

Norton Sound Summer Commercial Red King Crab Fishery
Observer Project Summary Report, 1994

By

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INTRODUCTION

The Norton Sound Section of the Northern Bering Sea District consists of all waters in statistical area Q that are north of the latitude of Cape Romanzof, east of 168 west longitude, and south of the latitude of Cape Prince of Wales (Figures 1 and 2). A large vessel summer commercial red king crab (Paralithodes camtschatica) fishery existed in the Norton Sound Section from 1977 through 1992 (Appendix Table 2). No summer commercial fishery occurred in 1991 due to a lack of staff to properly manage the fishery. The budget had been cut the previous winter. In 1992 the summer commercial fishery resumed. Regulation changes adopted during the March 1993 Board of Fisheries meeting changed the character of the fishing fleet to that of a small boat fleet. A superexclusive designation went into effect for the Norton Sound commercial crab fishery June 27, 1994. A vessel registered for the Norton Sound crab fishery may not be used to take king crab in any other registration area during that registration year.

The National Marine Fisheries Service conducted their triennial trawl survey to examine the abundance of Norton Sound red king crab in late August 1991 (Appendix Table 4). The results of that survey as compared to the 6 previous trawl surveys show a gradual trend of increasing abundance since the low recorded in 1982. The most recent survey found 3.4 million pounds of legal king crab in the commercial fishing district in 1991. The 1991 trawl survey fished a reduced number of stations, reducing the confidence levels of the population estimate. To compensate for the wider confidence level, the harvestable surplus was calculated using only that portion of the population in the open fishing district. The quota for the Norton Sound Section for the 1994 season was therefore set at 340,000 pounds, representing an exploitation rate of approximately 10%.

The 1994 summer commercial red king crab fishery opened at 12 noon, July 1 in the Norton Sound Section. An emergency order relaxed the closure line northward to 64°20' north latitude and eastward to 161°30' west longitude effective 12:00 noon July 1. This action was intended to compensate for the location of the biomass with the earlier opening date now in effect. An emergency order relaxed the closure line eastward to 161°15' west longitude effective 6:00 a.m. July 9. This action was made at the request of fishermen in eastern Norton Sound who wished to try new fishing grounds. The fishery was closed by emergency order at 6:00 p.m., July 31, 1994 when it was anticipated that the quota of 340,000 pounds would be harvested. The closure announcement was made on July 28 to provide a 72 hour notice.

A total of 85 small catcher vessels were registered for the summer commercial crab season with 43 vessels actually making deliveries. There were two land based processors that took part in the fishery, as well as three buyers who flew crab out of Nome. Eleven fishermen registered as catcher sellers. There was no floating crab processors or catcher processors operating in Norton Sound during the 1994 summer fishery, therefore no independent observer was placed on board commercial vessels. The salmon sampling crew at Unalakleet was prepared to sample catches delivered there. However no catches were delivered to eastern Norton Sound ports. One ADF&G employee was stationed in Nome to act as onboard observer and sampler on small catcher vessels as well as sample legal crab on vessels that delivered to buyers in Nome. This was the only means of collecting

essential biological and management data. This data is necessary in determining the magnitude and location of the commercial harvest and the status of the stock. The observer also provides the only effective means to enforce size and sex restriction regulations that protect the resource. Catcher vessels are not required to have observers onboard, but may choose to allow an ADF&G observer onboard to collect data essential to the management of the fishery.

Objectives and Tasks

The specific objectives and tasks of the ADF&G observer are to:

1. Report the number of pots pulled and number of legal crab harvested for each statistical area fished by the vessel on which the observer is placed and by any vessel sampled for legal catch at delivery stations.
2. Obtain and record on a daily basis (when on board catcher vessel) 100 length frequency samples of harvested legal male red king crab (carapace width \geq 4-3/4 inches), 100 length frequency samples of incidentally caught sublegal male red king crab, and at least 20 length frequency samples of incidentally caught female red king crab.
3. Determine the carapace age of sampled crab.
4. Determine the percentage of recruits in the commercial harvest sampled.
5. Determine the degree of ovigerity of sampled female crab.
6. Determine the percentage of illegal commercial harvest by sampling a minimum of 600 crab per delivery for legal size and sex.
7. Develop a relative abundance index for legal male, sublegal male and female king crab by recording the catch of as many pot lifts as is required to obtain a sample size of 300 or more crab per day.
8. Document bycatch species by number if possible (optional).

METHODS

The methods used during the 1994 commercial crab season for catch reporting, sampling crab, skipper interviews, and collecting information from tagged crab are presented in the ADF&G Shellfish Observer Field Manual. The identity of vessels from which observer data was collected have been omitted from this report to maintain confidentiality.

The quality and quantity of data collected during the 1994 summer crab fishery differed greatly from previous years due to the nature of the small boat fishery. No floating processor or catcher processor took part in the fishery, therefore no independent observers were onboard commercial vessels. One ADF&G observer was placed on board small catcher vessels only 4 times during the month long fishery due to time constraints and weather. The amount of legal crab sampled when deliveries were made to buyers were far less than previous years due to logistics and the fact that there was only one port sampler for 34 boats.

RESULTS

Harvest Summary

Catch reporting logs were kept by buyers and by skippers of catcher vessels for each statistical area fished. Buyers verbal reports were relayed daily at 8:30 a.m. to the ADF&G office in Nome. Vessel reports were required every Monday for the duration of the fishery. Compliance with daily verbal reports varied from buyer to buyer and were considered good for the most part. Daily catch statistics can be found in Table 1 and Figure 3.

Fish ticket reports document that 9 statistical areas were fished (Table 2). Forty-three percent of all pot lifts occurred in area 656402, 30% in area 646402, 11% in area 646401, 10% in area 656401, and 3% in area 636401. Less than 2% of all pot lifts occurred in areas 616331, 636402, 666401, and 666402. Area 646402 accounted for 44% of the total harvest, area 656402 for 32%, area 646401 for 11% and area 656401 for 9%. Areas 616331, 636402, 666401, and 666402 each accounted for less than 1% of the total harvest.

Total pots pulled from individual statistical areas were: 5,050 pots in area 656402, 3,576 pots in area 646402, 1,287 pots in area 646401, 1,214 pots in area 656401, 380 pots in area 636401, 84 pots in area 666402, 76 pots in area 636402, 40 pots in area 666401, and 22 pots in area 616331 (Table 2). A total of 11,729 pots were pulled during the 1994 summer commercial crab season.

Total harvest for individual statistical areas were: 47,730 crab in area 646402; 34,749 crab in area 656402; 12,511 crab in area 646401; 9,806 crab in area 656401; 2,849 crab in area 636401; 658 crab in area 636402; 413 crab in area 666402; 98 crab in area 666401; and 10 crab in area 616331. Although area 616401 had no reported harvest, pots were probably set and retrieved, but no report was made due to small catches. The total commercial catch was 108,824 crab. A total of 327,858 pounds were harvested.

Statistical area 646402 had the greatest CPUE with 13.3 crab/pot (Table 2). The CPUE for area 646401 was 9.7 crab/pot, 8.7 crab/pot in area 636402, 8.1 crab/pot in area 656401, 7.5 crab/pot in area 636401, 6.9 crab/pot in area 656402, 4.9 crab/pot in area 666402, 2.5 crab/pot in area 666401, and 0.5 crab/pot in area 616331. The overall CPUE for the 1994 summer commercial season was 9.3 crab/pot.

Average weights of crab from individual statistical areas were: 4.80 lbs./crab in area 616331, 4.04 lbs./crab in area 666401, 3.05 lbs./crab in area 656402, 3.02 lbs./crab in area 656401, 3.01 lbs./crab in area 646402, 2.98 lbs./crab in area 646401, 2.96 lbs./crab in area 666402, 2.84 lbs./crab in area 636401, and 2.67 lbs./crab in area 636402 (Table 2). The average weight for the 1994 commercial season was 3.01 lbs./crab.

Legal Male King Crab

Carapace length, and age were collected from 404 legal male red king crab in two statistical areas throughout the duration of the 1994 summer fishery. Carapace age was classified as new (11 months old) or old (at least 23 months old) (Table 3, Figure 4).

Overall mean carapace length of the legal male red king crab sampled was 118.8 mm (Table 3). The mean carapace length of sampled legal male crab for individual statistical areas were: 118.3 mm in area 656402, 118.9 mm in area 646402, (Tables 4, 5).

Male crab with new shell carapaces made up 29% of the total legal male king crab sampled, while old shell crab made up 71% of the sample (Table 3, Figure 4). New shell crab made up 38% of crab sampled in area 656402, and 26% of crab sampled in area 646402 (Tables 4 and 5).

Recruit red king crab are defined as new shell, legal male king crab with a carapace length less than or equal to 115 mm. Recruit crab made up 14% of all legal male crab sampled (Table 3). Post recruit crab made up 86% of the legal male crab sampled. The overall observed catch of legal crab was 7.7 crab/pot (Table 14).

Sublegal (prerecruit) Male King Crab

Carapace length measurement and shell age were collected from 879 sublegal male red king crab (Table 6, Figure 5). Data was collected from three statistical areas.

The overall mean carapace length of the sublegal crab sampled was 88.5 mm (Table 6). Mean length for area 646402 was 86.2 mm, area 656401 was 92.5 mm, and area 656402 was 91.2 mm (Tables 7, 8, 9).

New shell crab made up 41% of the sublegal crab sampled and old shell crab made up 59% (Table 6). The sample from area 646402 was made up of 44% new shell crab, area 656401 was made up of 43% new shell crab, and area 656402 was made up of 29% new shell crab (Table 7, 8, 9). The overall observed catch of sublegal male crab was 4.3 crab/pot (Table 14).

Female King Crab

Carapace length measurement and percent ovigerity was collected from a total of 131 female red king crab during the commercial fishery (Table 10, Figure 6). Data was collected from two statistical areas. Mature female king crab made up 86% of all females sampled and immature female crab made up 14% of the sample. Ninety-nine percent of the mature female crab sampled were considered to have a high degree of ovigerity ($\geq 60\%$ full clutch).

The mean carapace length of mature female crab was 82 mm, and the mean carapace length for juvenile female crab was 68.8 mm (Table 10). In statistical area 646402, 122 female crab were sampled. Mean carapace length was 68.4 mm for juvenile crab and 81.6 mm for mature crab. In area 656401, 9 female crab were sampled. Mean carapace length for juvenile crab was 72 mm, and mean carapace length for mature crab was 87.6 mm (Table 11, 12). The overall observed catch of female crab 0.7 crab/pot (Table 14).

Bycatch

No bycatch information was collected during the 1994 commercial fishery.

Tags

Ten crab were found with tags during the 1994 commercial fishery (Table 13). Three of the recovered tags were returned without statistical area of capture information. One tag was returned without the exact date of capture known. Original date of tagging and carapace length are compared to carapace length of recovered crab in Table 13. The average growth per molt for recovered crab during the 1994 fishery was 11 mm.

DISCUSSION

Harvest Summary

A total of 34 catcher vessels took part in the 1994 summer commercial red king crab fishery in the Norton Sound Section. The total number of crab caught was 108,824, and the total number of pots pulled was 11,729. Total harvest was 327,858 pounds of king crab, of which 986 pounds of crab were reported as deadloss. The harvest goal was 340,000 pounds.

Fish ticket records show that this seasons largest fishing effort occurred in statistical area 656402, and the greatest catch occurred in statistical area 646402 (Table 2). Prior to the 1993 commercial season, these areas had remained closed to fishing for a number of years due to the fact they lie within closed waters (Figure 2). The closed line was relaxed to allow an efficient harvest of crab. During the 1993 summer commercial fishery the greatest fishing effort and number of pot pulls occurred in area 656402 (Brennan, 1993). In the 1992 summer

commercial fishery, area 656401 accounted for 47% of all pot pulls and 73% of the total harvest (Brennan, 1992). In the 1990 summer commercial fishery area 666401 accounted for 88% of all pot pulls and 91% of the total harvest (Gebhard, 1990). Comparisons of the annual summer commercial harvest of crab by statistical area can be found in Appendix Table 1.

The ADF&G observer was able to monitor pot lifts in 3 statistical areas. Legal male crab made up 76% of the observed catch in area 656402, 59% of the observed catch in area 646402, and 58% of the catch in area 656401 (Table 14).

Based on fish ticket data, statistical area 646402 had the greatest CPUE of 13.3 crab/pot (Table 2). Overall CPUE for the 1994 season was 9.3 crab/pot. Appendix Table 6 compares previous commercial crab harvest, effort and CPUE to the 1994 season. During the 1994 fishery, there were approximately 1,360 pots on the fishing grounds. Therefore, the CPUE in years with a similar number of pots deployed on the grounds are compared to the overall CPUE in 1994: 19 crab/pot in 1990; 10 crab/pot in 1987; 11 crab/pot in 1985; and 14 crab/pot in 1984.

