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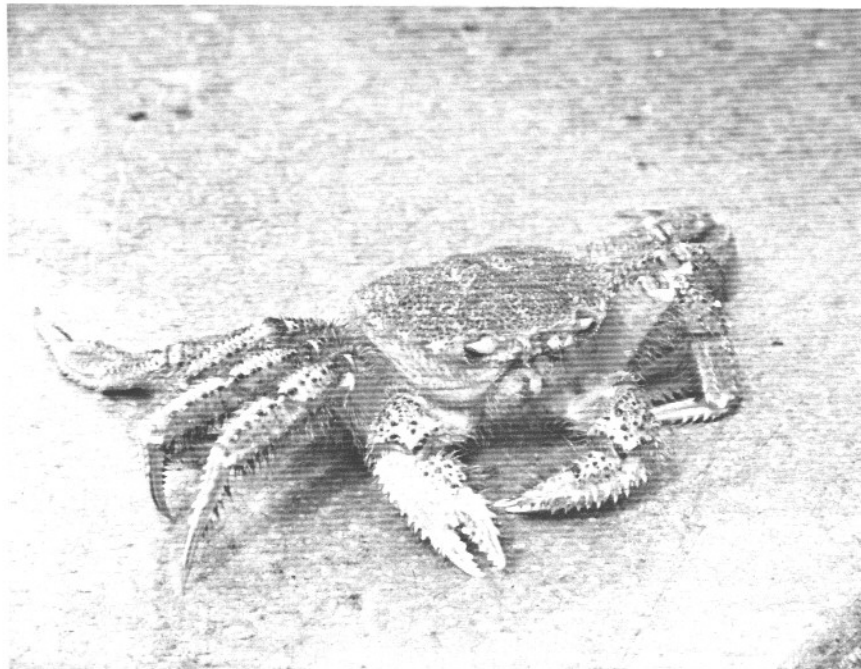
National Marine
Fisheries Service

U.S. DEPARTMENT OF COMMERCE

AFSC PROCESSED REPORT 93-14

Report to Industry on the 1993 Eastern Bering Sea Crab Survey

November 1993



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All data herein are to be considered provisional.

Cover: Large male hair crab (*Erimacrus isenbeckii*)
Photograph by Jan A. Haaga.

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Alaska Fisheries Science Center
Processed Report 93-14

**REPORT TO INDUSTRY ON THE
1993
EASTERN BERING SEA
CRAB SURVEY**

by

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RESULTS OF THE 1993 NMFS BERING SEA CRAB SURVEY

EXECUTIVE SUMMARY

This document summarizes data presented in the NMFS Processed Report "Report to Industry on the 1993 Eastern Bering Sea Crab Survey". For further information, contact Dr. Bradley G. Stevens or Dr. Robert Otto, NMFS, P.O. Box 1638, Kodiak, AK 99615. Phone (907) 487-4961. GHL = Guideline Harvest Level.

Red king crab (*Paralithodes camtschaticus*) Bristol Bay.

Legal males: 7.3 million crabs; up 48%.
Pre-recruits: 89% increase.
Large Females: 28% increase.
Outlook: Increased estimates are largely due to concentration of crabs at few stations, and may not reflect a real increase in population. Juveniles are at an all-time low and declining.
GHL: 16.8 million lbs.

Red king crab (*P. camtschaticus*) Pribilof District.

Legal males: 2.5 million crabs; up 212%.
Pre-recruits: No significant change.
Large Females: 112% increase.
Outlook: Increased estimates of legal crab reflect concentration at few stations, and should be viewed cautiously. Smaller crab are poorly estimated.
GHL: 3.4 million lbs.

Pribilof Islands blue king crab (*P. platypus*) Pribilof District.

Legal males: 1.0 million; No significant change.
Pre-recruits: 29% decrease.
Large Females: No significant change.
Outlook: Population low and stable. Trends not detectable.
GHL: Fishery closed for 1993.

St. Matthew blue king crab (*P. platypus*) Northern District.

Legal males: 3.6 million; 57% increase.
Pre-recruits: 36% increase.
Large Females: Not well estimated.
Outlook: Population high (Rank 1/16) with good recruitment for future.
GHL: 4.4 million lbs.

Tanner crab (*Chionoecetes bairdi*) Eastern District.

Legal males: 20.6 million; 50% decrease.
Pre-recruits: 38% decrease.
Large Females: 58% decrease.
Outlook: Population average, but declining as strong year class expires.
GHL: 19.7 million lbs.

Snow crab (*C. opilio*) All districts combined.

Large males: 135 million; 48% decrease.

Pre-recruits: 24% decrease.

Large Females: No significant change (decline offset by increased recruitment?).

Outlook: Large crab will continue to decline as strong year class expires, but strong recruitment of juveniles should reach fishery in 2-4 years.

GHL: 105.8 million lbs.

Hair crab (*Erimacrus isenbeckii*) All districts combined.

Total males: 11.8 million; 194% increase.

Large Females: 168% increase.

Outlook: Population increase probably reflects poor assessment in recent years, but is consistent with recruitment indices over last 5 years.

GHL: Pribilof: 2.5 million lbs.

Bristol Bay: 0.5 million lbs.

THE 1993 EASTERN BERING SEA SURVEY

An annual trawl survey is conducted in the eastern Bering Sea (EBS) to determine the distribution and abundance of crab and groundfish resources. This report summarizes survey results for commercially important crabs. It is intended to aid fishermen and processors in locating productive grounds and judging availability of various species. Survey-derived data are also used as part of the basis for management decisions. Results are presented for red king crab (*Paralithodes camtschaticus*), blue king crab (*P. platypus*), hair crab (*Erimacrus isenbeckii*), Tanner crab (*Chionoecetes bairdi*) and snow crab (*C. opilio*). Information on groundfish resources is available from the Alaska Fisheries Science Center, 7600 Sand Point Way NE, BIN C15700, Seattle, Washington 98115.

Survey Area and Methods

The 1993 Eastern Bering Sea (EBS) crab survey consisted of 393 successful bottom trawl tows and covered an area of approximately 140,400 square nautical miles (Fig. 1). The 1993 survey area was similar to that of 1992 except that 18 stations between Nunivak and St. Matthew Island, that were omitted in 1992, were included this year. The survey was conducted aboard two chartered vessels, the *F/V Aldebaran* and *F/V Arcurus* between June 4 and July 26. Methodology was identical to that of previous surveys; tows were made at the centers of squares defined by a 20x20 nautical mile grid. Near St. Matthew Island and the Pribilofs, additional tows were made at the corners of squares. Additional tows were also made at stations F08, G21, G22, H21 and H22 to verify abundance of red king crab.

Both vessels fished an eastern otter trawl with an 83 ft headrope and a 112 ft footrope. This has been the standard trawl since 1981. Wing spread on this trawl ranges from 47-58 feet. For consistency with previous reports an effective width of 50 feet was assumed. Each tow was one-half hour in duration; average length was 1.57 nautical miles (range 0.4-2.1). Crabs were sorted by species and sex, and then a sample of crabs was measured (to the nearest millimeter) to provide a size frequency distribution. Note that crab sizes are reported as carapace width for Tanner and snow crabs, and carapace length for all others. Surface and bottom water temperatures were re-

corded at most stations. Procedures for estimating abundance were similar to previous years (Appendix A).

Because of differences in the length of each tow, catches presented in accompanying charts and tables are standardized to the nearest whole number of crab caught per square nautical mile. Where more than one tow was made in a square (including corner tows), charts show average crab density at the station center. Tables 7-11 present data for all tows where a given species was caught, without averaging. It is advisable to cross-reference charts and tables.

The following abbreviations are used in the text: (in) inches, (mm) millimeters, (fm) fathoms, (lbs) pounds, (°C) degrees Celsius, (cl) carapace length, and (cw) carapace width.

Distribution and Abundance of Crab Stocks

Red King Crab (*Paralithodes camtschaticus*)

The majority of the legal (86.5 in cw, 8135 mm cl) male crabs occurred in Bristol Bay (Area T) where their overall distribution was similar to that of 1992 (Chart 1 and Table 7). Numbers were up sharply in the Pribilof District, and a few red king crabs were also found in the Northern District (north of 58°39'N), but their contribution to overall abundance in the EBS is negligible. Legal crabs were occasionally found as solitary individuals at the periphery of the stock's distribution.

The estimated abundance of legal male red king crabs in the Bristol Bay District (south of 58°39'N and east of 168°W) was 7.3 million crabs which represents a 48% increase from last year (Table 1). This estimate is still significantly below the long-term, 23-year average (15.3 million). Pre-recruit crab (110-134 mm cl) showed an increase of 89%. These increases are partially due to the effect of several large catches at station F08, and may not represent a real increase in the overall population. Because the catch of legal crabs at that station was high (>50/tow), three additional tows were made nearby. The combined catch of all four tows at that station provided an estimate of 1.5 million legal crabs, or 21% of the total for Area T. Recruitment of juveniles has been poor, and their numbers are now at an all-time low (Table 1). Therefore, the fish-

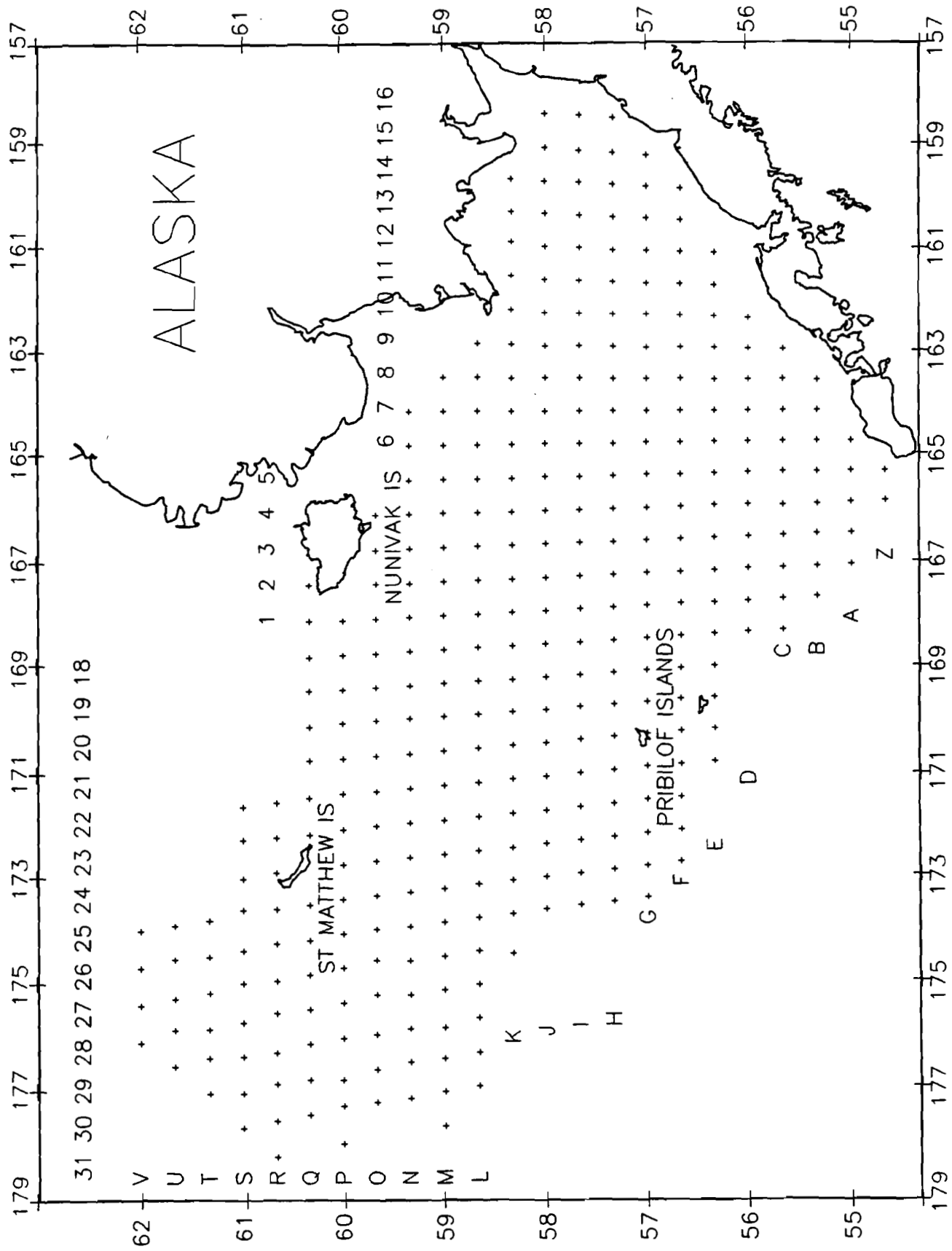


FIGURE 1. NMFS eastern Bering Sea crab survey area in 1993.

TABLE 1. Annual abundance estimates (millions of crabs) for red king crab (*P. camtschaticus*) from NMFS survey. Bristol Bay and Pribilof Districts are combined except where noted.

Size ¹ (mm) Width (in)	Males				Females			Grand Total
	Juveniles	Pre-rec	Legal	Total	Small	Large	Total	
	<110 <5.2	110-134 5.2-6.5	≥135 ≥6.5		<90 <3.5	≥90 ≥3.5		
1975	84.9	31.7	21.0	137.6	70.8	58.9	129.7	267.3
1976	70.2	49.3	32.7	152.2	35.9	71.8	107.7	259.9
1977	80.2	63.9	37.6	181.7	33.5	150.1	183.6	365.3
1978	62.9	47.9	46.6	157.4	38.2	128.4	166.6	324.0
1979	48.1	37.2	43.9	129.2	45.1	110.9	156.0	285.2
1980	56.8	23.9	36.1	116.8	44.8	67.6	112.5	229.3
1981	56.6	18.4	11.3	86.3	36.3	67.3	103.6	189.9
1982	107.2	17.4	4.7	129.3	77.2	54.8	132.0	261.3
1983	43.3	10.4	1.5	55.2	24.3	9.7	34.0	89.2
1984	81.8	12.6	3.1	97.6	57.6	17.6	75.1	172.7
1985	13.7	10.1	2.5	26.3	6.9	6.8	13.7	39.9
1986	11.8	12.3	5.9	30.1	4.5	5.4	9.8	39.9
1987	20.1	12.6	7.9	40.6	16.8	18.3	35.1	75.7
1988	8.5	6.4	6.4	21.3	2.7	15.7	18.4	39.7
1989	8.6	9.4	11.9	29.9	4.4	16.9	21.2	51.1
1990	8.2	10.2	9.2	27.6	7.2	17.5	24.7	52.2
1991	8.1	6.4	12.0	26.5	4.7	12.6	17.4	43.9
1992	7.0	5.5	5.8	18.3	2.2	13.4	15.6	33.9
1993 (B) ²	5.2	9.6	7.3	22.2	2.4	14.2	16.6	38.8
(P)	0.5	0.6	2.5	3.6	0.1	5.0	5.1	8.7
<u>Limits³</u>								
Lower	2.6	5.5	4.9	14.8	0.7	6.7	8.1	22.9
Upper	7.9	13.8	9.7	29.5	4.1	21.7	25.0	54.7
±%	50	43	33	33	72	53	51	41

¹ Carapace length (mm).

² Separate estimates given for Bristol Bay (B) and Pribilofs (P) Districts.

³ Mean ± 2 standard errors for most recent year; Bristol Bay only.

**Red King Crab Length Frequency
Bristol Bay**

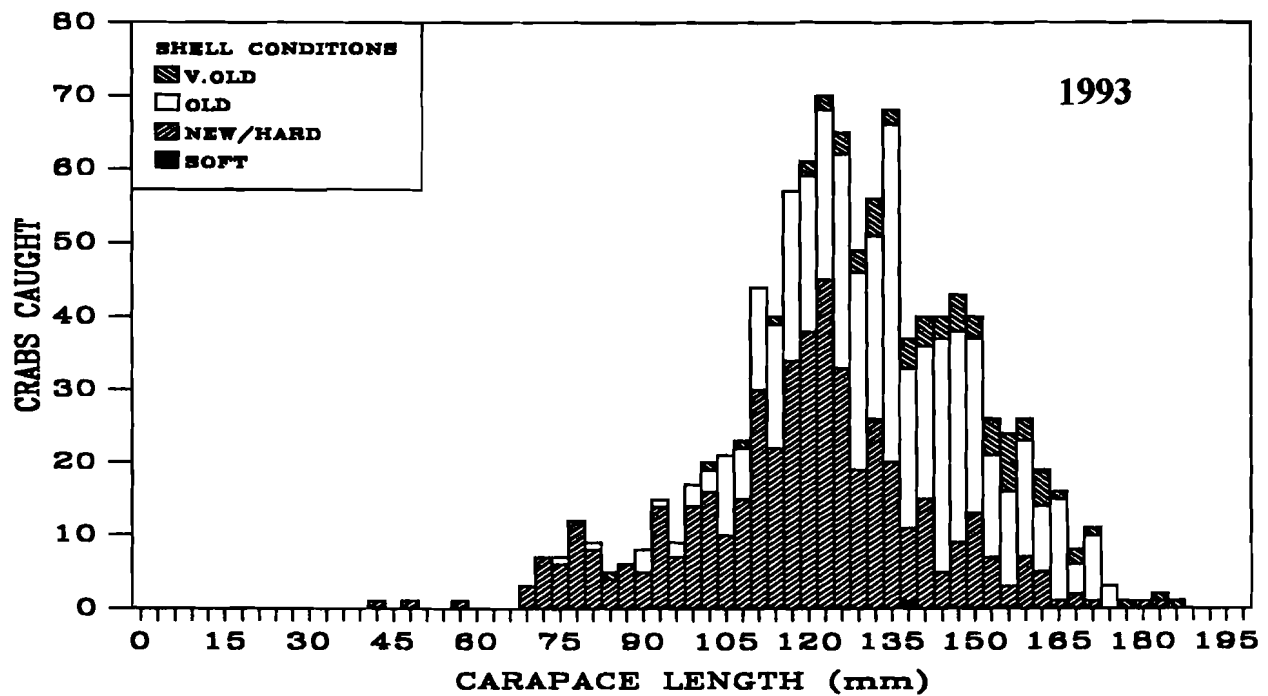
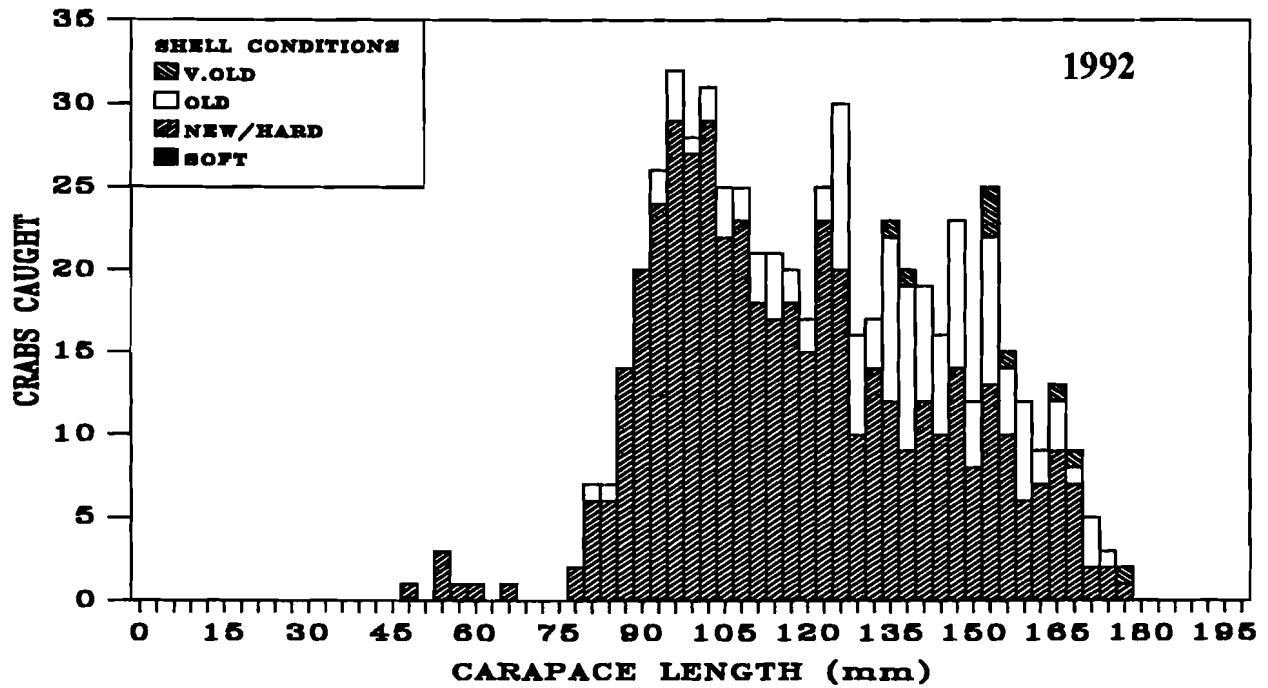


FIGURE 2. Size-frequency of male red king crab (*P. camtschaticus*), by 3 mm length classes, 1992-1993.

Red King Crab Bristol Bay

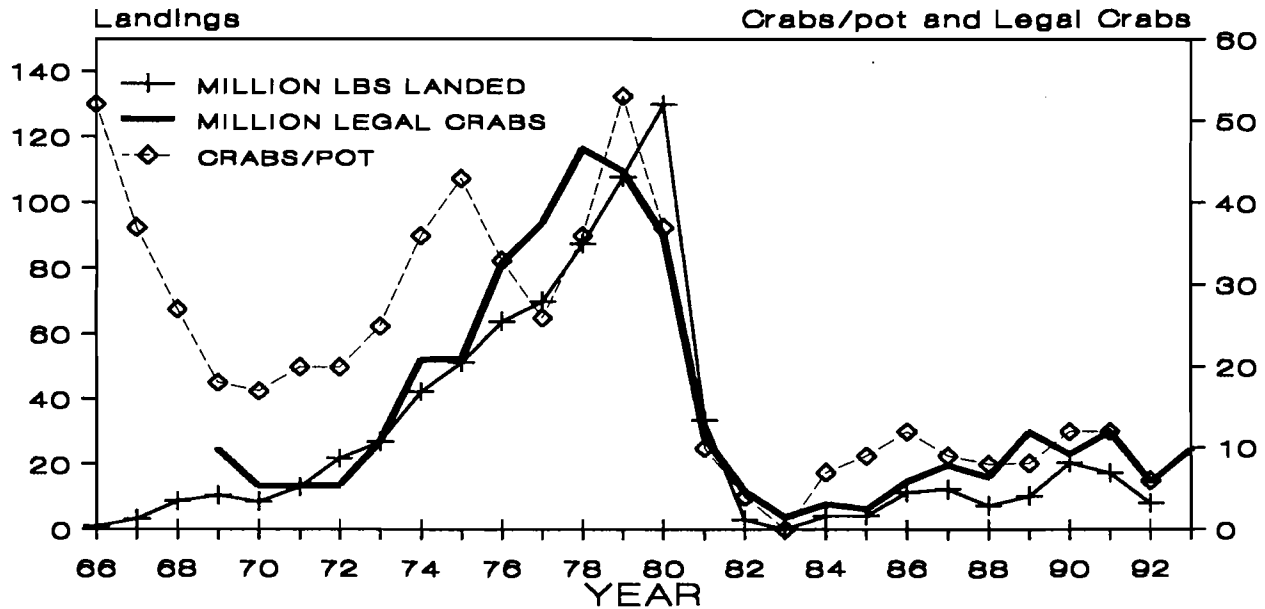


FIGURE 3. U.S. landings in millions of pounds, CPUE as crabs/pot, and abundance of legal red king crab (*P. camtschaticus*) in millions in Bristol Bay, estimated from NMFS trawl surveys.

able stock will probably continue to decline in the future. Size-frequency data for the last two years are shown in Figure 2. Molting of male crabs appears to have been completed prior to the survey because no male crabs were in molting or soft-shell condition. Among legal-sized crab, 76% were oldshell crabs (vs 40% last year). See Appendix B for descriptions of shell conditions.

The estimated abundance of large (≥ 90 mm cl) females in Bristol Bay showed an increase of 28% from last year, but the combined abundance of small and large females is still at a low level. In June, 8% of mature females were still molting or soft-shell, (vs 16% last year). Among mature females, the proportion which had molted and extruded new, uneyed eggs was 80% compared to 83% last year. Fluctuations in the timing of molting, mating, and embryo extrusion may be related to annual variations in water temperature.

The Bristol Bay fishery will open on November 1, 1993, with a guideline harvest of 16.8 million lbs out of an estimated stock of 45.6 ± 15 million lbs. The target exploitation rate was set at 37% of the legal male biomass, as determined according to Board of Fisheries policy. Last

year's landings were 8.0 million lbs with catch-per-unit-of-effort (CPUE) of 6.0 crabs/pot-lift (Fig. 3).

