THE 2001 TRIENNIAL ST. MATTHEW ISLAND BLUE KING CRAB SURVEY AND COMPARISONS TO THE 1995 AND 1998 SURVEYS

By

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FOREWORD

The first Alaska Department of Fish and Game (ADF&G) survey of St. Matthew Island blue king crabs was in 1995 (Blau 1996), with the next triennial survey in 1998 (Blau and Watson 1999). A special nearshore survey was conducted in 1999 (Blau 2000). These surveys were funded under the Bering Sea Test Fishery (BSTF) project initiated in 1990 by ADF&G. Operational plans for each of the four St. Matthew Island surveys are in Watson et al. (1995), Blau (1996), Blau and Watson (1998 and 1999), and Watson and Pengilly (2001).

TABLE OF CONTENTS

TABLE OF CONTENTS (Cont.)

LIST OF TABLES

LIST OF FIGURES

LIST OF FIGURES (Cont.)

LIST OF FIGURES (Cont.)

LIST OF APPENDICES

ABSTRACT

A survey for blue king crabs *Paralithodes platypus* was conducted in the St. Matthew Island area between 59°30' - 60°45' N latitude and 172°00' - 173°55' W longitude in July and August 2001 aboard the FV *Billikin*. A total of 158 stations and 632 pots were fished for a total catch of 5,750 blue king crabs. Fifty-one percent were legal-sized males, 36% were sublegal-sized males, and 13% were females. Depth, location, date, and substrate type were recorded for each pot set and retrieved. Pot catches were enumerated to species, and blue king crab shell age, carapace length (CL), legal size status, and reproductive condition of females were recorded. Ninety-six percent of the legal male crabs and 83% of the sublegal male crabs were tagged and released during the survey. Comparative catch by sex and size groupings for 96 stations that were fished in common during the 2001, 1998, and 1995 surveys is discussed, with comments on population trends. A total of 44,981 snow crabs *Chionoecetes opilio*, 21 Tanner crabs *C. bairdi,* and 212 snow x Tanner hybrid crabs were captured. Snow crab shell age, carapace width (CW), legal size status, and the reproductive condition of females were recorded. Comparative snow crab catch by sex and size groupings for 96 stations that were fished in common during the 2001, 1998, and 1995 surveys is discussed. Underwater video observations and habitat data are also presented.

INTRODUCTION

The St. Matthew section of the Bering Sea king crab management area has supported annual commercial fisheries for blue king crabs *Paralithodes platypus* since 1977, with a peak harvest of 9.5 million pounds landed in 1983 (Bowers et al. 2001). In 1978, the National Marine Fisheries Service (NMFS) began conducting annual trawl surveys to assess population abundance and distribution of blue king crabs in the St. Matthew section (Otto et al. 1979). Much of the nearshore habitat for blue king crabs near St. Matthew Island is rocky and untrawlable, resulting in imprecise estimates of population abundance (Otto et al. 1984; Stevens and MacIntosh 1989). Areas supporting harvestable concentrations of legal males may not be well-sampled by the trawl survey, and sampling of mature females by the trawl survey is so poor that it does not provide sufficient information for estimating abundance of mature females (Zheng and Kruse 2000). In an effort to refine and supplement annual trawl survey catch data, ADF&G conducted triennial pot surveys in the St. Matthew section in 1995 and 1998 (Blau 1996; Blau and Watson 1999). A 'standard offshore' survey grid was developed from those surveys to serve as the basis for future triennial surveys. Major objectives of the 1995 and 1998 surveys were to determine the distribution and relative abundance of blue king crabs using pot gear, to tag crabs within the study area for recovery in subsequent commercial fisheries, and to sample crabs on soft and rocky bottoms.

The St. Matthew Island blue king crab stock was declared overfished in 1999 under guidelines established in the Federal Management Plan (FMP) and was closed to fishing that year (Bowers et al. 2001). This declaration and the depressed stock condition required that the Alaska Board of Fisheries (BOF) and the North Pacific Fishery Management Council (NPFMC) implement a rebuilding plan for the stock. The 2001 triennial St. Matthew blue king crab pot survey is necessary for assessing the stock condition, particularly of mature females, relative to rebuilding from an overfished condition and to sustain the time series of data that is needed for incorporation into multiple-year stock assessment models.

The estimated number of female blue king crabs caught during the 20-year history of NMFS trawl surveys in the St. Matthew Island area has averaged one-third the number of males (Stevens et al. 1998). The 1995 and 1998 ADF&G St. Matthew Island pot surveys sampled substantially more females than the NMFS trawl survey in any year, although only 40% of the total number of blue king crabs captured during those surveys were females (Blau 1996; Blau and Watson 1999). In addition, trawl survey catches of small blue king crabs $\leq$80 mm carapace length (CL) of both sexes were under-represented as compared to most of the crabs captured, i.e. crabs >80 mm CL.

Various aspects of the reproductive biology of female blue kings in the Bering Sea have been defined. The size at 50% maturity for St. Matthew females is 80.6 mm CL (Somerton and MacIntosh 1983). Multiparous females are biennial spawners, whereas primiparous females can spawn in two consecutive years (Somerton and MacIntosh 1985; Jensen and Armstrong 1989). High percentages of females with empty egg cases rather than ovigerous females have been reported in NMFS and ADF&G surveys and from inseason fishery data collected by observers in offshore regions near St. Matthew Island (Stevens and MacIntosh 1989 and 1993; Tracy 1995; Blau 1996; Blau and Watson 1999; Boyle et al. 1997). This higher percentage of non-ovigerous females in offshore waters is apparently due to the overall temporal distribution of ovigerous and non-ovigerous mature females. In late summer-early fall, ovigerous females are absent from deeper waters: 76% of the mature females were non-ovigerous in the August 1998 ADF&G

survey whereas ovigerous females comprised 70% of the mature females captured in nearshore, shallow waters <20 fathoms (Blau and Watson 1999).

This report describes the location, design, methods, and results for the third triennial survey of the St. Matthew Island blue king crab stock, with comparisons to the 1998 and 1995 surveys and comments on population trends. We also present data on snow and Tanner crabs captured during the 2001 survey and compare those results with the 1998 and 1995 surveys.

OBJECTIVES

Prioritized objectives of the 2001 survey were to:

1) Obtain a relative stock abundance index (pot survey catch per unit effort) of blue king crab in the waters south of St. Matthew Island between 59°30' - 60°45' N latitude and 172°00' - 173°55 W longitude.
2) Estimate the spatial apportionment of fishery mortality, movements of crabs between seasons, and growth by tagging and releasing male blue king crabs during the pot survey and collecting recovery information from subsequent St. Matthew blue king crab fishery seasons (if prosecuted).
3) Provide information for assessing roles of habitat and water temperature on the distribution of blue king crabs in the St. Matthew Island area by obtaining underwater video images of bottom characteristics and bottom water temperatures at fished survey stations.
4) Collect live snow crabs for a cooperative research project with the University of Alaska.

METHODS

Survey Design

The 2001 survey area and station array (Figure 1) was based on the 'standard offshore' survey grid established in 1995 and refined in 1998 (Blau 1996; Blau and Watson 1999). Two geographic strata with different densities of survey stations were sampled: a double-station density (Stratum 2) directly south of St. Matthew Island, and a single-station density (Stratum 1) offshore of Stratum 2. Station layout in Stratum 2 was based on a grid in which stations are spaced 5 nmi north-to-south and east-to-west and overlaid with another 5 nmi x 5 nmi grid offset by 2.5 nmi north-to-south and east-to-west. Station layout in Stratum 1 was based on a single 5 nmi x 5 nmi grid. Stratum 2 has historically produced the highest catches of mature females and legal males and contains the areas of highest fishery effort in historic fisheries (Blau and Watson 1998). The survey area encompassed by both strata reflects the distribution and density of blue king crabs in historic NMFS trawl surveys (Watson et al. 1995).

The 2001 blue king crab tagging survey was conducted aboard the chartered 40.2 m (132 ft) FV *Billikin* from July 23 to August 21, 2001. Captain J. Hilt, engineer R. Bonds, first mate D.

Bersano, and deckhands K. Kitchen and J. Schnyder deployed gear and assisted in catch sampling. Department staff biologists L. Watson (cruise leader), R. Gish (assistant cruise leader), G. Neufeld, and R. Burt sampled catches and tagged crabs. The area surveyed was located between 59°30' - 60°45' N latitude and 172°00' - 173°00' W longitude and encompassed 3,950 nmi^2 of known blue king crab habitat (Figure 1). One hundred fifty-eight stations were fished, the first stations were set July 25, 2001 and the last stations were set August 16, 2001 (Appendix A). Station 134 was not surveyed to allow the fishing of 6 stations west of Hall Island. Station pots were set in groups of four spaced 0.125 nmi apart and arrayed north-to-south. Seventy-five identical king crab pots measuring 7' x 7' x 34" were used to sample each station; each pot was webbed with #92 nylon twine with a stretch mesh of 2¾" and had two opposing 8" x 36" tunnel eye openings. Each pot was baited with one gallon of frozen chopped herring. A total of 632 pots were fished at an average depth of 41 fathoms with an average soak time of 35 hours.

Survey itinerary, latitude and longitude for station centers, pot locations, and description of fishing gear for the survey are documented in Watson and Pengilly (2001).

Catch Sampling

The contents of each pot fished were enumerated for species composition to provide catch per unit effort data for blue king crabs and snow *Chionoecetes opilio* and Tanner *C. bairdi* crabs by sex and size. All blue king crabs were measured and assessed for shell age and presence of injury or disease. Snow crabs were subsampled (minimum of 50 crabs per sex per pot) prior to measuring when catches were high. Carapace lengths (CL) of blue king crabs were taken to the nearest millimeter (mm), from the posterior margin of the right eye orbit to the midpoint of the rear margin of the carapace as in Wallace et al. (1949). Blue king crab shell age was estimated using the classification scheme adapted from Blau and Watson (1998) (Appendix B). Carapace widths (CW) of snow crabs were measured across the carapace at the widest part perpendicular to the medial line from the anterior to the posterior of the carapace, with the tips of the calipers reaching inside the lateral spines. Snow and Tanner crab shell age was estimated using the classification scheme as described in Jadamec et al. (1999). Legal size status of male blue king and snow crabs was also recorded (see terms below). Female blue king and snow crabs were assessed for clutch condition, percent clutch fullness, egg color, and embryo development. Complete sampling procedures are in Watson and Pengilly (2001).

Tagging Strategy

Blue king crabs were tagged in anticipation of their possible recovery during subsequent commercial fisheries. A maximum of 60 legal and 60 sublegal (≥90 mm CL) male blue king crabs were tagged and released at each station. Crabs were tagged through the isthmus muscle using Floy® poly 'spaghetti' tags as described in Gray (1965).

Terms

Terms for blue king crabs and snow crabs relative to sex and size groupings used in this report are defined as follows:

Blue King Crabs

- Legal Male - Carapace width ≥5.5 inches (139.7-mm) **outside** lateral spines.
- Sublegal Male - Carapace width <5.5 inches (139.7-mm) **outside** lateral spines.
- Legal Male Recruits - New-shell, legal-sized male crabs <134-mm CL.
- Legal Male Postrecruits - All legal-sized old-shell male crabs and all new-shell male crabs ≥134-mm CL.
- Sublegal Male <105-mm CL - All sublegal-sized males <105-mm CL.
- Sublegal Male Prerecruit Ones - All sublegal-sized male crabs ≥105-mm CL.
- Mature Female - External embryos or empty egg cases present.
- Immature Female - No external evidence of ovigerity.
- 'Leatherback' - Male blue king crab with a rubbery carapace regardless of shell age.

Snow Crabs

- Legal Male - Carapace width ≥79 mm **inside** lateral spines (the regulatory legal size is 3.1" CW and is measured outside the spines).
- Sublegal Male - Carapace width <79 mm **inside** lateral spines.
- Mature Female - Presence of distinct abdominal flap as described in Jadamec et al. (1999).
- Immature Female - Presence of distinct abdominal flap as described in Jadamec et al. (1999).

Underwater Video Camera Deployment

Video images were obtained throughout the survey area using a lighted autonomous underwater video system placed in a king crab pot. Pots with the video camera were deployed no less than 0.25 nmi from any survey station. Video observations were made to determine the presence or absence and behavior of blue king crabs in or near the camera pot and to provide information on habitat types within the survey area. A description of the video camera system, operation, and deployment methods is in Tracy et al. (1998).

Live Snow Crab Collection

Approximately 1,100 live male and female snow crabs were collected during the survey for use in five studies to be conducted in cooperation with the University of Alaska Fairbanks (UAF) and the University of Alaska Southeast (UAS). Selected snow crabs were collected near the end of the

survey and placed in the circulating seawater tanks of the FV *Billikin* and delivered to Dutch Harbor for packaging and shipment by University of Alaska-Fairbanks (UAF) and University of Alaska-Southeast (UAS) scientists. Details of the five studies are in Watson and Pengilly (2001).

Comparison of the 2001, 1998, and 1995 Survey Data Sets

Catch, catch per unit effort (CPUE), and tag-release data for blue king crabs are from 96 stations that were fished in common in each survey year to afford direct comparisons of these data. Snow crab catch and CPUE information is presented in a similar manner. However, specific catch and CPUE data from any station within the 'standard offshore' survey grid in any survey year may also be referenced and will be specified at that time.

Blue king and snow crab shell age and size distribution data presented in this report correspond to data collected from all offshore stations fished in each survey year. We choose this approach to look at trends in shell age and size across the surveyed stock. Clutch and egg characteristics of female blue king and snow crabs are also summarized from all offshore stations fished because of the rarity of such animals in survey catches.

RESULTS

Blue King Crabs

2001 Survey

Blue king crabs were captured at 150 stations (Appendix A); none were caught at stations 36, 95, 121, 132, 133, and 143-145.

Catch and Distribution. A total of 2,952 legal males, 2,059 sublegal males, 2 males of unknown legal-size status, 561 mature females, and 176 immature females were caught during the survey (Table 1 and Figure 2). Males were distributed throughout the survey area, with slightly higher catches of legal (54%) and sublegal (63%) crabs captured in Stratum 2 stations (Figure 3). The overall survey CPUE for legal males was 4.7 crabs per pot (Table 1). However, the average catch of legal males in Stratum 2 (7.4 crabs per pot) was more than double that of Stratum 1 (3.3 crabs per pot). The overall survey CPUE for sublegal males was 3.3 crabs per pot (Table 1). Sublegal male CPUE in Stratum 2 (6 crabs per pot) was triple that of Stratum 1 (3.3 crabs per pot). Peak survey CPUE for legal males was 27.3 crabs (station 20); peak CPUE for sublegal males was 18.0 crabs (station 18). Females were more narrowly distributed than male crabs within the survey area: most of the mature (93%) and immature (89%) female crabs were caught in Stratum 2 stations (Figure 4). Smaller catches of females in Stratum 1 stations were limited to just outside the perimeter of Stratum 2. The overall survey CPUE for females was 1.2 crabs per pot (Table 1) with a peak CPUE of 20.5 crabs at station 33.

Survey-wide, legal male postrecruits were most numerous (1,735) as compared to legal male recruits (1,216), sublegal males <105-mm CL (1,019) and sublegal prerecruit ones (1,033) (Table 1). Postrecruit crabs were most densely concentrated in Stratum 2 stations (4.6 crabs per pot) as

were sublegal males <105-mm CL (3.4 crabs per pot). Male and female blue king crab catch, CPUE, and station locations is summarized in Appendix A.

Tagged Crabs. A total of 4,552 blue king crabs were tagged and released during the survey; most were legal-sized males (2,840); tagged sublegal males numbered 1,712 (Appendix A). Ninety-six percent of the legal males and 83% of the sublegal males ≥90-mm CL that were captured during the survey were tagged. Distribution of tagging effort for legal and sublegal male blue king crabs is shown in Figures 5 and 6, respectively.

Size Distributions. Legal male crabs ranged in size from 114 to 163-mm CL around a single mode centered at 130-135-mm CL (Figure 7). Sublegal males ranged in size from 59 to 146-mm CL, with a single large mode skewed to the right and centered near 110-mm CL (Figure 7). Sublegal and legal males overlapped in size between 114 and 146-mm CL; males >146-mm CL were all legal-sized whereas those <114-mm CL were all sublegal in size (Table 2). Immature females ranged in size from 58 to 97-mm CL, with a large mode at 80-mm CL and a small indistinct mode at 90-mm CL (Figure 8). Mature females ranged in size from 69 to 124-mm CL, with a single large mode at 95-mm CL (Figure 8).

Shell Age and Incidence of Injury or Disease. The dominant shell age of surveyed crabs was new shell; 83% of the legal males, 95% of the sublegal males, and 68% of the females were categorized as new-shelled (Table 3). Thirteen legal male crabs were assessed as 'leatherbacks'; 10 of which were in old-shell condition. The incidence of chitinoclastic shell disease or 'shell rust' was negligible, affecting only two legal males. Evidence of prior snailfish egg infestations (e.g., smashed gills and deformed carapace overlying one branchial chamber) was noted in one legal and one sublegal male crab. This observation may be the first such documentation of parasitism of blue king crabs by snailfish similar to that described for golden king crabs *Lithodes aequispinus* and snailfish (Somerton and Donaldson 1998). Microsporidian or 'cottage cheese' disease and egg predators were not observed in survey crab catches.

The rate of new injuries to the rostrum, carapace, chelae (claws), and pereiopods (legs) as a result of capture and onboard handling during this survey was low, affecting 84 legal males, 87 sublegal males, and 8 females (Table 4). Injuries to the carapace and legs by crushing or cracking were the dominant new injury types observed. Tagging injuries caused by multiple tag insertions or tears to the isthmus muscle during the survey were observed in one legal male and five sublegal males. Evidence of old (e.g. not related to the survey) injuries were rare; 3 legal males and 7 sublegal males showed evidence of prior injury.

Female Reproductive Condition. Of the 737 females captured, 561 were classed as mature and 176 as immature. Mature females with matted pleopodal setae averaged 96-mm CL and accounted for 517 (70%) of the females. Of the 39 ovigerous females captured, 37 had uneyed eggs, 1 had eyed eggs, and 1 was unknown (Table 5). Clutch fullness varied: 7 females had clutches 1-29% full, 12 had clutches 30-59% full, 12 had clutches 60-89% full, and 9 had clutches 90-100% full. Eggs in most clutches (97.4%) were uneyed and purple-to-brown in color. One female had an egg clutch with dead eggs (<20%).

Underwater Video Camera Observations. The underwater camera system was deployed 12 times during the survey, with six of the 12 deployments yielding footage of habitat types and fish and shellfish presence in and around the camera pot (Table 6 and Figure 9). All six successful

deployments were made in Stratum 1 at depths ranging from 30 to 45 fathoms, four with the camera lens oriented towards the outside of the pot and two with the lens facing to the pot interior. A total of 4 hours of footage inside the pot and 1.4 hours of footage outside the pot were recorded. Blue king crabs were observed inside the pots during the 6th and 12th deployments whereas snow crabs were seen during the 7th, 8th, and 9th deployments. Fish such as Pacific cod *Gadus macrocephalus*, walleye pollock *Theregra chalcogramma*, Pacific halibut *Hippoglossus stenolepis*, yellowfin sole *Limanda aspera*, and sculpin (Cottidae), and skates (Rajidae) were commonly observed in and near deployed pots. Deployment 12, west of Hall Island recorded large schools of transparent fish, likely larval smelt (Osmeridae).

Programming difficulties resulted in 6 deployments in which the camera did not activate. Tide conditions at deployment 11 (west of Hall Island) were unfavorable, resulting in obscured footage for the duration of recorded images (20 minutes). Deployments will be made during future surveys, especially within Stratum 2. Programming will be adjusted to maximize recording time at periods of slack tides. A summary of the underwater video camera deployments is detailed in Appendix C.

Substrate Types. Substrate types were identified based on the ship's echo sounder and debris on pulled pots (mud, rock, etc.). Stratum 2 stations were nearly all (29 of 31 stations) identified as having rocky substrates (Figure 10). Conversely, nearly 96% (122 of 127 stations) of Stratum 1 stations were identified as having muddy substrates (Figure 10). Note that the rocky substrate in Stratum 1 borders the western edge of the predominantly rocky substrate of Stratum 2.

Comparison of the 2001, 1998, and 1995 Surveys

A total 10,752 legal male, 8,455 sublegal male and 6,017 female blue king crabs were captured during the three surveys (Appendix D). The 2001 survey, at 30 days, was the longest of the three surveys and started 8 calendar days before the onset of the 1995 (25-day duration) and 1998 (21-day duration) charters. Area coverage in the 2001 survey (3,950 nmi^2) exceeded that of the 1995 (3,450 nmi^2) and 1998 (3,425 nmi^2) surveys by 500 nmi^2, attributable to the additional 5-8 days of survey time allocated to the 2001 survey. Average soak times for fishing gear were similar between survey years; in 2001 pots soaked an average of 35 hours as compared to 34 hours in 1995 and 36 hours in 1998. Average depth fished was consistent between surveys at about 40 fathoms. The same fishing gear was used in all surveys. Catch, catch per unit effort (CPUE) and number of blue king crabs tagged by sex and survey year for all offshore stations fished is summarized in Appendix D.

Ninety-six stations were fished in common on the 2001, 1998 and 1995 surveys (Figure 11), including 61% of the 2001 stations as compared to 70% of the stations in both 1998 and 1995. Unless otherwise noted, information presented herein reflects descriptive comparisons among the three surveys only for the 96 stations fished in common. Data from the 1995 and 1998 surveys are referenced from Blau (1996), Blau and Watson (1999), and the databases for those surveys as of January 31, 2002.

Catch and Distribution. The overall catch rate of legal male crabs increased from 6.5 crabs per pot in 1995 to 8.3 crabs per pot in 1998, but declined to just 5.4 crabs per pot in 2001 (Table 7). The catch rate for sublegal male crabs declined steadily from 1995 to 2001, dropping from 6.7 crabs per pot in 1995 to 5.4 crab per pot in 1998 and to just 3.5 crabs per pot in 2001 (Table 7). Catch rates for female crabs increased from 1995 (4 crabs per pot) to 1998 (5.3 crabs per pot),

but declined sharply to only 0.1 crabs per pot in 2001 (Table 8). Relative catch rates of legal male, sublegal male and female blue king crabs in the three surveys are shown in Figures 12, 13, and 14, respectively.

The CPUE for legal males in Stratum 2 declined from 1995 to 1998 (Table 7), with highest decreases occurring at stations nearest to the island (Figure 15). CPUE for legal males continued to decline in Stratum 2 from 1998 to 2001, with most decreases occurring at stations further from the island (Figure 16). Within Stratum 1, the CPUE of legal males increased from 1995 to 1998 (Figure 15) and decreased from 1998 to 2001 (Figure 16).

Trends in sublegal male CPUE within Stratum 2 (Table 7) tended to mirror those of legal males over the three surveys. Sublegal male densities dropped sharply from 1995 to 1998 (Figure 17), with a smaller decline observed from 1998 to 2001 (Figure 18). Within Stratum 1, however, sublegal male densities were nearly identical from 1995 to 1998 (Figure 17) with a slight decline observed from 1998 to 2001 (Figure 18).

Changes in female crab CPUE (Table 8) differed from that observed for male crabs across the three surveys. From 1995 to 1998, female densities increased at most stations within Stratum 2 but declined sharply at stations closest to St. Matthew Island (Figure 19). However, from 1998 to 2001, very large declines occurred in Stratum 2 stations, with smaller decreases in portions of Stratum 1 (Figure 20). The proportion of mature-to-immature females in survey catches declined from about 4.5:1 crabs in the 1995 and 1998 surveys to 2.8:1 crabs in the 2001 survey.

Peak catch of legal male crabs at any single station declined from 154 crabs in 1995 to 125 crabs in 1998 and to 109 crabs in 2001 (Appendix D). Peak catch of sublegal males decreased more noticeably across the three surveys, from 155 crabs in 1995 to just 89 crabs in 1998 and 72 crabs in 2001. The peak catch of female crabs in 2001 (82 crabs) was not nearly as high as that observed during the 1995 (590 crabs) or 1998 (245 crabs) surveys.

Regardless of sex or legal status, it appears that the overall abundance of blue king crabs in the 96 stations declined from 1995 to 2001 and that in 1998, the distribution had changed such that crabs were concentrated further offshore than in 1995 and 2001.

Size Distributions. The comparative length distributions for blue king crabs from the three surveys include data from all offshore stations fished in each year. Legal male length distributions were similar across the three surveys, with a single dominant mode centered at 130-135-mm CL (Figure 21). A steady decline from 1995 to 2001 in the abundance of crabs 70-mm to 90-mm CL and 105-mm to 135-mm CL was noted; however, a modest increase in the number of males 90-mm to 105-mm CL was observed from 1998 to 2001. Legal and sublegal male crabs overlapped between 111-mm and 135-mm CL in the 1995 and 1998 surveys; in 2001, however, the overlap began at 114-mm CL and ended at 146-mm CL, extending the overlap range an additional 11-mm CL. Female distributions were similar in each survey, but the abundance of all size classes declined considerably from 1995 to 2001 (Figure 22).

Shell Age and Incidence of Injury or Disease. The comparative shell ages for blue king crabs from the three surveys include data from all stations fished in each year. The predominant shell age of surveyed legal and sublegal male crabs was new shell in 1998 and 2001 (Table 3). Most of the legal and sublegal males in the 1995 survey were new-shelled; however, direct comparisons to

the 1998 and 2001 data sets cannot be made due shell-age coding inconsistencies during the 1995 survey. Shell-age structure of female blue king crabs among the three surveys was incomparable due to different shell-age criteria applied during the 1998 and 1995 data sets (Table 3). The incidence of chitinoclastic shell disease or 'shell rust' was low, affecting two male crabs in 2001 and three male crabs in 1998. No 'leatherback' crabs were observed in 1995 and 1998 survey catches as compared to the 13 affected legal males in 2001. No prior evidence of snailfish egg infestations in host blue king crabs were noted in the 1995 and 1998 surveys as compared to the two males observed to have had infestations during the 2001 survey. The incidence of injury to captured blue king crabs was not documented during the 1995 and 1998 surveys, precluding any comparison to the overall low rates observed during the 2001 survey.

Female Reproductive Condition. The total number of egg-bearing females among all offshore stations fished in the three surveys was 67 crabs in 1995, 63 crabs in 1998 and 39 crabs in 2001 (Table 5). Most ovigerous females in the 1998 and 2001 surveys carried clutches of uneyed, purple-to-brown colored eggs, and had no apparent dead eggs. Other than clutch size, egg characteristics for nearly one-half of the females captured in the 1995 survey were not recorded, precluding comparisons of those data within the three surveys.

Tagged Crabs. A combined total of 12,904 blue king crabs were tagged from all stations fished during the three surveys (Blau 1996; Blau and Watson 1999). Legal males were the primary tagging targets, accounting for 8,763 of the tagged crab releases. Data from these returns was used to estimate the minimum exploitation rate incurred in subsequent commercial fisheries. Recoveries of legal males tagged during 1995 and recovered in the four subsequent commercial fisheries totaled 519; of the legal males tagged in 1998, 592 were recovered in the 1998 fishery. Sublegal male crabs $\geq$90-mm CL were the secondary tagging targets, accounting for 3,704 of the crabs tagged during the 1998 and 2001 surveys, with the expectation that information on growth, movement, and recruitment into the commercial fishery could be obtained. One hundred-twenty sublegal male crabs were recovered in the 1998 commercial fishery. Sublegal males were not tagged in 1995 due to implementation of a Passive Integrated Transponder (PIT) tag study targeting legal male and female crab during that survey (Watson et al. 1995). Females were only tagged during the 1995 survey (437 crabs) because recovery rates in the subsequent 1995-1998 commercial fisheries were quite low, with just 18 tagged females recovered during the 1995 fishery, one in the 1996 fishery, and one in the 1998 fishery. Summary data for tagging effort by station and stratum for all three surveys is in Appendix D. An analysis of tag recoveries will be completed in a future report.

Tagged crabs have been recovered during subsequent surveys or as bycatch in other fisheries in the St. Matthew Island area. One legal male tagged in 1998 was recaptured during the 1999 special nearshore survey and two legal males tagged in 1998 were recaptured during the 2001 survey. A tag assigned to a legal male tagged in 1998 was also recovered in 2001 during a shoreside trip to the southwest beach of St. Matthew Island. A single legal male tagged in 1998 was captured and re-released by a longline vessel in 2000; two legal males tagged in 2001 were captured and re-released by longline vessels in 2001.

Snow and Tanner Crabs

2001 Survey

Snow, Tanner and hybrid snow/Tanner crabs were captured at 110 stations (Appendix E); the 48 stations without catches were located near shore, adjacent to the island in rocky substrate.

Catch and Distribution. Snow crabs predominated survey catches with a catch of 19,365 legal males, 17,006 sublegal males, and 8,610 females (Appendix E). Of the captured females, 4,481 (52%) were classed as mature and 4,129 (48%) were classed as immature. Male and female snow crabs were mainly distributed in Stratum 1 stations (Figure 23). However, some animals were captured within Stratum 2 in transition areas between rocky and muddy bottom types. Most of the legal and sublegal male crabs were caught in Stratum 1 locations (Figure 24). Overall survey CPUE for legal male snow crabs was 30.6 crabs (Appendix E), with a peak CPUE of 154.6 crabs at station 75. The overall survey CPUE for sublegal males was 26.9 crabs (Appendix E), with a peak CPUE of 225.3 crabs at station 90. Most of the female crabs were caught in Stratum 1 stations (Figure 25). Smaller catches of females were mostly limited to just inside the southwest corner of Stratum 2. The overall survey CPUE for females was 13.6 crabs (Appendix E), with a peak CPUE of 320 crabs at station 90.

Twenty-one male Tanner crabs were captured during the survey in areas near stations 80, 90, and 110. Snow/Tanner hybrid crabs totaled 108 legal males, 79 sublegal males, 4 mature females and 21 immature females (Appendix E). Hybrids were generally located in the southeast quadrant of the survey area, with areas of greater abundance near stations 79, 106, 109, and 131. Hybrid abundance did not correspond with areas of high abundance of snow crabs.

Size Distributions. Legal male snow crabs were ≥79-mm to139-mm CW and sublegal males ranged in size from 28 to 78-mm CW (Figure 26). Female snow crabs ranged in size from 30-mm to 87-mm CW (Figure 26).

Shell Age and Incidence of Injury or Disease. The predominant shell age of sampled snow crabs was new shell; 66% of the legal males, 86% of the sublegal males, and nearly all of the females were categorized as new-shelled (Table 9). The incidence of chitinoclastic bacteria causing shell disease or 'shell rust' was negligible, affecting only two legal males. No egg predators were observed in survey catches. No other diseases such as black mat or bitter crab syndrome were observed.

Few snow crabs with injuries were observed during the survey. Crushed carapace injuries affected 20 males and cracked carapace injuries affected 5 males. Injuries to the rostrum, chelae (claws), and pereiopods (legs) as a result of capture and onboard handling were essentially non-existent. Although not recorded, the majority of these carapace injuries can probably be attributed to captured halibut thrashing on the sorting table.

Female Reproductive Condition. Nearly all of the mature females were ovigerous (4,478), whereas one crab had matted setae, two crabs had clean setae, and one crab had no clutch data recorded. Clutch fullness varied: 15% of the females carried clutches 1-29% full, 43% had clutches 30-59% full, 39% had clutches 60-89% full and 3% had clutches 90-100% full. Almost all (99.9%) of the

clutches were orange in color and uneyed; dead eggs were not apparent in any of the clutches (Table 10).

Comparison of the 2001, 1998, and 1995 Surveys

Unless otherwise noted, information presented herein reflects descriptive comparisons between the three surveys for the 96 stations fished in common (Figure 11). Data from the 1995 and 1998 surveys are referenced from Blau (1996), Blau and Watson (1999), and the databases for those surveys as of January 31, 2002.

Catch and Distribution. Catch trends presented for snow crabs are from all offshore stations fished in each survey year as detailed in Appendix F. Legal male crab CPUE fluctuated among the three surveys, from a low of 18.4 crabs per pot in 1995 to a high of 50.8 crabs per pot in 1998; in 2001, the CPUE declined to 30.6 crabs per pot. Catch rates for sublegal male crabs increased steadily, from a CPUE of 8.3 crabs in 1995 to 27.2 crabs in 2001. Female crabs numbered just 16 animals in 1995; however, the CPUE quadrupled from 3.0 crabs per pot in 1998 to 13.6 crabs per pot in 2001 (Appendix F).

Among the 96 stations fished in common in each survey year, legal and sublegal male snow crabs were abundant in Stratum 1 stations but were largely absent from Stratum 2 stations (Figures 27 and 28). Females were more sparsely distributed within Stratum 1 stations and were not captured in Stratum 2 during the 1995 survey (Figure 29).

Size Distributions. The comparative carapace width (CW) distributions presented for snow crabs include data from all offshore stations fished in each survey year. For male snow crabs, the dominant mode observed in the 1995 survey was at 80-mm CW; smaller modes at 65 mm and 100 mm were probably present, but obscured by the 5-mm grouping of width frequency data (Figure 30). Large modes at 80 mm and 95 mm were evident in 1998 survey catches, with obscured, smaller modes at 60 mm, 105 mm, and 115 mm CW. Prominent modes at 75 mm and 95-mm CW were observed in 2001, with smaller, obscured modes at 60 mm and 115-mm CW. Female snow crab size distributions are shown in Figure 31.

