



NOAA Technical Memorandum NMFS-AFSC-187

# **The 2008 Eastern Bering Sea Continental Shelf Bottom Trawl Survey: Results for Commercial Crab Species**

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E. A. Chilton, C. E. Armistead, and R. J. Foy

**U.S. DEPARTMENT OF COMMERCE**

National Oceanic and Atmospheric Administration

National Marine Fisheries Service

Alaska Fisheries Science Center

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## ABSTRACT

The eastern Bering Sea bottom trawl survey has been conducted annually since 1975 by the National Marine Fisheries Service's Alaska Fisheries Science Center's Resource Assessment and Conservation Engineering Division. The purpose of this survey is to collect data on the distribution and abundance of crab and groundfish resources in the eastern Bering Sea. These data are used to estimate population abundances for the management of commercially important species in the region. In 2008, 376 standard stations were sampled and an additional 32 stations were resampled in Bristol Bay at the end of the standard survey to adequately account for female red king crab maturity. The 2008 point estimates ( $\pm 2$  SE) for legal-sized males (millions of crab) of commercial crab stocks in the EBS were as follows:

	<u>2008</u>	<u>2007</u>
Bristol Bay District red king crab	10.5 $\pm$ 3.1	13.3 $\pm$ 5.3
Pribilof District red king crab	1.2 $\pm$ 1.1	1.6 $\pm$ 1.3
Pribilof District blue king crab	0.02 $\pm$ 0.04	0.11 $\pm$ 0.08
St. Matthew Island Section blue king crab	1.7 $\pm$ 0.9	1.4 $\pm$ 0.9
Tanner crab, all Districts	13.2 $\pm$ 7.4	12.1 $\pm$ 6.8
Snow crab, all Districts	368.6 $\pm$ 75.9	495.2 $\pm$ 134.8
Snow crab, all Districts $\geq$ 4.0 inches	119.7 $\pm$ 27.5	150.9 $\pm$ 61.6
Hair crab, all Districts	2.3 $\pm$ 1.1	2.0 $\pm$ 0.8



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## INTRODUCTION

### Survey History and Purpose

The eastern Bering Sea (EBS) bottom trawl survey has been conducted by the National Marine Fisheries Service's (NMFS), Resource Assessment and Conservation Engineering (RACE) Division of the Alaska Fisheries Science Center since 1971. In 1975, the survey was conducted annually and expanded to include Bristol Bay and the majority of the Bering Sea continental shelf with the original purpose of assessing potential resource impacts of offshore oil development (Pereyra et al. 1976). The annual collection of data on the distribution and abundance of crab and groundfish resources provides fishery-independent estimates of population abundances and biological data for the management of commercially important species in the EBS. The crab species that have historically been assessed during the survey include: red king crab (*Paralithodes camtschaticus*), blue king crab (*P. platypus*), Tanner crab (*Chionoecetes bairdi*), snow crab (*C. opilio*), and hair crab (*Erimacrus isenbeckii*). Since 1988, 376 standard stations have been included in the survey covering a 150,776 square nautical mile (nmi<sup>2</sup>) area of the EBS with station depths ranging from 20 to 150 m (Fig. 1).

In 2001 and from 2004 to 2006, an additional 29 stations were sampled northeast of the standard survey area to assess the northern distributions of snow crab and walleye pollock (*Theragra chalcogramma*). These data were not incorporated into the standard survey assessment in those years. These northeastern 29 stations were not sampled in 2008.

In 1999, 2000, 2006, and 2007, a number of Bristol Bay stations were sampled at the beginning and resampled at the end of the survey to capture the delayed molting and mating cycles of red king crab to assess the percentage of ovigerous females subsequent to the mating period. This delay, likely caused by colder than average bottom temperatures (Shirley et al. 1990), was indicated during the first sampling event by high numbers of mature female red king crab that had not begun the molting and egg extrusion cycle or were carrying eyed eggs, fertilized from the previous season. As an example, in 2007, the percentage of mature female red king crab during the first leg of the survey that had not molted or extruded new eggs was 51% resulting in the resampling of 32 Bristol Bay stations towards the end of the survey season. In 2008, it was necessary to resample a subset of Bristol Bay stations again (see 2008 Survey Overview and Ancillary Data Collection).

### Eastern Bering Sea Crab Stock Assessment Process

Bering Sea and Aleutian Islands (BSAI) king and Tanner crabs included in the federal fisheries management plan in the eastern Bering Sea are managed by the Alaska Department of Fish and Game (ADF&G) with federal oversight by NMFS (NPFMC 1998). The annual Stock Assessment and Fishery Evaluation report prepared by the North Pacific Fishery Management Council's Crab Plan Team for the king and Tanner crab fisheries of the Bering Sea and Aleutian

Islands region provides current biological and economic data associated with these species. The Crab Plan Team reviews the survey, biological, economic, and modeling data to recommend biological reference points associated with the status of stocks. Finally, NMFS determines the procedure for setting overfishing levels (OFLs) and the ADF&G sets the annual Total Allowable Catch or Guideline Harvest Level for each crab stock. Crab stocks are defined by ADF&G management units for king crab and Tanner crab species (Bowers et al. 2008). Red king crab are split into Bristol Bay and Pribilof Islands stocks and blue king crab are split into Pribilof Islands and St. Matthew Island stocks for management purposes. Results of the EBS bottom trawl survey are presented by these crab stock and management units.

This report summarizes the 2008 survey results for commercially important crab resources in the EBS. Numbers presented are trawl survey estimates of relative population abundance and do not represent absolute abundance. More detailed survey design and fishing gear specifications in addition to results of the groundfish sampled during this survey will be reported in a separate NOAA Technical Memorandum (e.g., Acuna and Lauth 2008).

## METHODS

### Survey Area and Sampling Logistics

The 2008 survey was conducted onboard the FV *Arcturus* and FV *Aldebaran*, beginning 4 June in Bristol Bay and moving westward to end at the shelf break on 24 July. The vessels sampled in close proximity during the standard survey until the FV *Arcturus* returned to Bristol Bay to conduct the resample of 32 stations between 20 and 25 July while the FV *Aldebaran* completed the final northwestern section of the standard survey stations. These resample stations were selected based on female red king crab abundance at these stations during the first sampling event and previous Bristol Bay surveys.

The survey stations are divided into multiple districts, which are defined by ADF&G commercial crab management units (Fig. 2). Management units are defined by registration areas and districts, which are further divided into sections which have standard or high station densities. Standard-density sections have stations centered in  $20 \times 20$  nmi ( $37.04 \times 37.04$  km) cells while high-density sections include additional stations at the corners of the  $20 \times 20$  nmi cells. Total area calculations for each stock management unit uses an area of  $401 \text{ nmi}^2$  for each  $20 \times 20$  nmi cell due to a spherical projection of the grid surface in an area as large as the EBS. The king crab Registration Area T in Bristol Bay (south of  $58^\circ 39'N$  and east of  $168^\circ W$ ) is  $54,536 \text{ nmi}^2$  and consists of 136 stations. The king crab Registration Area Q in the Bering Sea is divided into the Northern District (north of  $58^\circ 39'N$ ) and the Pribilof District (south of  $58^\circ 39'N$  and west of  $168^\circ W$ ). The St. Matthew Island Section of the Northern District is divided into two sampling areas: 1) a high-density  $7,218 \text{ nmi}^2$  area with 28 stations and 2) the remainder of the section which has between 34 and 137 stations defined by the historical catch locations specific

to crab species (see results by species). The stations in the Pribilof District are divided into two sampling areas: 1) a high-density 10,025 nmi<sup>2</sup> area with 41 total stations and 2) a standard-density 13,634 nmi<sup>2</sup> area with 34 stations defined by historical crab catch locations.

The fishing gear used in 2008 was identical to that of EBS annual bottom trawl surveys since 1982 with both vessels fishing a standard 83-112 Eastern otter trawl with an 83 ft (25.3 m) headrope and a 112 ft (34.1 m) footrope (Acuna and Lauth 2008). Each tow was approximately 0.5 h in duration and 1.5 nmi (2.8 km) in length at a speed of 3 knots (1.54 m/sec) and conducted in strict compliance with NMFS groundfish bottom trawl protocols established by the National Oceanic and Atmospheric Administration (Stauffer 2004).

Net mensuration equipment was used to monitor the net's fishing performance during each tow (Acuna and Lauth 2008). A bottom contact sensor (inclinometer) was attached to the center of the footrope to measure bottom contact of the net at 1-second intervals. The net mensuration system also consisted of an acoustic sensor attached to the headrope and two sensors attached to the port and starboard dandylines to measure net behavior (net height and width) during trawling operations. The bottom contact of the footrope and GPS data were used to calculate distance fished. Fishing power was assumed to be equal between the two vessels.

Surface and bottom water temperatures along with temperature-depth profiles were collected at 6-second intervals throughout the duration of each tow using a Seabird SBE-39 bathythermograph continuous data recorder (Sea-Bird Electronics Inc., Bellevue, WA) attached to the headrope of the net. The temperature measurement range of the SBE-39 is  $-5$  to  $35 \pm 0.002$  °C with pressure sensors measuring to  $1,000 \pm 1$  m and calibrated every year by Sea-Bird Electronics. Bottom depth was also derived from this data by adding the net height from the net mensuration system to the headrope depth recorded by the SBE-39.

## **Hot Spots**

A station that produces  $\geq 100$  legal-sized male red king or Tanner crab is considered a "hot spot". At each hot spot, four extra tows were made 5 nmi to the south, east, north and west of the original hot spot tow. All crabs species caught in tows conducted at a hot spot location were counted and measured identically as the crab sample collection for a standard survey tow described below.

## **Biological Data Collection**

All crab were removed from the catch, sorted by species and sex, and a total catch weight was obtained for each species. Subsampling the total catch of *Chionoecetes* spp. crab occurred when an exceptionally large number of that species was caught in a tow. The weights of the sampled crab and non-sampled crab were recorded and a sampling factor was calculated to determine the final number of that species in the catch.

Individual crab carapaces were measured ( $\pm 1$  mm) to provide a size-frequency distribution of each sample. Crab sizes are reported as carapace width excluding spines (CW) for Tanner and snow crab, and carapace length (CL) for all king crab and hair crab (Donaldson and Byersdorfer 2005). Carapace shell condition was assessed for each crab sampled and assigned to one of six classes according to specific criteria (0 = premolt or molting, 1 = soft and pliable, 2 = new hardshell both firm and clean, 3 = oldshell slightly worn, 4 = oldshell worn, 5 = very oldshell). All female crab abdomens are evaluated based the size of the egg clutch (0 = immature, 1 = mature female no eggs, 2 = trace to 1/8, 3 = 1/4, 4 = 1/2, 5 = 3/4, 6 = full) and the condition (0 = no eggs, 1 = uneyed, 2 = eyed, 3 = dead, 4 = empty egg cases) and color of the eggs (0 = no eggs, 2 = purple, 3 = brown, 4 = orange, 5 = purple-brown, 6 = pink). Chela height measurements ( $\pm 1$  mm) were collected from a subsample of male *Chionoecetes* spp. crab caught at each station to determine morphometric molt to functional maturity based on the chela height to carapace width ratio (Tamone et al. 2007).

Tanner and snow crab can produce *Chionoecetes* hybrid crab resulting in individual crab exhibiting a range of physical characteristics such as eyestalk color, shape of the epistome margin, carapace size and rostrum shape different from true Tanner and snow crab (Karinen and Hoopes 1971). Tanner crab are typically described as having red color eyestalks and an M-shaped epistome margin, while snow crab have green colored eyestalks and the ventral margin of the epistome is straight. Urban et al. (2002) used a collection of over 1,000 genetically typed carapaces to develop a five-part scale of characteristics ranging from Tanner crab to snow crab with *C. hybrid* spanning the middle. Identification of *C. hybrid* on the EBS bottom trawl survey is based on a mixture of these middle characteristics exhibited by an individual crab such as a combination of eyestalk color, a curved epistome margin, narrow space between rostrum horns or rostrum horns rounded.

All crab carapaces were scanned for evidence of bitter crab syndrome or black mat fungus, which was recorded when present, and crabs with bitter crab syndrome were set aside for further testing by the pathology laboratory at the Alaska Fisheries Science Center in Seattle, WA.

### **Crab Abundance Estimates**

Crab density (number/nmi<sup>2</sup>) was estimated at each station for legal, pre-recruit, and small males as well as large and small females of each stock (Table 2). The area swept by the trawl (nmi<sup>2</sup>) was calculated as the product of the distance traveled while the net had bottom contact by an effective width of 50 ft (15.2 m; 0.008 nmi). While the effective width of the trawl typically ranges from 48-60 ft when towing at a speed of 3 knots (Weinberg 2003), this standard of 50 ft was used to maintain consistency with historical calculations and is believed to represent the average tow width (Rose and Walters 1990). Distance traveled by the trawl was determined from ship positions recorded at the beginning and end of each tow using GPS equipment.

Total crab population abundance within a management unit was estimated by averaging crab densities from all stations and multiplied by the total area of the management unit specific to that stock. At stations with multiple tows (i.e., hot spots), a single estimate of crab density was

used by averaging all tows within the station prior to calculating total crab abundance. Abundance estimates were reported as averages  $\pm$  95% confidence interval ( $\pm$  2 SE).

Note that population abundance estimates are point estimates and have substantial uncertainty due to the expanse of the area being sampled and the distributions of the resource. These point estimates are least precise for small crabs due to gear selectivity, and for females of some stocks due to differential crab behavior. However, for consistent analyses and due to a lack of available data, catchability is assumed to be near or equal to one.

Since the 2003 survey report to industry (Rugolo et al. 2003), the 1997-2002 abundance estimates reported for all species are approximately 1-5% higher compared to values published prior to 2003. These differences are a result of a change in the total area specific to the district used in the calculation of crab abundance estimates. In the 2004 survey report to industry (Rugolo et al. 2006), a correction was made in the calculation of distance fished for the years 2001-2003 from a curved path to a straight line resulting in a negligible change in abundance estimates compared to values published prior to 2004.

## **RESULTS AND DISCUSSION**

### **Survey Overview and Ancillary Data Collection**

The 2008 EBS bottom trawl survey consisted of 411 bottom trawls (376 standard survey stations, three additional tows at the B08 hot spot, and 32 resampled stations in Bristol Bay) conducted from 4 June to 24 July 2008 over an area of approximately 150,776 nmi<sup>2</sup>. The latitude and longitude for start and end position of each tow along with tow duration (min), distance fished (km), bottom depth (m) and bottom temperatures (°C) for each tow are listed in Appendix A. The average length of all standard survey tows was 1.48 nmi (2.74 km) with a range of 0.52 to 1.63 nmi (0.95 to 3.02 km) and the average fishing time was 29.9 minutes.

In 2008, data from 375 of the 376 standard stations sampled were included in population analyses as a result of poor trawl performance resulting in the exclusion of standard station M08 (Fig. 1). The standard survey tow made at station B08 was designated as a hot spot due to the high number of legal-sized male king and Tanner crab (see Appendix B for crab densities at each station) in the catch, requiring four additional tows. However, the additional tow designated 5 nmi to the east of B08 was too close to the shoreline of Amak Island to be completed without risking gear damage and was eliminated. Due to low numbers of newly molted, ovigerous (egg bearing) female red king crab in Bristol Bay at the beginning of the survey, 32 Bristol Bay stations were resampled at the end of the standard survey. Those data are included in the estimation of population abundance for both male and female red king crab in the Bristol Bay management district by averaging the data collected from the 32 stations during the standard survey on 5-12 June 2008 with the data collected from the 32 stations at the end of the standard survey on 20-25 July 2008 (see Bristol Bay District Red King Crab section).

Nine special projects were conducted in addition to the assessment survey to collect specific biological data from particular crab species (Table 1). Seven of the projects originated from the AFSC Shellfish Assessment Program; investigating the reproductive potential of female red king crab and snow crab by evaluating egg loss and the presence of non-viable eggs during the incubation period, collecting specimens with rare or unusual pathological conditions, collecting hemolymph samples from *Chionoecetes* spp. at randomly selected stations to monitor bitter crab syndrome and from *Paralithodes* spp. for population genetics, documenting any visual observations of bitter crab or black mat syndrome, collecting large-sized fully intact crab to mount for public demonstrations, and photographing the flow of deck work and invertebrate species to update the database for educational purposes. Data for two additional projects were collected for ADF&G and University of Alaska Southeast researchers to: 1) evaluate sperm reserves and clutch fullness in female *Chionoecetes* spp. as indicators of reproductive potential and 2) produce reproductive indices of male *C. opilio* (Table 1).

Bottom temperatures measured during the survey ranged from  $-1.6^{\circ}$  to  $4.0^{\circ}\text{C}$  (Fig. 3). These temperatures were collected at each station as the survey progressed from east to west, beginning on 4 June 2008 in Bristol Bay and moving westward towards the shelf edge to finish at station L28 on 24 July 2008. A cold pool ( $< 2^{\circ}\text{C}$ ) was prevalent between the 50 m and 100 m isobaths in the middle shelf and Bristol Bay area with cool temperatures persisting at the nearshore stations in Bristol Bay. Warmer bottom temperatures were evident at the shelf break. During the resampling of 32 stations in the Bristol Bay region at the end of the survey, the average bottom water temperature was  $4.5^{\circ}\text{C}$  compared to the average bottom temperature of  $1.2^{\circ}\text{C}$  at those same stations during the first leg of the standard survey.

### **Bristol Bay District Red King Crab**

The female red king crab molting, mating, and embryo extrusion cycle is related to ambient water temperature (Shirley et al. 1990) and in 2008 similar to 2007, colder bottom temperatures delayed this reproductive cycle. In 2008, the average bottom water temperature over 113 stations sampled during the first survey leg (4 to 17 June 2008) was  $1.7^{\circ}\text{C}$  which was colder than the average bottom water temperature of  $2.5^{\circ}\text{C}$  during the first survey leg in 2007. Only 67% (compared to  $>98\%$  in warmer years) of the 1,997 mature female red king crab sampled during the first leg of the 2008 survey had molted and extruded a new clutch of uneyed eggs. Therefore, 32 Bristol Bay stations were resampled from 20 to 25 July 2008 to assess red king crab reproductive status (Fig. 1). Among resurveyed female crab, 90% were mature, and 99% of these had completed the molt-mate cycle and extruded new, uneyed eggs. The red king crab densities from the standard survey at these 32 stations were averaged with the crab density data collected during the resampling to estimate stock abundance of male and female red king crab for the Bristol Bay District.

Red king crab were caught at 77 of the 136 stations in the Bristol Bay management district in 2008. Due to the red king and Tanner crab hot spot protocol, a total of four tows occurred at station B08. The density of legal-sized male crab caught at a station ranged from 78 to 11,407 crab/nmi<sup>2</sup> (Appendix B1). Legal-sized male Bristol Bay red king crab were caught at

58 stations, resulting in a total estimate of  $10.50 \pm 3.14$  million crab in the Bristol Bay District (Appendix B1 and Table 3). The majority of these males were concentrated in the central Bristol Bay area with some large catches in the southwest section of Bristol Bay (Fig. 4). The 2008 estimate is 21% lower than the 2007 abundance estimate although it remains higher than the 9.6 million crab average for the previous 20 years (Table 3).

Pre-recruit male red king crabs were encountered at 57 stations, estimated at  $14.3 \pm 4.0$  million crab which is a 40% increase of the 2007 abundance estimate. Small male red king crab abundance decreased by 27% from 2007 to  $11.0 \pm 4.1$  million crab in 2008 (Table 3). The majority of both size categories were centrally located in the Bristol Bay District, with a high number of pre-recruit males caught at our nearshore stations (Fig. 5).

The 2006 male red king crab cohort at 80 to 85 mm CL size mode, appears in 2007 at approximately 100 mm CL and at the 110 mm CL size class in 2008 (Fig. 6). The 70 mm CL cohort of 2002, which grew to 135 mm CL in 2006 and 140-150 mm CL range in 2007, is declining in abundance in 2008 and aging as seen by increasing old and older shell condition classes for 2007 and 2008. In 2008, less than one percent of legal-sized male crabs were in molting or softshell condition, 52% were evaluated as new hardshell crabs, with the remainder (47%) as oldshell and very old shell condition crabs.

The 2008 large female red king crab abundance estimate increased 22% from 2007 to  $43.1 \pm 22.6$  million crab in 2008, although small female abundance declined by 30% with an abundance estimate of  $2.7 \pm 1.4$  million crab (Table 3). Both large and small female red king crab were centrally located in the Bristol Bay District with large females caught in higher numbers at stations north of the Alaska Peninsula (Fig. 5).

### **Pribilof District Red King Crab**

Historically, red king crab have not been abundant in the Pribilof District and landings were taken incidentally during the blue king crab fishery. From 1996 to 1998, a combined fishery for red and blue king crab in the Pribilof District opened but due to low abundance of blue king crab, the combined fishery was closed.

Red king crab were caught at 8 of the 41 stations in the Pribilof District high-density sampling area in 2008. The density of legal-sized males caught at a station ranged from 71 to 1,666 crab/nmi<sup>2</sup> (Appendix B1). Legal-sized male red king crab were caught at 7 stations in the Pribilof District high-density sampling area and were estimated at  $1.2 \pm 1.1$  million crab, which is a decrease of 25% from the 2007 abundance estimate (Table 3 and Fig. 4).

The pre-recruit male abundance estimate was  $0.3 \pm 0.5$  million crab in 2008. The small male crab abundance estimate was  $0.4 \pm 0.7$  million crab which was higher than the low 2005 to 2007 abundance estimates. Male abundance estimates are imprecise due to the limited number of tows with positive crab catches (Table 3 and Fig. 5).

The abundance estimate of large red king crab females was  $1.8 \pm 2.6$  million crab, which is a 6% increase from the 2007 estimate while the abundance of small females was estimated much higher at  $0.1 \pm 0.1$  million crab in 2008 than  $0.01 \pm 0.03$  million crab estimate in 2007 (Table 3). The large female size category accounted for the majority of the total female abundance increase in 2008 as small females were only encountered at two stations in the Pribilof District high-density sampling area (Appendix B1 and Fig. 5). Thirteen percent of the total female red king crab caught were immature and of the mature females, 78% had uneyed eggs while 20% were barren or had empty egg cases.

### **Northern District Red King Crab**

Red king crab were caught at 26 of the 123 stations in the Northern District and do not occur in either of the management units where red king crab are commercially fished (Fig. 4). Legal-sized males were caught at 11 of those stations. The density of legal-sized males caught at a station ranged from 75 to 159 crab/nmi<sup>2</sup> (Appendix B1). The 2008 abundance estimate of legal-sized males was  $0.4 \pm 0.2$  million crab and the abundance estimate of pre-recruit and small males was  $0.4 \pm 0.3$  million crab and  $0.2 \pm 0.2$  million crab, respectively. The abundance estimate of large female red king crab was  $0.9 \pm 0.4$  million crab while the abundance estimate of small females was  $0.06 \pm 0.08$  million crab. Both legal males and large female red king crab were caught at stations south and west of Nunivak Island (Fig. 4 and 5).

### **Pribilof District Blue King Crab**

Blue king crab were caught at 6 of the 75 stations in the Pribilof District in 2008, all in the high-density sampling area. Legal-sized males were caught at one station north of St. Paul Island, G20, with a density of 80 crab/nmi<sup>2</sup> (Fig. 7 and Appendix B2). The 2008 abundance estimate of legal-sized males decreased from 2007 to  $0.02 \pm 0.04$  million crab, well below the average of 0.6 million crab for the previous 20 years (Table 4).

Pre-recruit blue king crab males were caught at one station, H19, with an abundance estimate of  $0.1 \pm 0.2$  million crab while small male blue king crab were caught at two stations with an abundance estimate of  $0.2 \pm 0.3$  million crab in 2008 (Table 4 and Fig. 8). Size-frequency data for blue king crab males are very sparse, with only one new hardshell legal-sized male captured on the 2008 survey in the Pribilof District (Fig. 9).

Large female blue king crab were caught at five stations in the Pribilof District high-density sampling area and were estimated at  $0.8 \pm 1.2$  million crab, a 300% increase from the 2007 abundance estimate. Small female blue king crab were caught at two stations and were estimated at  $0.06 \pm 0.09$  million crab for 2008 (Fig. 8). Estimates of female abundance are imprecise due to the preference of these crab for rocky habitat which is not sampled well by trawls. Blue king crab females are predominantly biennial spawners where only a portion of the female population spawns in a given year, while the remainder is in a non-embryo-bearing phase (Somerton and MacIntosh 1985). Twenty-four of the 39 large female blue king crab sampled



during the survey were mature. Among sampled mature females, 46% were new hardshell crab all with newly extruded eggs while 54% were oldshell females, of which 21% carried eyed embryos and 33% were barren.

### **St. Matthew Island Section, Northern District Blue King Crab**

Blue king crab were caught at 25 of the 59 total stations in the St. Matthew Island Section: 19 stations in the high-density sampling area and 6 stations in the standard-density sampling area (Appendix B3). Abundance estimates in the St. Matthew Island Section are imprecise due to the large portion of the stock occupying inshore rocky untrawlable habitat. The density of legal-sized males caught at a station ranged from 74 to 1,410 crab/nmi<sup>2</sup> and were captured primarily south and west of St. Matthew Island (Appendix B3 and Fig. 7). Sixty-nine legal-sized male blue king crab were caught in 2008 and were estimated at  $1.7 \pm 0.9$  million crab (Table 5), an increase of 21% from the 2007 abundance estimate.

The pre-recruit male crab abundance estimate was  $0.9 \pm 0.6$  million crab which was 61% lower than the 2007 abundance estimate. The 2008 small male abundance estimate decreased 16%, from 5.0 million crab in 2007 to  $4.2 \pm 4.0$  million crab in 2008 (Table 5). The majority of the pre-recruit and small male blue king crab were distributed southwest of St. Matthew Island (Fig. 8). Legal-sized and pre-recruit male abundance estimates are still below the average abundances estimated for the previous 20 years (1.8 and 1.1 million crab, respectively) (Table 5).

The 2006 90 mm CL male blue king crab cohort appears in 2007 at 100 mm CL and at approximately 120 mm CL in 2008 (Fig. 10). This cohort is declining in abundance in 2008 and increasing in age with old and older shell condition classes. In 2008, five legal-sized male crab were in molting or softshell condition, 34 were new hardshell crabs and 30 were oldshell condition crabs

The 2008 large female blue king crab abundance estimate was  $0.2 \pm 0.3$  million crab while the small female blue king crab abundance estimate of  $0.6 \pm 0.7$  million crab was lower than the 0.9 million crab 2007 abundance estimate (Table 5). Both large and small female blue king crab were caught at stations southwest of St. Matthew Island (Fig. 8). Four of the 10 large females caught were mature. One mature female was softshell with newly extruded eggs, two females were hardshell with uneyed eggs and one was hardshell or slightly worn oldshell with eyed eggs.

### **Other Blue King Crab**

Blue king crab were caught at two stations not included in the abundance estimates for the Pribilof District blue king crab or the St. Matthew Island section Northern District blue king crab. One large female was caught at station K02 and Q02 (Appendix B2, B3 and Fig. 8).

## Tanner Crab

Tanner crab were caught at 256 of the 346 stations in the combined areas of the Bristol Bay District, Pribilof District, and Northern District with four tows occurring at station B08 due to the red king and Tanner crab hot spot protocol. Tanner crab occurred at 41 stations in the Pribilof District high-density sampling area and 22 stations in the high-density sampling area of the St. Matthew Island Section in the Northern District (Appendix B4).

Legal-sized male Tanner crab were caught at 64 stations, ranging from 77 to 34,995 crab/nmi<sup>2</sup> per tow (Appendix B4). The 2008 abundance estimate for legal male Tanner crab was  $13.2 \pm 7.4$  million crab, with high abundance regions occurring in southwest Bristol Bay and between St. George and St. Paul Island in the Pribilof District (Table 6 and Fig. 11). The abundance estimate for legal male Tanner crab was 9% higher than the 2007 abundance estimate of 12.1 million crabs, with 69% of legal males occurring east of 166°W in the ADF&G Eastern management district compared to 45% in 2007 (Table 6).

Legal-sized male crab represented only 5% of total male abundance in 2008 followed by  $77.7 \pm 25.9$  million pre-recruit males at 28% and the remaining 67% was  $186.8 \pm 39.2$  million small males (Table 6). Pre-recruit and small male Tanner crab were distributed throughout the eastern Bering Sea shelf with high abundances of pre-recruit males in southwest Bristol Bay and areas surrounding the Pribilof Islands (Fig. 12).

The 2004 male size-frequency revealed a prominent mode in the 30 mm CW range, which persisted to 70-75 mm CW range in 2006, 90-95 mm CW in 2007, and to the 95 to 100 mm CW range in 2008 (Fig. 13). Old and very oldshell crab remain a relatively large proportion in the male size distribution at 80 mm carapace width and greater; these males will not molt to legal-size in the future. Morphometrically mature oldshell male *Chionoecetes* spp. crab, based on the ratio of chela height measurement to carapace width, will not molt again during their lifespan (Tamone et al. 2007).

The 2008 large female Tanner crab abundance estimate was  $32.1 \pm 11.9$  million crab which was 21% lower than the 2007 abundance estimate. The small female Tanner crab abundance was  $125.6 \pm 38.2$  million crab which was 39% lower than in 2007. The majority of the large females were distributed in the southwest Bristol Bay District with a few large catches in the Pribilof Islands area, while the small females were distributed throughout the 50 to 200 m shelf of the eastern Bering Sea (Fig. 12). Among sampled mature females, 2% were softshells; 27% were new-hardshells, of which 98% carried new eggs; and 71% were oldshell and very oldshell, of which 82% carried new eggs.

## Snow Crab

Snow crab were caught at 259 of the 294 stations in the combined areas of the Bristol Bay District, Pribilof District, and Northern District. Snow crab occurred at 40 stations in the Pribilof

District high-density sampling area, and 27 stations in the high-density sampling area of the St. Matthew Island Section of the Northern District (Appendix B5). In the Bristol Bay District, four tows occurred at station B08 due to the red king and Tanner crab hot spot protocol and two tows were completed at A04.

Although the legal minimum size limit for male snow crab is 3.1 inches CW (78 mm), processors currently prefer a minimum size of 4.0 inches CW (102 mm). The abundance estimates reported in this report for legal-sized male snow crab combines both size groups (Table 7). The density of legal-sized male snow crab are listed by station in Appendix B5 and are separated into preferred ( $\geq 4.0$  in. CW) and legal (3.1-4.0 in. CW) size categories. Figure 14 depicts the distribution of legal male snow crab density  $\geq 4$  inches CW while the crab density of all legal males is presented in Figure 15.

Legal-sized male snow crab were caught at 227 stations, throughout all Districts combined, resulting in an abundance estimate of  $368.6 \pm 75.9$  million crab. This 2008 abundance estimate was 26% lower than the 2007 abundance estimate of 495.2 million legal-sized male crab. Thirty-two percent of those legal males were  $\geq 4$  inches in carapace width, with an abundance estimate of  $119.7 \pm 27.5$  million crab which is 21% lower than the 2007 abundance estimate of 150.9 million males  $\geq 4$  inches in carapace width. Approximately 72% of all legal male snow crab were east of  $173^\circ\text{W}$  in the ADF&G Eastern management district as compared to 76% in 2007 (Table 7). These legal-sized male snow crab were distributed throughout the eastern Bering Sea shelf with large catches northeast of the Pribilof Islands and southwest of St. Matthew Island (Fig. 15).

The 2008 pre-recruit male snow crab abundance estimate of  $934.0 \pm 343.6$  million crab was 19% lower than to the 2007 abundance estimate (Table 7). Sixty-three percent of these males were distributed east of  $173^\circ\text{W}$  in the ADF&G Eastern management district (Table 7 and Fig. 15).

The abundance estimates of all sex-specific size categories were lower in 2008 relative to 2007 with the exception of the small female category. The 50 to 55 mm CW mode of 2007 male crab recruited to the 60-65 mm CW in 2008. Among legal-sized male crab, 12% were in molting or softshell condition, 66% were in new-hardshell condition indicating a recent molt, and 22% were oldshell and very oldshell condition (Fig. 16).

The large female snow crab abundance estimate of  $813.6 \pm 338.8$  million crab was 34% lower than in 2007 while the small female crab abundance estimate of  $481.7 \pm 287.6$  million crab was higher by 11%. Forty-one percent of the total abundance of small female crab and 64% of the total abundance of large female snow crab were caught east of  $173^\circ\text{W}$  in the ADF&G Eastern management district (Table 7 and Fig. 15). The female reproductive stock had high frequencies of old shell and very old shell condition which is of concern in terms of expected reproductive output. Among sampled mature females, 39% were new-hardshells, of which the majority carried new eggs, and 61% were oldshells and older, of which 73% carried new eggs, 13% had not produced a new clutch, and 12% of the mature females were barren.

### ***Chionoectes bairdi/opilio* hybrid**

*Chionoectes* spp. hybrid crab were caught at 137 of the 196 stations in the combined areas of the Bristol Bay District, Pribilof District, and Northern District. *C.* hybrid crab occurred at 17 stations in the Pribilof District high-density sampling area, and 8 stations in the high-density sampling area of the St. Matthew Island Section of the Northern District (Appendix B6). In the Bristol Bay District, 4 tows with *C.* hybrids occurred at station B08 due to the red king and Tanner crab hot spot protocol and 2 tows were completed at A04.

In this document, *C.* hybrid crab size classes for legal males and large females are based on the size categories for snow crab (see snow crab section and Table 2). The abundance estimates reported in this report for legal-sized male *C.* hybrid crab combines both the preferred and legal size categories. The density of legal-sized male *C.* hybrid crab are listed by station in Appendix B6 and are separated into preferred ( $\geq 4.0$  in. CW) and legal (3.1-4.0 in. CW) size categories.

Legal-sized male *C.* hybrid crab were caught at 48 stations, throughout all Districts combined, resulting in an abundance estimate of  $4.8 \pm 1.7$  million crab. Seventy-two percent of those legal males were  $\geq 4$  inches in carapace width, with an abundance estimate of  $3.5 \pm 2.1$  million crab and were primarily distributed between 50 and 100 meters along the eastern Bering Sea shelf with large catches east and north of the Pribilof Islands (Fig. 17). Approximately 94% of all legal male *C.* hybrid were east of  $173^\circ\text{W}$  in the ADF&G Eastern management district, with an abundance estimate of  $4.6 \pm 1.7$  million crab (Fig. 18).

The 2008 pre-recruit male *C.* hybrid crab abundance estimate for all Districts combined was  $8.9 \pm 4.7$  million crab, were distributed in the northwestern area of the eastern Bering Sea shelf with large catches southeast of St. Matthew Island (Fig. 18). Sixty-five percent of these males were distributed east of  $173^\circ\text{W}$  in the ADF&G Eastern management district with an abundance estimate of  $5.9 \pm 4.6$  million crab.

The 2008 large female *C.* hybrid crab abundance estimate was  $9.9 \pm 3.8$  million crab while the small female crab abundance estimate was  $11.7 \pm 9.7$  million crab. Eighty percent of the total abundance of large female crab were caught east of  $173^\circ\text{W}$  in the ADF&G Eastern management district, with an abundance estimate of  $8.0 \pm 3.7$  million crab while less than 1% of the total abundance of small female snow crab were caught east of  $173^\circ\text{W}$ . The majority of the large females were distributed in the northwestern area of the EBS with a few large catches northeast of the Pribilof Islands and southeast of St. Matthew Island, while small female hybrid crab were primarily distributed between 100 and 200 m of the northwestern area of the eastern Bering Sea (Fig. 18).

## Hair Crab

In 2008, hair crab were caught at 55 of the 317 stations throughout all Districts combined, with hair crab occurring at 9 stations in the Pribilof District high-density section (Appendix B7). Historically, hair crab have been concentrated just north of the Alaska Peninsula and near the Pribilof Islands. In recent years, however, abundance of legal male hair crab north of 58°N latitude has been increasing (Fig. 19).

