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Alaska Department of Fish and Game
Division of Commercial Fisheries
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Statistics of the Commercial Fishery for Pacific Herring from the Kodiak Area, Alaska

by
Charles Burkey, Jr.
and
Joan Ried

State of Alaska

Steve Cowper, Governor

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AUTHORS

Charles E. Burkey Jr. is a Fisheries Biologist I for the Alaska Department of Fish and Game, Division of Commercial Fisheries, P. O. Box 3-2000, Juneau, AK 99802-2000.

Joan Ried is a Fisheries Technician III for the Alaska Department of Fish and Game, Region 4 Division of Commercial Fisheries, 211 Mission Road, Kodiak, AK 99615.

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ABSTRACT

Data pertaining to the commercial fishery for Pacific herring in the Kodiak management area is collected and summarized. Herring have been harvested in the Kodiak area since 1912 in all but 10 years. During the development phase of the fishery from 1912 to 1932 an average of 1,569 tonnes per year were salted or used as bait. The reduction fishery lasted from 1933 to 1959 with an annual harvest averaging 19,893 tonnes. The sac-roe fishery began in 1964 and has accounted for 94% of the 1,230-tonne average annual harvest. Before 1978 seines were essentially the only gear type used to harvest herring in the Kodiak area. In the last decade fishing effort has averaged 53 seiners and 78 gill netters making an average of 153 and 292 landings a year. Since 1964 the food/bait fishery has landed an average of 84 tonnes a year with an average annual effort of two seiners, four gill netters, and three trawlers. Before 1978 the cumulative catch by day curve for sac-roe herring differed greatly for year to year. Since then the rate of harvest has shown much less between year variation with 25%, 50%, and 75% of total harvest (on the average) being taken by May 2, May 9, and May 21, respectively. In the last decade ex-vessel prices paid for sac-roe herring have ranged from \$422 to \$1,500 per tonne, while food/bait prices have remained relatively stable at about \$400 per tonne. The ex-vessel value of the Kodiak herring fishery has averaged \$1,209,250 per year over the last 10 years. The sac-roe fishery has accounted for 97.4% of this income. The mean annual income for a unit of seine and gill net gear between 1978 and 1987 was \$28,034 and \$4,852, respectively. Since 1979, between 4000-9000 herring per year have been sampled for age, sex, and size in the Kodiak area. Age frequency composition of seine caught samples pooled over herring management districts show similar trends over time. Recruitment has been relatively weak in all but the last 2 years. The 1978 brood year was the largest component of the catch from 1982 to 1985. Mean length at age for seine caught herring from management districts between 1981 and 1987 do not appear to differ.

KEY WORDS: Herring, *Clupea harengus pallasii*, Kodiak, commercial fishery, age, sex, and size

INTRODUCTION

Data pertaining to the commercial fisheries for Pacific herring (*Clupea harengus pallasii*) in the Kodiak area have been documented annually since 1937. These data were assembled in this report to provide a complete data base from which harvest, effort, economic, and age, sex, and size composition information can be found.

The major objective for assembling the data presented in this report has been to collect a broad range of data relevant to managing the Kodiak area herring fishery. This assemblage of data with brief analysis of the most obvious points will facilitate more detailed analysis. It is hoped that statistical tests will be applied to the catch timing, and age, size, and sex data to extract more explicit findings. These data and the more detailed unsummarized data presented by Burkey and Ried (1988) are a potential data base for cohort analysis, stock separation, growth, catch timing, and other studies. Thorough manipulation and examination of these data may prove useful for understanding and managing herring in the Kodiak area.

The Kodiak management area comprises all waters of Alaska from the southern entrance of Imuya Bay near Kilikak Rocks north to Cape Douglas, including Kodiak, Afognak and adjacent Islands (Figure 1). In 1937 the United States Bureau of Commercial Fisheries established statistical areas for reporting harvest of herring (Figure 2). From 1960 to 1981 herring catches were recorded using the Alaska Department of Fish and Game (ADF&G) salmon statistical area descriptions (Figure 3). In 1981 the area was divided into seven regulatory commercial fishing districts for herring: Afognak, General, Uganik, Uyak, Sturgeon, Alitak, and Mainland Districts (Figure 4). These were further subdivided into 49 statistical areas (sections). Statistical area boundaries were revised in 1985 increasing the number of statistical areas to 72 (Figure 1). Table 1 shows the relationship between past and present herring statistical areas. The present districts and statistical areas are described in ADF&G (1986).

METHODS

Sources of Data

The statistics in this report cover five major categories; harvest, catch timing, effort, value, and age, sex, and size. The harvest statistics were drawn from ADF&G Annual Management Reports (AMR)¹ and Board of Fisheries

¹Alaska Department of Fish and Game, Division of Commercial Fisheries, Kodiak management area finfish annual reports for 1964 thru 1985, unpublished reports from Region 4, Kodiak.

Reports (BOF)² except the catch by area data for 1936-57 which came from Skud, et al (1960). The ADF&G commercial herring fish ticket data base (FTDB), established in 1969, is the source for fishing effort by gear type and harvest by area and gear type information after 1968. The fishing effort by gear type and harvest by area and gear type before 1969 was taken from AMRs, and BOFs. The FTDB contained the information needed to show the timing of the Kodiak sac-roe fishery at the level of catch by day.

Ex-vessel prices for Kodiak area herring were compiled by the ADF&G Commercial Fisheries Entry Commission, and the total value of the catch was taken from AMRs.

Age, sex, and size data for 1981-87 were taken from Burkey and Ried (1988), while AMRs were the source for 1979-80.

Sampling Techniques for Age, Sex, and Size Data

Between 1979 and 1987 Pacific herring samples were collected from 53 statistical areas in six districts. Samples were collected from commercial purse seine, gill net, and trawl landings, and from ADF&G shrimp trawl surveys, and variable mesh gill net samples. Descriptions of commercial gear used in the Kodiak herring fishery and ADF&G shrimp survey are found in ADF&G (1986) and Watson (1987), respectively. Variable mesh gill nets were floating monofilament nets 31 m long and 3 m deep, consisting of four 8 m panels with stretched mesh sizes of 38, 51, 64, and 76 mm. Commercial catch samples were haphazard samples taken by hand or shovel from the fish hold while all fish taken by shrimp trawl and variable mesh gill net were included in the sample.

An attempt was made to collect at least two 60-fish samples at different times from the commercial seine catch in each statistical area. Sampled fish were measured for standard length (tip of snout to hypural plate) to the nearest millimeter, weighed to the nearest gram and aged by analysis of scale annuli using a binocular microscope at 12X magnification. The preferred body area for scale sampling was the left side just behind the operculum. Alternate areas were, in order of preference, the left side, the right side just behind the operculum, the right side, and the base of the pectoral fin. Scales were mounted on glass slides and stored at the ADF&G office in Kodiak. Because nearly all of this age, sex, and size data has been collected by one individual, Joan Ried, it is believed that variations in data collection were minimized.

Age-length-weight (AWL) data were recorded on mark sense forms starting in 1984. The forms were fed into an optical mark sense reader which produced an ASCII data file in MS-DOS format. Prior to 1984 AWL data were recorded on tabular forms. These data were transferred to electronic media (key-punched) using the optical mark sense reader format (Table 2). AWL data files from which tables in this report were produced are available on

²Alaska Department of Fish and Game, Division of Commercial Fisheries, Kodiak management area annual reports to the Board of Fisheries from 1980 thru 1987, unpublished reports from Region 4, Kodiak.

double-sided-double-density floppy disks (MS-DOS format) at the ADF&G office in Kodiak and Commercial Fisheries Division Headquarters in Juneau.

RESULTS AND DISCUSSION

Harvest and Effort

Landings from the Kodiak area commercial herring fishery have been recorded in all but 10 years since 1912 (Table 3 and Figure 5). There are three major phases that characterize the fishery.

The first phase was a development period which ran from 1912 to 1932. Average annual harvest was 1,569 tonnes with most of the herring being salted or pickled for human consumption or utilized as bait. Fish were harvested primarily by small seiners with landings made nearly year round. Bait herring were taken in winter and spring when the fish are thin and firm. Fat herring (fish > 250 mm which have not been feeding in the summer) were pickled or salted. Herring caught in the late fall or winter when they are not feeding or fat with milt or roe, were dry-salted (Rounsefell, 1930).

The second, or reduction, period extended from 1933 to 1959 with an average annual harvest of 19,893 tonnes. Kodiak's all time high harvest of 54,545 tonnes was landed in 1934. Large and small seine boats were used to harvest the fish. Most of the fish were reduced for oil, meal, and fertilizer with the balance pickled, dry-salted, or used for halibut bait. The oil and fertilizer industry required small, fat herring best taken in summer and early fall. During this period over 70% of the fish were taken from the west, or Shelikof Strait, side of Kodiak Island (Table 4). The Uyak District produced 43% of the catch. In addition most of the Afognak District catch (10% of the total) was taken on the island's west side (Figure 6). Most of the west-side harvest occurred offshore in Shelikof Strait with a lesser amount taken from the inner bays. Market conditions for herring meal and oil became nonprofitable and no herring were processed between 1960 and 1963.

The latest phase, the sac-roë fishery, began in 1964. This fishery has accounted for 94% of the herring harvest since its inception (Table 5 and Figure 7), with an average annual harvest of 1156 tonnes. Prior to 1978, sac-roë herring were harvested primarily from west-side areas by small seiners (Figure 8 and Table 6). Average annual effort from 1964 to 1978 was 10 seiners making 49 landings. Most of the roë was extracted locally with the carcasses being processed into meal and oil. In 1978 the Board of Fisheries allowed the use of gill nets in the Kodiak herring fishery, which have since accounted for between 2% to 37% of the annual catch (Figure 9). Figure 10 shows the effort (in number of landings) by gear type in the sac-roë fishery. Between 1978 and 1987, effort has averaged 53 seiners and 78 gill net boats making an average of 153 and 292 landings, respectively. Peak year for effort was 1980 when 136 seiners and 136 gill net vessels made a total of 603 landings. Presently almost all the herring is frozen and exported as whole fish. Small amounts of herring are salted for human consumption.

With the inception of the sac-roë fishery the food/bait herring fishery assumed secondary importance. The annual harvest has averaged 96 tonnes since 1964 with a peak catch of 365 tonnes in 1986 (Table 7). Before 1977 bait herring were harvested almost exclusively by seine with otter trawls being introduced into the fishery in 1977 (Figure 11). Figure 12 shows the effort by gear type in the Kodiak area bait fishery from 1969 to 1986. Since 1978, average annual gear levels have been two seiners, four gill netters, and three trawlers making four, seven, and four landings, respectively. The fishing season begins on August 1 and is managed by emergency order. The catch has been taken mostly from the west side districts and has been primarily utilized as bait in the longline and crab fisheries. Tables 8-19 and 20-29 show the harvest by statistical area and gear type from 1964 to 1987 of the sac-roë and bait herring fisheries, respectively.

Catch Timing

Prior to 1978 the commercial sac-roë herring season ran from March 1 to June 30. In 1979 a March and April closure was initiated for all herring fishing to allow deep water stocks to segregate into smaller populations that are more easily managed, primarily by catch data and visual observations in inner bays. The opening date of the roë fishery was set at April 15 in 1984 to accommodate differences in timing and abundance of various herring stocks, and the high gear levels and gear type conflicts.

The Kodiak area sac-roë herring fishery is "unique" in that relatively small stocks of herring spawn and are harvested in dozens of bays during about a 6-week period. Within the last decade herring have almost always been caught on the season's opening day, while date of last catch has ranged from June 6 to 27. Harvest has occurred in a roughly predictable pattern from the first catches in the Afognak District to the last catch in the Alitak District. The pattern of harvest has been increasingly unpredictable as the season progresses.

Catch-by-day statistics for the Kodiak area sac-roë herring fishery have been collected from fish tickets since 1969 (Tables 30 and 31). Figures 13 to 15 show the cumulative commercial catch of sac-roë herring by date from 1969 to 1987. During the period from 1969 to 1977 when the fishery was developing, catch timing was very different from year to year. Since then the catch rates have become much more consistent with less between-year variability. The average cumulative catch curve for the period 1969-87 is sigmoidal in shape showing 25%, 50%, and 75% of the total harvest taken by May 2, May 9, and May 21, respectively (Figures 13-15).

Value

Before 1970 the ex-vessel price paid for herring in the Kodiak area was basically the same no matter what the end product. In the years from 1964 to 1968 between \$22 to \$38 per tonne was paid for roë and bait herring. Since then, prices have fluctuated widely, and relatively large price differentials have developed between roë and bait herring (Table 32). In

the last decade roe herring prices per tonne have risen to a high of \$1,500 in 1979, dropped to a low of \$442 in 1981, and then stabilized at about \$1,000. Bait herring prices have been relatively stable over the same period at around \$400 per tonne (Figure 16).

The difference in price between gear types within the sac-roë fishery has been mostly due to differences in roë content (percent roë content by weight of the catch). A value is set for 10% roë content and an amount per percentage point is added to or subtracted from that value depending on how much the roë content differs from 10%. Price paid for bait herring differs little by gear type.

The overall ex-vessel worth of the Kodiak herring fisheries since 1978 has averaged \$1,209,250 per year. In 1979 fishermen were paid an all time high of \$2,661,020 for 1,683 tonnes of herring up from \$732 for 4.2 tonnes in 1976 (Figure 17). Of this income, 97.4% came from sac-roë herring landings (94.4% of total catch) with a high of \$2,602,458 paid for 1,567 tonnes in 1979 (Table 6 and Figure 18). The average annual income for a unit of seine gear between 1978 and 1987 was \$28,034 while gill netters made an average of \$4,852 per year. The annual bait catch, shown in Table 7 and Figure 19, has been worth an average of \$36,955 a year to fishermen since 1974.

Age, Sex, and Size

Since 1979 between 4,000-9,000 herring per year have been sampled for age, sex, and size in the Kodiak area. The majority of these fish have been taken by commercial purse seine on the spawning grounds. In Table 33 seine caught samples within commercial herring fishing districts have been combined for purposes of comparison (Table 33). Samples from individual statistical areas often show wide variability in age frequency from year to year possibly due to small sample sizes (Tables 34 to 42). In many cases, even when sample size is small, strong year classes can be followed over time as they move through the fishery in a statistical area (Figure 20).

The age frequency composition of seine caught samples from herring management districts show similar trends over time (Table 43). The 1977 brood year was the biggest contributor to the seine catch in 1981 in all but the General District (Figure 21). In 1982 the 1978 brood year dominated all but the Afognak and Mainland Districts which were still primarily 1977 brood year fish (Figure 22). Lack of recruitment in the Mainland District was very evident. The 1978 brood year continued to comprise the major part of the catch in 1983 in all but the Afognak and Mainland Districts (Figure 23). A strong age 3 class made its appearance in the 1983 Afognak sample, while little recruitment was seen for the Mainland with the 1977 brood year still the largest component. Recruitment was low in all but the Alitak and General Districts in 1984 with the same brood years predominant as in 1983 (Figure 24). Another year of poor recruitment followed in 1985 with basically the same brood years as in 1984 dominant in their respective districts (Figure 25). Recruitment improved in 1986 with good numbers of age-3 fish in all districts (Figure 26). This was the first good recruitment recorded for the Mainland District since 1981. The strongest recruitment of the 1981-87 period occurred in 1987 with the 1984 brood year being the biggest part of the catch in all districts (Figure 27).

Lengths at age of herring caught by commercial seine between 1981 and 1987 show no statistically significant differences between districts (Figures 28 to 34). Confidence intervals (95%) around mean length at age overlap in virtually all comparisons (Figures 35-41). General and Afognak District herring consistently had the largest mean length at age, while the Uyak and Uganik District fish tended to have the smallest mean lengths. The Alitak and Mainland District samples were intermediate in mean length at age except that in later years the mean length at age of Alitak herring decreased relative to the other districts.

LITERATURE CITED

- ADF&G (Alaska Department of Fish and Game). 1986. Commercial herring fishing regulations, 1986 volume. Alaska Department of Fish and Game. Division of Commercial Fisheries, Juneau.
- Burkey, C.E., and J. Ried. 1988. Age, sex, and size composition of Pacific herring from the Kodiak area, Alaska, 1981-87. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report No. 4K88-34., Juneau.
- Rounsefell, G.A. 1930. Contribution to the biology of the Pacific herring, *Clupea pallasii*, and the condition of the fishery in Alaska. U.S. Bureau of Fisheries, Doc. No. 1080.
- Skud, B.E., H.M. Sakuda, and G.M. Reid. 1960. Statistics of the Alaska herring fishery, 1878 - 1956. Fish and Wildlife Statistical Digest **48**.
- Watson, L.J., and D.R. Bernard. 1987. Stock assessment trawl surveys for Pandalid shrimps in the Kodiak Island and Chignik Districts of Alaska, 1985. Alaska Department of Fish and Game, Division of Commercial Fisheries, Technical Data Report 194, Juneau.

Table 1. Kodiak area Pacific herring commercial fisheries statistical areas, 1960-87.

<u>Geographic area</u>	<u>1960-1981</u>	<u>1981-1984</u>	<u>1985-1987</u>
Raspberry St.	251-10	A01	A010
Malina B.	-20	A02	A020
Paramanoff B.	-30	A03	A031
Foul B.	-40	A03	A032
Blue Fox B.	-50	A04	A040
W. Shuyak I.	-60	A06	A060
N. Shuyak I.	-70	A06	A060
E. Shuyak I.	-81	A06	A060
Perenosa B.	-82	A07	A070
Delphin B.	-82	A07	A071
Seal B.	-90	A07	A072
Tonki B.	252-10	A08	A080
Marmot I.	-20	A06	G103
Marmot B.	-30	G10	G103
Izhut B.	-31	A09	A090
Kitoi B.	-31	A09	A091
McDonalds L.	-31	A09	A092
Duck B.	-32	A10	A102
Danger B.	-33	A10	A100
Litnik B.	-34	A10	A101
Kupreanof St.	-35	UG1	UG10
Kizhuyak B.	-36	G09	G090
Sheratin B.	-37	G08	G081
Anton Larsen B.	-38	G08	G080
N. Spruce I.	-39	G10	G103
Outer Uganik B.	253-11	UG4	UG40
Inner Uganik B.	-12	UG3	UG30 (Village I.)
N.E. Arm Uganik B.	-12	UG3	UG32
E. Arm Uganik B.	-12	UG3	UG33
S. Arm Uganik B.	-12	UG3	UG34
Outer Terror B.	-31	UG2	UG21
E. Outer Uganik B.	-31	UG2	UG31
Viekoda B.	-32	UG2	UG20
Inner Terror B.	-33	UG2	UG21
Outer Uyak B.	254-10	UY2	UY20 (Harvester I.)
Larsen B.	-10	UY3	UY31
Inner Uyak B.	-20	UY3	UY30
Zachar B.	-30	UY4	UY40
Spiridon B.	-40	UY5	UY50
Karluk L.	255-10	UY1	UY10
Rocky Pt.	-20	UY1	UY10
Aiakulik R.	256-20	AL1	AL10
Hailbut B.	-30	SH1	SH10
Sturgeon B.	-40	SH1	SH10
Low Cape	257-10	AL1	AL10
W. Alitak B.	-20	AL1-2	AL10-20
Moser B.	-30	AL4	AL40 (Lower Olga/Moser)

-Continued-

Table 1. (page 2 of 2)

<u>Geographic area</u>	<u>1960-1981</u>	<u>1981-1984</u>	<u>1985-1987</u>
Olga B.	257-30	AL5	AL50 (Upper Olga)
Deadman B.	-50	AL2	AL21
Sulua B.	-60	AL3	AL30
E. Alitak B.	-70	AL1-2	AL10-20
Sitkinak I.	-80	AL1	AL10
Lower Shelikof St.	-82	ML2	ML20
Outer Alitak B.	-90	AL1	AL10
Outer Kiliuda B.	258-10	G02-3	G040
Inner Kiliuda B.	-20	G04	G041
Sherwater B.	-20	G04	G042
E. Sitkalidak St.	-30	G02	G022 (Amee Bay)
Tanginak Anchorage	-30	G02	G023
Outer Sitkalidak	-40	G01	G030
Outer W. Sitkalidak St.	-51	G01	G010-20
Inner W. Sitkalidik St.	-52	G01	G020
Barling B.	-52	G01	G021
Three Saints B.	-53	G01	G020
Kaiugnak B.	-54	G01	G010
Kiavak B.	-55	G01	G010
Kaguyak B.	-60	AL6	AL60
Seven Rivers	-70	AL6	AL60
Sitkinak St.	-80	AL6-AL1	AL60-AL10
S. Spruce I.	259-10	G10	G103
Chiniak B.	-21	G10	G102
Womens B.	-22	G06	G060
Middle B.	-23	G10	G101
Kalsin B.	-24	G10	G100
Cape Chiniak	-25	G10	G100
E. Chiniak	-30	G11	G110
N. Ugak B.	-41	G05	G050-G051
S. Ugak B.	-42	G05	G050-G051
Outer Chiniak	-50	G11-G03	G110-G030
Cape Douglas	262-10	M01	M010
Swikshak	-15	M01	M010
Chiniak	-20	M01	M010
Kukak B.	-25	M02	M020
Kaflia B.	-30	M02	M020
Kuliak B.	-35	M04	M040
Missak B.	-40	M04	M040
Kinak B.	-45	M04	M040
Geographic Har.	-50	M04	M040
Dakavak B.	-55	M05	M050
Katmai B.	-60	M05	M050
Alinchak B.	-65	M07	M070
Puale B.	-70	M08	M080
Dry B.	-75	M08	M080
Portage B.	-80	M09	M090
Wide B.	-85	ML1	ML10

Table 2. Format of age-weight-length data file produced by optical scanning of herring mark sense form.

1. First two records, max 100 characters/record, are text of AWL summary table title.
2. Header records (one/AWL mark sense form)

<u>Columns</u>	<u>Description</u>
1-3	Page number (must be increasing)
4-5	Month of catch
6-7	Day of catch
8-9	Gear code (1 = variable mesh gill net 3 = gill net, 5 = seine, 7 = trawl)
10-12	District code (salmon statistical area)
13-14	Section code (salmon statistical area)
15-17	Location code
18-21	Sample number
22-25	Time of set (0-2400)
26-28	Number of hours fished (tenths)
29-30	Net length (fathoms)
31	Length type (1 = standard, 2 = fork)
32	Age type (1 = scale, 2 = otolith)
33	Fishery type (1 = bait, 2 = trawl incidental, 3 = test, 4 = commercial, 5 = subsistence)
34-35	Year

3. Specimen records (one/fish)

<u>Columns</u>	<u>Description</u>
1-3	Page number (must be increasing)
4-5	Fish number (1-40/page)
6	Sex (1 = M, 2 = F, 3 = juvenile, 4 = unknown)
7	Gonad index (1-8)
8-9	Age (1-17, 18 = regenerated, 19 = illegible, 20 = missing)
10-12	Length (mm)
13-15	Weight (gm)
16-17	Mesh size (in)
18-20	Skein weight (gm)
21	Otolith flag (if = 9, otolith taken)

Table 3. Kodiak area Pacific herring commercial harvest (tonnes) all fisheries, 1912-1987.

<u>Year</u>	<u>Food & Bait</u>	<u>Sac Roe</u>	<u>Total</u>	<u>Year</u>	<u>Food & Bait</u>	<u>Sac Roe</u>	<u>Total</u>
1912	18.2	0.0	18.2	1950	40120.5	0.0	40120.5
1913	0.0	0.0	0.0	1951	3908.2	0.0	3908.2
1914	0.0	0.0	0.0	1952	1262.7	0.0	1262.7
1915	0.0	0.0	0.0	1953	659.1	0.0	659.1
1916	63.6	0.0	63.9	1954	0.0	0.0	0.0
1917	125.4	0.0	125.4	1955	0.0	0.0	0.0
1918	107.6	0.0	107.6	1956	12294.5	0.0	12294.5
1919	236.1	0.0	236.1	1957	19289.5	0.0	19289.5
1920	41.7	0.0	41.7	1958	1555.5	0.0	1555.5
1921	859.0	0.0	859.0	1959	3482.7	0.0	3482.7
1922	1347.8	0.0	1347.8	1960	0.0	0.0	0.0
1923	292.3	0.0	292.3	1961	0.0	0.0	0.0
1924	4384.5	0.0	4384.5	1962	0.0	0.0	0.0
1925	9088.2	0.0	9088.2	1963	0.0	0.0	0.0
1926	2437.2	0.0	2437.2	1964	281.6	234.5	516.1
1927	2357.2	0.0	2357.2	1965	31.8	597.3	629.1
1928	568.2	0.0	568.2	1966	179.9	2517.3	2697.2
1929	NO DATA	0.0	NO DATA	1967	273.0	1510.9	1783.9
1930	565.5	0.0	565.5	1968	14.0	1819.1	1833.0
1931	909.1	0.0	909.1	1969	18.2	1006.7	1024.9
1932	3267.3	0.0	3267.3	1970	5.2	310.9	316.1
1933	2102.3	0.0	2102.3	1971	46.6	258.2	304.8
1934	54545.5	0.0	54545.5	1972	65.6	195.5	261.1
1935	NO DATA	0.0	NO DATA	1973	28.9	755.5	784.4
1936	22498.2	0.0	22498.2	1974	7.6	789.1	796.7
1937	25144.5	0.0	25144.5	1975	4.7	7.3	12.0
1938	22292.7	0.0	22292.7	1976	0.0	4.5	4.5
1939	35091.4	0.0	35091.4	1977	8.3	307.3	315.6
1940	20615.5	0.0	20615.5	1978	273.9	821.8	1095.7
1941	36439.1	0.0	36439.1	1979	106.5	1578.2	1684.7
1942	15264.5	0.0	15264.5	1980	145.4	2167.3	2312.7
1943	32138.2	0.0	32138.2	1981	0.3	1875.5	1875.8
1944	24395.5	0.0	24395.5	1982	8.9	1610.0	1618.9
1945	28285.5	0.0	28285.5	1983	296.5	2108.2	2404.7
1946	43186.4	0.0	43186.4	1984	36.3	1966.4	2002.7
1947	46130.0	0.0	46130.0	1985	193.6	1789.1	1982.7
1948	42207.3	0.0	42207.3	1986	364.8	1416.4	1781.2
1949	0.0	0.0	0.0	1987		1950.8	1950.8

Table 4. Kodiak area Pacific herring commercial fisheries harvest (tonnes) by district, 1937-56.

Year	AFOGNAK	%	UGANIK	%	UYAK	%	STURGEON	%	GENERAL	%	ALITAK	%	MAINLAND	%	UNKNOWN	%
1937	4055.5	15.1	12600.9	46.9	9295.5	34.6									922.7	3.4
1938	8208.2	27.5	13888.2	46.6	6518.2	21.9			160.9	0.5					1047.3	3.5
1939	7830.0	22.3	5321.8	15.2	15780.0	45.0	6011.8	17.1	38.2	0.1			80.9	0.2	30.0	0.1
1940	127.3	0.7	920.0	4.8	17436.4	91.3			94.6	0.5					513.6	2.7
1941	551.8	1.5	3913.6	10.8	24310.0	66.9			6665.5	18.4			876.4	2.4		
1942	2624.6	16.4	7044.6	44.1	6292.7	39.4							29.1	0.2		
1943	11432.7	42.7	10416.4	38.9	4130.0	15.4			420.0	1.6	54.6	0.2	341.8	1.3		
1944	1700.9	13.6	3863.6	30.9	2671.8	21.3	1311.8	10.5	150.9	1.2	2460.9	19.7			358.2	2.9
1945	1157.3	5.5	2510.9	11.8	11508.2	54.2	2501.8	11.8			3546.4	16.7				
1946	2093.6	6.0	6841.8	19.7	22327.3	64.4	2679.1	7.7	55.5	0.2	663.6	1.9				
1947	956.4	2.2	3342.7	7.6	25352.7	57.6	6110.9	13.9	78.2	0.2	8203.6	18.6				
1948			440.9	1.0	11629.1	27.7	12696.4	30.2	859.1	2.0	16421.8	39.1				
1949																
1950			421.8	1.1	14194.6	35.4	1775.5	4.4	48.2	0.1	23681.8	59.0				
1951	28.2	0.7	404.6	10.3	216.4	5.5			50.0	1.3	45.5	1.2			3164.6	81.0
1952									96.4	7.8					1144.6	92.2
1953									137.3	74.4					47.3	25.6
1954																
1955																
1956	2505.5	24.4	146.4	1.4	1576.4	15.4	3203.6	31.2	2351.8	22.9			125.5	1.2	343.6	3.4
AVE.	2060.6	10.8	3432.3	18.0	8249.5	43.3	1728.1	9.1	533.6	2.8	2622.8	13.8	69.2	0.4	360.6	1.9

Table 5. Harvest and value of bait and roe herring in the Kodiak area, 1964-87.

Year	Roe (tonnes)	Value	Bait (tonnes)	Value	Total (tonnes)	Total Value
1964	234.5	\$7,739	281.6	\$9,294	516.1	\$17,033
1965	597.2	\$22,992	31.9	\$1,228	629.1	\$24,220
1966	2517.8	\$55,386	179.9	\$3,598	2697.7	\$58,984
1967	1511.2	\$33,248	273.0	\$6,006	1784.2	\$39,254
1968	1818.8	\$40,014	14.0	\$308	1832.8	\$40,322
1969	1006.7	---	18.2	---	1024.9	---
1970	306.0	---	5.2	---	311.2	---
1971	211.8	---	46.6	---	258.4	---
1972	150.3	---	65.6	---	215.9	---
1973	759.6	---	28.9	---	788.5	---
1974	787.0	\$144,052	7.6	\$830	794.6	\$144,882
1975	2.6	\$283	4.7	\$516	7.3	\$799
1976	4.2	\$732	0.0	---	4.2	\$732
1977	307.7	\$108,300	8.3	\$4,234	316.0	\$112,534
1978	564.4	\$471,823	273.9	\$102,431	838.3	\$574,254
1979	1576.9	\$2,602,458	106.5	\$58,562	1683.4	\$2,661,020
1980	2165.5	\$1,658,410	145.4	\$55,419	2310.9	\$1,713,829
1981	1875.8	\$1,533,404	0.3	\$143	1876.1	\$1,533,547
1982	1615.7	\$984,000	8.9	\$5,470	1624.6	\$989,470
1983	2107.7	\$1,854,800	296.5	\$97,830	2404.2	\$1,952,630
1984	1968.7	\$1,730,160	36.3	\$31,983	2005.0	\$1,762,143
1985	1789.1	\$1,770,930	193.6	\$86,043	1982.7	\$1,856,973
1986	1416.4	\$1,480,790	364.8	\$160,516	1781.2	\$1,641,306
1987	<u>1950.8</u>	<u>\$2,145,900</u>			<u>1950.8</u>	<u>\$2,145,900</u>
Avg.	1141.2	\$693,559	92.1	\$21,086	1225.7	\$712,888

Table 6. Kodiak area Pacific herring commercial sac-roe fishery harvest, effort and value by gear type, 1964-87.

Year	Gear Type	Units Gear	Number Landings	Est. Harvest (tonnes)	Est. Harvest Percent	Est. Total Value	Est. Average Earnings	Ave. tonnes Boat	Ave. tonnes Lndg.	Ave. Lndg. Boat
1964	seine	5	--	234.5	100%	\$7,739	\$1,548	46.9	--	--
1965	seine	8	--	597.2	100%	\$22,992	\$2,874	74.7	--	--
1966	seine	11	--	2373.5	100%	\$55,386	\$5,035	215.8	--	--
1967	seine	5	--	1312.5	100%	\$33,248	\$6,650	262.5	--	--
1968	seine	10	--	1818.8	100%	\$40,014	\$4,001	181.9	--	--
1969	seine	18	87	1006.7	100%	--	--	55.9	11.6	4.8
1970	seine	14	35	306.0	100%	--	--	21.9	8.7	2.5
1971	seine	7	34	211.8	100%	--	--	30.3	6.2	4.9
1972	seine	3	19	150.3	100%	--	--	50.1	7.9	6.3
1973	seine	16	96	759.6	100%	--	--	47.5	7.9	6.0
1974	seine	25	124	787.0	100%	\$144,052	\$5,762	31.5	6.3	5.0
1975	seine	1	1	2.6	100%	\$283	\$283	2.6	2.6	1.0
1976	seine	1	1	4.2	100%	\$732	\$732	4.2	4.2	1.0
1977	seine	11	45	307.7	100%	\$108,300	\$9,845	28.0	6.8	4.1
	seine	27	107	555.0	98%	\$463,980	\$17,184	20.6	5.2	4.0
1978	gillnet	6	11	9.4	2%	\$7,843	\$1,307	1.6	0.9	1.8
	Total	33	118	564.4	100%	\$471,823				
	seine	59	192	1325.1	84%	\$2,185,788	\$37,047	22.5	6.9	3.3
1979	gillnet	95	266	251.8	16%	\$416,670	\$4,386	2.7	0.9	2.8
	Total	154	458	1576.9	100%	\$2,602,458				
	seine	136	214	1827.1	84%	\$1,377,987	\$10,132	13.4	8.5	1.6
1980	gillnet	136	389	338.4	16%	\$280,423	\$2,062	2.5	0.9	2.9
	Total	272	603	2165.5	100%	\$1,658,410				
	seine	78	207	1451.1	77%	\$1,137,764	\$14,587	18.6	7.0	2.7
1981	gillnet	119	409	424.7	23%	\$395,640	\$3,325	3.6	1.0	3.4
	Total	197	616	1875.8	100%	\$1,533,404				
	seine	44	133	1315.1	81%	\$801,840	\$18,224	29.9	9.9	3.0
1982	gillnet	75	196	300.6	19%	\$182,160	\$2,429	4.0	1.5	2.6
	Total	119	329	1615.7	100%	\$984,000				
	seine	45	164	1633.6	78%	\$1,437,520	\$31,945	36.3	10.0	3.6
1983	gillnet	65	284	474.2	22%	\$417,280	\$6,420	7.3	1.7	4.4
	Total	110	448	2107.8	100%	\$1,854,800				
	seine	43	140	1526.6	78%	\$1,352,960	\$31,464	35.5	10.9	3.3
1984	gillnet	69	218	439.5	22%	\$377,200	\$5,467	6.4	2.0	3.2
	Total	112	358	1966.1	100%	\$1,730,160				
	seine	34	118	1131.1	63%	\$1,119,780	\$32,935	33.3	9.6	3.5
1985	gillnet	76	349	658.0	37%	\$651,150	\$8,568	8.7	1.9	4.6
	Total	110	467	1789.1	100%	\$1,770,930				
	seine	33	132	1008.9	71%	\$1,054,310	\$31,949	30.6	7.6	4.0
1986	gillnet	76	385	410.1	29%	\$426,480	\$5,612	5.4	1.1	5.1
	Total	109	517	1419.0	100%	\$1,480,790				
	seine	29	122	1446.6	74%	\$1,591,300	\$54,872	49.9	11.9	4.2
1987	gillnet	62	411	504.2	26%	\$554,600	\$8,945	8.1	1.2	6.6
	Total	91	533	1950.8	100%	\$2,145,900				

Table 7. Kodiak area Pacific herring commercial food/bait fishery harvest, effort and value by gear type, 1964-86.

Year	Gear Type	Units Gear	Number Landings	Est. Harvest (tonnes)	Est. Harvest Percent	Est. Total Value	Est. Average Earnings	Ave. tonnes/Boat	Ave. tonnes/Lndg.	Ave. Lndg Boat
1964	seine	--	--	281.6	100%	\$9,294	--	--	--	--
1965	seine	--	--	31.9	100%	\$1,228	--	--	--	--
1966	seine	--	--	179.9	100%	\$3,598	--	--	--	--
1967	seine	--	--	273.0	100%	\$6,006	--	--	--	--
1968	seine	--	--	14.0	100%	\$308	--	--	--	--
1969	seine	1	1	18.2	100%	--	--	18.2	18.2	1.0
1970	seine	3	6	5.2	100%	--	--	1.7	0.9	2.0
1971	seine	5	20	46.6	100%	--	--	9.3	2.3	4.0
1972	seine	2	19	65.6	100%	--	--	32.8	3.5	9.5
1973	seine	2	7	28.9	100%	--	--	14.5	4.1	3.5
1974	seine	4	5	7.6	100%	\$830	\$208	1.9	1.5	1.3
1975	seine	1	1	4.7	100%	\$516	\$516	4.7	4.7	1.0
1976	-----	0	0	0.0	--	--	--	--	--	--
1977	trawl	1	2	8.3	100%	\$4,234	\$4,234	8.3	4.2	2.0
1978	seine	7	7	47.3	17%	\$17,678	\$2,525	6.8	6.8	1.0
	gillnet	11	25	7.4	3%	\$2,776	\$252	0.7	0.3	2.3
	trawl	4	10	219.2	80%	\$81,977	\$20,494	54.8	21.9	2.5
	Total	22	42	273.9	100%	\$102,431				
1979	seine	2	5	9.6	9%	\$5,265	\$2,633	4.8	1.9	2.5
	trawl	3	3	96.9	91%	\$53,297	\$17,766	32.3	32.3	1.0
	Total	5	8	106.5	100%	\$58,562				
1980	seine	2	2	0.1	.04%	\$18	\$9	0.03	0.03	1.0
	gillnet	9	9	4.0	3%	\$2,548	\$283	0.4	0.4	1.0
	trawl	5	7	141.3	97%	\$52,853	\$10,571	28.3	20.2	1.4
	Total	16	18	145.4	100%	\$55,419				
1981	gillnet	1	2	0.3	100%	\$143	\$143	0.3	0.2	2.0
1982	gillnet	1	2	8.9	100%	\$5,470	\$5,470	8.9	4.4	2.0
1983	seine	2	6	282.5	95%	\$93,225	\$46,613	141.3	47.1	3.0
	gillnet	5	7	4.5	2%	\$1,486	\$297	0.9	0.6	1.4
	trawl	1	1	9.5	3%	\$3,119	\$3,119	9.5	9.5	1.0
	Total	8	14	296.5	100%	\$97,830				
1984	seine	3	5	6.5	18%	\$5,760	\$1,920	2.2	1.3	1.7
	gillnet	4	5	4.6	13%	\$4,009	\$1,002	1.1	0.9	1.3
	trawl	1	3	25.2	69%	\$22,213	\$22,213	25.2	8.4	3.0
	Total	8	13	36.3	100%	\$31,983				
1985	seine	3	4	24.1	12%	\$10,708	\$3,569	8.0	6.0	1.3
	gillnet	12	12	4.6	2%	\$2,043	\$170	0.4	0.4	1.0
	trawl	1	8	164.9	85%	\$73,291	\$73,291	164.9	20.6	8.0
	Total	16	24	193.6	100%	\$86,043				
1986	seine	1	2	15.7	4%	\$6,926	\$6,926	15.7	7.9	2.0
	trawl	2	18	349.1	96%	\$153,591	\$76,795	174.6	19.4	9.0
	Total	3	20	364.8	100%	\$160,516				

Table 8. Kodiak area commercial sac-roë herring harvest by area, 1964-70.

Geographic Area	Stat. Area	YEAR ^a									
		1964 tonnes	1965 tonnes	1966 tonnes	1967 tonnes	1968 tonnes	1969 tonnes Lndg		1970 tonnes Lndg		
AFOGNAK DIST.											
Raspberry St.	A010			33.1							
GENERAL DIST.											
W. Sitkalidak St.	G020-21						131.8	16	23.7	3	
Shearwater B.	G042						15.1	4			
Women's B.	G060		40.3				20.6	1			
Monaska/Mill B.	G070			0.3					2.7	1	
Anton Larsen B.	G080			4.8							
Kizhuyak B.	G090			5.5					8.8	1	
Kalsin B.	G100			121.2							
Inshore Chiniak	G102		0.4	0.3		13.6	1.5	1			
Spruce I.	G103										
GENERAL DIST. TOTAL			40.7 ^b	132.1		13.6	168.9	22	35.2	5	
UGANIK DIST.											
Terror/Viekoda B.	UG20-21			60.9							
Uganik B.	UG30-34						148.7	12	24.5	1	
UGANIK DIST. TOTAL				60.9			148.7	12	24.5	1	
UYAK DIST.											
Inner Uyak B.	UY30		329.5	242.9	582.0	156.6	186.8	17	120.9	16	
Larsen B.	UY31		52.7	881.8	14.1	68.2					
Zachar B.	UY40		60.1	252.7	763.6	1171.4	449.2	32	87.4	8	
Spiridon B.	UY50	234.5	114.1	210.1	133.9	409.0	53.1	4	38.0	5	
UYAK DIST. TOTAL		234.5	556.5	1587.6	1493.6	1805.1	689.1	53	246.3	29	
STURGEON DIST.											
	SH10			704.2	17.6						
TOTAL (all Dist.)		234.5	597.2	2517.8 ^c	1511.2 ^d	1818.8	1006.7	87	306.0	35	

^a all catches made by seine gear

^b 31.8 mt sold as bait after roe removed

^c includes 179.9 mt sold as bait

^d includes 273.0 mt sold as bait

Table 9. Kodiak area commercial sac-roe herring harvest by area, 1971-77.

Geographic Area	Stat. Area	YEAR ^a													
		1971		1972		1973		1974		1975		1976		1977	
		tonnes	Lndg	tonnes	Lndg	tonnes	Lndg	tonnes	Lndg	tonnes	Lndg	tonnes	Lndg	tonnes	Lndg
AFOGNAK DIST.															
Raspberry St.	A010							185.4	23						
Malina B.	A020					16.4	2	91.3	9						
Paramanof/Foul B.	A031-32					13.9	2	27.4	12						
Blue Fox B.	A040							5.4	1						
Shuyak I.	A060							27.6	5						
Izhut B.	A090							1.8	1						
AFOGNAK DIST. TOTAL						30.31	4	337.12	51						
GENERAL DIST.															
Kaiugnak B.	G010														
W. Sitkalidak St.	G020-21	22.7	2												
Outer Ugak B.	G050												40.5	3	
Women's B.	G060							19.2	8				49.8	15	
Monaska/Mill B.	G070					139.2	21								
Anton Larsen B.	G080							26.8	4				2.3	1	
Kizhuyak B.	G090							28.7	2						
Inshore Chiniak	G102-03			2.4	1	143.6	8	7.5	2						
GENERAL DIST. TOTAL		22.7	2	2.4	1	282.8	29	82.2	16				92.7	19	
UGANIK DIST.															
Kupreanof St.	UG10							1.7	1						
Terror/Viekoda B.	UG20-21							10.9	1						
Uganik B.	UG30-34					72.0	8	158.5	28						
UGANIK DIST. TOTAL						72.0	8	169.4	30						
UYAK DIST.															
Inner Uyak B.	UY30	56.7	9	27.3	4	35.7	6	183.4	25	2.6	1				
Zachar B.	UY40	93.3	18	87.7	12	124.0	26	12.6	1			4.2	1		
Spiridon B.	UY50	39.1	5	32.8	2	214.8	23	2.3	1					178.1	13
UYAK DIST. TOTAL		189.1	32	147.8	18	374.4	55	198.4	27	2.6	1	4.2	1	178.1	13
MAINLAND DIST.															
Inner Kukak B.	M020													36.9	13
TOTAL (all Dist.)		211.8	34	150.3	19	759.6	96	787.0	124	2.6	1	4.2	1	307.7	45

^a all catches made by seine gear

Table 10. Kodiak area commercial sac-roe herring harvest by gear and area, 1978.

