.3	1.2
Brown catshark	0.2	4.3	23.1	1.0						0.7	0.9	
Spiny dogfish				6.0	38.6	314.3	1,622.6	70.7	9.0			
Skates	0.3	8.8	7.3	12.3	12.4	0.8	22.6	11.0	30.0	16.1		
Other elasmobranchs					0.1		1.9	0.8	0.1			
Arrowtooth flounder				1.6	1.5	13.8	3.3	14.7	21.7	2.4		
Petrale sole				1.3		1.8	0.9	2.3		2.7		
Dover sole		1.4	2.5	16.8	5.9	6.4	33.5	79.3	70.7	43.8	4.2	1.1
Deepsea sole	2.9	0.7									1.0	6.8
Rex sole		1.2	0.9	9.6	0.8	4.8	9.5	18.0	9.6	2.3		
Other flatfish				3.8	2.2	2.9	125.0	85.1	6.1	0.7		
Sablefish		38.7	62.9	6.9	44.3	4.2	13.1	23.8	8.5	74.8	94.0	3.3
Pacific grenadier	22.8	1.7									0.9	1.0
Giant grenadier	6.1	4.1									17.7	4.6
Other grenadiers												
Pacific flatnose	4.3	2.1									0.8	0.1
Slickheads	0.8										0.4	0.7
Eelpouts	4.2	5.1	3.5	11.9	6.7	3.4	0.5	5.0	10.0	14.1	0.2	1.5
Snailfish		0.7	0.7			0.3			0.2		0.3	0.0
Pacific hake	1.8	5.8	25.9	283.4	221.1	252.0	74.2	186.7	246.3	260.6	3.8	3.8
Other roundfish	0.3	1.1	0.4	0.1	0.3		185.8	0.1	3.2	0.0	0.6	0.2
Shortspine thornyhead	2.0	17.0	44.4	47.1	49.7	44.5	17.4	38.6	40.1	56.5	16.6	5.6
Longspine thornyhead	58.3	43.4	49.0		0.2						42.9	33.2
Rougheye rockfish				14.2	0.6	1.6						
Pacific ocean perch				8.8	8.9		0.3	5.3	1.2	16.3		
Aurora rockfish				0.4	6.2	0.2			0.1	6.0		
Darkblotched rockfish						0.6	2.7	13.1	0.7	1.4		
Splitnose rockfish						0.1	44.7	9.0	1.0	0.3		
Greenstriped rockfish							37.5					
Other rockfish				0.2	3.6	8.1	71.9	3.6	0.1			
True tanner crab	45.9	90.0	1.5	0.5	0.9						28.7	35.1
Sea urchins			11.3	9.3	30.2	38.9	223.6	11.7	178.3	4.7		
Sea stars	2.3	8.6	15.2	3.3	24.9	97.7		3.2	72.4	6.0	2.8	1.2
Other invertebrates	15.1	3.9	40.4	38.1	135.4	17.4	9.0	12.8	405.0	222.4	3.6	9.5
Total catch weight	168.2	238.7	289.3	476.4	594.7	813.8	2,500.0	595.0	1,118.4	732.2	219.5	108.9

Table Al.--Continued.

Haul number	112	113	114	115	116	117	118	119	120	121	122	123
Start date and time	11/1 14:36	11/1 17:20	11/1 22:08	11/2 1:03	11/2 3:37	11/2 5:56	11/2 8:10	11/2 10:07	11/2 12:53	11/2 14:29	11/2 17:30	11/2 18:47
Start latitude	4502.8	4503.6	4455.9	4457.8	4456.0	4457.6	4450.3	4453.9	4455.8	4455.4	4446.5	4445.7
Start longitude	12457.7	12459.0	12459.9	12500.0	12458.8	12451.6	12450.9	12446.5	12431.2	12427.5	12440.6	12439.4
End latitude	4504.0	4504.7	4457.2	4459.1	4457.0	4457.3	4451.3	4453.9	4456.3	4456.4	4445.9	4446.6
End longitude	12458.2	12459.8	12460.0	12500.1	12458.7	12453.1	12451.6	12447.7	12430.7	12426.6	12440.1	12440.4
Bottom depth (m)	1011	1118	910	934	833	628	432	269	372	248	261	270
Duration (h)	0.57	0.56	0.56	0.55	0.43	0.51	0.51	0.35	0.27	0.51	0.31	0.52
Distance fished (km)	2.27	2.36	2.36	2.37	1.82	2.17	2.07	1.55	1.15	2.23	1.32	2.26
Net width (m)	18.026	17.614	17.742	17.427	16.273	16.755	16.541	16.462	15.157	16.509	17.552	16.326
Net measured?	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	5	0	5	4	7	0	5	0	6	0
Gear	172	172	172	172	172	172	172	172	172	172	172	172
Hagfish	1.0	0.5	6.0	4.3	2.4			0.1	0.3			
Brown catshark	2.4	1.7	0.6	0.9	1.6	2.0	2.6			1.9	526.1	68.7
Spiny dogfish												
Skates		16.8	2.4	2.7		0.8	0.6	39.1	5.6	14.9		13.7
Other elasmobranchs								0.6		4.7		0.7
Arrowtooth flounder							7.0		2.1	4.4		
Petrale sole								0.5		1.6		
Dover sole			9.1		0.6		99.0	6.9	50.5	69.5		51.6
Deepsea sole	3.7	0.4	8.0	4.1	6.9	0.8						
Rex sole							6.2	14.0	5.4	17.0		26.8
Other flatfish							0.2	0.5	2.4	65.5		9.3
Sablefish	15.0	18.1	9.9	14.0	19.3	97.7	22.0	6.3	2.1	21.3		14.2
Pacific grenadier	9.8	24.2	9.1	10.1	3.8	0.5	0.4					
Giant grenadier	4.1	9.2	6.6	14.9	6.0	11.7						
Other grenadiers												
Pacific flatnose	1.7	3.6	1.1	0.8	0.4	1.0						
Slickheads	5.9	2.9	9.4	2.7	7.1	0.3						
Eelpouts	1.3	3.5	3.8	1.2	0.6	0.2	1.8	1.3	8.7	4.3		3.0
Snailfish		0.5	0.2	0.1	0.1	0.1	0.3			0.7		
Pacific hake	3.3		1.7	1.6		1.4	129.4	91.0	225.7	232.8		74.6
Other roundfish	0.7	1.1	1.0	1.0	1.0	0.4	0.3	0.2		7.3		2.0
Shortspine thornyhead	6.2	10.5	10.2	4.9	5.1	17.7	35.6	6.5	19.8	22.6		47.3
Longspine thornyhead	150.8	158.4	118.5	137.8	64.3	45.6	5.1					
Rougheye rockfish									7.6			
Pacific ocean perch							0.4	0.6	0.6	1.8		1.2
Aurora rockfish							4.6		0.8	0.1		
Darkblotched rockfish										9.7		0.6
Splitnose rockfish								0.2		98.2		62.7
Greenstriped rockfish										8.5		
Other rockfish							0.3	4.9	0.2	3.0		6.5
True tanner crab	48.0	39.5	45.8	40.4	45.7	79.4						
Sea urchins							0.4	0.2	9.1	428.7		3.7
Sea stars	6.2	8.9	8.2	5.9	8.6	3.8	11.4	3.3	17.0			
Other invertebrates	12.7	15.9	7.9	10.2	7.0	6.8	132.1	16.8	13.0	8.8		8.2
Total catch weight	272.6	315.9	259.4	257.5	180.5	270.1	459.7	192.9	372.7	1,551.4		394.6

Table A1.--Continued.

Haul number	124	125	126	127	128	129	130	131	132	133	134	135
Start date and time	11/2 20:51	11/2 22:44	11/3 1:14	11/3 3:19	11/3 5:49	11/3 8:45	11/3 12:00	11/3 16:52	11/3 20:36	11/3 23:51	11/4 2:47	11/4 5:09
Start latitude	4445.5	4445.0	4441.6	4441.8	4445.1	4445.7	4446.0	4434.9	4439.7	4434.6	4437.4	4432.3
Start longitude	12444.0	12446.6	12457.4	12459.3	12501.0	12503.7	12503.6	12503.7	12459.7	12457.1	12454.7	12449.7
End latitude	4446.1	4445.8	4442.6	4443.0	4443.8	4444.5	4447.3	4436.0	4440.8	4433.5	4438.5	4433.5
End longitude	12444.2	12446.5	12457.7	12459.7	12501.0	12504.2	12503.1	12502.7	12460.0	12457.9	12455.2	12449.9
Bottom depth (m)	342	399	700	846	963	1165	1159	1222	926	815	619	420
Duration (h)	0.26	0.34	0.47	0.58	0.57	0.60	0.60	0.61	0.47	0.52	0.54	0.51
Distance fished (km)	1.14	1.66	1.93	2.28	2.40	2.39	2.44	2.48	1.98	2.17	2.27	2.20
Net width (m)	14.693	15.056	19.54	18.592	17.579	17.614	17.614	17.614	17.624	17.986	18.666	16.995
Net measured?	Y	Y	Y	Y	Y	N	N	N	Y	Y	Y	Y
Performance	5	5	0	0	2	7	7	0	0	0	0	0
Gear	172	172	172	172	172	172	172	172	172	172	172	172
Hagfish	0.9	2.1	0.6	1.4	2.4		0.5	2.0	0.5	0.6	1.1	0.2
Brown catshark		0.9		0.1	0.1				1.2	2.4	0.4	5.3
Spiny dogfish		1.9										0.9
Skates	14.1	0.1	1.4	2.9	3.4	27.1	17.9	21.1		2.9	6.5	26.6
Other elasmobranchs	5.0		3.9									
Arrowtooth flounder	2.8	16.2										9.3
Petrale sole												
Dover sole	25.1	45.1	59.5	15.3		0.8		6.7	2.7	31.3	4.6	77.5
Deepsea sole				6.9	3.8	3.5	5.4	14.7	2.4	3.6		
Rex sole	1.2	2.3									0.1	8.9
Other flatfish	0.9	0.9										
Sablefish	5.7	9.0	49.9	28.5	32.3	50.0	19.9	113.8	43.0	15.6	43.8	4.4
Pacific grenadier			0.1	1.0	14.6	75.1	69.8	77.3	5.7	0.8	3.9	
Giant grenadier			24.1	75.1	30.9	80.6	59.9	223.3	13.9	21.5	6.5	
Other grenadiers												0.1
Pacific flatnose			0.6	0.1	1.5	5.1	8.8	16.7	0.6		4.5	
Slickheads				0.7	2.9		0.1	1.7	1.6	2.8		
Eelpouts	5.6	7.7		0.2	1.7	2.0	1.9	1.7	0.3		3.0	8.6
Snailfish		0.2	0.3	0.1				1.4	0.1	0.0	0.6	0.2
Pacific hake	16.1	59.9	2.5	1.6	1.7	1.3		3.6	3.1	3.8	3.3	258.3
Other roundfish		0.1	1.3	1.2	1.2	0.8	0.9	0.6	2.1	28.4	4.8	0.0
Shortspine thornyhead	24.5	32.2	9.5	5.5	4.7	16.1	15.8	16.7	6.5	3.3	13.3	27.3
Longspine thornyhead			50.3	78.6	84.1	30.9	38.5	130.4	91.5	82.3	49.5	0.2
Rougheye rockfish	0.2											1.1
Pacific ocean perch	0.9	1.1										
Aurora rockfish		5.2										21.2
Darkblotched rockfish	0.7											
Splitnose rockfish	4.9	1.0										
Greenstriped rockfish												
Other rockfish	2.1	1.2										
True tanner crab		0.3	33.6	63.0	38.4	22.1	37.9	42.9	35.6	30.9	29.1	1.0
Sea urchins	1.5	0.9										2.6
Sea stars	2.5	2.9	2.9	3.8	6.9	3.2	7.0	16.8	5.1	3.1	3.5	14.0
Other invertebrates	35.2	58.5	2.3	3.7	16.5	31.5	65.1	27.7	4.1	1.7	9.1	20.3
Total catch weight	150.0	249.6	242.7	289.7	246.9	350.1	349.2	719.2	219.8	235.0	187.8	488.0

Table A1.--Continued.

Haul number	136	137	138	139	140	141	142	143	144	145	146	147
Start date and time	11/4 7:06	11/4 8:57	11/4 11:35	11/4 13:25	11/4 15:21	11/4 18:26	11/4 21:18	11/5 0:19	11/5 3:29	11/5 9:40	11/8 10:00	11/8 13:16
Start latitude	4434.6	4434.6	4444.8	4445.5	4445.7	4455.7	4503.8	4512.7	4517.8	4542.2	4426.7	4426.3
Start longitude	12448.2	12446.8	12446.6	12444.0	12444.1	12459.7	12454.1	12457.3	12457.2	12455.1	12506.8	12504.6
End latitude	4435.5	4435.4	4445.9	4446.3	4446.4	4457.0	4505.0	4514.0	4519.1	4543.3	4425.5	4425.2
End longitude	12449.3	12448.1	12446.5	12444.2	12444.3	12458.4	12454.6	12456.9	12456.9	12455.2	12507.0	12505.0
Bottom depth (m)	346	333	398	344	345	818	752	960	1121	1249	1249	924
Duration (h)	0.52	0.53	0.51	0.34	0.34	0.59	0.52	0.58	0.58	0.53	0.51	0.57
Distance fished (km)	2.38	2.28	2.12	1.43	1.44	2.50	2.30	2.44	2.41	2.11	2.15	2.24
Net width (m)	17.799	18.482	18.068	16.182	15.862	18.185	18.063	18.261	17.614	17.614	17.614	19.417
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y
Performance	0	0	0	0	0	0	0	0	0	0	0	0
Gear	172	172	172	172	172	172	172	172	172	172	172	172
Hagfish	0.8	2.3	0.6	0.6		2.1	0.8	1.6	1.5	0.5	0.6	4.3
Brown catshark	2.2	0.8		1.8	1.0	1.0	0.6					
Spiny dogfish	86.0	225.6			2.8							
Skates	10.8	15.4	11.6	9.1	21.5	3.1			4.7	30.4	14.1	2.8
Other elasmobranchs	4.1	2.6		0.8								
Arrowtooth flounder	16.8	4.9	4.6	1.9	2.4							
Petrale sole		1.9			1.2							
Dover sole	94.8	68.9	35.3	43.5	18.3	4.7	0.3					17.8
Deepsea sole						4.6	1.4	2.8	2.4	1.2	3.5	13.0
Rex sole	8.5	28.5	1.4	2.1	1.5							
Other flatfish	2.8	8.4	0.5	0.9	13.0							
Sablefish	19.5	31.8	14.2	19.5	9.9	6.1	1.5	3.2	30.1	15.7	12.9	31.6
Pacific grenadier						2.0	0.7	8.0	46.0	62.7	27.1	17.7
Giant grenadier						6.4	1.5	5.6	53.9	87.7	169.6	25.9
Other grenadiers												
Pacific flatnose						0.2	0.5	1.8	7.1	10.2	6.1	2.2
Slickheads							12.1	2.0	3.9	2.7	0.5	4.9
Eelpouts	11.1	20.5	8.9	2.2	3.2	1.2	0.9	3.9	7.1	14.8		2.1
Snailfish	1.2	0.2	0.3		0.7	0.1	0.2		0.7		0.5	
Pacific hake	426.9	228.2	142.9	152.7	409.9	6.8	1.3		0.6		1.4	
Other roundfish	0.0		0.1			2.9	1.8	2.7	1.7	1.5	0.9	0.9
Shortspine thornyhead	41.2	52.5	43.2	23.1	9.9	4.6	5.3	7.9	12.7	5.4	2.6	2.6
Longspine thornyhead							84.3	47.7	88.2	142.5	35.5	17.4
Rougheye rockfish					1.7							
Pacific ocean perch					0.7							
Aurora rockfish			3.5									
Darkblotched rockfish	3.7		0.8		0.8							
Splitnose rockfish	0.8	0.5		0.4								
Greenstriped rockfish												
Other rockfish	2.3	2.9	0.5	0.1	0.6							
True tanner crab				0.3		52.1	25.4	49.4	28.0	16.9	23.2	65.9
Sea urchins	2.1	14.0	0.9	0.4	0.4							
Sea stars	3.6	26.6	5.5	2.1	0.9	4.8	3.3	1.4	5.0	1.2	12.6	6.0
Other invertebrates	7.5	19.9	42.0	40.8	26.2	7.2	1.9	13.6	92.8	39.7	63.4	6.7
Total catch weight	746.7	756.4	316.6	302.4	526.4	206.3	97.0	193.9	439.5	324.0	355.9	308.8

Al.--Continued.

number	148	149	150	151	152	153	154	155	156	157	158	159
date and time	11/8 16:34	11/8 19:18	11/8 21:47	11/8 23:42	11/9 3:02	11/9 6:19	11/9 9:44	11/9 11:57	11/9 14:02	11/9 16:39	11/9 19:54	11/9 23:08
latitude	4421.0	4429.6	4426.2	4426.7	4424.7	4418.9	4418.7	4418.9	4419.0	4417.0	4423.6	4420.6
longitude	12502.0	12457.8	12450.4	12448.2	12446.2	12450.3	12455.1	12454.9	12456.6	12502.0	12505.5	12508.6
altitude	4422.2	4430.8	4427.1	4427.4	4425.3	4419.8	4419.5	4419.7	4420.2	4418.2	4422.3	4421.8
depth (m)	773	631	375	326	186	212	507	511	598	801	1021	1209
depth fished (km)	0.52	0.51	0.50	0.52	0.26	0.41	0.51	0.51	0.53	0.55	0.58	0.59
depth (m)	2.17	2.35	2.28	2.21	1.17	1.88	2.19	2.10	2.29	2.25	2.44	2.53
depth (m)	17.939	17.735	17.392	17.372	17.567	18.376	17.471	16.124	18.376	17.498	18.011	17.614
depth?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
depth	0	0	0	0	0	0	5	0	0	0	5	5
depth	172	172	172	172	172	172	172	172	172	172	172	172
atshark	5.1	1.4					2.4	8.9	9.1	7.7	1.4	
dogfish	1.5	1.2	1.7	1.5		0.8	4.6	0.7	1.3	1.1	0.1	
dogfish	3.5	3.6	37.4	47.1	8.8	33.1	3.4	18.7	3.1		14.6	41.5
dogfish			3.3	16.2	2.9	25.9						
dogfish			9.5	15.2		2.4	2.3	1.9				
dogfish				2.7	2.3	2.0						
dogfish	8.0	0.7	31.6	119.2	7.9	10.6	37.2	41.7	22.5	6.9		1.4
dogfish	3.4	1.7					0.7		0.8	2.4	10.9	3.7
dogfish			32.3	63.4	16.1	5.1	4.9	2.8	5.6			
dogfish			4.9	19.5	28.8	19.9	0.2	0.0				
dogfish	15.8	175.1	8.4	13.1	16.5	10.4	39.3	3.0	24.2	12.8	12.8	62.6
dogfish	2.6	1.0					0.4	0.8	8.9	3.8	34.7	102.7
dogfish	11.2	80.8							26.8	2.3	142.8	59.0
dogfish												
dogfish	0.4	0.9					2.7	5.7	4.4	0.6	2.0	28.6
dogfish	2.7	0.4							3.2	1.7	2.7	2.4
dogfish	1.3	1.6	18.6	43.2	6.6	1.9	5.0	5.4	18.3	5.6	3.1	4.3
dogfish	0.9	0.4	0.4	0.9		0.4	0.3	1.3	0.6	0.2	0.3	1.1
dogfish	4.7	5.2	654.9	1,830.3	2,111.4	731.6	118.4	121.2	8.2	3.0	1.5	3.1
dogfish	1.1	1.2	0.1	0.0	489.1	34.3	0.1	0.4	0.7	2.6	0.8	1.7
dogfish	0.6	25.6	20.6	30.7	0.1		4.3	4.6	12.6	3.1	23.1	8.8
dogfish	103.9	58.2					0.7	0.4	19.4	70.3	102.2	44.2
dogfish			0.5	1.4	0.2	1.0						
dogfish			2.1				0.3					
dogfish				0.7	0.2	0.2						
dogfish			0.3	1.1		23.8						
dogfish					7.2	0.3						
dogfish			1.1	3.6	6.5	23.1						
dogfish	54.9	19.0					4.4	7.0	27.5	133.8	58.1	19.8
dogfish			16.1	5.2		14.5	26.8	12.6	0.0			
dogfish	6.3	5.1	22.9	5.1		0.0	7.6	31.3	10.8	6.3	7.5	21.8
dogfish	3.9	5.3	9.9	46.4	8.3	5.4	7.8	9.5	6.2	2.3	23.4	26.4
dogfish	231.8	392.1	910.5	2,472.0	3,190.0	3,322.0	273.6	278.0	214.1	266.4	442.0	433.1

Table A1.--Continued.

Haul number	160	161	162	163	164	165	166	167	168	169	170
Start date and time	11/10 3:20	11/10 6:37	11/10 9:50	11/10 12:08	11/10 13:41	11/10 15:39	11/10 17:58	11/10 22:54	11/11 1:20	11/11 6:34	11/11 9:11
Start latitude	4414.1	4409.5	4407.1	4407.9	4407.2	4411.3	4411.3	4412.7	4405.3	4358.1	4358.0
Start longitude	12502.9	12503.0	12501.6	12500.6	12500.7	12459.8	12459.0	12456.9	12457.7	12459.9	12500.1
End latitude	4415.4	4410.8	4408.3	4407.3	4408.4	4410.1	4410.2	4411.9	4404.7	4357.3	4357.1
End longitude	12503.5	12503.2	12501.8	12500.7	12500.5	12459.3	12458.7	12457.1	12457.2	12501.0	12501.2
Bottom depth (m)	968	1193	750	606	609	410	320	202	383	687	691
Duration (h)	0.62	0.57	0.52	0.26	0.52	0.52	0.51	0.35	0.31	0.51	0.51
Distance fished (km)	2.58	2.42	2.20	1.08	2.33	2.27	2.21	1.60	1.30	2.09	2.24
Net width (m)	18.371	17.614	17.629	17.621	18.094	16.864	16.337	17.63	17.282	17.789	16.988
Net measured?	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	5	0	0	0	5	5	9	0
Gear	172	172	172	172	172	172	172	172	172	172	172
Hagfish	3.0	0.5	5.1		2.3	0.9				0.7	1.7
Brown catshark			2.0		3.6	49.6	0.3		1.6	6.2	0.6
Spiny dogfish						159.4	6,424.9	1,426.7	5,637.1		
Skates	16.2	17.9	0.0		23.6	27.9	40.5	29.4	106.7	3.8	
Other elasmobranchs						1.7	41.5	17.5	3.4		
Arrowtooth flounder						19.8	11.3	1.0	23.0		
Petrale sole							1.7	10.3			
Dover sole	10.8	36.4	49.4		166.0	35.0	132.2	20.3	156.6	67.5	61.4
Deepsea sole	10.5	14.9	7.1		2.3					2.5	6.2
Rex sole					6.4	20.3	55.9	7.8	64.5		
Other flatfish						12.1	2.9	40.3	3.1		
Sablefish	84.7	82.5	47.9		67.9	11.3	63.9	43.3	49.2	49.7	39.9
Pacific grenadier	158.1	111.7	3.5		2.6					1.7	1.1
Giant grenadier	96.0	154.0	69.6		54.8					51.8	28.8
Other grenadiers			0.1								
Pacific flatnose	4.6	15.1	1.8		8.8					2.0	2.3
Slickheads	13.5	0.8	13.0		1.2					22.0	17.7
Eelpouts	2.8	5.0	2.5		32.7	14.4	7.2	1.8	11.5	4.9	9.4
Snailfish	0.5				0.1	4.9	0.3		1.1		0.1
Pacific hake	2.7	1.2	3.2		14.6	62.2	1,021.6	115.5	1,749.0	7.0	2.7
Other roundfish	0.9	1.5	1.5		1.2	0.2		2.4	0.0	0.6	0.5
Shortspine thornyhead	40.1	36.7	15.6		8.6	5.7	8.9		11.3	11.4	6.6
Longspine thornyhead	219.6	108.1	129.5		24.3					62.7	58.3
Rougheye rockfish											
Pacific ocean perch						0.6	2.8		1.1		
Aurora rockfish						0.7					
Darkblotched rockfish							5.7		2.9		
Splitnose rockfish							0.3		0.1		
Greenstriped rockfish								2.5			
Other rockfish							0.4	3.6	0.6		
True tanner crab	81.2	89.2	141.5		51.9				12.8	49.5	62.1
Sea urchins					0.6	1.8	1.4	29.8			
Sea stars	7.6	10.7	9.8		15.8	13.6	1.5			8.3	11.8
Other invertebrates	3.0	11.2	3.7		5.3	80.8	30.3	18.7	14.4	9.0	10.9
Total catch weight	755.5	697.4	506.9		494.6	522.8	7,855.3	1,770.8	7,850.0	361.5	322.0

Table A1.--Continued.

Haul number	171		172		173		174		175		176		177		178		179		180		181	
Start date and time	11/11 11:42	11/11 14:08	11/11 17:14	11/11 22:06	11/12 1:51	11/12 5:06	11/12 8:02	11/12 10:23	11/12 13:18	11/12 15:42	11/13 0:53											
Start latitude	4357.2	4356.7	4356.9	4357.9	4351.5	4350.5	4350.1	4349.1	4350.5	4352.6	4326.0											
Start longitude	12501.3	12501.4	12502.9	12501.8	12503.1	12457.1	12456.7	12456.3	12456.0	12450.5	12437.4											
End latitude	4356.4	4355.6	4356.2	4356.8	4350.7	4349.4	4349.2	4348.6	4349.4	4352.3	4325.5											
End longitude	12501.6	12501.7	12503.0	12502.7	12501.6	12456.7	12456.3	12456.1	12455.3	12449.7	12437.8											
Bottom depth (m)	865	853	1224	1049	1113	966	855	837	687	290	192											
Duration (h)	0.37	0.59	0.30	0.55	0.63	0.50	0.50	0.27	0.54	0.26	0.26											
Distance fished (km)	1.41	2.16	1.19	2.35	2.50	2.03	1.86	0.98	2.34	1.23	1.24											
Net width (m)	17.077	17.269	17.614	19.554	17.614	17.364	18.751	17.446	17.479	16.45	18.037											
Net measured?	Y	Y	N	Y	N	Y	Y	Y	Y	Y	Y											
Performance	7	0	0	0	0	5	5	5	0	0	0											
Gear	172	172	172	172	172	172	172	172	172	172	172											
Hagfish		4.0		1.3	1.7	1.9			0.7													
Brown catshark		0.5				0.6			1.5													
Spiny dogfish																				1,701.0	106.3	
Skates		2.5	15.3	25.1	4.4	12.8			14.6	15.4	37.8											
Other elasmobranchs										0.7	3.7											
Arrowtooth flounder										5.8	1.2											
Petrale sole										3.1	0.4											
Dover sole		53.0	16.7	24.2	6.8	5.1			47.7	167.1	66.5											
Deepsea sole		6.4	4.2	8.4	1.2	6.7			2.5													
Rex sole																				25.4	2.2	
Other flatfish																				5.4	6.6	
Sablefish		14.3	28.0	55.2	128.3	17.8			38.9	49.6	1.9											
Pacific grenadier		2.8	42.2	43.5	59.3	38.8			1.7													
Giant grenadier		41.2	27.9	59.8	115.4	94.5			54.2													
Other grenadiers			0.3	0.1	0.7	0.2																
Pacific flatnose		0.2	5.4	0.5	16.8	1.2			0.1													
Slickheads		16.4	0.5	18.0	2.8	6.5			8.1													
Eelpouts		3.1	0.0	12.2	4.3	14.9			12.8	14.2	2.7											
Snailfish			0.0	0.0	0.0	0.3			0.5	0.4												
Pacific hake						0.6														316.1	181.6	
Other roundfish		0.4	8.3	0.8	0.8	1.0			0.7													10.3
Shortspine thornyhead		9.0	13.0	23.7	6.5	5.9			13.6	6.5	1.8											
Longspine thornyhead		125.8	13.3	104.5	97.5	63.7			87.1													
Rougheye rockfish																						
Pacific ocean perch										0.4												
Aurora rockfish																						
Darkblotched rockfish																						0.9
Splitnose rockfish																					12.7	
Greenstriped rockfish																						7.4
Other rockfish																					1.4	8.0
True tanner crab		65.2	84.3	65.3	47.0	46.9			54.8													
Sea urchins																						5.9
Sea stars		2.8	3.8	5.9	7.3	5.6			7.2		1.0											
Other invertebrates		4.6	4.3	1.8	12.3	1.6			3.3	18.9	2.1											
Total catch weight		352.0	267.5	450.4	513.1	326.4			349.9	2,344.0	448.4											

Table A1.--Continued.

Haul number	182	183	184	185	186	187	188	189	190	191	192
Start date and time	11/13 2:41	11/13 5:06	11/13 7:51	11/13 10:36	11/13 13:05	11/13 16:00	11/13 19:36	11/13 23:05	11/14 3:24	11/14 6:23	11/14 8:50
Start latitude	4331.4	4342.7	4342.4	4342.7	4342.5	4339.0	4339.6	4330.8	4334.4	4330.8	4333.7
Start longitude	12439.4	12435.2	12441.4	12450.0	12452.8	12500.7	12501.1	12503.9	12500.7	12454.8	12449.9
End latitude	4330.8	4342.1	4341.3	4341.7	4341.3	4337.8	4338.4	4329.5	4335.4	4332.1	4334.2
End longitude	12439.6	12435.1	12441.2	12449.1	12452.4	12500.8	12501.0	12503.7	12501.7	12454.9	12451.3
Bottom depth (m)	345	227	440	696	860	1046	1163	1173	1025	741	646
Duration (h)	0.26	0.25	0.51	0.53	0.53	0.52	0.55	0.54	0.58	0.56	0.54
Distance fished (km)	1.17	1.16	2.16	2.25	2.26	2.18	2.20	2.40	2.36	2.30	2.24
Net width (m)	17.519	16.752	17.918	18.022	18.472	16.994	17.614	17.614	17.846	18.797	19.121
Net measured?	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	0	0	0
Gear	172	172	172	172	172	172	172	172	172	172	172
Magfish			1.7	1.0	0.4	1.6	0.5	0.2	5.2	1.0	0.4
Brown catshark	2.1		5.7	10.2	2.5	0.3	0.1		0.7	3.3	1.5
Spiny dogfish	259.8	1,959.5	20.7								
Skates	9.9	27.2	11.4		1.4	18.4	18.7	75.6	2.6	0.0	2.8
Other elasmobranchs		6.9									
Arrowtooth flounder	8.4		27.0								
Petrale sole	1.6										
Dover sole	151.2	30.4	23.2	14.1	15.3	14.0	11.4	47.6	33.1	21.5	11.6
Deepsea sole				3.0	3.3	6.6	3.3	10.1	10.5	2.1	3.0
Rex sole	134.4	9.5	47.6								0.3
Other flatfish	29.3	36.8	14.2								
Sablefish	36.0	10.1	61.2	6.4	5.6	9.0	11.2	313.6	26.4	54.3	49.2
Pacific grenadier				1.4	11.6	44.6	75.0	213.6	51.1	6.4	2.0
Giant grenadier				67.3	20.6	58.4	76.8	137.1	51.9	23.2	37.2
Other grenadiers											
Pacific flatnose				3.0	1.0	1.2	12.4	36.9	7.3	0.4	0.1
Slickheads				0.4	6.8	5.2	0.3	11.0	6.8	3.6	1.2
Eelpouts	5.9	4.6	30.3	0.6	0.8	1.9	1.8	1.6	4.6	0.6	1.9
Snailfish	0.1		0.5	0.4		0.0	0.0	0.3	0.6	0.1	0.2
Pacific hake	700.2	662.5	88.3	3.8	0.5			2.4			12.6
Other roundfish		2.1	0.0	0.4	0.3	6.1	1.5	1.1	1.8	1.8	0.5
Shortspine thornyhead	37.6	0.9	60.3	9.9	2.7	17.4	22.9	9.5	64.6	5.8	99.5
Longspine thornyhead			0.4	114.9	59.1	174.1	103.9	154.6	220.2	93.8	166.6
Rougheye rockfish											
Pacific ocean perch	1.3										
Aurora rockfish			7.5								
Darkblotched rockfish	4.5										
Splitnose rockfish	3.5	4.0	0.0								
Greenstriped rockfish	0.5										
Other rockfish	1.4	3.2									
True tanner crab				75.4	63.2	80.0	78.2	33.2	76.5	70.6	159.3
Sea urchins	1.7	0.6	49.4	0.3							0.2
Sea stars	1.8	1.1	10.6	9.3	6.5	4.1	7.1	19.9	6.4	20.7	21.3
Other invertebrates	7.3	1.6	75.7	8.4	2.9	17.6	13.5	45.3	19.8	9.8	3.5
Total catch weight	1,398.3	2,761.0	535.6	330.2	204.6	460.6	438.5	1,113.6	590.0	319.1	574.9

Table A1.--Continued.

Haul number	193		194		195		196		197		198		199		200		201		202		203	
Start date and time	11/14 11:15	11/14 13:13	11/14 18:07	11/14 20:40	11/14 23:54	11/15 2:06	11/15 7:11	11/15 10:58	11/15 15:09	11/15 17:42	11/15 20:03											
Start latitude	4331.3	4331.0	4322.6	4324.0	4327.8	4324.5	4323.0	4316.3	4316.5	4314.8	4314.4											
Start longitude	12447.2	12443.8	12442.6	12442.3	12452.7	12456.3	12506.0	12507.2	12459.3	12457.0	12455.6											
End latitude	4332.5	4332.1	4323.4	4322.8	4326.7	4325.7	4323.7	4317.3	4317.2	4315.9	4315.5											
End longitude	12447.0	12443.4	12442.4	12442.5	12453.5	12456.3	12506.6	12508.3	12500.6	12457.2	12455.3											
Bottom depth (m)	591	509	398	416	647	783	1173	1206	923	844	686											
Duration (h)	0.52	0.53	0.33	0.51	0.53	0.52	0.36	0.59	0.52	0.53	0.50											
Distance fished (km)	2.18	2.27	1.46	2.27	2.35	2.24	1.49	2.39	2.18	2.17	2.24											
Net width (m)	19.145	18.338	15.268	16.553	17.561	17.279	17.614	17.614	16.498	17.614	17.646											
Net measured?	Y	Y	Y	Y	Y	Y	N	N	Y	N	Y											
Performance	0	0	5	0	0	0	7	0	0	0	0											
Gear	172	172	172	172	172	172	172	172	172	172	172											
Magfish		0.3		2.1	1.1	0.4	1.0		3.1	1.0	1.3											
Brown catshark	2.9	2.1		5.8	12.2	6.5	0.4		2.8		12.8											
Spiny dogfish				58.3																		
Skates	2.9	12.5		21.7	13.0		32.1	14.6	5.7													
Other elasmobranchs					0.0																	
Arrowtooth flounder		0.7		7.7																		
Petrale sole																						
Dover sole	107.9	26.1		99.1	41.3	84.8	93.9	39.4	69.8	18.4	23.4											
Deepsea sole	1.9				3.6	6.2	13.9	4.1	13.6	8.6	5.8											
Rex sole	3.6	55.6		116.5																		
Other flatfish		0.4		1.2																		
Sablefish	39.7	7.5		16.2	46.1	18.5	20.7	62.0	21.6	13.4	63.7											
Pacific grenadier	0.9	0.1			12.8	1.3	304.7	66.0	6.1	2.8	2.0											
Giant grenadier	82.6	4.1			12.3	17.2	119.6	77.2	9.3	8.4	7.2											
Other grenadiers																						
Pacific flatnose	0.0	0.2			12.3	0.3	20.1	31.9	5.2	0.1	0.2											
Slickheads					5.1	10.0	2.7		3.3	7.7	3.8											
Eelpouts	6.5	56.8		21.3	12.7	1.0	10.7	0.2	3.1	0.6	2.2											
Snailfish	0.0	0.5		2.3	0.3	0.1	0.4	0.4	0.2	0.9	1.8											
Pacific hake	10.9	264.8		2,374.4	8.8	1.1	0.6	1.7	1.7	0.6	3.5											
Other roundfish	1.0	0.1			2.9	6.5	4.0	0.9	0.9	1.8	1.2											
Shortspine thornyhead	34.1	10.3		49.8	16.6	10.0	16.0	13.6	5.2	1.9	17.5											
Longspine thornyhead	61.0	8.9			124.3	73.1	44.8	344.1	155.4	190.7	155.5											
Rougheye rockfish																						
Pacific ocean perch																						
Aurora rockfish				6.3																		
Darkblotched rockfish																						
Splitnose rockfish																						
Greenstriped rockfish																						
Other rockfish																						
True tanner crab	23.8	3.8			27.5	90.8	21.0	71.7	57.2	83.3	244.6											
Sea urchins	0.5	37.6		36.5	0.1																	
Sea stars	9.7	11.4		1.1	6.6	7.9	17.8	19.7	8.8	4.9	16.8											
Other invertebrates	10.7	17.5		140.6	33.1	20.2	16.5	42.6	22.8	8.7	17.0											
Total catch weight	400.8	521.2		2,961.0	392.9	356.0	740.8	790.0	395.9	356.8	580.5											

Table A1.--Continued.