In this report, legal male hair crab are defined as > 3.25 inches CW ( $\geq 83$  mm CL) which was specified in the previous Pribilof District fishery and the female hair crab abundance estimate is presented for all sizes combined regardless of carapace size. In 2008, the density of legal male hair crab caught at a station ranged from 74 to 751 crab/nmi<sup>2</sup> resulting in an abundance estimate of  $2.3 \pm 1.1$  million crab. Pre-recruit male hair crab abundance estimate of  $2.5 \pm 1.3$  million crab was 9% higher than in 2007. The female hair crab abundance estimate of  $1.5 \pm 0.6$  million crab was 15% higher than in 2007 (Table 8). The majority of pre-recruit male and female hair crab > 2.6 inches CW were distributed in Bristol Bay with pre-recruit males caught in abundance north of 58°N (Fig. 20).

Since the early 1990s, this population has shown persistently declining trends in abundance. In 2008, the abundance estimates of both male and female hair crab increased relative to 2007. The abundance estimate for legal-sized male hair crab represents a 15% increase from last year and approximately 87% of the 20-year average of 2.3 million crab (Table 8). Size-frequencies of male hair crab indicate little recruitment to the stock, although the abundance estimate for pre-recruit males increased by 9% relative to 2007. Seventy-five percent of males and 69% of females were new-hardshell crabs (Fig. 21).

Recruitment trends in this stock are unclear due to poor representation of small crabs in the survey and to the low precision of the abundance estimates due to patchy in-shore distribution and burying behavior.

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Table 1. --Special projects related to crab species conducted on the National Marine Fisheries Service eastern Bering Sea bottom trawl survey in 2008.

Project Title	Principle Investigator	Agency
Visual monitoring for bitter crab and black mat syndrome	Bob Foy and Frank Morado	AFSC-RACE-SAP <sup>1</sup>
Crab mount collections	Jan Haaga and Susan Payne	AFSC-RACE-SAP <sup>1</sup>
King crab population genetics	Pam Jensen and Frank Morado	AFSC-RACE-SAP <sup>1</sup>
Pathological specimen voucher	Pam Jensen and Frank Morado	AFSC-RACE-SAP <sup>1</sup>
Bitter crab syndrome in North Pacific <i>Chionoecetes</i> species	Frank Morado	AFSC-RACE-SAP <sup>1</sup>
Reproductive potential of snow and Tanner crabs in the eastern Bering Sea	Laura Slater and Joel Webb	ADF&G <sup>2</sup>
Developing biological reference points for crustacean fisheries: Reproductive potential of Bristol Bay red king crab and eastern Bering Sea snow crab	Kathy Swiney	AFSC-RACE-SAP <sup>1</sup>
Reproductive indices of male snow crab from the Bering Sea: analysis of hormones, reproductive structures, and behavior	Sherry Tamone	UAS <sup>3</sup>

<sup>1</sup> Alaska Fisheries Science Center, Resource Assessment and Conservation Engineering Division, Shellfish Assessment Program, Kodiak, Alaska.

<sup>2</sup> State of Alaska, Department of Fish and Game

<sup>3</sup> University of Alaska Southeast

Table 2. --Definition of carapace size classes for crab species in the eastern Bering Sea.  
 Carapace length (CL) is measured for *Paralithodes* species and *Erimacrus isenbeckii*,  
 while carapace width (CW) is measured for *Chionoecetes* species.

	Small	Pre-recruit	Legal male or Large female
<b><i>Paralithodes camtschaticus</i></b> Bristol Bay District			
males	<110 mm	110-134 mm	≥ 135 mm CL or ≥ 6.5 in. CW
females	<90 mm		≥ 90 mm
Pribilof District			
males	<110 mm	110-134 mm	≥ 135 mm CL or ≥ 6.5 in. CW
females	< 90 mm		≥ 90 mm
<b><i>P. platypus</i></b> Pribilof District			
males	<110 mm	110-134 mm	≥ 135 mm CL or ≥ 6.5 in. CW
females	< 90 mm		≥ 90 mm
St. Matthew Island			
males	< 105 mm	105-119 mm	≥ 120 mm CL or ≥ 5.5 in. CW
females	< 80 mm		≥ 80 mm
<b><i>Chionoecetes bairdi</i></b>			
males	< 110 mm	110-137 mm	≥ 138 mm or ≥ 5.5 in. CW
females	< 85 mm		≥ 85 mm
<b><i>C. opilio</i></b>			
males		< 78 mm	≥ 78 mm <sup>1</sup> or ≥ 3.1 in. CW
females	<50 mm		≥ 50 mm
<b><i>Erimacrus isenbeckii</i></b>			
males		<83 mm CL	≥ 83 mm <sup>2</sup> CL or > 3.25 in. CW
females			> 2.6 in. CW

- 1 The legal minimum size limit for *C. opilio* is 3.1 in. CW (78 mm), although processors currently prefer a minimum size of 4.0 in. CW (102 mm).
- 2 Legal-sized male crab for *E. isenbeckii* are defined as those larger than a minimum size of 3.25 inches CW (≥ 83 mm CL) Alaska Department of Fish and Game permit guidelines in past years.

Table 3. --Historic annual total abundance estimates (millions of crab) for red king crab (*Paralithodes camtschaticus*) from National Marine Fisheries Service eastern Bering Sea bottom trawl surveys. Bristol Bay and Pribilof Districts are combined except where noted with a (B) or (P).

Carapace Length (mm) Width (in)	Males			Total	Females		Total	Grand Total
	Small <110 <5.2	Pre-recruit 110-134 5.2-6.4	Legal ≥135 ≥6.5		Small <90 <4.3	Large ≥90 ≥4.3		
1988	8.5	6.4	6.4	21.3	2.7	15.7	18.4	39.7
1989	8.6	9.4	11.9	29.9	4.4	16.9	21.2	51.1
1990	8.2	10.2	9.2	27.6	7.2	17.5	24.7	52.2
1991	8.1	6.4	12.0	26.5	4.7	12.6	17.4	43.9
1992	7.0	5.5	5.8	18.3	2.2	13.4	15.6	33.9
1993	5.7	10.2	9.8	25.7	2.5	19.2	21.7	47.4
1994	6.2	6.7	7.5	20.4	3.4	10.1	13.5	33.9
1995	9.7	6.0	8.9	24.6	4.9	10.4	15.3	33.9
1996	17.2	3.5	6.0	26.7	13.7	12.9	26.6	53.3
1997	28.1	9.8	10.6	48.5	1.8	26.5	28.3	76.8
1998(B)	11.1	16.7	7.5	35.3	5.6	35.8	41.4	76.7
1999(B)	8.4	7.4	11.5	27.3	6.4	15.1	21.6	48.9
2000(B)	11.4	7.3	8.9	27.6	5.7	17.4	23.1	50.7
2001(B)	10.2	4.4	5.3	19.9	3.9	21.8	25.7	45.5
2002(B)	20.7	9.9	9.5	40.0	18.9	19.4	38.3	78.3
2003(B)	17.9	9.0	12.3	39.3	10.8	34.0	44.8	84.1
2004(B)	32.3	10.3	12.8	55.4	18.4	31.7	50.1	105.5
2005(B)	29.2	10.4	10.0	49.6	19.6	42.6	62.2	111.8
2006(B)	19.5	7.4	12.5	39.5	13.5	29.7	43.2	82.7
2007(B)	15.0	10.2	13.3	38.5	3.8	35.4	39.2	77.7
2008(B)	11.0	14.3	10.5	35.8	2.7	43.1	45.8	81.6
<u>Confidence limits*</u>								
Lower	7.0	10.3	7.4	26.4	1.3	20.5	22.9	
Upper	15.1	18.3	13.6	45.2	4.2	65.7	68.7	
±%	37	28	30	26	53	53	50	
1998(P)	0.2	0.6	0.4	1.2	0.0	1.0	1.1	2.2
1999(P)	6.5	0.6	1.1	8.2	6.3	3.1	9.4	17.6
2000(P)	0.0	0.4	1.2	1.5	0.0	0.6	0.6	2.2
2001(P)	1.4	2.5	1.8	5.6	0.0	4.0	4.0	9.6
2002(P)	0.0	0.0	1.8	1.8	0.0	0.4	0.4	2.3
2003(P)	0.0	0.1	1.3	1.4	0.0	1.1	1.2	2.6
2004(P)	1.4	0.0	0.8	2.2	1.1	0.6	1.6	3.8
2005(P)	0.0	0.0	0.3	0.3	0.0	1.4	1.4	1.7
2006(P)	0.0	0.3	1.3	1.5	0.0	0.9	0.9	2.5
2007(P)	0.2	0.2	1.6	2.0	0.0	1.7	1.7	3.7
2008(P)	0.4	0.3	1.2	1.8	0.1	1.8	1.9	3.7

\* Mean ± 2 standard errors for most recent year; Bristol Bay only.

Table 4. --Historic annual total abundance estimates (millions of crab) for blue king crab (*Paralithodes platypus*) in the Pribilof District from National Marine Fisheries Service eastern Bering Sea bottom trawl surveys.

Carapace Length (mm) Width (in)	Pribilof District							Grand Total
	Males				Females			
	Small <110 <5.2	Pre-recruit 110-134 5.2-6.4	Legal ≥135 ≥6.5	Total	Small <90 <4.3	Large ≥90 ≥4.3	Total	
1988	1.1	0.0	0.2	1.3	0.8	0.4	1.2	2.5
1989	3.2	0.1	0.2	3.5	2.3	1.3	3.6	7.1
1990	1.8	1.2	0.4	3.5	1.8	2.7	4.5	8.0
1991	1.3	1.0	1.0	3.4	0.6	2.8	3.4	6.7
1992	1.6	1.2	1.0	3.8	1.3	2.1	3.4	7.1
1993	1.0	0.8	1.0	2.8	0.3	2.2	2.5	5.3
1994	0.3	0.5	0.8	1.6	0.1	4.3	4.3	5.9
1995	0.8	1.2	2.0	3.9	0.4	4.0	4.5	8.4
1996	0.3	0.7	1.2	2.3	0.1	4.6	4.7	7.0
1997	0.3	0.4	0.8	1.5	0.1	2.5	2.6	4.1
1998	0.8	0.4	0.9	2.1	0.3	2.1	2.3	4.4
1999	0.1	0.2	0.5	0.8	0.0	2.5	2.5	3.3
2000	0.1	0.2	0.5	0.9	0.0	1.4	1.4	2.3
2001	0.0	0.1	0.4	0.6	0.0	1.6	1.6	2.2
2002	0.0	0.0	0.2	0.2	0.0	1.2	1.3	1.5
2003	0.0	0.0	0.2	0.3	0.0	1.1	1.2	1.4
2004	0.1	0.1	0.0	0.2	0.1	0.1	0.2	0.3
2005	2.1	0.0	0.1	2.1	2.3	0.3	2.6	4.8
2006	0.1	0.0	0.0	0.2	0.1	0.5	0.5	0.7
2007	0.2	0.1	0.1	0.4	0.1	0.2	0.3	0.7
2008	0.2	0.1	0.02	0.28	0.06	0.8	0.86	1.14
<u>Confidence limits</u> *								
Lower	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Upper	0.5	0.2	0.1	0.8	0.2	2.0	2.2	
±%	179	200	200	172	148	152	150	

\* Mean ± 2 standard errors for most recent year.

Table 5. --Historic annual total abundance estimates (millions of crab) for blue king crab (*Paralithodes platypus*) in the St. Matthew Island Section of the Northern District from National Marine Fisheries Service eastern Bering Sea bottom trawl surveys.

Carapace Length (mm) Width (in)	<u>Northern District</u>							Grand Total
	<u>Males</u>			<u>Females</u>				
	<u>Small</u>	<u>Pre-recruit</u>	<u>Legal</u>	<u>Small</u>	<u>Large</u>	<u>Total</u>		
<105 <4.3	105-119 4.3-5.4	≥120 ≥5.5	Total	<80 <3.8	≥80 ≥3.8	Total		
1988	1.4	0.7	0.8	2.9	0.9	0.8	1.7	4.6
1989	4.8	1.0	1.5	7.3	1.6	1.7	3.3	10.5
1990	1.4	0.8	1.7	3.9	0.4	0.2	0.6	4.5
1991	2.9	1.5	2.2	6.6	0.8	0.7	1.5	8.1
1992	2.3	1.5	2.3	6.0	0.9	0.4	1.3	7.4
1993	4.6	2.0	3.6	10.2	1.4	3.0	4.4	14.6
1994	1.5	1.4	2.5	5.4	0.1	0.4	0.5	5.9
1995	1.9	1.1	1.9	4.9	0.6	0.1 <sup>1</sup>	0.7	5.6
1996	2.6	2.0	3.4	8.0	1.1	0.9	2.0	10.0
1997	2.5	2.3	4.1	8.8	0.6	0.9	1.5	10.3
1998	2.4	1.8	3.2	7.4	0.6	0.5	1.2	8.6
1999	0.6	0.2	0.7	1.5	0.3	0.0 <sup>1</sup>	0.3	1.8
2000	0.6	0.3	0.8	1.7	0.1	0.1	0.2	1.9
2001	0.8	0.6	1.1	2.5	0.3	0.2	0.5	2.9
2002	0.2	0.2	0.7	1.1	0.0	0.1 <sup>1</sup>	0.1	1.2
2003	1.4	0.3	0.6	2.3	0.3	0.8	1.0	3.3
2004	1.0	0.2	0.7	1.9	0.5	0.2	0.7	2.6
2005	0.9	0.3	0.6	1.8	0.2	0.2	0.4	2.2
2006	2.0	0.7 <sup>^</sup>	1.4	4.2	0.1	0.3	0.4	4.5
2007	5.0	2.3	1.4	8.7	0.9	0.2	1.0	9.7
2008	4.2	0.9	1.7	6.8	0.6	0.2	0.8	7.6
<u>Confidence limits</u> <sup>2</sup>								
Lower	0.3	0.3	0.7	2.0	0.0	0.0	0.0	
Upper	8.2	1.5	2.6	11.8	1.3	0.5	1.8	
±%	94	67	57	70	117	138	120	

<sup>1</sup> These estimates have low precision since few crabs were caught.

<sup>2</sup> Mean ± 2 standard errors for most recent year.

Table 6. --Historic annual total abundance estimates (millions of crab) for Tanner crab (*Chionoecetes bairdi*) from National Marine Fisheries Service eastern Bering Sea bottom trawl surveys. Data from 1988 to 2004 for Alaska Department of Fish and Game Eastern management district, and 2005 to present for all districts combined.

Carapace Width (mm) Width (in)	Males			Total	Females			Grand Total
	Small	Pre-recruit	Legal		Small	Large	Total	
	<110 <4.3	110-137 4.3-5.4	≥138 ≥5.5		<85 <3.4	≥85 ≥3.4		
1988	287.3	62.8	14.3	364.4	184.8	81.0	265.8	630.2
1989	403.0	110.9	33.6	547.5	338.6	63.8	402.4	949.9
1990	286.1	87.4	45.1	418.6	266.5	97.4	363.9	782.5
1991	267.2	115.8	35.1	418.1	232.1	116.8	348.9	767.0
1992	121.0	112.7	41.8	275.5	98.9	63.9	162.8	438.3
1993	76.6	70.5	20.6	167.7	57.6	29.6	87.2	254.9
1994	47.9	43.2	15.4	106.6	57.9	27.5	85.4	192.0
1995	40.4	35.7	10.0	86.1	66.6	37.2	103.8	189.9
1996	52.6	26.7	9.2	88.5	59.3	27.7	87.1	175.6
1997	66.5	10.0	3.4	80.0	71.1	10.1	81.2	161.2
1998	75.3	12.3	2.2	89.7	62.4	6.6	69.0	158.7
1999	202.4	15.1	2.1	219.5	128.7	17.2	145.9	365.4
2000	104.1	18.2	5.0	127.3	80.6	13.7	94.3	221.6
2001	290.1	17.7	6.5	314.3	284.0	13.5	297.5	611.7
2002	204.6	15.2	7.0	226.8	200.4	10.5	210.9	437.6
2003	217.5	24.7	7.4	249.6	184.1	15.1	199.2	448.8
2004	208.0	31.7	5.4	245.0	172.1	10.9	183.0	428.0
2005	325.9	52.0	11.4	389.3	338.5	29.0	367.6	756.9
2006	427.3	73.3	14.6	515.2	307.7	43.4	351.1	866.3
2007	416.3	92.5	12.1	520.9	205.4	40.8	246.2	767.0
2008	186.8	77.7	13.15	277.6	125.6	32.1	157.7	435.3
East(%) <sup>1</sup>	22	39	69	29	18	45	23	27
<u>Confidence limits</u> <sup>2</sup>								
Lower	147.6	51.7	5.8	217.1	87.5	20.2	112.4	
Upper	226.0	103.6	20.5	338.2	163.8	44.0	203.0	
±%	21	33	56	22	30	37	28	

<sup>1</sup> Percentage of size group in Eastern District (east of 166° W).

<sup>2</sup> Mean ± 2 standard errors for most recent year.

Table 7. --Historic annual total abundance estimates (millions of crab) for eastern Bering Sea snow crab (*Chionoecetes opilio*) from National Marine Fisheries Service bottom trawl surveys, all districts combined. The 29 northeastern stations were not sampled in 2008.

Carapace Width (mm) Width (in)	<u>Males</u>		Total	<u>Females</u>		Total	Grand Total
	<u>Pre-recruit</u>	<u>Legal</u>		<u>Small</u>	<u>Large</u>		
	<78 <3.1	≥78 ≥3.1		<50 <2.0	≥50 ≥2.0		
1988	2996.3	641.9	3638.2	1235.3	2322.7	3558.0	7196.2
1989	2823.7	1009.5	3833.1	1922.8	3790.7	5713.5	9546.6
1990	1834.5	1446.2	3280.7	1463.3	2798.1	4261.4	7542.1
1991	3277.4	1177.9	4455.3	3289.0	3575.0	6863.9	11319.2
1992	2827.0	587.8	3414.8	2433.9	1914.3	4348.2	7763.0
1993	5345.9	385.6	5731.5	3989.8	1982.6	5972.4	11703.9
1994	4027.6	326.5	4354.0	3417.6	1674.3	5091.8	9445.8
1995	3607.7	574.8	4155.5	2090.3	2409.4	4499.7	8655.2
1996	1815.2	1056.5	2871.7	1189.0	1364.2	2553.2	5424.9
1997	800.5	1031.4	1831.9	955.6	1428.3	2383.9	4215.8
1998	666.3	417.0	1283.3	813.5	1174.4	1988.0	3271.3
1999	396.8	134.0	620.8	320.7	484.3	805.0	1425.7
2000	916.5	210.3	1126.9	657.1	1511.7	2168.8	3295.7
2001	1550.2	367.0	1917.2	480.9	1564.6	2045.5	3962.7
2002	496.1	330.6	826.7	180.5	510.5	691.0	1517.7
2003	1145.2	231.7	1376.9	640.0	614.0	1253.9	2630.8
2004	1648.4	175.1	1823.5	1869.2	806.4	2675.5	4499.0
2005	1911.2	356.2	2267.4	1381.5	1630.8	3012.3	5279.7
2006	1106.9	432.3	1539.2	669.8	1045.5	1715.3	3254.5
2007	1158.6	495.2	1653.8	434.0	1244.4	1678.4	3332.0
2008	934.0	368.6	1302.6	481.7	813.6	1295.3	2597.9
East(%) <sup>1</sup>	63.0	72.0	66.0	41.0	64.0	55.0	61.0
<u>Confidence limits</u> <sup>2</sup>							
Lower	590.3	292.7	931.6	194.1	474.8	551.2	
Upper	1277.6	44.5	1673.6	769.3	1152.4	1846.4	
±%	37	21	29	60	42	43	
<u>Northeastern stations</u>							
2001	432.4	3.1	435.5	165.5	64.2	229.8	665.3
2004	2922.4	9.1	2931.5	896.2	152.5	1048.8	3980.3
2005	1771.7	12.6	1784.2	760.5	268.1	1028.6	2812.8
2006	950.6	4.0	954.5	676.6	137.5	814.2	1768.7

<sup>1</sup> Percentage of size group in Eastern District (east of 173°W).

<sup>2</sup> Mean ± 2 standard errors for most recent year.

Table 8. --Historic annual total abundance estimates (millions of crab) for hair crab (*Erimacrus isenbeckii*) from National Marine Fisheries Service bottom trawl surveys, all districts combined.

Carapace Length (mm) Width (in)	<u>Males</u>			<u>Females</u>	Grand Total
	<u>Pre-recruit</u>	<u>Legal</u>	Total	Total	
	<83 <3.25	≥83 ≥3.25			
1988	3.0	0.9	3.9	0.9	4.7
1989	11.4	1.5	12.8	0.7	13.5
1990	13.0	1.1	14.1	0.9	15.0
1991	4.5	1.3	5.7	1.2	6.9
1992	2.5	1.2	3.6	0.5	4.2
1993	9.1	2.6	11.8	1.5	13.3
1994	4.7	3.6	8.2	1.3	9.5
1995	4.6	6.5	11.1	0.7	11.8
1996	3.6	4.9	8.4	1.1	9.5
1997	1.6	4.4	6.0	0.3	6.3
1998	0.5	3.0	3.5	1.4	4.9
1999	1.5	2.4	3.9	2.0	5.8
2000	0.5	4.2	4.7	1.3	6.0
2001	0.5	1.8	2.3	2.2	4.5
2002	0.4	2.1	2.5	0.6	3.1
2003	1.3	1.0	2.3	0.5	2.8
2004	0.7	0.8	1.5	0.4	1.8
2005	1.1	0.3	1.3	0.9	2.2
2006	1.3	1.1	2.3	3.8	6.1
2007	2.3	2.0	4.4	1.3	5.7
2008	2.5	2.3	4.8	1.5	6.2
<u>Confidence limits</u> *					
Lower	1.2	1.2	2.8	0.8	
Upper	3.8	3.4	6.8	2.1	
±%	53	48	42	44	

\* Mean ± 2 standard errors for most recent year.



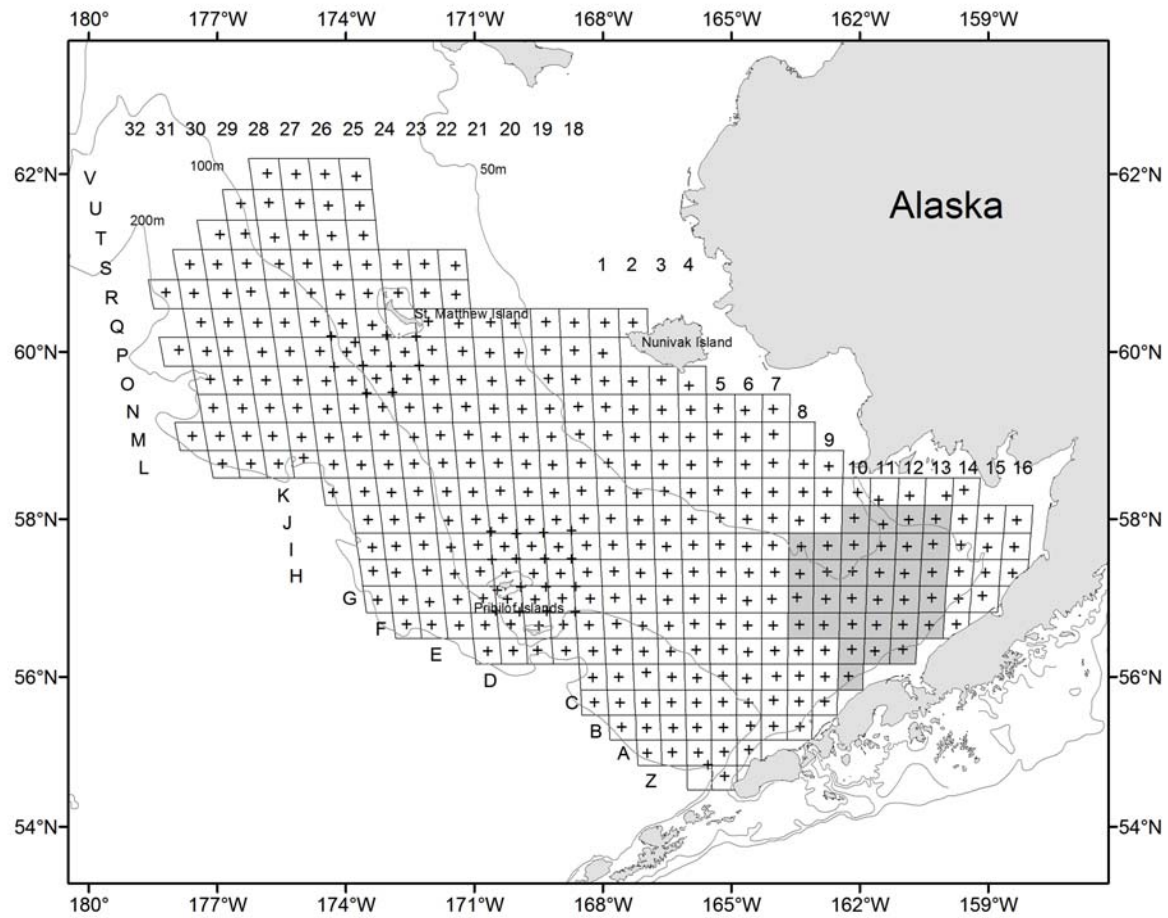


Figure 1. --National Marine Fisheries Service eastern Bering Sea bottom trawl survey area from 4 June to 25 July 2008. Shaded area depicts Bristol Bay stations sampled by FV *Arcturus* at the end of the survey.

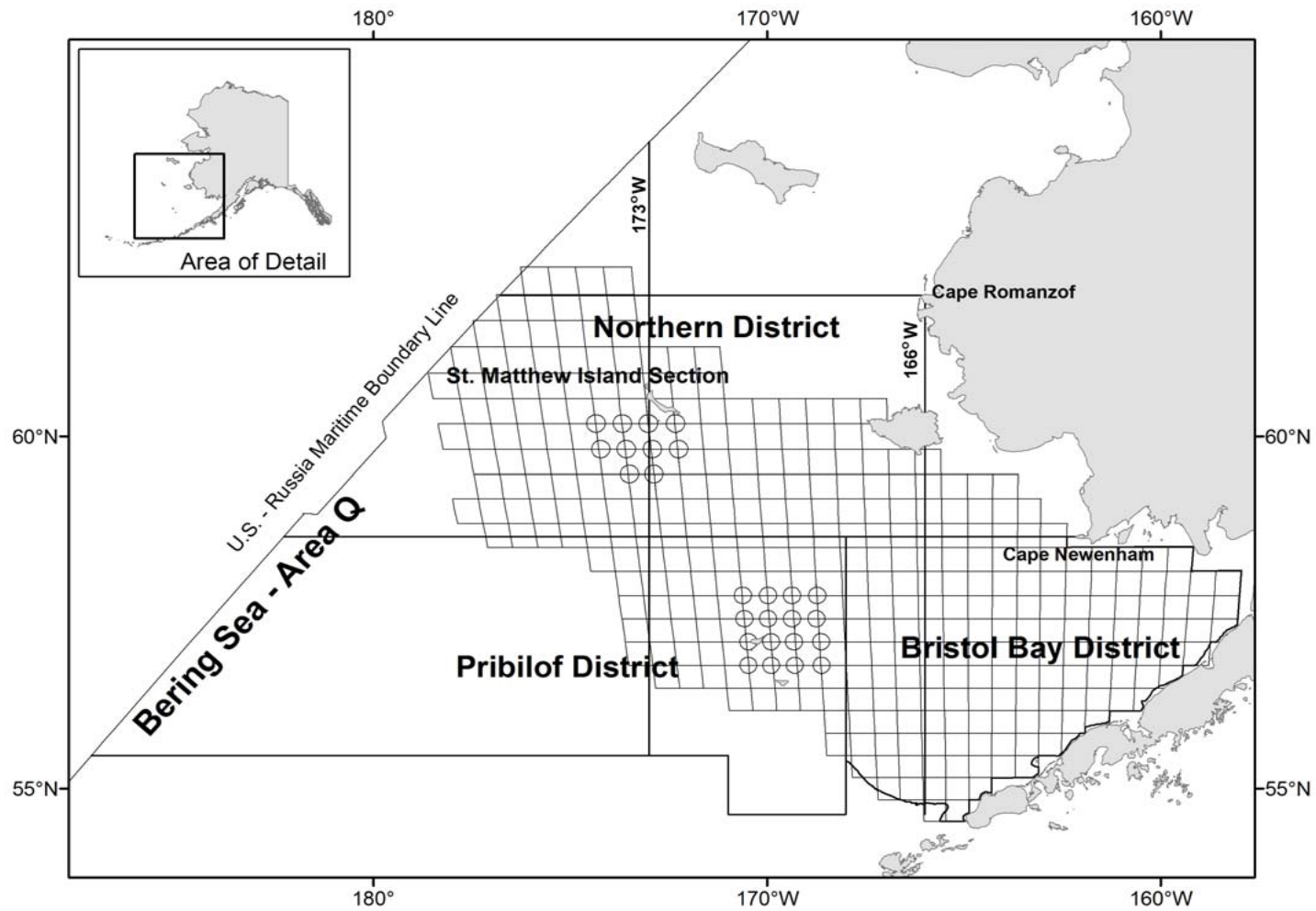


Figure 2. --Alaska Department of Fish and Game commercial crab management units within the 2008 eastern Bering Sea bottom trawl survey area. Circles represent the high-density sampling areas in the Pribilof District and St. Matthew Island Section, Northern District.

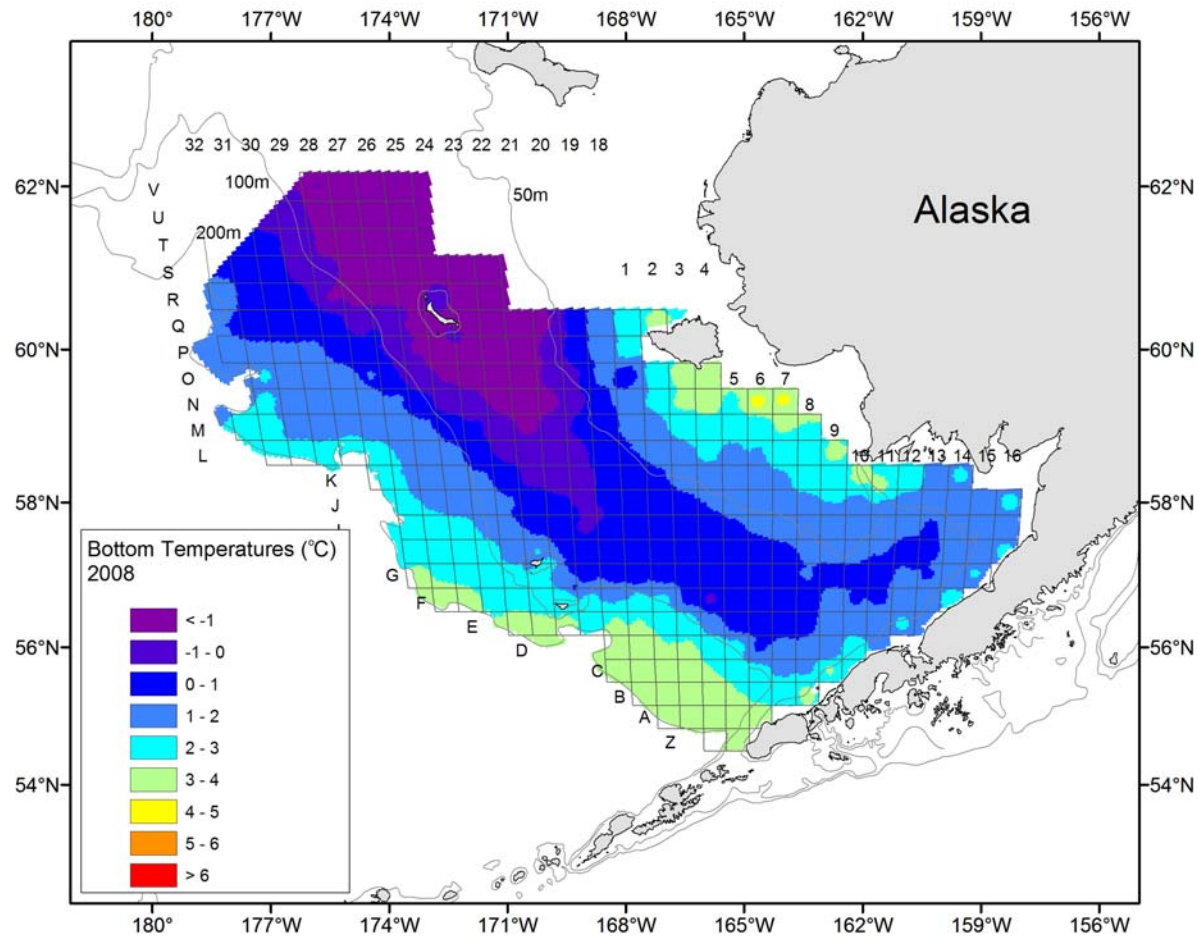


Figure 3. --Bottom temperatures (°C) measured at stations from the National Marine Fisheries Service eastern Bering Sea bottom trawl survey, beginning 4 June 2008 in Bristol Bay and ending on 24 July 2008 at L28. Data was averaged within each grid cell when more than one data point was collected. This figure does not reflect the 32 resample stations in Bristol Bay, surveyed from 20 to 25 July 2008.

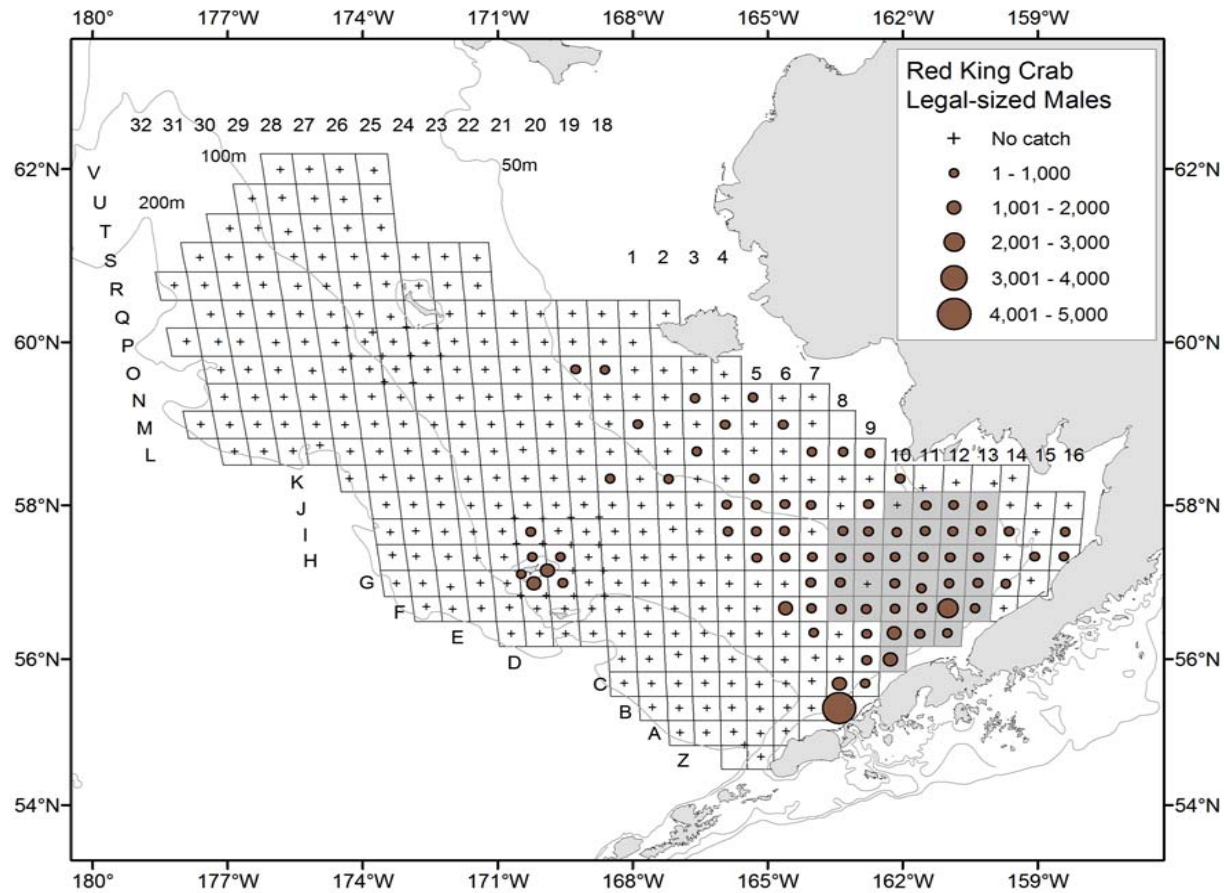


Figure 4. -- Number of red king crab (*Paralithodes camtschaticus*) caught per square nautical mile in 2008. Shaded area depicts resurveyed stations which were included in abundance estimates by averaging the original data collected in June with data collected in 20-25 July at the 32 resampled stations.

