NORTHWEST AND ALASKA FISHERIES CENTER

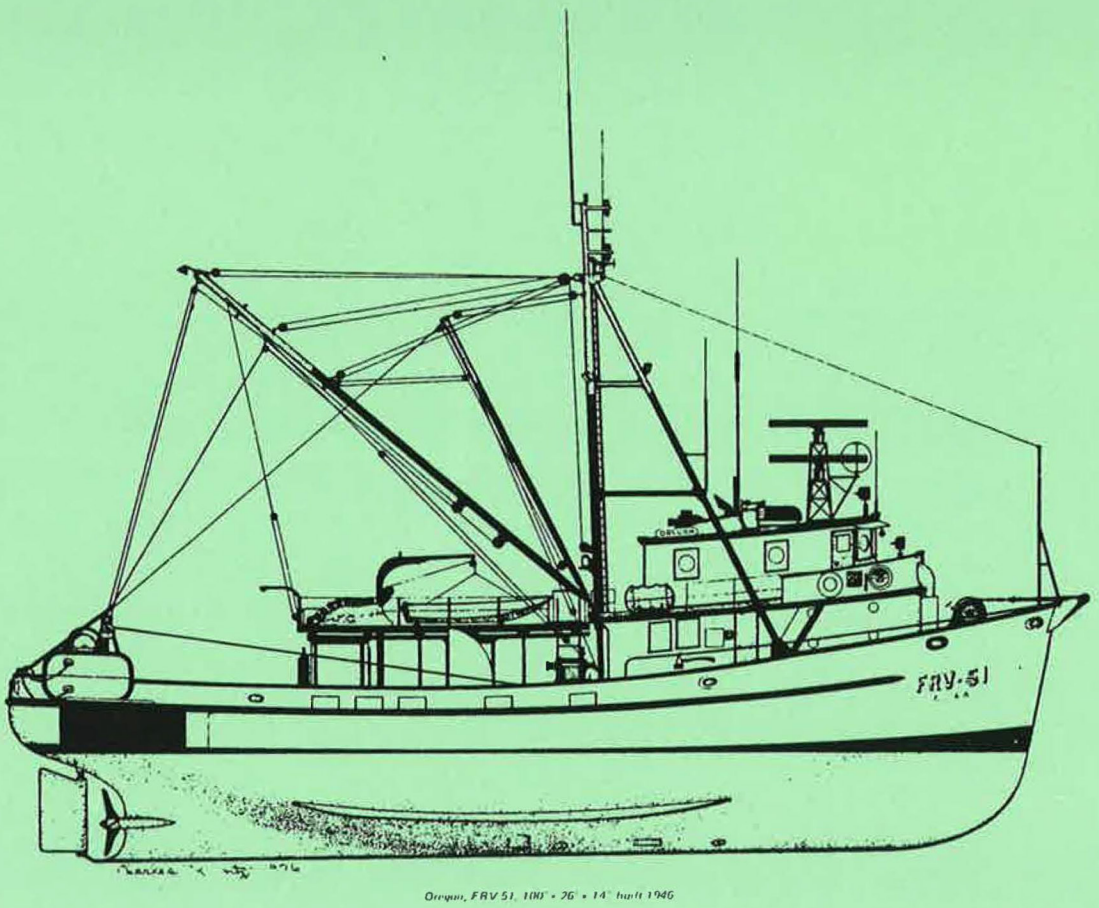
PROCESSED REPORT

SEPTEMBER 1979

report to industry on
1978

EASTERN BERING SEA SURVEY

TANNER CRAB



Oregon, FRV 51, 100' • 26' • 14' built 1946

SURVEY VESSELS R/V OREGON
F/V PARAGON II

Northwest and Alaska Fisheries Center
Kodiak Facility
Kodiak, Alaska

NOTICE

Northwest and Alaska Fisheries Center Processed Report

Report to Industry on

1978

Eastern Bering Sea Survey

Tanner Crab

by

R.S. Otto, A.H. Fukuyama, T.M. Armetta, and R.A. MacIntosh

National Marine Fisheries Service
Northwest and Alaska Fisheries Center
Kodiak Facility
P. O. Box 1638
Kodiak, Alaska 99615

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The 1978 Eastern Bering Sea Crab Survey

An annual trawl survey is conducted in the eastern Bering Sea to provide information on the distribution and abundance of four species of crabs. This information is provided to fishermen and processors as an aid in locating productive areas and judging the overall availability of crabs. Survey derived information is also used as part of the basis for management decisions. This report deals with the distribution and abundance of Tanner (snow) crab populations. An additional report dealing with king crabs was released in September, 1978. Considerable data on the abundance and distribution of groundfish are also collected and are available from the National Marine Fisheries Service Montlake Laboratory.

There are two commercially important species of Tanner crabs in the eastern Bering Sea. These species cross-breed and hybrid crab make up appreciable portions of the Tanner crab populations in some areas. In what follows we will refer to Chionoecetes bairdi as "bairdi" Tanner crab and Chionoecetes opilio as "opilio" Tanner crab. Chionoecetes hybrids will simply be referred to as "hybrids".

Survey Area and Methods

The area covered by the 1978 crab survey was considerable larger than that covered in previous years (Fig. 1). Covering this enlarged area required the use of a chartered vessel. The PARAGON II surveyed from June 8 to August 16 in addition to the annual NOAA RV OREGON survey that extended from May 20 to July 7.

Both vessels used identical methods. Each station was at the center of a twenty-mile square, and consisted of a one-half hour tow made with a 400 mesh eastern otter trawl. The trawl was constructed of 36 thread 4-inch mesh in the wings, 60 thread 3-1/2 inch mesh in the intermediate, and 96 thread 1-1/4 inch mesh codend liner. It was rigged with 18 eight-inch floats on the head rope and 25 fathom dandy lines (10 fathom single, 15 fathom double). The doors were of the Astoria "V" type and measured 5x7 feet. The footrope was 94 feet and the headrope was 71 feet in length. Observations by SCUBA divers have shown that the trawl sweeps an average of forty feet of bottom. A tracing of the bottom profile was made with a recording echo sounder during each tow. A tracing of the surface to bottom temperature profile was taken with an expendable bathythermograph (XBT) at as many stations as possible. When the trawl was brought aboard, crabs were separated from the rest of the catch and sorted by species and sex. A record was made of the number of crabs taken as well as size, sex, shell condition and egg condition.

In spite of standardized methods, comparative trawling at a series of stations showed that the two vessels differed slightly in their ability to catch crab. For this reason, it was necessary to convert the PARAGON II's catch rates to "standard" (OREGON) units. This adjustment

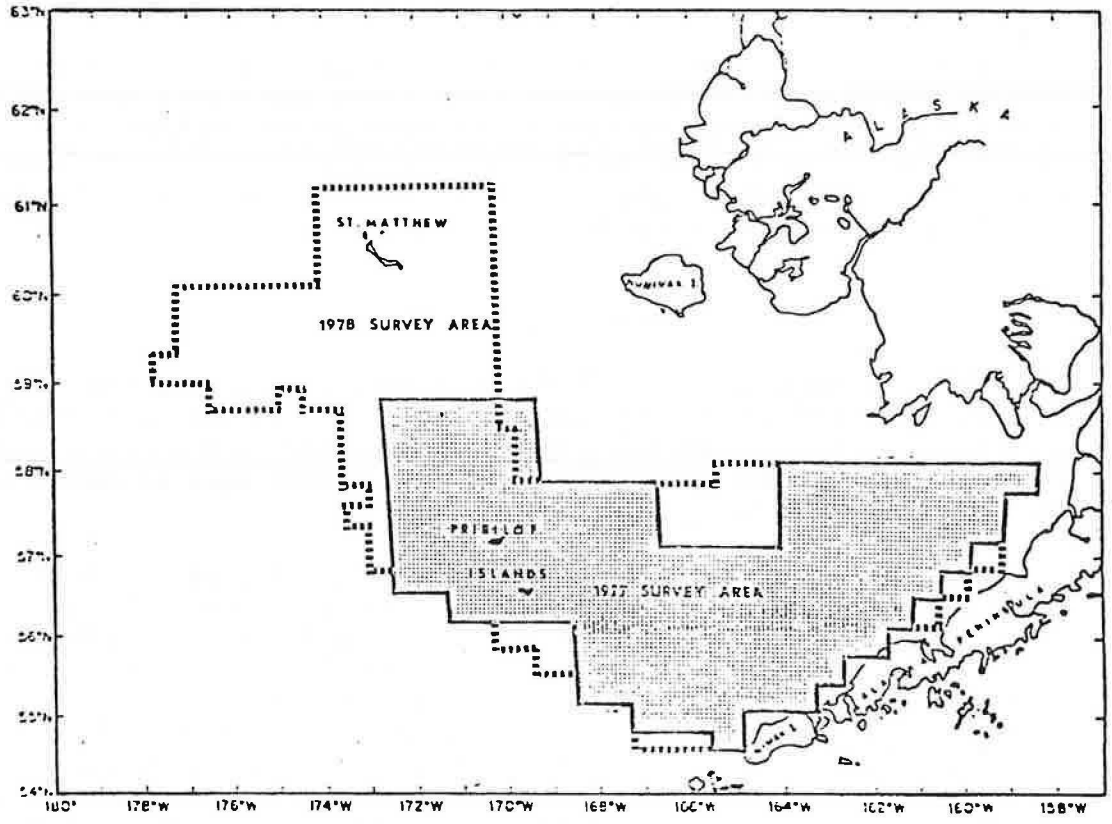

Figure 1.--NMFS eastern Bering Sea crab survey areas in 1977 (shaded) and 1978.

was minor. "Standardized" values are those given in the accompanying charts and were used in estimating abundance.

Survey information was processed to provide estimates of stock size and descriptions of crab distribution in the area. Estimates of the number of crabs per square mile were obtained by calculating the "area swept" by the trawl during each tow. Estimated stock sizes were obtained by averaging estimates of the number of crab per square mile from each station and multiplying by the survey area. While this description lacks detail, it shows that population estimates are derived by computing an average and applying the average to an area. Actually, for both practical and statistical reasons, several averages are computed for various non over-lapping areas (referred to as strata) and resultant estimates are then summed to account for the whole survey area.

Results

Population estimates of male Tanner crab from the 1973-1978 surveys are presented in Table 1. Estimates of the number of crab per square mile (unstandardized) are given in Tables 2 and 3 along with various station data. Station data include latitude, longitude, LORAN bearings, depth and bottom temperature. Table 2 also contains the percentage of legal bairdi Tanner crabs in the catch. The distribution and relative abundance of various size-sex groupings of Tanner crabs is shown graphically in Charts 1-6. The geographic distribution of bottom temperature data is shown in Chart 7.

Bairdi Tanner Crab

The estimated population of legal-sized male bairdi Tanner crabs in the traditionally surveyed portion of the eastern Bering Sea in 1978 was 45 million crabs. This estimate is considerably smaller than that of 1977 and continued a 4-year trend of declining abundance for large-sized crabs (Table 1). Bairdi Tanner crab were also found in the extended portion of the survey area, but the estimated abundance of legal crab was only 0.5 million. Although the estimated population of pre-recruits in 1977 was somewhat higher than in 1976, both pre-recruit and legal-sized populations of bairdi Tanner crab are apparently lower in 1978 than in the previous several years. It should be emphasized at this point that factors other than a change in population size can affect population estimates. In fact, any change in the availability of crabs to the trawl will affect the estimates.

The distribution of legal bairdi Tanner crabs (Chart 1) is similar to that of previous years except that: (1) crab are less abundant in the area surrounding the Pribilofs and (2) relatively high concentrations of crabs were found on the shelf edge in the area northwest of Unimak Island. Pre-recruit bairdi Tanner crab (Chart 2) were abundant further north of the Alaska Peninsula than legal crab, but otherwise their distributions were similar. The distribution of females (Chart 3) is

Table 1.--Population estimates of Tanner crab in the standard survey area of the eastern Bering Sea by species and size from NMFS annual surveys, 1973-1978 (sizes are carapace widths).

