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1995 Bottom Trawl Survey of the Eastern Bering Sea Continental Shelf

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1995 BOTTOM TRAWL SURVEY OF THE EASTERN BERING SEA
CONTINENTAL SHELF

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ABSTRACT

The Resource Assessment and Conservation Engineering Division of the Alaska Fisheries Science Center conducts annual bottom trawl surveys to monitor the condition of the demersal fish and crab stocks of the eastern Bering Sea continental shelf. The standard study area, surveyed each year since 1979, encompasses a major portion of the eastern Bering Sea shelf between the 20-m and the 200-m isobaths and from the Alaska Peninsula north to approximately the latitude of St. Matthew Island (60° 50' N). In 1995, this area was again surveyed by two chartered trawlers, the 40-m F/V *Arcturus* and the 40-m F/V *Aldebaran*.

Demersal populations were sampled by trawling for 30 minutes at stations centered in 20 x 20 nautical mile grids covering the survey area. At each station, species composition of the catch was determined and commercially important species were sampled to obtain length distributions and age structure samples.

Survey results presented in this report include relative fishing powers of the survey vessels, abundance estimates for fish and invertebrates, geographic distributions of important fish species, size composition of principal fish species, and age and growth information for selected species. Surface and bottom temperatures recorded at each sampling station are also presented.

Appendices provide station data, species listings, and detailed results of analyses of abundance and biological data of the sampled populations.

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INTRODUCTION

The eastern Bering Sea continental shelf supports one of the most productive groundfish fisheries in the world (Bakkala 1988). Since 1970, annual commercial catches of groundfish have ranged from 1.2 to 2.2 million metric tons (t) (North Pacific Fishery Management Council 1990). Although many species are caught commercially, the most abundant has been walleye pollock (*Theragra chalcogramma*), which, since 1970, has comprised more than 70% of the total landings. The next most abundant species have been yellowfin sole (*Limanda asper*) and Pacific cod (*Gadus macrocephalus*) which have comprised 8% and 5%, respectively, of the commercial landings.

Since 1971, the Resource Assessment and Conservation Engineering (RACE) Division of the Alaska Fisheries Science Center (AFSC) has conducted annual bottom trawl surveys of the eastern Bering Sea continental shelf. In 1975, the first large-scale survey of the eastern Bering Sea shelf was conducted under contract from the Bureau of Land Management in response to a need for baseline data to assess the potential impact of proposed offshore oil exploration and development on fishery resources (Pereyra et al. 1976). During this baseline survey, sampling was conducted over the eastern Bering Sea shelf between the 20-m and 200-m isobaths and from the Alaska Peninsula north to approximately 62°N. In subsequent years, the areal coverage of the annual surveys was reduced, until 1979 when the most comprehensive survey of the Bering Sea shelf was undertaken in cooperation with the Japan Fisheries Agency (Bakkala and Wakabayashi 1985). The 1979 survey encompassed the entire region sampled in the 1975 baseline study, and in addition, the continental slope waters between the Aleutian Islands and the U.S.-U.S.S.R. convention line, and the shelf region between St. Matthew and St. Lawrence

Islands. A hydroacoustic survey was also conducted in 1979 to assess the midwater component of the walleye pollock population. Subsequent annual bottom trawl surveys have essentially resampled the stations established during the 1975 survey, with slight modifications each year. This region encompasses the major portion of economically important eastern Bering Sea groundfish populations, except those primarily located in continental slope waters. Every third year (1979, 1982, 1985, 1988, 1991) an extended survey has been conducted, including hydroacoustic assessment of midwater pollock, bottom trawl sampling of the continental slope (the continental slope was not surveyed in 1994), and bottom trawl sampling in the region between St. Matthew and St. Lawrence Islands. The information gathered by the annual surveys serves to: 1) provide the North Pacific Fishery Management Council with annual fishery-independent estimates of abundance and biological condition of commercially exploited stocks, 2) provide distribution and abundance information to commercial fishermen, and 3) develop a time-series database contributing to our understanding of the population dynamics and interactions of groundfish species.

This report presents information collected by the AFSC in the eastern Bering Sea during the 1995 bottom trawl survey. The groundfish/crab survey and several ancillary projects were conducted from 1 June to 2 August by two U.S. vessels. Detailed information on principal crab species can be found in a report by Stevens et al. (1996).

METHODS

Survey Area and Sampling Design

The standard station pattern for the eastern Bering Sea survey is based on a systematic 20 x 20 nautical mile grid. In areas surrounding St. Matthew and the Pribilof Islands, grid block corners were also sampled to better assess blue king crab (*Paralithodes platypus*) concentrations. The survey design pattern called for 356 stations. In 1995, 356 standard stations and 23 additional stations north-west of the standard pattern were successfully sampled (Fig. 1 and Appendix A).

Starting with the eastern stations, the two vessels fished alternate north/south lines of stations such that coverage of the survey area was similar for each vessel. This sampling design facilitated the computation of relative fishing powers (or catch efficiencies) of the two vessels. The progression from east to west was established to prevent multiple encounters of yellowfin sole, Alaska plaice (*Pleuronectes quadrituberculatus*), and perhaps other species which may be migrating eastward during the course of the survey (Smith and Bakkala 1982). Tows were usually 30 minutes in duration and fishing was limited to daylight hours. For data analysis, the survey region was divided into six subareas bounded by the 50-m, 100-m, and 200-m isobaths and by a line separating the northwest and southeast portions of the study area (Fig. 1). This stratification scheme was designed to reduce the variances of population and biomass estimates by conforming to oceanographic domains which seem related to distributions of Bering Sea fishes (Bakkala 1988). The presence of high-density sampling for blue king crab in subareas 3, 4, and 6 necessitated a further division of these subareas into high-density and standard-density

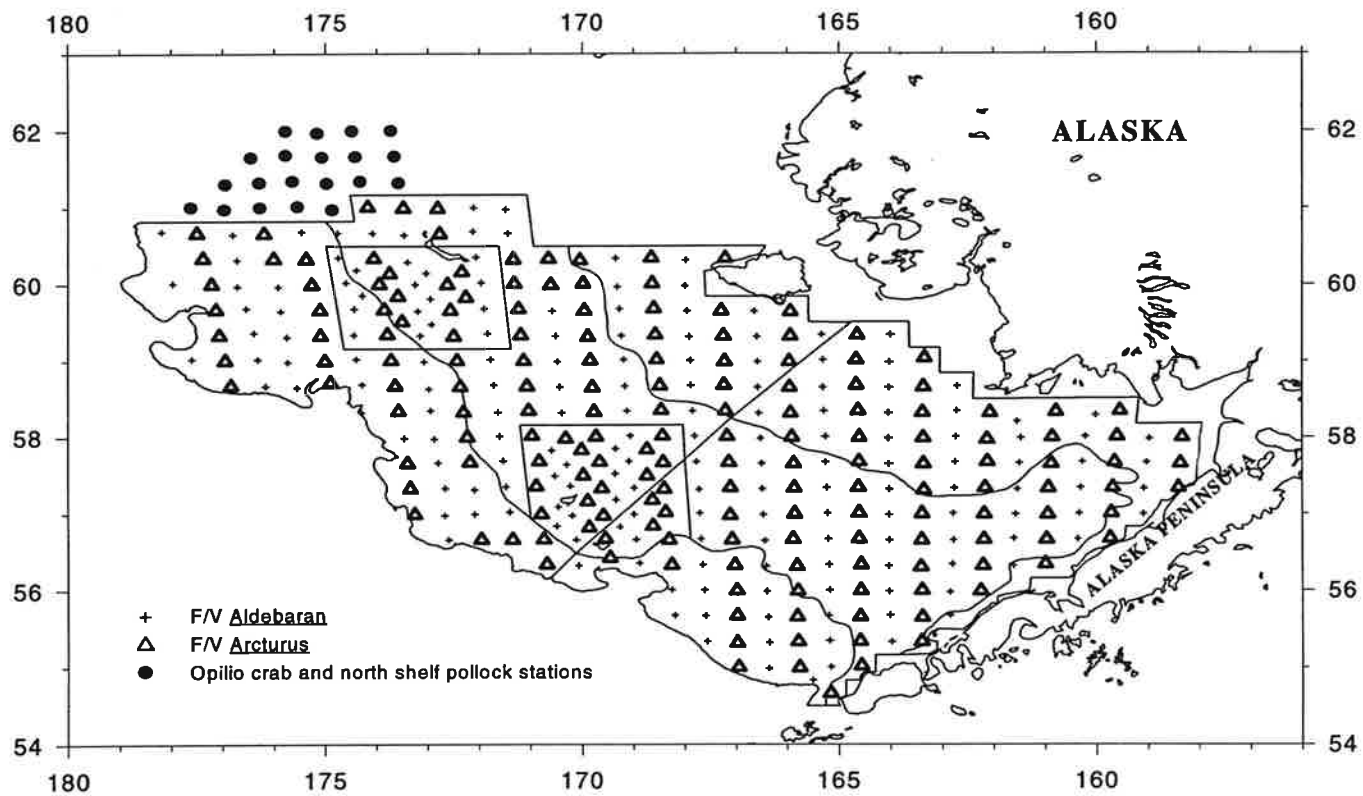


Figure 1.--Standard and special study stations sampled during the 1995 eastern Bering Sea bottom trawl survey, and stratifications used for the analysis of data.

sample strata, resulting in a total of 10 geographic strata. The overall sampling density for the entire survey area was one station per 1,302 km² (Table 1). However, because of the high-density sampling in subareas 3, 4, and 6, and the irregular subarea boundaries, sampling density among the six subareas varied from one station per 1,112 km² to one per 1,552 km².

Table 1.--Size of subareas and strata and sampling densities for the 1995 eastern Bering Sea bottom trawl survey (See also Fig. 1).

Subarea	Area (km ²)	No. Stations successfully sampled	Sampling density (km ² /stn)
1 (10)	77,871	58	1,343
2 (20)	41,027	31	1,323
3	103,300	78	1,324
(31)	94,526	69	1,370
(32)	8,774	9	975
4	107,822	97	1,112
(41)	62,703	44	1,425
(42)	24,011	31	775
(43)	21,108	22	959
5 (50)	38,792	25	1,552
6	94,562	67	1,411
(61)	88,134	60	1,469
(62)	6,429	7	918
Subareas Combined	463,374	356	1,302

Vessels and Fishing Gear

The 1995 eastern Bering Sea bottom trawl survey was conducted aboard the 40-m fishing vessels *Arcturus* and *Aldebaran* (Table 2). As in previous years, both vessels were equipped with 83-112 eastern otter trawls which have 25.3-m (83 ft) headropes and 34.1-m (112 ft) footropes (Fig. 2). These nets were attached to tail chains with 54.9-m (30 fathoms) paired dandyline. Each lower dandyline had a 0.61-m chain extension connected to the lower wing edge to improve bottom tending characteristics. Steel "V"-doors measuring 1.8 x 2.7 m and weighing 816 kg were used.

Table 2.--Characteristics of vessels used during the 1995 eastern Bering Sea bottom trawl survey.

Vessel	Overall length (m)	Horsepower	Survey period	
			Start	Finish
F/V <i>Arcturus</i>	40	1525	1 June	2 August
F/V <i>Aldebaran</i>	40	1525	1 June	2 August

SCANMAR¹ net mensuration systems were used aboard each vessel to measure net height and width. Net width was measured by the distance between two sensors attached to the upper starboard and port dandyline, about 0.61-m in front of the net. Mean net widths were calculated from observations recorded within each tow. These data were then used to establish a net width-scope (wire-out) relationship for each vessel to enable prediction of net width for tows where net width data were not available (Fig. 3) as described by Rose and Walters (1990). Estimates of net width were used in area-swept calculations.

¹ Reference to trade names does not imply endorsement by the National Marine Fisheries Service, NOAA.

83/112 EASTERN

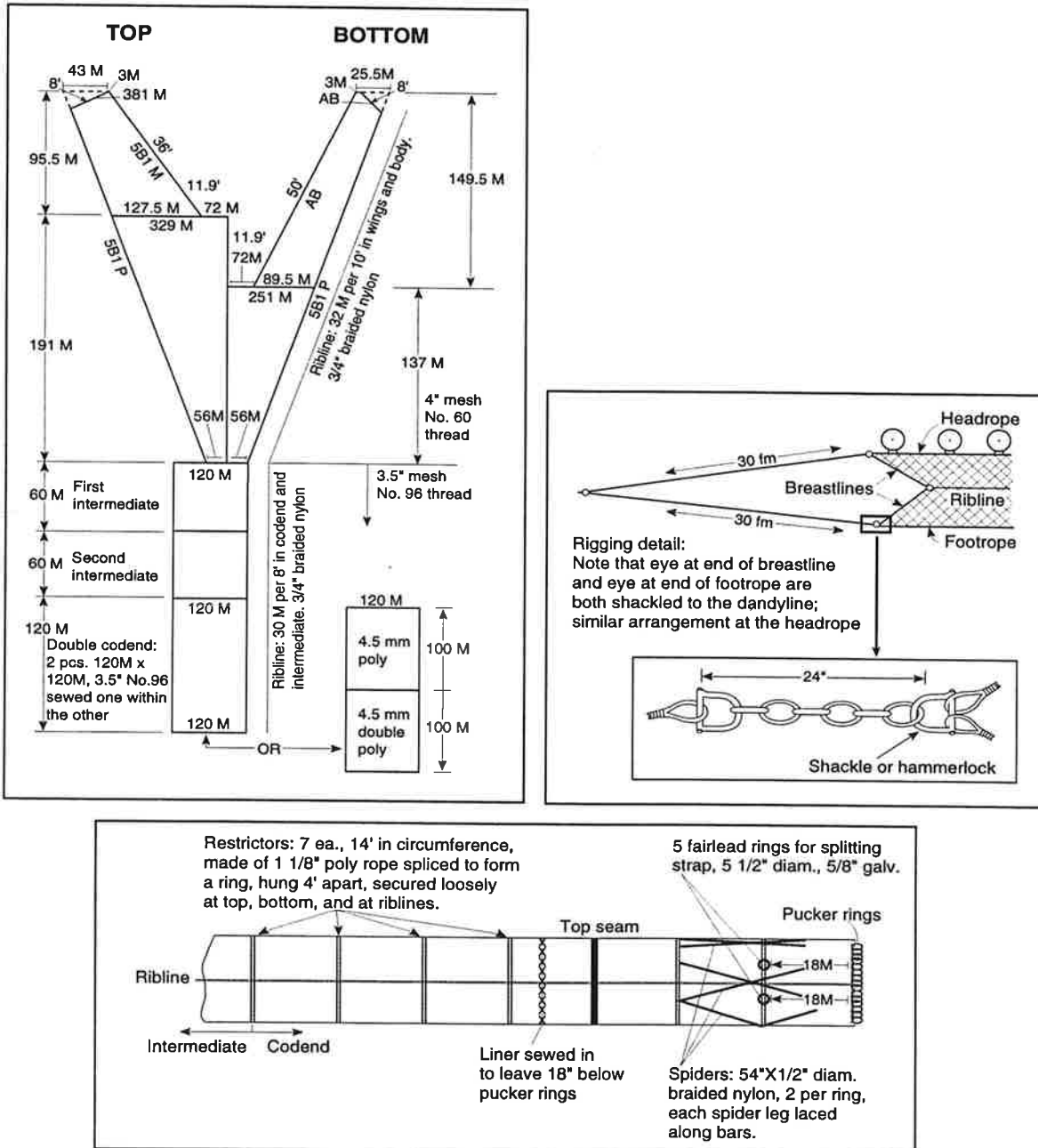


Figure 2.--Schematic diagram of trawl used during the 1995 eastern Bering Sea bottom trawl survey.

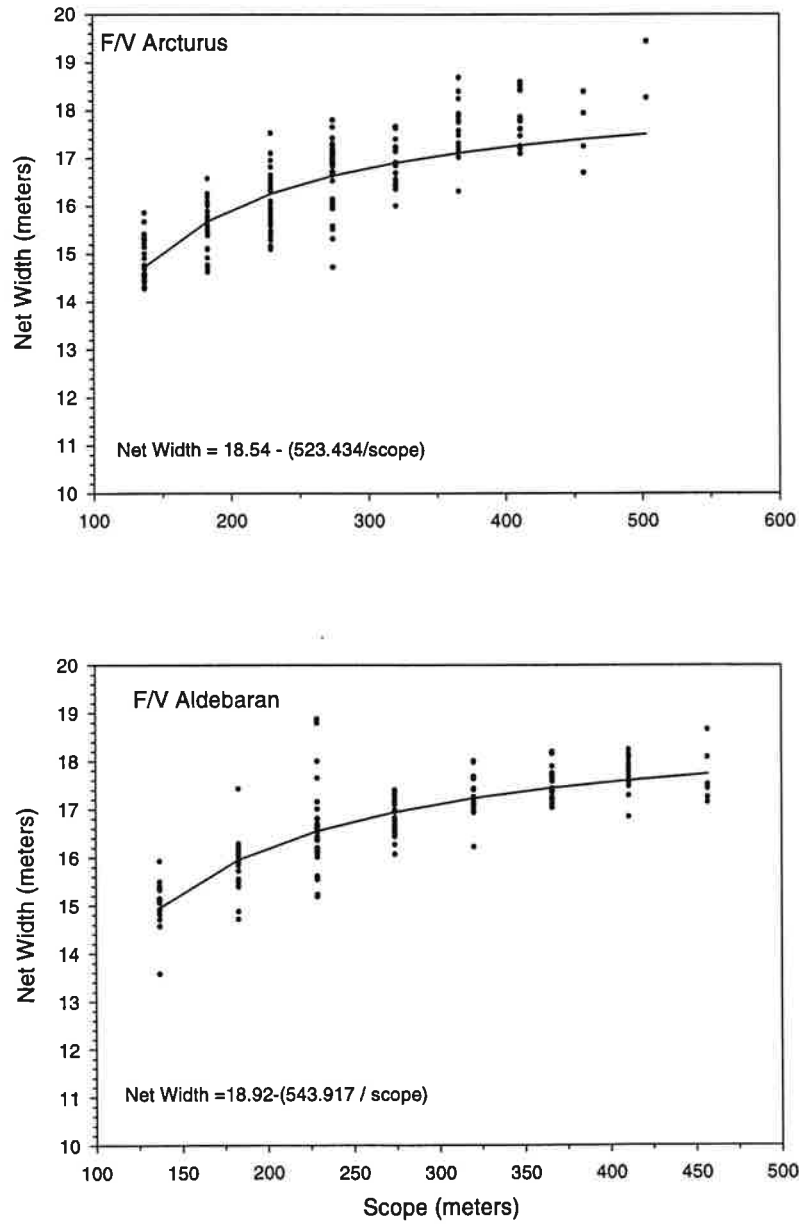


Figure 3.--Relationship between net-width and scope (wire-out) for vessels participating in the 1995 eastern Bering Sea survey.

Data Collection

Sampling procedures used in RACE eastern Bering Sea assessment surveys are described in detail by Wakabayashi et al. (1985). A brief summary follows.

Samples were collected by trawling at the center of each 20 x 20 nautical mile grid block (or corner station, in the case of high-density strata) for 30 minutes (timed after the net had settled on the bottom), towing at a speed of 1.54 m/sec (3 knots). If the bottom appeared to be untrawlable at the specified location, the nearest trawlable site within the same grid square was used. If the net was ripped or "hung up" on some object on the bottom during the tow, the catch was discarded and a new sample obtained.

Catches of less than approximately 1,150 kg (2,500 lb) were processed entirely while larger catches were subsampled. Economically important fish and invertebrates were sorted to species with the exception of two species of flatfish. Similar features between flathead sole (*Hippoglossoides elassodon*) and Bering flounder (*Hippoglossoides robustus*) made identification of these species difficult within the time constraints of the survey; thus, these species were grouped by genus for purposes of this report. Minor species of fish and invertebrates were sorted to the lowest taxonomic level practicable. Catch weights and numbers by species or species group were estimated directly or, when subsampled, estimated by extrapolating the proportion in the subsample to that of the entire catch weight. Pacific halibut (*Hippoglossus stenolepis*) and crab species of the genera *Paralithodes* (red and blue king crabs, *camtschaticus* and *platypus*, respectively), *Chionoecetes* (snow and Tanner crabs, *opilio* and *bairdi*, respectively), and *Erimacrus isenbeckii* (hair crabs) were usually weighed and enumerated from the entire catch.

Size composition data were collected for each commercially important species. Pacific halibut, walleye pollock, Pacific cod, and yellowfin sole were measured whenever caught while other species were measured as time permitted (Table 3). Pacific halibut were measured immediately upon capture and returned to the sea in an effort to reduce sampling mortality for this species. Random samples of the remaining species of up to approximately 200 individuals (300 in the case of walleye pollock) were sexed and measured to the nearest centimeter from the tip of the snout to the end of the middle rays of the caudal fin (fork length).

Sagittal otoliths were collected from nine fish species (Table 4). In both the northwestern and southeastern divisions of the survey area, three otolith pairs per sex/centimeter interval were collected for Pacific cod and rock sole (*Lepidopsetta* spp.; two species are now recognized from the Bering Sea, *L. bilineata* and a new species being described by Orr and Matarese, in prep.), and five pairs per sex/centimeter interval for all other species. Scales as well as otoliths were taken from Pacific cod to aid in age determination of young fish. Individual fish weight data were collected for Alaska plaice in conjunction with otolith sampling. In the case of the *Hippoglossoides* spp., otoliths were collected only from individuals that were identified with certainty as flathead sole. Age structures for roundfish were preserved in 50% ethanol/water; flatfish otoliths were preserved in 50% glycerol/water.

Temperature profiles were taken at each station using either a micro-bathythermograph (MBT) attached to the head rope of the net or with an expendable bathythermograph cast (XBT); surface temperatures were taken by bucket thermometer.

Table 3.--Number of length measurements taken during the 1995 eastern Bering Sea bottom trawl survey.

Species	Length measurements by subarea						Total
	1	2	3	4	5	6	
Alaska plaice	1,670	2,440	1,521	4,139	---	132	9,902
Bering flounder	---	25	1	966	---	286	1,278
Greenland turbot	---	---	2	17	1	293	313
Kamchatka flounder	---	---	93	17	211	492	813
Pacific cod	2,342	574	1,785	2,845	438	1,724	9,708
Pacific halibut	365	156	293	138	90	198	1,240
Pacific herring	422	69	---	360	---	---	851
Pacific ocean	---	---	---	---	1	57	58
Sakhalin sole	---	---	---	1	---	---	1
arrowtooth flounder	33	---	1,038	489	1,695	2,527	5,782
dusky rockfish	---	---	---	---	1	---	1
flathead sole	712	7	4,476	1,180	2,586	5,985	14,946
rex sole	1	---	13	---	189	149	352
rock sole	7,027	3,175	8,096	5,573	241	2,588	26,700
starry flounder	82	---	4	---	---	---	86
walleye pollock	1,709	908	7,425	5,664	1,241	8,726	25,673
yellowfin sole	7,466	4,188	6,788	3,661	7	1	22,111

Table 4.--Number of fish in which age structures (otoliths and/or scales) were collected, by species and subarea, during the 1995 eastern Bering Sea bottom trawl survey.

Species	Subarea						Total
	1	2	3	4	5	6	
walleye pollock	47	17	408	125	45	552	1,275 ^a
yellowfin sole	303	141	37	173	0	0	654
Pacific cod ^b	112	32	72	127	79	204	626
rock sole spp.	140	65	101	128	0	0	434
flathead sole	0	0	98	36	56	206	396
Alaska plaice	103	0	95	89	0	0	287
Kamchatka flounder	0	0	0	0	15	59	74

^aSome age structures were collected outside the standard survey area.

^bScales were also taken.

Data Analysis

A brief description of the procedures used in the analysis of RACE Bering Sea survey data follows (for a detailed description see Wakabayashi et al. 1985). Some of the species collected were grouped by family for data analysis because of their insignificant commercial value or questionable identification.

Relative fishing powers between the two vessels were determined using the methods of Kappenman (1992). Three-hundred six stations sampled by the two vessels during the standard survey (Fig. 1) plus 16 stations from special studies were used in that analysis (see Appendix A).

Mean catch per unit effort (CPUE) values for each species were calculated in kilograms per hectare and number per hectare for each of the 10 strata; area swept (hectares) was computed as the distance towed multiplied by the mean net width (Alverson and Pereyra 1969). Mean CPUE values, weighted by strata areas, were calculated for individual subareas and for the overall survey area. Biomass and population estimates were derived for each stratum by multiplying the stratum mean CPUE by the stratum area. Stratum totals were then added together to produce estimates for each subarea and for the total survey area.

In estimating the size composition of populations of principal commercial species, length-frequency data obtained at each station were expanded to the station catch by proportion and then extrapolated to the stratum population by the weighted CPUE. Stratum estimates were summed to derive the estimated size composition by subarea and for the overall survey area.

Otolith and scale samples collected during the survey were read by the Age and Growth Determination Unit of the AFSC's Resource Ecology and Fisheries Management (REFM) Division. From these age samples, stratified by sex and length, an age-length key was produced

that showed the distribution of ages by sex at each centimeter interval. Population age composition was estimated by apportioning ages to the estimated population number at each length interval. Only species whose age samples have been read by the time of writing of this publication have been included in the age analyses. Species completed at a later date will be presented in subsequent publications.

Growth characteristics of principal species were described with von Bertalanffy (1938) growth curves fitted to age-length data collected in this survey.

Special Studies

Stomach samples from several of the most prevalent commercial species in each haul were collected and preserved in formalin for later examination by REFM's Food Habits Program (Table 5).

Additional activities included collecting specimens for observer training programs, collecting samples for fish and crab pathology studies (Table 5), and fulfilling collection requests from academic institutions.

Table 5.--Biological fish samples collected for special studies during the 1995 eastern Bering Sea bottom trawl survey.

Species	Stomach samples collected
Walleye pollock	3,304
Pacific cod	2,605
Yellowfin sole	1,080
Rock sole	555
<i>Hippoglossoides</i> spp.	519
Pacific halibut	231
Alaska plaice	316
<i>Atheresthes</i> spp.	478
Greenland turbot	80
Skates	385

RESULTS

Station Data

Station data from the 1995 survey are listed in Appendix A. Relevant information such as position, tow parameters, time, and environmental measurements are listed for each vessel for all standard bottom trawl stations used in the analyses.

Environmental Conditions

Sea surface temperatures recorded during the survey ranged from 2.2° to 8.9° C (Fig. 4). As in most previous years, surface temperature increased from east to west across the shelf, probably reflecting the progression of summer warming as the survey proceeded from east to west.

Bottom temperatures ranged from -1.6° to 7.4° C (Fig. 5). The warmest temperatures (above 4° C) occurred in shallow waters along the central portion of the inner shelf southeast of Nunivak Island. The coldest bottom temperatures observed were in the northern portion of the mid-shelf at depths between 50 and 100-m.

The mean bottom water temperature for the total survey area in 1995 was 1.7° C (Fig. 6). Historically, this was in the low-range of values recorded for mean summer bottom water temperatures in the standard survey area (annual mean temperatures range from 1.7° to 5.1° C, average of annual means is 2.7° C). Mean bottom temperatures observed over a more limited region of the southeast Bering Sea, which has been sampled annually since 1971, have ranged from 1.2° to 4.8° C; the 1995 value for this area was 2.2° C, below the long-term average (3.1° C)(Fig. 6).

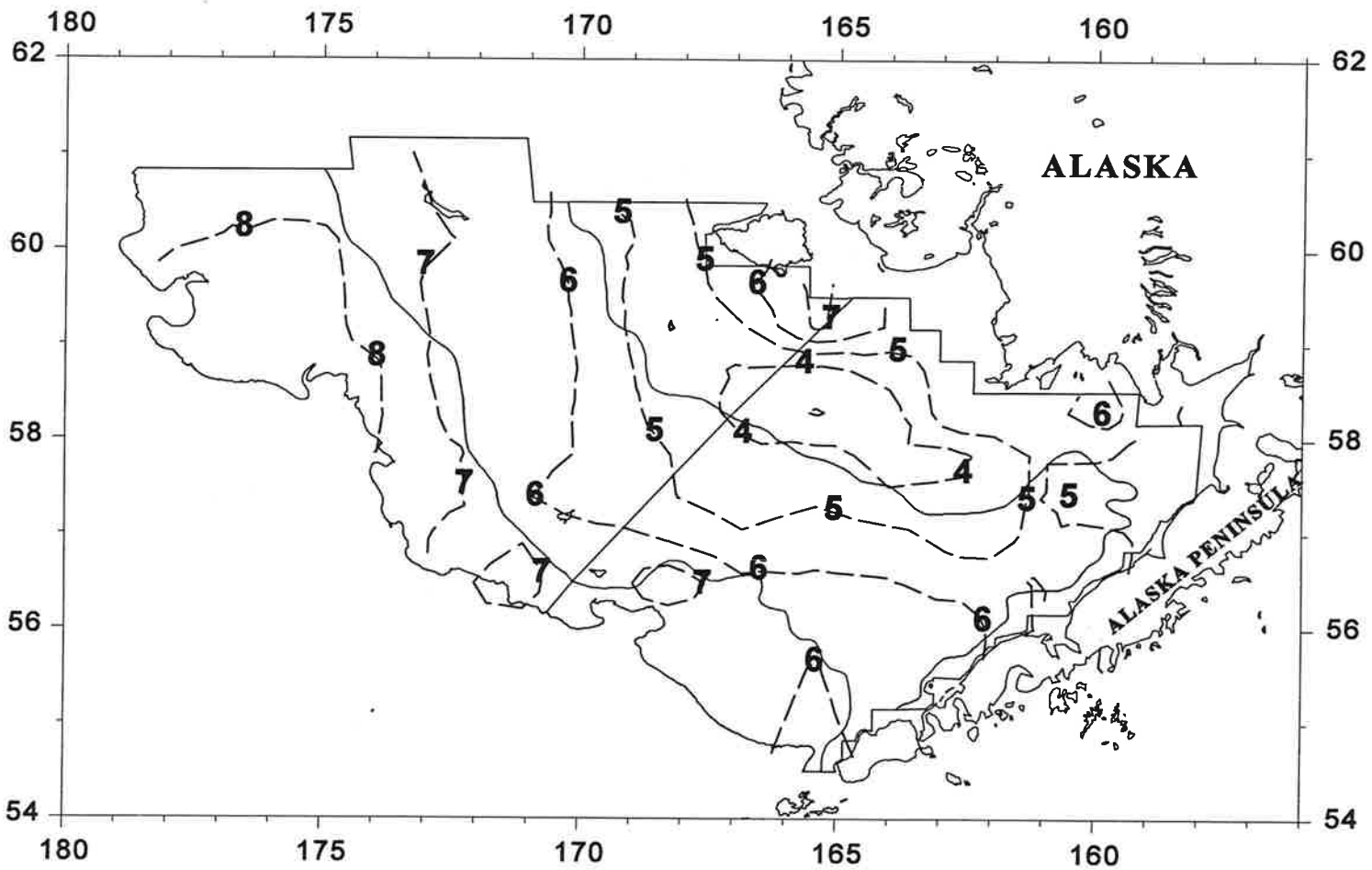


Figure 4.--Distribution of surface water temperatures (°C) observed during the 1995 eastern Bering Sea bottom trawl survey.

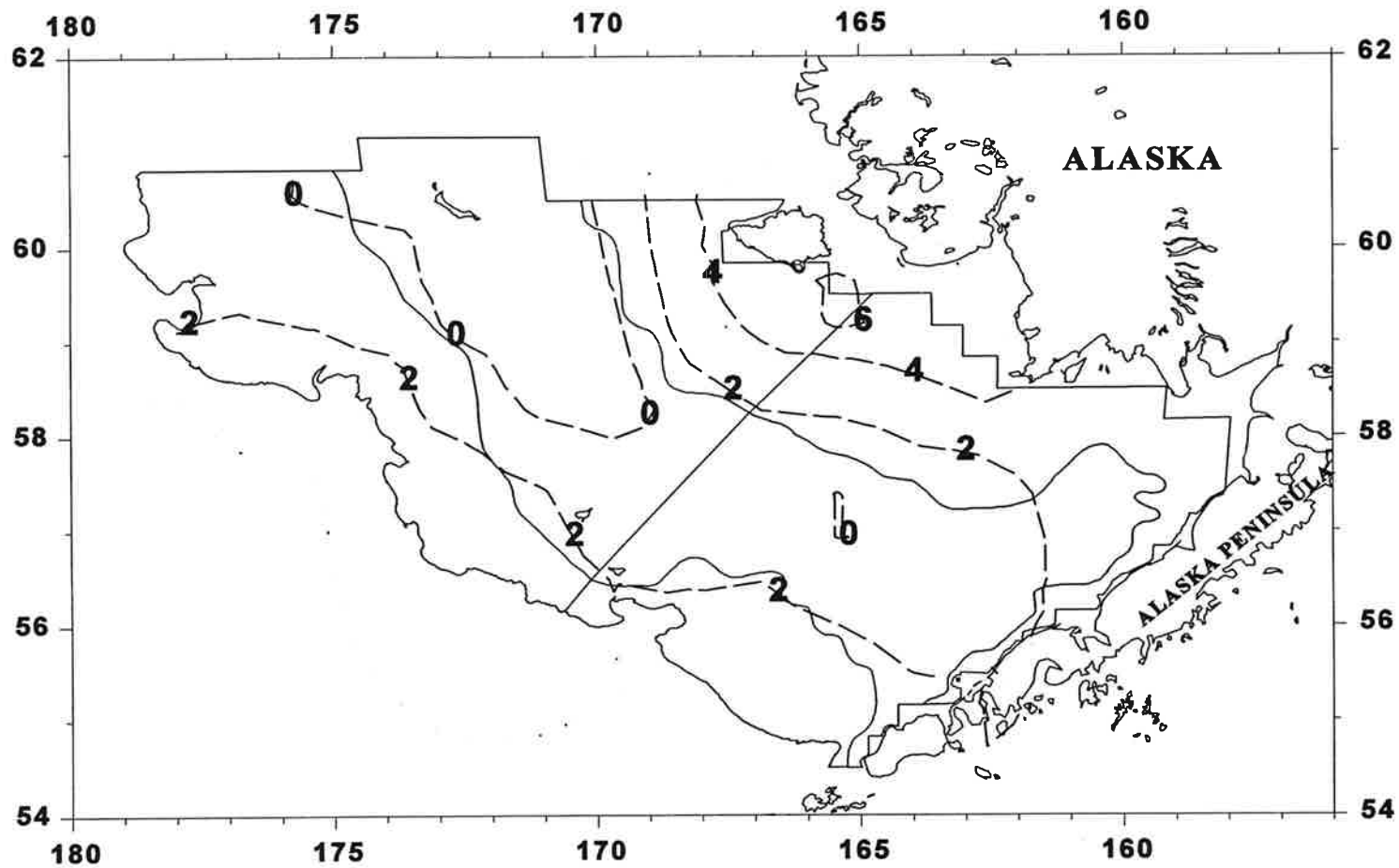


Figure 5.--Distribution of bottom water temperatures ($^{\circ}\text{C}$) observed during the 1995 eastern Bering Sea bottom trawl survey.

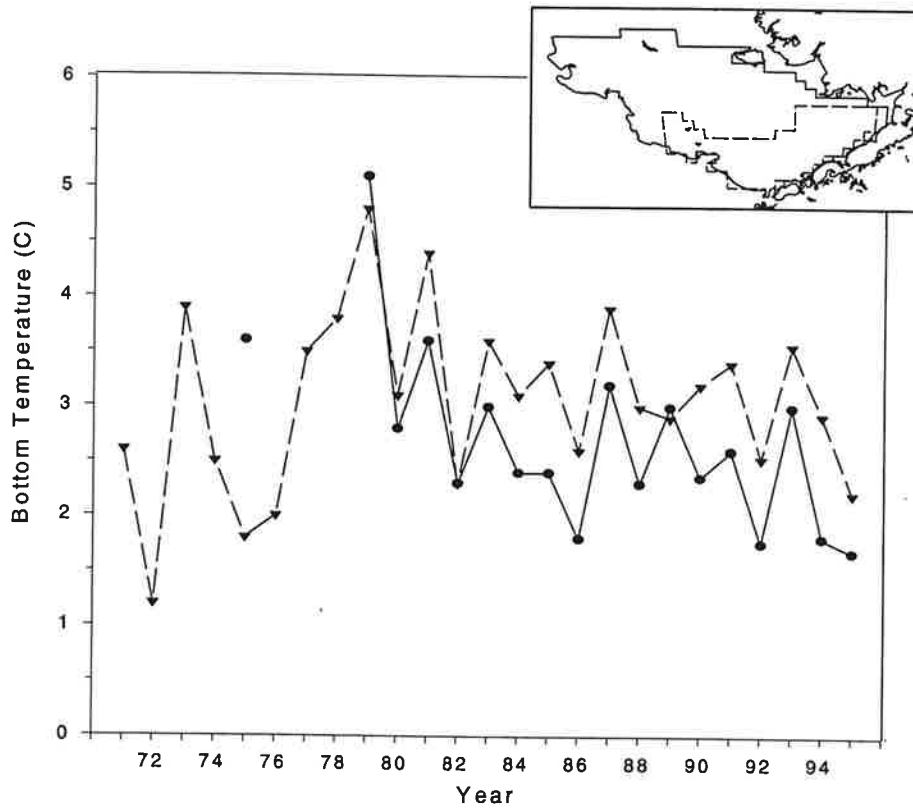


Figure 6.--Mean summer bottom water temperatures based on expendable bathythermograph casts or micro-bathythermographs attached to the net headrope during Alaska Fisheries Science Center bottom trawl surveys. The 1971-95 means (dashed line) are from the southeast Bering Sea (see insert) and the 1973 and 1979-95 means are from the larger survey area outlined on the inset. The 1975 data point for the overall survey area is based on data collected from August through September, while those in all other years and areas were collected from June through early August.

Relative Fishing Powers of Survey Vessels

A total of three-hundred twenty-two alternate-row tows were used in the comparison of vessel catch rates with the methods developed by Kappenman (1992). There were 306 tows from the standard area and 16 more from the special studies work (Appendix A). Of the 74 species of fish identified, 15 major species were analyzed using this method. Based on this analysis, the *F/V Aldebaran* was more efficient than the *F/V Arcturus* at capturing skates. Fishing power corrections were applied to catches (by species) of the less efficient vessel (Table 6).

Table 6.--Species for which fishing power corrections were applied, and scaling factors determined by the method of Kappenman (1992) based on 322 total hauls.

Species	Hauls with catch		Catch multiplier	
	<i>F/V Arcturus</i>	<i>F/V Aldebaran</i>	<i>F/V Arcturus</i>	<i>F/V Aldebaran</i>
skate unident.	115	106	1.27	1.00

Estimated Biomass of Major Fish and Invertebrate Groups

Total demersal animal biomass for the overall survey area was estimated at 16.6 million t, of which fish species accounted for 79% (13.2 million t, Table 7), and invertebrates 21% (3.4 million t, Table 8). Concentrations of fish biomass were located in Bristol Bay and along the Alaska Peninsula, around the Pribilof Islands, and northwest of the Pribilofs (Fig. 7). Although 19 families and 74 species of fish were identified in the catches (Appendix B), the fish biomass was dominated by flatfishes (Pleuronectidae, 6.0 million t) and cods (Gadidae, 6.4 million t) (Table 7). The biomass of invertebrates was comprised primarily of the phyla Echinodermata (1.2 million t), Crustacea (1.0 million t), and Mollusca (0.4 million t). A total of 84 invertebrate species from 11 phyla were identified in the survey (Table 8, Appendix B).

Relative Abundance of Individual Fish Species

Relative abundance of the 11 most abundant species and species groups of fish are shown in Figure 8. These taxa accounted for 78% (281 kg/ha) of total animal mean CPUE (362 kg/ha) and 98% of total fish mean CPUE (287 kg/ha). Overall, but particularly in water deeper than 50-m, walleye pollock were the dominant species in the catch with a mean CPUE of 116.79kg/ha. Pacific cod were abundant across all depths with an overall mean CPUE of 21.65kg/ha. Yellowfin sole and rock sole, with overall mean catch rates of 43.37kg/ha and 46.94kg/ha respectively, dominated catches in water less than 50-m. Yellowfin sole and rock sole were also prominent on the mid-shelf waters between 50 and 100-m along with Alaska plaice and *Hippoglossoides* spp. See Appendix C for a descending rank of all organisms caught.

Table 7.--Biomass estimates (t) for major fish species and fish groups taken during the 1995 eastern Bering Sea bottom trawl survey.

Taxon	Estimated total biomass (t) ^a and 95% confidence interval		Proportion of total animal biomass ^b	Estimated biomass by subarea (t)					
				1	2	3	4	5	6
Gadidae (cods)									
Walleye pollock	5,411,900	± 38%	0.325	280,661	34,083	2,187,258	749,504	504,965	1,655,429
Pacific cod	1,003,046	± 18%	0.060	227,149	41,127	213,877	170,403	59,952	290,539
Other cods	2,166	± 90%	0.000	1,301	679	0	180	0	6
Total cods	6,417,112	± 33%	0.386	509,110	75,888	2,401,136	920,087	564,917	1,945,975
Anoplopomatidae									
Sablefish	0	± 0%	0.000	0	0	0	0	0	0
Scorpaenidae (rockfish)									
Pacific ocean perch	550	± 197%	0.000	0	0	0	0	3	547
Other rockfish	66	± 150%	0.000	0	0	21	0	46	0
Total rockfish	616	± 176%	0.000	0	0	21	0	49	547
Pleuronectidae (flatfishes)									
Yellowfin sole	2,009,671	± 14%	0.121	991,079	284,636	533,231	200,287	350	88
Rock sole	2,175,047	± 12%	0.131	1,178,978	236,181	354,451	305,201	5,510	94,726
Hippoglossoides spp.	593,412	± 17%	0.036	27,780	861	274,017	56,478	78,843	155,433
Alaska plaice	552,292	± 22%	0.033	94,566	56,864	134,968	247,172	0	18,721
Arrowtooth flounder	452,449	± 29%	0.027	2,144	0	141,356	10,715	166,232	132,002
Kamchatka flounder	28,356	± 21%	0.002	0	0	2,821	411	4,647	20,478
Greenland turbot	34,779	± 43%	0.002	0	0	1,040	895	221	32,624
Pacific halibut	153,846	± 14%	0.009	34,311	13,768	36,904	16,023	20,379	32,461
Other flatfish	37,787	± 33%	0.002	21,401	3,795	3,633	139	6,356	2,464
Total flatfish	6,037,639	± 8%	0.363	2,350,258	596,105	1,482,421	837,322	282,537	488,995
Clupeidae									
Pacific herring	54,367	± 105%	0.003	49,706	1,520	954	2,136	3	49
Cottidae (sculpins)	218,693	± 19%	0.013	43,135	25,737	35,819	68,133	5,016	40,853
Zoarcidae (eelpouts)	28,421	± 27%	0.002	0	304	541	13,180	245	14,152
Osmeridae (smelts)	7,742	± 59%	0.000	2,617	136	865	134	3,983	7
Agonidae (poachers)	20,318	± 22%	0.001	7,197	4,447	3,971	4,349	140	215
Cyclopteridae (snailfishes)	1,573	± 48%	0.000	0	56	0	1,224	12	281
Rajidae (skates)	391,768	± 16%	0.024	12,041	9,082	82,266	78,645	41,235	168,498
Other fish	9,272	± 56%	0.001	508	1,523	3,127	242	1,190	2,682
Total fish	13,187,520	± 17%	0.793	2,974,573	714,798	4,011,118	1,925,451	899,327	2,662,254

^aDifferences in sums of estimates and totals are due to rounding

^bProportion of total estimated biomass, fish and invertebrates combined, for the total survey area. Total estimated biomass=16,631,959t.

Table 8.--Biomass estimates (t) for major invertebrate species and invertebrate groups taken during the 1995 eastern Bering Sea bottom trawl survey.

Taxon	Estimated total biomass (t) ^a and 95% confidence interval	Proportion of total animal biomass ^b	Estimated biomass by subarea (t)					
			1	2	3	4	5	6
Crustacea								
Chionoecetes sp. (snow crab)	543,933 ± 15%	0.033	1,206	35,343	89,912	217,730	33,083	166,659
Lithodes sp. king crab	143 ± 138%	0.000	0	0	0	0	93	50
Paralithodes sp. (king crab)	76,751 ± 42%	0.005	10,169	751	30,100	33,783	0	1,948
Erimacrus isenbeckii (hair crab)	5,502 ± 48%	0.000	159	1,000	625	3,718	0	0
Paguridae hermit crab	356,606 ± 14%	0.021	18,742	26,270	96,782	144,829	4,746	65,238
Other crab	40,775 ± 45%	0.002	6,678	7,170	13,750	12,658	231	290
Total crab	1,023,711 ± 11%	0.062	36,953	70,534	231,169	412,719	38,152	234,185
Shrimps	2,454 ± 46%	0.000	45	39	42	226	50	2,053
Other crustaceans	3,673 ± 124%	0.000	49	0	1,855	1,469	32	269
Total crustaceans	1,029,838 ± 11%	0.062	37,046	70,573	233,065	414,413	38,233	236,508
Mollusca								
Gastropoda (snails)	393,433 ± 17%	0.024	28,914	36,109	117,099	129,803	7,389	74,119
Pelecypoda (bivalves)	6,336 ± 40%	0.000	1,105	445	1,860	2,419	168	340
Squids	14 ± 87%	0.000	0	0	0	0	3	11
Octopuses	2,779 ± 123%	0.000	0	0	1,702	520	0	558
Other mollusks	0 ± 0%	0.000	0	0	0	0	0	0
Total mollusks	402,562 ± 16%	0.024	30,019	36,553	120,661	132,742	7,560	75,028
Echinodermata								
Asteroidea (starfish)	960,196 ± 13%	0.058	362,612	202,740	226,918	138,335	885	28,707
Ophiuroidea (brittle stars)	163,757 ± 24%	0.010	5,377	1,336	44,668	29,481	667	82,228
Echinoidea (sea urchin)	21,145 ± 156%	0.001	333	0	17,269	455	1,767	1,321
Holothuroidea (sea cucumbers)	10,197 ± 57%	0.001	2,755	0	5,247	2,195	0	0
Total echinoderms	1,162,257 ± 11%	0.070	375,329	204,241	294,399	172,686	3,348	112,255
Ascidiacea	299,230 ± 31%	0.018	22,708	12,062	124,714	139,746	0	0
Porifera (sponges)	131,103 ± 70%	0.008	970	92	115,426	11,377	180	3,058
Coelenterata	240,613 ± 53%	0.014	10,092	2,799	125,962	51,276	30,253	20,231
Other invertebrates	185,798 ± 38%	0.011	24,090	19,082	94,630	38,721	1,875	7,399
Total invertebrates	3,444,439 ± 8%	0.207	496,003	345,237	1,108,560	958,741	81,420	454,479

^aDifferences in sums of estimates and totals are due to rounding

^bProportion of total estimated biomass, fish and invertebrates combined, for the total survey area. Total estimated biomass=16,631,959t.

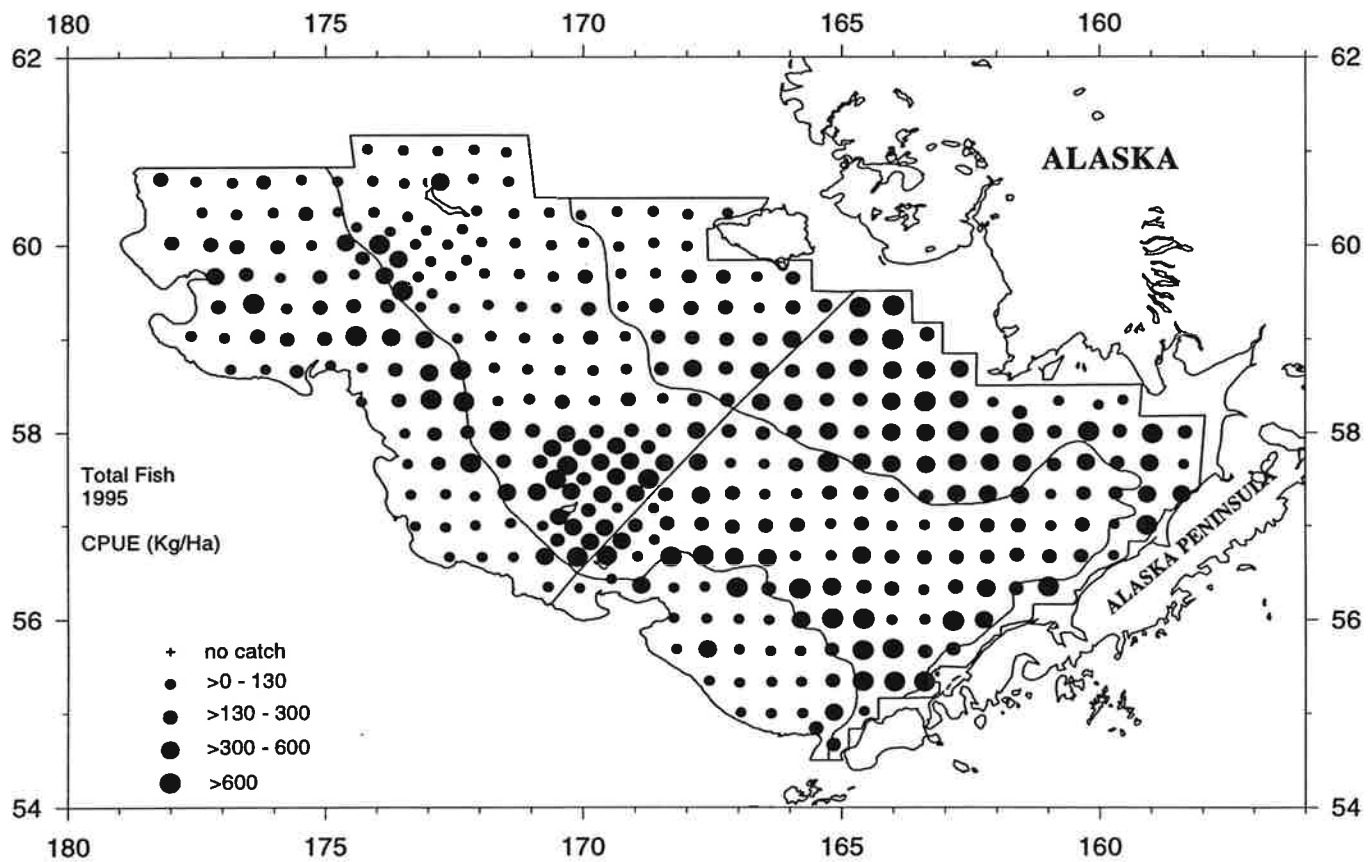


Figure 7.--Distribution and relative abundance of total fish, 1995 eastern Bering Sea bottom trawl survey.