Geographic Area	Stat. Area	Purse Seine			Gill net			Total	
		tonnes	Lndg	%	tonnes	Lndg	%	tonnes	Lndg
AFOGNAK DIST.									
Raspberry St.	A010	9.91	1	100%				9.91	1
GENERAL DIST.									
E. Sitkalidak St.	G022	0.82	1	100%				0.82	1
Women's B.	G060	12.78	10	63%	7.54	8	37%	20.32	18
Monashka B.	G070	0.00	-	-	1.25	2	100%	1.25	2
Anton Larsen B.	G080	4.83	3	100%				4.83	3
Kizhuyak B.	G090	19.69	6	100%				19.69	6
Inshore Chiniak	G102	4.36	1	100%				4.36	1
Spruce I.	G103	0.00	-	-	0.57	1	100%	0.57	1
GENERAL DIST. TOTAL		42.47	21	82%	9.37	11	18%	51.84	32
UGANIK DIST.									
Viekoda B.	UG20	20.91	1	100%				20.91	1
Terror B.	UG21	80.00	2	100%				80.00	2
Uganik B.	UG30-34	7.55	7	100%				7.55	7
UGANIK DIST. TOTAL		108.45	10	100%				108.45	10
UYAK DIST.									
Inner Uyak B.	UY30	79.13	17	100%				79.13	17
Zachar B.	UY40	167.45	27	100%				167.45	27
Spiridon B.	UY50	147.59	31	100%				147.59	31
UYAK DIST. TOTAL		394.17	75	100%				394.17	75
TOTAL (all Dist.)		555.01	107	98%	9.37	11	2%	564.38	118

Table 11. Kodiak area commercial sac-roe herring harvest by gear and area, 1979.

Geographic Area	Stat. Area	Purse Seine			Gill net			Total	
		tonnes	Lndg	%	tonnes	Lndg	%	tonnes	Lndg
AFOGNAK DIST.									
Raspberry St.	A010	50.09	9	92%	4.09	4	8%	54.18	13
Malina B.	A020	168.09	16	100%	0.00	-	-	168.09	16
Blue Fox B.	A040	67.00	6	100%	0.00	-	-	67.00	6
Seal B.	A072	12.55	2	100%	0.00	-	-	12.55	2
Izhut B.	A090	17.91	2	87%	2.73	1	13%	20.64	3
Kittoi B.	A091	0.00	-	-	0.64	1	100%	0.64	1
Danger B.	A100	12.27	3	100%	0.00	-	-	12.27	3
Litnik B.	A101	0.00	-	-	0.36	1	100%	0.36	1
Inshore Marmot	A102	6.09	2	46%	7.09	3	54%	13.18	5
AFOGNAK DIST. TOTAL		334.00	40	96%	14.91	10	4%	348.91	50
GENERAL DIST.									
E. Sitkalidak St.	G022	42.64	6	91%	4.09	3	9%	46.73	9
Shearwater B.	G042	40.09	4	70%	17.36	3	30%	57.45	7
Outer Ugak B.	G050	0.00	-	-	0.36	1	100%	0.36	1
Inner Ugak B.	G051	56.45	10	97%	1.73	3	3%	58.18	13
Women's B.	G060	73.91	12	84%	13.73	38	16%	87.64	50
Monashka B.	G070	0.00	-	-	0.27	3	100%	0.27	3
Anton Larsen B.	G080	10.09	2	13%	64.91	28	87%	75.00	30
Sheratin B.	G081	0.00	-	-	0.36	1	100%	0.36	1
Kizhuyak B.	G090	0.00	-	-	7.55	11	100%	7.55	11
Kalsin B.	G100	0.03	1	1%	5.36	14	99%	5.39	15
Middle B.	G101	0.00	-	-	0.27	4	100%	0.27	4
Inshore Chiniak	G102	0.00	-	-	0.27	1	100%	0.27	1
GENERAL DIST. TOTAL		223.21	35	66%	116.27	110	34%	339.48	145
UGANIK DIST.									
Viekoda B.	UG20	0.00	-	-	0.27	1	100%	0.27	1
Terror B.	UG21	157.00	15	90%	16.91	8	10%	173.91	23
Uganik B.	UG30	18.82	4	100%	0.00	-	-	18.82	4
S. Arm Uganik B.	UG34	39.27	13	82%	8.73	14	18%	48.00	27
UGANIK DIST. TOTAL		215.09	32	89%	25.91	23	11%	241.00	55
UYAK DIST.									
Harvester I.	UY20	0.45	1	3%	15.27	13	97%	15.73	14
Inner Uyak B.	UY30	131.18	18	95%	7.27	9	5%	138.45	27
Zachar B.	UY40	40.45	13	56%	31.18	67	44%	71.64	22
Spiridon B.	UY50	26.09	7	53%	22.82	24	47%	48.91	31
UYAK DIST. TOTAL		198.18	39	72%	76.55	113	28%	274.73	152
ALITAK DIST.									
Sulula/Portage B.	AL30	73.82	7	98%	1.45	2	2%	75.27	9
Lower Olga B.	AL40	18.27	4	70%	8.00	1	30%	26.27	5
Upper Olga B.	AL50	160.73	20	95%	8.73	7	5%	169.45	27
ALITAK DIST. TOTAL		252.82	31	93%	18.18	10	7%	271.00	41
MAINLAND DIST.									
Inner Kukak B.	M020	20.91	6	100%	0.00	-	-	20.91	6
Wide B.	M110	80.91	9	100%	0.00	-	-	80.91	9
MAINLAND DIST. TOTAL		101.82	15	100%	0.00	0	0%	101.82	15
TOTAL (all Dist.)		1325.12	192	84%	251.82	266	16%	1576.94	458

Table 12. Kodiak area commercial sac-roe herring harvest by gear and area, 1980.

Geographic Area	Stat. Area	Purse Seine			Gill net			Total	
		tonnes	Lndg	%	tonnes	Lndg	%	tonnes	Lndg
AFOGNAK DIST.									
Raspberry St.	A010	15.09	3	47%	17.00	9	53%	32.09	12
Malina B.	A020	243.36	22	99%	3.00	4	-	246.36	26
Paramanof/Foul B.	A031	255.82	15	96%	9.45	9	4%	265.27	24
Blue Fox B.	A040	30.18	3	100%	0.00	-	-	30.18	3
Shuyak I.	A060	2.73	1	100%	0.00	-	-	2.73	1
Izhut B.	A090	47.18	10	77%	14.36	5	23%	61.55	15
Danger B.	A100	5.18	2	63%	3.00	6	37%	8.18	8
Litnik B.	A101	0.00	-	-	6.55	5	100%	6.55	5
Inshore Marmot	A102	0.00	-	-	1.18	2	100%	1.18	2
AFOGNAK DIST. TOTAL		599.55	56	92%	54.55	40	8%	654.09	96
GENERAL DIST.									
E. Sitkalidak St.	G022	201.82	11	100%	0.82	1	0%	202.64	12
Kiliuda B.	G040	20.27	6	98%	0.36	1	2%	20.64	7
Shearwater B.	G042	0.00	-	-	4.18	1	100%	4.18	1
Outer Ugak B.	G050	7.36	5	33%	15.09	15	67%	22.45	20
Inner Ugak B.	G051	25.36	10	79%	6.73	2	21%	32.09	12
Women's B.	G060	20.09	8	20%	82.82	88	80%	102.91	96
Anton/Sheratin B.	G080	0.55	2	3%	15.09	34	97%	15.64	36
Kizhuyak B.	G090	22.64	1	75%	7.45	5	25%	30.09	6
Kalsin B.	G100	0.00	-	0%	8.10	19	100%	8.10	19
Inshore Chiniak	G102	1.18	1	42%	1.64	6	58%	2.82	7
Spruce I.	G103	0.00	-	-	2.55	5	100%	2.55	5
GENERAL DIST. TOTAL		299.27	44	67%	144.83	177	33%	444.10	221
UGANIK DIST.									
Kupreanof St.	UG10	22.73	2	92%	1.91	2	8%	24.64	4
Terror B.	UG21	39.45	16	72%	15.45	34	28%	54.91	50
Uganik B.	UG30	21.55	7	37%	37.36	25	63%	58.91	32
W. Uganik Pass.	UG31	29.73	4	85%	5.27	21	15%	35.00	25
UGANIK DIST. TOTAL		113.45	29	65%	60.00	82	35%	173.45	111
UYAK DIST.									
Harvester I.	UY20	34.91	2	97%	0.91	3	3%	35.82	5
Inner Uyak B.	UY30	59.45	7	95%	3.09	3	5%	62.55	10
Zachar B.	UY40	15.73	5	34%	31.00	45	66%	46.73	50
Spiridon B.	UY50	39.09	16	63%	22.91	21	37%	62.00	37
UYAK DIST. TOTAL		149.18	30	72%	57.91	72	28%	207.09	102
ALITAK DIST.									
Inner Alitak B.	AL20	11.45	2	100%	0.00	-	-	11.45	2
Sulula/Portage B.	AL30	55.64	10	100%	0.00	-	-	55.64	10
Lower Olga B.	AL40	4.00	2	100%	0.00	-	-	4.00	2
Upper Olga B.	AL50	144.09	23	95%	7.45	9	5%	151.55	32
ALITAK DIST. TOTAL		215.18	37	97%	7.45	9	3%	222.64	46
MAINLAND DIST.									
Inner Kukak B.	M020	61.91	5	82%	13.64	9	18%	75.55	14
Inner Katmai B.	M050	179.00	5	100%	0.00	-	-	179.00	5
Wide B.	M110	209.55	7	100%	0.00	-	-	209.55	7
MAINLAND DIST. TOTAL		450.45	18	97%	13.64	9	3%	464.09	26
TOTAL (all Dist.)		1827.09	214	84%	338.37	389	16%	2165.46	603

Table 13. Kodiak area commercial sac-roe herring harvest by gear and area, 1981.

Geographic Area	Stat. Area	Purse Seine			Gill net			Total	
		tonnes	Lndg	%	tonnes	Lndg	%	tonnes	Lndg
AFOGNAK DIST.									
Raspberry St.	A010	62.48	4	76%	19.78	16	24%	82.26	20
Malina B.	A020	49.49	14	100%	0.00	-	-	49.49	14
Paramanof/Foul B.	A031	21.33	7	77%	6.50	6	23%	27.83	13
Blue Fox B.	A040	12.04	5	100%	0.00	-	-	12.04	5
Perenosa/Seal B.	A070	15.71	7	100%	0.00	-	-	15.71	7
Tonki B.	A080	11.82	2	100%	0.00	-	-	11.82	2
Izhut B.	A090	5.11	1	15%	29.55	11	85%	34.65	12
Danger B.	A100	2.14	1	18%	9.75	6	82%	11.88	7
AFOGNAK DIST. TOTAL		180.11	41	73%	65.57	39	27%	245.68	80
GENERAL DIST.									
Kaiugnak B.	G010	0.00	-	-	2.66	4	100%	2.66	4
E. Sitkalidak St.	G020	14.37	3	34%	28.18	15	66%	42.55	18
Kiliuda B.	G040	0.00	-	-	5.76	1	100%	5.76	1
Ugak B.	G051	29.17	13	55%	24.05	39	45%	53.23	52
Women's B.	G060	0.26	2	1%	32.81	62	99%	33.07	64
Anton/Sheratin B.	G080	4.87	1	22%	17.19	33	78%	22.06	34
Kizhuyak B.	G090	8.10	9	19%	34.66	31	81%	42.76	40
Inshore Chiniak	G102	12.25	5	47%	13.75	41	53%	26.01	46
GENERAL DIST. TOTAL		69.04	33	30%	159.08	226	70%	228.12	259
UGANIK DIST.									
Terror/Viekoda B.	UG20	100.54	28	75%	33.50	33	25%	134.04	61
Uganik B.	UG30	184.53	24	90%	19.69	23	10%	204.22	47
UGANIK DIST. TOTAL		285.06	52	84%	53.19	56	16%	338.25	108
UYAK DIST.									
Harvester I.	UY20	20.25	2	100%	0.00	-	-	20.25	2
Inner Uyak B.	UY30	95.75	11	100%	0.00	-	-	95.75	11
Zachar B.	UY40	15.59	4	79%	4.18	8	21%	19.77	12
Spiridon B.	UY50	27.46	7	36%	48.83	28	64%	76.29	35
UYAK DIST. TOTAL		159.05	24	75%	53.01	36	25%	212.06	60
ALITAK DIST.									
Inner Alitak B.	AL20	4.89	2	100%	0.00	-	-	4.89	2
Sulula/Portage B.	AL30	71.17	6	93%	5.13	4	7%	76.30	10
Upper Olga B.	AL50	303.30	19	90%	34.68	11	10%	337.98	30
ALITAK DIST. TOTAL		379.36	27	91%	39.81	15	9%	419.17	42
MAINLAND DIST.									
Inner Kukak B.	M020	32.25	2	37%	54.06	37	63%	86.31	39
Missak B.	M040	5.02	3	100%	0.00	-	-	5.02	3
Inner Katmai B.	M050	177.93	17	100%	0.00	-	-	177.93	17
Alinchak B.	M070	54.13	6	100%	0.00	-	-	54.13	6
Wide B.	M110	109.13	2	100%	0.00	-	-	109.13	2
MAINLAND DIST. TOTAL		378.45	30	88%	54.06	37	13%	432.51	67
TOTAL (all Dist.)		1451.07	207	77%	424.73	409	23%	1875.80	616

Table 14. Kodiak area commercial sac-roe herring harvest by gear and area, 1982.

Geographic Area	Stat. Area	Purse Seine			Gill net			Total	
		tonnes	Lndg	%	tonnes	Lndg	%	tonnes	Lndg
AFOGNAK DIST.									
Raspberry St.	A010	1.62	1	5%	31.02	20	95%	32.65	21
Malina B.	A020	51.25	5	78%	14.49	5	22%	65.74	10
Paramanof/Foul B.	A031	29.18	3	38%	47.36	15	62%	76.55	18 *
Blue Fox B.	A040	14.64	2	81%	3.45	4	19%	18.09	6 *
Perenosa/Seal B.	A070	11.45	3	100%	0.00		0%	11.45	3
Izhut B.	A090	28.26	4	53%	24.90	9	47%	53.15	13
Danger B.	A100	64.43	4	91%	6.17	3	9%	70.59	7
AFOGNAK DIST. TOTAL		200.83	22	61%	127.40	56	39%	328.23	78
GENERAL DIST.									
E. Sitkalidak St.	G020	78.25	6	86%	12.27	6	14%	90.52	12
Kiliuda B.	G040	44.86	3		0.00	-	-	44.86	3
Ugak B.	G051	53.00	9	100%	0.18	1	1%	53.18	10 *
Women's B.	G060	0.00	-	-	72.00	73	100%	72.00	73 *
Anton/Sheratin B.	G080	8.42	3	50%	8.29	15	50%	16.71	18
Kizhuyak B.	G090	62.48	10	91%	6.39	3	9%	68.87	13
Inshore Chiniak	G102	51.20	10	93%	3.99	9	7%	55.19	19
GENERAL DIST. TOTAL		298.21	41	74%	103.12	107	26%	401.34	148
UGANIK DIST.									
Terror/Viekoda B.	UG20	87.19	15	95%	4.70	4	5%	91.89	19
Uganik B.	UG30	99.91	10	69%	44.73	16	31%	144.64	26 *
UGANIK DIST. TOTAL		187.10	25	79%	49.43	20	21%	236.53	45
UYAK DIST.									
Harvester I.	UY20	0.00	-	-	0.06	1	100%	0.06	1
Inner Uyak B.	UY30	111.36	12	97%	3.17	3	3%	114.53	15
Zachar B.	UY40	48.18	2	100%	0.00	-	-	48.18	2 *
Spiridon B.	UY50	70.20	6	87%	10.46	7	13%	80.66	13
UYAK DIST. TOTAL		229.75	20	94%	13.69	11	6%	243.44	31
ALITAK DIST.									
Sulua/Portage B.	AL30	58.18		100%	0.00	-	-	58.18	0 *
Upper Olga B.	AL50	126.58	6	100%	0.00	-	-	126.58	6
ALITAK DIST. TOTAL		184.76	6	100%	0.00	0	0%	184.76	6
MAINLAND DIST.									
Inner Kukak B.	M020	10.80	1	61%	6.91	2	39%	17.71	3
Inner Katmai B.	M050	118.98	9	100%	0.00	-	-	118.98	9
Alinchak B.	M070	30.16	2	100%	0.00	-	-	30.16	2
Wide B.	M110	54.54	7	100%	0.00	-	-	54.54	7
MAINLAND DIST. TOTAL		214.48	19	97%	6.91	2	3%	221.39	21
TOTAL (all Dist.)		1315.12	133	81%	300.56	196	19%	1615.68	329

* estimated 178.2 mt not sold

Table 15. Kodiak area commercial sac-roe herring harvest by gear and area, 1983.

Geographic Area	Stat. Area	Purse Seine			Gill net			Total	
		tonnes	Lndg	%	tonnes	Lndg	%	tonnes	Lndg
AFOGNAK DIST.									
Raspberry St.	A010	4.09	2	6%	69.36	34	94%	73.45	36
Malina B.	A020	61.55	8	90%	6.82	1	10%	68.36	9
Paramanof B.	A031	75.55	3	84%	14.45	3	16%	90.00	6
Blue Fox B.	A040	15.82	8	97%	0.45	1	3%	16.27	9
Shuyak I. (Big B.)	A060	11.00	2	76%	3.45	1	24%	14.45	3
Perenosa B.	A070	4.64	4	21%	17.45	9	79%	22.09	13
Tonki B.	A080	0.00	-	-	2.00	1	100%	2.00	1
Izhut B.	A090	12.91	2	29%	31.00	19	71%	43.91	21
Danger B.	A100	4.00	2	8%	46.00	19	92%	50.00	21
AFOGNAK DIST. TOTAL		189.55	31	50%	191.00	88	50%	380.55	119
GENERAL DIST.									
Kaiugnak B.	G010	15.00	2	46%	17.45	5	54%	32.45	7
E. Sitkalidak St.	G020	122.55	9	94%	8.27	3	6%	130.82	12
Kiliuda B.	G040	41.09	6	85%	7.36	5	15%	48.45	11
Ugak B.	G051	95.73	7	100%	0.00	-	-	95.73	7
Women's B.	G060	44.82	7	88%	63.36	69	59%	108.18	76
Anton/Sheratin B.	G080	20.73	1	54%	17.73	17	46%	38.45	18
Kizhuyak B.	G090	49.00	7	71%	19.73	11	29%	68.73	18
Inshore Chiniak	G102	33.91	6	63%	19.91	27	37%	53.82	33
GENERAL DIST. TOTAL		422.82	45	73%	153.82	137	27%	576.64	182
UGANIK DIST.									
Kupreanof St.	UG10	3.64	2	68%	1.73	1	32%	5.36	3
Terror/Viekoda B.	UG20	54.82	7	73%	20.64	11	27%	75.45	18
Uganik B.	UG30	82.91	11	61%	52.27	20	39%	135.18	31
UGANIK DIST. TOTAL		141.36	20	65%	74.64	32	35%	216.00	52
UYAK DIST.									
Inner Uyak B.	UY30	190.73	18	94%	12.64	5	6%	203.36	23
Zachar B.	UY40	103.45	6	83%	20.45	13	17%	123.91	19
Spiridon B.	UY50	70.27	6	97%	2.36	1	3%	72.64	7
UYAK DIST. TOTAL		364.45	30	91%	35.45	19	9%	399.91	49
ALITAK DIST.									
Deadman B.	AL21	73.73	4	94%	4.91	2	6%	78.64	6
Sulua/Portage B.	AL30	65.09	3	93%	4.82	2	7%	69.91	5
Upper Olga B.	AL50	116.73	15	100%	0.00	-	-	116.73	15
ALITAK DIST. TOTAL		255.55	22	96%	9.73	4	4%	265.27	26
MAINLAND DIST.									
Inner Kukak B.	M020	26.73	3	74%	9.55	4	26%	36.27	7
Inner Katmai B.	M050	88.82	10	100%	0.00	-	-	88.82	10
Alinchak B.	M070	61.45	2	100%	0.00	-	-	61.45	2
Wide B.	M110	82.82	1	100%	0.00	-	-	82.82	1
MAINLAND DIST. TOTAL		259.82	16	96%	9.55	4	4%	269.36	20
TOTAL (all Dist.)		1633.55	164	78%	474.18	284	22%	2107.73	448

Table 16. Kodiak area commercial sac-roe herring harvest by gear and area, 1984.

Geographic Area	Stat. Area	Purse Seine			Gill net			Total	
		tonnes	Lndg	%	tonnes	Lndg	%	tonnes	Lndg
AFOGNAK DIST.									
Raspberry St.	A010	12.18	2	23%	41.18	24	77%	53.36	26
Malina B.	A020	43.55	6	67%	21.82	9	33%	65.36	15
Paramanof B.	A031	130.00	9	74%	44.55	8	26%	174.55	17
Blue Fox B.	A040	0.00	-	-	1.91	2	100%	1.91	2
Shuyak I.	A060	0.36	1	22%	1.27	1	78%	1.64	2
Perenosa B.	A070	45.73	4	95%	2.45	2	5%	48.18	6
Tonki B.	A080	5.64	2	93%	0.45	1	7%	6.09	3
Izhut B.	A090	40.91	7	43%	54.27	14	57%	95.18	21
Danger B.	A100	19.27	2	40%	29.27	18	60%	48.55	20
AFOGNAK DIST. TOTAL		297.64	33	60%	197.18	79	40%	494.82	112
GENERAL DIST.									
Kaiugnak B.	G010	15.91	1	95%	0.91	1	5%	16.82	2
E. Sitkalidak St.	G020	101.00	8	85%	17.82	5	15%	118.82	13
Kiliuda B.	G040	17.00	3	97%	0.55	2	3%	17.55	5
Ugak B.	G051	50.09	4	96%	2.18	2	4%	52.27	6
Women's B.	G060	47.4545	4	56%	39.73	30	44%	89.82	34
Anton/Sheratin B.	G080	27.64	9	62%	17.09	22	38%	44.73	31
Kizhuyak B.	G090	67.36	9	83%	13.73	12	17%	81.09	21
Inshore Chiniak	G102	8.00	2	26%	22.36	26	74%	30.36	28
GENERAL DIST. TOTAL		334.45	40	75%	114.36	100	25%	448.82	140
UGANIK DIST.									
Terror/Viekoda B.	UG20	33.73	6	54%	29.00	12	46%	62.73	18
Uganik B.	UG30	158.55	15	87%	24.55	8	13%	183.09	23
UGANIK DIST. TOTAL		192.27	21	78%	53.55	20	22%	245.82	41
UYAK DIST.									
Inner Uyak B.	UY30	48.18	4	48%	52.18	11	52%	100.36	15
Zachar B.	UY40	64.18	7	100%	0.00	-	-	64.18	7
Spiridon B.	UY50	124.36	10	99%	0.91	2	1%	125.27	12
UYAK DIST. TOTAL		236.73	21	82%	53.09	13	18%	289.82	34
ALITAK DIST.									
Deadman B.	AL21	15.91	1	100%	0.00	-	-	15.91	1
Sulua/Portage B.	AL30	63.27	4	97%	1.64	1	3%	64.91	5
Upper Olga B.	AL50	168.45	6	100%	0.00	-	-	168.45	6
ALITAK DIST. TOTAL		247.64	11	99%	1.64	1	1%	249.27	12
MAINLAND DIST.									
Inner Kukak B.	M020	5.91	1	23%	19.64	5	77%	25.55	6
Inner Katmai B.	M050	34.82	5	100%	0.00	-	-	34.82	5
Alinchak B.	M070	51.09	1	100%	0.00	-	-	51.09	1
Wide B.	M110	126.09	7	100%	0.00	-	-	126.09	7
MAINLAND DIST. TOTAL		217.91	14	92%	19.64	5	8%	237.55	19
TOTAL (all Dist.)		1526.64	140	78%	439.45	218	22%	1966.09	358

Table 17 . Kodiak area commercial sac-roe herring harvest by gear and area, 1985.

Geographic Area	Stat. Area	Purse Seine			Gill net			Total	
		tonnes	Lndg	%	tonnes	Lndg	%	tonnes	Lndg
AFOGNAK DIST.									
Raspberry St.	A010	6.42	1	11%	51.67	37	89%	58.09	38
Malina B.	A020	42.45	5	68%	19.60	10	32%	62.05	15
Paramanof Bay	A031	19.22	5	63%	11.37	3	37%	30.59	8
Foul B.	A032	0.00	-	-	13.75	7	100%	13.75	7
Perenosa B.	A070	5.45	2	21%	20.36	3	79%	25.82	5
Delphin B.	A071	0.00	-	-	1.89	1	100%	1.89	1
Seal B.	A072	1.30	1	72%	0.51	1	28%	1.81	2
Tonki B.	A080	10.44	1	100%	0.00	-	-	10.44	1
Izhut B.	A090	53.76	7	91%	5.25	1	9%	59.02	8
Kitoi B.	A091	12.22	2	39%	18.74	20	61%	30.95	22
McDonalds L.	A092	4.20	1	42%	5.79	11	58%	9.99	12
Danger B.	A100	12.58	3	25%	37.05	27	75%	49.64	30
Litnik	A101	2.88	1	31%	6.44	6	69%	9.32	7
Inshore Marmot	A102	0.83	1	100%	0.00	-	-	0.83	1
AFOGNAK DIST. TOTAL		171.75	30	47%	192.43	127	53%	364.17	157
GENERAL DIST.									
Barling B.	G021	24.47	1	100%	0.00	-	-	24.47	1
E. Sitkalidak St.	G022	48.95	1	74%	16.83	4	26%	65.77	5
Tanginak Anch.	G023	2.73	1	47%	3.11	2	53%	5.84	3
Shearwater B.	G042	21.76	3	100%	0.00	-	-	21.76	3
Inner Ugak B.	G051	19.09	1	67%	9.26	2	33%	28.35	3
Women's B.	G060	101.59	6	77%	30.62	38	23%	132.21	44
Monashka B.	G070	3.38	1	100%	0.00	-	-	3.38	1
Anton Larsen B.	G080	3.42	3	15%	19.93	45	85%	23.35	48
Sheratin B.	G081	0.00	-	-	3.75	2	100%	3.75	2
Kizhuyak B.	G090	38.07	7	65%	20.85	11	35%	58.93	18
Kalsin B.	G100	0.00	-	-	3.84	11	100%	3.84	11
Middle B.	G101	13.08	3	100%	0.00	-	-	13.08	3
Inshore Chiniak	G102	0.00	-	-	1.42	4	100%	1.42	4
GENERAL DIST. TOTAL		276.55	27	72%	109.60	119	28%	386.15	146
UGANIK DIST.									
Kupreanof St.	UG10	0.00	-	-	0.12	1	100%	0.12	1
Viekoda B.	UG20	10.63	3	51%	10.26	6	49%	20.89	9
Terror B.	UG21	49.82	6	88%	7.07	3	12%	56.89	9
Village I.	UG30	10.16	2	24%	32.02	15	76%	42.18	17
W. Uganik Pass.	UG31	16.30	2	69%	7.22	1	31%	23.52	3
N.E. Arm Uganik B.	UG32	57.33	3	100%	0.00	-	-	57.33	3
E. Arm Uganik B.	UG33	2.67	1	7%	34.25	10	93%	36.92	11
S. Arm Uganik B.	UG34	0.00	-	-	7.13	4	100%	7.13	4
UGANIK DIST. TOTAL		146.91	17	60%	98.06	40	40%	244.97	57
UYAK DIST.									
Inner Uyak B.	UY30	97.53	8	50%	98.33	22	50%	195.85	30
Larsen B.	UY31	0.00	-	-	3.64	1	100%	3.64	1
Zachar B.	UY40	58.62	4	61%	37.57	15	39%	96.19	19
Spiridon B.	UY50	11.09	5	15%	61.41	9	85%	72.50	14
UYAK DIST. TOTAL		167.24	17	45%	200.95	47	55%	368.18	64
ALITAK DIST.									
Deadman B.	AL21	36.22	3	87%	5.57	1	13%	41.79	4
Sulua/Portage B.	AL30	49.77	4	92%	4.40	5	8%	54.17	9
Upper Olga B.	AL50	140.74	10	89%	17.55	2	11%	158.28	12
Jap B.	AL60	3.23	1	100%	-	-	0%	3.23	1
ALITAK DIST. TOTAL		229.95	18	89%	27.52	8	11%	257.47	26

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Table 17. (page 2 of 2)

Geographic Area	Stat. Area	Purse Seine			Gill net			Total	
		tonnes	Lndg	%	tonnes	Lndg	%	tonnes	Lndg
MAINLAND DIST.									
Inner Kukak B.	M020	99.34	2	78%	28.55	7	22%	127.88	9
Inner Katmai B.	M050	9.45	1	100%	0.00	-	-	9.45	1
Alinchak B.	M070	3.75	2	100%	0.00	-	-	3.75	2
Wide B.	M110	26.15	4	97%	0.91	1	3%	27.06	5
MAINLAND DIST. TOTAL		138.70	9	82%	29.45	8	18%	168.15	17
TOTAL (all Dist.)		1131.09	118	63%	658.01	349	37%	1789.10	467

Table 18. Kodiak area commercial sac-roe herring harvest by gear and area, 1986.

Geographic Area	Stat. Area	Purse Seine			Gill net			Total	
		tonnes	Lndg	%	tonnes	Lndg	%	tonnes	Lndg
AFOGNAK DIST.									
Raspberry St.	A010	8.84	3	19%	36.94	25	81%	45.77	28
Malina B.	A020	0.00	-	-	12.46	20	100%	12.46	20
Paramanof Bay	A031	13.19	2	61%	8.30	19	39%	21.49	21
Foul B.	A032	13.27	2	96%	0.51	3	4%	13.78	5
Shuyak I.	A060	0.95	1	100%	0.00	-	-	0.95	1
Perenosia B.	A070	9.12	4	45%	11.13	8	55%	20.25	12
Seal B.	A072	2.73	1	100%	0.00	-	-	2.73	1
Tonki B.	A080	6.95	2	100%	0.00	-	-	6.95	2
Izhut B.	A090	15.79	3	87%	2.45	2	13%	18.24	5
Kitoi B.	A091	0.20	1	6%	3.05	6	94%	3.25	7
McDonalds L.	A092	8.64	2	86%	1.43	3	14%	10.06	5
Danger B.	A100	12.68	6	42%	17.37	38	58%	30.05	44
Litnik	A101	0.00	-	-	1.73	3	100%	1.73	3
Inshore Marmot	A102	0.00	-	-	0.18	1	100%	0.18	1
AFOGNAK DIST. TOTAL		92.35	27	49%	95.54	128	51%	187.88	155
GENERAL DIST.									
W. Sitkalidak St.	G020	3.99	1	100%	0.00	-	-	3.99	1
Barling B.	G021	6.95	2	100%	0.00	-	-	6.95	2
E. Sitkalidak St.	G022	26.02	5	47%	29.51	6	53%	55.53	11
Tanginak Anch.	G023	30.46	2	100%	0.00	-	-	30.46	2
Shearwater B.	G042	21.09	1	100%	0.00	-	-	21.09	1
Inner Ugak B.	G051	47.64	1	100%	0.00	-	-	47.64	1
Women's B.	G060	118.20	11	73%	43.75	81	27%	161.95	92
Anton Larsen B.	G080	10.34	5	39%	16.08	26	61%	26.42	31
Kizhuyak B.	G090	41.06	12	58%	29.58	30	42%	70.65	42
Kalsin B.	G100	0.00	-	-	1.43	5	100%	1.43	5
Middle B.	G101	11.07	3	100%	0.00	-	-	11.07	3
Inshore Chiniak	G102	0.00	-	-	0.91	1	100%	0.91	1
Spruce I.	G103	0.00	-	-	0.17	1	100%	0.17	1
GENERAL DIST. TOTAL		316.82	43	72%	121.43	150	28%	438.25	193
UGANIK DIST.									
Kupreanof St.	UG10	1.29	2	100%	0.00	-	-	1.29	2
Viekoda B.	UG20	18.06	3	100%	0.00	-	-	18.06	3
Terror B.	UG21	31.74	4	73%	11.79	21	27%	43.53	25
Village I.	UG30	2.21	1	10%	20.65	9	90%	22.85	10
W. Uganik Pass.	UG31	8.96	2	37%	15.04	7	63%	24.00	9
N.E. Arm Uganik B.	UG32	72.63	12	100%	0.00	-	-	72.63	12
E. Arm Uganik B.	UG33	2.65	1	11%	21.63	7	89%	24.27	8
S. Arm Uganik B.	UG34	25.25	3	79%	6.66	5	21%	31.91	8
UGANIK DIST. TOTAL		162.78	28	68%	75.76	49	32%	238.55	77
UYAK DIST.									
Inner Uyak B.	UY30	28.29	4	37%	48.39	23	63%	76.68	27
Zachar B.	UY40	5.15	1	11%	43.83	29	89%	48.97	30
Spiridon B.	UY50	76.15	6	100%	0.00	-	-	76.15	6
UYAK DIST. TOTAL		109.58	11	54%	92.22	52	46%	201.80	63
ALITAK DIST.									
Deadman B.	AL21	38.24	4	100%	0.00	-	-	38.24	4
Sulua/Portage B.	AL30	27.07	3	100%	0.00	-	-	27.07	3
Upper Olga B.	AL50	142.55	7	100%	0.00	-	-	142.55	7
ALITAK DIST. TOTAL		207.86	14	100%	0.00	0	0%	207.86	14

- continued -

Table 18. (page 2 of 2)

Geographic Area	Stat. Area	Purse Seine			Gill net			Total	
		tonnes	Lndg	%	tonnes	Lndg	%	tonnes	Lndg
MAINLAND DIST.									
Inner Kukak B.	M020	24.99	2	55%	20.38	5	45%	45.37	7
Inner Katmai B.	M050	46.61	5	91%	4.75	1	9%	51.36	6
Alinchak B.	M070	26.59	1	100%	0.00	-	-	26.59	1
Wide B.	M110	21.29	1	100%	0.00	-	-	21.29	1
MAINLAND DIST. TOTAL		119.48	9	83%	25.13	6	17%	144.61	15
TOTAL (all Dist.)		1008.87	132	71%	410.08	385	29%	1418.95	517

Table 19. Kodiak area commercial sac-roë herring harvest by gear and area, 1987.

Geographic Area	Stat. Area	Purse Seine			Gill net			Total	
		tonnes	Lndg	%	tonnes	Lndg	%	tonnes	Lndg
AFOGNAK DIST.									
Raspberry St.	A010	10.45	4	35%	19.27	16	65%	29.73	20
Malina B.	A020	12.73	1	100%	0.00	-	-	12.73	1
Paramanoff B.	A031	15.55	4	81%	3.64	2	19%	19.18	6
Foul B.	A032	90.45	5	99%	1.18	4	1%	91.64	9
Shuyak I.	A060	0.00	-	-	0.36	1	100%	0.36	1
Perenosa B.	A070	26.36	1	88%	3.55	1	12%	29.91	2
Seal B.	A072	45.00	2	100%	0.00	-	-	45.00	2
Tonki B.	A080	7.27	1	100%	0.00	-	-	7.27	1
Izhut B.	A090	14.36	4	84%	2.82	2	16%	17.18	6
Kitoi B.	A091	0.00	-	-	11.73	7	100%	11.73	7
McDonalds L.	A092	7.91	5	98%	0.18	1	2%	8.09	6
Danger B.	A100	21.91	4	50%	21.55	12	50%	43.45	16
Litnik	A101	13.73	5	77%	4.00	2	23%	17.73	7
Inshore Marmot	A102	0.00	-	-	0.91	1	100%	0.91	1
AFOGNAK DIST. TOTAL		265.73	36	79%	69.18	49	21%	334.91	85
GENERAL DIST.									
Barling B.	G021	54.27	2	100%	0.00	-	-	54.27	2
E. Sitkalidak St.	G022	0.00	-	-	48.09	23	100%	48.09	23
Tanginak Anch.	G023	0.00	-	-	3.27	5	100%	3.27	5
Outer Kiluda B.	G040	0.00	-	-	0.55	1	100%	0.55	1
Inner Kiliuda B.	G041	8.55	1	100%	0.00	-	-	8.55	1
Shearwater B.	G042	14.55	1	100%	0.00	-	-	14.55	1
Outer Ugak B.	G050	4.55	1	52%	4.18	1	48%	8.73	2
Inner Ugak B.	G051	45.91	5	94%	3.18	1	6%	49.09	6
Women's B.	G060	17.09	3	22%	59.55	58	78%	76.64	61
Monashka B.	G070	0.00	-	-	0.18	2	100%	0.18	2
Anton Larsen B.	G080	12.09	3	34%	23.36	25	66%	35.45	28
Sheratin B.	G081	0.00	-	-	3.09	5	100%	3.09	5
Kizhuyak B.	G090	46.09	5	77%	14.00	18	23%	60.09	23
Kalsin B.	G100	14.09	2	100%	0.00	-	-	14.09	2
Middle B.	G101	74.73	5	94%	4.45	4	6%	79.18	9
Spruce I.	G103	0.00	-	-	4.18	4	100%	4.18	4
GENERAL DIST. TOTAL		291.91	28	63%	168.09	147	37%	460.00	175
UGANIK DIST.									
Kupreanof St.	UG10	1.09	1	75%	0.36	1	25%	1.45	2
Viekoda B.	UG20	24.18	1	70%	10.36	9	30%	34.55	10
Terror B.	UG21	56.91	3	92%	5.00	2	8%	61.91	5
Village I.	UG30	5.64	1	23%	19.27	16	77%	24.91	17
W. Uganik Pass.	UG31	0.00	-	-	21.45	8	100%	21.45	8
N.E. Arm Uganik B.	UG32	34.27	8	58%	24.55	44	42%	58.82	52
E. Arm Uganik B.	UG33	10.27	1	27%	27.64	10	73%	37.91	11
S. Arm Uganik B.	UG34	25.91	2	100%	0.00	-	-	25.91	2
UGANIK DIST. TOTAL		158.27	17	59%	108.64	90	41%	266.91	107
UYAK DIST.									
Inner Uyak B.	UY30	122.91	6	82%	27.45	31	18%	150.36	37
Larsen Bay	UY31	10.91	1	79%	2.82	7	21%	13.73	8
Zachar B.	UY40	4.09	1	5%	71.64	61	95%	75.73	62
Spiridon B.	UY50	104.73	7	96%	4.00	6	4%	108.73	13
UYAK DIST. TOTAL		242.64	15	70%	105.91	105	30%	348.55	120
ALITAK DIST.									
Deadman B.	AL21	39.36	5	68%	18.45	4	32%	57.82	9
Sulua/Portage B.	AL30	23.55	1	90%	2.73	1	10%	26.27	2
Upper Olga B.	AL50	148.73	10	93%	11.64	11	7%	160.36	21
Geese/Twoheaded	AL60	8.18	1	59%	5.73	2	41%	13.91	3
ALITAK DIST. TOTAL		219.82	17	85%	38.55	18	15%	258.36	35

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Geographic Area	Stat. Area	Purse Seine			Gill net			Total	
		tonnes	Lndg	%	tonnes	Lndg	%	tonnes	Lndg
MAINLAND DIST.									
Inner Kukak B.	M020	32.91	3	71%	13.64	2	29%	46.55	5
Missak	M040	80.91	2	100%	0.00	-	-	80.91	2
Inner Katmai B.	M050	37.27	1	100%	0.00	-	-	37.27	1
Alinchak B.	M070	36.27	1	100%	0.00	-	-	36.27	1
Wide B.	M110	81.27	2	100%	0.00	-	-	81.27	2
MAINLAND DIST. TOTAL		268.64	9	95%	13.64	2	5%	282.27	11
TOTAL (all Dist.)		1447.00	122	74%	504.00	411	26%	1951.00	533

Table 20. Kodiak area commercial food/bait herring harvest by area, 1964-70.

Geographic Area	Stat. Area	YEAR ^a								
		1964 tonnes	1965 tonnes	1966 tonnes	1967 tonnes	1968 tonnes	1969 tonnes	Lndg	1970 tonnes	Lndg
GENERAL DIST.				N	N					
Monaska/Mill B.	G070			O	O				0.2	1
Inshore Chiniak	G100	281.6	31.9			14.0			4.9	5
GENERAL DIST. TOTAL		281.6	31.9	D	D	14.0			5.2	6
				A	A					
UYAK DIST.				T	T					
Inner Uyak B.	UY30			A	A		18.2	1		
TOTAL (all Dist.)		281.6	31.9 ^b	179.9	273.0	14.0	18.2	1	5.2	6

^a all catches made by seine gear

^b sold as bait after roe removed

Table 21. Kodiak area commercial food/bait herring harvest by area, 1971-77.

Geographic Area	Stat. Area	YEAR ^a													
		1971		1972		1973		1974		1975		1976		1977	
		tonnes	Lndg	tonnes	Lndg	tonnes	Lndg	tonnes	Lndg	tonnes	Lndg	tonnes	Lndg	tonnes	Lndg
AFOGNAK DIST.															
Raspberry St.	A010	0.02	1												
Paramanof/Foul B.	A031-2					20.4	5								
Blue Fox B.	A040	32.7	7							4.7	1				
Shuyak I.	A060			18.1	1	7.1	1							N	
Perenosa B.	A070	7.5	2											O	
AFOGNAK DIST. TOTAL		40.22	10	18.1	1	27.4	6			4.7	1				
GENERAL DIST.															
Women's B.	G060					1.5	1	3.8	3					H	
Inshore Chiniak	G102-3	6.4	9	9.4	6			0.3	1					A	
GENERAL DIST. TOTAL		6.4	9	9.4	6	1.5	1	4.0	4					R	
UGANIK DIST.															
Terror/Viekoda B.	UG20-21	0.02	1											V	
Uganik B.	UG30-34			38.1	12			3.5	1					E	
UGANIK DIST. TOTAL		0.02	1	38.1	12			3.5	1					S	
MAINLAND DIST.															
Inner Kukak B.	M020												8.3	2	
TOTAL (all Dist.)		46.6	20	65.6	19	28.9	7	7.6	5	4.7	1	0.0	0	8.3 2	

^a all catches by seine except in 1977 (trawl)

Table 22. Kodiak area commercial food/bait herring harvest by gear and area, 1978.

Geographic Area	Stat. Area	Purse Seine			Gill net			Trawl			Total	
		tonnes	Lndg	%	tonnes	Lndg	%	tonnes	Lndg	%	tonnes	Lndg
AFOGNAK DIST.												
Paramanoff B.	A031-2	7.27	1	100%							7.27	1
Offshore W. Afog.	A050							1.32	3	100%	1.32	3
Perenosa B.	A070							22.81	1	100%	22.81	1
AFOGNAK DIST. TOTAL		7.27	1	23%				24.13	4	77%	31.40	5
GENERAL DIST.												
W. Sitkalidak St.	G020	3.45	1	100%							3.45	1
Women's B.	G060	1.10	1	23%	3.77	7	77%				4.87	8
Anton Larsen B.	G080	2.94	1	100%							2.94	1
Inshore Chiniak	G100				3.65	18	100%				3.65	18
GENERAL DIST. TOTAL		7.49	3	50%	7.42	25	50%				14.91	28
UGANIK DIST.												
Village I.	UG30	7.28	1	100%							7.28	1
UYAK DIST.												
Zachar B.	UY40	25.23	2	100%							25.23	2
MAINLAND DIST.												
Inner Kukak B.	M020							195.06	6	100%	195.06	6
TOTAL (all Dist.)		47.27	7	17%	7.42	25	3%	219.19	10	80%	273.88	42

Table 23. Kodiak area commercial food/bait herring harvest by gear and area, 1979.