Haul number	204	205	206	207	208	209	210	211	212	213	214
Start date and time	11/16 3:08	11/16 5:16	11/16 7:30	11/16 9:52	11/16 12:35	11/16 15:00	11/16 17:31	11/16 20:11	11/16 23:04	11/17 3:21	11/17 6:36
Start latitude	4316.9	4311.9	4306.9	4306.2	4305.8	4305.6	4310.5	4307.0	4306.5	4320.0	4322.3
Start longitude	12448.7	12446.3	12442.1	12452.4	12453.9	12454.8	12456.0	12459.7	12501.4	12504.8	12503.9
End latitude	4317.7	4313.0	4305.8	4305.7	4304.5	4304.5	4309.3	4306.1	4305.4	4318.7	4321.1
End longitude	12449.8	12445.8	12442.8	12452.7	12454.3	12455.0	12455.7	12458.6	12500.8	12505.1	12503.5
Bottom depth (m)	431	337	191	347	475	554	741	1073	1139	1190	990
Duration (h)	0.51	0.50	0.50	0.26	0.52	0.52	0.58	0.68	0.68	0.63	0.55
Distance fished (km)	2.18	2.18	2.31	1.13	2.32	2.22	2.37	2.56	2.45	2.47	2.27
Net width (m)	17.134	17.324	17.694	17.05	16.736	18.922	17.782	17.854	17.614	17.614	17.054
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y
Performance	0	0	0	0	0	0	0	0	0	0	0
Gear	172	172	172	172	172	172	172	172	172	172	172
Magfish	1.2	0.6	0.3		3.3	5.5	4.6	1.4	0.3	0.5	0.2
Brown catshark	1.1			3.9	4.7	7.6	5.9	2.8	0.8		1.0
Spiny dogfish	11.7	147.5	742.9	19.6	4.6						
Skates	0.0	31.9	86.2	17.5	8.3		3.3	17.3	2.7	27.2	4.0
Other elasmobranchs	0.0		31.4		0.4						
Arrowtooth flounder	8.9	5.3	5.4	0.3	15.0						
Petrale sole		3.4		0.9							
Dover sole	72.0	202.5	288.2	220.6	28.7	33.3	56.9	14.3	1.2	56.8	46.2
Deepsea sole							10.0	12.3	5.3	32.4	10.7
Rex sole	7.9	130.6	2.1	46.4	24.1	10.1					
Other flatfish		11.5	28.4	3.1							
Sablefish	20.7	39.9	3.5	21.3	37.9	27.7	59.7	11.3	14.0	33.2	51.5
Pacific grenadier						0.6	1.2	41.7	42.3	120.8	88.1
Giant grenadier							7.0	21.4	51.6	41.3	21.7
Other grenadiers											0.1
Pacific flatnose						2.2	0.1	4.5	7.4	50.7	0.8
Slickheads							10.7	3.2	2.9	0.5	11.4
Eelpouts	8.0	15.6	3.9	7.1	26.1	17.0	1.9	4.4	1.4	1.6	0.1
Snailfish	0.2	0.5	0.2	1.7	1.4	5.9	0.5	0.4		1.1	
Pacific hake	479.6	474.7	49.4	3,603.2	782.2	22.2	2.9			2.4	
Other roundfish			13.7	6.5	0.0	0.6	3.1	2.0	1.0	2.0	0.7
Shortspine thornyhead	21.1	42.1	11.2	6.3	10.5	11.3	7.6	9.7	13.3	2.1	28.7
Longspine thornyhead					0.2	21.0	166.7	259.2	149.7	78.0	80.3
Rougheye rockfish		0.5		0.6							
Pacific ocean perch		0.6									
Aurora rockfish	0.3				4.1						
Darkblotched rockfish			5.8								
Splitnose rockfish			0.4	2.5							
Greenstriped rockfish											
Other rockfish		3.4	0.3								
True tanner crab					2.1	70.4	129.1	104.6	121.3	14.7	19.2
Sea urchins	75.0	4.9	0.0	2.1	25.8	0.2					
Sea stars	2.1	2.1	0.5		24.1	10.6	13.7	9.3	16.0	13.2	6.0
Other invertebrates	5.1	10.1	2.9	0.5	153.2	12.0	6.7	23.1	138.2	13.6	32.1
Total catch weight	714.8	1,127.7	1,276.8	3,964.0	1,156.6	258.1	491.6	542.9	569.4	492.0	402.7

W
W

Table A1.--Continued.

Haul number	215		216		217		218		219		220		221		222		223		224		225	
Start date and time	11/17 12:30	11/17 17:31	11/17 17:31	11/17 21:29	11/18 0:22	11/18 3:03	11/18 5:59	11/18 11:09	11/18 13:25	11/18 15:43	11/18 19:24	11/18 21:53										
Start latitude	4349.8	4352.5	4349.2	4352.4	4351.1	4347.9	4403.6	4404.7	4412.4	4421.8	4421.9											
Start longitude	12456.5	12500.4	12456.4	12455.7	12452.5	12450.1	12456.8	12457.5	12457.0	12509.6	12509.7											
End latitude	4348.8	4351.9	4348.1	4351.3	4352.4	4347.8	4404.2	4405.3	4413.6	4422.3	4422.9											
End longitude	12456.1	12502.0	12455.8	12455.2	12452.5	12451.6	12456.9	12457.8	12456.7	12509.9	12510.5											
Bottom depth (m)	867	1071	866	511	334	497	338	396	203	1208	1220											
Duration (h)	0.51	0.57	0.51	0.50	0.51	0.51	0.25	0.30	0.51	0.34	0.53											
Distance fished (km)	2.05	2.38	2.17	2.12	2.32	2.17	1.11	1.26	2.37	1.12	2.21											
Net width (m)	18.651	17.834	19.018	17.544	16.715	17.35	17.927	17.626	17.209	17.614	17.614											
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N											
Performance	5	0	0	7	0	0	0	0	0	5	0											
Gear	172	172	172	172	172	172	172	172	172	172	172											
Hagfish	1.7	0.2	1.7	0.5		1.5		0.8			0.2											
Brown catshark	0.3			0.8	0.8	5.2	1.5	5.7														
Spiny dogfish		0.6		17.4	1,515.8	18.7	109.4	40.5	1,150.4													
Skates	0.1	8.5		3.1	43.2		67.1	65.3	15.6		0.0											
Other elasmobranchs				1.9			1.9	2.0	13.2													
Arrowtooth flounder				1.6	262.4	11.8	14.4															
Petrale sole				89.3					23.3													
Dover sole	11.9	5.5	6.6	75.3	146.6	43.1	210.1	220.7	6.2													
Deepsea sole	1.8	1.3	1.6	4.7						0.6	4.4											
Rex sole				3.2	42.3	8.7	36.4	71.2	21.1													
Other flatfish				0.1	3.8	0.3	12.5	10.1	47.6													
Sablefish	2.5	86.5	10.9	770.2	53.1	22.4	34.9	6.3	174.7													
Pacific grenadier	2.2	64.6	1.4	0.2																		
Giant grenadier	41.5	79.4	82.5	1.4																		
Other grenadiers			0.1																			
Pacific flatnose	0.5	0.6	0.2	1.5																		
Slickheads	12.1	26.9	13.4	0.1																		
Eelpouts	0.9	0.7	4.0	6.1	1.8	8.7	13.8	13.7	3.2	0.0	15.6											
Snailfish				0.2	0.2		1.1	2.9	0.3	1.1												
Pacific hake	0.9	1.4		13.5	170.8	368.9	1,725.4	615.9	46.0													
Other roundfish	0.7	1.0	0.6	0.2	0.1	0.6	2.5	6.5	0.5	1.3												
Shortspine thornyhead	4.2	35.7	7.6	42.1	8.1	15.4	8.0	16.0														
Longspine thornyhead	60.0	194.4	105.2	13.7		0.9																
Rougheye rockfish					1.7																	
Pacific ocean perch					22.3		1.4	2.1														
Aurora rockfish				0.6	0.1			1.4														
Darkblotched rockfish					281.1		1.2	0.7														
Splitnose rockfish					1.1		0.3		0.0													
Greenstriped rockfish									9.9													
Other rockfish					1.7		0.6	1.5	17.4													
True tanner crab	71.4	75.1	77.3	5.3	0.3			18.6														
Sea urchins								6.3	2.4													
Sea stars	2.0	8.0	4.6	1.8	2.8	38.3	0.1	1.0	2.3	10.3												
Other invertebrates	0.9	7.0	1.5	0.7	9.4	16.8	11.0	112.2	24.4	37.7	77.6											
Total catch weight	215.4	597.5	319.4	962.7	2,400.0	840.3	2,251.0	1,229.4	1,561.8	176.6	315.6											

Table A1.--Continued.

Haul number	226	227	228	229	230	231	232	233	234	235	236
Start date and time	11/19 1:38	11/19 9:24	11/19 22:59	11/20 7:20	11/20 9:29	11/20 15:32	11/20 18:27	11/21 2:01	11/21 6:14	11/21 14:26	11/21 23:52
Start latitude	4422.9	4449.2	4456.3	4513.0	4511.5	4547.3	4544.8	4617.3	4616.5	4621.5	4632.9
Start longitude	12505.8	12443.9	12430.6	12427.1	12422.0	12451.0	12453.7	12458.0	12424.9	12455.6	12458.5
End latitude	4424.2	4450.2	4455.3	4512.2	4510.4	4546.1	4543.7	4616.2	4616.3	4622.6	4634.1
End longitude	12505.3	12443.0	12431.6	12427.3	12421.9	12450.9	12454.8	12458.8	12426.7	12454.5	12459.0
Bottom depth (m)	1061	425	372	393	352	931	1156	1005	393	980	1136
Duration (h)	0.66	0.51	0.51	0.30	0.50	0.57	0.58	0.51	0.51	0.63	0.54
Distance fished (km)	2.57	2.20	2.27	1.45	2.14	2.23	2.42	2.24	2.36	2.49	2.24
Net width (m)	17.574	17.741	16.989	17.072	17.327	18.404	17.614	17.399	17.138	17.563	17.614
Net measured?	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N
Performance	0	0	0	0	0	0	0	0	0	0	5
Gear	172	172	172	172	172	172	172	172	172	172	172
Hagfish	2.8	0.4	0.2		0.1	0.2	0.8		0.6		0.7
Brown catshark	1.0	3.2	2.8	1.1		0.3		0.7	1.9	1.0	
Spiny dogfish		4.5	2.0	7.6	19.3				9.9		
Skates	19.1	16.0	17.2		10.8		9.6	0.0	44.7	1.8	15.8
Other elasmobranchs		0.1	0.0	0.0							
Arrowtooth flounder		11.6	11.4	1.7	5.4				9.7		
Petrale sole											
Dover sole		160.7	140.7	4.6	13.1	25.6			690.2		
Deepsea sole	3.5	0.5				4.5	2.3	1.9		2.6	3.8
Rex sole		0.6	18.9	0.7	7.3				237.5		
Other flatfish		4.0	224.5	1.0	3.0				23.9		
Sablefish	59.8	34.1	12.0	20.8	24.0	55.7	70.4	5.0	61.2	7.2	20.4
Pacific grenadier	108.6	0.1				5.7	93.3	11.0	0.7	9.9	32.0
Giant grenadier	28.1					44.7	293.5	18.5	0.9	11.7	29.9
Other grenadiers									0.0		
Pacific flatnose	6.3	0.0				1.7	17.6	2.8		0.9	3.4
Slickheads	7.3					11.2	1.3	1.6		2.6	0.3
Eelpouts	5.7	7.5	13.6	3.6	7.1	6.5	9.4	2.6	7.8	4.4	1.1
Snailfish					0.3	0.2		0.0			0.3
Pacific hake	0.6	197.3	95.2	255.3	617.2	3.4	0.4	0.6	56.7		
Other roundfish	0.4	0.1	0.1	0.0		2.0	6.2	1.3	0.6	0.7	0.9
Shortspine thornyhead	51.6	30.1	62.9	33.0	94.8	7.3	9.4	3.6	162.4	13.4	0.8
Longspine thornyhead	165.9			0.3		93.3	99.0	107.5		120.3	47.2
Rougheye rockfish		5.2	1.1		11.4				2.6		
Pacific ocean perch				1.6	0.5						
Aurora rockfish		4.0	1.0	1.9	1.3						
Darkblotched rockfish		1.7	0.5								
Splitnose rockfish			3.1		0.9						
Greenstriped rockfish											
Other rockfish			0.7	0.2	2.9						
True tanner crab	88.2	0.6		0.0		60.5	27.3	35.6	0.4	48.7	8.7
Sea urchins			0.2	5.1	1.4				24.0		
Sea stars	14.9	9.0	11.1	2.0	35.7	5.2	1.4	2.1	226.1	3.8	3.1
Other invertebrates	31.5	27.6	23.4	13.0	26.9	4.0	44.2	10.6	24.7	22.7	16.6
Total catch weight	595.1	518.8	642.6	353.6	883.4	331.9	686.2	205.2	1,586.6	251.8	184.9

Table A1.--Continued.

Haul number	237	238	239	240	241	242	243	244	245	246	247
Start date and time	11/22 2:40	11/22 5:57	11/22 10:55	11/22 14:56	11/23 6:33	11/23 11:53	11/23 18:13	11/23 22:04	11/24 6:17	11/24 17:12	11/24 20:37
Start latitude	4633.0	4641.7	4649.6	4648.0	4656.7	4715.1	4712.5	4714.8	4714.2	4734.9	4735.6
Start longitude	12458.5	12446.3	12453.4	12515.6	12457.4	12513.0	12509.0	12507.9	12507.6	12534.0	12513.3
End latitude	4634.3	4642.7	4650.5	4648.2	4657.2	4714.2	4711.4	4714.5	4713.0	4734.1	4734.4
End longitude	12458.7	12447.4	12454.3	12517.5	12458.3	12512.5	12508.5	12507.7	12507.0	12532.6	12513.9
Bottom depth (m)	1133	190	215	1177	206	1147	987	832	838	1191	651
Duration (h)	0.74	0.52	0.48	0.60	0.33	0.47	0.51	0.15	0.57	0.58	0.51
Distance fished (km)	2.65	2.34	2.07	2.54	1.46	1.80	2.15	0.64	2.28	2.34	2.27
Net width (m)	17.614	16.627	16.831	17.614	14.808	17.614	18.695	17.905	17.537	17.614	16.999
Net measured?	N	Y	Y	N	Y	N	Y	Y	Y	N	Y
Performance	0	0	0	0	7	0	0	6	0	0	0
Gear	172	172	172	172	172	172	172	172	172	172	172
Hagfish	0.2		0.2	0.4	0.2	0.2	0.9		0.7		0.4
Brown catshark								0.0			0.6
Spiny dogfish		509.1	104.3		11.6						
Skates	29.6	40.2	48.4	7.4	24.3	46.9	10.5		0.3	3.1	2.3
Other elasmobranchs		41.3	15.9		22.1						
Arrowtooth flounder		1.7			2.1						
Petrale sole		12.4	17.9		38.6						
Dover sole		140.3	50.7		308.8		0.9		1.4		50.7
Deepsea sole	9.9			4.0		4.5	4.9	0.2	6.3	1.2	5.9
Rex sole		16.9	4.6		53.6						
Other flatfish		31.4	14.3		52.2						
Sablefish	17.2	12.1	10.5	38.1	3.8	56.4	19.1	14.7	33.6	17.9	114.5
Pacific grenadier	38.4			41.2		84.9	58.4	0.2	4.9	33.7	6.0
Giant grenadier	118.3			79.4		135.5	45.4	2.0	0.9	44.8	4.0
Other grenadiers							0.1				
Pacific flatnose	7.0			17.0		15.4	1.8	0.1	1.3	2.4	8.2
Slickheads							8.6	0.3	8.5	1.0	
Eelpouts	0.5	7.6	1.1	0.1		3.2	2.3	0.6	0.4	0.8	16.4
Snailfish							0.2		0.2		3.1
Pacific hake		527.0	408.1	1.0	78.7						12.2
Other roundfish	0.6	34.9	8.1	1.4	7.7	0.9	1.2	0.7	0.8	4.7	0.2
Shortspine thornyhead	15.4		9.2	16.2	0.9	25.9	29.6	3.4	20.8	12.6	18.8
Longspine thornyhead	75.0			88.0		130.7	120.8	28.7	165.9	68.4	67.4
Rougheye rockfish											
Pacific ocean perch		1.9	5.5		105.6						
Aurora rockfish											
Darkblotched rockfish		4.2	4.3								
Splitnose rockfish		7.6	2.7								
Greenstriped rockfish		43.6	10.3		14.3						
Other rockfish		53.7	28.6		163.4						
True tanner crab	10.3			17.4	0.3	7.2	18.6	5.2	25.0	11.2	44.1
Sea urchins		134.4	47.9		0.1						
Sea stars	7.2	11.4	2.0	2.0	5.7	6.0	3.5	0.9	4.6	3.8	7.9
Other invertebrates	55.4	23.5	18.9	39.8	25.8	37.6	23.9	5.1	12.3	16.6	27.4
Total catch weight	385.0	1,655.3	813.4	353.4	919.8	555.3	350.6	62.0	287.9	222.1	389.9

Table A1.--Continued.

Haul number	248	249	250
Start date and time	11/25 1:22	11/25 11:26	11/25 13:21
Start latitude	4757.0	4804.2	4805.7
Start longitude	12531.7	12558.2	12603.2
End latitude	4757.9	4805.0	4805.4
End longitude	12533.1	12559.5	12606.8
Bottom depth (m)	201	1044	1406
Duration (h)	0.54	0.53	1.53
Distance fished (km)	2.43	2.14	4.44
Net width (m)	15.967	18.133	17.614
Net measured?	Y	Y	N
Performance	0	0	0
Gear	172	172	172
Hagfish		0.6	
Brown catshark			
Spiny dogfish	1,731.3	1.6	
Skates	43.2	9.3	
Other elasmobranchs	132.7		
Arrowtooth flounder	0.6		
Petrale sole	5.9		
Dover sole	132.4	3.9	
Deepsea sole		20.9	
Rex sole	11.2		
Other flatfish	13.7		
Sablefish	153.8	39.1	
Pacific grenadier		26.7	
Giant grenadier		37.9	
Other grenadiers		0.2	
Pacific flatnose		2.5	
Slickheads		10.6	
Eelpouts	1.5	11.9	
Snailfish		0.1	
Pacific hake	219.4		
Other roundfish	14.7	1.2	
Shortspine thornyhead	0.3	15.8	
Longspine thornyhead		99.2	
Rougheye rockfish			
Pacific ocean perch	197.6		
Aurora rockfish			
Darkblotched rockfish			
Splitnose rockfish			
Greenstriped rockfish	206.3		
Other rockfish	58.1		
True tanner crab		4.4	
Sea urchins	14.1		
Sea stars	1.6	8.7	
Other invertebrates	6.9	23.6	
Total catch weight	2,945.2	318.1	

APPENDIX B

Relative Abundance

Appendix B contains listings of all fish and invertebrate species encountered during the 1996 West Coast upper continental slope bottom trawl survey, ranked in order of relative abundance by catch per unit effort (kg/ha). Ranked lists are presented for each depth stratum and for all depth strata combined by International North Pacific Fisheries Commission (INPFC) statistical area.

B-1. Rank order of relative abundance (kg/ha) of fish and selected crab species by depth stratum for the International North Pacific Fisheries Commission U.S. Vancouver area from the 1996 West Coast upper continental slope bottom trawl survey.....106

B-2. Rank order of relative abundance (kg/ha) of fish and selected crab species by depth stratum for the International North Pacific Fisheries Commission Columbia area from the 1996 West Coast upper continental slope bottom trawl survey.....117

Table B-1.--Rank order of relative abundance (kg/ha) of fish and selected crab species by depth stratum for the International North Pacific Fisheries Commission U.S. Vancouver area from the 1996 West Coast upper continental slope bottom trawl survey. Stratum 1 = 183-366 m, Stratum 2 = 367-549 m, Stratum 3 = 550-732 m, Stratum 4 = 733-914 m, Stratum 5 = 915-1,097 m, and Stratum 6 = 1,098-1,280 m.

Rank	Stratum	Mean CPUE (kg/ha)	CV%	Proportion	Cummulative Proportion	Species Name	Common Name
1	1	100.310	69.9	0.124822	0.124822	<i>Squalus acanthias</i>	Spiny dogfish
2	1	88.735	19.8	0.110419	0.235240	<i>Merluccius productus</i>	Pacific hake
3	1	24.559	42.8	0.030560	0.413309	<i>Sebastes alutus</i>	Pacific ocean perch
4	1	19.556	26.0	0.024335	0.494292	<i>Microstomus pacificus</i>	Dover sole
5	1	13.191	48.4	0.016414	0.572167	<i>Lyopsetta exilis</i>	Slender sole
6	1	10.380	58.4	0.012916	0.613238	<i>Anoplopoma fimbria</i>	Sablefish
7	1	9.234	95.2	0.011490	0.674286	<i>Sebastes elongatus</i>	Greenstriped rockfish
8	1	7.918	67.9	0.009853	0.694412	<i>Hydrolagus colliei</i>	Spotted ratfish
9	1	6.176	33.8	0.007685	0.738271	<i>Atheresthes stomias</i>	Arrowtooth flounder
10	1	5.245	34.2	0.006526	0.765536	<i>Glyptocephalus zachirus</i>	Rex sole
11	1	4.878	25.7	0.006070	0.777913	<i>Raja rhina</i>	Longnose skate
12	1	4.100	43.6	0.005102	0.793885	<i>Sebastolobus alascanus</i>	Shortspine thornyhead
13	1	4.051	89.9	0.005041	0.798926	<i>Hippoglossus stenolepis</i>	Pacific halibut
14	1	2.947	37.0	0.003668	0.833481	<i>Bathyraja interrupta</i>	Bering skate
15	1	2.843	72.4	0.003538	0.837019	<i>Rathbunaster californicus</i>	
16	1	1.876	63.7	0.002334	0.875044	<i>Sebastes diploproa</i>	Splitnose rockfish
17	1	1.837	96.6	0.002286	0.877330	<i>Sebastes helvomaculatus</i>	Rosethorn rockfish
18	1	1.413	49.8	0.001758	0.907500	<i>Parophrys vetulus</i>	English sole
19	1	1.398	46.0	0.001739	0.909239	<i>Allocentrotus fragilis</i>	Orange-pink sea urchin
20	1	1.270	81.8	0.001580	0.914066	<i>Lopholithodes foraminatus</i>	Box crab
21	1	1.157	36.8	0.001440	0.918617	<i>Eopsetta jordani</i>	Petrale sole
22	1	1.078	42.2	0.001342	0.924142	<i>Lycodes cortezianus</i>	Bigfin eelpout
23	1	1.011	67.7	0.001258	0.928020	<i>Sebastes aleutianus</i>	Rougheye rockfish
24	1	0.983	100.0	0.001223	0.932922	<i>Aloa sapidissima</i>	American shad
25	1	0.922	61.3	0.001147	0.937678	<i>Sebastes zacentrus</i>	Sharpchin rockfish
26	1	0.574	100.0	0.000715	0.953467	<i>Sebastes paucispinis</i>	Bocaccio
27	1	0.476	48.8	0.000592	0.959837	<i>Sebastes crameri</i>	Darkblotched rockfish
28	1	0.438	100.0	0.000545	0.962100	<i>Gadus macrocephalus</i>	Pacific cod
29	1	0.404	53.4	0.000502	0.965230	<i>Liponemus brevicornis</i>	
30	1	0.390	68.1	0.000485	0.966203	Actiniaria (order)	Sea anemone unident.
31	1	0.340	36.6	0.000424	0.969812	<i>Berytoteuthis magister</i>	Magistrate armhook squid
32	1	0.326	48.6	0.000405	0.971042	<i>Diplopteraster multipes</i>	
33	1	0.301	100.0	0.000375	0.974144	<i>Sebastes borealis</i>	Shortraker rockfish
34	1	0.299	100.0	0.000373	0.974517	Holothuroidea	Sea cucumber unident.
35	1	0.286	36.3	0.000356	0.975595	<i>Sebastes entomelas</i>	Widow rockfish
36	1	0.263	79.6	0.000327	0.977288	<i>Luidia foliata</i>	
37	1	0.249	37.9	0.000310	0.978550	<i>Sebastes babcocki</i>	Redbanded rockfish
38	1	0.188	76.1	0.000234	0.982870	<i>Pseudostichopus mollis</i>	
39	1	0.182	65.0	0.000227	0.983097	<i>Hippasteria spinosa</i>	
40	1	0.176	100.0	0.000219	0.983316	<i>Ophiodon elongatus</i>	Lingcod
41	1	0.138	100.0	0.000172	0.986853	<i>Brisaster latifrons</i>	
42	1	0.116	100.0	0.000144	0.989203	<i>Sebastes pinniger</i>	Canary rockfish
43	1	0.104	100.0	0.000129	0.990142	<i>Opisthoteuthis californiana</i>	Flapjack devilfish
44	1	0.091	61.8	0.000113	0.991005	Cephalopoda (class)	Cephalopod unident.
45	1	0.090	78.9	0.000112	0.991341	<i>Pandalus platyceros</i>	Spot shrimp
46	1	0.089	65.8	0.000111	0.991452	<i>Careproctus melanurus</i>	Blacktail snailfish
47	1	0.086	66.5	0.000107	0.991775	<i>Apristurus brunneus</i>	Brown cat shark
48	1	0.065	46.4	0.000081	0.994420	<i>Pandalopsis dispar</i>	Sidestripe shrimp
49	1	0.052	72.3	0.000065	0.995554	Scyphozoa (class)	Jellyfish unident.
50	1	0.045	88.3	0.000055	0.996395	<i>Hippasteria californica</i>	
51	1	0.044	69.2	0.000055	0.996450	<i>Sebastes proriger</i>	Redstripe rockfish
52	1	0.042	100.0	0.000052	0.996712	<i>Thrissacanthias penicillatus</i>	
53	1	0.038	78.7	0.000048	0.997009	<i>Luidiaster dawsoni</i>	
54	1	0.027	100.0	0.000034	0.997726	<i>Sebastes aurora</i>	Aurora rockfish
55	1	0.026	85.0	0.000033	0.997826	<i>Lycodes diapterus</i>	Black eelpout
56	1	0.026	50.1	0.000033	0.997858	<i>Fusitriton oregonensis</i>	Oregon triton
57	1	0.024	100.0	0.000030	0.998042	Porifera	Sponge unident.
58	1	0.022	100.0	0.000028	0.998156	<i>Mycale loveni</i>	Tree sponge
59	1	0.019	74.4	0.000024	0.998282	<i>Stylasterias forreri</i>	
60	1	0.017	100.0	0.000021	0.998371	<i>Pagurus tanneri</i>	Longhand hermit
61	1	0.017	100.0	0.000021	0.998476	<i>Neptunea amianta</i>	
62	1	0.013	100.0	0.000017	0.998714	<i>Heterozonias alternatus</i>	
63	1	0.012	100.0	0.000015	0.998841	<i>Sebastolobus altivelis</i>	Longspine thornyhead
64	1	0.012	72.6	0.000015	0.998871	<i>Pseudarchaster parelii</i>	
65	1	0.011	100.0	0.000014	0.998913	<i>Pteraster tessellatus</i>	

Table B-1.--Continued.

Rank	Stratum	Mean CFUE (kg/ha)	CV%	Proportion	Cumulative Proportion	Species Name	Common Name
66	1	0.011	100.0	0.000013	0.998995	<i>Chionoecetes tanneri</i>	True Tanner crab
67	1	0.011	58.0	0.000013	0.999021	<i>Neptunea pribiloffensis</i>	Pribilof whelk
68	1	0.010	84.0	0.000012	0.999072	<i>Clupea pallasii</i>	Pacific herring
69	1	0.009	100.0	0.000011	0.999185	<i>Crossaster borealis</i>	
70	1	0.008	100.0	0.000009	0.999305	<i>Eptatretus deani</i>	Black hagfish
71	1	0.006	74.1	0.000007	0.999440	<i>Ctenodiscus crispatus</i>	Common mud star
72	1	0.005	100.0	0.000007	0.999483	<i>Ronquilus jordani</i>	Northern ronquil
73	1	0.005	100.0	0.000006	0.999561	<i>Icelinus filamentosus</i>	Threadfin sculpin
74	1	0.005	83.2	0.000006	0.999591	<i>Bathyaogonus nigripinnis</i>	Blackfin poacher
75	1	0.004	100.0	0.000005	0.999646	<i>Lophaster furcilliger</i>	
76	1	0.004	78.9	0.000004	0.999699	Paguridae	Hermit crab unident.
77	1	0.003	84.0	0.000004	0.999720	Aphroditidae	Sea mouse unident.
78	1	0.003	100.0	0.000004	0.999768	Mollusca (phylum)	Mollusk
79	1	0.003	100.0	0.000004	0.999787	<i>Tactostoma macropus</i>	Longfin dragonfish
80	1	0.002	100.0	0.000003	0.999818	<i>Nearchaster aciculosus</i>	
81	1	0.002	51.9	0.000003	0.999833	<i>Pandalus jordani</i>	Ocean shrimp
82	1	0.002	100.0	0.000002	0.999874	<i>Xenorhynchus leiops</i>	Smootheye poacher
83	1	0.002	100.0	0.000002	0.999888	<i>Crossaster papposus</i>	Rose sea star
85	1	0.001	100.0	0.000002	0.999913	<i>Buccinum sp.</i>	
84	1	0.001	100.0	0.000002	0.999913	<i>Molpadia sp.</i>	
86	1	0.001	100.0	0.000002	0.999923	<i>Pseudarchaster parelii</i>	
87	1	0.001	100.0	0.000001	0.999950	<i>Henricia sp.</i>	
88	1	0.001	100.0	0.000001	0.999967	<i>Tritonia sp.</i>	
89	1	0.001	100.0	0.000001	0.999975	<i>Strongylocentrotus droebachiensis</i>	Green sea urchin
90	1	<0.001	100.0	0.000000	0.999993	<i>Buccinum strigillatum</i>	
92	1	<0.001	100.0	0.000000	0.999994	Asteroidea (class)	Starfish unident.
91	1	<0.001	100.0	0.000000	0.999994	<i>Psolus sp.</i>	
93	1	<0.001	100.0	0.000000	0.999995	Rajlidae	Skate unident.
94	1	<0.001	100.0	0.000000	0.999995	<i>Ophiura sarsi</i>	
95	1	<0.001	100.0	0.000000	0.999995	<i>Sebastes sp.</i>	Rockfish
Total		323.286					
1	2	36.088	36.8	0.044907	0.280147	<i>Microstomus pacificus</i>	Dover sole
2	2	27.275	37.9	0.033940	0.351695	<i>Merluccius productus</i>	Pacific hake
3	2	7.881	22.7	0.009806	0.704218	<i>Sebastolobus alascanus</i>	Shortspine thornyhead
4	2	4.628	29.3	0.005760	0.783673	<i>Anoplopoma fimbria</i>	Sablefish
5	2	3.077	78.7	0.003829	0.829814	<i>Allocentrotus fragilis</i>	Orange-pink sea urchin
6	2	2.382	45.0	0.002963	0.843121	<i>Apristurus brunneus</i>	Brown cat shark
7	2	2.365	96.3	0.002943	0.846064	<i>Sebastolobus altivelis</i>	Longspine thornyhead
8	2	2.290	40.4	0.002850	0.851827	Actiniaria (order)	Sea anemone unident.
9	2	1.952	41.6	0.002429	0.872710	<i>Berrytoothia magister</i>	Magistrate armhook squid
10	2	1.705	37.7	0.002122	0.888345	<i>Lycodes cortexianus</i>	Bigfin eelpout
11	2	1.648	34.5	0.002051	0.890396	<i>Glyptocephalus zachirus</i>	Rex sole
12	2	1.646	54.2	0.002048	0.892445	<i>Lycodes diapterus</i>	Black eelpout
13	2	1.266	44.9	0.001575	0.915641	<i>Pseudostichopus mollis</i>	
14	2	1.074	24.5	0.001336	0.925478	<i>Bothrocara brunneum</i>	Twoline eelpout
15	2	0.984	37.4	0.001224	0.931699	<i>Opiathoteuthis californiana</i>	Flapjack devilfish
16	2	0.983	27.8	0.001223	0.934145	<i>Raja rhina</i>	Longnose skate
17	2	0.816	88.1	0.001015	0.941920	<i>Squalus acanthias</i>	Spiny dogfish
18	2	0.802	64.7	0.000998	0.942918	<i>Sebastes aleutianus</i>	Rougheye rockfish
19	2	0.765	30.5	0.000952	0.945863	<i>Bathyraja interrupta</i>	Bering skate
20	2	0.676	79.1	0.000841	0.950310	<i>Lyopsetta exilis</i>	Slender sole
21	2	0.550	62.5	0.000684	0.955543	<i>Sebastes borealis</i>	Shortraker rockfish
22	2	0.434	24.0	0.000540	0.962641	<i>Chionoecetes tanneri</i>	True Tanner crab
23	2	0.388	100.0	0.000483	0.966686	<i>Sebastes alutus</i>	Pacific ocean perch
24	2	0.364	100.0	0.000453	0.968083	<i>Atheresthes stomias</i>	Arrowtooth flounder
25	2	0.337	25.8	0.000420	0.970231	<i>Careproctus melanurus</i>	Blacktail snailfish
26	2	0.321	44.7	0.000399	0.971441	<i>Thrissacanthias penicillatus</i>	
27	2	0.308	58.2	0.000384	0.973009	<i>Liponemus brevicornis</i>	
28	2	0.273	34.9	0.000340	0.976630	<i>Antimora microlepis</i>	Pacific flatnose
29	2	0.240	100.0	0.000298	0.979750	<i>Sebastes aurora</i>	Aurora rockfish
30	2	0.238	100.0	0.000296	0.980046	<i>Neptunea sp.</i>	
31	2	0.214	100.0	0.000266	0.980876	<i>Aphrocallistes vastus</i>	Clay pipe sponge
32	2	0.201	22.3	0.000250	0.981907	Cephalopoda (class)	Cephalopod unident.
33	2	0.200	58.1	0.000249	0.982156	<i>Albatrossia pectoralis</i>	Giant grenadier
34	2	0.171	23.8	0.000212	0.983956	<i>Diplopteraster multipes</i>	
35	2	0.170	48.3	0.000211	0.984379	<i>Fusitriton oregonensis</i>	Oregon triton
36	2	0.168	66.1	0.000209	0.984588	<i>Embassichthys bathybius</i>	Deepsea sole
37	2	0.153	98.4	0.000190	0.986149	<i>Neptunea amianta</i>	

Table B-1.--Continued.

Rank	Stratum	Mean CPUE (kg/ha)	CV%	Proportion	Cummulative Proportion	Species Name	Common Name
38	2	0.131	53.7	0.000164	0.987350	<i>Heterozonias alternatus</i>	
39	2	0.106	60.3	0.000132	0.989882	<i>Crossaster borealis</i>	
40	2	0.099	100.0	0.000123	0.990772	<i>Brisaster latifrons</i>	
41	2	0.090	100.0	0.000112	0.991230	<i>Eopsetta jordani</i>	Petrale sole
42	2	0.076	70.6	0.000094	0.993388	<i>Pannychia moseleyi</i>	
43	2	0.066	80.7	0.000082	0.994175	<i>Amphiophiura ponderosa</i>	
44	2	0.060	100.0	0.000074	0.994880	<i>Eptatretus deani</i>	Black hagfish
45	2	0.053	100.0	0.000066	0.995424	<i>Ophiura sarsi</i>	
46	2	0.052	100.0	0.000065	0.995619	<i>Embryx crotalinus</i>	Snakehead eelpout
47	2	0.046	51.0	0.000058	0.996284	<i>Rathbunaster californicus</i>	
48	2	0.042	64.1	0.000052	0.996660	<i>Zoraaster evermanni</i>	
49	2	0.039	100.0	0.000049	0.996961	<i>Clupea pallasii</i>	Pacific herring
50	2	0.029	100.0	0.000036	0.997589	<i>Hippasteria spinosa</i>	
51	2	0.022	57.8	0.000027	0.998183	Scyphozoa (class)	Jellyfish unident.
52	2	0.016	100.0	0.000019	0.998535	<i>Coryphaenoides acrolepis</i>	Pacific grenadier
53	2	0.014	100.0	0.000018	0.998627	Mollusca (phylum)	Mollusk
54	2	0.011	57.8	0.000014	0.998968	<i>Neptunea pribiloffensis</i>	Fribilof whelk
55	2	0.011	57.7	0.000013	0.998981	Cephalopoda (class)	Cephalopod unident.
56	2	0.008	100.0	0.000010	0.999206	Gastropoda (class)	Gastropod unident.
57	2	0.007	100.0	0.000009	0.999333	Gastropod	Snail unident.
58	2	0.007	100.0	0.000008	0.999386	<i>Myoxoderma platyacanthum</i>	
59	2	0.007	100.0	0.000008	0.999394	<i>Hippasteria californica</i>	
60	2	0.006	100.0	0.000008	0.999425	<i>Stylasterias forreri</i>	
61	2	0.006	100.0	0.000007	0.999448	Porifera	Sponge unident.
62	2	0.006	100.0	0.000007	0.999455	<i>Tactostoma macropus</i>	Longfin dragonfish
63	2	0.005	58.0	0.000007	0.999490	<i>Bathystegon nigrispinnis</i>	Blackfin poacher
64	2	0.004	69.8	0.000006	0.999614	<i>Pasiphaea pacifica</i>	Pacific glass shrimp
65	2	0.004	100.0	0.000005	0.999666	<i>Pseudarchaster parelii</i>	
66	2	0.003	75.7	0.000004	0.999708	Aphroditidae	Sea mouse unident.
67	2	0.003	100.0	0.000004	0.999749	Gastropoda (class)	Gastropod unident.
68	2	0.003	65.8	0.000004	0.999791	<i>Aristostomias scintillans</i>	Shining loosejaw
69	2	0.002	100.0	0.000003	0.999855	<i>Lophaster furcilliger</i>	
70	2	0.002	100.0	0.000002	0.999878	<i>Icelinus filamentosus</i>	Threadfin sculpin
71	2	0.001	100.0	0.000002	0.999916	<i>Bathophilus flemingi</i>	Highfin dragonfish
72	2	0.001	57.8	0.000001	0.999953	Myctophidae	Lanternfish
73	2	0.001	100.0	0.000001	0.999960	Nemichthyidae	Snipe eel
74	2	0.001	100.0	0.000001	0.999965	<i>Henricia aspera</i>	
75	2	0.001	100.0	0.000001	0.999978	<i>Pandalus</i> sp.	
76	2	<0.001	100.0	0.000000	0.999991	<i>Antiplanes</i> sp.	
77	2	<0.001	100.0	0.000000	0.999998	<i>Asteronyx loveni</i>	
78	2	<0.001	100.0	0.000000	1.000000	<i>Careproctus</i> sp.	
Total		106.072					
1	3	10.818	59.1	0.013462	0.600322	<i>Anoplopoma fimbria</i>	Sablefish
2	3	10.042	33.5	0.012495	0.638269	<i>Microstomus pacificus</i>	Dover sole
3	3	9.812	29.4	0.012210	0.662796	<i>Sebastolobus altivelis</i>	Longspine thornyhead
4	3	8.255	41.5	0.010273	0.684559	<i>Chionoecetes tanneri</i>	True Tanner crab
5	3	4.016	9.3	0.004998	0.808954	<i>Sebastolobus alascanus</i>	Shortspine thornyhead
6	3	1.755	36.6	0.002184	0.884039	<i>Embassichthys bathybius</i>	Deepsea sole
7	3	1.635	50.2	0.002034	0.894479	<i>Bothrocara brunneum</i>	Twoline eelpout
8	3	1.537	38.7	0.001913	0.898320	<i>Merluccius productus</i>	Pacific hake
9	3	1.508	37.0	0.001877	0.902077	Actiniaria (order)	Sea anemone unident.
10	3	1.143	38.8	0.001423	0.920039	<i>Coryphaenoides acrolepis</i>	Pacific grenadier
11	3	1.125	58.3	0.001400	0.921440	<i>Albatrossia pectoralis</i>	Giant grenadier
12	3	1.093	37.7	0.001360	0.922800	<i>Antimora microlepis</i>	Pacific flatnose
13	3	0.985	72.3	0.001225	0.930475	<i>Lycodes diapterus</i>	Black eelpout
14	3	0.741	57.8	0.000922	0.947723	<i>Opisthotectus californiana</i>	Flapjack devilfish
15	3	0.663	46.7	0.000826	0.951136	<i>Hippasteria californica</i>	
16	3	0.564	14.2	0.000702	0.954169	<i>Berytoteuthis magister</i>	Magistrate armhook squid
17	3	0.494	100.0	0.000614	0.957449	<i>Trachipterus altivelis</i>	King-of-the-salmon
18	3	0.452	84.1	0.000562	0.961555	<i>Hylonema</i> sp.	Fiberoptic sponge
19	3	0.410	45.1	0.000510	0.964728	<i>Apristurus brunneus</i>	Brown cat shark
20	3	0.379	33.8	0.000472	0.967158	<i>Heterozonias alternatus</i>	
21	3	0.346	58.9	0.000431	0.968958	<i>Bathyrhaja trachura</i>	Black skate
22	3	0.346	48.4	0.000430	0.969388	<i>Careproctus melanurus</i>	Blacktail snailfish
23	3	0.302	36.4	0.000376	0.973769	<i>Crossaster borealis</i>	
24	3	0.278	100.0	0.000346	0.976290	<i>Embryx crotalinus</i>	Snakehead eelpout
25	3	0.250	37.8	0.000311	0.978240	Cephalopoda (class)	Cephalopod unident.
26	3	0.192	16.5	0.000239	0.982636	<i>Nearchaster aciculosus</i>	

Table B-1.--Continued.