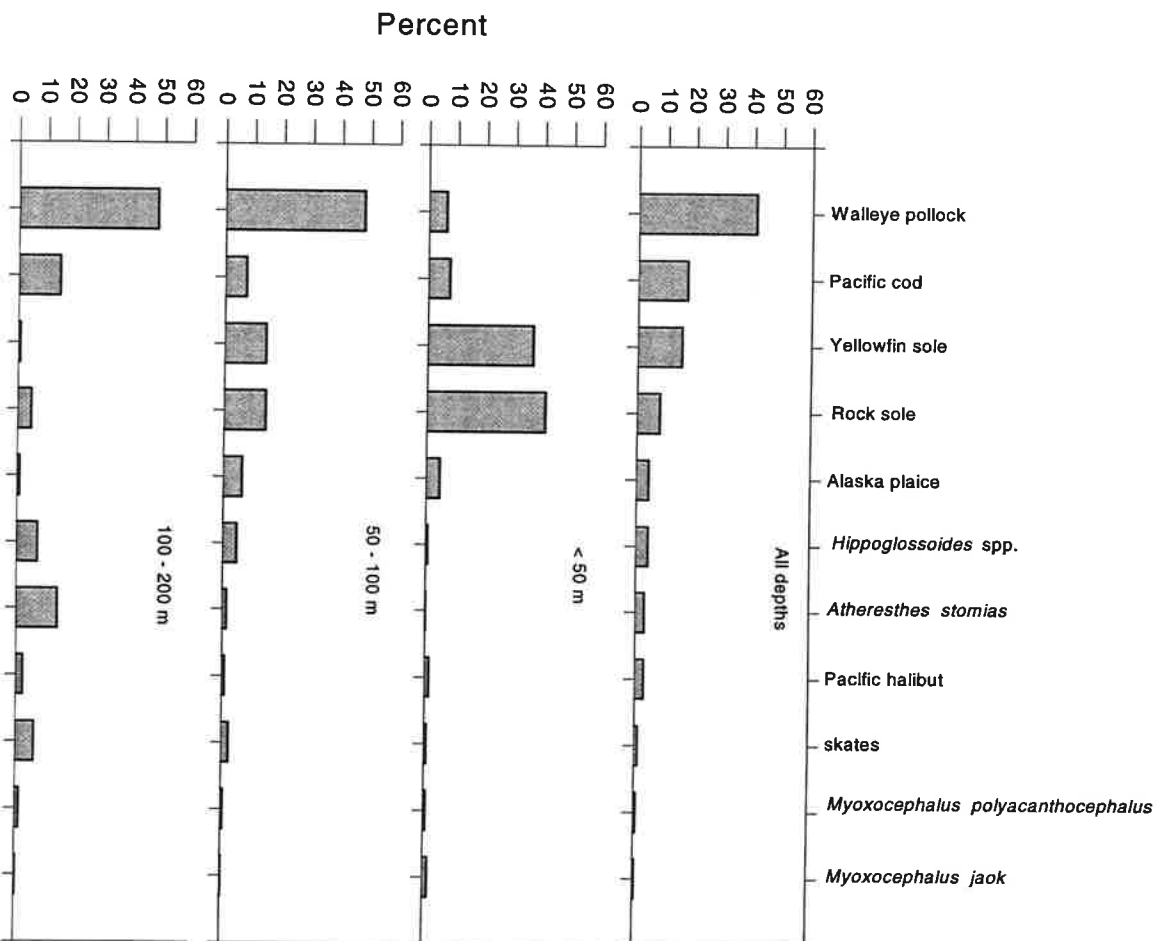


Figure 8.--Relative abundance (%CPUE in kg/ha) of principal groundfish species (top 11 for all depths combined) by depth zones and for all depths combined, 1995 eastern Bering Sea bottom trawl survey.

Abundance, Distribution, and Size and Age Composition of Principal Species and Species Groups

Geographical distributions, population numbers, biomass estimates, and size composition are presented for each of the following commercially important eastern Bering Sea groundfish: walleye pollock, Pacific cod, yellowfin sole, rock sole, *Hippoglossoides* spp., Alaska plaice, Greenland turbot (*Reinhardtius hippoglossoides*), arrowtooth flounder, Kamchatka flounder, and Pacific halibut. Estimated biomass, population numbers, and mean size (by length and weight) are summarized by subarea and for the entire survey area. Size composition data are illustrated in histograms relating the population percentage of length by centimeter interval for each subarea and in population numbers for the total survey area. Age composition and von Bertalanffy growth parameters are given for walleye pollock, yellowfin sole, and rock sole. Geographical distributions for some common, but generally noncommercial fish species are presented. These are total skates, great sculpin (*Myoxocephalus polyacanthocephalus*), plain sculpin (*M. jaok*), bigmouth sculpin (*Hemitripterus bolini*), wattled eelpout (*Lycodes palearis*), shortfin eelpout (*L. brevipes*), marbled eelpout (*L. raridens*), sturgeon poacher (*Podothecus acipenserinus*), Bering poacher (*Ocella dodecaedron*), eulachon (*Thaleichthys pacificus*), capelin (*Mallotus villosus*), and Pacific herring (*Clupea pallasii*). Biomass and population estimates as well as mean weight are given by subarea and total area. These tables are not given for the pelagic species such as eulachon, capelin, and Pacific herring due to the bottom sampling nature of the survey. We do not believe these species are adequately represented in the samples; however, plots are shown to give some idea of geographic distribution.

Appendices to the report contain detailed results of the analysis. CPUE, population, and biomass estimates as well as the variances and confidence limits for each species by stratum are

given in Appendix D. Population estimates by sex and size class for the total survey area are listed in Appendix E.

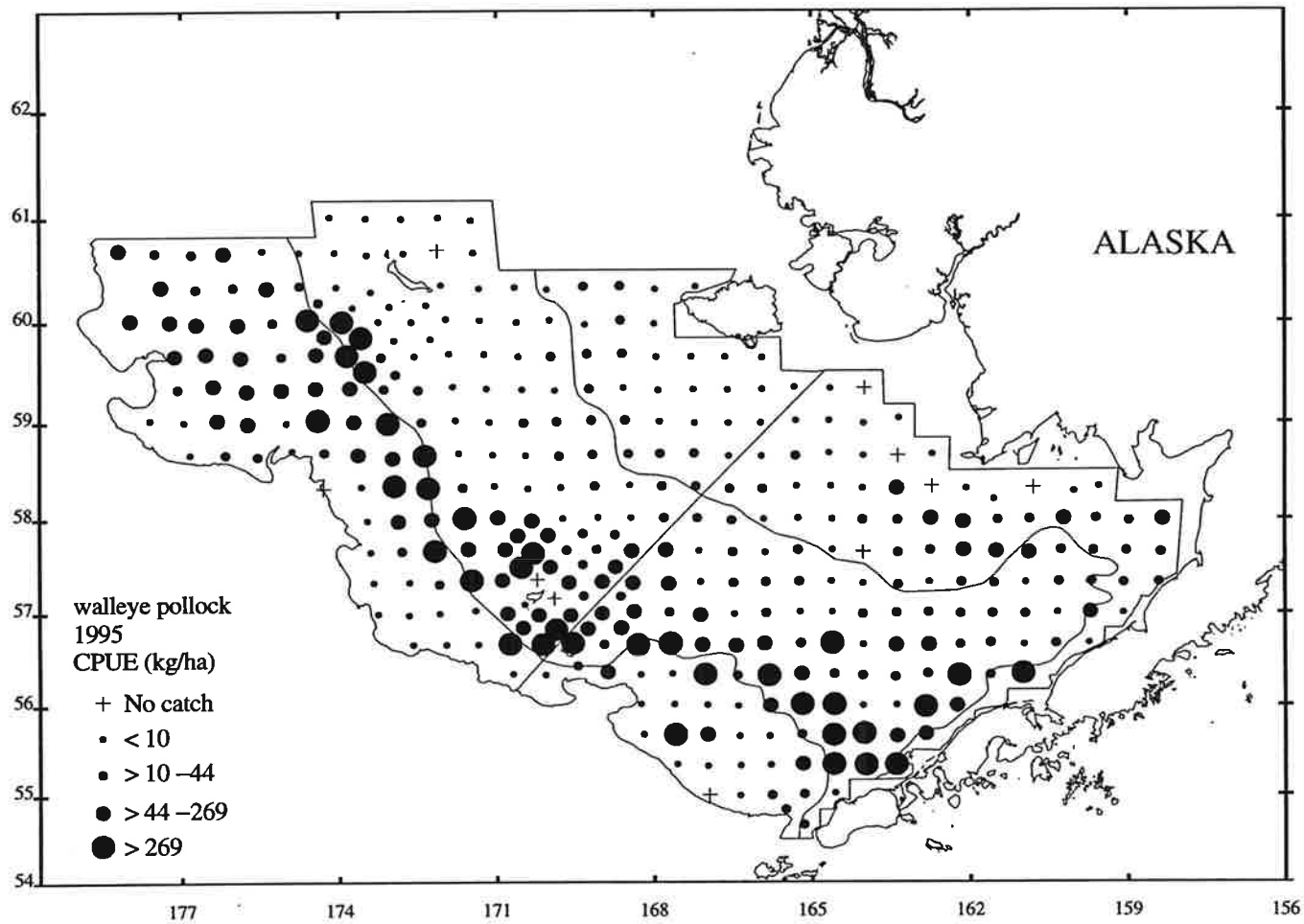


Figure 9--. Distribution and relative abundance in kg/ha of walleye pollock, 1995 eastern Bering Sea bottom trawl survey.

Table 9.--Abundance estimates and mean size of walleye pollock by subarea, 1995 eastern Bering Sea bottom trawl survey.

Subarea	Mean CPUE (kg/ha)	Estimated biomass (t) ^a	Proportion of estimated biomass	Estimated population numbers ^a	Proportion of estimated population	Mean size Weight (kg)	Mean size Length (cm)
1	36.04	280,661	0.052	182,460,116	0.019	1.538	57.1
2	8.31	34,083	0.006	99,378,768	0.010	0.343	20.5
3	211.74	2,187,258	0.404	3,021,690,137	0.318	0.724	47.6
4	69.51	749,504	0.138	1,463,403,087	0.154	0.512	35.1
5	130.17	504,965	0.093	724,248,495	0.076	0.697	45.9
6	175.06	1,655,429	0.306	4,025,238,563	0.423	0.411	35.1
All subareas combined ^b	116.79	5,411,900	1.000	9,516,419,167	1.000	0.569	40.2
95% Confidence interval		±2,061,194		±3,574,587,370			

^aVariances of abundance estimates are given in Appendix D.

^bDifferences in sums of estimates and totals are due to rounding.

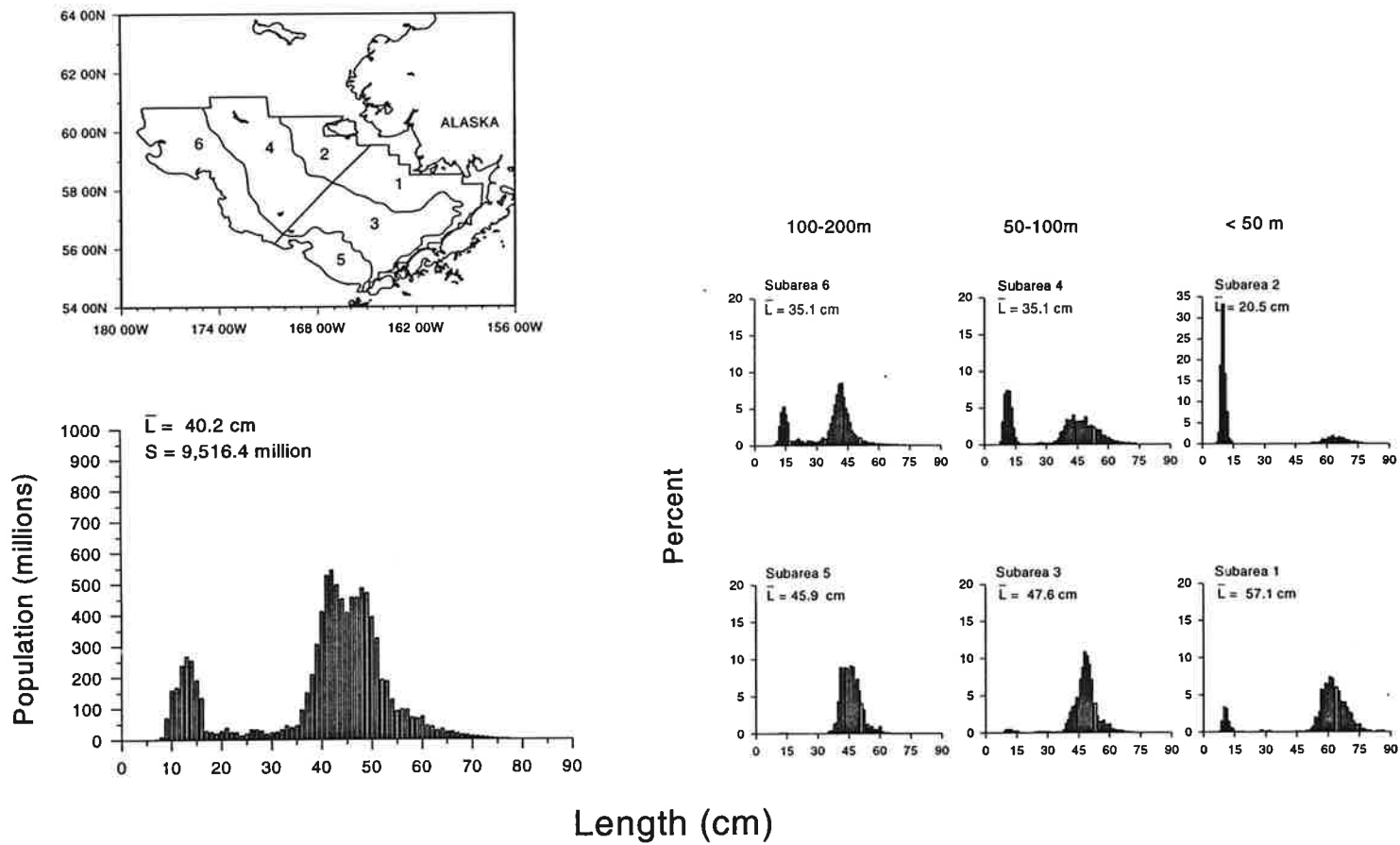


Figure 10.--Estimated relative size distribution (sexes combined) of walleye pollock in terms of population numbers and percent for subareas 1-6, 1995 eastern Bering Sea bottom trawl survey.

Table 10.--Estimated population numbers (millions) of walleye pollock by age group and subarea, 1995 eastern Bering Sea bottom trawl survey.

Age	Year class	Depth and Subarea						All subareas combined	Proportion
		100 - 200 m		50 - 100 m		< 50 m			
		6	5	4	3	2	1		
0	1995	7.54	.01	68.08	8.71	19.27	3.96	107.57	0.0113
1	1994	808.65	1.99	361.83	56.09	39.03	12.08	1,279.68	0.1345
2	1993	175.15	.10	18.98	7.46	.76	.53	202.98	0.0213
3	1992	198.43	.51	20.59	25.90	.00	1.22	246.66	0.0259
4	1991	800.28	82.50	135.00	162.59	.00	.09	1,180.45	0.1240
5	1990	826.32	156.23	175.44	415.25	.04	.93	1,574.21	0.1654
6	1989	768.45	289.73	287.51	1,196.05	.19	2.92	2,544.85	0.2674
7	1988	281.77	124.68	123.39	546.40	.12	2.32	1,078.68	0.1133
8	1987	47.40	27.14	41.48	164.53	.30	3.80	284.65	0.0299
9	1986	20.17	14.20	32.48	101.57	.49	6.23	175.16	0.0184
10	1985	14.50	5.42	22.70	56.62	1.15	12.87	113.27	0.0119
11	1984	24.07	10.55	44.00	107.64	2.83	25.65	214.74	0.0226
12	1983	8.69	2.48	15.42	40.68	2.34	17.67	87.29	0.0092
13	1982	19.71	4.88	31.67	71.13	3.38	32.25	163.02	0.0171
14	1981	6.35	1.89	12.94	25.38	1.60	17.51	65.66	0.0069
15	1980	4.25	1.17	7.43	13.42	1.73	14.38	42.39	0.0045
16	1979	2.81	.33	4.42	9.06	.89	8.02	25.52	0.0027
17	1978	1.46	.26	2.63	3.59	1.00	4.59	13.53	0.0014
18	1977	.80	.12	.97	1.12	.31	2.46	5.78	0.0006
20	1975	.26	.07	.96	2.70	.28	1.47	5.72	0.0006
Age unknown		8.18	.00	55.49	5.79	23.67	11.49	104.62	0.0110
All ages combined		4,017.70	724.25	1,395.33	3,012.97	80.11	178.48	9,408.86	1.0000

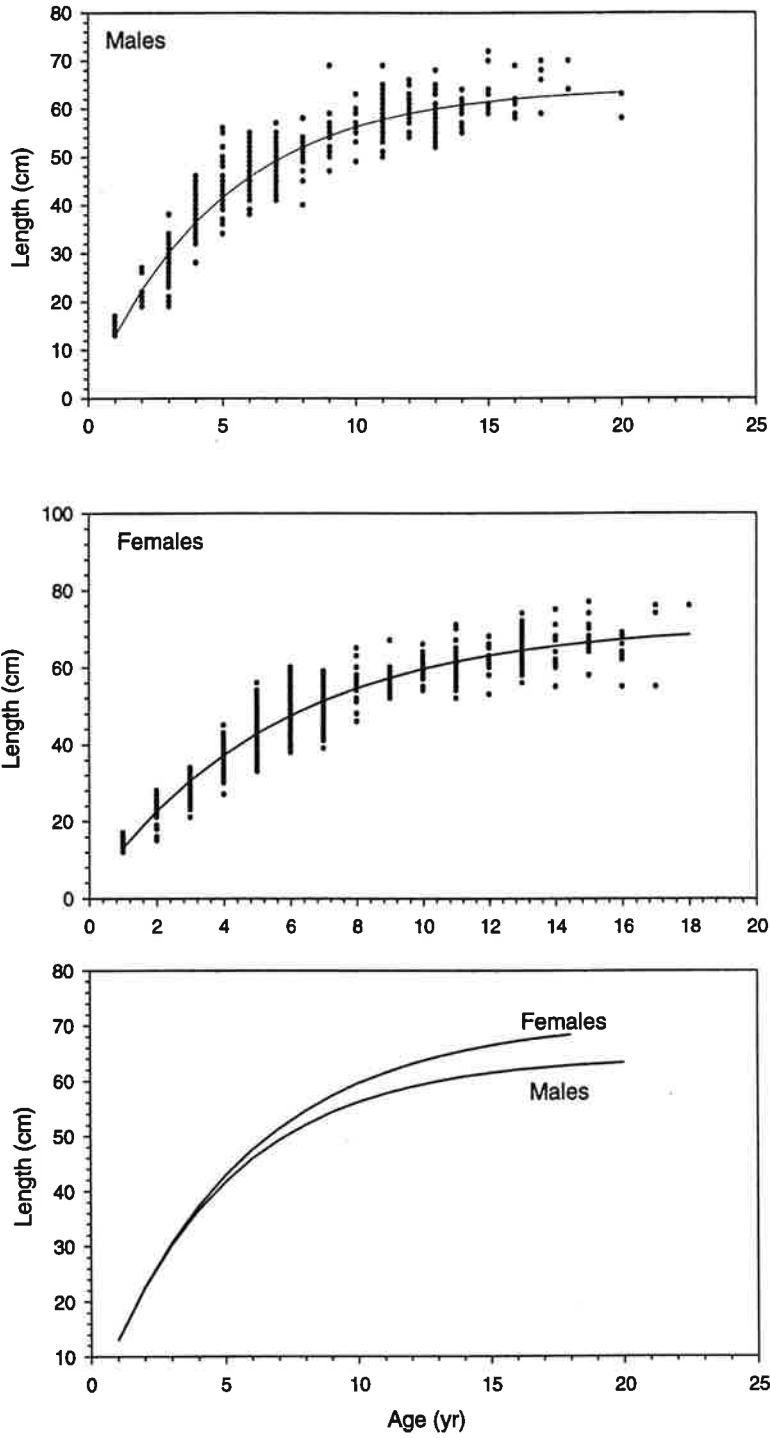


Figure 11.--Distribution of walleye pollock aged samples from the 1995 eastern Bering Sea bottom trawl survey by length for males, females and compared showing non-linear von Bertalanffy estimates.

Table 11.--Von Bertalanffy growth parameter estimates for walleye pollock by sex, based on otolith age reading and length data, from the 1995 eastern Bering Sea bottom trawl survey.

Sex	Number of age readings	Age range (years)	Length range (cm)	Parameters		
				L_{inf}	K	t_0
Male	551	1-20	12-72	64.48	0.20	-0.11
Female	581	1-18	12-77	71.19	0.18	-0.14

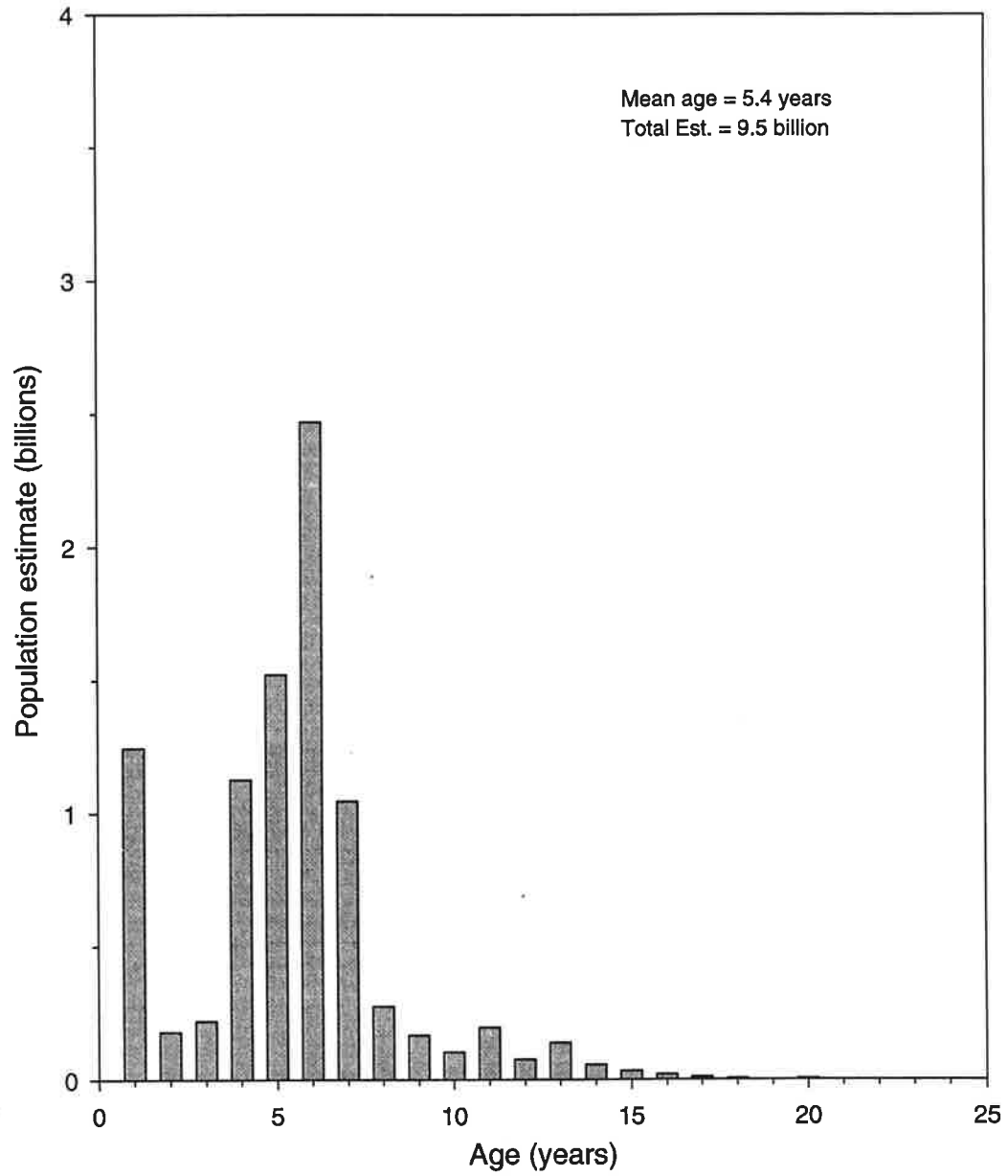


Figure 12.--Population number estimates by age for walleye pollock, 1995 eastern Bering Sea bottom trawl survey.

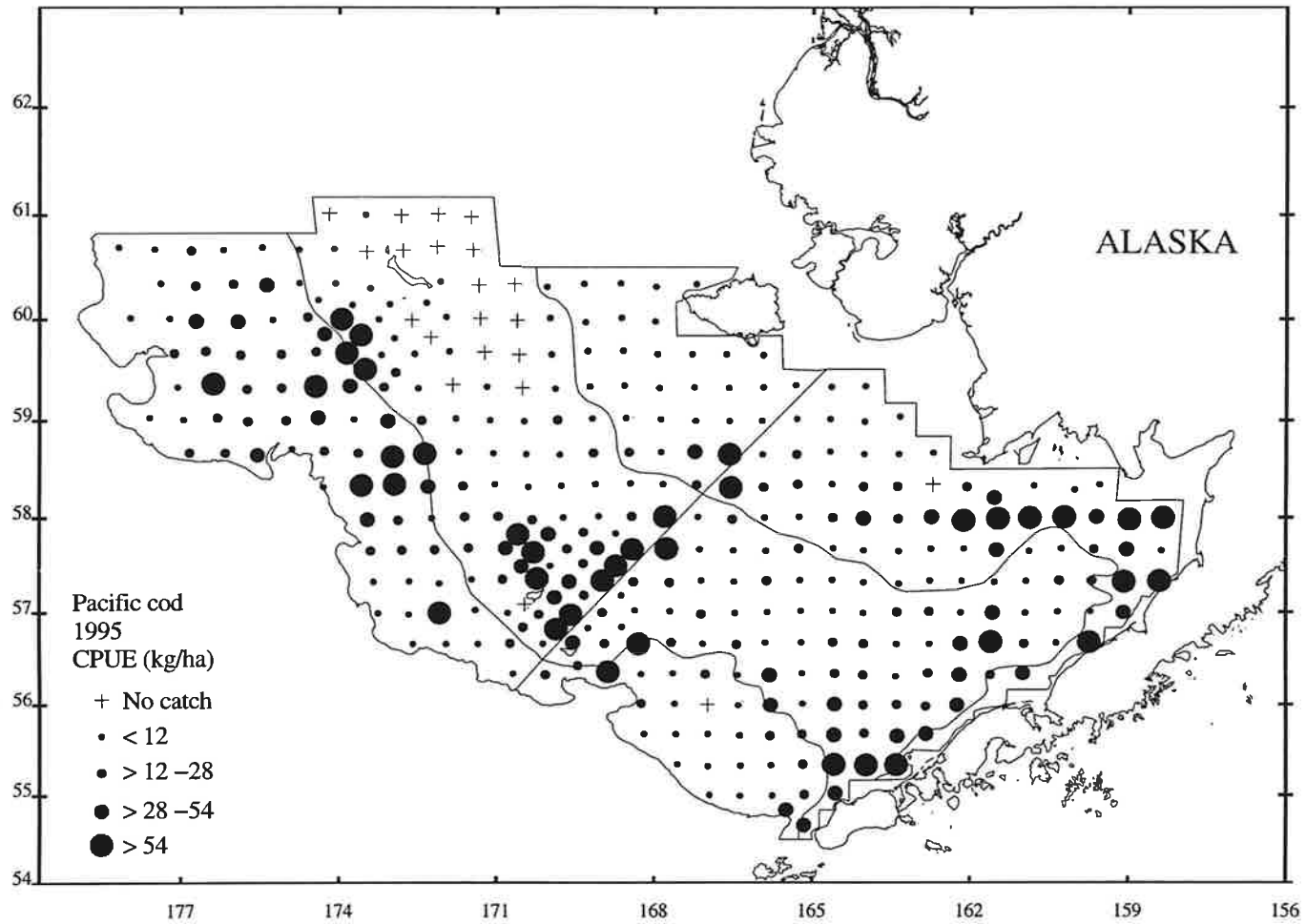


Figure 13--. Distribution and relative abundance in kg/ha of Pacific cod, 1995 eastern Bering Sea bottom trawl survey.

Table 12.--Abundance estimates and mean size of Pacific cod by subarea, 1995 eastern Bering Sea bottom trawl survey.

Subarea	Mean CPUE (kg/ha)	Estimated biomass (t) ^a	Proportion of estimated biomass	Estimated population numbers ^a	Proportion of estimated population	Mean size Weight (kg)	Mean size Length (cm)
1	29.17	227,149	0.226	215,649,879	0.285	1.053	40.8
2	10.02	41,127	0.041	58,403,500	0.077	0.704	37.6
3	20.70	213,877	0.213	135,617,853	0.179	1.577	45.9
4	15.80	170,403	0.170	190,419,573	0.251	0.895	40.5
5	15.45	59,952	0.060	20,044,140	0.026	2.991	58.6
6	30.72	290,539	0.290	137,441,500	0.181	2.114	52.6
All subareas combined ^b	21.65	1,003,046	1.000	757,576,445	1.000	1.324	44.0
95% Confidence interval		±181,646		±149,463,376			

^aVariances of abundance estimates are given in Appendix D.

^bDifferences in sums of estimates and totals are due to rounding.

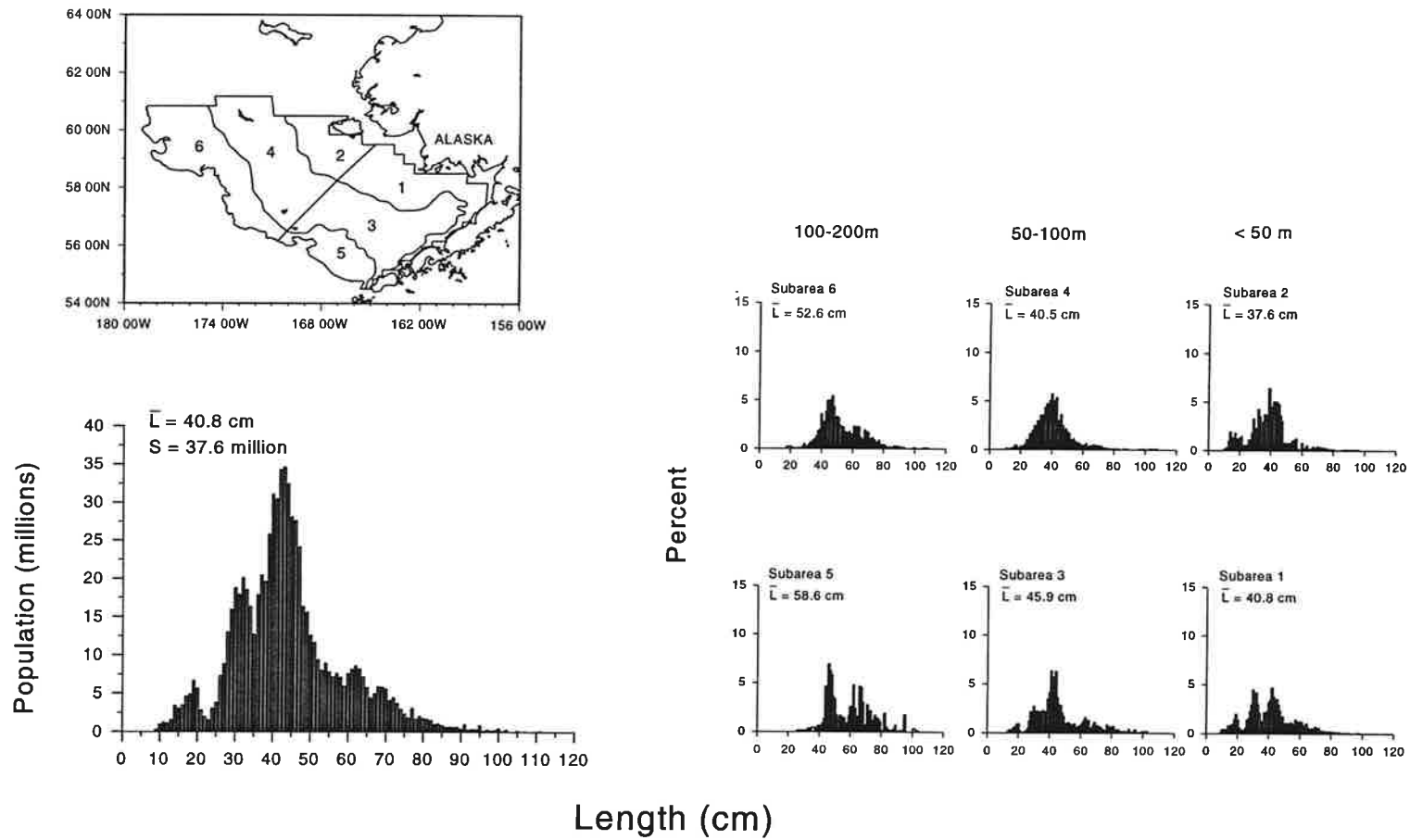


Figure 14.--Estimated relative size distribution (sexes combined) of Pacific cod in terms of population numbers and percent for subareas 1-6, 1995 eastern Bering Sea bottom trawl survey.

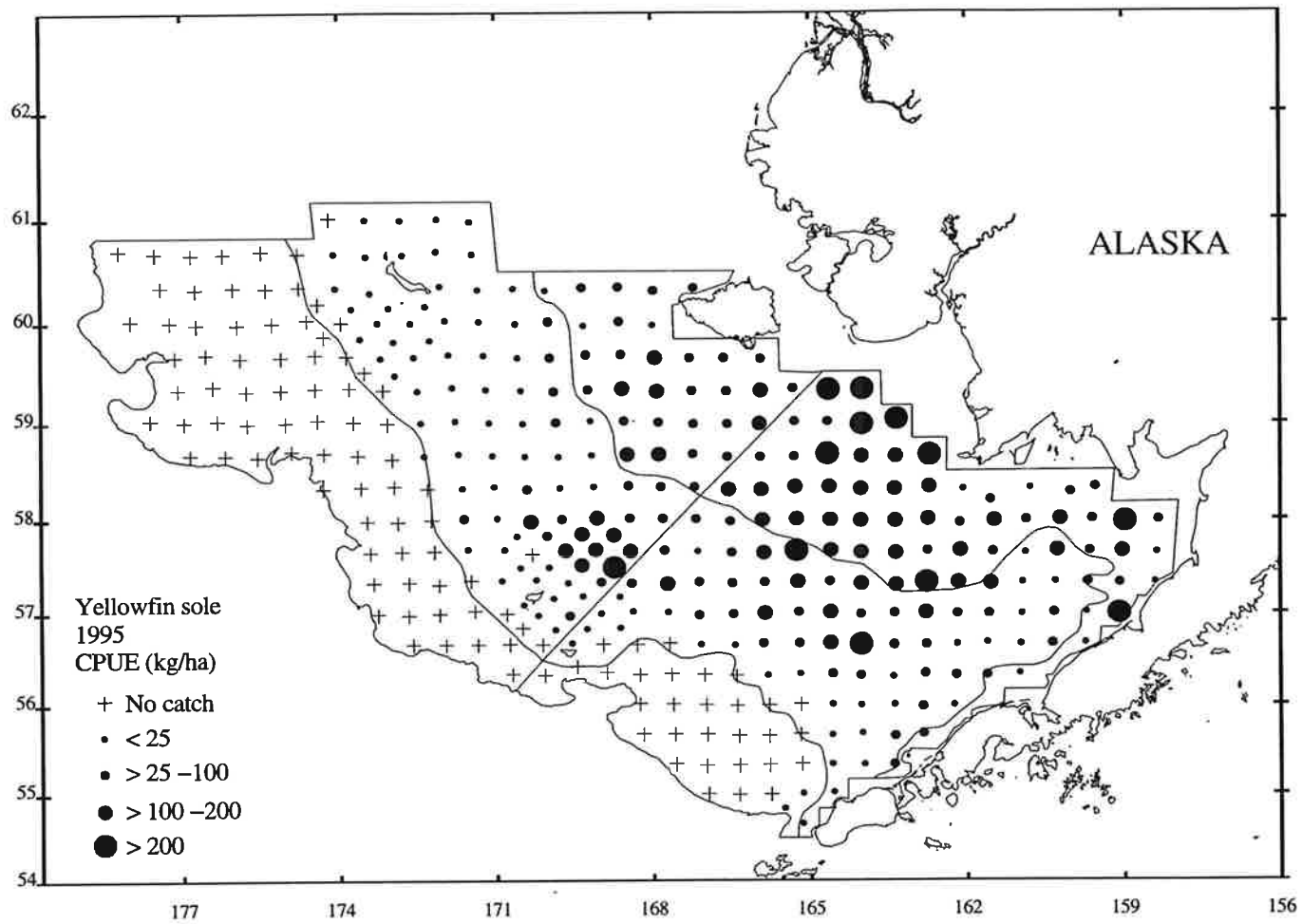


Figure 15--. Distribution and relative abundance in kg/ha of yellowfin sole, 1995 eastern Bering Sea bottom trawl survey.

Table 13.--Abundance estimates and mean size of yellowfin sole by subarea, 1995 eastern Bering Sea bottom trawl survey.

Subarea	Mean CPUE (kg/ha)	Estimated biomass (t) ^a	Proportion of estimated biomass	Estimated population numbers ^a	Proportion of estimated population	Mean size Weight (kg)	Length (cm)
1	127.27	991,079	0.493	4,145,220,401	0.503	0.239	26.0
2	69.38	284,636	0.142	1,453,124,642	0.176	0.196	23.5
3	51.62	533,231	0.265	2,055,871,206	0.250	0.259	27.6
4	18.58	200,287	0.100	581,763,991	0.071	0.344	29.1
5	0.09	350	0.000	847,768	0.000	0.413	32.4
6	0.01	88	0.000	465,298	0.000	0.189	28.0
All subareas combined ^b	43.37	2,009,671	1.000	8,237,293,306	1.000	0.244	26.2
95% Confidence interval		±284,887		±1,226,726,620			

^aVariances of abundance estimates are given in Appendix D.

^bDifferences in sums of estimates and totals are due to rounding.

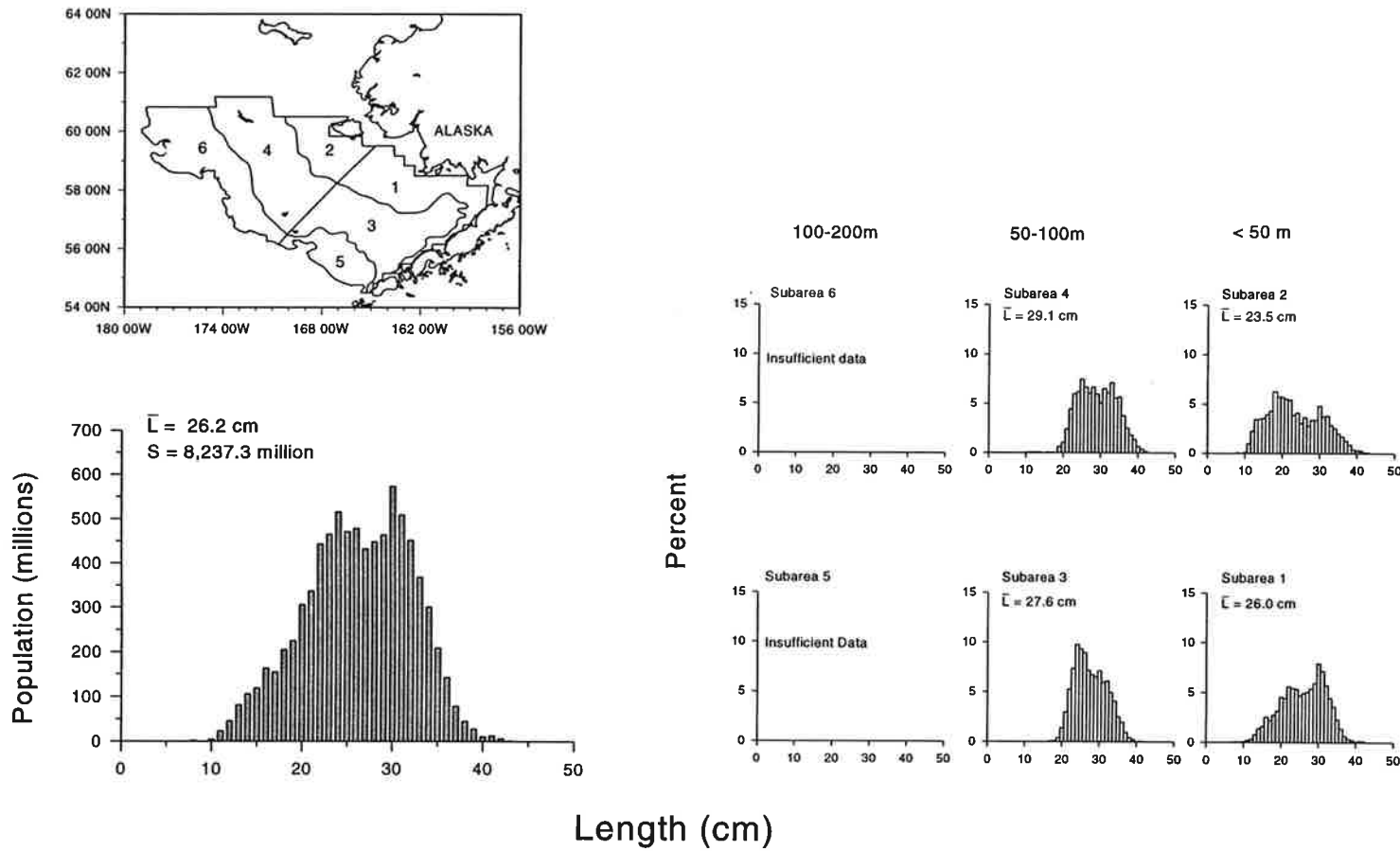


Figure 16.--Estimated size distribution (sexes combined) of yellowfin sole in terms of population numbers, and percent for subareas 1-6, 1995 eastern Bering Sea bottom trawl survey.

Table 14.--Estimated population numbers (millions) of yellowfin sole by age group and subarea, 1995 eastern Bering Sea bottom trawl survey.

Age	Year class	Depth and Subarea						All subareas combined	Proportion
		100 - 200 m		50 - 100 m		< 50 m			
		6	5	4	3	2	1		
3	1992	.00	.00	.00	.01	10.67	8.22	18.90	0.0023
4	1991	.00	.00	.24	.66	162.49	158.28	321.67	0.0391
5	1990	.00	.00	8.62	31.51	147.47	220.61	408.22	0.0496
6	1989	.00	.00	13.54	66.71	120.00	251.15	451.40	0.0548
7	1988	.03	.00	86.75	378.46	319.41	770.95	1,555.61	0.1888
8	1987	.03	.01	85.88	380.55	165.82	559.84	1,192.14	0.1447
9	1986	.20	.01	38.25	142.95	41.87	145.44	368.72	0.0448
10	1985	.00	.04	23.80	102.60	33.41	154.63	314.47	0.0382
11	1984	.00	.00	5.24	25.32	11.38	57.96	99.90	0.0121
12	1983	.00	.24	92.09	323.59	130.11	565.21	1,111.24	0.1349
13	1982	.00	.01	3.35	8.57	4.00	17.98	33.90	0.0041
14	1981	.20	.26	94.31	313.44	133.39	621.77	1,163.38	0.1412
15	1980	.00	.06	15.07	43.90	17.87	76.29	153.19	0.0186
16	1979	.00	.04	12.29	28.67	13.99	49.55	104.54	0.0127
17	1978	.00	.05	15.45	42.52	22.20	93.66	173.89	0.0211
18	1977	.00	.00	7.20	11.09	10.06	27.28	55.64	0.0068
19	1976	.00	.05	10.02	25.44	13.93	60.45	109.89	0.0133
20	1975	.00	.02	12.13	20.48	13.86	45.47	91.97	0.0112
21	1974	.00	.01	11.73	19.35	16.08	49.84	97.00	0.0118
22	1973	.00	.01	11.49	29.94	18.75	77.13	137.31	0.0167
23	1972	.00	.02	12.90	23.91	15.14	41.78	93.76	0.0114
24	1971	.00	.01	4.34	9.24	4.27	15.27	33.13	0.0040
25	1970	.00	.00	3.96	8.70	8.02	32.30	52.98	0.0064
26	1969	.00	.00	4.59	4.49	3.89	7.35	20.33	0.0025
27	1968	.00	.01	4.29	8.65	6.48	23.34	42.76	0.0052
28	1967	.00	.00	1.67	2.51	1.22	3.68	9.08	0.0011
29	1966	.00	.00	1.45	1.20	1.47	2.27	6.39	0.0008
30	1965	.00	.00	.95	1.42	1.44	1.98	5.79	0.0007
Age unknown		.00	.00	.14	.00	4.41	5.55	10.11	0.0012
All ages combined		0.46	0.85	581.74	2,055.88	1,453.10	4,145.23	8,237.31	1.0000

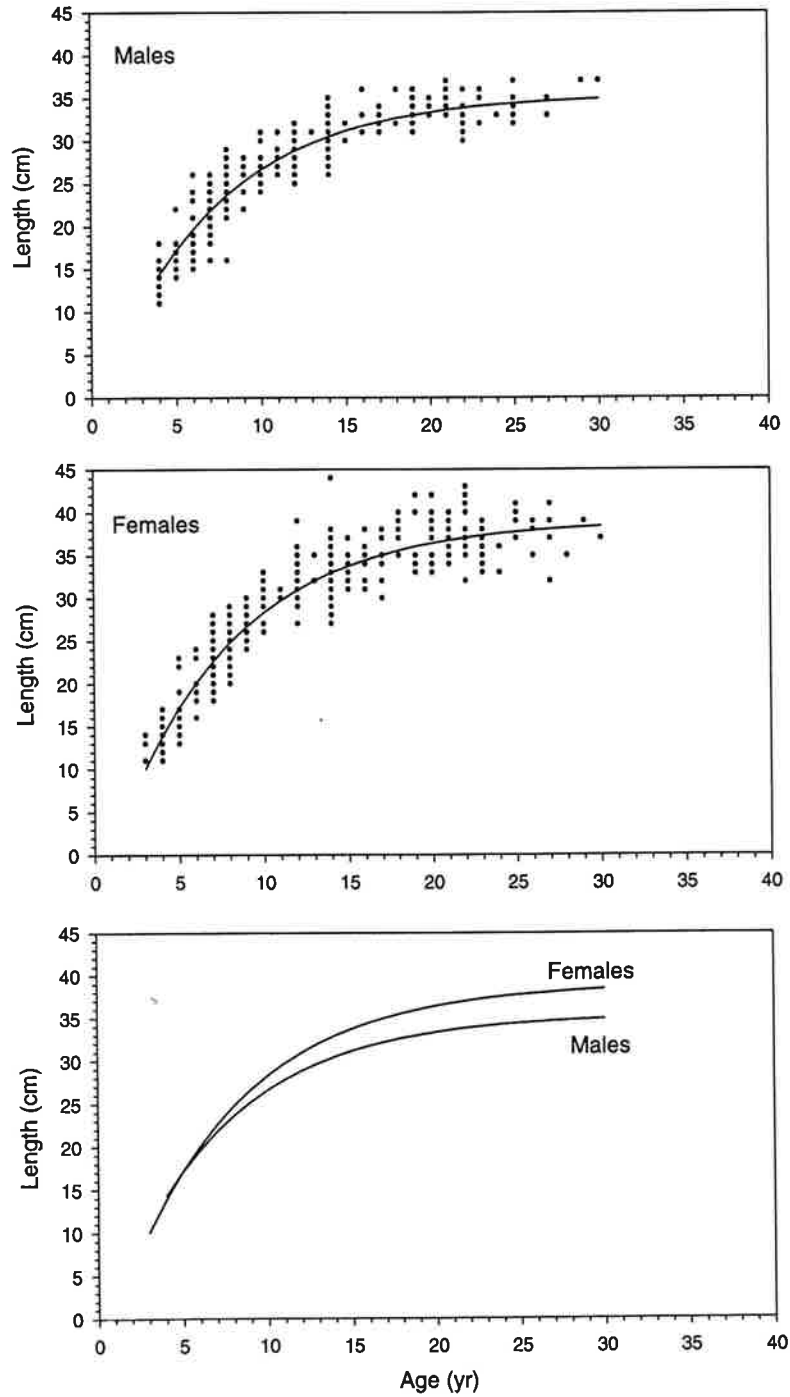


Figure 17.--Distribution of yellowfin sole aged samples from the 1995 eastern Bering Sea bottom trawl survey by length for males, females, and compared showing non-linear von Bertalanffy estimates.

Table 15.--Von Bertalanffy growth parameter estimates for yellowfin sole by sex, based on otolith age reading and length data from the 1995 eastern Bering Sea bottom trawl survey.

Sex	Number of age readings	Age range (years)	Length range (cm)	Parameters		
				L_{inf}	K	t_0
Male	272	4-30	11-37	35.34	0.15	0.45
Female	375	3-30	11-44	38.99	0.14	0.90

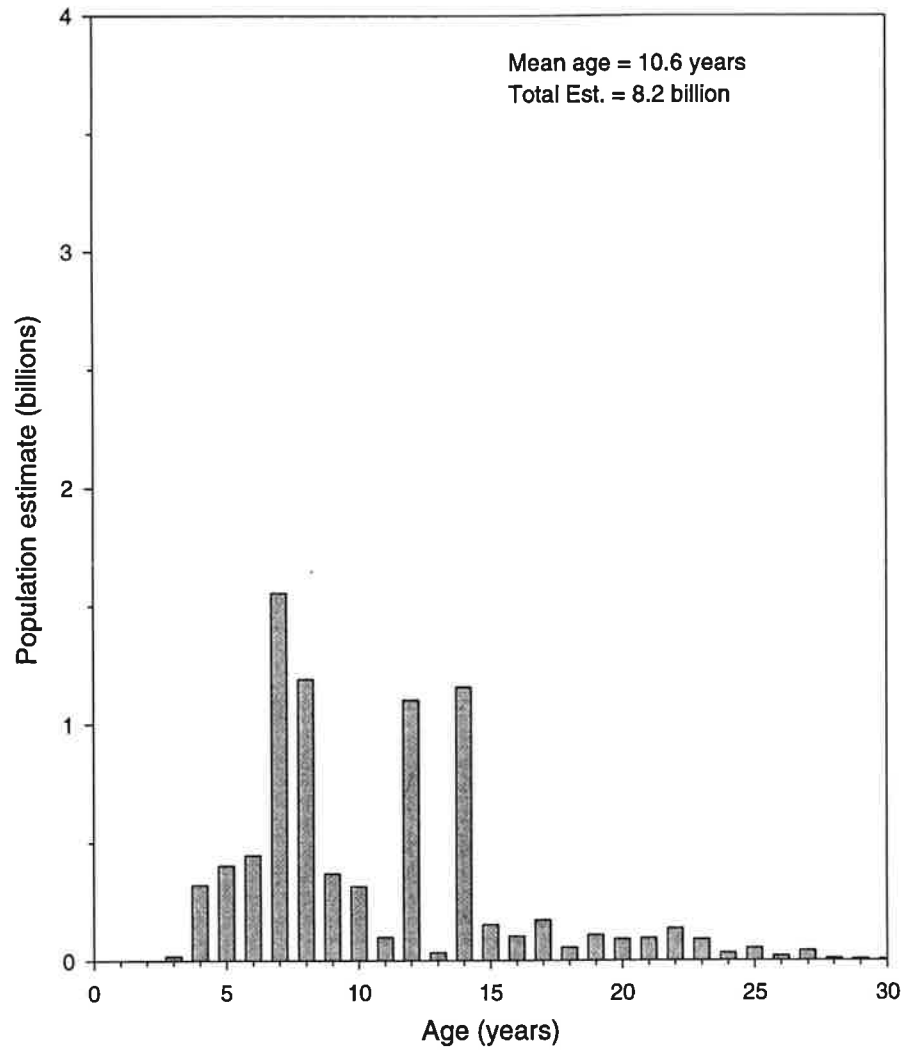


Figure 18.--Population number estimates by age for yellowfin sole, 1995 eastern Bering Sea bottom trawl survey.

