NOAA Technical Memorandum NMFS-AFSC-353
doi:10.7289/V5/TM-AFSC-353

Results of the 2015 Eastern Bering Sea Continental Shelf Bottom Trawl Survey of Groundfish and Invertebrate Resources

J. Conner, D. Nichol, and R. R. Lauth

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

May 2017

NOAA Technical Memorandum NMFS

The National Marine Fisheries Service's Alaska Fisheries Science Center uses the NOAA Technical Memorandum series to issue informal scientific and technical publications when complete formal review and editorial processing are not appropriate or feasible. Documents within this series reflect sound professional work and may be referenced in the formal scientific and technical literature.

The NMFS-AFSC Technical Memorandum series of the Alaska Fisheries Science Center continues the NMFS-F/NWC series established in 1970 by the Northwest Fisheries Center. The NMFS-NWFSC series is currently used by the Northwest Fisheries Science Center.

This document should be cited as follows:

> Conner, J., D. G. Nichol, and R. R. Lauth. 2017. Results of the 2015 eastern Bering Sea continental shelf bottom trawl survey of groundfish and invertebrate resources. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-353,154 p.
>
> Document available: http://www.afsc.noaa.gov/Publications/AFSC-TM/NOAA-TM-AFSC-353.pdf.

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

NOAA Technical Memorandum NMFS-AFSC-353
doi:10.7289/V5/TM-AFSC-353

Results of the 2015 Eastern Bering Sea Continental Shelf Bottom Trawl Survey of Groundfish and Invertebrate Resources

J. Conner, D. Nichol, and R. R. Lauth

Resource Assessment and Conservation Engineering Division
Alaska Fisheries Science Center
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
7600 Sand Point Way NE
Seattle, WA 98115-6349

U.S. DEPARTMENT OF COMMERCE
Wilbur L. Ross Jr., Secretary
National Oceanic and Atmospheric Administration
Benjamin Friedman, Acting Under Secretary and Administrator
National Marine Fisheries Service
Samuel D. Rauch III, Acting Assistant Administrator for Fisheries

May 2017

This document is available to the public through:

National Technical Information Service
U.S. Department of Commerce
5285 Port Royal Road
Springfield, VA 22161

www.ntis.gov

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 encompasses a major portion of the eastern Bering Sea shelf (depths between 20 and 200 m) from the Alaska Peninsula north to approximately the latitude of St. Matthew Island (60° 50' N). In 2015, two chartered trawlers, the 38-m FV *Vesteraalen* and the 43.5-m FV *Alaska Knight*, surveyed this area. Demersal populations were sampled by trawling for 30 minutes at stations centered within 37.04 × 37.04 km (20 × 20 naultical mile (nmi)) grids covering the survey area. At each station, species composition of the catch was determined, and length distributions and age structure samples were collected from ecologically and commercially important species.

Three-hundred seventy-six standard survey stations were sampled successfully. A total of 101 fish species and 235 invertebrate taxa were identified in catches from the EBS survey. The combined biomass of walleye pollock (*Gadus chalcogrammus*), Pacific cod (*Gadus macrocephalus*), yellowfin sole (*Limanda aspera*), and northern rock sole (*Lepidopsetta polyxystra*) was estimated to be 10.8 million metric tons (t), which was 82% of the total fish biomass. The biomass of invertebrates was composed primarily of echinoderms (1.4 million t) and crustaceans (0.7 million t).

Survey results presented in this report include abundance estimates for fishes and invertebrates, geographic distributions and size compositions of selected fish species, and contour plots of surface and bottom temperatures during the survey sampling period. Appendices provide station data, catch data summarized by station, taxon listings, and detailed analyses of abundance and biological data of the sampled populations.

CONTENTS

INTRODUCTION

The eastern Bering Sea (EBS) continental shelf supports one of the most productive groundfish and crab fisheries in the world (Bakkala 1993). Since 1970, groundfish such as walleye pollock (*Gadus chalcogrammus*), yellowfin sole (*Limanda aspera*), and Pacific cod (*Gadus macrocephalus*) have been the primary target species among commercial catches. Although many species of groundfish are caught commercially, walleye pollock is the most abundant with catches ranging from 0.8 million to 1.5 million metric tons (t) per year for the past 30 years, the marketed products of which represent 40% of the global whitefish market (Ianelli et al. 2015).

Since 1971, the National Marine Fisheries Service's (NMFS) Alaska Fisheries Science Center's (AFSC) Resource Assessment and Conservation Engineering (RACE) Division has conducted a bottom trawl survey annually in the EBS to determine the distribution and abundance of groundfish and crab resources. The involvement of the U.S. government in eastern Bering Sea bottom trawl (BT) surveys dates back to the 1940s when effort was engaged primarily in exploratory work for commercial fisheries resources (Zimmermann et al. 2009). Early efforts led to the development of a valuable single-species fishery in Alaska for red king crab (*Paralithodes camtschaticus*), and continued U.S. BT surveys into the 1970s focused on cooperative arrangements with private industry to study the biology, distribution, abundance, and best fishing practices for red king crab (Zimmermann et al. 2009).

The first large-scale survey of the EBS shelf was conducted in 1975 under contract from the U.S. 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 EBS shelf between the 20 m and 200 m isobaths from the Alaska Peninsula north to approximately 62° N.

In subsequent years, the area 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). That survey encompassed the entire region sampled in the 1975 baseline study and included the continental slope waters between St. Matthew Island and St. Lawrence Island. 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 re-sampled the stations established during the 1975 survey, with slight modifications each year. This region encompasses the major portion of economically important EBS groundfish and crab populations, except those primarily located in the deep continental slope waters. Commercial crab stocks managed by the Alaska Department of Fish and Game (ADF&G) are covered by the North Pacific Fishery Management Council's (NPFMC) fishery management plan for the commercial king and Tanner crab fisheries in the Bering Sea and Aleutian Islands Regions. Crab species of interest include Tanner crab (*Chionoecetes bairdi*), snow crab (*C. opilio*), two stocks of blue king crab (*Paralithodes platypus*), red king crab, and hair crab (*Erimacrus isenbeckii*). Detailed results from the analysis of crab data from this survey are available in Daly et al. (2016).

Beginning in 1979 and continuing triennially until 1991, the survey was extended to include bottom trawl sampling of the continental slope and in the region between St. Matthew and St. Lawrence Islands. After a hiatus from 1992 to 1999, the EBS slope survey was resumed in 2000 as an independent bottom trawl survey series conducted on a biennial basis (Hoff 2013). The survey had its broadest coverage in 2010 when it included the standard shelf area, the

continental slope, and the northern shelf which extended north to the Bering Strait (65° 20′ N) and east into Norton Sound (Hoff and Britt 2011, Lauth 2011).

The biological and oceanographic information gathered by the annual BT surveys serves to provide 1) annual fishery-independent abundance estimates and data on the population dynamics of ecologically and commercially exploited groundfish and crab stocks to the State of Alaska and to the NPFMC; 2) information on inter-annual changes to the distribution and abundance of commercially important groundfish and crab species to the fishing industry, other stakeholders, and the general public; and 3) a time-series of environmental data and abundance indices for a variety of demersal macrofauna to be used for ecosystem forecast modeling in support of ecosystem-based fisheries management. This report presents information collected by the AFSC on the EBS shelf during the 2015 bottom trawl survey, which represents the thirty-fourth contribution to the time series. For results from the 2014 bottom trawl survey, refer to Conner et al. (2017).

METHODS

Survey Area and Sampling Design

The standardized EBS bottom trawl survey is based on a systematic design with a fixed sampling station at the center of each 37.04 × 37.04 km (20 × 20 nmi) grid square (Fig. 1). In waters surrounding St. Matthew Island and the Pribilof Islands, high-density "corner stations" are sampled to better assess local blue king crab concentrations (Fig. 1). The original sampling design included 356 sampling stations that were sampled annually starting in 1982. Beginning in 1987, 20 additional stations in Strata 82 and 90 were added to the survey (Fig. 2) to investigate

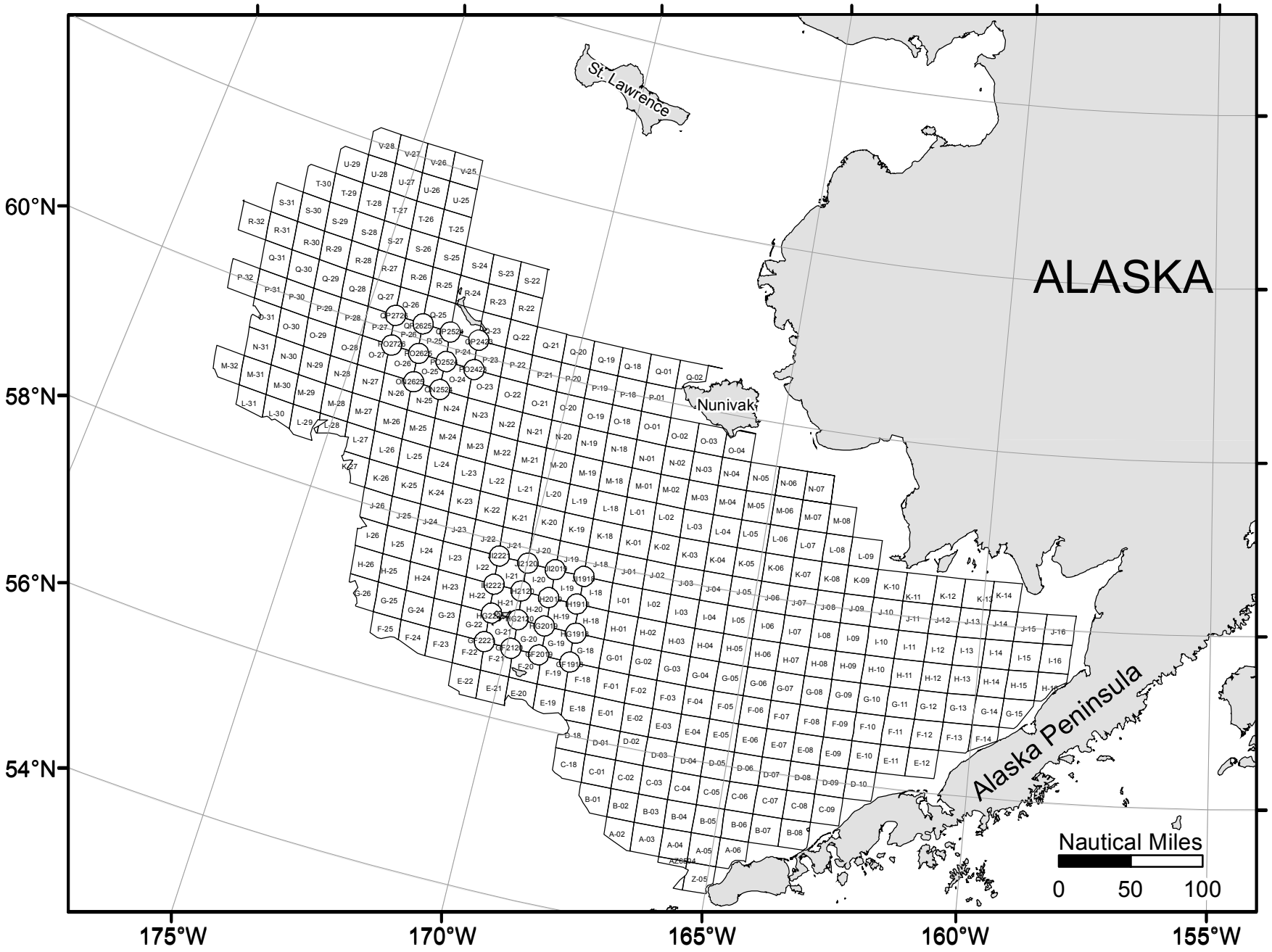

Figure 1. -- Map of the station sampling grid for the 2015 eastern Bering Sea continental shelf bottom trawl survey.

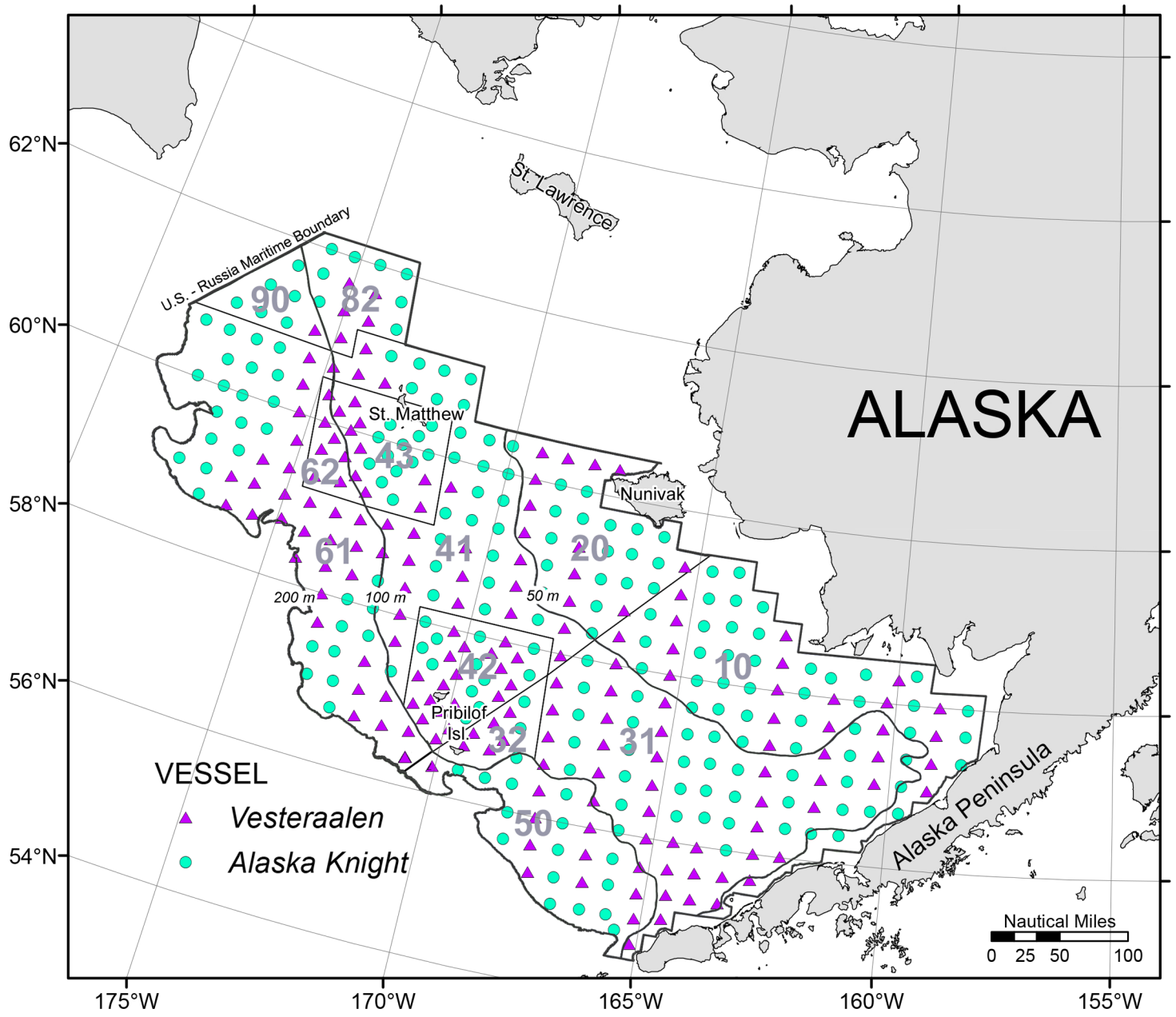

Figure 2. -- Sampled survey stations by vessel and the stratification scheme used for data analysis of the 2015 eastern Bering Sea bottom trawl survey. See Table 1 for information about stratum areas and sampling densities.

the distribution and abundance of snow crabs and the northern distribution of walleye pollock. All results reported herein include data analyses for all 376 stations combined.

Survey Vessels and Sampling Gear

The survey was conducted aboard the chartered commercial stern-trawlers FV *Vesteraalen* and FV *Alaska Knight*. Both vessels are house-forward trawlers with stern ramps. The FV *Alaska Knight* has a length overall (LOA) of 43.5 m (143 ft), while the FV *Vesteraalen* has an LOA of 38 m (125 ft). All fishing operations were conducted in strict compliance to national and regional protocols detailed in Stauffer (2004). Both vessels were equipped with standard 83-112 eastern otter trawls, which have 25.3 m (83 ft) headropes and 34.1 m (112 ft) footropes (Fig. 3). These nets were attached to tail chains with 54.9 m (30 fm) paired dandylines. Each lower dandyline had a 0.61 m chain extension connected to the lower wing edge to improve bottom tending. Steel "V" doors measuring 1.8 × 2.7 m (6 × 9 ft) and weighing 816 kg (1,800 lbs) each were used for spreading the net opening while the trawl was fishing on the seafloor.

The Marport Deep Sea Technologies Inc. net mensuration system was used during the deployment of each tow to record net spread and net height. Net spread was measured as the horizontal distance between two sensors attached immediately forward of the junction of the upper breastline and the dandyline, and net height was measured from the headrope to the seafloor. Mean net spread values were used in calculations of the area swept per tow.

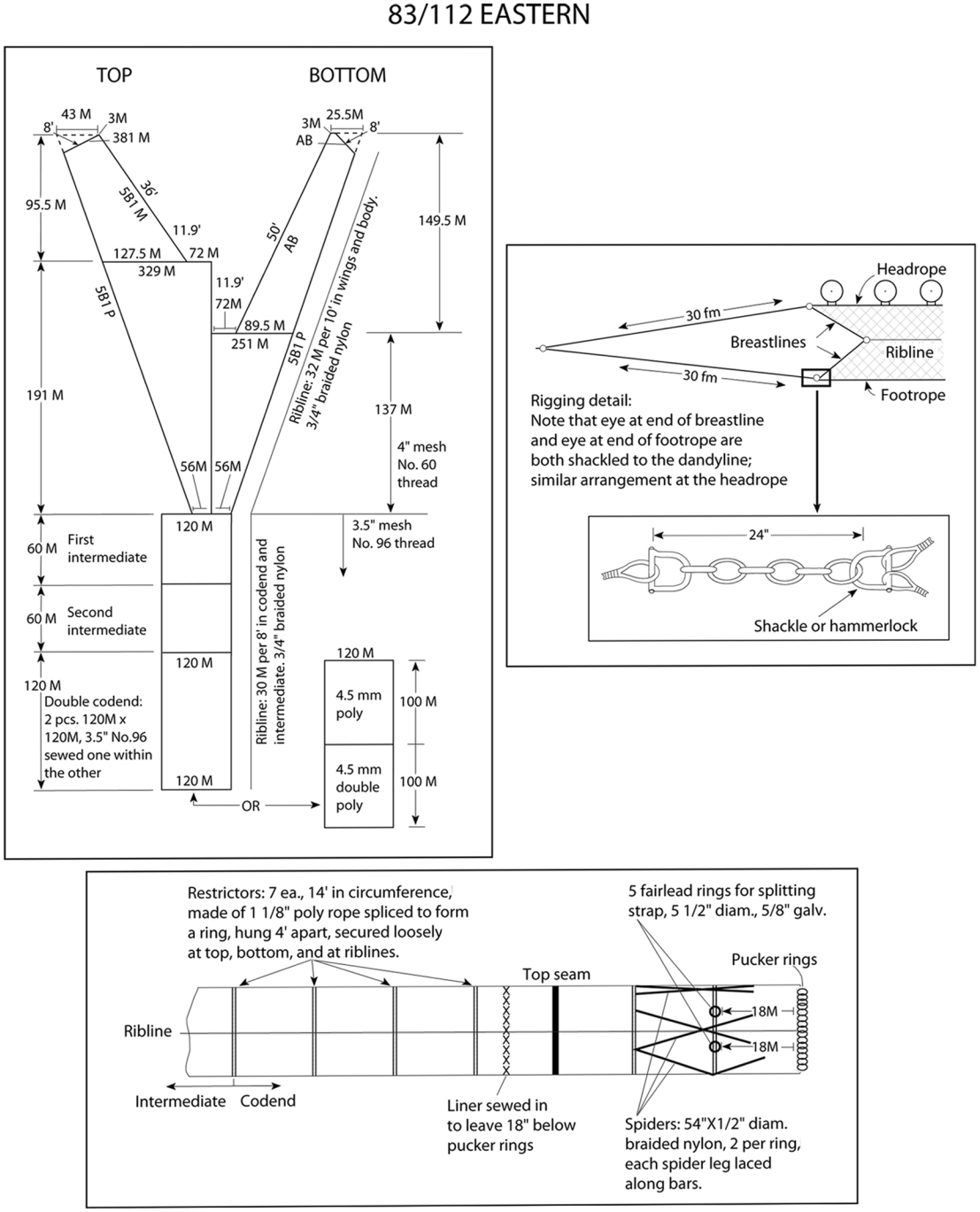

Figure 3. -- Schematic diagram of the 83-112 eastern otter trawl gear used during the 2015 eastern Bering Sea bottom trawl survey.

Sampling Logistics and Stratification Scheme

The FV *Vesteraalen* and FV *Alaska Knight* began the standard EBS shelf survey in Dutch Harbor, Alaska, on May 28, 2015. Trawl sampling began in eastern Bristol Bay and proceeded westward to the shelf edge (Fig. 2). The progression from east to west was established in response to movements of yellowfin sole and perhaps other species, which may migrate eastward throughout the duration of the survey (Smith and Bakkala 1982). The FV *Alaska Knight* completed survey operations on August 3, 2015, and the FV *Vesteraalen* completed survey operations on August 4, 2015. Both vessels were offloaded in Dutch Harbor.

For catch analysis, the EBS shelf was divided into 12 strata bounded by the 50 m, 100 m, and 200 m isobaths, a geographic stratum line separating the northwest and southeast shelf, and localized high-density strata in the regions around St. Matthew and the Pribilof Islands (Fig. 2). This stratification scheme reflects the differences observed in Bering Sea groundfish distribution across the oceanographic domains, and the intention of the design was to reduce the variances of population and biomass estimates (Bakkala 1993). The purpose of high-density sampling in Strata 32, 42, 43, and 62 was to reduce variance estimates for blue king crab. Sampling density ranged from one station per 775 km^2 (Stratum 42) to one per 1,496 km^2 (Stratum 82) and the sampling density for the entire EBS shelf was one station per 1,311 km^2 (Table 1). For purposes of some analyses (i.e., abundance at length), the high-density strata were grouped, resulting in eight subareas: 10, 20, 30 (31+32), 40 (41+42+43), 50, 60 (61+62), 82, and 90 (Fig. 2; Table 1).

Table 1. -- Stratum areas and sampling densities for the 2015 bottom trawl survey of the eastern Bering Sea shelf.

Stratum	Representative area (km^2)	Stations successfully sampled	Sampling density (km^2/station)
EBS inner shelf			
10	77,871	58	1,343
20	41,027	31	1,323
EBS middle shelf			
31	94,526	69	1,370
32	8,774	8	1,097
41	62,703	44	1,425
42	24,011	31	775
43	21,108	22	959
82	17,954	12	1,496
EBS outer shelf			
50	38,792	26	1,492
61	88,134	60	1,469
62	6,429	7	918
90	11,568	8	1,446
Total EBS	492,898	376	1,311

Catch Sampling Procedures

Standard sampling procedures used in RACE EBS assessment surveys are described in detail by Wakabayashi et al. (1985) and Stauffer (2004). A brief summary of these procedures is provided below.

Samples were collected by trawling near the center of each grid square (or corner station, in the case of high-density strata) for a target fishing time of 30 minutes at a speed of 1.54 m/sec (3 knots). If a station was not considered trawlable due to obstructions visible on the depth sounder, the nearest trawlable site within the same grid square was used. Hauls that resulted in significant gear damage or contained debris such as discarded crab pots which caused visible changes in net mensuration were redeployed to obtain a successful sample.

Catches estimated to be less than approximately 1,150 kg (2,500 lb) were entirely sorted and enumerated, while larger catches were weighed in aggregate and subsampled before sorting. After sorting subsampled catches, individual species were weighed in aggregate and counted, and these weights and numbers were expanded to the total catch. Fishes and invertebrates were identified and sorted to the lowest taxonomic level practicable (Stevenson and Hoff 2009).

Catch weights and numbers by species or species group were either estimated directly when subsampled, or estimated by extrapolating the proportion in the subsample to that of the total catch weight. All Pacific halibut (*Hippoglossus stenolepis*) and commercial crab species were weighed and enumerated from each catch. Additional fish and invertebrate species (e.g., large skates, sculpins, sharks, and octopus) were completely sorted from the catch in some cases.

Random samples of selected fish species (Table 2) were further processed to obtain length measurements. The number of fish in a random length sample for a species was dependent on the size range of that species in the haul, up to a maximum of about 300 specimens. For each

fish in a length sample, sex was determined internally and then the fork or total length was measured to the nearest 1.0 cm. Unless retained for biological sampling by the International Pacific Halibut Commission (IPHC), Pacific halibut were measured upon capture and immediately returned to the sea in an effort to reduce mortality; weights of all Pacific halibut were estimated using an IPHC length-weight regression (Courcelles 2012).

Sagittal otoliths were collected from 9 fish species (Table 2) and returned to the AFSC to be processed for age determination. Individual fish weights were collected for all species for which age structures were taken. Otoliths for groundfishes were preserved in 50% glycerol-thymol solution. A maximum of 12 pairs of otoliths per centimeter size interval (3/sex/vessel/region) were collected for northern rock sole and Greenland turbot. A maximum of 8 pairs of otoliths per centimeter size interval (2/sex/vessel/region) were collected for Pacific cod, arrowtooth flounder (*Atheresthes stomias*), and Kamchatka flounder (*Atheresthes evermanni*). For yellowfin sole, a maximum of 20 pairs of otoliths for each centimeter size interval (5/sex/vessel/region) were collected. For flathead sole (*Hippoglossoides elassodon*), a maximum of 3 pairs of otoliths were collected randomly from each haul. Alaska skate (*Bathyraja parmifera*) vertebrae sections were collected for age analysis aboard the FV *Vesteraalen*; a maximum of 2 vertebrae samples were collected at random per haul. Pacific halibut otoliths were collected aboard the FV *Alaska Knight* by the IPHC for population and growth analyses.

Sampling for walleye pollock otoliths was random within each haul. The survey area was divided into low- and high-density strata based on historical density and an isobath of approximately 70 m. Otoliths were collected from all hauls in which the total number of walleye pollock was greater than 19. Six pairs of otoliths were collected in high-density strata and four in

low-density strata. Additionally, if juvenile walleye pollock (< 20 cm) were present in a sample, two additional otolith pairs were taken from a random sample of those juveniles.

In addition to the stratified collection of Pacific cod otoliths, a supplemental collection was approved in 2015 (Table 3) to test the feasibility of a protocol for random sampling of otoliths for this species. For this project, stations were pre-selected randomly at which 6 random Pacific cod were sampled as a separate otolith collection.

Temperature and depth profiles were recorded using a Sea-Bird SBE-39 datalogger (Sea-Bird Electronics Inc., Bellevue, WA) attached to the headrope of the trawl. Observations were made at 3-second intervals at each station. Average bottom depth was calculated by adding the average net height to the average depth of the headrope.

Catch Data Analysis

Trawl survey catch data were used to estimate biomass, population, and size structure of fish and invertebrate species. A brief description of the procedures used in the analysis of RACE Bering Sea survey data follows (for a detailed description, including variance estimations, see Wakabayashi et al. 1985). Some species were grouped by family for catch data analysis because of their limited commercial value or uncertain identification.

Mean catch per unit effort (CPUE) values for each species were calculated in kilograms per hectare (1 ha = 10,000 m^2) and number of fish per hectare for each stratum; area swept (hectares) was computed as the distance towed multiplied by the mean net width (Alverson and Pereyra 1969). Mean CPUE values were calculated for each stratum and for the total survey area. Biomass and population estimates were derived for each stratum by multiplying the stratum

Table 2. -- Biological data collected during the 2015 eastern Bering Sea shelf bottom trawl survey (* stomach tally includes both arrowtooth and Kamchatka flounders).

Species	Length measurements	Age structures	Stomachs collected	Pathobiology samples
Walleye pollock	54,241	2,330	4,025	-
Pacific cod	19,432	1,827	1,971	-
Yellowfin sole	20,830	878	-	-
Northern rock sole	18,288	374	-	-
Flathead sole	14,354	744	-	-
Bering flounder	2,835	-	-	-
Pacific halibut	2,176	1,186	250	-
Alaska plaice	5,989	-	-	-
Arrowtooth flounder	11,440	617	1,220*	-
Kamchatka flounder	2,953	453	-	-
Greenland turbot	771	380	-	-
Rex sole	537	-	-	-
Longhead dab	333	-	-	-
Plain sculpin	1,324	-	-	-
Great sculpin	557	-	-	-
Warty sculpin	187	-	-	-
Yellow Irish lord	520	-	-	-
Starry flounder	594	-	-	-
Pacific ocean perch	213	-	-	-
Alaska skate	3,906	321	-	-
Bering skate	205	-	-	-
Misc. skates	58	-	-	-
Red king crab	1,633	-	-	-
Blue king crab	193	-	-	-
Opilio Tanner crab	24,462	-	-	480
Bairdi Tanner crab	11,119	-	-	569
Misc. species	1,497	-	-	-
Total	200,647	9,110	7,466	1,049

Table 3. -- Special projects and collections undertaken during the 2015 eastern Bering Sea shelf bottom trawl survey by principal investigator and agency*.

Project title	Principal investigator	Agency
Reproductive potential of female *Chionoecetes* crabs	Laura Stichert	ADF&G
Crab age determination	Joel Webb	ADF&G
Bitter Crab Syndrome in the North Pacific *Chionoecetes* spp.	Pam Jensen	AFSC-RACE
Collection of *C. opilio* for bitter crab studies	Pam Jensen	AFSC-RACE
Identifying habitat use by male and female red king crabs during mating season	Chris Long	AFSC-RACE
Proportion of female snow crab that are on an annual vs. biennial reproductive cycle	Katherine Swiney	AFSC-RACE
Evolution and adaptation of color vision in aquatic environments	Lyle Britt	AFSC-RACE
Spectral irradiance profiling of the eastern Bering Sea shelf.	Lyle Britt	AFSC-RACE
Outreach fish collection	Jason Conner	AFSC-RACE
Collection of skate eggs and rock/sponge/object using scallop dredge	Jerry Hoff	AFSC-RACE
Sponge and coral collections from the eastern Bering Sea	Jerry Hoff	AFSC-RACE
Effect of light intensity and penetration on the distribution and behavior of walleye pollock in the eastern Bering Sea	Stan Kotwicki	AFSC-RACE
Size-at-age Pacific cod	Robert Lauth	AFSC-RACE
Hippoglossoides spp. systematics	James Orr	AFSC-RACE
Morphological and genetic identification of two flatfish species, *Atheresthes stomias* and *A. evermanni*	Melanie Paquin	AFSC-RACE

Table 3. -- Continued.

Project title	Principal investigator	Agency
Acoustic data collection to estimate midwater walleye pollock abundance	Patrick Ressler, Taina Honkalehto, and Sarah Stienessen	AFSC-RACE
Culture of snow crab larvae/juveniles	Clifford Ryer	AFSC-RACE
Observer training collection	Duane Stevenson	AFSC-RACE
Midwater trawl sampling for pollock size composition to improve AVO (Acoustics from Vessels of Opportunity)	Chris Wilson	AFSC-RACE
High prey availability defines juvenile flatfish habitat quality in the eastern Bering Sea.	Cynthia Yeung	AFSC-RACE
Bivalve growth-increment chronologies	Beth Matta	AFSC - REFM
Pacific cod histology collections	Sandi Neidetcher	AFSC - REFM
Alaska skate vertebrae collection	Olav Ormseth	AFSC - REFM
Walrus diets in Bristol Bay: conservation concerns and environmental monitoring	Katrina Counihan	Alaska SeaLife Center
CWU Zooarchaeology Laboratory osteological collection	Patrick Lubinski	CWU
IPHC Pacific halibut data collection and tagging on NMFS trawl surveys	Lauri Sadorus	IPHC
Molecular species identification of deep water coral	Ewann Berntson	NWFSC
CTD data collection	Ned Cokelet	PMEL

* Agency Key: ADF&G = Alaska Department of Fish and Game
AFSC = Alaska Fisheries Science Center
RACE = Resource Assessment and Conservation Engineering Division
REFM = Resource Ecology and Fisheries Management Division
CWU = Central Washington University Anthropology Department
IPHC = International Pacific Halibut Commission
NWFSC = Northwest Fisheries Science Center
PMEL = Pacific Marine Environmental Laboratory

mean CPUE by the stratum area. Stratum totals were then summed to produce estimates for the total survey area.

For size composition estimates, the proportion of fish at each length interval (from subsamples at each station), weighted by CPUE (no./ha), was expanded to the stratum population. Stratum abundance-at-length estimates were then summed for the total estimated size composition for the overall survey area.

Except for Pacific halibut, otolith samples collected during the survey were processed for age by staff of the Age and Growth Program of the AFSC's Resource Ecology and Fisheries Management (REFM) Division. The most current analyses of age, growth, and population dynamics are presented in the 2015 NPFMC Stock Assessment and Fishery Evaluation Report for the Groundfish Resources of the Bering Sea/Aleutian Islands Region (NPFMC 2015).

Additional Research Projects

In addition to standard survey operations, 28 research projects were undertaken during 2015 (Table 3). A solicitation for research proposals was issued on January 29, 2015. Project requests were prioritized and modified based on their potential support of AFSC goals and their expected impact on survey resources and available time. Some of the approved projects were new for 2015, while many continued multi-year observations of supplementary data.

RESULTS AND DISCUSSION

A total of 376 stations were successfully sampled in 2015 (Fig. 2). Haul data for successfully trawled stations used in the analyses are listed in Appendix A along with the relevant information about each station, such as position, tow parameters (net width, depth, distance fished, and duration of haul), time, and environmental measurements (surface and near-bottom temperatures) for each vessel.

Ocean Conditions

Sea surface temperatures recorded during the survey ranged from 3.8° to 10.2° C (Fig. 4). As in most previous surveys, surface temperature increased from east to west across the shelf. Near-bottom temperatures (measured as the temperature at the depth of the headrope while the trawl was on-bottom) ranged from -1.5° to 8.0° C (Fig. 5) with warmer bottom temperatures (> 3.0° C) occurring throughout the southeast half of the survey, near the Pribilof Islands and near Nunivak Island. A cold pool, usually defined as an area with temperatures < 2° C, occupied the mid-shelf (50 -100 m depth) north of latitude 58° N.

The mean surface temperature (7.2° C) was greater than the grand mean over 34 years, although less than the mean of 8.3° C from 2014. Average bottom temperatures (3.1° C) increased slightly from 2014, and were well above the long-term mean (Fig. 6).

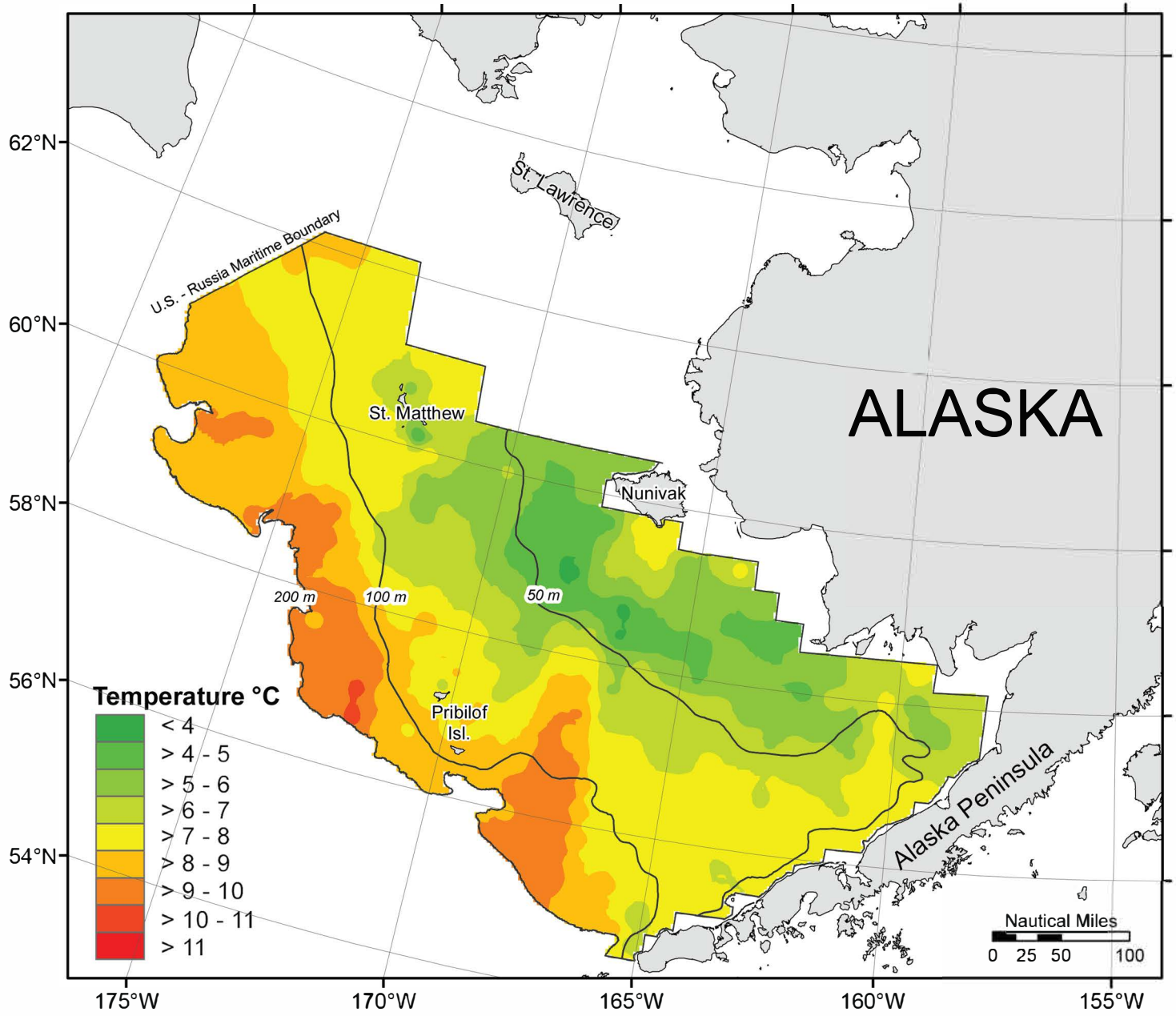

Figure 4. -- Contour map of surface temperatures from the 2015 eastern Bering Sea shelf bottom trawl survey.

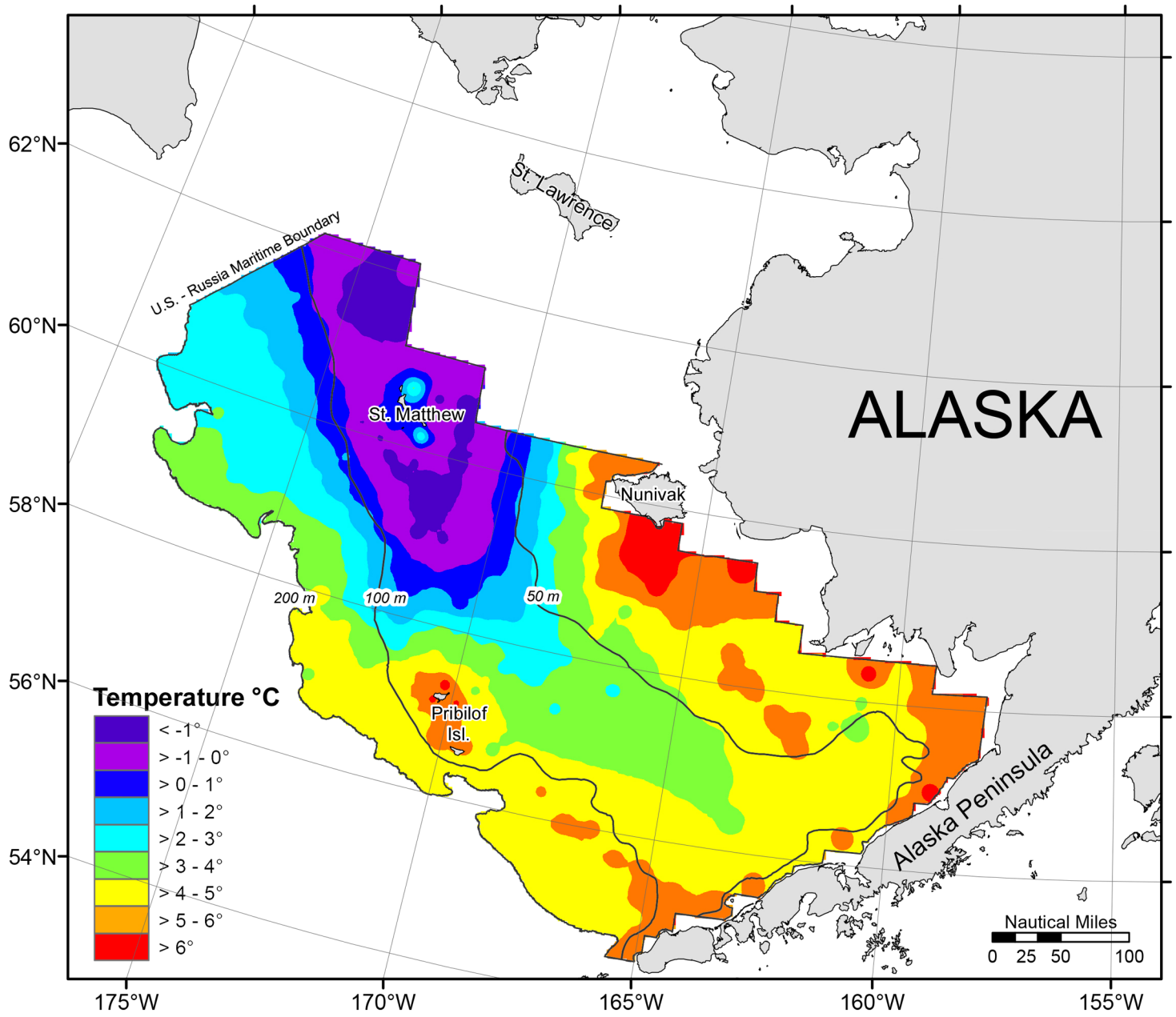

Figure 5. -- Contour map of the near-bottom temperatures from the 2015 eastern Bering Sea shelf bottom trawl survey.

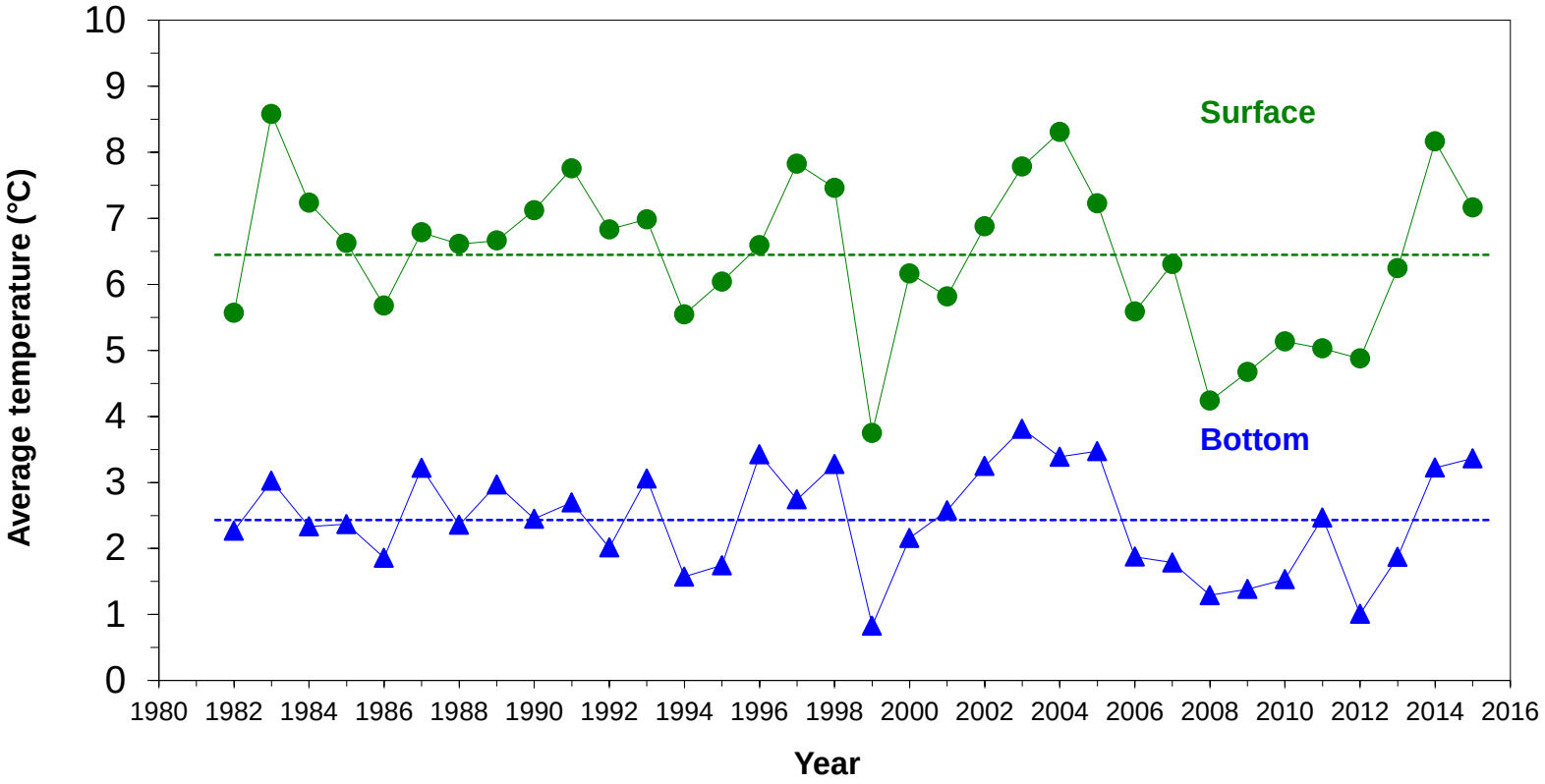

Figure 6. -- Time series of mean survey surface and near-bottom temperatures weighted by stratum based on expendable bathythermograph casts or digital dataloggers attached to the headrope during the eastern Bering Sea bottom trawl surveys from 1982 to 2015 The 1982-1987 means are based on Strata 10-62 (see Fig. 2) and the 1988-2015 means also include Strata 80 and 92. The dashed lines represent the grand mean water temperatures for 1982-2014.

Biomass, Abundance, Distribution, CPUE, and Size Composition of Principal Species and Species Groups

A total of 101 fish taxa were identified in the catches from the survey area (Appendix B1). In addition, a total of 235 individual invertebrate taxa were identified throughout the 2015 BT survey (Appendix B2).

Total demersal animal biomass for the standard survey area was estimated at 17.0 million t, of which fish species accounted for 78% (13.2 million t; Table 4) and invertebrates 22% (3.7 million t; Table 5). The fish biomass was dominated by gadids (7.5 million t) and pleuronectids (4.9 million t; Table 4). The biomass of invertebrates was composed primarily of echinoderms (1.4 million t) and crustaceans (0.7 million t; Table 5).

Geographic distributions, population numbers, biomass estimates, and size compositions are presented in Figures 7-30 and Tables 6-16 for each of the following EBS groundfish: walleye pollock, Pacific cod, yellowfin sole, northern rock sole, flathead sole, Bering flounder (*Hippoglossoides robustus*), Alaska plaice, Greenland turbot, arrowtooth flounder, Kamchatka flounder, and Pacific halibut. Estimated biomass and population numbers are given separately for each of the 12 strata used in the analysis (see Table 1) and for the entire survey area. Size compositions are illustrated in histograms relating the population number per 1-cm length interval for each of the eight major grouped strata and for the total survey area. Catch per unit effort (CPUE), population, and biomass estimates and associated variances and confidence limits are listed for each species by stratum.

Appendices to this report contain detailed results of the survey including population estimates by sex and size class, and rank of fish and invertebrate taxa by weighted total CPUE (kg/ha). A more detailed explanation of results follows for the 11 fish species that are

commercially exploited on the EBS shelf. Although not considered major commercial species on their own, Bering flounder and Kamchatka flounder are included here because they are often grouped with their more common congeners, flathead sole, and arrowtooth flounder, respectively.

Summary of Commercially Exploited Groundfish Species

Walleye Pollock (*Gadus chalcogrammus*)

Walleye pollock were encountered at all but one of standard survey stations (Tables 6a and 6b; Fig. 7). The highest concentrations of pollock occurred in middle shelf just northeast of the Pribilof Islands, on the outer shelf just south of latitude 58° N and in the northwest corner of the survey, although they were more spread out compared to 2014 (Fig. 7). The population estimate of walleye pollock on the eastern Bering Sea shelf decreased slightly from 11.83 billion (Table 6b) in 2014 to 10.98 billion in 2015 (Conner et al. 2017). This continued relatively high population results from a stronger than average 2008 year class, as well as an above average 2012 year class (Ianelli et al. 2015). As in 2014, catch rates were highest in the middle-shelf, strata 30 and 40, and in the northwest portion of the survey, stratum 60 (Fig. 8). One year-old pollock, represented by the 10-15 cm length mode, were most abundant in stratum 60, but were also common in strata 20, 40 and 90 (Fig. 8).

Pacific Cod (*Gadus macrocephalus*)

Pacific cod were observed in 94% of the trawl catches (Tables 7a and 7b; Fig. 9). The highest catch densities for cod were observed in the inner shelf strata (10, 20), along the Alaska Peninsula, and in stratum 41 just north of latitude 58° N. Few cod were encountered within the

coldest isotherm of the Bering Sea cold pool (< 1° C, Figs. 5, 9). The cod biomass estimate remained relatively high, approximately the same as in 2014 (1.1 million t), and the population estimate decreased slightly from 1.1 to 1.0 trillion (Conner et al. 2017). The recruitment of small (15-20 cm) cod seen in 2014 were apparent as 30-40 cm cod in 2015, with scant recruitment of small cod in 2015 (Fig. 10).

Yellowfin Sole (*Limanda aspera*)

The distribution of yellowfin sole is generally constrained to the shallower depths of the Bering Sea, and while this species has the highest CPUE of all flatfish species on the BT survey (39.20 kg/ha), it was seldom encountered in either the outer shelf strata or the northern strata (Fig. 11). Yellowfin sole catch rates were highest on the inner shelf with the highest density catches occurring in Bristol Bay and along the Alaska Peninsula. The yellowfin sole biomass estimate decreased from 2.5 million t in 2014 to 1.9 million t in 2015 (Table 8a), and the population estimate decreased by from 8.2 billion to 6.4 billion in (Table 8b). Smaller yellowfin sole (< 20 cm) were only found on the inner shelf, with larger sizes (up to 44 cm) inhabiting both the inner and middle shelf (Fig. 12).

Northern Rock Sole (*Lepidopsetta polyxystra*)

Northern rock sole are distributed similarly to yellowfin sole in that both are most abundant in the shallower strata of the survey. Northern rock sole were concentrated in the shallower parts of Bristol Bay and around the Pribilof Islands (Fig. 13), and were encountered at 75% of BT stations. From 2014 to 2015, the northern rock sole biomass estimate decreased by 24% from 1.9 to 1.4 million t (Table 9a), and the population estimate decreased by 21% from

Table 4. -- Biomass estimates (t) for major fish taxa collected during the 2015 eastern Bering Sea shelf bottom trawl survey. Differences in sums of estimates and totals are due to rounding.

Taxon	Estimated total biomass (t) and variance		Estimated biomass by stratum (t)											
			10	20	31	32	41	42	43	50	61	62	82	90
Gadidae (cods)														
Walleye pollock	6,394,359	1.6E+11	425,756	392,874	848,762	214,528	1,092,784	742,934	479,720	140,688	1,554,904	51,375	72,577	377,456
Pacific cod	1,109,115	2.3E+10	300,096	203,032	119,697	23,306	239,757	64,904	17,295	15,720	107,253	11,201	449	6,406
Other cods	1,175	4.4E+05	703	380	0	0	15	0	6	0	0	0	65	6
Total cods	**7,504,649**	**1.8E+11**	**726,555**	**596,286**	**968,459**	**237,834**	**1,332,556**	**807,838**	**497,021**	**156,408**	**1,662,157**	**62,577**	**73,091**	**383,868**
Anoplopomatidae														
Sablefish	67	8.9E+02	8	0	53	0	0	0	0	0	4	2	0	0
Scorpaenidae (rockfishes)														
Pacific ocean perch	83,496	5.5E+09	0	0	0	0	0	0	0	95	83,401	0	0	0
Other rockfish	626	1.6E+05	0	0	0	0	0	0	0	412	214	0	0	0
Total rockfish	**84,122**	**5.5E+09**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**507**	**83,614**	**0**	**0**	**0**
Pleuronectidae (flatfishes)														
Yellowfin sole	1,932,347	2.1E+10	916,828	271,537	642,798	7,148	48,671	43,735	1,585	0	0	0	38	5
Northern rock sole	1,411,826	1.7E+10	718,614	174,431	291,494	22,376	30,420	161,289	5,302	434	6,922	433	23	88
Flathead sole	385,492	1.9E+09	7,559	83	100,807	26,338	5,554	48,076	2,417	45,567	142,030	3,741	44	3,276
Bering flounder	26,453	1.3E+07	44	553	31	0	5,169	36	1,915	0	2,589	684	7,012	8,420
Alaska plaice	355,640	1.5E+09	45,946	56,086	134,578	680	94,906	12,085	8,114	0	1,706	240	746	552
Arrowtooth flounder	409,243	6.4E+08	1,220	181	81,692	9,948	9,793	27,292	145	76,188	199,996	2,787	0	0
Kamchatka flounder	60,331	1.2E+07	111	144	6,698	1,006	2,175	6,060	650	6,606	32,638	2,651	0	1,592
Greenland turbot	25,240	1.1E+07	0	0	201	0	1,552	46	1,660	0	12,792	2,871	196	5,923
Pacific halibut	172,237	1.9E+08	48,312	28,778	22,650	4,764	5,964	12,612	4,634	14,399	29,293	455	0	377
Other flatfish	72,075	2.9E+08	40,615	12,247	9,236	5	45	12	3	5,694	2,431	0	1,786	0
Total flatfish	**4,850,885**	**4.3E+10**	**1,779,249**	**544,041**	**1,290,186**	**72,265**	**204,249**	**311,244**	**26,425**	**148,887**	**430,397**	**13,863**	**9,844**	**20,234**
Clupeidae (Pacific herring)	21,526	2.4E+07	9,519	5,223	522	0	2,080	650	1,537	0	1,261	22	192	519
Cottidae (sculpins)	172,322	5.7E+08	30,961	11,067	20,233	25,778	33,378	14,408	6,086	1,335	22,820	2,224	1,147	2,884
Zoarcidae (eelpouts)	40,092	2.4E+07	36	23	11,355	11	8,464	1,169	2,116	280	9,425	807	4,201	2,204
Osmeridae (smelts)	9,698	5.6E+06	6,266	1,087	319	0	651	0	282	826	1	1	259	5
Agonidae (poachers)	28,250	8.8E+07	15,265	5,199	3,529	482	1,105	2,137	134	257	111	22	4	6
Liparidae (snailfishes)	2,637	2.5E+05	0	2	12	0	227	30	255	9	588	24	1,356	133
Alaska skate	448,224	6.4E+08	87,211	74,679	43,578	4,383	47,545	16,087	9,337	43,699	100,803	6,085	5,468	9,350
Other skates	39,448	7.9E+07	6,489	0	11,677	72	12	285	10	9,557	11,281	0	1	64
Total fish	**13,211,695**	**2.3E+11**	**2,663,301**	**1,237,960**	**2,353,316**	**340,894**	**1,630,422**	**1,154,087**	**543,206**	**364,358**	**2,323,670**	**85,629**	**95,574**	**419,277**

Table 5. -- Biomass estimates (t) for major ivertebrate taxa collected during the 2015 eastern Bering Sea shelf bottom trawl survey. Differences in sums of estimates and totals are due to rounding.