Statistical area 616331 had the greatest average weight per crab of 4.8 pounds, according to fish ticket data (Table 2). Overall average weight for the 1994 season was 3.0 pounds. This compares to an average weight of 2.9 pounds in the 1993 season (Brennan, 1993), 3.0 pounds in the 1992 season (Brennan, 1992), 3.9 pounds in 1990 (Gebhard, 1990), 3.1 pounds in 1989 (Gebhard and Lean, 1989), and 3.2 pounds in 1988 (Gebhard and Lean, 1988).

Legal Male King Crab

The overall mean carapace length of sampled legal male king crab during the 1994 season was 118.8 mm (Table 3). The sample size was 404 crab, much smaller than previous years. Carapace size seems similar to data from previous years. Mean carapace length was 119.1 mm in 1993 (Brennan, 1993), 119.7 mm in 1992 (Brennan, 1992), 121.1 mm in 1990 (Gebhard, 1990), 119.8 mm in 1989 (Gebhard and Lean, 1989), and 119.0 mm in 1988 (Gebhard and Lean, 1988).

The 1994 season legal male new shell/old shell ratio was 29% new shell to 71% old shell (Table 3). This ratio is very different from the trend seen in previous years. In 1993, the legal male new shell/old shell ratio was 90% new shell and 10% old shell. The 1992 legal male new shell/old shell ratio was 71% new shell and 29% old shell (Brennan, 1992). Legal male new shell/old shell ratio in 1990 was 83% new shell and 17% old shell (Gebhard, 1990). In 1989 this ratio was 71% new shell and 29% old shell (Gebhard and Lean, 1989).

Recruit king crab made up 14% of the harvested stock sampled during the 1994 commercial season (Table 3). Total post recruits made up 86% of the harvested stock sampled. The 1994 commercial crab fishery data showed the lowest level of recruitment since 1983 and roughly 39% of the 1983 - 1993 recruit average (Appendix Table 3). The small sample size of legal male crab may have resulted in a poor representation of recruitment.

Legal male crab composed 61% of the catch from observed pot lifts during the 1994 season (Table 14). This compares to 70% in 1992, 78% in 1990, 68% in 1989, and 81% in 1988 (Appendix Table 5). Overall catch observed legal crab during the 1994 fishery was 7.7 crab/pot. This compares to 1.9 observed legal crab/pot in 1992, 13.6 crab/pot in 1990, 13.7 crab/pot in 1989, and 35.4 crab/pot in 1988.

Sublegal (prerecruit) Male King Crab

The overall mean length of the sampled sublegal male king crab was 88.5 mm. The sample size for sublegal male king crab was 879 crab (Table 6). This is similar to mean lengths in previous years: 87.4 mm in 1992; 87.1 mm in 1990; and 88.4 mm in 1989. The mean length for the 1993 commercial fishery was 97.3 mm. The 1993 sublegal sample size was only 29 crab, therefore no comparison to previous commercial seasons should be made.

New shell crab made up 41% of the total sublegal sample (Table 6). This is a change in the observed trend seen in previous summer fisheries. Past data indicated 91% new shell crab in 1992, 88% in 1990, 75% in 1989, and 82% in 1989.

Sublegal male crab composed 34% of the catch from observed pot lifts (Table 14). This is an increase from past commercial fisheries. In 1992, sublegal male crab made up 23% of the observed catch, 21% in 1990, 15% in 1989, and 17% in 1988 (Appendix Table 5). Overall catch of sublegal male crab during observed pot lifts was 4.3 sublegal crab/pot. This compares to 0.6 sublegal crab/pot observed in 1992, 3.7 crab/pot in 1990, 3.1 crab/pot in 1989, and 7.4 crab/pot in 1988. This increase in the percent of sublegals in observed catches may indicate a decline in the legal crab population.

Female King Crab

The overall mean carapace length was 82.0 mm for mature female crab and 68.8 mm for juvenile female (Table 10). The sample size was 113 adult female crab and 18 juvenile female crab. This is similar to mean lengths in previous years for both mature and juvenile female crab. Mean carapace length for adult female crab was 93.5 mm in 1992, 81.2 mm in 1990, 80.1 mm in 1989, and 82.5 mm in 1988. Immature female carapace length was 66.8 mm in 1992, 65.9 mm in 1990, 68.1 mm in 1989, and 67.6 mm in 1988. No female king crab were sampled in 1993.

Ninety-nine percent of the mature female crab that were sampled were considered to have a high degree of ovigerity ($\geq 60\%$ full clutch). This is an increase from what has been observed in past years; 73% in 1992, 75% in 1990, 78% in 1989, and 89% in 1989.

Female crab composed 5% of the catch from observed pot lifts (Table 14). This compares to 7% in 1993, 1% in 1990, 16% in 1989, and 1% in 1988 (Appendix Table 14). Overall catch of female crab during observed pot lifts was 0.7 female crab/pot. In 1992 and 1990, observed female crab per pot lift was 0.2 crab/pot, 3.2 crab/pot in 1989, and 0.6 crab/pot in 1988.

COMMENTS ON SAMPLING EFFORTS

There has been a change in the character of the summer commercial fishery since 1993 due to regulation changes affecting pot limits, opening dates and a regulation making Norton Sound a superexclusive registration area. No large vessels participated in this years fishing - the catcher fleet was made up of 34 small vessels (less than 60 foot). Two shore-based processors operated in Nome throughout the duration of the fishery, and three other buyers flew crab out of Nome. Eleven fishermen were registered as catcher-sellers. For the first time a significant portion of the harvest was processed in Nome. All this contributed to some problems in the sampling effort.

There were no floating processors on the grounds during the 1994 season, therefore no independent observer was placed on board commercial vessels. One ADF&G observer was placed on board commercial vessels at various times throughout the fishery to collect information on observed pot lifts, sublegal male and female length frequencies, and catch rates of legal and sublegal crab. Information was collected from 879 sublegal male crab and 131 female crab. This was a great improvement from the 1993 fishery in which only 29 sublegal male crab and no female crab were sampled. This observer was also responsible for sampling the legal catch of 34 vessels delivering to buying stations in Nome. Only 404 crab were sampled for legal size and length frequency. This was due to time constraints and logistical problems. This sample size must be improved upon in upcoming years to ensure size limits are being enforced, and to assist management biologists in determining recruitment and health of the crab population.

As this change in the character of the fishery continues in years to come, it is important that sampling problems be addressed. Eighty-four vessels registered for the 1994 commercial crab season. Although most of the effort occurred in the Nome area this season, future summer fishing efforts may be spread throughout Norton Sound. This would lead to logistical problems in sampling. If the number of vessels participating in the crab fishery increases, the lone ADF&G sampler will have a heavier sampling load.

SUMMARY

The 1994 summer commercial king crab fishery harvested 327,858 pounds of crab. The allowable quota was 340,000 pounds of crab. This season's fishing effort was concentrated in statistical area 646402 and 656402. The greatest percent of legal crab was harvested in area 646402. This area was usually closed in prior years when the season opened August 1. The closure line was relaxed in 1994 to increase efficiency of the crab harvest since the summer migration had not progressed as far offshore on July 1. An effort to harvest crab in the vicinity of their villages was made by eastern Norton Sound residents. However, no reports were made due to small catches. Fishermen from eastern Norton Sound gave up or moved their effort to the Nome area.

A total of 108,824 crab were harvested and 11,729 pots were pulled. The overall CPUE for the season was 9.3 crab/pot. Overall average weight was 3.0 pounds. The overall mean carapace length of sampled legal male crab during the 1994 season was 118.8 mm. The legal male new shell/old shell ratio was 29% new shell to 71% old shell. Recruit king crab made up 14% of the harvested stock sampled and post recruits made up 86% of the harvested stock. This represents an decrease in recruitment from the past 6 summer commercial seasons. One possible explanation might be the smaller sample size may be a poor representation of recruitment. However, the sublegal crab examined also indicated an unusually high percentage of old shell crab. The number of sublegal male and female crab sampled was up from the 1993 season. Sublegal and legal crab data is important in determining the future health of the king crab stock in Norton Sound. Every effort should be made to ensure sufficient data is collected during the fishery.

During the 1994 fishery, 199 pot lifts were observed. The observed harvest was composed of 61% legal male crab, 34% sublegal male crab and 5% female crab. This represents a decrease of legal male composition and an increase in sublegal male composition from previous years. Eighty percent of the total pots observed in 1994 were in statistical area 646402 and 656402. This area had been closed to commercial fishing between 1985 and 1992 and is thought to be an area where smaller male crab and female crab are distributed. The closure line was relaxed during the 1993 and 1994 summer crab fishery to allow commercial fishing in a portion of previously closed areas. In 1993, 55% of the total number of pots pulled during the fishery were pulled in area 656402. During the 1994 fishery, approximately 74% of all pots pulled during the season were in area 646402 and 656402. It is important to continue to monitor the ratio of legal to sublegal crab in future fisheries when the closure line is relaxed. Adjustments to the closure line can be made to minimize the handling of sublegal crab and the associated mortality.

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Table 1. Daily catch (using fish ticket data) for the commercial king crab harvest, Norton Sound Section, Eastern Bering Sea, July 1 – 31, 1994

Date ^a	Permits	Landings	Number of Crab	Lbs of Crab Caught	Cumulative Total (lbs)	No. of Pots Pulled	Average Weight	CPUE
7/1/94	7	7	2,041	6,270	6,270	265	3.07	7.7
7/2/94	9	10	1,911	5,622	11,892	291	2.94	6.6
7/3/94	10	13	3,809	11,543	23,435	424	3.03	9.0
7/4/94	5	6	2,091	6,510	29,945	171	3.11	12.2
7/5/94	8	11	2,951	8,880	38,825	298	3.01	9.9
7/6/94	6	8	2,837	8,294	47,119	333	2.92	8.5
7/7/94	6	6	1,660	5,150	52,269	187	3.10	8.9
7/8/94	10	14	4,011	12,544	64,813	340	3.13	11.8
7/9/94	11	11	4,397	13,230	78,043	365	3.01	12.0
7/10/94	2	2	610	1,640	79,683	43	2.69	14.2
7/11/94	10	14	6,448	18,495	98,178	438	2.87	14.7
7/12/94	13	16	5,591	18,362	116,540	462	3.28	12.1
7/13/94	12	16	4,420	12,276	128,816	384	2.78	11.5
7/14/94	18	19	7,524	22,139	150,955	652	2.94	11.5
7/15/94	10	12	2,616	7,705	158,660	310	2.95	8.4
7/16/94	17	21	4,755	14,315	172,975	490	3.01	9.7
7/17/94	13	13	3,097	9,181	182,156	382	2.96	8.1
7/18/94	13	14	4,425	12,916	195,072	408	2.92	10.8
7/19/94	3	4	2,960	9,206	204,278	171	3.11	17.3
7/20/94	18	20	4,042	12,222	216,500	483	3.02	8.4
7/21/94	15	18	6,054	18,578	235,078	556	3.07	10.9
7/22/94	17	19	4,001	11,897	246,975	491	2.97	8.1
7/23/94 ^b					246,975			
7/24/94	17	18	4,887	14,241	261,216	524	2.91	9.3
7/25/94	15	18	2,429	7,415	268,631	460	3.05	5.3
7/26/94	19	20	5,369	15,747	284,378	543	2.93	9.9
7/27/94	18	19	4,522	14,584	298,962	525	3.23	8.6
7/28/94	14	18	2,769	8,553	307,515	522	3.09	5.3
7/29/94	19	19	3,734	11,199	318,714	582	3.00	6.4
7/30/94	17	19	2,812	8,986	327,700	589	3.20	4.8
7/31/94 ^c	2	2	51	158	327,858	40	3.10	1.3
Totals:	52	407	108,824	327,858 ^d		11,729	3.01	9.3

^a Fishery opened by regulation 12:00 noon July 1.

^b No deliveries due to storm.

^c Fishery closed 6:00 p.m. July 31, by emergency order.

^d A total of 986 pounds reported as deadloss.

Table 2. Red king crab summer commercial catch total (from fish ticket reports) by statistical area for Norton Sound Section, Eastern Bering Sea, July 1 – July 31, 1994.