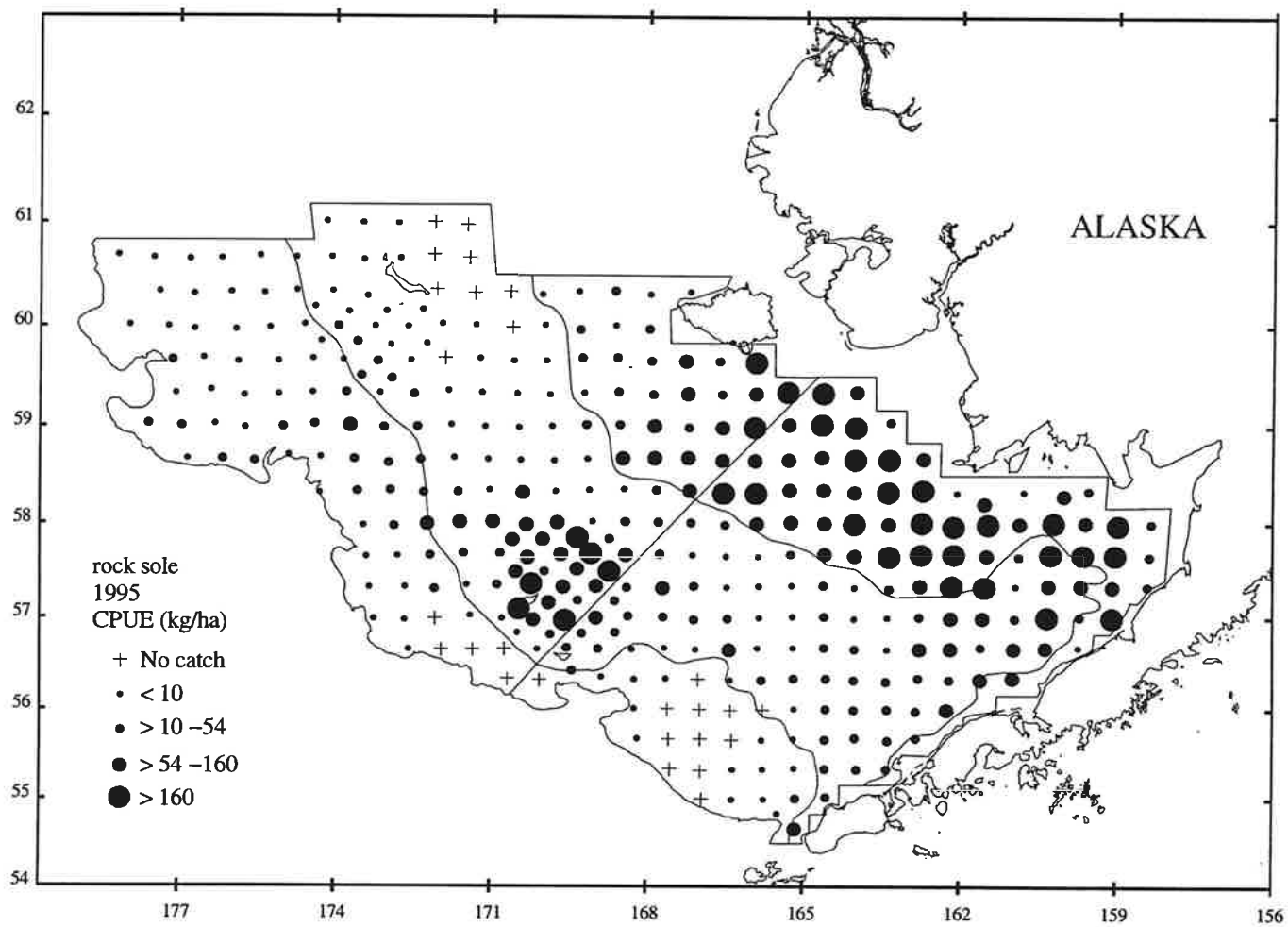


Figure 19--. Distribution and relative abundance in kg/ha of rock sole, 1995 eastern Bering Sea bottom trawl survey.

Table 16.--Abundance estimates and mean size of rock sole by subarea, 1995 eastern Bering Sea bottom trawl survey.

Subarea	Mean CPUE (kg/ha)	Estimated biomass (t) ^a	Proportion of estimated biomass	Estimated population numbers ^a	Proportion of estimated population	Mean size Weight (kg)	Mean size Length (cm)
1	151.40	1,178,978	0.542	6,408,113,316	0.587	0.184	23.9
2	57.57	236,181	0.109	1,006,770,277	0.092	0.235	25.6
3	34.31	354,451	0.163	2,061,084,828	0.189	0.172	23.9
4	28.31	305,201	0.140	1,189,478,826	0.109	0.257	27.0
5	1.42	5,510	0.003	18,885,448	0.002	0.292	28.3
6	10.02	94,726	0.044	225,326,323	0.021	0.420	31.5
All subareas combined ^b	46.94	2,175,047	1.000	10,909,659,018	1.000	0.199	24.6
95% Confidence interval		±258,350		±1,514,124,473			

^aVariances of abundance estimates are given in Appendix D.

^bDifferences in sums of estimates and totals are due to rounding.

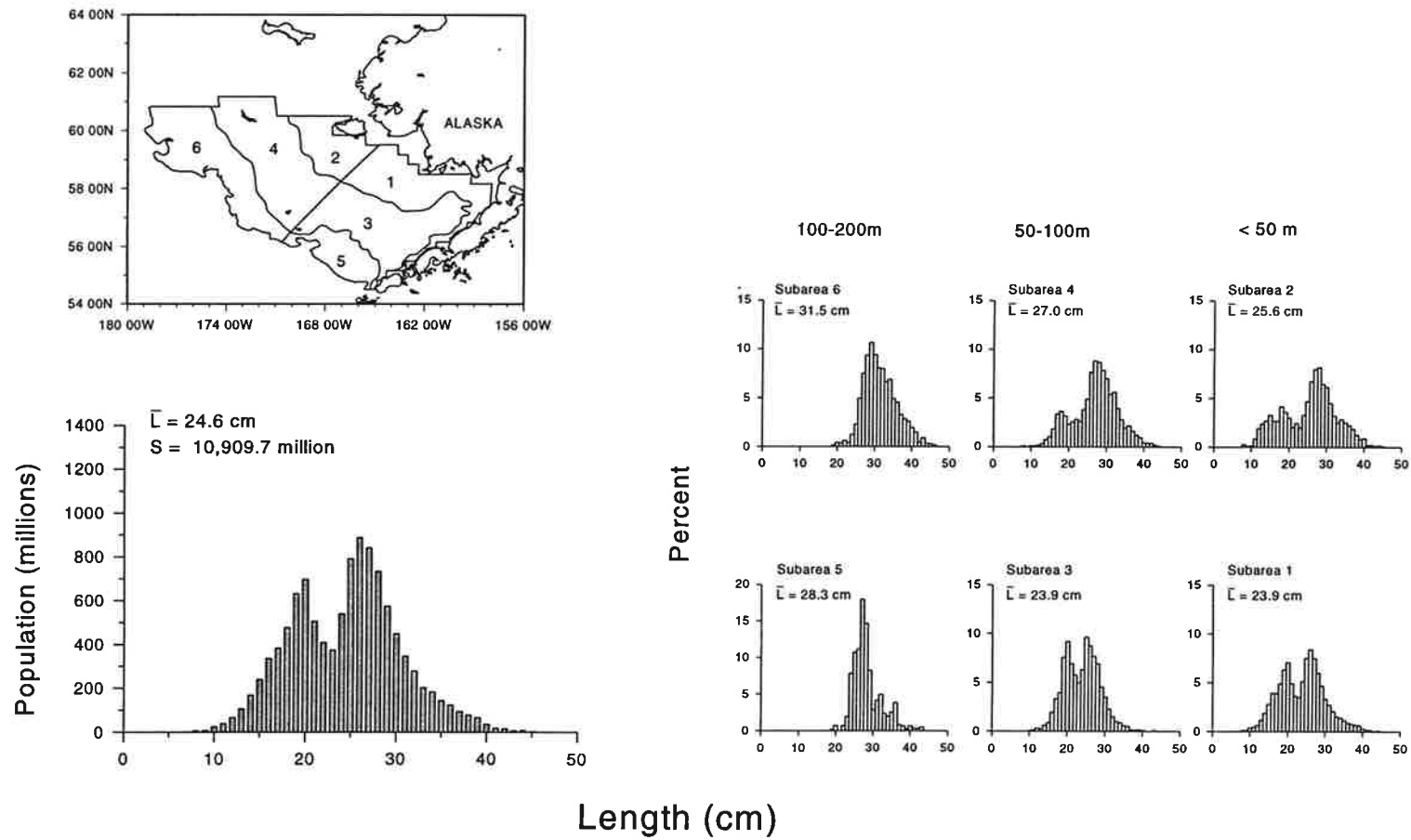


Figure 20.--Estimated relative size distribution (sexes combined) of rock sole in terms of population numbers and percent for subareas 1-6, 1995 eastern Bering Sea bottom trawl survey.

Table 17.--Estimated population numbers (millions) of rock sole by age group and subarea, 1995 eastern Bering Sea bottom trawl survey.

Age	Year class	Depth and Subarea						All subareas combined	Proportion
		100 - 200 m		50 - 100 m		< 50 m			
		6	5	4	3	2	1		
3	1992	.00	.00	8.67	19.00	17.57	111.48	156.71	0.0144
4	1991	.00	.00	65.64	108.50	115.90	652.04	942.08	0.0864
5	1990	1.57	.19	130.54	482.25	123.19	1,357.51	2,095.25	0.1921
6	1989	2.30	.43	68.60	243.78	52.17	564.04	931.32	0.0854
7	1988	5.34	1.53	61.56	169.69	43.61	416.72	698.45	0.0640
8	1987	48.46	7.46	270.61	520.98	211.38	1,470.36	2,529.25	0.2318
9	1986	45.53	4.41	205.32	268.17	156.62	819.64	1,499.68	0.1375
10	1985	24.87	1.23	88.60	72.60	68.80	266.28	522.38	0.0479
11	1984	29.42	1.28	105.38	77.37	75.28	279.76	568.50	0.0521
12	1983	21.80	.79	79.81	51.30	59.67	191.05	404.42	0.0371
13	1982	16.02	.41	39.73	14.77	18.96	73.57	163.46	0.0150
14	1981	13.10	.38	32.73	20.11	17.68	55.15	139.15	0.0128
15	1980	7.54	.18	18.63	3.41	17.69	52.59	100.04	0.0092
17	1978	2.43	.10	1.89	.98	1.46	3.36	10.22	0.0009
18	1977	.44	.01	.41	.12	.89	1.79	3.65	0.0003
19	1976	.44	.01	.41	.12	.89	1.79	3.65	0.0003
20	1975	1.63	.03	2.24	.07	.80	4.40	9.17	0.0008
Age unknown		4.46	.44	8.72	7.89	24.22	86.57	132.29	0.0121
All ages combined		225.35	18.88	1,189.49	2,061.11	1,006.78	6,408.10	10,909.67	1.00

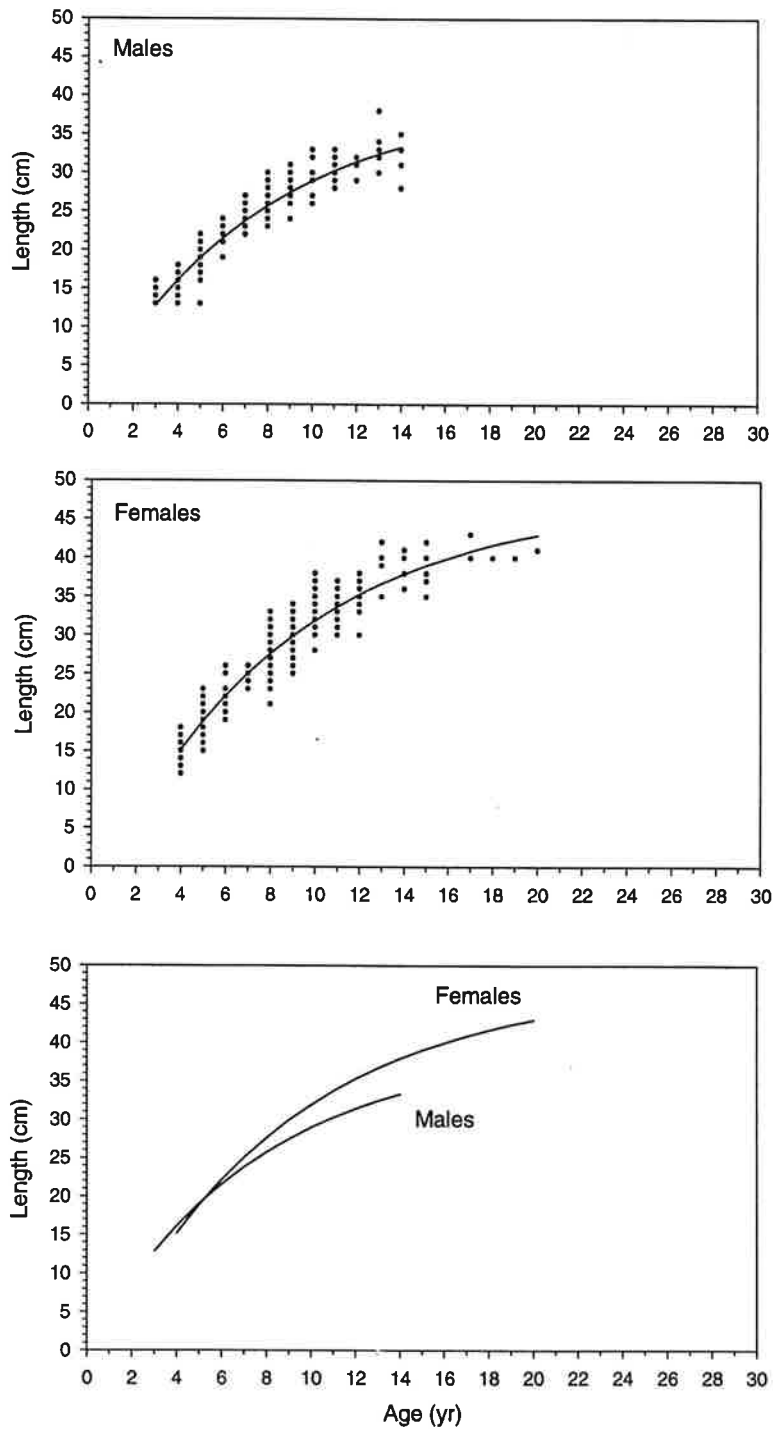


Figure 21.--Distribution of rock sole aged samples from the 1995 eastern Bering Sea bottom trawl survey by length for males, females, and compared showing non-linear von Bertalanffy estimates.

Table 18.--Von Bertalanffy growth parameter estimates for rock sole by sex, based on otolith age reading and length data from the 1995 eastern Bering Sea bottom trawl survey.

Sex	Number of age readings	Age range (years)	Length range (cm)	Parameters		
				L_{inf}	K	t_0
Male	155	3-14	13-38	39.80	0.13	-0.004
Female	223	4-28	12-43	47.64	0.12	0.12

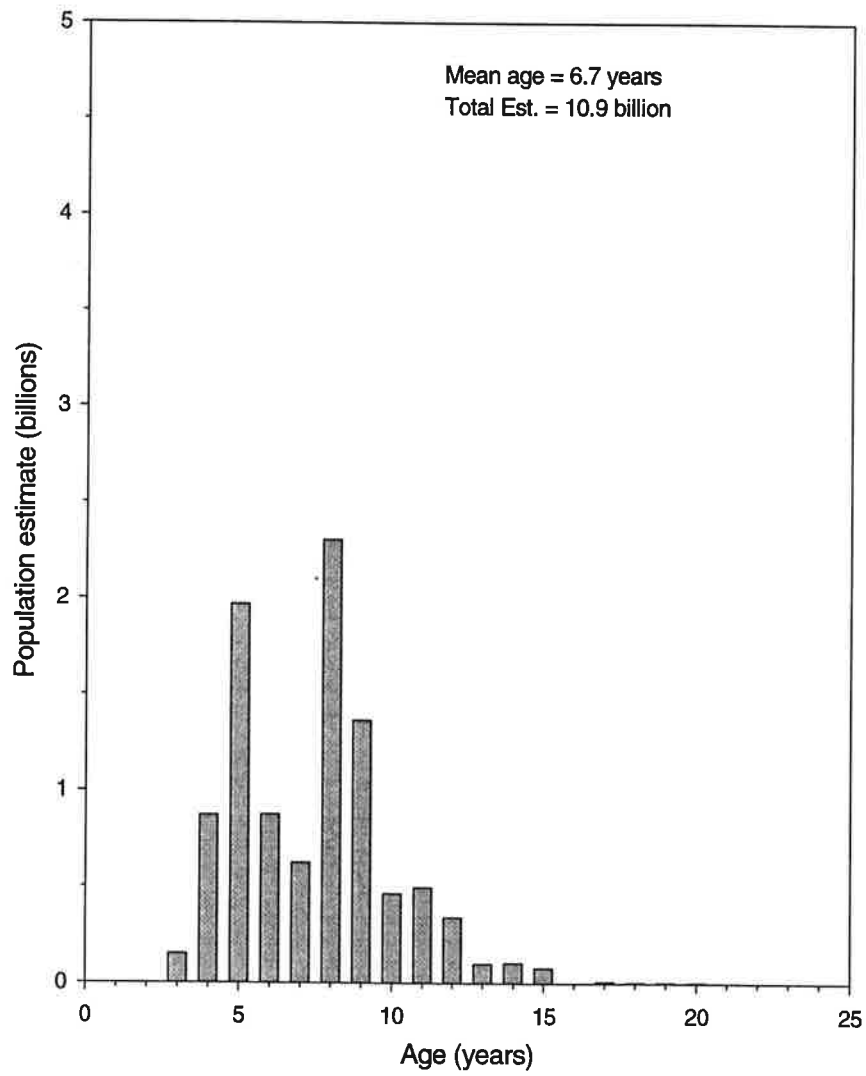


Figure 22.--Population number estimates by age for rock sole, 1995 eastern Bering Sea bottom trawl survey.

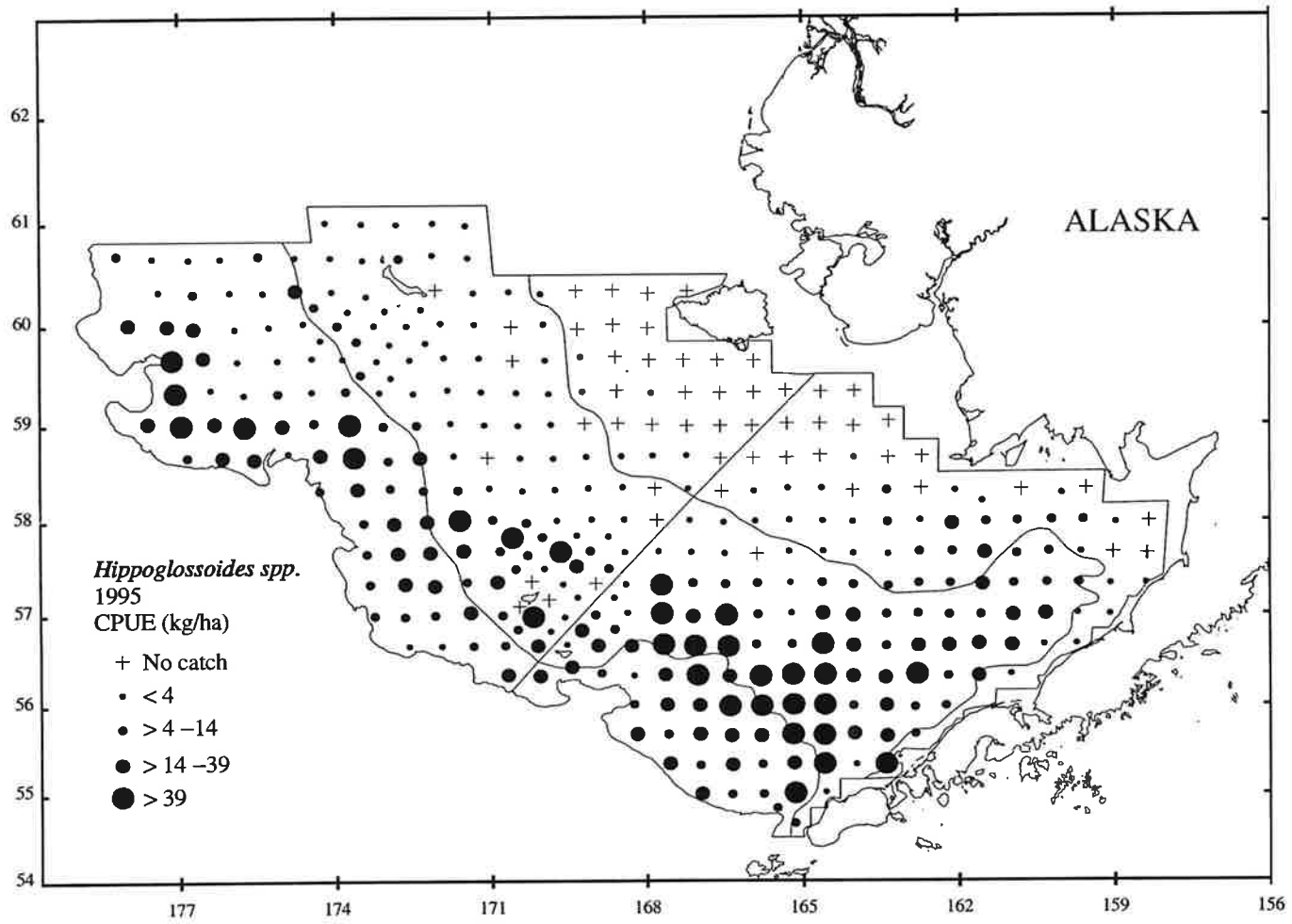


Figure 23--. Distribution and relative abundance in kg/ha of *Hippoglossoides* spp., 1995 eastern Bering Sea bottom trawl survey.

Table 19.--Abundance estimates and mean size of *Hippoglossoides* spp. by subarea, 1995 eastern Bering Sea bottom trawl survey.

Subarea	Mean CPUE (kg/ha)	Estimated biomass (t) ^a	Proportion of estimated biomass	Estimated population numbers ^a	Proportion of estimated population	Mean size Weight (kg)	Mean size Length (cm)
1	3.57	27,780	0.047	58,486,573	0.029	0.475	35.1
2	0.21	861	0.001	1,638,519	0.001	0.525	35.6
3	26.53	274,017	0.462	762,760,836	0.375	0.359	32.1
4	5.24	56,478	0.095	145,583,515	0.072	0.388	31.6
5	20.32	78,843	0.133	445,343,801	0.219	0.177	25.7
6	16.44	155,433	0.262	618,464,930	0.304	0.251	27.3
All subareas combined ^b	12.81	593,412	1.000	2,032,278,175	1.000	0.292	29.3
95% Confidence interval		±102,829		±336,369,369			

^aVariances of abundance estimates are given in Appendix D.

^bDifferences in sums of estimates and totals are due to rounding.

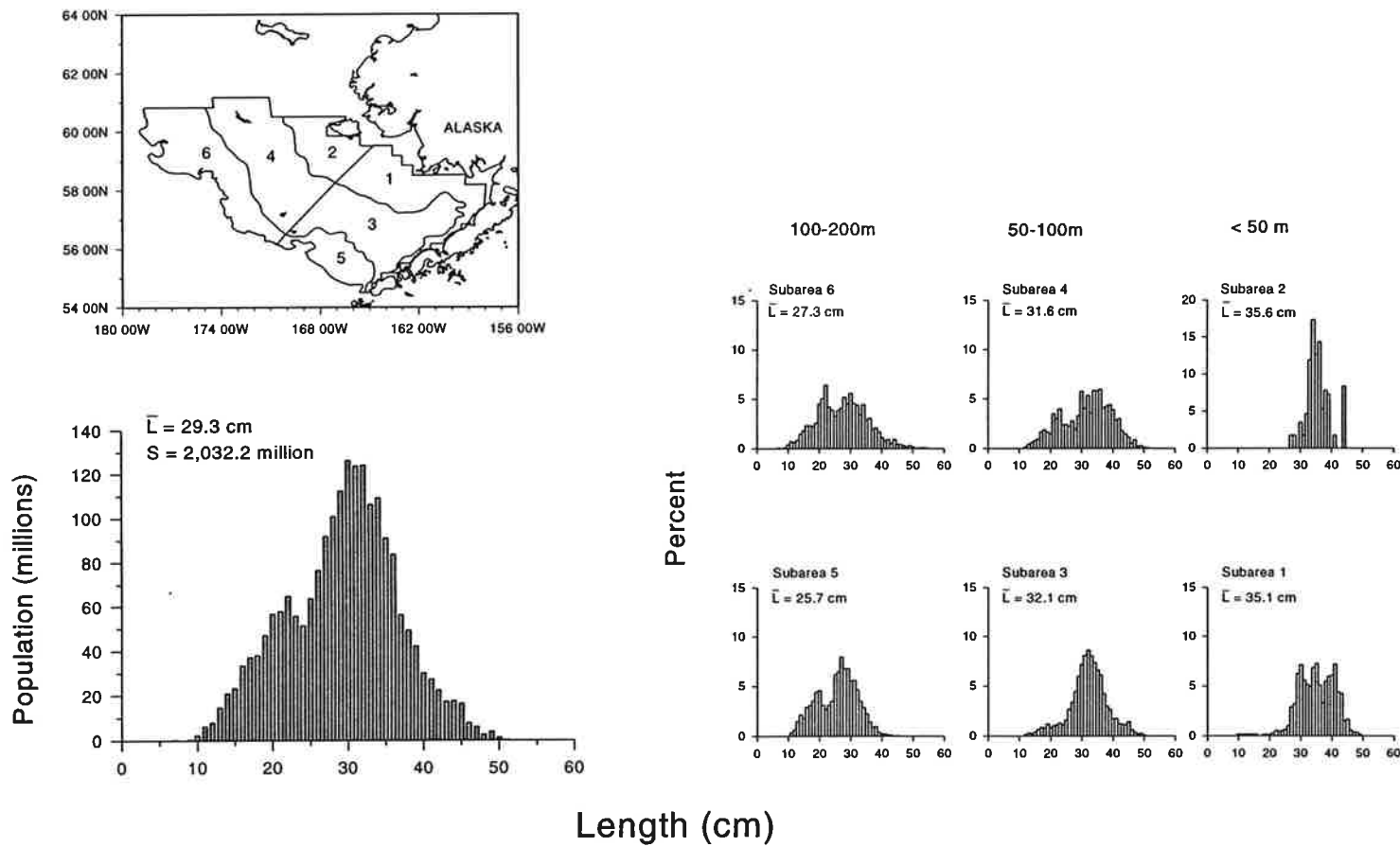


Figure 24.--Estimated relative size distribution (sexes combined) of *Hippoglossoides* spp. in terms of population numbers and percent for subareas 1-6, 1995 eastern Bering Sea bottom trawl survey.

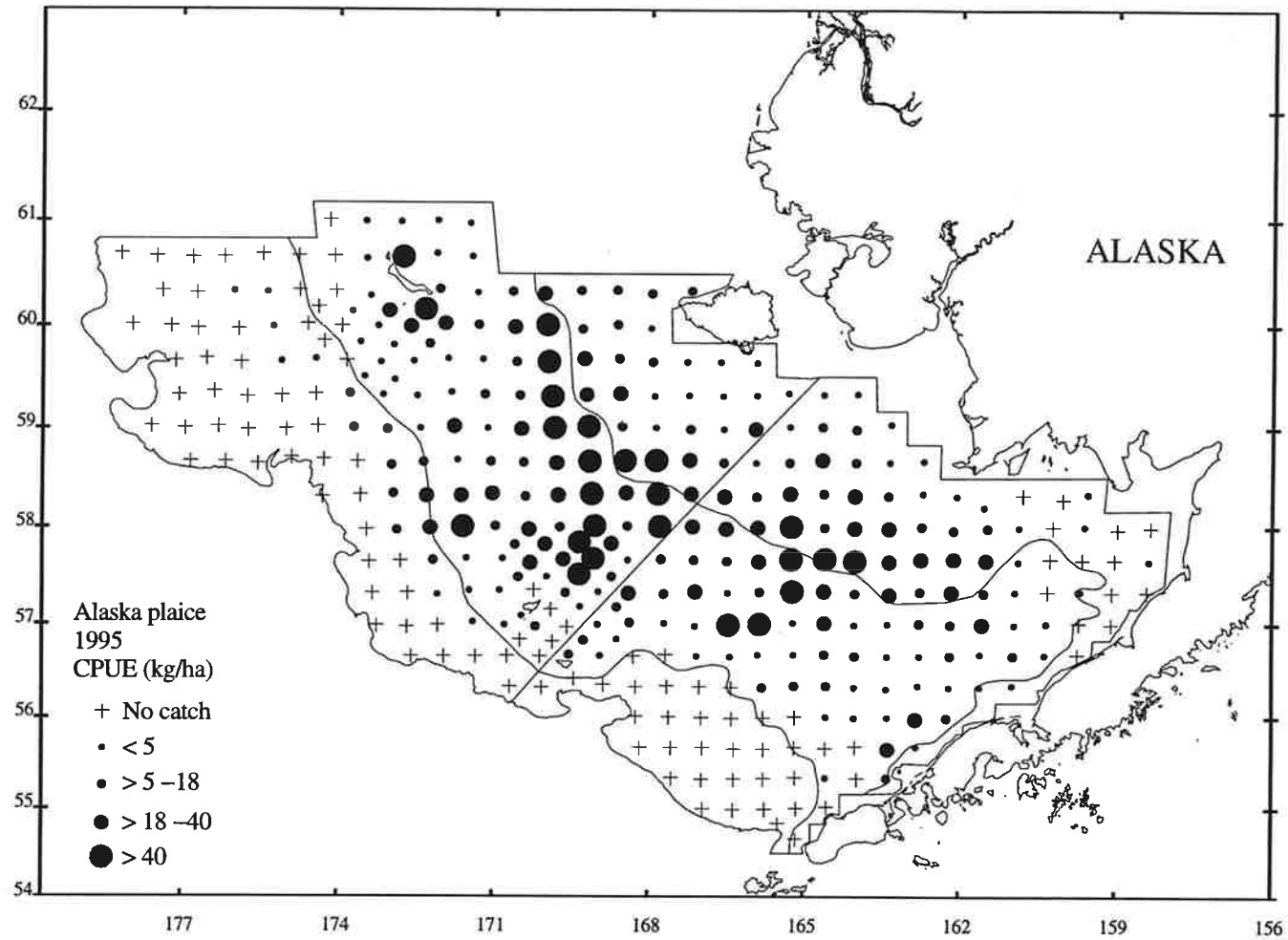


Figure 25--. Distribution and relative abundance in kg/ha of Alaska plaice, 1995 eastern Bering Sea bottom trawl survey.

Table 20.--Abundance estimates and mean size of Alaska plaice by subarea, 1995 eastern Bering Sea bottom trawl survey.

Subarea	Mean CPUE (kg/ha)	Estimated biomass (t) ^a	Proportion of estimated biomass	Estimated population numbers ^a	Proportion of estimated population	Mean size Weight (kg)	Length (cm)
1	12.14	94,566	0.171	198,046,274	0.221	0.477	32.8
2	13.86	56,864	0.103	166,287,252	0.185	0.342	28.5
3	13.07	134,968	0.244	191,030,709	0.213	0.707	37.0
4	22.92	247,172	0.448	329,395,903	0.367	0.750	37.1
5	0.00	0	0.000	0	0.000	0.000	0.0
6	1.98	18,721	0.034	12,227,886	0.014	1.531	45.7
All subareas combined ^b	11.92	552,292	1.000	896,988,024	1.000	0.616	34.6
95% Confidence interval		±124,027		±185,166,846			

^aVariances of abundance estimates are given in Appendix D.

^bDifferences in sums of estimates and totals are due to rounding.

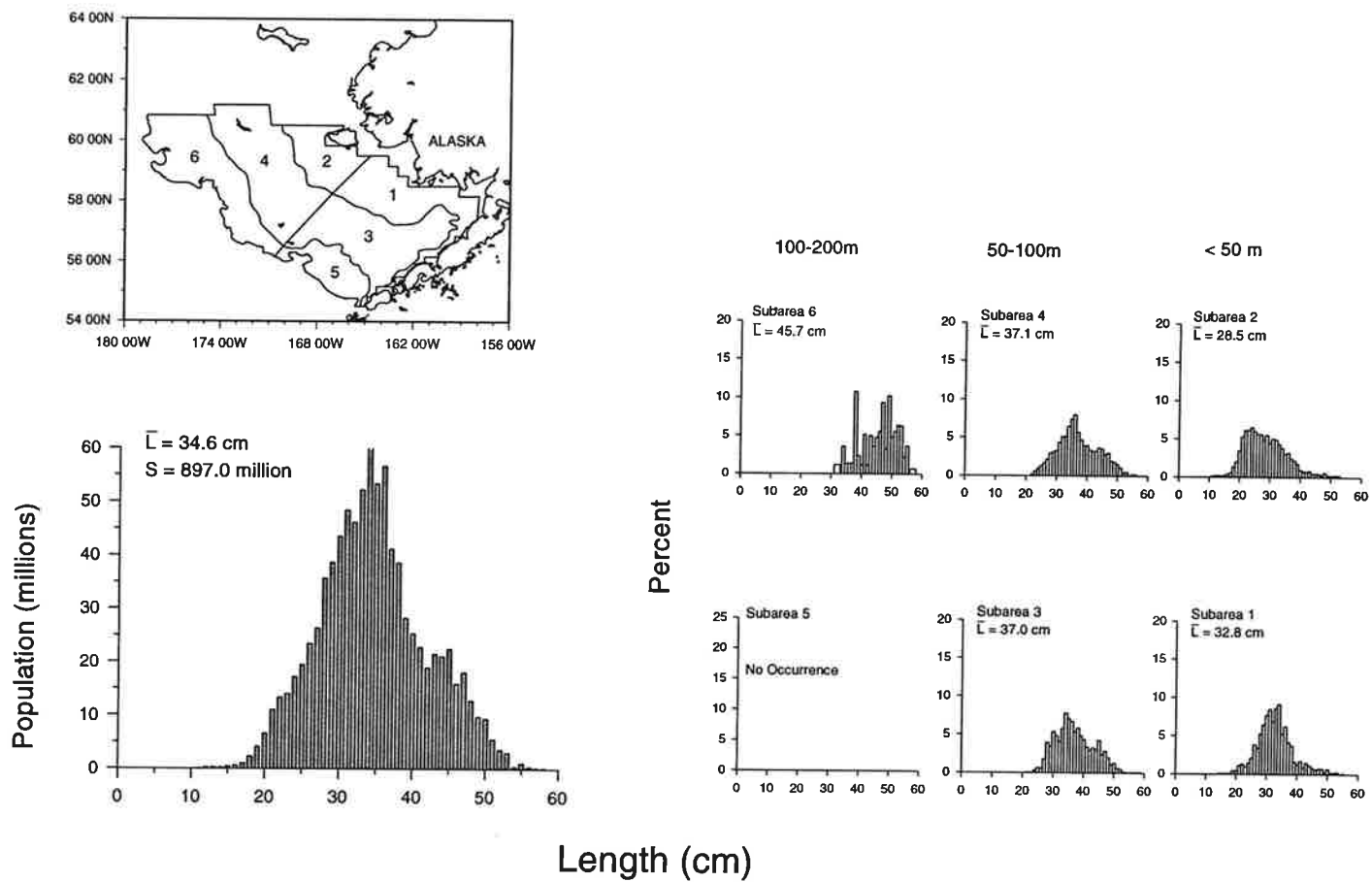


Figure 26.--Estimated relative size distribution (sexes combined) of Alaska plaice in terms of population numbers and percent for subareas 1-6, 1995 eastern Bering Sea bottom trawl survey.

Table 21.--Estimated population numbers (millions) of Alaska plaice by age group and subarea, 1995 eastern Bering Sea bottom trawl survey.

Age	Year Class	Depth and Subarea						All subareas combined	Proportion
		100 - 200 m		50 - 100 m		< 50 m			
		6	5	4	3	2	1		
5	1990	.00	.00	1.86	.58	5.56	2.00	10.00	0.0111
6	1989	.00	.00	13.77	6.01	24.94	15.18	59.90	0.0668
7	1988	.03	.00	15.26	8.50	15.48	13.93	53.19	0.0593
8	1987	.41	.00	36.59	23.25	30.30	41.19	131.74	0.1469
9	1986	.17	.00	16.88	12.10	10.60	15.41	55.17	0.0615
10	1985	.11	.00	11.63	7.60	5.11	9.87	34.31	0.0383
11	1984	.42	.00	22.73	13.25	8.25	17.54	62.18	0.0693
12	1983	.55	.00	13.80	7.92	3.17	8.45	33.89	0.0378
13	1982	.11	.00	12.79	7.66	3.04	6.60	30.20	0.0337
14	1981	.39	.00	21.53	13.29	3.76	8.20	47.18	0.0526
15	1980	.83	.00	27.02	15.33	4.18	10.31	57.67	0.0643
16	1979	1.16	.00	25.43	14.38	4.07	10.28	55.32	0.0617
17	1978	.67	.00	18.46	10.94	2.72	6.89	39.69	0.0442
18	1977	.80	.00	14.34	9.25	2.43	4.41	31.23	0.0348
19	1976	.58	.00	13.91	7.84	2.15	5.17	29.66	0.0331
20	1975	.39	.00	5.47	3.27	.41	.97	10.51	0.0117
21	1974	.48	.00	9.87	5.80	1.11	2.61	19.87	0.0222
22	1973	1.10	.00	15.07	8.36	1.79	4.20	30.53	0.0340
23	1972	.21	.00	3.24	1.69	.16	.38	5.67	0.0063
24	1971	.00	.00	2.17	.92	.35	.98	4.41	0.0049
25	1970	.37	.00	6.79	4.70	.90	1.82	14.58	0.0163
26	1969	.54	.00	8.45	4.30	1.01	2.36	16.66	0.0186
27	1968	.04	.00	1.81	1.57	.41	.72	4.55	0.0051
28	1967	.65	.00	4.07	1.54	.06	.44	6.77	0.0075
Age unknown		2.19	.00	6.47	.98	34.34	8.14	52.12	0.0581
All ages combined		12.20	0.00	329.41	191.03	166.30	198.05	897.00	1.0000

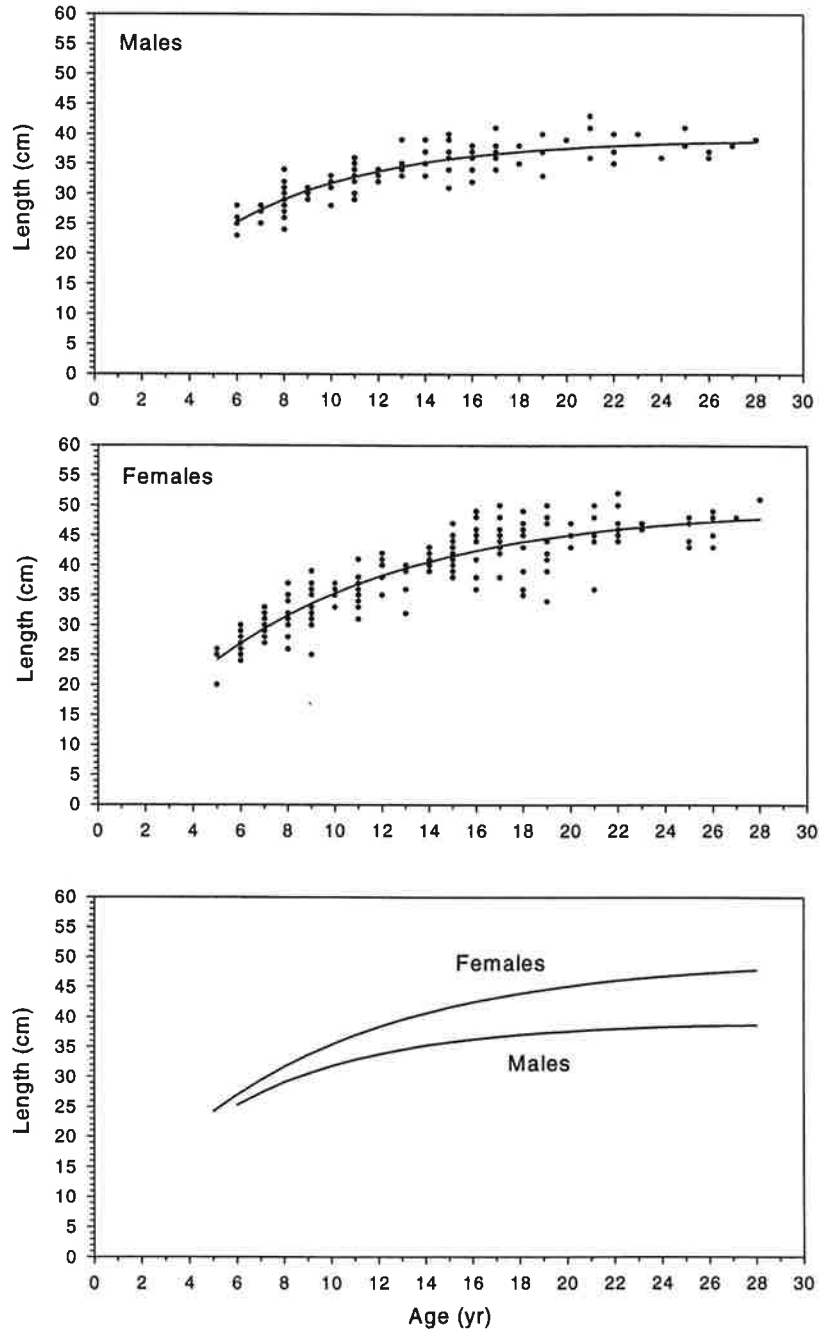


Figure 27.--Distribution of Alaska plaice aged samples from the 1995 eastern Bering Sea bottom trawl survey by length for males, females, and compared showing non-linear von Bertalanffy estimates.

Table 22.--Von Bertalanffy growth parameter estimates for Alaska plaice by sex, based on otolith age reading and length data from the 1995 eastern Bering Sea bottom trawl survey.

Sex	Number of age readings	Age range (years)	Length range (cm)	Parameters		
				L_{inf}	K	t_0
Male	112	6-28	23-43	39.08	0.16	-0.56
Female	173	5-28	20-52	49.53	0.12	-0.77

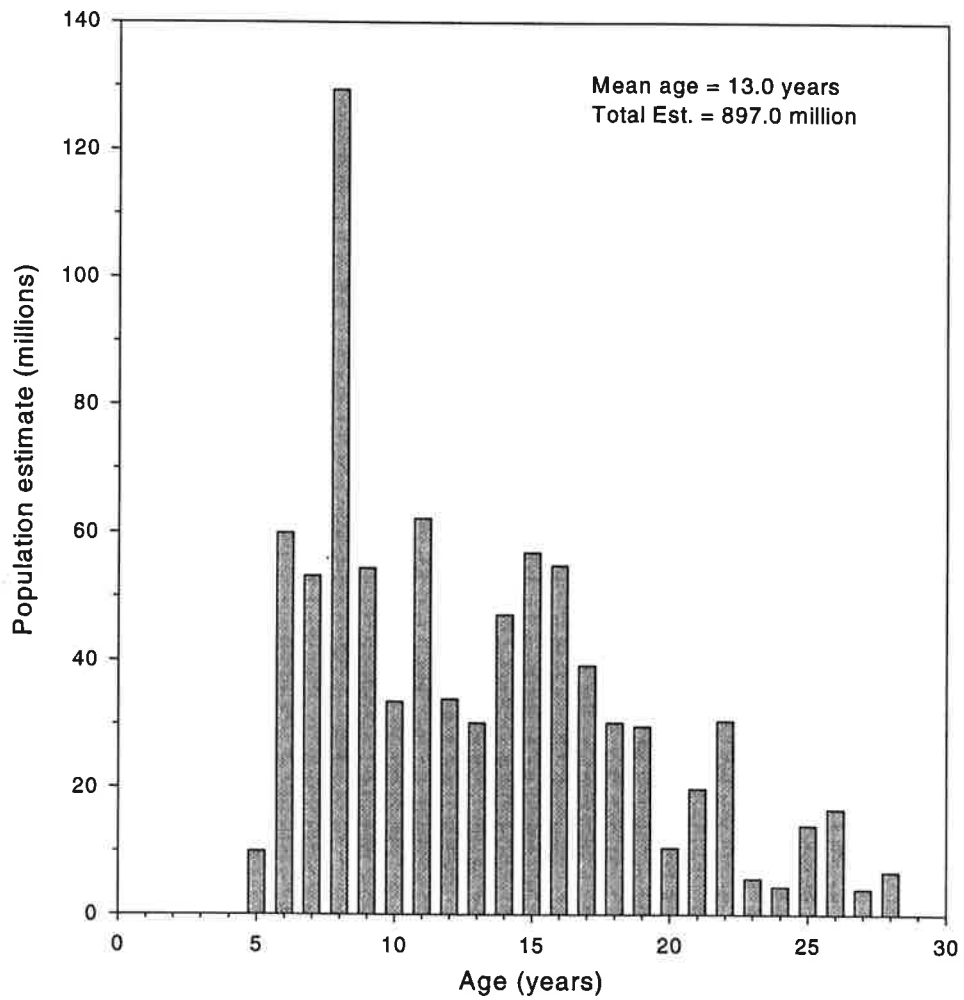


Figure 28.--Population number estimates by age for Alaska plaice, 1995 eastern Bering Sea bottom trawl survey.

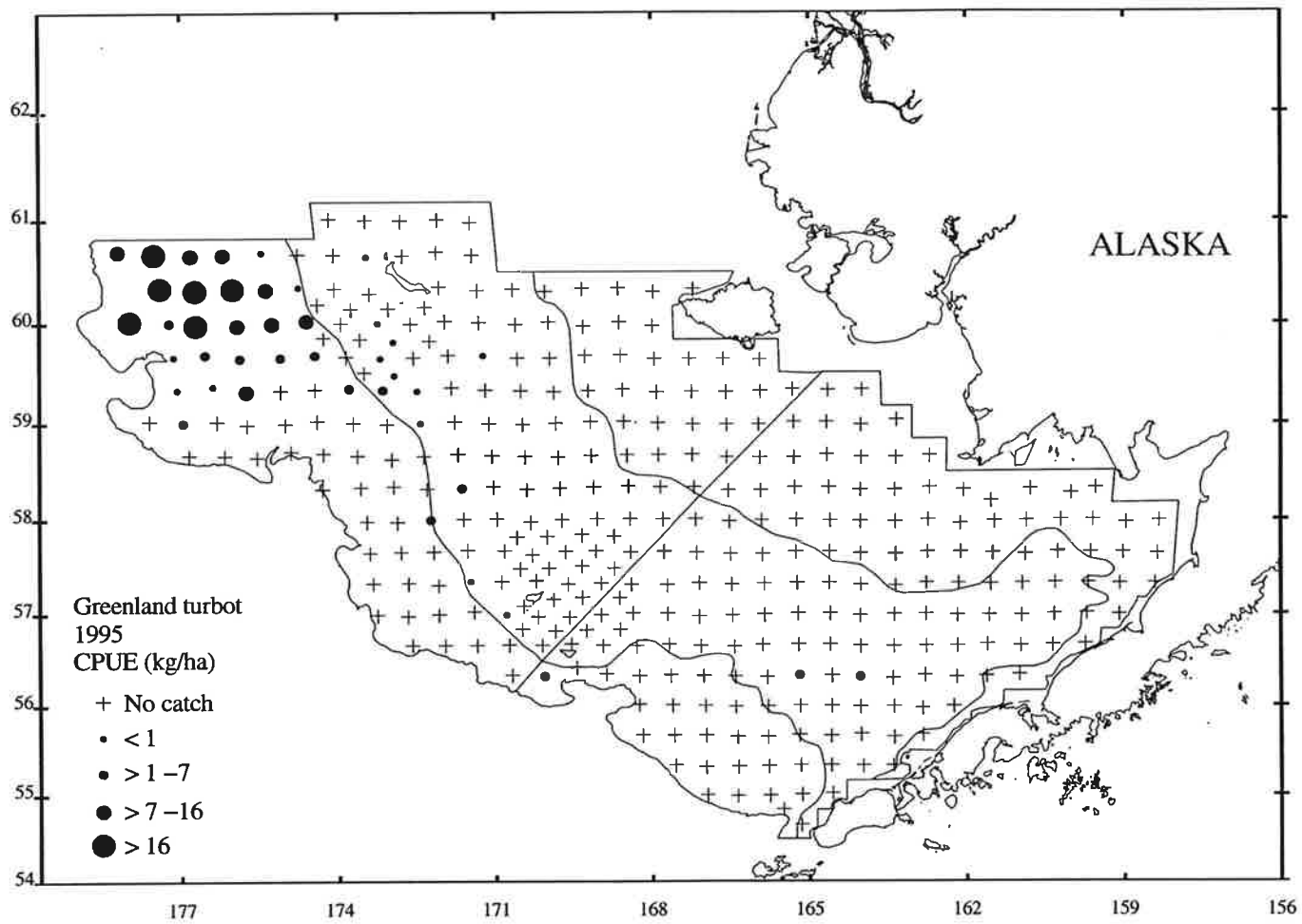


Figure 29--. Distribution and relative abundance in kg/ha of Greenland turbot, 1995 eastern Bering Sea bottom trawl survey.