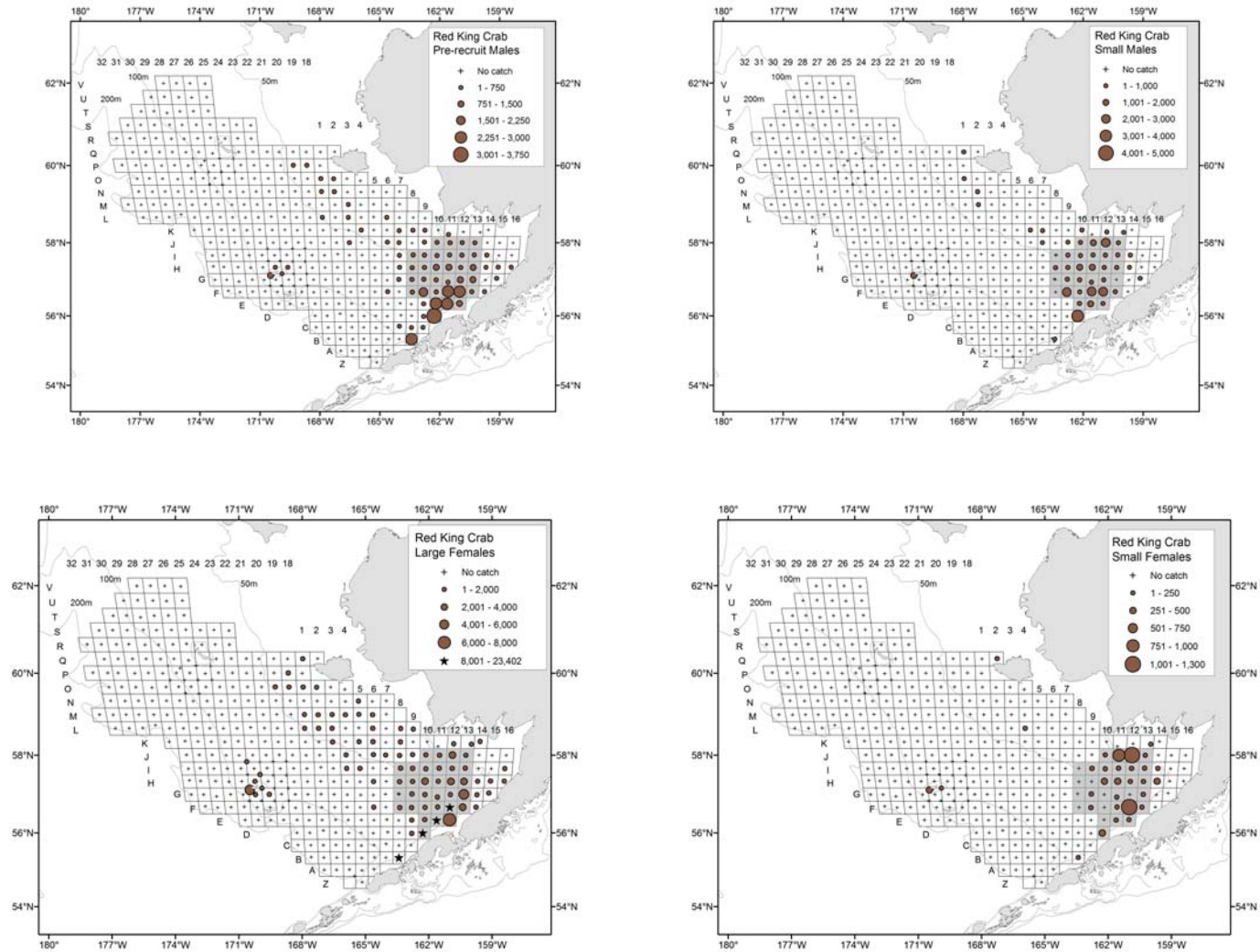


Figure 5.--Number of red king crab (*Paralithodes camtschaticus*) caught per square nautical mile in 2008. Shaded area depicts resurveyed stations which were included in abundance estimates by averaging the original data collected in June with data collected in 20-25 July at the 32 resampled stations. Data depicted by circles are crab densities at equal intervals, while stars are densities larger than the standard scale.

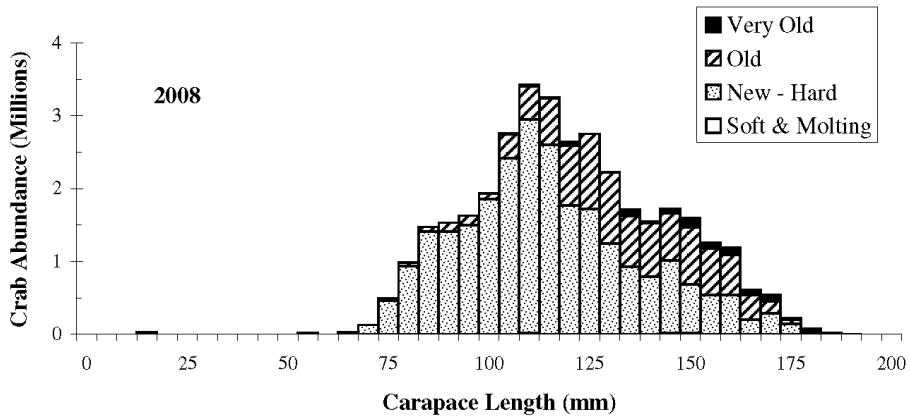
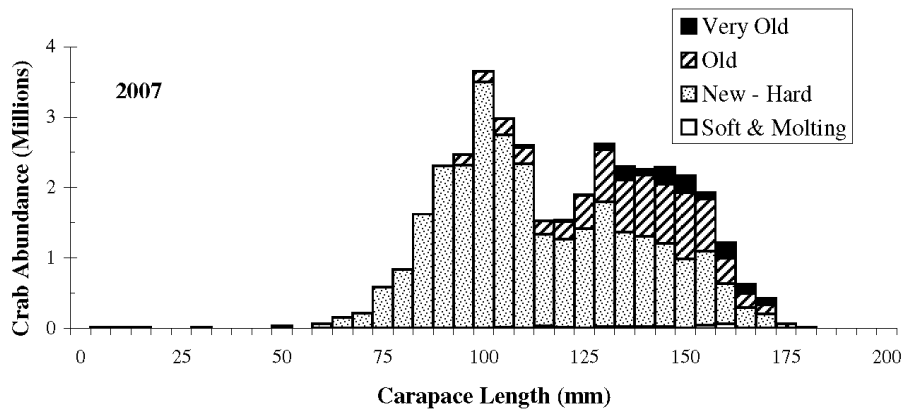
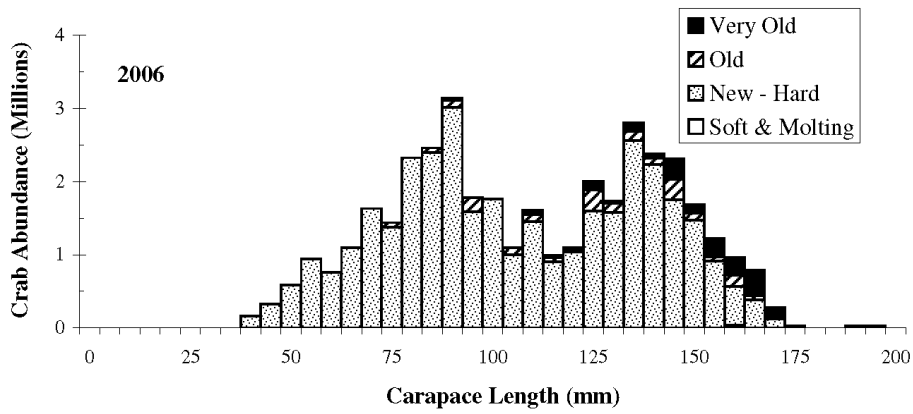


Figure 6. --Size-frequency of Bristol Bay District male red king crab (*Paralithodes camtschaticus*) by 5 mm length classes, 2006-2008.



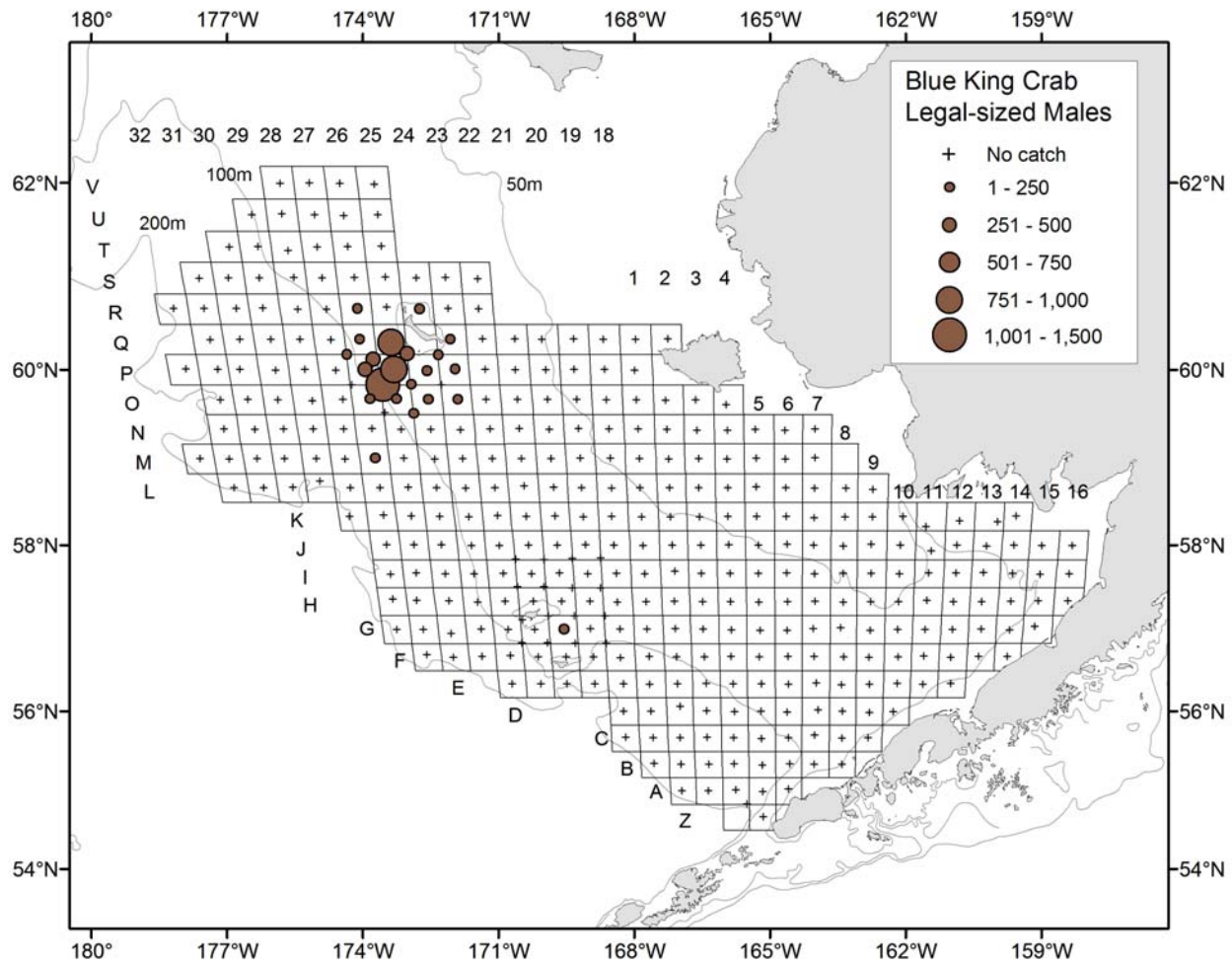


Figure 7. -- Number of blue king crab (*Paralithodes platypus*) caught per square nautical mile in 2008.

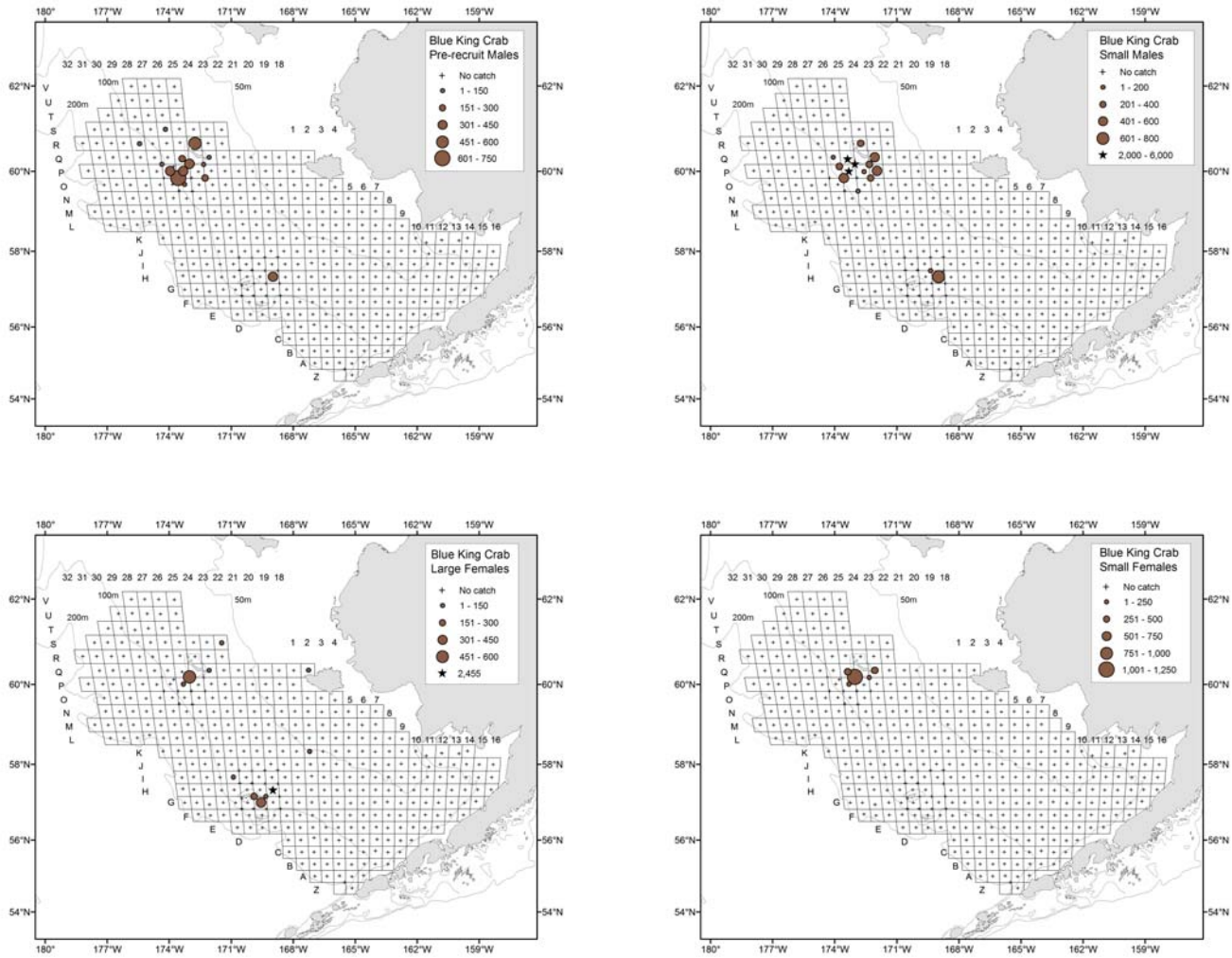


Figure 8. --Number of blue king crab (*Paralithodes platypus*) caught per square nautical mile in 2008. Data depicted by circles are crab densities at equal intervals, while stars are densities larger than the standard scale.



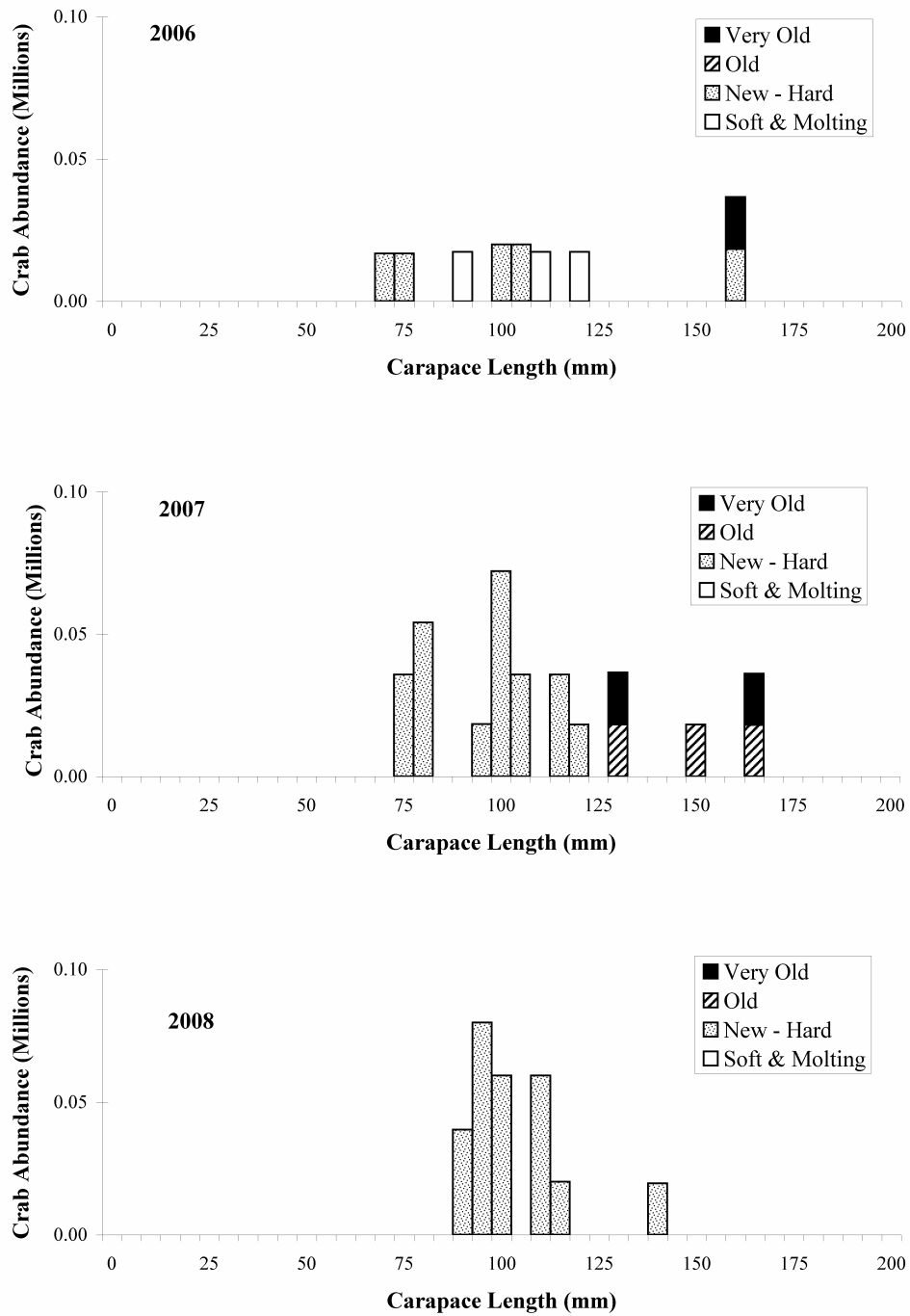


Figure 9. --Size-frequency of Pribilof District male blue king crab (*Paralithodes platypus*) by 5 mm length classes, 2006-2008.

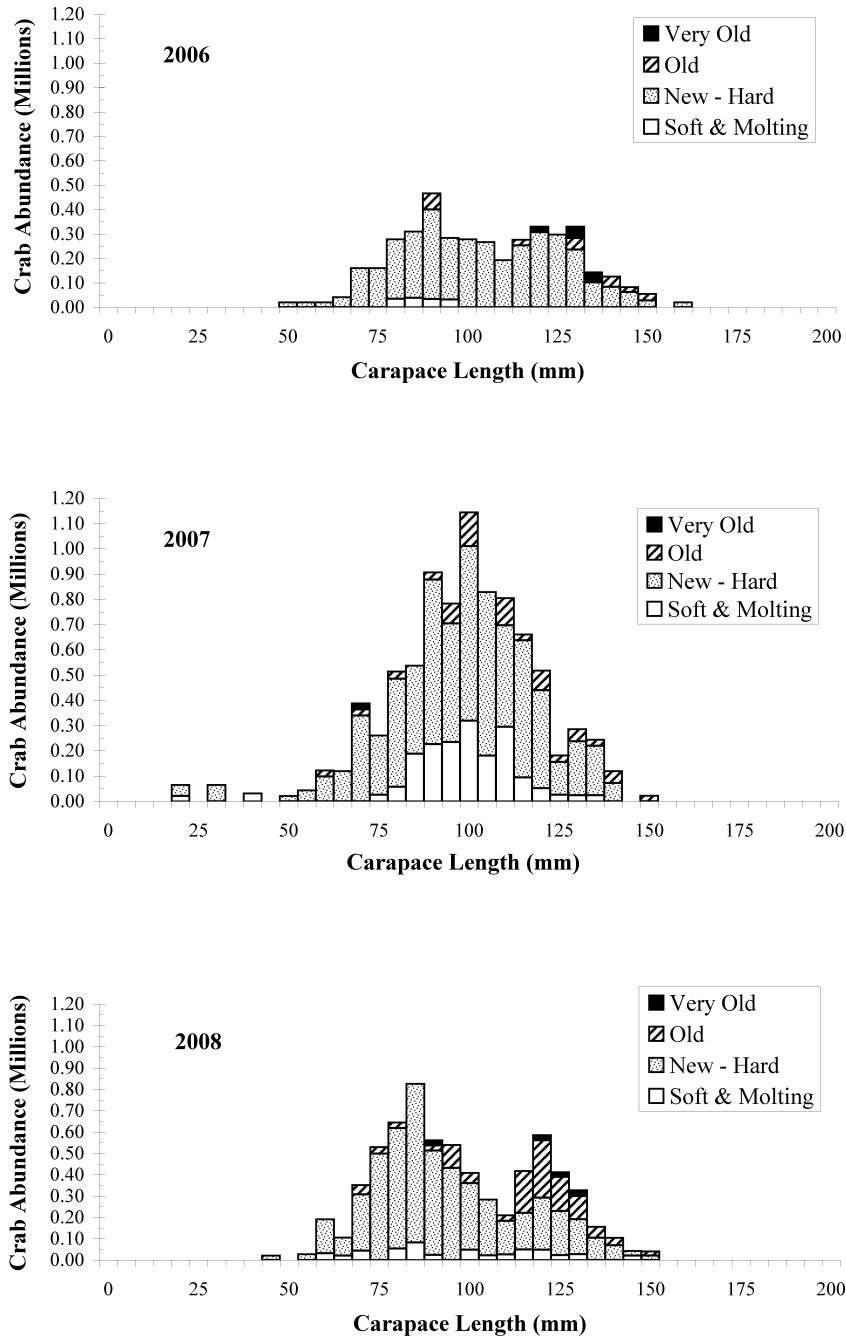


Figure 10. --Size-frequency of St. Matthew Island Section male blue king crab (*Paralithodes platypus*) by 5 mm length classes, 2006-2008.

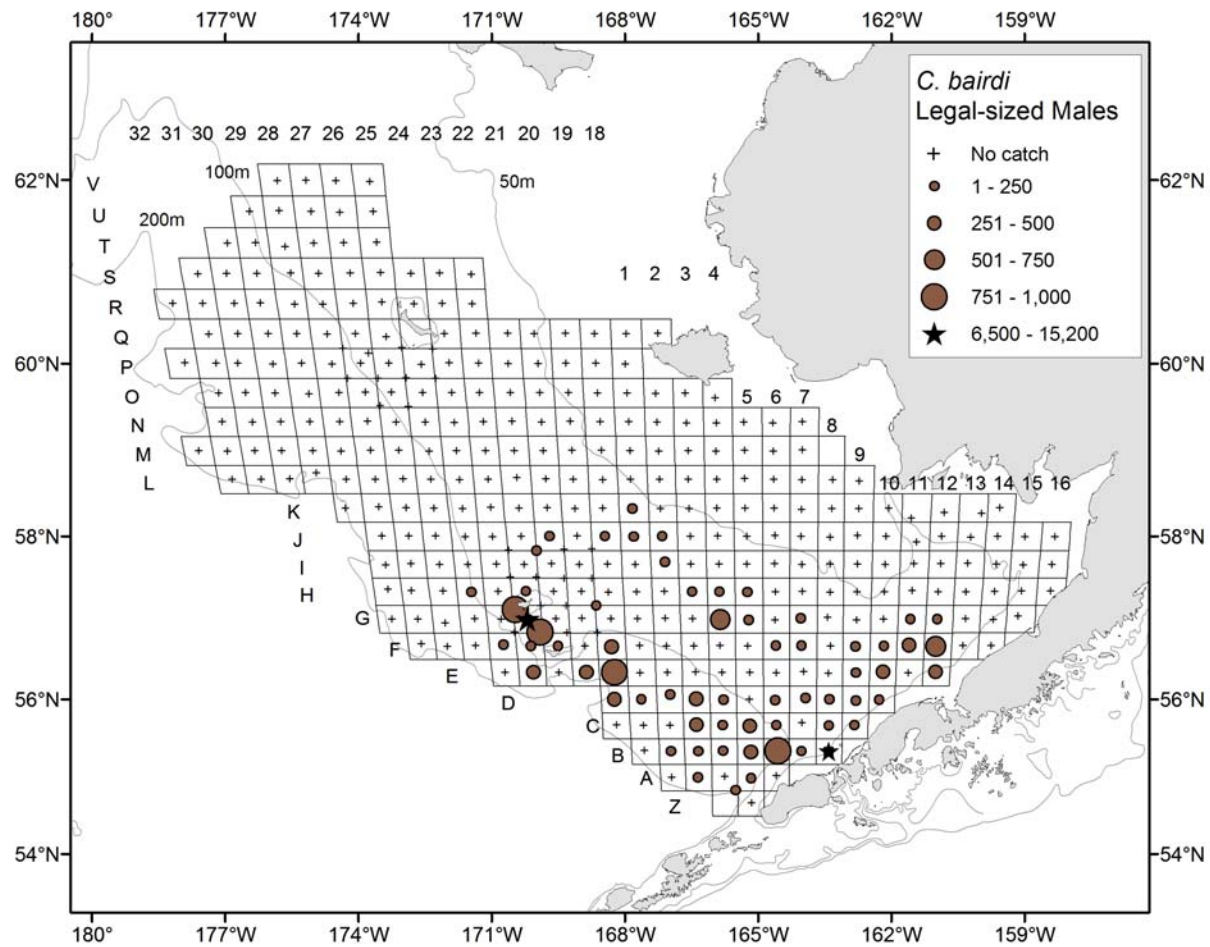


Figure 11. --Number of legal-sized male Tanner crab (*Chionoecetes bairdi*) caught per square nautical mile in 2008. Data depicted by circles are crab densities at equal intervals, while stars are crab densities larger than the standard scale.

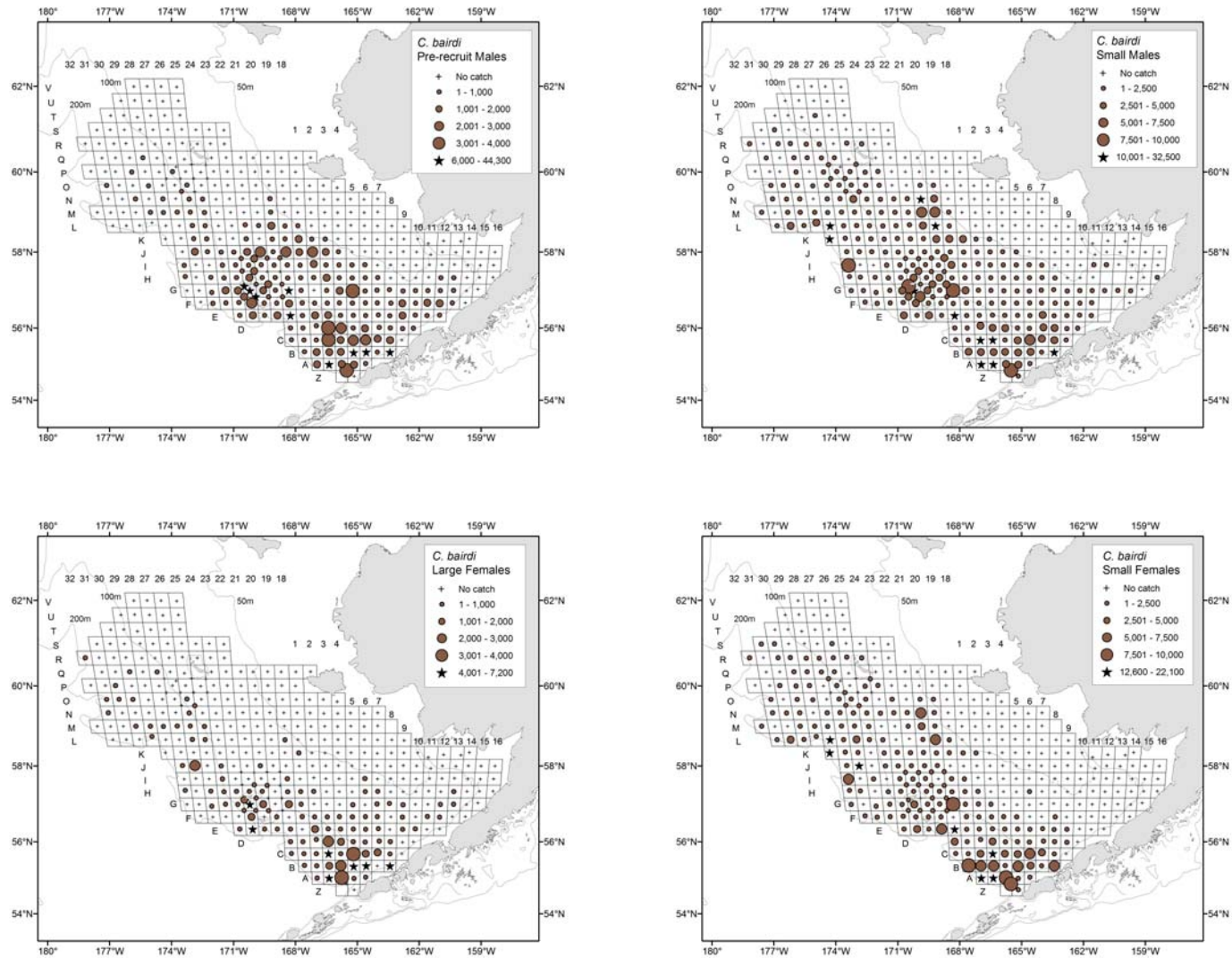


Figure12. --Number of Tanner crab (*Chionoecetes bairdi*) caught per square nautical mile in 2008. Data depicted by circles are crab densities at equal intervals, while stars are crab densities larger than the standard scale.

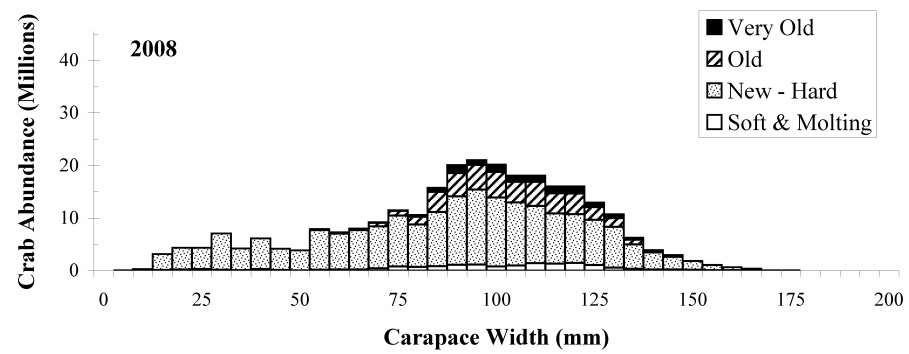
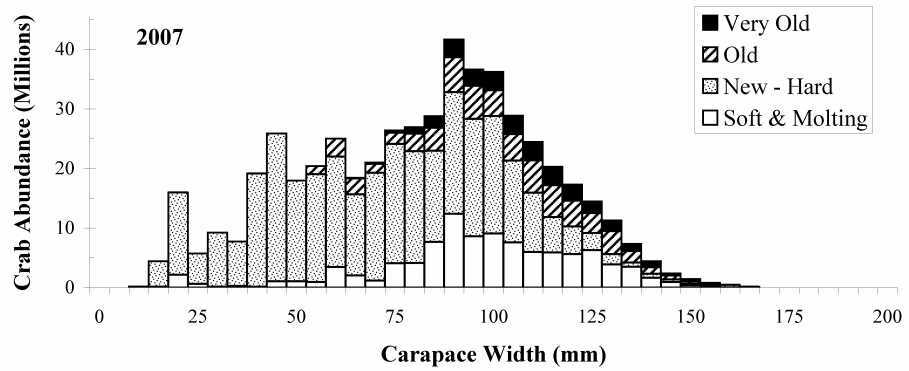
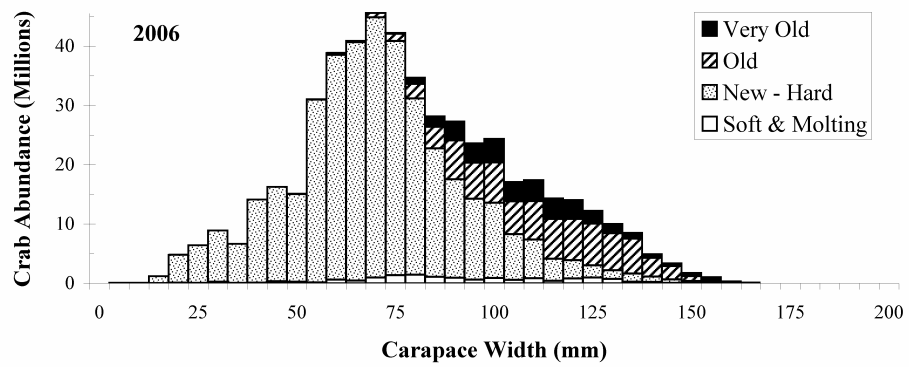


Figure 13. --Size-frequency of male Tanner crab (*Chionoecetes bairdi*) by 5 mm width classes of all districts combined, 2006-2008.

