INTERNATIONAL PACIFIC HALIBUT COMMISSION

Appointed under the Convention between Canada and the United States of America for the Preservation of the Northern Pacific Halibut Fishery

TECHNICAL REPORT No. 8

The Size, Age and Sex Composition of North American Setline Catches of Halibut *(Hippoglossus hippoglossus stenolepis)* in Bering Sea, 1964-1970

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William H. Hardman

Introduction

Seasonal and annual changes in the size and age compositions of the halibut catches in Bering Sea, and variations in composition from ground to ground have been recorded by the Halibut Commission each year since 1956.* The implications of such changes in regard to utilization and the interrelationship of the various components of the stock have been discussed by Dunlop, et al (1964) and Hardman (1969).

Dunlop stated that the maximum sustainable annual yield for the region of the fishery in Bering Sea for the period 1958-1963 had been about 5 million pounds but noted the reduction in abundance of the stock in 1964 and concluded that "...with stock conditions prevalent in 1964 the sustainable yield will be considerably less than 5 million pounds."

The observed changes in stock condition had been attributed largely to the level of North American setline fishing prior to 1963 (IPHC 1963, pg. 15) coupled with the added impact of the Japanese setline fleet in 1963 and 1964 (IPHC 1965, pg. 14). However, the inadequate response of the stock to the severe restrictions placed upon the setline fishery since 1965 indicates the occurrence of additional losses, an important possibility being mortality due to the incidental capture of halibut by the large foreign trawl operations in the region (IPHC 1969, pgs. 6 and 14).

Dunlop showed that while there is a considerable emigration of tagged halibut from Bering Sea to grounds south and east of the Alaska Peninsula, there is little movement of tagged halibut between grounds within Bering Sea. Hardman (1969), comparing data upon catch composition for different grounds in Bering Sea and with some supporting evidence from more recent tagging results, confirmed that little intermingling of halibut occurs between grounds in the region, or at least that any such interchange is slow and incomplete except for expected seasonal movements between deep and shoal waters. The implications of such slow interchange in regard to adequate utilization of the resource have been recognized and regulations have been designed to obtain a proper distribution of effort in time and space in the region as a whole (see IPHC regulations and INPFC conservation measures).

This report presents data on the composition of catches of Pacific halibut by North American vessels in Bering Sea from 1964 to 1970 inclusive, and summarizes some of the changes that have affected management decisions since 1964. It extends a data series begun by Dunlop, et al (1964) and continued in unpublished data submitted annually on behalf of the Governments of Canada and the United States to the International North

* See Halibut Commission reports: "Regulation and Investigation of the Pacific Halibut Fishery" from 1957 through 1969, and "Annual Report for 1969."

Pacific Fisheries Commission.* These data have provided supporting evidence for the management regulations of the Halibut Commission for Bering Sea and for the conservation measures recommended by Canada and the United States to the North Pacific Commission.

Source of Data and Methods

The landings from United States and Canadian vessels participating in the fishery in Bering Sea and the number of trips sampled in port and at sea from 1956 to date are given in Table 1. Included also are the number of research trips and the number of halibut sampled thereon. Despite the reduced fishery in the area since 1964 a high level of sampling has been maintained to assess the condition of the halibut population.

Table 1. Number of commercial vessels and poundage landed from Bering Sea and the number of samples of commercial catches and research cruises, 1956-1960

	Landings		Commercial Catch Sampling				Tagging Charters	
Year	Vessels	1000's Pounds	In Port	At Sea	Total	No. Meas.	Expts.	No. Meas.
1956	5	262	-	-	-	-	4	6,915
1957	1	39	1	0	1	829	-	-
1958	21	2,176	6	0	6	3,014	-	-
1959	39	4,157	6	0	6	3,245	7	17,104
1960	66	5,649	7	2	9	5,361	-	-
1961	61	3,968	6	1	7	4,052	-	-
1962	76	7,322	11	3	14	8,554	-	-
1963	105	8,136	17	4	21	14,473	2	3,473
1964	68	2,328	12	2	14	4,949	14	8,779
1965	34	1,335	10	3	13	4,011	3	2,352
1966	15	1,195	7	2	9	1,904	-	-
1967	36	2,395	18	1	19	5,587	9	11,619
1968	28	1,321	14	1	15	4,016	-	-
1969	23	1,233	9	0	9	2,142	-	-
1970/1	19	995	12	1	13	3,278	-	-

/1 Preliminary

Size and age composition data for the commercial catches are derived from the otoliths. Fork lengths are calculated from otolith measurements, and ages are determined from readings of subsamples as described by Hardman and Southward (1965). Confirmatory size composition data based on actual length measurements with associated samples of otoliths and information upon sex are collected at sea aboard commercial vessels as well as on vessels chartered for research purposes.

Weights of halibut are derived from the length-weight relationship for halibut,** $W = 0.0022046\ (0.00364\ L^{3.24})$, which has been verified periodically by actual weight data collected at sea. All halibut weights given in this report are in pounds, with heads on, but eviscerated.

The relative abundance at each age is obtained by weighting the aged samples of the commercial catches to the catch per standardized unit effort (the skate) of the respective fishery each year.

* INPFC Docs. 660, 743, 832, 918, 1001, 1126 and 1237.

** IPHC unpublished data; INPFC Doc. 819

Results

The number of halibut per unit effort by age, the average weight at each age and the number of fish according to 5-centimeter length classes in samples of landings from commercial fishing by North American setline vessels in Bering Sea from 1964 to 1969 inclusive are given in Appendix Tables 1 through 10 for various grounds as shown in Figure 1. Similarly, size and age composition data from catches of vessels chartered primarily for tagging purposes in Bering Sea from 1964 through 1967 are given in Appendix Tables 11 through 16. However, these data are not expressed in terms of catch per unit effort due to the minimal effort of each operation.

The indication of the occurrence of halibut of less than legal size (smaller than 65 cms.) in some of the commercial samples results from applying an average fish-length otolith-length relationship to measurement of smaller than average otoliths in the calculation of fish length (Hardman and Southward, 1965, p. 28). On the other hand, small halibut recorded from tagging vessels or by observers on commercial vessels are an actual measure of the catch of such small fish which normally are returned to the sea by the fishermen.

The average weight by age of female halibut in catches from the grounds in Bering Sea are given in Appendix Table 17. These data are derived from samples taken by Halibut Commission observers aboard commercial vessels as well as from catches by vessels chartered for tagging purposes. Female halibut have been used due to their more consistent availability at all ages than males and because of their predominance in Bering Sea catches.

Discussion

While there has been intermittent fishing for halibut in Bering Sea through the years, particularly upon the Slime Bank just north of the Alaska Peninsula and in Makushin Bay off the Fox Islands, an intensive fishery did not begin until 1958 after discovery in 1956 of the Polaris ground.

Samples obtained from early fishing off the Fox Islands and on the Slime Bank contained high proportions of small and young halibut which prompted the belief that Bering Sea was populated by relatively young and immature halibut (IPHC 1953, p. 20) which probably emigrated as they matured.

However, the composition of the initial catches from the Polaris ground suggested that besides young fish, that ground also contained a semi-isolated accumulation of old slow-growing halibut (IPHC 1957, p. 15). While such concentrations had been observed frequently throughout the range of the fishery, particularly on the margin of the species' distribution, they usually had failed to maintain any significant production after their initial exploitation (Thompson, 1936).

As expected, the immediate impact of the fishery on the Polaris ground was the rapid removal of the older fish (IPHC 1960, p. 13). The fishery then expanded further north and west along the edge of the continental shelf where further commercially-important concentrations of halibut were encountered, particularly on the Misty Moon ground south of the

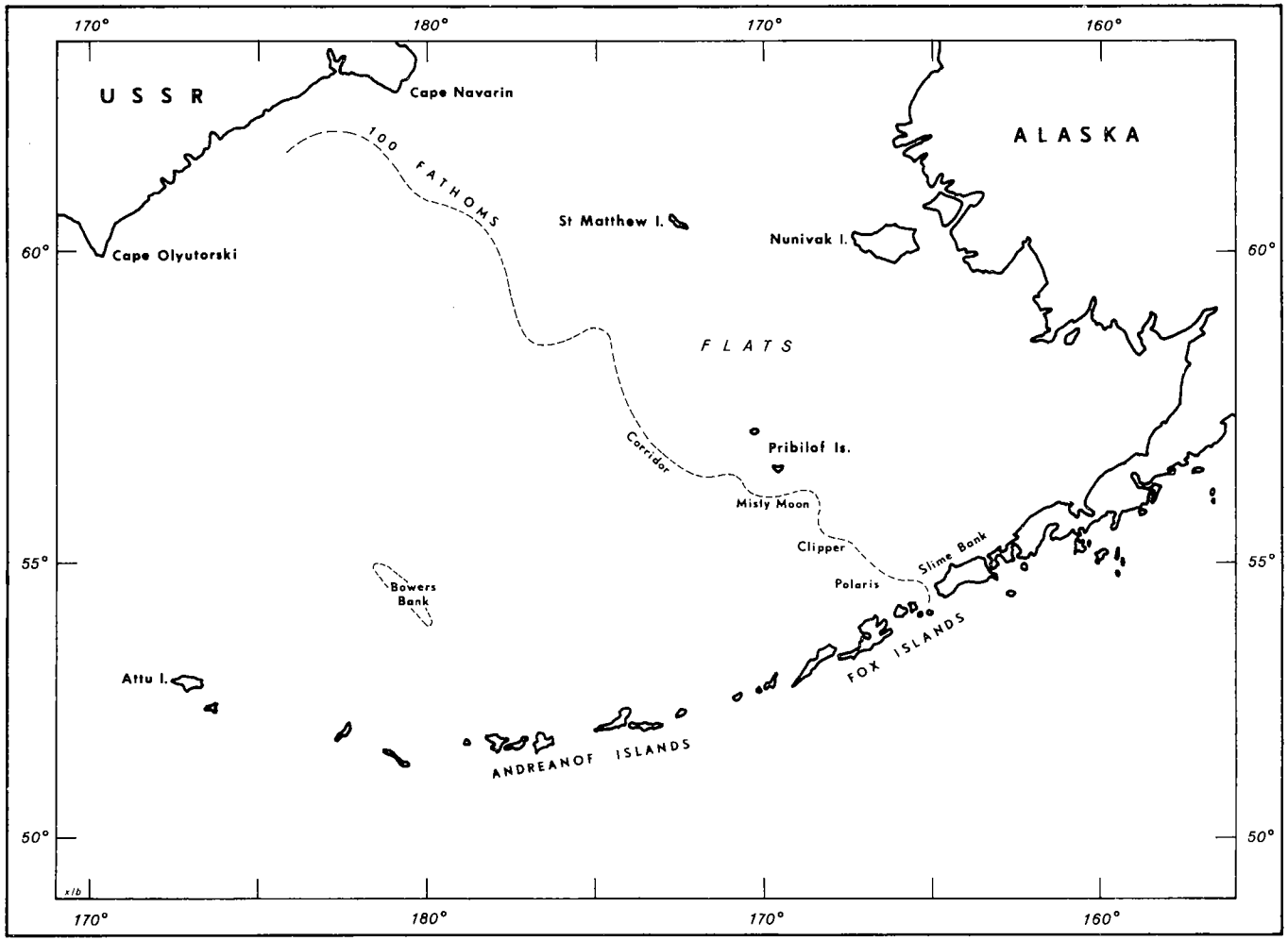

Figure 1. Fishing grounds and locations in Bering Sea referred to in this report.

Pribilof Islands and in the so-called Corridor, a narrow ground along the edge of the continental shelf between 170° W. and 175° W. longitude. Thus at the present time halibut are fished in Bering Sea by North American vessels along the edge as far west as 180° longitude wherever halibut are found relatively concentrated in early spring. Exploratory commercial operations have also encountered concentrations of halibut in the summer and fall on the flats, particularly in the vicinity of St. Matthew Island. Apparently these fish are summer feeding concentrations of the same population found along the edge in early spring and tagging experiments are being carried out to verify this.