In the Pribilof District (south of $58^{\circ}39'N$ and west of $168^{\circ}W$), the abundance of red king crab has increased dramatically from last year's estimate. The estimate of legal males increased by 212% to 2.5 million crabs, and large females increased by 112%. These crab were highly concentrated at a few stations (G21 & G22), which may add a positive bias to the estimate. [Four additional tows were made at randomly selected locations within each of the station squares G21, G22, H21 and H22 in order to improve the reliability of abundance estimates]. However, this year's estimate follows a trend of increasing abundance observed since 1990. For the first time, a separate fishery for red king crab in the Pribilof District opened September 15 with a guideline harvest level (GHL) of 3.4 million lbs, representing an exploitation rate of 22% of the legal male biomass (15.7 ± 10 million lbs). A preliminary estimate of the catch is 2.6 million lbs with a CPUE of 10.6 crabs/pot-lift. (Rance Morrison, ADF&G, Box 308, Dutch Harbor, AK 99692, Pers. commun., October, 1993).

Blue King Crab Pribilof District

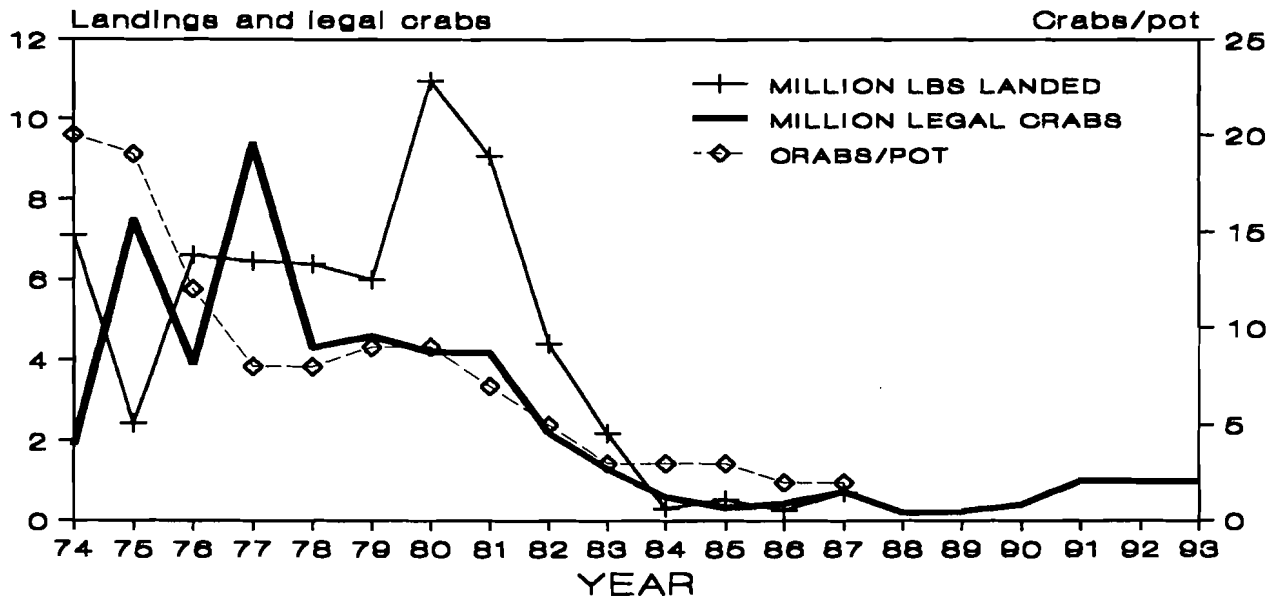


FIGURE 4. U.S. landings in millions of pounds, CPUE as crabs/pot, and abundance of legal blue king crab (*P. platypus*) in millions in the Pribilof District, estimated from NMFS trawl survey.

Pribilof Islands Blue King Crab (*P. platypus*)

Legal (≥ 6.5 in cw, or ≥ 135 mm cl) males were found at 14 stations, primarily northeast and east of St. Paul Island (Chart 2 and Table 8). The estimated abundance of legal males was 0.98 million crabs (Table 2 and Fig. 4), essentially identical to the last two years' estimates and is still significantly below the 20-year average (2.55 million). The number of pre-recruits (110-134 mm cl) showed a decrease of 29% and the abundance of juveniles (< 110 mm cl), showed a decrease of 38%. Size-frequency data (Fig. 5) show little change over the past year. The fishery will not be opened in 1993. Shell conditions among legal males were 3% soft/molting, 66% new-hardshells, and 31% oldshells, indicating that molting was essentially complete by the time of the survey.

The estimated abundance of large (≥ 90 mm cl) females showed no significant change from last year's level. Historically, estimates of juvenile and female abundance have been imprecise due to the preference of such crab for rocky habitat which is not sampled well by trawls. Among mature females, 68% were new hardshells, of which 99% carried new eggs, and 32% were oldshells, all of which carried empty

embryo cases. Blue king crab are predominantly biennial spawners. Only a portion of the female population spawns in a given year, while the remainder is in the non-embryo-bearing phase. No females were in soft-shell condition, indicating that molting was completed for 1993.

Northern District (St. Matthew Island) Blue King Crab (*P. platypus*)

Legal (≥ 5.5 in cw, or ≥ 120 mm cl) males were captured at 21 stations primarily southwest of St. Matthew Island (Chart 2 and Table 8). The estimated abundance of legal crabs was 3.6 million crabs (Table 3), representing a 57% increase from last year. The abundance of pre-recruits (105-119 mm cl) showed a 36% increase. The distribution of size-frequencies (Fig. 6) shows little change over the past year. The population is significantly above average levels, ranking 1 out of 16, with legal males at the second highest, and juveniles at the fourth highest level in 16 years. The abundance of large females (≥ 80 mm cl) increased dramatically to an all-time record high, but abundance estimates for female blue king crabs are usually imprecise due to habitat preference, as explained above. Among legal males, 5% were softshell, 68% were new-hardshells, and

TABLE 2. Annual abundance estimates (millions of crabs) for blue king crab (*P. platypus*) in the Pribilof District from NMFS surveys.

Size ¹ (mm) Width (in)	Pribilof District							Grand Total
	Males				Females			
	Juveniles <110 <5.2	Pre-rec 110-134 5.2-6.5	Legal ≥135 ≥6.5	Total	Small <90 <3.5	Large ≥90 ≥3.5	Total	
1974	4.4	3.1	1.9	9.4	0.6	10.9	11.5	20.9
1975	4.1	8.0	7.5	19.6	0.0	8.8	8.8	28.4
1976	10.3	2.1	3.9	16.3	0.4	17.7	18.1	34.4
1977	3.2	2.2	9.4	14.8	2.2	17.5	19.7	34.5
1978	1.2	5.8	4.3	11.3	0.3	35.5	35.8	47.1
1979	6.4	1.5	4.6	12.5	5.2	2.9	8.1	20.6
1980	1.9	1.4	4.2	7.5	0.8	101.9	102.7 ²	110.2
1981	4.8	1.4	4.2	10.4	3.4	11.6	15.0	25.4
1982	1.2	0.7	2.2	4.1	0.7	8.6	9.3	13.4
1983	0.6	0.8	1.3	2.8	0.2	9.2	9.4	12.2
1984	0.5	0.3	0.6	1.3	0.3	3.1	3.4	4.8
1985	0.06	0.16	0.32	0.54	0.18	0.52	0.70	1.24
1986	0.02	0.02	0.43	0.47	0.04	1.86	1.90	2.37
1987	0.57	0.08	0.73	1.38	0.39	0.58	0.97	2.35
1988	1.10	0.0	0.20	1.29	0.77	0.43	1.20	2.49
1989	3.21	0.10	0.22	3.54	2.29	1.28	3.57	7.11
1990	1.84	1.24	0.41	3.48	1.82	2.66	4.48	7.96
1991	1.32	1.03	1.01	3.36	0.56	2.80	3.37	6.73
1992	1.57	1.17	1.02	3.76	1.31	2.05	3.36	7.11
1993	0.97	0.83	0.98	2.78	0.33	2.17	2.50	5.28
<u>Limits³</u>								
Lower	0.0	0.2	0.4	1.0	0.0	0.6	0.8	1.9
Upper	2.0	1.4	1.5	4.5	0.9	3.7	4.2	8.7
±%	08	71	55	63	170	71	67	65

¹ Carapace length (mm).

² Female estimates considered unreliable in 1980.

³ Mean ± 2 standard errors for most recent year.

Blue King Crab Length Frequency Pribilof District

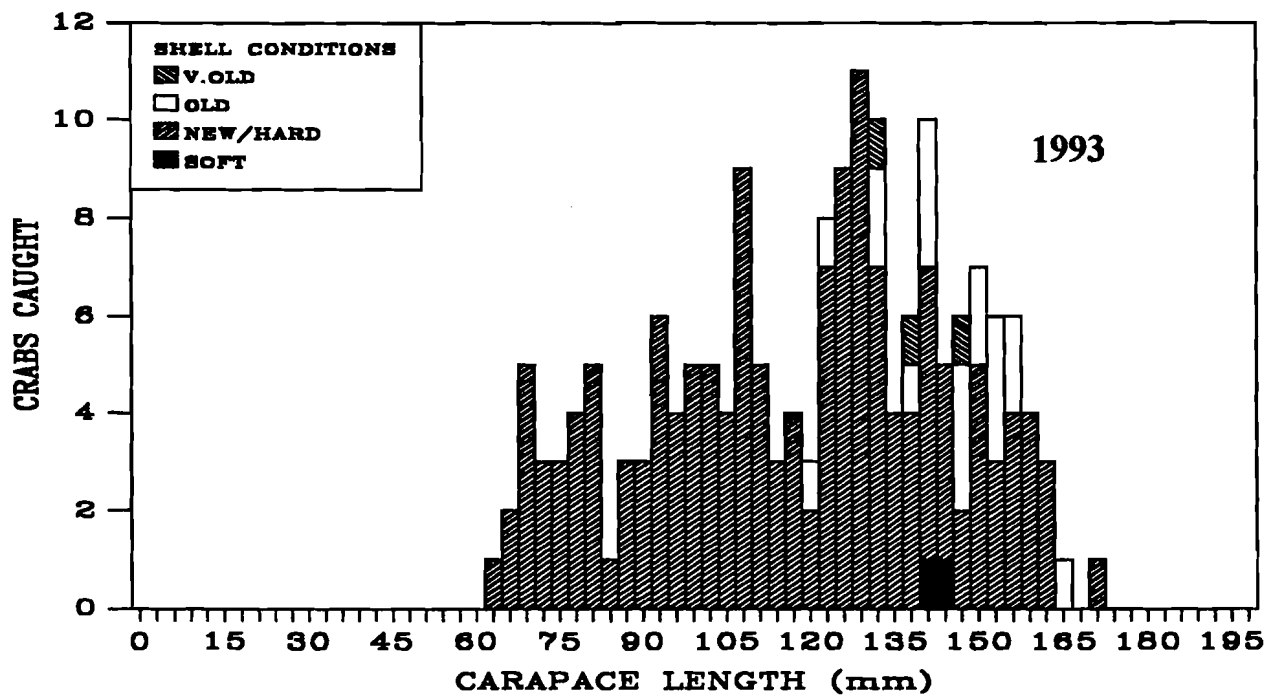
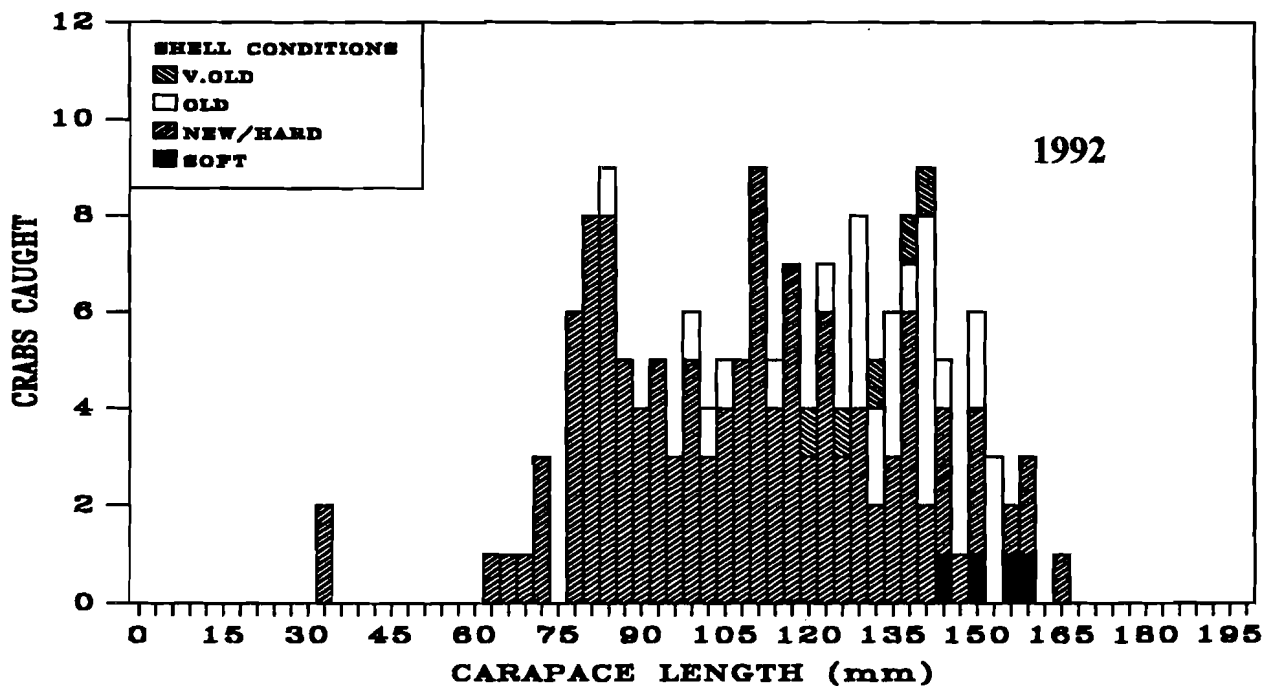


FIGURE 5. Size-frequency of Pribilof District male blue king crab (*P. platypus*), by 3 mm length classes, 1992-1993.

TABLE 3. Annual abundance estimates (millions of crabs) for blue king crab (*P. platypus*) in the Northern District (St. Matthew Island) from NMFS surveys.

	Northern District							Grand Total
	Males				Females			
	Juveniles	Pre-rec	Legal	Total	Small	Large	Total	
Size ¹ (mm)	<105	105-119	≥120		<80	≥80		
Width (in)	<4.3	4.3-5.5	≥5.5		<3.2	≥3.2		
1978	5.6	2.4	1.8	9.8	0.8	0.4	1.2	11.0
1979	4.9	2.3	2.2	9.4	1.7	0.9	2.6	12.0
1980	3.4	2.2	2.5	8.1	0.8	2.2	3.0	11.1
1981	1.2	1.8	3.1	6.3	0.0	0.5	0.5	6.8
1982	3.2	2.6	6.8	12.5	0.4	0.7	1.1	13.7
1983	1.8	1.6	3.5	6.9	0.2	2.4	2.7	9.6
1984	1.4	0.6	1.6	3.6	0.2	0.5	0.7	4.3
1985	0.46	0.35	1.08	1.89	0.08	0.13	0.21	2.10
1986	0.56	0.40	0.38	1.34	0.25	0.06	0.31	1.65
1987	1.07	0.73	0.74	2.53	0.46	0.22	0.68	3.21
1988	1.44	0.65	0.83	2.92	0.90	0.79	1.70	4.62
1989	4.80	0.97	1.48	7.25	1.58	1.68	3.27	10.52
1990	1.44	0.75	1.66	3.85	0.45	0.20	0.65	4.50
1991	2.92	1.52	2.17	6.61	0.84	0.69	1.53	8.14
1992	2.26	1.47	2.30	6.03	0.94	0.38	1.70	7.73
1993	4.62	1.99	3.60	10.22	1.35	3.03	4.38	14.60
Limits²								
Lower	0.4	1.2	2.4	4.8	0.0	0.0	0.0	4.5
Upper	8.9	2.8	4.8	15.7	3.1	8.5	9.0	24.7
±%	92	42	33	53	131	180	106	69

¹ Carapace length (mm); categories reflect smaller average size in the Northern District; 80 mm is the median size at maturity for females.

² Mean ± 2 standard errors for most recent year.

**Blue King Crab Length Frequency
Northern District**

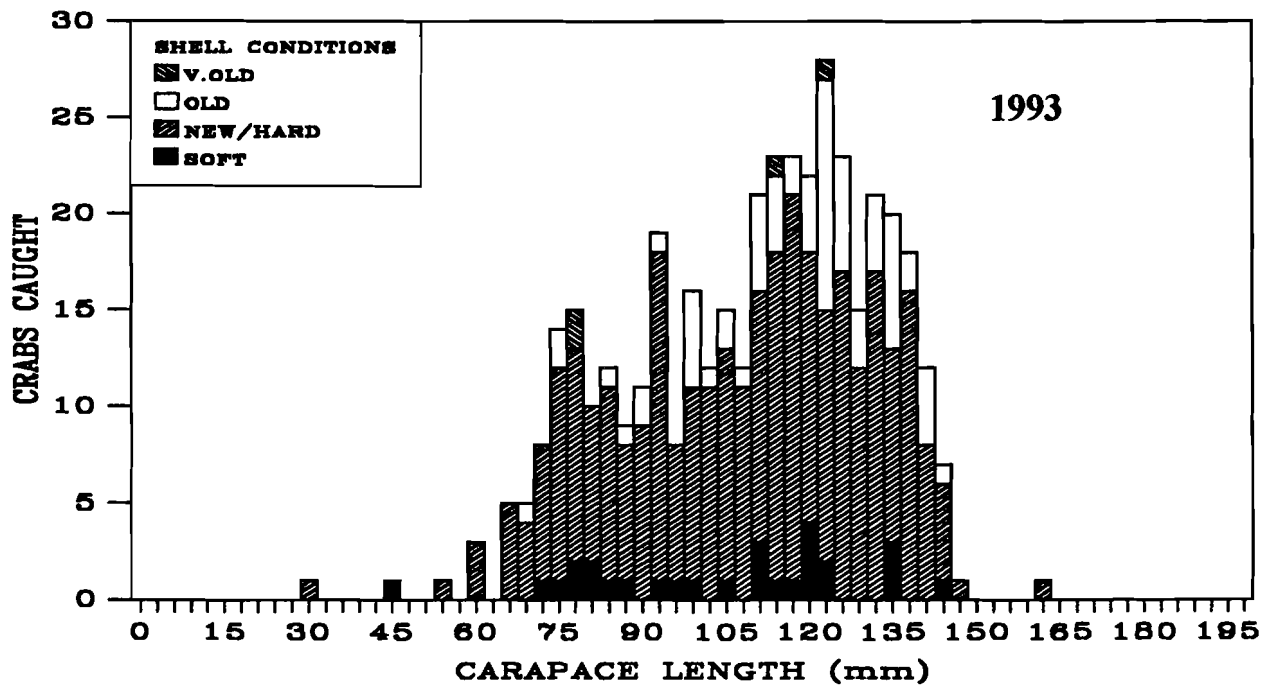
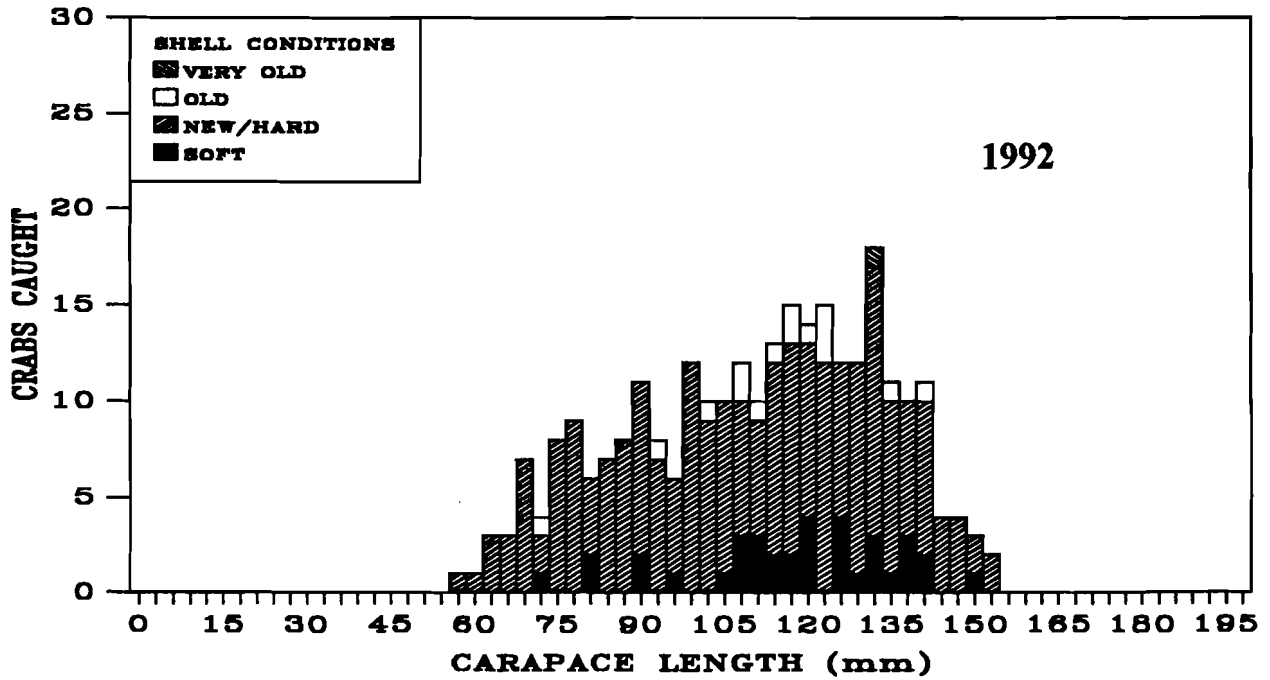


FIGURE 6. Size-frequency of Northern District (St. Matthew Island) male blue king crab (*P. platypus*), by 3 mm length classes, 1992-1993.

Blue King Crab Northern District

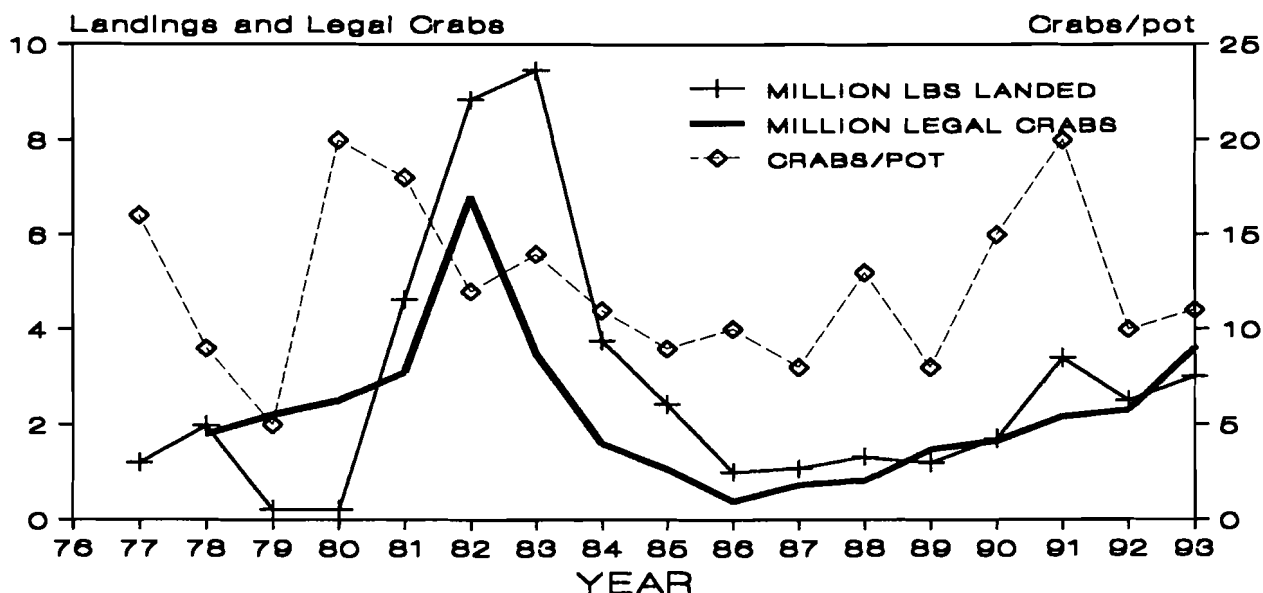


FIGURE 7. U.S. landings in millions of pounds, CPUE as crabs/pot, and the abundance of legal blue king crabs (*P. platypus*) in millions in the Northern District (St. Matthew Island), estimated from NMFS trawl survey.