Statistical Area	Number	Pounds	Pots Pulled	CPUE	Average Weight (Lbs.)	Percent of Pots Pulled in Stat. Area (%)	Percent Harvest in Stat. Area (%)
616331	10	48	22	0.5	4.80	0.2	0.0
636401	2,849	8,087	380	7.5	2.84	3.2	2.5
636402	658	1,754	76	8.7	2.67	0.6	0.5
646401	12,511	37,222	1,287	9.7	2.98	11.0	11.4
646402	47,730	143,511	3,576	13.3	3.01	30.5	43.8
656401	9,806	29,566	1,214	8.1	3.02	10.4	9.0
656402	34,749	106,053	5,050	6.9	3.05	43.1	32.3
666401	98	396	40	2.5	4.04	0.3	0.1
666402	413	1,221	84	4.9	2.96	0.7	0.4

Table 3. Carapace length measurement summary of sampled legal male red king crab captured during the commercial king crab harvest, Norton Sound Section, Eastern Bering Sea, July 1 - July 31, 1994

Carapace Length (mm)	New shell			Old shell			Total		
	No.	Ave Length Calc.	%	No.	Ave Length Calc.	%	No.	Ave Length Calc.	%
98	2	1.68	1.7%		0.00	0.0%	2	0.49	0.5%
99	1	0.85	0.9%		0.00	0.0%	1	0.25	0.2%
100	1	0.85	0.9%	1	0.35	0.3%	2	0.50	0.5%
101		0.00	0.0%	3	1.06	1.0%	3	0.75	0.7%
102		0.00	0.0%	2	0.71	0.7%	2	0.50	0.5%
103	6	5.28	5.1%	4	1.44	1.4%	10	2.55	2.5%
104		0.00	0.0%	6	2.17	2.1%	6	1.54	1.5%
105	3	2.69	2.6%	13	4.76	4.5%	16	4.16	4.0%
106	4	3.62	3.4%	6	2.22	2.1%	10	2.62	2.5%
107	4	3.66	3.4%	3	1.12	1.0%	7	1.85	1.7%
108	5	4.62	4.3%	9	3.39	3.1%	14	3.74	3.5%
109	5	4.66	4.3%	10	3.80	3.5%	15	4.05	3.7%
110	1	0.94	0.9%	3	1.15	1.0%	4	1.09	1.0%
111	6	5.69	5.1%	6	2.32	2.1%	12	3.30	3.0%
112	6	5.74	5.1%	14	5.46	4.9%	20	5.54	5.0%
113	4	3.66	3.4%	6	2.36	2.1%	10	2.80	2.5%
114	5	4.87	4.3%	11	4.37	3.8%	16	4.51	4.0%
115	3	2.95	2.6%	8	3.21	2.8%	11	3.13	2.7%
116	1	0.99	0.9%	5	2.02	1.7%	6	1.72	1.5%
117		0.00	0.0%	7	2.85	2.4%	7	2.03	1.7%
118	2	2.02	1.7%	11	4.52	3.8%	13	3.80	3.2%
119	8	8.14	6.8%	11	4.56	3.8%	19	5.60	4.7%
120	5	5.13	4.3%	13	5.44	4.5%	18	5.35	4.5%
121	3	3.10	2.6%	14	5.90	4.9%	17	5.09	4.2%
122	2	2.09	1.7%	13	5.53	4.5%	15	4.53	3.7%
123	4	4.21	3.4%	8	3.43	2.8%	12	3.65	3.0%
124	3	3.18	2.6%	8	3.46	2.8%	11	3.38	2.7%
125	4	4.27	3.4%	12	5.23	4.2%	16	4.95	4.0%
126	4	4.31	3.4%	8	3.51	2.8%	12	3.74	3.0%
127	4	4.34	3.4%	13	5.75	4.5%	17	5.34	4.2%
128	1	1.09	0.9%	3	1.34	1.0%	4	1.27	1.0%
129	5	5.51	4.3%	14	6.29	4.9%	19	6.07	4.7%
130	1	1.11	0.9%	5	2.26	1.7%	6	1.93	1.5%
131	4	4.48	3.4%	6	2.74	2.1%	10	3.24	2.5%
132	1	1.13	0.9%	7	3.22	2.4%	8	2.61	2.0%
133	1	1.14	0.9%	5	2.32	1.7%	6	1.98	1.5%
134	1	1.15	0.9%	3	1.40	1.0%	4	1.33	1.0%
135	5	5.77	4.3%	2	0.94	0.7%	7	2.34	1.7%
136		0.00	0.0%	1	0.47	0.3%	1	0.34	0.2%
137	1	1.17	0.9%	2	0.95	0.7%	3	1.02	0.7%
138		0.00	0.0%	2	0.96	0.7%	2	0.68	0.5%
139	1	1.19	0.9%	3	1.45	1.0%	4	1.38	1.0%
140		0.00	0.0%	1	0.49	0.3%	1	0.35	0.2%
141		0.00	0.0%	2	0.96	0.7%	2	0.70	0.5%
142		0.00	0.0%	2	0.99	0.7%	2	0.70	0.5%
143		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
144		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
145		0.00	0.0%	1	0.51	0.3%	1	0.36	0.2%
146		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
147		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
148		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
149		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
150		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
151		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
152		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
153		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
154		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
155		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
156		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
157		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
158		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
159		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
160		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
161		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
162		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
163		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
164		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
165		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
170		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
171		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
Total No.	117		29.0%	287		71.0%	404		100.0%
Mean		117.5			119.3			118.8	
Total legals			404						
Total Recruits			56						
Percent			13.9%						
Total Post Recruits			348						
Percent			86.1%						

Table 4. Carapace length measurement summary of sampled legal male red king crab captured in statistical area 6S6402 during the commercial king crab harvest, Norton Sound Section, Eastern Bering Sea, July 1 - July 31, 1994.

Carapace Length (mm)	New shell			Old shell			Total		
	No.	Ave Length	Calc. %	No.	Ave Length	Calc. %	No.	Ave Length	Calc. %
98	2	4.78	4.9%		0.00	0.0%	2	1.81	1.9%
99	1	2.41	2.4%		0.00	0.0%	1	0.92	0.9%
100	1	2.44	2.4%		0.00	0.0%	1	0.93	0.9%
101		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
102		0.00	0.0%	1	1.52	1.5%	1	0.94	0.9%
103	2	5.02	4.9%		0.00	0.0%	2	1.91	1.9%
104		0.00	0.0%	2	3.10	3.0%	2	1.93	1.9%
105	2	5.12	4.9%	5	7.84	7.5%	7	6.81	6.5%
106	2	5.17	4.9%	1	1.58	1.5%	3	2.94	2.8%
107	1	2.61	2.4%	1	1.60	1.5%	2	1.98	1.9%
108		0.00	0.0%	3	4.84	4.5%	3	3.00	2.8%
109	2	5.32	4.9%	1	1.63	1.5%	3	3.03	2.8%
110		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
111	2	5.41	4.9%	1	1.66	1.5%	3	3.08	2.8%
112		0.00	0.0%	2	3.34	3.0%	2	2.07	1.9%
113	2	5.51	4.9%	3	5.06	4.5%	5	5.23	4.6%
114	3	8.34	7.3%	4	6.81	6.0%	7	7.39	6.5%
115	2	5.61	4.9%	1	1.72	1.5%	3	3.19	2.8%
116		0.00	0.0%	1	1.73	1.5%	1	1.07	0.9%
117		0.00	0.0%	3	5.24	4.5%	3	3.25	2.8%
118	1	2.88	2.4%		0.00	0.0%	1	1.09	0.9%
119	2	5.80	4.9%	3	5.33	4.5%	5	5.51	4.6%
120		0.00	0.0%	1	1.79	1.5%	1	1.11	0.9%
121	1	2.95	2.4%	4	7.22	6.0%	5	5.60	4.6%
122		0.00	0.0%	1	1.82	1.5%	1	1.13	0.9%
123	1	3.00	2.4%	5	9.18	7.5%	6	6.83	5.6%
124	1	3.02	2.4%	1	1.85	1.5%	2	2.30	1.9%
125	1	3.05	2.4%	2	3.73	3.0%	3	3.47	2.8%
126	3	9.22	7.3%	2	3.76	3.0%	5	5.83	4.6%
127	1	3.10	2.4%	1	1.90	1.5%	2	2.35	1.9%
128		0.00	0.0%	2	3.82	3.0%	2	2.37	1.9%
129	4	12.59	9.8%	7	13.48	10.4%	11	13.14	10.2%
130	1	3.17	2.4%	2	3.88	3.0%	3	3.61	2.8%
131	1	3.20	2.4%		0.00	0.0%	1	1.21	0.9%
132	1	3.22	2.4%		0.00	0.0%	1	1.22	0.9%
133		0.00	0.0%	2	3.97	3.0%	2	2.46	1.9%
134		0.00	0.0%	2	4.00	3.0%	2	2.48	1.9%
135	1	3.29	2.4%		0.00	0.0%	1	1.25	0.9%
136		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
137		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
138		0.00	0.0%	1	2.06	1.5%	1	1.28	0.9%
139		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
140		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
141		0.00	0.0%	1	2.10	1.5%	1	1.31	0.9%
142		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
143		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
144		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
145		0.00	0.0%	1	2.16	1.5%	1	1.34	0.9%
146		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
147		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
148		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
149		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
150		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
151		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
152		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
153		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
154		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
155		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
156		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
157		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
158		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
159		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
160		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
161		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
162		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
163		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
164		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
165		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
Total No.	41		38.0%	67		62.0%	108		100.0%
Mean		116.2			119.7			118.3	
Total legals			108						
Total Recruits			22						
Percent			20.4%						
Total Post Recruits			86						
Percent			79.6%						

Table 5. Carapace length measurement summary of sampled legal male red king crab captured in statistical area 646402 during the commercial king crab harvest, Norton Sound Section, Eastern Bering Sea, July 1 - July 31, 1994.

Carapace Length (mm)	New shell			Old shell			Total		
	No.	Ave Length Calc.	%	No.	Ave Length Calc.	%	No.	Ave Length Calc.	%
98		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
99		0.00	0.0%		0.00	0.0%	0	0.00	0.0%
100		0.00	0.0%	1	0.45	0.5%	1	0.34	0.3%
101		0.00	0.0%	3	1.38	1.4%	3	1.02	1.0%
102		0.00	0.0%	1	0.46	0.5%	1	0.34	0.3%
103	4	5.42	5.3%	4	1.87	1.8%	8	2.78	2.7%
104		0.00	0.0%	4	1.89	1.8%	4	1.41	1.4%
105	1	1.38	1.3%	8	3.82	3.6%	9	3.19	3.0%
106	2	2.79	2.6%	5	2.41	2.3%	7	2.51	2.4%
107	3	4.22	3.9%	2	0.97	0.9%	5	1.81	1.7%
108	5	7.11	6.6%	6	2.95	2.7%	11	4.01	3.7%
109	3	4.30	3.9%	9	4.46	4.1%	12	4.42	4.1%
110	1	1.45	1.3%	3	1.50	1.4%	4	1.49	1.4%
111	4	5.84	5.3%	5	2.52	2.3%	9	3.38	3.0%
112	6	8.84	7.9%	12	6.11	5.5%	18	6.81	6.1%
113	2	2.97	2.6%	3	1.54	1.4%	5	1.91	1.7%
114	2	3.00	2.6%	7	3.63	3.2%	9	3.47	3.0%
115	1	1.51	1.3%	7	3.66	3.2%	8	3.11	2.7%
116	1	1.53	1.3%	4	2.11	1.8%	5	1.96	1.7%
117		0.00	0.0%	4	2.13	1.8%	4	1.58	1.4%
118	1	1.55	1.3%	11	5.90	5.0%	12	4.78	4.1%
119	6	9.39	7.9%	8	4.33	3.6%	14	5.63	4.7%
120	5	7.89	6.6%	12	6.55	5.5%	17	6.89	5.7%
121	2	3.18	2.6%	10	5.50	4.5%	12	4.91	4.1%
122	2	3.21	2.6%	12	6.65	5.5%	14	5.77	4.7%
123	3	4.86	3.9%	3	1.68	1.4%	6	2.49	2.0%
124	2	3.26	2.6%	7	3.95	3.2%	9	3.77	3.0%
125	3	4.93	3.9%	10	5.68	4.5%	13	5.49	4.4%
126	1	1.66	1.3%	6	3.44	2.7%	7	2.98	2.4%
127	3	5.01	3.9%	12	6.93	5.5%	15	6.44	5.1%
128	1	1.68	1.3%	1	0.58	0.5%	2	0.86	0.7%
129	1	1.70	1.3%	7	4.10	3.2%	8	3.49	2.7%
130		0.00	0.0%	3	1.77	1.4%	3	1.32	1.0%
131	3	5.17	3.9%	6	3.57	2.7%	9	3.98	3.0%
132		0.00	0.0%	7	4.20	3.2%	7	3.12	2.4%
133	1	1.75	1.3%	3	1.81	1.4%	4	1.80	1.4%
134	1	1.76	1.3%	1	0.61	0.5%	2	0.91	0.7%
135	4	7.11	5.3%	2	1.23	0.9%	6	2.74	2.0%
136		0.00	0.0%	1	0.62	0.5%	1	0.46	0.3%
137	1	1.80	1.3%	2	1.25	0.9%	3	1.39	1.0%
138		0.00	0.0%	1	0.63	0.5%	1	0.47	0.3%
139	1	1.83	1.3%	3	1.90	1.4%	4	1.88	1.4%
140		0.00	0.0%	1	0.64	0.5%	1	0.47	0.3%
141		0.00	0.0%	1	0.64	0.5%	1	0.48	0.3%
142		0.00	0.0%	2	1.29	0.9%	2	0.96	0.7%
143		0.00	0.0%	0.00	0.00	0.0%	0	0.00	0.0%
144		0.00	0.0%	0.00	0.00	0.0%	0	0.00	0.0%
145		0.00	0.0%	0.00	0.00	0.0%	0	0.00	0.0%
146		0.00	0.0%	0.00	0.00	0.0%	0	0.00	0.0%
147		0.00	0.0%	0.00	0.00	0.0%	0	0.00	0.0%
148		0.00	0.0%	0.00	0.00	0.0%	0	0.00	0.0%
149		0.00	0.0%	0.00	0.00	0.0%	0	0.00	0.0%
150		0.00	0.0%	0.00	0.00	0.0%	0	0.00	0.0%
151		0.00	0.0%	0.00	0.00	0.0%	0	0.00	0.0%
152		0.00	0.0%	0.00	0.00	0.0%	0	0.00	0.0%
153		0.00	0.0%	0.00	0.00	0.0%	0	0.00	0.0%
154		0.00	0.0%	0.00	0.00	0.0%	0	0.00	0.0%
155		0.00	0.0%	0.00	0.00	0.0%	0	0.00	0.0%
156		0.00	0.0%	0.00	0.00	0.0%	0	0.00	0.0%
157		0.00	0.0%	0.00	0.00	0.0%	0	0.00	0.0%
158		0.00	0.0%	0.00	0.00	0.0%	0	0.00	0.0%
159		0.00	0.0%	0.00	0.00	0.0%	0	0.00	0.0%
160		0.00	0.0%	0.00	0.00	0.0%	0	0.00	0.0%
161		0.00	0.0%	0.00	0.00	0.0%	0	0.00	0.0%
162		0.00	0.0%	0.00	0.00	0.0%	0	0.00	0.0%
163		0.00	0.0%	0.00	0.00	0.0%	0	0.00	0.0%
164		0.00	0.0%	0.00	0.00	0.0%	0	0.00	0.0%
165		0.00	0.0%	0.00	0.00	0.0%	0	0.00	0.0%
Total No.	76		25.7%	220		74.3%	296		100.0%
Mean		118.1			119.2			118.9	
Total legals			296						
Total Recruits			34						
Percent			11.5%						
Total Post Recruits			262						
Percent			88.5%						