Rank	Stratum	Mean CPUE (kg/ha)	CV%	Proportion	Cumulative Proportion	Species Name	Common Name
27	3	0.171	36.0	0.000213	0.983744	<i>Thrissacanthias penicillatus</i>	
28	3	0.153	29.8	0.000191	0.985768	<i>Bathybembix bairdii</i>	
29	3	0.126	31.7	0.000156	0.988468	<i>Zoraster evermanni</i>	
30	3	0.108	52.5	0.000135	0.989750	Cephalopoda (class)	Cephalopod unident.
31	3	0.081	36.7	0.000100	0.992812	<i>Eptatretus deani</i>	Black hagfish
32	3	0.068	43.7	0.000084	0.994011	<i>Neptunea amianta</i>	
33	3	0.048	36.0	0.000060	0.995931	<i>Chauliodus macouni</i>	Pacific viperfish
34	3	0.042	100.0	0.000052	0.996555	<i>Squalus acanthias</i>	Spiny dogfish
35	3	0.040	87.5	0.000050	0.996863	<i>Allocentrotus fragilis</i>	Orange-pink sea urchin
36	3	0.036	73.5	0.000045	0.997100	<i>Tactostoma macropus</i>	Longfin dragonfish
37	3	0.036	78.9	0.000045	0.997145	<i>Amphaster marianus</i>	
38	3	0.033	100.0	0.000042	0.997362	<i>Lithodes couesi</i>	
39	3	0.032	100.0	0.000039	0.997441	<i>Lycodes cortexianus</i>	Bigfin eelpout
40	3	0.028	48.5	0.000034	0.997624	<i>Bathylagus</i> sp.	Blacksmelt unident.
41	3	0.017	100.0	0.000021	0.998413	<i>Tritonia</i> sp.	
42	3	0.017	52.6	0.000021	0.998434	<i>Amphiopfiura ponderosa</i>	
43	3	0.015	100.0	0.000019	0.998573	<i>Taningia danae</i>	Rhomboid squid
44	3	0.014	47.5	0.000018	0.998680	<i>Liponemid brevicornis</i>	
45	3	0.010	100.0	0.000013	0.999034	<i>Fusitriton oregonensis</i>	Oregon triton
46	3	0.009	100.0	0.000012	0.999119	<i>Pseudostichopus mollis</i>	
47	3	0.008	100.0	0.000010	0.999257	<i>Lampanyctus ritteri</i>	Broadfin lanternfish
48	3	0.008	100.0	0.000010	0.999286	<i>Aphrocallistes vastus</i>	Clay pipe sponge
49	3	0.008	100.0	0.000009	0.999315	Mollusca (phylum)	Mollusk
50	3	0.007	100.0	0.000009	0.999360	<i>Pannychia moseleyi</i>	
51	3	0.006	35.7	0.000008	0.999418	Myctophidae	Lanternfish
52	3	0.006	83.7	0.000007	0.999433	Scyphozoa (class)	Jellyfish unident.
53	3	0.005	100.0	0.000007	0.999524	Aplacophora	
54	3	0.005	70.2	0.000006	0.999603	<i>Umbellula</i> sp.	
55	3	0.004	60.1	0.000005	0.999676	<i>Henricia</i> sp.	
56	3	0.004	100.0	0.000005	0.999681	<i>Neptunea pribiloffensis</i>	Pribilof whelk
57	3	0.003	100.0	0.000004	0.999756	<i>Lophaster furcilliger</i>	
58	3	0.003	100.0	0.000004	0.999760	<i>Brisingella exilis</i>	
59	3	0.003	100.0	0.000004	0.999798	<i>Aristostomias scintillans</i>	Shining loosejaw
60	3	0.003	100.0	0.000003	0.999805	Gastropod	Snail unident.
61	3	0.003	81.5	0.000003	0.999808	Pennatulacea (order)	Sea pen unident.
62	3	0.002	100.0	0.000003	0.999824	<i>Pteraster militaris</i>	
63	3	0.002	62.0	0.000003	0.999849	Gastropoda (class)	Gastropod unident.
64	3	0.002	67.8	0.000003	0.999860	Ophiuroid	Brittlestarfish unident.
65	3	0.002	100.0	0.000002	0.999871	Gastropoda (class)	Gastropod unident.
66	3	0.002	100.0	0.000002	0.999884	<i>Pteraster</i> sp.	
66	3	0.002	100.0	0.000002	0.999884	<i>Myoxoderma platyacanthum</i>	
68	3	0.001	58.4	0.000002	0.999895	<i>Bathyagonus nigripinnis</i>	Blackfin poacher
69	3	0.001	58.1	0.000002	0.999899	<i>Pasiphaea tarda</i>	Crimson pasiphaeid
71	3	0.001	100.0	0.000002	0.999903	<i>Lophaster</i> sp.	
70	3	0.001	100.0	0.000002	0.999903	Thaliacea (class)	Salps unident.
72	3	0.001	58.0	0.000002	0.999904	Asteroidea (class)	Starfish unident.
73	3	0.001	100.0	0.000001	0.999927	Rajidae	Skate unident.
75	3	0.001	100.0	0.000001	0.999939	<i>Bathypathes</i> sp.	
74	3	0.001	100.0	0.000001	0.999939	<i>Pasiphaea pacifica</i>	Pacific glass shrimp
76	3	0.001	100.0	0.000001	0.999959	Paguridae	Hermit crab unident.
77	3	0.001	100.0	0.000001	0.999962	<i>Leuroglossus</i> sp.	
78	3	0.001	100.0	0.000001	0.999964	<i>Asteronyx loveni</i>	
79	3	0.001	100.0	0.000001	0.999971	<i>Chorilia longipes</i>	Longhorned decorator crab
80	3	0.001	100.0	0.000001	0.999977	<i>Ophiopholis aculeata</i>	
82	3	0.001	100.0	0.000001	0.999979	<i>Paraliparis cephalus</i>	Swellhead snailfish
81	3	0.001	100.0	0.000001	0.999979	Aphroditidae	Sea mouse unident.
83	3	<0.001	100.0	0.000000	0.999984	Holothuroidea	Sea cucumber unident.
84	3	<0.001	100.0	0.000000	0.999985	<i>Scotoplanes theeli</i>	
85	3	<0.001	100.0	0.000000	0.999991	Malacostraca (class)	Malacostracan unident.
86	3	<0.001	100.0	0.000000	0.999992	<i>Stylatula</i> sp.	Slender seawhip
87	3	<0.001	100.0	0.000000	0.999998	<i>Tarletonbeania crenularis</i>	Blue lanternfish
88	3	<0.001	100.0	0.000000	0.999998	<i>Leptychaster pacificus</i>	
Total		60.331					
1	4	22.227	11.3	0.027659	0.469957	<i>Sebastolobus altivelis</i>	Longspine thornyhead
2	4	9.898	12.6	0.012317	0.650586	<i>Chionoscotes tanneri</i>	True Tanner crab
3	4	2.522	17.9	0.003139	0.840158	<i>Sebastolobus alascanus</i>	Shortspine thornyhead
4	4	2.089	39.6	0.002600	0.865346	<i>Albatrossia pectoralis</i>	Giant grenadier
5	4	1.799	10.5	0.002239	0.881855	<i>Embassichthys bathybius</i>	Deepsea sole

Table B-1.--Continued.

Rank	Stratum	Mean CFUE (kg/ha)	CV%	Proportion	Cummulative Proportion	Species Name	Common Name
6	4	1.511	33.2	0.001880	0.900200	<i>Anoplopoma fimbria</i>	Sablefish
7	4	1.234	44.5	0.001536	0.917177	<i>Opisthoteuthis californiana</i>	Flapjack devilfish
8	4	0.982	100.0	0.001222	0.935367	<i>Microstomus pacificus</i>	Dover sole
9	4	0.753	43.8	0.000938	0.946801	Actiniaria (order)	Sea anemone unident.
10	4	0.697	50.8	0.000867	0.949470	<i>Bothrocara brunneum</i>	Twoline eelpout
11	4	0.636	28.8	0.000791	0.952752	<i>Coryphaenoides acrolepis</i>	Pacific grenadier
12	4	0.522	21.3	0.000649	0.956192	<i>Eptatretus deani</i>	Black hagfish
13	4	0.262	27.5	0.000326	0.977614	<i>Embryx crotalinus</i>	Snakehead eelpout
14	4	0.210	33.5	0.000261	0.981401	<i>Bathybembix bairdii</i>	
15	4	0.194	96.6	0.000241	0.982397	<i>Bathyraja trachura</i>	Black skate
16	4	0.128	63.9	0.000160	0.987993	<i>Apristurus brunneus</i>	Brown cat shark
17	4	0.117	71.2	0.000146	0.988913	<i>Alepocephalus tenebrosus</i>	California slickhead
18	4	0.110	64.9	0.000136	0.989616	Scyphozoa (class)	Jellyfish unident.
19	4	0.105	18.5	0.000131	0.990013	<i>Neptunea amianta</i>	
20	4	0.090	100.0	0.000112	0.991118	<i>Crossaster borealis</i>	
21	4	0.088	60.7	0.000109	0.991561	<i>Crossaster</i> sp.	
22	4	0.085	40.5	0.000106	0.991988	<i>Nearchaster aciculosus</i>	
23	4	0.080	16.2	0.000099	0.992911	<i>Bathylagus</i> sp.	Blackmelt unident.
24	4	0.076	100.0	0.000095	0.993199	<i>Merluccius productus</i>	Pacific hake
25	4	0.076	57.9	0.000094	0.993482	<i>Antimora microlepis</i>	Pacific flatnose
26	4	0.074	55.3	0.000092	0.993574	<i>Thriassacanthias penicillatus</i>	
27	4	0.072	100.0	0.000089	0.993753	<i>Vampyroteuthis infernalis</i>	
28	4	0.063	100.0	0.000078	0.994577	<i>Hydrolagus colliei</i>	Spotted ratfish
29	4	0.057	34.4	0.000071	0.995022	Cephalopoda (class)	Cephalopod unident.
30	4	0.056	88.5	0.000070	0.995092	<i>Hylonema</i> sp.	Fiberoptic sponge
31	4	0.054	2.3	0.000067	0.995159	<i>Careproctus melanurus</i>	Blacktail snailfish
32	4	0.031	68.3	0.000039	0.997479	<i>Talismania bifurcata</i>	Threadfin slickhead
33	4	0.027	60.2	0.000034	0.997692	<i>Hippasteria californica</i>	
34	4	0.024	100.0	0.000030	0.997952	<i>Heterozonias alternatus</i>	
35	4	0.024	45.4	0.000030	0.997982	<i>Lampanyctus</i> sp.	
36	4	0.022	89.2	0.000028	0.998128	<i>Buccinum viridum</i>	Turban whelk
37	4	0.017	100.0	0.000021	0.998455	Naticidae	
38	4	0.015	94.9	0.000019	0.998554	<i>Folinices</i> sp.	
39	4	0.014	100.0	0.000018	0.998645	<i>Coryphaenoides filifera</i>	Filamented grenadier
40	4	0.013	46.5	0.000016	0.998763	<i>Chauliodus macouni</i>	Pacific viperfish
41	4	0.012	67.7	0.000015	0.998826	Lithodes couesi	
42	4	0.012	43.6	0.000015	0.998856	Myctophidae	Lanternfish
43	4	0.012	100.0	0.000014	0.998885	<i>Luidiaster dawsoni</i>	
44	4	0.009	100.0	0.000011	0.999164	<i>Bathyraja interrupta</i>	Bering skate
45	4	0.008	57.6	0.000010	0.999196	<i>Lophaster furcilliger</i>	
46	4	0.006	38.6	0.000007	0.999462	Gastropoda (class)	Gastropod unident.
47	4	0.005	60.6	0.000006	0.999555	<i>Tactostoma macropus</i>	Longfin dragonfish
48	4	0.005	100.0	0.000006	0.999573	Zoroasteridae	
49	4	0.004	100.0	0.000005	0.999625	<i>Lampanyctus ritteri</i>	Broadfin lanternfish
50	4	0.004	100.0	0.000005	0.999641	<i>Zoraster evermanni</i>	
51	4	0.004	64.5	0.000004	0.999695	<i>Brisaster latifrons</i>	
52	4	0.003	100.0	0.000004	0.999732	<i>Liponemis brevicornis</i>	
53	4	0.003	100.0	0.000004	0.999737	<i>Coryphaenoides cinereus</i>	Popeye grenadier
54	4	0.003	68.2	0.000004	0.999741	Gastropoda (class)	Gastropod unident.
55	4	0.002	100.0	0.000003	0.999830	Chauliodontidae	Viperfish
56	4	0.001	63.6	0.000001	0.999924	<i>Pasiphaea tarda</i>	Crimson pasiphaeid
57	4	0.001	100.0	0.000001	0.999931	<i>Paolus</i> sp.	
59	4	0.001	100.0	0.000001	0.999935	Faguridae	Hermit crab unident.
58	4	0.001	100.0	0.000001	0.999935	<i>Pannychia moseleyi</i>	
60	4	0.001	65.1	0.000001	0.999936	<i>Henricia</i> sp.	
61	4	0.001	100.0	0.000001	0.999947	Crinoidea (class)	Crinoid unident.
62	4	0.001	100.0	0.000001	0.999952	<i>Ampheraster marianus</i>	
63	4	0.001	100.0	0.000001	0.999970	<i>Crossaster papposus</i>	Rose sea star
64	4	<0.001	100.0	0.000001	0.999982	<i>Pteraster militaris</i>	
65	4	<0.001	100.0	0.000000	0.999986	Pennatulacea (order)	Sea pen unident.
67	4	<0.001	100.0	0.000000	0.999987	<i>Bathygonus nigripinnis</i>	Blackfin poacher
66	4	<0.001	100.0	0.000000	0.999987	<i>Lycodapus</i> sp.	
68	4	<0.001	100.0	0.000000	0.999989	<i>Brisingella exilis</i>	
69	4	<0.001	100.0	0.000000	0.999993	<i>Amphiophiura ponderosa</i>	
70	4	<0.001	100.0	0.000000	0.999998	<i>Lycenchelys</i> sp.	
71	4	<0.001	100.0	0.000000	0.999999	<i>Plicifusus griseus</i>	Gray whelk
72	4	<0.001	100.0	0.000000	0.999999	<i>Asteronyx loveni</i>	
Total		47.158					

Table B-1.--Continued.

Rank	Stratum	Mean CPUE (kg/ha)	CV%	Proportion	Cummulative Proportion	Species Name	Common Name
1	5	30.222	9.2	0.037607	0.317754	<i>Sebastolobus altivelis</i>	Longspine thornyhead
2	5	6.256	17.5	0.007785	0.730586	<i>Anoplopoma fimbria</i>	Sablefish
3	5	5.694	31.1	0.007085	0.752483	<i>Albatrossia pectoralis</i>	Giant grenadier
4	5	5.245	20.5	0.006527	0.759010	<i>Coryphaenoides acrolepis</i>	Pacific grenadier
5	5	5.069	29.8	0.006307	0.771843	<i>Chionoecetes tanneri</i>	True Tanner crab
6	5	3.245	14.8	0.004038	0.822068	<i>Sebastolobus alascanus</i>	Shortspine thornyhead
7	5	1.985	48.9	0.002470	0.867816	<i>Embassichthys bathybius</i>	Deepsea sole
8	5	1.755	36.5	0.002184	0.886223	<i>Actiniaria (order)</i>	Sea anemone unident.
9	5	1.333	41.8	0.001658	0.910898	<i>Bothrocara brunneum</i>	Twoline eelpout
10	5	1.032	42.4	0.001285	0.926762	<i>Alepocephalus tenebrosus</i>	California slickhead
11	5	0.895	48.4	0.001114	0.938792	<i>Bathyraja trachura</i>	Black skate
12	5	0.478	74.9	0.000595	0.959245	<i>Nearchaster aciculosus</i>	
13	5	0.392	65.8	0.000487	0.965718	<i>Opisthoteuthis californiana</i>	Flapjack devilfish
14	5	0.316	27.5	0.000393	0.972626	<i>Antimora microlepis</i>	Pacific flatnose
15	5	0.266	21.8	0.000331	0.976961	<i>Lithodes couesi</i>	
16	5	0.253	90.8	0.000315	0.977929	Forifera	Sponge unident.
17	5	0.243	80.3	0.000302	0.978852	<i>Microstomus pacificus</i>	Dover sole
18	5	0.170	42.8	0.000212	0.984167	<i>Embryx crotalinus</i>	Snakehead eelpout
19	5	0.165	100.0	0.000205	0.984793	<i>Psolus squamatus</i>	
20	5	0.154	74.9	0.000192	0.985577	<i>Hylonema sp.</i>	Fiberoptic sponge
21	5	0.153	62.4	0.000190	0.985959	<i>Crossaster borealis</i>	
22	5	0.141	43.6	0.000175	0.986682	<i>Bathybembix bairdii</i>	
23	5	0.127	44.1	0.000159	0.988311	<i>Merluccius productus</i>	Pacific hake
24	5	0.112	28.5	0.000140	0.989343	<i>Eptatretus deani</i>	Black hagfish
25	5	0.103	43.6	0.000129	0.990270	<i>Hippasteria californica</i>	
26	5	0.102	43.2	0.000127	0.990398	<i>Thriassacanthias penicillatus</i>	
27	5	0.096	43.6	0.000119	0.990892	<i>Zoraster evermanni</i>	
28	5	0.085	48.9	0.000106	0.991881	<i>Heterozonias alternatus</i>	
29	5	0.085	100.0	0.000105	0.992093	<i>Squalus acanthias</i>	Spiny dogfish
30	5	0.077	20.2	0.000096	0.993105	<i>Neptunea amianta</i>	
31	5	0.070	51.2	0.000087	0.993840	<i>Bathylagus sp.</i>	Blacksmelt unident.
32	5	0.066	75.0	0.000082	0.994093	<i>Apristurus brunneus</i>	Brown cat shark
33	5	0.053	46.4	0.000066	0.995359	<i>Buccinum viridum</i>	Turban whelk
34	5	0.052	89.9	0.000065	0.995490	<i>Careproctus sp.</i>	
35	5	0.050	100.0	0.000062	0.995871	<i>Crossaster sp.</i>	
36	5	0.048	100.0	0.000060	0.995991	<i>Paralomis multispina</i>	
37	5	0.041	100.0	0.000051	0.996763	<i>Aphrocallistes vastus</i>	Clay pipe sponge
38	5	0.028	41.0	0.000034	0.997658	<i>Coryphaenoides cinereus</i>	Popeye grenadier
39	5	0.026	15.8	0.000032	0.997891	<i>Chauliodus macouni</i>	Pacific viperfish
40	5	0.025	85.4	0.000031	0.997922	<i>Talismania bifurcata</i>	Threadfin slickhead
41	5	0.024	55.6	0.000030	0.998012	<i>Pannychia moseleyi</i>	
42	5	0.024	85.7	0.000029	0.998072	Scyphozoa (class)	Jellyfish unident.
43	5	0.019	100.0	0.000023	0.998305	<i>Hippasteria spinosa</i>	
44	5	0.017	29.4	0.000021	0.998392	Myctophidae	Lanternfish
45	5	0.016	100.0	0.000020	0.998496	Cyclopteridae (Liparidinae)	Snailfish unident.
46	5	0.016	100.0	0.000020	0.998516	<i>Taningia danae</i>	Rhomboid squid
47	5	0.013	74.1	0.000016	0.998747	Gastropoda (class)	Gastropod unident.
48	5	0.011	100.0	0.000014	0.998941	<i>Bathyraja sp.</i>	
49	5	0.010	65.3	0.000012	0.999084	Cephalopoda (class)	Cephalopod unident.
50	5	0.009	100.0	0.000012	0.999108	<i>Luidiaster dawsoni</i>	
51	5	0.009	66.6	0.000011	0.999153	Gastropoda (class)	Gastropod unident.
52	5	0.009	78.0	0.000011	0.999175	<i>Lophaster furcilliger</i>	
53	5	0.008	80.9	0.000010	0.999217	<i>Psolus sp.</i>	
54	5	0.008	52.0	0.000010	0.999247	<i>Ampheraster marianus</i>	
55	5	0.008	63.6	0.000010	0.999277	<i>Lampanyctus sp.</i>	
56	5	0.007	52.9	0.000009	0.999342	<i>Tactostoma macropus</i>	Longfin dragonfish
57	5	0.007	100.0	0.000009	0.999378	<i>Tritonia sp.</i>	
58	5	0.006	100.0	0.000008	0.999402	<i>Careproctus melanurus</i>	Blacktail snailfish
59	5	0.006	100.0	0.000007	0.999470	Rajidae	Skate unident.
60	5	0.005	87.6	0.000007	0.999517	Cephalopoda (class)	Cephalopod unident.
61	5	0.005	71.1	0.000006	0.999549	<i>Myoxoderma sacculatum</i>	
62	5	0.004	67.2	0.000005	0.999651	<i>Liponemis brevicornis</i>	
63	5	0.004	100.0	0.000005	0.999685	<i>Buccinum sp.</i>	
64	5	0.004	100.0	0.000004	0.999703	<i>Sagamichthys abei</i>	Shining tubeshoulder
65	5	0.003	100.0	0.000004	0.999712	<i>Pseudostichopus mollis</i>	
66	5	0.003	100.0	0.000004	0.999724	<i>Lophaster sp.</i>	
67	5	0.003	77.9	0.000004	0.999728	<i>Pteraster militaris</i>	
68	5	0.003	100.0	0.000004	0.999745	<i>Lampanyctus ritteri</i>	Broadfin lanternfish
69	5	0.003	100.0	0.000004	0.999752	<i>Benthalbella dentata</i>	Northern pearleye

Table B-1.--Continued.

Rank	Stratum	Mean CPUE (kg/ha)	CV%	Proportion	Cummulative Proportion	Species Name	Common Name
70	5	0.003	100.0	0.000004	0.999772	<i>Polinices</i> sp.	
71	5	0.003	82.9	0.000004	0.999801	<i>Aristostomias scintillans</i>	Shining loosejaw
72	5	0.002	100.0	0.000003	0.999821	<i>Dolichopteryx</i> sp.	
73	5	0.002	52.9	0.000003	0.999852	<i>Scotoplanes theeli</i>	
74	5	0.002	100.0	0.000003	0.999857	<i>Florimetra</i> sp.	
75	5	0.002	100.0	0.000002	0.999880	<i>Benthalbella</i> sp.	
76	5	0.002	100.0	0.000002	0.999886	Faguridae	Hermit crab unident.
77	5	0.001	100.0	0.000002	0.999918	<i>Myoxoderma platyacanthum</i>	
78	5	0.001	100.0	0.000002	0.999920	<i>Hippasteria</i> sp.	
79	5	0.001	100.0	0.000001	0.999928	Thaliacea (class)	Salps unident.
80	5	0.001	100.0	0.000001	0.999940	<i>Lycodapus</i> sp.	
81	5	0.001	100.0	0.000001	0.999942	Oneirodidae	Dreamer unident.
82	5	0.001	65.5	0.000001	0.999946	Crinoidea (class)	Crinoid unident.
83	5	0.001	100.0	0.000001	0.999948	Melamphaidae	Bigscale
85	5	0.001	100.0	0.000001	0.999956	Osteichthyes (class)	Fish unident.
84	5	0.001	100.0	0.000001	0.999956	<i>Chiasmodon niger</i>	
86	5	0.001	65.3	0.000001	0.999961	<i>Asteronyx loveni</i>	
87	5	0.001	61.3	0.000001	0.999963	<i>Henricia</i> sp.	
88	5	0.001	100.0	0.000001	0.999968	<i>Lycenchelys</i> sp.	
89	5	0.001	100.0	0.000001	0.999971	<i>Stylatula</i> sp.	Slender seawhip
90	5	0.001	100.0	0.000001	0.999972	<i>Poromitra crassiceps</i>	Crested bigscale
91	5	0.001	100.0	0.000001	0.999974	<i>Bathypathes</i> sp.	
92	5	<0.001	100.0	0.000001	0.999983	<i>Ophiopholis aculeata</i>	
94	5	<0.001	100.0	0.000000	0.999986	<i>Plicifusus griseus</i>	Gray whelk
93	5	<0.001	100.0	0.000000	0.999986	Asteroidea (class)	Starfish unident.
95	5	<0.001	100.0	0.000000	0.999994	<i>Diaphus</i> sp.	
96	5	<0.001	100.0	0.000000	0.999999	Ophiuroid	Brittlestarfish unident.
	Total	67.004					
1	6	18.654	22.7	0.023212	0.517504	<i>Sebastolobus altivelis</i>	Longspine thornyhead
2	6	17.478	18.9	0.021748	0.539253	<i>Albatrossia pectoralis</i>	Giant grenadier
3	6	10.074	28.9	0.012536	0.625774	<i>Anoplopoma fimbria</i>	Sablefish
4	6	7.565	12.0	0.009413	0.713631	<i>Coryphaenoides acrolepis</i>	Pacific grenadier
5	6	3.657	13.7	0.004551	0.813504	Actiniaria (order)	Sea anemone unident.
6	6	2.341	8.8	0.002912	0.848977	<i>Chionoecetes tanneri</i>	True Tanner crab
7	6	2.284	96.3	0.002842	0.854669	Porifera	Sponge unident.
8	6	2.203	50.4	0.002741	0.857410	<i>Sebastolobus alascanus</i>	Shortspine thornyhead
9	6	1.981	31.0	0.002465	0.870282	<i>Bathyraja trachura</i>	Black skate
10	6	0.836	35.8	0.001041	0.940905	<i>Antimora microlepis</i>	Pacific flatnose
11	6	0.707	57.7	0.000879	0.948603	<i>Bothrocara brunneum</i>	Twoline eelpout
12	6	0.464	100.0	0.000577	0.960993	<i>Hylonema</i> sp.	Fiberoptic sponge
13	6	0.318	25.9	0.000395	0.972233	<i>Zoraster evermanni</i>	
14	6	0.308	100.0	0.000383	0.973393	<i>Psychrolutes phrictus</i>	Blob sculpin
15	6	0.288	57.5	0.000358	0.975239	<i>Embassichthys bathybius</i>	Deepsea sole
16	6	0.242	100.0	0.000301	0.979153	Cephalopoda (class)	Cephalopod unident.
17	6	0.206	83.7	0.000256	0.981657	<i>Hippasteria californica</i>	
18	6	0.173	67.0	0.000215	0.983531	<i>Crossaster borealis</i>	
19	6	0.129	53.2	0.000160	0.987834	<i>Heterozonias alternatus</i>	
20	6	0.086	34.7	0.000107	0.991668	<i>Bathylagus</i> sp.	Blacksmelt unident.
21	6	0.085	60.6	0.000105	0.992199	<i>Scotoplanes theeli</i>	
22	6	0.084	100.0	0.000105	0.992303	<i>Merluccius productus</i>	Pacific hake
23	6	0.082	41.1	0.000102	0.992509	<i>Neptunea amianta</i>	
24	6	0.082	100.0	0.000101	0.992610	<i>Alepocephalus tenebrosus</i>	California slickhead
25	6	0.073	25.3	0.000091	0.993664	<i>Nearchaster aciculosus</i>	
26	6	0.064	100.0	0.000080	0.994499	<i>Lithodes couesi</i>	
27	6	0.062	34.2	0.000077	0.994654	Myctophidae	Lanternfish
28	6	0.061	87.8	0.000076	0.994730	Scyphozoa (class)	Jellyfish unident.
29	6	0.054	67.6	0.000067	0.995226	Cephalopoda (class)	Cephalopod unident.
30	6	0.053	97.8	0.000067	0.995293	<i>Pteraster militaris</i>	
31	6	0.052	26.0	0.000064	0.995683	<i>Chauliodus macouni</i>	Pacific viperfish
32	6	0.050	54.4	0.000062	0.995809	<i>Thrissacanthias penicillatus</i>	
33	6	0.048	61.5	0.000059	0.996109	<i>Eptatretus deani</i>	Black hagfish
34	6	0.047	50.0	0.000059	0.996168	<i>Embryx crotalinus</i>	Snakehead eelpout
35	6	0.047	100.0	0.000058	0.996226	Ascidian	Tunicate unident.
36	6	0.036	71.4	0.000045	0.997190	<i>Myoxoderma sacculatum</i>	
37	6	0.030	100.0	0.000037	0.997517	<i>Asteronyx loveni</i>	
38	6	0.030	100.0	0.000037	0.997554	Rajiidae	Skate unident.
39	6	0.027	100.0	0.000034	0.997759	<i>Vampyroteuthis infernalis</i>	
40	6	0.019	32.2	0.000024	0.998258	<i>Poromitra crassiceps</i>	Crested bigscale

Table B-1.--Continued.

Rank	Stratum	Mean CFUE (kg/ha)	CV%	Proportion	Cummulative Proportion	Species Name	Common Name
41	6	0.018	100.0	0.000023	0.998328	Crinoidea (class)	Crinoid unident.
42	6	0.014	100.0	0.000018	0.998609	<i>Coryphaenoides cinereus</i>	Popeye grenadier
43	6	0.013	45.4	0.000016	0.998779	Pennatulacea (order)	Sea pen unident.
44	6	0.011	50.5	0.000014	0.998927	<i>Tactostoma macropus</i>	Longfin dragonfish
45	6	0.011	100.0	0.000014	0.998954	<i>Hippasteria spinosa</i>	
46	6	0.009	100.0	0.000011	0.999131	<i>Careproctus</i> sp.	
47	6	0.008	100.0	0.000010	0.999267	Gastropoda (class)	Gastropod unident.
48	6	0.008	100.0	0.000010	0.999296	<i>Henricia aspera</i>	
49	6	0.006	100.0	0.000008	0.999410	Thaliacea (class)	Salps unident.
50	6	0.005	100.0	0.000006	0.999567	<i>Bathybembix bairdii</i>	
51	6	0.005	84.7	0.000006	0.999608	<i>Pasiphaea tarda</i>	Crimson pasiphaeid
52	6	0.004	100.0	0.000006	0.999619	<i>Lampanyctus ritteri</i>	Broadfin lanternfish
53	6	0.004	100.0	0.000005	0.999630	Alcyonacea (order)	Soft coral
54	6	0.003	100.0	0.000004	0.999776	<i>Lampanyctus</i> sp.	
55	6	0.003	77.9	0.000004	0.999780	<i>Eualus macrophthalmus</i>	
56	6	0.002	100.0	0.000003	0.999841	Gastropoda (class)	Gastropod unident.
57	6	0.002	100.0	0.000002	0.999864	<i>Gorgonocephalus caryi</i>	
58	6	0.002	100.0	0.000002	0.999867	<i>Lycodapus</i> sp.	
59	6	0.002	100.0	0.000002	0.999876	<i>Bathyraja</i> sp.	
60	6	0.001	100.0	0.000002	0.999894	<i>Nemichthys scolopaceus</i>	Slender snipe eel
61	6	0.001	100.0	0.000001	0.999944	<i>Delectopecten vancouverensis</i>	Vancouver scallop
62	6	0.001	100.0	0.000001	0.999958	<i>Tritonia</i> sp.	
63	6	0.001	100.0	0.000001	0.999973	<i>Stylatula</i> sp.	Slender seawhip /
64	6	<0.001	100.0	0.000000	0.999997	Gonostomatidae	Bristlemouth
67	6	<0.001	100.0	0.000000	0.999997	<i>Bathypathes</i> sp.	
66	6	<0.001	100.0	0.000000	0.999997	<i>Umbellula</i> sp.	
65	6	<0.001	100.0	0.000000	0.999997	<i>Balanus</i> sp.	
64	6	<0.001	100.0	0.000000	0.999997	<i>Buccinum</i> sp.	
Total		71.210					
1	All	24.956	33.2	0.031054	0.382749	<i>Merluccius productus</i>	Pacific hake
2	All	23.297	74.1	0.028990	0.442298	<i>Squalus acanthias</i>	Spiny dogfish
3	All	13.260	18.5	0.016500	0.555753	<i>Sebastolobus altivelis</i>	Longspine thornyhead
4	All	11.808	28.4	0.014693	0.586860	<i>Microstomus pacificus</i>	Dover sole
5	All	7.370	23.7	0.009170	0.722801	<i>Anoplopoma fimbria</i>	Sablefish
6	All	5.727	53.4	0.007127	0.745398	<i>Sebastes alutus</i>	Pacific ocean perch
7	All	4.107	22.9	0.005111	0.788783	<i>Chionoecetes tanneri</i>	True Tanner crab
8	All	4.043	14.8	0.005030	0.803956	<i>Sebastolobus alascanus</i>	Shortspine thornyhead
9	All	3.637	32.3	0.004526	0.818030	<i>Albatrossia pectoralis</i>	Giant grenadier
10	All	3.148	55.9	0.003917	0.825985	<i>Lyopsetta exilis</i>	Slender sole
11	All	2.158	27.3	0.002685	0.860095	<i>Coryphaenoides acrolepis</i>	Pacific grenadier
12	All	2.131	95.8	0.002652	0.862747	<i>Sebastes elongatus</i>	Greenstriped rockfish
13	All	1.837	72.6	0.002286	0.879616	<i>Hydrolagus colliei</i>	Spotted ratfish
14	All	1.550	18.5	0.001928	0.896407	Actiniaria (order)	Sea anemone unident.
15	All	1.481	46.2	0.001843	0.903920	<i>Atheresthes stomias</i>	Arrowtooth flounder
16	All	1.464	39.8	0.001822	0.905742	<i>Glyptocephalus zachirus</i>	Rex sole
17	All	1.277	37.9	0.001589	0.912486	<i>Raja rhina</i>	Longnose skate
18	All	0.988	26.5	0.001229	0.929249	<i>Embassichthys bathybius</i>	Deepsea sole
19	All	0.935	91.3	0.001163	0.936531	<i>Hippoglossus stenolepis</i>	Pacific halibut
20	All	0.862	23.2	0.001072	0.939864	<i>Bothrocara brunneum</i>	Twoline eelpout
21	All	0.802	52.6	0.000998	0.943916	<i>Allocentrotus fragilis</i>	Orange-pink sea urchin
22	All	0.799	42.3	0.000995	0.944911	<i>Bathyraja interrupta</i>	Bering skate
23	All	0.663	75.8	0.000825	0.951961	<i>Rathbunaster californicus</i>	
24	All	0.555	26.6	0.000690	0.954859	<i>Opisthotectus californiana</i>	Flapjack devilfish
25	All	0.516	36.3	0.000642	0.956834	<i>Lycodes cortezianus</i>	Bigfin eelpout
26	All	0.484	33.7	0.000602	0.958051	<i>Bathyraja trachura</i>	Black skate
27	All	0.482	46.0	0.000599	0.958650	<i>Apristurus brunneus</i>	Brown cat shark
28	All	0.466	37.7	0.000579	0.960416	<i>Berryteuthis magister</i>	Magistrate armhook squid
29	All	0.433	69.7	0.000539	0.963180	<i>Sebastes diploproa</i>	Splitnose rockfish
30	All	0.424	97.1	0.000528	0.963707	<i>Sebastes helvomauculatus</i>	Rosethorn rockfish
31	All	0.411	48.7	0.000511	0.964218	<i>Lycodes diapterus</i>	Black eelpout
32	All	0.379	27.0	0.000472	0.967630	<i>Antimora microlepis</i>	Pacific flatnose
33	All	0.357	52.4	0.000444	0.968527	<i>Sebastes alutianus</i>	Rougheye rockfish
34	All	0.326	59.0	0.000406	0.970637	<i>Parophrys vetulus</i>	English sole
35	All	0.319	81.1	0.000397	0.971838	Porifera	Sponge unident.
36	All	0.293	84.4	0.000365	0.974881	<i>Lopholithodes foraminatus</i>	Box crab
37	All	0.281	47.5	0.000350	0.975944	<i>Eopsetta jordani</i>	Petrable sole
38	All	0.240	50.6	0.000299	0.979452	<i>Pseudostichopus mollis</i>	
39	All	0.227	100.0	0.000282	0.980328	<i>Alosa sapidissima</i>	American shad

Table B-1.--Continued.