	MILLIONS OF CRAB BY YEAR					
	1973	1974	1975	1976	1977	1978
BAIRDI MALES						
Large (over 5.0")	66.9	130.5	209.6	157.8	111.1	57.1
Legal (over 5.5")[1]				109.5	92.1	45.4
Pre-recruit (3.3"-5.0")	140.5	255.0	207.5	131.7	159.6	87.7
Pre-recruit (3.9"-5.5")				136.6	116.3	76.4
OPILIO MALES						
Large (over 4.2")	84.7	246.7	274.8	181.6	137.3	68.5
Small (under 4.3")	115.2	1480.3	1916.7	2221.1	1850.9	835.0
HYBRID MALES						
Large (over 4.2")			33.8	16.5	15.4	5.7
Small (under 4.3")			47.5	27.8	141.2	11.7

[1] Legal size for calendar year 1977(>140 mm)

also similar to that of large males. Although more females than males appear to occur in the area northwest of the Pribilof Islands, this is more appearance than fact since many small males were found in this area also. Percentages of legal bairdi are shown in Chart 4.

Temperature is frequently cited as a possible factor influencing the availability of crabs. The relationship between the average number of legal bairdi Tanner crab per square mile trawled and bottom temperature is shown in Fig. 2 for the past four years. The temperatures at which bairdi crab have been encountered have gradually increased (reflecting the trend toward milder weather during the same period). Differences between 1977 and 1978 do not, however, seem to be sufficient to account for a 50 percent change in abundance of legal animals. The bottom panel of Fig. 2 shows that the highest catches of bairdi Tanner crabs have occurred in the 0-5 degree range. Comparison with upper panels shows that highest catch rates occur in this range in most years. There does not appear to be a narrower range of temperatures in which the highest catch rates have occurred consistently. Obviously, these data are limited and apply only to the summer distribution. It is possible that temperature is a more important factor at other times of the year.

Figure 3 shows the relationship between catch rates in the fishery and estimates of abundance from the survey. The curved line shown in the figure seems to fit the data better than the straight line, however, there are very few data points and no conclusion can be drawn. It is also noted that the 1973 data point was not included in the analysis. 1973 was the first year that there was a directed fishery (by the United States) and catch rates during that year may not be reflective of the general situation. The 1978 season should result in an average catch per unit effort of 40-45 legal bairdi per pot lift (according to the curved line) if the population estimate is "in the ball park" and higher catch rates if it is an underestimate.

Opilio and Hybrid Tanner Crab

The estimated abundance of opilio crabs is lower than it has been in the previous four years. As was the case with legal bairdi, the estimated population of large male opilio Tanner crabs in the traditional survey area is about 50 percent of the 1977 estimate. Since only 1.3 million opilio Tanner crab were taken in the 1977 fishery, the population is almost unfished. The reduction in estimated abundance supports the view that the survey has resulted in either underestimates of the 1978 population or overestimates of the 1977 population.

The estimated abundance of large male opilio crab in the extended portion of the survey area was 14.4 million crab. The only appreciable concentrations of large opilio in the extended area are found in the area that was occupied by the Japanese fleet from March through September of 1978 (rows L-P on Chart 5). This fleet consisted of two "motherships" with six "catcher" vessels and eleven independent vessels. The total

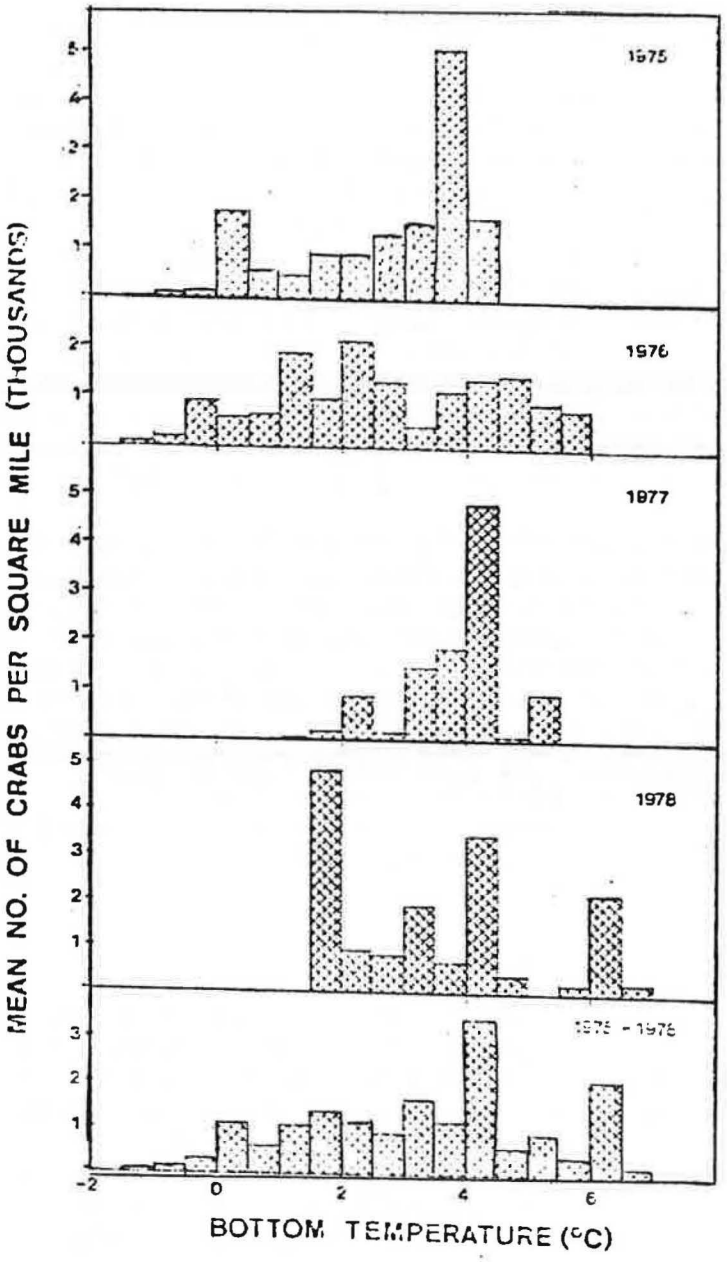

Figure 2.--Average number of legal-sized male Tanner crab (Chionoecetes bairdi) per square mile found at various bottom temperatures in the 1975-1978 NMFS Bering Sea surveys. Data are summarized in 0.5 degree intervals.

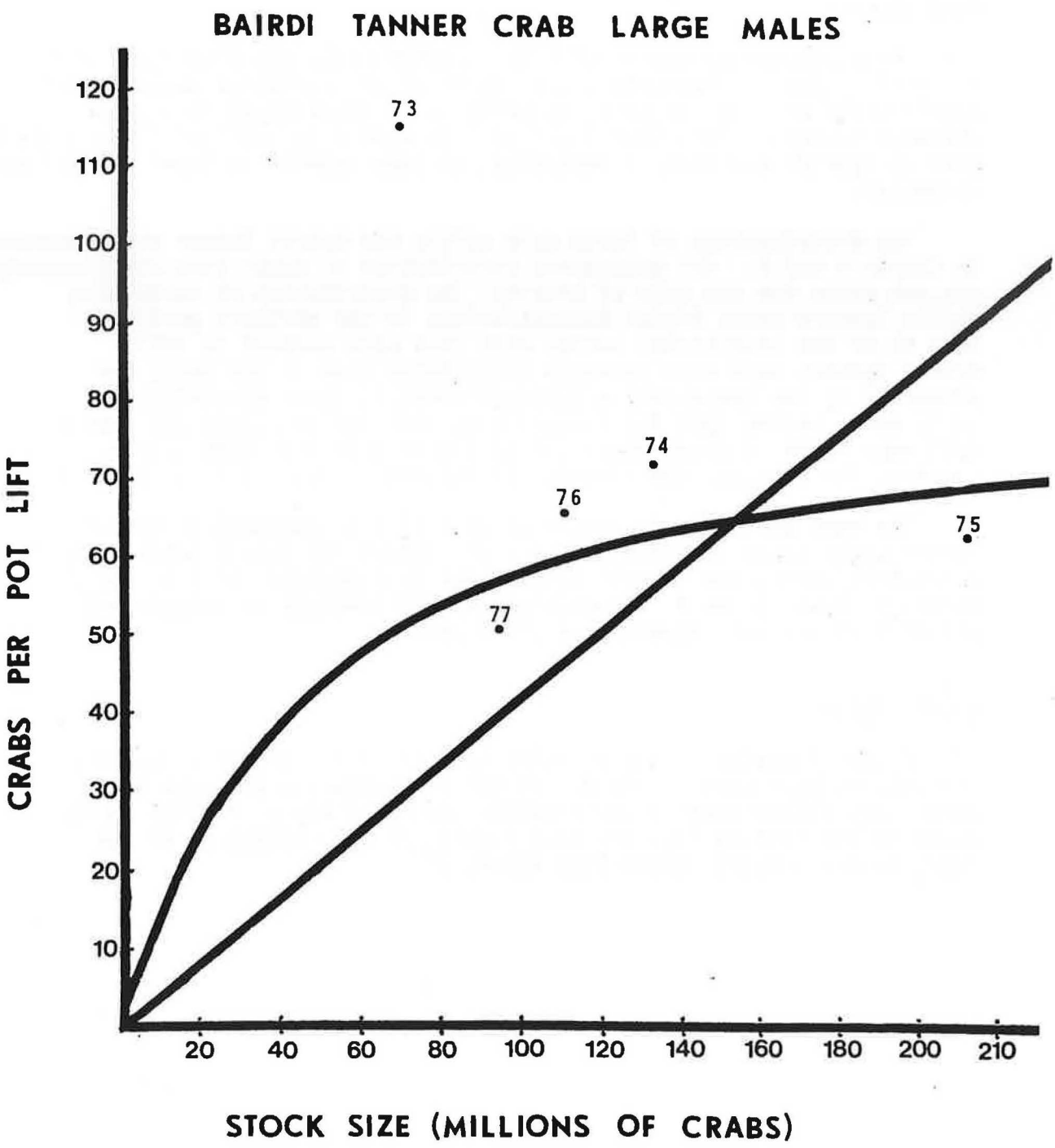

Figure 3.--Relationship between the season average number of crabs taken per pot in the U. S. Fishery and estimates of stock size from NMFS trawl surveys in the preceeding summer (1973 was not included in calculating equations for either line).

Japanese catch was 15,000 metric tons (33 million pounds) of which 12,800 mt (85%) were opilio, 1,700 mt (12%) were bairdi and 500 mt (3%) were hybrids.

The estimated abundance of hybrid Tanner crabs was also lower than in previous years. Apparent fluctuations in the estimated abundance of hybrid crabs are due, in part, to problems in identifying them aboard research vessels. This year field parties were very cautious in classifying crab as hybrids and this is reflected, to some degree, in lower population estimates.

The distributions of large male opilio and hybrid Tanner are presented in Charts 5 and 6. The geographic distribution of other size-sex groupings are not shown for the sake of brevity. The distribution of large male opilio Tanners shows higher concentrations in the northern portion (row H) of the traditional survey area than were present in 1977. Hybrid Tanners were more sparsely distributed than in the past, due primarily to the conservative approach taken in their classification. It is worth noting that the largest concentration of opilio and hybrid crab were found in areas where bairdi Tanner crab were very scarce. Compare, for example, the vicinity of station H-3 on Charts 1, 5 and 6.

The more northerly distribution of opilio as compared to bairdi Tanner crabs could be explained by a preference for colder water (Fig. 4). A possible preference is well illustrated by comparing the top (1975) panels of Figs. 2 and 4, although obvious differences in temperature preferences are less apparent in other years.