Table 6. Carapace length measurement summary of sampled sublegal male red king crab captured during the commercial king crab harvest, Norton Sound Section, Eastern Bering Sea, July 1 - July 31, 1994.

Carapace Length (mm)	New Shell			Old Shell			Total		
	No.	Ave Length Calc	%	No.	Ave Length Calc	%	No.	Ave Length Calc	%
52	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
53	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
54	0	0.00	0.0%	1	0.10	0.2%	1	0.06	0.1%
55	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
56	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
57	1	0.16	0.3%	0	0.00	0.0%	1	0.06	0.1%
58	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
59	0	0.00	0.0%	1	0.11	0.2%	1	0.07	0.1%
60	2	0.33	0.6%	3	0.35	0.6%	5	0.34	0.6%
61	2	0.34	0.6%	4	0.47	0.8%	6	0.42	0.7%
62	4	0.68	1.1%	4	0.48	0.8%	8	0.56	0.9%
63	4	0.69	1.1%	3	0.37	0.6%	7	0.50	0.8%
64	3	0.53	0.8%	3	0.37	0.6%	6	0.44	0.7%
65	8	1.43	2.2%	9	1.13	1.7%	17	1.26	1.9%
66	5	0.91	1.4%	7	0.90	1.4%	12	0.90	1.4%
67	3	0.55	0.8%	8	1.04	1.6%	11	0.84	1.3%
68	3	0.56	0.8%	2	0.26	0.4%	5	0.39	0.6%
69	8	1.52	2.2%	11	1.47	2.1%	19	1.49	2.2%
70	12	2.31	3.3%	6	0.81	1.2%	18	1.43	2.0%
71	5	0.98	1.4%	0	0.00	0.0%	5	0.40	0.6%
72	8	1.59	2.2%	9	1.26	1.7%	17	1.39	1.9%
73	8	1.61	2.2%	6	0.85	1.2%	14	1.16	1.6%
74	7	1.43	1.9%	4	0.57	0.8%	11	0.93	1.3%
75	4	0.83	1.1%	7	1.02	1.4%	11	0.94	1.3%
76	4	0.84	1.1%	6	0.88	1.2%	10	0.86	1.1%
77	1	0.21	0.3%	7	1.04	1.4%	8	0.70	0.9%
78	1	0.21	0.3%	2	0.30	0.4%	3	0.27	0.3%
79	6	1.31	1.7%	12	1.84	2.3%	18	1.62	2.0%
80	8	1.76	2.2%	8	1.24	1.6%	16	1.46	1.8%
81	7	1.56	1.9%	3	0.47	0.6%	10	0.92	1.1%
82	9	2.03	2.5%	9	1.43	1.7%	18	1.68	2.0%
83	3	0.69	0.8%	5	0.80	1.0%	8	0.76	0.9%
84	6	1.39	1.7%	5	0.81	1.0%	11	1.05	1.3%
85	9	2.11	2.5%	16	2.64	3.1%	25	2.42	2.8%
86	10	2.37	2.8%	8	1.33	1.6%	18	1.76	2.0%
87	9	2.16	2.5%	28	4.72	5.4%	37	3.66	4.2%
88	3	0.73	0.8%	5	0.85	1.0%	8	0.80	0.9%
89	13	3.19	3.6%	14	2.41	2.7%	27	2.73	3.1%
90	18	4.46	5.0%	16	2.79	3.1%	34	3.48	3.9%
91	13	3.26	3.6%	10	1.76	1.9%	23	2.38	2.6%
92	5	1.27	1.4%	8	1.43	1.6%	13	1.36	1.5%
93	6	1.54	1.7%	18	3.24	3.5%	24	2.54	2.7%
94	14	3.63	3.9%	16	2.91	3.1%	30	3.21	3.4%
95	14	3.66	3.9%	27	4.97	5.2%	41	4.43	4.7%
96	13	3.44	3.6%	22	4.09	4.3%	35	3.82	4.0%
97	18	4.81	5.0%	19	3.57	3.7%	37	4.08	4.2%
98	12	3.24	3.3%	20	3.80	3.9%	32	3.57	3.6%
99	12	3.27	3.3%	28	5.37	5.4%	40	4.51	4.6%
100	15	4.13	4.1%	19	3.68	3.7%	34	3.87	3.9%
101	11	3.06	3.0%	20	3.91	3.9%	31	3.56	3.5%
102	10	2.81	2.8%	22	4.35	4.3%	32	3.71	3.6%
103	7	1.99	1.9%	12	2.40	2.3%	19	2.23	2.2%
104	5	1.43	1.4%	12	2.42	2.3%	17	2.01	1.9%
105	5	1.45	1.4%	12	2.44	2.3%	17	2.03	1.9%
106	1	0.29	0.3%	6	1.23	1.2%	7	0.84	0.8%
107	3	0.88	0.8%	4	0.83	0.8%	7	0.85	0.8%
108	2	0.60	0.6%	2	0.42	0.4%	4	0.49	0.5%
109	2	0.60	0.6%	2	0.42	0.4%	4	0.50	0.5%
110	1	0.30	0.3%	2	0.43	0.4%	3	0.38	0.3%
111	0	0.00	0.0%	2	0.43	0.4%	2	0.25	0.2%
112	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
113	0	0.00	0.0%	1	0.22	0.2%	1	0.13	0.1%
sum	363		41.3%	516		58.7%	879		100.0%
Mean		87.1			89.5			88.5	
Total sublegals		879							

Table 7. Carapace length measurement summary of sampled sublegal male red king crab captured in statistical area 846402 during the commercial king crab harvest, Norton Sound Section, Eastern Bering Sea, July 1 – July 31, 1994.

Carapace Length (mm)	New Shell			Old Shell			Total		
	No.	Ave Length Calc	%	No.	Ave Length Calc	%	No.	Ave Length Calc	%
52	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
53	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
54	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
55	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
56	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
57	1	0.25	0.4%	0	0.00	0.0%	1	0.11	0.2%
58	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
59	0	0.00	0.0%	1	0.20	0.3%	1	0.11	0.2%
60	2	0.52	0.9%	3	0.62	1.0%	5	0.58	1.0%
61	1	0.26	0.4%	3	0.63	1.0%	4	0.47	0.8%
62	4	1.07	1.7%	3	0.64	1.0%	7	0.83	1.3%
63	3	0.82	1.3%	2	0.43	0.7%	5	0.60	1.0%
64	3	0.83	1.3%	2	0.44	0.7%	5	0.61	1.0%
65	5	1.41	2.2%	9	2.02	3.1%	14	1.75	2.7%
66	4	1.14	1.7%	5	1.14	1.7%	9	1.14	1.7%
67	3	0.87	1.3%	6	1.39	2.1%	9	1.16	1.7%
68	3	0.88	1.3%	2	0.47	0.7%	5	0.65	1.0%
69	8	2.39	3.5%	8	1.90	2.8%	16	2.12	3.1%
70	9	2.73	3.9%	4	0.97	1.4%	13	1.75	2.5%
71	4	1.23	1.7%	0	0.00	0.0%	4	0.55	0.8%
72	6	1.87	2.6%	8	1.99	2.8%	14	1.93	2.7%
73	5	1.58	2.2%	6	1.51	2.1%	11	1.54	2.1%
74	5	1.60	2.2%	1	0.26	0.3%	6	0.85	1.2%
75	2	0.65	0.9%	3	0.78	1.0%	5	0.72	1.0%
76	2	0.66	0.9%	4	1.05	1.4%	6	0.88	1.2%
77	1	0.33	0.4%	4	1.06	1.4%	5	0.74	1.0%
78	0	0.00	0.0%	2	0.54	0.7%	2	0.30	0.4%
79	4	1.37	1.7%	8	2.18	2.8%	12	1.82	2.3%
80	4	1.39	1.7%	7	1.93	2.4%	11	1.69	2.1%
81	3	1.05	1.3%	1	0.28	0.3%	4	0.62	0.8%
82	3	1.06	1.3%	6	1.70	2.1%	9	1.42	1.7%
83	3	1.08	1.3%	3	0.86	1.0%	6	0.96	1.2%
84	4	1.45	1.7%	3	0.87	1.0%	7	1.13	1.3%
85	6	2.21	2.6%	7	2.05	2.4%	13	2.12	2.5%
86	7	2.61	3.0%	7	2.08	2.4%	14	2.31	2.7%
87	5	1.88	2.2%	16	4.80	5.5%	21	3.51	4.0%
88	2	0.76	0.9%	3	0.91	1.0%	5	0.84	1.0%
89	7	2.70	3.0%	6	1.84	2.1%	13	2.22	2.5%
90	11	4.29	4.8%	10	3.10	3.4%	21	3.63	4.0%
91	8	3.15	3.5%	6	1.88	2.1%	14	2.45	2.7%
92	2	0.80	0.9%	6	1.90	2.1%	8	1.41	1.5%
93	5	2.01	2.2%	12	3.85	4.1%	17	3.03	3.3%
94	8	3.26	3.5%	12	3.89	4.1%	20	3.61	3.8%
95	10	4.11	4.3%	15	4.91	5.2%	25	4.56	4.8%
96	9	3.74	3.9%	11	3.64	3.8%	20	3.69	3.8%
97	9	3.78	3.9%	13	4.35	4.5%	22	4.10	4.2%
98	6	2.55	2.6%	12	4.06	4.1%	18	3.39	3.5%
99	9	3.86	3.9%	16	5.46	5.5%	25	4.75	4.8%
100	10	4.33	4.3%	6	2.07	2.1%	16	3.07	3.1%
101	6	2.62	2.6%	9	3.13	3.1%	15	2.91	2.9%
102	5	2.21	2.2%	5	1.76	1.7%	10	1.96	1.9%
103	4	1.78	1.7%	4	1.42	1.4%	8	1.58	1.5%
104	3	1.35	1.3%	5	1.79	1.7%	8	1.60	1.5%
105	4	1.82	1.7%	3	1.09	1.0%	7	1.41	1.3%
106	0	0.00	0.0%	1	0.37	0.3%	1	0.20	0.2%
107	2	0.93	0.9%	0	0.00	0.0%	2	0.41	0.4%
108	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
109	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
110	1	0.48	0.4%	1	0.38	0.3%	2	0.42	0.4%
111	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
112	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
113	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
sum	231		44.3%	290		55.7%	521		100.0%
Mean		85.7			86.6			86.2	
Total sublegals		521							

Table 8. Carapace length measurement summary of sampled sublegal male red king crab captured in statistical area 656401 during the commercial king crab harvest, Norton Sound Section, Eastern Bering Sea, July 1 – July 31, 1994.

