

THE 2000 ALEUTIAN ISLANDS GOLDEN KING CRAB SURVEY AND RECOVERIES OF
TAGGED CRABS IN THE 1997-1999 AND 2000-2002 FISHING SEASONS

By

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ABSTRACT

A survey for golden king crabs *Lithodes aequispinus* was conducted in the Aleutian Islands area east of 174° W longitude in July and August 2000 aboard the FV *Shishaldin*. Sixty-nine stations were fished and a total of 47,029 golden king crabs were caught of which 5.3% were legal-sized males, 46.6% were sublegal males, and 48% were females. Depth, location, and date were recorded for each pot set and retrieved. Pot catches were enumerated to species, and shell condition, carapace length (CL), legal size status, and reproductive condition of females were recorded. Eighty percent of the legal male crabs, 41% of the sublegal males ≥ 90 mm CL, and 17% of the females ≥ 90 mm CL were tagged and released. Recovery of tagged crabs in the 2000 and 2001 Aleutian Islands commercial golden fisheries was accomplished using at-sea observers and dockside tag recovery samplers. A total of 787 (7.9%) tagged crabs were recovered in 2000 and 235 (2.4%) were recovered in 2001. The estimated exploitation rate incurred on legal males in the 2000 commercial fishery was 6.8%. Catch trends, biological characteristics, and tag recoveries from the 2000 survey are compared to those of the 1997 survey.

FOREWORD

The Bering Sea Crab Test Fish Program (BSTF), authorized by the State of Alaska under the Test Fish Program (AS 16.05.050 (15)), funded this project. Initiated in 1990, the principal objective of the BSTF has historically been focused on Bristol Bay red king crab research. The first Alaska Department of Fish and Game (ADF&G) survey of Aleutian Islands golden king crabs occurred during the summer of 1991 and was partially funded by the BSTF. ADF&G expanded the primary scope of the BSTF in 1995 when it established triennial surveys of other BSAI king crab stocks. These surveys, on a rotating basis, are conducted on St. Matthew blue king crabs (1995, 1998), Norton Sound red king crabs (1996 and 1999) and Aleutian Islands golden king crabs (1997 and 2000). Operational plans for BSTF-funded projects are documented in Blau (1992), Blau et al. (1996), Blau and Watson (1998, 1999), Tracy and Pengilly (1996, 1997), Tracy et al. (1999), Watson and Blau (1997), Watson and Pengilly (1992, 1993a, 1993b, 1994, 1996), Watson et al. (1995a, 1995b).

INTRODUCTION

The economic importance of the Aleutian Islands fishery for golden king crab *Lithodes aequispinus* is significant; 150 million pounds were landed from 1981 through 1999, with an exvessel value of more than \$397 million (Bowers 2001). Despite the value of the fishery, knowledge of golden king crab abundance, distribution, and basic life history parameters remains limited. Although management of the Aleutian Islands commercial fishery is governed by the Magnuson-Stevens Fishery Conservation and Management Act Fishery Management Plan (FMP) for Bering Sea and Aleutian Islands (BS/AI) King and Tanner Crabs (NPFMC 1998), a program for conducting annual systematic golden king crab stock abundance surveys has not been established. Without periodic baseline survey data available for monitoring population trends, impacts on the golden king crab stock from fishery removals, fishing practices and management measures have been difficult to evaluate.

In the absence of stock abundance surveys, ADF&G and the National Marine Fisheries Service (NMFS) have opportunistically collected biological data on golden king crabs during commercial fisheries as reviewed in Blau et al. (1998). In 1991, ADF&G surveyed golden king crabs in portions of what was then designated as the Dutch Harbor and Adak King Management Areas. The department acquired information on the spatial distribution of the species by sex and size and date for estimation of biological parameters, including female crab size at sexual maturity (Blau and Pengilly 1994). In addition, 1,262 legal male golden king crabs were tagged during the survey for subsequent recovery during the commercial fishery. Recoveries of tagged crabs provided valuable insight to adult growth characteristics; however, insufficient data was available for estimating annual harvest rates in the fishery.

Triennial pot-based surveys of the Aleutians stock were incorporated into the long-term research plans for BS/AI crab stocks in 1995. These surveys were initiated to address the need for continuing golden king crab mark-recapture studies and to establish a time series database for identifying species life history parameters and detecting population trends. In 1997, a survey grid composed of 189 stations located between 52° and 53° N latitude and 169° and 173° W longitude was established based upon the historic concentration of fishing effort in the area (Watson and Blau 1997). The first triennial survey was conducted in August 1997 at 71 stations near Yunaska and Amukta Islands. Just under 10,000 legal-sized and pre-recruit males and female crabs were tagged during the survey and an extensive tag recovery effort was initiated during the September commercial fishing season opening.

The golden king crab fishery has traditionally been managed on the basis of size, sex, and season and monitored inseason through processor reports and fish ticket data to measure fishery performance against historic catch data. Annual harvest statistics revealed the existence of distinct areas east and west of 174° W longitude supporting the majority of commercial fishery effort. In 1996, based on the most recent five year average harvests (Morrison and Gish 1997), the department established separate guideline harvest levels (GHLs) for each area; 3.2 million pounds for east of 174° W longitude and 2.7 million pounds west of 174° W longitude. Following the 1998 implementation of an amended BS/AI FMP, in which overfishing definitions for the golden king crab stock were specified, the GHLs set for the eastern area were re-examined and returns of legal-sized crabs tagged during the 1997 survey became instrumental in estimating a stock exploitation

rate. Analysis of the tag recoveries resulted in the subsequent revision of the GHL for this area to 3.0 million pounds (Bowers 1998).

An effective golden king crab tag recovery program in the Aleutian Islands fishery has been made possible through the implementation of regulations, passed by the Alaska Board of Fisheries (BOF) in 1995, which expanded observer coverage to include all participating vessels (Morrison and Gish 1997). Prior to that action, observers were required only on at-sea processors and catcher-processors. The current 100% observer coverage requirement provides an incentive to continue the golden king crab tagging program during the triennial surveys by presenting a relatively unique opportunity to recover tagged crabs through daily monitoring of individual vessel catches.

METHODS

The survey was conducted aboard the chartered vessel F/V *Shishaldin* between July 1 and August 5, 2000 in the Aleutian Islands Management Area O centered near Yunaska and Amukta Islands (52°30' N latitude and 171° W longitude). The charter began and ended in Dutch Harbor. Four ADF&G staff and five vessel crew were onboard the charter vessel at the start of the survey. One crewmember departed the vessel due to medical problems during the 35-day cruise.

Study Area and Catch Sampling

The Aleutian Islands Area (Registration Area O) cannot be surveyed in 35 days. Therefore, sampling of golden king crab fishing grounds and adjacent habitat was restricted to a portion of Area O that has historically supported a significant portion of the golden king crab harvest. Harvest statistics and observer samples were examined prior to the 2000 survey in order to adjust the station array to reflect any changes in the distribution of catch and effort. Comparison of catch records by statistical area of the years 1990-1996 and 1997-1999 revealed a slight westward shift in the distribution of fishing effort since the 1997 survey. However, the 2000 survey area encompasses 60% the catch by statistical area of the 1990-1996 harvests and 40% of the catch of the 1997-1999 harvests (Tracy et al. 2000).

The 2000 survey station array was composed of 69 stations spaced 5 nmi apart, north-to-south and east-to-west (Figure 1). Each station consisted of 8-10 pots spaced 10 fm apart on a longline, and the target soak time for each pot was set at 48-72 hours. Seventy-five identical king crab pots measuring 7' x 7' x 34" were used to sample stations. Each pot was webbed with #92 nylon twine with a stretch mesh of 2³/₄", had two opposing 8" x 36" tunnel eye openings installed with cod triggers to reduce escapement of captured crabs and other marine biota from the pot.

Catches were fully enumerated to provide catch per pot by sex and size of golden king crabs, grooved Tanner crabs *Chionoecetes tanneri*, triangle Tanner crabs *C. angulatus*, scarlet king crabs *Lithodes couesi*, and the deep sea king crabs *Paralomis multispinus* and *P. verilli*. Legal-size status of male crabs, shell condition, and carapace length or width distributions for all crabs and female reproductive conditions were documented. Major commercially important groundfish species were sampled and measured. Descriptions of carapace measurements, legal size determination, shell condition, and female reproductive conditions are detailed in Tracy et al. (2000).

Tagging Strategy

Male and female golden king crabs ≥ 90 mm CL that were free of parasitic barnacles and obvious new injuries were selected for tagging. All legal-sized males were tagged (100%), 50% of the sublegal legal-sized males ≥ 90 mm CL, and 50% of the females ≥ 90 mm CL were tagged at each station. A description of the tags and methodology for application are detailed in Tracy et al. (2000).

Ancillary Data Collections

Ocean bottom temperatures were obtained across the depth range within the survey area by placing submersible temperature recorders (STRs) in pots at select stations. Hourly readings were taken at each station and an average temperature calculated for that site.

Observations of marine mammals, seabirds, and anomalous biological features of species in survey catches were noted.

Tag Recovery

An intensive tagged golden king crab recovery program was conducted after survey completion during the 2000-2001 commercial fishery and during the 2001-2002 season the following year. Daily catches from individual vessels were monitored for the presence of tagged crabs using fleet-wide observer deployments for the duration of each season. Additionally, ADF&G dockside samplers were deployed at shoreside processing locations to examine delivered catches for tagged crabs and to interview vessel captains for tagged crab recovery location data. Industry participation, including vessel crews and processing personnel, was solicited prior to each fishing season and tagged crab recovery rewards were offered to vessel crews as incentives to note the location, date and fate (retained for sale or released alive with the tag intact) of captured tagged crabs. When tagged crabs were landed, observers and ADF&G samplers recorded carapace length (mm CL), assessed male crabs as either legal or sublegal in size, determined the shell age, and obtained the recapture date, location, and depth from the vessel captain. Tag recovery sampling instructions for observers and ADF&G samplers is detailed in Tracy et al. (2000).

Terms

For summarization and analytical purposes, golden king crabs were categorized as follows:

- Juvenile Females – Barren with only clean setae and < 107 -mm CL, the size at maturity 50% (SM50) as estimated from the 1997 Aleutian Islands survey (Blau et al. 1998).
- Adult Females – Embryos, or barren with matted setae or barren with clean setae and ≥ 107 -mm CL.
- Sublegal Male Prerecruit Ones - Carapace width less than 6 inches (152 mm) and ≥ 121 -mm CL.
- Sublegal Male Other – Carapace width less than 6 inches (152 mm) and ≤ 120 -mm CL.

- Legal Male Postrecruits - Carapace width greater than 6 inches (152 mm), all shell conditions, including new shells.

Shell ages were classified according to Tracy et al. (2000).

RESULTS

The area surveyed was located between 52°15' and 53°00' N latitude and 170°20' and 171°33' W longitude. Sixty-nine stations were fished, the first stations were set July 2 and the last station was set July 30, 2000 (Table 1). Stations 74, 75, 96, 97, and 116 were surveyed twice due to a change in bait type after the initial setting of these stations (Table 1 and Figure 1). For summarization purposes, values in tables and figures reflect the average catch of the two samplings at these stations. A total of 728 pots were fished with an average soak time of 2.6 days per pot (Table 1).

Golden King Crabs

Catch and Distribution

Golden king crabs were captured at every station with the exception of station 44. Higher numbers of male and female golden king crabs were captured north of Amukta, Chagulak, and Yunaska islands on the Bering Sea side compared to catches on the Pacific Ocean side (Table 1 and Figure 2). Sublegal males were more abundant than legal males throughout the survey area (Figure 3). Mature and immature females were abundant and concentrated in the northeast portion of the survey area (Figure 4). The greatest number of pots were fished between 100 fm and 200 fm and accounted for 46% of the survey effort (Table 2). Overall survey CPUE for legal males was 3.4 crabs per pot with highest catch rates at 200-249 fathoms (4.8 crabs per pot) and at 250-299 fathoms (8.1 crabs per pot) (Table 2 and Figure 5). The overall survey CPUE for sublegal males was 30.1 crabs per pot with a peak catch rate of 293.7 crabs per pot in the 400-449 fathom range (Table 2 and Figure 5). Similarly, the overall survey CPUE for females was 31 crabs per pot with a peak catch rate of 200.2 crabs per pot in the 400-449 fathom range (Table 2 and Figure 6).

