

NORTH PACIFIC FISHING VESSEL OWNERS ASSOCIATION

BUILDING C-3, ROOM 133
FISHERMENS TERMINAL
SEATTLE, WASHINGTON 98119

MAY 13, 1977

TO: MEMBERS, NORTH PACIFIC FISHING VESSEL OWNERS ASSOCIATION

DEAR MEMBER:

THIS IS A FOLLOW-UP ON PREVIOUS INFORMATION SENT OUT TO YOU ON THE NORTH BERING SEA CRAB SURVEYS. THE AMOUNT AND NUMBERS OF VARIOUS CHARTLETS AND TABLES THAT MIGHT BE USEFUL IS GROWING AND WILL PROBABLY CONTINUE TO GROW. SOME OF THIS HAS PERMANENT VALUE, AND A FILE FOLDER IS ENCLOSED FOR YOUR USE.

- ITEM 1 - IS ANOTHER OVERLAY FOR CHART #16006, SHOWING THE 1976 DISTRIBUTION OF TANNERS (C. BAIRDI) WEST AND NORTH OF THE PRIBILOF ISLANDS. THIS CHART DENOTES ALL C. BAIRDI TRAWLED ON EACH STATION, WITH NO SEPARATION FOR SEX OR SIZE DISTRIBUTION. THE NUMBERS ARE IN TERMS OF Kg/Km (KILOGRAM PER KILOMETER OF TOW.)
- ITEM 2 - IS A XEROX OF PAGE 322 OF THE BLM/OCS REPORT FOR 1975. THE THREE CHARTLETS ON THIS PAGE SHOW DISTRIBUTIONS OF C. BAIRDI; IX-92 - ALL SEXES AND SIZES; IX-93 - FEMALES (ALL SIZES); AND IX-94 - MALES ONLY GREATER THAN 129 MM (5.07 INCHES) IN CARAPACE WIDTH. NOTE THAT THESE CHARTS ARE IN DENSITIES PER SQUARE MILE, AND GIVES A GENERAL VIEW OF THE OVERALL DISTRIBUTION PATTERNS.
- ITEM 3 - (PAGE 323 OF BLM/OCS REPORT, 1975) SHOWS CONCENTRATIONS OF C. BAIRDI RELATIVE ABUNDANCE IN TERMS OF Kg/Km.
- A. NOTE HIGH DENSITY "POCKETS" (GREATER THAN 25-50 Kg/Km) AT PROX. 176° 30' WEST LONGITUDE AND 59° 15' NORTH LATITUDE.
- B. NOTE DENSITY "POCKET" (10-15 Kg/Km) AT 170° 40' WEST LONGITUDE AND 60° 30' NORTH LATITUDE (JUST EAST OF ST. MATHEW ISLAND) [THE SECOND AND THIRD CONTOUR

INTERVAL BLOCKS, LOWER LEFT CORNER, WERE REVERSED,
BUT THE NUMBERS HAVE BEEN CORRECTED.]

ITEM 4 - (PAGE 324 OF BLM/OCS REPORT, 1975) FIGURE IX-96 ON THIS PAGE SHOWS THE KG/KM NUMBERS AT EACH STATION TOWED, AND SHOWS THE SAME INFORMATION ILLUSTRATED BY ITEM 3 PREVIOUS (PAGE 323) OF BLM/OCS REPORT). FOR EXAMPLE, ON THIS CHART COMPARE THE +11 JUST EAST OF ST. MATHEW WITH THE CONTOUR INTERVAL SHOWN IN THE SAME PLACE ON THE PAGE 323 CHART)

PAGES 321, 325, AND 326 OF THE 1975 BLM/OCS REPORT ARE ENCLOSED. THEY ARE SUMMARY COMMENTS ON THE C. BAIRDI SURVEY REPORTS.