Geographic Area	Stat. Area	Purse Seine			Trawl			Total	
		tonnes	Lndg	%	tonnes	Lndg	%	tonnes	Lndg
AFOGNAK DIST.									
Inshore Marmot	A100	9.32	4	100%				9.32	4
GENERAL DIST.									
Inshore Chiniak	G100	0.25	1	100%				0.25	1
ALITAK DIST.									
Outer Alitak	AL10				0.75	1	100%	0.75	1
Inner Alitak	AL20				96.15	2	100%	96.15	2
ALITAK DIST. TOTALS					96.90	3	100%	96.90	3
TOTAL (all Dist.)		9.57	5	9%	96.90	3	91%	106.48	8

Table 24. Kodiak area commercial food/bait herring harvest by gear and area, 1980.

Geographic Area	Stat. Area	Purse Seine			Gill net			Trawl			Total	
		tonnes	Lndg	%	tonnes	Lndg	%	tonnes	Lndg	%	tonnes	Lndg
AFOGNAK DIST.												
Shuyak I.	A060				0.13	1	100%				0.13	1
Inshore Marmot	A100				2.06	2	100%				2.06	2
AFOGNAK DIST. TOTAL					2.19	3	100%				2.19	3
GENERAL DIST.												
Anton Larsen B.	G080				1.79	6	100%				1.79	6
Inshore Chiniak	G100	0.003	1	100%							0.003	1
GENERAL DIST. TOTAL					0.003	1	0.2%	1.79	6	100%	1.79	7
UGANIK DIST.												
Kupreanof St.	UG10	0.05	1	100%							0.05	1
Viekoda/Terror B.	UG20							2.29	2	100%	2.29	2
UGANIK DIST. TOTAL					0.05	1	2%				2.29	2
ALITAK DIST.												
Inner Alitak B.	AL20							46.71	3	100%	46.71	3
MAINLAND DIST.												
Inner Kukak B.	M020							92.32	2	100%	92.32	2
TOTAL (all Dist.)		0.05	2	0.04%	3.98	9	3%	141.32	7	97%	145.35	18

Table 25. Kodiak area commercial food/bait herring harvest by area, 1981-82.

Geographic Area	Stat. Area	YEAR ^a			
		1981		1982	
		tonnes	Lndg	tonnes	Lndg
AFOGNAK DIST. Inshore Marmot	A100	0.3	2		
UGANIK DIST. Kupreanof St.	UG10			8.9	2
TOTAL (all Dist.)		0.3	2	8.9	2

^a all catches made by gill net gear

Table 26. Kodiak area commercial food/bait herring harvest by gear and area, 1983.

Geographic Area	Stat. Area	Purse Seine			Gill net			Trawl			Total	
		tonnes	Lndg	%	tonnes	Lndg	%	tonnes	Lndg	%	tonnes	Lndg
GENERAL DIST.												
W. Sitkalidak St.	G020-21				1.82	1	100%				1.82	1
Inshore Chiniak	G100				1.71	4	100%				1.71	4
GENERAL DIST. TOTAL					3.52	5	100%				3.52	5
UGANIK DIST.												
Kupreanof St.	UG10				0.77	1	8%	9.45	1	92%	10.23	2
Viekoda/Terror B.	UG20	102.73	2	100%							102.73	2
Uganik B.	UG30-34				0.21	1	0%				0.21	1
UGANIK DIST. TOTAL		102.73	2	91%	0.98	2	1%	9.45	1	8%	113.16	5
UYAK DIST.												
Inner Uyak B.	UY30	109.09	1	100%							109.09	1
Spiridon B.	UY50	70.68	3	100%							70.68	3
UYAK DIST. TOTALS		179.77	4	100%							179.77	4
TOTAL (all Dist.)		282.50	6	95%	4.50	7	2%	9.45	1	3%	296.46	14

Table 27. Kodiak area commercial food/bait herring harvest by gear and area, 1984.

Geographic Area	Stat. Area	Purse Seine			Gill net			Trawl			Total	
		tonnes	Lndg	%	tonnes	Lndg	%	tonnes	Lndg	%	tonnes	Lndg
GENERAL DIST.												
Women's B.	G060				2.21	2	100%				2.21	2
Anton Larsen B.	G080				1.50	1	100%				1.50	1
Kizhuyak B.	G090				0.48	1	100%				0.48	1
GENERAL DIST. TOTAL					4.19	4	100%				4.19	4
UYAK DIST.												
Inner Uyak B.	UY30	3.38	2	100%							3.38	2
UNKNOWN DIST(s).		3.16	3	11%	0.36	1	1%	25.24	3	88%	28.77	7
TOTAL (all Dist.)		6.55	5	18%	4.56	5	13%	25.24	3	69%	36.34	13

Table 28. Kodiak area commercial food/bait herring harvest by gear and area, 1985.

Geographic Area	Stat. Area	Purse Seine			Gill net			Trawl			Total				
		tonnes	Lndg	%	tonnes	Lndg	%	tonnes	Lndg	%	tonnes	Lndg			
AFOGNAK DIST.															
Raspberry St.	A010							28.69	1	100%	28.69	1			
Offshore W. Afog.	A050							80.26	4	100%	80.26	4			
Tonki B.	A080							19.79	1	100%	19.79	1			
AFOGNAK DIST. TOTAL								128.73	6	100%	128.73	6			
GENERAL DIST.															
Ugak B.	G050	19.09	1	100%							19.09	1			
Women's B.	G060				2.37	5	100%				2.37	5			
Anton Larsen B.	G080				0.66	3	100%				0.66	3			
Kizhuyak B.	G090	0.01	1	3.4%							0.01	1			
Inshore Chiniak	G100				0.16	1	97%				0.16	2			
GENERAL DIST. TOTAL								19.10	2	86%	3.19	9	14%	22.29	11
UGANIK DIST.															
Offshore Uganik	UG40							20.62	1	100%	20.62	1			
UYAK DIST.															
Spiridon B.	UY50	1.36	1	100%							1.36	1			
STURGEON DIST.															
	SH10							15.57	1	100%	15.57	1			
ALITAK DIST.															
Sulua B.	AL30				0.27	1	100%				0.27	1			
Upper Olga B.	AL50	3.64	1	100%							3.64	1			
Geese/Twoheaded	AL60				0.23	1	100%				0.23	1			
ALITAK DIST. TOTALS								3.64	1	88%	0.50	2	12%	4.14	3
MAINLAND DIST.															
Wide B.	M110				0.91	1	100%				0.91	1			
TOTAL (all Dist.)		24.10	4	12%	4.60	12	2%	164.92	8	85%	193.62	24			

Table 29. Kodiak area commercial food/bait herring harvest by gear and area, 1986.

Geographic Area	Stat. Area	Purse Seine			Trawl			Total	
		tonnes	Lndg	%	tonnes	Lndg	%	tonnes	Lndg
UGANIK DIST.									
Kupreanof St.	UG10				121.91	2	100%	121.91	2
Terror Bay	UG21	15.74	2	100%				15.74	2
UGANIK DIST. TOTAL		15.74	2	11%	121.91	2	89%	137.65	4
UYAK DIST.									
Offshore Uganik	UY10				227.16	16	100%	227.16	16
TOTAL (all Dist.)		15.74	2	4%	349.07	18	96%	364.81	20

Table 30. Kodiak area commercial sac-roe herring catch (pounds) by day, 1969-77.

Date	Year								
	69	70	71	72	73	74	75	76	77
4/15	0	0	0	0	0	0	0	0	0
4/16	0	0	0	0	0	0	0	0	0
4/17	0	0	0	0	0	0	0	0	0
4/18	0	0	0	0	0	0	0	0	0
4/19	0	0	0	0	0	0	0	0	0
4/20	0	0	0	0	0	0	0	0	0
4/21	0	0	0	0	0	0	0	0	0
4/22	0	0	0	0	0	0	0	0	0
4/23	0	0	0	0	0	0	0	0	0
4/24	0	0	0	0	0	0	0	0	0
4/25	0	0	0	0	0	0	0	0	0
4/26	0	0	0	0	0	0	0	0	0
4/27	72000	0	0	0	0	0	0	0	0
4/28	56350	0	0	0	0	0	0	0	0
4/29	53000	0	0	0	0	0	0	0	0
4/30	82500	0	0	0	0	0	0	0	0
5/01	314090	0	0	0	0	0	0	0	0
5/02	216765	0	0	0	0	0	0	0	6000
5/03	66895	0	0	0	0	0	0	0	0
5/04	146245	460	0	0	0	0	0	0	2500
5/05	0	6000	0	0	0	0	0	0	0
5/06	62790	0	0	0	0	0	0	0	0
5/07	80727	0	0	0	0	46820	0	0	2000
5/08	9120	7700	0	0	0	67970	0	0	37160
5/09	76855	115000	0	0	0	35750	0	0	5500
5/10	56110	58250	0	0	0	203270	0	0	0
5/11	17430	59790	0	0	0	50155	0	0	0
5/12	16565	56585	0	0	13500	4730	0	0	0
5/13	169145	0	0	0	0	74335	0	0	0
5/14	111405	0	0	0	0	150325	0	0	0
5/15	8745	10000	21000	0	0	100290	0	0	55000
5/16	140010	3000	0	0	0	33970	0	0	5151
5/17	70190	24000	0	0	0	44650	0	0	11880
5/18	98372	54000	10750	0	0	86226	0	0	0
5/19	166568	23000	0	0	0	280240	0	0	24160
5/20	2000	0	85250	0	37500	132315	0	0	26720
5/21	54680	17250	0	0	45509	50900	0	0	87800
5/22	6882	36250	12750	5370	16750	20347	0	0	28166
5/23	22000	32250	27000	0	4250	58490	0	0	0
5/24	32500	7000	30250	0	17000	122930	0	0	0
5/25	0	0	0	0	160857	32745	0	0	58826
5/26	4910	30000	4250	0	86000	45560	5676	0	48200
5/27	0	0	0	0	17750	11395	0	9148	63425
5/28	0	0	3000	0	20250	13300	0	0	12732

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Date	Year								
	69	70	71	72	73	74	75	76	77
5/29	0	0	0	13000	56750	0	0	0	0
5/30	0	0	0	27000	31840	0	0	0	0
5/31	0	22000	0	8250	63000	0	0	0	70000
6/01	0	19000	0	30000	66333	0	0	0	0
6/02	0	0	0	14250	33500	0	0	0	0
6/03	0	22000	0	40750	224325	26160	0	0	0
6/04	0	26000	0	11500	109870	2480	0	0	70640
6/05	0	26000	0	19000	111210	0	0	0	0
6/06	0	0	0	13500	47995	20880	0	0	0
6/07	0	18125	0	79000	15720	11120	0	0	0
6/08	0	0	0	69500	154137	0	0	0	0
6/09	0	0	0	0	78562	0	0	0	61016
6/10	0	0	0	0	68180	0	0	0	0
6/11	0	0	6000	0	1750	0	0	0	0
6/12	0	0	13500	0	9000	0	0	0	0
6/13	0	0	46500	0	43535	0	0	0	0
6/14	0	0	0	0	40685	0	0	0	0
6/15	0	0	20000	0	23660	0	0	0	0
6/16	0	0	12000	0	0	0	0	0	0
6/17	0	0	13250	0	27210	0	0	0	0
6/18	0	0	0	0	0	0	0	0	0
6/19	0	0	20750	0	8480	0	0	0	0
6/20	0	0	27500	0	0	0	0	0	0
6/21	0	0	15000	0	0	0	0	0	0
6/22	0	0	33250	0	0	0	0	0	0
6/23	0	0	21250	0	0	0	0	0	0
6/24	0	0	37500	0	0	0	0	0	0
6/25	0	0	5250	0	0	0	0	0	0
6/26	0	0	0	0	16200	0	0	0	0
6/27	0	0	0	0	19880	11800	0	0	0
Total	2214849	673660	466000	331120	1671188	1739153	5676	9148	676876

Table 31. Kodiak area commercial sac-roe herring catch (pounds) by day, 1978-86.

Date	Year								
	78	79	80	81	82	83	84	85	86
4/15	0	0	0	0	0	0	27230	0	0
4/16	0	0	0	0	0	95216	427027	20426	11261
4/17	0	0	0	0	0	4515	193301	924	10475
4/18	0	0	0	0	0	216071	204301	700	27320
4/19	0	0	0	0	0	25624	42175	0	20661
4/20	0	0	0	0	0	91788	217490	39314	65656
4/21	0	0	0	0	0	54042	104805	49816	0
4/22	0	0	0	0	5970	86265	106070	228285	94953
4/23	0	0	0	0	114948	0	87576	130913	48288
4/24	0	0	0	0	72878	171295	189015	80306	56182
4/25	0	0	0	0	83034	43375	24160	15096	1278
4/26	5936	0	0	0	64522	344588	61007	51301	37469
4/27	0	0	0	99188	37831	133898	66112	196180	7269
4/28	0	0	0	293897	95979	223711	115883	221522	65122
4/29	0	0	0	74970	42500	71769	131360	32263	4312
4/30	0	0	25900	138149	103984	243634	139641	142378	115246
5/01	15088	0	788419	35988	6600	123258	103474	40770	83492
5/02	3000	119650	257736	104918	24734	290674	498833	76413	162331
5/03	0	174552	506276	27114	75497	64658	212800	10075	56461
5/04	27312	187972	57797	127847	39275	181126	22700	272292	155017
5/05	237390	126935	84761	308309	9790	41415	22380	40918	0
5/06	0	376046	47254	145008	8180	290134	59002	331641	69574
5/07	0	331255	8685	459521	21110	68006	38097	132246	107800
5/08	10920	123582	50998	395284	23927	283113	34047	120007	190137
5/09	16692	147618	117278	143563	273631	102932	44103	16129	34893
5/10	55000	127763	165749	82774	11419	3964	63790	244436	26593
5/11	144455	173601	13839	23793	63500	14599	980	10016	8247
5/12	35035	28334	91561	15542	371875	0	133022	244825	129365
5/13	88986	63814	107182	34557	99259	7180	20920	30060	67911
5/14	184531	36280	210427	53566	100476	32934	53000	168918	126788
5/15	139294	12045	359464	15734	158004	145380	920	40396	56076
5/16	26856	14695	103630	49564	161952	3060	0	80767	75223
5/17	4795	1271	36316	9930	70227	187068	0	0	500
5/18	139656	18063	60134	37639	162178	235584	0	10458	131025
5/19	5200	146522	27459	60020	196558	53107	4018	3575	233534
5/20	20000	69503	119066	186876	92924	35595	189320	17099	14176
5/21	0	57519	192983	19102	170	30164	0	0	12530
5/22	10713	4600	770678	24130	6636	49910	71320	18886	37487
5/23	14288	34769	37316	33835	31617	0	3040	80944	0
5/24	7742	130507	69564	59136	2930	40188	31160	47238	4200
5/25	3446	21129	0	181687	9970	6815	600	11208	23843
5/26	0	102542	123751	32124	74990	1868	17680	2328	109938
5/27	0	237293	5251	40985	4615	115564	5740	0	1430

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Date	Year								
	78	79	80	81	82	83	84	85	86
5/28	0	225811	34321	22245	7604	117238	8800	70370	36484
5/29	0	196615	760	3002	1200	16074	120767	69080	20450
5/30	0	5714	1158	0	31905	4520	13500	4572	73115
5/31	0	8948	1407	0	0	113200	117880	27164	0
6/01	0	119743	0	70806	12111	31440	69900	17100	0
6/02	0	0	21549	60300	15155	11560	26000	7195	3382
6/03	0	0	212569	31500	0	7800	4160	77018	86886
6/04	0	5264	59531	118858	49025	0	0	0	48000
6/05	0	0	0	24797	0	0	0	55928	0
6/06	0	41221	0	0	32565	7680	509	0	48678
6/07	46000	0	0	0	8400	0	195700	0	71042
6/08	0	0	0	0	2880	0	0	47007	29063
6/09	0	0	0	0	24440	0	0	0	19229
6/10	0	0	0	237786	208209	0	0	68000	45251
6/11	0	0	0	12754	29240	0	0	49090	0
6/12	0	0	0	0	1485	0	0	10710	5120
6/13	0	0	0	0	45500	0	0	97944	0
6/14	0	0	0	0	0	0	0	0	109187
6/15	0	0	0	0	0	0	0	0	0
6/16	0	0	0	0	0	0	0	0	48880
6/17	0	0	0	0	0	0	0	0	0
6/18	0	0	0	0	40600	0	0	0	49875
6/19	0	0	0	0	40100	0	0	0	0
6/20	0	0	0	0	0	0	0	0	0
6/21	0	0	0	0	0	0	0	0	0
6/22	0	0	0	0	0	0	0	0	0
6/23	0	0	0	0	0	0	0	0	0
6/24	0	0	0	0	0	0	0	0	0
6/25	0	0	0	0	0	0	0	0	0
6/26	0	0	0	0	0	0	0	0	0
6/27	0	0	0	0	0	0	0	0	0
Total	1242335	3471176	4770769	3896798	3274109	4523599	4325315	3862247	3178705

Table 32. Kodiak area Pacific herring commercial fisheries estimated ex-vessel price, 1974-87.

Year	Sac-roe		Bait	
	Gear	\$/tonne	Gear	\$/tonne
1974	seine	176	seine	110
1975	seine	110	seine	110
1976	-- NO HARVEST --		seine	99
1977	seine	352	seine	513
1978	seine	836	seine	374
	beach seine	572	drift gill	374
	drift gill	836	set gill	374
	drift gill	572	otter trawl	374
	set gill	836		
1979	seine	1518	seine	550
	beach seine	1562	beach seine	440
	drift gill	1804	otter trawl	550
	set gill	1760		
1980	seine	682	beach seine	330
	beach seine	638	drift gill	330
	drift gill	748	set gill	330
	set gill	748	otter trawl	374
	herring gill	770	herring gill	880
	otter trawl	462		
1981	seine	442	seine	418
	herring gill	442	herring gill	418
1982	seine	609	seine	880
	herring gill	620		
1983	seine	999	seine	330
	herring gill	999		
1984	seine	880	seine	462
	herring gill	880	herring gill	462
1985	seine	1036	herring gill	444
	herring gill	1016	otter trawl	440
1986	seine	950	seine	440
	herring gill	950	otter trawl	440
1987	seine	1150		
	herring gill	1150		

Table 33. Kodiak area commercial seine sac-roe herring age frequency data by district, 1981-87.

Year	District	Age (Percent)											Sample Size
		1	2	3	4	5	6	7	8	9	10	11+	
1987	Afognak		0.2	68.0	14.7	0.8	8.3	4.7	1.6	0.5	0.7	0.4	1766
	Uganik			65.3	15.9	0.5	3.4	3.9	9.7	0.7	0.3	0.1	1495
	Uyak			39.0	17.4	0.9	4.2	5.4	32.2	0.3	0.5	0.1	1174
	General			57.5	14.2	0.7	18.2	5.5	3.5	0.1	0.2	0.1	1460
	Alitak		0.1	41.3	34.7	0.9	12.9	2.6	6.4			1.1	1177
	Mainland			39.7	25.4	1.5	3.2	7.7	17.5	2.7	1.7	0.5	401
1986	Afognak		3.9	27.7	2.6	22.3	22.9	10.6	2.8	4.0	0.5	2.6	1750
	Uganik	0.1	3.8	46.5	2.3	9.5	11.6	23.6	2.0	0.3	0.2	0.2	1168
	Uyak		16.7	18.4	0.7	7.5	12.7	41.6	0.9	0.9		0.5	425
	General		0.9	21.0	2.5	36.6	20.0	15.2	1.2	1.6	0.6	0.3	1397
	Alitak		10.0	33.2	1.1	28.6	6.4	15.7	1.8	0.3	1.3	1.6	612
	Mainland			33.3	3.9	7.0	16.0	9.0	8.0	14.2	5.7	2.8	387
1985	Afognak		1.9	2.2	32.0	32.3	14.2	5.1	7.9	1.2	1.5	1.7	1079
	Uganik		0.4	1.5	18.4	32.7	37.8	2.7	4.9	0.6	0.2	0.8	526
	Uyak		0.8	0.8	7.5	20.0	65.4	1.7	3.3			0.4	240
	General		1.4	0.8	40.7	32.2	20.4	2.2	1.8	0.4	0.1	0.2	1318
	Alitak	4.8	16.4	0.5	30.1	9.7	32.7	2.3	1.0	0.7	0.3	1.5	608
	Mainland		0.4	1.4	10.3	19.3	14.0	18.5	24.5	9.3	1.2	1.0	493
1984	Afognak		0.2	26.1	41.9	17.5	5.3	4.9	1.2	0.5	2.3	0.2	1193
	Uganik		0.3	17.6	29.1	44.0	3.7	4.1	1.0	0.2		0.1	1133
	Uyak			5.0	13.8	74.8	2.4	3.4	0.6				622
	General			27.1	37.6	27.6	3.5	2.9	1.0	0.1	0.1		782
	Alitak		0.3	46.4	12.3	34.9	2.7	0.5	0.6	1.3	1.0		627
	Mainland			5.2	11.6	9.3	12.7	38.1	18.1	3.2	0.7	1.1	441
1983	Afognak			40.7	18.2	9.3	19.1	2.7	2.7	6.6	0.3	0.2	888
	Uganik		1.7	22.0	58.2	14.7	2.8	0.6					177
	Uyak		0.5	24.1	66.8	3.0	4.5	0.8	0.1	0.1			858
	General		0.8	40.3	45.0	7.3	3.9	2.1	0.4	0.2	0.1		1054
	Alitak			2.9	57.0	3.1	2.6	5.7	5.7	22.1	0.9		456
	Mainland			16.1	12.9	10.9	31.5	21.2	3.5	0.6	2.9	0.3	311
1982	Afognak		0.5	20.3	21.7	29.8	5.3	5.6	14.8	1.6	0.1	0.4	826
	Uganik		0.2	56.5	13.1	20.4	5.0	1.5	2.1	0.8		0.4	520
	Uyak		8.0	73.2	7.2	10.2	0.8		0.6				777
	General		2.7	70.7	13.5	10.4	1.8		0.8	0.2			512
	Alitak		0.3	65.2	6.3	5.8	7.8	5.1	9.3	0.3			396
	Mainland			1.6	7.7	54.3	23.8	7.5	2.9	2.3			442
1981	Afognak		1.7	11.9	34.4	8.5	12.4	27.3	2.3	0.2	0.8	0.5	598
	Uganik		7.0	23.4	51.4	10.5	3.3	3.8	0.5				572
	Uyak		19.8	20.5	43.0	7.5	3.2	4.2	0.9	0.3	0.6		663
	General	11.7	17.4	26.6	17.1	26.1	1.0	0.2					403
	Alitak		0.6	13.8	28.5	22.2	10.3	24.3	0.2				477
	Mainland		0.3	12.7	57.5	21.3	3.0	2.7	2.3	0.3			663

Table 34. Kodiak commercial sac-roe herring age frequency data by statistical area, 1979.

Geographic Area	Stat. Area	Age (Percent)										Sample Size
		2	3	4	5	6	7	8	9	10	11+	
<u>SEINE CAUGHT</u>												
AFOGNAK DIST.												
Malina Bay	A020	0.6	5.4	13.9	51.2	22.3	2.4	0.6	1.2	1.8	0.6	162
Blue Fox Bay	A070	0.9	3.6	12.6	63.0	14.4			2.7	0.9	1.8	111
Seal Bay	A072	1.9	7.5	12.5	60.0	10.6	0.6	2.5	1.9	0.6	1.3	160
Izhut Bay	A090		4.6	18.5	66.2	6.2	1.5	3.1				65
Kitoi Bay	A091	5.9	3.9	13.7	58.8	13.7	2.0		2.0			51
GENERAL DIST.												
Amee Bay	G022	6.7	74.2	11.7	6.7					0.6		151
Shearwater Bay	G042	4.2	65.1	11.5	15.1	3.6	0.5					192
Womens Bay	G060	6.7	81.3	8.7	3.3							299
UGANIK DIST.												
Terror Bay	UG21	0.6	3.6	12.0	60.5	16.2	1.8	3.0	1.2	1.2		167
Uganik Bay	UG30	0.7	6.2	17.8	56.8	15.1	2.0	0.7		0.7		146
E. Arm Uganik Bay	UG33	6.4	28.0	14.9	22.3	18.0	1.1	1.1	5.3	1.1	2.1	94
UYAK DIST.												
Inner Uyak Bay	UY30	2.4	9.9	15.8	53.0	15.8	0.3	0.3	1.7	0.7		292
Zachar Bay	UY40	2.0	16.0	22.0	46.0	10.0	2.0		2.0			50
ALITAK DIST.												
Sulua Bay	AL30	20.0	23.0	42.0	14.0							118
Upper Olga Bay	AL50	1.8	10.6	81.5	5.8	0.3						118
MAINLAND DIST.												
Wide Bay	M110		58.2	25.5	9.8	6.0	0.5					184
<u>GILLNET CAUGHT</u>												
AFOGNAK DIST.												
Danger Bay	A100		4.2	80.3	9.9	1.4		2.8		1.4		71
GENERAL DIST.												
Amee Bay	G022		51.6	9.7	22.6	12.9	3.2					31
Kizhuyak Bay	G090			5.1	61.5	15.4	5.1	7.7	5.1			39
<u>ADF&G GILLNET CAUGHT (variable mesh)</u>												
AFOGNAK DIST.												
Malina Bay	A020	27.6	17.2	10.3	24.1	17.2		3.4				29
Blue Fox Bay	A040	3.8	6.6	8.2	42.1	19.7	2.7	5.5	2.7	7.1	1.6	183
Litnik Bay	A101	4.8		14.3	28.6	19.0	9.5	14.3	4.8	4.8		21
GENERAL DIST.												
Inner Ugak Bay	G051		6.1	18.0	60.6	15.2						133
Womens Bay	G060	4.6	64.6	16.9	13.8							65
UGANIK DIST.												
Terror Bay	UG21	2.9	4.4	13.9	59.9	13.9		0.7	2.9	1.5		136
UYAK DIST.												
Zachar Bay	UY40		6.9	10.4	57.6	18.8	1.4	6.9				144
<u>TRAWL CAUGHT (shrimp survey)</u>												
ALITAK DIST.												
Inner Alitak Bay	AL20	6.4	17.2	12.9	58.1	3.2	2.2					93

Table 35. Kodiak area commercial sac-roe herring age frequency data by statistical area, 1980.

Geographic Area	Stat. Area	Age (Percent)										Sample Size	
		1	2	3	4	5	6	7	8	9	10		11+
<u>SEINE CAUGHT</u>													
AFOGNAK DIST.													
Malina Bay	A020	0.6	37.7	10.1	12.0	33.3	3.1	1.3		1.3	0.6	159	
Paramanof Bay	A031	0.5	16.0	9.0	21.5	44.0	6.5	0.5	1.5	0.5		294	
Devils Inlet	A040		19.0	15.0	19.0	38.0	6.0		1.0		2.0	100	
Perenosa Bay	A070	1.2	42.5	18.8	3.8	26.2	3.8	1.2		1.2	1.2	80	
N. Afognak	A070-80		25.8	16.1	12.9	33.9	9.7		1.6			62	
Izhut Bay	A090		20.7	14.2	9.4	42.4	9.4		1.0	1.9	1.0	106	
Ruth Bay	A091	7.6	30.7	15.3	30.7	7.6	7.6					13	
McDonalds Lagoon	A092	5.0	45.0	5.0	5.0	25.0	5.0	5.0	5.0			20	
GENERAL DIST.													
W. Sitkalidak St.	G020	0.9	46.2	35.8	8.5	6.6	1.9					106	
Amee Bay	G022		45.5	42.0	7.0	3.5	2.0					57	
Inner Ugak Bay	G051	2.5	68.8	16.2	6.2	5.0	1.2					80	
Kizhuyak Bay	G090	6.0	66.5	14.0	5.0	6.0	2.0	0.5				210	
UGANIK DIST.													
Kupreanof Strait	UG10		17.2	18.9	15.5	41.4	1.7			5.2		58	
Terror Bay	UG21	1.5	44.6	15.7	13.0	22.0	3.0					204	
Uganik Passage	UG31		53.7	17.1	9.8	9.8	9.8					41	
Uganik Bay	UG30-34	3.8	55.9	15.2	13.9	11.4						79	
UYAK DIST.													
Inner Uyak Bay	UY30	2.5	68.8	16.2	6.2	5.0	1.2					80	
Zachar Bay	UY40	3.0	69.5	15.0	4.0	5.5	2.0		1.0			128	
Spiridon Bay	UY50	2.0	44.0	16.0	16.0	20.0	2.0					50	
ALITAK DIST.													
Upper Olga Bay	AL50	0.5	10.0	11.0	31.0	47.0	0.5					307	
MAINLAND DIST.													
Kashvik Bay	M050	1.7	27.5	34.2	10.8	10.8	14.2			0.8		120	
Wide Bay	M110	1.0	27.0	40.0	20.5	9.0	2.5					112	
<u>TRAWL CAUGHT (shrimp survey)</u>													
GENERAL DIST.													
Kalsin Bay	G100	48.1	35.4	12.6	1.3	1.3			1.3			79	
UGANIK DIST.													
Uganik Bay	UG30	3.0	18.5	46.0	13.0	9.0	6.0	2.0	0.5	1.5	1.5	0.5	221
UYAK DIST.													
Zachar Bay	UY40	1.5	8.9	25.4	11.9	19.4	23.9	4.5	3.0			1.5	67
Spiridon Bay	UY50			11.7	18.3	25.0	23.3	10.0	6.7	1.7	1.7	1.7	60
ALITAK DIST.													
Inner Alitak Bay	AL20	1.5	8.5	51.0	29.0	8.5	1.5						130
Deadman Bay	AL21			34.3	41.4	11.4	11.4	1.4					70
MAINLAND DIST.													
Kukak Bay	M020		3.5	44.0	39.5	8.0	3.5	1.5					162
Wide Bay	M110		1.3	43.7	38.7	11.3	2.5	2.5					80

Table 36. Kodiak area commercial sac-roe herring age frequency data by statistical area, 1981.

Geographic Area	Stat. Area	Age (Percent)										Sample Size	
		1	2	3	4	5	6	7	8	9	10		11+
<u>SEINE CAUGHT</u>													
AFOGNAK DIST.													
Malina Bay	A020			12.2	61.1	7.8	6.7	7.8	2.2	1.1		1.1	90
Paramanof Bay	A031			4.7	14.9	9.8	19.6	45.9	2.7		2.0	0.4	255
Foul Bay	A032		6.6	17.2	45.1	4.9	7.4	16.4	2.5				122
Devils Inlet	A040			14.9	46.5	9.9	8.9	16.8	2.0			1.0	101
Phoenix Bay	A070		6.7	40.0	36.7	10.0		6.7					30
GENERAL DIST.													
Ugak Bay	G050		19.4	61.3	11.3	7.3		0.8					124
Womens Bay (test)	G060	16.8	16.5	11.1	19.7	34.4	1.4						279
UGANIK DIST.													
Viekoda Bay	UG20		2.4	39.8	47.0	4.8	1.2	4.8					83
Uganik Bay	UG30-34		7.8	20.7	52.1	11.5	3.7	3.7	0.6				489
UYAK DIST.													
Inner Uyak Bay	UY30		15.1	21.5	51.3	4.9	2.6	4.5					265
Zachar Bay	UY40		4.8	27.7	52.4	10.2	2.4	0.6	1.2	0.6			166
Zachar Bay (test)	UY40		96.4	3.6									56
Spiridon Bay	UY50		16.5	17.6	35.2	11.4	5.7	8.5	2.3	0.6	2.3		176
ALITAK DIST.													
Sulua Bay	AL30			22.4	44.9	27.4	3.0	2.3					263
Upper Olga Bay	AL50		1.4	3.3	8.4	15.9	19.2	51.4	0.5				214
MAINLAND DIST.													
Inner Kukak Bay	M020			15.4	61.5	8.7	2.9	7.7	2.9	1.0			104
Halferdy Bay	M040			26.0	59.8	14.2							127
Kashvik Bay	M050		1.2	9.7	55.2	24.2	2.4	3.6	3.6				165
Alinchak Bay	M070			11.9	63.3	19.3	2.8	1.8	0.9				109
Wide Bay	M110			3.8	51.3	33.5	6.3	1.3	3.2	0.6			158
<u>GILLNET CAUGHT</u>													
AFOGNAK DIST.													
Muskomee/Raspberry	A010				28.4	14.7	18.9	32.6	5.3				95
Malina Bay	A020				1.5	17.9	16.4	17.9	35.8	10.4			67
Paramanof Bay	A031							92.3	7.7				13
Foul Bay	A032				2.7	2.7	16.2	73.0	5.4			1.0	101
Danger Bay	A100		1.6	26.6	43.8	9.4	1.6	17.2					64
Danger Bay (test)	A100			7.5	62.5	5.0	5.0	20.0					40
Mary Anderson Cove	A100				69.2	12.8	7.7	2.6	5.1		2.6		39
Litnik Bay (test)	A101			6.7	46.7	13.3	13.3	13.3	3.3	3.3			30
GENERAL DIST.													
Barling Bay	G021				68.0	28.0	4.0						25
Amee Bay	G022		1.0	3.8	63.8	21.0	6.7	2.9				1.0	105
Womens Bay	G060			4.5	40.0	48.4	5.2	1.3		0.6			155
Anton Larsen Bay	G080			3.8	68.7	19.8	3.8	3.1				0.8	131
Kizhuyak Bay (test)	G090			3.0	62.4	13.5	5.3	13.5	0.8		1.5		133
UGANIK DIST.													
Terror Bay	UG20				8.8	29.4	17.6	35.3	8.8				34

-Continued-

Table 36. (page 2 of 2)

Geographic Area	Stat. Area	Age (Percent)										Sample Size	
		1	2	3	4	5	6	7	8	9	10		11+
<u>GILLNET CAUGHT</u>													
UYAK DIST.													
Zachar Bay	UY40			1.9	64.2	17.9	5.7	8.5	1.9				106
Spiridon Bay	UY50				27.0	23.0	13.5	16.2	12.2	2.7	5.4		74
ALITAK DIST.													
Upper Olga Bay	AL50					5.3	15.8	78.9					38
MAINLAND DIST.													
Kukak Bay	M020				33.8	42.5	8.8	8.8	5.0	1.3			80
<u>ADF&G GILL NET (variable mesh)</u>													
AFOGNAK DIST.													
Malina Bay	A020		1.5	7.6	28.6	8.3	12.1	36.4	3.8	0.8	0.8		132
Paramanof Bay	A031		5.6	3.5	19.7	13.4	14.1	35.2	5.6	1.4		1.4	142
Waterfall Bay	A070		15.5	32.8	29.3	15.5		5.2		1.7			58
Little Waterfall B.	A070		78.2	10.9	3.4	1.7	0.8	2.5	2.5				119
Kitoi Bay	A091		8.5	30.5	42.4	8.5	3.4	4.2	1.7			0.8	118
McDonalds Lagoon	A092			17.0	51.1	4.3	2.1	23.4				2.1	47
GENERAL DIST.													
Amee Bay	G022		19.0	14.0	24.8	33.9	5.8	0.8	1.7				121
Inner Ugak Bay	G051		5.1	38.5	12.8	28.2	7.7	7.7					39
UGANIK DIST.													
Terror Bay	UG21			11.8	70.6	5.9		5.9		5.9			17
E. Arm Uganik Bay	UG33			3.3	73.3	10.0	3.3	10.0					30
UYAK DIST.													
Zachar Bay	UY40		3.6	8.6	55.9	11.7	4.1	5.0	2.3	1.8	2.3	5.0	222
Spiridon Bay	UY50		10.0	8.1	26.6	16.6	7.5	17.8	5.9	1.9	1.6	4.1	320
ALITAK DIST.													
Upper Olga Bay	AL50		2.1	1.4	10.0	13.6	25.0	45.7	0.7	1.4			140
<u>TRAWL CAUGHT (shrimp survey)</u>													
AFOGNAK DIST.													
Paramanof Bay	A031		97.4					2.6					39
Danger Bay	A100		42.5	20.0	12.5	7.5		10.0				7.5	40
UGANIK DIST.													
S. Arm Uganik Bay	UG34		57.1	16.7	14.3	3.6	1.2	4.8		1.2		1.2	84
ALITAK DIST.													
Outer Alitak Bay	AL10			19.2	30.8	30.8	11.5	7.7					26
Inner Alitak Bay	AL20	13.6	43.2	17.0	14.7	8.2	1.8	1.3				0.3	389
Deadman Bay	AL21				6.7	20.0	60.0	13.3					15

Table 37. Kodiak area commercial sac-roe herring age frequency data by statistical area, 1982.

Geographical Area	Stat. Area	Age (Percent)										Sample Size
		2	3	4	5	6	7	8	9	10	11+	
<u>SEINE CAUGHT</u>												
AFOGNAK DIST.												
Selief Bay	A010			20.8	37.5	4.2	4.2	29.2			4.2	24
Malina Bay	A020		12.6	17.2	41.9	5.1	5.6	15.2	2.5			198
Paramanof Bay	A031		14.2	17.2	27.2	9.5	4.7	25.4	0.6	0.6	0.6	169
Perenosa Bay	A070	2.0	25.7	23.7	23.7	4.6	6.6	11.2	2.6			152
Izhut Bay	A090		41.3	28.0	24.0	1.3	2.7	2.7				75
McDonalds Lagoon	A092		35.5	26.3	25.0	3.9	2.6	6.6				76
Danger Bay	A100	0.8	16.7	25.8	26.5	4.5	9.1	13.6	2.3		0.8	132
GENERAL DIST.												
Amee Bay	G022	0.6	86.8	4.0	6.3	1.7		0.6				174
Inner Ugak Bay	G051	3.7	86.1	7.4	0.9	1.9						108
Kizhuyak Bay	G090		26.1	21.7	45.7	2.2		4.3				46
Kalsin Bay	G100	4.9	57.6	23.9	10.9	1.6		0.5	0.5			184
UGANIK DIST.												
Viekoda Bay	UG20		18.1	21.3	46.8	6.4	3.2	4.3				94
Village Is.	UG30		72.5	17.5	5.0	5.0						40
Uganik Passage	UG31		54.9	13.7	11.8	13.7	2.0	2.0	2.0			51
E. Arm Uganik Bay	UG33	1.0	88.7	6.2	3.1	1.0						97
S. Arm Uganik Bay	UG34		56.3	11.8	21.4	4.2	1.7	2.5	1.3		0.8	238
UYAK DIST.												
Inner Uyak Bay	UY30	5.5	75.2	5.8	11.7	1.1		0.7				274
Zachar Bay	UY40	2.5	73.4	9.5	12.9	0.8		0.8				357
Zachar Bay (test)	UY40	51.4	48.6									70
Spiridon Bay	UY50	2.6	88.2	7.9	1.3							76
ALITAK DIST.												
Deadman Bay	AL21		79.1	4.5	9.0	4.5	3.0					67
Sulua Bay	AL30	0.5	71.0	11.3	7.0	9.1	1.1					186
Upper Olga Bay	AL50		51.0	0.7	2.8	7.7	11.2	25.9	0.7			143
MAINLAND DIST.												
Kashvik Bay	M050		2.0	9.9	59.2	17.1	2.6	6.6	2.6			152
Alinchak Bay	M070		1.0	9.0	55.0	20.0	10.0	1.0	4.0			100
Wide Bay	M110		1.6	5.3	50.0	31.1	10.0	1.1	1.1			190
<u>GILL NET CAUGHT</u>												
AFOGNAK DIST.												
Selief Bat	A010			10.5	36.8	15.8	15.8	15.8	5.3			19
Malina Bay	A020			9.8	47.1	19.6	11.8	7.8	3.9			51
Paramanof Bay	A031		19.5	8.0	11.5	3.4	8.0	42.5	2.3		4.6	87
GENERAL DIST.												
Amee Bay	G022		51.6	12.9	19.4	12.9	1.1	2.2				93
Womens Bay	G060		1.9	13.5	32.7	51.9						52
Womens Bay (test)	G060			36.8	52.6	10.5						19
Anton Larsen Bay	G080		24.6	9.8	50.8	14.8						61
Kizhuyak Bay	G090		16.5	14.4	43.3	8.2	9.3	5.2	2.1		1.0	97

-Continued-

Table 37. (page 2 of 2)

<u>Geographical Area</u>	Stat. <u>Area</u>	Age (Percent)										<u>Sample Size</u>
		<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11+</u>	
<u>GILL NET CAUGHT</u>												
UGANIK DIST.												
Terror Bay	UG21		43.6	6.4	28.2	4.5	2.7	13.6	0.9			110
<u>ADF&G GILL NET (variable mesh)</u>												
AFOGNAK DIST.												
Paramanof Bay	A031			17.4	8.7	17.4	8.7	39.1	8.7			23
Pauls Bay	A070	6.8	25.1	18.7	31.9	8.1	1.7	1.7	4.7	0.9	0.4	235
Kitot Bay	A091											
ALITAK DIST.												
Upper Olga Bay	AL50		5.4			8.1	27.0	54.1	5.4			37
<u>TRAWL CAUGHT (shrimp survey)</u>												
AFOGNAK DIST.												
Raspberry Straits	A010			2.7	25.7	24.3	6.8	28.4	12.2			74
GENERAL DIST.												
Kalsin Bay	G100	6.1	71.4	14.3	6.1	2.0						49
ALITAK DIST.												
Inner Alitak Bay	AL20		8.6	6.9	53.4	17.2	6.9	6.9				58

Table 38. Kodiak area commercial sac-roe herring age frequency data by statistical area, 1983.