Taxon	Estimated total biomass (t) and variance		Estimated biomass by stratum (t)											
			10	20	31	32	41	42	43	50	61	62	82	90
Crustacea														
Crabs	718,635	1.3E+09	66,042	17,083	164,778	24,053	161,601	86,105	32,604	33,740	103,727	10,239	10,798	7,865
Shrimps	7,472	1.3E+09	18	7	127	2	102	70	190	841	5,420	413	76	205
Other crustaceans	2,079	1.9E+06	947	15	22	793	10	171	51	49	21	0	0	0
Total crustaceans	**728,186**	**7.8E+05**	**67,007**	**17,105**	**164,927**	**24,848**	**161,714**	**86,346**	**32,844**	**34,631**	**109,168**	**10,653**	**10,874**	**8,069**
Mollusca														
Gastropoda (snails)	392,501	9.7E+08	22,834	7,917	120,102	3,329	79,489	22,898	14,974	5,622	96,962	5,890	6,015	6,467
Pelecypoda (bivalves)	8,092	9.7E+08	1,015	603	3,199	151	1,328	885	218	176	372	1	131	15
Squids	152	2.0E+06	0	0	0	5	0	0	0	65	82	0	0	0
Octopuses	5,363	3.0E+03	0	0	827	774	1	212	59	1,510	1,663	72	81	165
Other mollusks	10,943	2.6E+06	1,329	209	2,766	33	3,991	563	469	33	457	315	763	13
Total mollusks	**417,051**	**7.5E+06**	**25,178**	**8,730**	**126,894**	**4,292**	**84,809**	**24,559**	**15,720**	**7,405**	**99,536**	**6,278**	**6,990**	**6,661**
Echinodermata														
Asteroidea (starfish)	986,673	5.6E+09	295,741	100,232	187,322	12,910	133,319	91,324	10,308	470	133,314	9,408	4,197	8,129
Ophiuroidea (brittle stars)	342,553	1.6E+09	11,101	4,904	87,879	7,086	38,291	41,606	8,430	3,458	129,465	727	8,548	1,059
Echinoidea (sea urchin)	56,137	4.2E+08	102	0	23,752	1,940	48	18,237	1,659	8,541	1,441	393	2	23
Holothuroidea (sea cucumbers)	9,292	7.8E+06	2,525	0	3,606	743	56	1,274	1,078	11	0	0	0	0
Other echinoderms	342,553	1.6E+09	11,101	4,904	87,879	7,086	38,291	41,606	8,430	3,458	129,465	727	8,548	1,059
Total echinoderms	**1,394,655**	**7.6E+09**	**309,469**	**105,136**	**302,558**	**22,679**	**171,713**	**152,440**	**21,475**	**12,480**	**264,219**	**10,528**	**12,747**	**9,211**
Ascidiacea	335,448	2.6E+09	67,238	27,310	87,619	2,547	58,584	88,588	3,545	11	0	7	0	0
Porifera	405,037	3.7E+10	2,813	224	389,825	2,507	43	757	7,180	296	1,279	114	0	0
Cnidaria	273,075	5.3E+08	25,129	4,243	80,255	6,513	21,822	40,443	34,273	11,681	18,785	6,480	17,211	6,240
Other invertebrates	187,201	3.1E+08	30,593	7,824	55,364	5,905	16,355	47,827	5,874	924	13,315	942	1,077	1,202
Total invertebrates	**3,740,653**	**5.1E+10**	**30,593**	**7,824**	**55,364**	**5,905**	**16,355**	**47,827**	**5,874**	**924**	**13,315**	**942**	**1,077**	**1,202**

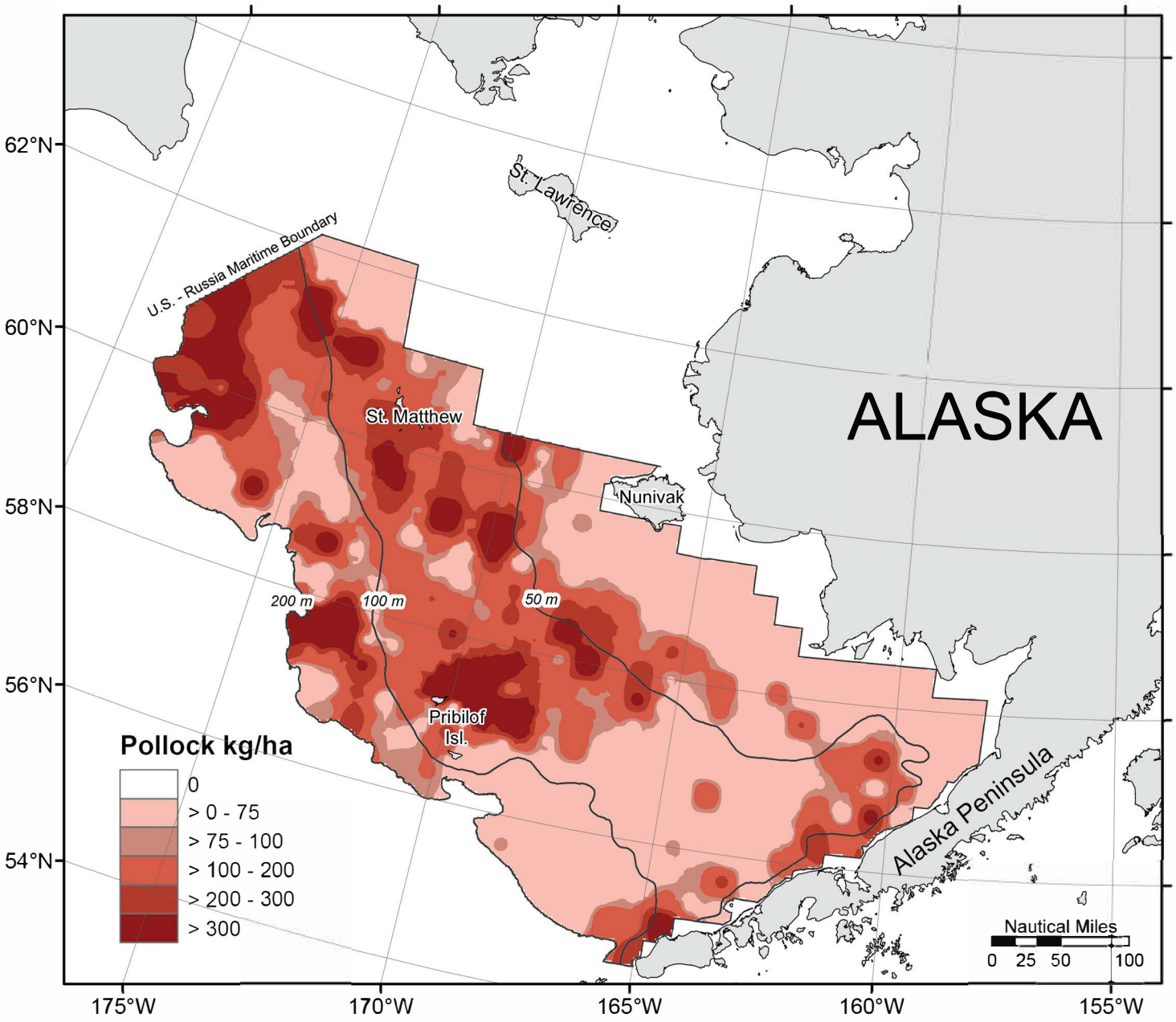

Figure 7. -- Distribution and relative abundance (kg/ha) of **walleye pollock** (*Gadus chalcogrammus*) during the 2015 eastern Bering Sea shelf bottom trawl survey.

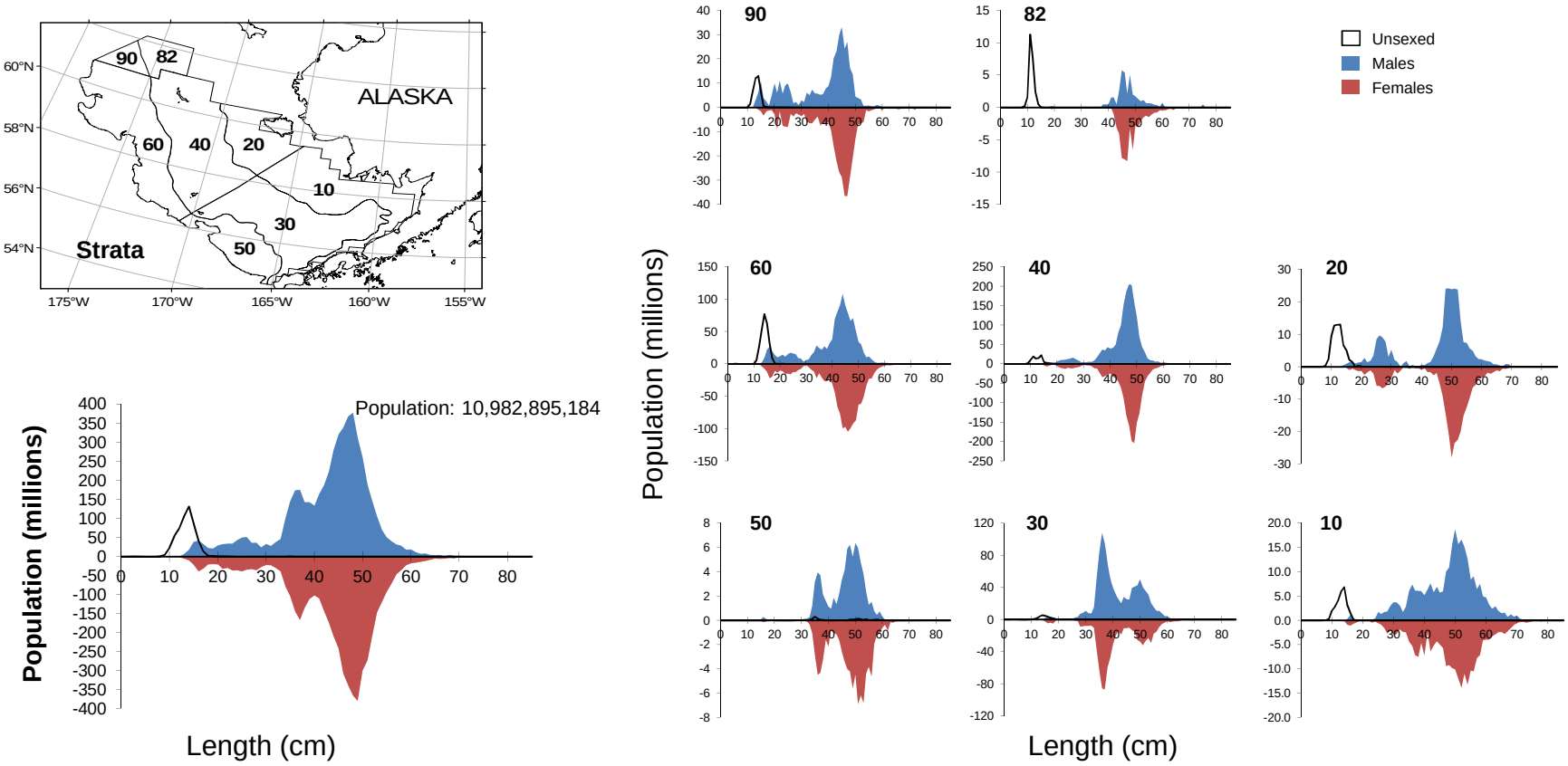

Figure 8. -- Estimated abundance-at-size of **walleye pollock** (*Gadus chalcogrammus*) by sex and stratum during the 2015 eastern Bering Sea shelf bottom trawl survey. Note that each graph may use a different y-axis scale.

Table 6a. -- Mean CPUE (kg/ha), estimated biomass (t), standard error, and 95% confidence limits for **walleye pollock** (*Gadus chalcogrammus*) by stratum for the 2015 eastern Bering Sea bottom trawl survey.

Stratum	Mean CPUE (kg/ha)	Std. dev. CPUE	Estimated biomass (t)*	Std. dev. biomass	95% Confidence Limit		Total hauls	Hauls with weights	Hauls with counts	Hauls with lengths
					Lower	Upper				
10	54.67	9.66E+00	425,756	7.52E+04	273,719	577,794	58	57	57	57
20	95.76	1.87E+01	392,874	7.67E+04	236,308	549,439	31	31	31	31
31	89.79	1.26E+01	848,762	1.19E+05	610,124	1,087,400	69	69	69	69
32	244.50	9.08E+01	214,528	7.96E+04	26,160	402,897	8	8	8	8
41	174.28	2.62E+01	1,092,784	1.64E+05	761,062	1,424,506	44	44	44	44
42	309.41	6.09E+01	742,934	1.46E+05	444,339	1,041,529	31	31	31	31
43	227.27	3.06E+01	479,720	6.46E+04	345,436	614,004	22	22	22	22
50	36.27	9.28E+00	140,688	3.60E+04	66,538	214,838	26	26	26	26
61	176.43	2.83E+01	1,554,904	2.49E+05	1,050,680	2,059,127	60	60	60	60
62	79.92	2.40E+01	51,375	1.54E+04	13,679	89,071	7	7	7	7
82	40.42	2.49E+01	72,577	4.48E+04	0	171,137	12	12	12	12
90	326.29	9.27E+01	377,456	1.07E+05	123,770	631,142	8	8	8	8
Total	129.73	8.16E+00	6,394,359	4.02E+05	5,597,667	7,191,050	376	375	375	375

*Differences in sums of estimates and totals are due to rounding.

Table 6b. -- Mean CPUE (no./ha), estimated population, standard error, and 95% confidence limits for **walleye pollock** (*Gadus chalcogrammus*) by stratum for the 2015 eastern Bering Sea bottom trawl survey.

Stratum	Mean CPUE (no./ha)	Std. dev. CPUE	Estimated population*	Std. dev. population	95% Confidence Limit Lower	95% Confidence Limit Upper	Total hauls	Hauls with weights	Hauls with counts	Hauls with lengths
10	71.02	1.43E+01	553,010,735	1.12E+08	327,538,364	778,483,107	58	57	57	57
20	151.52	3.71E+01	621,633,220	1.52E+08	310,558,078	932,708,362	31	31	31	31
31	165.06	2.53E+01	1,560,287,704	2.39E+08	1,082,081,881	2,038,493,528	69	69	69	69
32	443.11	1.64E+02	388,788,705	1.44E+08	48,856,011	728,721,398	8	8	8	8
41	271.20	4.06E+01	1,700,514,831	2.55E+08	1,186,037,259	2,214,992,405	44	44	44	44
42	547.43	1.01E+02	1,314,433,308	2.42E+08	821,278,135	1,807,588,484	31	31	31	31
43	340.29	4.57E+01	718,275,262	9.64E+07	517,659,547	918,890,976	22	22	22	22
50	43.35	1.12E+01	168,162,314	4.36E+07	78,353,930	257,970,699	26	26	26	26
61	329.39	5.07E+01	2,902,993,550	4.47E+08	1,999,775,736	3,806,211,365	60	60	60	60
62	199.31	4.19E+01	128,131,285	2.69E+07	62,227,842	194,034,726	7	7	7	7
82	68.08	3.92E+01	122,223,663	7.03E+07	0	277,023,582	12	12	12	12
90	695.40	1.82E+02	804,440,611	2.11E+08	306,461,734	1,302,419,488	8	8	8	8
Total	222.82	1.43E+01	10,982,895,189	7.05E+08	9,586,246,833	12,379,543,547	376	375	375	375

*Differences in sums of estimates and totals are due to rounding.

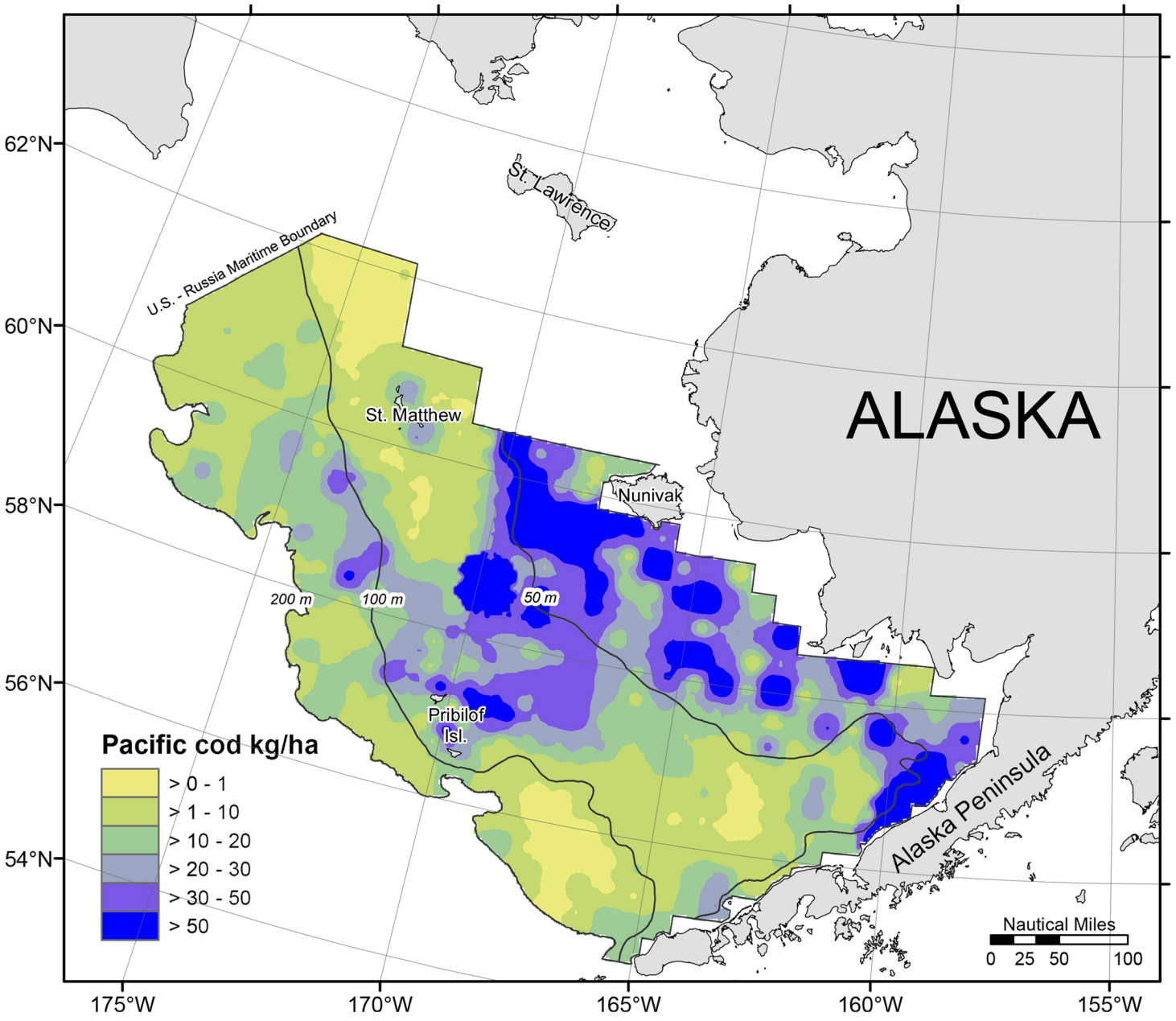

Figure 9. -- Distribution and relative abundance (kg/ha) of **Pacific cod** (*Gadus macrocephalus*) during the 2015 eastern Bering Sea shelf bottom trawl survey.

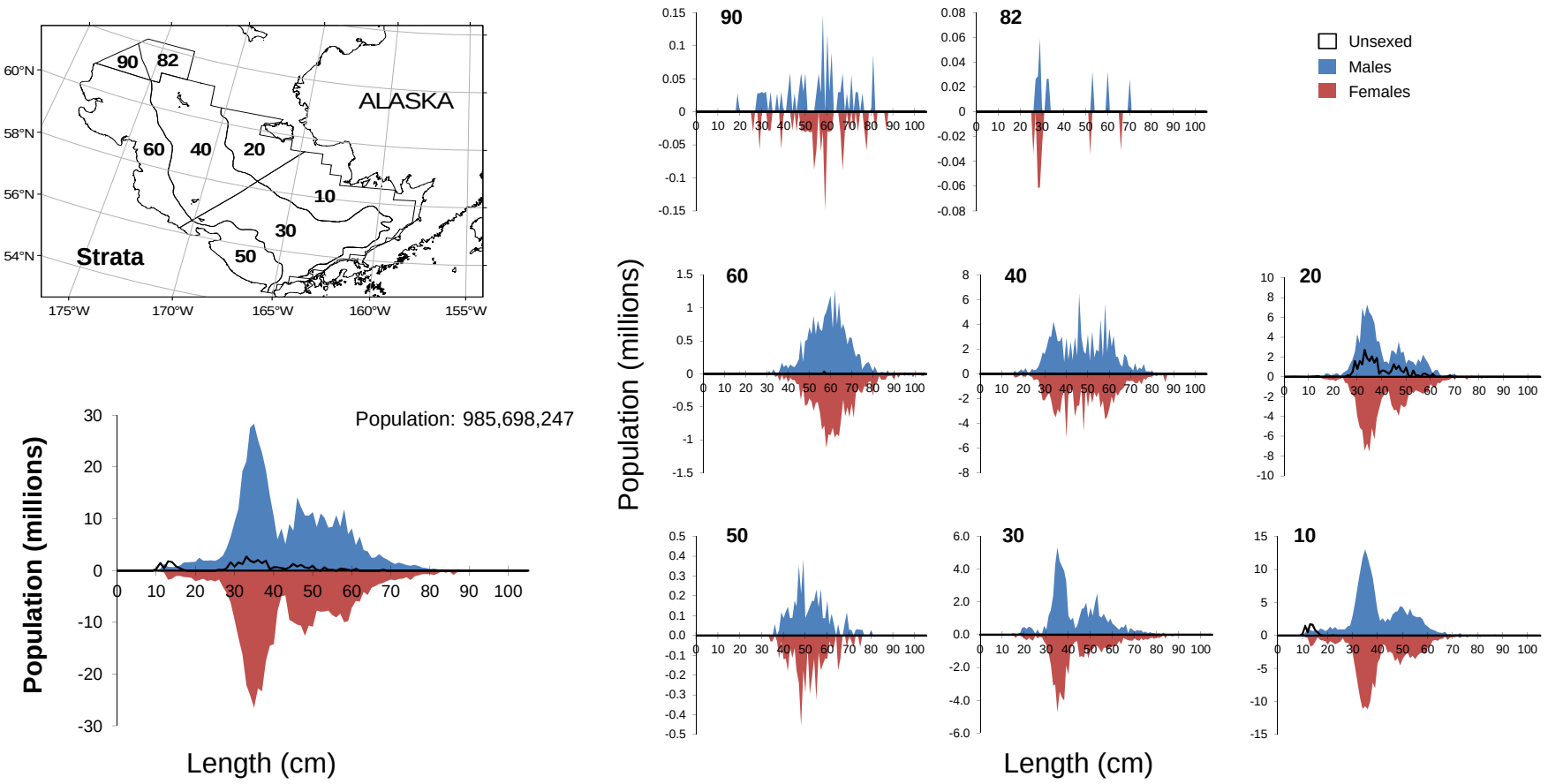

Figure 10. -- Estimated abundance-at-size of **Pacific cod** (*Gadus macrocephalus*) by sex and stratum during the 2015 eastern Bering Sea shelf bottom trawl survey. Note that each graph may use a different y-axis scale.

Table 7a. -- Mean CPUE (kg/ha), estimated biomass (t), standard error, and 95% confidence limits for **Pacific cod** (*Gadus macrocephalus*) by stratum for the 2015 eastern Bering Sea bottom trawl survey.

Stratum	Mean CPUE (kg/ha)	Std. dev. CPUE	Estimated biomass (t)*	Std. dev. biomass	95% Confidence Limit		Total hauls	Hauls with weights	Hauls with counts	Hauls with lengths
					Lower	Upper				
10	38.54	6.00E+00	300,096	4.67E+04	205,683	394,509	58	57	57	57
20	49.49	6.63E+00	203,032	2.72E+04	147,479	258,585	31	31	31	31
31	12.66	1.75E+00	119,697	1.65E+04	86,647	152,747	69	65	65	65
32	26.56	6.98E+00	23,306	6.12E+03	8,821	37,791	8	8	8	8
41	38.24	2.22E+01	239,757	1.39E+05	0	520,893	44	43	43	43
42	27.03	3.23E+00	64,904	7.75E+03	49,069	80,739	31	31	31	31
43	8.19	2.12E+00	17,295	4.48E+03	7,977	26,612	22	22	22	22
50	4.05	1.12E+00	15,720	4.36E+03	6,745	24,695	26	17	17	17
61	12.17	1.16E+00	107,253	1.03E+04	86,536	127,970	60	60	60	60
62	17.42	4.14E+00	11,201	2.66E+03	4,692	17,709	7	7	7	7
82	0.25	1.10E-01	449	1.97E+02	15	882	12	5	5	5
90	5.54	1.70E+00	6,406	1.97E+03	1,743	11,069	8	8	8	8
Total	22.50	3.06E+00	1,109,115	1.51E+05	807,127	1,411,103	376	354	354	354

*Differences in sums of estimates and totals are due to rounding.

Table 7b. -- Mean CPUE (no./ha), estimated population, standard error, and 95% confidence limits for **Pacific cod** (*Gadus macrocephalus*) by stratum for the 2015 eastern Bering Sea bottom trawl survey.

Stratum	Mean CPUE (no./ha)	Std. dev. CPUE	Estimated population*	Std. dev. population	95% Confidence Limit		Total hauls	Hauls with weights	Hauls with counts	Hauls with lengths
					Lower	Upper				
10	45.32	7.11E+00	352,875,393	5.54E+07	240,918,845	464,831,941	58	57	57	57
20	60.48	9.44E+00	248,112,983	3.87E+07	169,053,626	327,172,339	31	31	31	31
31	12.01	2.65E+00	113,510,605	2.50E+07	63,419,459	163,601,752	69	65	65	65
32	12.13	3.03E+00	10,641,200	2.66E+06	4,361,590	16,920,810	8	8	8	8
41	25.73	1.39E+01	161,354,036	8.73E+07	0	337,754,837	44	43	43	43
42	12.34	1.41E+00	29,632,480	3.39E+06	22,702,364	36,562,597	31	31	31	31
43	7.13	2.28E+00	15,059,309	4.82E+06	5,033,616	25,085,002	22	22	22	22
50	2.28	6.55E-01	8,853,374	2.54E+06	3,619,474	14,087,275	26	17	17	17
61	4.25	4.92E-01	37,489,194	4.34E+06	28,717,232	46,261,156	60	60	60	60
62	7.69	2.07E+00	4,941,598	1.33E+06	1,680,622	8,202,575	7	7	7	7
82	0.28	1.22E-01	508,570	2.18E+05	27,790	989,350	12	5	5	5
90	2.35	6.65E-01	2,719,520	7.69E+05	900,442	4,538,598	8	8	8	8
Total	20.00	2.30E+00	985,698,264	1.14E+08	758,691,342	1,212,705,185	376	354	354	354

*Differences in sums of estimates and totals are due to rounding.

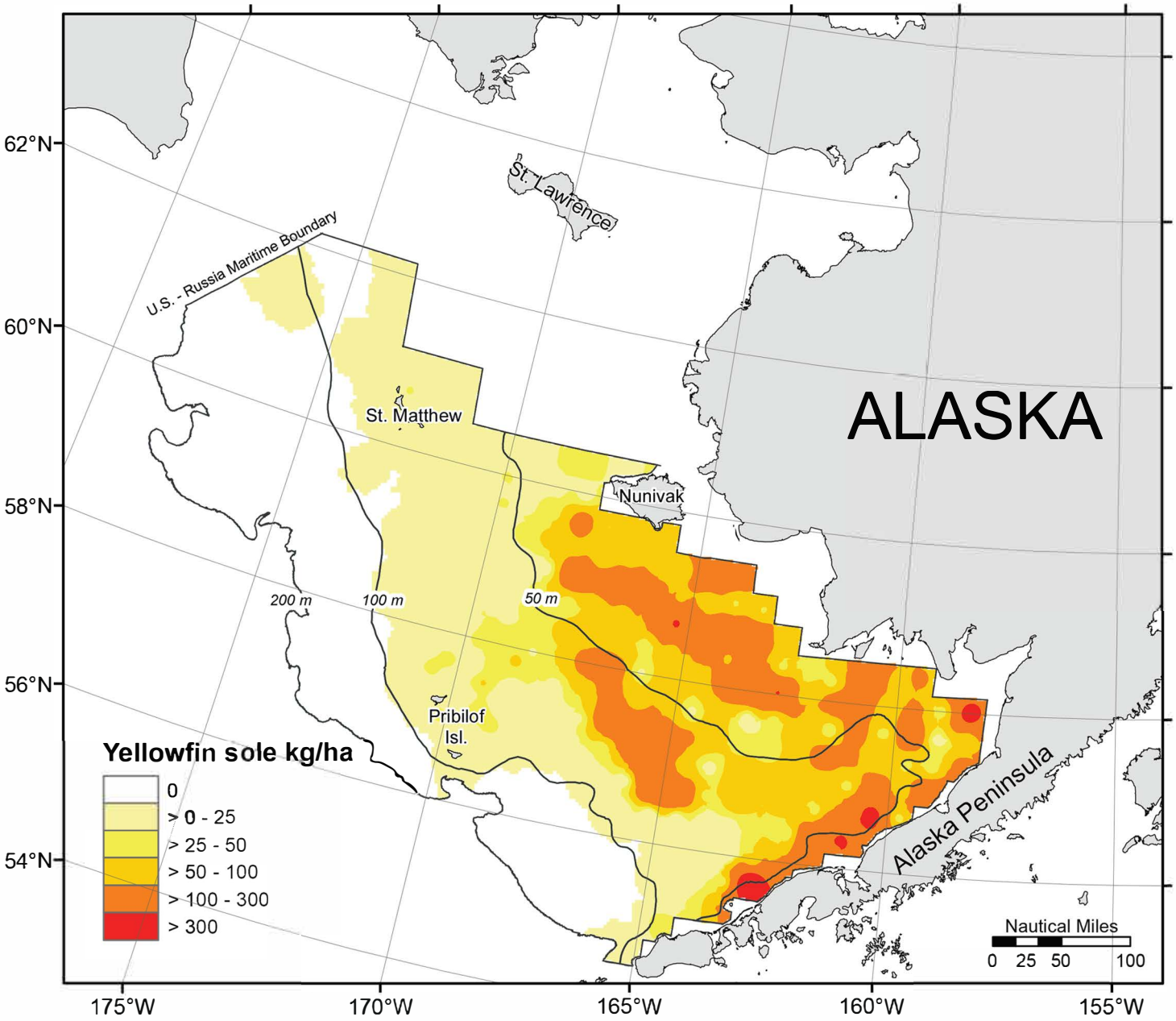

Figure 11. -- Distribution and relative abundance (kg/ha) of **yellowfin sole** (*Limanda aspera*) during the 2015 eastern Bering Sea shelf bottom trawl survey.

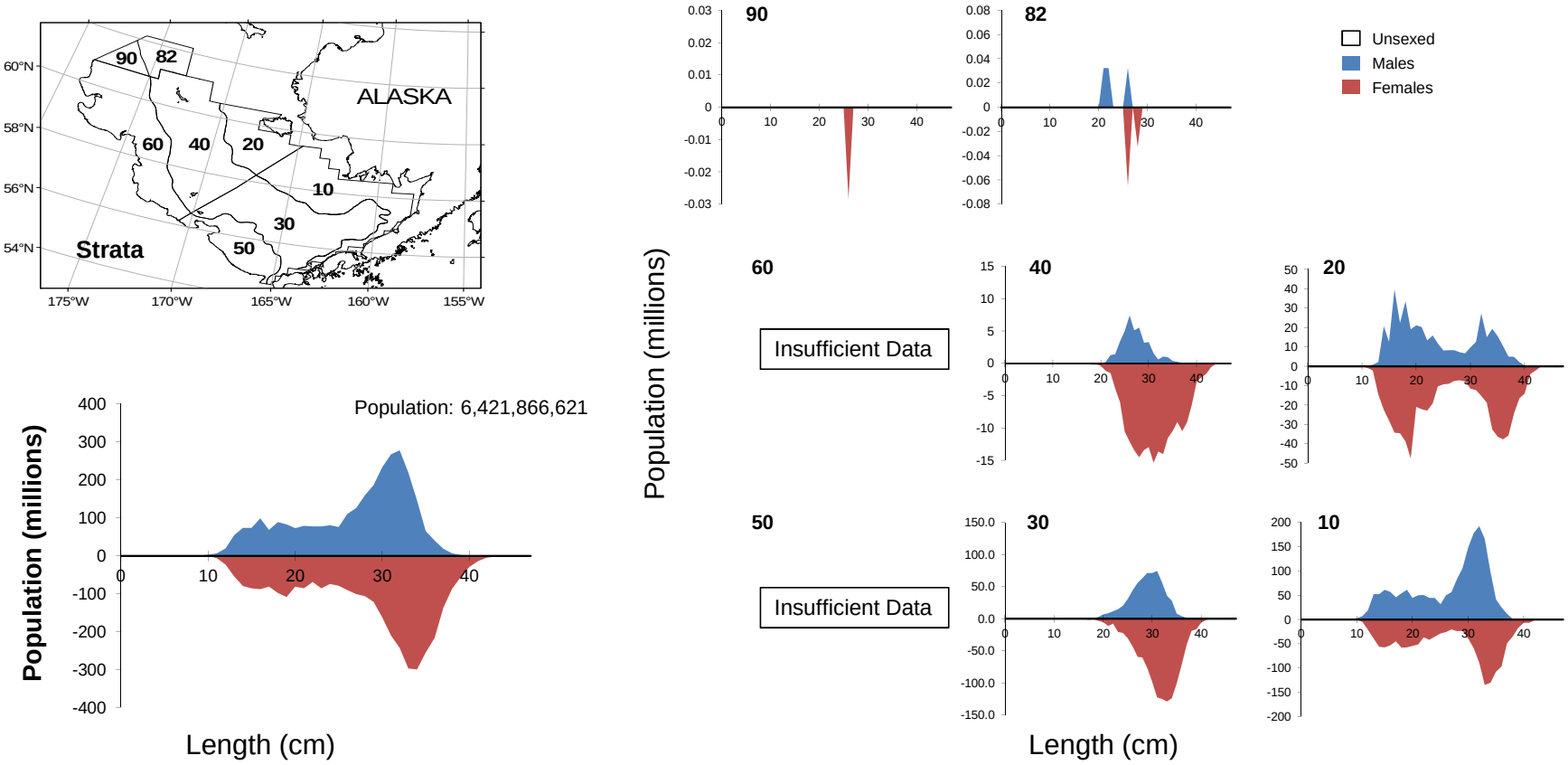

Figure 12. -- Estimated abundance-at-size of **yellowfin sole** (*Limanda aspera*) by sex and stratum during the 2015 eastern Bering Sea shelf bottom trawl survey. Note that each graph may use a different y-axis scale.

Table 8a. -- Mean CPUE (kg/ha), estimated biomass (t), standard error, and 95% confidence limits for **yellowfin sole** (*Limanda aspera*) by stratum for the 2015 eastern Bering Sea bottom trawl survey.

Stratum	Mean CPUE (kg/ha)	Std. dev. CPUE	Estimated biomass (t)*	Std. dev. biomass	95% Confidence Limit		Total hauls	Hauls with weights	Hauls with counts	Hauls with lengths
					Lower	Upper				
10	117.74	1.37E+01	916,828	1.07E+05	701,273	1,132,383	58	58	58	58
20	66.18	1.03E+01	271,537	4.22E+04	185,340	357,735	31	31	31	31
31	68.00	9.34E+00	642,798	8.83E+04	466,246	819,350	69	61	61	60
32	8.15	3.87E+00	7,148	3.39E+03	0	15,177	8	7	7	7
41	7.76	2.18E+00	48,671	1.37E+04	21,006	76,337	44	33	33	31
42	18.21	2.97E+00	43,735	7.14E+03	29,161	58,310	31	26	26	26
43	0.75	5.77E-01	1,585	1.22E+03	0	4,119	22	7	7	7
50	0.00	0.00E+00	0	0.00E+00	0	0	26	0	0	0
61	0.00	0.00E+00	0	0.00E+00	0	0	60	0	0	0
62	0.00	0.00E+00	0	0.00E+00	0	0	7	0	0	0
82	0.02	1.46E-02	38	2.63E+01	0	96	12	2	2	2
90	0.00	4.57E-03	5	5.28E+00	0	18	8	1	1	1
Total	39.20	2.95E+00	1,932,347	1.46E+05	1,644,043	2,220,651	376	226	226	223

*Differences in sums of estimates and totals are due to rounding.

Table 8b. -- Mean CPUE (no./ha), estimated population, standard error, and 95% confidence limits for **yellowfin sole** (*Limanda aspera*) by stratum for the 2015 eastern Bering Sea bottom trawl survey.

Stratum	Mean CPUE (no./ha)	Std. dev. CPUE	Estimated population*	Std. dev. population	95% Confidence Limit		Total hauls	Hauls with weights	Hauls with counts	Hauls with lengths
					Lower	Upper				
10	430.24	4.82E+01	3,350,314,434	3.75E+08	2,592,367,160	4,108,261,709	58	58	58	58
20	247.60	3.87E+01	1,015,834,576	1.59E+08	691,795,293	1,339,873,860	31	31	31	31
31	190.79	2.65E+01	1,803,475,845	2.51E+08	1,301,704,133	2,305,247,558	69	61	61	60
32	15.21	6.71E+00	13,348,049	5.89E+06	0	27,269,494	8	7	7	7
41	20.17	5.40E+00	126,479,050	3.39E+07	58,065,045	194,893,056	44	33	33	31
42	43.74	7.41E+00	105,031,254	1.78E+07	68,723,513	141,338,995	31	26	26	26
43	3.39	2.59E+00	7,159,715	5.48E+06	0	18,548,222	22	7	7	7
50	0.00	0.00E+00	0	0.00E+00	0	0	26	0	0	0
61	0.00	0.00E+00	0	0.00E+00	0	0	60	0	0	0
62	0.00	0.00E+00	0	0.00E+00	0	0	7	0	0	0
82	0.11	7.81E-02	195,291	1.40E+05	0	503,935	12	2	2	2
90	0.02	2.46E-02	28,400	2.84E+04	0	95,565	8	1	1	1
Total	130.29	9.74E+00	6,421,866,614	4.80E+08	5,471,664,866	7,372,068,366	376	226	226	223

*Differences in sums of estimates and totals are due to rounding.

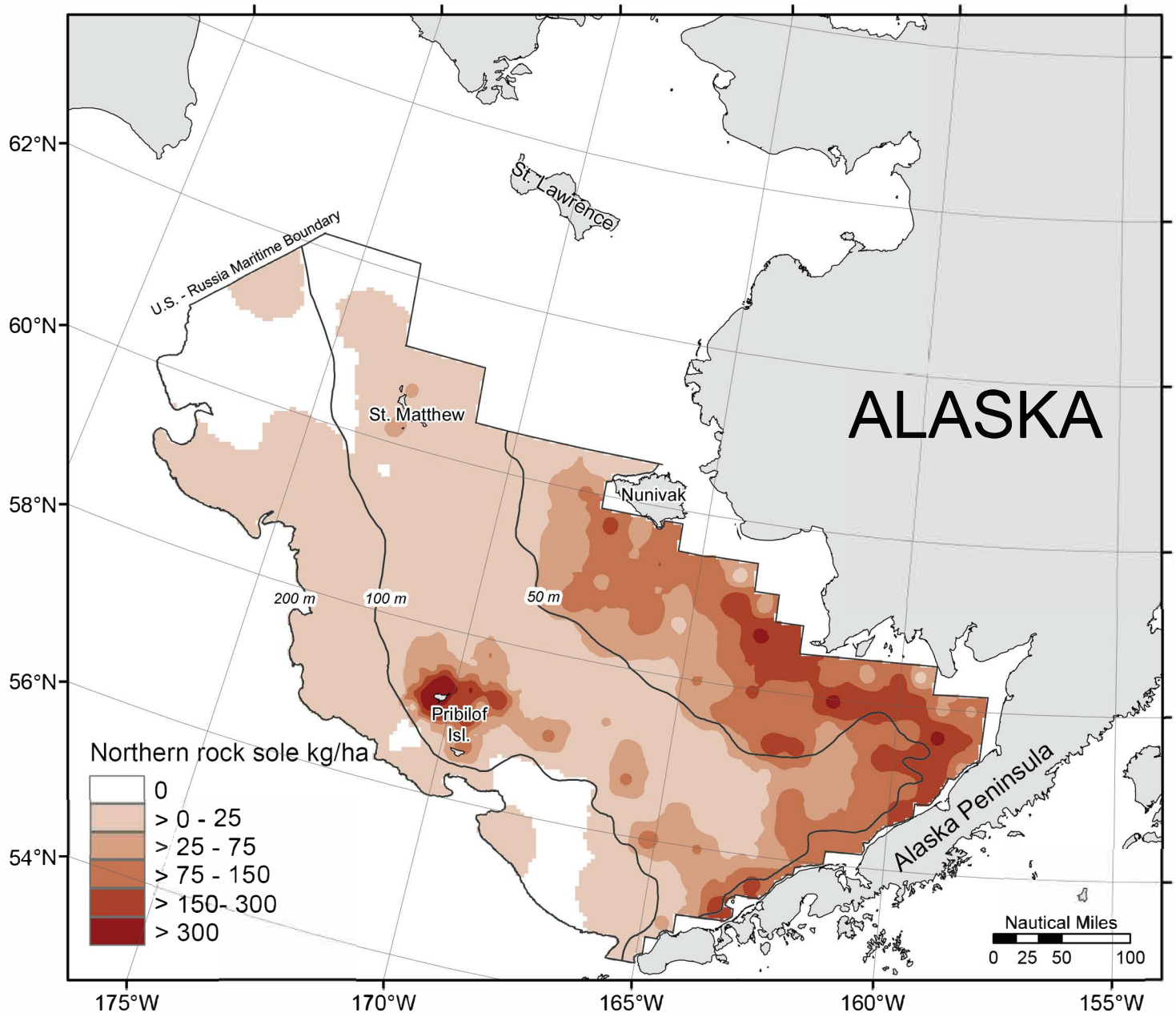

Figure 13. -- Distribution and relative abundance (kg/ha) of **northern rock sole** (*Lepidopsetta polyxystra*) during the 2015 eastern Bering Sea shelf bottom trawl survey.

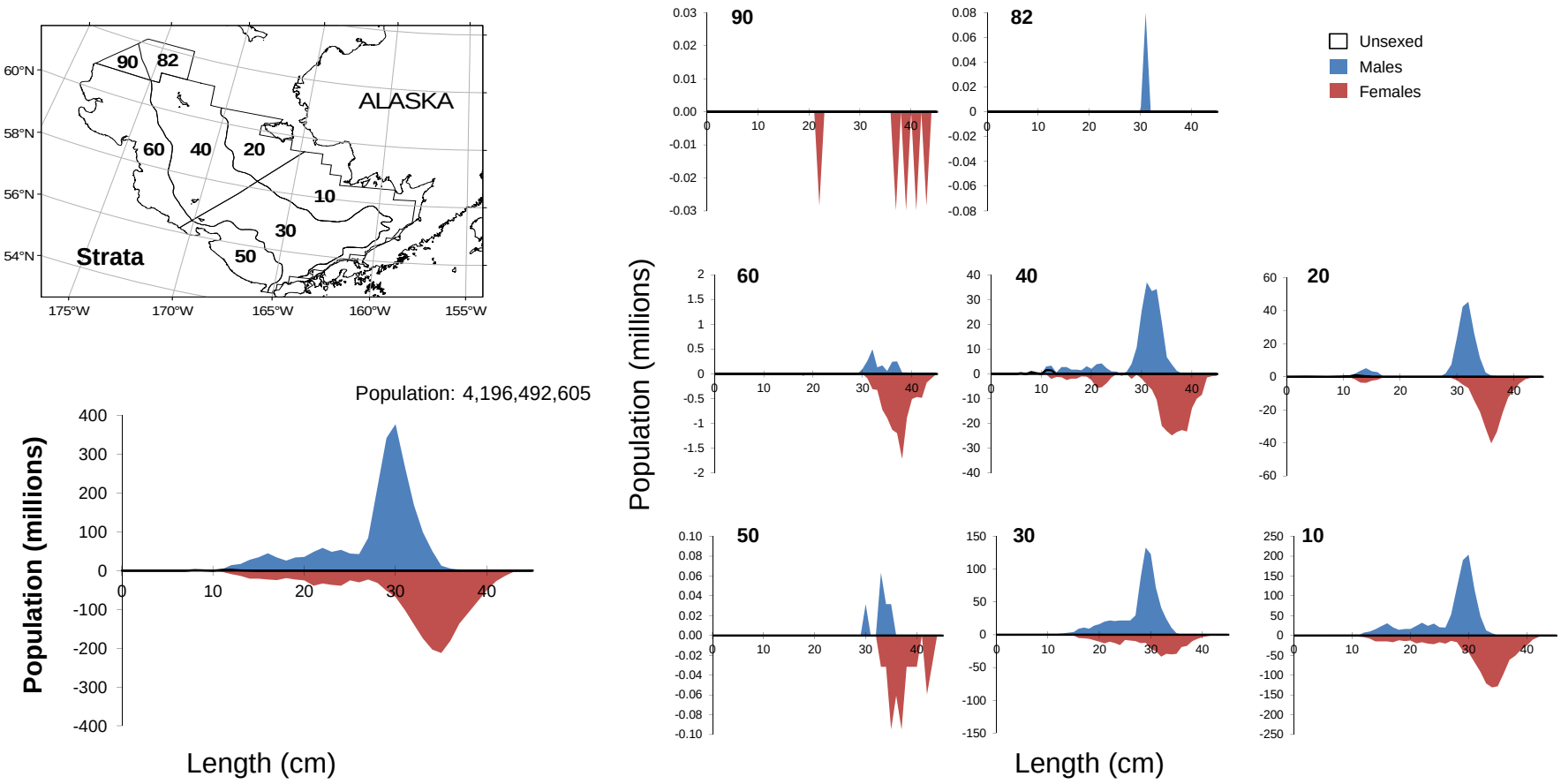

Figure 14. -- Estimated abundance-at-size of **northern rock sole** (*Lepidopsetta polyxystra*) by sex and stratum during the 2015 eastern Bering Sea shelf bottom trawl survey. Note that each graph may use a different y-axis scale.

Table 9a. -- Mean CPUE (kg/ha), estimated biomass (t), standard error, and 95% confidence limits for **northern rock sole** (*Lepidopsetta polyxystra*) by stratum for the 2015 eastern Bering Sea bottom trawl survey.

Stratum	Mean CPUE (kg/ha)	Std. dev. CPUE	Estimated biomass (t)*	Std. dev. biomass	95% Confidence Limit		Total hauls	Hauls with weights	Hauls with counts	Hauls with lengths
					Lower	Upper				
10	92.28	1.26E+01	718,614	9.80E+04	520,544	916,683	58	57	57	57
20	42.52	6.20E+00	174,431	2.54E+04	122,528	226,334	31	31	31	31
31	30.84	6.67E+00	291,494	6.31E+04	165,315	417,673	69	65	65	65
32	25.50	1.22E+01	22,376	1.07E+04	0	47,605	8	6	6	6
41	4.85	1.12E+00	30,420	7.05E+03	16,171	44,669	44	35	35	35
42	67.17	2.13E+01	161,289	5.11E+04	56,947	265,632	31	28	28	28
43	2.51	1.05E+00	5,302	2.23E+03	672	9,933	22	17	17	17
50	0.11	8.60E-02	434	3.34E+02	0	1,121	26	3	3	3
61	0.79	1.86E-01	6,922	1.64E+03	3,614	10,230	60	31	31	31
62	0.67	1.41E-01	433	9.06E+01	211	655	7	7	7	7
82	0.01	1.27E-02	23	2.28E+01	0	73	12	1	1	1
90	0.08	5.44E-02	88	6.29E+01	0	237	8	2	2	2
Total	28.64	2.65E+00	1,411,826	1.30E+05	1,153,562	1,670,091	376	283	283	283

*Differences in sums of estimates and totals are due to rounding.

Table 9b. -- Mean CPUE (no./ha), estimated population, standard error, and 95% confidence limits for **northern rock sole** (*Lepidopsetta polyxystra*) by stratum for the 2015 eastern Bering Sea bottom trawl survey.

Stratum	Mean CPUE (no./ha)	Std. dev. CPUE	Estimated population*	Std. dev. population	95% Confidence Limit Lower	95% Confidence Limit Upper	Total hauls	Hauls with weights	Hauls with counts	Hauls with lengths
10	286.78	4.17E+01	2,233,173,666	3.25E+08	1,576,578,557	2,889,768,777	58	57	57	57
20	97.98	1.48E+01	401,974,615	6.06E+07	278,327,822	525,621,408	31	31	31	31
31	110.37	2.54E+01	1,043,288,954	2.41E+08	562,170,286	1,524,407,622	69	65	65	65
32	63.82	3.54E+01	55,997,018	3.10E+07	0	129,424,540	8	6	6	6
41	9.24	2.17E+00	57,944,281	1.36E+07	30,486,764	85,401,799	44	35	35	35
42	159.82	5.16E+01	383,735,344	1.24E+08	130,654,221	636,816,468	31	28	28	28
43	4.11	1.63E+00	8,680,682	3.44E+06	1,521,461	15,839,903	22	17	17	17
50	0.17	1.40E-01	656,440	5.42E+05	0	1,772,133	26	3	3	3
61	1.14	2.81E-01	10,083,683	2.48E+06	5,070,856	15,096,510	60	31	31	31
62	1.14	1.80E-01	731,254	1.16E+05	448,500	1,014,009	7	7	7	7
82	0.04	4.47E-02	80,308	8.03E+04	0	257,067	12	1	1	1
90	0.13	8.56E-02	146,369	9.90E+04	0	380,435	8	2	2	2
Total	85.14	8.69E+00	4,196,492,614	4.29E+08	3,348,058,940	5,044,926,291	376	283	283	283

*Differences in sums of estimates and totals are due to rounding.

5.3 to 4.2 billion (Table 9b). Spawning and feeding migrations for northern rock sole are poorly understood, but a portion of the population migrate from relatively shallow feeding grounds in the summer to deeper spawning grounds in the winter (Shubnikov and Lisovenko 1964, Fadeev 1965, Nichol and Somerton 2009). The overall peak abundance at length occurred at approximately 30 cm for males and 35 cm for females (Fig. 14).

Flathead Sole (*Hippoglossoides elassodon*)

Flathead sole and Bering flounder are difficult to distinguish from each other based on morphology. Consequently, the accuracy of their identification in commercial fishery data is unknown and the two species are combined into a single stock assessment by the NPFMC (McGilliard et al. 2015). In contrast, BT survey personnel are trained to make reliable field identifications for flathead sole and Bering flounder, and so results herein are presented by species. Despite belonging to the same genus and having a similar appearance, the two species have divergent geographic distributions, although they do co-occur (Figs. 15, 17). Flathead sole were present at 72% of the EBS stations, although highest concentrations were found in the northwest outer shelf and near the Pribilof Islands (Fig. 15). From 2014 to 2015, the biomass estimate decreased from 0.51 to 0.39 million t (Table 10a), and the population estimate decreased from 1.8 to 1.3 billion (Table10b). Flathead sole ranged in length from 3 to 55 cm with most of this size range present throughout the middle and outer shelf (Fig. 16).

Bering Flounder (*Hippoglossoides robustus*)

Bering flounder were most concentrated in the northwest corner of the survey where bottom temperatures were below 0° C (Fig. 17), although their distribution is known to extend

farther north into the Chukchi Sea (Mecklenburg et al. 2007, Lauth 2011). The estimated biomass within the survey area was 26,453 t, an increase of 34% from 2014, whereas the estimated population number remained approximately the same at 183 million (Tables 11a, 11b). The majority of the population inhabited strata 82 and 90, with the population peaking at lengths of 18 cm and 23 cm for males and females, respectively (Fig. 18).

Alaska Plaice (*Pleuronectes quadrituberculatus*)

Alaska plaice were distributed throughout the inner and middle shelf (Fig. 19) but were most concentrated near the 50-60 m isobath. Alaska plaice are well-adapted to sea water temperatures near the freezing point (-1.9° C) because they are capable of synthesizing an antifreeze glycoprotein to prevent ice crystal formation in their blood (Knight et al. 1991). As with Bering flounder, Alaska plaice are distributed north of the survey boundary to the Bering Strait (Lauth 2011). The estimates of biomass (0.36 million t) and population (0.51 billion) decreased by 21% and 22%, respectively, from 2014 estimates (Tables 12a, 12b). Alaska plaice ranged in length from 16 cm to 57 cm, and overall length distributions were similar among strata 10, 20, 30, and 40 (Fig. 20).

Greenland Turbot (*Reinhardtius hippoglossoides*)

Greenland turbot typically are most abundant on the upper continental slope outside of the EBS shelf survey, although juveniles may spend several years on the continental shelf before moving to deeper water (Alton et al. 1988). Greenland turbot were captured at 21% of survey stations, primarily in the northwest part of the middle and outer shelf (Fig. 21). They were mostly absent from the southeast section of the survey area (strata 10, 31, 32, 42, 50), having

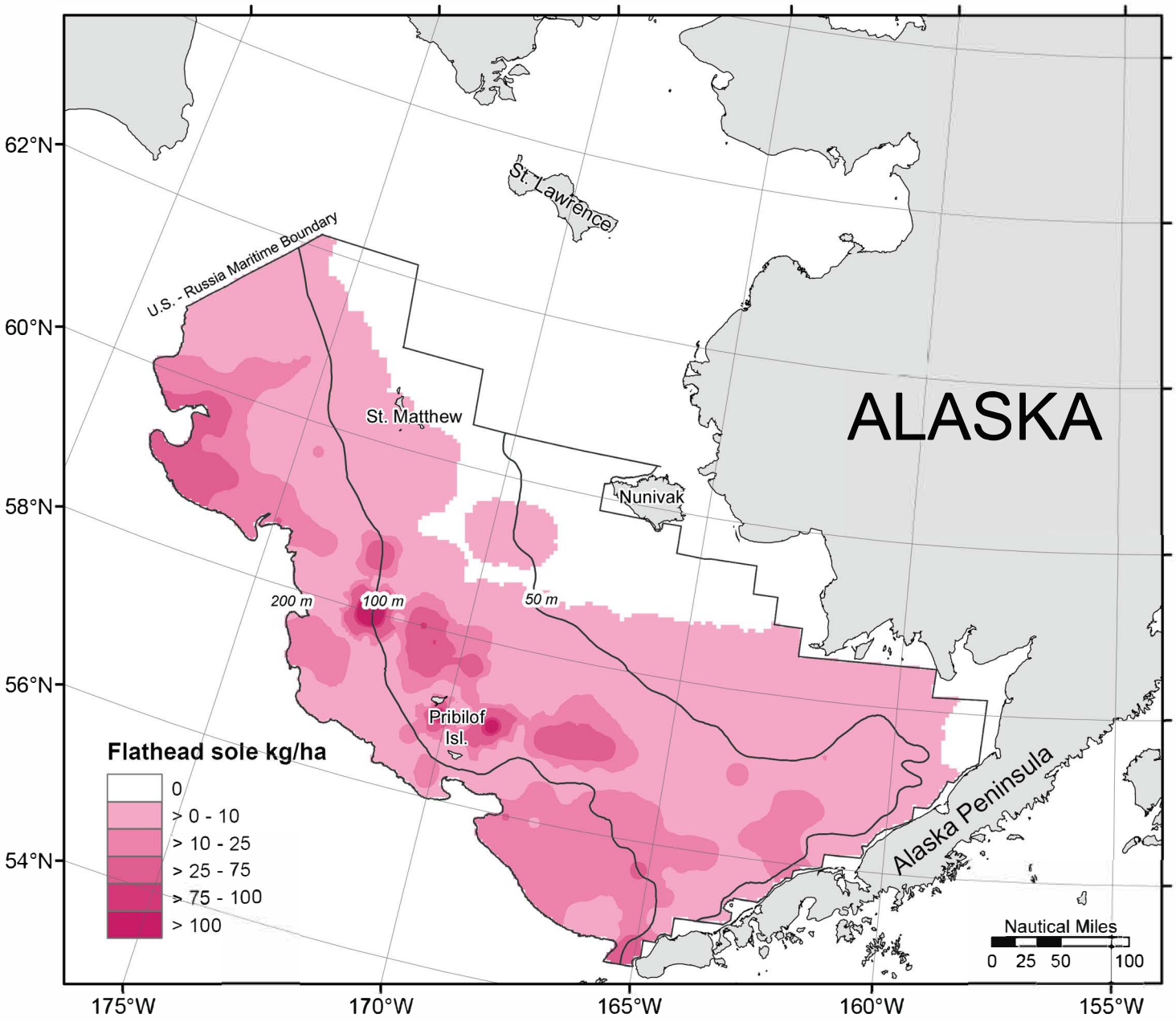

Figure 15. -- Distribution and relative abundance (kg/ha) of **flathead sole** (*Hippoglossoides elassodon*) during the 2015 eastern Bering Sea shelf bottom trawl survey.

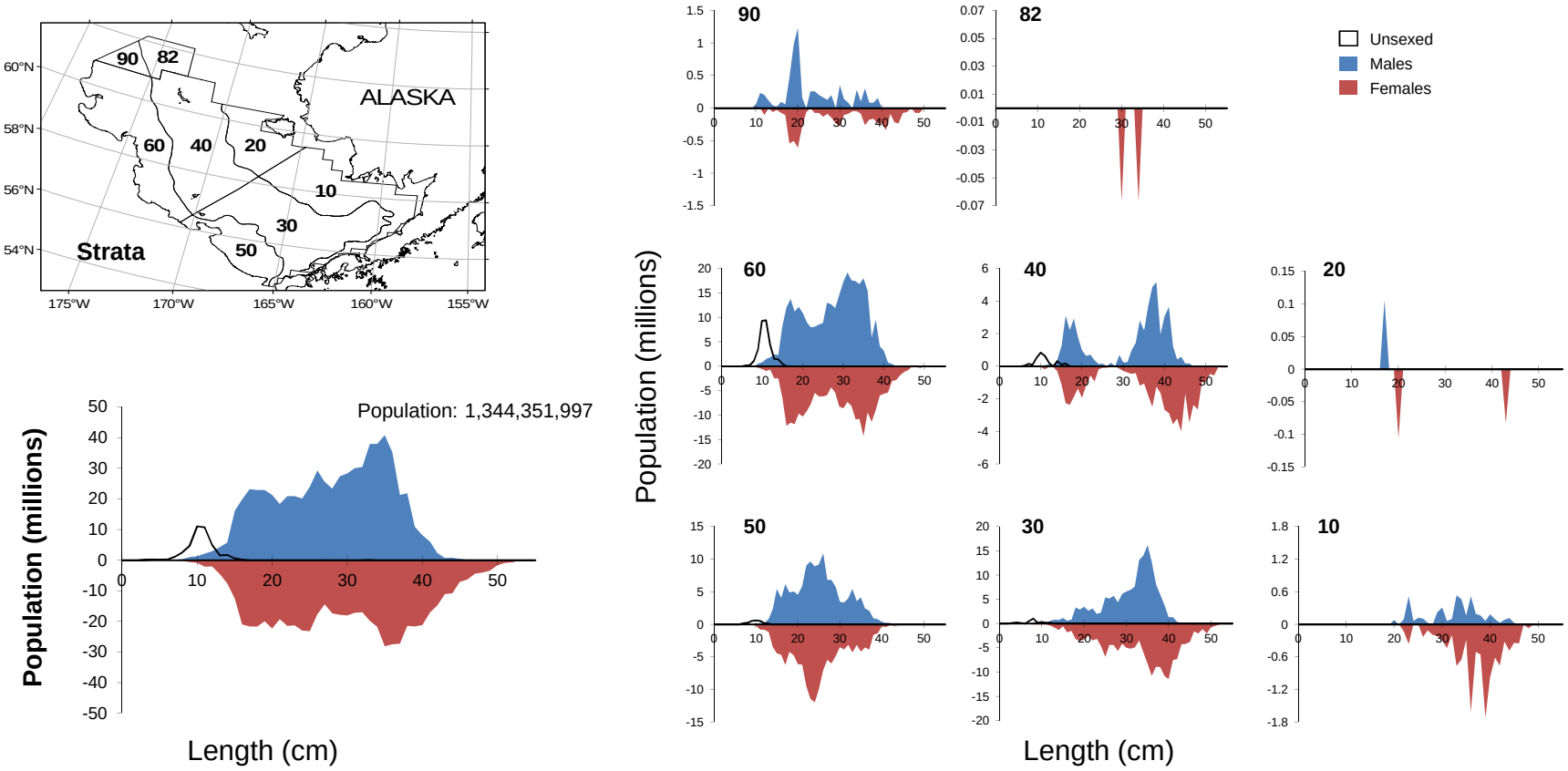

Figure 16. -- Estimated abundance-at-size of **flathead sole** (*Hippoglossoides elassodon*) by sex and stratum during the 2015 eastern Bering Sea shelf bottom trawl survey. Note that each graph may use a different y-axis scale.