Because of the initial importance of the Polaris ground to the commercial fishery in Bering Sea and due to the longer term of fishing there, data from that ground has been used as an indicator of stock condition in the region. The catch per unit effort by age in the commercial landings from the Polaris ground is shown for recent years in Figure 2. Data are included back through 1962 to update that shown by Dunlop, et al (1964) and to contrast the condition of the ground in the early 1960's compared to the present time.

As indicated by Dunlop, et al, and as noted earlier (IPHC 1963, p. 21) the stock on the Polaris ground had been reduced by 1962 to a condition which suggested a high level of utilization of halibut there since its discovery in 1956. Increasing effort by the North American fleet had become more than the ground could sustain by the early 1960's and, coupled with the entry of the Japanese setline fishery in 1963, the decimation of the population occurred from which it has failed to recover despite sharply curtailed allowable removals since 1965.

Older fish declined steadily from the level of the virgin accumulation, as shown summarized in Figure 3, and as the fishery became more dependent upon younger groups, these also declined markedly (Figure 4). The 1951 year class (11-year-olds in 1962), a major contributor to the catches through 1962, declined sharply in 1963 and 1964 as did other young classes as well (Figure 2). From 1965 until 1967 improved availability of the year classes aged 10 and younger suggested that the severe restrictions placed upon the fishery would provide for rebuilding the stock as seen in Figure 4. However, these promising young classes were not sustained. For instance, the 1955 class showed good strength as 10 and 11-year-olds in 1965 and 1966 but declined markedly from 1967 on. The 1958 year class (8-year-olds in 1966) entered with an initial impact reminiscent of the strength displayed by the 1951 year class some years earlier, but unlike that strong class, the 1958 year class declined before it made significant contribution to the weight of the catches.

All year classes were at a very low level on the Polaris ground from 1968 through 1970, and while fishing was minimal on that ground in those years, the relative strength of year classes shown in the samples continued to be consistent with previous observations.

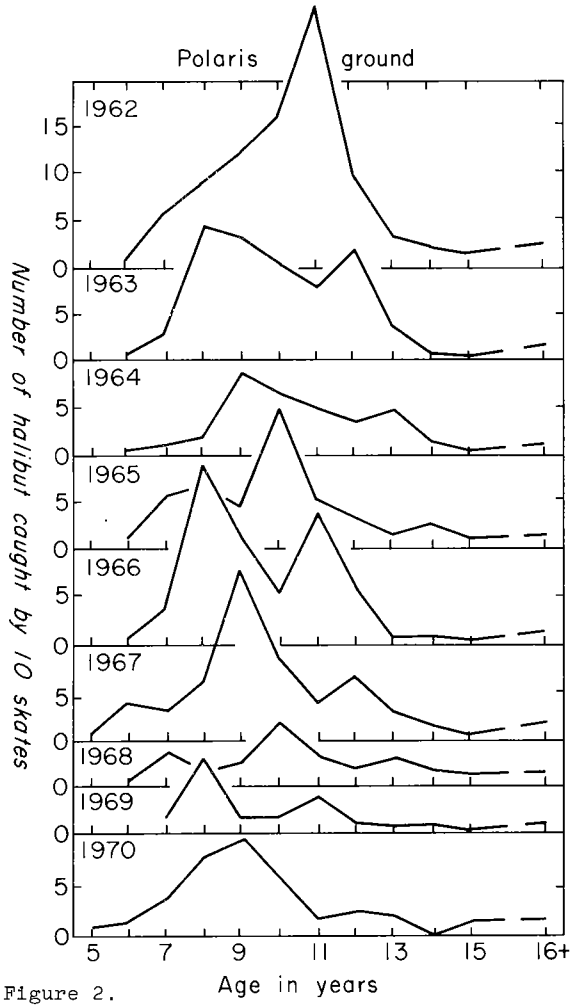

Figure 2.
The number of halibut at each age caught by 10 skates of gear by North American setline vessels on the Polaris ground in Bering Sea, 1962-1970.

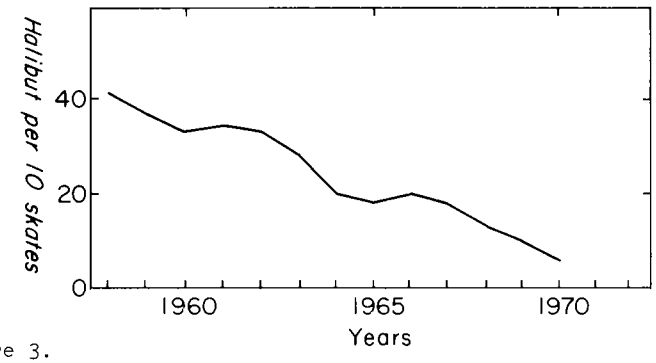

Figure 3.
The relative abundance of halibut aged 11 and older, as indicated by the catch per unit effort of North American setline vessels, on the Polaris ground, 1958-1970.

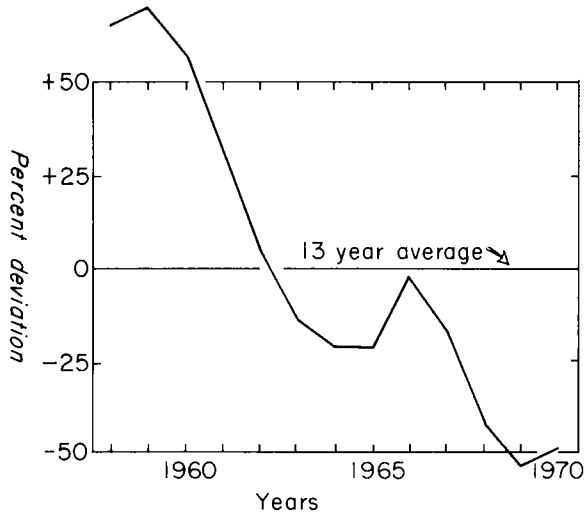

Figure 4.
The abundance of halibut aged 6 through 10 on the Polaris ground as indicated by the deviation from the average catch per unit effort from 1958 through 1970 by North American setline vessels (smoothed x 3).

The relative abundance of the 1951 through the 1964 year classes is given in Table 2 at each age at which they have appeared in the commercial fishery from 1957 through 1970. No recent class displays the sustained strength shown by the classes of the early 1950's, and while the 1960 to 1962 year classes are now the dominant groups in the fishery and show appreciably greater abundance in 1970 than during the previous two years, they do not provide a basis upon which to anticipate much improvement in the fishery. Earlier observations of the 1961 year class in annual small halibut surveys (Best, 1970) indicated that this year class might be a major contributor to recovery in Bering Sea; however, despite the impact with which it entered the commercial catches as 6-year-olds compared to other classes shown, it has not continued to be taken according to expectations. It appears that these young classes are being subjected to an unmeasured loss, with the possibility that the intensive trawl fisheries in the region are a major factor (Bell and Best, Mss.).

Table 2. Number of halibut per 10,000 units of standard fishing effort of the 1951 to 1964 year classes at selected ages in North American commercial catches in April from Polaris ground, 1957 to 1970.

	Year Class													
Age	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964
6	0	126	232	872	377	55	509	290	621	526	3,666	460	0	623
7	3,347	3,779	3,787	2,425	5,594	2,505	962	5,826	3,942	3,130	3,568	1,599	3,580	
8	19,027	10,272	5,120	8,969	14,567	1,752	6,685	18,923	5,724	1,510	7,356	7,783		
9	30,488	7,814	11,812	13,528	8,142	4,049	11,564	18,103	2,495	1,279	9,806			
10	23,065	15,553	11,148	6,271	15,138	5,782	8,431	6,807	1,919	5,137				
11	28,117	7,436	4,769	5,205	13,666	3,891	2,977	3,198	1,245					
12	11,814	3,438	3,247	5,782	6,824	1,948	960	1,868						
13	4,413	1,958	788	2,228	2,802	969	1,245							
14	2,101	788	1,100	1,685	960	0								
15	526	790	1,007	480	156									
16	395	197	320	0										
17	547	639	156											
18	0	778												

Exploratory commercial fishing on the Misty Moon and Corridor grounds, referred to by Dunlop, et al (1964) as the "Pribilofs and Westward" grounds, began in the summer and fall 1962, and comparable observations have been obtained from catches there during each spring fishing season since 1963. Changes in composition on these grounds reflect the expanding nature of the fishery there during the first several years as the fishermen "learned the grounds" and quickly brought each area under exploitation. While the effect of the setline fishery is evident upon the Misty Moon ground (Figure 5), the coincidence of the recent period of restriction in Bering Sea with the development of the fishery on those grounds has probably prevented a deterioration there similar to that which occurred on the Polaris sector. Also, due to the nature of the bottom on the Misty Moon and Corridor grounds, the destruction of small halibut by trawlers may not be as great as on the Polaris ground.

The Corridor ground continues to contain a high proportion of older fish providing a relatively high catch per unit effort to the spring fishery (Figure 6). Despite the concentration of halibut on this narrow and

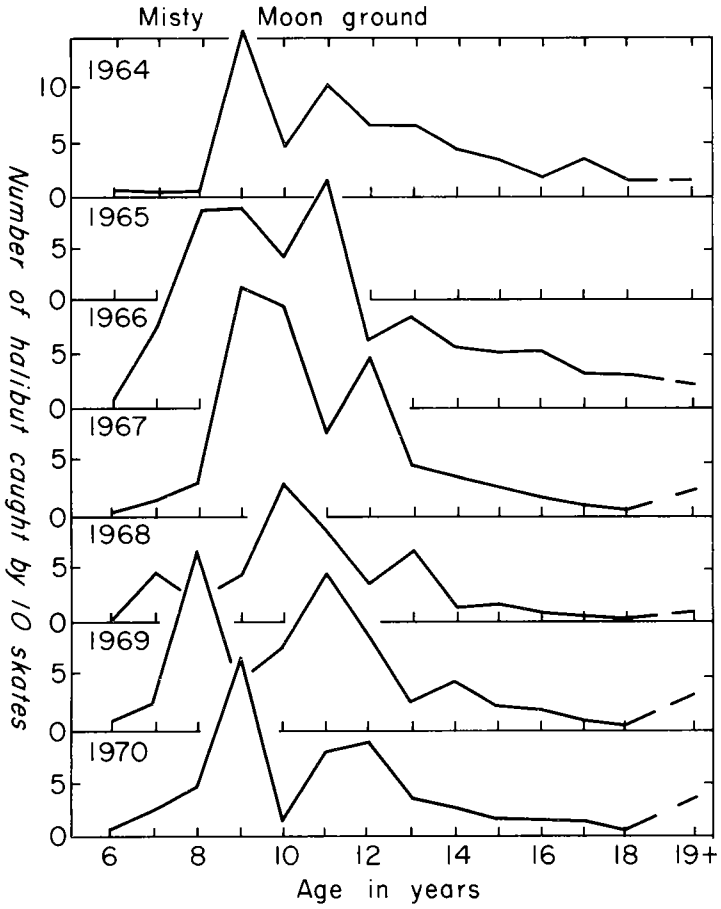

Figure 5.
The number of halibut at each age caught by 10 skates of gear by North American setline vessels on the Misty Moon ground in Bering Sea, 1964-1970.

