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AGE, SEX, AND SIZE COMPOSITION OF PACIFIC HERRING, (*Clupea harengus pallasi*), FROM EASTERN BERING SEA COASTAL SPAWNING SITES, ALASKA, 1985

By:

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October 1986

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Don W. Collinsworth
Commissioner

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ABSTRACT

Samples of Pacific herring, *Clupea harengus pallasi*, were collected from seven eastern Bering Sea commercial fishing districts during the 1985 spring spawning migration. Samples were obtained from commercial purse seine, beach seine, and gillnet catches and Alaska Department of Fish and Game test variable mesh gill net and volunteer commercial test gill net and purse seine landings. Samples within each of the seven districts were grouped by gear type, location, and sampling week. A total of 14,805 Pacific herring was examined for age, sex, and size information. Relative abundance trends for all year classes were similar in all areas with strength of younger year classes (ages 3 - 5) increasing northward. Overall, the 1978 and 1977 year classes (age 7 and 8, respectively) were most abundant. Mean length within each age class progressively decreased in samples taken northward from Bristol Bay to Norton Sound. Generally, male and female ratios remained equal in most season samples. The 1985 eastern Bering Sea Pacific herring spawning biomass was estimated to be 165,805 metric tons.

KEY WORDS: Pacific herring, *Clupea harengus pallasi*, biological sampling (A-W-L).

INTRODUCTION

The purpose of this report is to present age, sex, and size composition data of the 1985 eastern Bering Sea Pacific herring, *Clupea harengus pallasi*, spawning biomass. Similar studies were conducted annually by the Alaska Department of Fish and Game (ADF&G) since 1976 (McBride et al. 1981a and b; Fried et al. 1982a and b, 1983a and b, 1984; Lebida et al. 1985a).

METHODS

Study Area Description

The study area comprised the coastal waters from Cape Constantine to Cape Douglas (Figures 1 and 2). Seven ADF&G defined commercial fishing districts, Togiak, Security Cove, Goodnews Bay, Nelson Island, Nunivak Island, Cape Romanzof, and Norton Sound were located within the study area. The Togiak and Norton Sound Districts were further subdivided into six sections (Kulukak, Nunavachak, Togiak, Hagemeister, Pyrite Point, and Cape Newenham) and seven subdistricts (St. Michael, Unalakleet, Cape Denbigh, Norton Bay, Elim, Golovin Bay, and Nome), respectively.

Sampling Techniques

Pacific herring samples were collected from Togiak (all sections), Security Cove, Goodnews Bay, Nelson Island, Nunivak Island, Cape Romanzof, and Norton Sound (St. Michael, Unalakleet, and Cape Denbigh subdistricts only) commercial fishing districts. Samples were obtained from commercial purse seine, beach seine, and gillnet landings, ADF&G variable mesh gillnet catches, and volunteer commercial test gillnet and purse seine catches. Data collection methods were similar to those described by Barton and Steinhoff (1980).

An attempt was made to collect at least 210 Pacific herring from each gear type during each weekly sampling period. Sample size was determined according to methods described by Fried et al. (1984). Sampled fish were measured (mm), weighed (nearest 1 g), and aged by scale annuli analysis using a microfiche reader.

Age class composition, expressed as a percentage by weight of the commercial landings and ADF&G variable mesh test gillnet catch samples, was assumed to reflect actual age class compositions of the commercial harvest and herring escapement, respectively. These data were converted to biomass based on landing weights and aerial survey estimates, and then combined to determine total run age class composition.

Variable mesh test gillnet and test purse seine (Togiak District only) catch samples were used to determine mesh standard length for each age class by district.

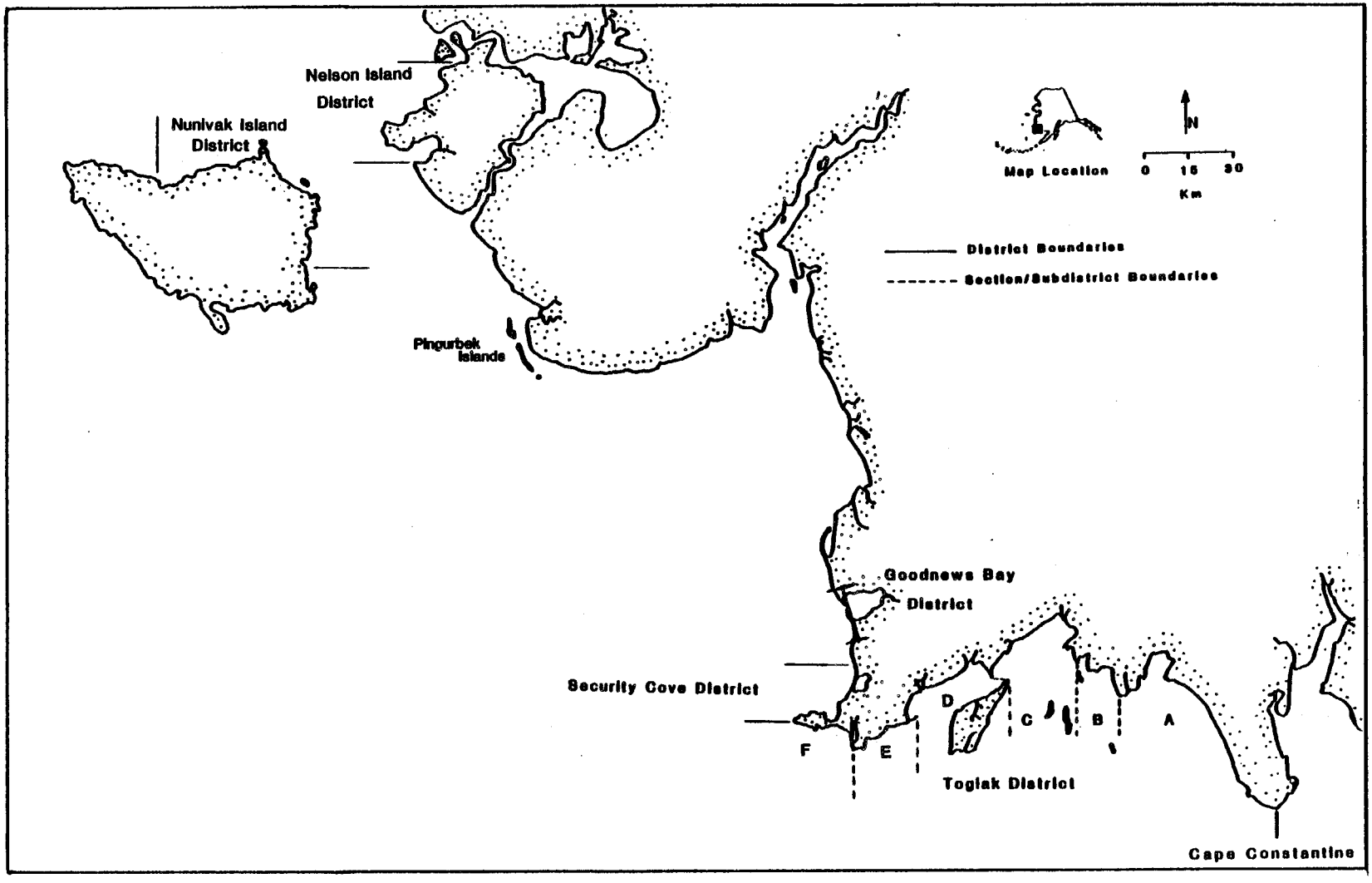

Figure 1. Togiak (A = Kulukak, B = Nunavachak, C = Togiak, D = Hagemeister, E = Pyrite Point, F = Cape Newenham Sections), Security Cove, Goodnews Bay, Nelson Island, and Nunivak Island Pacific herring commercial fishing districts, eastern Bering Sea, Alaska.

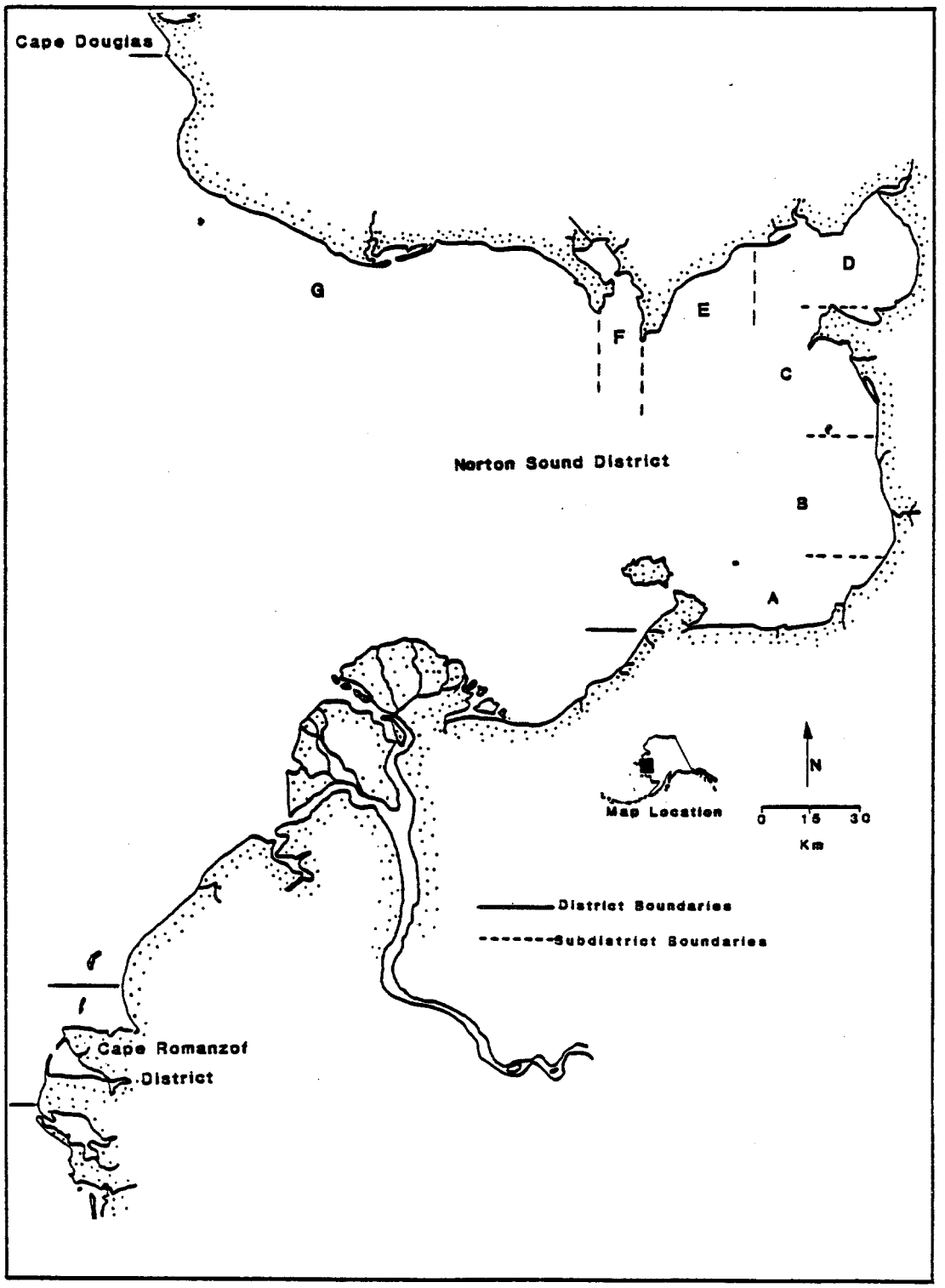

Figure 2. Cape Romanzof and Norton Sound (A = St. Michael, B = Unalakleet, C = Cape Denbigh, D = Norton Bay, E = Elim, F = Golovin Bay, G = Nome Subdistricts) Pacific herring commercial fishing districts, eastern Bering Sea, Alaska.

RESULTS AND DISCUSSION

A total of 14,805 Pacific herring was examined during the period 16 May to 27 June (Tables 1 - 43). This was the latest inshore spawniing migration timing recorded since 1977 (Fried et al. 1982a, 1982b, 1984; Lebida et al. 1985a, and McBride et al. 1981a). No obvious trends or consistent differences in age class composition, sex ratio, or mean size at age were noted among sections in Togiak District or subdistricts in Norton Sound (Tables 1 - 24, 34 - 43), respectively. Data suggested that older aged Pacific herring (age 5+) arrived and spawned earlier in the season than younger aged (age 4 or less) herring (Tables 24, 26, 28, 30, and 43), although not as evident as in former years. In the Cape Romanzof District, this trend was not evident (Table 33), suggesting that young and old herring migrated inshore and spawned at about the same time.

The 1977 year class (age 8) numerically dominated commercial and test fish catches (all gear types) in nearly all fishing districts sampled for the fifth consecutive year (Figure 3). This strong year class accounted for approximately 30% (by weight) or more of the estimated total run biomass of each district except for the Norton Sound District where age 8 herring contributed approximately 24% (Table 44, Figure 4). The 1978 year class (age 7) was also abundant, usually representing about 19% or more in each district, except in Norton Sound where representation was approximately 13%.

The 1976 year class (age 9) was poorly represented in most districts, accounting for about 11% or less of each sample, except for 14% in the Togiak District. The 1979 year class (age 6) represented 25% or more of the sample from Cape Romanzof and Norton Sound Districts, and less than 19% in all other districts. The 1980 year class (age 5) represented about 11% of the sample in the Norton Sound District and approximately 6% or less in all other districts. The 1981 year class (age 4) represented about 12% or less of the sample in all districts, indicating a positive recruitment trend in comparison to 1984 results (Lebida et al. 1985a). The 1982 year class (age 3) represented 1% or less of all district samples.