Questionnaires

A questionnaire is not included in this year's report since very few returns have been received. We would, however, appreciate any commentary volunteered by our readers. Also, if you would like to be added to the mailing list for this report, please contact us at Box 1638, Kodiak, Alaska 99615 (907-487-4961).

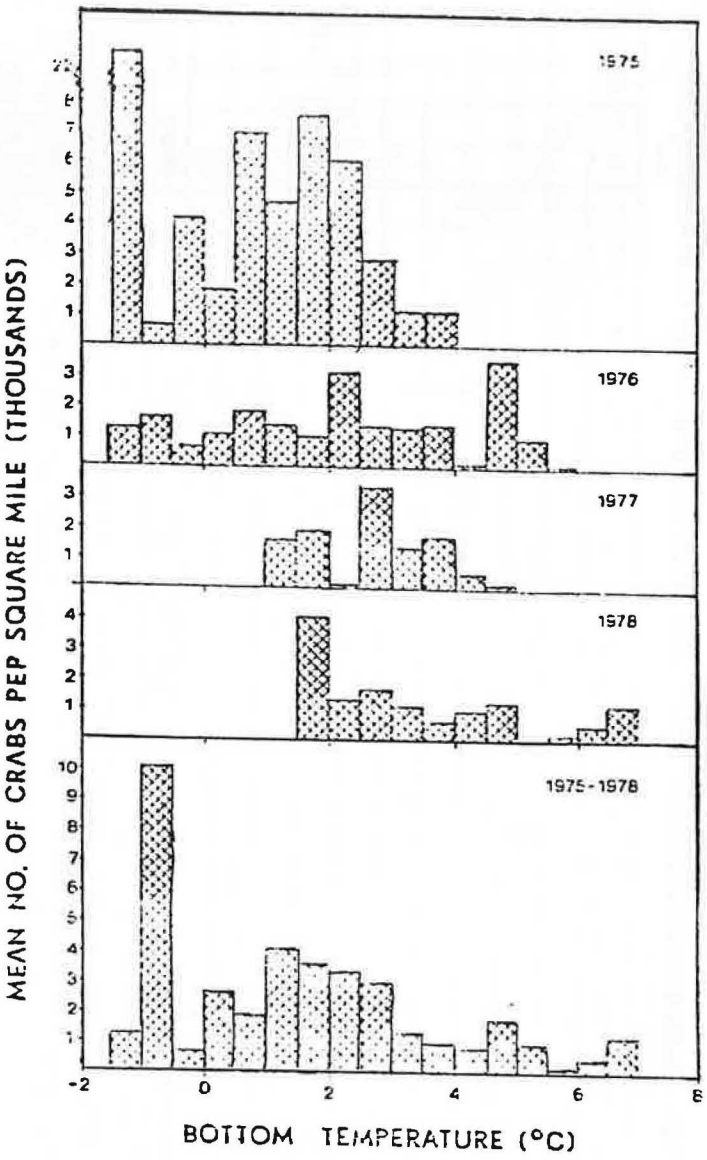

Figure 4.--Average number of large-sized male Tanner crab (Chionoecetes opilio) per square mile found at various bottom temperatures in the 1975-1978 NMFS Bering Sea surveys. Data are summarized in 0.5 degree intervals.

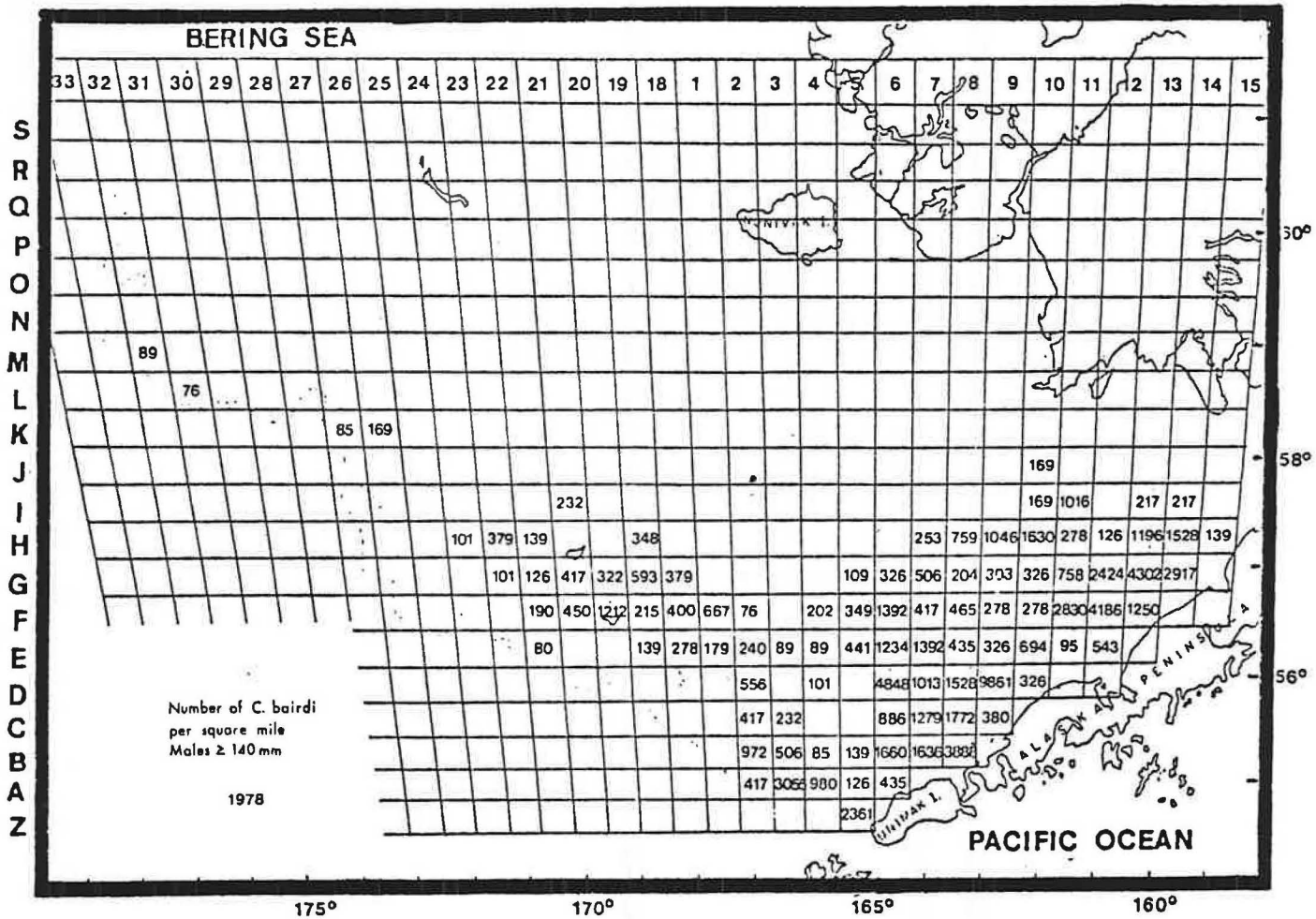

Chart 1.--The distribution of legal bairdi Tanner crab encountered during the NMFS eastern Bering Sea survey during the summer of 1978.

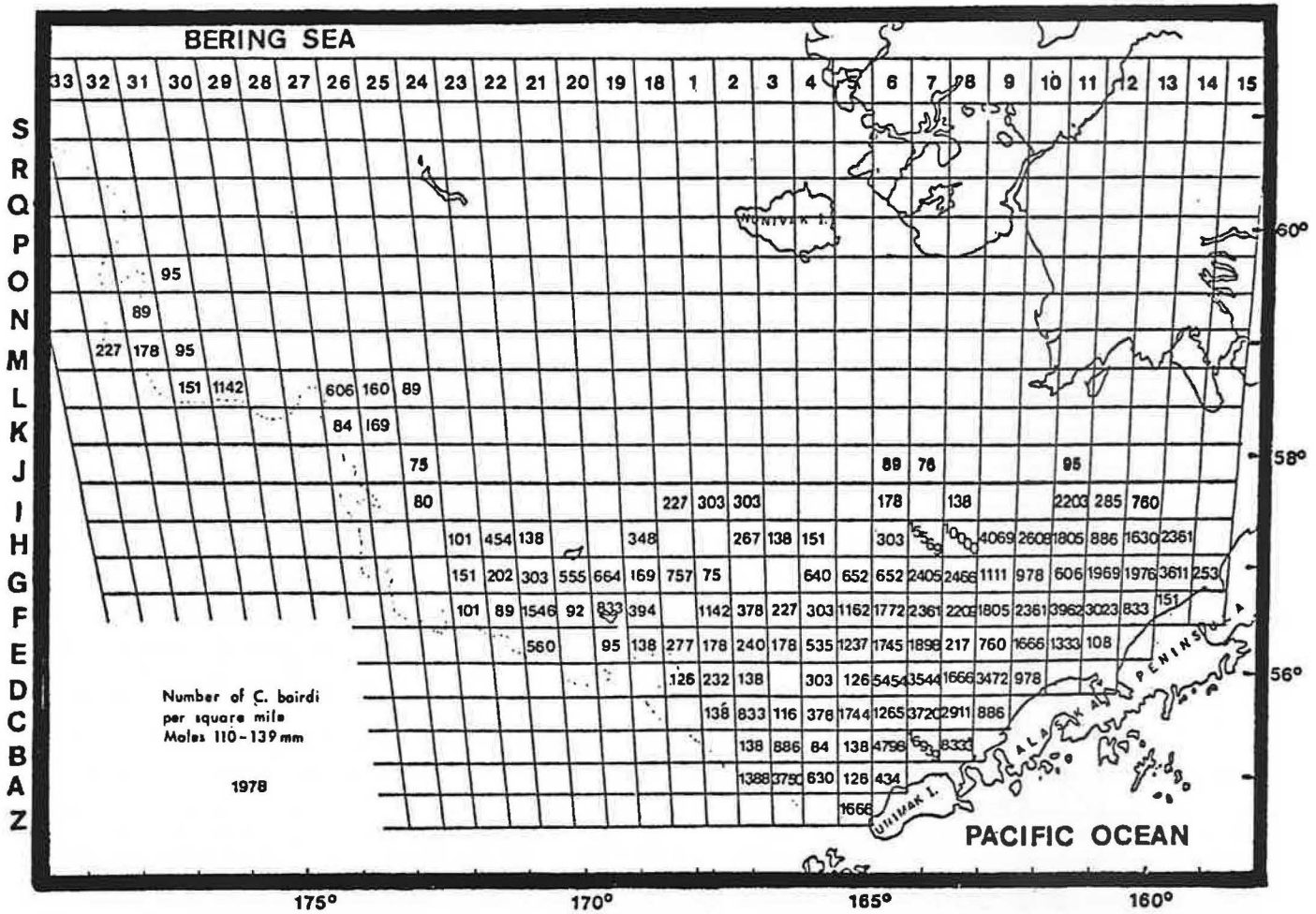

Chart 2.--The distribution of pre-recruit bairdi Tanner crab encountered during the NMFS eastern Bering Sea trawl survey during the summer of 1978.