Shell Age and Incidence of Injury or Disease. The comparative shell age information for snow crabs includes data from all offshore stations fished in each survey year. The percentage of new-shelled legal male crabs in survey catches declined from a high of 87% in 1995 to a low of 66% in 2001 (Table 9). The percentage of new-shelled sublegal crabs in survey catches declined from 79% in 1995 to 63% in 1998, and increased to 86% in 2001. The majority of surveyed female snow crabs were in new-shell condition. In contrast to male snow crabs, however, the percentage of new-shelled females increased over the three surveys, from 75% in 1995 to 92% in 1998 and to nearly 100% in 2001. The incidence of chitinoclastic shell disease or 'shell rust' was low, affecting only five male crabs in 2001. Nemertean worms were found in the clutches of 31 females during the 1998 survey; none were found during the 1995 or 2001 surveys. A single female snow crab was reported with black mat syndrome during the 1998 survey.

Female Reproductive Condition. Prior to the 2001 survey, mature and immature female snow crabs were not enumerated separately. Catches from the 2001 survey showed that the ratio of mature to immature females was nearly 1:1. Female reproductive condition was similar in the three survey

years; virtually all ovigerous females were new-shelled and carried clutches that were 30-89% full, with uneyed bright orange eggs (Table 10).

Species Composition of 2001 Survey Catches

The ten most numerous species captured in surveys pots, in order of decreasing abundance were: snow crabs (45,181), blue king crabs (5,748), Pacific cod (1,514), arctic lyre crabs *Hyas coarctatus* (905), hermit crabs *Pagurus* sp. (771), yellowfin sole (312), great sculpin *Myoxocephalus polyacanthocephalus* (247), *C. opilio* X *C. bairdi* hybrid crabs (212), Pacific halibut (148), and angled buccinum *Buccinum angulosum* snails (110) (Table 13). When grouped by order or family, the brachyuran crabs, including snow crabs, Tanner crabs and arctic lyre crabs were most numerous in survey catches followed, in order of decreasing abundance, by anomuran crabs (blue king crabs, red king crabs *P. camtschaticus*, and hermit crabs.). Gadoid fish, including cod and pollock were the third highest in abundance, followed by gastropods, sculpins, and flatfish (such as halibut, yellowfin sole, Kamchatka *Atheresthes evermanni* and arrowtooth *A. stomias* flounders, and Greenland turbot *Reinhardtius hippoglossoides).*

DISCUSSION

Two known oceanographic events may be factors not only in the overall decline in blue king crab numbers around St. Matthew Island, but in apparent changes in their distribution. Ocean bottom water temperatures have been gathered by NMFS during annual eastern Bering Sea (EBS) surveys conducted during July and August dating back to 1978. The coldest average temperature in the St. Matthew Island area was recorded in 1994 (-1.2°C), warming slightly to -0.8°C in 1995 (Figure 32) (data source: B. O'Gorman, NMFS, Kodiak, February 20, 2002). Temperatures increased considerably in 1996 (1.6 °C) and remained warm in 1997 and 1998 (1.0 °C and 1.5 °C, respectively). It is possible that the warm period from 1996-1998 is responsible for the loss of the nearshore concentration of blue king crabs during the 1998 ADF&G survey and the more homogeneous distribution in 1998 relative to 1995 (Vining et al. 2001). The shift to generally higher temperatures in the mid 1990s through 2001 relative to the cooler temperatures of the early 1990s may be responsible for the overall decline in blue king crab abundance from 1995 to 2001.

Large cocolithophore blooms over the EBS shelf in mid to late summer have been noted over the past five years (Stabeno 2002) and result in the characteristic 'milky' appearance of ocean waters. We noted these blooms during the 1998 and 2001 surveys in the St. Matthew Island area. Whether or not these organisms affect abundance and distribution of blue king crabs is unknown. Additionally, interrelated oceanographic factors such as changes in the timing of sea ice appearance and recession, and the resultant changes in timing and distribution of spring phytoplankton blooms may also impact blue king crab abundance and distribution to an as-yet, undetermined degree.

Snow crab abundance in offshore survey catches has increased notably from 1995 to 2001 while overall blue king crab abundance has declined. Blue king crab abundance was highest in 1995

(n=10,683 animals) at a time of lowest snow crab abundance (n=14,721). By 1998, however, snow crab abundance had more than doubled (n=35,944) while blue king crabs had declined by 20% to 8,613 animals. At the time of the 2001 survey, blue king crab numbers had dropped to just 5,750 animals whereas snow crab numbers had increased to their highest survey level (n=44,981).

Different habitat preferences for the two species are indicated from the ADF&G pot surveys. Although blue king crabs are found on muddy substrates, most are associated with rocky or shell hash substrates. Snow crabs prefer muddy substrates and were rarely found on rocky substrates. NMFS trawl survey data for those stations within the ADF&G survey area indicate somewhat different habitat preferences for snow crabs, however. In 1995, snow crabs were found at a single trawl station (Stevens et al. 1996) located in the extreme southwest corner of the ADF&G survey area. However, in 1998 and 2001, snow crabs were abundant in trawl survey catches in the rocky substrate of Stratum 2 (prime blue king crab grounds) as well as in the mostly muddy benthos of Stratum 1 (Stevens et al. 1998; Rugolo et al. 2002).

As yet, the effects of prevailing oceanographic conditions on blue king and snow crab abundance within the survey area are unknown. However, it is possible that interspecific competition for habitat is occurring and that the fluctuating abundance of both snow and blue king crabs is related to ocean temperature changes. A more thorough examination of stock trends for snow and blue king crabs in and around St. Matthew Island over the past 20 years may provide insight on interactions between them.

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Table 1. Blue king crab catch and catch per unit effort (CPUE) by stratum and sex from the 2001 St. Matthew Island blue king crab survey.

			Legal Male					Sublegal Male					Female			
Stratum	Stations	Pots	Recruits	Post-recruits	Unknown Size	Total Number	Ave. CPUE	<105-mm CL	Prerecruit Ones	Unknown Size	Total Number	Ave. CPUE	Mature	Immature	Total Number	Ave. CPUE
1	104	416	609	744	0	1,353	3.3	291	475	1[a]	767	1.8	39	19	58	0.1
2[b]	54	216	607	991	1[a]	1,599	7.4	728	558	6[a]	1,292	6.0	522	157	679	3.1
All Strata	158	632	1,216	1,735	1[a]	2,952	4.7	1,019	1,033	7[a]	2,059	3.3	561	176	737	1.2

[a] Carapace length was not recorded at the time of the survey therefore we did not assign crabs to the categories within this table.

[b] Two males captured in Stratum 2 (one each at stations 11 and 49) were not assessed as either legal or sublegal and are not included in this table.

Table 2. Size overlap of sublegal and legal male blue king crabs from the 2001 St. Matthew Island survey.

Carapace Length (mm)	Number of Crabs		Total Sampled	Percent Legal
	Sublegal	Legal		
114[a]	58	1	59	1.7
115	59	1	60	1.7
116	60	5	65	7.7
117	48	14	62	22.6
118	58	9	67	13.4
119	55	19	74	25.7
120	34	46	80	57.5
121	38	64	102	62.7
122	19	84	103	81.6
123	11	75	86	87.2
124	3	88	91	96.7
125	7	90	97	92.8
126	1	92	93	98.9
127	0	96	96	100.0
128	0	100	100	100.0
129	0	114	114	100.0
130	1	147	148	99.3
131	1	127	128	99.2
132	2	137	139	98.6
133	0	115	115	100.0
134	0	130	130	100.0
135	0	139	139	100.0
136	0	115	115	100.0
137	0	105	105	100.0
138	1	110	111	99.1
139	0	99	99	100.0
140	1	107	108	99.1
141	0	85	85	100.0
142	0	101	101	100.0
143	0	51	51	100.0
144	1	79	80	98.8
145	1	74	75	98.7
146[b]	2	58	60	96.7
Total	461	2,677	3,138	85.3

[a] All male blue king crabs <114 mm carapace length had sublegal widths.
[b] All male blue king crabs >146 mm carapace length had legal widths.

Table 3. Shell age of blue king crabs from the 2001, 1998, and 1995 St. Matthew Island surveys. Data presented is from all offshore stations fished in each survey year.

Shell Age Category	2001		1998[a]		1995[b]	
	Number	Percent	Number	Percent	Number	Percent
			Legal Males			
New-pliable	3	<0.1	1	<0.1	506	13.1
New-hard	2,445	82.9	3,003	79.7	1,239	32.2
New or Old[c]	-	-	-	-	1,084	28.1
Old	498	16.9	644	17.1	923	24.0
Very Old	6	0.2	121	3.2	99	2.6
Total	2,952		3,769		3,851	
			Sublegal Males			
New-pliable	0	0.0	5	0.2	899	23.6
New-hard	1,959	95.1	2,447	94.5	1,542	40.5
New and Old[c]	-	-	-	-	841	22.1
Old	100	4.9	132	5.1	503	13.2
Very Old	0	0.0	5	0.2	22	0.6
Total	2,059		2,589		3,807	
			Females[d]			
New-pliable	0	0.0	-	-	-	-
New-hard	501	68.0	-	-	-	-
Old	236	32.0	-	-	-	-
Very Old	0	0.0	-	-	-	-
Total	737		-	-	-	-

[a] 1998 survey data from Blau and Watson (1999) and the 'StMatt98' database as of January 31, 2002.

[b] 1995 survey data from Blau (1996) and the 'StMatt95' database as of January 31, 2002.

[c] Includes both new-hard and old-shell male crabs due to shell-age coding inconsistencies during the first third of the 1995 survey (Blau 1996).

[d] Summary provided only for 2001 data; female crabs from the 1995 and 1998 surveys were assigned to shell age categories based on a combination of reproductive condition and exoskeletal features (Blau 1996; Blau and Watson 1999).

Table 4. Summary of injury observations made on male and female blue king crabs caught during the 2001 St. Matthew Island survey.

Injury Class and Category		Legal Male[a]		Sublegal Male[a]		Female	
		Number	Percent	Number	Percent	Number	Percent
New[b]	Rostrum	4	0.1	13	0.6	2	0.3
	Carapace	41	1.4	32	1.6	3	0.4
	Chela	10	0.3	10	0.5	1	0.1
	Leg	29	1.0	32	1.6	2	0.3
	Total	84	2.8	87	4.2	8	1.1
Old[c]	Rostrum	1	<0.1	1	<0.1	0	0.0
	Carapace	2	<0.1	3	0.1	0	0.0
	Chela	0	0.0	1	<0.1	0	0.0
	Leg	0	0.0	2	0.1	0	0.0
	Total	3	0.1	7	0.3	0	0.0
None	-	2,865	97.1	1,965	95.4	729	98.9
Total	-	2,952		2,059		737	

[a] Two male crabs were not assessed as either legal or sublegal during the survey and are not included in this table.

[b] New' injuries are a result of handling during capture.

[c] Old' injuries are of unknown origin and are identified by the presence of hard or soft black tissue covering the wound or autotomy plane.

Table 5. Clutch and egg characteristics for ovigerous female blue king crabs captured in the 2001, 1998, and 1995 St. Matthew Island surveys. Data presented is from all offshore stations fished in each survey year.

	2001		1998[a]		1995[b]	
Characteristic	Number	Percent	Number	Percent	Number	Percent
Clutch Size						
1 – 29% full	7	18	11	17	31	46
30 – 59% full	12	31	7	11	0	0
60 – 89% full	12	31	22	35	12	18
90 – 100% full	8	21	22	35	24	36
Not recorded	0	0	1	3	0	0
Total	39		63		67	
Live Egg Color						
Tan	1	3	0	0	4	6
Purple	13	33	20	32	16	24
Brown	0	0	27	43	9	13
Purple-brown	24	62	7	11	11	16
Pink	0	0	6	10	0	0
Reddish	0	0	3	5	1	1
Not recorded	1	3	0	0	26	39
Total	39		63		67	
Egg Development						
Uneyed	37	95	51	81	17	25
Eyed	1	3	3	5	18	27
Hatching	0	0	9	14	5	7
Not recorded	1	3	0	0	27	40
Total	39		63		67	
Dead Eggs						
Not apparent	37	95	58	92	33	49
Less than 20%	1	3	5	8	3	4
Greater than 20%	0	0	0	0	0	0
Not recorded	1	3	0	0	31	46
Total	39		63		67	

[a] 1998 survey data from Blau and Watson (1999) and the 'StMatt98' database as of January 31, 2002.
[b] 1995 survey data from Blau (1996) and the 'StMatt95' database as of January 31, 2002.

Table 6. Underwater video camera (UVC) deployment summary from observations made during the 2001 St. Matthew Island blue king crab survey.

Deployment	Set Date	Soak Hours	N. Latitude	W. Longitude	Depth (fm)	Elapsed Tape Time	Bottom Type	Camera Orientation
1	07/25/01	35	60° 22.87	173° 21.58	31	0	Rock	Outside Pot
2	07/27/01	36	60° 15.70	173° 05.38	30	0	Rock	Outside Pot
3	07/29/01	38	60° 14.85	173° 32.16	37	0	Rock	Outside Pot
4	07/31/01	36	60° 04.67	173° 04.93	35	0	Rock	Outside Pot
5	08/02/01	35	60° 08.33	172° 44.79	30	0	Rock	Outside Pot
6	08/05/01	35	60° 07.74	172° 09.70	31	60	Mud	Inside Pot
7	08/07/01	35	59° 57.72	173° 07.92	39	60	Mud	Outside Pot
8	08/09/01	34	59° 47.29	173° 05.81	46	60	Mud	Inside Pot
9	08/11/01	35	59° 43.53	172° 15.18	42	60	Mud	Inside Pot
10	08/13/01	34	59° 37.65	172° 35.28	45	0	Mud	Outside Pot
11	08/16/01	4	60° 43.17	173° 15.06	33	20	Mud	Outside Pot
12	08/16/01	26	60° 43.63	173° 14.34	34	60	Mud	Inside Pot

Table 7. Male blue king crab catch and catch per unit effort (CPUE) by stratum from the 2001, 1998, and 1995 St. Matthew Island surveys. Data presented is from the 96 stations fished in common in each survey year.

	Legal Male					Sublegal Male				
Strata/Survey Year	Recruits	Post-recruits	Unknown Category	Total Number	Average CPUE	<105-mm CL	Prerecruit Ones	Unknown Category	Total Number	Average CPUE
Stratum 1 (65 stations, 260 pots)										
2001	512	585	0	1,097	4.2	229	387	1[a]	617	2.4
1998[b]	942	1,044	2[a]	1,988	7.7	280	897	2[a]	1,179	4.5
1995[c]	519	550	55[d]	1,124	4.3	433	601	0	1,034	4.0
Stratum 2 (31 stations, 124 pots)										
2001	354	604	1[a]	959	7.7	413	327	4[a]	744	6.0
1998	399	806	0	1,205	9.7	531	354	0	885	7.1
1995	248	329	787[d]	1,364	11.0	744	799	1[a]	1,544	12.5
All Strata (96 stations, 384 pots)										
2001	866	1,189	1[a]	2,056	5.4	642	714	5[a]	1,361	3.5
1998	1,341	1,850	2[a]	3,193	8.3	811	1,251	2[a]	2,064	5.4
1995	767	879	842[d]	2,488	6.5	1,177	1,400	1[a]	2,578	6.7

[a] Carapace length was not recorded at the time of capture therefore we did not assign crabs to the categories within this table.
[b] 1998 survey data from Blau and Watson (1999) and the 'StMatt98' database as of January 31, 2002.
[c] 1995 survey data from Blau (1996) and the 'StMatt95' database as of January 31, 2002.
[d] Includes crabs that were classed as 'new or old' due to shell age coding inconsistencies during the first third of the 1995 survey (Blau 1996).

Table 8. Female blue king crab catch and catch per unit effort (CPUE) by stratum from the 2001, 1998, and 1995 St. Matthew Island surveys. Data presented is from the 96 stations fished in common in each survey year.

Strata/Survey Year	Mature Female	Immature Female	Unknown Category	Total Number	Average CPUE
Stratum 1 (65 stations, 260 pots)					
2001	20	14	0	34	0.1
1998[a]	97	30	1[b]	128	0.5
1995[c]	10	17	0	27	0.1
Stratum 2 (31 stations, 124 pots)					
2001	258	85	0	343	2.8
1998	1,566	343	0	1,909	15.4
1995	1,259	258	1[b]	1,518	12.2
All Strata (96 stations, 384 pots)					
2001	278	99	0	377	1.0
1998	1,663	373	1[b]	2,037	5.3
1995	1,269	275	1[b]	1,545	4.0

[a] 1998 survey data from Blau and Watson (1999) and the 'StMatt98' database as of January 31, 2002.

[b] Evidence of ovigerity was not recorded at the time of capture therefore we did not assign crabs as either mature or immature.

[c] 1995 survey data from Blau (1996) and the 'StMatt95' database as of January 31, 2002.

Table 9. Shell age of snow crabs from the 2001, 1998, and 1995 St. Matthew Island blue king crab surveys. Data presented is from all offshore stations fished in each survey year.

Shell Age Category	2001		1998[a]		1995[b]	
	Number	Percent	Number	Percent	Number	Percent
			Legal Males			
New-pliable	16	<0.1	50	0.2	0	0.0
New-hard	12,812	66.2	21,232	76.3	8,853	87.3
Old	5,265	27.2	5,353	19.2	1,133	11.2
Very Old	1,272	6.6	1,178	4.2	157	1.5
Total	19,365		27,813		10,143	
			Sublegal Males			
New-pliable	1	<0.1	1	<0.1	0	0.0
New-hard	14,555	85.6	4,076	62.6	3,596	78.8
Old	2,144	12.6	1,754	27.0	790	17.3
Very Old	306	1.8	676	10.4	175	3.8
Not recorded	0	0.0	0	0.0	1	<0.1
Total	17,006		6,507		4,562	
			Females			
New-pliable	13	0.2	7	0.4	0	0.0
New-hard	8,553	99.3	1,490	91.7	10	62.5
Old	36	0.4	120	7.4	6	37.5
Very Old	8	0.1	7	0.4	0	0.0
Total	8,610		1,624		16	

[a] 1998 survey data from Blau and Watson (1999) and the 'StMatt98' database as of January 31, 2002.

[b] 1995 survey data from Blau (1996) and the 'StMatt95' database as of January 31, 2002.

Table 10. Clutch and egg characteristics for ovigerous female snow crabs captured in the 2001, 1998, and 1995 St. Matthew Island blue king crab surveys. Data presented is from all offshore stations fished in each survey year.

	2001		1998[a]		1995[b]	
Characteristic	Number	Percent	Number	Percent	Number	Percent
Clutch Size						
1 – 29% full	674	15	51	7	0	0
30 – 59% full	1,915	43	269	35	3	38
60 – 89% full	1,743	39	333	44	0	0
90 – 100% full	150	3	106	14	5	63
Not Recorded	0	0	4	<1	0	0
Total	4,482		763		8	
Live Egg Color						
Tan	0	0	2	<1	0	0
Brown	3	<1	5	1	0	0
Orange	4,478	100	752	99	8	100
Purple-brown	0	0	4	<1	0	0
Not Recorded	1	<1	0	0	0	0
Total	4,482		763		8	
Egg Development						
Uneyed	4,478	100	758	99	8	100
Eyed	1	<1	0	0	0	0
Hatching	3	<1	5	1	0	0
Total	4,482		763		8	
Dead Eggs						
Not apparent	4,482	100	749	98	8	100
Less than 20%	0	0	14	2	0	0
Greater than 20%	0	0	0	0	0	0
Total	4,482		763		8	

[a] 1998 survey data from Blau and Watson (1999) and the 'StMatt98' database as of January 31, 2002.

[b] 1995 survey data from Blau (1996) and the 'StMatt95' database as of January 31, 2002.

Table 11. Species composition of pot catches from the 2001 St. Matthew Island blue king crab survey.

Rank	Scientific Name	Common Name	Number
1	Chionoecetes opilio	Snow crab	44,981
2	Paralithodes platypus	Blue king crab	5,750
3	Gadus macrocephalus	Pacific cod	1,514
4	Hyas coarctatus	Arctic lyre crab	905
5	Paguridae	Hermit crab unid.	771
6	Limanda aspera	Yellowfin sole	312
7	Myoxocephalus polyacanthocephalus	Great sculpin	247
8	C. opilio X C. bairdi	Snow/Tanner crab hybrid	212
9	Hippoglossus stenolepis	Pacific halibut	148
10	Buccinum angulosum	Angled buccinum	110
11	Theragra chalcogramma	Walleye pollock	73
12	Buccinum scalariforme	Ladder buccinum	64
13	Buccinum polare	Polar buccinum	60
14	Leptasterias polaris	Knobby six-rayed star	53
15	Neptunea ventricosa	Fat neptune	49
15	Rajidae	Skate unidentified	39
16	Careproctus scottae	Scott's snailfish	39
17	Neptunea pribiloffensis	Pribiloff neptune	38
18	Chionoecetes bairdi	Tanner crab	21
19	Gastropoda	Snail unidentified	20
20	Neptunea sp.	Neptune unidentified	19
20	Buccinum plectrum	Sinuous buccinum	13
21	Echinarachnius parma	Sand dollar	13
22	Neptunea heros	Northern neptune	12
23	Neptunea lyrata	Ribbed neptune	11
23	Collus halli	Hall's colus	10
24	Neptunea magna	Helmet neptune	10
25	Gorgonocephalus eucnemis	Basketstar unidentified	9
26	Crossaster papposus	Rose sea star	8
26	Actinaria	Sea anemone unid.	7
27	Porifera	Sponge unidentified	7
28	Cyclopteridae	Snailfish unidentified	6
29	Asteroidea	Starfish unidentified	5
30	Neptunea borealis	Little neptune	4
30	Acidian	Tunicate unidentified	4
31	Atheresthes evermanni	Kamchatka flounder	3
31	Plicifusus kroeyeri	Kroeyer's plicifus	3
31	Ophiura sp.	Brittlestar unidentified	3
32	Paralithodes camtschaticus	Red king crab	2
32	Atheresthes stomias	Arrowtooth flounder	2
32	Scyphozoa	Jellyfish unidentified	2
32	Octopus dofleini	Pacific octopus	2
32	Leptasterias arctica	Arctic sea star	2
32	Ceramaster patagonicus	Orange bat star	2
33	Reinhardtius hippoglossoides	Greenland turbot	1
33	Hemilepidotus jordani	Yellow Irish lord	1
33	Hemitripterus bolini	Bigmouth sculpin	1
33	Cottidae	Sculpin unidentified	1
33	Gersemia sp.	Sea raspberry	1
33	Eunoe sp.	Annelid unidentified	1
33	Clinocardium ciliatum	Hairy cockle	1
33	Serripes groenlandicus	Greenland cockle	1
33	Octopus leioderma	Smoothskin octopus	1
33	Pedicellaster magister	Majestic sea star	1
32	Ctenodiscus crispatus	Mud sea star	1

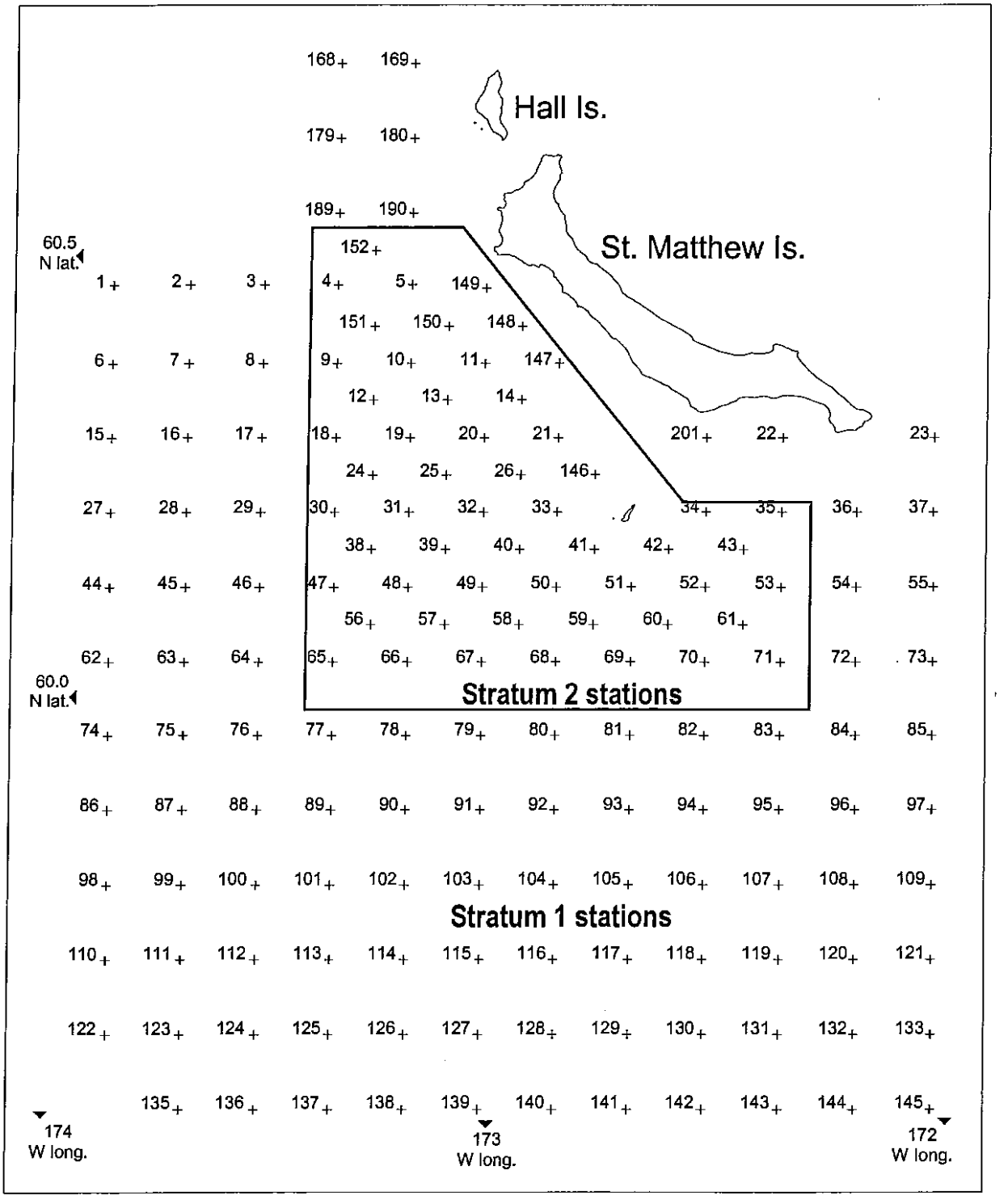

Figure 1. Survey area, mid-point station locations, and stratum designations for the 158 stations fished during the 2001 St. Matthew Island blue king crab survey.

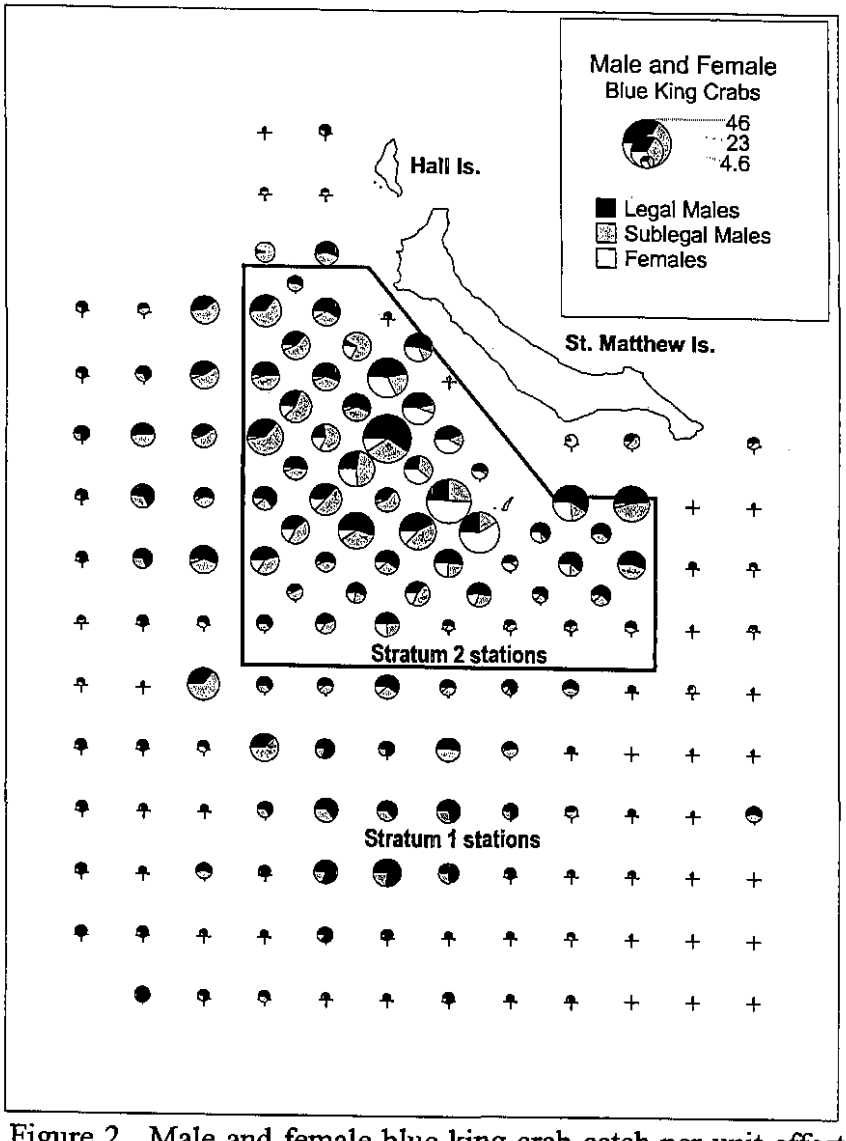

Figure 2. Male and female blue king crab catch per unit effort (CPUE) by station on the 2001 St. Matthew Island survey.

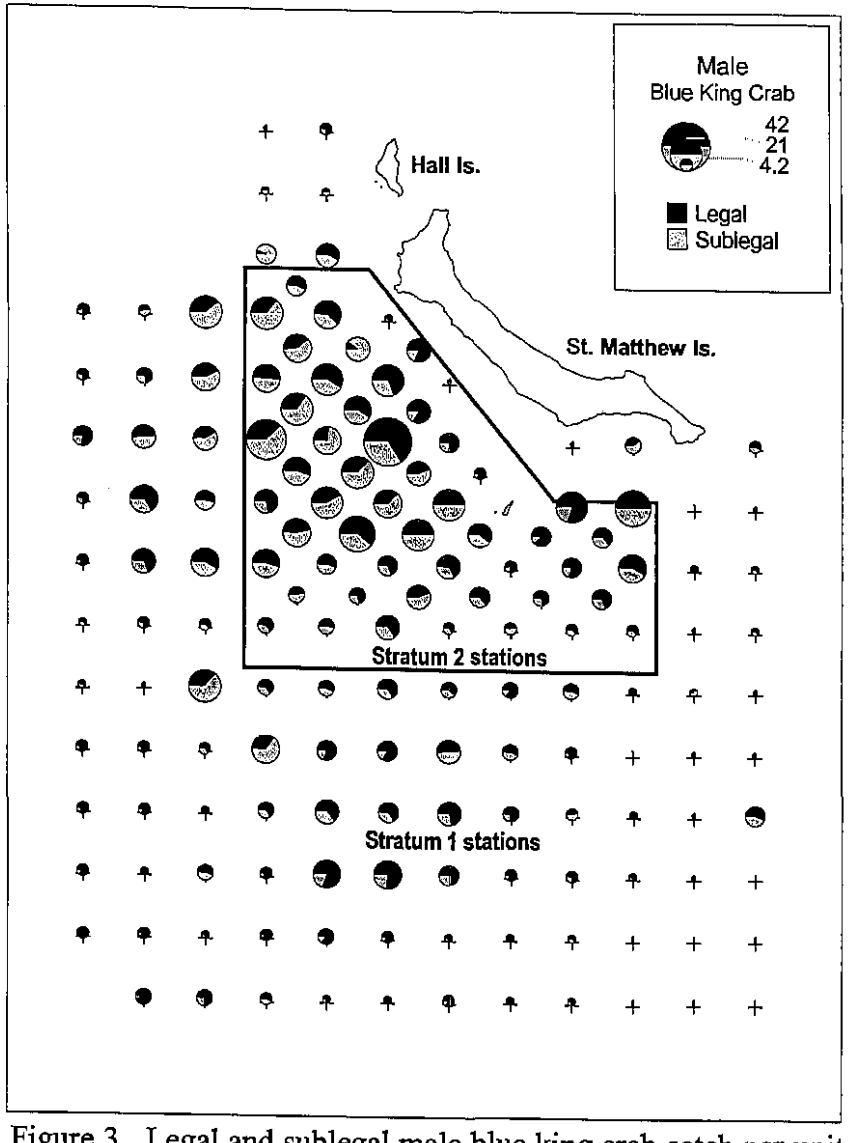

Figure 3. Legal and sublegal male blue king crab catch per unit effort (CPUE) by station on the 2001 St. Matthew Island survey.