Rank	Stratum	Mean CPUE (kg/ha)	CV%	Proportion	Cummulative Proportion	Species Name	Common Name
40	All	0.226	49.2	0.000281	0.980609	<i>Alepocephalus tenebrosus</i>	California slickhead
41	All	0.213	67.7	0.000265	0.981140	<i>Sebastes zacentrus</i>	Sharpchin rockfish
42	All	0.161	50.1	0.000201	0.984994	<i>Hylonema</i> sp.	Fiberoptic sponge
43	All	0.161	40.0	0.000201	0.985194	<i>Hippasteria californica</i>	
44	All	0.154	58.5	0.000192	0.985386	<i>Sebastes borealis</i>	Shortraker rockfish
45	All	0.144	43.9	0.000179	0.986328	<i>Liponemus brevicornis</i>	
46	All	0.144	50.3	0.000179	0.986507	<i>Nearchaster aciculosus</i>	
47	All	0.135	29.7	0.000168	0.987022	<i>Careproctus melanurus</i>	Blacktail snailfish
48	All	0.133	100.0	0.000165	0.987187	<i>Sebastes paucispinis</i>	Bocaccio
49	All	0.131	29.8	0.000163	0.987513	<i>Eptatretus deani</i>	Black hagfish
50	All	0.129	36.5	0.000161	0.987673	<i>Embryx crotalinus</i>	Snakehead eelpout
51	All	0.128	27.1	0.000159	0.988153	<i>Crossaster borealis</i>	
52	All	0.122	25.7	0.000152	0.988619	<i>Thriassacanthias penicillatus</i>	
53	All	0.119	30.2	0.000148	0.988768	Cephalopoda (class)	Cephalopod unident.
54	All	0.117	28.4	0.000145	0.989059	<i>Heterozonias alternatus</i>	
55	All	0.110	58.3	0.000137	0.989480	<i>Sebastes crameri</i>	Darkblotched rockfish
56	All	0.101	43.4	0.000126	0.990524	<i>Diplopteraster multipes</i>	
57	All	0.101	100.0	0.000126	0.990650	<i>Gadus macrocephalus</i>	Pacific cod
58	All	0.083	27.7	0.000104	0.992407	<i>Bathybembix bairdii</i>	
59	All	0.082	28.4	0.000101	0.992712	<i>Zoraster evermanni</i>	
60	All	0.078	29.9	0.000097	0.993008	<i>Neptunea amianta</i>	
61	All	0.076	100.0	0.000095	0.993294	<i>Trachipterus altivelis</i>	King-of-the-salmon
62	All	0.069	99.9	0.000086	0.993926	Holothuroidea	Sea cucumber unident.
63	All	0.066	49.8	0.000082	0.994257	<i>Sebastes entomelas</i>	Widow rockfish
64	All	0.066	36.1	0.000082	0.994339	<i>Lithodes couesi</i>	
65	All	0.061	82.6	0.000075	0.994805	<i>Luidia foliata</i>	
66	All	0.057	50.8	0.000072	0.994951	<i>Sebastes babcocki</i>	Redbanded rockfish
67	All	0.051	57.9	0.000064	0.995747	<i>Hippasteria spinosa</i>	
68	All	0.048	72.9	0.000059	0.996050	<i>Brisaster latifrons</i>	
69	All	0.045	35.0	0.000056	0.996339	Scyphozoa (class)	Jellyfish unident.
70	All	0.043	86.2	0.000054	0.996503	<i>Sebastes aurora</i>	Aurora rockfish
71	All	0.042	79.8	0.000052	0.996608	<i>Aphrocallistes vastus</i>	Clay pipe sponge
72	All	0.041	100.0	0.000051	0.996813	<i>Ophiodon elongatus</i>	Lingcod
73	All	0.040	25.8	0.000050	0.996913	<i>Bathylagus</i> sp.	Blacksmelt unident.
74	All	0.037	100.0	0.000046	0.997055	<i>Neptunea</i> sp.	
75	All	0.036	100.0	0.000044	0.997235	<i>Psychrolutes phrictus</i>	Blob sculpin
76	All	0.035	33.4	0.000044	0.997278	Cephalopoda (class)	Cephalopod unident.
77	All	0.034	48.9	0.000042	0.997320	<i>Fusitriton oregonensis</i>	Oregon triton
78	All	0.032	100.0	0.000039	0.997401	<i>Psolus squamatus</i>	
79	All	0.027	100.0	0.000033	0.997793	<i>Sebastes pinniger</i>	Canary rockfish
80	All	0.023	57.1	0.000029	0.998100	<i>Crossaster</i> sp.	
81	All	0.021	82.0	0.000026	0.998209	<i>Pandalus platyceros</i>	Spot shrimp
82	All	0.020	24.4	0.000025	0.998234	<i>Chauliodus macouni</i>	Pacific viperfish
83	All	0.018	53.1	0.000022	0.998350	<i>Fannychia moseleyi</i>	
84	All	0.015	56.6	0.000019	0.998591	<i>Pandalopsis dispar</i>	Sidestripe shrimp
85	All	0.014	80.1	0.000018	0.998663	<i>Vampyroteuthis infernalis</i>	
86	All	0.014	48.2	0.000017	0.998697	<i>Buccinum viridum</i>	Turban whelk
87	All	0.013	32.9	0.000017	0.998731	Myctophidae	Lanternfish
88	All	0.013	68.1	0.000016	0.998795	<i>Amphiopfiura ponderosa</i>	
89	All	0.012	60.3	0.000016	0.998810	<i>Luidiaster dawsoni</i>	
90	All	0.011	83.0	0.000014	0.998899	<i>Careproctus</i> sp.	
91	All	0.011	42.2	0.000013	0.999008	<i>Tactostoma macropus</i>	Longfin dragonfish
92	All	0.010	71.3	0.000013	0.999047	<i>Scotoplanes theeli</i>	
93	All	0.010	74.1	0.000013	0.999060	<i>Sebastes proriger</i>	Redstripe rockfish
94	All	0.010	56.6	0.000012	0.999096	<i>Talismania bifurcata</i>	Threadfin slickhead
95	All	0.009	100.0	0.000011	0.999142	<i>Paralomis multiispina</i>	
96	All	0.008	75.2	0.000010	0.999227	<i>Clupea pallasii</i>	Pacific herring
97	All	0.008	99.5	0.000010	0.999237	<i>Ophiura sarsi</i>	
98	All	0.007	43.8	0.000009	0.999324	<i>Coryphaenoides cinereus</i>	Popeye grenadier
99	All	0.007	64.9	0.000009	0.999351	<i>Ampheraster marianus</i>	
100	All	0.007	83.6	0.000009	0.999369	<i>Pteraster militaris</i>	
101	All	0.006	43.7	0.000007	0.999477	<i>Lampanyctus</i> sp.	
102	All	0.005	70.1	0.000007	0.999497	<i>Taningia danae</i>	Rhomboid squid
103	All	0.005	100.0	0.000007	0.999504	Ascidian	Tunicate unident.
104	All	0.005	66.1	0.000007	0.999510	<i>Stylasterias forreri</i>	
105	All	0.005	66.5	0.000006	0.999530	<i>Myoxoderma sacculatum</i>	
106	All	0.005	100.0	0.000006	0.999536	<i>Mycale loveni</i>	Tree sponge
107	All	0.005	42.4	0.000006	0.999543	Gastropoda (class)	Gastropod unident.
108	All	0.005	74.6	0.000006	0.999579	Rajidae	Skate unident.

Table B-1.--Continued.

Rank	Stratum	Mean CPUE (kg/ha)	CV%	Proportion	Cumulative Proportion	Species Name	Common Name
109	All	0.005	40.9	0.000006	0.999585	<i>Neptunea pribiloffensis</i>	Fribilof whelk
110	All	0.005	38.1	0.000006	0.999597	<i>Lophaster furcilliger</i>	
111	All	0.004	68.5	0.000005	0.999635	<i>Tritonia</i> sp.	
112	All	0.004	61.6	0.000005	0.999656	Mollusca (phylum)	Mollusk
113	All	0.004	42.7	0.000005	0.999661	Gastropoda (class)	Gastropod unident.
114	All	0.004	100.0	0.000005	0.999671	<i>Pagurus tanneri</i>	Longhand hermit
115	All	0.004	91.6	0.000005	0.999690	<i>Asteronyx loveni</i>	
116	All	0.003	64.3	0.000004	0.999716	<i>Pseudarchaster parelii</i>	
117	All	0.003	100.0	0.000004	0.999764	Cyclopteridae (Liparidinae)	Snailfish unident.
118	All	0.003	50.5	0.000004	0.999783	<i>Lampanyctus ritteri</i>	Broadfin lanternfish
119	All	0.003	78.3	0.000004	0.999794	<i>Polinices</i> sp.	
120	All	0.003	100.0	0.000003	0.999811	<i>Pteraster tessellatus</i>	
121	All	0.003	100.0	0.000003	0.999815	Naticidae	
122	All	0.002	86.8	0.000003	0.999827	Crinoidea (class)	Crinoid unident.
123	All	0.002	58.2	0.000003	0.999836	<i>Poromitra crassiceps</i>	Crested bigscale
124	All	0.002	91.2	0.000003	0.999839	<i>Bathyraja</i> sp.	
125	All	0.002	47.9	0.000003	0.999844	<i>BathYGONUS nigripinnis</i>	Blackfin poacher
126	All	0.002	100.0	0.000003	0.999847	<i>Coryphaenoides filifera</i>	Filamented grenadier
127	All	0.002	52.8	0.000002	0.999862	Pennatulacea (order)	Sea pen unident.
128	All	0.002	74.5	0.000002	0.999869	<i>Psolus</i> sp.	
129	All	0.002	77.0	0.000002	0.999890	Gastropod	Snail unident.
130	All	0.002	69.3	0.000002	0.999892	<i>Myoxoderma platyacanthum</i>	
131	All	0.001	47.8	0.000002	0.999897	<i>Aristostomias scintillans</i>	Shining loosejaw
132	All	0.001	52.1	0.000002	0.999906	Paguridae	Hermit crab unident.
133	All	0.001	82.6	0.000002	0.999908	<i>Icelinus filamentosus</i>	Threadfin sculpin
134	All	0.001	78.1	0.000002	0.999910	<i>Ctenodiscus crispatus</i>	Common mud star
135	All	0.001	55.8	0.000002	0.999915	Aphroditidae	Sea mouse unident.
136	All	0.001	100.0	0.000002	0.999921	<i>Ronquilus jordani</i>	Northern ronquill
137	All	0.001	66.3	0.000001	0.999926	Thaliacea (class)	Salps unident.
138	All	0.001	41.8	0.000001	0.999930	<i>Henricia</i> sp.	
139	All	0.001	73.5	0.000001	0.999932	<i>Buccinum</i> sp.	
140	All	0.001	89.0	0.000001	0.999943	<i>Henricia aspera</i>	
141	All	0.001	52.9	0.000001	0.999945	<i>Pasiphaea tarda</i>	Crimson pasiphaeid
142	All	0.001	77.7	0.000001	0.999951	<i>Lophaster</i> sp.	
143	All	0.001	64.7	0.000001	0.999954	<i>Pasiphaea pacifica</i>	Pacific glass shrimp
144	All	0.001	100.0	0.000001	0.999957	Aplacophora	
145	All	0.001	100.0	0.000001	0.999965	Eoroasteridae	
146	All	0.001	75.7	0.000001	0.999966	<i>Umbellula</i> sp.	
147	All	0.001	100.0	0.000001	0.999969	<i>Sagamichthys abei</i>	Shining tubeshoulder
148	All	0.001	100.0	0.000001	0.999975	<i>Benthalbella dentata</i>	Northern pearleye
149	All	0.001	60.5	0.000001	0.999976	<i>Pandalus jordani</i>	Ocean shrimp
150	All	0.001	90.5	0.000001	0.999977	<i>Brisingella exilis</i>	
151	All	<0.001	100.0	0.000001	0.999980	Alcyonacea (order)	Soft coral
152	All	<0.001	100.0	0.000001	0.999980	<i>Dolichopteryx</i> sp.	
153	All	<0.001	61.7	0.000001	0.999981	<i>Lycodapus</i> sp.	
154	All	<0.001	80.3	0.000001	0.999982	<i>Crossaster papposus</i>	Rose sea star
155	All	<0.001	100.0	0.000001	0.999983	<i>Xeneretmus leiops</i>	Smootheye poacher
156	All	<0.001	100.0	0.000000	0.999984	<i>Florimetra</i> sp.	
157	All	<0.001	100.0	0.000000	0.999986	Chauliodontidae	Viperfish
158	All	<0.001	85.3	0.000000	0.999988	<i>Eualus macrophthalmus</i>	
159	All	<0.001	49.8	0.000000	0.999988	Asteroidea (class)	Starfish unident.
160	All	<0.001	71.9	0.000000	0.999989	Ophiuroid	Brittlestarfish unident.
161	All	<0.001	100.0	0.000000	0.999989	<i>Molpadia</i> sp.	
162	All	<0.001	100.0	0.000000	0.999990	<i>Benthalbella</i> sp.	
163	All	<0.001	65.6	0.000000	0.999990	<i>Bathypathes</i> sp.	
164	All	<0.001	100.0	0.000000	0.999991	<i>Pseudarchaster parelii</i>	
165	All	<0.001	100.0	0.000000	0.999992	<i>Pteraster</i> sp.	
166	All	<0.001	100.0	0.000000	0.999992	<i>Hippasteria</i> sp.	
167	All	<0.001	61.3	0.000000	0.999992	<i>Stylatula</i> sp.	Slender seawhip
168	All	<0.001	100.0	0.000000	0.999993	<i>Gorgonocephalus caryi</i>	
169	All	<0.001	100.0	0.000000	0.999994	<i>Bathophilus flemingi</i>	Highfin dragonfish
170	All	<0.001	100.0	0.000000	0.999995	Oneiroididae	Dreamer unident.
171	All	<0.001	100.0	0.000000	0.999995	Melamphaidae	Bigscale
172	All	<0.001	100.0	0.000000	0.999996	<i>Nemichthys scolopaceus</i>	Slender snipe eel
173	All	<0.001	69.3	0.000000	0.999997	<i>Ophiopholis aculeata</i>	
175	All	<0.001	100.0	0.000000	0.999997	Osteichthyes (class)	Fish unident.
174	All	<0.001	100.0	0.000000	0.999997	<i>Chiasmodon niger</i>	
176	All	<0.001	88.2	0.000000	0.999997	<i>Lycenchelys</i> sp.	
177	All	<0.001	100.0	0.000000	0.999998	<i>Strongylocentrotus droebachiensis</i>	Green sea urchin

Table B-1.--Continued.

Rank	Stratum	Mean CPUE (kg/ha)	CV%	Proportion	Cummulative Proportion	Species Name	Common Name
178	All	<0.001	100.0	0.000000	0.999998	<i>Nemichthyidae</i>	Snipe eel
179	All	<0.001	100.0	0.000000	0.999999	<i>Leuroglossus</i> sp.	
180	All	<0.001	100.0	0.000000	0.999999	<i>Delectopecten vancouverensis</i>	Vancouver scallop
181	All	<0.001	100.0	0.000000	0.999999	<i>Chorilia longipes</i>	Longhorned decorator crab
182	All	<0.001	81.6	0.000000	0.999999	<i>Plicifusus griseus</i>	Gray whelk
183	All	<0.001	100.0	0.000000	0.999999	<i>Pandalus</i> sp.	
184	All	<0.001	100.0	0.000000	1.000000	<i>Paraliparis cephalus</i>	Swellhead snailfish
185	All	<0.001	100.0	0.000000	1.000000	<i>Buccinum strigillatum</i>	
186	All	<0.001	100.0	0.000000	1.000000	<i>Antiplanes</i> sp.	
187	All	<0.001	100.0	0.000000	1.000000	Malacostraca (class)	Malacostracan unident.
188	All	<0.001	100.0	0.000000	1.000000	<i>Diaphus</i> sp.	
189	All	<0.001	100.0	0.000000	1.000000	<i>Sebastes</i> sp.	Rockfish
190	All	<0.001	100.0	0.000000	1.000000	<i>Tarletonbeania crenularis</i>	Blue lanternfish
191	All	<0.001	100.0	0.000000	1.000000	<i>Leptychaster pacificus</i>	
193	All	<0.001	100.0	0.000000	1.000000	Gonostomatidae	Bristlemouth
192	All	<0.001	100.0	0.000000	1.000000	<i>Balanus</i> sp.	
	Total	128.562					

Table B-2. --Rank order of relative abundance (kg/ha) of fish and selected crab species by depth stratum for the International North Pacific Fisheries Commission Columbia area from the 1996 West Coast upper continental slope bottom trawl survey. Stratum 1 = 183-366 m, Stratum 2 = 367-549 m, Stratum 3 = 550-732 m, Stratum 4 = 733-914 m, Stratum 5 = 915-1,097 m, and Stratum 6 = 1,098-1,280 m.

Rank	Stratum	Mean CPUE (kg/ha)	CV%	Proportion	Cumulative Proportion	Species Name	Common Name
1	1	246.267	25.0	0.182889	0.182889	<i>Squalus acanthias</i>	Spiny dogfish
2	1	218.304	26.7	0.162123	0.345013	<i>Merluccius productus</i>	Pacific hake
3	1	36.829	16.2	0.027351	0.522660	<i>Microstomus pacificus</i>	Dover sole
4	1	10.890	22.5	0.008088	0.723942	<i>Glyptocephalus zachirus</i>	Rex sole
5	1	10.474	39.9	0.007778	0.731721	<i>Allocentrotus fragilis</i>	Orange-pink sea urchin
6	1	9.817	15.5	0.007290	0.739011	<i>Anoplopoma fimbria</i>	Sablefish
7	1	6.964	92.2	0.005172	0.799589	<i>Trachurus symmetricus</i>	Jack mackerel
8	1	6.766	15.3	0.005025	0.804614	<i>Sebastes alascanus</i>	Shortspine thornyhead
9	1	5.736	17.1	0.004260	0.822048	<i>Raja rhina</i>	Longnose skate
10	1	5.268	19.1	0.003912	0.838149	<i>Lyopsetta exilis</i>	Slender sole
11	1	4.362	35.0	0.003239	0.855847	<i>Sebastes diploproa</i>	Splitnose rockfish
12	1	3.715	57.4	0.002759	0.870651	<i>Sebastes crameri</i>	Darkblotched rockfish
13	1	3.569	48.7	0.002651	0.881423	<i>Sebastes alutus</i>	Pacific ocean perch
14	1	2.733	12.9	0.002030	0.899953	<i>Bathyraja intexrupta</i>	Bering skate
15	1	2.591	22.4	0.001924	0.903907	<i>Hydrolagus colliei</i>	Spotted ratfish
16	1	1.936	16.9	0.001437	0.911906	<i>Atheresthes stomias</i>	Arrowtooth flounder
17	1	1.916	19.5	0.001423	0.913329	<i>Lycodes cortexianus</i>	Bigfin eelpout
18	1	1.717	40.7	0.001275	0.918542	<i>Sebastes zacentrus</i>	Sharpchin rockfish
19	1	1.565	76.8	0.001162	0.922089	<i>Ophiodon elongatus</i>	Lingcod
20	1	1.541	41.5	0.001144	0.924388	<i>Eopsetta jordani</i>	Petrals sole
21	1	1.362	99.8	0.001011	0.932968	<i>Sebastes jordani</i>	Shortbelly rockfish
22	1	1.256	33.0	0.000933	0.937813	<i>Sebastes elongatus</i>	Greenstriped rockfish
23	1	1.238	36.9	0.000919	0.939658	<i>Lopholithodes foraminatus</i>	Box crab
24	1	1.150	79.6	0.000854	0.943155	<i>Brisaster latifrons</i>	
25	1	1.135	40.8	0.000843	0.943998	<i>Hippoglossus stenolepis</i>	Pacific halibut
26	1	1.123	35.3	0.000834	0.945669	<i>Luidia foliata</i>	
27	1	0.811	94.9	0.000602	0.955114	<i>Myoxoderma platyacanthum</i>	
28	1	0.645	49.6	0.000479	0.963264	<i>Aphrocallistes vastus</i>	Clay pipe sponge
29	1	0.581	37.2	0.000431	0.966432	<i>Parophrys vetulus</i>	English sole
30	1	0.540	59.1	0.000401	0.968927	<i>Ophiura sarsi</i>	
31	1	0.457	50.1	0.000339	0.972159	<i>Sebastes saxicola</i>	Stripetail rockfish
32	1	0.379	19.4	0.000281	0.976691	<i>Cancer magister</i>	Dungeness crab
33	1	0.335	58.4	0.000249	0.979074	<i>Lycodes diapterus</i>	Black eelpout
34	1	0.332	32.7	0.000247	0.979569	<i>Sebastes entomelas</i>	Widow rockfish
35	1	0.316	32.6	0.000235	0.980047	Actiniaria (order)	Sea anemone unident.
36	1	0.250	36.0	0.000186	0.983330	<i>Parastichopus</i> sp.	
37	1	0.237	31.4	0.000176	0.983874	<i>Apristurus brunneus</i>	Brown cat shark
38	1	0.234	51.6	0.000174	0.984222	<i>Pseudostichopus mollis</i>	
39	1	0.231	46.1	0.000171	0.984739	<i>Oncorhynchus tshawytscha</i>	Chinook salmon
40	1	0.200	33.4	0.000149	0.986470	<i>Sebastes helvomaculatus</i>	Rosethorn rockfish
41	1	0.200	74.1	0.000148	0.986618	<i>Parastichopus californicus</i>	
42	1	0.187	26.5	0.000139	0.988211	<i>Sebastes babcocki</i>	Redbanded rockfish
43	1	0.187	76.1	0.000139	0.988350	<i>Sebastes borealis</i>	Shortraker rockfish
44	1	0.165	53.0	0.000123	0.989503	<i>Sebastes aleutianus</i>	Rougheye rockfish
45	1	0.142	22.0	0.000105	0.990412	<i>Liponemus brevicornis</i>	
46	1	0.130	58.7	0.000097	0.990711	<i>Sebastes flavidus</i>	Yellowtail rockfish
47	1	0.102	99.0	0.000076	0.992457	<i>Parastichopus leucothela</i>	
48	1	0.098	44.2	0.000073	0.992530	<i>Rathbunaster californicus</i>	
49	1	0.091	100.0	0.000068	0.992877	<i>Trachipterus altivelis</i>	King-of-the-salmon
50	1	0.089	56.6	0.000066	0.993211	<i>Neptunea pribiloffensis</i>	Pribilof whelk
51	1	0.086	33.0	0.000064	0.993470	<i>Careproctus melanurus</i>	Blacktail snailfish
52	1	0.074	72.0	0.000055	0.994247	<i>Sebastes aurora</i>	Aurora rockfish
53	1	0.060	74.2	0.000045	0.995085	<i>Sebastes paucispinis</i>	Bocaccio
54	1	0.060	82.2	0.000045	0.995130	<i>Sebastes pinniger</i>	Canary rockfish
55	1	0.058	42.4	0.000043	0.995305	<i>Pandalus platyceros</i>	Spot shrimp
56	1	0.057	39.4	0.000043	0.995348	<i>Diplopteraster multipes</i>	
57	1	0.054	36.9	0.000040	0.995555	<i>Eptatretus deani</i>	Black hagfish
58	1	0.053	95.0	0.000040	0.995634	<i>Neptunea amianta</i>	
59	1	0.052	70.7	0.000038	0.995867	<i>Bathyraja aleutica</i>	Aleutian skate
60	1	0.051	45.8	0.000038	0.995905	<i>Sebastes proriger</i>	Redstripe rockfish
61	1	0.046	64.5	0.000034	0.996370	<i>Stylasterias forreri</i>	
62	1	0.045	51.3	0.000033	0.996539	<i>Thriassacanthias penicillatus</i>	
63	1	0.044	98.9	0.000032	0.996702	Porifera	Sponge unident.
64	1	0.043	44.9	0.000032	0.996765	<i>Hippasteria spinosa</i>	
65	1	0.036	68.3	0.000027	0.997379	<i>Luidiaster dawsoni</i>	

Table B-2.--Continued.

Rank	Stratum	Mean CPUE (kg/ha)	CV%	Proportion	Cummulative Proportion	Species Name	Common Name
66	1	0.031	38.5	0.000023	0.997804	Scyphozoa (class)	Jellyfish unident.
67	1	0.025	52.1	0.000019	0.998222	<i>Icelinus filamentosus</i>	Threadfin sculpin
68	1	0.019	46.4	0.000014	0.998387	Cephalopoda (class)	Cephalopod unident.
69	1	0.017	100.0	0.000013	0.998518	<i>Embryx crotalinus</i>	Snakehead eelpout
70	1	0.016	52.2	0.000012	0.998556	<i>Hippasteria californica</i>	
71	1	0.015	72.7	0.000011	0.998638	Cephalopoda (class)	Cephalopod unident.
72	1	0.015	100.0	0.000011	0.998650	<i>Sebastes reedi</i>	Yellowmouth rockfish
73	1	0.015	100.0	0.000011	0.998694	<i>Theragra chalcogramma</i>	Walleye pollock
74	1	0.015	42.7	0.000011	0.998716	<i>Pandalus jordani</i>	Ocean shrimp
75	1	0.014	46.7	0.000010	0.998790	Pennatulacea (order)	Sea pen unident.
76	1	0.013	84.7	0.000010	0.998860	<i>Heterozonias alternatus</i>	
77	1	0.013	100.0	0.000010	0.998880	<i>Berryteuthis magister</i>	Magistrate armhook squid
78	1	0.013	67.8	0.000010	0.998890	<i>Xenerstmus leiops</i>	Smootheye poacher
79	1	0.013	71.0	0.000010	0.998909	Hexactinellida	Glass sponge
80	1	0.012	49.1	0.000009	0.998993	<i>Pseudarchaster parelii</i>	
81	1	0.011	55.7	0.000008	0.999079	Paguridae	Hermit crab unident.
82	1	0.011	100.0	0.000008	0.999119	<i>Opisthoteuthis californiana</i>	Flapjack devilfish
83	1	0.010	51.7	0.000007	0.999172	<i>Lycodes pacificus</i>	Blackbelly eelpout
84	1	0.007	100.0	0.000006	0.999300	<i>Sebastes brevispinis</i>	Silvergray rockfish
85	1	0.007	76.9	0.000005	0.999327	<i>Ctenodiscus crispatus</i>	Common mud star
86	1	0.007	55.4	0.000005	0.999352	<i>Pseudarchaster parelii</i>	
87	1	0.006	100.0	0.000004	0.999431	Gastropoda (class)	Gastropod unident.
88	1	0.006	87.5	0.000004	0.999436	Ascidian	Tunicate unident.
89	1	0.006	72.8	0.000004	0.999465	<i>Chionoecetes tanneri</i>	True Tanner crab
90	1	0.005	38.2	0.000004	0.999478	<i>Bathylagonus pentacanthus</i>	Bigeye poacher
91	1	0.005	54.3	0.000004	0.999498	<i>Fusitriton oregonensis</i>	Oregon triton
92	1	0.005	42.9	0.000004	0.999506	Thaliacea (class)	Salps unident.
93	1	0.005	56.5	0.000004	0.999517	Aphroditidae	Sea mouse unident.
94	1	0.005	100.0	0.000004	0.999521	<i>Alosa sapidissima</i>	American shad
95	1	0.005	95.3	0.000003	0.999554	<i>Pagurus confragosus</i>	Knobbyhand hermit
96	1	0.005	71.8	0.000003	0.999564	<i>Neptunea</i> sp.	
97	1	0.004	53.1	0.000003	0.999610	<i>Crossaster borealis</i>	
98	1	0.004	77.3	0.000003	0.999677	<i>Sebastolobus altivelis</i>	Longspine thornyhead
99	1	0.003	84.0	0.000002	0.999682	<i>Pagurus capillatus</i>	Hairy hermit crab
100	1	0.003	76.5	0.000002	0.999690	Rajiidae	Skate unident.
101	1	0.003	70.3	0.000002	0.999699	<i>Pycnopodia helianthoides</i>	
102	1	0.003	69.1	0.000002	0.999704	<i>Molpadia</i> sp.	
103	1	0.003	70.3	0.000002	0.999715	<i>Chionoecetes angulatus</i>	Triangle tanner crab
104	1	0.003	40.4	0.000002	0.999717	<i>Pandalopsis dispar</i>	Sidestripe shrimp
105	1	0.003	100.0	0.000002	0.999749	<i>Cryptopeltaster lepidonotus</i>	
106	1	0.002	100.0	0.000002	0.999789	<i>Sebastes rufus</i>	Bank rockfish
107	1	0.002	100.0	0.000002	0.999802	<i>Bothrocara brunneum</i>	Twoline eelpout
108	1	0.002	100.0	0.000002	0.999805	<i>Anthomastus</i> sp.	
109	1	0.002	96.2	0.000001	0.999816	<i>Solemya</i> sp.	Awning clam
110	1	0.002	76.9	0.000001	0.999818	<i>Buccinum strigillatum</i>	
111	1	0.002	100.0	0.000001	0.999828	<i>Onychoteuthis borealijaponicus</i>	Boreal clubhook squid
112	1	0.002	100.0	0.000001	0.999830	<i>Hippoglossoides elassodon</i>	Flathead sole
113	1	0.002	90.5	0.000001	0.999834	Myctophidae	Lanternfish
114	1	0.002	95.1	0.000001	0.999836	<i>Ophiopholis aculeata</i>	
115	1	0.002	100.0	0.000001	0.999852	<i>Pannychia moseleyi</i>	
116	1	0.002	73.1	0.000001	0.999857	<i>Eunoe nodosa</i>	Giant scale worm
117	1	0.001	69.8	0.000001	0.999864	Bivalvia (class)	Bivalve unident.
118	1	0.001	45.7	0.000001	0.999865	<i>Xenerstmus latifrons</i>	Blacktip poacher
119	1	0.001	100.0	0.000001	0.999883	<i>Pleuronichthys decurrens</i>	Curfin sole
120	1	0.001	56.0	0.000001	0.999887	<i>Sebastes</i> sp.	Rockfish
121	1	0.001	100.0	0.000001	0.999889	<i>Chionoecetes bairdi</i>	Tanner crab (bairdi)
122	1	0.001	57.8	0.000001	0.999904	<i>Bathylagonus infraspinus</i>	Spinycheek starsnout
123	1	0.001	100.0	0.000001	0.999921	<i>Malacocottus kincaidi</i>	Blackfin sculpin
124	1	0.001	100.0	0.000000	0.999949	<i>Laqueus californianus</i>	
125	1	<0.001	100.0	0.000000	0.999957	<i>Nearchaster aciculosus</i>	
126	1	<0.001	100.0	0.000000	0.999965	<i>Poraniopsis inflata</i>	
127	1	<0.001	100.0	0.000000	0.999967	<i>Crossaster papposus</i>	Rose sea star
128	1	<0.001	100.0	0.000000	0.999968	<i>Tritonia</i> sp.	
129	1	<0.001	70.4	0.000000	0.999969	Sipuncula (phylum)	Sipunculid worm
130	1	<0.001	70.2	0.000000	0.999970	<i>Chorilia longipes</i>	Longhorned decorator crab
131	1	<0.001	100.0	0.000000	0.999976	<i>Rossia pacifica</i>	Eastern pacific bobtail
132	1	<0.001	100.0	0.000000	0.999980	<i>Ronquilius jordani</i>	Northern ronquill
133	1	<0.001	100.0	0.000000	0.999983	<i>Cololabis saira</i>	Pacific saury
134	1	<0.001	100.0	0.000000	0.999984	<i>Crangon</i> sp.	

Table B-P.--Continued

Rank	Stratum	Mean CFUE (kg/ha)	CV%	Proportion	Cummulative Proportion	Species Name	Common Name
135	1	<0.001	57.0	0.000000	0.999986	<i>Crangon communis</i>	Twospine crangon
136	1	<0.001	100.0	0.000000	0.999986	<i>Buccinum</i> sp.	
137	1	<0.001	79.4	0.000000	0.999987	<i>Bathyanonus nigripinnis</i>	Blackfin poacher
138	1	<0.001	100.0	0.000000	0.999989	<i>Natica</i> sp.	
139	1	<0.001	100.0	0.000000	0.999990	<i>Loligo opalescens</i>	California market squid
140	1	<0.001	82.4	0.000000	0.999991	<i>Apristurus brunneus</i>	Cat shark egg case case
141	1	<0.001	100.0	0.000000	0.999992	<i>Bathyraja</i> sp.	
142	1	<0.001	100.0	0.000000	0.999992	<i>Colus</i> sp.	
143	1	<0.001	100.0	0.000000	0.999993	Gorgonacea (order)	Coral unident.
144	1	<0.001	100.0	0.000000	0.999994	Asteroidea (class)	Starfish unident.
145	1	<0.001	89.9	0.000000	0.999994	Mollusca (phylum)	Mollusk
146	1	<0.001	69.8	0.000000	0.999995	<i>Chitonotus pugetensis</i>	Roughback sculpin
147	1	<0.001	100.0	0.000000	0.999996	<i>Munida quadrispina</i>	
148	1	<0.001	100.0	0.000000	0.999997	Bivalvia (class)	Bivalve
149	1	<0.001	100.0	0.000000	0.999997	Pandalidae	Pandalid shrimp
150	1	<0.001	100.0	0.000000	0.999997	<i>Asteronyx loveni</i>	
151	1	<0.001	78.0	0.000000	0.999998	<i>Eualus macrophthalmus</i>	
152	1	<0.001	100.0	0.000000	0.999998	Antiplanas sp.	
153	1	<0.001	100.0	0.000000	0.999999	<i>Tarletonbeania crenularis</i>	Blue lanternfish
154	1	<0.001	100.0	0.000000	1.000000	Polychaeta (class)	Polychaete worm
155	1	<0.001	100.0	0.000000	1.000000	<i>Hydrolagus collisi</i>	
156	1	<0.001	100.0	0.000000	1.000000	<i>Yoldia</i> sp.	
Total		598.410					
1	2	88.293	25.1	0.065571	0.410583	<i>Merluccius productus</i>	Pacific hake
2	2	25.620	23.7	0.019026	0.585216	<i>Microstomus pacificus</i>	Dover sole
3	2	9.624	13.7	0.007148	0.753316	<i>Sebastes alascanus</i>	Shortspine thornyhead
4	2	7.086	31.3	0.005263	0.789177	<i>Glyptocephalus zachirus</i>	Rex sole
5	2	6.031	13.6	0.004479	0.809093	<i>Anoplopoma fimbria</i>	Sablefish
6	2	5.683	60.9	0.004221	0.826269	<i>Aphrocallistes vastus</i>	Clay pipe sponge
7	2	4.621	47.7	0.003432	0.849264	<i>Atheresthes stomias</i>	Arrowtooth flounder
8	2	4.503	35.1	0.003344	0.852608	<i>Squalus acanthias</i>	Spiny dogfish
9	2	4.267	39.0	0.003169	0.862202	<i>Allocentrotus fragilis</i>	Orange-pink sea urchin
10	2	3.010	24.2	0.002236	0.895765	<i>Raja rhina</i>	Longnose skate
11	2	2.369	76.0	0.001759	0.905666	<i>Myxoderma platycanthum</i>	
12	2	2.304	63.8	0.001711	0.907377	<i>Ophiura sarsi</i>	
13	2	2.149	83.2	0.001596	0.908973	<i>Hippoglossus stenolepis</i>	Pacific halibut
14	2	1.612	16.3	0.001197	0.919739	<i>Lycodes cortezianus</i>	Bigfin eelpout
15	2	1.600	28.4	0.001188	0.920927	<i>Apristurus brunneus</i>	Brown cat shark
16	2	1.502	31.3	0.001116	0.926627	<i>Bathyraja interrupta</i>	Bering skate
17	2	1.485	99.3	0.001103	0.927730	<i>Parastichopus leucothale</i>	
18	2	1.425	34.9	0.001058	0.929873	<i>Pseudostichopus mollis</i>	
19	2	1.424	19.3	0.001057	0.930930	Actiniaria (order)	Sea anemone unident.
20	2	1.228	30.5	0.000912	0.940569	<i>Lycodes diapterus</i>	Black eelpout
21	2	1.099	47.7	0.000816	0.946485	<i>Sebastes altivelis</i>	Longspine thornyhead
22	2	0.847	39.6	0.000629	0.952035	<i>Luidia foliata</i>	
23	2	0.844	39.6	0.000627	0.952662	<i>Sebastes alutus</i>	Pacific ocean perch
24	2	0.828	29.9	0.000615	0.953901	<i>Lyopsetta exilis</i>	Slender sole
25	2	0.737	46.2	0.000547	0.958585	<i>Brisaster latifrons</i>	
26	2	0.702	86.7	0.000521	0.960740	<i>Lopholithodes foraminatus</i>	Box crab
27	2	0.698	36.7	0.000518	0.961259	<i>Neptunea amianta</i>	
28	2	0.645	30.5	0.000479	0.963743	<i>Sebastes aurora</i>	Aurora rockfish
29	2	0.643	28.9	0.000478	0.964221	<i>Thriassacanthias penicillatus</i>	
30	2	0.596	94.0	0.000442	0.965563	Ophiuroid	Brittlestarfish unident.
31	2	0.556	39.2	0.000413	0.967704	<i>Sebastes aleutianus</i>	Rougeye rockfish
32	2	0.481	56.9	0.000357	0.970761	<i>Chionoecetes tanneri</i>	True Tanner crab
33	2	0.453	87.8	0.000337	0.972496	Porifera	Sponge unident.
34	2	0.268	34.0	0.000199	0.982176	<i>Eptatretus deani</i>	Black hagfish
35	2	0.253	19.1	0.000188	0.983145	<i>Liponemus brevicornis</i>	
36	2	0.213	49.3	0.000158	0.985560	<i>Rathbunaster californicus</i>	
37	2	0.212	28.7	0.000157	0.985717	<i>Careproctus melanurus</i>	Blacktail snailfish
38	2	0.204	100.0	0.000152	0.986024	<i>Moroteuthis robusta</i>	Robust clubhook squid
39	2	0.201	78.6	0.000149	0.986173	<i>Amphiophiura ponderosa</i>	
40	2	0.196	26.3	0.000146	0.987353	<i>Heterozonias alternatus</i>	
41	2	0.195	92.4	0.000145	0.987643	<i>Ophiopholis aculeata</i>	
42	2	0.176	55.5	0.000131	0.988616	<i>Neptunea pribiloffensis</i>	Fribilof whelk
43	2	0.173	73.2	0.000128	0.989005	<i>Bothrocara brunneum</i>	Twoline eelpout
44	2	0.124	25.5	0.000092	0.991372	Cephalopoda (class)	Cephalopod unident.
45	2	0.120	100.0	0.000089	0.991641	<i>Sebastes borealis</i>	Shortraker rockfish

Table B-P--Continued.