Differences in Pacific herring year class abundance trends were evident between geographical areas and districts. The 1978 year class (age 7) and older herring represented at least 70% of the total run within Togiak, Security Cove, and Goodnews Bay Districts. The 1979-1977 year classes (ages 6 - 8) represented approximately 72% of the overall Nelson Island, Nunivak Island, Cape Romanzof, and Norton Sound District run with a decline in abundance of the 1977 year class (age 8) occurring progressively northward. The relative abundance of the 1982 to 1980 year classes (ages 3 - 5) increased steadily northward from Togiak (8%) to Norton Sound District (22%) with the exception of the Security Cove District (16%) which experienced year class strengths similar in magnitude to more northerly stocks.

Trends in mean size at age generally paralleled those noted in previous years (Lebida et al. 1985a). Mean length within an age class did not appear to differ among samples taken by different gear types within the same district (e.g., Tables 7, 11, 16, 19, and 24). However, the mean length for each age class for each district tended to decrease in samples collected progressively northward from Togiak to Norton Sound (Figures 5 and 6). Although not as

Table 1. Age, sex, and size composition of Pacific herring captured by commercial purse seines in Kulukak Section, Togiak District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	1	-	-	1	.2	106	-	1	209	-	1
	4	13	6	-	19	4.6	164	31.9	19	225	8.4	19
5/20- 5/26	5	7	7	-	14	3.4	210	25.5	14	245	7.9	14
	6	23	23	-	46	11.2	262	39.6	46	259	8.8	46
	7	62	79	-	141	34.2	326	46.9	141	279	10.0	141
	8	49	89	-	138	33.5	380	49.2	138	290	8.6	138
	9+	17	36	-	53	12.9	431	50.5	53	303	9.5	53
Period total		172	240	-	412	100.0	339	81.3	412	279	20.7	412

Table 2. Age, sex, and size composition of Pacific herring captured by commercial purse seines in Nunavachak Section, Togiak District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	5	3	-	8	4.5	149	18.9	8	218	9.7	8
5/20- 5/26	5	5	2	-	7	4.0	206	31.6	7	241	6.2	7
	6	11	9	-	20	11.3	266	40.1	20	256	11.9	20
	7	24	38	-	62	35.0	319	45.2	62	272	8.7	62
	8	23	36	-	59	33.3	350	50.8	59	282	8.5	59
	9+	8	13	-	21	11.9	400	60.5	21	294	8.3	21
Period total		76	101	-	177	100.0	321	73.8	177	273	19.2	177

Table 3. Age, sex, and size composition of Pacific herring captured by commercial purse seines in Togiak Section, Togiak District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	2	1	-	3	1.6	171	20.8	3	231	13.3	3
5/20- 5/26	5	-	4	-	4	2.1	227	31.1	4	245	11.9	4
	6	6	10	-	16	8.3	254	33.2	16	259	12.3	16
	7	41	33	-	74	38.5	311	41.4	74	272	8.3	74
	8	29	43	-	72	37.5	349	47.5	72	281	8.4	72
	9+	3	20	-	23	12.0	403	51.0	23	295	8.8	23
Period total		81	111	-	192	100.0	327	62.5	192	276	14.6	192

Table 4. Age, sex, and size composition of Pacific herring captured by commercial purse seines in Hagemeister Section, Togiak District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	2	1	-	3	.6	139	8.3	3	224	1.5	3
5/20- 5/26	5	1	2	-	3	.6	204	20.3	3	241	10.3	3
	6	15	20	-	35	6.9	252	30.4	35	262	9.9	35
	7	55	86	-	141	27.9	320	44.5	141	279	9.6	141
	8	107	140	-	247	48.8	362	43.8	247	287	8.7	247
	9+	29	48	-	77	15.2	407	52.8	77	301	17.1	77
Period total		209	297	-	506	100.0	348	62.0	506	285	15.4	506

Table 5. Age, sex, and size composition of Pacific herring captured by commercial purse seines in Pyrite Point, Togiak District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/20- 5/26	5	-	-	-	-	-	-	-	-	-	-	-
	6	-	-	-	-	-	-	-	-	-	-	-
	7	2	1	-	3	27.3	295	24.7	3	272	5.7	3
	8	3	2	-	5	45.5	366	35.2	5	290	4.6	5
	9+	3	-	-	3	27.3	406	20.0	3	298	4.5	3
Period total		8	3	-	11	100.0	357	50.9	11	287	11.3	11

Table 6. Age, sex, and size composition of Pacific herring captured by commercial purse seines in Cape Newenham Section, Togiak District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/20- 5/26	5	1	1	-	2	4.3	231	18.4	2	251	6.4	2
	6	-	-	-	-	-	-	-	-	-	-	-
	7	5	10	-	15	32.6	324	28.9	15	274	6.8	15
	8	9	17	-	26	56.5	355	39.3	26	282	8.6	26
	9+	2	1	-	3	6.5	423	55.3	3	300	4.0	3
Period total		17	29	-	46	100.0	344	49.4	46	279	11.7	46

Table 7. Age, sex, and size composition of Pacific herring captured by commercial purse seines in Kulukak, Nunavachak, Togiak, Hagemeister, Pyrite Point, and Cape Newenham Sections, Togiak District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	1	-	-	1	.1	106	-	1	209	-	1
	4	22	11	-	33	2.5	159	27.9	33	223	9.3	33
5/20- 5/26	5	14	16	-	30	2.2	212	26.7	30	244	8.1	30
	6	55	62	-	117	8.7	259	36.3	117	259	10.3	117
	7	189	247	-	436	32.4	321	44.5	436	276	9.7	436
	8	220	327	-	547	40.7	363	47.4	547	286	9.1	547
	9+	62	118	-	180	13.4	413	53.2	180	300	13.4	180
Period total		563	781	-	1344	100.0	338	70.2	1344	280	18.0	1344

Table 8. Age, sex, and size composition of Pacific herring captured by commercial gill nets in Kulukak Section, Togiak District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/20- 5/26	5	2	3	-	5	1.2	248	52.2	5	250	13.3	5
	6	24	23	-	47	11.7	283	34.0	47	265	8.8	47
	7	104	78	-	182	45.2	313	37.5	182	274	9.0	182
	8	85	49	-	134	33.3	357	43.7	134	284	8.8	134
	9+	22	13	-	35	8.7	384	52.3	35	293	10.9	35
Period total		237	166	-	403	100.0	330	51.1	403	278	12.2	403

Table 9. Age, sex, and size composition of Pacific herring captured by commercial gill nets in Nunavachak Section, Togiak District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/20- 5/26	5	-	1	-	1	.3	190	-	1	228	-	1
	6	22	18	-	40	11.1	283	39.7	40	264	9.8	40
	7	90	60	-	150	41.6	321	38.9	150	272	8.3	150
	8	72	63	-	135	37.4	353	50.7	135	282	9.3	135
	9+	19	16	-	35	9.7	417	53.0	35	295	9.7	35
Period total		203	158	-	361	100.0	338	56.8	361	277	12.4	361

Table 10. Age, sex, and size composition of Pacific herring captured by commercial gill nets in Togiak Section, Togiak District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	1	-	-	1	.3	142	-	1	222	-	1
5/20- 5/26	5	1	2	-	3	.8	211	68.2	3	241	5.8	3
	6	14	15	-	29	7.8	268	33.5	29	260	6.7	29
	7	76	59	-	135	36.1	313	36.0	135	274	8.2	135
	8	104	65	-	169	45.2	354	46.2	169	281	8.4	169
	9+	24	13	-	37	9.9	400	45.8	37	295	11.5	37
Period total		220	154	-	374	100.0	335	55.3	374	278	12.5	374

Table 11. Age, sex, and size composition of Pacific herring captured by commercial gill nets in Kulukak, Nunavachak, and Togiak Sections, Togiak District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	1	-	-	1	.1	142	-	1	222	-	1
5/20- 5/26	5	3	6	-	9	.8	230	55.4	9	245	12.5	9
	6	60	56	-	116	10.2	279	36.3	116	264	8.8	116
	7	270	197	-	467	41.0	316	37.7	467	273	8.6	467
	8	261	177	-	438	38.5	355	46.8	438	282	8.9	438
	9+	65	42	-	107	9.4	400	51.6	107	294	10.7	107
Period total		660	478	-	1138	100.0	334	54.4	1138	278	12.4	1138

Table 12. Age, sex, and size composition of Pacific herring captured by test purse seines in Kulukak Section, Togiak District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	4	2	-	6	2.9	166	24.6	6	223	11.8	6
5/20- 5/26	5	-	4	-	4	1.9	225	48.6	4	248	16.6	4
	6	10	8	-	18	8.7	252	30.5	18	262	7.2	18
	7	33	29	-	62	30.0	323	40.1	62	281	10.1	62
	8	43	47	-	90	43.5	348	51.4	90	288	7.9	90
	9+	13	14	-	27	13.0	411	72.7	27	304	10.1	27
Period total		103	104	-	207	100.0	333	70.3	207	283	17.8	207
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	8	7	-	15	17.2	150	25.1	15	224	10.1	15
5/27- 6/ 2	5	4	5	-	9	10.3	217	38.7	9	249	12.1	9
	6	3	4	-	7	8.0	243	23.2	7	259	12.0	7
	7	9	15	-	24	27.6	317	39.5	24	278	8.5	24
	8	13	14	-	27	31.0	327	45.7	27	282	8.5	27
	9+	2	3	-	5	5.7	403	57.2	5	299	8.0	5
Period total		39	48	-	87	100.0	280	82.9	87	267	24.9	87
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	12	9	-	21	7.1	155	25.4	21	224	10.3	21
All periods	5	4	9	-	13	4.4	220	40.0	13	249	12.9	13
	6	13	12	-	25	8.5	250	28.5	25	261	8.6	25
	7	42	44	-	86	29.3	322	39.8	86	280	9.7	86
	8	56	61	-	117	39.8	343	50.8	117	286	8.3	117
	9+	15	17	-	32	10.9	410	69.7	32	303	9.8	32
Total		142	152	-	294	100.0	317	78.0	294	278	21.4	294

Table 13. Age, sex, and size composition of Pacific herring captured by test purse seines in Nunavachak Section, Togiak District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	31	55	-	86	19.4	145	21.0	86	218	7.7	86
5/20- 5/26	5	17	20	-	37	8.4	187	25.9	37	238	8.9	37
	6	33	38	-	71	16.0	230	37.3	71	254	10.0	71
	7	60	60	-	120	27.1	286	49.0	120	272	10.3	120
	8	43	58	-	101	22.8	337	53.7	101	284	10.0	101
	9+	11	17	-	28	6.3	414	57.6	28	301	10.5	28
Period total		195	248	-	443	100.0	261	89.7	443	260	27.3	443
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	12	26	-	38	70.4	146	23.7	38	223	7.7	38
5/27- 6/ 2	5	3	3	-	6	11.1	162	26.5	6	234	6.9	6
	6	3	1	-	4	7.4	191	33.8	4	253	10.7	4
	7	2	3	-	5	9.3	255	10.6	5	280	6.2	5
	8	-	1	-	1	1.9	276	-	1	286	-	1
	9+	-	-	-	-	-	-	-	-	-	-	-
Period total		20	34	-	54	100.0	164	42.8	54	233	20.5	54
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	43	81	-	124	24.9	146	21.8	124	220	8.0	124
All periods	5	20	23	-	43	8.7	184	27.2	43	237	8.6	43
	6	36	39	-	75	15.1	228	38.0	75	254	10.0	75
	7	62	63	-	125	25.2	285	48.5	125	272	10.3	125
	8	43	59	-	102	20.5	337	53.8	102	284	9.9	102
	9+	11	17	-	28	5.6	414	57.6	28	301	10.5	28
Total		215	282	-	497	100.0	251	91.1	497	257	28.0	497

Table 14. Age, sex, and size composition of Pacific herring captured by test purse seines in Togiak Section, Togiak District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	5	5	-	10	4.5	154	20.2	10	222	9.4	10
5/20- 5/26	5	2	2	-	4	1.8	190	20.4	4	239	10.2	4
	6	3	9	-	12	5.5	280	25.1	12	262	10.2	12
	7	32	30	-	62	28.2	303	33.3	62	270	8.2	62
	8	49	54	-	103	46.8	366	41.4	103	284	8.3	103
	9+	10	19	-	29	13.2	408	59.8	29	296	11.9	29
Period total		101	119	-	220	100.0	336	71.5	220	277	18.5	220
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	4	11	-	15	33.3	155	25.8	15	227	10.9	15
5/27- 6/ 2	5	1	1	-	2	4.4	186	17.0	2	246	.0	2
	6	4	2	-	6	13.3	233	23.7	6	256	9.3	6
	7	5	5	-	10	22.2	297	29.2	10	274	7.1	10
	8	6	3	-	9	20.0	342	39.4	9	283	9.6	9
	9+	2	1	-	3	6.7	365	38.8	3	294	8.0	3
Period total		22	23	-	45	100.0	250	85.1	45	258	26.0	45
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	9	16	-	25	9.4	155	23.3	25	225	10.5	25
All periods	5	3	3	-	6	2.3	188	17.6	6	241	8.8	6
	6	7	11	-	18	6.8	264	32.9	18	260	10.0	18
	7	37	35	-	72	27.2	302	32.6	72	271	8.1	72
	8	55	57	-	112	42.3	364	41.5	112	284	8.4	112
	9+	12	20	-	32	12.1	404	59.0	32	295	11.5	32
Total		123	142	-	265	100.0	321	80.7	265	274	21.2	265