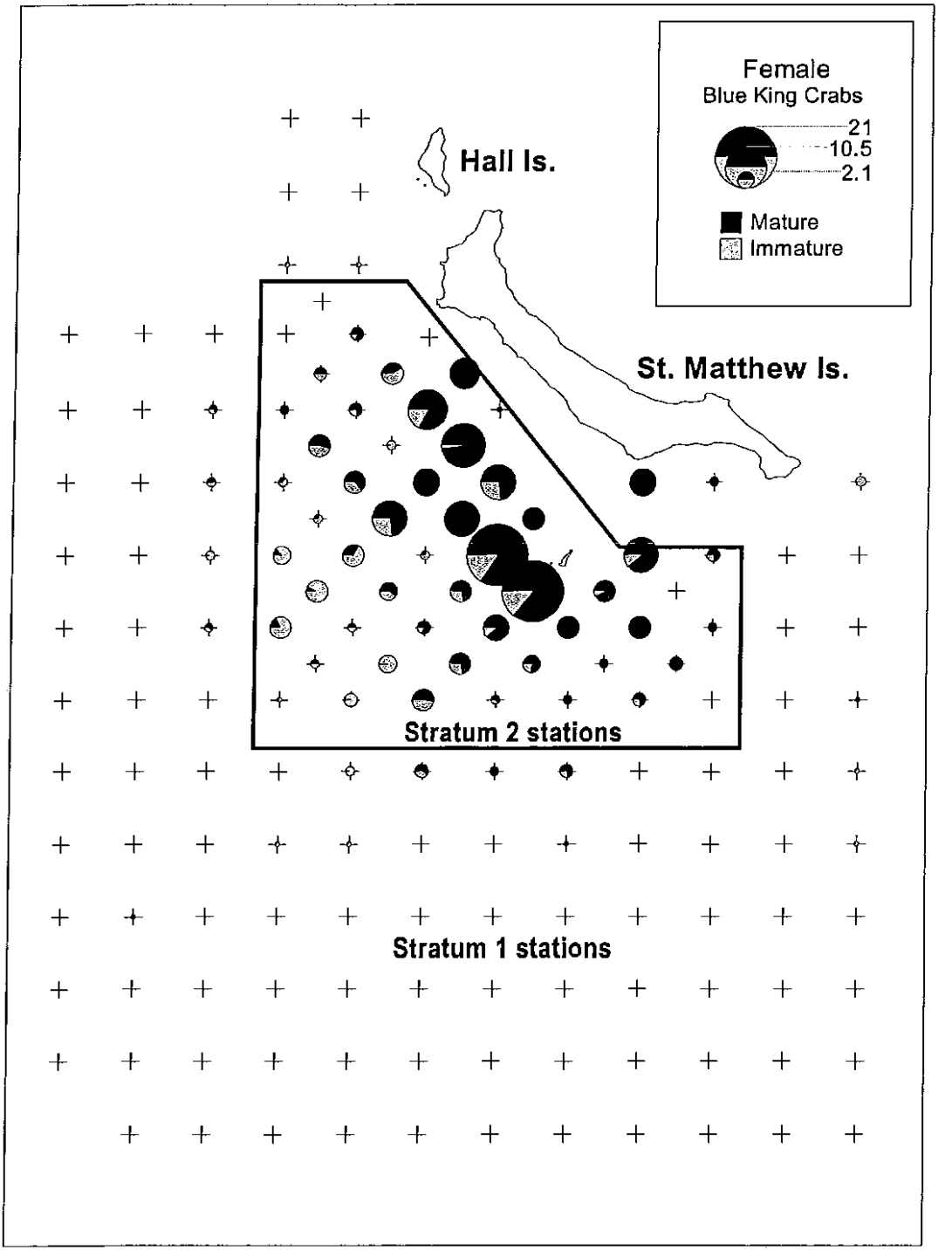

Figure 4. Mature and immature female blue king crab catch per unit effort (CPUE) by station on the 2001 St. Matthew Island survey.

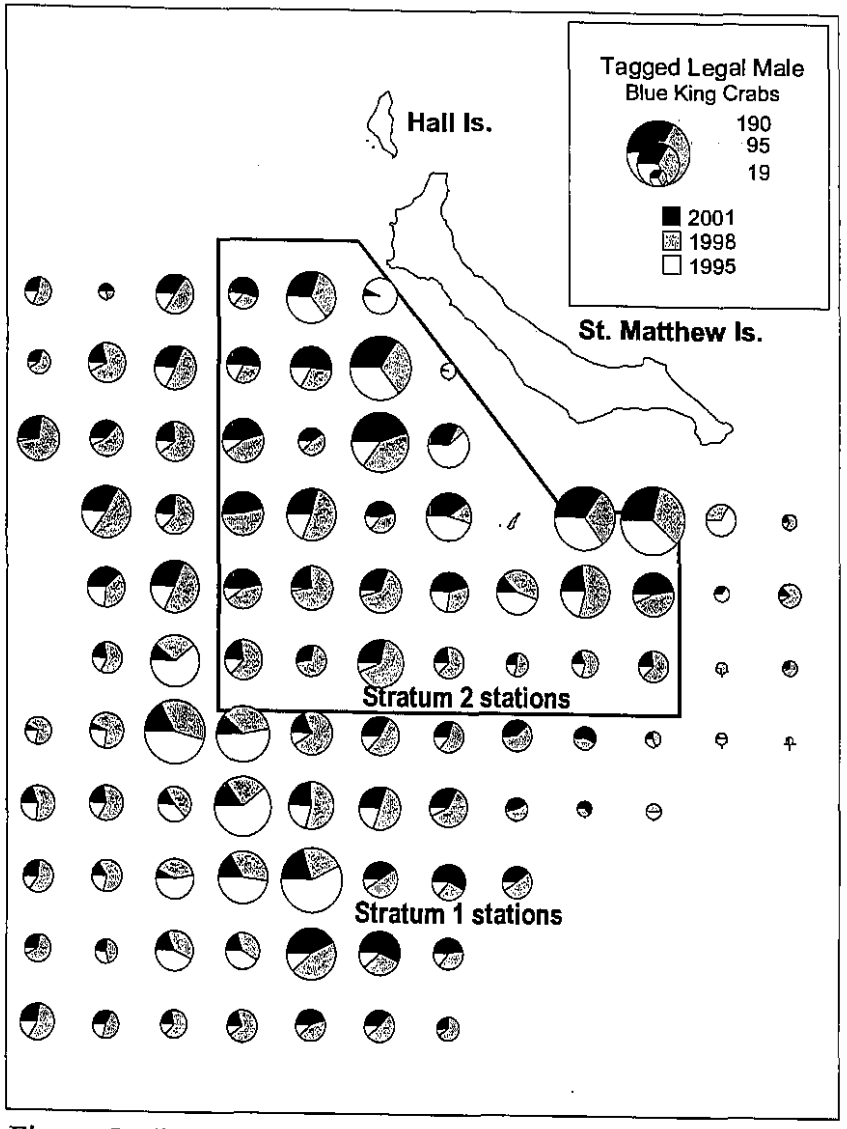

Figure 5. Legal male blue king crabs tagged and released at the 96 stations fished in common during the 2001, 1998 and 1995 St. Matthew Island surveys.

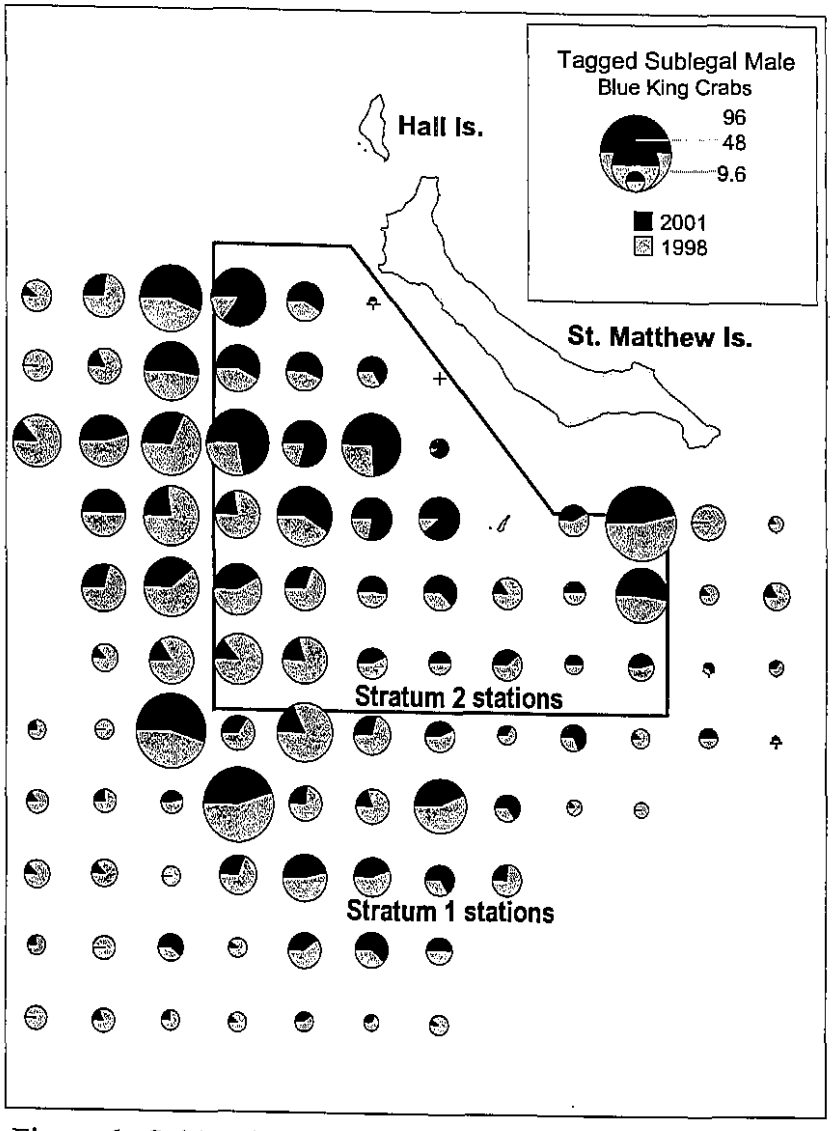

Figure 6. Sublegal male blue king crabs tagged and released at the 96 stations fished in common during the 2001 and 1998 St. Matthew Island surveys.

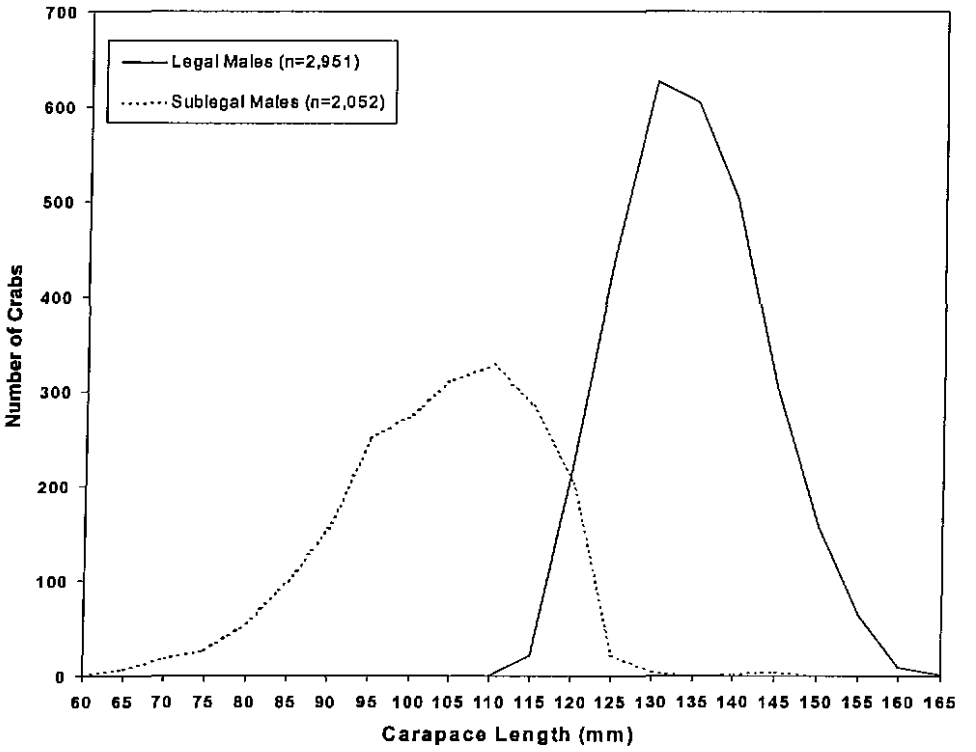

Figure 7. Length distributions of legal and sublegal male blue king crabs captured in the 2001 St. Matthew Island survey.

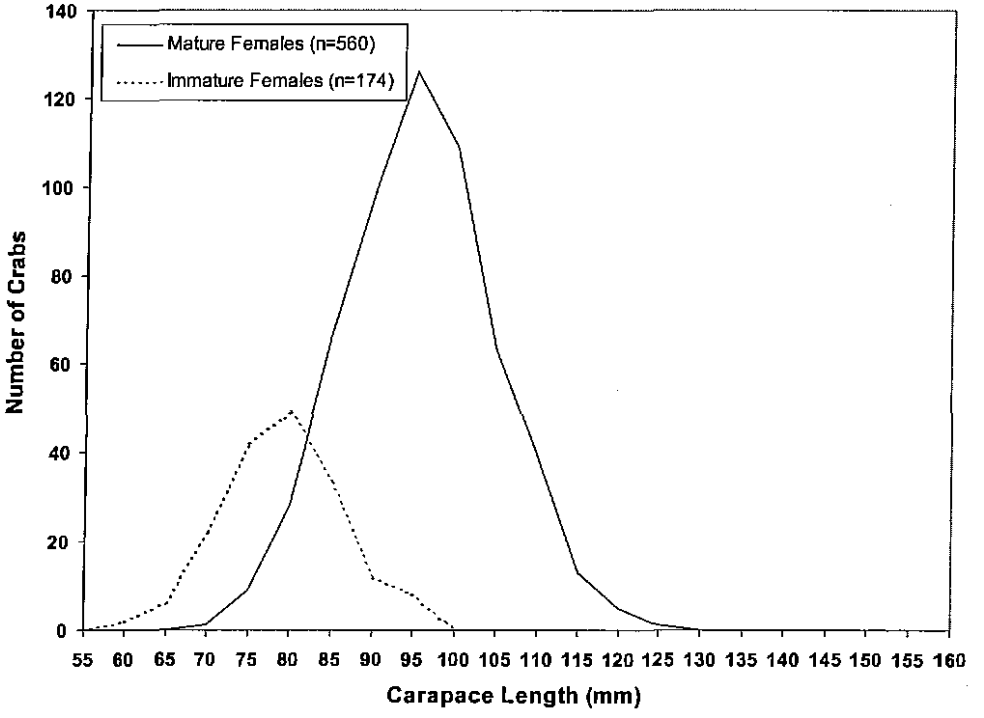

Figure 8. Length distributions of mature and immature female blue king crabs captured in the 2001 St. Matthew Island survey.

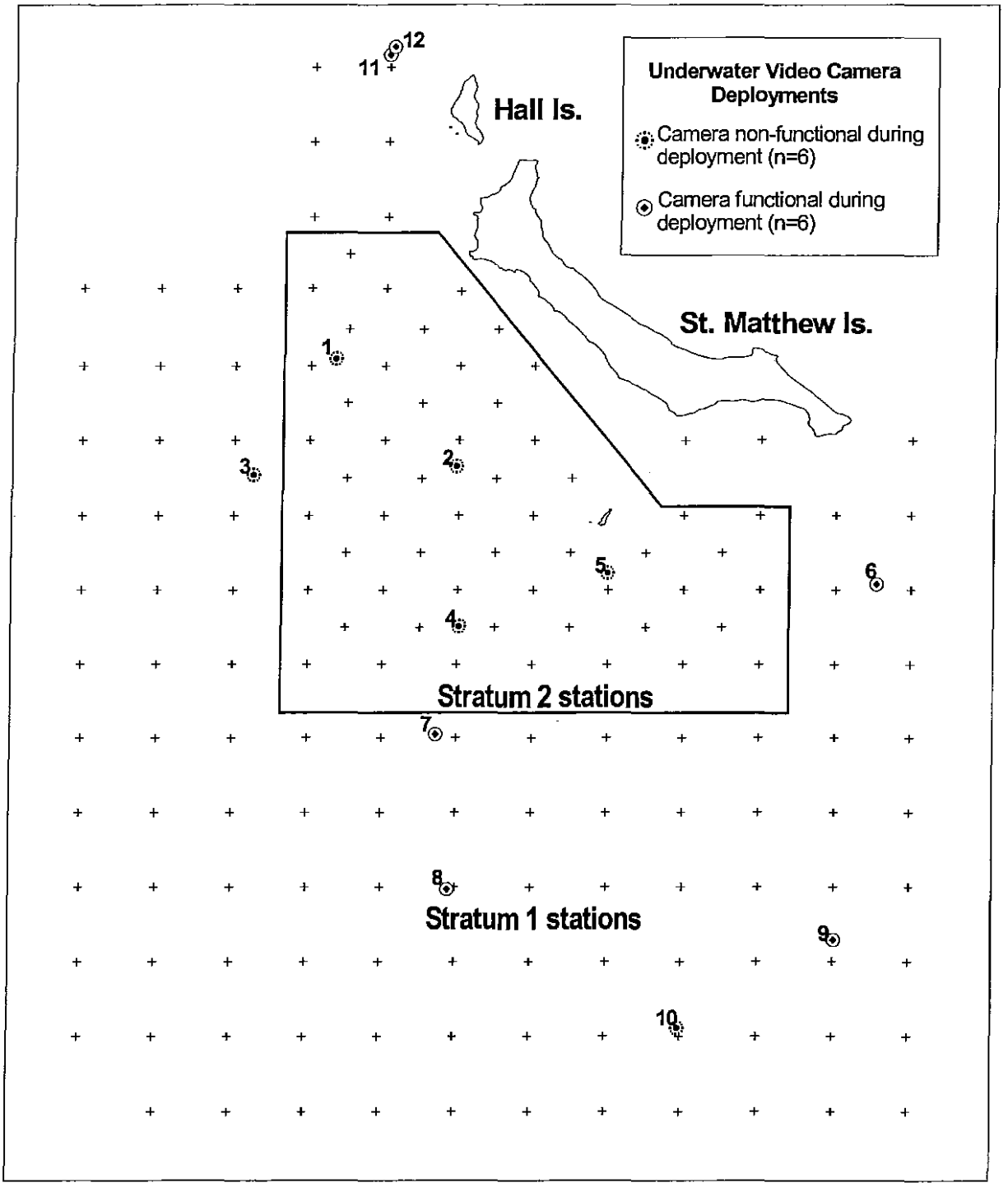

Figure 9. Location of the 12 underwater video camera deployments during the 2001 St. Matthew Island blue king crab survey.

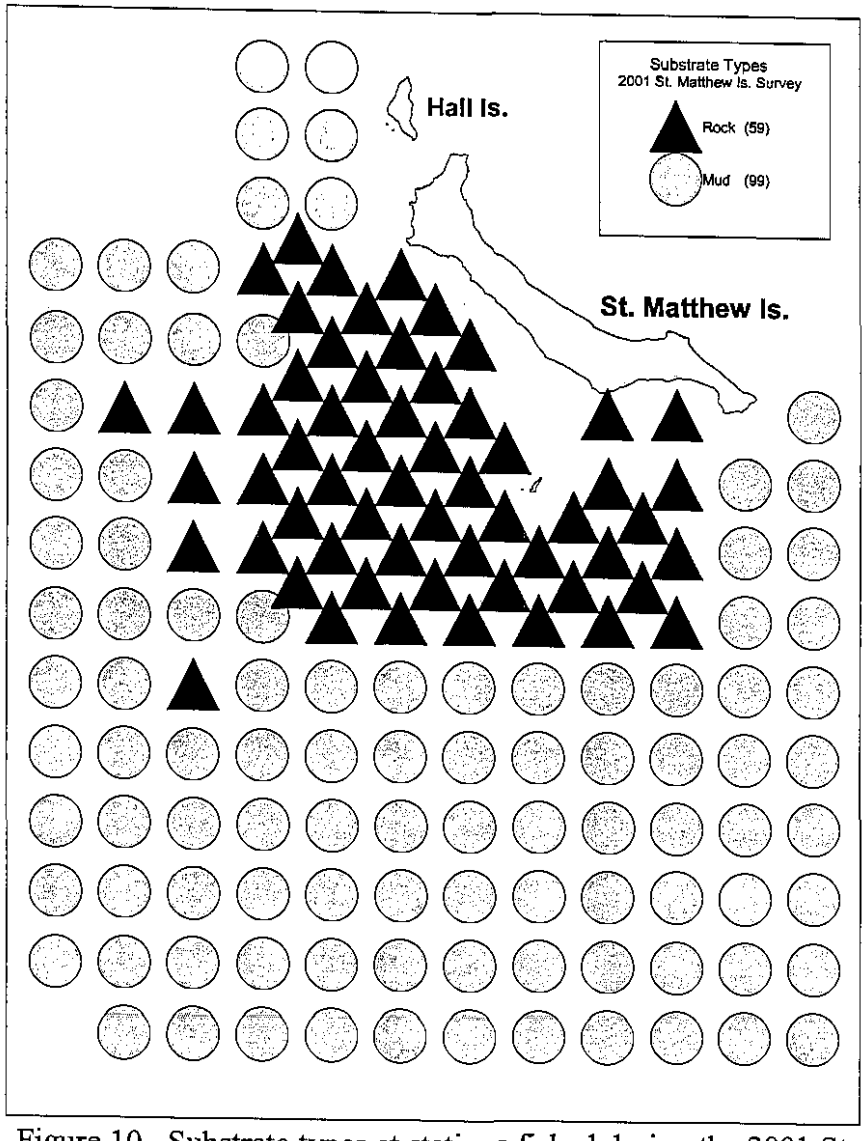

Figure 10. Substrate types at stations fished during the 2001 St. Matthew Island blue king crab survey.

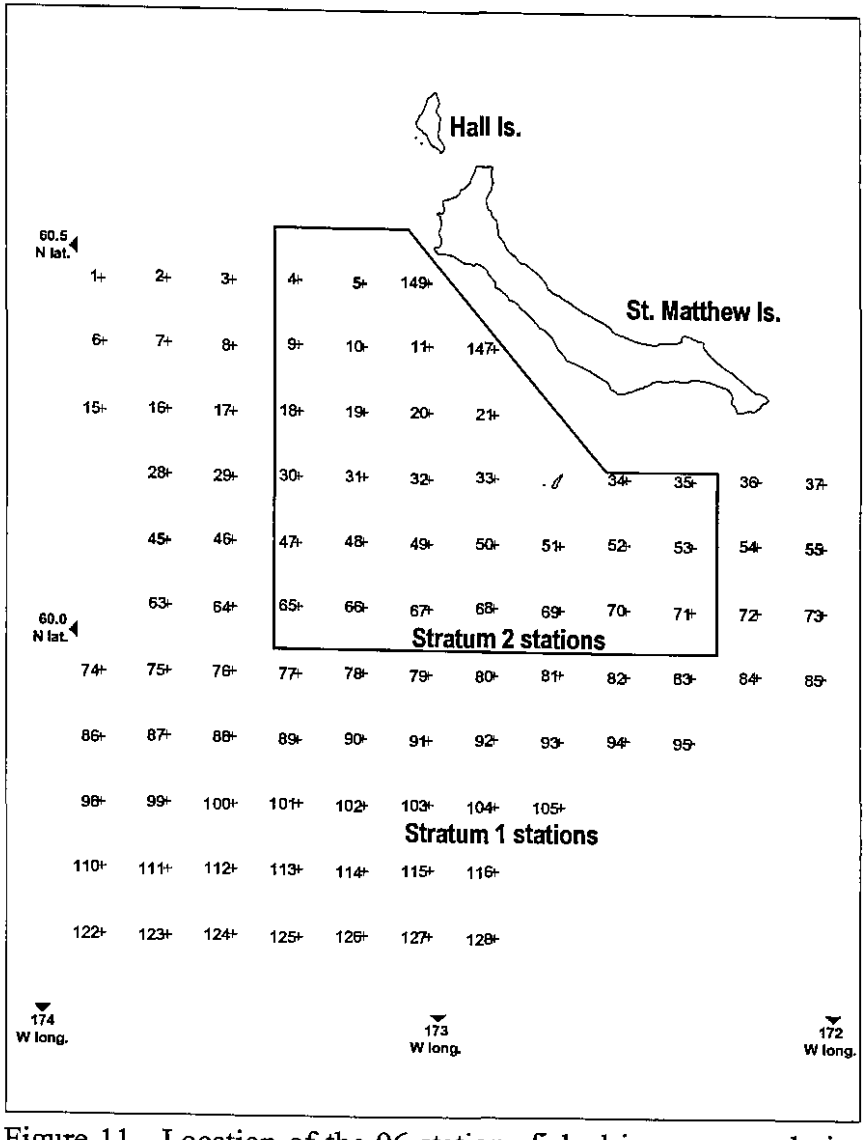

Figure 11. Location of the 96 stations fished in common during the 2001, 1998, and 1995 St. Matthew Island blue king crab surveys.

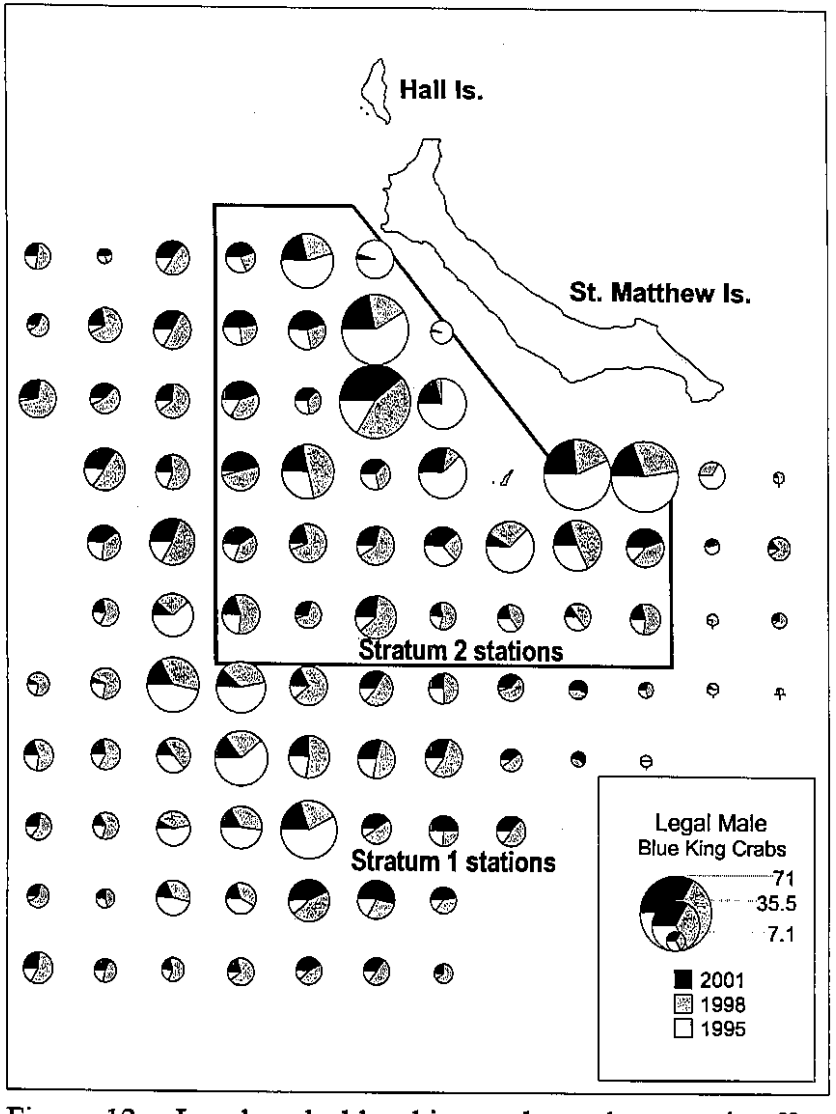

Figure 12. Legal male blue king crab catch per unit effort (CPUE) by station from the 2001, 1998, and 1995 St. Matthew Island surveys.

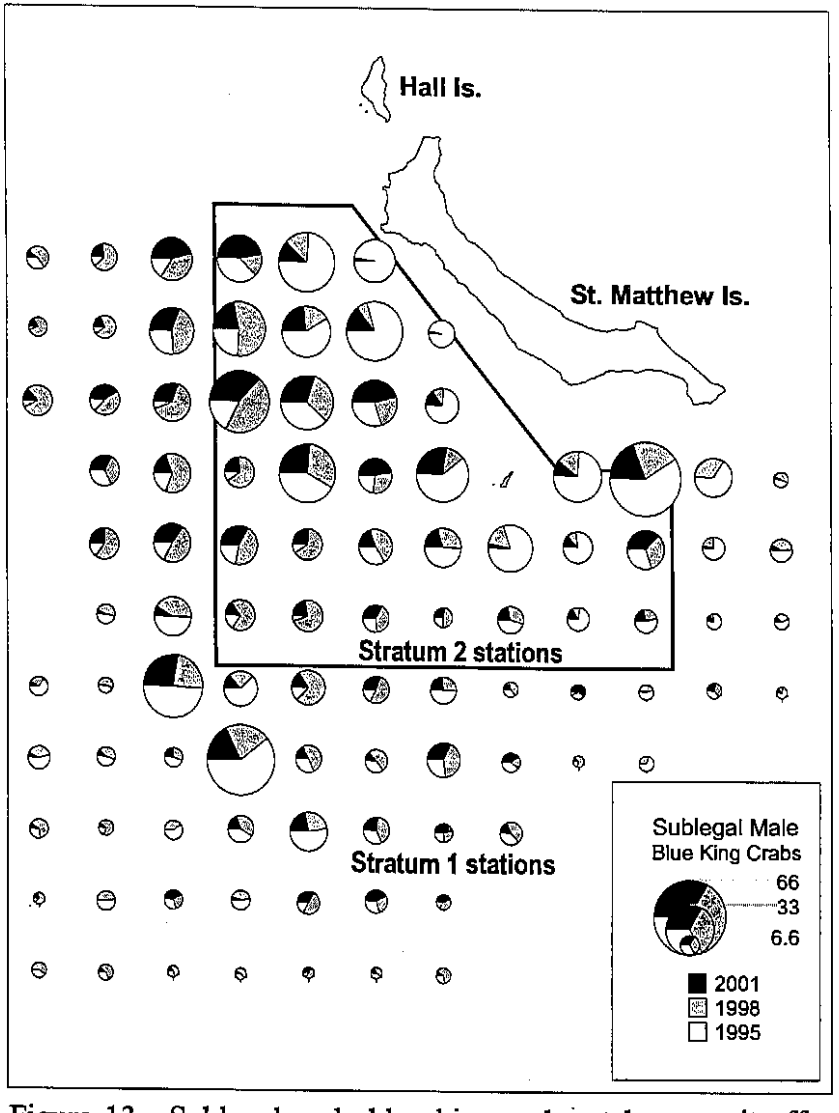

Figure 13. Sublegal male blue king crab catch per unit effort (CPUE) by station from the 2001, 1998, and 1995 St. Matthew Island surveys.

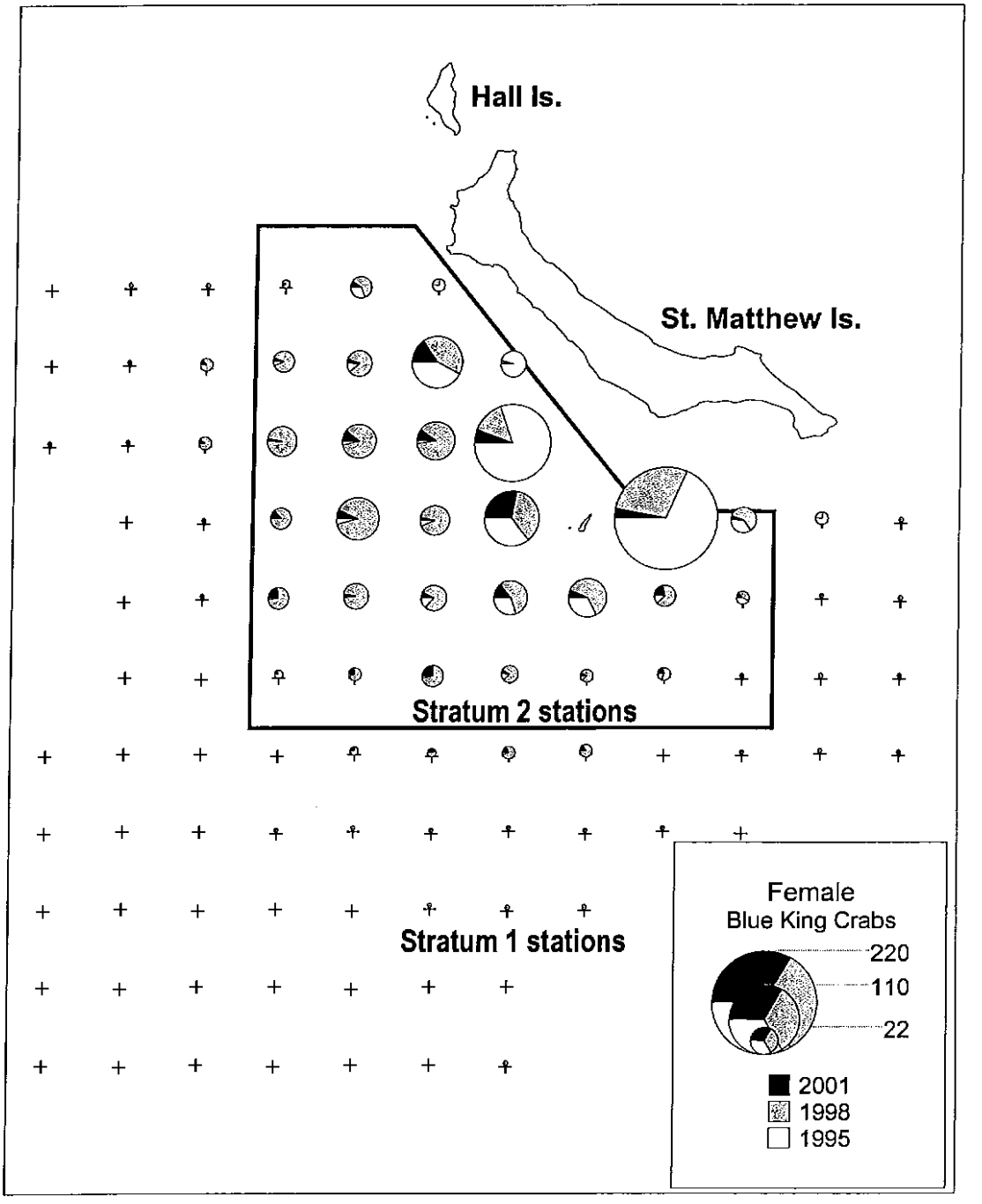

Figure 14. Female blue king crab catch per unit effort (CPUE) by station from the 2001, 1998 and 1995 St. Matthew Island surveys.