Geographic Area	Stat. Area	Age (Percent)										Sample Size
		2	3	4	5	6	7	8	9	10	11+	
<u>SEINE CAUGHT</u>												
AFOGNAK DIST.												
Malina Bay	A020		10.9	19.3	12.5	37.0	5.7	5.2	8.9	0.5		192
Paramanof Bay	A031		36.1	17.1	8.3	21.8	3.6	3.2	8.7	0.4	0.8	252
Blue Fox Bay	A040		29.0	11.6	14.5	18.8	4.3	4.3	17.4			69
Red Fox Bay	A070		84.5	8.7	2.9	1.9		1.0		1.0		103
Kitoi Bay	A080		50.6	24.1	8.9	13.9			2.5			79
Danger Bay	A100		52.8	23.8	9.3	9.3	0.5	1.0	3.1			193
GENERAL DIST.												
Old Harbor	G020	1.2	25.0	65.5	4.8	3.6						84
Barling Bay	G021		6.7	76.7	3.3	6.7	5.0		1.7			60
Amee Bay	G022		41.8	54.5	1.8		1.8					55
Tanginak Anchorage	G023		30.4	30.4	17.6	13.6	4.8	1.6	0.8	0.8		125
Kiliuda Bay	G040	1.5	25.0	64.7	1.5	5.9	1.5					68
Ugak Bay	G050		44.4	51.3	3.1		1.3					160
Womens Bay	G060		61.9	22.9	10.2		4.2	0.8				118
Anton Larsen Bay	G080		44.8	41.4	5.7	6.9	1.1					87
Anton Larsen (test)	G080	7.1	56.0	31.0	2.4	2.4	1.2					84
Kizhuyak Bay	G090		12.1	65.4	15.9	3.7	1.9	0.9				107
Kalsin Bay	G100		74.5	18.9	5.7	0.9						106
UGANIK DIST.												
Onion Bay	UG10	2.7	14.2	58.4	20.4	3.5	0.9					113
Terror Bay	UG21	1.1	23.9	38.6	13.6	17.0	3.4	1.1	1.1			88
Village Is.	UG30		35.9	57.8	4.7	1.6						64
UYAK DIST.												
Inner Uyak Bay	UY30	1.4	34.0	52.1	3.7	6.5	1.4	0.5	0.5			215
Zachar Bay	UY40		8.9	86.4	2.6	1.7	0.4					235
Spiridon Bay	UY50	0.2	27.7	63.2	2.9	5.1	0.7					408
ALITAK DIST.												
Sulua Bay	AL30		13.6	57.6	15.2	7.6	6.1					66
Upper Olga Bay	AL50		1.0	56.9	1.0	1.8	5.6	6.7	25.9	1.0		390
MAINLAND DIST.												
Kukak Bay	M020		28.0	50.0	18.0	2.0			2.0			50
Kashvik Bay	M050		25.4	10.1	13.8	26.1	20.3	2.2	0.7	1.4		138
Alinchak Bay	M070				3.5	49.1	31.6	3.5		10.5	1.8	57
Wide Bay	M110		1.5	1.5	6.1	50.0	30.3	9.1		1.5		66
<u>GILL NET CAUGHT</u>												
AFOGNAK DIST.												
Raspberry Straits	A010		6.8	81.1	4.1	2.7	1.4	2.7		1.4		74
Paramanof Bay	A031			8.6	14.7	34.5	9.5	6.9	22.4	3.4		116
Danger Bay	A100		6.9	37.9	24.1	20.2	2.5	1.0	6.4	1.0		203
Litnik Bay	A101		15.0	25.0	25.0	32.5	2.5					40

-Continued-

Table 38. (page 2 of 2)

<u>Geographic Area</u>	Stat. <u>Area</u>	Age (Percent)										Sample <u>Size</u>
		<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11+</u>	
<u>GILL NET CAUGHT</u>												
GENERAL DIST.												
Amee Bay	G022		5.1	59.3	16.9	15.3	3.4					59
Shearwater Bay	G042		5.3	84.2	5.3		5.3					38
Anton Larsen Bay	G080		2.7	64.9	8.1	23.0	1.4					74
Sheratin Bay	G081		6.3	71.9	12.5	6.3	3.1					32
UGANIK DIST.												
Viekoda Bay	UG20			42.9	4.8	33.3	9.5			9.5		21
UYAK DIST.												
Larsen Bay	UY31		1.1	62.1	11.6	18.9	4.2	2.1				95
Zachar Bay	UY40			69.1	9.9	17.8	2.0		1.3			152
ALITAK DIST.												
Sulua Bay	AL30			48.8	12.2	9.8	17.1	9.8	2.4			41
<u>ADF&G GILL NET (variable mesh)</u>												
AFOGNAK DIST.												
Pauls Bay	A070				5.6	77.8	5.6	5.6	5.6			18
Kitoi Bay	A091		49.2	31.4	7.6	6.4	0.5	1.0	3.1		1.0	421
Danger Bay	A100			40.0	32.0	20.0	4.0		4.0			25
UGANIK DIST.												
E. Uganik Passage	UG30	10.0	15.0	20.0	10.0	30.0	5.0	5.0	5.0			20
UYAK DIST.												
Inner Uyak Bay	UY30		18.8	68.4	2.3	8.3	0.8		0.8	0.8		133
Zachar Bay	UY40		5.6	88.9			5.6					18
GENERAL DIST.												
Sheratin Bay	G081	75.8	6.1	15.2	3.0							33
ALITAK DIST.												
Upper Olga Bay	AL50		4.7	35.3		2.4	10.6	2.4	44.7			85
<u>TRAWL CAUGHT (shrimp survey)</u>												
UGANIK DIST.												
N.E. Arm Uganik Bay	UG32		35.7	42.9	7.1				7.1	7.1		14
S. Arm Uganik Bay	UG34	10.2	24.5	42.9	14.3	4.1	4.1					49
ALITAK DIST.												
Outer Alitak Bay	AL10	1.9	36.9	25.2	20.4	11.7	2.9		1.0			103
Inner Alitak Bay	AL20	77.5	10.0	10.0		2.5						40

Table 39. Kodiak area commercial sac-roe herring age frequency data by statistical area, 1984.

Geographic Area	Stat. Area	Age (Percent)										Sample Size
		2	3	4	5	6	7	8	9	10	11+	
<u>SEINE CAUGHT</u>												
AFOGNAK DIST.												
Muskomee/Raspberry	A010		8.7	25.2	61.2	4.9						103
Malina Bay	A020	0.4	34.3	42.7	9.7	5.2	4.4	1.6	0.4	1.2		248
Paramanof Bay	A031		24.5	35.8	10.2	5.7	12.1	2.6	1.1	7.2	0.8	265
Foul Bay	A032	1.2	35.7	33.3	9.5	7.1	4.8		3.6	4.8		84
Perenosa Bay	A070		33.3	59.5	2.4	1.2	1.2		2.4			84
Tonki Bay	A080		26.2	54.1	14.8	1.6		1.6		1.6		61
Izhut Bay	A090	1.8	68.4	14.0	10.5	3.5				1.8		57
Kittoi Bay	A091		18.4	54.4	16.7	4.4	4.4	0.9		0.9		114
McDonalds Lagoon	A092		18.3	52.1	19.7	2.8	7.0					71
Danger Bay	A100		21.8	48.4	12.1	12.9	3.2			1.6		124
Litnik Bay	A101		12.1	34.8	45.5	4.5	1.5	1.5				66
GENERAL DIST.												
E. Sitkalidak St.	G022		9.1	33.6	47.3	3.6	5.5	0.9				110
Tanginak Bay	G023		10.3	20.5	43.6		17.9	2.6	2.6	2.6		39
Inner Ugak Bay	G051		51.4	28.3	19.7	0.6						173
Womens Bay	G060		11.4	45.6	25.4	10.5	3.5	3.5				114
Anton Larsen Bay	G080		14.5	50.6	26.5	2.4	3.6	2.4				83
Sheratin Bay	G081		11.8	50.0	32.4	5.9						34
Kizhuyak Bay	G090		27.3	41.9	26.7	2.9	1.2					172
Kalsin Bay	G100		57.9	29.8	8.8	1.8	1.8					57
UGANIK DIST.												
Viekoda Bay	UG20	0.5	28.1	34.1	31.4	1.1	1.1	3.8				185
Terror Bay	UG21	0.6	35.9	27.5	31.1	2.4	1.8	0.6				167
Village Is.	UG30		10.3	39.7	35.3	5.4	8.7	0.5				184
Uganik Passage	UG31		20.7	28.7	47.1	2.3	1.1					87
N.E. Arm Uganik Bay	UG32		10.2	15.6	66.0	3.4	2.7	0.7	0.7		0.7	147
E. Arm Uganik Bay	UG33	1.0	2.9	19.4	66.0	5.8	3.9		1.0			103
S. Arm Uganik Bay	UG34		12.3	30.8	45.4	5.0	6.2	0.4				260
UYAK DIST.												
Inner Uyak Bay	UY30		4.7	9.9	77.2	3.5	3.5	1.2				171
Zachar Bay	UY40		6.3	17.5	68.4	2.9	4.9					206
Spiridon Bay	UY50		4.1	13.5	78.4	1.2	2.0	0.8				245
ALITAK DIST.												
Deadman Bay	AL21	0.7	68.9	10.8	17.4	1.6	0.3		0.3			305
Sulua Bay	AL30		32.3	16.1	46.2	5.4						93
Upper Olga Bay	AL50		22.3	12.7	53.7	3.1	0.9	1.7	3.1	2.6		229
MAINLAND DIST.												
Kashvik Bay	M050		4.6	12.5	6.6	17.1	38.8	3.8	3.3	0.7	2.6	152
Alinchak Bay	M070		6.4	10.1	3.7	10.1	44.0	23.9	1.8			109
Wide Bay	M110		5.0	11.6	14.9	10.5	34.3	18.2	3.9	1.1	0.6	181

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Table 39. (page 2 of 2)

Geographic Area	Stat. Area	Age (Percent)										Sample Size
		2	3	4	5	6	7	8	9	10	11+	
<u>GILL NET CAUGHT</u>												
AFOGNAK DIST.												
Muskomee/Raspberry	A010		2.5	27.2	56.8	6.2	4.4	2.5				81
Perenosa Bay	A070		4.0	52.0	34.0		10.0					50
Izhut Bay	A090		5.6	77.8	11.1	5.6						36
Kitoi Bay	A091		37.8	32.3	14.4	6.0	8.0	0.5		1.0		201
Danger Bay	A100		14.8	51.9	11.1	11.1	11.1					27
Litnik Bay	A101		6.1	16.3	28.6	20.4	24.5	4.1				49
GENERAL DIST.												
Anton Larsen Bay	G080			61.4	36.4		2.3					44
Kizhuyak Bay	G090		4.9	35.9	49.5	3.9	3.9	1.9				103
Kalsin Bay	G100		4.2	35.6	44.9	7.6	3.4	3.4		0.8		118
Inshore Chiniak	G102		11.1	27.8	25.9	13.0	20.4	1.9				54
UGANIK DIST.												
Viekoda Bay	UG20			14.3	71.4	7.1	3.6	3.6				28
Village Is.	UG30		2.7	78.4	2.7	13.5	2.7					37
UYAK DIST.												
Inner Uyak Bay	UY30			4.0	84.2	2.0	8.9	1.0				101
Spiridon Bay	UY50			5.0	90.0	5.0						20
ALITAK DIST.												
Sulua Bay	AL30			20.0	72.0	4.0	4.0					25
<u>TRAWL CAUGHT (shrimp survey)</u>												
AFOGNAK DIST.												
Danger Bay	A100		25.0	25.0	30.6	13.9	2.8	2.8				36
ALITAK DIST.												
Inner Alitak Bay	AL20	2.0	6.0		12.0	20.0	30.0	8.0	8.0	10.0	4.0	50
Upper Olga Bay	AL50		61.8	14.5	23.6							55
MAINLAND DIST.												
Wide Bay	M110	2.6	2.6	25.6	17.9	15.4	12.8	23.1				39

Table 40. Kodiak area commercial sac-roe herring age frequency data by statistical area, 1985.

Geographic Area	Stat. Area	Age (Percent)											Sample Size
		1	2	3	4	5	6	7	8	9	10	11+	
<u>SEINE CAUGHT</u>													
AFOGNAK DIST.													
Muskomee/Raspberry	A010	13.2	4.4	5.5	30.8	38.5	6.6		1.1				91
Malina Bay	A020	0.3	2.5	36.0	29.5	13.2	4.6	9.8	0.9	1.8	1.2		325
Paramanof Bay	A031			23.8	28.1	13.8	8.1	15.6	1.9	2.5	6.3		160
Tonki Bay (Short)	A080	2.2	5.6	31.1	33.3	13.3	3.3	5.6	2.2	3.3			90
Izhut Bay	A090	0.6	2.5	32.7	45.3	11.3	3.8	1.3	1.3	1.3			159
Kitoi Bay	A091	2.7	2.7	40.5	41.9	5.4	1.4	4.1				1.4	74
McDonalds Lagoon	A092	3.4	41.4	37.9	6.9	3.4	6.9						29
Danger Bay	A100			31.0	35.7	10.7	7.1	9.5	2.4	1.2	2.4		84
Litnik Bay	A101	4.5		55.2	9.0	11.9	6.0	11.9				1.5	67
GENERAL DIST.													
Barling Bay	G021	1.0		46.4	29.9	16.5	2.1	4.1					97
Amee Bay	G022	0.3		35.8	29.6	27.1	2.8	3.1	0.9		0.3		321
Shearwater Bay	G042	0.9		43.6	24.5	29.1		1.8					110
Inner Ugak Bay	G051	0.9	3.7	85.3	7.3	0.9	1.8						109
Womens Bay	G060			49.7	40.6	8.5	1.2						165
Monashka Bay	G070	2.9		16.2	23.5	45.6	10.3	1.5					68
Anton Larsen Bay	G080	6.5		18.8	47.6	23.5	0.6	1.8	0.6	0.6			170
Kizhuyak Bay	G090	0.5	2.6	34.6	35.6	22.0	2.1	2.1				0.5	191
Middle Bay	G101		1.1	50.6	37.9	6.9	2.3		1.1				87
UGANIK DIST.													
Viekoda Bay	UG20			12.7	12.7	59.2	5.6	7.0				2.8	71
Terror Bay	UG21		2.1	31.5	43.2	13.7	2.1	5.5	0.7	0.7	0.7		146
Village Is.	UG30			13.3	16.7	63.3	6.7						30
Uganik Passage	UG31		1.6	21.3	47.5	23.0			6.6				61
N.E. Arm Uganik Bay	UG32		1.2	10.7	22.6	56.0	3.6		4.8			1.2	84
E. Arm Uganik Bay	UG33	1.5	2.2	11.9	35.1	42.5	1.5	3.7	1.5				134
UYAK DIST.													
Inner Uyak Bay	UY30		0.7	5.3	21.7	64.5	2.6	4.6				0.7	152
Zachar Bay	UY40	2.3	1.1	11.4	17.0	67.0		1.1					88
ALITAK DIST.													
Deadman Bay	AL21	43.9	0.6	30.1	6.4	19.1							173
Sulua Bay	AL30	6.4	8.5	32.8	7.3	28.2	2.8	2.3	1.7				177
Upper Olga Bay	AL50	1.6	0.5	31.6	14.0	43.0	2.6	0.5	0.5	1.0	4.7		193
Jap Bay	AL60	9.2	1.5	18.5	12.3	50.8	6.2	1.5					65
MAINLAND DIST.													
Inner Kukak Bay	M020			7.4	19.8	37.0	21.0	13.6	1.2				81
Kashvik Bay	M050		3.4	11.5	18.4	9.2	20.7	16.1	17.2	1.1	2.3		87
Alinchak Bay	M070			1.4	21.1	4.2	22.5	36.6	12.7			1.4	71
Wide Bay	M110	0.8	1.6	13.4	18.9	11.0	15.7	27.6	8.3	2.0	0.8		254

-Continued-

Table 40. (page 2 of 2)

<u>Geographic Area</u>	<u>Stat.</u> <u>Area</u>	<u>Age (Percent)</u>										<u>Sample</u> <u>Size</u>	
		<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>		<u>11+</u>
<u>GILL NET CAUGHT</u>													
AFOGNAK DIST.													
Muskomee/Raspberry	A010				17.1	30.0	48.6	4.3					70
Foul Bay	A032				17.2	24.1	27.6	6.9	10.3	6.9	3.4	3.4	29
Perenosa Bay	A070			1.1	36.2	60.6	1.1	1.1					94
Kitoi Bay	A091	7.7	5.1	35.9	17.9	23.1	2.6	5.1	2.6				39
GENERAL DIST.													
Amee Bay	G022				18.6	32.2	42.4	1.7	5.1				59
Womens Bay	G060		1.7	32.8	55.2	6.9	3.3						58
UGANIK DIST.													
Viekoda Bay	UG20				12.7	12.7	59.2	5.6	7.0			2.8	71
Village Is.	UG30	13.1	2.4	9.5	22.6	46.4	6.0						84
UYAK DIST.													
Spiridon Bay	UY50				1.7	9.9	86.0	0.8	0.8	0.8			121
ALITAK DIST.													
Deadman Bay	AL21				30.4	14.3	55.4						56
<u>TRAWL CAUGHT (shrimp survey)</u>													
ALITAK DIST.													
Inner Alitak Bay	AL20	0.6	49.1	3.6	3.6	14.4	12.0	6.6	5.4	3.6	0.6	0.6	167
Sulua Bay	AL30	1.7	60.2	2.5	25.4	5.1	3.4	0.8	0.8				118
Upper Olga Bay	AL50		18.6		55.8	16.3	9.3						43

Table 41. Kodiak area commercial sac-roe herring age frequency data by statistical area, 1986.

Geographic Area	Stat. Area	Age (Percent)										Sample Size
		1	2	3	4	5	6	7	8	9	10	
<u>SEINE CAUGHT</u>												
AFOGNAK DIST.												
Muskomee/Raspberry	A010	0.8	41.6	2.3	9.7	17.3	24.9	1.9	1.2		0.4	486
Malina Bay	A020	44.2	55.8									129
Paramanof Bay	A031		6.4	2.5	1.4	27.4	5.7	5.1	6.4	0.6	4.5	157
Foul Bay	A032		1.5	1.5	8.0	30.8	8.5	5.5	13.7	1.5	8.8	328
Perenosa Bay	A070		18.6	4.1	4.5	39.3	0.7	0.7	1.4	0.7		145
Tonki Bay (Long)	A080	2.7	20.5	5.5	0.5	26.0	8.2	2.7	4.1	2.7	6.8	73
Izhut Bay	A090		19.3	5.7	7.5	30.7	4.5	2.3				88
Kitoi Bay	A091	4.2	79.2	12.5	2.1	2.1						48
McDonalds Lagoon	A092	0.6	42.4	0.6	1.2	26.1	4.8	2.4	1.8			165
Danger Bay	A100		19.8	3.5	8.8	18.6	4.7	3.5			1.2	86
GENERAL DIST.												
W. Sitkalidak St.	G020	1.6	9.7	1.6	4.2	16.1	45.2	1.6				62
Amee Bay	G022	1.6	9.4	0.4	4.0	27.2	31.1	2.8	2.4	1.2		254
Tanginak Bay	G023		4.5	1.5	1.8	24.2	30.3	3.0	3.0		1.5	66
Inner Ugak Bay	G051		16.0	1.0	8.0	9.0	4.0	1.0	1.0			100
Womens Bay	G060	1.6	6.1	0.8	4.8	16.6	4.5	1.2	2.0	2	0.4	247
Anton Larsen Bay	G080	0.6	38.7	0.6	3.5	27.7	14.8	0.6	2.6		0.6	155
Kizhuyak Bay	G090	0.7	36.8	5.7	1.8	14.4	8.9	0.5	0.7	0.2	0.2	437
Middle Bay	G101		11.8	3.9	5.5	36.8	10.5		1.3			76
UGANIK DIST.												
Onion Bay	UG10		25.6	1.2	5.9	9.8	34.1	11.0	2.4			82
Viekoda Bay	UG20		75.1	4.8	9.5	3.2	5.8	0.5		0.5	0.5	189
Terror Bay	UG21	11.6	60.5	4.2	8.9	7.4	7.4					190
Uganik Passage	UG31	0.6	24.0	1.2	9.0	18.0	41.3	5.4	0.6			167
N.E. Arm Uganik Bay	UG32	0.2	4.3	45.1	1.5	9.3	15.8	22.6	0.7	0.2		461
S. Arm Uganik Bay	UG34	1.3	21.5		6.3	5.1	63.3	1.3		1.3		79
UYAK DIST.												
Inner Uyak Bay	UY30	33.2	21.5	0.5	6.1	10.7	25.7	0.5	1.4		0.5	214
Spiridon Bay	UY50		15.2	0.9	9.0	14.7	57.8	1.4	0.5		0.5	211
ALITAK DIST.												
Deadman Bay	AL21	30.0	52.2		1.3	1.0	3.4	2.0				203
Sulua Bay	AL30		32.4	1.0	3.3	6.7	19.0	4.8	1.0	1.9		105
Upper Olga Bay	AL50		20.7	2.0	8.5	9.9	22.7	0.7	0.3	2.0	3.3	304
MAINLAND DIST.												
Inner Kukak Bay	M020		18.9	5.3	8.9	27.4	15.8	10.5	3.2			95
Kashvik Bay	M050		22.2	3.4	3.9	14.8	7.9	9.9	23.2	9.9	4.9	203
Wide Bay	M110		74.2	3.4	1.1	6.7	4.5	1.1	5.6	2.2	1.1	89

-Continued-

Table 41. (page 2 of 2)

Geographic Area	Stat. Area	Age (Percent)										Sample Size	
		1	2	3	4	5	6	7	8	9	10		11+
<u>GILL NET CAUGHT</u>													
AFOGNAK DIST.													
Muskomee/Raspberry	A010			18.5	3.7	9.3	18.5	40.7	5.6	3.7			54
Malina Bay	A020			3.1	3.7	4.0	31.5	12.3	4.9	6.8		3.7	162
Danger Bay	A100			10.6	2.1	8.3	21.3	10.6	8.5	8.5			47
GENERAL DIST.													
Amee Bay	G022	0.3	1.3	0.3	1.2	29.2	33.4	0.6	2.3	1.0	0.3		308
Kizhuyak Bay	G090	1.3	37.5	3.8	0.0	13.8	11.3	2.5					80
UGANIK DIST.													
Village Is.	UG30			2.2	1.1	6.7	24.4	64.4		1.1			90
W. Uganik Passage	UG31					10.8	27.7	51.8	6.1	2.4		1.2	83
E. Arm Uganik Bay	UG33			9.1	5.5	30.9	30.9	21.8	1.8				55
UYAK DIST.													
Inner Uyak Bay	UY30			2.1		8.2	18.6	68.0	1.0	2.1			97
Zachar Bay	UY40					3.4	10.3	81	5.2				58
ALITAK DIST.													
Sulua Bay	AL30			9.9		48.4	14.3	20.9	3.3	1.1	2.2		91

Table 42. Kodiak area commercial sac-roe herring age frequency data by statistical area, 1987.

Geographic Area	Stat. Area	Age (Percent)										Sample Size
		2	3	4	5	6	7	8	9	10	11+	
<u>SEINE CAUGHT</u>												
AFOGNAK DIST.												
Muskomee/Raspberry	A010		39.3	32.1	1.8		12.5	14.3				56
Malina Bay	A020	0.3	76.8	12.6	1.0	5.3	3.0	0.8	0.3			397
Paramanof Bay	A031		33.0	22.5	1.0	24.1	9.9	1.6	2.1	5.2	0.5	191
Foul Bay	A032		61.5	12.8	0.9	5.1	10.3	6.0		0.9	2.6	117
Perenosa Bay	A070	0.8	91.6	2.9	0.8	2.5	1.3					238
Seal Bay	A072		97.0	3.0								165
Izhut Bay	A090		58.5	22.9	1.0	11.2	5.4		0.5		0.5	205
Danger Bay	A100	0.3	62.9	21.1	0.3	9.3	3.5	2.2	0.3			313
Litnik Bay	A101		52.4	10.7	2.4	19.0	9.5		2.4	1.2	2.4	84
GENERAL DIST.												
Barling Bay	G021		52.5	11.0	0.8	11.0	8.5	15.3	0.8			118
Tanginak Bay	G023		43.1	5.2	1.7	19.0	8.6	20.7		1.7		58
Inner Kiliuda Bay	G041		31.6	33.7	2.0	18.4	7.1	7.1				98
Shearwater Bay	G042		20.8	44.4		22.2	4.2	6.9		1.4		72
Outer Ugak Bay	G050		5.1	28.2		30.8	28.2	7.7				39
Inner Ugak Bay	G051		7.5	41.5	1.4	42.9	4.8	2.0				147
Womens Bay	G060		6.0	4.3		68.1	14.7	3.4		1.7	1.7	116
Kizhuyak Bay	G090		70.0	15.0	1.8	8.4	1.8	3.1				227
Kalsin Bay	G100		98.0	1.2	0.2	0.6						496
Middle Bay	G101		45.6	8.2		28.6	14.3	2.7	0.7			147
UGANIK DIST.												
Kupreanof St.	UG10		9.6	20.2	1.0	17.3	8.7	33.7	6.7	1.9	1.0	104
Viekoda Bay	UG20		65.5	17.7	1.8	5.3	0.9	7.1	0.9	0.9		113
Terror Bay	UG21		93.9	5.9		0.2						572
Village Is.	UG30		54.3	12.9	1.4	4.3	8.1	18.6		0.5		210
N.E. Arm Uganik Bay	UG32		29.6	29.2		5.8	12.1	22.9	0.4			240
E. Arm Uganik Bay	UG33		66.3	29.6	1.0	1.0	2.0					98
S. Arm Uganik Bay	UG34		66.5	23.4	0.6	1.3	0.6	5.1	1.3	0.6	0.6	158
UYAK DIST.												
Inner Uyak Bay	UY30		43.2	18.2	0.9	3.6	3.7	29.4	0.3	0.7	0.1	759
Zachar Bay	UY40		28.3	32.1	1.9	1.9	3.8	32.1				53
Spiridon Bay	UY50		31.8	13.5	0.8	5.8	9.1	38.1	0.6	0.3		362
ALITAK DIST.												
Deadman Bay	AL21	0.2	53.1	37.9	0.4	6.0	0.9	1.4				554
Sulua Bay	AL30		48.9	42.3	1.8	6.2	0.9					227
Upper Olga Bay	AL50		20.5	25.8	1.3	26.5	6.1	16.9			3.0	396
MAINLAND DIST.												
Inner Kukak Bay	M020		48.8	6.0	3.6	4.8	17.9	11.9	4.8	2.4		84
Kinak Bay	M040		15.6	12.5		4.2	8.3	56.3	2.1	1		96
Wide Bay	M110		46.6	38.5	1.4	2.3	3.6	2.7	2.3	1.8	0.9	221

-Continued-

Table 42. (page 2 of 2)

Geographic Area	Stat. Area	Age (Percent)										Sample Size
		2	3	4	5	6	7	8	9	10	11+	
<u>GILL NET CAUGHT</u>												
AFOGNAK DIST.												
Foul Bay	A032			6.6	4.9	18.0	34.4	26.2		6.6	3.3	61
Kitoi Bay	A091			53.7	2.4	26.8	12.2	2.4		2.4		41
Danger Bay	A100		4.4	31.9	1.1	47.3	9.9	3.3	1.1	1.1		91
GENERAL DIST.												
Amee Bay	G022		8.4	24.1	2.4	13.3	19.3	31.3	1.2			83

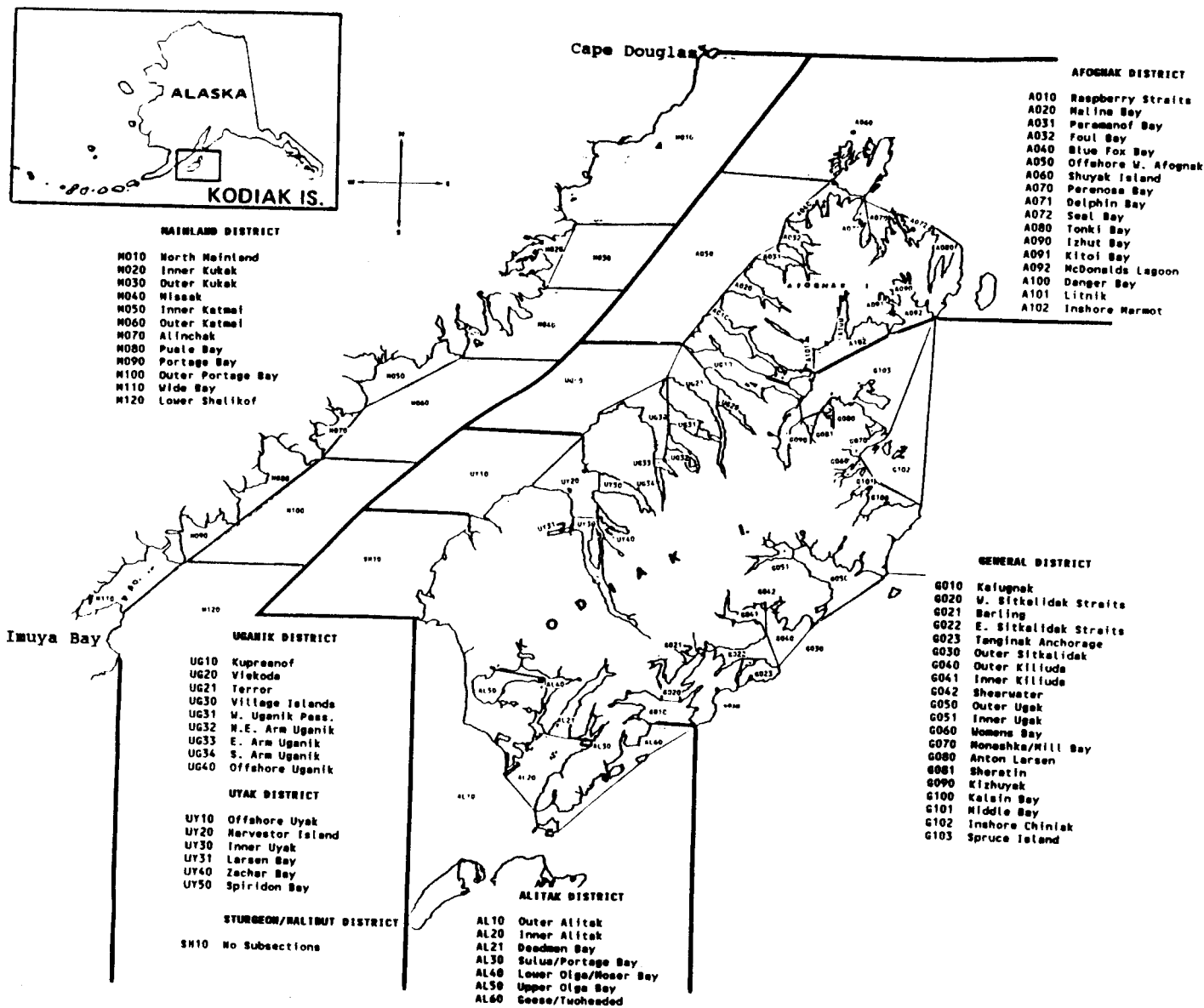


Figure 1. Kodiak area Pacific herring commercial fishing districts and statistical areas, 1985-87.

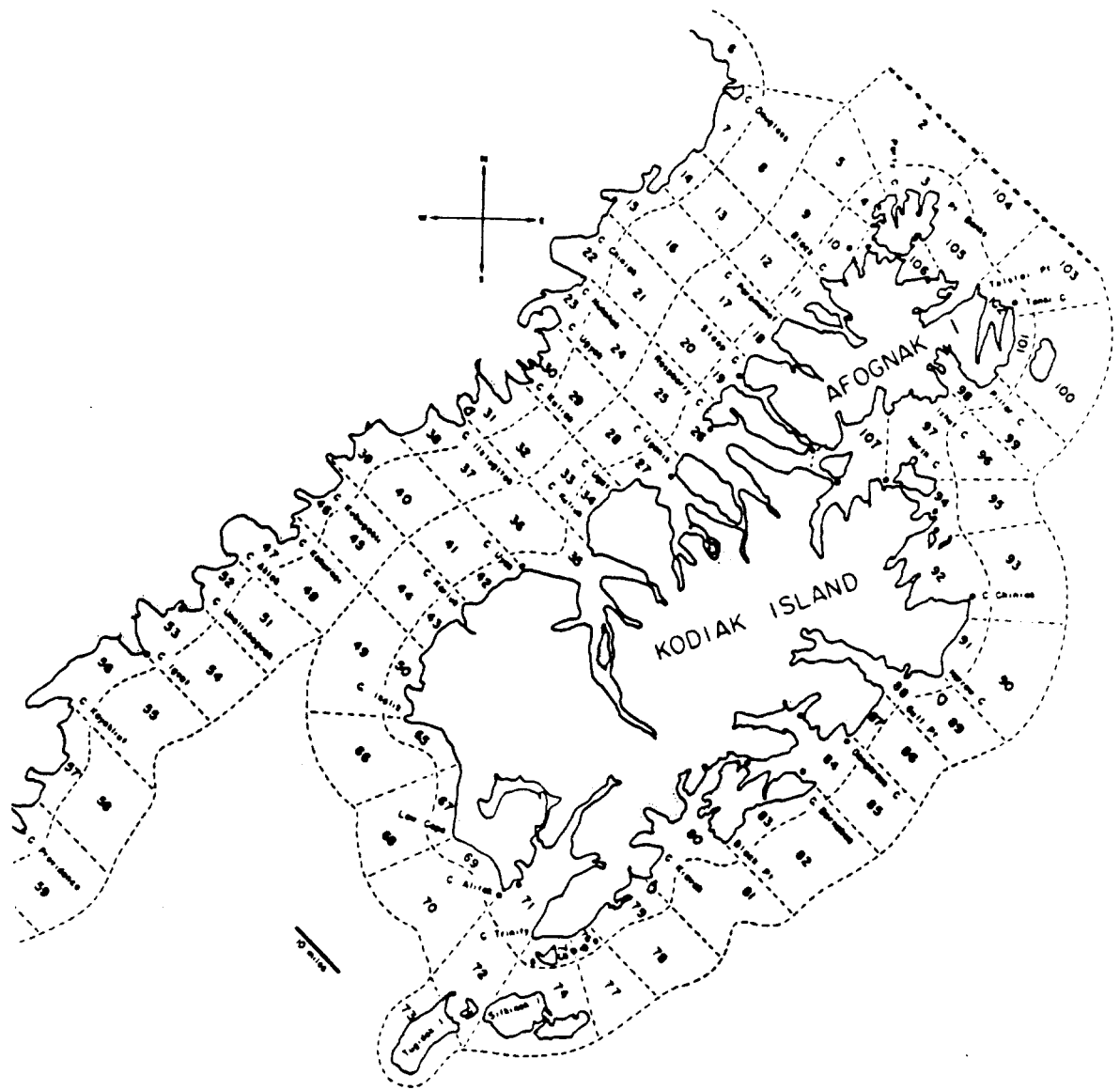


Figure 2. Kodiak area Pacific herring commercial fishing statistical areas, 1937-59. (U.S. Bureau of Fisheries)

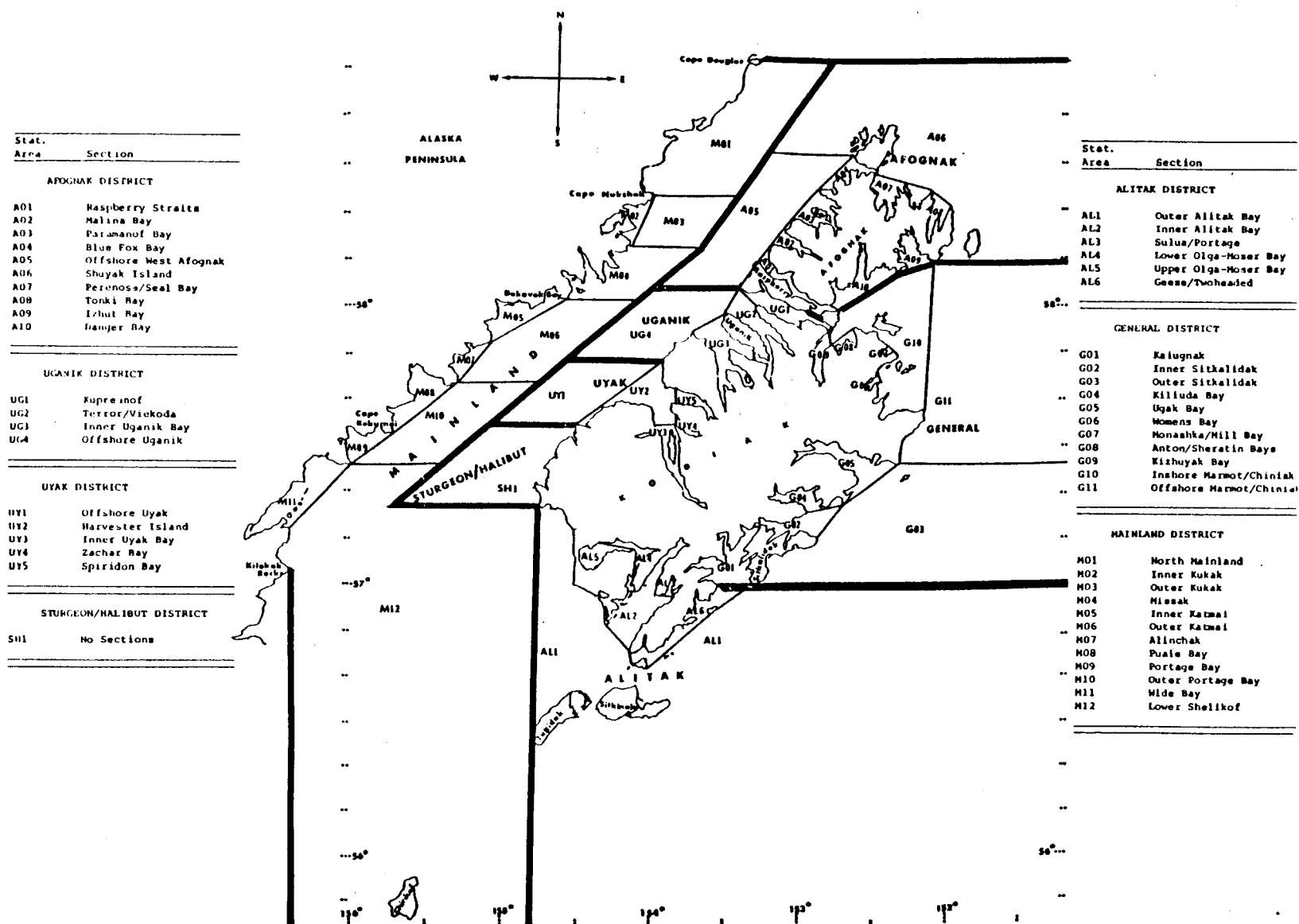


Figure 4. Kodiak area Pacific herring commercial fishing districts and statistical areas, 1981-84.

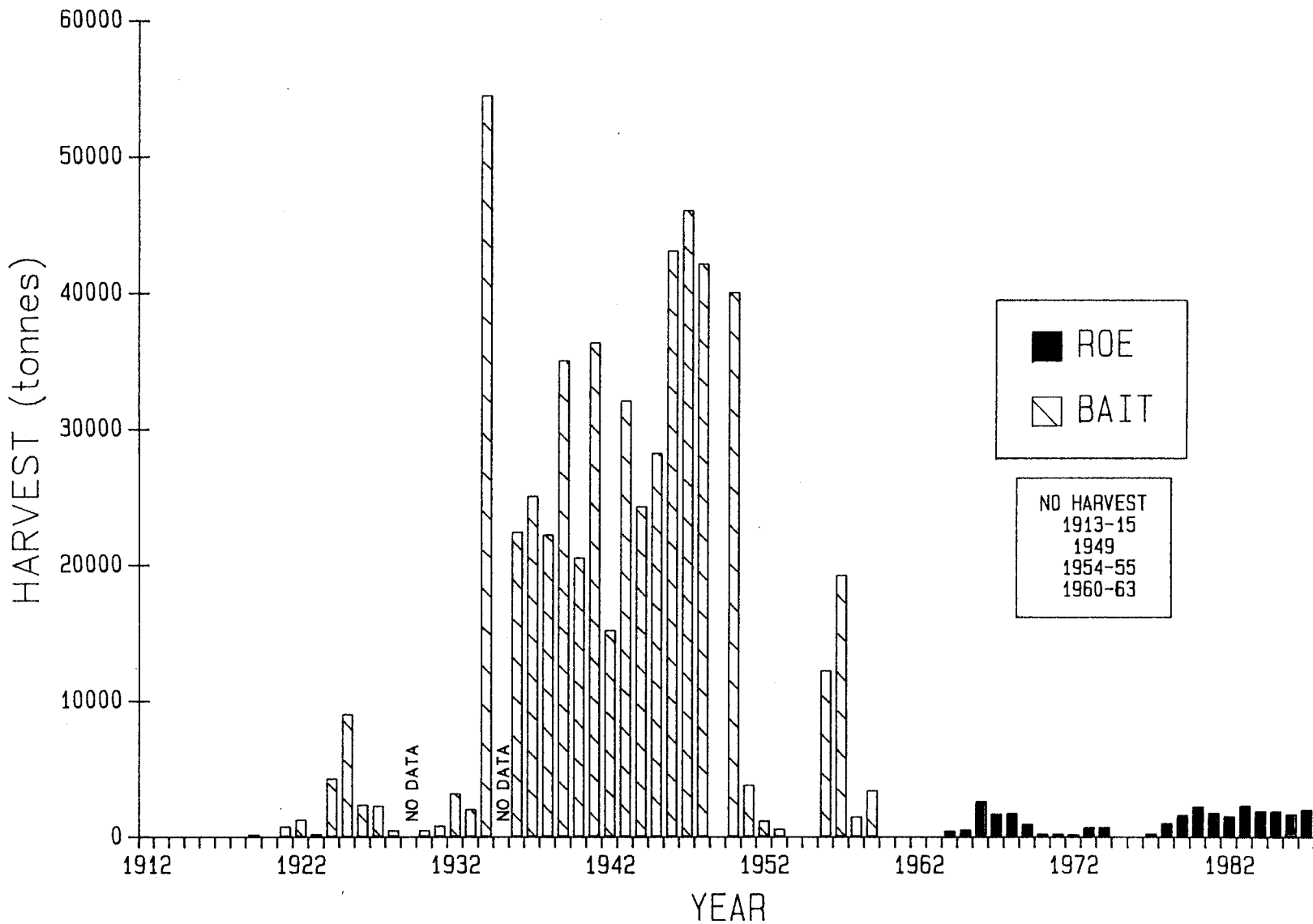


Figure 5. Kodiak area Pacific herring commercial harvest, 1912-87.

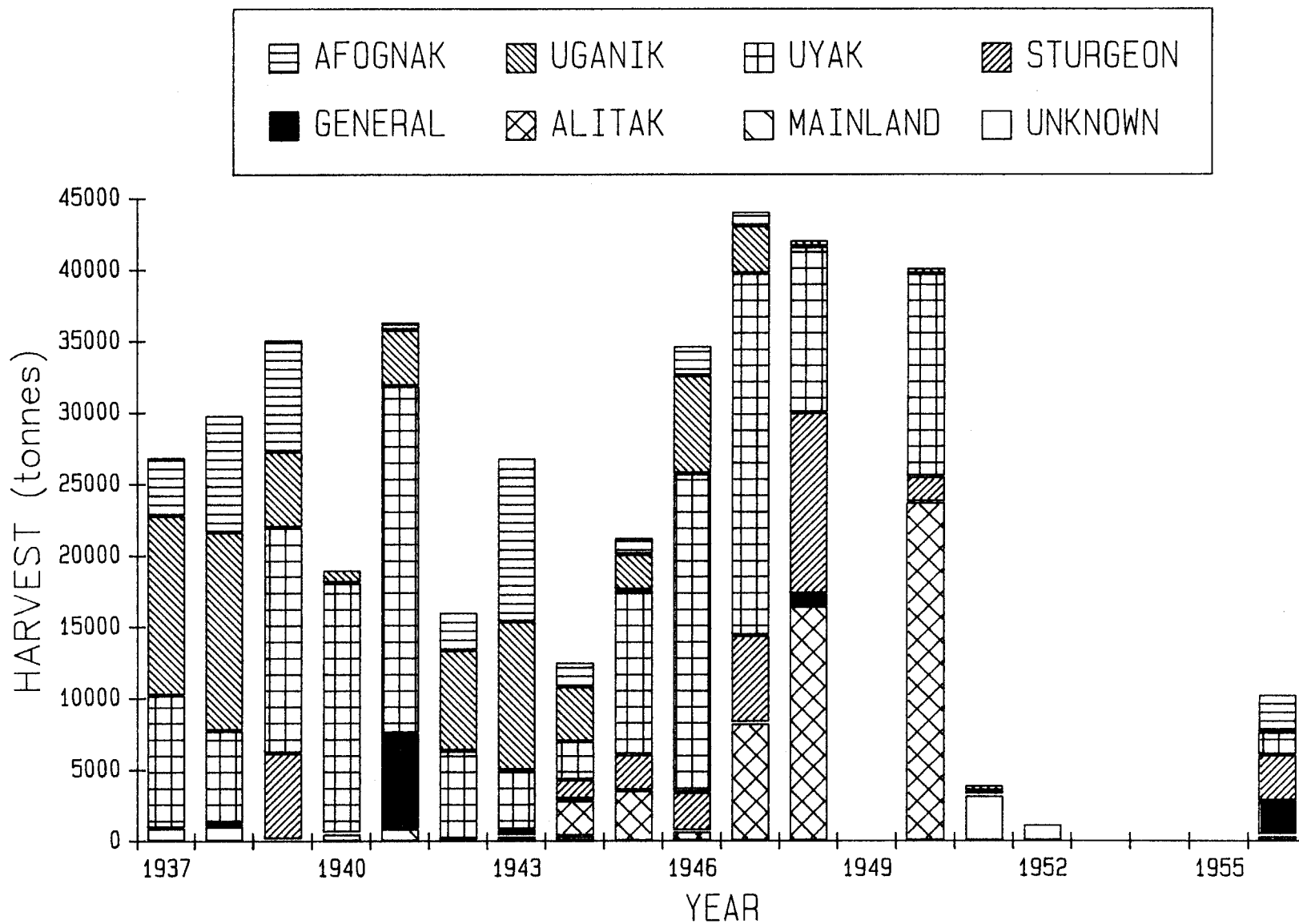


Figure 6. Kodiak area Pacific herring commercial fishery proportion of total harvest by district, 1937-56.