THE BLM/OCS REPORT ON THE DEMERSAL FISH AND SHELLFISH RESOURCES OF THE EASTERN BERING SEA CONTAINS OVER 600 PAGES OF RESOURCE ASSESSMENT FOR THE BASELINE YEAR OF 1975. IT ALSO CONTAINS LIFE HISTORIES OF THE SPECIES INVESTIGATED, AND I HOPE IN THE NEAR FUTURE TO GET OR MAKE COPIES OF THE SECTIONS THAT ARE OF SPECIAL INTEREST TO US, SUCH AS RED AND BLUE KING CRAB AND TANNER CRAB. THE NORTHWEST AND ALASKA FISHERIES CENTER OF NMFS HAS PUT TOGETHER A MAJOR WORK IN A SHORT TIME, A VERY IMPRESSIVE DEMONSTRATION OF TEAM COMPETENCE. WE WILL BE ABLE TO USE THE INFORMATION MORE AND MORE IN THE YEARS TO COME.

A handwritten signature in black ink, appearing to be 'Sjg', with a long horizontal stroke extending to the right.

SJ/LH

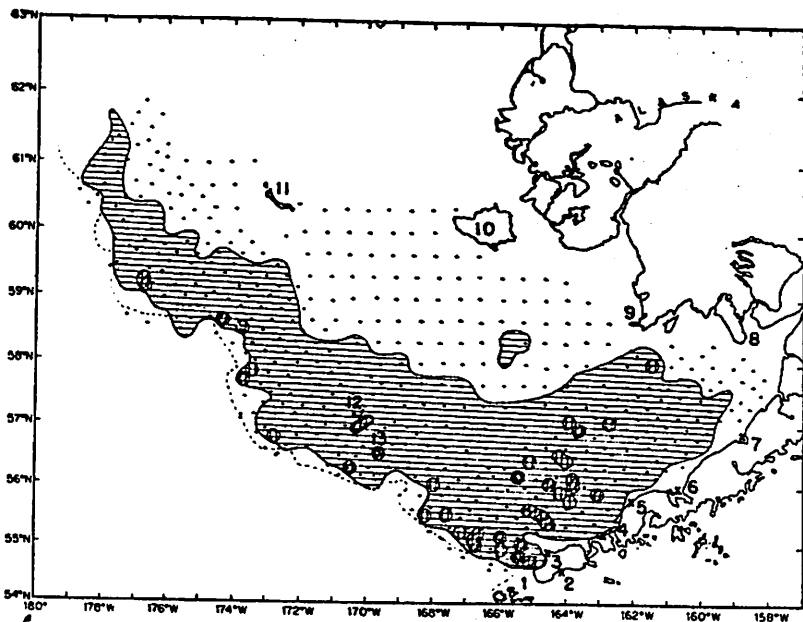


Figure IX-92. All sexes and sizes.

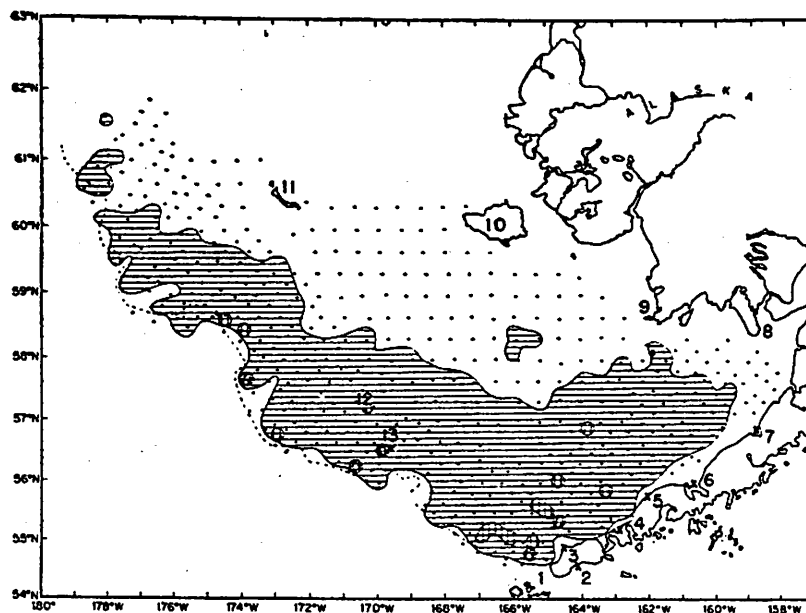


Figure IX-93.--Females (all sizes).