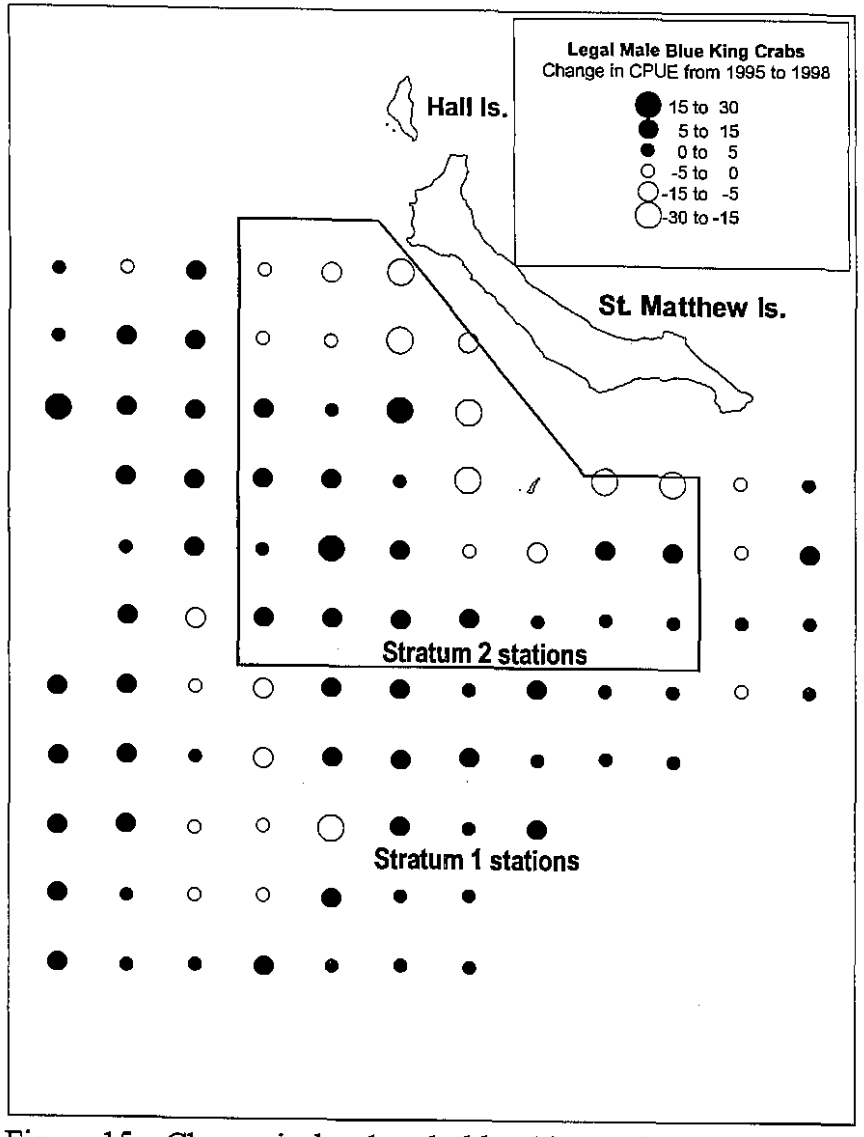

Figure 15. Change in legal male blue king crab catch per unit effort (CPUE) from the 1995 to the 1998 St. Matthew Island survey.

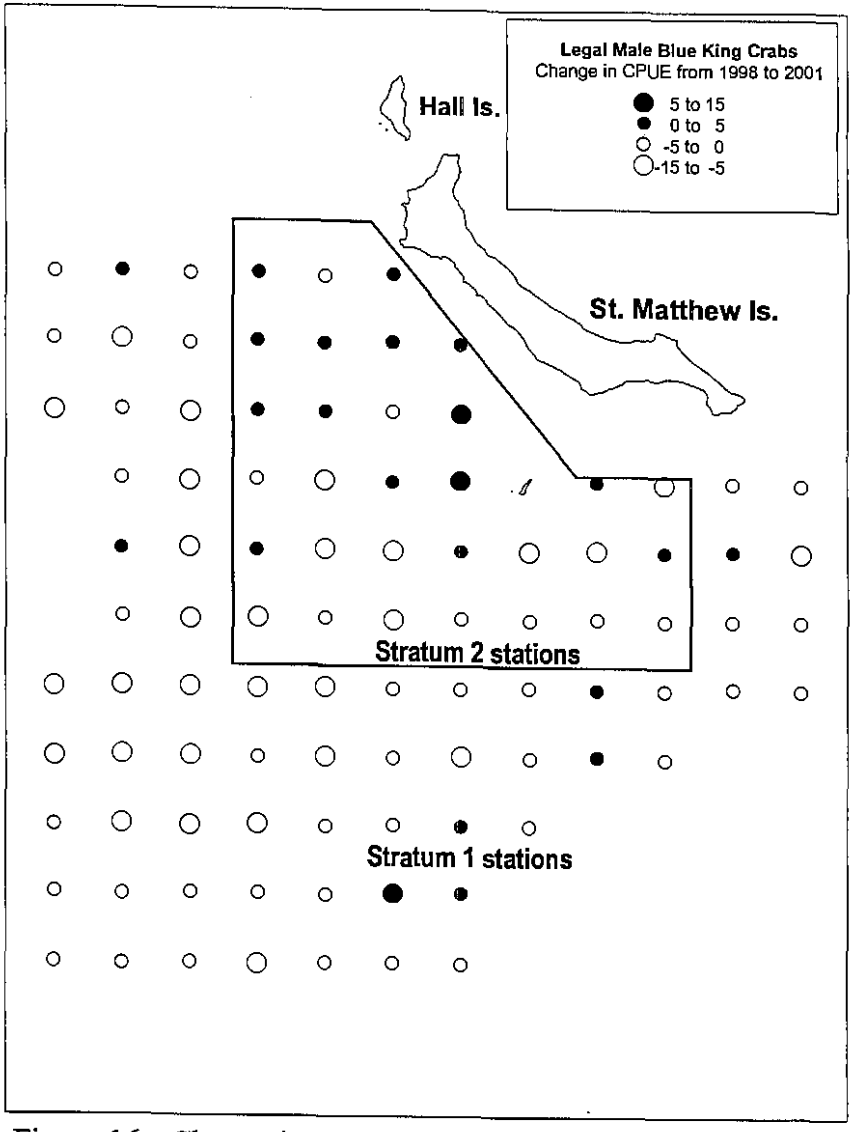

Figure 16. Change in legal male blue king crab catch per unit effort CPUE) from the 1998 to the 2001 St. Matthew Island survey.

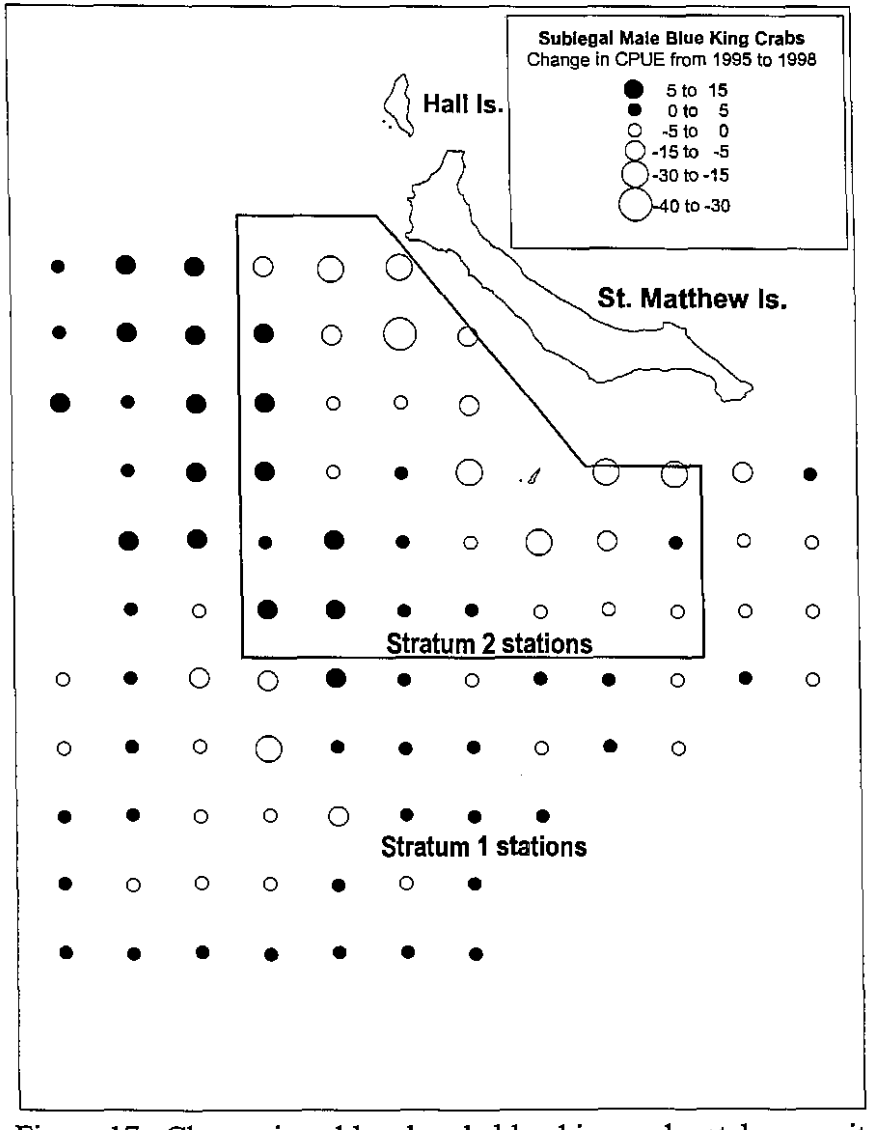

Figure 17. Change in sublegal male blue king crab catch per unit effort (CPUE) from the 1995 to the 1998 St. Matthew Island survey.

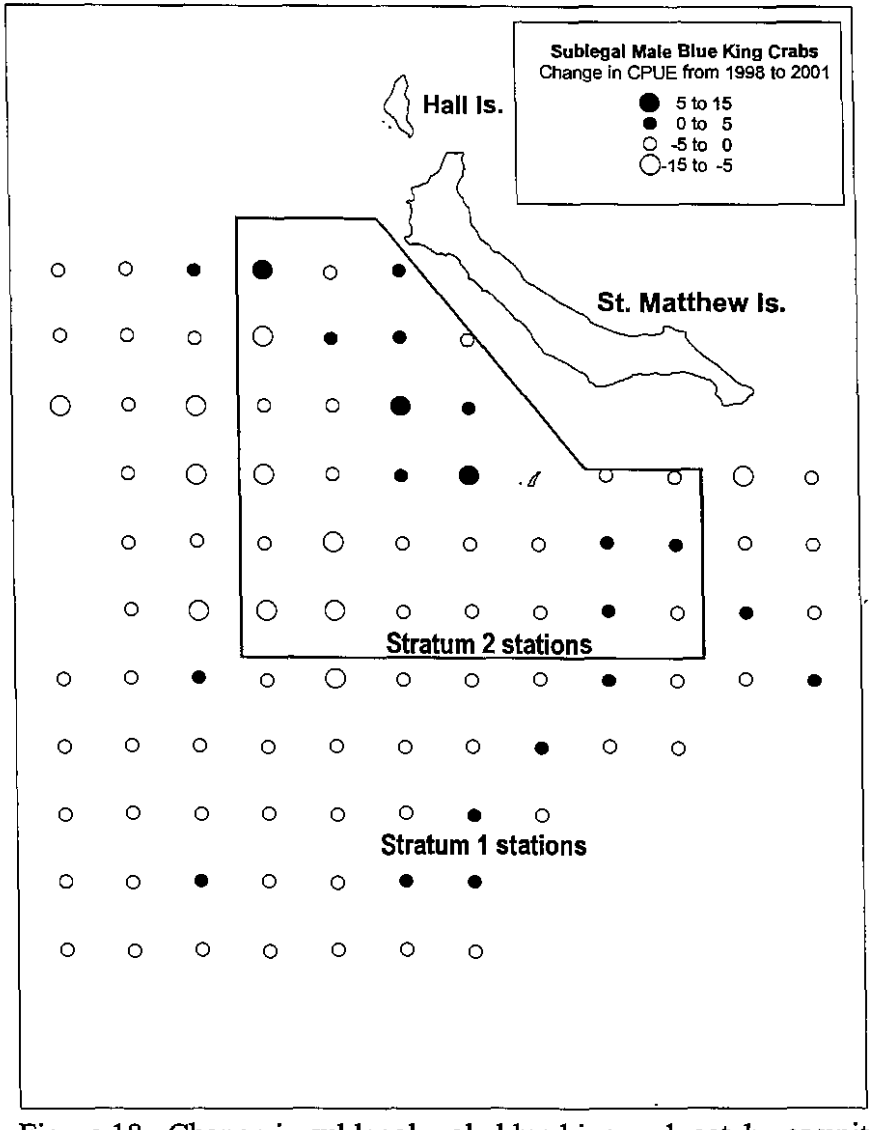

Figure 18. Change in sublegal male blue king crab catch per unit effort (CPUE) from the 1998 to the 2001 St. Matthew Island survey.

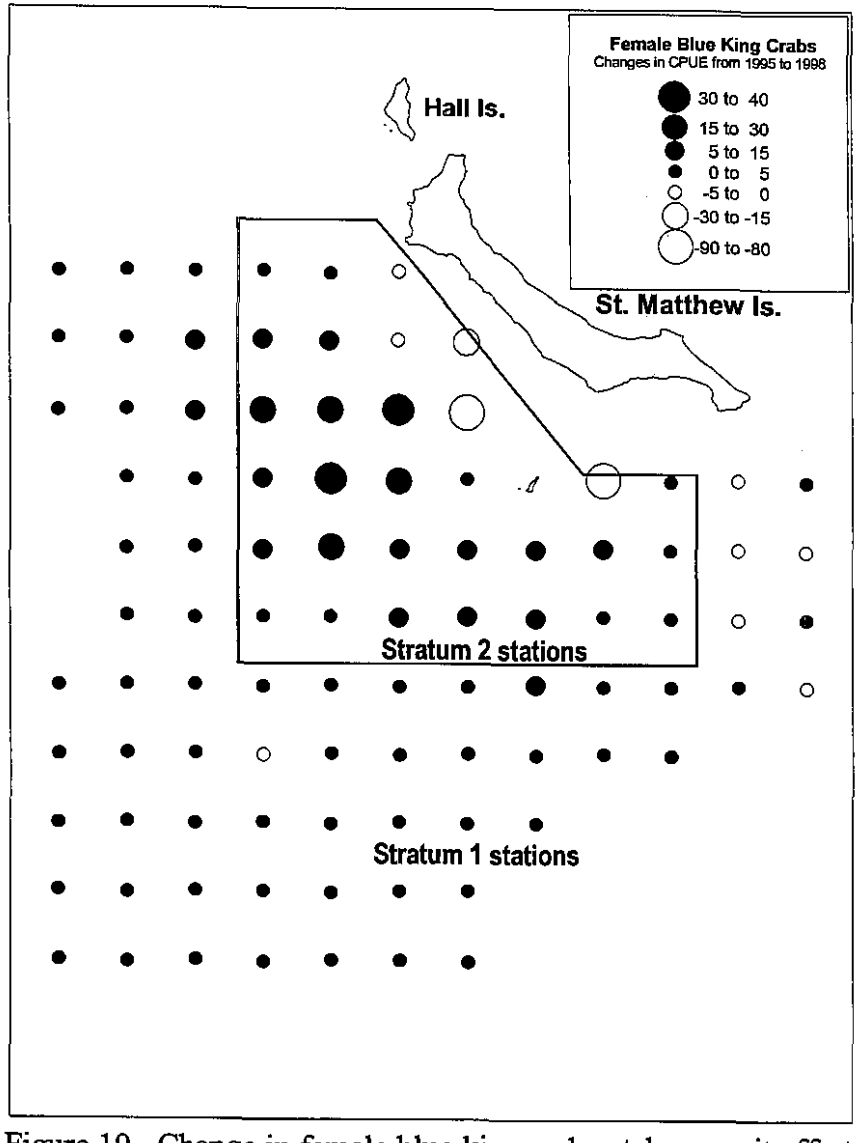

Figure 19. Change in female blue king crab catch per unit effort (CPUE) from the 1995 to the 1998 St. Matthew Island survey.

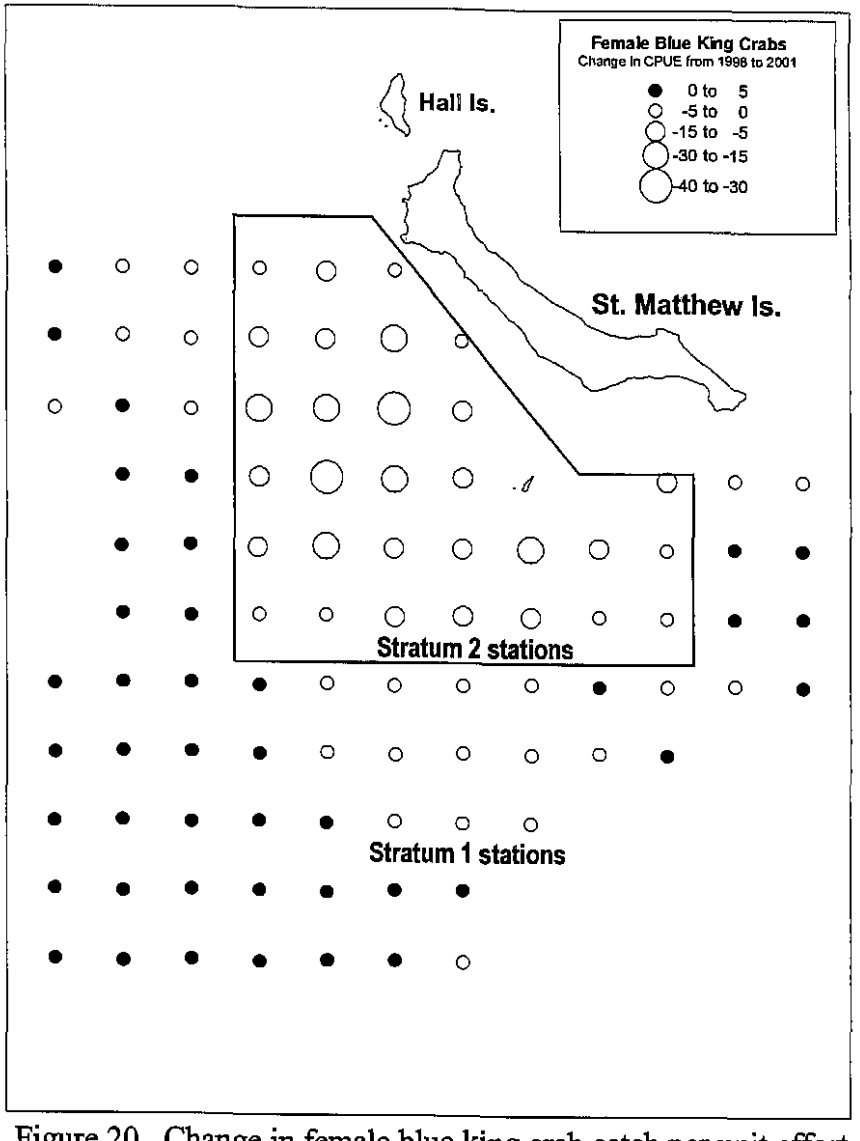

Figure 20. Change in female blue king crab catch per unit effort (CPUE) from the 1998 to the 2001 St. Matthew Island survey.

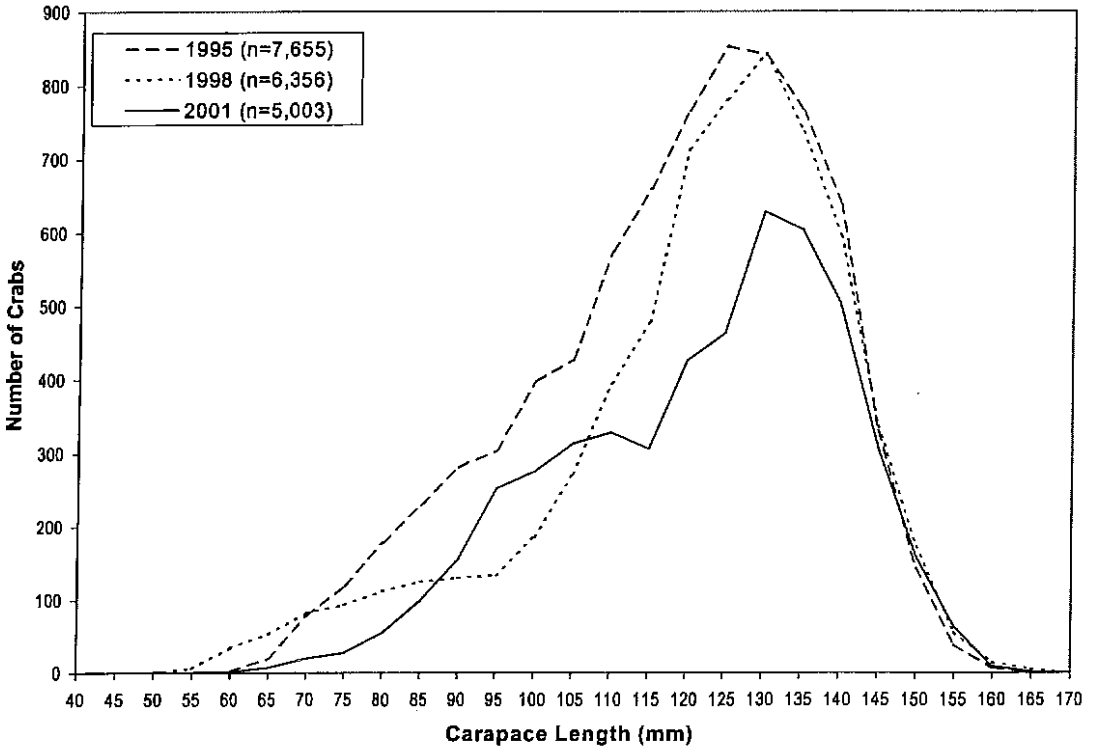

Figure 21. Length distributions of male blue king crabs captured in the 2001, 1998, and 1995 St. Matthew Island surveys.

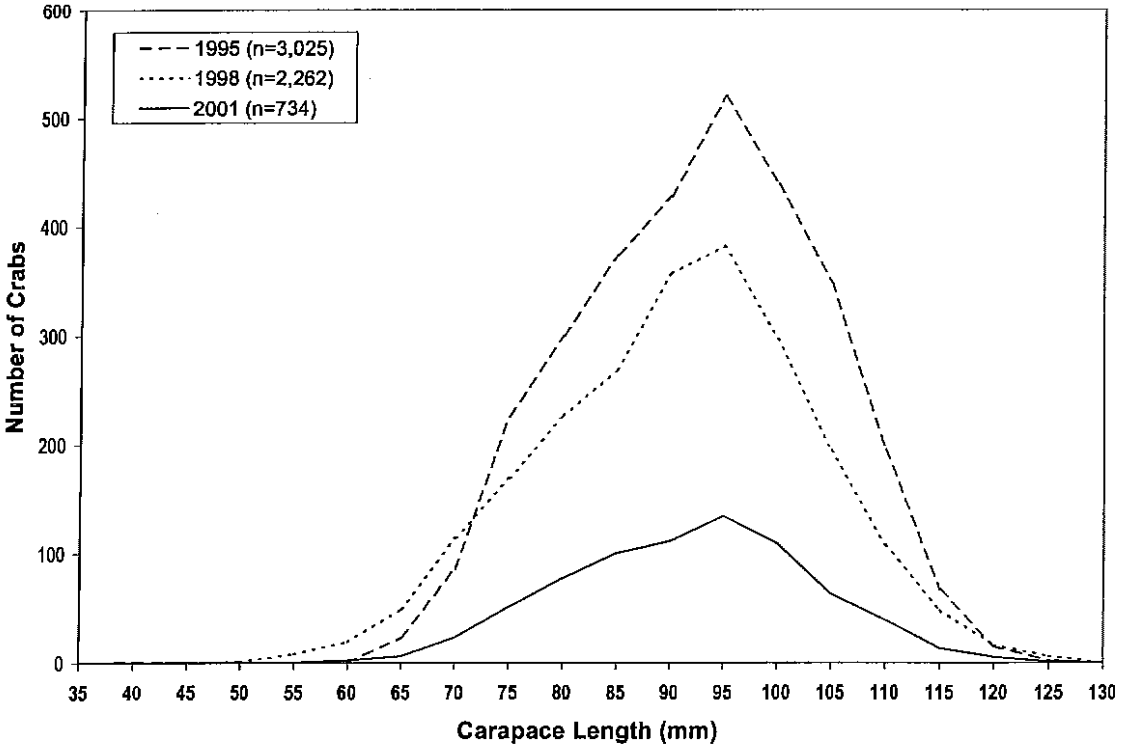

Figure 22. Length distributions of female blue king crabs captured in the 2001, 1998, and 1995 St. Matthew Island surveys.

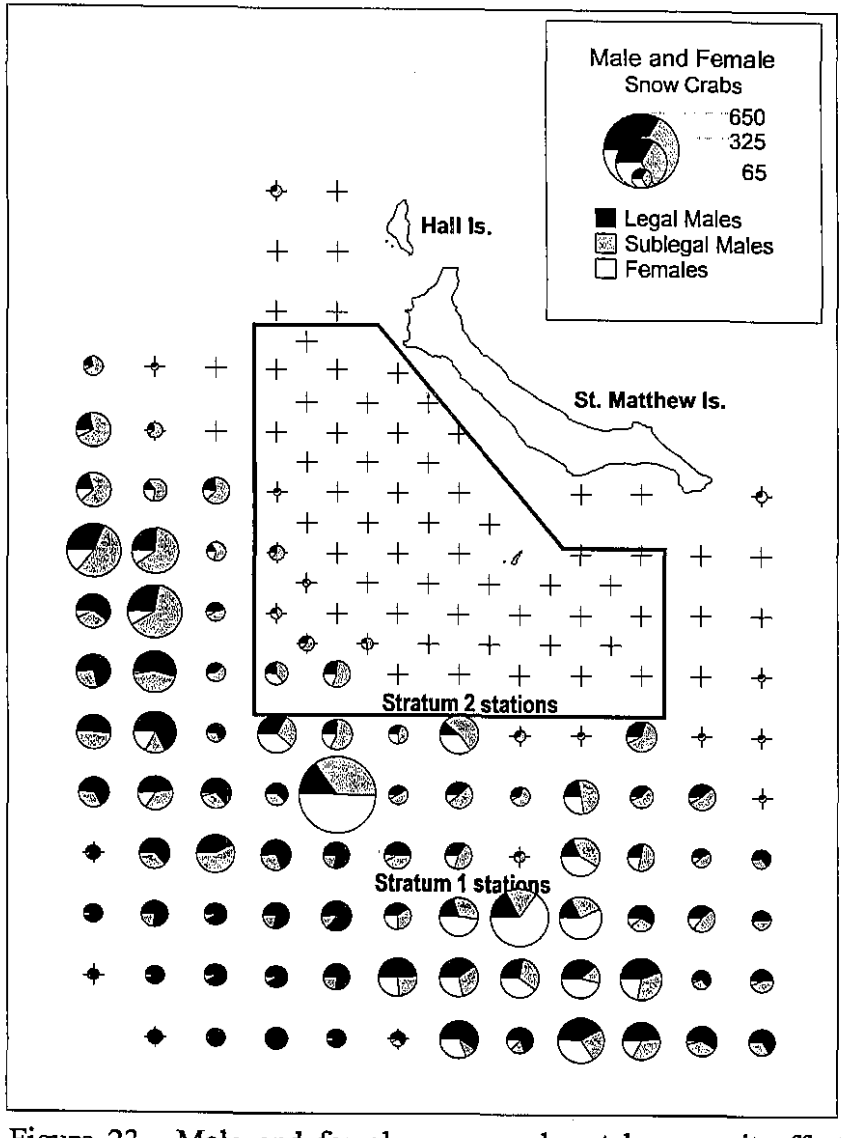

Figure 23. Male and female snow crab catch per unit effort (CPUE) by station on the 2001 St. Matthew Island blue king crab survey.

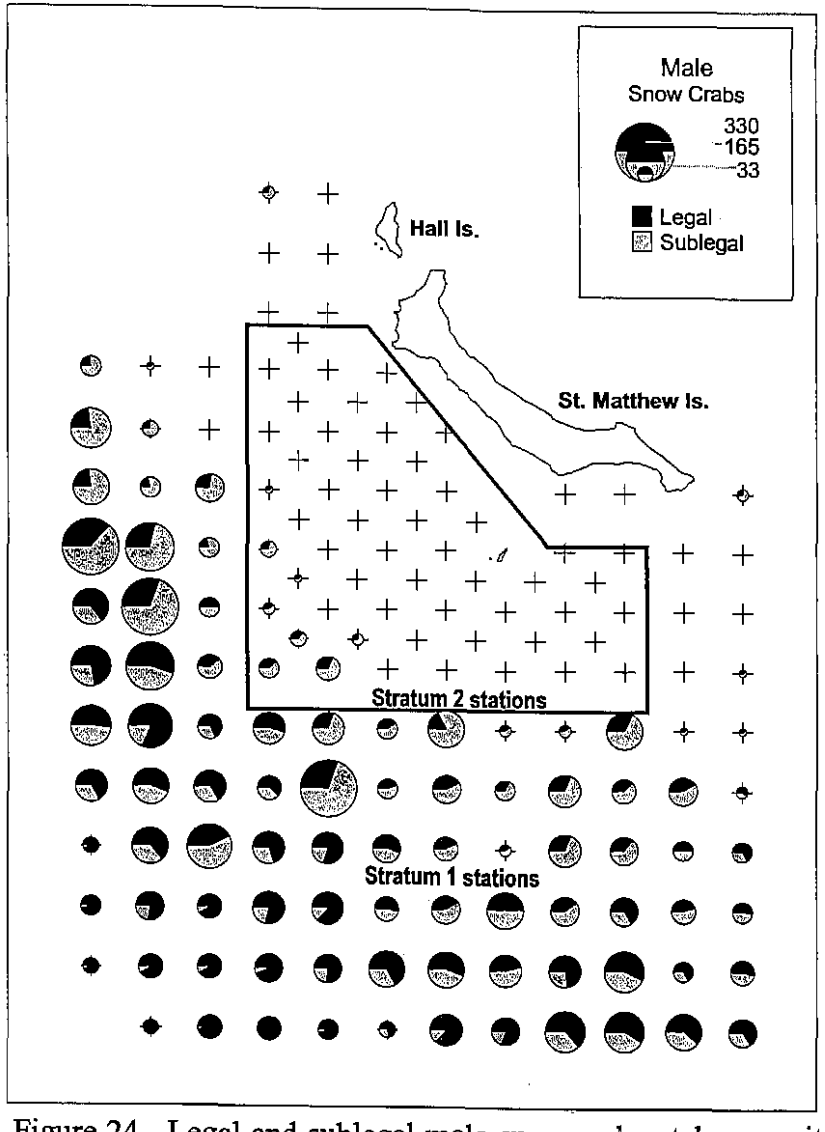

Figure 24. Legal and sublegal male snow crab catch per unit effort (CPUE) by station on the 2001 St. Matthew Island blue king crab survey.