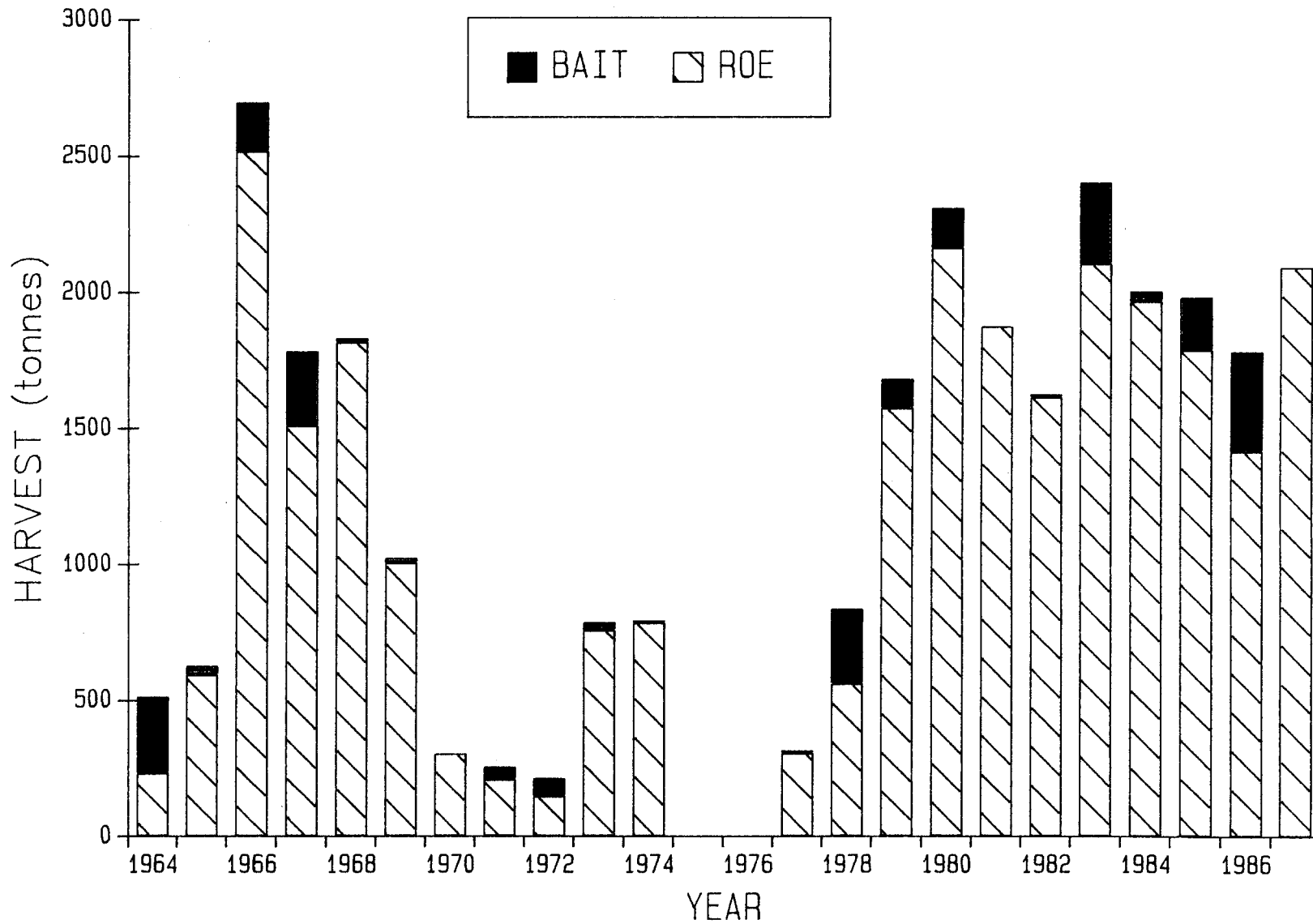


Figure 7. Kodiak area Pacific herring commercial harvest, 1964-87.

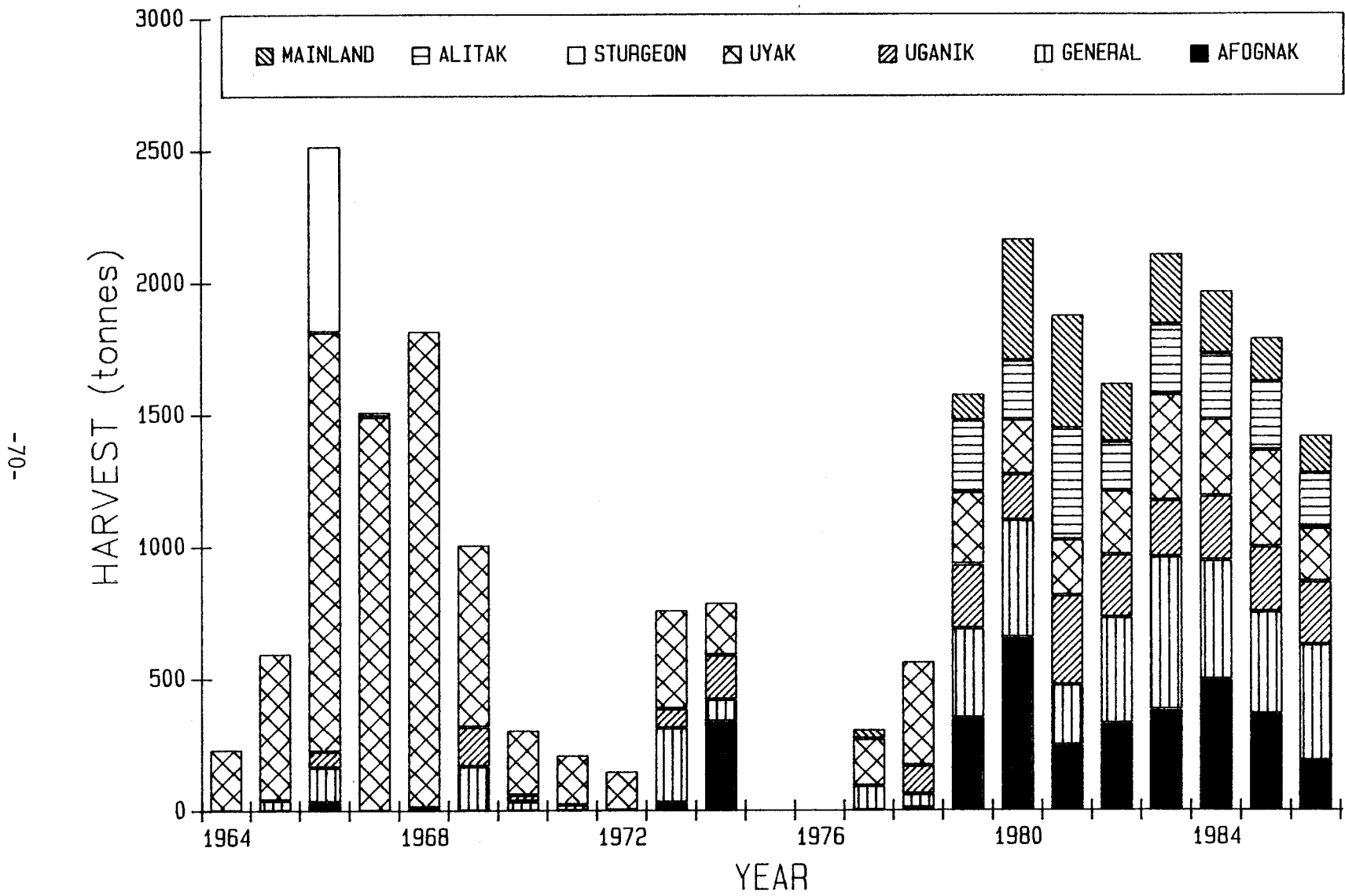


Figure 8. Kodiak area Pacific herring commercial sac-roe fishery proportion of total harvest by district, 1964-87.

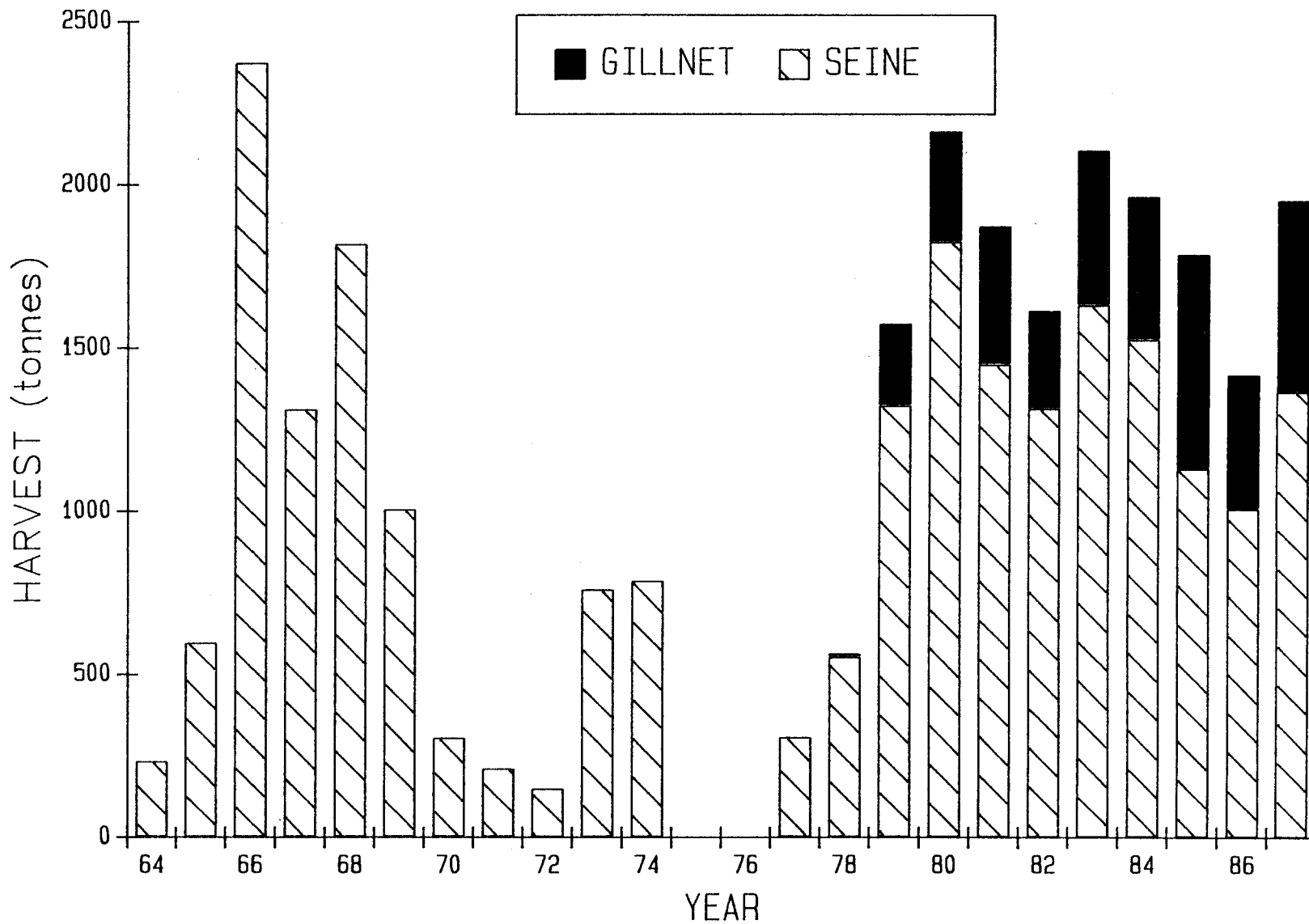


Figure 9. Kodiak area Pacific herring commercial sac-roe harvest by gear type, 1964-87.

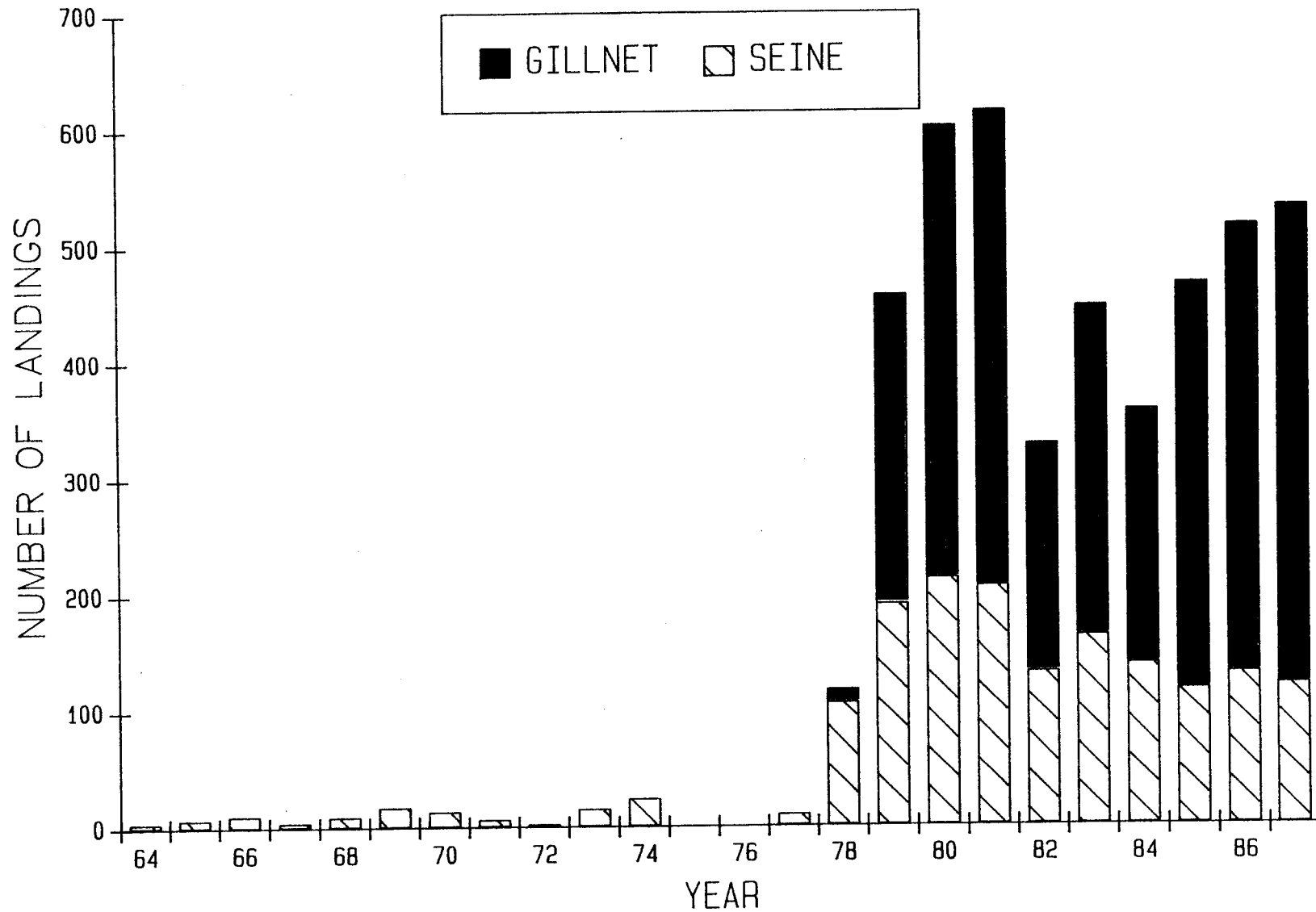


Figure 10. Kodiak area Pacific herring commercial sac-roe fishery effort by gear type, 1964-87.

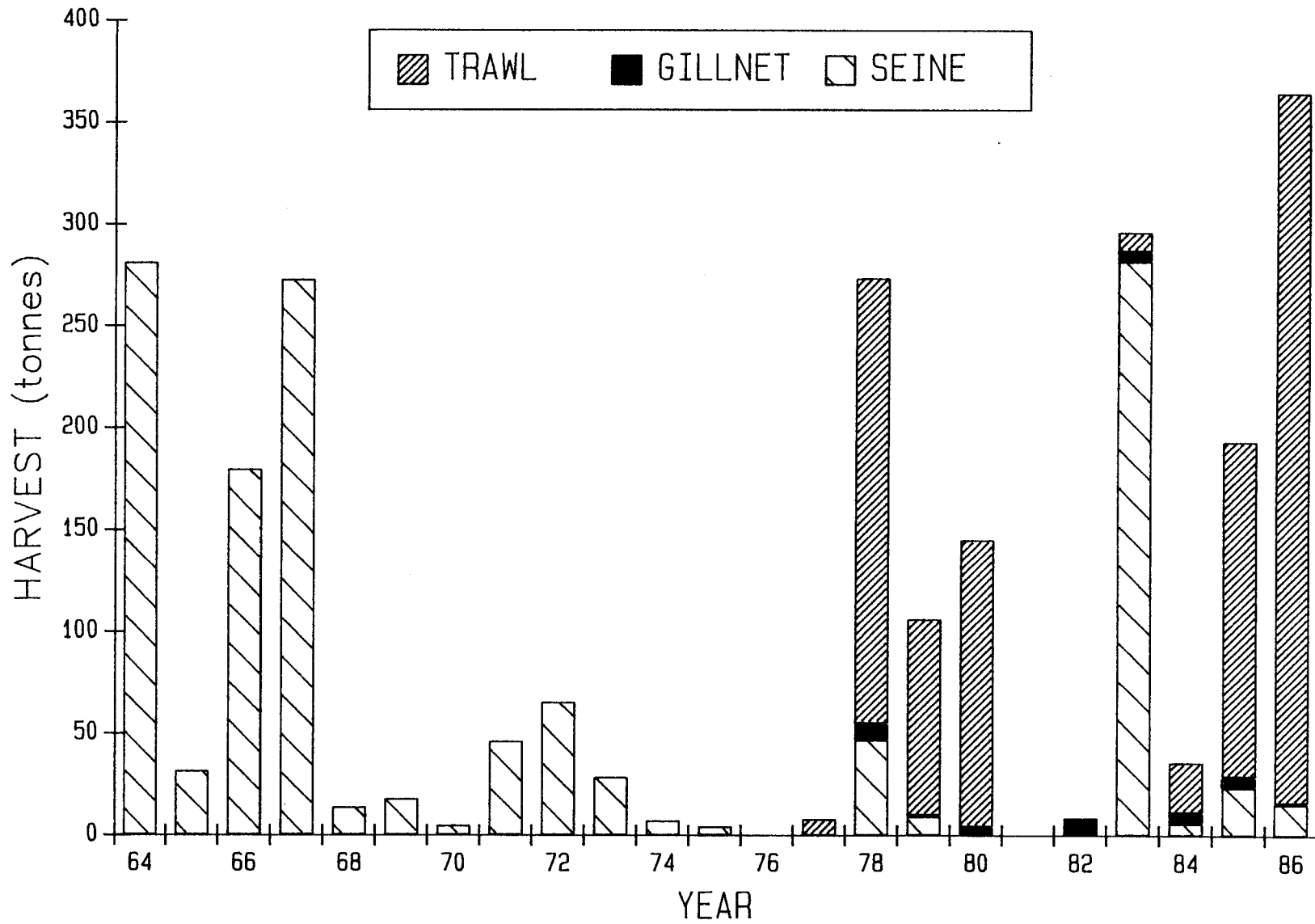


Figure 11. Kodiak area Pacific herring commercial food/bait harvest by gear type, 1964-86.

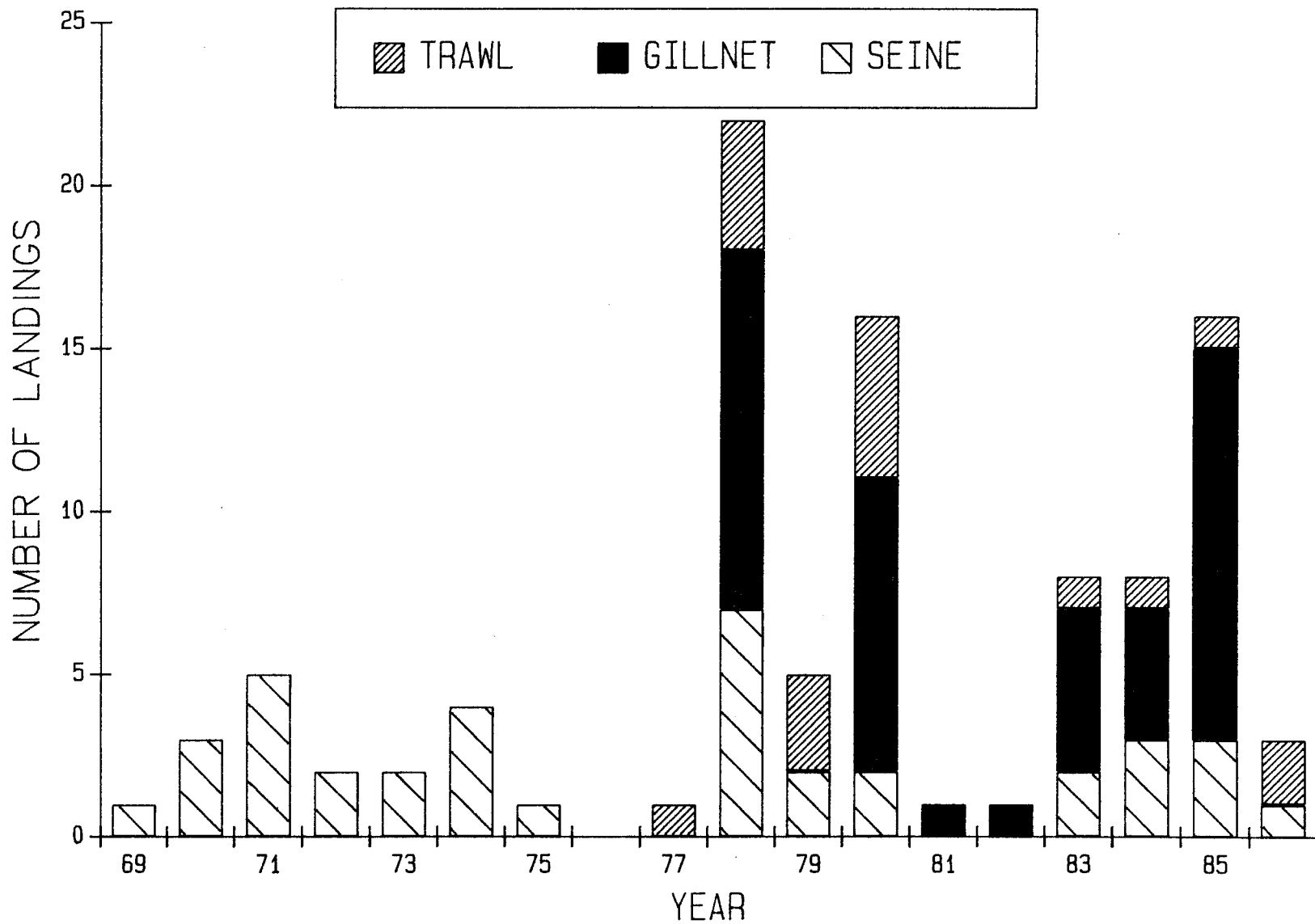


Figure 12. Kodiak area Pacific herring commercial food/bait fishery effort by gear type, 1969-86.

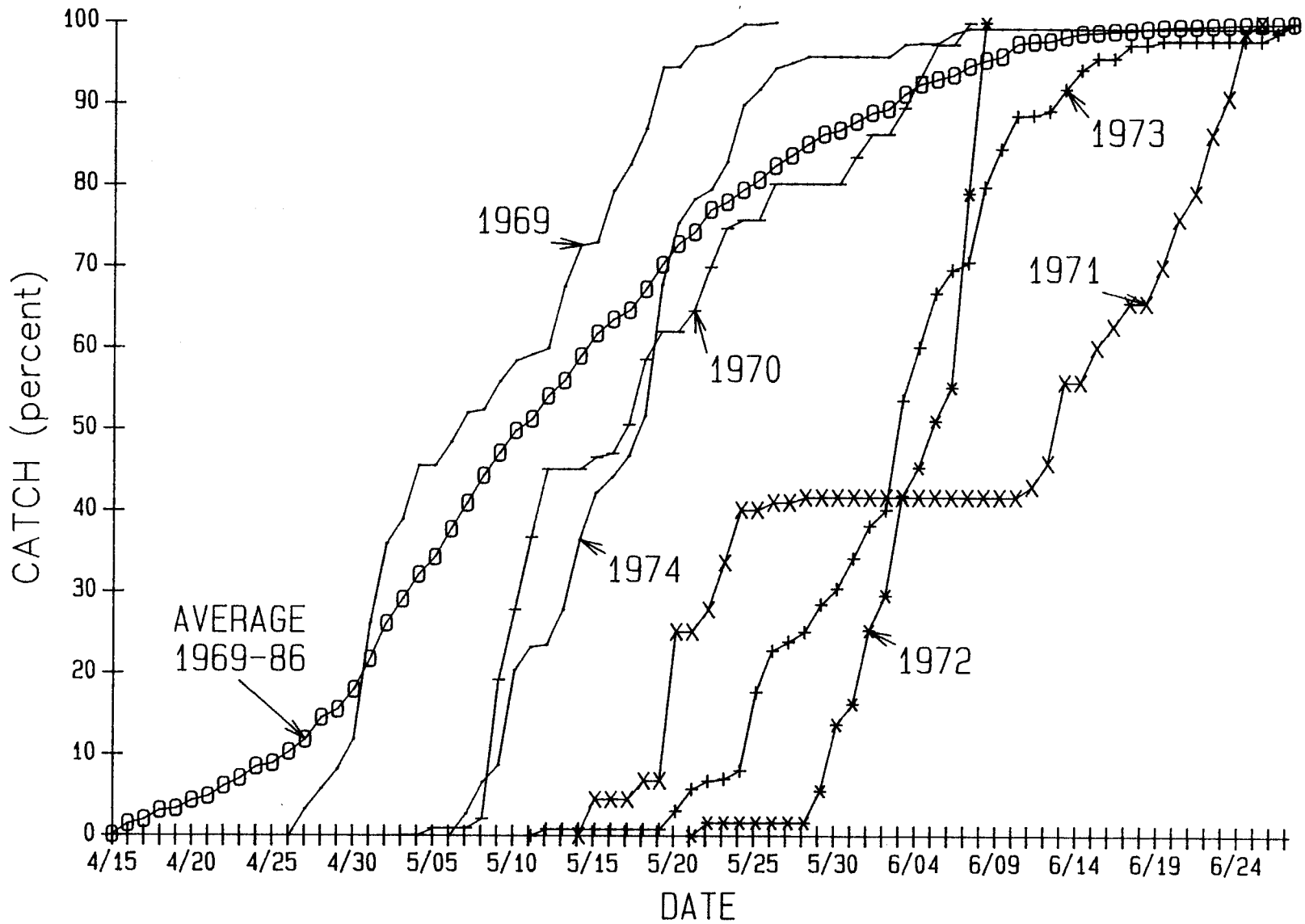


Figure 13. Kodiak area Pacific herring commercial sac-roe cumulative catch by date, 1969-74.

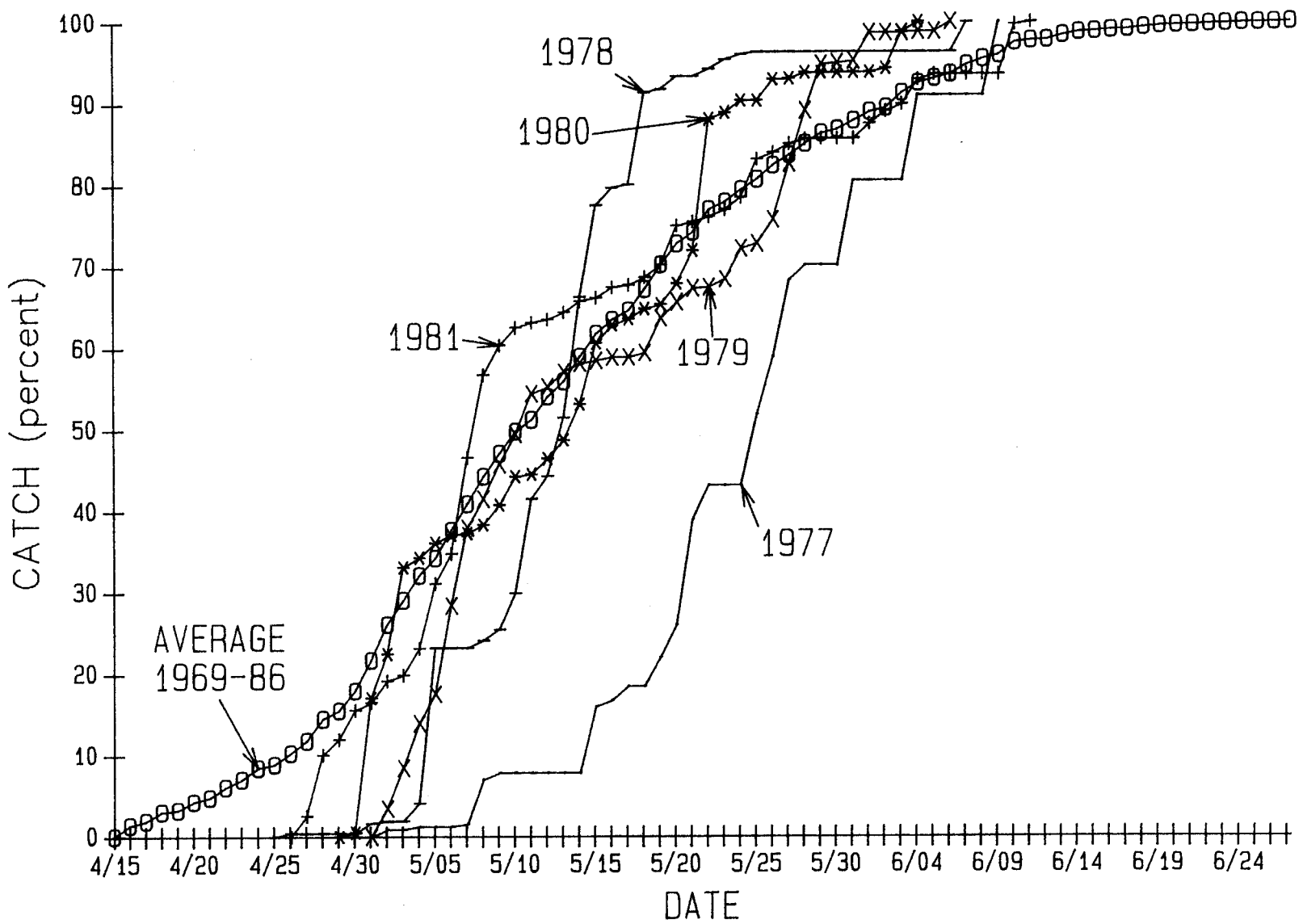


Figure 14. Kodiak area Pacific herring commercial sac-roe cumulative catch by date, 1977-81.

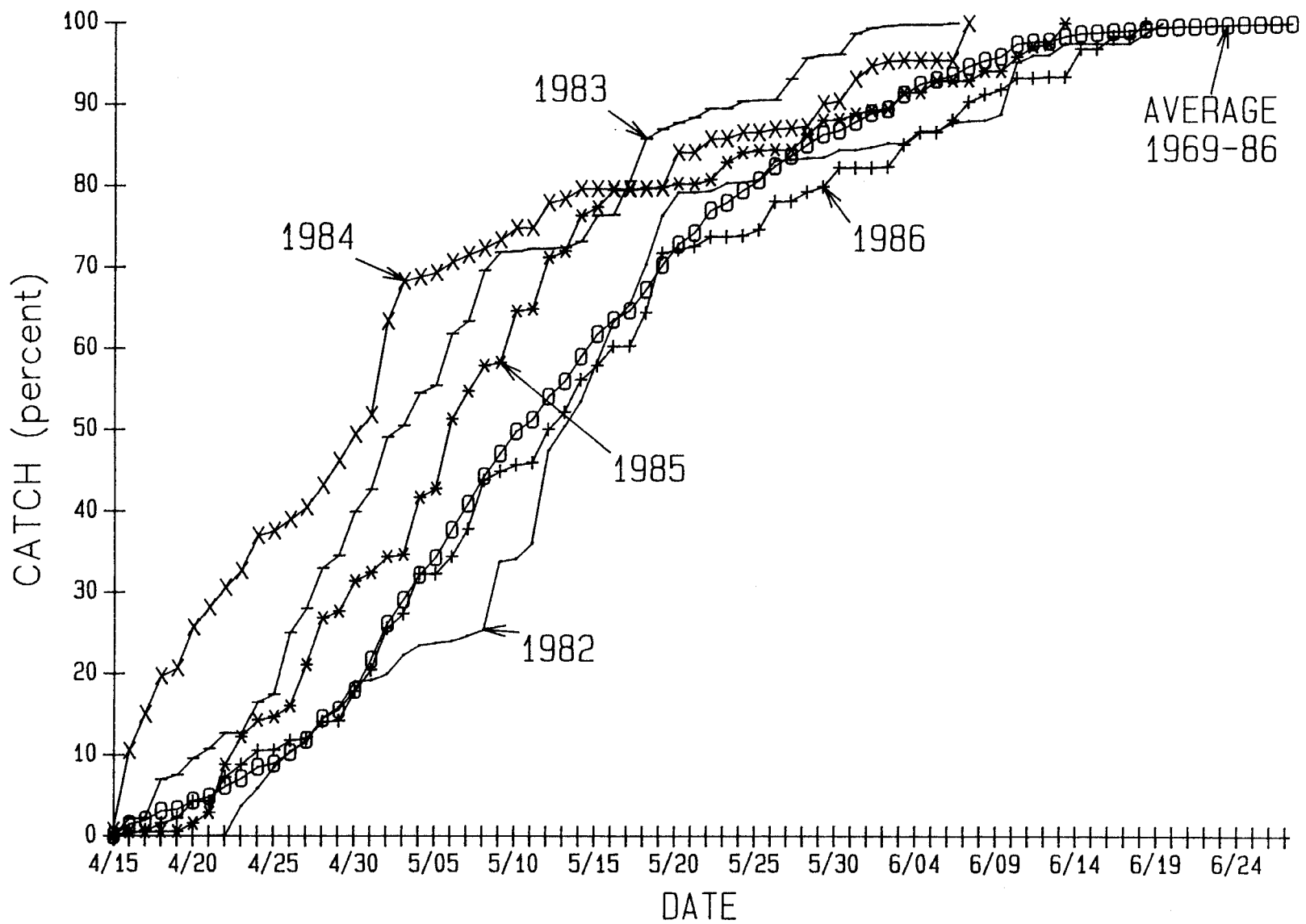


Figure 15. Kodiak area Pacific herring commercial sac-roe cumulative catch by date, 1982-86.

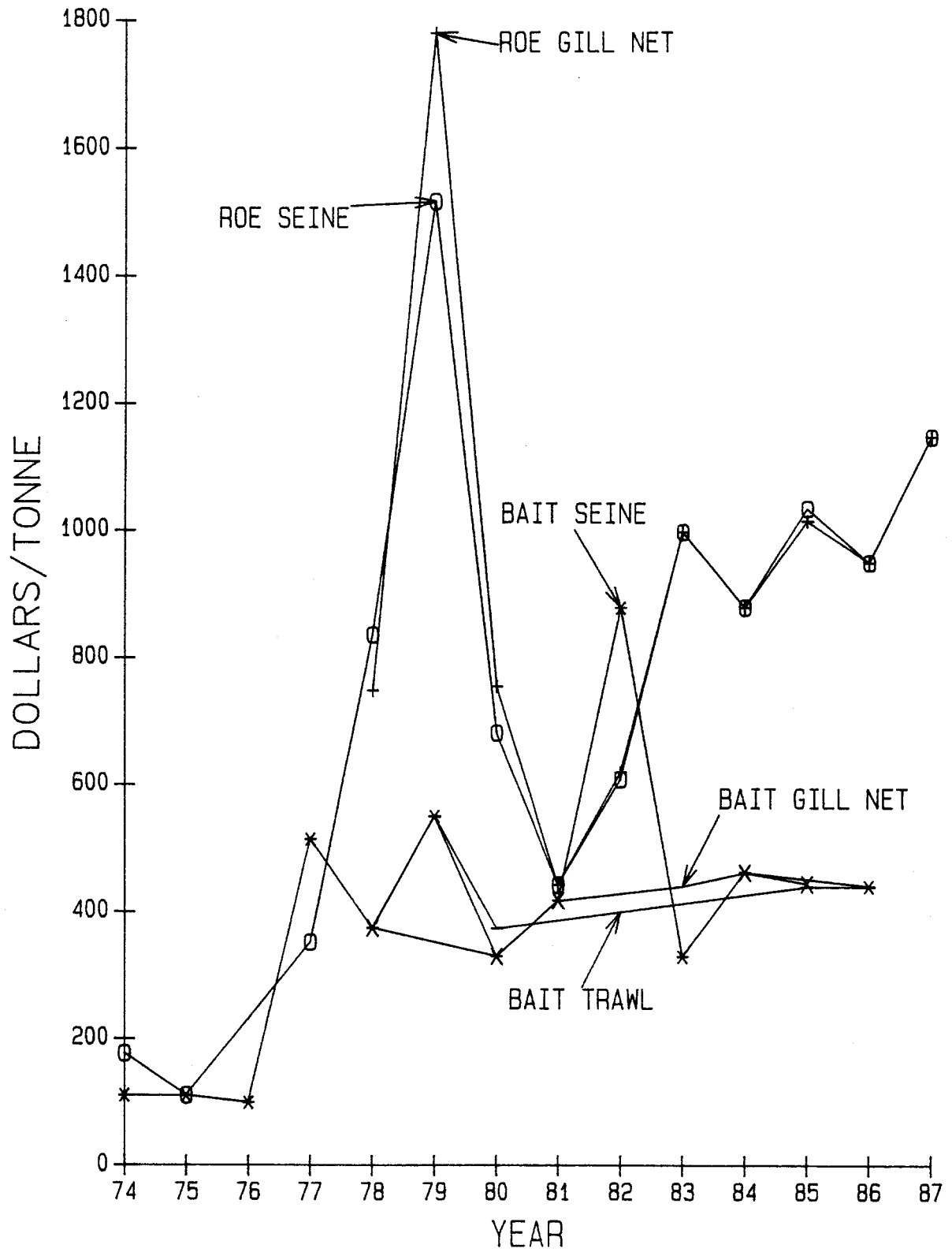


Figure 16. Kodiak area Pacific herring commercial fisheries estimated ex-vessel price, 1974-87.

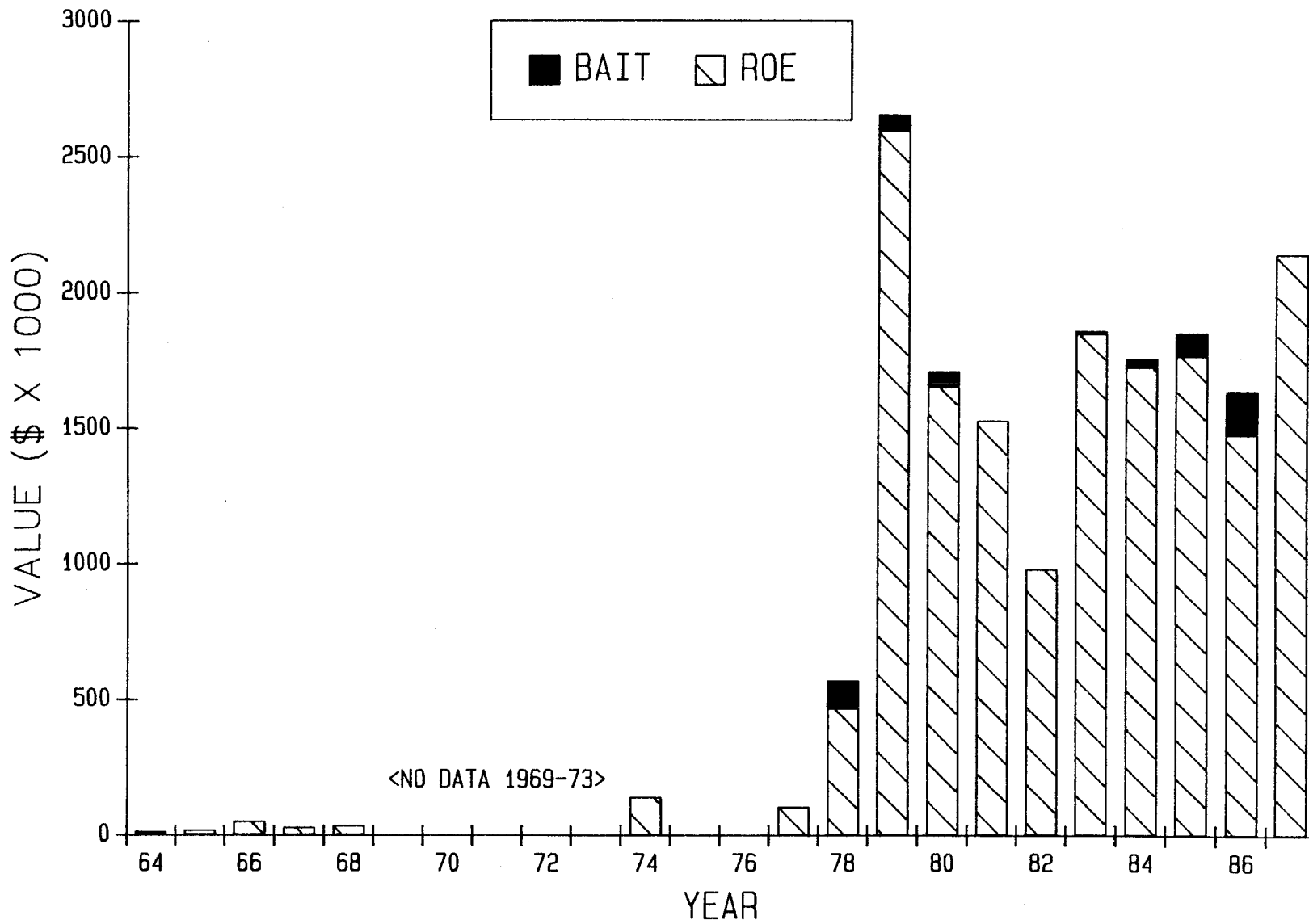


Figure 17. Kodiak area Pacific herring commercial fisheries total value, 1964-87.