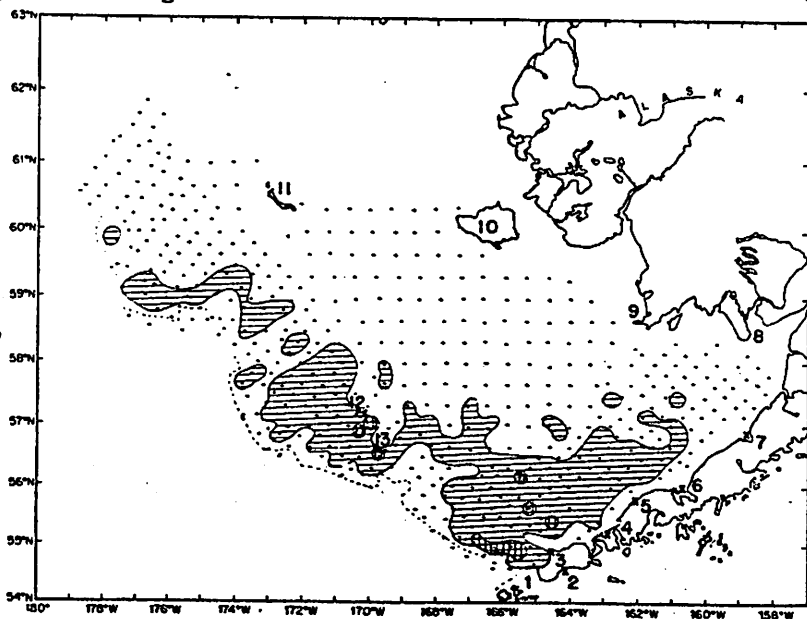
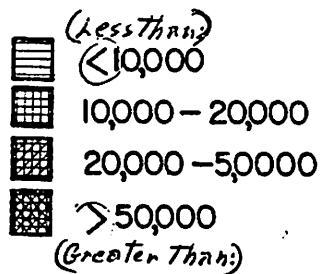


Figure IX-94.--Males > 129mm.

Figures IX-92-94.--Distribution and relative abundance in numbers of Tanner crab (*C. bairdi*) in the eastern Bering Sea (BLM/OCS survey, 1975).

CATCH IN NUMBERS /MI²



- 1 UNIMAK PASS
- 2 UNIMAK ISLAND
- 3 CAPE MORDVINOF
- 4 AMAK ISLAND
- 5 BLACK HILLS
- 6 PORT MOLLER
- 7 PORT HEIDEN
- 8 CAPE CONSTANTINE
- 9 CAPE NEWENHAM
- 10 NUNIVAK ISLAND
- 11 ST. MATTHEW ISLAND
- 12 ST. PAUL ISLAND
- 13 ST. GEORGE ISLAND

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Note that the contour intervals were reversed and have been corrected.