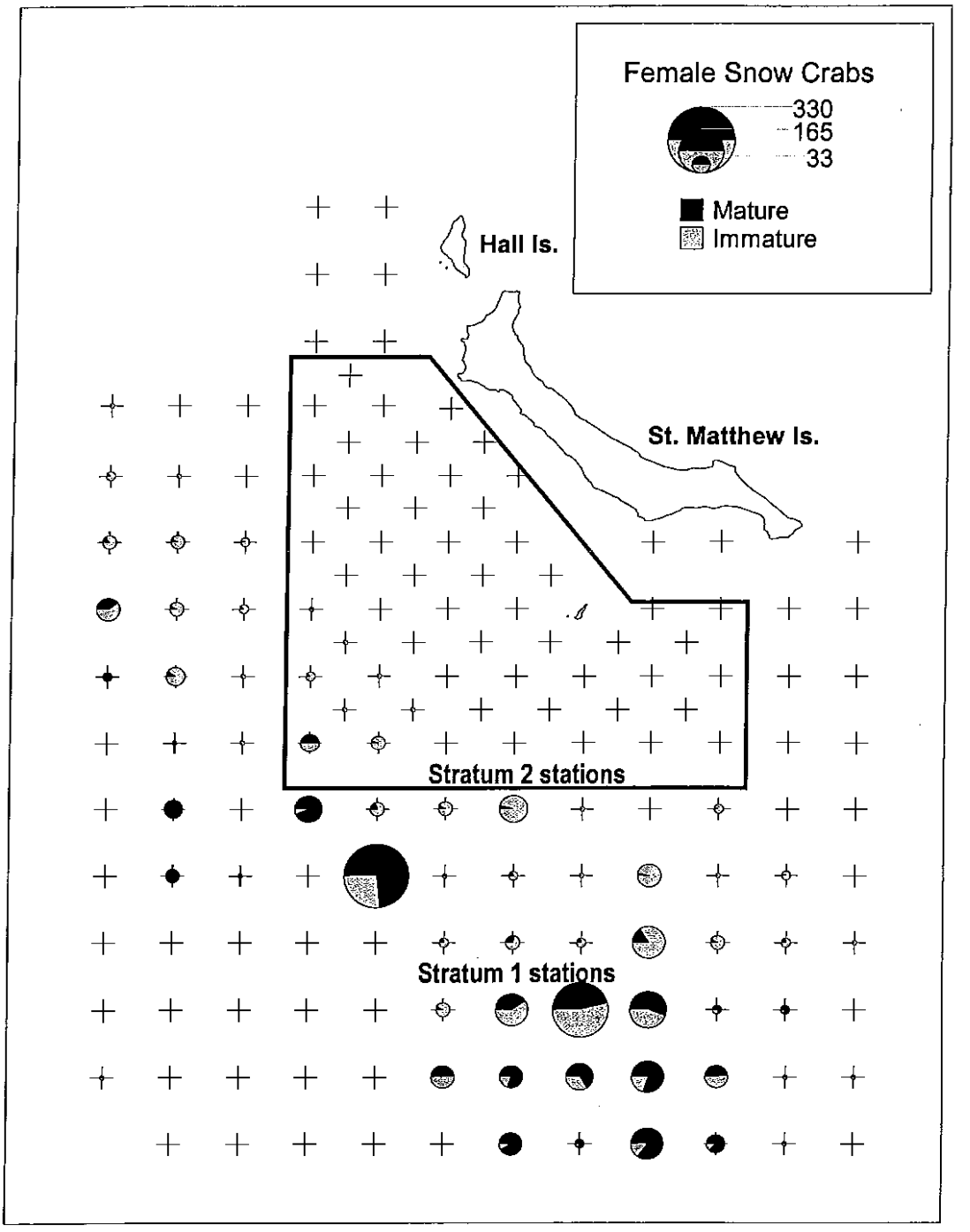

Figure 25. Mature and immature female snow crab catch per unit effort (CPUE) by station on the 2001 St. Matthew Island blue king crab survey.

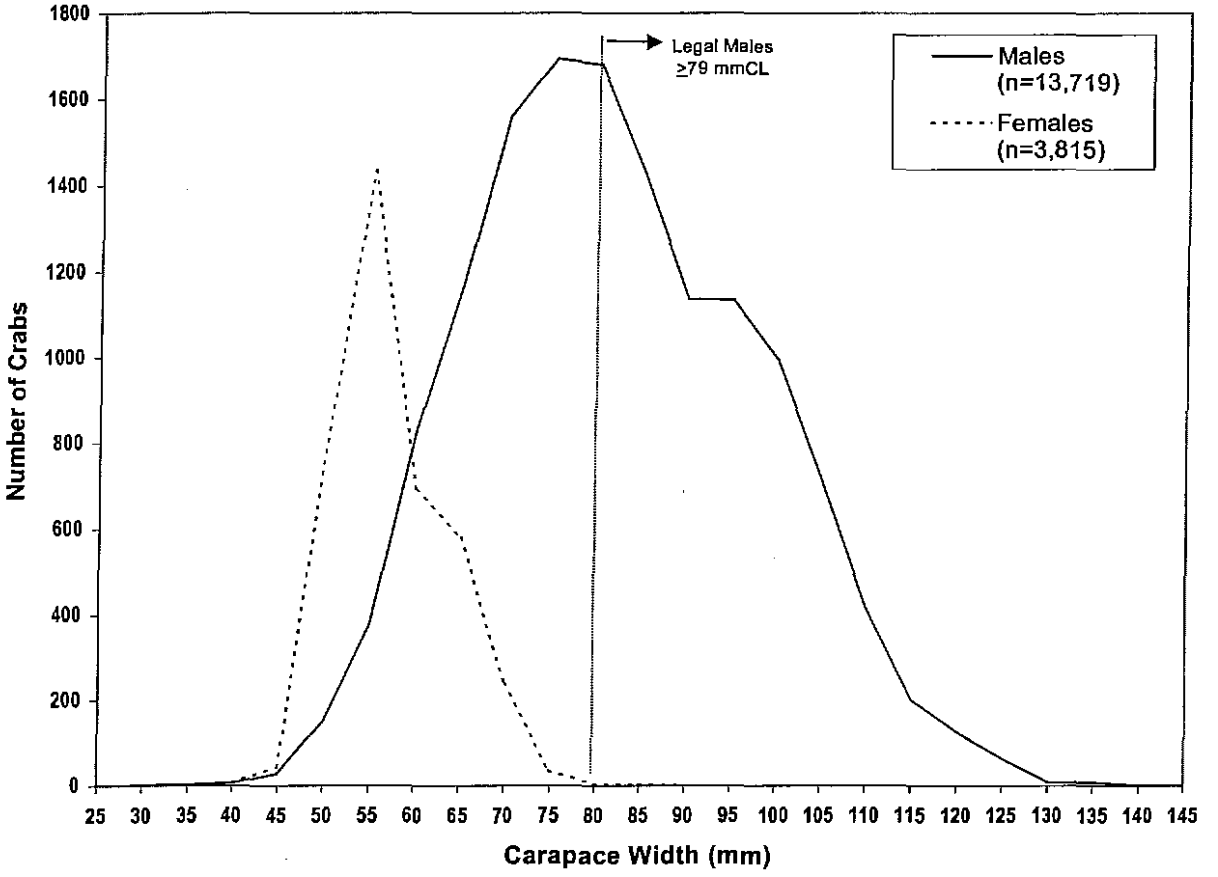

Figure 26. Width distributions of male and female snow crabs captured in the 2001 St. Matthew Island blue king crab survey.

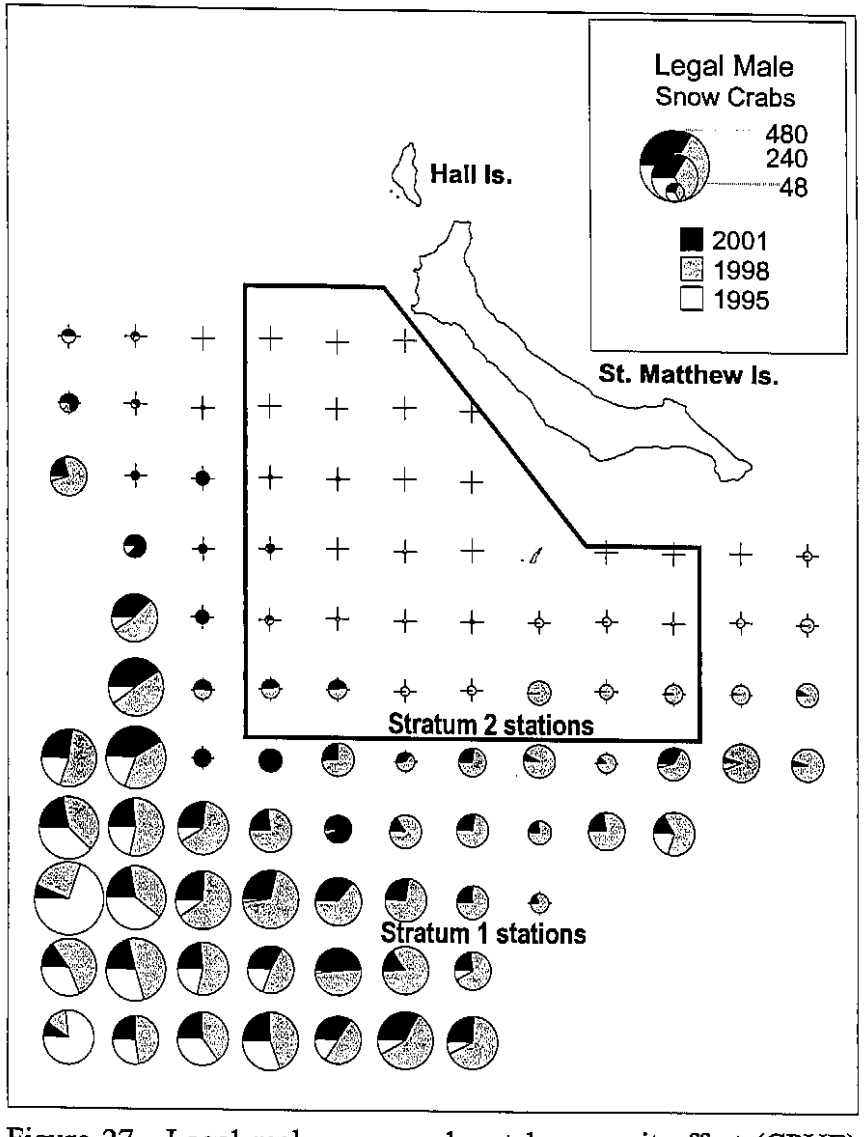

Figure 27. Legal male snow crab catch per unit effort (CPUE) by station from the 2001, 1998, and 1995 St. Matthew Island blue king crab surveys.

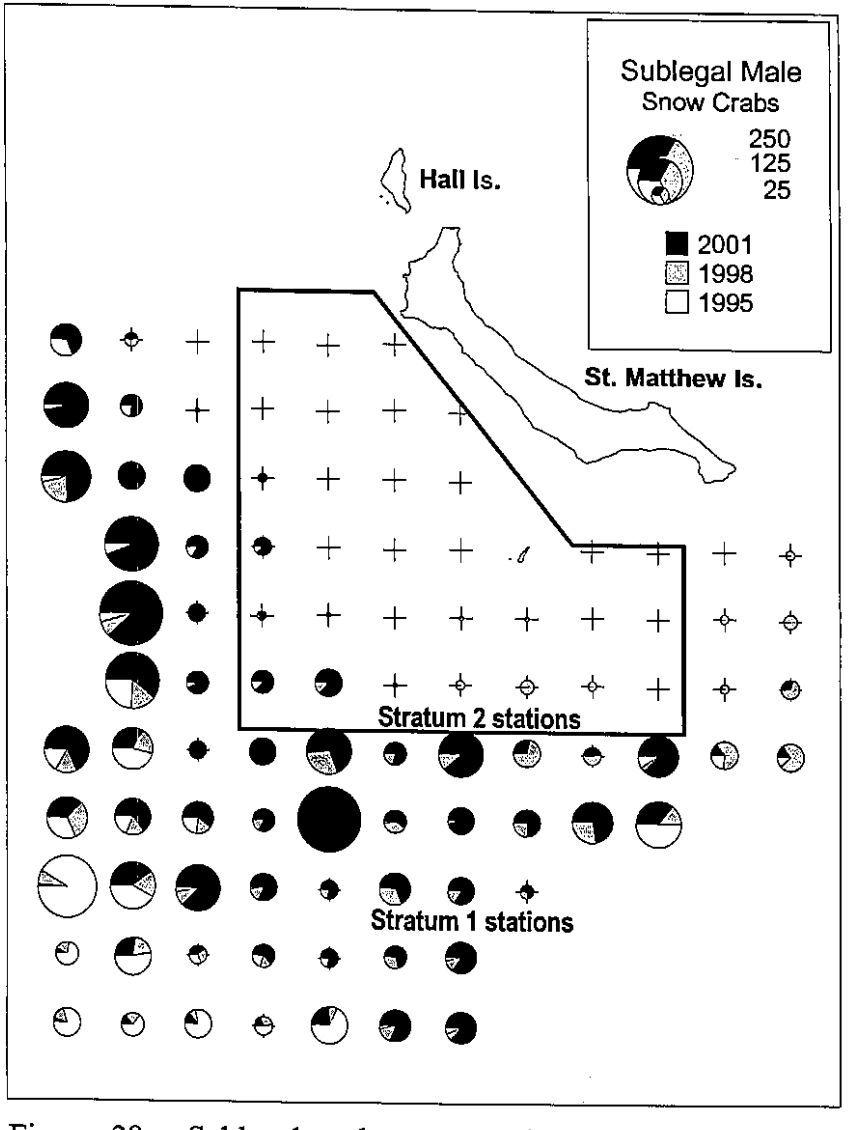

Figure 28. Sublegal male snow crab catch per unit effort (CPUE) by station from the 2001, 1998, and 1995 St. Matthew Island blue king crab surveys.

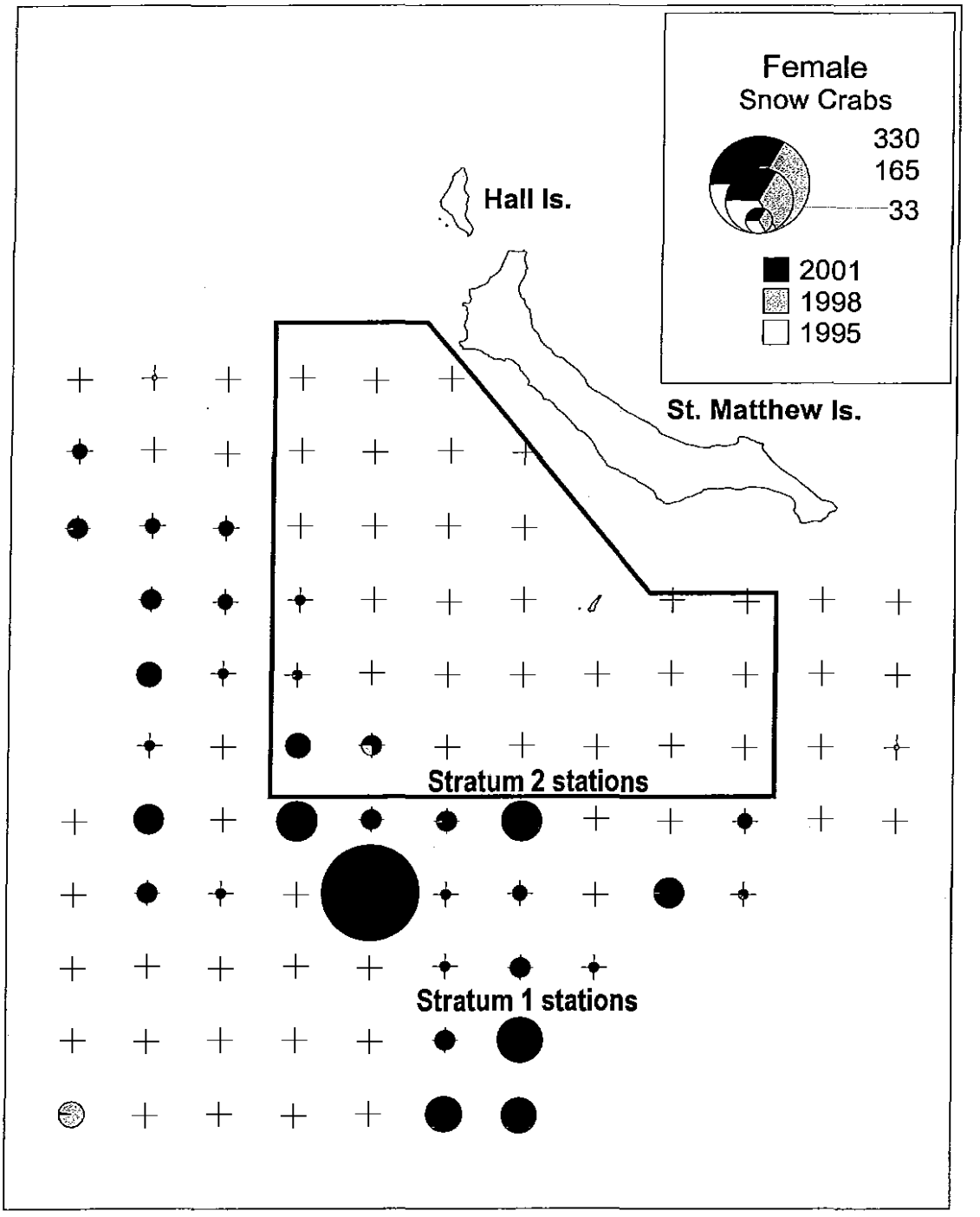

Figure 29. Female snow crab catch per unit effort (CPUE) by station from the 2001, 1998, and 1995 St. Matthew Island blue king crab surveys.

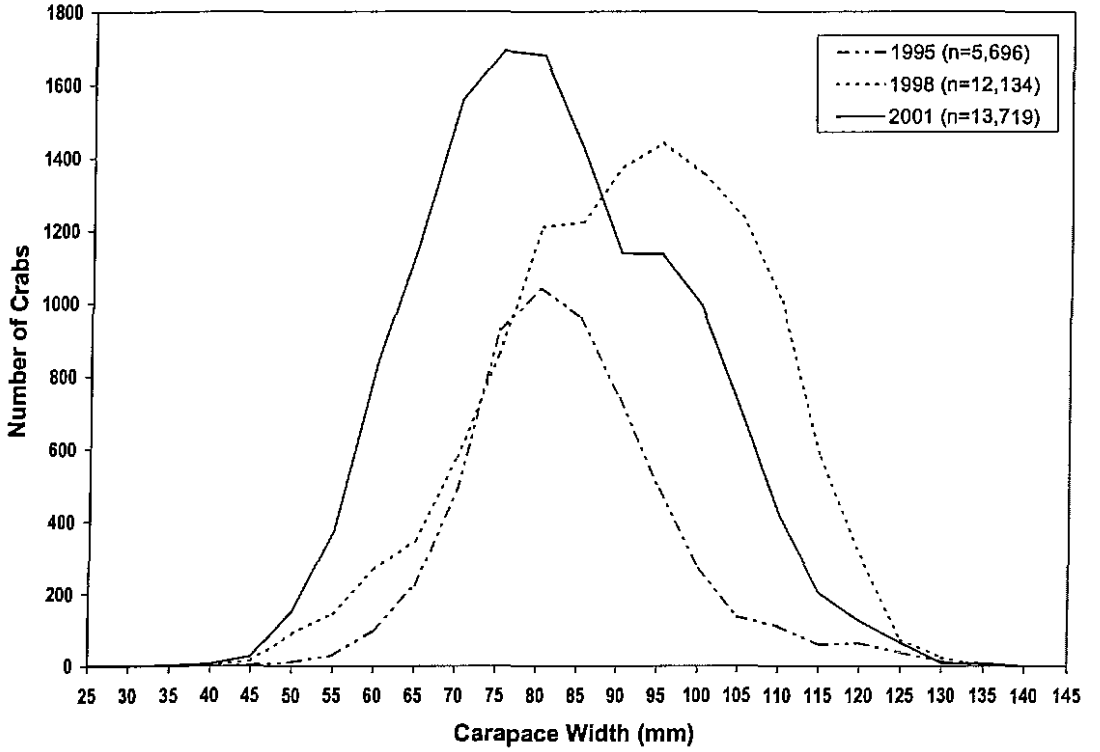

Figure 30. Width distributions of male snow crabs captured in the 2001, 1998, and 1995 St. Matthew Island blue king crab surveys.

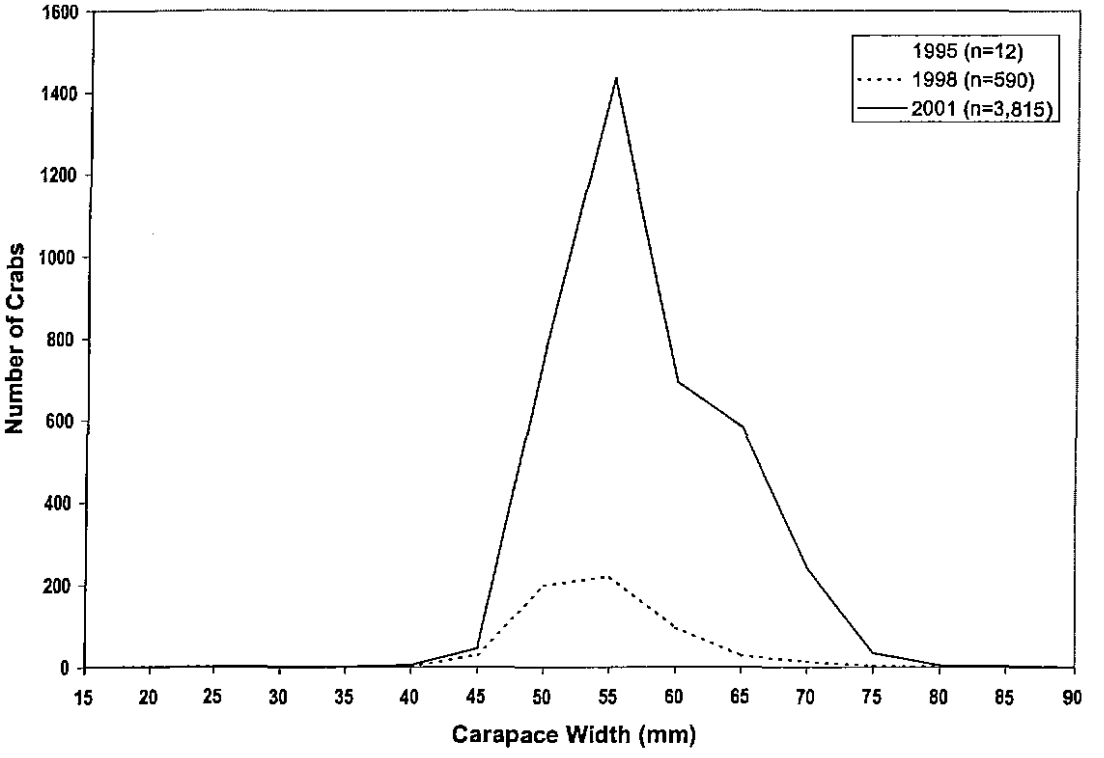

Figure 31. Width distributions of female snow crabs captured in the 2001, 1998, and 1995 St. Matthew Island blue king crab surveys.

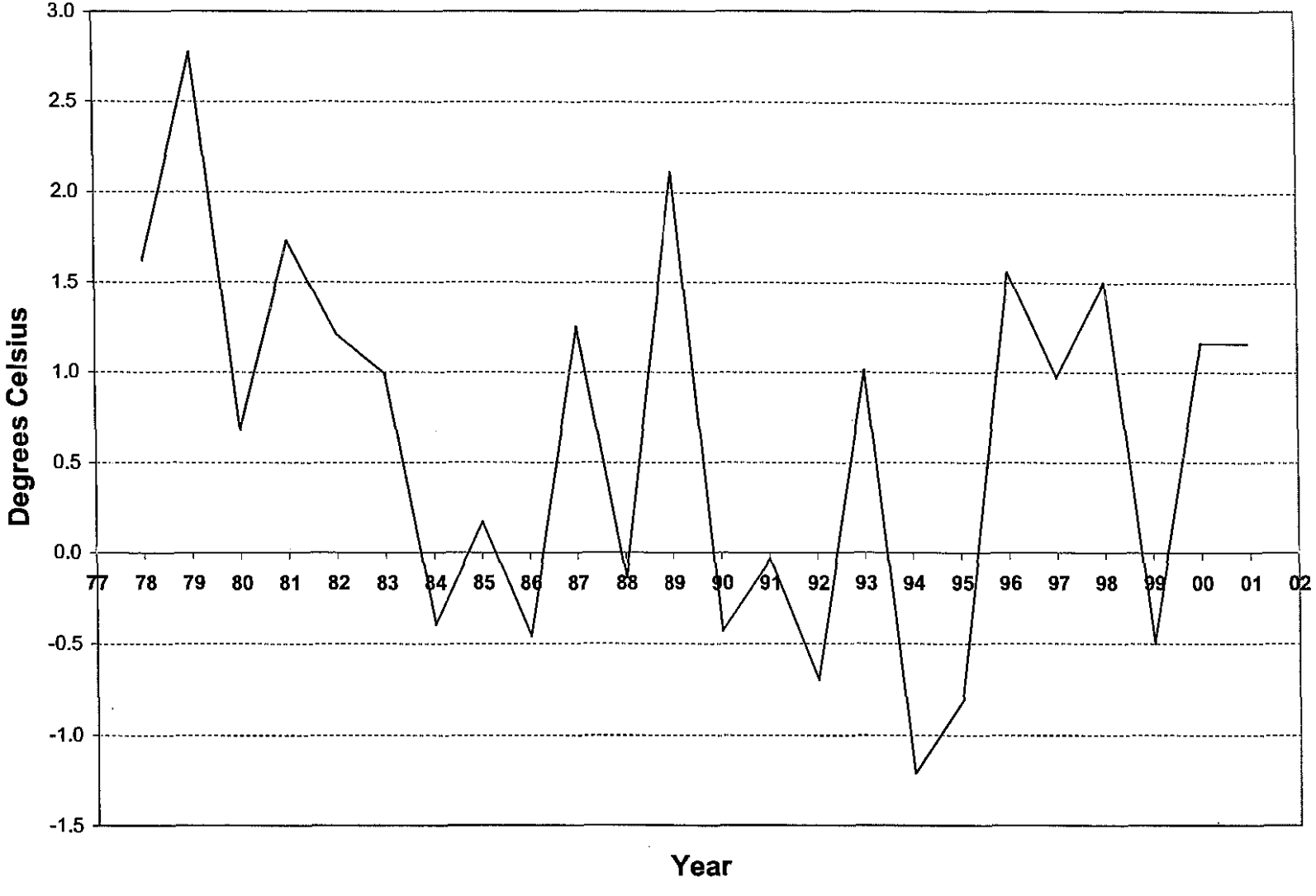

Figure 32. Average ocean bottom temperatures near St. Matthew Island from annual National Marine Fisheries Service eastern Bering Sea crab surveys, 1978 – 2001. (Data source: B. O'Gorman, NMFS, Kodiak, February 20, 2002).

APPENDIX

Appendix A. Blue king crab catch, catch per unit effort (CPUE), and tagging effort by station from the 2001 St. Matthew Island blue king crab survey.

Station	Stratum	Set Date	No. Pots	Ave. Soak Hours	N latitude		W longitude		Ave. Depth (fm)	Legal Males			Sublegal Males			Females	
					Degrees	Minutes	Degrees	Minutes		Number	CPUE	Tagged	Number	CPUE	Tagged	Number	CPUE
1	1	7/25	4	44	60	27.75	173	55.01	44	12	3.0	12	3	0.8	2	0	0.0
2	1	7/25	4	42	60	27.36	173	45.07	44	9	2.3	9	10	2.5	10	0	0.0
3	1	7/25	4	48	60	27.77	173	35.02	35	29	7.3	28	45	11.3	42	1	0.3
4	2	7/26	4	34	60	27.39	173	24.92	33	30	7.5	28	54	13.5	52	1	0.3
5	2	7/26	4	35	60	27.67	173	15.07	29	36	9.0	36	23	5.5	17	5	1.3
6	1	7/25	4	37	60	22.89	173	54.93	45	11	2.8	10	4	1.0	0	0	0.0
7	1	7/25	4	37	60	22.44	173	45.01	40	17	4.3	16	7	1.8	5	0	0.0
8	1	7/25	4	37	60	22.72	173	35.01	36	29	7.3	27	39	9.8	32	3	0.8
9	2	7/25	4	37	60	22.44	173	25.02	33	37	9.3	33	35	8.8	23	3	0.8
10	2	7/26	4	36	60	22.33	173	15.12	32	44	11.0	43	31	7.8	18	4	1.0
11[a]	2	7/27	4	36	60	22.38	173	5.02	27	58	14.5	57	26	6.5	13	40	10.0
12	2	7/28	4	36	60	19.81	173	19.93	33	29	7.3	28	55	13.8	40	11	2.8
13	2	7/27	4	36	60	19.81	173	10.01	31	41	10.3	40	29	7.3	18	3	0.8
14	2	7/27	4	38	60	20.12	173	0.03	28	45	11.3	42	9	2.3	6	44	11.0
15	1	7/29	4	39	60	17.69	173	55.00	48	25	6.3	24	7	1.8	7	0	0.0
16	1	7/29	4	39	60	17.31	173	45.02	43	26	6.5	25	25	6.3	23	1	0.3
17	1	7/29	4	38	60	17.69	173	35.00	39	20	5.0	18	28	7.0	22	2	0.5
18	2	7/28	4	36	60	17.31	173	25.00	36	43	10.8	38	72	18.0	56	3	0.8
19	2	7/28	4	37	60	17.32	173	15.00	33	18	4.5	16	48	12.0	34	14	3.5
20	2	7/27	4	37	60	17.34	173	5.02	32	109	27.3	67	57	14.3	53	17	4.3
21	2	7/27	4	37	60	17.68	172	55.11	27	31	7.8	31	10	2.5	9	30	7.5
22	1	8/4	4	34	60	17.69	172	25.00	21	9	2.3	9	13	3.3	13	3	0.8
23	1	8/4	4	36	60	17.69	172	5.00	33	7	1.8	6	5	1.3	2	2	0.5
24	2	7/28	4	38	60	14.80	173	20.01	35	32	8.0	31	26	6.5	19	3	0.8
25	2	7/28	4	39	60	15.81	173	10.00	33	30	7.5	29	50	12.5	42	27	6.8
26	2	8/1	4	35	60	15.19	173	0.00	32	20	5.0	19	25	6.3	19	29	7.3

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Appendix A. (page 2 of 6).

Station	Stratum	Set Date	No. Pots	Ave. Soak Hours	N latitude		W longitude		Ave. Depth (fm)	Legal Males			Sublegal Males			Females	
					Degrees	Minutes	Degrees	Minutes		Number	CPUE	Tagged	Number	CPUE	Tagged	Number	CPUE
27	1	7/29	4	36	60	12.69	173	55.07	50	10	2.5	10	4	1.0	4	0	0.0
28	1	7/29	4	37	60	12.31	173	45.05	46	39	9.8	37	20	5.0	20	0	0.0
29	1	7/29	4	38	60	12.69	173	35.00	41	19	4.8	19	16	4.0	14	2	0.5
30	2	7/28	4	39	60	12.31	173	24.97	38	40	10.0	38	15	3.8	10	7	1.8
31	2	7/28	4	39	60	12.29	173	15.00	35	35	8.8	34	49	12.3	36	12	3.0
32	2	8/1	4	35	60	12.69	173	5.00	33	22	5.5	22	37	9.3	28	3	0.8
33	2	8/1	4	36	60	12.31	172	55.00	32	41	10.3	41	41	10.3	31	82	20.5
34	2	8/4	4	34	60	12.31	172	35.00	27	60	15.0	59	15	3.8	8	27	6.8
35	2	8/4	4	35	60	12.69	172	25.00	31	52	13.0	52	51	12.8	43	4	1.0
36	1	8/4	4	36	60	12.31	172	15.00	31	0	0.0	0	0	0.0	0	0	0.0
37	1	8/4	4	36	60	12.69	172	5.00	32	2	0.5	2	1	0.3	1	0	0.0
38	2	7/31	4	33	60	9.81	173	20.00	38	30	7.5	28	34	8.5	26	13	3.3
39	2	7/31	4	37	60	10.19	173	10.00	35	58	14.5	58	38	9.5	30	10	2.5
40	2	8/1	4	34	60	10.19	173	0.00	34	44	11.0	44	45	11.3	33	14	3.5
41	2	8/1	4	37	60	9.81	172	50.00	31	33	8.3	31	22	5.5	17	78	19.5
42	2	8/3	4	34	60	9.81	172	40.00	31	29	7.3	28	4	1.0	2	13	3.3
43	2	8/3	4	32	60	10.19	172	30.00	32	26	6.5	26	15	3.8	15	1	0.3
44	1	7/29	4	36	60	7.69	173	55.00	52	10	2.5	10	2	0.5	2	0	0.0
45	1	7/30	4	35	60	7.69	173	45.00	49	31	7.8	29	14	3.5	13	0	0.0
46	1	7/30	4	35	60	7.31	173	35.06	43	38	9.5	37	28	7.0	24	3	0.8
47	2	7/31	4	36	60	7.69	173	25.15	40	32	8.0	32	27	6.8	21	11	2.8
48	2	7/31	4	34	60	7.31	173	15.04	38	19	4.8	19	15	3.8	12	2	0.5
49[b]	2	8/1	4	34	60	7.69	173	5.00	36	28	7.0	28	14	3.5	12	5	1.3
50	2	8/2	4	35	60	7.69	172	55.00	33	37	9.3	34	17	4.3	15	17	4.3
51	2	8/2	4	35	60	7.69	172	45.00	33	12	3.0	12	3	0.8	3	11	2.8
52	2	8/3	4	36	60	7.31	172	35.00	32	29	7.3	26	7	1.8	6	12	3.0
53	2	8/3	4	37	60	7.69	172	25.00	33	41	10.3	41	31	7.8	30	2	0.5

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Appendix A. (page 3 of 6).