27% oldshells. These figures indicate that molting was near completion for the year, and that a larger than normal proportion has not molted this year. All but 2 of 66 mature females had partially or completely hatched their eggs.

The 1993 fishery opened on September 15 with a guideline harvest of 4.4 million lbs, representing an exploitation rate of 31% of the legal male biomass (14.1 ± 4.6 million lbs). Preliminary information indicates that 1993 landings were 3.0 million lbs with a CPUE of 10.7 crabs/pot-lift (Fig. 7). (RanceMorrison, ADF&G, Box 308, Dutch Harbor, AK 99692, Pers. commun., September 1993).

Tanner Crab (*C. bairdi*)

The legal minimum size of 5.5 in cw (spine tip to spine tip) is equivalent to 138 mm cw measured between the spines (scientific measure). The data included in Table 4, however, define "large" crabs as males ≥ 135 mm, because this size has been used for a long-term index since 1976.

Legal males were widely distributed in Bristol Bay and continental shelf areas with regions of relatively high abundance in outer Bristol Bay, along the Alaska Peninsula, and around the Pribilof Islands (Chart 3 and Table 9). The esti-

mated abundance of large (≥ 135 mm cw) male *C. bairdi* in the Eastern District (east of 173°W) is 27.2 million crabs (Table 4), of which 20.6 million are legal size (≥ 138 mm cw). About 52% of the legal crab were located east of 163°W , and virtually all the legal males occurred in the Eastern District. The estimated total abundance of large crabs showed a decrease of 48% from last year and is now slightly below the long-term, 18-year average (33.8 million). The estimated abundance of pre-recruits (110-134 mm cw) showed a 38% decrease and the estimate of small males (<110 mm cw) showed a 42% decrease. Size-frequency data (Fig. 8) show that a strong cohort of crabs which recruited to the fishery in 1988-1992 is now declining due to natural mortality and fishery removals, and that recent recruitment of juveniles has declined. Among legal males, 5% were molting or softshell, 73% were new-hardshells, and 22% were oldshells. Abundance of legal males will probably continue to decline over the next few years.

The abundance of large (≥ 85 mm cw) females (all districts) showed a decrease of 58%, and the abundance of small (<85 mm) females showed a decrease of 48% from last year. Note, however that figures in Table 4 reflect only the Eastern District where changes for large and small

TABLE 4. Annual abundance estimates (millions of crabs) for Tanner crabs (*C. bairdi*) from NMFS surveys. Data since 1988 are for Eastern District; all prior data for Bristol Bay and the Pribilof Districts; both areas contain virtually all legal males.

Size ¹ (mm) Width (in)	Males				Females			Grand Total
	Juveniles	Pre-rec	Large	Total	Small	Large	Total	
	<110 <4.3	110-134 4.3-5.3	≥135 ≥5.3		<85 <3.4	≥85 ≥3.4		
1976	180.2	136.6	109.5	426.3	174.7	220.4	395.1	821.4
1977	255.0	116.3	92.1	463.4	328.4	215.8	544.2	1,007.6
1978	124.2	81.2	45.6	251.0	116.1	73.3	189.4	440.4
1979	133.1	47.7	31.5	212.3	122.6	42.1	164.7	377.0
1980	453.3	65.0	31.0	549.3	326.9	106.8	433.7	983.0
1981	303.8	24.0	14.0	341.8	324.2	79.1	403.3	745.1
1982	88.8	46.9	10.1	145.8	126.4	83.6	210.0	355.8
1983	146.3	32.0	6.7	185.0	180.1	45.4	225.5	410.5
1984	85.1	21.2	5.8	112.1	107.0	33.4	140.4	252.5
1985	31.1	9.4	4.4	44.9	24.2	15.6	39.8	84.7
1986	110.4	12.9	3.1	26.4	68.2	13.7	81.9	208.3
1987	230.1	19.7	8.3	258.0	193.3	35.5	228.8	486.8
1988	287.3	59.7	17.4	364.4	184.8	81.0	265.8	630.2
1989	403.0	102.1	42.3	547.5	338.6	63.8	402.4	949.9
1990	286.1	78.8	53.7	418.6	266.5	97.4	363.9	782.5
1991	267.2	105.4	45.5	418.1	232.1	116.8	348.9	767.0
1992	121.0	101.9	52.8	275.7	98.9	63.9	162.8	438.5
1993	76.6	63.4	27.2	167.7	57.6	29.6	87.2	254.9
<u>Limits²</u>								
Lower	57	42	18	126	39	20	62	187
Upper	97	85	37	209	77	39	113	321
±%	26	35	35	25	33	31	29	26

¹ Carapace width (mm).

² Mean ± 2 standard errors for most recent year.

C. bairdi Width Frequency
Eastern District

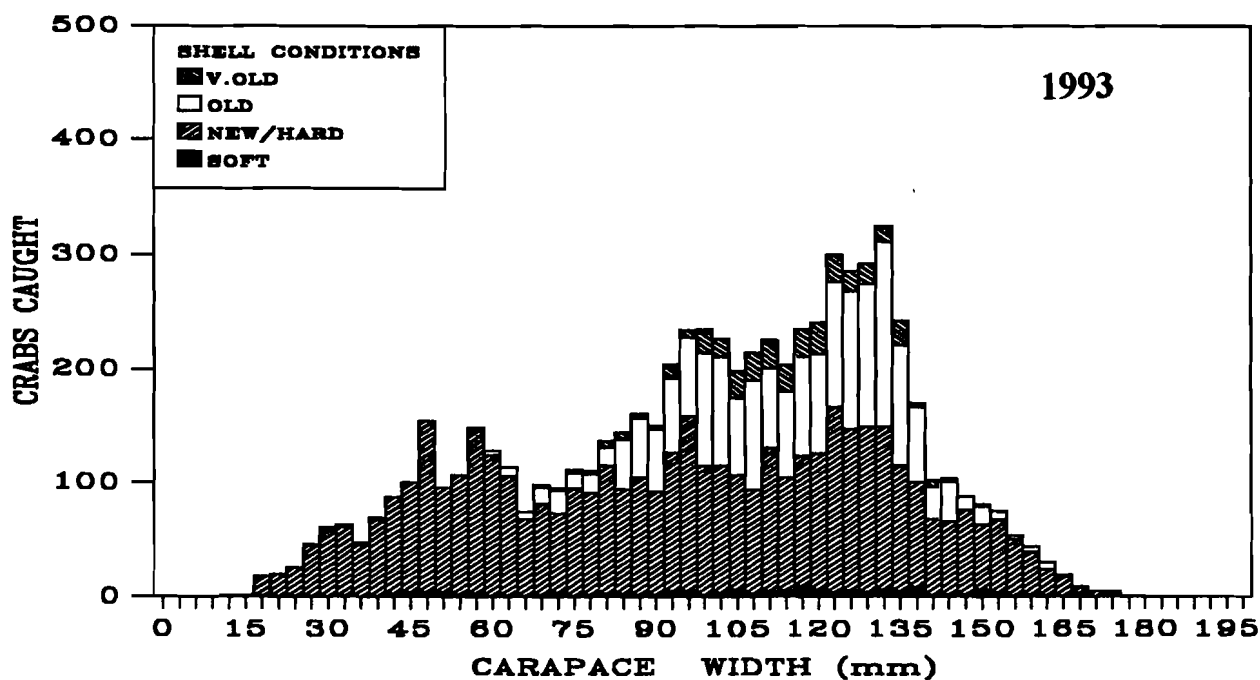
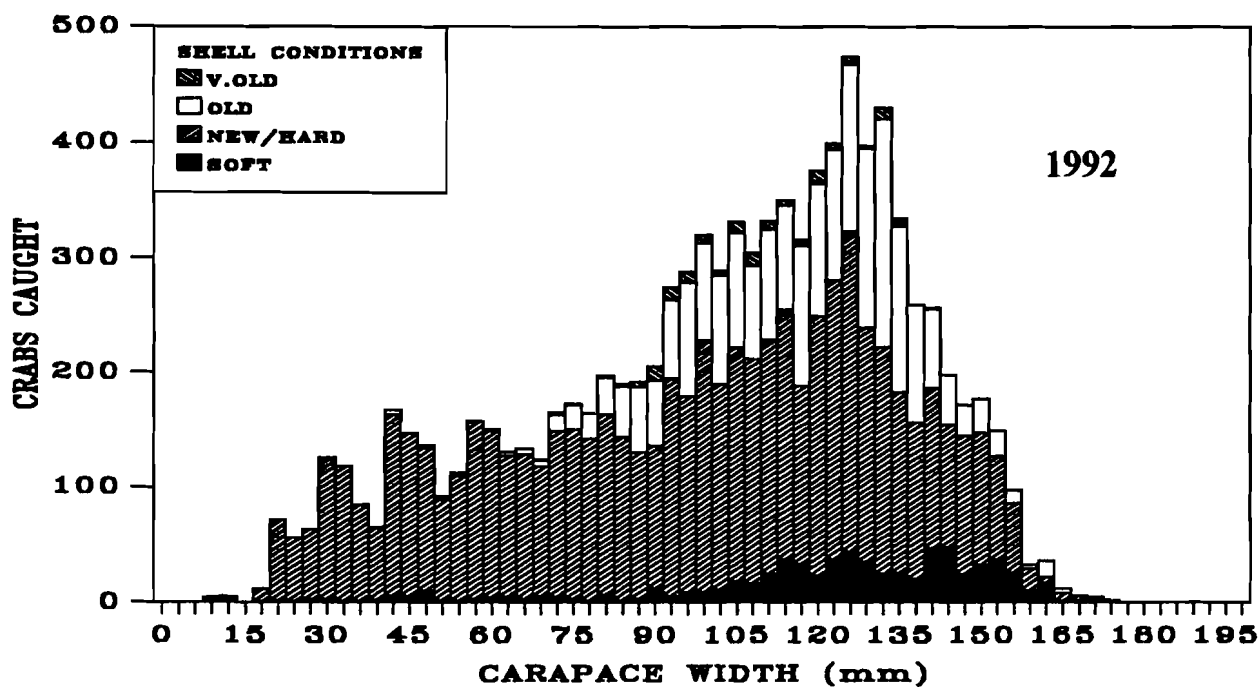


FIGURE 8. Size-frequency of male *C. bairdi* in the Bristol Bay and Pribilof Districts, by 3 mm width classes, 1992-1993.

C. bairdi
Eastern District

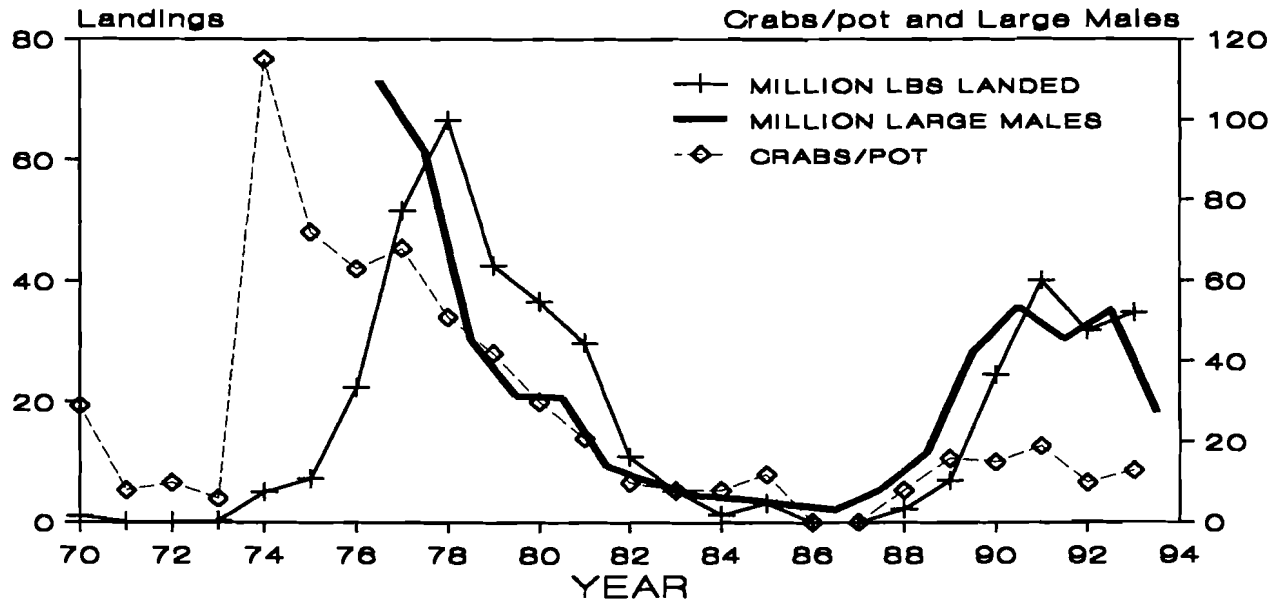


FIGURE 9. U.S. landings in millions of pounds, CPUE as crabs/pot, and the abundance of large male *C. bairdi* in millions in the Bristol Bay and Pribilof Districts (prior to 1989) or the Eastern District (since 1988), estimated from the NMFS trawl survey.

females were -56% and -42%, respectively. Among mature females, 1% were softshells; 23% were new-hardshells, of which 97% carried new eggs, and 76% were oldshells, of which 79% carried new eggs. The majority of the reproductive stock over the last three years has consisted of oldshell crabs which tend to produce more eggs than newshelled females. The period of larval hatching and embryo extrusion was essentially completed by the time of the survey.

The harvest guideline for 1993-94 has been set at 19.7 million lbs, for an exploitation rate of 40% of the legal male biomass (49.3 ± 17.9 million lbs). Last year's landings were 35.1 million lbs with average CPUE of 12.6 crabs/pot-lift (Fig. 9) (Rance Morrison, ADF&G, Box 308, Dutch Harbor, AK 99692, Pers. commun., September 1993).

Snow Crab (*C. opilio*)

Although the legal minimum size limit for *C. opilio* is 3.1 in cw (78 mm), processors currently prefer a minimum size of 4.0 inches (102 mm). Therefore, the size ranges for male *C. opilio* used in this report are defined as follows: sublegal, <3.1 in cw (<78 mm); small, 3.1-3.9 in cw (78-101 mm); large, ≥ 4.0 in cw (≥ 102 mm);

and very large ≥ 4.3 in cw (≥ 110 mm). Estimates of abundance of large males (≥ 4.0 in) are not shown prior to 1984 (Table 5 and Fig. 10) due to differences in area surveyed and processor-preferred minimum size.

The distribution of large males showed an area of high concentration extending northwest from the Pribilof Islands (Chart 4 and Table 10). The majority of high density stations were in the Western District (west of 173°W), indicating that the population has shifted westward over the past two years.

The estimated number of large (≥ 102 mm cw) males (Eastern and Western Districts combined) is 135 million crabs, a decrease of 48% from last year. Approximately 47% of these were in the Eastern District, as opposed to 67% last year. Small males (78-101 mm cw) showed a significant decrease of 24%, but sublegal males (<3.1 in cw) showed a 92% increase reflecting strong juvenile recruitment. The combined abundance of male crabs <4.0 in (Table 5) increased by 39% to a new record high (5.6 billion crabs). The estimated abundance of small females (<50 mm cw) showed a 66% increase, whereas large females (≥ 50 mm cw) showed no significant change, due to growth of juveniles into the ma-

TABLE 5. Annual abundance estimates (millions of crabs) for eastern Bering Sea snow crabs (*C. opilio*) from NMFS surveys (all districts combined).

Size ¹ (mm) Width (in)	Males				Females			Grand Total
	Large	V. Large	Total	Small	Large	Total		
	<102 <4.0	≥102 ≥4.0		≥110 ≥4.3	<50 <2.0		≥50 ≥2.0	
1982	*	*	22	2073	403	2256	2658	4732
1983	*	*	22	1858	673	1228	1913	3760
1984	1237	153	74	1391	610	582	1192	2583
1985	548	75	41	623	258	123	382	1004
1986	1179	83	46	1262	791	422	1212	2474
1987	4439	151	70	4590	2919	2929	5849	10438
1988	3467	171	90	3638	1235	2323	3556	7194
1989	3646	187	81	3833	1923	3791	5713	9546
1990	2860	420	189	3281	1463	2798	4261	7542
1991	3971	484	323	4455	3289	3575	6864	11319
1992	3158	256	165	3414	2434	1914	4348	7763
1993	5597	135	78	5732	3990	1983	5972	11704
East (%) ²	54	47	52	54	48	48	48	51
<u>Limits³</u>								
Lower	3391	104	60	3526	2523	1308	4021	7547
Upper	7802	166	96	7937	5457	2657	7924	15860
± %	39	23	23	38	37	34	33	35

¹ Carapace width (mm).

² Proportion of size group in Eastern District.

³ Mean ± 2 standard errors for most recent year.

* Estimates not available at present time.

C. opilio
All Districts

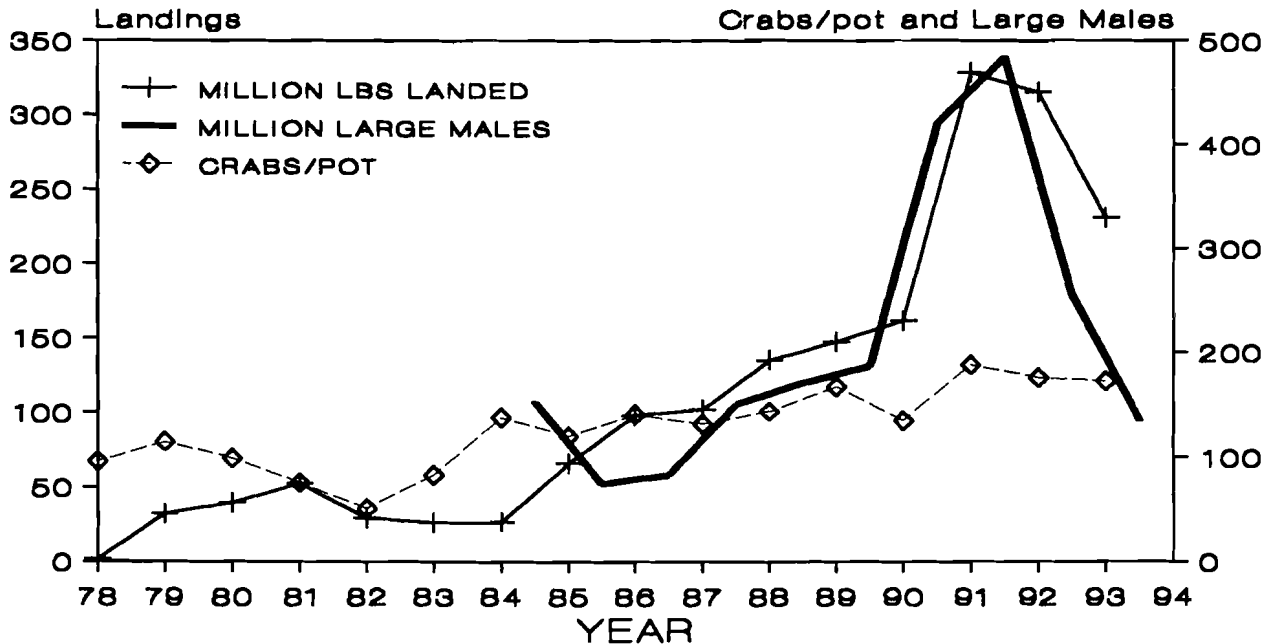


FIGURE 10. U.S. landings in millions of pounds, CPUE as crabs/pot, and the abundance of large male *C. opilio* in millions (all districts combined), estimated from NMFS trawl surveys.

ture female size range, which tended to offset any mortality of older adults. A major cohort consisting of one or more strong year-classes was produced in the early 1980's, and recruitment to the fishery improved steadily from 1986 through 1991 as juveniles matured. The abundance of large males has been declining over the last two years due to natural mortality and fishery removals. However, strong recruitment of postlarval crab has occurred in the last few years resulting in a strong peak of crabs in the 35-60 mm size range (Fig. 11), possibly the result of a strong year class hatched in the period 1988-1990. These crab should recruit to the fishery within 2-4 years. The fishable stock will probably continue to decline over the next two years, followed by a period of increasing abundance.

Among large male crabs, 20% were in molting or softshell condition, 52% were new-hardshells indicating a recent molt, 25% were oldshells, and 3% were very-oldshells. Among mature females, 56% were new-hardshells, of which 99% carried new eggs, and 44% were oldshells, of which 86% carried new eggs. These numbers reflect the recruitment of younger, new-shelled crab, and indicate that hatching and extrusion were nearing completion by the time of

the survey.

The harvest guideline for 1994 has been set at 105.8 million lbs for large crab (≥ 4.0 in cw). Currently there are an estimated 182 (± 42) million lbs of large males within the survey area, of which about 49% by weight were east of 173°W. Preliminary 1993 ADF&G statistics indicate that about 231 million lbs were landed in the most recent season (Fig. 10) with an average CPUE of 173 crabs/pot-lift (Rance Morrison, ADF&G, Box 308, Dutch Harbor, AK 99692, Pers. commun., September 1993).

Hair Crab (*Erimacrus isenbeckii*)

Hair crab are widely scattered across the EBS (Chart 5 and Table 11). Historically, areas of concentration have existed just north of the Alaska Peninsula and near the Pribilof Islands. We have never found many female or small male crab during the survey and hence have little understanding of their distribution. Because of their patchy distribution and low densities, estimates of abundance of hair crab are imprecise. The estimated abundance of large male hair crabs has been declining since 1981 and has been very low since 1988. The current estimate of 11.8 million total males (Table 6) indicates a dramatic increase

C. opilio Width Frequency
All Districts

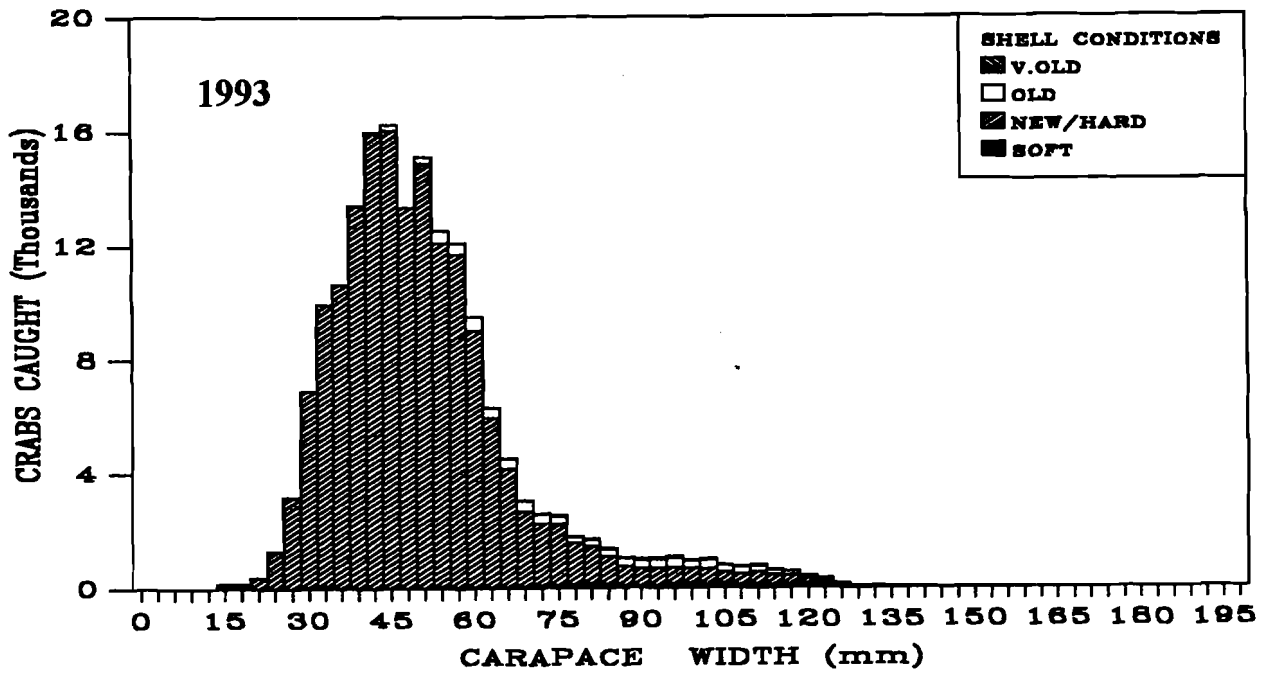
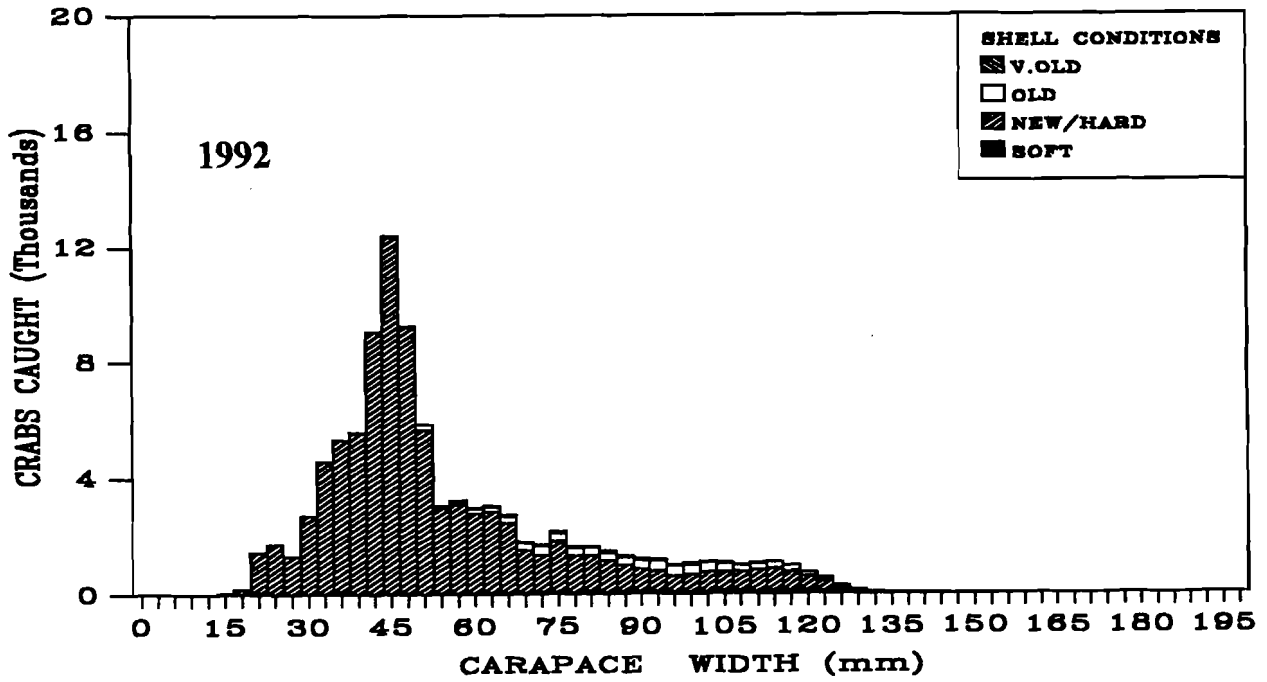


FIGURE 11. Size-frequency of male *C. opilio*, all districts combined, by 3 mm width classes, 1992-1993.