Carapace Length (mm)	New Shell			Old Shell			Total		
	No.	Ave Length Calc	%	No.	Ave Length Calc	%	No.	Ave Length Calc	%
52	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
53	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
54	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
55	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
56	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
57	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
58	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
59	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
60	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
61	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
62	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
63	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
64	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
65	2	1.34	2.1%	0	0.00	0.0%	2	0.58	0.9%
66	1	0.68	1.0%	1	0.51	0.8%	2	0.58	0.9%
67	0	0.00	0.0%	1	0.52	0.8%	1	0.30	0.4%
68	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
69	0	0.00	0.0%	2	1.07	1.6%	2	0.61	0.9%
70	3	2.16	3.1%	2	1.09	1.6%	5	1.55	2.2%
71	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
72	0	0.00	0.0%	1	0.56	0.8%	1	0.32	0.4%
73	3	2.26	3.1%	0	0.00	0.0%	3	0.97	1.3%
74	2	1.53	2.1%	2	1.15	1.6%	4	1.31	1.8%
75	2	1.55	2.1%	2	1.16	1.6%	4	1.33	1.8%
76	2	1.57	2.1%	1	0.59	0.8%	3	1.01	1.3%
77	0	0.00	0.0%	1	0.60	0.8%	1	0.34	0.4%
78	1	0.80	1.0%	0	0.00	0.0%	1	0.35	0.4%
79	1	0.81	1.0%	2	1.22	1.6%	3	1.05	1.3%
80	3	2.47	3.1%	0	0.00	0.0%	3	1.06	1.3%
81	1	0.84	1.0%	2	1.26	1.6%	3	1.08	1.3%
82	5	4.23	5.2%	2	1.27	1.6%	7	2.54	3.1%
83	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
84	2	1.73	2.1%	2	1.30	1.6%	4	1.49	1.8%
85	2	1.75	2.1%	6	3.95	4.7%	8	3.01	3.5%
86	3	2.66	3.1%	1	0.67	0.8%	4	1.52	1.8%
87	3	2.69	3.1%	1	0.67	0.8%	4	1.54	1.8%
88	1	0.91	1.0%	1	0.68	0.8%	2	0.78	0.9%
89	3	2.75	3.1%	4	2.76	3.1%	7	2.76	3.1%
90	5	4.64	5.2%	4	2.79	3.1%	9	3.58	4.0%
91	3	2.81	3.1%	2	1.41	1.6%	5	2.01	2.2%
92	1	0.95	1.0%	1	0.71	0.8%	2	0.81	0.9%
93	1	0.96	1.0%	5	3.60	3.9%	6	2.47	2.7%
94	6	5.81	6.2%	2	1.46	1.6%	8	3.33	3.5%
95	4	3.92	4.1%	5	3.68	3.9%	9	3.78	4.0%
96	2	1.98	2.1%	7	5.21	5.4%	9	3.82	4.0%
97	6	6.00	6.2%	4	3.01	3.1%	10	4.29	4.4%
98	6	6.06	6.2%	6	4.56	4.7%	12	5.20	5.3%
99	1	1.02	1.0%	10	7.67	7.8%	11	4.82	4.9%
100	4	4.12	4.1%	8	6.20	6.2%	12	5.31	5.3%
101	5	5.21	5.2%	7	5.48	5.4%	12	5.36	5.3%
102	4	4.21	4.1%	11	8.70	8.5%	15	6.77	6.6%
103	3	3.19	3.1%	2	1.60	1.6%	5	2.28	2.2%
104	1	1.07	1.0%	7	5.64	5.4%	8	3.68	3.5%
105	1	1.08	1.0%	6	4.88	4.7%	7	3.25	3.1%
106	1	1.09	1.0%	2	1.64	1.6%	3	1.41	1.3%
107	0	0.00	0.0%	3	2.49	2.3%	3	1.42	1.3%
108	2	2.23	2.1%	1	0.84	0.8%	3	1.43	1.3%
109	1	1.12	1.0%	1	0.84	0.8%	2	0.96	0.9%
110	0	0.00	0.0%	1	0.85	0.8%	1	0.49	0.4%
111	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
112	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
113	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
sum	97		42.9%	129		57.1%	226		100.0%
Mean		90.2			94.3			92.5	
Total sublegals		226							

Table 9. Carapace length measurement summary of sampled sublegal male red king crab captured in statistical area 656402 during the commercial king crab harvest, Norton Sound Section, Eastern Bering Sea, July 1 – July 31, 1994.

Carapace Length (mm)	New Shell			Old Shell			Total		
	No.	Ave Length Calc	%	No.	Ave Length Calc	%	No.	Ave Length Calc	%
52	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
53	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
54	0	0.00	0.0%	1	0.62	1.1%	1	0.44	0.8%
55	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
56	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
57	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
58	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
59	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
60	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
61	1	1.74	2.9%	0	0.00	0.0%	1	0.50	0.8%
62	0	0.00	0.0%	1	0.71	1.1%	1	0.51	0.8%
63	1	1.80	2.9%	1	0.72	1.1%	2	1.03	1.6%
64	0	0.00	0.0%	1	0.74	1.1%	1	0.52	0.8%
65	1	1.86	2.9%	0	0.00	0.0%	1	0.53	0.8%
66	0	0.00	0.0%	1	0.76	1.1%	1	0.54	0.8%
67	0	0.00	0.0%	1	0.77	1.1%	1	0.55	0.8%
68	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
69	0	0.00	0.0%	1	0.79	1.1%	1	0.57	0.8%
70	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
71	1	2.03	2.9%	0	0.00	0.0%	1	0.58	0.8%
72	2	4.11	5.7%	0	0.00	0.0%	2	1.18	1.6%
73	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
74	0	0.00	0.0%	1	0.85	1.1%	1	0.61	0.8%
75	0	0.00	0.0%	2	1.72	2.3%	2	1.23	1.6%
76	0	0.00	0.0%	1	0.87	1.1%	1	0.62	0.8%
77	0	0.00	0.0%	2	1.77	2.3%	2	1.26	1.6%
78	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
79	1	2.26	2.9%	2	1.82	2.3%	3	1.94	2.5%
80	1	2.29	2.9%	1	0.92	1.1%	2	1.31	1.6%
81	3	6.94	8.6%	0	0.00	0.0%	3	1.99	2.5%
82	1	2.34	2.9%	1	0.94	1.1%	2	1.34	1.6%
83	0	0.00	0.0%	2	1.91	2.3%	2	1.36	1.6%
84	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
85	1	2.43	2.9%	3	2.93	3.4%	4	2.79	3.3%
86	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
87	1	2.49	2.9%	2	2.00	2.3%	3	2.14	2.5%
88	0	0.00	0.0%	1	1.01	1.1%	1	0.72	0.8%
89	3	7.63	8.6%	4	4.09	4.6%	7	5.11	5.7%
90	2	5.14	5.7%	2	2.07	2.3%	4	2.95	3.3%
91	2	5.20	5.7%	2	2.09	2.3%	4	2.98	3.3%
92	2	5.28	5.7%	1	1.06	1.1%	3	2.26	2.5%
93	0	0.00	0.0%	1	1.07	1.1%	1	0.76	0.8%
94	0	0.00	0.0%	2	2.16	2.3%	2	1.54	1.6%
95	0	0.00	0.0%	7	7.64	8.0%	7	5.45	5.7%
96	2	5.49	5.7%	4	4.41	4.6%	6	4.72	4.9%
97	3	8.31	8.6%	2	2.23	2.3%	5	3.98	4.1%
98	0	0.00	0.0%	2	2.25	2.3%	2	1.61	1.6%
99	2	5.66	5.7%	2	2.28	2.3%	4	3.25	3.3%
100	1	2.86	2.9%	5	5.75	5.7%	6	4.92	4.9%
101	0	0.00	0.0%	4	4.64	4.6%	4	3.31	3.3%
102	1	2.91	2.9%	6	7.03	6.9%	7	5.85	5.7%
103	0	0.00	0.0%	6	7.10	6.9%	6	5.07	4.9%
104	1	2.97	2.9%	0	0.00	0.0%	1	0.85	0.8%
105	0	0.00	0.0%	3	3.62	3.4%	3	2.58	2.5%
106	0	0.00	0.0%	3	3.66	3.4%	3	2.61	2.5%
107	1	3.06	2.9%	1	1.23	1.1%	2	1.75	1.6%
108	0	0.00	0.0%	1	1.24	1.1%	1	0.89	0.8%
109	1	3.11	2.9%	1	1.25	1.1%	2	1.79	1.6%
110	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
111	0	0.00	0.0%	2	2.55	2.3%	2	1.82	1.6%
112	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
113	0	0.00	0.0%	1	1.30	1.1%	1	0.93	0.8%
sum	35		28.7%	87		71.3%	122		100.0%
Mean		87.9			92.6			91.2	
Total sublegals		122							

Table 10. Carapace length measurement and percent ovigerity summary of sampled female red king crab captured during the commercial king crab harvest, Norton Sound Section, Eastern Bering Sea, July 1 – July 31, 1994.

Stat.Area: All		Vessel: All					Date: 7/1/94–7/31/94						
JUVENILE mm no.	ADULT SIZE PER % OVIGERITY					Sum	ADULT SIZE PER % OVIGERITY					Sum	
	mm Full	Hi	Med	Low	0		mm Full	Hi	Med	Low	0		
50	60					0	91	3				3	
51	61	1				1	92	3				3	
52	62					0	93	1				1	
53	63					0	94	3				3	
54	64					0	95	2				2	
55	65	1				1	96	2				2	
56	66	1				1	97	1				1	
57	67	2				2	98					0	
58	68			1		1	99					0	
59	69		1			1	100	3				3	
60	70					0	101					0	
61	71	4	2			6	102					0	
62	72	4	1			5	103	1				1	
63	73	3	1			4	104	1				1	
64	74	2				2	105					0	
65	75	6				6	106					0	
66	76	1				1	107					0	
67	77	2				2	108					0	
68	78	5	1			6	109					0	
69	79	5	1			6	110					0	
70	80	6				6	111					0	
71	81	4				4	112					0	
72	82	4				4	113					0	
73	83	5	1			6	114					0	
74	84	6	1			7	115					0	
75	85	6	1			7	116					0	
76	86	4				4	117					0	
77	87	5				5	118					0	
78	88					0	119					0	
79	89	2				2	120					0	
83	90	3				3	127					0	
							128					0	
18		82	10	1	0	0	93	20	0	0	0	0	20
TOTAL ADULTS/OVIGERITY - - -								102	10	1	0	0	113
% ADULTS/OVIGERITY - - - -								90.2	8.8	0.8	0	0	
MEAN 68.8	WEIGHTED MEAN ADULT LENGTH - -							82.0					
VAR. 30.6	VARIANCE OF THE MEAN LENGTH - -							76.4					

Full=90–100%, Hi=60–89%, Med=30–59%, Lo=1–29%

Table 11. Carapace length measurement and percent ovigerity summary of sampled female red king crab captured in statistical area 646402 during the commercial king crab harvest, Norton Sound Section, Eastern Bering Sea, July 1 – July 31, 1994.

Stat.Area: 646402		Vessel: All						Date: 7/1/94–7/31/94						
JUVENILE		ADULT SIZE PER % OVIGERITY						ADULT SIZE PER % OVIGERITY						
mm	no.	mm Full	Hi	Med	Low	0	Sum	mm Full	Hi	Med	Low	0	Sum	
50		60					0	91	3				3	
51		61	1				1	92	3				3	
52		62					0	93	1				1	
53		63					0	94	3				3	
54		64					0	95	2				2	
55		65	1				1	96	1				1	
56		66	1				1	97	1				1	
57	1	67	2				2	98					0	
58		68			1		1	99					0	
59		69		1			1	100	2				2	
60	1	70					0	101					0	
61		71	4	2			6	102					0	
62		72	4	1			5	103	1				1	
63		73	2	1			3	104					0	
64	1	74	2				2	105					0	
65	2	75	6				6	106					0	
66	1	76	1				1	107					0	
67		77	2				2	108					0	
68	2	78	4	1			5	109					0	
69	1	79	4	1			5	110					0	
70	1	80	6				6	111					0	
71	2	81	4				4	112					0	
72	1	82	4				4	113					0	
73		83	4	1			5	114					0	
74	1	84	6	1			7	115					0	
75		85	6	1			7	116					0	
76	1	86	4				4	117					0	
77		87	5				5	118					0	
78		88					0	119					0	
79	1	89	2				2	120					0	
83		90	3				3	127					0	
								128					0	
16		78	10	1	0	0	89	17	0	0	0	0	17	
TOTAL ADULTS/OVIGERITY ---									95	10	1	0	0	106
% ADULTS/OVIGERITY ---									89.6	9.4	0.9	0	0	
MEAN 68.4	WEIGHTED MEAN ADULT LENGTH ---							81.6						
VAR. 32.0	VARIANCE OF THE MEAN LENGTH ---							70.8						

Full=90–100%, Hi=60–89%, Med=30–59%, Lo=1–29%

Table 12. Carapace length measurement and percent ovigerity summary of sampled female red king crab captured in statistical area 656401 during the commercial king crab harvest, Norton Sound Section, Eastern Bering Sea, July 1 – July 31, 1994.