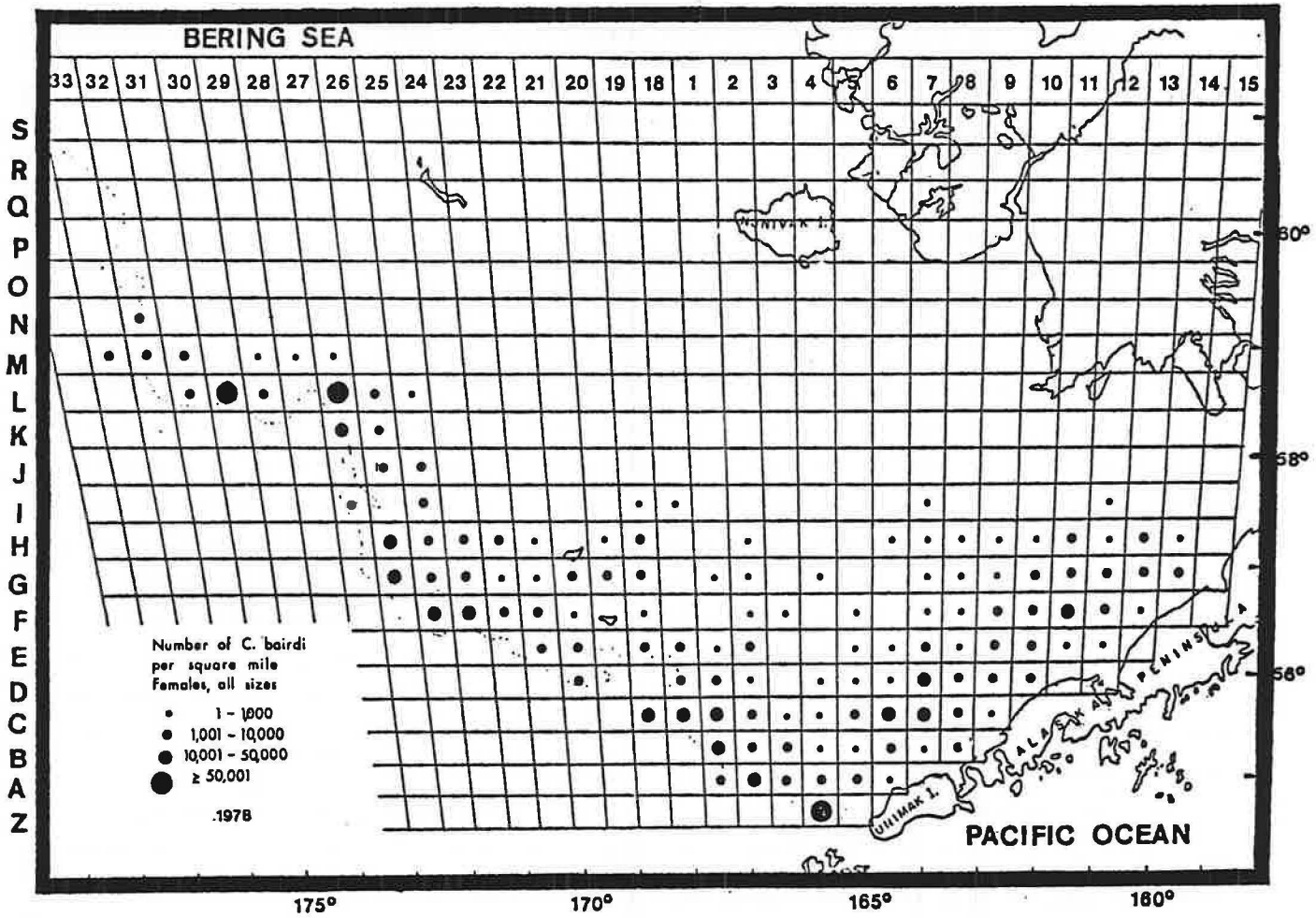

Chart 3.--The distribution of female bairdi Tanner crab encountered during the NMFS eastern Bering Sea trawl survey during the summer of 1978.

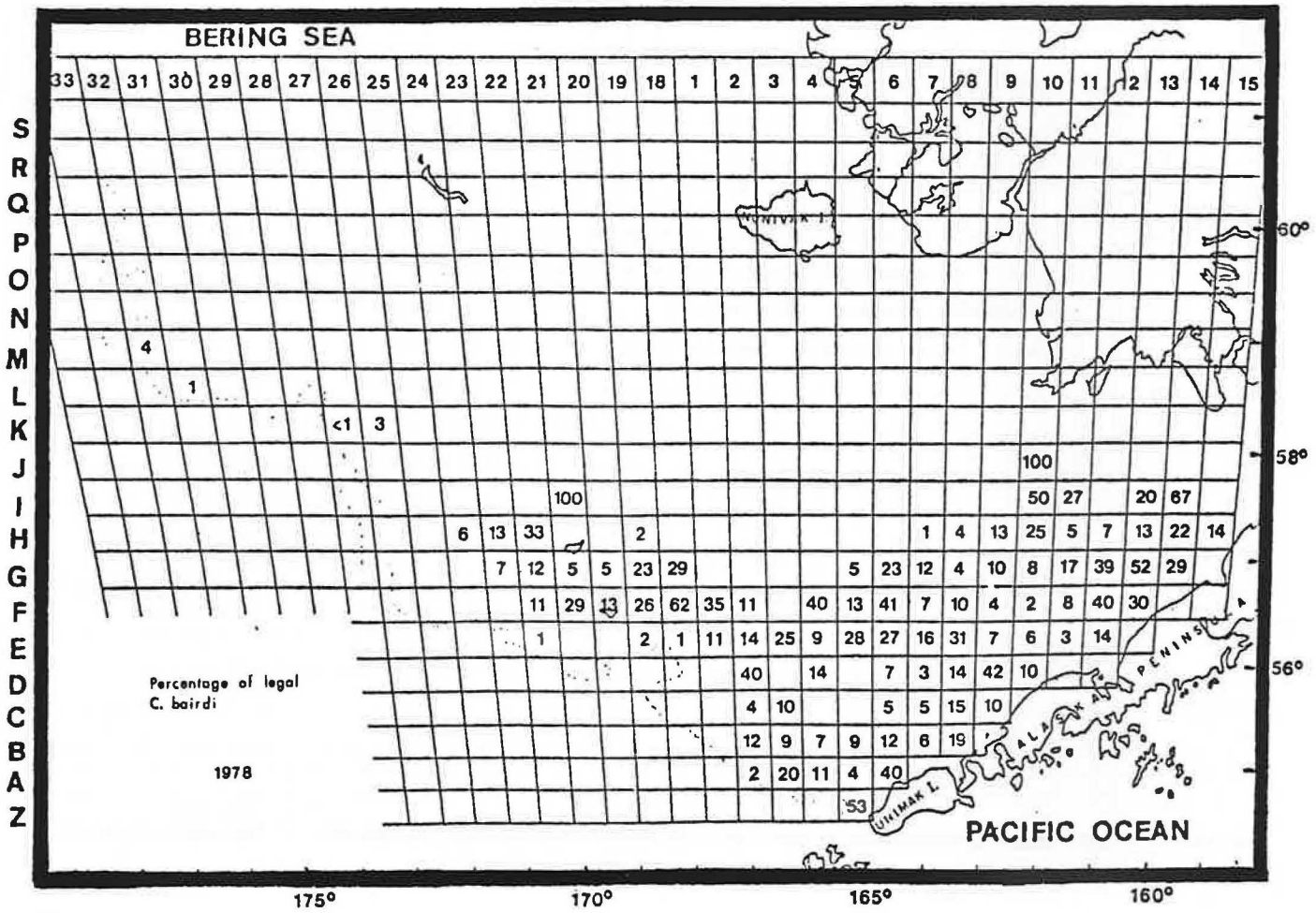

Chart 4.--The percentage of the bairdi Tanner crab taken at each station that consisted of legal crab.

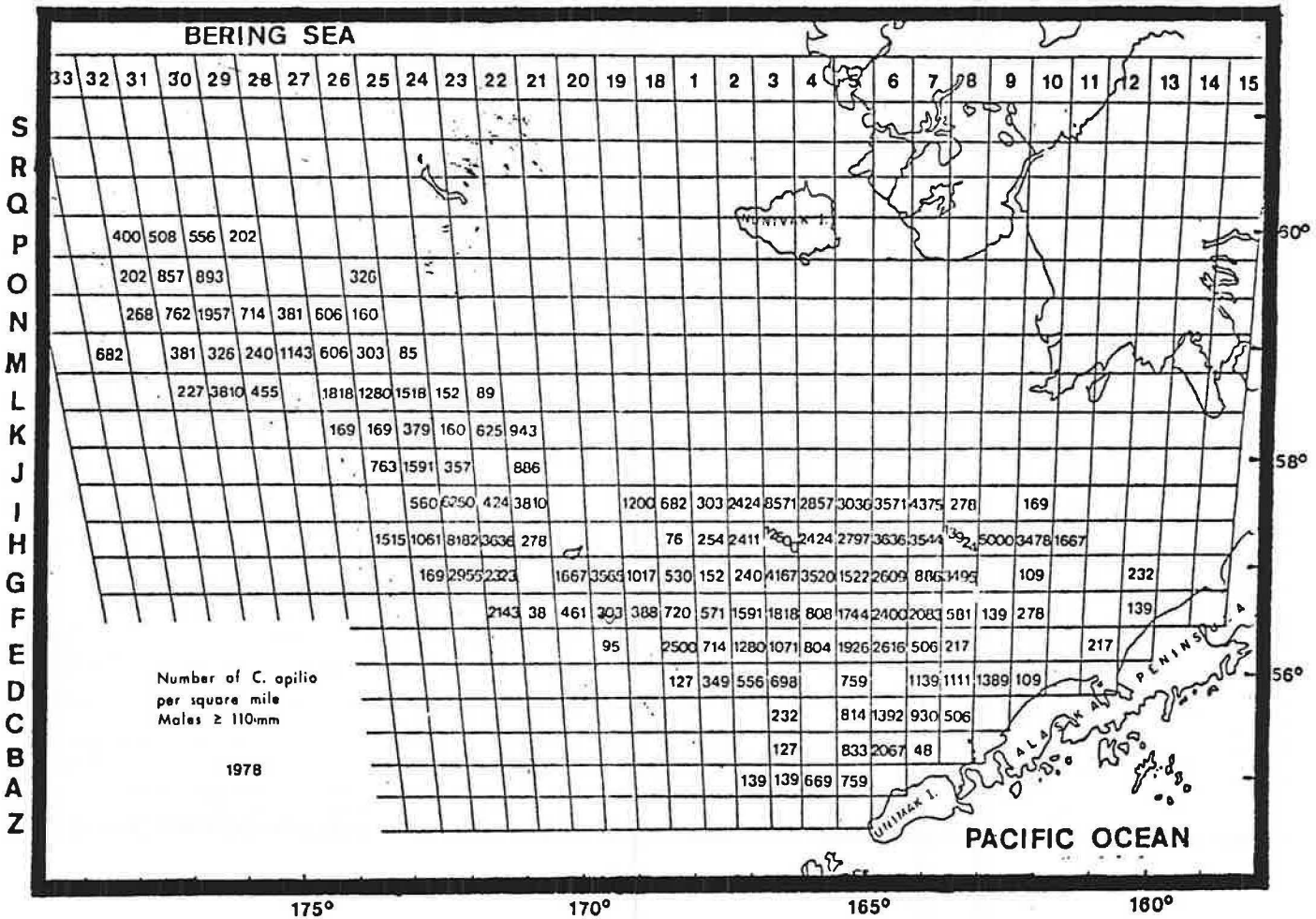

Chart 5.--The distribution of large opilio Tanner crab encountered during the NMFS eastern Bering Sea trawl survey during the summer of 1978.