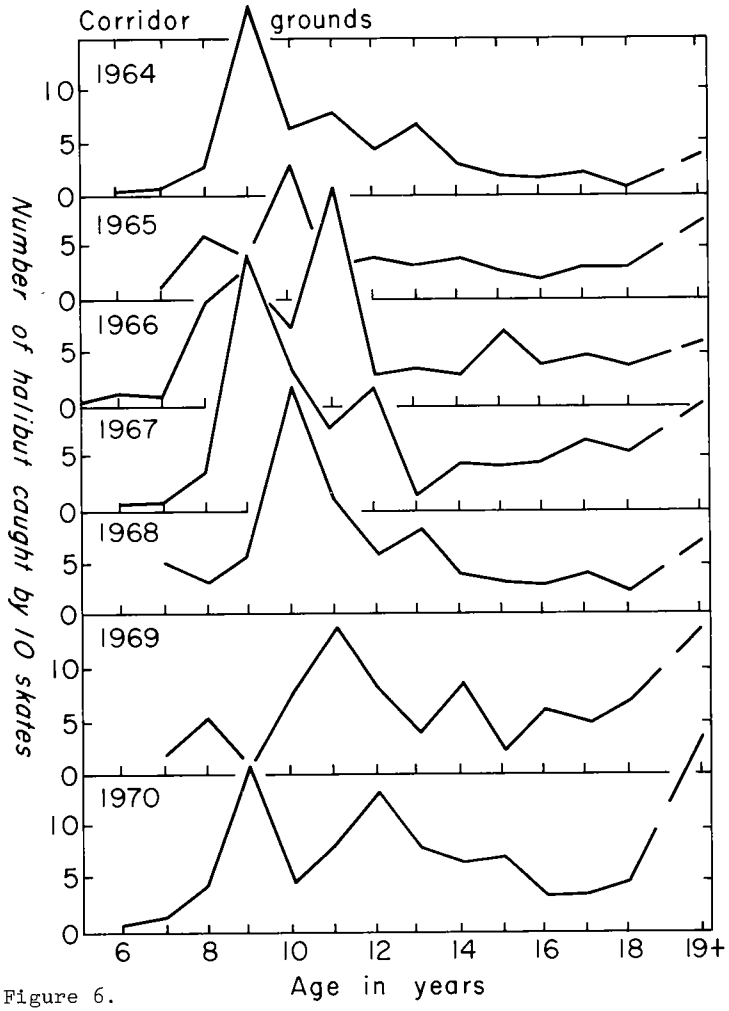

Figure 6.
The number of halibut at each age caught by 10 skates of gear by North American setline vessels on the Corridor ground along the edge between 170° W. and 175° W. longitude in Bering Sea, 1964-1970.

steep section of the edge in the spring it is believed that the population is not large and would not sustain a large removal continuously.

The older year classes, which remain in good supply on the Misty Moon and Corridor grounds, were expected gradually to fill in the void on the Polaris ground as they returned to the edge from their summer feeding sojourn on the flats. However, as noted earlier, such redistribution of older fish apparently cannot be depended upon to provide rapid restoration of over-fished sections such as the Polaris ground, and recruitment of younger fish is probably being affected by trawl operations in the region.

Fishing for halibut upon the Fox Islands ground in Bering Sea has historically occurred in late summer or early fall when halibut were more abundant on those grounds (IPHC 1967, p. 11). Nevertheless, beginning in 1969 a short open period was provided to test the availability of halibut in the spring. Good catches were made during the spring openings in 1969 and 1970, but the composition of the samples from the fall fishery in 1969 showed a greater proportion of older fish than was taken by the spring fishery (Figure 7). This is to be expected on inshore grounds because of the seasonal bathymetric movements of halibut known to occur in the region (Kask 1935; Moiseev 1953). Comparable data for these grounds are not yet available for the fall of 1970.

Most other fishing grounds in Bering Sea (for which all available data are included in the accompanying appendix tables) have experienced relatively little fishing by North American vessels.

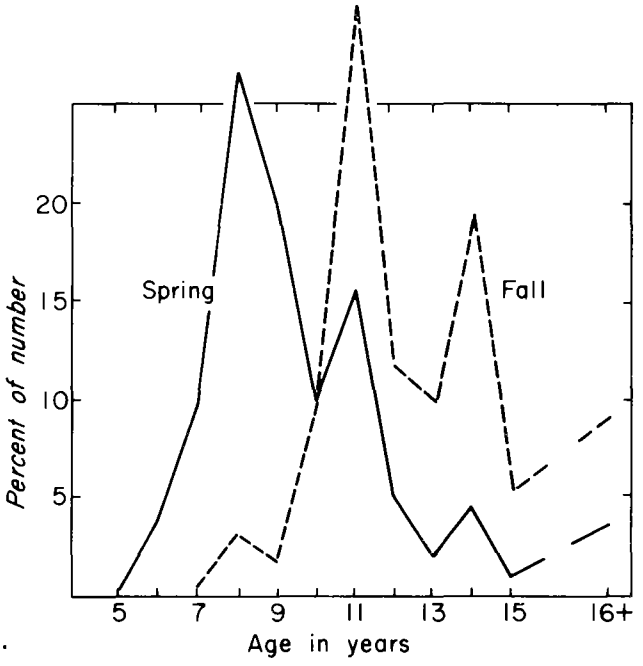

Figure 7. Percentage number of halibut by age in North American setline landings from the spring and fall fisheries on the Fox Islands ground in 1969.

Compositions of catches from such widely separated grounds as the edge off Cape Navarin, Bowers Bank and the flats around St. Matthew and Nunivak Islands have been discussed by Hardman (1969). Most striking has been the consistent reduction in average size of halibut at each age progressing from east to west along the edge and the marked differences in age composition between relatively adjacent grounds as well as distant ones, supporting the hypothesis that little intermingling of stock occurs within the region. To this date, the intermittent setline fishing at these locations has had no observable impact on these limited populations.

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Appendix Table 1. Number of halibut per 10,000 skates and average weight at each age (eviscerated, heads-on) for North American commercial setline catches on the Polaris Ground in Bering Sea.

	April 1964		April 1965		April 1966		April 1967		April 1968		April 1969		April 1970	
Age	No.	Av.Wt.	No.	Av.Wt.	No.	Av.Wt.	No.	Av.Wt.	No.	Av.Wt.	No.	Av.Wt.	No.	Av.Wt.
5							28	4.0	43	4.5			156	5.1
6	290	7.6	621	12.4	526	10.4	3,666	9.2	460	9.5			623	6.7
7	962	12.0	5,826	11.9	3,942	15.0	3,130	12.9	3,568	12.9	1,599	12.1	3,580	9.0
8	1,752	17.6	6,685	16.1	18,923	17.9	5,724	15.6	1,510	15.2	7,356	18.4	7,783	18.7
9	8,142	21.2	4,059	19.6	11,564	22.0	18,103	18.9	2,495	22.6	1,279	32.5	9,806	31.7
10	6,271	25.8	15,138	26.2	5,782	27.2	8,431	22.2	6,807	28.9	1,919	38.0	5,137	33.8
11	4,769	32.1	5,205	31.6	13,666	29.9	3,891	22.3	2,977	35.6	3,198	27.5	1,245	51.2
12	3,438	33.7	3,247	36.4	5,782	35.0	6,824	29.7	1,948	42.0	960	38.4	1,868	56.1
13	4,413	38.5	1,958	38.9	788	64.6	2,228	30.6	2,802	46.2	960	44.0	1,245	107.3
14	1,080	43.9	2,101	46.7	788	38.7	1,100	33.7	1,685	49.0	960	79.0	0	-
15	276	58.4	1,242	50.1	526	56.1	790	31.1	1,007	45.8	480	62.1	156	85.4
16	158	61.3	334	65.1	526	39.2	395	50.6	197	56.4	320	48.8	0	-
17	145	54.4	239	80.4	263	52.6	310	32.5	547	53.7	639	81.5	156	143.1
18	118	56.4	239	67.6	526	60.8	198	35.0	219	76.5	0	-	778	217.3
19	53	94.8	143	90.3	0	-	141	74.0	88	57.0	0	-		
20	145	73.0	48	69.0	263	104.5	282	39.5	88	72.0	160	90.2		
21	66	62.0	95	104.0	-	-	85	61.7	109	56.4				
22	92	104.8	95	99.5	-	-	56	95.0	22	128.0				
23	53	115.8	48	123.0	-	-	56	37.0	22	116.0				
24	13	85.0	48	91.0	-	-	0	-	22	207.0				
25	13	104.0	48	88.0	-	-	56	86.5	-	-				
26	40	133.0	95	33.5	-	-	0	-						
27	-		0	-	-	-	0	-						
28	-	-	48	114.0	-	-	28	60.0						
29	-	-	-	-	-	-	0	-						
30	-	-	-	-	-	-	0	-						
31	-	-	-	-	-	-	28	100.0						

Appendix Table 2. Number and percent of number in each 5-centimeter size class in samples of commercial halibut catches by North American setline vessels on the Polaris Ground in Bering Sea.

Mid-point 5-cm. Length Class	April 1964		April 1965		April 1966		April 1967		April 1968		April 1969		April 1970	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
52	1	0.04	-	-	-	-	-	-	-	-	-	-	-	-
57	4	0.2	-	-	-	-	7	0.4	5	0.4	1	0.8	1	0.5
62	10	0.4	1	0.1	-	-	14	0.7	18	1.5	1	0.8	6	2.9
67	31	1.3	14	1.4	1	0.3	77	3.9	35	2.9	1	0.8	5	2.4
72	58	2.4	38	3.8	7	1.9	119	6.0	44	3.6	4	3.2	11	5.3
77	70	2.9	83	8.3	21	5.9	135	6.8	69	5.7	9	7.3	23	11.1
82	166	6.8	61	6.1	38	10.6	225	11.4	87	7.2	14	11.3	14	6.8
87	244	10.0	97	9.8	50	13.9	248	12.6	96	7.9	15	12.1	22	10.6
92	154	6.3	104	10.4	46	12.8	227	11.5	93	7.6	14	11.3	11	5.3
97	345	14.1	117	11.8	50	13.9	329	16.7	106	8.7	7	5.6	11	5.3
102	369	15.1	107	10.8	49	13.6	233	11.8	103	8.5	8	6.5	16	7.7
107	226	9.2	89	8.9	32	8.9	116	5.9	113	9.3	11	8.9	12	5.8
112	231	9.4	97	9.8	24	6.7	69	3.5	101	8.3	5	4.0	14	6.8
117	210	8.6	73	7.3	14	3.9	78	4.0	63	5.2	6	4.8	11	5.3
122	85	3.5	30	3.0	12	3.3	31	1.6	77	6.3	7	5.6	9	4.4
127	85	3.5	28	2.8	6	1.7	27	1.4	46	3.8	3	2.4	8	3.9
132	47	1.9	23	2.3	1	0.3	16	0.8	51	4.2	5	4.0	11	5.3
137	35	1.4	13	1.3	2	0.6	7	0.4	20	1.6	1	0.8	3	1.4
142	36	1.5	5	0.5	3	0.8	2	0.1	32	2.6	5	4.0	4	1.9
147	21	0.9	4	0.4	1	0.3	2	0.1	13	1.1	2	1.6	4	1.9
152	3	0.1	3	0.3	0	0.0	3	0.2	12	1.0	1	0.8	2	1.0
157	6	0.2	2	0.2	1	0.3	4	0.2	13	1.1	2	1.6	2	1.0
162	0	0.0	2	0.2	0	0.0	1	0.05	6	0.5	0	0.0	0	0.0
167	2	0.1	4	0.4	1	0.3	-	-	3	0.2	1	0.8	3	1.4
172	6	0.2	0	0.0	-	-	-	-	5	0.4	0	0.0	1	0.5
177	2	0.1	0	0.0	-	-	-	-	3	0.2	0	0.0	1	0.5
182	2	0.1	1	0.1	-	-	-	-	1	0.1	1	0.8	0	0.0
187	2	0.1	-	-	-	-	-	-	0	0.0	-	-	2	1.0
192	-	-	-	-	-	-	-	-	1	0.1	-	-	-	-
197	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	2451	100.34	996	100.0	359	100.0	1970	100.05	1216	100.0	124	99.8	207	100.0

Appendix Table 3. Number of halibut per 10,000 skates and average weight at each age for North American commercial setline catches on Clipper Ground in Bering Sea.

Age	April 1964 No.	April 1964 Av.Wt.	April 1966 No.	April 1966 Av.Wt.	April 1967 No.	April 1967 Av.Wt.
6	179	9.3	1,167	9.7	1,585	7.9
7	538	11.5	583	18.0	3,697	12.9
8	1,615	15.7	12,836	12.9	12,148	12.5
9	7,087	19.9	8,752	13.7	38,557	16.9
10	7,536	30.4	1,750	12.6	24,824	20.3
11	5,562	27.1	13,419	21.4	6,602	21.8
12	3,140	42.9	5,251	29.4	10,828	24.2
13	3,588	34.4	1,167	28.6	2,905	29.6
14	628	31.3	0	-	2,377	21.7
15	0	-	1,167	33.8	528	40.3
16	449	51.4	583	49.9	1,585	21.8
17	359	40.0	583	21.3	-	-
18	90	140.6	583	39.8	-	-
19	179	102.0	1,167	35.7	-	-
20	90	168.9	0	-	-	-
21	0	-	0	-	-	-
22	269	137.8	583	86.3	-	-

Appendix Table 4. Number and percent of number in each 5-centimeter size class in samples of commercial halibut catches by North American setline vessels on Clipper Ground in Bering Sea.