Rank	Stratum	Mean CPUE (kg/ha)	CV%	Proportion	Cummulative Proportion	Species Name	Common Name
46	2	0.115	60.8	0.000085	0.991899	<i>Bathyraja aleutica</i>	Aleutian skate
47	2	0.107	52.4	0.000079	0.992226	<i>Opisthoteuthis californiana</i>	Flapjack devilfish
48	2	0.092	28.2	0.000068	0.992810	<i>Diplopteraster multipes</i>	
49	2	0.089	68.7	0.000066	0.993145	<i>Antimora microlepis</i>	Pacific flatnose
50	2	0.085	32.9	0.000063	0.993597	Scyphozoa (class)	Jellyfish unident.
51	2	0.084	46.9	0.000062	0.993659	<i>Beryteuthis magister</i>	Magistrate armhook squid
52	2	0.081	100.0	0.000060	0.993962	compound ascidian	Compound ascidian
53	2	0.075	33.4	0.000056	0.994191	<i>Sebastes crameri</i>	Darkblotched rockfish
54	2	0.073	55.4	0.000054	0.994355	<i>Hydrolagus colliei</i>	Spotted ratfish
55	2	0.072	58.0	0.000054	0.994463	<i>Eopsetta jordani</i>	Petrale sole
56	2	0.061	54.1	0.000045	0.994995	<i>Luidiaster dawsoni</i>	
57	2	0.053	41.1	0.000039	0.995712	<i>Crossaster borealis</i>	
58	2	0.051	56.6	0.000038	0.995981	<i>Ctenodiscus crispatus</i>	Common mud star
59	2	0.049	44.7	0.000036	0.996017	Cephalopoda (class)	Cephalopod unident.
60	2	0.046	60.8	0.000034	0.996439	<i>Sebastes diploproa</i>	Splitnose rockfish
61	2	0.046	54.9	0.000034	0.996472	<i>Sebastes babcocki</i>	Redbanded rockfish
62	2	0.042	96.5	0.000031	0.996797	<i>Amphaster marianus</i>	
63	2	0.042	74.8	0.000031	0.996890	<i>Embassichthys bathybius</i>	Deepsea sole
64	2	0.040	57.7	0.000030	0.996981	<i>Cancer magister</i>	Dungeness crab
65	2	0.040	64.8	0.000029	0.997010	Paguridae	Hermit crab unident.
66	2	0.039	82.6	0.000029	0.997156	<i>Albatrossia pectoralis</i>	Giant grenadier
67	2	0.038	69.6	0.000028	0.997269	<i>Bathyraja trachura</i>	Black skate
68	2	0.037	54.4	0.000027	0.997325	<i>Hippasteria californica</i>	
69	2	0.029	100.0	0.000021	0.998025	<i>Trachurus symmetricus</i>	Jack mackerel
70	2	0.027	29.9	0.000020	0.998127	Pennatulacea (order)	Sea pen unident.
71	2	0.024	69.4	0.000018	0.998276	<i>Neptunea</i> sp.	
72	2	0.016	100.0	0.000012	0.998580	<i>Cryptopeltaster lepidonotus</i>	
73	2	0.015	50.1	0.000011	0.998683	<i>Fusitriton oregonensis</i>	Oregon triton
74	2	0.015	62.6	0.000011	0.998705	<i>Coryphaenoides acrolepis</i>	Pacific grenadier
75	2	0.013	100.0	0.000010	0.998840	<i>Sebastes melanostomus</i>	Blackgill rockfish
76	2	0.013	100.0	0.000010	0.998919	<i>Chionoscetes bairdi</i>	Tanner crab (bairdi)
77	2	0.012	67.1	0.000009	0.999028	Gastropoda (class)	Gastropod unident.
78	2	0.009	100.0	0.000007	0.999179	<i>Bathybembix bairdii</i>	
79	2	0.009	100.0	0.000007	0.999227	<i>Sebastes entomelas</i>	Widow rockfish
80	2	0.009	44.1	0.000007	0.999240	<i>Pseudarchaster parelii</i>	
81	2	0.009	27.0	0.000007	0.999253	Aphroditidae	Sea mouse unident.
82	2	0.008	38.6	0.000006	0.999272	Thaliacea (class)	Salps unident.
83	2	0.008	55.1	0.000006	0.999278	<i>Pagurus confragosus</i>	Knobbyhand hermit
84	2	0.007	50.0	0.000005	0.999337	<i>Pannychia moseleyi</i>	
85	2	0.006	45.5	0.000005	0.999381	<i>Chauliocrus macouni</i>	Pacific viperfish
86	2	0.006	65.2	0.000005	0.999400	<i>Parastichopus californicus</i>	
87	2	0.006	74.1	0.000005	0.999404	<i>Molpadia</i> sp.	
88	2	0.006	96.5	0.000004	0.999418	<i>Anthomastus</i> sp.	
89	2	0.006	97.8	0.000004	0.999474	<i>Henricia</i> sp.	
90	2	0.005	50.3	0.000004	0.999486	<i>Nearchaster aciculosus</i>	
91	2	0.005	66.4	0.000004	0.999533	<i>Tactostoma macropus</i>	Longfin dragonfish
92	2	0.005	79.4	0.000004	0.999536	<i>Sebastes zacentrus</i>	Sharpchin rockfish
93	2	0.005	64.6	0.000004	0.999540	<i>Hippasteria spinosa</i>	
94	2	0.005	100.0	0.000004	0.999547	<i>Panopea abrupta</i>	Pacific geoduck
95	2	0.004	55.8	0.000003	0.999620	Gastropoda (class)	Gastropod unident.
96	2	0.003	75.1	0.000002	0.999708	<i>Aristostomias scintillans</i>	Shining loosejaw
97	2	0.003	50.7	0.000002	0.999721	<i>Pasiphaea pacifica</i>	Pacific glass shrimp
98	2	0.003	33.2	0.000002	0.999740	<i>Bathylagonus nigripinnis</i>	Blackfin poacher
99	2	0.003	100.0	0.000002	0.999744	<i>Malacocottus zonurus</i>	Darkfin sculpin
100	2	0.003	53.9	0.000002	0.999751	<i>Pseudarchaster parelii</i>	
101	2	0.003	100.0	0.000002	0.999753	<i>Scotoplanes theeli</i>	
102	2	0.003	100.0	0.000002	0.999757	<i>Scomber japonicus</i>	Chub mackerel
103	2	0.002	70.2	0.000002	0.999768	<i>Zoraster evermanni</i>	
104	2	0.002	83.1	0.000002	0.999784	<i>Leptychaster arcticus</i>	
105	2	0.002	35.8	0.000001	0.999809	Myctophidae	Lanternfish
106	2	0.002	100.0	0.000001	0.999832	<i>Sebastes helvomaculatus</i>	Rosethorn rockfish
107	2	0.002	48.1	0.000001	0.999845	<i>Lampanyctus</i> sp.	
108	2	0.002	73.4	0.000001	0.999846	<i>Thaleichthys pacificus</i>	Eulachon
109	2	0.002	99.0	0.000001	0.999847	<i>Eualus</i> sp.	
110	2	0.002	77.5	0.000001	0.999850	<i>Lophaster furcilliger</i>	
111	2	0.002	73.0	0.000001	0.999858	<i>Myoxoderma sacculatum</i>	
112	2	0.002	42.8	0.000001	0.999862	<i>Bathylagus</i> sp.	Blacksmelt unident.
113	2	0.001	49.4	0.000001	0.999881	<i>Bathylagonus pentacanthus</i>	Bigeye poacher
114	2	0.001	70.5	0.000001	0.999893	Aplacophora	

Table B-2.--Continued.

Rank	Stratum	Mean CPUE (kg/ha)	CV%	Proportion	Cummulative Proportion	Species Name	Common Name
115	2	0.001	100.0	0.000001	0.999895	<i>Tritonia</i> sp.	
116	2	0.001	100.0	0.000001	0.999908	<i>Embryx crotalinus</i>	Snakehead eelpout
117	2	0.001	71.6	0.000001	0.999912	Mollusca (phylum)	Mollusk
118	2	0.001	71.1	0.000001	0.999916	<i>Bathyraja</i> sp.	
119	2	0.001	71.7	0.000001	0.999917	<i>Nezumia stelgidolepis</i>	California grenadier
120	2	0.001	86.2	0.000001	0.999918	<i>Apristurus brunneus</i>	
121	2	0.001	94.5	0.000001	0.999921	<i>Pandalopsis dispar</i>	Sidestripe shrimp
122	2	0.001	52.7	0.000001	0.999927	<i>Careproctus</i> sp.	
123	2	0.001	89.8	0.000001	0.999930	<i>Xeneretmus latifrons</i>	Blacktip poacher
124	2	0.001	100.0	0.000000	0.999940	<i>Natica clausa</i>	Arctic moonshell
125	2	0.001	73.0	0.000000	0.999941	Brachiopoda (class)	Brachiopod unident.
126	2	0.001	45.9	0.000000	0.999944	<i>Eualus macrophthalmus</i>	
127	2	0.001	100.0	0.000000	0.999950	Gastropoda (class)	Gastropod unident.
128	2	0.001	100.0	0.000000	0.999956	Shark egg case	
129	2	<0.001	87.8	0.000000	0.999967	<i>Stylatula</i> sp.	Slender seawhip
130	2	<0.001	100.0	0.000000	0.999967	Scleractinia	Stony coral
131	2	<0.001	100.0	0.000000	0.999968	<i>Engraulis mordax</i>	Northern anchovy
132	2	<0.001	74.1	0.000000	0.999968	<i>Bathyagonus infraspinus</i>	Spinycheek staranout
133	2	<0.001	100.0	0.000000	0.999972	<i>Pentamera lissoplaca</i>	
134	2	<0.001	79.3	0.000000	0.999973	<i>Buccinum</i> sp.	
135	2	<0.001	70.0	0.000000	0.999975	<i>Molpadia intermedia</i>	
136	2	<0.001	83.6	0.000000	0.999977	<i>Buccinum strigillatum</i>	
137	2	<0.001	80.1	0.000000	0.999983	<i>Lycodapus</i> sp.	
138	2	<0.001	100.0	0.000000	0.999985	<i>Swiftia</i> sp.	
139	2	<0.001	66.1	0.000000	0.999986	<i>Diaphus</i> sp.	
140	2	<0.001	59.2	0.000000	0.999987	<i>Chorilia longipes</i>	Longhorned decorator crab
142	2	<0.001	100.0	0.000000	0.999989	<i>Calliostoma platinum</i>	
141	2	<0.001	100.0	0.000000	0.999989	<i>Poraniopsis inflata</i>	
143	2	<0.001	89.5	0.000000	0.999989	<i>Apristurus brunneus</i>	Cat shark egg case case
144	2	<0.001	100.0	0.000000	0.999990	Ascidian	Tunicate unident.
145	2	<0.001	100.0	0.000000	0.999991	Asteroidea (class)	Starfish unident.
146	2	<0.001	100.0	0.000000	0.999992	Antiplanes sp.	
147	2	<0.001	100.0	0.000000	0.999994	<i>Natica</i> sp.	
148	2	<0.001	100.0	0.000000	0.999994	Cyclopteridae (Liparidinae)	Snailfish unident.
149	2	<0.001	100.0	0.000000	0.999995	<i>Dentalium</i> sp.	
150	2	<0.001	100.0	0.000000	0.999995	<i>Umbellula</i> sp.	
151	2	<0.001	82.6	0.000000	0.999995	<i>Buccinum viridum</i>	Turban whelk
152	2	<0.001	65.1	0.000000	0.999996	<i>Laqueus californianus</i>	
153	2	<0.001	100.0	0.000000	0.999996	<i>Pagurus capillatus</i>	Hairy hermit crab
154	2	<0.001	100.0	0.000000	0.999997	<i>Loligo opalescens</i>	California market squid
155	2	<0.001	100.0	0.000000	0.999997	<i>Stylasterias forreri</i>	
156	2	<0.001	100.0	0.000000	0.999998	Sipuncula (phylum)	Sipunculid worm
157	2	<0.001	100.0	0.000000	0.999998	Paralepididae	Barracudina unident.
158	2	<0.001	100.0	0.000000	0.999998	<i>Idiacanthus antrostomus</i>	Pacific blackdragon
159	2	<0.001	100.0	0.000000	0.999999	Rajidae	Skate unident.
160	2	<0.001	100.0	0.000000	0.999999	<i>Sagamichthys abei</i>	Shining tubeshoulder
161	2	<0.001	100.0	0.000000	0.999999	<i>Asteronyx loveni</i>	
162	2	<0.001	100.0	0.000000	0.999999	<i>Pandalus tridens</i>	Yellowleg pandalid
163	2	<0.001	100.0	0.000000	0.999999	<i>Bathypathes</i> sp.	
164	2	<0.001	100.0	0.000000	0.999999	<i>Crangon communis</i>	Twospine crangon
165	2	<0.001	73.9	0.000000	0.999999	<i>Tarletonbeania crenularis</i>	Blue lanternfish
166	2	<0.001	100.0	0.000000	1.000000	<i>Terebratulina unguicula</i>	
167	2	<0.001	100.0	0.000000	1.000000	<i>Eualus barbatus</i>	
168	2	<0.001	100.0	0.000000	1.000000	Polyplacophora (class)	Polyplacophora (class)
169	2	<0.001	100.0	0.000000	1.000000	Malacostraca (class)	Malacostracan unident.
Total		189.093					
1	3	14.360	13.4	0.010665	0.687175	<i>Sebastolobus altivelis</i>	Longspine thornyhead
2	3	13.285	18.6	0.009866	0.697041	<i>Chionoecetes tanneri</i>	True Tanner crab
3	3	12.915	12.5	0.009591	0.706633	<i>Anoplopoma fimbria</i>	Sablefish
4	3	8.474	20.8	0.006293	0.766472	<i>Microstomus pacificus</i>	Dover sole
5	3	5.408	23.5	0.004016	0.830285	<i>Sebastolobus alascanus</i>	Shortspine thornyhead
6	3	5.234	21.9	0.003887	0.842036	<i>Albatrossia pectoralis</i>	Giant grenadier
7	3	3.594	62.8	0.002669	0.878773	<i>Merluccius productus</i>	Pacific hake
8	3	3.012	72.4	0.002237	0.893530	<i>Aphrocallistes vastus</i>	Clay pipe sponge
9	3	1.152	56.6	0.000855	0.942300	<i>Allocentrotus fragilis</i>	Orange-pink sea urchin
10	3	1.003	19.5	0.000745	0.948031	<i>Heterozonias alternatus</i>	
11	3	0.904	19.2	0.000671	0.950738	<i>Apristurus brunneus</i>	Brown cat shark
12	3	0.823	18.0	0.000611	0.954512	<i>Antimora microlepis</i>	Pacific flatnose

Table B-2.--Continued.

Rank	Stratum	Mean CPUE (kg/ha)	CV%	Proportion	Cummulative Proportion	Species Name	Common Name
13	3	0.808	32.7	0.000600	0.955715	<i>Lycodes diapterus</i>	Black eelpout
14	3	0.802	24.6	0.000596	0.956310	<i>Bathyraja trachura</i>	Black skate
15	3	0.777	18.3	0.000577	0.957474	Actiniaria (order)	Sea anemone unident.
16	3	0.760	37.9	0.000565	0.958038	<i>Embassichthys bathybius</i>	Deepsea sole
17	3	0.734	19.7	0.000545	0.959131	<i>Bothrocara brunneum</i>	Twoline eelpout
18	3	0.598	20.3	0.000444	0.965121	<i>Coryphaenoides acrolepis</i>	Pacific grenadier
19	3	0.383	16.9	0.000284	0.975842	<i>Thriassacanthias penicillatus</i>	
20	3	0.352	48.7	0.000261	0.978314	<i>Alepocephalus tenebrosus</i>	California slickhead
21	3	0.298	37.9	0.000222	0.980949	<i>Glyptocephalus zachirus</i>	Rex sole
22	3	0.274	96.2	0.000203	0.981776	<i>Atheresthes stomias</i>	Arrowtooth flounder
23	3	0.267	54.1	0.000198	0.982374	<i>Raja rhina</i>	Longnose skate
24	3	0.256	32.6	0.000190	0.982957	<i>Eptatretus deani</i>	Black hagfish
25	3	0.199	21.5	0.000148	0.986914	<i>Neptunea amianta</i>	
26	3	0.194	29.9	0.000144	0.987788	<i>Bathybembix bairdii</i>	
27	3	0.189	40.7	0.000140	0.988072	<i>Crossaster borealis</i>	
28	3	0.161	31.7	0.000119	0.989623	<i>Careproctus melanurus</i>	Blacktail snailfish
29	3	0.156	29.4	0.000116	0.989977	Cephalopoda (class)	Cephalopod unident.
30	3	0.129	30.6	0.000096	0.990903	<i>Hippasteria californica</i>	
31	3	0.117	85.0	0.000087	0.991728	<i>Pannychia moseleyi</i>	
32	3	0.109	44.7	0.000081	0.992146	<i>Opisthoteuthis californiana</i>	Flapjack devilfish
33	3	0.090	41.6	0.000067	0.993079	Scyphozoa (class)	Jellyfish unident.
34	3	0.073	73.1	0.000054	0.994301	<i>Sebastes alutus</i>	Pacific ocean perch
35	3	0.072	68.6	0.000054	0.994409	<i>Lycodes cortezianus</i>	Bigfin eelpout
36	3	0.071	44.6	0.000052	0.994568	<i>Berytoteuthis magister</i>	Magistrate armhook squid
37	3	0.062	100.0	0.000046	0.994859	<i>Trachipterus altivelis</i>	King-of-the-salmon
38	3	0.062	47.6	0.000046	0.994905	<i>Neptunea pribiloffensis</i>	Pribilof whelk
39	3	0.061	21.4	0.000045	0.994950	Cephalopoda (class)	Cephalopod unident.
40	3	0.059	40.0	0.000044	0.995218	<i>Talismania bifurcata</i>	Threadfin slickhead
41	3	0.056	18.4	0.000042	0.995474	<i>Bathylagus</i> sp.	Blacksmelt unident.
42	3	0.053	31.4	0.000039	0.995673	<i>Zoraster evermanni</i>	
43	3	0.052	72.6	0.000039	0.995829	<i>Alepisaurus ferox</i>	Longnose lancetfish
44	3	0.049	100.0	0.000036	0.996054	<i>Moroteuthis robusta</i>	Robust clubhook squid
45	3	0.044	72.6	0.000033	0.996572	<i>Squalus acanthias</i>	Spiny dogfish
46	3	0.044	38.9	0.000033	0.996604	<i>Embryx crotalinus</i>	Snakehead eelpout
47	3	0.039	57.8	0.000029	0.997185	<i>Bathyraja interrupta</i>	Bering skate
48	3	0.036	100.0	0.000027	0.997406	<i>Somniosus pacificus</i>	Pacific sleeper shark
49	3	0.035	70.6	0.000026	0.997432	<i>Sebastes aleutianus</i>	Rougheye rockfish
50	3	0.035	46.1	0.000026	0.997458	<i>Neptunea</i> sp.	
51	3	0.033	31.0	0.000025	0.997661	<i>Nearchaster aciculosus</i>	
52	3	0.033	63.2	0.000025	0.997685	<i>Amphiophiura ponderosa</i>	
53	3	0.032	67.8	0.000024	0.997758	Ophiuroid	Brittlestarfish unident.
54	3	0.031	100.0	0.000023	0.997873	<i>Lithodes couesi</i>	
55	3	0.028	40.4	0.000020	0.998046	<i>Ampheraster marianus</i>	
56	3	0.027	68.6	0.000020	0.998107	<i>Pseudostichopus mollis</i>	
57	3	0.024	18.9	0.000018	0.998293	<i>Chauliodus macouni</i>	Pacific viperfish
58	3	0.023	37.8	0.000017	0.998310	<i>Liponemus brevicornis</i>	
59	3	0.023	100.0	0.000017	0.998327	<i>Hylonema</i> sp.	Fiberoptic sponge
60	3	0.017	29.2	0.000013	0.998468	<i>Lampanyctus</i> sp.	
61	3	0.014	83.4	0.000010	0.998800	Gastropoda (class)	Gastropod unident.
62	3	0.013	80.9	0.000010	0.998928	<i>Myoxoderma platyacanthum</i>	
63	3	0.013	64.2	0.000009	0.998938	Porifera	Sponge unident.
64	3	0.012	54.2	0.000009	0.999020	<i>Taningia danae</i>	Rhomboid squid
65	3	0.011	51.8	0.000008	0.999054	<i>Vampyroteuthis infernalis</i>	
66	3	0.011	85.4	0.000008	0.999070	<i>Tritonia</i> sp.	
67	3	0.009	45.3	0.000007	0.999186	<i>Tactostoma macropus</i>	Longfin dragonfish
68	3	0.009	19.3	0.000007	0.999193	Myctophidae	Lanternfish
69	3	0.009	88.0	0.000007	0.999233	<i>Antipathes</i> sp.	
70	3	0.007	47.3	0.000005	0.999305	<i>Pasiphaea pacifica</i>	Pacific glass shrimp
71	3	0.007	35.2	0.000005	0.999316	Thaliacea (class)	Salps unident.
72	3	0.007	50.0	0.000005	0.999357	<i>Luidia foliata</i>	
73	3	0.006	45.1	0.000005	0.999372	Pennatulacea (order)	Sea pen unident.
74	3	0.006	69.8	0.000005	0.999376	<i>Pagurus confragosus</i>	Knobbyhand hermit
75	3	0.006	72.0	0.000005	0.999390	Rajidae	Skate unident.
76	3	0.006	49.0	0.000004	0.999427	Paguridae	Hermit crab unident.
77	3	0.006	35.3	0.000004	0.999453	<i>Pasiphaea tarda</i>	Crimson pasiphaeid
78	3	0.005	100.0	0.000004	0.999494	<i>Sebastes aurora</i>	Aurora rockfish
79	3	0.005	42.1	0.000003	0.999578	<i>Rathbunaster californicus</i>	
80	3	0.004	65.8	0.000003	0.999626	<i>Brisaster latifrons</i>	
81	3	0.004	100.0	0.000003	0.999629	<i>Myoxocephalus polyacanthocephalus</i>	Great sculpin

Table B-2.--Continued.

Rank	Stratum	Mean CPUE (kg/ha)	CV%	Proportion	Cummulative Proportion	Species Name	Common Name
82	3	0.004	88.9	0.000003	0.999647	<i>Stylatula</i> sp.	Slender seawhip
83	3	0.004	100.0	0.000003	0.999672	<i>Diplopteraster multipes</i>	
84	3	0.003	38.5	0.000003	0.999680	<i>Bathylagonus nigripinnis</i>	Blackfin poacher
85	3	0.003	45.0	0.000002	0.999687	<i>Sagamicthys abei</i>	Shining tubeshoulder
86	3	0.003	100.0	0.000002	0.999727	<i>Allocyttus folletti</i>	Oxeye oreo
87	3	0.002	43.1	0.000002	0.999773	<i>Aristostomias scintillans</i>	Shining loosejaw
88	3	0.002	100.0	0.000002	0.999777	Zoroasteridae	
89	3	0.002	48.8	0.000002	0.999779	<i>Benthalbella</i> sp.	
90	3	0.002	100.0	0.000002	0.999781	<i>Stylasterias forreri</i>	
91	3	0.002	100.0	0.000002	0.999792	<i>Myoxoderma sacculatum</i>	
92	3	0.002	100.0	0.000001	0.999812	<i>Cryptopeltaster lepidonotus</i>	
93	3	0.002	71.7	0.000001	0.999826	<i>Lampanyctus ritteri</i>	Broadfin lanternfish
94	3	0.002	72.0	0.000001	0.999835	<i>Parastichopus leucothale</i>	
95	3	0.002	100.0	0.000001	0.999839	<i>Lamprogrammus niger</i>	Paperbone cusk-eel
96	3	0.002	89.6	0.000001	0.999844	<i>Coryphaenoides cinereus</i>	Popeye grenadier
97	3	0.001	69.8	0.000001	0.999866	<i>Psolus</i> sp.	
98	3	0.001	100.0	0.000001	0.999870	<i>Lycopsetta exilis</i>	Slender sole
99	3	0.001	80.8	0.000001	0.999873	<i>Asteronyx loveni</i>	
100	3	0.001	83.7	0.000001	0.999877	<i>Chorilia longipes</i>	Longhorned decorator crab
101	3	0.001	100.0	0.000001	0.999884	<i>Paragorgia</i> sp.	
102	3	0.001	100.0	0.000001	0.999898	<i>Fusitriton oregonensis</i>	Oregon triton
103	3	0.001	100.0	0.000001	0.999902	<i>Mycale loveni</i>	Tree sponge
104	3	0.001	33.1	0.000001	0.999912	<i>Eualus macrophthalmus</i>	
105	3	0.001	100.0	0.000001	0.999913	<i>Florimetra</i> sp.	
106	3	0.001	95.8	0.000001	0.999919	<i>Brisingella exilis</i>	
107	3	0.001	72.5	0.000001	0.999926	<i>Benthalbella dentata</i>	Northern pearleye
108	3	0.001	77.6	0.000001	0.999928	<i>Ceramaster japonicus</i>	Red bat star
109	3	0.001	100.0	0.000001	0.999928	<i>Luidiaster dawsoni</i>	
110	3	0.001	100.0	0.000001	0.999929	<i>Solaster</i> sp.	
111	3	0.001	63.6	0.000001	0.999936	<i>Ophiura sarsi</i>	
112	3	0.001	75.5	0.000001	0.999938	<i>Hippasteria spinosa</i>	
113	3	0.001	100.0	0.000000	0.999944	<i>Scopeloglyps tristis</i>	Blackchin
114	3	0.001	43.5	0.000000	0.999945	<i>Tarletonbeania crenularis</i>	Blue lanternfish
115	3	0.001	100.0	0.000000	0.999948	<i>Solemya</i> sp.	Awning clam
116	3	0.001	100.0	0.000000	0.999951	<i>Cololabis saira</i>	Pacific saury
117	3	0.001	100.0	0.000000	0.999953	<i>Buccinum</i> sp.	
118	3	0.001	73.7	0.000000	0.999953	<i>Molpadia</i> sp.	
119	3	0.001	57.7	0.000000	0.999954	<i>Umbellula</i> sp.	
120	3	0.001	78.2	0.000000	0.999955	<i>Lophaster furcilliger</i>	
121	3	<0.001	91.8	0.000000	0.999962	<i>Pteraster militaris</i>	
122	3	<0.001	100.0	0.000000	0.999964	<i>Swiftia</i> sp.	
123	3	<0.001	78.6	0.000000	0.999966	Gorgonacea (order)	Coral unident.
124	3	<0.001	86.4	0.000000	0.999981	Aplacophora	
125	3	<0.001	59.1	0.000000	0.999981	Gastropoda (class)	Gastropod unident.
126	3	<0.001	58.1	0.000000	0.999982	Aphroditidae	Sea mouse unident.
127	3	<0.001	71.0	0.000000	0.999982	<i>Eualus</i> sp.	
128	3	<0.001	80.9	0.000000	0.999982	<i>Bathypathes</i> sp.	
129	3	<0.001	100.0	0.000000	0.999983	Holothuroidea	Sea cucumber unident.
130	3	<0.001	71.2	0.000000	0.999984	<i>Pseudarchaster parelii</i>	
131	3	<0.001	100.0	0.000000	0.999985	<i>Poromitra crassiceps</i>	Crested bigscale
132	3	<0.001	66.0	0.000000	0.999985	<i>Diaphus</i> sp.	
133	3	<0.001	72.8	0.000000	0.999986	<i>Leuroglossus</i> sp.	
134	3	<0.001	71.5	0.000000	0.999988	<i>Ophiopholis aculeata</i>	
135	3	<0.001	100.0	0.000000	0.999992	<i>Bathyraja</i> sp.	
136	3	<0.001	73.0	0.000000	0.999992	Malacostraca (class)	Malacostracan unident.
137	3	<0.001	100.0	0.000000	0.999993	<i>Munida quadrispina</i>	
138	3	<0.001	100.0	0.000000	0.999994	Cyclopteridae (Liparidinae)	Snailfish unident.
139	3	<0.001	100.0	0.000000	0.999994	<i>Buccinum viridum</i>	Turban whelk
140	3	<0.001	100.0	0.000000	0.999995	<i>Catastyx rubrirostris</i>	Rubynose brotula
141	3	<0.001	71.5	0.000000	0.999995	<i>Lycodapus</i> sp.	
142	3	<0.001	100.0	0.000000	0.999996	Shark egg case	
143	3	<0.001	100.0	0.000000	0.999996	<i>Careproctus</i> sp.	
144	3	<0.001	100.0	0.000000	0.999996	<i>Paraliparis cephalus</i>	Swellhead snailfish
145	3	<0.001	100.0	0.000000	0.999997	Asteroidea (class)	Starfish unident.
146	3	<0.001	100.0	0.000000	0.999998	<i>Nemichthys scolopaceus</i>	Slender snipe eel
147	3	<0.001	100.0	0.000000	0.999998	Euphausiacea (order)	Euphausiid
148	3	<0.001	100.0	0.000000	0.999998	Muricidae	
149	3	<0.001	100.0	0.000000	0.999998	<i>Pseudarchaster parelii</i>	
150	3	<0.001	69.5	0.000000	0.999999	<i>Eunoe depressa</i>	Depressed scale worm

Table B-2.--Continued.

Rank	Stratum	Mean CPUE (kg/ha)	CV%	Proportion	Cummulative Proportion	Species Name	Common Name
151	3	<0.001	100.0	0.000000	0.999999	<i>Notostomus japonicus</i>	Spinyridge shrimp
152	3	<0.001	100.0	0.000000	0.999999	<i>Paraliparis</i> sp.	
153	3	<0.001	100.0	0.000000	1.000000	Brachiopoda (class)	Brachiopod unident.
154	3	<0.001	100.0	0.000000	1.000000	<i>Boreotrophon</i> sp.	
155	3	<0.001	100.0	0.000000	1.000000	<i>Natica</i> sp.	
156	3	<0.001	100.0	0.000000	1.000000	<i>Anthomastus</i> sp.	
157	3	<0.001	100.0	0.000000	1.000000	<i>Callinassa californiensis</i>	Ghost shrimp
158	3	<0.001	100.0	0.000000	1.000000	<i>Chionoecetes</i> sp.	Tanner crab
159	3	<0.001	100.0	0.000000	1.000000	<i>Avocettina infans</i>	Blackline snipe eel
160	3	<0.001	100.0	0.000000	1.000000	Crinoidea (class)	Crinoid unident.
Total		79.225					
1	4	23.805	8.4	0.017679	0.602895	<i>Sebastolobus altivelis</i>	Longspine thornyhead
2	4	14.866	10.8	0.011040	0.676511	<i>Chionoecetes tanneri</i>	True Tanner crab
3	4	5.884	13.2	0.004369	0.813462	<i>Anoplopoma fimbria</i>	Sablefish
4	4	4.291	23.1	0.003187	0.859034	<i>Microstomus pacificus</i>	Dover sole
5	4	3.818	28.4	0.002835	0.867892	<i>Albatrossia pectoralis</i>	Giant grenadier
6	4	1.809	13.9	0.001343	0.914673	<i>Sebastolobus alascanus</i>	Shortspine thornyhead
7	4	1.179	11.8	0.000876	0.941445	<i>Embassichthys bathybius</i>	Deepsea sole
8	4	1.127	18.3	0.000837	0.944835	<i>Alepocephalus tenebrosus</i>	California slickhead
9	4	0.684	24.1	0.000508	0.962282	<i>Heterozonias altematus</i>	
10	4	0.677	15.6	0.000502	0.962785	<i>Coryphaenoides acrolepis</i>	Pacific grenadier
11	4	0.479	20.7	0.000356	0.971117	<i>Bathybembix bairdii</i>	
12	4	0.474	30.5	0.000352	0.971469	<i>Talismania bifurcata</i>	Threadfin slickhead
13	4	0.427	20.6	0.000317	0.973469	<i>Apristurus brunneus</i>	Brown cat shark
14	4	0.413	23.4	0.000307	0.974086	Actiniaria (order)	Sea anemone unident.
15	4	0.383	24.3	0.000284	0.976126	<i>Eptatretus deani</i>	Black hagfish
16	4	0.378	21.3	0.000281	0.976972	<i>Merluccius productus</i>	Pacific hake
17	4	0.298	19.6	0.000222	0.980727	<i>Bothrocara brunneum</i>	Twoline eelpout
18	4	0.249	100.0	0.000185	0.983515	<i>Icosteus aenigmaticus</i>	Ragfish
19	4	0.234	29.4	0.000174	0.984396	<i>Bathyraja trachura</i>	Black skate
20	4	0.209	33.2	0.000155	0.985872	<i>Opisthoteuthis californiana</i>	Flapjack devilfish
21	4	0.198	16.6	0.000147	0.987061	<i>Thriassacanthias penicillatus</i>	
22	4	0.193	100.0	0.000144	0.987931	<i>Somniosus pacificus</i>	Pacific sleeper shark
23	4	0.183	28.8	0.000136	0.988486	<i>Crossaster borealis</i>	
24	4	0.175	69.8	0.000130	0.988747	Porifera	Sponge unident.
25	4	0.167	13.6	0.000124	0.989381	<i>Bathylagus</i> sp.	Blacksmelt unident.
26	4	0.160	64.6	0.000119	0.989742	<i>Aphrocallistes vastus</i>	Clay pipe sponge
27	4	0.160	16.1	0.000119	0.989861	<i>Antimora microlepis</i>	Pacific flatnose
28	4	0.144	21.9	0.000107	0.990307	<i>Embryx crotalinus</i>	Snakehead eelpout
29	4	0.128	17.2	0.000095	0.990998	<i>Neptunea amanta</i>	
30	4	0.088	30.1	0.000065	0.993276	<i>Hippasteria californica</i>	
31	4	0.078	31.7	0.000058	0.994021	<i>Zoraster evermanni</i>	
32	4	0.068	77.4	0.000050	0.994618	<i>Trachipterus altivelis</i>	King-of-the-salmon
33	4	0.057	23.4	0.000042	0.995432	Cephalopoda (class)	Cephalopod unident.
34	4	0.048	36.7	0.000035	0.996197	<i>Nearchaster aciculosus</i>	
35	4	0.048	43.0	0.000035	0.996232	Scyphozoa (class)	Jellyfish unident.
36	4	0.047	47.5	0.000035	0.996302	<i>Lithodes couesi</i>	
37	4	0.046	24.7	0.000034	0.996336	<i>Careproctus melanurus</i>	Blacktail snailfish
38	4	0.035	16.7	0.000026	0.997484	<i>Chauliodus macouni</i>	Pacific viperfish
39	4	0.026	77.8	0.000020	0.998146	<i>Hylonema</i> sp.	Fiberoptic sponge
40	4	0.021	39.1	0.000016	0.998343	<i>Vampyroteuthis infernalis</i>	
41	4	0.020	56.9	0.000015	0.998358	<i>Berytoteuthis magister</i>	Magistrate armhook squid
42	4	0.017	100.0	0.000013	0.998480	<i>Alepisaurus ferax</i>	Longnose lancetfish
43	4	0.016	69.4	0.000012	0.998568	Cephalopoda (class)	Cephalopod unident.
44	4	0.015	22.3	0.000011	0.998661	<i>Lampanyctus</i> sp.	
45	4	0.015	48.5	0.000011	0.998727	<i>Taningia danae</i>	Rhomboid squid
46	4	0.014	19.4	0.000010	0.998810	Myctophidae	Lanternfish
47	4	0.014	64.9	0.000010	0.998820	<i>Neptunea</i> sp.	
48	4	0.013	48.5	0.000010	0.998830	<i>Tritonia</i> sp.	
49	4	0.013	31.2	0.000009	0.998866	<i>Amphaster marianus</i>	
50	4	0.011	31.8	0.000008	0.999087	<i>Tactostoma macropus</i>	Longfin dragonfish
51	4	0.009	100.0	0.000007	0.999199	Onychoteuthidae	
52	4	0.009	28.7	0.000007	0.999213	Thalassacea (class)	Salps unident.
53	4	0.008	46.4	0.000006	0.999259	<i>Pseudostichopus mollis</i>	
54	4	0.008	27.1	0.000006	0.999283	<i>Buccinum viridum</i>	Turban whelk
55	4	0.007	55.9	0.000005	0.999332	Gastropoda (class)	Gastropod unident.
56	4	0.006	72.5	0.000005	0.999386	<i>Neptunea pribiloffensis</i>	Fribilof whelk
57	4	0.006	97.0	0.000004	0.999448	<i>Amphiophiura ponderosa</i>	

Table B-2. --Continued.