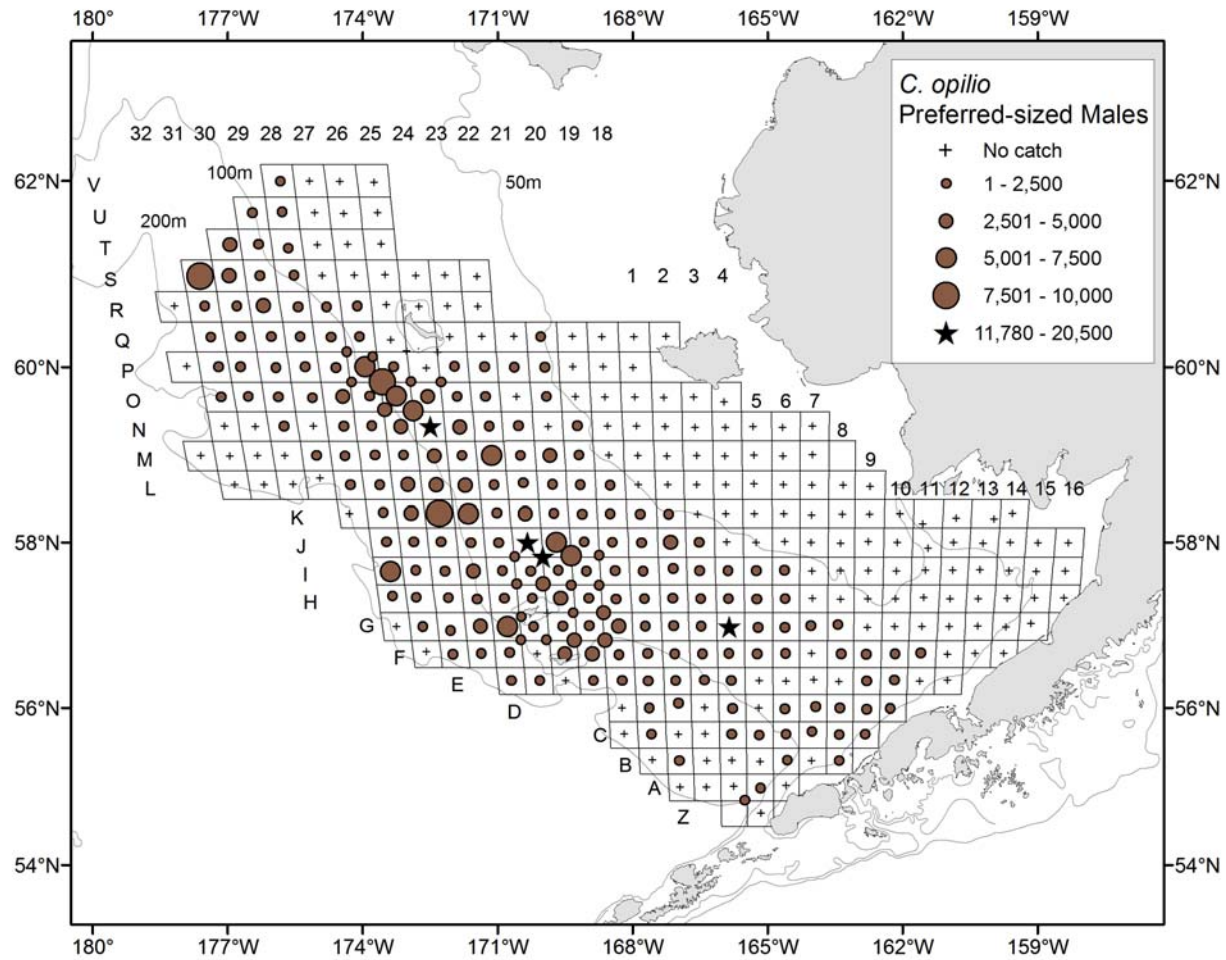


Figure 14. --Number of snow crab (*Chionoecetes opilio*) caught per square nautical mile in 2008. Data depicted by circles are crab densities at equal intervals, while stars are crab densities larger than the standard scale.

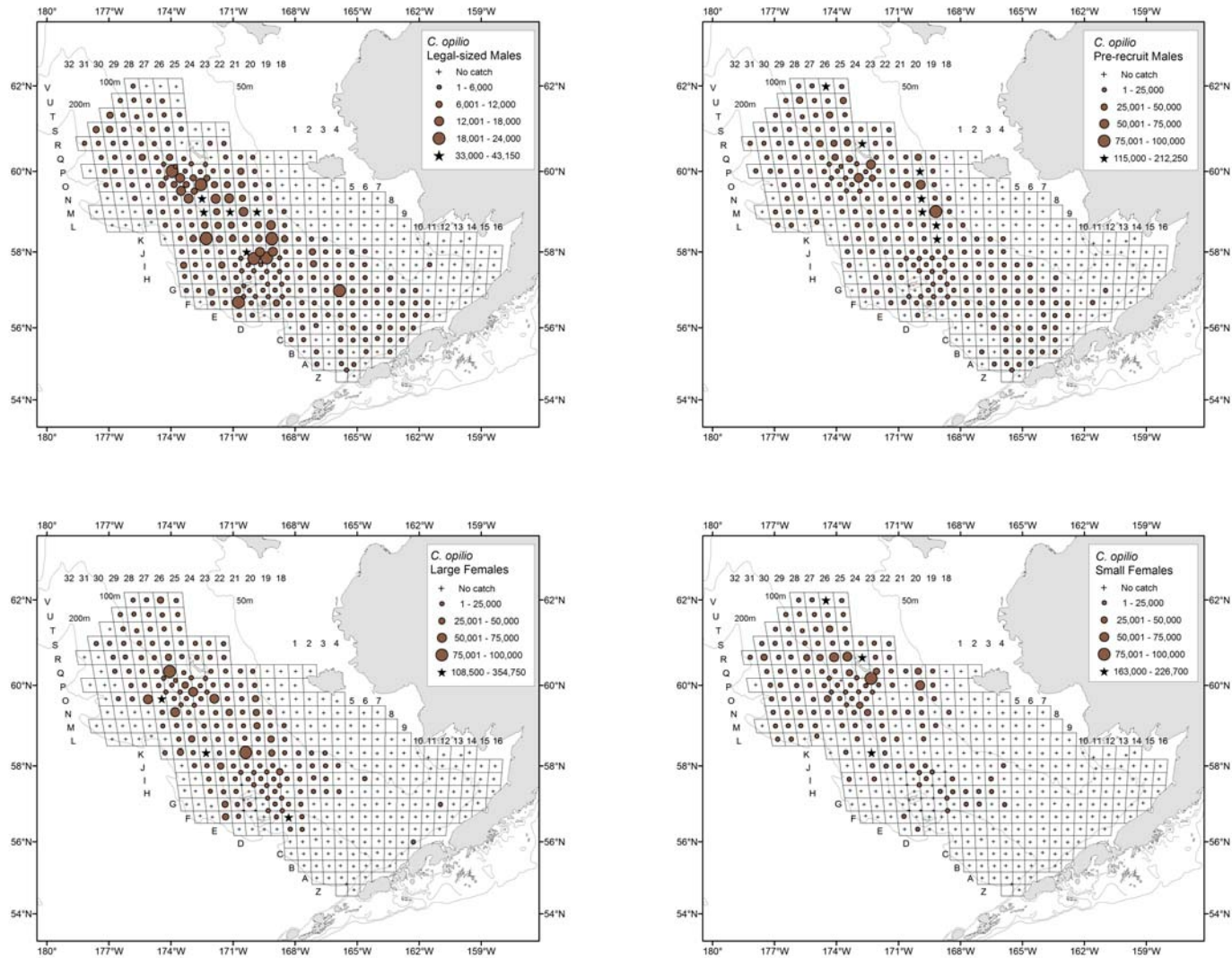


Figure 15. --Number of snow crab (*Chionoecetes opilio*) caught per square nautical mile in 2008. Data depicted by circles are crab densities at equal intervals, while stars are crab densities larger than the standard scale.



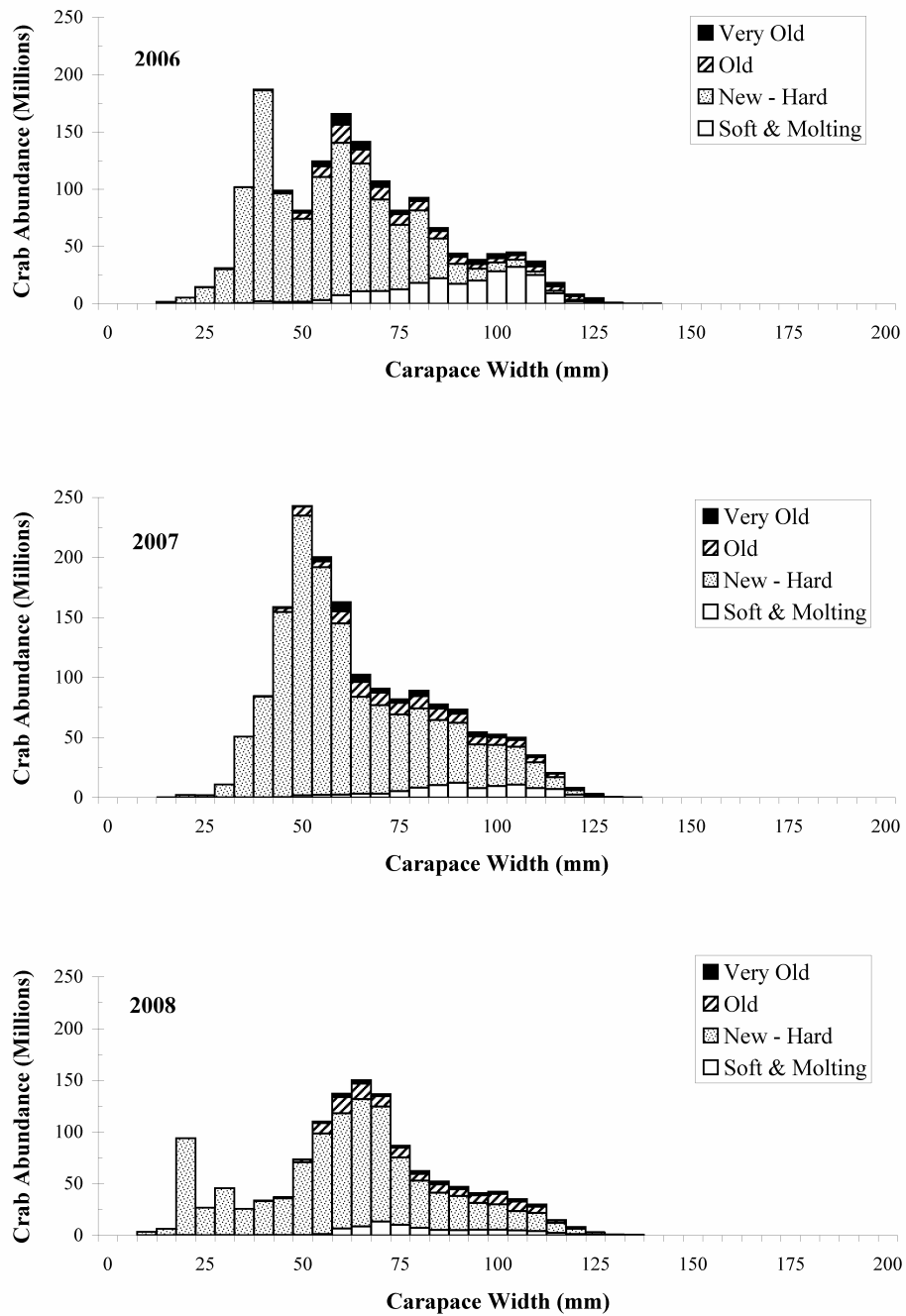


Figure 16. --Size-frequency of male snow crab (*Chionoecetes opilio*) by 5 mm width classes of all districts combined, 2006-2008.



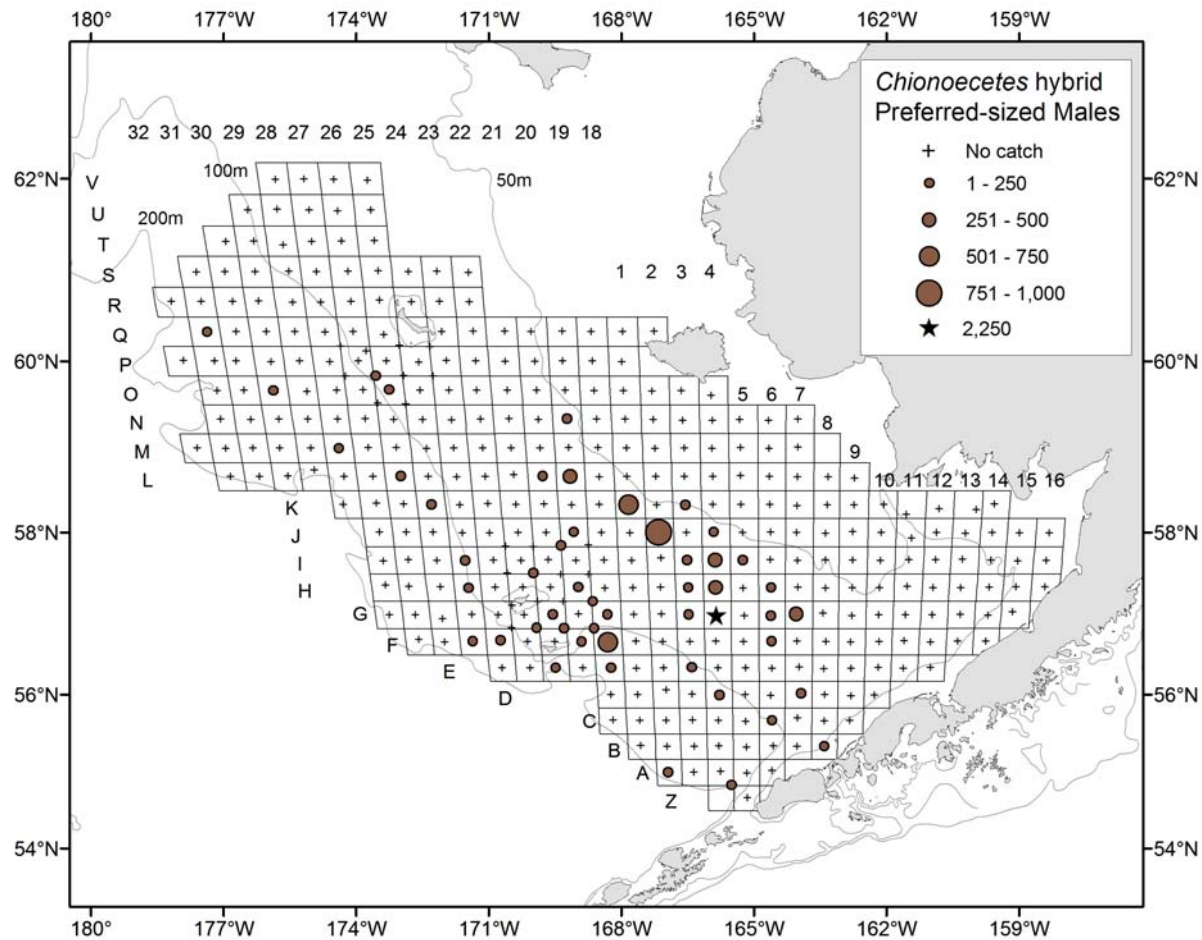


Figure 17. --Number of *Chionoecetes bairdi/opilio* hybrid crab caught per square nautical mile in 2008. Data depicted by circles are crab densities at equal intervals, while stars are crab densities larger than the standard scale.

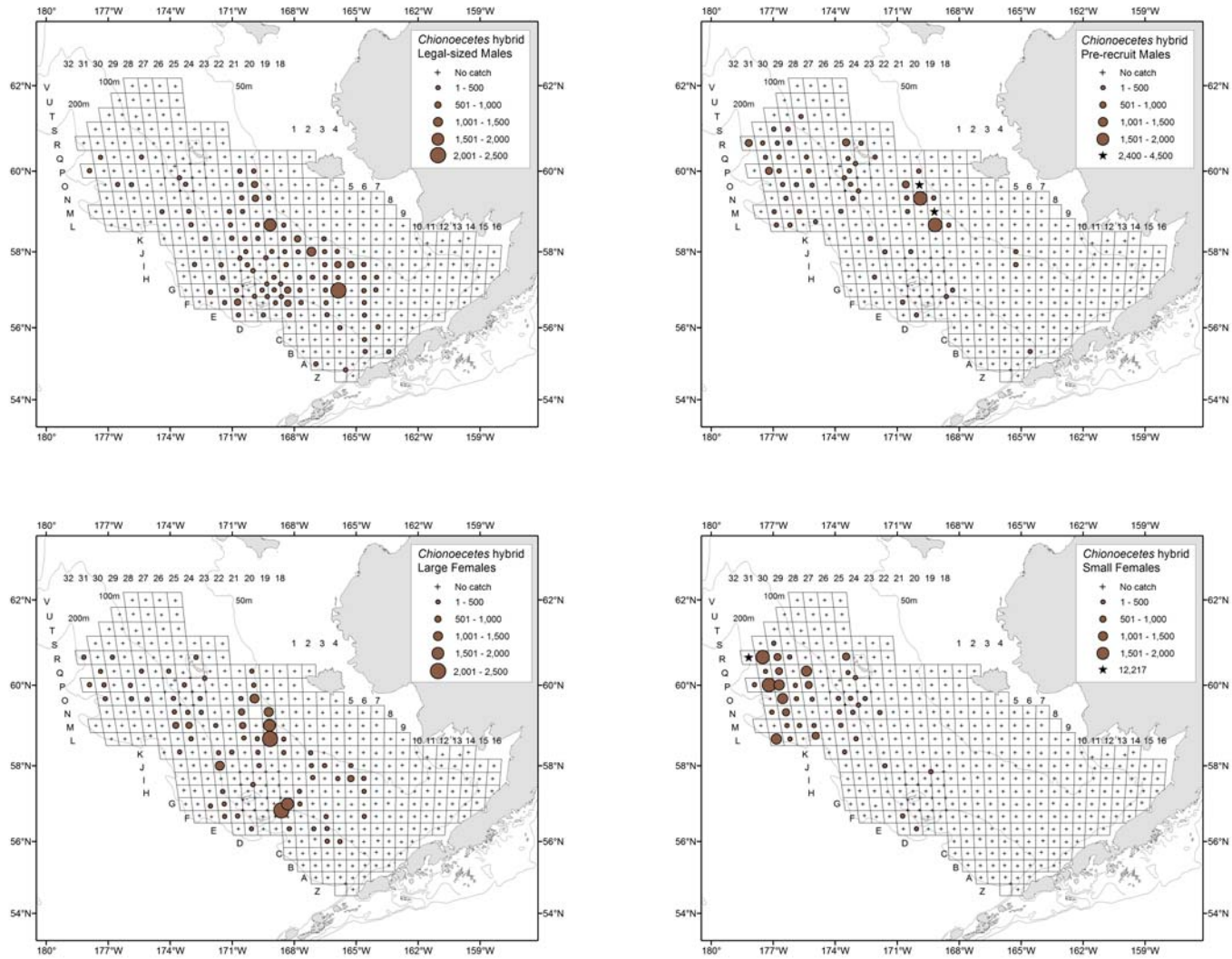


Figure 18. --Number of *Chionoecetes bairdi/opilio* hybrid crab caught per square nautical mile in 2008. Data depicted by circles are crab densities at equal intervals, while stars are crab densities larger than the standard scale.

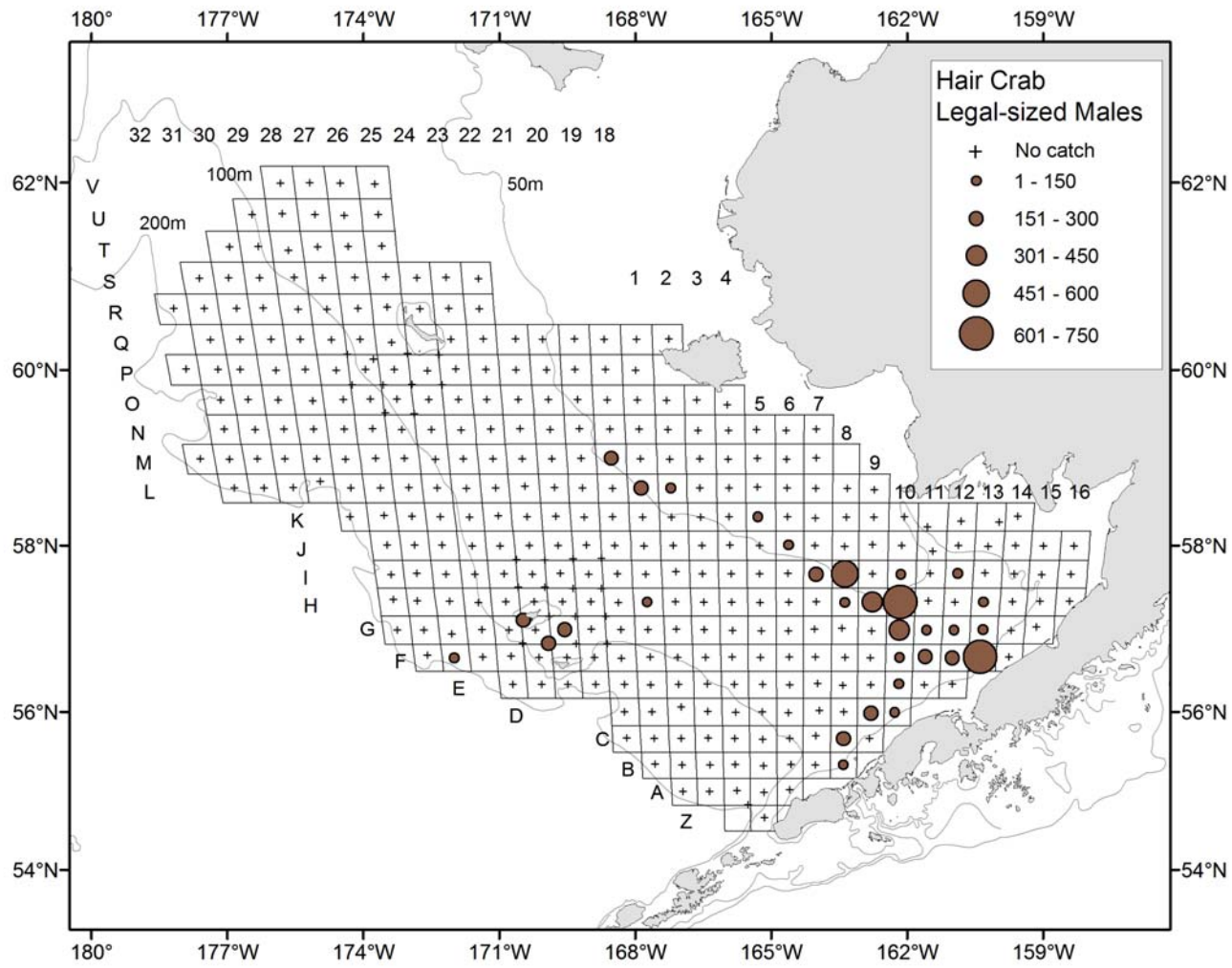


Figure 19. --Number of hair crab (*Erimacrus isenbeckii*) caught per square nautical mile in 2008.

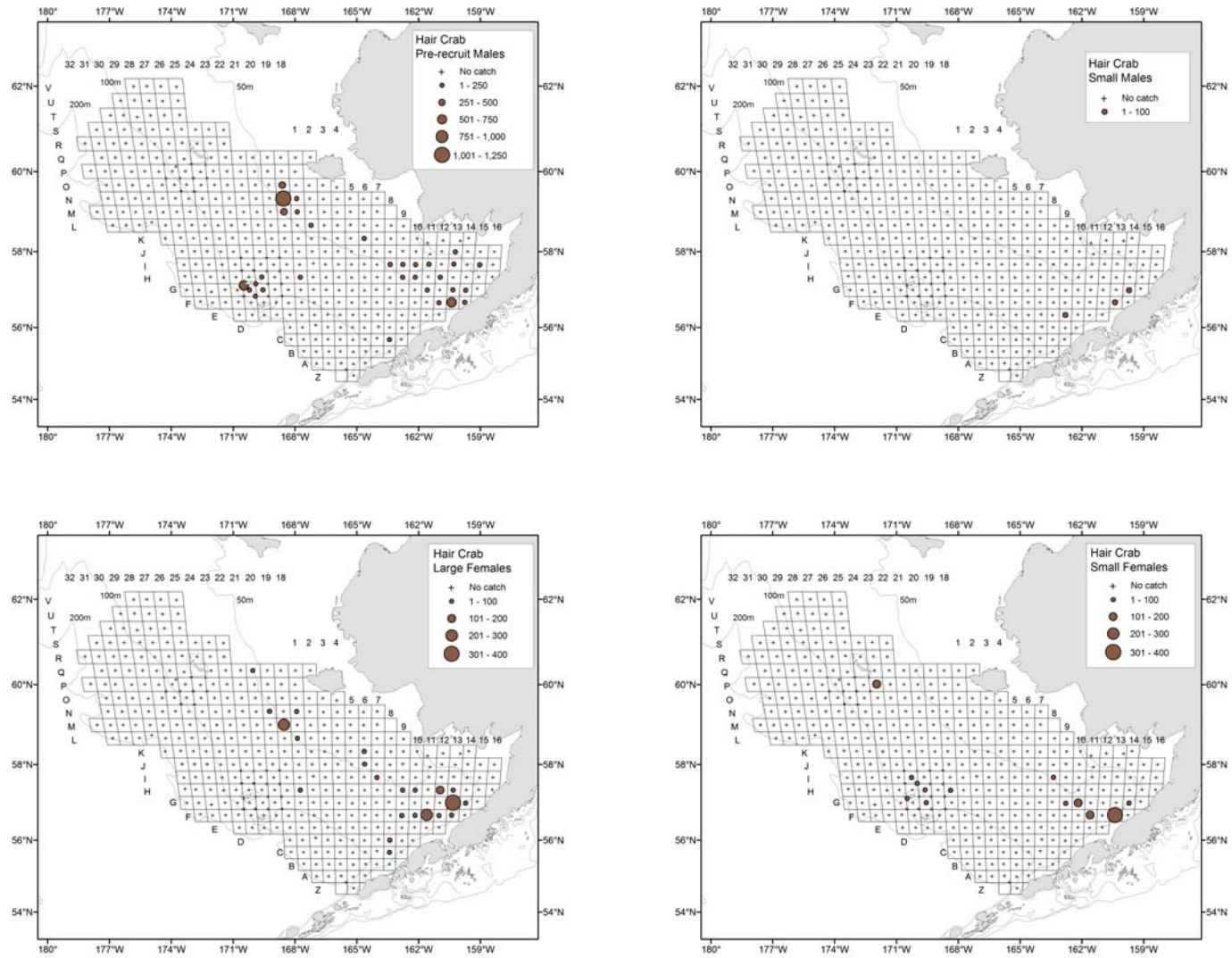


Figure 20. --Number of hair crab (*Erimacrus isenbeckii*) caught per square nautical mile in 2008.

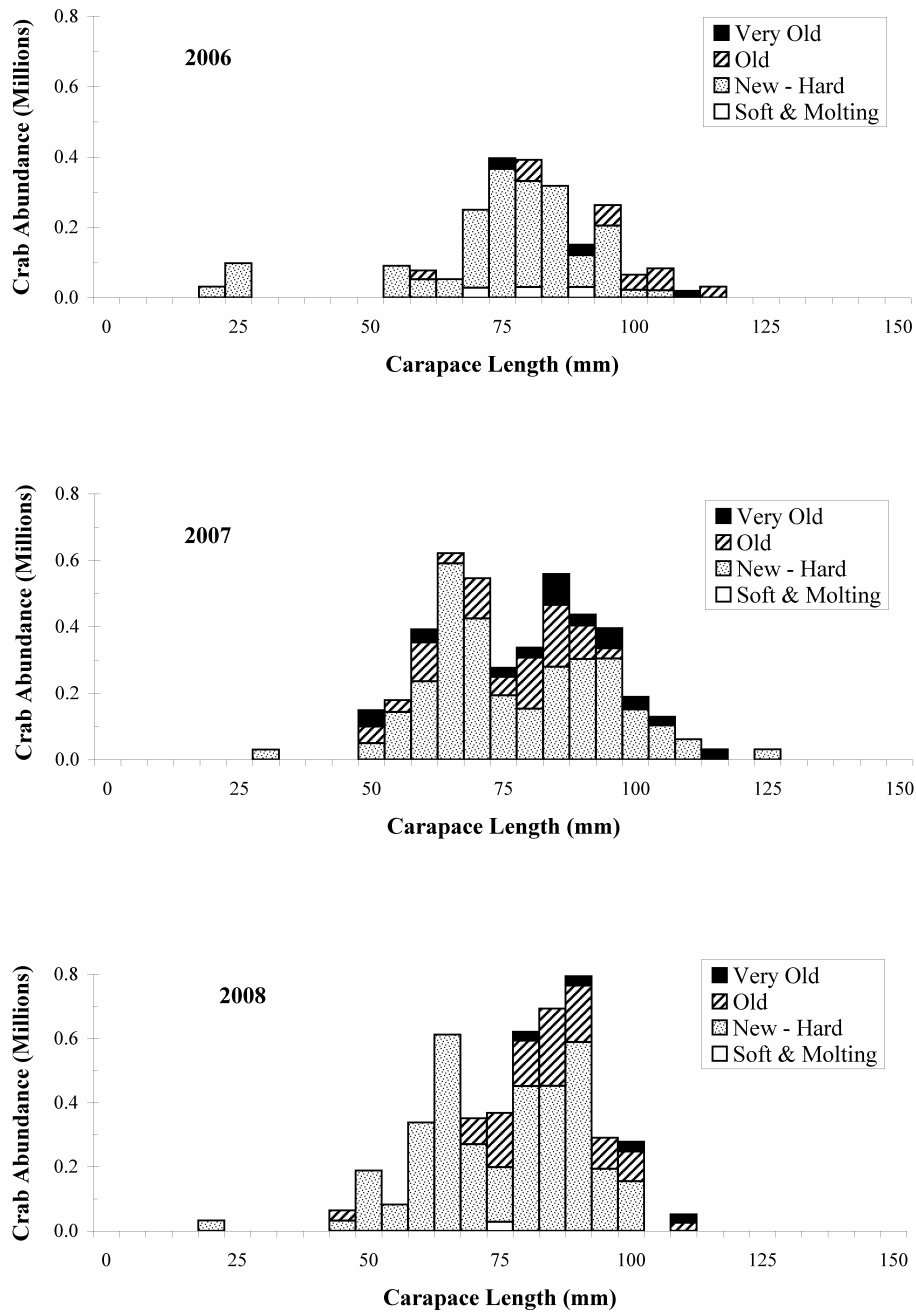


Figure 21. --Size-frequency of male hair crab (*Erimacrus isenbeckii*) by 5 mm length classes of all districts combined, 2006-2008.

Appendix A. Tow details for every successful tow at each station surveyed on the 2008 eastern Bering Sea bottom trawl survey.

Start Date	Station	Minutes Fishing	Distance Fished (km)	Start Latitude °N	Start Longitude °W	End Latitude °N	End Longitude °W	Bottom Depth (meters)	Bottom Temperature °C
6/4/2008	J16	30.6	2.79	57.98	158.33	58.01	158.30	33	2.2
6/4/2008	H15	30	2.71	57.33	159.06	57.36	159.08	50	1.3
6/4/2008	I15	30	2.84	57.65	159.01	57.66	159.04	47	1.1
6/4/2008	H16	30.6	2.79	57.33	158.42	57.35	158.41	30	2.2
6/4/2008	I16	30	2.70	57.65	158.39	57.68	158.38	34	1.9
6/4/2008	G15	30	2.85	57.04	159.13	57.03	159.17	36	2.1
6/5/2008	K14	31.8	2.79	58.35	159.56	58.33	159.55	27	2.3
6/5/2008	K13	30.6	2.88	58.28	159.97	58.26	159.96	43	1.3
6/5/2008	J13	30	2.74	58.00	160.21	57.98	160.21	52	1.2
6/5/2008	I13	30	2.67	57.69	160.28	57.67	160.27	55	0.9
6/5/2008	H13	30.6	3.03	57.34	160.30	57.32	160.34	61	0.8
6/5/2008	J14	31.2	2.83	58.00	159.59	58.00	159.63	42	1.1
6/5/2008	I14	30.6	2.74	57.68	159.63	57.65	159.63	51	1.2
6/5/2008	H14	30.6	2.75	57.35	159.67	57.32	159.68	56	1.1
6/5/2008	G14	30.6	2.91	57.00	159.69	56.98	159.71	54	1.3
6/5/2008	J15	31.2	3.00	58.01	158.98	57.98	158.99	43	1.2
6/6/2008	G13	30.6	2.87	57.01	160.31	57.00	160.34	64	0.9
6/6/2008	H12	31.2	2.74	57.32	160.94	57.35	160.95	60	0.8
6/6/2008	G12	30.6	2.82	56.99	160.95	57.01	160.98	65	1.1
6/6/2008	F13	30	2.70	56.67	160.37	56.67	160.41	61	1.3
6/6/2008	F14	30.6	2.76	56.68	159.74	56.67	159.78	38	2.8
6/6/2008	I12	30	2.69	57.66	160.89	57.68	160.89	55	1
6/6/2008	F12	30.6	2.75	56.67	160.98	56.65	161.02	69	1.2
6/6/2008	E12	30	2.65	56.35	160.99	56.34	161.02	56	2.2
6/6/2008	E11	31.2	2.82	56.33	161.64	56.33	161.59	64	1.8
6/7/2008	J10	30.6	2.78	58.01	162.11	57.99	162.11	37	1.5
6/7/2008	F11	30	2.78	56.67	161.60	56.69	161.60	88	0.7
6/7/2008	G11	30	2.67	56.99	161.57	57.01	161.56	70	0.8
6/7/2008	H11	30	2.75	57.33	161.53	57.36	161.53	57	1
6/7/2008	K12	15	1.41	58.29	160.82	58.28	160.80	32	2.9
6/7/2008	K11	29.4	2.75	58.23	161.55	58.21	161.55	41	3.5
6/7/2008	K10	30.6	2.75	58.33	162.04	58.34	162.08	47	3.5
6/7/2008	I11	30.6	2.75	57.66	161.50	57.68	161.49	54	1.2
6/7/2008	J12	30.6	2.87	57.99	160.85	58.01	160.88	46	1.6
6/8/2008	I10	30.6	2.87	57.68	162.13	57.65	162.14	48	1.4
6/8/2008	G09	30.6	2.86	57.00	162.78	56.97	162.78	61	0.7
6/8/2008	H09	28.8	2.68	57.34	162.75	57.32	162.78	51	1.1
6/8/2008	I09	30.6	2.84	57.67	162.74	57.67	162.79	46	1.3
6/8/2008	J11	15.6	1.51	57.93	161.44	57.94	161.42	42	1.8
6/8/2008	H10	30	2.74	57.34	162.15	57.32	162.16	51	1.1

Appendix A. Tow details for every successful tow at each station surveyed on the 2008 eastern Bering Sea bottom trawl survey.