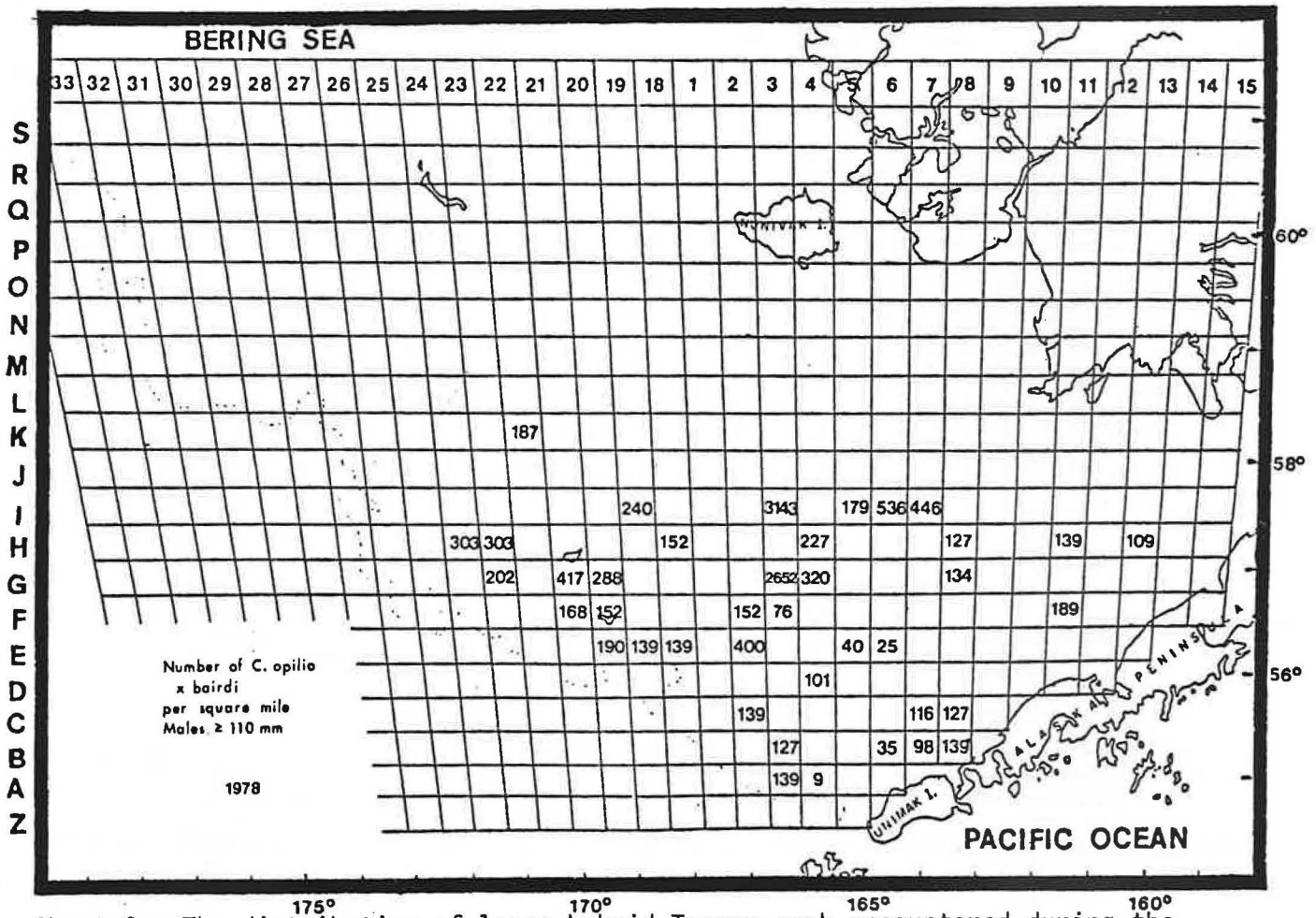

Chart 6.--The distribution of large hybrid Tanner crab encountered during the NMFS eastern Bering Sea trawl survey during the summer of 1978.

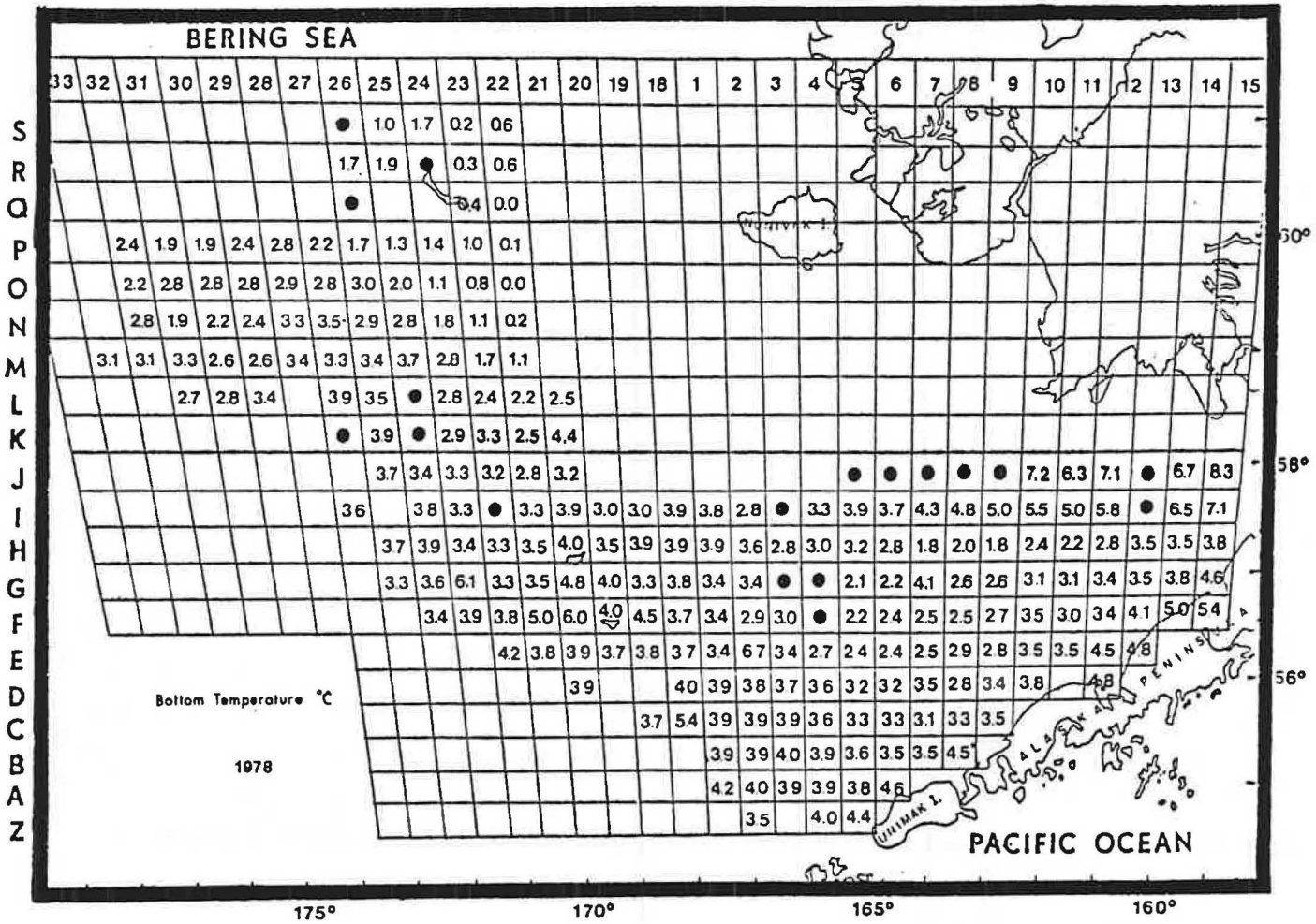

Chart 7.--The distribution of bottom temperatures determined from expendable bathythermograph casts made during the summer of 1978 eastern Bering Sea crab survey.

Table 2.--Numbers per square mile legal and pre-recruit male C. bairdi per area trawled and percent legal by station.

Station	Vessel	Tow	Date	Latitude	Longitude	Loran C		Depth	Bottom Temp	Legal(>139mm) no./sq.mi	%Legal	Pre-recruit(110-139mm) no./sq.mi
Z05	14	1	5/20	54-40	165-09	Y34608	Z48028	44	4.4	2361	53	1666
A05	14	2	5/20	55-00	165-09	Y34566	Z48056	58	3.8	126	4	126
B05	14	3	5/20	55-20	165-10	Y34517	Z48084	58	3.6	138	9	138
C05	14	4	5/20	55-40	165-11	Y34462	Z48110	57	3.3	0	0	1744
D05	14	5	5/22	56-00	165-10	Y34399	Z48134	51	3.2	0	0	126
F05	14	7	5/22	56-39	165-13	Y34239	Z48166	40	2.2	348	13	1162
G05	14	8	5/22	57-00	165-13	Y34132	Z48160	37	2.1	108	5	652
G06	14	9	5/23	56-59	164-36	Y34022	Z47915	37	2.2	326	23	652
F06	14	10	5/23	56-40	164-36	Y34122	Z47916	39	2.4	1392	41	1772
D06	14	12	5/23	56-01	164-35	Y34293	Z47902	49	3.2	4848	7	5454
D07	14	13	5/24	56-01	164-00	Y34196	Z47671	49	3.5	1012	3	3544
E07	14	14	5/24	56-19	164-00	Y34116	Z47677	46	2.5	1265	14	1898
F07	14	15	5/24	56-39	164-00	Y34019	Z47679	39	2.5	416	7	2361
G07	14	16	5/24	56-59	164-00	Y33918	Z47676	35	4.1	506	12	2405
H07	14	17	5/25	57-20	164-00	Y33797	Z47667	33	1.8	253	1	15569
H08	14	18	5/25	57-20	163-24	Y33695	Z47416	28	2.0	759	4	10000
H09	14	19	5/25	57-21	162-47	Y33593	Z47173	26	1.8	1046	13	4069
H10	14	20	5/25	57-20	162-09	Y33497	Z46924	26	2.4	1630	25	2608
H11	14	21	5/26	57-20	161-33	Y33405	Z46673	30	2.2	277	5	1805
H12	14	22	5/26	57-20	160-57	Y33319	Z46432	35	2.8	126	7	886
H13	14	23	5/26	57-20	160-18	Y33232	Z46178	32	3.5	1195	13	1630
H14	14	24	5/26	57-20	159-40	Y33142	Z45922	29	3.5	1527	22	2361
H15	14	25	5/27	57-21	159-04	Y33063	Z45681	25	3.8	138	14	0
G15	14	26	5/27	57-00	159-08	Y33187	Z45717	15	4.6	0	0	253
F15	14	27	5/27	56-49	159-09	Y33244	Z45730	10	5.4	0	0	0
F14	14	28	5/27	56-40	159-45	Y33367	Z45970	15	5.0	0	0	151
G14	14	29	5/28	57-00	159-42	Y33258	Z45938	29	3.8	2916	29	3611
G13	14	30	5/28	56-59	160-20	Y33345	Z46199	34	3.5	4302	52	1976
G12	14	31	5/28	57-00	160-56	Y33431	Z46439	34	3.4	2424	39	1969
G11	14	32	5/28	57-00	161-33	Y33522	Z46691	36	3.1	757	17	606
G10	14	33	5/29	57-00	162-09	Y33615	Z46932	32	3.1	326	8	978
G09	14	34	5/29	57-00	162-47	Y33712	Z47180	31	2.6	303	10	1111
F08	14	36	5/29	56-40	163-23	Y33916	Z47428	39	2.5	465	10	2209
F09	14	37	5/30	56-40	162-47	Y33817	Z47190	37	2.7	277	4	1805
F10	14	38	5/30	56-41	162-11	Y33714	Z46952	38	3.5	277	2	2361
F11	14	39	5/30	56-40	161-35	Y33628	Z46709	46	3.0	2830	8	3962