TABLE 6. Annual abundance estimates (millions of crabs) for hair crab (*E. isenbeckii*) from NMFS surveys.

Size ¹ (mm) Width (in)	Males		Total	Females	Grand Total
	Small <90 <3.5	Large ≥90 ≥3.5		Total	
1979	6.4	16.1	22.5	1.6	24.1
1980	6.0	13.7	19.7	3.1	22.8
1981	6.1	15.9	22.0	0.8	22.8
1982	1.4	7.7	9.1	0.4	9.5
1983	0.9	4.8	5.7	0.9	6.6
1984	1.1	2.9	4.0	0.4	4.4
1985	0.53	2.22	2.75	0.22	2.97
1986	0.71	1.46	2.17	0.37	2.54
1987	1.95	1.19	3.14	0.91	4.05
1988	3.98	0.55	4.52	0.85	5.37
1989	12.30	0.40	12.72	0.30	13.02
1990	15.58	0.55	16.14	0.87	17.00
1991	5.88	0.65	6.53	1.33	7.86
1992	3.71	0.30	4.00	0.56	4.56
1993	9.14	2.64	11.77	1.50	13.27
<u>Limits²</u>					
Lower	2.82	0.76	3.97	0.45	4.42
Upper	15.45	4.51	19.57	2.55	22.1
±%	69	71	66	70	66

¹ Carapace length (mm).

² Mean ± 2 standard errors for most recent year.

Hair Crab Length Frequency All Districts

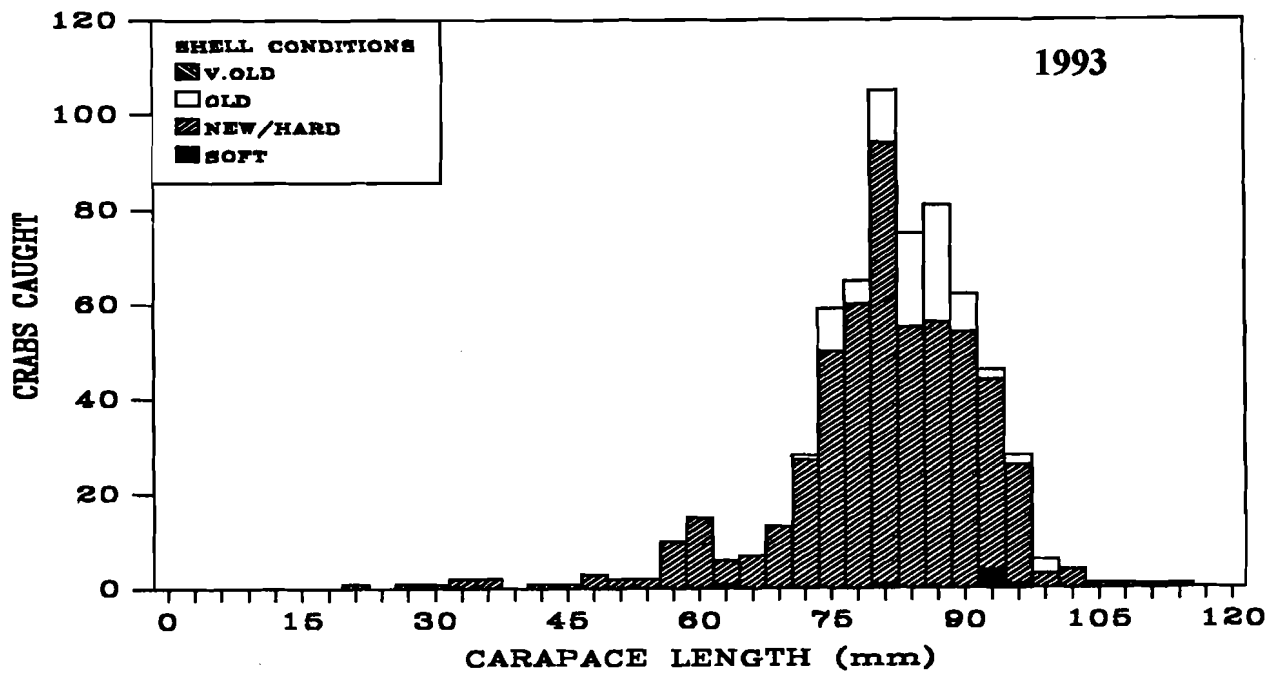
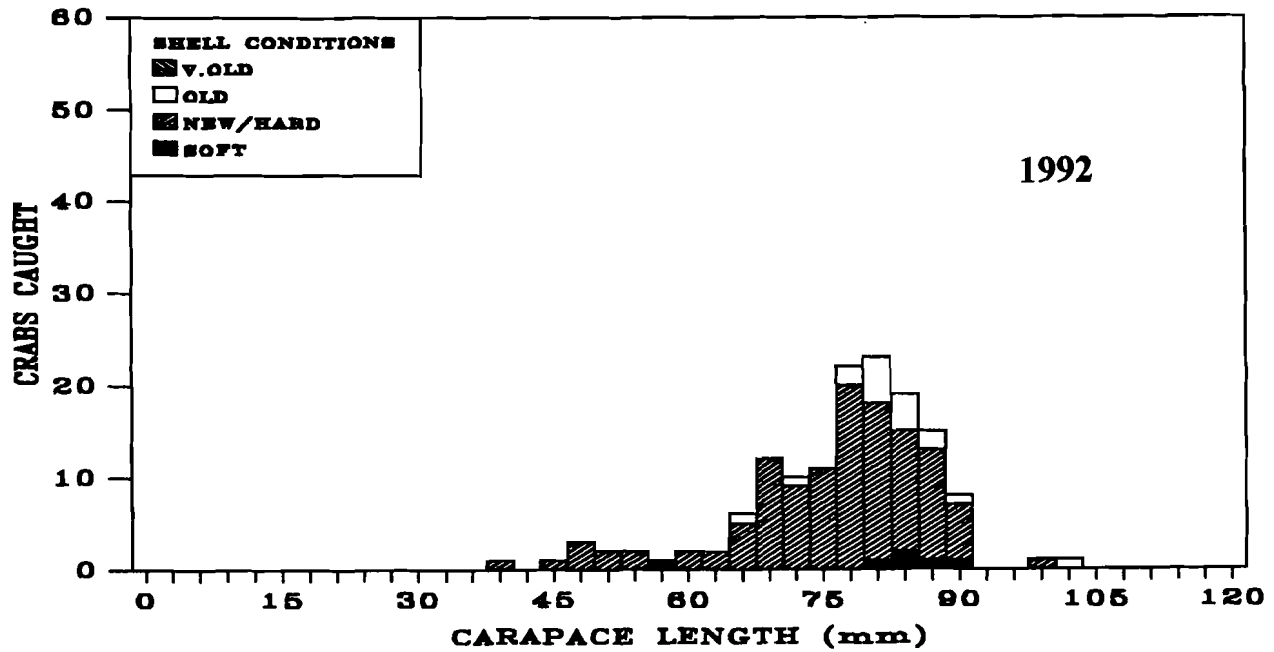


FIGURE 12. Size-frequency of male hair crab (*E. isenbeckii*), by 3 mm length classes, 1992-1993.

Hair Crab All Districts

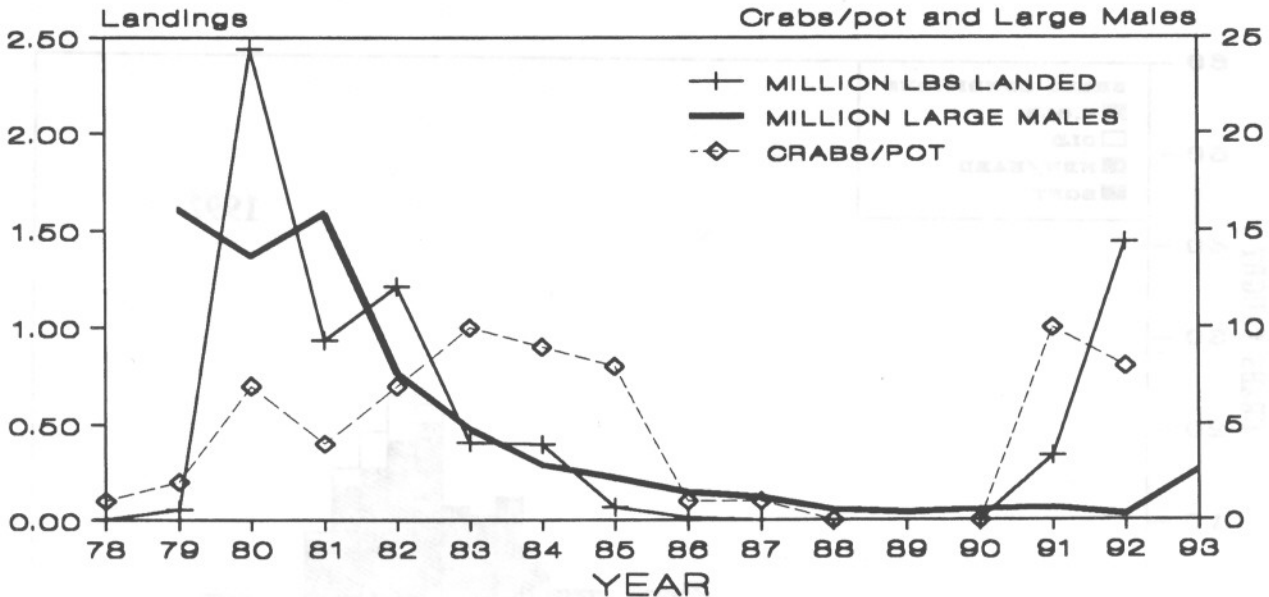


FIGURE 13. U.S. landings in millions of pounds, CPUE as crabs/pot, and the abundance of large male hair crab (*E. isenbeckii*) in millions (all districts combined), estimated from NMFS trawl survey.

of 194% during the past year and is slightly above the long-term, 15-year average (9.64 million). The estimated abundance of large ≥ 3.5 in cl (≥ 90 mm) males shows an increase of 784% from last year, and is now near average levels. The estimated abundance of total females shows an increase of 168% from last year. These large population increases probably reflect a real increase in abundance to some degree, and are consistent with size-frequency data (Fig. 12) which show what appears to be a strong cohort of male crabs first seen in 1989 and 1990. However, changes in abundance estimates also reflect the patchy distribution of hair crab and the inability of the survey to assess them accurately and consistently. The shell conditions for hair crab are difficult to determine, and therefore provide little useful information. The majority of males (79%) and females (92%) were new-hardshell crabs.

A sizeable directed fishery for hair crab has developed over the past several years in the Pribilof Islands. We have defined large males as those crab ≥ 3.5 in cl which is equivalent to 3.5 in cw. However, there is no minimum legal size, and the industry-preferred minimum size is 3.25 in cw. Currently there are an estimated 7.8 (± 5.4) million lbs of male crab ≥ 3.25 in of which 80% are west of 168° W. A harvest guideline of 2.5

million lbs has been set for the Pribilof District. Landings in the previous season were 1.4 million lbs, with CPUE of 8.4 crabs/pot-lift (Fig. 13). (Rance Morrison, ADF&G, Box 308, Dutch Harbor, AK 99692, Pers. commun., September 1993).

Bottom Temperatures

The average bottom water temperature this year (2.9°C) was significantly warmer than last year (1.4°C). Average bottom temperatures by depth for 1993 (1992) were 4.6 (4.1)°C for depths ≥ 27 fm (50m); 2.2 (0.2)°C for depths of 28-54 fm (50-100m); and 3.1 (2.3)°C for depths >54 fm (100m). The coldest waters were encountered north of St. Matthew Island (Chart 6). The warmest waters were found in Kuskokwim Bay and inner Bristol Bay. Most year-to-year variation in temperature is associated with relatively shallow areas of the continental shelf and near shore. There is little year-to-year change in the Pribilof Islands and other shelf edge areas where temperatures are moderated by incursions of deep ocean water. The effect of water temperature on changes in the distribution and abundance of crabs in the eastern Bering Sea is poorly known.

As an index of mean temperature in the

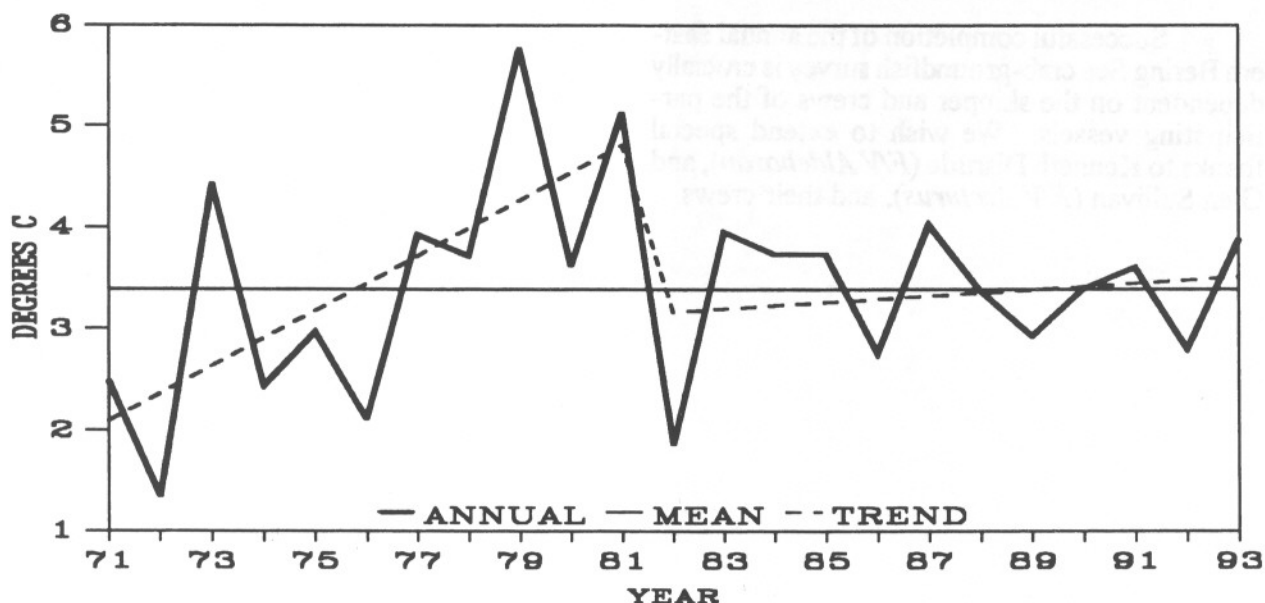


FIGURE 14. Coastal bottom temperature index (mean of 37 survey stations) along the Alaska Peninsula in degrees C for 1971 to present. Horizontal line is average value over the entire period.

area most important to larval and juvenile red king crab growth, the average temperature has been determined from the June survey data for 36 stations along the Alaska Peninsula since 1971. This coastal temperature index for 1993 (1992) was 3.88 (2.80)°C (Fig. 14), which is slightly above the long-term average.

Conclusions

In 1993, data indicate continued declines in recruitment of juveniles to the Bristol Bay red king crab population, such that the estimates of small males and total females are now at historical lows. Despite this trend, the estimate of legal males increased, partially due to the influence of several large catches which occurred at a single station. The weight of evidence suggests that this population is headed for further declines in the near future. In contrast, red king crab and hair crab in the Pribilof District appear to be increasing, continuing an upward trend observed over the past few years. Both species were highly aggregated, with the bulk of their population captured at few stations.

Blue king crabs in the Pribilof District are still below the average level of abundance, showing little change over the past year. However,

blue king crab near St. Matthew Island have been increasing steadily since reaching an all-time low in 1986, and are now well above average levels. These data indicate that recruitment in these two populations is independent, and suggest that the species is being displaced from the Pribilof Islands either due to environmental change (i.e., ocean warming) or competition from increasing numbers of other crab species, e.g. red king crab and hair crab.

The abundance of large Tanner and snow crabs is dropping rapidly due to senescence of crabs which constituted strong year classes hatched in 1983 or 1984. However, another major cohort of juvenile snow crab appears to have been produced in the period 1988-1990, and should lead to improved harvests by 1995 or 1996. Strong cohorts of Tanner and snow crab may be the result of favorable environmental conditions over the outer shelf in the early and late 1980's. In addition, both species have a very large area of habitat suitable for good survival of early juveniles.

Shelf and coastal water temperatures were significantly warmer in 1993 than in 1992, but still remain at near average levels, as they have since 1983.

Acknowledgements

Successful completion of the annual eastern Bering Sea crab-groundfish survey is crucially dependent on the skipper and crews of the participating vessels. We wish to extend special thanks to Kenneth Disrude (*F/V Aldebaran*), and Glen Sullivan (*F/V Arcturus*), and their crews.

APPENDIX A

Methods of Estimating Crab Population Size

Population estimates are determined by the 'area-swept' method, using a stratified systematic sampling design. Distance traveled by the trawl was determined from positions recorded at the beginning and ending of the trawl. Area fished (= area swept by the trawl) was calculated by multiplying the distance by the effective width of the trawl, assumed to equal 50 ft.

All stations (grid squares) within a district or management area were used for estimating the abundance of each species. Stations where multiple (corner or repeat) tows were made were grouped into substrata; these include a block of 12 stations SW of St. Matthew Island, and 16 stations around St. Paul Island.

The catch-per-unit-effort (CPUE), was calculated for each station as number of crabs per square nautical mile. Average CPUE was

calculated within each multiple tow block and each management district. Population estimates were calculated by extrapolating the average CPUE of each size/sex group over the geographic area of each district. Variance and standard error (SE) of the estimate were calculated arithmetically. Confidence intervals were calculated by adding or subtracting 2 SE's to the population estimate. Note that, since the data are usually not normally distributed, variance estimates and confidence intervals may be imprecise, and should be viewed as minimum ranges of the estimate. Nevertheless, they are provided in order to indicate the range of the data relative to previous years' estimates.

APPENDIX B

Crab Shell Conditions

All crabs measured in the NMFS eastern Bering Sea trawl survey are coded as to shell condition. Shell condition categorizes exoskeleton discoloration, scratching and wear, and fouling by encrusting organisms, and can be used to estimate the time since a crab has last molted. The shell condition categories used in this report and the estimated times since last molting that they imply are given below:

Molting¹ : Crab will molt within days or is actively molting. Joints swollen and/or well developed second exoskeleton present.

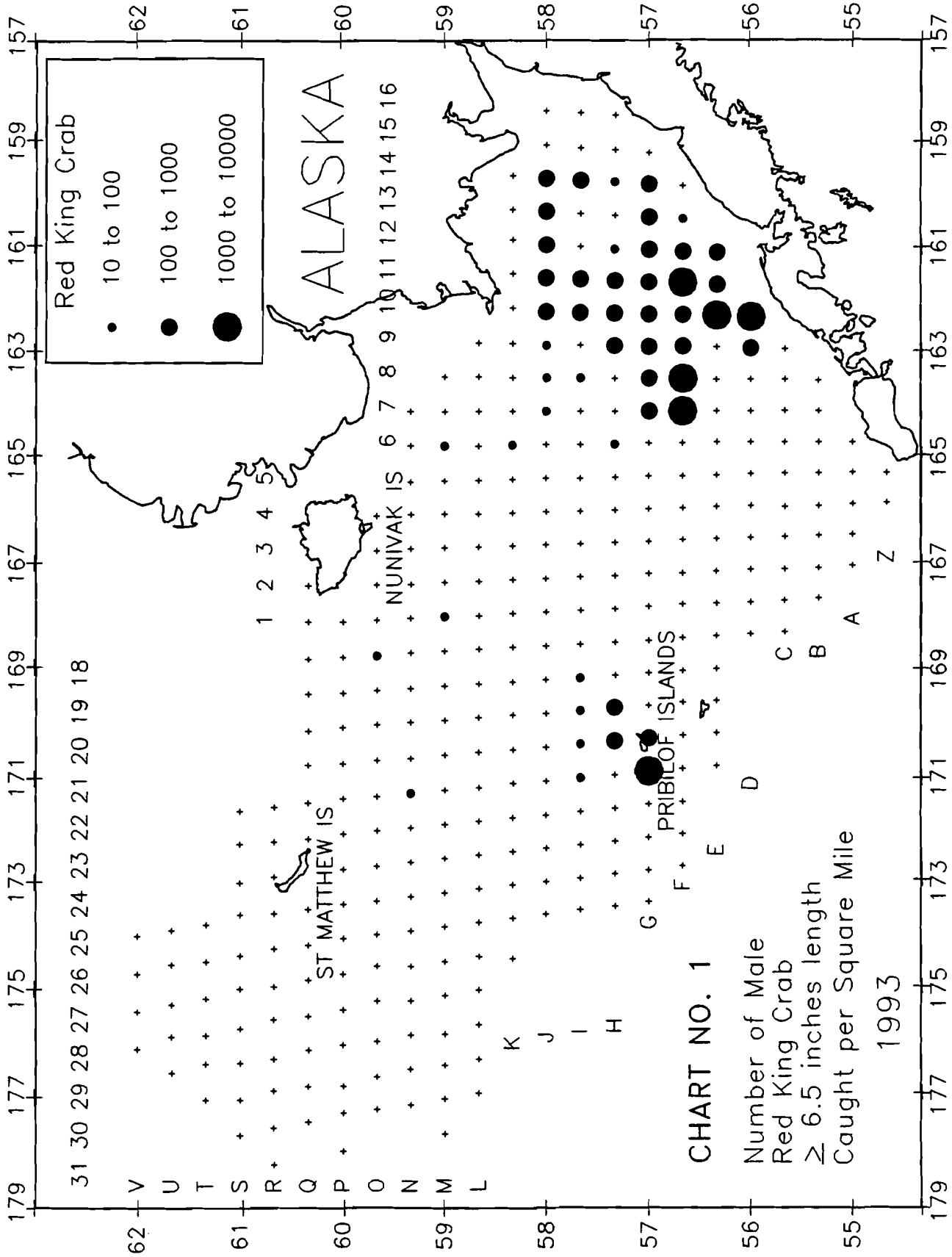
Softshell¹ : Crab has molted within weeks. Carapace is still soft and pliable from recent molt.