Mid-point 5-cm. Length Class	April 1964 No.	April 1964 Percent	1965	April 1966 No.	April 1966 Percent	April 1967 No.	April 1967 Percent	1968-1970
52	-	-		-	-	-	-	
57	-	-		-	-	-	-	
62	-	-		-	-	7	1.8	
67	1	0.3		4	4.7	11	2.8	
72	9	2.6		5	5.9	19	4.8	
77	6	1.7		12	14.1	30	7.5	
82	16	4.6		12	14.1	53	13.2	
87	45	12.9		15	17.6	71	17.8	
92	30	8.6		7	8.1	44	11.0	
97	56	16.0		9	10.6	88	22.0	
102	47	13.5		7	8.1	40	10.0	
107	25	7.2		3	3.5	15	3.8	
112	40	11.5		2	2.4	9	2.2	
117	27	7.7		4	4.9	8	2.0	
122	6	1.7		0	0.0	3	0.7	
127	16	4.6		1	1.2	1	0.2	
132	6	1.7		2	2.4	1	0.2	
137	8	2.3		1	1.2	-	-	
142	4	1.1		0	0.0	-	-	
147	2	0.6		1	1.2	-	-	
152	0	0.0		-	-	-	-	
157	0	0.0		-	-	-	-	
162	0	0.0		-	-	-	-	
167	0	0.0		-	-	-	-	
172	1	0.3		-	-	-	-	
177	1	0.3		-	-	-	-	
182	3	0.9		-	-	-	-	
187	-	-		-	-	-	-	
192	-	-		-	-	-	-	
197	-	-		-	-	-	-	
Total	349	100.1		85	100.0	400	100.0	

No samples

No samples

Appendix Table 5. Number of halibut per 10,000 skates and average weight at each age (eviscerated, heads-on) for North American commercial setline catches on Misty Moon Ground in Bering Sea.

Age	April 1964		April 1966		April 1967		April 1968		April 1969		April 1970	
	No.	Av.Wt.	No.	Av.Wt.	No.	Av.Wt.	No.	Av.Wt.	No.	Av.Wt.	No.	Av.Wt.
6	183	12.6	949	5.7	345	7.0	331	7.8	707	7.3	321	6.4
7	183	6.6	7,909	11.3	1,266	11.5	4,923	11.5	2,121	11.3	2,052	11.7
8	0	-	18,665	14.4	2,762	10.6	2,151	17.3	16,733	14.1	4,554	17.2
9	15,534	17.9	18,981	16.9	21,697	17.8	4,303	18.4	4,007	18.6	16,226	20.8
10	4,752	21.9	14,236	20.3	19,280	21.1	13,115	27.7	7,542	19.1	1,924	23.4
11	10,417	22.6	21,512	28.2	8,000	20.6	8,440	33.0	14,848	27.3	7,953	30.4
12	6,945	24.1	6,960	37.9	14,676	28.3	3,972	40.0	8,484	39.0	8,722	39.9
13	6,762	25.8	8,541	40.5	4,949	29.2	6,661	52.2	2,828	57.4	3,463	47.1
14	4,386	29.9	6,011	40.6	3,626	31.9	1,696	68.0	4,478	54.4	2,886	40.0
15	3,289	31.1	5,378	45.5	2,647	34.3	1,986	61.7	2,121	58.0	1,603	57.3
16	1,827	21.1	5,378	54.4	1,957	42.9	952	59.5	1,886	79.8	1,411	63.5
17	3,472	19.2	3,480	54.5	921	31.9	786	68.6	707	51.0	1,219	65.6
18	1,279	35.0	3,164	34.0	575	41.1	331	91.6	471	58.5	962	44.5
19	548	66.6	1,264	55.5	863	30.1	290	82.6	1,886	40.4	1,347	54.5
20	731	32.8	316	104.0	691	35.6	83	88.0	707	26.0	1,026	36.6
21	0	-	-	-	58	57.0	165	62.2	471	27.5	192	92.7
22	0	-	949	94.9	58	46.0	331	61.0	0	-	770	46.8
23	0	-	-	-	0	-	0	-	236	46.0	513	58.2
24	0	-	-	-	173	85.0	41	264.0	-	-	0	-
25	183	30.4	-	-	0	-	0	-	-	-	64	103.0
26	-	-	-	-	288	59.4	124	136.0	-	-	0	-
27	-	-	-	-	115	42.0	-	-	-	-	0	-
28	-	-	-	-	-	-	-	-	-	-	64	154.0

Appendix Table 6. Number and percent of number in each 5 centimeter size class in samples of commercial halibut catches by North American setline vessels on Misty Moon ground in Bering Sea.

Mid-point 5-cm. Length Class	April 1964		1965	April 1966		April 1967		April 1968		April 1969		April 1970	
	No.	Percent		No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
47	-	-		1	0.3	-	-	-	-	1	0.3	-	-
52	-	-		1	0.3	-	-	2	0.2	0	0.0	-	-
57	-	-		8	2.0	-	-	4	0.3	2	0.7	-	-
62	1	0.3		6	1.5	10	0.7	17	1.4	8	2.7	15	1.7
67	12	3.6		10	2.6	18	1.2	43	3.5	11	3.7	24	2.7
72	14	4.2		11	2.8	57	3.9	37	3.0	15	5.0	34	3.8
77	21	6.3		14	3.6	60	4.1	72	5.9	29	9.7	72	8.1
82	37	11.2		33	8.4	157	10.6	68	5.5	18	6.0	68	7.6
87	55	16.6		42	10.7	197	13.3	78	6.4	32	10.7	70	7.8
92	20	6.0		52	13.3	144	9.8	117	9.6	31	10.4	86	9.6
97	50	15.1		38	9.7	301	20.4	91	7.4	20	6.7	60	6.7
102	49	14.8		46	11.8	158	10.7	107	8.7	18	6.0	78	8.7
107	11	3.3		26	6.7	112	7.6	85	6.9	20	6.7	59	6.6
112	20	6.0		28	7.2	79	5.3	96	7.8	24	8.1	68	7.6
117	17	5.1		8	2.0	82	5.6	61	5.0	5	1.7	28	3.1
122	7	2.1		16	4.1	30	2.0	79	6.4	16	5.4	53	5.9
127	10	3.0		9	2.3	35	2.4	52	4.2	7	2.4	27	3.0
132	0	0.0		17	4.3	22	1.5	60	4.9	17	5.7	48	5.4
137	2	0.6		8	2.0	6	0.4	29	2.4	3	1.0	24	2.7
142	4	1.2		8	2.0	5	0.3	48	3.9	6	2.0	27	3.0
147	1	0.3		4	1.0	1	0.1	23	1.9	1	0.3	18	2.0
152	-	-		0	0.0	0	0.0	11	0.9	4	1.4	14	1.6
157	-	-		2	0.5	0	0.0	17	1.4	3	1.0	6	0.7
162	-	-		1	0.3	0	0.0	7	0.6	4	1.4	5	0.6
167	-	-		1	0.3	0	0.0	8	0.7	1	0.3	4	0.5
172	-	-		0	0.0	2	0.1	3	0.2	0	0.0	1	0.1
177	-	-		0	0.0	-	-	1	0.1	0	0.0	1	0.1
182	-	-		1	0.3	-	-	3	0.1	2	0.7	2	0.2
187	-	-		-	-	-	-	1	0.1	-	-	0	0.0
192	-	-		-	-	-	-	2	0.2	-	-	0	0.0
197	-	-		-	-	-	-	1	0.1	-	-	1	0.1
Total	331	99.7		391	100.0	1476	100.0	1223	99.8	298	100.0	893	99.9

No samples

Appendix Table 7. Number of halibut per 10,000 skates and average weight at each age (eviscerated, heads-on) for North American commercial setline catches on grounds along the edge from 170° W - 175° W. longitude. (The Corridor)

	April 1964		April 1965		April 1966		April 1967		April 1968		April 1969		April 1970	
Age	No.	Av.Wt.	No.	Av.Wt.	No.	Av.Wt.	No.	Av.Wt.	No.	Av.Wt.	No.	Av.Wt.	No.	Av.Wt.
5	-	-	-	-	723	13.3	-	-	-	-	-	-	-	-
6	377	7.6	-	-	482	9.5	56	2.0	-	-	-	-	68	5.0
7	604	8.2	1,165	8.4	964	18.6	168	8.7	4,445	11.5	1,258	10.1	1,156	8.3
8	2,945	13.5	5,174	11.8	10,965	12.1	3,419	10.1	2,451	12.0	5,411	9.4	4,554	12.5
9	18,346	18.4	3,940	16.1	13,133	15.5	24,271	14.4	5,300	13.2	252	36.5	15,226	15.9
10	6,115	26.7	12,471	21.8	5,543	20.0	14,518	17.2	21,827	23.6	7,424	13.5	4,078	18.6
11	7,550	20.0	3,460	25.0	19,519	24.4	7,847	18.0	10,315	28.6	13,968	23.7	8,497	20.2
12	4,832	32.5	3,529	31.2	3,133	22.5	11,323	23.0	5,756	35.4	7,928	24.8	13,119	31.4
13	6,342	36.3	3,358	33.9	4,097	36.8	1,513	30.2	7,694	40.2	3.523	35.6	7,204	33.9
14	2,567	36.6	3,426	42.1	2,169	37.3	4,764	21.5	3,818	39.6	8,179	34.4	6,186	29.6
15	1,812	40.6	2,398	38.0	5,904	30.6	4,596	25.5	2,622	37.9	1,762	22.4	6,866	39.1
16	1,510	40.0	1,816	40.2	4,217	28.9	4,933	23.8	2,735	32.3	5,914	25.8	3,263	41.0
17	1,963	37.4	2,707	40.7	5,302	22.3	6,446	23.3	3,305	41.3	4,656	30.7	3,807	44.8
18	604	39.6	2,741	31.0	3,133	25.7	5,885	24.6	2,052	49.5	7,173	29.0	4,894	45.0
19	151	75.5	515	37.5	482	22.8	2,242	32.8	2,280	29.1	4,782	40.1	3,875	40.1
20	906	30.3	994	31.8	1,687	34.9	2,018	32.2	2,280	62.0	3,523	28.9	4,826	48.6
21	377	46.4	651	51.3	602	27.6	1,065	23.4	1,596	41.8	1,384	39.1	3,875	46.9
22	453	38.5	719	80.9	361	48.7	617	42.1	285	99.4	755	49.5	2,855	45.0
23	528	36.3	411	43.6	724	41.5	617	38.3	57	125.0	1,132	36.4	952	51.7
24	76	60.0	891	65.0	361	42.3	1,682	34.0	171	83.0	252	47.0	884	82.7
25	755	25.3	891	48.5	120	72.0	336	73.3	0	-	1,007	47.0	340	94.8
26	0	-	754	90.7	361	40.3	785	27.9	114	171.0	881	44.1	204	117.3
27	453	37.3	548	63.7	0	-	392	55.7	57	139.0	0	-	0	-
28	0	-	-	-	0	-	112	52.0	-	-	252	107.5	340	61.0
29	76	60.0	0	-	120	76.0	336	26.3	-	-	-	-	136	72.0
30	-	-	68	140.5	120	76.0	0	-	-	-	-	-	-	-
31	-	-	-	-	-	-	56	26.0	-	-	-	-	-	-

Appendix Table 8. Number and percent of number in each 5-centimeter size class in samples of commercial halibut catches by North American setline vessels on grounds along the edge from 170°W and 175°W longitude. (The Corridor)