Table 15. Age, sex, and size composition of Pacific herring by test purse seines in Hagemeister Section, Togiak District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	5	1	-	6	2.4	154	15.0	6	228	5.4	6
5/20- 5/26	5	1	4	-	5	2.0	201	21.7	5	243	3.6	5
	6	16	10	-	26	10.6	268	40.6	26	264	10.9	26
	7	38	42	-	80	32.5	312	39.1	80	277	8.5	80
	8	59	57	-	116	47.2	362	39.6	116	287	8.9	116
	9+	3	10	-	13	5.3	428	63.7	13	304	15.3	13
Period total		122	124	-	246	100.0	331	64.9	246	280	16.2	246

Table 16. Age, sex, and size composition of Pacific herring by test purse seines in Kulukak, Nunavachak, Togiak, and Hagemeister Sections, Togiak District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	45	63	-	108	9.7	148	21.2	108	220	8.3	108
5/20- 5/26	5	20	30	-	50	4.5	192	28.6	50	239	9.6	50
	6	62	65	-	127	11.4	246	40.4	127	258	10.6	127
	7	163	161	-	324	29.0	303	44.5	324	274	10.2	324
	8	194	216	-	410	36.7	354	47.7	410	286	8.9	410
	9+	37	60	-	97	8.7	413	62.9	97	301	11.9	97
Period total		521	595	-	1116	100.0	305	85.3	1116	272	23.9	1116
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	24	44	-	68	36.6	149	24.4	68	224	9.1	68
5/27- 6/ 2	5	8	9	-	17	9.1	194	41.0	17	243	11.7	17
	6	10	7	-	17	9.1	227	32.4	17	257	10.4	17
	7	16	23	-	39	21.0	304	39.9	39	277	8.0	39
	8	19	18	-	37	19.9	329	44.5	37	283	8.5	37
	9+	4	4	-	8	4.3	389	51.9	8	297	7.9	8
Period total		81	105	-	186	100.0	239	89.0	186	255	27.9	186
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	69	107	-	176	13.5	148	22.5	176	221	8.9	176
All periods	5	28	39	-	67	5.1	192	31.9	67	240	10.2	67
	6	72	72	-	144	11.1	243	39.9	144	258	10.6	144
	7	179	184	-	363	27.9	303	44.0	363	275	10.0	363
	8	213	234	-	447	34.3	352	47.9	447	285	8.9	447
	9+	41	64	-	105	8.1	411	62.2	105	300	11.6	105
Total		602	700	-	1302	100.0	295	88.9	1302	270	25.3	1302

Table 17. Age, sex, and size composition of Pacific herring captured by test commercial gill nets in Kulukak Section, Togiak District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/20- 5/26	5	-	-	-	-	-	-	-	-	-	-	-
	6	10	2	-	12	13.3	298	41.4	12	267	7.4	12
	7	24	16	-	40	44.4	337	35.8	40	279	8.1	40
	8	17	11	-	28	31.1	363	35.8	28	286	7.4	28
	9+	8	2	-	10	11.1	404	39.4	10	296	12.4	10
Period total		59	31	-	90	100.0	347	46.2	90	281	11.4	90

Table 18. Age, sex, and size composition of Pacific herring captured by test commercial gill nets in Nunavachak Section, Togiak District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/13- 5/19	5	-	-	-	-	-	-	-	-	-	-	-
	6	-	-	-	-	-	-	-	-	-	-	-
	7	1	3	-	4	16.7	348	33.3	4	280	4.3	4
	8	2	9	-	11	45.8	371	51.4	11	285	9.3	11
	9+	4	5	-	9	37.5	426	36.4	9	301	4.7	9
Period total		7	17	-	24	100.0	387	52.3	24	290	11.0	24
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/20- 5/26	5	-	2	-	2	1.3	247	4.2	2	253	1.4	2
	6	7	10	-	17	10.8	277	32.6	17	267	9.6	17
	7	27	12	-	39	24.8	327	37.2	39	277	9.5	39
	8	49	27	-	76	48.4	363	42.0	76	288	8.9	76
	9+	10	13	-	23	14.6	424	48.4	23	303	18.8	23
Period total		93	64	-	157	100.0	352	58.0	157	285	15.3	157
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
All periods	5	-	2	-	2	1.1	247	4.2	2	253	1.4	2
	6	7	10	-	17	9.4	277	32.6	17	267	9.6	17
	7	28	15	-	43	23.8	329	37.0	43	277	9.2	43
	8	51	36	-	87	48.1	364	43.1	87	287	9.0	87
	9+	14	18	-	32	17.7	424	44.8	32	302	16.1	32
Total		100	81	-	181	100.0	357	58.4	181	285	14.9	181

Table 19. Age, sex, and size composition of Pacific herring captured by test commercial gill nets in Kulukak and Nunavachak Sections, Togiak District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/13- 5/19	5	-	-	-	-	-	-	-	-	-	-	-
	6	-	-	-	-	-	-	-	-	-	-	-
	7	1	3	-	4	16.7	348	33.3	4	280	4.3	4
	8	2	9	-	11	45.8	371	51.4	11	285	9.3	11
	9+	4	5	-	9	37.5	426	36.4	9	301	4.7	9
Period total		7	17	-	24	100.0	387	52.3	24	290	11.0	24
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/20- 5/26	5	-	2	-	2	.8	247	4.2	2	253	1.4	2
	6	17	12	-	29	11.7	286	37.4	29	267	8.6	29
	7	51	28	-	79	32.0	332	36.6	79	278	8.8	79
	8	66	38	-	104	42.1	363	40.3	104	287	8.6	104
	9+	18	15	-	33	13.4	418	46.2	33	301	17.3	33
Period total		152	95	-	247	100.0	350	53.9	247	283	14.1	247
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
All periods	5	-	2	-	2	.7	247	4.2	2	253	1.4	2
	6	17	12	-	29	10.7	286	37.4	29	267	8.6	29
	7	52	31	-	83	30.6	332	36.4	83	278	8.7	83
	8	68	47	-	115	42.4	364	41.3	115	287	8.6	115
	9+	22	20	-	42	15.5	419	44.0	42	301	15.4	42
Total		159	112	-	271	100.0	354	54.7	271	284	14.0	271

Table 20. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Kulukak Section, Togiak District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	2	-	-	2	1.1	161	12.7	2	228	10.6	2
5/13- 5/19	5	1	-	-	1	.5	204	-	1	255	-	1
	6	8	5	-	13	6.9	263	30.3	13	260	8.7	13
	7	34	32	-	66	35.1	328	42.3	66	278	9.5	66
	8	40	37	-	77	41.0	380	34.8	77	287	8.1	77
	9+	24	5	-	29	15.4	424	49.9	29	301	10.7	29
Period total		109	79	-	188	100.0	357	62.4	188	283	15.0	188
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	16	14	-	30	14.4	153	19.3	30	221	7.1	30
5/20- 5/26	5	9	10	-	19	9.1	194	20.3	19	241	7.0	19
	6	14	8	-	22	10.6	227	26.0	22	257	7.9	22
	7	26	26	-	52	25.0	292	47.3	52	274	8.6	52
	8	39	26	-	65	31.3	335	47.8	65	286	9.0	65
	9+	16	4	-	20	9.6	381	60.0	20	299	9.1	20
Period total		120	88	-	208	100.0	278	83.7	208	268	25.8	208
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	1	-	-	1	.5	134	-	1	210	-	1
	4	42	34	-	76	36.5	147	20.2	76	225	8.6	76
5/27- 6/ 2	5	20	5	-	25	12.0	186	29.0	25	241	8.8	25
	6	12	7	-	19	9.1	232	33.0	19	257	10.0	19
	7	31	14	-	45	21.6	295	57.2	45	275	11.5	45
	8	18	11	-	29	13.9	348	44.7	29	288	6.9	29
	9+	6	7	-	13	6.3	426	96.6	13	306	9.6	13
Period total		130	78	-	208	100.0	237	99.5	208	254	29.4	208
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	1	-	-	1	.2	134	-	1	210	-	1
	4	60	48	-	108	17.9	149	20.0	108	224	8.3	108
All periods	5	30	15	-	45	7.5	190	25.5	45	241	8.2	45
	6	34	20	-	54	8.9	237	32.7	54	258	8.8	54
	7	91	72	-	163	27.0	308	51.1	163	276	9.9	163
	8	97	74	-	171	28.3	357	46.5	171	287	8.3	171
	9+	46	16	-	62	10.3	411	67.3	62	302	10.2	62
Total		359	245	-	604	100.0	288	97.2	604	268	27.1	604

Table 21. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Nunavachak Section, Togiak District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/13- 5/19	5	-	-	-	-	-	-	-	-	-	-	-
	6	-	-	-	-	-	-	-	-	-	-	-
	7	-	-	-	-	-	-	-	-	-	-	-
	8	1	-	-	1	100.0	354	-	1	287	-	1
	9+	-	-	-	-	-	-	-	-	-	-	-
Period total		1	-	-	1	100.0	354	-	1	287	-	1
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	1	1	-	2	10.0	166	36.8	2	229	15.6	2
5/27- 6/ 2	5	1	-	-	1	5.0	174	-	1	239	-	1
	6	1	1	-	2	10.0	270	.0	2	262	4.9	2
	7	3	2	-	5	25.0	276	42.6	5	269	8.3	5
	8	5	4	-	9	45.0	307	40.9	9	282	8.4	9
	9+	1	-	-	1	5.0	406	-	1	310	-	1
Period total		12	8	-	20	100.0	280	65.7	20	271	21.2	20
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	1	1	-	2	9.5	166	36.8	2	229	15.6	2
All periods	5	1	-	-	1	4.8	174	-	1	239	-	1
	6	1	1	-	2	9.5	270	.0	2	262	4.9	2
	7	3	2	-	5	23.8	276	42.6	5	269	8.3	5
	8	6	4	-	10	47.6	312	41.3	10	283	8.1	10
	9+	1	-	-	1	4.8	406	-	1	310	-	1
Total		13	8	-	21	100.0	283	66.0	21	272	21.0	21

Table 22. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Togiak Section, Togiak District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	2	3	-	5	3.5	154	16.2	5	227	5.2	5
5/27- 6/ 2	5	-	-	-	-	-	-	-	-	-	-	-
	6	6	4	-	10	7.1	259	51.8	10	266	10.4	10
	7	17	12	-	29	20.6	308	48.3	29	282	9.2	29
	8	45	18	-	63	44.7	345	44.2	63	291	7.3	63
	9+	20	14	-	34	24.1	401	54.2	34	306	10.1	34
Period total		90	51	-	141	100.0	338	70.9	141	289	18.0	141

Table 23. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Hagemeister Section, Togiak District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	3	3	-	6	4.8	135	16.7	6	219	9.0	6
5/13- 5/19	5	1	-	-	1	.8	174	-	1	242	-	1
	6	9	14	-	23	18.5	240	28.8	23	258	9.5	23
	7	20	20	-	40	32.3	293	43.9	40	274	9.5	40
	8	16	25	-	41	33.1	337	53.3	41	285	9.2	41
	9+	4	9	-	13	10.5	408	68.0	13	303	12.2	13
Period total		53	71	-	124	100.0	301	77.4	124	275	20.4	124
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	6	5	-	11	5.1	139	10.1	11	222	4.4	11
5/20- 5/26	5	1	2	-	3	1.4	168	30.2	3	235	9.2	3
	6	9	12	-	21	9.8	247	56.3	21	264	14.3	21
	7	29	27	-	56	26.2	298	44.2	56	280	9.5	56
	8	50	42	-	92	43.0	341	46.7	92	289	9.9	92
	9+	15	16	-	31	14.5	392	61.2	31	306	10.6	31
Period total		110	104	-	214	100.0	315	76.4	214	283	21.4	214
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	1	-	-	1	.7	126	-	1	202	-	1
	4	15	2	-	17	11.2	157	26.7	17	217	8.1	17
5/27- 6/ 2	5	4	3	-	7	4.6	218	40.2	7	248	8.9	7
	6	11	3	-	14	9.2	267	59.1	14	258	9.5	14
	7	32	15	-	47	30.9	295	54.3	47	274	9.2	47
	8	33	18	-	51	33.6	329	47.7	51	285	8.5	51
	9+	9	6	-	15	9.9	363	55.2	15	299	9.5	15
Period total		105	47	-	152	100.0	290	76.8	152	271	24.8	152
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	1	-	-	1	.2	126	-	1	202	-	1
	4	24	10	-	34	6.9	147	22.7	34	219	7.4	34
All periods	5	6	5	-	11	2.2	200	41.8	11	244	9.9	11
	6	29	29	-	58	11.8	249	48.4	58	261	11.7	58
	7	81	62	-	143	29.2	296	47.4	143	276	9.8	143
	8	99	85	-	184	37.6	337	48.5	184	287	9.6	184
	9+	28	31	-	59	12.0	388	62.4	59	304	10.9	59
Total		268	222	-	490	100.0	304	77.3	490	277	22.8	490