Rank	Stratum	Mean CPUE (kg/ha)	CV%	Proportion	Cummulative Proportion	Species Name	Common Name
58	4	0.005	75.5	0.000003	0.999557	<i>Buccinum</i> sp.	
59	4	0.005	27.7	0.000003	0.999561	Pennatulacea (order)	Sea pen unident.
60	4	0.005	50.1	0.000003	0.999571	<i>Lampanyctus ritteri</i>	Broadfin lanternfish
61	4	0.005	69.3	0.000003	0.999584	<i>Chorilia longipes</i>	Longhorned decorator crab
62	4	0.004	100.0	0.000003	0.999588	<i>Myoxoderma sacculatum</i>	
63	4	0.004	67.3	0.000003	0.999597	<i>Benthalbella</i> sp.	
64	4	0.004	49.3	0.000003	0.999641	<i>Coryphaenoides cinereus</i>	Popeye grenadier
65	4	0.004	56.8	0.000003	0.999644	<i>Halargyreus</i> sp.	
66	4	0.004	100.0	0.000003	0.999661	<i>Paralomis multispina</i>	
67	4	0.004	53.7	0.000003	0.999675	<i>Pannychia moseleyi</i>	
68	4	0.003	67.8	0.000002	0.999692	<i>Sagamichthys abei</i>	Shining tubeshoulder
69	4	0.003	88.1	0.000002	0.999701	<i>Psolus squamatus</i>	
70	4	0.003	50.8	0.000002	0.999725	<i>Macropinna microstoma</i>	Barreleye
71	4	0.003	100.0	0.000002	0.999730	<i>Icichthys lockingtoni</i>	Medusafish
72	4	0.002	52.5	0.000002	0.999764	<i>Aristostomias scintillans</i>	Shining loosejaw
73	4	0.002	100.0	0.000002	0.999770	Euroasteridae	
74	4	0.002	27.0	0.000002	0.999787	<i>Pasiphaea tarda</i>	Crimson pasiphaeid
75	4	0.002	42.8	0.000002	0.999800	<i>Stylatula</i> sp.	Slender seawhip
76	4	0.002	100.0	0.000001	0.999808	<i>Hippasteria spinosa</i>	
77	4	0.002	36.9	0.000001	0.999824	<i>Pagurus confragosus</i>	Knobbyhand hermit
78	4	0.002	66.8	0.000001	0.999827	Holothuroidea	Sea cucumber unident.
79	4	0.002	70.1	0.000001	0.999838	Rajidae	Skate unident.
80	4	0.002	55.7	0.000001	0.999843	<i>Myoxoderma platyacanthum</i>	
81	4	0.001	36.8	0.000001	0.999875	Paguridae	Hermit crab unident.
82	4	0.001	100.0	0.000001	0.999876	<i>Solaster</i> sp.	
83	4	0.001	50.9	0.000001	0.999878	<i>Lophaster furcilliger</i>	
84	4	0.001	100.0	0.000001	0.999885	<i>Cryptopeltaster lepidonotus</i>	
85	4	0.001	100.0	0.000001	0.999887	<i>Nezumia stelgidolepis</i>	California grenadier
86	4	0.001	100.0	0.000001	0.999891	<i>Diploptaster multipes</i>	
87	4	0.001	73.6	0.000001	0.999901	<i>Benthalbella dentata</i>	Northern pearleye
88	4	0.001	67.2	0.000001	0.999906	<i>Umbellula</i> sp.	
89	4	0.001	70.5	0.000001	0.999907	<i>Pseudarchaster parelii</i>	
90	4	0.001	42.2	0.000001	0.999909	<i>Antipathes</i> sp.	
91	4	0.001	100.0	0.000001	0.999911	<i>Lycodes diapterus</i>	Black eelpout
92	4	0.001	100.0	0.000001	0.999920	<i>Pteraster tessellatus</i>	
93	4	0.001	69.4	0.000001	0.999926	<i>Dipsacaster borealis</i>	
94	4	0.001	63.3	0.000001	0.999934	<i>Luidiaster dawsoni</i>	
95	4	0.001	100.0	0.000001	0.999935	<i>Florimatra</i> sp.	
96	4	0.001	100.0	0.000000	0.999940	Ophiuroid	Brittlestarfish unident.
97	4	0.001	100.0	0.000000	0.999946	<i>Lophaster</i> sp.	
98	4	0.001	100.0	0.000000	0.999947	<i>Anoplogaster cornuta</i>	Fangtooth
99	4	0.001	100.0	0.000000	0.999951	<i>Cololabis saira</i>	Pacific saury
100	4	<0.001	100.0	0.000000	0.999956	<i>Scopelogadus tristis</i>	Blackchin
101	4	<0.001	100.0	0.000000	0.999958	<i>Dolichopteryx longipes</i>	Brownsnout spookfish
102	4	<0.001	100.0	0.000000	0.999959	<i>Serrivomer sector</i>	Sawtooth eel
103	4	<0.001	87.3	0.000000	0.999965	<i>Bathyraja</i> sp.	
104	4	<0.001	75.2	0.000000	0.999970	<i>Careproctus</i> sp.	
105	4	<0.001	49.2	0.000000	0.999973	<i>Tarletonbeania crenularis</i>	Blue lanternfish
106	4	<0.001	100.0	0.000000	0.999973	<i>Natica</i> sp.	
107	4	<0.001	100.0	0.000000	0.999974	Onelirodidae	Dreamer unident.
108	4	<0.001	44.2	0.000000	0.999974	<i>Notostomus japonicus</i>	Spinyridge shrimp
109	4	<0.001	62.9	0.000000	0.999975	<i>Asteronyx loveni</i>	
110	4	<0.001	57.0	0.000000	0.999976	<i>Leuroglossus</i> sp.	
111	4	<0.001	75.4	0.000000	0.999978	<i>Bathypathes</i> sp.	
112	4	<0.001	60.4	0.000000	0.999979	<i>Lycodapus</i> sp.	
113	4	<0.001	100.0	0.000000	0.999980	<i>Stenobranchius</i> sp.	
114	4	<0.001	100.0	0.000000	0.999981	<i>Luidia foliata</i>	
115	4	<0.001	61.1	0.000000	0.999983	Malacostraca (class)	Malacostracan unident.
116	4	<0.001	69.4	0.000000	0.999983	Bivalvia (class)	Bivalve
117	4	<0.001	100.0	0.000000	0.999985	<i>Mediaster</i> sp.	
118	4	<0.001	100.0	0.000000	0.999986	Osteichthyes (class)	Fish unident.
119	4	<0.001	89.5	0.000000	0.999986	Aplacophora	
120	4	<0.001	58.8	0.000000	0.999988	<i>Paraliparis</i> sp.	
121	4	<0.001	69.6	0.000000	0.999989	Gastropoda (class)	Gastropod unident.
122	4	<0.001	62.0	0.000000	0.999990	<i>Plicifusus griseus</i>	Gray whelk
123	4	<0.001	70.3	0.000000	0.999990	<i>Bathygonus nigripinnis</i>	Blackfin poacher
124	4	<0.001	80.2	0.000000	0.999991	Aphroditidae	Sea mouse unident.
125	4	<0.001	100.0	0.000000	0.999991	<i>Brisaster</i> sp.	Brisaster sp.
126	4	<0.001	100.0	0.000000	0.999991	<i>Brisaster latifrons</i>	

Table B-2.--Continued.

Rank	Stratum	Mean CPUE (kg/ha)	CV%	Proportion	Cummulative Proportion	Species Name	Common Name
127	4	<0.001	57.2	0.000000	0.999992	Crinoidea (class)	Crinoid unident.
129	4	<0.001	100.0	0.000000	0.999993	Nemichthyidae	Snipe eel
128	4	<0.001	100.0	0.000000	0.999993	Swiftia sp.	
130	4	<0.001	100.0	0.000000	0.999994	Munida quadrispina	
131	4	<0.001	100.0	0.000000	0.999994	Leuroglossus stilbius	California smoothtongue
132	4	<0.001	58.0	0.000000	0.999995	Diaphus sp.	
133	4	<0.001	100.0	0.000000	0.999996	Pteraster militaris	
134	4	<0.001	100.0	0.000000	0.999997	Rathbunaster californicus	
135	4	<0.001	100.0	0.000000	0.999997	Gorgonacea (order)	Coral unident.
136	4	<0.001	76.2	0.000000	0.999997	Eualus macrophthalmus	
137	4	<0.001	100.0	0.000000	0.999998	Cyclopteridae (Liparidinae)	Snailfish unident.
138	4	<0.001	72.7	0.000000	0.999998	Pasiphaea pacifica	Pacific glass shrimp
139	4	<0.001	100.0	0.000000	0.999998	Leptasterias arctica	
140	4	<0.001	100.0	0.000000	0.999999	Loligo opalescens	California market squid
141	4	<0.001	100.0	0.000000	0.999999	Argyropolecus affinis	Slender hatchetfish
142	4	<0.001	100.0	0.000000	0.999999	Symbolophorus californiensis	California lanternfish
143	4	<0.001	100.0	0.000000	0.999999	Paralepididae	Barracudina unident.
144	4	<0.001	100.0	0.000000	0.999999	Bathysagonus pentacanthus	Bigeye poacher
145	4	<0.001	73.4	0.000000	0.999999	Eunoe depressa	Depressed scale worm
146	4	<0.001	100.0	0.000000	0.999999	Isopoda (order)	Isopod unident.
148	4	<0.001	100.0	0.000000	1.000000	Paraliparis cephalus	Swellhead snailfish
147	4	<0.001	100.0	0.000000	1.000000	Ophiura sarsi	
149	4	<0.001	100.0	0.000000	1.000000	Gastropod	Snail unident.
	Total	64.053					
1	5	32.224	6.7	0.023931	0.546591	Sebastolobus altivelis	Longspine thornyhead
2	5	12.418	8.2	0.009222	0.715855	Chionoecetes tanneri	True Tanner crab
3	5	8.299	20.3	0.006163	0.772635	Coryphaenoides acrolepis	Pacific grenadier
4	5	7.392	15.1	0.005490	0.783914	Anoplopoma fimbria	Sablefish
5	5	7.057	15.0	0.005241	0.794417	Albatrossia pectoralis	Giant grenadier
6	5	3.843	19.1	0.002854	0.865057	Sebastolobus alascanus	Shortspine thornyhead
7	5	2.906	31.5	0.002158	0.897923	Microstomus pacificus	Dover sole
8	5	2.013	17.1	0.001495	0.910468	Actiniaria (order)	Sea anemone unident.
9	5	1.382	24.4	0.001026	0.931957	Bathyraja trachura	Black skate
10	5	1.352	20.4	0.001004	0.933972	Alepocephalus tenebrosus	California slickhead
11	5	1.312	14.1	0.000974	0.935945	Embassichthys bathybius	Deepsea sole
12	5	0.576	26.7	0.000428	0.967290	Bothrocara brunneum	Twoline eelpout
13	5	0.492	17.8	0.000366	0.970042	Antimora microlepis	Pacific flatnose
14	5	0.472	62.6	0.000350	0.971820	Aphrocallistes vastus	Clay pipe sponge
15	5	0.394	19.7	0.000293	0.974977	Thriassacanthias penicillatus	
16	5	0.392	16.9	0.000291	0.975268	Eptatretus deani	Black hagfish
17	5	0.274	32.2	0.000204	0.981573	Talismania bifurcata	Threadfin slickhead
18	5	0.270	21.9	0.000201	0.981977	Heterozonias alternatus	
19	5	0.246	25.7	0.000182	0.983698	Bathybembix bairdii	
20	5	0.231	24.6	0.000172	0.984568	Merluccius productus	Pacific hake
21	5	0.229	21.1	0.000170	0.984909	Embryx crotalinus	Snakehead eelpout
22	5	0.227	23.4	0.000169	0.985078	Neptunea amianta	
23	5	0.219	22.2	0.000163	0.985241	Crossaster borealis	
24	5	0.197	21.2	0.000146	0.987207	Apristurus brunneus	Brown cat shark
25	5	0.175	12.9	0.000130	0.988876	Bathylagus sp.	Blacksmelt unident.
26	5	0.150	25.2	0.000111	0.990200	Nearchaster aciculosus	
27	5	0.104	23.4	0.000077	0.992381	Hippasteria californica	
28	5	0.067	73.5	0.000050	0.994668	Opisthoteuthis californiana	Flapjack devilfish
29	5	0.065	31.5	0.000048	0.994813	Lithodes couesi	
30	5	0.056	26.7	0.000041	0.995515	Vampyroteuthis infernalis	
31	5	0.052	100.0	0.000039	0.995751	Psychrolutes phrictus	Blob sculpin
32	5	0.051	37.8	0.000038	0.995943	Cephalopoda (class)	Cephalopod unident.
33	5	0.048	71.7	0.000036	0.996089	Scyphozoa (class)	Jellyfish unident.
34	5	0.040	67.8	0.000029	0.997040	Hylonema sp.	Fiberoptic sponge
35	5	0.039	39.0	0.000029	0.997127	Buccinum viridum	Turban whelk
36	5	0.037	100.0	0.000028	0.997297	Luidia foliata	
37	5	0.034	32.4	0.000025	0.997586	Zoraster evermanni	
38	5	0.029	81.0	0.000022	0.997983	Porifera	Sponge unident.
39	5	0.028	20.6	0.000020	0.998066	Pennatulacea (order)	Sea pen unident.
40	5	0.024	17.3	0.000018	0.998258	Chaulichodius macouni	Pacific viperfish
41	5	0.019	14.6	0.000014	0.998401	Lampanyctus sp.	
42	5	0.018	71.0	0.000013	0.998442	Pannychia moseleyi	
43	5	0.017	35.6	0.000013	0.998493	Gastropoda (class)	Gastropod unident.
44	5	0.016	38.5	0.000012	0.998616	Taningia danae	Rhomboid squid

Table B-2.--Continued.

Rank	Stratum	Mean CPUE (kg/ha)	CV%	Proportion	Cummulative Proportion	Species Name	Common Name
45	5	0.016	57.8	0.000012	0.998627	<i>Coryphaenoides cinereus</i>	Popeye grenadier
46	5	0.014	100.0	0.000011	0.998748	Onychoteuthidae	
47	5	0.014	40.2	0.000011	0.998759	<i>Amphaster marianus</i>	
48	5	0.014	94.8	0.000010	0.998780	<i>Psolus squamatus</i>	
49	5	0.013	17.4	0.000010	0.998850	Myctophidae	Lanternfish
50	5	0.012	63.4	0.000009	0.999037	<i>Scotoplanes theeli</i>	
51	5	0.011	38.0	0.000008	0.999095	<i>Careproctus melanurus</i>	Blacktail snailfish
52	5	0.010	24.4	0.000008	0.999157	<i>Pasiphaea tarda</i>	Crimson pasiphaeid
53	5	0.007	71.7	0.000006	0.999294	<i>Paralomis multispina</i>	
54	5	0.007	26.8	0.000005	0.999347	<i>Tactostoma macropus</i>	Longfin dragonfish
55	5	0.006	40.9	0.000005	0.999409	Thalacea (class)	Salpe unident.
56	5	0.006	100.0	0.000004	0.999413	Trichiuridae	
57	5	0.006	88.3	0.000004	0.999422	<i>Careproctus cypselurus</i>	Blackfinned snailfish
58	5	0.006	99.3	0.000004	0.999457	<i>Solaster</i> sp.	
59	5	0.006	62.5	0.000004	0.999461	<i>Tritonia</i> sp.	
60	5	0.006	100.0	0.000004	0.999470	<i>Squalus acanthias</i>	Spiny dogfish
61	5	0.005	69.7	0.000004	0.999551	<i>Myoxoderma sacculatum</i>	
62	5	0.005	42.3	0.000003	0.999568	<i>Liponemis brevicornis</i>	
63	5	0.005	61.9	0.000003	0.999574	<i>Antipathes</i> sp.	
64	5	0.005	69.8	0.000003	0.999581	<i>Buccinum</i> sp.	
65	5	0.004	84.4	0.000003	0.999604	<i>Careproctus</i> sp.	
66	5	0.004	59.0	0.000003	0.999623	Gastropoda (class)	Gastropod unident.
67	5	0.004	100.0	0.000003	0.999656	<i>Trachipterus altivelis</i>	King-of-the-salmon
68	5	0.004	100.0	0.000003	0.999667	<i>Pagurus confragosus</i>	Knobbyhand hermit
69	5	0.003	93.6	0.000002	0.999685	<i>Pteraster</i> sp.	
70	5	0.003	51.7	0.000002	0.999742	Paguridae	Hermit crab unident.
71	5	0.003	100.0	0.000002	0.999759	<i>Bathypagurus</i> sp.	Starnout poacher
72	5	0.002	79.0	0.000002	0.999775	<i>Bathypathes</i> sp.	
73	5	0.002	100.0	0.000002	0.999786	<i>Bathylchnops</i> sp.	
74	5	0.002	100.0	0.000002	0.999794	Holothuroidea	Sea cucumber unident.
75	5	0.002	95.4	0.000002	0.999799	Oneirodidae	Dreamer unident.
76	5	0.002	100.0	0.000001	0.999822	<i>Parastichopus californicus</i>	
77	5	0.002	100.0	0.000001	0.999823	<i>Halargyreus</i> sp.	
78	5	0.002	69.5	0.000001	0.999831	<i>Lampanyctus ritteri</i>	Broadfin lanternfish
79	5	0.002	76.1	0.000001	0.999841	<i>Anoplogaster cornuta</i>	Fangtooth
80	5	0.001	58.3	0.000001	0.999863	<i>Aristostomias scintillans</i>	Shining loosejaw
81	5	0.001	69.3	0.000001	0.999869	<i>Amphiophiura ponderosa</i>	
82	5	0.001	45.2	0.000001	0.999879	<i>Lophaster furcilliger</i>	
83	5	0.001	47.6	0.000001	0.999880	<i>Macropinna microstoma</i>	Barreleye
84	5	0.001	56.2	0.000001	0.999903	<i>Benthalbella</i> sp.	
85	5	0.001	61.9	0.000001	0.999924	Rajidae	Skate unident.
86	5	0.001	95.8	0.000001	0.999925	Ezoasteridae	
87	5	0.001	100.0	0.000001	0.999934	<i>Scopelogys tristis</i>	Blackchin
88	5	0.001	100.0	0.000000	0.999939	<i>Cololabis saira</i>	Pacific saury
89	5	0.001	64.0	0.000000	0.999941	<i>Poromitra crassiceps</i>	Crested bigscale
90	5	0.001	100.0	0.000000	0.999942	<i>Neptunea pribiloffensis</i>	Fribilof whelk
91	5	0.001	47.4	0.000000	0.999942	<i>Stylatula</i> sp.	Slender seawhip
92	5	0.001	79.9	0.000000	0.999943	<i>Chorilia longipes</i>	Longhorned decorator crab
93	5	0.001	100.0	0.000000	0.999945	<i>Lophaster</i> sp.	
94	5	0.001	44.3	0.000000	0.999945	<i>Lycodapus</i> sp.	
95	5	0.001	74.2	0.000000	0.999948	<i>Plicifusus griseus</i>	Gray whelk
96	5	0.001	49.5	0.000000	0.999949	<i>Sagamichthys abei</i>	Shining tubeshoulder
97	5	0.001	100.0	0.000000	0.999950	<i>Bathophilus flemingi</i>	Highfin dragonfish
98	5	0.001	100.0	0.000000	0.999951	Stomiliformes	
99	5	0.001	56.6	0.000000	0.999953	<i>Serrivomer sector</i>	Sawtooth eel
100	5	0.001	100.0	0.000000	0.999954	Chiasmodontidae	Swallowers
101	5	<0.001	100.0	0.000000	0.999957	Osteichthyes (class)	Fish unident.
102	5	<0.001	100.0	0.000000	0.999961	Cephalopoda (class)	Cephalopod unident.
103	5	<0.001	100.0	0.000000	0.999963	<i>Bathyraja</i> sp.	
104	5	<0.001	31.2	0.000000	0.999963	<i>Umbellula</i> sp.	
105	5	<0.001	100.0	0.000000	0.999964	<i>Myoxoderma platyacanthum</i>	
106	5	<0.001	69.6	0.000000	0.999967	<i>Pseudostichopus mollis</i>	
107	5	<0.001	87.0	0.000000	0.999970	<i>Paraliparis</i> sp.	
108	5	<0.001	76.8	0.000000	0.999971	invertebrate	Invertebrate
109	5	<0.001	100.0	0.000000	0.999973	<i>Oneirodes</i> sp.	
110	5	<0.001	61.9	0.000000	0.999974	<i>Ophiopholis aculeata</i>	
111	5	<0.001	68.6	0.000000	0.999977	<i>Asteronyx loveni</i>	
112	5	<0.001	71.5	0.000000	0.999979	Gastropoda (class)	Gastropod unident.
113	5	<0.001	100.0	0.000000	0.999980	Gorgonacea (order)	Coral unident.

Table B-2.--Continued.

Rank	Stratum	Mean CPUE (kg/ha)	CV%	Proportion	Cummulative Proportion	Species Name	Common Name
114	5	<0.001	100.0	0.000000	0.999980	<i>Anthomastus</i> sp.	
115	5	<0.001	72.3	0.000000	0.999984	<i>Gorgonocephalus caryi</i>	
116	5	<0.001	69.3	0.000000	0.999984	<i>Idiacanthus antrostomus</i>	Pacific blackdragon
117	5	<0.001	51.2	0.000000	0.999988	<i>Tarletonbeania crenularis</i>	Blue lanternfish
118	5	<0.001	100.0	0.000000	0.999988	<i>Avocettina infans</i>	Blackline snipe eel
119	5	<0.001	56.1	0.000000	0.999988	Crinoidea (class)	Crinoid unident.
120	5	<0.001	100.0	0.000000	0.999989	<i>Florimetra</i> sp.	
121	5	<0.001	100.0	0.000000	0.999989	<i>Florimetra serratissima</i>	
122	5	<0.001	100.0	0.000000	0.999990	Asteroidea (class)	Starfish unident.
123	5	<0.001	100.0	0.000000	0.999990	Searsiidae	Tube shoulder unident.
124	5	<0.001	69.4	0.000000	0.999991	<i>Paraliparis cephalus</i>	Swellhead snailfish
125	5	<0.001	100.0	0.000000	0.999992	<i>Swiftia</i> sp.	
126	5	<0.001	57.5	0.000000	0.999992	<i>Notostomus japonicus</i>	Spinyridge shrimp
127	5	<0.001	86.4	0.000000	0.999992	Gastropod	Snail unident.
128	5	<0.001	100.0	0.000000	0.999993	<i>Benthalbella dentata</i>	Northern pearleye
129	5	<0.001	36.6	0.000000	0.999994	<i>Eualus macrophthalmus</i>	
130	5	<0.001	100.0	0.000000	0.999995	<i>Colus</i> sp.	
131	5	<0.001	81.3	0.000000	0.999995	Malacostraca (class)	Malacostracan unident.
133	5	<0.001	100.0	0.000000	0.999996	<i>Leuroglossus</i> sp.	
132	5	<0.001	100.0	0.000000	0.999996	Nemichthyidae	Snipe eel
134	5	<0.001	100.0	0.000000	0.999997	<i>Leptychaster arcticus</i>	
135	5	<0.001	100.0	0.000000	0.999997	Albuneidae	Mole crab
136	5	<0.001	100.0	0.000000	0.999997	Pasiphaeidae	Pasiphaeid shrimp
137	5	<0.001	100.0	0.000000	0.999997	<i>Henricia</i> sp.	
138	5	<0.001	100.0	0.000000	0.999998	Galatheididae	Galatheid crab
139	5	<0.001	100.0	0.000000	0.999998	<i>Solemya</i> sp.	Awning clam
140	5	<0.001	100.0	0.000000	0.999999	<i>Rhinoliparis attenuatus</i>	Slim snailfish
141	5	<0.001	69.3	0.000000	0.999999	<i>Balanus</i> sp.	
142	5	<0.001	100.0	0.000000	0.999999	<i>Calastacus investigatoris</i>	
143	5	<0.001	100.0	0.000000	0.999999	Cyclopteridae (Liparidinae)	Snailfish unident.
144	5	<0.001	69.3	0.000000	0.999999	<i>Pasiphaea pacifica</i>	Pacific glass shrimp
145	5	<0.001	100.0	0.000000	0.999999	Sergestidae	Sergestid shrimp
146	5	<0.001	100.0	0.000000	1.000000	<i>Diaphus</i> sp.	
147	5	<0.001	100.0	0.000000	1.000000	Pectinid	Scallop
148	5	<0.001	100.0	0.000000	1.000000	<i>Natica</i> sp.	
149	5	<0.001	100.0	0.000000	1.000000	<i>Delectopecten vancouverensis</i>	Vancouver scallop
	Total	85.727					
1	6	26.391	12.8	0.019599	0.566190	<i>Sebastolobus altivelis</i>	Longspine thornyhead
2	6	22.600	13.5	0.016784	0.619679	<i>Albatrossia pectoralis</i>	Giant grenadier
3	6	16.314	20.6	0.012116	0.631795	<i>Anoplopoma fimbria</i>	Sablefish
4	6	15.343	12.6	0.011395	0.643189	<i>Coryphaenoides acrolepis</i>	Pacific grenadier
5	6	9.241	19.3	0.006863	0.760179	<i>Chionoecetes tanneri</i>	True Tanner crab
6	6	5.111	18.8	0.003796	0.845832	Actiniaria (order)	Sea anemone unident.
7	6	3.661	20.9	0.002719	0.876103	<i>Bathyraja trachura</i>	Black skate
8	6	3.301	13.5	0.002452	0.886524	<i>Sebastolobus alascanus</i>	Shortspine thornyhead
9	6	3.296	16.5	0.002448	0.888972	<i>Antimora microlepis</i>	Pacific flatnose
10	6	2.733	30.6	0.002029	0.901983	<i>Microstomus pacificus</i>	Dover sole
11	6	1.513	20.9	0.001123	0.925511	<i>Embassichthys bathybius</i>	Deepsea sole
12	6	1.344	75.1	0.000998	0.934970	<i>Scotoplanes theeli</i>	
13	6	1.079	23.5	0.000801	0.947286	<i>Bothrocara brunneum</i>	Twoline eelpout
14	6	0.899	22.4	0.000668	0.951406	<i>Thriassacanthias penicillatus</i>	
15	6	0.553	27.7	0.000411	0.968526	<i>Paralemis multispina</i>	
16	6	0.493	33.5	0.000366	0.969677	Cephalopoda (class)	Cephalopod unident.
17	6	0.442	69.3	0.000329	0.972824	<i>Bathyraja abyssicola</i>	Deepsea skate
18	6	0.370	21.6	0.000274	0.977521	<i>Nearchaster aciculatus</i>	
19	6	0.356	28.3	0.000265	0.978053	<i>Alepocephalus tenebrosus</i>	California slickhead
20	6	0.351	51.4	0.000261	0.978575	<i>Hylonema</i> sp.	Fiberoptic sponge
21	6	0.336	17.7	0.000250	0.978825	<i>Heterozonias alternatus</i>	
22	6	0.313	24.2	0.000232	0.980279	<i>Neptunea amianta</i>	
23	6	0.217	16.3	0.000161	0.985402	<i>Crossaster borealis</i>	
24	6	0.200	95.4	0.000149	0.986322	<i>Chionoecetes angulatus</i>	Triangle tanner crab
25	6	0.196	23.1	0.000146	0.987499	<i>Merluccius productus</i>	Pacific hake
26	6	0.171	13.1	0.000127	0.989132	<i>Bathylagus</i> sp.	Blacksmelt unident.
27	6	0.169	79.6	0.000125	0.989257	<i>Psychrolutes phrictus</i>	Blob sculpin
28	6	0.121	26.4	0.000090	0.991552	<i>Hippasteria californica</i>	
29	6	0.115	100.0	0.000085	0.991813	<i>Somniosus pacificus</i>	Pacific sleeper shark
30	6	0.114	20.6	0.000085	0.991983	<i>Eptatretus deani</i>	Black hagfish
31	6	0.106	33.3	0.000078	0.992304	<i>Zoraster evermanni</i>	

Table B-2.--Continued.

Rank	Stratum	Mean CFUE (kg/ha)	CV%	Proportion	Cummulative Proportion	Species Name	Common Name
32	6	0.095	40.2	0.000071	0.992672	<i>Myoxoderma sacculatum</i>	
33	6	0.093	33.9	0.000069	0.992741	<i>Embryx crotalinus</i>	Snakehead eelpout
34	6	0.081	24.3	0.000060	0.993842	Fennatulacea (order)	Sea pen unident.
35	6	0.077	52.6	0.000057	0.994135	<i>Coryphaenoides cinereus</i>	Popeye grenadier
36	6	0.048	34.1	0.000036	0.996161	<i>Lithodes couesi</i>	
37	6	0.046	27.5	0.000034	0.996405	<i>Vampyroteuthis infernalis</i>	
38	6	0.045	37.2	0.000034	0.996506	Scyphozoa (class)	Jellyfish unident.
39	6	0.039	61.5	0.000029	0.997098	<i>Opisthoteuthis californiana</i>	Flapjack devilfish
40	6	0.039	48.2	0.000029	0.997213	<i>Apristurus brunneus</i>	Brown cat shark
41	6	0.038	65.2	0.000028	0.997241	<i>Buccinum viridum</i>	Turban whelk
42	6	0.037	41.6	0.000027	0.997352	<i>Bathybembix bairdii</i>	
43	6	0.035	100.0	0.000026	0.997509	<i>Paragorgia</i> sp.	
44	6	0.035	22.6	0.000026	0.997535	Cephalopoda (class)	Cephalopod unident.
45	6	0.033	45.8	0.000025	0.997636	<i>Careproctus cypselurus</i>	Blackfinned snailfish
46	6	0.032	95.8	0.000024	0.997734	<i>Molpadia</i> sp.	
47	6	0.032	87.0	0.000024	0.997781	Porifera	Sponge unident.
48	6	0.031	50.7	0.000023	0.997850	<i>Liponemis brevicornis</i>	
49	6	0.030	86.6	0.000022	0.997918	<i>Aphrocallistes vastus</i>	Clay pipe sponge
50	6	0.029	50.1	0.000022	0.997961	<i>Careproctus</i> sp.	
51	6	0.026	100.0	0.000019	0.998165	Hexactinellida	Glass sponge
52	6	0.024	20.9	0.000018	0.998240	<i>Chauliodus macouni</i>	Pacific viperfish
53	6	0.018	44.6	0.000013	0.998428	Gastropoda (class)	Gastropod unident.
54	6	0.017	43.2	0.000013	0.998506	<i>Taningia danae</i>	Rhomboid squid
55	6	0.017	21.2	0.000013	0.998531	<i>Lampanyctus</i> sp.	
56	6	0.017	71.1	0.000012	0.998543	<i>BathYGONUS</i> sp.	Starsnout poacher
57	6	0.015	99.2	0.000011	0.998672	<i>Myoxoderma platyacanthum</i>	
58	6	0.013	19.9	0.000010	0.998899	Myctophidae	Lanternfish
59	6	0.012	100.0	0.000009	0.999002	<i>Mycale loveni</i>	Tree sponge
60	6	0.012	46.7	0.000009	0.999011	<i>Antipathes</i> sp.	
61	6	0.011	18.2	0.000008	0.999142	<i>Pasiphaea tarda</i>	Crimson pasiphaeid
62	6	0.009	61.4	0.000007	0.999206	<i>Pannychia moseleyi</i>	
63	6	0.009	75.1	0.000007	0.999247	<i>Berytoteuthis magister</i>	Magistrate armhook squid
64	6	0.008	32.5	0.000006	0.999289	<i>Tactostoma macropus</i>	Longfin dragonfish
65	6	0.007	35.3	0.000005	0.999311	<i>Stylatula</i> sp.	Slender seawhip
66	6	0.007	43.9	0.000005	0.999321	Rajidae	Skate unident.
67	6	0.006	46.8	0.000004	0.999444	Thaliacea (class)	Salps unident.
68	6	0.005	75.4	0.000004	0.999482	<i>Careproctus melanurus</i>	Blacktail snailfish
69	6	0.005	70.0	0.000004	0.999490	<i>Lophaster furcilliger</i>	
70	6	0.005	100.0	0.000004	0.999510	<i>Dipsacaster borealis</i>	
71	6	0.005	100.0	0.000004	0.999544	<i>Bathyraja</i> sp.	
72	6	0.004	44.4	0.000003	0.999591	Paguridae	Hermit crab unident.
73	6	0.004	47.2	0.000003	0.999594	<i>Poromitra crassiceps</i>	Crested bigscale
74	6	0.004	91.5	0.000003	0.999616	Gorgonacea (order)	Coral unident.
75	6	0.004	100.0	0.000003	0.999632	<i>Parastichopus californicus</i>	
76	6	0.004	86.2	0.000003	0.999635	<i>Psolus</i> sp.	
77	6	0.004	69.7	0.000003	0.999658	<i>Stylasterias forreri</i>	
78	6	0.004	91.3	0.000003	0.999669	<i>Buccinum</i> sp.	
79	6	0.003	68.5	0.000002	0.999713	<i>Asteronyx loveni</i>	
80	6	0.003	49.7	0.000002	0.999719	<i>Talismania bifurcata</i>	Threadfin slickhead
81	6	0.003	92.8	0.000002	0.999734	<i>Gorgonocephalus caryi</i>	
82	6	0.003	100.0	0.000002	0.999736	<i>Icichthys lockingtoni</i>	Medusafish
83	6	0.003	40.1	0.000002	0.999746	<i>Benthalbella</i> sp.	
84	6	0.003	82.7	0.000002	0.999748	<i>Pseudostichopus mollis</i>	
85	6	0.003	41.6	0.000002	0.999761	Gastropoda (class)	Gastropod unident.
86	6	0.002	89.1	0.000002	0.999772	<i>Brisaster</i> sp.	Brisaster sp.
87	6	0.002	56.6	0.000002	0.999795	<i>Lampanyctus ritteri</i>	Broadfin lanternfish
88	6	0.002	98.1	0.000002	0.999803	<i>Natica</i> sp.	
89	6	0.002	100.0	0.000001	0.999813	<i>Diplopteraster multipes</i>	
90	6	0.002	100.0	0.000001	0.999815	<i>Bathylaco nigricans</i>	Bonythroat
91	6	0.002	58.4	0.000001	0.999820	<i>Anoplogaster cornuta</i>	Fangtooth
92	6	0.001	84.8	0.000001	0.999867	<i>Solaster</i> sp.	
93	6	0.001	100.0	0.000001	0.999868	<i>Neptunes</i> sp.	
94	6	0.001	100.0	0.000001	0.999871	Onychoteuthidae	
95	6	0.001	55.4	0.000001	0.999886	Gastropoda (class)	Gastropod unident.
96	6	0.001	100.0	0.000001	0.999888	<i>Dolichopteryx</i> sp.	
97	6	0.001	69.9	0.000001	0.999892	<i>Serrivomer sector</i>	Sawtooth eel
98	6	0.001	34.3	0.000001	0.999897	<i>Eualus macrophthalmus</i>	
99	6	0.001	72.3	0.000001	0.999898	<i>Pteraster militaris</i>	
100	6	0.001	72.1	0.000001	0.999901	Bivalvia (class)	Bivalve

Table B-2.--Continued.

Rank	Stratum	Mean CPUE (kg/ha)	CV%	Proportion	Cummulative Proportion	Species Name	Common Name
101	6	0.001	47.8	0.000001	0.999904	<i>Notostomus japonicus</i>	Spinyridge shrimp
102	6	0.001	100.0	0.000001	0.999905	<i>Parastichopus leucothela</i>	
103	6	0.001	59.0	0.000001	0.999907	<i>Ctenodiscus crispatus</i>	Common mud star
104	6	0.001	100.0	0.000001	0.999909	<i>Cololabis saira</i>	Pacific saury
105	6	0.001	100.0	0.000001	0.999910	<i>Pteraster tesselatus</i>	
106	6	0.001	57.3	0.000001	0.999918	<i>Henricia</i> sp.	
107	6	0.001	100.0	0.000001	0.999919	<i>Brisaster latifrons</i>	
108	6	0.001	30.2	0.000001	0.999922	<i>Lycodapus</i> sp.	
109	6	0.001	100.0	0.000001	0.999929	<i>Rathbunaster californicus</i>	
110	6	0.001	100.0	0.000001	0.999932	<i>Gephyraeaster swifti</i>	
111	6	0.001	100.0	0.000001	0.999933	<i>Dolichopteryx longipes</i>	Brownsnout seepookfish
112	6	0.001	97.5	0.000001	0.999936	Crinoidea (class)	Crinoid unident.
113	6	0.001	76.7	0.000000	0.999946	<i>Macropinna microstoma</i>	Barreleye
114	6	0.001	70.1	0.000000	0.999947	<i>Aristostomias scintillans</i>	Shining loosejaw
115	6	0.001	62.6	0.000000	0.999949	Ophiuroid	Brittlestarfish unident.
116	6	0.001	100.0	0.000000	0.999952	<i>Scopelengys tristis</i>	Blackchin
117	6	0.001	100.0	0.000000	0.999954	<i>Benthalbella dentata</i>	Northern pearleye
118	6	0.001	54.1	0.000000	0.999956	<i>Umbellula</i> sp.	
119	6	<0.001	100.0	0.000000	0.999957	<i>Tritonia</i> sp.	
120	6	<0.001	100.0	0.000000	0.999959	<i>Anthomastus</i> sp.	
121	6	<0.001	100.0	0.000000	0.999960	<i>Pandalus tridens</i>	Yellowleg pandalid
122	6	<0.001	76.0	0.000000	0.999964	Mollusca (phylum)	Mollusk
123	6	<0.001	100.0	0.000000	0.999965	Asteroidea (class)	Starfish unident.
124	6	<0.001	73.3	0.000000	0.999976	Gastropod	Snail unident.
125	6	<0.001	100.0	0.000000	0.999979	Brachiopoda (class)	Brachiopod unident.
126	6	<0.001	100.0	0.000000	0.999979	<i>Pagurus confragosus</i>	Knobbyhand hermit
127	6	<0.001	100.0	0.000000	0.999981	Cyclopteridae (Liparidinae)	Snailfish unident.
128	6	<0.001	59.8	0.000000	0.999984	Polychaeta (class)	Polychaete worm
129	6	<0.001	100.0	0.000000	0.999984	<i>Solemya</i> sp.	Awning clam
130	6	<0.001	100.0	0.000000	0.999985	<i>Chorilia longipes</i>	Longhorned decorator crab
131	6	<0.001	100.0	0.000000	0.999986	<i>Anotopterus pharao</i>	Daggertooth
132	6	<0.001	100.0	0.000000	0.999987	<i>Pteraster</i> sp.	
133	6	<0.001	100.0	0.000000	0.999987	<i>Neptunea pribiloffensis</i>	Pribilof whelk
134	6	<0.001	100.0	0.000000	0.999988	<i>Parantipathes</i> sp.	
135	6	<0.001	100.0	0.000000	0.999988	<i>Leuroglossus stilbius</i>	California smoothtongue
136	6	<0.001	100.0	0.000000	0.999990	<i>Ampheraster marianus</i>	
137	6	<0.001	66.6	0.000000	0.999990	<i>Tarletonbeania crenularis</i>	Blue lanternfish
138	6	<0.001	71.4	0.000000	0.999991	<i>Amphiophiura ponderosa</i>	
139	6	<0.001	100.0	0.000000	0.999993	tube worm	Tube worm unident.
140	6	<0.001	69.7	0.000000	0.999993	Aphroditidae	Sea mouse unident.
141	6	<0.001	100.0	0.000000	0.999994	Swiftia sp.	
142	6	<0.001	80.4	0.000000	0.999995	<i>Yoldia</i> sp.	
143	6	<0.001	100.0	0.000000	0.999995	<i>Mediaster</i> sp.	
144	6	<0.001	100.0	0.000000	0.999995	<i>Argyropelcus affinis</i>	Slender hatchetfish
145	6	<0.001	100.0	0.000000	0.999995	<i>Callogorgia</i> sp.	
146	6	<0.001	80.3	0.000000	0.999996	<i>Plicifusus griseus</i>	Gray whelk
147	6	<0.001	100.0	0.000000	0.999997	Sipuncula (phylum)	Sipunculid worm
148	6	<0.001	72.1	0.000000	0.999998	<i>Paraliparis cephalus</i>	Swellhead snailfish
149	6	<0.001	69.3	0.000000	0.999999	Malacostraca (class)	Malacostracan unident.
150	6	<0.001	100.0	0.000000	0.999999	<i>Eunoe depressa</i>	Depressed scale worm
151	6	<0.001	100.0	0.000000	0.999999	<i>Delectopecten vancouverensis</i>	Vancouver scallop
152	6	<0.001	100.0	0.000000	0.999999	<i>Parvamussium alaskensis</i>	
153	6	<0.001	100.0	0.000000	0.999999	<i>Leptychaster pacificus</i>	
155	6	<0.001	100.0	0.000000	0.999999	<i>Liparis</i> sp.	
154	6	<0.001	100.0	0.000000	0.999999	Bivalvia (class)	Bivalve unident.
156	6	<0.001	100.0	0.000000	1.000000	<i>Diaphus</i> sp.	
157	6	<0.001	100.0	0.000000	1.000000	Gonostomatidae	Bristlemouth
158	6	<0.001	100.0	0.000000	1.000000	<i>Bathypathes</i> sp.	
	Total	118.683					
1	All	61.810	23.1	0.045903	0.456486	<i>Merluccius productus</i>	Pacific hake
2	All	52.276	28.3	0.038823	0.495309	<i>Squalus acanthias</i>	Spiny dogfish
3	All	15.081	13.0	0.011200	0.654389	<i>Microstomus pacificus</i>	Dover sole
4	All	14.922	8.0	0.011082	0.665471	<i>Sebastolobus altivelis</i>	Longspine thornyhead
5	All	9.637	7.6	0.007157	0.746168	<i>Anoplopoma fimbria</i>	Sablefish
6	All	7.795	9.3	0.005789	0.778424	<i>Chionoecetes tanneri</i>	True Tanner crab
7	All	5.825	13.2	0.004326	0.817788	<i>Albatrossia pectoralis</i>	Giant grenadier
8	All	5.322	8.3	0.003952	0.834237	<i>Sebastolobus alascanus</i>	Shortspine thornyhead
9	All	3.680	15.3	0.002733	0.873384	<i>Coryphaenoides acrolepis</i>	Pacific grenadier

Table B-2.--Continued.