Table 2.--Continued

Station	Vessel	Tow	Date	Latitude	Longitude	Loran C		Depth	Bottom Temp	Legal(>139mm) no./sq.mi.	%Legal	Pre-recruit(110-139mm) no./sq.mi.
F12	14	40	5/30	56-41	160-59	Y33536	Z46467	38	3.4	4186	40	3023
F13	14	41	5/31	56-40	160-22	Y33452	Z46220	30	4.1	1250	30	833
D12	14	43	6/1	56-06	160-59	Y33701	Z46485	14	4.8	0	0	0
E12	14	44	6/1	56-20	160-59	Y33635	Z46476	27	4.5	543	14	108
E11	14	45	6/1	56-20	161-37	Y33729	Z46730	32	3.5	95	3	1333
D10	14	46	6/1	55-59	162-14	Y33916	Z46978	33	3.8	326	10	978
E10	14	47	6/2	56-20	162-13	Y33824	Z46968	42	3.5	694	6	1666
E09	14	48	6/2	56-20	162-47	Y33915	Z47197	41	2.8	326	7	760
E08	14	49	6/2	56-20	163-24	Y34011	Z47438	44	2.9	434	31	217
D08	14	50	6/2	56-00	163-24	Y34096	Z47434	46	2.8	1527	14	1666
A06	14	51	6/7	55-00	164-35	Y34480	Z47852	34	4.6	434	40	434
B08	14	53	6/7	55-20	163-25	Y34243	Z47427	27	4.5	3888	19	8333
C09	14	54	6/7	55-40	162-50	Y34087	Z47216	28	3.5	379	10	886
D09	14	55	6/8	56-00	162-49	Y34004	Z47202	41	3.4	9861	42	3472
C08	14	56	6/8	55-41	163-24	Y34168	Z47431	44	3.3	1772	15	2911
C07	14	57	6/8	55-40	163-59	Y34271	Z47662	49	3.1	1279	5	3720
C06	14	58	6/8	55-40	164-35	Y34366	Z47889	50	3.3	886	5	1265
B03	14	60	6/9	55-20	166-24	Y34711	Z48540	70	4.0	506	9	886
A03	14	61	6/9	55-00	166-19	Y34736	Z48473	75	3.9	3055	20	3750
A02	14	62	6/10	55-00	166-57	Y34825	Z48685	81	4.0	416	2	1388
B02	14	63	6/10	55-20	166-57	Y34795	Z48730	73	3.9	972	12	138
B01	14	64	6/10	55-20	167-33	Y34878	Z48933	77	3.9	0	0	0
C18	14	65	6/10	55-40	168-10	Y34938	Z49193	71	5.4	0	0	0
C01	14	66	6/11	55-40	167-35	Y34852	Z48998	71	3.9	0	0	138
C02	14	67	6/11	55-40	166-59	Y34760	Z48791	70	3.9	416	4	833
C03	14	68	6/11	55-40	166-23	Y34663	Z48566	66	3.9	232	10	116
D03	14	69	6/11	56-00	166-24	Y34610	Z48602	64	3.7	0	0	0
D02	14	70	6/12	56-00	167-00	Y34715	Z48832	70	3.8	555	40	138
D01	14	71	6/12	55-59	167-37	Y34820	Z49053	70	3.9	0	0	232
D18	14	72	6/12	56-00	168-12	Y34916	Z49263	78	4.0	0	0	126
E19	14	73	6/13	56-20	168-53	Y34990	Z49554	67	3.8	138	2	138
E18	14	74	6/13	56-20	168-15	Y34883	Z49331	80	3.7	277	1	277
F20	14	75	6/18	56-40	169-30	Y35056	Z49828	43	4.0	1212	13	1666
H20	14	78	6/18	57-20	169-36	Y34904	Z49896	35	3.5	0	0	0
H21	14	79	6/19	57-20	170-13	X18704	Z50095	32	4.0	0	0	0
H22	14	80	6/19	57-20	170-51	X18506	Z50153	44	3.5	138	33	138
G21	14	81	6/19	57-20	170-07	X18706	Z50111	35	4.8	416	5	555
I08	14	111	7/7	57-40	163-22	Y33562	Z47390	25	4.8	0	0	138
I09	14	112	7/7	57-40	162-43	Y33462	Z47144	22	5.0	0	0	0

Table 2.--Continued

Station	Vessel	Tow	Date	Latitude	Longitude	Loran C		Depth	Bottom Temp	Legal(>139mm) no./sq.mi.	%Legal	Pre-recruit(110-139mm) no./sq.mi.
I10	14	113	7/7	57-40	162-08	Y33375	Z46902	25	3.4	169	50	0
I11	14	114	7/7	57-40	161-30	Y33280	Z46653	28	3.4	1016	27	2203
B04	28	2	6/19	55-19	165-47	Y34618	Z48314	65	3.9	84	7	84
C04	28	3	6/19	55-40	165-48	Y34568	Z48350	63	3.6	0	0	378
D04	28	4	6/19	56-00	165-47	Y34582	Z48367	58	3.6	101	14	303
E20	28	11	6/25	56-15	169-25	Y35071	Z49709	37	3.7	0	0	95
F20	28	12	6/25	56-15	169-26	Y35075	Z49711	36	3.6	0	0	0
E21	28	14	6/25	56-20	170-04	Y35129	Z49906	39	3.9	0	0	0
E22	28	15	6/26	56-20	170-41	Y35136	Z50008	38	3.8	80	1	560
F23	28	16	6/26	56-40	171-21	Y35071	X18196	38	3.8	0	0	89
F24	28	17	6/26	56-40	171-58	Y34997	X17976	39	3.9	0	0	101
F25	28	18	6/26	56-40	172-34	Y34913	X17744	34	3.4	0	0	0
G26	28	20	6/27	57-00	173-15	Y34728	X17550	33	3.3	0	0	0
G25	28	21	6/27	56-59	172-41	Y34813	X17777	36	3.6	0	0	0
G24	28	23	6/27	57-00	172-04	Y34902	X18023	61	6.1	0	0	151
G23	28	24	6/27	57-00	171-24	Y34995	X18266	59	3.3	101	7	202
H23	28	25	6/27	57-20	172-24	Y34869	X18284	54	3.3	378	13	454
H24	28	26	6/28	57-20	171-06	Y34779	X18042	59	3.4	101	2	101
I24	28	27	6/28	57-40	172-10	Y34609	X18027	57	3.3	0	0	0
I23	28	28	6/28	57-40	171-32	Y34686	X18251	54	11.1	0	0	0
I22	28	29	6/28	57-40	170-52	Y34745	X18447	45	3.3	0	0	0
F18	28	30	6/30	56-39	168-14	Y34831	X18647	58	3.7	400	62	0
F01	28	31	6/30	56-40	167-40	Y34710	X18660	57	3.4	666	35	1142
E01	28	32	6/30	56-20	167-43	Y34772	X18592	70	3.4	178	11	178
E02	28	34	6/30	56-21	167-22	Y34664	X18596	60	6.7	240	14	240
H06	28	57	7/7	57-20	164-39	Y33908	X18733	35	2.8	0	0	303
H05	28	58	7/7	57-19	165-09	Y33990	X18732	36	3.2	0	0	0
H04	28	59	7/7	57-24	165-47	Y34121	X18737	36	3.0	0	0	151
H03	28	60	7/7	57-19	166-29	Y34251	X18738	36	2.8	0	0	138
E04	28	61	7/7	56-20	166-28	Y34431	Z48396	49	2.7	89	9	535
E03	28	62	7/7	56-21	166-27	Y34540	Z48639	55	3.4	89	25	178
I03	28	63	7/13	57-40	166-34	Y34116	Z48641	35	-	0	0	0
I04	28	64	7/13	57-39	165-54	Y34008	Z48398	35	3.3	0	0	0
I05	28	65	7/13	57-40	165-18	Y33890	Z48151	33	3.9	0	0	0
I06	28	66	7/13	57-39	164-38	Y33776	Z47891	28	3.7	0	0	178
I07	28	67	7/13	57-39	164-02	Y33674	Z47652	27	4.3	0	0	0
I12	28	68	7/14	57-40	160-51	Y33187	Z46402	30	5.8	0	0	285
I13	28	69	7/14	57-39	160-18	Y33119	Z46155	30	-	217	20	760

Table 2.--Continued

Station	Vessel	Tow	Date	Latitude	Longitude	Loran C		Depth	Bottom Temp	Legal(>139mm) no./sq.mi.	%Legal	Pre-recruit(110-139mm) no./sq.mi.
I14	28	70	7/14	57-39	159-41	Y33043	Z45903	26	6.5	217	67	0
I15	28	71	7/14	57-39	159-07	Y32964	Z45673	24	7.1	0	0	0
J15	28	72	7/14	57-49	158-56	Y32829	Z45643	20	8.3	0	0	0
J14	28	73	7/15	58-00	159-37	Y32904	Z45896	23	6.7	0	0	0
J13	28	74	7/15	58-00	160-12	Y32982	Z46130	27	-	0	0	0
J12	28	75	7/15	58-01	160-51	Y33059	Z46386	23	7.1	0	0	0
J11	28	76	7/15	58-00	161-26	Y33140	Z46640	27	6.3	0	0	95
J10	28	77	7/15	58-01	162-06	Y33234	Z46884	21	7.2	169	100	0
J09	28	78	7/16	58-00	162-46	Y33334	Z47133	21	-	0	0	0
J08	28	79	7/16	58-00	163-21	Y33419	Z47372	22	-	0	0	0
J07	28	80	7/16	58-00	164-01	Y33513	Z47652	24	-	0	0	76
J06	28	81	7/16	58-01	164-35	Y33621	Z47880	24	-	0	0	89
J05	28	82	7/16	58-00	165-12	Y33736	Z48114	26	-	0	0	0
G03	28	83	7/17	57-05	166-32	Y34343	Z48671	39	-	0	0	0
G04	28	84	7/17	57-00	165-52	Y34247	Z48416	38	-	0	0	640
F04	28	85	7/18	56-43	165-50	Y34338	Z48414	42	-	202	40	303
F03	28	87	7/18	56-41	166-28	Y34462	Z48655	45	3.0	0	0	227
F02	28	88	7/18	56-40	167-04	Y34589	Z48904	51	2.9	75	11	378
G02	28	89	7/18	56-58	167-04	Y34497	Z48912	40	3.4	0	0	0
H02	28	91	7/18	57-17	167-04	Y34382	Z48903	38	3.6	0	0	267
H01	28	92	7/19	57-20	167-45	Y34506	Z49159	40	3.9	0	0	0
G01	28	93	7/19	57-22	167-43	Y34613	Z49162	42	3.4	0	0	75
H18	28	95	7/19	57-19	168-16	Y34617	Z49386	39	3.9	0	0	0
H19	28	96	7/19	57-22	168-56	Y34763	Z49648	37	3.9	348	2	348
G19	28	97	7/19	57-05	168-55	Y34875	Z49658	43	3.3	593	23	169
I20	28	98	7/21	57-40	169-39	Y34706	Z49812	37	3.0	0	0	0
I21	28	99	7/21	57-40	170-16	Y34760	Z49971	38	3.9	232	100	0
J21	28	100	7/21	58-00	170-20	Y34512	Z49843	39	3.2	0	0	0
K21	28	101	7/21	58-20	170-24	Y34280	Z49734	40	4.4	0	0	0
K22	28	102	7/21	58-20	171-01	Y34269	Z49820	45	2.5	0	0	0
L22	28	103	7/22	58-40	171-05	Y34031	Z49707	44	2.2	0	0	0
M22	28	104	7/22	59-00	171-08	Y33792	Z49595	41	1.1	0	0	0
N22	28	105	7/22	59-20	171-11	Y33555	Z49488	40	0.2	0	0	0
O22	28	106	7/22	59-40	171-15	Y33316	Z49386	38	0.0	0	0	0
P22	28	107	7/22	60-00	171-18	Y33075	Z49280	36	0.1	0	0	0
Q22	28	108	7/23	60-20	171-22	Y32843	Z49186	35	0.0	0	0	0
Q23	28	109	7/23	60-20	172-04	Y32861	Z49284	31	0.4	0	0	0