Tom
1/6

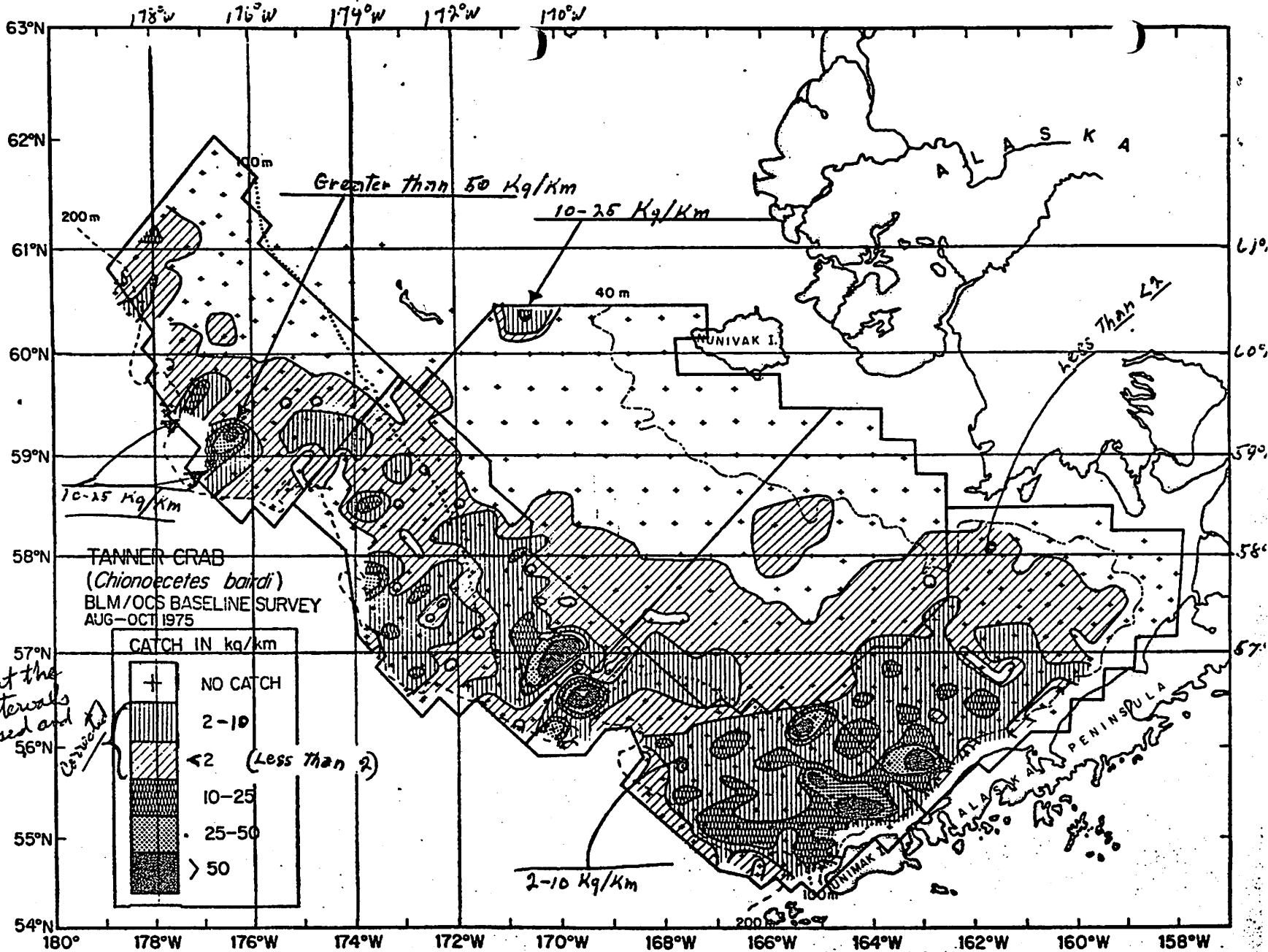


Figure IX-95.—Distribution and relative abundance by weight of Tanner crab (*C. bairdi*) in the eastern Bering Sea (BLM/OCS survey, 1975).