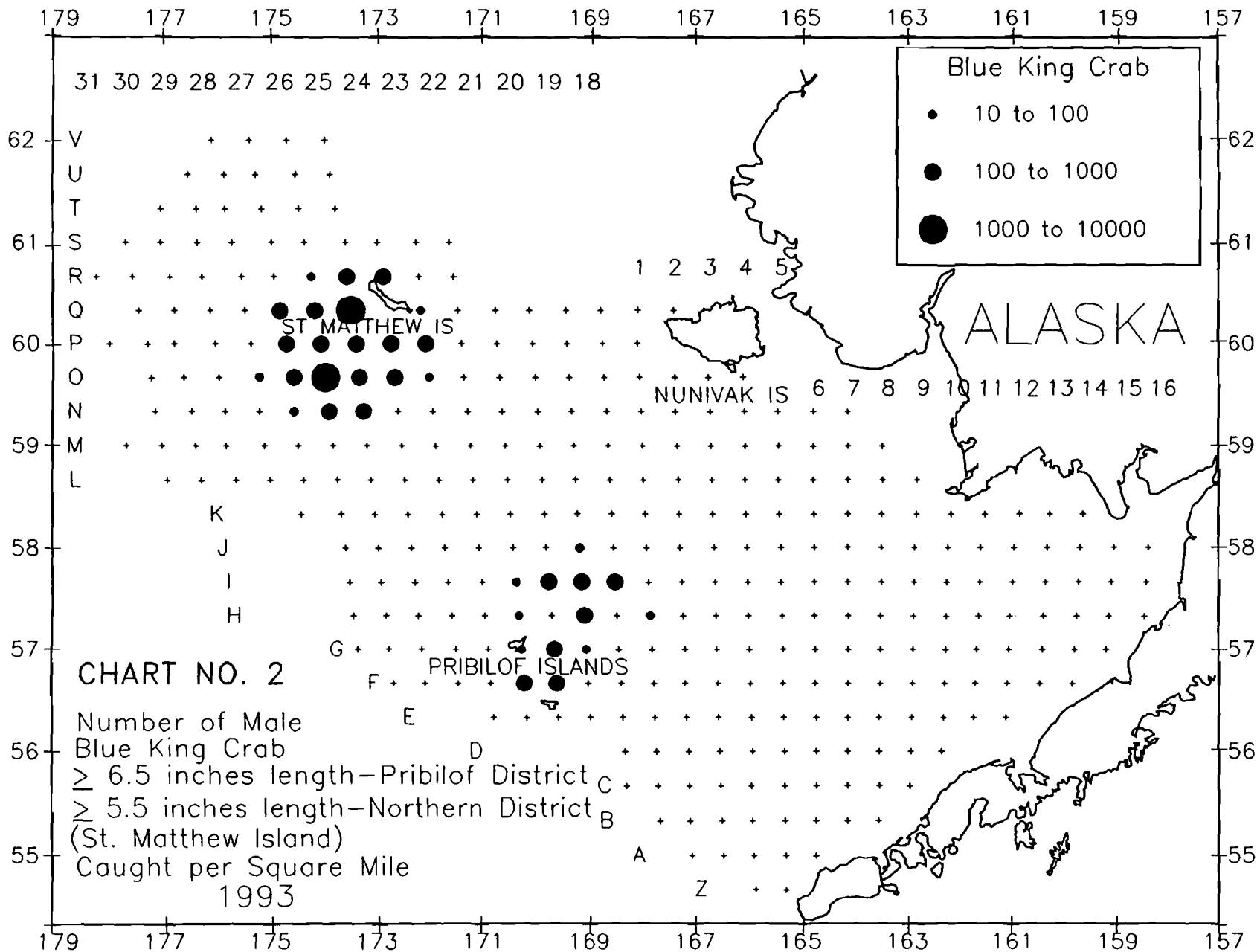
New, Hardshell: Crab has molted within the last year. Carapace firm to hard and lacking scratches, wear, discoloration, and encrusting organisms.

Oldshell: Crab has not molted within the last year. Usually has at least some scratching, spine wear. Crab may have darker coloration, and encrusting organisms are frequently present.

Very Oldshell: A sub-category within Oldshell. Undersides of legs yellowed; abundant scratches and stains; spines and claws very worn; encrusting organisms almost always present and often abundant. It is hard to infer a time since molting. In some years, processors have paid considerably less per pound for these crabs.

¹ Note, that in the report, Molting and Softshell categories are combined. The time span over which these conditions occur in a crab is only a matter of weeks. A high percentage of molting and softshell crabs in a survey population indicates that the molting season is not yet over.





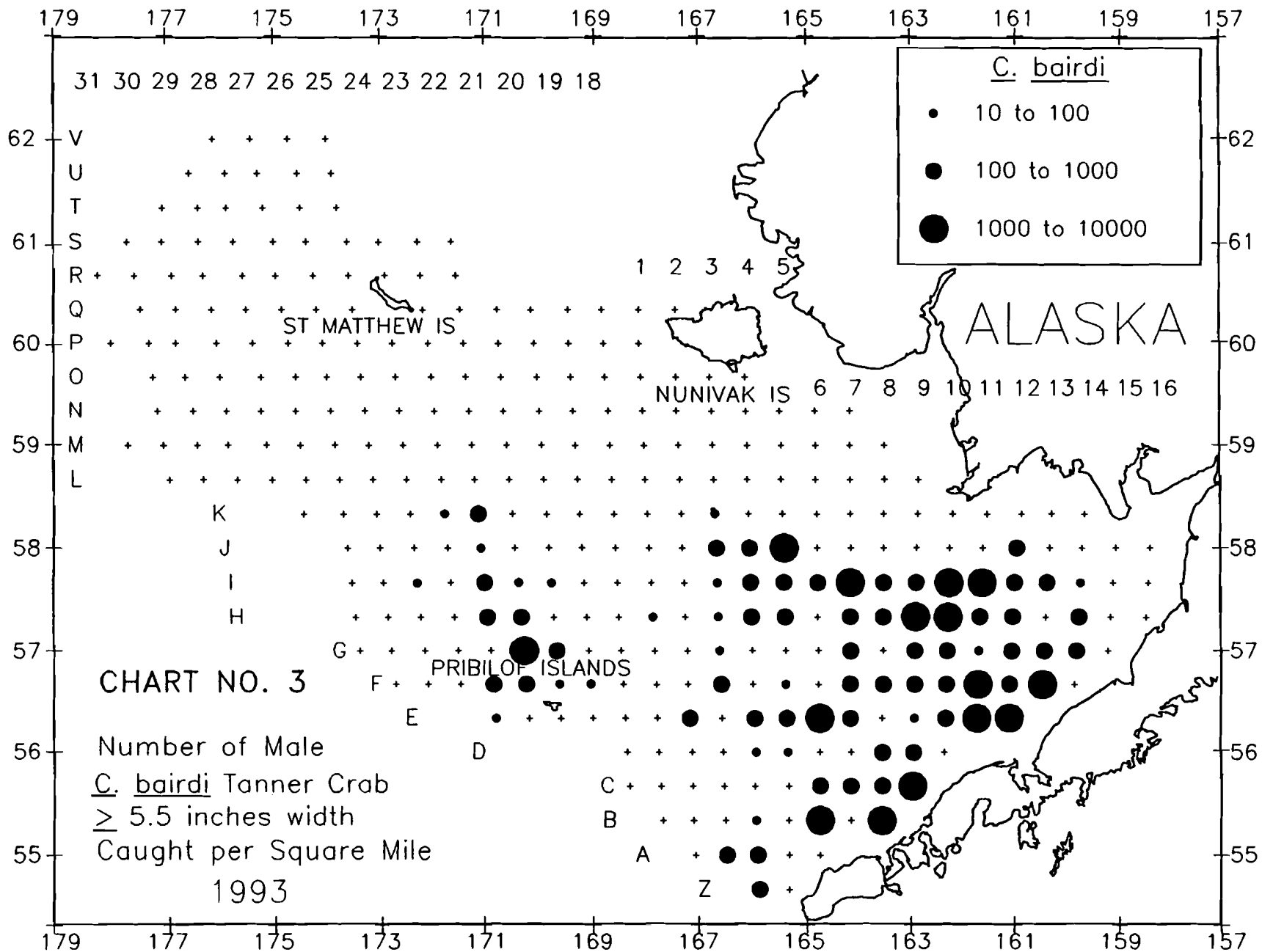


TABLE 7. Summary of crab density by tow for red king crab (*Paralithodes camtschaticus*).

STA- TION	DATE	N. DEG	LAT. MIN	W. DEG	LON. MIN	DEPTH (FM)	MALES				FEMALES			GRAND TOTAL	TOWS	VES SEL
							LARGE	MEDIUM	SMALL	TOTAL	LARGE	SMALL	TOTAL			
D09	06/09/93	56	0.7	162	50.3	41	565	4168	141	4875	848	0	848	5723	1	88
D10	06/09/93	56	0.2	162	14.3	36	1350	1350	0	2700	1755	0	1755	4456	1	89
E10	06/09/93	56	19.6	162	12.0	39	1264	1194	211	2669	843	0	843	3512	1	89
E11	06/08/93	56	21.0	161	35.8	33	620	868	496	1984	1860	124	1984	3968	1	88
E12	06/08/93	56	20.6	160	59.2	29	552	276	1519	2348	552	1243	1795	4143	1	89
F07	06/12/93	56	40.4	163	59.6	39	1391	146	0	1537	0	0	0	1537	1	88
F08	06/12/93	56	39.7	163	22.8	39	4148	2692	0	6840	73	0	73	6913	1	89
F08	06/12/93	56	39.9	163	22.6	40	2430	2962	0	5393	0	0	0	5393	1	89
F08	06/12/93	56	40.2	163	23.1	39	4075	2816	74	6965	0	0	0	6965	1	89
F08	06/12/93	56	39.9	163	23.3	40	4392	6003	0	10395	0	0	0	10395	1	89
F09	06/09/93	56	39.6	162	46.9	38	586	1391	220	2196	0	0	0	2196	1	88
F10	06/09/93	56	39.1	162	10.8	40	336	1007	1410	2753	4163	67	4230	6982	1	89
F11	06/08/93	56	40.2	161	33.9	46	1132	1359	1057	3548	6642	906	7548	11096	1	88
F12	06/08/93	56	39.9	160	58.7	37	643	643	786	2073	1859	286	2145	4218	1	89
F13	06/06/93	56	40.3	160	22.4	31	79	397	1747	2224	1430	1271	2700	4924	1	88
F14	06/06/93	56	40.4	159	45.1	18	0	87	87	174	87	0	87	260	1	89
G07	06/12/93	56	59.9	164	0.1	35	211	0	70	281	0	0	0	281	1	88
G08	06/12/93	57	0.1	163	22.9	34	226	302	0	528	0	0	0	528	1	89
G09	06/10/93	56	59.5	162	47.3	31	156	312	0	467	156	0	156	623	1	88
G10	06/09/93	57	0.4	162	9.5	32	130	325	130	585	1560	0	1560	2145	1	89
G11	06/08/93	56	59.4	161	33.5	36	582	364	582	1528	1965	73	2038	3566	1	88
G12	06/08/93	56	59.9	160	57.5	33	362	289	434	1085	1085	72	1157	2242	1	89
G13	06/06/93	57	0.2	160	20.6	33	392	314	470	1176	1254	78	1333	2509	1	88
G14	06/06/93	57	0.7	159	42.8	30	146	439	293	878	220	73	293	1171	1	89
G21	07/03/93	56	59.9	170	10.7	36	431	0	0	431	12981	0	12981	13412	1	88
G21	07/17/93	56	59.8	169	55.8	35	345	207	276	829	3245	0	3245	4074	1	88
G22	07/03/93	57	7.2	170	28.1	27	11739	2087	522	14347	7038	190	7228	21575	1	88
G22	07/04/93	57	6.9	170	28.7	24	4413	883	2522	7818	6310	734	7044	14862	1	88
G22	07/04/93	57	6.9	170	29.9	29	2442	1984	2290	6717	10572	853	11424	18141	1	88
G22	07/04/93	57	7.4	170	27.5	26	15013	643	214	15871	1368	0	1368	17239	1	88
G22	07/17/93	57	6.7	170	29.2	25	7525	1505	1095	10125	2073	143	2216	12341	1	88
G22	07/17/93	57	6.2	170	35.6	37	1476	2740	2319	6535	9826	229	10054	16589	1	88
H06	06/15/93	57	19.4	164	37.2	34	78	0	0	78	0	0	0	78	1	89
H08	06/12/93	57	20.6	163	22.9	28	0	439	0	439	0	0	0	439	1	89
H09	06/10/93	57	20.1	162	46.3	25	397	159	0	556	79	0	79	635	1	88
H10	06/09/93	57	19.8	162	9.0	26	711	355	71	1137	497	0	497	1635	1	89
H11	06/08/93	57	19.4	161	32.5	28	199	199	0	398	398	0	398	797	1	88
H12	06/08/93	57	19.3	160	56.1	33	75	522	298	895	1864	224	2088	2982	1	89
H14	06/06/93	57	20.2	159	39.9	30	94	188	0	283	188	0	188	471	1	89
H15	06/05/93	57	19.7	159	4.0	25	0	0	0	0	80	0	80	80	1	88

TABLE 7. Summary of crab density by tow for red king crab (*Paralithodes camtschaticus*)(Cont'd).

STA-TION	DATE	N. DEG	LAT. MIN	W. DEG	LON. MIN	DEPTH (FM)	MALES				FEMALES			GRAND TOTAL	TOWS	VES SEL
							LARGE	MEDIUM	SMALL	TOTAL	LARGE	SMALL	TOTAL			
H16	06/04/93	57	21.0	158	24.1	15	0	0	66	66	0	0	0	66	1	88
H20	07/03/93	57	19.7	169	35.9	33	347	0	0	347	0	0	0	347	1	89
H21	07/17/93	57	20.6	170	26.6	34	322	80	0	402	1046	0	1046	1449	1	89
H21	07/17/93	57	26.2	170	6.3	32	100	100	0	199	0	0	0	199	1	89
I08	06/11/93	57	40.1	163	22.0	24	73	146	0	218	0	0	0	218	1	89
I09	06/10/93	57	40.8	162	45.1	22	0	146	0	146	0	0	0	146	1	88
I10	06/10/93	57	39.6	162	7.8	24	237	552	79	868	552	0	552	1420	1	89
I11	06/08/93	57	39.2	161	29.2	27	509	873	146	1528	2692	73	2765	4293	1	88
I12	06/07/93	57	40.3	160	52.7	29	0	339	679	1018	1018	136	1154	2172	1	89
I13	06/06/93	57	40.4	160	15.9	28	0	245	245	489	816	0	816	1305	1	88
I14	06/06/93	57	40.3	159	37.9	26	184	92	92	368	92	0	92	460	1	89
I19	06/30/93	57	39.4	169	1.9	36	69	0	0	69	0	0	0	69	1	88
I20	06/30/93	57	30.8	169	22.9	38	90	0	0	90	0	0	0	90	1	88
I20	07/04/93	57	40.3	169	39.1	37	93	0	0	93	0	0	0	93	1	89
I21	07/03/93	57	30.2	169	59.2	36	154	0	0	154	0	0	0	154	1	89
I22	07/08/93	57	39.9	170	54.2	47	78	0	0	78	0	0	0	78	1	89
J07	06/11/93	58	0.1	163	59.5	24	72	0	0	72	72	0	72	145	1	88
J08	06/11/93	58	0.7	163	22.0	22	76	0	0	76	0	0	0	76	1	89
J09	06/10/93	58	0.0	162	45.0	20	74	0	0	74	147	0	147	221	1	88
J10	06/10/93	57	59.8	162	7.4	19	146	291	0	437	0	0	0	437	1	89
J11	06/07/93	57	58.9	161	29.7	27	214	143	214	572	357	0	357	929	1	88
J12	06/07/93	58	0.3	160	50.2	23	225	225	675	1125	0	450	450	1575	1	89
J13	06/06/93	58	0.3	160	13.4	25	152	152	684	987	380	684	1063	2051	1	88
J14	06/06/93	58	0.1	159	36.0	22	218	73	0	291	0	0	0	291	1	89
J16	06/04/93	58	0.5	158	19.7	17	0	0	169	169	0	253	253	422	1	88
K06	06/16/93	58	21.1	164	38.0	23	82	0	0	82	0	0	0	82	1	89
K07	06/11/93	58	20.5	164	0.0	20	0	0	71	71	71	0	71	143	1	88
K10	06/10/93	58	19.2	162	3.2	24	0	151	0	151	0	0	0	151	1	89
L01	06/27/93	58	39.2	167	51.3	24	0	0	72	72	0	0	0	72	1	88
L02	06/27/93	58	39.0	167	13.4	23	0	0	0	0	0	86	86	86	1	89
L19	06/29/93	58	39.9	169	10.8	33	0	0	0	0	75	0	75	75	1	88
M01	06/27/93	58	59.7	167	55.3	22	73	0	0	73	0	0	0	73	1	88
M06	06/16/93	59	0.5	164	39.2	13	83	0	0	83	0	0	0	83	1	89
N01	06/27/93	59	20.2	167	56.2	0	0	72	0	72	0	0	0	72	1	88
N22	07/07/93	59	20.6	171	11.0	40	79	0	0	79	0	0	0	79	1	89
O18	06/28/93	59	40.1	168	36.8	20	72	72	0	144	0	0	0	144	1	89
Q18	06/28/93	60	20.2	168	40.5	18	0	0	76	76	0	0	0	76	1	89

NOTE - Minimum carapace widths used are:
 LARGE > 6.50"; MEDIUM > 5.20".

TABLE 8. Summary of crab density by tow for blue king crab (*Paralithodes platypus*)

STA-TION	DATE	N. LAT.		W. LON.		DEPTH (FM)	MALES				FEMALES			GRAND TOTAL	TOWS	VES SEL
		DEG	MIN	DEG	MIN		LARGE	MEDIUM	SMALL	TOTAL	LARGE	SMALL	TOTAL			
F20	07/02/93	56	49.5	169	17.7	42	222	74	0	296	222	0	222	519	1	88
F20	07/03/93	56	40.6	169	30.1	42	217	362	0	579	1519	0	1519	2098	1	89
F21	07/03/93	56	49.7	169	54.0	39	631	158	0	789	631	0	631	1420	1	89
G19	06/30/93	57	9.6	168	37.9	40	78	78	78	234	234	0	234	467	1	89
G19	07/01/93	56	59.9	168	56.5	42	69	0	0	69	69	0	69	137	1	88
G20	07/03/93	57	0.0	169	32.7	32	219	0	109	328	3394	0	3394	3722	1	89
G21	07/03/93	56	59.9	170	10.7	36	0	86	1465	1551	517	1551	2068	3620	1	88
G21	07/17/93	56	59.8	169	55.8	35	69	138	0	207	1381	0	1381	1588	1	88
G21	07/17/93	56	53.3	170	16.9	47	72	0	0	72	0	0	0	72	1	88
G22	07/03/93	57	7.2	170	28.1	27	0	0	94	94	0	0	0	94	1	88
G22	07/04/93	57	6.9	170	28.7	24	0	0	0	0	0	73	73	73	1	88
G22	07/04/93	57	7.4	170	27.5	26	0	0	0	0	80	0	80	80	1	88
H01	06/25/93	57	21.2	167	44.6	39	84	0	0	84	0	0	0	84	1	88
H19	06/30/93	57	29.6	168	45.0	37	111	0	0	111	0	0	0	111	1	89
H19	06/30/93	57	20.6	168	59.0	38	987	608	152	1747	684	0	684	2430	1	88
H20	06/30/93	57	10.2	169	18.8	39	0	76	76	152	304	0	304	456	1	88
H20	07/03/93	57	19.7	169	35.9	33	0	116	0	116	116	0	116	231	1	89
H21	07/17/93	57	26.2	170	6.3	32	100	0	0	100	199	0	199	299	1	89
I18	06/30/93	57	40.0	168	24.1	37	164	0	0	164	0	0	0	164	1	89
I19	06/30/93	57	49.8	168	43.8	37	156	0	0	156	0	0	0	156	1	89
I19	06/30/93	57	39.4	169	1.9	36	481	206	275	961	206	0	206	1167	1	88
I20	06/30/93	57	49.6	169	21.3	35	226	302	453	981	151	75	226	1208	1	88
I20	06/30/93	57	30.8	169	22.9	38	270	1170	2520	3961	2070	180	2250	6211	1	88
I20	07/04/93	57	40.3	169	39.1	37	835	1020	186	2041	93	0	93	2134	1	89
I21	07/03/93	57	30.2	169	59.2	36	77	154	0	231	0	0	0	231	1	89
I22	07/08/93	57	39.9	170	54.2	47	0	0	0	0	78	0	78	78	1	89
J19	06/29/93	58	0.4	169	3.4	37	95	0	0	95	0	0	0	95	1	88
N25	07/11/93	59	20.1	173	9.8	54	264	0	0	264	0	0	0	264	1	88
N25	07/11/93	59	29.9	172	53.2	50	309	0	0	309	0	0	0	309	1	89
N26	07/11/93	59	30.0	173	29.5	55	189	189	0	378	0	0	0	378	1	88
N26	07/22/93	59	20.0	173	47.9	59	591	506	253	1350	0	0	0	1350	1	89
N27	07/22/93	59	19.7	174	27.2	65	75	0	0	75	0	0	0	75	1	88
O02	06/27/93	59	39.5	167	16.7	15	0	0	75	75	0	0	0	75	1	89
O23	07/07/93	59	50.0	172	15.4	40	77	77	77	232	0	0	0	232	1	88
O24	07/11/93	59	49.8	172	54.7	43	402	322	402	1127	0	0	0	1127	1	89
O25	07/11/93	59	39.7	173	14.4	52	726	330	198	1255	0	66	66	1321	1	88
O25	07/11/93	59	50.0	173	34.0	52	1167	893	206	2266	69	0	69	2334	1	88
O26	07/21/93	59	40.2	173	53.5	56	1333	314	157	1803	0	0	0	1803	1	89
O27	07/21/93	59	39.9	174	27.7	62	140	0	0	140	0	0	0	140	1	88
O28	07/23/93	59	39.7	175	6.5	68	81	0	0	81	0	0	0	81	1	89

TABLE 8. Summary of crab density by tow for blue king crab (*Paralithodes platypus*)(Cont'd).

STA-TION	DATE	N. DEG	LAT. MIN	W. DEG	LON. MIN	DEPTH (FM)	MALES				FEMALES			GRAND TOTAL	TOWS	VES SEL
							LARGE	MEDIUM	SMALL	TOTAL	LARGE	SMALL	TOTAL			
P23	07/07/93	60	9.2	172	20.1	31	360	144	575	1079	0	791	791	1870	1	88
P23	07/07/93	60	0.0	171	58.2	36	75	150	150	375	0	0	0	375	1	88
P24	07/19/93	60	0.4	172	37.4	35	423	528	423	1374	0	0	0	1374	1	89
P25	07/18/93	60	0.1	173	18.0	40	80	0	160	240	0	0	240	480	1	88
P25	07/19/93	60	10.0	173	1.6	30	1215	760	7443	9418	10785	3342	14127	23545	1	89
P26	07/18/93	60	7.6	173	45.1	47	481	824	549	1854	0	0	0	1854	1	88
P26	07/21/93	59	59.5	173	56.6	52	805	805	366	1977	0	0	0	1977	1	89
P26	07/21/93	59	50.1	174	13.6	57	1063	0	380	1443	0	0	0	1443	1	89
P27	07/21/93	60	9.1	174	20.9	54	422	253	0	675	0	0	0	675	1	89
P27	07/21/93	60	0.5	174	36.9	58	210	0	0	210	0	0	0	210	1	88
Q02	06/28/93	60	20.1	167	17.4	16	0	0	0	0	158	0	158	158	1	89
Q23	07/06/93	60	20.1	172	3.9	31	70	140	1054	1264	0	140	140	1405	1	88
Q25	07/19/93	60	19.7	173	25.4	32	1013	506	4557	6076	675	1013	1688	7764	1	89
Q26	07/21/93	60	20.0	174	6.0	50	434	347	87	868	0	0	0	868	1	89
Q27	07/21/93	60	20.3	174	45.8	56	688	153	0	841	0	0	0	841	1	88
R24	07/19/93	60	40.5	172	47.0	23	618	412	412	1442	0	0	0	1442	1	88
R25	07/19/93	60	40.3	173	28.4	35	250	0	166	416	0	0	0	416	1	88
R26	07/19/93	60	40.0	174	7.8	46	73	0	73	146	73	0	73	220	1	89
S31	07/24/93	61	0.2	177	37.4	74	0	0	0	0	61	0	61	61	1	88
U25	07/20/93	61	39.0	173	35.6	37	0	0	72	72	0	0	0	72	1	88

NOTE - Minimum carapace widths used are:

NORTHERN DISTRICT: LARGE > 5.5"; MEDIUM > 4.3".