Start Date	Station	Minutes Fishing	Distance Fished (km)	Start Latitude °N	Start Longitude °W	End Latitude °N	End Longitude °W	Bottom Depth (meters)	Bottom Temperature °C
6/8/2008	G10	31.2	2.83	57.01	162.18	56.98	162.18	60	0.9
6/8/2008	F10	29.4	2.69	56.68	162.16	56.65	162.16	73	0.9
6/8/2008	E10	30.6	2.79	56.35	162.18	56.33	162.19	79	1.9
6/8/2008	D10	30	2.83	56.00	162.26	55.99	162.29	71	2.6
6/9/2008	F08	30.6	2.80	56.67	163.39	56.66	163.35	76	0.5
6/9/2008	C09	30	2.86	55.67	162.81	55.67	162.85	51	3.2
6/9/2008	D09	30	2.73	56.00	162.80	55.97	162.80	81	1.4
6/9/2008	F09	30	2.67	56.66	162.83	56.66	162.79	72	1.3
6/9/2008	E08	30.6	2.73	56.34	163.41	56.31	163.42	84	0.4
6/9/2008	D08	30	2.73	56.01	163.39	55.99	163.40	87	1.1
6/9/2008	C08	30.6	2.73	55.68	163.40	55.65	163.41	83	1.9
6/9/2008	B08	30	2.78	55.35	163.39	55.33	163.43	53	3.4
6/9/2008	E09	30	2.75	56.34	162.80	56.32	162.80	79	1.9
6/10/2008	B08	30	2.71	55.36	163.53	55.36	163.57	58	3.4
6/10/2008	A06	31.2	2.87	55.04	164.58	55.01	164.60	65	3.6
6/10/2008	B07	31.2	2.81	55.35	164.00	55.33	164.04	77	2.8
6/10/2008	B08	30.6	2.87	55.26	163.42	55.26	163.46	49	3.7
6/10/2008	B08	30	2.71	55.41	163.44	55.42	163.40	60	3.1
6/10/2008	C07	30.6	2.77	55.69	164.01	55.72	164.02	94	1.6
6/10/2008	D07	31.2	2.80	56.00	163.94	56.03	163.94	91	1.1
6/10/2008	B06	30.6	2.77	55.35	164.54	55.33	164.57	101	2.5
6/11/2008	A05	31.2	2.84	55.01	165.16	54.98	165.15	111	3.6
6/11/2008	A04	31.2	2.85	54.84	165.53	54.83	165.49	153	3.3
6/11/2008	E07	29.4	2.74	56.34	163.97	56.36	163.97	86	0.7
6/11/2008	F07	30	2.82	56.66	164.02	56.69	164.03	74	0.2
6/11/2008	G07	30	2.77	57.00	164.04	57.02	164.05	69	0.4
6/11/2008	H08	29.4	2.71	57.32	163.39	57.34	163.37	55	1.1
6/11/2008	Z05	30.6	2.74	54.68	165.15	54.66	165.15	83	4
6/11/2008	G08	30.6	2.85	57.02	163.46	57.02	163.41	67	1.1
6/12/2008	C06	31.2	2.82	55.66	164.59	55.68	164.59	96	2.3
6/12/2008	G06	30.6	2.85	56.97	164.62	57.00	164.61	70	0
6/12/2008	F06	31.2	2.82	56.66	164.61	56.68	164.58	74	0.3
6/12/2008	D06	31.2	2.85	55.98	164.62	56.00	164.61	92	0.8
6/12/2008	J08	30.6	2.82	57.98	163.40	58.00	163.37	44	1.8
6/12/2008	I08	30.6	2.83	57.66	163.36	57.67	163.39	48	1.6
6/12/2008	J09	30	2.75	58.01	162.79	58.01	162.74	41	2
6/12/2008	K09	30.6	2.86	58.33	162.75	58.34	162.71	33	2.6
6/12/2008	K08	30	2.75	58.33	163.31	58.32	163.36	38	2.6
6/12/2008	E06	30	2.72	56.32	164.59	56.34	164.58	86	0.6
6/13/2008	H06	30.6	2.84	57.33	164.58	57.33	164.63	65	0.6

Appendix A. Tow details for every successful tow at each station surveyed on the 2008 eastern Bering Sea bottom trawl survey.

Start Date	Station	Minutes Fishing	Distance Fished (km)	Start Latitude °N	Start Longitude °W	End Latitude °N	End Longitude °W	Bottom Depth (meters)	Bottom Temperature °C
6/13/2008	K06	31.2	2.86	58.32	164.64	58.35	164.63	44	1.7
6/13/2008	I06	30	2.73	57.66	164.62	57.68	164.62	53	1.1
6/13/2008	L09	31.2	2.88	58.64	162.71	58.66	162.74	28	3.3
6/13/2008	H07	31.8	2.89	57.34	163.97	57.34	164.02	62	0.8
6/13/2008	J06	31.2	2.86	58.00	164.62	58.02	164.62	43	1.6
6/13/2008	N07	30.6	2.83	59.32	164.01	59.35	164.00	22	4.2
6/13/2008	L08	30.6	2.88	58.66	163.30	58.66	163.35	32	2.6
6/14/2008	L06	30	2.78	58.66	164.65	58.68	164.64	38	1.9
6/14/2008	M05	31.2	2.84	59.02	165.30	58.99	165.30	28	2.3
6/14/2008	N05	31.8	3.01	59.33	165.29	59.33	165.35	21	2.8
6/14/2008	N06	31.8	2.87	59.31	164.67	59.33	164.66	23	4.4
6/14/2008	M06	30.6	2.80	58.98	164.65	59.01	164.65	28	2.4
6/14/2008	K07	29.4	2.74	58.33	164.01	58.31	164.03	41	1.9
6/14/2008	L07	30	2.82	58.68	164.01	58.65	164.01	36	2.3
6/14/2008	I07	30	2.69	57.67	164.02	57.65	164.01	52	1.5
6/14/2008	J07	30.6	2.75	58.01	164.03	57.99	164.04	47	1.7
6/14/2008	M07	31.2	2.82	59.02	164.01	59.00	164.01	29	3.2
6/15/2008	L05	30	2.76	58.69	165.31	58.66	165.30	39	1.7
6/15/2008	I04	30.6	2.81	57.68	165.88	57.66	165.88	64	0.6
6/15/2008	I05	31.2	2.86	57.68	165.25	57.66	165.26	60	0.9
6/15/2008	K05	31.2	2.86	58.35	165.29	58.32	165.29	45	1.6
6/15/2008	E05	29.4	2.67	56.35	165.19	56.33	165.19	87	0.2
6/15/2008	J05	30.6	2.81	58.01	165.25	57.99	165.25	50	1.4
6/15/2008	H05	30	2.85	57.34	165.23	57.32	165.26	68	0.7
6/15/2008	F05	30.6	2.79	56.68	165.23	56.65	165.24	75	0.1
6/15/2008	G05	30	2.78	57.00	165.22	56.98	165.22	72	0
6/16/2008	G04	31.8	2.89	57.00	165.85	56.98	165.85	72	0.2
6/16/2008	E04	31.2	2.85	56.35	165.81	56.32	165.81	91	1.3
6/16/2008	H04	30.6	2.79	57.34	165.87	57.32	165.87	69	0.6
6/16/2008	F04	30.6	2.79	56.68	165.85	56.66	165.86	78	-0.3
6/16/2008	D05	30	2.77	56.01	165.19	55.99	165.19	97	2.6
6/16/2008	C05	27	2.54	55.67	165.18	55.65	165.19	105	
6/16/2008	B05	30	2.75	55.33	165.18	55.32	165.15	107	
6/19/2008	D04	31.8	2.87	55.98	165.79	56.01	165.79	107	2.9
6/19/2008	C04	31.2	2.82	55.66	165.80	55.68	165.81	117	3
6/19/2008	A04	31.8	2.87	55.00	165.76	55.02	165.75	130	3.8
6/19/2008	A03	16.2	1.47	55.00	166.37	55.00	166.35	143	3.4
6/19/2008	C03	30	2.71	55.66	166.38	55.69	166.38	126	3.2
6/19/2008	B03	30.6	2.84	55.32	166.34	55.35	166.35	132	3.2
6/19/2008	B04	30	2.76	55.33	165.79	55.36	165.79	119	3.3



Appendix A. Tow details for every successful tow at each station surveyed on the 2008 eastern Bering Sea bottom trawl survey.

Start Date	Station	Minutes Fishing	Distance Fished (km)	Start Latitude °N	Start Longitude °W	End Latitude °N	End Longitude °W	Bottom Depth (meters)	Bottom Temperature °C
6/20/2008	D03	29.4	2.67	55.99	166.38	56.01	166.41	125	3.2
6/20/2008	I03	30.6	2.78	57.65	166.51	57.68	166.52	66	0.6
6/20/2008	F02	31.2	2.89	56.65	167.06	56.68	167.05	95	2.2
6/20/2008	G02	31.8	2.95	57.00	167.09	57.02	167.10	73	0.7
6/20/2008	E02	30	2.81	56.33	167.04	56.35	167.05	113	2.9
6/20/2008	E03	30.6	2.76	56.33	166.41	56.35	166.41	103	2.8
6/20/2008	F03	30.6	2.78	56.65	166.44	56.68	166.44	84	0.7
6/20/2008	G03	31.2	2.87	56.99	166.47	57.01	166.48	74	0.7
6/20/2008	H03	30.6	2.75	57.32	166.49	57.34	166.49	70	0.7
6/20/2008	D02	30	2.81	56.05	166.98	56.07	167.00	132	3
6/21/2008	J02	31.2	2.94	57.99	167.16	58.01	167.16	64	0.5
6/21/2008	K02	32.4	2.98	58.32	167.19	58.34	167.20	52	0.8
6/21/2008	I02	30	2.76	57.68	167.10	57.71	167.09	68	0.6
6/21/2008	H02	31.2	2.94	57.32	167.11	57.35	167.11	71	0.7
6/21/2008	J04	31.8	2.85	57.99	165.91	58.02	165.90	56	1
6/21/2008	J03	30.6	2.77	57.99	166.53	58.01	166.53	62	0.8
6/21/2008	K03	30.6	2.79	58.34	166.55	58.32	166.56	48	1.3
6/21/2008	K04	30.6	2.84	58.32	165.93	58.35	165.93	44	1.7
6/22/2008	L02	31.2	2.90	58.65	167.22	58.68	167.22	43	1.3
6/22/2008	N03	22.2	2.07	59.31	166.61	59.33	166.62	29	3.3
6/22/2008	M02	30	2.74	58.99	167.24	59.01	167.23	40	1.5
6/22/2008	L03	31.2	2.95	58.66	166.58	58.68	166.55	42	1.6
6/22/2008	O03	31.2	2.96	59.66	166.62	59.67	166.67	28	3.4
6/22/2008	O04	31.2	2.84	59.60	165.97	59.62	165.97	27	3.6
6/22/2008	L04	30	2.75	58.65	165.93	58.68	165.93	37	2.3
6/22/2008	N04	31.2	2.86	59.31	165.94	59.34	165.94	25	3.6
6/22/2008	M04	30.6	2.83	58.98	165.95	59.01	165.95	30	2.9
6/22/2008	M03	30.6	2.87	58.99	166.58	59.01	166.58	34	2.4
6/23/2008	P18	21.6	1.97	60.01	168.65	59.99	168.66	39	1.7
6/23/2008	N02	30.6	2.77	59.32	167.27	59.34	167.28	32	2.3
6/23/2008	P01	30.6	2.81	59.98	167.99	60.00	167.99	26	2.5
6/23/2008	O02	30.6	2.83	59.65	167.29	59.67	167.32	31	2.3
6/23/2008	O01	30	2.78	59.65	167.95	59.68	167.96	32	0
6/23/2008	Q02	31.2	2.90	60.33	167.29	60.34	167.24	30	3.4
6/23/2008	Q01	31.2	2.87	60.33	167.95	60.34	168.00	31	2.7
6/23/2008	Q18	30.6	2.83	60.33	168.66	60.34	168.71	37	1.7
6/23/2008	Q19	31.8	2.96	60.34	169.32	60.33	169.37	44	0.2
6/23/2008	P19	31.2	2.87	60.02	169.33	59.99	169.33	46	0.4
6/24/2008	N01	29.4	2.72	59.35	167.92	59.32	167.91	40	1.3
6/24/2008	N18	31.2	2.92	59.35	168.57	59.33	168.54	42	1

Appendix A. Tow details for every successful tow at each station surveyed on the 2008 eastern Bering Sea bottom trawl survey.

Start Date	Station	Minutes Fishing	Distance Fished (km)	Start Latitude °N	Start Longitude °W	End Latitude °N	End Longitude °W	Bottom Depth (meters)	Bottom Temperature °C
6/24/2008	L18	30.6	2.80	58.68	168.49	58.65	168.50	53	0.5
6/24/2008	M18	31.2	2.83	59.02	168.53	58.99	168.52	46	0.7
6/24/2008	O18	30	2.73	59.67	168.63	59.65	168.61	39	1.4
6/24/2008	M01	30.6	2.83	59.01	167.88	58.99	167.88	42	1.3
6/24/2008	L01	31.2	2.81	58.68	167.87	58.65	167.87	47	1
6/24/2008	K01	30.6	2.84	58.34	167.83	58.32	167.84	60	0.5
6/24/2008	O19	30.6	2.87	59.68	169.26	59.66	169.27	47	-0.1
6/25/2008	J18	31.2	2.87	58.01	168.43	57.99	168.47	69	0.5
6/25/2008	K18	30.6	2.85	58.35	168.48	58.33	168.52	65	0
6/25/2008	J01	30.6	2.76	58.01	167.80	57.98	167.81	67	0.6
6/25/2008	I18	32.4	2.97	57.67	168.38	57.66	168.41	71	0.2
6/25/2008	H01	31.8	2.84	57.34	167.72	57.32	167.75	73	0.2
6/25/2008	H19	30.6	2.85	57.51	168.72	57.49	168.76	71	0.4
6/25/2008	J19	32.4	2.92	57.86	168.72	57.84	168.76	71	-0.3
6/25/2008	G01	31.2	2.90	57.01	167.70	56.99	167.73	77	0.4
6/25/2008	I01	30.6	2.75	57.68	167.76	57.65	167.78	69	0.7
6/26/2008	H20	30	2.81	57.51	169.35	57.49	169.38	71	0.3
6/26/2008	G19	31.2	2.87	57.16	168.63	57.17	168.67	76	0.4
6/26/2008	H18	31.8	2.92	57.34	168.36	57.32	168.40	74	0.4
6/26/2008	G18	30.6	2.81	57.00	168.29	57.00	168.33	81	0.7
6/26/2008	G19	30.6	2.82	57.01	168.94	57.01	168.99	80	0.5
6/26/2008	I19	30.6	2.74	57.65	169.03	57.67	169.02	69	-0.4
6/26/2008	H19	30	2.75	57.32	168.98	57.35	168.98	70	0.5
6/26/2008	G20	30.6	2.83	56.99	169.57	57.01	169.54	61	1
6/26/2008	G20	31.8	2.82	57.15	169.32	57.18	169.33	72	0.5
6/26/2008	H20	30.6	2.74	57.32	169.60	57.35	169.60	63	0.9
6/28/2008	G22	30.6	2.85	57.11	170.45	57.12	170.50	49	1.9
6/28/2008	H21	30	2.79	57.33	170.24	57.34	170.21	55	2.1
6/28/2008	I21	29.4	2.79	57.66	170.29	57.67	170.24	73	0.8
6/28/2008	I22	31.8	2.88	57.50	170.58	57.52	170.58	75	1.1
6/28/2008	G21	30.6	2.70	57.15	169.91	57.17	169.89	49	2.5
6/28/2008	I21	30	2.75	57.51	170.01	57.51	169.97	69	1
6/28/2008	I20	30.6	2.80	57.66	169.65	57.69	169.65	70	0.5
6/28/2008	J20	31.2	2.88	57.83	169.38	57.85	169.36	66	0.2
6/28/2008	J19	30.6	2.76	57.99	169.07	58.02	169.07	70	-0.3
6/29/2008	L19	30.6	2.78	58.65	169.16	58.68	169.16	62	-0.1
6/29/2008	J20	30	2.77	57.99	169.70	58.01	169.71	69	0.1
6/29/2008	L20	31.2	2.83	58.66	169.78	58.69	169.78	67	-0.9
6/29/2008	N19	30.6	2.85	59.33	169.23	59.35	169.23	50	-0.3
6/29/2008	I21	31.2	2.92	57.82	170.02	57.84	169.98	72	0.2

Appendix A. Tow details for every successful tow at each station surveyed on the 2008 eastern Bering Sea bottom trawl survey.

Start Date	Station	Minutes Fishing	Distance Fished (km)	Start Latitude °N	Start Longitude °W	End Latitude °N	End Longitude °W	Bottom Depth (meters)	Bottom Temperature °C
6/29/2008	M20	31.2	2.89	58.99	169.84	59.01	169.83	64	-0.9
6/29/2008	K20	30	2.81	58.33	169.74	58.35	169.75	69	-0.8
6/29/2008	M19	30.6	2.77	58.99	169.19	59.02	169.18	54	0.3
6/29/2008	K19	30	2.71	58.32	169.12	58.34	169.13	68	-0.2
6/30/2008	O20	31.2	2.85	59.66	169.92	59.68	169.92	56	-0.9
6/30/2008	O21	30.6	2.83	59.66	170.58	59.68	170.58	66	-1.5
6/30/2008	P20	30.6	2.79	59.99	169.95	60.01	169.96	54	-0.9
6/30/2008	N20	31.2	2.77	59.32	169.87	59.35	169.87	61	-1.3
6/30/2008	Q20	30.6	2.80	60.32	170.03	60.35	170.05	53	-1.3
6/30/2008	N21	30.6	2.87	59.33	170.53	59.35	170.55	68	-1.3
6/30/2008	P21	31.8	2.91	59.98	170.63	60.01	170.63	65	-1.5
6/30/2008	L21	31.2	2.89	58.68	170.43	58.70	170.43	73	-0.8
6/30/2008	Q21	31.2	2.82	60.34	170.61	60.34	170.66	61	-1.5
6/30/2008	M21	30.6	2.81	58.99	170.48	59.01	170.49	71	-1.2
7/1/2008	S22	31.2	2.87	60.98	171.43	61.00	171.48	59	-1.6
7/1/2008	P22	30	2.82	60.00	171.27	60.00	171.32	69	-1.4
7/1/2008	P24	31.2	2.86	59.99	172.61	59.99	172.56	66	-1.5
7/1/2008	Q22	30.6	2.76	60.32	171.35	60.35	171.35	66	-1.6
7/1/2008	R22	30.6	2.78	60.66	171.42	60.68	171.45	63	-1.6
7/1/2008	S24	30.6	2.78	61.00	172.79	61.00	172.84	66	-1.5
7/1/2008	S23	30.6	2.85	61.00	172.15	61.00	172.20	63	-1.6
7/1/2008	P23	23.4	2.17	60.02	171.98	60.00	171.95	65	-1.5
7/2/2008	Q23	31.2	2.86	60.35	172.07	60.32	172.07	59	-1.6
7/2/2008	R23	31.2	2.87	60.67	172.14	60.66	172.09	60	-1.6
7/2/2008	R24	30.6	2.84	60.67	172.77	60.66	172.73	46	-0.3
7/2/2008	P23	31.2	2.84	60.17	172.35	60.16	172.31	58	-0.6
7/2/2008	O25	33	3.03	59.83	173.59	59.83	173.53	95	-0.5
7/2/2008	P25	29.4	2.69	59.83	172.94	59.85	172.91	79	-1.2
7/2/2008	O25	31.2	2.88	59.68	173.28	59.67	173.24	94	-0.7
7/2/2008	O25	31.8	2.87	59.52	172.90	59.50	172.86	93	-0.7
7/2/2008	O26	28.8	2.68	59.51	173.50	59.53	173.53	100	
7/2/2008	O24	31.8	2.86	59.84	172.28	59.82	172.23	75	-1.2
7/3/2008	L22	30.6	2.75	58.68	171.08	58.65	171.08	82	-0.4
7/3/2008	O22	31.8	2.85	59.67	171.29	59.67	171.24	72	-1.4
7/3/2008	O24	30	2.77	59.68	172.57	59.66	172.54	85	-1.2
7/3/2008	M22	31.2	2.78	59.01	171.13	58.99	171.14	76	-1
7/3/2008	N24	31.8	2.85	59.34	172.51	59.32	172.48	87	-0.8
7/3/2008	N23	30	2.79	59.34	171.85	59.32	171.83	79	-1
7/3/2008	M23	30.6	2.79	59.01	171.79	58.99	171.80	86	0.2
7/3/2008	M24	22.8	2.13	58.99	172.39	59.00	172.42	97	0.7

Appendix A. Tow details for every successful tow at each station surveyed on the 2008 eastern Bering Sea bottom trawl survey.

Start Date	Station	Minutes Fishing	Distance Fished (km)	Start Latitude °N	Start Longitude °W	End Latitude °N	End Longitude °W	Bottom Depth (meters)	Bottom Temperature °C
7/3/2008	O23	31.2	2.80	59.67	171.92	59.67	171.87	77	-1.2
7/3/2008	N22	31.2	2.79	59.35	171.18	59.32	171.19	74	-1.3
7/4/2008	L24	29.4	2.73	58.67	172.39	58.67	172.35	102	1.2
7/4/2008	K21	31.8	2.88	58.35	170.39	58.32	170.38	74	-0.5
7/4/2008	K22	33.6	2.97	58.33	171.02	58.36	171.02	84	0.9
7/4/2008	J22	30.6	2.83	57.99	170.96	58.00	171.00	85	1.1
7/4/2008	J21	32.4	2.88	58.01	170.32	57.99	170.35	74	0.7
7/4/2008	K24	21	1.94	58.34	172.30	58.33	172.29	101	1.4
7/4/2008	K23	30.6	2.78	58.33	171.63	58.32	171.68	95	1.1
7/4/2008	L23	31.2	2.82	58.67	171.72	58.65	171.72	93	0.5
7/5/2008	F20	30.6	2.87	56.66	169.49	56.67	169.53	79	3
7/5/2008	G21	29.4	2.74	56.84	169.94	56.84	169.89	72	2.1
7/5/2008	G21	30	2.77	57.00	170.22	57.00	170.17	69	2.4
7/5/2008	G22	31.2	2.89	57.01	170.78	56.98	170.79	94	2.1
7/5/2008	G22	30.6	2.75	56.85	170.49	56.83	170.46	100	2.6
7/5/2008	I22	31.2	2.75	57.84	170.60	57.82	170.63	78	0.8
7/5/2008	H22	30.6	2.84	57.35	170.85	57.32	170.85	83	1.5
7/5/2008	I22	30	2.72	57.68	170.90	57.65	170.90	86	1.1
7/6/2008	E21	31.8	2.80	56.34	170.08	56.33	170.04	109	3.3
7/6/2008	F18	32.4	2.96	56.67	168.31	56.64	168.31	106	2
7/6/2008	F20	30	2.80	56.84	169.30	56.82	169.30	80	0.9
7/6/2008	F19	21.6	2.02	56.67	168.91	56.66	168.88	100	2.5
7/6/2008	E20	30.6	2.83	56.34	169.51	56.34	169.47	144	3.4
7/6/2008	F21	31.2	2.86	56.68	170.14	56.66	170.11	97	2.8
7/6/2008	F19	31.2	2.89	56.84	168.63	56.82	168.60	97	1.5
7/10/2008	D18	31.2	2.82	55.99	168.23	56.01	168.25	150	3.5
7/10/2008	C18	31.2	2.87	55.66	168.19	55.69	168.18	135	3.4
7/10/2008	C01	31.2	2.85	55.66	167.59	55.68	167.58	134	3.4
7/10/2008	B01	31.8	2.83	55.34	167.55	55.36	167.57	146	3.3
7/10/2008	A02	30	2.78	54.99	166.95	55.01	166.94	156	3.5
7/10/2008	B02	30	2.74	55.33	166.97	55.35	166.96	139	3.3
7/10/2008	C02	20.4	1.88	55.66	166.98	55.68	166.98	135	3.4
7/10/2008	D01	22.8	2.12	56.00	167.62	56.01	167.64	133	3.3
7/11/2008	E01	31.2	2.88	56.35	167.66	56.32	167.66	128	3.1
7/11/2008	G23	31.8	2.84	56.99	171.38	57.02	171.39	109	2.7
7/11/2008	F01	30.6	2.84	56.68	167.67	56.66	167.67	101	2.3
7/11/2008	F23	31.2	2.80	56.66	171.34	56.68	171.37	119	3
7/11/2008	E18	31.2	2.90	56.33	168.21	56.34	168.26	150	3.2
7/11/2008	H23	31.2	2.77	57.32	171.45	57.34	171.48	101	2.4
7/11/2008	F22	32.4	2.99	56.67	170.74	56.69	170.74	112	3

Appendix A. Tow details for every successful tow at each station surveyed on the 2008 eastern Bering Sea bottom trawl survey.

Start Date	Station	Minutes Fishing	Distance Fished (km)	Start Latitude °N	Start Longitude °W	End Latitude °N	End Longitude °W	Bottom Depth (meters)	Bottom Temperature °C
7/11/2008	E22	31.2	2.82	56.33	170.67	56.34	170.72	120	3.5
7/11/2008	E19	31.2	2.89	56.33	168.85	56.34	168.90	128	3
7/12/2008	G25	30	2.78	56.99	172.65	57.01	172.66	123	3
7/12/2008	G26	30.6	2.73	56.99	173.24	57.01	173.25	141	3.3
7/12/2008	F25	30.6	2.87	56.68	172.58	56.70	172.58	134	3.2
7/12/2008	F24	30.6	2.86	56.67	171.98	56.65	172.01	126	3.2
7/12/2008	G24	30.6	2.81	56.96	172.04	56.94	172.04	118	3
7/12/2008	J24	31.2	2.77	58.02	172.26	57.99	172.26	104	1.5
7/12/2008	I24	31.8	2.87	57.68	172.18	57.65	172.17	108	2.3
7/12/2008	H24	30.6	2.71	57.36	172.10	57.33	172.09	109	2.6
7/12/2008	I23	31.8	2.81	57.65	171.54	57.67	171.54	99	2
7/12/2008	J23	31.8	2.76	57.98	171.59	58.01	171.60	97	1.5
7/13/2008	L25	31.8	2.84	58.66	173.00	58.68	172.99	112	1.6
7/13/2008	H25	31.2	2.81	57.33	172.82	57.36	172.81	116	2.8
7/13/2008	I25	31.2	2.81	57.66	172.82	57.69	172.81	119	2.1
7/13/2008	K25	31.8	2.90	58.33	172.92	58.35	172.92	109	1.6
7/13/2008	J26	31.2	2.94	57.99	173.47	58.02	173.47	117	2
7/13/2008	J25	31.8	2.89	57.99	172.86	58.02	172.86	108	1.9
7/13/2008	I26	29.4	2.70	57.65	173.37	57.67	173.39	143	2.8
7/13/2008	K26	30	2.85	58.34	173.55	58.36	173.54	116	2
7/13/2008	L26	30.6	2.93	58.65	173.63	58.68	173.61	126	2
7/13/2008	H26	30	2.74	57.35	173.36	57.37	173.32	121	2.4
7/14/2008	M25	30.6	2.75	59.02	173.09	58.99	173.09	106	1.2
7/14/2008	M26	31.2	2.81	58.99	173.73	59.02	173.73	117	1.5
7/14/2008	N26	31.8	2.89	59.33	173.80	59.35	173.80	110	1.2
7/14/2008	O26	30.6	2.77	59.66	173.85	59.69	173.84	104	0.1
7/14/2008	O27	30.6	2.82	59.66	174.45	59.68	174.44	115	1.1
7/14/2008	N27	30	2.76	59.32	174.42	59.35	174.42	120	1.3
7/14/2008	M27	31.2	2.95	58.98	174.39	59.01	174.39	127	1.7
7/14/2008	L27	30	2.77	58.66	174.27	58.68	174.28	156	2.3
7/14/2008	K27	24.6	2.27	58.32	174.29	58.34	174.31	160	2.8
7/14/2008	N25	30.6	2.79	59.34	173.13	59.32	173.16	100	0.8
7/15/2008	R26	29.4	2.77	60.66	174.12	60.68	174.11	87	-1.2
7/15/2008	S25	31.2	2.85	60.99	173.51	61.02	173.50	76	-1.6
7/15/2008	R25	30.6	2.82	60.67	173.47	60.70	173.47	67	-1.4
7/15/2008	P25	31.8	2.83	60.01	173.31	59.99	173.32	74	-1.2
7/15/2008	P26	20.4	1.83	60.10	173.77	60.12	173.77	89	-0.8
7/15/2008	Q26	30.6	2.87	60.32	174.07	60.35	174.07	91	-0.4
7/15/2008	P26	30.6	2.84	59.99	173.97	60.01	173.93	97	-0.1
7/15/2008	O27	30.6	2.85	59.82	174.26	59.84	174.22	107	0.4

Appendix A. Tow details for every successful tow at each station surveyed on the 2008 eastern Bering Sea bottom trawl survey.

Start Date	Station	Minutes Fishing	Distance Fished (km)	Start Latitude °N	Start Longitude °W	End Latitude °N	End Longitude °W	Bottom Depth (meters)	Bottom Temperature °C
7/15/2008	Q25	13.2	1.13	60.30	173.38	60.29	173.38	62	-1.3
7/15/2008	Q25	31.2	2.85	60.19	173.04	60.17	173.00	60	-1.1
7/16/2008	V25	31.2	2.79	61.98	173.75	62.00	173.75	63	-1.6
7/16/2008	T27	29.4	2.75	61.33	174.98	61.33	175.03	88	-1.7
7/16/2008	U26	30.6	2.86	61.65	174.40	61.67	174.45	77	-1.6
7/16/2008	U25	30.6	2.78	61.66	173.67	61.68	173.67	70	-1.6
7/16/2008	V26	31.8	2.81	62.00	174.48	62.00	174.53	73	-1.6
7/16/2008	V27	31.2	2.82	62.00	175.16	62.00	175.21	80	-1.4
7/16/2008	T26	30.6	2.85	61.32	174.33	61.35	174.33	78	-1.7
7/16/2008	S26	30.6	2.79	60.99	174.19	61.02	174.19	83	-1.7
7/16/2008	U27	21	1.94	61.68	175.07	61.66	175.07	85	-1.4
7/16/2008	T25	31.8	2.88	61.33	173.58	61.35	173.59	74	-1.7
7/17/2008	U28	30.6	2.75	61.69	175.79	61.66	175.79	95	-1.3
7/17/2008	V28	31.2	2.83	62.01	175.83	61.99	175.83	92	-1
7/17/2008	T30	31.2	2.84	61.33	176.93	61.33	176.98	116	0.2
7/17/2008	T28	30	2.82	61.30	175.65	61.28	175.65	98	-1.2
7/17/2008	U29	31.2	2.83	61.68	176.44	61.66	176.47	104	-0.8
7/17/2008	T29	31.8	2.89	61.34	176.34	61.32	176.30	106	-0.6
7/17/2008	R28	30.6	2.88	60.67	175.43	60.65	175.45	107	-1.2
7/17/2008	S27	30.6	2.85	61.01	174.89	60.99	174.92	92	-1.6
7/17/2008	S28	29.4	2.73	61.00	175.55	61.00	175.50	102	-0.7
7/18/2008	P27	30.6	2.86	60.00	174.60	59.98	174.59	107	0.5
7/18/2008	Q27	29.4	2.71	60.34	174.72	60.32	174.69	103	-0.6
7/18/2008	R27	29.4	2.72	60.67	174.80	60.65	174.80	98	-1.6
7/18/2008	Q27	29.4	2.72	60.18	174.33	60.16	174.37	100	0.2
7/18/2008	S31	31.8	2.79	61.00	177.64	60.99	177.59	135	0.7
7/18/2008	S30	31.2	2.75	61.00	176.99	61.00	176.94	122	0.5
7/18/2008	S29	31.8	2.89	61.01	176.30	60.99	176.28	112	-0.3
7/18/2008	R30	32.4	2.95	60.67	176.77	60.67	176.82	129	0.7
7/18/2008	R29	31.2	2.78	60.69	176.21	60.66	176.20	118	0.1
7/19/2008	Q31	33	2.89	60.34	177.37	60.31	177.37	147	0.7
7/19/2008	R32	31.8	2.84	60.68	178.20	60.66	178.16	161	1.6
7/19/2008	P32	31.8	2.70	60.02	177.89	60.00	177.93	141	1
7/19/2008	R31	31.8	2.89	60.67	177.53	60.67	177.48	146	0.7
7/20/2008	P30	31.2	2.86	60.00	176.74	60.00	176.69	141	1
7/20/2008	I09	30.6	2.88	57.66	162.77	57.68	162.73	45	4.5
7/20/2008	I10	30.6	2.82	57.65	162.13	57.67	162.13	47	4
7/20/2008	J10	30.6	2.82	58.01	162.15	58.00	162.10	38	5.7
7/20/2008	J11	30	2.77	58.01	161.48	57.98	161.47	54	4.8
7/20/2008	P31	31.2	2.80	60.00	177.23	60.00	177.18	137	1

Appendix A. Tow details for every successful tow at each station surveyed on the 2008 eastern Bering Sea bottom trawl survey.

Start Date	Station	Minutes Fishing	Distance Fished (km)	Start Latitude °N	Start Longitude °W	End Latitude °N	End Longitude °W	Bottom Depth (meters)	Bottom Temperature °C
7/20/2008	Q30	31.8	2.83	60.34	176.74	60.33	176.69	137	0.9
7/20/2008	I08	30.6	2.82	57.67	163.35	57.68	163.30	47	4.2
7/20/2008	Q28	32.4	2.91	60.33	175.41	60.33	175.36	111	0.4
7/20/2008	Q29	31.2	2.79	60.33	176.06	60.34	176.01	121	0.7
7/21/2008	G13	30.6	2.95	57.01	160.34	56.99	160.36	64	3.2
7/21/2008	O30	31.8	2.86	59.67	176.51	59.67	176.56	136	1.2
7/21/2008	O29	31.8	2.84	59.66	175.86	59.67	175.91	137	1.4
7/21/2008	P29	31.8	2.91	59.99	175.95	59.99	175.90	130	1.2
7/21/2008	P28	31.8	2.82	60.00	175.30	60.00	175.25	118	0.9
7/21/2008	F13	30.6	2.82	56.67	160.36	56.65	160.39	58	4.2
7/21/2008	H13	31.2	2.85	57.34	160.27	57.33	160.31	62	3.6
7/21/2008	I13	30	2.77	57.68	160.28	57.67	160.24	55	4.2
7/21/2008	J13	30.6	2.84	58.00	160.25	57.99	160.21	51	4.2
7/21/2008	J12	30.6	2.82	58.00	160.88	58.00	160.84	46	4.1
7/21/2008	O28	32.4	2.90	59.67	175.12	59.64	175.12	126	1.3
7/22/2008	N30	31.2	2.78	59.33	176.40	59.33	176.36	135	1.3
7/22/2008	F12	30	2.79	56.66	160.99	56.68	161.00	67	3
7/22/2008	G12	30	2.77	56.99	160.94	57.02	160.95	65	2.6
7/22/2008	H12	30.6	2.83	57.32	160.93	57.35	160.92	64	2.5
7/22/2008	I12	30	2.73	57.66	160.88	57.68	160.88	56	2.6
7/22/2008	O31	31.2	2.78	59.68	177.15	59.65	177.14	173	2.2
7/22/2008	N31	31.2	2.86	59.34	177.09	59.33	177.04	150	2.2
7/22/2008	N29	30.6	2.78	59.34	175.77	59.34	175.72	136	1.6
7/22/2008	E12	30.6	2.78	56.31	161.01	56.34	161.01	52	6.8
7/22/2008	N28	31.2	2.88	59.34	175.12	59.34	175.07	132	1.4
7/23/2008	H09	30	2.80	57.33	162.74	57.33	162.79	49	3.5
7/23/2008	M28	33	2.98	58.99	175.03	59.01	175.03	130	1.7
7/23/2008	M30	30.6	2.76	59.00	176.31	59.00	176.36	135	1.6
7/23/2008	M29	31.2	2.84	59.00	175.70	59.00	175.75	133	1.7
7/23/2008	M31	30.6	2.75	59.00	176.93	59.00	176.98	137	2.2
7/23/2008	H08	30	2.79	57.35	163.39	57.33	163.38	53	3
7/23/2008	H10	30.6	2.80	57.33	162.14	57.34	162.19	51	4.1
7/23/2008	H11	30	2.75	57.34	161.52	57.33	161.56	56	2.6
7/23/2008	I11	30	2.76	57.69	161.49	57.66	161.51	53	3.6
7/23/2008	M32	31.2	2.89	59.00	177.57	59.00	177.62	134	2.2
7/24/2008	G08	30.6	2.79	57.01	163.41	57.00	163.37	65	2.1
7/24/2008	G09	30.6	2.84	57.02	162.81	57.00	162.77	60	2.4
7/24/2008	G10	31.2	2.88	56.98	162.17	56.96	162.14	62	2.6
7/24/2008	G11	30	2.75	56.94	161.60	56.93	161.56	71	2.3
7/24/2008	F11	30	2.74	56.68	161.59	56.67	161.56	90	2.5

Appendix A. Tow details for every successful tow at each station surveyed on the 2008 eastern Bering Sea bottom trawl survey.