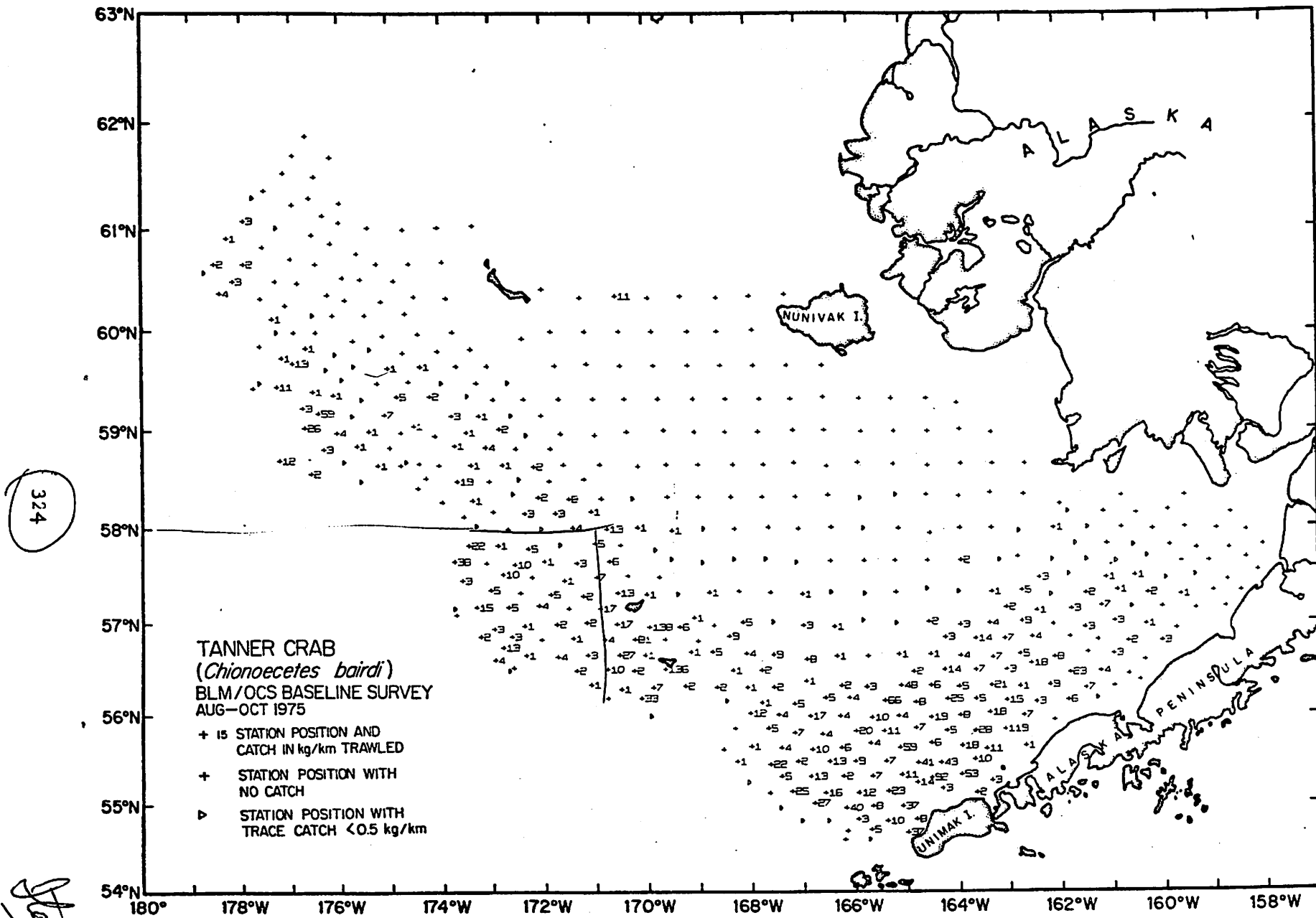


Figure IX-96.—Distribution of catch rates by weight of Tanner crab (C. bairdi) in the eastern Bering Sea (BLM/OCS survey, 1975).

Tanner crab (C. bairdi)

Distribution and abundance--The 1975 baseline survey showed that Tanner crab (Chionoecetes bairdi) were distributed in a wide sickle-shaped band, extending from the farthest northwestern portion of the survey area along the edge of the continental shelf, bending and widening as it spreads northeastward along the Alaska Peninsula into Bristol Bay. Distribution along the western boundary of the survey area indicates that the population may extend farther westward than the area sampled. The major part of the population surveyed is distributed in the thick portion of the band, between the Pribilof Islands and the Alaska Peninsula (Figure IX-92).

Females were distributed throughout the entire population, within a pattern appearing quite similar to the total population of C. bairdi (Figure IX-93). Concentrations of C. bairdi females were scattered northwest of Unimak Island, with the most easterly concentration approximately 190 km southwest of Cape Constantine. Scattered concentrations of females occurred northwest of the Pribilof Islands along the edge of the continental shelf with the largest concentration just south of St. George Island.

Large males (greater than 120 mm in carapace width) did not extend as far north as the other size groups did (Figure IX-94). They do not extend toward Bristol Bay much farther than Port Moller, and range to the northwest only as far as 60°N at the western boundary of our survey area. Concentrations of large males occur north of Unimak Island, and near the Pribilof Islands.

This species occurred frequently in all subareas, but was most frequently encountered in subarea 1 (Table IX-51). Here, C. bairdi was caught in 95.5% of the hauls. It occurred in 84.7% of the hauls in subarea 2, in 70.1% of subarea 3 hauls, and in 50.2% of subarea 4 hauls.

Table IX-51.--Estimated population of the Tanner crab, C. bairdi, by subarea in the eastern Bering Sea (95% confidence limits in parentheses) (BLM/OCS survey, 1975).