Table 10a. -- Mean CPUE (kg/ha), estimated biomass (t), standard error, and 95% confidence limits for **flathead sole** (*Hippoglossoides elassodon*) by stratum for the 2015 eastern Bering Sea bottom trawl survey.

Stratum	Mean CPUE (kg/ha)	Std. dev. CPUE	Estimated biomass (t)*	Std. dev. biomass	95% Confidence Limit		Total hauls	Hauls with weights	Hauls with counts	Hauls with lengths
					Lower	Upper				
10	0.97	2.22E-01	7,559	1.73E+03	4,071	11,047	58	32	32	31
20	0.02	1.74E-02	83	7.14E+01	0	229	31	2	2	2
31	10.66	1.41E+00	100,807	1.33E+04	74,202	127,412	69	68	68	67
32	30.02	1.69E+01	26,338	1.48E+04	0	61,314	8	8	8	8
41	0.89	3.06E-01	5,554	1.92E+03	1,676	9,432	44	14	14	14
42	20.02	5.43E+00	48,076	1.30E+04	21,476	74,677	31	26	26	26
43	1.14	4.51E-01	2,417	9.53E+02	435	4,398	22	17	17	17
50	11.75	1.32E+00	45,567	5.11E+03	35,047	56,086	26	26	26	26
61	16.12	4.16E+00	142,030	3.67E+04	67,903	216,156	60	60	60	60
62	5.82	1.37E+00	3,741	8.78E+02	1,594	5,889	7	7	7	7
82	0.02	2.42E-02	44	4.35E+01	0	139	12	1	1	1
90	2.83	1.15E+00	3,276	1.33E+03	129	6,423	8	8	8	8
Total	7.82	8.95E-01	385,492	4.41E+04	297,246	473,738	376	269	269	267

*Differences in sums of estimates and totals are due to rounding.

Table 10b. -- Mean CPUE (no./ha), estimated population, standard error, and 95% confidence limits for **flathead sole** (*Hippoglossoides elassodon*) by stratum for the 2015 eastern Bering Sea bottom trawl survey.

Stratum	Mean CPUE (no./ha)	Std. dev. CPUE	Estimated population*	Std. dev. population	95% Confidence Limit		Total hauls	Hauls with weights	Hauls with counts	Hauls with lengths
					Lower	Upper				
10	2.12	5.09E-01	16,543,039	3.97E+06	8,528,572	24,557,506	58	32	32	31
20	0.07	5.49E-02	295,154	2.25E+05	0	754,967	31	2	2	2
31	30.03	4.04E+00	283,882,512	3.82E+07	207,413,594	360,351,430	69	68	68	67
32	51.60	2.90E+01	45,274,644	2.54E+07	0	105,449,736	8	8	8	8
41	1.95	5.92E-01	12,196,342	3.71E+06	4,689,087	19,703,598	44	14	14	14
42	31.75	9.57E+00	76,240,946	2.30E+07	29,295,675	123,186,218	31	26	26	26
43	8.93	3.34E+00	18,848,670	7.06E+06	4,169,439	33,527,901	22	17	17	17
50	73.16	8.36E+00	283,788,910	3.24E+07	217,003,378	350,574,442	26	26	26	26
61	65.03	8.95E+00	573,149,932	7.89E+07	413,717,727	732,582,137	60	60	60	60
62	33.50	5.26E+00	21,534,893	3.38E+06	13,259,541	29,810,244	7	7	7	7
82	0.07	7.45E-02	133,847	1.34E+05	0	428,444	12	1	1	1
90	10.77	4.70E+00	12,463,114	5.44E+06	0	25,322,674	8	8	8	8
Total	27.27	2.03E+00	1,344,352,003	1.00E+08	1,144,026,717	1,544,677,289	376	269	269	267

*Differences in sums of estimates and totals are due to rounding.

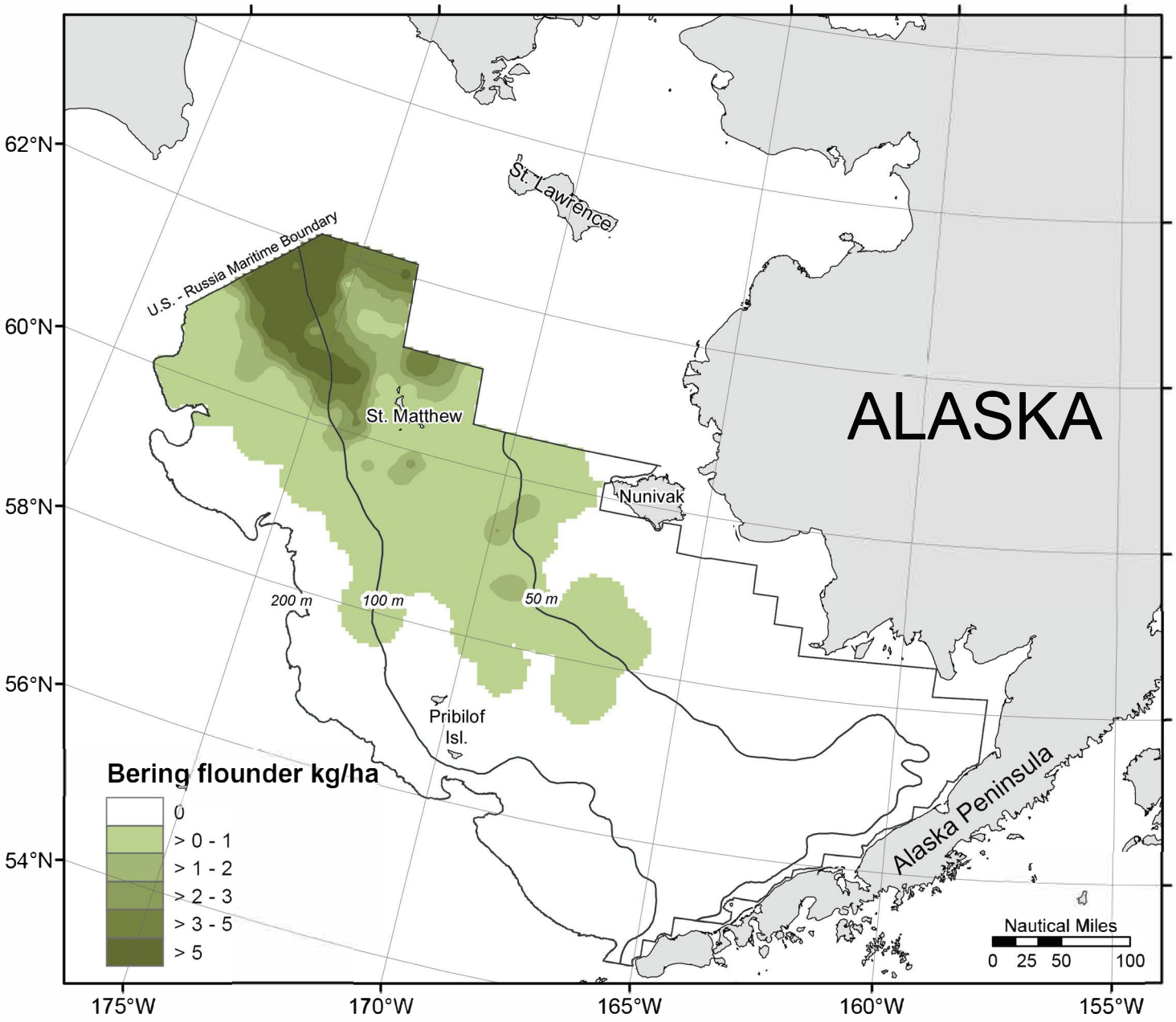

Figure 17. -- Distribution and relative abundance (kg/ha) of **Bering flounder** (*Hippoglossoides robustus*) during the 2015 eastern Bering Sea shelf bottom trawl survey.

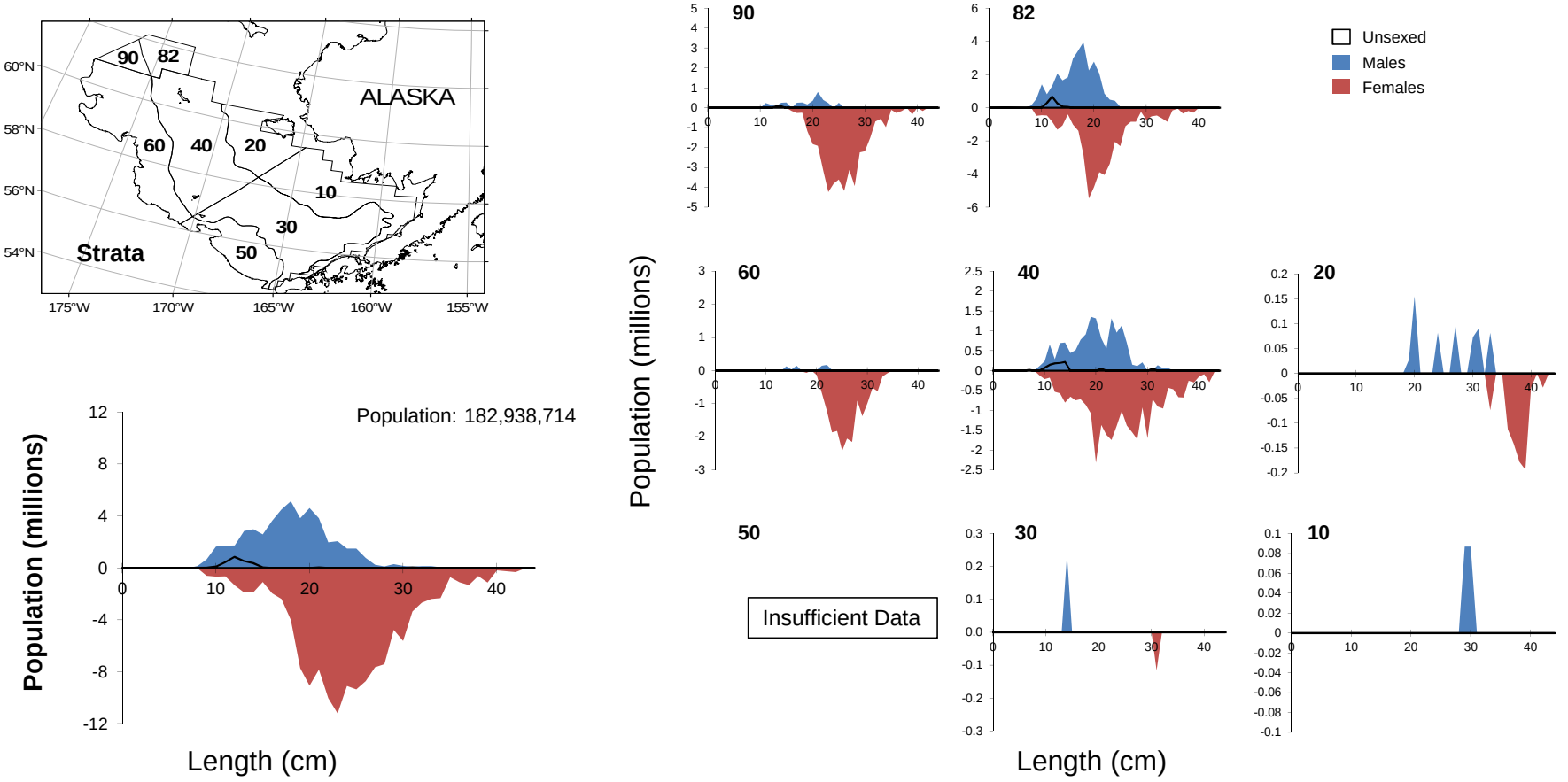

Figure 18. -- Estimated abundance-at-size of **Bering flounder** (*Hippoglossoides robustus*) by sex and stratum during the 2015 eastern Bering Sea shelf bottom trawl survey. Note that each graph may use a different y-axis scale.

Table 11a. -- Mean CPUE (kg/ha), estimated biomass (t), standard error, and 95% confidence limits for **Bering flounder** (*Hippoglossoides robustus*) by stratum for the 2015 eastern Bering Sea bottom trawl survey.

Stratum	Mean CPUE (kg/ha)	Std. dev. CPUE	Estimated biomass (t)*	Std. dev. biomass	95% Confidence Limit		Total hauls	Hauls with weights	Hauls with counts	Hauls with lengths
					Lower	Upper				
10	0.01	5.63E-03	44	4.39E+01	0	132	58	1	1	1
20	0.13	6.07E-02	553	2.49E+02	44	1,062	31	7	7	7
31	0.00	2.72E-03	31	2.57E+01	0	83	69	2	2	2
32	0.00	0.00E+00	0	0.00E+00	0	0	8	0	0	0
41	0.82	2.22E-01	5,169	1.39E+03	2,361	7,976	44	31	31	31
42	0.02	1.08E-02	36	2.60E+01	0	90	31	2	2	2
43	0.91	2.43E-01	1,915	5.12E+02	850	2,980	22	18	18	18
50	0.00	0.00E+00	0	0.00E+00	0	0	26	0	0	0
61	0.29	1.30E-01	2,589	1.15E+03	267	4,911	60	16	16	16
62	1.06	5.34E-01	684	3.44E+02	0	1,524	7	6	6	6
82	3.91	1.17E+00	7,012	2.10E+03	2,401	11,623	12	12	12	12
90	7.28	1.97E+00	8,420	2.27E+03	3,044	13,797	8	8	8	8
Total	0.54	7.39E-02	26,453	3.64E+03	19,020	33,887	376	103	103	103

*Differences in sums of estimates and totals are due to rounding.

Table 11b. -- Mean CPUE (no./ha), estimated population, standard error, and 95% confidence limits for **Bering flounder** (*Hippoglossoides robustus*) by stratum for the 2015 eastern Bering Sea bottom trawl survey.

Stratum	Mean CPUE (no./ha)	Std. dev. CPUE	Estimated population*	Std. dev. population	95% Confidence Limit		Total hauls	Hauls with weights	Hauls with counts	Hauls with lengths
					Lower	Upper				
10	0.02	2.24E-02	174,142	1.74E+05	0	526,083	58	1	1	1
20	0.33	1.54E-01	1,364,116	6.32E+05	73,135	2,655,098	31	7	7	7
31	0.04	2.77E-02	352,010	2.62E+05	0	875,063	69	2	2	2
32	0.00	0.00E+00	0	0.00E+00	0	0	8	0	0	0
41	5.29	1.44E+00	33,146,506	9.05E+06	14,857,842	51,435,170	44	31	31	31
42	0.07	5.18E-02	174,512	1.24E+05	0	428,693	31	2	2	2
43	5.22	1.43E+00	11,027,715	3.02E+06	4,741,051	17,314,378	22	18	18	18
50	0.00	0.00E+00	0	0.00E+00	0	0	26	0	0	0
61	1.62	7.79E-01	14,242,610	6.86E+06	370,476	28,114,743	60	16	16	16
62	5.69	3.09E+00	3,655,573	1.99E+06	0	8,513,441	7	6	6	6
82	41.30	9.05E+00	74,145,278	1.62E+07	38,385,514	109,905,041	12	12	12	12
90	38.60	9.65E+00	44,656,259	1.12E+07	18,248,751	71,063,768	8	8	8	8
Total	3.71	4.68E-01	182,938,720	2.30E+07	135,873,380	230,004,061	376	103	103	103

*Differences in sums of estimates and totals are due to rounding.

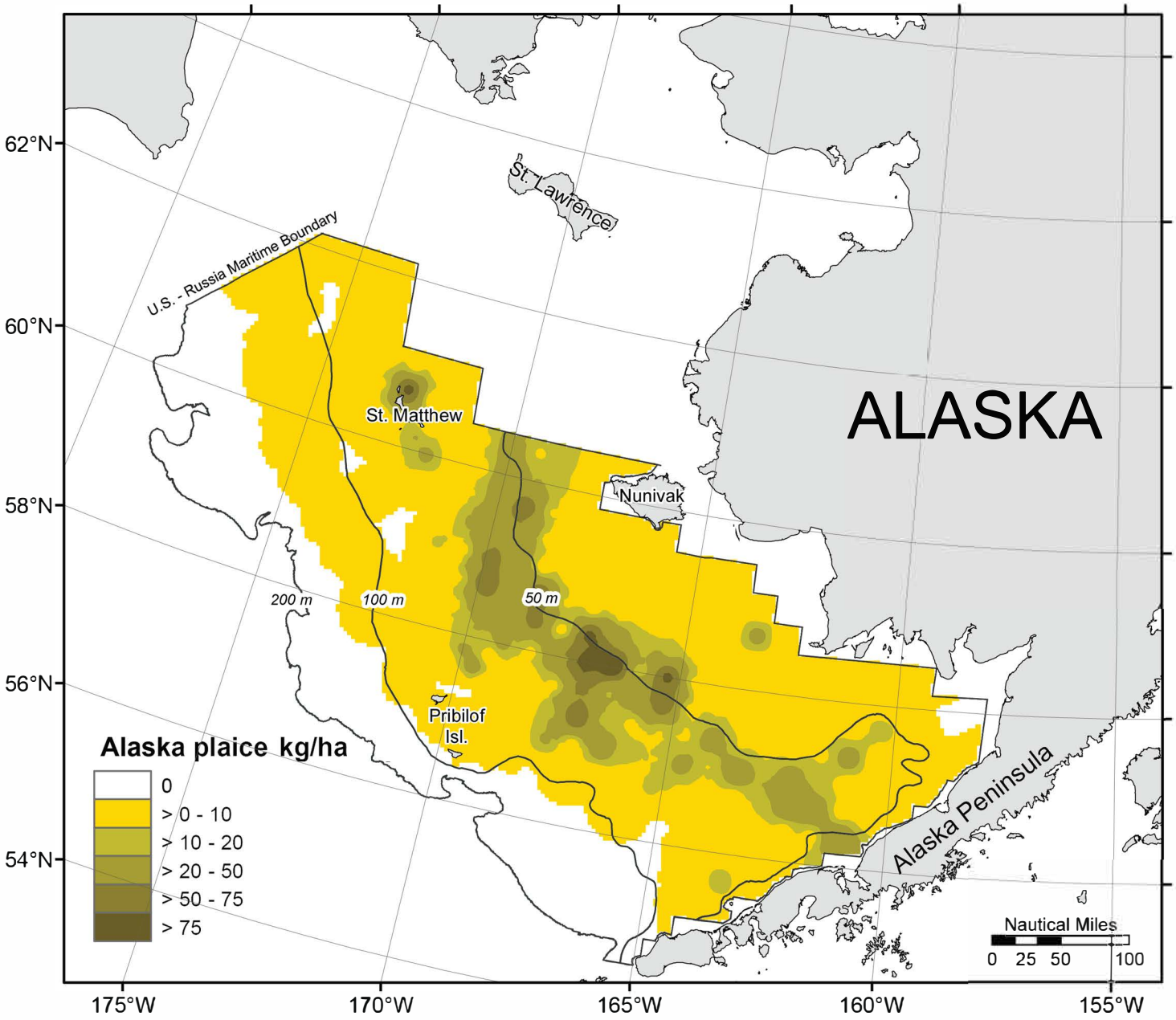

Figure 19. -- Distribution and relative abundance (kg/ha) of **Alaska plaice** (*Pleuronectes quadrituberculatus*) during the 2015 eastern Bering Sea shelf bottom trawl survey.

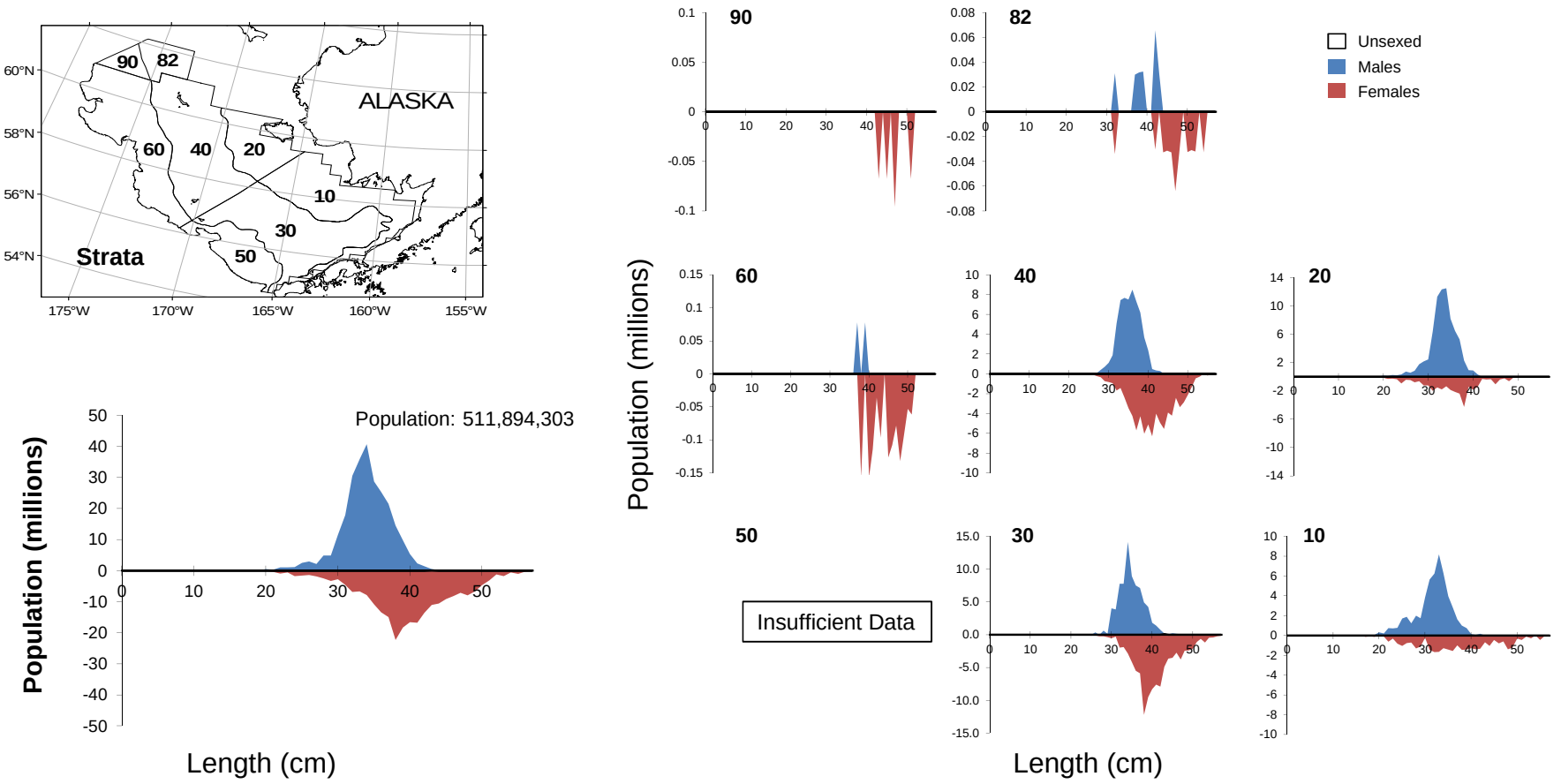

Figure 20. -- Estimated abundance-at-size of **Alaska plaice** (*Pleuronectes quadrituberculatus*) by sex and stratum during the 2015 eastern Bering Sea shelf bottom trawl survey. Note that each graph may use a different y-axis scale.

Table 12a. -- Mean CPUE (kg/ha), estimated biomass (t), standard error, and 95% confidence limits for **Alaska plaice** (*Pleuronectes quadrituberculatus*) by stratum for the 2015 eastern Bering Sea bottom trawl survey.

Stratum	Mean CPUE (kg/ha)	Std. dev. CPUE	Estimated biomass (t)*	Std. dev. biomass	95% Confidence Limit		Total hauls	Hauls with weights	Hauls with counts	Hauls with lengths
					Lower	Upper				
10	5.90	1.73E+00	45,946	1.35E+04	18,759	73,134	58	48	48	48
20	13.67	3.99E+00	56,086	1.64E+04	22,642	89,529	31	31	31	30
31	14.24	2.59E+00	134,578	2.45E+04	85,631	183,526	69	53	53	53
32	0.78	3.92E-01	680	3.44E+02	0	1,494	8	5	5	5
41	15.14	3.27E+00	94,906	2.05E+04	53,465	136,347	44	36	36	36
42	5.03	1.56E+00	12,085	3.74E+03	4,441	19,728	31	17	17	17
43	3.84	1.46E+00	8,114	3.08E+03	1,705	14,523	22	14	14	14
50	0.00	0.00E+00	0	0.00E+00	0	0	26	0	0	0
61	0.19	8.20E-02	1,706	7.23E+02	245	3,168	60	9	9	7
62	0.37	3.02E-01	240	1.94E+02	0	716	7	3	3	3
82	0.42	1.35E-01	746	2.42E+02	214	1,278	12	8	8	8
90	0.48	4.30E-01	552	4.97E+02	0	1,729	8	2	2	2
Total	7.22	7.84E-01	355,640	3.86E+04	279,132	432,149	376	226	226	223

*Differences in sums of estimates and totals are due to rounding.

Table 12b. -- Mean CPUE (no./ha), estimated population, standard error, and 95% confidence limits for **Alaska plaice** (*Pleuronectes quadrituberculatus*) by stratum for the 2015 eastern Bering Sea bottom trawl survey.

Stratum	Mean CPUE (no./ha)	Std. dev. CPUE	Estimated population*	Std. dev. population	95% Confidence Limit		Total hauls	Hauls with weights	Hauls with counts	Hauls with lengths
					Lower	Upper				
10	10.82	2.50E+00	84,255,464	1.95E+07	44,889,122	123,621,806	58	48	48	48
20	26.61	7.46E+00	109,191,012	3.06E+07	46,685,773	171,696,251	31	31	31	30
31	18.53	3.85E+00	175,179,567	3.64E+07	102,371,543	247,987,590	69	53	53	53
32	0.63	3.16E-01	549,621	2.77E+05	0	1,205,325	8	5	5	5
41	19.06	4.40E+00	119,499,637	2.76E+07	63,730,751	175,268,523	44	36	36	36
42	4.99	1.60E+00	11,991,817	3.83E+06	4,166,334	19,817,300	31	17	17	17
43	4.24	1.77E+00	8,959,484	3.73E+06	1,198,770	16,720,198	22	14	14	14
50	0.00	0.00E+00	0	0.00E+00	0	0	26	0	0	0
61	0.14	7.27E-02	1,197,769	6.41E+05	0	2,492,735	60	9	9	7
62	0.25	1.94E-01	163,827	1.25E+05	0	469,387	7	3	3	3
82	0.34	1.01E-01	607,719	1.81E+05	208,629	1,006,809	12	8	8	8
90	0.26	2.31E-01	298,385	2.67E+05	0	930,809	8	2	2	2
Total	10.39	1.19E+00	511,894,302	5.86E+07	395,894,136	627,894,467	376	226	226	223

*Differences in sums of estimates and totals are due to rounding.

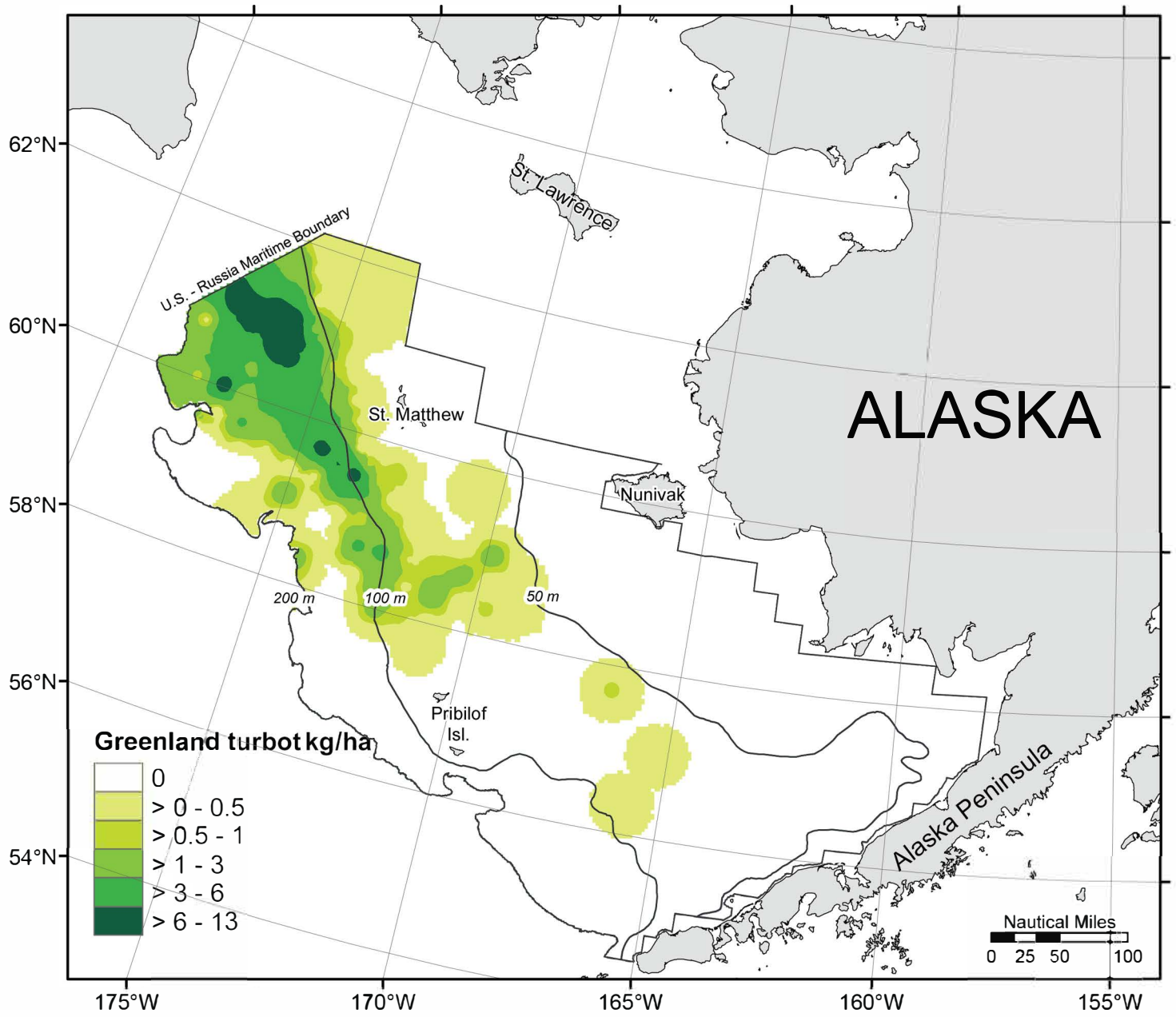

Figure 21. -- Distribution and relative abundance (kg/ha) of **Greenland turbot** (*Reinhardtius hippoglossoides*) during the 2015 eastern Bering Sea shelf bottom trawl survey.

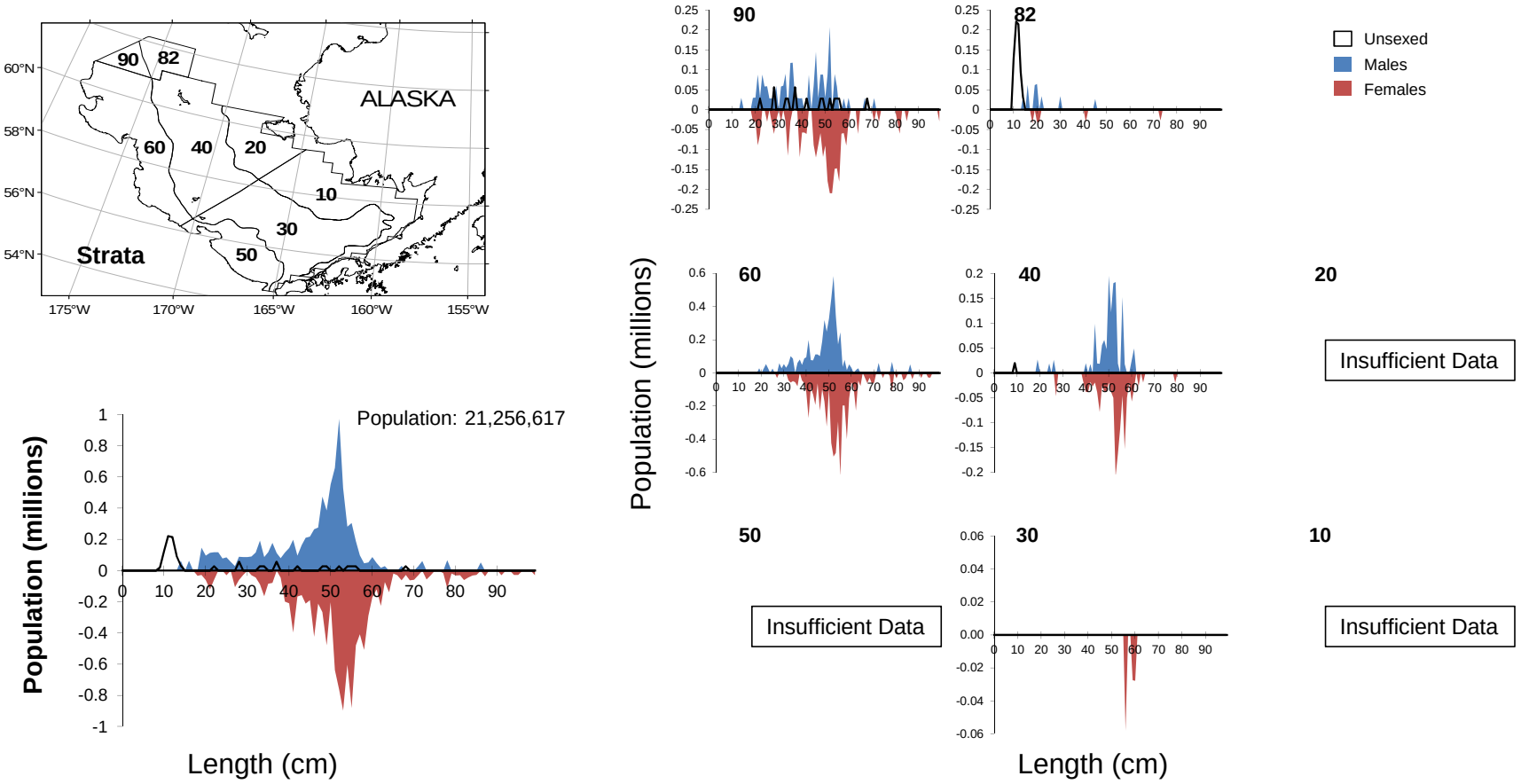

Figure 22. -- Estimated abundance-at-size of **Greenland turbot** (*Reinhardtius hippoglossoides*) by sex and stratum during the 2015 eastern Bering Sea shelf bottom trawl survey. Note that each graph may use a different y-axis scale.

Table 13a. -- Mean CPUE (kg/ha), estimated biomass (t), standard error, and 95% confidence limits for **Greenland turbot** (*Reinhardtius hippoglossoides)* by stratum for the 2015 eastern Bering Sea bottom trawl survey.

Stratum	Mean CPUE (kg/ha)	Std. dev. CPUE	Estimated biomass (t)*	Std. dev. biomass	95% Confidence Limit		Total hauls	Hauls with weights	Hauls with counts	Hauls with lengths
					Lower	Upper				
10	0.00	0.00E+00	0	0.00E+00	0	0	58	0	0	0
20	0.00	0.00E+00	0	0.00E+00	0	0	31	0	0	0
31	0.02	1.25E-02	201	1.18E+02	0	438	69	3	3	3
32	0.00	0.00E+00	0	0.00E+00	0	0	8	0	0	0
41	0.25	7.39E-02	1,552	4.63E+02	616	2,487	44	14	14	14
42	0.02	1.34E-02	46	3.23E+01	0	112	31	2	2	2
43	0.79	3.57E-01	1,660	7.53E+02	94	3,225	22	10	10	10
50	0.00	0.00E+00	0	0.00E+00	0	0	26	0	0	0
61	1.45	2.92E-01	12,792	2.57E+03	7,590	17,993	60	26	26	26
62	4.47	8.39E-01	2,871	5.39E+02	1,552	4,190	7	7	7	7
82	0.11	8.16E-02	196	1.47E+02	0	519	12	8	8	8
90	5.12	1.47E+00	5,923	1.69E+03	1,915	9,931	8	8	8	8
Total	0.51	6.61E-02	25,240	3.26E+03	18,727	31,753	376	78	78	78

*Differences in sums of estimates and totals are due to rounding.

Table 13b. -- Mean CPUE (no./ha), estimated population, standard error, and 95% confidence limits for **Greenland turbot** (*Reinhardtius hippoglossoides*) by stratum for the 2015 eastern Bering Sea bottom trawl survey.

Stratum	Mean CPUE (no./ha)	Std. dev. CPUE	Estimated population*	Std. dev. population	95% Confidence Limit		Total hauls	Hauls with weights	Hauls with counts	Hauls with lengths
					Lower	Upper				
10	0.00	0.00E+00	0	0.00E+00	0	0	58	0	0	0
20	0.00	0.00E+00	0	0.00E+00	0	0	31	0	0	0
31	0.01	7.32E-03	113,268	6.92E+04	0	251,586	69	3	3	3
32	0.00	0.00E+00	0	0.00E+00	0	0	8	0	0	0
41	0.21	5.86E-02	1,305,812	3.67E+05	563,185	2,048,439	44	14	14	14
42	0.01	9.50E-03	32,805	2.28E+04	0	79,404	31	2	2	2
43	0.70	3.06E-01	1,478,167	6.45E+05	135,582	2,820,753	22	10	10	10
50	0.00	0.00E+00	0	0.00E+00	0	0	26	0	0	0
61	1.03	2.39E-01	9,093,804	2.11E+06	4,838,731	13,348,877	60	26	26	26
62	3.79	6.85E-01	2,435,748	4.40E+05	1,358,512	3,512,984	7	7	7	7
82	0.65	1.90E-01	1,162,313	3.40E+05	412,973	1,911,652	12	8	8	8
90	4.87	1.23E+00	5,634,711	1.42E+06	2,274,940	8,994,482	8	8	8	8
Total	0.43	5.49E-02	21,256,629	2.71E+06	15,846,389	26,666,868	376	78	78	78

*Differences in sums of estimates and totals are due to rounding.

been observed in only 5 stations there (Table 13a). The Greenland turbot biomass estimate decreased by 10% from 2014 (Table 13a), while the population estimate decreased by 30% (Table 13b). In 2010, a strong year class was observed as 12-16 cm juveniles (Lauth 2011), and this cohort has been observed in subsequent years as it has recruited to the fishery. The continued decrease in population since 2011 can be attributed in part to the movement of this year class out of the survey area and into slope waters. Fish lengths ranged from 9 to 99 cm, with a small pulse of 10-16 cm juveniles (unsexed) occurring in strata 82 (Fig. 22).

Arrowtooth Flounder (*Atheresthes stomias*)

Arrowtooth flounder are generally a deeper water species, and while they primarily occupy shelf waters until age 4, as individuals mature they extend their range to include slope waters (Spies et al. 2014), thus the shelf survey estimates are not synoptically inclusive of the entire population. As expected, most of biomass (67%) in the survey was observed over the outer shelf in strata 50 and 61 (Fig. 23). The biomass estimate decreased by 12% and the population estimate decreased by 11% from 2014 to 2015 (Tables 14a, 14b). As with all previous years, the females outnumbered males 76% to 24%, with females attaining larger sizes (Fig. 24). This skewness in sex ratio may be attributed to sex-specific differences in natural mortality rates, but the issue requires further research (Zimmermann and Goddard 1996; Spies et al. 2014).

Kamchatka Flounder (*Atheresthes evermanni*)

Kamchatka flounder are similar in appearance to the congeneric arrowtooth flounder (Yang 1988), and it wasn't until 1994 that field characters were established to reliably distinguish between the two species during AFSC BT surveys. The distribution of Kamchatka

flounder (Fig. 25) was very similar to that of arrowtooth flounder (Fig. 23), although Kamchatka flounder were much less abundant. From 2014 to 2015, the Kamchatka flounder biomass estimate increased by 4% (Table 15a) and population estimate increased by 5% (Table 15b). Unlike arrowtooth flounder, the Kamchatka flounder sex ratio was roughly equal to 1 (Fig. 26).

Pacific Halibut (*Hippoglossus stenolepis*)

Management of Pacific halibut stocks is the responsibility of the IPHC, and their stock assessments include all available fisheries and scientific survey data from both the U.S. and Canada. The AFSC EBS BT survey provides annual estimates of biomass, population numbers, and length composition for Pacific halibut on the EBS shelf (Stewart and Martell 2015) as only IPHC personnel can collect otoliths from Pacific halibut, which are otherwise returned to the sea after being measured as unsexed, sexed length data were only obtained on the FV *Alaska Knight*.

Pacific halibut were widely distributed across the shelf, having been captured at 74% of survey stations, but halibut were most concentrated in strata 10 and 20 (Fig. 27). From 2014 to 2015, the biomass estimate within the survey area increased from 171,427 t to 172,237 t (Table 16a), and the population estimate increased from 62.8 million to 64.2 million (Table 16b).

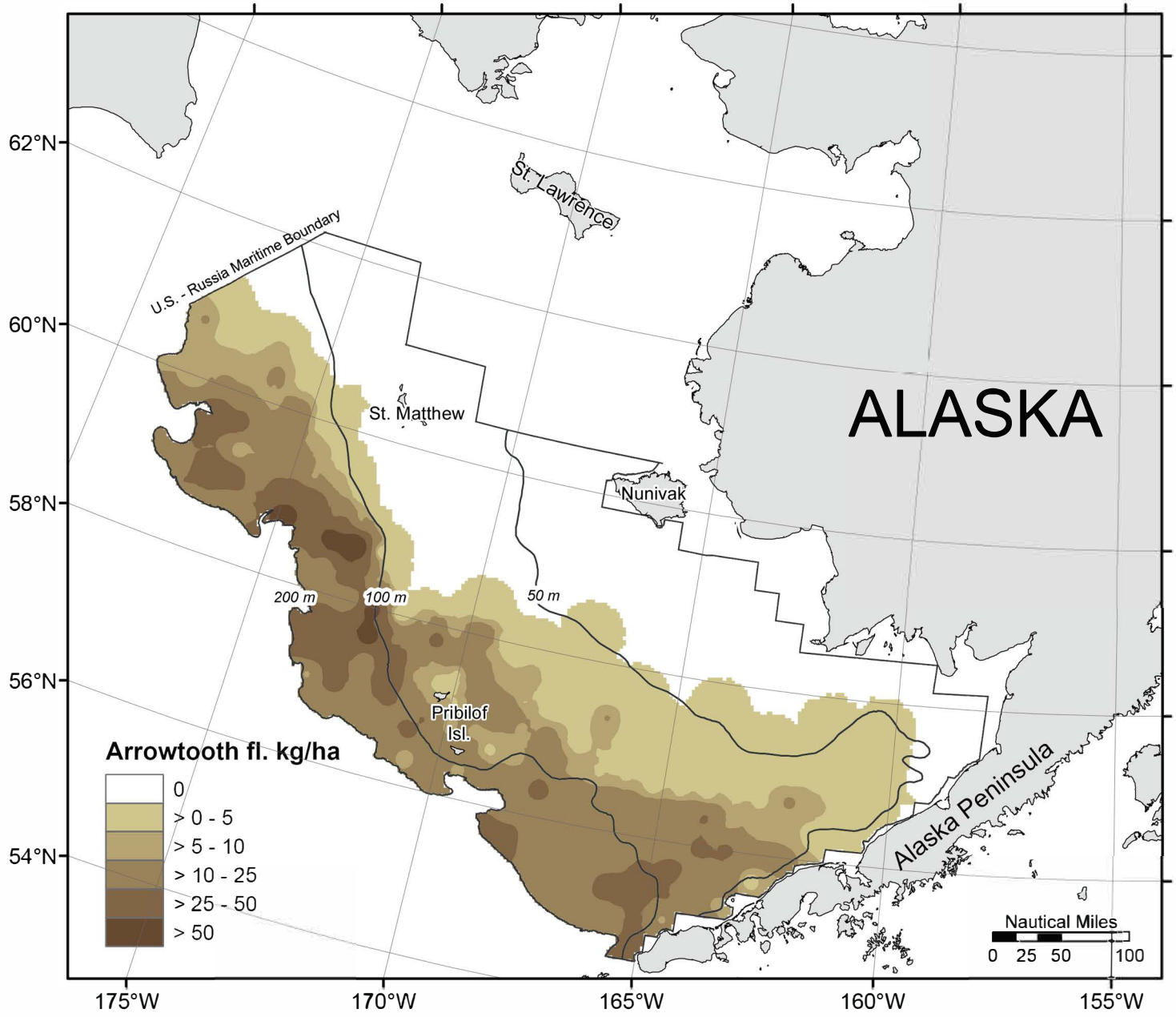

Figure 23. -- Distribution and relative abundance (kg/ha) of **arrowtooth flounder** (*Atheresthes stomias*) during the 2015 eastern Bering Sea shelf bottom trawl survey.

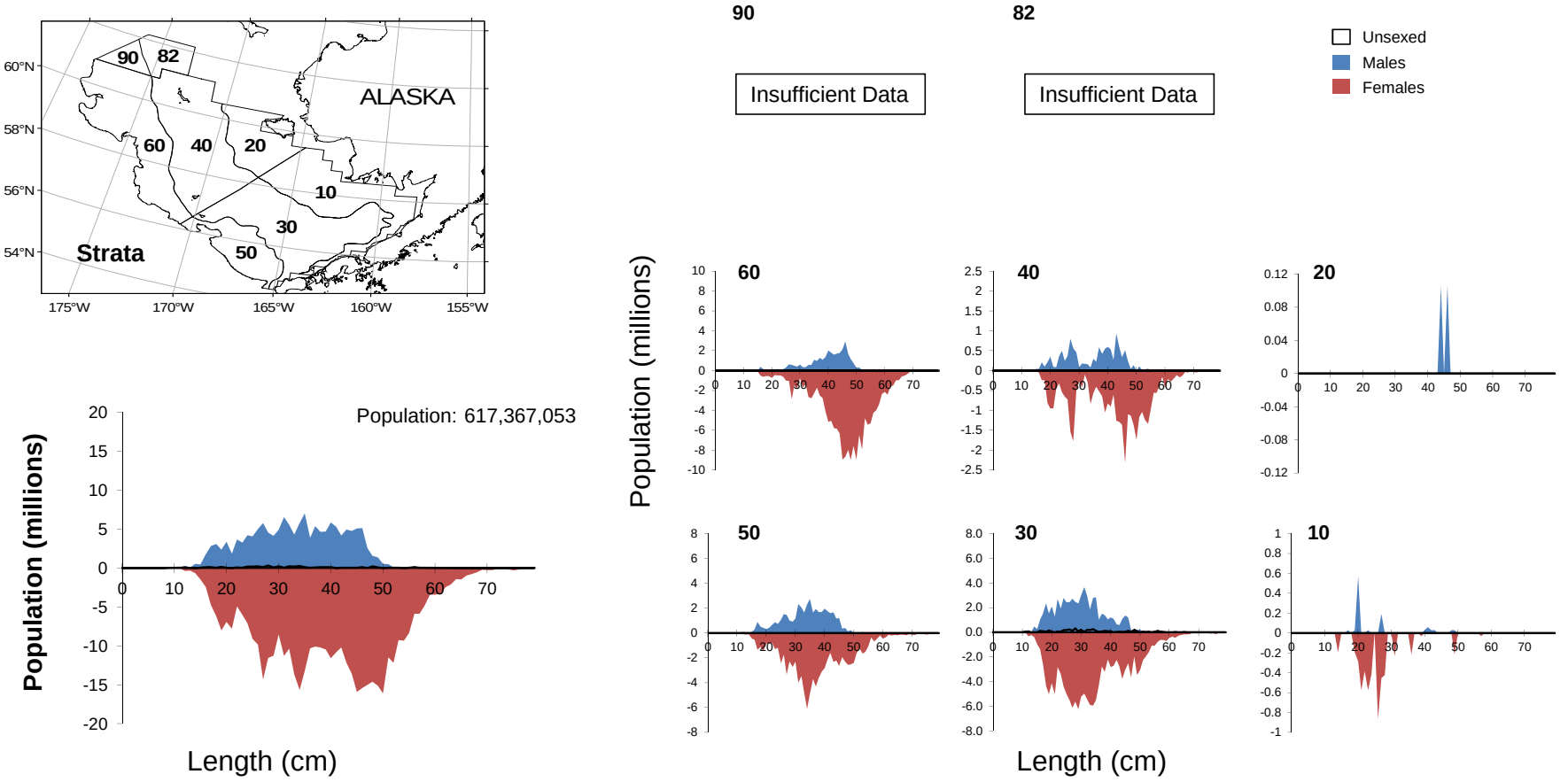

Figure 24. -- Estimated abundance-at-size of **arrowtooth flounder** (*Atheresthes stomias*) by sex and stratum during the 2015 eastern Bering Sea shelf bottom trawl survey. Note that each graph may use a different y-axis scale.

Table 14a. -- Mean CPUE (kg/ha), estimated biomass (t), standard error, and 95% confidence limits for **arrowtooth flounder** (*Atheresthes stomias*) by stratum for the 2015 eastern Bering Sea bottom trawl survey.

Stratum	Mean CPUE (kg/ha)	Std. dev. CPUE	Estimated biomass (t)*	Std. dev. biomass	95% Confidence Limit		Total hauls	Hauls with weights	Hauls with counts	Hauls with lengths
					Lower	Upper				
10	0.16	7.28E-02	1,220	5.67E+02	74	2,366	58	7	7	7
20	0.04	4.41E-02	181	1.81E+02	0	550	31	1	1	1
31	8.64	1.18E+00	81,692	1.11E+04	59,427	103,957	69	63	63	63
32	11.34	2.70E+00	9,948	2.37E+03	4,354	15,543	8	8	8	8
41	1.56	1.12E+00	9,793	7.04E+03	0	24,028	44	3	3	3
42	11.37	1.40E+00	27,292	3.36E+03	20,424	34,161	31	30	30	30
43	0.07	4.79E-02	145	1.01E+02	0	355	22	2	2	2
50	19.64	1.62E+00	76,188	6.28E+03	63,250	89,126	26	26	26	26
61	22.69	2.28E+00	199,996	2.01E+04	159,378	240,615	60	59	59	59
62	4.34	1.74E+00	2,787	1.12E+03	55	5,519	7	6	6	6
82	0.00	0.00E+00	0	0.00E+00	0	0	12	0	0	0
90	0.00	0.00E+00	0	0.00E+00	0	0	8	0	0	0
Total	8.30	5.11E-01	409,243	2.52E+04	359,331	459,155	376	205	205	205

*Differences in sums of estimates and totals are due to rounding.

Table 14b. -- Mean CPUE (no./ha), estimated population, standard error, and 95% confidence limits for **arrowtooth flounder** (*Atheresthes stomias*) by stratum for the 2015 eastern Bering Sea bottom trawl survey.

Stratum	Mean CPUE (no./ha)	Std. dev. CPUE	Estimated population*	Std. dev. population	95% Confidence Limit		Total hauls	Hauls with weights	Hauls with counts	Hauls with lengths
					Lower	Upper				
10	0.79	5.15E-01	6,139,308	4.01E+06	0	14,250,458	58	7	7	7
20	0.05	5.17E-02	212,081	2.12E+05	0	645,152	31	1	1	1
31	20.66	3.21E+00	195,306,926	3.04E+07	134,586,864	256,026,989	69	63	63	63
32	27.38	1.47E+01	24,026,524	1.29E+07	0	54,608,359	8	8	8	8
41	1.36	1.02E+00	8,558,756	6.40E+06	0	21,499,915	44	3	3	3
42	17.01	2.36E+00	40,834,927	5.67E+06	29,260,380	52,409,474	31	30	30	30
43	0.04	2.55E-02	77,884	5.37E+04	0	189,676	22	2	2	2
50	36.37	2.83E+00	141,104,833	1.10E+07	118,507,739	163,701,928	26	26	26	26
61	22.59	2.34E+00	199,126,774	2.06E+07	157,505,873	240,747,674	60	59	59	59
62	3.08	1.26E+00	1,979,024	8.09E+05	0	3,959,411	7	6	6	6
82	0.00	0.00E+00	0	0.00E+00	0	0	12	0	0	0
90	0.00	0.00E+00	0	0.00E+00	0	0	8	0	0	0
Total	12.53	8.42E-01	617,367,039	4.15E+07	533,171,150	699,562,928	376	205	205	205

*Differences in sums of estimates and totals are due to rounding.

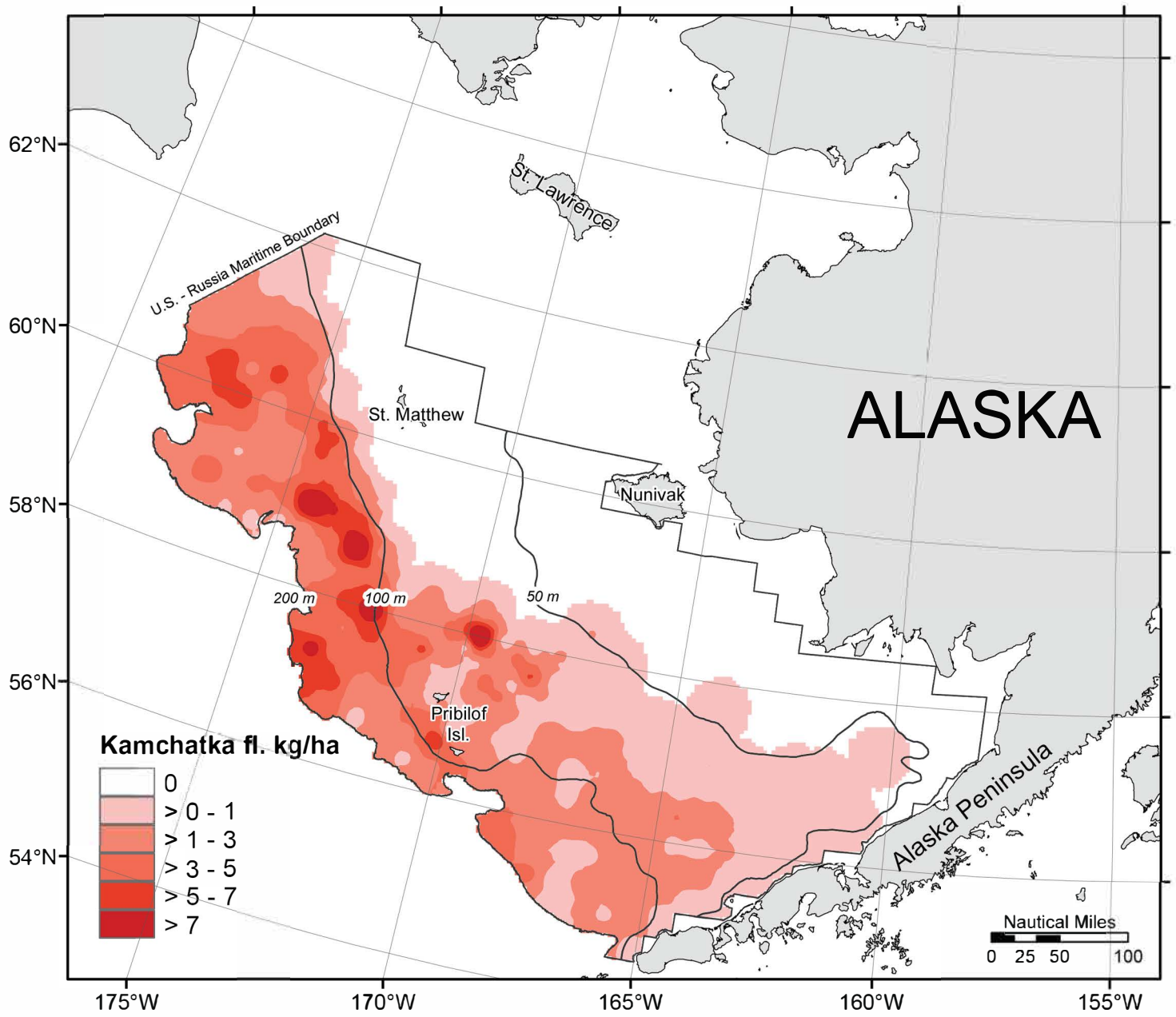

Figure 25. -- Distribution and relative abundance (kg/ha) of **Kamchatka flounder** (*Atheresthes evermanni*) during the 2015 eastern Bering Sea shelf bottom trawl survey.