Start Date	Station	Minutes Fishing	Distance Fished (km)	Start Latitude °N	Start Longitude °W	End Latitude °N	End Longitude °W	Bottom Depth (meters)	Bottom Temperature °C
7/24/2008	E11	26.4	2.46	56.34	161.62	56.32	161.62	64	5.2
7/24/2008	L31	31.2	2.81	58.67	176.87	58.67	176.82	136	2.3
7/24/2008	L29	30.6	2.86	58.67	175.57	58.67	175.52	136	2.2
7/24/2008	L28	31.8	2.94	58.74	174.98	58.75	174.93	144	2.5
7/24/2008	L30	30.6	2.78	58.67	176.21	58.67	176.17	140	2.4
7/25/2008	F10	30.6	2.84	56.65	162.14	56.66	162.19	74	2
7/25/2008	E10	30.6	2.81	56.33	162.21	56.35	162.18	79	3.1
7/25/2008	F09	31.2	2.88	56.66	162.79	56.66	162.83	72	2.4
7/25/2008	F08	30.6	2.87	56.66	163.35	56.66	163.39	75	1.9
7/25/2008	D10	30.6	2.83	56.00	162.26	55.98	162.30	71	4.2



Appendix B1. Summary of crab density by tow (number/nm<sup>2</sup>) for red king crab (*Paralithodes camtschaticus*).

Station	Date	N. Lat.	W. Long	Fathoms	Males				Females			GRAND TOTAL
					Legal	Prerecruit	Small	Total	Large	Small	Total	
B08	6/10/2008	55 24.9	163 25.3	32	4905	4739	416	10060	90789	83	90872	100932
B08	6/9/2008	55 20.3	163 24.6	27	11407	6715	81	18202	2346	0	2346	20548
B08	6/10/2008	55 15.7	163 26.5	25	783	78	0	862	392	0	392	1253
B08	6/10/2008	55 21.5	163 33.0	30	1330	249	0	1580	83	0	83	1663
C07	6/10/2008	55 42.2	164 0.6	50	0	81	0	81	0	0	0	81
C08	6/9/2008	55 39.8	163 24.4	43	1317	165	0	1482	0	0	0	1482
C09	6/9/2008	55 40.2	162 49.9	26	315	236	0	551	0	0	0	551
D09	6/9/2008	55 59.1	162 48.1	42	741	412	0	1153	165	0	165	1318
D10	7/25/2008	55 59.4	162 16.9	37	875	1592	4297	6765	13768	398	14166	20930
D10	6/8/2008	55 59.7	162 16.4	37	1988	5010	3579	10577	5646	398	6044	16621
E07	6/11/2008	56 20.9	163 58.2	45	82	0	0	82	0	0	0	82
E09	6/9/2008	56 19.8	162 48.0	41	82	164	0	246	82	0	82	328
E10	7/25/2008	56 20.6	162 11.6	42	1040	3759	480	5279	2799	0	2799	8078
E10	6/8/2008	56 20.4	162 11.1	41	969	1211	161	2341	404	0	404	2745
E11	6/6/2008	56 19.8	161 36.9	33	400	1119	80	1598	1678	0	1678	3277
E11	7/24/2008	56 19.9	161 37.4	33	1557	3572	2473	7603	29129	275	29403	37006
E12	6/6/2008	56 20.6	161 0.2	28	1614	1359	170	3144	10195	0	10195	13339
E12	7/22/2008	56 19.6	161 0.7	27	324	405	243	971	2752	81	2832	3804
F06	6/12/2008	56 40.3	164 35.7	39	1195	80	0	1275	80	0	80	1355
F07	6/11/2008	56 40.4	164 1.3	39	478	0	0	478	0	0	0	478
F08	6/9/2008	56 39.9	163 22.3	39	80	80	80	241	80	0	80	321
F09	6/9/2008	56 39.8	162 48.5	37	1181	3627	4724	9532	3796	169	3965	13497
F09	7/25/2008	56 39.7	162 48.7	38	235	391	156	782	156	0	156	939
F10	7/25/2008	56 39.3	162 9.8	39	476	317	397	1190	159	0	159	1349
F10	6/8/2008	56 39.9	162 9.7	38	669	418	251	1337	251	0	251	1588
F11	6/7/2008	56 40.7	161 36.0	46	1134	4780	4861	10775	2187	324	2511	13286
F11	7/24/2008	56 40.5	161 34.3	48	820	738	164	1722	82	0	82	1804
F12	6/6/2008	56 39.7	160 59.9	36	2617	1308	654	4580	7933	245	8178	12758
F12	7/22/2008	56 40.1	160 59.5	35	2828	4606	3394	10829	8081	1939	10021	20849
F13	7/21/2008	56 39.6	160 22.6	30	639	400	320	1359	3437	0	3437	4795
F13	6/6/2008	56 40.1	160 23.5	31	250	918	83	1252	3254	83	3338	4590
F14	6/6/2008	56 40.3	159 45.4	19	0	163	0	163	1060	0	1060	1223
G07	6/11/2008	57 0.5	164 2.6	36	163	81	0	244	0	0	0	244

Appendix B1. Summary of crab density by tow (number/nm<sup>2</sup>) for red king crab (*Paralithodes camtschaticus*).

Station	Date	N. Lat.	W. Long	Fathoms	Males				Females			GRAND TOTAL
					Legal	Prerecruit	Small	Total	Large	Small	Total	
G08	6/11/2008	57 1.1	163 26.1	34	158	79	0	237	0	0	0	237
G08	7/24/2008	57 0.3	163 23.4	34	323	242	0	564	0	0	0	564
G09	6/8/2008	56 59.2	162 47.0	31	0	709	315	1024	394	79	473	1497
G09	7/24/2008	57 0.7	162 47.2	31	0	475	396	871	317	0	317	1188
G10	7/24/2008	56 58.3	162 9.3	32	390	468	468	1327	468	0	468	1795
G10	6/8/2008	56 59.8	162 10.8	31	80	716	159	955	1353	0	1353	2309
G11	6/7/2008	56 60.0	161 33.9	36	253	674	337	1264	1264	253	1517	2781
G11	7/24/2008	56 56.1	161 34.8	37	572	818	1227	2617	736	0	736	3353
G12	7/22/2008	57 0.2	160 56.7	34	487	569	406	1462	162	0	162	1625
G12	6/6/2008	56 60.0	160 57.8	33	719	1199	559	2478	1439	0	1439	3916
G13	6/6/2008	57 0.3	160 19.5	33	392	705	0	1097	4465	157	4622	5719
G13	7/21/2008	57 0.1	160 21.0	33	764	1911	917	3592	3668	0	3668	7260
G14	6/5/2008	56 59.6	159 42.0	27	310	0	0	310	852	0	852	1161
G15	6/4/2008	57 2.0	159 9.0	18	0	79	79	158	158	0	158	316
G20	6/26/2008	57 0.0	169 33.3	31	159	0	0	159	398	0	398	557
G21	7/5/2008	56 59.9	170 11.6	36	1221	0	0	1221	81	0	81	1302
G21	6/28/2008	57 9.8	169 53.9	25	1666	83	0	1749	1000	83	1083	2832
G22	6/28/2008	57 6.8	170 28.4	25	946	946	1419	3312	5283	237	5520	8832
H05	6/15/2008	57 19.6	165 14.8	35	79	0	0	79	0	0	0	79
H06	6/13/2008	57 19.9	164 36.3	34	79	0	0	79	79	0	79	159
H07	6/13/2008	57 20.3	163 59.9	33	78	78	0	156	0	0	0	156
H08	6/11/2008	57 19.6	163 22.8	28	416	83	83	582	250	0	250	832
H08	7/23/2008	57 20.4	163 23.1	27	404	404	162	969	323	0	323	1293
H09	6/8/2008	57 19.9	162 46.1	26	84	0	252	336	504	0	504	840
H09	7/23/2008	57 20.0	162 45.8	25	482	1124	482	2088	1766	0	1766	3854
H10	7/23/2008	57 20.1	162 9.9	26	483	1368	1690	3540	3299	644	3943	7483
H10	6/8/2008	57 19.9	162 9.3	26	411	411	576	1398	1316	0	1316	2715
H11	6/7/2008	57 20.7	161 31.7	29	246	1228	1473	2946	1800	655	2455	5401
H11	7/23/2008	57 20.2	161 32.4	29	410	328	574	1311	1393	328	1721	3032
H12	7/22/2008	57 20.1	160 55.6	33	159	319	80	557	717	159	876	1433
H12	6/6/2008	57 20.0	160 56.8	31	574	1067	903	2544	4595	328	4923	7466
H13	6/5/2008	57 19.8	160 19.2	31	149	669	297	1115	967	149	1115	2231
H13	7/21/2008	57 20.2	160 17.6	32	316	1738	1185	3239	4424	237	4661	7900

Appendix B1. Summary of crab density by tow (number/nm<sup>2</sup>) for red king crab (*Paralithodes camtschaticus*).

Station	Date	N. Lat.	W. Long	Fathoms	Males				Females			GRAND TOTAL
					Legal	Prerecruit	Small	Total	Large	Small	Total	
H14	6/5/2008	57 20.1	159 40.4	28	0	82	246	327	655	246	901	1228
H15	6/4/2008	57 20.6	159 4.2	25	249	83	0	332	582	0	582	914
H16	6/4/2008	57 20.4	158 24.7	15	81	161	0	242	161	0	161	403
H20	6/26/2008	57 20.0	169 36.1	32	82	164	0	247	0	0	0	247
H21	6/28/2008	57 20.0	170 13.6	28	404	162	0	566	323	0	323	889
I04	6/15/2008	57 40.1	165 52.9	33	80	0	0	80	80	0	80	160
I05	6/15/2008	57 40.1	165 15.4	31	79	0	0	79	79	0	79	158
I06	6/13/2008	57 40.2	164 37.4	27	165	0	0	165	0	0	0	165
I07	6/14/2008	57 39.7	164 0.7	26	0	84	0	84	0	0	0	84
I08	6/12/2008	57 39.9	163 22.5	24	79	318	0	397	318	0	318	715
I08	7/20/2008	57 40.3	163 19.5	24	160	160	0	320	559	0	559	879
I09	6/8/2008	57 40.1	162 45.7	23	317	712	317	1346	1029	237	1267	2612
I09	7/20/2008	57 40.2	162 45.0	23	78	312	78	469	1562	0	1562	2031
I10	6/8/2008	57 39.8	162 8.1	24	157	784	157	1098	941	78	1020	2118
I10	7/20/2008	57 39.5	162 7.8	24	160	480	639	1279	1199	0	1199	2478
I11	6/7/2008	57 40.3	161 29.6	27	82	82	818	982	1882	164	2046	3028
I11	7/23/2008	57 40.5	161 30.1	27	0	163	244	407	814	163	977	1384
I12	7/22/2008	57 40.0	160 52.9	29	0	165	247	412	577	0	577	990
I12	6/6/2008	57 40.2	160 53.2	28	251	585	418	1253	2005	84	2089	3342
I13	6/5/2008	57 40.7	160 16.5	28	0	0	84	84	337	84	421	505
I13	7/21/2008	57 40.5	160 15.6	28	81	243	812	1136	3571	81	3652	4788
I14	6/5/2008	57 39.9	159 37.9	26	82	82	247	411	0	164	164	575
I16	6/4/2008	57 39.8	158 23.1	18	83	0	0	83	83	0	83	167
I21	6/28/2008	57 39.8	170 15.9	38	81	0	0	81	0	0	0	81
I21	6/28/2008	57 30.4	169 59.5	36	0	0	0	0	82	0	82	82
I22	7/5/2008	57 49.9	170 36.9	41	0	0	0	0	82	0	82	82
J03	6/21/2008	57 59.9	166 31.6	32	0	81	0	81	0	0	0	81
J04	6/21/2008	58 0.4	165 54.4	28	79	0	0	79	79	0	79	158
J05	6/15/2008	57 59.9	165 15.1	26	160	0	0	160	0	0	0	160
J06	6/13/2008	58 0.5	164 37.3	22	79	79	0	157	79	0	79	236
J07	6/14/2008	58 0.0	164 2.0	24	82	82	82	245	164	0	164	409
J08	6/12/2008	57 59.4	163 22.9	22	0	0	0	0	239	0	239	239
J09	6/12/2008	58 0.6	162 45.9	20	82	327	164	573	1064	0	1064	1637

Appendix B1. Summary of crab density by tow (number/nm<sup>2</sup>) for red king crab (*Paralithodes camtschaticus*).

Station	Date	N. Lat.		W. Long		Fathoms	Males				Females			GRAND TOTAL
							Legal	Prerecruit	Small	Total	Large	Small	Total	
J10	7/20/2008	58	0.2	162	7.5	19	0	160	80	239	558	0	558	798
J10	6/7/2008	57	59.9	162	6.8	18	0	243	243	486	568	81	649	1135
J11	6/8/2008	57	56.1	161	25.9	21	149	149	2529	2826	1488	1785	3273	6099
J11	7/20/2008	57	59.8	161	28.6	28	0	407	325	732	814	0	814	1546
J12	7/21/2008	58	0.1	160	51.7	24	240	1039	5117	6396	3598	2399	5996	12392
J12	6/7/2008	57	60.0	160	51.7	23	235	157	392	785	549	235	785	1569
J13	6/5/2008	57	59.4	160	12.5	26	328	164	410	903	410	246	656	1559
J13	7/21/2008	57	59.7	160	13.8	26	0	158	79	238	792	0	792	1029
K02	6/21/2008	58	19.8	167	11.9	27	76	0	0	76	0	0	0	76
K03	6/21/2008	58	19.7	166	33.4	25	0	0	0	0	81	0	81	81
K04	6/21/2008	58	20.0	165	55.7	22	0	79	0	79	0	0	0	79
K05	6/15/2008	58	20.1	165	17.5	23	79	0	0	79	79	0	79	157
K06	6/13/2008	58	20.0	164	38.1	22	0	0	79	79	236	0	236	315
K07	6/14/2008	58	19.1	164	1.3	21	0	82	82	164	0	0	0	164
K08	6/12/2008	58	19.7	163	20.1	19	0	82	0	82	82	0	82	164
K09	6/12/2008	58	19.9	162	43.8	16	0	79	0	79	0	0	0	79
K10	6/7/2008	58	20.0	162	3.6	24	163	0	82	245	0	0	0	245
K11	6/7/2008	58	13.1	161	33.0	20	0	82	0	82	0	0	0	82
K12	6/7/2008	58	17.1	160	48.6	15	0	0	160	160	160	0	160	320
K13	6/5/2008	58	16.3	159	57.9	21	0	0	78	78	157	78	235	313
K14	6/5/2008	58	20.5	159	33.2	13	0	0	0	0	81	0	81	81
K18	6/25/2008	58	20.3	168	30.1	34	79	0	0	79	0	0	0	79
L01	6/24/2008	58	39.9	167	52.1	24	0	80	0	80	80	0	80	160
L02	6/22/2008	58	39.9	167	13.3	22	0	0	0	0	78	0	78	78
L03	6/22/2008	58	40.1	166	34.1	21	76	76	0	153	229	0	229	382
L04	6/22/2008	58	39.9	165	55.8	18	0	0	0	0	0	82	82	82
L06	6/14/2008	58	40.1	164	38.9	19	0	81	0	81	81	0	81	162
L07	6/14/2008	58	39.8	164	0.6	18	80	0	0	80	0	0	0	80
L08	6/13/2008	58	39.7	163	19.2	15	157	0	0	157	157	0	157	313
L09	6/13/2008	58	38.9	162	43.6	13	78	0	0	78	78	0	78	156
M01	6/24/2008	59	0.0	167	52.8	21	159	0	0	159	159	0	159	319
M02	6/22/2008	58	59.8	167	14.1	20	0	0	82	82	164	0	164	247
M03	6/22/2008	58	60.0	166	34.7	17	0	78	0	78	235	0	235	313

Appendix B1. Summary of crab density by tow (number/nm<sup>2</sup>) for red king crab (*Paralithodes camtschaticus*).

Station	Date	N. Lat.	W. Long	Fathoms	Males				Females			GRAND TOTAL
					Legal	Prerecruit	Small	Total	Large	Small	Total	
M04	6/22/2008	58 59.8	165 57.1	14	80	0	0	80	80	0	80	159
M05	6/14/2008	59 0.4	165 18.0	13	0	0	0	0	79	0	79	79
M06	6/14/2008	58 59.8	164 39.2	13	80	0	0	80	80	0	80	161
N01	6/24/2008	59 20.0	167 54.9	20	0	83	0	83	0	0	0	83
N02	6/23/2008	59 19.8	167 16.5	15	0	81	81	163	0	0	0	163
N03	6/22/2008	59 19.2	166 36.9	14	109	0	0	109	0	0	0	109
N05	6/14/2008	59 20.0	165 19.1	9	75	0	0	75	75	0	75	150
O01	6/23/2008	59 40.0	167 57.2	17	0	162	243	405	162	0	162	567
O02	6/23/2008	59 39.6	167 18.5	15	0	80	0	80	80	0	80	159
O18	6/24/2008	59 39.7	168 37.2	19	82	0	0	82	82	0	82	165
O19	6/24/2008	59 40.2	169 16.0	24	78	0	0	78	78	0	78	157
P18	6/23/2008	60 0.2	168 39.4	19	0	229	0	229	229	0	229	457
P19	6/23/2008	60 0.1	169 19.8	24	0	157	0	157	0	0	0	157
Q01	6/23/2008	60 20.1	167 58.3	15	0	0	78	78	78	0	78	157
Q02	6/23/2008	60 20.2	167 15.6	15	0	0	0	0	0	78	78	78

NOTE: Minimum carapace sizes used are: Legal Males > 6.5 in; Prerecruit Males = 5.2 to 6.5 in; Large Females > 4.3 in.

Appendix B2. Summary of crab density by tow (number/nm<sup>2</sup>) for Pribilof District blue king crab (*Paralithodes platypus*)

Station	Date	N. Lat.	W. Long	Fathoms	Males				Females			GRAND TOTAL
					Legal	Prerecruit	Small	Total	Large	Small	Total	
G20	6/26/2008	57 0.0	169 33.3	31	80	0	0	80	398	0	398	478
G20	6/26/2008	57 9.8	169 19.4	37	0	0	0	0	80	0	80	80
G21	6/28/2008	57 9.8	169 53.9	25	0	0	0	0	250	0	250	250
H19	6/26/2008	57 20.1	168 58.7	37	0	327	655	982	2455	164	2619	3601
H20	6/26/2008	57 29.8	169 22.0	37	0	0	80	80	0	80	80	160
I22	7/5/2008	57 40.0	170 53.8	45	0	0	0	0	83	0	83	83
K02	6/21/2008	58 19.8	167 11.9	27	0	0	0	0	76	0	76	76

NOTE: Minimum carapace sizes used are: Legal Males > 6.5 in; Prerecruit Males = 5.2 to 6.5 in; Large Females > 4.3 in.

Appendix B3. Summary of crab density by tow (number/nm2) for St. Matthew Island Section blue king crab (*Paralithodes platypus*)

Station	Date	N. Lat.	W. Long	Fathoms	Males				Females			GRAND TOTAL
					Legal	Prerecruit	Small	Total	Large	Small	Total	
M26	7/14/2008	59 0.3	173 43.8	62	80	0	0	80	0	0	0	80
O23	7/3/2008	59 40.0	171 53.9	40	80	0	0	80	0	0	0	80
O24	7/3/2008	59 40.0	172 33.3	45	81	0	0	81	0	0	0	81
O24	7/2/2008	59 49.7	172 15.4	39	0	157	393	551	0	0	0	551
O25	7/2/2008	59 50.0	173 33.7	50	1410	668	445	2523	0	0	0	2523
O25	7/2/2008	59 40.5	173 15.4	50	235	78	0	313	0	0	0	313
O25	7/2/2008	59 30.7	172 52.8	49	78	0	78	157	0	0	0	157
O26	7/14/2008	59 40.4	173 50.6	55	162	0	0	162	0	0	0	162
P23	7/1/2008	60 0.6	171 57.7	34	208	0	519	726	0	0	0	726
P23	7/2/2008	60 9.8	172 19.8	30	158	79	317	555	0	238	238	792
P24	7/1/2008	59 59.4	172 35.0	34	79	0	157	236	0	0	0	236
P25	7/2/2008	59 50.1	172 55.2	42	84	0	0	84	0	0	0	84
P25	7/15/2008	60 0.1	173 18.9	39	954	398	2068	3420	80	80	159	3579
P26	7/15/2008	60 0.1	173 57.1	51	317	396	0	712	0	0	0	712
P26	7/15/2008	60 6.8	173 46.3	47	369	0	246	615	0	0	0	615
Q02	6/23/2008	60 20.2	167 15.6	15	0	0	0	0	78	0	78	78
Q23	7/2/2008	60 20.0	172 4.2	30	158	79	473	709	79	315	394	1103
Q25	7/15/2008	60 10.6	173 1.2	31	316	316	5918	6550	552	1263	1815	8365
Q25	7/15/2008	60 17.9	173 22.8	32	796	199	4577	5572	0	398	398	5970
Q26	7/15/2008	60 20.0	174 4.2	48	78	0	78	157	0	0	0	157
Q27	7/18/2008	60 10.2	174 21.2	53	83	83	0	166	0	0	0	166
R24	7/2/2008	60 39.9	172 44.9	23	238	475	317	1029	0	0	0	1029
R26	7/15/2008	60 40.1	174 7.0	46	81	0	0	81	0	0	0	81
R28	7/17/2008	60 39.7	175 26.4	57	0	78	0	78	0	0	0	78
S22	7/1/2008	60 59.5	171 27.3	31	0	0	0	0	78	0	78	78
S26	7/16/2008	61 0.2	174 11.2	44	0	81	0	81	0	0	0	81

NOTE: Minimum carapace sizes used are: Legal Males > 5.5 in; Prerecruit Males = 4.3 to 5.5 in; Large Females > 3.8 in.

Appendix B4. Summary of crab density by tow (number/nm<sup>2</sup>) for Tanner crab (*Chionoecetes bairdi*)

Station	Date	N. Lat.		W. Long		Fathoms	Males				Females			GRAND TOTAL
							Legal	Prerecruit	Small	Total	Large	Small	Total	
A02	7/10/2008	55	0.2	166	56.6	84	0	1214	14410	15625	162	12629	12791	28416
A03	6/19/2008	55	0.1	166	21.6	77	153	6128	15321	21602	7201	16546	23747	45349
A04	6/11/2008	54	50.1	165	30.6	81	158	3475	7660	11292	0	7897	7897	19189
A04	6/19/2008	55	0.7	165	45.2	69	0	1176	4627	5803	3760	9476	13236	19039
A05	6/11/2008	54	59.6	165	9.3	59	158	1741	2770	4669	396	1662	2058	6726
A06	6/10/2008	55	1.6	164	35.5	33	0	79	157	236	79	157	236	471
B01	7/10/2008	55	21.1	167	33.8	78	0	795	2782	3577	318	8427	8745	12322
B02	7/10/2008	55	20.4	166	57.7	74	82	1067	2874	4023	739	5255	5994	10017
B03	6/19/2008	55	20.2	166	20.8	71	159	1826	4287	6271	1111	6113	7224	13496
B04	6/19/2008	55	20.7	165	47.5	63	81	1140	3340	4561	2199	2199	4399	8960
B05	6/16/2008	55	19.5	165	9.7	57	491	4092	2783	7366	6056	7038	13094	20460
B06	6/10/2008	55	20.6	164	33.4	54	909	6233	2727	9869	6571	4685	11256	21125
B07	6/10/2008	55	20.3	164	1.1	40	80	320	641	1041	0	80	80	1121
B08	6/10/2008	55	24.9	163	25.3	32	6142	17223	74127	97492	6730	21814	28544	126037
B08	6/9/2008	55	20.3	163	24.6	27	20960	26985	31767	79712	7424	3259	10683	90396
B08	6/10/2008	55	15.7	163	26.5	25	34995	36303	5560	76857	4230	78	4308	81166
B08	6/10/2008	55	21.5	163	33.0	30	665	998	831	2494	499	0	499	2993
C01	7/10/2008	55	40.3	167	35.1	72	0	632	1658	2289	158	1737	1895	4184
C02	7/10/2008	55	40.2	166	58.9	72	0	359	10050	10409	598	3231	3829	14238
C03	6/19/2008	55	40.5	166	23.0	67	332	3152	10204	13688	4056	15023	19080	32767
C04	6/19/2008	55	40.3	165	48.2	62	80	1758	2478	4316	160	2797	2957	7273
C05	6/16/2008	55	39.6	165	11.3	56	444	2218	2839	5500	3016	3548	6565	12065
C06	6/12/2008	55	40.2	164	35.4	51	159	2311	6296	8766	1036	5340	6376	15142
C07	6/10/2008	55	42.2	164	0.6	50	0	1055	3978	5034	1461	4222	5683	10717
C08	6/9/2008	55	39.8	163	24.4	43	82	1152	3375	4610	988	823	1811	6421
C09	6/9/2008	55	40.2	162	49.9	26	157	0	236	394	0	0	0	394
C18	7/10/2008	55	40.5	168	11.1	72	0	314	1100	1414	79	314	393	1807
D01	7/10/2008	56	0.1	167	37.9	71	106	318	636	1061	424	848	1273	2333
D02	6/20/2008	56	3.7	166	59.2	71	160	722	3049	3932	160	2327	2487	6419
D03	6/20/2008	56	0.2	166	23.8	67	422	3038	3291	6751	2194	4304	6498	13249
D04	6/19/2008	55	59.7	165	47.2	57	235	2118	2902	5256	1569	1569	3138	8394
D05	6/16/2008	55	59.9	165	11.5	51	0	650	1300	1949	406	1462	1868	3817
D06	6/12/2008	55	59.4	164	36.9	49	158	1026	237	1421	316	789	1105	2526



Appendix B4. Summary of crab density by tow (number/nm<sup>2</sup>) for Tanner crab (*Chionoecetes bairdi*)

Station	Date	N. Lat.	W. Long	Fathoms	Males				Females			GRAND TOTAL
					Legal	Prerecruit	Small	Total	Large	Small	Total	
D07	6/10/2008	56 1.0	163 56.3	48	80	483	2576	3139	161	724	885	4025
D08	6/9/2008	55 60.0	163 23.7	46	82	906	3212	4200	659	906	1565	5764
D09	6/9/2008	55 59.1	162 48.1	42	165	494	741	1400	0	82	82	1482
D10	6/8/2008	55 59.7	162 16.4	37	159	557	159	875	0	0	0	875
D18	7/10/2008	55 60.0	168 14.2	80	320	879	2398	3596	80	2877	2957	6554
E01	7/11/2008	56 20.0	167 39.3	68	0	313	313	625	0	156	156	781
E02	6/20/2008	56 20.3	167 2.5	60	0	1201	2002	3204	1682	1602	3284	6487
E03	6/20/2008	56 20.4	166 24.6	55	0	1059	1303	2361	814	1873	2687	5048
E04	6/16/2008	56 20.2	165 48.8	48	0	869	1106	1974	553	237	790	2764
E05	6/15/2008	56 20.3	165 11.4	45	0	337	674	1011	84	168	253	1263
E06	6/12/2008	56 20.0	164 35.1	45	0	662	1158	1820	414	331	744	2564
E07	6/11/2008	56 20.9	163 58.2	45	0	493	2545	3038	328	657	985	4023
E08	6/9/2008	56 19.6	163 24.9	44	0	330	1072	1402	0	165	165	1567
E09	6/9/2008	56 19.8	162 48.0	41	246	1394	1722	3362	82	82	164	3526
E10	6/8/2008	56 20.4	162 11.1	41	323	888	565	1776	81	0	81	1857
E11	6/6/2008	56 19.8	161 36.9	33	0	80	80	160	0	0	0	160
E12	6/6/2008	56 20.6	161 0.2	28	255	425	0	680	0	0	0	680
E18	7/11/2008	56 20.3	168 14.0	80	1009	5900	11257	18166	466	15061	15527	33693
E19	7/11/2008	56 20.2	168 52.3	68	389	1167	2178	3734	78	5601	5679	9413
E20	7/6/2008	56 20.3	169 29.3	77	0	715	3891	4606	79	1668	1747	6353
E21	7/6/2008	56 20.1	170 3.4	58	321	1847	1767	3936	4257	3775	8032	11968
E22	7/11/2008	56 20.1	170 41.7	64	0	879	4715	5595	80	879	959	6554
F01	7/11/2008	56 40.2	167 40.3	54	0	318	1350	1667	397	397	794	2461
F02	6/20/2008	56 39.9	167 3.5	50	0	312	546	858	234	156	390	1247
F03	6/20/2008	56 40.0	166 26.5	44	0	323	1051	1374	81	243	323	1698
F04	6/16/2008	56 40.2	165 51.4	41	0	404	485	888	162	485	646	1534
F05	6/15/2008	56 39.9	165 14.1	39	81	645	1128	1853	403	403	806	2659
F06	6/12/2008	56 40.3	164 35.7	39	80	239	1116	1435	80	0	80	1514
F07	6/11/2008	56 40.4	164 1.3	39	80	638	638	1355	319	0	319	1674
F08	6/9/2008	56 39.9	163 22.3	39	0	642	803	1445	0	80	80	1525
F09	6/9/2008	56 39.8	162 48.5	37	169	1265	1434	2868	169	0	169	3037
F10	6/8/2008	56 39.9	162 9.7	38	84	334	585	1003	0	0	0	1003
F11	6/7/2008	56 40.7	161 36.0	46	405	1215	486	2106	81	0	81	2187

Appendix B4. Summary of crab density by tow (number/nm<sup>2</sup>) for Tanner crab (*Chionoecetes bairdi*)

Station	Date	N. Lat.	W. Long	Fathoms	Males				Females			GRAND TOTAL
					Legal	Prerecruit	Small	Total	Large	Small	Total	
F12	6/6/2008	56 39.7	160 59.9	36	654	1308	0	1963	82	0	82	2045
F13	6/6/2008	56 40.1	160 23.5	31	0	250	0	250	0	0	0	250
F18	7/6/2008	56 39.2	168 18.5	57	457	1066	609	2132	0	0	0	2132
F19	7/6/2008	56 40.0	168 53.8	53	0	556	1335	1891	223	890	1113	3004
F19	7/6/2008	56 49.8	168 36.8	51	0	856	1400	2256	0	156	156	2412
F20	7/5/2008	56 40.0	169 30.4	42	78	392	1255	1726	0	78	78	1804
F20	7/6/2008	56 49.8	169 17.9	42	0	403	966	1369	161	81	242	1610
F21	7/6/2008	56 40.1	170 7.3	51	79	2522	2837	5437	1812	709	2522	7959
F22	7/11/2008	56 40.9	170 44.4	60	75	602	1279	1956	0	1279	1279	3236
F23	7/11/2008	56 40.1	171 21.5	63	0	723	723	1446	0	402	402	1847
F24	7/12/2008	56 39.6	171 59.8	67	0	236	1415	1651	0	708	708	2359
F25	7/12/2008	56 41.5	172 34.8	72	0	0	1334	1334	0	235	235	1569
G01	6/25/2008	57 0.1	167 42.9	40	0	155	4186	4341	78	1628	1706	6047
G02	6/20/2008	57 0.5	167 5.7	39	0	0	458	458	0	381	381	839
G03	6/20/2008	57 0.1	166 28.4	39	0	157	628	784	0	78	78	863
G04	6/16/2008	56 59.5	165 50.9	38	701	1792	467	2960	0	0	0	2960
G05	6/15/2008	56 59.3	165 13.0	37	243	3565	1296	5104	243	0	243	5347
G06	6/12/2008	56 59.2	164 36.8	37	0	396	554	949	0	0	0	949
G07	6/11/2008	57 0.5	164 2.6	36	244	650	244	1138	81	0	81	1220
G08	6/11/2008	57 1.1	163 26.1	34	0	79	554	633	158	0	158	791
G09	6/8/2008	56 59.2	162 47.0	31	0	315	315	630	79	0	79	709
G10	6/8/2008	56 59.8	162 10.8	31	0	80	318	398	0	0	0	398
G11	6/7/2008	56 60.0	161 33.9	36	84	169	84	337	0	0	0	337
G12	6/6/2008	56 60.0	160 57.8	33	160	160	240	559	80	0	80	639
G13	6/6/2008	57 0.3	160 19.5	33	0	313	313	627	78	0	78	705
G14	6/5/2008	56 59.6	159 42.0	27	0	0	155	155	0	0	0	155
G18	6/26/2008	56 60.0	168 18.5	42	0	3990	8620	12610	1886	7903	9789	22399
G19	6/26/2008	57 9.8	168 38.9	40	78	392	3133	3603	0	1018	1018	4622
G19	6/26/2008	57 0.6	168 57.8	42	0	479	798	1277	0	319	319	1597
G20	6/26/2008	57 0.0	169 33.3	31	0	1274	2628	3902	1593	478	2071	5973
G20	6/26/2008	57 9.8	169 19.4	37	0	1119	4154	5273	0	559	559	5832
G21	7/5/2008	56 59.9	170 11.6	36	6836	44284	32572	83692	6728	3968	10695	94387
G21	7/5/2008	56 50.2	169 54.8	38	973	13622	5514	20109	328	328	656	20765

Appendix B4. Summary of crab density by tow (number/nm<sup>2</sup>) for Tanner crab (*Chionoecetes bairdi*)

Station	Date	N. Lat.	W. Long	Fathoms	Males				Females			GRAND TOTAL
					Legal	Prerecruit	Small	Total	Large	Small	Total	
G21	6/28/2008	57 9.8	169 53.9	25	0	83	750	833	83	0	83	916
G22	6/28/2008	57 6.8	170 28.4	25	1080	8457	8637	18174	1262	631	1893	20066
G22	7/5/2008	56 59.8	170 47.2	50	0	1326	2807	4133	78	468	546	4679
G22	7/5/2008	56 50.3	170 28.6	53	0	1227	4989	6215	818	572	1390	7606
G23	7/11/2008	57 0.3	171 23.1	58	0	1031	952	1983	159	238	397	2380
G24	7/12/2008	56 57.0	172 2.4	63	0	320	1841	2162	400	1441	1841	4003
G25	7/12/2008	56 60.0	172 39.4	66	0	0	405	405	0	0	0	405
G26	7/12/2008	56 59.9	173 14.9	75	0	0	330	330	0	165	165	495
H01	6/25/2008	57 20.0	167 44.1	38	0	159	2222	2381	79	476	556	2936
H02	6/21/2008	57 20.2	167 6.7	37	0	77	536	613	153	153	306	919
H03	6/20/2008	57 19.9	166 29.4	36	164	1553	1145	2861	0	0	0	2861
H04	6/16/2008	57 19.7	165 52.2	36	81	242	81	404	0	0	0	404
H05	6/15/2008	57 19.6	165 14.8	35	79	474	395	949	0	0	0	949
H06	6/13/2008	57 19.9	164 36.3	34	0	397	714	1111	238	79	317	1428
H07	6/13/2008	57 20.3	163 59.9	33	0	78	389	467	156	0	156	623
H08	6/11/2008	57 19.6	163 22.8	28	0	0	250	250	0	0	0	250
H12	6/6/2008	57 20.0	160 56.8	31	0	82	0	82	0	0	0	82
H13	6/5/2008	57 19.8	160 19.2	31	0	149	0	149	149	0	149	297
H16	6/4/2008	57 20.4	158 24.7	15	0	0	81	81	0	0	0	81
H18	6/26/2008	57 19.6	168 22.5	39	0	154	1078	1232	77	770	847	2078
H19	6/25/2008	57 29.8	168 44.4	37	0	0	395	395	0	79	79	474
H19	6/26/2008	57 20.1	168 58.7	37	0	246	3683	3928	0	409	409	4338
H20	6/26/2008	57 29.8	169 22.0	37	0	0	1444	1444	160	321	481	1926
H20	6/26/2008	57 20.0	169 36.1	32	0	164	986	1151	247	164	411	1562
H21	6/28/2008	57 20.0	170 13.6	28	162	1212	4364	5738	485	242	727	6465
H22	7/5/2008	57 20.1	170 51.2	44	0	634	1586	2220	159	317	476	2696
H23	7/11/2008	57 19.7	171 27.8	54	81	893	569	1543	244	162	406	1949
H24	7/12/2008	57 20.6	172 5.5	59	0	166	831	998	166	0	166	1164
H25	7/13/2008	57 20.7	172 48.8	62	0	0	80	80	0	80	80	160
H26	7/13/2008	57 21.7	173 20.3	65	0	82	2300	2382	246	1807	2053	4435
I01	6/25/2008	57 39.9	167 46.1	36	0	572	2207	2780	0	164	164	2943
I02	6/21/2008	57 41.7	167 6.0	36	82	1631	815	2528	0	0	0	2528
I03	6/20/2008	57 40.0	166 30.8	34	0	162	243	406	0	0	0	406

