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2001 Bottom Trawl Survey of the Eastern Bering Sea Continental Shelf

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2001 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 2001, 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 a 20 × 20 nautical mile grid 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 and size composition of principal fish 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.

CONTENTS

INTRODUCTION

The eastern Bering Sea continental shelf supports one of the most productive groundfish fisheries in the world (Bakkala 1993). Since 1970, annual commercial catches of groundfish have ranged from 1.2 to 2.2 million metric tons (t) (North Pacific Fishery Management Council 1998). 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 aspera*) 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, through 1991 (1979, 1982, 1985, 1988, 1991) an extended survey was conducted, including hydroacoustic assessment of midwater pollock, bottom trawl sampling of the continental slope (the continental slope was not surveyed in 1994 or 1997 but was resumed in 2000), 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 2001 bottom trawl survey. The groundfish/crab survey and several ancillary projects were conducted from 19 May to 27 July by two U.S. vessels. Detailed information on principal crab species can be obtained by contacting L. Rugolo (NOAA/NMFS/AFSC P.O. Box 1638, Kodiak, AK 99615).

METHODS

Survey Area and Sampling Design

The standard station pattern for the eastern Bering Sea survey is based on a systematic 20 × 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 2001, 355 standard stations and 45 additional stations northwest of the standard pattern were successfully sampled. To further understand yellowfin sole ecology, 19 inshore stations were also examined (Fig. 1 and Appendix A).

Before the standard survey was started, a special effort was made to examine gear performance in regards to towing speed and lifting of the standard Bering Sea trawls' footrope (83-112 eastern otter trawl). Results from the yellowfin sole inshore stations and gear tests will be presented in subsequent publications. Of the 45 northwest stations, the 20 westernmost (Fig. 1) have been sampled annually since 1990 but are not yet considered to be part of the standard survey. The additional 25 stations were sampled in 2001 as a result of an industry request for additional information on snow crab (*Chionoecetes opilio*). For the purposes of this publication, only 2001 standard survey data are included.

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 1993). 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 sample strata, resulting in a total of 10 geographic strata. The overall sampling density for the entire survey area was one station per 1,305 km^2 (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 km^2 to one per 1,492 km^2.

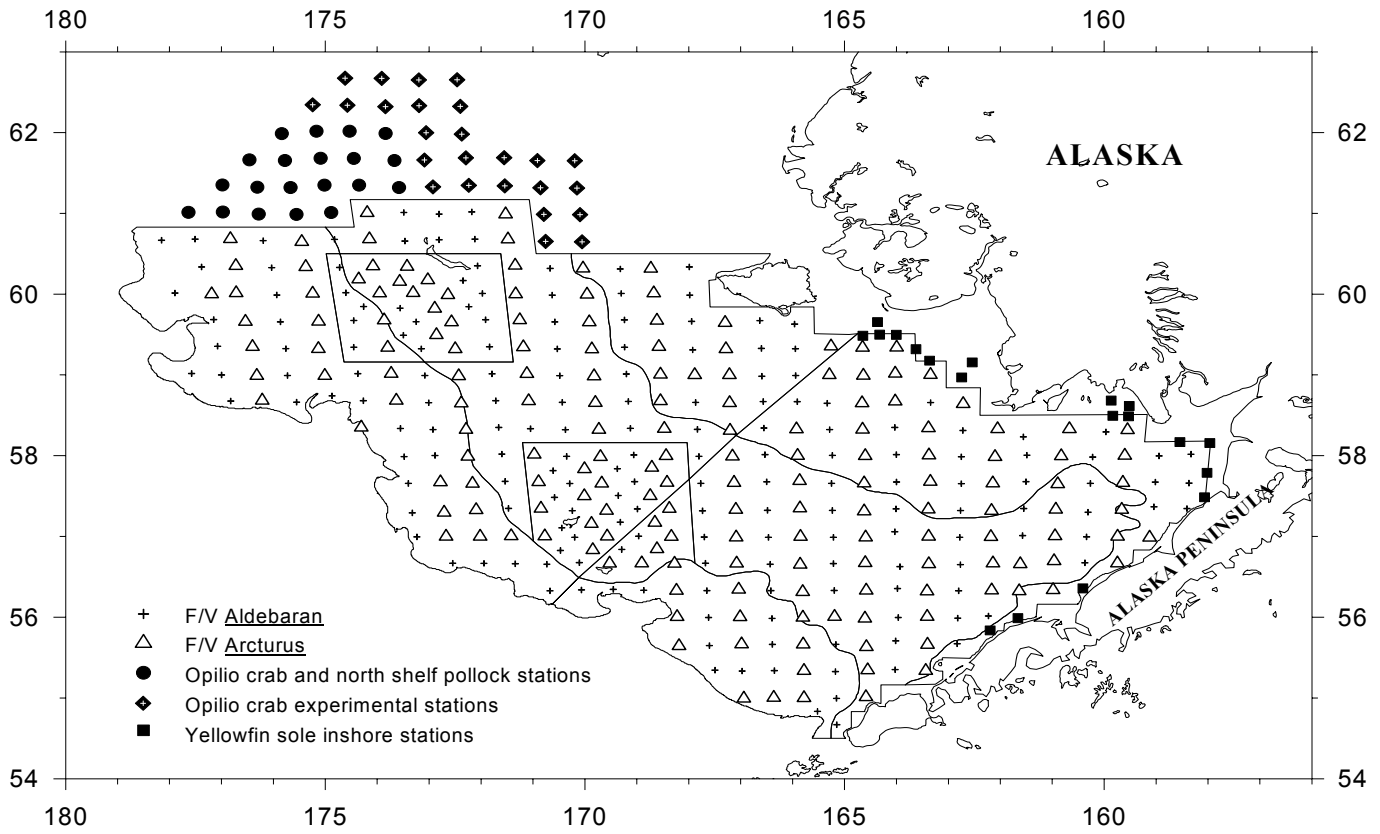

Figure 1.--Standard and special study stations sampled during the 2001 eastern Bering Sea bottom trawl survey, and stratifications used for the analysis of data.

Table 1.--Size of subareas and strata, and sampling densities for the 2001 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	30	1,368
3	103,300	77	1,342
(31)	94,526	69	1,370
(32)	8,774	8	1,097
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	26	1,492
6	94,562	67	1,411
(61)	88,134	60	1,469
(62)	6,429	7	918
Subareas Combined	463,374	355	1,305

Vessels and Fishing Gear

The 2001 eastern Bering Sea bottom trawl survey was conducted aboard the 40-m fishing vessels F/V *Arcturus* and F/V *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 dandylines. 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 × 2.7 m and weighing 816 kg were used.

Table 2.--Characteristics of vessels used during the 2001 eastern Bering Sea bottom trawl survey.

Vessel	Overall length (m)	Horsepower	Survey period	
			Start	Finish
F/V *Arcturus*	40	1,525	29 May	27 July
F/V *Aldebaran*	40	1,525	26 May	22 July

NETMIND[1] 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 dandylines, 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

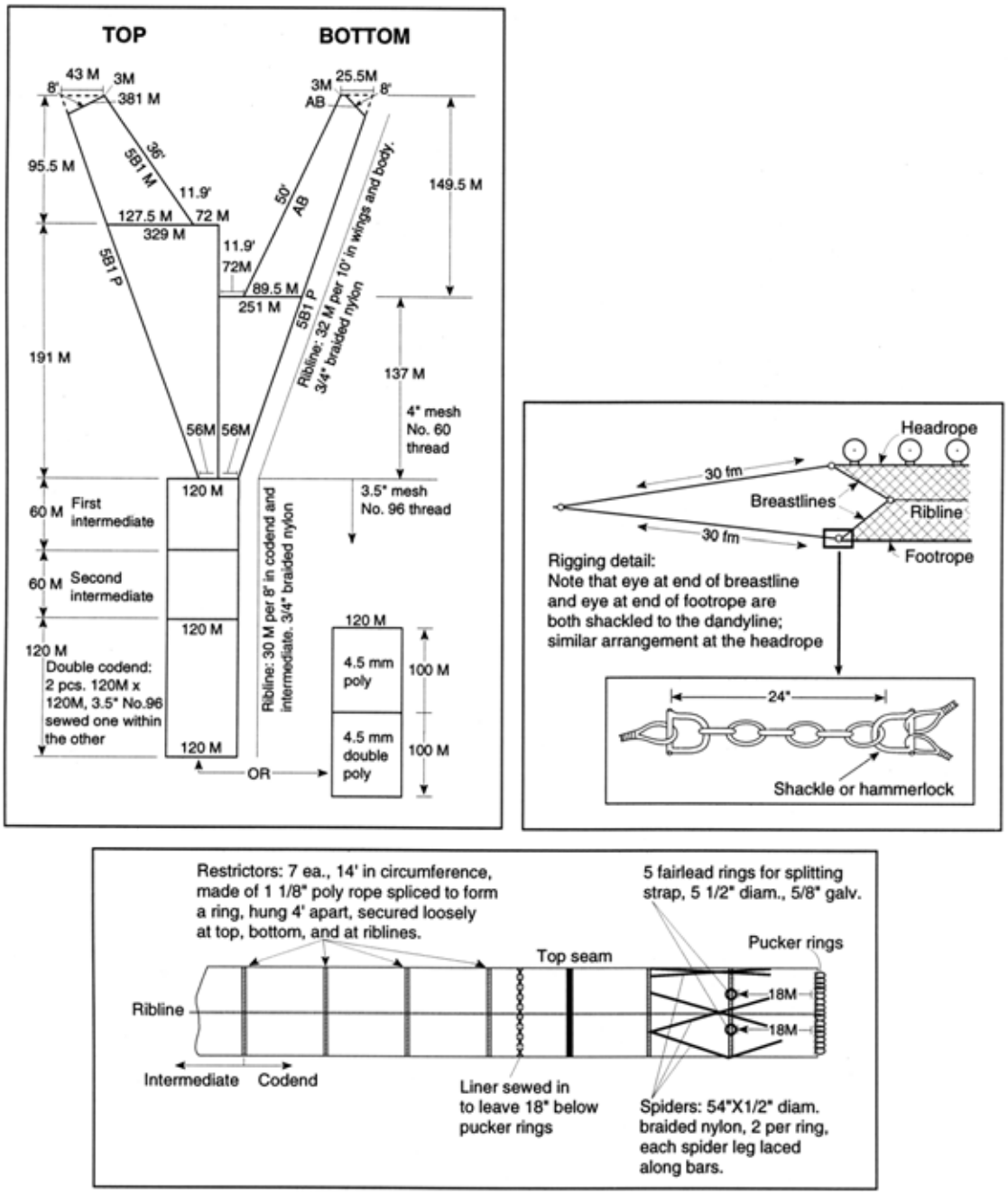

Figure 2.--Schematic diagram of trawl used during the 2001 eastern Bering Sea bottom trawl survey.

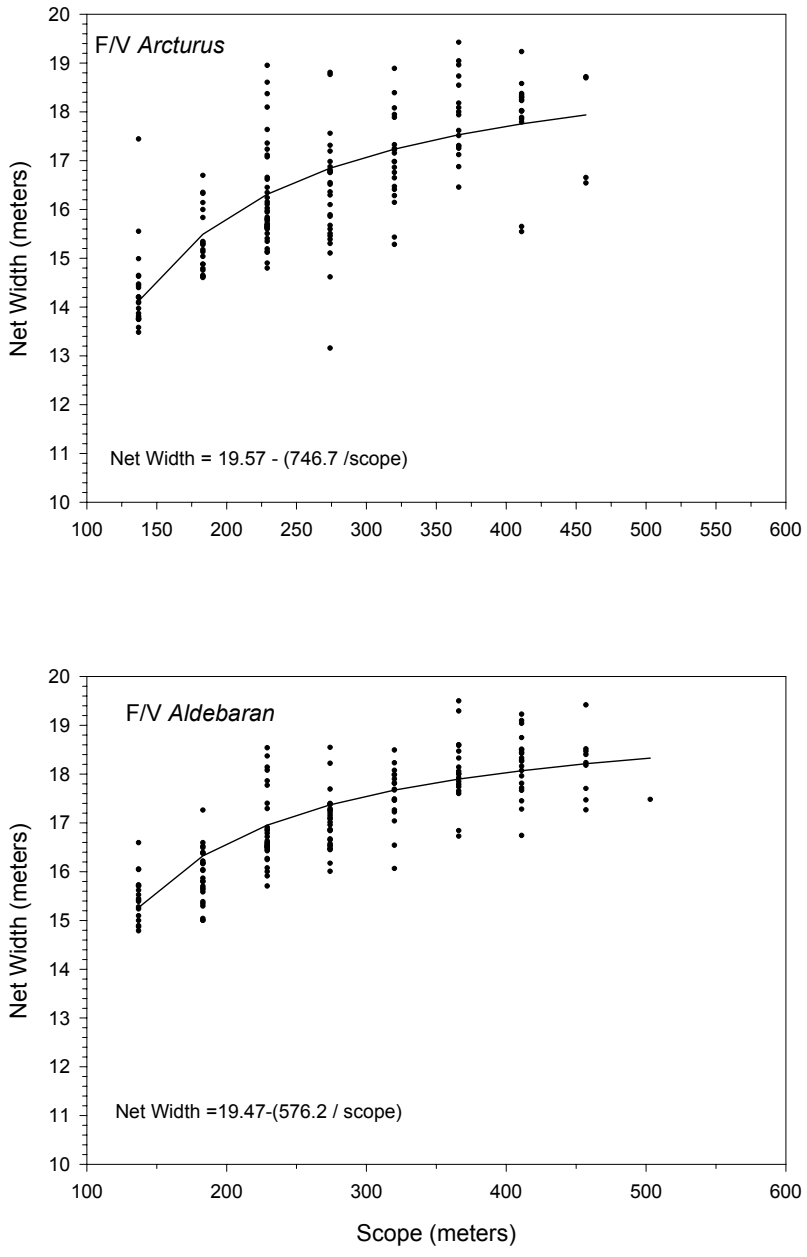

Figure 3.--Relationship between net-width and scope (wire-out) for vessels participating in the 2001 eastern Bering Sea survey.

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 × 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 and larger catches were subsampled. Economically important fish and invertebrates were sorted to species with the exception of four species of flatfish. Similar features between flathead sole (*Hippoglossoides elassodon*) and Bering flounder (*Hippoglossoides robustus*), made identification of these species (*Hippoglossoides* spp. in text and tables) difficult within the time constraints of the survey; thus, these species were grouped by genus for purposes of this report. Due to low abundance of southern rock sole (*Lepidopsetta bilineata*) and its morphological similarities to northern rock sole (*Lepidopsetta polyxystra*) (Orr and Matarese 2000) these species were also grouped by genus (*Lepidopsetta* spp.). 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,

P. camtschaticus and *P. platypus*, respectively), *Chionoecetes* (snow and Tanner crabs, *C. opilio* and *C. bairdi*, respectively), and *Erimacrus isenbeckii* (hair crab) were usually weighed and enumerated from the entire catch.

Size composition data were collected for each commercially important species and many co-habiting species (Table 3). Unless sampled by the International Pacific Halibut Commission (IPHC) for management purposes, 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 eleven 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, Greenland turbot, and *Lepidopsetta* spp., and five otolith 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. Aboard the F/V *Acturus*, Pacific halibut otoliths were collected by the IPHC for population and growth analyses. Individual fish weight data were collected for all species for which age structures were taken. In the case of *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; flatfish otoliths were preserved in 50% glycerol.

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

Table 3.--Number of length measurements taken during the 2001 eastern Bering Sea bottom trawl survey.

	Length measurements by subarea						
Species	1	2	3	4	5	6	Total[a]
Alaska plaice	2,108	2,659	1,882	3,985	---	255	12,403
Alaska skate	180	203	626	1,156	194	606	3,220
Aleutian skate	---	---	---	---	5	---	5
Arctic cod	---	201	---	18	---	1	758
Atka mackerel	---	---	---	---	1	---	1
Bering flounder	6	14	---	721	---	64	3,108
Bering skate	---	---	22	6	102	63	193
Dover sole	---	---	---	---	2	---	2
Greenland turbot	---	---	7	18	1	161	274
Kamchatka flounder	5	---	113	77	241	674	1,111
Pacific cod	4,557	944	5,469	5,675	353	1,621	19,121
Pacific halibut	816	99	321	323	60	174	1,802
Pacific herring	---	---	---	---	---	---	1
Pacific ocean perch	---	---	---	---	---	3	3
Sakhalin sole	---	---	---	6	---	---	514
arrowtooth flounder	80	---	2,483	793	2,998	2,308	8,663
big skate	---	---	3	---	---	---	3
bigmouth sculpin	---	---	22	40	15	79	159
butter sole	33	---	11	---	---	---	44
chum salmon	---	---	---	1	---	---	1
flathead sole	724	24	3,814	2,817	3,186	5,834	16,734
great sculpin	67	4	76	102	1	57	347
longhead dab	1,101	310	18	---	---	---	1,430
northern rock sole	7,333	3,405	7,523	9,371	108	1,806	30,323
northern rockfish	---	---	---	---	31	---	31
plain sculpin	931	586	13	56	---	---	1,693
rex sole	8	---	125	2	1,339	352	1,826
sablefish	1	---	15	---	2	---	18
saffron cod	1	---	---	---	---	---	1
southern rock sole	---	---	9	---	---	---	9
starry flounder	466	77	13	3	---	---	559
walleye pollock	3,312	1,324	11,343	15,011	2,479	10,714	46,997
warty sculpin	42	50	30	162	---	17	334
yellowfin sole	8,611	4,306	6,954	6,630	2	---	27,677

[a]Some length measurements were collected outside the standard survey area.

Table 4.--Number of fish in which age structures (otoliths and/or scales, thorns and/or vertebrae) were collected, by species and subarea, during the 2001 eastern Bering Sea bottom trawl survey.

	Subarea						
Species	1	2	3	4	5	6	Total[a]
walleye pollock	200	43	506	505	128	229	1627
Pacific halibut[c]	564	32	145	93	29	68	1001
Pacific cod[b]	287	---	196	274	48	121	948
yellowfin sole	175	202	140	87	---	---	675
flathead sole	61	---	122	59	44	251	537
northern rock sole	118	50	87	119	---	44	418
Alaska plaice	51	78	70	115	---	14	339
Greenland turbot	---	---	3	16	---	129	217
longhead dab	171	34	---	---	---	---	205
Arctic cod	---	---	---	---	---	---	50
starry flounder	36	---	---	---	---	---	36

[a]Some age structures were collected outside the standard survey area.
[b]Scales were also taken.
[c]Age structure collection analyzed and managed by the International Pacific Halibut Commission (IPHC)

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 forty-nine stations sampled by the two vessels during the standard survey (Fig. 1) 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.

Except for Pacific halibut, otolith and scale samples collected during the survey were read by staff of the Age and Growth Program of the AFSC's Resource Ecology and Fisheries

Management (REFM) Division. Age, growth and population analyses will be presented in subsequent publications.

Special Studies

Stomach samples from several of the most prevalent commercial species in each haul were collected and preserved in 10% formalin for later examination by REFM's Food Habits Task (Table 5).

Specimens of bigmouth sculpin (*Hemitriptrus bolini*) egg masses and ovaries were collected to further describe the species' development and life history.

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

Table 5.--Biological fish samples collected for special studies during the 2001 eastern Bering Sea bottom trawl survey.

Species	Stomach samples collected [a]	Pathology samples[b]
Walleye pollock	2,813	
Pacific cod	2,433	
Atheresthes spp.	518	
Bathyraja spp.	868	
Red king crab		93
Blue king crab		20
Golden king crab		1
Chionoecetes bairdi		714
Chionoecetes opilio		757

[a]Detailed information on species collected for food habits studies can be obtained from P. Livingston (NOAA/NMFS/AFSC 7600 Sand Point Way NE, Seattle, WA 98115).
[b]Detailed information on species collected for pathology studies can be obtained from F. Morado (NOAA/NMFS/AFSC 7600 Sand Point Way NE, Seattle, WA 98115).

RESULTS

Station Data

Station data from the 2001 survey are listed in Appendix A. Relevant information such as position, tow parameters (net width, depth, distance fished, and duration of tow), time, and environmental measurements (surface and gear temperatures) 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 0.8° to 8.6° 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 -1.3° to 7.1° C (Fig. 5). The warmest temperatures (above 3.0° C) occurred in shallow waters along the northern portion of Bristol Bay, the southern central shelf, and north of St. George's 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 2001 was 2.7° C (Fig. 6). Historically, this was well within the values recorded for mean summer bottom water temperatures in the standard survey area since 1981 (annual mean temperatures range from 0.8° to 5.1° C; average of annual means is 2.6° 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 2001 value for this area was 3.1° C, equal to the long-term average (3.1° C) (Fig. 6).

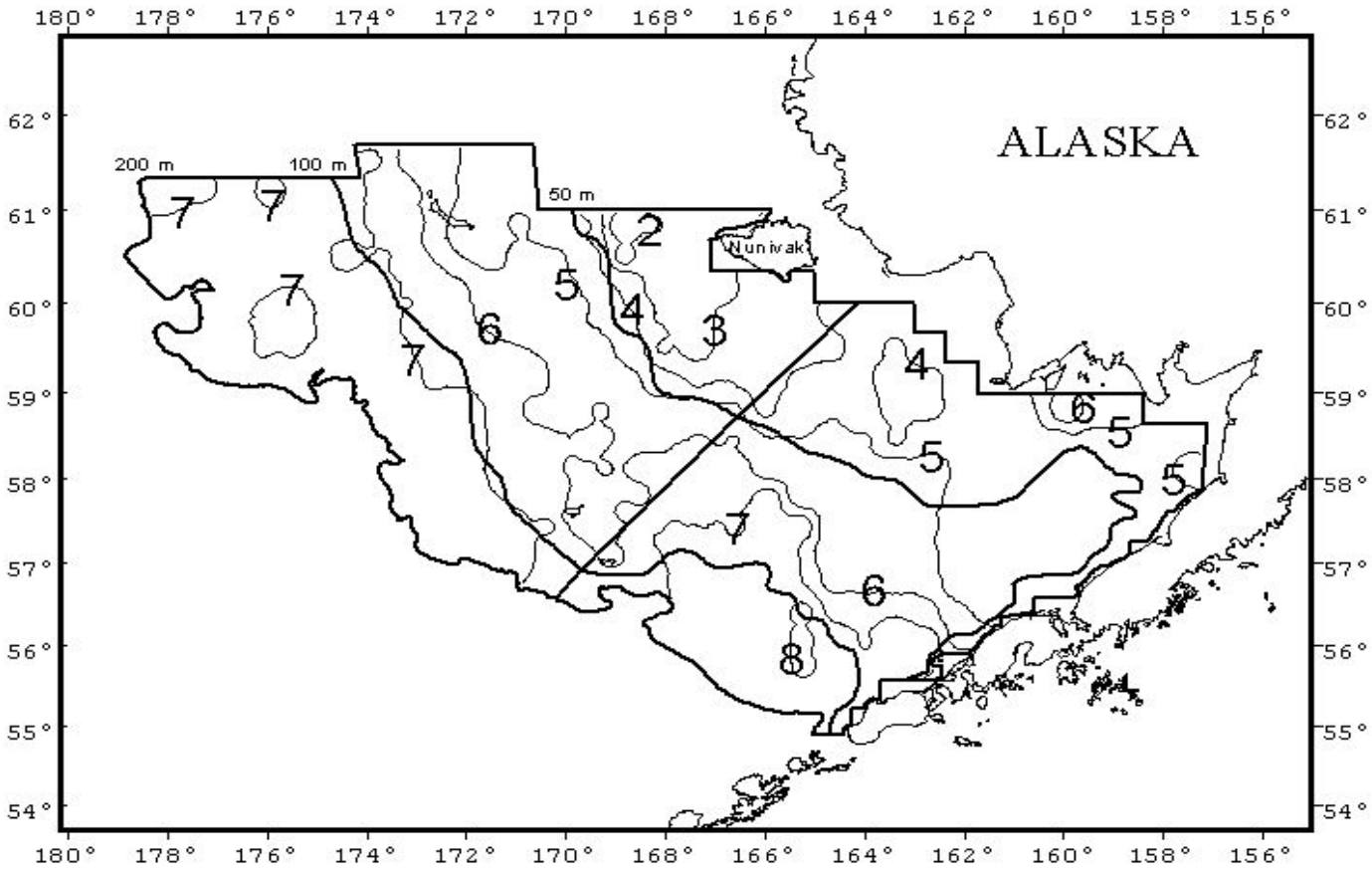

Figure 4.--Distribution of surface water temperatures (°C) observed during the 2001 eastern Bering Sea bottom trawl survey.

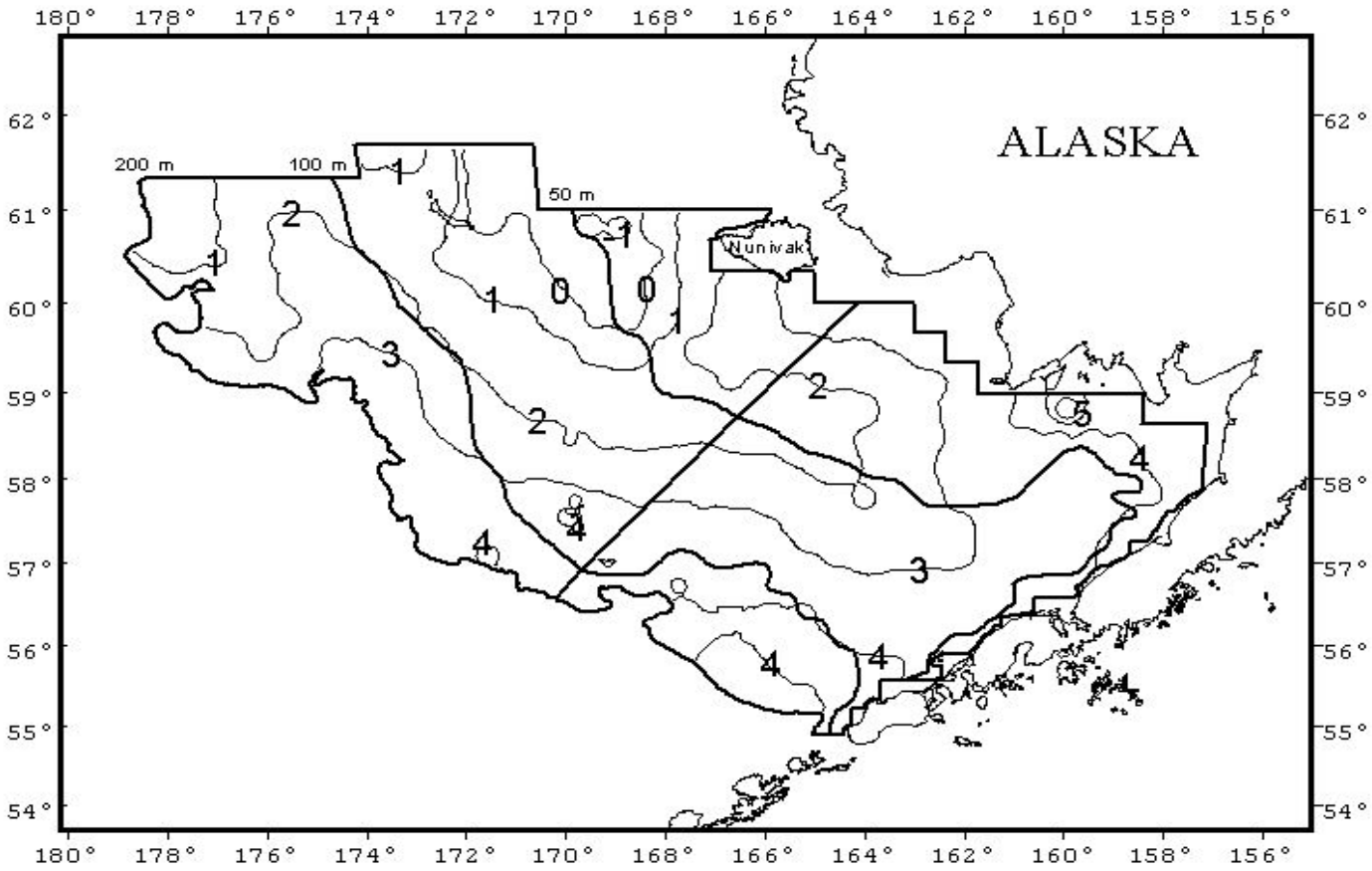

Figure 5.--Distribution of bottom water temperatures (°C) observed during the 2001 eastern Bering Sea bottom trawl survey.

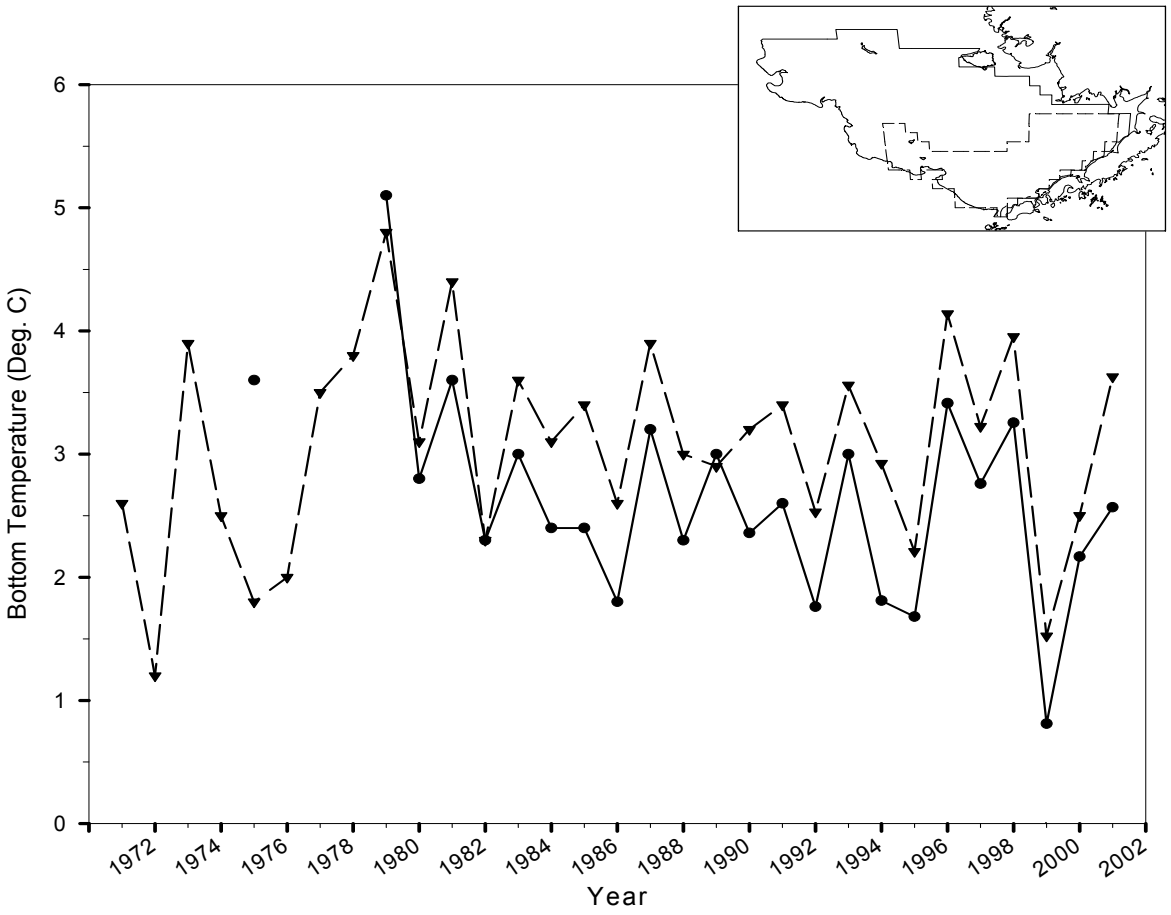

Figure 6.--Mean summer bottom water temperatures based on expendable bathythermograph casts or micro-bathythermographs attached to the net headrope during Alaska Fisheries Science Center bottom trawl surveys. The 1971-2001 means (dashed line) are from the southeast Bering Sea (see insert) and the 1975 and 1979-2001 (solid line) 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 May through early August.

Relative Fishing Powers of Survey Vessels

A total of 349 alternate-row tows were used in the comparison of vessel catch rates with the methods developed by Kappenman (1992). Based on this analysis, the F/V *Arcturus* was more efficient than the F/V *Aldebaran* at capturing Pacific halibut, yellowfin sole, *Lepidopsetta* spp. and Pacific cod. 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 in 2001, and scaling factors determined by the method of Kappenman (1992) based on 349 total hauls.

Species	Hauls with catch		Catch multiplier	
	F/V *Arcturus*	F/V *Aldebaran*	F/V *Arcturus*	F/V *Aldebaran*
Pacific halibut	127	127	1.00	1.10
yellowfin sole	128	115	1.00	1.30
Lepidopsetta spp.	160	155	1.00	1.08
Pacific cod	169	165	1.00	1.05

Estimated Biomass of Major Fish and Invertebrate Groups

Total demersal animal biomass for the overall survey area was estimated at 14.7 million t, of which fish species accounted for 79% (11.6 million t, Table 7), and invertebrates 21% (3.0 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 86 species of fish were identified in the catches (Appendix B), the fish biomass was dominated by cods (Gadidae, 5.0 million t) and flatfish (Pleuronectidae, 6.0 million t) (Table 7). The biomass of invertebrates was comprised primarily of the phyla Echinodermata (1.1 million t), Crustacea (0.61 million t), and Porifera (0.44 million t). A total of 200 invertebrate species from 11 phyla were identified in the survey (Table 8, Appendix B).

Relative Abundance of Individual Fish Species

Relative abundance (not weighted by area) of the 11 most abundant species and species groups of fish are shown in Figure 8. These taxa accounted for 63% (199.3 kg/ha) of total animal mean CPUE (315.1 kg/ha) and 80% of total fish mean CPUE (249.6 kg/ha). Overall, but particularly in water deeper than 50 m, walleye pollock was the dominant species in the catch with a mean CPUE of 88.3 kg/ha. Pacific cod were consistently abundant in the 50-100 m depth zone with an overall mean CPUE of 18.2 kg/ha. Yellowfin sole and *Lepidopsetta* spp., with overall mean catch rates of 39.3 kg/ha and 53.5 kg/ha, respectively, dominated catches in water less than 50 m. Yellowfin sole and *Lepidopsetta* spp. were also prominent on the mid-shelf waters between the 50-m and the 100-m isobaths 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 2001 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	4,139,351	± 16%	0.281	196,928	81,120	1,018,292	859,869	132,596	1,850,545
Pacific cod	830,479	± 18%	0.056	118,180	19,820	199,946	299,807	22,655	170,071
Other cods	928	± 117%	0.000	2	876	0	47	0	2
Total cods	4,970,758	± 14%	0.338	315,111	101,816	1,218,238	1,159,724	155,251	2,020,618
Anoplopomatidae									
Sablefish	434	± 76%	0.000	32	0	324	0	77	0
Scorpaenidae (rockfish)									
Pacific ocean perch	83	± 139%	0.000	0	0	0	0	30	53
Other rockfish	973	± 185%	0.000	0	0	0	0	973	0
Total rockfish	1,056	± 172%	0.000	0	0	0	0	1,004	53
Pleuronectidae (flatfishes)									
Yellowfin sole	1,855,166	± 14%	0.126	841,236	281,573	521,901	210,322	105	29
Rock sole	2,415,133	± 23%	0.164	1,194,775	249,139	343,082	572,342	3,281	52,513
Hippoglossoides spp.	514,023	± 21%	0.035	20,881	899	161,192	83,102	59,298	188,652
Alaska plaice	538,319	± 25%	0.037	55,970	91,163	125,222	237,868	0	28,095
Arrowtooth flounder	377,737	± 18%	0.026	672	0	97,963	15,004	107,567	156,530
Kamchatka flounder	31,109	± 18%	0.002	8	0	3,039	3,878	3,266	20,917
Greenland turbot	25,311	± 38%	0.002	0	0	1,158	2,895	293	20,966
Pacific halibut	147,154	± 13%	0.010	35,925	9,975	26,392	27,612	11,704	35,547
Other flatfish	78,293	± 32%	0.005	52,343	2,895	3,403	283	12,938	6,430
Total flatfish	5,982,245	± 12%	0.406	2,201,810	635,644	1,283,351	1,153,307	198,453	509,680
Clupeidae									
Pacific herring	44,457	± 140%	0.003	41,555	815	1,871	192	0	24
Cottidae (sculpins)	143,368	± 22%	0.010	39,628	15,770	22,835	28,791	2,630	33,715
Zoarcidae (eelpouts)	34,563	± 22%	0.002	0	163	8,884	8,533	368	16,616
Osmeridae (smelts)	5,387	± 30%	0.000	1,507	248	1,571	5	2,057	0
Agonidae (poachers)	17,128	± 15%	0.001	6,823	2,578	4,995	2,542	152	40
Cyclopteridae (snailfishes)	3,911	± 62%	0.000	138	882	15	2,220	43	613
Rajidae (skates)	419,740	± 12%	0.029	32,310	34,539	65,030	108,861	47,713	131,286
Other fish	5,249	± 52%	0.000	1,213	6	163	406	1,028	2,433
Total fish	11,628,296	± 9%	0.790	2,640,126	792,460	2,607,277	2,464,579	408,776	2,715,078

[a]Differences in sums of estimates and totals are due to rounding
[b]Proportion of total estimated biomass, fish and invertebrates combined, for the total survey area. Total estimated biomass=14,716,844 t.

Table 8.--Biomass estimates(t) for major invertebrate species and invertebrate groups taken during the 2001 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)	250,300 ± 30%	0.017	1,873	2,516	27,828	133,756	19,729	64,597
Lithodes sp. king crab	60 ± 198%	0.000	0	0	0	0	0	60
Paralithodes sp. (king crab)	72,261 ± 46%	0.005	17,668	604	32,414	21,560	0	14
Erimacrus isenbeckii (hair crab)	2,140 ± 38%	0.000	185	900	564	492	0	0
Paguridae hermit crab	264,217 ± 12%	0.018	27,295	14,932	90,911	75,893	6,058	49,128
Other crab	14,911 ± 56%	0.001	3,663	1,823	2,395	6,567	255	208
Total crab	603,889 ± 14%	0.041	50,684	20,775	154,113	238,268	26,042	114,008
Shrimps	1,762 ± 48%	0.000	12	22	27	146	198	1,358
Other crustaceans	1,118 ± 83%	0.000	488	0	11	352	74	193
Total crustaceans	606,770 ± 14%	0.041	51,184	20,797	154,150	238,767	26,314	115,558
Mollusca								
Gastropoda (snails)	322,562 ± 15%	0.022	31,735	11,241	103,229	73,507	6,636	96,214
Pelecypoda (bivalves)	9,447 ± 54%	0.001	586	245	6,406	874	639	696
Squids	316 ± 75%	0.000	0	0	0	0	285	31
Octopuses	5,357 ± 68%	0.000	0	0	57	137	72	5,091
Other mollusks	0 ± 0%	0.000	0	0	0	0	0	0
Total mollusks	337,682 ± 15%	0.023	32,321	11,486	109,693	74,518	7,632	102,033
Echinodermata								
Asteroidea (starfish)	856,907 ± 12%	0.058	387,056	56,418	159,657	123,790	2,527	127,459
Ophiuroidea (brittle stars)	253,538 ± 30%	0.017	7,127	2,869	61,018	37,089	534	144,902
Echinoidea (sea urchin)	8,276 ± 65%	0.001	49	0	2,313	1,132	3,372	1,410
Holothuroidea (sea cucumbers)	15,227 ± 86%	0.001	5,850	0	7,130	2,231	17	0
Total echinoderms	1,134,458 ± 12%	0.077	400,120	59,321	230,309	164,448	6,489	273,770
Ascidiacea	280,959 ± 32%	0.019	51,496	26,822	101,608	100,984	5	44
Porifera (sponges)	435,629 ± 85%	0.030	1,504	0	431,835	1,463	107	721
Coelenterata	120,276 ± 15%	0.008	8,402	3,926	46,747	42,296	13,692	5,213
Other invertebrates	173,283 ± 19%	0.012	29,561	11,001	70,784	41,104	1,416	19,417
Total invertebrates	3,088,548 ± 14%	0.210	574,550	133,318	1,144,934	663,373	55,616	516,756

[a]Differences in sums of estimates and totals are due to rounding
[b]Proportion of total estimated biomass, fish and invertebrates combined, for the total survey area. Total estimated biomass=14,716,844t.

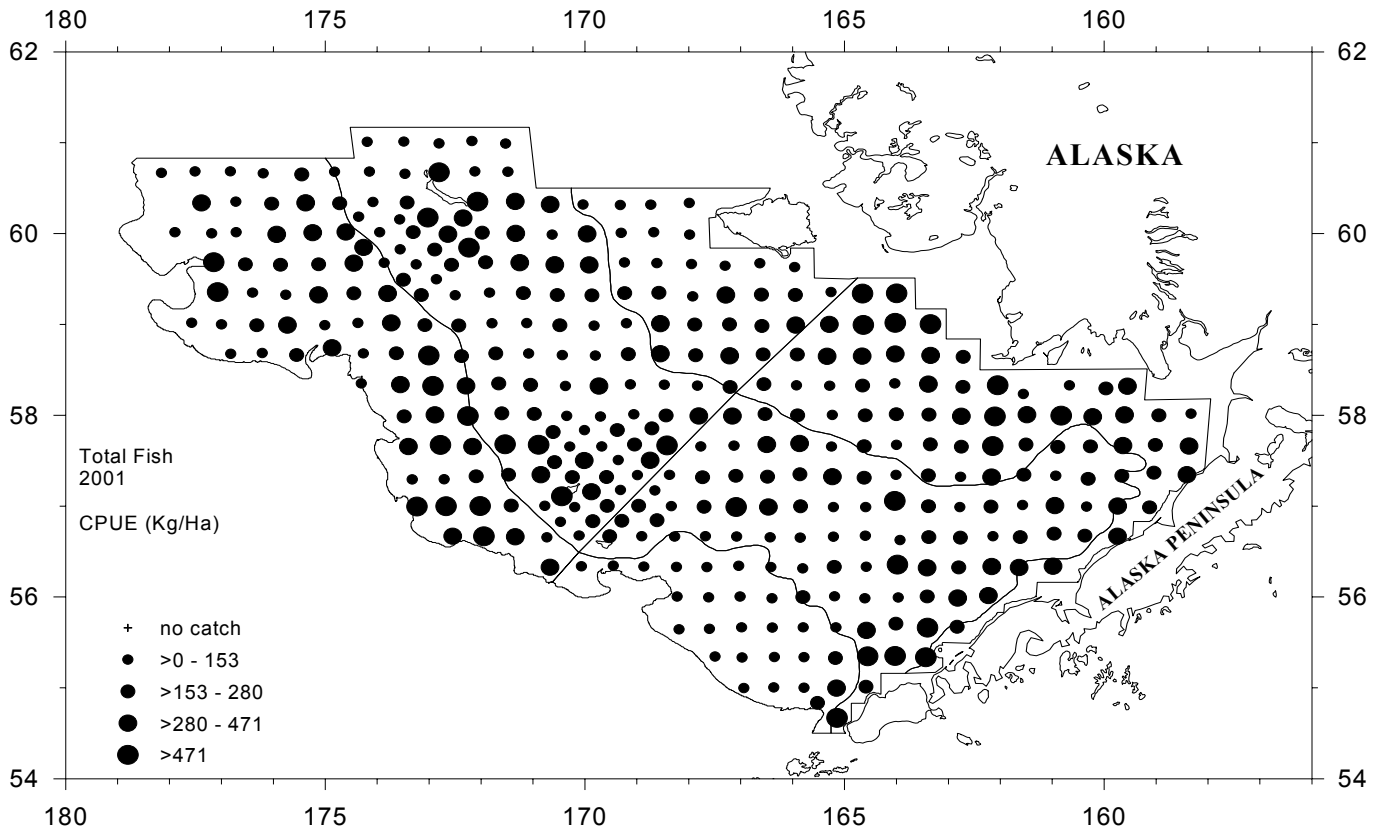

Figure 7.--Distribution and relative abundance of total fish, 2001 eastern Bering Sea bottom trawl survey.

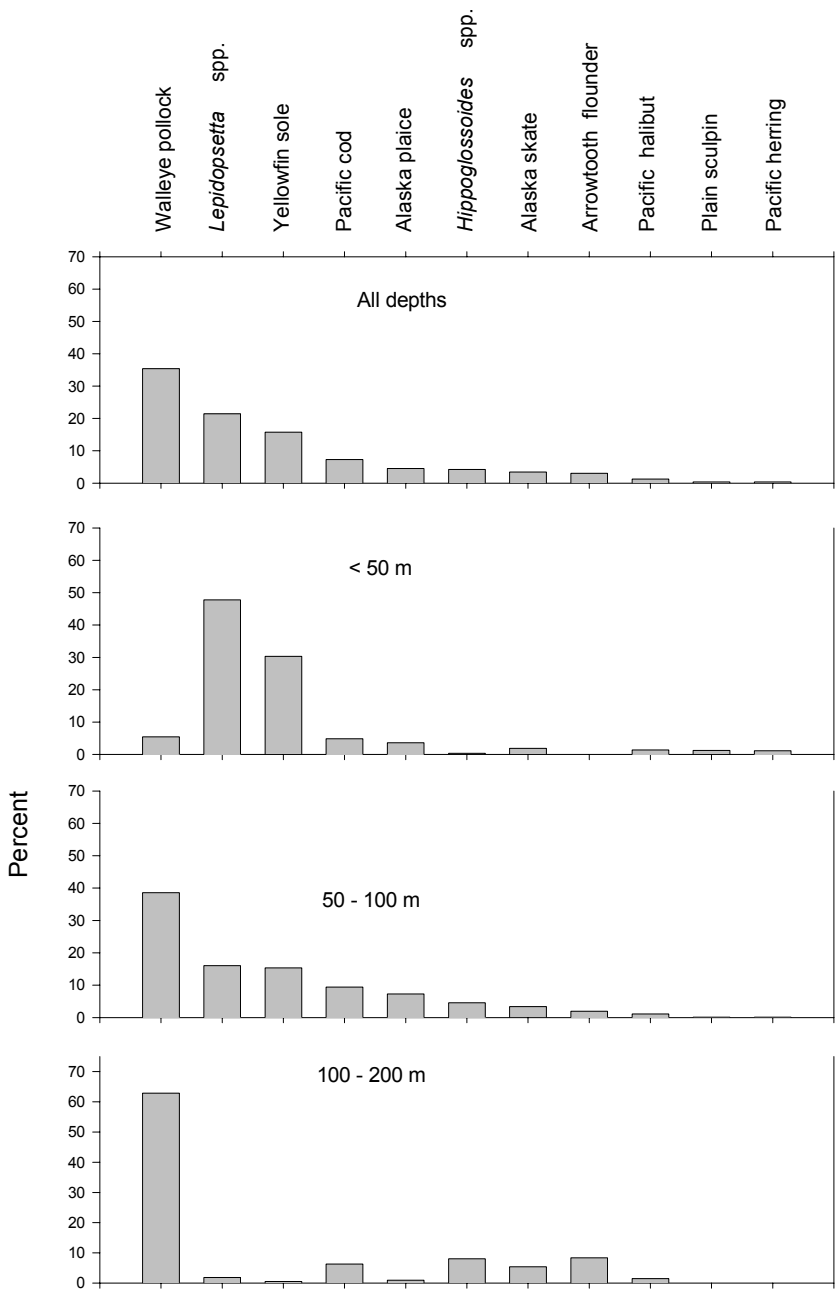

Figure 8.--Relative abundance (% CPUE in kg/ha) of principal groundfish species (top 11 for all depths combined) by depth zones and for all depths combined, 2001 eastern Bering Sea bottom trawl survey.