Mid-point 5-cm. Length Class	April 1964		April 1965		April 1966		April 1967		April 1968		April 1969		April 1970	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
47	-	-	-	-	-	-	1	0.1	1	0.1	2	0.3	-	-
52	-	-	-	-	-	-	1	0.1	1	0.1	4	0.6	-	-
57	-	-	1	0.1	1	0.1	2	0.1	14	1.0	10	1.5	1	0.1
62	1	0.1	0	0.0	3	0.4	3	0.2	24	1.7	26	4.0	8	0.6
67	8	1.0	25	1.6	7	1.0	26	1.6	36	2.6	40	6.2	35	2.4
72	27	3.4	67	4.3	44	6.3	104	6.5	57	4.0	56	8.7	52	3.6
77	49	6.2	87	5.7	45	6.4	116	7.2	83	6.0	55	8.5	97	6.8
82	74	9.4	122	7.9	88	12.6	244	15.2	96	6.9	45	7.0	129	9.0
87	117	14.9	152	9.9	88	12.6	240	15.0	95	6.8	53	8.2	128	9.0
92	56	7.1	158	10.3	76	10.9	166	10.4	138	9.9	50	7.7	114	8.0
97	122	15.5	174	11.3	88	12.6	230	14.4	130	9.4	62	9.6	102	7.1
102	98	12.5	166	10.8	78	11.2	173	10.8	129	9.3	62	9.6	139	9.7
107	52	6.6	123	8.0	41	5.9	85	5.3	123	8.9	44	6.8	132	9.2
112	57	7.2	93	6.0	44	6.3	60	3.7	125	9.0	30	4.6	100	7.0
117	35	4.4	84	5.5	39	5.6	46	2.9	54	3.8	34	5.3	60	4.1
122	22	2.8	67	4.3	18	2.6	37	2.3	81	5.8	21	3.2	84	5.9
127	16	2.0	47	3.0	24	3.4	19	1.2	44	3.2	19	2.9	53	3.7
132	19	2.4	52	3.4	7	1.0	22	1.4	51	3.7	11	1.7	66	4.6
137	9	1.1	34	2.2	4	0.6	11	0.7	27	2.0	8	1.2	27	1.9
142	9	1.1	32	2.1	1	0.1	6	0.4	27	2.0	5	0.8	34	2.4
147	9	1.1	10	0.6	3	0.4	5	0.3	16	1.2	3	0.5	15	1.0
152	2	0.2	7	0.5	-	-	3	0.2	10	0.7	2	0.3	17	1.2
157	3	0.4	4	0.3	-	-	0	0.0	7	0.5	2	0.3	14	1.0
162	0	0.0	11	0.7	-	-	0	0.0	6	0.4	1	0.2	11	0.8
167	0	0.0	6	0.4	-	-	1	0.1	4	0.3	2	0.3	5	0.3
172	1	0.1	7	0.5	-	-	-	-	4	0.3	-	-	1	0.1
177	-	-	3	0.2	-	-	-	-	2	0.1	-	-	3	0.2
182	-	-	3	0.2	-	-	-	-	0	0.0	-	-	0	0.0
187	-	-	1	0.1	-	-	-	-	3	0.2	-	-	3	0.2
192	-	-	-	-	-	-	-	-	1	0.1	-	-	-	-
197	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	786	99.5	1536	99.9	699	100.0	1601	100.1	1389	100.0	647	100.0	1430	99.9

Appendix Table 9. Number of halibut per 10,000 skates and average weight at each age (eviscerated, heads-on) for North American commercial setline catches on miscellaneous grounds in Bering Sea. (Data for cpue for these grounds is often minimal and should be interpreted with caution.)

	FOX ISLANDS (4B)								EDGE WEST OF 175 W (4Dw)						BOWERS BANK		ST. MATTHEW (4De)					
	Sept 1966		April 1969		Sept. 1969		April 1970		April 1964		Nov. 1965		Nov. 1969		April 1965		Oct. 1967		Oct. 1968		Oct. 1969	
Age	No.	Av.Wt.	No.	Av.Wt.	No.	Av.Wt.	No.	Av.Wt.	No.	Av.Wt.	No.	Av.Wt.	No.	Av.Wt.	No.	Av.Wt.	No.	Av.Wt.	No.	Av.Wt.	No.	Av.Wt.
5	-	-	120	4.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	277	9.3	2,288	10.9	-	-	1,015	6.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	1,201	10.5	6,021	12.7	98	22.0	5,176	12.1	444	8.4	-	-	-	-	70	10.4	-	-	311	11.1	415	6.4
8	4,526	17.5	16,980	19.1	688	15.5	4,262	18.7	1,079	13.8	300	13.6	1,324	13.6	0	-	562	6.9	207	6.4	1,246	16.8
9	6,466	17.9	12,524	26.4	393	19.4	12,076	28.2	1,968	14.8	2,338	13.5	331	6.6	47	20.4	5,052	26.2	725	14.0	1,661	15.8
10	3,603	26.0	5,901	35.9	2,262	39.0	3,856	43.9	889	23.5	480	12.9	4,633	25.1	257	24.6	7,298	21.5	5,180	38.0	1,764	16.0
11	6,651	29.1	10,116	41.2	7,277	54.0	2,943	59.7	1,397	29.9	1,439	14.5	3,971	21.9	234	37.3	2,246	20.3	3,419	29.2	5,604	26.9
12	4,711	39.9	3,131	59.7	2,754	72.2	4,567	52.0	2,539	35.4	899	13.2	2,979	23.2	444	43.4	7,859	25.8	1,658	48.8	3,321	35.1
13	3,418	44.2	1,204	78.9	2,360	66.3	2,537	62.7	3,301	38.3	1,859	20.5	2,648	11.6	351	54.6	5,052	25.2	1,451	63.8	3,010	44.1
14	1,848	47.8	2,890	58.9	4,622	72.2	1,015	80.6	2,983	29.5	2,458	25.2	7,281	34.5	281	57.7	5,052	34.2	2,072	66.4	3,529	41.0
15	1,109	46.0	361	80.3	1,278	114.2	913	101.9	2,285	45.1	1,259	25.9	5,295	27.6	164	74.6	6,736	38.6	2,176	71.3	1,349	60.8
16	924	57.8	241	167.0	688	88.0	102	125.0	2,412	44.0	2,938	35.9	7,281	60.7	514	83.9	8,982	40.0	3,315	51.1	1,142	63.8
17	185	61.5	964	98.0	492	74.4	203	107.5	825	41.8	2,279	37.4	5,626	46.5	444	95.9	6,175	43.8	2,487	57.6	311	67.3
18	0	-	723	96.0	787	72.6	203	63.0	254	42.6	1,199	29.4	6,950	46.1	421	100.4	6,736	49.1	2,176	89.1	1,972	90.8
19	277	96.3	0	-	0	-	0	-	1,016	66.2	2,398	38.2	3,971	49.7	397	128.1	5,614	45.8	4,041	77.4	2,699	63.0
20	92	128.0	120	25.0	0	-	203	46.5	762	54.9	899	44.4	1,655	40.4	234	157.6	2,807	37.8	104	114.5	1,557	59.1
21	0	-	0	-	295	94.1	203	85.0	317	61.8	1,259	43.9	4,633	66.9	444	143.3	2,807	46.0	1,347	66.5	1,868	76.0
22	0	-	0	-	-	-	102	184.0	635	60.9	1,019	49.5	2,317	56.6	421	146.4	1,684	63.2	311	219.1	1,246	82.9
23	92	67.0	0	-	-	-	-	-	571	72.6	959	26.2	1,986	47.6	374	153.5	0	-	207	169.4	1,038	89.4
24	0	-	241	74.0	-	-	-	-	190	103.6	779	30.4	1,324	58.2	257	201.9	1,123	91.2	207	175.2	311	182.1
25	0	-	120	118.0	-	-	-	-	0	-	540	32.8	1,324	39.4	281	177.7	1,123	52.9	414	103.9	727	73.7
26	92	100.0	-	-	-	-	-	-	190	43.9	60	59.6	331	140.5	327	191.6	1,123	116.0	0	-	208	122.6
27	-	-	-	-	-	-	-	-	-	-	60	84.4	662	84.8	117	333.0	562	83.8	0	-	0	-
28	-	-	-	-	-	-	-	-	-	-	60	67.2	0	-	140	212.3	-	-	311	189.7	0	-
29	-	-	-	-	-	-	-	-	-	-	-	-	662	46.2	94	164.3	-	-	-	-	104	139.2
30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	234	168.5	-	-	-	-	0	-
31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	0	-
32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23	256.4	-	-	-	-	104	128.2
Total	35,472	30.8	63,945	32.9	23,994	63.4	39,376	38.0	24,057	37.6	25,481	29.4	67,184	40.8	6,570	118.1	78,593	38.2	32,119	60.4	35,186	49.4

Appendix Table 10. Number and percent of number in each 5-centimeter size class in samples of commercial halibut catches by North American setline vessels on miscellaneous grounds in Bering Sea.

Mid-point 5-cm. Length Class	FOX ISLANDS (4B)								EDGE WEST OF 175°W (4Dw)						BOWERS BANK		ST. MATTHEW (4De)					
	Sept.1966		Apr.1969		Sept.1969		Apr.1970		April 1964		Nov. 1965		Nov. 1969		April 1965		Oct.1967		Oct.1968		Oct.1969	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
57	-	-	4	0.8	-	-	-	-	-	-	-	-	1	0.5	-	-	-	-	1	0.3	1	0.3
62	-	-	13	2.4	1	0.4	11	2.8	1	0.3	-	-	1	0.5	-	-	-	-	-	-	2	0.6
67	-	-	18	3.4	1	0.4	14	3.6	5	1.3	7	1.6	2	1.0	-	-	1	0.7	1	0.3	3	0.9
72	4	3.0	19	3.6	1	0.4	16	4.1	6	1.6	10	2.4	2	1.0	1	0.4	0	0.0	2	0.6	5	1.5
77	3	2.2	38	7.1	4	1.6	25	6.4	19	5.0	19	4.5	5	2.5	2	0.7	0	0.0	4	1.3	6	1.8
82	6	4.5	34	6.4	1	0.4	22	5.6	21	5.5	28	6.6	9	4.4	2	0.7	6	4.3	2	0.6	13	3.8
87	17	12.7	40	7.5	6	2.5	22	5.6	26	6.9	44	10.4	10	4.9	1	0.4	6	4.3	3	1.0	14	4.1
92	11	8.2	42	7.9	11	4.5	23	5.9	31	8.2	35	8.2	16	7.9	4	1.4	8	5.7	11	3.5	22	6.5
97	18	13.4	45	8.5	7	2.9	19	4.9	32	8.4	50	11.8	13	6.4	5	1.8	10	7.1	16	5.2	22	6.5
102	17	12.7	45	9.2	9	3.7	41	10.5	33	8.7	50	11.8	14	6.9	4	1.4	19	13.6	32	10.3	20	5.9
107	11	8.2	44	8.3	10	4.1	22	5.6	30	7.9	37	8.7	22	10.8	5	1.8	16	11.4	22	7.1	32	9.4
112	7	5.2	43	8.1	16	6.6	38	9.8	32	8.4	44	10.4	18	8.9	7	2.5	9	6.4	30	9.7	29	8.6
117	9	6.7	18	3.4	10	4.1	21	5.4	24	6.3	39	9.2	13	6.4	9	3.2	21	15.0	18	5.8	25	7.4
122	13	9.7	26	4.9	20	8.2	16	4.1	29	7.6	18	4.2	17	8.4	13	4.6	18	12.9	16	5.2	24	7.1
127	2	1.5	22	4.1	16	6.6	11	2.8	21	5.5	20	4.7	15	7.4	9	3.2	7	5.0	24	7.7	10	2.9
132	4	3.0	22	4.1	35	14.3	23	5.9	14	3.7	6	1.4	14	6.9	14	5.0	6	4.3	26	8.4	25	7.4
137	7	5.2	13	2.4	13	5.3	15	3.9	17	4.5	5	1.2	4	2.0	17	6.1	5	3.6	16	5.2	13	3.8
142	3	2.2	9	1.7	19	7.8	12	3.1	9	2.4	3	0.7	8	3.9	10	3.6	1	0.7	20	6.5	17	5.0
147	0	0.0	1	0.2	11	4.5	10	2.6	8	2.1	4	0.9	7	3.4	20	7.1	3	2.1	6	1.9	10	2.9
152	0	0.0	8	1.5	15	6.1	8	2.1	9	2.4	1	0.2	6	3.0	12	4.3	1	0.7	7	2.3	13	3.8
157	0	0.0	7	1.3	13	5.3	5	1.3	6	1.6	2	0.5	2	1.0	14	5.0	1	0.7	14	4.5	11	3.2
162	0	0.0	3	0.6	7	2.9	2	0.5	2	0.5	0	0.0	2	1.0	15	5.3	1	0.7	4	1.3	4	1.2
167	1	0.8	2	0.4	6	2.5	4	1.0	0	0.0	1	0.2	0	0.0	15	5.3	1	0.7	10	3.2	5	1.5
172	0	0.0	4	0.8	1	0.4	5	1.3	1	0.3	1	0.2	2	1.0	11	3.9	-	-	8	2.6	4	1.2
177	1	0.8	3	0.6	5	2.0	1	0.3	2	0.5	0	0.0	-	-	10	3.6	-	-	4	1.3	1	0.3
182	-	-	1	0.2	2	0.8	1	0.3	0	0.0	1	0.2	-	-	15	5.3	-	-	4	1.3	5	1.5
187	-	-	3	0.6	3	1.2	1	0.3	0	0.0	-	-	-	-	13	4.6	-	-	4	1.3	0	0.0
192	-	-	-	-	1	0.4	0	0.0	0	0.0	-	-	-	-	14	5.0	-	-	1	0.3	0	0.0
197	-	-	-	-	-	-	0	0.0	1	0.3	-	-	-	-	17	6.1	-	-	2	0.6	1	0.3
202	-	-	-	-	-	-	0	0.0	-	-	-	-	-	-	6	2.1	-	-	1	0.3	1	0.3
207	-	-	-	-	-	-	0	0.0	-	-	-	-	-	-	6	2.1	-	-	0	0.0	1	0.3
212	-	-	-	-	-	-	0	0.0	-	-	-	-	-	-	8	2.8	-	-	0	0.0	-	-
217	-	-	-	-	-	-	0	0.0	-	-	-	-	-	-	2	0.7	-	-	1	0.3	-	-
222	-	-	-	-	-	-	1	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	134	100.0	531	100.0	244	99.9	389	100.0	379	99.9	425	100.0	203	100.1	281	100.0	140	99.9	310	99.9	339	100.0