Size Distribution

Legal male crabs ranged in size from 120 to 179-mm CL around a single mode centered at 140-mm CL (Figure 7). Sublegal males ranged in size from 29 to 146-mm CL, with a small mode at 40-mm CL, a high, narrow mode around 70-mm CL, and two, high overlapping modes at 105-mm CL and 125-mm CL (Figure 7). Sublegal and legal males overlapped in size between 120 and 146-mm CL, with peak overlap attributable to crabs around 137-mm CL (Table 3). Males ≥ 147 -mm CL were all legal-sized whereas those ≤ 119 -mm CL were all sublegal in size. Females ranged in size from 23 to 154-mm CL, with a small mode at 45-mm CL, a high, narrow mode at 70-mm CL, and a large mode at 110-mm CL (Figure 8). The female and combined sublegal and legal male distributions were quite similar, with modes generally centered at 40-45-mm CL, 70-mm CL, and 110-115-mm CL.

Shell Condition and Incidence of Disease or Parasitism

The dominant shell condition of surveyed crabs was new shell; 96% of the legal males, 99 % of the sublegal males, and nearly 100% of the females were categorized as new-shelled (Table 4). Fifty legal males, 22 sublegal males, and 2 females were assessed 'leatherbacks', most of which were old shell or very old shell (Table 5). The incidence of chitinoclastic shell disease or 'shell rust' was low, affecting 1.1% of legal males, 0.9% of sublegal males, and 1.2% of females (Table 5). Low rates of parasitic barnacle *Briarosaccus callosus* infestations were found; a single legal male, 0.4% of sublegal males, and 0.3% of females were afflicted (Table 5). Microsporidian or 'cottage cheese' disease and egg predators were not observed in survey crab catches (Table 5).

Female Reproductive Condition

More than half (55%) of the captured females (12,383 out of 22,595) had clean pleopodal setae, indicating that those crabs were either immature and had never hatched an egg clutch or were mature but had molted without mating prior to capture. This group was predominantly immature, averaged 80-mm CL, and was captured at the greatest depths of any clutch size group. Mature females with matted setae averaged 118-mm CL and accounted for 2,711 (12%) of the females. Of the 7,502 ovigerous females, 63% of the eggs were uneyed, 35% were eyed, with the remainder in hatching status (Table 6). Most (80%) of the ovigerous females carried clutches that were 90-100 % full. Egg color was primarily orange (73%), and of these, most were uneyed, indicative of early embryo development. Tan-colored eggs (27%) indicated that embryo development was advanced, particularly when coupled with the fact that most of these eggs were eyed. Dead embryos were not apparent in most (99%) clutches.

Tagged Crabs Released and Recaptured

A total of 9,970 golden king crabs were tagged and released on the survey. Eighty percent of the legal males, 41% of the sublegal males ≥ 90 -mm CL, and 17% of the females ≥ 90 -mm CL that were captured during the survey were tagged. Most of the tagged crabs were sublegal males (5,767), followed by females (2,192), and legal males (2,011) (Tables 1 and 7). Distribution of tagging effort by sex and legal-size status is shown in Figures 9, 10, and 11.

A total of 787 (7.9%) of the tagged crabs released during the 2000 survey were recovered in the 2000 commercial fishery east of 174° W longitude from August 15 to September 21 (Table 8). Legal-sized crabs were recovered at a rate of 20%, while sublegal males and females were recovered at much lower rates (5.6% and 2.7%, respectively). Second-year recovery rates in the 2001 commercial fishery east of 174° W longitude were appreciably lower with 235 (2.4%) tagged crabs recaptured from August 15 to September 10, 2001. Recoveries of tagged legal males dropped from 20% in 2000 to 3.4% in 2001 while sublegal males were recovered in 2001 at half the rate (2.8%) observed in 2000. Tagged female returns were negligible (0.3%) during the second year.

The estimate of the exploitation rate incurred on mature-sized males in the 2000 fishery was 6.8%, derived by multiplying the recovery rate of legal males (20%) times the percentage (33.8%) of mature-sized males (≥ 120 -mm CL) captured in the survey that were legal-sized (Table 9).

Comparison of the 1997 and 2000 Surveys

Golden King Crab Catches

Sixty-two stations were fished in common on both the 1997 and 2000 survey; seven different additional stations in each survey were also fished (Table 7). Overall catches of legal males declined by 17% from 1997 to 2000, with total catch per pot declining from 4.3 to 3.4 crabs per pot, respectively (Table 7). Catches declined at higher rates for sublegal males and females between 1997 and 2000; sublegal crab catches dropped 33% and females dropped by 40% between the 1997 and 2000 surveys. The highest catch of legal males in the 1997 survey was made at station 72 when 291 crabs were caught; the highest catch in the 2000 survey was made at station 91 (not fished in 1997) when 235 crabs were caught (Table 7 and Figure 12). The highest catch of sublegal males in the 1997 survey was made at station 56 when 2,756 crabs were caught; the second highest catch was made at station 25 when 2,471 crabs were caught (Table 7 and Figure 13). Station 25 also produced the highest catch of sublegal males in the 2000 survey when 2,898 crabs were caught. Female catches were highest at station 25 in 1997 with 2,436 crabs and also in 2000 with 2,963 crabs captured (Table 7 and Figure 14).

Legal male catch per unit effort (CPUE) was somewhat higher in 1997 than in 2000, with peak catch rates in the 250-299 fm depth zone at 9.9 and 8.1 crabs per pot, respectively (Table 2). Sublegal catches exhibited similar trends at depths less than 200 fm, with generally higher CPUEs in 1997 between 200 fm and 399 fm (Table 2). Peak CPUEs occurred in the 400-449 fm zone, with 293.7 crabs per pot in 2000 and 143.9 crabs per pot in 1997. Females were more uniformly distributed in 1997 than in 2000; however, peak CPUEs occurred in the 400-449 fm zone in 1997 (147.8 crabs) and also in 2000 (200.2 crabs) (Table 2). More pots were fished at depths greater than 450 fm in 1997 (19 pots) versus 2000 (4 pots), but legal male occurrence was negligible in both surveys. In contrast, catches of sublegals (1,579) and females (1,534) at depths greater than 450 fm accounted for 4% of the 1997 survey catch.

Shell Condition and Incidence of Disease or Parasitism

Shell conditions were similar in both surveys, with a higher incidence of new shell crabs observed in 2000 (96%) relative to 1997 (92.2%) (Table 4). Conversely, old and very old shell crabs were more prevalent in 1997 (7.8%) than in 2000 (4.0%). Sublegal male and female shell conditions were virtually identical between the two surveys. Legal male 'leatherbacks' (anexuvians) were slightly more common in the 1997 survey (2.8%) than in the 2000 survey (2.0%) (Table 5). Shell rust or chitinoclastic bacterial infections were more frequently observed in the 2000 survey than in 1997. Occurrence of 'cottage cheese' disease, parasitic barnacles, and egg predators was negligible in both surveys.

Female Reproductive Condition

Female reproductive conditions were similar in both surveys: most egg clutches were orange, uneyed, and few dead eggs observed (Table 6). Slightly more eggs were in hatching status in 1997 (3.2%) than in 2000 (1.9%). Percent of ovigerous females with clutch fullness at the 90-100% level was comparable between the 2000 survey (79.5%) and the 1997 survey (76.2%). Percent of females with clean pleopodal setae was comparable between the two surveys at 82% in 2000 and 86 in 1997.

Tagged Crabs Released and Recaptured

First year recovery rates of legal males were comparable between the 1997 (20.4%) and 2000 (20.0%) surveys, despite the fact that an additional 900 crabs were tagged in the 1997 survey (Table 8). Second year recovery rates were different; in the 1998 fishery, 12% of those tagged in 1997 were recaptured whereas only 3.4% of those tagged in 2000 were recovered in the 2001 fishery. Similar trends were observed for first year recoveries of sublegal males and females. Second year recoveries of sublegals tagged in 1997 and 2000 were nearly identical, at 3.0% in the 1998 fishery and 2.8% in the 2001 fishery.

The estimated exploitation rate for mature-sized (≥ 120 -mm CL) males in first year fisheries was higher in 1997 at 8.2% than the 6.8% rate calculated for 2000 (Table 9). This disparity may be due to the higher percentage of mature male crabs that were legal-sized in the 1997 survey (39.9%) as compared to the 2000 survey (33.8%) and the fact that the 1997 harvest of legal males exceeded the 2000 harvest by 73,000 crabs (Bowers 1999 and 2001). Note that the reliability of the legal and mature male exploitation rate estimates are dependent on several assumptions, including: that there is no mortality associated with tagging, that the probability of harvesting tagged or untagged legal males is equal, that no tags are shed from tagged animals, and that all tag recoveries are observed and recorded.

Other Crab Catches of Commercial Interest

Three other crab species of commercial interest were caught during the survey: grooved Tanner crabs *Chionoecetes tanneri* (27 crabs), triangle Tanner crabs *C. angulatus* (7 crabs), and scarlet king crabs *Lithodes couesi* (188 crabs) (Table 10). All of those crabs were caught at depths between 234 fm and 423 fm, with most (18) of the grooved crabs captured at 352 fm. All triangle Tanner crabs and most (166) of the scarlet king crabs were caught at 423 fm, underscoring the deep habitats of these crabs. Most of the captured grooved Tanners were sublegal males and all of the triangle crabs were sublegal in size. Mature females (58%) dominated scarlet king crab catches, with lesser amounts of legal males (24%), sublegal males (14%), and immature females (4%).

Species Composition of Survey Catches

There were 51 taxa identified in survey catches in addition to the dominant golden king catch; the most common commercial crab species of interest were scarlet king crabs *L. couesi*, grooved Tanner crabs *C. tanneri*, and triangle Tanner crabs *C. angulatus* (Table 11). Other invertebrates included sponges, corals, starfish, shrimp, urchins, snails, Lyre crabs *Hyas sp.*, and octopus *Octopus dofleini*. Commercial fish species were common, and in descending order of abundance were: Pacific cod *Gadus macrocephalus*, sablefish *Anoplopoma fimbria*, Pacific halibut *Hippoglossus stenolepis*, Greenland turbot *Rheinhardtius hippoglossoides*, rockfish (*Sebastes* and *Sebastes*), Atka mackerel *Pleurogramma monopterygius*, and walleye pollock *Theragra chalcogramma*. Other fish catches included sculpins, flatfish, rattails, and prowfish. Catches of skate *Raja sp.* were fairly common in pot catches.

Bottom Temperatures

Hourly bottom temperature readings were obtained using two submersible temperature recorders placed in separate pots at 19 different stations, with a second deployment at station 116 (Table 12). Temperatures ranged from a minimum of 2.3°C at 420 fathoms to a maximum of 4.7°C at three stations with an average depth of 150 fm. Generally, as depth increased, water temperatures decreased.

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Table 1. Station location, catch, catch per unit effort (CPUE) and number of tagged crabs from the 2000 Aleutian Islands golden king crab survey.