Table 23.--Abundance estimates and mean size of Greenland turbot by subarea, 1995 eastern Bering Sea bottom trawl survey.

Subarea	Mean CPUE (kg/ha)	Estimated biomass (t) ^a	Proportion of estimated biomass	Estimated population numbers ^a	Proportion of estimated population	Mean size Weight (kg)	Mean size Length (cm)
1	0.00	0	0.000	0	0.000	0.000	0.0
2	0.00	0	0.000	0	0.000	0.000	0.0
3	0.10	1,040	0.030	188,984	0.015	5.503	80.9
4	0.08	895	0.026	478,630	0.037	1.870	42.8
5	0.06	221	0.006	26,594	0.002	8.310	91.0
6	3.45	32,624	0.938	12,090,522	0.946	2.698	57.6
All subareas combined ^b	0.75	34,779	1.000	12,784,730	1.000	2.720	57.4
95% Confidence interval		±14,916		±5,222,454			

^aVariances of abundance estimates are given in Appendix D.

^bDifferences in sums of estimates and totals are due to rounding.

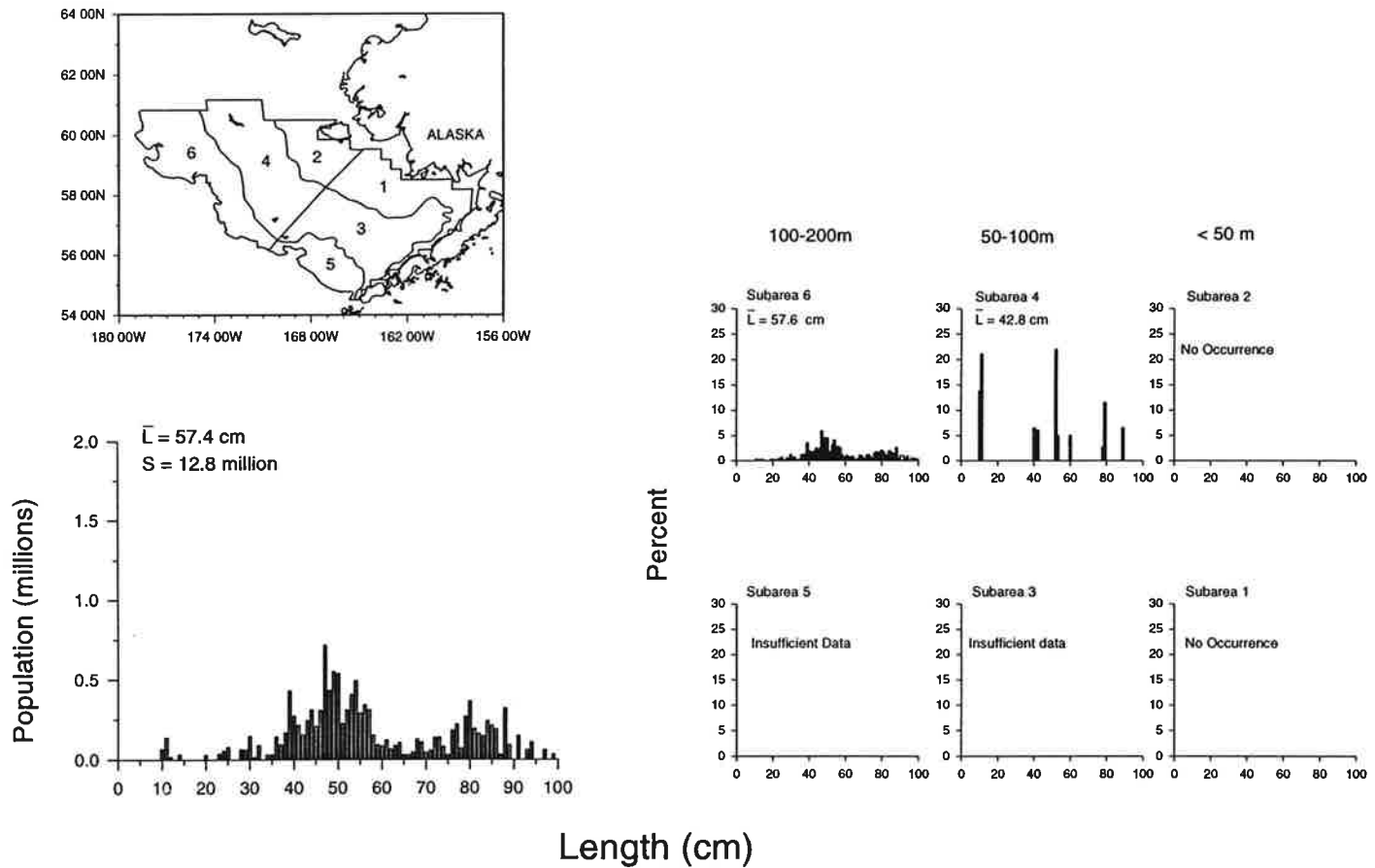


Figure 30.--Estimated relative size distribution (sexes combined) of Greenland turbot in terms of population number and percent for subareas 1-6, 1995 eastern Bering Sea bottom trawl survey.

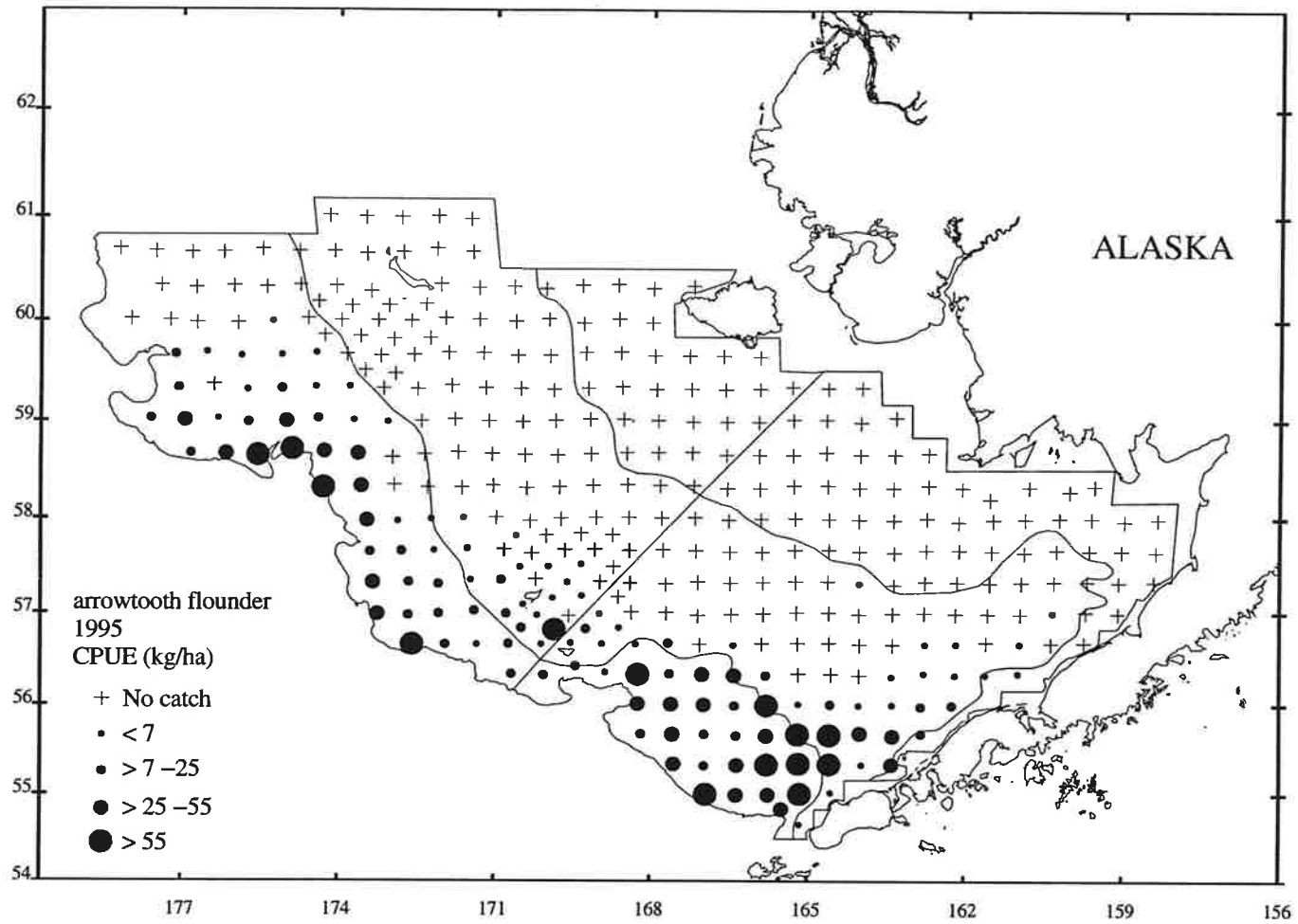


Figure 31--. Distribution and relative abundance in kg/ha of arrowtooth flounder, 1995 eastern Bering Sea bottom trawl survey.

Table 24.--Abundance estimates and mean size of arrowtooth flounder by subarea, 1995 eastern Bering Sea bottom trawl survey.

Subarea	Mean CPUE (kg/ha)	Estimated biomass (t) ^a	Proportion of estimated biomass	Estimated population numbers ^a	Proportion of estimated population	Mean size Weight (kg)	Mean size Length (cm)
1	0.28	2,144	0.005	2,687,130	0.004	0.798	42.4
2	0.00	0	0.000	0	0.000	0.000	0.0
3	13.68	141,356	0.312	209,022,626	0.299	0.676	40.3
4	0.99	10,715	0.024	42,238,800	0.060	0.254	27.9
5	42.85	166,232	0.367	252,886,712	0.362	0.657	39.8
6	13.96	132,002	0.292	191,488,636	0.274	0.689	39.5
All subareas combined ^b	9.76	452,449	1.000	698,323,904	1.000	0.648	39.1
95% Confidence interval		±130,094		±199,111,060			

^aVariances of abundance estimates are given in Appendix D.

^bDifferences in sums of estimates and totals are due to rounding.

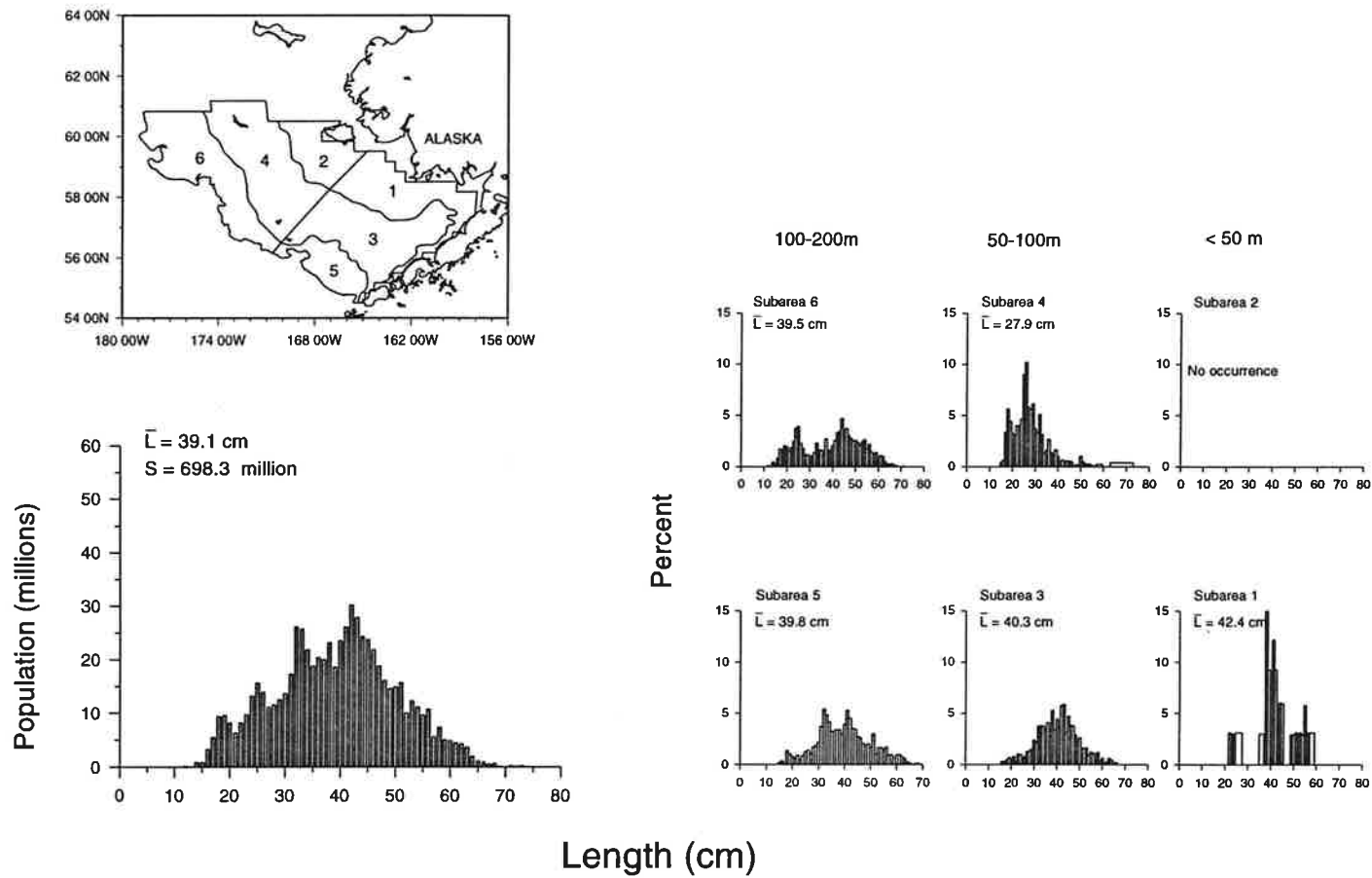


Figure 32.--Estimated relative size distribution (sexes combined) of arrowtooth flounder in terms of population numbers and percent for subareas 1-6, 1995 eastern Bering Sea bottom trawl survey.

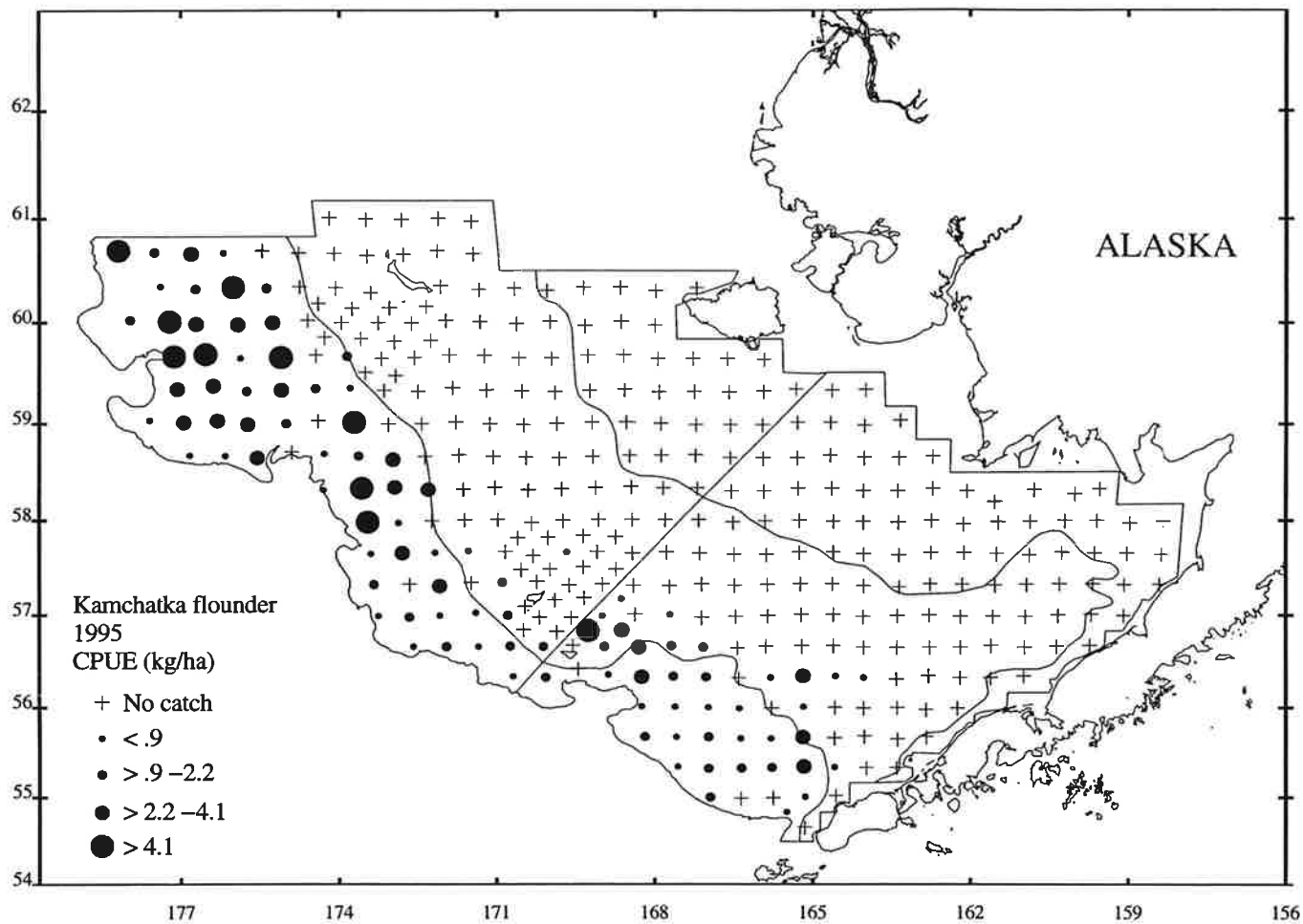


Figure 33--. Distribution and relative abundance in kg/ha of Kamchatka flounder, 1995 eastern Bering Sea bottom trawl survey.

Table 25.--Abundance estimates and mean size of Kamchatka flounder by subarea, 1995 eastern Bering Sea bottom trawl survey.

Subarea	Mean CPUE (kg/ha)	Estimated biomass (t) ^a	Proportion of estimated biomass	Estimated population numbers ^a	Proportion of estimated population	Mean size Weight (kg)	Length (cm)
1	0.00	0	0.000	0	0.000	0.000	0.0
2	0.00	0	0.000	0	0.000	0.000	0.0
3	0.27	2,821	0.099	4,227,987	0.121	0.667	39.7
4	0.04	411	0.014	614,593	0.018	0.669	39.0
5	1.20	4,647	0.164	8,904,554	0.254	0.522	36.2
6	2.17	20,478	0.722	21,338,165	0.608	0.960	42.9
All subareas combined ^b	0.61	28,356	1.000	35,085,298	1.000	0.808	40.8
95% Confidence interval		±5,919		±7,222,093			

^aVariances of abundance estimates are given in Appendix D.

^bDifferences in sums of estimates and totals are due to rounding.

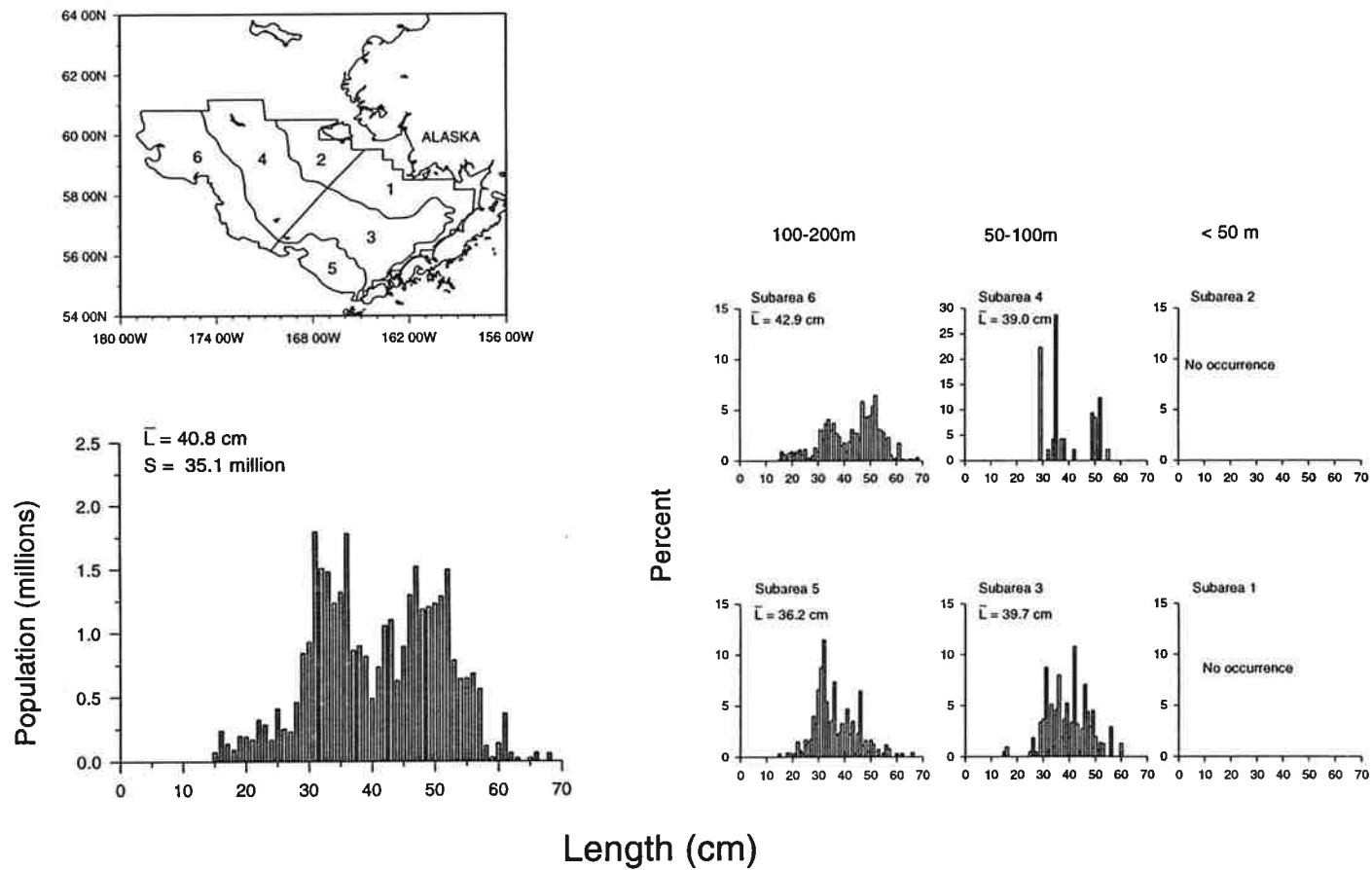


Figure 34.--Estimated relative size distribution (sexes combined) of Kamchatka flounder in terms of population numbers and percent for subareas 1-6, 1995 eastern Bering Sea bottom trawl survey.

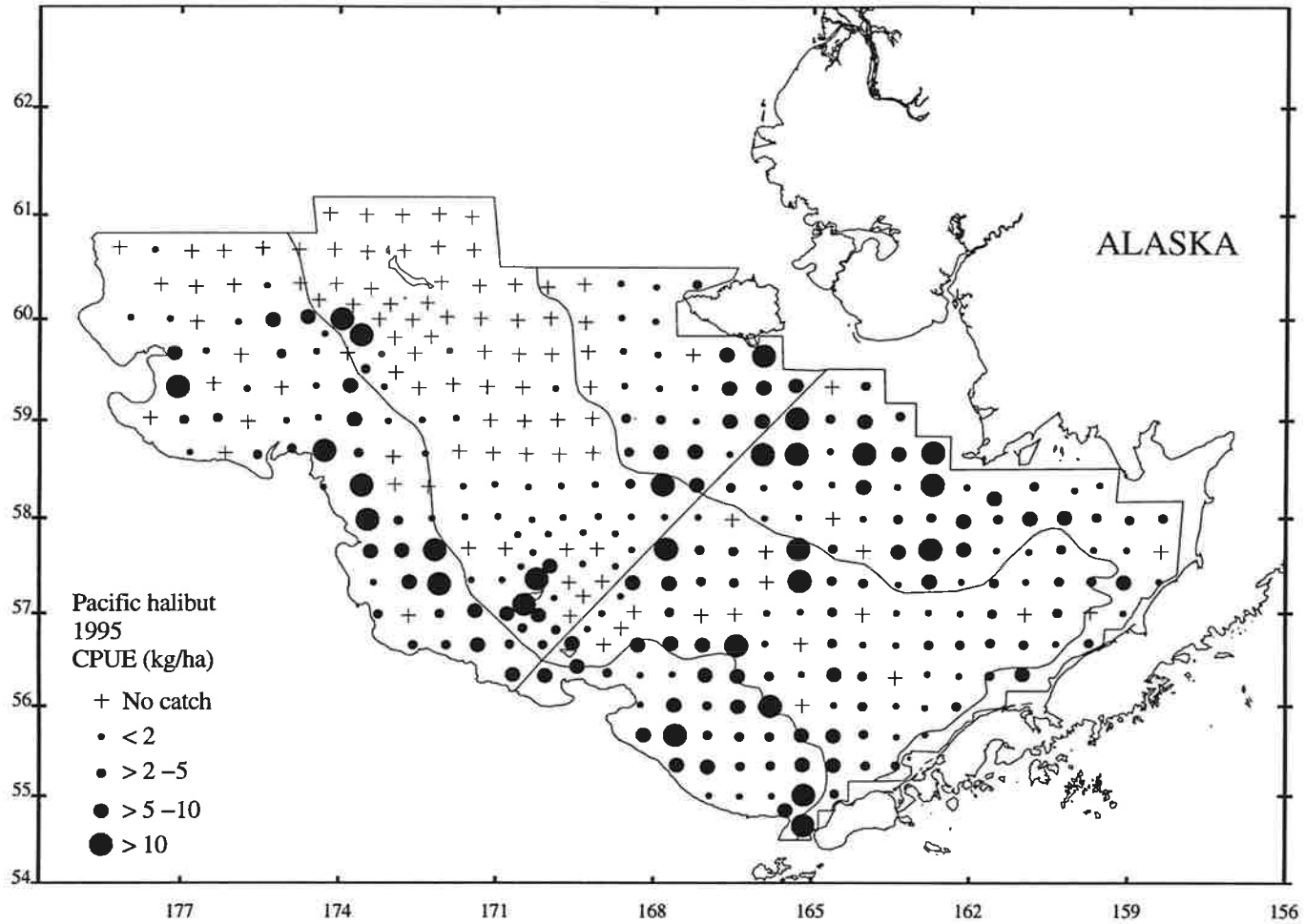


Figure 35--. Distribution and relative abundance in kg/ha of Pacific halibut, 1995 eastern Bering Sea bottom trawl survey.

Table 26.--Abundance estimates and mean size of Pacific halibut by subarea, 1995 eastern Bering Sea bottom trawl survey.

Subarea	Mean CPUE (kg/ha)	Estimated biomass (t) ^a	Proportion of estimated biomass	Estimated population numbers ^a	Proportion of estimated population	Mean size Weight (kg)	Length (cm)
1	4.41	34,311	0.223	11,055,153	0.283	3.104	61.4
2	3.36	13,768	0.089	5,082,954	0.130	2.709	57.6
3	3.57	36,904	0.240	10,074,493	0.258	3.663	62.5
4	1.49	16,023	0.104	3,783,418	0.097	4.235	64.4
5	5.25	20,379	0.132	3,391,148	0.087	6.009	75.1
6	3.43	32,461	0.211	5,675,480	0.145	5.720	73.8
All subareas combined ^b	3.32	153,846	1.000	39,062,645	1.000	3.938	64.5
95% Confidence interval		±22,055		±5,581,793			

^aVariances of abundance estimates are given in Appendix D.

^bDifferences in sums of estimates and totals are due to rounding.

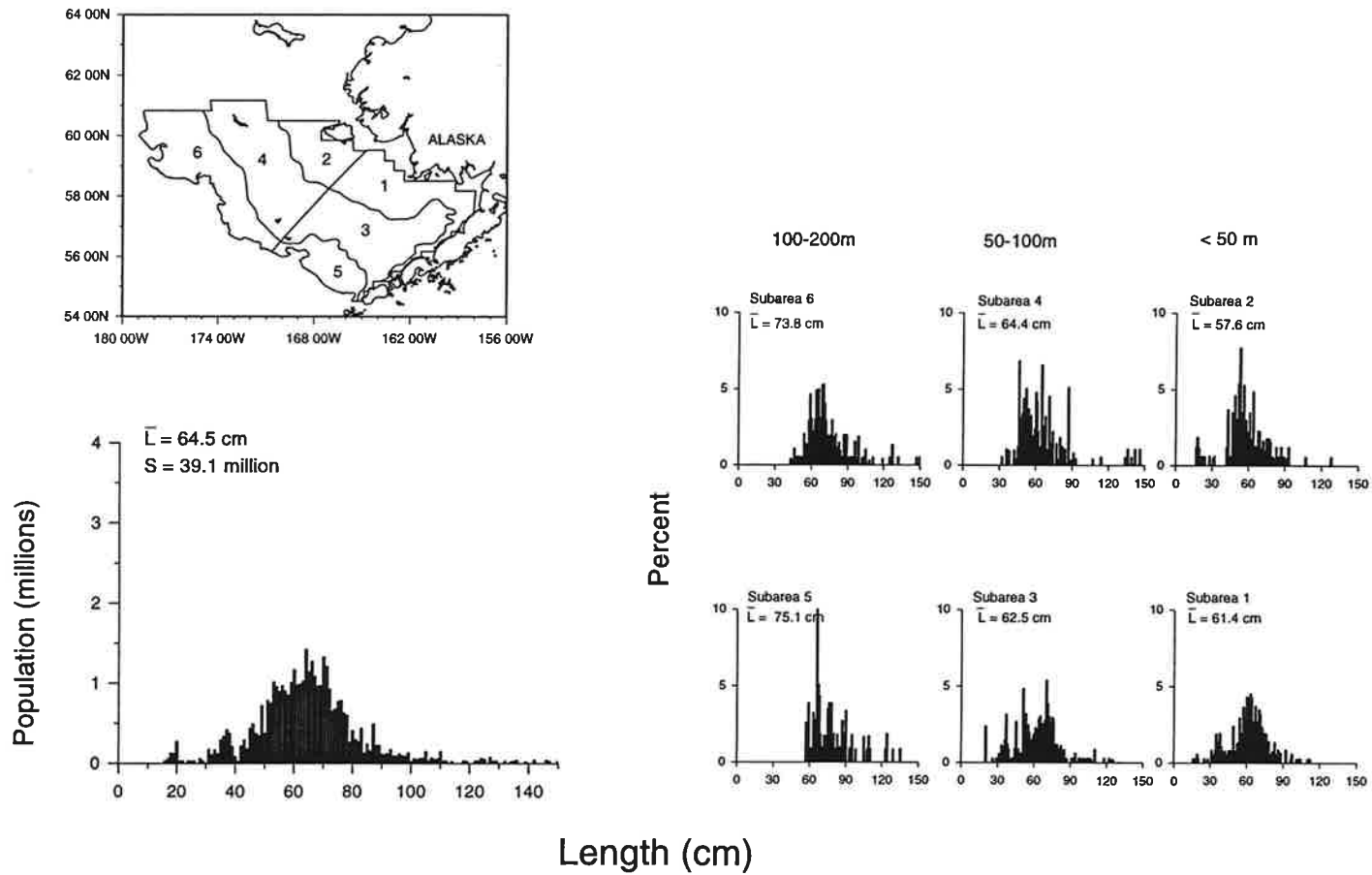


Figure 36.--Estimated relative size distribution (sexes combined) of Pacific halibut in terms of population numbers and percent for subareas 1-6, 1995 eastern Bering Sea bottom trawl survey.

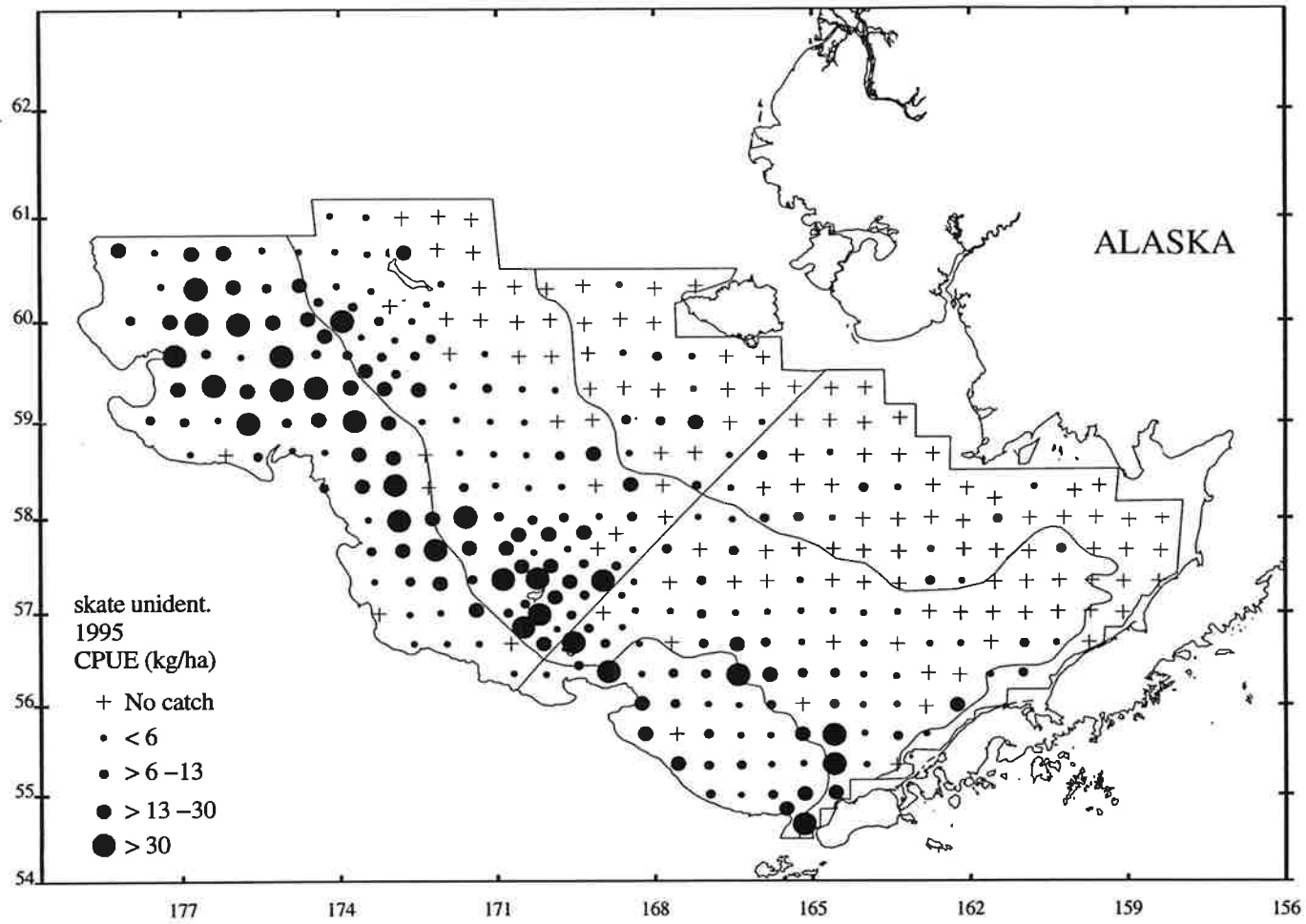


Figure 37--. Distribution and relative abundance in kg/ha of skates, 1995 eastern Bering Sea bottom trawl survey.

Table 27.--Abundance estimates and mean size of skates by subarea, 1995 eastern Bering Sea bottom trawl survey.

Subarea	Mean CPUE (kg/ha)	Estimated biomass (t) ^a	Proportion of estimated biomass	Estimated population numbers ^a	Proportion of estimated population	Weight (kg)
1	1.55	12,041	0.031	2,978,907	0.034	4.042
2	2.21	9,082	0.023	1,799,101	0.020	5.048
3	7.96	82,266	0.210	18,352,890	0.208	4.482
4	7.29	78,645	0.201	21,356,203	0.242	3.683
5	10.63	41,235	0.105	6,795,291	0.077	6.068
6	17.82	168,498	0.430	37,070,766	0.420	4.545
All subareas combined ^b	8.45	391,768	1.000	88,353,157	1.000	4.434
95% Confidence interval		±63,919		±12,216,173		

^aVariances of abundance estimates are given in Appendix D.

^bDifferences in sums of estimates and totals are due to rounding.

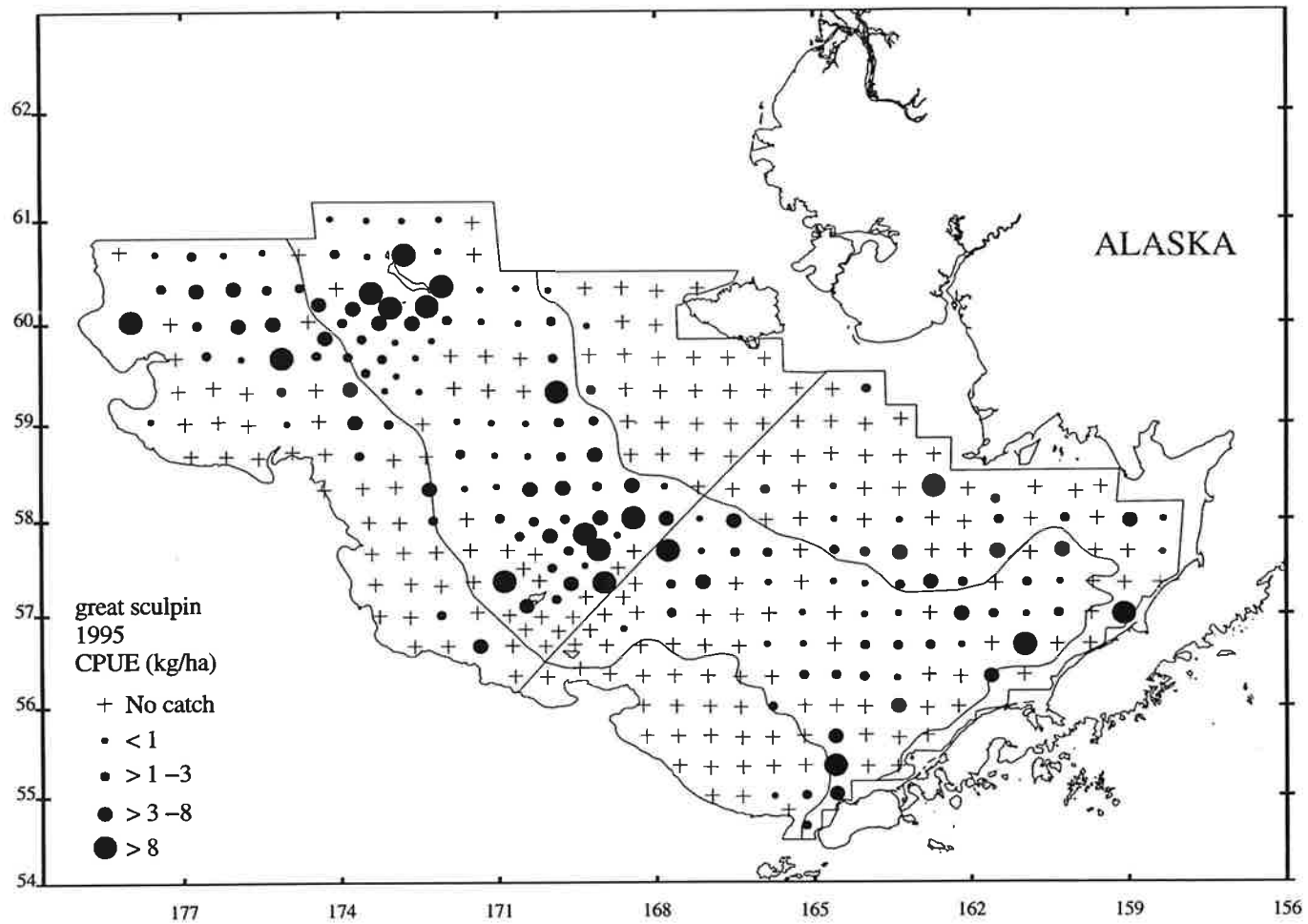


Figure 38--. Distribution and relative abundance in kg/ha of great sculpin, 1995 eastern Bering Sea bottom trawl survey.

Table 28.--Abundance estimates and mean size of great sculpin by subarea, 1995 eastern Bering Sea bottom trawl survey.

Subarea	Mean CPUE (kg/ha)	Estimated biomass (t) ^a	Proportion of estimated biomass	Estimated population numbers ^a	Proportion of estimated population	Weight (kg)
1	1.77	13,782	0.158	15,804,143	0.227	0.872
2	0.08	345	0.004	449,663	0.006	0.767
3	1.61	16,681	0.191	6,357,309	0.091	2.624
4	3.17	34,220	0.392	38,143,022	0.549	0.897
5	0.07	291	0.003	177,284	0.003	1.641
6	2.33	22,040	0.252	8,565,265	0.123	2.573
All subareas combined ^b	1.89	87,359	1.000	69,496,686	1.000	1.257
95% Confidence interval		±32,324		±36,984,815		

^aVariances of abundance estimates are given in Appendix D.

^bDifferences in sums of estimates and totals are due to rounding.

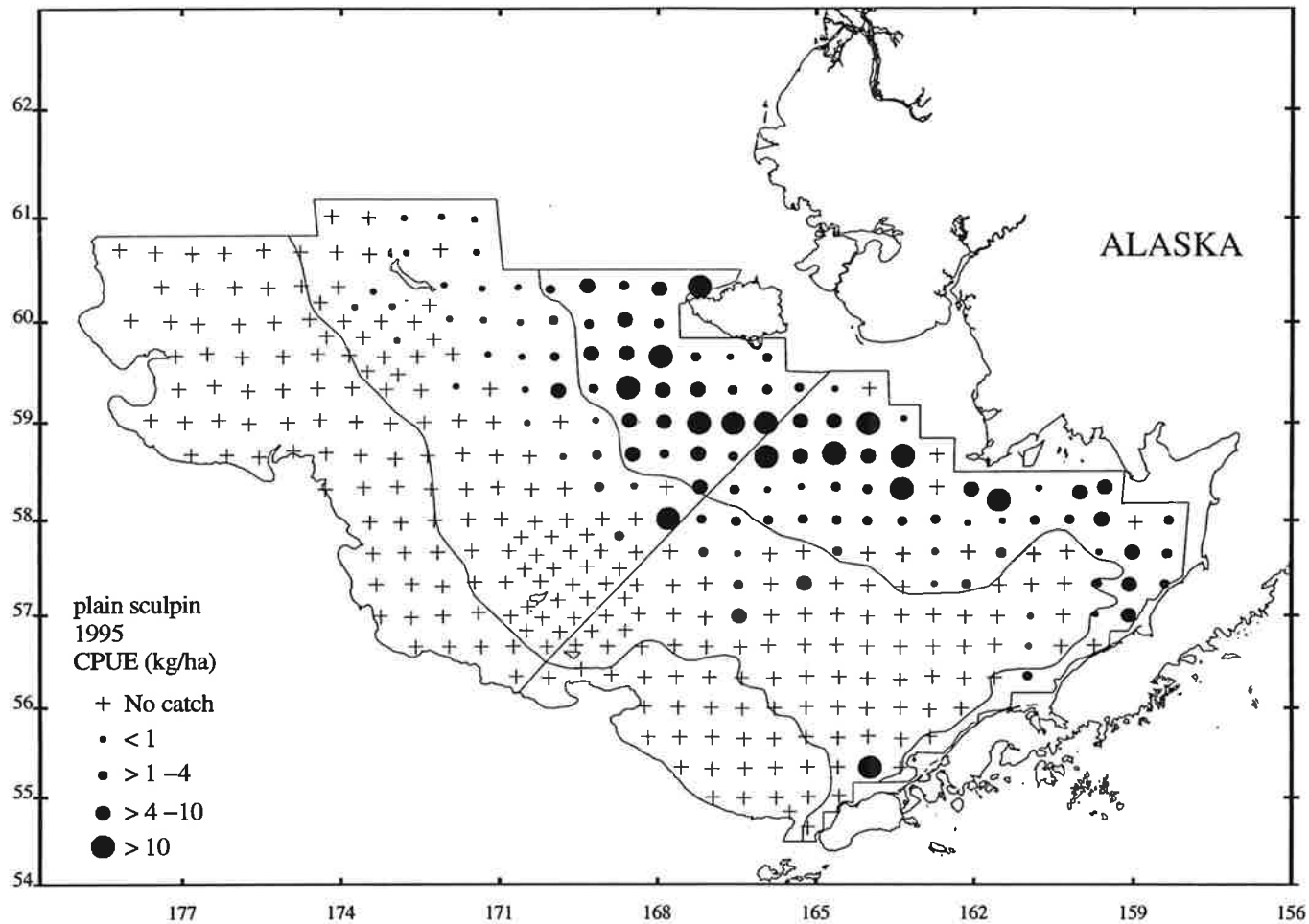


Figure 39--. Distribution and relative abundance in kg/ha of plain sculpin, 1995 eastern Bering Sea bottom trawl survey.

Table 29.--Abundance estimates and mean size of plain sculpin by subarea, 1995 eastern Bering Sea bottom trawl survey.

Subarea	Mean CPUE (kg/ha)	Estimated biomass (t) ^a	Proportion of estimated biomass	Estimated population numbers ^a	Proportion of estimated population	Weight (kg)
1	3.63	28,293	0.421	51,452,387	0.495	0.550
2	6.15	25,234	0.375	42,804,750	0.412	0.590
3	0.68	7,041	0.105	2,979,610	0.029	2.363
4	0.62	6,672	0.099	6,667,888	0.064	1.001
5	0.00	0	0.000	0	0.000	0.000
6	0.00	0	0.000	0	0.000	0.000
All subareas combined ^b	1.45	67,240	1.000	103,904,635	1.000	0.647
95% Confidence interval		±17,193		±26,244,191		

^aVariances of abundance estimates are given in Appendix D.

^bDifferences in sums of estimates and totals are due to rounding.

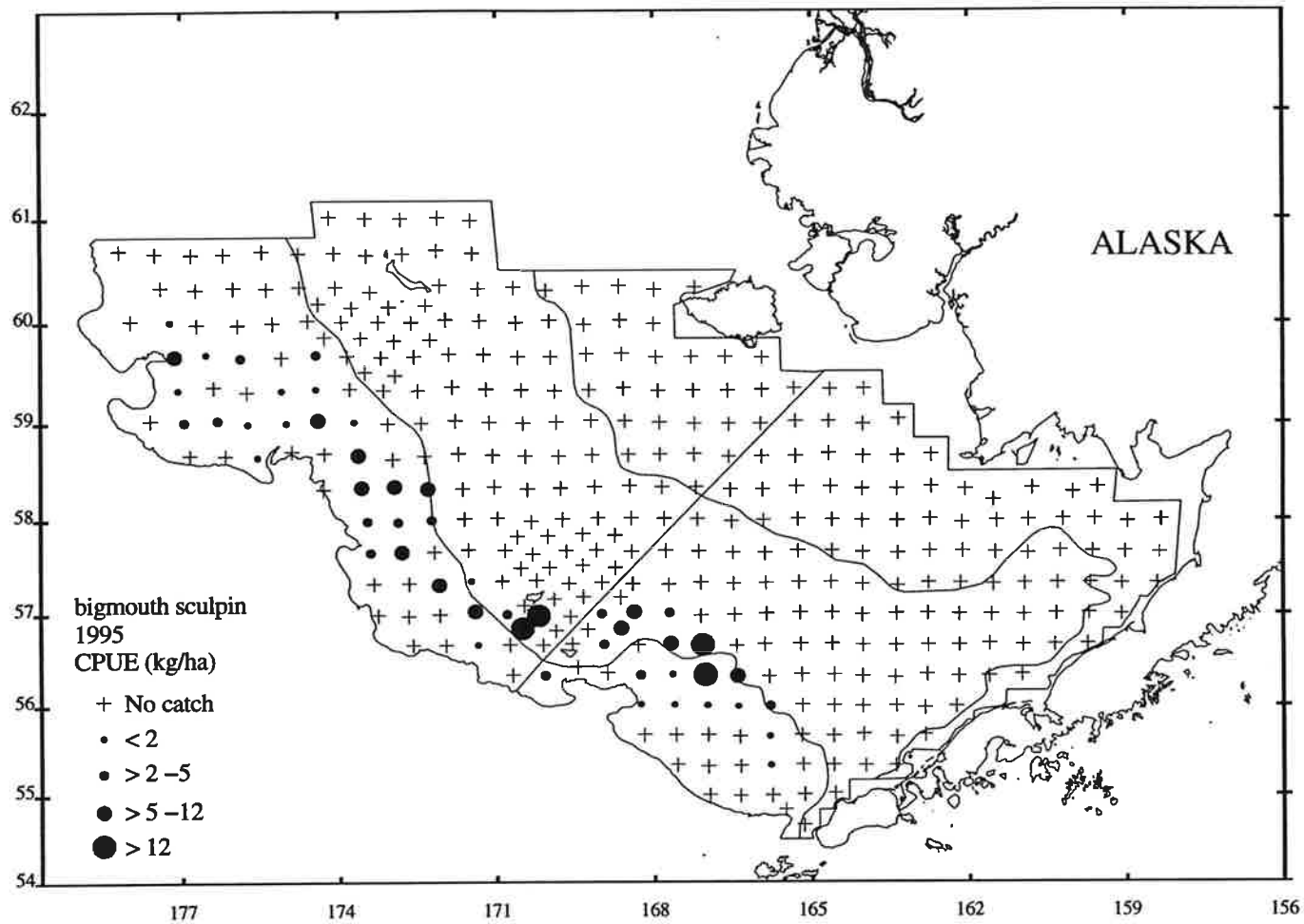


Figure 40--. Distribution and relative abundance in kg/ha of bigmouth sculpin, 1995 eastern Bering Sea bottom trawl survey.

Table 30.--Abundance estimates and mean size of bigmouth sculpin by subarea, 1995 eastern Bering Sea bottom trawl survey.

Subarea	Mean CPUE (kg/ha)	Estimated biomass (t) ^a	Proportion of estimated biomass	Estimated population numbers ^a	Proportion of estimated population	Weight (kg)
1	0.00	0	0.000	0	0.000	0.000
2	0.00	0	0.000	0	0.000	0.000
3	0.66	6,793	0.231	1,446,941	0.174	4.695
4	0.23	2,468	0.084	651,812	0.078	3.786
5	1.10	4,267	0.145	796,975	0.096	5.354
6	1.68	15,864	0.540	5,427,516	0.652	2.923
All subareas combined ^b	0.63	29,393	1.000	8,323,243	1.000	3.531
95% Confidence interval		±10,394		±2,791,261		

^aVariances of abundance estimates are given in Appendix D.