Abundance, Distribution, and Size 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, *Lepidopsetta* spp., *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 by one centimeter interval of length for each subarea and in population numbers for the total survey area. Age data and growth parameters will be presented at a later date in separate reports. Geographical distributions for some common, but generally noncommercial fish species are also presented. These species are Bering skate (*Bathyraja interrupta*), Alaska skate (*B. parmifera*), warty sculpin (*Myoxocephalus verrucosus*), great sculpin (*M. 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 (*Occella dodecaedron*), eulachon (*Thaleichthys pacificus*), capelin (*Mallotus villosus*), and Pacific herring (*Clupea pallasi*). Biomass and population estimates as well as mean weight per individual are given by subarea and total area. These tables are not provided 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 of their distribution are shown to give some idea of geographic distribution.

Appendices to the report contain detailed results of the survey. 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.

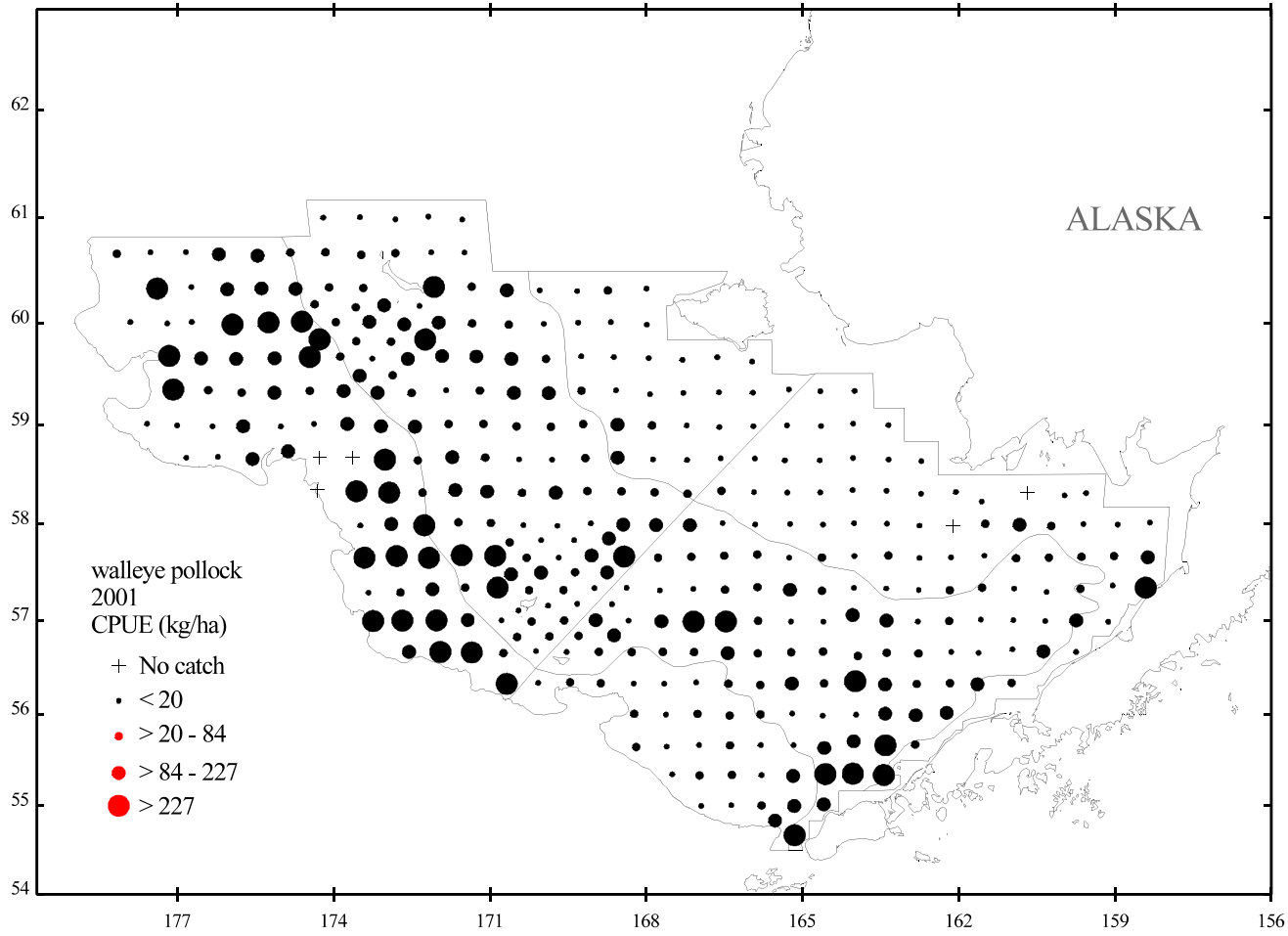

Figure 9.-- Distribution and relative abundance in kg/ha of walleye pollock, 2001 eastern Bering Sea bottom trawl survey.

Table 9.--Abundance estimates and mean size of walleye pollock by subarea, 2001 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	25.29	196,928	0.048	352,953,265	0.046	0.558	31.1
2	19.77	81,120	0.020	91,599,508	0.012	0.886	44.2
3	98.58	1,018,292	0.246	2,272,383,985	0.296	0.448	32.9
4	79.75	859,869	0.208	1,632,295,873	0.213	0.527	37.8
5	34.18	132,596	0.032	140,553,381	0.018	0.943	48.3
6	195.70	1,850,545	0.447	3,178,410,903	0.414	0.582	41.2
All subareas combined[b]	89.33	4,139,351	1.000	7,668,196,915	1.000	0.540	37.7
95% Confidence interval		±668,410		±1,383,997,515			

[a]Variances of abundance estimates are given in Appendix D.
[b]Differences in sums of estimates and totals are due to rounding.

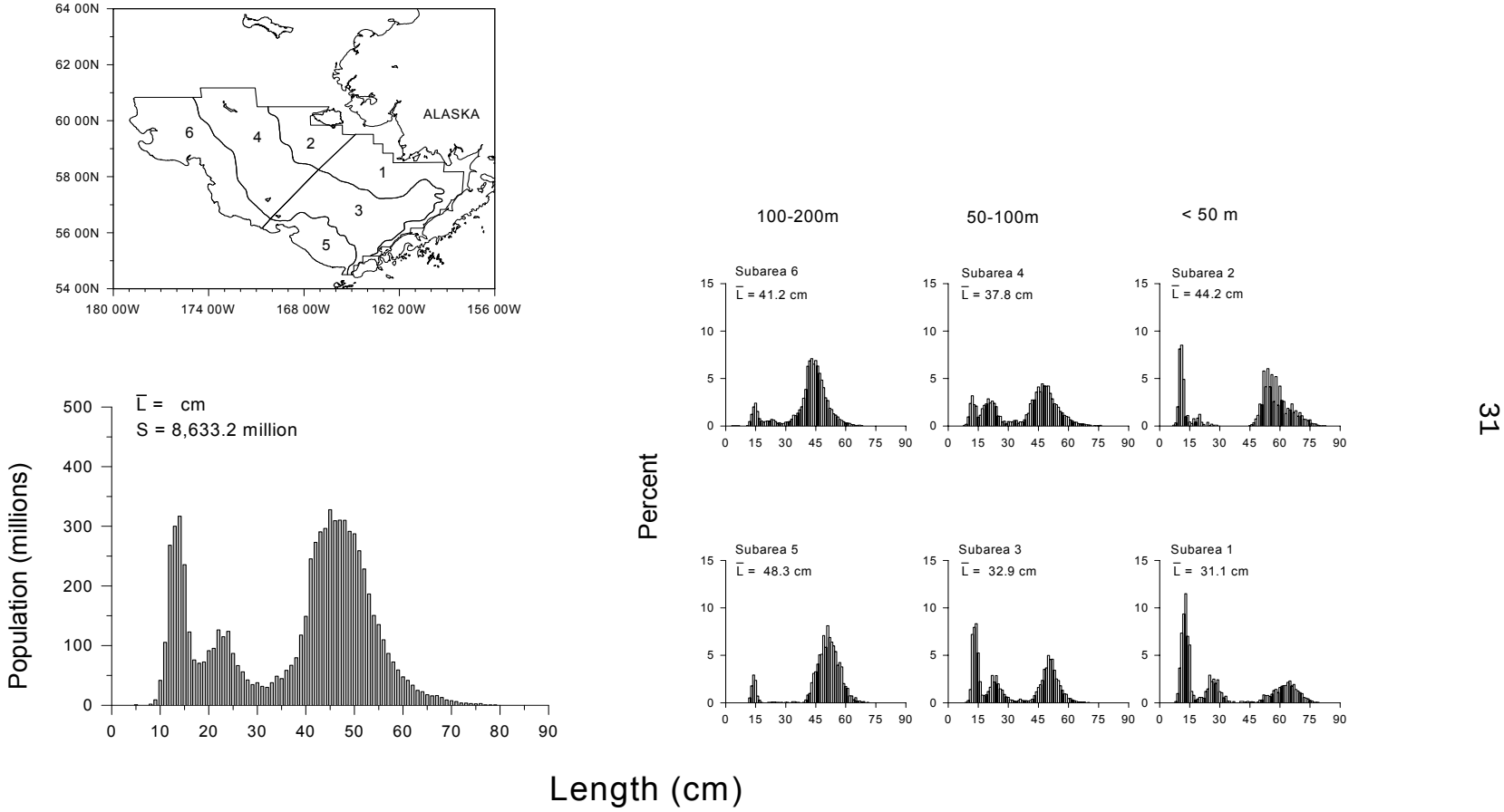

Figure 10.--Estimated relative size distribution (sexes combined) of walleye pollock in terms of population numbers and percent for subareas 1-6, 2001 eastern Bering Sea bottom trawl survey.

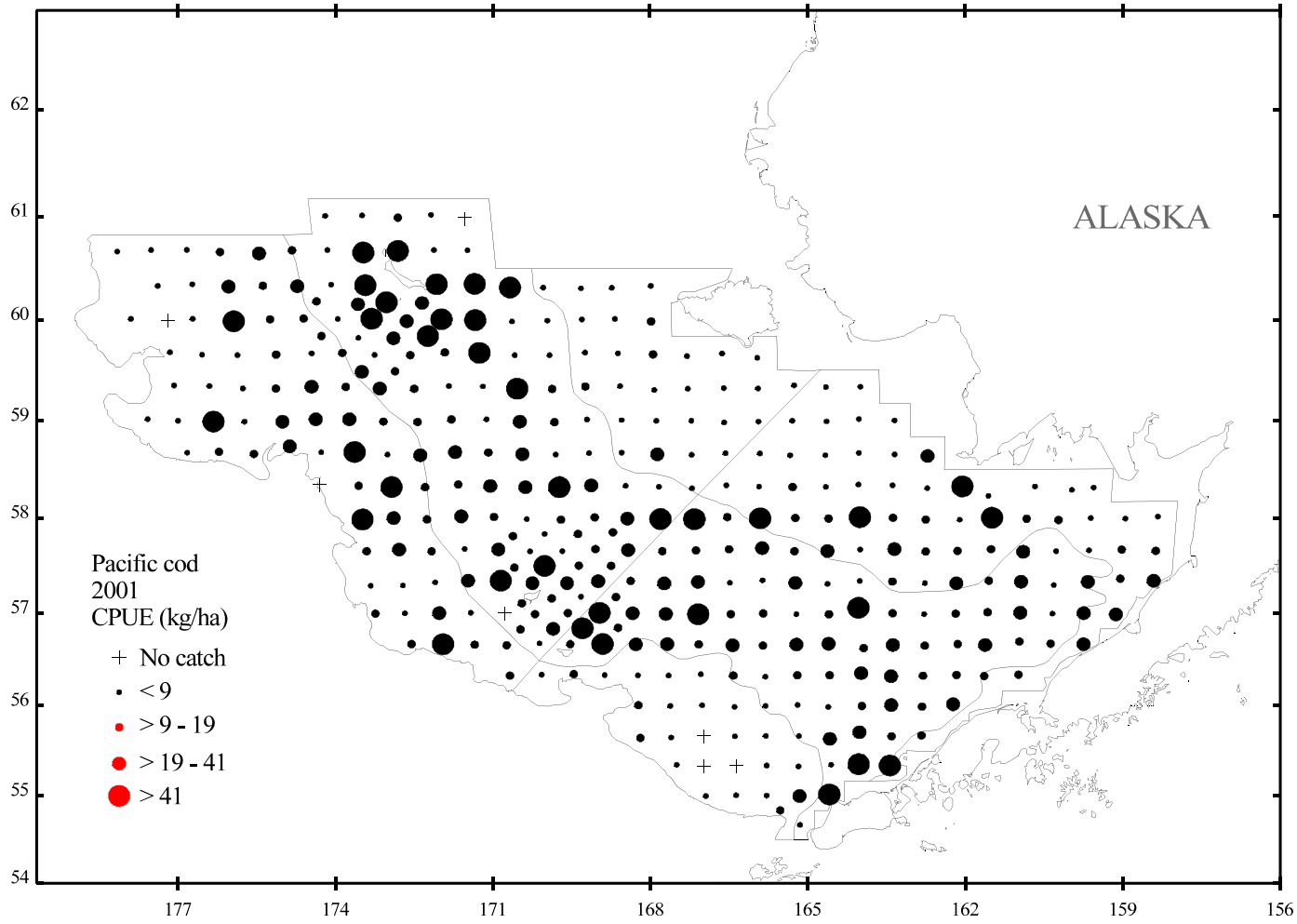

Figure 11.-- Distribution and relative abundance in kg/ha of Pacific cod, 2001 eastern Bering Sea bottom trawl survey.

Table 10.--Abundance estimates and mean size of Pacific cod by subarea, 2001 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	15.18	118,180	0.142	281,373,347	0.287	0.420	27.9
2	4.83	19,820	0.024	38,528,606	0.039	0.514	27.3
3	19.36	199,946	0.241	262,883,902	0.268	0.761	35.5
4	27.81	299,807	0.361	320,594,231	0.327	0.935	38.5
5	5.84	22,655	0.027	12,375,578	0.013	1.831	50.7
6	17.99	170,071	0.205	64,738,130	0.066	2.627	57.8
All subareas combined[b]	17.92	830,479	1.000	980,493,794	1.000	0.847	35.6
95% Confidence interval		±151,350		±185,952,905			

[a]Variances of abundance estimates are given in Appendix D.
[b]Differences in sums of estimates and totals are due to rounding.

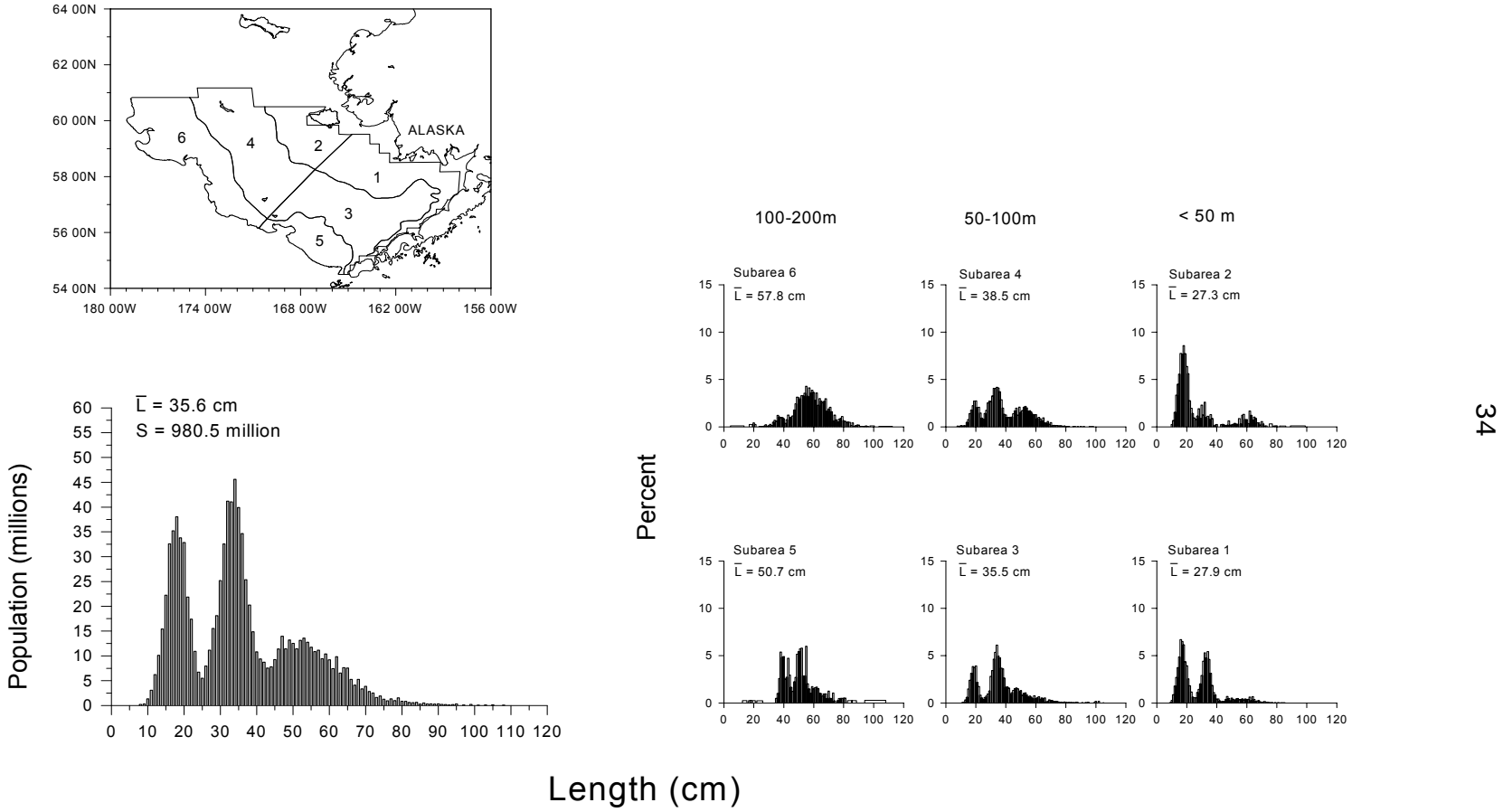

Figure 12.--Estimated relative size distribution (sexes combined) of Pacific cod in terms of population numbers and percent for subareas 1-6, 2001 eastern Bering Sea bottom trawl survey.

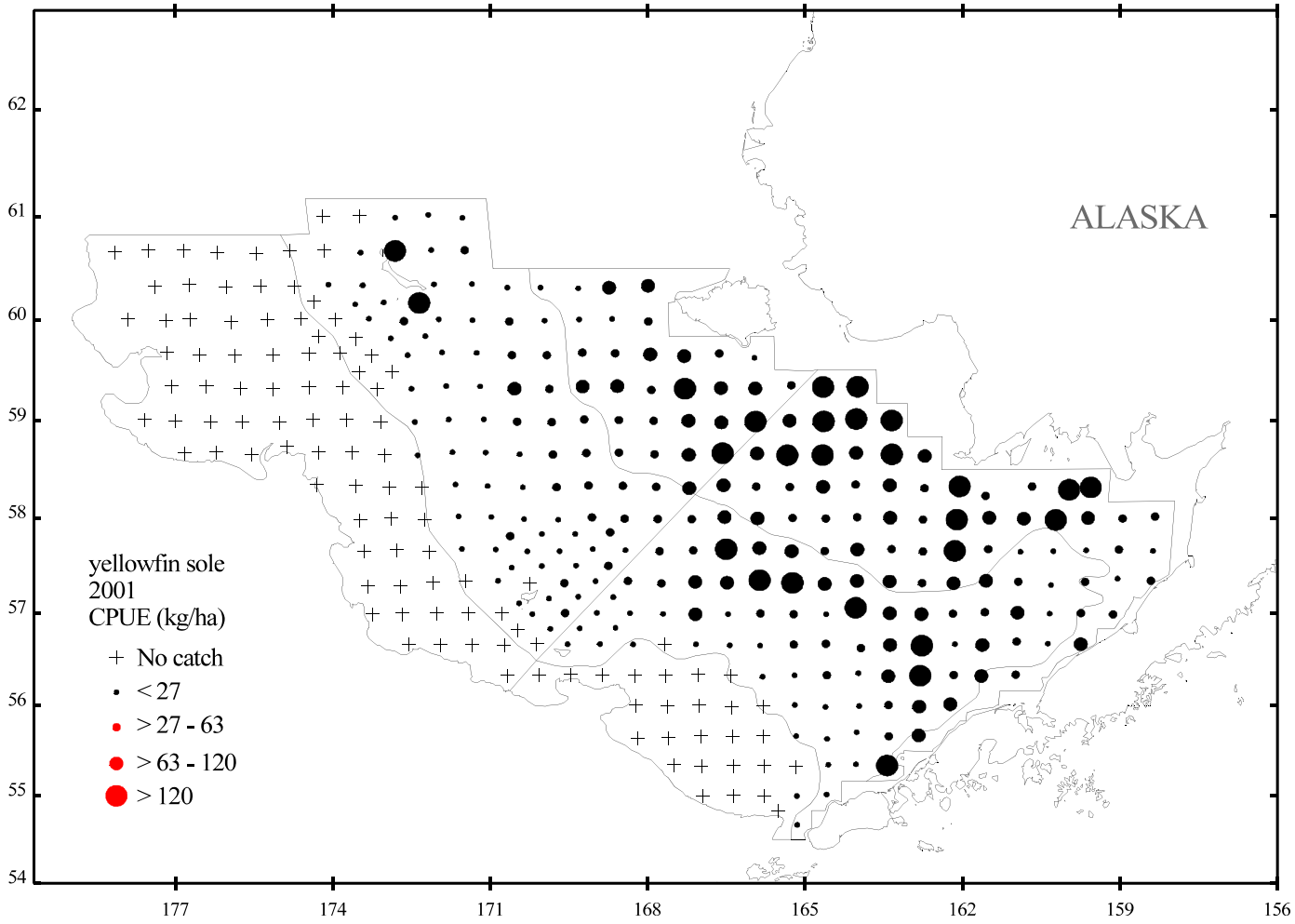

Figure 13.-- Distribution and relative abundance in kg/ha of yellowfin sole, 2001 eastern Bering Sea bottom trawl survey.

Table 11.--Abundance estimates and mean size of yellowfin sole by subarea, 2001 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	108.03	841,236	0.453	4,239,499,686	0.528	0.198	23.9
2	68.63	281,573	0.152	1,183,379,425	0.147	0.238	25.1
3	50.52	521,901	0.281	1,935,997,697	0.241	0.270	27.9
4	19.51	210,322	0.113	674,328,259	0.084	0.312	28.8
5	0.03	105	0.000	156,122	0.000	0.673	36.2
6	0.00	29	0.000	63,651	0.000	0.456	0.0
All subareas combined[b]	40.04	1,855,166	1.000	8,033,424,839	1.000	0.231	25.5
95% Confidence interval		$\pm$254,860		$\pm$1,131,102,130			

[a]Variances of abundance estimates are given in Appendix D.
[b]Differences in sums of estimates and totals are due to rounding.

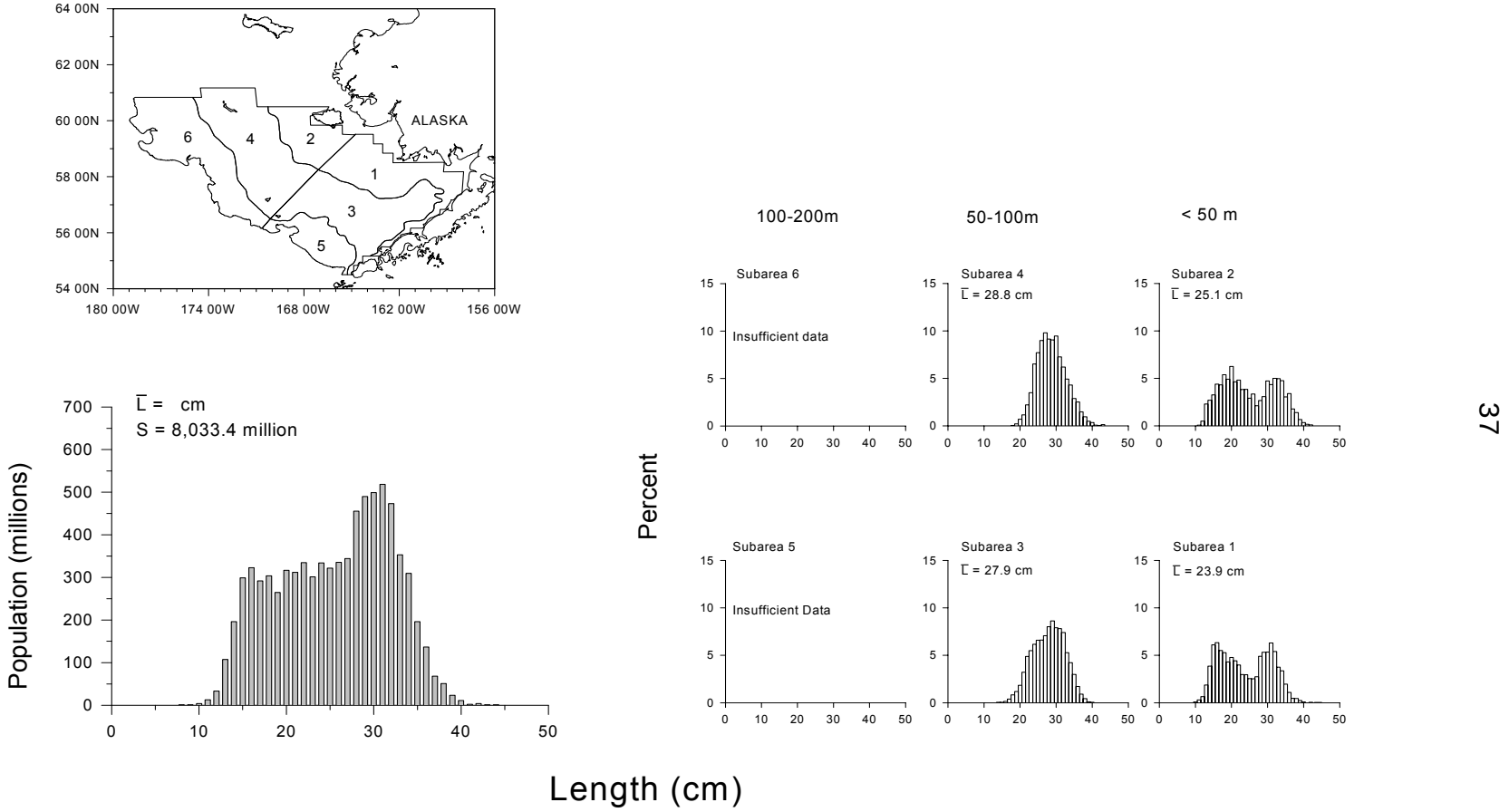

Figure 14.--Estimated size distribution (sexes combined) of yellowfin sole in terms of population numbers, and percent for subareas 1-6, 2001 eastern Bering Sea bottom trawl survey.

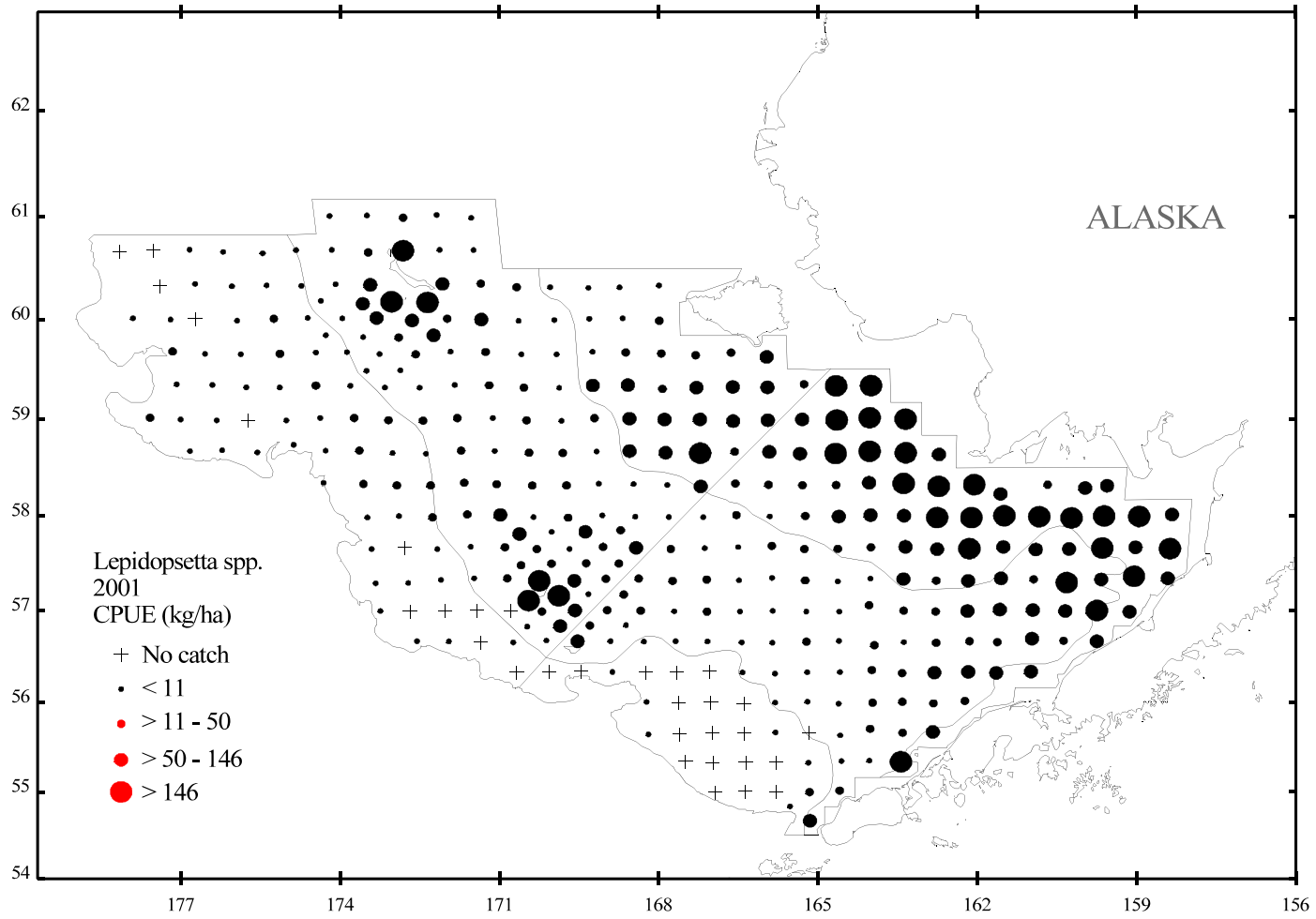

Figure 15.-- Distribution and relative abundance in kg/ha of *Lepidopsetta* spp., 2001 eastern Bering Sea bottom trawl survey.

Table 12.--Abundance estimates and mean size of *Lepidopsetta* spp. by subarea, 2001 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	153.43	1,194,775	0.495	4,490,311,177	0.520	0.266	27.4
2	60.73	249,139	0.103	822,208,563	0.095	0.303	28.2
3	33.21	343,082	0.142	1,598,100,931	0.185	0.215	25.9
4	53.08	572,342	0.237	1,602,729,536	0.186	0.357	30.4
5	0.85	3,281	0.001	8,933,798	0.001	0.367	30.8
6	5.55	52,513	0.022	110,961,709	0.013	0.473	32.8
All subareas combined[b]	52.12	2,415,133	1.000	8,633,245,713	1.000	0.280	27.8
95% Confidence interval		±547,047		±1,450,345,525			

[a]Variances of abundance estimates are given in Appendix D.
[b]Differences in sums of estimates and totals are due to rounding.

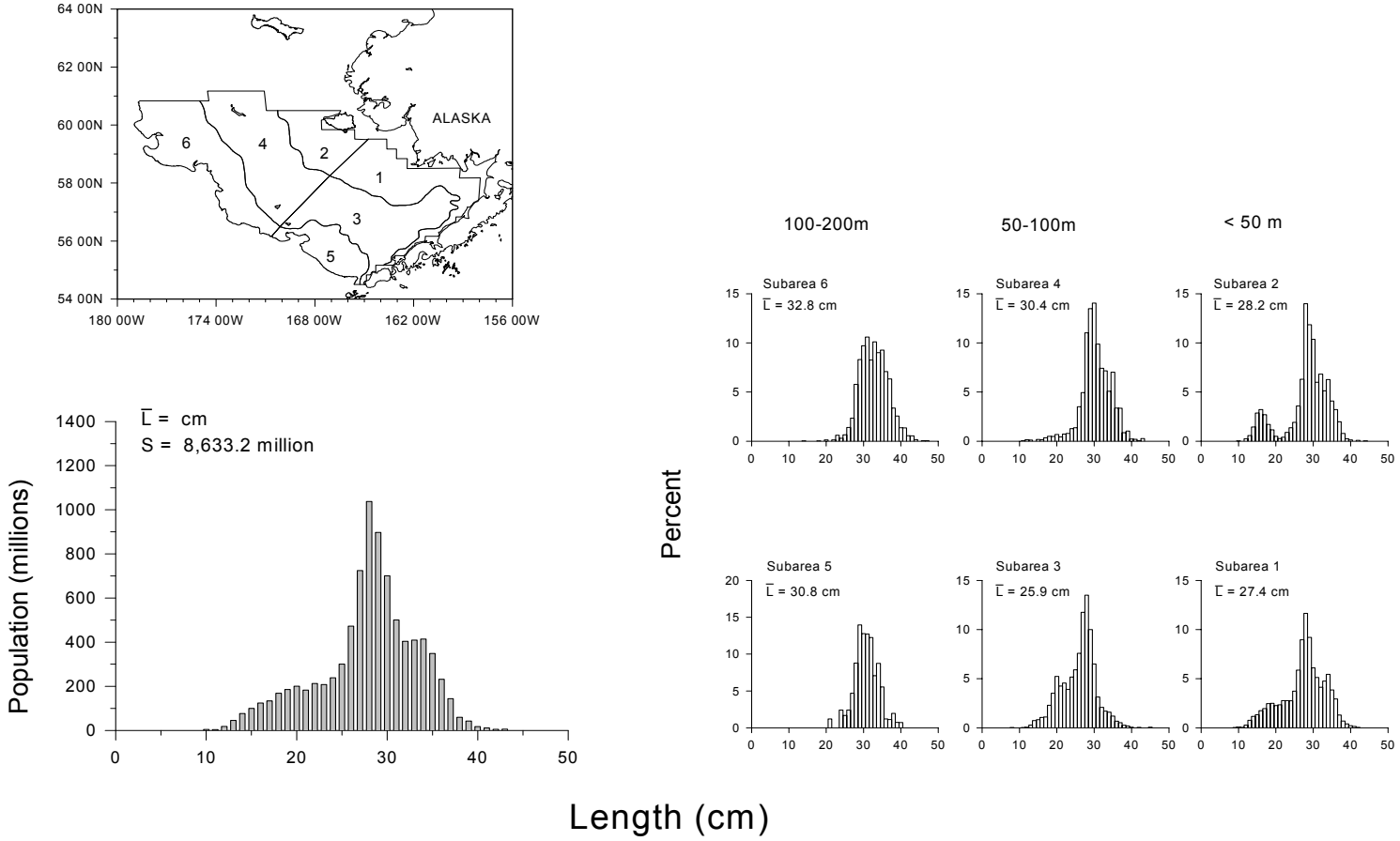

Figure 16.--Estimated relative size distribution (sexes combined) of *Lepidopsetta* spp. in terms of population numbers and percent for subareas 1-6, 2001 eastern Bering Sea bottom trawl survey.

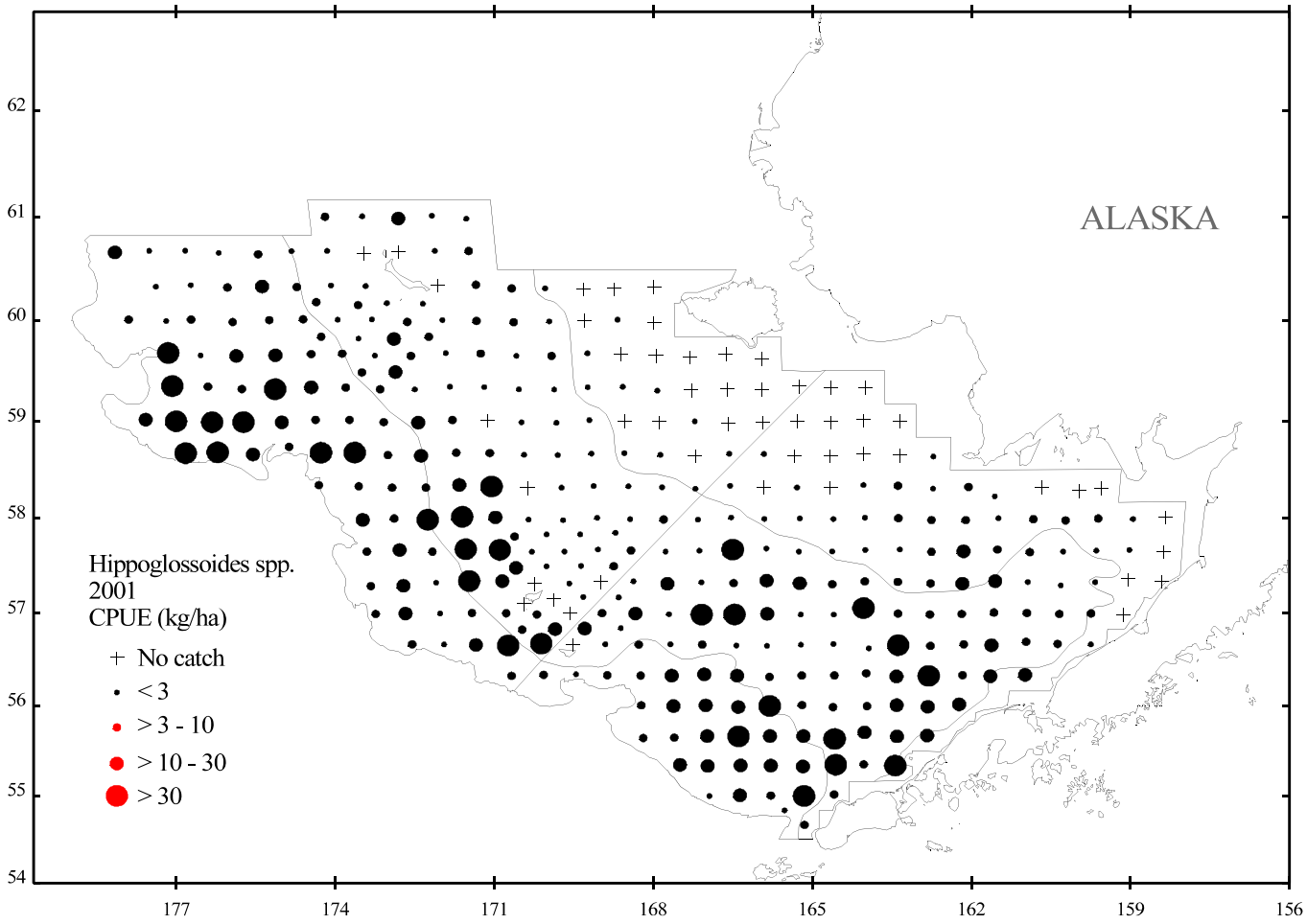

Figure 17.-- Distribution and relative abundance in kg/ha of *Hippoglossoides* spp., 2001 eastern Bering Sea bottom trawl survey.

Table 13.--Abundance estimates and mean size of *Hippoglossoides* spp. by subarea, 2001 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	2.68	20,881	0.041	46,944,561	0.028	0.445	34.4
2	0.22	899	0.002	1,889,082	0.001	0.476	34.5
3	15.60	161,192	0.314	449,698,991	0.270	0.358	31.6
4	7.71	83,102	0.162	193,295,838	0.116	0.430	32.7
5	15.29	59,298	0.115	262,811,050	0.158	0.226	27.8
6	19.95	188,652	0.367	708,022,819	0.426	0.266	28.7
All subareas combined[b]	11.09	514,023	1.000	1,662,662,341	1.000	0.309	30.0
95% Confidence interval		±105,908		±320,094,765			

[a]Variances of abundance estimates are given in Appendix D.
[b]Differences in sums of estimates and totals are due to rounding.

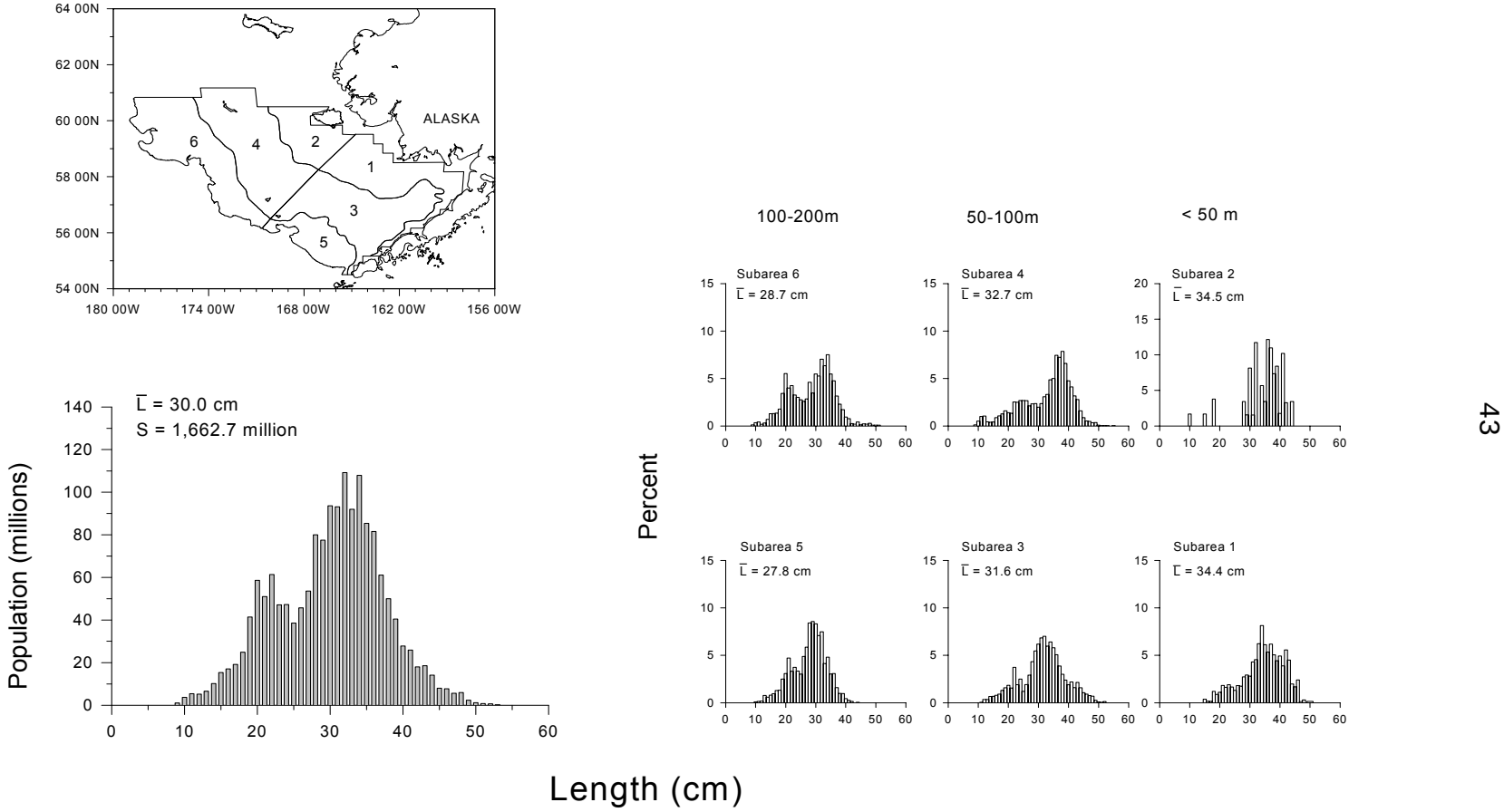

Figure 18.--Estimated relative size distribution (sexes combined) of *Hippoglossoides* spp. in terms of population numbers and percent for subareas 1-6, 2001 eastern Bering Sea bottom trawl survey.