Appendix B4. Summary of crab density by tow (number/nm<sup>2</sup>) for Tanner crab (*Chionoecetes bairdi*)

Station	Date	N. Lat.	W. Long	Fathoms	Males				Females			GRAND TOTAL
					Legal	Prerecruit	Small	Total	Large	Small	Total	
I04	6/15/2008	57 40.1	165 52.9	33	0	962	882	1843	0	0	0	1843
I05	6/15/2008	57 40.1	165 15.4	31	0	473	394	867	0	0	0	867
I06	6/13/2008	57 40.2	164 37.4	27	0	165	165	330	82	0	82	412
I07	6/14/2008	57 39.7	164 0.7	26	0	0	167	167	0	0	0	167
I11	6/7/2008	57 40.3	161 29.6	27	0	0	82	82	0	0	0	82
I12	6/6/2008	57 40.2	160 53.2	28	0	0	167	167	0	0	0	167
I18	6/25/2008	57 40.0	168 23.7	37	0	227	4700	4927	76	1516	1592	6519
I19	6/26/2008	57 39.8	169 1.4	36	0	82	821	903	0	0	0	903
I20	6/28/2008	57 40.3	169 39.1	37	0	81	1047	1127	0	161	161	1288
I21	6/28/2008	57 39.8	170 15.9	38	0	645	725	1370	0	81	81	1450
I21	6/29/2008	57 49.7	169 59.8	38	77	1848	1771	3696	0	847	847	4543
I21	6/28/2008	57 30.4	169 59.5	36	0	1310	3358	4668	737	983	1720	6388
I22	6/28/2008	57 30.5	170 34.9	39	0	156	547	703	0	78	78	781
I22	7/5/2008	57 49.9	170 36.9	41	0	164	900	1064	0	82	82	1146
I22	7/5/2008	57 40.0	170 53.8	45	0	496	2231	2726	0	413	413	3140
I23	7/12/2008	57 39.6	171 32.3	53	0	160	561	722	80	0	80	802
I24	7/12/2008	57 39.8	172 10.2	58	0	0	0	0	0	78	78	78
I26	7/13/2008	57 39.5	173 22.9	77	0	167	7594	7761	0	6592	6592	14353
J01	6/25/2008	57 59.7	167 48.5	34	82	1144	817	2042	0	0	0	2042
J02	6/21/2008	57 59.9	167 9.8	33	77	2681	1838	4596	0	0	0	4596
J03	6/21/2008	57 59.9	166 31.6	32	0	1299	1623	2922	0	0	0	2922
J04	6/21/2008	58 0.4	165 54.4	28	0	947	395	1342	0	0	0	1342
J05	6/15/2008	57 59.9	165 15.1	26	0	0	80	80	0	0	0	80
J18	6/25/2008	58 0.1	168 26.8	36	78	2429	1332	3840	0	0	0	3840
J19	6/25/2008	57 50.9	168 44.4	37	0	309	2624	2933	0	232	232	3164
J19	6/28/2008	58 0.3	169 4.2	37	0	652	1466	2118	0	81	81	2199
J20	6/29/2008	58 0.0	169 42.2	36	81	2193	893	3168	81	244	325	3492
J20	6/28/2008	57 50.5	169 22.3	34	0	78	1483	1561	0	156	156	1717
J21	7/4/2008	57 59.9	170 20.3	38	0	1171	2420	3591	0	78	78	3669
J22	7/4/2008	57 59.7	170 58.7	45	0	239	637	876	0	80	80	956
J23	7/12/2008	57 59.6	171 35.8	51	0	81	326	407	163	326	489	896
J24	7/12/2008	58 0.3	172 15.4	55	0	81	325	406	0	0	0	406
J25	7/13/2008	58 0.2	172 51.7	57	0	1169	2415	3583	2025	16204	18229	21813

Appendix B4. Summary of crab density by tow (number/nm<sup>2</sup>) for Tanner crab (*Chionoecetes bairdi*)

Station	Date	N. Lat.		W. Long		Fathoms	Males				Females			GRAND TOTAL
							Legal	Prerecruit	Small	Total	Large	Small	Total	
J26	7/13/2008	58	0.2	173	28.3	62	0	0	2375	2375	230	1762	1992	4368
K01	6/24/2008	58	19.9	167	50.2	31	79	1508	2699	4287	79	159	238	4525
K02	6/21/2008	58	19.8	167	11.9	27	0	529	832	1361	0	76	76	1436
K03	6/21/2008	58	19.7	166	33.4	25	0	81	161	242	0	0	0	242
K18	6/25/2008	58	20.3	168	30.1	34	0	949	4032	4980	0	316	316	5296
K19	6/29/2008	58	19.9	169	7.5	35	0	418	4184	4602	0	1255	1255	5857
K20	6/29/2008	58	20.5	169	44.7	36	0	0	721	721	0	240	240	962
K21	7/4/2008	58	20.0	170	23.1	39	0	156	1717	1874	0	78	78	1952
K22	7/4/2008	58	20.6	171	1.2	44	0	0	1594	1594	0	152	152	1746
K23	7/4/2008	58	19.7	171	39.2	50	0	0	728	728	0	324	324	1052
K24	7/4/2008	58	20.1	172	17.8	54	0	582	2210	2791	0	0	0	2791
K25	7/13/2008	58	20.3	172	55.4	58	0	77	1240	1317	0	1007	1007	2325
K26	7/13/2008	58	20.9	173	32.6	62	0	0	1503	1503	0	1898	1898	3400
K27	7/14/2008	58	20.0	174	17.9	86	0	0	13466	13466	0	16436	16436	29902
L01	6/24/2008	58	39.9	167	52.1	24	0	80	0	80	0	0	0	80
L18	6/24/2008	58	39.9	168	29.8	27	0	402	1365	1767	80	321	402	2169
L19	6/29/2008	58	39.9	169	9.5	32	0	1502	12014	13516	0	6007	6007	19523
L20	6/29/2008	58	40.4	169	46.9	35	0	80	4382	4461	0	1593	1593	6055
L21	6/30/2008	58	41.4	170	25.9	38	0	78	2102	2180	0	0	0	2180
L22	7/3/2008	58	40.0	171	4.9	43	0	0	901	901	0	0	0	901
L23	7/4/2008	58	39.7	171	43.3	49	0	0	319	319	0	80	80	399
L24	7/4/2008	58	40.0	172	22.3	54	0	83	495	578	165	165	330	908
L25	7/13/2008	58	40.3	172	59.6	60	0	317	2137	2454	871	3325	4196	6650
L26	7/13/2008	58	39.9	173	37.4	67	0	0	231	231	0	615	615	845
L27	7/14/2008	58	40.1	174	16.5	84	0	0	16517	16517	0	22132	22132	38649
L28	7/24/2008	58	44.6	174	57.2	77	0	0	2528	2528	77	1915	1992	4520
L29	7/24/2008	58	40.2	175	32.5	72	0	0	1024	1024	0	551	551	1575
L30	7/24/2008	58	40.1	176	11.4	74	0	0	3324	3324	0	4378	4378	7702
L31	7/24/2008	58	40.0	176	50.8	73	0	0	1204	1204	0	1204	1204	2407
M18	6/24/2008	59	0.4	168	31.4	24	0	0	239	239	0	0	0	239
M19	6/29/2008	59	0.3	169	11.3	27	0	265	5027	5291	0	2117	2117	7408
M20	6/29/2008	58	59.9	169	50.1	33	0	0	7382	7382	0	4430	4430	11811
M21	6/30/2008	59	0.1	170	29.3	37	0	0	2162	2162	0	481	481	2643

Appendix B4. Summary of crab density by tow (number/nm<sup>2</sup>) for Tanner crab (*Chionoecetes bairdi*)

Station	Date	N. Lat.		W. Long		Fathoms	Males			Females			GRAND TOTAL	
							Legal	Prerecruit	Small	Total	Large	Small		Total
M22	7/3/2008	59	0.1	171	8.1	40	0	0	810	810	0	0	0	810
M23	7/3/2008	58	60.0	171	47.6	45	0	0	242	242	0	0	0	242
M24	7/3/2008	58	59.7	172	24.4	51	0	106	1163	1269	317	529	846	2114
M25	7/14/2008	59	0.4	173	5.4	56	0	572	1880	2452	572	1226	1798	4249
M26	7/14/2008	59	0.3	173	43.8	62	0	240	721	961	80	961	1041	2002
M27	7/14/2008	58	59.6	174	23.3	68	0	152	838	991	152	991	1143	2134
M28	7/23/2008	59	0.0	175	1.8	70	0	75	1433	1508	75	603	679	2187
M29	7/23/2008	59	0.2	175	43.7	71	0	0	317	317	158	396	554	871
M30	7/23/2008	59	0.1	176	19.9	72	0	0	326	326	0	0	0	326
M32	7/23/2008	58	60.0	177	36.0	72	0	0	234	234	0	390	390	624
N19	6/29/2008	59	20.4	169	13.9	25	0	237	3398	3635	0	1580	1580	5216
N20	6/30/2008	59	20.0	169	52.4	31	0	0	11091	11091	0	5304	5304	16395
N21	6/30/2008	59	20.4	170	32.4	36	0	0	785	785	0	785	785	1569
N22	7/3/2008	59	20.2	171	11.1	39	0	0	967	967	0	81	81	1048
N23	7/3/2008	59	19.6	171	50.5	42	0	0	161	161	0	81	81	242
N24	7/3/2008	59	19.9	172	29.7	46	0	79	316	394	0	237	237	631
N25	7/14/2008	59	20.0	173	8.8	53	0	242	2504	2747	323	727	1050	3797
N26	7/14/2008	59	20.3	173	47.8	59	0	0	312	312	0	156	156	468
N27	7/14/2008	59	20.1	174	25.3	64	0	82	571	652	0	1386	1386	2038
N29	7/22/2008	59	20.2	175	44.8	73	0	243	1375	1617	0	243	243	1860
N30	7/22/2008	59	20.0	176	22.8	72	0	0	1621	1621	0	243	243	1864
N31	7/22/2008	59	20.0	177	4.0	80	0	0	158	158	79	158	236	394
O19	6/24/2008	59	40.2	169	16.0	24	0	0	313	313	0	78	78	392
O20	6/30/2008	59	40.2	169	55.1	29	0	0	1119	1119	0	672	672	1791
O22	7/3/2008	59	40.0	171	16.1	38	0	0	0	0	0	158	158	158
O23	7/3/2008	59	40.0	171	53.9	40	0	0	80	80	0	0	0	80
O24	7/3/2008	59	40.0	172	33.3	45	0	0	244	244	0	81	81	325
O25	7/2/2008	59	50.0	173	33.7	50	0	0	1707	1707	0	1781	1781	3488
O25	7/2/2008	59	40.5	173	15.4	50	0	78	78	157	78	157	235	391
O25	7/2/2008	59	30.7	172	52.8	49	0	0	784	784	78	471	549	1333
O26	7/2/2008	59	31.1	173	30.8	53	0	84	421	505	0	84	84	589
O26	7/14/2008	59	40.4	173	50.6	55	0	0	731	731	0	325	325	1056
O27	7/14/2008	59	40.1	174	26.6	61	0	0	80	80	0	0	0	80

Appendix B4. Summary of crab density by tow (number/nm2) for Tanner crab (*Chionoecetes bairdi*)

Station	Date	N. Lat.	W. Long	Fathoms	Males				Females			GRAND TOTAL
					Legal	Prerecruit	Small	Total	Large	Small	Total	
O27	7/15/2008	59 49.8	174 14.5	57	0	0	79	79	0	0	0	79
O28	7/21/2008	59 39.1	175 7.1	67	0	233	233	466	0	155	155	622
O29	7/21/2008	59 39.9	175 52.8	73	0	0	1425	1425	79	475	554	1979
O30	7/21/2008	59 40.0	176 32.3	73	0	0	473	473	158	0	158	630
O31	7/22/2008	59 39.9	177 8.7	93	0	405	568	973	568	162	730	1703
P23	7/1/2008	60 0.6	171 57.7	34	0	0	208	208	0	415	415	623
P23	7/2/2008	60 9.8	172 19.8	30	0	0	0	0	0	79	79	79
P24	7/1/2008	59 59.4	172 35.0	34	0	0	315	315	0	315	315	630
P25	7/15/2008	60 0.1	173 18.9	39	0	0	80	80	0	0	0	80
P26	7/15/2008	60 0.1	173 57.1	51	0	158	712	870	0	554	554	1424
P27	7/18/2008	59 59.4	174 35.7	57	0	0	79	79	0	0	0	79
P28	7/21/2008	60 0.1	175 16.6	63	0	0	0	0	0	159	159	159
P29	7/21/2008	59 59.6	175 55.4	69	0	77	387	465	0	155	155	619
P30	7/20/2008	60 0.2	176 42.8	75	0	0	0	0	79	79	158	158
Q25	7/15/2008	60 10.6	173 1.2	31	0	0	79	79	0	0	0	79
Q26	7/15/2008	60 20.0	174 4.2	48	0	0	235	235	0	470	470	705
Q27	7/18/2008	60 19.8	174 42.2	55	0	0	1328	1328	83	249	332	1660
Q27	7/18/2008	60 10.2	174 21.2	53	0	0	1738	1738	0	2152	2152	3890
Q28	7/20/2008	60 20.1	175 23.2	59	0	77	929	1007	0	155	155	1162
Q29	7/20/2008	60 20.1	176 1.9	65	0	0	323	323	162	565	727	1050
Q31	7/19/2008	60 19.6	177 22.4	79	0	0	78	78	0	0	0	78
R24	7/2/2008	60 39.9	172 44.9	23	0	0	158	158	0	238	238	396
R25	7/15/2008	60 41.0	173 28.1	34	0	0	399	399	0	239	239	638
R26	7/15/2008	60 40.1	174 7.0	46	0	0	0	0	0	163	163	163
R27	7/18/2008	60 39.8	174 47.8	52	0	0	579	579	0	828	828	1407
R28	7/17/2008	60 39.7	175 26.4	57	0	0	78	78	0	78	78	156
R29	7/18/2008	60 40.6	176 12.4	63	0	0	81	81	0	162	162	243
R30	7/18/2008	60 40.1	176 47.8	69	0	0	1758	1758	0	382	382	2140
R32	7/19/2008	60 40.1	178 10.7	86	0	0	635	635	79	317	397	1031
S26	7/16/2008	61 0.2	174 11.2	44	0	0	0	0	0	162	162	162
S30	7/18/2008	61 0.1	176 58.1	65	0	0	245	245	0	82	82	327
S31	7/18/2008	60 59.5	177 36.8	72	0	0	0	0	0	242	242	242
T27	7/16/2008	61 19.7	175 0.3	46	0	0	82	82	0	0	0	82

Appendix B4. Summary of crab density by tow (number/nm<sup>2</sup>) for Tanner crab (*Chionoecetes bairdi*)

Station	Date	N. Lat.		W. Long		Fathoms	Males				Females			GRAND TOTAL
							Legal	Prerecruit	Small	Total	Large	Small	Total	
Z05	6/11/2008	54	40.3	165	8.9	43	0	0	411	411	0	247	247	658

NOTE: Minimum carapace sizes used are: Legal Males > 5.5 in; Prerecruit Males = 4.3 to 5.5 in; Large Females > 3.4 in.



Appendix B5. Summary of crab density by tow (number/nm<sup>2</sup>) for snow crab (*Chionoecetes opilio*)

Station	Date	N. Lat.		W. Long		Fathoms	Males				Females			GRAND TOTAL
							Preferred	Legal	Small	Total	Large	Small	Total	
A02	7/10/2008	55	0.2	166	56.6	84	0	81	0	81	0	0	0	81
A03	6/19/2008	55	0.1	166	21.6	77	0	0	153	153	0	0	0	153
A04	6/11/2008	54	50.1	165	30.6	81	316	79	790	1185	0	0	0	1185
A04	6/19/2008	55	0.7	165	45.2	69	0	78	78	157	0	0	0	157
A05	6/11/2008	54	59.6	165	9.3	59	79	396	396	870	0	0	0	870
A06	6/10/2008	55	1.6	164	35.5	33	0	0	157	157	0	0	0	157
B02	7/10/2008	55	20.4	166	57.7	74	82	0	82	164	0	0	0	164
B04	6/19/2008	55	20.7	165	47.5	63	0	81	244	326	0	0	0	326
B05	6/16/2008	55	19.5	165	9.7	57	0	0	82	82	0	0	0	82
B06	6/10/2008	55	20.6	164	33.4	54	244	569	1300	2112	0	0	0	2112
B07	6/10/2008	55	20.3	164	1.1	40	0	0	80	80	0	0	0	80
B08	6/10/2008	55	24.9	163	25.3	32	249	1081	1081	2411	0	0	0	2411
B08	6/9/2008	55	20.3	163	24.6	27	162	566	162	890	0	0	0	890
B08	6/10/2008	55	15.7	163	26.5	25	0	0	78	78	0	0	0	78
B08	6/10/2008	55	21.5	163	33.0	30	166	166	0	333	0	0	0	333
C01	7/10/2008	55	40.3	167	35.1	72	79	0	0	79	0	0	0	79
C04	6/19/2008	55	40.3	165	48.2	62	80	80	80	240	0	0	0	240
C05	6/16/2008	55	39.6	165	11.3	56	177	89	532	798	0	0	0	798
C06	6/12/2008	55	40.2	164	35.4	51	159	478	1195	1833	0	0	0	1833
C07	6/10/2008	55	42.2	164	0.6	50	325	81	568	974	0	0	0	974
C08	6/9/2008	55	39.8	163	24.4	43	412	494	741	1646	0	0	0	1646
C09	6/9/2008	55	40.2	162	49.9	26	79	0	0	79	0	0	0	79
C18	7/10/2008	55	40.5	168	11.1	72	0	79	0	79	0	0	0	79
D01	7/10/2008	56	0.1	167	37.9	71	106	106	0	212	0	0	0	212
D02	6/20/2008	56	3.7	166	59.2	71	80	160	0	241	0	0	0	241
D03	6/20/2008	56	0.2	166	23.8	67	0	0	338	338	0	0	0	338
D04	6/19/2008	55	59.7	165	47.2	57	235	78	78	392	0	0	0	392
D05	6/16/2008	55	59.9	165	11.5	51	0	162	569	731	0	0	0	731
D06	6/12/2008	55	59.4	164	36.9	49	79	237	158	474	0	0	0	474
D07	6/10/2008	56	1.0	163	56.3	48	80	0	402	483	0	0	0	483
D08	6/9/2008	55	60.0	163	23.7	46	82	412	1482	1976	0	0	0	1976
D09	6/9/2008	55	59.1	162	48.1	42	82	329	0	412	0	0	0	412
D10	6/8/2008	55	59.7	162	16.4	37	159	0	0	159	80	0	80	239

Appendix B5. Summary of crab density by tow (number/nm<sup>2</sup>) for snow crab (*Chionoecetes opilio*)

Station	Date	N. Lat.	W. Long	Fathoms	Males				Females			GRAND TOTAL
					Preferred	Legal	Small	Total	Large	Small	Total	
E01	7/11/2008	56 20.0	167 39.3	68	469	234	78	781	78	0	78	860
E02	6/20/2008	56 20.3	167 2.5	60	320	240	240	801	0	0	0	801
E03	6/20/2008	56 20.4	166 24.6	55	326	163	326	814	0	0	0	814
E04	6/16/2008	56 20.2	165 48.8	48	237	158	79	474	0	0	0	474
E05	6/15/2008	56 20.3	165 11.4	45	0	84	0	84	0	0	0	84
E07	6/11/2008	56 20.9	163 58.2	45	0	0	411	411	0	0	0	411
E08	6/9/2008	56 19.6	163 24.9	44	0	247	412	660	0	0	0	660
E09	6/9/2008	56 19.8	162 48.0	41	164	82	82	328	0	0	0	328
E10	6/8/2008	56 20.4	162 11.1	41	81	0	0	81	0	0	0	81
E11	6/6/2008	56 19.8	161 36.9	33	0	80	0	80	0	0	0	80
E18	7/11/2008	56 20.3	168 14.0	80	1630	0	0	1630	78	0	78	1708
E19	7/11/2008	56 20.2	168 52.3	68	156	78	0	233	0	0	0	233
E21	7/6/2008	56 20.1	170 3.4	58	402	241	161	803	0	80	80	884
E22	7/11/2008	56 20.1	170 41.7	64	160	80	0	240	0	0	0	240
F01	7/11/2008	56 40.2	167 40.3	54	953	635	397	1985	318	0	318	2302
F02	6/20/2008	56 39.9	167 3.5	50	468	78	156	702	0	0	0	702
F03	6/20/2008	56 40.0	166 26.5	44	323	323	323	970	0	0	0	970
F04	6/16/2008	56 40.2	165 51.4	41	81	0	404	485	0	0	0	485
F05	6/15/2008	56 39.9	165 14.1	39	161	242	322	725	0	0	0	725
F06	6/12/2008	56 40.3	164 35.7	39	398	239	478	1116	0	0	0	1116
F07	6/11/2008	56 40.4	164 1.3	39	0	80	239	319	0	0	0	319
F08	6/9/2008	56 39.9	163 22.3	39	80	80	161	321	0	0	0	321
F09	6/9/2008	56 39.8	162 48.5	37	84	169	337	590	0	0	0	590
F10	6/8/2008	56 39.9	162 9.7	38	84	0	0	84	0	0	0	84
F11	6/7/2008	56 40.7	161 36.0	46	324	0	81	405	0	0	0	405
F18	7/6/2008	56 39.2	168 18.5	57	1218	1102	7592	9912	163145	0	163145	173057
F19	7/6/2008	56 40.0	168 53.8	53	4228	4005	445	8678	111	0	111	8789
F19	7/6/2008	56 49.8	168 36.8	51	4123	1789	5212	11125	11714	172	11886	23011
F20	7/5/2008	56 40.0	169 30.4	42	4785	1098	78	5962	0	0	0	5962
F20	7/6/2008	56 49.8	169 17.9	42	2899	1449	1610	5959	81	0	81	6039
F21	7/6/2008	56 40.1	170 7.3	51	0	79	158	236	0	0	0	236
F22	7/11/2008	56 40.9	170 44.4	60	451	19188	602	20241	602	75	677	20918
F23	7/11/2008	56 40.1	171 21.5	63	1124	3213	241	4578	47550	0	47550	52128

Appendix B5. Summary of crab density by tow (number/nm2) for snow crab (*Chionoecetes opilio*)

Station	Date	N. Lat.	W. Long	Fathoms	Males				Females			GRAND TOTAL
					Preferred	Legal	Small	Total	Large	Small	Total	
F24	7/12/2008	56 39.6	171 59.8	67	629	550	0	1180	0	0	0	1180
G01	6/25/2008	57 0.1	167 42.9	40	388	465	1938	2791	155	310	465	3256
G02	6/20/2008	57 0.5	167 5.7	39	534	153	305	992	0	458	458	1450
G03	6/20/2008	57 0.1	166 28.4	39	1177	314	157	1647	0	0	0	1647
G04	6/16/2008	56 59.5	165 50.9	38	19478	892	156	20527	0	78	78	20605
G05	6/15/2008	56 59.3	165 13.0	37	1215	486	243	1944	0	0	0	1944
G06	6/12/2008	56 59.2	164 36.8	37	79	79	79	237	0	0	0	237
G07	6/11/2008	57 0.5	164 2.6	36	488	0	163	650	0	0	0	650
G08	6/11/2008	57 1.1	163 26.1	34	79	79	79	237	0	0	0	237
G09	6/8/2008	56 59.2	162 47.0	31	0	315	0	315	0	0	0	315
G10	6/8/2008	56 59.8	162 10.8	31	0	80	0	80	0	0	0	80
G12	6/6/2008	56 60.0	160 57.8	33	0	0	80	80	80	0	80	160
G18	6/26/2008	56 60.0	168 18.5	42	2883	2563	6888	12334	801	0	801	13135
G19	6/26/2008	57 9.8	168 38.9	40	2585	1018	1253	4857	392	78	470	5327
G19	6/26/2008	57 0.6	168 57.8	42	2076	3273	1357	6706	1198	0	1198	7904
G20	6/26/2008	57 0.0	169 33.3	31	1672	717	159	2548	0	0	0	2548
G20	6/26/2008	57 9.8	169 19.4	37	1119	2317	2237	5672	6551	0	6551	12224
G21	7/5/2008	56 59.9	170 11.6	36	81	0	0	81	488	0	488	570
G21	7/5/2008	56 50.2	169 54.8	38	328	985	246	1559	0	0	0	1559
G22	6/28/2008	57 6.8	170 28.4	25	631	79	0	710	0	0	0	710
G22	7/5/2008	56 59.8	170 47.2	50	6785	1560	0	8344	234	0	234	8578
G22	7/5/2008	56 50.3	170 28.6	53	409	409	82	900	0	0	0	900
G23	7/11/2008	57 0.3	171 23.1	58	2539	2221	397	5156	42381	0	42381	47537
G24	7/12/2008	56 57.0	172 2.4	63	1201	7606	320	9127	0	0	0	9127
G25	7/12/2008	56 60.0	172 39.4	66	1052	1133	81	2266	0	0	0	2266
G26	7/12/2008	56 59.9	173 14.9	75	0	165	0	165	0	0	0	165
H01	6/25/2008	57 20.0	167 44.1	38	79	238	1905	2222	238	159	397	2619
H02	6/21/2008	57 20.2	167 6.7	37	1838	843	766	3447	230	77	306	3754
H03	6/20/2008	57 19.9	166 29.4	36	1390	1308	736	3434	164	82	245	3679
H04	6/16/2008	57 19.7	165 52.2	36	2180	1373	162	3715	162	0	162	3876
H05	6/15/2008	57 19.6	165 14.8	35	237	316	158	712	0	0	0	712
H06	6/13/2008	57 19.9	164 36.3	34	556	238	873	1667	0	0	0	1667
H08	6/11/2008	57 19.6	163 22.8	28	0	83	83	166	0	0	0	166

Appendix B5. Summary of crab density by tow (number/nm<sup>2</sup>) for snow crab (*Chionoecetes opilio*)

Station	Date	N. Lat.	W. Long	Fathoms	Males				Females			GRAND TOTAL
					Preferred	Legal	Small	Total	Large	Small	Total	
H18	6/26/2008	57 19.6	168 22.5	39	693	308	1770	2771	0	77	77	2848
H19	6/25/2008	57 29.8	168 44.4	37	79	632	632	1343	237	0	237	1580
H19	6/26/2008	57 20.1	168 58.7	37	164	409	409	982	164	82	246	1228
H20	6/26/2008	57 29.8	169 22.0	37	802	481	722	2006	241	0	241	2247
H20	6/26/2008	57 20.0	169 36.1	32	2795	1233	740	4768	329	0	329	5096
H21	6/28/2008	57 20.0	170 13.6	28	242	0	0	242	0	0	0	242
H22	7/5/2008	57 20.1	170 51.2	44	238	0	159	397	634	0	634	1031
H23	7/11/2008	57 19.7	171 27.8	54	2030	1624	406	4061	406	0	406	4467
H24	7/12/2008	57 20.6	172 5.5	59	1663	1330	249	3242	166	0	166	3409
H25	7/13/2008	57 20.7	172 48.8	62	2003	881	0	2884	0	0	0	2884
H26	7/13/2008	57 21.7	173 20.3	65	904	1725	0	2628	0	0	0	2628
I01	6/25/2008	57 39.9	167 46.1	36	409	736	736	1880	82	0	82	1962
I02	6/21/2008	57 41.7	167 6.0	36	1223	7094	2528	10845	1794	0	1794	12639
I03	6/20/2008	57 40.0	166 30.8	34	1054	1946	1135	4136	81	81	162	4298
I04	6/15/2008	57 40.1	165 52.9	33	721	721	1282	2725	0	0	0	2725
I05	6/15/2008	57 40.1	165 15.4	31	79	394	630	1103	0	0	0	1103
I06	6/13/2008	57 40.2	164 37.4	27	82	82	247	412	82	0	82	495
I11	6/7/2008	57 40.3	161 29.6	27	0	82	0	82	0	0	0	82
I18	6/25/2008	57 40.0	168 23.7	37	682	1743	5079	7505	2198	1592	3790	11295
I19	6/26/2008	57 39.8	169 1.4	36	82	657	821	1559	4514	0	4514	6074
I20	6/28/2008	57 40.3	169 39.1	37	2094	1610	1691	5395	1610	81	1691	7086
I21	6/28/2008	57 39.8	170 15.9	38	1209	2014	1450	4674	806	0	806	5479
I21	6/29/2008	57 49.7	169 59.8	38	11762	11291	3764	26817	5082	77	5159	31976
I21	6/28/2008	57 30.4	169 59.5	36	2785	983	1474	5242	328	82	409	5651
I22	6/28/2008	57 30.5	170 34.9	39	312	625	0	937	0	0	0	937
I22	7/5/2008	57 49.9	170 36.9	41	491	4010	2783	7284	2701	0	2701	9984
I22	7/5/2008	57 40.0	170 53.8	45	248	661	744	1652	1074	0	1074	2726
I23	7/12/2008	57 39.6	171 32.3	53	4650	2806	1122	8579	3768	0	3768	12347
I24	7/12/2008	57 39.8	172 10.2	58	314	78	0	392	10198	157	10355	10747
I25	7/13/2008	57 40.4	172 48.9	63	1440	400	0	1840	0	0	0	1840
I26	7/13/2008	57 39.5	173 22.9	77	6676	1252	167	8094	0	83	83	8178
J01	6/25/2008	57 59.7	167 48.5	34	408	1307	1552	3268	654	0	654	3921
J02	6/21/2008	57 59.9	167 9.8	33	3141	3983	3371	10495	77	0	77	10571

Appendix B5. Summary of crab density by tow (number/nm2) for snow crab (*Chionoecetes opilio*)

Station	Date	N. Lat.	W. Long	Fathoms	Males				Females			GRAND TOTAL
					Preferred	Legal	Small	Total	Large	Small	Total	
J03	6/21/2008	57 59.9	166 31.6	32	1704	3003	3246	7954	649	0	649	8603
J04	6/21/2008	58 0.4	165 54.4	28	0	552	2762	3314	395	79	473	3788
J05	6/15/2008	57 59.9	165 15.1	26	0	160	0	160	0	0	0	160
J06	6/13/2008	58 0.5	164 37.3	22	0	79	0	79	0	0	0	79
J18	6/25/2008	58 0.1	168 26.8	36	157	705	1489	2351	0	0	0	2351
J19	6/25/2008	57 50.9	168 44.4	37	232	3087	6174	9493	25366	0	25366	34859
J19	6/28/2008	58 0.3	169 4.2	37	1801	13805	22809	38415	7879	0	7879	46294
J20	6/29/2008	58 0.0	169 42.2	36	5166	10907	3588	19660	6010	81	6091	25752
J20	6/28/2008	57 50.5	169 22.3	34	6249	17676	8213	32139	2965	78	3043	35182
J21	7/4/2008	57 59.9	170 20.3	38	14455	23525	5952	43933	4294	78	4372	48304
J22	7/4/2008	57 59.7	170 58.7	45	717	3106	1593	5415	1115	80	1195	6610
J23	7/12/2008	57 59.6	171 35.8	51	2282	3585	1630	7497	38008	2715	40723	48220
J24	7/12/2008	58 0.3	172 15.4	55	1219	244	162	1625	406	162	569	2194
J25	7/13/2008	58 0.2	172 51.7	57	2181	2181	312	4674	22046	0	22046	26720
J26	7/13/2008	58 0.2	173 28.3	62	920	613	77	1609	0	0	0	1609
K01	6/24/2008	58 19.9	167 50.2	31	2223	2302	2699	7224	556	0	556	7780
K02	6/21/2008	58 19.8	167 11.9	27	227	378	1134	1739	378	0	378	2117
K03	6/21/2008	58 19.7	166 33.4	25	0	81	806	887	484	0	484	1371
K04	6/21/2008	58 20.0	165 55.7	22	0	0	79	79	0	0	0	79
K18	6/25/2008	58 20.3	168 30.1	34	2372	4980	7984	15336	1344	0	1344	16680
K19	6/29/2008	58 19.9	169 7.5	35	1590	22258	137521	161369	36707	0	36707	198076
K20	6/29/2008	58 20.5	169 44.7	36	1122	7534	7774	16431	9057	0	9057	25487
K21	7/4/2008	58 20.0	170 23.1	39	4294	5308	3981	13583	94010	0	94010	107593
K22	7/4/2008	58 20.6	171 1.2	44	1366	6376	3416	11158	8338	0	8338	19496
K23	7/4/2008	58 19.7	171 39.2	50	5066	6258	2086	13410	11488	162	11649	25059
K24	7/4/2008	58 20.1	172 17.8	54	9498	8672	4130	22300	354726	214395	569120	591421
K25	7/13/2008	58 20.3	172 55.4	58	3255	4030	155	7440	387	0	387	7827
K26	7/13/2008	58 20.9	173 32.6	62	712	1186	316	2214	34399	870	35269	37484
K27	7/14/2008	58 20.0	174 17.9	86	0	0	0	0	99	0	99	99
L01	6/24/2008	58 39.9	167 52.1	24	0	0	160	160	0	0	0	160
L18	6/24/2008	58 39.9	168 29.8	27	161	1606	2731	4498	241	0	241	4739
L19	6/29/2008	58 39.9	169 9.5	32	2338	15587	115346	133271	31110	0	31110	164381
L20	6/29/2008	58 40.4	169 46.9	35	293	10268	17016	27578	7807	80	7887	35465

Appendix B5. Summary of crab density by tow (number/nm2) for snow crab (*Chionoecetes opilio*)