Station	Stratum	Set Date	No. Pots	Ave. Soak Hours	N latitude		W longitude		Ave. Depth	Legal Males			Sublegal Males			Females	
					Degrees	Minutes	Degrees	Minutes	(fm)	Number	CPUE	Tagged	Number	CPUE	Tagged	Number	CPUE
54	1	8/5	4	35	60	7.31	172	15.00	33	7	1.8	6	1	0.3	1	1	0.3
55	1	8/5	4	35	60	7.69	172	5.00	34	4	1.0	4	3	0.8	3	0	0.0
56	2	7/31	4	35	60	4.81	173	20.05	41	13	3.3	13	16	4.0	12	2	0.5
57	2	7/31	4	36	60	5.19	173	10.00	38	19	4.8	19	8	2.0	4	7	1.8
58	2	8/2	4	34	60	4.81	173	0.00	36	22	5.5	21	28	7.0	22	11	2.8
59	2	8/2	4	36	60	5.19	172	50.00	35	25	6.3	24	14	3.5	8	9	2.3
60	2	8/2	4	34	60	5.19	172	40.00	34	14	3.5	14	6	1.5	6	3	0.8
61	2	8/3	4	36	60	4.81	172	30.00	35	28	7.0	26	13	3.3	11	5	1.3
62	1	7/30	4	35	60	2.69	173	54.96	53	3	0.8	3	3	0.8	3	0	0.0
63	1	7/30	4	34	60	2.31	173	44.95	51	11	2.8	11	2	0.5	2	0	0.0
64	1	7/30	4	34	60	2.69	173	34.99	46	12	3.0	12	7	1.8	7	0	0.0
65	2	7/30	4	33	60	2.31	173	24.98	42	17	4.3	17	9	2.3	7	1	0.3
66	2	7/31	4	35	60	2.31	173	15.05	41	15	3.8	14	13	3.3	9	5	1.3
67	2	7/31	4	36	60	2.69	173	5.00	38	28	7.0	28	15	3.8	9	15	3.8
68	2	8/2	4	34	60	2.31	172	55.00	37	11	2.8	11	6	1.5	6	3	0.8
69	2	8/2	4	34	60	2.69	172	45.00	35	9	2.3	9	10	2.5	9	2	0.5
70	2	8/3	4	36	60	2.31	172	35.00	35	8	2.0	8	5	1.3	4	4	1.0
71	2	8/3	4	36	60	2.69	172	25.00	37	12	3.0	12	7	1.8	7	0	0.0
72	1	8/5	4	35	60	2.39	172	15.00	37	0	0.0	0	2	0.5	2	0	0.0
73	1	8/5	4	34	60	2.69	172	5.00	36	4	1.0	4	2	0.5	2	1	0.3
74	1	8/8	4	36	59	57.69	173	55.00	55	3	0.8	3	2	0.5	2	0	0.0
75	1	8/8	4	36	59	57.31	173	45.00	53	4	1.0	4	0	0.0	0	0	0.0
76	1	8/7	4	36	59	57.31	173	35.00	49	29	7.3	29	52	13.0	52	0	0.0
77	1	8/7	4	36	59	57.69	173	25.00	45	17	4.3	17	9	2.3	9	0	0.0
78	1	8/7	4	35	59	57.31	173	15.00	43	16	4.0	16	12	3.0	11	3	0.8
79	1	8/7	4	35	59	57.69	173	5.00	41	28	7.0	27	14	3.5	9	5	1.3
80	1	8/6	4	36	59	57.69	172	55.00	39	16	4.0	16	10	2.5	9	3	0.8

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Appendix A. (page 4 of 6).

Station	Stratum	Set Date	No. Pots	Ave. Soak Hours	N latitude		W longitude		Ave. Depth	Legal Males			Sublegal Males			Females	
					Degrees	Minutes	Degrees	Minutes	(fm)	Number	CPUE	Tagged	Number	CPUE	Tagged	Number	CPUE
81	1	8/6	4	36	59	57.31	172	45.00	39	18	4.5	18	3	0.8	3	4	1.0
82	1	8/6	4	36	59	57.69	172	35.00	39	16	4.0	16	11	2.8	11	1	0.3
83	1	8/5	4	33	59	57.69	172	25.00	40	5	1.3	4	1	0.3	1	0	0.0
84	1	8/5	4	34	59	57.31	172	15.00	39	1	0.3	1	4	1.0	4	0	0.0
85	1	8/5	4	34	59	57.69	172	5.00	38	1	0.3	1	1	0.3	1	1	0.3
86	1	8/1	4	35	59	52.69	173	55.00	56	13	3.3	13	2	0.5	2	0	0.0
87	1	8/1	4	36	59	52.31	173	45.00	54	13	3.3	13	3	0.8	3	0	0.0
88	1	8/7	4	37	59	52.31	173	35.00	52	11	2.8	11	6	1.5	6	0	0.0
89	1	8/7	4	37	59	52.69	173	25.00	50	24	6.0	24	44	11.0	43	1	0.3
90	1	8/7	4	37	59	52.31	173	15.00	46	27	6.8	27	7	1.8	7	0	0.0
91	1	8/6	4	35	59	52.69	173	5.00	44	26	6.5	26	5	1.3	5	1	0.3
92	1	8/6	4	34	59	52.31	172	55.00	43	25	6.3	25	24	6.0	23	0	0.0
93	1	8/6	4	33	59	52.69	172	45.00	42	13	3.3	13	12	3.0	11	1	0.3
94	1	8/6	4	34	59	52.31	172	35.00	42	10	2.5	10	1	0.3	1	0	0.0
95	1	8/11	4	35	59	52.69	172	25.00	42	0	0.0	0	0	0.0	0	0	0.0
96	1	8/11	4	35	59	52.69	172	15.00	42	1	0.3	1	0	0.0	0	0	0.0
97	1	8/11	4	35	59	52.31	172	5.00	41	1	0.3	1	2	0.5	2	1	0.3
98	1	8/8	4	35	59	47.69	173	55.00	57	13	3.3	12	2	0.5	2	0	0.0
99	1	8/8	4	32	59	47.31	173	45.00	55	9	2.3	8	2	0.5	2	0	0.0
100	1	8/8	4	33	59	47.69	173	35.00	53	6	1.5	6	0	0.0	0	0	0.0
101	1	8/9	4	33	59	47.31	173	25.00	52	19	4.8	19	10	2.5	9	0	0.0
102	1	8/9	4	36	59	47.69	173	15.00	49	36	9.0	36	20	5.0	19	0	0.0
103	1	8/9	4	35	59	47.31	173	5.00	47	26	6.5	26	13	3.3	13	0	0.0
104	1	8/9	4	34	59	47.69	172	55.00	42	34	8.5	34	13	3.3	13	0	0.0
105	1	8/10	4	34	59	47.69	172	45.00	45	22	5.5	22	7	1.8	6	0	0.0
106	1	8/11	4	34	59	47.31	172	35.00	44	6	1.5	6	7	1.8	7	0	0.0
107	1	8/11	4	35	59	47.69	172	25.00	44	5	1.3	5	0	0.0	0	0	0.0

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Appendix A. (page 5 of 6).

Station	Stratum	Set Date	No. Pots	Ave. Soak Hours	N latitude		W longitude		Ave. Depth (fm)	Legal Males			Sublegal Males			Females	
					Degrees	Minutes	Degrees	Minutes		Number	CPUE	Tagged	Number	CPUE	Tagged	Number	CPUE
108	1	8/11	4	35	59	47.69	172	15.00	43	2	0.5	2	0	0.0	0	0	0.0
109	1	8/11	4	35	59	47.31	172	5.00	42	18	4.5	18	14	3.5	14	0	0.0
110	1	8/14	4	31	59	42.31	173	55.00	58	11	2.8	11	2	0.5	2	0	0.0
111	1	8/14	4	30	59	42.69	173	45.00	56	8	2.0	8	0	0.0	0	0	0.0
112	1	8/14	4	30	59	42.31	173	35.00	55	14	3.5	14	11	2.8	11	0	0.0
113	1	8/9	4	37	59	42.31	173	25.00	54	12	3.0	12	1	0.3	1	0	0.0
114	1	8/9	4	38	59	42.69	173	15.00	53	49	12.3	48	12	3.0	11	0	0.0
115	1	8/9	4	38	59	42.31	173	5.00	50	54	13.5	53	16	4.0	16	0	0.0
116	1	8/10	4	32	59	42.31	172	55.00	48	26	6.5	26	9	2.3	8	0	0.0
117	1	8/10	4	33	59	42.69	172	45.00	48	15	3.8	15	3	0.8	3	0	0.0
118	1	8/10	4	33	59	42.69	172	35.00	47	8	2.0	8	3	0.8	3	0	0.0
119	1	8/11	4	34	59	42.31	172	25.00	45	7	1.8	7	2	0.5	2	0	0.0
120	1	8/11	4	35	59	42.69	172	15.00	45	2	0.5	2	0	0.0	0	0	0.0
121	1	8/11	4	36	59	42.31	172	5.00	43	0	0.0	0	0	0.0	0	0	0.0
122	1	8/14	4	31	59	37.31	173	55.00	60	18	4.5	18	0	0.0	0	0	0.0
123	1	8/14	4	31	59	37.31	173	45.00	58	14	3.5	14	2	0.5	2	0	0.0
124	1	8/14	4	32	59	37.31	173	35.00	56	8	2.0	8	2	0.5	2	0	0.0
125	1	8/14	4	32	59	37.69	173	25.00	55	10	2.5	10	1	0.3	1	0	0.0
126	1	8/14	4	32	59	37.31	173	15.00	54	22	5.5	22	4	1.0	4	0	0.0
127	1	8/13	4	35	59	37.31	173	5.00	53	17	4.3	17	2	0.5	2	0	0.0
128	1	8/13	4	34	59	37.69	172	55.00	51	8	2.0	8	1	0.3	1	0	0.0
129	1	8/13	4	34	59	37.31	172	45.00	48	5	1.3	5	0	0.0	0	0	0.0
130	1	8/13	4	35	59	37.69	172	35.00	47	4	1.0	4	2	0.5	2	0	0.0
131	1	8/12	4	35	59	37.69	172	25.00	46	2	0.5	2	1	0.3	1	0	0.0
132	1	8/12	4	35	59	37.31	172	15.00	45	0	0.0	0	0	0.0	0	0	0.0
133	1	8/12	4	35	59	37.69	172	5.00	43	0	0.0	0	0	0.0	0	0	0.0
135	1	8/14	4	34	59	32.69	173	45.00	59	22	5.5	22	1	0.3	1	0	0.0

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Station	Stratum	Set Date	No. Pots	Ave. Soak Hours	N latitude		W longitude		Ave. Depth (fm)	Legal Males			Sublegal Males			Females	
					Degrees	Minutes	Degrees	Minutes		Number	CPUE	Tagged	Number	CPUE	Tagged	Number	CPUE
136	1	8/14	4	33	59	32.31	173	35.00	58	15	3.8	15	6	1.5	6	0	0.0
137	1	8/14	4	33	59	32.69	173	25.00	56	12	3.0	12	7	1.8	7	0	0.0
138	1	8/14	4	33	59	32.31	173	15.00	55	8	2.0	8	2	0.5	2	0	0.0
139	1	8/13	4	35	59	32.31	173	5.00	53	7	1.8	7	0	0.0	0	0	0.0
140	1	8/13	4	35	59	32.69	172	55.00	52	12	3.0	12	2	0.5	2	0	0.0
141	1	8/13	4	36	59	32.31	172	45.00	51	8	2.0	8	0	0.0	0	0	0.0
142	1	8/12	4	34	59	32.31	172	35.00	50	4	1.0	4	1	0.3	1	0	0.0
143	1	8/12	4	34	59	32.69	172	25.00	47	0	0.0	0	0	0.0	0	0	0.0
144	1	8/12	4	34	59	32.31	172	15.00	46	0	0.0	0	0	0.0	0	0	0.0
145	1	8/12	4	35	59	32.39	172	5.00	44	0	0.0	0	0	0.0	0	0	0.0
146	2	8/1	4	37	60	15.19	172	50.00	25	15	3.8	15	2	0.5	2	13	3.3
147	2	7/27	4	39	60	22.76	172	55.08	20	1	0.3	1	0	0.0	0	1	0.3
148	2	7/27	4	36	60	25.97	173	0.07	24	42	10.5	40	10	2.5	10	24	6.0
149	2	7/26	4	35	60	27.33	173	5.05	19	4	1.0	4	1	0.3	1	0	0.0
150	2	7/26	4	36	60	25.69	173	10.01	28	5	1.3	5	50	12.5	32	12	3.0
151	2	7/26	4	37	60	25.67	173	20.07	33	23	5.8	21	36	9.0	32	4	1.0
152	2	7/26	4	34	60	29.69	173	20.00	32	17	4.3	17	13	3.3	13	0	0.0
168	1	8/16	4	30	60	42.31	173	25.00	37	1	0.3	1	2	0.5	2	0	0.0
169	1	8/16	4	30	60	42.69	173	15.00	36	13	3.3	13	4	1.0	4	0	0.0
179	1	8/16	4	30	60	37.31	173	25.00	35	5	1.3	4	5	1.3	5	0	0.0
180	1	8/16	4	31	60	37.69	173	15.00	33	5	1.3	5	4	1.0	4	0	0.0
189	1	8/16	4	30	60	32.31	173	25.00	33	2	0.5	2	33	8.3	29	1	0.3
190	1	8/16	4	31	60	32.69	173	15.00	28	26	6.5	26	20	5.0	18	1	0.3
201	1	8/4	4	34	60	17.31	172	35.00	23	1	0.3	1	2	0.5	2	16	4.0
Total			632	35					41	2,952	4.7	2,840	2,059	3.3	1,712	737	1.2

[a] One male blue king crab captured at Station 11 was not assessed as either legal or sublegal and is not included in this table.
[b] One male blue king crab captured at Station 49 was not assessed as either legal or sublegal and is not included in this table.

Appendix B. Shell age classification scheme for blue king crabs captured during the 2001 St. Matthew Island survey (adapted from Blau and Watson 1998).

Shell Age Categories	Estimated Shell Age	Ventral Surface of Walking Legs, Coxa and Merus	Carapace Spines	Walking Leg Spines	Dactyls	Exoskeleton	Leg Meat Fullness	Gills
Soft-Shell	0-2 weeks	White, supple.	Base reddish	Predominately white.	Pliable, sharp tips; white band above tips.	Soft, shell not formed.	None.	Translucent.
New -Shell Pliable	2 wks-3 mo.	White, shiny not scratched.	Base reddish	Approx. ½ white above and ½ orange at base.	Hard, sharp tips; white band above tips.	Pliable; cracks and punctures easily.	<30 % full.	Light yellow.
New-Shell Hard	4 –18 mo.	White or slightly off white. Coxa and merus generally devoid of scratches. May have brown or black scratches on distal rim but not in a continuous band.	Base reddish	Approx. ½ white above and ½ orange at base.	Hard, sharp tips; white band above tips.	Firm.	Firm-hard.	Light gray.
Old-Shell	19-36 mo.	Off-white. Distal portion of coxa rimmed with brown or black scratches. Merus may have brown areas from spine abrasion.	Base of spines darker than above. Reddish-brown.	Mostly reddish -brown.	Tips worn, angled. Brown to black above tips.	Firm.	Full.	Dark gray.
Very Old-Shell	>36 mo.	Light cream color. Distal portion of coxa rimmed with scratches that are black. Middle of coxa and portions of merus often scratched, and may have brown areas.	Base of spines black.	Mostly black.	Tips angled and rounded, black above tips.	Firm but more pliable than new -hard or old-shell. Carapace on some pliable.	Full, but exoskeleton may be pliable.	Dark gray to black.

Appendix C. Underwater video camera deployment memo from R. Burt to L. Watson, February 12, 2002.

ALASKA DEPARTMENT OF FISH AND GAME

DIVISION OF COMMERCIAL FISHERIES

MEMORANDUM

TO:	Leslie Watson Shellfish/Groundfish Research Biologist Commercial Fisheries Division Kodiak	DATE: PHONE: FAX:	Feb. 13, 2002 (907) 581-1239 (907) 581-1572
FROM:	Ryan Burt Observer Program Asst. Database Manager Commercial Fisheries Division Region IV – Dutch Harbor	SUBJECT:	Underwater Video Camera Deployments

This summarizes the deployments of the autonomous underwater video camera aboard the F/V Billikin during the 2001 St. Matthew Island blue king crab *Paralithodes platypus* survey.

Deployment Dates, Itinerary and Objectives

The autonomous underwater video camera was deployed 12 times during the survey between 7/23/01 and 8/21/01. The survey originated and ended in Dutch Harbor aboard the F/V Billikin with vessel operator J. Hilt, engineer R. Bonds, first mate D. Bersano, and deckhands K. Kitchen and J. Schnyder and ADF&G biologists L. Watson, R. Gish, G. Neufeld, and myself.

The camera was deployed in Bering Sea waters within 59°30.00' N to 60°30.00' N latitude and 172°00.00' W to 173°55.00' W longitude. Underwater video footage was obtained from six deployments at depths ranging from 31 to 46 fathoms with respective filming duration's spanning 4 to 35 hours.

Filming scenarios conformed to objectives specified in the project operational plan. This was done while adhering to protocol to minimize the risk of damaging or losing the autonomous video camera system given sea surface conditions and vessel operations.

Objectives include:
- Record time-lapse underwater video footage of bottom habitat types within the survey area.
- Record behavior of crabs inside and outside the camera pot.

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Set up and deployment

The camera was deployed on a regular basis throughout the survey while considering sea surface conditions and survey itinerary. One 7'x 7' crab pot was designated as the camera pot during the survey. This pot was equipped with a specialized four-point bridal and an emergency pot saving device. The underwater camera's deployment frame was secured to the pot frame and webbing using nylon seine twine and heavy-duty zip ties.

The four-point bridal was similar to that used in previous deployments in which all four corners of the pot are connected to the main buoy line. This resulted in the pot being launched and retrieved in a horizontal position instead of the normal vertical position with a two-point bridal. The pot was lowered to the bottom by the line being placed in the block, which was reversed.

A pot saving device was secured to the side of the camera pot to reduce the risk of losing the camera in the event of the main line or buoys being severed or broken. The device consists of crab line coiled into a plastic mesh tube with the bottom end of the line tied to the knot of the four-point bridal and a 8" hardfloat tied to the top end of the line. A length of seine twine with a galvanic time release device at it's midpoint laced over the top of the hardfloat keeps it and the line in the tube until, after a period of two days, the time release device dissolves, releasing the float and line which then rise to the surface.

The deployment frame was positioned adjacent to the door, in a manner consistent with previous deployments. The deployment frame was not removed from the camera pot during the duration of the survey but was checked after each retrieval to ensure it remained secure inside the pot. The underwater battery and anodized sphere were removed from the frame after each deployment and taken inside the vessel's forepeak for freshwater rinsing, tape removal and viewing, battery recharging and reprogramming.

The camera pot was deployed by placing the buoy line in the block and the crane hook under the knot of the four-point bridal. The pot was then lifted by the crane and swung out over the side of the vessel then lowered below the water surface until the tension on the buoy line in the block supported the weight of the pot. The hook was then removed and the pot lowered to the ocean bottom by reversing the block. As the pot neared on the bottom, the vessel was placed in gear to keep tension on the buoy line as the buoys were released to ensure that the pot landed horizontally. Retrieval of the pot followed the same procedures in reverse order.

The camera was mounted facing inside the pot on five deployments and facing outside the pot on seven deployments. To avoid potential crab density problems on inward camera facing deployments, the camera was bolted to the top front of the frame and tilted downward to get as much of the pot bottom in the field of view as possible. On the outward facing deployments the camera was mounted on the back of the camera frame looking outward through a hole cut in the mesh of the pot door. The camera was again tilted downward for a view of the ocean benthos near the pot.

Two underwater video lights were mounted away from and out of the camera's field of view. The lights were positioned differently in each deployment depending on the orientation of the

-Continued-

camera lens. In case of high numbers of crabs inside the pot, which may have resulted in blocked lighting during filming, the lights were initially mounted adjacent to the top webbing of the pot. As the survey progressed, it became clear that crab density would not significantly inhibit lighting and the lights were subsequently positioned anywhere above the height of the deployment frame to achieve the best lighting conditions.

Camera programming

Deployment scenarios were developed to achieve the objectives described in the project operational plan. Total recording time for all deployments was 60 minutes except for deployment 11, which had a recording time of 20 minutes. The camera was deployed in various locations throughout the survey area a total of 12 times, see attached table. Of these, 7 deployments were configured with the camera facing outside the pot while the other 5 deployments were configured with the camera facing inside the pot.

Deployment programming was as follows:

Deployment 1 – 10 and 12: one hour total footage starting 1 hour after launch with 10 minutes of taping time every six hours for 36 hours.

Deployment 11: twenty minutes total footage starting 30 minutes after launch for 10 minutes with 10 more minutes of taping time 2 hours later.

Results

Deployments 1 through 5 resulted in no footage. The reasons no footage was obtained are varied, but is mostly attributable to my inexperience in programming the recording sequences. All of these deployments were near St. Matthew Island within stratum 2 of the survey area and configured to obtain habitat footage. It's unfortunate none of these deployments resulted in any footage, as this was one of the primary objectives of deploying the underwater camera.

The sixth deployment resulted in one hour of footage looking inside the pot. The location of this deployment was between stations 54 and 55. Footage revealed numerous Pacific cod *Gadus macrocephalus* inside the pot within the first few hours of launching with numbers decreasing as soak time increased. The fish would enter the pot, stay for a period of time and then swim back out of the pot. One blue king crab is seen during one 10-minute segment of the footage. Upon retrieval of the pot there were 3 blue king crab and 1 Pacific halibut *Hippoglossus stenolepis* present, all the cod had left the pot by this time.

The camera was configured to obtain habitat footage on deployment 7, which was near station 79. The lens looked out of the pot door and revealed a muddy bottom with a lot of animal activity shortly after launching and decreasing as the pot soaked. Cod, yellowfin sole *Limanda aspera* and snow crab *Chionoecetes opilio* made up the majority of animals seen; an occasional sculpin can be seen and at one point a skate *Raja* sp. swims by. It is obvious that as the scent of the bait dissipates, it attracts fewer and fewer animals. Ten minute taping segments occurred every six hours. As the lights turned on at the beginning of the segments, cod would "torpedo" out of the darkness and bump into the lights. It is obvious the cod were interpreting the lights as

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something to eat and became disorientated (and blinded) as they approached the lights. The fish would then slowly swim off after the encounter.

Deployments 8 and 9 were configured to get inside the pot footage. These deployments were outside the traditional blue king crab area and none were seen on the tape. The bottom type was mud and many cod, yellowfin sole, snow crab and an occasional walleye pollock *Theragra chalcogramma* can be seen on the footage from both deployments. Upon retrieval of these deployments only snails and hermit crabs remained in the pot.

Deployment 10 resulted in no footage; I believe I did something wrong while reprogramming the taping sequence.

The last two deployments were west of Hall Island. Deployment 11 was configured as an outside the pot shot. This pot was soaked for four hours. The tide was really running throughout this time and the water was thick with detrital material resulting in extremely poor visibility. The ocean bottom is not visible, even though it is only about two feet from the camera lens. Deployment 12 was configured looking inside the pot. Soak time was 26 hours and visibility was much better, even though the location was close to deployment 11. Once again, a lot of cod can bee seen within the first several hours after launching. After 12 hours there were only two king crab and cod present in the pot. During this 10-minute segment the tide is again running fairly strong and a lot of detrital material is in the water column. Close inspection of the footage shows a huge number of small (approximately 40 – 60 mm), almost transparent fish sweeping by with the current. I was unable to determine the species or the developmental stage of these fish.

Overall, the objectives of using the underwater camera were only partially met. I feel a combination of unfamiliarity with the programming of taping sequences and low catches were the main reasons the objectives were not fully achieved. The information gathered however is valuable and I feel it would be worth the effort to get habitat footage from the stratum 2 area in future surveys, as none was obtained during this survey. Also, based on the footage of deployment 11, I feel future recording sequences near these islands should be programmed to coincide with periods of slack tide to have the best chances of getting clear footage of habitat types.

Appendix D. Blue king crab catch, catch per unit effort (CPUE), and tagging effort by station from the 2001, 1998, and 1995 St. Matthew Island surveys. Data presented is from all offshore stations fished in each survey year.

		Legal Males									Sublegal Males									Females								
		Number			CPUE			No. Tagged			Number			CPUE			No. Tagged			Number			CPUE			No. Tagged		
Station	Stratum	2001	1998[a]	1995[b]	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995
1	1	12	23	10	3.0	5.8	2.5	12	23	8	3	17	11	0.8	4.3	2.8	2	17	0	0	0	0	0.0	0.0	0.0	0	0	0
2	1	9	4	6	2.3	1.0	1.5	9	4	5	10	28	5	2.5	7.0	1.3	10	27	0	0	1	0	0.0	0.3	0.0	0	0	0
3	1	29	40	13	7.3	10.0	3.3	28	39	13	45	37	16	11.3	9.3	4.0	42	33	0	1	4	0	0.3	1.0	0.0	0	0	0
4	2	30	16	21	7.5	4.0	5.3	28	16	7	54	17	43	13.5	4.3	10.8	52	9	0	1	14	1	0.3	3.5	0.3	0	0	0
5	2	36	40	91	9.0	10.0	22.8	36	40	43	23	25	131	5.5	6.3	32.8	17	12	0	5	33	17	1.3	8.3	4.3	0	0	3
6	1	11	21	3	2.8	5.3	0.8	10	21	3	4	19	1	1.0	4.8	0.3	0	19	0	0	0	0	0.0	0.0	0.0	0	0	0
7	1	17	56	6	4.3	14.0	1.5	16	56	6	7	26	4	1.8	6.5	1.0	5	23	0	0	2	0	0.0	0.5	0.0	0	0	0
8	1	29	43	15	7.3	10.8	3.8	27	43	15	39	54	33	9.8	13.5	8.3	32	29	0	3	20	0	0.8	5.0	0.0	0	0	0
9	2	37	20	21	9.3	5.0	5.3	33	20	11	35	87	39	8.8	21.8	9.8	23	17	0	3	52	4	0.8	13.0	1.0	0	0	3
10	2	44	26	28	11.0	6.5	7.0	43	26	14	31	24	79	7.8	6.0	19.8	18	14	0	4	58	8	1.0	14.5	2.0	0	0	0
11[c]	2	58	51	154	14.5	12.8	38.5	57	50	59	26	11	143	6.5	2.8	35.8	13	7	0	40	107	108	10.0	26.8	27.0	0	0	25
12	2	29	nf[d]	12	7.3	nf	3.0	28	nf	7	55	nf	23	13.8	nf	5.8	40	nf	0	11	nf	2	2.8	nf	0.5	0	nf	0
13	2	41	nf	25	10.3	nf	6.3	40	nf	13	29	nf	38	7.3	nf	9.5	18	nf	0	3	nf	3	0.8	nf	0.8	0	nf	1
14	2	45	nf	256	11.3	nf	64.0	42	nf	60	9	nf	121	2.3	nf	30.3	6	nf	0	44	nf	154	11.0	nf	38.5	0	nf	25
15	1	25	63	2	6.3	15.8	0.5	24	61	2	7	45	4	1.8	11.3	1.0	7	44	0	0	4	0	0.0	1.0	0.0	0	0	0
16	1	26	38	5	6.5	9.5	1.3	25	38	5	25	27	8	6.3	6.8	2.0	23	27	0	1	0	0	0.3	0.0	0.0	0	0	0
17	1	20	50	8	5.0	12.5	2.0	18	49	8	28	58	5	7.0	14.5	1.3	22	47	0	2	20	0	0.5	5.0	0.0	0	0	0
18	2	43	37	16	10.8	9.3	4.0	38	37	8	72	89	34	18.0	22.3	8.5	56	22	0	3	105	0	0.8	26.3	0.0	0	0	0
19	2	18	18	13	4.5	4.5	3.3	16	18	5	48	51	61	12.0	12.8	15.3	34	9	0	14	105	5	3.5	26.3	1.3	0	0	0
20	2	109	125	46	27.3	31.3	11.5	67	60	22	57	30	37	14.3	7.5	9.3	53	19	0	17	150	4	4.3	37.5	1.0	0	0	3
21	2	31	6	115	7.8	1.5	28.8	31	6	58	10	7	48	2.5	1.8	12.0	9	1	0	30	72	419	7.5	18.0	104.8	0	0	26
22	1	9	1	nf	2.3	0.3	nf	9	1	nf	13	3	nf	3.3	0.8	nf	13	1	nf	3	53	nf	0.8	13.3	nf	0	0	nf
23	1	7	39	nf	1.8	9.8	nf	6	38	nf	5	69	nf	1.3	17.3	nf	2	38	nf	2	41	nf	0.5	10.3	nf	0	0	nf
24	2	32	nf	9	8.0	nf	2.3	31	nf	5	26	nf	8	6.5	nf	2.0	19	nf	0	3	nf	4	0.8	nf	1.0	0	nf	2
25	2	30	nf	41	7.5	nf	10.3	29	nf	21	50	nf	103	12.5	nf	25.8	42	nf	0	27	nf	11	6.8	nf	2.8	0	nf	1
26	2	20	nf	46	5.0	nf	11.5	19	nf	23	25	nf	28	6.3	nf	7.0	19	nf	0	29	nf	14	7.3	nf	3.5	0	nf	10
27	1	10	40	nf	2.5	10.0	nf	10	40	nf	4	7	nf	1.0	1.8	nf	4	7	nf	0	0	nf	0.0	0.0	nf	0	0	nf
28	1	39	58	17	9.8	14.5	4.3	37	58	17	20	21	20	5.0	5.3	5.0	20	20	0	0	0	0	0.0	0.0	0.0	0	0	0
29	1	19	48	16	4.8	12.0	4.0	19	46	10	16	51	16	4.0	12.8	4.0	14	47	0	2	0	0	0.5	0.0	0.0	0	0	0
30	2	40	43	3	10.0	10.8	0.8	38	43	1	15	40	6	3.8	10.0	1.5	10	35	0	7	45	0	1.8	11.3	0.0	0	0	0
31	2	35	79	46	8.8	19.8	11.5	34	60	22	49	58	77	12.3	14.5	19.3	36	25	0	12	157	8	3.0	39.3	2.0	0	0	2
32	2	22	19	17	5.5	4.8	4.3	22	19	7	37	23	18	9.3	5.8	4.5	28	8	0	3	91	7	0.8	22.8	1.8	0	0	2

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Appendix D. (page 2 of 6).

		Legal Males									Sublegal Males									Females								
		Number			CPUE			No. Tagged			Number			CPUE			No. Tagged			Number			CPUE			No. Tagged		
Station	Stratum	2001	1998[a]	1995[b]	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995
33	2	41	14	91	10.3	3.5	22.8	41	14	46	41	17	90	10.3	4.3	22.5	31	4	0	82	106	104	20.5	26.5	26.0	0	0	27
34	2	60	51	146	15.0	12.8	36.5	59	51	60	15	22	105	3.8	5.5	26.3	8	11	0	27	245	590	6.8	61.3	147.5	0	0	25
35	2	52	76	142	13.0	19.0	35.5	52	60	70	51	57	155	12.8	14.3	38.8	43	50	0	4	45	26	1.0	11.3	6.5	0	0	20
36	1	0	16	32	0.0	4.0	8.0	0	16	32	0	30	57	0.0	7.5	14.3	0	26	0	0	5	13	0.0	1.3	3.3	0	0	0
37	1	2	8	3	0.5	2.0	0.8	2	8	2	1	8	7	0.3	2.0	1.8	1	6	0	0	2	0	0.0	0.5	0.0	0	0	0
38	2	30	nf	19	7.5	nf	4.8	28	nf	9	34	nf	22	8.5	nf	5.5	26	nf	0	13	nf	1	3.3	nf	0.3	0	nf	0
39	2	58	nf	9	14.5	nf	2.3	58	nf	4	38	nf	16	9.5	nf	4.0	30	nf	0	10	nf	2	2.5	nf	0.5	0	nf	1
40	2	44	nf	17	11.0	nf	4.3	44	nf	9	45	nf	19	11.3	nf	4.8	33	nf	0	14	nf	6	3.5	nf	1.5	0	nf	5
41	2	33	nf	107	8.3	nf	26.8	31	nf	53	22	nf	59	5.5	nf	14.8	17	nf	0	78	nf	224	19.5	nf	56.0	0	nf	25
42	2	29	nf	203	7.3	nf	50.8	28	nf	60	4	nf	161	1.0	nf	40.3	2	nf	0	13	nf	267	3.3	nf	66.8	0	nf	24
43	2	26	nf	33	6.5	nf	8.3	26	nf	16	15	nf	25	3.8	nf	6.3	15	nf	0	1	nf	11	0.3	nf	2.8	0	nf	8
44	1	10	21	nf	2.5	5.3	nf	10	20	nf	2	1	nf	0.5	0.3	nf	2	1	nf	0	0	nf	0.0	0.0	0	0	0	nf
45	1	31	29	18	7.8	7.3	4.5	29	29	18	14	31	8	3.5	7.8	2.0	13	31	0	0	0	0	0.0	0.0	0.0	0	0	0
46	1	38	64	21	9.5	16.0	5.3	37	60	21	28	37	14	7.0	9.3	3.5	24	37	0	3	0	0	0.8	0.0	0.0	0	0	0
47	2	32	30	15	8.0	7.5	3.8	32	30	7	27	36	18	6.8	9.0	4.5	21	29	0	11	38	1	2.8	9.5	0.3	0	0	1
48	2	19	67	5	4.8	16.8	1.3	19	61	2	15	36	5	3.8	9.0	1.3	12	27	0	2	70	1	0.5	17.5	0.3	0	0	1
49[c]	2	28	59	9	7.0	14.8	2.3	28	59	4	14	33	24	3.5	8.3	6.0	12	11	0	5	54	9	1.3	13.5	2.3	0	0	5
50	2	37	23	35	9.3	5.8	8.8	34	23	17	17	25	41	4.3	6.3	10.3	15	9	0	17	65	36	4.3	16.3	9.0	0	0	24
51	2	12	41	87	3.0	10.3	21.8	12	40	42	3	20	92	0.8	5.0	23.0	3	17	0	11	101	55	2.8	25.5	13.8	0	0	26
52	2	29	68	46	7.3	17.0	11.5	26	65	24	7	6	44	1.8	1.5	11.0	6	6	0	12	36	7	3.0	9.0	1.8	0	0	5
53	2	41	39	12	10.3	9.8	3.0	41	39	6	31	27	25	7.8	6.8	6.3	30	27	0	2	8	7	0.5	2.0	1.8	0	0	6
54	1	7	1	11	1.8	0.3	2.8	6	0	11	1	7	25	0.3	1.8	6.3	1	7	0	1	1	2	0.3	0.3	0.5	0	0	0
55	1	4	25	3	1.0	6.3	0.8	4	25	3	3	16	20	0.8	4.0	5.0	3	15	0	0	0	5	0.0	0.0	1.3	0	0	0
56	2	13	nf	14	3.3	nf	3.5	13	nf	7	16	nf	13	4.0	nf	3.3	12	nf	0	2	nf	1	0.5	nf	0.3	0	nf	0
57	2	19	nf	12	4.8	nf	3.0	19	nf	4	8	nf	10	2.0	nf	2.5	4	nf	0	7	nf	2	1.8	nf	0.5	0	nf	0
58	2	22	nf	7	5.5	nf	1.8	21	nf	4	28	nf	11	7.0	nf	2.8	22	nf	0	11	nf	7	2.8	nf	1.8	0	nf	6
59	2	25	nf	41	6.3	nf	10.3	24	nf	22	14	nf	22	3.5	nf	5.5	8	nf	0	9	nf	6	2.3	nf	1.5	0	nf	5
60	2	14	nf	13	3.5	nf	3.3	14	nf	6	6	nf	13	1.5	nf	3.3	6	nf	0	3	nf	2	0.8	nf	0.5	0	nf	2
61	2	28	nf	6	7.0	nf	1.5	26	nf	3	13	nf	3	3.3	nf	0.8	11	nf	0	5	nf	1	1.3	nf	0.3	0	nf	0
62	1	3	31	nf	0.8	7.8	nf	3	31	nf	3	8	nf	0.8	2.0	nf	3	7	nf	0	0	nf	0.0	0.0	nf	0	0	nf
63	1	11	31	9	2.8	7.8	2.3	11	31	9	2	13	13	0.5	3.3	3.3	2	13	0	0	0	0	0.0	0.0	0.0	0	0	0
64	1	12	33	71	3.0	8.3	17.8	12	33	69	7	37	43	1.8	9.3	10.8	7	37	0	0	0	0	0.0	0.0	0.0	0	0	0

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Appendix D. (page 3 of 6).