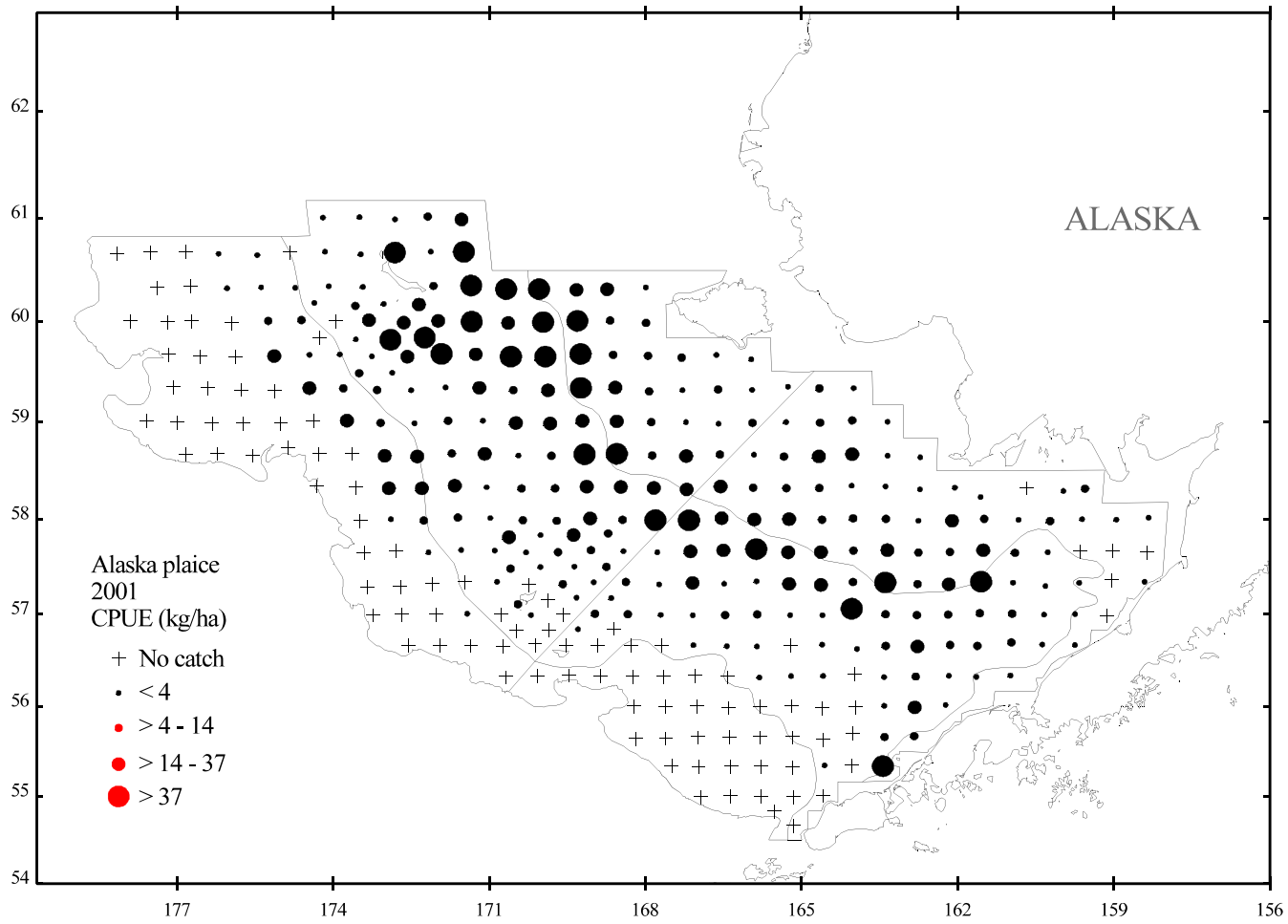

Figure 19.-- Distribution and relative abundance in kg/ha of Alaska plaice, 2001 eastern Bering Sea bottom trawl survey.

Table 14.--Abundance estimates and mean size of Alaska plaice by subarea, 2001 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	7.19	55,970	0.104	137,892,065	0.146	0.406	30.7
2	22.22	91,163	0.169	221,180,612	0.234	0.412	31.6
3	12.12	125,222	0.233	212,647,697	0.225	0.589	35.1
4	22.06	237,868	0.442	355,406,199	0.376	0.669	36.5
5	0.00	0	0.000	0	0.000	0.000	0.0
6	2.97	28,095	0.052	18,187,702	0.019	1.545	46.0
All subareas combined[b]	11.62	538,319	1.000	945,314,274	1.000	0.569	34.4
95% Confidence interval		±134,080		±232,348,071			

[a]Variances of abundance estimates are given in Appendix D.
[b]Differences in sums of estimates and totals are due to rounding.

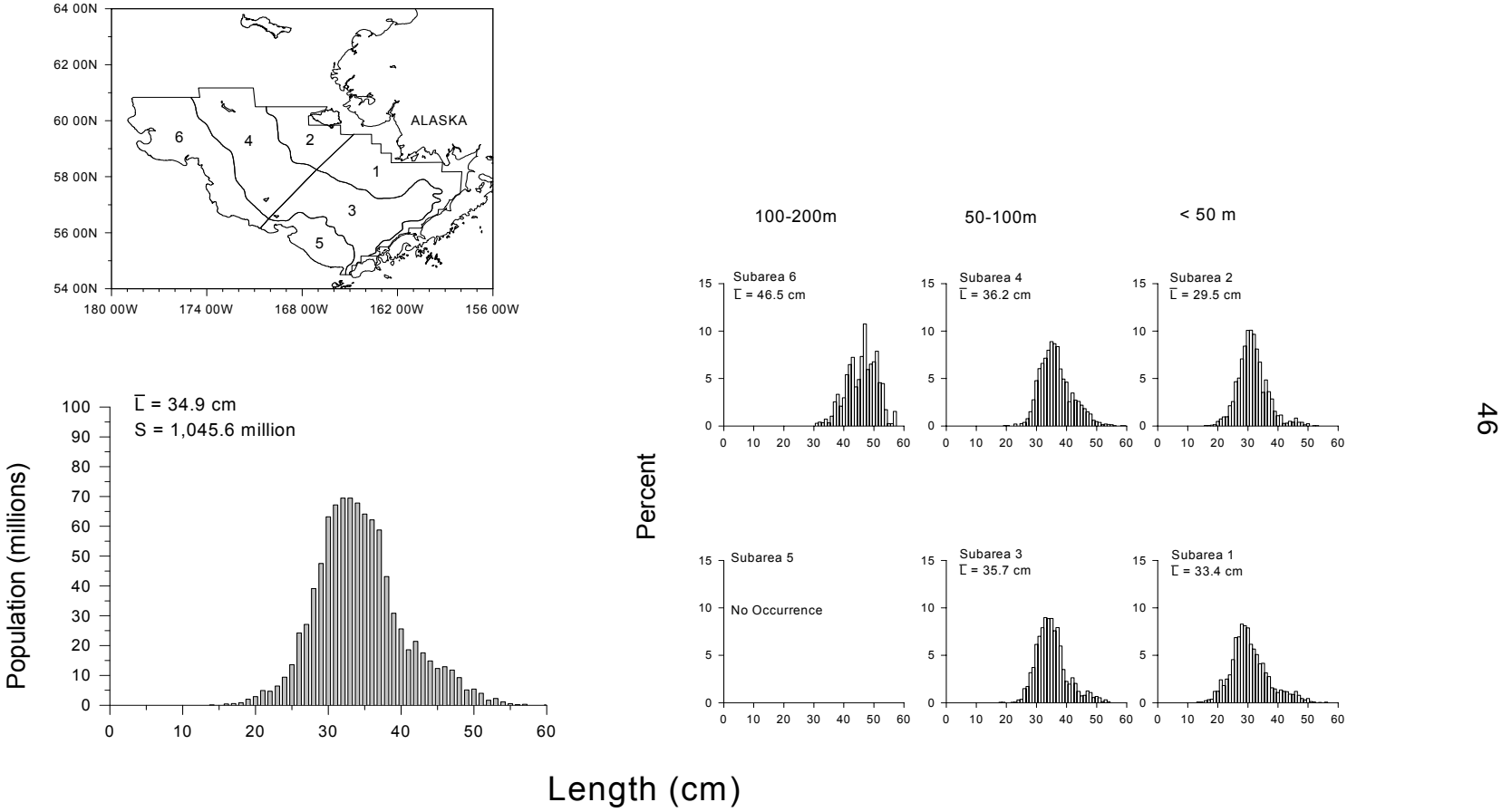

Figure 20.--Estimated relative size distribution (sexes combined) of Alaska plaice in terms of population numbers and percent for subareas 1-6, 2001 eastern Bering Sea bottom trawl survey.

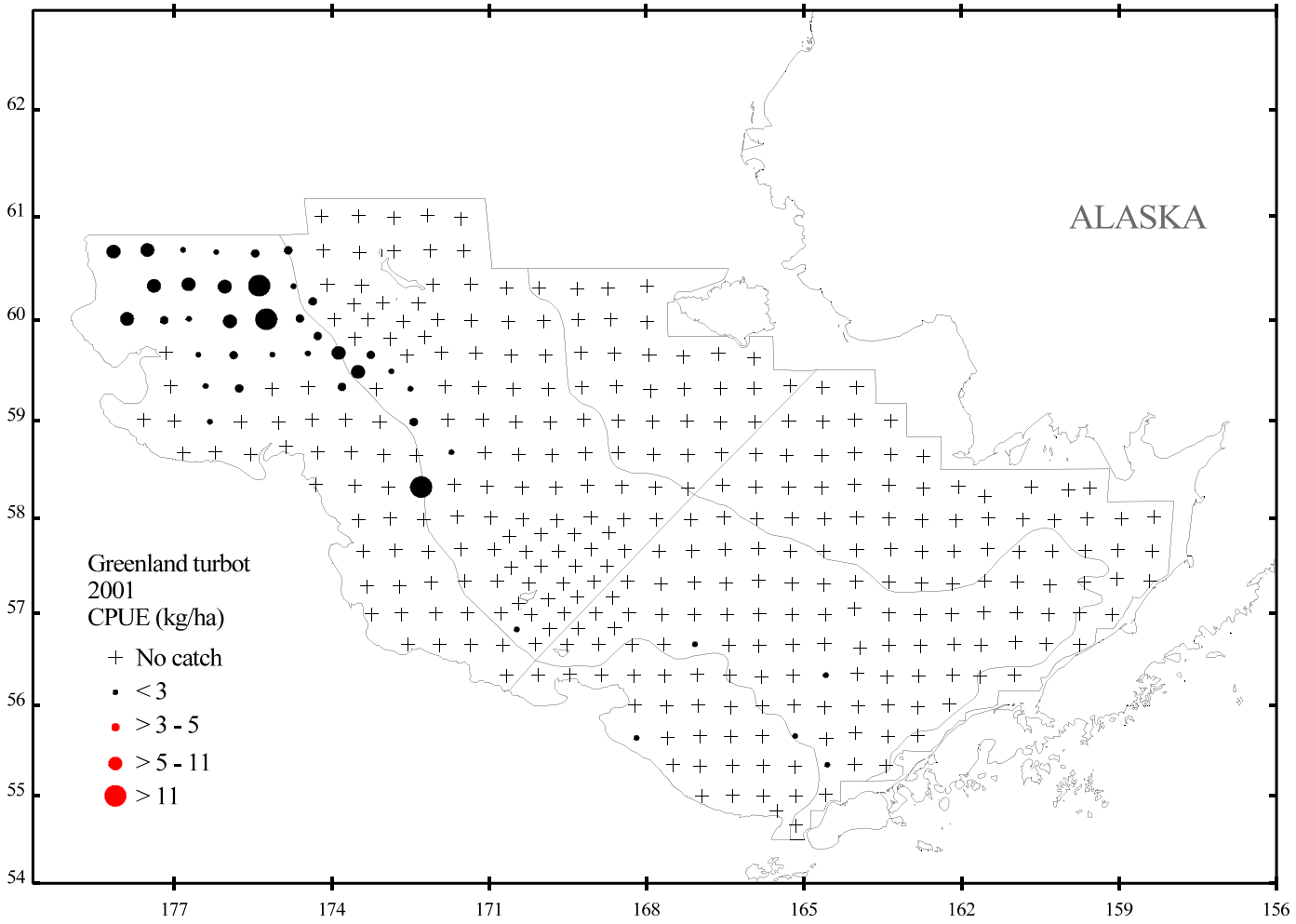

Figure 21.-- Distribution and relative abundance in kg/ha of Greenland turbot, 2001 eastern Bering Sea bottom trawl survey.

Table 15.--Abundance estimates and mean size of Greenland turbot by subarea, 2001 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	0.11	1,158	0.046	213,590	0.037	5.422	79.7
4	0.27	2,895	0.114	454,406	0.079	6.371	76.3
5	0.08	293	0.012	34,860	0.006	8.405	90.0
6	2.22	20,966	0.828	5,076,835	0.878	4.130	68.9
All subareas combined[b]	0.55	25,311	1.000	5,779,692	1.000	4.379	70.0
95% Confidence interval		±9,601		±2,130,438			

[a]Variances of abundance estimates are given in Appendix D.
[b]Differences in sums of estimates and totals are due to rounding.

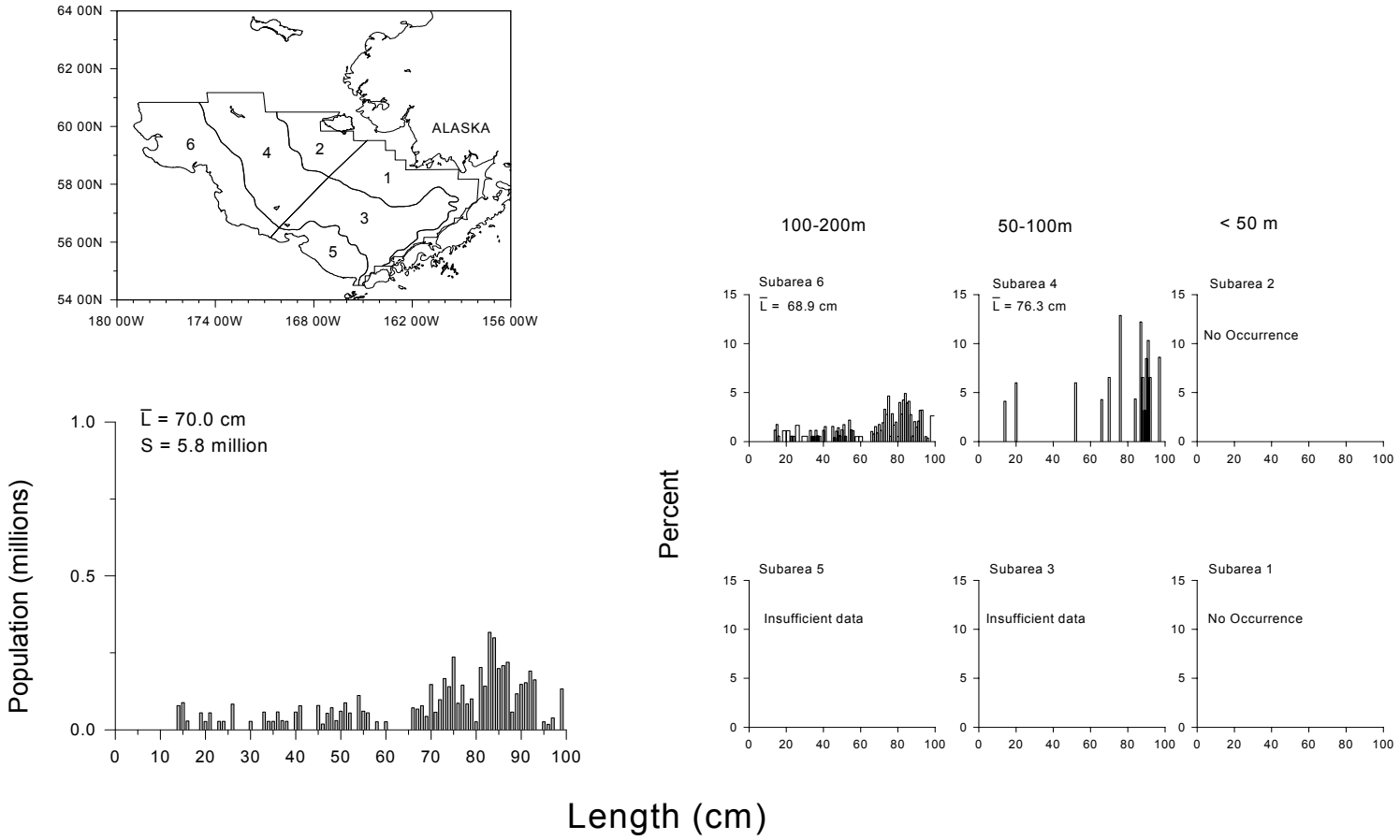

Figure 22.--Estimated relative size distribution (sexes combined) of Greenland turbot in terms of population number and percent for subareas 1-6, 2001 eastern Bering Sea bottom trawl survey.

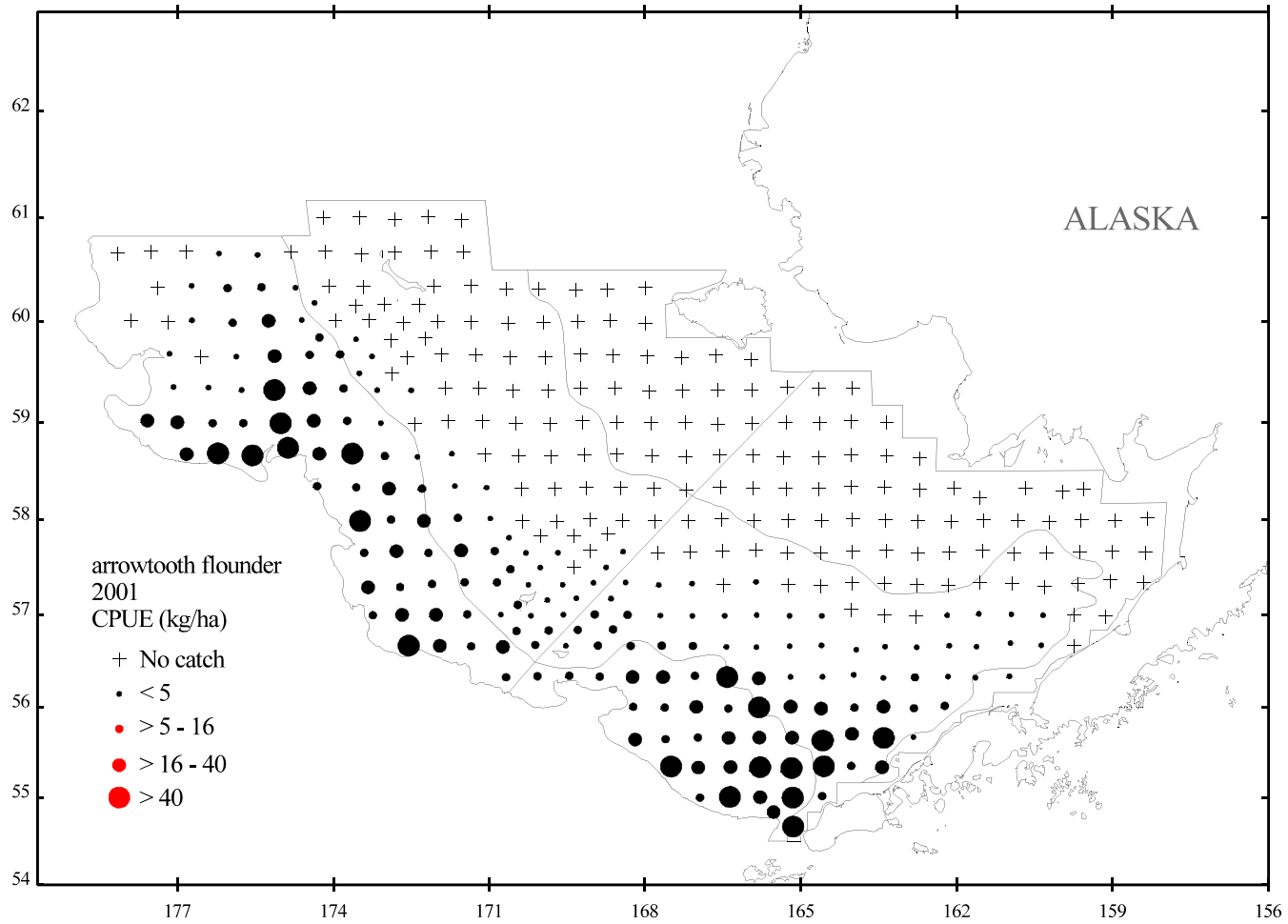

Figure 23.-- Distribution and relative abundance in kg/ha of arrowtooth flounder, 2001 eastern Bering Sea bottom trawl survey.

Table 16.--Abundance estimates and mean size of arrowtooth by subarea, 2001 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	0.09	672	0.002	5,480,034	0.008	0.123	21.7
2	0.00	0	0.000	0	0.000	0.000	0.0
3	9.48	97,963	0.259	268,307,353	0.377	0.365	30.5
4	1.39	15,004	0.040	29,079,047	0.041	0.516	34.0
5	27.73	107,567	0.285	237,459,214	0.334	0.453	33.4
6	16.55	156,530	0.414	170,652,873	0.240	0.917	42.8
All subareas combined[b]	8.15	377,737	1.000	710,978,520	1.000	0.531	34.5
95% Confidence interval		±69,580		±169,473,245			

[a]Variances of abundance estimates are given in Appendix D.
[b]Differences in sums of estimates and totals are due to rounding.

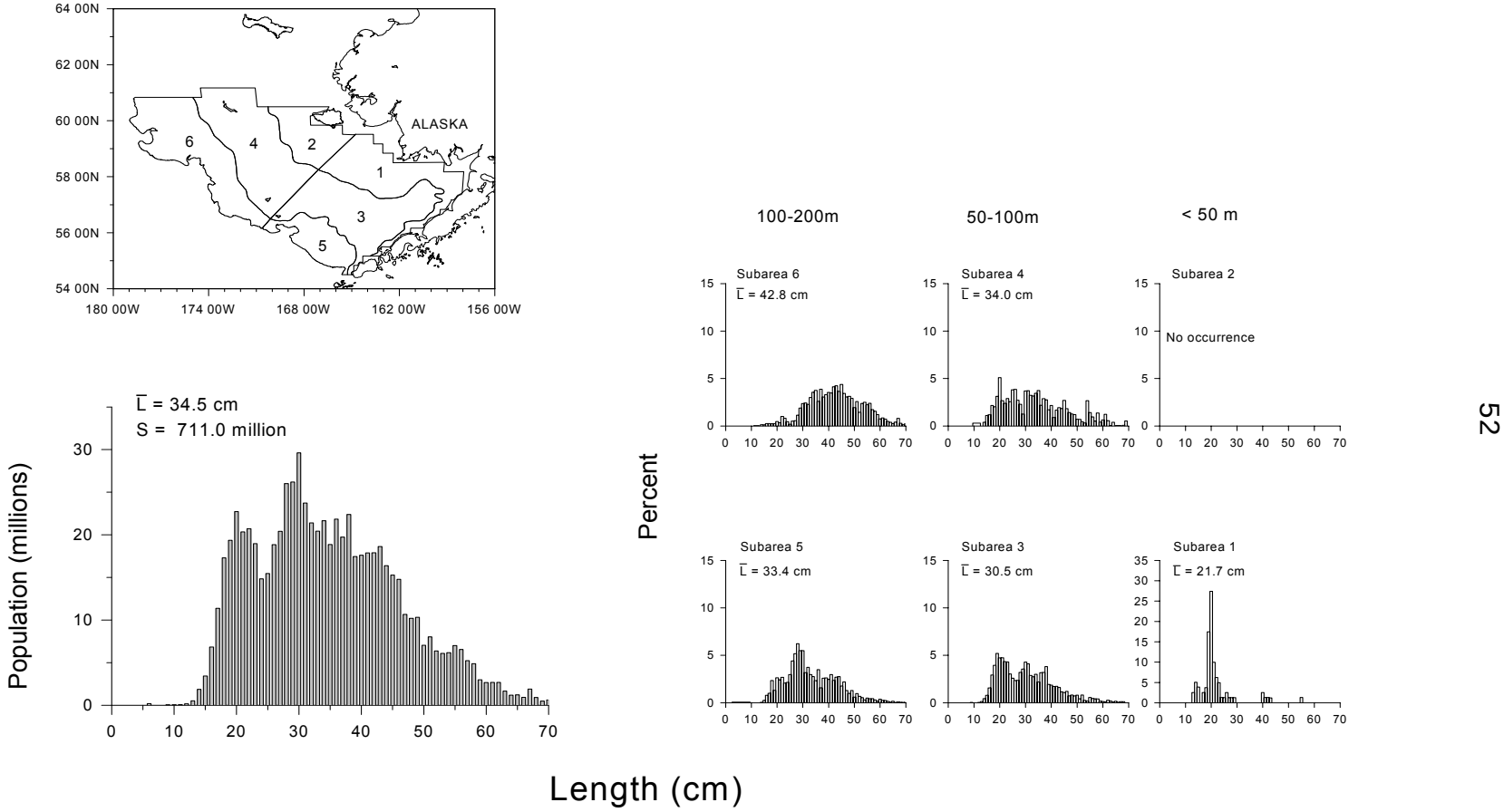

Figure 24.--Estimated relative size distribution (sexes combined) of arrowtooth flounder in terms of population numbers and percent for subareas 1-6, 2001 eastern Bering Sea bottom trawl survey.

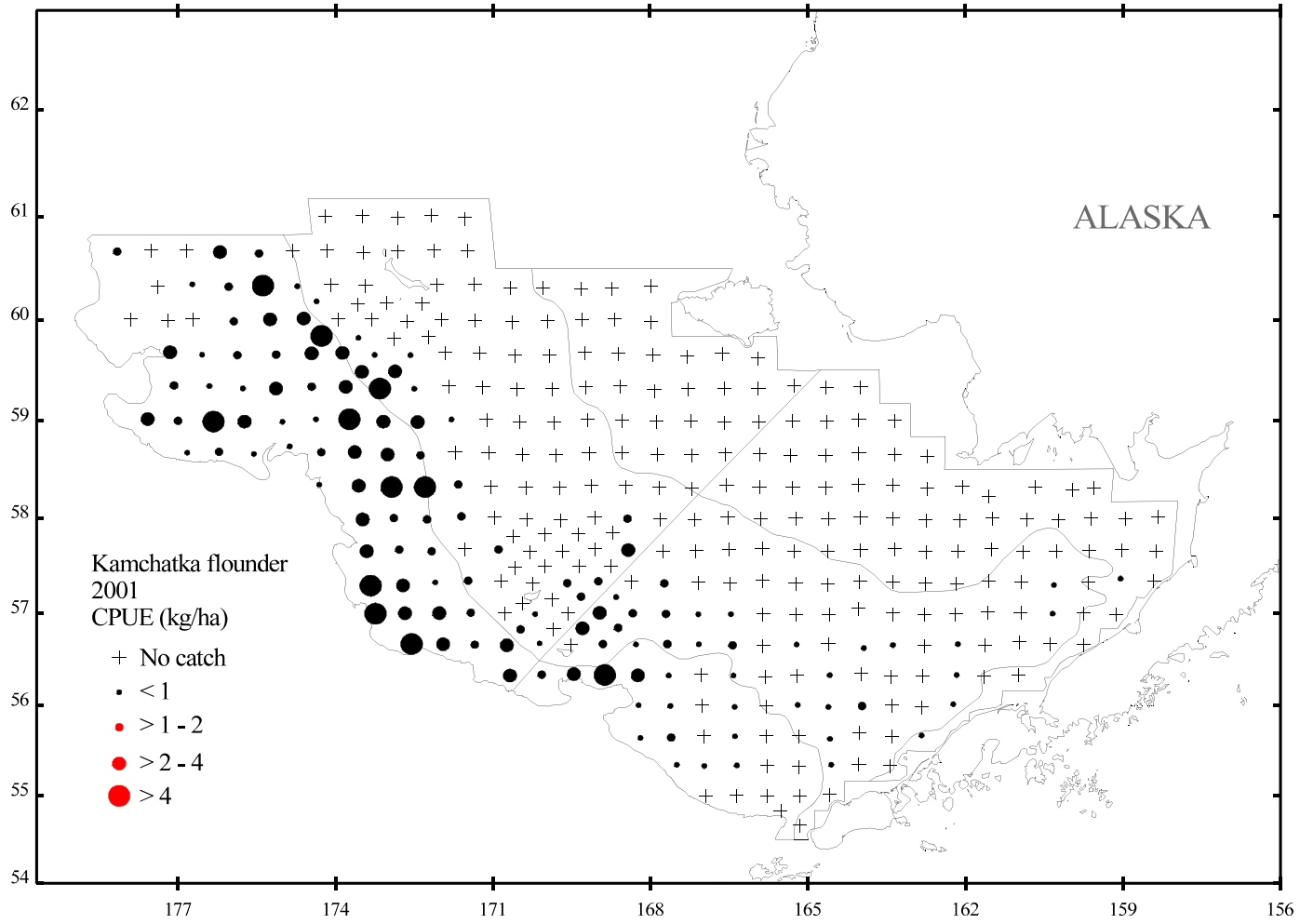

Figure 25.-- Distribution and relative abundance in kg/ha of Kamchatka flounder, 2001 eastern Bering Sea bottom trawl survey.

Table 17.--Abundance estimates and mean size of Kamchatka flounder by subarea, 2001 eastern

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	8	0.000	321,985	0.006	0.025	13.2
2	0.00	0	0.000	0	0.000	0.000	0.0
3	0.29	3,039	0.098	4,169,331	0.084	0.729	37.5
4	0.36	3,878	0.125	2,444,008	0.049	1.587	50.1
5	0.84	3,266	0.105	7,114,994	0.143	0.459	34.9
6	2.21	20,917	0.672	35,749,063	0.718	0.585	36.3
All subareas combined[b]	0.67	31,109	1.000	49,799,380	1.000	0.625	36.7
95% Confidence interval		±5,608		±13,815,610			

[a]Variances of abundance estimates are given in Appendix D.
[b]Differences in sums of estimates and totals are due to rounding.

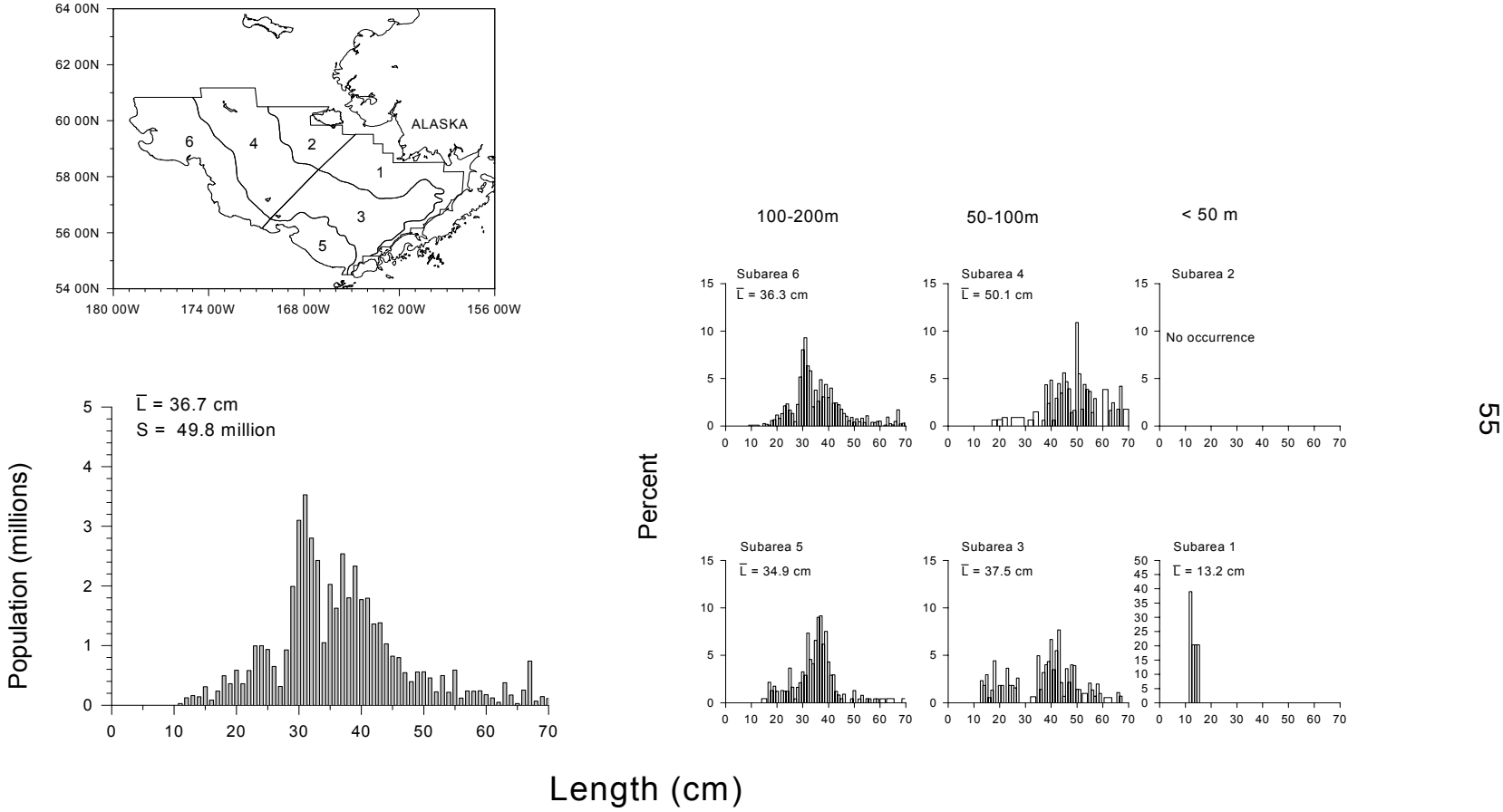

Figure 26.--Estimated relative size distribution (sexes combined) of Kamchatka flounder in terms of population numbers and percent for subareas 1-6, 2001 eastern Bering Sea bottom trawl survey.

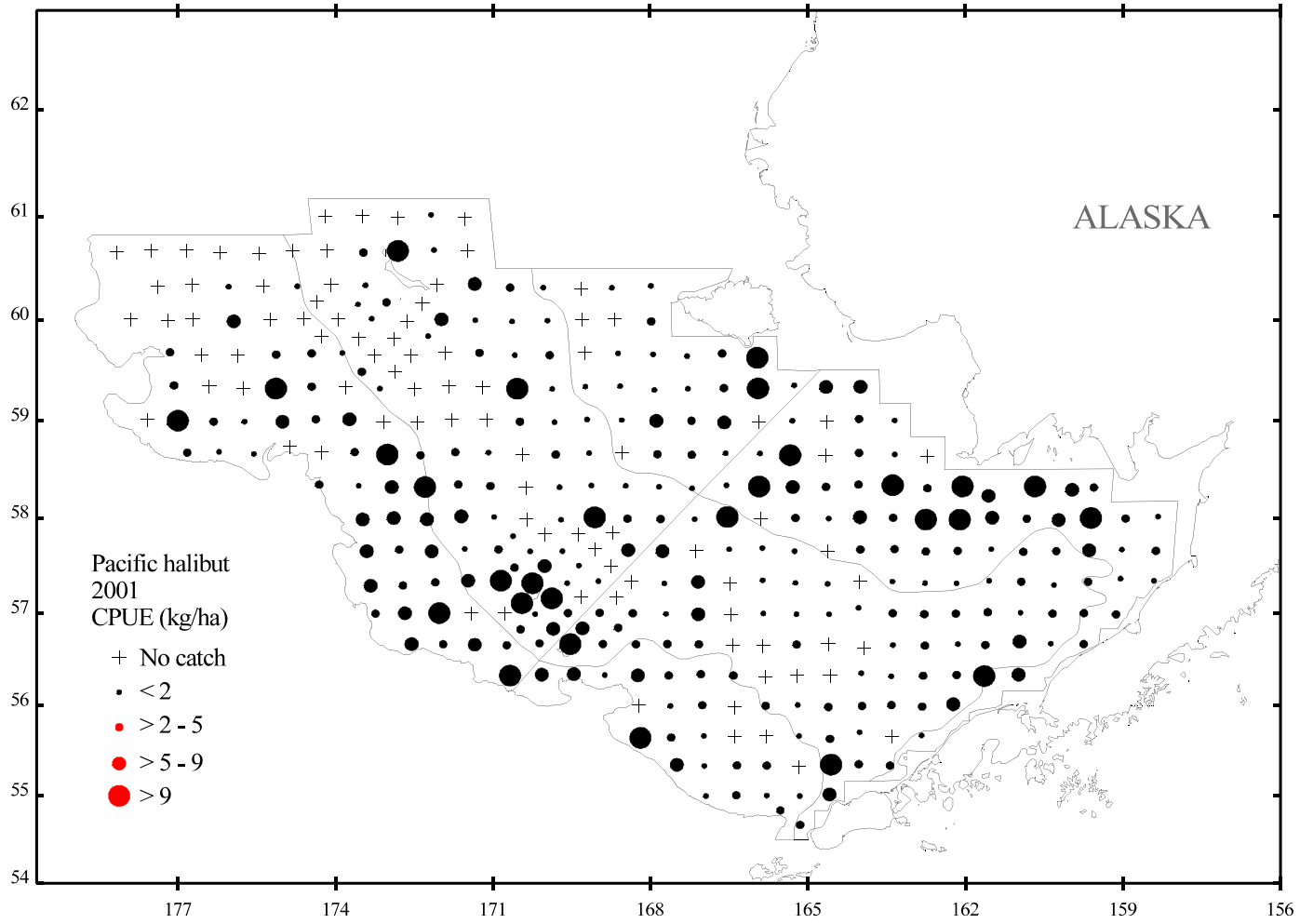

Figure 27.-- Distribution and relative abundance in kg/ha of Pacific halibut, 2001 eastern Bering Sea bottom trawl survey.

Table 18.--Abundance estimates and mean size of Pacific halibut by subarea, 2001 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	4.61	35,925	0.244	26,338,067	0.484	1.364	41.7
2	2.43	9,975	0.068	3,411,292	0.063	2.924	56.9
3	2.55	26,392	0.179	10,110,967	0.186	2.610	53.0
4	2.56	27,612	0.188	7,421,099	0.136	3.721	61.0
5	3.02	11,704	0.080	1,884,467	0.035	6.211	75.2
6	3.76	35,547	0.242	5,298,470	0.097	6.709	77.0
All subareas combined[b]	3.18	147,154	1.000	54,464,361	1.000	2.702	52.0
95% Confidence interval		$\pm$19,776		$\pm$9,058,636			

[a]Variances of abundance estimates are given in Appendix D.
[b]Differences in sums of estimates and totals are due to rounding.

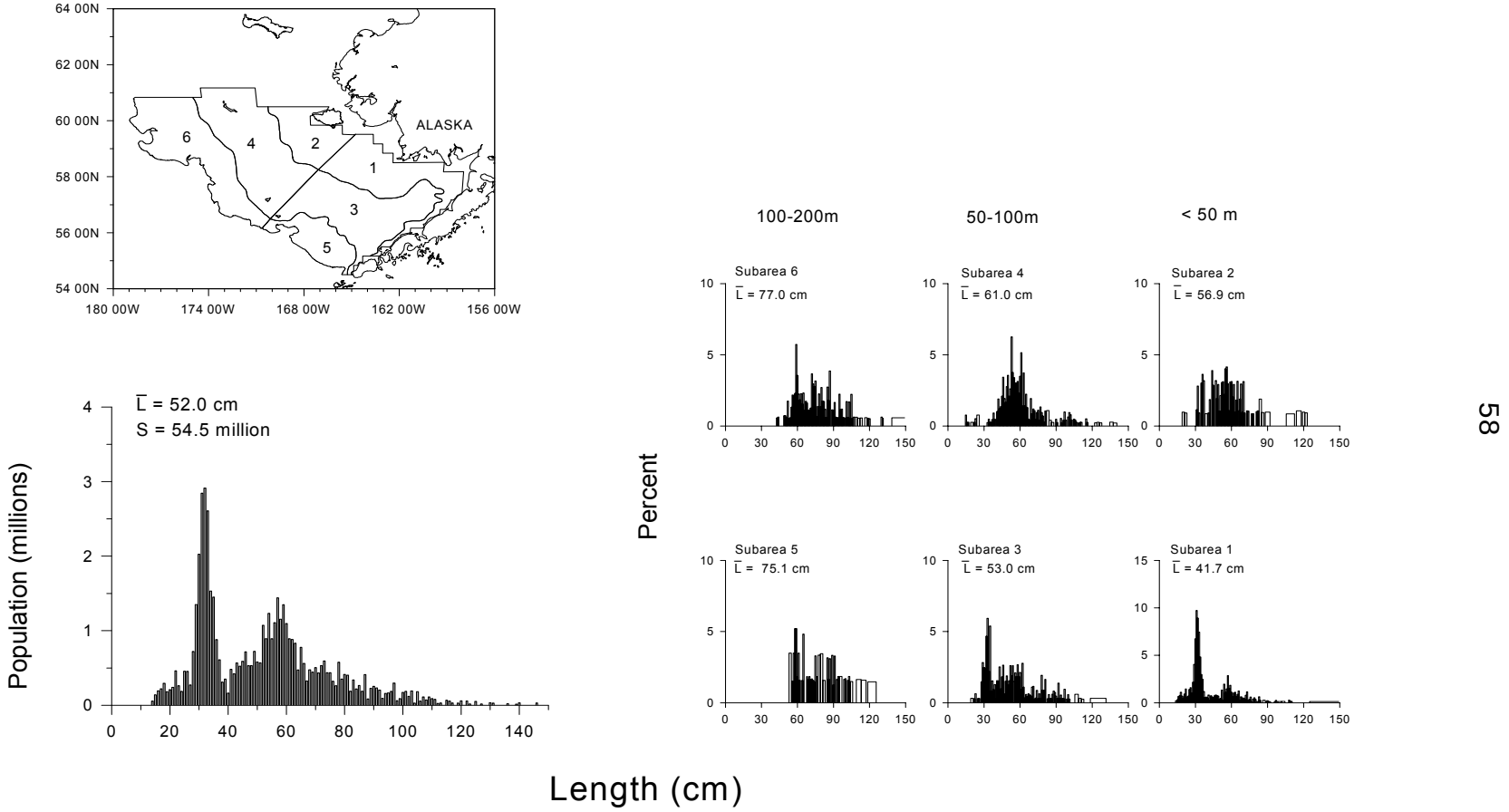

Figure 28.--Estimated relative size distribution (sexes combined) of Pacific halibut in terms of population numbers and percent for subareas 1-6, 2001 eastern Bering Sea bottom trawl survey.

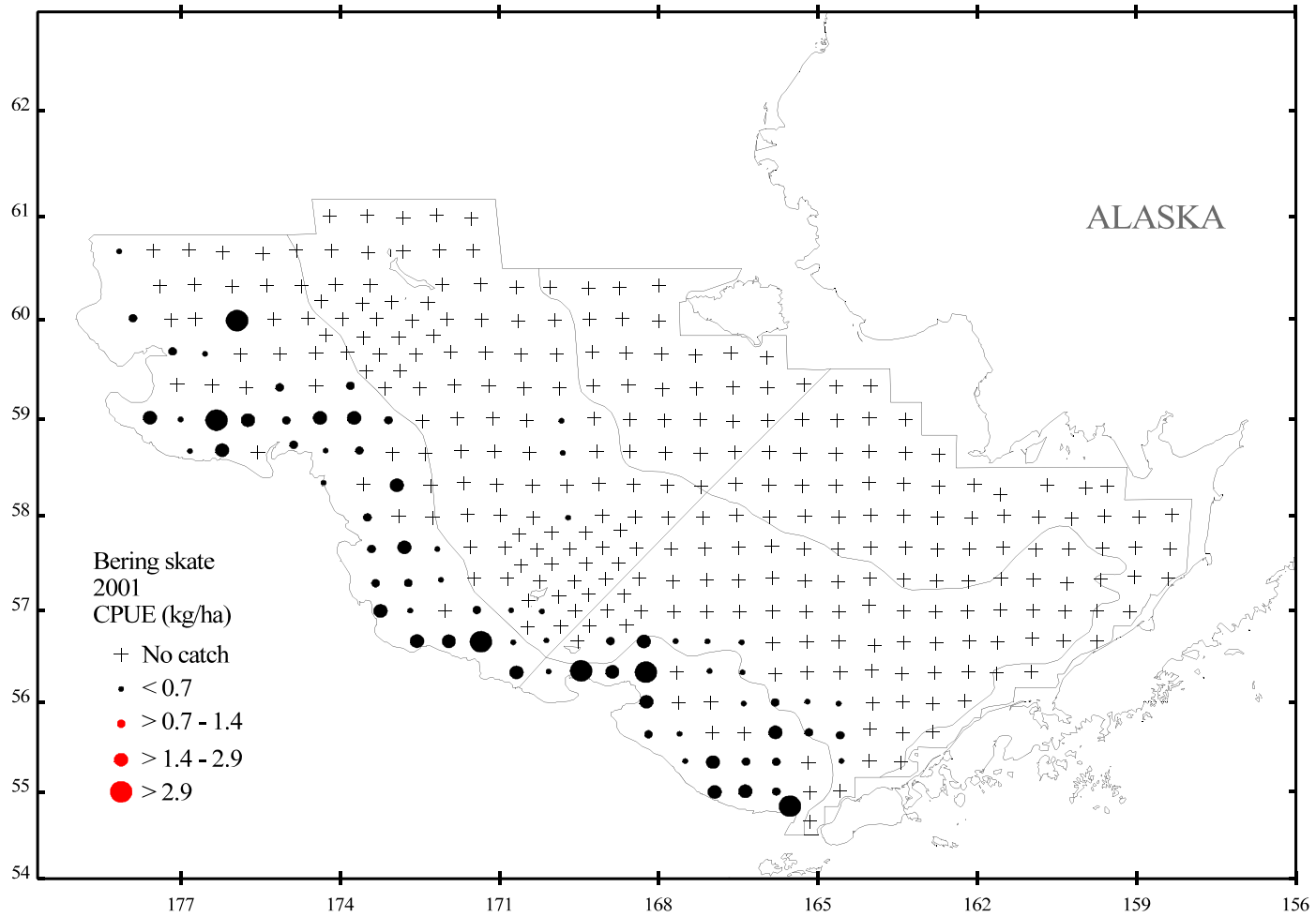

Figure 29.-- Distribution and relative abundance in kg/ha of Bering skate, 2001 eastern Bering Sea bottom trawl survey.