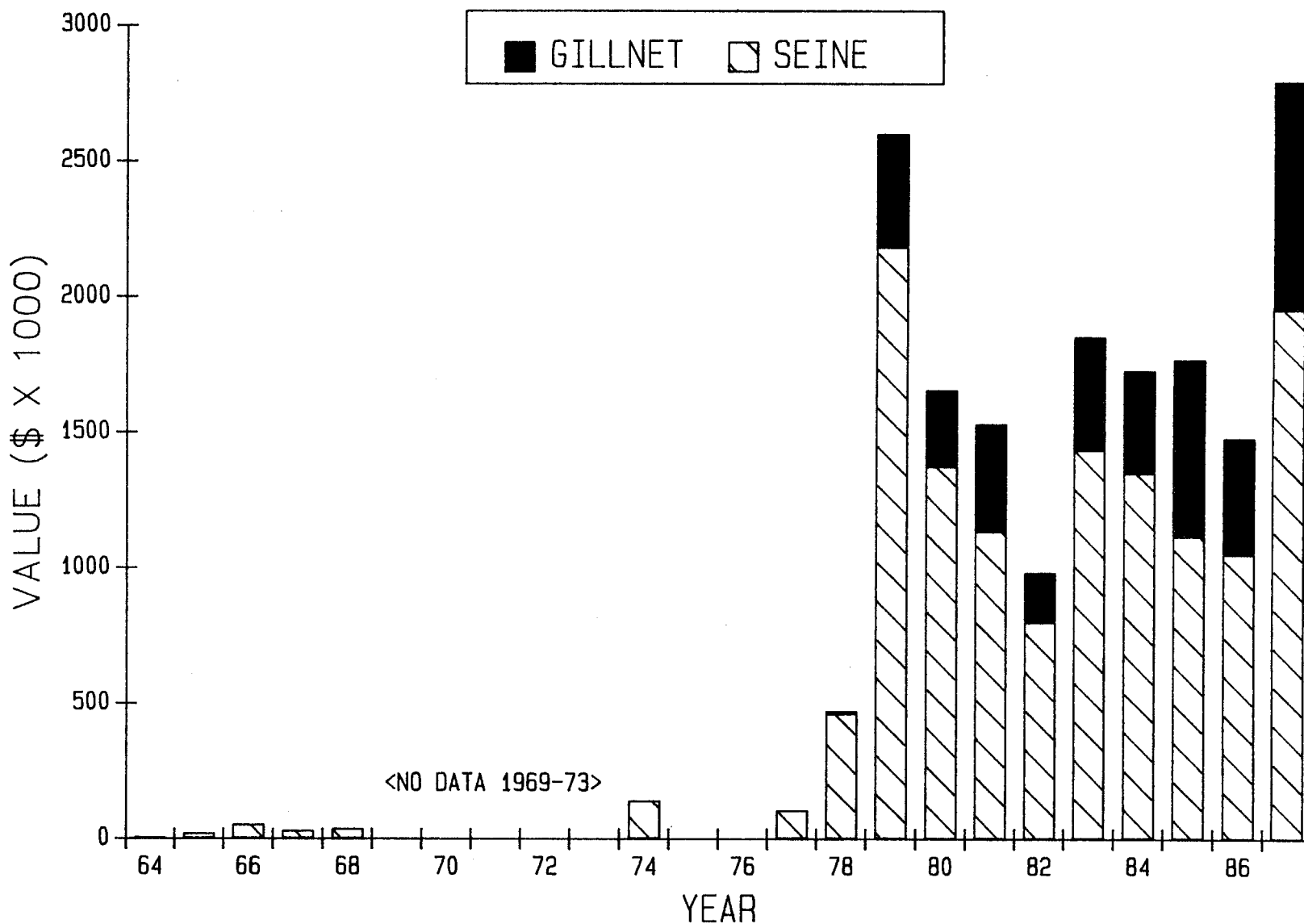


Figure 18. Kodiak area Pacific herring commercial sac-roe fishery value by gear type, 1964-87.

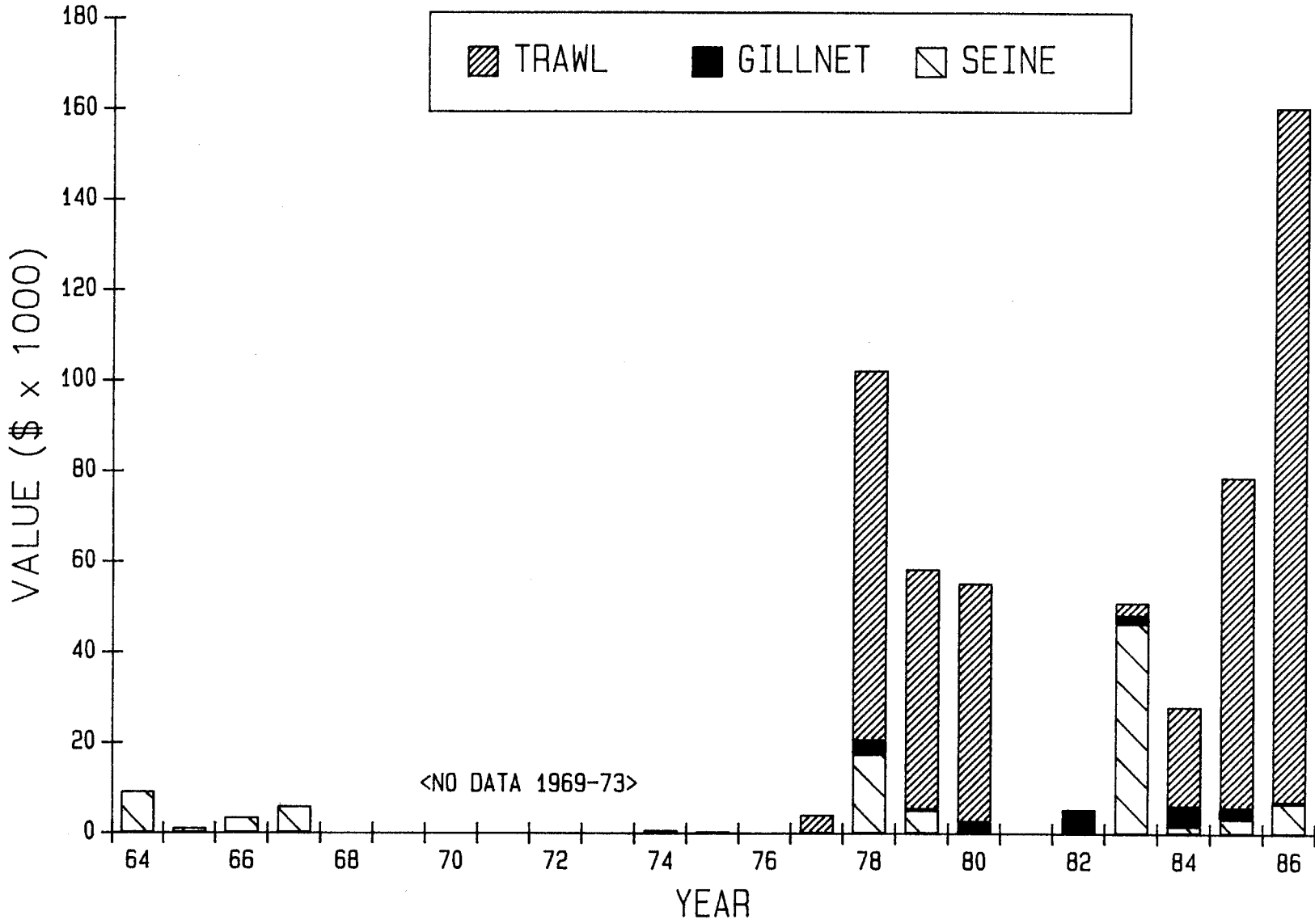


Figure 19. Kodiak area Pacific herring commercial food/bait fishery value by gear type, 1964-86.

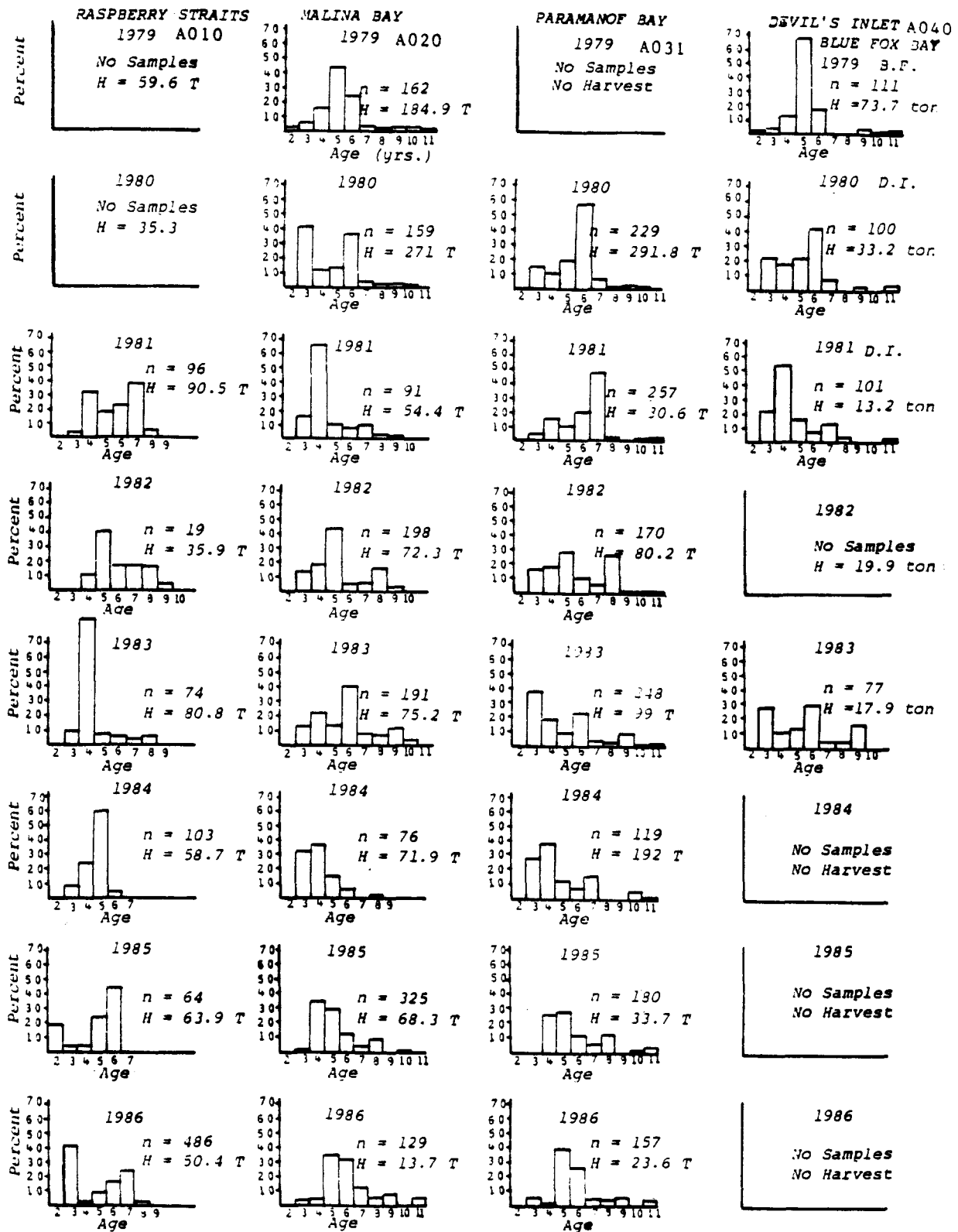


Figure 20. Kodiak area Pacific herring commercial sac-roe fishery age frequency by statistical area, 1979-86.

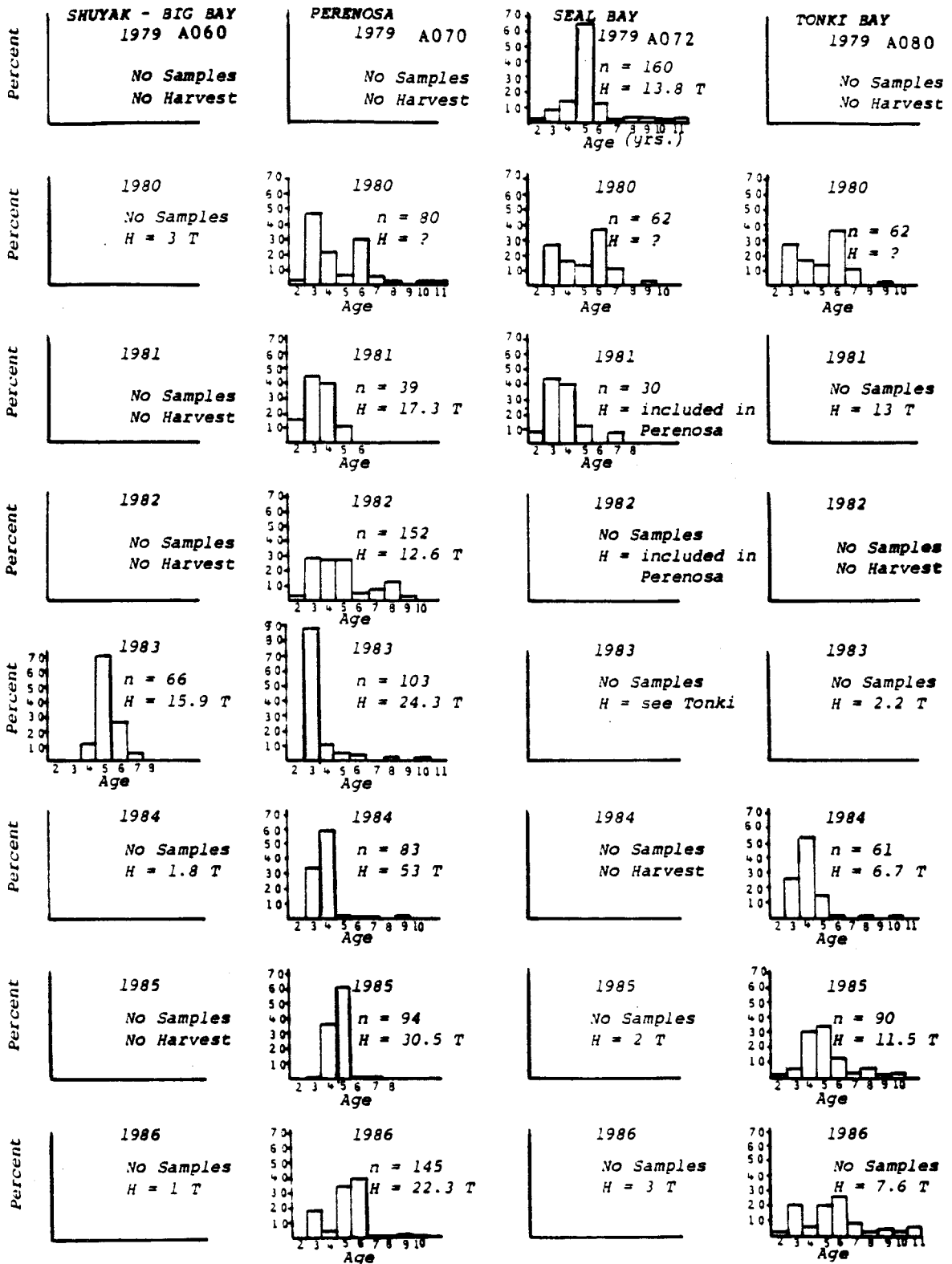


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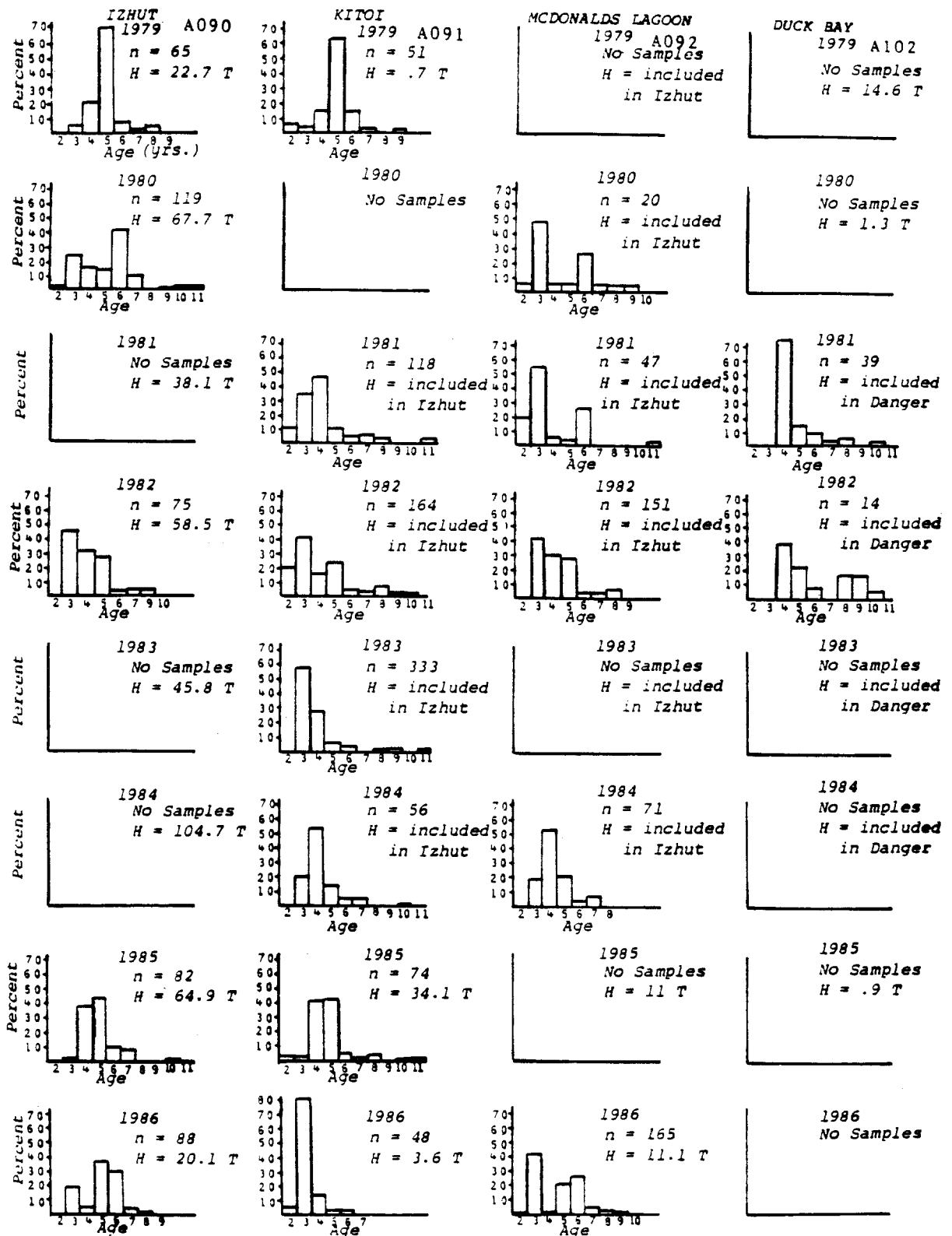


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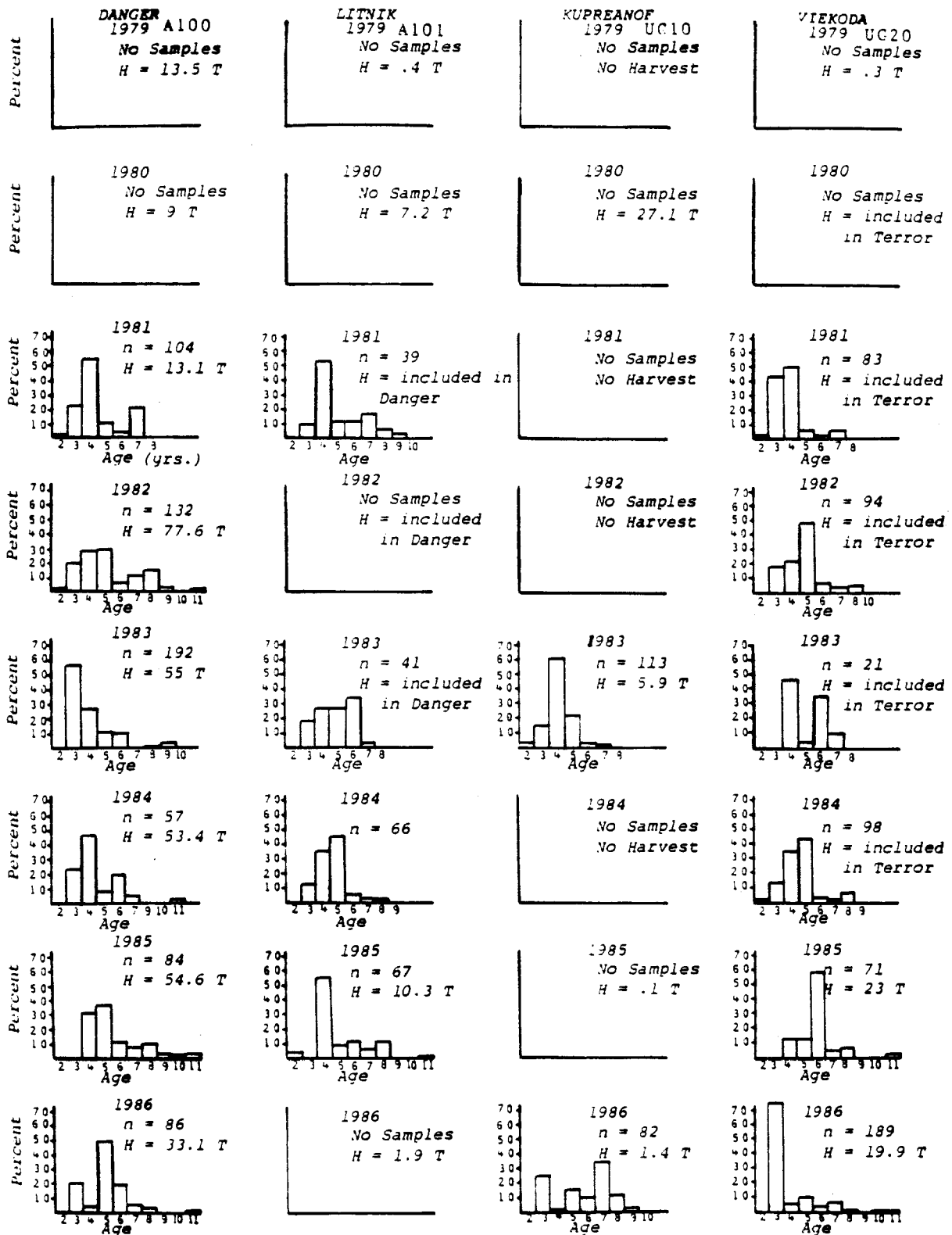


Figure 20. (page 4 of 11)

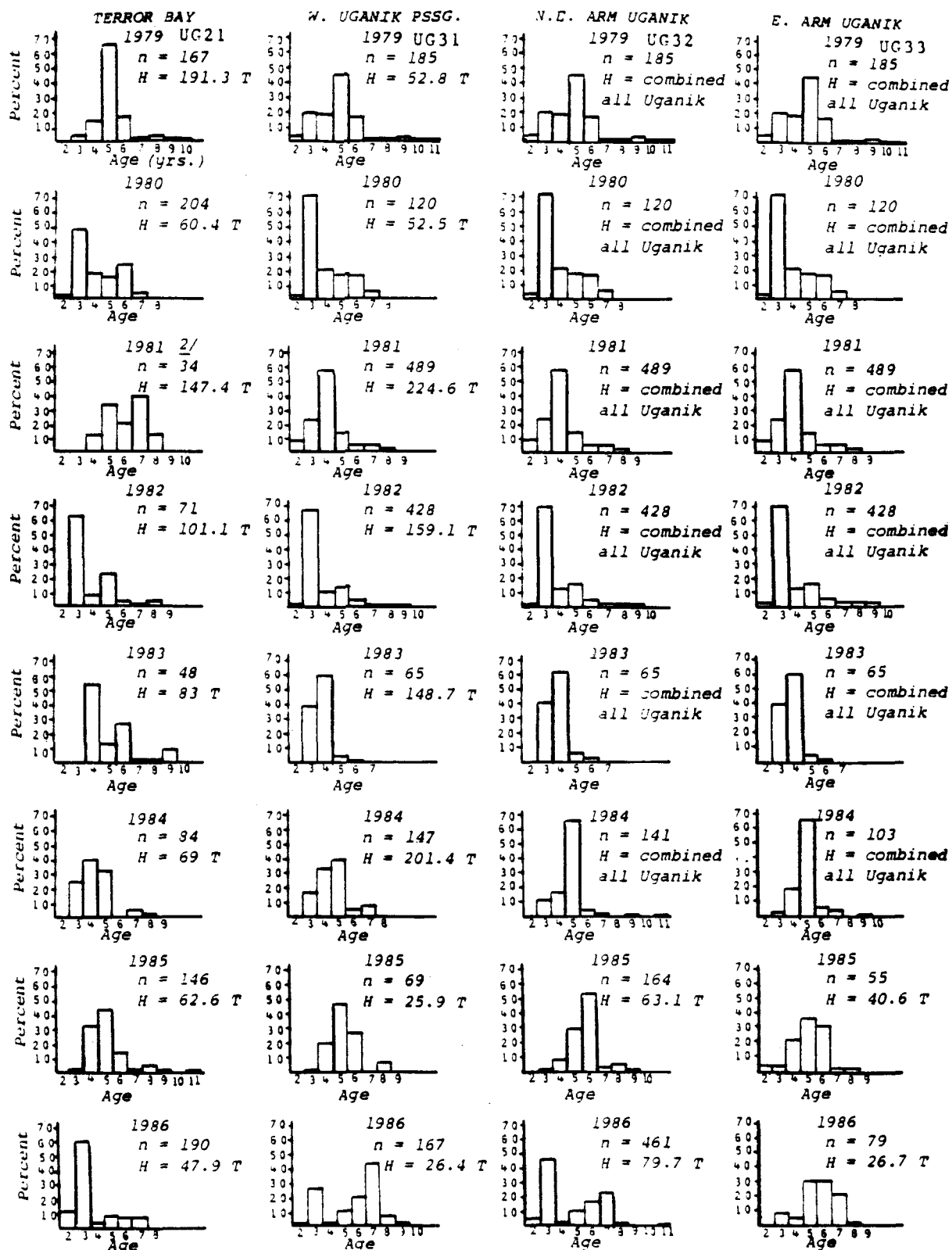


Figure 20. (page 5 of 11)

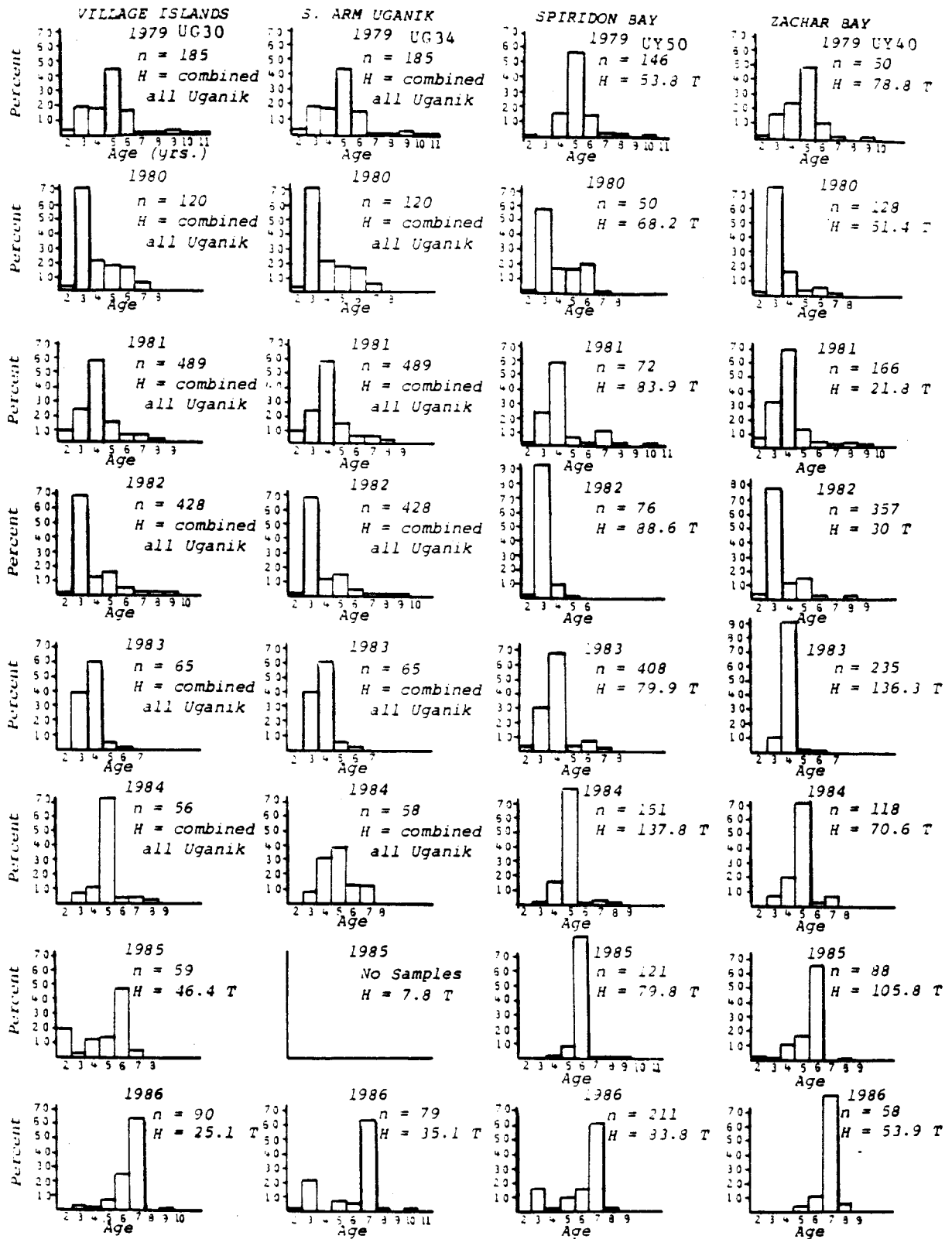


Figure 20. (page 6 of 11)

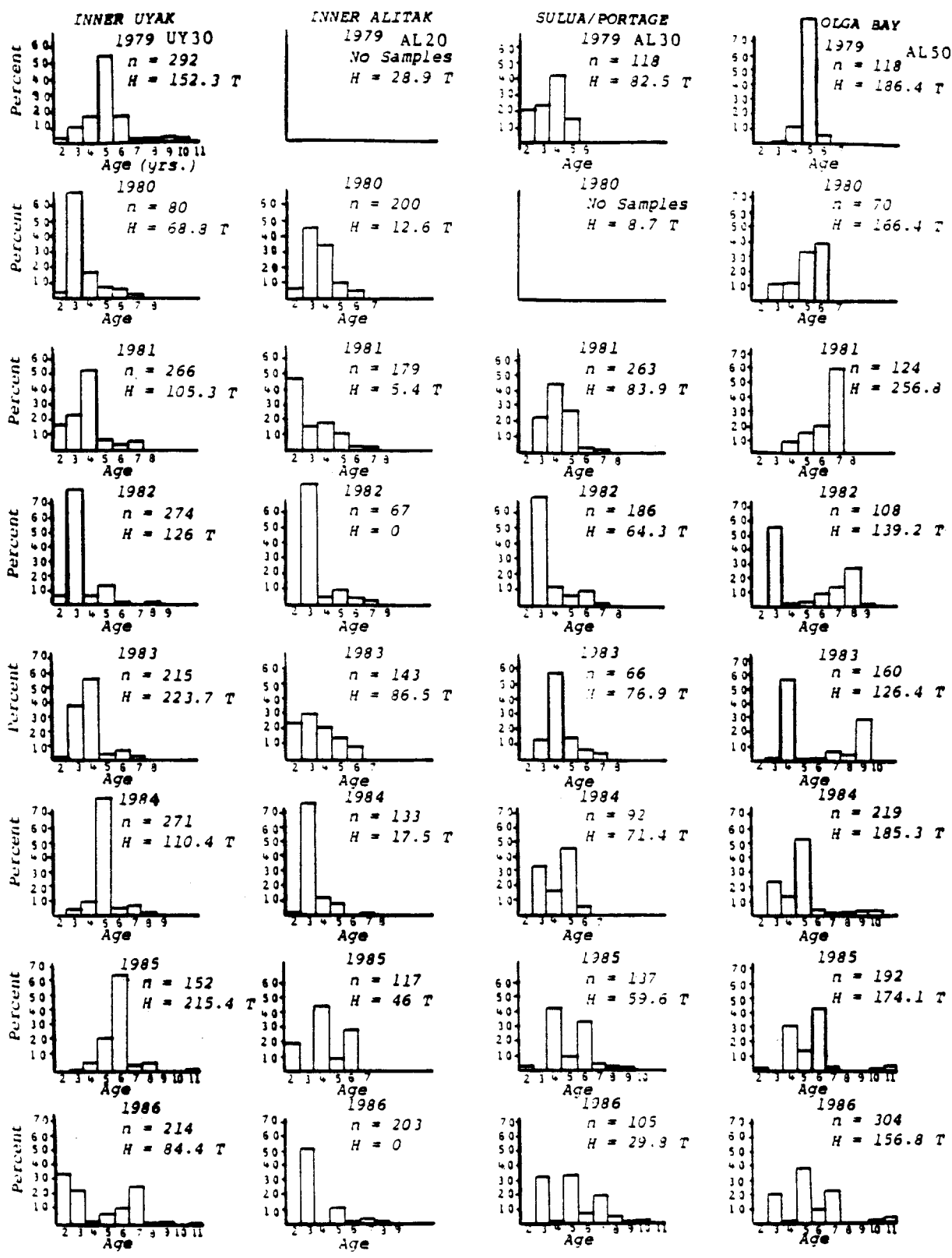


Figure 20. (page 7 of 11)

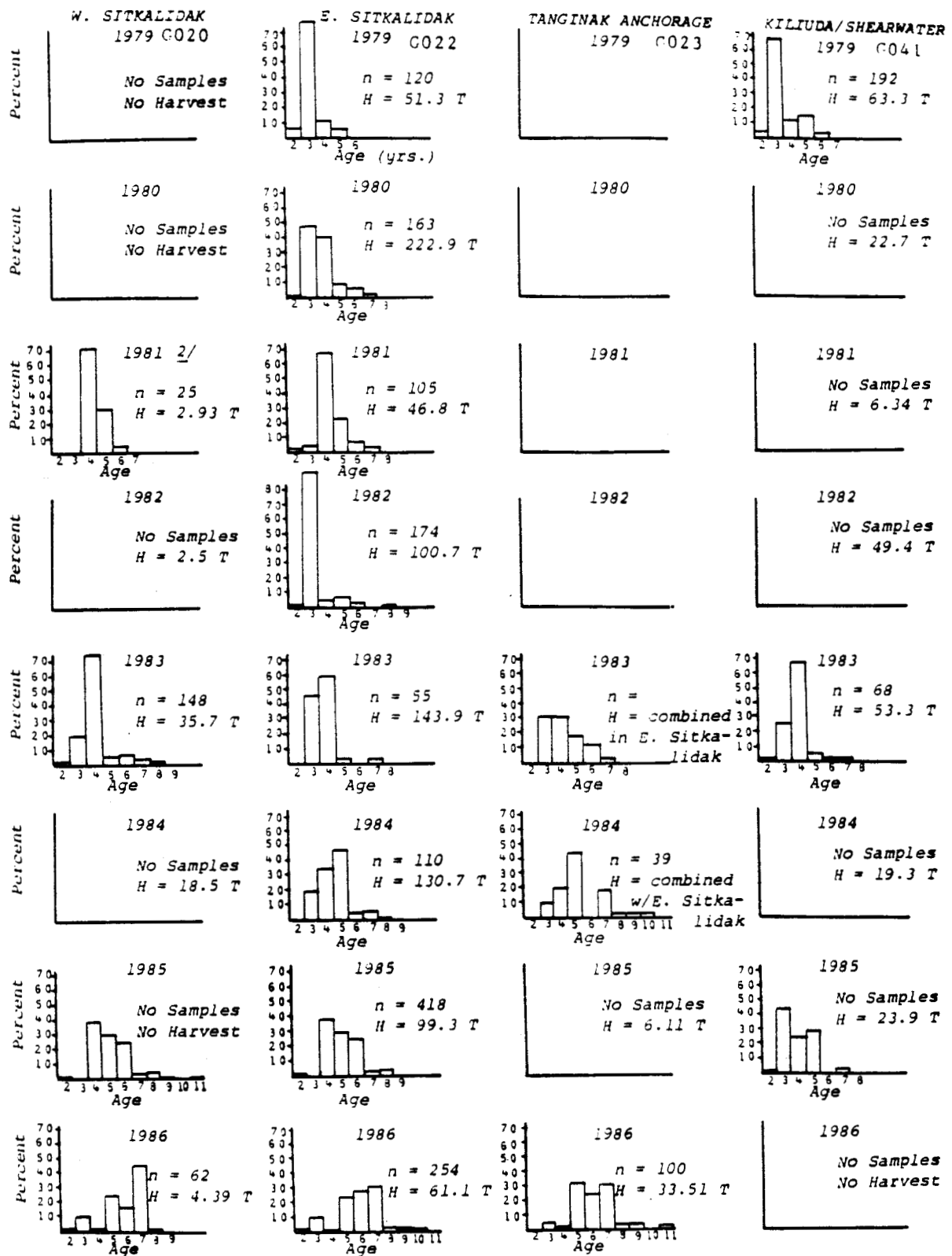


Figure 20. (page 8 of 11)

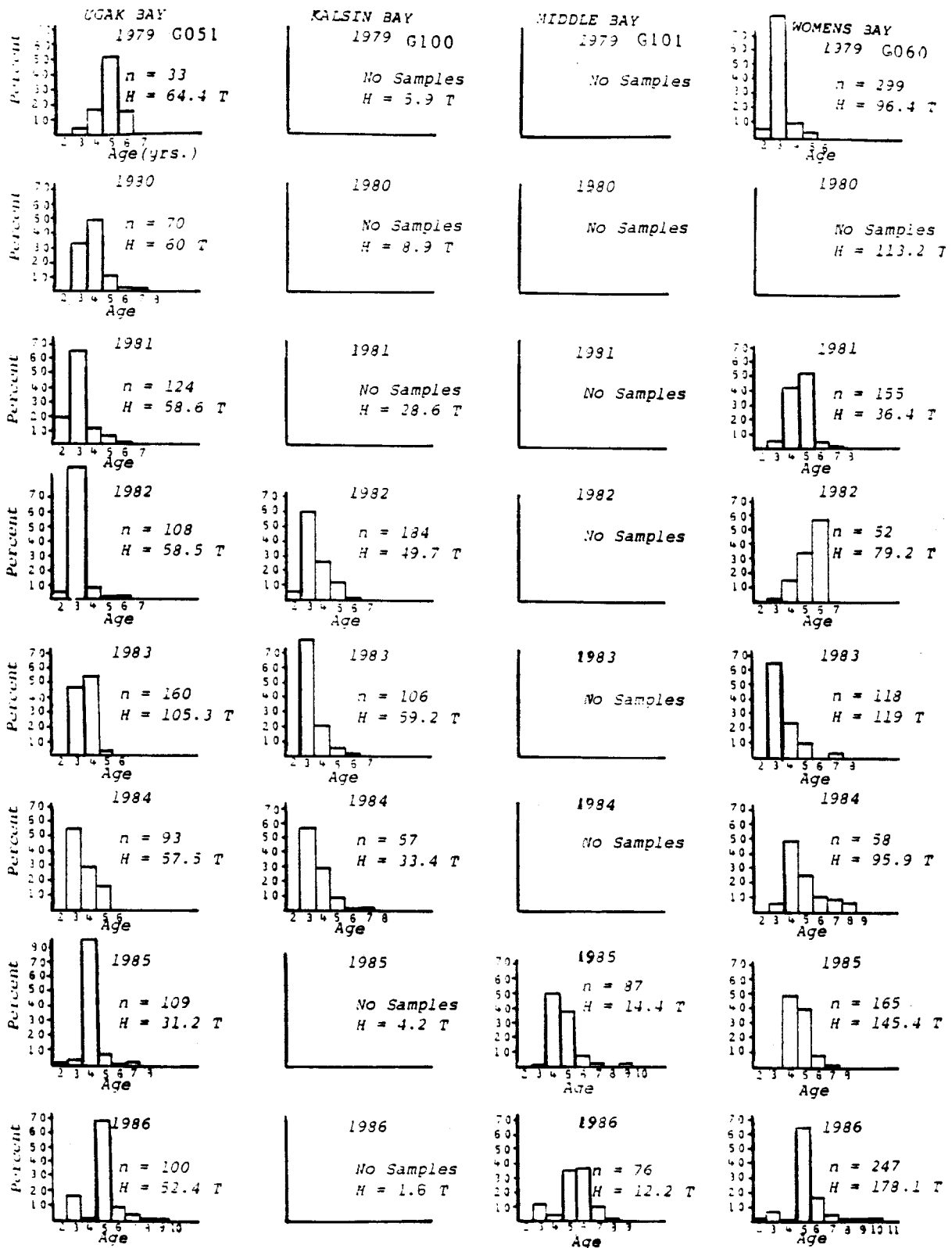


Figure 20. (page 9 of 11)