Rank	Stratum	Mean CPUE (kg/ha)	CV%	Proportion	Cummulative Proportion	Species Name	Common Name
10	All	3.567	20.3	0.002649	0.884072	<i>Glyptocephalus zachirus</i>	Rex sole
11	All	3.125	30.9	0.002321	0.891293	<i>Allocentrotus fragilis</i>	Orange-pink sea urchin
12	All	1.770	16.8	0.001315	0.915987	<i>Raja rhina</i>	Longnose skate
13	All	1.723	41.6	0.001279	0.917267	<i>Aphrocallistes vastus</i>	Clay pipe sponge
14	All	1.555	12.8	0.001155	0.923244	Actiniaria (order)	Sea anemone unident.
15	All	1.461	92.0	0.001085	0.928815	<i>Trachurus symmetricus</i>	Jack mackerel
16	All	1.259	32.6	0.000935	0.936880	<i>Atharestes stomias</i>	Arrowtooth flounder
17	All	1.246	21.2	0.000926	0.938738	<i>Lyopsetta exilis</i>	Slender sole
18	All	0.920	37.2	0.000683	0.948714	<i>Sebastes diploproa</i>	Splitnose rockfish
19	All	0.916	17.1	0.000680	0.949394	<i>Bathyraja trachura</i>	Black skate
20	All	0.906	41.9	0.000673	0.950067	<i>Sebastes alutus</i>	Pacific ocean perch
21	All	0.841	16.4	0.000624	0.953286	<i>Bathyraja interrupta</i>	Bering skate
22	All	0.790	57.7	0.000587	0.956897	<i>Sebastes crameri</i>	Darkblotched rockfish
23	All	0.733	11.8	0.000545	0.959676	<i>Embassichthys bathybius</i>	Deepsea sole
24	All	0.732	16.1	0.000544	0.960219	<i>Antimora microlepis</i>	Pacific flatnose
25	All	0.695	16.0	0.000516	0.961774	<i>Lycodes cortezianus</i>	Bigfin eelpout
26	All	0.614	53.7	0.000456	0.964677	<i>Hippoglossus stenolepis</i>	Pacific halibut
27	All	0.589	60.4	0.000437	0.966000	<i>Myoxoderma platyacanthum</i>	
28	All	0.580	16.4	0.000431	0.966862	<i>Apristurus brunneus</i>	Brown cat shark
29	All	0.554	25.9	0.000412	0.968115	<i>Hydrolagus colliei</i>	Spotted ratfish
30	All	0.517	52.3	0.000384	0.969311	<i>Ophiura sarsi</i>	
31	All	0.487	14.7	0.000362	0.970404	<i>Alepocephalus tenebrosus</i>	California slickhead
32	All	0.441	13.8	0.000328	0.973152	<i>Bothrocara brunneum</i>	Twoline eelpout
33	All	0.418	22.6	0.000310	0.973779	<i>Lycodes diapterus</i>	Black eelpout
34	All	0.406	12.6	0.000302	0.974388	<i>Thrissacanthias penicillatus</i>	
35	All	0.399	12.6	0.000296	0.974684	<i>Heterozonias alternatus</i>	
36	All	0.390	27.5	0.000290	0.975558	<i>Luidia foliata</i>	
37	All	0.382	38.4	0.000283	0.976410	<i>Lopholithodes foraminatus</i>	Box crab
38	All	0.370	54.4	0.000275	0.977247	<i>Eriaster latifrons</i>	
39	All	0.360	42.7	0.000267	0.977788	<i>Sebastes zacentrus</i>	Sharpchin rockfish
40	All	0.335	41.9	0.000249	0.979322	<i>Eopsetta jordani</i>	Petrale sole
41	All	0.327	77.4	0.000243	0.979812	<i>Ophiodon elongatus</i>	Lingcod
42	All	0.305	32.1	0.000226	0.980506	<i>Pseudostichopus mollis</i>	
43	All	0.285	99.8	0.000211	0.981160	<i>Sebastes jordani</i>	Shortbelly rockfish
44	All	0.282	91.9	0.000209	0.981369	<i>Parastichopus leucothole</i>	
45	All	0.265	19.1	0.000197	0.982572	<i>Neptunea amianta</i>	
46	All	0.263	35.8	0.000195	0.982767	<i>Sebastes elongatus</i>	Greenstriped rockfish
47	All	0.235	12.4	0.000175	0.984048	<i>Eptatretus deani</i>	Black hagfish
48	All	0.200	75.2	0.000148	0.986767	<i>Scotoplanes theeli</i>	
49	All	0.151	16.0	0.000112	0.990089	<i>Bathybembix bairdii</i>	
50	All	0.138	32.5	0.000102	0.990515	<i>Sebastes aleutianus</i>	Rougheye rockfish
51	All	0.134	14.0	0.000100	0.990614	<i>Crossaster borealis</i>	
52	All	0.129	30.9	0.000096	0.990807	<i>Sebastes aurora</i>	Aurora rockfish
53	All	0.127	57.4	0.000095	0.991093	Porifera	Sponge unident.
54	All	0.126	22.5	0.000094	0.991187	Cephalopoda (class)	Cephalopod unident.
55	All	0.125	23.4	0.000093	0.991280	<i>Talismania bifurcata</i>	Threadfin slickhead
56	All	0.121	39.6	0.000090	0.991462	<i>Parophrys vetulus</i>	English sole
57	All	0.110	89.5	0.000082	0.992065	Ophiuroid	Brittlestarfish unident.
58	All	0.096	51.7	0.000071	0.992601	<i>Sebastes saxicola</i>	Stripetail rockfish
59	All	0.091	17.3	0.000068	0.992945	<i>Careproctus melanurus</i>	Blacktail snailfish
60	All	0.090	17.9	0.000067	0.993012	<i>Nearchaster aciculosus</i>	
61	All	0.088	21.8	0.000065	0.993341	<i>Opisthoteuthis californiana</i>	Flapjack devilfish
62	All	0.087	9.8	0.000064	0.993406	<i>Bathylagus</i> sp.	Blacksnail unident.
63	All	0.086	22.5	0.000064	0.993534	<i>Cancer magister</i>	Dungeness crab
64	All	0.083	15.7	0.000062	0.993721	<i>Liponemesis brevicornis</i>	
65	All	0.083	32.0	0.000062	0.993782	<i>Paralomis multispina</i>	
66	All	0.081	15.0	0.000060	0.993902	<i>Embryx crotalinus</i>	Snakehead eelpout
67	All	0.078	13.9	0.000058	0.994079	<i>Hippasteria californica</i>	
68	All	0.071	34.7	0.000053	0.994516	<i>Sebastes entomelas</i>	Widow rockfish
69	All	0.065	43.3	0.000048	0.994716	<i>Hylonema</i> sp.	Fiberoptic sponge
70	All	0.065	70.6	0.000048	0.994765	<i>Bathyraja abyssicola</i>	Deepsea skate
71	All	0.061	34.5	0.000045	0.995040	<i>Neptunea pribiloffensis</i>	Pribilof whelk
72	All	0.060	60.7	0.000045	0.995174	<i>Sebastes borealis</i>	Shorttraker rockfish
73	All	0.059	36.0	0.000044	0.995262	<i>Rathbunaster californicus</i>	
74	All	0.057	18.3	0.000043	0.995390	Scyphozoa (class)	Jellyfish unident.
75	All	0.053	66.2	0.000040	0.995595	<i>Somniosus pacificus</i>	Pacific sleeper shark
76	All	0.052	38.5	0.000039	0.995790	<i>Parastichopus</i> sp.	
77	All	0.048	47.9	0.000036	0.996125	<i>Oncorhynchus tshawytscha</i>	Chinook salmon
78	All	0.047	26.4	0.000035	0.996267	<i>Sebastes babcocki</i>	Redbanded rockfish

Table B-2.--Continued.

Rank	Stratum	Mean CPUE (kg/ha)	CV%	Proportion	Cummulative Proportion	Species Name	Common Name
79	All	0.044	83.7	0.000033	0.996637	<i>Moroteuthis robusta</i>	Robust clubhook squid
80	All	0.044	71.4	0.000032	0.996669	<i>Parastichopus californicus</i>	
81	All	0.043	14.4	0.000032	0.996734	Cephalopoda (class)	Cephalopod unident.
82	All	0.042	35.9	0.000031	0.996828	<i>Sebastes helvomaculatus</i>	Rosethorn rockfish
83	All	0.042	18.3	0.000031	0.996859	<i>Zoraster evermanni</i>	
84	All	0.042	67.2	0.000031	0.996921	<i>Amphiophiura ponderosa</i>	
85	All	0.041	56.9	0.000030	0.996951	<i>Trachipterus altivelis</i>	King-of-the-salmon
86	All	0.039	100.0	0.000029	0.997069	<i>Icosteus aenigmaticus</i>	Ragfish
87	All	0.035	91.4	0.000026	0.997561	<i>Ophiopholis aculeata</i>	
88	All	0.034	28.2	0.000025	0.997611	<i>Berryteuthis magister</i>	Magistrate armhook squid
89	All	0.032	65.5	0.000024	0.997709	<i>Psychrolutes phrictus</i>	Blob sculpin
90	All	0.031	47.3	0.000023	0.997827	<i>Bathyraja aleutica</i>	Aleutian skate
91	All	0.030	93.6	0.000022	0.997895	<i>Chionoecetes angulatus</i>	Triangle tanner crab
92	All	0.029	24.2	0.000022	0.997939	<i>Diplopteraster multipes</i>	
93	All	0.029	25.4	0.000022	0.998004	<i>Lithodes couesi</i>	
94	All	0.027	59.9	0.000020	0.998087	<i>Sebastes flavidus</i>	Yellowtail rockfish
95	All	0.025	15.9	0.000019	0.998184	Pennatulacea (order)	Sea pen unident.
96	All	0.025	65.3	0.000019	0.998203	<i>Pannychia moseleyi</i>	
97	All	0.020	18.0	0.000015	0.998373	<i>Vampyroteuthis infernalis</i>	
98	All	0.018	42.6	0.000014	0.998415	<i>Luidiaster dawsoni</i>	
99	All	0.018	10.4	0.000013	0.998455	<i>Chauliodus macouni</i>	Pacific viperfish
100	All	0.016	38.3	0.000012	0.998592	<i>Myoxoderma sacculatum</i>	
101	All	0.016	46.4	0.000012	0.998604	<i>Ampheraaster marianus</i>	
102	All	0.014	43.5	0.000011	0.998737	<i>Coryphaenoides cinereus</i>	Popeye grenadier
103	All	0.014	100.0	0.000011	0.998769	compound ascidian	Compound ascidian
104	All	0.013	32.4	0.000010	0.998870	<i>Neptunea sp.</i>	
105	All	0.013	74.8	0.000009	0.998947	<i>Sebastes paucispinis</i>	Bocaccio
106	All	0.013	82.6	0.000009	0.998956	<i>Sebastes pinniger</i>	Canary rockfish
107	All	0.013	35.0	0.000009	0.998975	<i>Buccinum viridum</i>	Turban whelk
108	All	0.012	44.5	0.000009	0.998984	<i>Pandalus platyceros</i>	Spot shrimp
109	All	0.011	41.5	0.000009	0.999045	Paguridae	Hermit crab unident.
110	All	0.011	60.6	0.000008	0.999062	<i>Alepisaurus ferox</i>	Longnose lancetfish
111	All	0.011	12.3	0.000008	0.999103	<i>Lampanyctus sp.</i>	
112	All	0.011	47.6	0.000008	0.999111	<i>Sebastes proriger</i>	Redstripe rockfish
113	All	0.011	59.7	0.000008	0.999126	<i>Stylasterias forreri</i>	
114	All	0.011	50.3	0.000008	0.999134	<i>Ctenodiscus crispatus</i>	Common mud star
115	All	0.010	41.2	0.000008	0.999150	<i>Hippasteria spinosa</i>	
116	All	0.010	28.0	0.000007	0.999164	Gastropoda (class)	Gastropod unident.
117	All	0.009	23.4	0.000007	0.999220	<i>Taningia danae</i>	Rhomboid squid
118	All	0.008	10.7	0.000006	0.999266	Myctophidae	Lanternfish
119	All	0.007	15.5	0.000005	0.999342	Thaliacea (class)	Salps unident.
120	All	0.007	70.6	0.000005	0.999362	<i>Molpadia sp.</i>	
121	All	0.007	65.3	0.000005	0.999367	Hexactinellida	Glass sponge
122	All	0.006	18.7	0.000005	0.999395	<i>Tactostoma macropus</i>	Longfin dragonfish
123	All	0.006	43.2	0.000004	0.999440	<i>Careproctus cypselurus</i>	Blackfinned snailfish
124	All	0.005	96.2	0.000004	0.999502	<i>Paragorgia sp.</i>	
125	All	0.005	53.6	0.000004	0.999514	<i>Icelinus filamentosus</i>	Threadfin sculpin
126	All	0.005	38.3	0.000004	0.999525	<i>Tritonia sp.</i>	
127	All	0.005	44.9	0.000004	0.999529	<i>Careproctus sp.</i>	
128	All	0.004	15.1	0.000003	0.999601	<i>Pasiphaea tarda</i>	Crimson pasiphaeid
129	All	0.004	34.0	0.000003	0.999607	<i>Pseudarchaster parelii</i>	
130	All	0.004	35.1	0.000003	0.999613	<i>Pagurus confragosus</i>	Knobbyhand hermit
131	All	0.004	39.7	0.000003	0.999638	<i>Antipathes sp.</i>	
132	All	0.004	74.7	0.000003	0.999650	<i>Cryptopeltaster lepidonotus</i>	
133	All	0.004	38.2	0.000003	0.999653	<i>Fusitriton oregonensis</i>	Oregon triton
134	All	0.004	67.9	0.000003	0.999664	Onychoteuthidae	
135	All	0.003	100.0	0.000002	0.999694	<i>Sebastes reedi</i>	Yellowmouth rockfish
136	All	0.003	32.9	0.000002	0.999697	Rajiidae	Skate unident.
137	All	0.003	100.0	0.000002	0.999706	<i>Theragra chalcogramma</i>	Walleye pollock
138	All	0.003	44.7	0.000002	0.999710	<i>Pandalus jordani</i>	Ocean shrimp
139	All	0.003	64.1	0.000002	0.999723	<i>BathYGONUS sp.</i>	Starsnout poacher
140	All	0.003	68.6	0.000002	0.999732	<i>Xeneretmus lelops</i>	Smootheye poacher
141	All	0.003	28.8	0.000002	0.999738	Aphroditidae	Sea mouse unident.
142	All	0.003	78.5	0.000002	0.999755	<i>Psolus squamatus</i>	
143	All	0.002	90.7	0.000002	0.999763	<i>Chionoecetes bairdi</i>	Tanner crab (bairdi)
144	All	0.002	57.2	0.000002	0.999766	Gastropoda (class)	Gastropod unident.
145	All	0.002	100.0	0.000002	0.999782	<i>Sebastes melanostomus</i>	Blackgill rockfish
146	All	0.002	32.7	0.000002	0.999791	<i>Stylatula sp.</i>	Slender seawhip
147	All	0.002	41.4	0.000002	0.999797	<i>Buccinum sp.</i>	

Table B-2.--Continued.

Rank	Stratum	Mean CFUE (kg/ha)	CV%	Proportion	Cummulative Proportion	Species Name	Common Name
148	All	0.002	53.2	0.000001	0.999806	<i>Lycodes pacificus</i>	Blackbelly eelpout
149	All	0.002	91.7	0.000001	0.999811	<i>Mycale loveni</i>	Tree sponge
150	All	0.002	44.6	0.000001	0.999819	<i>Pseudarchaster parelii</i>	
151	All	0.002	37.6	0.000001	0.999840	<i>Pasiphaea pacifica</i>	Pacific glass shrimp
152	All	0.002	31.0	0.000001	0.999849	<i>Aristostomias scintillans</i>	Shining loosejaw
153	All	0.002	33.2	0.000001	0.999851	<i>Benthalbella</i> sp.	
154	All	0.002	69.5	0.000001	0.999853	<i>Anthomastus</i> sp.	
155	All	0.002	35.4	0.000001	0.999855	Gastropoda (class)	Gastropod unident.
156	All	0.002	31.2	0.000001	0.999856	<i>Lampanyctus ritteri</i>	Broadfin lanternfish
157	All	0.002	39.9	0.000001	0.999859	<i>Lophaster furcilliger</i>	
158	All	0.002	100.0	0.000001	0.999860	<i>Sebastes brevispinis</i>	Silvergray rockfish
159	All	0.001	63.5	0.000001	0.999872	<i>Solaster</i> sp.	
160	All	0.001	34.6	0.000001	0.999874	<i>Bathyagonus pentacanthus</i>	Bigeye poacher
161	All	0.001	85.9	0.000001	0.999882	Ascidian	Tunicate unident.
162	All	0.001	46.6	0.000001	0.999890	<i>Chorilia longipes</i>	Longhorned decorator crab
163	All	0.001	37.9	0.000001	0.999893	<i>Sagamichthys abei</i>	Shining tubeshoulder
164	All	0.001	85.8	0.000001	0.999894	<i>Henricia</i> sp.	
165	All	0.001	26.1	0.000001	0.999896	<i>Bathyagonus nigripinnis</i>	Blackfin poacher
166	All	0.001	100.0	0.000001	0.999899	<i>Alosa sapidissima</i>	American shad
167	All	0.001	68.8	0.000001	0.999900	<i>Bathyraxa</i> sp.	
168	All	0.001	50.6	0.000001	0.999914	<i>Halargyreus</i> sp.	
169	All	0.001	86.0	0.000001	0.999914	<i>Dipsacaster borealis</i>	
170	All	0.001	62.2	0.000001	0.999915	Zoroasteridae	
171	All	0.001	100.0	0.000001	0.999916	Trichiuridae	
172	All	0.001	70.6	0.000001	0.999923	<i>Icichthys lockingtoni</i>	Medusafish
173	All	0.001	65.2	0.000001	0.999923	<i>Psolus</i> sp.	
174	All	0.001	100.0	0.000001	0.999925	<i>Panopea abrupta</i>	Pacific geoduck
175	All	0.001	46.0	0.000001	0.999930	<i>Asteronyx loveni</i>	
176	All	0.001	75.2	0.000001	0.999931	Gorgonacea (order)	Coral unident.
177	All	0.001	42.4	0.000001	0.999932	<i>Poromitra crassiceps</i>	Crested bigscale
178	All	0.001	38.7	0.000001	0.999933	<i>Pandalopsis dispar</i>	Sidestripe shrimp
179	All	0.001	36.0	0.000001	0.999937	<i>Macropinna microstoma</i>	Barreleye
180	All	0.001	82.8	0.000001	0.999937	<i>Pagurus capillatus</i>	Hairy hermit crab
181	All	0.001	100.0	0.000001	0.999938	<i>Myoxocephalus polyacanthocephalus</i>	Great sculpin
182	All	0.001	71.1	0.000000	0.999939	<i>Pycnopodia helianthoides</i>	
183	All	0.001	58.4	0.000000	0.999941	Holothuroidea	Sea cucumber unident.
184	All	0.001	43.4	0.000000	0.999943	<i>Anoplogaster cornuta</i>	Fangtooth
185	All	0.001	74.2	0.000000	0.999952	<i>Solemya</i> sp.	Awning clam
186	All	0.001	89.0	0.000000	0.999955	<i>Pteraster</i> sp.	
187	All	<0.001	100.0	0.000000	0.999958	<i>Sebastes rufus</i>	Bank rockfish
188	All	<0.001	100.0	0.000000	0.999958	<i>Malacocottus zonurus</i>	Darkfin sculpin
189	All	<0.001	46.5	0.000000	0.999959	<i>Cololabis saira</i>	Pacific saury
190	All	<0.001	100.0	0.000000	0.999960	<i>Allocyttus folletti</i>	Oxeye oreo
191	All	<0.001	20.6	0.000000	0.999960	<i>Eualus macrophthalmus</i>	
192	All	<0.001	68.9	0.000000	0.999961	<i>Buccinum strigillatum</i>	
193	All	<0.001	100.0	0.000000	0.999961	<i>Scomber japonicus</i>	Chub mackerel
194	All	<0.001	64.1	0.000000	0.999962	<i>Bathypathes</i> sp.	
195	All	<0.001	42.7	0.000000	0.999962	<i>Xeneretmus latifrons</i>	Blacktip poacher
196	All	<0.001	86.5	0.000000	0.999963	<i>Gorgonocephalus caryi</i>	
197	All	<0.001	81.5	0.000000	0.999966	<i>Leptychaster arcticus</i>	
198	All	<0.001	73.5	0.000000	0.999966	<i>Natica</i> sp.	
199	All	<0.001	31.9	0.000000	0.999969	<i>Umbellula</i> sp.	
200	All	<0.001	44.3	0.000000	0.999969	<i>Benthalbella dentata</i>	Northern pearleye
201	All	<0.001	84.3	0.000000	0.999970	<i>Brisaster</i> sp.	Brisaster sp.
202	All	<0.001	100.0	0.000000	0.999971	<i>Onychoteuthis borealijaponicus</i>	Boreal clubhook squid
203	All	<0.001	100.0	0.000000	0.999971	<i>Hippoglossoides elassodon</i>	Flathead sole
204	All	<0.001	50.1	0.000000	0.999971	<i>Scopelogadus tristis</i>	Blackchin
205	All	<0.001	82.9	0.000000	0.999972	Oneirodidae	Dreamer unident.
206	All	<0.001	63.8	0.000000	0.999972	<i>Nezumia stelgidolepis</i>	California grenadier
207	All	<0.001	100.0	0.000000	0.999974	<i>Bathylchnops</i> sp.	
208	All	<0.001	73.8	0.000000	0.999975	<i>Eunoe nodosa</i>	Giant scale worm
209	All	<0.001	87.1	0.000000	0.999975	<i>Eualus</i> sp.	
210	All	<0.001	45.8	0.000000	0.999975	<i>Serrivomer sector</i>	Sawtooth eel
211	All	<0.001	69.9	0.000000	0.999976	Bivalvia (class)	Bivalve unident.
212	All	<0.001	23.1	0.000000	0.999977	<i>Lycodapus</i> sp.	
213	All	<0.001	66.0	0.000000	0.999977	<i>Florimetra</i> sp.	
214	All	<0.001	74.2	0.000000	0.999977	<i>Thaleichthys pacificus</i>	Eulachon
215	All	<0.001	100.0	0.000000	0.999978	<i>Lamprogrammus niger</i>	Paperbone cusk-eel
216	All	<0.001	47.9	0.000000	0.999978	<i>Bathyagonus infraspinnatus</i>	Spinycheek starsnout

Table B-2.--Continued.

Rank	Stratum	Mean CPUE (kg/ha)	CV%	Proportion	Cummulative Proportion	Species Name	Common Name
217	All	<0.001	100.0	0.000000	0.999978	<i>Bathylaco nigricans</i>	Bonythroat
218	All	<0.001	70.5	0.000000	0.999979	<i>Pteraster tesselatus</i>	
219	All	<0.001	54.9	0.000000	0.999980	Aplacophora	
220	All	<0.001	100.0	0.000000	0.999980	<i>Pleuronichthys decurrens</i>	Curlfin sole
221	All	<0.001	57.3	0.000000	0.999981	<i>Sebastes</i> sp.	Rockfish
222	All	<0.001	51.8	0.000000	0.999982	Mollusca (phylum)	Mollusk
223	All	<0.001	54.9	0.000000	0.999982	<i>Pteraster militaris</i>	
224	All	<0.001	34.9	0.000000	0.999983	<i>Notostomus japonicus</i>	Spinyridge shrimp
225	All	<0.001	26.5	0.000000	0.999984	<i>Tarletonbeania crenularis</i>	Blue lanternfish
226	All	<0.001	56.5	0.000000	0.999985	Bivalvia (class)	Bivalve
227	All	<0.001	72.0	0.000000	0.999986	<i>Dolichopteryx longipes</i>	Brownsnout spookfish
228	All	<0.001	70.6	0.000000	0.999987	<i>Lophaster</i> sp.	
229	All	<0.001	100.0	0.000000	0.999987	<i>Malacocottus kincaidi</i>	Blackfin sculpin
230	All	<0.001	100.0	0.000000	0.999987	<i>Dolichopteryx</i> sp.	
231	All	<0.001	52.7	0.000000	0.999989	<i>Swiftia</i> sp.	
232	All	<0.001	59.0	0.000000	0.999989	Brachiopoda (class)	Brachiopod unident.
233	All	<0.001	68.9	0.000000	0.999989	Crinoidea (class)	Crinoid unident.
234	All	<0.001	86.6	0.000000	0.999990	<i>Apristurus brunneus</i>	
235	All	<0.001	52.0	0.000000	0.999991	Asteroidea (class)	Starfish unident.
236	All	<0.001	95.9	0.000000	0.999991	<i>Brisingella exilis</i>	
237	All	<0.001	89.4	0.000000	0.999992	<i>Laqueus californianus</i>	
238	All	<0.001	78.4	0.000000	0.999992	<i>Ceramaster japonicus</i>	Red bat star
239	All	<0.001	54.7	0.000000	0.999993	<i>Plicifusus griseus</i>	Gray whelk
240	All	<0.001	79.3	0.000000	0.999993	<i>Poraniopsis inflata</i>	
241	All	<0.001	100.0	0.000000	0.999993	<i>Natica clausa</i>	Arctic moonsnail
242	All	<0.001	100.0	0.000000	0.999993	<i>Gephyreaster swifti</i>	
243	All	<0.001	87.5	0.000000	0.999994	Shark egg case	
244	All	<0.001	59.6	0.000000	0.999994	Sipuncula (phylum)	Sipunculid worm
245	All	<0.001	76.0	0.000000	0.999994	Osteichthyes (class)	Fish unident.
246	All	<0.001	41.6	0.000000	0.999995	<i>Leuroglossus</i> sp.	
247	All	<0.001	59.2	0.000000	0.999995	<i>Paraliparis</i> sp.	
248	All	<0.001	52.9	0.000000	0.999995	Cyclopteridae (Liparidinae)	Snailfish unident.
249	All	<0.001	100.0	0.000000	0.999996	<i>Crossaster papposus</i>	Rose sea star
250	All	<0.001	37.6	0.000000	0.999996	<i>Diaphus</i> sp.	
251	All	<0.001	100.0	0.000000	0.999996	<i>Bathophilus flemingi</i>	Highfin dragonfish
252	All	<0.001	100.0	0.000000	0.999996	Stomiiformes	
253	All	<0.001	38.0	0.000000	0.999996	Malacostraca (class)	Malacostracan unident.
254	All	<0.001	100.0	0.000000	0.999996	Chiasmodontidae	Swallowers
255	All	<0.001	92.2	0.000000	0.999997	<i>Pandalus tridens</i>	Yellowleg pandalid
256	All	<0.001	100.0	0.000000	0.999997	Scleractinia	Stony coral
257	All	<0.001	100.0	0.000000	0.999997	<i>Engraulis mordax</i>	Northern anchovy
258	All	<0.001	56.2	0.000000	0.999997	Gastropod	Snail unident.
259	All	<0.001	100.0	0.000000	0.999997	<i>Rossia pacifica</i>	Eastern pacific bobtail
260	All	<0.001	100.0	0.000000	0.999997	<i>Pentamera lissoplaca</i>	
261	All	<0.001	71.0	0.000000	0.999998	<i>Molpadia intermedia</i>	
262	All	<0.001	60.7	0.000000	0.999998	<i>Apristurus brunneus</i>	Cat shark egg case case
263	All	<0.001	100.0	0.000000	0.999998	<i>Ronquilus jordani</i>	Northern ronquil
264	All	<0.001	57.6	0.000000	0.999998	<i>Munida quadrispina</i>	
265	All	<0.001	77.7	0.000000	0.999998	invertebrate	Invertebrate
266	All	<0.001	100.0	0.000000	0.999998	<i>Oneirodes</i> sp.	
267	All	<0.001	68.4	0.000000	0.999998	<i>Loligo opalescens</i>	California market squid
268	All	<0.001	53.2	0.000000	0.999998	<i>Crangon communis</i>	Twospine crangon
269	All	<0.001	45.9	0.000000	0.999998	<i>Paraliparis cephalus</i>	Swellhead snailfish
270	All	<0.001	76.2	0.000000	0.999998	<i>Mediaster</i> sp.	
271	All	<0.001	100.0	0.000000	0.999998	<i>Crangon</i> sp.	
272	All	<0.001	75.9	0.000000	0.999999	<i>Colus</i> sp.	
273	All	<0.001	100.0	0.000000	0.999999	<i>Stenobranchius</i> sp.	
274	All	<0.001	71.8	0.000000	0.999999	<i>Leuroglossus stilbius</i>	California smoothtongue
275	All	<0.001	59.4	0.000000	0.999999	<i>Idiacanthus antrostomus</i>	Pacific blackdragon
276	All	<0.001	57.0	0.000000	0.999999	Polychaeta (class)	Polychaete worm
277	All	<0.001	75.6	0.000000	0.999999	<i>Antiplanes</i> sp.	
278	All	<0.001	71.9	0.000000	0.999999	Nemichthyidae	Snipe eel
279	All	<0.001	90.7	0.000000	0.999999	<i>Avocettina infans</i>	Blackline snipe eel
280	All	<0.001	100.0	0.000000	0.999999	<i>Calliostoma platinum</i>	
281	All	<0.001	100.0	0.000000	0.999999	<i>Anotopterus pharao</i>	Daggertooth
282	All	<0.001	100.0	0.000000	0.999999	<i>Parantipathes</i> sp.	
283	All	<0.001	100.0	0.000000	0.999999	<i>Florimetra serratissima</i>	
284	All	<0.001	100.0	0.000000	0.999999	Searsiididae	Tube-shoulder unident.
285	All	<0.001	75.7	0.000000	1.000000	<i>Argyrops leuciscus affinis</i>	Slender hatchetfish

Table B-2.--Continued.

Rank	Stratum	Mean CPUE (kg/ha)	CV%	Proportion	Cumulative Proportion	Species Name	Common Name
286	All	<0.001	70.6	0.000000	1.000000	<i>Chitonotus pugetensis</i>	Roughback sculpin
287	All	<0.001	100.0	0.000000	1.000000	tube worm	Tube worm unident.
288	All	<0.001	100.0	0.000000	1.000000	<i>Cataetyx rubrirostris</i>	Rubynose brotula
289	All	<0.001	100.0	0.000000	1.000000	<i>Dentalium</i> sp.	
290	All	<0.001	48.0	0.000000	1.000000	<i>Eunoe depressa</i>	Depressed scale worm
291	All	<0.001	73.9	0.000000	1.000000	<i>Yoldia</i> sp.	
292	All	<0.001	100.0	0.000000	1.000000	Pandalidae	Pandalid shrimp
293	All	<0.001	72.5	0.000000	1.000000	Paralepididae	Barracudina unident.
294	All	<0.001	100.0	0.000000	1.000000	<i>Callogorgia</i> sp.	
295	All	<0.001	100.0	0.000000	1.000000	Albuneidae	Mole crab
296	All	<0.001	100.0	0.000000	1.000000	Pasiphaeidae	Pasiphaeid shrimp
297	All	<0.001	100.0	0.000000	1.000000	<i>Nemichthys scolopaceus</i>	Slender snipe eel
298	All	<0.001	100.0	0.000000	1.000000	Euphausiacea (order)	Euphausiid
299	All	<0.001	100.0	0.000000	1.000000	Muricidae	
300	All	<0.001	100.0	0.000000	1.000000	<i>Leptasterias arctica</i>	
301	All	<0.001	100.0	0.000000	1.000000	Galatheidae	Galatheid crab
302	All	<0.001	75.3	0.000000	1.000000	<i>Delectopecten vancouverensis</i>	Vancouver scallop
303	All	<0.001	100.0	0.000000	1.000000	<i>Rhinoliparis attenuatus</i>	Slim snailfish
304	All	<0.001	100.0	0.000000	1.000000	<i>Symbolophorus californiensis</i>	California lanternfish
305	All	<0.001	70.5	0.000000	1.000000	<i>Balanus</i> sp.	
306	All	<0.001	100.0	0.000000	1.000000	<i>Calastacus investigatoris</i>	
307	All	<0.001	100.0	0.000000	1.000000	<i>Parvamuonium alaskensis</i>	
308	All	<0.001	100.0	0.000000	1.000000	Isopoda (order)	Isopod unident.
309	All	<0.001	100.0	0.000000	1.000000	<i>Leptychaster pacificus</i>	
310	All	<0.001	100.0	0.000000	1.000000	<i>Boreotrophon</i> sp.	
311	All	<0.001	100.0	0.000000	1.000000	<i>Liparis</i> sp.	
312	All	<0.001	100.0	0.000000	1.000000	<i>Hydrolagus colliei</i>	
313	All	<0.001	100.0	0.000000	1.000000	Sergestidae	Sergestid shrimp
314	All	<0.001	100.0	0.000000	1.000000	<i>Callinassa californiensis</i>	Ghost shrimp
315	All	<0.001	100.0	0.000000	1.000000	<i>Chionoecetes</i> sp.	Tanner crab
316	All	<0.001	100.0	0.000000	1.000000	<i>Terebratulina unguicula</i>	
317	All	<0.001	100.0	0.000000	1.000000	<i>Eualus barbatus</i>	
318	All	<0.001	100.0	0.000000	1.000000	Pectinid	Scallop
319	All	<0.001	100.0	0.000000	1.000000	Gonostomatidae	Bristlemouth
320	All	<0.001	100.0	0.000000	1.000000	Polyplacophora (class)	Polyplacophora (class)
	Total	211.348					

APPENDIX C

Population Numbers by Sex and Size Group

Appendix C contains listings of population numbers by sex and size group (cm) for selected species from the 1996 West Coast upper continental slope bottom trawl survey. For each species, estimates are presented for the International North Pacific Fisheries Commission (INPFC) U.S. Vancouver and Columbia statistical areas for all depth strata combined.

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Table C-1.--Arrowtooth flounder population estimates for all depth strata combined by sex and centimeter interval for the International North Pacific Fisheries Commission U.S. Vancouver area from the 1996 West Coast upper continental slope bottom trawl survey.