Station	Set Date	No. Pots	Soak Days	N latitude		W. longitude		Depth (fm)	Males								
				Degrees	Minutes	Degrees	Minutes		Legals			Sublegals			Females		
									No.	CPUE	Tagged	No.	CPUE	Tagged	No.	CPUE	Tagged
1	7/25	10	2.4	52	59.99	171	8.76	423	39	3.9	1	951	95.1	2	1753	175.3	0
2	7/21	10	1.9	52	59.96	170	28.38	246	24	2.4	23	52	5.2	34	26	2.6	17
3	7/19	10	2.4	53	0.01	170	20.10	107	53	5.3	48	232	23.2	204	178	17.8	129
9	7/22	10	2.2	52	54.99	171	23.30	290	88	8.8	85	479	47.9	245	115	11.5	0
10	7/23	10	2.0	52	55.02	171	16.61	147	20	2.0	20	206	20.6	72	204	20.4	0
11	7/25	10	2.1	52	55.00	171	9.08	151	26	2.6	26	353	35.3	107	306	30.6	0
12	7/24	10	1.9	52	55.00	171	0.62	385	1	0.1	1	1,362	136.2	1	1,614	161.4	0
14	7/21	10	2.0	52	55.01	170	36.61	352	34	3.4	32	297	29.7	18	200	20.0	9
15	7/18	10	2.5	52	55.03	170	28.39	146	20	2.0	20	88	8.8	67	123	12.3	104
16	7/17	10	2.0	52	55.01	170	20.07	118	7	0.7	7	16	1.6	16	0	0.0	0
21	7/26	10	3.3	52	50.00	171	33.10	128	51	5.1	51	924	92.4	235	2,181	218.1	0
22	7/20	8	2.3	52	50.00	171	25.13	101	24	3.0	23	601	60.1	226	1,049	131.1	154
23	7/20	10	2.5	52	50.00	171	17.11	88	49	4.9	48	1,377	137.7	402	719	71.9	163
24	7/27	10	2.3	52	49.98	171	8.93	119	43	4.3	42	1,557	155.7	159	845	84.5	0
25	7/22	9	2.6	52	50.01	171	0.72	402	5	0.6	5	2,898	322.0	51	2,963	329.2	1
26	7/16	10	2.1	52	49.98	171	52.76	405	1	0.1	1	850	85.0	7	962	96.2	2
27	7/21	10	2.1	52	50.00	171	44.54	280	73	7.3	72	58	5.8	53	5	0.5	3
28	7/18	10	2.1	52	50.02	171	36.43	209	28	2.8	24	81	8.1	67	80	8.0	73
29	7/16	10	2.1	52	50.00	171	28.42	120	18	1.8	18	42	4.2	40	33	3.3	33
30	7/16	10	2.0	52	50.02	171	20.38	141	10	1.0	10	28	2.8	28	2	0.2	1
37	7/26	10	3.8	52	45.00	171	32.99	88	33	3.3	33	326	32.6	127	484	48.4	0
38	7/17	10	2.3	52	45.02	171	25.04	85	34	3.4	32	604	60.4	411	1,219	121.9	251
39	7/17	10	2.0	52	45.00	171	16.96	89	6	0.6	3	370	37.0	346	210	21.0	186
40	7/22	10	2.0	52	45.01	171	8.67	293	37	3.7	37	359	35.9	95	175	17.5	1
41	7/18	9	3.4	52	44.98	171	1.02	381	11	1.2	11	1,127	125.3	48	1,373	152.6	13
42	7/15	10	2.1	52	44.99	170	52.78	277	42	4.2	41	48	4.8	43	20	2.0	8
43	7/19	10	2.3	52	44.99	170	44.57	169	25	2.5	23	59	5.9	53	86	8.6	78

-Continued-

Table 1. (page 2 of 3)

Station	Set Date	No. Pots	Soak Days	N latitude		W. longitude		Depth (fm)	Males						Females		
				Degrees	Minutes	Degrees	Minutes		Legals			Sublegals			No.	CPUE	Tagged
									No.	CPUE	Tagged	No.	CPUE	Tagged			
44	7/17	10	2.0	52	45.00	170	36.28	90	0	0.0	0	0	0.0	0	0	0.0	0
45	7/14	10	2.1	52	45.00	170	28.52	180	7	0.7	7	9	0.9	9	2	0.2	2
46	7/14	10	2.3	52	45.01	170	20.60	118	1	0.1	1	1	0.1	1	0	0.0	0
54	7/29	10	3.5	52	40.02	171	32.94	256	84	8.4	30	315	31.5	57	42	4.2	0
55	7/25	10	6.4	52	40.02	171	25.02	297	91	9.1	91	839	83.9	278	206	20.6	0
56	7/23	10	2.0	52	40.00	171	17.13	205	63	6.3	61	665	66.5	153	439	43.9	0
57	7/23	10	1.9	52	39.99	171	8.75	307	23	2.3	23	121	12.1	22	118	11.8	0
58	7/13	8	2.5	52	39.99	170	0.94	276	45	5.6	44	78	9.8	64	35	4.4	16
59	7/15	9	2.3	52	40.01	170	52.84	120	32	3.6	31	68	7.6	64	164	18.2	31
60	7/13	10	2.5	52	39.99	170	28.48	103	55	5.5	53	93	9.3	83	8	0.8	8
61	7/13	10	2.4	52	39.96	171	20.20	159	6	0.6	6	5	0.5	5	83	8.3	0
69	7/29	10	3.6	52	34.99	171	32.46	256	31	3.1	0	232	23.2	0	0	0.0	0
70	7/25	10	5.9	52	34.99	171	24.92	231	98	9.8	98	319	31.9	186	91	9.1	0
72	7/23	10	1.9	52	34.98	171	0.73	289	80	8.0	78	86	8.6	55	19	1.9	0
74 ^a	7/9&11	19	2.5	52	34.97	170	28.51	146	20	2.0	38 ^b	35	3.5	68 ^b	9	0.9	15 ^b
75 ^a	7/9&11	20	2.5	52	34.99	170	20.26	192	17	1.7	30 ^b	7	0.7	13 ^b	5	0.5	10 ^b
91	7/30	10	3.8	52	29.98	171	33.09	291	235	23.5	0	582	58.2	0	198	19.8	0
92	7/25	10	5.4	52	30.01	171	24.94	182	85	8.5	85	191	19.1	135	230	23.0	0
94	7/9	10	6.9	52	29.99	171	0.80	226	150	15.0	147	669	66.9	282	351	35.1	50
95	7/8	10	4.2	52	30.00	170	52.96	175	72	7.2	71	460	46.0	185	1,077	107.7	79
96 ^a	7/8&11	20	1.5	52	30.01	170	44.50	76	9	0.9	17 ^b	8	0.8	13 ^b	0	0.0	0 ^b
97 ^a	7/7&11	20	2.0	52	30.02	170	36.51	133	16	1.6	27 ^b	16	1.6	30 ^b	2	0.2	3 ^b
98	7/7	10	1.9	52	30.00	170	28.53	160	17	1.7	17	39	3.9	36	35	3.5	32
99	7/7	10	2.5	52	30.01	170	20.18	226	21	2.1	21	23	2.3	23	38	3.8	31
114	7/30	10	4.0	52	24.97	171	33.10	278	147	14.7	0	230	23.0	0	1,265	126.5	0
116 ^a	7/8&12	19	2.8	52	24.99	171	8.98	161	28	2.8	51 ^b	109	10.9	196 ^b	328	32.8	397 ^b

-Continued-

Table 1. (page 3 of 3)

Station	Set Date	No. Pots	Soak Days	N latitude		W. longitude		Depth (fm)	Males								
				Degrees	Minutes	Degrees	Minutes		Legals			Sublegals			Females		
									No.	CPUE	Tagged	No.	CPUE	Tagged	No.	CPUE	Tagged
117	7/6	9	2.0	52	25.01	171	0.67	232	1	0.1	1	13	1.5	13	2	0.2	2
118	7/6	10	2.1	52	25.00	170	52.95	212	1	0.1	1	11	1.1	9	7	0.7	1
119	7/5	10	2.0	52	25.01	170	44.46	155	6	0.6	6	117	11.7	47	163	16.3	47
120	7/5	10	1.9	52	25.02	170	36.61	174	25	2.5	24	56	5.6	37	41	4.1	31
121	7/5	10	2.1	52	24.99	170	28.60	256	20	2.0	20	37	3.7	33	7	0.7	5
122	7/5	9	2.2	52	25.01	170	20.16	135	11	1.2	11	8	0.9	7	77	8.6	25
139	7/4	10	3.8	52	19.99	171	9.02	352	17	1.7	17	161	16.1	69	64	6.4	23
140	7/4	10	2.1	52	20.01	171	0.78	273	42	4.2	42	259	25.9	71	84	8.4	22
141	7/4	10	2.1	52	19.96	171	52.78	176	23	2.3	19	255	25.5	96	171	17.1	28
142	7/3	10	2.2	52	19.99	171	44.79	101	11	1.1	9	71	7.1	41	49	4.9	21
143	7/3	10	2.5	52	20.00	170	36.50	133	18	1.8	17	62	6.2	53	49	4.9	25
144	7/3	10	2.1	52	20.03	170	28.30	356	5	0.5	2	62	6.2	5	56	5.6	4
145	7/3	10	2.0	52	20.01	170	20.58	267	17	1.7	13	4	0.4	4	21	2.1	17
159	7/2	10	2.3	52	15.03	170	52.73	234	48	4.8	44	150	15.0	86	21	2.1	7
160	7/2	10	2.2	52	14.95	170	44.56	130	13	1.3	12	85	8.5	54	77	7.7	24
161	7/2	9	2.0	52	14.94	170	36.58	151	9	1.0	9	37	4.2	27	36	4.0	10
Total		728	2.6						2,502	3.4	2,011	21,933	30.1	5,767	22,595	31.0	2,192

^a Station was sampled twice due to a change in bait type after the initial setting of the station.

^b Value represents the combined number of crabs tagged from the two samplings of the station.

Table 2. Catches of golden king crabs by depth grouping from the 2000 Aleutian Islands survey as compared to the 1997 survey.

(fm)			Legal Males				Sublegal Males				Females			
			Number		Catch Per Unit Effort		Number		Catch Per Unit Effort		Number		Catch Per Unit Effort	
			2000	1997	2000	1997	2000	1997	2000	1997	2000	1997	2000	1997
50-99	78	67	132	118	1.7	1.8	2685	1760	34.4	26.3	2632	2384	33.7	35.6
100-149	194	205	422	776	2.2	3.8	4133	4141	21.3	20.2	5048	7485	26.0	36.2
150-199	141	133	346	536	2.5	4.0	1697	2620	12.0	19.7	2563	5637	18.2	41.8
200-249	90	96	434	693	4.8	7.2	1983	6731	22.0	70.1	1055	6194	11.7	64.5
250-299	127	69	1,032	686	8.1	9.9	3606	4550	28.4	65.9	2192	3492	15.7	50.6
300-349	31	49	23	181	0.7	3.7	121	4605	3.9	94.0	118	3608	11.8	73.6
350-399	47	41	68	6	1.4	0.1	3009	3879	64.0	94.6	3307	3892	69.2	94.9
400-449	16	20	45	16	2.8	0.8	4699	2878	293.7	143.9	5678	2956	200.2	147.8
450-499	2	15	0	0	0	0.0	0	1350	0	90.0	0	1301	0	86.7
500-549	2	4	0	0	0	0.0	0	229	0	57.3	0	233	0	58.3
Total	728	699	2,502	3,012	3.4	4.3	21,933	32,743	30.1	46.8	22,595	37,182	31.0	53.7

^a 1997 survey data from Blau et al. (1998) and the corrected 'Aleu97' database as of December 31, 2001.

Table 3. Size overlap of sublegal and legal male golden king crabs from the 2000 Aleutian Islands survey.

Carapace Length (mm)	Number of Crabs		Total	Percent Legal
	Sublegals	Legals		
120 ^a	405	1	406	0.2
121	285	0	285	0.0
122	331	1	332	0.3
123	355	0	355	0.0
124	313	4	317	1.3
125	400	6	406	1.5
126	312	2	314	0.6
127	367	3	370	0.8
128	379	3	382	0.8
129	275	3	278	1.1
130	397	3	400	0.8
131	237	4	241	1.7
132	298	24	322	7.5
133	305	32	337	9.5
134	218	44	262	16.8
135	156	96	252	38.1
136	148	97	245	39.6
137	136	128	264	48.5
138	80	148	228	64.9
139	43	127	170	74.7
140	35	206	241	85.5
141	12	122	134	91.0
142	9	152	161	94.4
143	4	172	176	97.7
144	1	134	135	99.3
145	2	118	120	98.3
146 ^b	1	99	100	99.0
Total	5,504	1,729	7,233	

^a All male golden king crabs ≤ 119 mm carapace length had sublegal widths.

^b All male golden king crabs ≥ 147 mm carapace length had legal widths.

Table 4. Shell condition of golden king crabs from the 2000 Aleutian Islands survey as compared to the 1997 survey.