Table 24. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Kulukak, Nunavachak, Togiak, and Hagemeister Sections, Togiak District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	5	3	-	8	2.6	141	19.2	8	221	9.4	8
5/13- 5/19	5	2	-	-	2	.6	189	21.2	2	249	9.2	2
	6	17	19	-	36	11.5	248	31.1	36	259	9.2	36
	7	54	52	-	106	33.9	315	46.0	106	276	9.6	106
	8	57	62	-	119	38.0	365	46.4	119	286	8.5	119
	9+	28	14	-	42	13.4	419	55.8	42	302	11.1	42
Period total		163	150	-	313	100.0	335	73.8	313	280	17.8	313
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	22	19	-	41	9.7	150	18.3	41	221	6.4	41
5/20- 5/26	5	10	12	-	22	5.2	190	22.9	22	240	7.4	22
	6	23	20	-	43	10.2	237	44.2	43	261	12.0	43
	7	55	53	-	108	25.6	295	45.6	108	277	9.6	108
	8	89	68	-	157	37.2	338	47.1	157	288	9.7	157
	9+	31	20	-	51	12.1	387	60.4	51	303	10.5	51
Period total		230	192	-	422	100.0	297	82.1	422	275	24.8	422
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	2	-	-	2	.4	130	5.7	2	206	5.7	2
	4	60	40	-	100	19.2	149	21.7	100	224	8.9	100
5/27- 6/ 2	5	25	8	-	33	6.3	193	33.4	33	242	9.1	33
	6	30	15	-	45	8.6	251	47.8	45	260	10.1	45
	7	83	43	-	126	24.2	297	53.6	126	276	10.6	126
	8	101	51	-	152	29.2	338	46.2	152	288	8.3	152
	9+	36	27	-	63	12.1	397	67.3	63	304	10.0	63
Period total		337	184	-	521	100.0	281	94.1	521	269	28.6	521
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	2	-	-	2	.2	130	5.7	2	206	5.7	2
	4	87	62	-	149	11.9	149	20.6	149	223	8.3	149
All periods	5	37	20	-	57	4.5	192	29.0	57	242	8.5	57
	6	70	54	-	124	9.9	245	42.4	124	260	10.5	124
	7	192	148	-	340	27.1	302	49.4	340	276	10.0	340
	8	247	181	-	428	34.1	345	48.0	428	287	8.9	428
	9+	95	61	-	156	12.4	400	63.0	156	303	10.5	156
Total		730	526	-	1256	100.0	300	87.9	1256	274	25.4	1256

Table 25. Age, sex, and size composition of Pacific herring captured by commercial gill nets in Security Cove District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/20- 5/26	5	-	-	-	-	-	-	-	-	-	-	-
	6	3	1	-	4	7.0	284	38.5	4	265	7.2	4
	7	7	15	-	22	38.6	326	44.5	22	279	9.9	22
	8	6	16	-	22	38.6	367	30.8	22	289	6.2	22
	9+	4	5	-	9	15.8	413	50.7	9	303	8.7	9
Period total		20	37	-	57	100.0	353	53.0	57	286	12.9	57
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/27- 6/ 2	5	1	2	-	3	.5	223	39.5	3	253	11.0	3
	6	30	27	-	57	9.3	281	33.3	57	269	11.0	57
	7	91	100	-	191	31.2	309	36.3	191	278	9.5	191
	8	138	147	-	285	46.6	338	38.1	285	288	8.4	285
	9+	35	41	-	76	12.4	357	43.5	76	298	12.5	76
Period total		295	317	-	612	100.0	325	44.1	612	284	12.5	612
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
All periods	5	1	2	-	3	.4	223	39.5	3	253	11.0	3
	6	33	28	-	61	9.1	281	33.3	61	269	10.8	61
	7	98	115	-	213	31.8	310	37.5	213	278	9.5	213
	8	144	163	-	307	45.9	340	38.4	307	288	8.2	307
	9+	39	46	-	85	12.7	363	47.2	85	298	12.2	85
Total		315	354	-	669	100.0	328	45.6	669	284	12.6	669

Table 26. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Security Cove District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	1	-	1	2.4	154	-	1	230	-	1
5/13- 5/19	5	1	-	-	1	2.4	176	-	1	240	-	1
	6	3	6	-	9	21.4	253	32.4	9	264	5.8	9
	7	8	9	-	17	40.5	297	47.2	17	275	7.9	17
	8	4	6	-	10	23.8	317	34.2	10	283	13.2	10
	9+	2	2	-	4	9.5	338	36.0	4	297	7.1	4
Period total		18	24	-	42	100.0	290	53.9	42	275	15.5	42
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	31	11	-	42	11.5	141	21.4	42	225	8.6	42
5/20- 5/26	5	12	12	-	24	6.6	176	35.0	24	238	10.8	24
	6	29	23	-	52	14.2	227	34.2	52	257	9.2	52
	7	48	66	-	114	31.1	296	41.2	114	273	9.0	114
	8	42	63	-	105	28.7	349	37.7	105	287	7.5	105
	9+	14	15	-	29	7.9	409	34.1	29	304	6.5	29
Period total		176	190	-	366	100.0	285	86.1	366	270	24.0	366
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	40	20	-	60	26.3	139	16.5	60	223	15.3	60
5/27- 6/ 2	5	10	12	-	22	9.6	177	27.9	22	241	10.6	22
	6	30	17	-	47	20.6	250	41.3	47	263	12.0	47
	7	28	20	-	48	21.1	273	35.6	48	273	10.0	48
	8	23	20	-	43	18.9	316	37.2	43	286	8.7	43
	9+	5	3	-	8	3.5	326	38.6	8	286	10.8	8
Period total		136	92	-	228	100.0	234	75.7	228	258	26.9	228
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	12	7	-	19	6.6	119	12.7	19	208	6.0	19
	4	64	54	-	118	40.8	133	17.3	118	219	7.4	118
6/ 3- 6/ 9	5	12	5	-	17	5.9	180	34.4	17	245	8.9	17
	6	20	9	-	29	10.0	223	35.5	29	259	7.3	29
	7	27	24	-	51	17.6	276	44.8	51	274	9.2	51
	8	16	24	-	40	13.8	314	43.4	40	283	6.9	40
	9+	6	9	-	15	5.2	355	54.5	15	294	6.2	15
Period total		157	132	-	289	100.0	205	86.2	289	246	30.1	289

-Continued-

Table 26. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Security Cove District, 1985 (continued).

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	12	7	-	19	2.1	119	12.7	19	208	6.0	19
	4	135	86	-	221	23.9	136	18.1	221	221	10.5	221
All periods	5	35	29	-	64	6.9	178	31.7	64	241	10.4	64
	6	82	55	-	137	14.8	236	38.6	137	260	10.2	137
	7	111	119	-	230	24.9	287	42.5	230	274	9.1	230
	8	85	113	-	198	21.4	333	42.0	198	286	8.1	198
	9+	27	29	-	56	6.1	378	52.8	56	298	9.9	56
Total		487	438	-	925	100.0	248	89.5	925	260	28.3	925

Table 27. Age, sex, and size composition of Pacific herring captured by commercial gill nets in Goodnews Bay District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
5/20- 5/26	5	-	-	-	-	-	-	-	-	-	-	-
	6	2	3	-	5	14.3	279	32.9	5	265	16.3	5
	7	4	5	-	9	25.7	289	31.5	9	269	10.6	9
	8	9	10	-	19	54.3	317	36.0	19	278	10.0	19
	9+	1	1	-	2	5.7	305	12.7	2	275	6.4	2
Period total		16	19	-	35	100.0	304	35.9	35	273	11.8	35
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	2	7	-	9	1.6	164	16.1	9	227	5.8	9
5/27- 6/ 2	5	8	6	-	14	2.5	204	44.1	14	244	14.4	14
	6	50	49	-	99	17.7	257	36.2	99	260	12.0	99
	7	78	63	-	141	25.2	292	35.1	141	274	10.4	141
	8	125	104	-	229	41.0	323	40.5	229	283	10.2	229
	9+	37	30	-	67	12.0	365	52.5	67	296	10.4	67
Period total		300	259	-	559	100.0	303	56.5	559	276	17.0	559
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	2	7	-	9	1.5	164	16.1	9	227	5.8	9
All periods	5	8	6	-	14	2.4	204	44.1	14	244	14.4	14
	6	52	52	-	104	17.5	258	36.2	104	260	12.2	104
	7	82	68	-	150	25.3	292	34.8	150	274	10.4	150
	8	134	114	-	248	41.8	323	40.1	248	283	10.3	248
	9+	38	31	-	69	11.6	363	52.8	69	295	10.9	69
Total		316	278	-	594	100.0	303	55.4	594	276	16.7	594

Table 28. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Goodnews Bay District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	1	2	-	3	1.6	162	20.8	3	231	9.2	3
5/20- 5/26	5	1	1	-	2	1.1	205	18.4	2	241	3.5	2
	6	11	7	-	18	9.5	253	50.8	18	260	12.0	18
	7	25	15	-	40	21.1	314	50.6	40	275	14.3	40
	8	62	43	-	105	55.3	342	41.5	105	283	8.6	105
	9+	14	8	-	22	11.6	391	46.2	22	299	10.7	22
Period total		114	76	-	190	100.0	329	60.7	190	280	16.0	190
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	1	-	-	1	.5	102	-	1	201	-	1
	4	32	15	-	47	21.9	141	21.5	47	219	15.4	47
5/27- 6/ 2	5	7	5	-	12	5.6	160	23.1	12	236	11.6	12
	6	17	14	-	31	14.4	239	31.0	31	258	7.3	31
	7	25	14	-	39	18.1	276	46.2	39	271	9.3	39
	8	52	24	-	76	35.3	323	39.1	76	281	8.8	76
	9+	5	4	-	9	4.2	360	58.7	9	298	9.4	9
Period total		139	76	-	215	100.0	254	83.5	215	260	27.8	215
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	1	-	-	1	.4	106	-	1	204	-	1
	4	27	19	-	46	18.2	141	21.5	46	221	9.6	46
6/ 3- 6/ 9	5	12	2	-	14	5.5	190	13.0	14	240	4.6	14
	6	22	20	-	42	16.6	229	28.2	42	256	7.8	42
	7	37	23	-	60	23.7	274	41.3	60	270	10.3	60
	8	46	35	-	81	32.0	318	44.7	81	280	7.9	81
	9+	6	3	-	9	3.6	345	42.1	9	292	6.1	9
Period total		151	102	-	253	100.0	254	76.0	253	261	24.0	253
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	3	1	-	4	2.0	105	9.2	4	203	5.9	4
	4	33	31	-	64	31.8	140	25.9	64	223	10.5	64
6/10- 6/16	5	4	11	-	15	7.5	192	34.7	15	240	8.6	15
	6	10	19	-	29	14.4	239	28.9	29	261	8.7	29
	7	16	16	-	32	15.9	277	36.4	32	276	9.4	32
	8	25	21	-	46	22.9	319	46.7	45	285	8.5	46
	9+	8	3	-	11	5.5	359	56.5	11	295	10.2	11
Period total		99	102	-	201	100.0	232	85.7	200	256	29.3	201

-Continued-

Table 28. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Goodnews Bay District, 1985 (continued).

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	5	1	-	6	.7	105	7.3	6	203	4.6	6
	4	93	67	-	160	18.6	141	23.3	160	221	12.0	160
All periods	5	24	19	-	43	5.0	183	28.8	43	239	8.4	43
	6	60	60	-	120	14.0	238	33.8	120	258	8.8	120
	7	103	68	-	171	19.9	284	46.6	171	273	11.2	171
	8	185	123	-	308	35.9	327	43.7	307	282	8.6	308
	9+	33	18	-	51	5.9	371	52.0	51	297	9.7	51
Total		503	356	-	859	100.0	265	84.8	858	264	26.4	859

Table 29. Age, sex, and size composition of Pacific herring captured by commercial gill nets in Nelson Island District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	1	-	-	1	.2	112	-	1	214	-	1
6/10- 6/16	5	2	2	-	4	.7	194	18.4	4	243	1.7	4
	6	57	58	-	115	20.1	237	26.9	115	259	8.7	115
	7	64	80	-	144	25.2	263	31.3	144	269	9.0	144
	8	117	140	-	257	45.0	288	39.5	257	277	10.8	257
	9+	30	20	-	50	8.8	309	52.0	50	285	14.6	50
Period total		271	300	-	571	100.0	272	43.7	571	272	13.5	571

Table 30. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Nelson Island District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
5/27- 6/ 2	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
	5	-	-	-	-	-	-	-	-	-	-	-
	6	-	-	-	-	-	-	-	-	-	-	-
	7	-	-	-	-	-	-	-	-	-	-	-
	8	1	4	-	5	83.3	274	44.2	5	276	9.1	5
	9+	-	1	-	1	16.7	330	-	1	288	-	1
Period total		1	5	-	6	100.0	284	45.6	6	278	9.5	6
6/ 3- 6/ 9	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	2	2	-	4	6.5	127	17.9	4	214	8.8	4
	5	1	2	-	3	4.8	182	23.1	3	238	15.4	3
	6	1	3	-	4	6.5	247	33.0	4	256	4.1	4
	7	4	8	-	12	19.4	269	35.0	12	267	11.1	12
	8	9	22	-	31	50.0	286	38.2	31	270	8.6	31
	9+	5	3	-	8	12.9	307	80.7	8	276	17.4	8
Period total		22	40	-	62	100.0	268	61.9	62	264	18.6	62
6/10- 6/16	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	22	19	-	41	15.6	126	18.5	41	220	9.4	41
	5	5	7	-	12	4.6	181	20.5	12	243	8.3	12
	6	36	29	-	65	24.8	218	32.5	65	259	10.2	65
	7	24	19	-	43	16.4	254	32.4	43	271	8.5	43
	8	41	37	-	78	29.8	300	49.1	78	280	10.7	78
	9+	15	8	-	23	8.8	347	53.3	23	293	12.9	23
Period total		143	119	-	262	100.0	244	76.5	262	263	24.3	262
6/17- 6/23	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	12	8	-	20	11.0	68	19.0	20	186	11.8	20
	4	21	19	-	40	22.1	128	23.3	40	218	11.6	40
	5	5	2	-	7	3.9	170	28.3	7	240	13.8	7
	6	17	17	-	34	18.8	211	28.1	34	256	9.1	34
	7	14	15	-	29	16.0	247	36.1	29	268	13.8	29
	8	18	27	-	45	24.9	266	43.8	45	272	12.7	45
	9+	5	1	-	6	3.3	303	61.2	6	285	15.0	6
Period total		92	89	-	181	100.0	198	77.9	181	246	32.1	181

-Continued-

Table 30. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Nelson Island District, 1985 (continued).