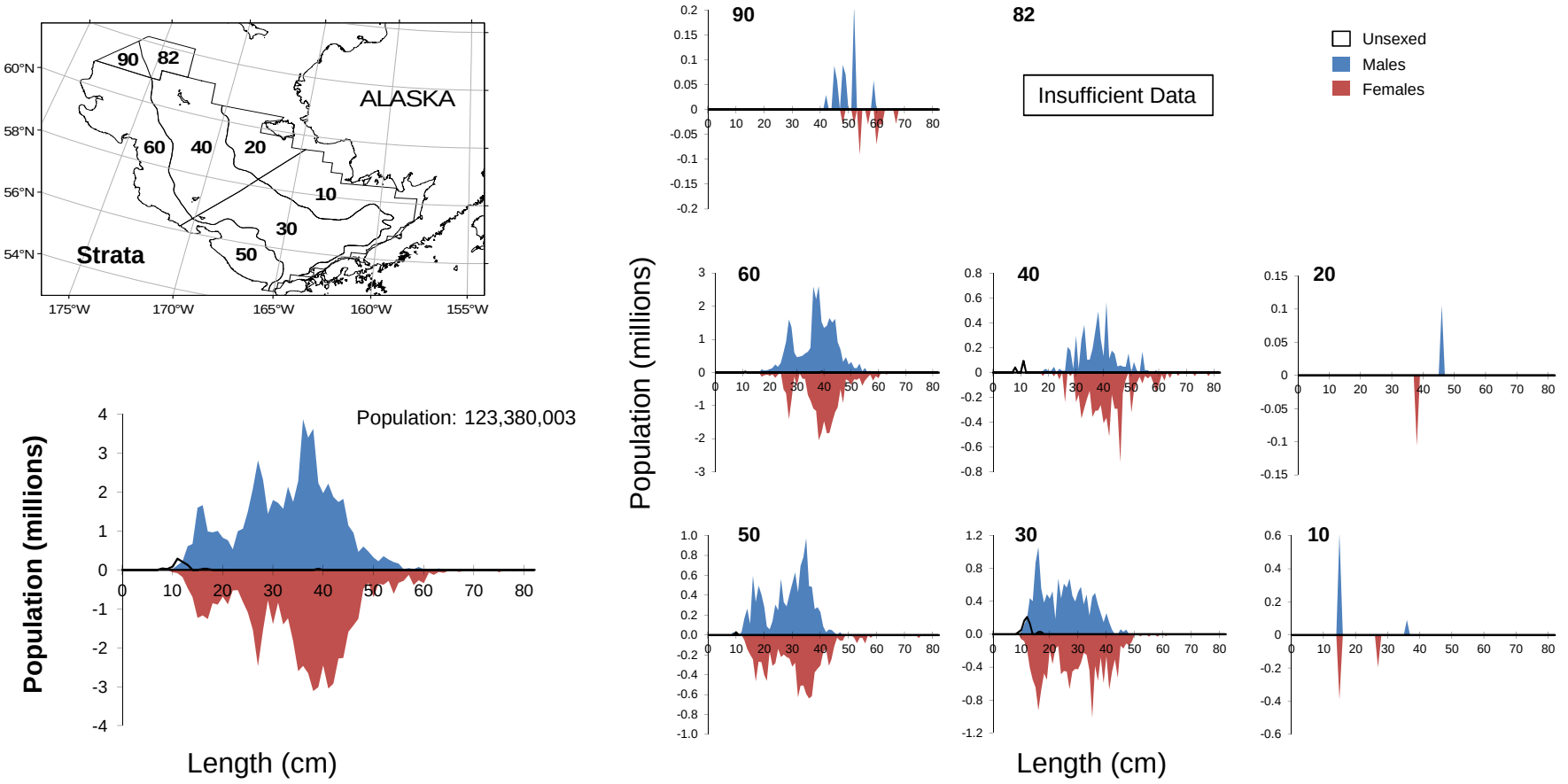

Figure 26. -- Estimated abundance-at-size of **Kamchatka flounder** (*Atheresthes evermanni*) by sex and stratum during the 2015 eastern Bering Sea shelf bottom trawl survey. Note that each graph may use a different y-axis scale.

Table 15a. -- Mean CPUE (kg/ha), estimated biomass (t), standard error, and 95% confidence limits for **Kamchatka flounder** (*Atheresthes evermanni*) by stratum for the 2015 eastern Bering Sea bottom trawl survey.

Stratum	Mean CPUE (kg/ha)	Std. dev. CPUE	Estimated biomass (t)*	Std. dev. biomass	95% Confidence Limit		Total hauls	Hauls with weights	Hauls with counts	Hauls with lengths
					Lower	Upper				
10	0.01	8.99E-03	111	7.00E+01	0	252	58	3	3	3
20	0.04	3.51E-02	144	1.44E+02	0	438	31	1	1	1
31	0.71	1.04E-01	6,698	9.79E+02	4,740	8,656	69	50	50	50
32	1.15	3.43E-01	1,006	3.01E+02	295	1,717	8	7	7	7
41	0.35	1.48E-01	2,175	9.31E+02	294	4,057	44	6	6	6
42	2.52	4.93E-01	6,060	1.18E+03	3,643	8,478	31	26	26	25
43	0.31	1.71E-01	650	3.61E+02	0	1,401	22	3	3	3
50	1.70	2.07E-01	6,606	8.04E+02	4,950	8,262	26	26	26	26
61	3.70	3.17E-01	32,638	2.79E+03	26,998	38,278	60	60	60	60
62	4.12	6.76E-01	2,651	4.35E+02	1,587	3,715	7	7	7	7
82	0.00	0.00E+00	0	0.00E+00	0	0	12	0	0	0
90	1.38	3.42E-01	1,592	3.96E+02	657	2,528	8	7	7	7
Total	1.22	7.10E-02	60,331	3.50E+03	53,401	67,261	376	196	196	195

*Differences in sums of estimates and totals are due to rounding.

Table 15b. -- Mean CPUE (no./ha), estimated population, standard error, and 95% confidence limits for **Kamchatka flounder** (*Atheresthes evermanni*) by stratum for the 2015 eastern Bering Sea bottom trawl survey.

Stratum	Mean CPUE (no./ha)	Std. dev. CPUE	Estimated population*	Std. dev. population	95% Confidence Limit		Total hauls	Hauls with weights	Hauls with counts	Hauls with lengths
					Lower	Upper				
10	0.17	1.13E-01	1,288,954	8.80E+05	0	3,068,367	58	3	3	3
20	0.05	5.17E-02	212,081	2.12E+05	0	645,152	31	1	1	1
31	2.87	4.30E-01	27,172,250	4.07E+06	19,039,762	35,304,737	69	50	50	50
32	3.84	1.91E+00	3,372,422	1.68E+06	0	7,344,573	8	7	7	7
41	0.34	1.51E-01	2,123,527	9.50E+05	203,953	4,043,100	44	6	6	6
42	4.13	7.90E-01	9,926,927	1.90E+06	6,053,622	13,800,232	31	26	26	25
43	0.16	8.99E-02	341,606	1.90E+05	0	736,266	22	3	3	3
50	5.69	7.60E-01	22,066,199	2.95E+06	15,990,503	28,141,894	26	26	26	26
61	6.10	6.78E-01	53,742,801	5.98E+06	41,658,973	65,826,629	60	60	60	60
62	3.40	6.46E-01	2,187,809	4.15E+05	1,171,137	3,204,481	7	7	7	7
82	0.00	0.00E+00	0	0.00E+00	0	0	12	0	0	0
90	0.82	2.13E-01	945,443	2.46E+05	363,503	1,527,383	8	7	7	7
Total	2.50	1.69E-01	123,380,018	8.33E+06	106,866,074	139,873,962	376	196	196	195

*Differences in sums of estimates and totals are due to rounding.

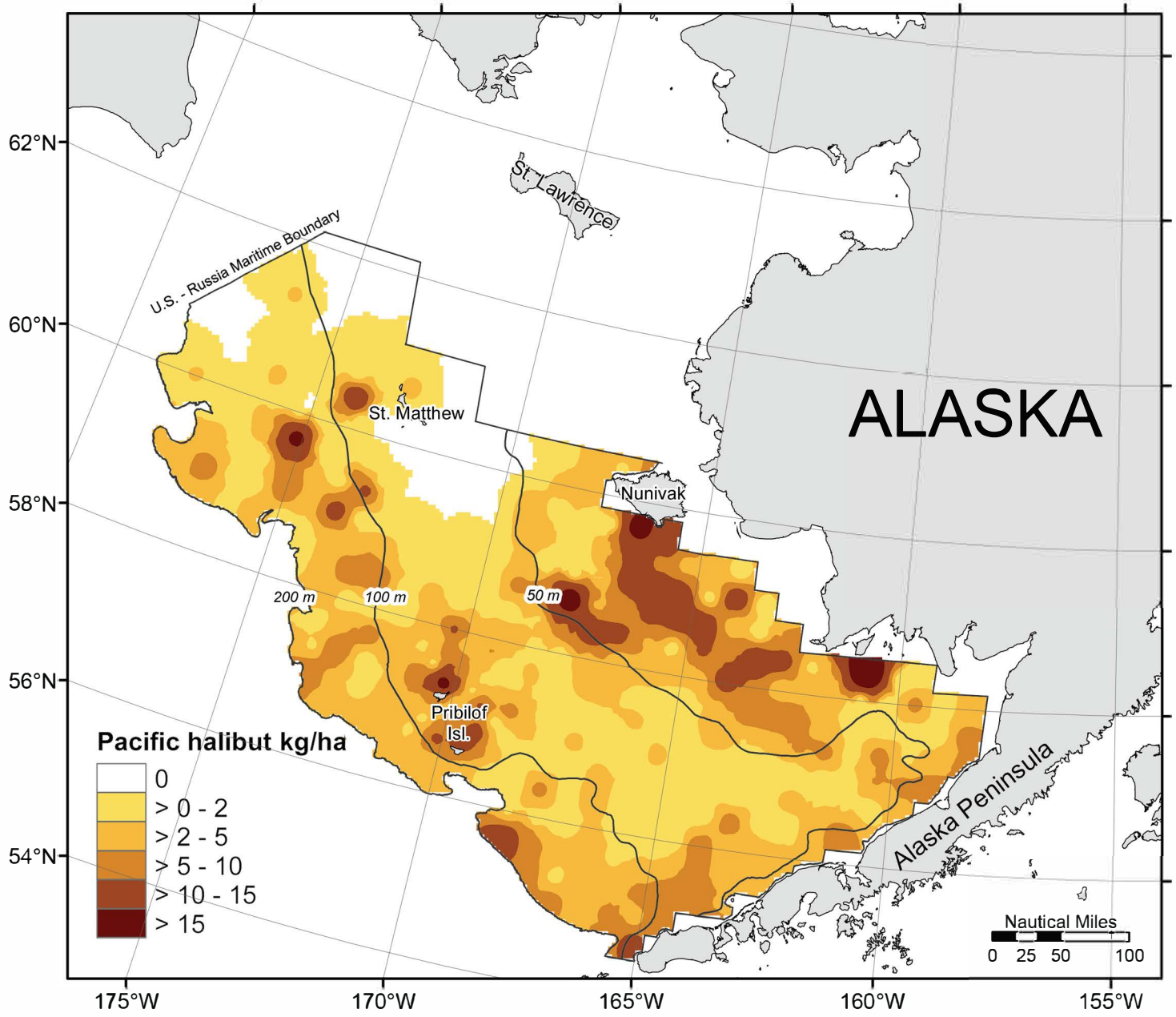

Figure 27. -- Distribution and relative abundance (kg/ha) of **Pacific halibut** (*Hippoglossus stenolepis*) during the 2015 eastern Bering Sea shelf bottom trawl survey.

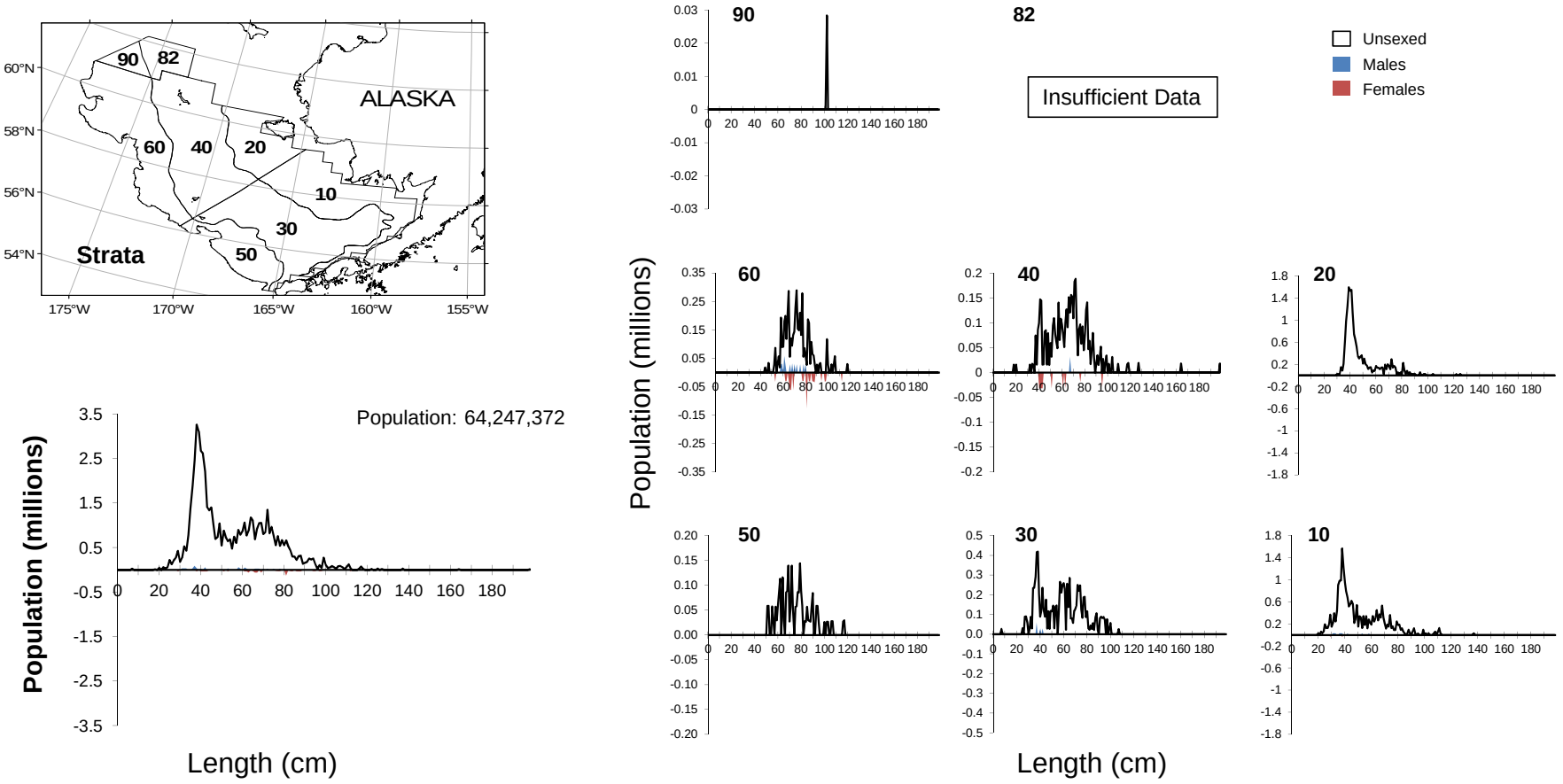

Figure 28. -- Estimated abundance-at-size of **Pacific halibut** (*Hippoglossus stenolepis*) by sex and stratum during the 2015 eastern Bering Sea shelf bottom trawl survey. Note that each graph may use a different y-axis scale.

Table 16a. -- Mean CPUE (kg/ha), estimated biomass (t), standard error, and 95% confidence limits for **Pacific halibut** (*Hippoglossus stenolepis*) by stratum for the 2015 eastern Bering Sea bottom trawl survey.

Stratum	Mean CPUE (kg/ha)	Std. dev. CPUE	Estimated biomass (t)*	Std. dev. biomass	95% Confidence Limit		Total hauls	Hauls with weights	Hauls with counts	Hauls with lengths
					Lower	Upper				
10	6.20	1.12E+00	48,312	8.74E+03	30,644	65,980	58	54	54	54
20	7.01	1.72E+00	28,778	7.06E+03	14,372	43,185	31	27	27	27
31	2.40	3.30E-01	22,650	3.12E+03	16,412	28,887	69	59	59	59
32	5.43	1.87E+00	4,764	1.64E+03	876	8,652	8	7	7	7
41	0.95	2.75E-01	5,964	1.72E+03	2,478	9,449	44	21	21	21
42	5.25	1.06E+00	12,612	2.55E+03	7,399	17,824	31	30	30	30
43	2.20	1.12E+00	4,634	2.37E+03	0	9,558	22	7	7	7
50	3.71	7.47E-01	14,399	2.90E+03	8,430	20,367	26	23	23	23
61	3.32	6.13E-01	29,293	5.40E+03	18,375	40,211	60	47	47	47
62	0.71	4.19E-01	455	2.69E+02	0	1,114	7	4	4	4
82	0.00	0.00E+00	0	0.00E+00	0	0	12	0	0	0
90	0.33	3.26E-01	377	3.77E+02	0	1,267	8	1	1	1
Total	3.49	2.81E-01	172,237	1.38E+04	144,836	199,638	376	280	280	280

*Differences in sums of estimates and totals are due to rounding.

Table 16b. -- Mean CPUE (no./ha), estimated population, standard error, and 95% confidence limits for **Pacific halibut** (*Hippoglossus stenolepis*) by stratum for the 2015 eastern Bering Sea bottom trawl survey.

Stratum	Mean CPUE (no./ha)	Std. dev. CPUE	Estimated population*	Std. dev. population	95% Confidence Limit		Total hauls	Hauls with weights	Hauls with counts	Hauls with lengths
					Lower	Upper				
10	3.03	4.40E-01	23,586,697	3.42E+06	16,666,675	30,506,719	58	54	54	54
20	4.29	1.63E+00	17,603,897	6.67E+06	3,983,295	31,224,499	31	27	27	27
31	0.88	1.84E-01	8,344,740	1.74E+06	4,865,748	11,823,732	69	59	59	59
32	1.06	4.37E-01	932,970	3.83E+05	26,860	1,839,079	8	7	7	7
41	0.26	7.66E-02	1,660,266	4.80E+05	689,280	2,631,253	44	21	21	21
42	1.39	3.26E-01	3,346,215	7.83E+05	1,746,487	4,945,943	31	30	30	30
43	0.09	3.13E-02	190,720	6.61E+04	53,326	328,113	22	7	7	7
50	0.66	1.51E-01	2,542,405	5.87E+05	1,332,921	3,751,889	26	23	23	23
61	0.67	1.11E-01	5,904,572	9.75E+05	3,934,015	7,875,129	60	47	47	47
62	0.17	7.69E-02	106,489	4.94E+04	0	227,446	7	4	4	4
82	0.00	0.00E+00	0	0.00E+00	0	0	12	0	0	0
90	0.02	2.46E-02	28,400	2.84E+04	0	95,565	8	1	1	1
Total	1.30	1.59E-01	64,247,371	7.84E+06	48,715,242	79,779,500	376	280	280	280

*Differences in sums of estimates and totals are due to rounding.

ACKNOWLEDGMENTS

Recognition and appreciation is extended to the captains, crew, vessel managers, and parent corporations of the FV *Vesteraalen* and FV *Alaska Knight*. Without their cooperation, expertise, goodwill, safety-mindedness, and sacrifice, this survey would not be possible. Great appreciation is also extended to all the scientists, researchers, and interns who worked tirelessly aboard each vessel to complete the survey in a safe and successful manner. We also thank the survey support team who provided us with technical and scientific equipment. Finally, we extend appreciation to the reviewers, whose excellent comments and suggestions, greatly improved this document.

CITATIONS

Alton, M. S., R. G. Bakkala, G. E. Walters, and P. T. Munro. 1988. Greenland turbot *Reinhardtius hippoglossoides* of the eastern Bering Sea and Aleutian Islands region. U.S. Dep. Commer., NOAA Tech. Rep. NMFS 71, 31 p.

Alverson, D. L., and W. T. Pereyra. 1969. Demersal fish explorations in the northeast Pacific Ocean--An evaluation of exploratory fishing methods and analytical approaches to stock size and yield forecasts. J. Fish. Res. Board Can. 26:1985-2001.

Bakkala, R. G. 1993. Structure and historical changes in the groundfish complex of the eastern Bering Sea. U.S. Dep. Commer., NOAA Tech. Rep. NMFS-114, 91 p.

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.

Conner, J. D.E. Stevenson, and R.R. Lauth. 2017. Results of the 2014 eastern and northern Bering Sea continental shelf bottom trawl survey of groundfish and invertebrate resources. U.S. Dep. Commer. NOAA Tech. Memo. NMFS-AFSC-350,154 p.

Courcelles, D. 2012. Re-evaluation of the length-weight relationship of Pacific halibut (*Hippoglossus stenolepis*), p. 459-470. *In* Report of Assessment and Research Activities 2011. Int. Pac. Halibut Comm. Seattle, WA.

Daly, B. J., C. E. Armistead, and R. J. Foy. 2016. The 2016 eastern Bering Sea continental shelf bottom trawl survey: Results for commercial crab species. U. S. Dep. Commer., NOAA

Tech. Memo. NMFS-AFSC-327, 167 p.

Fadeev, N.S. 1965. Comparative outline of the biology of flatfishes in the southeastern part of the Bering Sea and condition of their resources, p. 112-129. Translated by Isr. Prog. Sci. Trans., 1968. *In* P.A. Moiseev (editor), Soviet fisheries investigations in the northeast Pacific, Part 4. [Available from U.S. Dep. Commer., Natl. Tech. Inf. Serv., Springfield, VA, as TT 67-51206].

Hoff, G. R. 2013. Results of the 2012 eastern Bering Sea upper continental slope survey of groundfish and invertebrate resources. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-258, 268 p.

Hoff, G.R. and L. L. Britt. 2011. Results of the 2010 Eastern Bering Sea upper continental slope survey of groundfish and invertebrate resources. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-224, 300 p.

Ianelli, J. N., T. Honkalehto, S. Barbeaux, and S. Kotwicki. 2015. Chapter 1. Assessment of the walleye pollock stock in the Eastern Bering Sea, p. 53-152. *In* Stock Assessment and Fishery Evaluation Report for the Groundfish Resources of the Bering Sea/Aleutian Islands Regions, November 2015. North Pacific Fishery Management Council, Anchorage, AK.

Knight, C. A., C. C. Cheng, and D. A. DeVries. 1991. Adsorption of alpha-helical antifreeze peptides on specific ice crystal planes. Biophys. J. 59:409-418.

Lauth, R.R. 2011. Results of the 2010 eastern and northern Bering Sea continental shelf bottom trawl survey of groundfish and invertebrate resources. U.S. Dep. Commer. NOAA Tech. Memo. NMFS-AFSC-227, 256 p.

McGilliard, C.R., 2015. Chapter 9. Assessment of the flathead sole-Bering flounder stock in the Bering Sea and Aleutian Islands, p. 1035-1040. *In* Stock Assessment and Fishery Evaluation Report for the Groundfish Resources of the Bering Sea/Aleutian Islands Regions, November 2015. North Pacific Fishery Management Council, Anchorage, AK.

Mecklenburg, C. W., D. L. Stein, B. A. Sheiko, N. V. Chernova, T. A. Mecklenburg, and B. A. Holladay. 2007. Russian-American long-term census of the Arctic: Benthic fishes trawled in the Chukchi Sea and Bering Strait, August 2004. Northwest. Nat. 88, 168–187.

Nichol, D. G., and D. A. Somerton. 2009. Evidence of the selection of tidal streams by northern rock sole (*Lepidopsetta polyxystra*) for transport in the eastern Bering Sea. Fish. Bull., U.S. 107:221-234.

NPFMC. 2015. Stock Assessment and Fishery Evaluation Report for the Groundfish Resources of the Bering Sea/Aleutian Islands Regions. North Pacific Fishery Management Council 605 West 4th Ave, Suite 306. Anchorage, AK 99501. 1270 p.

Pereyra, W. T., J. E. Reeves, and R. G. Bakkala. 1976. Demersal fish and shellfish resources of the eastern Bering Sea in the baseline year 1975. NWAFC Processed Rep., 619 p. Available from Alaska Fish. Sci. Cent., NOAA, Natl. Mar. Fish. Serv., 7600 Sand Point Way NE, Seattle, WA 98115-6349.

Shubnikov, D. A., and L. A. Lisovenko. 1964. Data on the biology of rock sole of the southeastern Bering Sea, p. 220-226. Translated by Isr. Prog. Sci. Trans., 1968. *In* P.A. Moiseev, (editor), Soviet fisheries investigations in the northeast Pacific, Part 2.

[Available from U.S. Dep. Commer., Natl. Tech. Inf. Serv., Springfield, VA, as TT 67-51204].

Smith, G. B., and R. G. Bakkala. 1982. Demersal fish resources of the eastern Bering Sea: Spring 1976. U.S. Dep. Commer., NOAA Tech. Rep. NMFS SSRF-754, 129 p.

Spies, I., T. K. Wilderbuer, D. G. Nichol, and K. Aydin. 2014. Chapter 6. Assessment of the arrowtooth flounder stock in the Eastern Bering Sea and Aleutian Islands, p. 921-1012. *In* Stock Assessment and Fishery Evaluation Report for the Groundfish Resources of the Bering Sea/Aleutian Islands Regions, November 2014. North Pacific Fishery Management Council, Anchorage, AK.

Stauffer, G. (compiler). 2004. NOAA protocols for groundfish bottom trawl surveys of the Nation's fishery resources. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-F/SPO-65, 205 p.

Stevenson, D. E., and G. R. Hoff. 2009. Species identification confidence in the eastern Bering Sea shelf survey (1982-2008). U.S. Dep. Commer., AFSC Processed Rep. 2009-04, Alaska Fish. Sci. Cent., NOAA, Natl. Mar. Fish. Serv., 7600 Sand Point Way NE, Seattle WA 98115, 46 p.

Stewart, I. J., and S. Martell. 2015. Assessment of the Pacific halibut stock at the end of 2014, p. 169 -196. *In* Report of Assessment and Research Activities 2014. Int. Pac. Halibut Comm. Seattle, WA.

Wakabayashi, K., R. G. Bakkala, and M. S. Alton. 1985. Methods of the U.S.-Japan demersal trawl surveys, p. 7-29. *In* R. G. Bakkala and K. Wakabayashi (editors), Results of cooperative U.S.-Japan groundfish investigations in the Bering Sea during May-August

1979. Int. North Pac. Fish. Comm. Bull. 44.

Yang, M. S. 1988. Morphological differences between two congeneric species of pleuronectid flatfishes: Arrowtooth flounder, *Atheresthes stomias*, and Kamchatka flounder, *A. evermanni*. Fish. Bull., U.S. 86:608-611.

Zimmermann, M., and P. Goddard. 1996. Biology and distribution of arrowtooth, *Atheresthes stomias*, and Kamchatka, *A. evermanni*, flounders in Alaskan waters. Bull., U.S. Fish. 94:358-70.

Zimmermann, M., C. B. Dew, and B. A. Malley. 2009. History of Alaska red king crab, *Paralithodes camtschaticus*, bottom trawl surveys, 1940-61. Mar. Fish. Rev. 71:1-22.

Blank page

Appendix A: Station Data, 2015 Eastern Bering Sea Trawl Survey

Appendix A contains station data by vessel for the 376 successfully completed standard survey stations. In using the tables, the following should be noted:

1. Time represents the nearest hour and minute at the start of the haul.
2. Haul numbers are not always sequential because unsatisfactory hauls were omitted.
3. All longitudes are in the Western Hemisphere and latitudes in the Northern Hemisphere. Starting and ending positions for each haul are displayed as degrees and decimal minutes.
4. Net measured codes are as follows:

   Y = Net width was measured by net mensuration gear.

   N = Net width was estimated from a function of wire out or wire out.
5. Catch weights are displayed in total kilograms

List of Tables

Appendix A Table 1. -- Haul and catch data for successfully completed tows by FV *Vesteraalen* during the 2015 eastern Bering Sea shelf bottom trawl survey.

Station	**G-15**	**H-15**	**I-15**	**J-15**	**K-13**	**J-13**	**I-13**	**H-13**	**G-13**	**F-11**
Start date and time	06/03/15 07:13	06/03/15 10:00	06/03/15 12:38	06/03/15 15:22	06/04/15 06:42	06/04/15 09:01	06/04/15 11:36	06/04/15 14:14	06/04/15 16:52	06/05/15 06:42
Haul number	3	4	5	6	7	8	9	10	11	12
Start latitude	56.98	57.32	57.66	57.99	58.29	58.01	57.68	57.35	57.02	56.66
Start longitude	-159.14	-159.09	-159.03	-158.98	-159.98	-160.21	-160.24	-160.30	-160.33	-161.60
End latitude	57.00	57.34	57.67	58.02	58.27	57.99	57.65	57.33	56.99	56.68
End longitude	-159.11	-159.06	-158.99	-158.98	-159.98	-160.22	-160.24	-160.30	-160.34	-161.60
Bottom depth (m)	33	49	49	42	41	51	55	62	63	88
Duration (h)	0.52	0.51	0.50	0.52	0.50	0.51	0.53	0.50	0.51	0.27
Distance fished (km)	2.85	2.83	2.78	2.87	2.79	2.78	2.97	2.75	2.87	1.43
Net width (m)	14.09	15.30	16.65	15.83	15.40	15.48	16.21	16.16	16.08	16.02
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	0	0
Alaska skates	63.70	101.20	7.82	32.20		60.10	44.60	9.66	6.65	2.88
Other skates										
Total elasmobranch	**63.7**	**101.2**	**7.8**	**32.2**	**0.0**	**60.1**	**44.6**	**9.7**	**6.7**	**2.9**
Alaska plaice					4.78	7.58	73.10			94.00
Arrowtooth flounder							0.83	1.14	3.30	14.57
Kamchatka flounder										
Flathead sole	1.42					2.50	10.09	12.47	7.83	29.95
Bering flounder										
Greenland turbot										
Pacific halibut	30.77	16.34		2.90		4.69	2.06	28.13	23.52	4.49
Rock sole	837.36	764.78	92.40	260.10	60.85	596.36	1,759.54	611.65	231.12	25.79
Yellowfin sole	1,035.43	139.78	67.20	152.62	351.15	334.74	189.08	242.40	794.19	94.45
Other flatfish	61.83	7.69	1.40	7.60	0.72	0.53		3.63	7.63	3.97
Total flatfish	**1,966.8**	**928.6**	**161.0**	**423.2**	**417.5**	**946.4**	**2,034.7**	**899.4**	**1,067.6**	**267.2**
Walleye pollock	153.99	200.00	53.66	312.78		121.30	377.00	1,432.51	93.88	416.66
Pacific cod	396.68	405.90	102.14	74.79		66.00	442.79	100.41	24.02	65.27
Eelpouts										
Pacific herring	7.92	2.29	0.24	1.55	0.21				0.70	
Pacific ocean perch										
Other rockfish										
Sculpins	66.82	21.00	8.75	8.73	1.21	12.50	3.49	5.21	13.42	13.00
Other roundfish	10.14	2.75	0.39	3.51	0.42	2.31	8.46	1.62	1.08	3.80
Total roundfish	**635.5**	**631.9**	**165.2**	**401.4**	**1.8**	**202.1**	**831.7**	**1,539.7**	**133.1**	**498.7**
Blue king crab										
Red king crab		6.73		5.65	4.62	1.29	24.46	10.22	54.35	9.28
Tanner crab, bairdi	3.11	7.98	1.20			2.53	4.08	3.22	38.81	38.49
Tanner crab, opilio										0.52
Other crab	20.44	2.78	0.06	0.28	1.80	2.40	13.43	8.76	5.91	3.45
Shrimp				0.00	0.49	0.01				0.01
Octopus										
Squids										
Snails		0.49		0.03	0.00	3.99	3.80	2.57	0.40	7.22
Sea stars	440.61	157.24	36.98	53.80	34.64	77.56	51.34	76.15	17.52	
Other invertebrates	35.80	13.07	1.60	17.43	7.86	6.17	17.83	40.28	39.69	2,652.20
Total invertebrates	**500.0**	**188.3**	**39.8**	**77.2**	**49.4**	**93.9**	**114.9**	**141.2**	**156.7**	**2,711.2**
Miscellaneous										
Total catch	**3,166.0**	**1,850.0**	**373.8**	**934.0**	**468.7**	**1,302.6**	**3,026.0**	**2,590.0**	**1,364.0**	**3,480.0**

Appendix A Table 1. -- Continued.

Station	**G-11**	**H-11**	**I-11**	**J-11**	**L-09**	**K-09**	**J-09**	**I-09**	**H-09**	**G-09**
Start date and time	06/05/15 09:30	06/05/15 12:28	06/05/15 15:32	06/05/15 18:46	06/06/15 07:10	06/06/15 10:03	06/06/15 12:45	06/06/15 15:20	06/06/15 17:48	06/07/15 06:41
Haul number	13	14	15	16	17	18	19	20	21	22
Start latitude	56.99	57.32	57.65	57.99	58.68	58.34	58.02	57.67	57.34	57.01
Start longitude	-161.53	-161.50	-161.47	-161.43	-162.72	-162.71	-162.75	-162.74	-162.77	-162.79
End latitude	57.01	57.34	57.67	58.00	58.66	58.32	58.00	57.65	57.32	56.99
End longitude	-161.56	-161.53	-161.49	-161.47	-162.69	-162.72	-162.74	-162.74	-162.77	-162.79
Bottom depth (m)	69	58	53	54	21	33	42	43	49	61
Duration (h)	0.52	0.48	0.49	0.53	0.53	0.51	0.52	0.50	0.50	0.52
Distance fished (km)	2.91	2.69	2.63	2.82	2.81	2.79	2.95	2.82	2.80	2.89
Net width (m)	17.31	17.01	16.98	16.24	14.56	15.06	15.80	15.87	15.74	15.98
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	0	0
Alaska skates	5.54		23.60	60.30		44.30	82.60	22.70	13.65	1.40
Other skates	6.60									
Total elasmobranch	**12.1**	**0.0**	**23.6**	**60.3**	**0.0**	**44.3**	**82.6**	**22.7**	**13.7**	**1.4**
Alaska plaice	65.60	38.26	19.40	6.20		3.28	6.22	10.76	14.04	84.68
Arrowtooth flounder	13.88	8.52	0.90						4.00	8.54
Kamchatka flounder										
Flathead sole	30.47	46.86	20.40	9.20		0.87		6.85	18.53	8.90
Bering flounder										
Greenland turbot										
Pacific halibut	5.16	28.32	10.33	13.70	20.84	54.65	11.65	38.28	11.35	
Rock sole	201.46	463.99	252.30	542.05	415.20	235.27	211.72	1,081.57	318.73	159.06
Yellowfin sole	316.30	673.80	133.40	674.25	249.10	175.03	1,422.90	155.40	112.60	298.54
Other flatfish	3.27			14.13	150.22	88.93	5.72	23.97		
Total flatfish	**636.1**	**1,259.7**	**436.7**	**1,259.5**	**835.4**	**558.0**	**1,658.2**	**1,316.8**	**479.2**	**559.7**
Walleye pollock	351.67	518.13	181.72	131.96	9.80	25.40	670.80	116.26	224.20	133.80
Pacific cod	114.74	31.43	228.54	105.76	293.70	120.60	580.94	7.99	143.90	8.04
Eelpouts										
Pacific herring			0.20		0.03	31.14	2.93	2.67	0.27	
Pacific ocean perch										
Other rockfish										
Sculpins	31.90	6.40	4.05	9.92	36.03	12.60	18.10	0.93	20.00	4.27
Other roundfish	2.49	1.59	3.17	12.98	5.37	6.74	3.43	1.76	3.08	0.33
Total roundfish	**500.8**	**557.5**	**417.7**	**260.6**	**344.9**	**196.5**	**1,276.2**	**129.6**	**391.4**	**146.4**
Blue king crab										
Red king crab	22.84	26.63	23.96	13.08	1.54	1.84		7.48	13.44	27.49
Tanner crab, bairdi	2.92	1.08	2.82	3.37		0.47	0.39	1.14	0.93	1.88
Tanner crab, opilio										0.28
Other crab	0.70	3.47	2.64	12.04	0.72	3.86	10.35	11.62	3.09	5.05
Shrimp										
Octopus										
Squids										
Snails	0.16	4.97	3.14	23.46	0.03	4.62	2.19	16.19	5.35	4.30
Sea stars	4.08	3.73	29.47	31.04	19.48	87.35	115.94	140.18	30.18	202.32
Other invertebrates	89.70	52.85	98.36	46.56	3.21	2.63	16.12	10.26	102.03	59.80
Total invertebrates	**120.4**	**92.7**	**160.4**	**129.6**	**25.0**	**100.8**	**145.0**	**186.9**	**155.0**	**301.1**
Miscellaneous										
Total catch	**1,269.5**	**1,910.0**	**1,038.4**	**1,710.0**	**1,205.3**	**899.6**	**3,162.0**	**1,656.0**	**1,039.4**	**1,008.7**

Appendix A Table 1. -- Continued.

Station	**F-09**	**E-09**	**D-09**	**D-10**	**C-09**	**C-08**	**B-08**	**B-07**	**B-06**	**A-06**
Start date and time	06/07/15 10:34	06/07/15 13:33	06/07/15 16:14	06/08/15 06:44	06/08/15 10:08	06/08/15 13:16	06/08/15 16:24	06/09/15 06:38	06/09/15 09:08	06/09/15 11:53
Haul number	24	25	26	27	28	29	30	31	32	33
Start latitude	56.65	56.34	56.00	56.00	55.68	55.67	55.35	55.34	55.35	55.06
Start longitude	-162.77	-162.80	-162.81	-162.23	-162.81	-163.40	-163.43	-164.02	-164.54	-164.57
End latitude	56.67	56.31	55.98	55.99	55.66	55.66	55.32	55.33	55.34	55.03
End longitude	-162.77	-162.79	-162.82	-162.26	-162.84	-163.36	-163.41	-164.05	-164.58	-164.59
Bottom depth (m)	73	79	78	70	51	82	53	78	101	65
Duration (h)	0.53	0.51	0.51	0.52	0.51	0.51	0.53	0.51	0.53	0.51
Distance fished (km)	2.99	2.77	2.75	2.92	2.71	2.85	2.90	2.71	2.88	2.73
Net width (m)	16.66	15.63	16.18	16.54	15.24	16.98	16.46	16.92	16.79	16.71
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	5	0	0	0	0	0
Alaska skates	9.23	4.35	24.97	75.70	23.00	77.00	28.20	18.00	69.00	17.60
Other skates					199.94	40.60	82.99	32.40	4.75	49.14
Total elasmobranch	**9.2**	**4.4**	**25.0**	**75.7**	**222.9**	**117.6**	**111.2**	**122.4**	**73.8**	**69.8**
Alaska plaice	63.90	10.60	10.90	18.91		82.41	31.70	1.60		
Arrowtooth flounder	22.60	25.35	66.60	63.53	10.36	99.68	40.42	54.60	124.24	41.45
Kamchatka flounder										
Flathead sole	26.70	52.71	42.80	63.87	9.93	30.76	28.98	31.40	56.77	13.32
Bering flounder										
Greenland turbot										
Pacific halibut	5.57	4.68	16.30	12.75	14.85	16.65	22.53	43.98	39.32	40.30
Rock sole	24.60	26.20	98.70	341.43	454.19	114.93	55.29	168.97		170.80
Yellowfin sole	248.20	214.13	221.70	498.49	2,302.02	165.09	484.10	120.94		200.77
Other flatfish		0.05	1.85	2.01	1.41	8.98	7.59	4.28	15.96	78.89
Total flatfish	**391.6**	**333.7**	**458.8**	**1,001.0**	**2,792.7**	**518.5**	**670.6**	**425.8**	**236.3**	**545.5**
Walleye pollock	340.15	7.76	52.00	710.75	95.00	1,120.06	249.97	254.38	616.55	2,239.42
Pacific cod	3.01		11.10	52.30	27.05	116.11	144.05	73.50	18.10	64.31
Eelpouts										
Pacific herring	0.68									
Pacific ocean perch										
Other rockfish										
Sculpins	12.40	4.40	2.80	1.97	6.38	20.15	2.99	32.18	18.50	
Other roundfish	0.26		2.37	0.88	4.41	19.61	13.02	13.37	6.22	0.85
Total roundfish	**356.5**	**12.2**	**68.3**	**765.9**	**132.8**	**1,275.9**	**410.0**	**373.4**	**659.4**	**2,304.6**
Blue king crab										
Red king crab	23.17	16.52	84.45	49.13	22.04	65.74	32.44			
Tanner crab, bairdi	5.12	23.83	9.77	6.72	58.36	19.81	5.49	2.35	42.71	
Tanner crab, opilio		0.74							121.35	
Other crab	8.20	4.83	1.37	0.65	9.00	12.60	1.77	2.82	66.03	
Shrimp									0.01	
Octopus							0.04		18.57	
Squids										
Snails	9.38	8.67	1.78	3.32	18.71	49.26	4.87	6.24	60.82	10.14
Sea stars	9.15	53.76	3.05	12.56	115.19	1.17	92.60	10.15	0.03	1.52
Other invertebrates	48.63	440.21	82.78	153.04	20.18	99.38	116.97	224.67	99.07	448.47
Total invertebrates	**103.7**	**548.6**	**183.2**	**225.4**	**243.5**	**248.0**	**254.2**	**246.2**	**408.6**	**460.1**
Miscellaneous										
Total catch	**861.0**	**898.8**	**735.3**	**2,068.0**	**3,392.0**	**2,160.0**	**1,446.0**	**1,167.8**	**1,378.0**	**3,380.0**

Appendix A Table 1. -- Continued.

Station	**A-05**	**Z-05**	**B-05**	**C-05**	**C-06**	**C-07**	**D-07**	**D-06**	**D-05**	**E-05**
Start date and time	06/09/15 14:53	06/09/15 17:38	06/11/15 13:24	06/11/15 16:34	06/12/15 06:42	06/12/15 09:34	06/12/15 12:15	06/12/15 14:56	06/12/15 17:52	06/13/15 06:45
Haul number	34	35	36	37	38	39	40	41	42	43
Start latitude	55.01	54.69	55.31	55.64	55.66	55.66	55.99	56.00	55.99	56.33
Start longitude	-165.13	-165.14	-165.17	-165.19	-164.60	-164.01	-164.04	-164.57	-165.16	-165.19
End latitude	54.99	54.67	55.34	55.66	55.66	55.69	56.01	56.02	56.01	56.35
End longitude	-165.16	-165.14	-165.17	-165.15	-164.55	-164.00	-164.04	-164.60	-165.19	-165.19
Bottom depth (m)	111	82	112	110	97	94	90	93	97	87
Duration (h)	0.52	0.51	0.53	0.53	0.52	0.52	0.52	0.52	0.52	0.52
Distance fished (km)	2.92	2.82	3.01	3.00	2.88	2.84	2.83	3.00	2.99	2.85
Net width (m)	17.46	16.88	17.72	17.85	16.86	16.92	16.91	17.32	17.01	17.15
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	0	0
Alaska skates	165.85	54.50	65.50	70.00	22.70	76.80	78.90			1.28
Other skates	0.02	88.62	0.03	6.08	12.07	18.66	4.00	11.40	1.74	1.77
Total elasmobranch	**165.9**	**143.1**	**65.5**	**76.1**	**34.8**	**95.5**	**82.9**	**11.4**	**1.7**	**3.1**
Alaska plaice						1.83	21.64			
Arrowtooth flounder	134.11	193.16	175.92	144.10	142.74	110.06	126.15	80.60	66.56	82.41
Kamchatka flounder										
Flathead sole	79.80	292.69	67.66	160.00	42.66	39.46	89.98	72.63	89.19	80.74
Bering flounder										
Greenland turbot										
Pacific halibut	16.61	66.11	30.26	13.33	14.97	31.88	36.64			4.29
Rock sole		79.90			79.00	111.58	184.23	105.10	137.73	4.39
Yellowfin sole		45.90			0.73	9.09	42.71	9.27		
Other flatfish	54.70	64.58	9.75	9.32	11.11	15.90	2.55	5.62	7.72	13.25
Total flatfish	**285.2**	**742.4**	**283.6**	**326.8**	**291.2**	**319.8**	**503.9**	**273.2**	**301.2**	**185.1**
Walleye pollock	747.74	1,262.13	357.89	45.11	260.76	436.72	221.82	449.54	139.85	155.81
Pacific cod	62.40	54.70	2.68	58.46	8.90	67.30	37.08	20.19	6.38	10.90
Eelpouts			0.31	1.00	0.35			0.79	1.78	3.03
Pacific herring										
Pacific ocean perch										
Other rockfish										
Sculpins	0.75	0.74	1.19	0.29	0.39	32.25	67.43	0.18	4.29	
Other roundfish	0.61	21.21	0.13	2.59	0.04	3.36		0.27	1.16	0.13
Total roundfish	**811.5**	**1,338.8**	**362.2**	**107.4**	**270.4**	**539.6**	**326.3**	**471.0**	**153.5**	**169.9**
Blue king crab										
Red king crab					23.90	41.88	6.48	3.55		
Tanner crab, bairdi	3.68	0.14	6.41	27.15	25.64	27.82	29.70	52.61	78.81	91.47
Tanner crab, opilio			0.57	9.21	0.87	0.22		0.55	7.05	8.64
Other crab	5.01	1.05	2.89	13.74	40.08	85.22	99.57	91.04	30.50	48.16
Shrimp	0.01		0.00	0.04	0.61				0.00	0.00
Octopus	16.87		1.51			0.08				1.40
Squids			0.25							
Snails	12.98	21.55	7.09	17.51	54.78	84.77	176.43	103.10	48.15	146.04
Sea stars	0.33		0.12	0.03	0.01	3.18	25.12	2.18	0.20	135.62
Other invertebrates	118.55	183.03	20.03	55.90	245.39	191.94	1,169.57	221.40	85.75	126.77
Total invertebrates	**157.4**	**205.8**	**38.9**	**123.6**	**391.3**	**435.1**	**1,506.9**	**474.4**	**250.5**	**558.1**
Miscellaneous										
Total catch	**1,420.0**	**2,430.0**	**750.2**	**633.9**	**987.7**	**1,390.0**	**2,420.0**	**1,230.0**	**706.9**	**916.1**

Appendix A Table 1. -- Continued.

Station	**F-05**	**G-05**	**H-05**	**I-05**	**J-05**	**K-05**	**L-05**	**M-05**	**N-05**	**L-03**
Start date and time	06/13/15 09:22	06/13/15 12:16	06/13/15 14:48	06/13/15 17:31	06/14/15 06:43	06/14/15 09:19	06/14/15 12:05	06/14/15 14:40	06/14/15 17:08	06/15/15 06:43
Haul number	44	45	46	47	48	49	50	51	52	53
Start latitude	56.65	56.99	57.31	57.66	58.00	58.32	58.66	58.98	59.32	58.67
Start longitude	-165.22	-165.22	-165.22	-165.25	-165.24	-165.28	-165.30	-165.31	-165.32	-166.56
End latitude	56.68	57.02	57.34	57.69	58.03	58.35	58.69	59.01	59.35	58.65
End longitude	-165.23	-165.24	-165.22	-165.24	-165.24	-165.28	-165.31	-165.32	-165.32	-166.55
Bottom depth (m)	76	70	67	61	50	46	39	27	21	42
Duration (h)	0.51	0.52	0.51	0.52	0.52	0.51	0.53	0.52	0.53	0.52
Distance fished (km)	2.95	2.95	2.81	2.95	2.94	2.82	2.81	2.98	3.03	2.85
Net width (m)	16.15	16.92	16.67	16.49	15.69	15.81	16.03	15.72	14.53	16.14
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	0	0
Alaska skates	3.75	4.43	5.82	35.40	11.80	72.40	104.80	305.60	72.60	16.80
Other skates										
Total elasmobranch	**3.8**	**4.4**	**5.8**	**35.4**	**11.8**	**72.4**	**104.8**	**305.6**	**72.6**	**16.8**
Alaska plaice	58.44	48.24	42.40	344.92	373.11	61.57	16.37	3.25	2.62	18.95
Arrowtooth flounder	7.71	2.36	5.31							
Kamchatka flounder										
Flathead sole	18.30	13.63	9.42	13.62	0.72	2.15				
Bering flounder										
Greenland turbot		1.86								
Pacific halibut	3.08	13.48	7.62	3.57	13.06	4.24	66.03	66.42	15.41	31.34
Rock sole	31.54	12.37	8.35	62.92	47.41	112.46	15.04	119.00	121.44	336.84
Yellowfin sole	1,339.99	1,333.21	719.79	460.87	445.33	348.90	1,408.38	424.19	328.16	327.73
Other flatfish	3.43	0.99	4.02					7.21	2.58	13.76
Total flatfish	**1,462.5**	**1,426.1**	**796.9**	**885.9**	**879.6**	**529.3**	**1,505.8**	**620.1**	**470.2**	**728.6**
Walleye pollock	112.01	188.25	285.47	166.88	325.43	998.15	162.36	38.42	8.05	853.25
Pacific cod	44.70	52.30	61.70	102.80	239.66	240.21	166.61	276.92	96.40	135.18
Eelpouts	57.61	33.57	16.80	17.88	0.26					
Pacific herring						0.58		0.52	0.02	0.84
Pacific ocean perch										
Other rockfish										
Sculpins	1.76	3.92	5.67	17.46	14.37	7.42	7.76	14.60	8.86	15.65
Other roundfish		1.14	0.94	5.20	10.46	6.17	1.52	13.65	1.55	11.38
Total roundfish	**216.1**	**279.2**	**370.6**	**310.2**	**590.2**	**1,252.5**	**338.3**	**344.1**	**114.9**	**1,016.3**
Blue king crab										
Red king crab						11.75	8.26	4.74		7.78
Tanner crab, bairdi	9.24	6.05	18.07	9.57	6.98	14.14	0.92			0.22
Tanner crab, opilio	2.19		2.20	2.85	0.30					
Other crab	60.60	11.13	18.18	54.75	108.49	19.30	2.11	2.11	5.03	7.81
Shrimp									0.05	
Octopus										
Squids										
Snails	238.04	72.89	159.33	140.47	52.17	4.02	0.39		0.01	8.85
Sea stars	527.69	161.41	106.56	222.32	175.51	227.32	122.98	40.54	16.42	150.52
Other invertebrates	159.91	312.79	286.37	118.54	824.94	55.21	6.48	0.84	12.69	19.01
Total invertebrates	**997.7**	**564.3**	**590.7**	**548.5**	**1,168.4**	**331.7**	**141.1**	**48.2**	**34.2**	**194.2**
Miscellaneous										
Total catch	**2,680.0**	**2,274.0**	**1,764.0**	**1,780.0**	**2,650.0**	**2,186.0**	**2,090.0**	**1,318.0**	**691.9**	**1,955.9**

Appendix A Table 1. -- Continued.

Station	**K-03**	**J-03**	**I-03**	**H-03**	**G-03**	**F-03**	**E-03**	**D-03**	**C-03**	**B-03**
Start date and time	06/15/15 09:15	06/15/15 11:44	06/15/15 14:22	06/15/15 17:03	06/16/15 06:41	06/16/15 09:26	06/16/15 13:38	06/16/15 16:19	06/17/15 06:46	06/17/15 09:26
Haul number	54	55	56	57	58	59	61	62	64	65
Start latitude	58.35	58.02	57.69	57.35	57.03	56.68	56.33	56.01	55.67	55.33
Start longitude	-166.56	-166.51	-166.50	-166.48	-166.45	-166.44	-166.43	-166.40	-166.39	-166.35
End latitude	58.32	57.99	57.66	57.33	57.00	56.65	56.31	55.98	55.65	55.31
End longitude	-166.56	-166.52	-166.52	-166.48	-166.45	-166.44	-166.44	-166.38	-166.38	-166.34
Bottom depth (m)	48	61	66	70	75	85	104	124	127	133
Duration (h)	0.51	0.51	0.51	0.52	0.53	0.51	0.51	0.53	0.52	0.51
Distance fished (km)	2.92	2.96	2.84	2.78	2.96	2.93	2.88	2.95	2.89	2.86
Net width (m)	15.85	16.34	16.60	16.25	16.99	17.68	17.74	18.77	19.07	19.93
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	0	0
Alaska skates	41.60	64.06	20.20	12.30	56.60	0.91				37.00
Other skates						2.14	1.98		0.55	4.62
Total elasmobranch	**41.6**	**64.1**	**20.2**	**12.3**	**56.6**	**3.1**	**2.0**	**0.0**	**0.6**	**41.6**
Alaska plaice	167.62	504.49	88.62	73.18	186.32	1.74				
Arrowtooth flounder			1.25	46.76	26.21	23.70	82.97	109.50	86.40	128.80
Kamchatka flounder										
Flathead sole		14.64	20.66	51.53	219.56	12.92	88.70	76.32	99.60	93.24
Bering flounder	1.51									
Greenland turbot			3.11							
Pacific halibut	55.74	10.60	10.48	8.92		12.44	21.05	11.96	25.02	18.00
Rock sole	124.87	124.22	45.33	109.55	55.54	2.30				
Yellowfin sole	280.16	671.81	623.27	776.80	174.93	33.60				
Other flatfish		4.56	2.05	2.20	16.27	5.06	10.53	9.81	7.78	11.10
Total flatfish	**629.9**	**1,330.3**	**794.8**	**1,068.9**	**678.8**	**91.8**	**203.2**	**207.6**	**218.8**	**251.1**
Walleye pollock	916.02	601.78	465.20	423.48	90.44	129.27	109.70	31.06	9.84	40.24
Pacific cod	71.30	126.88	106.89	73.80	106.07	11.16	21.26			10.70
Eelpouts		0.79	7.85	17.67	20.60	3.87	5.18	1.26	1.24	0.08
Pacific herring	1.23		0.48							
Pacific ocean perch										
Other rockfish										
Sculpins	21.06	23.73	8.64	11.21	21.56		0.17	0.32	1.38	0.23
Other roundfish	14.37	2.65	0.58		0.95	0.12	0.13	1.11	2.35	0.94
Total roundfish	**1,024.0**	**755.8**	**589.6**	**526.1**	**239.6**	**144.4**	**136.5**	**33.7**	**14.8**	**52.2**
Blue king crab										
Red king crab	2.10	2.20								
Tanner crab, bairdi	1.49	13.38	29.53	6.30	6.64	5.31	22.71	8.49	20.47	25.18
Tanner crab, opilio	3.63	24.38	106.43	15.93	0.85	3.97	6.07	8.30		0.40
Other crab	16.81	54.25	28.74	86.97	105.92	92.05	12.32	1.57	0.01	0.12
Shrimp						0.00	0.00	0.03	0.01	0.12
Octopus						0.94	0.66			
Squids										
Snails	17.48	31.96	83.28	116.68	97.36	82.83	25.07	2.32	0.76	4.83
Sea stars	173.79	965.47	157.46	339.94	100.43	68.11	0.05	1.59	0.26	0.01
Other invertebrates	51.22	426.15	37.96	686.79	245.74	117.29	120.21	4.96	9.39	26.28
Total invertebrates	**266.5**	**1,517.8**	**443.4**	**1,252.6**	**556.9**	**370.5**	**187.1**	**27.3**	**30.9**	**56.9**
Miscellaneous										
Total catch	**1,962.0**	**3,668.0**	**1,848.0**	**2,860.0**	**1,532.0**	**609.7**	**528.8**	**268.6**	**265.1**	**401.9**

Appendix A Table 1. -- Continued.

Station	**B-01**	**C-01**	**D-01**	**E-01**	**F-01**	**G-01**	**H-01**	**I-01**	**J-01**	**K-01**
Start date and time	06/22/15 07:15	06/22/15 11:21	06/22/15 14:04	06/22/15 16:46	06/23/15 07:13	06/23/15 10:01	06/23/15 14:00	06/23/15 16:38	06/24/15 07:12	06/24/15 10:10
Haul number	66	68	69	70	71	72	74	75	76	77
Start latitude	55.33	55.66	55.99	56.32	56.65	56.99	57.32	57.65	57.98	58.32
Start longitude	-167.54	-167.60	-167.62	-167.65	-167.67	-167.69	-167.73	-167.76	-167.80	-167.84
End latitude	55.34	55.68	56.02	56.35	56.68	57.02	57.35	57.68	58.01	58.35
End longitude	-167.57	-167.60	-167.62	-167.66	-167.67	-167.70	-167.73	-167.76	-167.81	-167.85
Bottom depth (m)	149	135	133	129	104	78	74	69	67	60
Duration (h)	0.51	0.52	0.53	0.55	0.54	0.52	0.53	0.51	0.52	0.52
Distance fished (km)	2.78	2.76	2.95	2.94	2.90	2.87	2.88	2.82	2.85	2.98
Net width (m)	18.22	19.33	18.84	18.23	17.96	17.17	16.73	16.11	16.37	17.01
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	0	0
Alaska skates	112.40	49.40	17.06		1.36	17.10	25.60	31.46	63.70	90.00
Other skates	31.74	0.14		2.69	0.01					
Total elasmobranch	**144.1**	**49.5**	**17.1**	**2.7**	**1.4**	**17.1**	**25.6**	**31.5**	**63.7**	**90.0**
Alaska plaice						110.60	79.11	33.51	224.30	24.11
Arrowtooth flounder	108.34	65.80	79.60	157.08	123.46	68.27	3.90	4.07		
Kamchatka flounder										
Flathead sole	91.03	54.56	49.10	108.82	11.96	226.62	43.33		16.12	
Bering flounder										
Greenland turbot										
Pacific halibut	35.22	36.46	7.07	33.45	5.33	7.77		1.69	4.29	48.03
Rock sole					0.31	343.19	34.06	48.63	33.63	87.93
Yellowfin sole						92.26	59.71	89.69	243.75	310.42
Other flatfish	22.36	13.44	12.34	10.06	10.36	10.16	3.15	1.28	5.42	
Total flatfish	**257.0**	**170.3**	**148.1**	**309.4**	**151.4**	**858.9**	**223.3**	**178.9**	**527.5**	**470.5**
Walleye pollock	107.83	8.14	2.05	5.28	27.30	311.41	410.65	811.19	342.06	2,150.19
Pacific cod	17.40				10.60	114.40	180.20	198.77	131.30	249.80
Eelpouts			0.03	0.75	1.79	1.66		1.02	3.47	
Pacific herring								5.93	1.26	1.08
Pacific ocean perch										
Other rockfish	1.04									
Sculpins		3.17	15.17	2.60	0.39	21.95	7.56	4.60	10.87	39.20
Other roundfish	0.34	3.83	7.21	1.09	1.08	1.16	0.84	0.32	1.26	1.08
Total roundfish	**126.6**	**15.1**	**24.5**	**9.7**	**41.2**	**450.6**	**599.2**	**1,021.8**	**490.2**	**2,441.4**
Blue king crab										
Red king crab										1.18
Tanner crab, bairdi	9.33	1.89	7.78	9.34	26.43	5.32	4.11	29.83	29.66	0.84
Tanner crab, opilio			38.50	50.24	70.44	8.12	4.79	4.85	12.46	6.88
Other crab	1.39	0.09	0.91	10.13	38.70	29.05	109.97	89.64	98.30	109.47
Shrimp	0.16	0.08	0.11	0.09	3.29	0.09	0.00			
Octopus					0.02					
Squids										
Snails	4.67	2.26	2.60	6.11	30.92	5.92	45.75	157.78	43.38	100.32
Sea stars	0.24	0.02	0.01	0.29	0.03	55.38	45.26	52.61	107.76	236.64
Other invertebrates	10.70	13.78	3.84	36.12	158.61	147.59	234.02	1,001.13	543.02	692.83
Total invertebrates	**26.5**	**18.1**	**53.8**	**112.3**	**328.4**	**251.5**	**443.9**	**1,335.8**	**834.6**	**1,148.2**
Miscellaneous										
Total catch	**554.2**	**253.1**	**243.4**	**434.1**	**522.4**	**1,578.0**	**1,292.0**	**2,568.0**	**1,916.0**	**4,150.0**

Appendix A Table 1. -- Continued.