Stat.Area: 656401		Vessel: All					Date: 7/1/94–7/31/94						
JUVENILE mm no.	ADULT SIZE PER % OVIGERITY						ADULT SIZE PER % OVIGERITY						
	mm Full	Hi	Med	Low	0	Sum	mm Full	Hi	Med	Low	0	Sum	
50	60					0	91					0	
51	61					0	92					0	
52	62					0	93					0	
53	63					0	94					0	
54	64					0	95					0	
55	65					0	96	1				1	
56	66					0	97					0	
57	67					0	98					0	
58	68					0	99					0	
59	69					0	100	1				1	
60	70					0	101					0	
61	71					0	102					0	
62	72					0	103					0	
63	73	1				1	104	1				1	
64	74					0	105					0	
65	75					0	106					0	
66	76					0	107					0	
67	77					0	108					0	
68	78	1				1	109					0	
69	79	1				1	110					0	
70	80					0	111					0	
71	81					0	112					0	
72	82					0	113					0	
73	83	1				1	114					0	
74	84					0	115					0	
75	85					0	116					0	
76	86					0	117					0	
77	87					0	118					0	
78	88					0	119					0	
79	89					0	120					0	
83	90					0	127					0	
							128					0	
2	4	0	0	0	0	4	3	0	0	0	0	3	
TOTAL ADULTS/OVIGERITY							---	7	0	0	0	0	7
% ADULTS/OVIGERITY							----	100	0.0	0	0	0	
MEAN 72.0	WEIGHTED MEAN ADULT LENGTH					---	87.6						
VAR. 18.0	VARIANCE OF THE MEAN LENGTH					---	149.0						

Full=90–100%, Hi=60–89%, Med=30–59%, Lo=1–29%

Table 13. Red king crab tag information recovered during the commercial king crab harvest, Norton Sound Section, Eastern Bering Sea, July 1 – July 31, 1994.

Tag Number	Capture Date	Stat. Area of Capture	Carapace Length (mm)	Tagging Date	Carapace Length (mm)	Growth (mm)	Molts ^c	Skip Molts	Mean Growth per Molt (mm)
NX 02632	7/4/94	656402	123	4/8/91	111	12	1	2	12
NX 02758	7/14/94	656401	116	4/19/91	94	22	2	1	11
NX 02387	7/21/94	646402	130	3/12/91	106	24	2	1	12
NX 02615	7/21/94	646402	120	4/5/91	99	21	2	1	10.5
NX 01604 ^{a b}	7/94		120	3/29/90	110	10	1	3	10
NX 02091	7/26/94	656402	135	4/26/90	95	40	3	1	13
NX 02359	7/26/94	646402	122	3/8/91	110	12	1	2	12
NX 02672 ^b	7/26/94		116	4/12/91	94	22	2	1	11
NX 02613 ^b	7/26/94		117	4/5/91	102	15	1	2	15
SE 3316	7/27/94	646402	130	3/1/90	118	12	1	3	12

^a Exact date of capture not known.

^b Stat. area of capture not known.

^c Crab growth of 12 mm (+/- 5mm) per year is thought to be the average growth in one molting period.

Table 14. Observer crab catch summary: number of observed pot lifts, number of legal male, sublegal male, and female crab, and corresponding number of crab per observed pot lift, Norton Sound Section, Eastern Bering Sea, July 1 – 31, 1994.

Stat. Area	# Pots Observed	Legal Male Crab			Sublegal Male Crab			Female Crab		
		number	%	Crab per Pot	number	%	Crab per Pot	number	%	Crab per Pot
656402	40	374	75.6%	9.4	121	24.4%	3.0	0	0.0%	0.0
646402	120	841	56.8%	7.0	516	34.9%	4.3	123	8.3%	1.0
656401	39	320	57.7%	8.2	226	40.7%	5.8	9	1.6%	0.2
Total:	199	1535		7.7	863		4.3	132		0.7
Percent of observed catch:			60.7%			34.1%			5.2%	
Total crab observed:		2530								

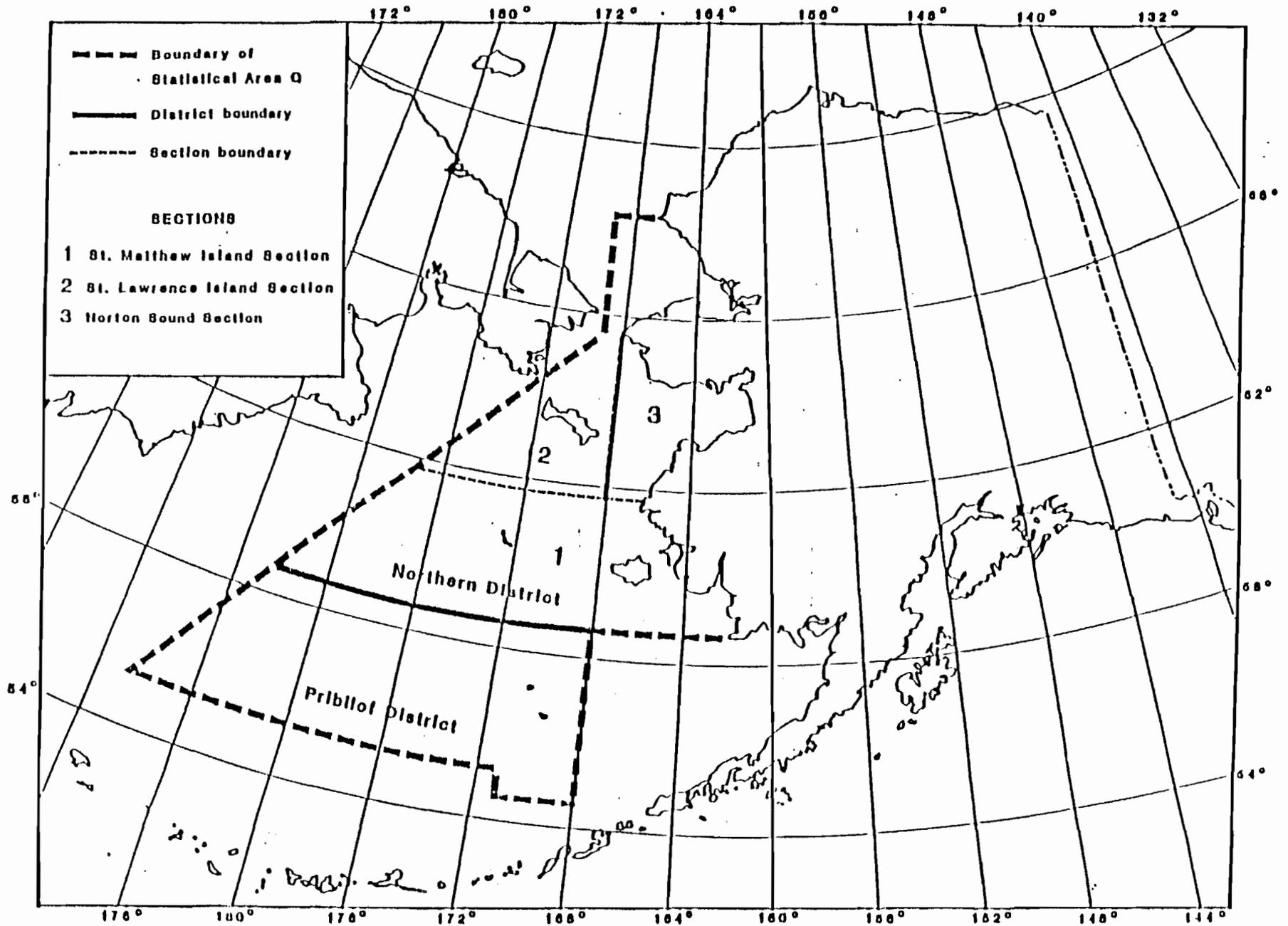


Figure 1. King crab fishing districts and sections of Statistical Area Q

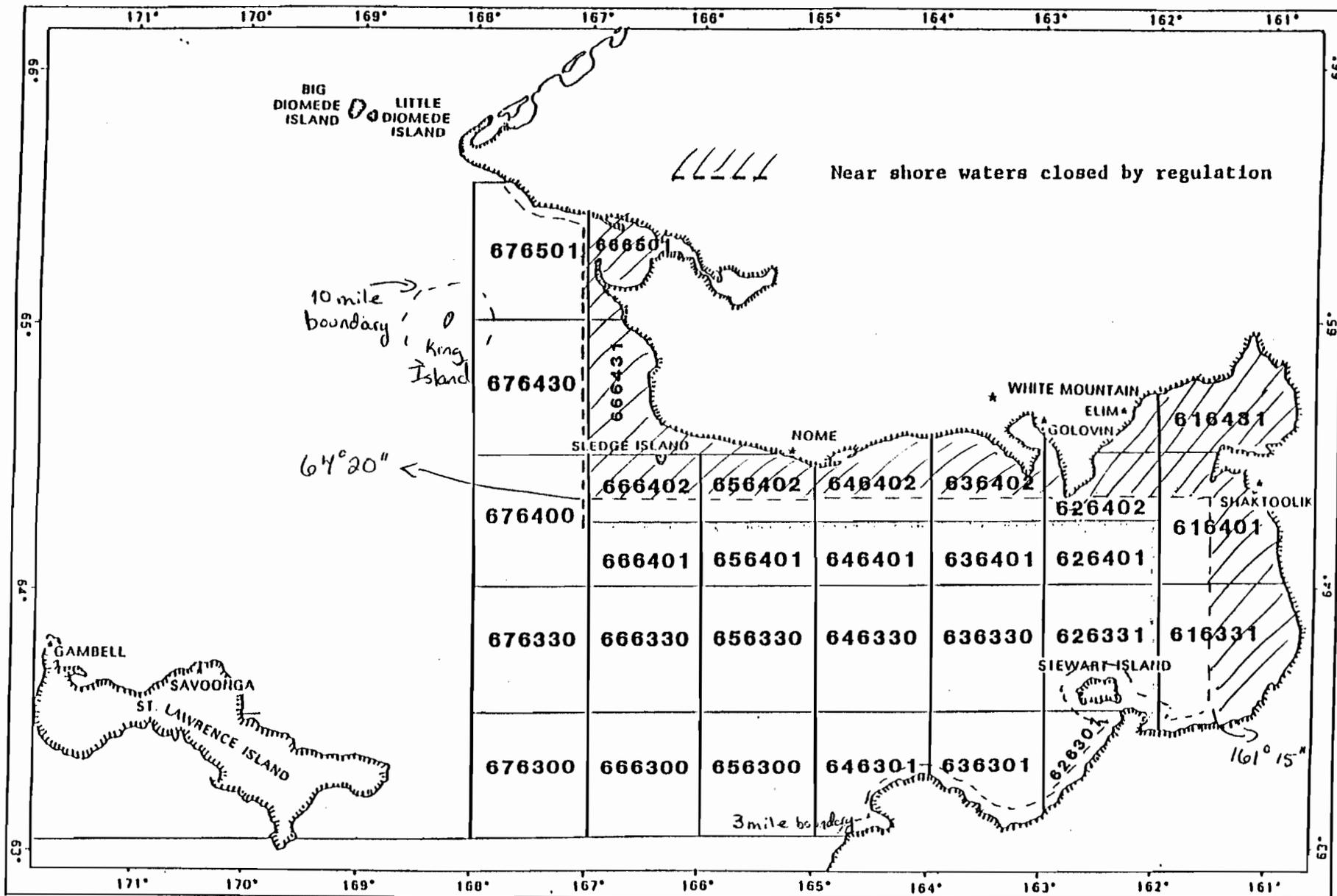


Figure 2. Statistical areas for the Norton Sound red king crab fishery.