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	12	8	-	20	3.9	68	19.0	20	186	11.8	20
	4	45	40	-	85	16.6	127	20.7	85	219	10.4	85
All periods	5	11	11	-	22	4.3	178	23.0	22	242	10.8	22
	6	54	49	-	103	20.2	217	31.6	103	258	9.7	103
	7	42	42	-	84	16.4	254	34.4	84	269	10.9	84
	8	69	90	-	159	31.1	287	47.3	159	276	11.8	159
	9+	25	13	-	38	7.4	331	62.1	38	288	15.4	38
Total		258	253	-	511	100.0	231	79.3	511	257	28.0	511

Table 31. Age, sex, and size composition of Pacific herring captured by commercial gill nets in Nunivak Island District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
6/10- 6/16	5	-	4	-	4	.7	197	17.7	4	249	2.2	4
	6	47	52	-	99	17.1	243	31.7	99	262	8.8	99
	7	75	100	-	175	30.2	269	32.1	175	270	8.7	175
	8	122	136	-	258	44.5	283	38.9	258	276	8.6	258
	9+	20	24	-	44	7.6	299	40.1	44	286	8.2	44
Period total		264	316	-	580	100.0	273	39.6	580	272	10.9	580

Table 32. Age, sex, and size composition of Pacific herring captured by commercial gill nets in Cape Romanzof District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	9	9	-	18	4.7	149	15.5	18	225	7.7	18
6/10- 6/16	5	13	11	-	24	6.3	211	33.8	24	247	10.5	24
	6	64	61	-	125	32.6	232	30.9	125	254	11.0	125
	7	57	66	-	123	32.0	261	35.8	123	263	10.9	123
	8	42	35	-	77	20.1	271	37.9	77	267	10.1	77
	9+	9	8	-	17	4.4	317	56.6	17	277	16.4	17
Period total		194	190	-	384	100.0	248	47.0	384	259	14.9	384
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	8	12	-	20	10.1	159	30.7	20	227	14.4	20
6/17- 6/23	5	16	12	-	28	14.1	199	36.6	28	244	13.0	28
	6	41	36	-	77	38.7	227	27.2	77	254	11.1	77
	7	33	15	-	48	24.1	245	39.4	48	261	10.0	48
	8	11	9	-	20	10.1	262	32.9	20	269	11.7	20
	9+	5	1	-	6	3.0	300	39.5	6	272	8.8	6
Period total		114	85	-	199	100.0	226	44.8	199	254	16.1	199
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	17	21	-	38	6.5	154	24.9	38	226	11.6	38
All periods	5	29	23	-	52	8.9	204	35.6	52	245	11.9	52
	6	105	97	-	202	34.6	230	29.6	202	254	11.0	202
	7	90	81	-	171	29.3	256	37.4	171	262	10.6	171
	8	53	44	-	97	16.6	269	37.0	97	267	10.5	97
	9+	14	9	-	23	3.9	313	52.4	23	275	14.8	23
Total		308	275	-	583	100.0	240	47.4	583	257	15.5	583

Table 33. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Cape Romanzof District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
6/ 3- 6/ 9	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	1	-	1	1.9	96	-	1	197	-	1
	4	8	8	-	16	29.6	138	18.0	16	219	7.6	16
	5	1	1	-	2	3.7	169	18.4	2	231	8.5	2
	6	3	9	-	12	22.2	213	29.4	12	246	9.1	12
	7	8	5	-	13	24.1	242	45.7	13	256	11.9	13
	8	8	1	-	9	16.7	254	30.6	9	263	12.0	9
	9+	-	1	-	1	1.9	342	-	1	282	-	1
Period total		28	26	-	54	100.0	203	60.0	54	242	21.2	54
6/10- 6/16	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	1	1	-	2	1.0	78	5.7	2	182	.0	2
	4	27	20	-	47	23.9	138	23.2	47	218	10.7	47
	5	6	6	-	12	6.1	179	36.6	12	234	13.1	12
	6	28	19	-	47	23.9	232	40.3	47	253	13.1	47
	7	19	13	-	32	16.2	242	44.9	32	255	16.6	32
	8	21	30	-	51	25.9	278	44.0	51	266	12.5	51
	9+	1	5	-	6	3.0	308	34.1	6	273	10.8	6
Period total		103	94	-	197	100.0	221	67.6	197	247	23.4	197
6/17- 6/23	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	6	-	-	6	2.1	85	24.0	6	187	18.2	6
	4	31	22	-	53	18.9	130	16.0	53	218	8.9	53
	5	11	9	-	20	7.1	170	30.4	20	238	9.6	20
	6	37	25	-	62	22.1	211	27.1	62	252	9.7	62
	7	27	18	-	45	16.1	254	47.2	45	265	13.0	45
	8	41	38	-	79	28.2	263	35.6	79	268	11.1	79
	9+	10	5	-	15	5.4	279	47.3	15	277	8.7	15
Period total		163	117	-	280	100.0	215	64.2	280	251	24.0	280
All periods	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	7	2	-	9	1.7	84	19.8	9	187	15.0	9
	4	66	50	-	116	21.8	134	19.8	116	218	9.4	116
	5	18	16	-	34	6.4	173	31.8	34	236	10.8	34
	6	68	53	-	121	22.8	219	34.3	121	252	11.2	121
	7	54	36	-	90	16.9	248	46.1	90	260	15.0	90
	8	70	69	-	139	26.2	268	39.2	139	267	11.7	139
	9+	11	11	-	22	4.1	290	45.5	22	276	9.2	22
Total		294	237	-	531	100.0	216	65.1	531	249	23.6	531

Table 34. Age, sex, and size composition of Pacific herring captured by commercial gill nets in St. Michael Subdistrict, Norton Sound District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	3	-	3	.8	152	29.5	3	225	19.7	3
6/17- 6/23	5	7	13	-	20	5.0	207	21.2	20	243	10.2	20
	6	86	96	-	182	45.8	223	22.1	181	252	6.9	182
	7	38	32	-	70	17.6	244	27.5	70	260	8.9	70
	8	59	46	-	105	26.4	258	26.3	105	265	8.7	105
	9+	10	7	-	17	4.3	285	34.4	17	273	12.7	17
Period total		200	197	-	397	100.0	237	32.0	396	257	11.3	397

Table 35. Age, sex, and size composition of Pacific herring captured by commercial gill nets to Unalakleet Subdistrict, Norton Sound District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	1	-	1	1.6	140	-	1	216	-	1
6/10- 6/16	5	4	5	-	9	14.8	192	39.5	9	240	15.5	9
	6	13	22	-	35	57.4	221	25.2	35	248	8.0	32
	7	3	3	-	6	9.8	259	38.1	6	260	10.6	6
	8	3	6	-	9	14.8	263	18.5	9	261	4.3	9
	9+	1	-	-	1	1.6	328	-	1	291	-	1
Period total		24	37	-	61	100.0	227	39.1	61	250	13.3	58
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
6/17- 6/23	5	3	2	-	5	2.7	172	15.9	5	230	7.5	5
	6	39	47	-	86	45.7	226	29.1	86	251	8.7	86
	7	21	19	-	40	21.3	248	28.7	40	257	9.1	40
	8	28	23	-	51	27.1	267	36.8	51	263	10.3	51
	9+	2	4	-	6	3.2	333	45.0	6	276	13.5	6
Period total		93	95	-	188	100.0	244	40.7	188	256	11.9	188
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	1	-	1	.4	140	-	1	216	-	1
All periods	5	7	7	-	14	5.6	185	33.8	14	237	13.9	14
	6	52	69	-	121	48.6	225	28.0	121	250	8.6	118
	7	24	22	-	46	18.5	249	29.8	46	258	9.2	46
	8	31	29	-	60	24.1	266	34.6	60	262	9.6	60
	9+	3	4	-	7	2.8	332	41.1	7	278	13.6	7
Total		117	132	-	249	100.0	240	40.9	249	254	12.5	246

Table 36. Age, sex, and size composition of Pacific herring captured by commercial gill nets in Cape Denbigh Subdistrict, Norton Sound District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	5	4	-	9	4.4	148	13.6	9	225	8.2	9
6/10- 6/16	5	12	5	-	17	8.3	182	19.2	17	237	7.4	17
	6	56	41	-	97	47.3	216	22.8	97	250	8.3	97
	7	16	10	-	26	12.7	235	28.4	26	258	9.2	26
	8	26	22	-	48	23.4	253	27.1	48	263	7.9	48
	9+	6	2	-	8	3.9	294	50.9	8	273	13.2	8
Period total		121	84	-	205	100.0	224	38.4	205	253	13.1	205
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	1	-	-	1	.2	140	-	1	218	-	1
6/17- 6/23	5	4	5	-	9	2.2	188	10.3	9	241	4.1	9
	6	57	71	-	128	30.9	224	22.0	128	253	7.6	128
	7	34	27	-	61	14.7	244	28.8	61	261	9.5	61
	8	82	102	-	184	44.4	263	25.2	184	266	7.7	184
	9+	12	19	-	31	7.5	287	34.7	31	274	10.0	31
Period total		190	224	-	414	100.0	248	33.8	414	261	11.2	414
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	6	4	-	10	1.6	147	13.1	10	225	8.0	10
All periods	5	16	10	-	26	4.2	184	16.8	26	238	6.6	26
	6	113	112	-	225	36.3	221	22.6	225	252	8.0	225
	7	50	37	-	87	14.1	241	28.8	87	260	9.5	87
	8	108	124	-	232	37.5	261	25.9	232	266	7.9	232
	9+	18	21	-	39	6.3	288	37.9	39	274	10.6	39
Total		311	308	-	619	100.0	240	37.1	619	258	12.5	619

Table 37. Age, sex, and size composition of Pacific herring captured by commercial gill nets in St. Michael, Unalakleet, and Cape Denbigh Subdistricts, Norton Sound District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	5	5	-	10	3.8	147	13.1	10	224	8.2	10
6/10- 6/16	5	16	10	-	26	9.8	185	27.6	26	238	10.7	26
	6	69	63	-	132	49.6	218	23.4	132	250	8.3	129
	7	19	13	-	32	12.0	240	31.2	32	258	9.3	32
	8	29	28	-	57	21.4	255	26.1	57	263	7.4	57
	9+	7	2	-	9	3.4	298	49.0	9	275	13.8	9
Period total		145	121	-	266	100.0	225	38.5	266	252	13.2	263
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	1	3	-	4	.4	149	24.8	4	223	16.4	4
6/17- 6/23	5	14	20	-	34	3.4	197	22.3	34	240	9.6	34
	6	182	214	-	396	39.6	224	23.7	395	252	7.5	396
	7	93	78	-	171	17.1	245	28.1	171	260	9.2	171
	8	169	171	-	340	34.0	262	27.7	340	265	8.5	340
	9+	24	30	-	54	5.4	291	38.1	54	274	11.1	54
Period total		483	516	-	999	100.0	243	34.8	998	258	11.6	999
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	6	8	-	14	1.1	148	16.2	14	224	10.5	14
All periods	5	30	30	-	60	4.7	192	25.2	60	240	10.0	60
	6	251	277	-	528	41.7	223	23.8	527	251	7.8	525
	7	112	91	-	203	16.0	244	28.6	203	259	9.2	203
	8	198	199	-	397	31.4	261	27.5	397	265	8.4	397
	9+	31	32	-	63	5.0	292	39.4	63	274	11.4	63
Total		628	637	-	1265	100.0	239	36.4	1264	257	12.2	1262

Table 38. Age, sex, and size composition of Pacific herring captured by commercial beach seines in Unalakleet and Cape Denbigh Subdistricts, Norton Sound District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	40	32	-	72	18.4	139	26.8	70	217	8.9	71
6/17- 6/23	5	55	31	-	86	22.0	172	27.3	86	233	10.2	86
	6	81	101	-	182	46.5	204	25.6	182	244	11.1	182
	7	27	11	-	38	9.7	221	32.3	38	250	11.5	38
	8	4	7	-	11	2.8	254	35.4	11	261	9.5	11
	9+	1	1	-	2	.5	263	49.5	2	263	20.5	2
Period total		208	183	-	391	100.0	189	40.2	389	237	15.6	390

Table 39. Age, sex, and size composition of Pacific herring captured by test commercial gill nets in Unalakleet Subdistrict, Norton Sound District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
6/ 3- 6/ 9	5	1	4	-	5	4.9	218	20.0	5	242	7.2	5
	6	26	27	-	53	51.5	231	20.8	53	245	32.1	53
	7	17	8	-	25	24.3	243	22.8	25	255	8.5	25
	8	8	7	-	15	14.6	268	15.6	15	262	7.5	15
	9+	3	2	-	5	4.9	297	61.0	5	272	14.6	5
Period total		55	48	-	103	100.0	242	29.7	103	251	25.0	103

Table 40. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in St. Michael Subdistrict, Norton Sound District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
6/ 3- 6/ 9	5	1	1	-	2	100.0	211	38.2	2	247	7.1	2
	6	-	-	-	-	-	-	-	-	-	-	-
	7	-	-	-	-	-	-	-	-	-	-	-
	8	-	-	-	-	-	-	-	-	-	-	-
	9+	-	-	-	-	-	-	-	-	-	-	-
Period total		1	1	-	2	100.0	211	38.2	2	247	7.1	2
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
6/10- 6/16	5	2	-	-	2	28.6	166	5.7	2	231	2.8	2
	6	1	1	-	2	28.6	212	11.3	2	246	12.0	2
	7	-	2	-	2	28.6	240	19.8	2	244	16.3	2
	8	1	-	-	1	14.3	286	-	1	266	-	1
	9+	-	-	-	-	-	-	-	-	-	-	-
Period total		4	3	-	7	100.0	217	44.0	7	244	14.4	7
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	1	-	-	1	.4	66	-	1	177	-	1
	4	33	49	-	82	36.4	125	17.7	82	211	12.6	82
6/17- 6/23	5	27	15	-	42	18.7	161	25.0	42	231	9.1	42
	6	32	17	-	49	21.8	194	23.5	49	245	8.6	49
	7	11	13	-	24	10.7	217	28.2	24	250	9.7	24
	8	16	9	-	25	11.1	221	30.8	25	256	13.6	25
	9+	1	1	-	2	.9	256	33.9	2	265	14.1	2
Period total		121	104	-	225	100.0	168	45.3	225	232	21.0	225
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	4	5	-	9	3.5	72	7.5	9	183	4.3	9
	4	23	15	-	38	14.9	126	16.4	38	218	8.3	38
6/24- 6/30	5	20	9	-	29	11.4	159	19.5	29	234	10.5	29
	6	51	36	-	87	34.1	195	30.5	87	250	8.5	87
	7	14	12	-	26	10.2	217	31.3	26	258	9.5	26
	8	30	22	-	52	20.4	243	28.6	52	266	9.2	52
	9+	3	11	-	14	5.5	262	48.2	14	273	12.2	14
Period total		145	110	-	255	100.0	192	54.0	255	246	22.3	255

-Continued-

Table 40. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in St. Michael Subdistrict, Norton Sound District, 1985 (continued).