Appendix Table 11. Percentage age compositions of setline catches by International Pacific Halibut Commission tagging vessels on various grounds in Bering Sea in 1964, and the percentage of each sample which was female.

	Polaris Ground				Misty Moon Ground		Pribilof Ids.		4C(170°W - 175°W) edge			Andreanof Islands Atka Id.	Adak Id.	Bowers Bank
Age	Jan.	July	Sept.	Nov.	July	Sept.	July	Sept.	Sept.	Sept.	Sept.	Oct.	Oct.	Oct.
3	0.0	-	-	-	1.3	-	-	-	-	-	-	-	-	-
4	0.1	-	-	-	0.0	-	-	0.1	-	-	-	7.7	-	-
5	1.7	-	-	-	5.2	2.6	0.2	1.9	-	-	0.2	0.0	-	-
6	4.4	-	-	1.4	2.6	1.9	1.2	8.3	-	-	0.9	7.7	0.5	-
7	14.3	-	1.2	1.4	5.2	9.6	1.8	12.6	3.3	-	2.4	0.0	8.8	-
8	11.9	-	0.0	5.6	0.0	2.9	0.8	6.0	0.9	2.5	2.4	23.1	16.6	1.8
9	11.3	-	6.6	12.5	19.5	17.8	23.9	23.2	4.9	15.2	9.1	15.4	33.2	29.6
10	10.0	14.6	7.8	6.9	5.2	10.8	7.9	5.2	2.1	10.4	5.6	0.0	8.3	4.2
11	13.9	14.6	12.3	22.2	28.6	18.5	21.9	21.5	4.3	14.0	6.9	7.7	7.8	20.5
12	9.5	18.7	11.9	4.2	6.5	6.4	11.2	5.8	4.0	10.2	6.9	23.1	6.3	8.5
13	2.9	22.9	6.6	6.9	6.5	10.5	15.8	8.1	6.4	12.7	10.4	0.0	9.3	9.7
14	1.4	4.2	2.9	12.5	5.2	7.3	8.6	3.7	5.5	9.5	5.9	7.7	1.9	5.4
15	1.6	4.2	6.6	5.6	1.3	2.2	2.5	1.6	3.0	5.9	5.4	7.7	3.4	2.1
16	1.5	0.0	6.6	4.2	5.2	6.1	1.1	0.7	9.2	2.3	5.2	-	1.0	3.9
17	2.0	10.4	2.0	8.3	0.0	1.9	0.9	0.8	16.5	4.3	10.4	-	0.5	1.5
18	2.9	8.3	2.0	1.4	1.3	0.0	0.3	0.1	4.9	1.4	4.3	-	1.0	1.5
19	1.8	2.1	9.8	5.6	5.2	0.6	0.4	0.0	1.2	2.5	0.4	-	0.5	2.1
20	1.7	-	3.7	1.4	0.0	0.0	0.3	0.0	4.9	1.6	2.2	-	0.5	5.2
21	1.9	-	4.1	-	0.0	0.6	0.3	0.1	9.8	0.4	2.4	-	0.0	0.9
22	1.6	-	2.9	-	0.0	0.0	0.1	0.2	3.7	0.9	5.9	-	0.0	0.6
23	1.1	-	-	-	0.0	0.0	0.2	0.0	5.2	0.0	4.8	-	0.0	1.8
24	0.8	-	-	-	0.0	0.0	0.3	0.1	3.0	1.4	1.7	-	0.0	0.0
25	0.5	-	-	-	0.0	0.3	0.0	-	1.8	0.7	1.5	-	0.0	0.3
26	0.3	-	-	-	1.3	-	0.2	-	4.3	3.2	0.9	-	0.0	0.0
27	0.2	-	-	-	-	-	0.1	-	0.6	0.2	1.3	-	0.5	0.3
28	0.1	-	-	-	-	-	-	-	0.0	0.7	2.4	-	-	-
29	-	-	-	-	-	-	-	-	0.6	-	0.4	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	100.0	100.0	100.1	100.1	100.1	100.0	100.0	100.0	100.1	100.0	99.9	100.1	100.1	99.9
Percent Female	90.2	83.3	70.9	62.5	48.1	86.6	93.7	85.1	72.6	75.3	70.3	100.0	73.7	53.5

Appendix Table 12. Number and percent of number of halibut in each 5-centimeter size class in setline catches by IPHC tagging vessels on grounds in Bering Sea in 1964.

Mid-point 5-cm. Length Class	Polaris Ground								Misty Moon Ground				Pribilof Ids.			
	Jan.		July		Sept.		Nov.		July		Sept.		July		Sept.	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
37	-	-	-	-	-	-	-	-	1	1.3	-	-	-	-	1	0.1
42	-	-	-	-	-	-	-	-	0	0.0	5	1.6	2	0.2	0	0.0
47	-	-	-	-	-	-	-	-	4	5.2	7	2.2	2	0.2	8	0.5
52	3	0.1	-	-	-	-	-	-	1	1.3	5	1.6	1	0.1	22	1.2
57	8	0.3	-	-	-	-	-	-	3	3.9	4	1.3	5	0.4	17	1.0
62	8	0.3	-	-	-	-	1	1.4	2	2.6	4	1.3	6	0.5	30	1.7
67	24	0.8	-	-	1	0.4	2	2.8	2	2.6	3	1.0	10	0.8	51	2.9
72	48	1.6	-	-	0	0.0	1	1.4	6	7.8	5	1.6	15	1.2	68	3.8
77	61	2.1	2	4.2	1	0.4	6	8.3	8	10.4	12	3.8	14	1.1	75	4.2
82	106	3.6	3	6.2	6	2.5	9	12.5	5	6.5	15	4.8	14	1.1	123	7.0
87	142	4.8	0	0.0	11	4.5	4	5.5	6	7.8	6	1.9	34	2.8	92	5.2
92	212	7.2	3	6.2	9	3.7	5	6.9	5	6.5	9	2.9	44	3.6	124	7.0
97	260	8.8	7	14.6	18	7.4	8	11.1	6	7.8	22	7.0	84	6.9	140	7.9
102	256	8.7	3	6.2	26	10.7	7	9.7	6	7.8	37	11.8	111	9.1	164	9.3
107	257	8.7	3	6.2	27	11.1	3	4.2	2	2.6	25	8.0	142	11.6	119	6.7
112	216	7.3	3	6.2	26	10.7	2	2.8	2	2.6	23	7.3	110	9.0	168	9.5
117	182	6.2	7	14.6	27	11.1	3	4.2	4	5.2	20	6.4	84	6.9	141	8.0
122	187	6.4	3	6.2	22	9.0	6	8.3	6	7.8	15	4.8	94	7.7	84	4.7
127	144	4.9	2	4.2	17	7.0	0	0.0	2	2.6	18	5.7	86	7.0	84	4.7
132	123	4.2	3	6.2	11	4.5	2	2.8	1	1.3	23	7.3	86	7.0	63	3.6
137	90	3.1	2	4.2	16	6.5	4	5.5	1	1.3	15	4.8	72	5.9	50	2.8
142	93	3.2	4	8.3	6	2.5	2	2.8	0	0.0	15	4.8	66	5.4	52	2.9
147	67	2.3	2	4.2	4	1.6	3	4.2	2	2.6	7	2.2	63	5.2	43	2.4
152	71	2.4	0	0.0	5	2.0	0	0.0	0	0.0	6	1.9	29	2.4	19	1.1
157	66	2.2	1	2.1	3	1.2	1	1.4	1	1.3	5	1.6	19	1.6	12	0.7
162	58	2.0	-	-	3	1.2	1	1.4	0	0.0	3	1.0	8	0.6	9	0.5
167	51	1.7	-	-	1	0.4	2	2.8	0	0.0	0	0.0	9	0.7	3	0.2
172	55	1.9	-	-	2	0.8	-	-	1	1.3	2	0.6	6	0.5	5	0.3
177	47	1.6	-	-	0	0.0	-	-	-	-	1	0.3	1	0.1	1	0.1
182	31	1.0	-	-	1	0.4	-	-	-	-	0	0.0	2	0.2	0	0.0
187	28	0.9	-	-	0	0.0	-	-	-	-	1	0.3	0	0.0	0	0.0
192	14	0.5	-	-	1	0.4	-	-	-	-	0	0.0	0	0.0	0	0.0
197	14	0.5	-	-	-	-	-	-	-	-	0	0.0	0	0.0	0	0.0
202	9	0.3	-	-	-	-	-	-	-	-	0	0.0	1	0.1	-	-
207	8	0.3	-	-	-	-	-	-	-	-	0	0.0	1	0.1	-	-
212	0	0.0	-	-	-	-	-	-	-	-	0	0.0	-	-	-	-
217	3	0.1	-	-	-	-	-	-	-	-	1	0.3	-	-	-	-
222	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	2942	100.0	48	99.8	244	100.0	72	100.0	77	100.1	314	100.1	1221	100.0	1768	100.0

Table 12 (Cont'd.)