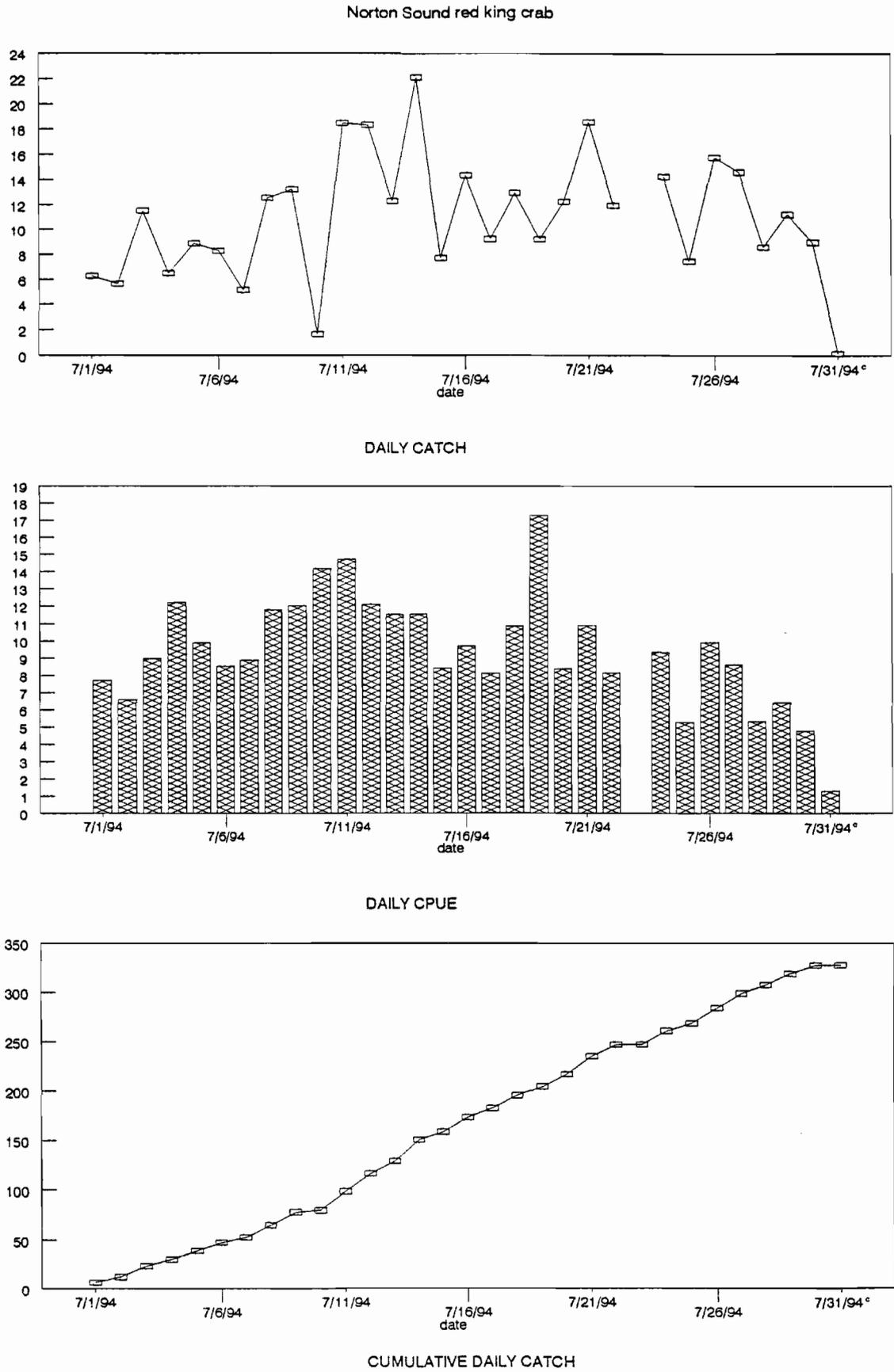


Figure 3. Daily catch, daily CPUE, and cumulative daily catch, Norton Sound summer commercial red king crab fishery, July 1 – 31, 1994.

Legal Male Red King Crab

28

percent

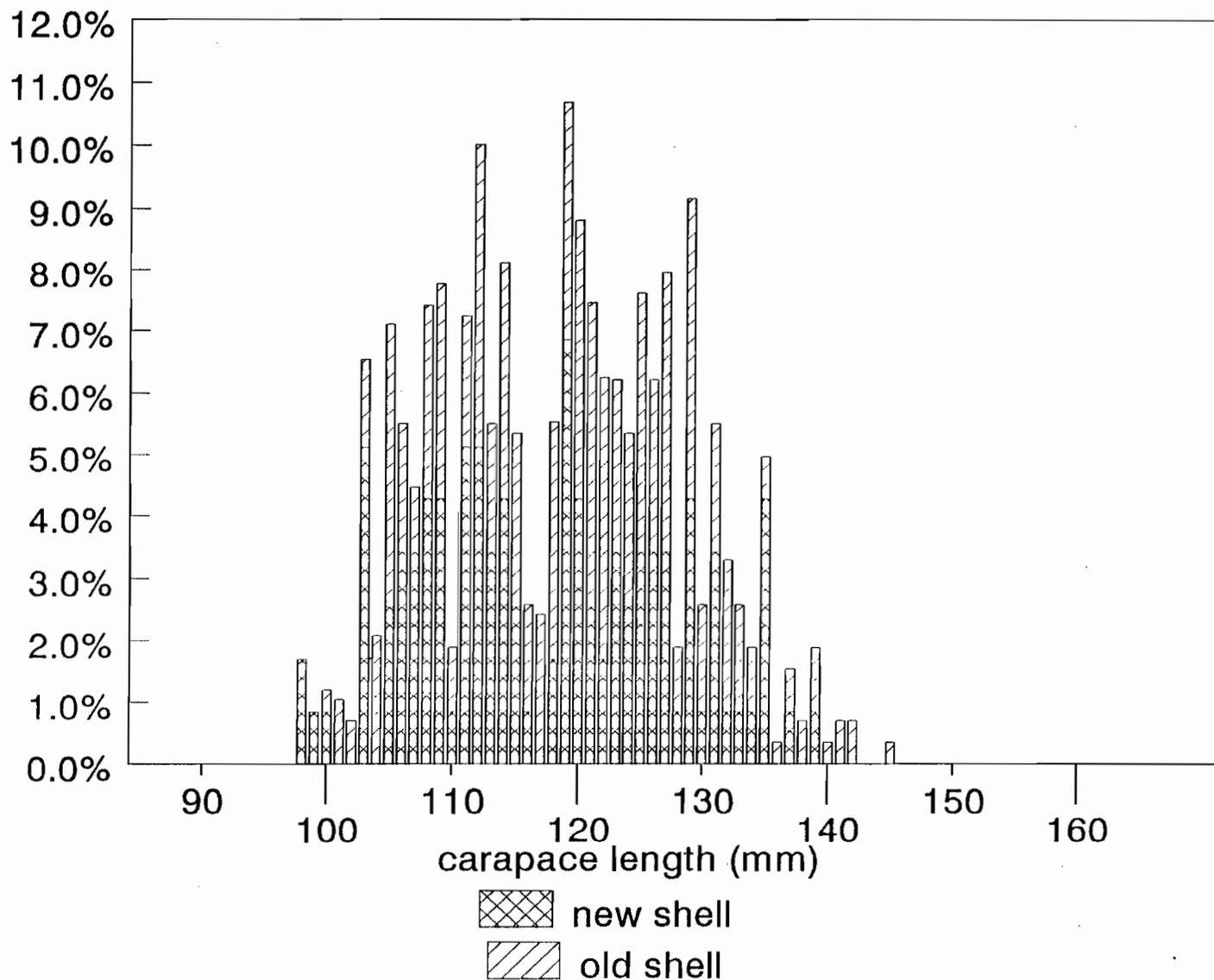


Figure 4. Length frequency distribution of new and old carapace age condition of legal male red king crab, Norton Sound Section, Eastern Bering Sea, July 1 – 31, 1994.

Sublegal (prerecruit) red king crab

percent

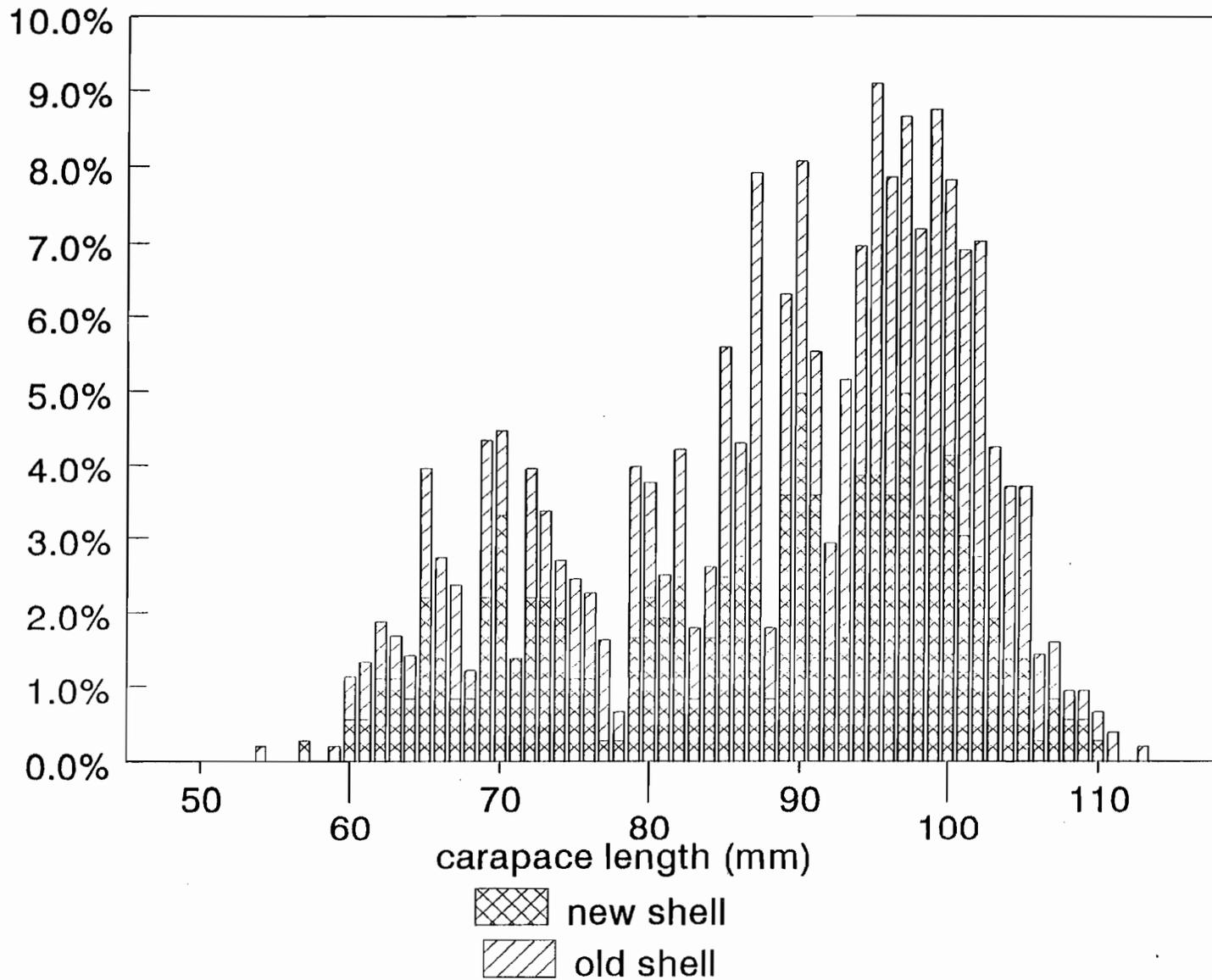


Figure 5. Length frequency distribution of new and old carapace age condition of prerecruit male red king crab, Norton Sound Section, Eastern Bering Sea, July 1 - 31, 1994.