^bDifferences in sums of estimates and totals are due to rounding.

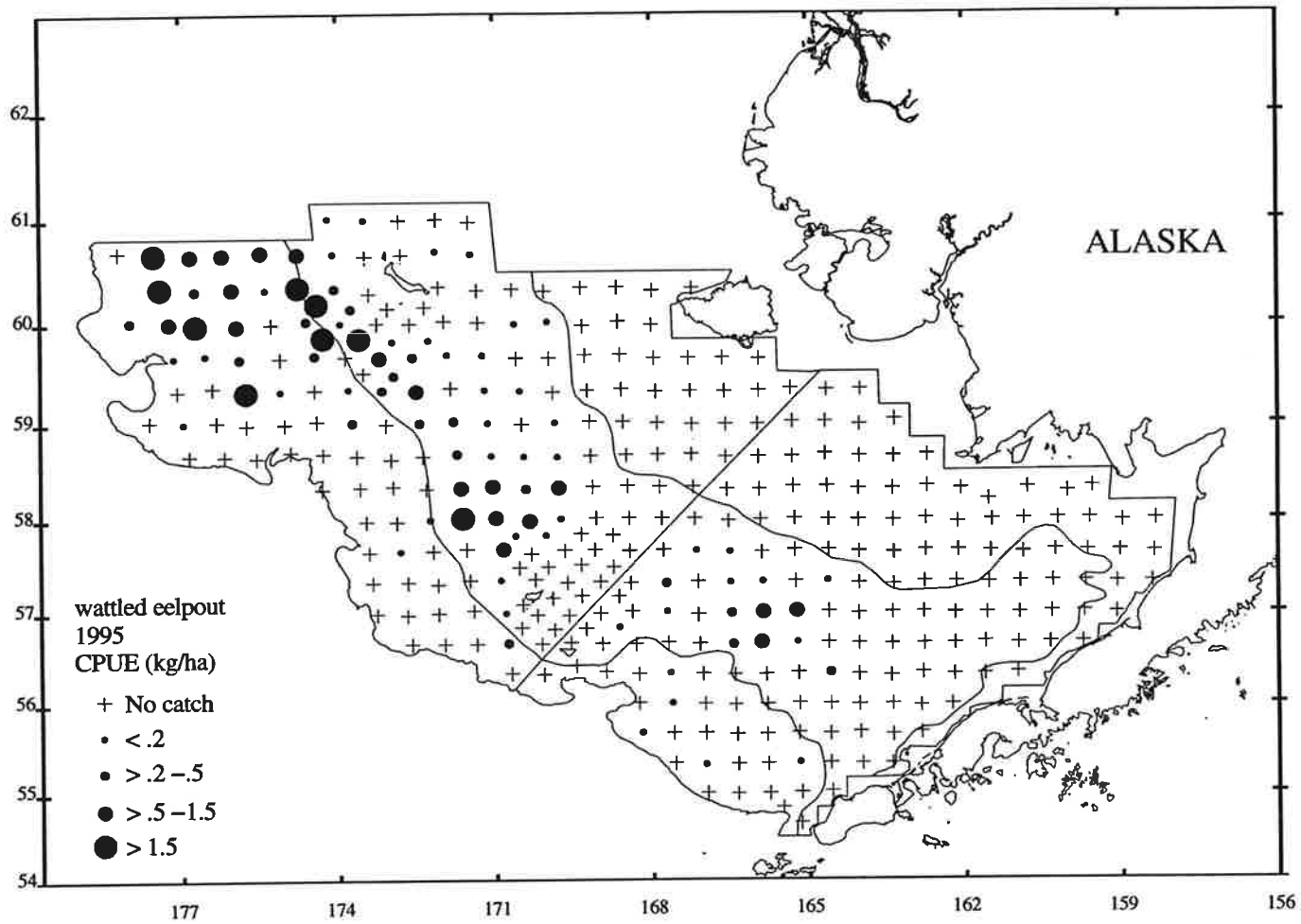


Figure 41--. Distribution and relative abundance in kg/ha of wattle eelpout, 1995 eastern Bering Sea bottom trawl survey.

Table 31.--Abundance estimates and mean size of wattled eelpout by subarea, 1995 eastern Bering Sea bottom trawl survey.

Subarea	Mean CPUE (kg/ha)	Estimated biomass (t) ^a	Proportion of estimated biomass	Estimated population numbers ^a	Proportion of estimated population	Weight (kg)
1	0.00	0	0.000	0	0.000	0.000
2	0.00	0	0.000	0	0.000	0.000
3	0.05	518	0.080	3,582,728	0.067	0.145
4	0.24	2,626	0.407	16,681,348	0.311	0.157
5	0.01	32	0.005	183,477	0.003	0.174
6	0.35	3,282	0.508	33,180,113	0.619	0.099
All subareas combined ^b	0.14	6,458	1.000	53,627,665	1.000	0.120
95% Confidence interval		±2,339		±32,498,609		

^aVariances of abundance estimates are given in Appendix D.

^bDifferences in sums of estimates and totals are due to rounding.

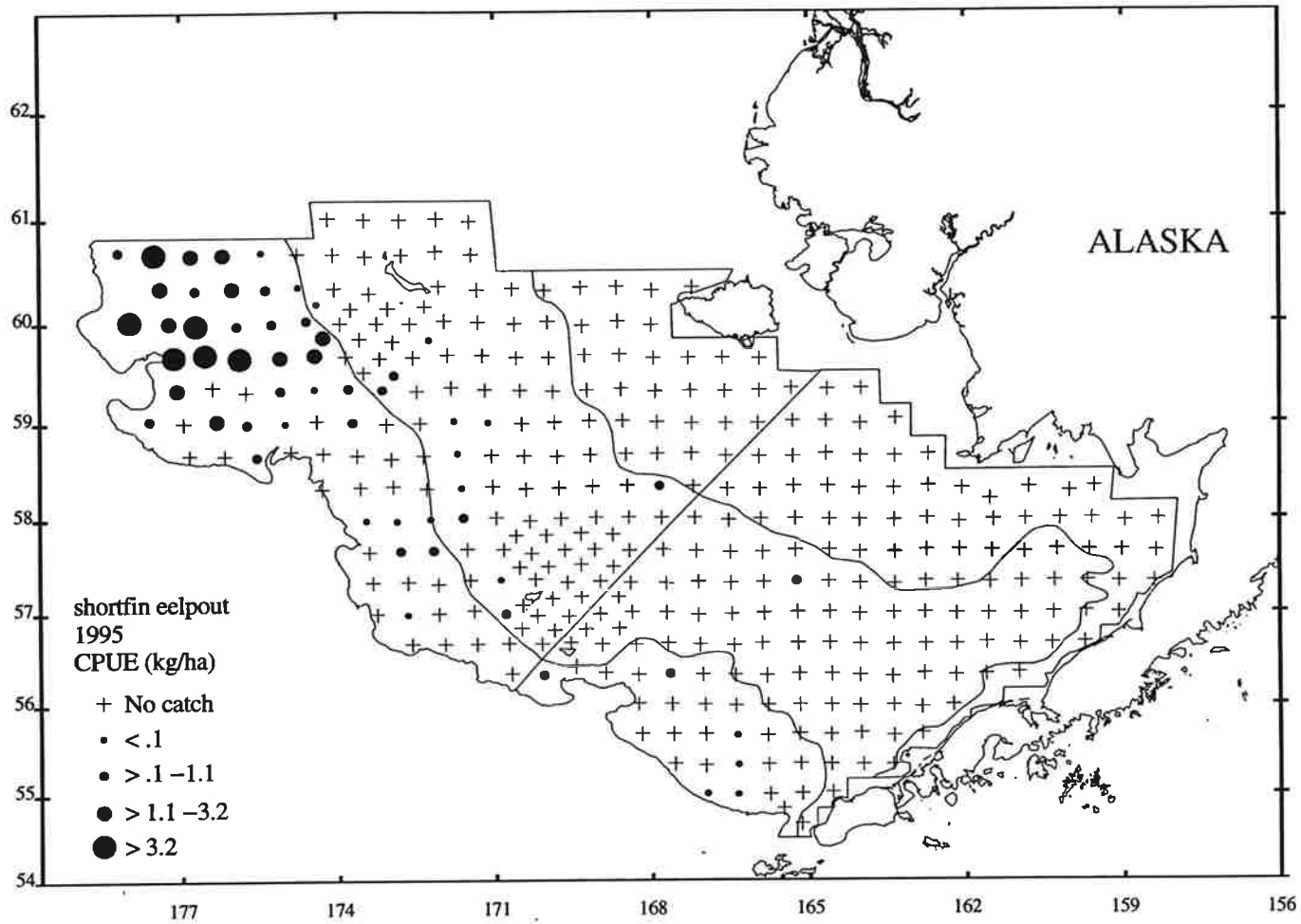


Figure 42--. Distribution and relative abundance in kg/ha of shortfin eelpout, 1995 eastern Bering Sea bottom trawl survey.

Table 32.--Abundance estimates and mean size of shortfin eelpout by subarea, 1995 eastern Bering Sea bottom trawl survey.

Subarea	Mean CPUE (kg/ha)	Estimated biomass (t) ^a	Proportion of estimated biomass	Estimated population numbers ^a	Proportion of estimated population	Weight (kg)
1	0.00	0	0.000	0	0.000	0.000
2	0.00	0	0.000	0	0.000	0.000
3	0.00	23	0.002	213,456	0.001	0.108
4	0.02	177	0.016	3,975,810	0.023	0.045
5	0.05	213	0.019	7,691,976	0.044	0.028
6	1.14	10,795	0.963	161,767,077	0.932	0.067
All subareas combined ^b	0.24	11,208	1.000	173,648,319	1.000	0.065
95% Confidence interval		±6,179		±76,926,246		

^aVariances of abundance estimates are given in Appendix D.

^bDifferences in sums of estimates and totals are due to rounding.

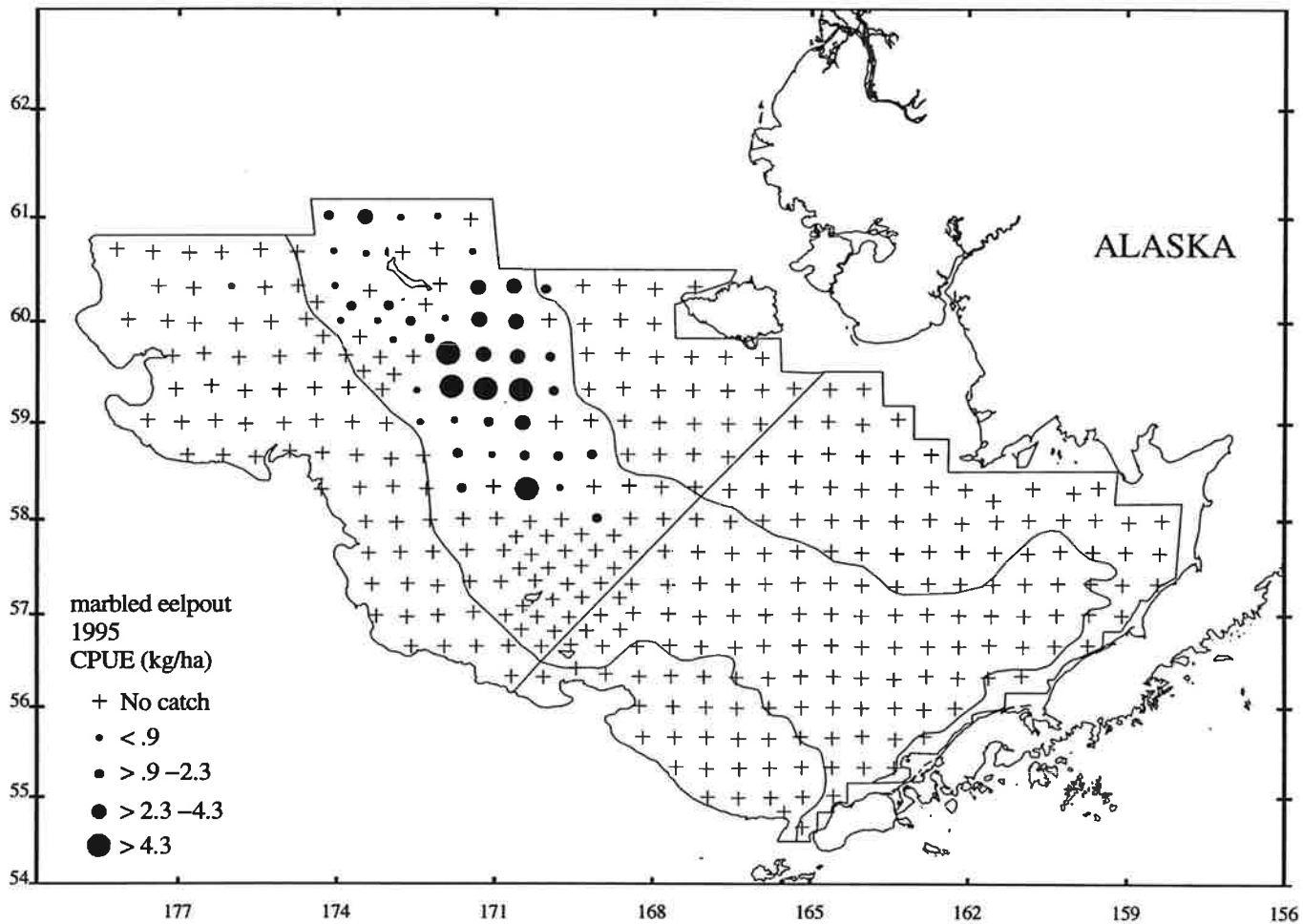


Figure 43--. Distribution and relative abundance in kg/ha of marbled eelpout, 1995 eastern Bering Sea bottom trawl survey.

Table 33.--Abundance estimates and mean size of marbled eelpout by subarea, 1995 eastern Bering Sea bottom trawl survey.

Subarea	Mean CPUE (kg/ha)	Estimated biomass (t) ^a	Proportion of estimated biomass	Estimated population numbers ^a	Proportion of estimated population	Weight (kg)
1	0.00	0	0.000	0	0.000	0.000
2	0.07	304	0.028	343,988	0.026	0.884
3	0.00	0	0.000	0	0.000	0.000
4	0.96	10,322	0.965	12,546,700	0.949	0.823
5	0.00	0	0.000	0	0.000	0.000
6	0.01	75	0.007	328,371	0.025	0.228
All subareas combined ^b	0.23	10,700	1.000	13,219,058	1.000	0.809
95% Confidence interval		±3,431		±4,387,359		

^aVariances of abundance estimates are given in Appendix D.

^bDifferences in sums of estimates and totals are due to rounding.

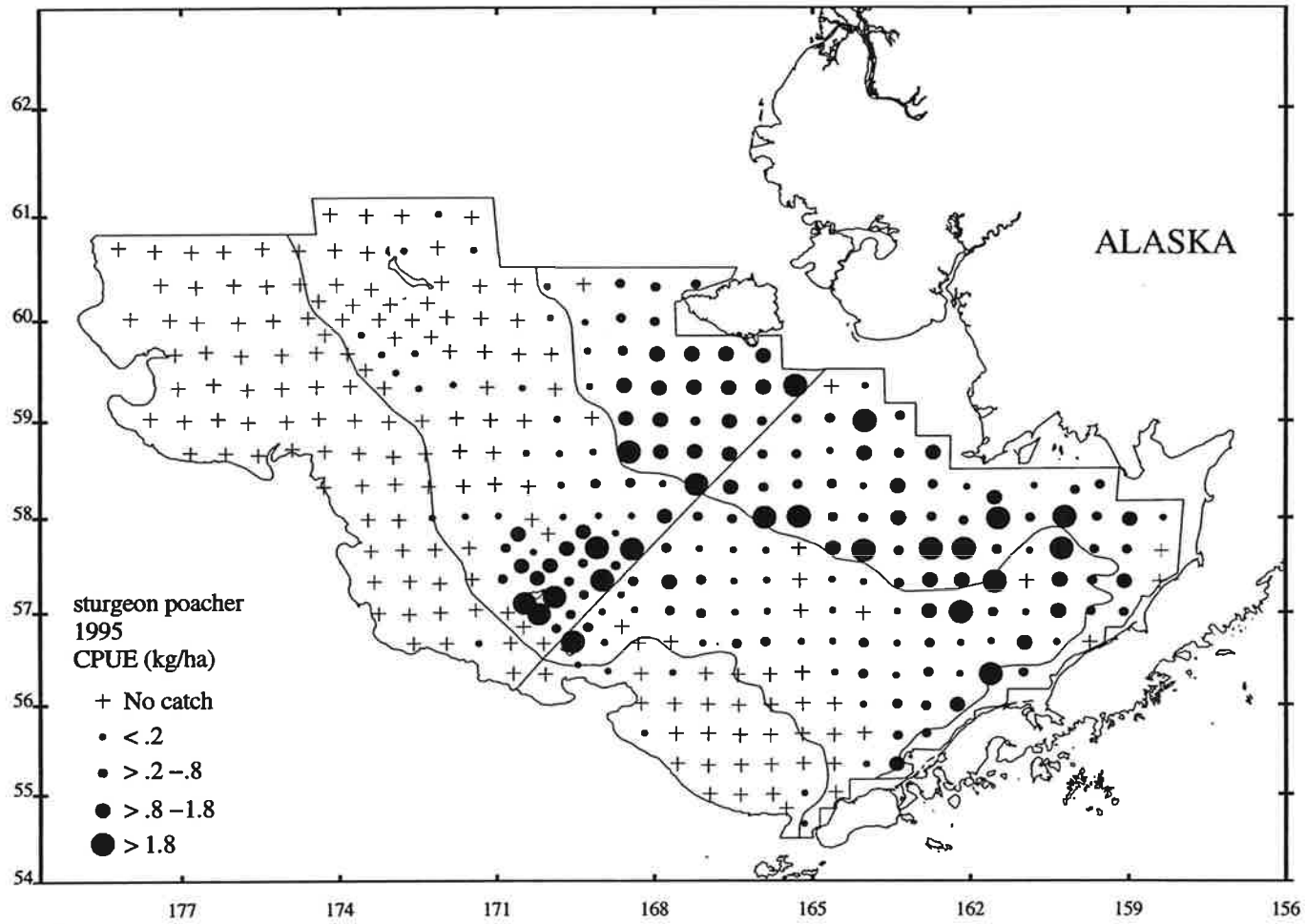


Figure 44--. Distribution and relative abundance in kg/ha of sturgeon poacher, 1995 eastern Bering Sea bottom trawl survey.

Table 34.--Abundance estimates and mean size of sturgeon poacher by subarea, 1995 eastern Bering Sea bottom trawl survey.

Subarea	Mean CPUE (kg/ha)	Estimated biomass (t) ^a	Proportion of estimated biomass	Estimated population numbers ^a	Proportion of estimated population	Weight (kg)
1	0.91	7,097	0.360	90,069,401	0.353	0.079
2	1.07	4,396	0.223	60,365,858	0.237	0.073
3	0.37	3,846	0.195	53,275,223	0.209	0.072
4	0.40	4,294	0.218	50,654,136	0.199	0.085
5	0.01	49	0.002	361,178	0.001	0.136
6	0.00	9	0.000	122,714	0.000	0.073
All subareas combined ^b	0.42	19,692	1.000	254,848,509	1.000	0.077
95% Confidence interval		±4,521		±55,771,890		

^aVariances of abundance estimates are given in Appendix D.

^bDifferences in sums of estimates and totals are due to rounding.

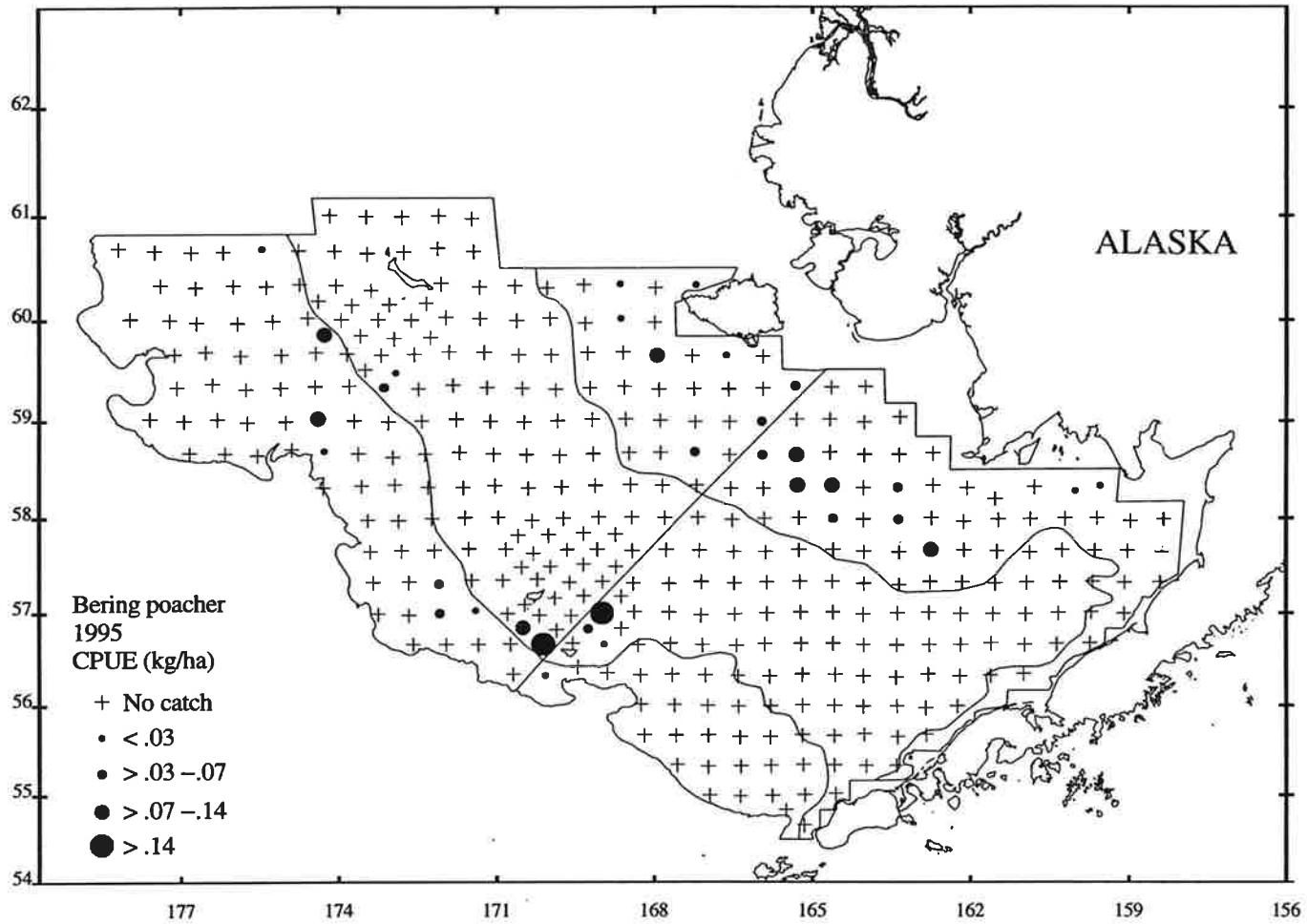


Figure 45--. Distribution and relative abundance in kg/ha of Bering poacher, 1995 eastern Bering Sea bottom trawl survey.

Table 35.--Abundance estimates and mean size of Bering poacher by subarea, 1995 eastern Bering Sea bottom trawl survey.

Subarea	Mean CPUE (kg/ha)	Estimated biomass (t) ^a	Proportion of estimated biomass	Estimated population numbers ^a	Proportion of estimated population	Weight (kg)
1	0.01	87	0.358	1,655,692	0.402	0.053
2	0.01	42	0.173	718,451	0.174	0.058
3	0.00	36	0.148	806,637	0.196	0.045
4	0.00	26	0.107	288,023	0.070	0.090
5	0.00	3	0.012	26,594	0.006	0.113
6	0.01	50	0.206	623,510	0.151	0.080
All subareas combined ^b	0.01	243	1.000	4,118,907	1.000	0.059
95% Confidence interval		±101		±1,814,661		

^aVariances of abundance estimates are given in Appendix D.

^bDifferences in sums of estimates and totals are due to rounding.

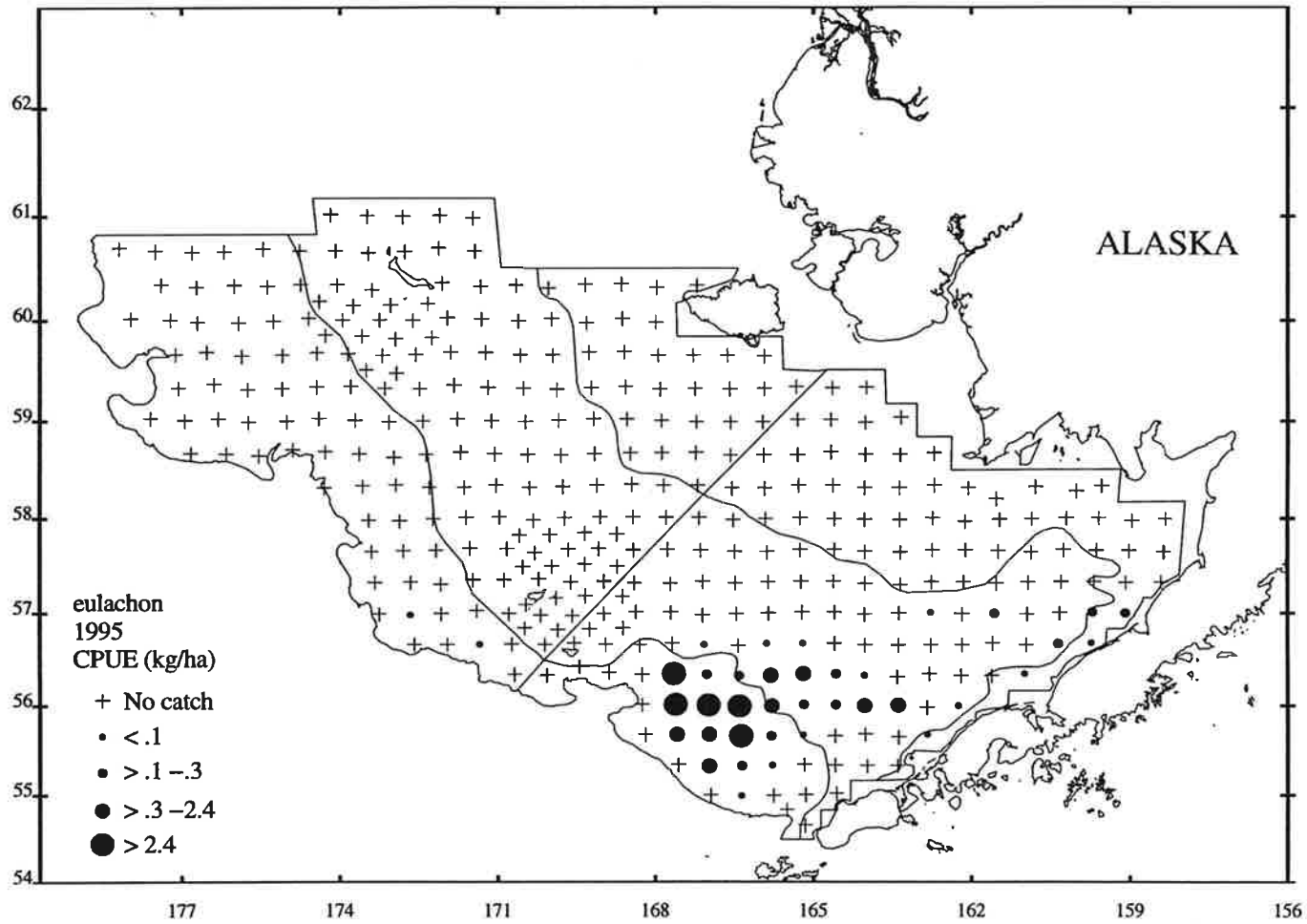


Figure 46--. Distribution and relative abundance in kg/ha of eulachon, 1995 eastern Bering Sea bottom trawl survey.

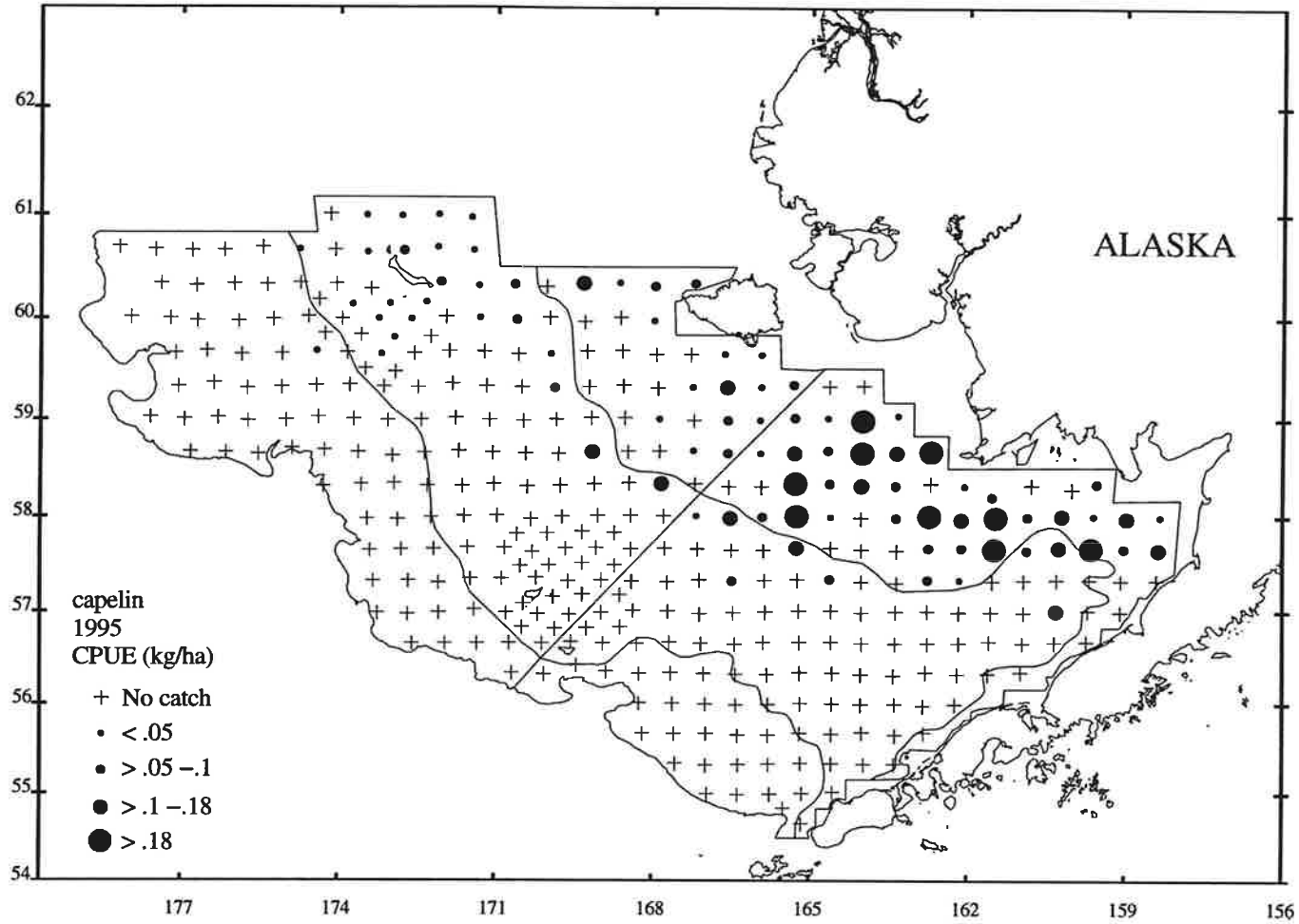


Figure 47--. Distribution and relative abundance in kg/ha of capelin, 1995 eastern Bering Sea bottom trawl survey.

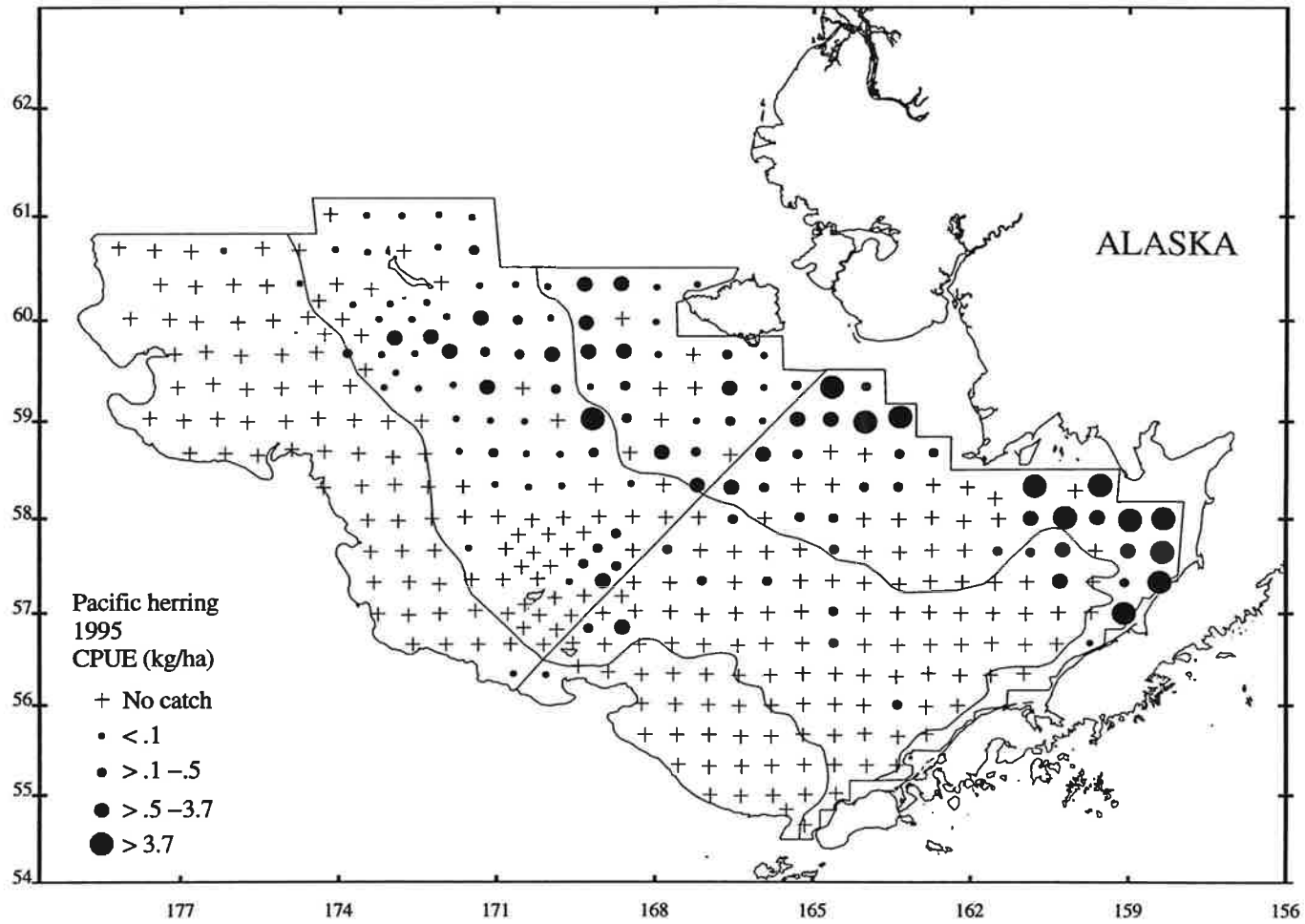


Figure 48--. Distribution and relative abundance in kg/ha of Pacific herring, 1995 eastern Bering Sea bottom trawl survey.

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APPENDIX A

Station Data, 1995 Eastern Bering Sea Bottom Trawl Survey

Appendix A contains station data by vessel for the 356 successfully completed standard survey stations. In using the tables, the following should be noted:

1. Time represents the nearest hour at the start of the tow.
2. Haul numbers are not always sequential because special study and unsatisfactory hauls were omitted.
3. Negative longitude indicates western hemisphere.
4. Width codes are as follows:

M = Net width was measured by mensuration gear.

F = Net width was estimated from a function of wire out or wire out and net height.

5. Hauls marked with an "*" were used for the FPC analysis. Twenty additional special study hauls not listed here were also used for that analysis. For reference purposes, these hauls were: F/V *Arcturus*-149-154, 178-181 - F/V *Aldebaran* -167-174, 194, 195.

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A-2. F/V <i>Aldebaran</i>	104

Table A.-1--Haul data for stations sampled by the F/V *Arcturus* during the 1995 eastern Bering Sea Bottom trawl survey.

Haul	MM/DD/YY	Latitude	Longitude	Depth (m)	Time (hr.)	Duration (hr.)	Distance (km)	Strata	Surf. Temp.	Gear Temp.	Net Width (m)	Width Code
1	06/04/95	57.334	158.401	29	07	0.50	2.82	10	4.1	3.3	15.7	M
2	06/04/95	57.652	158.364	33	10	0.49	2.89	10	5.3	2.9	15.3	M
3	06/04/95	57.999	158.330	31	13	0.50	2.93	10	3.7	3.2	14.9	M
4	06/05/95	58.341	159.539	22	06	0.50	2.83	10	8.3	4.5	14.6	M
5	06/05/95	58.009	159.597	40	08	0.50	2.80	10	7.9	2.4	15.8	M
6	06/05/95	57.668	159.646	48	11	0.50	2.95	10	3.6	2.3	15.6	M
7	06/05/95	57.340	159.680	55	13	0.51	3.08	10	4.1	2.3	15.7	M
8	06/05/95	57.011	159.709	55	15	0.51	2.95	10	5.5	2.3	15.9	M
9	06/05/95	56.679	159.732	33	18	0.41	2.33	10	5.4	4.1	14.6	M
10	06/06/95	56.346	160.994	53	06	0.48	2.74	10	4.9	2.4	14.7	M
11	06/06/95	56.664	160.974	68	09	0.50	2.79	31	5.1	1.9	15.3	M
12	06/06/95	56.992	160.951	66	11	0.51	2.90	31	5.3	2.3	15.2	M
13	06/06/95	57.332	160.938	57	14	0.50	2.78	31	5.2	2.4	15.1	M
14	06/06/95	57.648	160.877	55	16	0.50	2.94	31	5.4	1.9	15.6	M
15	06/07/95	57.998	160.863	42	06	0.50	3.00	10	5.8	2.4	15.8	M
16	06/07/95	58.330	160.787	18	09	0.51	2.97	10	7.4	6.2	15.1	M
17	06/07/95	58.319	162.066	46	13	0.48	2.90	10	5.5	3.4	16.0	M
* 19	06/08/95	57.969	162.126	35	06	0.50	2.90	10	5.1	2.9	14.7	M
* 20	06/08/95	57.674	162.121	46	08	0.50	2.99	10	4.8	2.1	15.5	M
* 21	06/08/95	57.333	162.161	49	11	0.49	2.87	10	5.0	1.4	15.4	M
* 22	06/08/95	56.995	162.180	59	13	0.50	2.93	31	5.1	1.4	15.4	M
* 23	06/08/95	56.663	162.185	73	15	0.50	2.88	31	6.1	1.4	14.7	M
* 24	06/09/95	56.326	162.205	77	06	0.50	2.80	31	6.5	1.6	16.0	M
* 25	06/09/95	55.993	162.250	68	09	0.49	2.96	31	7.1	1.9	16.5	M
* 26	06/09/95	55.336	163.401	51	15	0.17	0.95	31	7.4	2.8	15.6	M
* 27	06/10/95	55.653	163.385	79	06	0.52	2.90	31	6.6	1.7	17.2	M
* 28	06/10/95	55.999	163.396	86	09	0.49	2.77	31	6.9	1.0	15.5	M
* 29	06/10/95	56.309	163.415	82	11	0.48	2.61	31	6.6	0.8	16.8	M
* 30	06/10/95	56.657	163.398	73	14	0.52	2.98	31	6.0	0.8	17.0	M
* 31	06/10/95	57.001	163.391	64	17	0.49	2.85	31	4.7	0.6	16.8	M
* 32	06/11/95	57.306	163.358	51	06	0.50	2.77	10	4.1	0.9	16.2	M

Table A-1.--Continued.

	Haul	MM/DD/YY	Latitude	Longitude	Depth (m)	Time (hr.)	Duration (hr.)	Distance (km)	Strata	Surf. Temp.	Gear Temp.	Net Width (m)	Width Code
*	33	06/11/95	57.647	163.361	46	09	0.50	2.72	10	4.1	2.3	15.9	M
*	34	06/11/95	57.988	163.369	40	11	0.51	2.94	10	4.2	2.0	16.6	M
*	35	06/11/95	58.321	163.382	33	14	0.49	2.63	10	4.1	3.2	15.4	M
*	36	06/11/95	58.658	163.362	27	16	0.51	3.00	10	4.6	4.5	15.9	M
*	37	06/12/95	59.039	163.342	18	06	0.52	2.84	10	6.9	6.7	14.5	M
*	38	06/12/95	59.336	164.649	20	11	0.52	3.04	10	6.4	5.6	15.0	M
*	39	06/12/95	59.013	164.670	24	13	0.51	2.93	10	4.8	4.2	15.2	M
*	40	06/12/95	58.684	164.668	33	16	0.50	2.83	10	3.7	---	14.3	M
*	41	06/13/95	58.344	164.631	40	06	0.49	2.86	10	3.1	2.5	14.6	M
*	42	06/13/95	58.000	164.612	44	08	0.50	2.75	10	3.1	2.0	15.7	M
*	43	06/13/95	57.678	164.607	51	11	0.48	2.68	10	4.9	0.4	15.1	M
*	44	06/13/95	57.344	164.625	64	13	0.49	2.87	31	4.8	0.1	15.1	M
*	45	06/13/95	57.013	164.613	68	15	0.49	2.83	31	5.9	---	15.1	M
*	46	06/14/95	56.679	164.613	75	06	0.51	2.86	31	6.7	0.3	17.0	M
*	47	06/14/95	56.342	164.575	86	09	0.50	2.66	31	6.6	0.7	17.1	M
*	48	06/14/95	56.005	164.580	91	11	0.26	1.59	31	7.3	1.4	17.6	M
*	49	06/14/95	55.666	164.592	93	13	0.48	3.02	31	6.4	2.4	17.2	M
*	50	06/14/95	55.339	164.591	101	16	0.49	2.69	31	6.8	3.1	16.9	M
*	51	06/15/95	55.021	164.566	59	06	0.50	2.79	31	6.8	4.0	15.4	M
	52	06/15/95	54.662	165.158	79	10	0.49	2.93	31	5.9	4.8	15.9	M
*	53	06/16/95	54.996	165.760	132	06	0.49	2.80	50	5.3	3.7	17.9	M
*	54	06/16/95	55.333	165.784	121	08	0.47	2.76	50	6.7	3.7	17.9	M
*	55	06/16/95	55.658	165.802	117	11	0.48	2.75	50	6.9	2.9	17.3	M
*	56	06/16/95	55.994	165.791	106	13	0.48	2.73	31	6.9	3.6	17.1	M
*	57	06/16/95	56.323	165.813	91	16	0.34	1.85	31	7.4	1.8	16.9	F
*	58	06/17/95	56.674	165.893	77	06	0.49	2.73	31	6.3	-0.2	15.6	M
*	59	06/17/95	57.001	165.860	71	09	0.50	2.89	31	6.1	-0.2	16.7	M
*	60	06/17/95	57.335	165.867	66	11	0.48	2.72	31	5.8	0.6	15.6	M
*	61	06/17/95	57.650	165.881	62	13	0.47	2.73	31	5.5	---	15.4	M
*	62	06/17/95	57.999	165.909	53	16	0.46	2.63	10	5.1	---	14.8	M
*	63	06/18/95	58.314	165.930	40	06	0.50	2.84	10	3.1	2.7	16.3	M
*	64	06/18/95	58.653	165.951	35	09	0.50	2.94	10	4.5	4.1	15.3	M

Table A-1.--Continued.

Haul	MM/DD/YY	Latitude	Longitude	Depth (m)	Time (hr.)	Duration (hr.)	Distance (km)	Strata	Surf. Temp.	Gear Temp.	Net Width (m)	Width Code	
*	65	06/18/95	58.990	165.962	27	11	0.50	2.82	20	5.1	4.8	15.3	M
*	66	06/18/95	59.326	165.940	22	14	0.51	2.84	20	7.0	6.8	15.3	M
*	67	06/18/95	59.643	165.940	22	16	0.52	2.95	20	7.7	7.1	14.8	M
*	68	06/19/95	58.682	167.232	40	06	0.51	2.97	20	3.8	3.5	15.7	M
*	69	06/19/95	58.342	167.200	49	08	0.48	2.92	20	3.6	1.5	16.1	M
*	70	06/19/95	58.010	167.171	62	10	0.50	2.80	31	3.7	0.0	15.5	M
*	71	06/19/95	57.667	167.139	66	13	0.47	2.69	31	3.6	0.1	15.3	M
*	72	06/19/95	57.339	167.108	70	15	0.47	2.75	31	3.7	0.1	16.1	M
*	73	06/20/95	56.980	167.109	73	06	0.51	2.83	31	4.9	0.6	16.1	M
*	74	06/20/95	56.660	167.075	95	09	0.49	2.77	31	5.5	0.9	16.4	M
*	75	06/20/95	56.335	167.027	113	11	0.47	2.76	50	6.8	2.6	16.3	M
*	76	06/20/95	56.001	166.988	135	14	0.45	2.70	50	6.5	2.7	17.2	M
*	77	06/20/95	55.676	166.980	135	16	0.47	2.68	50	6.9	3.1	18.5	M
*	78	06/21/95	55.323	166.978	139	06	0.49	2.58	50	6.3	3.3	17.5	M
*	79	06/21/95	55.002	166.949	155	09	0.45	2.64	50	6.6	3.5	17.2	M
*	80	06/25/95	58.989	167.222	37	06	0.50	2.92	20	4.8	4.3	14.4	M
*	81	06/25/95	59.325	167.248	29	09	0.50	2.93	20	4.5	4.2	14.5	M
*	82	06/25/95	59.652	167.289	29	11	0.51	3.02	20	5.7	5.2	14.5	M
*	83	06/25/95	60.340	167.211	27	16	0.51	2.86	20	5.7	5.1	15.2	M
*	84	06/26/95	60.348	168.652	33	06	0.50	2.90	20	4.6	4.2	14.5	M
*	85	06/26/95	60.014	168.638	37	08	0.50	2.90	20	4.2	3.7	14.3	M
*	86	06/26/95	59.686	168.602	37	11	0.48	2.76	20	3.9	---	14.3	M
*	87	06/26/95	59.344	168.576	40	13	0.48	2.78	20	3.6	---	14.7	M
*	88	06/26/95	59.018	168.544	44	16	0.49	2.75	20	3.9	3.0	14.7	M
*	89	06/27/95	58.677	168.483	51	06	0.50	2.72	20	4.7	---	15.1	M
*	90	06/27/95	58.354	168.455	62	09	0.49	2.89	41	4.6	0.6	16.4	M
*	91	06/27/95	58.017	168.430	68	11	0.49	2.85	42	5.3	0.3	16.1	M
*	92	06/27/95	57.838	168.736	70	13	0.49	2.84	42	5.3	0.2	16.6	M
*	93	06/27/95	57.668	168.418	70	15	0.51	2.91	42	5.1	---	16.3	M
*	94	06/27/95	57.496	168.730	71	17	0.49	2.83	42	4.7	0.4	16.9	M
*	95	06/28/95	57.325	168.399	73	06	0.51	2.73	32	5.0	0.3	17.6	M
*	96	06/28/95	57.181	168.628	75	08	0.48	2.75	32	5.6	0.3	17.3	M

Table A-1.--Continued.

Haul	MM/DD/YY	Latitude	Longitude	Depth (m)	Time (hr.)	Duration (hr.)	Distance (km)	Strata	Surf. Temp.	Gear Temp.	Net Width (m)	Width Code	
*	97	06/28/95	57.019	168.372	80	10	0.50	3.03	32	5.9	0.4	17.2	M
*	98	06/28/95	56.844	168.618	97	12	0.50	2.85	32	6.4	0.6	17.1	M
*	99	06/28/95	56.661	168.299	104	14	0.34	1.80	50	6.9	---	16.7	M
*	100	06/28/95	56.334	168.251	154	17	0.50	2.72	50	8.4	---	16.7	M
*	101	06/29/95	56.428	169.450	104	06	0.50	2.65	32	6.9	2.7	16.0	M
*	102	06/29/95	56.677	169.545	79	09	0.49	2.84	32	5.3	2.3	15.3	M
*	103	06/29/95	56.821	169.858	71	11	0.53	3.08	42	6.5	2.8	16.1	M
*	104	06/29/95	56.974	169.583	59	14	0.52	2.87	42	6.8	0.9	15.6	M
*	105	06/29/95	57.163	169.893	48	16	0.43	2.42	42	4.8	2.7	14.9	M
*	106	06/30/95	57.330	169.615	60	06	0.51	2.98	42	5.0	0.5	16.4	M
*	107	06/30/95	57.497	169.976	68	08	0.51	2.90	42	5.1	0.8	16.3	M
*	108	06/30/95	57.675	169.657	70	10	0.49	2.75	42	5.4	0.3	16.3	M
*	109	06/30/95	57.832	170.012	71	12	0.52	2.94	42	6.0	0.1	17.0	M
*	110	06/30/95	57.982	170.319	73	14	0.49	2.80	42	6.0	0.1	17.2	M
*	111	06/30/95	58.007	169.728	70	16	0.50	2.95	42	6.4	---	15.9	M
*	112	07/01/95	58.331	169.766	68	06	0.50	2.96	41	5.7	-0.9	15.9	M
*	113	07/01/95	58.653	169.799	66	09	0.51	2.92	41	5.8	-1.0	16.0	M
*	114	07/01/95	59.004	169.844	62	11	0.49	2.64	41	5.7	-0.6	16.3	M
*	115	07/01/95	59.316	169.888	59	13	0.52	2.83	41	5.9	-0.8	16.5	M
*	116	07/01/95	59.655	169.961	55	16	0.51	2.92	41	5.8	-0.6	16.4	M
*	117	07/02/95	59.991	170.612	62	06	0.48	2.89	41	6.6	-1.4	15.7	M
*	118	07/02/95	60.012	169.989	53	08	0.50	2.94	41	6.3	-0.6	15.6	M
*	119	07/02/95	60.315	170.046	51	11	0.51	2.99	20	6.5	-0.6	15.4	M
*	120	07/02/95	60.335	170.655	60	13	0.49	2.92	41	7.2	-1.4	16.9	M
*	121	07/02/95	60.324	171.336	64	15	0.50	2.85	41	7.0	-1.5	17.1	M
*	122	07/02/95	60.012	171.314	68	18	0.49	2.78	41	6.0	-1.5	15.8	M
*	123	07/03/95	59.680	171.229	71	06	0.52	2.94	41	7.0	-1.5	17.1	M
*	124	07/03/95	59.338	171.187	73	09	0.51	2.99	41	6.8	-1.5	16.7	M
*	125	07/03/95	59.001	171.128	77	11	0.52	2.99	41	6.8	-1.3	16.5	M
*	126	07/03/95	58.668	171.063	82	14	0.53	2.91	41	6.8	-1.2	16.7	M
*	127	07/03/95	58.347	171.029	84	16	0.52	2.89	41	6.6	-0.3	17.8	M
*	128	07/03/95	58.017	170.966	86	18	0.52	3.00	42	6.8	0.7	17.0	M

Table A-1.--Continued.