Table 19.--Abundance estimates and mean size of Bering skate by subarea, 2001 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 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	0.08	876	0.062	643,475	0.092	1.361
4	0.02	240	0.017	143,811	0.021	1.669
5	1.44	5,575	0.393	3,114,373	0.446	1.790
6	0.79	7,510	0.529	3,074,500	0.441	2.443
All subareas combined[b]	0.31	14,201	1.000	6,976,158	1.000	2.036
95% Confidence interval		±4,063		±1,994,327		

[a]Variances of abundance estimates are given in Appendix D.
[b]Differences in sums of estimates and totals are due to rounding.

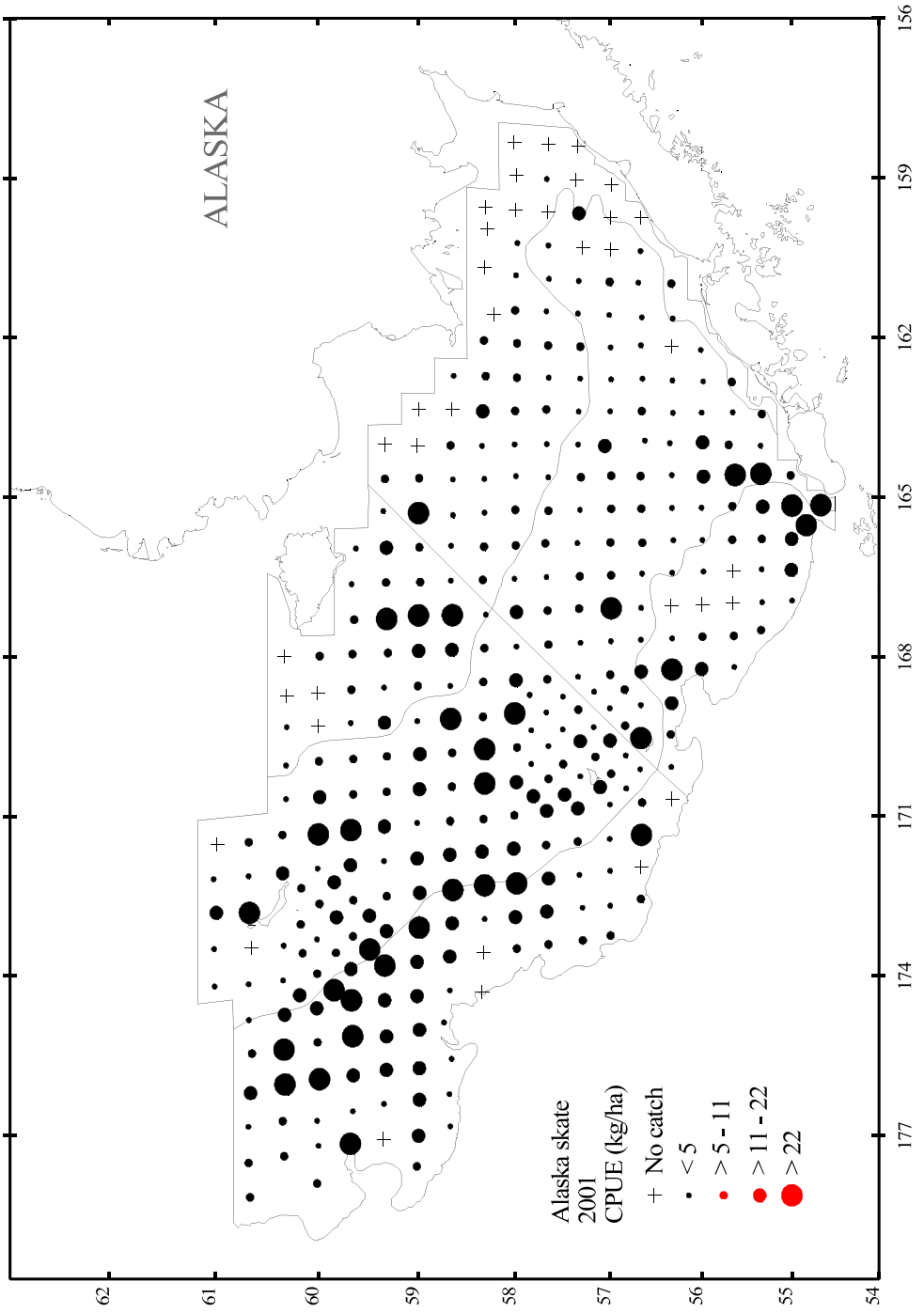

Figure 30.-- Distribution and relative abundance in kg/ha of Alaska skate, 2001 eastern Bering Sea bottom trawl survey.

Table 20.--Abundance estimates and mean weight of Alaska skate by subarea, 2001 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 weight (kg)
1	4.15	32,310	0.080	8,446,661	0.070	3.825
2	8.42	34,539	0.086	10,311,544	0.085	3.350
3	6.04	62,356	0.155	27,898,818	0.230	2.235
4	10.07	108,613	0.270	41,169,655	0.339	2.638
5	10.50	40,721	0.101	6,985,955	0.058	5.829
6	13.08	123,654	0.307	26,611,803	0.219	4.647
All subareas combined[b]	8.68	402,192	1.000	121,424,435	1.000	3.312
95% Confidence interval		±48,208		±12,978,612		

[a]Variances of abundance estimates are given in Appendix D.
[b]Differences in sums of estimates and totals are due to rounding.

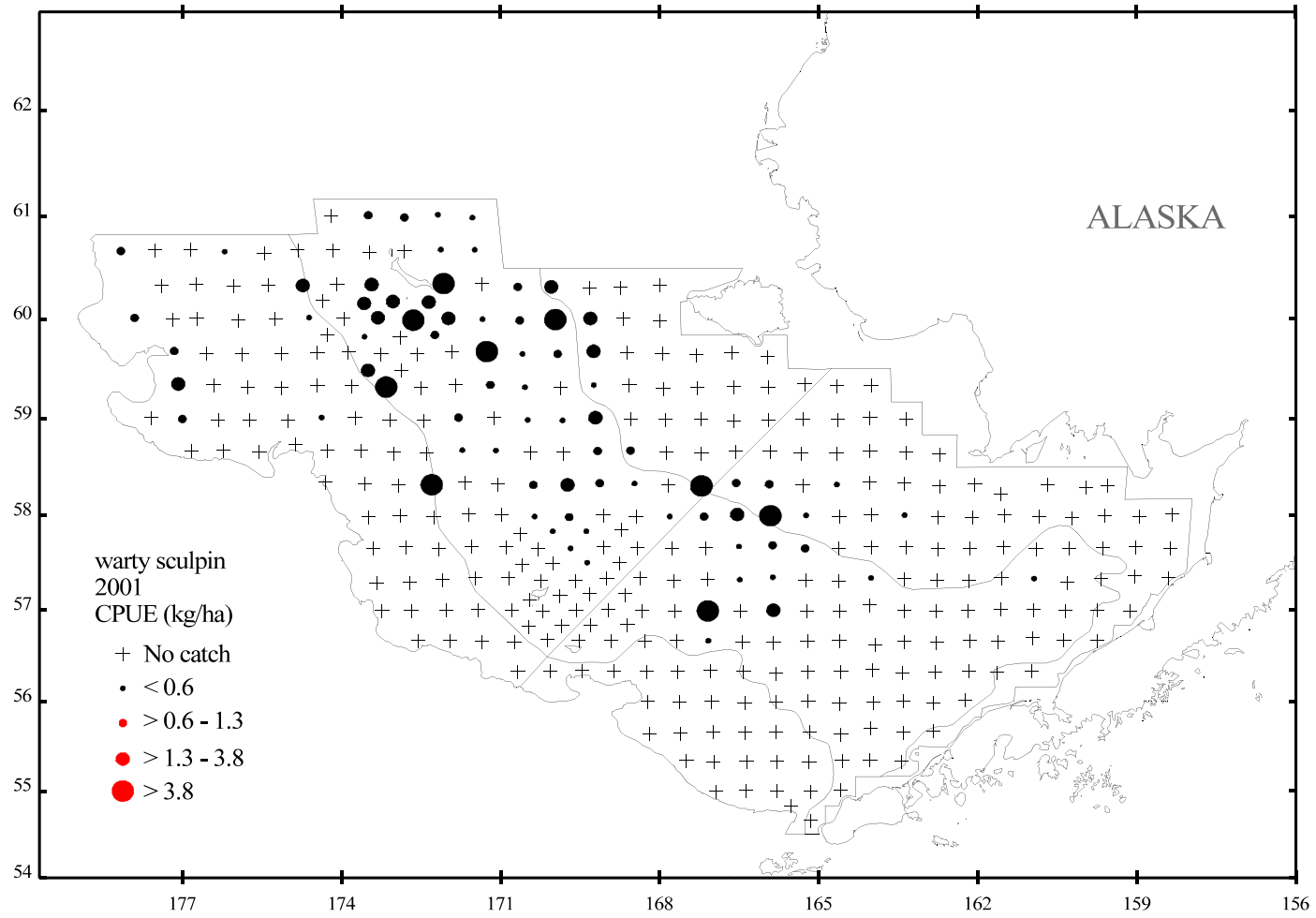

Figure 31.-- Distribution and relative abundance in kg/ha of warty sculpin, 2001 eastern Bering Sea bottom trawl survey.

Table 21.--Abundance estimates and mean weight of warty sculpin by subarea, 2001 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 weight (kg)
1	0.16	1,264	0.085	1,463,245	0.124	0.864
2	0.42	1,709	0.115	2,088,517	0.177	0.818
3	0.19	1,942	0.130	1,393,036	0.118	1.394
4	0.72	7,742	0.520	5,883,941	0.498	1.316
5	0.00	0	0.000	0	0.000	0.000
6	0.24	2,229	0.150	989,421	0.084	2.253
All subareas combined[b]	0.32	14,886	1.000	11,818,160	1.000	1.260
95% Confidence interval		±4,740		±3,666,477		

[a]Variances of abundance estimates are given in Appendix D.
[b]Differences in sums of estimates and totals are due to rounding.

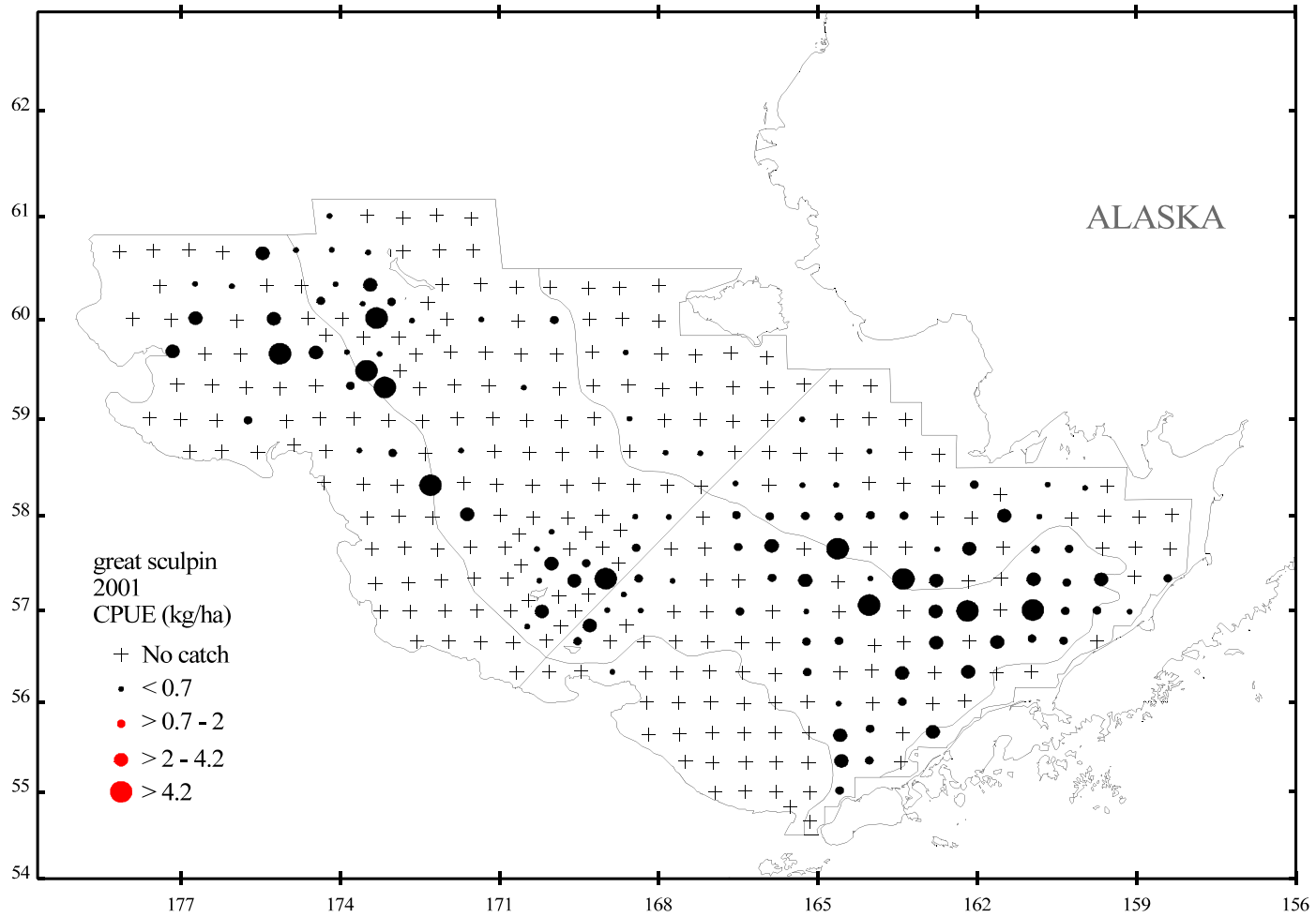

Figure 32.-- Distribution and relative abundance in kg/ha of great sculpin, 2001 eastern Bering Sea bottom trawl survey.

Table 22.--Abundance estimates and mean weight of great sculpin by subarea, 2001 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 weight (kg)
1	0.84	6,506	0.163	3,323,151	0.224	1.958
2	0.04	171	0.004	198,194	0.013	0.863
3	1.04	10,735	0.269	3,837,758	0.259	2.797
4	0.70	7,496	0.188	3,039,336	0.205	2.466
5	0.02	74	0.002	28,574	0.002	2.590
6	1.59	14,989	0.375	4,409,108	0.297	3.400
All subareas combined[b]	0.86	39,972	1.000	14,836,121	1.000	2.694
95% Confidence interval		±22,950		±5,958,093		

[a]Variances of abundance estimates are given in Appendix D.
[b]Differences in sums of estimates and totals are due to rounding.

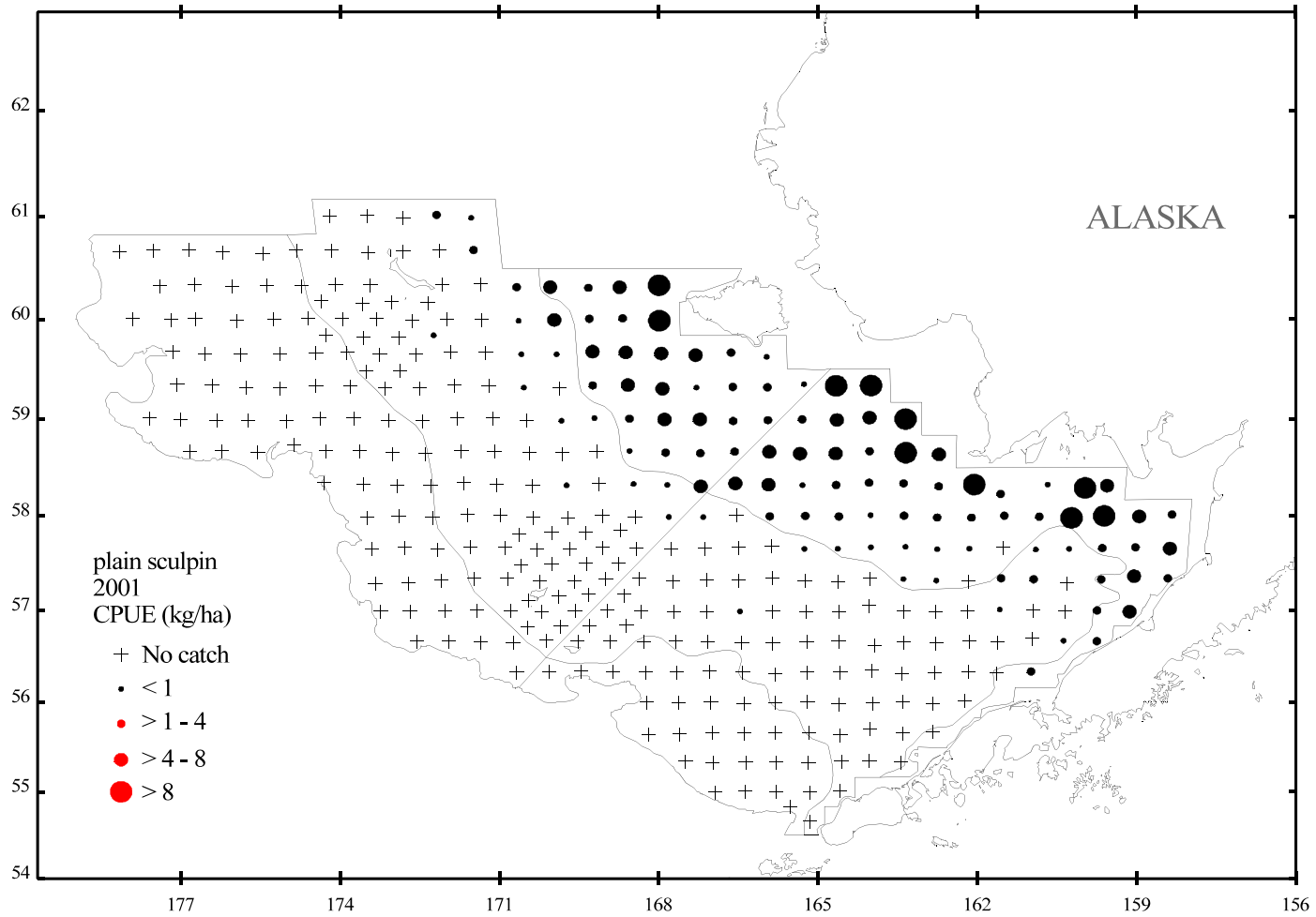

Figure 33.-- Distribution and relative abundance in kg/ha of plain sculpin, 2001 eastern Bering Sea bottom trawl survey.

Table 23.--Abundance estimates and mean weight of plain sculpin by subarea, 2001 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 weight (kg)
1	4.04	31,445	0.654	59,380,475	0.710	0.530
2	3.38	13,852	0.288	21,596,374	0.258	0.641
3	0.07	735	0.015	581,708	0.007	1.264
4	0.19	2,047	0.043	2,072,293	0.025	0.988
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]	1.04	48,080	1.000	83,630,851	1.000	0.575
95% Confidence interval		±9,349		±19,001,872		

[a]Variances of abundance estimates are given in Appendix D.
[b]Differences in sums of estimates and totals are due to rounding.

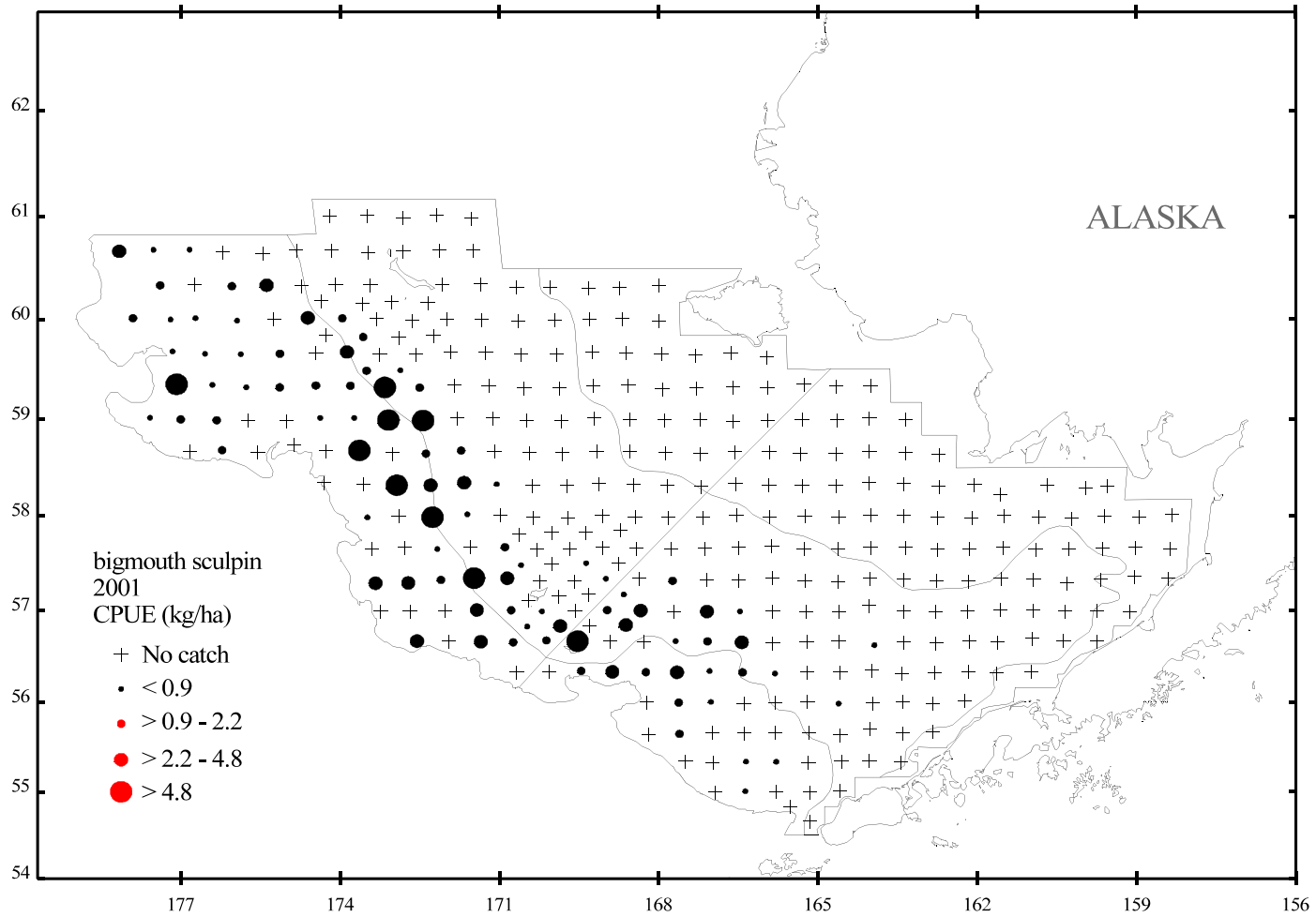

Figure 34.-- Distribution and relative abundance in kg/ha of bigmouth sculpin, 2001 eastern Bering Sea bottom trawl survey.

Table 24.--Abundance estimates and mean weight of bigmouth sculpin by subarea, 2001 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 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	0.49	5,012	0.194	1,099,084	0.164	4.560
4	0.49	5,335	0.206	1,312,761	0.196	4.064
5	0.54	2,112	0.082	568,017	0.085	3.718
6	1.42	13,385	0.518	3,706,067	0.554	3.612
All subareas combined[b]	0.56	25,844	1.000	6,685,929	1.000	3.865
95% Confidence interval		±8,537		±1,608,937		

[a]Variances of abundance estimates are given in Appendix D.
[b]Differences in sums of estimates and totals are due to rounding.

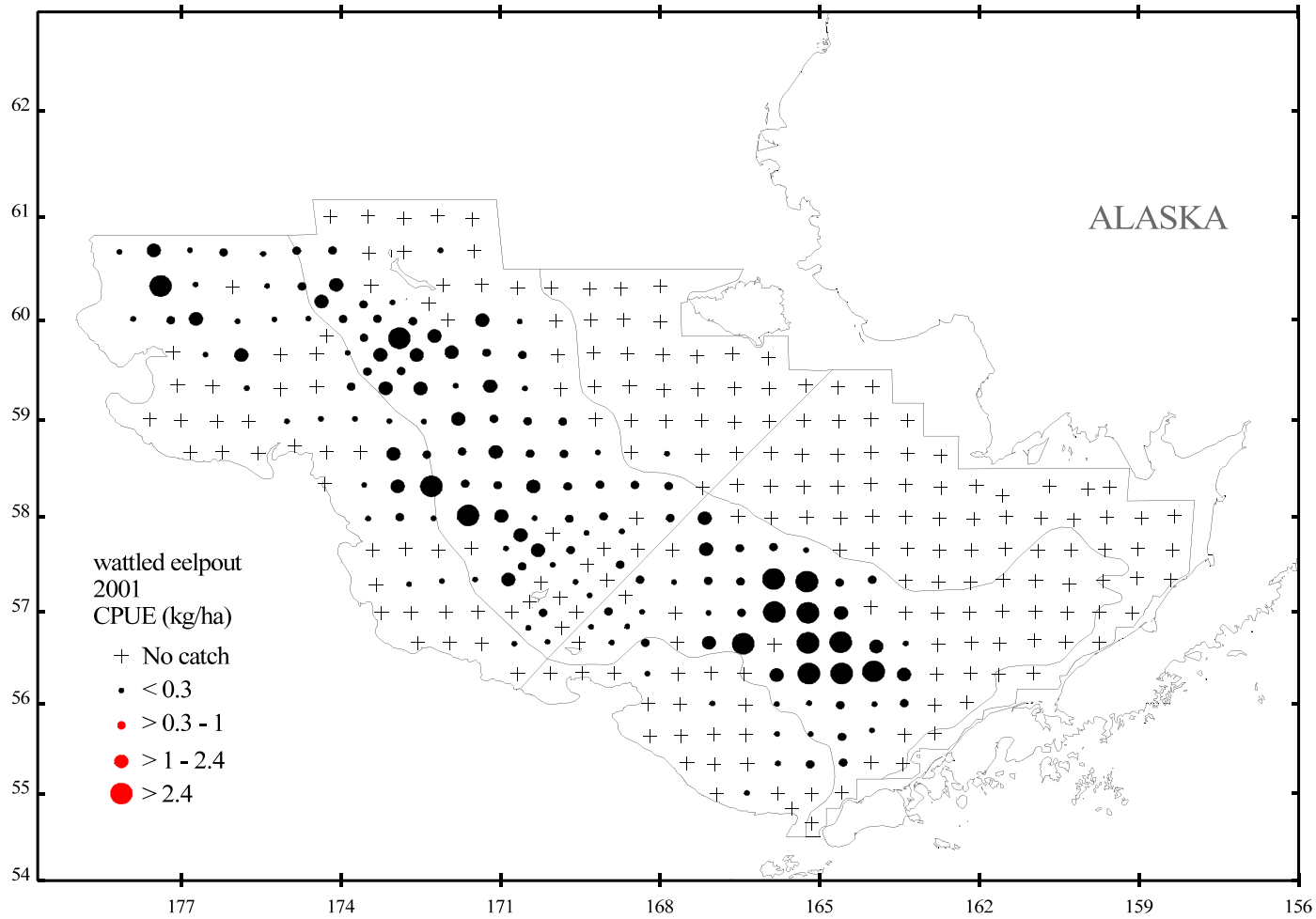

Figure 35.-- Distribution and relative abundance in kg/ha of wattled eelpout, 2001 eastern Bering Sea bottom trawl survey.

Table 25.--Abundance estimates and mean weight of wattled eelpout by subarea, 2001 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 weight (kg)
1	0.00	0	0.000	0	0.000	0.000
2	0.00	3	0.000	57,339	0.001	0.052
3	0.84	8,682	0.489	37,783,884	0.392	0.230
4	0.54	5,832	0.329	37,899,713	0.393	0.154
5	0.06	243	0.014	3,102,526	0.032	0.078
6	0.32	2,990	0.168	17,582,484	0.182	0.170
All subareas combined[b]	0.38	17,750	1.000	96,425,945	1.000	0.184
95% Confidence interval		±4,252		±20,656,089		

[a]Variances of abundance estimates are given in Appendix D.
[b]Differences in sums of estimates and totals are due to rounding.

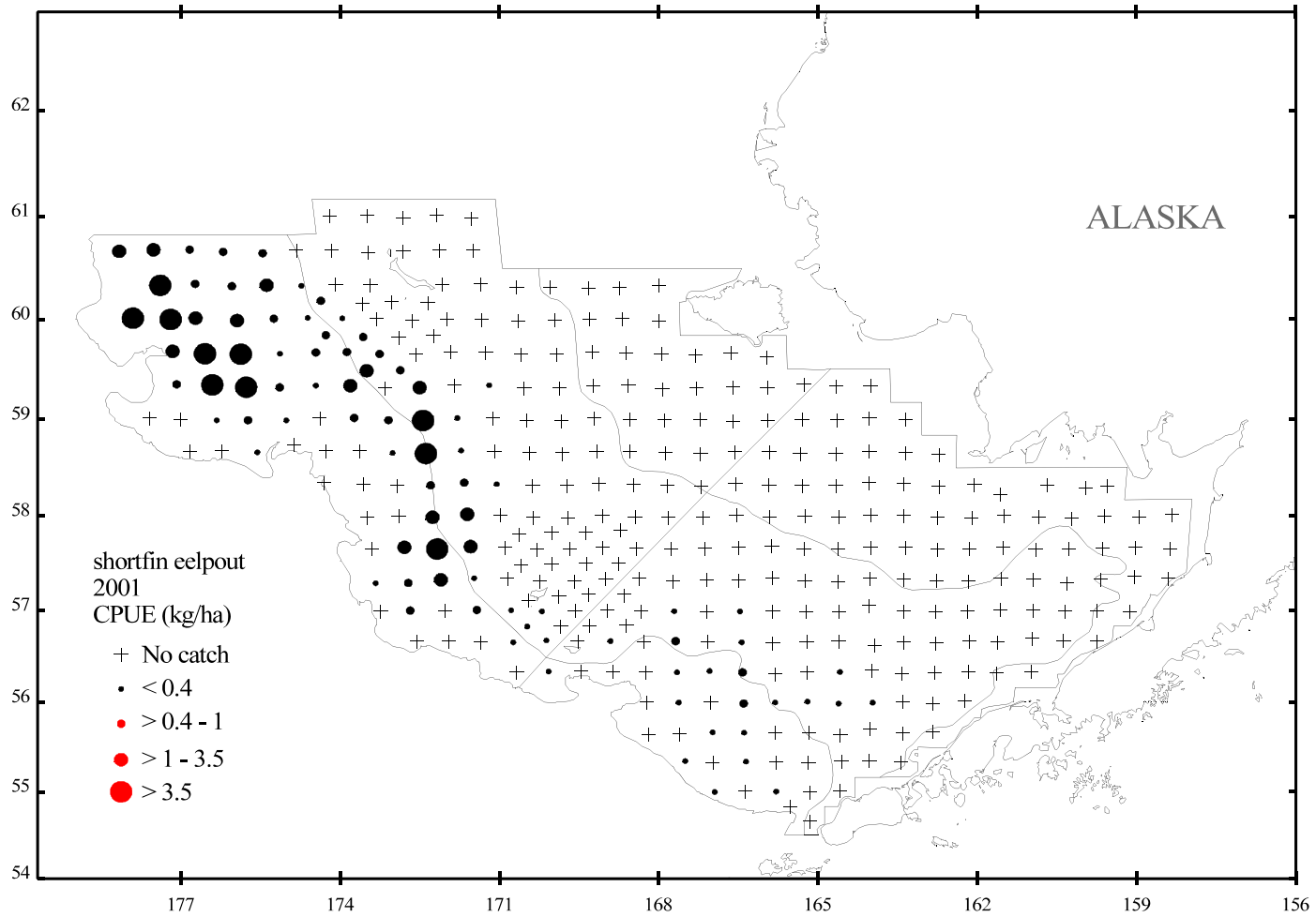

Figure 36.-- Distribution and relative abundance in kg/ha of shortfin eelpout, 2001 eastern Bering Sea bottom trawl survey.

Table 26.--Abundance estimates and mean weight of shortfin eelpout by subarea, 2001 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 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	0.02	201	0.013	5,669,348	0.020	0.035
4	0.16	1,752	0.112	43,142,281	0.155	0.041
5	0.03	126	0.008	2,772,034	0.010	0.045
6	1.44	13,605	0.867	227,042,058	0.815	0.060
All subareas combined[b]	0.34	15,683	1.000	278,625,720	1.000	0.056
95% Confidence interval		±5,797		±89,886,094		

[a]Variances of abundance estimates are given in Appendix D.
[b]Differences in sums of estimates and totals are due to rounding.

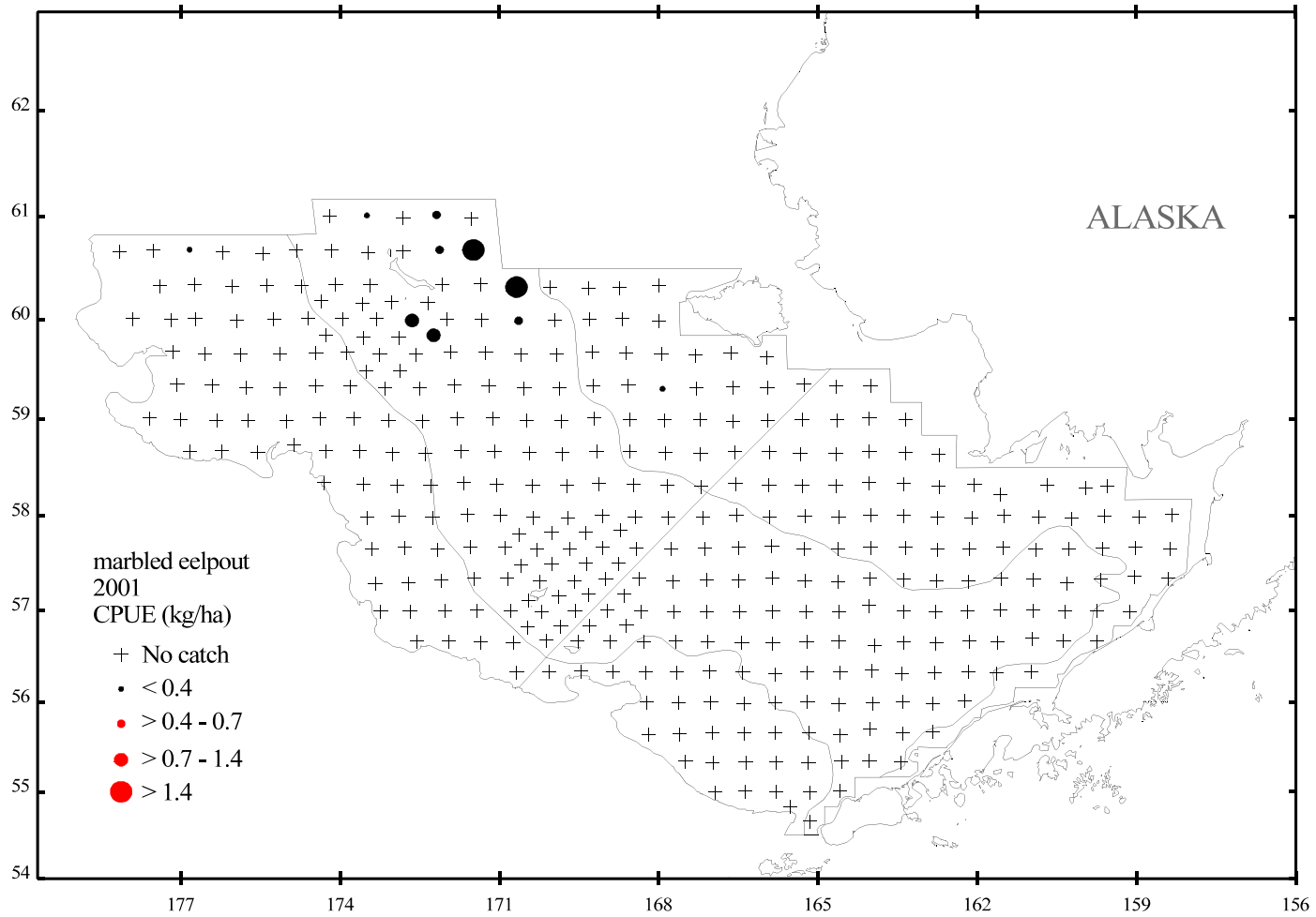

Figure 37.-- Distribution and relative abundance in kg/ha of marbled eelpout, 2001 eastern Bering Sea bottom trawl survey.

Table 27.--Abundance estimates and mean weight of marbled eelpout by subarea, 2001 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 weight (kg)
1	0.00	0	0.000	0	0.000	0.000
2	0.01	27	0.027	33,087	0.048	0.816
3	0.00	0	0.000	0	0.000	0.000
4	0.09	949	0.952	630,279	0.912	1.506
5	0.00	0	0.000	0	0.000	0.000
6	0.00	22	0.022	27,704	0.040	0.794
All subareas combined[b]	0.02	997	1.000	691,069	1.000	1.443
95% Confidence interval		±770		±496,481		

[a]Variances of abundance estimates are given in Appendix D.
[b]Differences in sums of estimates and totals are due to rounding.

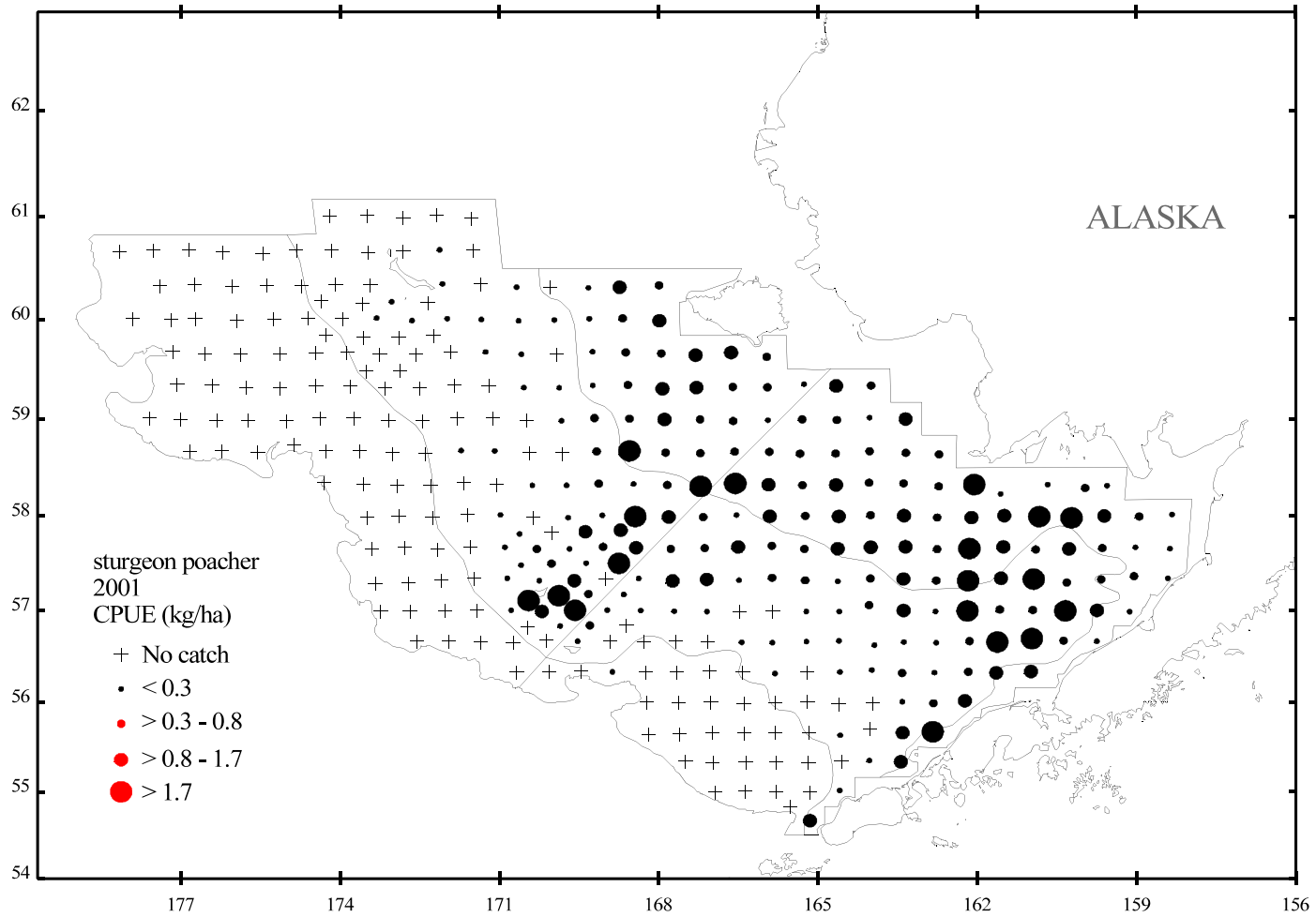

Figure 38.-- Distribution and relative abundance in kg/ha of sturgeon poacher, 2001 eastern Bering Sea bottom trawl survey.

Table 28.--Abundance estimates and mean weight of sturgeon poacher by subarea, 2001 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 weight (kg)
1	0.87	6,793	0.410	93,785,670	0.358	0.072
2	0.63	2,575	0.155	50,535,703	0.193	0.051
3	0.46	4,796	0.289	73,337,055	0.280	0.065
4	0.22	2,405	0.145	44,485,080	0.170	0.054
5	0.00	1	0.000	28,574	0.000	0.035
6	0.00	0	0.000	0	0.000	0.000
All subareas combined[b]	0.36	16,570	1.000	262,172,083	1.000	0.063
95% Confidence interval		±2,639		±42,524,088		

[a]Variances of abundance estimates are given in Appendix D.
[b]Differences in sums of estimates and totals are due to rounding.

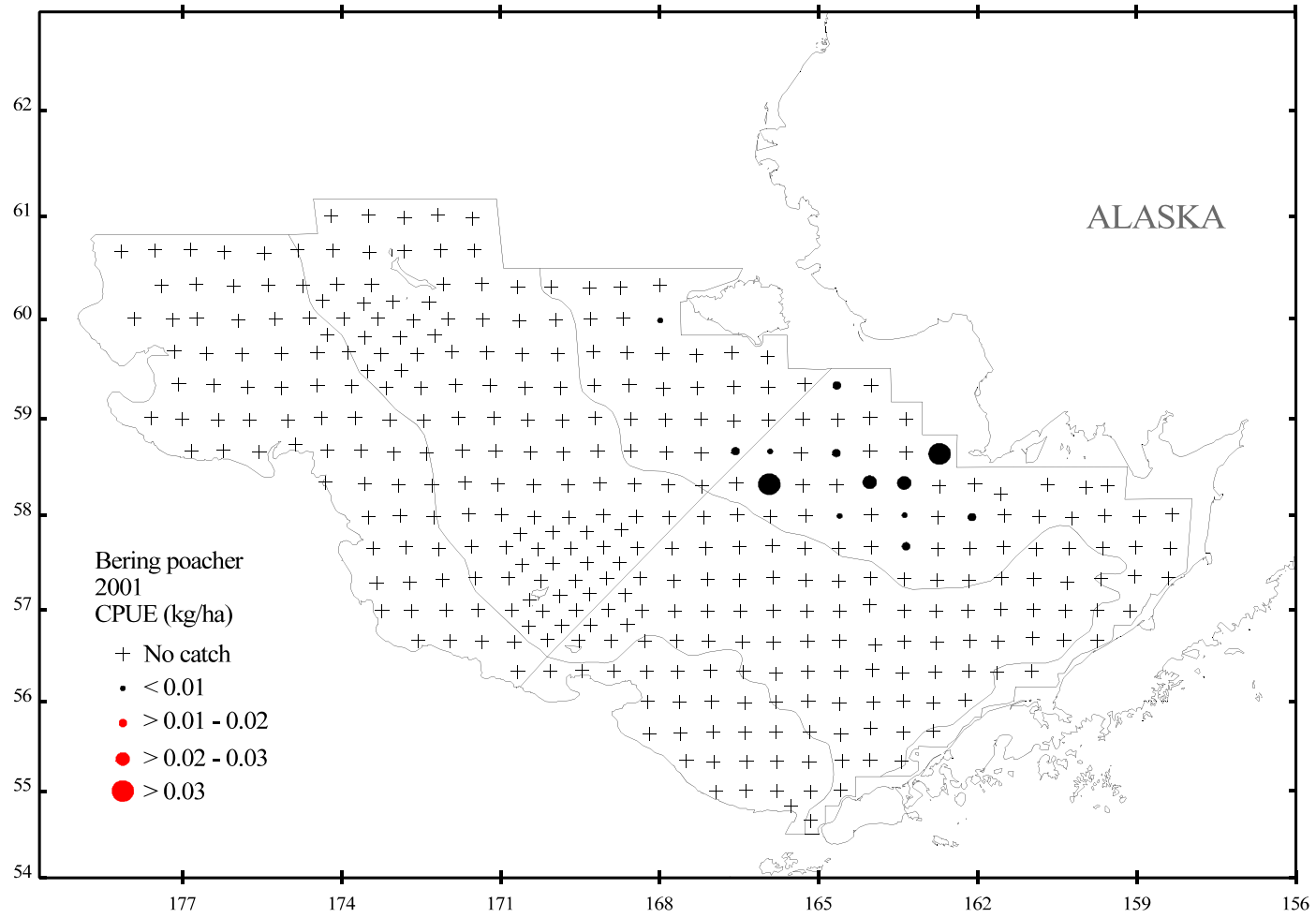

Figure 39.-- Distribution and relative abundance in kg/ha of Bering poacher, 2001 eastern Bering Sea bottom trawl survey.