Station	**L-01**	**M-01**	**N-01**	**Q-02**	**Q-01**	**Q-18**	**Q-19**	**P-19**	**O-19**	**N-19**
Start date and time	06/24/15 13:01	06/24/15 16:07	06/24/15 18:52	06/25/15 07:10	06/25/15 09:56	06/25/15 12:37	06/25/15 15:18	06/25/15 18:25	06/26/15 07:10	06/26/15 09:52
Haul number	78	80	81	82	83	84	85	86	87	88
Start latitude	58.65	58.99	59.32	60.33	60.33	60.33	60.34	60.01	59.68	59.34
Start longitude	-167.86	-167.88	-167.90	-167.31	-167.93	-168.62	-169.26	-169.29	-169.27	-169.24
End latitude	58.68	59.01	59.34	60.34	60.33	60.34	60.34	60.00	59.65	59.32
End longitude	-167.86	-167.88	-167.91	-167.26	-167.98	-168.67	-169.31	-169.33	-169.27	-169.25
Bottom depth (m)	47	42	40	31	31	36	43	46	48	50
Duration (h)	0.52	0.53	0.53	0.51	0.51	0.51	0.52	0.51	0.52	0.51
Distance fished (km)	2.88	2.85	2.85	2.83	2.90	2.96	2.79	2.80	3.01	2.87
Net width (m)	16.46	16.31	16.20	15.34	16.04	16.00	16.85	16.98	16.82	16.68
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	0	0
Alaska skates	26.24	8.24	43.83	5.04	59.30	107.90	57.80	65.70	91.44	98.40
Other skates										
Total elasmobranch	**26.2**	**8.2**	**43.8**	**5.0**	**59.3**	**107.9**	**57.8**	**65.7**	**91.4**	**98.4**
Alaska plaice	40.28	1.94	8.77	1.50	31.10	61.74	41.70	94.61	323.17	225.12
Arrowtooth flounder										
Kamchatka flounder										
Flathead sole										2.55
Bering flounder							2.73	1.60	8.64	2.25
Greenland turbot										
Pacific halibut	186.94		3.87	7.94	22.10	3.85			23.69	20.71
Rock sole	265.77	521.69	294.31	11.20	45.02	66.66	42.40	104.12	114.51	66.24
Yellowfin sole	141.89	932.99	424.15	58.70	178.48	147.52	55.60	51.06	113.21	142.31
Other flatfish			4.59	5.97	16.00		0.03			
Total flatfish	**634.9**	**1,456.6**	**735.7**	**85.3**	**292.7**	**279.8**	**142.5**	**251.4**	**583.2**	**459.2**
Walleye pollock	995.02	123.17	188.13	301.88	39.88	787.98	260.59	296.99	880.76	637.04
Pacific cod	152.54	149.22	460.07	48.25	32.80	174.40	119.80	436.81	534.30	367.99
Eelpouts				0.75						
Pacific herring	2.89	56.67	0.46	7.17	3.23	0.28	0.09		7.89	
Pacific ocean perch										
Other rockfish										
Sculpins	20.56	1.23	12.47	6.59	9.18	14.60	15.64	8.15	17.98	21.84
Other roundfish	3.44	5.72	7.48	18.09	3.30	5.60	8.31	6.70	22.54	23.52
Total roundfish	**1,174.4**	**336.0**	**668.6**	**382.7**	**88.4**	**982.9**	**404.4**	**748.6**	**1,463.5**	**1,050.4**
Blue king crab										
Red king crab	2.12		2.06			3.22	0.59		3.28	
Tanner crab, bairdi		0.01								
Tanner crab, opilio		0.04	0.02				0.54	0.23	0.02	0.04
Other crab	9.47	7.95	5.20	4.84	0.67	16.22	75.40	46.63	53.21	90.99
Shrimp		0.01		0.08	0.01		0.02			
Octopus										
Squids										
Snails	11.14	6.72	1.98	0.00	0.00	2.56	7.83	5.85	17.02	38.79
Sea stars	106.46	88.83	22.24	29.66	33.61	103.61	111.78	132.72	115.77	208.20
Other invertebrates	35.27	11.56	0.39	1.20	0.33	11.88	70.05	116.85	82.56	544.02
Total invertebrates	**164.4**	**115.1**	**31.9**	**35.8**	**34.6**	**137.5**	**266.2**	**302.3**	**271.9**	**882.0**
Miscellaneous										
Total catch	**2,000.0**	**1,916.0**	**1,480.0**	**508.9**	**475.0**	**1,508.0**	**870.9**	**1,368.0**	**2,410.0**	**2,490.0**

Appendix A Table 1. -- Continued.

Station	**M-19**	**L-19**	**K-19**	**J-19**	**JI1918**	**JI2019**	**I-19**	**IH1918**	**H-19**	**HG1918**
Start date and time	06/26/15 12:37	06/26/15 15:25	06/26/15 18:20	06/27/15 07:13	06/27/15 10:05	06/27/15 13:37	06/27/15 16:37	06/28/15 07:12	06/28/15 09:56	06/28/15 14:47
Haul number	89	90	91	92	93	94	95	96	97	100
Start latitude	59.01	58.69	58.36	58.01	57.84	57.83	57.68	57.51	57.34	57.18
Start longitude	-169.19	-169.15	-169.12	-169.10	-168.75	-169.35	-169.06	-168.75	-168.98	-168.64
End latitude	58.99	58.66	58.33	58.00	57.82	57.84	57.66	57.49	57.32	57.16
End longitude	-169.19	-169.15	-169.11	-169.06	-168.72	-169.40	-169.02	-168.73	-168.98	-168.63
Bottom depth (m)	54	63	68	70	70	66	69	71	69	76
Duration (h)	0.53	0.52	0.51	0.51	0.52	0.53	0.54	0.53	0.53	0.52
Distance fished (km)	2.92	2.85	2.91	2.78	2.91	2.81	3.05	2.97	2.93	2.82
Net width (m)	16.66	16.71	16.98	16.94	17.03	16.49	16.67	16.92	16.77	16.25
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	0	0
Alaska skates	62.70	52.50	27.40	25.10	19.70	34.10	14.30	18.50	45.35	6.06
Other skates										
Total elasmobranch	**62.7**	**52.5**	**27.4**	**25.1**	**19.7**	**34.1**	**14.3**	**18.5**	**45.4**	**6.1**
Alaska plaice	160.56	101.31	127.25	128.49	46.09	6.66	30.89	13.01	4.84	
Arrowtooth flounder				10.87	14.46	29.78	30.43	29.73	67.15	96.48
Kamchatka flounder										
Flathead sole			13.35	21.50	32.51	37.48	4.67		4.33	129.31
Bering flounder		9.42	0.75				0.95			
Greenland turbot		1.25	0.90							
Pacific halibut	11.18	27.98	4.62	22.28	8.97	24.03		6.64	15.00	32.02
Rock sole	53.44	23.52	90.98	64.39	27.29	56.73	75.57	20.27	807.53	98.89
Yellowfin sole	31.45	61.51	109.29	166.42	282.33	118.93	178.74	26.10	24.19	22.51
Other flatfish					18.55	14.38	8.54	1.95	17.22	7.52
Total flatfish	**256.6**	**225.0**	**347.1**	**414.0**	**430.2**	**288.0**	**329.8**	**97.7**	**940.3**	**386.7**
Walleye pollock	145.22	1,020.88	1,131.59	708.21	1,882.36	1,384.55	3,110.51	590.62	1,497.74	3,644.87
Pacific cod	124.26	111.44	250.32	112.80	105.98	157.90	150.10	179.26	256.70	304.42
Eelpouts			3.38	4.31						
Pacific herring		8.50	2.15	23.68	1.20		8.61			
Pacific ocean perch										
Other rockfish										
Sculpins	14.33	15.17	32.09	16.43		17.84	29.57	2.97	317.93	34.26
Other roundfish	4.79	3.50	8.94	7.52	4.58	13.52	12.59	1.29	3.23	
Total roundfish	**288.6**	**1,159.5**	**1,428.5**	**872.9**	**1,994.1**	**1,573.8**	**3,311.4**	**774.1**	**2,075.6**	**3,983.6**
Blue king crab								1.71	8.18	
Red king crab					1.13					
Tanner crab, bairdi	0.48	0.47	10.36	29.56	5.73	4.14	3.12	0.73	2.46	7.17
Tanner crab, opilio	1.90	11.47	182.14	17.72	14.79	4.43	46.94	1.52		0.65
Other crab	25.65	72.49	72.87	94.95	245.43	205.60	11.07	279.75	79.26	1.48
Shrimp	0.01			0.01	0.01					0.01
Octopus										
Squids										
Snails	16.23	163.68	89.18	50.08	45.13	42.18	3.26	1.97	77.05	
Sea stars	380.52	1,127.02	593.53	224.71	317.50	93.28	346.58	70.58	41.96	15.59
Other invertebrates	131.30	347.90	362.93	518.98	626.27	380.46	1,499.56	1,303.41	1,734.87	81.75
Total invertebrates	**556.1**	**1,723.0**	**1,311.0**	**936.0**	**1,256.0**	**730.1**	**1,910.5**	**1,659.7**	**1,943.8**	**106.7**
Miscellaneous										
Total catch	**1,164.0**	**3,160.0**	**3,114.0**	**2,248.0**	**3,700.0**	**2,626.0**	**5,566.0**	**2,550.0**	**5,005.0**	**4,483.0**

Appendix A Table 1. -- Continued.

Station	**G-19**	**GF2019**	**GF1918**	**F-19**	**F-20**	**E-21**	**F-21**	**GF2120**	**HG2120**	**G-21**
Start date and time	06/28/15 17:19	06/29/15 07:14	06/29/15 10:17	06/29/15 12:58	06/29/15 16:53	06/30/15 07:15	06/30/15 09:57	06/30/15 12:15	06/30/15 14:56	07/01/15 09:02
Haul number	101	102	103	104	106	107	108	109	110	112
Start latitude	57.01	56.84	56.83	56.68	56.66	56.33	56.66	56.82	57.13	57.00
Start longitude	-168.95	-169.33	-168.65	-168.91	-169.49	-170.06	-170.12	-169.89	-169.90	-170.14
End latitude	56.99	56.83	56.83	56.66	56.68	56.35	56.68	56.84	57.16	57.00
End longitude	-168.95	-169.28	-168.60	-168.92	-169.51	-170.08	-170.15	-169.93	-169.89	-170.18
Bottom depth (m)	80	80	96	99	80	110	97	73	50	68
Duration (h)	0.53	0.52	0.51	0.51	0.53	0.51	0.54	0.52	0.53	0.52
Distance fished (km)	2.77	2.90	2.92	2.87	2.96	2.82	3.08	3.01	3.08	2.88
Net width (m)	16.25	16.41	16.44	16.84	17.15	18.31	17.07	16.56	15.59	16.08
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	0	0
Alaska skates	17.45	28.10	3.51	29.96	35.40	23.00	10.20	4.45	10.84	46.52
Other skates						20.38				2.08
Total elasmobranch	**17.5**	**28.1**	**3.5**	**30.0**	**35.4**	**43.4**	**10.2**	**4.5**	**10.8**	**48.6**
Alaska plaice	4.08	4.35	1.03							27.04
Arrowtooth flounder	59.68	31.92	39.50	16.92	123.07	69.90	75.04	38.66	20.83	51.47
Kamchatka flounder										
Flathead sole	618.69	273.07	8.64	9.42	12.25	73.01	42.01	8.72		637.67
Bering flounder										
Greenland turbot										
Pacific halibut	2.78	71.80		21.05	56.03	10.28	57.80	40.22	9.94	13.90
Rock sole	147.70	28.87			533.62	0.55		189.52	1,475.13	83.31
Yellowfin sole	150.04	52.81	0.30		21.13				15.75	162.69
Other flatfish	5.18	7.56	2.22	5.41	15.36	25.95	37.56	0.06		17.89
Total flatfish	**988.1**	**470.4**	**51.7**	**52.8**	**761.5**	**179.7**	**212.4**	**277.2**	**1,521.6**	**994.0**
Walleye pollock	1,181.19	780.76	223.17	63.40	158.85	551.67	633.95	1,449.82	0.61	243.77
Pacific cod	186.32	100.80	27.90	32.00	140.40	42.90	44.40	310.50	32.40	50.30
Eelpouts		0.37	0.10			0.57	0.57			
Pacific herring										
Pacific ocean perch										
Other rockfish										
Sculpins	33.66	354.75	5.24	0.67	697.16	0.48	3.84	35.42	16.49	71.09
Other roundfish	1.31	1.45	0.53	2.74	13.99	0.04	3.14	0.44	0.12	6.40
Total roundfish	**1,402.5**	**1,238.1**	**256.9**	**98.8**	**1,010.4**	**595.7**	**685.9**	**1,796.2**	**49.6**	**371.6**
Blue king crab										15.78
Red king crab								5.09	3.09	772.63
Tanner crab, bairdi	51.89	21.56	105.65	58.97	5.90	10.13	11.66	59.55	8.75	36.69
Tanner crab, opilio	10.58	10.83	166.72	207.57	0.09	0.22	0.07	2.96	0.61	0.47
Other crab	53.74	79.14	26.23	28.75	96.56	6.55	12.90	12.00	88.40	278.81
Shrimp			0.07	0.02		0.18	0.40	0.00		0.03
Octopus					35.80	0.71				
Squids		0.23								
Snails	24.79	52.66	5.42	10.10	55.16	12.69	15.79	6.83	13.45	118.50
Sea stars	171.49	223.87	15.16	9.20	33.16	3.25	0.59	12.59	99.65	14.50
Other invertebrates	199.44	339.10	23.13	10.40	376.07	50.46	345.21	43.17	149.95	202.46
Total invertebrates	**511.9**	**727.4**	**342.4**	**325.0**	**602.7**	**84.2**	**386.6**	**142.2**	**363.9**	**1,439.9**
Miscellaneous										
Total catch	**2,920.0**	**2,464.0**	**654.5**	**506.6**	**2,410.0**	**902.9**	**1,295.1**	**2,220.0**	**1,946.0**	**2,854.0**

Appendix A Table 1. -- Continued.

Station	**GF2221**	**F-22**	**E-22**	**F-23**	**G-23**	**G-22**	**HG2221**	**H-21**	**IH2120**	**I-21**
Start date and time	07/01/15 12:27	07/01/15 14:36	07/01/15 17:17	07/02/15 07:14	07/02/15 10:09	07/02/15 13:12	07/04/15 07:27	07/04/15 10:00	07/04/15 12:58	07/04/15 15:55
Haul number	113	114	115	116	117	118	119	120	121	122
Start latitude	56.86	56.67	56.36	56.66	57.01	57.01	57.11	57.32	57.49	57.67
Start longitude	-170.51	-170.74	-170.68	-171.36	-171.43	-170.80	-170.45	-170.24	-170.01	-170.25
End latitude	56.83	56.65	56.33	56.68	56.99	56.99	57.13	57.34	57.50	57.66
End longitude	-170.49	-170.74	-170.68	-171.36	-171.39	-170.77	-170.48	-170.21	-169.98	-170.30
Bottom depth (m)	101	113	120	120	109	95	51	55	67	72
Duration (h)	0.52	0.53	0.50	0.51	0.53	0.52	0.51	0.51	0.50	0.51
Distance fished (km)	2.86	2.81	2.83	2.77	2.98	2.86	2.84	2.81	2.65	2.92
Net width (m)	17.22	17.28	17.51	17.50	17.93	17.71	16.48	15.76	16.99	17.15
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	0	0
Alaska skates	29.30	50.20	8.04	17.80	44.00	64.08	8.78		3.53	20.82
Other skates	1.88	20.38	5.79	6.68	5.01	2.22				
Total elasmobranch	**31.2**	**70.6**	**13.8**	**24.5**	**49.0**	**66.3**	**8.8**	**0.0**	**3.5**	**20.8**
Alaska plaice										8.15
Arrowtooth flounder	125.65	136.10	35.47	106.23	142.32	93.83	36.21		17.93	92.86
Kamchatka flounder										
Flathead sole	53.27	54.30	32.81	16.95	8.01	41.22			53.51	137.10
Bering flounder										
Greenland turbot										
Pacific halibut	7.07	8.12	12.90	23.23	17.69	18.86	29.70	141.23	39.53	45.06
Rock sole				0.72			2,535.76	472.42	151.87	316.54
Yellowfin sole							77.92		34.44	161.19
Other flatfish	24.73	13.23	17.65	17.46	11.80	15.29				12.36
Total flatfish	**210.7**	**211.8**	**98.8**	**164.6**	**179.8**	**169.2**	**2,679.6**	**613.7**	**297.3**	**773.3**
Walleye pollock	278.49	246.32	457.57	361.00	164.22	1,021.77	417.24	5,993.87	5,762.10	816.53
Pacific cod	26.60	43.00	18.40	38.30	43.60	98.20	54.72	266.47	77.28	118.31
Eelpouts	3.90	1.60			0.76	4.18				
Pacific herring										
Pacific ocean perch										
Other rockfish			1.39							
Sculpins	14.35	3.90	6.42	5.66	3.75	9.13	84.56	24.00	16.23	9.64
Other roundfish	11.15	0.72	0.10		10.71	1.49	0.99	4.75		1.37
Total roundfish	**334.5**	**295.5**	**483.9**	**405.0**	**223.0**	**1,134.8**	**557.5**	**6,289.1**	**5,855.6**	**945.8**
Blue king crab									3.21	
Red king crab							41.70		82.54	5.47
Tanner crab, bairdi	34.51	14.11	5.21	2.48	4.41	47.58	11.84	2.85	47.53	10.57
Tanner crab, opilio				44.54	55.74	2.49			4.90	0.50
Other crab	40.95	17.82	11.92	14.86	27.78	41.53	67.70	16.36	20.93	11.21
Shrimp	2.47	0.30	0.03	0.44	0.45	0.65				
Octopus			0.02	14.24			12.80			
Squids										
Snails	22.24	18.95	26.67	8.69	15.14	20.62	4.85		1.77	38.27
Sea stars	3.52	0.13		1.48	1.86	0.48	302.67	418.45	7.86	320.79
Other invertebrates	51.07	137.74	56.08	274.81	77.50	66.39	26.57	102.61	100.85	792.27
Total invertebrates	**154.8**	**189.0**	**99.9**	**361.5**	**182.9**	**179.7**	**468.1**	**540.3**	**269.6**	**1,179.1**
Miscellaneous										
Total catch	**731.2**	**766.9**	**696.4**	**955.6**	**634.8**	**1,550.0**	**3,714.0**	**7,443.0**	**6,426.0**	**2,919.0**

Appendix A Table 1. -- Continued.

Station	**JI2120**	**J-21**	**K-21**	**L-21**	**M-21**	**O-22**	**O-23**	**N-23**	**M-23**	**M-24**
Start date and time	07/05/15 07:15	07/05/15 09:29	07/05/15 12:24	07/05/15 15:22	07/05/15 18:21	07/06/15 07:11	07/06/15 10:11	07/06/15 14:41	07/07/15 07:13	07/07/15 10:11
Haul number	124	125	126	127	128	129	130	131	132	133
Start latitude	57.83	57.98	58.32	58.66	59.00	59.66	59.67	59.33	59.01	59.02
Start longitude	-169.99	-170.31	-170.37	-170.43	-170.52	-171.22	-171.87	-171.81	-171.79	-172.45
End latitude	57.85	58.00	58.34	58.68	59.02	59.67	59.67	59.33	58.98	59.00
End longitude	-170.02	-170.34	-170.40	-170.45	-170.49	-171.27	-171.93	-171.86	-171.79	-172.45
Bottom depth (m)	73	75	74	73	71	72	78	81	87	98
Duration (h)	0.52	0.52	0.51	0.53	0.53	0.53	0.51	0.52	0.53	0.51
Distance fished (km)	2.89	2.88	2.86	2.93	2.98	3.01	2.85	2.95	2.97	2.76
Net width (m)	17.58	17.55	17.57	18.09	18.57	18.31	18.13	19.21	18.75	18.45
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	0	0
Alaska skates	45.80	41.51	40.41	20.67	8.29	29.62	0.94	15.20	22.30	50.01
Other skates			0.13				0.13			
Total elasmobranch	**45.8**	**41.5**	**40.5**	**20.7**	**8.3**	**29.6**	**1.1**	**15.2**	**22.3**	**50.0**
Alaska plaice	116.86	50.32	44.63	44.84	33.46	4.24	13.13			
Arrowtooth flounder	52.17	29.89								
Kamchatka flounder										
Flathead sole	105.90	54.56					0.64			7.17
Bering flounder				0.52	0.05	0.06	1.17	0.09	0.02	3.23
Greenland turbot				7.44					0.82	6.22
Pacific halibut	16.35	55.38		1.59	0.50				1.32	4.90
Rock sole	178.11	237.93	28.17	4.30	0.75	3.17	2.99		1.74	15.33
Yellowfin sole	94.14	49.01	12.27	2.50	3.56	1.65	1.00		0.15	
Other flatfish	2.90	23.87								
Total flatfish	**566.4**	**501.0**	**85.1**	**61.2**	**38.3**	**9.1**	**18.9**	**0.1**	**4.1**	**36.8**
Walleye pollock	931.87	1,602.32	688.66	162.88	111.13	1,313.32	862.59	491.83	142.80	666.31
Pacific cod	99.38	179.72	51.58	68.90	38.50	10.88	1.25	1.66	0.45	79.64
Eelpouts	2.18	6.41	5.32	7.69	23.16	14.05	0.25	0.24	3.50	4.22
Pacific herring			5.49			0.14		4.70	14.88	2.22
Pacific ocean perch										
Other rockfish										
Sculpins		48.48	2.65	1.76		1.07	0.02	0.03	0.03	21.22
Other roundfish	3.61	1.25	0.25	2.16	0.05	0.77	0.81	0.99	0.82	0.16
Total roundfish	**1,037.0**	**1,838.2**	**753.9**	**243.4**	**172.8**	**1,340.2**	**864.9**	**499.5**	**162.5**	**773.8**
Blue king crab										
Red king crab										
Tanner crab, bairdi	4.95	53.68	2.33	0.49					0.43	
Tanner crab, opilio	1.74	5.27	89.87	145.45	57.81	36.09	13.67	41.54	30.88	4.36
Other crab	91.17	27.13	37.36	22.15	14.04	34.96	21.73	28.48	7.75	11.75
Shrimp				0.03					0.00	0.08
Octopus										
Squids										
Snails	19.14	16.48	21.71	17.28	17.72	12.19	10.46	29.47	10.74	6.45
Sea stars	135.02	70.95	42.19	45.49	17.25	19.82	4.52	22.75	13.76	6.13
Other invertebrates	492.73	85.86	132.99	50.14	22.44	46.96	34.43	50.09	40.17	94.33
Total invertebrates	**744.7**	**259.4**	**326.5**	**281.0**	**129.3**	**150.0**	**84.8**	**172.3**	**103.7**	**123.1**
Miscellaneous										
Total catch	**2,394.0**	**2,640.0**	**1,206.0**	**606.3**	**348.7**	**1,529.0**	**969.7**	**687.1**	**292.6**	**983.7**

Appendix A Table 1. -- Continued.

Station	**L-24**	**L-23**	**K-23**	**J-23**	**I-23**	**H-22**	**K-25**	**L-25**	**M-25**	**N-25**
Start date and time	07/07/15 13:22	07/07/15 16:39	07/08/15 07:16	07/08/15 10:38	07/08/15 15:06	07/08/15 19:02	07/13/15 07:44	07/13/15 12:27	07/13/15 14:50	07/14/15 07:46
Haul number	134	135	136	137	139	140	141	143	144	145
Start latitude	58.68	58.68	58.34	58.02	57.68	57.35	58.32	58.67	58.99	59.32
Start longitude	-172.38	-171.74	-171.66	-171.61	-171.55	-170.85	-172.93	-173.01	-173.09	-173.17
End latitude	58.66	58.66	58.32	57.99	57.67	57.33	58.35	58.68	59.00	59.35
End longitude	-172.34	-171.70	-171.63	-171.59	-171.51	-170.86	-172.93	-173.01	-173.09	-173.17
Bottom depth (m)	102	93	96	98	100	83	110	112	107	101
Duration (h)	0.50	0.51	0.51	0.51	0.50	0.50	0.53	0.27	0.28	0.54
Distance fished (km)	2.81	2.82	2.81	2.88	2.82	2.72	2.99	1.54	1.57	2.95
Net width (m)	18.36	18.48	18.62	18.52	18.45	17.92	17.63	18.08	18.20	17.88
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	0	0
Alaska skates	69.67	42.74	13.94	26.83	67.52	92.90	168.52	71.78	42.60	61.00
Other skates										
Total elasmobranch	**69.7**	**42.7**	**13.9**	**26.8**	**67.5**	**92.9**	**168.5**	**71.8**	**42.6**	**61.0**
Alaska plaice				9.49		3.09		5.54		3.98
Arrowtooth flounder	4.39				124.38	37.11	219.20	214.06	27.00	
Kamchatka flounder										
Flathead sole	322.83	7.21		6.68	4.78	102.50	23.60	2.70	17.70	8.96
Bering flounder	2.41	0.29							0.79	1.05
Greenland turbot	17.31	2.40	2.02	3.32				9.26	2.32	16.46
Pacific halibut	22.87	3.08	6.61		20.26	42.28	46.44	10.23		63.79
Rock sole	8.15	33.30	23.97	29.73	1.13	35.78	22.91	4.84	3.69	13.35
Yellowfin sole			0.71			2.19				
Other flatfish	13.45			12.89	18.85	8.47	18.11	32.46	16.08	10.60
Total flatfish	**391.4**	**46.3**	**33.3**	**62.1**	**169.4**	**231.4**	**330.3**	**279.1**	**67.6**	**118.2**
Walleye pollock	692.48	822.11	802.73	914.94	340.84	554.05	464.17	129.67	293.21	477.41
Pacific cod	215.07	52.30	136.71	92.29	104.92	152.86	290.95	60.86	66.19	102.52
Eelpouts	2.10	9.61	8.37	84.12	7.84	1.11	5.71	1.18	3.37	14.97
Pacific herring			4.59					0.27	1.24	13.90
Pacific ocean perch										
Other rockfish										
Sculpins	28.65	3.88	10.02	40.92	18.82	27.54	9.36	2.05	4.36	21.01
Other roundfish		0.61	5.63		0.42	0.24	0.16	0.03	0.15	0.51
Total roundfish	**938.3**	**888.5**	**968.1**	**1,132.3**	**472.8**	**735.8**	**770.3**	**194.1**	**368.5**	**630.3**
Blue king crab										2.28
Red king crab										
Tanner crab, bairdi	0.09	0.12	0.10	2.17	35.33	29.83	0.01	0.61	0.35	1.92
Tanner crab, opilio	0.24	16.97	1.29	12.77	7.23		38.92	6.41	3.79	22.79
Other crab	32.57	27.00	23.58	65.42	46.82	1.23	80.59	10.57	29.29	40.40
Shrimp	0.07	0.08	1.04	0.22	1.55		0.61	1.67	1.07	0.70
Octopus										0.06
Squids										
Snails	40.99	77.28	201.87	351.40	160.33	1.37	23.87	20.33	24.36	31.43
Sea stars	11.62	47.99	97.31	20.84	2.37	84.80	3.60	1.12	0.99	13.10
Other invertebrates	155.06	73.04	61.52	35.96	23.73	42.68	33.12	16.25	14.82	50.90
Total invertebrates	**240.6**	**242.5**	**386.7**	**488.8**	**277.4**	**159.9**	**180.7**	**57.0**	**74.7**	**163.6**
Miscellaneous										
Total catch	**1,640.0**	**1,220.0**	**1,402.0**	**1,710.0**	**987.1**	**1,220.0**	**1,449.8**	**601.9**	**553.4**	**973.1**

Appendix A Table 1. -- Continued.

Station	**ON2625**	**N-26**	**N-27**	**O-27**	**PO2726**	**O-26**	**PO2625**	**P-26**	**QP2625**	**Q-25**
Start date and time	07/14/15 10:31	07/14/15 13:39	07/14/15 16:35	07/15/15 07:43	07/15/15 10:30	07/15/15 13:11	07/15/15 15:43	07/15/15 18:32	07/16/15 07:43	07/16/15 12:53
Haul number	146	147	148	149	150	151	152	153	154	159
Start latitude	59.48	59.36	59.33	59.66	59.84	59.67	59.82	59.99	60.11	60.29
Start longitude	-173.50	-173.81	-174.44	-174.47	-174.26	-173.89	-173.58	-173.94	-173.78	-173.38
End latitude	59.51	59.33	59.35	59.67	59.83	59.66	59.84	60.01	60.14	60.30
End longitude	-173.51	-173.84	-174.45	-174.43	-174.21	-173.84	-173.60	-173.96	-173.77	-173.38
Bottom depth (m)	103	110	120	116	107	104	95	97	89	63
Duration (h)	0.53	0.53	0.52	0.52	0.53	0.53	0.52	0.53	0.53	0.27
Distance fished (km)	2.83	2.96	2.93	2.87	2.96	2.88	3.05	2.79	2.87	1.41
Net width (m)	17.53	17.57	17.99	17.41	17.61	17.55	17.36	17.74	18.43	17.44
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	1	0
Alaska skates	61.16	60.54	27.66	69.58	55.20	39.80	4.94	27.78	11.40	12.52
Other skates										
Total elasmobranch	**61.2**	**60.5**	**27.7**	**69.6**	**55.2**	**39.8**	**4.9**	**27.8**	**11.4**	**12.5**
Alaska plaice			1.22	10.84					2.13	13.11
Arrowtooth flounder	4.32	43.42	49.40	49.01	1.72	2.36				
Kamchatka flounder										
Flathead sole	22.30	23.36	11.55	58.46	23.88	13.60	0.19	32.40	2.47	
Bering flounder	2.18	0.92	0.37		9.36	4.42	0.73	14.70	16.38	0.56
Greenland turbot	35.60	28.36	1.78	34.52	24.70	28.94		6.60	1.40	
Pacific halibut	30.43		15.39	7.35	0.87	2.01		6.28		
Rock sole	8.00	3.66	6.48	3.47	2.16	5.48		1.55		5.38
Yellowfin sole										0.57
Other flatfish	13.42	23.98	22.38	27.00	29.10	15.80		10.18		
Total flatfish	**116.2**	**123.7**	**108.6**	**190.6**	**91.8**	**72.6**	**0.9**	**71.7**	**22.4**	**19.6**
Walleye pollock	414.85	320.15	289.29	104.32	263.06	449.27	879.56	905.98	696.97	893.88
Pacific cod	157.38	188.02	84.20	38.18	56.92	145.82	16.26	40.68	7.72	5.51
Eelpouts	9.69	8.55	5.90	5.57	8.09	7.23	0.96	2.15	1.29	2.73
Pacific herring	5.52	0.27	0.47		0.52		1.11	2.01		
Pacific ocean perch										
Other rockfish										
Sculpins	24.09	11.87	7.12	12.94	20.67	22.62	4.91	53.86	0.40	9.40
Other roundfish	0.14	0.32	0.08	0.52	0.44	0.62	0.30	0.61	3.67	0.08
Total roundfish	**611.7**	**529.2**	**387.1**	**161.5**	**349.7**	**625.6**	**903.1**	**1,005.3**	**710.0**	**911.6**
Blue king crab	9.07	1.11	1.91		5.63		2.90			3.09
Red king crab										
Tanner crab, bairdi	0.36	0.65	1.58	0.16		0.13				0.03
Tanner crab, opilio	14.50	25.96	1.97	220.39	2.65	8.20	347.83	16.42	15.89	0.61
Other crab	30.64	39.74	89.89	40.46	59.11	22.52	14.81	21.21	7.09	8.62
Shrimp	5.75	3.27	11.66	0.34	0.42	0.79	0.05	0.60		
Octopus			0.01	1.39	0.01			2.98		
Squids										
Snails	18.25	64.02	47.34	55.61	59.05	31.39	26.12	69.54	2.91	24.06
Sea stars	11.75	3.74	3.62	12.23	119.47	27.47	9.73	110.41	1.57	3.59
Other invertebrates	97.48	41.98	111.94	37.77	89.01	94.09	109.61	230.07	151.08	90.91
Total invertebrates	**187.8**	**180.5**	**269.9**	**368.3**	**335.3**	**184.6**	**511.0**	**451.2**	**178.5**	**130.9**
Miscellaneous										38.56
Total catch	**976.9**	**893.9**	**793.2**	**790.1**	**832.0**	**922.6**	**1,420.0**	**1,556.0**	**922.4**	**1,113.2**

Appendix A Table 1. -- Continued.

Station	**Q-26**	**QP2726**	**P-27**	**Q-27**	**R-27**	**R-26**	**R-25**	**S-26**	**T-26**	**U-26**
Start date and time	07/16/15 15:31	07/16/15 17:32	07/17/15 07:43	07/17/15 10:31	07/17/15 13:19	07/17/15 16:06	07/17/15 18:53	07/18/15 07:43	07/18/15 10:20	07/18/15 13:02
Haul number	160	161	162	163	164	165	166	167	168	169
Start latitude	60.34	60.17	59.99	60.32	60.66	60.66	60.65	60.99	61.32	61.66
Start longitude	-174.05	-174.34	-174.60	-174.71	-174.82	-174.17	-173.48	-174.18	-174.33	-174.37
End latitude	60.33	60.15	60.02	60.35	60.68	60.67	60.68	61.01	61.34	61.66
End longitude	-174.09	-174.37	-174.61	-174.72	-174.82	-174.12	-173.48	-174.19	-174.34	-174.43
Bottom depth (m)	90	100	109	103	98	86	67	83	79	77
Duration (h)	0.52	0.51	0.53	0.51	0.52	0.53	0.51	0.51	0.51	0.51
Distance fished (km)	2.94	2.81	2.93	2.90	2.94	2.95	2.91	2.82	2.79	2.87
Net width (m)	17.93	17.42	17.82	17.56	17.80	16.85	17.35	17.09	17.39	17.19
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	0	0
Alaska skates	4.43	57.12	53.64	34.10	27.00	17.21		9.57	26.72	13.10
Other skates										
Total elasmobranch	**4.4**	**57.1**	**53.6**	**34.1**	**27.0**	**17.2**	**0.0**	**9.6**	**26.7**	**13.1**
Alaska plaice		2.22	1.12		1.24		34.14	3.16	3.28	1.02
Arrowtooth flounder		3.12	10.52							
Kamchatka flounder										
Flathead sole	3.75	35.89	26.88	50.54	31.43	0.67				
Bering flounder	19.21	8.29	3.05	20.08	34.08	26.84	1.51	10.31	1.07	9.44
Greenland turbot	1.38	13.18	28.06	13.85	4.00				0.02	
Pacific halibut	113.75	28.48			3.92			6.28		
Rock sole	3.35	10.29	1.39	1.64	30.20		4.64			
Yellowfin sole							1.17	0.88		
Other flatfish			27.82	2.85			0.13	0.11	0.85	1.05
Total flatfish	**141.4**	**101.5**	**98.8**	**89.0**	**104.9**	**27.5**	**41.6**	**20.7**	**5.2**	**11.5**
Walleye pollock	831.41	783.93	347.79	1,100.67	623.17	968.34	395.19	2,983.49	58.22	46.18
Pacific cod	2.35	36.58	40.58	74.85	5.58	3.30	46.72	2.97		
Eelpouts	19.32	0.72	8.47	1.57	15.03			3.80		1.12
Pacific herring									1.12	
Pacific ocean perch										
Other rockfish										
Sculpins	0.53	48.40	26.82	22.49	0.70	0.96	26.99	1.30	2.00	5.34
Other roundfish	0.29	0.10	0.72	0.15	0.35	0.49	0.60	0.61	5.40	5.65
Total roundfish	**853.9**	**869.7**	**424.4**	**1,199.7**	**644.8**	**973.1**	**469.5**	**2,992.2**	**66.7**	**58.3**
Blue king crab		4.16	1.02				0.48			
Red king crab										
Tanner crab, bairdi										
Tanner crab, opilio	18.02	0.82	2.00	10.99	46.48	124.70	83.27	102.88	46.63	47.50
Other crab	0.26	28.32	31.96	1.29	1.21	1.02	11.70	0.92	3.32	10.20
Shrimp		2.31	1.68	5.26	0.02		0.01		0.28	0.07
Octopus			2.60				0.04			0.28
Squids										
Snails	0.27	34.21	66.93	24.30	1.32	0.70	8.95	0.53	4.94	25.14
Sea stars	2.01	115.85	142.48	218.48	2.10	0.61	7.89	7.82	9.41	10.75
Other invertebrates	259.69	116.04	65.53	46.89	79.02	145.18	61.88	45.34	113.18	57.34
Total invertebrates	**280.2**	**301.7**	**314.2**	**307.2**	**130.1**	**272.2**	**174.2**	**157.5**	**177.8**	**151.3**
Miscellaneous							36.36			
Total catch	**1,280.0**	**1,330.0**	**891.1**	**1,630.0**	**906.9**	**1,290.0**	**721.7**	**3,180.0**	**276.4**	**234.2**

Appendix A Table 1. -- Continued.

Station	**U-27**	**T-27**	**S-27**	**S-28**	**R-28**	**Q-28**	**P-28**	**O-28**	**N-28**	**N-29**
Start date and time	07/18/15 15:45	07/19/15 07:43	07/19/15 10:33	07/19/15 13:32	07/19/15 16:38	07/20/15 13:16	07/20/15 17:39	07/21/15 07:45	07/21/15 11:59	07/21/15 15:04
Haul number	170	171	172	173	174	175	177	178	180	181
Start latitude	61.68	61.35	61.02	61.01	60.67	60.35	60.01	59.68	59.33	59.33
Start longitude	-175.08	-175.01	-174.86	-175.54	-175.46	-175.40	-175.27	-175.10	-175.08	-175.74
End latitude	61.65	61.32	61.00	60.99	60.65	60.32	59.99	59.65	59.35	59.35
End longitude	-175.09	-175.00	-174.90	-175.54	-175.44	-175.38	-175.26	-175.10	-175.12	-175.76
Bottom depth (m)	85	88	92	102	107	112	117	126	133	137
Duration (h)	0.50	0.53	0.54	0.50	0.52	0.52	0.51	0.53	0.52	0.52
Distance fished (km)	2.95	2.90	3.12	2.89	2.90	3.04	2.93	2.93	2.93	2.85
Net width (m)	17.58	18.00	17.93	17.77	18.29	18.73	17.95	18.31	17.93	18.03
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	6	0	0	0	0	0	0	0
Alaska skates	5.44	39.80	28.98	52.40	29.80	82.46	127.60	68.82	111.80	35.48
Other skates										3.05
Total elasmobranch	**5.4**	**39.8**	**29.0**	**52.4**	**29.8**	**82.5**	**127.6**	**68.8**	**111.8**	**38.5**
Alaska plaice						2.28	2.26	10.02		
Arrowtooth flounder						18.06	90.88	60.94	92.95	53.49
Kamchatka flounder										
Flathead sole			1.63	5.13	55.64	53.47	28.72	10.73	40.48	16.42
Bering flounder	4.25	10.70	18.12	13.07	35.98	6.46	0.53			
Greenland turbot		0.01	5.52	14.20	30.20	28.20	30.44	19.82	0.55	
Pacific halibut								167.24	48.18	5.56
Rock sole			0.85		1.44	0.36	2.15		0.44	
Yellowfin sole										
Other flatfish	0.03			8.97	21.86	18.22	26.20	8.43	11.43	14.31
Total flatfish	**4.3**	**10.7**	**26.1**	**41.4**	**145.1**	**127.1**	**181.2**	**277.2**	**194.0**	**89.8**
Walleye pollock	11.57	208.76	1,741.22	1,810.21	1,006.55	532.69	360.47	418.87	421.07	824.92
Pacific cod		0.56	4.48	83.60	28.48	37.32	75.50	139.52	108.16	85.24
Eelpouts	2.40	0.89	38.12	14.43	0.83	6.88	6.77	0.60	3.15	19.77
Pacific herring				1.35	0.88		0.21			
Pacific ocean perch										
Other rockfish										
Sculpins	1.55	0.56	5.34	3.18	4.83	43.45	9.69	45.99	6.81	26.84
Other roundfish	1.73	5.79	5.31	2.05	0.55	0.43			0.37	2.92
Total roundfish	**17.2**	**216.6**	**1,794.5**	**1,914.8**	**1,042.1**	**620.8**	**452.6**	**605.0**	**539.6**	**959.7**
Blue king crab										
Red king crab										
Tanner crab, bairdi									0.06	0.51
Tanner crab, opilio	3.65	19.00	41.48	23.34	19.33	19.38	6.53	159.86	39.58	1.61
Other crab	2.13	1.05	0.11	0.60	6.78	20.80	19.51	10.83	23.97	17.72
Shrimp		0.06		0.06	1.28	0.65	24.86	1.00	15.24	4.27
Octopus			2.01						0.04	
Squids										
Snails	8.50	2.35	1.55	2.52	32.50	57.46	34.22	91.17	67.14	43.98
Sea stars	4.85	5.69	1.23	27.71	41.72	13.29	4.06	2.82	88.24	517.38
Other invertebrates	44.26	29.38	84.07	67.17	41.36	27.13	32.44	13.36	10.37	26.54
Total invertebrates	**63.4**	**57.5**	**130.4**	**121.4**	**143.0**	**138.7**	**121.6**	**279.0**	**244.6**	**612.0**
Miscellaneous										
Total catch	**90.3**	**324.6**	**1,980.0**	**2,130.0**	**1,360.0**	**969.0**	**883.0**	**1,230.0**	**1,090.0**	**1,700.0**

Appendix A Table 1. -- Continued.

Station	**M-29**	**M-30**	**L-30**	**I-26**	**J-26**	**K-27**	**L-27**	**L-28**	**L-29**	**M-28**
Start date and time	07/22/15 07:45	07/22/15 10:41	07/22/15 13:39	07/23/15 09:11	07/23/15 16:38	07/24/15 07:47	07/24/15 10:30	07/24/15 15:32	07/25/15 07:44	07/25/15 12:29
Haul number	182	183	184	187	191	192	193	195	196	198
Start latitude	59.02	59.01	58.66	57.65	57.99	58.32	58.65	58.72	58.65	59.01
Start longitude	-175.74	-176.31	-176.22	-173.38	-173.47	-174.29	-174.28	-174.88	-175.56	-174.98
End latitude	58.99	58.98	58.67	57.67	58.01	58.35	58.68	58.72	58.68	59.00
End longitude	-175.74	-176.31	-176.17	-173.39	-173.50	-174.31	-174.28	-174.93	-175.56	-175.03
Bottom depth (m)	134	135	141	144	118	162	158	160	135	129
Duration (h)	0.51	0.52	0.52	0.52	0.51	0.52	0.50	0.52	0.50	0.52
Distance fished (km)	2.98	3.00	2.97	2.89	2.72	2.78	2.88	2.85	2.69	2.90
Net width (m)	18.03	18.25	18.21	18.03	17.41	18.09	18.11	18.27	17.57	17.99
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	0	0
Alaska skates	40.50	92.00	8.89	13.80	44.94	21.55	29.54	20.53	53.90	97.84
Other skates	7.45	1.71		10.51		13.37	76.38	4.83	9.50	31.16
Total elasmobranch	**48.0**	**93.7**	**8.9**	**24.3**	**44.9**	**34.9**	**105.9**	**25.4**	**63.4**	**129.0**
Alaska plaice										
Arrowtooth flounder	117.47	215.96	52.48	184.25	109.22	70.61	219.76	341.86	111.00	224.80
Kamchatka flounder										
Flathead sole	110.59	171.94	65.51	62.68	20.98	4.21	84.08	134.35	49.12	85.88
Bering flounder										
Greenland turbot						7.62			1.26	10.12
Pacific halibut	2.78	7.18	4.49	2.93	20.10		2.64	1.59	18.72	40.43
Rock sole		0.75		8.46	0.99					7.64
Yellowfin sole										
Other flatfish	17.90	14.30	9.33	24.73	15.82	13.53	6.50	8.51	18.08	18.26
Total flatfish	**248.7**	**410.1**	**131.8**	**283.0**	**167.1**	**96.0**	**313.0**	**486.3**	**198.2**	**387.1**
Walleye pollock	2,257.56	34.98	16.81	5,081.47	95.31	192.56	1,334.43	130.86	109.06	232.23
Pacific cod	72.02	37.20	49.30	9.50	79.00	34.10	129.20	30.90	50.52	63.70
Eelpouts	8.98	0.15							0.13	0.29
Pacific herring										
Pacific ocean perch				338.79		2,523.29				
Other rockfish						4.90				
Sculpins	12.53	21.55	3.77	14.36	5.94	13.02	7.99	3.61	0.15	1.80
Other roundfish	0.21		0.05			0.30	5.72	1.05	0.20	0.28
Total roundfish	**2,351.3**	**93.9**	**69.9**	**5,444.1**	**180.2**	**2,768.2**	**1,477.3**	**166.4**	**160.0**	**298.3**
Blue king crab										
Red king crab										
Tanner crab, bairdi	0.32	0.02	0.32	1.54	0.32	0.37	1.61	0.11	113.04	0.34
Tanner crab, opilio	0.02	0.20	0.03		209.28	1.06	0.02	0.22	61.04	0.14
Other crab	31.59	0.19	25.57	7.39	12.93	12.22	8.26	3.43	24.69	17.88
Shrimp	0.97	0.30	0.02	0.09	0.03	0.56	0.15	0.07	0.04	0.46
Octopus	8.64	6.47					0.04	3.14		
Squids	0.14	0.06		0.89		0.08		0.01	0.02	
Snails	18.17	21.37	5.89	5.25	24.74	5.09	17.59	2.99	8.70	18.59
Sea stars	36.80	7.10	0.29		7.23	8.56	0.83	0.42	0.01	2.22
Other invertebrates	35.37	21.65	5.35	0.37	483.18	13.01	29.28	7.47	11.69	15.29
Total invertebrates	**132.0**	**57.4**	**37.5**	**15.5**	**737.7**	**41.0**	**57.8**	**17.9**	**219.2**	**54.9**
Miscellaneous										
Total catch	**2,780.0**	**655.1**	**248.1**	**5,767.0**	**1,130.0**	**2,940.0**	**1,954.0**	**695.9**	**640.9**	**869.4**

Appendix A Table 1. -- Continued.

Station	**K-26**	**L-26**	**M-26**	**M-27**	**H-24**	**G-24**	**F-24**
Start date and time	07/26/15 07:43	07/26/15 10:27	07/26/15 14:41	07/27/15 16:33	07/29/15 07:53	07/29/15 12:51	07/29/15 17:23
Haul number	201	202	204	207	213	216	218
Start latitude	58.32	58.65	58.98	59.01	57.35	57.01	56.68
Start longitude	-173.57	-173.63	-173.70	-174.36	-172.10	-172.06	-171.99
End latitude	58.35	58.68	59.00	58.99	57.32	57.00	56.66
End longitude	-173.58	-173.64	-173.72	-174.35	-172.10	-172.03	-171.96
Bottom depth (m)	115	126	118	127	109	117	126
Duration (h)	0.51	0.52	0.51	0.42	0.52	0.35	0.51
Distance fished (km)	2.80	2.92	2.80	2.30	2.83	1.89	2.84
Net width (m)	17.69	17.80	17.77	17.70	17.61	16.18	16.40
Net measured?	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0
Alaska skates	46.60	59.76	97.32	32.39	45.04	15.67	6.67
Other skates		2.76	4.20	2.33		1.45	5.25
Total elasmobranch	**46.6**	**62.5**	**101.5**	**34.7**	**45.0**	**17.1**	**11.9**
Alaska plaice			2.30				
Arrowtooth flounder	85.70	307.14	118.42	171.46	74.08	65.79	73.37
Kamchatka flounder							
Flathead sole	40.95	74.06	15.10	29.80	15.60	23.72	24.00
Bering flounder							
Greenland turbot							
Pacific halibut	20.30	16.34	69.00	13.15	1.79	2.13	18.37
Rock sole	24.88	24.56	17.94	2.46			3.12
Yellowfin sole							
Other flatfish	13.26	19.95	34.84	47.50	15.74	4.56	1.44
Total flatfish	**185.1**	**442.1**	**257.6**	**264.4**	**107.2**	**96.2**	**120.3**
Walleye pollock	166.64	2,263.41	179.20	428.57	1,614.92	636.88	1,325.21
Pacific cod	36.16	86.58	74.42	41.80	73.41	24.02	34.70
Eelpouts	0.94		1.36	3.01	1.85	0.14	
Pacific herring			0.32		1.43		
Pacific ocean perch						1.22	
Other rockfish							
Sculpins	2.88	3.80	12.98	11.67	13.63	0.09	0.06
Other roundfish	0.13	0.17	0.13	1.42	0.14	0.00	
Total roundfish	**206.8**	**2,354.0**	**268.4**	**486.5**	**1,705.4**	**662.3**	**1,360.0**
Blue king crab							
Red king crab							
Tanner crab, bairdi	0.04	1.82	1.19	0.58	3.01	0.97	1.40
Tanner crab, opilio	160.17	62.27	147.82	39.32	68.23	11.35	
Other crab	10.01	122.29	52.62	61.65	43.56	3.94	8.84
Shrimp	0.06		10.02	0.95	1.19	1.18	0.63
Octopus							
Squids							
Snails	15.59	40.03	35.01	16.03	31.50	3.39	14.48
Sea stars	2.57	1.53	1.87	3.15	7.80	0.99	9.45
Other invertebrates	2.99	13.53	23.79	72.26	177.07	442.52	473.02
Total invertebrates	**191.4**	**241.5**	**272.3**	**193.9**	**332.4**	**464.3**	**507.8**
Miscellaneous							
Total catch	**629.9**	**3,100.0**	**899.8**	**979.5**	**2,190.0**	**1,240.0**	**2,000.0**

Appendix A Table 2. -- Haul and catch data for successfully completed tows by FV *Alaska Knight* during the 2015 eastern Bering Sea bottom trawl survey.

Station	**H-16**	**I-16**	**J-16**	**K-14**	**J-14**	**I-14**	**H-14**	**G-14**	**F-14**	**F-13**
Start date and time	06/02/15 12:17	06/02/15 15:03	06/02/15 17:47	06/03/15 07:04	06/03/15 09:44	06/03/15 12:21	06/03/15 14:50	06/03/15 17:15	06/04/15 07:07	06/04/15 09:46
Haul number	3	4	5	6	7	8	9	10	11	12
Start latitude	57.32	57.66	57.98	58.35	58.00	57.67	57.34	57.01	56.68	56.67
Start longitude	-158.41	-158.36	-158.34	-159.57	-159.58	-159.63	-159.67	-159.72	-159.74	-160.36
End latitude	57.35	57.69	58.01	58.33	57.97	57.64	57.31	56.99	56.67	56.67
End longitude	-158.39	-158.36	-158.35	-159.56	-159.59	-159.63	-159.67	-159.73	-159.78	-160.41
Bottom depth (m)	32	36	33	26	41	50	55	55	38	61
Duration (h)	0.52	0.52	0.52	0.53	0.53	0.52	0.51	0.51	0.51	0.52
Distance fished (km)	2.82	2.85	2.82	2.98	2.91	2.86	2.85	2.74	2.77	2.80
Net width (m)	14.00	14.54	14.23	13.92	14.70	15.07	15.10	15.07	14.10	15.62
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	0	0
Alaska skates	71.72	94.48	77.00		56.24	121.95	54.96	49.20		91.25
Other skates										
Total elasmobranch	**71.7**	**94.5**	**77.0**	**0.0**	**56.2**	**122.0**	**55.0**	**49.2**	**0.0**	**91.3**
Alaska plaice	4.98			1.48		19.72		2.12	3.07	
Arrowtooth flounder										
Kamchatka flounder										
Flathead sole					0.49	4.43	2.71	5.30	22.29	39.75
Bering flounder										
Greenland turbot										
Pacific halibut	21.43	28.00	10.45	2.69	26.92	5.47	6.52	22.55	13.94	1.91
Rock sole	1,549.04	626.89	622.22	22.06	2,240.91	433.17	500.11	996.72	1,028.83	884.13
Yellowfin sole	586.87	202.08	1,497.80	443.94	466.27	889.42	189.77	337.09	150.52	1,632.55
Other flatfish	8.12	15.21	12.28	29.67	6.01	440.29	6.30	6.83	104.76	9.98
Total flatfish	**2,170.4**	**872.2**	**2,142.7**	**499.8**	**2,740.6**	**1,792.5**	**705.4**	**1,370.6**	**1,323.4**	**2,568.3**
Walleye pollock	28.64	42.23	112.21	15.54	14.53	53.84	162.51	647.74	48.77	1,565.25
Pacific cod	101.77	217.16	99.63	11.90	101.80	104.55	168.56	317.49	1,090.03	56.30
Eelpouts										
Pacific herring	108.32	2.20								
Pacific ocean perch										
Other rockfish										
Sculpins	47.91	25.58	9.42	4.29	60.79	9.65	13.79	18.05	26.40	9.34
Other roundfish	3.85	6.23	2.41	2.71	3.48	2.84	1.87	1.19	1.97	9.49
Total roundfish	**290.5**	**293.4**	**223.7**	**34.4**	**180.6**	**170.9**	**346.7**	**984.5**	**1,167.2**	**1,640.4**
Blue king crab										
Red king crab			3.89		5.94	56.12	19.29	20.52	2.24	23.97
Tanner crab, bairdi	2.34	0.31		0.56	3.53	10.26	30.27	20.76	7.62	7.81
Tanner crab, opilio										
Other crab	4.92	0.33	3.57	0.81	5.33	2.99	0.07	10.43	1.45	77.87
Shrimp				0.01		0.00				
Octopus										
Squids										
Snails			0.30	0.00		0.67		1.93		21.39
Sea stars	178.14	163.56	140.41	155.37	422.83	128.25	253.90	101.89	190.55	142.18
Other invertebrates	6.97	1.75	4.42	1.12	0.92	2.39	15.38	100.21	27.54	260.84
Total invertebrates	**192.4**	**165.9**	**152.6**	**157.9**	**438.6**	**200.7**	**318.9**	**255.7**	**229.4**	**534.1**
Miscellaneous										
Total catch	**2,725.0**	**1,426.0**	**2,596.0**	**692.1**	**3,416.0**	**2,286.0**	**1,426.0**	**2,660.0**	**2,720.0**	**4,834.0**

Appendix A Table 2. -- Continued.