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	5	5	-	10	2.0	71	7.3	10	182	4.5	10
	4	56	64	-	120	24.5	126	17.3	120	213	11.7	120
All periods	5	50	25	-	75	15.3	162	24.1	75	232	9.9	75
	6	84	54	-	138	28.2	195	28.0	138	248	8.8	138
	7	25	27	-	52	10.6	218	29.4	52	254	10.5	52
	8	47	31	-	78	16.0	237	31.1	78	263	11.5	78
	9+	4	12	-	16	3.3	261	45.8	16	272	12.2	16
Total		271	218	-	489	100.0	181	51.5	489	240	22.7	489

Table 41. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Unalakleet Subdistrict, Norton Sound District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	12	2	-	14	33.3	61	7.6	14	173	6.3	14
	4	2	-	-	2	4.8	114	42.4	2	211	18.4	2
6/ 3- 6/ 9	5	-	4	-	4	9.5	166	26.8	4	225	8.3	4
	6	4	5	-	9	21.4	203	31.0	9	245	8.0	9
	7	1	-	-	1	2.4	246	-	1	261	-	1
	8	6	5	-	11	26.2	190	33.4	11	244	11.4	11
	9+	-	1	-	1	2.4	174	-	1	248	-	1
Period total		25	17	-	42	100.0	145	67.9	42	218	34.2	42
	1	-	-	-	-	-	-	-	-	-	-	-
	2	1	-	-	1	.4	16	-	1	118	-	1
	3	5	3	-	8	2.9	67	26.6	8	177	14.8	8
	4	12	17	-	29	10.4	140	20.8	29	217	10.5	29
6/10- 6/16	5	27	22	-	49	17.6	183	25.1	49	234	9.3	49
	6	80	64	-	144	51.6	216	25.5	142	246	8.0	142
	7	11	5	-	16	5.7	237	30.2	16	254	7.7	16
	8	17	8	-	25	9.0	248	49.3	25	258	12.6	25
	9+	6	1	-	7	2.5	332	28.5	7	282	6.9	7
Period total		159	120	-	279	100.0	204	51.8	277	241	20.5	277
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	3	-	-	3	1.6	88	59.8	3	167	2.9	3
	4	22	22	-	44	23.3	125	24.9	44	211	11.1	44
6/17- 6/23	5	16	6	-	22	11.6	163	33.7	22	227	11.3	22
	6	28	33	-	61	32.3	207	33.1	61	244	11.3	61
	7	8	14	-	22	11.6	241	22.9	22	258	9.5	22
	8	16	16	-	32	16.9	254	36.6	32	259	12.4	32
	9+	3	2	-	5	2.6	331	56.1	5	279	21.0	5
Period total		96	93	-	189	100.0	196	61.9	189	238	23.8	189
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	4	5	-	9	27.3	73	7.5	9	180	6.1	9
	4	5	2	-	7	21.2	121	22.7	7	210	13.5	7
6/24- 6/30	5	3	-	-	3	9.1	144	8.7	3	225	5.0	3
	6	4	1	-	5	15.2	213	50.7	5	228	43.7	5
	7	1	-	-	1	3.0	214	-	1	258	-	1
	8	4	2	-	6	18.2	242	43.5	6	266	8.3	6
	9+	2	-	-	2	6.1	239	46.7	2	271	23.3	2
Period total		23	10	-	33	100.0	156	73.7	33	221	37.4	33

-Continued-

Table 41. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Unalakleet Subdistrict, Norton Sound District, 1985 (continued).

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	1	-	-	1	.2	16	-	1	118	-	1
	3	24	10	-	34	6.3	68	21.6	34	175	9.3	34
	4	41	41	-	82	15.1	130	24.5	82	213	11.4	82
All periods	5	46	32	-	78	14.4	175	29.3	78	231	10.3	78
	6	116	103	-	219	40.3	213	28.9	217	245	11.1	217
	7	21	19	-	40	7.4	239	25.6	40	257	8.7	40
	8	43	31	-	74	13.6	241	46.2	74	257	13.1	74
	9+	11	4	-	15	2.8	309	62.0	15	277	16.3	15
Total		303	240	-	543	100.0	194	60.9	541	237	25.3	541

Table 42. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Cape Denbigh Subdistricts, Norton Sound District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	1	-	-	1	.5	61	-	1	177	-	1
	4	10	23	-	33	15.8	126	13.6	33	211	7.0	33
6/ 3- 6/ 9	5	12	21	-	33	15.8	180	25.1	33	235	10.1	33
	6	48	32	-	80	38.3	214	26.2	80	246	9.1	80
	7	16	5	-	21	10.0	240	29.6	21	255	9.1	21
	8	21	18	-	39	18.7	263	39.8	39	261	10.8	39
	9+	1	1	-	2	1.0	309	6.4	2	277	2.1	2
Period total		109	100	-	209	100.0	206	53.3	209	243	19.1	209
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	11	3	-	14	6.3	62	10.8	14	175	8.5	14
	4	12	12	-	24	10.7	130	12.8	24	213	6.4	24
6/10- 6/16	5	25	20	-	45	20.1	172	21.2	45	233	7.3	45
	6	53	35	-	88	39.3	212	25.9	88	246	7.0	88
	7	13	14	-	27	12.1	225	26.8	27	255	7.5	27
	8	11	8	-	19	8.5	275	25.1	19	265	6.4	19
	9+	5	2	-	7	3.1	271	29.8	7	264	8.2	7
Period total		130	94	-	224	100.0	195	56.0	224	239	22.7	224
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	9	-	-	9	3.8	70	16.1	9	183	12.6	9
	4	26	22	-	48	20.0	123	14.6	48	214	7.5	48
6/17- 6/23	5	14	11	-	25	10.4	167	29.0	25	233	12.8	25
	6	37	36	-	73	30.4	206	22.2	73	247	7.9	73
	7	16	13	-	29	12.1	229	30.1	29	257	8.2	29
	8	28	20	-	48	20.0	253	28.3	48	262	8.9	48
	9+	5	3	-	8	3.3	271	41.7	8	270	11.7	8
Period total		135	105	-	240	100.0	195	58.0	240	242	22.9	240
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	4	2	-	6	2.9	78	15.0	6	188	10.2	6
	4	21	13	-	34	16.4	122	15.4	34	212	8.8	34
6/24- 6/30	5	11	6	-	17	8.2	157	20.5	17	233	11.9	17
	6	27	19	-	46	22.2	198	30.7	46	248	8.9	46
	7	15	7	-	22	10.6	224	23.0	22	256	8.2	22
	8	39	30	-	69	33.3	238	31.3	69	260	9.2	69
	9+	8	5	-	13	6.3	264	41.0	13	265	11.1	13
Period total		125	82	-	207	100.0	199	56.2	207	245	22.0	207

-Continued-

Table 42. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in Cape Denbigh Subdistricts, Norton Sound District, 1985 (continued).

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	25	5	-	30	3.4	68	14.2	30	180	10.9	30
	4	69	70	-	139	15.8	125	14.4	139	213	7.5	139
All periods	5	62	58	-	120	13.6	171	24.9	120	234	10.0	120
	6	165	122	-	287	32.6	209	26.4	287	247	8.1	287
	7	60	39	-	99	11.3	229	27.9	99	256	8.2	99
	8	99	76	-	175	19.9	252	34.2	175	262	9.3	175
	9+	19	11	-	30	3.4	270	37.7	30	267	10.5	30
Total		499	381	-	880	100.0	198	56.1	880	242	21.9	880

Table 43. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in St. Michael, Unalakleet, and Cape Denbigh Subdistricts, Norton Sound District, 1985.

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	13	2	-	15	5.9	61	7.3	15	173	6.2	15
	4	12	23	-	35	13.8	125	15.3	35	211	7.4	35
6/ 3- 6/ 9	5	13	26	-	39	15.4	180	26.5	39	235	10.6	39
	6	52	37	-	89	35.2	212	26.8	89	246	8.9	89
	7	17	5	-	22	8.7	240	28.9	22	255	9.0	22
	8	27	23	-	50	19.8	247	49.0	50	258	13.0	50
	9+	1	2	-	3	1.2	264	77.8	3	267	16.5	3
Period total		135	118	-	253	100.0	196	60.2	253	239	24.1	253
	1	-	-	-	-	-	-	-	-	-	-	-
	2	1	-	-	1	.2	16	-	1	118	-	1
	3	16	6	-	22	4.3	64	17.7	22	176	10.9	22
	4	24	29	-	53	10.4	135	18.2	53	215	9.0	53
6/10- 6/16	5	54	42	-	96	18.8	178	23.6	96	233	8.3	96
	6	134	100	-	234	45.9	214	25.6	232	246	7.7	232
	7	24	21	-	45	8.8	230	28.0	45	254	8.1	45
	8	29	16	-	45	8.8	260	42.2	45	261	10.9	45
	9+	11	3	-	14	2.7	301	42.1	14	273	12.0	14
Period total		293	217	-	510	100.0	200	53.8	508	240	21.4	508
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	13	-	-	13	2.0	74	28.9	13	179	12.6	13
	4	81	93	-	174	26.6	125	19.0	174	212	11.0	174
6/17- 6/23	5	57	32	-	89	13.6	163	28.3	89	230	10.9	89
	6	97	86	-	183	28.0	203	27.1	183	246	9.4	183
	7	35	40	-	75	11.5	229	28.7	75	255	9.6	75
	8	60	45	-	105	16.1	246	34.2	105	260	11.4	105
	9+	9	6	-	15	2.3	289	53.1	15	272	15.3	15
Period total		352	302	-	654	100.0	186	56.6	654	237	22.9	654
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	12	12	-	24	4.8	74	9.7	24	183	7.2	24
	4	49	30	-	79	16.0	124	16.5	79	215	9.4	79
6/24- 6/30	5	34	15	-	49	9.9	157	19.4	49	233	10.8	49
	6	82	56	-	138	27.9	196	31.3	138	248	12.0	138
	7	30	19	-	49	9.9	220	27.5	49	257	8.8	49
	8	73	54	-	127	25.7	240	30.6	127	263	9.5	127
	9+	13	16	-	29	5.9	261	43.8	29	269	12.5	29
Period total		293	202	-	495	100.0	192	57.2	495	244	24.3	495

-Continued-

Table 43. Age, sex, and size composition of Pacific herring captured by variable mesh gill nets in St. Michael, Unalakleet, and Cape Denbigh Subdistricts, Norton Sound District, 1985 (continued).