Table 29.--Abundance estimates and mean weight of Bering poacher by subarea, 2001 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 weight (kg)
1	0.00	30	0.938	1,540,374	0.927	0.019
2	0.00	3	0.094	122,078	0.073	0.025
3	0.00	0	0.000	0	0.000	0.000
4	0.00	0	0.000	0	0.000	0.000
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]	0.00	32	1.000	1,662,452	1.000	0.019
95% Confidence interval		±21		±1,029,077		

[a]Variances of abundance estimates are given in Appendix D.
[b]Differences in sums of estimates and totals are due to rounding.

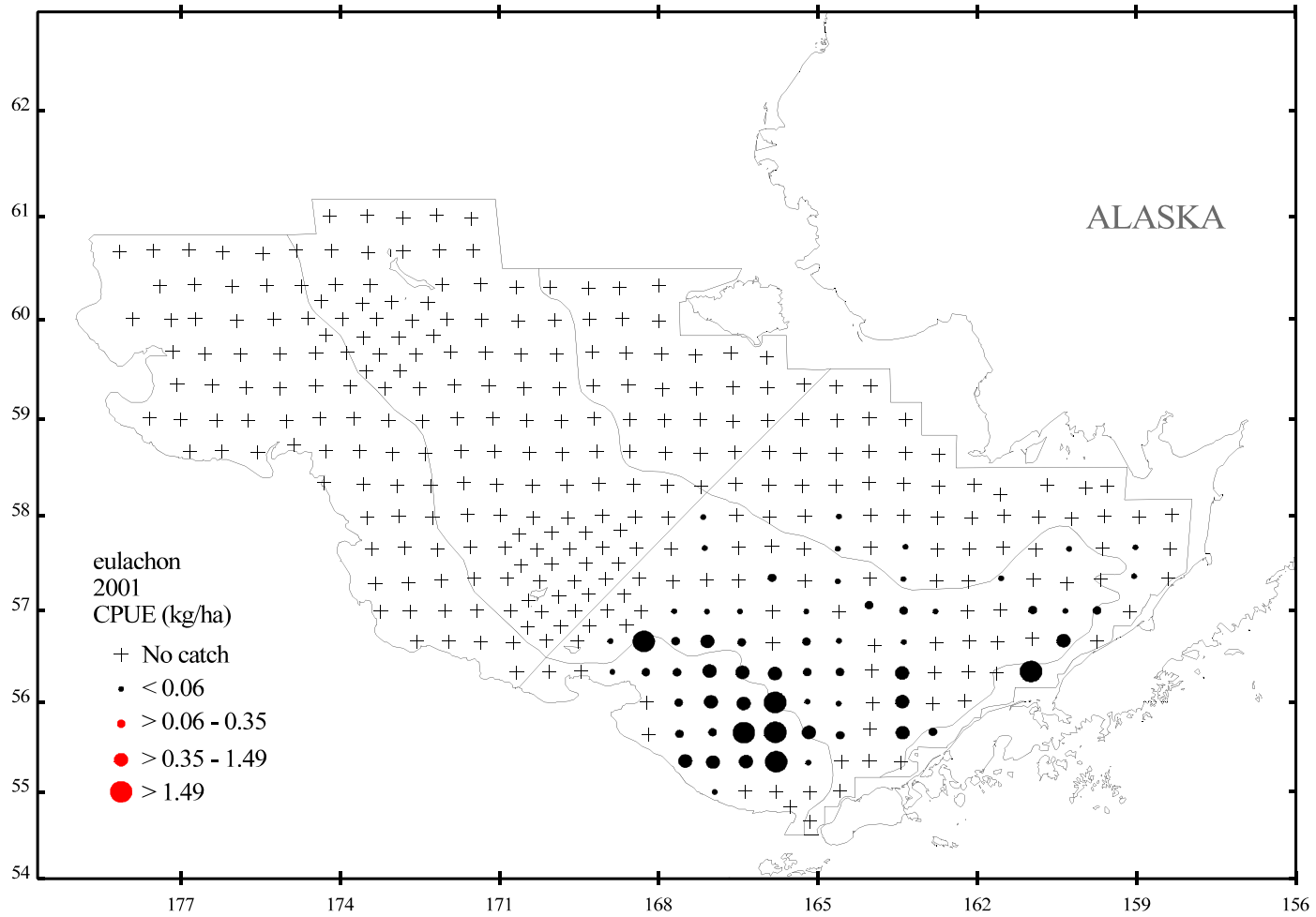

Figure 40.-- Distribution and relative abundance in kg/ha of eulachon, 2001 eastern Bering Sea bottom trawl survey.

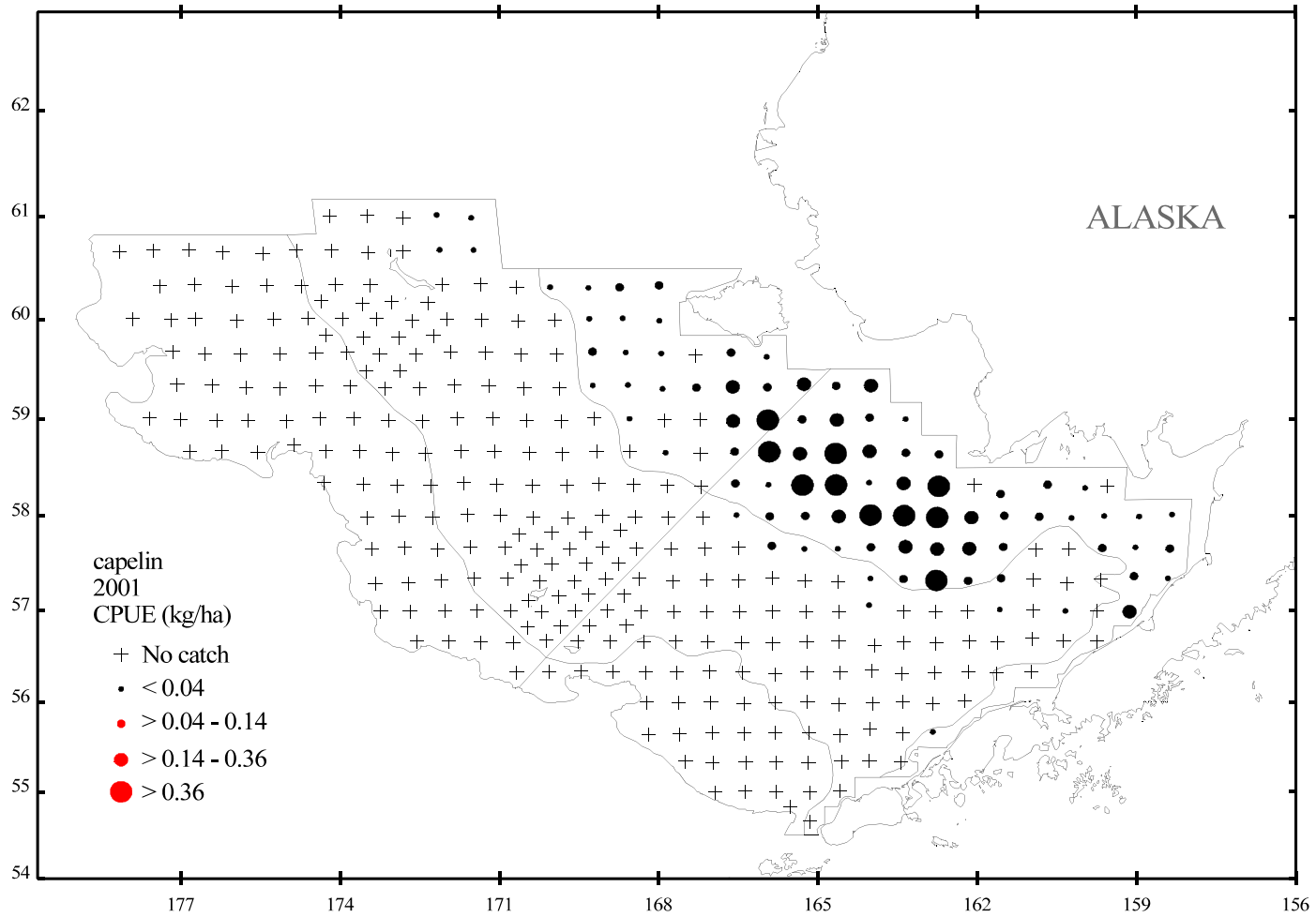

Figure 41.-- Distribution and relative abundance in kg/ha of capelin, 2001 eastern Bering Sea bottom trawl survey.

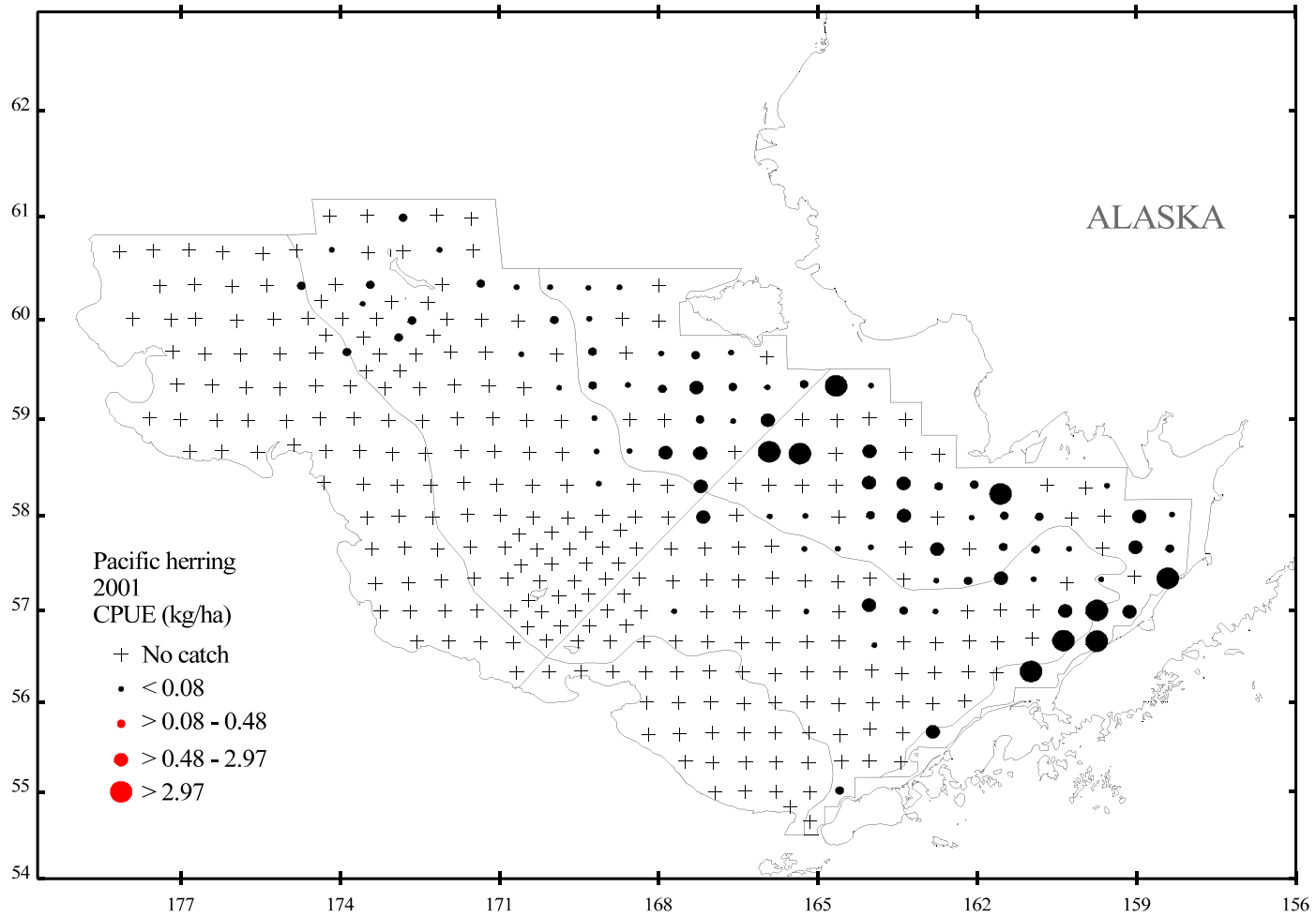

Figure 42.-- Distribution and relative abundance in kg/ha of Pacific herring, 2001 eastern Bering Sea bottom trawl survey.

CITATIONS

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Bakkala, R. G., and K. Wakabayashi (editors). 1985. Results of cooperative U.S.-Japan groundfish investigations in the Bering Sea during May-August 1979. Int. North Pac. Fish. Comm. Bull. 44, 252 p.

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APPENDIX A

Station Data, 2001 Eastern Bering Sea Bottom Trawl Survey

Appendix A contains station data by vessel for the 355 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. All longitudes are in Western Hemisphere, latitudes in Northern Hemisphere. Geodetic positions are displayed as degrees and decimal minutes.
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.

List of Tables

Appendix A Table 1.--Haul data for stations sampled by the F/V *Arcturus* during the 2001 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	05/31/01	56.667	159.743	34	06	0.51	2.83	10	5.0	4.7	15.6	M
*	2	05/31/01	57.000	159.740	56	09	0.52	2.80	10	7.5	4.0	16.1	M
*	3	05/31/01	56.986	159.125	30	13	0.54	2.78	10	4.9	4.6	17.4	M
*	4	05/31/01	57.332	159.660	54	17	0.50	2.75	10	4.5	3.8	16.3	M
*	5	06/01/01	57.665	159.639	48	06	0.52	2.98	10	4.1	3.9	16.3	M
*	6	06/01/01	58.002	159.604	41	09	0.51	2.94	10	4.6	3.9	15.8	M
*	7	06/01/01	58.318	159.550	24	12	0.53	3.03	10	6.1	5.0	14.6	M
*	10	06/02/01	58.329	160.669	18	07	0.26	1.45	10	7.6	7.1	14.1	F
*	11	06/02/01	57.995	160.826	44	10	0.53	3.00	10	4.7	3.7	15.3	M
*	12	06/02/01	57.649	160.893	55	12	0.52	3.07	31	5.0	3.6	15.7	M
*	13	06/02/01	57.334	160.933	60	15	0.52	2.99	31	4.4	3.4	15.6	M
*	14	06/02/01	57.004	160.948	64	17	0.50	2.76	31	5.7	3.5	15.5	M
*	15	06/03/01	56.696	160.965	66	06	0.50	2.73	31	4.1	3.6	15.6	M
*	16	06/03/01	56.337	160.982	53	09	0.50	2.74	10	4.5	3.9	16.7	M
*	18	06/03/01	56.322	161.637	62	16	0.52	2.81	10	4.3	3.6	15.7	M
*	19	06/03/01	56.334	162.164	75	19	0.54	2.66	31	4.4	3.0	15.5	M
*	20	06/04/01	56.658	161.617	88	07	0.27	1.42	31	5.4	3.0	15.4	M
*	21	06/04/01	56.668	162.141	72	09	0.55	3.06	31	3.9	3.1	14.6	M
*	22	06/04/01	56.994	162.179	58	12	0.52	2.74	31	4.1	3.3	14.8	M
*	23	06/04/01	57.317	162.167	48	15	0.52	2.86	10	4.9	3.4	15.3	M
*	24	06/04/01	57.659	162.144	44	17	0.52	2.81	10	5.3	3.8	15.5	F
*	25	06/05/01	57.985	162.103	36	06	0.51	2.79	10	4.3	3.9	14.4	M
*	26	06/05/01	58.329	162.051	45	09	0.49	2.68	10	4.3	3.8	14.1	M
*	27	06/05/01	58.641	162.714	25	12	0.27	1.51	10	4.8	3.0	14.0	M
*	29	06/05/01	59.002	163.344	19	17	0.53	3.05	10	5.0	4.1	13.7	M
*	32	06/06/01	59.341	163.995	21	09	0.53	2.96	10	4.7	4.4	14.2	M
*	33	06/06/01	59.016	164.022	27	12	0.54	3.01	10	3.8	3.0	13.8	M
*	34	06/06/01	58.673	164.023	32	15	0.51	2.84	10	3.1	2.3	13.6	M
*	35	06/07/01	58.341	163.382	36	06	0.50	2.79	10	3.6	3.0	13.7	M
*	36	06/07/01	58.005	163.373	42	09	0.51	2.75	10	4.7	2.6	14.6	M
*	37	06/07/01	57.678	163.346	46	12	0.52	2.96	10	5.5	3.0	14.9	M

Appendix A Table 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
*	38	06/07/01	57.336	163.386	51	14	0.51	2.79	10	5.6	2.8	14.6	M
*	39	06/07/01	56.998	163.382	63	16	0.53	2.90	31	5.4	2.5	14.9	M
*	40	06/08/01	56.658	163.377	74	06	0.50	2.70	31	5.4	2.9	16.1	M
*	41	06/08/01	56.320	163.411	84	09	0.49	2.68	31	5.9	3.2	15.1	M
*	42	06/08/01	56.005	163.406	86	11	0.51	2.80	31	6.4	3.3	15.3	M
*	43	06/08/01	55.661	163.401	78	14	0.50	2.85	31	7.9	3.4	15.4	M
*	44	06/08/01	55.336	163.433	50	17	0.50	2.69	31	8.4	3.6	14.6	M
*	45	06/10/01	55.012	164.586	61	06	0.51	2.76	31	7.4	4.6	16.2	M
*	46	06/10/01	55.345	164.554	99	08	0.37	1.97	31	7.0	4.3	16.3	M
*	47	06/10/01	55.632	164.577	95	11	0.49	2.68	31	6.9	3.7	16.4	M
*	48	06/10/01	55.984	164.607	91	14	0.51	2.85	31	6.6	3.5	16.5	M
*	49	06/10/01	56.006	165.193	94	16	0.50	2.82	31	6.7	3.9	18.4	M
*	50	06/11/01	56.331	164.581	84	06	0.50	2.81	31	5.7	---	16.4	M
*	51	06/11/01	56.672	164.600	73	08	0.51	2.77	31	5.3	2.8	15.9	M
*	52	06/11/01	56.988	164.593	69	11	0.38	2.00	31	5.1	2.5	16.7	M
*	53	06/11/01	57.311	164.622	65	13	0.50	2.70	31	4.9	1.7	15.3	M
*	54	06/11/01	57.657	164.623	51	15	0.50	2.83	10	5.6	2.0	15.5	F
*	55	06/12/01	57.997	164.601	43	06	0.51	2.85	10	5.1	2.2	15.5	F
*	56	06/12/01	58.325	164.653	42	09	0.52	2.67	10	5.1	1.4	15.5	F
*	57	06/12/01	58.650	164.661	35	11	0.50	2.69	10	4.1	2.1	13.9	M
*	58	06/12/01	58.992	164.639	26	13	0.52	2.80	10	4.6	2.8	13.5	M
*	59	06/12/01	59.338	164.652	21	15	0.53	2.86	10	4.1	3.5	13.8	M
*	64	06/13/01	59.355	165.258	19	12	0.54	2.95	20	4.1	3.5	15.0	M
*	65	06/13/01	58.999	165.292	26	16	0.51	2.79	10	3.5	3.0	14.1	M
*	66	06/14/01	58.328	165.925	43	06	0.51	2.75	10	4.8	1.4	14.8	M
*	67	06/14/01	57.998	165.903	54	08	0.49	2.57	10	5.0	1.2	14.9	M
*	68	06/14/01	57.688	165.866	62	11	0.50	2.56	31	5.2	2.0	15.7	M
*	69	06/14/01	57.349	165.860	66	13	0.50	2.60	31	5.2	2.5	15.6	M
*	70	06/18/01	54.995	166.940	144	06	0.60	3.38	50	7.7	4.2	18.7	M
*	71	06/18/01	55.003	166.364	141	09	0.50	2.78	50	6.4	3.8	18.0	M
*	72	06/18/01	55.000	165.782	128	12	0.51	2.59	50	8.2	3.8	18.2	M
*	73	06/18/01	55.335	165.782	118	15	0.48	2.62	50	8.6	4.3	19.0	M

Appendix A Table 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
*	74	06/19/01	55.665	165.797	116	06	0.47	2.47	50	8.3	4.2	19.0	M
*	75	06/19/01	55.997	165.802	106	09	0.51	2.75	31	8.5	4.2	18.7	M
*	76	06/19/01	56.314	165.806	88	11	0.60	2.85	31		3.4	16.9	M
*	77	06/19/01	56.652	165.854	76	14	0.53	2.78	31		3.0	16.5	M
*	78	06/19/01	56.996	165.847	70	16	0.50	2.83	31	8.0	2.8	15.4	M
*	79	06/20/01	55.665	166.980	133	06	0.47	2.56	50	7.0	4.0	19.4	M
*	80	06/20/01	56.003	167.011	132	09	0.47	2.52	50	7.4	4.0	19.2	M
*	81	06/20/01	56.342	167.037	110	11	0.49	2.75	50	7.5	4.1	17.5	F
*	82	06/20/01	56.665	167.076	92	14	0.51	2.75	31	7.0	3.4	17.2	M
*	83	06/20/01	56.988	167.086	111	16	0.50	2.78	31	6.8	4.1	15.7	M
*	84	06/21/01	57.331	167.091	68	06	0.48	2.76	31	6.8	2.7	15.8	M
*	85	06/21/01	57.664	167.129	66	08	0.49	2.67	31	6.5	2.3	15.7	M
*	86	06/21/01	57.990	167.157	62	11	0.49	2.65	31	6.1	1.7	16.0	M
*	87	06/21/01	58.310	167.204	50	13	0.49	2.60	20	5.4	1.4	15.1	M
*	88	06/21/01	58.653	167.211	41	16	0.52	2.90	20	4.0	2.2	14.6	M
*	89	06/22/01	58.999	167.216	38	06	0.49	2.41	20	3.5	2.7	13.8	M
*	90	06/22/01	58.998	167.884	38	09	0.52	2.88	20	2.2	2.7	15.3	M
*	91	06/22/01	59.321	167.285	30	12	0.51	2.73	20	3.5	2.5	14.2	M
*	92	06/22/01	59.645	167.299	29	15	0.52	3.09	20	2.8	2.2	14.2	M
*	93	06/23/01	60.316	168.731	34	06	0.50	2.62	20	1.8	0.7	14.5	M
*	94	06/23/01	60.012	168.673	37	09	0.52	2.73	20	3.3	-0.2	14.6	M
*	95	06/23/01	59.673	168.615	37	11	0.49	2.58	20	2.2	0.7	14.4	M
*	96	06/23/01	59.347	168.575	39	14	0.52	2.59	20	2.9	0.2	14.8	M
*	97	06/23/01	59.006	168.546	44	16	0.50	2.64	20	2.8	1.2	15.2	M
*	98	06/24/01	58.676	168.545	52	06	0.49	2.68	20	4.1	1.0	15.3	M
*	99	06/24/01	58.335	168.469	63	09	0.50	2.42	41	5.5	1.5	17.6	M
*	100	06/24/01	57.996	168.436	67	11	0.50	2.71	42		---	15.8	M
*	101	06/24/01	57.854	168.711	68	13	0.48	2.74	42		---	15.6	M
*	102	06/24/01	57.667	168.420	68	15	0.50	2.67	42		---	15.1	M
*	103	06/24/01	57.503	168.743	68	17	0.49	2.76	42		---	15.6	M
*	104	06/26/01	57.342	168.372	71	13	0.51	2.83	32	6.5	---	15.9	M
*	105	06/26/01	57.171	168.653	74	15	0.51	2.89	32	6.8	3.1	16.5	M

Appendix A Table 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
*	106	06/26/01	56.998	168.334	79	17	0.50	2.75	32	7.1	3.1	15.3	M
*	107	06/26/01	56.843	168.611	94	20	0.39	2.16	32	7.2	3.2	16.1	M
*	108	06/27/01	55.643	168.187	134	06	0.50	2.75	50	7.2	4.1	15.5	M
*	109	06/27/01	56.003	168.225	149	09	0.49	3.07	50	7.0	4.1	16.5	M
*	110	06/27/01	56.329	168.235	151	12	0.51	2.89	50	7.4	4.1	16.7	M
*	111	06/27/01	56.665	168.273	105	14	0.50	2.78	50	7.5	3.5	16.9	M
*	112	06/27/01	56.668	168.904	97	17	0.49	2.83	32	6.9	3.1	16.8	M
*	113	06/28/01	56.667	169.522	78	06	0.51	2.78	32	5.3	3.7	15.6	M
*	114	06/28/01	56.832	169.848	71	09	0.51	2.88	42	5.8	3.6	15.5	M
*	115	06/28/01	57.001	169.570	60	11	0.50	2.85	42	4.7	3.8	15.1	M
*	116	06/28/01	57.157	169.875	49	13	0.50	2.72	42	5.1	4.1	15.0	M
*	117	06/29/01	57.319	169.584	63	06	0.50	2.68	42	5.5	3.0	16.3	F
*	118	06/29/01	57.500	170.012	67	09	0.49	2.83	42	5.6	2.5	15.2	M
*	119	06/29/01	57.656	169.675	69	11	0.50	2.82	42	6.1	2.5	15.8	M
*	120	06/29/01	57.836	170.009	72	14	0.25	1.46	42	6.1	2.3	18.8	M
*	121	06/29/01	57.985	169.701	69	15	0.50	2.80	42	6.1	1.8	15.8	M
*	122	06/29/01	58.321	169.731	68	18	0.49	2.82	41	6.1	1.7	15.9	M
*	123	06/30/01	58.656	169.800	66	06	0.49	2.70	41	5.9	1.3	17.1	M
*	124	06/30/01	58.985	169.823	62	09	0.50	2.71	41	5.5	0.8	17.4	M
*	125	06/30/01	59.318	169.866	59	11	0.51	2.90	41	4.9	-0.2	18.1	M
*	126	06/30/01	59.654	169.916	55	13	0.52	2.90	41	5.0	-0.8	16.6	M
*	127	06/30/01	59.995	169.959	53	16	0.50	2.84	41	4.7	-1.0	16.0	M
*	128	07/01/01	60.318	170.037	51	06	0.49	2.71	20	4.1	-1.2	16.1	M
*	135	07/03/01	60.988	171.527	59	11	0.52	2.87	41	4.2	-1.2	19.0	M
*	136	07/03/01	60.679	171.482	62	15	0.51	2.92	41	4.6	-0.6	18.6	M
*	137	07/03/01	60.352	171.342	65	20	0.50	2.77	41	5.4	0.3	18.4	M
*	138	07/04/01	60.000	171.333	68	06	0.50	2.73	41	5.5	0.7	16.2	M
*	139	07/04/01	59.678	171.253	71	09	0.52	2.88	41	5.2	0.9	16.8	M
*	140	07/04/01	59.344	171.186	74	12	0.51	2.90	41	5.4	1.1	16.8	M
*	141	07/04/01	59.013	171.118	76	14	0.53	2.72	41	6.0	1.1	17.2	M
*	142	07/04/01	58.677	171.083	82	16	0.49	2.67	41	6.7	1.3	17.3	M
*	143	07/05/01	58.014	170.976	86	06	0.49	2.66	42	6.0	2.3	17.6	M

Appendix A Table 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
*	144	07/05/01	57.674	170.892	84	09	0.50	2.68	42	6.5	2.9	16.8	M
*	145	07/05/01	57.344	170.846	81	12	0.51	2.88	42	6.5	3.8	17.0	M
*	146	07/08/01	57.002	170.772	94	06	0.53	2.85	42	7.5	3.4	17.0	M
*	148	07/08/01	57.004	171.418	107	10	0.52	2.82	61	7.4	3.3	17.1	M
*	149	07/08/01	57.000	172.017	115	13	0.50	2.79	61	7.0	3.8	16.5	M
*	150	07/08/01	56.998	172.673	120	16	0.51	2.88	61	7.3	4.1	17.3	M
*	151	07/08/01	57.294	172.710	110	18	0.51	2.78	61	7.3	---	17.3	M
*	152	07/09/01	57.327	172.095	107	06	0.51	2.81	61	7.0	3.2	17.5	M
*	153	07/09/01	57.655	172.164	106	09	0.51	2.79	61	7.0	3.2	17.3	M
*	154	07/09/01	57.672	172.782	117	12	0.50	2.80	61	7.2	3.4	17.6	M
*	155	07/09/01	57.989	172.253	103	15	0.26	1.41	61	7.3	2.8	17.0	M
*	156	07/09/01	58.322	172.290	101	17	0.49	2.66	61	7.4	2.4	16.6	M
*	157	07/10/01	58.649	172.378	100	06	0.49	2.68	61	7.0	2.1	17.2	M
*	158	07/10/01	58.986	172.431	97	09	0.50	2.80	41	6.7	1.7	17.2	M
*	159	07/10/01	59.320	172.496	86	11	0.51	2.86	43	6.2	1.5	17.2	M
*	160	07/10/01	59.494	172.861	92	13	0.50	2.80	43	6.7	1.6	17.3	M
*	161	07/10/01	59.655	172.568	82	15	0.50	2.78	43	6.7	1.3	16.9	M
*	162	07/10/01	59.822	172.892	76	17	0.51	2.89	43	6.2	---	16.8	M
*	163	07/11/01	59.990	172.638	65	06	0.49	2.63	43	5.3	0.3	16.0	M
*	164	07/11/01	60.174	173.025	58	08	0.51	2.88	43	5.6	1.3	16.3	M
*	165	07/11/01	60.014	173.307	73	11	0.52	2.78	43	6.2	0.9	16.3	M
*	166	07/11/01	60.155	173.568	70	14	0.51	2.84	43	6.5	---	16.5	M
*	167	07/11/01	60.340	173.425	61	17	0.27	1.50	43	6.2	1.3	17.1	M
*	179	07/14/01	61.007	174.192	83	06	0.53	2.86	41	7.2	0.8	13.2	M
*	180	07/14/01	60.680	174.150	86	09	0.50	2.79	41	7.0	1.0	18.8	M
*	181	07/14/01	60.347	174.080	90	11	0.51	2.85	43	6.9	1.5	18.9	M
*	182	07/14/01	60.184	174.357	99	14	0.51	2.86	43	7.2	1.7	17.9	M
*	183	07/14/01	60.012	173.952	96	16	0.51	2.90	43	7.1	1.6	18.1	M
*	184	07/15/01	59.678	173.866	103	06	0.50	2.81	62	7.2	2.4	17.9	M
*	185	07/15/01	59.339	173.799	108	09	0.52	2.89	62	7.2	2.7	18.2	M
*	186	07/15/01	59.014	173.730	116	12	0.51	2.88	61	7.4	3.0	18.1	M
*	187	07/15/01	58.681	173.630	125	15	0.47	2.65	61	7.6	3.5	18.2	M

Appendix A Table 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
*	188	07/15/01	58.348	174.307	160	19	0.50	2.86	61	7.7	3.6	18.7	M
*	189	07/16/01	58.989	175.008	128	07	0.53	2.93	61	7.0	3.2	18.6	M
*	190	07/16/01	59.323	175.131	131	11	0.52	2.80	61	7.1	2.8	18.3	M
*	191	07/16/01	59.660	175.127	124	15	0.53	2.94	61	7.3	2.8	18.3	M
*	192	07/16/01	60.008	175.242	115	18	0.51	2.84	61	7.1	2.6	17.9	M
*	193	07/17/01	60.337	175.378	110	06	0.52	2.90	61	7.2	2.2	18.0	M
*	194	07/17/01	60.648	175.453	106	08	0.52	2.85	61	7.1	1.9	18.5	M
*	201	07/18/01	60.683	176.827	127	11	0.51	2.89	61	7.1	1.1	18.4	M
*	202	07/18/01	60.350	176.723	135	14	0.50	2.72	61	7.3	1.4	17.8	M
*	203	07/18/01	60.013	176.717	140	16	0.50	2.76	61	8.3	1.4	18.3	M
*	204	07/18/01	60.000	177.186	136	18	0.51	2.86	61	7.5	0.8	17.9	M
*	205	07/19/01	59.660	176.538	134	06	0.50	2.76	61	7.0	1.0	17.9	M
*	206	07/19/01	59.348	176.400	134	09	0.52	2.69	61	7.0	1.3	18.0	M
*	207	07/19/01	58.990	176.319	132	12	0.51	2.88	61	6.9	1.7	18.0	M
*	208	07/19/01	58.684	176.215	133	14	0.52	2.81	61	7.5	---	15.6	M

Appendix A Table 2.--Haul data for stations sampled by the F/V *Aldebaran* during the 2001 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	05/29/01	57.344	158.406	32	07	0.52	2.65	10	5.0	4.5	16.1	M
	4	05/29/01	57.659	158.365	33	15	0.51	2.87	10	5.4	4.4	15.4	M
	6	05/29/01	58.017	158.326	33	19	0.49	2.69	10	5.0	---	16.0	M
*	9	05/30/01	57.997	158.944	37	12	0.50	2.94	10	4.4	4.0	15.6	M
*	10	05/30/01	57.672	159.015	44	15	0.52	2.79	10	4.3	4.0	17.3	M
*	11	05/30/01	57.366	159.041	47	18	0.50	2.79	10	4.3	3.8	16.0	M
*	13	05/31/01	56.673	160.370	59	11	0.51	2.74	31	4.1	3.8	16.9	M
*	14	05/31/01	56.994	160.337	60	14	0.51	2.82	31	4.1	3.7	17.3	M
*	15	05/31/01	57.298	160.309	56	17	0.27	1.54	31	3.8	3.8	16.6	M
*	16	06/01/01	57.656	160.265	53	06	0.50	2.87	31	4.0	3.8	16.4	M
*	17	06/01/01	57.982	160.220	49	09	0.51	2.70	10	4.7	3.6	15.8	M
*	18	06/01/01	58.294	159.964	43	12	0.27	1.54	10	5.0	4.0	16.3	F
*	21	06/02/01	58.232	161.555	38	06	0.52	2.95	10	4.7	4.2	16.4	M
*	22	06/02/01	58.005	161.486	53	08	0.50	2.76	10	4.7	3.8	15.6	M
*	23	06/02/01	57.677	161.504	50	11	0.50	2.78	10	4.1	3.5	15.0	M
*	24	06/02/01	57.344	161.546	52	14	0.51	2.81	31	5.4	3.6	15.0	M
*	25	06/02/01	57.010	161.571	67	16	0.51	2.87	31	4.9	3.5	16.1	M
*	26	06/03/01	56.014	162.228	69	06	0.53	2.90	31	4.7	3.4	17.0	M
*	28	06/03/01	55.671	162.832	50	12	0.52	2.96	10	5.7	3.6	15.6	M
*	29	06/03/01	55.988	162.820	76	15	0.52	2.79	31	5.1	3.3	17.3	M
*	30	06/03/01	56.325	162.801	76	18	0.54	2.88	31	3.9	3.1	16.6	M
*	31	06/04/01	56.651	162.768	70	06	0.53	2.95	31	3.8	2.9	16.7	M
*	32	06/04/01	56.989	162.780	59	09	0.51	2.77	31	3.7	2.5	16.7	M
*	33	06/04/01	57.320	162.765	46	12	0.50	2.76	10	4.4	3.3	16.0	M
*	34	06/04/01	57.653	162.750	41	14	0.52	2.82	10	4.9	3.5	16.2	M
*	35	06/04/01	57.986	162.750	38	17	0.51	2.73	10	5.1	3.2	15.0	M
*	37	06/06/01	58.311	162.720	29	15	0.50	2.82	10	4.1	3.3	15.2	M
*	38	06/06/01	58.657	163.341	28	18	0.51	2.88	10	3.6	2.8	14.9	M
*	39	06/07/01	58.348	164.031	39	06	0.49	2.69	10	3.1	2.2	15.3	F
*	40	06/07/01	58.011	164.003	45	09	0.50	2.80	10	3.6	2.5	15.8	M
*	41	06/07/01	57.673	163.999	49	12	0.49	2.71	10	5.4	2.6	15.3	M

Appendix A Table 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
*	42	06/07/01	57.342	164.007	59	14	0.51	2.85	31	5.3	2.0	15.9	M
*	43	06/07/01	57.057	164.032	65	17	0.51	2.79	31	5.3	2.4	16.2	M
*	46	06/08/01	56.625	163.932	75	09	0.37	1.99	31	5.4	2.9	16.5	M
*	47	06/08/01	56.354	163.980	84	11	0.48	2.69	31	5.4	3.1	16.6	M
*	48	06/08/01	55.994	163.966	88	14	0.52	2.90	31	7.0	3.3	16.1	M
*	49	06/08/01	55.706	164.012	91	17	0.51	2.88	31	8.2	3.6	16.5	M
*	50	06/08/01	55.350	164.027	78	20	0.49	2.75	31	7.2	4.2	17.1	M
*	51	06/10/01	54.668	165.146	80	06	0.48	2.68	31	5.2	5.4	17.4	F
*	52	06/10/01	54.833	165.521	151	09	0.52	2.90	50	6.0	3.8	17.3	M
*	53	06/10/01	54.995	165.154	109	12	0.53	2.87	50	6.5	4.2	16.7	M
*	54	06/10/01	55.326	165.176	109	14	0.26	1.34	50	7.5	4.2	19.3	M
*	55	06/10/01	55.664	165.167	106	17	0.51	2.84	31	7.2	4.0	19.5	M
*	56	06/11/01	56.330	165.198	84	06	0.53	2.90	31	5.5	3.0	17.0	M
*	57	06/11/01	56.663	165.213	74	09	0.52	2.82	31	5.0	2.9	17.1	M
*	58	06/11/01	56.989	165.215	69	11	0.54	2.93	31	5.2	2.8	17.4	M
*	59	06/11/01	57.322	165.235	65	14	0.50	2.72	31	5.2	2.4	16.0	M
*	60	06/11/01	57.655	165.251	59	16	0.51	2.77	31	5.2	1.4	15.7	M
*	61	06/12/01	58.003	165.234	48	06	0.50	2.81	10	5.3	1.7	15.4	M
*	62	06/12/01	58.323	165.287	43	09	0.51	2.80	10	5.0	1.6	15.7	M
*	63	06/12/01	58.648	165.334	37	12	0.50	2.69	10	4.9	2.1	15.1	M
*	64	06/12/01	58.667	165.911	35	14	0.50	2.75	10	4.2	1.9	15.3	M
*	65	06/12/01	58.991	165.939	28	17	0.51	2.69	20	3.5	2.8	14.8	M
*	66	06/13/01	58.982	166.592	32	06	0.27	1.38	20	3.0	2.4	15.4	M
*	67	06/13/01	59.327	166.600	25	09	0.52	2.86	20	3.2	2.5	15.4	M
*	68	06/13/01	59.323	165.947	22	12	0.52	2.83	20	4.0	3.4	15.0	M
*	69	06/13/01	59.629	165.961	25	15	0.51	2.92	20	4.2	3.5	15.7	M
*	70	06/13/01	59.671	166.631	27	18	0.51	2.85	20	3.5	2.9	16.6	M
*	71	06/14/01	58.669	166.566	40	06	0.52	2.91	20	2.7	1.8	15.9	M
*	72	06/14/01	58.341	166.551	45	09	0.51	2.73	10	3.5	1.2	16.2	M
*	73	06/14/01	58.012	166.530	59	12	0.51	2.75	31	5.0	1.5	17.8	M
*	74	06/14/01	57.676	166.499	65	15	0.50	2.73	31	5.3	2.5	16.6	M
*	76	06/18/01	55.343	167.494	142	09	0.49	2.63	50	8.0	3.9	17.7	M

Appendix A Table 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
*	77	06/18/01	55.332	166.972	137	11	0.47	2.56	50	7.8	3.9	19.2	M
*	78	06/18/01	55.337	166.351	130	14	0.50	2.77	50	7.8	4.0	19.1	M
*	79	06/18/01	55.661	166.389	124	17	0.52	2.87	50	7.8	4.0	18.5	M
*	80	06/19/01	55.985	166.395	122	06	0.49	2.70	50	7.9	4.1	18.1	M
*	81	06/19/01	56.328	166.417	101	09	0.49	2.69	31	7.5	4.0	18.0	M
*	82	06/19/01	56.655	166.432	82	11	0.51	2.80	31	8.0	3.0	16.9	M
*	83	06/19/01	56.989	166.465	71	14	0.49	2.77	31	8.2	3.1	17.4	M
*	84	06/19/01	57.323	166.483	67	16	0.50	2.79	31	7.8	2.7	16.5	M
*	85	06/20/01	55.647	167.603	133	06	0.49	2.70	50	7.6	4.0	18.3	M
*	86	06/20/01	55.995	167.618	130	09	0.48	2.65	50	7.2	4.0	19.0	M
*	87	06/20/01	56.328	167.650	126	12	0.51	2.74	50	7.2	4.0	18.4	M
*	88	06/20/01	56.668	167.676	98	14	0.50	2.75	31	7.1	3.1	17.9	M
*	89	06/20/01	56.992	167.703	75	17	0.52	2.84	31	7.0	3.2	16.4	M
*	90	06/21/01	57.316	167.733	71	06	0.52	2.80	31	7.0	2.9	16.5	M
*	91	06/21/01	57.656	167.768	67	09	0.49	2.71	31	6.3	2.7	16.4	M
*	92	06/21/01	57.992	167.805	64	11	0.49	2.67	41	6.1	2.0	16.5	M
*	93	06/21/01	58.325	167.834	58	14	0.51	2.72	41	5.7	1.5	18.1	M
*	94	06/21/01	58.659	167.865	44	16	0.51	2.95	20	3.8	1.8	16.2	M
*	95	06/22/01	59.308	167.924	38	06	0.50	2.63	20	2.4	1.4	15.7	M
*	96	06/22/01	59.663	167.946	33	09	0.49	2.73	20	2.0	1.2	15.5	M
*	97	06/22/01	59.987	167.982	24	11	0.53	2.77	20	2.9	2.2	14.9	M
*	98	06/22/01	60.335	167.988	29	14	0.48	2.60	20	2.4	1.6	15.7	M
*	99	06/23/01	60.311	169.318	41	06	0.52	2.57	20	0.8	-1.3	16.4	M
*	100	06/23/01	60.007	169.300	44	09	0.51	2.83	20	1.2	-1.3	16.2	M
*	101	06/23/01	59.680	169.239	45	12	0.51	2.82	20	4.0	-1.2	16.5	M
*	102	06/23/01	59.343	169.234	48	15	0.51	2.80	20	4.2	-0.6	16.6	M
*	103	06/23/01	59.012	169.203	52	18	0.53	2.78	41	4.8	0.4	16.9	M
*	104	06/24/01	58.671	169.162	61	06	0.49	2.74	41	5.2	1.1	17.4	M
*	105	06/24/01	58.339	169.123	66	09	0.49	2.66	41	5.6	1.5	18.4	M
*	106	06/24/01	58.009	169.057	68	11	0.54	2.95	42	5.9	1.8	17.1	M
*	107	06/24/01	57.836	169.375	64	14	0.52	2.84	42	5.8	2.0	16.8	M
*	108	06/24/01	57.677	169.042	66	16	0.51	2.69	42	6.3	2.1	16.8	M

Appendix A Table 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
*	109	06/24/01	57.505	169.359	68	18	0.51	2.81	42	5.9	2.6	16.5	M
*	110	06/26/01	57.339	168.990	68	12	0.52	2.84	42	5.5	2.8	16.4	M
*	111	06/26/01	57.176	169.317	70	14	0.56	3.01	42	6.6	3.1	16.0	M
*	112	06/26/01	57.003	168.965	77	17	0.53	2.92	32	6.6	3.3	16.2	M
*	113	06/26/01	56.837	169.290	77	19	0.54	3.02	32	6.3	3.1	16.8	M
*	114	06/27/01	56.333	168.866	127	06	0.53	2.95	50	5.2	3.9	17.7	M
	115	06/27/01	56.343	169.455	139	08	0.47	2.61	50	7.1	4.1	18.5	M
	116	06/27/01	56.337	170.067	108	11	0.52	2.94	50	6.5	3.5	18.3	M
	117	06/27/01	56.326	170.671	119	14	0.50	2.79	61	6.7	4.0	17.9	M
	118	06/27/01	56.655	170.733	111	16	0.49	2.66	61	6.8	3.7	18.0	M
*	119	06/28/01	56.676	170.110	94	07	0.54	2.82	42	6.6	3.6	18.1	M
*	120	06/28/01	56.826	170.472	99	09	0.52	2.90	42	6.5	3.6	18.5	M
*	121	06/28/01	56.989	170.194	68	11	0.52	2.86	42	5.7	4.1	16.5	M
*	122	06/28/01	57.106	170.445	49	13	0.52	2.86	42	5.9	4.3	15.7	M
*	123	06/28/01	57.318	170.244	52	17	0.49	2.67	42	5.9	4.3	16.5	M
*	124	06/29/01	57.483	170.585	72	06	0.53	2.68	42	6.4	3.0	16.5	M
*	125	06/29/01	57.654	170.290	70	08	0.53	2.99	42	5.8	2.1	16.5	M
*	126	06/29/01	57.814	170.613	75	11	0.56	3.18	42	6.0	2.1	17.3	M
*	127	06/29/01	57.991	170.351	72	13	0.53	2.98	42	6.0	1.9	17.0	M
*	128	06/29/01	58.320	170.376	71	16	0.53	2.88	41	5.9	---	17.2	M
*	129	06/30/01	58.660	170.435	72	06	0.50	2.74	41	5.3	1.4	17.7	M
*	130	06/30/01	58.989	170.482	69	08	0.48	2.54	41	6.0	1.2	17.9	M
*	131	06/30/01	59.321	170.532	66	11	0.49	2.71	41	5.6	1.0	18.5	M
*	132	06/30/01	59.655	170.580	65	13	0.50	2.83	41	5.6	0.0	17.0	F
*	133	06/30/01	59.987	170.630	63	16	0.52	2.99	41	5.3	-0.3	18.1	M
*	134	07/01/01	60.318	170.669	61	06	0.50	2.73	41	4.3	-0.8	17.7	F
*	141	07/02/01	61.017	172.177	61	11	0.49	2.83	41	4.6	-1.2	17.0	F
*	142	07/02/01	60.681	172.119	59	15	0.54	2.75	41	3.2	-1.2	16.3	M
*	143	07/03/01	60.350	172.067	57	06	0.53	2.85	43	4.0	-0.8	16.5	M
*	144	07/03/01	60.168	172.347	56	09	0.50	2.78	43	3.0	0.9	16.5	M
*	145	07/03/01	60.008	171.976	64	11	0.52	2.88	43	3.9	0.5	16.6	M
*	146	07/03/01	59.843	172.234	73	14	0.53	2.93	43	5.3	0.7	17.2	M

Appendix A Table 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
*	147	07/03/01	59.682	171.911	75	17	0.50	2.69	43	5.6	0.8	17.4	M
*	148	07/04/01	59.348	171.835	78	06	0.49	2.78	43	5.6	1.1	18.2	M
*	149	07/04/01	59.012	171.787	85	08	0.51	2.86	41	6.0	1.5	17.4	F
*	150	07/04/01	58.680	171.716	90	11	0.52	2.89	41	6.6	2.0	17.5	M
*	151	07/04/01	58.349	171.658	93	13	0.52	2.94	41	6.7	2.0	17.5	M
*	152	07/04/01	58.333	171.046	82	16	0.52	2.80	41	5.5	1.8	16.8	M
*	153	07/05/01	58.019	171.600	96	06	0.49	2.75	41	6.8	2.5	17.8	M
*	154	07/05/01	57.680	171.536	97	09	0.49	2.75	41	6.9	2.8	17.7	M
*	155	07/05/01	57.345	171.469	98	11	0.51	2.83	41	7.0	3.1	17.8	M
	156	07/08/01	56.661	171.341	117	06	0.50	2.81	61	7.5	4.0	17.7	M
*	157	07/08/01	56.666	171.945	123	09	0.43	2.49	61	7.8	4.2	17.8	M
	158	07/08/01	56.668	172.546	134	12	0.51	2.91	61	6.3	3.8	17.7	M
*	159	07/08/01	56.994	173.235	138	15	0.47	2.66	61		3.7	18.1	F
	160	07/08/01	57.292	173.326	119	18	0.51	2.80	61		3.6	18.6	M
*	161	07/09/01	57.655	173.401	144	06	0.53	2.97	61	7.4	3.7	18.4	M
	162	07/09/01	57.987	173.480	115	09	0.52	2.87	61	7.3	3.3	18.5	M
*	163	07/09/01	58.002	172.886	106	11	0.53	2.93	61	7.4	3.0	16.8	M
*	164	07/09/01	58.322	172.926	106	14	0.50	2.70	61	7.4	2.8	18.1	M
*	165	07/09/01	58.336	173.554	112	17	0.52	2.92	61	7.2	3.3	18.0	M
*	166	07/10/01	58.656	173.007	110	06	0.50	2.71	61	6.8	2.7	17.9	F
*	167	07/10/01	58.991	173.083	104	09	0.49	2.76	61	6.8	2.5	18.1	M
*	168	07/10/01	59.322	173.151	98	11	0.48	2.63	43	5.1	1.9	17.5	M
*	169	07/10/01	59.490	173.495	100	14	0.50	2.78	43	7.1	2.2	17.7	M
*	170	07/10/01	59.658	173.250	93	15	0.51	2.82	43	7.0	1.6	17.3	M
*	171	07/10/01	59.826	173.560	92	18	0.52	2.85	43	6.9	1.5	18.0	M
*	172	07/11/01	60.656	173.465	63	06	0.50	2.78	41	6.1	2.7	17.0	F
*	173	07/11/01	60.672	172.809	41	09	0.51	2.85	41	5.9	2.9	15.3	M
*	174	07/11/01	60.990	172.808	64	12	0.50	2.75	41	5.5	2.3	17.0	F
*	175	07/11/01	61.011	173.488	74	15	0.51	2.77	41	5.7	0.0	18.5	M
*	188	07/14/01	60.678	174.823	96	08	0.51	2.87	41	7.5	1.4	18.2	M
*	189	07/14/01	60.331	174.724	100	11	0.50	2.80	62	7.3	1.7	17.2	M
*	190	07/14/01	60.016	174.603	105	14	0.53	2.95	62	6.3	2.1	17.7	M

Appendix A Table 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
*	191	07/14/01	59.845	174.262	104	16	0.52	2.93	62	7.3	2.3	17.8	M
*	192	07/15/01	59.673	174.451	112	06	0.52	2.87	62	7.3	2.6	17.8	M
*	193	07/15/01	59.341	174.451	117	09	0.51	2.82	62	7.2	3.0	17.6	M
*	194	07/15/01	59.014	174.371	124	11	0.53	2.94	61	7.3	3.0	18.3	M
*	195	07/15/01	58.679	174.267	152	14	0.51	2.87	61	7.1	3.5	18.2	M
*	196	07/15/01	58.740	174.869	145	18	0.53	3.00	61	7.3	3.3	18.5	M
	197	07/16/01	58.662	175.551	132	06	0.51	2.69	61	7.8	3.0	18.0	M
*	198	07/16/01	58.991	175.728	130	09	0.35	1.88	61	6.9	2.2	18.7	M
*	199	07/16/01	59.324	175.760	134	12	0.51	2.78	61	6.2	1.8	18.2	M
*	200	07/16/01	59.655	175.864	134	15	0.52	2.86	61	7.0	2.2	18.4	M
*	201	07/16/01	59.989	175.934	127	18	0.53	2.93	61	6.9	2.3	17.3	M
*	202	07/17/01	60.327	176.032	119	06	0.51	2.76	61	6.9	2.2	17.9	F
*	203	07/17/01	60.661	176.196	116	09	0.52	2.85	61	6.8	1.9	18.6	M
*	208	07/18/01	60.681	177.509	143	09	0.54	3.03	61	6.8	0.8	18.5	M
	209	07/18/01	60.666	178.155	159	11	0.52	2.92	61	6.5	0.5	19.4	M
*	211	07/18/01	60.335	177.382	145	17	0.50	2.80	61	7.7	0.8	17.5	M
*	212	07/18/01	60.013	177.895	140	20	0.48	2.73	61	7.6	0.8	17.4	M
*	213	07/19/01	59.684	177.148	168	06	0.50	2.75	61	7.1	1.2	17.5	M
*	214	07/19/01	59.354	177.072	147	09	0.53	2.91	61	6.9	1.7	18.2	M
	215	07/19/01	59.016	177.573	132	12	0.51	2.86	61	7.5	2.7	18.1	F
*	216	07/19/01	58.999	176.997	133	15	0.51	2.80	61	7.4	2.5	18.3	M
*	218	07/19/01	58.675	176.821	134	18	0.50	2.86	61	7.3	2.6	16.7	M

APPENDIX B

List of Species Encountered

Appendix B contains a listing of all fish and invertebrate species taken during the 2001 eastern Bering Sea bottom trawl survey.