Station	**F-12**	**E-12**	**E-11**	**G-12**	**H-12**	**I-12**	**J-12**	**K-12**	**K-11**	**K-10**
Start date and time	06/04/15 12:37	06/04/15 15:15	06/04/15 18:09	06/05/15 07:07	06/05/15 10:03	06/05/15 12:52	06/05/15 15:35	06/06/15 09:47	06/06/15 12:40	06/06/15 15:14
Haul number	13	14	15	16	17	18	19	21	22	23
Start latitude	56.66	56.34	56.33	57.01	57.32	57.66	57.99	58.32	58.23	58.32
Start longitude	-160.97	-161.00	-161.60	-160.94	-160.93	-160.88	-160.84	-160.75	-161.56	-162.04
End latitude	56.66	56.32	56.33	57.01	57.35	57.68	58.01	58.32	58.21	58.33
End longitude	-161.02	-161.00	-161.65	-160.99	-160.92	-160.88	-160.84	-160.78	-161.54	-162.09
Bottom depth (m)	68	52	63	63	66	57	45	24	41	47
Duration (h)	0.52	0.51	0.53	0.52	0.54	0.53	0.52	0.28	0.52	0.49
Distance fished (km)	2.80	2.79	2.98	2.83	2.90	2.91	2.91	1.54	2.93	2.75
Net width (m)	16.15	15.48	16.11	16.40	17.08	16.32	16.27	13.70	15.87	15.58
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	0	0
Alaska skates	31.47	92.80	41.20	1.44	2.08	36.80	33.60		106.29	34.28
Other skates					13.50					
Total elasmobranch	**31.5**	**92.8**	**41.2**	**1.4**	**15.6**	**36.8**	**33.6**	**0.0**	**106.3**	**34.3**
Alaska plaice	17.40	200.66	22.72	14.02	160.89	25.66	40.21	0.93	0.61	1.99
Arrowtooth flounder	15.09	8.18	13.28	0.62	8.29					
Kamchatka flounder										
Flathead sole	17.60	32.94	30.48	10.96	28.37	13.15	3.07		1.00	
Bering flounder										
Greenland turbot										
Pacific halibut	8.47	35.06	18.89	4.51	4.75	3.08	2.38	125.82	22.33	5.16
Rock sole	404.25	756.33	849.24	298.27	492.00	405.46	177.97	53.05	271.90	238.78
Yellowfin sole	600.86	1,350.83	1,245.69	192.84	536.80	647.55	668.93	371.70	183.39	158.79
Other flatfish	0.36	17.84	36.28	104.33			17.55	1.92	141.38	4.16
Total flatfish	**1,064.0**	**2,401.8**	**2,216.6**	**625.6**	**1,231.1**	**1,094.9**	**910.1**	**553.4**	**620.6**	**408.9**
Walleye pollock	78.06	801.02	1,419.76	529.29	834.76	120.62	132.04	6.81	62.82	47.39
Pacific cod	14.47	81.40	42.80	16.67	30.53	30.14	64.58	334.78	126.16	92.22
Eelpouts										
Pacific herring		41.62							30.08	1.47
Pacific ocean perch										
Other rockfish										
Sculpins	20.06	10.86	5.80	11.50	7.24	4.34	6.50	9.31	52.20	4.33
Other roundfish	3.35	11.54	2.78	4.63	3.75	1.01	3.88	2.98	5.92	2.31
Total roundfish	**115.9**	**946.4**	**1,471.1**	**562.1**	**876.3**	**156.1**	**207.0**	**353.9**	**277.2**	**147.7**
Blue king crab										
Red king crab	209.99	92.23	280.85	111.21	123.91	72.83	18.03		7.37	7.12
Tanner crab, bairdi	34.90	11.73	8.74	5.06	6.11	4.89	29.32		0.16	1.39
Tanner crab, opilio										
Other crab	7.29	103.79	22.79	10.19	3.28	16.03	11.49	0.87	4.81	6.71
Shrimp					0.02		0.04		0.00	0.01
Octopus										
Squids										
Snails	1.21	49.56	12.39			4.72	1.64		0.31	6.69
Sea stars	41.60	297.50	40.43	77.18	29.88	49.97	44.94	278.99	44.05	122.53
Other invertebrates	73.57	194.13	115.89	107.28	63.85	38.74	1.84	2.85	4.24	13.45
Total invertebrates	**368.6**	**748.9**	**481.1**	**310.9**	**227.0**	**187.2**	**107.3**	**282.7**	**60.9**	**157.9**
Miscellaneous										
Total catch	**1,580.0**	**4,190.0**	**4,210.0**	**1,500.0**	**2,350.0**	**1,475.0**	**1,258.0**	**1,190.0**	**1,065.0**	**748.8**

Appendix A Table 2. -- Continued.

Station	**J-10**	**I-10**	**H-10**	**G-10**	**F-10**	**E-10**	**D-08**	**E-08**	**F-08**	**G-08**
Start date and time	06/06/15 17:37	06/07/15 07:02	06/07/15 09:35	06/07/15 12:08	06/07/15 14:43	06/07/15 17:15	06/08/15 07:04	06/08/15 09:55	06/08/15 12:16	06/08/15 14:45
Haul number	24	25	26	27	28	29	30	31	32	33
Start latitude	58.01	57.68	57.34	57.01	56.68	56.35	56.00	56.33	56.66	56.99
Start longitude	-162.12	-162.12	-162.15	-162.16	-162.18	-162.18	-163.40	-163.42	-163.37	-163.39
End latitude	57.99	57.65	57.32	56.99	56.65	56.33	56.02	56.34	56.68	57.01
End longitude	-162.12	-162.15	-162.16	-162.17	-162.18	-162.19	-163.39	-163.42	-163.38	-163.39
Bottom depth (m)	37	47	51	61	71	78	88	85	75	66
Duration (h)	0.50	0.52	0.50	0.51	0.50	0.42	0.50	0.27	0.52	0.50
Distance fished (km)	2.67	2.80	2.78	2.82	2.76	2.37	2.74	1.44	2.83	2.70
Net width (m)	14.84	15.73	16.07	16.02	15.28	15.38	17.05	16.55	17.10	16.45
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	1	0	0
Alaska skates	13.41	14.10	32.02	3.62	5.84	2.41	27.43	1.25	13.82	45.14
Other skates				7.11			0.02			
Total elasmobranch	**13.4**	**14.1**	**32.0**	**10.7**	**5.8**	**2.4**	**27.5**	**1.3**	**13.8**	**45.1**
Alaska plaice	1.56	15.33	20.66	146.99	183.04	13.39	1.38	2.70	1.54	167.52
Arrowtooth flounder				12.68	46.00	22.80	126.26	21.00	22.28	8.91
Kamchatka flounder										
Flathead sole	7.68	13.47	10.97	23.06	96.53	59.96	43.39	22.40	21.80	69.59
Bering flounder										
Greenland turbot										
Pacific halibut	17.20	24.43	23.94	2.25	12.39	0.81	11.45	17.24	2.25	0.81
Rock sole	134.25	229.55	393.38	172.25	473.82	141.95	27.00	15.90	28.88	8.74
Yellowfin sole	325.55	425.89	363.65	275.66	284.34	91.27	8.50	17.77	372.05	396.31
Other flatfish	11.04			1.12			6.49	2.53	1.20	0.34
Total flatfish	**497.3**	**708.7**	**812.6**	**634.0**	**1,096.1**	**330.2**	**224.5**	**99.5**	**450.0**	**652.2**
Walleye pollock	5.02	918.26	25.20	50.73	101.70	112.41	90.08	118.09	17.72	42.10
Pacific cod	20.92	73.14	21.20	36.27	38.45	32.87	7.42			
Eelpouts								0.41		
Pacific herring	0.22		0.99							
Pacific ocean perch										
Other rockfish										
Sculpins	4.48	8.55	11.69	20.84	39.01	25.07	1.36	2.32	5.42	5.07
Other roundfish	7.48	2.39	3.55	3.33		1.03	0.68	0.11	0.21	0.01
Total roundfish	**38.1**	**1,002.3**	**62.6**	**111.2**	**179.2**	**171.4**	**99.5**	**120.9**	**23.4**	**47.2**
Blue king crab										
Red king crab	11.70	20.47	67.09	7.05	72.14	52.76	27.52		42.33	2.03
Tanner crab, bairdi	3.45	2.25	4.55	0.44	7.38	8.73	36.09	14.67	18.96	7.08
Tanner crab, opilio	0.44								1.23	0.29
Other crab	11.82	6.45	3.58	2.29	0.60	5.51	50.59	6.29	52.95	8.06
Shrimp	0.00			0.01			0.17	0.00		
Octopus										
Squids										
Snails	11.59	2.97	10.20			8.89	61.73	13.93	60.86	34.84
Sea stars	292.45	169.83	65.96	194.95	48.14	17.86	5.73	17.58	134.79	93.75
Other invertebrates	8.55	8.91	21.39	74.72	3,078.62	1,336.28	130.69	730.18	184.99	315.31
Total invertebrates	**340.0**	**210.9**	**172.8**	**279.5**	**3,206.9**	**1,430.0**	**312.5**	**782.6**	**496.1**	**461.4**
Miscellaneous										
Total catch	**888.8**	**1,936.0**	**1,080.0**	**1,035.4**	**4,488.0**	**1,934.0**	**664.0**	**1,004.4**	**983.3**	**1,205.9**

Appendix A Table 2. -- Continued.

Station	**H-08**	**I-08**	**J-08**	**K-08**	**L-08**	**M-08**	**N-07**	**M-07**	**L-07**	**K-07**
Start date and time	06/08/15 17:20	06/09/15 06:58	06/09/15 09:39	06/09/15 12:06	06/09/15 14:26	06/09/15 16:58	06/11/15 06:55	06/11/15 09:22	06/11/15 11:48	06/11/15 14:35
Haul number	34	35	36	37	38	39	40	41	42	43
Start latitude	57.33	57.65	57.99	58.33	58.65	58.98	59.35	59.01	58.69	58.35
Start longitude	-163.38	-163.36	-163.38	-163.36	-163.34	-163.34	-164.01	-164.00	-163.99	-163.99
End latitude	57.35	57.67	58.01	58.35	58.68	59.00	59.33	58.99	58.67	58.32
End longitude	-163.38	-163.39	-163.39	-163.37	-163.36	-163.38	-164.01	-164.01	-164.00	-163.99
Bottom depth (m)	53	46	43	37	32	23	23	28	34	41
Duration (h)	0.50	0.50	0.52	0.50	0.51	0.51	0.51	0.50	0.51	0.49
Distance fished (km)	2.72	2.82	2.81	2.70	2.71	2.74	2.79	2.75	2.72	2.67
Net width (m)	16.09	15.65	15.66	14.47	14.01	14.27	14.84	14.50	15.31	15.45
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	0	0
Alaska skates	13.74	8.46	49.04	106.40	39.96			25.20	103.80	58.52
Other skates										
Total elasmobranch	**13.7**	**8.5**	**49.0**	**106.4**	**40.0**	**0.0**	**0.0**	**25.2**	**103.8**	**58.5**
Alaska plaice	39.45	3.15	5.09	6.74	102.85	0.50	1.26	11.78	13.01	9.00
Arrowtooth flounder	3.43									
Kamchatka flounder										
Flathead sole	6.42	1.32		0.82						0.90
Bering flounder										
Greenland turbot										
Pacific halibut	8.41	28.11	40.92	65.93	1.32			67.28	8.78	36.27
Rock sole	63.81	87.67	230.75	391.20	185.94	101.19		364.70	240.77	199.68
Yellowfin sole	178.52	39.75	808.39	461.31	683.90	184.64	656.40	186.79	834.63	397.94
Other flatfish			3.56	5.70	18.32	5.73	6.90	4.58		
Total flatfish	**300.0**	**160.0**	**1,088.7**	**931.7**	**992.3**	**292.1**	**664.6**	**635.1**	**1,097.2**	**643.8**
Walleye pollock	78.30	239.21	35.40	19.70	9.70	8.53	6.10	55.42	46.36	115.82
Pacific cod	10.17	75.99	58.70	11.26	116.83	37.78	15.80	129.42	122.62	140.30
Eelpouts										
Pacific herring			9.17			0.04	4.70	2.41		0.30
Pacific ocean perch										
Other rockfish										
Sculpins	17.26	8.50	7.18	15.00	24.80	12.38	5.57	74.58	4.14	5.70
Other roundfish	5.31	410.75	3.44	1.57	5.94	3.07	19.12	53.55	4.76	3.74
Total roundfish	**111.0**	**734.5**	**113.9**	**47.5**	**157.3**	**61.8**	**51.3**	**315.4**	**177.9**	**265.9**
Blue king crab										
Red king crab				1.29	1.19			3.28	1.57	3.48
Tanner crab, bairdi	2.01	3.63	3.78	2.01	0.22				0.23	1.46
Tanner crab, opilio										
Other crab	5.71	326.75	12.10	4.60	0.78	0.87	0.43	4.00	7.71	2.77
Shrimp						0.01	0.01			
Octopus										
Squids										
Snails	10.26	343.29	3.01	3.79	0.06					0.02
Sea stars	60.94	35.10	291.19	307.28	315.40	129.06	168.40	247.51	171.21	128.80
Other invertebrates	127.87	956.32	48.28	6.05	2.03	7.37	0.21	3.06	2.41	15.98
Total invertebrates	**206.8**	**1,665.1**	**358.4**	**325.0**	**319.7**	**137.3**	**169.0**	**257.8**	**183.1**	**152.5**
Miscellaneous										
Total catch	**631.6**	**2,568.0**	**1,610.0**	**1,410.7**	**1,509.2**	**491.2**	**884.9**	**1,233.6**	**1,562.0**	**1,120.7**

Appendix A Table 2. -- Continued.

Station	**J-07**	**I-07**	**H-07**	**G-07**	**F-07**	**E-07**	**E-06**	**F-06**	**G-06**	**H-06**
Start date and time	06/11/15 17:16	06/12/15 06:59	06/12/15 09:33	06/12/15 12:02	06/12/15 14:36	06/12/15 17:11	06/13/15 07:01	06/13/15 09:42	06/13/15 12:15	06/13/15 14:49
Haul number	44	45	46	47	48	49	50	51	52	53
Start latitude	58.01	57.68	57.34	57.01	56.68	56.35	56.32	56.66	56.98	57.32
Start longitude	-164.00	-164.02	-164.02	-164.03	-164.02	-163.97	-164.58	-164.59	-164.61	-164.62
End latitude	57.98	57.66	57.32	56.99	56.65	56.33	56.34	56.68	57.01	57.35
End longitude	-163.99	-163.99	-164.02	-164.04	-164.01	-163.96	-164.58	-164.59	-164.61	-164.63
Bottom depth (m)	47	51	61	68	75	84	88	75	69	65
Duration (h)	0.51	0.51	0.51	0.50	0.51	0.50	0.51	0.53	0.52	0.52
Distance fished (km)	2.89	2.76	2.78	2.72	2.78	2.74	2.78	2.87	2.83	2.83
Net width (m)	16.40	16.00	16.32	16.78	18.14	17.30	17.13	16.95	16.80	16.82
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	0	0
Alaska skates	28.60	21.00	25.30	2.36	13.42	14.88	9.60	7.65	7.94	12.08
Other skates						2.00	2.25			
Total elasmobranch	**28.6**	**21.0**	**25.3**	**2.4**	**13.4**	**16.9**	**11.9**	**7.7**	**7.9**	**12.1**
Alaska plaice	17.12	41.51	139.67	43.15	9.95			39.41	127.81	40.87
Arrowtooth flounder		0.18	5.92	13.37	9.14	122.39	111.35	13.28	9.80	
Kamchatka flounder										
Flathead sole		10.38	21.94	6.36	10.93	8.24	18.70	31.80	3.96	20.36
Bering flounder										
Greenland turbot										
Pacific halibut	61.47	19.02	19.74		4.29	4.10		3.40		4.69
Rock sole	50.41	249.45	18.55	4.11	11.90	7.50	4.14	41.13	15.91	51.34
Yellowfin sole	664.91	333.03	292.87	71.00	213.20	8.28	7.32	1,163.71	265.59	542.92
Other flatfish		1.74		4.60	2.60	13.97	14.58	1.02	0.42	
Total flatfish	**793.9**	**655.3**	**498.7**	**142.6**	**262.0**	**164.5**	**156.1**	**1,293.7**	**423.5**	**660.2**
Walleye pollock	882.81	496.32	142.87	145.06	940.89	242.32	106.97	91.84	265.07	231.96
Pacific cod	396.55	82.92	44.37	10.60	54.29	3.74	2.00	24.93	73.48	46.80
Eelpouts				2.27	5.63	1.92	6.94	40.21	6.80	2.59
Pacific herring					8.93					
Pacific ocean perch										
Other rockfish										
Sculpins	5.45	8.47	6.54	0.04	0.35	1.18	0.01	4.60	12.40	27.01
Other roundfish	4.14	9.56	4.18	0.48	0.59	0.10	0.03	0.94	2.29	2.22
Total roundfish	**1,288.9**	**597.3**	**198.0**	**158.5**	**1,010.7**	**249.3**	**115.9**	**162.5**	**360.0**	**310.6**
Blue king crab										
Red king crab	1.10	4.61	0.92			12.73				
Tanner crab, bairdi	8.34	24.80	11.56	4.47	5.72	33.94	24.18	18.39	12.27	6.85
Tanner crab, opilio		1.39				0.45	4.35	1.16	0.35	1.43
Other crab	12.70	37.27	5.12	8.99	17.19	41.06	62.99	31.39	7.49	22.36
Shrimp				0.00		0.01	0.04		0.01	
Octopus										
Squids										
Snails	5.06	66.39	5.23	22.21	76.98	34.74	143.62	214.43	81.52	64.20
Sea stars	292.74	257.75	163.74	105.36	31.57	23.62	235.11	126.24	146.03	31.25
Other invertebrates	78.63	180.22	149.49	190.83	63.45	312.11	152.55	196.48	111.05	239.07
Total invertebrates	**398.6**	**572.4**	**336.1**	**331.9**	**194.9**	**458.7**	**622.8**	**588.1**	**358.7**	**365.2**
Miscellaneous										
Total catch	**2,510.0**	**1,846.0**	**1,058.0**	**635.3**	**1,481.0**	**889.3**	**906.7**	**2,052.0**	**1,150.2**	**1,348.0**

Appendix A Table 2. -- Continued.

Station	**I-06**	**J-06**	**K-06**	**L-06**	**M-06**	**N-06**	**L-04**	**K-04**	**J-04**	**I-04**
Start date and time	06/13/15 17:15	06/14/15 06:57	06/14/15 09:31	06/14/15 12:10	06/14/15 14:45	06/14/15 17:11	06/15/15 06:53	06/15/15 09:27	06/15/15 11:50	06/15/15 14:19
Haul number	54	55	56	57	58	59	60	61	62	63
Start latitude	57.65	57.98	58.32	58.65	58.99	59.31	58.68	58.34	58.02	57.67
Start longitude	-164.62	-164.61	-164.64	-164.65	-164.64	-164.66	-165.93	-165.93	-165.90	-165.88
End latitude	57.68	58.01	58.35	58.67	59.01	59.34	58.66	58.32	57.99	57.65
End longitude	-164.61	-164.60	-164.64	-164.65	-164.65	-164.65	-165.92	-165.93	-165.91	-165.89
Bottom depth (m)	53	46	42	36	27	22	37	44	55	64
Duration (h)	0.52	0.52	0.53	0.51	0.53	0.54	0.52	0.52	0.51	0.53
Distance fished (km)	2.83	2.86	2.80	2.79	3.00	3.03	2.87	2.90	2.79	2.87
Net width (m)	15.40	15.83	15.65	14.62	14.81	14.23	15.22	15.61	15.46	16.52
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	0	0
Alaska skates	23.56	55.02	81.83	66.00	55.12	28.50	49.97	26.38	16.25	
Other skates										
Total elasmobranch	**23.6**	**55.0**	**81.8**	**66.0**	**55.1**	**28.5**	**50.0**	**26.4**	**16.3**	**0.0**
Alaska plaice	30.09	31.36	20.38	11.34	9.50	3.42	2.88	67.29	55.19	145.62
Arrowtooth flounder										7.27
Kamchatka flounder										
Flathead sole	3.45	2.86	2.61					2.86	6.84	40.62
Bering flounder										
Greenland turbot										
Pacific halibut	4.90	11.34	45.81	63.07	2.31	13.46	54.17	21.68	17.44	6.52
Rock sole	156.77	221.43	284.38	296.81	685.85	566.15	441.06	229.15	23.40	47.53
Yellowfin sole	83.59	239.58	471.37	612.20	264.31	1,063.90	473.55	193.19	89.80	295.86
Other flatfish					4.10	3.83	3.58			
Total flatfish	**278.8**	**506.6**	**824.6**	**983.4**	**966.1**	**1,650.8**	**975.2**	**514.2**	**192.7**	**543.4**
Walleye pollock	79.37	361.77	500.87	40.98	107.81	7.25	209.18	368.75	1,183.15	1,593.30
Pacific cod	71.82	54.32	372.03	54.26	395.50	195.00	84.18	130.33	81.06	37.63
Eelpouts									0.92	0.79
Pacific herring		0.50	1.51		0.58	2.82	3.10		35.31	1.62
Pacific ocean perch										
Other rockfish										
Sculpins	19.33	6.35	11.19	6.80	56.11	23.59	10.75	16.24	9.60	5.55
Other roundfish	9.06	11.01	10.72	8.39	7.81	4.73	4.53	8.91	7.25	0.94
Total roundfish	**179.6**	**434.0**	**896.3**	**110.4**	**567.8**	**233.4**	**311.7**	**524.2**	**1,317.3**	**1,639.8**
Blue king crab										
Red king crab	1.11		9.75		0.82		4.26	1.34	0.97	
Tanner crab, bairdi	8.24	4.45	4.09	0.82				1.81	7.42	20.53
Tanner crab, opilio	0.21	0.41							6.24	93.99
Other crab	75.60	48.64	33.34	6.59	5.81	4.01	1.76	16.35	33.81	20.84
Shrimp						0.01				
Octopus										
Squids										
Snails	42.62	46.16	5.42	0.44			0.55	6.19	8.02	26.01
Sea stars	98.86	220.15	154.12	230.60	152.33	23.31	116.31	324.40	158.64	210.49
Other invertebrates	817.43	182.66	146.58	3.69	2.04	0.04	10.19	45.14	178.69	104.90
Total invertebrates	**1,044.1**	**502.5**	**353.3**	**242.1**	**161.0**	**27.4**	**133.1**	**395.2**	**393.8**	**476.8**
Miscellaneous										
Total catch	**1,526.0**	**1,498.0**	**2,156.0**	**1,402.0**	**1,750.0**	**1,940.0**	**1,470.0**	**1,460.0**	**1,920.0**	**2,660.0**

Appendix A Table 2. -- Continued.

Station	**H-04**	**G-04**	**F-04**	**E-04**	**D-04**	**C-04**	**B-04**	**AZ0504**	**A-04**	**A-03**
Start date and time	06/15/15 16:51	06/16/15 06:56	06/16/15 10:40	06/16/15 13:26	06/16/15 16:06	06/17/15 07:05	06/17/15 10:38	06/21/15 07:03	06/21/15 10:22	06/21/15 14:23
Haul number	64	65	67	68	69	71	73	74	75	77
Start latitude	57.35	57.02	56.69	56.34	56.03	55.68	55.36	54.83	55.00	55.00
Start longitude	-165.88	-165.86	-165.85	-165.80	-165.78	-165.80	-165.79	-165.50	-165.73	-166.30
End latitude	57.33	56.99	56.66	56.32	56.00	55.65	55.33	54.83	55.00	55.02
End longitude	-165.87	-165.85	-165.85	-165.80	-165.78	-165.80	-165.79	-165.55	-165.77	-166.33
Bottom depth (m)	68	72	78	91	105	119	120	154	130	142
Duration (h)	0.52	0.51	0.53	0.53	0.52	0.52	0.51	0.54	0.53	0.51
Distance fished (km)	2.81	2.82	2.91	2.90	2.83	2.82	2.80	2.93	2.86	2.76
Net width (m)	16.74	16.53	16.51	17.03	17.24	18.57	19.65	17.13	18.05	18.79
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	0	0
Alaska skates	26.22	13.18	1.69	7.36	4.94		50.21	58.30	96.50	40.70
Other skates			3.10	4.56	1.76	1.95	0.68	141.67	0.07	7.24
Total elasmobranch	**26.2**	**13.2**	**4.8**	**11.9**	**6.7**	**2.0**	**66.8**	**200.0**	**96.6**	**47.9**
Alaska plaice	34.59	60.82	1.51	1.44						
Arrowtooth flounder	2.14	9.24	21.84	101.46	122.06	76.60	185.42	108.90	97.60	109.80
Kamchatka flounder										
Flathead sole	15.56	66.30	26.82	112.02	108.75	70.37	54.84	1.40	20.70	30.00
Bering flounder										
Greenland turbot				2.16						
Pacific halibut	11.07		9.03		5.06	7.92	16.09	26.72	29.67	10.18
Rock sole	6.90	49.28	13.04	11.46						
Yellowfin sole	973.92	570.82	57.50	0.61						
Other flatfish	1.18	3.54	5.32	13.62	8.48	7.79	13.30	30.40	14.00	13.80
Total flatfish	**1,045.4**	**760.0**	**135.1**	**242.8**	**244.3**	**162.7**	**269.7**	**167.4**	**162.0**	**163.8**
Walleye pollock	248.88	218.25	86.07	283.68	131.75	105.05	178.70	617.50	793.50	128.00
Pacific cod	55.78	39.72	11.31	7.56	14.46			62.50	73.70	4.40
Eelpouts	23.79	76.16	11.17	8.56	1.27	3.08	0.31			0.10
Pacific herring										
Pacific ocean perch								1.40	0.04	
Other rockfish										
Sculpins	0.03	2.74	3.94		2.70	0.07	0.38	0.95	0.91	0.53
Other roundfish	0.44	0.84	0.14	0.97	0.96	2.78	1.36	4.36	0.05	1.54
Total roundfish	**328.9**	**337.7**	**112.6**	**300.8**	**151.1**	**111.0**	**180.8**	**686.7**	**868.2**	**134.6**
Blue king crab										
Red king crab	4.94									
Tanner crab, bairdi	12.42	4.97	11.42	15.96	40.71	17.02	22.94	3.87	3.17	39.26
Tanner crab, opilio	9.98	2.51	3.00	1.31	64.61	0.37				
Other crab	18.36	3.54	141.97	35.04	11.18	1.45	1.13	6.62	1.82	2.26
Shrimp					0.02	0.03	0.04	0.76	0.06	0.01
Octopus			6.58	0.94					3.60	29.50
Squids								1.24	0.60	
Snails	121.11	34.48	255.22	73.11	22.60	1.59	2.85	11.10	9.19	3.15
Sea stars	159.27	49.06	25.10	1.49	0.01			2.74	0.29	
Other invertebrates	153.43	218.69	216.28	163.93	31.95	22.01	75.88	57.17	11.81	16.71
Total invertebrates	**479.5**	**313.2**	**659.6**	**291.8**	**171.1**	**42.5**	**102.8**	**83.5**	**30.5**	**90.9**
Miscellaneous										
Total catch	**1,880.0**	**1,424.1**	**912.0**	**847.3**	**573.3**	**318.1**	**620.0**	**1,137.6**	**1,157.3**	**437.2**

Appendix A Table 2. -- Continued.

Station	**A-02**	**B-02**	**C-02**	**D-02**	**E-02**	**F-02**	**G-02**	**H-02**	**I-02**	**J-02**
Start date and time	06/21/15 17:11	06/22/15 08:26	06/22/15 10:58	06/22/15 13:32	06/22/15 16:48	06/23/15 06:55	06/23/15 09:32	06/23/15 12:04	06/23/15 14:32	06/23/15 16:59
Haul number	78	80	81	82	83	84	85	86	87	88
Start latitude	55.00	55.32	55.66	55.99	56.34	56.64	56.98	57.32	57.65	57.98
Start longitude	-166.93	-166.97	-166.98	-167.00	-167.04	-167.06	-167.09	-167.12	-167.12	-167.16
End latitude	55.02	55.35	55.69	56.02	56.32	56.67	57.01	57.35	57.68	58.01
End longitude	-166.96	-166.97	-166.98	-167.01	-167.04	-167.07	-167.10	-167.12	-167.12	-167.17
Bottom depth (m)	155	140	135	135	113	96	74	70	68	64
Duration (h)	0.53	0.51	0.52	0.52	0.54	0.52	0.53	0.51	0.52	0.52
Distance fished (km)	2.93	2.85	2.81	2.88	2.94	2.87	2.93	2.79	2.80	2.77
Net width (m)	18.89	20.46	20.21	19.97	18.35	17.77	16.66	16.67	16.90	16.73
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	0	0
Alaska skates	45.00	6.90	10.60	3.80		8.86	37.65	16.70	20.80	35.60
Other skates	4.32	0.20	0.14			4.60	3.15			
Total elasmobranch	**49.3**	**7.1**	**10.7**	**3.8**	**0.0**	**13.5**	**40.8**	**16.7**	**20.8**	**35.6**
Alaska plaice						0.80	12.21	342.07	241.37	382.15
Arrowtooth flounder	95.67	82.25	63.29	88.96	80.50	47.00	16.73	9.19	3.33	
Kamchatka flounder										
Flathead sole	82.18	87.70	102.42	94.80	48.30	11.20	214.81	113.31	46.40	34.14
Bering flounder									0.86	0.22
Greenland turbot										
Pacific halibut	40.28	6.38	14.82		4.29	5.56	11.97	4.49	14.18	18.75
Rock sole						0.60	35.73	26.64	53.96	63.28
Yellowfin sole							94.52	85.75	252.52	670.22
Other flatfish	4.00	6.86	6.84	9.54	4.50	1.50	6.78			
Total flatfish	**222.1**	**183.2**	**187.4**	**193.3**	**137.6**	**66.7**	**392.7**	**581.4**	**612.6**	**1,168.7**
Walleye pollock	19.63	35.69	43.60	21.40	3.00	220.30	864.64	570.20	389.02	2,185.58
Pacific cod	2.60	1.30		2.70		30.80	107.00	186.10	165.10	152.50
Eelpouts	0.02	0.30	0.39	0.51	0.93	2.80			10.62	1.43
Pacific herring										
Pacific ocean perch										
Other rockfish		0.18		0.19						
Sculpins	0.41	0.44	0.23	0.46	0.51	0.63	9.76	5.30	5.87	25.20
Other roundfish	0.23	1.23	3.53	5.98	0.83	0.27		0.79	1.40	5.61
Total roundfish	**22.9**	**39.1**	**47.8**	**31.2**	**5.3**	**254.8**	**981.4**	**762.4**	**572.0**	**2,370.3**
Blue king crab										
Red king crab										
Tanner crab, bairdi	25.45	17.93	12.31	4.09	18.11	38.58	5.39	4.19	97.07	9.34
Tanner crab, opilio	0.27	0.11		13.75	122.82	8.10	1.18	6.12	47.04	15.64
Other crab	2.02	0.06	0.40	0.29	8.16	49.66	113.06	85.98	38.99	131.84
Shrimp	0.27	0.16	0.06		0.01	0.23			0.14	
Octopus										
Squids										
Snails	9.76	1.88	0.63	1.90	16.19	85.92	348.65	76.17	73.62	192.24
Sea stars	0.44	0.05	0.59	1.16	0.03	19.80	6.69	566.68	43.00	118.36
Other invertebrates	3.75	8.39	14.91	4.98	60.64	121.87	263.07	454.35	176.71	199.91
Total invertebrates	**42.0**	**28.6**	**28.9**	**26.2**	**226.0**	**324.1**	**738.1**	**1,193.5**	**476.6**	**667.3**
Miscellaneous										
Total catch	**336.3**	**258.0**	**274.8**	**254.5**	**368.8**	**659.1**	**2,153.0**	**2,554.0**	**1,682.0**	**4,242.0**

Appendix A Table 2. -- Continued.

Station	**K-02**	**L-02**	**M-02**	**M-03**	**M-04**	**N-04**	**O-04**	**O-03**	**N-03**	**N-02**
Start date and time	06/24/15 06:53	06/24/15 09:39	06/24/15 12:12	06/24/15 14:47	06/24/15 17:15	06/25/15 06:52	06/25/15 09:44	06/25/15 12:14	06/25/15 14:50	06/25/15 17:39
Haul number	89	90	91	92	93	94	95	96	97	98
Start latitude	58.32	58.65	58.98	59.00	59.00	59.31	59.63	59.66	59.35	59.33
Start longitude	-167.18	-167.21	-167.23	-166.61	-165.96	-165.96	-165.93	-166.60	-166.62	-167.20
End latitude	58.35	58.68	59.01	59.00	58.99	59.33	59.65	59.66	59.33	59.33
End longitude	-167.19	-167.22	-167.23	-166.56	-165.91	-165.96	-165.94	-166.66	-166.59	-167.25
Bottom depth (m)	52	44	39	34	31	24	25	28	28	32
Duration (h)	0.51	0.53	0.51	0.51	0.51	0.52	0.48	0.54	0.53	0.52
Distance fished (km)	2.77	2.90	2.78	2.86	2.85	2.85	2.60	2.95	2.91	2.84
Net width (m)	15.75	17.02	15.66	15.59	15.46	15.89	15.53	14.21	15.16	15.88
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	2	0	0	0	0
Alaska skates	42.40	47.50	166.80	98.70	190.70	311.40	4.70	229.70	162.60	86.40
Other skates										
Total elasmobranch	**42.4**	**47.5**	**166.8**	**98.7**	**190.7**	**311.4**	**4.7**	**229.7**	**162.6**	**86.4**
Alaska plaice	356.96	14.76	11.75	4.72	8.30	2.38	2.61	8.80	5.30	32.10
Arrowtooth flounder	5.97									
Kamchatka flounder										
Flathead sole	0.42									
Bering flounder	1.12	1.89								
Greenland turbot										
Pacific halibut	69.86	19.18	8.49	64.14	60.65	41.28	81.46	142.35	58.70	21.51
Rock sole	266.65	157.79	500.56	415.85	115.70	246.01	62.40	102.40	136.90	179.70
Yellowfin sole	368.20	303.77	494.75	1,185.56	567.99	349.77	345.70	368.80	264.40	250.40
Other flatfish	4.75		10.07	97.30	158.27		5.90	6.60	62.30	6.20
Total flatfish	**1,073.9**	**497.4**	**1,025.6**	**1,767.6**	**910.9**	**639.4**	**498.1**	**629.0**	**527.6**	**489.9**
Walleye pollock	1,144.20	1,010.29	349.17	273.00	23.08	89.50	88.16	51.60	74.20	157.60
Pacific cod	157.50	276.80	289.94	59.10	39.72	515.20	113.57	233.60	26.80	117.80
Eelpouts										
Pacific herring	3.60	0.54		0.31		0.18	2.16		41.05	
Pacific ocean perch										
Other rockfish										
Sculpins	6.05	18.10	17.80	14.50	7.70	6.90	3.23	0.49	3.30	8.10
Other roundfish	25.06	10.57	9.13	19.46	1.08	0.81	6.02	0.56	5.81	1.19
Total roundfish	**1,336.4**	**1,316.3**	**666.0**	**366.4**	**71.6**	**612.6**	**213.1**	**286.3**	**151.2**	**284.7**
Blue king crab										
Red king crab		0.93	0.89	1.16	0.92		1.17			0.77
Tanner crab, bairdi	0.81									
Tanner crab, opilio	0.81									
Other crab	7.98	2.42	13.51	1.14	6.39	0.93	1.88	9.58	10.47	9.14
Shrimp	0.01								0.00	0.01
Octopus										
Squids										
Snails	4.59	0.59	4.69							0.28
Sea stars	356.20	48.73	227.59	510.67	193.87	106.94	12.72	54.46	187.88	68.18
Other invertebrates	116.86	8.14	20.87	4.40	1.63	0.69	8.35	5.63	1.43	25.85
Total invertebrates	**487.3**	**60.8**	**267.5**	**517.4**	**202.8**	**108.6**	**24.1**	**69.7**	**199.8**	**104.2**
Miscellaneous										
Total catch	**2,940.0**	**1,922.0**	**2,126.0**	**2,750.0**	**1,376.0**	**1,672.0**	**740.0**	**1,214.6**	**1,041.1**	**965.2**

Appendix A Table 2. -- Continued.

Station	**O-02**	**O-01**	**P-01**	**P-18**	**O-18**	**N-18**	**M-18**	**L-18**	**K-18**	**J-18**
Start date and time	06/26/15 06:51	06/26/15 09:41	06/26/15 12:15	06/26/15 14:57	06/26/15 17:37	06/27/15 06:54	06/27/15 09:26	06/27/15 12:00	06/27/15 14:58	06/28/15 07:16
Haul number	99	100	101	102	103	104	105	106	107	108
Start latitude	59.65	59.66	59.99	60.00	59.68	59.35	59.01	58.68	58.35	57.99
Start longitude	-167.27	-167.95	-167.98	-168.65	-168.63	-168.58	-168.55	-168.50	-168.48	-168.43
End latitude	59.67	59.68	60.01	59.98	59.65	59.33	58.99	58.66	58.32	57.96
End longitude	-167.30	-167.97	-168.00	-168.67	-168.61	-168.55	-168.55	-168.49	-168.45	-168.42
Bottom depth (m)	31	36	26	39	40	42	46	53	65	69
Duration (h)	0.52	0.52	0.54	0.51	0.50	0.53	0.52	0.52	0.51	0.54
Distance fished (km)	2.88	2.82	3.08	2.79	2.74	2.99	2.81	2.86	2.85	2.94
Net width (m)	16.14	15.74	15.52	16.03	15.70	16.44	16.73	16.43	16.91	16.95
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	0	0
Alaska skates	113.50	40.70	15.00	88.30	71.60	80.40	81.60	52.20	42.10	20.70
Other skates										
Total elasmobranch	**113.5**	**40.7**	**15.0**	**88.3**	**71.6**	**80.4**	**81.6**	**52.2**	**42.1**	**20.7**
Alaska plaice	19.70	22.00	6.70	61.20	37.10	29.97	15.90	349.72	280.47	36.94
Arrowtooth flounder										5.38
Kamchatka flounder										
Flathead sole									18.03	26.74
Bering flounder				2.00					3.27	
Greenland turbot										
Pacific halibut	0.69	8.56	14.58	13.25	4.49	10.30	3.92	33.06	8.92	7.63
Rock sole	65.60	615.00	179.45	132.90	308.10	176.94	24.00	198.82	46.25	37.50
Yellowfin sole	230.30	611.78	56.55	87.73	191.40	313.68	47.60	224.84	171.93	110.82
Other flatfish	1.10		20.40							2.20
Total flatfish	**317.4**	**1,257.3**	**277.7**	**297.1**	**541.1**	**530.9**	**91.4**	**806.4**	**528.9**	**227.2**
Walleye pollock	292.30	403.20	32.30	455.30	183.80	296.16	589.90	532.45	523.01	962.06
Pacific cod	338.00	661.15	34.20	111.40	244.80	319.00	90.02	291.00	258.12	73.60
Eelpouts									5.66	
Pacific herring		0.79	1.26	4.05	2.80		10.01	34.55	13.71	3.65
Pacific ocean perch										
Other rockfish										
Sculpins	2.90	20.22	5.39	15.20	11.60	39.79	1.66	37.51	37.90	26.45
Other roundfish	1.23	11.72	0.47	5.59	1.88	11.02	1.27	12.48	4.31	6.63
Total roundfish	**634.4**	**1,097.1**	**73.6**	**591.5**	**444.9**	**666.0**	**692.9**	**908.0**	**842.7**	**1,072.4**
Blue king crab										
Red king crab	0.89		0.89	3.88	3.05	3.88				
Tanner crab, bairdi								0.26	1.94	17.45
Tanner crab, opilio				0.03	0.22		0.09	0.34	14.43	17.24
Other crab	18.47	6.69	6.01	31.66	23.99	10.78	22.69	39.84	62.13	103.00
Shrimp	0.03			0.00						
Octopus										
Squids										
Snails	0.14	1.32		4.48	28.22		28.13	99.44	135.11	108.15
Sea stars	37.92	64.18	8.15	117.22	55.73	48.93	49.60	147.70	591.21	36.39
Other invertebrates	0.56	2.67	0.66	18.59	15.04	0.01	25.34	419.79	163.52	933.47
Total invertebrates	**58.0**	**74.9**	**15.7**	**175.9**	**126.3**	**63.6**	**125.9**	**707.4**	**968.3**	**1,215.7**
Miscellaneous						39.14				
Total catch	**1,123.3**	**2,470.0**	**382.0**	**1,152.8**	**1,183.8**	**1,380.0**	**991.7**	**2,474.0**	**2,382.0**	**2,536.0**

Appendix A Table 2. -- Continued.

Station	**I-18**	**H-18**	**G-18**	**F-18**	**E-18**	**C-18**	**D-18**	**E-19**	**E-20**	**G-20**
Start date and time	06/28/15 09:58	06/28/15 12:23	06/28/15 14:56	06/29/15 07:54	06/29/15 14:42	06/30/15 08:06	06/30/15 10:39	06/30/15 14:09	06/30/15 18:09	07/01/15 07:01
Haul number	109	110	111	114	117	120	121	122	124	125
Start latitude	57.66	57.34	57.01	56.65	56.33	55.66	55.98	56.33	56.36	56.99
Start longitude	-168.39	-168.37	-168.34	-168.28	-168.25	-168.19	-168.22	-168.87	-169.49	-169.57
End latitude	57.64	57.31	56.99	56.68	56.32	55.68	56.00	56.34	56.36	57.01
End longitude	-168.38	-168.37	-168.34	-168.29	-168.24	-168.19	-168.24	-168.91	-169.46	-169.55
Bottom depth (m)	70	73	80	107	154	136	149	128	136	60
Duration (h)	0.51	0.53	0.52	0.51	0.30	0.52	0.53	0.51	0.27	0.51
Distance fished (km)	2.77	2.90	2.74	2.85	1.64	2.87	3.00	2.84	1.52	2.77
Net width (m)	16.49	16.86	16.39	17.61	16.98	17.52	16.52	16.60	16.76	14.94
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	1	0
Alaska skates	9.60	13.70	54.64	15.10	61.55	372.70	209.20	8.40		1.22
Other skates			2.94	4.26	19.03	3.68	15.50	7.85	20.77	2.45
Total elasmobranch	**9.6**	**13.7**	**57.6**	**19.4**	**80.6**	**376.4**	**224.7**	**16.3**	**20.8**	**3.7**
Alaska plaice	14.08	4.15	14.91							4.22
Arrowtooth flounder	36.92	23.19	40.18	38.15	57.39	220.44	96.00	91.57	21.04	52.68
Kamchatka flounder										
Flathead sole		21.32	28.44	2.66	1.28	64.40	130.14	45.27	1.82	12.85
Bering flounder										
Greenland turbot										
Pacific halibut	11.28	10.53	14.35	7.63		93.78	7.76		8.62	20.81
Rock sole	13.06	57.69	119.30			3.14		10.25		614.74
Yellowfin sole	120.94	44.78	10.69							59.81
Other flatfish	23.98	1.09		5.69	7.97	42.16	45.46	10.91	9.81	2.85
Total flatfish	**220.3**	**162.8**	**227.9**	**54.1**	**66.6**	**423.9**	**279.4**	**158.0**	**41.3**	**768.0**
Walleye pollock	960.52	1,501.78	1,504.46	140.10	12.30	431.20	87.00	206.00	72.30	114.45
Pacific cod	157.17	112.90	90.64	30.90	3.50	87.20	12.80	32.10	40.90	26.87
Eelpouts				0.25						
Pacific herring	2.60									
Pacific ocean perch							0.95		0.41	
Other rockfish									6.35	
Sculpins	4.00	19.90	12.94	0.04	5.52	0.24	1.47		2.74	10.68
Other roundfish	1.40	4.65	0.24	1.55	0.49		0.15	1.13	35.14	18.67
Total roundfish	**1,125.7**	**1,639.2**	**1,608.3**	**172.8**	**21.8**	**518.6**	**102.4**	**239.2**	**157.8**	**170.7**
Blue king crab										2.92
Red king crab										
Tanner crab, bairdi	4.69	2.73	19.83	24.40	11.45	1.16	3.29	10.44	0.15	25.42
Tanner crab, opilio	1.04	0.95	72.90	185.45	98.74	1.02	55.95	71.33		0.09
Other crab	183.82	10.40	5.05	24.12	3.96	2.72	3.39	6.87	8.67	135.92
Shrimp				0.10	9.73	0.09	5.25	0.78	1.18	
Octopus										
Squids								0.08	0.01	
Snails	60.87			20.61	1.08	21.27	5.00	18.55	6.13	84.74
Sea stars	102.70	63.65	20.19		0.14	0.08	1.98	1.86	0.31	392.68
Other invertebrates	1,067.34	126.58	74.32	15.50	95.62	35.18	4.97	23.27	26.54	291.93
Total invertebrates	**1,420.5**	**204.3**	**192.3**	**270.2**	**220.7**	**61.5**	**79.8**	**133.2**	**43.0**	**933.7**
Miscellaneous										
Total catch	**2,776.0**	**2,020.0**	**2,086.0**	**516.5**	**389.7**	**1,380.5**	**686.2**	**546.7**	**262.9**	**1,876.0**

Appendix A Table 2. -- Continued.

Station	**HG2019**	**H-20**	**IH2019**	**I-20**	**J-20**	**K-20**	**L-20**	**M-20**	**N-20**	**O-20**
Start date and time	07/01/15 09:25	07/01/15 12:21	07/03/15 07:03	07/03/15 09:37	07/03/15 12:35	07/03/15 15:33	07/04/15 06:52	07/04/15 11:01	07/04/15 13:51	07/04/15 16:41
Haul number	126	127	128	129	130	131	132	133	134	135
Start latitude	57.16	57.32	57.49	57.65	57.99	58.32	58.65	58.98	59.31	59.65
Start longitude	-169.33	-169.58	-169.36	-169.63	-169.69	-169.73	-169.79	-169.84	-169.87	-169.92
End latitude	57.17	57.33	57.51	57.67	58.01	58.35	58.67	59.00	59.34	59.68
End longitude	-169.30	-169.62	-169.40	-169.66	-169.72	-169.75	-169.76	-169.83	-169.87	-169.92
Bottom depth (m)	72	61	71	71	70	69	67	64	60	56
Duration (h)	0.50	0.52	0.51	0.51	0.50	0.51	0.53	0.52	0.52	0.52
Distance fished (km)	2.70	2.81	2.75	2.77	2.76	2.82	2.87	2.76	2.91	2.90
Net width (m)	14.66	15.14	16.23	15.85	16.55	16.99	16.69	16.88	17.21	17.12
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	0	0
Alaska skates	12.70	25.60	27.32	12.92	34.62	6.22	49.64	60.14	32.40	78.52
Other skates	5.00		2.49							
Total elasmobranch	**17.7**	**25.6**	**29.8**	**12.9**	**34.6**	**6.2**	**49.6**	**60.1**	**32.4**	**78.5**
Alaska plaice				142.46	87.19	129.37	354.34	271.08	199.26	213.34
Arrowtooth flounder	50.03	51.43	55.00	101.45	111.02	4.60				
Kamchatka flounder										
Flathead sole	42.88	67.02	6.62	212.81	89.26	10.77			8.26	
Bering flounder					1.30	2.42	4.79	2.35	10.28	4.16
Greenland turbot						3.02		7.86		
Pacific halibut	43.84	6.50	6.54	18.33	13.25	7.35	2.19			
Rock sole	33.00	1,303.57	111.63	194.44	229.92	86.64	159.81	10.35	10.14	32.54
Yellowfin sole	177.90	68.13	237.62	55.04	131.16	121.16	42.98	78.45	52.09	129.45
Other flatfish	3.56	12.02	17.42	3.33	58.49	8.75				
Total flatfish	**351.2**	**1,508.7**	**434.8**	**727.9**	**721.6**	**374.1**	**564.1**	**370.1**	**280.0**	**379.5**
Walleye pollock	4,281.81	1,864.63	1,573.93	1,953.09	641.45	393.98	619.97	1,432.14	4,351.40	910.61
Pacific cod	278.70	256.70	116.20	68.62	143.69	197.45	4,733.81	154.52	149.42	165.08
Eelpouts			0.36	2.30	12.79	8.03		0.52		0.37
Pacific herring				0.51						0.08
Pacific ocean perch										
Other rockfish										
Sculpins	29.51	15.38	12.69	12.33		17.86	671.10	68.40	9.03	13.17
Other roundfish	2.62	17.41	8.67	0.39	8.15	5.20	0.33	0.67	0.40	0.45
Total roundfish	**4,592.6**	**2,154.1**	**1,711.9**	**2,037.2**	**806.1**	**622.5**	**6,025.2**	**1,656.2**	**4,510.3**	**1,089.8**
Blue king crab	2.02	1.96	1.76							
Red king crab	12.43	6.37								
Tanner crab, bairdi	113.80	71.47	28.11	8.32	5.86	27.55	6.30			
Tanner crab, opilio	23.02	1.62	1.23	2.60	1.44	59.92	320.71	44.31	44.56	1.09
Other crab	187.96	11.67	97.91	90.55	318.86	55.26	93.35	69.05	18.80	63.58
Shrimp				0.02						
Octopus										
Squids										
Snails	4.59		20.84	2.25	78.79	25.81	433.42	34.16	13.48	156.73
Sea stars	70.22	726.46	176.13	338.39	160.81	80.25	389.63	253.34	7.88	84.56
Other invertebrates	841.43	22.06	835.51	653.88	523.96	258.42	142.48	130.66	14.62	80.28
Total invertebrates	**1,255.5**	**841.6**	**1,161.5**	**1,096.0**	**1,089.7**	**507.2**	**1,385.9**	**531.5**	**99.3**	**386.2**
Miscellaneous										
Total catch	**6,217.0**	**4,530.0**	**3,338.0**	**3,874.0**	**2,652.0**	**1,510.0**	**8,024.8**	**2,618.0**	**4,922.0**	**1,934.0**

Appendix A Table 2. -- Continued.

Station	**P-20**	**Q-20**	**Q-21**	**Q-22**	**P-22**	**P-21**	**O-21**	**N-21**	**N-22**	**M-22**
Start date and time	07/05/15 06:54	07/05/15 09:29	07/05/15 12:01	07/05/15 14:47	07/05/15 17:18	07/06/15 10:56	07/06/15 14:18	07/06/15 17:19	07/07/15 06:55	07/07/15 09:41
Haul number	136	137	138	139	140	141	142	143	144	145
Start latitude	59.98	60.32	60.32	60.33	60.01	60.00	59.68	59.33	59.34	59.02
Start longitude	-169.95	-170.00	-170.60	-171.34	-171.32	-170.58	-170.56	-170.52	-171.19	-171.14
End latitude	60.00	60.34	60.33	60.33	59.99	60.00	59.66	59.33	59.32	58.99
End longitude	-169.97	-170.04	-170.65	-171.38	-171.32	-170.63	-170.57	-170.57	-171.15	-171.13
Bottom depth (m)	54	52	61	66	69	64	66	68	75	77
Duration (h)	0.51	0.51	0.50	0.41	0.51	0.51	0.51	0.51	0.52	0.51
Distance fished (km)	2.82	2.78	2.77	2.25	2.78	2.81	2.79	2.84	2.89	2.77
Net width (m)	16.58	15.92	16.15	16.16	17.40	17.16	17.49	17.10	17.54	17.15
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	1	0	0	0	0	0	0
Alaska skates	26.72	16.95	31.80	10.12	7.83	9.06	21.46	21.05	10.26	20.03
Other skates				0.17			0.06			
Total elasmobranch	**26.7**	**17.0**	**31.8**	**10.3**	**7.8**	**9.1**	**21.5**	**21.1**	**10.3**	**20.0**
Alaska plaice	167.55	131.05	39.90	4.02	30.65	13.82	47.97	104.00		54.17
Arrowtooth flounder										
Kamchatka flounder										
Flathead sole										
Bering flounder			3.96	1.49	1.91	1.94	0.32	0.13		
Greenland turbot							1.48			
Pacific halibut										
Rock sole	80.37	103.19	0.64		1.56	1.00	1.36			
Yellowfin sole	123.93	85.66		0.27	2.83	0.86	3.44	4.39		
Other flatfish								0.04		
Total flatfish	**371.8**	**319.9**	**44.5**	**5.8**	**37.0**	**17.6**	**54.6**	**108.6**	**0.0**	**54.2**
Walleye pollock	645.69	2,256.93	264.71	207.96	1,173.84	745.00	603.88	809.45	3,534.81	640.00
Pacific cod	194.02	425.35	17.72	3.28	9.36	23.44	39.58	26.29	11.10	26.80
Eelpouts	8.07		6.06	10.56	5.07	3.51	0.05	0.85	0.35	3.09
Pacific herring	5.55		0.98	1.69	0.22	0.46			9.28	
Pacific ocean perch										
Other rockfish										
Sculpins	7.42	13.99	2.03	2.48	2.62	2.54				0.26
Other roundfish	1.74	0.80	4.24	5.14	3.22	0.25	0.75	0.54	0.70	0.52
Total roundfish	**862.5**	**2,697.1**	**295.7**	**231.1**	**1,194.3**	**775.2**	**644.3**	**837.1**	**3,556.2**	**670.7**
Blue king crab										
Red king crab										
Tanner crab, bairdi							0.49			
Tanner crab, opilio	0.14	0.08	361.10	53.22	32.61	173.50	49.94	239.20	86.82	236.40
Other crab	68.44	13.15	6.73	3.09	18.65	6.76	14.69	68.81	59.45	24.99
Shrimp									0.03	
Octopus										
Squids										
Snails	149.18	13.12	14.04	9.30	14.24	3.71	14.64	105.51	38.62	35.62
Sea stars	27.03	22.27	5.06	1.23	2.68	3.54	4.39	33.89	9.15	28.46
Other invertebrates	274.15	17.46	4.21	6.00	6.97	7.19	35.37	55.86	15.43	73.66
Total invertebrates	**518.9**	**66.1**	**391.1**	**72.8**	**75.1**	**194.7**	**119.5**	**503.3**	**209.5**	**399.1**
Miscellaneous										
Total catch	**1,780.0**	**3,100.0**	**763.2**	**320.0**	**1,314.3**	**996.6**	**839.9**	**1,470.0**	**3,776.0**	**1,144.0**

Appendix A Table 2. -- Continued.

Station	**L-22**	**K-22**	**J-22**	**I-22**	**JI2221**	**IH2221**	**H-23**	**I-24**	**J-24**	**K-24**
Start date and time	07/07/15 12:31	07/07/15 16:57	07/08/15 07:03	07/08/15 10:04	07/08/15 12:22	07/08/15 15:14	07/13/15 07:42	07/13/15 11:32	07/13/15 14:13	07/13/15 17:02
Haul number	146	148	149	150	151	152	154	155	156	157
Start latitude	58.68	58.34	58.00	57.68	57.84	57.53	57.32	57.66	57.99	58.33
Start longitude	-171.08	-170.97	-171.00	-170.91	-170.63	-170.59	-171.46	-172.17	-172.23	-172.30
End latitude	58.66	58.31	57.99	57.67	57.82	57.50	57.34	57.68	58.02	58.35
End longitude	-171.08	-170.97	-170.96	-170.88	-170.60	-170.59	-171.47	-172.20	-172.25	-172.31
Bottom depth (m)	83	83	87	86	79	75	102	107	104	103
Duration (h)	0.51	0.51	0.52	0.51	0.52	0.52	0.52	0.53	0.51	0.51
Distance fished (km)	2.82	2.82	2.76	2.80	2.89	2.93	2.77	2.92	2.80	2.79
Net width (m)	17.39	17.05	16.57	17.45	17.14	16.84	17.46	17.06	17.22	17.43
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	3	0	0	0
Alaska skates	64.84	70.16	99.08	127.00	52.92	37.48	98.54	272.31	61.19	94.88
Other skates									3.20	
Total elasmobranch	**64.8**	**70.2**	**99.1**	**127.0**	**52.9**	**37.5**	**98.5**	**272.3**	**64.4**	**94.9**
Alaska plaice	17.02	35.29		20.41					3.51	19.42
Arrowtooth flounder			42.42	120.38	149.40	44.47	212.16	303.62	279.18	47.20
Kamchatka flounder										
Flathead sole	0.97	52.53	355.45	208.50	384.99	189.07	14.22	24.62	1,164.19	5.19
Bering flounder									0.58	
Greenland turbot	3.81	9.79	1.14	1.67					7.11	12.59
Pacific halibut		15.63	12.04	8.49	12.80	6.80	10.53	33.94		40.75
Rock sole	8.44	26.73	60.98	127.38	129.78	47.71	0.98	15.17	4.71	31.41
Yellowfin sole	1.66	6.85	1.58	36.44	87.33	165.37				
Other flatfish		8.28	6.85	27.00	9.85	3.92	21.84	26.22	45.38	22.15
Total flatfish	**31.9**	**155.1**	**480.4**	**550.3**	**774.1**	**457.3**	**259.7**	**403.6**	**1,504.7**	**178.7**
Walleye pollock	303.25	977.44	473.56	825.36	932.76	772.46	717.50	282.90	268.34	293.36
Pacific cod	56.75	139.62	99.27	150.93	42.58	38.92	181.16	37.24	62.14	91.28
Eelpouts	2.31	12.52	5.73	15.80	13.01		7.64	2.79	8.53	3.35
Pacific herring	0.29									1.58
Pacific ocean perch										
Other rockfish										
Sculpins		12.62		31.63			19.77	2.05	32.27	100.52
Other roundfish	0.00	0.33	0.31	0.30	0.24	0.55	2.88	0.35	0.13	0.03
Total roundfish	**362.6**	**1,142.5**	**578.9**	**1,024.0**	**988.6**	**811.9**	**928.9**	**325.3**	**371.4**	**490.1**
Blue king crab						8.52				
Red king crab						56.62				
Tanner crab, bairdi	1.97	9.37	6.78	3.92	59.60	117.30	15.82	1.02	0.76	2.88
Tanner crab, opilio	141.99	259.34	4.86	1.80	4.08	3.80	28.60	54.15	5.61	183.57
Other crab	25.05	96.15	53.31	11.65	100.34	188.40	24.83	73.33	46.99	39.10
Shrimp			0.11	0.79			0.47	7.09	0.34	0.14
Octopus										
Squids										
Snails	67.16	142.37	352.64	81.39	93.44	35.47	43.31	99.96	217.10	618.56
Sea stars	6.82	24.52	124.12	340.44	256.98	158.75	3.79	0.63	11.01	34.51
Other invertebrates	63.39	172.50	65.79	90.71	447.91	402.40	20.77	98.62	189.76	59.54
Total invertebrates	**306.4**	**704.2**	**607.6**	**530.7**	**962.3**	**971.3**	**137.6**	**334.8**	**471.6**	**938.3**
Miscellaneous										
Total catch	**765.7**	**2,072.0**	**1,766.0**	**2,232.0**	**2,778.0**	**2,278.0**	**1,424.8**	**1,336.0**	**2,412.0**	**1,702.0**

Appendix A Table 2. -- Continued.