		Legal Males									Sublegal Males									Females								
		Number			CPUE			No. Tagged			Number			CPUE			No. Tagged			Number			CPUE			No. Tagged		
Station	Stratum	2001	1998[a]	1995[b]	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995
65	2	17	49	20	4.3	12.3	5.0	17	48	10	9	43	10	2.3	10.8	2.5	7	43	0	1	8	0	0.3	2.0	0.0	0	0	0
66	2	15	35	2	3.8	8.8	0.5	14	35	1	13	44	3	3.3	11.0	0.8	9	35	0	5	17	1	1.3	4.3	0.3	0	0	1
67	2	28	65	12	7.0	16.3	3.0	28	64	6	15	18	12	3.8	4.5	3.0	9	12	0	15	41	2	3.8	10.8	0.5	0	0	2
68	2	11	31	11	2.8	7.8	2.8	11	31	6	6	10	5	1.5	2.5	1.3	6	6	0	3	33	5	0.8	8.3	1.3	0	0	5
69	2	9	19	15	2.3	4.8	3.8	9	19	7	10	15	21	2.5	3.8	5.3	9	14	0	2	24	4	0.5	6.0	1.0	0	0	3
70	2	8	26	18	2.0	6.5	4.5	8	26	9	5	4	24	1.3	1.0	6.0	4	4	0	4	11	3	1.0	2.8	0.8	0	0	0
71	2	12	32	13	3.0	8.0	3.3	12	31	6	7	8	18	1.8	2.0	4.5	7	8	0	0	3	3	0.0	0.8	0.8	0	0	0
72	1	0	7	2	0.0	1.8	0.5	0	7	2	2	1	11	0.5	0.3	2.8	2	1	0	0	0	1	0.0	0.0	0.3	0	0	0
73	1	4	11	1	1.0	2.8	0.3	4	11	1	2	5	9	0.5	1.3	2.3	2	4	0	1	0	0	0.3	0.0	0.0	0	0	0
74	1	3	30	9	0.8	7.5	2.3	3	30	9	2	7	17	0.5	1.8	4.3	2	7	0	0	0	0	0.0	0.0	0.0	0	0	0
75	1	4	44	14	1.0	11.0	3.5	4	43	14	0	10	8	0.0	2.5	2.0	0	10	0	0	0	0	0.0	0.0	0.0	0	0	0
76	1	29	61	80	7.3	15.3	20.0	29	61	77	52	43	91	13.0	10.8	22.8	52	43	0	0	0	0	0.0	0.0	0.0	0	0	0
77	1	17	49	75	4.3	12.3	18.8	17	48	73	9	17	43	2.3	4.3	10.8	9	17	0	0	0	0	0.0	0.0	0.0	0	0	0
78	1	16	63	10	4.0	15.8	2.5	16	61	8	12	53	10	3.0	13.3	2.5	11	50	0	3	8	0	0.8	2.0	0.0	0	0	0
79	1	28	43	11	7.0	10.8	2.8	27	43	11	14	23	8	3.5	5.8	2.0	9	22	0	5	7	0	1.3	1.8	0.0	0	0	0
80	1	16	30	16	4.0	7.5	4.0	16	30	8	10	11	21	2.5	2.8	5.3	9	11	0	3	14	1	0.8	3.5	0.3	0	0	1
81	1	18	29	2	4.5	7.3	0.5	18	28	1	3	6	5	0.8	1.5	1.3	3	6	0	4	20	0	1.0	5.0	0.0	0	0	0
82	1	16	12	0	4.0	3.0	0.0	16	12	0	11	6	1	2.8	1.5	0.3	11	5	0	1	1	0	0.3	0.3	0.0	0	0	0
83	1	5	7	5	1.3	1.8	1.3	4	7	5	1	8	11	0.3	2.0	2.8	1	8	0	0	2	0	0.0	0.5	0.0	0	0	0
84	1	1	4	5	0.3	1.0	1.3	1	4	5	4	5	5	1.0	1.3	1.3	4	4	0	0	2	0	0.0	0.5	0.0	0	0	0
85	1	1	4	1	0.3	1.0	0.3	1	4	1	1	1	6	0.3	0.3	1.5	1	1	0	1	0	1	0.3	0.0	0.3	0	0	0
86	1	13	39	16	3.3	9.8	4.0	13	39	16	2	13	17	0.5	3.3	4.3	2	12	0	0	0	0	0.0	0.0	0.0	0	0	0
87	1	13	35	10	3.3	8.8	2.5	13	35	10	3	12	12	0.8	3.0	3.0	3	10	0	0	0	0	0.0	0.0	0.0	0	0	0
88	1	11	33	25	2.8	8.3	6.3	11	32	25	6	8	11	1.5	2.0	2.8	6	7	0	0	0	0	0.0	0.0	0.0	0	0	0
89	1	24	38	98	6.0	9.5	24.5	24	38	97	44	53	150	11.0	13.3	37.5	43	53	0	1	0	1	0.3	0.0	0.3	0	0	0
90	1	27	59	25	6.8	14.8	6.3	27	59	23	7	21	13	1.8	5.3	3.3	7	19	0	0	1	0	0.0	0.3	0.0	0	0	0
91	1	26	42	19	6.5	10.5	4.8	26	42	17	5	20	14	1.3	5.0	3.5	5	20	0	1	2	0	0.3	0.5	0.0	0	0	0
92	1	25	46	13	6.3	11.5	3.3	25	46	6	24	30	20	6.0	7.5	5.0	23	30	0	0	1	1	0.0	0.3	0.3	0	0	0
93	1	13	17	3	3.3	4.3	0.8	13	17	1	12	6	12	3.0	1.5	3.0	11	6	0	1	4	0	0.3	1.0	0.0	0	0	0
94	1	10	6	0	2.5	1.5	0.0	10	6	0	1	6	2	0.3	1.5	0.5	1	6	0	0	2	0	0.0	0.5	0.0	0	0	0
95	1	0	6	6	0.0	1.5	1.5	0	6	6	0	6	13	0.0	1.5	3.3	0	6	0	0	0	1	0.0	0.0	0.0	0	0	0
96	1	1	nf	2	0.3	nf	0.5	1	nf	2	0	nf	1	0.0	nf	0.3	0	nf	0	0	nf	0	0.0	nf	0.0	0	nf	0
97	1	1	nf	0	0.3	nf	0.0	1	nf	0	2	nf	5	0.5	nf	1.3	2	nf	0	1	nf	1	0.3	nf	0.3	0	nf	0

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Appendix D. (page 4 of 6).

		Legal Males									Sublegal Males									Females								
		Number			CPUE			No. Tagged			Number			CPUE			No. Tagged			Number			CPUE			No. Tagged		
Station	Stratum	2001	1998[a]	1995[b]	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995
98	1	13	27	7	3.3	6.8	1.8	12	27	7	2	14	6	0.5	3.5	1.5	2	14	0	0	0	0	0.0	0.0	0.0	0	0	0
99	1	9	33	11	2.3	8.3	2.8	8	32	11	2	13	4	0.5	3.3	1.0	2	13	0	0	0	0	0.0	0.0	0.0	0	0	0
100	1	6	31	42	1.5	7.8	10.5	6	31	42	0	10	15	0.0	2.5	3.8	0	9	0	0	0	0	0.0	0.0	0.0	0	0	0
101	1	19	41	56	4.8	10.3	14.0	19	41	55	10	20	21	2.5	5.0	5.3	9	20	0	0	0	0	0.0	0.0	0.0	0	0	0
102	1	36	40	103	9.0	10.0	25.8	36	40	102	20	23	48	5.0	5.8	12.0	19	22	0	0	0	0	0.0	0.0	0.0	0	0	0
103	1	26	32	6	6.5	8.0	1.5	26	32	6	13	19	15	3.3	4.8	3.8	13	16	0	0	1	0	0.0	0.3	0.0	0	0	0
104	1	34	17	16	8.5	4.3	4.0	34	17	8	13	7	7	3.3	1.8	1.8	13	7	0	0	1	0	0.0	0.3	0.0	0	0	0
105	1	22	29	9	5.5	7.3	2.3	22	29	5	7	17	14	1.8	4.3	3.5	6	17	0	0	2	0	0.0	0.5	0.0	0	0	0
106	1	6	nf	2	1.5	nf	0.5	6	nf	1	7	nf	0	1.8	nf	0.0	7	nf	0	0	nf	0	0.0	nf	0.0	0	nf	0
107	1	5	nf	2	1.3	nf	0.5	5	nf	2	0	nf	2	0.0	nf	0.5	0	nf	0	0	nf	0	0.0	nf	0.0	0	nf	0
108	1	2	nf	0	0.5	nf	0.0	2	nf	0	0	nf	2	0.0	nf	0.5	0	nf	0	0	nf	0	0.0	nf	0.0	0	nf	0
109	1	18	nf	1	4.5	nf	0.3	18	nf	1	14	nf	1	3.5	nf	0.3	14	nf	0	0	nf	0	0.0	nf	0.0	0	nf	0
110	1	11	25	3	2.8	6.3	0.8	11	25	3	2	7	1	0.5	1.8	0.3	2	7	0	0	0	0	0.0	0.0	0.0	0	0	0
111	1	8	14	9	2.0	3.5	2.3	8	14	9	0	11	12	0.0	2.8	3.0	0	11	0	0	0	0	0.0	0.0	0.0	0	0	0
112	1	14	28	36	3.5	7.0	9.0	14	28	32	11	7	8	2.8	1.8	2.0	11	7	0	0	0	0	0.0	0.0	0.0	0	0	0
113	1	12	23	25	3.0	5.8	6.3	12	23	25	1	9	11	0.3	2.3	2.8	1	9	0	0	0	0	0.0	0.0	0.0	0	0	0
114	1	49	51	13	12.3	12.8	3.3	48	51	13	12	17	6	3.0	4.3	1.5	11	17	0	0	0	0	0.0	0.0	0.0	0	0	0
115	1	54	29	17	13.5	7.3	4.3	53	29	11	16	10	11	4.0	2.5	2.8	16	10	0	0	0	0	0.0	0.0	0.0	0	0	0
116	1	26	21	8	6.5	5.3	2.0	26	21	8	9	8	3	2.3	2.0	0.8	8	8	0	0	0	0	0.0	0.0	0.0	0	0	0
117	1	15	nf	1	3.8	nf	0.3	15	nf	1	3	nf	2	0.8	nf	0.5	3	nf	0	0	nf	0	0.0	nf	0.0	0	nf	0
118	1	8	nf	4	2.0	nf	1.0	8	nf	4	3	nf	2	0.8	nf	0.5	3	nf	0	0	nf	0	0.0	nf	0.0	0	nf	0
119	1	7	nf	nf	1.8	nf	nf	7	nf	nf	2	nf	nf	0.5	nf	nf	2	nf	nf	0	nf	nf	0	nf	nf	0	nf	nf
120	1	2	nf	nf	0.5	nf	nf	2	nf	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	0	nf	nf	0	nf	nf	0	nf	nf
121	1	0	nf	nf	0.0	nf	nf	0	nf	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	0	nf	nf	0	nf	nf	0	nf	nf
122	1	18	37	11	4.5	9.3	2.8	18	37	11	0	12	8	0.0	3.0	2.0	0	12	0	0	0	0	0.0	0.0	0.0	0	0	0
123	1	14	19	9	3.5	4.8	2.3	14	19	9	2	9	5	0.5	2.3	1.3	2	9	0	0	0	0	0.0	0.0	0.0	0	0	0
124	1	8	24	7	2.0	6.0	1.8	8	23	5	2	7	4	0.5	1.8	1.0	2	6	0	0	0	0	0.0	0.0	0.0	0	0	0
125	1	10	34	5	2.5	8.5	1.3	10	34	5	1	7	5	0.3	1.8	1.3	1	7	0	0	0	0	0.0	0.0	0.0	0	0	0
126	1	22	23	6	5.5	5.8	1.5	22	21	6	4	6	2	1.0	1.5	0.5	4	6	0	0	0	0	0.0	0.0	0.0	0	0	0
127	1	17	24	7	4.3	6.0	1.8	17	24	5	2	4	4	0.5	1.0	1.0	2	4	0	0	0	0	0.0	0.0	0.0	0	0	0
128	1	8	20	3	2.0	5.0	0.8	8	20	3	1	9	4	0.3	2.3	1.0	1	9	0	0	1	0	0.0	0.3	0.0	0	0	0
129	1	5	nf	1	1.3	nf	0.3	5	nf	1	0	nf	6	0.0	nf	1.5	0	nf	0	0	nf	0	0.0	nf	0.0	0	nf	0

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Appendix D. (page 5 of 6).

		Legal Males									Sublegal Males									Females								
		Number			CPUE			No. Tagged			Number			CPUE			No. Tagged			Number			CPUE			No. Tagged		
Station	Stratum	2001	1998[a]	1995[b]	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995
130	1	4	nf	1	1.0	nf	0.3	4	nf	1	2	nf	1	0.5	nf	0.3	2	nf	0	0	nf	0	0.0	nf	0.0	0	nf	0
131	1	2	nf	nf	0.5	nf	nf	2	nf	nf	1	nf	nf	0.3	nf	nf	1	nf	nf	0	nf	nf	0.0	nf	nf	0	nf	nf
132	1	0	nf	nf	0.0	nf	nf	0	nf	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	0	nf	nf	0.0	nf	nf	0	nf	nf
133	1	0	nf	nf	0.0	nf	nf	0	nf	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	0	nf	nf	0.0	nf	nf	0	nf	nf
134	1	nf	nf	16	nf	nf	4.0	nf	nf	16	nf	nf	5	nf	nf	1.3	nf	nf	0	nf	nf	0	nf	nf	0.0	nf	nf	0
135	1	22	nf	4	5.5	nf	1.0	22	nf	4	1	nf	5	0.3	nf	1.3	1	nf	0	0	nf	0	0.0	nf	0.0	0	nf	0
136	1	15	nf	2	3.8	nf	0.5	15	nf	2	6	nf	1	1.5	nf	0.3	6	nf	0	0	nf	0	0.0	nf	0.0	0	nf	0
137	1	12	nf	3	3.0	nf	0.8	12	nf	3	7	nf	4	1.8	nf	1.0	7	nf	0	0	nf	0	0.0	nf	0.0	0	nf	0
138	1	8	nf	5	2.0	nf	1.3	8	nf	5	2	nf	4	0.5	nf	1.0	2	nf	0	0	nf	0	0.0	nf	0.0	0	nf	0
139	1	7	nf	3	1.8	nf	0.8	7	nf	3	0	nf	1	0.0	nf	0.3	0	nf	0	0	nf	0	0.0	nf	0.0	0	nf	0
140	1	12	nf	1	3.0	nf	0.3	12	nf	1	2	nf	2	0.5	nf	0.5	2	nf	0	0	nf	0	0.0	nf	0.0	0	nf	0
141	1	8	nf	1	2.0	nf	0.3	8	nf	1	0	nf	0	0.0	nf	0.0	0	nf	0	0	nf	0	0.0	nf	0.0	0	nf	0
142	1	4	nf	0	1.0	nf	0.0	4	nf	0	1	nf	0	0.3	nf	0.0	1	nf	0	0	nf	0	0.0	nf	0.0	0	nf	0
143	1	0	nf	n	0.0	nf	n	0	nf	n	0	nf	n	0.0	nf	n	0	nf	n	0	nf	n	0.0	nf	n	0	nf	n
144	1	0	nf	n	0.0	nf	n	0	nf	n	0	nf	n	0.0	nf	n	0	nf	n	0	nf	n	0.0	nf	n	0	nf	n
145	1	0	nf	n	0.0	nf	n	0	nf	n	0	nf	n	0.0	nf	n	0	nf	n	0	nf	n	0.0	nf	n	0	nf	n
146	2	15	nf	114	3.8	nf	28.5	15	nf	61	2	nf	75	0.5	nf	18.8	2	nf	0	13	nf	366	3.3	nf	91.5	0	nf	33
147	2	1	0	31	0.3	0.0	7.8	1	0	17	0	1	44	0.0	0.3	11.0	0	0	0	1	2	68	0.3	0.5	17.0	0	0	25
148	2	42	nf	132	10.5	nf	33.0	40	nf	59	10	nf	95	2.5	nf	23.8	10	nf	0	24	nf	332	6.0	nf	83.0	0	nf	23
149	2	4	0	83	1.0	0.0	20.8	4	0	53	1	1	92	0.3	0.3	23.0	1	1	0	0	6	14	0.0	1.5	3.5	0	0	7
150	2	5	nf	114	1.3	nf	28.5	5	nf	56	50	nf	167	12.5	nf	41.8	32	nf	0	12	nf	56	3.0	nf	14.0	0	nf	17
151	2	23	nf	59	5.8	nf	14.8	21	nf	30	36	nf	87	9.0	nf	21.8	32	nf	0	4	nf	3	1.0	nf	0.8	0	nf	0
152	2	17	nf	25	4.3	nf	6.3	17	nf	12	13	nf	66	3.3	nf	16.5	13	nf	0	0	nf	6	0.0	nf	1.5	0	nf	1
156	1	nf	10	nf	nf	2.5	nf	nf	9	nf	nf	2	nf	nf	0.5	nf	nf	2	nf	nf	1	nf	nf	0.3	nf	nf	0	nf
157	1	nf	13	nf	nf	3.3	nf	nf	13	nf	nf	5	nf	nf	1.3	nf	nf	4	nf	nf	1	nf	nf	0.3	nf	nf	0	nf
158	1	nf	16	nf	nf	4.0	nf	nf	15	nf	nf	11	nf	nf	2.8	nf	nf	11	nf	nf	0	nf	nf	0.0	nf	nf	0	nf
159	1	nf	3	nf	nf	0.8	nf	nf	3	nf	nf	4	nf	nf	1.0	nf	nf	4	nf	nf	0	nf	nf	0.0	nf	nf	0	nf
160	1	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	0	nf	nf	0.0	nf	nf	0	nf
167	1	nf	18	nf	nf	4.5	nf	nf	18	nf	nf	8	nf	nf	2.0	nf	nf	7	nf	nf	1	nf	nf	0.3	nf	nf	0	nf
168	1	1	16	nf	0.3	4.0	nf	1	16	nf	2	6	nf	0.5	1.5	nf	2	6	nf	0	1	nf	0.0	0.3	nf	0	0	nf
169	1	13	21	nf	3.3	5.3	nf	13	21	nf	4	9	nf	1.0	2.3	nf	4	8	nf	0	1	nf	0.0	0.3	nf	0	0	nf
170	1	nf	30	nf	nf	7.5	nf	nf	30	nf	nf	15	nf	nf	3.8	nf	nf	13	nf	nf	1	nf	nf	0.3	nf	nf	0	nf

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Appendix D. (page 6 of 6).

		Legal Males									Sublegal Males									Females								
		Number			CPUE			No. Tagged			Number			CPUE			No. Tagged			Number			CPUE			No. Tagged		
Station	Stratum	2001	1998[a]	1995[b]	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995
171	1	nf	1	nf	nf	0.3	nf	nf	1	nf	nf	1	nf	nf	0.3	nf	nf	1	nf	nf	0	nf	nf	0.0	nf	nf	0	nf
172	1	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	1	nf	nf	0.3	nf	nf	1	nf	nf	0	nf	nf	0.0	nf	nf	0	nf
173	1	nf	1	nf	nf	0.3	nf	nf	1	nf	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	0	nf	nf	0.0	nf	nf	0	nf
177	1	nf	16	nf	nf	4.0	nf	nf	16	nf	nf	14	nf	nf	3.5	nf	nf	12	nf	nf	1	nf	nf	0.3	nf	nf	0	nf
178	1	nf	26	nf	nf	6.5	nf	nf	26	nf	nf	57	nf	nf	14.3	nf	nf	45	nf	nf	7	nf	nf	1.8	nf	nf	0	nf
179	1	5	13	nf	1.3	3.3	nf	4	13	nf	5	15	nf	1.3	3.8	nf	5	11	nf	0	6	nf	0.0	1.5	nf	0	0	nf
180	1	5	45	nf	1.3	11.3	nf	5	45	nf	4	54	nf	1.0	13.5	nf	4	43	nf	0	6	nf	0.0	1.5	nf	0	0	nf
181	1	nf	0	nf	n	0.0	nf	nf	0	nf	nf	2	nf	nf	0.5	nf	n	2	nf	nf	0	nf	nf	0.0	nf	nf	0	nf
182	1	nf	1	nf	n	0.3	nf	nf	1	nf	nf	4	nf	nf	1.0	nf	n	4	nf	nf	0	nf	nf	0.0	nf	nf	0	nf
183	1	nf	0	nf	n	0.0	nf	nf	0	nf	nf	1	nf	nf	0.3	nf	n	1	nf	nf	0	nf	nf	0.0	nf	nf	0	nf
184	1	nf	0	nf	n	0.0	nf	nf	0	nf	nf	0	nf	nf	0.0	nf	n	0	nf	nf	0	nf	nf	0.0	nf	nf	0	nf
186	1	nf	29	nf	n	7.3	nf	nf	29	nf	nf	9	nf	nf	2.3	nf	n	9	nf	nf	0	nf	nf	0.0	nf	nf	0	nf
187	1	nf	34	nf	n	8.5	nf	nf	34	nf	nf	25	nf	nf	6.3	nf	n	20	nf	nf	1	nf	nf	0.3	nf	nf	0	nf
188	1	nf	45	nf	n	11.3	nf	nf	45	nf	nf	38	nf	nf	9.5	nf	n	35	nf	nf	9	nf	nf	2.3	nf	nf	0	nf
189	1	2	12	nf	0.5	3.0	nf	2	12	nf	33	15	nf	8.3	3.8	nf	29	8	nf	1	8	nf	0.3	2.0	nf	0	0	nf
190	1	26	18	nf	6.5	4.5	nf	26	18	nf	20	10	nf	5.0	2.5	nf	18	9	nf	1	9	nf	0.3	2.3	nf	0	0	nf
191	1	nf	2	nf	nf	0.5	nf	nf	2	nf	nf	2	nf	nf	0.5	nf	nf	2	nf	nf	0	nf	nf	0.0	nf	nf	0	nf
192	1	nf	1	nf	nf	0.3	nf	nf	1	nf	nf	3	nf	nf	0.8	nf	nf	3	nf	nf	0	nf	nf	0.0	nf	nf	0	nf
193	1	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	2	nf	nf	0.5	nf	nf	1	nf	nf	0	nf	nf	0.0	nf	nf	0	nf
194	1	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	0	nf	nf	0.0	nf	nf	0	nf
195	1	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	0	nf	nf	0.0	nf	nf	0	nf
196	1	nf	26	nf	nf	6.5	nf	nf	25	nf	nf	47	nf	nf	11.8	nf	nf	33	nf	nf	13	nf	nf	3.3	nf	nf	0	nf
197	1	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	2	nf	nf	0.5	nf	nf	1	nf	nf	1	nf	nf	0.3	nf	nf	0	nf
198	1	nf	2	nf	nf	0.5	nf	nf	2	nf	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	0	nf	nf	0.0	nf	nf	0	nf
199	1	nf	36	nf	nf	9.0	nf	nf	34	nf	nf	65	nf	nf	16.3	nf	nf	41	nf	nf	53	nf	nf	13.3	nf	nf	0	nf
200	1	nf	9	nf	nf	2.3	nf	nf	9	nf	nf	8	nf	nf	2.0	nf	nf	6	nf	nf	1	nf	nf	0.3	nf	nf	0	nf
201	1	1	0	nf	0.3	0.0	nf	1	0	nf	2	2	nf	0.5	0.5	nf	2	0	nf	16	10	nf	4.0	2.5	nf	0	0	nf
	Total	2,952	3,769	3,851	4.7	6.9	7.0	2,840	3,627	2,296	2,059	2,589	3,807	3.3	4.7	6.9	1,712	1,992	0	737	2,255	3,025	1.2	4.1	5.5	0	0	437

[a] 1998 survey data from Blau and Watson (1999) and the 'StMatt98' database as of January 31, 2002.

[b] 1995 survey data from Blau (1996) and the 'StMatt95' database as of January 31, 2002.

[c] One male blue king crab captured during the 2001 survey at Station 11 was not assessed as either legal or sublegal and is not included in this table.

[d] nf – station not fished.

[e] One male blue king crab captured during the 2001 survey at Station 49 was not assessed as either legal or sublegal and is not included in this table.

Appendix E. Snow and hybrid Tanner crab catch and catch per unit effort (CPUE) by station from the 2001 St. Matthew Island blue king crab survey.

			Male Snow Crabs				Male Hybrid Tanner Crabs				Female			
			Legal		Sublegal		Legal		Sublegal		Snow Crabs		Hybrid Tanner Crabs	
Station	Stratum	Date	Number	CPUE	Number	CPUE	Number	CPUE	Number	CPUE	Number	CPUE	Number	CPUE
1	1	7/25	53	13.3	181	45.3	0	0.0	0	0.0	15	3.8	0	0.0
2	1	7/25	20	5.0	31	7.8	0	0.0	0	0.0	0	0.0	0	0.0
3	1	7/25	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	2	7/26	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	2	7/26	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	1	7/25	149	37.4	496	123.9	0	0.0	0	0.0	49	12.3	0	0.0
7	1	7/25	34	8.5	113	28.3	0	0.0	0	0.0	13	3.3	0	0.0
8	1	7/25	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
9	2	7/25	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
10	2	7/26	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
11	2	7/27	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
12	2	7/28	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13	2	7/27	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	2	7/27	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	1	7/29	139	34.8	462	115.5	0	0.0	0	0.0	83	20.8	0	0.0
16	1	7/29	45	11.3	185	46.3	0	0.0	0	0.0	66	16.5	0	0.0
17	1	7/29	88	22.0	240	60.0	0	0.0	0	0.0	49	12.3	0	0.0
18	2	7/28	12	3.0	20	5.0	0	0.0	0	0.0	0	0.0	0	0.0
19	2	7/28	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20	2	7/27	0	0.0	0	0.0	0	0.0	0	0.0	1	0.3	0	0.0
21	2	7/27	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	1	8/4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	1	8/4	22	5.5	63	15.8	0	0.0	0	0.0	0	0.0	0	0.0

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Appendix E. (page 2 of 7).

			Male Snow Crabs				Male Hybrid Tanner Crabs				Female			
			Legal		Sublegal		Legal		Sublegal		Snow Crabs		Hybrid Tanner Crabs	
Station	Stratum	Date	Number	CPUE	Number	CPUE	Number	CPUE	Number	CPUE	Number	CPUE	Number	CPUE
24	2	7/28	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
25	2	7/28	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
26	2	8/1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
27	1	7/29	430	107.5	740	185.0	0	0.0	0	0.0	193	48.3	0	0.0
28	1	7/29	266	66.5	653	163.3	0	0.0	0	0.0	102	25.5	0	0.0
29	1	7/29	37	9.3	147	36.8	0	0.0	0	0.0	48	12.0	0	0.0
30	2	7/28	33	8.3	88	21.9	0	0.0	0	0.0	18	4.5	0	0.0
31	2	7/28	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
32	2	8/1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
33	2	8/1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
34	2	8/4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
35	2	8/4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
36	1	8/4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
37	1	8/4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
38	2	7/31	8	2.0	18	4.5	0	0.0	0	0.0	13	3.3	0	0.0
39	2	7/31	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
40	2	8/1	0	0.0	0	0.0	0	0.0	0	0.0	1	0.3	0	0.0
41	2	8/1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
42	2	8/3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
43	2	8/3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
44	1	7/29	373	93.2	205	51.4	0	0.0	0	0.0	42	10.5	0	0.0
45	1	7/30	380	95.0	864	216.0	0	0.0	0	0.0	120	30.0	0	0.0
46	1	7/30	107	26.8	105	26.3	0	0.0	0	0.0	20	5.0	0	0.0

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Appendix E. (page 3 of 7).

			Male Snow Crabs				Male Hybrid Tanner Crabs				Female			
			Legal		Sublegal		Legal		Sublegal		Snow Crabs		Hybrid Tanner Crabs	
Station	Stratum	Date	Number	CPUE	Number	CPUE	Number	CPUE	Number	CPUE	Number	CPUE	Number	CPUE
47	2	7/31	26	6.5	35	8.8	0	0.0	0	0.0	32	8.0	0	0.0
48	2	7/31	8	2.0	4	1.0	0	0.0	0	0.0	13	3.3	0	0.0
49	2	8/1	1	0.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
50	2	8/2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
51	2	8/2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
52	2	8/3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
53	2	8/3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
54	1	8/5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
55	1	8/5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
56	2	7/31	47	11.8	84	21.0	1	0.3	0	0.0	21	5.3	0	0.0
57	2	7/31	18	4.5	45	11.3	0	0.0	0	0.0	21	5.3	0	0.0
58	2	8/2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
59	2	8/2	0	0.0	1	0.3	0	0.0	0	0.0	0	0.0	0	0.0
60	2	8/2	0	0.0	1	0.3	0	0.0	0	0.0	0	0.0	0	0.0
61	2	8/3	0	0.0	1	0.3	0	0.0	0	0.0	0	0.0	0	0.0
62	1	7/30	468	116.9	184	46.1	0	0.0	0	0.0	3	0.8	0	0.0
63	1	7/30	514	128.5	420	105.0	0	0.0	0	0.0	17	4.3	0	0.0
64	1	7/30	103	25.8	154	38.5	0	0.0	0	0.0	9	2.3	0	0.0
65	2	7/30	80	20.0	131	32.8	0	0.0	0	0.0	115	28.8	0	0.0
66	2	7/31	99	24.8	212	53.0	0	0.0	0	0.0	77	19.3	0	0.0
67	2	7/31	5	1.3	0	0.0	0	0.0	0	0.0	3	0.8	0	0.0
68	2	8/2	0	0.0	1	0.3	0	0.0	0	0.0	1	0.3	0	0.0
69	2	8/2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

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Appendix E. (page 4 of 7).

			Male Snow Crabs				Male Hybrid Tanner Crabs				Female			
			Legal		Sublegal		Legal		Sublegal		Snow Crabs		Hybrid Tanner Crabs	
Station	Stratum	Date	Number	CPUE	Number	CPUE	Number	CPUE	Number	CPUE	Number	CPUE	Number	CPUE
70	2	8/3	2	0.5	1	0.3	0	0.0	0	0.0	0	0.0	0	0.0
71	2	8/3	4	1.0	3	0.8	0	0.0	0	0.0	0	0.0	0	0.0
72	1	8/5	7	1.8	3	0.8	0	0.0	0	0.0	0	0.0	0	0.0
73	1	8/5	23	5.8	28	7.0	0	0.0	0	0.0	0	0.0	0	0.0
74	1	8/8	361	90.2	338	84.5	0	0.0	0	0.0	1	0.3	0	0.0
75	1	8/8	618	154.6	142	35.4	0	0.0	0	0.0	159	39.8	0	0.0
76	1	8/7	170	42.5	81	20.3	0	0.0	1	0.3	0	0.0	0	0.0
77	1	8/7	267	66.8	221	55.3	10	2.5	0	0.0	310	77.5	0	0.0
78	1	8/7	138	34.5	308	77.0	20	5.0	10	2.5	97	24.3	0	0.0
79	1	8/7	80	20.0	119	29.8	6	1.5	7	1.8	72	18.0	1	0.3
80	1	8/6	98	24.5	442	110.5	4	1.0	5	1.3	292	73.0	1	0.3
81	1	8/6	34	8.5	69	17.3	0	0.0	0	0.0	9	2.3	0	0.0
82	1	8/6	23	5.8	38	9.5	1	0.3	1	0.3	3	0.8	0	0.0
83	1	8/5	171	42.7	353	88.3	0	0.0	1	0.3	41	10.3	0	0.0
84	1	8/5	28	7.0	30	7.5	0	0.0	0	0.0	1	0.3	0	0.0
85	1	8/5	22	5.5	32	8.0	0	0.0	0	0.0	0	0.0	0	0.0
86	1	8/1	336	83.9	167	41.8	0	0.0	0	0.0	0	0.0	0	0.0
87	1	8/1	301	75.2	236	59.0	0	0.0	0	0.0	99	24.8	0	0.0
88	1	8/7	319	79.8	164	40.9	0	0.0	0	0.0	17	4.3	0	0.0
89	1	8/7	179	44.8	110	27.5	0	0.0	0	0.0	0	0.0	0	0.0
90	1	8/7	395	98.8	901	225.3	0	0.0	0	0.0	1,280	320.0	0	0.0
91	1	8/6	82	20.6	105	26.2	2	0.5	0	0.0	15	3.8	0	0.0
92	1	8/6	145	36.4	195	48.6	17	4.3	5	1.3	41	10.3	0	0.0

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Appendix E. (page 5 of 7).