Table 2.--Continued

Station	Vessel	Tow	Date	Latitude	Longitude	Loran C		Depth	Bottom Temp	Legal(>139mm) no./sq.mi.	%Legal	Pre-recruit(110-139mm) no./sq.mi.
R23	28	110	7/23	60-40	172-07	Y32635	Z49161	33	0.3	0	0	0
R22	28	111	7/23	60-40	171-24	Y32608	Z49091	33	0.6	0	0	0
S22	28	112	7/23	61-00	171-28	Y32376	Z49004	31	0.6	0	0	0
S23	28	113	7/24	61-00	172-10	Y32405	Z49095	34	0.2	0	0	0
S24	28	114	7/24	61-00	172-48	Y32424	Z49173	35	1.7	0	0	0
R24	28	115	7/24	60-40	172-47	Y32646	Z49267	24	-	0	0	0
R25	28	116	7/24	60-40	173-28	Y32658	Z49340	38	1.9	0	0	0
S25	28	117	7/24	61-00	173-30	Y32440	Z49250	40	1.0	0	0	0
S26	28	118	7/25	61-00	174-12	Y32454	Z49319	44	-	0	0	0
R26	28	119	7/25	60-40	174-08	Y32683	Z49411	46	1.7	0	0	0
Q26	28	120	7/25	60-20	174-04	Y32871	Z49491	49	-	0	0	0
Q25	28	121	7/25	60-20	173-24	Y32873	Z49432	32	2.2	0	0	0
P25	28	122	7/25	60-00	173-18	Y33092	Z49520	38	1.3	0	0	0
P24	28	123	7/26	60-00	172-38	Y33098	Z49454	35	1.4	0	0	0
P23	28	124	7/26	60-00	171-58	Y33094	Z49375	35	1.0	0	0	0
O23	28	125	7/26	59-40	171-54	Y33331	Z49472	42	0.8	0	0	0
N23	28	126	7/26	59-20	171-50	Y33561	Z49578	43	1.1	0	0	0
M23	28	127	7/27	59-00	171-47	Y33795	Z49683	47	1.7	0	0	0
L23	28	128	7/27	58-40	171-43	Y34025	Z49788	50	2.4	0	0	0
K23	28	129	7/27	58-20	171-39	Y34252	Z49893	52	3.3	0	0	0
J23	28	130	7/27	58-00	171-36	Y34474	Z49996	53	3.2	0	0	0
J22	28	131	7/27	58-00	170-58	Y34513	Z49942	47	2.8	0	0	0
G18	28	132	7/31	57-00	168-20	Y34735	Z49414	44	3.8	378	29	757
I02	28	133	8/1	57-40	167-08	Y34235	Z48883	36	2.8	0	0	303
I01	28	134	8/1	57-40	167-46	Y34359	Z49133	36	3.8	0	0	303
I18	28	135	8/1	57-40	168-24	Y34486	Z49376	37	3.9	0	0	227
I19	28	136	8/1	57-40	169-02	Y34605	Z49606	37	3.0	0	0	0
J24	28	137	8/2	58-00	172-14	Y34414	Z50029	57	3.3	0	0	0
J25	28	138	8/2	58-00	172-52	Y34348	Z50049	58	3.4	0	0	75
I25	28	139	8/2	57-40	172-48	Y34530	Z50116	65	3.8	0	0	80
H25	28	141	8/2	57-20	172-43	Y34686	Z50162	65	3.9	0	0	0
H26	28	142	8/3	57-20	173-20	Y34601	Z50161	66	3.7	0	0	0
I27	28	143	8/3	57-40	174-02	Y34376	Z50122	71	3.6	0	0	0
J26	28	144	8/3	58-00	173-29	Y34285	Z50063	65	3.7	0	0	0
K26	28	145	8/4	58-20	173-34	Y34101	Z49994	63	3.9	169	3	169
K27	28	146	8/4	58-20	174-19	Y34027	Z50012	95	-	84	<1	84
L27	28	147	8/4	58-40	174-16	Y34860	Z49940	85	3.9	0	0	606
L26	28	148	8/4	58-40	173-41	Y33909	Z49916	68	3.5	0	0	160

Table 2.--Continued

Station	Vessel	Tow	Date	Latitude	Longitude	Loran C		Depth	Bottom Temp	Legal(>139mm) no./sq.mi.	%Legal	Pre-recruit(110-139mm) no./sq.mi.
L25	28	149	8/5	58-40	173-00	Y33956	Z49886	61	-	0	0	89
K25	28	150	8/5	58-20	172-56	Y34160	Z49971	60	-	0	0	0
K24	28	151	8/5	58-20	172-18	Y34207	Z49939	55	2.9	0	0	0
L24	28	153	8/5	58-40	172-22	Y33992	Z49843	55	2.8	0	0	0
M24	28	154	8/6	59-00	172-26	Y33773	Z49746	53	2.8	0	0	0
M25	28	155	8/6	59-00	173-05	Y33741	Z49796	58	3.7	0	0	0
M26	28	156	8/6	59-00	173-43	Y33707	Z49834	63	3.4	0	0	0
M27	28	159	8/6	59-00	174-22	Y33665	Z49864	68	3.3	0	0	0
M28	28	160	8/7	59-00	175-00	Y33622	Z49888	70	3.4	0	0	0
L29	28	161	8/7	58-40	175-33	Y33753	Z49971	73	3.4	0	0	0
M29	28	162	8/7	59-00	175-33	Y33572	Z49910	73	2.6	0	0	0
M30	28	163	8/7	59-00	176-19	Y33531	Z49924	74	2.6	0	0	0
L30	28	164	8/8	58-40	176-12	Y33699	Z49983	76	2.8	0	0	1142
L31	28	165	8/8	58-40	176-50	Y33647	Z49991	73	2.7	75	1	151
M31	28	166	8/8	59-00	176-57	Y33485	Z49935	75	3.3	0	0	95
M32	28	167	8/8	59-00	177-36	Y33438	Z49945	74	3.1	89	4	178
M33	28	168	8/8	59-00	178-15	Y33352	Z49940	82	3.1	0	0	227
N32	28	169	8/9	59-20	177-27	Y33298	Z49885	97	2.8	0	0	89
N31	28	170	8/9	59-20	177-04	Y33321	Z49876	81	1.9	0	0	0
N30	28	171	8/9	59-20	176-23	Y33362	Z49860	74	2.2	0	0	0
N29	28	172	8/9	59-20	175-45	Y33398	Z49840	73	2.4	0	0	0
N28	28	173	8/9	59-20	175-06	Y33434	Z49815	72	3.3	0	0	0
N27	28	174	8/10	59-20	174-27	Y33475	Z49788	65	3.5	0	0	0
N26	28	175	8/10	59-20	173-48	Y33502	Z49749	60	2.9	0	0	0
N25	28	176	8/10	59-20	173-09	Y33529	Z49704	55	2.8	0	0	0
N24	28	177	8/10	59-20	172-30	Y33552	Z49650	47	1.8	0	0	0
O24	28	178	8/10	59-40	172-34	Y33323	Z49549	46	1.1	0	0	0
O25	28	179	8/11	59-40	173-14	Y33311	Z49614	52	2.0	0	0	0
O26	28	180	8/11	59-40	173-52	X17386	Z49659	56	3.0	0	0	0
O27	28	181	8/11	59-40	174-27	X17229	Z49692	62	2.8	0	0	0
O28	28	182	8/11	59-40	175-06	X17049	Z49732	67	2.9	0	0	0
O29	28	183	8/11	59-40	175-52	X16833	Z49766	75	2.8	0	0	0
O30	28	184	8/12	59-40	176-32	X16640	Z49794	75	2.8	0	0	0
O31	28	185	8/12	59-40	177-09	X16464	Z49812	97	2.8	0	0	95
O32	28	186	8/12	59-40	177-51	X16266	Z49822	92	2.2	0	0	0
P32	28	187	8/12	60-00	177-51	X16276	Z49766	78	2.4	0	0	0
P31	28	188	8/12	60-00	177-13	X16472	Z49745	75	1.9	0	0	0
P30	28	189	8/12	60-00	176-40	X16601	Z49734	77	1.9	0	0	0
P29	28	190	8/13	60-00	175-56	X16824	Z49691	70	2.4	0	0	0

Table 2.--Continued

Station	Vessel	Tow	Date	Latitude	Longitude	Loran C		Depth	Bottom Temp	Legal(>139mm) no./sq.mi.	%Legal	Pre-recruit(110-139mm) no./sq.mi.
P28	28	191	8/13	60-00	175-16	X17002	Z49658	63	2.8	0	0	0
P27	28	192	8/13	60-00	174-36	X17177	Z49618	59	2.2	0	0	0
P26	28	193	8/13	60-00	173-57	X17344	Z49570	53	1.7	0	0	0
E23	28	194	8/14	56-20	171-17	X18092	Z50079	78	4.2	0	0	0
Comparative Tows:												
A04	28	1	6/18	55-03	165-47	Y34655	Z48268	66	3.9	178	18	178
A04	28	36	7/1	55-00	165-47	Y34658	X18317	70	6.1	303	6	606
A04	28	37	7/1	54-59	165-47	Y34659	X18308	69	5.9	571	11	285
A04	28	38	7/1	55-00	165-44	Y34654	X18317	68	3.9	285	7	0
A04	28	39	7/1	55-58	165-42	Y34630	X18326	66	4.2	0	0	454
A04	28	40	7/1	55-03	165-31	Y34616	X18341	65	4.3	2564	31	1153
A04	14	91	7/1	55-01	165-45	Y34655	Z48276	70	3.9	1016	6	508
A04	14	92	7/1	54-59	165-45	Y34659	Z48270	70	4.4	1645	8	759
A04	14	93	7/1	55-01	165-46	Y34652	Z48268	68	3.9	505	4	1010
A04	14	94	7/1	54-59	165-36	Y34631	Z48212	65	4.2	357	12	625
A04	14	95	7/1	55-03	165-33	Y34617	Z48202	63	4.3	3389	32	1355
B06	28	45	7/4	55-20	164-35	Y34426	X18446	50	3.9	3838	15	6868
B06	28	46	7/4	55-20	164-36	Y34430	X18446	55	4.4	1875	17	3392
B06	28	47	7/4	55-15	164-39	Y34447	X18438	55	4.4	1414	16	3333
B06	28	48	7/4	55-16	164-40	Y34453	X18440	56	3.9	1964	30	5543
B06	14	59	6/9	55-20	164-34	Y34426	Z47871	53	3.5	833	7	2500
B06	14	99	7/4	55-20	164-33	Y34426	Z47872	55	4.4	3260	15	5063
B06	14	100	7/4	55-20	164-36	Y34429	Z47882	55	4.4	1012	6	4444
B06	14	101	7/4	55-20	164-41	Y34445	Z47911	55	3.8	3888	27	1860
B06	14	102	7/4	55-22	164-46	Y34452	Z47933	55	6.4	4418	35	10178