Mid-point 5-cm. Length Class	4C edge(170°W - 175°W)						Andreanof Islands					
							Atka Id.		Adak Id.		Bowers Bank	
	Sept.		Sept.		Sept.		Oct.		Oct.		Oct.	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
37	-	-	-	-	-	-	-	-	-	-	-	-
42	-	-	-	-	1	0.2	-	-	-	-	-	-
47	-	-	-	-	0	0.0	-	-	-	-	-	-
52	-	-	-	-	1	0.2	1	7.7	-	-	2	0.6
57	2	0.6	-	-	2	0.4	0	0.0	3	1.5	6	1.8
62	7	2.1	-	-	2	0.4	1	7.7	0	0.0	24	7.3
67	11	3.3	-	-	9	2.0	0	0.0	5	2.4	29	8.8
72	15	4.6	11	2.5	23	5.0	0	0.0	7	3.4	31	9.4
77	22	6.7	7	1.6	33	7.2	0	0.0	12	5.9	29	8.8
82	17	5.2	28	6.3	32	6.9	0	0.0	15	7.3	23	7.0
87	17	5.2	31	7.0	46	10.0	1	7.7	14	6.8	23	7.0
92	23	7.0	34	7.9	45	9.8	0	0.0	20	9.8	20	6.0
97	28	8.6	50	11.3	47	10.2	0	0.0	19	9.3	14	4.2
102	31	9.5	38	8.6	50	10.8	2	15.4	20	9.8	7	2.1
107	44	13.4	45	10.2	45	9.8	3	23.1	23	11.2	9	2.7
112	37	11.3	43	9.7	40	8.7	3	23.1	13	6.3	7	2.1
117	28	8.6	37	8.4	28	6.1	2	15.4	15	7.3	9	2.7
122	21	6.4	47	10.7	24	5.2	-	-	6	2.9	10	3.0
127	7	2.1	28	6.3	13	2.8	-	-	12	5.9	11	3.3
132	4	1.2	20	4.5	8	1.7	-	-	7	3.4	5	1.5
137	6	1.8	10	2.3	5	1.1	-	-	5	2.4	9	2.7
142	3	0.9	7	1.6	1	0.2	-	-	2	1.0	15	4.5
147	2	0.6	3	0.7	5	1.1	-	-	3	1.5	11	3.3
152	3	0.9	1	0.2	0	0.0	-	-	1	0.5	8	2.4
157	-	-	0	0.0	0	0.0	-	-	0	0.0	3	0.9
162	-	-	1	0.2	0	0.0	-	-	1	0.5	8	2.4
167	-	-	-	-	0	0.0	-	-	0	0.0	6	1.8
172	-	-	-	-	1	0.2	-	-	0	0.0	5	1.5
177	-	-	-	-	-	-	-	-	0	0.0	1	0.3
182	-	-	-	-	-	-	-	-	0	0.0	2	0.6
187	-	-	-	-	-	-	-	-	1	0.5	2	0.6
192	-	-	-	-	-	-	-	-	0	0.0	0	0.0
197	-	-	-	-	-	-	-	-	0	0.0	1	0.3
202	-	-	-	-	-	-	-	-	0	0.0	0	0.0
207	-	-	-	-	-	-	-	-	1	0.5	1	0.3
212	-	-	-	-	-	-	-	-	-	-	-	-
217	-	-	-	-	-	-	-	-	-	-	-	-
222	-	-	-	-	-	-	-	-	-	-	-	-
Total	328	100.0	441	100.0	461	100.0	13	100.1	205	100.1	331	99.9

Appendix Table 13. Percentage age compositions of setline catches of halibut by International Pacific Halibut Commission tagging vessel upon various grounds in Bering Sea in 1965 and percentage of each sample which was female.

Age	Pribilof Ids. August	Nunivak Id. August	St. Matthew Id. August
3	0.1	-	-
4	0.1	0.8	-
5	0.4	0.4	-
6	0.9	4.1	-
7	5.6	31.5	1.2
8	11.3	26.6	2.3
9	8.0	11.6	2.3
10	31.5	16.4	4.7
11	6.0	2.6	4.1
12	18.2	2.8	10.6
13	8.3	1.2	6.5
14	3.8	1.0	12.9
15	2.8	0.3	15.9
16	0.3	0.0	14.1
17	0.3	0.5	12.4
18	0.7	0.0	5.3
19	0.6	0.1	0.0
20	0.6	0.0	0.6
21	0.3	0.0	0.6
22	0.1	0.0	1.8
23	0.0	0.0	3.5
24	0.0	0.0	1.2
25	0.0	0.1	-
26	0.1	-	-
Total	100.0	100.0	100.0
Percent Female	98.0	94.0	94.0

Appendix Table 14. Number and the percent of number of halibut in each 5-centimeter size class in setline catches by International Pacific Halibut Commission tagging vessel in Bering Sea in 1965.

Mid-point 5-cm. Length Class	Pribilof Ids. August		Nunivak Id. August		St. Matthew Id. August	
	No.	Percent	No.	Percent	No.	Percent
37	1	0.1	-	-	-	-
42	0	0.0	5	0.3	-	-
47	1	0.1	5	0.3	-	-
52	1	0.1	9	0.6	-	-
57	2	0.3	23	1.6	-	-
62	3	0.4	30	2.0	-	-
67	5	0.7	67	4.5	-	-
72	14	2.0	170	11.5	2	1.2
77	18	2.6	239	16.2	3	1.8
82	25	3.6	203	13.7	2	1.2
87	33	4.7	169	11.4	4	2.3
92	33	4.7	131	8.9	3	1.8
97	45	6.4	120	8.1	7	4.1
102	70	10.0	115	7.8	6	3.5
107	66	9.4	60	4.1	16	9.4
112	84	12.0	40	2.7	17	10.0
117	59	8.4	24	1.6	15	8.8
122	57	8.1	22	1.5	9	5.3
127	52	7.4	10	0.7	18	10.6
132	31	4.4	11	0.7	17	10.0
137	27	3.9	8	0.6	14	8.2
142	26	3.7	5	0.3	6	3.5
147	19	2.7	6	0.4	11	6.5
152	12	1.7	2	0.1	7	4.1
157	3	0.4	2	0.1	6	3.5
162	9	1.3	0	0.0	2	1.2
167	2	0.3	0	0.0	2	1.2
172	0	0.0	1	0.1	0	0.0
177	1	0.1	1	0.1	0	0.0
182	1	0.1	2	0.1	3	1.8
187	0	0.0	-	-	-	-
192	1	0.1	-	-	-	-
197	0	0.0	-	-	-	-
202	1	0.1	-	-	-	-
Total	702	99.8	1480	100.0	170	100.0

Appendix Table 15. Percentage age compositions of setline catches of halibut by International Pacific Halibut Commission tagging vessel upon various grounds in Bering Sea in 1967 and percentage of each sample which was female.

Age	Cape Navarin June	4C edge June	4Dw edge* June	Pribilof Ids. June	Adak Id. June	Atka Id. July	Bowers Bank July	St. Lawrence Id. August	St. Matthew Id. August	St. Matthew Id. Sept.
4	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	1.2	0.6	-	0.07	0.02
6	0.4	-	1.2	0.9	8.9	8.7	0.2	-	0.3	0.1
7	0.5	3.4	1.7	2.3	3.8	7.2	0.4	-	0.6	1.0
8	4.1	1.7	3.6	10.2	5.1	11.2	2.8	14.3	2.2	0.5
9	4.6	19.5	8.9	27.2	24.0	22.0	9.8	28.6	5.3	3.0
10	10.2	15.3	9.1	17.6	3.8	16.7	4.6	42.8	7.9	8.2
11	10.2	7.6	7.7	7.5	5.1	9.1	4.2	0.0	6.6	10.1
12	7.5	10.2	6.9	17.7	12.6	14.6	7.7	0.0	8.8	7.2
13	9.2	11.0	2.2	3.7	7.6	2.7	4.2	0.0	6.5	10.3
14	5.7	5.1	8.1	8.0	8.9	2.3	10.9	0.0	6.5	6.0
15	8.2	5.1	6.0	1.6	5.1	0.6	2.2	14.3	10.2	5.2
16	6.5	4.2	8.1	1.0	11.4	2.2	3.4	-	12.5	8.0
17	5.8	2.5	3.8	0.6	1.3	0.3	1.2	-	7.3	10.4
18	4.2	0.9	3.4	0.7	0.0	0.6	4.8	-	8.7	7.2
19	3.7	0.0	4.8	0.2	0.0	0.1	6.9	-	5.7	6.8
20	3.9	6.8	7.9	0.4	0.0	0.3	5.4	-	3.6	5.5
21	2.8	2.5	3.8	0.2	0.0	0.0	1.6	-	2.2	3.1
22	2.8	0.0	3.1	0.2	0.0	0.1	3.4	-	1.9	1.4
23	3.5	0.0	1.4	0.1	0.0	0.2	3.4	-	1.5	1.3
24	1.8	0.0	1.9	-	0.0	-	5.0	-	0.5	1.2
25	1.1	1.7	2.6	-	2.5	-	4.8	-	0.6	1.2
26	1.7	2.5	2.6	-	-	-	4.0	-	0.4	0.4
27	1.0	-	0.5	-	-	-	2.6	-	0.0	0.9
28	0.3	-	0.7	-	-	-	1.6	-	0.2	0.7
29	0.1	-	-	-	-	-	2.2	-	-	0.1
30	0.2	-	-	-	-	-	1.2	-	-	0.1
31	-	-	-	-	-	-	0.4	-	-	0.0
32	-	-	-	-	-	-	0.6	-	-	0.1
33	-	-	-	-	-	-	-	-	-	0.05
Total	100.0	100.0	100.0	100.1	100.1	100.1	100.1	100.0	100.07	100.07
Percent Female	38.0	67.0	75.0	98.0	79.0	64.0	70.0	64.3	96.0	96.4

* West of 175° W. longitude

Appendix Table 16. Number and percent of number of halibut in each 5-centimeter size class in setline catches by International Pacific Halibut Commission tagging vessel on various grounds in Bering Sea in 1967.