Shell Condition	Legal Males				Sublegal Males				Females			
	2000		1997 ^a		2000		1997		2000		1997	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
New-pliable	5	0.2	6	0.2	22	0.1	65	0.2	23	0.1	112	0.3
New-hard	2,397	95.8	2,935	92.0	21,801	99.4	32,514	99.3	22,549	99.8	37,070	99.7
Old	95	3.8	236	7.4	110	0.5	131	0.4	23	0.1	<10	<0.1
Very Old	5	0.2	13	0.4	<10	<0.1	33	0.1	0	0	0	0

^a 1997 survey data from Blau et al. (1998) and the corrected 'Aleu97' database as of December 31, 2001.

Table 5. Conditions and diseases of golden king crabs from the 2000 Aleutian Islands survey as compared to the 1997 survey.

Condition or Disease	Legal Males				Sublegal Males				Females			
	2000		1997 ^a		2000		1997		2000		1997	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Leatherbacks ^b	50	2.0	89	2.8	22	0.1	33	0.1	<0.1	<0.1	<0.1	<0.1
Cottage Cheese ^c	0	0	0	0	0	0	0	0	0	0	<0.1	<0.1
Shell Rust ^d	28	1.1	6	0.2	197	0.9	33	0.1	271	1.2	37	0.1
Parasitic barnacles ^e	<0.1	<0.1	<0.1	<0.1	88	0.4	196	0.6	68	0.3	186	0.5
Egg predators ^f	na ^g	na	na	na	na	na	na	na	0	0	<0.1	<0.1

^a 1997 survey data from Blau et al. (1998) and the corrected 'Aleu97' database as of December 31, 2001.

^b Crabs are usually males, with hardened exoskeletons, but soft or leathery carapaces.

^c 'Cottage cheese' disease is the common term for a number of microsporidian diseases.

^d 'Shell rust' is the common term for chitinoclastic bacterial disease of the exoskeleton.

^e Parasitic barnacles of the rhizocephalan species *Briarosaccus callosus* are reported here.

^f Egg predators reported here are nemertean worms.

^g na = not applicable.

Table 6. Egg condition and clutch size of ovigerous female golden king crabs from the 2000 Aleutian Islands survey as compared to the 1997 survey.

Characteristic	2000		1997 ^a	
	No.	(%)	No.	(%)
Live Egg Color				
Tan	2,033	27.1	2,168	23.9
Purple	8	0.1	0	0
Orange	5,461	72.8	6,904	76.1
Egg Development				
Uneyed	4,711	62.8	5,380	59.3
Eyed	2,648	35.3	3,402	37.5
Hatching	143	1.9	290	3.2
Clutch Size				
1 – 29% full	203	2.7	483	5.3
30 – 59% full	181	2.4	409	4.5
60 – 89% full	1,152	15.4	1,264	13.9
90 – 100% full	5,965	79.5	6,916	76.2
Dead Eggs				
Not apparent	7,396	98.6	8,464	93.3
< 20%	98	1.3	544	6.0
> 20%	8	0.1	64	0.7

^a 1997 survey data from Blau et al. (1998) and the corrected 'Aleu97' database as of December 31, 2001.

Table 7. Crab catch and tagging effort by station for the 2000 Aleutian Islands golden king crab survey as compared to the 1997 survey.

Station	Legal Males						Sublegal Males						Females					
	Number		Catch Per Pot		No. Tagged		Number		Catch Per Pot		No. Tagged		Number		Catch Per Pot		No. Tagged	
	2000	1997 ^a	2000	1997	2000	1997	2000	1997	2000	1997	2000	1997	2000	1997	2000	1997	2000	1997
1	39	0	3.9	0.0	1	0	951	1,058	95.1	117.6	2	5	1,753	1,326	175.3	147.4	0	9
2	24	64	2.4	6.4	23	55	52	2,152	5.2	215.2	34	114	26	1,830	2.6	183.0	17	24
3	53	nf ^b	5.3	nf	48	nf	232	nf	23.2	nf	204	nf	178	nf	17.8	nf	129	nf
9	88	92	8.8	10.2	85	90	479	1,150	47.9	127.8	245	327	115	682	11.5	75.8	0	0
10	20	34	2.0	3.4	20	33	206	372	20.6	37.2	72	107	204	581	20.4	58.1	0	10
11	26	32	2.6	3.2	26	32	353	527	35.3	52.7	107	108	306	770	30.6	77.0	0	10
12	1	1	0.1	0.1	1	1	1,362	1,538	136.2	153.8	1	9	1,614	1,519	161.4	151.9	0	15
13	nf	0	nf	0.0	nf	0	nf	886	nf	88.6	nf	5	nf	634	nf	63.4	nf	0
14	34	3	3.4	0.3	32	3	297	1,752	29.7	175.2	18	7	200	1,853	20.0	185.3	9	1
15	20	19	2.0	1.9	20	19	88	262	8.8	26.2	67	65	123	254	12.3	25.4	104	26
16	7	27	0.7	2.7	7	27	16	290	1.6	29.0	16	71	0	99	0.0	9.9	0	9
21	51	50	5.1	5.0	51	49	924	476	92.4	47.6	235	61	2,181	1,812	218.1	181.2	0	0
22	24	34	3.0	3.4	23	34	601	391	30.1	39.1	226	80	1,049	1,008	131.1	100.8	154	10
23	49	39	4.9	3.9	48	38	1,377	698	137.7	69.8	402	55	719	652	71.9	65.2	163	5
24	43	30	4.3	3.0	42	28	1,557	664	155.7	66.4	159	131	845	266	84.9	26.6	0	10
25	5	8	0.6	0.8	5	5	2,898	2,471	322.0	247.1	51	40	2,963	2,436	329.2	243.6	1	10
26	1	1	0.1	0.1	1	1	850	1,107	85.0	110.7	7	11	962	1,115	96.2	111.5	2	1
27	73	82	7.3	8.2	72	80	58	278	5.8	27.8	53	114	5	72	0.5	7.2	3	10
28	28	71	2.8	7.1	24	70	81	709	8.1	70.9	67	168	80	1,087	8.0	108.7	73	121
29	18	15	1.8	1.5	18	15	42	104	4.2	10.4	40	50	33	89	3.3	8.9	33	6
30	10	44	1.0	4.4	10	44	28	434	2.8	43.4	28	220	2	7	0.2	0.7	1	1
37	33	31	3.3	3.5	33	29	326	346	32.6	38.5	127	56	484	842	48.4	93.6	0	0
38	34	15	3.4	1.7	32	15	604	273	60.4	30.4	411	22	1,219	700	121.9	77.8	251	5
39	6	10	0.6	1.0	3	10	370	513	37.0	51.3	346	25	210	539	21.0	53.9	186	5
40	37	23	3.7	2.3	37	22	359	2,131	35.9	213.1	95	50	175	1,719	17.5	171.9	1	10
41	11	2	1.2	0.2	11	2	1,127	51	125.3	5.1	48	9	1,373	69	152.6	6.9	13	2
42	42	90	4.2	9.0	41	90	48	114	4.8	11.4	43	64	20	39	2.0	3.9	8	4

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Table 7. (page 2 of 3)

Station	Legal Males						Sublegal Males						Females						
	Number		Catch Per Pot		No. Tagged		Number		Catch Per Pot		No. Tagged		Number		Catch Per Pot		No. Tagged		
	2000	1997	2000	1997	2000	1997	2000	1997	2000	1997	2000	1997	2000	1997	2000	1997	2000	1997	
43	25	11	2.5	1.2	23	11	59	112	5.9	12.5	53	33	86	212	8.6	23.6	78	25	
44	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0	
45	7	12	0.7	1.2	7	12	9	27	0.9	2.7	9	16	2	5	0.2	0.5	2	2	
46	1	1	0.1	0.1	1	1	1	0	0.1	0.0	1	0	0	0	0.0	0.0	0	0	
54	84	nf	8.4	nf	30	nf	315	nf	31.5	nf	57	nf	42	nf	4.2	nf	0	nf	
55	91	70	9.1	7.0	91	70	839	805	83.9	80.5	278	56	206	320	20.6	32.0	0	0	
56	63	101	6.3	10.1	61	99	665	2,756	66.5	275.6	153	83	439	1,948	43.9	194.8	0	0	
57	23	38	2.3	3.8	23	38	121	1,278	12.1	127.8	22	22	118	1,503	11.8	150.3	0	0	
58	45	56	5.6	5.6	44	56	78	643	9.8	64.3	64	113	35	641	4.4	64.1	16	10	
59	32	37	3.6	3.7	31	37	68	23	7.6	2.3	64	23	164	38	18.2	3.8	31	10	
60	55	58	5.5	5.8	53	57	93	51	9.3	5.1	83	48	8	0	0.8	0.0	8	0	
61	6	59	0.6	5.9	6	59	5	22	0.5	2.2	5	18	83	13	8.3	1.3	0	2	
69	31	nf	3.1	nf	0	nf	232	nf	23.2	nf	0	nf	0	nf	0.0	nf	0	nf	
70	98	46	9.8	4.6	98	46	319	364	31.9	36.4	186	32	91	494	9.1	49.4	0	0	
72	80	291	8.0	29.1	78	291	86	584	8.6	58.4	55	57	19	329	1.9	32.9	0	0	
73	nf	0	nf	0.0	nf	0	nf	0	nf	0.0	nf	0	nf	0	nf	0.0	nf	0	0
74 ^c	20	63	2.0	6.3	38 ^d	61	35	100	3.5	10.0	68 ^d	81	9	4	0.9	0.4	15 ^d	1	
75 ^c	17	34	1.7	3.4	30 ^d	34	7	22	0.7	2.0	13 ^d	10	5	16	0.5	1.6	10 ^d	3	
91	235	nf	23.5	nf	0	nf	582	nf	58.2	nf	0	nf	198	nf	19.8	nf	0	nf	
92	85	33	8.5	3.3	85	32	191	103	19.1	10.3	135	14	230	251	23.0	25.1	0	0	
94	150	46	15.0	4.6	147	46	669	104	66.9	10.4	282	13	351	27	35.1	2.7	50	0	
95	72	91	7.2	9.1	71	89	460	157	46.0	16.0	185	95	1,077	959	107.7	95.9	79	30	
96 ^c	9	23	0.9	2.3	17 ^d	23	8	10	0.8	1.0	13 ^d	10	0	0	0.0	0.0	0 ^d	0	
97 ^c	16	42	1.6	4.2	27 ^d	42	16	57	1.6	5.7	30 ^d	45	2	1	0.2	0.1	3 ^d	0	
98	17	34	1.7	3.4	17	32	39	85	3.9	8.5	36	45	35	201	3.5	20.1	32	16	
99	21	52	2.1	5.2	21	45	23	48	2.3	4.8	23	28	38	671	3.8	37.1	31	118	
114	147	nf	14.7	nf	0	nf	230	nf	23.0	nf	0	nf	1,265	nf	126.5	nf	0	nf	

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Table 7. (page 3 of 3)