Haul	MM/DD/YY	Latitude	Longitude	Depth (m)	Time (hr.)	Duration (hr.)	Distance (km)	Strata	Surf. Temp.	Gear Temp.	Net Width (m)	Width Code	
*	129	07/04/95	57.683	170.824	82	06	0.51	2.58	42	6.1	1.7	17.8	M
*	130	07/04/95	57.355	170.881	84	09	0.52	3.10	42	5.6	2.5	17.4	M
*	131	07/06/95	56.995	170.783	95	06	0.52	3.52	42	6.9	2.8	16.9	M
*	132	07/06/95	56.669	170.736	112	09	0.52	3.03	61	6.9	2.9	17.5	M
*	133	07/06/95	56.342	170.678	121	11	0.52	2.99	61	6.9	3.4	17.2	M
	134	07/06/95	56.662	171.342	119	15	0.50	2.85	61	8.2	3.2	17.9	M
*	135	07/06/95	56.662	171.951	126	17	0.51	2.98	61	7.9	3.5	17.8	M
*	136	07/07/95	57.668	172.168	106	06	0.52	3.02	61	6.6	2.4	17.0	M
*	137	07/07/95	57.999	172.227	104	09	0.50	2.87	61	7.0	---	16.3	M
*	138	07/07/95	58.325	172.299	101	11	0.50	2.96	61	6.6	0.8	16.7	M
*	139	07/07/95	58.662	172.362	101	14	0.25	1.34	61	6.4	0.8	16.6	M
*	140	07/07/95	58.999	172.427	99	16	0.50	2.86	41	6.6	---	17.2	M
*	141	07/08/95	59.323	172.493	86	07	0.49	2.76	43	6.7	-0.7	16.9	M
*	142	07/08/95	59.662	172.561	82	09	0.33	1.97	43	6.5	---	16.6	M
*	143	07/08/95	59.829	172.257	73	11	0.52	2.98	43	7.2	-1.4	17.0	M
*	144	07/08/95	59.997	172.620	64	13	0.50	2.94	43	7.3	-1.0	16.5	M
*	145	07/08/95	60.162	172.338	57	15	0.33	1.97	43	6.6	---	16.6	M
*	146	07/09/95	60.660	172.770	42	07	0.51	2.95	41	6.7	---	15.7	M
*	147	07/09/95	60.992	172.811	64	09	0.51	2.89	41	6.5	-1.2	17.5	M
	148	07/09/95	60.996	173.483	75	11	0.50	2.95	41	6.8	-1.5	17.3	M
*	155	07/10/95	61.010	174.177	80	16	0.49	2.79	41	7.4	-1.6	16.7	M
*	156	07/11/95	60.340	174.058	90	06	0.48	2.68	43	7.8	---	17.7	M
*	157	07/11/95	60.141	173.747	86	08	0.49	2.85	43	7.7	-1.4	17.1	M
*	158	07/11/95	60.001	173.948	95	10	0.25	1.47	43	7.6	0.8	16.4	M
*	159	07/11/95	59.845	173.584	93	12	0.49	2.80	43	7.2	-0.2	16.8	M
*	160	07/11/95	59.670	173.850	104	14	0.49	2.78	62	7.7	---	17.4	M
*	161	07/11/95	59.511	173.506	101	17	0.49	2.87	43	7.7	0.3	16.5	M
*	162	07/12/95	59.346	173.791	110	07	0.51	3.06	62	7.5	1.3	17.8	M
*	163	07/12/95	59.006	173.711	117	09	0.50	2.98	61	8.1	1.7	17.3	M
*	164	07/12/95	58.669	173.631	124	11	0.51	2.91	61	8.2	2.8	17.3	M
*	165	07/12/95	58.339	173.567	113	14	0.50	2.82	61	8.7	2.9	17.9	M
*	167	07/18/95	56.991	173.246	141	08	0.49	2.87	61	8.4	3.5	18.5	M

Table A-1.--Continued.

	Haul	MM/DD/YY	Latitude	Longitude	Depth (m)	Time (hr.)	Duration (hr.)	Distance (km)	Strata	Surf. Temp.	Gear Temp.	Net Width (m)	Width Code
*	168	07/18/95	57.329	173.334	121	11	0.47	2.73	61	8.2	3.0	18.7	M
*	169	07/18/95	57.655	173.392	144	14	0.47	2.73	61	8.4	3.2	17.8	M
*	170	07/19/95	58.712	174.894	168	07	0.50	2.83	61	8.6	2.8	19.4	M
*	171	07/19/95	58.994	175.002	128	09	0.48	2.72	61	8.6	2.4	18.5	M
*	172	07/19/95	59.326	175.093	132	12	0.49	2.86	61	8.6	2.0	18.6	M
*	173	07/19/95	59.659	175.101	124	14	0.50	2.84	61	8.5	1.7	18.4	M
*	174	07/19/95	59.991	175.263	117	17	0.48	2.72	61	8.4	1.1	18.4	M
*	175	07/20/95	60.326	175.375	110	07	0.49	2.79	61	8.2	0.5	17.6	M
*	176	07/20/95	60.335	176.012	121	09	0.47	2.70	61	8.3	1.1	18.2	M
*	177	07/20/95	60.662	176.196	119	12	0.46	2.67	61	8.4	0.7	17.8	M
*	182	07/21/95	60.668	177.504	146	09	0.49	2.80	61	8.0	1.4	18.4	M
*	183	07/21/95	60.341	177.389	146	12	0.50	2.78	61	8.3	1.3	17.9	M
*	184	07/21/95	60.001	177.217	135	15	0.47	2.63	61	8.6	1.6	17.6	M
*	185	07/22/95	59.667	177.133	174	07	0.49	2.71	61	8.7	2.2	18.3	M
*	186	07/22/95	59.334	177.068	148	10	0.47	2.73	61	8.6	2.2	18.4	M
*	187	07/22/95	59.002	176.949	137	12	0.47	2.80	61	8.9	2.2	17.6	M

Table A.-2--Haul data for stations sampled by the F/V *Aldebaran* during the 1995 eastern Bering Sea Bottom trawl survey.

Haul	MM/DD/YY	Latitude	Longitude	Depth (m)	Time (hr.)	Duration (hr.)	Distance (km)	Strata	Surf. Temp.	Gear Temp.	Net Width (m)	Width Code
1	06/04/95	56.999	159.084	29	06	0.53	3.03	10	3.4	3.2	15.5	M
2	06/04/95	57.328	159.075	48	10	0.53	2.88	10	2.7	2.6	16.2	M
3	06/04/95	57.666	159.023	44	12	0.53	3.06	10	2.4	2.4	16.1	M
4	06/04/95	57.981	158.969	38	15	0.52	3.08	10	3.5	2.4	15.5	M
5	06/05/95	58.288	160.013	31	06	0.52	3.08	10	3.5	2.4	15.5	M
6	06/05/95	58.006	160.208	48	08	0.52	3.05	10	3.7	2.1	16.2	M
7	06/05/95	57.675	160.264	53	11	0.53	3.00	31	3.5	2.2	16.1	M
8	06/05/95	57.339	160.304	60	13	0.54	3.00	31	3.8	2.4	16.2	M
9	06/05/95	57.005	160.332	60	15	0.54	3.15	31	4.9	2.4	16.0	M
10	06/05/95	56.671	160.362	57	18	0.55	3.13	31	5.4	2.2	18.0	M
11	06/06/95	56.327	161.615	62	06	0.53	2.92	10	4.4	1.9	16.3	M
13	06/06/95	56.681	161.608	86	09	0.24	1.45	31	4.8	1.5	17.0	M
14	06/06/95	56.995	161.573	68	12	0.53	2.85	31	5.0	2.0	16.5	M
15	06/06/95	57.322	161.538	53	14	0.52	2.90	31	4.8	2.3	14.7	M
16	06/06/95	57.660	161.496	51	17	0.51	2.83	10	4.4	2.1	15.4	M
17	06/07/95	57.990	161.469	53	06	0.52	2.89	10	4.4	2.4	15.5	M
18	06/07/95	58.206	161.541	35	08	0.22	1.28	10	5.4	3.6	15.9	F
* 19	06/07/95	58.671	162.708	22	12	0.54	3.09	10	5.8	5.3	14.9	M
* 20	06/07/95	58.345	162.716	29	15	0.52	2.95	10	6.4	4.0	14.8	M
* 21	06/08/95	58.007	162.737	38	06	0.43	2.35	10	2.8	2.4	15.1	M
* 22	06/08/95	57.673	162.749	40	08	0.54	3.18	10	4.0	1.6	16.1	M
* 23	06/08/95	57.336	162.767	46	10	0.53	3.01	10	3.9	1.4	16.0	M
* 24	06/08/95	57.008	162.782	59	13	0.53	3.16	31	4.1	1.4	16.4	M
* 26	06/08/95	56.660	162.776	70	16	0.52	3.01	31	5.0	1.1	16.1	M
* 27	06/09/95	56.345	162.802	77	06	0.53	2.99	31	6.1	1.1	17.1	M
* 29	06/09/95	55.980	162.846	77	09	0.53	2.90	31	6.8	1.7	16.4	M
* 30	06/09/95	55.680	162.842	48	12	0.53	3.23	10	6.4	2.2	17.4	M
* 31	06/09/95	55.334	163.977	71	17	0.53	3.12	31	6.7	3.0	16.6	M
* 33	06/10/95	55.684	164.013	93	07	0.55	3.13	31	6.8	1.7	17.1	M
* 34	06/10/95	55.994	164.034	88	10	0.54	2.87	31	6.3	0.9	17.0	M
* 35	06/10/95	56.325	164.036	84	12	0.53	2.97	31	6.1	0.7	17.1	M

Table A-2.--Continued.

	Haul	MM/DD/YY	Latitude	Longitude	Depth (m)	Time (hr.)	Duration (hr.)	Distance (km)	Strata	Surf. Temp.	Gear Temp.	Net Width (m)	Width Code
*	36	06/10/95	56.661	164.025	73	15	0.53	2.93	31	6.1	0.5	17.3	M
*	37	06/10/95	56.990	164.031	66	17	0.52	2.99	31	5.5	0.1	17.1	M
*	38	06/11/95	57.320	164.025	60	06	0.53	2.95	31	4.1	0.6	16.6	M
*	39	06/11/95	57.655	164.026	49	08	0.52	2.95	10	3.7	0.8	16.2	M
*	40	06/11/95	57.991	164.032	44	11	0.53	2.95	10	3.5	2.5	16.3	M
*	41	06/11/95	58.321	164.031	35	14	0.54	3.07	10	3.6	2.8	16.1	M
*	42	06/11/95	58.657	164.018	31	16	0.52	2.87	10	4.3	---	15.4	M
*	43	06/12/95	58.986	164.013	26	06	0.53	3.39	10	5.0	4.9	15.0	M
*	44	06/12/95	59.343	164.000	18	08	0.53	2.92	10	6.3	5.9	15.0	M
*	45	06/12/95	59.348	165.326	16	14	0.53	3.61	20	8.8	7.4	15.1	M
*	46	06/12/95	59.014	165.300	24	17	0.52	3.01	10	5.2	5.1	14.6	M
*	48	06/13/95	58.655	165.303	37	06	0.52	2.84	10	3.4	3.3	13.6	M
*	49	06/13/95	58.344	165.283	40	09	0.52	3.01	10	2.5	2.4	15.4	M
*	50	06/13/95	58.009	165.254	48	11	0.52	3.12	10	3.8	0.8	15.8	M
*	51	06/13/95	57.676	165.258	57	13	0.54	3.04	31	4.5	0.1	16.6	M
*	52	06/13/95	57.342	165.235	66	16	0.53	2.89	31	4.6	---	15.5	M
*	53	06/14/95	57.014	165.218	70	06	0.52	2.87	31	5.6	---	16.5	F
*	54	06/14/95	56.675	165.207	75	08	0.53	2.92	31	6.0	---	17.3	M
*	55	06/14/95	56.342	165.194	86	11	0.52	2.99	31	6.1	0.9	17.0	M
*	56	06/14/95	56.007	165.184	95	13	0.37	2.27	31	6.6	1.4	17.6	M
*	57	06/14/95	55.674	165.195	106	16	0.55	3.18	31	5.4	3.8	17.6	M
*	58	06/15/95	55.346	165.176	121	06	0.54	3.00	50	5.6	3.5	17.1	M
*	59	06/15/95	55.007	165.150	121	08	0.54	3.12	50	5.8	4.0	17.0	M
	60	06/15/95	54.836	165.499	154	11	0.54	3.13	50	5.3	3.5	17.1	M
*	61	06/16/95	54.993	166.367	143	06	0.53	2.96	50	5.9	3.6	18.1	M
*	62	06/16/95	55.328	166.357	132	08	0.54	3.03	50	6.3	3.2	18.0	M
*	63	06/16/95	55.659	166.375	139	11	0.54	3.08	50	6.6	2.9	17.9	M
*	64	06/16/95	55.991	166.404	123	13	0.53	2.92	50	7.1	3.0	17.2	M
*	65	06/16/95	56.323	166.413	110	16	0.53	2.95	31	7.1	2.4	17.2	M
*	66	06/17/95	56.652	166.434	84	06	0.53	2.95	31	6.1	0.9	16.1	M
*	67	06/17/95	56.991	166.464	71	08	0.53	2.93	31	5.0	---	16.4	M
*	68	06/17/95	57.326	166.482	68	11	0.52	3.01	31	5.2	0.8	15.2	M

Table A-2.--Continued.

Haul	MM/DD/YY	Latitude	Longitude	Depth (m)	Time (hr.)	Duration (hr.)	Distance (km)	Strata	Surf. Temp.	Gear Temp.	Net Width (m)	Width Code	
* 69	06/17/95	57.654	166.496	66	13	0.53	2.94	31	4.7	0.4	16.1	M	
* 70	06/17/95	57.986	166.520	59	15	0.53	2.91	31	4.4	0.5	15.2	M	
* 71	06/18/95	58.315	166.551	44	06	0.53	2.95	10	3.0	2.9	15.7	M	
* 72	06/18/95	58.654	166.574	38	08	0.51	2.87	20	3.0	3.1	15.1	M	
* 73	06/18/95	58.988	166.577	31	11	0.52	2.95	20	4.4	4.5	14.9	M	
* 74	06/18/95	59.320	166.591	26	13	0.52	3.02	20	5.6	5.3	15.3	M	
* 75	06/18/95	59.651	166.641	26	16	0.52	3.01	20	6.0	5.9	15.3	M	
* 76	06/19/95	58.679	167.878	46	06	0.52	2.95	20	2.2	--	15.9	M	
* 77	06/19/95	58.345	167.839	57	08	0.53	3.10	41	3.2	0.5	16.8	M	
* 78	06/19/95	58.013	167.801	64	11	0.52	2.96	41	3.6	--	15.6	M	
* 79	06/19/95	57.677	167.769	68	13	0.52	2.91	31	3.5	0.6	15.6	M	
* 81	06/19/95	57.317	167.713	71	16	0.54	3.02	31	4.0	0.3	16.6	M	
* 82	06/20/95	57.011	167.703	75	06	0.53	3.05	31	4.7	0.3	16.8	M	
* 83	06/20/95	56.676	167.678	104	08	0.52	3.05	31	5.1	1.2	17.1	M	
* 84	06/20/95	56.342	167.648	128	11	0.54	2.98	50	6.3	2.4	17.3	M	
* 85	06/20/95	56.008	167.614	132	13	0.54	3.03	50	6.3	3.0	17.6	M	
* 86	06/20/95	55.675	167.590	134	16	0.54	3.07	50	6.3	3.5	17.9	M	
	87	06/21/95	56.013	168.252	152	06	0.55	3.07	50	6.3	3.5	17.5	M
	88	06/21/95	55.679	168.191	134	08	0.54	3.00	50	6.1	3.3	17.7	M
* 89	06/21/95	55.343	167.562	146	12	0.55	3.11	50	5.8	3.6	17.4	M	
* 90	06/25/95	59.005	167.886	40	06	0.55	3.05	20	3.5	3.6	15.5	M	
* 91	06/25/95	59.318	167.913	37	08	0.52	2.86	20	3.5	3.2	15.5	M	
* 92	06/25/95	59.653	167.951	33	11	0.52	2.72	20	4.2	3.8	14.7	M	
* 93	06/25/95	59.979	167.994	24	13	0.50	2.72	20	5.0	--	15.1	M	
* 94	06/25/95	60.315	167.980	29	16	0.54	3.32	20	5.2	4.8	16.1	M	
* 95	06/26/95	60.344	169.345	40	06	0.50	2.78	20	3.2	1.4	15.9	F	
* 97	06/26/95	59.972	169.316	44	10	0.53	2.78	20	4.0	1.2	16.0	M	
* 98	06/26/95	59.683	169.272	46	12	0.51	2.76	20	4.5	1.9	16.1	M	
* 99	06/26/95	59.334	169.231	48	14	0.53	2.76	20	4.7	1.5	15.9	M	
* 100	06/26/95	59.018	169.185	51	17	0.51	2.62	41	5.1	1.1	14.9	M	
* 101	06/27/95	58.670	169.162	60	06	0.46	2.39	41	5.0	-0.2	16.6	M	
* 102	06/27/95	58.346	169.120	66	08	0.53	2.85	41	5.2	-0.4	17.0	M	

Table A-2.--Continued.

Haul	MM/DD/YY	Latitude	Longitude	Depth (m)	Time (hr.)	Duration (hr.)	Distance (km)	Strata	Surf. Temp.	Gear Temp.	Net Width (m)	Width Code
* 103	06/27/95	58.018	169.058	70	11	0.51	2.92	42	5.5	-0.2	16.8	M
* 104	06/27/95	57.850	169.346	64	13	0.51	2.88	42	5.3	0.2	16.6	M
* 105	06/27/95	57.684	169.085	66	15	0.52	2.77	42	4.7	0.1	16.7	M
* 106	06/27/95	57.522	169.351	70	17	0.52	2.87	42	5.1	0.3	16.4	M
* 107	06/28/95	57.339	168.982	70	06	0.53	2.95	42	5.1	0.3	16.4	M
* 108	06/28/95	57.186	169.335	71	09	0.55	2.91	42	6.0	0.4	17.1	M
* 109	06/28/95	56.998	168.985	79	11	0.54	2.77	32	6.4	0.6	17.4	M
* 110	06/28/95	56.831	169.256	79	13	0.52	3.10	32	6.8	0.9	17.3	M
* 111	06/28/95	56.666	168.943	97	16	0.54	2.76	32	7.6	1.2	18.0	M
* 112	06/28/95	56.360	168.878	123	18	0.53	2.81	50	8.2	2.2	17.2	M
* 113	06/29/95	56.330	170.064	110	06	0.57	3.22	50	6.5	3.0	18.1	M
* 114	06/29/95	56.663	170.107	95	09	0.29	1.60	42	6.6	2.6	17.6	M
* 116	06/29/95	56.842	170.490	99	11	0.54	2.92	42	7.2	2.8	17.7	M
* 117	06/29/95	56.979	170.189	71	13	0.55	2.85	42	7.8	2.6	17.2	M
* 122	06/30/95	57.093	170.459	44	08	0.53	3.08	42	4.6	2.9	15.5	M
* 123	06/30/95	57.363	170.224	59	11	0.21	1.20	42	4.5	3.2	16.1	M
* 124	06/30/95	57.492	170.523	71	12	0.30	1.69	42	5.9	1.9	16.5	M
* 125	06/30/95	57.639	170.296	71	14	0.38	2.09	42	6.2	1.2	16.7	M
* 126	06/30/95	57.827	170.588	77	16	0.55	3.27	42	6.4	1.2	17.2	M
* 127	07/01/95	58.318	170.392	73	06	0.54	3.08	41	3.8	1.2	17.0	M
* 128	07/01/95	58.658	170.436	71	08	0.54	3.10	41	4.4	-1.1	17.3	M
* 129	07/01/95	58.992	170.477	70	11	0.52	2.96	41	4.6	-1.2	16.2	M
* 130	07/01/95	59.327	170.513	66	13	0.52	2.97	41	5.0	-1.3	16.8	M
* 131	07/01/95	59.655	170.578	64	16	0.52	2.99	41	4.0	-1.5	16.8	M
* 132	07/02/95	60.666	171.442	60	06	0.51	2.73	41	6.1	-1.5	18.9	M
* 133	07/02/95	60.978	171.483	59	08	0.54	3.10	41	6.0	-1.3	17.6	M
* 134	07/02/95	61.004	172.110	62	11	0.53	3.04	41	6.2	-1.3	18.8	M
* 135	07/02/95	60.695	172.124	59	13	0.51	3.18	41	6.5	-1.3	18.9	M
* 136	07/02/95	60.358	172.062	59	16	0.53	3.11	43	7.0	-1.3	16.0	M
* 137	07/03/95	60.025	171.960	64	06	0.54	3.05	43	6.6	-1.0	16.4	M
* 138	07/03/95	59.686	171.901	75	08	0.55	3.00	43	7.0	-1.5	17.0	M
* 139	07/03/95	59.359	171.832	79	11	0.54	3.04	43	6.8	-1.5	16.5	M

Table A-2.--Continued.

Haul	MM/DD/YY	Latitude	Longitude	Depth (m)	Time (hr.)	Duration (hr.)	Distance (km)	Strata	Surf. Temp.	Gear Temp.	Net Width (m)	Width Code
* 140	07/03/95	59.019	171.775	84	13	0.52	3.07	41	7.0	-0.9	16.3	M
* 141	07/03/95	58.684	171.711	91	16	0.55	3.23	41	6.6	-1.0	18.0	M
* 142	07/04/95	58.328	171.631	95	06	0.54	3.45	41	5.5	0.3	17.4	M
* 143	07/04/95	58.013	171.598	99	08	0.55	3.00	41	6.8	1.1	17.2	M
* 144	07/04/95	57.687	171.527	99	11	0.36	2.20	41	7.6	1.6	17.1	M
* 145	07/04/95	57.353	171.466	99	13	0.37	2.36	41	7.0	2.4	17.2	M
* 146	07/04/95	57.026	171.394	106	16	0.57	3.36	61	7.4	3.2	17.9	M
* 147	07/06/95	56.663	172.583	135	06	0.55	3.34	61	6.8	3.5	17.8	M
* 148	07/06/95	56.979	172.660	123	09	0.53	3.19	61	6.6	3.2	17.7	M
149	07/06/95	56.996	172.076	115	11	0.56	3.16	61	7.0	3.4	17.7	M
150	07/06/95	57.311	172.082	108	14	0.56	3.04	61	7.4	2.7	17.3	M
* 151	07/06/95	57.333	172.653	115	17	0.29	1.61	61	7.2	2.8	17.4	M
* 152	07/07/95	57.662	172.795	117	06	0.55	2.97	61	7.4	2.9	17.4	M
* 153	07/07/95	57.977	172.865	108	09	0.40	2.38	61	7.5	2.4	17.2	M
* 154	07/07/95	58.349	172.938	108	12	0.22	1.15	61	7.0	2.1	17.4	M
* 155	07/07/95	58.632	172.975	112	14	0.55	3.33	61	7.4	1.9	17.3	M
* 156	07/07/95	58.988	173.066	106	17	0.31	1.75	61	7.5	1.2	17.7	M
* 157	07/08/95	59.334	173.145	99	06	0.55	3.01	43	6.2	0.1	17.0	M
* 158	07/08/95	59.480	172.924	93	08	0.55	3.21	43	6.6	-0.3	17.1	M
* 159	07/08/95	59.651	173.194	93	10	0.55	3.44	43	6.6	-0.5	17.4	M
* 160	07/08/95	59.815	172.947	79	12	0.54	3.23	43	6.6	-1.5	16.7	M
* 161	07/08/95	60.001	173.246	73	14	0.50	2.82	43	7.0	-1.2	16.9	F
* 162	07/08/95	60.148	173.035	59	16	0.50	2.82	43	7.0	---	16.5	F
* 163	07/09/95	60.293	173.396	60	07	0.50	2.85	43	7.5	---	16.5	F
* 164	07/09/95	60.646	173.465	62	09	0.53	3.03	41	7.5	-1.0	16.2	M
165	07/09/95	60.671	174.082	84	12	0.53	3.28	41	7.6	-1.5	16.8	M
166	07/09/95	60.674	174.764	95	14	0.54	3.30	41	7.4	-1.3	16.9	M
* 175	07/11/95	60.687	175.461	106	11	0.57	3.30	61	7.2	-0.9	17.6	M
* 176	07/11/95	60.352	174.755	102	14	0.54	3.15	62	7.8	-0.3	16.2	M
* 177	07/11/95	60.189	174.397	101	16	0.53	2.90	43	7.9	-1.0	16.9	M
* 178	07/12/95	60.023	174.600	108	06	0.40	2.29	62	7.9	0.8	17.2	M
* 179	07/12/95	59.858	174.278	106	08	0.56	3.12	62	7.3	0.8	17.4	M

Table A-2.--Continued.

Haul	MM/DD/YY	Latitude	Longitude	Depth (m)	Time (hr.)	Duration (hr.)	Distance (km)	Strata	Surf. Temp.	Gear Temp.	Net Width (m)	Width Code
* 180	07/12/95	59.683	174.439	113	10	0.55	3.36	62	7.8	0.9	17.7	M
* 181	07/12/95	59.343	174.442	119	12	0.38	2.32	62	8.1	2.1	17.3	M
* 182	07/12/95	59.023	174.396	124	15	0.27	1.44	61	8.4	2.5	16.8	M
* 183	07/12/95	58.691	174.278	150	17	0.55	3.04	61	8.5	3.0	17.2	M
184	07/18/95	57.985	173.451	117	10	0.57	3.15	61	8.4	3.3	18.2	M
* 185	07/18/95	58.322	174.292	165	13	0.56	3.23	61	7.9	3.0	18.1	M
186	07/19/95	58.650	175.548	135	07	0.57	3.06	61	8.3	2.6	18.1	M
* 187	07/19/95	58.985	175.731	132	09	0.57	3.23	61	8.4	2.1	17.8	M
* 188	07/19/95	59.314	175.750	137	12	0.57	3.33	61	8.4	1.9	18.1	M
* 189	07/19/95	59.651	175.874	137	14	0.56	3.28	61	8.2	1.6	17.5	M
* 190	07/19/95	59.971	175.923	130	17	0.57	3.19	61	8.0	1.4	17.7	M
* 191	07/20/95	59.977	176.714	141	07	0.56	2.96	61	8.0	1.6	17.6	M
* 192	07/20/95	60.318	176.726	137	09	0.56	3.29	61	8.0	1.5	17.7	M
* 193	07/20/95	60.655	176.807	130	12	0.57	3.36	61	7.9	0.9	17.5	M
* 196	07/21/95	60.695	178.190	163	07	0.58	3.21	61	7.7	2.0	18.6	M
* 197	07/21/95	60.015	177.967	143	11	0.55	3.10	61	7.9	1.6	17.5	M

APPENDIX B

List of Species Encountered

Appendix B contains a listing of all fish and invertebrate species taken during the 1995 eastern Bering Sea bottom trawl survey.

List of Tables

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B-2. Invertebrate species encountered.....	114

Table B-1.--Fish species encountered during the 1995 U.S. eastern Bering Sea bottom trawl survey.

Family	Scientific name	Common name
Squalidae	<i>Somniosus pacificus</i>	Pacific sleeper shark
Rajidae	Rajidae unident.	skate unident.
Pleuronectidae	<i>Atheresthes stomias</i>	arrowtooth flounder
	<i>Atheresthes evermanni</i>	Kamchatka flounder
	<i>Reinhardtius hippoglossoides</i>	Greenland turbot
	<i>Hippoglossus stenolepis</i>	Pacific halibut
	<i>Hippoglossoides elassodon</i>	flathead sole
	<i>Hippoglossoides robustus</i>	Bering flounder
	<i>Glyptocephalus zachirus</i>	rex sole
	<i>Limanda asper</i>	yellowfin sole
	<i>Limanda proboscidea</i>	longhead dab
	<i>Limanda sakhalinensis</i>	Sakhalin sole
	<i>Platichthys stellatus</i>	starry flounder
	<i>Lepidopsetta</i> spp.	rock sole sp.
	<i>Isopsetta isolepis</i>	butter sole
	<i>Pleuronectes quadrituberculatus</i>	Alaska plaice
Agonidae	<i>Pallasina barbata</i>	tubenose poacher
	<i>Percis japonicus</i>	dragon poacher
	<i>Sarritor frenatus</i>	sawback poacher
	<i>Podothecus acipenserinus</i>	sturgeon poacher
	<i>Aspidophoroides bartoni</i>	Aleutian alligatorfish
	<i>Aspidophoroides olriki</i>	Arctic alligatorfish
	<i>Ocella dodecaedron</i>	Bering poacher
Ammodytidae	<i>Ammodytes hexapterus</i>	Pacific sand lance
Anarhichadidae	<i>Anarhichas orientalis</i>	Bering wolffish
Bathymasteridae	<i>Bathymaster signatus</i>	searcher
Clupeidae	<i>Clupea pallasii</i>	Pacific herring

Table B-1.--Continued.

Family	Scientific name	Common name
Cottidae	Cottidae	sculpin unident.
	<i>Gymnocanthus</i> sp.	
	<i>Gymnocanthus galeatus</i>	armorhead sculpin
	<i>Arteidiellus</i> sp.	
	<i>Arteidiellus pacificus</i>	Pacific hookear sculpin
	<i>Hemilepidotus jordani</i>	yellow Irish lord
	<i>Hemilepidotus papilio</i>	butterfly sculpin
	<i>Triglops</i> sp.	
	<i>Triglops forficata</i>	scissortail sculpin
	<i>Triglops pingeli</i>	ribbed sculpin
	<i>Triglops macellus</i>	roughspine sculpin
	<i>Myoxocephalus polyacanthocephalus</i>	great sculpin
	<i>Myoxocephalus jaok</i>	plain sculpin
	<i>Dasycottus setiger</i>	spinyhead sculpin
	<i>Hemitripterus bolini</i>	bigmouth sculpin
<i>Icelus spiniger</i>	thorny sculpin	
<i>Icelus</i> sp.		
Trichodontidae	<i>Trichodon trichodon</i>	Pacific sandfish
Gadidae	<i>Gadus macrocephalus</i>	Pacific cod
	<i>Boreogadus saida</i>	Arctic cod
	<i>Eleginus gracilis</i>	saffron cod
	<i>Theragra chalcogramma</i>	walleye pollock
Hexagrammidae	<i>Pleurogrammus monopterygius</i>	Atka mackerel
	<i>Hexagrammos stelleri</i>	whitespotted greenling
Cyclopteridae	<i>Aptocyclus ventricosus</i>	smooth lumpsucker
	<i>Eumicrotremus orbis</i>	Pacific spiny lumpsucker
	Cyclopteridae	snailfish unident.
	<i>Liparis</i> sp.	

Table B-1.--Continued.

Family	Scientific name	Common name
	<i>Careproctus phasma</i>	monster snailfish
Osmeridae	<i>Thaleichthys pacificus</i>	eulachon
	<i>Mallotus villosus</i>	capelin
	<i>Osmerus mordax</i>	rainbow smelt
Salmonidae	<i>Oncorhynchus tshawytscha</i>	chinook salmon
	<i>Oncorhynchus keta</i>	chum salmon
Stichaeidae	<i>Lumpenus maculatus</i>	daubed shanny
	<i>Lumpenus fabricii</i>	slender eelblenny
	<i>Lumpenus sagitta</i>	snake prickleback
	<i>Poroclinus rothroeki</i>	whitebarred prickleback
Zaproridae	<i>Zaprora silenus</i>	prowfish
Zoarcidae	Zoarcidae	eelpout unident.
	<i>Lycodes varidens</i>	marbled eelpout
	<i>Lycodes palearis</i>	wattled eelpout
	<i>Lycodes mucosus</i>	saddled eelpout
	<i>Lycodes turneri</i>	polar eelpout
	<i>Lycodes brevipes</i>	shortfin eelpout
Scorpaenidae	<i>Sebastes alutus</i>	Pacific ocean perch
	<i>Sebastes ciliatus</i>	dusky rockfish

Table B-2.--Invertebrate species encountered during the 1995 U.S. eastern Bering Sea bottom trawl survey.

Phylum	Species name	Common name	
Cnidaria	Scyphozoa (class)	jellyfish unident.	
	<i>Gersemia</i> sp.	sea raspberry	
	<i>Gersemia rubiformis</i>		
	Pennatulacea (order)	sea pen unident.	
	Actiniaria (order)	sea anemone unident.	
	<i>Metridium</i> sp.		
	<i>Tealia</i> sp.		
	Scleractinia unident.	stony coral unident.	
	Annelida	Polychaeta (class)	polychaete worm unident.
		Aphroditidae	sea mouse unident.
<i>Eunoe</i> sp.			
<i>Eunoe nodosa</i>		giant scale worm	
<i>Eunoe depressa</i>		depressed scale worm	
Arthropoda	Cirripedia (class)		
	Thoracica (order)	barnacle unident.	
	<i>Balanus</i> sp.		
	<i>Balanus evermanni</i>	giant barnacle	
Shrimp	Pandalidae (family)	pandalid shrimp unident.	
	<i>Pandalus borealis</i>	northern shrimp	
	<i>Pandalus tridens</i>	yellowleg pandalid	
	<i>Pandalus goniurus</i>	humpy shrimp	
	Hippolytidae (family)	hippolytid shrimp unident.	
	<i>Lebbeus</i> sp.		
	<i>Crangon</i> sp.		
	<i>Crangon dalli</i>	ridged crangon	
	<i>Argis</i> sp.		
	<i>Argis dentata</i>	Arctic argid	

Table B-2.--Continued.

Phylum	Species name	Common name
	<i>Argis lar</i>	kuro argid
Crab	<i>Cancer oregonensis</i>	Oregon rock crab
	<i>Oregonia gracilis</i>	graceful decorator crab
	<i>Chionoecetes bairdi</i>	Tanner crab
	<i>Hyas coarctatus</i>	circumboreal toad crab
	<i>Hyas lyratus</i>	Pacific lyre crab
	<i>Chionoecetes opilio</i>	narrow snow crab
	<i>Chionoecetes hybrid</i>	Tanner crab
	<i>Telmessus cheiragonus</i>	helmet crab
	Paguridae	hermit crab unident.
	<i>Pagurus trigenocheirus</i>	fuzzy hermit crab
	<i>Lithodes aequispina</i>	golden king crab
	<i>Paralithodes camtschaticus</i>	red king crab
	<i>Paralithodes platypus</i>	blue king crab
	<i>Erimacrus isenbeckii</i>	horsehair crab
Mollusca	<i>Tritonia diomedea</i>	rosy tritonia
Gastropods	Gastropod unident.	snail unident.
	<i>Natica</i> sp.	
	<i>Polinices pallidus</i>	pale moonsnail
	<i>Colus</i> sp.	
	<i>Colus herendeenii</i>	thin-ribbed whelk
	<i>Colus spitzbergensis</i>	thick-ribbed whelk
	<i>Volutopsius</i> sp.	
	<i>Pyrulofusus deformis</i>	warped whelk
	<i>Volutopsius fragilis</i>	fragile whelk
	<i>Pyrulofusus melonis</i>	
	<i>Beringius</i> sp.	
	<i>Beringius kennicottii</i>	

Table B-2.--Continued.

Phylum	Species name	Common name
	<i>Beringius beringii</i>	
	<i>Neptunea pribiloffensis</i>	Pribilof whelk
	<i>Neptunea borealis</i>	
	<i>Neptunea lyrata</i>	lyre whelk
	<i>Neptunea ventricosa</i>	fat whelk
	<i>Neptunea heros</i>	
	<i>Neptunea magna</i>	helmet whelk
	<i>Plicifusus kroyeri</i>	
	<i>Aforia circinata</i>	keeled aforia
	<i>Boreotrophon muriciformis</i>	
	<i>Fusitriton oregonensis</i>	Oregon triton
	<i>Fusitriton</i> sp.	
	<i>Buccinum</i> sp.	
	<i>Buccinum angulosum</i>	
	<i>Buccinum plectrum</i>	sinuous whelk
	<i>Buccinum scalariforme</i>	ladder whelk
	<i>Buccinum polare</i>	polar whelk
	<i>Arctomelon stearnsii</i>	Alaska volute
Bivalves	Pelecypoda unident.	bivalve unident.
	Mytilidae	mussel unident.
	<i>Modiolus modiolus</i>	northern horsemussel
	<i>Mytilus edulis</i>	blue mussel
	Pectinid unident.	scallop unident.
	<i>Chlamys</i> sp.	
	<i>Chlamys pseudoislandica</i>	false iceland scallop
	<i>Patinopecten caurinus</i>	weathervane scallop
	<i>Cyclocardia crebricostata</i>	many-rib cyclocardia
	<i>Cyclocardia</i> sp.	

Table B-2.--Continued.

Phylum	Species name	Common name
	<i>Clinocardium</i> sp.	
	<i>Saxidomus giganteus</i>	butter clam
	<i>Mactromeris</i> sp.	
	<i>Mactromeris polynyma</i>	Arctic surfclam
	<i>Tellina</i> sp.	
	<i>Macoma</i> sp.	
	<i>Macoma nasuta</i>	bent-nose macoma
	<i>Macoma brota</i>	heavy macoma
	<i>Siliqua</i> sp.	
	<i>Siliqua alta</i>	Alaska razor
	<i>Serripes</i> sp.	
	<i>Serripes groenlandicus</i>	Greenland cockle
	<i>Serripes laperousii</i>	broad cockle
	<i>Mya arenaria</i>	softshell
	<i>Pododesmus macroschisma</i>	Alaska falsejingle
	<i>Rossia pacifica</i>	eastern Pacific bobtail
Echinodermata	<i>Evasterias echinosoma</i>	
	<i>Lethasterias nanimensis</i>	
	<i>Henricia</i> sp.	
	<i>Henricia tumida</i>	
	<i>Leptasterias polaris</i>	
	<i>Leptasterias arctica</i>	
	<i>Leptasterias</i> sp.	
	<i>Pseudarchaster parelii</i>	
	<i>Ceramaster</i> sp.	
	<i>Ceramaster japonicus</i>	red bat star
	<i>Solaster</i> sp.	
	<i>Solaster endeca</i>	

Table B-2.--Continued.

Phylum	Species name	Common name
	<i>Crossaster papposus</i>	rose sea star
	<i>Pteraster</i> sp.	
	<i>Pteraster tessellatus</i>	
	<i>Pteraster obscurus</i>	
	<i>Diplopteraster multipes</i>	
	<i>Asterias amurensis</i>	purple-orange seastar
	<i>Ctenodiscus</i> sp.	
	<i>Ctenodiscus crispatus</i>	common mud star
	<i>Strongylocentrotus droebachiensis</i>	green sea urchin
	<i>Strongylocentrotus pallidus</i>	white sea urchin
	Ophiuroid unident.	brittlestarfish unident.
	<i>Gorgonocephalus caryi</i>	
	<i>Ophiura sarsi</i>	
	<i>Ophiopholis</i> sp.	
	Holothuroidea unident.	sea cucumber unident.
	<i>Cucumaria</i> sp.	
	<i>Cucumaria fallax</i>	
	<i>Psolus</i> sp.	
Porifera	Porifera	sponge unident.
Rhynchocoela	Nemertea (phylum)	nemertean worm unident.
Sipuncula	Sipuncula (phylum)	sipunculid worm unident.
Echiura	Echiura (phylum)	echiuroid worm unident.
Bryozoa	<i>Rhamphostomella costata</i>	ribbed bryozoan
Chordata	Ascidian unident.	tunicate unident.
	<i>Styela rustica</i>	sea potato
	<i>Boltenia</i> sp.	
	<i>Boltenia ovifera</i>	
	<i>Halocynthia</i> sp. (syn. <i>Tethyum</i> sp.)	sea peach unident.

Table B-2.--Continued.

Phylum	Species name	Common name
	<i>Halocynthia aurantium</i>	sea peach
	<i>Aplidium</i> sp.	

APPENDIX C

Rank Order of Relative Abundance of Fish and Invertebrates

Appendix C ranks all fish and invertebrates caught during the 1995 eastern Bering Sea Bottom trawl survey by descending CPUE (kg/ha).

Table C-1.--Rank of fish and invertebrate taxa by relative abundance (kg/ha) from the 1995 eastern Bering Sea bottom trawl survey.

Rank	Species	Mean CPUE (kg/ha)	Variance	95 Percent Confidence Limits		Proportion	Cummulative Proportion	Name
1	21740	117.18432	457.995	75.23870	159.12995	0.32397901	0.32397901	<i>Theragra chalcogramma</i>
2	10260	49.07363	15.781	41.28746	56.85979	0.13567366	0.45965267	<i>Lepidopsetta</i> sp.
3	10210	43.85115	15.281	36.18932	51.51297*	0.12123509	0.58088776	<i>Limanda aspera</i>
4	21720	22.37629	3.993	18.45991	26.29267	0.06186364	0.64275140	<i>Gadus macrocephalus</i>
5	81742	19.00091	2.613	15.83241	22.16941	0.05253174	0.69528314	<i>Asterias amurensis</i>
6	10130	12.36394	1.417	10.03050	14.69739	0.03418254	0.72946568	<i>Hippoglossoides elassodon</i>
7	10285	12.13164	1.943	9.39960	14.86368	0.03354030	0.76300598	<i>Pleuronectes quadrituberculatus</i>
8	68580	10.96867	1.033	8.97668	12.96067	0.03032505	0.79333102	<i>Chionoecetes opilio</i>
9	10110	9.42786	2.069	6.60862	12.24710	0.02606516	0.81939618	<i>Atheresthes stomias</i>
10	400	8.57016	0.533	7.13919	10.00112	0.02369388	0.84309006	Rajidae unident.
11	69010	8.31410	0.413	7.05429	9.57391	0.02298595	0.86607601	Paguridae
12	98082	4.87506	1.086	2.83282	6.91730	0.01347806	0.87955408	<i>Styela rustica</i>
13	10120	3.28672	0.072	2.76016	3.81327	0.00908677	0.88864085	<i>Hippoglossus stenolepis</i>
14	83020	2.96582	0.153	2.19968	3.73196	0.00819958	0.89684043	<i>Gorgonocephalus caryi</i>
15	91000	2.90107	0.995	0.94573	4.85640	0.00802057	0.90486099	Porifera
16	43000	2.83852	2.470	0.00000	5.91893	0.00784763	0.91270863	Actiniaria (order)
17	71884	2.69133	0.178	1.86451	3.51814	0.00744071	0.92014934	<i>Neptunea heros</i>
18	40500	2.59423	0.178	1.76823	3.42022	0.00717225	0.92732158	Scyphozoa (class)
19	71820	2.27484	0.220	1.35465	3.19503	0.00628925	0.93361083	<i>Neptunea pribiloffensis</i>
20	21370	1.95140	0.111	1.29942	2.60337	0.00539502	0.93900584	<i>Myoxocephalus polyacanthocephalus</i>
21	69322	1.49077	0.206	0.60020	2.38135	0.00412153	0.94312738	<i>Paralithodes camtschaticus</i>
22	21371	1.40668	0.042	1.00392	1.80945	0.00388906	0.94701643	<i>Myoxocephalus jaok</i>
23	98310	1.25708	0.149	0.50170	2.01247	0.00347546	0.95049189	<i>Aplidium</i> sp.
24	71882	1.19923	0.030	0.86000	1.53846	0.00331551	0.95380740	<i>Neptunea ventricosa</i>
25	21110	1.14226	0.358	0.00000	2.31435	0.00315801	0.95696541	<i>Clupea pallasii</i>
26	68560	1.06057	0.034	0.70097	1.42016	0.00293214	0.95989755	<i>Chionoecetes bairdi</i>
27	98200	0.91542	0.095	0.31182	1.51902	0.00253086	0.96242841	<i>Halocynthia</i> sp.
28	80590	0.86723	0.031	0.52132	1.21315	0.00239763	0.96482604	<i>Leptasterias polaris</i>
29	71870	0.80162	0.033	0.44687	1.15637	0.00221624	0.96704228	<i>Neptunea lyrata</i>
30	68577	0.70590	0.053	0.25645	1.15534	0.00195159	0.96899386	<i>Hyas coarctatus</i>
31	10115	0.69777	0.026	0.38315	1.01239	0.00192913	0.97092299	<i>Reinhardtius hippoglossoides</i>
32	21420	0.62912	0.014	0.39783	0.86042	0.00173934	0.97266233	<i>Hemitripterus bolini</i>

Table C-1.--Continued.

Rank	Species	Mean CPUE (kg/ha)	Variance	95 Percent Confidence Limits		Proportion	Cummulative Proportion	Name
33	69323	0.62036	0.056	0.15753	1.08319	0.00171509	0.97437742	Paralithodes platypus
34	21347	0.59924	0.041	0.20208	0.99641	0.00165673	0.97603415	Hemilepidotus jordani
35	20040	0.47544	0.005	0.33296	0.61792	0.00131444	0.97734859	Podothecus acipenserinus
36	82510	0.43428	0.114	0.00000	1.09720	0.00120066	0.97854925	Strongylocentrotus droebachiensis
37	71750	0.38208	0.013	0.15785	0.60631	0.00105633	0.97960558	Volutopsius sp.
38	10220	0.36906	0.013	0.14755	0.59057	0.00102034	0.98062592	Platichthys stellatus
39	72500	0.36598	0.006	0.21394	0.51802	0.00101183	0.98163776	Fusitriton oregonensis
40	21348	0.29073	0.020	0.01421	0.56725	0.00080378	0.98244153	Hemilepidotus papilio
41	80200	0.26507	0.006	0.11738	0.41277	0.00073285	0.98317438	Lethasterias nanimensis
42	83320	0.25859	0.012	0.04502	0.47215	0.00071491	0.98388929	Ophiura sarsi
43	81779	0.24649	0.012	0.03413	0.45884	0.00068146	0.98457075	Ctenodiscus sp.
44	24184	0.22839	0.002	0.14183	0.31495	0.00063144	0.98520219	Lycodes raridens
45	24191	0.21908	0.004	0.09508	0.34309	0.00060570	0.98580789	Lycodes brevipes
46	83000	0.20930	0.008	0.03378	0.38483	0.00057866	0.98638655	Ophiuroid unident.
47	10200	0.19558	0.003	0.08461	0.30655	0.00054072	0.98692727	Glyptocephalus zachirus
48	81780	0.18884	0.006	0.03693	0.34074	0.00052208	0.98744934	Ctenodiscus crispatus
49	10211	0.17637	0.001	0.11729	0.23544	0.00048760	0.98793694	Limanda proboscidea
50	69400	0.17176	0.002	0.07383	0.26968	0.00047485	0.98841179	Erimacrus isenbeckii
51	80020	0.16224	0.006	0.01163	0.31286	0.00044855	0.98886034	Evasterias echinosoma
52	82730	0.15739	0.010	0.00000	0.35066	0.00043512	0.98929547	sand dollar unident.
53	80595	0.15247	0.006	0.00471	0.30024	0.00042154	0.98971700	Leptasterias sp.
54	71500	0.15237	0.001	0.09381	0.21093	0.00042126	0.99013826	Gastropod unident.
55	43010	0.14770	0.011	0.00000	0.35211	0.00040834	0.99054661	Metridium sp.
56	24185	0.14684	0.001	0.09368	0.20001	0.00040598	0.99095259	Lycodes palearis
57	72755	0.14681	0.001	0.09405	0.19957	0.00040589	0.99135848	Buccinum polare
58	98205	0.14492	0.009	0.00000	0.33513	0.00040067	0.99175915	Halocynthia aurantium
59	98100	0.14338	0.001	0.07372	0.21304	0.00039640	0.99215555	Boltenia sp.
60	72740	0.12865	0.000	0.08702	0.17029	0.00035568	0.99251123	Buccinum sp.
61	71001	0.12850	0.001	0.08290	0.17410	0.00035526	0.99286650	snail (gastropod) eggs
62	41201	0.12080	0.001	0.06735	0.17424	0.00033396	0.99320046	Gersemia sp.
63	72752	0.11827	0.000	0.07792	0.15862	0.00032698	0.99352744	Buccinum scalariforme
64	71835	0.11127	0.000	0.07958	0.14297	0.00030764	0.99383508	Neptunea borealis

Table C-1.--Continued.