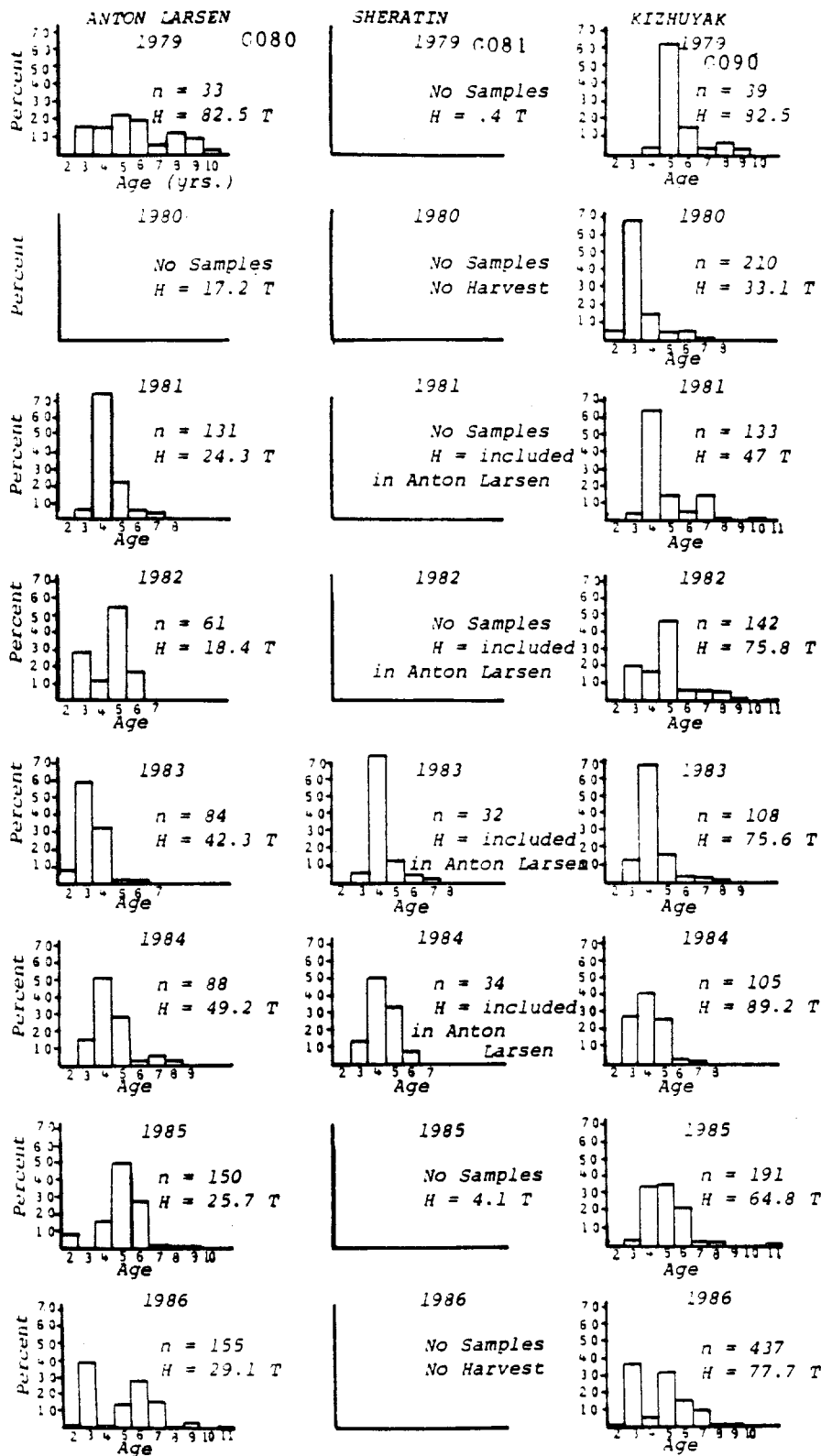


Figure 20. (page 10 of 11)

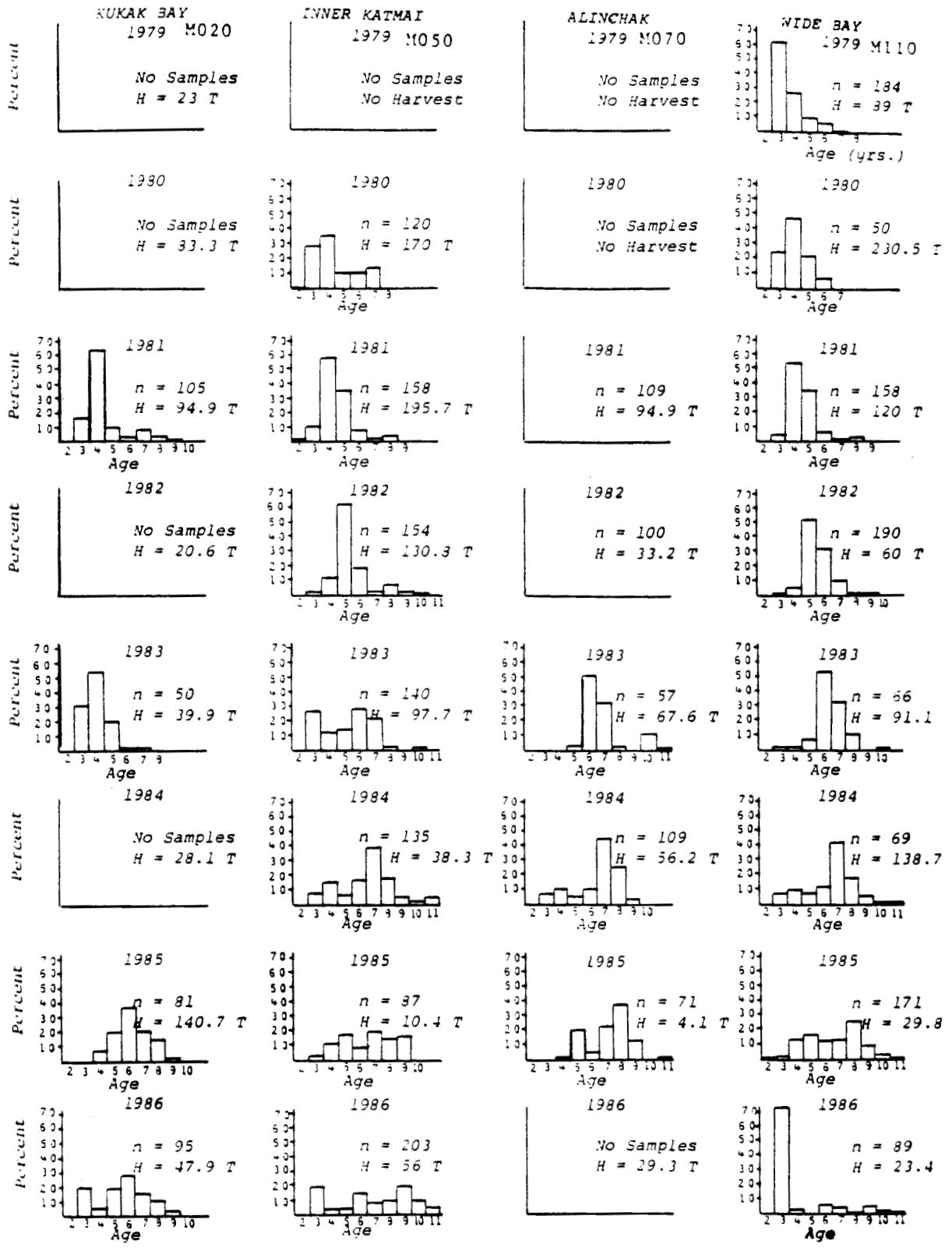


Figure 20. (page 11 of 11)

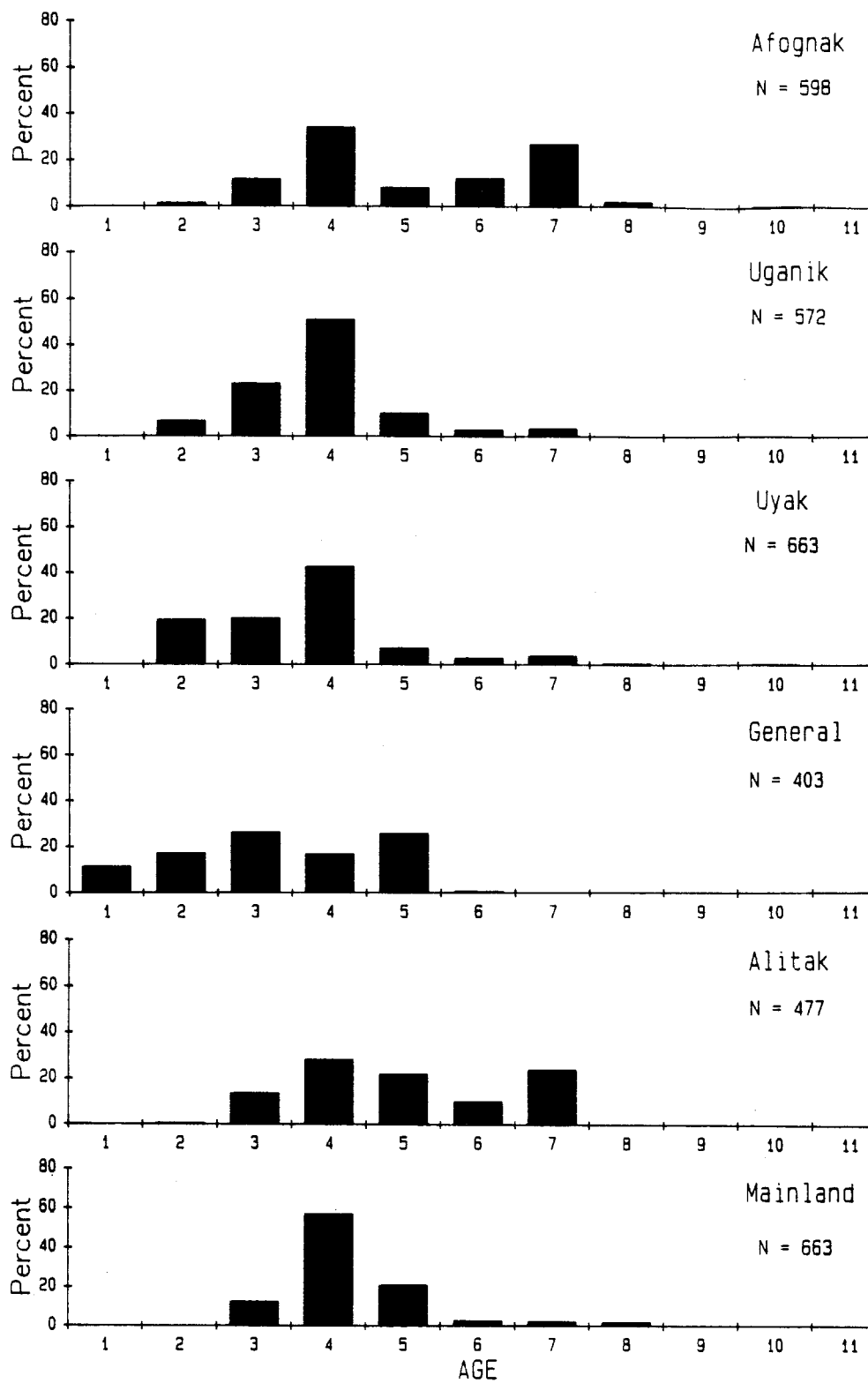


Figure 21. Kodiak area Pacific herring commercial seine sac-roe fishery age frequency by district, 1981.

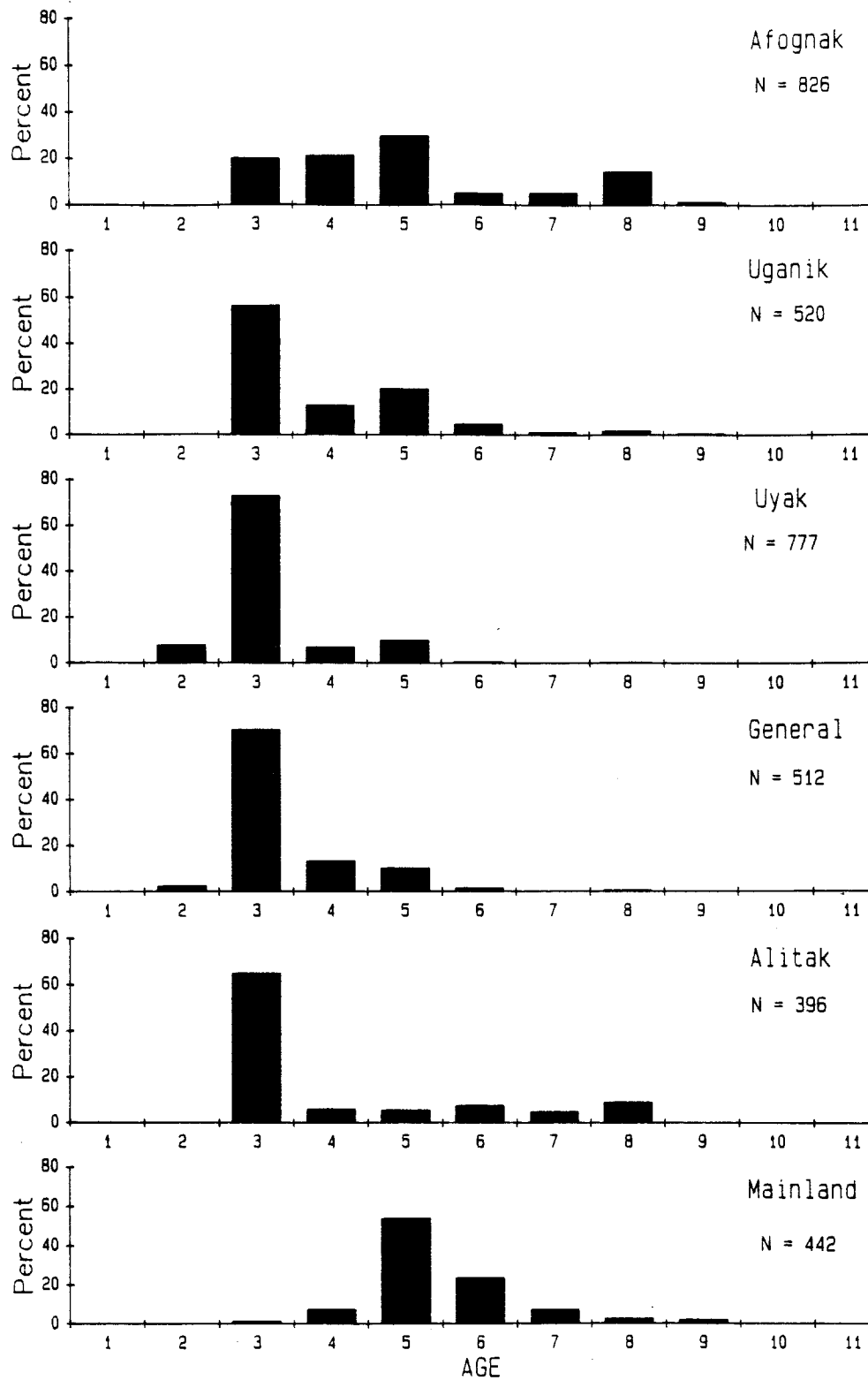


Figure 22. Kodiak area Pacific herring commercial seine sac-roe fishery age frequency by district, 1982.

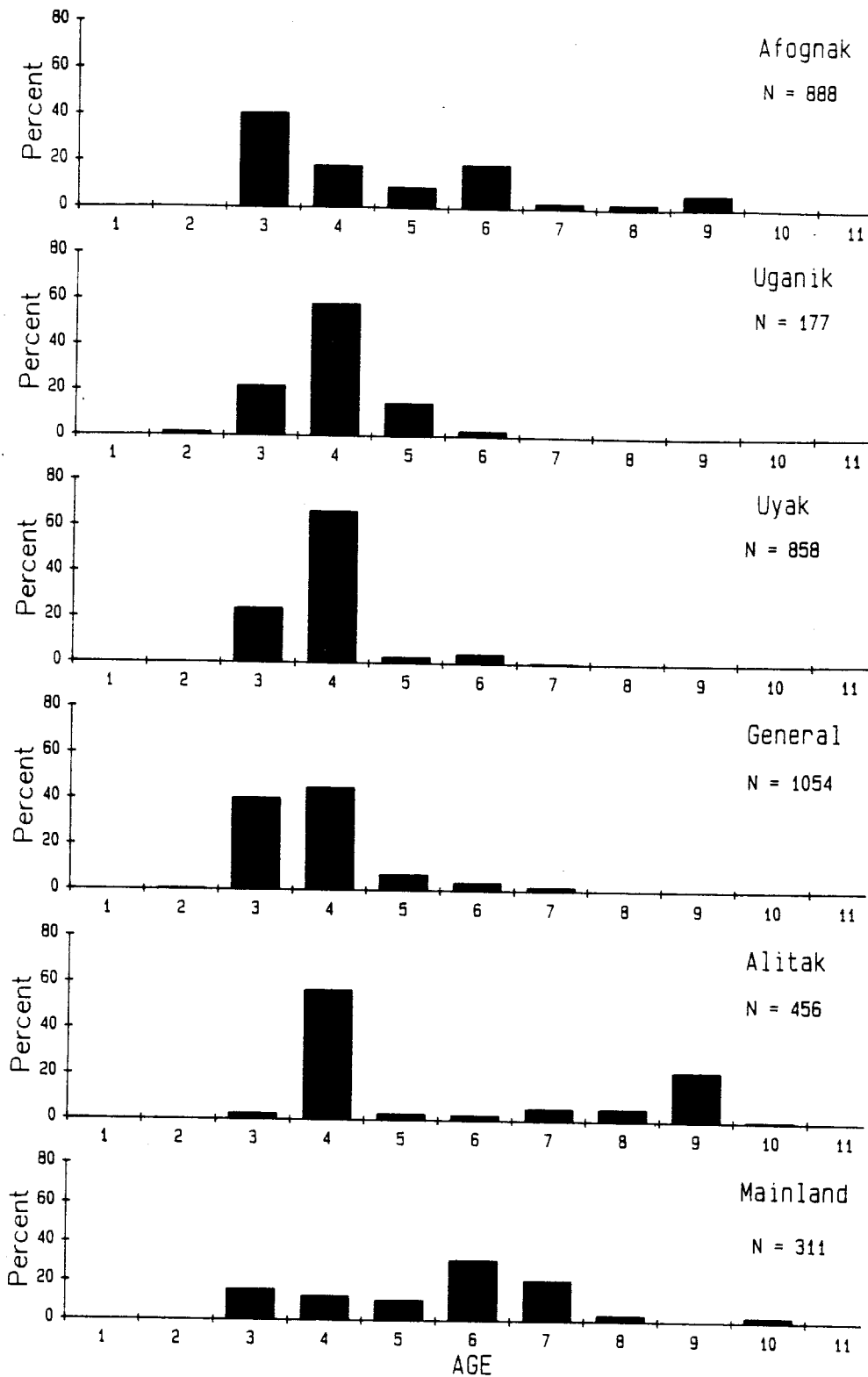


Figure 23. Kodiak area Pacific herring commercial seine sac-roe fishery age frequency by district, 1983.

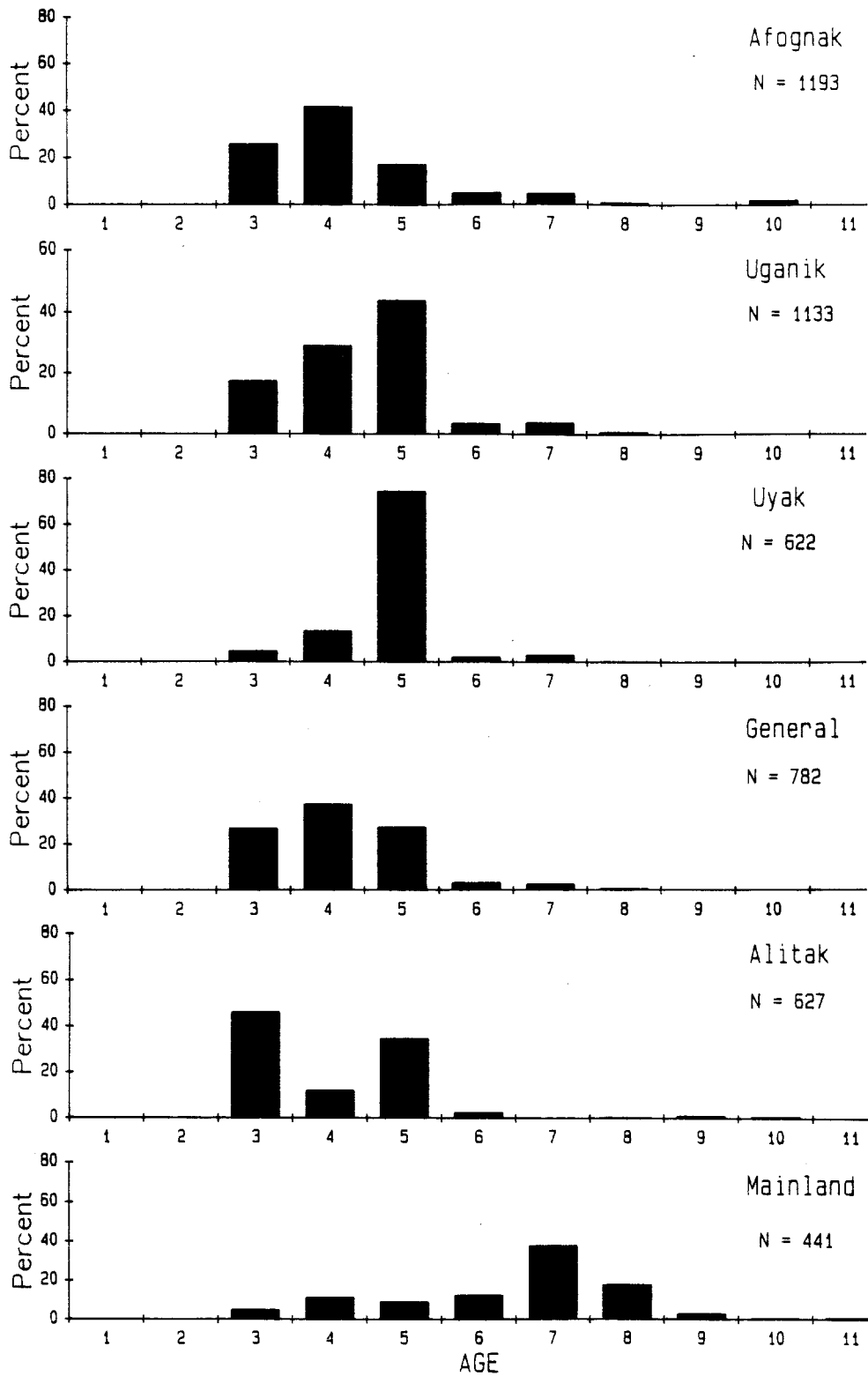


Figure 24. Kodiak area Pacific herring commercial seine sac-roes fishery age frequency by district, 1984.

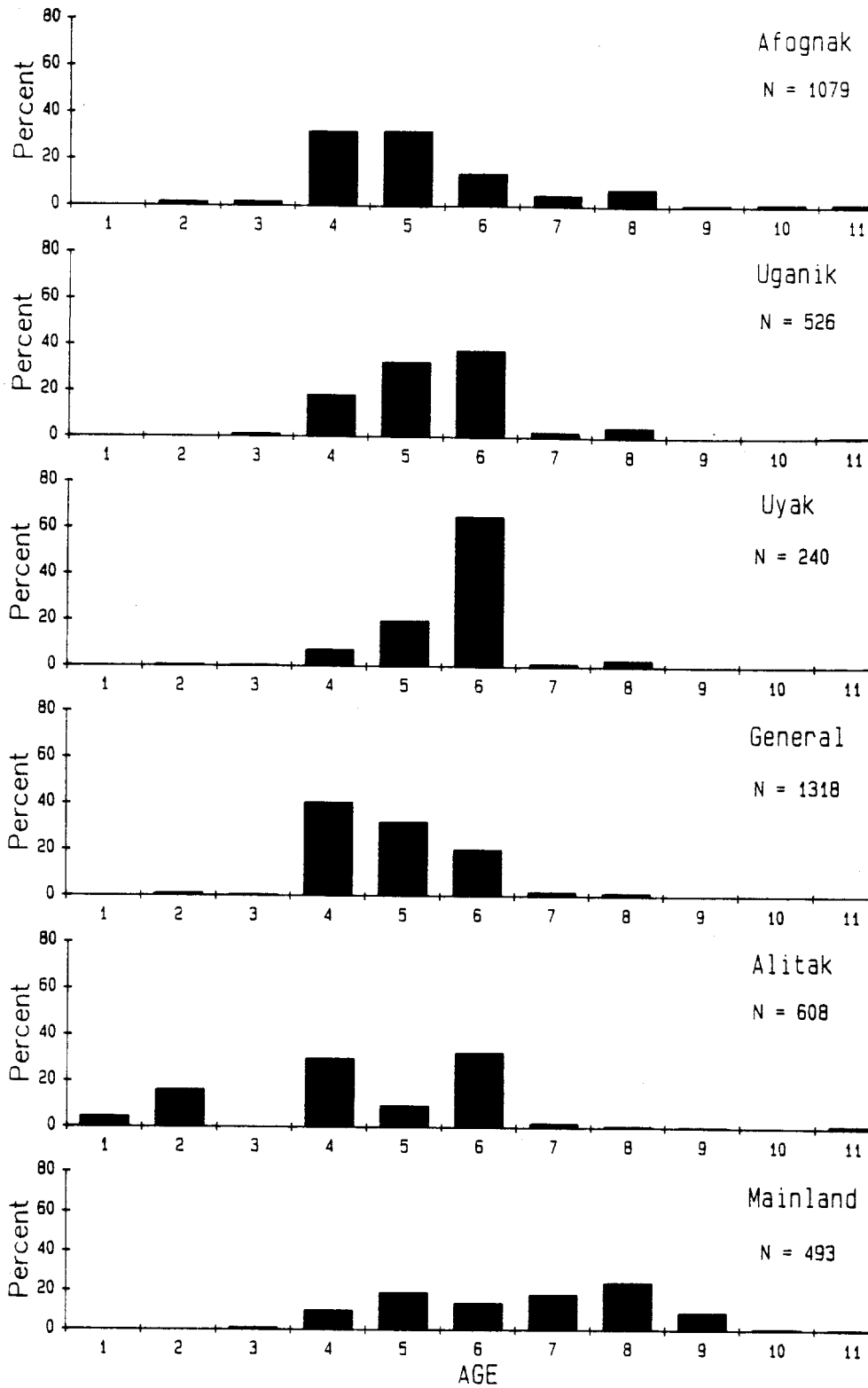


Figure 25. Kodiak area Pacific herring commercial seine sac-roe fishery age frequency by district, 1985.

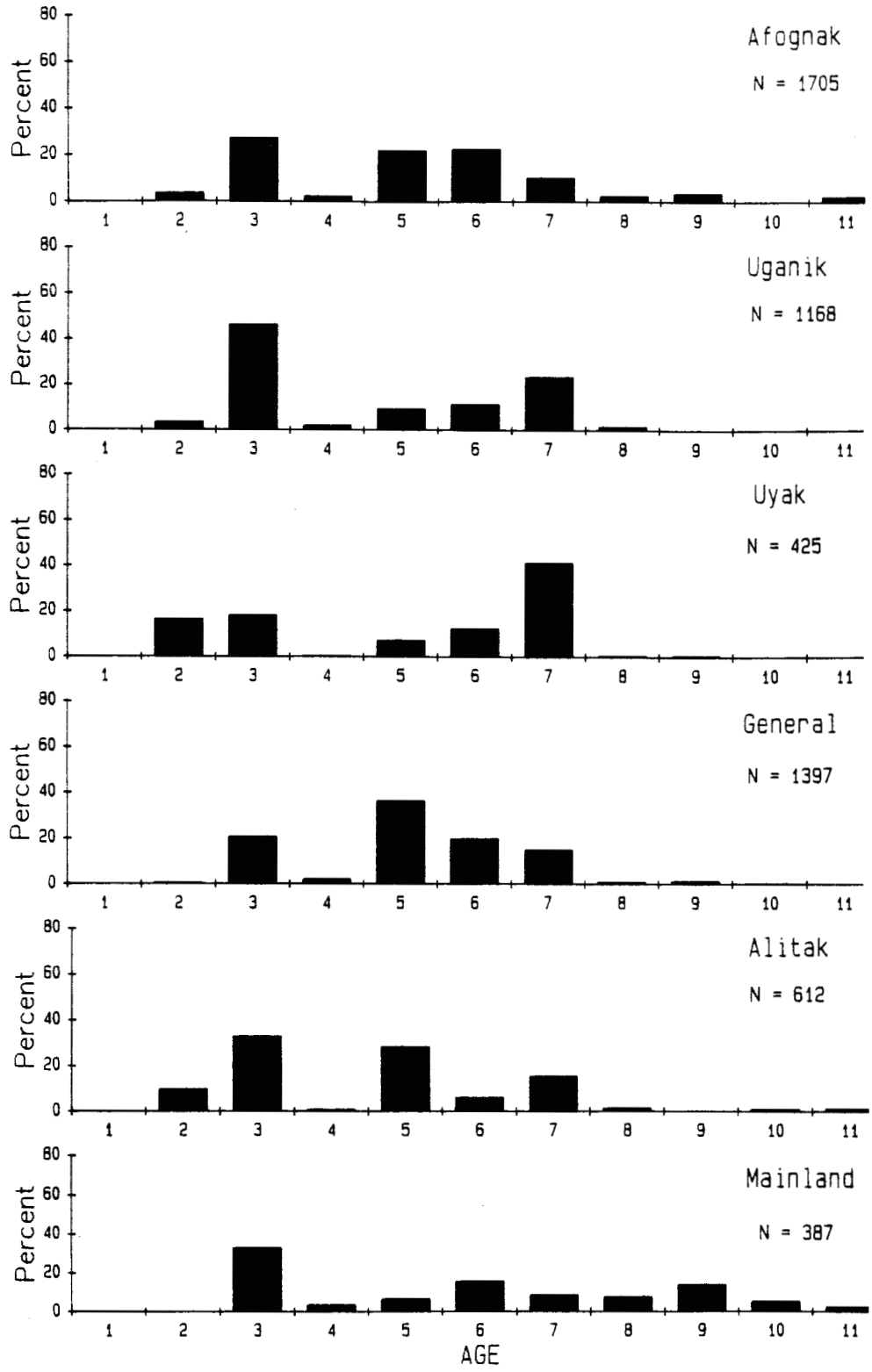


Figure 26. Kodiak area Pacific herring commercial seine sac-roe fishery age frequency by district, 1986.

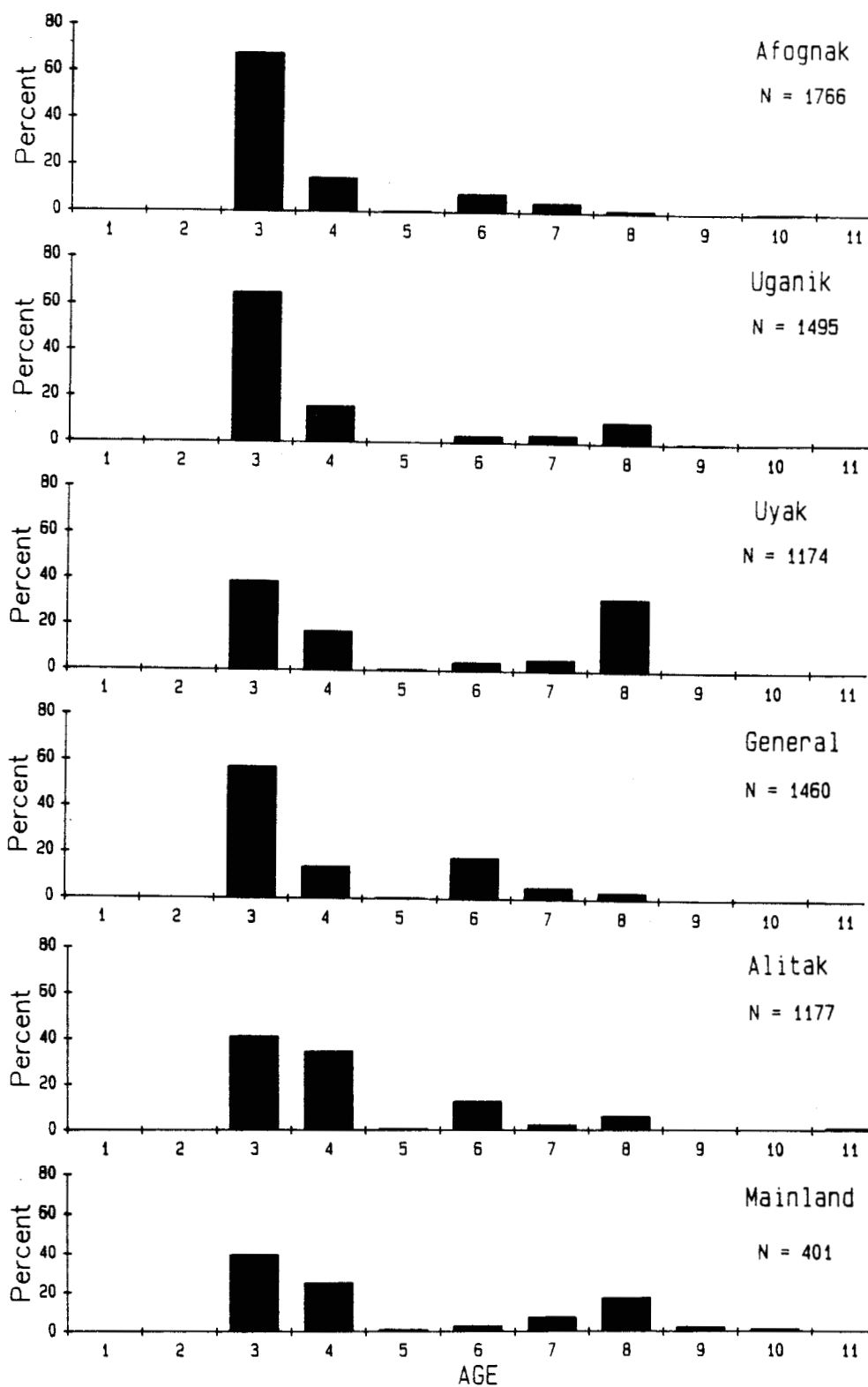


Figure 27. Kodiak area Pacific herring commercial seine sac-roe fishery age frequency by district, 1987.

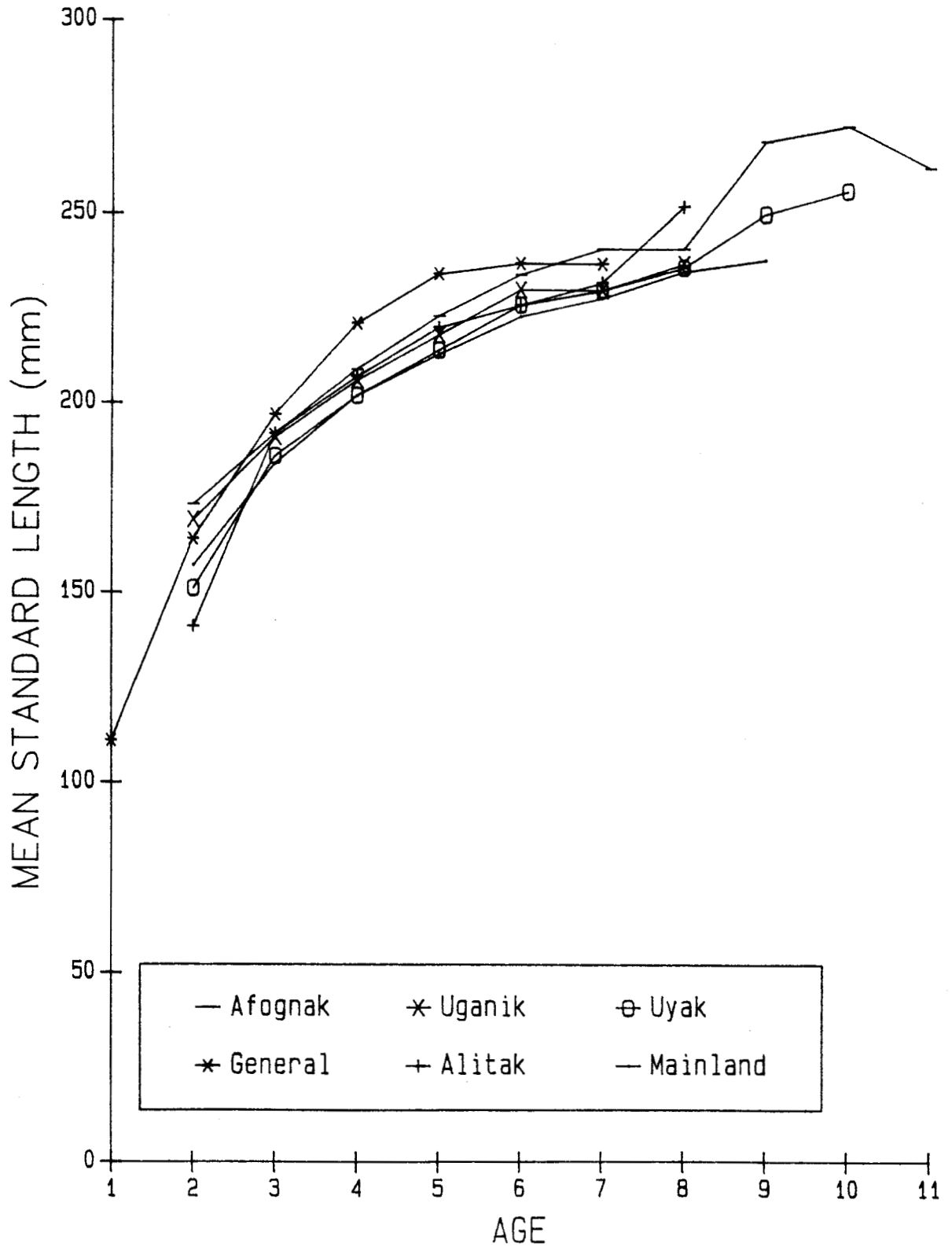


Figure 28. Kodiak area Pacific herring commercial seine sac-roe fishery mean standard length at age, 1981.

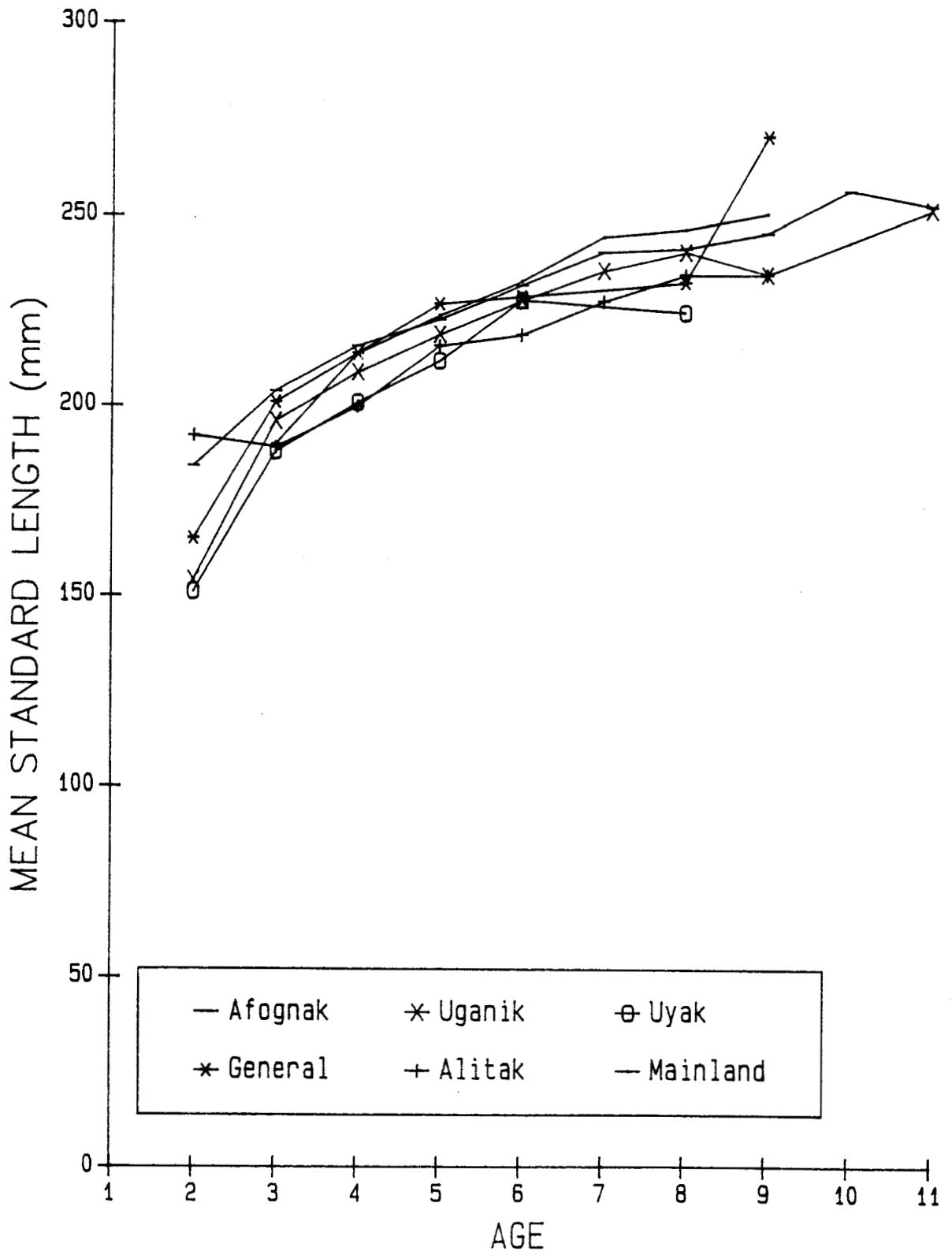


Figure 29. Kodiak area Pacific herring commercial seine sac-rope fishery mean standard length at age, 1982.

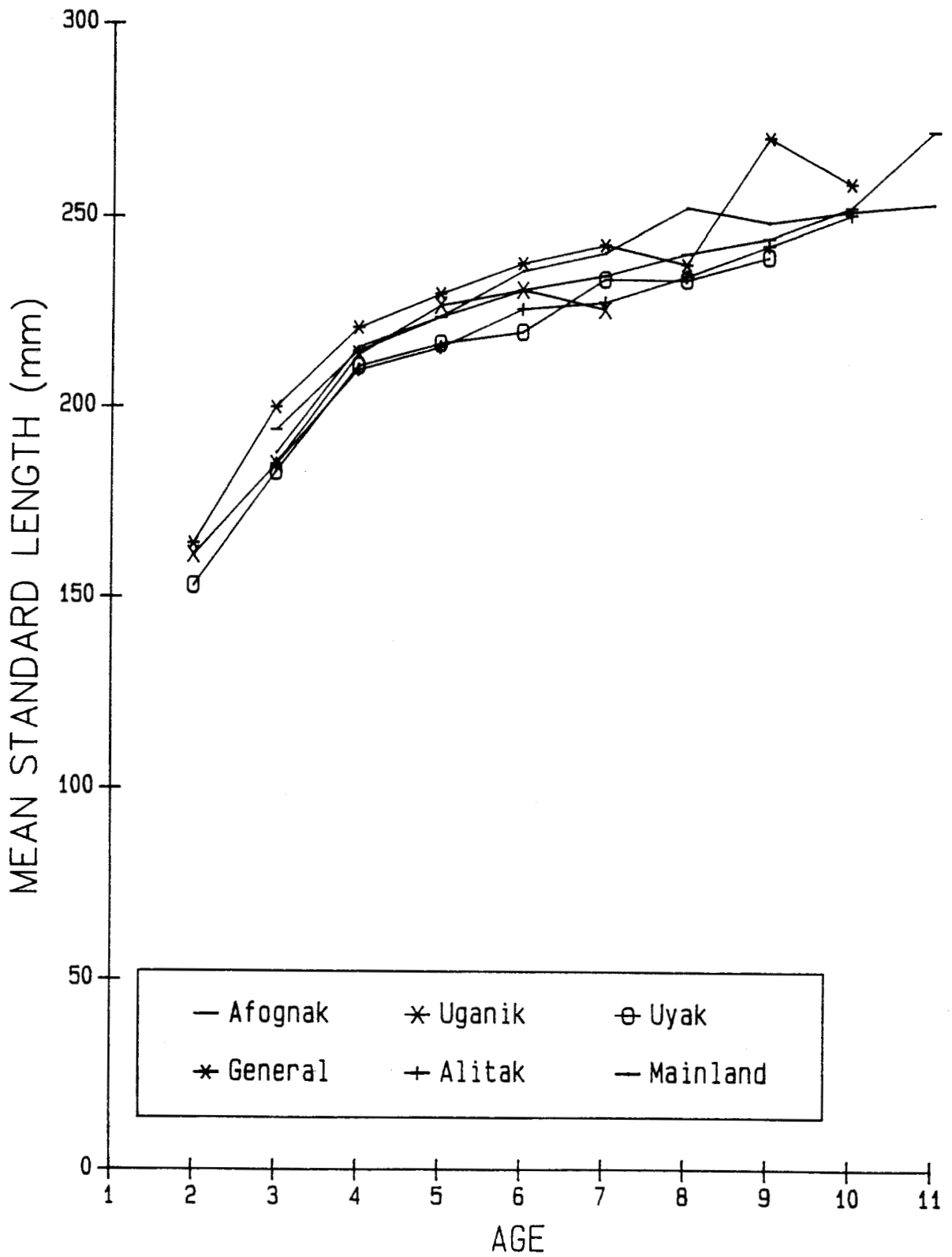


Figure 30. Kodiak area Pacific herring commercial seine sac-roe fishery mean standard length at age, 1983.