SOUTHERN DISTRICT: LARGE > 6.5"; MEDIUM > 5.2".

TABLE 9. Summary of crab density by tow for Tanner crab (*Chionoecetes bairdi*)

STA-TION	DATE	N. DEG	LAT. MIN	W. DEG	LON. MIN	DEPTH (FM)	MALES				FEMALES			GRAND TOTAL	TOWS	VES SEL
							LARGE	MEDIUM	SMALL	TOTAL	LARGE	SMALL	TOTAL			
A02	06/20/93	55	0.3	166	56.9	83	0	454	10733	11187	1391	7652	9043	20230	1	88
A03	06/20/93	55	0.0	166	21.0	76	120	956	4304	5380	1864	5591	7454	12834	1	88
A04	06/20/93	55	0.0	165	44.8	71	128	511	2301	2940	1014	4704	5718	8658	1	89
A05	06/14/93	54	59.7	165	9.1	58	0	1000	923	1923	77	154	231	2154	1	88
B01	06/24/93	55	20.3	167	33.1	81	0	0	2127	2127	0	2279	2279	4405	1	88
B02	06/24/93	55	19.9	166	57.6	76	0	153	3898	4051	611	3669	4280	8331	1	89
B03	06/20/93	55	19.7	166	21.0	71	0	577	7690	8266	2993	8339	11332	19599	1	88
B04	06/20/93	55	20.6	165	47.2	65	78	157	4861	5096	706	5253	5959	11055	1	89
B06	06/14/93	55	20.2	164	35.3	55	1806	7390	1806	11003	442	331	773	11776	1	89
B07	06/13/93	55	19.6	163	59.6	38	0	78	470	549	78	0	78	627	1	88
B08	06/13/93	55	21.0	163	25.2	29	3875	16531	13690	34096	251	251	501	34597	1	89
C01	06/24/93	55	41.0	167	35.5	73	0	177	266	444	89	266	355	798	1	88
C02	06/24/93	55	40.3	166	58.7	73	0	157	1098	1254	0	470	470	1725	1	89
C03	06/19/93	55	39.6	166	22.9	67	0	608	1215	1823	260	781	1042	2864	1	88
C04	06/19/93	55	40.9	165	48.0	63	0	191	1340	1531	287	1244	1531	3062	1	89
C05	06/14/93	55	40.1	165	9.7	57	0	68	68	136	68	68	136	272	1	88
C06	06/14/93	55	39.5	164	35.3	52	424	1413	283	2120	0	0	141	2261	1	89
C07	06/13/93	55	39.9	164	0.7	50	747	5160	1697	7604	3785	2397	6182	13786	1	88
C08	06/13/93	55	40.3	163	24.0	44	217	760	977	1953	217	109	326	2279	1	89
C09	06/09/93	55	39.9	162	50.5	27	6048	10910	2609	19568	538	0	538	20106	1	88
C18	07/16/93	55	40.2	168	11.5	73	0	0	2778	2778	0	1996	1996	4774	1	89
D01	06/24/93	56	0.3	167	37.1	72	0	312	1168	1480	312	1013	1324	2804	1	88
D02	06/24/93	55	59.8	166	59.3	73	0	652	8401	9053	897	2936	3833	12886	1	89
D03	06/19/93	56	0.0	166	24.9	66	0	194	776	970	129	582	711	1681	1	88
D04	06/19/93	56	0.3	165	47.5	57	82	739	657	1478	82	493	575	2053	1	89
D05	06/14/93	56	0.5	165	11.2	51	62	186	62	310	248	186	434	744	1	88
D06	06/14/93	56	0.4	164	35.5	50	0	368	295	663	74	0	74	736	1	89
D07	06/13/93	56	0.6	164	0.3	47	0	415	104	519	312	415	727	1246	1	88
D08	06/13/93	55	59.9	163	24.1	47	222	1482	2001	3705	3705	2890	6595	10300	1	89
D09	06/09/93	56	0.7	162	50.3	41	141	353	495	989	0	0	0	989	1	88
D10	06/09/93	56	0.2	162	14.3	36	0	135	1215	1350	135	0	135	1485	1	89
D18	07/16/93	56	0.9	168	14.6	82	0	0	2185	2185	0	2321	2321	4506	1	88
E01	06/24/93	56	20.2	167	39.3	70	0	357	1608	1966	0	983	983	2949	1	88
E02	06/24/93	56	19.4	167	2.2	62	194	292	4666	5153	97	2528	2625	7777	1	89
E03	06/19/93	56	20.1	166	24.9	54	0	199	66	266	199	332	531	797	1	88
E04	06/19/93	56	20.5	165	48.4	49	860	1398	215	2473	968	968	1936	4409	1	89
E05	06/15/93	56	20.0	165	12.5	46	134	601	1402	2137	267	1936	2203	4340	1	88
E06	06/14/93	56	20.1	164	35.1	47	2257	6770	174	9200	6667	3590	10257	19457	1	89
E07	06/13/93	56	19.9	164	0.1	45	353	2402	1060	3815	2543	1130	3674	7489	1	88
E08	06/13/93	56	20.7	163	24.2	46	0	493	328	821	328	657	985	1806	1	89

TABLE 9. Summary of crab density by tow for Tanner crab (*Chionoecetes bairdi*)(Cont'd)

STA-TION	DATE	N. DEG	LAT. MIN	W. DEG	LON. MIN	DEPTH (FM)	MALES				FEMALES			GRAND TOTAL	TOWS	VES SEL
							LARGE	MEDIUM	SMALL	TOTAL	LARGE	SMALL	TOTAL			
E09	06/09/93	56	19.4	162	47.9	41	71	643	858	1573	572	71	643	2216	1	88
E10	06/09/93	56	19.6	162	12.0	39	351	983	843	2178	351	0	351	2529	1	89
E11	06/08/93	56	21.0	161	35.8	33	1488	1364	496	3348	124	0	124	3472	1	88
E12	06/08/93	56	20.6	160	59.2	29	1381	1243	276	2900	0	0	0	2900	1	89
E18	07/02/93	56	20.0	168	15.0	83	0	0	0	0	483	563	1046	1046	1	89
E19	07/02/93	56	20.3	168	54.2	70	0	360	1510	1870	605	6045	6650	8519	1	88
E20	07/03/93	56	26.1	169	30.6	56	0	0	7900	7900	166	5826	5993	13893	1	88
E21	07/03/93	56	20.9	170	3.4	59	0	2149	6448	8597	2604	14322	16926	25524	1	88
E22	07/09/93	56	20.8	170	40.8	65	73	878	2489	3441	146	1171	1318	4758	1	89
F01	06/24/93	56	40.1	167	40.1	56	0	84	506	591	84	169	253	844	1	88
F02	06/24/93	56	40.0	167	4.1	51	0	846	1384	2230	308	769	1077	3307	1	89
F03	06/19/93	56	40.4	166	25.8	44	141	3038	1625	4804	1865	4663	6528	11333	1	88
F04	06/19/93	56	39.9	165	48.7	42	0	2405	3165	5570	760	3418	4177	9747	1	89
F05	06/15/93	56	40.3	165	13.2	39	69	694	1667	2430	764	556	1319	3750	1	88
F06	06/15/93	56	39.6	164	36.0	40	0	1207	2173	3380	805	563	1368	4748	1	89
F07	06/12/93	56	40.4	163	59.6	39	293	2196	1611	4100	952	805	1757	5856	1	88
F08	06/12/93	56	39.7	163	22.8	39	218	1601	800	2620	1528	73	1601	4221	1	89
F08	06/12/93	56	39.9	163	22.6	40	228	228	532	987	532	76	608	1595	1	89
F08	06/12/93	56	40.2	163	23.1	39	1037	889	296	2223	2149	74	2223	4446	1	89
F08	06/12/93	56	39.9	163	23.3	40	586	1025	146	1757	1391	0	1391	3148	1	89
F09	06/09/93	56	39.6	162	46.9	38	366	512	293	1171	512	0	512	1684	1	88
F10	06/09/93	56	39.1	162	10.8	40	470	403	403	1276	67	0	67	1343	1	89
F11	06/08/93	56	40.2	161	33.9	46	1736	1661	453	3849	2491	0	2491	6340	1	88
F12	06/08/93	56	39.9	160	58.7	37	572	214	500	1287	214	0	214	1501	1	89
F13	06/06/93	56	40.3	160	22.4	31	3733	3018	1509	8260	159	79	238	8499	1	88
F14	06/06/93	56	40.4	159	45.1	18	0	0	260	260	0	0	0	260	1	89
F18	07/02/93	56	38.9	168	17.5	58	0	176	352	528	88	176	264	793	1	89
F19	07/02/93	56	49.7	168	37.1	52	176	793	1057	2025	440	2906	3346	5372	1	89
F19	07/02/93	56	39.9	168	55.1	52	0	928	1519	2447	169	3291	3460	5907	1	88
F20	07/02/93	56	49.5	169	17.7	42	0	148	222	370	445	222	667	1037	1	88
F20	07/03/93	56	40.6	169	30.1	42	72	579	1591	2242	217	145	362	2604	1	89
F21	07/03/93	56	49.7	169	54.0	39	1620	9073	8425	19117	6332	7538	13870	32987	1	89
F21	07/03/93	56	40.9	170	7.6	54	168	1676	5699	7543	6005	10008	16013	23556	1	88
F22	07/03/93	56	49.8	170	29.3	55	159	238	2621	3018	715	3495	4210	7228	1	88
F22	07/09/93	56	40.0	170	43.8	61	190	285	1044	1519	854	1899	2753	4272	1	89
F23	07/09/93	56	39.4	171	20.4	65	0	124	620	744	248	372	620	1364	1	89
F24	07/09/93	56	39.7	171	58.5	68	0	0	1844	1844	0	754	754	2598	1	88
F25	07/09/93	56	40.2	172	33.9	75	0	0	1013	1013	0	1080	1080	2093	1	88
G01	06/25/93	57	0.2	167	42.7	42	0	157	1568	1725	157	1176	1333	3058	1	88
G02	06/25/93	56	59.8	167	5.2	39	0	158	1499	1657	789	789	1578	3235	1	89

TABLE 9. Summary of crab density by tow for Tanner crab (*Chionoecetes bairdi*)(Cont'd)

STA- TION	DATE	N. DEG	LAT. MIN	W. DEG	LON. MIN	DEPTH (FM)	MALES				FEMALES			GRAND TOTAL	TOWS	VES SEL
							LARGE	MEDIUM	SMALL	TOTAL	LARGE	SMALL	TOTAL			
G03	06/19/93	57	0.8	166	26.5	38	75	150	825	1050	600	75	675	1725	1	88
G04	06/18/93	57	0.6	165	51.1	37	0	75	1200	1275	600	225	825	2100	1	89
G05	06/15/93	57	0.3	165	13.6	37	0	651	2966	3617	217	434	651	4268	1	88
G06	06/15/93	56	59.5	164	35.9	37	0	385	1154	1538	231	0	231	1769	1	89
G07	06/12/93	56	59.9	164	0.1	35	140	1686	1335	3161	1545	70	1616	4777	1	88
G08	06/12/93	57	0.1	163	22.9	34	0	528	377	981	377	0	377	1359	1	89
G09	06/10/93	56	59.5	162	47.3	31	234	389	1324	1947	1636	0	1636	3583	1	88
G10	06/09/93	57	0.4	162	9.5	32	390	585	195	1170	455	0	455	1625	1	89
G11	06/08/93	56	59.4	161	33.5	36	73	437	218	728	218	0	218	946	1	88
G12	06/08/93	56	59.9	160	57.5	33	145	217	289	651	434	72	506	1157	1	89
G13	06/06/93	57	0.2	160	20.6	33	549	78	470	1098	235	0	235	1333	1	88
G14	06/06/93	57	0.7	159	42.8	30	220	0	512	732	146	0	146	878	1	89
G18	06/30/93	56	59.7	168	19.8	43	0	0	1971	1971	438	2190	2628	4598	1	89
G19	06/30/93	57	9.6	168	37.9	40	0	78	1013	1091	156	78	234	1324	1	89
G19	07/01/93	56	59.9	168	56.5	42	0	137	412	549	206	137	343	893	1	88
G20	07/03/93	57	0.0	169	32.7	32	109	766	328	1204	109	438	547	1752	1	89
G21	07/03/93	56	59.9	170	10.7	36	1207	1207	1034	3447	86	86	172	3620	1	88
G21	07/17/93	56	53.3	170	16.9	47	4842	1907	10270	17019	1591	6655	8246	25265	1	88
G22	07/03/93	57	7.2	170	28.1	27	0	0	1036	1036	94	94	188	1225	1	88
G22	07/08/93	56	59.5	170	47.2	51	0	191	383	574	96	287	383	957	1	89
G22	07/17/93	56	55.4	170	49.0	55	0	0	947	947	79	710	789	1736	1	88
G23	07/09/93	56	59.2	171	23.7	60	0	110	884	994	0	773	773	1768	1	89
G24	07/09/93	57	0.3	172	2.2	64	0	83	3163	3246	166	2913	3080	6326	1	88
G25	07/09/93	56	59.7	172	39.5	67	0	0	1820	1820	130	1300	1430	3249	1	88
G26	07/09/93	57	0.6	173	15.6	77	0	0	9982	9982	0	10978	10978	20961	1	88
H01	06/25/93	57	21.2	167	44.6	39	84	0	1090	1173	0	168	168	1341	1	88
H02	06/25/93	57	20.8	167	6.9	37	0	75	225	300	0	75	75	375	1	89
H03	06/18/93	57	20.0	166	28.8	36	75	0	225	300	0	0	0	300	1	88
H04	06/18/93	57	20.2	165	52.5	35	142	213	711	1066	71	0	71	1137	1	89
H05	06/15/93	57	20.6	165	14.0	34	531	863	9098	10492	266	199	465	10957	1	88
H06	06/15/93	57	19.4	164	37.2	34	0	784	2352	3136	549	78	627	3763	1	89
H07	06/12/93	57	20.1	163	59.8	32	579	579	1808	2966	72	0	72	3038	1	88
H08	06/12/93	57	20.6	163	22.9	28	732	1025	3807	5564	439	0	586	6149	1	89
H09	06/10/93	57	20.1	162	46.3	25	1112	2303	12470	15885	3415	0	3415	19301	1	88
H10	06/09/93	57	19.8	162	9.0	26	1066	284	1066	2416	355	0	355	2772	1	89
H11	06/08/93	57	19.4	161	32.5	28	332	266	332	930	199	0	199	1129	1	88
H12	06/08/93	57	19.3	160	56.1	33	373	75	75	522	149	0	149	671	1	89
H14	06/06/93	57	20.2	159	39.9	30	377	565	377	1319	94	0	94	1413	1	89
H15	06/05/93	57	19.7	159	4.0	25	0	80	480	560	0	0	0	560	1	88
H18	06/30/93	57	19.8	168	22.0	39	0	0	535	535	76	0	76	611	1	89

TABLE 9. Summary of crab density by tow for Tanner crab (*Chionoecetes bairdi*)(Cont'd)

STA-TION	DATE	N. DEG	LAT. MIN	W. DEG	LON. MIN	DEPTH (FM)	MALES				FEMALES			GRAND TOTAL	TOWS	VES SEL
							LARGE	MEDIUM	SMALL	TOTAL	LARGE	SMALL	TOTAL			
H19	06/30/93	57	29.6	168	45.0	37	0	0	111	111	0	0	0	111	1	89
H19	06/30/93	57	20.6	168	59.0	38	0	456	2582	3038	0	608	608	3646	1	88
H20	06/30/93	57	10.2	169	18.8	39	0	76	608	684	0	76	76	760	1	88
H20	07/03/93	57	19.7	169	35.9	33	0	0	0	0	347	0	347	347	1	89
H21	07/17/93	57	20.6	170	26.6	34	80	0	483	563	0	241	241	805	1	89
H21	07/17/93	57	26.2	170	6.3	32	299	299	1295	1893	398	0	398	2291	1	89
H22	07/08/93	57	20.0	170	50.9	44	220	1537	366	2123	1025	512	1537	3660	1	89
H22	07/17/93	57	28.9	170	48.4	44	66	133	133	332	664	266	930	1262	1	89
H23	07/08/93	57	20.7	171	28.7	54	0	129	323	452	0	129	129	582	1	88
H23	07/17/93	57	21.9	171	6.1	49	0	153	306	459	0	0	0	459	1	89
H24	07/10/93	57	19.7	172	5.7	58	0	0	1540	1540	342	1883	2225	3765	1	89
H25	07/10/93	57	20.7	172	47.8	63	0	0	3230	3230	0	1461	1461	4692	1	88
H26	07/18/93	57	20.5	173	19.9	66	0	0	8747	8747	619	11843	12462	21208	1	89
I01	06/25/93	57	40.1	167	46.4	37	0	72	723	796	0	72	72	868	1	88
I02	06/25/93	57	40.2	167	8.0	36	0	75	149	224	0	0	0	224	1	89
I03	06/18/93	57	40.1	166	30.8	34	74	221	147	442	0	74	74	516	1	88
I04	06/18/93	57	40.1	165	53.1	34	868	1953	1591	4412	0	0	0	4412	1	89
I05	06/15/93	57	40.3	165	14.9	31	213	497	924	1635	213	0	213	1848	1	88
I06	06/15/93	57	39.8	164	37.3	28	220	586	512	1318	0	73	73	1391	1	89
I07	06/12/93	57	40.2	163	59.5	26	1001	2287	1287	4575	71	0	71	4646	1	88
I08	06/11/93	57	40.1	163	22.0	24	146	218	146	509	0	0	0	509	1	89
I09	06/10/93	57	40.8	162	45.1	22	586	366	439	1391	0	0	0	1391	1	88
I10	06/10/93	57	39.6	162	7.8	24	2999	1815	947	5760	0	0	0	5760	1	89
I11	06/08/93	57	39.2	161	29.2	27	1310	291	291	1892	0	0	0	1892	1	88
I12	06/07/93	57	40.3	160	52.7	29	815	272	136	1222	68	0	68	1290	1	89
I13	06/06/93	57	40.4	160	15.9	28	163	163	326	652	0	0	0	652	1	88
I14	06/06/93	57	40.3	159	37.9	26	92	276	92	460	0	0	0	460	1	89
I15	06/05/93	57	39.3	159	1.2	24	0	79	0	79	0	0	0	79	1	88
I19	06/30/93	57	39.4	169	1.9	36	0	0	137	137	0	69	69	206	1	88
I20	06/30/93	57	49.6	169	21.3	35	0	75	151	226	0	75	75	302	1	88
I20	06/30/93	57	30.8	169	22.9	38	90	540	2610	3241	0	450	450	3691	1	88
I20	07/04/93	57	40.3	169	39.1	37	0	93	278	371	0	0	0	371	1	89
I21	07/03/93	57	30.2	169	59.2	36	0	77	692	769	0	0	0	769	1	89
I21	07/04/93	57	40.3	170	14.9	39	140	0	419	559	0	0	0	559	1	89
I22	07/04/93	57	30.0	170	35.2	39	208	208	556	972	0	69	69	1042	1	88
I22	07/04/93	57	49.9	170	37.7	41	80	241	322	644	0	80	80	724	1	88
I22	07/08/93	57	39.9	170	54.2	47	78	0	706	784	0	0	0	784	1	89
I23	07/08/93	57	40.1	171	31.4	53	0	127	190	316	0	127	127	443	1	88
I24	07/10/93	57	39.5	172	9.7	58	75	0	1132	1208	151	679	830	2038	1	89
I25	07/10/93	57	40.4	172	48.1	64	0	0	2859	2859	60	417	477	3336	1	88

TABLE 9. Summary of crab density by tow for Tanner crab (*Chionoecetes bairdi*)(Cont'd)

STA-TION	DATE	N. LAT. DEG	LAT. MIN	W. LON. DEG	LON. MIN	DEPTH (FM)	MALES				FEMALES			GRAND TOTAL	TOWS	VES SEL
							LARGE	MEDIUM	SMALL	TOTAL	LARGE	SMALL	TOTAL			
I26	07/18/93	57	39.8	173	24.4	62	0	0	4697	4697	298	4622	4921	9617	1	89
J03	06/18/93	57	59.9	166	30.3	31	160	799	2718	3678	0	0	0	3678	1	88
J04	06/18/93	58	0.1	165	54.4	28	154	461	154	769	0	0	0	769	1	89
J05	06/16/93	57	59.6	165	15.0	26	1625	3561	4335	9521	155	77	387	9908	1	88
J07	06/11/93	58	0.1	163	59.5	24	0	217	434	651	0	0	0	651	1	88
J10	06/10/93	57	59.8	162	7.4	19	0	73	146	218	0	0	0	218	1	89
J11	06/07/93	57	58.9	161	29.7	27	0	0	71	71	0	0	0	71	1	88
J12	06/07/93	58	0.3	160	50.2	23	225	0	113	338	0	0	0	338	1	89
J13	06/06/93	58	0.3	160	13.4	25	0	0	228	228	0	0	0	228	1	88
J19	06/29/93	58	0.4	169	3.4	37	0	0	949	949	0	0	0	949	1	88
J20	07/04/93	58	0.6	169	41.8	37	0	0	74	74	0	0	0	74	1	89
J21	07/04/93	57	59.4	170	19.9	39	0	0	470	470	0	0	0	470	1	89
J22	07/08/93	58	0.2	170	58.0	46	78	0	78	157	0	0	0	157	1	89
J23	07/08/93	58	0.0	171	35.5	52	0	0	470	470	0	0	0	470	1	88
J24	07/10/93	57	59.3	172	13.8	56	0	0	1161	1161	0	77	77	1238	1	89
J25	07/10/93	57	59.7	172	51.8	59	0	225	1275	1500	900	975	1875	3376	1	88
J26	07/12/93	58	0.2	173	29.7	63	0	69	412	481	69	69	137	618	1	88
K02	06/25/93	58	19.9	167	11.0	27	0	0	80	80	0	0	0	80	1	89
K03	06/18/93	58	19.9	166	32.9	24	71	71	0	143	0	0	0	143	1	88
K04	06/18/93	58	21.1	165	55.6	22	0	146	73	218	0	0	0	218	1	89
K05	06/16/93	58	20.6	165	17.2	22	0	71	71	143	0	0	0	143	1	88
K06	06/16/93	58	21.1	164	38.0	23	0	0	82	82	0	0	0	82	1	89
K19	06/29/93	58	20.4	169	7.1	36	0	0	154	154	0	77	77	231	1	88
K22	07/08/93	58	20.2	171	1.2	45	238	0	79	318	0	0	0	318	1	89
K23	07/08/93	58	19.9	171	38.5	52	71	0	142	213	0	0	0	213	1	88
K24	07/10/93	58	19.5	172	17.9	55	0	0	1019	1019	0	78	78	1098	1	89
K25	07/10/93	58	20.4	172	56.2	59	0	81	729	810	324	1377	1701	2511	1	88
K26	07/12/93	58	18.9	173	33.9	63	0	0	3983	3983	473	3173	3646	7629	1	88
K27	07/12/93	58	20.2	174	19.2	94	0	0	4299	4299	0	4216	4216	8515	1	88
L19	06/29/93	58	39.9	169	10.8	33	0	75	375	450	0	0	0	450	1	88
L24	07/10/93	58	39.0	172	21.8	55	0	0	810	810	0	162	162	972	1	89
L25	07/10/93	58	39.9	173	0.6	61	0	66	925	991	528	594	1123	2113	1	88
L26	07/22/93	58	41.2	173	38.4	68	0	364	2911	3275	218	0	218	3493	1	89
L27	07/22/93	58	40.0	174	16.9	86	0	0	1846	1846	0	1692	1692	3538	1	89
L28	07/22/93	58	44.2	174	54.7	81	0	0	1578	1578	79	2841	2920	4498	1	89
L29	07/22/93	58	40.3	175	34.2	74	0	0	389	389	156	701	857	1246	1	88
L30	07/26/93	58	40.2	176	12.1	78	0	0	1919	1919	0	1137	1137	3056	1	89
L31	07/26/93	58	40.5	176	51.2	73	0	0	593	593	0	1186	1186	1778	1	89
M19	06/29/93	58	59.6	169	11.7	28	0	0	133	133	0	0	0	133	1	88
M20	07/05/93	59	0.2	169	49.7	33	0	0	0	0	0	71	71	71	1	89

TABLE 9. Summary of crab density by tow for Tanner crab (*Chionoecetes bairdi*)(Cont'd)