Female red king crab

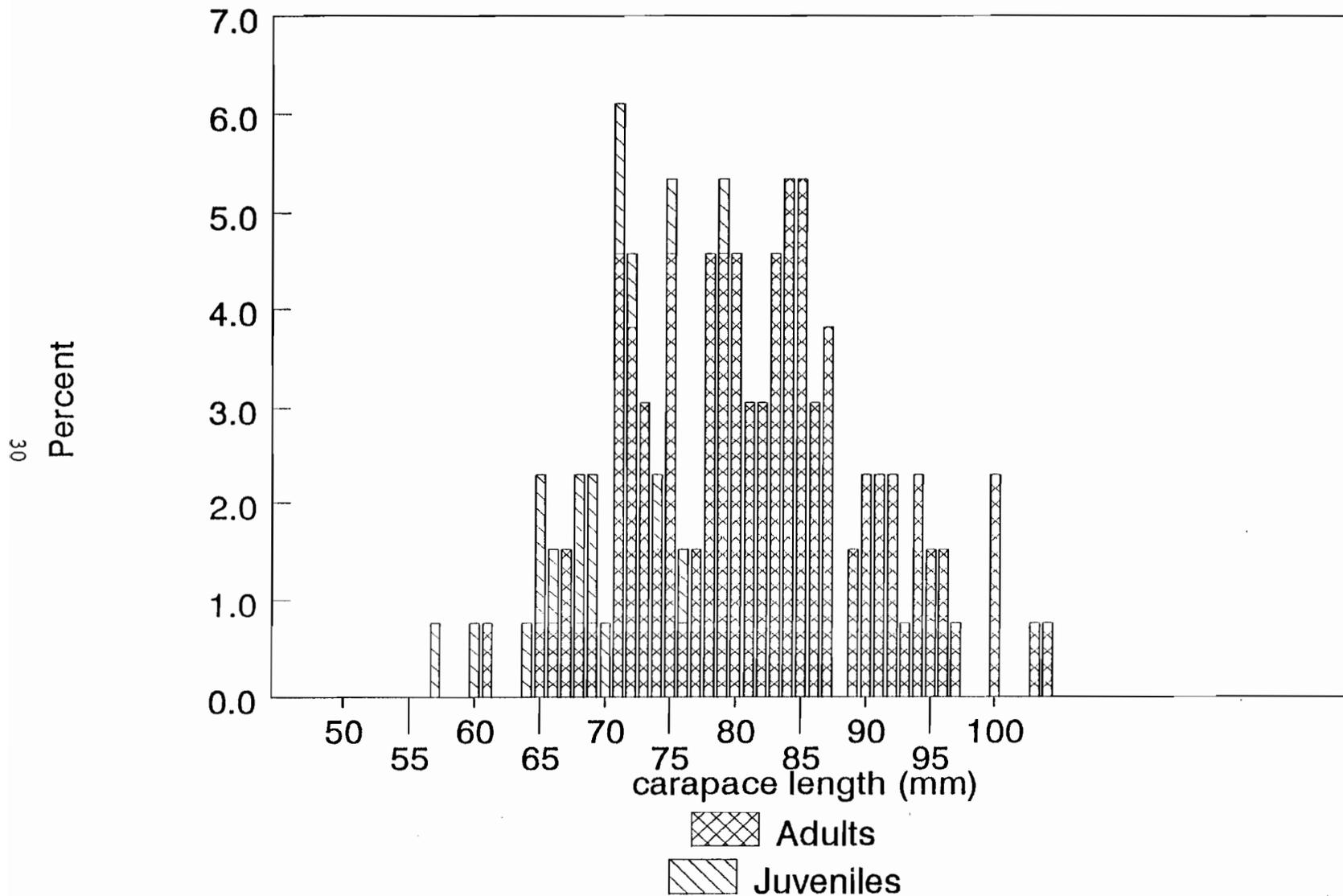


Figure 6. Length frequency distribution of female red king crab, juveniles and adults, Norton Sound Section, Eastern Bering Sea, July 1 - 31, 1994.

Appendix Table 1. Comparison of annual summer commercial harvest of red king crab from Norton Sound Section, Eastern Bering Sea, by statistical areas, 1977-1994 (catch in pounds).^a

Statistical Area	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1992	1993	1994	Totals
656402	306,302	90,187	288,869	918	3,098	2,832			132,363							103,079	106,053	1,123,701
646402	80,969					748										730	143,511	225,958
626402	38,995																	38,995
636402																	1,754	1,754
656401			138,011	121,147	253,387	60,480	11,422	183,119	246,200		194,408	165,644	100,956	171	53,119	105,341	29,566	1,662,971
646401			155,972		1,319	17,532										1,963	37,222	214,008
636401				12,398	61,823	32,246	5,880	41	891				22,030		1,159	1,373	8,087	145,928
626401	31,572			4,830	399													36,801
656330			323,518	72,735	395,662	3,983	24,246	83,479	7,632		79,006	36,129	1,757		4,814	265		1,033,226
646330					4,716								5,212					9,928
626331	40,020																	40,042
616331	7,893																48	7,941
656300			161,699		15,174													176,873
666431			146,029															146,029
676501					36													36
666402	12,036	515,778	534,938	183,581		17,585			32,992							535	1,221	1,298,666
676430		3,811	12,309	-0-	373	3,513			1,171									21,177
666401		179,212	486,947	205,400	381,510	79,580	325,045	116,254	5,341	408,848	50,744	21,895	115,257	162,263	10,632	746	396	2,550,070
676400		667,130	33,856	274	92,026	1,315	247		32					3,212				798,092
666330		353,016	505,050	367,446	141,513	8,990	1,192		389	70,615	2,963	13,020	1,275	27,185	4,305	31,758		1,528,717
676330		51,304	81,796	6,762	18,734	-0-												158,598
686330			1,860															1,860
666300		162,795	60,816	84,874	9,167	95		4,534										322,281
676300		13,238		126,231														139,469
666230		55,490			77													55,567
Totals	517,787	2,091,961	2,931,672	1,166,596	1,379,014	228,921	368,032	387,427	427,011	479,463	327,121	236,688	246,467	192,831	74,029	335,790	327,858	11,738,688

^a No commercial fishery occurred in 1991.

Appendix Table 2. Summer commercial red king crab harvest, Norton Sound Section, Bering Sea, 1976–1994.

Year	Legal Male Pop. Est. ^a	Commercial Harvest ^b	Number of Vessels	Crab per Pot	Ave Wt per Crab(lb)	Exvessel Price / lb.	Fishery Value (millions \$)
1976 ^{c&d}	8.1	—	—	—	—	—	—
1977 ^e	10.0	0.52	7	36	2.7	0.75	0.229
1978 ^e	11.0	2.09	8	64	3.0	0.95	1.897
1979 ^d	5.4	2.93	34	28	3.0	0.75	1.878
1980	6.6	1.19	9	29	3.6	0.75	0.890
1981	4.7	1.38	36	11	3.7	0.85	1.172
1982	1.3	0.23	11	6	3.6	2.00	0.405
1983	2.1	0.37	23	12	2.8	1.50	0.537
1984	2.7	0.39	8	14	2.8	1.02	0.395
1985	2.4	0.43	6	11	2.9	1.00	0.427
1986 ^f	2.8	0.48	3	38	2.9	1.25	0.600
1987 ^g	2.2	0.33	9	10	3.2	1.50	0.491
1988 ^h	3.2	0.24	2	32	3.1	ⁱ	ⁱ
1989	3.2	0.25	10	15	3.1	3.00	0.739
1990 ^h	3.2	0.19	4	19	3.1	ⁱ	ⁱ
1991 ^{c&d}	3.4	—	—	—	—	—	—
1992 ^d	3.4	0.07	27	4	3.0	1.75	0.130
1993 ^d	3.4	0.33	14	16	2.9	1.28	0.430
1994 ^j	3.4	0.32	34	9.3	3.0	2.02	0.646

^a Population estimate prior to fishery in given year in millions of pounds.

^b Millions of pounds.

^c No summer commercial fishery.

^d Population estimate derived by National Marine Fisheries Service.

^e Population estimate derived from commercial harvest data.

^f Population derived from 1985 ADF&G pot study.

^g Population estimate based on 1985 assessment survey data and recruitment of current assessment data; estimate probably low due to lack of recent data.

^h Population estimate based on 1988 NMFS post season trawl survey combined with summer fishery harvest.

ⁱ Data unavailable since all vessels were catcher/processors.

^j 34 boats made deliveries, 85 boats registered, 52 permits were fished.

Appendix Table 3. Comparison of percent recruit and postrecruit king crab sampled from summer commercial fisheries Norton Sound Section, Eastern Bering Sea, 1983 – 1994.

Year	Summer Commercial	
	Recruits (%)	Postrecruits (%)
1983	55	45
1984	59	41
1985	45	55
1986	48	52
1987	22	78
1988	25	75
1989	23	77
1990	21	79
1991 ^a	—	—
1992	28	72
1993	31	69
1994	14	86

^a No data collected in summer 1991 due to closed fishery.

Appendix Table 4. Results of the population assessment surveys conducted for red king crab in Norton Sound since 1976.

Year	Date	Research Agency	Vessel	Gear Effort	Number of Red King Crab Captured ^a			Population Estimates of Legal Male Crab ^c	
					Sublegal Males	Legal ^b Males	Females	Numbers	Pounds
1976	9/02 - 9/05	NMFS	Miller-Freeman	Trawl	768	555	180	3,119,800	8,111,480
	9/16 -10/07			158 tows					
1979	7/26 - 8/05	NMFS	Miller-Freeman	Trawl	46	194	40	837,241	2,511,723
				71 tows					
1980	7/04 - 7/14	ADF&G	Altair	Pots	443	3,290	158	1,900,000	6,600,000 ^d
				397 lifts					
1981	6/28 - 7/14	ADF&G	Altair	Pots	4,097	3,415	1,933	1,285,195	4,755,221
				718 lifts					
1982	7/06 - 7/20	ADF&G	Aleutian #1	Pots	5,019	2,001	424	353,273	1,271,783
				689 lifts					
1982	9/05 - 9/11	NMFS	Miller-Freeman	Trawl	322	107	265	970,646	2,620,744
				50 tows					
1985	7/01 - 7/14	ADF&G	Arctic Sea	Pots	6,086	4,645	181	907,579	2,414,644
				642 lifts					
1985	9/16 -10/01	NMFS	Argosy	Trawl	266	163	151	1,203,000	3,369,000
				78 tows					
1988	8/16 - 8/30	NMFS	Miller-Freeman	Trawl	258	141	218	1,037,000	3,038,000
				82 tows					
1991	8/22 - 8/30	NMFS	Ocean Hope	Trawl	202	178	105	1,384,000	4,009,000
				53 tows					

^a Number of crab captured on ADF&G surveys represent data standardized for a 24 hour soak.

^b Legal male red king crab were defined as at least 106mm in carapace length for the 1976 NMFS survey; 105mm for the 1979 and 1985 NMFS survey; and at least 121mm in carapace width for all ADF&G surveys.

^c Population est. are valid for the date of the survey, ie either before or after the summer commercial fishery.

^d The 1980 estimate has been revised from the original estimate of 13.4 million pounds. The original estimate was thought inaccurate due to under-reporting of recovered tagged crab.

Appendix Table 5. Observer crab catch summary: number of observed pot lifts, percent of catch by legal male, sublegal male and female crab; and average crab per pot; Norton Sound summer commercial fishery, 1988 – 1994.

Year	# Pots Observed	Legal Male Crab		Sublegal Male Crab		Female Crab	
		%	Crab per Pot	%	Crab per Pot	%	Crab per Pot
1988	1673	81.6	35.4	17.1	7.4	1.3	0.6
1989	909	68.5	13.7	15.4	3.1	16.1	3.2
1990	168	77.8	13.6	21.0	3.7	1.2	0.2
1992	733	70.1	1.9	22.7	0.6	7.3	0.2
1994	199	60.7	7.7	34.1	4.3	5.2	0.7

Appendix Table 6. Summer commercial red king crab harvest and effort, Norton Sound, 1977–1994.

Year	Days Fished	Number of Vessels	Total Number of Pots	Average # of Pots per Vessel	Range of Pots Per Vessel	Number of Pot Lifts	Crab Per Pot	Commercial Harvest ^a
1977	60	7				5,457	36	0.52
1978	60	8				10,817	64	2.09
1979	16	34				34,773	28	2.93
1980	16	9				11,199	29	1.19
1981	38	36				33,745	11	1.38
1982	23	11				11,230	6	0.23
1983	3	23	3,583	156	68–290	11,195	12	0.37
1984	13.6	8	1,245	156	70–250	9,706	14	0.39
1985	21.7	6	1,116	186	106–280	13,209	11	0.43
1986	13	3	578	193	85–278	4,284	38	0.48
1987	11	9	1,430	159	75–287	10,258	10	0.33
1988	9.9	2	360	180	110–250	2,350	32	0.24
1989	3	10	2,555	256	67–432	5,149	15	0.25
1990 ^b	4	4	1,388	347	288–400	3,172	19	0.19
1991 ^c	0	0	No Season			0		0
1992	2	27	2,635	98	35–100	5,746	4	0.07
1993	52	14	560	40	5–40	7,063	16	0.33
1994	31	34	1,360	40	5–40	11,729	9	0.32
Average ^d	22	13	1,545	177		11,210	22	0.71
Range	2–60	2–36	360–3,583	40–347		2,350–34,773	4–64	0.19–2.93

^a Harvest in millions of pounds.

^b All vessels participating were catcher/processors.

^c No summer season.

^d Averages and ranges do not include the 1991 and 1994 seasons.