			Male Snow Crabs				Male Hybrid Tanner Crabs				Female			
			Legal		Sublegal		Legal		Sublegal		Snow Crabs		Hybrid Tanner Crabs	
Station	Stratum	Date	Number	CPUE	Number	CPUE	Number	CPUE	Number	CPUE	Number	CPUE	Number	CPUE
93	1	8/6	74	18.5	152	38.0	0	0.0	0	0.0	14	3.5	0	0.0
94	1	8/6	154	38.6	332	82.9	1	0.3	0	0.0	186	46.5	0	0.0
95	1	8/11	119	29.8	197	49.3	1	0.3	1	0.3	18	4.5	0	0.0
96	1	8/11	143	35.8	199	49.8	0	0.0	0	0.0	29	7.3	0	0.0
97	1	8/11	40	10.0	26	6.5	0	0.0	0	0.0	0	0.0	0	0.0
98	1	8/8	115	28.8	10	2.5	0	0.0	0	0.0	1	0.3	0	0.0
99	1	8/8	351	87.8	204	51.0	0	0.0	0	0.0	1	0.3	0	0.0
100	1	8/8	328	81.9	443	110.8	1	0.3	0	0.0	1	0.3	0	0.0
101	1	8/9	361	90.2	156	39.1	0	0.0	0	0.0	3	0.8	0	0.0
102	1	8/9	344	86.0	88	22.0	0	0.0	0	0.0	6	1.5	0	0.0
103	1	8/9	215	53.8	174	43.5	0	0.0	0	0.0	31	7.8	0	0.0
104	1	8/9	139	34.6	180	45.1	2	0.5	1	0.3	81	20.3	1	0.3
105	1	8/10	40	10.0	46	11.5	0	0.0	0	0.0	35	8.8	0	0.0
106	1	8/11	151	37.7	325	81.3	8	2.0	10	2.5	343	85.8	7	1.8
107	1	8/11	116	29.1	208	51.9	1	0.3	0	0.0	89	22.3	0	0.0
108	1	8/11	107	26.8	119	29.8	0	0.0	1	0.3	28	7.0	0	0.0
109	1	8/11	144	36.0	74	18.5	3	0.8	3	0.8	6	1.5	1	0.3
110	1	8/14	196	49.0	12	3.0	0	0.0	0	0.0	0	0.0	0	0.0
111	1	8/14	302	75.4	89	22.3	3	0.8	0	0.0	0	0.0	0	0.0
112	1	8/14	288	72.0	31	7.8	5	1.3	0	0.0	1	0.3	0	0.0
113	1	8/9	333	83.3	90	22.5	0	0.0	0	0.0	0	0.0	0	0.0
114	1	8/9	433	108.2	68	17.1	0	0.0	0	0.0	3	0.8	0	0.0
115	1	8/9	146	36.5	125	31.3	1	0.3	4	1.0	95	23.8	0	0.0

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Appendix E. (page 6 of 7).

			Male Snow Crabs				Male Hybrid Tanner Crabs				Female			
			Legal		Sublegal		Legal		Sublegal		Snow Crabs		Hybrid Tanner Crabs	
Station	Stratum	Date	Number	CPUE	Number	CPUE	Number	CPUE	Number	CPUE	Number	CPUE	Number	CPUE
116	1	8/10	150	37.5	231	57.8	0	0.0	3	0.8	347	86.8	0	0.0
117	1	8/10	260	65.1	261	65.2	0	0.0	0	0.0	966	241.5	0	0.0
118	1	8/10	157	39.2	230	57.5	5	1.3	0	0.0	504	126.0	10	2.5
119	1	8/11	257	64.4	130	32.4	0	0.0	2	0.5	50	12.5	4	1.0
120	1	8/11	144	35.9	172	43.0	0	0.0	0	0.0	55	13.8	0	0.0
121	1	8/11	98	24.5	89	22.3	1	0.3	0	0.0	7	1.8	0	0.0
122	1	8/14	107	26.7	10	2.5	0	0.0	0	0.0	4	1.0	0	0.0
123	1	8/14	246	61.4	21	5.3	0	0.0	0	0.0	0	0.0	0	0.0
124	1	8/14	290	72.4	29	7.3	0	0.0	0	0.0	0	0.0	0	0.0
125	1	8/14	319	79.7	23	5.8	0	0.0	0	0.0	1	0.3	0	0.0
126	1	8/14	315	78.9	97	24.1	0	0.0	0	0.0	0	0.0	0	0.0
127	1	8/13	415	103.7	204	51.1	0	0.0	0	0.0	220	55.0	0	0.0
128	1	8/13	293	73.3	232	57.9	0	0.0	4	1.0	208	52.0	0	0.0
129	1	8/13	207	51.8	240	59.9	0	0.0	0	0.0	298	74.5	0	0.0
130	1	8/13	317	79.4	122	30.4	0	0.0	5	1.3	380	95.0	0	0.0
131	1	8/12	385	96.3	292	72.9	5	1.3	10	2.5	192	48.0	0	0.0
132	1	8/12	126	31.5	62	15.5	0	0.0	0	0.0	10	2.5	0	0.0
133	1	8/12	139	34.7	130	32.6	2	0.5	0	0.0	18	4.5	0	0.0
135	1	8/14	156	39.0	2	0.5	0	0.0	0	0.0	0	0.0	0	0.0
136	1	8/14	251	62.8	8	2.0	0	0.0	0	0.0	0	0.0	0	0.0
137	1	8/14	293	73.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
138	1	8/14	193	48.3	12	3.0	0	0.0	0	0.0	0	0.0	0	0.0
139	1	8/13	93	23.3	38	9.5	0	0.0	0	0.0	12	3.0	0	0.0

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Appendix E. (page 7 of 7).

			Male Snow Crabs				Male Hybrid Tanner Crabs				Female			
			Legal		Sublegal		Legal		Sublegal		Snow Crabs		Hybrid Tanner Crabs	
Station	Stratum	Date	Number	CPUE	Number	CPUE	Number	CPUE	Number	CPUE	Number	CPUE	Number	CPUE
140	1	8/13	424	105.9	69	17.3	0	0.0	5	1.3	222	55.5	0	0.0
141	1	8/13	297	74.3	74	18.5	0	0.0	0	0.0	56	14.0	0	0.0
142	1	8/12	420	104.9	238	59.6	5	1.3	0	0.0	342	85.5	0	0.0
143	1	8/12	392	97.9	275	68.8	0	0.0	0	0.0	140	35.0	0	0.0
144	1	8/12	335	83.6	210	52.6	3	0.8	0	0.0	19	4.8	0	0.0
145	1	8/12	259	64.8	133	33.2	0	0.0	0	0.0	3	0.8	0	0.0
146	2	8/1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
147	2	7/27	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
148	2	7/27	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
149	2	7/26	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
150	2	7/26	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
151	2	7/26	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
152	2	7/26	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
168	1	8/16	21	5.3	54	13.5	0	0.0	0	0.0	3	0.8	0	0.0
169	1	8/16	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
179	1	8/16	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
180	1	8/16	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
189	1	8/16	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
190	1	8/16	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
201	1	8/4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total			19,365	30.6	17,006	26.9	108	0.2	79	0.1	8,610	13.6	25	<0.1

Appendix F. Snow crab catch and catch per unit effort (CPUE) by station from the 2001, 1998, and 1995 St. Matthew Island blue king crab surveys. Data presented is from all offshore stations fished in each survey year.

		Legal Males						Sublegal Males						Females					
		Number			CPUE			Number			CPUE			Number			CPUE		
Station	Stratum	2001	1998[a]	1995[b]	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995
1	1	53	0	55	13.3	0.0	13.8	181	0	84	45.3	0.0	21.0	15	0	0	3.8	0.0	0.0
2	1	20	15	5	5.0	3.8	1.3	31	18	14	7.8	4.5	3.5	0	8	0	0.0	2.0	0.0
3	1	0	0	0	0.0	0.0	0.0	0	1	1	0.0	0.3	0.3	0	0	0	0.0	0.0	0.0
4	2	0	0	0	0.0	0.0	0.0	0	0	0	0.0	0.0	0.0	0	0	0	0.0	0.0	0.0
5	2	0	0	0	0.0	0.0	0.0	0	0	0	0.0	0.0	0.0	0	0	0	0.0	0.0	0.0
6	1	149	28	29	37.4	7.0	7.3	496	4	20	123.9	1.0	5.0	49	0	0	12.3	0.0	0.0
7	1	34	1	16	8.5	0.3	4.0	113	1	33	28.3	0.3	8.3	13	0	0	3.3	0.0	0.0
8	1	0	3	6	0.0	0.8	1.5	0	14	3	0.0	3.5	0.8	0	1	0	0.0	0.3	0.0
9	2	0	0	0	0.0	0.0	0.0	0	0	0	0.0	0.0	0.0	0	0	0	0.0	0.0	0.0
10	2	0	0	0	0.0	0.0	0.0	0	0	0	0.0	0.0	0.0	0	0	0	0.0	0.0	0.0
11	2	0	0	0	0.0	0.0	0.0	0	0	0	0.0	0.0	0.0	0	0	0	0.0	0.0	0.0
12	2	0	nf[c]	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0
13	2	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0
14	2	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0
15	1	139	492	28	34.8	123.0	7.0	462	133	24	115.5	33.3	6.0	83	4	0	20.8	1.0	0.0
16	1	45	0	3	11.3	0.0	0.8	185	0	3	46.3	0.0	0.8	66	0	0	16.5	0.0	0.0
17	1	88	3	0	22.0	0.8	0.0	240	4	1	60.0	1.0	0.3	49	2	0	12.3	0.5	0.0
18	2	12	2	0	3.0	0.5	0.0	20	1	0	5.0	0.3	0.0	0	1	0	0.0	0.3	0.0
19	2	0	0	0	0.0	0.0	0.0	0	0	0	0.0	0.0	0.0	0	0	0	0.0	0.0	0.0
20	2	0	1	0	0.0	0.3	0.0	0	0	0	0.0	0.0	0.0	1	1	0	0.3	0.3	0.0
21	2	0	0	0	0.0	0.0	0.0	0	0	0	0.0	0.0	0.0	0	0	0	0.0	0.0	0.0
22	1	0	0	nf	0.0	0.0	nf	0	0	nf	0.0	0.0	nf	0	0	nf	0.0	0.0	nf
23	1	22	1	nf	5.5	0.3	nf	63	0	nf	15.8	0.0	nf	0	0	nf	0.0	0.0	nf
24	2	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0
25	2	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0
26	2	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0
27	1	430	564	nf	107.5	141.0	nf	740	77	nf	185.0	19.3	nf	193	0	nf	48.3	0.0	nf
28	1	266	3	41	66.5	0.8	10.3	653	2	43	163.3	0.5	10.8	102	0	2	25.5	0.0	0.5
29	1	37	2	3	9.3	0.5	0.8	147	1	31	36.8	0.3	7.8	48	0	0	12.0	0.0	0.0
30	2	33	4	0	8.3	1.0	0.0	88	13	0	21.9	3.3	0.0	18	1	0	4.5	0.3	0.0
31	2	0	0	0	0.0	0.0	0.0	0	0	0	0.0	0.0	0.0	0	0	0	0.0	0.0	0.0
32	2	0	7	0	0.0	1.8	0.0	0	2	0	0.0	0.5	0.0	0	0	0	0.0	0.0	0.0
33	2	0	0	0	0.0	0.0	0.0	0	0	0	0.0	0.0	0.0	0	0	0	0.0	0.0	0.0
34	2	0	1	0	0.0	0.3	0.0	0	0	0	0.0	0.0	0.0	0	0	0	0.0	0.0	0.0

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Appendix F. (page 2 of 6).

		Legal Males						Sublegal Males						Females					
		Number			CPUE			Number			CPUE			Number			CPUE		
Station	Stratum	2001	1998[a]	1995[b]	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995
35	2	0	0	0	0.0	0.0	0.0	0	0	0	0.0	0.0	0.0	0	0	0	0.0	0.0	0.0
36	1	0	0	0	0.0	0.0	0.0	0	0	0	0.0	0.0	0.0	0	0	0	0.0	0.0	0.0
37	1	0	53	0	0.0	13.3	0.0	0	19	0	0.0	4.8	0.0	0	0	0	0.0	0.0	0.0
38	2	8	nf	0	2.0	nf	0.0	18	nf	0	4.5	nf	0.0	13	nf	0	3.3	nf	0.0
39	2	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0
40	2	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0	1	nf	0	0.3	nf	0.0
41	2	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0
42	2	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0
43	2	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0
44	1	373	860	nf	93.2	215.0	nf	205	145	nf	51.4	36.3	nf	42	0	nf	10.5	0.0	nf
45	1	380	540	93	95.0	135.0	23.2	864	72	45	216.0	18.0	11.3	120	0	0	30.0	0.0	0.0
46	1	107	0	2	26.8	0.0	0.5	105	0	1	26.3	0.0	0.3	20	0	0	5.0	0.0	0.0
47	2	26	27	0	6.5	6.8	0.0	35	10	0	8.8	2.5	0.0	32	5	0	8.0	1.3	0.0
48	2	8	22	0	2.0	5.5	0.0	4	13	0	1.0	3.3	0.0	13	0	0	3.3	0.0	0.0
49	2	1	13	0	0.3	3.3	0.0	0	7	0	0.0	1.8	0.0	0	0	0	0.0	0.0	0.0
50	2	0	23	0	0.0	5.8	0.0	0	7	0	0.0	1.8	0.0	0	0	0	0.0	0.0	0.0
51	2	0	67	0	0.0	16.8	0.0	0	15	0	0.0	3.8	0.0	0	0	0	0.0	0.0	0.0
52	2	0	36	0	0.0	9.0	0.0	0	11	0	0.0	2.8	0.0	0	0	0	0.0	0.0	0.0
53	2	0	28	0	0.0	7.0	0.0	0	7	0	0.0	1.8	0.0	0	0	0	0.0	0.0	0.0
54	1	0	81	0	0.0	20.3	0.0	0	20	0	0.0	5.0	0.0	0	0	0	0.0	0.0	0.0
55	1	0	143	0	0.0	35.8	0.0	0	68	0	0.0	17.0	0.0	0	0	0	0.0	0.0	0.0
56	2	47	nf	0	11.8	nf	0.0	84	nf	0	21.0	nf	0.0	21	nf	0	5.3	nf	0.0
57	2	18	nf	0	4.5	nf	0.0	45	nf	0	11.3	nf	0.0	21	nf	0	5.3	nf	0.0
58	2	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0
59	2	0	nf	0	0.0	nf	0.0	1	nf	0	0.3	nf	0.0	0	nf	0	0.0	nf	0.0
60	2	0	nf	0	0.0	nf	0.0	1	nf	0	0.3	nf	0.0	0	nf	0	0.0	nf	0.0
61	2	0	nf	0	0.0	nf	0.0	1	nf	0	0.3	nf	0.0	0	nf	0	0.0	nf	0.0
62	1	468	847	nf	116.9	211.8	nf	184	82	nf	46.1	20.5	nf	3	1	nf	0.8	0.3	nf
63	1	514	618	124	128.5	154.5	31.0	420	105	168	105.0	26.3	42.0	17	0	0	4.3	0.0	0.0
64	1	103	92	1	25.8	23.0	0.3	154	13	1	38.5	3.3	0.3	9	1	0	2.3	0.3	0.0
65	2	80	90	0	20.0	22.5	0.0	131	18	0	32.8	4.5	0.0	115	0	0	28.8	0.0	0.0
66	2	99	105	0	24.8	26.3	0.0	212	32	0	53.0	8.0	0.0	77	27	0	19.3	6.8	0.0
67	2	5	51	0	1.3	12.8	0.0	0	11	0	0.0	2.8	0.0	3	0	0	0.8	0.0	0.0
68	2	0	37	0	0.0	9.3	0.0	1	27	0	0.3	6.8	0.0	1	1	0	0.3	0.3	0.0

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Appendix F. (page 3 of 6).

		Legal Males						Sublegal Males						Females					
		Number			CPUE			Number			CPUE			Number			CPUE		
Station	Stratum	2001	1998[a]	1995[b]	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995
69	2	0	256	0	0.0	64.0	0.0	0	73	0	0.0	18.3	0.0	0	0	0	0.0	0.0	0.0
70	2	2	105	0	0.5	26.3	0.0	1	22	0	0.3	5.5	0.0	0	0	0	0.0	0.0	0.0
71	2	4	185	1	1.0	46.3	0.3	3	7	0	0.8	1.8	0.0	0	0	0	0.0	0.0	0.0
72	1	7	198	0	1.8	49.5	0.0	3	31	0	0.8	7.8	0.0	0	0	0	0.0	0.0	0.0
73	1	23	253	0	5.8	63.3	0.0	28	62	1	7.0	15.5	0.3	0	4	0	0.0	1.0	0.0
74	1	361	699	262	90.2	174.8	65.5	338	75	84	84.5	18.8	21.0	1	0	0	0.3	0.0	0.0
75	1	618	590	286	154.6	147.5	71.5	142	82	192	35.4	20.5	48.0	159	0	0	39.8	0.0	0.0
76	1	170	4	0	42.5	1.0	0.0	82	1	0	20.5	0.3	0.0	0	0	0	0.0	0.0	0.0
77	1	267	5	0	66.8	1.3	0.0	221	0	0	55.3	0.0	0.0	310	0	0	77.5	0.0	0.0
78	1	138	401	6	34.5	100.3	1.5	308	145	7	77.0	36.3	1.8	97	2	0	24.3	0.5	0.0
79	1	80	140	4	20.0	35.0	1.0	119	32	2	29.8	8.0	0.5	73	3	0	18.3	0.8	0.0
80	1	98	256	0	24.5	64.0	0.0	442	59	0	110.5	14.8	0.0	292	2	0	73.0	0.5	0.0
81	1	34	427	0	8.5	106.8	0.0	69	170	0	17.3	42.5	0.0	9	4	0	2.3	1.0	0.0
82	1	23	157	0	5.8	39.3	0.0	38	44	0	9.5	11.0	0.0	3	0	0	0.8	0.0	0.0
83	1	171	324	16	42.7	81.0	4.0	353	14	37	88.3	3.5	9.3	41	0	0	10.3	0.0	0.0
84	1	28	526	34	7.0	131.5	8.5	30	127	49	7.5	31.8	12.3	1	0	0	0.3	0.0	0.0
85	1	22	483	8	5.5	120.8	2.0	32	153	24	8.0	38.3	6.0	0	1	0	0.0	0.3	0.0
86	1	336	603	572	83.9	150.8	143.0	167	135	141	41.8	33.8	35.3	0	0	0	0.0	0.0	0.0
87	1	301	713	277	75.2	178.3	69.3	236	62	70	59.0	15.5	17.4	99	0	0	24.8	0.0	0.0
88	1	319	750	105	79.8	187.5	26.3	164	43	63	40.9	10.8	15.8	17	0	0	4.3	0.0	0.0
89	1	179	584	2	44.8	146.0	0.5	110	29	0	27.5	7.3	0.0	0	0	0	0.0	0.0	0.0
90	1	395	22	10	98.8	5.5	2.5	901	3	4	225.3	0.8	1.0	1280	2	0	320.0	0.5	0.0
91	1	82	442	2	20.6	110.5	0.5	105	67	5	26.3	16.8	1.3	15	1	0	3.8	0.3	0.0
92	1	145	373	0	36.4	93.3	0.0	195	8	0	48.8	2.0	0.0	41	0	0	10.3	0.0	0.0
93	1	74	240	0	18.5	60.0	0.0	152	51	0	38.0	12.8	0.0	14	0	0	3.5	0.0	0.0
94	1	154	538	0	38.6	134.5	0.0	332	128	0	83.0	32.0	0.0	186	3	0	46.5	0.8	0.0
95	1	119	449	143	29.8	112.3	35.8	197	78	279	49.3	19.5	69.8	18	4	3	4.5	1.0	0.8
96	1	143	nf	22	35.8	nf	5.5	199	nf	45	49.8	nf	11.3	29	nf	0	7.3	nf	0.0
97	1	40	nf	19	10.0	nf	4.8	26	nf	49	6.5	nf	12.3	0	nf	0	0.0	nf	0.0
98	1	115	463	1316	28.8	115.8	329.1	10	60	754	2.5	15.0	188.4	1	1	0	0.3	0.3	0.0
99	1	351	608	632	87.8	152.0	158.0	204	91	214	51.0	22.8	53.5	1	0	0	0.3	0.0	0.0
100	1	328	811	123	81.9	202.8	30.8	443	50	15	110.8	12.5	3.8	1	0	0	0.3	0.0	0.0
101	1	361	866	21	90.2	216.5	5.3	156	32	4	39.1	8.0	1.0	3	0	0	0.8	0.0	0.0
102	1	344	608	0	86.0	152.0	0.0	88	24	0	22.0	6.0	0.0	6	0	0	1.5	0.0	0.0

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Appendix F. (page 4 of 6).

		Legal Males						Sublegal Males						Females					
		Number			CPUE			Number			CPUE			Number			CPUE		
Station	Stratum	2001	1998[a]	1995[b]	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995
103	1	215	548	2	53.8	137.0	0.5	174	73	2	43.5	18.3	0.5	31	1	0	7.8	0.3	0.0
104	1	139	416	0	34.6	104.0	0.0	180	36	0	45.0	9.0	0.0	81	1	0	20.3	0.3	0.0
105	1	40	182	0	10.0	45.5	0.0	46	17	0	11.5	4.3	0.0	35	2	0	8.8	0.5	0.0
106	1	151	nf	0	37.7	nf	0.0	325	nf	0	81.3	nf	0.0	343	nf	0	85.8	nf	0.0
107	1	116	nf	32	29.1	nf	8.0	208	nf	99	52.0	nf	24.8	89	nf	0	22.3	nf	0.0
108	1	107	nf	68	26.8	nf	17.0	119	nf	99	29.8	nf	24.8	28	nf	0	7.0	nf	0.0
109	1	144	nf	58	36.0	nf	14.5	74	nf	115	18.5	nf	28.8	6	nf	8	1.5	nf	2.0
110	1	196	712	418	49.0	178.0	104.6	12	36	126	3.0	9.0	31.4	0	1	0	0.0	0.3	0.0
111	1	302	703	423	75.4	175.8	105.7	89	66	176	22.3	16.5	44.0	0	0	0	0.0	0.0	0.0
112	1	288	656	258	72.0	164.0	64.5	31	28	29	7.8	7.0	7.3	1	0	0	0.3	0.0	0.0
113	1	333	466	195	83.3	116.5	48.8	90	23	28	22.5	5.8	7.0	0	0	0	0.0	0.0	0.0
114	1	433	445	12	108.2	111.3	3.0	68	21	2	17.1	5.3	0.5	3	0	0	0.8	0.0	0.0
115	1	146	804	8	36.5	201.0	2.0	125	53	0	31.3	13.3	0.0	95	0	0	23.8	0.0	0.0
116	1	150	447	50	37.5	111.8	12.5	231	32	10	57.8	8.0	2.5	347	2	0	86.8	0.5	0.0
117	1	260	nf	72	65.1	nf	18.0	261	nf	21	65.2	nf	5.3	966	nf	0	241.5	nf	0.0
118	1	157	nf	0	39.2	nf	0.0	230	nf	0	57.5	nf	0.0	504	nf	0	126.0	nf	0.0
119	1	257	nf	nf	64.4	nf	nf	130	nf	nf	32.5	nf	nf	50	nf	nf	12.5	nf	nf
120	1	144	nf	nf	35.9	nf	nf	172	nf	nf	43.0	nf	nf	55	nf	nf	13.8	nf	nf
121	1	98	nf	nf	24.5	nf	nf	89	nf	nf	22.3	nf	nf	7	nf	nf	1.8	nf	nf
122	1	107	161	889	26.7	40.3	222.1	10	33	169	2.5	8.3	42.3	4	141	0	1.0	35.3	0.0
123	1	246	464	268	61.4	116.0	67.0	21	34	99	5.3	8.5	24.8	0	1	0	0.0	0.3	0.0
124	1	290	473	414	72.4	118.3	103.5	29	21	174	7.3	5.3	43.5	0	0	0	0.0	0.0	0.0
125	1	319	579	397	79.7	144.8	99.3	23	34	62	5.8	8.5	15.5	1	0	0	0.3	0.0	0.0
126	1	315	448	144	78.9	112.0	36.1	97	28	263	24.1	7.0	65.6	0	0	0	0.0	0.0	0.0
127	1	415	738	104	103.7	184.5	26.0	204	41	8	51.1	10.3	2.0	220	0	0	55.0	0.0	0.0
128	1	293	742	80	73.3	185.5	20.0	232	21	17	58.0	5.3	4.3	208	0	0	52.0	0.0	0.0
129	1	207	nf	140	51.8	nf	35.0	240	nf	20	59.9	nf	5.0	298	nf	0	74.5	nf	0.0
130	1	317	nf	0	79.4	nf	0.0	122	nf	0	30.5	nf	0.0	380	nf	0	95.0	nf	0.0
131	1	385	nf	nf	96.3	nf	nf	292	nf	nf	73.0	nf	nf	192	nf	nf	48.0	nf	nf
132	1	126	nf	nf	31.5	nf	nf	62	nf	nf	15.5	nf	nf	10	nf	nf	2.5	nf	nf
133	1	139	nf	nf	34.7	nf	nf	130	nf	nf	32.5	nf	nf	18	nf	nf	4.5	nf	nf
134	1	nf	nf	283	nf	nf	70.8	nf	nf	72	nf	nf	18.0	0	nf	0	0.0	nf	0.0
135	1	156	nf	384	39.0	nf	96.0	2	nf	106	0.5	nf	26.5	0	nf	3	0.0	nf	0.8
136	1	251	nf	443	62.8	nf	110.7	8	nf	132	2.0	nf	33.0	0	nf	0	0.0	nf	0.0

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Appendix F. (page 5 of 6).

		Legal Males						Sublegal Males						Females					
		Number			CPUE			Number			CPUE			Number			CPUE		
Station	Stratum	2001	1998[a]	1995[b]	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995
137	1	293	nf	299	73.2	nf	74.8	0	nf	82	0.0	nf	20.5	0	nf	0	0.0	nf	0.0
138	1	193	nf	238	48.3	nf	59.5	12	nf	56	3.0	nf	14.0	0	nf	0	0.0	nf	0.0
139	1	93	nf	59	23.3	nf	14.8	38	nf	40	9.5	nf	10.0	12	nf	0	3.0	nf	0.0
140	1	424	nf	138	105.9	nf	34.5	69	nf	44	17.3	nf	11.0	222	nf	0	55.5	nf	0.0
141	1	297	nf	0	74.3	nf	0.0	74	nf	0	18.5	nf	0.0	56	nf	0	14.0	nf	0.0
142	1	420	nf	0	104.9	nf	0.0	238	nf	0	59.5	nf	0.0	342	nf	0	85.5	nf	0.0
143	1	392	nf	nf	97.9	nf	nf	275	nf	nf	68.8	nf	nf	140	nf	nf	35.0	nf	nf
144	1	335	nf	nf	83.6	nf	nf	210	nf	nf	52.3	nf	nf	19	nf	nf	4.8	nf	nf
145	1	259	nf	nf	64.8	nf	nf	133	nf	nf	33.2	nf	nf	3	nf	nf	0.8	nf	nf
146	1	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0
147	1	0	1	0	0.0	0.3	0.0	0	0	0	0.0	0.0	0.0	0	0	0	0.0	0.0	0.0
148	1	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0
149	1	0	0	0	0.0	0.0	0.0	0	0	0	0.0	0.0	0.0	0	0	0	0.0	0.0	0.0
150	1	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0
151	1	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0
152	1	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0	0	nf	0	0.0	nf	0.0
156	1	nf	2	nf	nf	0.5	nf	nf	18	nf	nf	4.5	nf	nf	4	nf	nf	1.0	nf
157	1	nf	1	nf	nf	0.3	nf	nf	2	nf	nf	0.5	nf	nf	0	nf	nf	0.0	nf
158	1	nf	0	nf	nf	0.0	nf	nf	1	nf	nf	0.3	nf	nf	0	nf	nf	0.0	nf
159	1	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	0.0	nf
160	1	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	0.0	nf
167	1	nf	3	nf	nf	0.8	nf	nf	11	nf	nf	2.8	nf	nf	3	nf	nf	0.8	nf
168	1	21	0	nf	5.3	0.0	nf	54	0	nf	13.5	0.0	nf	3	0	nf	0.8	0.0	nf
169	1	0	0	nf	0.0	0.0	nf	0	0	nf	0.0	0.0	nf	0	0	nf	0.0	0.0	nf
170	1	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	0.0	nf
171	1	nf	0	nf	nf	0.0	nf	nf	1	nf	nf	0.3	nf	nf	0	nf	nf	0.0	nf
172	1	nf	3	nf	nf	0.8	nf	nf	2	nf	nf	0.5	nf	nf	0	nf	nf	0.0	nf
173	1	nf	24	nf	nf	6.0	nf	nf	154	nf	nf	38.5	nf	nf	158	nf	nf	39.5	nf
177	1	nf	3	nf	nf	0.8	nf	nf	4	nf	nf	1.0	nf	nf	2	nf	nf	0.5	nf
178	1	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	0.0	nf
179	1	0	0	nf	0.0	0.0	nf	0	0	nf	0.0	0.0	nf	0	0	nf	0.0	0.0	nf
180	1	0	0	nf	0.0	0.0	nf	0	0	nf	0.0	0.0	nf	0	0	nf	0.0	0.0	nf
181	1	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	0.0	nf
182	1	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	0.0	nf

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Appendix F. (page 6 of 6).

		Legal Males						Sublegal Males						Females					
		Number			CPUE			Number			CPUE			Number			CPUE		
Station	Stratum	2001	1998[a]	1995[b]	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995	2001	1998	1995
183	1	nf	36	nf	nf	9.0	nf	nf	149	nf	nf	37.3	nf	nf	36	nf	nf	9.0	nf
184	1	nf	48	nf	nf	12.0	nf	nf	507	nf	nf	126.8	nf	nf	647	nf	nf	161.8	nf
186	1	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	0.0	nf
187	1	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	0.0	nf
188	1	nf	8	nf	nf	2.0	nf	nf	23	nf	nf	5.8	nf	nf	7	nf	nf	1.8	nf
189	1	0	1	nf	0.0	0.3	nf	0	0	nf	0.0	0.0	nf	0	0	nf	0.0	0.0	nf
190	1	0	0	nf	0.0	0.0	nf	0	0	nf	0.0	0.0	nf	0	0	nf	0.0	0.0	nf
191	1	nf	0	nf	nf	0.0	nf	nf	1	nf	nf	0.3	nf	nf	1	nf	nf	0.3	nf
192	1	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	0.0	nf	nf	0	nf	nf	0.0	nf
193	1	nf	122	nf	nf	30.5	nf	nf	156	nf	nf	39.0	nf	nf	8	nf	nf	2.0	nf
194	1	nf	93	nf	nf	23.3	nf	nf	829	nf	nf	207.3	nf	nf	339	nf	nf	84.8	nf
195	1	nf	80	nf	nf	20.0	nf	nf	357	nf	nf	89.3	nf	nf	44	nf	nf	11.0	nf
196	1	nf	15	nf	nf	3.8	nf	nf	22	nf	nf	5.5	nf	nf	0	nf	nf	0.0	nf
197	1	nf	274	nf	nf	68.5	nf	nf	437	nf	nf	109.3	nf	nf	97	nf	nf	24.3	nf
198	1	nf	98	nf	nf	24.5	nf	nf	250	nf	nf	62.5	nf	nf	46	nf	nf	11.5	nf
199	1	nf	3	nf	nf	0.8	nf	nf	3	nf	nf	0.8	nf	nf	0	nf	nf	0.0	nf
200	1	nf	75	nf	nf	18.8	nf	nf	72	nf	nf	18.0	nf	nf	3	nf	nf	0.8	nf
201	1	0	0	nf	0.0	0.0	nf	0	0	nf	0.0	0.0	nf	0	0	nf	0.0	0.0	nf
	Total	19,365	27,813	10,143	30.6	50.8	18.4	17,006	6,507	4,562	26.9	11.9	8.3	8,610	1,624	16	13.6	3.0	0.0

[a] 1998 survey data from Blau and Watson (1999) and the 'StMatt98' database as of January 31, 2002.
[b] 1995 survey data from Blau (1996) and the 'StMatt95' database as of January 31, 2002.
[c] nf – station not fished.