Station	**N-24**	**ON2524**	**O-25**	**O-24**	**PO2524**	**P-25**	**QP2524**	**P-24**	**PO2423**	**P-23**
Start date and time	07/14/15 07:43	07/14/15 10:01	07/14/15 12:31	07/14/15 15:17	07/14/15 17:55	07/15/15 09:23	07/15/15 11:48	07/15/15 14:09	07/15/15 16:23	07/15/15 18:44
Haul number	158	159	160	161	162	164	165	166	167	168
Start latitude	59.32	59.49	59.66	59.67	59.82	60.00	60.19	60.00	59.83	59.96
Start longitude	-172.49	-172.85	-173.27	-172.59	-172.89	-173.24	-173.04	-172.62	-172.27	-171.94
End latitude	59.35	59.50	59.67	59.67	59.84	60.01	60.17	59.99	59.84	59.99
End longitude	-172.51	-172.90	-173.22	-172.54	-172.92	-173.28	-173.00	-172.57	-172.23	-171.94
Bottom depth (m)	88	94	95	85	81	76	59	66	75	67
Duration (h)	0.53	0.52	0.52	0.51	0.52	0.35	0.52	0.51	0.52	0.52
Distance fished (km)	2.85	2.92	2.82	2.84	2.88	2.00	2.97	2.76	2.94	2.81
Net width (m)	17.59	17.22	17.24	16.84	16.96	16.47	16.35	16.16	17.30	16.98
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	1	0	0	0	0
Alaska skates	27.90	24.39	20.01	9.80	2.52	20.18	10.22	6.58	7.17	0.47
Other skates										
Total elasmobranch	**27.9**	**24.4**	**20.0**	**9.8**	**2.5**	**20.2**	**10.2**	**6.6**	**7.2**	**0.5**
Alaska plaice		2.72		4.35		11.46	11.00	44.11	54.18	116.93
Arrowtooth flounder										
Kamchatka flounder										
Flathead sole	0.13	3.14	5.18	2.17	0.54	0.62	1.62		3.15	1.63
Bering flounder	1.01	1.59	6.33	6.91		0.92		2.69	11.57	4.17
Greenland turbot	0.86	2.39	3.96	4.70						
Pacific halibut		5.11	1.79							
Rock sole	6.44	14.08	10.66			6.26	105.07	2.57	4.51	7.77
Yellowfin sole			0.19				3.30	0.43		12.83
Other flatfish							0.15			0.02
Total flatfish	**8.4**	**29.0**	**28.1**	**18.1**	**0.5**	**19.3**	**121.1**	**49.8**	**73.4**	**143.4**
Walleye pollock	1,328.17	1,356.01	708.41	2,115.28	3,576.92	801.11	1,058.19	999.24	920.00	718.21
Pacific cod	33.93	99.01	28.48	4.83	0.15	6.07	31.88	2.98	5.20	46.31
Eelpouts	17.68	5.69	4.12	0.44	12.66	0.99	11.36	1.79	0.51	0.23
Pacific herring	5.62		8.27	1.56		6.78			5.72	20.99
Pacific ocean perch										
Other rockfish										
Sculpins		0.03	49.30			13.66	23.90	7.31	0.34	3.28
Other roundfish	5.95	1.61	1.88	1.70	3.57	0.86	0.10	0.43	4.82	1.69
Total roundfish	**1,391.4**	**1,462.4**	**800.5**	**2,123.8**	**3,593.3**	**829.5**	**1,125.4**	**1,011.8**	**936.6**	**790.7**
Blue king crab		2.35	0.94	1.47	4.60	1.87	1.80	1.75		
Red king crab										
Tanner crab, bairdi	0.25	0.32	0.02			0.05			0.12	
Tanner crab, opilio	17.28	6.74	5.26	56.40	4.41	17.74	1.80	1.09	44.37	119.04
Other crab	22.90	113.99	3.75	24.95	85.13	21.15	12.84	26.40	79.27	20.57
Shrimp	0.04		0.03			0.04	0.02	0.02		
Octopus										
Squids										
Snails	30.73	130.32	54.49	13.15	22.53	47.96	40.25	8.37	18.05	36.26
Sea stars	40.69	35.13	18.01	31.55	14.83	7.89	17.39	5.46	8.13	11.63
Other invertebrates	88.39	95.39	202.35	132.74	128.14	379.29	130.11	50.25	70.90	15.42
Total invertebrates	**200.3**	**384.2**	**284.8**	**260.3**	**259.6**	**476.0**	**204.2**	**93.4**	**220.8**	**202.9**
Miscellaneous										
Total catch	**1,628.0**	**1,900.0**	**1,133.4**	**2,412.0**	**3,856.0**	**1,344.9**	**1,461.0**	**1,161.5**	**1,238.0**	**1,137.5**

Appendix A Table 2. -- Continued.

Station	**QP2423**	**Q-23**	**R-23**	**R-22**	**S-22**	**S-23**	**S-24**	**R-24**	**S-25**	**T-25**
Start date and time	07/16/15 07:42	07/16/15 10:09	07/16/15 12:54	07/16/15 16:32	07/17/15 07:43	07/17/15 10:20	07/17/15 12:54	07/17/15 15:37	07/18/15 07:41	07/18/15 10:22
Haul number	169	170	171	173	174	175	176	177	178	179
Start latitude	60.15	60.31	60.64	60.65	60.98	61.00	61.00	60.68	60.99	61.31
Start longitude	-172.30	-172.06	-172.12	-171.43	-171.42	-172.13	-172.78	-172.78	-173.50	-173.58
End latitude	60.17	60.34	60.67	60.68	61.00	61.00	61.00	60.66	61.01	61.34
End longitude	-172.34	-172.06	-172.12	-171.45	-171.47	-172.18	-172.83	-172.75	-173.51	-173.59
Bottom depth (m)	59	59	61	63	60	64	67	45	76	74
Duration (h)	0.52	0.53	0.52	0.52	0.52	0.51	0.51	0.52	0.52	0.52
Distance fished (km)	2.81	2.88	2.84	2.91	2.86	2.83	2.80	2.86	2.90	2.87
Net width (m)	16.76	16.45	17.23	17.81	17.55	16.78	19.04	15.64	17.18	17.32
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	0	0
Alaska skates	48.27	26.72	17.30	1.81	11.69	18.35	13.59	208.77	16.78	11.27
Other skates		0.35								
Total elasmobranch	**48.3**	**27.1**	**17.3**	**1.8**	**11.7**	**18.4**	**13.6**	**208.8**	**16.8**	**11.3**
Alaska plaice	98.43	8.72	1.06	2.86	9.71	9.59	11.06	372.70	3.00	0.73
Arrowtooth flounder										
Kamchatka flounder										
Flathead sole										
Bering flounder			5.02	1.19	1.53	14.02	24.84	3.08	6.70	4.45
Greenland turbot										
Pacific halibut								13.67	3.08	
Rock sole	56.14	1.99				0.61	2.20	101.04	0.37	
Yellowfin sole	59.27		0.63	1.37	1.02	1.38	3.11	119.20		
Other flatfish			0.05	0.02	0.07	0.27	0.08	0.34	0.41	0.83
Total flatfish	**213.8**	**10.7**	**6.8**	**5.4**	**12.3**	**25.9**	**41.3**	**610.0**	**13.6**	**6.0**
Walleye pollock	1,077.61	1,441.68	443.46	110.69	358.39	482.26	299.78	788.59	842.90	87.03
Pacific cod	146.12	101.16		1.60	20.47	15.32	20.77	126.05	10.47	
Eelpouts					4.49		27.09		2.75	4.43
Pacific herring	0.39			0.01			0.16			
Pacific ocean perch										
Other rockfish										
Sculpins	17.06	17.09	1.49	0.59	1.77	2.61	1.03	15.21	1.57	2.78
Other roundfish	3.84	0.76	0.64	1.06	2.06	1.75	0.13	0.48	1.86	5.70
Total roundfish	**1,245.0**	**1,560.7**	**445.6**	**114.0**	**387.2**	**501.9**	**349.0**	**930.3**	**859.5**	**99.9**
Blue king crab	18.56	1.95						138.29		
Red king crab										
Tanner crab, bairdi			0.03					0.08		
Tanner crab, opilio	0.36	1.74	113.29	193.43	98.61	26.23	52.47	0.21	75.15	55.23
Other crab	26.22	201.93	2.87	0.99	2.51	1.96	1.99	70.01	2.32	0.97
Shrimp		0.21			0.02	0.05	0.07		0.02	0.07
Octopus										
Squids										
Snails	12.16	86.48	4.02	0.53	2.05	4.66	2.90	132.73	1.11	2.18
Sea stars	30.72	7.02	30.14	3.17	1.86	122.17	9.91	21.46	13.78	13.36
Other invertebrates	5.42	448.19	4.12	2.49	15.12	4.73	42.98	40.11	65.87	45.93
Total invertebrates	**93.4**	**747.5**	**154.5**	**200.6**	**120.2**	**159.8**	**110.3**	**402.9**	**158.3**	**117.7**
Miscellaneous										
Total catch	**1,600.6**	**2,346.0**	**624.1**	**321.8**	**531.4**	**706.0**	**514.1**	**2,152.0**	**1,048.1**	**235.0**

Appendix A Table 2. -- Continued.

Station	**U-25**	**V-25**	**V-26**	**V-27**	**V-28**	**U-29**	**U-28**	**T-28**	**T-29**	**T-30**
Start date and time	07/18/15 12:55	07/18/15 15:29	07/19/15 07:40	07/19/15 10:15	07/19/15 12:40	07/19/15 16:18	07/20/15 07:41	07/20/15 10:39	07/20/15 13:34	07/20/15 16:26
Haul number	180	181	182	183	184	185	186	187	188	189
Start latitude	61.65	61.99	62.00	62.00	62.00	61.68	61.68	61.35	61.32	61.35
Start longitude	-173.67	-173.74	-174.47	-175.16	-175.79	-176.47	-175.79	-175.66	-176.29	-176.97
End latitude	61.67	62.01	62.00	62.00	62.00	61.65	61.66	61.33	61.34	61.32
End longitude	-173.67	-173.75	-174.52	-175.21	-175.84	-176.46	-175.79	-175.65	-176.33	-176.97
Bottom depth (m)	71	63	73	81	90	105	96	96	107	116
Duration (h)	0.51	0.51	0.52	0.51	0.46	0.50	0.52	0.50	0.52	0.51
Distance fished (km)	2.77	2.73	2.85	2.81	2.53	2.72	2.76	2.71	2.88	2.76
Net width (m)	16.62	16.80	16.74	16.67	17.45	17.42	17.49	17.40	17.67	17.49
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	5	0	0	0	0	0
Alaska skates	16.18	13.21	1.42	9.36		22.89	17.32	28.98	44.84	21.14
Other skates				0.03						
Total elasmobranch	**16.2**	**13.2**	**1.4**	**9.4**	**0.0**	**22.9**	**17.3**	**29.0**	**44.8**	**21.1**
Alaska plaice	2.71	6.50	2.06	5.22	1.79				1.76	16.74
Arrowtooth flounder										
Kamchatka flounder										
Flathead sole						0.75		2.11	4.61	11.78
Bering flounder	8.71	23.86	21.27	16.06	35.65	21.70	70.77	41.65	76.13	33.15
Greenland turbot	0.04		0.05	0.07	0.38	6.99	0.96	0.65	21.55	19.78
Pacific halibut									13.26	
Rock sole									0.98	
Yellowfin sole	0.47	0.70							0.19	
Other flatfish	1.78	43.00	6.57	1.18		4.32			3.77	3.17
Total flatfish	**13.7**	**74.1**	**30.0**	**22.5**	**37.8**	**33.8**	**71.7**	**44.4**	**122.3**	**84.6**
Walleye pollock	58.11	47.51	27.84	12.74	75.47	1,324.79	211.64	4,114.37	569.37	1,065.63
Pacific cod		4.95	2.79		1.88	16.06		5.86	18.46	23.92
Eelpouts	2.57	71.96	6.85	0.16	0.85	0.77	7.79		2.88	4.99
Pacific herring		4.80			0.04	0.39			12.49	3.38
Pacific ocean perch										
Other rockfish										
Sculpins	3.38	3.24	7.21	1.03	2.61	7.08	2.38		15.65	4.42
Other roundfish	7.69	9.10	5.99	0.62	1.28	0.10	0.66	0.17	0.23	
Total roundfish	**71.8**	**141.6**	**50.7**	**14.6**	**82.1**	**1,349.2**	**222.5**	**4,120.4**	**619.1**	**1,102.3**
Blue king crab								2.04		
Red king crab										
Tanner crab, bairdi										
Tanner crab, opilio	15.75	55.90	4.78	1.83	7.44	11.07	11.73	21.91	40.91	7.52
Other crab	1.07	15.00	1.64	2.72	1.37	0.49	3.17	0.22	1.64	3.31
Shrimp	0.76	0.79	0.21	0.15		0.02			0.08	0.39
Octopus			0.58							
Squids										
Snails	7.02	91.73	42.96	15.23	8.62	2.68	3.15	1.34	0.88	7.62
Sea stars	24.49	13.92	14.83	16.84	5.78	4.10	12.74	5.34	12.91	15.12
Other invertebrates	80.23	145.34	57.49	71.47	62.03	35.79	79.54	7.37	25.37	31.95
Total invertebrates	**129.3**	**322.7**	**122.5**	**108.2**	**85.2**	**54.2**	**110.3**	**38.2**	**81.8**	**65.9**
Miscellaneous										
Total catch	**231.0**	**551.5**	**204.5**	**154.7**	**205.2**	**1,460.0**	**421.9**	**4,232.0**	**868.0**	**1,274.0**

Appendix A Table 2. -- Continued.

Station	**S-29**	**S-30**	**S-31**	**R-32**	**R-31**	**R-30**	**R-29**	**Q-29**	**P-29**	**O-29**
Start date and time	07/21/15 07:39	07/21/15 10:41	07/21/15 13:15	07/21/15 16:40	07/23/15 07:43	07/23/15 10:31	07/23/15 12:55	07/23/15 15:43	07/24/15 07:42	07/24/15 10:24
Haul number	190	191	192	193	194	195	196	197	198	199
Start latitude	60.98	61.00	61.00	60.68	60.67	60.67	60.67	60.35	60.03	59.69
Start longitude	-176.27	-176.95	-177.61	-178.18	-177.55	-176.83	-176.22	-176.05	-175.94	-175.88
End latitude	61.00	61.00	60.99	60.65	60.67	60.67	60.66	60.32	60.00	59.66
End longitude	-176.30	-177.00	-177.66	-178.18	-177.49	-176.78	-176.17	-176.04	-175.94	-175.87
Bottom depth (m)	112	122	135	161	147	129	119	122	128	137
Duration (h)	0.51	0.50	0.51	0.50	0.52	0.51	0.50	0.50	0.52	0.51
Distance fished (km)	2.79	2.77	2.71	2.76	2.79	2.83	2.77	2.80	2.88	2.70
Net width (m)	17.36	17.87	17.75	17.96	17.17	16.84	17.10	17.29	17.40	17.48
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	0	0
Alaska skates	54.00	41.07	52.06	10.02	95.44	80.86	139.77	107.31	96.98	85.36
Other skates	2.16					3.88	2.52	4.76	1.78	0.40
Total elasmobranch	**56.2**	**41.1**	**52.1**	**10.0**	**95.4**	**84.7**	**142.3**	**112.1**	**98.8**	**85.8**
Alaska plaice							4.92	3.40		
Arrowtooth flounder				51.97	3.82	14.85	27.98	57.19	44.19	49.76
Kamchatka flounder										
Flathead sole	44.20	32.34	9.77	12.80	1.39	17.84	39.29	57.45	27.64	10.78
Bering flounder	76.07	20.00	3.26		1.51	5.94	16.12	0.21	0.89	0.49
Greenland turbot	62.80	40.11	34.48	1.78	25.24	27.08	40.84	26.78	23.78	5.74
Pacific halibut							3.24	13.09	9.19	17.20
Rock sole	2.03							0.69	0.99	
Yellowfin sole										
Other flatfish	14.06	8.45	11.28	12.38	10.81	21.68	19.95	28.53	5.03	11.89
Total flatfish	**199.2**	**100.9**	**58.8**	**78.9**	**42.8**	**87.4**	**152.3**	**187.3**	**111.7**	**95.9**
Walleye pollock	509.27	705.19	2,519.49	1,032.64	1,671.54	478.29	481.00	411.96	303.51	517.13
Pacific cod	23.54	9.30	38.76	22.97	49.13	39.14	51.36	59.70	38.34	51.70
Eelpouts	15.59	24.17	12.31	2.13	11.91	15.96	15.73	19.95	14.23	20.28
Pacific herring		0.45						1.03		
Pacific ocean perch										
Other rockfish										
Sculpins	16.37	41.68	9.74	13.14	27.01	15.29	24.98	23.53	16.33	49.18
Other roundfish	0.91	2.08		0.23	4.18		0.49	0.10	1.74	0.18
Total roundfish	**565.7**	**782.9**	**2,580.3**	**1,071.1**	**1,763.8**	**548.7**	**573.6**	**516.3**	**374.2**	**638.5**
Blue king crab										
Red king crab										
Tanner crab, bairdi					0.62					0.01
Tanner crab, opilio	14.75	39.86	5.63	37.59	0.11	46.38	26.19	15.14	53.92	19.36
Other crab	4.64	71.77	18.25	10.24	34.25	20.23	8.77	54.20	45.62	5.33
Shrimp	1.48	2.31	2.56	4.69	4.44	7.14	3.65	8.61	8.52	29.84
Octopus	2.12	3.47							1.40	
Squids										0.09
Snails	7.83	153.05	43.92	10.03	77.29	282.40	139.25	68.84	102.90	49.45
Sea stars	24.62	69.57	115.43	4.92	231.68	152.83	72.85	37.00	249.74	428.83
Other invertebrates	48.50	27.14	47.06	18.47	19.62	14.20	33.11	14.54	29.27	21.01
Total invertebrates	**103.9**	**367.2**	**232.9**	**85.9**	**368.0**	**523.2**	**283.8**	**198.3**	**491.4**	**553.9**
Miscellaneous										
Total catch	**924.9**	**1,292.0**	**2,924.0**	**1,246.0**	**2,270.0**	**1,244.0**	**1,152.0**	**1,014.0**	**1,076.0**	**1,374.0**

Appendix A Table 2. -- Continued.

Station	**N-30**	**O-30**	**P-30**	**Q-30**	**Q-31**	**P-32**	**P-31**	**O-31**	**N-31**	**M-32**
Start date and time	07/24/15 13:45	07/24/15 16:34	07/25/15 07:43	07/25/15 10:28	07/25/15 13:03	07/25/15 16:12	07/26/15 07:40	07/26/15 10:23	07/26/15 13:10	07/26/15 17:00
Haul number	200	201	202	203	204	205	206	207	208	209
Start latitude	59.33	59.66	59.97	60.33	60.33	60.02	60.01	59.68	59.35	59.00
Start longitude	-176.34	-176.51	-176.71	-176.72	-177.34	-177.89	-177.21	-177.15	-177.06	-177.62
End latitude	59.33	59.67	60.00	60.35	60.32	60.00	59.99	59.66	59.33	59.00
End longitude	-176.39	-176.55	-176.72	-176.72	-177.39	-177.92	-177.25	-177.15	-177.07	-177.57
Bottom depth (m)	136	136	141	136	148	142	137	170	149	135
Duration (h)	0.51	0.50	0.50	0.51	0.44	0.49	0.51	0.49	0.51	0.51
Distance fished (km)	2.77	2.74	2.69	2.83	2.39	2.62	2.78	2.66	2.68	2.86
Net width (m)	17.40	17.04	16.77	16.71	17.02	16.63	17.32	17.97	17.82	17.95
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	0	0
Alaska skates	24.70	84.10	24.22	51.61	49.18	11.27	83.95	23.23	48.80	16.94
Other skates	4.72	11.62	4.09	2.25	5.39		6.28	1.95		7.36
Total elasmobranch	**29.4**	**95.7**	**28.3**	53.9	54.6	11.3	90.2	25.2	48.8	24.3
Alaska plaice										
Arrowtooth flounder	25.86	143.46	51.08	**28.46**	**27.83**	**23.54**	**57.34**	**200.11**	**120.69**	**75.93**
Kamchatka flounder										
Flathead sole	92.76	52.97	67.65	75.89	2.54	71.93	103.24	291.66	103.77	158.56
Bering flounder			0.95	8.42	2.22		4.39			
Greenland turbot		15.24	7.52	12.18	17.18	3.26	36.78			
Pacific halibut	4.49	6.80	6.49			9.83		7.63	15.27	18.41
Rock sole										5.22
Yellowfin sole										
Other flatfish	3.99	16.00	28.05	11.19	27.07	18.97	25.39	19.52	6.63	9.81
Total flatfish	**127.1**	**234.5**	**161.7**	136.1	76.8	127.5	227.1	518.9	246.4	267.9
Walleye pollock	763.25	1,155.13	2,841.87	1,148.84	2,860.14	951.62	854.26	3,367.79	17.44	7.13
Pacific cod	19.72	43.46	21.00	50.86	25.24	24.30	38.00	60.98	30.46	25.30
Eelpouts	19.41	9.67	19.87	27.02	13.30	0.28	23.55	1.35	0.17	
Pacific herring					28.30					
Pacific ocean perch										0.00
Other rockfish										
Sculpins	36.81	8.43	37.47	6.83	4.34	14.16	2.08	0.02	3.49	
Other roundfish	2.36	0.06	10.20	0.26	2.62	0.51	0.30			0.16
Total roundfish	**841.5**	**1,216.8**	**2,930.4**	1,233.8	2,933.9	990.9	918.2	3,430.1	51.6	32.6
Blue king crab										
Red king crab										
Tanner crab, bairdi						28.87		0.36	0.29	12.42
Tanner crab, opilio	0.53		7.42	0.80	0.34	53.73	1.98	23.37	2.51	0.01
Other crab	3.45		10.39	36.09	8.02	2.61	36.68	27.39	8.04	12.51
Shrimp	8.23	7.28	3.73	6.15	3.58	0.96	1.73	0.07	0.35	0.04
Octopus							22.04			0.24
Squids	0.22									
Snails	36.35	14.75	98.90	182.86	116.04	2.29	50.94	25.23	9.77	11.25
Sea stars	432.54	464.70	451.64	290.67	326.46	8.93	309.17	0.37	0.41	0.62
Other invertebrates	26.63	28.32	17.47	13.63	182.21	148.94	29.91	2.98	53.99	31.94
Total invertebrates	**507.9**	**515.0**	**589.5**	530.2	636.7	246.3	452.4	79.8	75.4	69.0
Miscellaneous										
Total catch	**1,506.0**	**2,062.0**	**3,710.0**	1,954.0	3,702.0	1,376.0	1,688.0	4,054.0	422.1	393.8

Appendix A Table 2. -- Continued.

Station	**M-31**	**L-31**	**J-25**	**I-25**	**H-25**	**H-26**	**G-26**	**G-25**	**F-25**
Start date and time	07/27/15 07:43	07/27/15 10:35	07/28/15 07:58	07/28/15 10:32	07/28/15 13:04	07/28/15 15:33	07/29/15 07:59	07/29/15 10:44	07/29/15 13:18
Haul number	210	211	212	213	214	215	216	217	218
Start latitude	59.00	58.67	58.01	57.68	57.36	57.34	57.01	57.01	56.69
Start longitude	-176.93	-176.89	-172.86	-172.80	-172.82	-173.32	-173.26	-172.66	-172.57
End latitude	58.99	58.67	57.98	57.65	57.34	57.32	56.99	56.99	56.67
End longitude	-176.98	-176.84	-172.86	-172.79	-172.81	-173.34	-173.24	-172.64	-172.56
Bottom depth (m)	136	136	109	119	117	121	142	121	134
Duration (h)	0.51	0.50	0.52	0.50	0.50	0.49	0.51	0.49	0.50
Distance fished (km)	2.83	2.84	2.89	2.75	2.68	2.65	2.75	2.69	2.69
Net width (m)	17.85	17.48	17.49	17.29	16.83	16.38	17.11	16.57	16.07
Net measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y
Performance	0	0	0	0	0	0	0	0	0
Alaska skates	24.22		68.06	34.88	22.86	9.92	16.52	14.88	
Other skates	14.36	6.28		3.78	22.77		56.29	1.65	
Total elasmobranch	38.6	6.3	68.1	38.7	45.6	9.9	72.8	16.5	0.0
Alaska plaice									
Arrowtooth flounder	**184.96**	**116.50**	**50.87**	**188.36**	**166.29**	**147.15**	**42.37**	**138.74**	**71.11**
Kamchatka flounder									
Flathead sole	182.00	169.39	15.04	39.27	108.07	52.19	35.47	45.50	5.86
Bering flounder									
Greenland turbot									
Pacific halibut	37.69	18.72		21.28	41.03	6.28	39.09	13.91	13.78
Rock sole	14.19	0.11	9.69		2.71	4.69		2.22	1.57
Yellowfin sole									
Other flatfish	27.92	10.59	32.34	14.04	18.96	34.52	36.02	25.90	18.70
Total flatfish	446.8	315.3	107.9	263.0	337.1	244.8	152.9	226.3	111.0
Walleye pollock	107.08	17.81	1,798.61	4,550.08	642.34	734.88	4.36	237.71	340.04
Pacific cod	121.32	82.46	28.42	22.18	29.88	64.20	17.80	79.23	53.28
Eelpouts	0.26		6.56					0.18	
Pacific herring									
Pacific ocean perch						0.93	0.01		4.69
Other rockfish									0.87
Sculpins	0.03	0.30	9.34		3.08		0.80	0.04	0.21
Other roundfish	0.13	0.17		11.42		0.01	1.06	0.04	0.31
Total roundfish	228.8	100.7	1,842.9	4,583.7	675.3	800.0	24.0	317.2	399.4
Blue king crab									
Red king crab									
Tanner crab, bairdi	2.34	0.32	0.01		0.03	0.20	1.03	1.44	1.94
Tanner crab, opilio	0.02	0.02	109.03	48.57	0.34	0.30			
Other crab	11.44	8.46	59.19	2.87	7.75	10.01	8.51	5.81	1.88
Shrimp		0.03	0.33	0.29	0.36	0.08	0.56	0.09	1.07
Octopus		0.34							
Squids							0.25	0.24	0.70
Snails	16.84	5.65	63.41	0.72	34.89	7.00	33.21	9.59	7.22
Sea stars	0.54	0.88	6.49	1.83	0.01		6.27	3.16	0.15
Other invertebrates	18.94	18.67	16.61	0.45	138.64	421.65	58.14	248.42	291.82
Total invertebrates	50.1	34.4	255.1	54.7	182.0	439.2	108.0	268.7	304.8
Miscellaneous									
Total catch	764.3	456.7	2,274.0	4,940.0	1,240.0	1,494.0	357.7	828.7	815.2

[Blank page]

Appendix B: List of Species Encountered

Appendix C lists all fish and invertebrate taxa taken during the AFSC's 2015 eastern Bering Sea shelf bottom trawl survey. Please see Stevenson and Hoff (2009) for species identification confidence for fish and invertebrate taxa.

List of Tables

Appendix B Table 1. -- Fish taxa encountered during the 2015 eastern Bering Sea shelf bottom trawl survey, listed alphabetically by family.

Family	Scientific name	Common name	Number stations present	Bottom depth (m)			Latitude range	
				Min. depth	Max. depth	Avg. depth	Southern	Northern
Agonidae	*Aspidophoroides bartoni*	Aleutian alligatorfish	30	47	137	69	56.318	60.314
	Bathyagonus infraspinatus	spinycheek starsnout	3	104	113	107	56.335	56.671
	Leptagonus decagonus	Atlantic poacher	2	90	96	93	61.684	61.999
	Leptagonus frenatus	sawback poacher	103	50	160	101	54.832	61.345
	Leptagonus leptorhynchus	longnose poacher	1	60	60	60	56.986	56.986
	Leptagonus sp.		1	68	68	68	57.003	57.003
	Occella dodecaedron	Bering poacher	11	21	57	31	57.657	60.332
	Percis japonicus	dragon poacher	1	142	142	142	60.015	60.015
	Podothecus accipenserinus	sturgeon poacher	208	21	120	60	54.693	62.000
	Podothecus veternus	veteran poacher	1	67	67	67	60.654	60.654
Ammodytidae	*Ammodytes personatus*	Pacific sand lance	4	21	33	30	56.976	60.332
	Ammodytes sp.	sand lance unid.	3	22	38	32	56.678	59.313
Anarhichadidae	*Anarhichas orientalis*	Bering wolffish	4	25	82	49	54.693	59.627
Anoplopomatidae	*Anoplopoma fimbria*	sablefish	7	51	112	91	55.348	60.346
Bathymasteridae	*Bathymaster signatus*	searcher	44	68	162	124	54.693	60.679
Clupeidae	*Clupea pallasii*	Pacific herring	118	21	148	64	56.343	61.999
Cottidae	*Artediellus miacanthus*	bride sculpin	2	118	127	123	58.979	59.013
	Artediellus pacificus	hookhorn sculpin	7	53	76	70	56.987	60.000
	Dasycottus setiger	spinyhead sculpin	49	83	161	122	54.832	60.996
	Gymnocanthus detrisus	purplegray sculpin	5	69	135	109	57.321	60.347
	Gymnocanthus galeatus	armorhead sculpin	8	60	107	79	56.661	62.000
	Gymnocanthus pistilliger	threaded sculpin	20	21	98	45	57.679	61.681
	Hemilepidotus jordani	yellow Irish lord	67	34	130	80	54.693	60.323
	Hemilepidotus papilio	butterfly sculpin	37	59	116	80	58.655	62.003
	Hemitripterus bolini	bigmouth sculpin	91	60	161	111	54.999	61.317
	Icelus spatula	spatulate sculpin	21	63	120	83	56.659	61.684
	Icelus spiniger	thorny sculpin	93	52	170	116	54.997	62.000
	Myoxocephalus jaok	plain sculpin	128	21	117	49	55.680	61.313
	Myoxocephalus polyacanthocephalus	great sculpin	168	24	136	75	55.343	62.003
	Myoxocephalus scorpius	shorthorn (=warty) sculpin	56	32	103	64	57.025	62.003
	Nautichthys pribilovius	eyeshade sculpin	1	78	78	78	56.990	56.990

Appendix B Table 1. -- Continued.

Family	Scientific name	Common name	Number stations present	Bottom depth (m)			Latitude range	
				Min. depth	Max. depth	Avg. depth	Southern	Northern
Cottidae (Continued)	*Triglops forficata*	scissortail sculpin	3	69	88	82	55.996	57.342
	Triglops macellus	roughspine sculpin	5	94	136	118	55.008	56.693
	Triglops pingeli	ribbed sculpin	13	21	90	61	56.661	61.999
	Triglops scepticus	spectacled sculpin	12	134	162	149	54.832	58.721
Cyclopteridae	*Aptocyclus ventricosus*	smooth lumpsucker	1	73	73	73	58.655	58.655
	Eumicrotremus sp.	spiny lumpsuckers	1	121	121	121	57.013	57.013
Gadidae	*Boreogadus saida*	Arctic cod	34	31	109	79	59.010	62.003
	Eleginus gracilis	saffron cod	11	22	47	31	58.317	60.332
	Gadus chalcogrammus	walleye pollock	375	21	170	82	54.693	62.003
	Gadus macrocephalus	Pacific cod	354	21	170	81	54.693	62.003
Hexagrammidae	*Hexagrammos stelleri*	whitespotted greenling	6	21	32	27	57.325	60.332
	Pleurogrammus monopterygius	Atka mackerel	7	46	128	69	56.335	60.983
Liparidae	*Careproctus gilberti*	smalldisk snailfish	1	72	72	72	57.673	57.673
	Careproctus phasma	monster snailfish	13	63	119	87	59.663	62.003
	Careproctus rastrinus	salmon snailfish	39	77	161	112	54.832	61.999
	Careproctus sp. cf. *rastrinus* (Orr et al.)		3	73	90	79	61.313	62.003
	Crystallichthys cyclospilus	blotched snailfish	2	69	82	76	55.672	57.678
	Liparis gibbus	variegated snailfish	28	59	141	80	56.671	62.003
	Liparis sp.		3	43	67	53	57.982	60.335
Osmeridae	*Mallotus villosus*	capelin	160	21	120	57	56.326	62.003
	Osmerus mordax	rainbow smelt	5	23	66	38	57.324	59.354
	Thaleichthys pacificus	eulachon	39	33	155	91	54.997	57.681
Petromyzontidae	*Lampetra tridentata*	Pacific lamprey	1	142	142	142	54.999	54.999
Pleuronectidae	*Atheresthes evermanni*	Kamchatka flounder	196	51	170	104	54.693	61.677
	Atheresthes stomias	arrowtooth flounder	205	49	170	100	54.693	60.679
	Glyptocephalus zachirus	rex sole	64	33	162	118	54.693	59.349
	Hippoglossoides elassodon	flathead sole	269	33	170	93	54.693	61.677
	Hippoglossoides robustus	Bering flounder	103	39	148	86	57.654	62.003
	Hippoglossus stenolepis	Pacific halibut	280	21	170	80	54.693	61.317
	Isopsetta isolepis	butter sole	5	42	82	70	54.693	58.023
	Lepidopsetta bilineata	southern rock sole	2	65	78	72	55.055	55.343

Appendix B Table 1. -- Continued.

Family	Scientific name	Common name	Number stations present	Bottom depth (m)			Latitude range	
				Min. depth	Max. depth	Avg. depth	Southern	Northern
Pleuronectidae (Continued)	*Lepidopsetta polyxystra*	northern rock sole	283	21	144	71	54.693	61.317
	Limanda aspera	yellowfin sole	226	21	107	60	54.693	61.989
	Limanda proboscidea	longhead dab	14	21	51	32	58.001	60.332
	Limanda sakhalinensis	Sakhalin sole	21	43	85	69	59.333	62.003
	Microstomus pacificus	Dover sole	1	88	88	88	55.996	55.996
	Platichthys stellatus	starry flounder	56	21	82	42	54.693	60.332
	PlatichthysXPleuronectes hybrid	hybrid starry plaice	1	63	63	63	57.016	57.016
	Pleuronectes quadrituberculatus	Alaska plaice	226	21	126	65	55.343	62.003
	Reinhardtius hippoglossoides	Greenland turbot	78	63	162	105	56.341	62.003
Rajidae	*Bathyraja aleutica*	Aleutian skate	12	110	162	137	54.832	59.013
	Bathyraja aleutica egg case	Aleutian skate egg case	2	74	78	76	58.321	59.665
	Bathyraja interrupta	Bering skate	78	60	170	119	54.832	60.983
	Bathyraja interrupta egg case		9	60	155	137	54.832	56.986
	Bathyraja minispinosa	whitebrow skate	1	142	142	142	57.009	57.009
	Bathyraja parmifera	Alaska skate	353	21	170	82	54.693	62.003
	Bathyraja parmifera egg case	Alaska skate egg case	14	59	154	103	54.832	60.327
	Bathyraja taranetzi	mud skate	1	158	158	158	58.654	58.654
	Bathyraja taranetzi egg case	mud skate egg case	2	60	136	98	56.356	56.986
	Raja binoculata	big skate	9	51	82	67	54.693	57.324
	Raja rhina	longnose skate	1	82	82	82	54.693	54.693
		skate egg case unid.	4	61	142	88	57.009	62.000
Salmonidae	*Oncorhynchus keta*	chum salmon	3	28	120	88	55.353	59.352
	Oncorhynchus tshawytscha	chinook salmon	1	94	94	94	55.664	55.664
Scorpaenidae	*Sebastes aleutianus*	rougheye rockfish	2	135	140	138	55.322	55.991
	Sebastes alutus	Pacific ocean perch	11	117	162	140	54.832	59.003
	Sebastes polyspinis	northern rockfish	4	120	149	135	55.326	56.693
	Sebastes variabilis	dusky rockfish	1	162	162	162	58.324	58.324
Somniosidae	*Somniosus pacificus*	Pacific sleeper shark	2	78	120	99	55.343	55.356
Squalidae	*Squalus suckleyi*	spiny dogfish	1	65	65	65	55.055	55.055
Stichaeidae	*Lumpenus fabricii*	slender eelblenny	2	22	23	23	59.313	59.354
	Lumpenus maculatus	daubed shanny	20	68	141	101	55.664	62.000

Appendix B Table 1. -- Continued.

Family	Scientific name	Common name	Number stations present	Bottom depth (m)			Latitude range	
				Min. depth	Max. depth	Avg. depth	Southern	Northern
Stichaeidae (Continued)	*Lumpenus sagitta*	snake prickleback	2	26	31	29	58.353	60.332
	Lumpenus sp.		1	31	31	31	59.648	59.648
	Poroclinus rothrocki	whitebarred prickleback	2	113	142	128	54.999	56.344
	Stichaeus punctatus	Arctic shanny	1	41	41	41	58.293	58.293
Zoarcidae	*Gymnelus viridis*	fish doctor	1	76	76	76	60.000	60.000
	Lycodes brevipes	shortfin eelpout	89	72	170	118	54.997	61.677
	Lycodes palearis	wattled eelpout	138	50	148	90	55.314	62.003
	Lycodes raridens	marbled eelpout	35	54	112	79	58.016	62.003
	Lycodes turneri	polar eelpout	1	31	31	31	60.332	60.332
Other		fish eggs unid.	5	42	79	66	58.672	62.003

Appendix B Table 2. -- Invertebrate taxa encountered during the 2015 eastern Bering Sea bottom shelf bottom trawl survey, listed alphabetically by Phylum.

Phylum	Scientific name	Common name	Number stations present	Bottom depth (m)			Latitude range	
				Min. depth	Max. depth	Avg. depth	Southern	Northern
Annelida	Polychaeta	polychaete worm unid.	7	51	136	79	57.108	61.648
	Annelida	worm unid.	3	115	160	135	58.322	59.013
		tube worm unid.	15	31	126	72	55.353	60.332
	Aphroditidae	sea mouse unid.	1	111	111	111	55.008	55.008
	Aphrodita sp.		4	88	136	111	54.997	56.341
	Aphrodita negligens		23	117	160	137	57.009	61.004
	Eunoe sp.		12	42	136	74	55.659	58.322
	Eunoe nodosa	giant scale worm	64	59	170	95	56.328	62.000
	Eunoe depressa	depressed scale worm	65	42	162	100	55.353	60.996
	Eunoe senta	thorny scaleworm	4	68	107	80	57.658	59.333
	Serpula sp.		1	155	155	155	54.997	54.997
	Hirudinea	leech unid.	3	68	135	98	55.660	58.357
Arthropoda	Gammaridae	gammarid amphipod unid.	1	67	67	67	60.654	60.654
	Isopoda	isopod unid.	7	82	162	126	54.693	58.324
	Thoracica	barnacle unid.	24	27	107	56	56.661	60.333
	Balanus sp.		3	37	47	42	58.233	58.325
	Chirona evermanni	giant barnacle	9	63	162	127	55.981	60.285
		shrimp unid.	1	59	59	59	60.314	60.314
	Pandalus sp.		7	43	112	90	55.008	60.335
	Pandalus eous	Alaskan pink shrimp	119	69	170	119	54.832	61.349
	Pandalus tridens	yellowleg pandalid	2	134	135	135	56.693	59.003
	Pandalus goniurus	humpy shrimp	29	31	122	71	57.010	62.000
	Spirontocaris sp.		1	67	67	67	60.654	60.654
	Eualus sp.		1	76	76	76	60.987	60.987
	Eualus gaimardii	circumpolar eualid	4	60	79	73	60.982	61.316
	Eualus macilentus	Greenland shrimp	4	71	88	79	61.313	61.648
	Crangon sp.		89	21	148	95	55.008	61.677
	Argis sp.		55	39	162	101	54.832	62.003
	Cancer oregonensis	Oregon rock crab	13	50	101	83	55.348	57.668

Appendix B Table 2. -- Continued.

Phylum	Scientific name	Common name	Number stations present	Bottom depth (m)			Latitude range	
				Min. depth	Max. depth	Avg. depth	Southern	Northern
Arthropoda (Continued)	*Oregonia gracilis*	graceful decorator crab	43	26	154	62	54.832	60.332
	Chionoecetes bairdi	Tanner crab	260	26	170	85	54.693	60.684
	Hyas coarctatus	circumboreal toad crab	203	26	160	67	55.664	62.003
	Hyas lyratus	Pacific lyre crab	102	25	162	86	54.832	60.332
	Chionoecetes opilio	snow crab	255	37	170	91	54.997	62.003
	Chionoecetes hybrid	hybrid Tanner crab	128	27	162	93	55.353	61.012
	Telmessus cheiragonus	helmet crab	17	21	41	30	56.976	60.332
	Paguridae	hermit crab unid.	5	31	90	70	55.343	60.332
	Pagurus sp.		3	71	142	103	54.999	57.495
	Pagurus brandti	sponge hermit	2	83	136	110	58.339	59.333
	Pagurus aleuticus	Aleutian hermit	122	60	155	105	54.832	60.668
	Labidochirus splendescens	splendid hermit	158	24	162	75	54.832	62.000
	Pagurus confragosus	knobbyhand hermit	96	46	170	110	54.832	59.683
	Pagurus trigonocheirus	fuzzy hermit crab	203	26	170	82	54.832	62.003
	Pagurus ochotensis	Alaskan hermit	102	21	82	46	54.693	60.333
	Pagurus rathbuni	longfinger hermit	128	45	170	98	56.328	62.003
	Elassochirus tenuimanus	widehand hermit crab	4	51	78	61	55.343	56.671
	Pagurus capillatus	hairy hermit crab	131	31	127	81	55.008	60.346
	Elassochirus cavimanus	purple hermit	24	55	162	128	54.832	59.328
	Lithodes aequispinus	golden king crab	1	144	144	144	57.648	57.648
	Paralithodes camtschaticus	red king crab	102	21	97	54	55.348	60.335
	Paralithodes platypus	blue king crab	30	45	120	81	56.986	61.353
	Erimacrus isenbeckii	horsehair crab	57	31	96	57	55.672	61.989
Brachiopoda	*Terebratalia transversa*	common brachiopod	1	59	59	59	60.314	60.314
Bryozoa	Bryozoa	bryozoan unid.	56	21	120	69	55.008	62.000
	Bugula pacifica		3	54	71	65	57.512	59.013
	Flustra serrulata	leafy bryozoan	5	36	48	43	58.023	60.335
	Alcyonidium pedunculatum		4	55	116	78	56.671	62.000
	Alcyonidium sp.		3	45	136	83	59.657	60.999

Appendix B Table 2. -- Continued.

Phylum	Scientific name	Common name	Number stations present	Bottom depth (m)			Latitude range	
				Min. depth	Max. depth	Avg. depth	Southern	Northern
Bryozoa (Continued)	*Alcyonidium disciforme*	disc bryozoan	6	32	72	46	57.015	60.152
	Rhamphostomella costata	ribbed bryozoan	6	39	80	68	56.980	60.004
Cnidaria	Hydrozoa		1	44	44	44	58.342	58.342
	Hydroidolina	hydroid unid.	22	23	76	48	57.011	60.335
	Scyphozoa	jellyfish unid.	13	36	161	113	55.326	60.679
	Chrysaora melanaster		280	21	162	82	54.997	62.003
	Phacellophora camtschatica	egg yolk jelly	11	66	149	128	55.333	59.973
	Aequorea sp.		15	67	170	129	56.693	61.317
	Aurelia sp.		2	121	142	132	57.013	60.015
	Aurelia limbata	brown rimmed jelly	1	63	63	63	60.654	60.654
	Cyanea capillata	lion's mane	5	120	149	137	54.999	55.981
	Gersemia sp.	sea raspberry	69	25	85	55	56.329	60.335
	Gersemia rubiformis		31	54	107	75	58.002	62.003
	Pennatulacea	sea pen or sea whip unid.	1	142	142	142	60.015	60.015
	Virgulariidae	sea whip unid.	13	94	149	120	55.659	57.362
	Actiniaria	sea anemone unid.	62	33	162	102	54.997	61.681
	Metridium sp.		54	31	149	69	54.693	60.335
	Metridium senile	clonal plumose anemone	3	55	72	65	57.323	57.673
	Metridium farcimen	gigantic anemone	39	24	141	81	55.356	59.993
	Stomphia sp.		67	50	161	100	54.693	62.003
	Stomphia coccinea	swimming anemone	7	61	155	92	54.997	59.323
	Urticina sp.		8	59	134	84	56.693	60.987
	Urticina crassicornis	mottled anemone	12	26	97	66	55.055	60.285
	Cribrinopsis fernaldi	chevron-tentacled anemone	3	88	121	109	57.344	59.323
	Liponema brevicorne	tentacle-shedding anemone	46	80	160	120	54.997	59.349
	Actinostolidae		17	63	161	102	57.316	61.989
Ctenophora	Ctenophora	comb jelly unid.	1	135	135	135	59.003	59.003
Echinodermata	Asteroidea	sea star unid.	1	66	66	66	59.995	59.995
	Evasterias sp.		1	51	51	51	57.108	57.108

Appendix B Table 2. -- Continued.

Phylum	Scientific name	Common name	Number stations present	Bottom depth (m)			Latitude range	
				Min. depth	Max. depth	Avg. depth	Southern	Northern
Echinodermata (Continued)	*Evasterias troschelii*	mottled sea star	3	65	80	71	55.055	57.342
	Evasterias echinosoma	giant sea star	24	24	94	63	55.343	58.319
	Leptasterias groenlandica		8	50	83	70	56.994	60.327
	Leptasterias hylodes	Aleutian sea star	1	66	66	66	59.995	59.995
	Lethasterias nanimensis	blackspined sea star	72	50	158	82	55.343	60.314
	Henricia sp.		41	43	160	101	54.832	60.654
	Leptasterias polaris		134	45	161	95	56.341	62.003
	Leptasterias arctica		96	24	158	76	56.679	62.003
	Leptasterias sp.		2	67	70	69	56.994	57.312
	Pseudarchaster parelii	scarlet sea star	5	121	155	139	54.832	57.013
	Ceramaster sp.		4	130	155	145	54.832	55.322
	Solaster sp.		1	63	63	63	60.285	60.285
	Crossaster papposus	rose sea star	31	41	154	82	54.832	60.989
	Pteraster sp.		4	94	154	117	54.832	56.356
	Pteraster tesselatus		2	65	80	73	55.055	56.661
	Pteraster obscurus	obscure sea star	54	61	161	105	54.832	62.003
	Diplopteraster multipes	pincushion sea star	4	134	160	153	54.832	58.721
	Asterias amurensis	purple-orange sea star	242	21	126	64	55.008	60.998
	Ctenodiscus crispatus	common mud star	81	78	170	119	54.997	61.684
	Leptychaster anomalus		15	86	160	111	55.008	59.323
	Leptychaster pacificus		1	78	78	78	55.343	55.343
	Dipsacaster borealis	northern sea star	4	115	162	136	57.009	58.324
	Echinacea	sea urchin unid.	1	120	120	120	56.659	56.659
	Strongylocentrotus droebachiensis	green sea urchin	47	50	160	97	55.055	60.346
	Strongylocentrotus sp.		46	33	162	133	54.832	62.000
		sand dollar unid.	1	88	88	88	59.323	59.323
	Echinarachnius parma	parma sand dollar	25	32	112	73	54.693	60.989
	Gorgonocephalus eucnemis	basketstar	227	22	162	84	54.693	62.003
	Ophiura sarsi	notched brittlestar	101	60	158	79	54.832	62.003

Appendix B Table 2. -- Continued.

Phylum	Scientific name	Common name	Number stations present	Bottom depth (m)			Latitude range	
				Min. depth	Max. depth	Avg. depth	Southern	Northern
Echinodermata (Continued)	*Ophiopholis* sp.		2	59	160	110	58.721	60.314
	Ophiopholis longispina		1	135	135	135	59.003	59.003
	Ophiopholis aculeata	ubiquitous brittle star	1	154	154	154	56.335	56.335
	Holothuroidea	sea cucumber unid.	2	67	70	69	56.994	60.654
	Molpadia intermedia	sweet sea potato	3	120	135	131	55.333	55.662
	Pentamera lissoplaca	crescent sea cucumber	6	59	70	64	57.351	60.314
	Bathyplotes sp.		1	154	154	154	54.832	54.832
	Cucumaria sp.		4	75	88	83	55.996	56.658
	Cucumaria fallax	sea football	29	32	110	66	55.640	58.688
	Psolus sp.		4	41	76	59	58.233	60.314
	Psolus fabricii	brownscaled sea cucumber	1	63	63	63	60.285	60.285
Echiura	Echiura	echiuroid worm unid.	1	41	41	41	58.293	58.293
Mollusca	Polyplacophora	chiton unid.	1	59	59	59	60.314	60.314
	gastropod eggs	snail eggs	183	21	162	77	54.999	62.003
	Nudibranchia	nudibranch unid.	19	54	137	85	55.008	61.345
	Tochuina tetraquetra	giant orange tochui	2	55	57	56	57.009	57.657
	Dendronotus sp.		11	59	161	87	59.829	61.989
	Tritonia sp.		2	67	85	76	56.679	60.654
	Tritonia festiva	festive tritonia	3	63	71	67	59.995	61.989
	Tritonia diomedea	rosy tritonia	4	56	79	69	57.525	61.316
	Gastropoda	snail unid.	1	66	66	66	59.995	59.995
	Cryptonatica sp.		11	77	107	92	58.016	61.681
	Cryptonatica aleutica	Aleutian moonsnail	1	76	76	76	56.649	56.649
	Cryptonatica russa	rusty moonsnail	32	60	136	95	55.991	62.003
	Euspira pallida	pale moonsnail	29	56	137	83	56.335	62.003
	Lamellariidae	lamellarid unid.	3	68	83	74	57.322	59.333
	Onchidiopsis sp.		1	65	65	65	57.322	57.322
	Tachyrhynchus erosus	eroded turretsnail	1	41	41	41	58.293	58.293
	Calyptraeidae	slippersnails	1	68	68	68	57.010	57.010

Appendix B Table 2. -- Continued.

Phylum	Scientific name	Common name	Number stations present	Bottom depth (m)			Latitude range	
				Min. depth	Max. depth	Avg. depth	Southern	Northern
Mollusca (Continued)	*Crepidula* sp.	slipper shell	1	55	55	55	58.015	58.015
	Crepidula grandis	great slippersnail	3	63	70	67	57.654	58.688
	Colus sp.		39	56	160	106	54.832	61.681
	Colus herendeenii	thin-ribbed whelk	12	53	137	84	56.354	60.009
	Colus hypolispus		2	61	64	63	60.004	60.324
	Colus aphelus	oblique whelk	3	68	113	92	56.344	57.654
	Pyrulofusus sp.		3	70	122	98	56.649	60.347
	Volutopsius sp.		30	59	161	118	56.659	61.004
	Pyrulofusus deformis	warped whelk	42	61	162	94	55.672	60.285
	Volutopsius fragilis	fragile whelk	29	48	154	73	56.335	58.349
	Pyrulofusus melonis		42	74	154	124	54.997	60.670
	Volutopsius stefanssoni	shouldered whelk	2	69	71	70	57.342	57.495
	Volutopsius trophonius	frilled whelk	1	154	154	154	56.335	56.335
	Beringius sp.		42	62	154	112	54.832	61.349
	Beringius frielei		2	136	155	146	54.997	56.356
	Beringius beringii		26	44	154	98	54.832	60.314
	Beringius stimpsoni		2	55	66	61	57.686	58.015
	Neptunea sp.		10	42	136	75	57.010	61.349
	Neptunea pribiloffensis	Pribilof whelk	140	66	170	112	54.997	61.677
	Neptunea borealis		63	45	136	77	56.341	62.003
	Neptunea middendorffii		2	47	51	49	57.681	58.009
	Neptunea lyrata	lyre whelk	127	39	170	102	54.693	60.679
	Neptunea ventricosa	fat whelk	126	32	105	59	55.680	60.684
	Neptunea heros		133	31	97	62	56.329	62.003
	Clinopegma magnum	helmet whelk	47	64	147	95	56.335	61.681
	Plicifusus sp.		18	89	142	128	56.659	60.673
	Plicifusus kroyeri		33	59	154	96	56.335	61.349
	Liomesus ooides	egg whelk	1	115	115	115	58.322	58.322
	Aforia circinata	keeled aforia	49	95	170	124	55.326	61.349

Appendix B Table 2. -- Continued.

Phylum	Scientific name	Common name	Number stations present	Bottom depth (m)			Latitude range	
				Min. depth	Max. depth	Avg. depth	Southern	Northern
Mollusca (Continued)	*Trichotropis bicarinata*	two-keel hairysnail	2	63	66	65	59.995	60.285
	Boreotrophon alaskanus	Alaskan trophon	2	96	113	105	56.344	56.642
	Boreotrophon coronatus		2	51	72	62	57.015	57.681
	Boreotrophon sp.		8	66	104	85	56.335	58.339
	Boreotrophon pacificus		2	75	88	82	56.318	56.677
	Fusitriton oregonensis	Oregon triton	96	53	170	112	54.693	59.683
	Margarites sp.		1	63	63	63	60.285	60.285
	Buccinum sp.		24	33	137	84	54.693	60.668
	Buccinum angulosum	angular whelk	100	48	148	88	56.318	62.000
	Buccinum oedematum	swollen whelk	4	136	148	142	59.657	60.327
	Buccinum plectrum	sinuous whelk	12	32	109	61	57.010	60.004
	Buccinum scalariforme	ladder whelk	151	42	170	97	54.832	62.003
	Buccinum polare	polar whelk	94	39	129	75	56.649	62.003
	Arctomelon stearnsii	Alaska volute	2	154	160	157	54.832	58.721
	Bivalvia	bivalve unid.	4	67	110	81	56.328	57.673
	Mytilidae	mussel unid.	1	53	53	53	55.348	55.348
	Modiolus modiolus	northern horsemussel	1	25	25	25	59.627	59.627
	Mytilus sp.		8	23	75	56	57.322	58.986
	Mytilus edulis	blue mussel	3	41	51	45	57.994	58.293
	Chlamys sp.		4	63	162	95	55.055	60.285
	Patinopecten caurinus	weathervane scallop	13	65	149	109	55.055	57.362
	Hiatella arctica	Arctic hiatella	21	46	134	83	56.661	60.005
	Yoldia sp.		19	51	110	75	55.640	60.339
	Nuculana pernula	northern nutclam	1	83	83	83	58.339	58.339
	Musculus discors	discordant mussel	14	36	76	62	58.006	61.648
	Astarte sp.		1	154	154	154	54.832	54.832
	Clinocardium sp.		36	24	135	71	55.348	61.681
	Clinocardium ciliatum	hairy cockle	20	61	135	81	56.657	62.000
	Mactromeris polynyma	Arctic surfclam	32	21	69	48	56.986	59.680

Appendix B Table 2. -- Continued.

Phylum	Scientific name	Common name	Number stations present	Bottom depth (m)			Latitude range	
				Min. depth	Max. depth	Avg. depth	Southern	Northern
Mollusca (Continued)	*Tellina* sp.		1	97	97	97	59.993	59.993
	Tellina lutea	Alaska great-tellin	15	27	84	44	56.354	59.015
	Macoma sp.		9	33	100	72	56.976	62.000
	Siliqua sp.		1	37	37	37	58.012	58.012
	Siliqua alta	Alaska razor	15	21	49	32	57.342	60.332
	Serripes sp.		7	43	73	60	56.820	57.830
	Serripes groenlandicus	Greenland cockle	4	39	70	55	57.312	58.672
	Serripes notabilis	oblique smoothcockle	62	28	142	76	54.997	61.681
	Teredinidae	shipworm unid.	1	149	149	149	55.981	55.981
	Pododesmus macrochisma	Alaska falsejingle	1	69	69	69	57.342	57.342
	Pododesmus sp.		1	80	80	80	56.661	56.661
	Octopodidae	octopus unid.	2	53	104	79	55.348	56.654
	Benthoctopus leioderma	smoothskin octopus	9	67	158	107	58.654	61.659
	Enteroctopus dofleini	giant octopus	28	51	160	112	54.997	62.003
	Rossia pacifica	eastern Pacific bobtail	14	80	162	135	56.335	59.689
	Berryteuthis magister	magistrate armhook squid	3	112	154	127	54.832	55.314
Nemertea	Nemertea	nemertean worm unid.	3	47	80	60	56.836	59.013
Porifera	Porifera	sponge unid.	111	26	162	76	54.693	60.654
	Suberites sp.		3	53	154	110	54.832	55.348
	Suberites montalbidus	stinky sponge	11	69	101	85	55.353	56.991
	Mycale sp.		1	136	136	136	56.356	56.356
	Halichondria sp.		1	80	80	80	57.012	57.012
	Rhabdocalyptus sp.	cloud sponge	1	135	135	135	59.003	59.003
		funnel sponge	1	80	80	80	57.012	57.012
	Polymastia sp.		1	148	148	148	60.327	60.327
Priapulida	Priapula	priapulid worm unid.	1	71	71	71	61.648	61.648
Sipuncula	Sipuncula	peanut worm unid.	4	60	121	83	57.013	62.000
Tunicata	Ascidiacea	tunicate unid.	6	33	93	71	56.658	59.665
	Styela rustica	sea potato	97	36	104	62	56.649	60.982

Appendix B Table 2. -- Continued.

Phylum	Scientific name	Common name	Number stations present	Bottom depth (m)			Latitude range	
				Min. depth	Max. depth	Avg. depth	Southern	Northern
Tunicata (Continued)	*Boltenia ovifera*	sea onion	109	31	110	58	56.328	60.982
	Halocynthia sp.	sea peach unid.	2	70	75	73	57.025	57.351
	Halocynthia igaboja	bristly tunicate	1	66	66	66	59.995	59.995
	Halocynthia aurantium	sea peach	25	63	75	70	57.322	60.004
	Aplidium californicum	California sea pork	7	36	70	50	57.016	60.333
		compound ascidian unid.	25	26	136	58	55.348	60.654
	Aplidium sp. A (Clark 2006)	sea glob	1	37	37	37	58.682	58.682
Other	Polychaete tubes		6	60	136	116	56.693	60.983
		empty barnacle shells	2	135	149	142	55.326	55.660
		empty bivalve shells	280	21	162	77	54.999	62.003
		empty gastropod shells	320	21	170	83	54.693	62.003

Appendix C: Population Estimates by Sex and Size Groups for Principal Fish Species

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

List of Tables

Population estimates by sex and size group from the 2015 eastern Bering Sea bottom trawl survey.