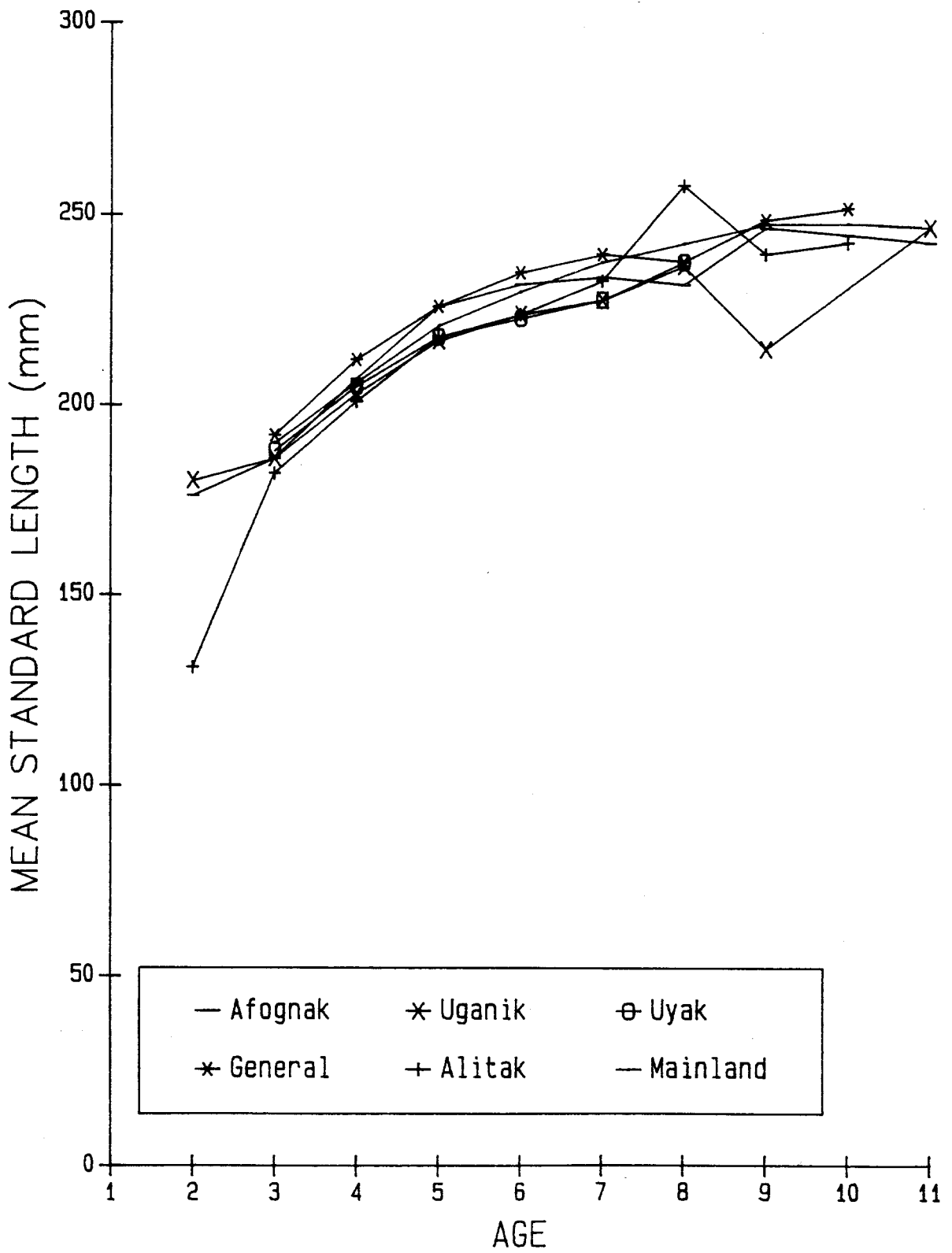


Figure 31. Kodiak area Pacific herring commercial seine sac-roe fishery mean standard length at age, 1984.

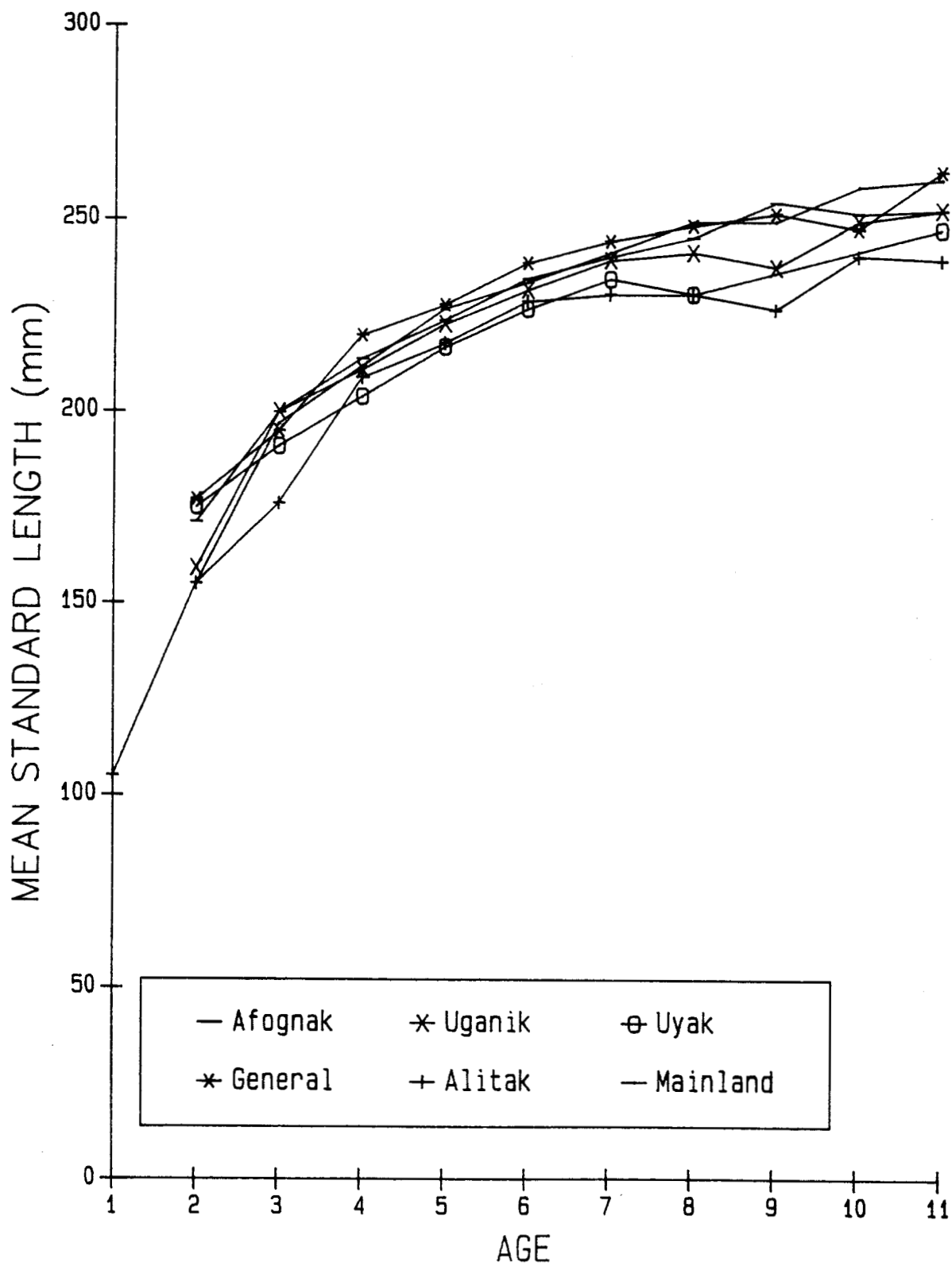


Figure 32. Kodiak area Pacific herring commercial seine sac-rope fishery mean standard length at age, 1985.

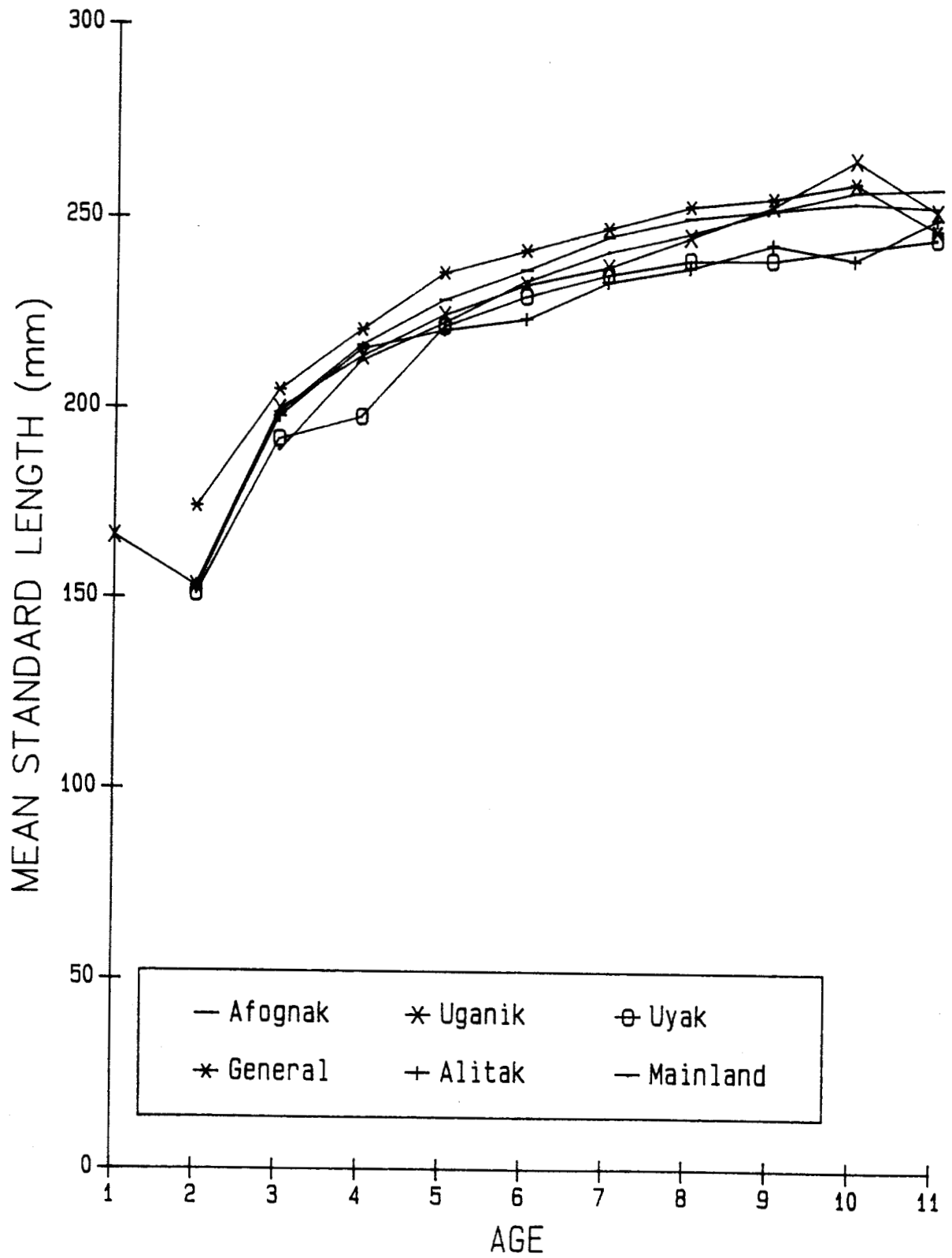


Figure 33. Kodiak area Pacific herring commercial seine sac-roe fishery mean standard length at age, 1986.

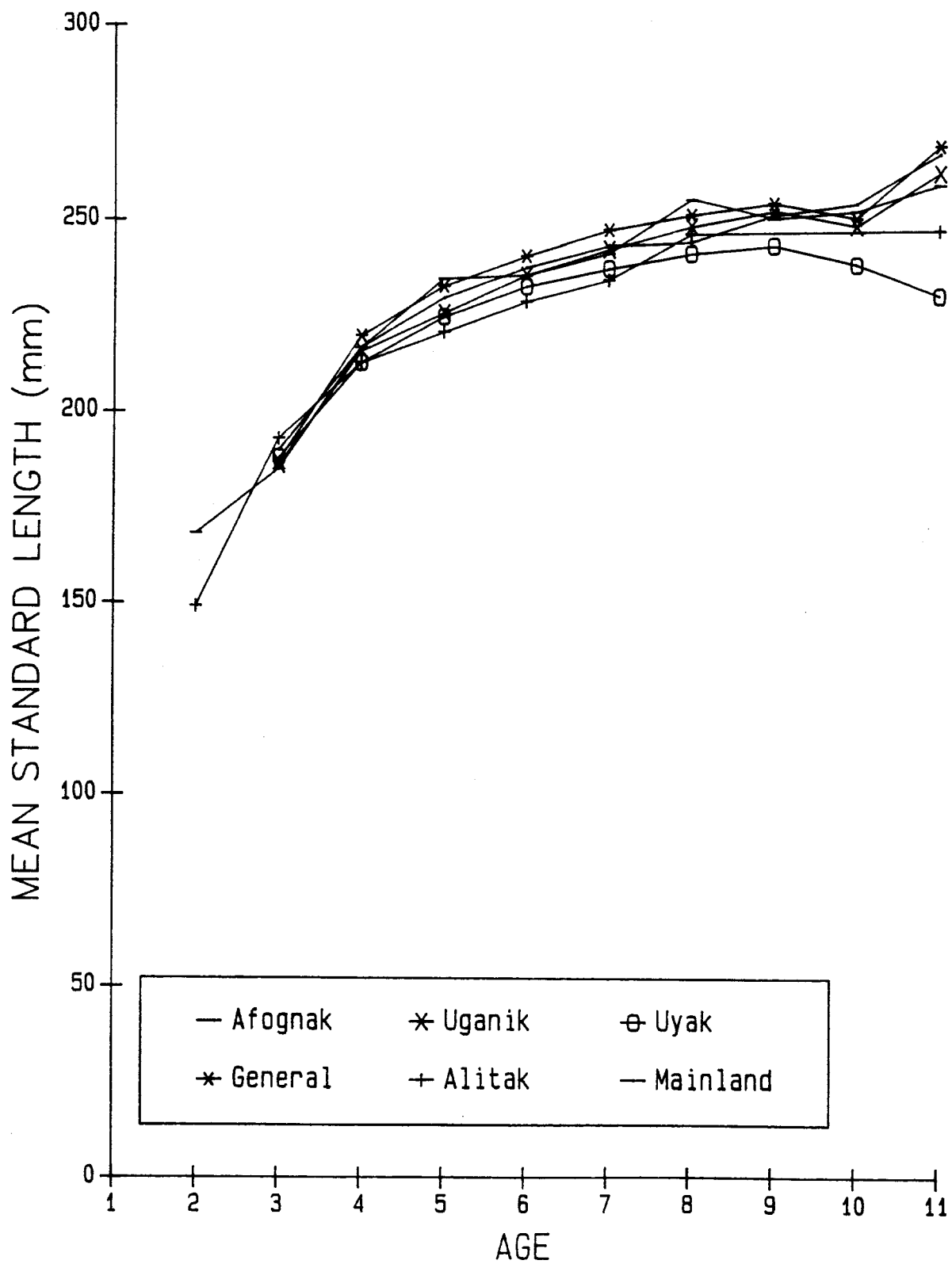


Figure 34. Kodiak area Pacific herring commercial seine sac-roe fishery mean standard length at age, 1987.

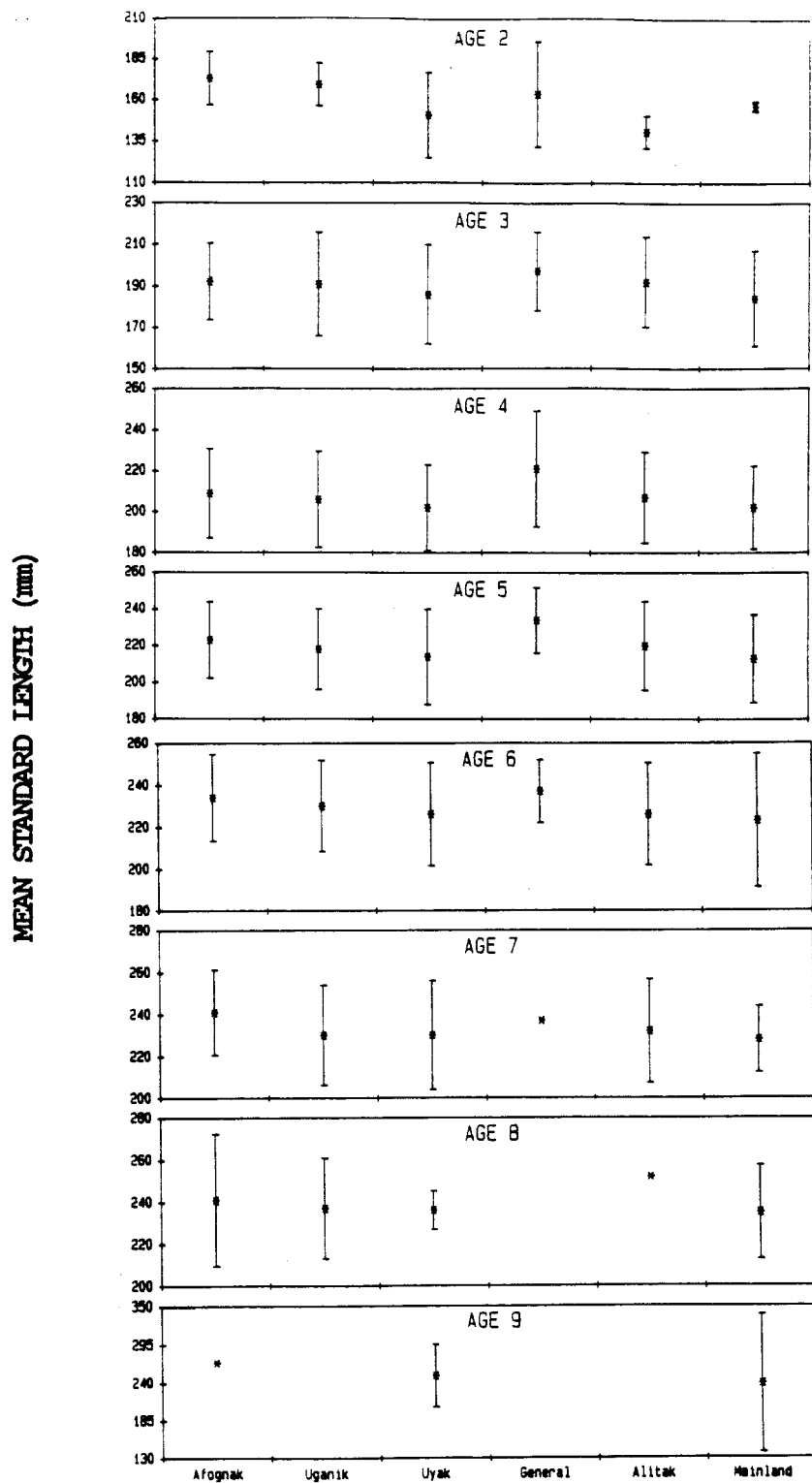


Figure 35. Mean standard length and associated 95% confidence interval of seine caught Pacific sac-roë herring by age class and commercial fishing district in the Kodiak area, 1981.

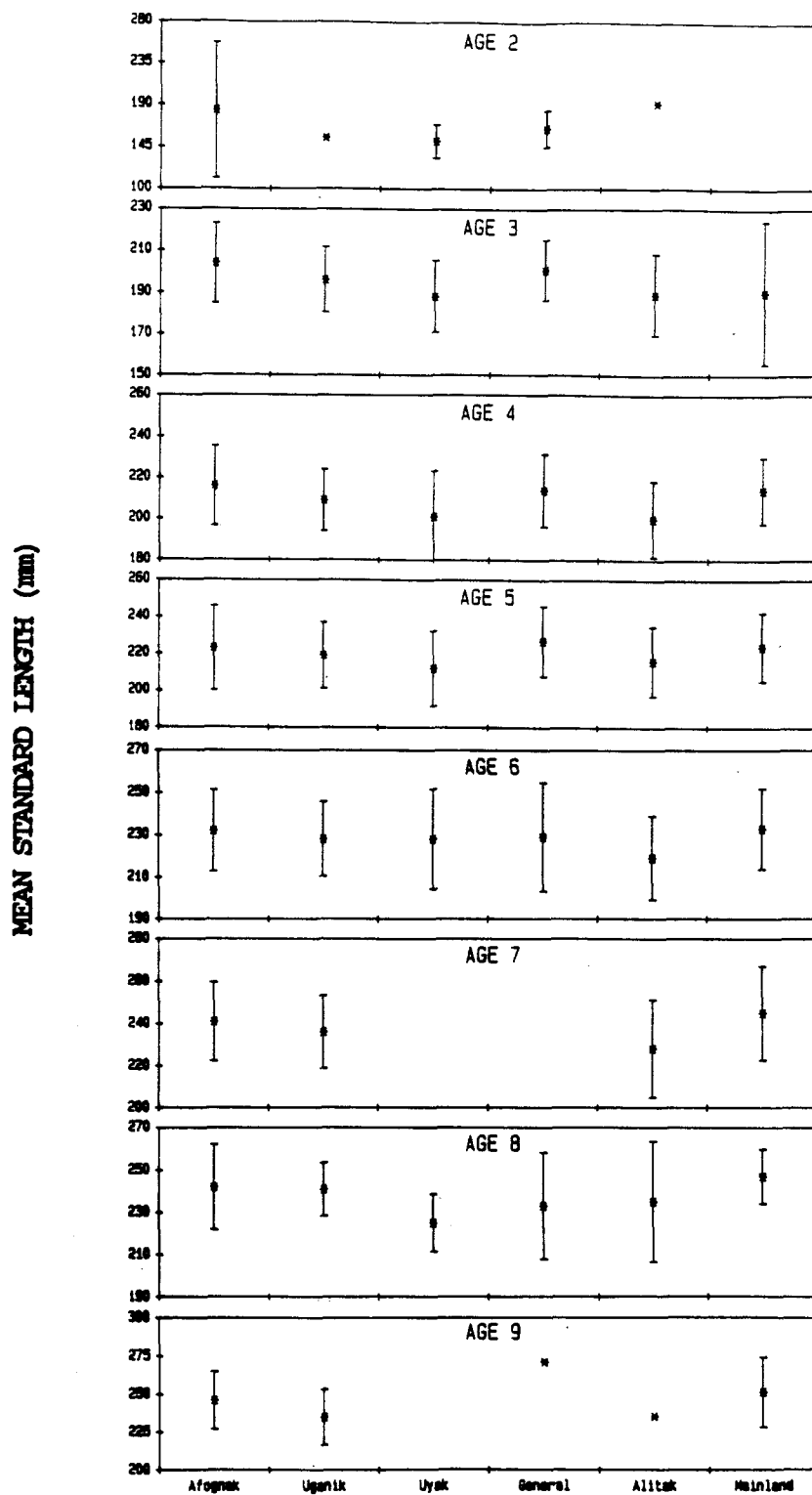


Figure 36. Mean standard length and associated 95% confidence interval of seine caught Pacific sac-roe herring by age class and commercial fishing district in the Kodiak area, 1982.

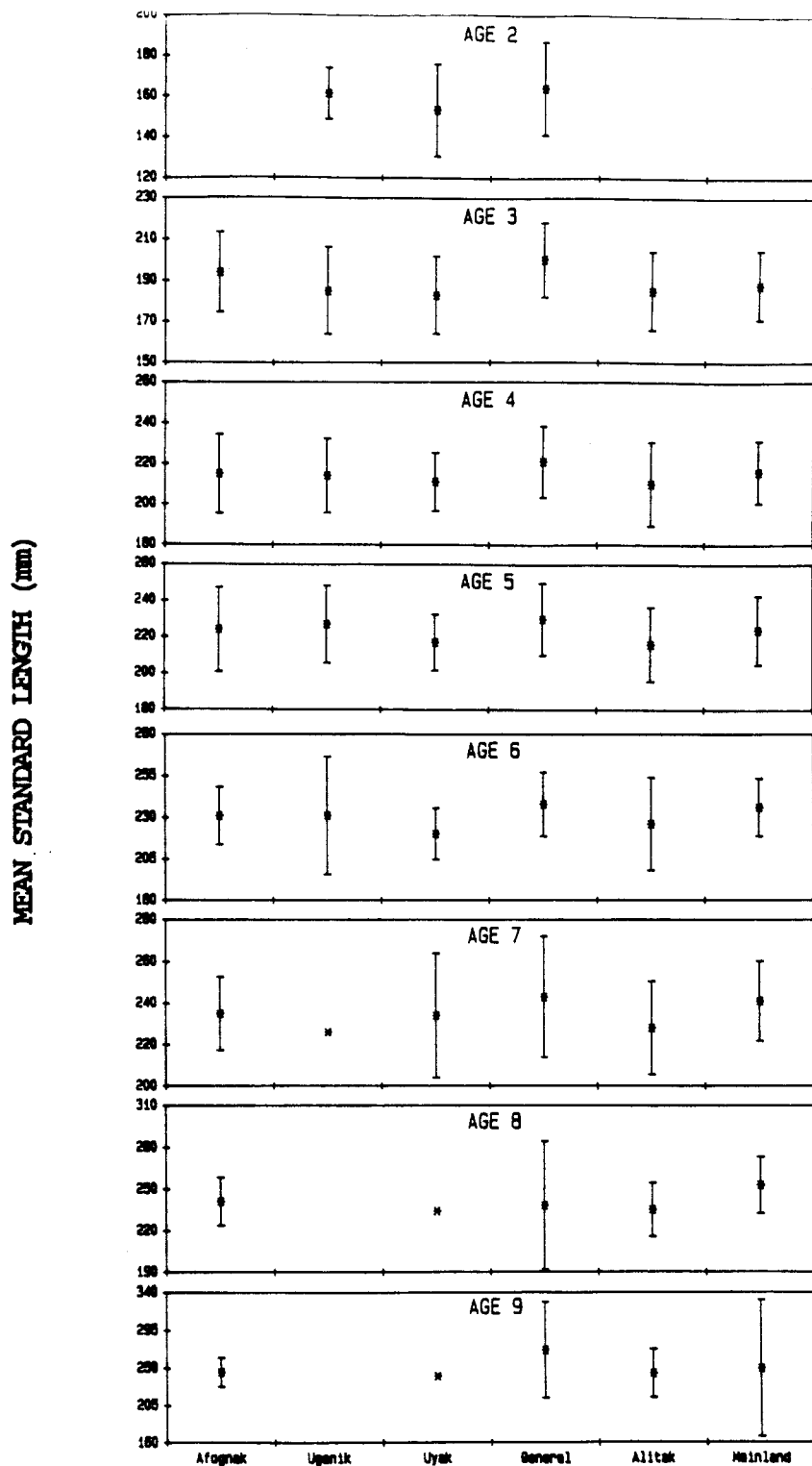


Figure 37. Mean standard length and associated 95% confidence interval of seine caught Pacific sac-roe herring by age class and commercial fishing district in the Kodiak area, 1983.

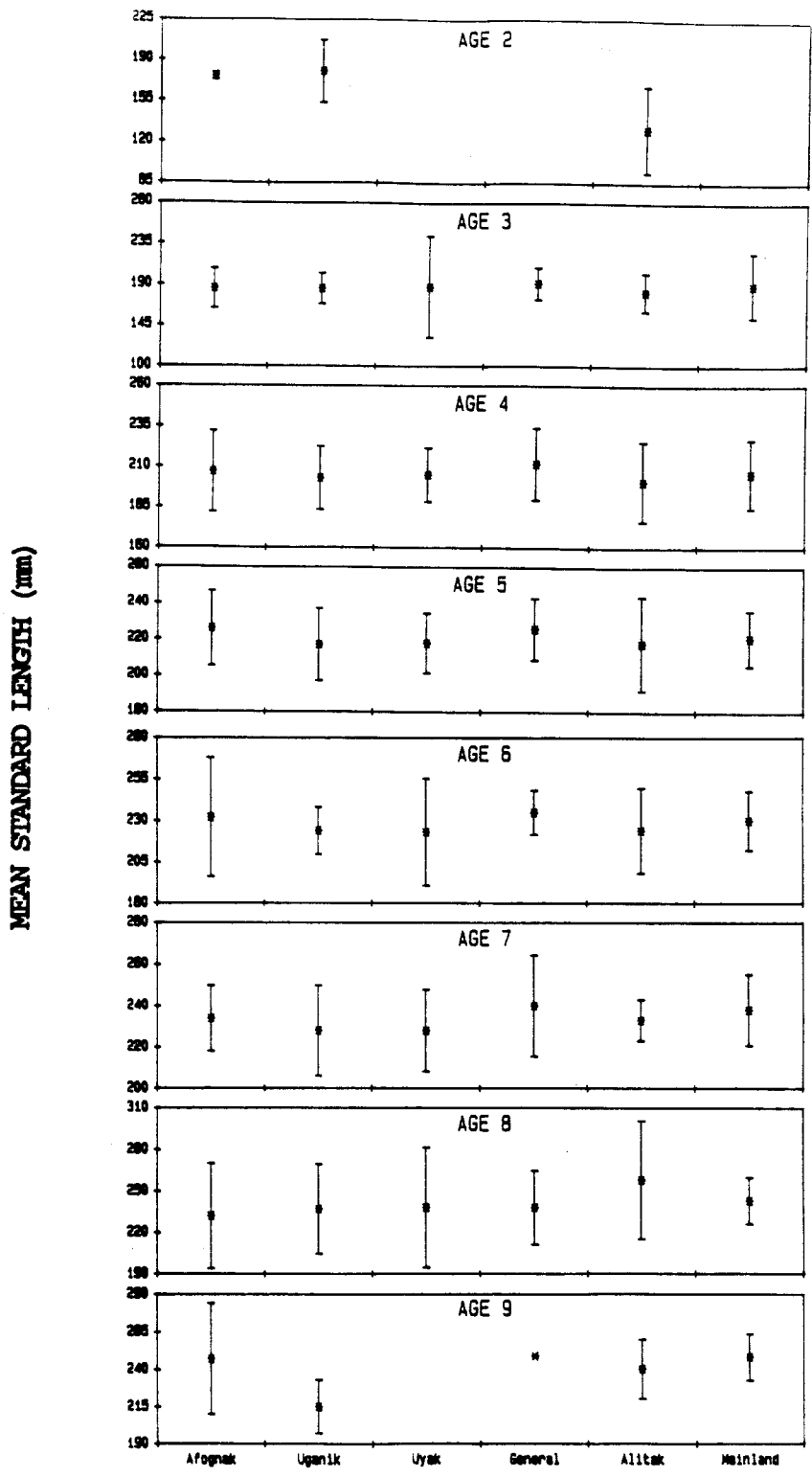


Figure 38. Mean standard length and associated 95% confidence interval of seine caught Pacific sac-roe herring by age class and commercial fishing district in the Kodiak area, 1984.

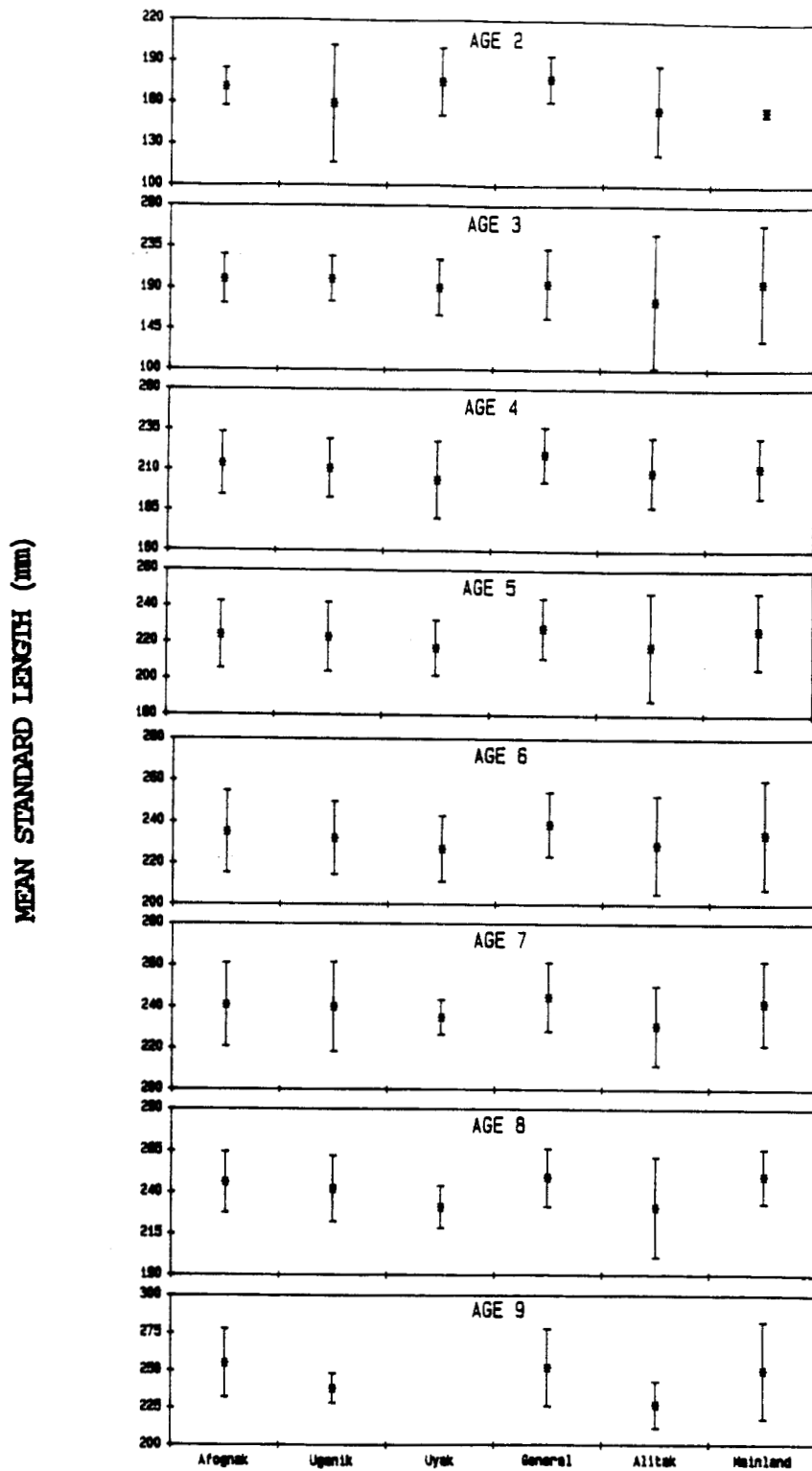


Figure 39. Mean standard length and associated 95% confidence interval of seine caught Pacific sac-roe herring by age class and commercial fishing district in the Kodiak area, 1985.

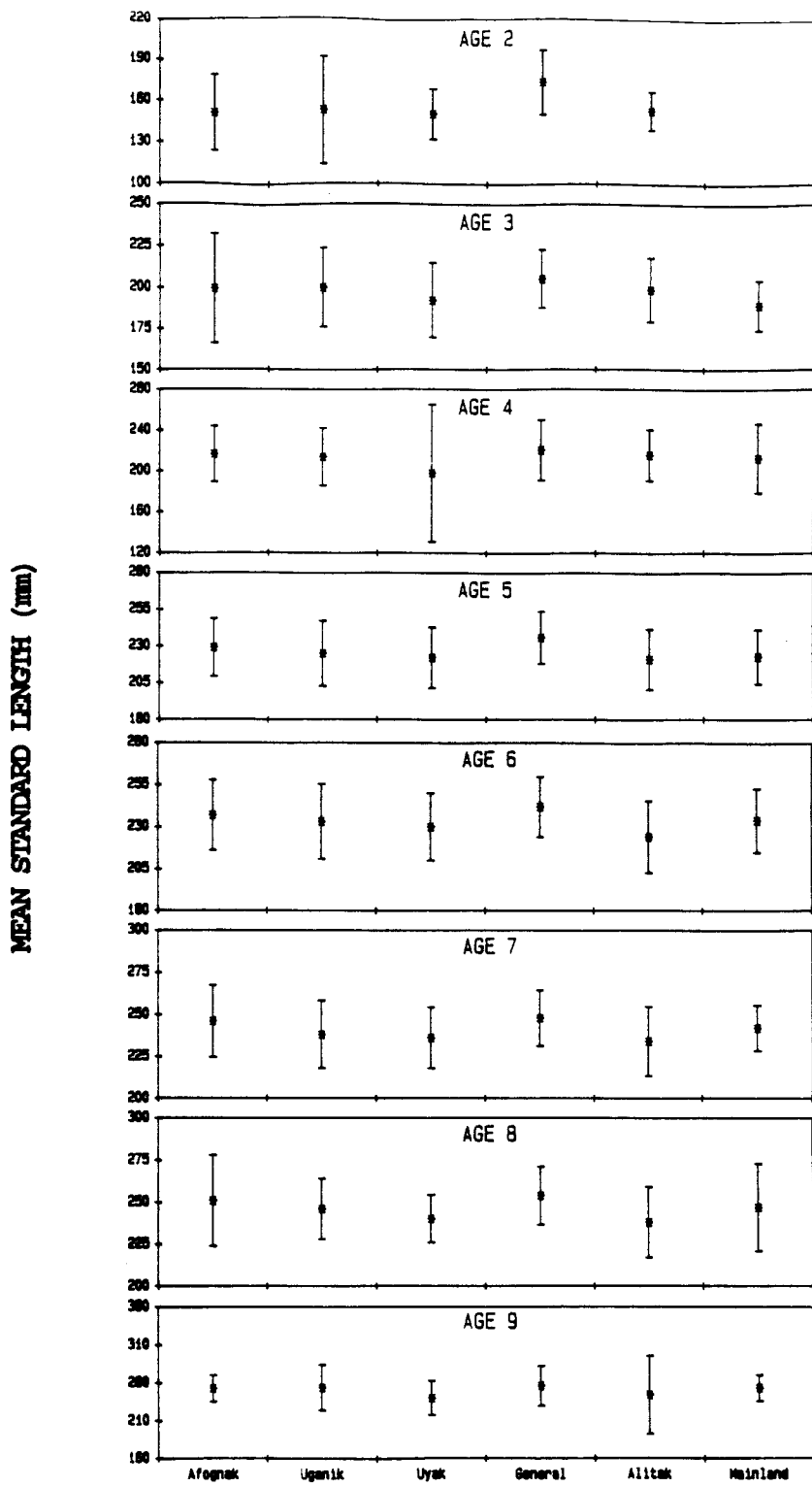


Figure 40. Mean standard length and associated 95% confidence interval of seine caught Pacific sac-roe herring by age class and commercial fishing district in the Kodiak area, 1986.

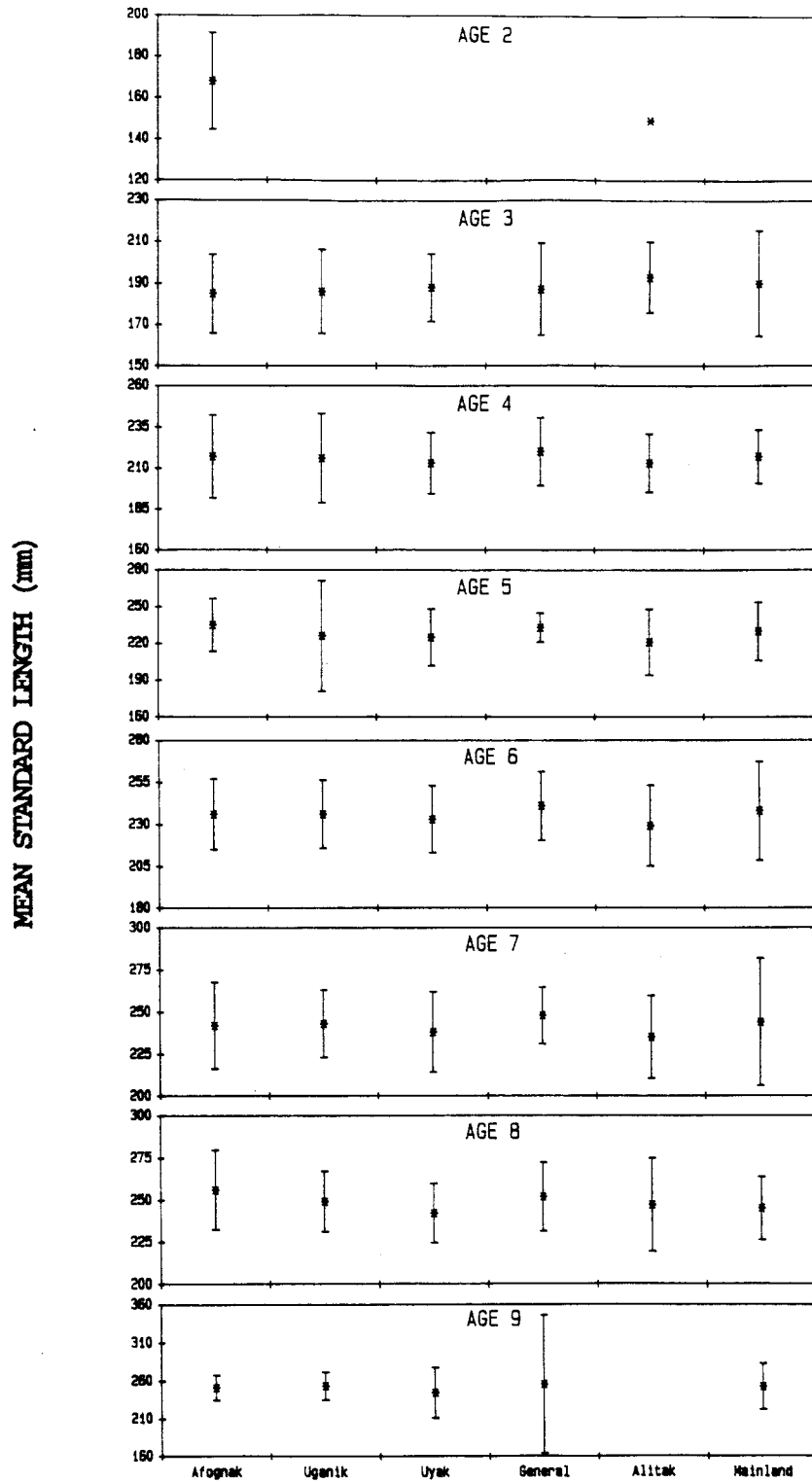


Figure 41. Mean standard length and associated 95% confidence interval of seine caught Pacific sac-roë herring by age class and commercial fishing district in the Kodiak area, 1987.

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