Sample Period	Age (years)	Sex: Male	Sex: Female	Sex: Unknown	Total	Percent of Total	Weight: Mean (gm)	Weight: Std. Dev.	Weight: Number Weighed	Std. Length: Mean (mm)	Std. Length: Std. Dev.	Std. Length: Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	1	-	-	1	.1	16	-	1	118	-	1
	3	54	20	-	74	3.9	68	17.3	74	178	9.9	74
	4	166	175	-	341	17.8	126	18.3	341	213	10.1	341
All periods	5	158	115	-	273	14.3	170	26.4	273	233	10.1	273
	6	365	279	-	644	33.7	207	28.3	642	247	9.4	642
	7	106	85	-	191	10.0	228	28.6	191	256	9.0	191
	8	189	138	-	327	17.1	246	37.1	327	261	11.0	327
	9+	34	27	-	61	3.2	277	49.5	61	271	13.1	61
Total		1073	839	-	1912	100.0	193	56.8	1910	240	23.2	1910

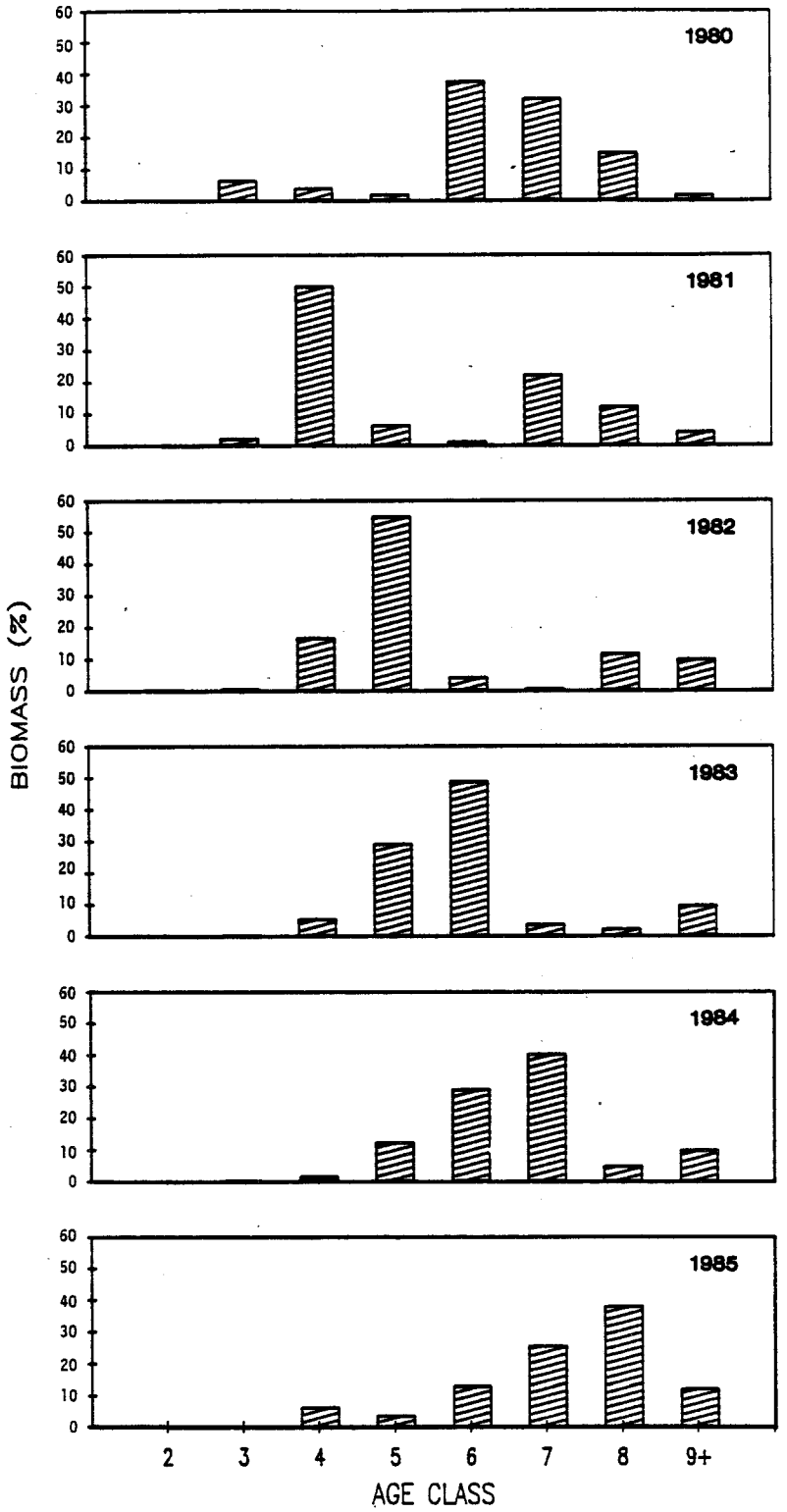

Figure 3. Age class composition of the combined Pacific herring spawning biomass from selected commercial fishing districts (Togiak to Norton Sound inclusive), eastern Bering Sea, Alaska, 1980-1985.

Table 44. Age composition of Pacific herring total run, commercial harvest, and escapement in eastern Bering Sea fishing districts, Alaska, 1985.

Age	Togiak		Security Cove		Goodnews Bay		Nelson Island		Nunivak Island 3/		Cape Romanzof		Norton Sound 4/		Total 4/	
	% 1/	mt 2/	%	mt	%	mt	%	mt	%	mt	%	mt	%	mt	%	mt
Total Run																
3	+ 5/	37	0.8	37	0.2	9	1.1	90	1.1	56	0.5	34	1.1	204	0.3	467
4	5.3	6,310	11.2	496	8.4	327	8.2	708	8.6	443	11.8	750	9.8	1,783	6.5	10,817
5	2.7	3,285	4.3	190	3.1	122	3.0	261	3.1	163	5.6	355	11.2	2,026	3.9	6,402
6	8.3	9,856	13.2	585	12.9	504	18.8	1,620	18.7	967	25.0	1,587	36.6	6,644	13.1	21,763
7	28.8	34,314	29.0	1,289	21.8	851	18.7	1,614	18.8	973	21.7	1,375	12.5	2,273	25.7	42,689
8	40.7	48,504	31.5	1,404	44.3	1,726	39.6	3,412	39.2	2,024	29.9	1,900	23.9	4,331	38.2	63,301
9+	14.2	16,878	10.0	443	9.3	361	10.6	912	10.5	544	5.5	348	4.9	880	12.3	20,366
Total	100.0	119,184	100.0	4,444	100.0	3,900	100.0	8,617	100.0	5,170	100.0	6,349	100.0	18,141	100.0	165,805
Commercial Harvest																
3	+	5	-	-	-	-	-	-	-	-	-	-	-	-	+	5
4	1.0	225	-	-	0.8	5	0.1	1	-	-	4.2	49	1.3	43	1.1	323
5	1.2	293	0.3	2	1.6	10	0.5	4	0.6	2	7.6	89	4.6	148	1.8	548
6	7.0	1,638	7.8	52	14.9	98	17.5	155	15.1	49	33.2	391	38.8	1,247	11.9	3,630
7	32.2	7,545	30.1	200	24.3	160	24.4	216	29.8	97	31.3	368	15.8	510	30.0	9,096
8	43.2	10,128	47.6	317	44.5	292	47.6	422	46.2	150	18.6	220	33.4	1,075	41.5	12,604
9+	15.4	3,627	14.1	94	13.9	91	9.9	88	8.3	27	5.1	61	6.1	196	13.7	4,184
Total	100.0	23,461	100.0	665	100.0	656	100.0	886	100.0	325	100.0	1,178	100.0	3,219	100.0	30,390
Escapement																
3	+	32	1.0	37	0.3	10	1.2	90	1.2	56	0.6	34	1.4	204	0.3	463
4	6.4	6,085	13.1	496	9.9	321	9.1	707	9.1	443	13.6	701	11.6	1,739	7.8	10,492
5	3.1	2,992	5.0	188	3.5	112	3.3	257	3.3	161	5.1	266	12.6	1,879	4.3	5,855
6	8.6	8,218	14.1	533	12.5	407	18.9	1,465	18.9	918	23.1	1,195	36.2	5,397	13.4	18,133
7	28.0	26,769	28.8	1,089	21.3	691	18.1	1,398	18.1	876	19.5	1,007	11.8	1,763	24.8	33,593
8	40.1	38,376	28.8	1,087	44.2	1,434	38.7	2,990	38.7	1,874	32.5	1,680	21.8	3,256	37.4	50,697
9+	13.8	13,251	9.2	349	8.3	269	10.7	824	10.7	517	5.6	288	4.6	684	12.0	16,182
Total	100.0	95,723	100.0	3,779	100.0	3,244	100.0	7,731	100.0	4,845	100.0	5,171	100.0	14,922	100.0	135,415

1/ Percent by weight.
2/ Metric tons.
3/ Percent escapement based on Nelson Island percent escapement.
4/ Includes trace amount of age 2 herring.
5/ Trace.

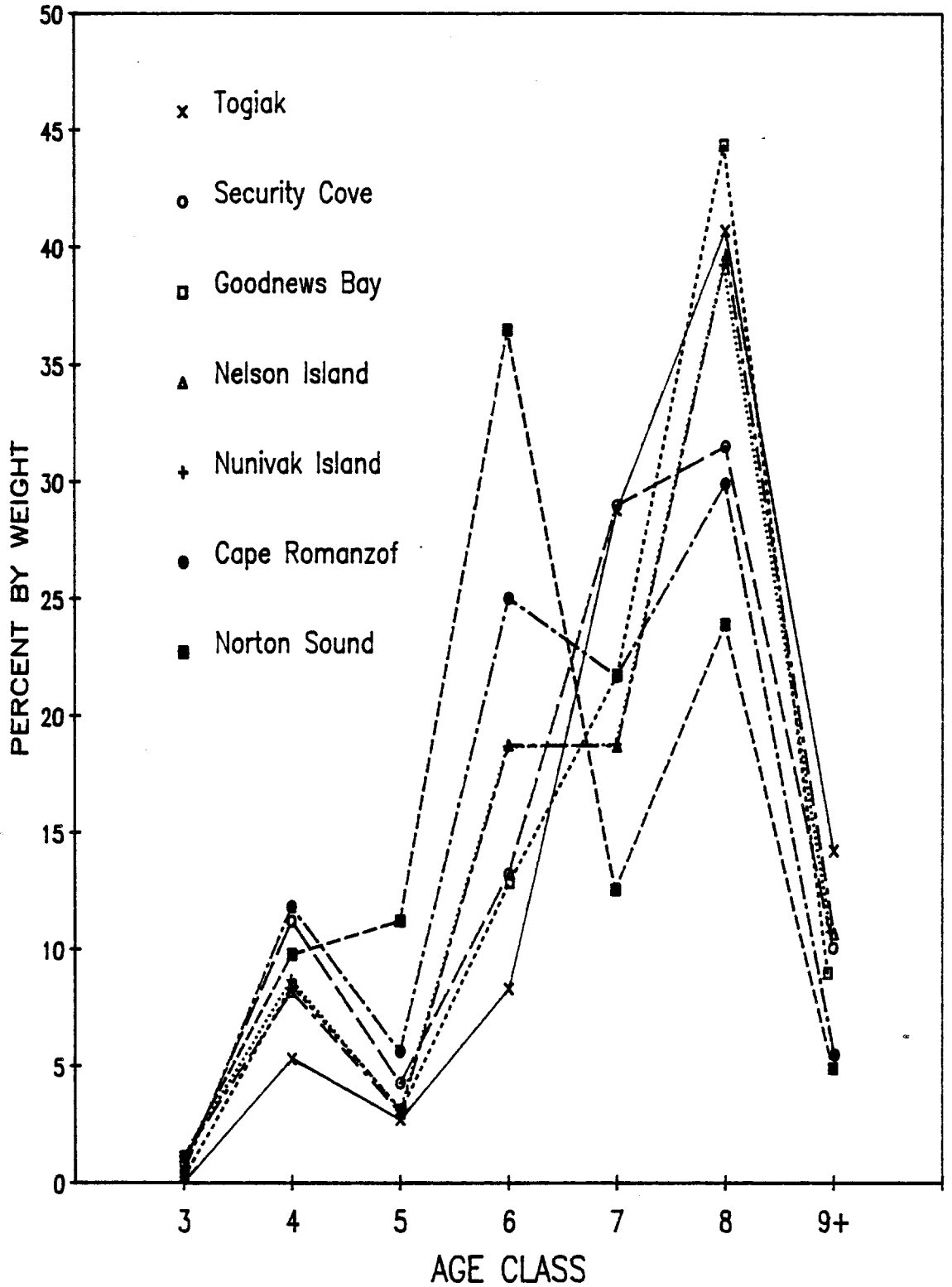

Figure 4. Age class composition of the Pacific herring spawning biomass by commercial fishing district, eastern Bering Sea, Alaska, 1985.

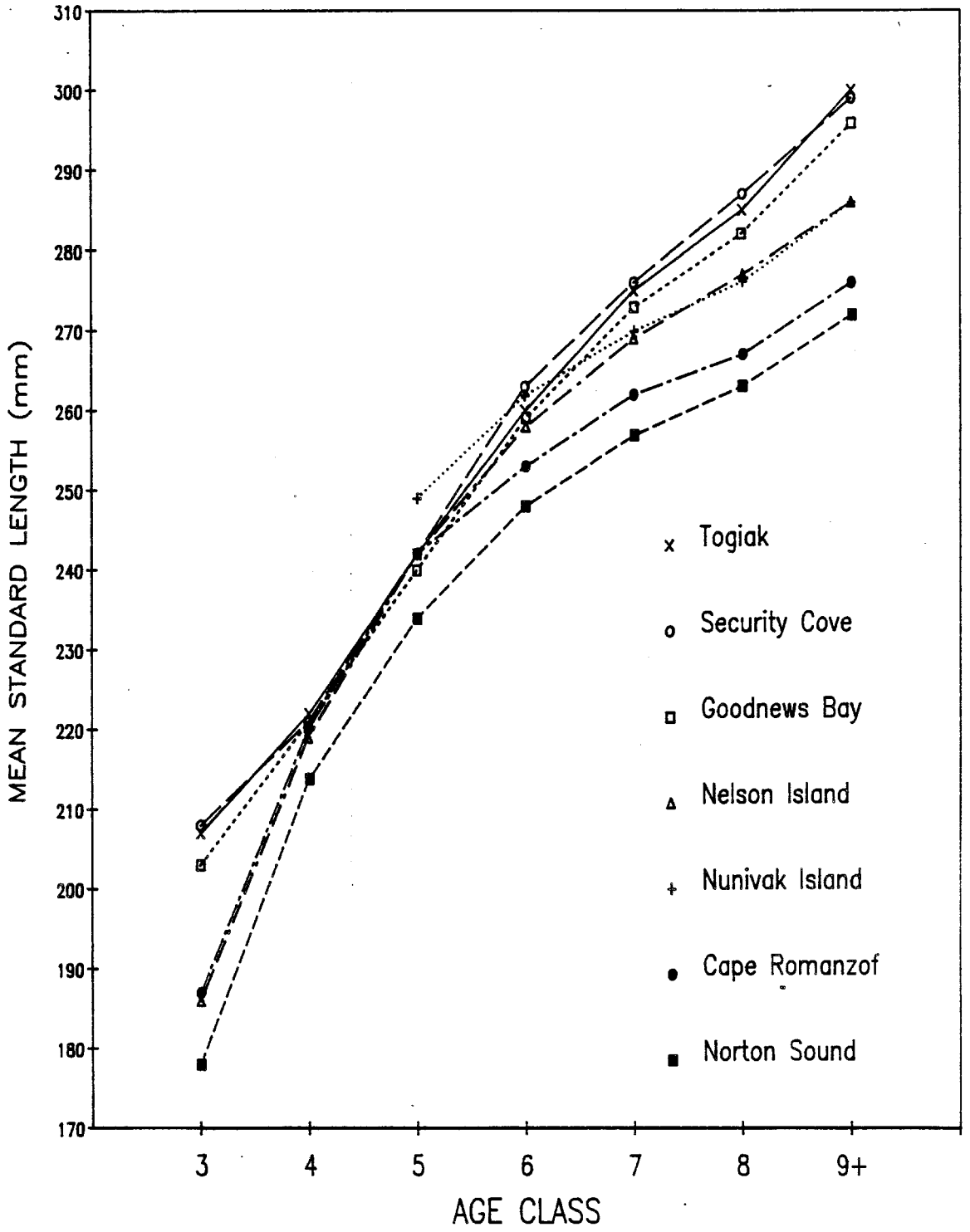

Figure 5. Mean standard length of sampled Pacific herring by age class and commercial fishing district, eastern Bering Sea, Alaska, 1985.