Rank	Species	Mean CPUE (kg/ha)	Variance	95 Percent Confidence Limits		Proportion	Cummulative Proportion	Name
65	80594	0.10228	0.004	0.00000	0.22457	0.00028276	0.99411785	Leptasterias arctica
66	20720	0.10173	0.003	0.00000	0.20509	0.00028124	0.99439908	Bathymaster signatus
67	68781	0.09628	0.001	0.04240	0.15015	0.00026617	0.99466526	Telmessus cheiragonus
68	68510	0.09041	0.007	0.00000	0.25649	0.00024995	0.99491521	Oregonia gracilis
69	23010	0.08855	0.001	0.03110	0.14600	0.00024480	0.99516001	Thaleichthys pacificus
70	85200	0.08661	0.001	0.02634	0.14688	0.00023945	0.99539946	Cucumaria sp.
71	85201	0.08215	0.002	0.00000	0.17381	0.00022711	0.99562657	Cucumaria fallax
72	72743	0.08210	0.000	0.05239	0.11182	0.00022699	0.99585356	Buccinum angulosum
73	98105	0.07835	0.004	0.00000	0.19978	0.00021660	0.99607017	Boltenia ovifera
74	71753	0.07329	0.003	0.00000	0.17624	0.00020262	0.99627278	Pyrulofusus deformis
75	21313	0.06505	0.001	0.01857	0.11153	0.00017983	0.99645262	Gymnocanthus sp.
76	78010	0.06301	0.001	0.00000	0.13342	0.00017419	0.99662681	octopus unident.
77	23041	0.05968	0.001	0.00000	0.13204	0.00016498	0.99679179	Mallotus villosus
78	56311	0.05904	0.000	0.02639	0.09170	0.00016323	0.99695503	Eunoe nodosa
79	65000	0.05762	0.003	0.00000	0.16265	0.00015930	0.99711433	Cirripedia (class)
80	50010	0.05547	0.003	0.00000	0.16418	0.00015334	0.99726767	tube worm unident.
81	20322	0.05354	0.001	0.00868	0.09840	0.00014802	0.99741569	Anarhichas orientalis
82	66031	0.04150	0.000	0.01894	0.06407	0.00011475	0.99753044	Pandalus borealis
83	21735	0.04150	0.000	0.00051	0.08249	0.00011475	0.99764519	Eleginus gracilis
84	85000	0.03705	0.001	0.00000	0.10754	0.00010242	0.99774761	Holothuroidea unident.
85	68578	0.03653	0.000	0.01340	0.05967	0.00010101	0.99784862	Hyas lyratus
86	22200	0.03328	0.000	0.01632	0.05024	0.00009201	0.99794063	Cyclopteridae (Liparidinae)
87	85210	0.03130	0.001	0.00000	0.07600	0.00008655	0.99802717	Psolus sp.
88	74000	0.03015	0.001	0.00000	0.08189	0.00008336	0.99811053	Pelecypoda unident.
89	21390	0.02596	0.000	0.00722	0.04470	0.00007178	0.99818232	Dasycottus setiger
90	81095	0.02563	0.000	0.00801	0.04326	0.00007087	0.99825318	Crossaster papposus
91	10270	0.02561	0.000	0.00000	0.05240	0.00007080	0.99832399	Isopsetta isolepis
92	74980	0.02464	0.000	0.00524	0.04404	0.00006813	0.99839212	Clinocardium sp.
93	71886	0.02437	0.000	0.00957	0.03916	0.00006736	0.99845948	Neptunea magna
94	65201	0.02377	0.001	0.00000	0.07037	0.00006573	0.99852521	Balanus sp.
95	71891	0.02237	0.000	0.00905	0.03568	0.00006183	0.99858704	Plicifusus kroyeri
96	41221	0.02169	0.000	0.00000	0.04476	0.00005997	0.99864701	Gersemia rubiformis

Table C-1.--Continued.

Rank	Species	Mean CPUE (kg/ha)	Variance	95 Percent Confidence Limits		Proportion	Cumulative Proportion	Name
97	74120	0.02103	0.000	0.00000	0.04615	0.00005813	0.99870514	Patinopecten caurinus
98	21316	0.02077	0.000	0.00000	0.05206	0.00005743	0.99876256	Gymnocanthus galeatus
99	320	0.01922	0.000	0.00000	0.05690	0.00005315	0.99881571	Somniosus pacificus
100	50160	0.01873	0.000	0.00000	0.04021	0.00005178	0.99886749	Aphroditidae
101	72751	0.01797	0.000	0.00774	0.02819	0.00004967	0.99891716	Buccinum plectrum
102	75111	0.01742	0.000	0.00868	0.02615	0.00004816	0.99896531	Mactromeris polynyma
103	21446	0.01676	0.000	0.00964	0.02389	0.00004635	0.99901166	Icelus sp.
104	95000	0.01418	0.000	0.00068	0.02768	0.00003921	0.99905087	bryozoan unident.
105	72501	0.01359	0.000	0.00000	0.03115	0.00003758	0.99908845	Fusitriton sp.
106	42000	0.01296	0.000	0.00000	0.02676	0.00003583	0.99912429	Pennatulacea (order)
107	75285	0.01269	0.000	0.00478	0.02061	0.00003509	0.99915937	Serripes groenlandicus
108	72063	0.01257	0.000	0.00364	0.02149	0.00003474	0.99919411	Aforia circinata
109	68590	0.01224	0.000	0.00000	0.02642	0.00003384	0.99922796	Chionoecetes hybrid
110	74080	0.01133	0.000	0.00000	0.02893	0.00003133	0.99925929	Mytilus edulis
111	75240	0.01123	0.000	0.00000	0.03053	0.00003104	0.99929033	Macoma sp.
112	81355	0.01115	0.000	0.00381	0.01849	0.00003082	0.99932115	Pteraster obscurus
113	56312	0.01076	0.000	0.00125	0.02026	0.00002974	0.99935089	Eunoe depressa
114	24001	0.01057	0.000	0.00000	0.02640	0.00002922	0.99938011	Zaprora silenus
115	30060	0.01051	0.000	0.00000	0.03100	0.00002906	0.99940917	Sebastes alutus
116	65203	0.01019	0.000	0.00000	0.02454	0.00002816	0.99943733	Balanus evermanni
117	71525	0.01012	0.000	0.00364	0.01659	0.00002797	0.99946530	Natica sp.
118	71010	0.01005	0.000	0.00285	0.01725	0.00002778	0.99949308	nudibranch unident.
119	71710	0.00979	0.000	0.00216	0.01743	0.00002707	0.99952016	Colus sp.
120	40011	0.00787	0.000	0.00000	0.02223	0.00002176	0.99954191	hydroid unident.
121	71030	0.00756	0.000	0.00000	0.01893	0.00002091	0.99956282	Tritonia diomedea
122	69086	0.00651	0.000	0.00000	0.01926	0.00001799	0.99958081	Pagurus trigonocheirus
123	20006	0.00592	0.000	0.00332	0.00852	0.00001637	0.99959718	Sarritor frenatus
124	20061	0.00580	0.000	0.00321	0.00839	0.00001603	0.99961322	Ocella dodecaedron
125	98000	0.00578	0.000	0.00000	0.01241	0.00001598	0.99962919	Ascidian unident.
126	21932	0.00568	0.000	0.00000	0.01373	0.00001570	0.99964490	Hexagrammos stelleri
127	74655	0.00496	0.000	0.00000	0.01326	0.00001370	0.99965860	Cyclocardia crebricostata
128	43040	0.00456	0.000	0.00000	0.00947	0.00001260	0.99967120	Tealia sp.

Table C-1.--Continued.

Rank	Species	Mean CPUE (kg/ha)	Variance	95 Percent Confidence Limits		Proportion	Cummulative Proportion	Name
129	81360	0.00423	0.000	0.00000	0.00917	0.00001169	0.99968289	Diplopteraster multipes
130	75286	0.00420	0.000	0.00000	0.00929	0.00001163	0.99969451	Serripes laperousii
131	71769	0.00417	0.000	0.00040	0.00794	0.00001153	0.99970604	Beringius sp.
132	21725	0.00415	0.000	0.00250	0.00580	0.00001146	0.99971751	Boreogadus saida
133	75110	0.00413	0.000	0.00000	0.00877	0.00001142	0.99972893	Mactromeris sp.
134	74104	0.00413	0.000	0.00000	0.01049	0.00001142	0.99974035	Chlamys sp.
135	71770	0.00396	0.000	0.00000	0.01153	0.00001096	0.99975131	Beringius kennicottii
136	81310	0.00392	0.000	0.00019	0.00764	0.00001083	0.99976214	Pteraster sp.
137	71756	0.00348	0.000	0.00000	0.01030	0.00000963	0.99977177	Volutopsius fragilis
138	71772	0.00340	0.000	0.00034	0.00645	0.00000939	0.99978116	Beringius beringii
139	44000	0.00331	0.000	0.00000	0.00843	0.00000914	0.99979030	Scleractinia unident.
140	21350	0.00324	0.000	0.00074	0.00574	0.00000896	0.99979926	Triglops sp.
141	22201	0.00295	0.000	0.00000	0.00624	0.00000815	0.99980741	Liparis sp.
142	95070	0.00293	0.000	0.00000	0.00868	0.00000811	0.99981552	Rhamplostomella costata
143	80000	0.00283	0.000	0.00000	0.00568	0.00000782	0.99982333	starfish unident.
144	20202	0.00282	0.000	0.00109	0.00454	0.00000779	0.99983112	Ammodytes hexapterus
145	66019	0.00276	0.000	0.00000	0.00818	0.00000764	0.99983876	Pandalidae
146	69310	0.00263	0.000	0.00000	0.00618	0.00000727	0.99984604	Lithodes aequispina
147	71721	0.00248	0.000	0.00000	0.00610	0.00000686	0.99985289	Colus herendeenii
148	81315	0.00244	0.000	0.00000	0.00652	0.00000676	0.99985965	Pteraster tessellatus
149	71726	0.00240	0.000	0.00000	0.00710	0.00000663	0.99986628	Colus spitzbergensis
150	68040	0.00237	0.000	0.00000	0.00537	0.00000654	0.99987282	Cancer oregonensis
151	10212	0.00236	0.000	0.00093	0.00380	0.00000653	0.99987935	Limanda sakhalinensis
152	21921	0.00235	0.000	0.00000	0.00697	0.00000651	0.99988586	Pleurogrammus monopterygius
153	23220	0.00234	0.000	0.00000	0.00692	0.00000646	0.99989232	Oncorhynchus tshawytscha
154	23055	0.00225	0.000	0.00000	0.00522	0.00000623	0.99989855	Osmerus mordax
155	74100	0.00177	0.000	0.00000	0.00387	0.00000490	0.99990345	Pectinid unident.
156	21438	0.00171	0.000	0.00057	0.00285	0.00000474	0.99990818	Icelus spiniger
157	72790	0.00168	0.000	0.00000	0.00497	0.00000464	0.99991282	Arctomelon stearnsii
158	20050	0.00164	0.000	0.00051	0.00277	0.00000454	0.99991736	Aspidophoroides bartoni
159	23808	0.00158	0.000	0.00066	0.00251	0.00000438	0.99992174	Lumpenus sagitta
160	66611	0.00153	0.000	0.00003	0.00303	0.00000423	0.99992597	Argis lar

Table C-1.--Continued.

Rank	Species	Mean CPUE (kg/ha)	Variance	95 Percent Confidence Limits		Proportion	Cummulative Proportion	Name
161	80540	0.00150	0.000	0.00059	0.00241	0.00000414	0.99993011	Henricia sp.
162	30150	0.00142	0.000	0.00000	0.00342	0.00000393	0.99993405	Sebastes ciliatus
163	24189	0.00137	0.000	0.00000	0.00346	0.00000379	0.99993784	Lycodes turneri
164	21592	0.00128	0.000	0.00016	0.00241	0.00000355	0.99994138	Trichodon trichodon
165	71580	0.00121	0.000	0.00000	0.00359	0.00000336	0.99994474	Polinices pallidus
166	66570	0.00121	0.000	0.00044	0.00198	0.00000334	0.99994808	Argis sp.
167	66045	0.00118	0.000	0.00036	0.00200	0.00000327	0.99995135	Pandalus goniurus
168	66502	0.00112	0.000	0.00000	0.00230	0.00000310	0.99995445	Crangon sp.
169	74981	0.00094	0.000	0.00000	0.00278	0.00000260	0.99995705	cockle unident.
170	75021	0.00092	0.000	0.00000	0.00273	0.00000255	0.99995960	Saxidomus giganteus
171	80660	0.00092	0.000	0.00003	0.00181	0.00000254	0.99996214	Pseudarchaster parelii
172	50000	0.00088	0.000	0.00000	0.00260	0.00000243	0.99996457	Polychaeta (class)
173	23235	0.00087	0.000	0.00000	0.00257	0.00000240	0.99996697	Oncorhynchus keta
174	75284	0.00077	0.000	0.00000	0.00171	0.00000212	0.99996909	Serripes sp.
175	82526	0.00071	0.000	0.00000	0.00157	0.00000196	0.99997106	Strongylocentrotus pallidus
176	75264	0.00071	0.000	0.00000	0.00184	0.00000196	0.99997302	Siliqua sp.
177	94000	0.00063	0.000	0.00000	0.00142	0.00000175	0.99997476	Sipuncula (phylum)
178	75267	0.00057	0.000	0.00000	0.00117	0.00000158	0.99997635	Siliqua alta
179	74060	0.00057	0.000	0.00000	0.00169	0.00000158	0.99997792	Modiolus modiolus
180	75247	0.00051	0.000	0.00000	0.00111	0.00000141	0.99997933	Macoma brota
181	66580	0.00046	0.000	0.00010	0.00081	0.00000126	0.99998060	Argis dentata
182	92500	0.00039	0.000	0.00000	0.00105	0.00000108	0.99998167	Nemertea (phylum)
183	81060	0.00037	0.000	0.00000	0.00093	0.00000103	0.99998270	Solaster sp.
184	80728	0.00035	0.000	0.00000	0.00086	0.00000095	0.99998366	Ceramaster sp.
185	20051	0.00030	0.000	0.00000	0.00072	0.00000084	0.99998449	Aspidophoroides olriki
186	81061	0.00029	0.000	0.00000	0.00070	0.00000080	0.99998529	Solaster endeca
187	21300	0.00029	0.000	0.00000	0.00075	0.00000079	0.99998609	Cottidae
188	80546	0.00028	0.000	0.00000	0.00063	0.00000076	0.99998685	Henricia tumida
189	21352	0.00027	0.000	0.00000	0.00078	0.00000073	0.99998759	Triglops forficata
190	66530	0.00026	0.000	0.00001	0.00052	0.00000073	0.99998831	Crangon dalli
191	23807	0.00026	0.000	0.00000	0.00052	0.00000072	0.99998903	Lumpenus fabricii
192	94500	0.00024	0.000	0.00000	0.00063	0.00000067	0.99998971	Echiura (phylum)

Table C-1.--Continued.

Rank	Species	Mean CPUE (kg/ha)	Variance	95 Percent Confidence Limits		Proportion	Cummulative Proportion	Name
193	56310	0.00024	0.000	0.00000	0.00071	0.00000066	0.99999037	Eunoe sp.
194	66000	0.00023	0.000	0.00000	0.00069	0.00000065	0.99999102	shrimp unident.
195	23850	0.00023	0.000	0.00000	0.00060	0.00000065	0.99999167	Poroclinus rothrocki
196	71761	0.00023	0.000	0.00000	0.00057	0.00000062	0.99999229	Pyrulofusus melonis
197	22178	0.00021	0.000	0.00000	0.00042	0.00000059	0.99999288	Eumicrotremus orbis
198	21356	0.00020	0.000	0.00000	0.00059	0.00000055	0.99999343	Triglops macellus
199	20001	0.00018	0.000	0.00000	0.00045	0.00000050	0.99999393	Pallasina barbata
200	23805	0.00017	0.000	0.00000	0.00041	0.00000047	0.99999440	Lumpenus maculatus
201	79000	0.00015	0.000	0.00000	0.00033	0.00000042	0.99999482	squid unident.
202	20002	0.00014	0.000	0.00000	0.00043	0.00000040	0.99999522	Percis japonicus
203	75332	0.00013	0.000	0.00000	0.00040	0.00000037	0.99999596	Mya arenaria
204	75600	0.00013	0.000	0.00000	0.00040	0.00000037	0.99999596	Pododesmus macroschisma
205	21355	0.00013	0.000	0.00000	0.00032	0.00000037	0.99999633	Triglops pingeli
206	74656	0.00012	0.000	0.00000	0.00037	0.00000034	0.99999667	Cyclocardia sp.
207	79020	0.00011	0.000	0.00000	0.00027	0.00000031	0.99999698	Rossia pacifica
208	74050	0.00010	0.000	0.00000	0.00024	0.00000028	0.99999726	Mytilidae
209	75241	0.00010	0.000	0.00000	0.00029	0.00000027	0.99999753	Macoma nasuta
210	21333	0.00009	0.000	0.00000	0.00025	0.00000024	0.99999777	Arteidiellus pacificus
211	75201	0.00006	0.000	0.00000	0.00019	0.00000018	0.99999795	Tellina sp.
212	65100	0.00006	0.000	0.00000	0.00019	0.00000018	0.99999813	Thoracica (order)
213	80729	0.00006	0.000	0.00000	0.00018	0.00000017	0.99999830	Ceramaster japonicus
214	72403	0.00006	0.000	0.00000	0.00018	0.00000017	0.99999846	Boreotrophon muriciformis
215	24186	0.00006	0.000	0.00000	0.00018	0.00000017	0.99999863	Lycodes mucosus
216	22175	0.00006	0.000	0.00000	0.00018	0.00000016	0.99999896	Aptocyclus ventricosus
217	24100	0.00006	0.000	0.00000	0.00018	0.00000016	0.99999896	Zoarcidae
218	66150	0.00006	0.000	0.00000	0.00017	0.00000016	0.99999912	Hippolytidae (family)
219	66200	0.00006	0.000	0.00000	0.00017	0.00000016	0.99999943	Lebbeus sp.
220	74112	0.00006	0.000	0.00000	0.00017	0.00000016	0.99999943	Chlamys pseudoislandica
221	83360	0.00005	0.000	0.00000	0.00016	0.00000015	0.99999958	Ophiopholis sp.
222	22226	0.00005	0.000	0.00000	0.00015	0.00000014	0.99999972	Careproctus phasma
223	21331	0.00005	0.000	0.00000	0.00015	0.00000014	1.00000000	Arteidiellus sp.
224	66033	0.00005	0.000	0.00000	0.00015	0.00000014	1.00000000	Pandalus tridens

APPENDIX D

Abundance Estimates for Principal Fish Species

Appendix D presents estimates of catch-per-unit-effort (CPUE), population numbers and biomass for the principal fish species. Estimates of variance and confidence intervals do not incorporate variation associated with fishing power corrections or measurements of effort. CPUE is measured in kilograms (kg) and numbers (no.) per hectare. Estimates are given separately for each of the 10 geographic strata used in the analysis; estimates for each of the six standard subareas are presented as subtotals of the component strata. Stratum codes correspond to subareas as follows:

<u>Subarea</u>	<u>Stratum</u>
1	10
2	20
3	31
	32 (Pribilof Islands high density)
4	41
	42 (Pribilof Islands high density)
	43 (St. Matthew Island high density)
5	50
6	61
	62 (St. Matthew Island high density)

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Table D-1.--CPUE, population, and biomass estimates for walleye pollock.

CPUE								
Stratum	Total hauls	Hauls with catch	Hauls with nums.	Hauls with L-F	Mean CPUE (kg/ha)	Variance mean CPUE (kg/ha)	Mean CPUE (no/ha)	Variance mean CPUE (no/ha)
10	58	53	53	52	36.04	.11910E+03	23.43	.49650E+02
20	31	31	31	30	8.31	.20700E+01	24.22	.68390E+02
31	69	69	68	68	219.64	.65830E+04	304.39	.13620E+05
32	9	9	9	9	126.57	.29550E+04	164.57	.54030E+04
Subtotal	78	78	77	77	211.74	.55340E+04	292.52	.11440E+05
41	44	43	43	43	27.87	.15530E+03	81.18	.59910E+03
42	31	29	29	29	152.22	.24420E+04	213.65	.33630E+04
43	22	22	22	22	99.14	.33180E+04	209.10	.13870E+05
Subtotal	97	94	94	94	69.51	.30080E+03	135.72	.90080E+03
50	25	24	24	24	130.17	.53020E+04	186.70	.12290E+05
61	60	59	59	59	176.02	.47570E+04	426.56	.22330E+05
62	7	7	7	7	161.95	.39910E+04	413.53	.23880E+05
Subtotal	67	66	66	66	175.06	.41510E+04	425.67	.19510E+05
Total	356	346	345	343	117.18	.45800E+03	203.49	.13430E+04

POPULATION					
Stratum	Population	Variance population	Eff. deg. freedom	95% Confidence Limits	
				Lower	Upper
10	182,460,116	.30108E+16	57.00	71,565,754	293,354,477
20	99,378,768	.11511E+16	30.00	29,997,124	168,760,413
31	2,877,290,637.	.12170E+19	68.00	670,938,624	5,083,642,651
32	144,399,499	.41598E+16	8.00	0	293,129,329
Subtotal	3,021,690,137	.12212E+19	68.46	811,570,547	5,231,809,727
41	509,051,743	.23554E+17	43.00	198,882,656	819,220,830
42	512,998,121	.19391E+17	30.00	228,645,488	797,350,754
43	441,353,223	.61784E+17	21.00	0	959,855,960
Subtotal	1,463,403,087	.10473E+18	52.94	809,370,664	2,117,435,510
50	724,248,495	.18500E+18	24.00	0	1,612,011,660
61	3,759,393,389	.17344E+19	59.00	1,097,834,488	6,420,952,290
62	265,845,174	.98681E+16	6.00	10,446,767	521,243,582
Subtotal	4,025,238,563	.17442E+19	59.65	1,356,118,609	6,694,358,518
Total	9,516,419,167	.32593E+19	142.75	5,941,831,796	13,091,006,537

Table D-1.--Continued.

BIOMASS					
Stratum	Biomass (t)	Variance biomass	Eff. deg. freedom	95% Confidence Limits	
				Lower	Upper
10	280,661	.72204E+10	57.00	108,930	452,391
20	34,083	.34847E+08	30.00	22,011	46,155
31	2,076,200	.58824E+12	68.00	542,261	3,610,140
32	111,058	.22750E+10	8.00	1,068	221,048
Subtotal	2,187,258	.59052E+12	68.52	650,356	3,724,161
41	174,748	.61051E+10	43.00	16,837	332,659
42	365,488	.14076E+11	30.00	123,216	607,759
43	209,268	.14784E+11	21.00	0	462,906
Subtotal	749,504	.34966E+11	68.38	375,521	1,123,487
50	504,965	.79780E+11	24.00	0	1,087,949
61	1,551,317	.36953E+12	59.00	322,777	2,779,858
62	104,112	.16494E+10	6.00	4,734	203,490
Subtotal	1,655,429	.37118E+12	59.52	424,150	2,886,709
Total	5,411,900	.10837E+13	152.75	3,350,706	7,473,093

Table D-2.--CPUE, population, and biomass estimates for Pacific cod.

CPUE								
Stratum	Total hauls	Hauls with catch	Hauls with nums.	Hauls with L-F	Mean CPUE (kg/ha)	Variance mean CPUE (kg/ha)	Mean CPUE (no/ha)	Variance mean CPUE (no/ha)
10	58	57	57	57	29.17	.23230E+02	27.69	.34440E+02
20	31	31	31	30	10.02	.25930E+02	14.24	.65130E+02
31	69	69	69	69	21.39	.84010E+01	13.71	.49340E+01
32	9	9	9	9	13.27	.10870E+02	6.87	.40000E+01
Subtotal	78	78	78	78	20.70	.71130E+01	13.13	.41600E+01
41	44	29	29	29	5.83	.32770E+01	6.21	.48010E+01
42	31	30	30	30	43.26	.67010E+02	42.84	.75090E+02
43	22	19	19	19	14.21	.48270E+02	23.05	.11820E+03
Subtotal	97	78	78	78	15.80	.62810E+01	17.66	.98780E+01
50	25	24	24	24	15.45	.20500E+02	5.17	.23330E+01
61	60	60	60	60	30.37	.61150E+02	13.74	.11080E+02
62	7	7	7	7	35.59	.56120E+02	25.36	.60870E+02
Subtotal	67	67	67	67	30.72	.53380E+02	14.53	.99060E+01
Total	356	335	335	334	22.38	.39930E+01	17.68	.32780E+01

POPULATION					
Stratum	Population	Variance population	Eff. deg. freedom	95% Confidence Limits	
				Lower	Upper
10	215,649,879	.20886E+16	57.00	123,286,722	308,013,035
20	58,403,500	.10963E+16	30.00	0	126,113,204
31	129,588,419	.44088E+15	68.00	87,594,343	171,582,496
32	6,029,433	.30793E+13	8.00	1,879,377	10,179,490
Subtotal	135,617,853	.44395E+15	68.92	93,477,379	177,758,326
41	38,910,978	.18877E+15	43.00	11,144,101	66,677,855
42	102,852,116	.43290E+15	30.00	60,303,378	145,400,854
43	48,656,480	.52676E+15	21.00	917,658	96,395,301
Subtotal	190,419,573	.11484E+16	65.01	122,642,618	258,196,528
50	20,044,140	.35104E+14	24.00	7,815,171	32,273,110
61	121,137,435	.86067E+15	59.00	61,847,091	180,427,779
62	16,304,066	.25154E+14	6.00	4,031,468	28,576,663
Subtotal	137,441,500	.88582E+15	61.98	77,916,003	196,966,997
Total	757,576,445	.56982E+16	212.97	608,113,069	907,039,821

Table D-2.--Continued.

BIOMASS					
Stratum	Biomass (t)	Variance biomass	Eff. deg. freedom	95% Confidence Limits	
				Lower	Upper
10	227,149	.14088E+10	57.00	151,292	303,005
20	41,127	.43643E+09	30.00	0	83,786
31	202,238	.75064E+09	68.00	147,442	257,034
32	11,639	.83680E+07	8.00	4,969	18,310
Subtotal	213,877	.75901E+09	69.45	158,777	268,977
41	36,542	.12882E+09	43.00	13,604	59,481
42	103,868	.38631E+09	30.00	63,674	144,062
43	29,993	.21506E+09	21.00	0	60,496
Subtotal	170,403	.73019E+09	70.51	116,359	224,447
50	59,952	.30852E+09	24.00	23,699	96,205
61	267,658	.47501E+10	59.00	128,368	406,948
62	22,881	.23194E+08	6.00	11,096	34,666
Subtotal	290,539	.47733E+10	59.56	150,909	430,168
Total	1,003,046	.84163E+10	159.70	821,400	1,184,692

Table D-3.--CPUE, population, and biomass estimates for yellowfin sole.

CPUE								
Stratum	Total hauls	Hauls with catch	Hauls with nums.	Hauls with L-F	Mean CPUE (kg/ha)	Variance mean CPUE (kg/ha)	Mean CPUE (no/ha)	Variance mean CPUE (no/ha)
10	58	58	58	58	127.27	.21800E+03	532.32	.38700E+04
20	31	31	31	31	69.38	.50330E+02	354.19	.15910E+04
31	69	64	64	64	55.75	.59850E+02	215.96	.12300E+04
32	9	7	7	7	7.10	.12270E+02	16.48	.92640E+02
Subtotal	78	71	71	71	51.62	.50200E+02	199.02	.10310E+04
41	44	41	41	41	11.28	.83170E+01	35.02	.83020E+02
42	31	27	27	27	53.29	.16510E+03	148.77	.15930E+04
43	22	18	18	18	0.76	.10500E+00	2.34	.90350E+00
Subtotal	97	86	86	86	18.58	.11010E+02	53.96	.10710E+03
50	25	2	2	2	0.09	.73030E-02	0.22	.41430E-01
61	60	1	1	1	0.01	.98660E-04	0.05	.27870E-02
62	7	0	0	0	0.00	.00000E+00	0.00	.00000E+00
Subtotal	67	1	1	1	0.01	.85700E-04	0.05	.24210E-02
Total	356	249	249	249	43.85	.15280E+02	177.29	.27520E+03

POPULATION						
Stratum	Population	Variance population	Eff. deg. freedom	95% Confidence Limits		
				Lower	Upper	
10	4,145,220,401	.23465E+18	57.00	3,166,238,650	5,124,202,153	
20	1,453,124,642	.26772E+17	30.00	1,118,519,459	1,787,729,825	
31	2,041,412,779	.10991E+18	68.00	1,378,353,934	2,704,471,624	
32	14,458,427	.71317E+14	8.00	0	33,932,446	
Subtotal	2,055,871,206	.10998E+18	68.09	1,392,597,281	2,719,145,130	
41	219,605,756	.32642E+16	43.00	104,139,695	335,071,817	
42	357,213,141	.91814E+16	30.00	161,549,666	552,876,617	
43	4,945,093	.40253E+13	21.00	771,970	9,118,215	
Subtotal	581,763,991	.12450E+17	50.70	356,265,287	807,262,694	
50	847,768	.62353E+12	24.00	0	2,477,579	
61	465,298	.21650E+12	59.00	0	1,405,664	
62	0	.00000E+00	6.00	0	0	
Subtotal	465,298	.21650E+12	55.21	0	1,405,664	
Total	8,237,293,306	.38385E+18	125.87	7,010,566,685	9,464,019,926	

Table D-3.--Continued.

BIOMASS					
Stratum	Biomass (t)	Variance biomass	Eff. deg. freedom	95% Confidence Limits Lower	Upper
10	991,079	.13218E+11	57.00	758,722	1,223,436
20	284,636	.84716E+09	30.00	225,115	344,158
31	527,005	.53475E+10	68.00	380,752	673,259
32	6,226	.94492E+07	8.00	0	13,496
Subtotal	533,231	.53570E+10	68.24	386,848	679,613
41	70,746	.32700E+09	43.00	34,200	107,292
42	127,943	.95207E+09	30.00	64,844	191,043
43	1,597	.46775E+06	21.00	175	3,020
Subtotal	200,287	.12795E+10	50.08	127,995	272,579
50	350	.10990E+06	24.00	0	1,035
61	88	.76637E+04	59.00	0	264
62	0	.00000E+00	6.00	0	0
Subtotal	88	.76637E+04	7.65	0	295
Total	2,009,671	.20702E+11	120.98	1,724,783	2,294,558

Table D-4.--CPUE, population, and biomass estimates for rock sole.

CPUE								
Stratum	Total hauls	Hauls with catch	Hauls with nums.	Hauls with L-F	Mean CPUE (kg/ha)	Variance mean CPUE (kg/ha)	Mean CPUE (no/ha)	Variance mean CPUE (no/ha)
10	58	58	58	58	151.40	.17970E+03	822.91	.62080E+04
20	31	31	31	31	57.57	.10740E+03	245.39	.18470E+04
31	69	68	68	68	34.63	.27660E+02	207.16	.14820E+04
32	9	9	9	9	30.88	.29770E+02	117.23	.37250E+03
Subtotal	78	77	77	77	34.31	.23370E+02	199.52	.12440E+04
41	44	37	37	37	9.88	.11910E+02	38.08	.15600E+03
42	31	31	31	31	95.94	.17960E+03	382.44	.43270E+04
43	22	20	20	20	6.12	.33430E+01	15.36	.19890E+02
Subtotal	97	88	88	88	28.31	.13060E+02	110.32	.26810E+03
50	25	14	14	13	1.42	.52300E+00	4.87	.78760E+01
61	60	55	55	55	10.38	.38370E+01	24.56	.20960E+02
62	7	7	7	7	5.04	.16880E+01	13.77	.12280E+02
Subtotal	67	62	62	62	10.02	.33410E+01	23.83	.18260E+02
Total	356	330	330	329	49.07	.15780E+02	242.26	.48740E+03

POPULATION					
Stratum	Population	Variance population	Eff. deg. freedom	95% Confidence Limits	
				Lower	Upper
10	6,408,113,316	.37642E+18	57.00	5,168,165,535	7,648,061,097
20	1,006,770,277	.31087E+17	30.00	646,207,742	1,367,332,813
31	1,958,226,698	.13243E+18	68.00	1,230,417,239	2,686,036,156
32	102,858,130	.28676E+15	8.00	63,808,301	141,907,958
Subtotal	2,061,084,828	.13271E+18	68.29	1,332,487,785	2,789,681,870
41	238,770,241	.61344E+16	43.00	80,480,470	397,060,013
42	918,282,146	.24947E+17	30.00	595,754,454	1,240,809,838
43	32,426,439	.88608E+14	21.00	12,846,998	52,005,880
Subtotal	1,189,478,826	.31170E+17	44.95	832,669,206	1,546,288,447
50	18,885,448	.11852E+15	24.00	0	41,356,005
61	216,474,721	.16280E+16	59.00	134,930,933	298,018,509
62	8,851,603	.50740E+13	6.00	3,060,308	14,642,897
Subtotal	225,326,323	.16331E+16	59.36	143,655,560	306,997,087
Total	10,909,659,018	.57314E+18	117.41	9,395,534,546	12,423,783,491

Table D-4.--Continued.

BIOMASS					
Stratum	Biomass (t)	Variance biomass	Eff. deg. freedom	95% Confidence Limits Lower	Upper
10	1,178,978	.10899E+11	57.00	967,993	1,389,963
20	236,181	.18070E+10	30.00	149,252	323,111
31	327,355	.24712E+10	68.00	227,932	426,779
32	27,095	.22920E+08	8.00	16,055	38,135
Subtotal	354,451	.24942E+10	69.22	254,568	454,334
41	61,928	.46822E+09	43.00	18,196	105,659
42	230,364	.10356E+10	30.00	164,555	296,172
43	12,910	.14895E+08	21.00	4,882	20,937
Subtotal	305,201	.15187E+10	56.47	226,442	383,960
50	5,510	.78699E+07	24.00	0	11,300
61	91,485	.29803E+09	59.00	56,595	126,374
62	3,242	.69767E+06	6.00	1,198	5,285
Subtotal	94,726	.29873E+09	59.27	59,795	129,657
Total	2,175,047	.17025E+11	124.67	1,916,697	2,433,397

Table D-5.--CPUE, population, and biomass estimates for *Hippoglossoides* spp.

CPUE								
Stratum	Total hauls	Hauls with catch	Hauls with nums.	Hauls with L-F	Mean CPUE (kg/ha)	Variance mean CPUE (kg/ha)	Mean CPUE (no/ha)	Variance mean CPUE (no/ha)
10	58	39	39	38	3.57	.49720E+00	7.51	.28890E+01
20	31	8	8	8	0.21	.63420E-02	0.40	.27100E-01
31	69	68	68	68	27.88	.19910E+02	77.72	.18020E+03
32	9	9	9	9	11.93	.17280E+02	32.02	.11850E+03
Subtotal	78	77	77	77	26.53	.16800E+02	73.84	.15180E+03
41	44	38	38	38	3.70	.35530E+01	11.68	.26080E+02
42	31	27	27	27	11.63	.12450E+02	23.04	.49310E+02
43	22	21	21	21	2.55	.52570E+00	8.06	.50140E+01
Subtotal	97	86	86	86	5.24	.18390E+01	13.50	.11460E+02
50	25	25	25	25	20.32	.67360E+01	114.80	.21100E+03
61	60	60	60	60	17.32	.71720E+01	68.74	.10230E+03
62	7	7	7	7	4.40	.46060E+01	19.69	.79150E+02
Subtotal	67	67	67	67	16.44	.62510E+01	65.40	.89250E+02
Total	356	302	302	301	12.36	.14170E+01	41.11	.15200E+02

POPULATION					
Stratum	Population	Variance population	Eff. deg. freedom	95% Confidence Limits Lower	Upper
10	58,486,573	.17517E+15	57.00	31,737,924	85,235,223
20	1,638,519	.45616E+12	30.00	259,367	3,017,671
31	734,666,029	.16105E+17	68.00	480,857,530	988,474,528
32	28,094,807	.91263E+14	8.00	6,065,211	50,124,404
Subtotal	762,760,836	.16196E+17	68.75	508,234,205	1,017,287,467
41	73,256,529	.10256E+16	43.00	8,535,327	137,977,730
42	55,311,216	.28427E+15	30.00	20,882,408	89,740,023
43	17,015,771	.22339E+14	21.00	7,184,804	26,846,738
Subtotal	145,583,515	.13322E+16	65.29	72,585,742	218,581,289
50	445,343,801	.31755E+16	24.00	329,034,948	561,652,653
61	605,806,601	.79485E+16	59.00	425,625,729	785,987,472
62	12,658,329	.32711E+14	6.00	0	27,362,764
Subtotal	618,464,930	.79812E+16	59.48	437,913,685	799,016,175
Total	2,032,278,175	.28860E+17	156.15	1,695,908,806	2,368,647,543

Table D-5.--Continued.

BIOMASS					
Stratum	Biomass (t)	Variance biomass	Eff. deg. freedom	95% Confidence Limits	
				Lower	Upper
10	27,780	.30148E+08	57.00	16,684	38,877
20	861	.10675E+06	30.00	194	1,528
31	263,554	.17794E+10	68.00	179,189	347,919
32	10,463	.13300E+08	8.00	2,054	18,873
Subtotal	274,017	.17927E+10	68.99	189,337	358,697
41	23,180	.13971E+09	43.00	0	47,068
42	27,920	.71805E+08	30.00	10,591	45,248
43	5,378	.23424E+07	21.00	2,185	8,570
Subtotal	56,478	.21385E+09	73.05	27,230	85,725
50	78,843	.10137E+09	24.00	58,012	99,674
61	152,604	.55705E+09	59.00	104,904	200,303
62	2,829	.19037E+07	6.00	0	6,205
Subtotal	155,433	.55896E+09	59.40	107,652	203,214
Total	593,412	.26971E+10	137.47	490,583	696,241

Table D-6.--CPUE, population, and biomass estimates for Alaska plaice.

CPUE								
Stratum	Total hauls	Hauls with catch	Hauls with nums.	Hauls with L-F	Mean CPUE (kg/ha)	Variance mean CPUE (kg/ha)	Mean CPUE (no/ha)	Variance mean CPUE (no/ha)
10	58	46	46	46	12.14	.56850E+01	25.43	.21200E+02
20	31	31	31	31	13.86	.58460E+01	40.53	.38730E+02
31	69	57	57	57	13.81	.17630E+02	19.74	.43980E+02
32	9	8	8	8	5.06	.44200E+01	5.10	.54630E+01
Subtotal	78	65	65	65	13.07	.14800E+02	18.49	.36870E+02
41	44	41	41	41	29.66	.42680E+02	38.27	.60890E+02
42	31	25	25	25	19.05	.27980E+02	29.07	.70070E+02
43	22	19	19	19	7.33	.67450E+01	9.29	.13890E+02
Subtotal	97	85	85	85	22.92	.16080E+02	30.55	.24600E+02
50	25	0	0	0	0.00	.00000E+00	0.00	.00000E+00
61	60	15	15	14	2.06	.41190E+00	1.36	.18000E+00
62	7	2	2	2	0.90	.70900E+00	0.42	.15340E+00
Subtotal	67	17	17	16	1.98	.36100E+00	1.29	.15710E+00
Total	356	244	244	243	12.13	.19430E+01	19.70	.45130E+01

POPULATION					
Stratum	Population	Variance population	Eff. deg. freedom	95% Confidence Limits	
				Lower	Upper
10	198,046,274	.12858E+16	57.00	125,576,559	270,515,990
20	166,287,252	.65198E+15	30.00	114,070,250	218,504,254
31	186,552,161	.39299E+16	68.00	61,174,491	311,929,831
32	4,478,548	.42056E+13	8.00	0	9,207,586
Subtotal	191,030,709	.39341E+16	68.14	65,585,970	316,475,448
41	239,995,592	.23939E+16	43.00	141,113,382	338,877,802
42	69,799,111	.40400E+15	30.00	28,755,668	110,842,554
43	19,601,199	.61900E+14	21.00	3,189,308	36,013,091
Subtotal	329,395,903	.28598E+16	58.87	221,319,026	437,472,780
50	0	.00000E+00	24.00	0	0
61	11,958,529	.13984E+14	59.00	4,401,043	19,516,014
62	269,357	.63411E+11	6.00	0	916,776
Subtotal	12,227,886	.14047E+14	59.52	4,653,284	19,802,487
Total	896,988,024	.87457E+16	186.94	711,821,178	1,082,154,869

Table D-6.--Continued.

BIOMASS					
Stratum	Biomass (t)	Variance biomass	Eff. deg. freedom	95% Confidence Limits Lower	Upper
10	94,566	.34472E+09	57.00	57,042	132,089
20	56,864	.98394E+08	30.00	36,609	77,120
31	130,528	.15755E+10	68.00	51,144	209,912
32	4,440	.34028E+07	8.00	187	8,694
Subtotal	134,968	.15789E+10	68.29	55,498	214,438
41	185,962	.16781E+10	43.00	103,172	268,752
42	45,742	.16131E+09	30.00	19,807	71,676
43	15,469	.30052E+08	21.00	4,066	26,871
Subtotal	247,172	.18695E+10	52.63	159,789	334,555
50	0	.00000E+00	24.00	0	0
61	18,145	.31991E+08	59.00	6,714	29,576
62	576	.29301E+06	6.00	0	1,901
Subtotal	18,721	.32284E+08	60.04	7,357	30,085
Total	552,292	.39237E+10	146.21	428,265	676,318

Table D-7.--CPUE, population, and biomass estimates for Greenland turbot.

CPUE								
Stratum	Total hauls	Hauls with catch	Hauls with nums.	Hauls with L-F	Mean CPUE (kg/ha)	Variance mean CPUE (kg/ha)	Mean CPUE (no/ha)	Variance mean CPUE (no/ha)
10	58	0	0	0	0.00	.00000E+00	0.00	.00000E+00
20	31	0	0	0	0.00	.00000E+00	0.00	.00000E+00
31	69	2	2	2	0.11	.62470E-02	0.02	.20110E-03
32	9	0	0	0	0.00	.00000E+00	0.00	.00000E+00
Subtotal	78	2	2	2	0.10	.52300E-02	0.02	.16840E-03
41	44	5	5	5	0.05	.11760E-02	0.04	.44380E-03
42	31	1	1	1	0.03	.73220E-03	0.01	.29290E-04
43	22	6	6	6	0.24	.55390E-01	0.10	.22280E-02
Subtotal	97	12	12	12	0.08	.25560E-02	0.04	.23690E-03
50	25	1	1	1	0.06	.32380E-02	0.01	.47000E-04
61	60	23	23	23	3.45	.68670E+00	1.30	.85780E-01
62	7	4	4	4	3.40	.33390E+01	0.93	.26370E+00
Subtotal	67	27	27	27	3.45	.61190E+00	1.28	.75740E-01
Total	356	42	42	42	0.70	.25770E-01	0.25	.31890E-02

POPULATION					
Stratum	Population	Variance population	Eff. deg. freedom	95% Confidence Limits Lower	Upper
10	0	.00000E+00	57.00	0	0
20	0	.00000E+00	30.00	0	0
31	188,984	.17968E+11	68.00	0	457,073
32	0	.00000E+00	8.00	0	0
Subtotal	188,984	.17968E+11	11.65	0	484,016
41	262,762	.17447E+11	43.00	0	529,713
42	12,994	.16884E+09	30.00	0	39,528
43	202,874	.99244E+10	21.00	0	410,086
Subtotal	478,630	.27541E+11	64.44	146,723	810,537
50	26,594	.70724E+09	24.00	0	81,484
61	11,491,443	.66633E+13	59.00	6,274,550	16,708,335
62	599,079	.10896E+12	6.00	0	1,406,824
Subtotal	12,090,522	.67723E+13	60.78	6,885,797	17,295,247
Total	12,784,730	.68185E+13	91.94	7,562,277	18,007,184

Table D-7.--Continued.

BIOMASS					
Stratum	Biomass (t)	Variance biomass	Eff. deg. freedom	95% Confidence Limits	
				Lower	Upper
10	0	.00000E+00	57.00	0	0
20	0	.00000E+00	30.00	0	0
31	1,040	.55814E+06	68.00	0	2,534
32	0	.00000E+00	8.00	0	0
Subtotal	1,040	.55814E+06	75.39	0	2,534
41	323	.46225E+05	43.00	0	758
42	65	.42211E+04	30.00	0	198
43	506	.24676E+06	21.00	0	1,543
Subtotal	895	.29721E+06	29.95	0	2,009
50	221	.48721E+05	24.00	0	676
61	30,440	.53340E+08	59.00	15,679	45,200
62	2,184	.13800E+07	6.00	0	5,059
Subtotal	32,624	.54720E+08	61.69	17,829	47,418
Total	34,779	.55624E+08	67.58	19,862	49,695

Table D-8.--CPUE, population, and biomass estimates for arrowtooth flounder.

CPUE								
Stratum	Total hauls	Hauls with catch	Hauls with nums.	Hauls with L-F	Mean CPUE (kg/ha)	Variance mean CPUE (kg/ha)	Mean CPUE (no/ha)	Variance mean CPUE (no/ha)
10	58	3	3	3	0.28	.31280E-01	0.35	.56380E-01
20	31	0	0	0	0.00	.00000E+00	0.00	.00000E+00
31	69	33	33	33	14.76	.32330E+02	20.96	.57390E+02
32	9	7	7	7	5.28	.23250E+01	17.26	.29870E+02
Subtotal	78	40	40	40	13.96	.27080E+02	20.64	.48270E+02
41	44	3	3	3	0.34	.37690E-01	0.50	.11150E+00
42	31	15	15	14	3.74	.35780E+01	16.54	.10510E+03
43	22	0	0	0	0.00	.00000E+00	0.00	.00000E+00
Subtotal	97	18	18	17	1.03	.19020E+00	3.97	.52480E+01
50	25	25	25	25	44.05	.56770E+02	67.49	.13470E+03
61	60	58	58	58	17.19	.61300E+01	24.07	.31980E+02
62	7	4	4	4	1.47	.38240E+00	1.00	.25210E+00
Subtotal	67	62	62	62	16.12	.53270E+01	22.51	.27780E+02
Total	356	148	148	147	9.43	.20690E+01	14.87	.53410E+01

POPULATION					
Stratum	Population	Variance population	Eff. deg. freedom	95% Confidence Limits	
				Lower	Upper
10	2,687,130	.34186E+13	57.00	0	6,423,852
20	0	.00000E+00	30.00	0	0
31	198,102,975	.51277E+16	68.00	54,887,536	341,318,414
32	15,147,638	.22996E+14	8.00	4,089,439	26,205,837
Subtotal	213,250,613	.51507E+16	68.60	69,714,396	356,786,830
41	3,143,633	.43835E+13	43.00	0	7,374,970
42	39,709,760	.60579E+15	30.00	0	89,968,900
43	0	.00000E+00	21.00	0	0
Subtotal	42,853,392	.61017E+15	30.46	0	93,294,045
50	261,791,266	.20269E+16	24.00	168,868,797	354,713,735
61	212,181,779	.24844E+16	59.00	111,447,414	312,916,143
62	645,022	.10419E+12	6.00	0	1,434,891
Subtotal	212,826,801	.24845E+16	59.00	112,090,325	313,563,278
Total	733,409,203	.10276E+17	156.50	532,699,192	934,119,213

Table D-8.--Continued.

BIOMASS					
Stratum	Biomass (t)	Variance biomass	Eff. deg. freedom	95% Confidence Limits Lower	Upper
10	2,144	.18970E+07	57.00	0	4,928
20	0	.00000E+00	30.00	0	0
31	139,543	.28884E+10	68.00	32,055	247,031
32	4,634	.17900E+07	8.00	1,549	7,719
Subtotal	144,177	.28902E+10	68.08	36,655	251,698
41	2,135	.14817E+07	43.00	0	4,595
42	8,992	.20629E+08	30.00	0	18,280
43	0	.00000E+00	21.00	0	0
Subtotal	11,126	.22111E+08	34.97	1,525	20,728
50	170,878	.85431E+09	24.00	110,550	231,206
61	151,536	.47615E+09	59.00	107,436	195,636
62	944	.15804E+06	6.00	0	1,916
Subtotal	152,479	.47631E+09	59.04	108,372	196,587
Total	480,805	.42448E+10	114.84	350,500	611,110

Table D-9.--CPUE, population, and biomass estimates for Kamchatka flounder.

CPUE								
Stratum	Total hauls	Hauls with catch	Hauls with nums.	Hauls with L-F	Mean CPUE (kg/ha)	Variance mean CPUE (kg/ha)	Mean CPUE (no/ha)	Variance mean CPUE (no/ha)
10	58	0	0	0	0.00	.00000E+00	0.00	.00000E+00
20	31	0	0	0	0.00	.00000E+00	0.00	.00000E+00
31	69	10	10	10	0.19	.58260E-02	0.24	.71080E-02
32	9	5	5	5	1.19	.33080E+00	2.28	.11010E+01
Subtotal	78	15	15	15	0.27	.72650E-02	0.41	.13900E-01
41	44	1	1	1	0.02	.27860E-03	0.01	.14500E-03
42	31	4	4	4	0.13	.37020E-02	0.22	.17200E-01
43	22	0	0	0	0.00	.00000E+00	0.00	.00000E+00
Subtotal	97	5	5	5	0.04	.27780E-03	0.06	.90230E-03
50	25	23	23	23	1.20	.40340E-01	2.30	.27090E+00
61	60	53	53	53	2.27	.93870E-01	2.39	.98100E-01
62	7	3	3	3	0.67	.12600E+00	0.38	.47960E-01
Subtotal	67	56	56	56	2.17	.82130E-01	2.26	.85440E-01
Total	356	99	99	99	0.56	.53040E-02	0.70	.78850E-02

POPULATION						
Stratum	Population	Variance population	Eff. deg. freedom	95% Confidence Limits		
				Lower	Upper	
10	0	.00000E+00	57.00	0	0	
20	0	.00000E+00	30.00	0	0	
31	2,230,840	.63514E+12	68.00	636,929	3,824,751	
32	1,997,147	.84781E+12	8.00	0	4,120,433	
Subtotal	4,227,987	.14829E+13	22.97	1,702,345	6,753,629	
41	75,512	.57020E+10	43.00	0	228,121	
42	539,081	.99191E+11	30.00	0	1,183,147	
43	0	.00000E+00	21.00	0	0	
Subtotal	614,593	.10489E+12	41.41	0	1,269,139	
50	8,904,554	.40764E+13	24.00	4,727,212	13,081,896	
61	21,091,237	.76203E+13	59.00	15,512,277	26,670,198	
62	246,927	.19818E+11	6.00	0	608,867	
Subtotal	21,338,165	.76402E+13	59.30	15,751,954	26,924,375	
Total	35,085,298	.13304E+14	126.33	27,863,205	42,307,391	

Table D-9.--Continued.

BIOMASS					
Stratum	Biomass (t)	Variance biomass	Eff. deg. freedom	95% Confidence Limits Lower	Upper
10	0	.00000E+00	57.00	0	0
20	0	.00000E+00	30.00	0	0
31	1,777	.52059E+06	68.00	334	3,220
32	1,044	.25468E+06	8.00	0	2,207
Subtotal	2,821	.77527E+06	49.71	1,041	4,600
41	105	.10954E+05	43.00	0	316
42	307	.21343E+05	30.00	8	605
43	0	.00000E+00	21.00	0	0
Subtotal	411	.32297E+05	27.97	42	780
50	4,647	.60712E+06	24.00	3,035	6,259
61	20,048	.72917E+07	59.00	14,590	25,505
62	430	.52062E+05	6.00	0	988
Subtotal	20,478	.73437E+07	59.82	15,001	25,954
Total	28,356	.87584E+07	115.92	22,437	34,275

Table D-10.--CPUE, population, and biomass estimates for Pacific halibut.