List of Tables

Appendix B Table 1.--Fish species encountered during the 2001 eastern Bering Sea bottom trawl survey.

Family	Scientific name	Common name
Petromyzontidae	*Lampetra tridentata*	Pacific lamprey
Rajidae	*Raja binoculata*	big skate
	Bathyraja interrupta	Bering skate
	Bathyraja parmifera	Alaska skate
	Bathyraja aleutica	Aleutian skate
	Bathyraja violacea	Okhotsk skate
Pleuronectidae	*Atheresthes stomias*	arrowtooth flounder
	Atheresthes evermanni	Kamchatka flounder
	Reinhardtius hippoglossoides	Greenland turbot
	Hippoglossus stenolepis	Pacific halibut
	Hippoglossoides elassodon	flathead sole
	Hippoglossoides robustus	Bering flounder
	Microstomus pacificus	Dover sole
	Glyptocephalus zachirus	rex sole
	Limanda aspera	yellowfin sole
	Limanda proboscidea	longhead dab
	Limanda sakhalinensis	Sakhalin sole
	Platichthys stellatus	starry flounder
	Lepidopsetta polyxystra	northern rock sole
	Lepidopsetta bilineata	southern rock sole
	Isopsetta isolepis	butter sole
	Pleuronectes quadrituberculatus	Alaska plaice
Agonidae	*Pallasina barbata*	tubenose poacher
	Percis japonicus	dragon poacher
	Sarritor frenatus	sawback poacher
	Bathyagonus alascanus	gray starsnout
	Bathyagonus infraspinatus	spinycheek starsnout

Appendix B Table 1.--Continued.

Family	Scientific name	Common name
	Podothecus acipenserinus	sturgeon poacher
	Aspidophoroides bartoni	Aleutian alligatorfish
	Occella dodecaedron	Bering poacher
Ammodytidae	*Ammodytes hexapterus*	Pacific sand lance
Anarhichadidae	*Anarhichas orientalis*	Bering wolffish
Anoplopomatidae	*Anoplopoma fimbria*	sablefish
Bathymasteridae	*Bathymaster signatus*	searcher
Clupeidae	*Clupea pallasi*	Pacific herring
Cottidae	*Gymnocanthus pistilliger*	threaded sculpin
	Gymnocanthus galeatus	armorhead sculpin
	Artediellus pacificus	Pacific hookear sculpin
	Malacocottus sp.	
	Malacocottus zonurus	darkfin sculpin
	Hemilepidotus jordani	yellow Irish lord
	Hemilepidotus papilio	butterfly sculpin
	Triglops forficata	scissortail sculpin
	Triglops scepticus	spectacled sculpin
	Triglops pingeli	ribbed sculpin
	Triglops macellus	roughspine sculpin
	Myoxocephalus verrucosus	warty sculpin
	Myoxocephalus polyacanthocephalus	great sculpin
	Myoxocephalus jaok	plain sculpin
	Dasycottus setiger	spinyhead sculpin
	Blepsias bilobus	crested sculpin
	Nautichthys pribilovius	eyeshade sculpin
	Nautichthys oculofasciatus	sailfin sculpin
	Hemitripterus bolini	bigmouth sculpin
	Icelus spiniger	thorny sculpin
	Icelus spatula	spatulate sculpin

Appendix B Table 1.--Continued.

Family	Scientific name	Common name
Trichodontidae	*Trichodon trichodon*	Pacific sandfish
Gadidae	*Gadus macrocephalus*	Pacific cod
	Boreogadus saida	Arctic cod
	Eleginus gracilis	saffron cod
	Theragra chalcogramma	walleye pollock
Hexagrammidae	*Pleurogrammus monopterygius*	Atka mackerel
	Hexagrammos stelleri	whitespotted greenling
Cyclopteridae	*Eumicrotremus orbis*	Pacific spiny lumpsucker
	Liparidinae	snailfish unident.
	Liparis sp.	
	Liparis dennyi	marbled snailfish
	Liparis gibbus	dusky snailfish
	Crystallichthys cyclospilus	blotched snailfish
	Liparis ochotensis	
	Careproctus sp.	
	Careproctus rastrinus	salmon snailfish
Osmeridae	*Thaleichthys pacificus*	eulachon
	Mallotus villosus	capelin
	Osmerus mordax	rainbow smelt
Salmonidae	*Oncorhynchus keta*	chum salmon
Stichaeidae	*Lumpenus* sp.	
	Lumpenus maculatus	daubed shanny
	Lumpenus fabricii	slender eelblenny
	Poroclinus rothrocki	whitebarred prickleback
Zoarcidae	*Lycodes raridens*	marbled eelpout
	Lycodes palearis	wattled eelpout
	Lycodes turneri	polar eelpout
	Lycodes brevipes	shortfin eelpout
Scorpaenidae	*Sebastes alutus*	Pacific ocean perch

Appendix B Table 1.--Continued.

Family	Scientific name	Common name
	Sebastes polyspinis	northern rockfish
	Lycodes palearis	wattled eelpout
	Lycodes turneri	polar eelpout
	Lycodes brevipes	shortfin eelpout
Scorpaenidae	*Sebastes aleutianus*	rougheye rockfish
	Sebastes alutus	Pacific ocean perch
	Sebastes polyspinis	northern rockfish

Appendix B Table 2.--Invertebrate species encountered during the 2001 eastern Bering Sea bottom trawl survey.

Phylum	Species name	Common name
Cnidaria	Scyphozoa (class)	jellyfish unident.
	Chrysaora sp.	chrysaora jellyfish
	Gersemia sp.	sea raspberry
	Gorgonacea (order)	gorgonian coral unident.
	Pennatulacea (order)	sea pen or sea whip unident.
	Virgularia sp.	smoothstem seawhip
	Halipteris willemoesi	
	Actiniaria (order)	sea anemone unident.
	Metridium sp.	
	Metridium farcimen	gigantic anemone
	Stomphia sp.	
	Crassicornis sp.	mottled anemone
	Cribrinopsis fernaldi	chevron-tentacled anemone
	Liponema brevicornis	tentacle-shedding anemone
Annelida	Polychaeta (class)	polychaete worm unident.
	Aphroditidae	sea mouse unident.
	Aphrodita negligens	
	Polynoidae	scale worm unident.
	Eunoe nodosa	giant scale worm
	Eunoe depressa	depressed scale worm
	Hirudinea unident.	leech unident.
Arthropoda	Isopoda (order)	isopod unident.
	Thoracica (order)	barnacle unident.
	Balanus sp.	
	Balanus evermanni	giant barnacle
	Pandalidae	pandalid shrimp unident.
	Pandalus borealis	northern shrimp

Appendix B Table 2.--Continued.

Phylum	Species name	Common name
	Pandalus tridens	yellowleg pandalid
	Pandalus goniurus	humpy shrimp
	Eualus barbatus	barbed eualid
	Lebbeus groenlandicus	spiny lebbeid
	Crangon sp.	
	Crangon communis	twospine crangon
	Crangon dalli	ridged crangon
	Argis sp.	
	Argis dentata	Arctic argid
	Argis lar	kuro argid
	Cancer oregonensis	Oregon rock crab
	Oregonia gracilis	graceful decorator crab
	Chionoecetes bairdi	Tanner crab
	Hyas coarctatus	circumboreal toad crab
	Hyas lyratus	Pacific lyre crab
	Chionoecetes opilio	snow crab
	Chionoecetes hybrid	tanner crab
	Telmessus cheiragonus	helmet crab
	Paguridae	hermit crab unident.
	Pagurus sp.	
	Pagurus brandti	sponge hermit
	Pagurus aleuticus	Aleutian hermit
	Labidochirus splendescens	splendid hermit
	Pagurus confragosus	knobbyhand hermit
	Pagurus trigonocheirus	fuzzy hermit crab
	Pagurus ochotensis	Alaskan hermit
	Pagurus rathbuni	longfinger hermit
	Elassochirus tenuimanus	widehand hermit crab
	Pagurus capillatus	hairy hermit crab

Appendix B Table 2.--Continued.

Phylum	Species name	Common name
	Elassochirus cavimanus	purple hermit
	Lithodes aequispina	golden king crab
	Paralithodes camtschaticus	red king crab
	Paralithodes platypus	blue king crab
	Erimacrus isenbeckii	horsehair crab
Mollusca	Nudibranchia unident.	nudibranch unident.
	Dendronotus sp.	
	Tritonia diomedea	rosy tritonia
	Gastropod unident.	snail unident.
	Natica sp.	
	Natica clausa	Arctic moonsnail
	Natica aleutica	Aleutian moonsnail
	Natica russa	rusty moonsnail
	Polinices sp.	
	Polinices pallidus	pale moonsnail
	Crepidula grandis	great slippersnail
	Colus sp.	
	Colus herendeenii	thin-ribbed whelk
	Colus spitzbergensis	thick-ribbed whelk
	Colus halli	shrew whelk
	Volutopsius sp.	
	Pyrulofusus deformis	warped whelk
	Volutopsius fragilis	fragile whelk
	Volutopsius filosus	threaded whelk
	Volutopsius castaneus	volute whelk
	Pyrulofusus melonis	
	Volutopsius stefanssoni	shouldered whelk
	Volutopsius middendorffii	tulip whelk
	Beringius sp.	

Appendix B Table 2.--Continued.

Phylum	Species name	Common name
	Beringius kennicottii	
	Beringius beringii	
	Neptunea sp.	
	Neptunea pribiloffensis	Pribilof whelk
	Neptunea borealis	
	Neptunea lyrata	lyre whelk
	Neptunea ventricosa	fat whelk
	Neptunea heros	
	Neptunea magna	helmet whelk
	Plicifusus sp.	
	Aforia sp.	
	Aforia circinata	keeled aforia
	Trichotropidae	
	Trichotropis bicarinata	two-keel hairysnail
	Boreotrophon sp.	
	Fusitriton oregonensis	Oregon triton
	Buccinum sp.	
	Buccinum angulosum	angular whelk
	Buccinum plectrum	sinuous whelk
	Buccinum scalariforme	ladder whelk
	Buccinum polare	polar whelk
	Buccinum solenum	
	Buccinum glaciale	glacial whelk
	Arctomelon stearnsii	Alaska volute
	Bivalvia unident.	bivalve unident.
	Modiolus modiolus	northern horsemussel
	Pectinid unident.	scallop unident.
	Chlamys sp.	
	Chlamys rubida	reddish scallop

Appendix B Table 2.--Continued.

Phylum	Species name	Common name
	Chlamys pseudoislandica	false iceland scallop
	Patinopecten caurinus	weathervane scallop
	Hiatella arctica	Arctic hiatella
	Yoldia sp.	
	Yoldia scissurata	crisscrossed yoldia
	Yoldia thraciaeformis	broad yoldia
	Nuculana sp.	
	Musculus discors	discordant mussel
	Cyclocardia crebricostata	many-rib cyclocardia
	Cyclocardia sp.	
	Clinocardium sp.	
	Clinocardium nuttallii	Nuttall cockle
	Clinocardium ciliatum	hairy cockle
	Mactromeris polynyma	Arctic surfclam
	Tellina lutea	Alaska great-tellin
	Macoma sp.	
	Macoma nasuta	bent-nose macoma
	Macoma brota	heavy macoma
	Siliqua alta	Alaska razor
	Serripes sp.	
	Serripes groenlandicus	Greenland cockle
	Serripes laperousii	broad cockle
	Pododesmus macroschisma	Alaska falsejingle
	Pododesmus sp.	
	Octopodidae	octopus unident.
	Octopus dofleini	giant octopus
	Rossia pacifica	eastern Pacific bobtail
	Berryteuthis magister	magistrate armhook squid
Echinodermata	Asteroidea unident.	starfish unident.

Appendix B Table 2.--Continued.

Phylum	Species name	Common name
	Evasterias troschelii	mottled sea star
	Evasterias echinosoma	giant sea star
	Pycnopodia helianthoides	sunflower sea star
	Lethasterias nanimensis	blackspined sea star
	Henricia sp.	
	Henricia leviuscula	blood sea star
	Henricia tumida	tumid sea star
	Leptasterias polaris	
	Leptasterias arctica	
	Leptasterias sp.	
	Gephyreaster swifti	Swift's sea star
	Pseudarchaster sp.	
	Pseudarchaster parelii	scarlet sea star
	Ceramaster sp.	
	Ceramaster japonicus	red bat star
	Ceramaster patagonicus	orange bat sea star
	Solaster sp.	
	Solaster dawsoni	morning sun sea star
	Crossaster papposus	rose sea star
	Pteraster tesselatus	
	Pteraster obscurus	obscure sea star
	Diplopteraster multipes	pincushion sea star
	Diplopteraster sp.	
	Asterias amurensis	purple-orange sea star
	Ctenodiscus crispatus	common mud star
	Luidiaster dawsoni	fragile sea star
	Echinacea unident.	sea urchin unident.
	Strongylocentrotus droebachiensis	green sea urchin
	Echinarachnius parma	Parma sand dollar

Appendix B Table 2.--Continued.

Phylum	Species name	Common name
	Ophiuroid unident.	brittlestarfish unident.
	Gorgonocephalus eucnemis	basketstar
	Ophiura sarsi	notched brittlestar
	Ophiopholis aculeata	ubiquitous brittle star
	Holothuroidea unident.	sea cucumber unident.
	Cucumaria sp.	
	Cucumaria fallax	sea football
	Psolus sp.	
Porifera	Porifera	sponge unident.
	Suberites ficus	hermit sponge
	Halichondria panicea	barrel sponge
Platyhelminthes	Polycladida (order)	polyclad flatworm unident.
Sipuncula	Sipuncula	sipunculid worm unident.
Echiura	Echiura (phylum)	echiuroid worm unident.
Bryozoa	Bryozoa unident.	bryozoan unident.
	Flustra serrulata	leafy bryozoan
	Rhamphostomella costata	ribbed bryozoan
	Cellepora ventricosa	coral bryozoan
Chordata	Ascidian unident.	tunicate unident.
	Thaliacea unident.	salps unident.
	Styela rustica	sea potato
	Boltenia ovifera	
	Halocynthia sp.	sea peach unident.
	Halocynthia aurantium	sea peach
	Aplidium sp.	sea glob
	Molgula grifithsii	sea grape

APPENDIX C

Rank Order of Relative Abundance of Fish and Invertebrates

Appendix C ranks all fish and invertebrates caught during the 2001 eastern Bering Sea bottom trawl survey by descending unweighted CPUE (kg/ha).

Appendix C Table 1.--Rank of fish and invertebrate taxa by unweighted total CPUE (kg/ha) from the 2001 eastern Bering Sea bottom trawl survey.

Rank	Species	Mean CPUE (kg/ha)	Variance	95 Percent Confidence Limits		Proportion	Cumulative Proportion	Name
1	21740	88.32593	56.972	73.53188	103.11997	0.28031429	0.28031429	Theragra chalcogramma
2	10260	53.50485	40.152	41.08522	65.92447	0.16980488	0.45011917	Lepidopsetta sp.
3	10210	39.30628	11.217	32.74197	45.87060	0.12474381	0.57486298	Limanda aspera
4	21720	18.18257	2.492	15.08868	21.27647	0.05770486	0.63256784	Gadus macrocephalus
5	81742	15.20990	1.542	12.77573	17.64406	0.04827066	0.68083850	Asterias amurensis
6	10285	11.40272	2.128	8.54365	14.26179	0.03618808	0.71702659	Pleuronectes quadrituberculatus
7	10129	10.59855	1.287	8.37533	12.82176	0.03363593	0.75066252	Hippoglossoides sp.
8	91000	9.33382	16.277	1.42623	17.24142	0.02962215	0.78028467	Porifera
9	471	8.69780	0.278	7.66420	9.73141	0.02760366	0.80788833	Bathyraja parmifera
10	10110	7.60912	0.678	5.99518	9.22306	0.02414859	0.83203692	Atheresthes stomias
11	98082	5.00989	1.175	2.88569	7.13408	0.01589956	0.84793648	Styela rustica
12	68580	4.66458	0.885	2.82025	6.50890	0.01480367	0.86274014	Chionoecetes opilio
13	83020	4.57644	0.583	3.08014	6.07274	0.01452396	0.87726410	Gorgonocephalus eucnemis
14	10120	3.21840	0.064	2.72251	3.71429	0.01021403	0.88747813	Hippoglossus stenolepis
15	69010	2.53412	0.096	1.92802	3.14022	0.00804237	0.89552051	Paguridae
16	71820	2.36303	0.117	1.69273	3.03333	0.00749938	0.90301989	Neptunea pribiloffensis
17	81780	2.30977	0.551	0.85441	3.76513	0.00733037	0.91035026	Ctenodiscus crispatus
18	40501	2.04101	0.033	1.68322	2.39879	0.00647741	0.91682767	Chrysaora sp.
19	71884	1.84503	0.096	1.23668	2.45337	0.00585544	0.92268311	Neptunea heros
20	69322	1.60952	0.286	0.56053	2.65851	0.00510803	0.92779114	Paralithodes camtschaticus
21	69060	1.52821	0.042	1.12511	1.93132	0.00485000	0.93264113	Pagurus aleuticus
22	98205	1.27672	0.266	0.26560	2.28784	0.00405185	0.93669298	Halocynthia aurantium
23	21371	1.00138	0.017	0.74706	1.25569	0.00317801	0.93987099	Myoxocephalus jaok
24	21110	0.93211	0.421	0.00000	2.20327	0.00295818	0.94282917	Clupea pallasi
25	10220	0.90251	0.058	0.42863	1.37640	0.00286425	0.94569342	Platichthys stellatus
26	68560	0.89103	0.015	0.64942	1.13264	0.00282779	0.94852121	Chionoecetes bairdi
27	21370	0.88124	0.056	0.41788	1.34460	0.00279673	0.95131794	Myoxocephalus polyacanthocephalus
28	80590	0.79339	0.015	0.55438	1.03240	0.00251793	0.95383587	Leptasterias polaris
29	71870	0.72461	0.025	0.41525	1.03396	0.00229963	0.95613550	Neptunea lyrata
30	69086	0.68748	0.022	0.39717	0.97778	0.00218181	0.95831731	Pagurus trigonocheirus

Appendix C Table 1.--Continued.

Rank	Species	Mean CPUE (kg/ha)	Variance	95 Percent Confidence Limits		Proportion	Cumulative Proportion	Name
31	10112	0.66468	0.006	0.51723	0.81213	0.00210945	0.96042676	Atheresthes evermanni
32	71882	0.65003	0.010	0.45885	0.84120	0.00206295	0.96248971	Neptunea ventricosa
33	21420	0.56152	0.010	0.36738	0.75567	0.00178206	0.96427177	Hemitripterus bolini
34	10115	0.52890	0.011	0.32495	0.73284	0.00167853	0.96595030	Reinhardtius hippoglossoides
35	98105	0.51302	0.016	0.26596	0.76008	0.00162814	0.96757844	Boltenia ovifera
36	83320	0.44085	0.024	0.13672	0.74497	0.00139908	0.96897752	Ophiura sarsi
37	43000	0.43960	0.021	0.15881	0.72040	0.00139514	0.97037266	Actiniaria (order)
38	69090	0.43281	0.008	0.25732	0.60829	0.00137357	0.97174624	Pagurus ochotensis
39	10200	0.41489	0.011	0.21399	0.61579	0.00131672	0.97306295	Glyptocephalus zachirus
40	24185	0.39051	0.002	0.29659	0.48443	0.00123933	0.97430228	Lycodes palearis
41	20040	0.37278	0.001	0.30335	0.44221	0.00118308	0.97548536	Podothecus acipenserinus
42	69120	0.34612	0.008	0.16600	0.52624	0.00109847	0.97658383	Pagurus capillatus
43	21368	0.34051	0.004	0.22278	0.45823	0.00108064	0.97766447	Myoxocephalus verrucosus
44	72500	0.32114	0.004	0.20267	0.43960	0.00101917	0.97868364	Fusitriton oregonensis
45	85201	0.31793	0.020	0.04262	0.59324	0.00100900	0.97969264	Cucumaria fallax
46	24191	0.31175	0.004	0.18910	0.43441	0.00098939	0.98068203	Lycodes brevipes
47	435	0.27663	0.002	0.18847	0.36478	0.00087791	0.98155993	Bathyraja interrupta
48	68577	0.27579	0.014	0.04483	0.50675	0.00087525	0.98243518	Hyas coarctatus
49	21347	0.27115	0.008	0.09224	0.45006	0.00086053	0.98329571	Hemilepidotus jordani
50	10211	0.26739	0.006	0.11977	0.41501	0.00084859	0.98414431	Limanda proboscidea
51	83000	0.24394	0.013	0.02152	0.46635	0.00077417	0.98491847	Ophiuroid unident.
52	80200	0.21706	0.002	0.13428	0.29984	0.00068887	0.98560735	Lethasterias nanimensis
53	50010	0.20763	0.041	0.00000	0.60529	0.00065894	0.98626629	tube worm unident.
54	69323	0.19996	0.006	0.04530	0.35462	0.00063461	0.98690090	Paralithodes platypus
55	69095	0.19035	0.001	0.11646	0.26423	0.00060409	0.98750498	Pagurus rathbuni
56	43090	0.17409	0.005	0.03545	0.31273	0.00055250	0.98805749	Liponema brevicornis
57	82510	0.17212	0.003	0.06170	0.28255	0.00054626	0.98860375	Strongylocentrotus droebachiensis
58	69035	0.16309	0.004	0.03247	0.29370	0.00051758	0.98912133	Pagurus sp.
59	80020	0.14629	0.002	0.05584	0.23674	0.00046428	0.98958560	Evasterias echinosoma
60	71500	0.14125	0.004	0.01529	0.26721	0.00044827	0.99003387	Gastropod unident.
61	98310	0.14008	0.001	0.07417	0.20599	0.00044456	0.99047844	Aplidium sp.
62	69070	0.13739	0.001	0.06903	0.20575	0.00043602	0.99091446	Pagurus confragosus

Appendix C Table 1.--Continued.

Rank	Species	Mean CPUE (kg/ha)	Variance	95 Percent Confidence Limits		Proportion	Cumulative Proportion	Name
63	71001	0.13145	0.001	0.06768	0.19522	0.00041717	0.99133163	gastropod eggs
64	71764	0.12521	0.001	0.05535	0.19507	0.00039736	0.99172899	Volutopsius middendorffii
65	78010	0.10216	0.001	0.03079	0.17353	0.00032422	0.99205320	Octopodidae
66	71750	0.08578	0.002	0.00171	0.16985	0.00027224	0.99232544	Volutopsius sp.
67	72740	0.08169	0.000	0.04376	0.11961	0.00025924	0.99258468	Buccinum sp.
68	72752	0.08128	0.000	0.04625	0.11632	0.00025796	0.99284264	Buccinum scalariforme
69	74562	0.08050	0.002	0.00000	0.16797	0.00025549	0.99309813	Musculus discors
70	23010	0.07859	0.000	0.04368	0.11349	0.00024940	0.99334754	Thaleichthys pacificus
71	71753	0.07621	0.001	0.03119	0.12123	0.00024186	0.99358940	Pyrulofusus deformis
72	69061	0.07585	0.000	0.04038	0.11131	0.00024072	0.99383011	Labidochirus splendescens
73	22205	0.07429	0.001	0.00939	0.13919	0.00023577	0.99406589	Liparis gibbus
74	72743	0.06849	0.000	0.03486	0.10213	0.00021738	0.99428326	Buccinum angulosum
75	20720	0.06780	0.001	0.02125	0.11435	0.00021517	0.99449843	Bathymaster signatus
76	71772	0.05783	0.001	0.00000	0.12592	0.00018353	0.99468196	Beringius beringii
77	43010	0.05455	0.000	0.01387	0.09522	0.00017312	0.99485508	Metridium sp.
78	71891	0.05364	0.000	0.02528	0.08200	0.00017024	0.99502532	Plicifusus (=Colus)
79	41201	0.05072	0.000	0.02985	0.07158	0.00016095	0.99518627	Gersemia sp.
80	69400	0.04978	0.000	0.02946	0.07010	0.00015799	0.99534426	Erimacrus isenbeckii
81	80594	0.04858	0.000	0.01791	0.07924	0.00015417	0.99549843	Leptasterias arctica
82	98200	0.04376	0.001	0.00000	0.10871	0.00013887	0.99563730	Halocynthia sp.
83	95000	0.04312	0.000	0.02360	0.06264	0.00013684	0.99577414	Bryozoa unident.
84	68578	0.04213	0.000	0.02636	0.05789	0.00013370	0.99590784	Hyas lyratus
85	21348	0.04002	0.000	0.00502	0.07502	0.00012701	0.99603485	Hemilepidotus papilio
86	74120	0.03974	0.000	0.00131	0.07817	0.00012612	0.99616097	Patinopecten caurinus
87	69121	0.03837	0.000	0.01580	0.06095	0.00012178	0.99628275	Elassochirus cavimanus
88	71756	0.03833	0.000	0.01698	0.05968	0.00012163	0.99640438	Volutopsius fragilis
89	71763	0.03786	0.001	0.00000	0.08924	0.00012015	0.99652453	Volutopsius stefanssoni
90	68781	0.03736	0.000	0.00529	0.06944	0.00011858	0.99664310	Telmessus cheiragonus
91	72755	0.03693	0.000	0.01060	0.06325	0.00011719	0.99676029	Buccinum polare
92	420	0.03691	0.001	0.00000	0.09325	0.00011714	0.99687743	Raja binoculata
93	50192	0.03580	0.000	0.00709	0.06451	0.00011361	0.99699104	Aphrodita negligens
94	21390	0.03457	0.000	0.01888	0.05025	0.00010970	0.99710074	Dasycottus setiger

Appendix C Table 1.--Continued.

Rank	Species	Mean CPUE (kg/ha)	Variance	95 Percent Confidence Limits		Proportion	Cumulative Proportion	Name
95	72751	0.03409	0.000	0.00125	0.06693	0.00010819	0.99720893	Buccinum plectrum
96	71886	0.03319	0.000	0.02040	0.04598	0.00010533	0.99731426	Neptunea magna
97	66031	0.03280	0.000	0.01684	0.04877	0.00010411	0.99741837	Pandalus borealis
98	75285	0.03278	0.000	0.00000	0.07334	0.00010404	0.99752241	Serripes groenlandicus
99	85210	0.03217	0.001	0.00000	0.07702	0.00010209	0.99762450	Psolus sp.
100	23041	0.02924	0.000	0.02001	0.03848	0.00009281	0.99771731	Mallotus villosus
101	68590	0.02594	0.000	0.01651	0.03537	0.00008231	0.99779962	Chionoecetes hybrid
102	43042	0.02555	0.000	0.00630	0.04480	0.00008108	0.99788070	Urticina (=Tealia)
103	69042	0.02457	0.001	0.00000	0.07273	0.00007798	0.99795869	Pagurus brandti
104	472	0.02307	0.000	0.00000	0.05164	0.00007320	0.99803189	Bathyraja aleutica
105	81355	0.02206	0.000	0.01170	0.03243	0.00007002	0.99810191	Pteraster obscurus
106	24184	0.02159	0.000	0.00497	0.03820	0.00006851	0.99817041	Lycodes raridens
107	81360	0.02125	0.000	0.00000	0.05771	0.00006745	0.99823787	Diplopteraster multipes
108	80160	0.02047	0.000	0.00000	0.04916	0.00006496	0.99830283	Pycnopodia helianthoides
109	43021	0.01913	0.000	0.00000	0.04269	0.00006070	0.99836353	Metridium farcimen
110	21725	0.01889	0.000	0.00000	0.04148	0.00005994	0.99842346	Boreogadus saida
111	30420	0.01837	0.000	0.00000	0.05245	0.00005831	0.99848178	Sebastes polyspinis
112	21592	0.01767	0.000	0.00000	0.03567	0.00005607	0.99853785	Trichodon trichodon
113	10270	0.01661	0.000	0.00024	0.03298	0.00005272	0.99859057	Isopsetta isolepis
114	50160	0.01604	0.000	0.00000	0.03409	0.00005091	0.99864149	Aphroditidae
115	21438	0.01562	0.000	0.00711	0.02413	0.00004959	0.99869107	Icelus spiniger
116	71835	0.01541	0.000	0.00914	0.02168	0.00004890	0.99873998	Neptunea borealis
117	91050	0.01425	0.000	0.00000	0.03085	0.00004523	0.99878520	Halichondria panicea
118	22236	0.01419	0.000	0.00536	0.02303	0.00004504	0.99883024	Careproctus rastrinus
119	42000	0.01388	0.000	0.00000	0.03094	0.00004404	0.99887428	Pennatulacea (order)
120	68510	0.01259	0.000	0.00194	0.02325	0.00003997	0.99891425	Oregonia gracilis
121	98300	0.01254	0.000	0.00270	0.02238	0.00003980	0.99895405	compound ascidian unident.
122	82740	0.01224	0.000	0.00257	0.02190	0.00003884	0.99899289	Echinarachnius parma
123	20006	0.01219	0.000	0.00722	0.01716	0.00003868	0.99903157	Sarritor frenatus
124	65203	0.01158	0.000	0.00000	0.03191	0.00003675	0.99906832	Balanus evermanni
125	81095	0.01157	0.000	0.00485	0.01830	0.00003673	0.99910505	Crossaster papposus
126	71010	0.01151	0.000	0.00409	0.01893	0.00003652	0.99914158	Nudibranchia unident.

Appendix C Table 1.--Continued.

Rank	Species	Mean CPUE (kg/ha)	Variance	95 Percent Confidence Limits		Proportion	Cumulative Proportion	Name
127	65100	0.01147	0.000	0.00015	0.02279	0.00003641	0.99917798	Thoracica (order)
128	95030	0.01118	0.000	0.00489	0.01747	0.00003548	0.99921346	Flustra serrulata
129	56311	0.01113	0.000	0.00714	0.01511	0.00003531	0.99924877	Eunoe nodosa
130	75284	0.01047	0.000	0.00000	0.02334	0.00003323	0.99928200	Serripes sp.
131	71030	0.01002	0.000	0.00230	0.01775	0.00003181	0.99931381	Tritonia diomedea
132	21316	0.00965	0.000	0.00130	0.01800	0.00003062	0.99934443	Gymnocanthus galeatus
133	71769	0.00925	0.000	0.00280	0.01571	0.00002937	0.99937380	Beringius sp.
134	20510	0.00881	0.000	0.00206	0.01556	0.00002796	0.99940176	Anoplopoma fimbria
135	21314	0.00877	0.000	0.00327	0.01427	0.00002784	0.99942959	Gymnocanthus pistilliger
136	23235	0.00754	0.000	0.00000	0.02233	0.00002394	0.99945354	Oncorhynchus keta
137	75111	0.00721	0.000	0.00354	0.01088	0.00002287	0.99947641	Mactromeris polynyma
138	71761	0.00687	0.000	0.00069	0.01306	0.00002182	0.99949823	Pyrulofusus melonis
139	71890	0.00676	0.000	0.00149	0.01203	0.00002145	0.99951968	Plicifusus (=Colus)
140	74980	0.00649	0.000	0.00000	0.01371	0.00002060	0.99954027	Clinocardium sp.
141	20322	0.00623	0.000	0.00000	0.01843	0.00001976	0.99956004	Anarhichas orientalis
142	40500	0.00570	0.000	0.00000	0.01315	0.00001808	0.99957812	Scyphozoa (class)
143	79210	0.00531	0.000	0.00057	0.01006	0.00001686	0.99959498	Berryteuthis magister
144	21355	0.00518	0.000	0.00000	0.01072	0.00001642	0.99961140	Triglops pingeli
145	80544	0.00453	0.000	0.00000	0.01254	0.00001437	0.99962577	Henricia leviuscula
146	401	0.00443	0.000	0.00072	0.00815	0.00001407	0.99963984	skate egg case unident.
147	42012	0.00421	0.000	0.00000	0.01199	0.00001337	0.99965321	Halipteris willemoesi
148	21341	0.00413	0.000	0.00000	0.01125	0.00001312	0.99966633	Malacocottus zonurus
149	98000	0.00396	0.000	0.00000	0.00811	0.00001257	0.99967891	Ascidian unident.
150	72063	0.00380	0.000	0.00156	0.00603	0.00001205	0.99969095	Aforia circinata
151	74000	0.00325	0.000	0.00000	0.00772	0.00001032	0.99970127	Bivalvia unident.
152	21354	0.00325	0.000	0.00000	0.00767	0.00001031	0.99971158	Triglops scepticus
153	75205	0.00307	0.000	0.00051	0.00563	0.00000974	0.99972133	Tellina lutea
154	91016	0.00303	0.000	0.00000	0.00724	0.00000963	0.99973096	Suberites ficus
155	65201	0.00285	0.000	0.00000	0.00844	0.00000905	0.99974000	Balanus sp.
156	74100	0.00283	0.000	0.00000	0.00839	0.00000899	0.99974899	Pectinid unident.
157	24189	0.00273	0.000	0.00000	0.00808	0.00000866	0.99975766	Lycodes turneri
158	43030	0.00261	0.000	0.00000	0.00602	0.00000828	0.99976594	Stomphia sp.

Appendix C Table 1.--Continued.

Rank	Species	Mean CPUE (kg/ha)	Variance	95 Percent Confidence Limits		Proportion	Cumulative Proportion	Name
159	80660	0.00253	0.000	0.00045	0.00460	0.00000802	0.99977395	Pseudarchaster parelii
160	80540	0.00235	0.000	0.00053	0.00417	0.00000746	0.99978141	Henricia sp.
161	71800	0.00215	0.000	0.00000	0.00481	0.00000681	0.99978822	Neptunea sp.
162	21932	0.00209	0.000	0.00000	0.00444	0.00000663	0.99979486	Hexagrammos stelleri
163	71710	0.00203	0.000	0.00000	0.00434	0.00000644	0.99980129	Colus sp.
164	78403	0.00203	0.000	0.00000	0.00474	0.00000643	0.99980773	Octopus dofleini
165	94500	0.00201	0.000	0.00000	0.00595	0.00000637	0.99981410	Echiura (phylum)
166	42001	0.00196	0.000	0.00000	0.00552	0.00000621	0.99982031	Virgularia sp.
167	56312	0.00188	0.000	0.00068	0.00308	0.00000597	0.99982628	Eunoe depressa
168	495	0.00188	0.000	0.00000	0.00556	0.00000597	0.99983225	Bathyraja violacea
169	69110	0.00181	0.000	0.00000	0.00386	0.00000576	0.99983800	Elassochirus tenuimanus
170	71726	0.00170	0.000	0.00002	0.00337	0.00000538	0.99984338	Colus spitzbergensis
171	74982	0.00166	0.000	0.00000	0.00492	0.00000527	0.99984866	Clinocardium nuttallii
172	72756	0.00161	0.000	0.00000	0.00402	0.00000510	0.99985375	Buccinum solenum
173	71721	0.00159	0.000	0.00037	0.00281	0.00000505	0.99985881	Colus herendeenii
174	30060	0.00159	0.000	0.00000	0.00377	0.00000503	0.99986384	Sebastes alutus
175	71770	0.00154	0.000	0.00000	0.00336	0.00000490	0.99986874	Beringius kennicottii
176	72790	0.00152	0.000	0.00000	0.00418	0.00000483	0.99987357	Arctomelon stearnsii
177	81361	0.00151	0.000	0.00000	0.00403	0.00000480	0.99987837	Diplopteraster sp.
178	75286	0.00149	0.000	0.00000	0.00421	0.00000472	0.99988309	Serripes laperousii
179	74112	0.00140	0.000	0.00000	0.00414	0.00000444	0.99988754	Chlamys pseudoislandica
180	74106	0.00134	0.000	0.00000	0.00379	0.00000425	0.99989179	Chlamys rubida
181	81315	0.00133	0.000	0.00000	0.00268	0.00000421	0.99989600	Pteraster tesselatus
182	22204	0.00128	0.000	0.00000	0.00313	0.00000405	0.99990005	Liparis dennyi
183	22210	0.00127	0.000	0.00000	0.00375	0.00000402	0.99990406	Liparis ochotensis
184	74060	0.00126	0.000	0.00000	0.00273	0.00000401	0.99990808	Modiolus modiolus
185	66570	0.00126	0.000	0.00060	0.00193	0.00000401	0.99991209	Argis sp.
186	69310	0.00116	0.000	0.00000	0.00343	0.00000368	0.99991577	Lithodes aequispina
187	71525	0.00109	0.000	0.00026	0.00193	0.00000347	0.99991924	Natica sp.
188	81064	0.00102	0.000	0.00000	0.00235	0.00000323	0.99992247	Solaster dawsoni
189	75240	0.00100	0.000	0.00000	0.00251	0.00000319	0.99992566	Macoma sp.
190	66502	0.00099	0.000	0.00011	0.00187	0.00000315	0.99992880	Crangon sp.

Appendix C Table 1.--Continued.

Rank	Species	Mean CPUE (kg/ha)	Variance	95 Percent Confidence Limits		Proportion	Cumulative Proportion	Name
191	21921	0.00096	0.000	0.00000	0.00285	0.00000305	0.99993186	Pleurogrammus monopterygius
192	80602	0.00084	0.000	0.00000	0.00250	0.00000268	0.99993453	Gephyreaster swifti
193	75267	0.00084	0.000	0.00025	0.00142	0.00000265	0.99993718	Siliqua alta
194	80015	0.00083	0.000	0.00000	0.00240	0.00000264	0.99993983	Evasterias troschelii
195	71580	0.00082	0.000	0.00000	0.00243	0.00000260	0.99994243	Polinices pallidus
196	71760	0.00082	0.000	0.00000	0.00242	0.00000260	0.99994503	Volutopsius castaneus
197	22206	0.00079	0.000	0.00000	0.00233	0.00000250	0.99994753	Crystallichthys cyclospilus
198	10212	0.00078	0.000	0.00010	0.00145	0.00000246	0.99994999	Limanda sakhalinensis
199	98070	0.00070	0.000	0.00000	0.00171	0.00000223	0.99995222	Thaliacea unident.
200	75600	0.00069	0.000	0.00000	0.00170	0.00000219	0.99995441	Pododesmus macroschisma
201	21	0.00068	0.000	0.00000	0.00166	0.00000216	0.99995657	Lampetra tridentata
202	20061	0.00068	0.000	0.00023	0.00113	0.00000215	0.99995872	Occella dodecaedron
203	71537	0.00064	0.000	0.00003	0.00125	0.00000203	0.99996075	Natica russa
204	74104	0.00063	0.000	0.00000	0.00151	0.00000199	0.99996274	Chlamys sp.
205	82500	0.00058	0.000	0.00000	0.00143	0.00000184	0.99996458	Echinacea unident.
206	20050	0.00055	0.000	0.00017	0.00092	0.00000174	0.99996632	Aspidophoroides bartoni
207	22219	0.00050	0.000	0.00000	0.00123	0.00000160	0.99996792	Careproctus sp.
208	74656	0.00044	0.000	0.00000	0.00130	0.00000140	0.99996932	Cyclocardia sp.
209	85200	0.00044	0.000	0.00000	0.00087	0.00000138	0.99997070	Cucumaria sp.
210	79020	0.00038	0.000	0.00000	0.00077	0.00000122	0.99997192	Rossia pacifica
211	21441	0.00037	0.000	0.00012	0.00063	0.00000118	0.99997310	Icelus spatula
212	81060	0.00036	0.000	0.00000	0.00101	0.00000115	0.99997425	Solaster sp.
213	71681	0.00033	0.000	0.00004	0.00061	0.00000104	0.99997529	Crepidula grandis
214	74419	0.00031	0.000	0.00000	0.00092	0.00000099	0.99997628	Yoldia thraciaeformis
215	10180	0.00031	0.000	0.00000	0.00081	0.00000098	0.99997726	Microstomus pacificus
216	75605	0.00028	0.000	0.00000	0.00084	0.00000090	0.99997816	Pododesmus sp.
217	79000	0.00028	0.000	0.00000	0.00076	0.00000088	0.99997904	squid unident.
218	80730	0.00026	0.000	0.00000	0.00063	0.00000084	0.99997987	Ceramaster patagonicus
219	68040	0.00025	0.000	0.00003	0.00046	0.00000078	0.99998066	Cancer oregonensis
220	66611	0.00025	0.000	0.00005	0.00044	0.00000078	0.99998144	Argis lar
221	21352	0.00025	0.000	0.00000	0.00054	0.00000078	0.99998222	Triglops forficata
222	23805	0.00022	0.000	0.00009	0.00035	0.00000070	0.99998293	Lumpenus maculatus

Appendix C Table 1.--Continued.