Length (cm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
27	17,074	0	0	17,074	0.01575	0.01575
28	39,896	8,537	0	48,433	0.04467	0.06042
29	59,758	17,074	0	76,832	0.07086	0.13128
30	56,291	42,684	0	98,976	0.09129	0.22256
31	128,053	131,013	0	259,066	0.23894	0.46150
32	52,413	76,832	0	129,244	0.11920	0.58070
33	22,511	108,191	0	130,702	0.12055	0.70125
34	0	14,061	0	14,061	0.01297	0.71422
35	0	8,537	0	8,537	0.00787	0.72209
36	2,990	0	0	2,990	0.00276	0.72485
37	2,990	0	0	2,990	0.00276	0.72761
38	7,648	0	0	7,648	0.00705	0.73466
40	0	4,658	0	4,658	0.00430	0.73896
41	0	4,658	0	4,658	0.00430	0.74326
42	5,749	5,524	0	11,273	0.01040	0.75365
43	11,527	0	0	11,527	0.01063	0.76428
44	0	16,361	0	16,361	0.01509	0.77937
45	5,088	0	0	5,088	0.00469	0.78407
46	2,990	5,749	0	8,739	0.00806	0.79213
47	10,176	8,537	0	18,713	0.01726	0.80939
49	0	14,841	0	14,841	0.01369	0.82307
50	0	15,931	0	15,931	0.01469	0.83777
51	0	24,244	0	24,244	0.02236	0.86013
52	0	8,537	0	8,537	0.00787	0.86800
53	0	13,195	0	13,195	0.01217	0.88017
54	0	5,749	0	5,749	0.00530	0.88547
55	0	5,088	0	5,088	0.00469	0.89017
57	0	18,697	0	18,697	0.01724	0.90741
59	0	13,195	0	13,195	0.01217	0.91958
60	0	5,749	0	5,749	0.00530	0.92488
61	0	36,620	0	36,620	0.03377	0.95866
62	0	5,524	0	5,524	0.00510	0.96375
65	0	5,088	0	5,088	0.00469	0.96844
66	0	9,316	0	9,316	0.00859	0.97704
67	0	5,749	0	5,749	0.00530	0.98234
69	0	5,524	0	5,524	0.00510	0.98743
71	0	8,537	0	8,537	0.00787	0.99531
72	0	5,088	0	5,088	0.00469	1.00000
TOTAL	425,154	659,088	0	1,084,242	1.00000	1.00000

Table C-2.--Arrowtooth flounder population estimates for all depth strata combined by sex and centimeter interval for the International North Pacific Fisheries Commission Columbia area from the 1996 West Coast upper continental slope bottom trawl survey.

Length (cm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
23	2,989	0	0	2,989	0.00125	0.00125
27	2,989	0	0	2,989	0.00125	0.00250
28	8,980	2,989	0	11,969	0.00500	0.00750
29	16,687	10,800	0	27,487	0.01149	0.01899
30	47,611	15,957	0	63,567	0.02656	0.04555
31	36,377	14,094	0	50,471	0.02109	0.06664
32	18,828	11,115	0	29,943	0.01251	0.07915
33	18,825	2,665	0	21,490	0.00898	0.08813
34	32,430	5,654	0	38,084	0.01591	0.10405
35	66,992	13,112	0	80,104	0.03347	0.13752
36	82,211	2,665	0	84,875	0.03547	0.17299
37	117,769	5,447	0	123,217	0.05149	0.22448
38	103,944	6,124	0	110,067	0.04600	0.27047
39	80,030	0	0	80,030	0.03344	0.30392
40	71,048	2,931	0	73,979	0.03091	0.33483
41	35,623	8,065	0	43,687	0.01826	0.35309
42	29,850	5,895	0	35,745	0.01494	0.36803
43	9,380	80,522	0	89,903	0.03757	0.40559
44	8,707	112,773	0	121,480	0.05076	0.45636
45	18,745	114,113	0	132,858	0.05552	0.51188
46	8,760	109,088	0	117,848	0.04925	0.56112
47	3,004	165,318	0	168,322	0.07034	0.63146
48	13,159	173,512	0	186,671	0.07801	0.70947
49	2,908	121,071	0	123,979	0.05181	0.76128
50	0	96,786	0	96,786	0.04045	0.80172
51	0	94,536	0	94,536	0.03950	0.84123
52	0	90,961	0	90,961	0.03801	0.87924
53	0	54,325	0	54,325	0.02270	0.90194
54	0	16,372	0	16,372	0.00684	0.90878
55	0	23,268	0	23,268	0.00972	0.91850
56	0	11,792	0	11,792	0.00493	0.92343
57	0	32,492	0	32,492	0.01358	0.93701
58	0	31,548	0	31,548	0.01318	0.95019
59	0	11,656	0	11,656	0.00487	0.95506
60	0	2,839	0	2,839	0.00119	0.95625
61	0	6,143	0	6,143	0.00257	0.95882
62	0	15,476	0	15,476	0.00647	0.96528
63	0	11,503	0	11,503	0.00481	0.97009
64	0	2,807	0	2,807	0.00117	0.97126
65	0	6,571	0	6,571	0.00275	0.97401

Table C-2 .--Continued.

Length (cm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
66	0	5,703	0	5,703	0.00238	0.97639
67	0	8,917	0	8,917	0.00373	0.98012
68	0	17,480	0	17,480	0.00730	0.98742
69	0	4,575	0	4,575	0.00191	0.98934
71	0	2,465	0	2,465	0.00103	0.99037
72	0	2,465	0	2,465	0.00103	0.99140
73	0	9,278	0	9,278	0.00388	0.99527
74	0	2,570	0	2,570	0.00107	0.99635
76	0	3,049	0	3,049	0.00127	0.99762
77	0	2,465	0	2,465	0.00103	0.99865
80	0	3,230	0	3,230	0.00135	1.00000
TOTAL	837,847	1,555,177	0	2,393,024	1.00000	1.00000

Table C-3.--Dover sole population estimates for all depth strata combined by sex and centimeter interval for the International North Pacific Fisheries Commission U.S. Vancouver area from the 1996 West Coast upper continental slope bottom trawl survey.

Length (cm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
21	0	8,617	0	8,617	0.00081	0.00081
22	0	8,617	0	8,617	0.00081	0.00163
23	8,617	0	0	8,617	0.00081	0.00244
24	14,366	2,690	0	17,056	0.00161	0.00405
25	20,115	0	0	20,115	0.00190	0.00595
26	31,152	9,444	0	40,596	0.00383	0.00978
27	107,468	14,366	0	121,834	0.01150	0.02128
28	366,066	23,957	0	390,023	0.03682	0.05810
29	575,704	97,862	0	673,565	0.06358	0.12168
30	739,402	55,968	0	795,370	0.07508	0.19676
31	1,016,394	137,197	0	1,153,591	0.10889	0.30565
32	882,588	174,294	0	1,056,881	0.09976	0.40541
33	941,281	249,448	0	1,190,729	0.11240	0.51781
34	690,651	333,121	0	1,023,771	0.09664	0.61445
35	627,666	257,473	0	885,139	0.08355	0.69800
36	319,505	257,947	0	577,453	0.05451	0.75251
37	289,284	339,879	0	629,163	0.05939	0.81190
38	127,790	296,099	0	423,889	0.04001	0.85191
39	128,468	200,047	0	328,515	0.03101	0.88292
40	100,687	125,064	0	225,751	0.02131	0.90423
41	29,449	162,316	0	191,765	0.01810	0.92233
42	83,856	76,187	0	160,043	0.01511	0.93744
43	42,576	72,140	0	114,716	0.01083	0.94827
44	34,130	49,049	0	83,178	0.00785	0.95612
45	35,051	14,231	0	49,282	0.00465	0.96077
46	19,782	50,916	0	70,699	0.00667	0.96744
47	9,972	33,311	0	43,284	0.00409	0.97153
48	17,228	55,940	0	73,168	0.00691	0.97844
49	6,722	13,434	0	20,156	0.00190	0.98034
50	0	59,132	0	59,132	0.00558	0.98592
51	0	42,120	0	42,120	0.00398	0.98990
52	0	30,940	0	30,940	0.00292	0.99282
53	0	9,411	0	9,411	0.00089	0.99370
54	0	7,735	0	7,735	0.00073	0.99443
55	0	41,895	0	41,895	0.00395	0.99839
56	0	7,735	0	7,735	0.00073	0.99912
57	0	6,640	0	6,640	0.00063	0.99975
62	2,690	0	0	2,690	0.00025	1.00000
TOTAL	7,268,660	3,325,222	0	10,593,882	1.00000	1.00000

Table C-4.--Dover sole population estimates for all depth strata combined by sex and centimeter interval for the International North Pacific Fisheries Commission Columbia area from the 1996 West Coast upper continental slope bottom trawl survey.

Length (cm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
19	30,898	0	0	30,898	0.00038	0.00038
20	53,600	33,762	0	87,362	0.00109	0.00147
21	109,405	81,592	0	190,996	0.00238	0.00385
22	291,174	90,999	0	382,173	0.00476	0.00861
23	599,818	148,474	0	748,292	0.00932	0.01793
24	696,154	217,537	0	913,691	0.01138	0.02931
25	995,297	542,736	0	1,538,032	0.01915	0.04846
26	2,730,788	385,017	0	3,115,806	0.03880	0.08726
27	3,173,260	857,856	0	4,031,116	0.05020	0.13746
28	4,854,071	997,223	0	5,851,294	0.07287	0.21033
29	6,047,774	1,373,696	0	7,421,470	0.09242	0.30274
30	6,270,913	1,340,914	0	7,611,827	0.09479	0.39753
31	7,088,755	1,793,064	2,182	8,884,000	0.11063	0.50817
32	5,456,352	1,962,199	4,363	7,422,914	0.09244	0.60060
33	4,703,120	1,725,180	6,545	6,434,845	0.08013	0.68074
34	3,319,615	2,002,477	6,545	5,328,636	0.06636	0.74709
35	2,369,083	1,420,861	17,453	3,807,396	0.04741	0.79451
36	1,734,254	1,368,595	26,179	3,129,029	0.03897	0.83347
37	1,184,548	1,148,811	10,908	2,344,267	0.02919	0.86266
38	775,124	922,592	17,453	1,715,169	0.02136	0.88402
39	618,099	950,820	17,453	1,586,372	0.01975	0.90378
40	495,514	619,469	15,271	1,130,254	0.01407	0.91785
41	289,261	659,908	13,090	962,258	0.01198	0.92984
42	249,881	601,222	13,090	864,192	0.01076	0.94060
43	176,580	629,570	4,363	810,514	0.01009	0.95069
44	105,037	654,924	0	759,961	0.00946	0.96015
45	95,608	553,383	2,182	651,173	0.00811	0.96826
46	49,503	471,012	2,182	522,696	0.00651	0.97477
47	15,086	459,716	0	474,803	0.00591	0.98069
48	14,148	304,652	0	318,800	0.00397	0.98466
49	18,593	308,585	0	327,178	0.00407	0.98873
50	14,285	148,551	0	162,836	0.00203	0.99076
51	6,300	173,261	0	179,561	0.00224	0.99299
52	8,290	104,301	0	112,591	0.00140	0.99440
53	0	123,227	0	123,227	0.00153	0.99593
54	0	83,788	0	83,788	0.00104	0.99697
55	0	49,236	0	49,236	0.00061	0.99759
56	4,309	90,408	0	94,716	0.00118	0.99877
57	0	56,257	0	56,257	0.00070	0.99947
58	0	14,151	0	14,151	0.00018	0.99964
59	0	13,183	0	13,183	0.00016	0.99981
62	0	15,501	0	15,501	0.00019	1.00000
TOTAL	54,644,495	25,498,711	159,256	80,302,461	1.00000	1.00000

Table C-5.--Giant grenadier population estimates for all depth strata combined by sex and centimeter (cm) interval (snout-to-anal fin) for the International North Pacific Fisheries Commission U.S. Vancouver area from the 1996 West Coast upper continental slope bottom trawl survey.

Length (cm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
12	0	2,949	0	2,949	0.00223	0.00223
13	0	4,285	0	4,285	0.00323	0.00546
14	6,790	11,072	0	17,862	0.01348	0.01894
15	37,290	27,920	0	65,209	0.04922	0.06816
16	54,219	63,288	0	117,507	0.08870	0.15686
17	78,504	102,039	0	180,543	0.13628	0.29314
18	86,897	124,763	3,384	215,043	0.16232	0.45546
19	70,579	134,069	3,384	208,032	0.15703	0.61248
20	39,891	96,765	0	136,656	0.10315	0.71563
21	53,341	64,281	0	117,622	0.08878	0.80442
22	12,676	69,366	0	82,041	0.06193	0.86634
23	11,514	44,374	0	55,887	0.04218	0.90853
24	12,573	42,077	0	54,650	0.04125	0.94978
25	0	6,401	0	6,401	0.00483	0.95461
26	0	20,006	0	20,006	0.01510	0.96971
27	0	22,140	0	22,140	0.01671	0.98642
28	0	14,544	0	14,544	0.01098	0.99740
41	0	3,444	0	3,444	0.00260	1.00000
TOTAL	464,273	853,781	6,768	1,324,823	1.00000	1.00000

Table C-6.--Giant grenadier population estimates for all depth strata combined by sex and centimeter (cm) interval (snout-to-anal fin) for the International North Pacific Fisheries Commission Columbia area from the 1996 West Coast upper continental slope bottom trawl survey.

Length (cm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
10	2,046	0	0	2,046	0.00024	0.00024
12	17,220	0	0	17,220	0.00199	0.00223
13	4,153	6,741	0	10,894	0.00126	0.00348
14	42,180	68,338	0	110,518	0.01277	0.01625
15	217,517	164,973	10,794	393,284	0.04544	0.06170
16	541,573	369,150	21,589	932,311	0.10772	0.16942
17	628,919	640,756	23,747	1,293,422	0.14945	0.31887
18	757,475	768,505	15,112	1,541,091	0.17807	0.49694
19	538,749	747,354	10,794	1,296,897	0.14985	0.64679
20	379,245	556,594	10,794	946,633	0.10938	0.75617
21	236,862	422,454	19,430	678,746	0.07843	0.83459
22	183,656	368,984	8,635	561,276	0.06485	0.89945
23	86,470	172,755	0	259,225	0.02995	0.92940
24	44,695	111,271	2,159	158,125	0.01827	0.94767
25	21,374	89,360	2,159	112,893	0.01304	0.96071
26	13,574	91,001	2,159	106,733	0.01233	0.97305
27	6,729	50,443	0	57,172	0.00661	0.97965
28	0	29,922	2,159	32,081	0.00371	0.98336
29	0	18,134	2,159	20,293	0.00234	0.98570
30	0	33,369	2,159	35,528	0.00411	0.98981
31	0	22,102	0	22,102	0.00255	0.99236
32	0	17,495	0	17,495	0.00202	0.99438
33	0	4,287	0	4,287	0.00050	0.99488
34	0	9,589	2,159	11,748	0.00136	0.99624
35	0	9,777	0	9,777	0.00113	0.99737
36	2,116	6,509	0	8,625	0.00100	0.99836
37	0	2,163	0	2,163	0.00025	0.99861
39	0	2,699	0	2,699	0.00031	0.99892
40	0	2,027	0	2,027	0.00023	0.99916
41	0	7,278	0	7,278	0.00084	1.00000
TOTAL	3,724,551	4,794,031	136,008	8,654,590	1.00000	1.00000

Table C-7.--Longspine thornyhead population estimates for all depth strata combined by sex and centimeter interval for the International North Pacific Fisheries Commission U.S. Vancouver area from the 1996 West Coast upper continental slope bottom trawl survey.

Length (cm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
6	0	0	57,895	57,895	0.00092	0.00092
7	0	0	434,464	434,464	0.00687	0.00779
8	0	0	1,774,411	1,774,411	0.02806	0.03584
9	0	0	3,101,760	3,101,760	0.04905	0.08489
10	0	0	3,367,688	3,367,688	0.05325	0.13815
11	10,606	3,453	3,517,932	3,531,990	0.05585	0.19400
12	84,849	10,533	3,652,713	3,748,095	0.05927	0.25327
13	270,855	103,337	3,529,078	3,903,270	0.06172	0.31499
14	806,926	151,178	1,954,106	2,912,209	0.04605	0.36104
15	1,359,626	362,437	1,185,326	2,907,389	0.04598	0.40702
16	2,284,041	675,271	297,201	3,256,513	0.05150	0.45851
17	1,884,446	879,392	75,920	2,839,757	0.04491	0.50342
18	2,107,773	1,261,971	16,573	3,386,318	0.05355	0.55697
19	1,745,407	1,776,274	5,524	3,527,205	0.05578	0.61274
20	2,209,715	1,671,184	0	3,880,899	0.06137	0.67411
21	2,182,464	1,989,397	0	4,171,861	0.06597	0.74008
22	1,640,798	1,765,420	0	3,406,218	0.05386	0.79395
23	1,934,291	1,795,098	0	3,729,389	0.05897	0.85292
24	1,592,430	1,600,518	0	3,192,949	0.05049	0.90341
25	1,301,669	1,354,533	0	2,656,202	0.04200	0.94541
26	733,327	654,771	0	1,388,098	0.02195	0.96736
27	582,134	449,377	0	1,031,511	0.01631	0.98368
28	381,527	247,086	0	628,613	0.00994	0.99362
29	200,348	128,628	0	328,976	0.00520	0.99882
30	32,239	0	0	32,239	0.00051	0.99933
31	28,510	0	0	28,510	0.00045	0.99978
32	10,533	3,453	0	13,985	0.00022	1.00000
TOTAL	23,384,512	16,883,310	22,970,590	63,238,413	1.00000	1.00000

Table C-8. --Longspine thornyhead population estimates for all depth strata combined by sex and centimeter interval for the International North Pacific Fisheries Commission Columbia area from the 1996 West Coast upper continental slope bottom trawl survey.

Length (cm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
5	0	0	34,144	34,144	0.00012	0.00012
6	0	0	244,966	244,966	0.00087	0.00099
7	0	27,490	2,632,705	2,660,195	0.00940	0.01039
8	0	65,598	7,967,416	8,033,014	0.02839	0.03878
9	0	130,816	15,081,477	15,212,292	0.05377	0.09255
10	19,998	182,031	16,556,482	16,758,512	0.05923	0.15178
11	54,379	157,801	18,921,436	19,133,616	0.06763	0.21941
12	237,051	229,176	17,018,388	17,484,616	0.06180	0.28121
13	1,673,953	713,102	14,989,678	17,376,733	0.06142	0.34263
14	4,215,691	1,684,265	8,264,328	14,164,284	0.05006	0.39269
15	5,424,022	2,508,047	3,634,751	11,566,820	0.04088	0.43357
16	5,749,455	3,524,409	1,365,471	10,639,334	0.03760	0.47118
17	6,535,760	4,176,918	500,440	11,213,118	0.03963	0.51081
18	6,194,033	4,763,296	75,651	11,032,980	0.03900	0.54981
19	7,086,119	5,951,675	24,455	13,062,248	0.04617	0.59598
20	6,831,008	7,003,017	23,363	13,857,388	0.04898	0.64495
21	7,252,394	7,607,857	34,040	14,894,291	0.05264	0.69760
22	8,283,415	7,827,525	9,206	16,120,146	0.05698	0.75458
23	8,030,816	8,252,505	21,754	16,305,076	0.05763	0.81221
24	7,207,506	7,543,094	0	14,750,600	0.05214	0.86434
25	7,269,793	6,453,718	9,206	13,732,717	0.04854	0.91288
26	5,710,159	5,183,773	0	10,893,931	0.03850	0.95138
27	4,058,601	3,426,680	0	7,485,281	0.02646	0.97784
28	2,073,927	1,497,328	0	3,571,254	0.01262	0.99046
29	846,591	839,943	0	1,686,533	0.00596	0.99642
30	403,993	255,225	0	659,218	0.00233	0.99875
31	136,908	74,885	0	211,792	0.00075	0.99950
32	58,772	36,372	0	95,145	0.00034	0.99984
33	12,612	6,758	0	19,371	0.00007	0.99991
34	0	14,650	0	14,650	0.00005	0.99996
37	11,483	0	0	11,483	0.00004	1.00000
TOTAL	95,378,436	80,137,955	107,409,358	282,925,750	1.00000	1.00000

Table C-9.--Pacific grenadier population estimates for all depth strata combined by sex and centimeter (cm) interval (snout-to-anal fin) for the International North Pacific Fisheries Commission U.S. Vancouver area from the 1996 West Coast upper continental slope bottom trawl survey.

Length (cm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
2	0	0	10,165	10,165	0.00242	0.00242
3	3,444	0	54,590	58,035	0.01384	0.01627
4	19,815	24,043	133,182	177,039	0.04223	0.05850
5	65,632	93,197	107,510	266,339	0.06353	0.12204
6	107,010	108,431	50,386	265,827	0.06341	0.18545
7	207,037	134,707	86,978	428,721	0.10227	0.28772
8	168,616	198,464	30,108	397,188	0.09475	0.38247
9	201,498	172,279	6,768	380,545	0.09078	0.47324
10	136,423	146,302	3,345	286,070	0.06824	0.54148
11	209,087	244,959	0	454,046	0.10831	0.64980
12	133,433	125,868	6,035	265,336	0.06329	0.71309
13	140,575	194,805	0	335,380	0.08000	0.79309
14	95,554	91,018	0	186,572	0.04451	0.83760
15	64,989	34,481	0	99,470	0.02373	0.86133
16	40,522	18,435	0	58,957	0.01406	0.87539
17	83,075	13,283	0	96,358	0.02299	0.89838
18	102,625	33,270	0	135,895	0.03242	0.93080
19	82,190	20,493	0	102,682	0.02449	0.95529
20	75,292	24,282	0	99,574	0.02375	0.97904
21	28,545	21,411	0	49,956	0.01192	0.99096
22	0	16,229	0	16,229	0.00387	0.99483
23	0	14,913	0	14,913	0.00356	0.99839
24	0	3,410	0	3,410	0.00081	0.99920
25	0	3,345	0	3,345	0.00080	1.00000
TOTAL	1,965,363	1,737,622	489,067	4,192,052	1.00000	1.00000

Table C-10.--Pacific grenadier population estimates for all depth strata combined by sex and centimeter (cm) interval (snout-to-anal fin) for the International North Pacific Fisheries Commission Columbia area from the 1996 West Coast upper continental slope bottom trawl survey.

Length (cm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
2	0	8,726	39,162	47,888	0.00233	0.00233
3	6,002	60,739	503,417	570,158	0.02775	0.03008
4	117,099	101,887	805,168	1,024,154	0.04985	0.07993
5	322,105	374,665	503,980	1,200,750	0.05844	0.13838
6	517,579	508,536	209,980	1,236,095	0.06017	0.19854
7	799,427	700,342	58,216	1,557,985	0.07583	0.27437
8	681,731	700,956	4,402	1,387,089	0.06751	0.34189
9	777,901	811,735	12,828	1,602,464	0.07800	0.41989
10	628,026	670,969	2,263	1,301,258	0.06334	0.48322
11	608,077	824,362	2,360	1,434,799	0.06984	0.55306
12	473,771	562,492	0	1,036,263	0.05044	0.60350
13	519,869	540,651	0	1,060,520	0.05162	0.65512
14	394,636	319,385	0	714,021	0.03475	0.68987
15	368,107	204,761	0	572,868	0.02788	0.71776
16	496,652	69,357	0	566,009	0.02755	0.74530
17	791,254	75,334	0	866,588	0.04218	0.78748
18	1,096,017	133,793	0	1,229,810	0.05986	0.84734
19	1,092,234	107,847	0	1,200,081	0.05841	0.90576
20	723,217	147,256	0	870,473	0.04237	0.94813
21	397,136	141,446	0	538,582	0.02621	0.97434
22	119,786	141,501	0	261,287	0.01272	0.98706
23	37,200	96,103	0	133,303	0.00649	0.99355
24	12,380	71,748	0	84,128	0.00409	0.99764
25	2,104	20,087	0	22,191	0.00108	0.99872
26	0	16,872	0	16,872	0.00082	0.99954
27	0	9,406	0	9,406	0.00046	1.00000
TOTAL	10,982,312	7,420,957	2,141,776	20,545,044	1.00000	1.00000

Table C-11.--Sablefish population estimates for all depth strata combined
by sex and centimeter interval for the International North
Pacific Fisheries Commission U.S. Vancouver area from the 1996
West Coast upper continental slope bottom trawl survey.

Length (cm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
36	0	5,749	0	5,749	0.00322	0.00322
37	10,141	0	0	10,141	0.00568	0.00890
38	0	11,049	0	11,049	0.00619	0.01509
39	0	13,938	0	13,938	0.00781	0.02290
40	11,273	5,524	0	16,797	0.00941	0.03232
41	11,049	0	0	11,049	0.00619	0.03851
42	10,595	21,868	0	32,463	0.01819	0.05670
43	15,665	15,211	0	30,877	0.01730	0.07400
44	5,524	5,524	0	11,049	0.00619	0.08019
45	22,714	15,211	0	37,925	0.02125	0.10144
46	40,712	10,595	0	51,306	0.02875	0.13019
47	21,735	15,620	0	37,355	0.02093	0.15112
48	35,850	42,771	0	78,621	0.04405	0.19517
49	85,466	19,109	0	104,576	0.05860	0.25377
50	56,029	66,556	0	122,585	0.06869	0.32246
51	74,189	65,867	0	140,055	0.07848	0.40094
52	106,614	41,696	0	148,310	0.08310	0.48404
53	67,656	53,232	0	120,889	0.06774	0.55178
54	92,722	30,877	0	123,599	0.06926	0.62104
55	90,491	32,347	0	122,838	0.06883	0.68987
56	57,749	26,893	0	84,641	0.04743	0.73729
57	81,989	21,216	0	103,205	0.05783	0.79512
58	32,940	16,137	0	49,077	0.02750	0.82262
59	29,232	24,423	0	53,655	0.03007	0.85269
60	27,944	3,384	0	31,328	0.01755	0.87024
61	11,080	18,701	0	29,781	0.01669	0.88693
62	16,881	14,455	0	31,336	0.01756	0.90449
63	4,183	7,558	0	11,741	0.00658	0.91107
64	10,234	4,183	0	14,417	0.00808	0.91915
65	9,672	8,684	0	18,356	0.01029	0.92943
66	6,289	13,401	0	19,690	0.01103	0.94046
67	4,183	24,148	0	28,331	0.01588	0.95634
68	0	12,598	0	12,598	0.00706	0.96340
69	10,777	4,208	0	14,984	0.00840	0.97179
70	0	16,883	0	16,883	0.00946	0.98125
71	0	3,345	0	3,345	0.00187	0.98313
72	0	3,351	0	3,351	0.00188	0.98501
73	2,844	8,415	0	11,259	0.00631	0.99132
76	0	7,846	0	7,846	0.00440	0.99571
79	0	3,444	0	3,444	0.00193	0.99764
80	0	4,208	0	4,208	0.00236	1.00000
TOTAL	1,064,421	720,225	0	1,784,646	1.00000	1.00000

Table C-12.--Sablefish population estimates for all depth strata combined by sex and centimeter interval for the International North Pacific Fisheries Commission Columbia area from the 1996 West Coast upper continental slope bottom trawl survey.

Length (cm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
23	0	5,293	0	5,293	0.00056	0.00056
32	2,953	0	0	2,953	0.00031	0.00087
33	8,870	0	0	8,870	0.00094	0.00181
34	7,913	7,386	0	15,298	0.00161	0.00342
35	25,696	10,693	0	36,390	0.00384	0.00726
36	27,359	17,439	0	44,799	0.00473	0.01199
37	52,446	26,120	0	78,566	0.00829	0.02028
38	62,898	25,270	0	88,168	0.00930	0.02958
39	79,173	46,117	0	125,290	0.01322	0.04280
40	61,940	39,795	0	101,736	0.01073	0.05353
41	50,068	33,311	0	83,379	0.00880	0.06233
42	40,393	22,050	0	62,443	0.00659	0.06892
43	51,173	41,798	0	92,971	0.00981	0.07873
44	44,210	34,195	0	78,405	0.00827	0.08700
45	114,324	45,485	0	159,809	0.01686	0.10386
46	129,218	98,038	0	227,256	0.02398	0.12784
47	275,504	119,137	0	394,641	0.04164	0.16948
48	285,859	151,678	0	437,537	0.04617	0.21565
49	290,021	169,503	0	459,524	0.04849	0.26413
50	331,635	134,443	0	466,078	0.04918	0.31331
51	439,691	163,268	0	602,959	0.06362	0.37693
52	555,196	109,684	0	664,880	0.07015	0.44708
53	469,905	111,252	0	581,158	0.06132	0.50840
54	494,275	92,973	0	587,248	0.06196	0.57036
55	422,199	136,079	0	558,277	0.05891	0.62927
56	374,691	155,535	0	530,226	0.05595	0.68522
57	268,265	209,595	0	477,860	0.05042	0.73564
58	212,396	177,892	0	390,289	0.04118	0.77682
59	150,563	156,642	0	307,205	0.03241	0.80923
60	116,325	199,516	0	315,840	0.03333	0.84256
61	92,790	161,274	0	254,065	0.02681	0.86936
62	70,819	156,519	0	227,338	0.02399	0.89335
63	41,599	79,437	0	121,036	0.01277	0.90612
64	31,056	119,783	0	150,839	0.01592	0.92204
65	25,376	112,798	0	138,174	0.01458	0.93661
66	13,289	75,840	0	89,129	0.00940	0.94602
67	14,061	75,855	0	89,916	0.00949	0.95551
68	2,155	60,559	0	62,714	0.00662	0.96212
69	2,087	65,754	0	67,841	0.00716	0.96928

Table C-12.--Continued.

Length (cm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
70	5,087	48,341	0	53,428	0.00564	0.97492
71	4,363	42,053	0	46,416	0.00490	0.97982
72	2,031	28,364	0	30,395	0.00321	0.98302
73	2,440	43,405	0	45,845	0.00484	0.98786
74	0	8,804	0	8,804	0.00093	0.98879
75	0	22,152	0	22,152	0.00234	0.99113
76	0	21,487	0	21,487	0.00227	0.99339
77	0	18,206	0	18,206	0.00192	0.99532
78	0	2,159	0	2,159	0.00023	0.99554
79	0	15,426	0	15,426	0.00163	0.99717
80	0	7,202	0	7,202	0.00076	0.99793
81	2,181	2,181	0	4,363	0.00046	0.99839
82	0	7,250	0	7,250	0.00076	0.99916
83	0	2,906	0	2,906	0.00031	0.99946
88	3,007	0	0	3,007	0.00032	0.99978
92	0	2,088	0	2,088	0.00022	1.00000
TOTAL	5,757,505	3,720,029	0	9,477,534	1.00000	1.00000

Table C-13. --Shortspine thornyhead population estimates for all depth strata combined by sex and centimeter interval for the International North Pacific Fisheries Commission U.S. Vancouver area from the 1996 West Coast upper continental slope bottom trawl survey.

Length (cm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
7	0	0	12,764	12,764	0.00169	0.00169
8	0	0	9,774	9,774	0.00129	0.00298
9	0	0	49,933	49,933	0.00660	0.00958
10	0	5,749	28,314	34,063	0.00450	0.01408
11	0	0	89,837	89,837	0.01187	0.02595
12	0	0	131,227	131,227	0.01734	0.04328
13	0	0	236,347	236,347	0.03123	0.07451
14	9,774	5,749	200,283	215,805	0.02851	0.10302
15	63,182	63,607	260,854	387,642	0.05122	0.15424
16	111,198	84,773	135,312	331,283	0.04377	0.19801
17	208,042	103,172	92,066	403,280	0.05328	0.25129
18	232,344	129,739	36,678	398,761	0.05269	0.30398
19	328,277	268,182	28,113	624,573	0.08252	0.38650
20	264,934	180,796	0	445,730	0.05889	0.44539
21	332,913	333,134	0	666,047	0.08800	0.53339
22	206,306	227,185	0	433,491	0.05727	0.59067
23	263,085	261,443	0	524,528	0.06930	0.65997
24	195,988	206,347	0	402,336	0.05316	0.71313
25	228,216	190,301	0	418,516	0.05530	0.76842
26	90,098	124,163	0	214,261	0.02831	0.79673
27	89,834	96,326	0	186,160	0.02460	0.82133
28	65,764	85,253	0	151,017	0.01995	0.84128
29	63,390	80,530	0	143,921	0.01902	0.86030
30	53,267	41,016	0	94,283	0.01246	0.87275
31	45,112	31,603	0	76,716	0.01014	0.88289
32	32,086	59,357	0	91,442	0.01208	0.89497
33	33,563	28,952	0	62,515	0.00826	0.90323
34	46,445	23,287	0	69,732	0.00921	0.91245
35	39,084	25,871	0	64,955	0.00858	0.92103
36	52,770	36,114	0	88,884	0.01174	0.93277
37	45,566	15,020	0	60,586	0.00800	0.94078
38	53,492	41,750	0	95,242	0.01258	0.95336
39	28,316	18,906	0	47,222	0.00624	0.95960
40	13,607	20,385	0	33,991	0.00449	0.96409
41	24,896	31,084	0	55,980	0.00740	0.97149
42	18,817	9,957	0	28,773	0.00380	0.97529
43	13,293	20,390	0	33,683	0.00445	0.97974
44	9,069	14,067	0	23,136	0.00306	0.98279
45	3,388	13,203	0	16,592	0.00219	0.98499

Table C-13.--Continued.

Length (cm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
46	4,208	4,208	0	8,415	0.00111	0.98610
47	6,931	6,487	0	13,418	0.00177	0.98787
48	3,080	8,493	0	11,572	0.00153	0.98940
49	3,663	3,384	0	7,047	0.00093	0.99033
50	0	4,208	0	4,208	0.00056	0.99089
51	0	5,718	0	5,718	0.00076	0.99164
52	0	3,098	0	3,098	0.00041	0.99205
53	3,388	10,332	0	13,721	0.00181	0.99387
54	3,351	0	0	3,351	0.00044	0.99431
55	3,260	0	0	3,260	0.00043	0.99474
56	0	4,285	0	4,285	0.00057	0.99531
57	0	3,580	0	3,580	0.00047	0.99578
59	0	3,098	0	3,098	0.00041	0.99619
60	0	6,660	0	6,660	0.00088	0.99707
61	0	5,949	0	5,949	0.00079	0.99785
63	0	6,142	0	6,142	0.00081	0.99866
65	0	3,580	0	3,580	0.00047	0.99914
69	0	6,524	0	6,524	0.00086	1.00000
TOTAL	3,293,997	2,963,157	1,311,504	7,568,658	1.00000	1.00000

Table C-14.--Shortspine thornyhead population estimates for all depth strata combined by sex and centimeter interval for the International North Pacific Fisheries Commission Columbia area from the 1996 West Coast upper continental slope bottom trawl survey.

Length (cm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
4	0	0	2,811	2,811	0.00004	0.00004
6	0	0	3,158	3,158	0.00005	0.00009
7	0	0	103,264	103,264	0.00153	0.00161
8	0	0	227,294	227,294	0.00336	0.00497
9	0	0	517,637	517,637	0.00765	0.01263
10	0	0	1,032,816	1,032,816	0.01527	0.02789
11	29,729	0	1,809,098	1,838,827	0.02718	0.05507
12	28,880	16,910	2,252,415	2,298,206	0.03397	0.08904
13	217,584	43,891	3,743,806	4,005,281	0.05920	0.14825
14	632,153	118,336	2,494,519	3,245,009	0.04797	0.19621
15	1,808,867	629,374	1,995,589	4,433,831	0.06554	0.26175
16	2,137,027	901,719	622,864	3,661,610	0.05412	0.31588
17	3,006,924	1,528,229	297,687	4,832,840	0.07144	0.38731
18	2,643,386	1,577,509	85,962	4,306,857	0.06366	0.45097
19	3,183,140	2,066,811	17,329	5,267,279	0.07786	0.52883
20	2,647,112	1,711,969	3,152	4,362,232	0.06448	0.59331
21	2,749,995	2,182,198	19,154	4,951,347	0.07319	0.66650
22	2,345,383	1,569,184	14,441	3,929,008	0.05808	0.72458
23	2,101,832	2,105,355	2,665	4,209,852	0.06223	0.78681
24	1,374,827	1,204,280	0	2,579,107	0.03812	0.82493
25	1,264,588	1,020,711	0	2,285,299	0.03378	0.85871
26	883,905	966,046	0	1,849,951	0.02735	0.88605
27	607,621	755,971	0	1,363,592	0.02016	0.90621
28	521,518	441,009	0	962,527	0.01423	0.92044
29	437,256	306,643	0	743,899	0.01100	0.93143
30	342,820	276,214	0	619,035	0.00915	0.94058
31	256,622	224,604	0	481,226	0.00711	0.94770
32	157,719	188,322	0	346,042	0.00512	0.95281
33	140,508	151,882	0	292,390	0.00432	0.95713
34	137,332	118,402	0	255,734	0.00378	0.96091
35	119,226	103,118	0	222,343	0.00329	0.96420
36	66,923	107,969	0	174,892	0.00259	0.96679
37	77,624	129,053	0	206,677	0.00305	0.96984
38	89,087	73,811	0	162,899	0.00241	0.97225
39	78,904	74,830	0	153,734	0.00227	0.97452
40	61,171	59,736	0	120,907	0.00179	0.97631
41	66,532	76,336	0	142,868	0.00211	0.97842
42	39,725	60,116	0	99,841	0.00148	0.97990
43	49,861	46,863	0	96,725	0.00143	0.98133

Table C-14.--Continued.

Length (cm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
44	55,936	46,947	0	102,883	0.00152	0.98285
45	42,344	48,791	0	91,135	0.00135	0.98419
46	54,463	49,540	0	104,003	0.00154	0.98573
47	54,693	53,914	0	108,607	0.00161	0.98734
48	31,837	44,154	0	75,991	0.00112	0.98846
49	29,458	39,724	0	69,183	0.00102	0.98948
50	28,634	22,037	0	50,672	0.00075	0.99023
51	31,206	43,367	0	74,573	0.00110	0.99133
52	14,467	35,537	0	50,004	0.00074	0.99207
53	10,989	39,309	0	50,298	0.00074	0.99282
54	29,629	45,824	0	75,453	0.00112	0.99393
55	28,810	25,149	0	53,959	0.00080	0.99473
56	18,076	25,571	0	43,648	0.00065	0.99537
57	10,035	34,284	0	44,318	0.00066	0.99603
58	12,906	34,926	0	47,831	0.00071	0.99674
59	8,720	34,716	0	43,436	0.00064	0.99738
60	4,630	21,745	0	26,375	0.00039	0.99777
61	2,263	32,878	0	35,142	0.00052	0.99829
62	0	16,778	0	16,778	0.00025	0.99854
63	2,367	15,296	0	17,663	0.00026	0.99880
64	0	10,917	0	10,917	0.00016	0.99896
65	2,367	2,282	0	4,649	0.00007	0.99903
66	0	6,542	0	6,542	0.00010	0.99912
67	2,102	4,254	0	6,356	0.00009	0.99922
68	2,263	12,667	0	14,931	0.00022	0.99944
69	2,367	8,408	0	10,775	0.00016	0.99960
70	0	13,587	0	13,587	0.00020	0.99980
71	0	8,432	0	8,432	0.00012	0.99992
72	0	5,209	0	5,209	0.00008	1.00000
TOTAL	30,786,347	21,620,189	15,245,661	67,652,197	1.00000	1.00000

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