CPUE

Stratum	Total hauls	Hauls with catch	Hauls with nums.	Hauls with L-F	Mean CPUE (kg/ha)	Variance mean CPUE (kg/ha)	Mean CPUE (no/ha)	Variance mean CPUE (no/ha)
10	58	53	53	53	4.41	.36680E+00	1.42	.36990E-01
20	31	25	25	25	3.36	.59960E+00	1.24	.59010E-01
31	69	59	59	59	3.66	.25660E+00	1.03	.21840E-01
32	9	6	6	6	2.61	.14680E+01	0.39	.20000E-01
Subtotal	78	65	65	65	3.57	.22540E+00	0.98	.18430E-01
41	44	13	13	13	0.60	.10280E+00	0.25	.17190E-01
42	31	24	24	24	3.68	.32240E+01	0.84	.89390E-01
43	22	6	6	6	1.61	.92170E+00	0.08	.10460E-02
Subtotal	97	43	43	43	1.49	.23000E+00	0.35	.10290E-01
50	25	25	25	25	5.25	.63750E+00	0.87	.40140E-01
61	60	42	42	41	3.52	.39610E+00	0.63	.12130E-01
62	7	5	5	5	2.23	.14310E+01	0.21	.47660E-02
Subtotal	67	47	47	46	3.43	.35070E+00	0.60	.10560E-01
Total	356	258	258	257	3.29	.72170E-01	0.83	.41660E-02

POPULATION

Stratum	Population	Variance population	Eff. deg. freedom	95% Confidence Limits Lower	Upper
10	11,055,153	.22432E+13	57.00	8,028,221	14,082,085
20	5,082,954	.99326E+12	30.00	3,047,844	7,118,064
31	9,732,014	.19515E+13	68.00	6,938,078	12,525,951
32	342,479	.15398E+11	8.00	49,004	635,953
Subtotal	10,074,493	.19669E+13	69.04	7,269,555	12,879,431
41	1,582,049	.67579E+12	43.00	0	3,243,445
42	2,026,953	.51538E+12	30.00	558,853	3,495,054
43	174,416	.46607E+10	21.00	32,006	316,827
Subtotal	3,783,418	.11958E+13	73.43	1,596,337	5,970,499
50	3,391,148	.60408E+12	24.00	1,786,951	4,995,344
61	5,540,375	.94197E+12	59.00	3,578,895	7,501,855
62	135,105	.19696E+10	6.00	26,506	243,705
Subtotal	5,675,480	.94394E+12	59.24	3,711,950	7,639,009
Total	39,062,645	.79473E+13	278.32	33,480,852	44,644,438

Table D-9.--Continued.

BIOMASS					
Stratum	Biomass (t)	Variance biomass	Eff. deg. freedom	95% Confidence Limits	
				Lower	Upper
10	34,311	.22241E+08	57.00	24,780	43,842
20	13,768	.10093E+08	30.00	7,271	20,264
31	34,615	.22925E+08	68.00	25,039	44,191
32	2,290	.11305E+07	8.00	0	4,742
Subtotal	36,904	.24055E+08	73.35	27,095	46,714
41	3,776	.40420E+07	43.00	0	7,840
42	8,845	.18587E+08	30.00	42	17,649
43	3,401	.41064E+07	21.00	0	7,616
Subtotal	16,023	.26736E+08	56.30	5,573	26,473
50	20,379	.95930E+07	24.00	13,971	26,787
61	31,026	.30765E+08	59.00	19,816	42,236
62	1,435	.59125E+06	6.00	0	3,317
Subtotal	32,461	.31357E+08	61.07	21,261	43,660
Total	153,846	.12407E+09	292.71	131,791	175,901

APPENDIX E

Population Estimates by Sex and Size
Groups for Principal Fish Species

Appendix E presents estimates of the numbers of individuals within the overall survey area by sex and size group for principal fish species.

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Table E-1.--Population estimates by sex and size group for walleye pollock from the 1995 eastern Bering Sea bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
60	0	0	219,178	219,178	0.0000	0.0000
70	0	0	1,344,236	1,344,236	0.0001	0.0002
80	0	0	9,081,207	9,081,207	0.0010	0.0011
90	120,096	0	70,134,080	70,254,176	0.0074	0.0085
100	95,735	0	159,186,128	159,281,863	0.0167	0.0252
110	643,170	0	167,865,143	168,508,313	0.0177	0.0429
120	31,707	409,151	237,992,589	238,433,447	0.0251	0.0680
130	1,496,788	267,080	266,259,490	268,023,358	0.0282	0.0962
140	719,169	2,027,005	252,268,479	255,014,654	0.0268	0.1230
150	1,692,321	2,297,590	188,254,357	192,244,268	0.0202	0.1432
160	1,090,322	1,116,385	132,670,415	134,877,122	0.0142	0.1573
170	3,059,985	294,962	25,141,313	28,496,260	0.0030	0.1603
180	1,058,756	1,284,870	22,800,523	25,144,148	0.0026	0.1630
190	4,041,982	2,298,007	13,458,051	19,798,041	0.0021	0.1651
200	4,699,294	4,452,937	18,029,035	27,181,266	0.0029	0.1679
210	12,305,447	8,228,160	17,275,227	37,808,834	0.0040	0.1719
220	8,705,589	8,369,217	6,894,548	23,969,354	0.0025	0.1744
230	10,246,703	8,814,459	5,152,165	24,213,327	0.0025	0.1769
240	6,167,508	6,524,525	136,045	12,828,078	0.0013	0.1783
250	8,882,007	9,594,348	136,045	18,612,400	0.0020	0.1802
260	17,623,966	15,336,384	0	32,960,350	0.0035	0.1837
270	14,657,653	17,091,044	0	31,748,697	0.0033	0.1870
280	16,617,227	11,939,415	53,241	28,609,883	0.0030	0.1901
290	9,892,033	8,938,163	0	18,830,195	0.0020	0.1920
300	10,622,055	11,632,242	0	22,254,297	0.0023	0.1944
310	11,858,375	13,292,029	0	25,150,404	0.0026	0.1970
320	13,847,427	18,412,827	0	32,260,254	0.0034	0.2004
330	20,941,598	24,160,390	0	45,101,988	0.0047	0.2051
340	18,590,366	20,942,554	0	39,532,921	0.0042	0.2093
350	33,297,967	12,563,422	0	45,861,390	0.0048	0.2141
360	57,255,234	37,977,211	0	95,232,445	0.0100	0.2241
370	83,966,974	65,847,037	0	149,814,012	0.0157	0.2399
380	92,322,399	116,149,460	0	208,471,859	0.0219	0.2618
390	185,661,428	120,250,920	0	305,912,348	0.0321	0.2939
400	218,584,238	192,579,786	0	411,164,024	0.0432	0.3371
410	303,317,900	223,402,258	0	526,720,158	0.0553	0.3925
420	308,408,970	235,600,982	0	544,009,952	0.0572	0.4496
430	260,160,810	237,179,101	0	497,339,911	0.0523	0.5019
440	254,749,913	196,947,491	0	451,697,404	0.0475	0.5494
450	242,311,755	165,760,246	0	408,072,000	0.0429	0.5922
460	273,597,110	183,464,198	0	457,061,308	0.0480	0.6403
470	311,839,637	144,660,427	0	456,500,064	0.0480	0.6882
480	333,138,820	153,066,676	0	486,205,496	0.0511	0.7393
490	282,633,113	188,043,885	0	470,676,997	0.0495	0.7888
500	238,796,984	154,695,981	0	393,492,965	0.0413	0.8301
510	209,794,312	114,440,842	0	324,235,154	0.0341	0.8642

Table E-1.--Continued.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
520	106,408,891	85,466,480	0	191,875,371	0.0202	0.8844
530	87,552,240	100,153,460	0	187,705,700	0.0197	0.9041
540	59,026,254	68,975,914	0	128,002,168	0.0135	0.9176
550	50,385,318	41,083,141	0	91,468,460	0.0096	0.9272
560	43,427,218	53,075,873	0	96,503,091	0.0101	0.9373
570	57,274,210	38,405,881	0	95,680,091	0.0101	0.9474
580	40,798,291	29,419,864	0	70,218,156	0.0074	0.9547
590	43,195,864	24,711,193	0	67,907,057	0.0071	0.9619
600	31,198,183	42,017,728	0	73,215,911	0.0077	0.9696
610	23,417,362	21,411,675	0	44,829,036	0.0047	0.9743
620	18,931,871	22,288,812	0	41,220,683	0.0043	0.9786
630	13,159,821	16,761,302	0	29,921,123	0.0031	0.9818
640	14,049,096	18,962,749	0	33,011,845	0.0035	0.9852
650	9,514,672	14,305,123	0	23,819,795	0.0025	0.9877
660	6,862,322	17,571,211	0	24,433,532	0.0026	0.9903
670	6,342,818	11,922,506	0	18,265,324	0.0019	0.9922
680	4,555,240	10,400,602	0	14,955,843	0.0016	0.9938
690	3,589,336	9,728,006	0	13,317,342	0.0014	0.9952
700	3,658,246	6,987,644	0	10,645,890	0.0011	0.9963
710	2,182,185	7,242,363	0	9,424,547	0.0010	0.9973
720	946,248	6,458,675	0	7,404,923	0.0008	0.9981
730	599,389	4,852,843	0	5,452,232	0.0006	0.9986
740	550,670	3,084,623	0	3,635,294	0.0004	0.9990
750	271,833	2,730,981	0	3,002,814	0.0003	0.9993
760	266,647	1,748,463	0	2,015,111	0.0002	0.9996
770	0	1,829,196	0	1,829,196	0.0002	0.9997
780	45,345	552,346	0	597,691	0.0001	0.9998
790	0	506,078	0	506,078	0.0001	0.9999
800	0	548,129	0	548,129	0.0001	0.9999
810	0	251,795	0	251,795	0.0000	0.9999
830	0	28,615	0	28,615	0.0000	0.9999
840	0	206,798	0	206,798	0.0000	1.0000
860	0	269,517	0	269,517	0.0000	1.0000
Total	4,517,754,417	3,404,313,253	1,594,351,496	9,516,419,167	1.0000	1.0000

Table E-2.--Population estimates by sex and size group for Pacific cod from the 1995 eastern Bering Sea bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
80	0	0	28,583	28,583	0.0000	0.0000
90	0	0	260,812	260,812	0.0003	0.0004
100	56,708	0	902,071	958,779	0.0013	0.0016
110	107,194	168,746	945,089	1,221,029	0.0016	0.0033
120	0	151,344	934,581	1,085,925	0.0014	0.0047
130	141,470	584,218	836,723	1,562,411	0.0021	0.0068
140	1,093,794	1,025,548	1,268,942	3,388,284	0.0045	0.0112
150	860,903	672,728	1,522,748	3,056,379	0.0040	0.0153
160	1,227,816	731,816	1,499,881	3,459,513	0.0046	0.0198
170	1,958,545	1,587,700	1,040,199	4,586,444	0.0061	0.0259
180	1,736,959	1,802,356	1,331,157	4,870,472	0.0064	0.0323
190	2,332,821	2,730,234	1,571,493	6,634,548	0.0088	0.0411
200	2,229,791	1,373,760	1,996,599	5,600,150	0.0074	0.0485
210	556,710	1,819,783	444,300	2,820,794	0.0037	0.0522
220	1,093,156	839,878	28,583	1,961,617	0.0026	0.0548
230	892,471	636,611	28,583	1,557,665	0.0021	0.0568
240	1,927,766	1,114,866	0	3,042,632	0.0040	0.0608
250	2,166,179	1,674,604	0	3,840,782	0.0051	0.0659
260	3,064,412	4,253,035	0	7,317,447	0.0097	0.0756
270	5,189,074	3,669,040	0	8,858,114	0.0117	0.0873
280	6,128,723	6,875,972	0	13,004,695	0.0172	0.1044
290	7,689,081	8,240,062	0	15,929,143	0.0210	0.1255
300	9,899,403	8,867,589	0	18,766,992	0.0248	0.1502
310	8,994,465	8,922,222	0	17,916,687	0.0237	0.1739
320	9,297,327	10,814,468	0	20,111,795	0.0265	0.2004
330	9,443,484	9,098,526	0	18,542,009	0.0245	0.2249
340	8,096,009	8,210,891	0	16,306,900	0.0215	0.2464
350	6,740,746	6,032,935	0	12,773,681	0.0169	0.2633
360	9,019,514	8,826,512	0	17,846,026	0.0236	0.2868
370	11,727,843	8,748,176	0	20,476,020	0.0270	0.3139
380	9,476,498	10,186,634	0	19,663,132	0.0260	0.3398
390	14,212,392	11,646,158	0	25,858,550	0.0341	0.3740
400	15,506,873	15,573,037	0	31,079,910	0.0410	0.4150
410	16,199,355	14,314,150	0	30,513,505	0.0403	0.4553
420	15,952,503	18,358,018	0	34,310,521	0.0453	0.5006
430	20,276,981	14,333,633	0	34,610,614	0.0457	0.5462
440	20,172,836	12,233,872	0	32,406,708	0.0428	0.5890
450	14,637,479	13,514,744	0	28,152,223	0.0372	0.6262
460	12,555,216	15,040,417	0	27,595,634	0.0364	0.6626
470	13,304,168	10,839,483	0	24,143,652	0.0319	0.6945
480	8,037,386	8,278,365	0	16,315,751	0.0215	0.7160
490	8,671,806	6,905,462	0	15,577,268	0.0206	0.7366
500	6,243,160	6,348,688	0	12,591,849	0.0166	0.7532
510	6,429,162	5,236,872	0	11,666,033	0.0154	0.7686

Table E-2.--Continued.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
520	4,945,191	4,468,913	0	9,414,105	0.0124	0.7810
530	4,455,479	3,627,706	0	8,083,185	0.0107	0.7917
540	4,610,321	4,311,218	0	8,921,539	0.0118	0.8035
550	4,001,473	3,832,086	0	7,833,559	0.0103	0.8138
560	3,641,299	3,538,360	0	7,179,658	0.0095	0.8233
570	4,319,724	3,294,314	0	7,614,038	0.0101	0.8333
580	3,312,981	3,786,336	0	7,099,317	0.0094	0.8427
590	3,277,575	2,690,005	0	5,967,581	0.0079	0.8506
600	3,839,094	3,772,885	0	7,611,979	0.0100	0.8606
610	3,552,625	4,603,900	0	8,156,525	0.0108	0.8714
620	4,291,551	4,321,565	0	8,613,116	0.0114	0.8828
630	3,322,656	4,908,329	0	8,230,985	0.0109	0.8936
640	4,420,509	2,718,403	0	7,138,912	0.0094	0.9031
650	2,945,460	2,827,710	0	5,773,170	0.0076	0.9107
660	1,442,814	2,977,045	0	4,419,858	0.0058	0.9165
670	2,201,351	2,756,896	0	4,958,246	0.0065	0.9231
680	2,569,625	3,284,792	0	5,854,418	0.0077	0.9308
690	2,955,578	2,836,027	0	5,791,606	0.0076	0.9384
700	1,984,509	3,599,857	0	5,584,367	0.0074	0.9458
710	2,126,992	2,000,995	0	4,127,987	0.0054	0.9513
720	2,140,711	2,304,092	0	4,444,802	0.0059	0.9571
730	1,472,814	2,230,050	0	3,702,863	0.0049	0.9620
740	1,475,831	1,473,068	0	2,948,899	0.0039	0.9659
750	1,022,662	1,318,462	0	2,341,124	0.0031	0.9690
760	302,086	1,534,333	0	1,836,419	0.0024	0.9714
770	509,784	2,518,312	0	3,028,096	0.0040	0.9754
780	662,201	998,316	0	1,660,517	0.0022	0.9776
790	1,235,838	787,051	0	2,022,889	0.0027	0.9803
800	687,875	1,065,473	0	1,753,348	0.0023	0.9826
810	1,361,288	268,027	0	1,629,315	0.0022	0.9847
820	508,738	968,762	0	1,477,500	0.0020	0.9867
830	421,384	553,081	0	974,465	0.0013	0.9880
840	620,108	431,784	0	1,051,892	0.0014	0.9894
850	302,296	531,838	0	834,133	0.0011	0.9905
860	183,764	429,424	0	613,188	0.0008	0.9913
870	0	638,018	0	638,018	0.0008	0.9921
880	325,230	288,996	0	614,226	0.0008	0.9929
890	137,497	469,213	0	606,709	0.0008	0.9937
900	136,130	218,590	0	354,720	0.0005	0.9942
910	332,952	599,043	0	931,995	0.0012	0.9954
920	31,408	246,334	0	277,742	0.0004	0.9958
930	84,610	258,576	0	343,186	0.0005	0.9962
940	79,118	210,055	0	289,173	0.0004	0.9966
950	29,257	790,958	0	820,214	0.0011	0.9977
960	0	87,892	0	87,892	0.0001	0.9978
970	0	261,835	0	261,835	0.0003	0.9982
980	148,184	0	0	148,184	0.0002	0.9984

Table E-2.--Continued.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
990	0	230,417	0	230,417	0.0003	0.9987
1000	170,627	228,457	0	399,084	0.0005	0.9992
1010	0	69,983	0	69,983	0.0001	0.9993
1020	0	266,561	0	266,561	0.0004	0.9996
1030	26,594	0	0	26,594	0.0000	0.9997
1050	0	112,803	0	112,803	0.0001	0.9998
1070	0	44,893	0	44,893	0.0001	0.9999
1090	0	26,370	0	26,370	0.0000	0.9999
1110	0	60,567	0	60,567	0.0001	1.0000
Total	377,973,973	364,962,126	14,640,345	757,576,445	1.0000	1.0000

Table E-3.--Population estimates by sex and size group for yellowfin sole from the 1995 eastern Bering Sea bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
80	1,490,611	480,557	0	1,971,168	0.0002	0.0002
90	0	305,521	0	305,521	0.0000	0.0003
100	2,841,749	1,984,736	0	4,826,486	0.0006	0.0009
110	6,824,052	16,598,576	0	23,422,627	0.0028	0.0037
120	21,002,434	24,916,185	0	45,918,619	0.0056	0.0093
130	35,320,534	46,276,271	0	81,596,805	0.0099	0.0192
140	44,019,591	62,206,923	0	106,226,514	0.0129	0.0321
150	55,556,905	63,210,262	0	118,767,167	0.0144	0.0465
160	72,982,572	90,643,349	0	163,625,921	0.0199	0.0664
170	79,745,974	75,109,383	0	154,855,357	0.0188	0.0852
180	104,479,334	100,656,718	0	205,136,052	0.0249	0.1101
190	108,142,139	117,506,507	0	225,648,646	0.0274	0.1375
200	153,565,008	152,567,248	0	306,132,256	0.0372	0.1746
210	164,222,971	173,108,637	0	337,331,608	0.0410	0.2156
220	202,891,274	240,492,458	0	443,383,732	0.0538	0.2694
230	231,825,259	233,764,482	0	465,589,741	0.0565	0.3259
240	240,071,595	276,029,955	0	516,101,550	0.0627	0.3886
250	220,424,266	251,438,551	0	471,862,817	0.0573	0.4459
260	240,067,440	239,370,782	0	479,438,222	0.0582	0.5041
270	226,804,564	206,265,879	0	433,070,443	0.0526	0.5566
280	243,518,227	205,372,146	0	448,890,373	0.0545	0.6111
290	242,529,603	221,727,109	0	464,256,711	0.0564	0.6675
300	317,294,914	255,908,331	0	573,203,245	0.0696	0.7371
310	254,571,464	254,728,398	0	509,299,863	0.0618	0.7989
320	189,422,214	262,784,390	0	452,206,604	0.0549	0.8538
330	130,705,147	237,721,180	0	368,426,327	0.0447	0.8985
340	75,950,579	225,443,310	0	301,393,890	0.0366	0.9351
350	36,579,600	172,472,157	0	209,051,757	0.0254	0.9605
360	18,610,686	124,399,339	0	143,010,026	0.0174	0.9779
370	7,277,298	71,414,310	0	78,691,608	0.0096	0.9874
380	1,575,560	43,491,094	0	45,066,654	0.0055	0.9929
390	364,568	27,398,840	0	27,763,408	0.0034	0.9963
400	49,753	10,600,144	0	10,649,897	0.0013	0.9976
410	284,043	11,987,211	0	12,271,254	0.0015	0.9990
420	678,857	5,796,245	0	6,475,102	0.0008	0.9998
430	0	1,209,417	0	1,209,417	0.0001	1.0000
440	0	166,165	0	166,165	0.0000	1.0000
450	0	49,753	0	49,753	0.0000	1.0000
Total	3,731,690,784	4,505,602,521	0	8,237,293,306	1.0000	1.0000

Table E-4.--Population estimates by sex and size group for rock sole from the 1995 eastern Bering Sea bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
70	102,908	0	0	102,908	0.0000	0.0000
80	1,004,547	0	5,487,337	6,491,884	0.0006	0.0006
90	1,439,248	2,119,716	3,304,581	6,863,545	0.0006	0.0012
100	11,691,202	7,830,022	4,956,871	24,478,095	0.0022	0.0035
110	27,539,763	11,579,574	0	39,119,336	0.0036	0.0071
120	37,345,660	28,484,591	0	65,830,251	0.0060	0.0131
130	64,396,030	42,033,178	0	106,429,207	0.0098	0.0229
140	78,636,712	89,709,174	0	168,345,886	0.0154	0.0383
150	143,474,687	97,192,643	0	240,667,330	0.0221	0.0603
160	184,711,184	152,811,801	0	337,522,985	0.0309	0.0913
170	216,015,729	167,666,647	0	383,682,377	0.0352	0.1265
180	258,754,241	218,515,170	0	477,269,411	0.0437	0.1702
190	361,756,232	271,327,829	0	633,084,061	0.0580	0.2282
200	382,622,551	315,724,488	0	698,347,039	0.0640	0.2922
210	282,345,364	224,495,044	25,312	506,865,720	0.0465	0.3387
220	219,633,667	189,375,812	0	409,009,479	0.0375	0.3762
230	250,768,216	124,273,045	25,312	375,066,574	0.0344	0.4106
240	317,919,355	221,969,985	0	539,889,340	0.0495	0.4601
250	501,848,499	290,072,148	0	791,920,647	0.0726	0.5326
260	537,971,178	351,132,457	0	889,103,635	0.0815	0.6141
270	480,644,728	361,306,112	0	841,950,839	0.0772	0.6913
280	410,004,593	324,720,271	25,312	734,750,175	0.0673	0.7587
290	289,393,783	286,145,260	0	575,539,043	0.0528	0.8114
300	188,799,775	261,134,327	25,312	449,959,414	0.0412	0.8527
310	130,240,547	216,984,721	0	347,225,268	0.0318	0.8845
320	79,456,297	199,269,899	25,312	278,751,509	0.0256	0.9100
330	41,329,738	161,765,470	0	203,095,207	0.0186	0.9287
340	24,873,744	158,217,170	0	183,090,915	0.0168	0.9454
350	8,402,895	135,403,218	25,312	143,831,425	0.0132	0.9586
360	4,254,571	119,442,111	0	123,696,682	0.0113	0.9700
370	2,118,293	92,920,690	0	95,038,983	0.0087	0.9787
380	2,872,952	75,062,717	0	77,935,669	0.0071	0.9858
390	290,000	66,577,466	0	66,867,466	0.0061	0.9919
400	1,017,931	36,463,414	0	37,481,345	0.0034	0.9954
410	0	18,340,728	0	18,340,728	0.0017	0.9971
420	0	15,236,895	0	15,236,895	0.0014	0.9985
430	0	6,571,263	0	6,571,263	0.0006	0.9991
440	0	7,245,098	0	7,245,098	0.0007	0.9997
450	0	2,181,906	0	2,181,906	0.0002	0.9999
460	0	343,645	0	343,645	0.0000	1.0000
470	0	291,215	0	291,215	0.0000	1.0000
490	0	73,689	0	73,689	0.0000	1.0000
510	0	70,929	0	70,929	0.0000	1.0000
Total	5,543,676,821	5,352,081,537	13,900,661	10,909,659,01	1.0000	1.0000

Table E-5.--Population estimates by sex and size group for *Hippoglossoides* spp. from the 1995 eastern Bering Sea bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
60	0	0	37,348	37,348	0.0000	0.0000
70	0	0	183,230	183,230	0.0001	0.0001
80	0	0	59,203	59,203	0.0000	0.0001
90	116,055	0	233,655	349,710	0.0002	0.0003
100	424,392	58,974	1,869,830	2,353,196	0.0012	0.0015
110	1,546,439	1,124,581	3,624,813	6,295,833	0.0031	0.0046
120	2,375,381	1,869,384	3,795,244	8,040,009	0.0040	0.0085
130	5,300,242	3,370,362	6,042,369	14,712,973	0.0072	0.0158
140	9,348,721	6,334,620	5,308,326	20,991,667	0.0103	0.0261
150	9,652,280	9,609,629	4,156,682	23,418,591	0.0115	0.0376
160	14,946,045	15,364,209	3,328,517	33,638,771	0.0166	0.0542
170	19,375,027	15,209,012	2,678,172	37,262,210	0.0183	0.0725
180	17,790,571	18,699,580	1,586,219	38,076,370	0.0187	0.0912
190	26,197,464	20,197,412	684,474	47,079,350	0.0232	0.1144
200	29,808,514	26,807,545	37,348	56,653,408	0.0279	0.1423
210	30,337,551	27,631,196	0	57,968,747	0.0285	0.1708
220	37,991,586	26,879,129	0	64,870,715	0.0319	0.2027
230	32,092,738	23,727,304	0	55,820,042	0.0275	0.2302
240	29,296,769	22,100,438	0	51,397,206	0.0253	0.2555
250	36,329,117	27,523,260	0	63,852,377	0.0314	0.2869
260	48,021,673	28,678,135	0	76,699,808	0.0377	0.3246
270	58,616,244	33,384,242	0	92,000,486	0.0453	0.3699
280	61,080,395	39,878,206	0	100,958,601	0.0497	0.4196
290	71,930,882	40,477,544	0	112,408,425	0.0553	0.4749
300	80,651,654	45,746,809	0	126,398,463	0.0622	0.5371
310	71,883,122	51,902,100	0	123,785,221	0.0609	0.5980
320	75,127,409	48,995,598	0	124,123,008	0.0611	0.6591
330	63,411,703	43,046,179	0	106,457,882	0.0524	0.7115
340	65,097,333	44,200,809	0	109,298,142	0.0538	0.7652
350	54,520,285	36,697,281	0	91,217,566	0.0449	0.8101
360	45,161,449	38,688,275	0	83,849,724	0.0413	0.8514
370	27,714,511	28,592,909	0	56,307,420	0.0277	0.8791
380	18,407,466	30,951,247	0	49,358,713	0.0243	0.9034
390	13,518,716	28,816,772	0	42,335,488	0.0208	0.9242
400	8,634,487	21,544,614	0	30,179,102	0.0148	0.9391
410	1,196,838	26,248,106	0	27,444,943	0.0135	0.9526
420	687,155	21,808,736	0	22,495,891	0.0111	0.9636
430	236,428	17,074,433	0	17,310,861	0.0085	0.9722
440	202,020	17,432,728	0	17,634,749	0.0087	0.9808
450	58,838	16,331,790	0	16,390,628	0.0081	0.9889
460	140,931	7,717,803	0	7,858,733	0.0039	0.9928
470	0	6,196,120	0	6,196,120	0.0030	0.9958
480	0	2,696,843	0	2,696,843	0.0013	0.9971
490	0	4,067,604	0	4,067,604	0.0020	0.9991

Table E-5.--Continued.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
500	0	1,299,189	0	1,299,189	0.0006	0.9998
510	0	191,843	0	191,843	0.0001	0.9999
520	0	74,873	0	74,873	0.0000	0.9999
530	0	176,889	0	176,889	0.0001	1.0000
Total	1,069,228,430	929,424,314	33,625,431	2,032,278,175	1.0000	1.0000

Table E-6.--Population estimates by sex and size group for Alaska plaice from the 1995 eastern Bering Sea bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
110	78,044	0	0	78,044	0.0001	0.0001
120	156,089	78,044	0	234,133	0.0003	0.0003
130	0	136,222	129,197	265,419	0.0003	0.0006
140	28,710	156,089	0	184,799	0.0002	0.0008
150	394,361	0	0	394,361	0.0004	0.0013
160	262,843	292,311	0	555,154	0.0006	0.0019
170	488,467	554,408	0	1,042,874	0.0012	0.0031
180	1,229,078	1,065,955	0	2,295,032	0.0026	0.0056
190	2,477,746	1,630,421	0	4,108,168	0.0046	0.0102
200	3,463,825	3,081,521	0	6,545,347	0.0073	0.0175
210	6,888,871	4,143,615	0	11,032,486	0.0123	0.0298
220	7,705,516	5,631,131	0	13,336,647	0.0149	0.0447
230	7,790,515	6,274,965	0	14,065,480	0.0157	0.0604
240	9,724,246	7,439,049	0	17,163,295	0.0191	0.0795
250	8,946,570	10,581,925	0	19,528,495	0.0218	0.1013
260	13,290,339	10,159,414	0	23,449,752	0.0261	0.1274
270	16,368,384	10,043,467	0	26,411,851	0.0294	0.1568
280	21,365,152	14,353,231	0	35,718,383	0.0398	0.1967
290	24,203,578	14,534,751	0	38,738,329	0.0432	0.2399
300	28,166,723	15,427,573	0	43,594,296	0.0486	0.2885
310	32,525,440	15,941,394	0	48,466,834	0.0540	0.3425
320	32,195,751	14,007,692	0	46,203,443	0.0515	0.3940
330	35,571,043	16,688,993	0	52,260,035	0.0583	0.4523
340	38,958,612	21,818,153	0	60,776,765	0.0678	0.5200
350	35,009,198	18,390,736	0	53,399,933	0.0595	0.5795
360	39,694,597	16,951,042	0	56,645,639	0.0632	0.6427
370	24,023,897	17,226,826	0	41,250,722	0.0460	0.6887
380	19,706,482	18,966,402	0	38,672,884	0.0431	0.7318
390	8,833,639	19,431,430	0	28,265,069	0.0315	0.7633
400	6,082,789	19,325,920	0	25,408,709	0.0283	0.7916
410	2,102,722	20,736,590	0	22,839,311	0.0255	0.8171
420	1,062,611	17,934,548	0	18,997,159	0.0212	0.8383
430	594,596	20,962,549	0	21,557,145	0.0240	0.8623
440	896,287	20,179,258	0	21,075,545	0.0235	0.8858
450	345,800	22,139,275	0	22,485,075	0.0251	0.9109
460	561,670	15,356,245	0	15,917,916	0.0177	0.9286
470	202,275	17,818,137	0	18,020,412	0.0201	0.9487
480	110,165	12,645,112	0	12,755,277	0.0142	0.9629
490	120,245	9,591,312	0	9,711,557	0.0108	0.9738
500	341,282	9,047,205	0	9,388,486	0.0105	0.9842
510	31,388	5,509,157	0	5,540,546	0.0062	0.9904
520	179,219	3,427,445	0	3,606,664	0.0040	0.9944
530	0	3,013,708	0	3,013,708	0.0034	0.9978

Table E-6.--Continued

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
540	0	398,055	0	398,055	0.0004	0.9982
550	0	1,015,514	0	1,015,514	0.0011	0.9994
560	0	342,931	0	342,931	0.0004	0.9997
570	0	144,372	0	144,372	0.0002	0.9999
580	0	85,971	0	85,971	0.0001	1.0000
Total	432,178,764	464,680,063	129,197	896,988,024	1.0000	1.0000

Table E-7.--Population estimates by sex and size group for Greenland turbot from the 1995 eastern Bering Sea bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
100	0	28,381	37,591	65,972	0.0052	0.0052
110	20,605	0	116,359	136,963	0.0107	0.0159
120	0	0	17,998	17,998	0.0014	0.0173
140	0	31,716	0	31,716	0.0025	0.0198
200	29,852	0	0	29,852	0.0023	0.0221
230	35,059	0	0	35,059	0.0027	0.0248
240	55,164	0	0	55,164	0.0043	0.0292
250	0	77,947	0	77,947	0.0061	0.0353
280	64,911	0	0	64,911	0.0051	0.0403
290	30,914	30,914	0	61,828	0.0048	0.0452
300	145,678	0	0	145,678	0.0114	0.0566
310	15,429	0	0	15,429	0.0012	0.0578
320	0	88,654	0	88,654	0.0069	0.0647
340	0	29,417	0	29,417	0.0023	0.0670
350	30,914	0	0	30,914	0.0024	0.0694
360	107,799	35,059	0	142,858	0.0112	0.0806
370	64,911	29,852	0	94,763	0.0074	0.0880
380	103,505	62,630	0	166,135	0.0130	0.1010
390	285,133	144,676	0	429,810	0.0336	0.1346
400	151,708	119,537	0	271,246	0.0212	0.1558
410	170,434	44,974	0	215,408	0.0168	0.1727
420	64,911	89,921	0	154,831	0.0121	0.1848
430	121,526	121,293	0	242,819	0.0190	0.2038
440	189,759	121,986	0	311,745	0.0244	0.2282
450	143,426	64,911	0	208,337	0.0163	0.2445
460	244,082	62,630	0	306,712	0.0240	0.2685
470	341,095	374,705	0	715,800	0.0560	0.3244
480	218,686	215,104	0	433,790	0.0339	0.3584
490	234,389	316,370	0	550,759	0.0431	0.4015
500	313,869	224,519	0	538,389	0.0421	0.4436
510	156,696	70,165	0	226,861	0.0177	0.4613
520	197,082	114,759	0	311,841	0.0244	0.4857
530	141,881	267,088	0	408,969	0.0320	0.5177
540	273,381	219,288	0	492,670	0.0385	0.5562
550	28,575	263,766	0	292,341	0.0229	0.5791
560	76,943	264,059	0	341,001	0.0267	0.6058
570	230,614	80,602	0	311,217	0.0243	0.6301
580	57,150	95,067	0	152,217	0.0119	0.6420
590	0	92,649	0	92,649	0.0072	0.6493
600	23,737	60,993	0	84,730	0.0066	0.6559
610	121,060	0	0	121,060	0.0095	0.6654
620	65,215	0	0	65,215	0.0051	0.6705
630	28,575	57,992	0	86,567	0.0068	0.6772

Table E-7.--Continued

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
640	29,852	74,391	0	104,243	0.0082	0.6854
650	0	29,852	0	29,852	0.0023	0.6877
660	29,852	0	0	29,852	0.0023	0.6901
670	44,974	0	0	44,974	0.0035	0.6936
680	60,993	65,215	0	126,208	0.0099	0.7034
690	0	107,103	0	107,103	0.0084	0.7118
700	0	45,281	0	45,281	0.0035	0.7154
710	0	58,803	0	58,803	0.0046	0.7200
720	107,324	29,852	0	137,176	0.0107	0.7307
730	31,716	107,333	0	139,049	0.0109	0.7416
740	51,752	28,575	0	80,328	0.0063	0.7479
750	0	29,417	0	29,417	0.0023	0.7502
760	63,320	118,985	0	182,305	0.0143	0.7644
770	0	219,802	0	219,802	0.0172	0.7816
780	0	72,698	0	72,698	0.0057	0.7873
790	0	269,187	0	269,187	0.0211	0.8083
800	0	363,394	0	363,394	0.0284	0.8368
810	0	191,621	0	191,621	0.0150	0.8518
820	0	161,262	0	161,262	0.0126	0.8644
830	0	148,397	0	148,397	0.0116	0.8760
840	0	240,411	0	240,411	0.0188	0.8948
850	0	210,716	0	210,716	0.0165	0.9113
860	0	189,090	0	189,090	0.0148	0.9261
870	0	31,310	0	31,310	0.0024	0.9285
880	0	320,804	0	320,804	0.0251	0.9536
890	0	90,397	0	90,397	0.0071	0.9607
910	0	148,597	0	148,597	0.0116	0.9723
930	0	59,704	0	59,704	0.0047	0.9770
940	0	108,294	0	108,294	0.0085	0.9854
970	0	60,685	0	60,685	0.0047	0.9902
990	0	33,857	0	33,857	0.0026	0.9928
1010	0	91,674	0	91,674	0.0072	1.0000
Total	5,004,451	7,608,331	171,948	12,784,730	1.0000	1.0000

Table E-8.--Population estimates by sex and size group for arrowtooth flounder from the 1995 eastern Bering Sea bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
120	0	100,819	0	100,819	0.0001	0.0001
140	110,815	708,629	0	819,444	0.0012	0.0013
150	57,570	385,144	396,978	839,692	0.0012	0.0025
160	934,681	2,100,518	239,660	3,274,859	0.0047	0.0072
170	2,211,835	3,316,145	0	5,527,980	0.0079	0.0151
180	2,986,819	6,307,373	78,659	9,372,850	0.0134	0.0285
190	2,903,256	6,686,831	0	9,590,088	0.0137	0.0423
200	2,062,046	6,111,706	0	8,173,752	0.0117	0.0540
210	840,481	5,516,138	0	6,356,619	0.0091	0.0631
220	2,387,752	5,822,169	0	8,209,922	0.0118	0.0748
230	3,779,637	5,953,937	0	9,733,574	0.0139	0.0888
240	3,323,337	9,907,402	0	13,230,739	0.0189	0.1077
250	6,092,505	9,555,974	0	15,648,478	0.0224	0.1301
260	3,718,885	10,179,977	0	13,898,862	0.0199	0.1500
270	2,602,557	8,492,596	0	11,095,152	0.0159	0.1659
280	2,567,966	8,992,342	0	11,560,309	0.0166	0.1825
290	3,924,665	8,680,410	0	12,605,075	0.0181	0.2005
300	4,974,047	8,696,187	0	13,670,234	0.0196	0.2201
310	5,907,439	11,388,429	0	17,295,868	0.0248	0.2449
320	8,689,974	17,466,424	0	26,156,399	0.0375	0.2823
330	7,918,678	17,833,363	0	25,752,041	0.0369	0.3192
340	7,973,758	13,861,462	0	21,835,221	0.0313	0.3505
350	5,689,029	13,124,585	0	18,813,614	0.0269	0.3774
360	5,705,732	14,735,175	0	20,440,907	0.0293	0.4067
370	6,260,887	13,791,006	0	20,051,893	0.0287	0.4354
380	7,233,951	15,927,505	0	23,161,456	0.0332	0.4686
390	5,687,907	12,911,507	0	18,599,415	0.0266	0.4952
400	6,766,885	16,722,607	0	23,489,492	0.0336	0.5288
410	7,275,376	18,779,232	0	26,054,608	0.0373	0.5662
420	9,373,203	20,787,062	0	30,160,264	0.0432	0.6093
430	11,740,237	16,109,349	0	27,849,586	0.0399	0.6492
440	9,065,379	15,231,042	0	24,296,422	0.0348	0.6840
450	7,259,474	16,473,851	0	23,733,325	0.0340	0.7180
460	4,844,299	17,004,125	0	21,848,424	0.0313	0.7493
470	3,295,363	15,518,306	0	18,813,669	0.0269	0.7762
480	1,914,310	14,183,495	0	16,097,805	0.0231	0.7993
490	1,367,690	13,249,091	0	14,616,781	0.0209	0.8202
500	2,041,827	12,856,868	0	14,898,695	0.0213	0.8415
510	461,530	15,230,628	0	15,692,158	0.0225	0.8640
520	973,420	9,045,101	0	10,018,522	0.0143	0.8784
530	291,166	12,053,499	0	12,344,665	0.0177	0.8960
540	744,121	10,426,866	0	11,170,987	0.0160	0.9120
550	382,702	9,220,979	0	9,603,681	0.0138	0.9258

Table E-8.--Continued

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
560	668,481	10,069,985	0	10,738,465	0.0154	0.9412
570	604,777	4,999,754	0	5,604,530	0.0080	0.9492
580	448,549	6,862,760	0	7,311,309	0.0105	0.9597
590	0	5,057,246	0	5,057,246	0.0072	0.9669
600	0	4,840,732	0	4,840,732	0.0069	0.9738
610	0	4,444,110	0	4,444,110	0.0064	0.9802
620	0	4,294,908	0	4,294,908	0.0062	0.9864
630	0	3,669,761	0	3,669,761	0.0053	0.9916
640	33,845	1,955,388	0	1,989,233	0.0028	0.9945
650	0	1,124,715	0	1,124,715	0.0016	0.9961
660	0	906,805	0	906,805	0.0013	0.9974
670	0	477,636	0	477,636	0.0007	0.9981
680	0	611,353	0	611,353	0.0009	0.9989
690	0	104,253	0	104,253	0.0001	0.9991
700	0	73,994	0	73,994	0.0001	0.9992
710	0	233,278	0	233,278	0.0003	0.9995
720	88,555	30,259	0	118,814	0.0002	0.9997
730	0	218,418	0	218,418	0.0003	1.0000
Total	176,187,396	521,421,211	715,297	698,323,904	1.0000	1.0000

Table E-9.--Population estimates by sex and size group for Kamchatka flounder from the 1995 eastern Bering Sea bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
150	45,723	0	29,037	74,760	0.0021	0.0021
160	180,650	56,486	0	237,136	0.0068	0.0089
170	83,165	55,398	0	138,562	0.0039	0.0128
180	89,560	0	0	89,560	0.0026	0.0154
190	81,880	115,108	0	196,988	0.0056	0.0210
200	134,535	58,626	0	193,161	0.0055	0.0265
210	142,384	26,510	0	168,894	0.0048	0.0313
220	269,410	53,095	0	322,505	0.0092	0.0405
230	88,594	199,346	0	287,941	0.0082	0.0487
240	109,412	56,211	0	165,623	0.0047	0.0534
250	304,012	106,812	0	410,824	0.0117	0.0652
260	139,859	113,349	0	253,208	0.0072	0.0724
270	168,319	63,017	0	231,336	0.0066	0.0790
280	246,136	215,303	0	461,439	0.0132	0.0921
290	652,517	190,173	0	842,690	0.0240	0.1161
300	434,553	497,526	0	932,080	0.0266	0.1427
310	1,218,798	575,429	0	1,794,227	0.0511	0.1938
320	530,429	977,733	0	1,508,162	0.0430	0.2368
330	1,011,403	470,795	0	1,482,198	0.0422	0.2791
340	855,117	379,606	0	1,234,723	0.0352	0.3143
350	767,673	553,245	0	1,320,918	0.0376	0.3519
360	924,111	856,553	0	1,780,664	0.0508	0.4027
370	550,249	317,420	0	867,669	0.0247	0.4274
380	246,426	654,336	0	900,762	0.0257	0.4531
390	391,813	427,088	0	818,901	0.0233	0.4764
400	234,870	254,128	0	488,999	0.0139	0.4903
410	252,063	483,287	0	735,350	0.0210	0.5113
420	457,923	600,612	0	1,058,535	0.0302	0.5415
430	709,193	393,867	0	1,103,060	0.0314	0.5729
440	406,733	221,488	0	628,221	0.0179	0.5908
450	253,649	643,217	0	896,866	0.0256	0.6164
460	901,523	399,114	0	1,300,637	0.0371	0.6535
470	865,355	657,801	0	1,523,155	0.0434	0.6969
480	630,057	555,373	0	1,185,430	0.0338	0.7307
490	632,933	572,821	0	1,205,755	0.0344	0.7650
500	617,546	614,036	0	1,231,582	0.0351	0.8001
510	839,872	447,624	0	1,287,496	0.0367	0.8368
520	1,067,810	429,778	0	1,497,588	0.0427	0.8795
530	325,930	463,033	0	788,963	0.0225	0.9020
540	297,437	343,958	0	641,395	0.0183	0.9203
550	177,339	469,405	0	646,744	0.0184	0.9387
560	79,843	604,555	0	684,398	0.0195	0.9582
570	210,478	352,718	0	563,195	0.0161	0.9743

Table E-9.--Continued

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
580	68,482	50,381	0	118,863	0.0034	0.9777
590	0	29,771	0	29,771	0.0008	0.9785
600	0	139,623	0	139,623	0.0040	0.9825
610	133,271	235,855	0	369,126	0.0105	0.9930
620	0	65,660	0	65,660	0.0019	0.9949
630	0	25,190	0	25,190	0.0007	0.9956
650	0	26,547	0	26,547	0.0008	0.9963
660	0	65,800	0	65,800	0.0019	0.9982
680	0	62,420	0	62,420	0.0018	1.0000
Total	18,829,036	16,227,225	29,037	35,085,298	1.0000	1.0000

Table E-10.--Population estimates by sex and size group for Pacific halibut from the 1995 eastern Bering Sea bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
160	0	0	30,668	30,668	0.0008	0.0008
170	0	0	59,814	59,814	0.0015	0.0023
180	0	0	124,281	124,281	0.0032	0.0055
190	0	0	118,756	118,756	0.0030	0.0085
200	0	0	268,470	268,470	0.0069	0.0154
210	0	0	30,453	30,453	0.0008	0.0162
220	0	0	30,637	30,637	0.0008	0.0170
240	0	0	30,637	30,637	0.0008	0.0178
250	0	0	30,806	30,806	0.0008	0.0185
260	0	0	29,086	29,086	0.0007	0.0193
280	0	0	60,203	60,203	0.0015	0.0208
290	0	0	28,258	28,258	0.0007	0.0216
310	0	0	172,586	172,586	0.0044	0.0260
320	0	0	108,133	108,133	0.0028	0.0287
330	0	0	166,351	166,351	0.0043	0.0330
340	0	0	121,591	121,591	0.0031	0.0361
350	0	0	289,960	289,960	0.0074	0.0435
360	0	0	330,436	330,436	0.0085	0.0520
370	0	0	416,610	416,610	0.0107	0.0627
380	0	0	369,341	369,341	0.0095	0.0721
390	0	0	209,043	209,043	0.0054	0.0775
400	0	0	83,543	83,543	0.0021	0.0796
410	0	0	24,345	24,345	0.0006	0.0802
420	0	0	214,295	214,295	0.0055	0.0857
430	0	0	287,777	287,777	0.0074	0.0931
440	0	0	180,258	180,258	0.0046	0.0977
450	0	0	434,258	434,258	0.0111	0.1088
460	0	0	489,806	489,806	0.0125	0.1214
470	0	0	374,048	374,048	0.0096	0.1309
480	0	0	346,425	346,425	0.0089	0.1398
490	0	0	723,294	723,294	0.0185	0.1583
500	0	0	375,596	375,596	0.0096	0.1679
510	0	0	788,346	788,346	0.0202	0.1881
520	0	0	756,323	756,323	0.0194	0.2075
530	0	18,161	996,994	1,015,155	0.0260	0.2335
540	0	0	961,587	961,587	0.0246	0.2581
550	0	0	900,038	900,038	0.0230	0.2811
560	0	0	970,112	970,112	0.0248	0.3060
570	0	0	910,141	910,141	0.0233	0.3293
580	0	0	859,039	859,039	0.0220	0.3512
590	0	0	1,012,769	1,012,769	0.0259	0.3772
600	0	0	1,166,991	1,166,991	0.0299	0.4070
610	0	0	981,450	981,450	0.0251	0.4322

Table E-10.--Continued

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
620	0	0	993,633	993,633	0.0254	0.4576
630	0	0	1,029,473	1,029,473	0.0264	0.4840
640	0	0	1,422,191	1,422,191	0.0364	0.5204
650	0	0	1,145,076	1,145,076	0.0293	0.5497
660	0	0	1,272,073	1,272,073	0.0326	0.5822
670	0	0	1,088,959	1,088,959	0.0279	0.6101
680	0	0	969,986	969,986	0.0248	0.6350
690	0	0	975,676	975,676	0.0250	0.6599
700	0	0	1,330,507	1,330,507	0.0341	0.6940
710	0	0	1,208,794	1,208,794	0.0309	0.7249
720	0	0	928,626	928,626	0.0238	0.7487
730	0	0	655,958	655,958	0.0168	0.7655
740	0	0	682,435	682,435	0.0175	0.7830
750	0	0	776,836	776,836	0.0199	0.8029
760	0	0	787,021	787,021	0.0201	0.8230
770	0	0	629,042	629,042	0.0161	0.8391
780	0	0	604,545	604,545	0.0155	0.8546
790	0	0	261,612	261,612	0.0067	0.8613
800	0	0	401,711	401,711	0.0103	0.8716
810	0	0	292,467	292,467	0.0075	0.8791
820	0	0	269,327	269,327	0.0069	0.8860
830	0	0	439,628	439,628	0.0113	0.8972
840	0	0	127,395	127,395	0.0033	0.9005
850	0	0	237,064	237,064	0.0061	0.9065
860	0	0	154,336	154,336	0.0040	0.9105
870	0	0	485,827	485,827	0.0124	0.9229
880	0	0	217,828	217,828	0.0056	0.9285
890	0	0	217,733	217,733	0.0056	0.9341
900	0	0	114,552	114,552	0.0029	0.9370
910	0	0	110,816	110,816	0.0028	0.9398
920	0	0	121,224	121,224	0.0031	0.9429
930	0	0	168,686	168,686	0.0043	0.9473
940	0	0	90,667	90,667	0.0023	0.9496
950	0	0	84,886	84,886	0.0022	0.9518
960	0	0	113,675	113,675	0.0029	0.9547
970	0	0	92,843	92,843	0.0024	0.9570
980	0	0	87,556	87,556	0.0022	0.9593
990	0	0	128,844	128,844	0.0033	0.9626
1000	0	0	22,406	22,406	0.0006	0.9632
1010	0	0	55,463	55,463	0.0014	0.9646
1020	0	0	48,209	48,209	0.0012	0.9658
1030	0	0	58,580	58,580	0.0015	0.9673
1040	0	0	58,305	58,305	0.0015	0.9688
1050	0	0	143,184	143,184	0.0037	0.9725
1060	0	0	28,897	28,897	0.0007	0.9732

Table E-10.--Continued

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
1070	0	0	67,155	67,155	0.0017	0.9749
1080	0	0	45,848	45,848	0.0012	0.9761
1090	0	0	57,182	57,182	0.0015	0.9776
1100	0	0	142,789	142,789	0.0037	0.9812
1110	0	0	28,067	28,067	0.0007	0.9819
1120	0	0	27,168	27,168	0.0007	0.9826
1140	0	0	20,274	20,274	0.0005	0.9832
1180	0	0	27,361	27,361	0.0007	0.9839
1190	0	0	23,291	23,291	0.0006	0.9845
1220	0	0	27,916	27,916	0.0007	0.9852
1230	0	0	28,173	28,173	0.0007	0.9859
1240	0	0	62,623	62,623	0.0016	0.9875
1250	0	0	48,346	48,346	0.0012	0.9887
1270	0	0	75,188	75,188	0.0019	0.9907
1280	0	0	28,219	28,219	0.0007	0.9914
1290	0	0	28,615	28,615	0.0007	0.9921
1320	0	0	29,817	29,817	0.0008	0.9929
1340	0	0	20,356	20,356	0.0005	0.9934
1350	0	0	29,257	29,257	0.0007	0.9941
1360	0	0	40,130	40,130	0.0010	0.9952
1390	0	0	20,356	20,356	0.0005	0.9957
1420	0	0	39,620	39,620	0.0010	0.9967
1460	0	0	40,130	40,130	0.0010	0.9977
1470	0	0	28,759	28,759	0.0007	0.9985
1500	0	0	29,464	29,464	0.0008	0.9992
1610	0	0	30,280	30,280	0.0008	1.0000
Total	0	18,161	39,044,484	39,062,645	1.0000	1.0000