Rank	Species	Mean CPUE (kg/ha)	Variance	95 Percent Confidence Limits		Proportion	Cumulative Proportion	Name
223	80546	0.00021	0.000	0.00000	0.00044	0.00000068	0.99998360	Henricia tumida
224	40011	0.00021	0.000	0.00000	0.00053	0.00000067	0.99998427	hydroid unident.
225	74435	0.00020	0.000	0.00000	0.00058	0.00000064	0.99998491	Nuculana sp.
226	74311	0.00020	0.000	0.00000	0.00041	0.00000062	0.99998553	Hiatella arctica
227	66045	0.00019	0.000	0.00000	0.00049	0.00000060	0.99998614	Pandalus goniurus
228	72758	0.00019	0.000	0.00000	0.00042	0.00000060	0.99998674	Buccinum glaciale
229	21735	0.00018	0.000	0.00000	0.00045	0.00000057	0.99998730	Eleginus gracilis
230	71731	0.00016	0.000	0.00000	0.00046	0.00000051	0.99998782	Colus halli
231	74983	0.00016	0.000	0.00000	0.00035	0.00000050	0.99998832	Clinocardium ciliatum
232	20002	0.00015	0.000	0.00000	0.00045	0.00000048	0.99998880	Percis japonicus
233	72059	0.00015	0.000	0.00000	0.00039	0.00000047	0.99998928	Aforia sp.
234	74655	0.00015	0.000	0.00000	0.00036	0.00000047	0.99998975	Cyclocardia crebricostata
235	21356	0.00015	0.000	0.00000	0.00044	0.00000047	0.99999022	Triglops macellus
236	94000	0.00015	0.000	0.00003	0.00026	0.00000046	0.99999068	Sipuncula (phylum)
237	80729	0.00015	0.000	0.00000	0.00043	0.00000046	0.99999115	Ceramaster japonicus
238	95080	0.00014	0.000	0.00000	0.00042	0.00000045	0.99999160	Cellepora ventricosa
239	95070	0.00014	0.000	0.00000	0.00037	0.00000045	0.99999205	Rhamphostomella costata
240	80610	0.00013	0.000	0.00000	0.00029	0.00000042	0.99999247	Pseudarchaster sp.
241	23055	0.00013	0.000	0.00000	0.00038	0.00000041	0.99999288	Osmerus mordax
242	66580	0.00012	0.000	0.00000	0.00027	0.00000039	0.99999328	Argis dentata
243	80595	0.00012	0.000	0.00000	0.00032	0.00000039	0.99999366	Leptasterias sp.
244	74414	0.00012	0.000	0.00000	0.00027	0.00000037	0.99999403	Yoldia sp.
245	1	0.00011	0.000	0.00000	0.00034	0.00000036	0.99999440	fish eggs unident.
246	59100	0.00011	0.000	0.00000	0.00034	0.00000036	0.99999476	Hirudinea unident.
247	72305	0.00011	0.000	0.00000	0.00028	0.00000034	0.99999510	Trichotropis bicarinata
248	66033	0.00011	0.000	0.00000	0.00031	0.00000033	0.99999543	Pandalus tridens
249	75241	0.00010	0.000	0.00000	0.00030	0.00000032	0.99999575	Macoma nasuta
250	21333	0.00009	0.000	0.00002	0.00016	0.00000029	0.99999603	Artediellus pacificus

Appendix C Table 1.--Continued.

Rank	Species	Mean CPUE (kg/ha)	Variance	95 Percent Confidence Limits		Proportion	Cumulative Proportion	Name
251	99902	0.00008	0.000	0.00000	0.00025	0.00000026	0.99999630	Molgula grifithsii
252	80000	0.00008	0.000	0.00000	0.00021	0.00000026	0.99999655	Asteroidea unident.
253	41500	0.00008	0.000	0.00000	0.00024	0.00000025	0.99999681	Gorgonacea (order)
254	66019	0.00008	0.000	0.00000	0.00023	0.00000025	0.99999706	Pandalidae
255	20202	0.00007	0.000	0.00000	0.00015	0.00000024	0.99999729	Ammodytes hexapterus
256	43082	0.00006	0.000	0.00000	0.00017	0.00000019	0.99999748	Cribrinopsis fernaldi
257	56300	0.00005	0.000	0.00000	0.00016	0.00000017	0.99999766	Polynoidae
258	81910	0.00005	0.000	0.00000	0.00013	0.00000017	0.99999783	Luidiaster dawsoni
259	85000	0.00005	0.000	0.00000	0.00015	0.00000017	0.99999800	Holothuroidea unident.
260	80728	0.00005	0.000	0.00000	0.00014	0.00000015	0.99999815	Ceramaster sp.
261	21397	0.00005	0.000	0.00000	0.00013	0.00000014	0.99999829	Blepsias bilobus
262	83400	0.00004	0.000	0.00000	0.00013	0.00000014	0.99999843	Ophiopholis aculeata
263	50000	0.00004	0.000	0.00000	0.00009	0.00000013	0.99999856	Polychaeta (class)
264	22200	0.00004	0.000	0.00000	0.00012	0.00000013	0.99999870	Liparidinae
265	71759	0.00003	0.000	0.00000	0.00010	0.00000010	0.99999880	Volutopsius filosus
266	74981	0.00003	0.000	0.00000	0.00009	0.00000010	0.99999890	cockle unident.
267	66203	0.00003	0.000	0.00000	0.00009	0.00000010	0.99999900	Lebbeus groenlandicus
268	20035	0.00003	0.000	0.00000	0.00007	0.00000010	0.99999909	Bathyagonus alascanus
269	22201	0.00003	0.000	0.00000	0.00008	0.00000008	0.99999918	Liparis sp.
270	50001	0.00002	0.000	0.00000	0.00007	0.00000008	0.99999926	worm unident.
271	66515	0.00002	0.000	0.00000	0.00004	0.00000007	0.99999933	Crangon communis
272	23850	0.00002	0.000	0.00000	0.00006	0.00000007	0.99999939	Poroclinus rothrocki
273	71018	0.00002	0.000	0.00000	0.00006	0.00000007	0.99999946	Dendronotus sp.
274	22178	0.00002	0.000	0.00000	0.00005	0.00000006	0.99999951	Eumicrotremus orbis
275	21339	0.00002	0.000	0.00000	0.00005	0.00000006	0.99999957	Malacocottus sp.
276	23807	0.00002	0.000	0.00000	0.00004	0.00000005	0.99999962	Lumpenus fabricii
277	72420	0.00001	0.000	0.00000	0.00004	0.00000005	0.99999966	Boreotrophon sp.
278	71575	0.00001	0.000	0.00000	0.00004	0.00000004	0.99999970	Polinices sp.

Appendix C Table 1.--Continued.

Rank	Species	Mean CPUE (kg/ha)	Variance	95 Percent Confidence Limits		Proportion	Cumulative Proportion	Name
279	74416	0.00001	0.000	0.00000	0.00003	0.00000003	0.99999974	Yoldia scissurata
280	21406	0.00001	0.000	0.00000	0.00003	0.00000003	0.99999977	Nautichthys oculofasciatus
281	72300	0.00001	0.000	0.00000	0.00003	0.00000003	0.99999979	Trichotropidae
282	71535	0.00001	0.000	0.00000	0.00002	0.00000003	0.99999982	Natica aleutica
283	71530	0.00001	0.000	0.00000	0.00002	0.00000002	0.99999984	Natica clausa
284	66000	0.00001	0.000	0.00000	0.00002	0.00000002	0.99999986	shrimp unident.
285	21405	0.00001	0.000	0.00000	0.00002	0.00000002	0.99999988	Nautichthys pribilovius
286	20036	0.00001	0.000	0.00000	0.00002	0.00000002	0.99999991	Bathyagonus infraspinatus
287	23801	0.00001	0.000	0.00000	0.00002	0.00000002	0.99999993	Lumpenus sp.
288	92021	0.00001	0.000	0.00000	0.00002	0.00000002	0.99999994	Polycladida (order)
289	75247	0.00000	0.000	0.00000	0.00001	0.00000001	0.99999996	Macoma brota
290	66530	0.00000	0.000	0.00000	0.00001	0.00000001	0.99999997	Crangon dalli
291	62000	0.00000	0.000	0.00000	0.00001	0.00000001	0.99999998	Isopoda (order)
292	66171	0.00000	0.000	0.00000	0.00001	0.00000001	0.99999999	Eualus barbatus
293	20001	0.00000	0.000	0.00000	0.00000	0.00000000	1.00000000	Pallasina barbata
294	71892	0.00000	0.000	0.00000	0.00001	0.00000001	1.00000000	Plicifusus (=Colus)

APPENDIX D

Abundance Estimates for Principal Fish Species

Appendix D presents estimates of area weighted 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:

Subarea	Stratum
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)

List of Tables

Appendix D Table 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	56	55	55	25.29	.37230E+02	45.33	.13420E+03
20	30	30	30	30	19.77	.39650E+02	22.33	.56820E+02
31	69	69	69	69	103.78	.43490E+03	233.46	.22570E+04
32	8	8	8	8	42.52	.22210E+03	74.72	.51810E+03
Subtotal	77	77	77	77	98.58	.36580E+03	219.98	.18940E+04
41	44	44	44	43	74.82	.18040E+03	146.35	.84880E+03
42	31	31	31	31	74.39	.34130E+03	195.19	.22060E+04
43	22	22	22	22	100.50	.43150E+03	116.52	.38980E+03
Subtotal	97	97	97	96	79.75	.94480E+02	151.39	.41140E+03
50	26	26	26	26	34.18	.46410E+02	36.23	.54050E+02
61	60	57	57	57	196.10	.76650E+03	337.19	.29130E+04
62	7	7	7	7	190.18	.18910E+04	321.42	.60470E+04
Subtotal	67	64	64	64	195.70	.67460E+03	336.12	.25590E+04
Total	355	350	349	348	89.33	.12580E+04	165.49	.51090E+04

*Hauls with L-F refers to number of hauls where length frequency taken.

POPULATION

Stratum	Population	Variance population	Eff. deg. freedom	95% Confidence Limits Lower	Upper
10	352,953,265	.81380E+16	57.00	170,637,239	535,269,292
20	91,599,508	.95632E+15	29.00	28,358,956	154,840,060
31	2,206,823,676	.20166E+18	68.00	1,308,693,937	3,104,953,415
32	65,560,309	.39887E+15	7.00	16,689,717	114,430,901
Subtotal	2,272,383,985	.20206E+18	68.27	1,373,366,469	3,171,401,501
41	917,655,768	.33372E+17	43.00	548,461,818	1,286,849,717
42	468,683,860	.12715E+17	30.00	238,422,111	698,945,609
43	245,956,245	.17368E+16	21.00	159,273,437	332,639,053
Subtotal	1,632,295,873	.47824E+17	72.75	1,194,922,895	2,069,668,850
50	140,553,381	.81339E+15	25.00	81,688,059	199,418,702
61	2,971,779,334	.22630E+18	59.00	2,010,377,000	3,933,181,668
62	206,631,569	.24991E+16	6.00	78,105,222	335,157,917
Subtotal	3,178,410,903	.22880E+18	60.24	2,221,759,415	4,135,062,392
Total	7,668,196,915	.48859E+18	159.17	6,284,199,399	9,052,194,430

Appendix D Table-1.--Continued.

BIOMASS

Stratum	Biomass (t)	Variance biomass	Eff. deg. freedom	95% Confidence Limits Lower	Upper
10	196,928	.22574E+10	57.00	100,905	292,951
20	81,120	.66743E+09	29.00	28,289	133,952
31	980,986	.38862E+11	68.00	586,719	1,375,252
32	37,307	.17100E+09	7.00	6,381	68,233
Subtotal	1,018,292	.39033E+11	68.59	623,159	1,413,425
41	469,119	.70938E+10	43.00	298,901	639,338
42	178,626	.19680E+10	30.00	87,906	269,346
43	212,124	.19224E+10	21.00	120,925	303,323
Subtotal	859,869	.10984E+11	81.77	650,258	1,069,481
50	132,596	.69845E+09	25.00	78,155	187,038
61	1,728,282	.59539E+11	59.00	1,235,145	2,221,420
62	122,262	.78156E+09	6.00	53,853	190,672
Subtotal	1,850,545	.60321E+11	60.46	1,359,339	2,341,751
Total	4,139,351	.11396E+12	154.60	3,470,940	4,807,761

Appendix D Table 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	58	58	58	15.18	.80710E+01	36.13	.70120E+02
20	30	30	30	30	4.83	.18900E+01	9.39	.30210E+01
31	69	69	69	69	18.41	.21880E+01	25.82	.82090E+01
32	8	8	8	8	29.57	.53090E+02	21.42	.13140E+02
Subtotal	77	77	77	77	19.36	.22150E+01	25.45	.69690E+01
41	44	43	43	43	31.09	.10150E+03	27.89	.73030E+02
42	31	30	30	30	18.27	.89090E+01	30.39	.41090E+02
43	22	22	22	22	28.91	.31300E+02	34.46	.12680E+03
Subtotal	97	95	95	95	27.81	.35970E+02	29.73	.31600E+02
50	26	23	23	23	5.84	.16400E+01	3.19	.82280E+00
61	60	58	58	57	18.10	.97780E+01	6.72	.11240E+01
62	7	7	7	7	16.47	.85720E+01	8.60	.18530E+01
Subtotal	67	65	65	64	17.99	.85330E+01	6.85	.98470E+00
Total	355	348	348	347	17.92	.58320E+02	21.16	.11350E+03

*Hauls with L-F refers to number of hauls where length frequency taken.

POPULATION

Stratum	Population	Variance population	Eff. deg. freedom	95% Confidence Limits Lower	Upper
10	281,373,347	.42521E+16	57.00	149,587,772	413,158,921
20	38,528,606	.50845E+14	29.00	23,946,626	53,110,586
31	244,091,886	.73351E+15	68.00	189,924,961	298,258,811
32	18,792,016	.10113E+14	7.00	11,270,975	26,313,057
Subtotal	262,883,902	.74363E+15	69.76	208,344,843	317,422,962
41	174,894,133	.28712E+16	43.00	66,602,350	283,185,915
42	72,959,230	.23692E+15	30.00	41,482,348	104,436,112
43	72,740,868	.56506E+15	21.00	23,297,274	122,184,462
Subtotal	320,594,231	.36731E+16	64.61	199,381,322	441,807,139
50	12,375,578	.12382E+14	25.00	5,126,722	19,624,435
61	59,208,854	.87283E+14	59.00	40,327,634	78,090,074
62	5,529,276	.76569E+12	6.00	3,388,054	7,670,498
Subtotal	64,738,130	.88048E+14	59.99	45,774,273	83,701,988
Total	980,493,794	.88201E+16	145.64	794,540,889	1,166,446,699

Appendix D Table-2.--Continued.

BIOMASS

Stratum	Biomass (t)	Variance biomass	Eff. deg. freedom	95% Confidence Limits Lower	Upper
10	118,180	.48944E+09	57.00	73,469	162,891
20	19,820	.31806E+08	29.00	8,287	31,353
31	174,004	.19554E+09	68.00	146,037	201,971
32	25,942	.40873E+08	7.00	10,822	41,061
Subtotal	199,946	.23641E+09	69.78	169,194	230,697
41	194,922	.39904E+10	43.00	67,255	322,589
42	43,863	.51365E+08	30.00	29,206	58,519
43	61,023	.13947E+09	21.00	36,459	85,587
Subtotal	299,807	.41813E+10	47.08	169,124	430,491
50	22,655	.24677E+08	25.00	12,422	32,888
61	159,486	.75951E+09	59.00	103,789	215,183
62	10,585	.35424E+07	6.00	5,746	15,424
Subtotal	170,071	.76306E+09	59.54	114,244	225,898
Total	830,479	.57267E+10	84.92	679,130	981,829

Appendix D Table 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	57	57	108.03	.15560E+03	544.42	.36000E+04
20	30	30	30	30	68.63	.78800E+02	288.44	.15600E+04
31	69	66	65	65	54.23	.55780E+02	202.42	.74750E+03
32	8	8	8	8	10.63	.55230E+02	25.80	.36940E+03
Subtotal	77	74	73	73	50.52	.47100E+02	187.41	.62860E+03
41	44	39	39	38	23.01	.13660E+02	77.12	.14460E+03
42	31	27	27	27	16.87	.56270E+01	46.70	.56890E+02
43	22	15	15	15	12.10	.47650E+02	37.26	.49250E+03
Subtotal	97	81	81	80	19.51	.67240E+01	62.54	.70580E+02
50	26	2	2	2	0.03	.50290E-03	0.04	.10730E-02
61	60	1	1	0	0.00	.10870E-04	0.01	.52160E-04
62	7	0	0	0	0.00	.00000E+00	0.00	.00000E+00
Subtotal	67	1	1	0	0.00	.94420E-05	0.01	.45310E-04
Total	355	246	244	242	40.04	.28820E+03	173.37	.58590E+04

*Hauls with L-F refers to number of hauls where length frequency taken.

POPULATION

Stratum	Population	Variance population	Eff. deg. freedom	95% Confidence Limits Lower	Upper
10	4,239,499,686	.21831E+18	57.00	3,295,211,058	5,183,788,313
20	1,183,379,425	.26254E+17	29.00	851,543,187	1,515,215,663
31	1,913,359,336	.66793E+17	68.00	1,396,472,996	2,430,245,675
32	22,638,361	.28435E+15	7.00	0	62,518,486
Subtotal	1,935,997,697	.67077E+17	68.57	1,418,012,290	2,453,983,104
41	483,540,224	.56835E+16	43.00	331,178,700	635,901,747
42	112,131,208	.32802E+15	30.00	75,093,837	149,168,579
43	78,656,827	.21941E+16	21.00	0	176,366,574
Subtotal	674,328,259	.82056E+16	68.42	493,158,768	855,497,749
50	156,122	.16146E+11	25.00	0	417,881
61	63,651	.40514E+10	59.00	0	192,288
62	0	.00000E+00	6.00	0	0
Subtotal	63,651	.40514E+10	6.85	0	219,404
Total	8,033,424,839	.31985E+18	110.42	6,902,322,708	9,164,526,969

Appendix D Table-3.--Continued.

BIOMASS

Stratum	Biomass (t)	Variance biomass	Eff. deg. freedom	95% Confidence Limits Lower	Upper
10	841,236	.94335E+10	57.00	644,944	1,037,528
20	281,573	.13264E+10	29.00	207,096	356,050
31	512,574	.49840E+10	68.00	371,379	653,769
32	9,327	.42522E+08	7.00	0	24,749
Subtotal	521,901	.50265E+10	69.12	380,105	663,697
41	144,275	.53696E+09	43.00	97,443	191,107
42	40,516	.32440E+08	30.00	28,868	52,163
43	25,531	.21230E+09	21.00	0	55,926
Subtotal	210,322	.78171E+09	68.76	154,404	266,240
50	105	.75683E+04	25.00	0	285
61	29	.84428E+03	59.00	0	88
62	0	.00000E+00	6.00	0	0
Subtotal	29	.84428E+03	6.17	0	100
Total	1,855,166	.16568E+11	137.50	1,600,306	2,110,026

Appendix D Table 4.--CPUE, population, and biomass estimates for *Lepidopsetta* 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	58	58	57	153.43	.28600E+03	576.63	.22900E+04
20	30	30	30	30	60.73	.79580E+02	200.41	.90350E+03
31	69	68	68	68	33.52	.25760E+02	160.74	.69200E+03
32	8	8	8	8	29.95	.70210E+02	89.71	.47530E+03
Subtotal	77	76	76	76	33.21	.22070E+02	154.70	.58290E+03
41	44	44	44	44	50.01	.12510E+04	131.90	.73470E+04
42	31	30	30	30	70.42	.65520E+03	222.74	.44190E+04
43	22	22	22	22	42.47	.16360E+03	114.10	.12390E+04
Subtotal	97	96	96	96	53.08	.46170E+03	148.65	.27510E+04
50	26	8	8	8	0.85	.49130E+00	2.30	.39480E+01
61	60	49	49	47	5.29	.10010E+01	11.39	.46500E+01
62	7	7	7	7	9.10	.22240E+02	16.46	.53150E+02
Subtotal	67	56	56	54	5.55	.97250E+00	11.73	.42850E+01
Total	355	324	324	321	52.12	.85090E+03	186.31	.65360E+04

*Hauls with L-F refers to number of hauls where length frequency taken.

POPULATION

Stratum	Population	Variance population	Eff. deg. freedom	95% Confidence Limits Lower	Upper
10	4,490,311,177	.13885E+18	57.00	3,737,236,443	5,243,385,910
20	822,208,563	.15207E+17	29.00	570,024,958	1,074,392,168
31	1,519,386,281	.61831E+17	68.00	1,022,071,362	2,016,701,201
32	78,714,650	.36588E+15	7.00	33,476,833	123,952,466
Subtotal	1,598,100,931	.62196E+17	68.78	1,099,316,752	2,096,885,109
41	827,066,853	.28886E+18	43.00	0	1,913,265,229
42	534,827,486	.25479E+17	30.00	208,879,764	860,775,207
43	240,835,197	.55196E+16	21.00	86,303,009	395,367,386
Subtotal	1,602,729,536	.31986E+18	52.10	459,733,673	2,745,725,399
50	8,933,798	.59414E+14	25.00	0	24,843,250
61	100,377,458	.36116E+15	59.00	61,969,814	138,785,101
62	10,584,251	.21966E+14	6.00	0	22,052,891
Subtotal	110,961,709	.38313E+15	64.06	71,814,357	150,109,061
Total	8,633,245,713	.53655E+18	121.67	7,182,900,188	10,083,591,238

Appendix D Table-4.--Continued.

BIOMASS

Stratum	Biomass (t)	Variance biomass	Eff. deg. freedom	95% Confidence Limits Lower	Upper
10	1,194,775	.17345E+11	57.00	928,605	1,460,945
20	249,139	.13395E+10	29.00	174,184	324,095
31	316,806	.23014E+10	68.00	220,860	412,753
32	26,276	.54051E+08	7.00	8,889	43,663
Subtotal	343,082	.23555E+10	70.85	246,015	440,149
41	313,610	.49174E+11	43.00	0	761,770
42	169,091	.37777E+10	30.00	43,584	294,598
43	89,641	.72878E+09	21.00	33,490	145,793
Subtotal	572,342	.53680E+11	50.79	104,097	1,040,588
50	3,281	.73937E+07	25.00	0	8,893
61	46,662	.77773E+08	59.00	28,839	64,485
62	5,851	.91925E+07	6.00	0	13,646
Subtotal	52,513	.86965E+08	64.86	33,862	71,164
Total	2,415,133	.74815E+11	90.05	1,868,086	2,962,179

Appendix D Table 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	38	38	38	2.68	.31960E+00	6.03	.29930E+01
20	30	11	11	11	0.22	.72780E-02	0.46	.28460E-01
31	69	69	69	69	16.59	.12520E+02	46.70	.10770E+03
32	8	7	7	7	5.03	.60410E+01	9.39	.19340E+02
Subtotal	77	76	76	76	15.60	.10530E+02	43.53	.90280E+02
41	44	40	40	40	9.14	.11210E+02	21.05	.44370E+02
42	31	26	26	26	7.28	.61850E+01	15.24	.25290E+02
43	22	21	21	21	3.95	.59520E+00	11.70	.58520E+01
Subtotal	97	87	87	87	7.71	.41190E+01	17.93	.16480E+02
50	26	26	26	26	15.29	.47910E+01	67.75	.11590E+03
61	60	60	60	60	20.86	.15010E+02	77.86	.16260E+03
62	7	7	7	7	7.41	.17000E+01	33.94	.63760E+02
Subtotal	67	67	67	67	19.95	.13050E+02	74.87	.14160E+03
Total	355	305	305	305	11.09	.32820E+02	35.88	.36730E+03

*Hauls with L-F refers to number of hauls where length frequency taken.

POPULATION

Stratum	Population	Variance population	Eff. deg. freedom	95% Confidence Limits Lower	Upper
10	46,944,561	.18150E+15	57.00	19,717,458	74,171,664
20	1,889,082	.47901E+12	29.00	471,649	3,306,516
31	441,458,243	.96193E+16	68.00	245,302,504	637,613,982
32	8,240,748	.14891E+14	7.00	0	17,366,922
Subtotal	449,698,991	.96342E+16	68.21	253,391,486	646,006,497
41	132,011,487	.17446E+16	43.00	47,598,571	216,424,404
42	36,584,539	.14582E+15	30.00	11,890,046	61,279,032
43	24,699,812	.26072E+14	21.00	14,079,241	35,320,382
Subtotal	193,295,838	.19164E+16	51.35	104,822,016	281,769,660
50	262,811,050	.17448E+16	25.00	176,763,736	348,858,363
61	686,201,593	.12632E+17	59.00	459,061,100	913,342,087
62	21,821,225	.26349E+14	6.00	9,260,426	34,382,025
Subtotal	708,022,819	.12658E+17	59.24	480,645,544	935,400,094
Total	1,662,662,341	.26135E+17	160.37	1,342,567,576	1,982,757,106

Appendix D Table-5.--Continued.

BIOMASS

Stratum	Biomass (t)	Variance biomass	Eff. deg. freedom	95% Confidence Limits Lower	Upper
10	20,881	.19380E+08	57.00	11,984	29,778
20	899	.12251E+06	29.00	183	1,615
31	156,779	.11191E+10	68.00	89,873	223,686
32	4,413	.46510E+07	7.00	0	9,690
Subtotal	161,192	.11238E+10	68.55	94,146	228,238
41	57,287	.44058E+09	43.00	14,867	99,708
42	17,482	.35660E+08	30.00	5,270	29,694
43	8,333	.26519E+07	21.00	4,945	11,720
Subtotal	83,102	.47889E+09	50.32	38,876	127,329
50	59,298	.72098E+08	25.00	41,772	76,823
61	183,889	.11661E+10	59.00	114,876	252,902
62	4,763	.70270E+06	6.00	2,712	6,814
Subtotal	188,652	.11668E+10	59.07	119,618	257,686
Total	514,023	.28611E+10	177.02	408,115	619,931

Appendix D Table 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	52	52	57	7.19	.13950E+01	17.71	.67820E+01
20	30	30	30	30	22.22	.38510E+02	53.91	.16800E+03
31	69	55	55	68	13.00	.15580E+02	22.29	.51920E+02
32	8	5	5	8	2.66	.85580E+00	2.26	.61310E+00
Subtotal	77	60	60	76	12.12	.13050E+02	20.59	.43480E+02
41	44	42	42	44	31.13	.58100E+02	47.95	.14530E+03
42	31	24	24	30	4.80	.10150E+01	6.85	.22830E+01
43	22	21	21	22	14.77	.20360E+02	18.14	.29860E+02
Subtotal	97	87	87	96	22.06	.20480E+02	32.96	.50400E+02
50	26	0	0	8	0.00	.00000E+00	0.00	.00000E+00
61	60	16	16	47	2.86	.99030E+00	1.87	.42100E+00
62	7	6	6	7	4.46	.48880E+01	2.70	.16410E+01
Subtotal	67	22	22	54	2.97	.88280E+00	1.92	.37330E+00
Total	355	251	251	321	11.62	.74320E+02	20.40	.26900E+03

*Hauls with L-F refers to number of hauls where length frequency taken.

POPULATION

Stratum	Population	Variance population	Eff. deg. freedom	95% Confidence Limits Lower	Upper
10	137,892,065	.41127E+15	57.00	96,906,676	178,877,454
20	221,180,612	.28275E+16	29.00	112,438,862	329,922,362
31	210,668,125	.46390E+16	68.00	74,447,732	346,888,518
32	1,979,572	.47204E+12	7.00	354,699	3,604,444
Subtotal	212,647,697	.46395E+16	68.01	76,420,374	348,875,020
41	300,669,691	.57126E+16	43.00	147,918,932	453,420,450
42	16,440,925	.13162E+14	30.00	9,032,773	23,849,078
43	38,295,582	.13303E+15	21.00	14,235,586	62,355,579
Subtotal	355,406,199	.58588E+16	45.18	200,713,208	510,099,190
50	0	.00000E+00	25.00	0	0
61	16,452,268	.32699E+14	59.00	4,895,574	28,008,963
62	1,735,433	.67802E+12	6.00	0	3,750,348
Subtotal	18,187,702	.33377E+14	61.21	6,633,129	29,742,274
Total	945,314,274	.13770E+17	139.96	712,966,203	1,177,662,345

Appendix D Table-6.--Continued.

BIOMASS

Stratum	Biomass (t)	Variance biomass	Eff. deg. freedom	95% Confidence Limits Lower	Upper
10	55,970	.84616E+08	57.00	37,379	74,561
20	91,163	.64820E+09	29.00	39,021	143,304
31	122,884	.13924E+10	68.00	48,254	197,514
32	2,338	.65886E+06	7.00	419	4,258
Subtotal	125,222	.13931E+10	68.06	50,575	199,870
41	195,179	.22843E+10	43.00	98,587	291,770
42	11,520	.58500E+07	30.00	6,581	16,459
43	31,169	.90692E+08	21.00	11,304	51,035
Subtotal	237,868	.23808E+10	46.56	139,256	336,480
50	0	.00000E+00	25.00	0	0
61	25,230	.76921E+08	59.00	7,505	42,955
62	2,866	.20199E+07	6.00	0	6,520
Subtotal	28,095	.78941E+08	61.72	10,326	45,865
Total	538,319	.45856E+10	127.50	404,239	672,399

Appendix D Table 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	30	0	0	0	0.00	.00000E+00	0.00	.00000E+00
31	69	4	4	4	0.12	.38990E-02	0.02	.14570E-03
32	8	0	0	0	0.00	.00000E+00	0.00	.00000E+00
Subtotal	77	4	4	4	0.11	.32650E-02	0.02	.12200E-03
41	44	3	3	3	0.19	.12870E-01	0.04	.50610E-03
42	31	1	1	1	0.05	.29970E-02	0.01	.36190E-04
43	22	5	5	5	0.75	.12130E+00	0.10	.20900E-02
Subtotal	97	9	9	9	0.27	.91500E-02	0.04	.25310E-03
50	26	1	1	1	0.08	.56980E-02	0.01	.80750E-04
61	60	21	21	21	2.15	.27460E+00	0.53	.14240E-01
62	7	6	6	6	3.11	.52730E+00	0.62	.18990E-01
Subtotal	67	27	27	27	2.22	.24090E+00	0.54	.12460E-01
Total	355	41	41	41	0.55	.25910E+00	0.12	.12910E-01

*Hauls with L-F refers to number of hauls where length frequency taken.

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	29.00	0	0
31	213,590	.13019E+11	68.00	0	441,790
32	0	.00000E+00	7.00	0	0
Subtotal	213,590	.13019E+11	9.01	0	471,684
41	226,301	.19897E+11	43.00	0	511,377
42	14,445	.20866E+09	30.00	0	43,941
43	213,660	.93138E+10	21.00	12,923	414,396
Subtotal	454,406	.29420E+11	64.88	111,364	797,448
50	34,860	.12152E+10	25.00	0	106,672
61	4,680,645	.11062E+13	59.00	2,555,011	6,806,278
62	396,191	.78496E+10	6.00	168,406	623,976
Subtotal	5,076,835	.11141E+13	59.81	2,943,674	7,209,997
Total	5,779,692	.11577E+13	156.99	3,649,254	7,910,129

Appendix D Table-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	29.00	0	0
31	1,158	.34836E+06	68.00	0	2,338
32	0	.00000E+00	7.00	0	0
Subtotal	1,158	.34836E+06	63.61	0	2,338
41	1,185	.50594E+06	43.00	0	2,623
42	131	.17279E+05	30.00	0	400
43	1,578	.54057E+06	21.00	49	3,108
Subtotal	2,895	.10638E+07	56.94	810	4,979
50	293	.85747E+05	25.00	0	897
61	18,968	.21327E+08	59.00	9,635	28,301
62	1,997	.21791E+06	6.00	855	3,140
Subtotal	20,966	.21545E+08	60.15	11,682	30,249
Total	25,311	.23043E+08	78.80	15,710	34,912

Appendix D Table 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	0.09	.31280E-02	0.70	.32430E+00
20	30	0	0	0	0.00	.00000E+00	0.00	.00000E+00
31	69	50	50	50	9.64	.60550E+01	26.85	.57300E+02
32	8	8	8	8	7.77	.26300E+01	16.56	.64580E+01
Subtotal	77	58	58	58	9.48	.50890E+01	25.97	.48030E+02
41	44	6	6	6	0.94	.30310E+00	0.87	.20340E+00
42	31	22	22	22	3.51	.70540E+00	9.41	.64170E+01
43	22	6	6	6	0.33	.41040E-01	0.49	.83950E-01
Subtotal	97	34	34	34	1.39	.13900E+00	2.70	.39020E+00
50	26	26	26	26	27.73	.13580E+02	61.21	.98050E+02
61	60	53	53	53	17.07	.60130E+01	18.67	.65570E+01
62	7	7	7	7	9.49	.97860E+01	9.50	.13850E+02
Subtotal	67	60	60	60	16.55	.52680E+01	18.05	.57590E+01
Total	355	181	181	181	8.15	.24080E+02	15.34	.15250E+03

*Hauls with L-F refers to number of hauls where length frequency taken.

POPULATION

Stratum	Population	Variance population	Eff. deg. freedom	95% Confidence Limits Lower	Upper
10	5,480,034	.19668E+14	57.00	0	14,442,829
20	0	.00000E+00	29.00	0	0
31	253,778,570	.51198E+16	68.00	110,672,732	396,884,409
32	14,528,782	.49720E+13	7.00	9,255,318	19,802,246
Subtotal	268,307,353	.51248E+16	68.13	125,132,044	411,482,661
41	5,446,700	.79961E+13	43.00	0	11,161,548
42	22,594,194	.36998E+14	30.00	10,173,519	35,014,869
43	1,038,153	.37403E+12	21.00	0	2,310,234
Subtotal	29,079,047	.45368E+14	43.69	15,466,421	42,691,673
50	237,459,214	.14755E+16	25.00	158,331,129	316,587,298
61	164,544,361	.50929E+15	59.00	118,935,718	210,153,004
62	6,108,512	.57231E+13	6.00	254,570	11,962,454
Subtotal	170,652,873	.51501E+15	60.26	125,265,254	216,040,492
Total	710,978,520	.71803E+16	108.10	541,505,275	880,451,765

Appendix D Table-8.--Continued.

BIOMASS

Stratum	Biomass (t)	Variance biomass	Eff. deg. freedom	95% Confidence Limits Lower	Upper
10	672	.18970E+06	57.00	0	1,552
20	0	.00000E+00	29.00	0	0
31	91,142	.54105E+09	68.00	44,621	137,663
32	6,821	.20251E+07	7.00	3,338	10,303
Subtotal	97,963	.54307E+09	68.50	51,355	144,570
41	5,891	.11915E+08	43.00	0	12,867
42	8,420	.40666E+07	30.00	4,302	12,538
43	694	.18287E+06	21.00	0	1,583
Subtotal	15,004	.16165E+08	67.78	6,963	23,046
50	107,567	.20438E+09	25.00	78,060	137,075
61	150,432	.46706E+09	59.00	106,755	194,110
62	6,098	.40442E+07	6.00	1,177	11,019
Subtotal	156,530	.47111E+09	59.98	112,664	200,396
Total	377,737	.12349E+10	157.68	308,157	447,317

Appendix D Table 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	2	2	2	0.00	.78940E-06	0.04	.11820E-02
20	30	0	0	0	0.00	.00000E+00	0.00	.00000E+00
31	69	22	22	22	0.20	.21680E-02	0.30	.10650E-01
32	8	6	6	5	1.35	.18160E+00	1.53	.25750E+00
Subtotal	77	28	28	27	0.29	.31250E-02	0.40	.10770E-01
41	44	5	5	5	0.19	.98730E-02	0.10	.20260E-02
42	31	9	9	9	0.38	.16220E-01	0.37	.13540E-01
43	22	8	8	7	0.85	.26350E+00	0.45	.61130E-01
Subtotal	97	22	22	21	0.36	.14240E-01	0.23	.36990E-02
50	26	15	15	15	0.84	.10130E+00	1.83	.61580E+00
61	60	54	54	54	2.14	.54460E-01	3.88	.47210E+00
62	7	7	7	7	3.25	.67250E+00	2.35	.31450E+00
Subtotal	67	61	61	61	2.21	.50410E-01	3.78	.41150E+00
Total	355	128	128	126	0.67	.16910E+00	1.07	.10430E+01

*Hauls with L-F refers to number of hauls where length frequency taken.

POPULATION

Stratum	Population	Variance population	Eff. deg. freedom	95% Confidence Limits Lower	Upper
10	321,985	.71648E+11	57.00	0	862,950
20	0	.00000E+00	29.00	0	0
31	2,829,545	.95133E+12	68.00	878,827	4,780,262
32	1,339,786	.19822E+12	7.00	286,855	2,392,718
Subtotal	4,169,331	.11495E+13	69.84	2,024,998	6,313,664
41	605,058	.79643E+11	43.00	34,710	1,175,407
42	887,057	.78046E+11	30.00	315,753	1,458,361
43	951,892	.27236E+12	21.00	0	2,040,538
Subtotal	2,444,008	.43005E+12	47.63	1,118,674	3,769,342
50	7,114,994	.92664E+13	25.00	832,023	13,397,964
61	34,237,262	.36670E+14	59.00	21,998,918	46,475,605
62	1,511,801	.12999E+12	6.00	629,548	2,394,054
Subtotal	35,749,063	.36800E+14	59.41	23,489,047	48,009,079
Total	49,799,380	.47718E+14	88.75	35,983,771	63,614,990

Appendix D Table-9.--Continued.

BIOMASS

Stratum	Biomass (t)	Variance biomass	Eff. deg. freedom	95% Confidence Limits Lower	Upper
10	8	.47872E+02	57.00	0	22
20	0	.00000E+00	29.00	0	0
31	1,854	.19367E+06	68.00	974	2,734
32	1,185	.13983E+06	7.00	270	2,100
Subtotal	3,039	.33350E+06	33.26	1,860	4,218
41	1,163	.38818E+06	43.00	0	2,422
42	920	.93520E+05	30.00	296	1,545
43	1,795	.11740E+07	21.00	0	4,049
Subtotal	3,878	.16557E+07	39.49	1,251	6,506
50	3,266	.15248E+07	25.00	717	5,814
61	18,830	.42300E+07	59.00	14,673	22,986
62	2,088	.27794E+06	6.00	732	3,443
Subtotal	20,917	.45080E+07	64.28	16,671	25,164
Total	31,109	.80221E+07	149.49	25,501	36,717

Appendix D Table 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	52	4.61	.39740E+00	3.38	.24710E+00
20	30	24	24	24	2.43	.46030E+00	0.83	.39460E-01
31	69	57	57	57	2.43	.87200E-01	1.00	.18620E-01
32	8	6	6	6	3.86	.19180E+01	0.71	.76220E-01
Subtotal	77	63	63	63	2.55	.86850E-01	0.98	.16140E-01
41	44	31	31	31	1.96	.14390E+00	0.57	.16750E-01
42	31	23	23	23	5.62	.37020E+01	1.48	.31340E+00
43	22	8	8	8	0.86	.19010E+00	0.13	.20160E-02
Subtotal	97	62	62	62	2.56	.23950E+00	0.69	.21280E-01
50	26	21	21	21	3.02	.32420E+00	0.49	.11300E-01
61	60	39	39	39	3.94	.33130E+00	0.58	.63030E-02
62	7	4	4	4	1.25	.44910E+00	0.26	.18730E-01
Subtotal	67	43	43	43	3.76	.28990E+00	0.56	.55620E-02
Total	355	266	266	265	3.18	.17980E+01	1.18	.34090E+00

*Hauls with L-F refers to number of hauls where length frequency taken.

POPULATION

Stratum	Population	Variance population	Eff. deg. freedom	95% Confidence Limits Lower	Upper
10	26,338,067	.14987E+14	57.00	18,514,233	34,161,900
20	3,411,292	.66423E+12	29.00	1,742,165	5,080,418
31	9,491,673	.16636E+13	68.00	6,912,096	12,071,250
32	619,294	.58678E+11	7.00	46,406	1,192,182
Subtotal	10,110,967	.17222E+13	72.01	7,486,290	12,735,644
41	3,583,798	.65851E+12	43.00	1,943,789	5,223,806
42	3,556,205	.18067E+13	30.00	807,427	6,304,984
43	281,096	.89825E+10	21.00	83,393	478,800
Subtotal	7,421,099	.24742E+13	51.50	4,242,138	10,600,060
50	1,884,467	.16999E+12	25.00	1,035,141	2,733,793
61	5,132,612	.48959E+12	59.00	3,718,499	6,546,725
62	165,858	.77411E+10	6.00	0	381,154
Subtotal	5,298,470	.49733E+12	60.73	3,888,031	6,708,908
Total	54,464,361	.20515E+14	102.12	45,405,725	63,522,997

Appendix D Table-10.--Continued.

BIOMASS

Stratum	Biomass (t)	Variance biomass	Eff. deg. freedom	95% Confidence Limits Lower	Upper
10	35,925	.24099E+08	57.00	26,004	45,846
20	9,975	.77483E+07	29.00	4,282	15,667
31	23,001	.77915E+07	68.00	17,418	28,583
32	3,391	.14765E+07	7.00	517	6,265
Subtotal	26,392	.92680E+07	71.33	20,303	32,480
41	12,305	.56566E+07	43.00	7,498	17,111
42	13,502	.21341E+08	30.00	4,055	22,949
43	1,805	.84702E+06	21.00	0	3,725
Subtotal	27,612	.27844E+08	48.59	16,947	38,276
50	11,704	.48787E+07	25.00	7,145	16,263
61	34,743	.25736E+08	59.00	24,490	44,995
62	805	.18561E+06	6.00	0	1,859
Subtotal	35,547	.25922E+08	59.82	25,258	45,837
Total	147,154	.99760E+08	239.24	127,378	166,931

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.