Subarea	Percent frequency of occurrence	Estimated population (X 10 ⁶)	Proportion of total estimated population
<u>Inner Shelf</u>			
4	50.2	16.2	.025
1	95.5	160.6	.244
<u>Outer Shelf</u>			
3	70.1	173.6	.264
2	84.7	306.7	.467
All subareas combined		657.1 (537.8-738.8)	

Mean size by subarea, sex, and for sexes combined is shown for C. bairdi in Table IX-47. Female mean size was substantially less than that for males in all subareas. The males on the outer shelf tended to be larger than inner shelf males. Mean lengths of females were similar for all subareas.

Shell age composition--Shell age composition for C. bairdi is shown in Table IX-48. Overall, males and females were both predominately new shell crabs. However, a higher proportion of females were in the old shell category. Molting and soft shell crabs were present in small numbers.

Estimated abundance of C. bairdi at the time of the 1975 baseline survey was 657 million crabs. Approximately 47% of the population was found in subarea 2. Subareas 3, 1, and 4 contained the remaining 26%, 24%, and 3%, respectively.

The distribution and relative abundance by weight of C. bairdi in the survey area are given in Figures IX-95 and 96.

Size composition--Size composition data for C. bairdi from the 1975 baseline survey are presented in Figure IX-97. Crabs ranged in size from 5 to 190 mm carapace width, and females exhibited a smaller size range (15-125 mm) than males (10-190 mm). Major modes for males and females were around 130 mm and 90 mm, respectively.

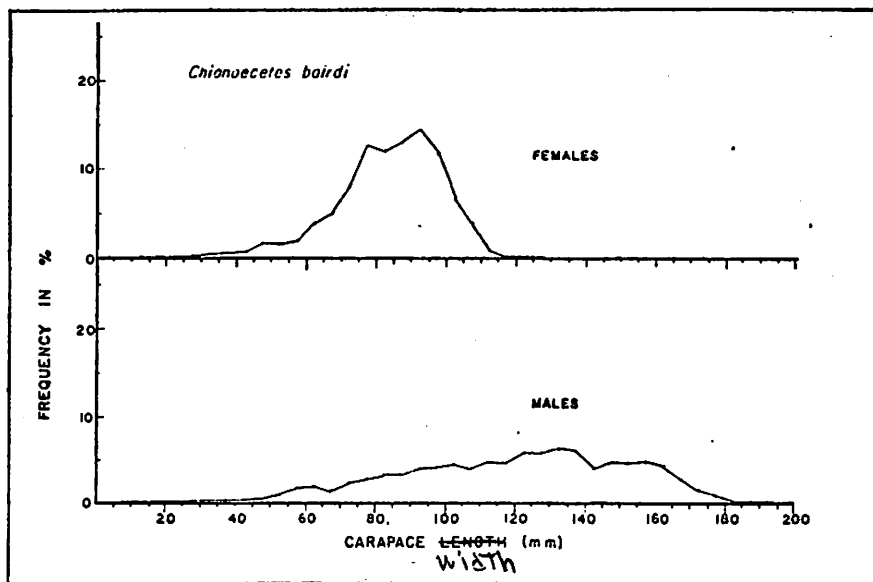


Figure IX-97.--Size composition of Tanner crab (C. bairdi) in the eastern Bering Sea (BLM/OCS survey, 1975).

Population estimates of size groups by subarea are shown for C. bairdi in Table IX-52. For males, intermediate-sized crabs were most abundant in all subareas except subarea 2, where large males predominated. For females, small crabs were usually most abundant except in subareas 1 and 2. In subarea 2 large females predominated and in subarea 1 large and small females were equally abundant. Overall, males were more abundant than females in all subareas.

Table IX-52.--Estimated population ($\times 10^6$) of the Tanner crab C. bairdi by subarea, sex and size group^{1/} in the eastern Bering Sea (BLM/OCS survey, 1975).

Subarea	MALES				FEMALES			Sexes combined
	<85	85-129	>129	All sizes	<85	>84	All sizes	
<u>Inner Shelf</u>								
4	0.9	8.4	4.0	13.3	2.5	0.4	2.9	16.2
1	29.0	46.2	28.1	103.3	28.1	29.2	57.3	106.6
<u>Outer Shelf</u>								
3	8.1	73.7	32.5	114.3	42.0	17.3	59.3	173.6
2	35.0	45.5	103.7	184.2	47.2	75.3	122.5	306.7

^{1/} Carapace width (mm)