STA-TION	DATE	N. DEG	LAT. MIN	W. DEG	LON. MIN	DEPTH (FM)	MALES				FEMALES			GRAND TOTAL	TOWS	VES SEL
							LARGE	MEDIUM	SMALL	TOTAL	LARGE	SMALL	TOTAL			
M24	07/11/93	59	0.5	172	26.0	53	0	0	82	82	0	0	0	82	1	89
M25	07/11/93	59	0.1	173	3.9	58	0	0	1037	1037	0	74	74	1111	1	88
M26	07/22/93	59	0.6	173	43.3	64	0	560	5836	6396	480	879	1359	7755	1	89
M27	07/22/93	58	59.9	174	22.6	69	0	0	3384	3384	154	1692	1846	5230	1	88
M28	07/22/93	59	0.1	175	0.7	70	0	0	670	670	0	84	84	754	1	88
M29	07/22/93	58	59.8	175	44.0	73	0	79	318	397	79	0	79	477	1	88
M30	07/26/93	59	0.3	176	18.6	74	0	81	2592	2673	891	1539	2430	5104	1	89
M31	07/26/93	58	59.9	176	56.6	74	0	0	300	300	75	600	675	975	1	89
M32	07/26/93	59	0.1	177	33.6	74	0	0	1329	1329	63	253	316	1646	1	88
N01	06/27/93	59	20.2	167	56.2	0	0	0	0	0	0	72	72	72	1	88
N24	07/11/93	59	19.7	172	29.8	47	0	0	217	217	0	109	109	326	1	89
N25	07/11/93	59	20.1	173	9.8	54	0	0	528	528	0	0	0	528	1	88
N26	07/11/93	59	30.0	173	29.5	55	0	63	252	315	0	63	63	378	1	88
N26	07/22/93	59	20.0	173	47.9	59	0	0	1097	1097	0	591	591	1688	1	89
N27	07/22/93	59	19.7	174	27.2	65	0	0	1800	1800	225	225	450	2250	1	88
N28	07/23/93	59	20.5	175	6.6	72	0	81	2268	2349	810	972	1782	4132	1	89
N29	07/23/93	59	18.9	175	45.2	75	0	66	398	465	133	332	465	930	1	88
N30	07/25/93	59	20.7	176	20.1	74	0	0	1931	1931	227	227	454	2385	1	89
N31	07/26/93	59	20.3	177	3.1	82	0	61	550	611	0	122	122	733	1	88
O23	07/07/93	59	50.0	172	15.4	40	0	77	0	77	0	0	0	77	1	88
O24	07/11/93	59	49.8	172	54.7	43	0	0	80	80	0	0	0	80	1	89
O25	07/11/93	59	39.7	173	14.4	52	0	0	132	132	0	66	66	198	1	88
O25	07/11/93	59	50.0	173	34.0	52	0	0	69	69	0	0	0	69	1	88
O27	07/21/93	59	39.9	174	27.7	62	0	0	70	70	0	0	0	70	1	88
O28	07/23/93	59	39.7	175	6.5	68	0	0	162	162	0	162	162	324	1	89
O30	07/25/93	59	40.3	176	32.6	73	0	199	1202	1401	598	936	1534	2935	1	89
O31	07/26/93	59	39.7	177	8.0	95	0	192	512	704	831	768	1599	2303	1	88
P24	07/19/93	60	0.4	172	37.4	35	0	0	106	106	0	0	0	106	1	89
P25	07/19/93	60	10.0	173	1.6	30	0	0	152	152	0	0	0	152	1	89
P28	07/23/93	60	0.1	175	15.9	64	0	0	70	70	0	0	0	70	1	89
P29	07/23/93	59	59.9	175	55.2	70	0	64	64	128	0	0	0	128	1	88
P31	07/25/93	59	58.7	177	11.7	75	0	61	61	122	0	0	0	122	1	88
Q26	07/21/93	60	20.0	174	6.0	50	0	87	0	87	0	0	0	87	1	89
Q27	07/21/93	60	20.3	174	45.8	56	0	0	76	76	0	0	0	76	1	88
Q28	07/23/93	60	19.5	175	23.1	60	0	0	78	78	0	0	0	78	1	89
Q29	07/23/93	60	20.0	176	1.6	66	0	66	0	66	0	0	0	66	1	88
Q30	07/25/93	60	20.4	176	42.9	74	0	0	79	79	0	0	0	79	1	89
R28	07/23/93	60	39.2	175	27.4	58	0	0	80	80	0	0	0	80	1	89
R30	07/25/93	60	40.2	176	49.8	70	0	83	0	83	0	0	0	83	1	89
S29	07/24/93	61	0.4	176	17.1	61	0	69	0	69	0	0	0	69	1	88

TABLE 9. Summary of crab density by tow for Tanner crab (*Chionoecetes bairdi*)(Cont'd)

STA- TION	DATE	N. LAT.		W. LON.		DEPTH (FM)	MALES				FEMALES			GRAND TOTAL	TOWS	VES SEL
		DEG	MIN	DEG	MIN		LARGE	MEDIUM	SMALL	TOTAL	LARGE	SMALL	TOTAL			
Z04	06/20/93	54	45.9	165	30.8	114	131	131	6018	6279	205	4574	4779	11058	1	89
Z05	06/14/93	54	40.7	165	9.6	42	0	0	296	296	0	445	445	741	1	88

NOTE - Minimum carapace widths used are:
 LARGE > 5.50"; MEDIUM > 4.30".

TABLE 10. Summary of crab density by tow for snow crab (*Chionoecetes opilio*)

STA-TION	DATE	N. DEG	LAT. MIN	W. DEG	LON. MIN	DEPTH (FM)	MALES				FEMALES			GRAND TOTAL	TOWS	VES SEL
							LARGE	MEDIUM	SMALL	TOTAL	LARGE	SMALL	TOTAL			
B01	06/24/93	55	20.3	167	33.1	81	152	152	0	304	0	0	0	304	1	88
B03	06/20/93	55	19.7	166	21.0	71	74	0	0	74	74	0	74	147	1	88
B05	06/14/93	55	20.4	165	10.4	58	122	0	0	122	0	0	0	122	1	88
C01	06/24/93	55	41.0	167	35.5	73	266	89	0	355	177	89	266	621	1	88
C02	06/24/93	55	40.3	166	58.7	73	314	78	0	392	78	78	157	549	1	89
C03	06/19/93	55	39.6	166	22.9	67	87	0	0	87	0	87	87	174	1	88
C04	06/19/93	55	40.9	165	48.0	63	96	0	0	96	0	0	0	96	1	89
C05	06/14/93	55	40.1	165	9.7	57	68	0	0	68	0	0	0	68	1	88
C07	06/13/93	55	39.9	164	0.7	50	136	0	0	136	0	0	0	136	1	88
D01	06/24/93	56	0.3	167	37.1	72	1013	234	0	1246	156	234	389	1636	1	88
D02	06/24/93	55	59.8	166	59.3	73	897	408	326	1631	142031	0	142031	143662	1	89
D03	06/19/93	56	0.0	166	24.9	66	65	0	65	129	0	0	0	129	1	88
D04	06/19/93	56	0.3	165	47.5	57	246	82	82	411	0	0	0	411	1	89
D05	06/14/93	56	0.5	165	11.2	51	124	0	62	186	0	0	0	186	1	88
D06	06/14/93	56	0.4	164	35.5	50	147	0	74	221	0	0	0	221	1	89
D07	06/13/93	56	0.6	164	0.3	47	104	104	0	208	0	0	0	208	1	88
D10	06/09/93	56	0.2	162	14.3	36	135	0	0	135	0	0	0	135	1	89
E01	06/24/93	56	20.2	167	39.3	70	1876	1787	804	4468	37255	0	37255	41723	1	88
E02	06/24/93	56	19.4	167	2.2	62	972	389	292	1653	389	0	389	2042	1	89
E03	06/19/93	56	20.1	166	24.9	54	531	66	133	730	66	0	66	797	1	88
E04	06/19/93	56	20.5	165	48.4	49	1613	108	215	1936	108	0	108	2043	1	89
E05	06/15/93	56	20.0	165	12.5	46	1202	67	134	1402	935	0	935	2337	1	88
E06	06/14/93	56	20.1	164	35.1	47	155	0	0	155	232	0	232	387	1	89
E07	06/13/93	56	19.9	164	0.1	45	0	0	283	283	0	0	0	283	1	88
E08	06/13/93	56	20.7	163	24.2	46	164	0	0	164	0	0	0	164	1	89
E12	06/08/93	56	20.6	160	59.2	29	138	0	0	138	0	0	0	138	1	89
E18	07/02/93	56	20.0	168	15.0	83	3235	10655	5137	19027	214612	2824	217436	236463	1	89
E19	07/02/93	56	20.3	168	54.2	70	863	1079	360	2301	144	0	144	2445	1	88
E20	07/03/93	56	26.1	169	30.6	56	0	83	83	166	0	0	0	166	1	88
E21	07/03/93	56	20.9	170	3.4	59	248	165	248	661	3472	83	3555	4216	1	88
E22	07/09/93	56	20.8	170	40.8	65	220	586	512	1318	10044	179	10223	11541	1	89
F01	06/24/93	56	40.1	167	40.1	56	844	1603	1266	3713	3460	0	3460	7173	1	88
F02	06/24/93	56	40.0	167	4.1	51	1000	923	1154	3077	7230	0	7230	10306	1	89
F03	06/19/93	56	40.4	166	25.8	44	707	283	495	1484	424	0	424	1908	1	88
F04	06/19/93	56	39.9	165	48.7	42	1392	506	127	2025	0	0	0	2025	1	89
F05	06/15/93	56	40.3	165	13.2	39	278	208	0	486	69	69	139	625	1	88
F06	06/15/93	56	39.6	164	36.0	40	161	80	241	483	0	0	0	483	1	89
F07	06/12/93	56	40.4	163	59.6	39	73	0	0	73	0	0	0	73	1	88
F08	06/12/93	56	39.7	163	22.8	39	218	73	0	291	0	0	0	291	1	89
F08	06/12/93	56	39.9	163	22.6	40	76	152	0	228	0	0	0	228	1	89

TABLE 10. Summary of crab density by tow for snow crab (*Chionoecetes opilio*) (Cont'd).

STA-TION	DATE	N. DEG	LAT. MIN	W. DEG	LON. MIN	DEPTH (FM)	MALES				FEMALES			GRAND TOTAL	TOWS	VES SEL
							LARGE	MEDIUM	SMALL	TOTAL	LARGE	SMALL	TOTAL			
F08	06/12/93	56	40.2	163	23.1	39	0	74	74	148	0	0	0	148	1	89
F08	06/12/93	56	39.9	163	23.3	40	73	73	0	146	0	0	0	146	1	89
F09	06/09/93	56	39.6	162	46.9	38	73	0	0	73	0	0	0	73	1	88
F18	07/02/93	56	38.9	168	17.5	58	2994	5284	2818	11096	26987	0	26987	38082	1	89
F19	07/02/93	56	49.7	168	37.1	52	2011	4453	7182	13645	41771	0	41771	55416	1	89
F19	07/02/93	56	39.9	168	55.1	52	675	3544	7764	11983	15806	0	15806	27789	1	88
F20	07/02/93	56	49.5	169	17.7	42	741	815	2075	3631	0	0	0	3631	1	88
F20	07/03/93	56	40.6	169	30.1	42	217	796	651	1664	72	0	72	1736	1	89
F21	07/03/93	56	49.7	169	54.0	39	6210	16559	4140	26908	0	0	0	26908	1	89
F21	07/03/93	56	40.9	170	7.6	54	168	503	503	1173	838	168	1006	2179	1	88
F22	07/03/93	56	49.8	170	29.3	55	874	1509	715	3098	35384	2440	37824	40921	1	88
F22	07/09/93	56	40.0	170	43.8	61	1234	1899	1234	4367	81313	0	81313	85681	1	89
F23	07/09/93	56	39.4	171	20.4	65	1488	3596	1116	6200	76643	0	76643	82843	1	89
F24	07/09/93	56	39.7	171	58.5	68	2858	17010	2586	22453	2095	0	2095	24548	1	88
F25	07/09/93	56	40.2	172	33.9	75	0	0	68	68	0	0	0	68	1	88
G01	06/25/93	57	0.2	167	42.7	42	1098	7213	12074	20384	862	0	862	21247	1	88
G02	06/25/93	56	59.8	167	5.2	39	710	1263	1894	3867	0	79	79	3946	1	89
G03	06/19/93	57	0.8	166	26.5	38	450	600	900	1950	75	0	75	2025	1	88
G04	06/18/93	57	0.6	165	51.1	37	600	525	2400	3526	0	75	75	3601	1	89
G05	06/15/93	57	0.3	165	13.6	37	362	434	1013	1808	0	0	0	1808	1	88
G06	06/15/93	56	59.5	164	35.9	37	77	0	77	154	0	0	0	154	1	89
G10	06/09/93	57	0.4	162	9.5	32	65	0	0	65	0	0	0	65	1	89
G18	06/30/93	56	59.7	168	19.8	43	1423	3503	9744	14670	766	109	876	15546	1	89
G19	06/30/93	57	9.6	168	37.9	40	467	2960	7946	11373	78	0	78	11451	1	89
G19	07/01/93	56	59.9	168	56.5	42	206	1785	2403	4394	69	0	69	4463	1	88
G20	07/03/93	57	0.0	169	32.7	32	766	328	109	1204	0	0	0	1204	1	89
G21	07/03/93	56	59.9	170	10.7	36	1120	2241	689	4051	517	0	517	4568	1	88
G21	07/17/93	56	53.3	170	16.9	47	940	1374	506	2821	289	72	362	3183	1	88
G22	07/03/93	57	7.2	170	28.1	27	0	377	94	471	0	0	0	471	1	88
G22	07/08/93	56	59.5	170	47.2	51	765	1053	96	1914	861	0	861	2775	1	89
G22	07/17/93	56	55.4	170	49.0	55	947	2762	1105	4814	12423	327	12750	17563	1	88
G23	07/09/93	56	59.2	171	23.7	60	1878	3093	994	5966	102934	2709	105643	111609	1	89
G24	07/09/93	57	0.3	172	2.2	64	250	3496	1082	4828	32169	0	32169	36997	1	88
G25	07/09/93	56	59.7	172	39.5	67	0	130	65	195	0	0	0	195	1	88
G26	07/09/93	57	0.6	173	15.6	77	0	0	69	69	0	0	0	69	1	88
H01	06/25/93	57	21.2	167	44.6	39	754	3520	10057	14331	0	0	0	14331	1	88
H02	06/25/93	57	20.8	167	6.9	37	450	1050	3376	4876	0	0	0	4876	1	89
H03	06/18/93	57	20.0	166	28.8	36	75	900	2025	3001	150	0	150	3151	1	88
H04	06/18/93	57	20.2	165	52.5	35	142	1240	26569	27952	13645	284	13929	41881	1	89
H05	06/15/93	57	20.6	165	14.0	34	199	398	465	1062	0	0	0	1062	1	88

TABLE 10. Summary of crab density by tow for snow crab (*Chionoecetes opilio*) (Cont'd).

STA-TION	DATE	N. DEG	LAT. MIN	W. DEG	LON. MIN	DEPTH (FM)	MALES				FEMALES			GRAND TOTAL	TOWS	VES SEL
							LARGE	MEDIUM	SMALL	TOTAL	LARGE	SMALL	TOTAL			
H07	06/12/93	57	20.1	163	59.8	32	0	0	72	72	72	0	72	145	1	88
H10	06/09/93	57	19.8	162	9.0	26	0	71	0	71	0	0	0	71	1	89
H18	06/30/93	57	19.8	168	22.0	39	306	1681	6267	8254	306	76	382	8636	1	89
H19	06/30/93	57	29.6	168	45.0	37	111	1672	1338	3122	0	111	111	3233	1	89
H19	06/30/93	57	20.6	168	59.0	38	76	1139	684	1899	0	0	0	1899	1	88
H20	06/30/93	57	10.2	169	18.8	39	608	2127	3190	5924	304	0	304	6228	1	88
H20	07/03/93	57	19.7	169	35.9	33	463	810	694	1968	347	0	347	2315	1	89
H21	07/17/93	57	20.6	170	26.6	34	241	402	161	805	0	0	0	805	1	89
H21	07/17/93	57	26.2	170	6.3	32	100	398	100	598	0	0	0	598	1	89
H22	07/08/93	57	20.0	170	50.9	44	659	1391	293	2343	1318	293	1611	3953	1	89
H22	07/17/93	57	28.9	170	48.4	44	2391	9828	1859	14078	66	0	66	14144	1	89
H23	07/08/93	57	20.7	171	28.7	54	1422	2198	1099	4719	46540	4848	51388	56107	1	88
H23	07/17/93	57	21.9	171	6.1	49	1452	7108	2599	11159	5656	0	5656	16814	1	89
H24	07/10/93	57	19.7	172	5.7	58	1883	4450	2995	9328	89706	0	89706	99034	1	89
H25	07/10/93	57	20.7	172	47.8	63	846	1231	461	2538	14020	637	14658	17196	1	88
I01	06/25/93	57	40.1	167	46.4	37	868	6944	22858	30670	4557	868	5425	36095	1	88
I02	06/25/93	57	40.2	167	8.0	36	1193	2162	7306	10661	224	447	671	11332	1	89
I03	06/18/93	57	40.1	166	30.8	34	743	6939	28252	35935	16129	3535	19665	55599	1	88
I04	06/18/93	57	40.1	165	53.1	34	796	1085	1013	2893	289	72	362	3255	1	89
I05	06/15/93	57	40.3	165	14.9	31	213	284	142	640	71	0	71	711	1	88
I07	06/12/93	57	40.2	163	59.5	26	0	0	429	429	0	71	71	500	1	88
I09	06/10/93	57	40.8	162	45.1	22	0	73	0	73	0	0	0	73	1	88
I12	06/07/93	57	40.3	160	52.7	29	0	68	0	68	0	0	0	68	1	89
I18	06/30/93	57	40.0	168	24.1	37	0	985	2299	3284	0	0	0	3284	1	89
I19	06/30/93	57	49.8	168	43.8	37	78	467	9426	9971	4596	6544	11140	21111	1	89
I19	06/30/93	57	39.4	169	1.9	36	69	961	2472	3501	275	69	343	3845	1	88
I20	06/30/93	57	49.6	169	21.3	35	0	1463	4123	5585	151	1057	1208	6793	1	88
I20	06/30/93	57	30.8	169	22.9	38	358	4659	8601	13618	0	0	0	13618	1	88
I20	07/04/93	57	40.3	169	39.1	37	0	928	3618	4545	0	0	0	4545	1	89
I21	07/03/93	57	30.2	169	59.2	36	1231	1923	2154	5307	0	0	0	5307	1	89
I21	07/04/93	57	40.3	170	14.9	39	1746	3841	3282	8870	0	0	0	8870	1	89
I22	07/04/93	57	30.0	170	35.2	39	1250	1250	694	3194	0	0	0	3194	1	88
I22	07/04/93	57	49.9	170	37.7	41	2092	7082	3219	12394	322	80	402	12796	1	88
I22	07/08/93	57	39.9	170	54.2	47	784	2195	2901	5880	22865	7622	30487	36367	1	89
I23	07/08/93	57	40.1	171	31.4	53	1329	3355	1076	5760	34854	7668	42522	48281	1	88
I24	07/10/93	57	39.5	172	9.7	58	1962	4227	3774	9963	45976	0	45976	55939	1	89
I25	07/10/93	57	40.4	172	48.1	64	238	60	119	417	10087	1858	11945	12362	1	88
I26	07/18/93	57	39.8	173	24.4	62	373	224	75	671	0	75	75	746	1	89
J01	06/25/93	58	0.1	167	48.5	36	508	3004	53269	56781	24886	30473	55358	112139	1	88
J02	06/25/93	58	0.3	167	10.2	34	0	2541	241413	243955	35579	144857	180436	424390	1	89

TABLE 10. Summary of crab density by tow for snow crab (*Chionoecetes opilio*) (Cont'd).

STA-TION	DATE	N. DEG	LAT. MIN	W. DEG	LON. MIN	DEPTH (FM)	MALES				FEMALES			GRAND TOTAL	TOWS	VES SEL
							LARGE	MEDIUM	SMALL	TOTAL	LARGE	SMALL	TOTAL			
J03	06/18/93	57	59.9	166	30.3	31	1359	2239	4317	7915	160	80	240	8155	1	88
J04	06/18/93	58	0.1	165	54.4	28	538	538	538	1615	308	0	308	1923	1	89
J05	06/16/93	57	59.6	165	15.0	26	387	155	77	619	0	0	0	619	1	88
J18	06/29/93	57	59.8	168	25.9	37	2624	8309	65162	76096	8305	14861	23166	99262	1	89
J19	06/29/93	58	0.4	169	3.4	37	369	1290	153272	154931	124419	528780	653199	808130	1	88
J20	07/04/93	58	0.6	169	41.8	37	147	1547	6334	8028	221	74	295	8322	1	89
J21	07/04/93	57	50.1	169	58.8	39	149	447	1118	1715	0	0	0	1715	1	89
J21	07/04/93	57	59.4	170	19.9	39	3920	9251	4782	17954	1176	78	1254	19208	1	89
J22	07/08/93	58	0.2	170	58.0	46	1490	4626	1803	7919	314	0	314	8232	1	89
J23	07/08/93	58	0.0	171	35.5	52	3021	5573	3021	11615	134	67	201	11817	1	88
J24	07/10/93	57	59.3	172	13.8	56	3353	5308	4889	13550	90533	15520	106053	119603	1	89
J25	07/10/93	57	59.7	172	51.8	59	3226	2400	675	6301	1950	525	2475	8777	1	88
J26	07/12/93	58	0.2	173	29.7	63	1167	755	0	1922	481	0	481	2403	1	88
K01	06/25/93	58	20.5	167	51.5	32	1090	251	88726	90067	5832	5383	11663	101731	1	88
K02	06/25/93	58	19.9	167	11.0	27	241	241	2253	2736	241	805	1046	3782	1	89
K03	06/18/93	58	19.9	166	32.9	24	71	0	71	143	0	0	0	143	1	88
K05	06/16/93	58	20.6	165	17.2	22	71	0	0	71	0	0	0	71	1	88
K18	06/29/93	58	20.0	168	28.1	35	0	0	290184	290184	55035	110071	165106	455291	1	89
K19	06/29/93	58	20.4	169	7.1	36	164	3120	8703	11988	692	154	846	12834	1	88
K20	07/05/93	58	20.4	169	44.3	37	316	2052	11442	13809	8270	5279	13549	27358	1	89
K21	07/05/93	58	19.7	170	24.7	40	21844	24048	10822	56714	1570	205	1775	58489	1	88
K22	07/08/93	58	20.2	171	1.2	45	7063	22406	11934	41403	318	0	318	41720	1	89
K23	07/08/93	58	19.9	171	38.5	52	9816	10405	7067	27287	1350	426	1777	29064	1	88
K24	07/10/93	58	19.5	172	17.9	55	5243	6772	15728	27742	119013	111252	230265	258007	1	89
K25	07/10/93	58	20.4	172	56.2	59	1296	1053	243	2592	5995	243	6238	8831	1	88
K26	07/12/93	58	18.9	173	33.9	63	405	743	0	1148	473	0	473	1620	1	88
K27	07/12/93	58	20.2	174	19.2	94	0	0	83	83	0	0	0	83	1	88
L01	06/27/93	58	39.2	167	51.3	24	0	0	3523	3523	216	216	431	3955	1	88
L02	06/27/93	58	39.0	167	13.4	23	0	0	86	86	0	0	0	86	1	89
L18	06/29/93	58	40.5	168	29.9	27	0	0	362619	362619	4215	130680	134895	497514	1	89
L19	06/29/93	58	39.9	169	10.8	33	289	2599	8230	11118	450	1200	1650	12769	1	88
L20	07/05/93	58	39.8	169	46.9	35	316	3078	11047	14441	1184	2683	3867	18307	1	89
L21	07/05/93	58	40.2	170	26.1	40	14035	21714	5561	41309	2157	288	2445	43754	1	88
L22	07/07/93	58	39.7	171	5.0	45	6106	5921	13693	25720	5263	1548	6811	32532	1	89
L23	07/08/93	58	40.3	171	43.9	50	2380	12266	12449	27095	2170	940	3110	30205	1	88
L24	07/10/93	58	39.0	172	21.8	55	4375	6481	8426	19282	96514	120642	217156	236438	1	89
L25	07/10/93	58	39.9	173	0.6	61	3104	2246	528	5878	11465	409	11875	17753	1	88
L26	07/22/93	58	41.2	173	38.4	68	582	146	0	728	0	73	73	800	1	89
L27	07/22/93	58	40.0	174	16.9	86	77	0	0	77	0	77	77	154	1	89
L28	07/22/93	58	44.2	174	54.7	81	0	0	79	79	0	0	0	79	1	89

TABLE 10. Summary of crab density by tow for snow crab (*Chionoecetes opilio*) (Cont'd).