Appendix C Table 1. -- Population estimates by sex and size for **walleye pollock** (*Gadus chalcogrammus*) from the 2015 eastern Bering Sea shelf bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative proportion
80	0	0	389,516	389,516	< 0.0001	< 0.0001
90	0	87,773	4,781,415	4,869,188	0.0004	0.0004
100	483,826	863,559	24,385,262	25,732,647	0.0023	0.0028
110	18,584	1,426,348	55,209,659	56,654,591	0.0052	0.0079
120	655,400	1,635,047	76,303,388	78,593,835	0.0072	0.0151
130	6,950,932	5,574,317	108,925,072	121,450,321	0.0111	0.0262
140	18,778,821	10,231,458	136,004,424	165,014,704	0.0150	0.0412
150	39,678,447	21,703,091	90,456,167	151,837,705	0.0138	0.0550
160	44,344,396	39,677,488	43,359,768	127,381,652	0.0116	0.0666
170	33,101,617	31,965,431	14,250,473	79,317,521	0.0072	0.0738
180	23,119,975	21,126,863	2,439,419	46,686,256	0.0043	0.0781
190	21,716,077	20,091,807	1,373,851	43,181,736	0.0039	0.0820
200	29,683,067	20,943,631	299,410	50,926,108	0.0046	0.0866
210	32,997,027	32,079,415	477,383	65,553,825	0.0060	0.0926
220	33,890,551	29,007,490	0	62,898,041	0.0057	0.0983
230	32,833,862	35,000,513	0	67,834,376	0.0062	0.1045
240	39,486,037	33,743,451	0	73,229,487	0.0067	0.1112
250	46,797,812	34,889,409	0	81,687,221	0.0074	0.1186
260	47,364,644	30,215,971	0	77,580,616	0.0071	0.1257
270	31,373,676	28,531,278	0	59,904,954	0.0055	0.1311
280	33,512,354	33,500,085	0	67,012,439	0.0061	0.1372
290	21,779,829	25,251,563	0	47,031,392	0.0043	0.1415
300	31,896,674	21,503,220	0	53,399,893	0.0049	0.1464
310	26,195,462	20,097,883	0	46,293,345	0.0042	0.1506
320	33,632,648	26,552,079	0	60,184,726	0.0055	0.1561
330	37,522,670	32,267,239	0	69,789,908	0.0064	0.1624
340	90,506,398	67,722,383	0	158,228,781	0.0144	0.1768
350	129,011,647	89,167,178	0	218,178,825	0.0199	0.1967
360	161,865,365	131,719,752	0	293,585,117	0.0267	0.2234
370	166,954,749	157,473,879	0	324,428,628	0.0295	0.2530
380	140,116,630	129,017,625	0	269,134,255	0.0245	0.2775
390	143,109,355	108,922,173	0	252,031,528	0.0229	0.3004
400	134,483,635	100,848,131	0	235,331,766	0.0214	0.3219
410	166,982,636	111,163,409	0	278,146,044	0.0253	0.3472
420	191,769,630	145,737,196	0	337,506,826	0.0307	0.3779
430	229,536,528	179,012,771	0	408,549,299	0.0372	0.4151
440	288,053,809	214,434,187	26,922	502,514,917	0.0458	0.4609
450	327,428,740	246,964,051	0	574,392,791	0.0523	0.5132
460	347,248,438	314,007,509	0	661,255,947	0.0602	0.5734
470	377,858,351	346,435,315	0	724,293,666	0.0659	0.6393
480	388,285,552	375,171,703	80,765	763,538,020	0.0695	0.7088
490	321,455,783	388,666,570	80,765	710,203,118	0.0647	0.7735
500	270,139,564	304,261,813	107,686	574,509,064	0.0523	0.8258
510	194,716,620	281,967,558	161,529	476,845,708	0.0434	0.8692
520	148,900,948	215,957,754	107,686	364,966,388	0.0332	0.9025
530	106,884,635	149,967,652	53,843	256,906,130	0.0234	0.9259
540	70,987,605	119,197,727	80,765	190,266,097	0.0173	0.9432

Appendix C Table 1. -- Continued.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative proportion
550	52,478,908	96,197,226	26,922	148,703,056	0.0135	0.9567
560	40,410,652	72,101,042	26,922	112,538,615	0.0102	0.9670
570	31,499,858	48,251,622	53,843	79,805,323	0.0073	0.9742
580	27,888,289	36,942,841	53,843	64,884,972	0.0059	0.9801
590	19,038,245	23,802,168	26,922	42,867,335	0.0039	0.9840
600	19,051,408	18,321,796	0	37,373,204	0.0034	0.9874
610	12,506,185	16,265,663	0	28,771,847	0.0026	0.9901
620	7,925,898	13,858,088	0	21,783,986	0.0020	0.9921
630	8,584,477	11,833,543	0	20,418,020	0.0019	0.9939
640	4,468,234	7,105,519	0	11,573,753	0.0011	0.9950
650	3,435,013	5,594,217	0	9,029,230	0.0008	0.9958
660	4,414,903	6,354,719	0	10,769,622	0.0010	0.9968
670	1,683,665	5,508,038	0	7,191,703	0.0007	0.9974
680	4,370,955	3,634,295	0	8,005,250	0.0007	0.9981
690	2,124,576	4,599,868	0	6,724,445	0.0006	0.9988
700	1,524,895	1,325,319	0	2,850,214	0.0003	0.9990
710	1,060,923	845,126	0	1,906,049	0.0002	0.9992
720	395,757	2,216,658	0	2,612,415	0.0002	0.9994
730	581,002	1,066,707	0	1,647,709	0.0002	0.9996
740	59,123	948,216	0	1,007,340	0.0001	0.9997
750	873,609	618,416	0	1,492,025	0.0001	0.9998
760	0	421,991	0	421,991	< 0.0001	0.9998
770	34,333	221,484	0	255,818	< 0.0001	0.9999
780	0	464,756	0	464,756	< 0.0001	0.9999
790	0	49,515	0	49,515	< 0.0001	0.9999
800	66,123	400,750	0	466,873	< 0.0001	1.0000
810	0	0	0	0	< 0.0001	1.0000
820	0	0	0	0	< 0.0001	1.0000
830	0	31,207	0	31,207	< 0.0001	1.0000
Total	**5,308,588,037**	**5,114,763,535**	**559,543,620**	**10,982,895,191**	**1.0000**	**1.0000**

Appendix C Table 2. -- Population estimates by sex and size for **Pacific cod** (*Gadus macrocephalus*) from the 2015 eastern Bering Sea shelf bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative proportion
100	128,288	128,288	297,655	554,231	0.0006	0.0006
110	384,864	256,576	1,480,683	2,122,124	0.0022	0.0027
120	1,311,070	350,429	469,896	2,131,395	0.0022	0.0049
130	769,728	1,768,999	1,801,771	4,340,499	0.0044	0.0093
140	715,114	1,526,757	1,677,619	3,919,489	0.0040	0.0133
150	744,017	1,043,165	869,725	2,656,907	0.0027	0.0160
160	958,384	982,511	469,896	2,410,791	0.0024	0.0184
170	1,575,794	1,193,129	131,163	2,900,086	0.0029	0.0213
180	1,641,302	1,250,955	27,805	2,920,062	0.0030	0.0243
190	1,668,893	1,379,572	27,805	3,076,270	0.0031	0.0274
200	1,740,981	2,015,329	0	3,756,310	0.0038	0.0312
210	2,501,311	1,823,983	0	4,325,294	0.0044	0.0356
220	1,969,381	1,526,518	31,207	3,527,107	0.0036	0.0392
230	1,964,984	1,967,893	0	3,932,876	0.0040	0.0432
240	2,013,484	1,830,877	0	3,844,362	0.0039	0.0471
250	1,908,528	2,067,385	0	3,975,912	0.0040	0.0511
260	2,301,848	1,718,502	159,903	4,180,253	0.0042	0.0554
270	2,946,512	3,107,574	159,903	6,213,989	0.0063	0.0617
280	4,329,665	4,310,608	479,709	9,119,982	0.0093	0.0709
290	6,522,155	6,153,342	1,599,031	14,274,527	0.0145	0.0854
300	9,360,683	9,476,768	799,515	19,636,967	0.0199	0.1053
310	12,066,793	13,013,409	1,599,031	26,679,233	0.0271	0.1324
320	19,264,638	16,210,688	1,279,224	36,754,550	0.0373	0.1697
330	21,193,265	22,195,459	2,718,352	46,107,075	0.0468	0.2165
340	27,700,583	24,095,427	1,918,837	53,714,847	0.0545	0.2710
350	28,514,512	26,556,823	1,599,031	56,670,365	0.0575	0.3284
360	25,329,553	22,784,538	2,078,740	50,192,831	0.0509	0.3794
370	22,949,390	23,374,856	1,439,128	47,763,374	0.0485	0.4278
380	19,503,950	17,551,775	1,918,837	38,974,562	0.0395	0.4674
390	14,545,472	14,482,816	319,806	29,348,094	0.0298	0.4971
400	10,447,509	14,227,589	639,612	25,314,709	0.0257	0.5228
410	6,061,718	7,849,825	639,612	14,551,155	0.0148	0.5376
420	8,191,468	4,959,927	479,709	13,631,104	0.0138	0.5514
430	5,137,924	4,765,094	319,806	10,222,824	0.0104	0.5618
440	9,045,274	9,507,126	639,612	19,192,012	0.0195	0.5812
450	7,768,155	9,946,079	1,293,962	19,008,197	0.0193	0.6005
460	14,190,283	10,467,163	799,515	25,456,962	0.0258	0.6264
470	12,366,324	10,630,078	1,119,321	24,115,723	0.0245	0.6508
480	10,728,818	12,586,179	639,612	23,954,609	0.0243	0.6751
490	10,620,396	10,635,202	479,709	21,735,307	0.0221	0.6972
500	11,373,282	10,839,612	959,418	23,172,313	0.0235	0.7207
510	8,453,538	7,707,780	159,903	16,321,222	0.0166	0.7372
520	10,014,861	7,963,458	0	17,978,319	0.0182	0.7555
530	9,211,027	7,860,533	639,612	17,711,172	0.0180	0.7735
540	8,357,661	7,723,288	159,903	16,240,852	0.0165	0.7899
550	8,456,666	8,596,278	159,903	17,212,847	0.0175	0.8074
560	10,775,462	9,043,958	0	19,819,420	0.0201	0.8275

Appendix C Table 2. -- Continued.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative proportion
570	8,522,126	8,343,229	368,458	17,233,813	0.0175	0.8450
580	11,919,728	9,972,192	319,806	22,211,727	0.0225	0.8675
590	7,045,729	9,771,011	159,903	16,976,643	0.0172	0.8847
600	8,199,090	7,204,487	29,476	15,433,052	0.0157	0.9004
610	4,965,818	5,888,448	334,544	11,188,810	0.0114	0.9117
620	6,586,892	5,953,114	14,738	12,554,743	0.0127	0.9245
630	3,952,739	4,089,026	14,738	8,056,503	0.0082	0.9327
640	3,760,816	4,742,714	14,738	8,518,268	0.0086	0.9413
650	2,477,087	3,308,710	0	5,785,797	0.0059	0.9472
660	2,562,506	2,954,843	14,738	5,532,087	0.0056	0.9528
670	3,205,949	2,578,687	14,738	5,799,374	0.0059	0.9587
680	2,491,020	2,346,835	159,903	4,997,758	0.0051	0.9637
690	2,173,633	1,991,983	0	4,165,616	0.0042	0.9680
700	1,660,954	1,724,114	0	3,385,068	0.0034	0.9714
710	1,322,313	1,859,559	0	3,181,872	0.0032	0.9746
720	1,544,504	1,630,791	0	3,175,295	0.0032	0.9778
730	1,350,665	1,545,976	14,738	2,911,378	0.0030	0.9808
740	1,079,030	1,263,768	29,476	2,372,273	0.0024	0.9832
750	965,175	1,811,300	14,738	2,791,212	0.0028	0.9860
760	1,105,517	1,130,078	0	2,235,596	0.0023	0.9883
770	915,169	917,176	0	1,832,346	0.0019	0.9902
780	558,791	698,398	0	1,257,189	0.0013	0.9914
790	545,060	696,409	0	1,241,469	0.0013	0.9927
800	321,465	696,815	0	1,018,280	0.0010	0.9937
810	400,981	849,856	0	1,250,837	0.0013	0.9950
820	232,668	527,403	0	760,071	0.0008	0.9958
830	265,011	112,545	0	377,556	0.0004	0.9962
840	193,521	422,898	0	616,419	0.0006	0.9968
850	169,358	195,323	0	364,681	0.0004	0.9971
860	65,416	820,223	0	885,638	0.0009	0.9980
870	295,747	210,636	0	506,383	0.0005	0.9986
880	77,360	224,733	0	302,092	0.0003	0.9989
890	98,729	43,273	0	142,002	0.0001	0.9990
900	59,669	159,261	0	218,930	0.0002	0.9992
910	34,791	27,274	0	62,065	0.0001	0.9993
920	35,391	55,844	0	91,235	0.0001	0.9994
930	0	77,483	0	77,483	0.0001	0.9995
940	19,560	0	0	19,560	< 0.0001	0.9995
950	27,952	63,869	0	91,821	0.0001	0.9996
960	0	37,540	0	37,540	< 0.0001	0.9996
970	16,973	45,417	0	62,390	0.0001	0.9997
980	0	51,035	0	51,035	0.0001	0.9997
990	0	93,221	0	93,221	0.0001	0.9998
1000	0	63,459	0	63,459	0.0001	0.9999
1030	0	29,577	0	29,577	< 0.0001	0.9999
1040	0	28,284	0	28,284	< 0.0001	1.0000
1050	0	46,707	0	46,707	< 0.0001	1.0000
Total	**480,950,411**	**468,759,644**	**35,988,213**	**985,698,266**	**1.0000**	**1.0000**

Appendix C Table 3. -- Population estimates by sex and size for **yellowfin sole** (*Limanda aspera*) from the 2015 eastern Bering Sea shelf bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative proportion
70	0	318,997	0	318,997	< 0.0001	< 0.0001
80	0	1,311,614	0	1,311,614	0.0002	0.0003
90	779,440	0	0	779,440	0.0001	0.0004
100	3,106,295	0	0	3,106,295	0.0005	0.0009
110	6,771,936	5,935,406	0	12,707,342	0.0020	0.0029
120	19,709,237	22,821,795	0	42,531,032	0.0066	0.0095
130	54,602,003	54,006,398	0	108,608,401	0.0169	0.0264
140	73,599,423	79,024,439	0	152,623,862	0.0238	0.0502
150	74,069,297	85,488,263	0	159,557,560	0.0248	0.0750
160	98,628,064	87,574,062	0	186,202,126	0.0290	0.1040
170	68,730,086	80,823,394	0	149,553,480	0.0233	0.1273
180	88,791,356	97,752,350	0	186,543,706	0.0290	0.1564
190	83,311,319	108,402,455	0	191,713,774	0.0299	0.1862
200	72,790,515	81,138,982	0	153,929,497	0.0240	0.2102
210	79,038,517	85,572,003	0	164,610,520	0.0256	0.2358
220	77,265,275	68,898,776	0	146,164,051	0.0228	0.2586
230	77,452,152	85,345,117	0	162,797,269	0.0254	0.2839
240	80,573,333	74,017,277	0	154,590,611	0.0241	0.3080
250	76,128,955	78,820,186	0	154,949,141	0.0241	0.3321
260	110,453,118	90,419,601	0	200,872,719	0.0313	0.3634
270	126,375,637	101,150,131	0	227,525,768	0.0354	0.3988
280	160,070,617	106,309,302	0	266,379,919	0.0415	0.4403
290	186,876,149	120,025,734	0	306,901,882	0.0478	0.4881
300	234,350,786	162,396,051	0	396,746,836	0.0618	0.5499
310	267,251,343	210,300,489	0	477,551,832	0.0744	0.6243
320	278,092,882	243,119,665	0	521,212,546	0.0812	0.7054
330	219,222,125	297,067,310	0	516,289,434	0.0804	0.7858
340	146,532,012	298,864,628	0	445,396,640	0.0694	0.8552
350	65,471,608	254,929,542	0	320,401,150	0.0499	0.9051
360	39,905,051	214,052,418	0	253,957,469	0.0395	0.9446
370	18,556,450	135,014,416	0	153,570,865	0.0239	0.9685
380	6,457,736	87,290,285	0	93,748,022	0.0146	0.9831
390	2,246,144	54,247,188	0	56,493,331	0.0088	0.9919
400	622,208	29,229,102	0	29,851,309	0.0046	0.9966
410	27,703	14,207,456	0	14,235,158	0.0022	0.9988
420	0	4,899,890	0	4,899,890	0.0008	0.9995
430	0	1,952,412	0	1,952,412	0.0003	0.9998
440	365,672	232,751	0	598,423	0.0001	0.9999
450	0	327,178	0	327,178	0.0001	1.0000
460	0	286,628	0	286,628	< 0.0001	1.0000
470	0	68,485	0	68,485	< 0.0001	1.0000
Total	**2,898,224,444**	**3,523,642,176**	**0**	**6,421,866,614**	**0.9999**	**1.0000**

Appendix C Table 4. -- Population estimates by sex and size for **northern rock sole** (*Lepidopsetta polyxystra*) from the 2015 eastern Bering Sea shelf bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative proportion
50	0	0	72,946	72,946	< 0.0001	0.0000
60	0	0	298,223	298,223	0.0001	0.0001
70	0	0	107,716	107,716	< 0.0001	0.0001
80	1,486,800	310,754	1,844,771	3,642,325	0.0009	0.0009
90	705,191	239,376	836,805	1,781,372	0.0004	0.0014
100	695,301	1,816,945	154,629	2,666,876	0.0006	0.0020
110	3,797,116	3,282,127	2,044,467	9,123,710	0.0022	0.0042
120	14,607,687	8,714,097	2,534,918	25,856,703	0.0062	0.0103
130	17,241,037	13,244,739	735,981	31,221,758	0.0074	0.0178
140	27,965,558	20,594,015	504,449	49,064,022	0.0117	0.0295
150	34,829,300	20,788,106	78,573	55,695,978	0.0133	0.0427
160	45,200,184	23,120,311	0	68,320,495	0.0163	0.0590
170	34,044,373	24,237,388	0	58,281,761	0.0139	0.0729
180	25,195,464	18,343,878	0	43,539,342	0.0104	0.0833
190	34,026,135	22,985,488	0	57,011,623	0.0136	0.0969
200	35,730,873	25,327,456	0	61,058,329	0.0145	0.1114
210	48,918,394	38,787,568	0	87,705,963	0.0209	0.1323
220	58,537,180	32,684,527	0	91,221,706	0.0217	0.1541
230	48,443,156	36,645,196	0	85,088,352	0.0203	0.1743
240	53,562,302	39,190,627	0	92,752,929	0.0221	0.1964
250	43,975,131	25,014,753	0	68,989,884	0.0164	0.2129
260	42,528,350	30,092,986	0	72,621,336	0.0173	0.2302
270	84,106,209	22,531,816	0	106,638,025	0.0254	0.2556
280	214,942,315	30,774,797	0	245,717,112	0.0586	0.3141
290	342,519,970	51,891,900	0	394,411,870	0.0940	0.4081
300	378,148,657	67,798,831	0	445,947,488	0.1063	0.5144
310	268,400,385	101,335,242	0	369,735,627	0.0881	0.6025
320	169,802,148	138,806,161	0	308,608,308	0.0735	0.6760
330	98,544,129	174,728,262	0	273,272,391	0.0651	0.7412
340	50,529,673	203,230,364	0	253,760,037	0.0605	0.8016
350	12,551,553	212,103,019	0	224,654,572	0.0535	0.8552
360	5,739,424	180,696,033	0	186,435,457	0.0444	0.8996
370	2,463,658	135,392,570	0	137,856,228	0.0329	0.9324
380	1,035,885	107,137,897	0	108,173,783	0.0258	0.9582
390	155,398	78,992,506	0	79,147,904	0.0189	0.9771
400	481,287	50,489,134	0	50,970,420	0.0121	0.9892
410	555,335	26,802,216	0	27,357,551	0.0065	0.9957
420	0	13,516,591	0	13,516,591	0.0032	0.9990
430	0	2,468,709	0	2,468,709	0.0006	0.9996
440	0	994,145	0	994,145	0.0002	0.9998
450	0	703,046	0	703,046	0.0002	1.0000
Total	**2,201,465,558**	**1,985,813,576**	**9,213,478**	**4,196,492,613**	**1.0000**	**1.0000**

Appendix C Table 5. -- Population estimates by sex and size for **flathead sole** (*Hippoglossoides elassodon*) from the 2015 eastern Bering Sea shelf bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative proportion
30	0	0	142,670	142,670	0.0001	0.0001
40	0	0	285,339	285,339	0.0002	0.0003
50	0	0	142,670	142,670	0.0001	0.0004
60	27,666	82,136	232,947	342,749	0.0003	0.0007
70	186,931	107,283	1,130,247	1,424,462	0.0011	0.0017
80	390,918	243,771	2,548,691	3,183,380	0.0024	0.0041
90	1,000,475	576,378	4,710,208	6,287,061	0.0047	0.0088
100	1,277,508	902,652	11,088,924	13,269,084	0.0099	0.0187
110	2,214,751	2,109,147	10,770,556	15,094,454	0.0112	0.0299
120	2,984,755	2,037,830	4,963,682	9,986,266	0.0074	0.0373
130	4,244,529	4,468,640	1,643,589	10,356,759	0.0077	0.0450
140	5,845,524	7,577,707	1,730,459	15,153,691	0.0113	0.0563
150	16,175,747	12,557,858	612,431	29,346,036	0.0218	0.0781
160	19,929,959	21,001,439	211,883	41,143,281	0.0306	0.1087
170	23,206,633	21,697,719	0	44,904,352	0.0334	0.1421
180	22,976,005	21,711,763	0	44,687,768	0.0332	0.1754
190	22,998,638	19,964,348	0	42,962,986	0.0320	0.2073
200	21,409,812	22,373,774	0	43,783,585	0.0326	0.2399
210	18,449,448	19,340,872	0	37,790,321	0.0281	0.2680
220	21,038,014	21,565,423	0	42,603,437	0.0317	0.2997
230	20,961,607	21,336,505	0	42,298,112	0.0315	0.3312
240	20,229,497	23,063,011	0	43,292,507	0.0322	0.3634
250	24,151,341	20,045,312	0	44,196,654	0.0329	0.3962
260	29,461,612	17,771,779	0	47,233,392	0.0351	0.4314
270	25,723,454	14,512,930	0	40,236,384	0.0299	0.4613
280	23,483,502	17,486,133	0	40,969,635	0.0305	0.4918
290	27,563,049	17,876,309	0	45,439,358	0.0338	0.5256
300	28,461,882	18,118,403	0	46,580,285	0.0346	0.5602
310	30,183,155	17,286,054	0	47,469,209	0.0353	0.5955
320	30,606,956	17,059,295	0	47,666,250	0.0355	0.6310
330	38,235,466	19,940,822	52,825	58,229,113	0.0433	0.6743
340	38,274,790	21,817,551	0	60,092,341	0.0447	0.7190
350	41,134,144	28,274,203	0	69,408,348	0.0516	0.7706
360	35,457,558	27,643,210	0	63,100,768	0.0469	0.8176
370	21,419,765	27,401,314	0	48,821,079	0.0363	0.8539
380	22,013,254	21,634,964	0	43,648,218	0.0325	0.8864
390	10,946,921	21,893,704	0	32,840,624	0.0244	0.9108
400	8,170,661	18,088,138	0	26,258,799	0.0195	0.9303
410	6,150,067	17,178,953	0	23,329,020	0.0174	0.9477
420	2,339,128	14,913,429	0	17,252,558	0.0128	0.9605
430	706,655	11,160,227	0	11,866,881	0.0088	0.9693
440	849,234	10,883,106	0	11,732,340	0.0087	0.9781
450	468,512	7,087,978	0	7,556,490	0.0056	0.9837
460	180,709	6,285,003	0	6,465,712	0.0048	0.9885
470	0	4,423,245	0	4,423,245	0.0033	0.9918
480	31,231	4,079,074	0	4,110,305	0.0031	0.9948

Appendix C Table 5. -- Continued.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative proportion
490	0	3,436,788	0	3,436,788	0.0026	0.9974
500	0	1,697,907	0	1,697,907	0.0013	0.9987
510	0	921,636	0	921,636	0.0007	0.9993
520	0	683,394	0	683,394	0.0005	0.9998
530	0	49,722	0	49,722	< 0.0001	0.9999
540	0	77,290	0	77,290	0.0001	0.9999
550	0	77,290	0	77,290	0.0001	1.0000
Total	**671,561,463**	**632,523,419**	**40,267,121**	**1,344,352,005**	**1.0000**	**1.0000**

Appendix C Table 6. -- Population estimates by sex and size for **Bering flounder** (*Hippoglossoides robustus*) from the 2015 eastern Bering Sea shelf bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative proportion
60	0	30,022	0	30,022	0.0002	0.0002
70	0	0	19,745	19,745	0.0001	0.0003
80	154,145	0	0	154,145	0.0008	0.0011
90	661,041	597,969	30,800	1,289,810	0.0071	0.0082
100	1,656,336	662,780	105,176	2,424,292	0.0133	0.0214
110	1,716,217	637,058	447,117	2,800,392	0.0153	0.0367
120	1,738,498	1,346,936	857,453	3,942,887	0.0216	0.0583
130	2,857,910	1,878,796	539,486	5,276,192	0.0288	0.0871
140	2,988,452	1,858,636	375,142	5,222,230	0.0285	0.1157
150	2,597,702	1,068,267	54,277	3,720,246	0.0203	0.1360
160	3,633,720	1,941,753	0	5,575,473	0.0305	0.1665
170	4,510,081	2,385,046	0	6,895,127	0.0377	0.2042
180	5,152,044	3,997,661	0	9,149,705	0.0500	0.2542
190	3,836,263	7,706,048	0	11,542,311	0.0631	0.3173
200	4,630,768	9,067,481	0	13,698,249	0.0749	0.3922
210	3,832,204	7,830,343	47,866	11,710,413	0.0640	0.4562
220	1,990,165	10,032,571	0	12,022,736	0.0657	0.5219
230	2,070,508	11,201,186	0	13,271,694	0.0725	0.5944
240	1,510,117	9,085,456	0	10,595,573	0.0579	0.6524
250	1,505,853	9,352,077	0	10,857,930	0.0594	0.7117
260	772,536	8,711,726	0	9,484,262	0.0518	0.7636
270	248,549	7,656,727	0	7,905,276	0.0432	0.8068
280	133,408	7,401,566	0	7,534,974	0.0412	0.8480
290	299,659	4,767,145	0	5,066,804	0.0277	0.8757
300	160,913	5,608,128	0	5,769,041	0.0315	0.9072
310	109,792	3,355,294	47,866	3,512,952	0.0192	0.9264
320	141,079	2,671,040	0	2,812,119	0.0154	0.9418
330	142,392	2,396,133	0	2,538,525	0.0139	0.9556
340	67,979	2,316,946	0	2,384,925	0.0130	0.9687
350	0	715,671	0	715,671	0.0039	0.9726
360	0	1,094,881	0	1,094,881	0.0060	0.9786
370	0	1,315,352	0	1,315,352	0.0072	0.9858
380	0	623,215	0	623,215	0.0034	0.9892
390	0	1,119,910	0	1,119,910	0.0061	0.9953
400	71,385	172,287	0	243,672	0.0013	0.9966
410	0	244,822	0	244,822	0.0013	0.9980
420	0	314,084	0	314,084	0.0017	0.9997
430	0	29,480	0	29,480	0.0002	0.9998
440	0	29,577	0	29,577	0.0002	1.0000
Total	**49,189,716**	**131,224,070**	**2,524,928**	**182,938,714**	**1.0000**	**1.0000**

Appendix C Table 7. -- Population estimates by sex and size for **Alaska plaice** (*Pleuronectes quadrituberculatus*) from the 2015 eastern Bering Sea shelf bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative proportion
160	32,457	30,149	0	62,606	0.0001	0.0001
170	30,149	120,305	0	150,454	0.0003	0.0004
180	31,640	68,811	0	100,451	0.0002	0.0006
190	94,551	153,159	0	247,710	0.0005	0.0011
200	502,921	122,496	0	625,417	0.0012	0.0023
210	377,461	380,886	0	758,347	0.0015	0.0038
220	1,021,789	970,192	0	1,991,981	0.0039	0.0077
230	1,068,189	614,365	0	1,682,554	0.0033	0.0110
240	1,156,534	1,710,051	0	2,866,585	0.0056	0.0166
250	2,531,087	1,563,568	0	4,094,655	0.0080	0.0246
260	2,967,674	1,362,476	0	4,330,150	0.0085	0.0330
270	2,191,528	1,880,898	0	4,072,426	0.0080	0.0410
280	4,861,396	2,470,348	0	7,331,744	0.0143	0.0553
290	4,865,543	3,342,841	0	8,208,384	0.0160	0.0713
300	11,518,130	2,743,154	0	14,261,284	0.0279	0.0992
310	17,885,817	4,560,713	0	22,446,530	0.0438	0.1431
320	30,515,194	6,823,150	0	37,338,344	0.0729	0.2160
330	35,861,812	6,670,716	0	42,532,528	0.0831	0.2991
340	40,713,588	7,811,065	0	48,524,653	0.0948	0.3939
350	28,672,240	10,830,656	0	39,502,896	0.0772	0.4711
360	25,376,705	13,370,884	0	38,747,589	0.0757	0.5467
370	21,540,547	14,917,027	0	36,457,574	0.0712	0.6180
380	14,529,439	22,304,297	0	36,833,736	0.0720	0.6899
390	9,789,712	18,328,702	0	28,118,414	0.0549	0.7449
400	5,307,619	16,572,205	0	21,879,824	0.0427	0.7876
410	2,325,634	16,764,876	0	19,090,510	0.0373	0.8249
420	1,389,798	13,565,745	0	14,955,543	0.0292	0.8541
430	540,395	11,002,301	97,634	11,640,330	0.0227	0.8768
440	248,606	10,556,331	0	10,804,937	0.0211	0.8980
450	241,423	9,089,819	0	9,331,242	0.0182	0.9162
460	168,817	8,204,489	0	8,373,306	0.0164	0.9325
470	104,314	7,155,318	0	7,259,632	0.0142	0.9467
480	0	7,933,578	0	7,933,578	0.0155	0.9622
490	0	6,647,289	0	6,647,289	0.0130	0.9752
500	0	4,655,540	0	4,655,540	0.0091	0.9843
510	0	3,125,937	0	3,125,937	0.0061	0.9904
520	0	1,195,252	0	1,195,252	0.0023	0.9927
530	0	1,722,428	0	1,722,428	0.0034	0.9961
540	0	594,763	0	594,763	0.0012	0.9973
550	0	1,002,784	0	1,002,784	0.0020	0.9992
560	0	276,135	0	276,135	0.0005	0.9998
570	0	118,261	0	118,261	0.0002	1.0000
Total	**268,462,709**	**243,333,960**	**97,634**	**511,894,303**	**1.0000**	**1.0000**

Appendix C Table 8. -- Population estimates by sex and size for **Greenland turbot** (*Reinhardtius hippoglossoides*) from the 2015 eastern Bering Sea shelf bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative proportion
90	0	0	19,745	19,745	0.0009	0.0009
100	0	0	127,625	127,625	0.0060	0.0069
110	0	0	221,200	221,200	0.0104	0.0173
120	0	0	214,829	214,829	0.0101	0.0274
130	0	0	94,973	94,973	0.0045	0.0319
140	63,791	0	31,974	95,765	0.0045	0.0364
160	62,348	0	0	62,348	0.0029	0.0394
170	0	0	0	0	0.0000	0.0394
180	0	33,935	0	33,935	0.0016	0.0409
190	146,899	28,400	0	175,299	0.0082	0.0492
200	95,461	60,880	0	156,341	0.0074	0.0565
210	113,923	119,993	0	233,916	0.0110	0.0676
220	117,973	61,002	28,166	207,141	0.0097	0.0773
230	117,496	0	0	117,496	0.0055	0.0828
240	77,608	0	0	77,608	0.0037	0.0865
250	84,711	29,856	0	114,567	0.0054	0.0919
260	55,117	0	0	55,117	0.0026	0.0945
270	28,400	105,814	0	134,214	0.0063	0.1008
280	89,228	60,358	56,333	205,919	0.0097	0.1105
290	87,639	28,400	0	116,039	0.0055	0.1159
300	87,672	0	0	87,672	0.0041	0.1200
310	89,512	29,856	0	119,368	0.0056	0.1257
320	115,812	44,208	0	160,020	0.0075	0.1332
330	192,528	87,312	28,166	308,006	0.0145	0.1477
340	86,453	163,828	28,166	278,447	0.0131	0.1608
350	117,802	85,108	0	202,910	0.0095	0.1703
360	178,450	79,014	0	257,464	0.0121	0.1824
370	112,418	0	56,333	168,751	0.0079	0.1904
380	78,623	45,884	0	124,507	0.0059	0.1962
390	116,065	198,723	0	314,788	0.0148	0.2110
400	144,420	210,271	0	354,691	0.0167	0.2277
410	198,293	397,003	0	595,296	0.0280	0.2557
420	95,978	165,794	28,166	289,938	0.0136	0.2694
430	163,857	156,943	0	320,800	0.0151	0.2845
440	210,034	211,327	0	421,361	0.0198	0.3043
450	218,361	189,812	0	408,173	0.0192	0.3235
460	265,503	424,196	0	689,699	0.0324	0.3559
470	275,940	211,774	0	487,714	0.0229	0.3789
480	473,654	266,894	28,166	768,714	0.0362	0.4150
490	385,258	478,317	28,166	891,741	0.0420	0.4570
500	552,121	203,091	0	755,212	0.0355	0.4925
510	657,078	637,210	0	1,294,288	0.0609	0.5534
520	973,047	763,197	28,166	1,764,410	0.0830	0.6364
530	529,029	897,282	0	1,426,311	0.0671	0.7035
540	280,839	603,208	28,166	912,213	0.0429	0.7464
550	304,554	880,070	28,166	1,212,790	0.0571	0.8035

Appendix C Table 8. -- Continued.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative proportion
560	188,353	478,977	28,166	695,496	0.0327	0.8362
570	97,513	408,292	0	505,805	0.0238	0.8600
580	46,031	508,320	0	554,351	0.0261	0.8861
590	52,825	289,135	0	341,960	0.0161	0.9022
600	87,478	171,020	0	258,498	0.0122	0.9143
610	49,017	121,164	0	170,181	0.0080	0.9223
620	18,398	226,475	0	244,873	0.0115	0.9339
630	27,727	72,761	0	100,488	0.0047	0.9386
640	0	138,234	0	138,234	0.0065	0.9451
650	0	19,352	0	19,352	0.0009	0.9460
660	0	30,380	0	30,380	0.0014	0.9474
670	30,046	61,569	0	91,615	0.0043	0.9517
680	0	27,727	28,166	55,893	0.0026	0.9544
690	0	61,855	0	61,855	0.0029	0.9573
700	0	58,582	0	58,582	0.0028	0.9600
710	29,256	29,998	0	59,254	0.0028	0.9628
720	60,985	0	0	60,985	0.0029	0.9657
730	0	56,815	0	56,815	0.0027	0.9684
740	0	29,339	0	29,339	0.0014	0.9697
770	0	17,631	0	17,631	0.0008	0.9706
780	66,844	112,936	0	179,780	0.0085	0.9790
790	0	19,590	0	19,590	0.0009	0.9799
800	0	31,016	0	31,016	0.0015	0.9814
810	0	29,856	0	29,856	0.0014	0.9828
820	0	59,713	0	59,713	0.0028	0.9856
830	0	43,441	0	43,441	0.0020	0.9877
840	0	31,000	0	31,000	0.0015	0.9891
850	0	28,400	0	28,400	0.0013	0.9905
860	52,825	0	0	52,825	0.0025	0.9929
870	0	36,130	0	36,130	0.0017	0.9946
910	0	29,165	0	29,165	0.0014	0.9960
940	0	27,355	0	27,355	0.0013	0.9973
950	0	28,142	0	28,142	0.0013	0.9986
990	0	29,256	0	29,256	0.0014	1.0000
Total	**8,851,193**	**11,272,586**	**1,132,838**	**21,256,617**	**1.0000**	**1.0000**

Appendix C Table 9. -- Population estimates by sex and size for **arrowtooth flounder** (*Atheresthes stomias*) from the 2015 eastern Bering Sea shelf bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative proportion
90	57,788	26,838	33,991	118,617	0.0002	0.0002
100	26,838	58,761	33,991	119,590	0.0002	0.0004
110	29,712	0	52,994	82,706	0.0001	0.0005
120	263,986	383,519	80,415	727,920	0.0012	0.0017
130	84,470	329,250	0	413,720	0.0007	0.0024
140	528,113	683,308	0	1,211,421	0.0020	0.0043
150	448,687	1,479,626	33,976	1,962,289	0.0032	0.0075
160	1,780,371	2,463,223	134,025	4,377,619	0.0071	0.0146
170	2,840,073	4,757,785	107,220	7,705,078	0.0125	0.0271
180	3,088,044	6,207,491	53,610	9,349,145	0.0151	0.0422
190	2,337,306	8,030,230	160,830	10,528,366	0.0171	0.0593
200	3,375,384	6,916,555	53,610	10,345,549	0.0168	0.0760
210	1,855,439	7,791,603	0	9,647,042	0.0156	0.0917
220	3,655,548	4,916,750	80,415	8,652,713	0.0140	0.1057
230	3,249,035	6,012,358	53,610	9,315,003	0.0151	0.1208
240	4,206,152	7,119,647	187,635	11,513,434	0.0186	0.1394
250	4,079,218	9,100,161	187,635	13,367,014	0.0217	0.1611
260	5,024,967	9,817,442	241,245	15,083,654	0.0244	0.1855
270	5,775,079	14,294,818	134,025	20,203,922	0.0327	0.2182
280	4,553,543	11,557,347	321,661	16,432,551	0.0266	0.2448
290	4,131,081	11,237,837	80,415	15,449,333	0.0250	0.2699
300	4,884,414	8,519,432	214,440	13,618,286	0.0221	0.2919
310	6,531,893	11,277,895	53,610	17,863,398	0.0289	0.3209
320	5,538,265	10,327,029	214,440	16,079,734	0.0260	0.3469
330	4,274,606	13,636,394	187,635	18,098,635	0.0293	0.3762
340	5,787,438	15,643,387	268,050	21,698,875	0.0351	0.4114
350	6,992,947	13,206,142	134,025	20,333,114	0.0329	0.4443
360	3,890,547	10,324,955	53,610	14,269,112	0.0231	0.4674
370	5,370,350	10,088,420	80,415	15,539,185	0.0252	0.4926
380	4,629,739	10,207,866	134,025	14,971,630	0.0243	0.5168
390	4,682,252	10,452,509	107,220	15,241,981	0.0247	0.5415
400	5,862,426	11,581,570	107,220	17,551,216	0.0284	0.5700
410	5,284,194	10,799,092	0	16,083,286	0.0261	0.5960
420	4,181,296	10,190,642	26,805	14,398,743	0.0233	0.6193
430	4,948,215	12,165,496	53,610	17,167,321	0.0278	0.6471
440	4,752,858	13,580,093	26,805	18,359,756	0.0297	0.6769
450	5,081,405	15,914,405	53,610	21,049,420	0.0341	0.7110
460	5,133,663	15,389,753	134,025	20,657,441	0.0335	0.7444
470	2,572,881	15,011,988	26,805	17,611,674	0.0285	0.7730
480	1,543,670	14,602,731	214,440	16,360,841	0.0265	0.7995
490	1,370,701	15,123,925	80,415	16,575,041	0.0268	0.8263
500	540,261	16,096,939	0	16,637,200	0.0269	0.8533
510	490,492	11,456,661	53,610	12,000,763	0.0194	0.8727
520	97,135	12,146,390	26,805	12,270,330	0.0199	0.8926
530	143,958	9,262,602	53,610	9,460,170	0.0153	0.9079
540	123,950	9,336,891	0	9,460,841	0.0153	0.9232

Appendix C Table 9. -- Continued.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative proportion
550	0	8,357,143	53,610	8,410,753	0.0136	0.9368
560	253,984	5,879,825	134,025	6,267,834	0.0102	0.9470
570	0	5,852,968	53,610	5,906,578	0.0096	0.9566
580	182,809	4,807,301	26,805	5,016,915	0.0081	0.9647
590	29,476	3,390,397	0	3,419,873	0.0055	0.9702
600	45,601	3,435,088	0	3,480,689	0.0056	0.9759
610	45,601	3,287,462	0	3,333,063	0.0054	0.9813
620	0	2,444,511	26,805	2,471,316	0.0040	0.9853
630	0	2,119,510	0	2,119,510	0.0034	0.9887
640	0	1,420,945	0	1,420,945	0.0023	0.9910
650	45,601	1,455,978	26,805	1,528,384	0.0025	0.9935
660	0	968,711	0	968,711	0.0016	0.9950
670	0	790,839	0	790,839	0.0013	0.9963
680	0	553,968	0	553,968	0.0009	0.9972
690	0	229,356	0	229,356	0.0004	0.9976
700	14,738	254,878	0	269,616	0.0004	0.9980
710	0	258,521	0	258,521	0.0004	0.9985
720	14,738	93,208	0	107,946	0.0002	0.9986
730	0	28,929	0	28,929	< 0.0001	0.9987
740	0	152,715	0	152,715	0.0002	0.9989
750	0	306,361	0	306,361	0.0005	0.9994
760	0	190,952	0	190,952	0.0003	0.9997
770	0	0	0	0	< 0.0001	0.9997
780	0	34,716	0	34,716	0.0001	0.9998
790	0	133,884	0	133,884	0.0002	1.0000
Total	**146,732,938**	**465,975,922**	**4,658,193**	**617,367,053**	**1.0000**	**1.0000**

Appendix C Table 10. -- Population estimates by sex and size for **Kamchatka flounder** (*Atheresthes evermanni*) from the 2015 eastern Bering Sea shelf bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative proportion
70	0	0	0	0	< 0.0001	< 0.0001
80	0	0	41,461	41,461	0.0003	0.0003
90	28,929	0	26,831	55,760	0.0005	0.0008
100	26,486	57,644	83,318	167,448	0.0014	0.0021
110	119,579	83,004	289,255	491,838	0.0040	0.0061
120	226,407	185,648	210,859	622,914	0.0050	0.0111
130	609,229	464,651	130,253	1,204,133	0.0098	0.0209
140	670,084	694,616	0	1,364,700	0.0111	0.0320
150	1,599,379	1,230,103	0	2,829,482	0.0229	0.0549
160	1,660,781	1,169,291	27,181	2,857,253	0.0232	0.0781
170	988,950	1,264,338	27,181	2,280,469	0.0185	0.0965
180	969,187	855,521	0	1,824,708	0.0148	0.1113
190	998,595	888,069	0	1,886,664	0.0153	0.1266
200	828,614	684,865	0	1,513,479	0.0123	0.1389
210	762,927	881,401	0	1,644,328	0.0133	0.1522
220	529,852	527,995	0	1,057,847	0.0086	0.1608
230	992,111	517,484	0	1,509,595	0.0122	0.1730
240	1,061,814	825,702	0	1,887,516	0.0153	0.1883
250	1,490,283	1,085,623	0	2,575,906	0.0209	0.2092
260	2,083,515	1,540,791	0	3,624,306	0.0294	0.2386
270	2,816,898	2,467,874	0	5,284,772	0.0428	0.2814
280	2,310,178	1,535,000	0	3,845,178	0.0312	0.3126
290	1,439,925	780,479	0	2,220,404	0.0180	0.3306
300	1,794,429	1,392,567	0	3,186,996	0.0258	0.3564
310	1,722,057	835,962	0	2,558,019	0.0207	0.3771
320	1,571,532	1,401,871	0	2,973,403	0.0241	0.4012
330	2,139,454	1,239,641	0	3,379,095	0.0274	0.4286
340	1,742,661	1,830,545	0	3,573,206	0.0290	0.4576
350	2,283,467	2,598,943	0	4,882,410	0.0396	0.4972
360	3,866,792	2,458,631	0	6,325,423	0.0513	0.5484
370	3,392,906	2,649,684	0	6,042,590	0.0490	0.5974
380	3,621,560	3,109,133	0	6,730,693	0.0546	0.6519
390	2,229,518	3,007,423	30,765	5,267,706	0.0427	0.6946
400	1,966,990	2,447,036	0	4,414,026	0.0358	0.7304
410	2,214,006	3,043,418	0	5,257,424	0.0426	0.7730
420	1,874,967	2,920,661	0	4,795,628	0.0389	0.8119
430	1,742,112	2,273,212	0	4,015,324	0.0325	0.8444
440	1,822,144	2,256,933	0	4,079,077	0.0331	0.8775
450	1,141,108	1,590,289	0	2,731,397	0.0221	0.8996
460	949,291	1,424,059	0	2,373,350	0.0192	0.9189
470	460,471	1,250,886	0	1,711,357	0.0139	0.9328
480	602,549	485,895	0	1,088,444	0.0088	0.9416
490	470,587	337,674	0	808,261	0.0066	0.9481
500	317,305	700,487	0	1,017,792	0.0082	0.9564
510	225,519	353,673	0	579,192	0.0047	0.9611
520	356,932	381,886	0	738,818	0.0060	0.9671

Appendix C Table 10. -- Continued.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative proportion
530	268,848	281,634	0	550,482	0.0045	0.9715
540	203,469	610,134	0	813,603	0.0066	0.9781
550	163,273	330,680	0	493,953	0.0040	0.9821
560	19,352	277,635	0	296,987	0.0024	0.9845
570	51,260	125,926	0	177,186	0.0014	0.9860
580	17,635	390,388	0	408,023	0.0033	0.9893
590	77,864	262,377	0	340,241	0.0028	0.9920
600	17,631	337,574	0	355,205	0.0029	0.9949
610	0	70,698	0	70,698	0.0006	0.9955
620	0	123,807	0	123,807	0.0010	0.9965
630	43,925	53,397	0	97,322	0.0008	0.9973
640	0	71,454	0	71,454	0.0006	0.9978
650	0	17,609	0	17,609	0.0001	0.9980
660	0	0	0	0	< 0.0001	0.9980
670	0	55,824	0	55,824	0.0005	0.9984
680	0	18,157	0	18,157	0.0001	0.9986
690	0	0	0	0	< 0.0001	0.9986
700	0	0	0	0	< 0.0001	0.9986
710	0	25,810	0	25,810	0.0002	0.9988
720	0	0	0	0	< 0.0001	0.9988
730	0	29,439	0	29,439	0.0002	0.9990
740	0	0	0	0	< 0.0001	0.9990
750	0	57,046	0	57,046	0.0005	0.9995
760	0	0	0	0	< 0.0001	0.9995
770	0	0	0	0	< 0.0001	0.9995
780	0	29,439	0	29,439	0.0002	0.9997
790	0	0	0	0	< 0.0001	0.9997
800	0	0	0	0	< 0.0001	0.9997
810	0	0	0	0	< 0.0001	0.9997
820	0	27,926	0	27,926	0.0002	1.0000
Total	**61,585,337**	**60,927,562**	**867,104**	**123,380,003**	**1.0000**	**1.0000**

Appendix C Table 11. -- Population estimates by sex and size for **Pacific halibut** (*Hippoglossus stenolepis*) from the 2015 eastern Bering Sea shelf bottom trawl survey.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative proportion
70	0	0	27,181	27,181	0.0004	0.0004
180	0	0	16,156	16,156	0.0003	0.0007
200	0	0	49,572	49,572	0.0008	0.0014
220	0	0	62,380	62,380	0.0010	0.0024
230	0	0	32,874	32,874	0.0005	0.0029
240	0	0	63,710	63,710	0.0010	0.0039
250	0	0	226,114	226,114	0.0035	0.0074
260	0	0	127,619	127,619	0.0020	0.0094
270	0	0	217,640	217,640	0.0034	0.0128
280	0	0	280,855	280,855	0.0044	0.0172
290	0	34,333	428,450	462,783	0.0072	0.0244
300	0	0	179,981	179,981	0.0028	0.0272
310	34,333	0	274,076	308,409	0.0048	0.0320
320	34,333	0	531,659	565,992	0.0088	0.0408
330	34,333	0	431,039	465,372	0.0072	0.0481
340	0	0	785,225	785,225	0.0122	0.0603
350	0	0	1,371,535	1,371,535	0.0214	0.0817
360	34,333	0	1,897,704	1,932,037	0.0301	0.1117
370	94,357	0	2,464,489	2,558,846	0.0399	0.1516
380	34,333	34,333	3,263,430	3,332,096	0.0519	0.2035
390	0	0	3,114,096	3,114,096	0.0485	0.2520
400	30,012	31,909	2,675,586	2,737,507	0.0426	0.2946
410	0	31,909	2,613,097	2,645,006	0.0412	0.3358
420	64,345	31,909	2,209,184	2,305,438	0.0359	0.3717
430	0	31,909	1,412,371	1,444,280	0.0225	0.3942
440	0	0	1,340,741	1,340,741	0.0209	0.4151
450	0	0	1,404,479	1,404,479	0.0219	0.4370
460	0	0	1,030,627	1,030,627	0.0161	0.4530
470	0	0	696,095	696,095	0.0108	0.4639
480	0	0	736,087	736,087	0.0115	0.4753
490	0	0	1,044,589	1,044,589	0.0163	0.4916
500	0	0	547,203	547,203	0.0085	0.5001
510	0	31,909	882,762	914,671	0.0142	0.5144
520	0	0	735,119	735,119	0.0114	0.5258
530	34,333	32,519	644,899	711,751	0.0111	0.5369
540	0	0	688,103	688,103	0.0107	0.5476
550	0	0	479,636	479,636	0.0075	0.5551
560	0	0	745,580	745,580	0.0116	0.5667
570	0	0	605,039	605,039	0.0094	0.5761
580	63,910	0	899,733	963,643	0.0150	0.5911
590	31,271	0	791,425	822,696	0.0128	0.6039
600	0	0	868,554	868,554	0.0135	0.6175
610	58,098	31,909	1,063,867	1,153,874	0.0180	0.6354
620	29,049	30,765	774,104	833,918	0.0130	0.6484
630	0	61,404	896,015	957,419	0.0149	0.6633
640	0	0	1,178,147	1,178,147	0.0183	0.6817

Appendix C Table 11. -- Continued.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative proportion
650	0	28,659	1,105,821	1,134,480	0.0177	0.6993
660	29,049	60,049	690,385	779,483	0.0121	0.7115
670	31,909	61,455	922,693	1,016,057	0.0158	0.7273
680	32,601	0	1,051,048	1,083,649	0.0169	0.7442
690	0	61,650	1,055,842	1,117,492	0.0174	0.7616
700	30,380	0	806,002	836,382	0.0130	0.7746
710	0	0	849,901	849,901	0.0132	0.7878
720	29,577	0	1,353,713	1,383,290	0.0215	0.8094
730	0	0	824,799	824,799	0.0128	0.8222
740	0	0	966,283	966,283	0.0150	0.8373
750	29,339	0	757,896	787,235	0.0123	0.8495
760	0	19,097	555,943	575,040	0.0090	0.8585
770	0	29,495	760,689	790,184	0.0123	0.8708
780	30,765	29,577	542,854	603,196	0.0094	0.8802
790	0	0	668,674	668,674	0.0104	0.8906
800	31,271	0	553,067	584,338	0.0091	0.8997
810	0	126,358	663,031	789,389	0.0123	0.9120
820	0	0	535,783	535,783	0.0083	0.9203
830	0	30,226	442,939	473,165	0.0074	0.9277
840	0	30,847	297,770	328,617	0.0051	0.9328
850	0	0	297,559	297,559	0.0046	0.9375
860	0	30,712	224,566	255,278	0.0040	0.9414
870	0	31,075	311,405	342,480	0.0053	0.9468
880	0	33,991	321,946	355,937	0.0055	0.9523
890	0	0	136,546	136,546	0.0021	0.9544
900	0	0	160,081	160,081	0.0025	0.9569
910	0	0	180,758	180,758	0.0028	0.9598
920	0	0	255,838	255,838	0.0040	0.9637
930	0	0	234,340	234,340	0.0036	0.9674
940	0	30,226	256,821	287,047	0.0045	0.9719
950	0	29,439	131,259	160,698	0.0025	0.9744
960	0	0	27,424	27,424	0.0004	0.9748
970	0	32,601	107,079	139,680	0.0022	0.9770
980	0	29,495	47,517	77,012	0.0012	0.9782
990	0	0	276,334	276,334	0.0043	0.9825
1000	0	0	110,825	110,825	0.0017	0.9842
1010	0	0	47,609	47,609	0.0007	0.9849
1020	0	0	55,409	55,409	0.0009	0.9858
1030	0	0	89,337	89,337	0.0014	0.9872
1040	0	0	59,339	59,339	0.0009	0.9881
1050	0	0	27,355	27,355	0.0004	0.9885
1060	0	0	85,275	85,275	0.0013	0.9899
1070	0	0	89,035	89,035	0.0014	0.9913
1080	0	0	62,297	62,297	0.0010	0.9922
1090	0	0	17,494	17,494	0.0003	0.9925
1100	0	0	63,710	63,710	0.0010	0.9935
1110	0	0	126,787	126,787	0.0020	0.9955

Appendix C Table 11. -- Continued.

Length (mm)	Males	Females	Unsexed	Total	Proportion	Cumulative proportion
1120	0	31,271	30,483	61,754	0.0010	0.9964
1160	0	0	27,115	27,115	0.0004	0.9968
1170	0	0	76,453	76,453	0.0012	0.9980
1180	0	0	19,352	19,352	0.0003	0.9983
1220	0	0	26,141	26,141	0.0004	0.9987
1250	0	0	30,297	30,297	0.0005	0.9992
1270	0	0	19,590	19,590	0.0003	0.9995
1370	0	0	30,674	30,674	0.0005	1.0000
Total	**821,931**	**1,111,031**	**62,278,010**	**64,210,972**	**1.0000**	**1.0000**

RECENT TECHNICAL MEMORANDUMS

Copies of this and other NOAA Technical Memorandums are available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22167 (web site: *www.ntis.gov)*. Paper and electronic (.pdf) copies vary in price.

AFSC-

352 CONNER, J., and R. R. LAUTH. 2017. Results of the 2016 eastern Bering Sea continental shelf bottom trawl survey of groundfish and invertebrate resources,159 p. NTIS number pending.

351 GODDARD, P., R. E. WILBORN, C. N. ROOPER, K. WILLIAMS, and R. TOWLER. 2017. Results of the 2012 and 2014 underwater camera surveys of the Aleutian Islands, 505 p. NTIS number pending.

350 CONNER, J., D. E. STEVENSON, and R. R. LAUTH. 2017. Results of the 2014 eastern Bering Sea continental shelf bottom trawl survey of groundfish and invertebrate resources, 154 p. NTIS number pending.

349 von SZALAY, P. G., N. W. RARING, C. N. ROOPER, and E. A. LAMAN. 2017. Data Report: 2016 Aleutian Islands bottom trawl survey. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-349,161 p. NTIS No. PB2017-102170.

348 BARBEAUX, S. J. 2017. Visualization of ontogenetic and interannual distributional shifts of groundfish from the Alaska Fisheries Science Center eastern Bering Sea bottom trawl survey, 1982-2015, 330 p. NTIS No.PB2017-102169.

347 BARBEAUX, S. J., D, FRASER, L. W. FRITZ, and E. A. LOGERWELL. 2017. Cooperative multispecies acoustic surveys in the Aleutian Islands, 57 p. NTIS No. PB2017-102168.

346 GEARIN, P. J., S. R. MELIN, R. L. DELONG, M. E. GOSHO, and S. J. JEFFRIES. 2017. Migration patterns of adult male California sea lions (*Zalophus californianus*), 27 p. NTIS No. PB2017-102167.

345 KONDZELA, C. M., J. A. WHITTLE, S. C. VULSTEK, HV. T. NGUYEN, and J. R. GUYON. 2017. Genetic stock composition analysis of chum salmon from the prohibited species catch of the 2015 Bering Sea walleye pollock trawl fishery and Gulf of Alaska groundfish fisheries, 65 p. NTIS No. PB2017-101434.

344 ORMSETH, O. A., K. M. RAND, and A. DE ROBERTIS. 2017. Fishes and invertebrates in Gulf of Alaska bays and islands: Results from inshore ecosystem surveys in 2011 and 2013, 140 p. NTIS No. PB2017- 101433.

343 GUTHRIE, C. M. III, HV. T. NGUYEN, A. E. THOMSON, and J. R. GUYON. 2017. Genetic stock composition analysis of Chinook salmon bycatch samples from the 2015 Gulf of Alaska trawl fisheries, 33 p. NTIS No. PB2017-101419.

342 GUTHRIE, C. M. III, HV. T. NGUYEN, A. E. THOMSON, and J. R. GUYON. 2017. Genetic stock composition analysis of the Chinook salmon bycatch from the 2015 Bering Sea walleye pollock (*Gadus chalcogrammus*) trawl fishery, 33 p. NTIS No. PB2017-101418.

341 KELLER, K., K. BROWN, S. ATKINSON, and R. STONE. 2017. Guide for identifying select bivalve species common to southeast Alaska, 25 p. NTIS No. NTIS No. PB2017-102166.

340 HIMES-CORNELL, A., and A. N. SANTOS. 2017. Involving fishing communities in data collection: a summary and description of the Alaska Community Survey, 2013, 195 p. NTIS No. PB2017-102165.

339 HOFF, G. R. 2016. Results of the 2016 eastern Bering Sea upper continental slope survey of groundfish and invertebrate resources, 272 p. NTIS No. PB2017-17101362.

338 FAUNCE, C. H. 2016. Alternative sampling designs for the 2017 annual deployment plan of the North Pacific Observer Program, 34 p. NTIS No. PB2017101361.