Station	Legal Males						Sublegal Males						Females					
	Number		Catch Per Pot		No. Tagged		Number		Catch Per Pot		No. Tagged		Number		Catch Per Pot		No. Tagged	
	2000	1997	2000	1997	2000	1997	2000	1997	2000	1997	2000	1997	2000	1997	2000	1997	2000	1997
115	nf	35	nf	3.9	nf	35	nf	157	nf	17.5	nf	74	nf	610	nf	67.8	nf	30
116 ^c	28	71	2.8	7.1	51 ^d	71	109	170	10.9	17.0	196 ^d	102	328	753	32.8	75.3	397 ^d	30
117	1	34	0.1	3.4	1	34	13	81	1.5	8.1	13	5	2	51	0.2	5.1	2	0
118	1	11	0.1	1.1	1	11	11	49	1.1	4.9	9	13	7	24	0.7	2.4	1	2
119	6	21	0.6	2.1	6	21	117	544	11.7	54.4	47	106	163	798	16.3	79.8	47	150
120	25	23	2.5	2.3	24	23	56	170	5.6	17.0	37	87	41	273	4.1	27.3	31	98
121	20	75	2.0	7.5	20	74	37	283	3.7	28.3	33	173	7	127	0.7	127.0	5	48
122	11	21	1.2	2.1	11	20	8	21	0.9	2.1	7	8	77	543	8.6	54.3	25	168
123	nf	52	nf	5.2	nf	51	nf	78	nf	7.8	nf	60	nf	95	nf	9.5	nf	33
124	nf	29	nf	2.9	nf	28	nf	24	nf	2.4	nf	19	nf	210	nf	21.0	nf	79
125	nf	43	nf	4.3	nf	43	nf	12	nf	1.2	nf	9	nf	1	nf	0.1	nf	1
126	nf	12	nf	1.2	nf	12	nf	19	nf	1.9	nf	19	nf	0	nf	0.0	nf	0
139	17	nf	1.7	nf	17	nf	161	nf	16.1	nf	69	nf	64	nf	6.4	nf	23	nf
140	42	nf	4.2	nf	42	nf	259	nf	25.9	nf	71	nf	84	nf	8.4	nf	22	nf
141	23	56	2.3	5.6	19	55	255	252	25.5	25.2	96	121	171	137	17.1	13.7	28	17
142	11	34	1.1	3.4	9	34	71	211	7.1	21.1	41	115	49	535	4.9	53.5	21	175
143	18	55	1.8	5.5	17	53	62	248	6.2	24.8	53	148	49	620	4.9	62.0	25	97
144	5	22	0.5	2.2	2	22	62	45	6.2	4.5	5	22	56	5	5.6	0.5	4	1
145	17	151	1.7	16.8	13	143	4	122	0.4	13.6	4	75	21	162	2.1	18.0	17	54
146	nf	7	nf	0.7	nf	7	nf	1	nf	0.1	nf	1	nf	0	nf	0.0	nf	0
147	nf	28	nf	2.8	nf	26	nf	23	nf	2.3	nf	15	nf	12	nf	1.2	nf	3
159	48	157	4.8	15.7	44	149	150	1,612	15.0	161.0	86	421	21	1,465	2.1	146.5	7	195
160	13	36	1.3	3.6	12	35	85	385	8.5	38.5	54	203	77	882	7.7	88.2	24	280
161	9	24	1.0	2.4	9	23	37	138	4.2	13.8	27	66	36	614	4.0	61.4	10	154
Total	2,502	3,012	3.4	4.3	2,011	2,943	21,933	32,743	30.1	46.9	5,767	4,678	22,595	37,550	31.0	53.7	2,192	2,136

^a 1997 survey data from Blau et al. (1998) and the corrected 'Aleu97' database as of December 31, 2001.

^b nf - station not fished.

^c Station was sampled twice in 2000 due to a change in bait type after the initial setting of the station.

^d Value represents the combined number of crabs tagged from the two samplings of the station.

Table 8. Number of tagged golden king crabs released during the 2000 Aleutian Islands survey and recovered during the 2000-2001 and 2001-2002 commercial fisheries as compared to tagging effort during the 1997 survey and recoveries during the 1997-1998 and 1998-1999 commercial fisheries.

Sex/Size Class	Number Tagged in 2000	Recapture Season				Number Tagged in 1997 ^a	Recapture Season			
		2000-2001		2001-2002			1997-1998		1998-1999	
		No.	%	No.	%		No.	%	No.	%
Legal Males	2,011	402	20.0	69	3.4	2,943	601	20.4	354	12.0
Sublegal Males	5,767	325	5.6	159	2.8	4,678	236	5.0	142	3.0
Females	2,192	60	2.7	7	0.3	2,136	43	2.0	21	1.0
Total	9,970	787	7.9	235	2.4	9,757	880	9.1	517	5.3

^a 1997 survey data from Blau et al. (1998) and the corrected 'Aleu97' database as of December 31, 2001.

Table 9. Tag recovery and calculated exploitation rates for mature legal males estimated from tagged crab recaptures during the 2000-2001 Aleutian Islands golden king crab fishery as compared to recaptures during the 1997-1998 commercial fishery.

Survey Year	No. Legal Males Tagged	No. Tagged Legal Males Recovered	Recovery Rate	No. Mature Males of Legal Size in Survey	No. Mature Males in Survey	Percent of Mature Legal-Sized Males	Estimated Exploitation Rate
2000	2,011	402	20.0	2,589	7,666	33.8	6.8
1997 ^a	2,943	601	20.4	3,173	7,952	39.9	8.2

^a 1997 survey data from Blau et al. (1998) and the corrected 'Aleu97' database as of December 31, 2001.

Table 10. Catches of male and female grooved Tanner crabs *Chionoecetes tanneri*, triangle Tanner crabs *C. angulatus*, and scarlet king crabs *Lithodes couesi* from the 2000 Aleutian Islands golden king crab survey.

Station	Depth (fm)	Grooved Tanner Crabs				Triangle Tanner Crabs				Scarlet King Crabs			
		Male		Female		Male		Female		Male		Female	
		Legal	Sublegal	Mature	Immature	Legal	Sublegal	Mature	Immature	Legal	Sublegal	Mature	Immature
1	423	1	5	2	0	0	7	0	0	37	24	97	8
12	385	0	0	0	0	0	0	0	0	0	0	5	0
14	352	0	14	2	2	0	0	0	0	0	1	2	0
91	291	0	1	0	0	0	0	0	0	0	0	0	0
144	356	0	0	0	0	0	0	0	0	4	2	2	0
145	267	0	0	0	0	0	0	0	0	3	0	0	0
159	234	0	0	0	0	0	0	0	0	2	0	1	0
	Total	1	20	4	2	0	7	0	0	46	27	107	8

Table 11. Species composition from pot catches in the 2000 Aleutian Islands golden king crab survey.

Scientific Name	Common Name	Number
<i>Lithodes aequispinus</i>	golden king crab	32899
<i>Gadus macrocephalus</i>	Pacific cod	503
<i>Anoplopoma fimbria</i>	sablefish	341
<i>Hippoglossus stenolepis</i>	Pacific halibut	244
<i>Lithodes couesi</i>	scarlet king crab	188
<i>Rheinhardtius hippoglossoides</i>	Greenland turbot	162
Porifera	sponge unidentified	115
Echinoidea	sea urchin unidentified	76
<i>Hemilepidotus jordani</i>	yellow Irish lord	44
Scorpaenidae	rockfish unidentified	37
Gorgonacea	gorgon coral unidentified	35
<i>Fusitriton oregonensis</i>	hairy triton	35
<i>Neptunea amiantus</i>		34
<i>Hyas</i> sp.	lyre crab unidentified	32
Macrouridae	rattails unidentified	29
Cottidae	sculpin unidentified	29
<i>Arctomelon stearnsii</i>	Stearn's volute	28
<i>Chionoecetes tanneri</i>	grooved Tanner crab	27
<i>Neptunea</i> sp.	neptune unidentified	18
Rajidae	skate unidentified	18
Bryozoa	bryozoan unidentified	15
<i>Octopus dofleini</i>	giant octopus	14
<i>Sebastes aleutianus</i>	roughey rockfish	14
	snail unidentified	12
<i>Callogorgia</i> sp.	golden coral	11
Hydrozoa	hydrozoan unidentified	10
<i>Pleurogrammus monopterygius</i>	Atka mackerel	10
Paguridae	hermit crab unidentified	9
ophiuroid unidentified	Brittlestarfish unidentified	8
<i>Theragra chalcogramma</i>	Walleye pollock	8
Plueronectiformes sp.	flatfish unidentified	8
<i>Chionoecetes angulatus</i>	triangle Tanner crab	7
<i>Zaprora silenis</i>	prowfish	7
Gastropoda	gastropod unidentified	6
	crab unidentified	5
Asteroidea	starfish unidentified	5
<i>Henricia</i> sp.	blood star unidentified	5
<i>Gersimia</i> sp.	sea raspberry unidentified	4
<i>Neptunea pribiloffensis</i>	Pribilof whelk	4
<i>Atheresthes stomias</i>	arrowtooth flounder	4
<i>Gorgonocephalus caryi</i>	basket star	3
<i>Sebastes borealis</i>	northern rockfish	3
Zoarcidae	eelpout unidentified	3
	shrimp unidentified	2
Cyclopteridae	snailfish unidentified	2
<i>Lebbeus</i> sp.	lebbeid unidentified	1
<i>Sclerocrangon boreas</i>	tank shrimp	1
<i>Paragorgia arborea</i>	Kamchatka coral	1
<i>Primnoa willeyi</i>	red tree coral	1
<i>Sebastes alutus</i>	Pacific ocean perch	1
<i>Sebastes ruberrimus</i>	yelloweye rockfish	1
<i>Sebastolobus altivelis</i>	longspine thornyhead	1

Table 12. Ocean bottom temperatures at select stations fished during the 2000 Aleutian Islands golden king crab survey.

Station	No. of Readings	Date		Depth (fm)	Temperature (°C)		
		Set	Pulled		Average	Minimum	Maximum
38	53	17-Jul	20-Jul	86	4.1	3.7	4.4
23	60	20-Jul	22-Jul	88	4.4	4.0	4.5
160	53	2-Jul	4-Jul	139	4.5	4.0	4.7
10	47	23-Jul	24-Jul	142	4.4	4.0	4.6
116	84	12-Jul	16-Jul	148	4.2	3.9	4.7
116	94	8-Jul	12-Jul	153	4.2	3.8	4.5
11	49	25-Jul	27-Jul	155	4.3	4.1	4.6
141	48	4-Jul	6-Jul	155	4.0	3.6	4.4
95	99	8-Jul	12-Jul	160	4.3	4.0	4.7
161	50	2-Jul	4-Jul	181	4.3	3.8	4.6
118	102	6-Jul	8-Jul	205	3.7	3.3	4.3
9	52	22-Jul	24-Jul	237	4.2	3.8	4.5
54	84	29-Jul	2-Aug	257	3.9	3.5	4.5
69	88	29-Jul	2-Aug	260	4.1	3.9	4.5
58	60	13-Jul	15-Jul	269	3.3	2.7	4.2
42	49	15-Jul	17-Jul	271	3.4	2.6	4.1
139	91	4-Jul	8-Jul	341	3.3	2.5	4.5
41	80	18-Jul	21-Jul	378	2.9	2.6	3.4
1	59	25-Jul	27-Jul	394	3.2	2.9	4.0
26	52	16-Jul	18-Jul	420	2.9	2.3	4.0

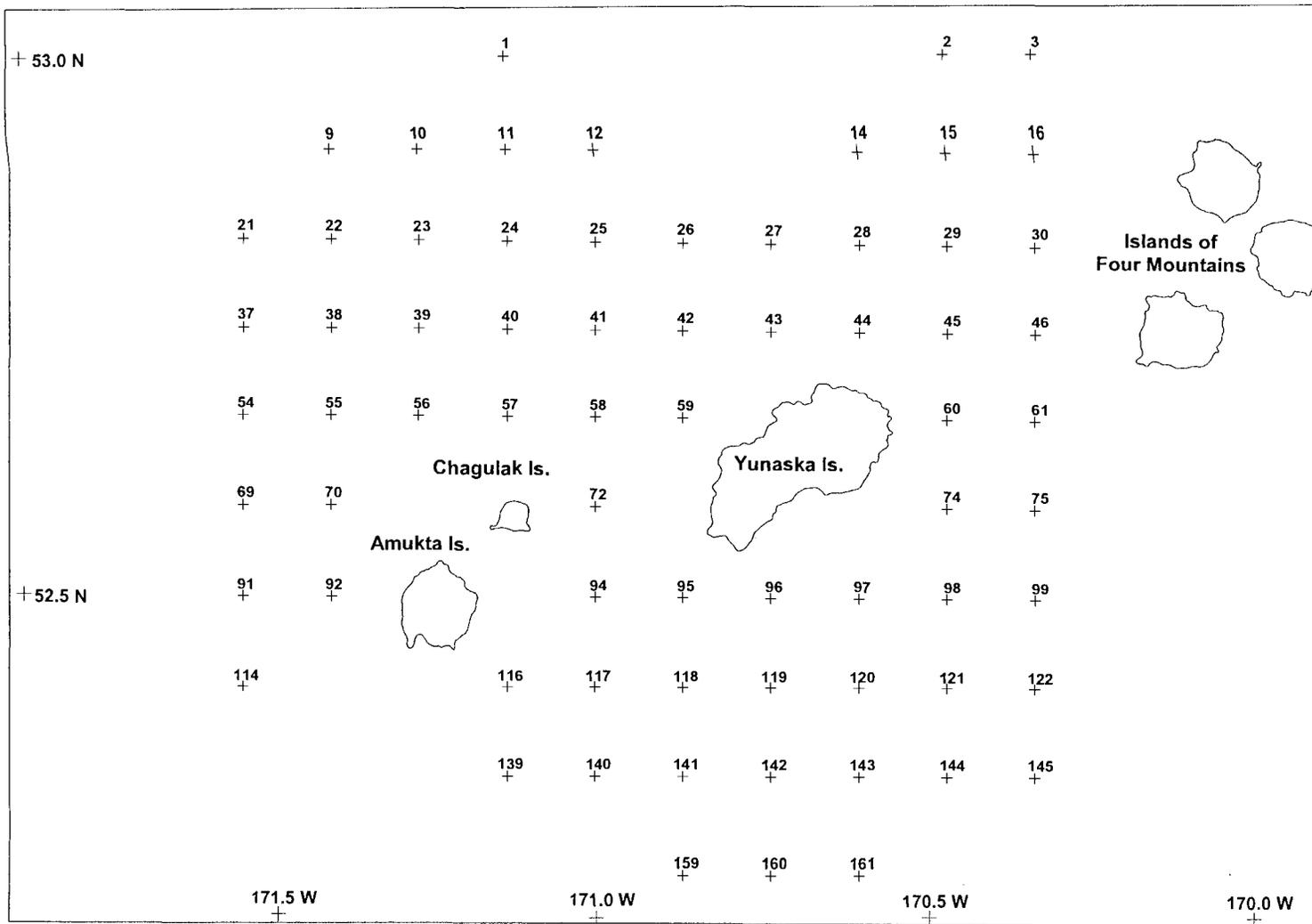


Figure 1. Mid-point locations of the 69 stations fished during the 2000 Aleutian Islands golden king crab survey.