STA- TION	DATE	N. DEG	LAT. MIN	W. DEG	LON. MIN	DEPTH (FM)	MALES				FEMALES			GRAND TOTAL	TOWS	VES SEL
							LARGE	MEDIUM	SMALL	TOTAL	LARGE	SMALL	TOTAL			
L29	07/22/93	58	40.3	175	34.2	74	0	0	0	0	0	156	156	156	1	88
L30	07/26/93	58	40.2	176	12.1	78	0	0	0	0	0	142	142	142	1	89
L31	07/26/93	58	40.5	176	51.2	73	0	0	222	222	0	1111	1111	1334	1	89
M01	06/27/93	58	59.7	167	55.3	22	0	0	25336	25336	582	2474	3056	28392	1	88
M18	06/29/93	59	0.3	168	32.7	24	0	0	288279	288279	10947	215289	226236	514515	1	89
M19	06/29/93	58	59.6	169	11.7	28	133	664	321296	322093	11362	210197	221559	543653	1	88
M20	07/05/93	59	0.2	169	49.7	33	212	1272	11799	13283	707	1342	2049	15332	1	89
M21	07/05/93	59	0.1	170	29.0	38	1305	3589	12886	17780	245	82	326	18106	1	88
M22	07/07/93	58	58.9	171	7.8	42	5780	20872	46239	72891	9134	16441	25574	98466	1	89
M23	07/07/93	59	0.1	171	46.8	46	608	4557	11241	16406	29312	2818	32130	48536	1	88
M24	07/11/93	59	0.5	172	26.0	53	1724	4844	6651	13220	2710	2053	4762	17982	1	89
M25	07/11/93	59	0.1	173	3.9	58	2742	1630	1778	6150	24348	13526	37874	44024	1	88
M26	07/22/93	59	0.6	173	43.3	64	2878	320	80	3278	320	640	959	4237	1	89
M27	07/22/93	58	59.9	174	22.6	69	308	77	154	538	0	77	77	615	1	88
M28	07/22/93	59	0.1	175	0.7	70	0	0	0	0	0	251	251	251	1	88
M29	07/22/93	58	59.8	175	44.0	73	159	0	0	159	0	0	0	159	1	88
M30	07/26/93	59	0.3	176	18.6	74	0	0	14691	14691	81	29975	30056	44747	1	89
M31	07/26/93	58	59.9	176	56.6	74	0	0	825	825	75	1725	1800	2625	1	89
M32	07/26/93	59	0.1	177	33.6	74	0	0	127	127	0	127	127	253	1	88
N01	06/27/93	59	20.2	167	56.2	0	0	0	22216	22216	161	8525	8685	30902	1	88
N18	06/29/93	59	20.0	168	34.0	22	0	0	89116	89116	0	29312	29312	118428	1	89
N19	06/29/93	59	20.3	169	14.7	26	75	755	131270	132100	0	169902	169902	302001	1	88
N20	07/05/93	59	20.6	169	53.0	32	151	1208	51851	53209	9274	82438	91712	144921	1	89
N21	07/05/93	59	19.6	170	32.5	36	461	3227	31808	35496	35254	2580	37834	73330	1	88
N22	07/07/93	59	20.6	171	11.0	40	3394	22907	89084	115384	50058	22060	72118	187502	1	89
N23	07/07/93	59	20.4	171	49.1	43	675	7072	22497	30244	21866	5643	27509	57754	1	88
N24	07/11/93	59	19.7	172	29.8	47	4232	10308	16492	31032	1302	1519	2821	33853	1	89
N25	07/11/93	59	20.1	173	9.8	54	5614	1321	1453	8388	1387	2840	4227	12615	1	88
N25	07/11/93	59	29.9	172	53.2	50	5767	9063	5767	20597	206	1545	1751	22348	1	89
N26	07/11/93	59	30.0	173	29.5	55	6548	2015	6225	14788	1757	9174	10931	25718	1	88
N26	07/22/93	59	20.0	173	47.9	59	2869	1097	1181	5148	6076	2869	8945	14093	1	89
N27	07/22/93	59	19.7	174	27.2	65	900	975	1050	2926	1725	2475	4201	7126	1	88
N28	07/23/93	59	20.5	175	6.6	72	1215	891	81	2187	29065	3303	32368	34556	1	89
N29	07/23/93	59	18.9	175	45.2	75	332	133	465	930	332	1262	1594	2523	1	88
N30	07/25/93	59	20.7	176	20.1	74	2385	1704	3634	7723	2612	681	3294	11017	1	89
N31	07/26/93	59	20.3	177	3.1	82	0	0	244	244	0	305	305	550	1	88
O01	06/27/93	59	40.3	167	57.4	18	0	0	636	636	71	0	71	707	1	88
O18	06/28/93	59	40.1	168	36.8	20	0	0	124817	124817	0	47143	47143	171960	1	89
O19	06/28/93	59	40.4	169	15.1	25	0	0	203431	203431	3764	282291	286055	489486	1	88
O20	07/05/93	59	40.1	169	55.3	29	0	1086	121661	122747	10862	82553	93415	216162	1	89

TABLE 10. Summary of crab density by tow for snow crab (*Chionoecetes opilio*) (Cont'd).

STA-TION	DATE	N. DEG	LAT. MIN	W. DEG	LON. MIN	DEPTH (FM)	MALES				FEMALES			GRAND TOTAL	TOWS	VES SEL
							LARGE	MEDIUM	SMALL	TOTAL	LARGE	SMALL	TOTAL			
O21	07/05/93	59	40.2	170	35.0	35	0	1223	54403	55626	43670	84611	128282	183908	1	88
O22	07/07/93	59	40.3	171	15.3	39	0	9824	206297	216120	68772	108070	176842	392962	1	89
O23	07/07/93	59	50.0	172	15.4	40	387	6427	92334	99148	49397	165834	215231	314379	1	88
O23	07/07/93	59	40.5	171	53.6	42	1956	25889	88719	116563	23063	66305	89368	205931	1	88
O24	07/11/93	59	39.9	172	34.2	45	1554	7770	74588	83911	110325	27970	138295	222207	1	89
O24	07/11/93	59	49.8	172	54.7	43	644	5392	10301	16337	6848	878	7726	24063	1	89
O25	07/11/93	59	39.7	173	14.4	52	4755	1783	793	7331	264	1387	1651	8982	1	88
O25	07/11/93	59	50.0	173	34.0	52	2334	549	206	3090	0	137	137	3227	1	88
O26	07/21/93	59	40.2	173	53.5	56	9095	2979	470	12544	862	706	1568	14112	1	89
O27	07/21/93	59	39.9	174	27.7	62	2599	3582	773	6954	46545	11352	57897	64851	1	88
O28	07/23/93	59	39.7	175	6.5	68	4456	4861	1782	11099	39269	20138	59407	70506	1	89
O29	07/23/93	59	40.7	175	51.4	75	3223	537	134	3894	134	336	470	4364	1	88
O30	07/25/93	59	40.3	176	32.6	73	1594	1660	31040	34294	2531	43208	46343	80637	1	89
O31	07/26/93	59	39.7	177	8.0	95	0	0	320	320	0	512	512	831	1	88
P18	06/28/93	60	1.2	168	38.9	20	0	0	129106	129106	0	43624	43624	172730	1	89
P19	06/28/93	60	0.0	169	19.2	24	0	0	231372	231372	0	200488	200488	431860	1	88
P20	07/06/93	60	0.1	169	58.5	29	0	0	202675	202675	19905	103145	123051	325725	1	89
P21	07/06/93	60	0.0	170	38.0	34	0	2317	273383	275700	57913	183005	240918	516618	1	89
P22	07/07/93	60	0.0	171	18.2	37	0	0	364057	364057	132174	310724	442897	806954	1	89
P23	07/07/93	60	9.2	172	20.1	31	0	0	575	575	72	288	360	935	1	88
P23	07/07/93	60	0.0	171	58.2	36	150	2123	100338	102611	32071	32071	64142	166753	1	88
P24	07/19/93	60	0.4	172	37.4	35	317	1585	155091	156993	10661	37314	47975	204968	1	89
P25	07/18/93	60	0.1	173	18.0	40	366	4764	18688	23818	6597	8881	15479	39297	1	88
P25	07/19/93	60	10.0	173	1.6	30	0	304	13367	13671	152	2127	2279	15950	1	89
P26	07/18/93	60	7.6	173	45.1	47	2429	16737	42921	62087	53243	12101	65344	127431	1	88
P26	07/21/93	59	59.5	173	56.6	52	3441	2855	805	7101	15200	3888	19088	26189	1	89
P26	07/21/93	59	50.1	174	13.6	57	6152	3798	1747	11697	5747	3095	8842	20539	1	89
P27	07/21/93	60	9.1	174	20.9	54	7089	8777	9114	24980	25099	4670	29769	54748	1	89
P27	07/21/93	60	0.5	174	36.9	58	2933	6216	1117	10267	559	559	1117	11384	1	88
P28	07/23/93	60	0.1	175	15.9	64	4355	5830	1475	11661	9740	3957	13697	25358	1	89
P29	07/23/93	59	59.9	175	55.2	70	5117	1023	192	6332	5913	3866	9779	16111	1	88
P30	07/25/93	60	0.2	176	42.7	77	600	525	2025	3151	2700	750	3451	6601	1	89
P31	07/25/93	59	58.7	177	11.7	75	305	305	794	1405	733	366	1099	2504	1	88
P32	07/25/93	60	0.1	177	53.1	77	129	194	129	452	65	259	323	776	1	88
Q18	06/28/93	60	20.2	168	40.5	18	0	0	113612	113612	0	40199	40199	153810	1	89
Q19	06/28/93	60	19.9	169	21.4	22	0	0	207608	207608	2659	124964	127622	335230	1	88
Q20	07/06/93	60	19.8	170	1.6	27	0	0	386223	386223	31747	259265	291011	677234	1	89
Q21	07/06/93	60	20.1	170	39.8	32	0	1558	190055	191613	40503	146434	186937	378550	1	89
Q22	07/06/93	60	20.1	171	21.4	35	0	6896	406884	413780	121782	248160	369942	783722	1	89
Q23	07/06/93	60	20.1	172	3.9	31	0	0	4144	4144	421	1826	2248	6392	1	88

TABLE 10. Summary of crab density by tow for snow crab (*Chionoecetes opilio*) (Cont'd).

STA-TION	DATE	N. DEG	LAT. MIN	W. DEG	LON. MIN	DEPTH (FM)	MALES				FEMALES			GRAND TOTAL	TOWS	VES SEL
							LARGE	MEDIUM	SMALL	TOTAL	LARGE	SMALL	TOTAL			
Q25	07/19/93	60	19.7	173	25.4	32	338	844	169	1350	0	338	338	1688	1	89
Q26	07/21/93	60	20.0	174	6.0	50	2430	5816	153821	162067	423075	86538	509613	671680	1	89
Q27	07/21/93	60	20.3	174	45.8	56	1758	2928	15730	20416	54993	13966	68959	89376	1	88
Q28	07/23/93	60	19.5	175	23.1	60	5959	5096	784	11839	3895	2922	6817	18656	1	89
Q29	07/23/93	60	20.0	176	1.6	66	5189	4467	1117	10773	394	591	985	11758	1	88
Q30	07/25/93	60	20.4	176	42.9	74	4024	5366	947	10337	230254	132839	363093	373430	1	89
Q31	07/25/93	60	20.4	177	22.9	81	1093	0	643	1736	257	579	836	2572	1	88
R22	07/06/93	60	40.8	171	25.8	35	0	0	214225	214225	34040	65953	99993	314218	1	88
R23	07/06/93	60	39.8	172	6.3	36	0	0	107664	107664	38860	174870	213730	321394	1	88
R24	07/19/93	60	40.5	172	47.0	23	0	122	7323	7446	275	4463	4737	12183	1	88
R25	07/19/93	60	40.3	173	28.4	35	250	666	1332	2247	250	832	1082	3329	1	88
R26	07/19/93	60	40.0	174	7.8	46	4026	1684	114418	120128	97822	107604	205426	325554	1	89
R27	07/21/93	60	39.9	174	49.6	53	1849	3610	12857	18316	120698	157577	278275	296592	1	88
R28	07/23/93	60	39.2	175	27.4	58	8954	6236	3678	18868	1039	3518	4557	23425	1	89
R29	07/23/93	60	39.8	176	11.8	65	9121	7525	1482	18128	4656	10243	14899	33028	1	88
R30	07/25/93	60	40.2	176	49.8	70	13265	18239	19934	51439	41945	18943	60888	112326	1	89
R31	07/25/93	60	40.4	177	30.2	79	5828	1364	124	7316	0	62	62	7378	1	88
R32	07/25/93	60	40.1	178	12.2	89	2363	675	1620	4658	68	2430	2498	7156	1	88
S22	07/06/93	61	0.1	171	28.9	32	0	0	170573	170573	8281	70386	78666	249239	1	88
S23	07/06/93	61	0.0	172	9.4	34	0	0	357293	357293	19801	323411	343212	700505	1	88
S24	07/19/93	60	59.8	172	49.6	35	0	0	190801	190801	9899	193023	202921	393722	1	88
S25	07/19/93	61	0.5	173	30.3	40	0	0	347657	347657	32786	175851	208637	556294	1	88
S26	07/20/93	61	0.3	174	11.7	45	5420	10725	293622	309766	58725	329763	388488	698255	1	89
S27	07/21/93	60	59.3	174	52.7	50	1215	1013	3038	5266	2363	608	2971	8237	1	88
S28	07/24/93	61	0.6	175	27.9	54	2996	4661	7491	15149	33455	8603	42058	57206	1	89
S29	07/24/93	61	0.4	176	17.1	61	5445	7744	968	14157	1510	1648	3158	17315	1	88
S30	07/24/93	61	0.4	176	58.9	66	1099	961	1510	3570	824	549	1373	4943	1	88
S31	07/24/93	61	0.2	177	37.4	74	2309	486	729	3524	0	425	425	3949	1	88
T25	07/20/93	61	19.7	173	32.8	40	0	0	0	172942	0	0	172942	345884	1	88
T26	07/20/93	61	18.9	174	18.5	42	2549	8549	257049	268148	15229	180567	195795	463943	1	89
T27	07/20/93	61	21.3	174	58.9	46	3038	4101	120563	127703	12667	98172	110839	238542	1	89
T28	07/24/93	61	19.9	175	38.7	52	3722	5058	11728	20508	36457	6076	42533	63041	1	89
T29	07/24/93	61	19.8	176	18.6	58	11274	12025	63312	86611	323674	377619	701293	787905	1	88
T30	07/24/93	61	20.5	176	57.8	63	4029	3699	726	8454	1915	2047	3963	12416	1	88
U25	07/20/93	61	39.0	173	35.6	37	0	0	145151	145151	1688	86078	87766	232917	1	88
U26	07/20/93	61	40.0	174	25.8	41	164	493	246549	247206	14604	202627	217231	464437	1	89
U27	07/20/93	61	40.2	174	57.8	44	296	4277	305345	309919	20488	198054	218542	528461	1	89
U28	07/24/93	61	39.7	175	47.5	52	3291	15697	1964386	1983374	331977	1217249	1549226	3532600	1	89
U29	07/24/93	61	40.4	176	27.5	58	4456	3160	61353	68969	324824	417630	742454	811423	1	89
V25	07/20/93	61	59.1	173	35.7	33	0	0	183041	183041	1968	92505	94473	277514	1	88

TABLE 10. Summary of crab density by tow for snow crab (*Chionoecetes opilio*) (Cont'd).

STA- TION	DATE	N. LAT.		W. LON.		DEPTH (FM)	MALES				FEMALES			GRAND TOTAL	TOWS	VES SEL
		DEG	MIN	DEG	MIN		LARGE	MEDIUM	SMALL	TOTAL	LARGE	SMALL	TOTAL			
V26	07/20/93	62	0.2	174	28.2	39	0	0	226197	226197	4003	176153	180157	406354	1	88
V27	07/20/93	61	59.9	175	0.7	42	0	0	132936	132936	6231	108011	114242	247178	1	88
V28	07/24/93	61	59.9	175	52.9	50	587	4609	1515441	1520637	211583	924285	1135868	2656506	1	89

NOTE - Minimum carapace widths used are:
 LARGE > 4.00"; MEDIUM > 3.10".

TABLE 11. Summary of crab density by tow for hair crab (*Erimacrus isenbeckii*)

STA-TION	DATE	N. DEG	LAT. MIN	W. DEG	LON. MIN	DEPTH (FM)	MALES				FEMALES			GRAND TOTAL	TOWS	VES SEL
							LARGE	MEDIUM	SMALL	TOTAL	LARGE	SMALL	TOTAL			
C09	06/09/93	55	39.9	162	50.5	27	615	308	0	923	0	0	0	923	1	88
D09	06/09/93	56	0.7	162	50.3	41	71	0	0	71	0	0	0	71	1	88
D10	06/09/93	56	0.2	162	14.3	36	270	270	0	540	270	0	270	810	1	89
E10	06/09/93	56	19.6	162	12.0	39	140	140	0	281	70	0	70	351	1	89
E11	06/08/93	56	21.0	161	35.8	33	124	0	0	124	124	0	124	248	1	88
E20	07/03/93	56	26.1	169	30.6	56	83	0	0	83	83	166	250	333	1	88
E21	07/03/93	56	20.9	170	3.4	59	0	0	0	0	0	83	83	83	1	88
F11	06/08/93	56	40.2	161	33.9	46	75	0	75	151	0	0	0	151	1	88
F12	06/08/93	56	39.9	160	58.7	37	71	0	0	71	0	0	0	71	1	89
F13	06/06/93	56	40.3	160	22.4	31	159	318	79	556	0	0	0	556	1	88
F20	07/03/93	56	40.6	169	30.1	42	1157	217	289	1664	0	0	0	1664	1	89
F21	07/03/93	56	49.7	169	54.0	39	5839	1105	0	6944	0	0	0	6944	1	89
G04	06/18/93	57	0.6	165	51.1	37	75	0	0	75	0	0	0	75	1	89
G09	06/10/93	56	59.5	162	47.3	31	78	78	0	156	0	0	0	156	1	88
G10	06/09/93	57	0.4	162	9.5	32	65	0	0	65	0	0	0	65	1	89
G11	06/08/93	56	59.4	161	33.5	36	0	73	0	73	0	0	0	73	1	88
G12	06/08/93	56	59.9	160	57.5	33	0	72	0	72	0	0	0	72	1	89
G14	06/06/93	57	0.7	159	42.8	30	0	659	0	659	0	0	0	659	1	89
G19	06/30/93	57	9.6	168	37.9	40	234	78	156	467	0	0	0	467	1	89
G19	07/01/93	56	59.9	168	56.5	42	0	0	0	0	0	69	69	69	1	88
G20	07/03/93	57	0.0	169	32.7	32	109	438	0	547	0	0	0	547	1	89
G21	07/03/93	56	59.9	170	10.7	36	776	345	0	1120	0	259	259	1379	1	88
G22	07/03/93	57	7.2	170	28.1	27	1319	1507	565	3391	188	377	565	3957	1	88
G22	07/04/93	57	6.9	170	28.7	24	0	0	0	14772	0	0	73	14845	1	88
G22	07/04/93	57	6.9	170	29.9	29	0	0	0	11425	0	0	437	11861	1	88
G22	07/04/93	57	7.4	170	27.5	26	0	0	0	11991	0	0	241	12233	1	88
G22	07/17/93	57	6.7	170	29.2	25	0	0	0	3860	0	0	0	3860	1	88
G22	07/17/93	57	6.2	170	35.6	37	0	0	0	3906	0	0	0	3906	1	88
H01	06/25/93	57	21.2	167	44.6	39	0	0	84	84	0	0	0	84	1	88
H02	06/25/93	57	20.8	167	6.9	37	0	75	0	75	0	0	0	75	1	89
H05	06/15/93	57	20.6	165	14.0	34	66	0	0	66	0	0	0	66	1	88
H08	06/12/93	57	20.6	163	22.9	28	146	0	0	146	0	0	0	146	1	89
H11	06/08/93	57	19.4	161	32.5	28	66	0	0	66	0	0	0	66	1	88
H12	06/08/93	57	19.3	160	56.1	33	0	75	0	75	0	0	0	75	1	89
H18	06/30/93	57	19.8	168	22.0	39	0	76	153	229	0	76	76	306	1	89
H19	06/30/93	57	29.6	168	45.0	37	223	0	0	223	0	111	111	334	1	89
H19	06/30/93	57	20.6	168	59.0	38	760	1139	76	1975	152	304	456	2430	1	88
H20	06/30/93	57	10.2	169	18.8	39	0	76	0	76	0	0	0	76	1	88
H20	07/03/93	57	19.7	169	35.9	33	231	0	0	231	0	0	0	231	1	89
H21	07/04/93	57	20.0	170	12.9	29	1263	1026	0	2288	0	0	0	2288	1	88

TABLE 11. Summary of crab density by tow for hair crab (*Erimacrus isenbeckii*) (Cont'd).

STA-TION	DATE	N. DEG	LAT. MIN	W. DEG	LON. MIN	DEPTH (FM)	MALES				FEMALES			GRAND TOTAL	TOWS	VES SEL
							LARGE	MEDIUM	SMALL	TOTAL	LARGE	SMALL	TOTAL			
H21	07/17/93	57	20.6	170	26.6	34	5312	4829	0	10140	80	0	80	10221	1	89
H21	07/17/93	57	26.2	170	6.3	32	8168	9562	199	17930	0	1096	1096	19025	1	89
H22	07/17/93	57	28.9	170	48.4	44	66	266	0	332	0	0	0	332	1	89
I01	06/25/93	57	40.1	167	46.4	37	72	0	0	72	0	72	72	145	1	88
I06	06/15/93	57	39.8	164	37.3	28	73	0	0	73	0	0	0	73	1	89
I11	06/08/93	57	39.2	161	29.2	27	0	73	0	73	73	0	73	146	1	88
I12	06/07/93	57	40.3	160	52.7	29	0	475	0	475	0	0	0	475	1	89
I13	06/06/93	57	40.4	160	15.9	28	0	82	82	163	82	0	82	245	1	88
I19	06/30/93	57	49.8	168	43.8	37	156	0	0	156	0	0	0	156	1	89
I19	06/30/93	57	39.4	169	1.9	36	412	137	69	618	0	137	137	755	1	88
I20	06/30/93	57	49.6	169	21.3	35	151	528	0	679	0	0	0	679	1	88
I20	06/30/93	57	30.8	169	22.9	38	0	180	0	180	0	0	0	180	1	88
I20	07/04/93	57	40.3	169	39.1	37	0	93	0	93	0	93	93	186	1	89
I21	07/04/93	57	40.3	170	14.9	39	70	0	0	70	0	0	0	70	1	89
J20	07/04/93	58	0.6	169	41.8	37	74	0	0	74	0	0	0	74	1	89
J21	07/04/93	57	50.1	169	58.8	39	75	0	0	75	0	0	0	75	1	89
K03	06/18/93	58	19.9	166	32.9	24	0	71	0	71	0	0	0	71	1	88
K18	06/29/93	58	20.0	168	28.1	35	0	83	0	83	0	0	0	83	1	89
L01	06/27/93	58	39.2	167	51.3	24	72	72	0	144	0	0	0	144	1	88
M18	06/29/93	59	0.3	168	32.7	24	78	78	0	156	78	78	156	312	1	89
M20	07/05/93	59	0.2	169	49.7	33	71	0	0	71	0	0	0	71	1	89
N01	06/27/93	59	20.2	167	56.2	0	0	0	1510	1510	144	1007	1151	2661	1	88
N18	06/29/93	59	20.0	168	34.0	22	0	0	156	156	0	78	78	234	1	89
N20	07/05/93	59	20.6	169	53.0	32	0	75	0	75	0	0	0	75	1	89
N21	07/05/93	59	19.6	170	32.5	36	113	0	0	113	0	0	0	113	1	88
O18	06/28/93	59	40.1	168	36.8	20	72	0	0	72	0	0	0	72	1	89
O19	06/28/93	59	40.4	169	15.1	25	157	0	0	157	0	0	0	157	1	88
P24	07/19/93	60	0.4	172	37.4	35	0	0	0	0	0	106	106	106	1	89
Z04	06/20/93	54	45.9	165	30.8	114	0	0	137	137	0	137	137	273	1	89

NOTE - Minimum carapace widths used are:
 LARGE > 3.25"; MEDIUM > 2.50".