Station	Date	N. Lat.	W. Long	Fathoms	Males				Females			GRAND TOTAL
					Preferred	Legal	Small	Total	Large	Small	Total	
L21	6/30/2008	58 41.4	170 25.9	38	467	3970	2413	6851	6461	0	6461	13312
L22	7/3/2008	58 40.0	171 4.9	43	1475	5489	2622	9586	2786	82	2868	12453
L23	7/4/2008	58 39.7	171 43.3	49	4547	4149	1516	10212	5505	1276	6781	16993
L24	7/4/2008	58 40.0	172 22.3	54	3715	2394	743	6853	495	0	495	7348
L25	7/13/2008	58 40.3	172 59.6	60	2612	1583	712	4908	49133	843	49977	54885
L26	7/13/2008	58 39.9	173 37.4	67	538	461	0	999	461	0	461	1460
L27	7/14/2008	58 40.1	174 16.5	84	81	0	0	81	0	0	0	81
L28	7/24/2008	58 44.6	174 57.2	77	0	0	153	153	0	77	77	230
L30	7/24/2008	58 40.1	176 11.4	74	0	0	81	81	0	81	81	162
L31	7/24/2008	58 40.0	176 50.8	73	0	0	80	80	0	160	160	241
M18	6/24/2008	59 0.4	168 31.4	24	0	80	159	239	239	0	239	477
M19	6/29/2008	59 0.3	169 11.3	27	1542	1542	83795	86880	11905	1323	13228	100108
M20	6/29/2008	58 59.9	169 50.1	33	2653	30512	132661	165827	35433	2215	37647	203474
M21	6/30/2008	59 0.1	170 29.3	37	168	14103	11752	26023	19408	0	19408	45431
M22	7/3/2008	59 0.1	171 8.1	40	5627	29114	6116	40858	17515	0	17515	58373
M23	7/3/2008	58 60.0	171 47.6	45	1933	4672	644	7250	2014	81	2094	9344
M24	7/3/2008	58 59.7	172 24.4	51	4730	32211	4955	41896	3171	423	3594	45491
M25	7/14/2008	59 0.4	173 5.4	56	981	2043	327	3351	15690	1308	16998	20349
M26	7/14/2008	59 0.3	173 43.8	62	881	480	641	2002	7926	240	8167	10168
M27	7/14/2008	58 59.6	174 23.3	68	305	305	0	610	229	0	229	838
M28	7/23/2008	59 0.0	175 1.8	70	75	75	603	754	0	1207	1207	1961
M29	7/23/2008	59 0.2	175 43.7	71	0	0	158	158	0	792	792	950
M30	7/23/2008	59 0.1	176 19.9	72	0	0	326	326	0	326	326	651
M31	7/23/2008	58 59.9	176 57.2	73	0	0	82	82	0	246	246	328
N18	6/24/2008	59 20.3	168 33.4	21	0	0	77	77	0	154	154	231
N19	6/29/2008	59 20.4	169 13.9	25	364	4734	17299	22398	2608	0	2608	25005
N20	6/30/2008	59 20.0	169 52.4	31	0	3498	148650	152147	41619	771	42389	194537
N21	6/30/2008	59 20.4	170 32.4	36	549	7685	15552	23786	23795	787	24582	48367
N22	7/3/2008	59 20.2	171 11.1	39	2088	15578	11190	28855	32087	563	32649	61505
N23	7/3/2008	59 19.6	171 50.5	42	2983	12414	5320	20716	4192	1451	5643	26359
N24	7/3/2008	59 19.9	172 29.7	46	20491	22648	6355	49493	710	16724	17434	66927
N25	7/14/2008	59 20.0	173 8.8	53	2585	10421	1535	14541	565	3151	3716	18257
N26	7/14/2008	59 20.3	173 47.8	59	701	2182	1714	4598	74159	3039	77199	81796

Appendix B5. Summary of crab density by tow (number/nm<sup>2</sup>) for snow crab (*Chionoecetes opilio*)

Station	Date	N. Lat.	W. Long	Fathoms	Males				Females			GRAND TOTAL
					Preferred	Legal	Small	Total	Large	Small	Total	
N27	7/14/2008	59 20.1	174 25.3	64	1549	1141	978	3668	82	2771	2853	6521
N28	7/22/2008	59 20.3	175 5.8	71	0	0	0	0	0	235	235	235
N29	7/22/2008	59 20.2	175 44.8	73	81	0	162	243	0	323	323	566
N30	7/22/2008	59 20.0	176 22.8	72	0	0	567	567	0	2026	2026	2593
N31	7/22/2008	59 20.0	177 4.0	80	0	0	0	0	0	394	394	394
O19	6/24/2008	59 40.2	169 16.0	24	0	157	1332	1488	0	2507	2507	3995
O20	6/30/2008	59 40.2	169 55.1	29	449	4491	74095	79035	25365	7851	33217	112251
O21	6/30/2008	59 40.1	170 34.8	34	0	11920	46425	58345	15371	0	15371	73716
O22	7/3/2008	59 40.0	171 16.1	38	710	7246	9375	17331	8489	0	8489	25820
O23	7/3/2008	59 40.0	171 53.9	40	1529	6795	21192	29516	63823	0	63823	93339
O24	7/3/2008	59 40.0	172 33.3	45	3199	17276	12797	33271	3171	1138	4309	37581
O24	7/2/2008	59 49.7	172 15.4	39	944	8990	28784	38718	21366	1613	22979	61697
O25	7/2/2008	59 50.0	173 33.7	50	8608	6233	3191	18031	371	5491	5862	23894
O25	7/2/2008	59 40.5	173 15.4	50	5008	3678	2035	10721	391	6260	6652	17372
O25	7/2/2008	59 30.7	172 52.8	49	6979	3372	5133	15484	78	18981	19060	34544
O26	7/2/2008	59 31.1	173 30.8	53	4121	7906	1850	13877	589	589	1177	15054
O26	7/14/2008	59 40.4	173 50.6	55	2193	4223	1949	8366	2030	4954	6985	15350
O27	7/14/2008	59 40.1	174 26.6	61	4307	5264	5184	14754	108651	20822	129472	144226
O27	7/15/2008	59 49.8	174 14.5	57	2130	3865	710	6705	1420	789	2209	8914
O28	7/21/2008	59 39.1	175 7.1	67	933	3343	1866	6142	66348	6635	72983	79125
O29	7/21/2008	59 39.9	175 52.8	73	317	396	792	1504	712	1425	2137	3641
O30	7/21/2008	59 40.0	176 32.3	73	158	79	394	630	79	1103	1182	1812
O31	7/22/2008	59 39.9	177 8.7	93	81	0	0	81	0	81	81	162
P19	6/23/2008	60 0.1	169 19.8	24	0	0	235	235	0	470	470	705
P20	6/30/2008	59 59.8	169 57.4	28	403	5574	118174	124151	22154	32085	54238	178390
P21	6/30/2008	59 59.8	170 37.8	34	684	6328	23430	30442	4257	0	4257	34699
P22	7/1/2008	60 0.2	171 17.5	36	239	5343	16030	21613	7337	479	7816	29428
P23	7/1/2008	60 0.6	171 57.7	34	104	623	5499	6226	4981	2387	7367	13593
P23	7/2/2008	60 9.8	172 19.8	30	0	79	61716	61795	3231	55571	58802	120597
P24	7/1/2008	59 59.4	172 35.0	34	0	236	7633	7869	6531	6059	12591	20460
P25	7/2/2008	59 50.1	172 55.2	42	622	9951	55973	66545	64678	622	65300	131845
P25	7/15/2008	60 0.1	173 18.9	39	239	1352	15190	16780	29874	2201	32074	48854
P26	7/15/2008	60 0.1	173 57.1	51	7360	11633	3878	22870	237	237	475	23345

Appendix B5. Summary of crab density by tow (number/nm<sup>2</sup>) for snow crab (*Chionoecetes opilio*)

Station	Date	N. Lat.	W. Long	Fathoms	Males				Females			GRAND TOTAL
					Preferred	Legal	Small	Total	Large	Small	Total	
P26	7/15/2008	60 6.8	173 46.3	47	737	2704	860	4302	860	0	860	5162
P27	7/18/2008	59 59.4	174 35.7	57	1100	2043	1179	4322	3222	1257	4479	8801
P28	7/21/2008	60 0.1	175 16.6	63	1036	638	1196	2870	1674	2551	4225	7095
P29	7/21/2008	59 59.6	175 55.4	69	1394	929	619	2942	18195	3220	21415	24357
P30	7/20/2008	60 0.2	176 42.8	75	315	79	2522	2916	0	14126	14126	17042
P31	7/20/2008	60 0.3	177 12.5	73	80	80	1205	1365	0	4659	4659	6024
P32	7/19/2008	60 0.5	177 54.5	75	0	0	83	83	0	0	0	83
Q19	6/23/2008	60 20.2	169 20.5	22	0	0	152	152	0	76	76	228
Q20	6/30/2008	60 20.1	170 2.3	27	80	2444	34549	37074	7759	28880	36639	73712
Q21	6/30/2008	60 20.2	170 38.3	32	0	797	10523	11321	2551	399	2950	14270
Q22	7/1/2008	60 20.2	171 21.2	34	0	408	11330	11738	19818	793	20610	32348
Q23	7/2/2008	60 20.0	172 4.2	30	0	0	7562	7562	6970	15775	22745	30307
Q25	7/15/2008	60 10.6	173 1.2	31	0	1026	23674	24700	13178	7812	20991	45691
Q25	7/15/2008	60 17.9	173 22.8	32	0	796	32237	33033	16118	17113	33232	66264
Q26	7/15/2008	60 20.0	174 4.2	48	470	8682	48692	57844	81539	4633	86172	144017
Q27	7/18/2008	60 19.8	174 42.2	55	664	1826	2407	4898	3570	2740	6309	11207
Q27	7/18/2008	60 10.2	174 21.2	53	1076	2400	2897	6374	83	5132	5215	11588
Q28	7/20/2008	60 20.1	175 23.2	59	2246	3795	3408	9448	929	9813	10742	20191
Q29	7/20/2008	60 20.1	176 1.9	65	1131	1131	162	2423	323	323	646	3070
Q30	7/20/2008	60 20.1	176 42.9	73	876	796	876	2548	16891	3200	20092	22639
Q31	7/19/2008	60 19.6	177 22.4	79	702	312	234	1247	0	1481	1481	2728
R22	7/1/2008	60 40.0	171 26.2	33	0	162	9216	9377	4850	1051	5901	15279
R23	7/2/2008	60 40.1	172 7.1	31	0	79	5497	5575	2748	5261	8010	13585
R24	7/2/2008	60 39.9	172 44.9	23	0	0	212256	212256	1109	163372	164481	376736
R25	7/15/2008	60 41.0	173 28.1	34	0	0	35654	35654	13713	32782	46495	82149
R26	7/15/2008	60 40.1	174 7.0	46	163	2757	47627	50547	35425	34876	70301	120847
R27	7/18/2008	60 39.8	174 47.8	52	166	4801	26405	31371	745	15313	16058	47429
R28	7/17/2008	60 39.7	175 26.4	57	1016	1328	7343	9687	625	19373	19998	29685
R29	7/18/2008	60 40.6	176 12.4	63	2588	890	3316	6793	243	6955	7197	13990
R30	7/18/2008	60 40.1	176 47.8	69	1452	688	1528	3668	993	1605	2598	6267
R31	7/19/2008	60 40.2	177 30.4	78	858	234	11225	12316	0	29603	29603	41919
R32	7/19/2008	60 40.1	178 10.7	86	0	79	79	159	0	952	952	1111
S22	7/1/2008	60 59.5	171 27.3	31	0	0	20489	20489	19597	5379	24976	45465



Appendix B5. Summary of crab density by tow (number/nm<sup>2</sup>) for snow crab (*Chionoecetes opilio*)

Station	Date	N. Lat.		W. Long		Fathoms	Males				Females			GRAND TOTAL
							Preferred	Legal	Small	Total	Large	Small	Total	
S23	7/1/2008	61	0.2	172	10.5	33	0	0	16157	16157	13913	6108	20021	36178
S24	7/1/2008	60	60.0	172	48.8	34	0	0	12071	12071	5671	2349	8020	20092
S25	7/15/2008	61	0.4	173	30.1	40	0	79	10435	10514	5613	4348	9960	20474
S26	7/16/2008	61	0.2	174	11.2	44	0	81	21738	21819	18263	11637	29900	51719
S27	7/17/2008	60	59.8	174	54.2	49	0	552	15861	16414	15861	3551	19413	35826
S28	7/17/2008	61	0.1	175	31.3	54	659	2881	5268	8808	4692	7162	11854	20662
S29	7/18/2008	60	59.8	176	17.5	60	2495	1638	2495	6629	78	7252	7330	13959
S30	7/18/2008	61	0.1	176	58.1	65	3518	2863	818	7199	164	1882	2045	9245
S31	7/18/2008	60	59.5	177	36.8	72	7666	2663	2179	12508	81	4438	4519	17027
T25	7/16/2008	61	20.3	173	35.1	39	0	488	17819	18308	9693	8755	18449	36756
T26	7/16/2008	61	20.0	174	19.8	41	0	79	27442	27521	19234	19587	38821	66342
T27	7/16/2008	61	19.7	175	0.3	46	0	246	9579	9824	6386	3029	9415	19239
T28	7/17/2008	61	17.3	175	39.2	52	558	2710	14823	18091	6615	3507	10121	28212
T29	7/17/2008	61	20.0	176	19.2	56	623	3660	2336	6619	389	389	779	7398
T30	7/17/2008	61	19.8	176	57.3	62	4039	2772	4118	10928	0	9107	9107	20035
U25	7/16/2008	61	40.1	173	40.1	37	0	0	30045	30045	16620	13580	30200	60245
U26	7/16/2008	61	39.7	174	25.5	40	0	236	11709	11944	1100	6837	7937	19881
U27	7/16/2008	61	40.1	175	4.1	45	0	232	12781	13013	7088	11270	18358	31371
U28	7/17/2008	61	40.6	175	47.2	50	168	2688	28387	31242	9643	2125	11768	43010
U29	7/17/2008	61	40.2	176	27.4	55	159	2625	7160	9944	2228	1989	4216	14161
V25	7/16/2008	61	59.3	173	45.0	33	0	0	12239	12239	11106	10689	21795	34034
V26	7/16/2008	61	59.9	174	30.4	38	0	0	181052	181052	27872	226644	254516	435568
V27	7/16/2008	62	0.1	175	11.1	42	0	0	19457	19457	4950	13275	18225	37682
V28	7/17/2008	61	59.9	175	49.8	49	159	1272	18914	20344	3338	4450	7788	28132

NOTE: Minimum carapace sizes used are: Preferred Males > 4.0 in; Legal Males = 3.1 to 4.0 in; Large Females > 2.0 in.

Appendix B6. Summary of crab density by tow (number/nm2) for Tanner/snow hybrid crab (*Chionoecetes hybrid*)

Station	Date	N. Lat.		W. Long		Fathoms	Males				Females			GRAND TOTAL
							Preferred	Legal	Small	Total	Large	Small	Total	
A02	7/10/2008	55	0.2	166	56.6	84	81	0	0	81	0	0	0	81
A04	6/11/2008	54	50.1	165	30.6	81	79	79	0	158	0	0	0	158
B06	6/10/2008	55	20.6	164	33.4	54	0	81	81	162	0	0	0	162
B08	6/9/2008	55	20.3	163	24.6	27	81	81	0	162	0	0	0	162
C06	6/12/2008	55	40.2	164	35.4	51	80	0	0	80	0	0	0	80
D03	6/20/2008	56	0.2	166	23.8	67	0	0	0	0	169	0	169	169
D04	6/19/2008	55	59.7	165	47.2	57	235	0	0	235	157	0	157	392
D07	6/10/2008	56	1.0	163	56.3	48	80	0	0	80	0	0	0	80
E02	6/20/2008	56	20.3	167	2.5	60	0	0	0	0	80	0	80	80
E03	6/20/2008	56	20.4	166	24.6	55	81	0	0	81	81	0	81	163
E06	6/12/2008	56	20.0	164	35.1	45	0	83	0	83	0	0	0	83
E18	7/11/2008	56	20.3	168	14.0	80	155	155	0	311	78	0	78	388
E20	7/6/2008	56	20.3	169	29.3	77	79	0	0	79	0	0	0	79
E21	7/6/2008	56	20.1	170	3.4	58	0	0	161	161	80	161	241	402
E22	7/11/2008	56	20.1	170	41.7	64	0	80	0	80	0	0	0	80
F01	7/11/2008	56	40.2	167	40.3	54	0	79	0	79	0	0	0	79
F03	6/20/2008	56	40.0	166	26.5	44	0	81	0	81	81	0	81	162
F06	6/12/2008	56	40.3	164	35.7	39	80	0	0	80	80	0	80	159
F18	7/6/2008	56	39.2	168	18.5	57	685	152	0	838	0	0	0	838
F19	7/6/2008	56	40.0	168	53.8	53	223	111	0	334	0	0	0	334
F19	7/6/2008	56	49.8	168	36.8	51	78	156	78	311	2023	0	2023	2334
F20	7/6/2008	56	49.8	169	17.9	42	161	0	0	161	0	0	0	161
F22	7/11/2008	56	40.9	170	44.4	60	75	451	75	602	301	75	376	978
F23	7/11/2008	56	40.1	171	21.5	63	80	80	0	161	482	0	482	643
G01	6/25/2008	57	0.1	167	42.9	40	0	233	0	233	155	0	155	388
G03	6/20/2008	57	0.1	166	28.4	39	78	0	0	78	0	0	0	78
G04	6/16/2008	56	59.5	165	50.9	38	2259	78	0	2337	0	0	0	2337
G06	6/12/2008	56	59.2	164	36.8	37	79	79	0	158	0	0	0	158
G07	6/11/2008	57	0.5	164	2.6	36	325	163	0	488	0	0	0	488
G18	6/26/2008	56	60.0	168	18.5	42	80	721	240	1041	1522	0	1522	2563
G19	6/26/2008	57	9.8	168	38.9	40	235	78	0	313	0	0	0	313
G19	6/26/2008	57	0.6	168	57.8	42	0	319	0	319	0	0	0	319
G20	6/26/2008	57	0.0	169	33.3	31	80	80	0	159	0	0	0	159

Appendix B6. Summary of crab density by tow (number/nm<sup>2</sup>) for Tanner/snow hybrid crab (*Chionoecetes hybrid*)

Station	Date	N. Lat.		W. Long		Fathoms	Males				Females			GRAND TOTAL
							Preferred	Legal	Small	Total	Large	Small	Total	
G20	6/26/2008	57	9.8	169	19.4	37	0	240	0	240	0	0	0	240
G21	7/5/2008	56	50.2	169	54.8	38	82	0	0	82	0	0	0	82
G22	7/5/2008	56	59.8	170	47.2	50	0	78	0	78	0	0	0	78
G23	7/11/2008	57	0.3	171	23.1	58	0	0	0	0	317	0	317	317
G24	7/12/2008	56	57.0	172	2.4	63	0	80	0	80	80	0	80	160
H01	6/25/2008	57	20.0	167	44.1	38	0	79	0	79	79	0	79	159
H02	6/21/2008	57	20.2	167	6.7	37	0	77	0	77	0	0	0	77
H03	6/20/2008	57	19.9	166	29.4	36	245	0	0	245	0	0	0	245
H04	6/16/2008	57	19.7	165	52.2	36	404	0	0	404	0	0	0	404
H06	6/13/2008	57	19.9	164	36.3	34	159	159	0	317	79	0	79	397
H07	6/13/2008	57	20.3	163	59.9	33	0	234	0	234	0	0	0	234
H19	6/26/2008	57	20.1	168	58.7	37	82	82	0	164	0	0	0	164
H23	7/11/2008	57	19.7	171	27.8	54	81	0	0	81	81	0	81	162
H24	7/12/2008	57	20.6	172	5.5	59	0	0	83	83	0	0	0	83
I02	6/21/2008	57	41.7	167	6.0	36	0	0	0	0	82	0	82	82
I03	6/20/2008	57	40.0	166	30.8	34	243	0	0	243	0	0	0	243
I04	6/15/2008	57	40.1	165	52.9	33	481	240	0	721	80	0	80	801
I05	6/15/2008	57	40.1	165	15.4	31	158	394	236	788	551	0	551	1339
I06	6/13/2008	57	40.2	164	37.4	27	0	82	0	82	82	0	82	165
I18	6/25/2008	57	40.0	168	23.7	37	0	227	0	227	0	0	0	227
I21	6/28/2008	57	39.8	170	15.9	38	0	81	0	81	0	0	0	81
I21	6/28/2008	57	30.4	169	59.5	36	246	82	0	328	82	0	82	409
I22	7/5/2008	57	49.9	170	36.9	41	0	327	0	327	0	0	0	327
I23	7/12/2008	57	39.6	171	32.3	53	80	0	0	80	0	0	0	80
I25	7/13/2008	57	40.4	172	48.9	63	0	80	0	80	0	0	0	80
J01	6/25/2008	57	59.7	167	48.5	34	0	82	0	82	0	0	0	82
J02	6/21/2008	57	59.9	167	9.8	33	996	230	0	1226	77	0	77	1302
J03	6/21/2008	57	59.9	166	31.6	32	0	81	0	81	162	0	162	243
J04	6/21/2008	58	0.4	165	54.4	28	79	79	0	158	0	0	0	158
J05	6/15/2008	57	59.9	165	15.1	26	0	0	80	80	80	0	80	160
J18	6/25/2008	58	0.1	168	26.8	36	0	78	0	78	0	0	0	78
J19	6/28/2008	58	0.3	169	4.2	37	163	0	0	163	0	0	0	163
J20	6/29/2008	58	0.0	169	42.2	36	0	0	0	0	81	0	81	81

Appendix B6. Summary of crab density by tow (number/nm<sup>2</sup>) for Tanner/snow hybrid crab (*Chionoecetes hybrid*)

Station	Date	N. Lat.	W. Long	Fathoms	Males				Females			GRAND TOTAL
					Preferred	Legal	Small	Total	Large	Small	Total	
J20	6/28/2008	57 50.5	169 22.3	34	78	78	0	156	0	78	78	234
J21	7/4/2008	57 59.9	170 20.3	38	0	78	78	156	0	0	0	156
J23	7/12/2008	57 59.6	171 35.8	51	0	0	81	81	1059	244	1304	1385
K01	6/24/2008	58 19.9	167 50.2	31	635	318	0	953	0	0	0	953
K02	6/21/2008	58 19.8	167 11.9	27	0	0	0	0	151	0	151	151
K03	6/21/2008	58 19.7	166 33.4	25	81	0	0	81	0	0	0	81
K18	6/25/2008	58 20.3	168 30.1	34	0	474	0	474	158	0	158	632
K20	6/29/2008	58 20.5	169 44.7	36	0	80	0	80	80	0	80	160
K21	7/4/2008	58 20.0	170 23.1	39	0	78	0	78	0	0	0	78
K22	7/4/2008	58 20.6	171 1.2	44	0	76	0	76	76	0	76	152
K23	7/4/2008	58 19.7	171 39.2	50	0	0	0	0	243	0	243	243
K24	7/4/2008	58 20.1	172 17.8	54	116	0	116	233	0	0	0	233
K26	7/13/2008	58 20.9	173 32.6	62	0	0	0	0	79	79	158	158
L18	6/24/2008	58 39.9	168 29.8	27	0	321	80	402	321	0	321	723
L19	6/29/2008	58 39.9	169 9.5	32	375	1126	1502	3004	2253	0	2253	5256
L20	6/29/2008	58 40.4	169 46.9	35	80	80	0	159	80	0	80	239
L21	6/30/2008	58 41.4	170 25.9	38	0	0	0	0	78	0	78	78
L22	7/3/2008	58 40.0	171 4.9	43	0	82	0	82	0	0	0	82
L25	7/13/2008	58 40.3	172 59.6	60	79	79	0	158	317	79	396	554
L28	7/24/2008	58 44.6	174 57.2	77	0	0	306	306	0	766	766	1072
L30	7/24/2008	58 40.1	176 11.4	74	0	0	486	486	0	405	405	892
L31	7/24/2008	58 40.0	176 50.8	73	0	0	321	321	0	1204	1204	1524
M19	6/29/2008	59 0.3	169 11.3	27	0	0	4498	4498	1852	0	1852	6350
M21	6/30/2008	59 0.1	170 29.3	37	0	160	80	240	561	0	561	801
M22	7/3/2008	59 0.1	171 8.1	40	0	81	0	81	0	0	0	81
M23	7/3/2008	58 60.0	171 47.6	45	0	0	0	0	81	0	81	81
M25	7/14/2008	59 0.4	173 5.4	56	0	245	0	245	899	0	899	1144
M26	7/14/2008	59 0.3	173 43.8	62	0	0	80	80	560	160	721	801
M27	7/14/2008	58 59.6	174 23.3	68	152	0	0	152	0	0	0	152
M28	7/23/2008	59 0.0	175 1.8	70	0	0	0	0	0	453	453	453
M29	7/23/2008	59 0.2	175 43.7	71	0	0	79	79	0	237	237	317
M30	7/23/2008	59 0.1	176 19.9	72	0	0	0	0	0	244	244	244
M31	7/23/2008	58 59.9	176 57.2	73	0	0	164	164	0	0	0	164

Appendix B6. Summary of crab density by tow (number/nm<sup>2</sup>) for Tanner/snow hybrid crab (*Chionoecetes hybrid*)

Station	Date	N. Lat.	W. Long	Fathoms	Males				Females			GRAND TOTAL
					Preferred	Legal	Small	Total	Large	Small	Total	
N19	6/29/2008	59 20.4	169 13.9	25	158	316	316	790	1264	0	1264	2055
N20	6/30/2008	59 20.0	169 52.4	31	0	964	1929	2893	2411	0	2411	5304
N21	6/30/2008	59 20.4	170 32.4	36	0	392	392	785	942	0	942	1726
N23	7/3/2008	59 19.6	171 50.5	42	0	0	0	0	0	81	81	81
N24	7/3/2008	59 19.9	172 29.7	46	0	0	0	0	79	0	79	79
N25	7/14/2008	59 20.0	173 8.8	53	0	0	81	81	162	162	323	404
N26	7/14/2008	59 20.3	173 47.8	59	0	0	0	0	468	156	623	623
N30	7/22/2008	59 20.0	176 22.8	72	0	0	486	486	0	729	729	1216
N31	7/22/2008	59 20.0	177 4.0	80	0	0	0	0	0	236	236	236
O20	6/30/2008	59 40.2	169 55.1	29	0	896	2463	3358	1343	0	1343	4701
O21	6/30/2008	59 40.1	170 34.8	34	0	314	627	941	314	0	314	1255
O24	7/3/2008	59 40.0	172 33.3	45	0	0	0	0	81	163	244	244
O25	7/2/2008	59 50.0	173 33.7	50	74	74	223	371	0	0	0	371
O25	7/2/2008	59 40.5	173 15.4	50	78	0	78	157	0	78	78	235
O25	7/2/2008	59 30.7	172 52.8	49	0	0	78	78	0	78	78	157
O26	7/14/2008	59 40.4	173 50.6	55	0	0	0	0	81	406	487	487
O28	7/21/2008	59 39.1	175 7.1	67	0	0	233	233	155	466	622	855
O29	7/21/2008	59 39.9	175 52.8	73	79	0	158	237	237	475	712	950
O30	7/21/2008	59 40.0	176 32.3	73	0	158	315	473	0	1024	1024	1497
O31	7/22/2008	59 39.9	177 8.7	93	0	0	0	0	81	0	81	81
P20	6/30/2008	59 59.8	169 57.4	28	0	341	341	681	341	0	341	1022
P21	6/30/2008	59 59.8	170 37.8	34	0	155	0	155	0	0	0	155
P23	7/2/2008	60 9.8	172 19.8	30	0	0	0	0	79	0	79	79
P25	7/15/2008	60 0.1	173 18.9	39	0	0	80	80	80	0	80	159
P28	7/21/2008	60 0.1	175 16.6	63	0	0	80	80	0	638	638	718
P29	7/21/2008	59 59.6	175 55.4	69	0	0	0	0	77	77	155	155
P30	7/20/2008	60 0.2	176 42.8	75	0	0	315	315	0	1418	1418	1734
P31	7/20/2008	60 0.3	177 12.5	73	0	0	562	562	80	2008	2088	2651
P32	7/19/2008	60 0.5	177 54.5	75	0	83	0	83	83	83	166	250
Q20	6/30/2008	60 20.1	170 2.3	27	0	0	0	0	161	0	161	161
Q23	7/2/2008	60 20.0	172 4.2	30	0	0	79	79	0	0	0	79
Q25	7/15/2008	60 10.6	173 1.2	31	0	0	237	237	0	79	79	316
Q25	7/15/2008	60 17.9	173 22.8	32	0	0	199	199	0	199	199	398

Appendix B6. Summary of crab density by tow (number/nm<sup>2</sup>) for Tanner/snow hybrid crab (*Chionoecetes hybrid*)

Station	Date	N. Lat.	W. Long	Fathoms	Males				Females			GRAND TOTAL
					Preferred	Legal	Small	Total	Large	Small	Total	
Q26	7/15/2008	60 20.0	174 4.2	48	0	0	0	0	235	0	235	235
Q28	7/20/2008	60 20.1	175 23.2	59	0	77	310	387	232	1317	1549	1936
Q30	7/20/2008	60 20.1	176 42.9	73	0	0	318	318	0	716	716	1035
Q31	7/19/2008	60 19.6	177 22.4	79	78	0	234	312	78	234	312	624
R24	7/2/2008	60 39.9	172 44.9	23	0	0	158	158	79	0	79	238
R25	7/15/2008	60 41.0	173 28.1	34	0	0	638	638	0	559	559	1197
R29	7/18/2008	60 40.6	176 12.4	63	0	0	81	81	0	162	162	243
R30	7/18/2008	60 40.1	176 47.8	69	0	0	153	153	153	993	1146	1299
R31	7/19/2008	60 40.2	177 30.4	78	0	0	468	468	0	1715	1715	2183
R32	7/19/2008	60 40.1	178 10.7	86	0	0	952	952	238	12217	12455	13407
S29	7/18/2008	60 59.8	176 17.5	60	0	0	78	78	0	0	0	78
S30	7/18/2008	61 0.1	176 58.1	65	0	0	82	82	0	409	409	491
T28	7/17/2008	61 17.3	175 39.2	52	0	0	159	159	0	0	0	159

NOTE: Minimum carapace sizes used are: Preferred Males > 4.0 in; Legal Males = 3.1 to 4.0 in; Large Females > 2.0 in.

Appendix B7. Summary of crab density by tow (number/nm2) for hair crab (*Erimacrus isenbeckii*)

Station	Date	N. Lat.	W. Long	Fathoms	Males			Females			GRAND TOTAL	
					Legal	Prerecruit	Small	Total	Large	Small		Total
B08	6/10/2008	55 24.9	163 25.3	32	166	0	0	166	0	0	0	166
B08	6/10/2008	55 15.7	163 26.5	25	157	0	0	157	0	0	0	157
C08	6/9/2008	55 39.8	163 24.4	43	165	82	0	247	82	0	82	329
D08	6/9/2008	55 60.0	163 23.7	46	0	0	0	0	82	0	82	82
D09	6/9/2008	55 59.1	162 48.1	42	165	0	0	165	0	0	0	165
D10	6/8/2008	55 59.7	162 16.4	37	80	0	0	80	0	0	0	80
E09	6/9/2008	56 19.8	162 48.0	41	0	0	82	82	0	0	0	82
E10	6/8/2008	56 20.4	162 11.1	41	81	0	0	81	0	0	0	81
F09	6/9/2008	56 39.8	162 48.5	37	0	0	0	0	84	0	84	84
F10	6/8/2008	56 39.9	162 9.7	38	84	0	0	84	84	0	84	167
F11	6/7/2008	56 40.7	161 36.0	46	162	0	0	162	243	162	405	567
F12	6/6/2008	56 39.7	160 59.9	36	245	82	0	327	82	0	82	409
F13	6/6/2008	56 40.1	160 23.5	31	751	668	83	1502	83	334	417	1919
F14	6/6/2008	56 40.3	159 45.4	19	0	82	0	82	0	0	0	82
F24	7/12/2008	56 39.6	171 59.8	67	79	0	0	79	0	0	0	79
G09	6/8/2008	56 59.2	162 47.0	31	0	0	0	0	0	79	79	79
G10	6/8/2008	56 59.8	162 10.8	31	398	0	0	398	0	159	159	557
G11	6/7/2008	56 60.0	161 33.9	36	84	169	0	253	0	0	0	253
G12	6/6/2008	56 60.0	160 57.8	33	80	80	0	160	0	0	0	160
G13	6/6/2008	57 0.3	160 19.5	33	78	78	0	157	313	0	313	470
G14	6/5/2008	56 59.6	159 42.0	27	0	465	77	542	77	77	155	697
G20	6/26/2008	57 0.0	169 33.3	31	159	159	0	319	0	80	80	398
G21	7/5/2008	56 59.9	170 11.6	36	0	81	0	81	0	0	0	81
G21	7/5/2008	56 50.2	169 54.8	38	164	82	0	246	0	0	0	246
G21	6/28/2008	57 9.8	169 53.9	25	0	250	0	250	0	0	0	250
G22	6/28/2008	57 6.8	170 28.4	25	237	631	0	867	0	79	79	946
H01	6/25/2008	57 20.0	167 44.1	38	79	79	0	159	79	0	79	238
H08	6/11/2008	57 19.6	163 22.8	28	83	0	0	83	0	0	0	83
H09	6/8/2008	57 19.9	162 46.1	26	420	84	0	504	84	0	84	588
H10	6/8/2008	57 19.9	162 9.3	26	740	165	0	905	82	0	82	987
H11	6/7/2008	57 20.7	161 31.7	29	0	0	0	0	0	0	0	0
H12	6/6/2008	57 20.0	160 56.8	31	0	82	0	82	164	0	164	246
H13	6/5/2008	57 19.8	160 19.2	31	74	0	0	74	74	0	74	149

Appendix B7. Summary of crab density by tow (number/nm<sup>2</sup>) for hair crab (*Erimacrus isenbeckii*)

Station	Date	N. Lat.	W. Long	Fathoms	Males				Females			GRAND TOTAL
					Legal	Prerecruit	Small	Total	Large	Small	Total	
H18	6/26/2008	57 19.6	168 22.5	39	0	0	0	0	0	77	77	77
H20	6/26/2008	57 20.0	169 36.1	32	0	82	0	82	0	82	82	164
I07	6/14/2008	57 39.7	164 0.7	26	251	0	0	251	84	0	84	335
I08	6/12/2008	57 39.9	163 22.5	24	477	79	0	556	0	79	79	636
I09	6/8/2008	57 40.1	162 45.7	23	0	158	0	158	0	0	0	158
I10	6/8/2008	57 39.8	162 8.1	24	78	78	0	157	0	0	0	157
I11	6/7/2008	57 40.3	161 29.6	27	0	82	0	82	0	0	0	82
I12	6/6/2008	57 40.2	160 53.2	28	84	0	0	84	0	0	0	84
I13	6/5/2008	57 40.7	160 16.5	28	0	84	0	84	0	0	0	84
I15	6/4/2008	57 39.3	159 1.5	24	0	79	0	79	0	0	0	79
I21	6/28/2008	57 39.8	170 15.9	38	0	0	0	0	0	81	81	81
I21	6/28/2008	57 30.4	169 59.5	36	0	0	0	0	0	82	82	82
J06	6/13/2008	58 0.5	164 37.3	22	79	0	0	79	79	0	79	157
J13	6/5/2008	57 59.4	160 12.5	26	0	82	0	82	0	0	0	82
K05	6/15/2008	58 20.1	165 17.5	23	79	0	0	79	0	0	0	79
K06	6/13/2008	58 20.0	164 38.1	22	0	79	0	79	79	0	79	158
L01	6/24/2008	58 39.9	167 52.1	24	160	0	0	160	80	0	80	241
L02	6/22/2008	58 39.9	167 13.3	22	78	78	0	155	0	0	0	155
M01	6/24/2008	59 0.0	167 52.8	21	0	239	0	239	0	0	0	239
M18	6/24/2008	59 0.4	168 31.4	24	239	318	0	557	239	0	239	796
N01	6/24/2008	59 20.0	167 54.9	20	0	248	0	248	83	0	83	330
N18	6/24/2008	59 20.3	168 33.4	21	0	1079	0	1079	0	0	0	1079
N19	6/29/2008	59 20.4	169 13.9	25	0	0	0	0	79	0	79	79
O18	6/24/2008	59 39.7	168 37.2	19	0	330	0	330	0	0	0	330
P23	7/1/2008	60 0.6	171 57.7	34	0	0	0	0	0	104	104	104
Q20	6/30/2008	60 20.1	170 2.3	27	0	0	0	0	80	0	80	80

NOTE: Minimum carapace sizes used are: Legal Males > 3.25 in; Prerecruit Males = 2.0 to 3.25 in; Large Females > 2.6 in.



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