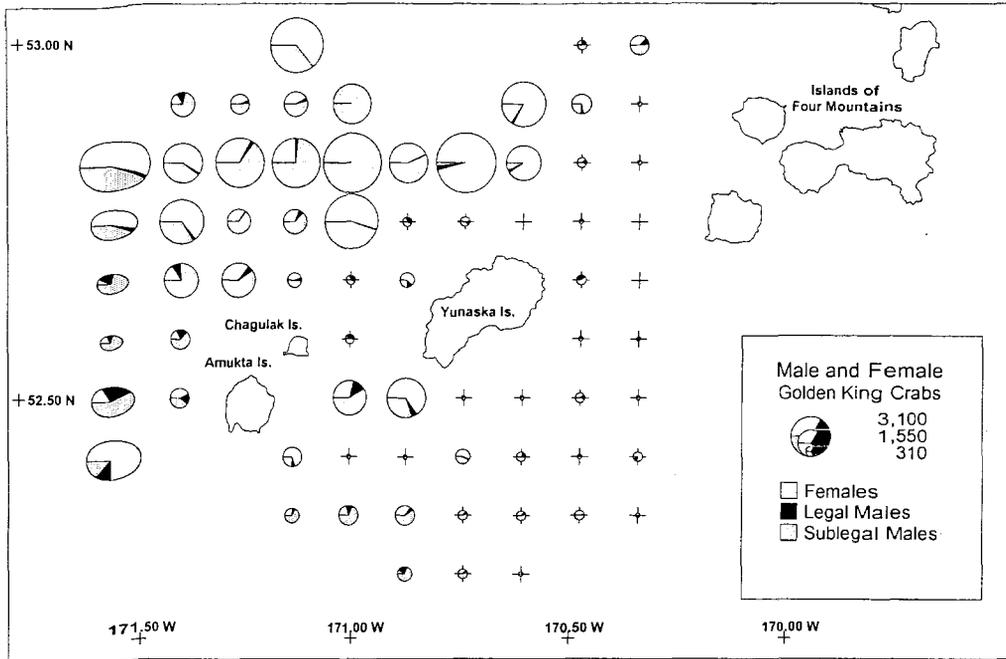


Figure 2. Male and female golden king crab catches by station on the 2000 Aleutian Islands golden king crab survey.

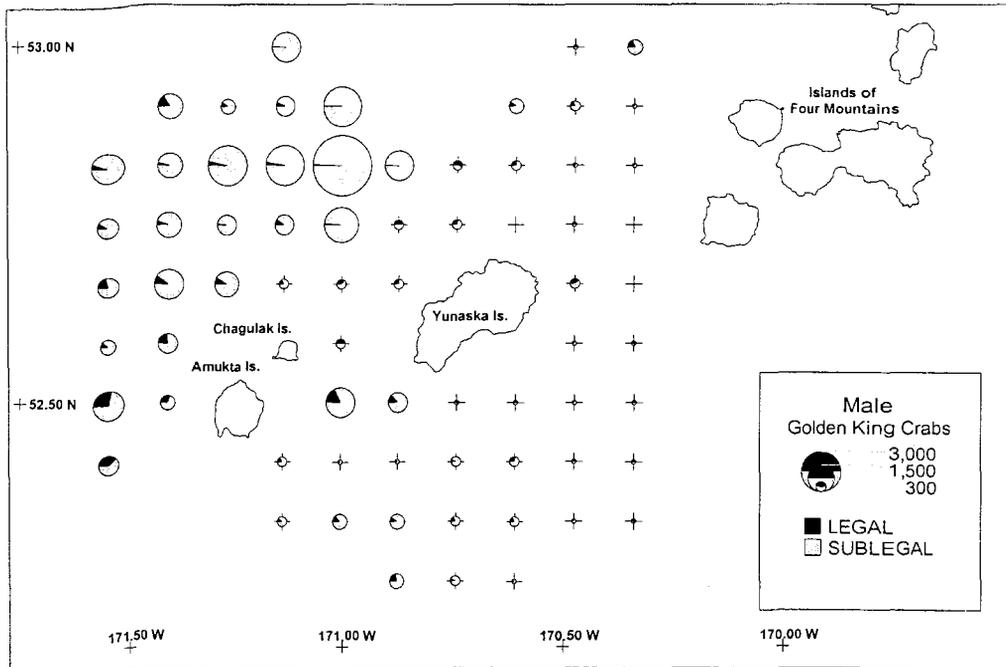


Figure 3. Legal and sublegal male golden king crab catches by station on the 2000 Aleutian Islands golden king crab survey.

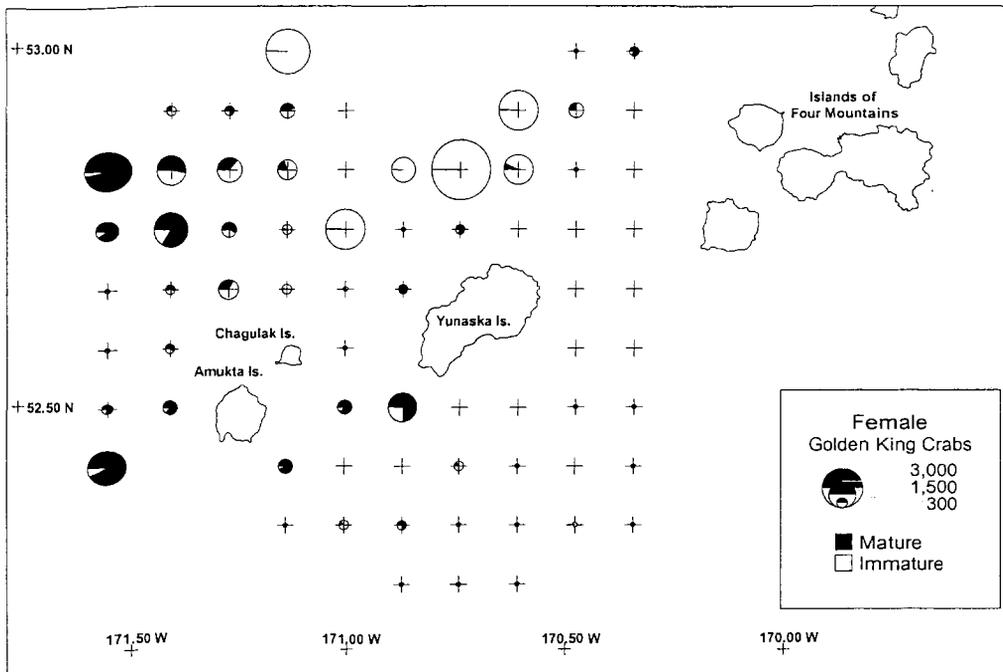


Figure 4. Mature and immature female golden king crab catches by station on the 2000 Aleutian Islands golden king crab survey.

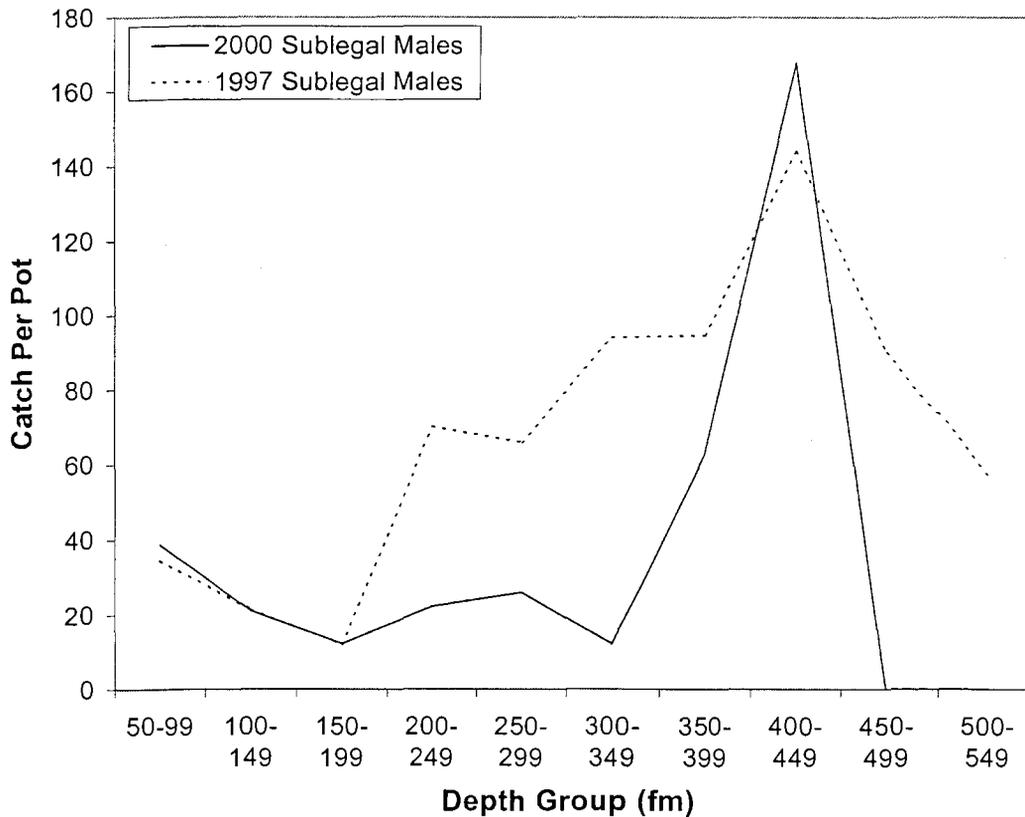
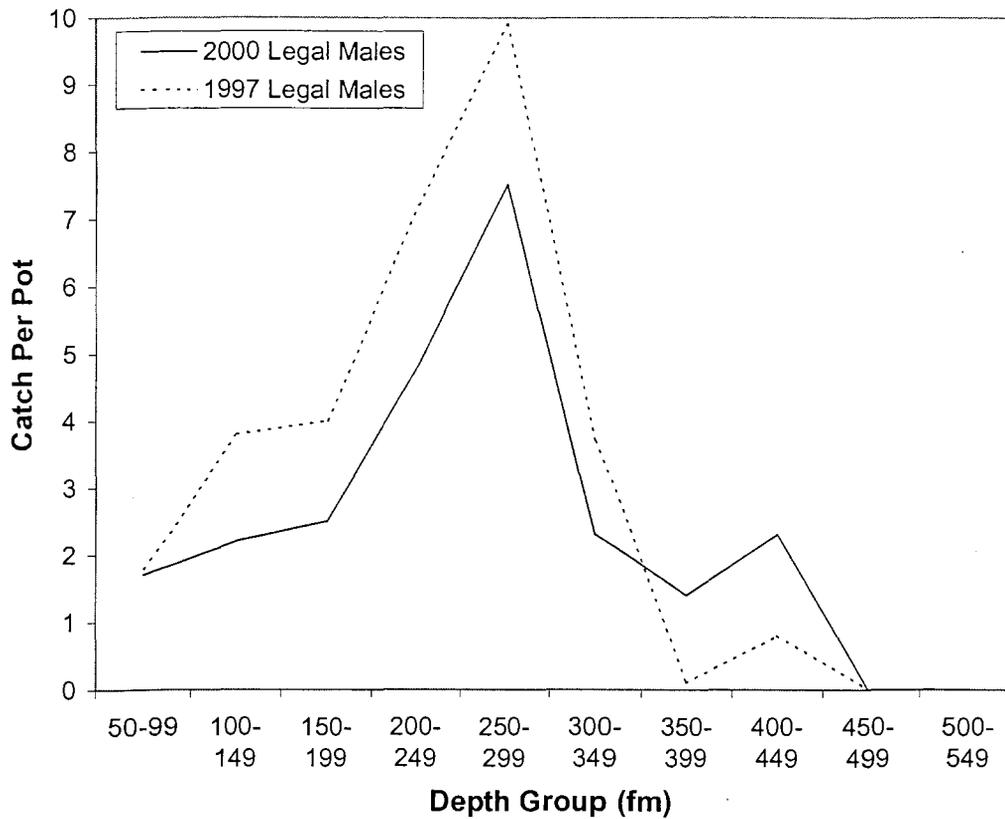