Table 2.--Continued

Station	Vessel	Tow	Date	Latitude	Longitude	Loran C		Depth	Bottom Temp	Legal(>139mm) no./sq.mi.	%Legal	Pre-recruit(110-139mm) no./sq.mi.
B07	28	41	7/3	55-20	164-01	Y34336	X18461	38	4.1	2142	13	13737
B07	28	42	7/3	55-20	164-01	Y34336	X18463	41	3.4	1818	8	21265
B07	28	43	7/3	55-18	164-03	Y34341	X18461	42	-	6835	20	21279
B07	14	52	6/7	55-20	164-01	Y34336	Z47655	41	3.5	3030	22	9242
B07	14	96	7/3	55-20	164-00	Y34336	Z47652	39	4.1	6279	17	23924
B07	14	97	7/3	55-20	165-00	Y34335	Z47656	41	3.4	4177	13	27966
B07	14	98	7/3	55-22	164-03	Y34340	Z47664	42	4.1	3389	8	1162
E05	28	49	7/5	56-21	165-12	Y34321	X18624	45	2.9	813	32	606
E05	28	50	7/5	56-33	165-00	Y34274	X18639	44	4.1	303	30	416
E05	14	6	5/22	56-19	165-12	Y34326	Z48154	46	2.4	126	10	253
E05	14	103	7/5	56-21	165-13	Y34322	Z48158	46	2.9	277	18	606
E05	14	104	7/5	56-27	165-04	Y34274	Z48109	44	2.9	454	25	4303
E06	28	51	7/5	56-30	164-53	Y34209	X18651	44	3.5	1518	24	3120
E06	28	52	7/5	56-46	164-56	Y34137	X18665	39	2.8	480	12	1694
E06	14	11	5/23	56-20	164-35	Y34214	Z47912	46	2.4	2911	30	2405
E06	14	105	7/5	56-22	164-35	Y34209	Z48009	41	3.2	1864	44	1304
E06	14	106	7/5	56-27	164-20	Y34137	Z47804	40	3.8	0	0	202
F19	28	10	6/24	56-40	168-54	Y34953	Z49612	54	3.8	101	17	326
F19	14	76	6/18	56-40	168-54	Y34946	Z49612	53	4.5	217	25	326
F19	14	87	6/24	56-41	168-53	Y34951	X18642	52	3.8	326	33	530
F21	28	5	6/20	56-41	170-10	Y35131	Z50019	53	6.0	681	32	108
F21	14	82	6/20	56-41	170-09	X18542	Z50016	52	6.0	326	30	75
F22	28	6	6/20	56-41	170-48	X18401	Z50109	61	5.0	378	25	465
F22	14	83	6/20	56-40	170-44	X18400	Z50106	59	3.0	0	0	2626
G08	28	53	7/6	57-00	163-21	Y33813	X18705	35	3.4	1010	19	2954
G08	28	54	7/6	57-03	163-18	Y33793	X18710	34	3.4	227	4	6440
G08	28	55	7/6	57-04	163-22	Y33794	X18713	34	3.3	677	7	3181
G08	28	56	7/6	57-04	163-18	Y33787	X18715	34	3.0	909	11	2911
G08	14	35	5/29	57-00	163-23	Y33809	Z47420	34	2.6	253	5	2531
G08	14	107	7/6	57-00	163-23	Y33811	Z47427	35	3.4	379	10	1162
G08	14	108	7/6	57-04	163-24	Y33792	Z47434	34	3.4	116	7	571
G08	14	109	7/6	57-06	163-28	Y33793	Z47455	33	3.3	0	0	697
G08	14	110	7/6	57-08	163-30	Y33788	Z47472	33	-	116	12	1744
G20	28	8	6/24	57-00	170-47	Y35019	Z49891	32	3.3	581	4	1523
G20	28	9	6/24	56-48	169-14	Y34986	Z49745	45	4.8	761	29	508
G20	14	77	6/18	57-00	169-33	Y35018	Z49896	33	4.0	303	15	454
G20	14	85	6/24	57-00	170-47	Y35017	X18718	32	3.5	169	1	416
G20	14	86	6/24	56-50	169-13	Y34985	X18676	43	3.5	833	27	417
G22	28	7	6/20	57-00	170-47	Y35086	X18508	51	-	0	0	227
G22	14	84	6/20	57-01	169-32	Y35090	X18507	49	3.5	253	22	379

Table 3 .--Numbers of large C. opilio and large hybrid Tanner crabs per square mile per area trawled.

Station	Vessel	Tow	Large Opilio (>109mm) no./sq.mi.	Large Hybrid (>109mm) no./sq.mi
Z05	14	1	0	0
A05	14	2	759	0
B05	14	3	833	0
C05	14	4	813	0
D05	14	5	759	0
F05	14	7	1744	0
G05	14	8	1521	0
G06	14	9	2608	0
F06	14	10	3797	0
D06	14	12	0	0
D07	14	13	1139	0
E07	14	14	506	0
F07	14	15	2083	0
G07	14	16	886	0
H07	14	17	3544	0
H08	14	18	13924	127
H09	14	19	5000	0
H10	14	20	3478	0
H11	14	21	1666	139
H12	14	22	0	0
H13	14	23	0	109
H14	14	24	0	0
H15	14	25	0	0
G15	14	26	0	0
F15	14	27	0	0
F14	14	28	0	0
G14	14	29	0	0
G13	14	30	232	0
G12	14	31	0	0
G11	14	32	0	0
G10	14	33	108	0
G09	14	34	0	0
F08	14	36	581	0
F09	14	37	138	0
F10	14	38	277	0
F11	14	39	0	189
F12	14	40	0	0
F13	14	41	138	0
D12	14	43	0	0
E12	14	44	217	0
E11	14	45	0	0
D10	14	46	108	0
E10	14	47	0	0

Table 3.--Continued.

Station	Vessel	Tow	Large Opilio (>109 mm) no./sq.mi.	Large Hybrid (>109 mm) no./sq.mi.
E09	14	48	0	0
E08	14	49	217	0
D08	14	50	1250	0
A06	14	51	0	0
B08	14	53	0	139
C09	14	54	0	0
D09	14	55	1388	0
C08	14	56	506	127
C07	14	57	930	116
C06	14	58	1392	0
B03	14	60	126	127
A03	14	61	138	139
A02	14	62	138	0
B02	14	63	0	0
B01	14	64	0	0
C18	14	65	0	0
C01	14	66	0	0
C02	14	67	0	139
C03	14	68	232	0
D03	14	69	697	0
D02	14	70	555	0
D01	14	71	348	0
D18	14	72	126	0
E19	14	73	0	139
E18	14	74	2500	139
F20	14	75	303	152
H20	14	78	0	0
H21	14	79	0	0
H22	14	80	277	0
G21	14	81	1666	417
I08	14	111	277	0
I09	14	112	0	0
I10	14	113	169	0
I11	14	114	0	0
B04	28	2	0	0
C04	28	3	0	0
D04	28	4	0	101
E20	28	11	95	190
F20	28	12	0	0
E21	28	14	0	0
E22	28	15	0	0
F23	28	16	2143	0
F24	28	17	0	0
F25	28	18	0	0
G26	28	20	0	0

Table 3.--Continued

Station	Vessel	Tow	Large Opilio (>109 mm) no./sq.mi.	Large Hybrid (>109 mm) no./sq.mi.
G25	28	21	169	0
G24	28	23	2955	0
G23	28	24	2323	202
H23	28	25	1212	303
H24	28	26	8182	303
I24	28	27	6250	0
I23	28	28	424	0
I22	28	29	3809	0
F18	28	30	720	0
F01	28	31	571	0
E01	28	32	714	0
E02	28	34	1280	400
H06	28	57	3712	0
H05	28	58	2796	0
H04	28	59	2272	227
H03	28	60	12500	0
E04	28	61	803	0
E03	28	62	1071	0
I03	28	63	8571	3143
I04	28	64	2857	0
I05	28	65	3035	179
I06	28	66	3571	536
I07	28	67	4375	446
I12	28	68	0	0
I13	28	69	0	0
I14	28	70	0	0
I15	28	71	0	0
J15	28	72	0	0
J14	28	73	0	0
J13	28	74	0	0
J12	28	75	0	0
J11	28	76	0	0
J10	28	77	0	0
J09	28	78	0	0
J08	28	79	0	0
J07	28	80	0	0
J06	28	81	0	0
J05	28	82	0	0
G03	28	83	4015	2500
G04	28	84	3520	160
F04	28	85	808	0
F03	28	87	1818	76
F02	28	88	1590	152
G02	28	89	240	0

Table 3.--Continued

Station	Vessel	Tow	Large Opilio (>109 mm) no./sq.mi.	Large Hybrid (>109 mm) no./sq.mi.
H02	28	91	2500	0
H01	28	92	254	0
G01	28	93	151	0
H18	28	95	75	152
H19	28	96	0	0
G19	28	97	1016	0
I20	28	98	0	0
I21	28	99	0	0
J21	28	100	0	0
K21	28	101	0	0
K22	28	102	943	189
L22	28	103	0	0
M22	28	104	0	0
N22	28	105	0	0
O22	28	106	0	0
P22	28	107	0	0
Q22	28	108	0	0
Q23	28	109	0	0
R23	28	110	0	0
R22	28	111	0	0
S22	28	112	0	0
S23	28	113	0	0
S24	28	114	0	0
R24	28	115	0	0
R25	28	116	0	0
S25	28	117	0	0
S26	28	118	0	0
R26	28	119	0	0
Q26	28	120	0	0
Q25	28	121	0	0
P25	28	122	0	0
P24	28	123	0	0
P23	28	124	0	0
O23	28	125	0	0
N23	28	126	0	0
M23	28	127	0	0
L23	28	128	89	0
K23	28	129	625	0
J23	28	130	0	0
J22	28	131	886	0
G18	28	132	530	0
I02	28	133	2424	0
I01	28	134	303	0
I18	28	135	681	0

Table 3 .--Continued

Station	Vessel	Tow	Large Opilio (>109 mm) no./sq.mi.	Large Hybrid (>109 mm) no./sq.mi.
I19	28	136	1200	80
J24	28	137	357	0
J25	28	138	1591	0
I25	28	139	560	0
H25	28	141	1061	0
H26	28	142	1515	0
I27	28	143	0	0
J26	28	144	763	0
K26	28	145	169	0
K27	28	146	169	0
L27	28	147	1818	0
L26	28	148	1280	0
L25	28	149	1517	0
K25	28	150	378	0
K24	28	151	160	0
L24	28	153	151	0
M24	28	154	0	0
M25	28	155	84	0
M26	28	156	303	0
M27	28	159	606	0
M28	28	160	1142	0
L29	28	161	454	0
M29	28	162	240	0
M30	28	163	326	0
L30	28	164	3809	0
L31	28	165	227	0
M31	28	166	380	0
M32	28	167	0	0
M33	28	168	681	0
N32	28	169	357	0
N31	28	170	761	0
N30	28	171	1956	0
N29	28	172	714	0
N28	28	173	380	0
N27	28	174	606	0
N26	28	175	160	0
N25	28	176	0	0
N24	28	177	0	0
O24	28	178	0	0
O25	28	179	0	0
O26	28	180	326	0
O27	28	181	0	0
O28	28	182	0	0

Table 3.--Continued

Station	Vessel	Tow	Large Opilio (>109 mm) no./sq.mi.	Large Hybrid (>109 mm) no./sq.mi.
029	28	183	0	0
030	28	184	892	0
031	28	185	381	0
032	28	186	202	0
P32	28	187	400	0
P31	28	188	508	0
P30	28	189	555	0
P29	28	190	202	0
P28	28	191	0	0
P27	28	192	0	0
P26	28	193	0	0
E23	28	194	0	0
Comparative tows:				
A04	28	1	89	0
A04	28	36	0	0
A04	28	37	0	0
A04	28	38	0	95
A04	28	39	0	0
A04	28	40	2051	0
A04	14	91	678	0
A04	14	92	1013	0
A04	14	93	505	0
A04	14	94	982	0
A04	14	95	2034	0
B06	28	45	2222	0
B06	28	46	625	0
B06	28	47	1111	0
B06	28	48	1429	179
B06	14	59	4444	139
B06	14	99	2065	0
B06	14	100	2278	0
B06	14	101	2500	0
B06	14	102	1977	0
B07	28	41	0	179
B07	28	42	0	202
B07	28	43	0	0
B07	14	52	0	303

Table 3.--Comparative tows (Continued)

Station	Vessel	Tow	Large Opilio (>109 mm) no./sq.mi.	Large Hybrid (>109 mm) no./sq.mi.
B07	14	96	0	0
B07	14	97	0	0
B07	14	98	339	0
E05	28	49	698	0
E05	28	50	3030	202
E05	14	6	1772	0
E05	14	103	1250	0
E05	14	104	2879	0
E06	28	51	1772	0
E06	28	52	2400	0
E06	14	11	2152	127
E06	14	105	6102	0
E06	14	106	652	0
F19	28	10	404	0
F19	14	76	435	0
F19	14	87	326	0
F21	28	5	379	227
F21	14	82	543	109
F22	28	6	76	0
F22	14	83	0	0
G08	28	53	6667	606
G08	28	54	3182	0
G08	28	55	7797	0
G08	28	56	3182	0
G08	14	35	253	0
G08	14	107	5190	506
G08	14	108	2209	0
G08	14	109	762	95
G08	14	110	2209	0
G20	28	8	2326	1163
G20	28	9	762	0
G20	14	77	6061	0
G20	14	85	7119	0
G20	14	86	1389	278
G22	28	7	0	0
G22	14	84	0	0

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