Mid-point of 5-cm. Length Class	Cape Navarin June		4C edge June		$4D_{(w)}$ Edge* June		Pribilof Ids. June		Bowers Bank July		Andreanof Islands Adak Id. June		Atka Id. July		St. Lawrence August		St. Matthew Id. August		St. Matthew Id. Sept.	
	No.	Prcnt.	No.	Prcnt.	No.	Prcnt.	No.	Prcnt.	No.	Prcnt.	No.	Prcnt.	No.	Prcnt.	No.	Prcnt.	No.	Prcnt.	No.	Prcnt.
37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.02
42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.02
47	-	-	-	-	-	-	-	-	-	-	-	-	8	0.4	-	-	7	0.2	3	0.04
52	7	0.7	-	-	3	0.7	4	0.3	-	-	1	1.3	56	3.0	-	-	10	0.3	13	0.3
57	11	1.2	1	0.9	5	1.2	3	0.2	1	0.2	4	5.1	91	4.9	-	-	16	0.5	17	0.4
62	39	4.2	3	2.5	15	3.6	7	0.5	1	0.2	2	2.5	161	8.7	-	-	14	0.5	21	0.5
67	82	8.8	7	5.9	20	4.8	11	0.8	2	0.4	3	3.8	162	8.7	-	-	7	0.2	29	0.7
72	141	15.0	6	5.1	29	6.9	23	1.8	9	1.8	2	2.5	186	10.0	-	-	20	0.7	38	0.9
77	134	14.3	9	7.6	38	9.1	30	2.3	13	2.6	2	2.5	192	10.5	-	-	27	1.0	59	1.5
82	144	15.4	7	5.9	33	7.9	47	3.6	23	4.6	2	2.5	211	11.4	-	-	68	2.3	109	2.7
87	104	11.1	18	15.3	48	11.5	54	4.1	16	3.2	2	2.5	207	11.2	-	-	72	2.4	177	4.3
92	79	8.4	18	15.3	35	8.4	124	9.5	17	3.4	6	7.6	137	7.4	1	14.3	118	3.9	239	5.8
97	71	7.6	5	4.2	29	6.9	131	10.0	9	1.8	8	10.2	93	5.0	2	28.6	148	4.9	252	6.2
102	49	5.2	14	11.9	36	8.6	155	11.8	23	4.6	3	3.8	89	4.8	3	42.8	177	6.0	245	6.0
107	18	1.9	6	5.1	32	7.7	116	8.9	11	2.2	4	5.1	59	3.2	-	-	195	6.6	238	5.8
112	17	1.8	8	6.8	32	7.7	114	8.7	20	4.0	2	2.5	51	2.8	-	-	178	6.0	242	5.9
117	12	1.3	7	5.9	27	6.5	81	6.2	24	4.8	4	5.1	25	1.3	-	-	193	6.5	295	7.2
122	12	1.3	3	2.5	19	4.5	81	6.2	26	5.1	3	3.8	28	1.5	-	-	239	8.0	294	7.2
127	9	1.0	3	2.5	4	1.0	68	5.2	25	5.0	8	10.1	22	1.2	-	-	273	9.2	274	6.7
132	3	0.3	1	0.9	8	1.9	70	5.3	31	6.2	5	6.3	23	1.2	-	-	305	10.3	328	8.0
137	3	0.3	0	0.0	1	0.2	65	5.0	35	6.9	3	3.8	11	0.6	-	-	263	8.9	291	7.1
142	1	0.1	0	0.0	3	0.7	50	3.8	33	6.5	3	3.8	8	0.4	1	14.3	182	6.1	260	6.4
147	0	0.0	0	0.0	1	0.2	26	2.0	22	4.4	2	2.5	3	0.2	-	-	133	4.8	193	4.7
152	1	0.1	0	0.0	-	-	18	1.4	32	6.3	2	2.5	10	0.5	-	-	96	3.2	147	3.6
157	-	-	0	0.0	-	-	8	0.6	21	4.2	1	1.3	4	0.2	-	-	76	2.6	91	2.2
162	-	-	2	1.7	-	-	8	0.6	19	3.8	3	3.8	8	0.4	-	-	45	1.5	73	1.8
167	-	-	-	-	-	-	2	0.2	15	3.0	0	0.0	5	0.3	-	-	33	1.1	37	0.9
172	-	-	-	-	-	-	6	0.4	15	3.0	2	2.5	1	0.1	-	-	28	0.9	50	1.2
177	-	-	-	-	-	-	1	0.1	4	0.8	0	0.0	0	0.0	-	-	17	0.6	25	0.6
182	-	-	-	-	-	-	4	0.3	13	2.6	2	2.5	0	0.0	-	-	11	0.4	25	0.6
187	-	-	-	-	-	-	2	0.2	7	1.4	-	-	1	0.1	-	-	7	0.2	10	0.3
192	-	-	-	-	-	-	-	-	7	1.4	-	-	0	0.0	-	-	7	0.2	6	0.2
197	-	-	-	-	-	-	-	-	8	1.6	-	-	0	0.0	-	-	2	0.06	4	0.1
202	-	-	-	-	-	-	-	-	7	1.4	-	-	0	0.0	-	-	1	0.03	4	0.1
207	-	-	-	-	-	-	-	-	2	0.4	-	-	1	0.1	-	-	-	-	-	-
212	-	-	-	-	-	-	-	-	10	2.0	-	-	0	0.0	-	-	-	-	-	-
217	-	-	-	-	-	-	-	-	1	0.2	-	-	0	0.0	-	-	-	-	-	-
222	-	-	-	-	-	-	-	-	-	-	-	-	1	0.1	-	-	-	-	-	-
Total	937	100.0	118	100.0	418	100.0	1309	100.0	502	100.0	79	99.9	1854	100.0	7	100.0	2968	100.09	4091	99.98

* West of 175° W. longitude

Appendix Table 17. Average weight (pounds, eviscerated, heads-on) of female halibut in observed catches of commercial North American setline vessels and of International Pacific Halibut Commission tagging vessels on grounds in Bering Sea, 1964-1970.

	Polaris Ground									Misty Moon	
Age	Charter Jan.'64	Observer Apr.'64	Charter July'64	Charter Sept'64	Charter Nov.'64	Observer Apr.'65	Observer Apr.'66	Observer Apr.'67	Observer Apr.'68	Charter July'64	Observer Apr.'66
3	-	-	-	-	-	-	-	-	-	1.1	-
4	3.4	-	-	-	-	-	-	-	-	-	-
5	7.5	-	-	-	-	-	-	-	4.6	-	-
6	13.2	6.3	-	-	-	12.8	10.4	7.2	8.8	3.4	5.7
7	17.8	13.2	-	-	-	11.4	15.0	13.4	13.8	2.6	10.4
8	19.7	22.4	-	15.5	-	16.8	17.9	18.4	14.5	-	14.4
9	26.3	25.3	-	-	24.1	20.3	22.0	25.2	22.4	12.0	17.2
10	33.3	33.5	29.2	23.8	27.5	26.4	27.2	30.4	28.3	16.2	23.5
11	41.7	38.0	30.5	29.2	23.7	32.1	29.9	42.0	32.8	32.3	27.4
12	45.3	38.1	51.5	42.4	28.2	38.8	35.0	34.0	39.6	30.4	45.8
13	59.4	48.0	46.8	43.2	67.3	46.0	64.6	35.6	52.8	46.6	36.2
14	60.5	56.9	60.0	45.3	63.8	53.7	38.7	-	46.2	69.9	48.0
15	75.2	52.3	63.5	52.3	48.2	53.5	56.1	65.6	47.5	67.3	46.4
16	83.4	104.5	-	41.4	75.6	82.1	39.2	59.2	48.8	-	61.2
17	89.9	84.6	18.7	34.6	62.6	115.8	52.6	-	82.7	-	48.0
18	114.1	184.4	56.8	70.3	115.8	46.3	60.8	72.9	81.9	140.6	30.6
19	120.7	94.2	104.5	47.2	71.9	-	-	-	59.6	60.8	61.6
20	94.8	-	-	104.5	127.8	-	104.5	55.3	59.6	-	104.5
21	133.1	59.7	-	72.5	-	84.6	-	-	-	-	-
22	155.7	-	-	96.8	-	115.8	-	-	127.7	-	113.0
23	140.3	-	-	111.8	-	-	-	-	115.7	-	-
24	162.8	-	-	101.2	-	-	-	-	-	-	-
25	154.4	104.5	-	-	-	-	-	-	-	-	-
26	160.5	-	-	-	-	-	-	-	-	59.7	-
27	130.9	-	-	-	-	-	-	-	-	-	-
28	176.2	-	-	-	-	-	-	-	-	-	-
29	156.2	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-	-	-	-	-
33	277.1	-	-	-	-	-	-	-	-	-	-

Table 17 (Cont'd.)

Age	4C edge (170°W - 175°W)								Edge West of 175°W		Pribilof Ids.			Nunivak Id.
	Charter Sept'64	Charter Sept'64	Charter Sept'64	Observer Apr.'65	Observer Apr.'67	Charter June'67	Observer Apr.'68	Observer Apr.'70	Observer Apr.'64	Charter June'67	Charter July'64	Charter Aug.'65	Charter June'67	Charter Aug.'65
3	-	-	-	-	-	-	-	-	-	-	-	1.0	-	-
4	-	-	-	-	-	-	-	-	-	-	-	2.1	-	2.1
5	-	-	1.6	-	-	-	-	-	-	-	-	3.6	-	3.6
6	-	-	4.0	-	-	-	-	-	-	4.3	5.8	10.3	6.5	6.7
7	6.7	-	9.1	7.4	8.6	-	9.3	8.4	8.4	7.6	10.7	11.0	12.8	10.0
8	8.3	18.3	11.2	11.4	11.5	12.7	14.0	10.4	13.8	6.4	16.8	17.1	14.3	14.8
9	7.5	18.6	14.6	15.9	14.4	17.0	21.1	10.4	15.3	13.4	26.0	25.4	23.0	20.5
10	10.9	24.1	20.9	21.0	16.4	15.3	22.2	18.5	23.5	12.8	34.4	31.8	29.7	26.2
11	21.8	13.2	20.6	24.2	20.1	17.0	35.0	22.0	31.7	14.4	36.5	42.3	37.1	34.2
12	38.0	37.6	26.2	32.7	26.6	33.7	46.2	30.2	38.2	18.6	55.2	46.4	51.6	36.6
13	22.5	41.7	26.4	37.8	31.1	25.8	59.6	35.0	38.8	14.4	64.3	65.1	64.7	59.2
14	14.7	30.9	24.8	44.1	35.0	30.3	67.6	40.3	38.5	28.1	74.8	77.0	66.5	67.6
15	24.4	42.6	21.6	39.6	37.5	22.0	48.5	59.6	46.8	18.8	82.1	81.8	80.5	92.4
16	25.9	31.0	32.5	54.4	42.0	25.8	35.0	30.2	48.5	32.8	81.5	115.7	84.5	-
17	52.3	33.8	17.3	54.2	41.4	97.0	52.6	-	46.6	23.0	82.7	52.6	105.4	75.5
18	28.9	14.0	41.1	42.2	54.7	30.2	114.8	40.3	94.2	37.6	95.7	135.5	121.7	-
19	32.7	42.3	30.4	33.3	46.7	-	59.9	-	84.5	37.3	102.6	91.4	148.2	168.7
20	29.0	37.8	31.1	39.2	37.9	35.0	-	94.1	54.5	30.9	131.6	115.7	122.6	-
21	48.7	30.4	34.0	63.8	56.7	52.6	108.0	67.2	61.8	37.2	127.8	140.9	150.0	-
22	29.5	75.6	35.8	82.3	48.5	-	-	-	60.9	38.6	154.3	200.6	156.2	-
23	40.0	-	42.6	49.9	58.6	-	-	-	88.1	31.8	168.9	-	168.7	-
24	29.7	49.5	38.0	66.2	60.4	-	-	-	103.6	31.3	169.6	-	-	-
25	55.4	35.2	55.4	64.5	70.7	40.3	-	-	-	40.9	-	-	-	154.1
26	52.2	64.6	58.4	90.7	-	-	-	-	94.2	39.5	59.7	168.7	-	-
27	18.7	94.2	27.5	69.1	-	-	-	-	-	59.6	236.9	-	-	-
28	-	83.5	39.3	-	-	-	-	-	-	58.9	-	-	-	-
29	40.6	-	52.7	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	140.6	-	-	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 17 (Cont'd.)

Age	St. Matthew Id. Charter Aug.'65	St. Matthew Id. Charter Aug.'67	St. Matthew Id. Charter Sept'67	Atka Id. Charter July'67	Adak Id. Charter July'67	Bowers Bank Observer Apr.'65	Bowers Bank Charter July'67	Cape Navarin Charter June'67
3	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-
5	-	2.1	1.8	4.0	-	-	-	-
6	-	2.5	5.4	4.9	4.3	-	-	5.2
7	10.4	5.2	8.9	7.0	6.6	10.3	8.4	2.9
8	11.0	12.0	13.2	11.2	8.1	-	11.1	6.5
9	15.4	16.2	17.9	14.3	19.1	20.4	16.5	7.8
10	19.5	20.4	21.6	17.4	-	21.9	26.4	8.7
11	36.2	28.4	27.1	22.5	-	35.2	42.4	11.3
12	34.6	34.0	33.3	28.0	38.0	45.2	28.4	11.2
13	43.9	45.0	43.7	38.4	59.6	57.2	65.2	15.3
14	44.2	48.6	50.3	62.2	78.6	57.7	72.9	18.9
15	48.1	56.9	55.5	78.4	95.7	74.6	82.4	17.7
16	67.3	62.1	61.5	65.5	168.7	96.0	90.9	21.3
17	72.6	67.2	67.3	115.7	-	97.2	141.0	17.7
18	54.3	65.9	72.0	120.8	-	125.1	117.6	21.4
19	-	73.5	80.0	134.1	-	136.2	122.8	23.7
20	115.7	81.7	76.4	220.1	-	157.6	118.2	20.5
21	115.7	101.2	96.2	-	-	153.0	142.1	51.8
22	168.7	110.7	106.5	127.7	-	160.5	149.7	35.9
23	104.5	111.1	122.6	321.1	-	153.5	149.6	44.2
24	127.7	141.5	130.1	-	-	225.1	178.3	32.3
25	-	130.1	109.9	-	-	177.7	228.3	-
26	-	121.6	129.6	-	-	210.9	167.0	45.6
27	-	-	162.4	-	-	333.0	197.8	45.2
28	-	151.1	156.5	-	-	212.3	262.4	-
29	-	-	117.8	-	-	164.3	218.3	94.1
30	-	-	-	-	-	168.5	213.4	52.6
31	-	-	-	-	-	-	238.6	-
32	-	-	174.7	-	-	-	251.2	-
33	-	-	218.0	-	-			