Figure 5. Legal male (top) and sublegal male (bottom) golden king crab catch per unit effort (CPUE) by 50-fathom depth groupings in the 2000 Aleutian Islands survey as compared to the 1997 survey.

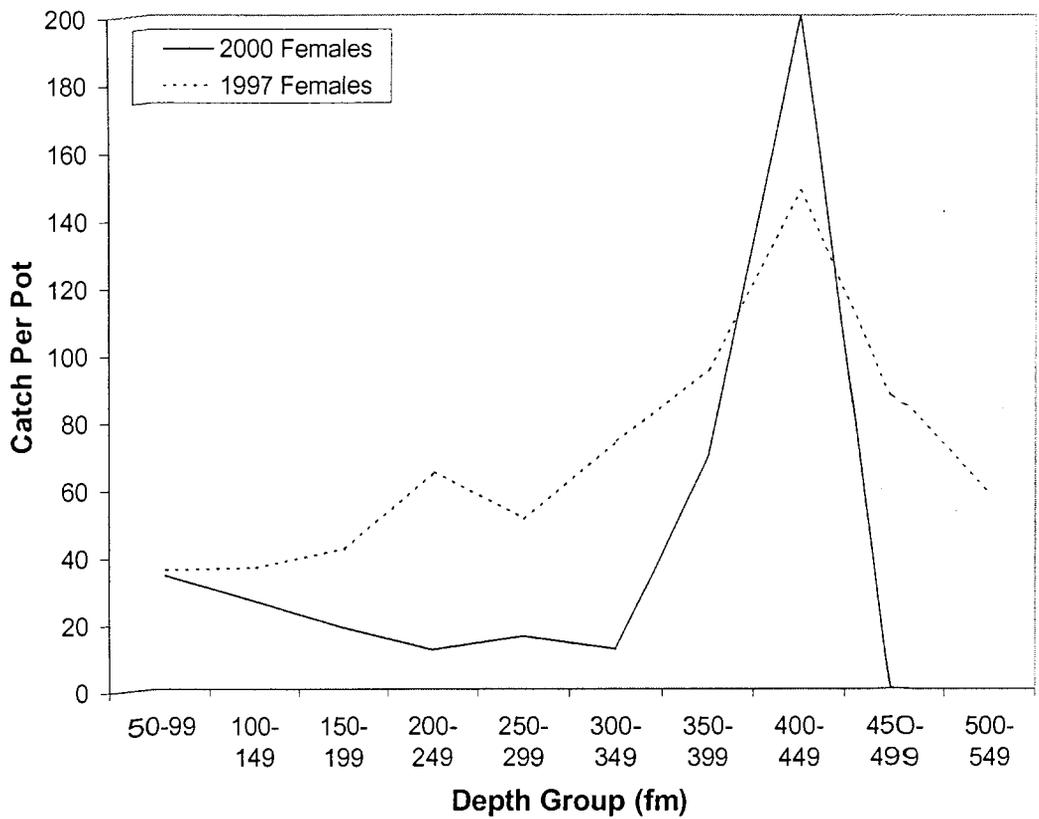


Figure 6. Female bottom golden king crab catch per unit effort (CPUE) by 50-fathom depth groupings in the 2000 Aleutian Islands survey as compared to the 1997 survey.

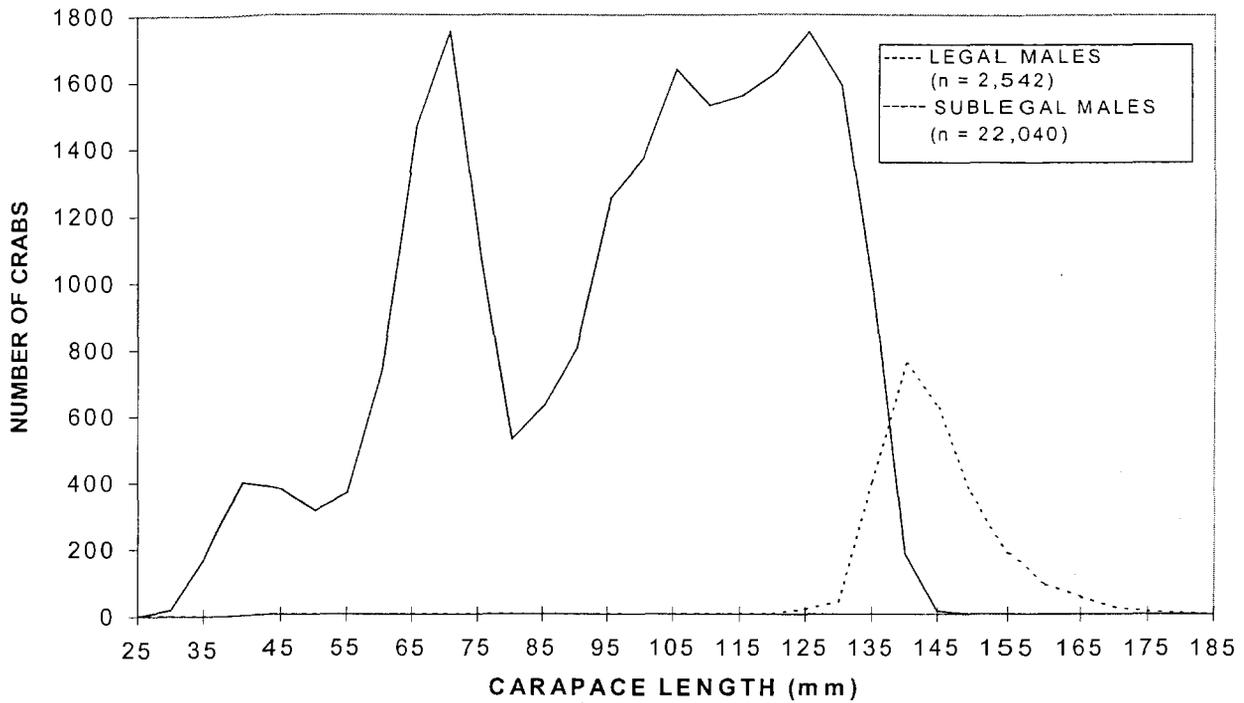


Figure 7. Length distribution of legal and sublegal male golden king crabs from the 2000 Aleutian Islands survey.

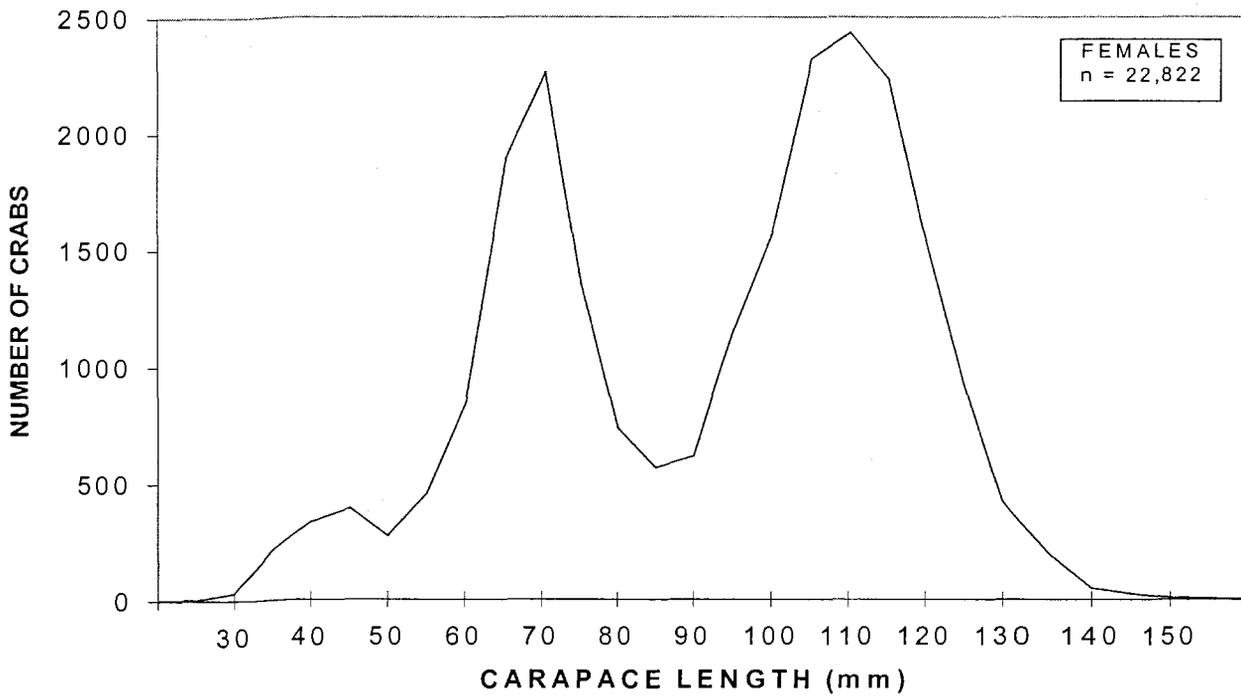


Figure 8. Length distribution of female golden king crabs from the 2000 Aleutian Islands survey.

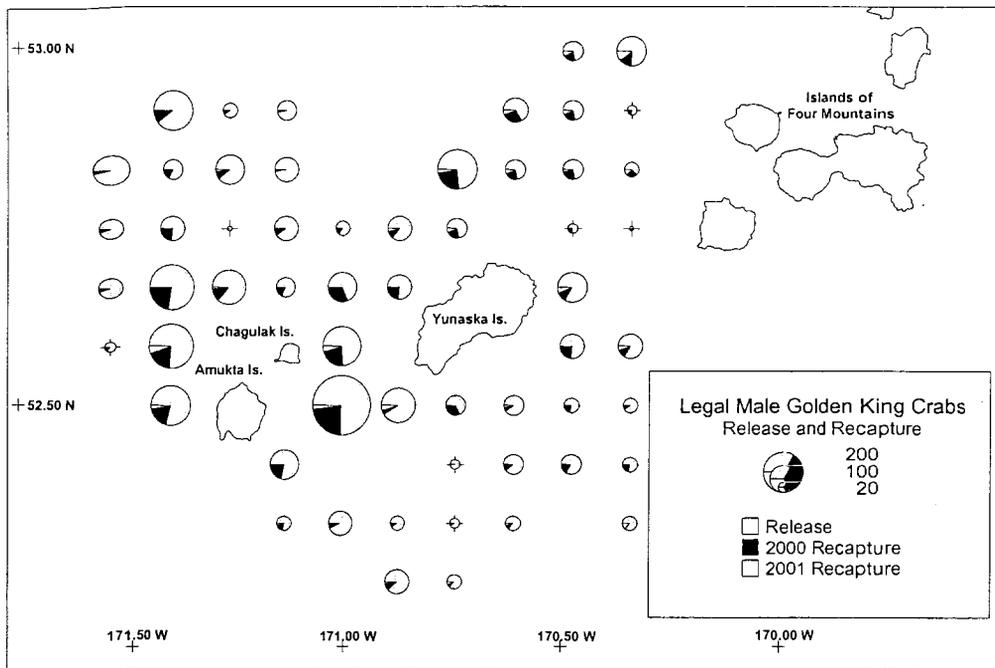


Figure 9. Tagged legal male golden king crab releases from the 2000 Aleutian Islands survey and recaptures from the 2000-2001 and 2001-2002 Aleutian Islands commercial fisheries.