List of Tables

Table Page

Appendix E Table 1.--Population estimates by sex and size group for walleye pollock from the 2001 eastern Bering Sea bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
50	0	0	1,037,794	1,037,794	0.0001	0.0001
60	0	0	37,993	37,993	0.0000	0.0001
70	0	0	340,113	340,113	0.0000	0.0002
80	0	0	1,761,089	1,761,089	0.0002	0.0004
90	41,230	688,798	8,477,730	9,207,757	0.0012	0.0016
100	529,489	344,399	40,771,316	41,645,204	0.0054	0.0070
110	375,730	959,459	104,080,529	105,415,718	0.0137	0.0208
120	1,449,553	2,782,995	264,110,287	268,342,836	0.0350	0.0558
130	1,949,369	4,835,442	293,269,209	300,054,020	0.0391	0.0949
140	5,832,518	7,534,394	303,636,085	317,002,998	0.0413	0.1363
150	10,314,475	8,758,662	216,559,799	235,632,937	0.0307	0.1670
160	14,628,384	15,360,209	92,903,771	122,892,364	0.0160	0.1830
170	19,949,372	12,468,617	43,632,853	76,050,841	0.0099	0.1929
180	26,398,587	16,941,421	27,239,698	70,579,707	0.0092	0.2021
190	26,995,605	28,763,226	16,859,001	72,617,832	0.0095	0.2116
200	42,048,514	41,937,368	7,648,618	91,634,500	0.0119	0.2236
210	45,861,754	46,272,595	3,401,989	95,536,338	0.0125	0.2360
220	66,906,849	57,569,291	1,823,607	126,299,747	0.0165	0.2525
230	54,475,897	58,906,469	1,531,037	114,913,403	0.0150	0.2675
240	60,797,604	62,585,249	332,047	123,714,900	0.0161	0.2836
250	45,418,334	41,533,901	110,773	87,063,008	0.0114	0.2950
260	32,351,455	34,085,901	170,479	66,607,835	0.0087	0.3036
270	26,363,380	29,896,832	0	56,260,212	0.0073	0.3110
280	22,979,553	19,606,880	0	42,586,433	0.0056	0.3165
290	12,578,230	22,124,302	0	34,702,532	0.0045	0.3211
300	20,412,796	17,298,651	0	37,711,447	0.0049	0.3260
310	18,676,387	13,194,837	0	31,871,224	0.0042	0.3301
320	17,366,977	12,728,450	0	30,095,427	0.0039	0.3341
330	20,450,310	17,547,587	0	37,997,897	0.0050	0.3390
340	20,372,138	28,401,750	0	48,773,888	0.0064	0.3454
350	27,401,557	17,264,387	0	44,665,944	0.0058	0.3512
360	26,509,484	32,039,763	0	58,549,247	0.0076	0.3588
370	39,407,895	27,586,556	58,605	67,053,056	0.0087	0.3676
380	44,219,896	35,453,182	0	79,673,077	0.0104	0.3780
390	69,893,605	47,483,148	0	117,376,753	0.0153	0.3933
400	85,510,941	63,710,059	0	149,221,000	0.0195	0.4127
410	147,719,565	97,505,231	117,210	245,342,007	0.0320	0.4447
420	150,082,280	122,866,732	0	272,949,012	0.0356	0.4803
430	150,535,742	139,974,431	103,238	290,613,411	0.0379	0.5182
440	158,471,551	137,865,726	58,605	296,395,882	0.0387	0.5569
450	176,486,499	151,084,228	175,815	327,746,542	0.0427	0.5996
460	164,228,784	144,815,516	234,420	309,278,720	0.0403	0.6399
470	177,152,996	132,522,328	410,234	310,085,558	0.0404	0.6804
480	163,160,477	146,636,911	234,420	310,031,807	0.0404	0.7208

Appendix E Table 1.--Continued.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
490	158,501,902	132,704,359	293,024	291,499,285	0.0380	0.7588
500	155,824,112	131,652,275	0	287,476,387	0.0375	0.7963
510	126,744,677	131,802,316	351,629	258,898,622	0.0338	0.8301
520	103,291,503	125,094,729	0	228,386,231	0.0298	0.8599
530	76,132,517	110,219,722	117,210	186,469,449	0.0243	0.8842
540	60,522,164	90,053,628	58,605	150,634,397	0.0196	0.9038
550	57,906,377	77,126,305	293,024	135,325,706	0.0176	0.9215
560	36,952,308	72,951,816	0	109,904,124	0.0143	0.9358
570	34,667,482	52,368,609	0	87,036,090	0.0114	0.9472
580	26,184,002	46,501,503	0	72,685,506	0.0095	0.9566
590	20,544,502	38,592,873	0	59,137,376	0.0077	0.9643
600	15,818,871	31,651,808	0	47,470,679	0.0062	0.9705
610	13,820,806	27,773,130	0	41,593,936	0.0054	0.9760
620	11,011,182	22,818,270	0	33,829,452	0.0044	0.9804
630	9,113,244	15,664,331	0	24,777,575	0.0032	0.9836
640	8,927,909	13,821,509	0	22,749,418	0.0030	0.9866
650	7,406,312	10,253,484	0	17,659,796	0.0023	0.9889
660	6,304,419	9,553,463	0	15,857,882	0.0021	0.9909
670	5,272,092	10,863,647	0	16,135,739	0.0021	0.9930
680	3,766,425	9,290,423	0	13,056,848	0.0017	0.9948
690	2,741,320	5,980,714	0	8,722,033	0.0011	0.9959
700	2,192,387	5,583,957	0	7,776,343	0.0010	0.9969
710	1,729,175	4,521,094	0	6,250,269	0.0008	0.9977
720	916,993	2,803,472	0	3,720,465	0.0005	0.9982
730	823,837	2,838,930	0	3,662,767	0.0005	0.9987
740	272,399	2,498,093	0	2,770,492	0.0004	0.9990
750	392,560	1,908,666	0	2,301,226	0.0003	0.9993
760	838,202	2,198,895	0	3,037,097	0.0004	0.9997
770	139,049	503,148	0	642,197	0.0001	0.9998
780	0	650,325	0	650,325	0.0001	0.9999
790	30,944	416,366	0	447,311	0.0001	1.0000
800	0	68,821	0	68,821	0.0000	1.0000
810	0	164,173	0	164,173	0.0000	1.0000
820	0	28,883	0	28,883	0.0000	1.0000
Total	3,145,095,435	3,090,859,623	1,432,241,856	7,668,196,915	1.0000	1.0000

Appendix E Table 2.--Population estimates by sex and size group for Pacific cod from the 2001 eastern Bering Sea bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
80	0	233,713	0	233,713	0.0002	0.0002
90	32,139	116,856	154,994	303,989	0.0003	0.0005
100	235,155	592,323	494,703	1,322,181	0.0013	0.0019
110	353,258	913,809	1,828,615	3,095,682	0.0032	0.0051
120	1,540,256	1,338,203	3,352,818	6,231,277	0.0064	0.0114
130	3,047,799	2,416,880	4,634,058	10,098,737	0.0103	0.0217
140	5,309,872	4,023,662	6,087,983	15,421,517	0.0157	0.0374
150	9,363,368	6,975,363	5,891,723	22,230,453	0.0227	0.0601
160	12,351,328	12,266,113	7,989,970	32,607,411	0.0333	0.0934
170	15,729,148	13,674,020	5,821,957	35,225,126	0.0359	0.1293
180	17,674,517	16,302,662	4,073,503	38,050,682	0.0388	0.1681
190	17,076,299	15,271,055	1,462,251	33,809,605	0.0345	0.2026
200	17,545,511	14,909,751	406,919	32,862,181	0.0335	0.2361
210	10,754,114	10,939,714	172,538	21,866,366	0.0223	0.2584
220	9,554,204	7,856,725	0	17,410,929	0.0178	0.2762
230	5,940,948	4,968,933	0	10,909,881	0.0111	0.2873
240	3,330,643	3,416,198	0	6,746,840	0.0069	0.2942
250	2,903,704	2,624,065	0	5,527,769	0.0056	0.2998
260	3,958,307	3,989,473	0	7,947,780	0.0081	0.3079
270	6,267,901	4,913,118	0	11,181,018	0.0114	0.3193
280	8,350,246	7,184,052	0	15,534,297	0.0158	0.3352
290	9,900,332	8,219,631	0	18,119,963	0.0185	0.3536
300	13,142,623	12,045,186	0	25,187,808	0.0257	0.3793
310	17,003,428	15,544,462	0	32,547,890	0.0332	0.4125
320	21,862,204	19,350,219	0	41,212,422	0.0420	0.4546
330	19,244,260	21,824,294	0	41,068,554	0.0419	0.4964
340	22,489,417	23,112,865	0	45,602,282	0.0465	0.5429
350	21,307,885	18,611,159	0	39,919,044	0.0407	0.5837
360	16,924,072	17,737,312	0	34,661,384	0.0354	0.6190
370	12,352,544	13,007,216	0	25,359,761	0.0259	0.6449
380	10,235,111	10,027,377	0	20,262,488	0.0207	0.6655
390	7,400,361	7,470,224	0	14,870,586	0.0152	0.6807
400	5,383,244	5,413,342	0	10,796,586	0.0110	0.6917
410	4,303,681	5,078,042	0	9,381,724	0.0096	0.7013
420	3,954,938	4,796,458	0	8,751,397	0.0089	0.7102
430	3,184,287	4,374,825	0	7,559,111	0.0077	0.7179
440	3,466,498	4,346,024	0	7,812,522	0.0080	0.7259
450	5,271,509	4,008,207	0	9,279,716	0.0095	0.7354
460	5,338,338	6,046,687	0	11,385,025	0.0116	0.7470
470	6,421,035	7,530,350	0	13,951,385	0.0142	0.7612
480	6,233,211	5,169,000	0	11,402,211	0.0116	0.7728
490	7,635,273	5,574,561	0	13,209,835	0.0135	0.7863
500	5,893,219	6,628,104	0	12,521,323	0.0128	0.7991
510	5,414,065	6,001,625	0	11,415,690	0.0116	0.8107

Appendix E Table 2.--Continued.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
520	7,202,984	5,924,429	0	13,127,413	0.0134	0.8241
530	6,345,653	7,239,216	0	13,584,869	0.0139	0.8380
540	6,850,252	5,915,938	0	12,766,191	0.0130	0.8510
550	6,347,662	5,406,681	0	11,754,344	0.0120	0.8630
560	5,647,552	5,224,075	0	10,871,627	0.0111	0.8740
570	5,955,545	5,218,950	0	11,174,495	0.0114	0.8854
580	4,537,284	4,883,695	0	9,420,978	0.0096	0.8951
590	5,521,543	4,863,687	0	10,385,229	0.0106	0.9056
600	5,086,958	4,103,154	0	9,190,112	0.0094	0.9150
610	3,281,393	4,146,165	0	7,427,558	0.0076	0.9226
620	4,222,136	5,631,784	0	9,853,920	0.0100	0.9326
630	2,973,816	3,579,116	0	6,552,932	0.0067	0.9393
640	2,812,369	4,823,943	0	7,636,312	0.0078	0.9471
650	3,141,105	4,409,943	0	7,551,048	0.0077	0.9548
660	2,564,366	2,727,769	0	5,292,135	0.0054	0.9602
670	1,619,988	2,479,368	0	4,099,356	0.0042	0.9644
680	2,530,241	2,734,957	0	5,265,198	0.0054	0.9698
690	1,273,506	2,080,298	0	3,353,804	0.0034	0.9732
700	1,520,528	2,340,536	0	3,861,063	0.0039	0.9771
710	826,388	2,000,232	0	2,826,620	0.0029	0.9800
720	973,828	1,553,505	0	2,527,333	0.0026	0.9826
730	657,760	976,225	0	1,633,985	0.0017	0.9843
740	713,330	1,194,274	0	1,907,604	0.0019	0.9862
750	528,902	743,781	0	1,272,683	0.0013	0.9875
760	403,981	550,488	0	954,468	0.0010	0.9885
770	712,790	631,888	0	1,344,678	0.0014	0.9898
780	433,972	550,127	0	984,099	0.0010	0.9908
790	569,421	962,059	0	1,531,480	0.0016	0.9924
800	559,945	304,549	0	864,494	0.0009	0.9933
810	281,680	574,120	0	855,799	0.0009	0.9942
820	96,209	515,578	0	611,787	0.0006	0.9948
830	73,119	491,220	0	564,339	0.0006	0.9954
840	333,232	310,369	0	643,601	0.0007	0.9960
850	140,054	133,404	0	273,458	0.0003	0.9963
860	66,935	446,367	0	513,303	0.0005	0.9968
870	58,973	245,384	0	304,357	0.0003	0.9971
880	163,265	153,389	0	316,653	0.0003	0.9975
890	62,628	208,850	0	271,478	0.0003	0.9977
900	240,598	102,528	0	343,126	0.0003	0.9981
910	52,318	178,627	0	230,946	0.0002	0.9983
920	59,970	136,990	0	196,960	0.0002	0.9985
930	86,059	29,677	0	115,737	0.0001	0.9986
940	0	204,302	0	204,302	0.0002	0.9988
950	178,537	108,407	0	286,944	0.0003	0.9991
960	0	27,869	0	27,869	0.0000	0.9992
970	41,610	70,907	0	112,516	0.0001	0.9993
980	0	24,454	0	24,454	0.0000	0.9993

Appendix E Table 2.--Continued.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
990	57,811	176,265	0	234,075	0.0002	0.9995
1000	0	30,255	0	30,255	0.0000	0.9996
1010	0	64,537	0	64,537	0.0001	0.9996
1030	30,289	53,865	0	84,154	0.0001	0.9997
1040	0	41,610	0	41,610	0.0000	0.9998
1050	110,359	30,385	0	140,744	0.0001	0.9999
1060	0	29,774	0	29,774	0.0000	0.9999
1080	0	58,847	0	58,847	0.0001	1.0000
Total	473,629,092	464,492,671	42,372,031	980,493,794	1.0000	1.0000

Appendix E Table 3.--Population estimates by sex and size group for yellowfin sole from the 2001 eastern Bering Sea bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total[a]	Proportion	Cumulative Proportion
80	989,686	0	0	989,686	0.0001	0.0001
90	0	1,338,569	0	1,338,569	0.0002	0.0003
100	930,158	3,215,477	0	4,145,635	0.0005	0.0008
110	6,507,146	6,533,525	0	13,040,670	0.0016	0.0024
120	15,388,255	17,946,911	0	33,335,166	0.0041	0.0066
130	58,965,528	48,051,530	251,306	107,268,364	0.0134	0.0199
140	108,337,599	85,304,750	2,513,064	196,155,413	0.0244	0.0443
150	167,388,562	125,130,502	6,282,660	298,801,724	0.0372	0.0815
160	169,146,124	145,385,130	8,544,417	323,075,672	0.0402	0.1218
170	157,329,973	129,418,719	5,277,434	292,026,126	0.0364	0.1581
180	142,602,780	158,457,281	2,845,291	303,905,351	0.0378	0.1959
190	130,604,647	129,486,223	4,514,970	264,605,840	0.0329	0.2289
200	161,471,778	152,883,349	2,342,678	316,697,805	0.0394	0.2683
210	145,475,066	161,710,824	4,676,810	311,862,700	0.0388	0.3071
220	166,678,570	160,308,047	7,756,316	334,742,932	0.0417	0.3488
230	147,531,894	145,768,790	8,007,622	301,308,306	0.0375	0.3863
240	177,529,289	150,221,755	6,337,943	334,088,988	0.0416	0.4279
250	164,874,229	150,128,248	6,840,556	321,843,033	0.0401	0.4680
260	186,424,233	143,274,070	5,754,410	335,452,713	0.0418	0.5097
270	179,128,684	159,329,573	5,673,490	344,131,747	0.0428	0.5525
280	265,317,114	184,041,080	6,337,943	455,696,138	0.0567	0.6093
290	264,734,466	221,774,331	3,420,278	489,929,075	0.0610	0.6703
300	232,621,154	256,234,371	10,098,994	498,954,519	0.0621	0.7324
310	228,492,950	285,896,666	4,093,277	518,482,893	0.0645	0.7969
320	157,364,734	309,841,154	6,095,183	473,301,070	0.0589	0.8558
330	100,039,217	249,157,307	3,761,050	352,957,575	0.0439	0.8998
340	64,446,153	240,900,721	4,263,663	309,610,537	0.0385	0.9383
350	27,619,852	166,433,375	2,253,212	196,306,439	0.0244	0.9627
360	11,420,936	124,151,806	1,086,146	136,658,888	0.0170	0.9798
370	3,238,288	63,278,392	1,669,679	68,186,359	0.0085	0.9882
380	561,540	50,080,381	251,306	50,893,227	0.0063	0.9946
390	2,846,041	20,427,744	0	23,273,785	0.0029	0.9975
400	0	11,006,136	0	11,006,136	0.0014	0.9988
410	0	2,314,417	0	2,314,417	0.0003	0.9991
420	1,064,867	2,650,007	0	3,714,874	0.0005	0.9996
430	0	1,165,993	0	1,165,993	0.0001	0.9997
440	0	1,296,358	0	1,296,358	0.0002	0.9999
450	0	258,966	0	258,966	0.0000	0.9999
540	0	415,276	0	415,276	0.0001	1.0000
610	0	122,221	0	122,221	0.0000	1.0000
Total	3,647,071,512	4,265,339,977	120,949,699	8,033,361,188	1.0000	1.0000

[a]Total may differ from other tables due to method of calculation.

Appendix E Table 4.--Population estimates by sex and size group for *Lepidopsetta* spp. from the 2001 eastern Bering Sea bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
40	0	577,792	0	577,792	0.0001	0.0001
80	165,593	0	363,084	528,677	0.0001	0.0001
90	1,418,098	38,001	0	1,456,099	0.0002	0.0003
100	2,910,265	1,604,886	0	4,515,151	0.0005	0.0008
110	3,355,244	206,406	363,084	3,924,734	0.0005	0.0013
120	9,963,654	7,803,455	0	17,767,109	0.0021	0.0033
130	27,046,082	18,507,392	0	45,553,475	0.0053	0.0086
140	53,121,732	23,490,401	0	76,612,133	0.0089	0.0175
150	65,980,054	33,454,889	0	99,434,943	0.0115	0.0290
160	83,278,512	41,115,454	0	124,393,966	0.0144	0.0434
170	83,772,049	49,709,293	0	133,481,342	0.0155	0.0589
180	100,083,589	68,974,575	0	169,058,164	0.0196	0.0785
190	112,293,552	72,938,165	0	185,231,717	0.0215	0.0999
200	125,173,707	75,361,120	0	200,534,827	0.0232	0.1231
210	105,777,009	76,797,675	0	182,574,684	0.0211	0.1443
220	129,369,307	83,304,165	0	212,673,472	0.0246	0.1689
230	131,181,727	76,730,871	0	207,912,598	0.0241	0.1930
240	143,792,101	95,167,530	0	238,959,631	0.0277	0.2207
250	193,900,333	106,297,023	0	300,197,356	0.0348	0.2555
260	345,328,883	127,098,233	0	472,427,116	0.0547	0.3102
270	562,176,352	161,885,979	0	724,062,331	0.0839	0.3940
280	802,698,860	234,690,542	0	1,037,389,402	0.1202	0.5142
290	599,792,571	297,332,452	0	897,125,023	0.1039	0.6181
300	380,364,173	320,062,066	0	700,426,239	0.0811	0.6993
310	135,002,824	365,245,096	0	500,247,920	0.0579	0.7572
320	51,943,556	351,750,674	0	403,694,230	0.0468	0.8040
330	13,868,838	395,489,922	0	409,358,760	0.0474	0.8514
340	12,026,765	401,732,940	0	413,759,705	0.0479	0.8993
350	9,642,865	339,524,246	0	349,167,111	0.0404	0.9397
360	9,689,902	221,698,554	0	231,388,456	0.0268	0.9665
370	2,942,859	141,236,946	0	144,179,806	0.0167	0.9832
380	940,374	58,921,664	0	59,862,038	0.0069	0.9902
390	890,029	41,588,471	0	42,478,500	0.0049	0.9951
400	586,421	16,827,446	0	17,413,867	0.0020	0.9971
410	564,972	10,740,035	0	11,305,008	0.0013	0.9984
420	162,858	4,926,037	0	5,088,895	0.0006	0.9990
430	0	5,570,627	0	5,570,627	0.0006	0.9997
440	0	517,380	0	517,380	0.0001	0.9997
450	0	1,435,695	0	1,435,695	0.0002	0.9999
460	0	53,089	0	53,089	0.0000	0.9999
470	0	85,930	0	85,930	0.0000	0.9999
500	0	125,553	0	125,553	0.0000	0.9999
600	0	695,165	0	695,165	0.0001	1.0000
Total	4,301,205,707	4,331,313,838	726,168	8,633,245,713	1.0000	1.0000

Appendix E Table 5.--Population estimates by sex and size group for *Hippoglossoides* spp. from the 2001 eastern Bering Sea bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total[a]	Proportion	Cumulative Proportion
50	90,200	0	0	90,200	0.0001	0.0001
60	0	37,875	0	37,875	0.0000	0.0001
70	0	125,561	0	125,561	0.0001	0.0002
80	84,561	80,279	0	164,839	0.0001	0.0003
90	656,030	331,727	60,761	1,048,519	0.0006	0.0009
100	2,051,587	1,339,907	364,568	3,756,061	0.0023	0.0031
110	2,972,626	1,913,250	589,283	5,475,158	0.0033	0.0064
120	2,787,492	2,244,943	182,284	5,214,719	0.0031	0.0096
130	3,762,600	2,812,133	0	6,574,733	0.0040	0.0135
140	6,051,889	4,113,501	0	10,165,389	0.0061	0.0196
150	10,899,885	4,435,784	0	15,335,668	0.0092	0.0289
160	9,692,332	7,356,297	0	17,048,629	0.0103	0.0391
170	11,062,022	8,080,192	0	19,142,214	0.0115	0.0506
180	14,059,127	10,870,173	0	24,929,300	0.0150	0.0656
190	23,180,046	18,218,997	0	41,399,043	0.0249	0.0905
200	34,297,888	24,301,578	0	58,599,466	0.0352	0.1258
210	29,205,035	21,811,243	0	51,016,278	0.0307	0.1565
220	34,019,457	27,317,680	0	61,337,137	0.0369	0.1933
230	25,947,034	21,176,220	0	47,123,254	0.0283	0.2217
240	26,075,011	21,203,238	0	47,278,249	0.0284	0.2501
250	20,188,572	18,375,311	0	38,563,883	0.0232	0.2733
260	24,022,382	21,718,129	0	45,740,511	0.0275	0.3008
270	35,513,211	18,078,499	0	53,591,710	0.0322	0.3331
280	50,564,998	29,437,501	0	80,002,499	0.0481	0.3812
290	47,276,064	30,180,850	0	77,456,914	0.0466	0.4278
300	60,257,702	33,330,411	0	93,588,113	0.0563	0.4840
310	59,853,157	33,276,757	0	93,129,915	0.0560	0.5401
320	65,599,183	43,553,455	0	109,152,638	0.0656	0.6057
330	57,144,100	34,842,705	0	91,986,805	0.0553	0.6610
340	59,847,978	48,076,919	0	107,924,897	0.0649	0.7259
350	45,244,767	40,131,359	0	85,376,127	0.0513	0.7773
360	35,370,530	46,218,547	0	81,589,078	0.0491	0.8264
370	24,437,679	36,610,337	0	61,048,016	0.0367	0.8631
380	19,504,508	30,477,330	0	49,981,838	0.0301	0.8931
390	11,214,583	29,299,540	0	40,514,123	0.0244	0.9175
400	5,544,390	22,309,775	0	27,854,165	0.0168	0.9343
410	2,843,339	23,055,308	0	25,898,647	0.0156	0.9498
420	1,404,372	16,650,666	0	18,055,038	0.0109	0.9607
430	1,649,885	16,895,881	0	18,545,767	0.0112	0.9719
440	187,772	13,977,703	0	14,165,475	0.0085	0.9804
450	49,671	7,956,282	0	8,005,953	0.0048	0.9852
460	446,553	7,338,455	0	7,785,008	0.0047	0.9899
470	22,124	5,606,604	0	5,628,728	0.0034	0.9933
480	89,230	5,854,930	0	5,944,160	0.0036	0.9968
490	0	2,330,404	0	2,330,404	0.0014	0.9982
500	17,798	1,147,012	0	1,164,810	0.0007	0.9989

Appendix E Table 5.--Continued

Length (mm)	Males	Females	Unsexed	Total[a]	Proportion	Cumulative Proportion
510	0	825,870	0	825,870	0.0005	0.9994
520	0	648,458	0	648,458	0.0004	0.9998
530	17,798	170,127	0	187,925	0.0001	0.9999
540	0	40,254	0	40,254	0.0000	1.0000
550	0	72,320	0	72,320	0.0000	1.0000
Total	865,207,169	796,258,276	1,196,896	1,662,662,341	1.0000	1.0000

[a]Total may differ from other tables due to method of calculation.

Appendix E Table 6.--Population estimates by sex and size group for Alaska plaice from the 2001 eastern Bering Sea bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
110	0	51,735	0	51,735	0.0001	0.0001
120	41,448	0	0	41,448	0.0000	0.0001
140	118,462	0	0	118,462	0.0001	0.0002
150	30,983	0	0	30,983	0.0000	0.0003
160	49,993	361,490	0	411,483	0.0004	0.0007
170	382,736	180,861	0	563,598	0.0006	0.0013
180	509,499	317,860	0	827,360	0.0009	0.0022
190	1,228,152	811,082	0	2,039,234	0.0022	0.0043
200	2,013,147	867,573	0	2,880,721	0.0030	0.0074
210	2,578,861	2,370,173	0	4,949,034	0.0052	0.0126
220	2,780,727	1,933,832	0	4,714,560	0.0050	0.0176
230	3,418,165	3,025,898	0	6,444,063	0.0068	0.0244
240	5,289,240	4,109,247	0	9,398,487	0.0099	0.0343
250	7,791,497	5,774,956	0	13,566,453	0.0144	0.0487
260	14,991,182	9,244,563	0	24,235,745	0.0256	0.0743
270	16,600,960	10,483,702	0	27,084,662	0.0287	0.1030
280	27,290,875	11,789,722	0	39,080,597	0.0413	0.1443
290	33,932,338	13,577,878	0	47,510,215	0.0503	0.1946
300	44,377,664	18,801,535	0	63,179,199	0.0668	0.2614
310	49,281,813	17,896,168	0	67,177,981	0.0711	0.3325
320	49,275,624	20,200,054	0	69,475,678	0.0735	0.4060
330	48,948,651	20,494,244	0	69,442,895	0.0735	0.4794
340	46,169,170	21,663,007	0	67,832,177	0.0718	0.5512
350	42,605,780	21,473,878	0	64,079,658	0.0678	0.6190
360	37,617,311	24,558,804	0	62,176,115	0.0658	0.6848
370	34,667,130	24,102,137	0	58,769,266	0.0622	0.7469
380	20,894,977	22,227,027	0	43,122,003	0.0456	0.7925
390	10,993,132	19,853,545	0	30,846,678	0.0326	0.8252
400	6,113,945	19,471,506	0	25,585,451	0.0271	0.8522
410	2,209,356	16,402,545	0	18,611,901	0.0197	0.8719
420	1,250,430	20,174,162	0	21,424,592	0.0227	0.8946
430	493,559	17,077,232	0	17,570,791	0.0186	0.9132
440	27,733	14,813,846	0	14,841,579	0.0157	0.9289
450	122,362	12,179,191	0	12,301,552	0.0130	0.9419
460	0	12,949,023	0	12,949,023	0.0137	0.9556
470	0	11,815,201	0	11,815,201	0.0125	0.9681
480	0	9,286,323	0	9,286,323	0.0098	0.9779
490	0	5,152,922	0	5,152,922	0.0055	0.9834
500	0	5,393,564	0	5,393,564	0.0057	0.9891
510	33,423	3,995,971	0	4,029,394	0.0043	0.9933
520	0	1,678,038	0	1,678,038	0.0018	0.9951
530	17,798	2,253,398	0	2,271,197	0.0024	0.9975
540	0	1,154,836	0	1,154,836	0.0012	0.9987
550	17,798	475,793	0	493,591	0.0005	0.9993
560	0	251,362	0	251,362	0.0003	0.9995
570	0	333,149	0	333,149	0.0004	0.9999

Appendix E Table 6.--Continued

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
600	0	119,321	0	119,321	0.0001	1.0000
Total	514,165,921	431,148,353	0	945,314,274	1.0000	1.0000

Appendix E Table 7.--Population estimates by sex and size group for Greenland turbot from the 2001 eastern Bering Sea bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
140	59,586	0	18,727	78,313	0.0135	0.0135
150	0	60,193	28,306	88,499	0.0153	0.0289
160	0	0	28,306	28,306	0.0049	0.0338
190	55,478	0	0	55,478	0.0096	0.0434
200	0	27,231	0	27,231	0.0047	0.0481
210	55,478	0	0	55,478	0.0096	0.0577
230	27,824	0	0	27,824	0.0048	0.0625
240	27,739	0	0	27,739	0.0048	0.0673
260	55,563	27,739	0	83,302	0.0144	0.0817
300	27,739	0	0	27,739	0.0048	0.0865
330	57,532	0	0	57,532	0.0100	0.0964
340	27,739	0	0	27,739	0.0048	0.1012
350	0	27,739	0	27,739	0.0048	0.1060
360	27,824	30,380	0	58,204	0.0101	0.1161
370	0	29,793	0	29,793	0.0052	0.1213
380	27,739	0	0	27,739	0.0048	0.1261
400	29,793	27,824	0	57,617	0.0100	0.1360
410	78,027	0	0	78,027	0.0135	0.1495
450	78,651	0	0	78,651	0.0136	0.1631
460	19,065	0	0	19,065	0.0033	0.1664
470	53,557	0	0	53,557	0.0093	0.1757
480	27,867	44,120	0	71,987	0.0125	0.1882
490	29,793	0	0	29,793	0.0052	0.1933
500	60,586	0	0	60,586	0.0105	0.2038
510	27,824	59,586	0	87,410	0.0151	0.2189
520	27,739	27,231	0	54,970	0.0095	0.2284
540	83,601	27,824	0	111,425	0.0193	0.2477
550	60,586	0	0	60,586	0.0105	0.2582
560	0	55,648	0	55,648	0.0096	0.2678
580	25,872	0	0	25,872	0.0045	0.2723
600	25,872	0	0	25,872	0.0045	0.2768
660	71,512	0	0	71,512	0.0124	0.2892
670	67,702	0	0	67,702	0.0117	0.3009
680	77,923	0	0	77,923	0.0135	0.3144
690	43,835	0	0	43,835	0.0076	0.3219
700	88,628	58,623	0	147,251	0.0255	0.3474
710	28,169	29,024	0	57,193	0.0099	0.3573
720	97,893	0	0	97,893	0.0169	0.3742
730	138,697	27,867	0	166,565	0.0288	0.4031
740	114,371	25,872	0	140,243	0.0243	0.4273
750	59,822	176,651	0	236,472	0.0409	0.4682
760	19,461	66,809	0	86,270	0.0149	0.4832
770	86,654	58,158	0	144,813	0.0251	0.5082
780	28,306	56,036	0	84,342	0.0146	0.5228
790	0	100,788	0	100,788	0.0174	0.5403
800	0	25,872	0	25,872	0.0045	0.5447

Appendix E Table 7.--Continued

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
810	30,793	171,290	0	202,082	0.0350	0.5797
820	0	141,899	0	141,899	0.0246	0.6042
830	0	316,566	0	316,566	0.0548	0.6590
840	0	298,717	0	298,717	0.0517	0.7107
850	0	199,374	0	199,374	0.0345	0.7452
860	28,306	180,308	0	208,614	0.0361	0.7813
870	0	219,921	0	219,921	0.0381	0.8193
880	0	57,583	0	57,583	0.0100	0.8293
890	0	117,297	0	117,297	0.0203	0.8496
900	0	147,605	0	147,605	0.0255	0.8751
910	0	152,562	0	152,562	0.0264	0.9015
920	0	190,871	0	190,871	0.0330	0.9346
930	0	162,547	0	162,547	0.0281	0.9627
950	0	25,872	0	25,872	0.0045	0.9672
960	0	17,963	0	17,963	0.0031	0.9703
970	0	39,070	0	39,070	0.0068	0.9770
990	0	132,754	0	132,754	0.0230	1.0000
Total	2,061,145	3,643,209	75,338	5,779,692	1.0000	1.0000

Appendix E Table 8.--Population estimates by sex and size group for arrowtooth flounder from the 2001 eastern Bering Sea bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
60	169,367	0	0	169,367	0.0002	0.0002
80	0	29,863	0	29,863	0.0000	0.0003
90	75,113	0	0	75,113	0.0001	0.0004
100	71,674	0	0	71,674	0.0001	0.0005
110	85,768	0	0	85,768	0.0001	0.0006
120	0	163,543	0	163,543	0.0002	0.0008
130	224,572	294,529	0	519,101	0.0007	0.0016
140	975,734	882,960	0	1,858,693	0.0026	0.0042
150	2,214,764	1,210,040	0	3,424,804	0.0048	0.0090
160	2,808,004	4,026,986	0	6,834,990	0.0096	0.0186
170	4,697,957	6,674,197	0	11,372,154	0.0160	0.0346
180	5,769,217	11,530,495	0	17,299,712	0.0243	0.0589
190	8,548,362	10,805,695	0	19,354,056	0.0272	0.0862
200	8,675,097	14,063,995	0	22,739,092	0.0320	0.1181
210	7,867,291	12,482,979	0	20,350,270	0.0286	0.1468
220	5,398,329	15,321,300	0	20,719,628	0.0291	0.1759
230	4,375,447	14,583,185	0	18,958,633	0.0267	0.2026
240	5,191,185	9,645,374	0	14,836,559	0.0209	0.2234
250	4,345,781	11,111,489	0	15,457,269	0.0217	0.2452
260	6,171,417	12,685,896	0	18,857,313	0.0265	0.2717
270	9,144,572	11,265,930	0	20,410,503	0.0287	0.3004
280	8,289,647	17,716,635	0	26,006,282	0.0366	0.3370
290	9,162,821	17,041,869	0	26,204,690	0.0369	0.3738
300	11,438,814	18,183,407	0	29,622,220	0.0417	0.4155
310	10,232,307	13,508,930	0	23,741,237	0.0334	0.4489
320	9,225,874	12,172,699	0	21,398,573	0.0301	0.4790
330	5,906,050	14,514,124	0	20,420,174	0.0287	0.5077
340	7,837,511	13,812,127	0	21,649,638	0.0305	0.5382
350	6,374,735	12,498,922	0	18,873,657	0.0265	0.5647
360	9,920,370	11,916,959	0	21,837,329	0.0307	0.5954
370	7,905,195	11,823,346	0	19,728,541	0.0277	0.6232
380	7,006,872	15,376,806	0	22,383,678	0.0315	0.6547
390	5,708,793	11,752,286	0	17,461,079	0.0246	0.6792
400	5,230,938	12,374,495	0	17,605,434	0.0248	0.7040
410	5,696,023	12,191,244	0	17,887,267	0.0252	0.7291
420	3,991,210	13,910,392	0	17,901,602	0.0252	0.7543
430	5,184,956	13,441,859	0	18,626,815	0.0262	0.7805
440	4,234,636	12,144,059	0	16,378,695	0.0230	0.8036
450	2,804,356	12,474,098	0	15,278,454	0.0215	0.8251
460	3,110,527	11,663,098	0	14,773,625	0.0208	0.8458
470	2,113,379	8,537,592	0	10,650,970	0.0150	0.8608
480	1,347,159	8,856,805	0	10,203,964	0.0144	0.8752
490	1,583,849	8,730,697	0	10,314,546	0.0145	0.8897
500	612,351	6,417,837	0	7,030,188	0.0099	0.8996
510	654,408	7,371,114	0	8,025,522	0.0113	0.9108
520	116,816	6,269,143	0	6,385,959	0.0090	0.9198

Appendix E Table 8.--Continued

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
530	98,034	5,997,318	0	6,095,352	0.0086	0.9284
540	184,755	5,980,354	0	6,165,109	0.0087	0.9371
550	252,637	6,752,884	0	7,005,522	0.0099	0.9469
560	70,070	6,484,384	0	6,554,453	0.0092	0.9561
570	154,503	5,091,461	0	5,245,965	0.0074	0.9635
580	235,410	4,642,407	0	4,877,818	0.0069	0.9704
590	58,330	2,930,177	0	2,988,507	0.0042	0.9746
600	34,692	2,636,018	0	2,670,710	0.0038	0.9783
610	34,692	2,647,227	0	2,681,919	0.0038	0.9821
620	34,692	2,645,974	0	2,680,666	0.0038	0.9859
630	0	1,664,574	0	1,664,574	0.0023	0.9882
640	34,692	1,145,644	0	1,180,335	0.0017	0.9899
650	0	1,225,818	0	1,225,818	0.0017	0.9916
660	34,692	896,759	0	931,451	0.0013	0.9929
670	63,343	1,825,161	0	1,888,503	0.0027	0.9956
680	0	907,078	0	907,078	0.0013	0.9969
690	0	477,828	0	477,828	0.0007	0.9975
700	0	609,551	0	609,551	0.0009	0.9984
710	0	434,797	0	434,797	0.0006	0.9990
720	54,019	344,350	0	398,369	0.0006	0.9996
730	28,651	179,274	0	207,925	0.0003	0.9998
750	0	29,863	0	29,863	0.0000	0.9999
760	0	23,576	0	23,576	0.0000	0.9999
770	0	23,113	0	23,113	0.0000	1.0000
980	0	31,471	0	31,471	0.0000	1.0000
Total	213,872,462	497,106,058	0	710,978,520	1.0000	1.0000

Appendix E Table 9.--Population estimates by sex and size group for Kamchatka flounder from the 2001 eastern Bering Sea bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
110	0	28,237	0	28,237	0.0006	0.0006
120	125,563	0	0	125,563	0.0025	0.0031
130	162,528	0	0	162,528	0.0033	0.0064
140	75,930	65,474	0	141,404	0.0028	0.0092
150	69,337	186,787	53,638	309,762	0.0062	0.0154
160	22,326	62,721	0	85,047	0.0017	0.0171
170	34,860	202,374	0	237,234	0.0048	0.0219
180	179,284	314,357	0	493,641	0.0099	0.0318
190	59,199	302,640	0	361,839	0.0073	0.0391
200	169,509	419,147	0	588,657	0.0118	0.0509
210	136,594	224,222	0	360,817	0.0072	0.0581
220	276,572	304,144	0	580,716	0.0117	0.0698
230	209,889	785,643	0	995,531	0.0200	0.0898
240	548,579	449,752	0	998,331	0.0200	0.1098
250	695,525	240,154	0	935,679	0.0188	0.1286
260	514,776	136,855	0	651,631	0.0131	0.1417
270	154,563	161,946	0	316,509	0.0064	0.1481
280	470,731	455,274	0	926,005	0.0186	0.1667
290	1,062,212	930,261	0	1,992,473	0.0400	0.2067
300	1,628,897	1,471,200	0	3,100,097	0.0623	0.2689
310	1,745,474	1,782,470	0	3,527,944	0.0708	0.3398
320	1,559,895	1,241,135	0	2,801,030	0.0562	0.3960
330	945,394	1,483,618	0	2,429,012	0.0488	0.4448
340	522,114	526,858	0	1,048,972	0.0211	0.4658
350	1,415,994	610,450	0	2,026,443	0.0407	0.5065
360	896,989	698,336	31,999	1,627,324	0.0327	0.5392
370	1,399,778	1,138,890	0	2,538,667	0.0510	0.5902
380	812,106	988,370	0	1,800,476	0.0362	0.6263
390	1,267,684	1,064,278	0	2,331,961	0.0468	0.6732
400	897,452	874,774	0	1,772,226	0.0356	0.7088
410	1,214,108	582,429	0	1,796,537	0.0361	0.7448
420	832,253	532,300	0	1,364,554	0.0274	0.7722
430	571,194	809,021	0	1,380,215	0.0277	0.8000
440	532,719	495,564	0	1,028,282	0.0206	0.8206
450	442,164	379,764	0	821,927	0.0165	0.8371
460	333,394	464,456	0	797,850	0.0160	0.8531
470	268,737	278,028	0	546,765	0.0110	0.8641
480	128,594	265,773	0	394,367	0.0079	0.8720
490	82,530	473,770	0	556,299	0.0112	0.8832
500	311,209	249,384	0	560,593	0.0113	0.8945
510	281,856	176,929	0	458,785	0.0092	0.9037
520	168,406	56,537	0	224,943	0.0045	0.9082
530	210,513	285,040	0	495,553	0.0100	0.9181
540	173,265	44,995	0	218,260	0.0044	0.9225
550	334,256	256,496	0	590,752	0.0119	0.9344
560	0	121,096	0	121,096	0.0024	0.9368

Appendix E Table 9.--Continued

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
570	42,749	197,105	0	239,854	0.0048	0.9416
580	68,805	167,287	0	236,092	0.0047	0.9464
590	27,739	213,510	0	241,249	0.0048	0.9512
600	0	177,876	0	177,876	0.0036	0.9548
610	0	123,779	0	123,779	0.0025	0.9573
620	27,739	22,326	0	50,065	0.0010	0.9583
630	0	376,204	0	376,204	0.0076	0.9658
640	0	171,700	0	171,700	0.0034	0.9693
650	0	29,793	0	29,793	0.0006	0.9699
660	0	253,930	0	253,930	0.0051	0.9750
670	0	740,198	0	740,198	0.0149	0.9898
680	0	70,628	0	70,628	0.0014	0.9913
690	0	144,478	0	144,478	0.0029	0.9942
700	0	113,955	0	113,955	0.0023	0.9964
710	0	42,749	0	42,749	0.0009	0.9973
730	0	90,399	0	90,399	0.0018	0.9991
750	0	43,896	0	43,896	0.0009	1.0000
Total	24,111,983	25,601,760	85,637	49,799,380	1.0000	1.0000

Appendix E Table 10.--Population estimates by sex and size group for Pacific halibut from the 2001 eastern Bering Sea bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
140	55,511	0	0	55,511	0.0010	0.0010
150	93,430	27,755	19,350	140,536	0.0026	0.0036
160	83,266	58,334	52,626	194,226	0.0036	0.0072
170	83,266	86,089	52,626	221,982	0.0041	0.0112
180	83,266	111,022	99,694	293,982	0.0054	0.0166
190	27,755	55,511	98,925	182,191	0.0033	0.0200
200	27,755	32,099	150,352	210,207	0.0039	0.0238
210	55,511	55,511	130,394	241,416	0.0044	0.0283
220	107,015	30,421	324,631	462,067	0.0085	0.0368
230	52,192	46,715	161,981	260,888	0.0048	0.0416
240	88,265	0	97,887	186,152	0.0034	0.0450
250	89,732	156,356	209,769	455,857	0.0084	0.0533
260	84,327	206,147	163,436	453,910	0.0083	0.0617
270	145,290	57,565	68,906	271,761	0.0050	0.0667
280	237,956	270,582	211,222	719,760	0.0132	0.0799
290	440,829	389,348	519,192	1,349,370	0.0248	0.1047
300	759,424	650,673	615,524	2,025,621	0.0372	0.1418
310	1,081,009	837,689	926,091	2,844,790	0.0522	0.1941
320	619,755	1,055,150	1,238,414	2,913,318	0.0535	0.2476
330	810,655	904,598	891,401	2,606,654	0.0479	0.2954
340	422,758	627,588	480,885	1,531,230	0.0281	0.3235
350	501,364	346,896	602,163	1,450,423	0.0266	0.3502
360	263,736	278,688	337,803	880,227	0.0162	0.3663
370	150,718	355,598	103,062	609,378	0.0112	0.3775
380	120,368	47,005	142,786	310,158	0.0057	0.3832
390	76,774	95,305	179,693	351,772	0.0065	0.3897
400	64,847	30,538	66,380	161,765	0.0030	0.3926
410	181,819	33,720	266,307	481,845	0.0088	0.4015
420	96,418	46,925	277,620	420,964	0.0077	0.4092
430	155,449	205,972	206,733	568,154	0.0104	0.4197
440	128,799	132,593	262,932	524,324	0.0096	0.4293
450	91,410	139,404	357,118	587,932	0.0108	0.4401
460	186,500	141,463	389,732	717,694	0.0132	0.4533
470	187,721	114,700	226,891	529,313	0.0097	0.4630
480	60,989	129,630	342,933	533,552	0.0098	0.4728
490	222,384	81,923	417,994	722,301	0.0133	0.4860
500	104,652	64,163	413,058	581,873	0.0107	0.4967
510	216,265	31,328	322,144	569,737	0.0105	0.5072
520	268,634	276,210	527,048	1,071,893	0.0197	0.5269
530	213,794	80,192	596,964	890,950	0.0164	0.5432
540	301,682	249,658	679,502	1,230,842	0.0226	0.5658
550	267,706	168,041	457,135	892,881	0.0164	0.5822
560	353,274	124,577	630,617	1,108,468	0.0204	0.6026
570	541,989	350,927	547,882	1,440,798	0.0265	0.6290
580	351,169	273,409	528,738	1,153,316	0.0212	0.6502
590	317,825	303,233	726,324	1,347,382	0.0247	0.6749

Appendix E Table 10.--Continued

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
600	182,331	123,020	791,345	1,096,696	0.0201	0.6951
610	204,347	161,447	527,551	893,345	0.0164	0.7115
620	220,126	15,868	645,645	881,639	0.0162	0.7277
630	289,853	164,557	377,152	831,563	0.0153	0.7429
640	94,638	159,221	220,587	474,446	0.0087	0.7516
650	186,185	254,576	337,349	778,110	0.0143	0.7659
660	203,963	99,956	256,160	560,079	0.0103	0.7762
670	112,361	17,954	195,703	326,018	0.0060	0.7822
680	97,905	126,575	251,638	476,118	0.0087	0.7909
690	63,421	121,215	258,742	443,377	0.0081	0.7991
700	183,520	92,640	229,458	505,617	0.0093	0.8084
710	59,891	160,707	212,371	432,970	0.0079	0.8163
720	162,017	147,053	224,163	533,233	0.0098	0.8261
730	133,737	260,676	198,886	593,300	0.0109	0.8370
740	68,827	63,784	304,601	437,213	0.0080	0.8450
750	106,336	62,636	268,202	437,173	0.0080	0.8530
760	126,426	93,417	102,065	321,909	0.0059	0.8590
770	17,382	46,339	197,065	260,786	0.0048	0.8637
780	206,920	92,889	277,097	576,905	0.0106	0.8743
790	61,945	32,007	257,029	350,980	0.0064	0.8808
800	129,793	131,607	151,724	413,123	0.0076	0.8884
810	138,388	79,631	185,762	403,782	0.0074	0.8958
820	30,538	31,959	125,511	188,009	0.0035	0.8992
830	0	152,685	187,412	340,097	0.0062	0.9055
840	29,144	65,746	124,110	219,000	0.0040	0.9095
850	58,694	29,493	176,120	264,307	0.0049	0.9143
860	0	93,632	94,764	188,395	0.0035	0.9178
870	96,973	180,548	134,129	411,650	0.0076	0.9254
880	83,687	0	0	83,687	0.0015	0.9269
890	74,588	120,853	31,384	226,825	0.0042	0.9311
900	65,894	71,875	116,780	254,549	0.0047	0.9357
910	49,735	86,781	95,292	231,808	0.0043	0.9400
920	34,868	135,766	32,744	203,379	0.0037	0.9437
930	62,520	0	30,540	93,060	0.0017	0.9454
940	0	85,120	73,758	158,878	0.0029	0.9484
950	0	44,174	120,498	164,672	0.0030	0.9514
960	64,371	0	121,216	185,587	0.0034	0.9548
970	0	163,210	133,642	296,853	0.0055	0.9602
980	0	30,629	30,351	60,980	0.0011	0.9614
990	26,379	30,968	30,265	87,612	0.0016	0.9630
1000	0	47,171	126,242	173,413	0.0032	0.9661
1010	94,435	53,026	38,700	186,161	0.0034	0.9696
1020	0	0	119,686	119,686	0.0022	0.9718
1030	0	62,314	129,514	191,827	0.0035	0.9753
1040	0	28,251	0	28,251	0.0005	0.9758
1050	0	43,210	137,587	180,797	0.0033	0.9791
1060	0	0	56,794	56,794	0.0010	0.9802
1070	33,189	31,536	47,868	112,593	0.0021	0.9822

Appendix E Table 10.--Continued

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative Proportion
1080	0	0	71,853	71,853	0.0013	0.9836
1090	0	15,868	96,400	112,268	0.0021	0.9856
1100	0	32,099	56,261	88,360	0.0016	0.9872
1110	0	59,472	19,350	78,822	0.0014	0.9887
1120	25,325	0	0	25,325	0.0005	0.9891
1130	0	29,833	0	29,833	0.0005	0.9897
1150	0	29,986	36,733	66,719	0.0012	0.9909
1160	0	18,050	36,199	54,249	0.0010	0.9919
1170	30,409	0	0	30,409	0.0006	0.9925
1190	0	28,712	0	28,712	0.0005	0.9930
1200	0	0	60,368	60,368	0.0011	0.9941
1220	0	31,091	27,706	58,798	0.0011	0.9952
1230	0	15,868	0	15,868	0.0003	0.9955
1250	0	31,423	19,350	50,773	0.0009	0.9964
1270	0	15,868	0	15,868	0.0003	0.9967
1300	0	33,189	0	33,189	0.0006	0.9973
1310	0	28,712	0	28,712	0.0005	0.9978
1360	0	0	20,064	20,064	0.0004	0.9982
1390	0	0	15,314	15,314	0.0003	0.9985
1400	0	33,006	0	33,006	0.0006	0.9991
1460	0	0	30,265	30,265	0.0006	0.9997
1610	0	18,960	0	18,960	0.0003	1.0000
Total	14,786,315	14,280,113	25,397,933	54,464,361	1.0000	1.0000