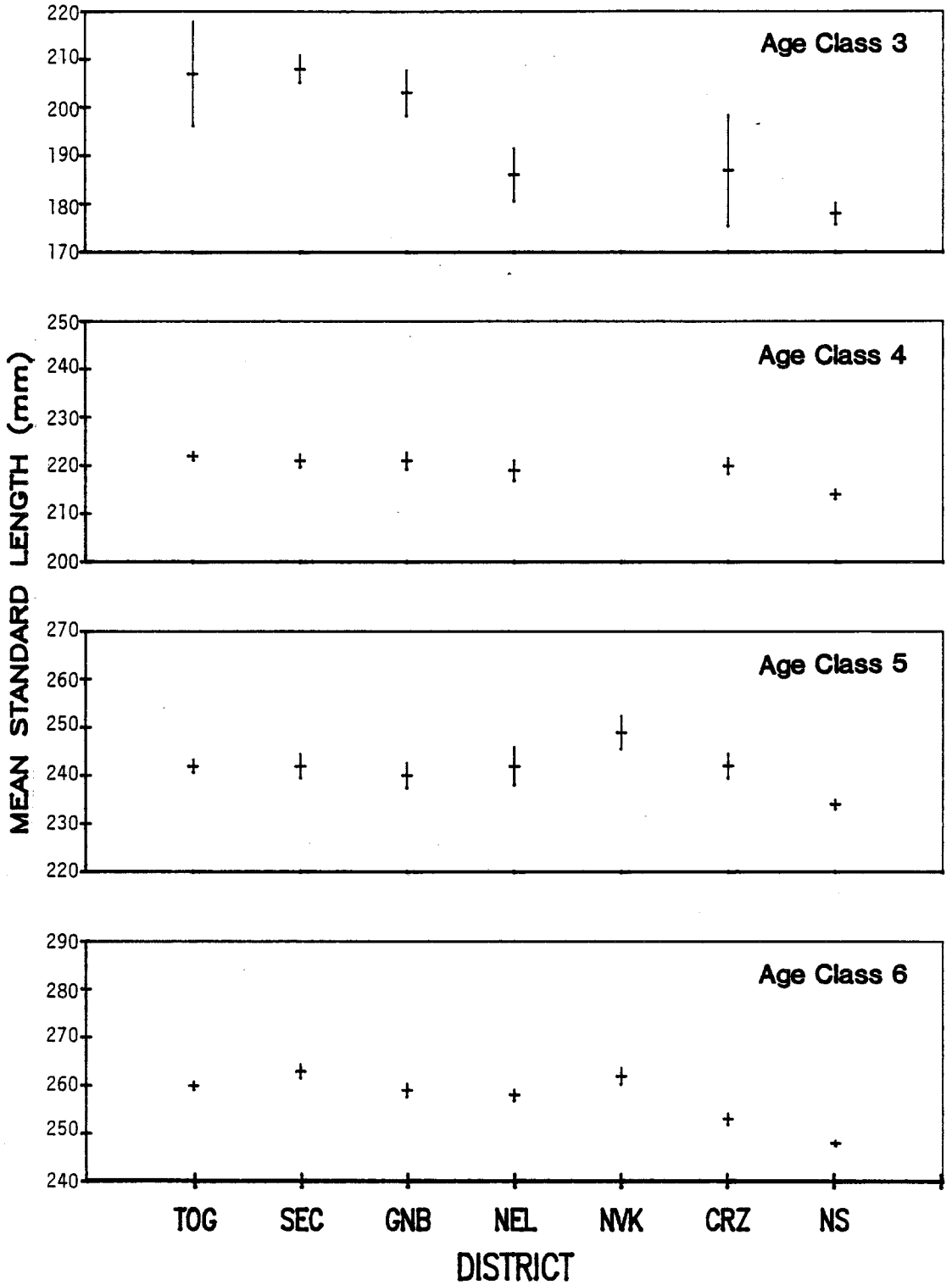

Figure 6. Mean standard length and associated 95% confidence interval of sampled Pacific herring by age class and commercial fishing district (TOG = Togiak, SEC = Security Cove, GNB = Goodnews Bay, NEL = Nelson Island, NVK = Nunivak Island, CRZ - Cape Romanzof, NS = Norton Sound), eastern Bering Sea, Alaska, 1985.

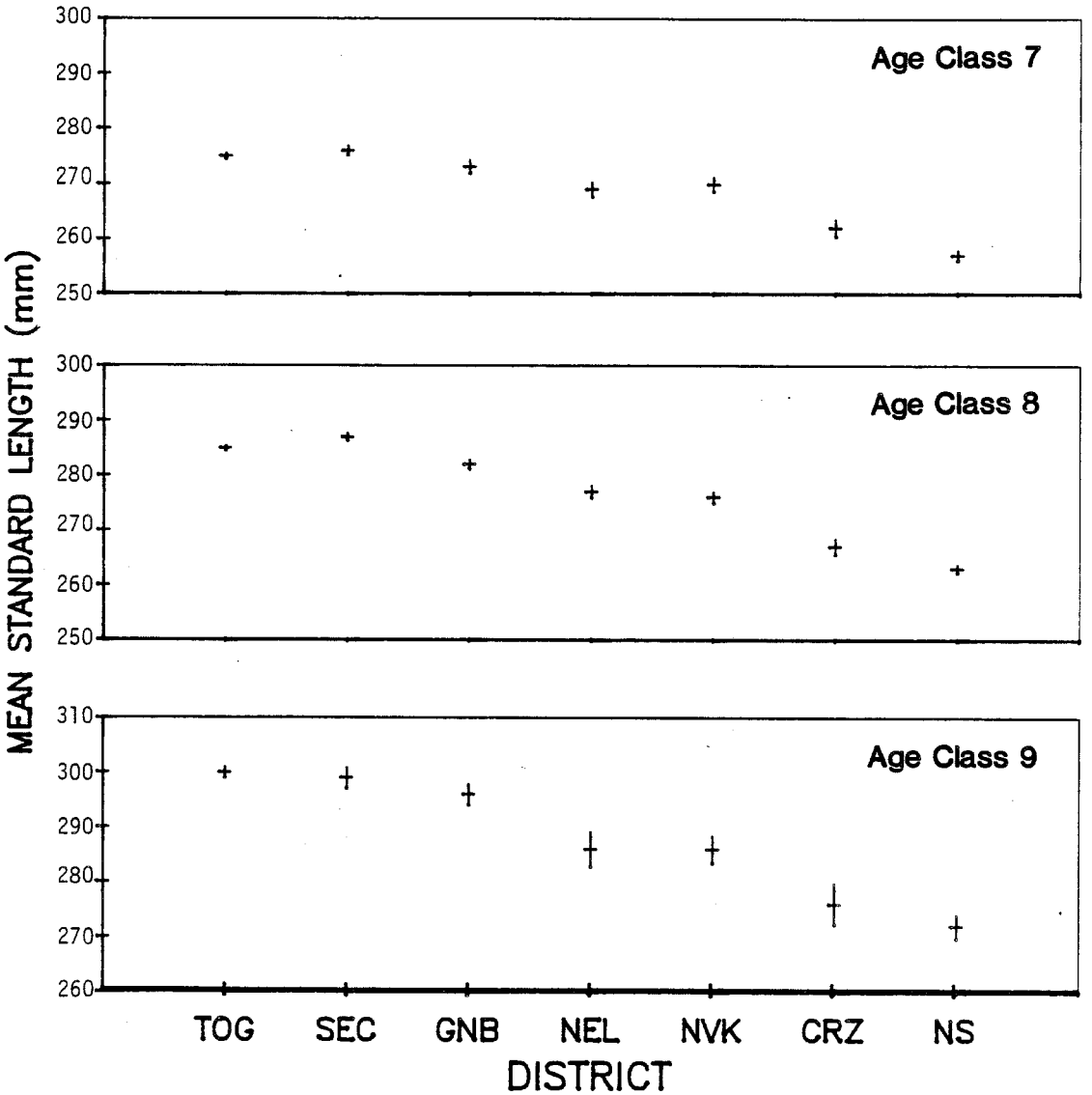

Figure 6. Mean standard length and associated 95% confidence interval of sampled Pacific herring by age class and commercial fishing district (TOG = Togiak, SEC = Security Cove, GNB = Goodnews Bay, NEL = Nelson Island, NVK = Nunivak Island, CRZ = Cape Romanzof, NS = Norton Sound), eastern Bering Sea, Alaska, 1985 (continued).

clearly defined, the mean weight for each age class for each district followed this trend. Overall male to female sex ratios remained fairly equal and uniform throughout all districts (Togiak, Security Cove, and Nelson Island = 1.0:1, Goodnews Bay = 1.3:1, Nunivak Island = 0.8:1, Cape Romanzof = 1.2:1, and Norton Sound = 1.1:1). Sex ratios by gear type for all districts combined was 0.8:1 for beach and purse seines and 1.2:1 for gill nets.

The combined 1985 eastern Bering Sea Pacific herring spawning biomass (Table 44) was estimated to be 165,805 metric tons (mt) (Lebida et al. 1985b). Biomass distribution was 71.9% in Togiak, 2.7% in Security Cove, 2.4% in Goodnews Bay, 5.2% in Nelson Island, 3.1% in Nunivak Island, 3.8% in Cape Romanzof, and 10.9% in Norton Sound Districts (Figure 7).

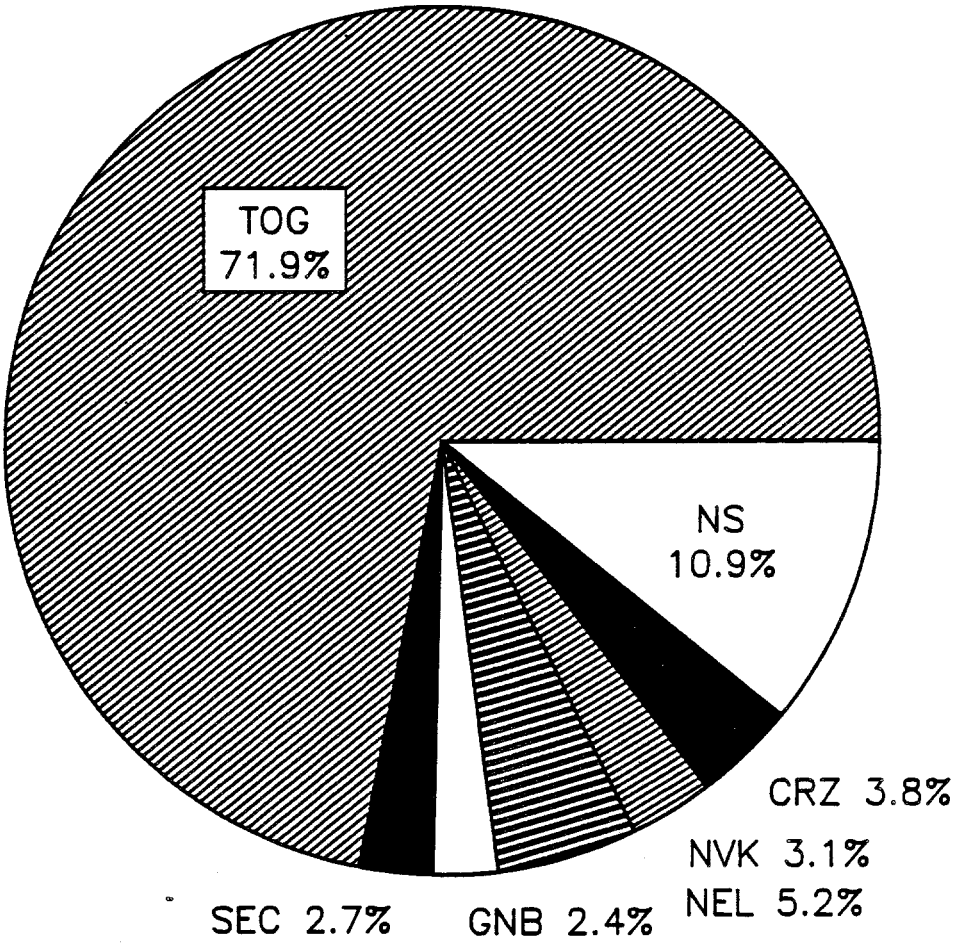

Figure 7. Pacific herring spawning biomass distribution by commercial fishing district, (TOG = Togiak, SEC = Security Cove, GNB = Goodnews Bay, NEL = Nelson Island, NVK = Munivak Island, CRZ = Cape Romanzof, NS = Norton Sound), eastern Bering Sea, Alaska, 1985.

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