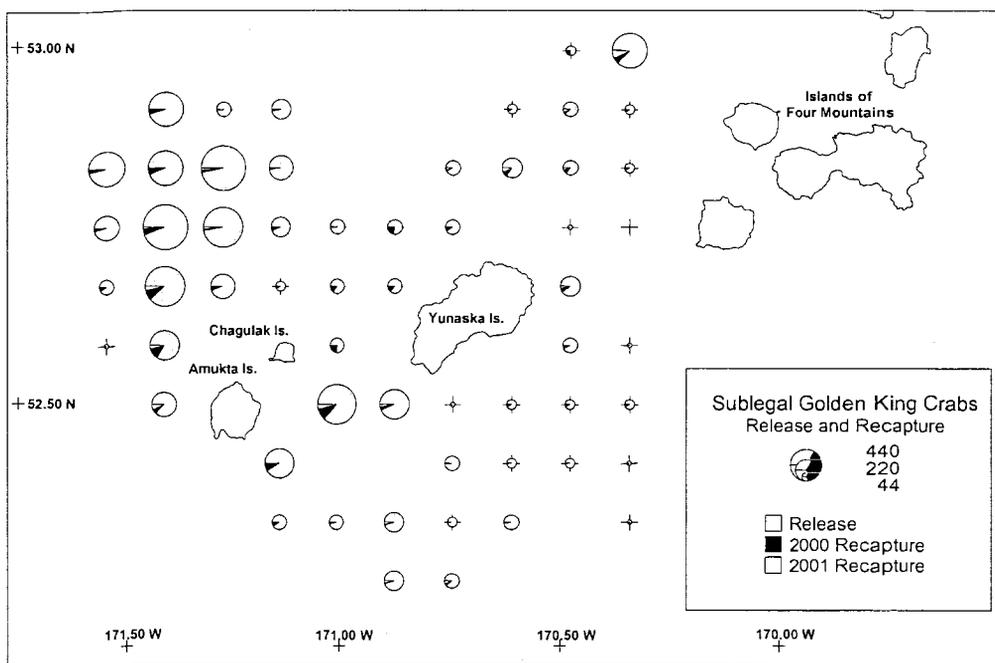


Figure 10. Tagged sublegal male golden king crab releases from the 2000 Aleutian Islands survey and recaptures from the 2000-2001 and 2001-2002 Aleutian Islands commercial fisheries.

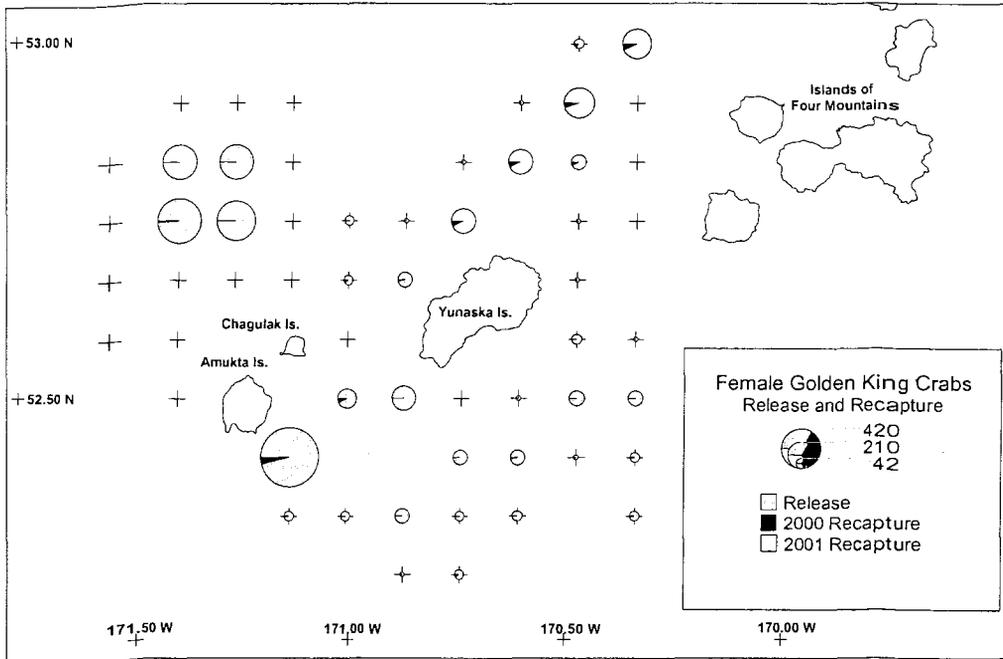


Figure 11. Tagged female golden king crab releases from the 2000 Aleutian Islands survey and recaptures from the 2000-2001 and 2001-2002 Aleutian Islands commercial fisheries.

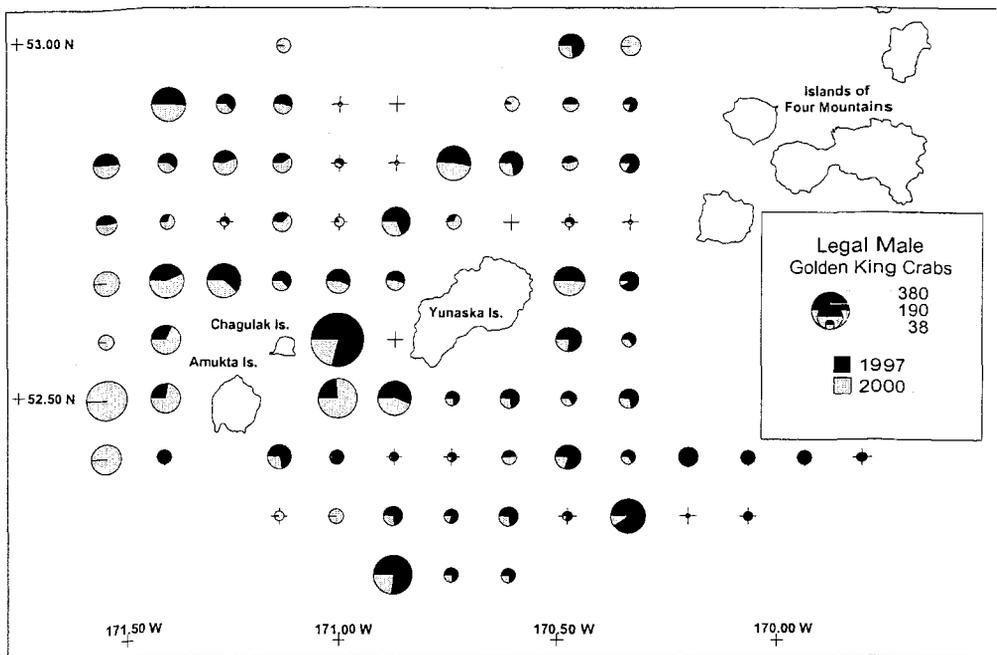


Figure 12. Legal male golden king crab catches from the 2000 Aleutian Islands survey as compared to the 1997 survey.

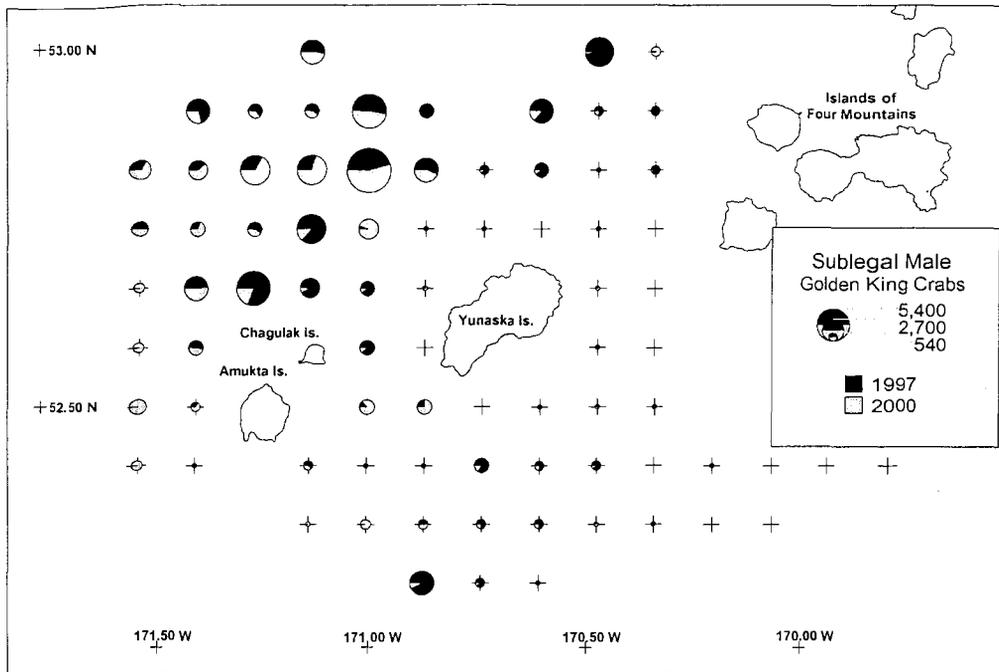


Figure 13. Sublegal male golden king crab catches from the 2000 Aleutian Islands survey as compared to the 1997 survey.

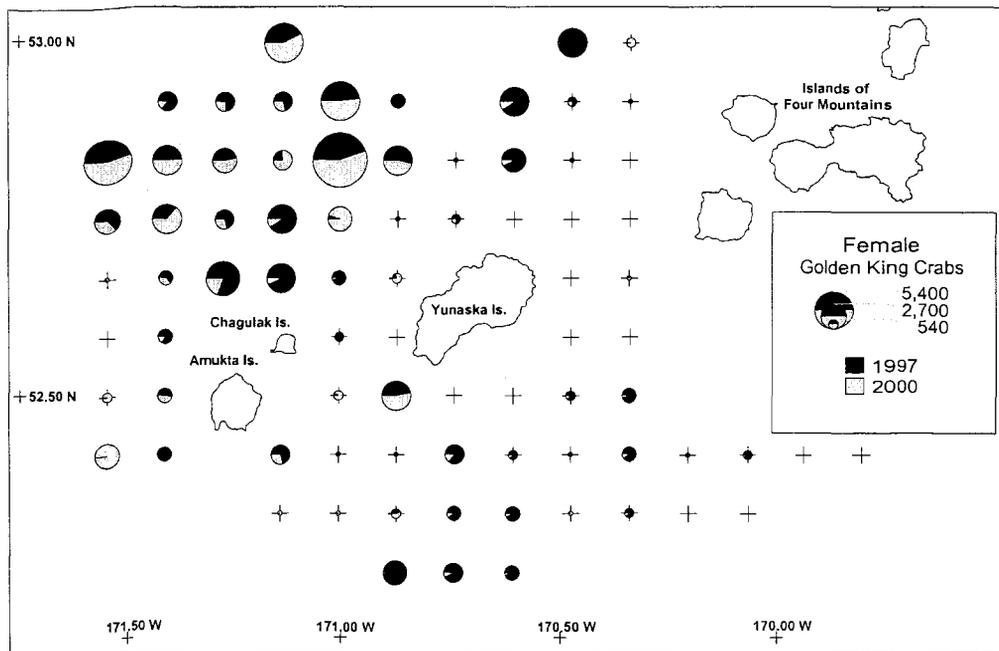


Figure 14. Female golden king crab catches from the 2000 Aleutian Islands survey as compared to the 1997 survey.

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