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KODIAK MANAGEMENT AREA
ANNUAL HERRING MANAGEMENT REPORT, 1994



Regional Information Report No. 4K95-35

Alaska Department of Fish and Game
Commercial Fisheries Management and Development Division
211 Mission Road
Kodiak, Alaska 99615

August 1995

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SAC ROE HERRING FISHERY

INTRODUCTION

Area Description

The Kodiak Management Area (KMA) comprises the entire Kodiak archipelago and that portion of the Alaska Peninsula which drains into Shelikof Strait between Cape Douglas and Kilokak Rocks at Imuya Bay. The archipelago is approximately 150 miles long, extending from Shuyak Island south to the Trinity Islands. The Alaska Peninsula portion is about 160 miles long and is separated from the archipelago by the Shelikof Strait which averages 30 miles in width, (Figure 1).

Historical Perspective

The Pacific herring *Clupea pallasii*, sac roe fishery began in Kodiak in 1964. From 1964-1993 sac roe herring harvests have averaged 1,637 short tons, (Table 1 and Figure 2). Prior to 1974, the fishery was unregulated with regard to harvest quotas, gear types, seasons, and fishing periods. From 1964-1977, purse seine gear was used exclusively, with an average annual harvest of 898 tons and up to ten vessels participating in the fishery. Starting in 1974 purse seine gear was restricted to 150 fathoms in length and 1,000 meshes in depth. Between 1974 and 1978, season dates ranged from March 1 through June 30 with a harvest quota of 3,400 tons. Annual harvests, along with effort levels, fish abundance, prices and processor interest, fluctuated greatly from 1964 through 1977. Improved market conditions in 1978 prompted increased effort in this fishery with 29 purse seiners and 11 gillnetters participating. It was during this time period that a few purse seiners started to use airplanes (to spot herring) and tenders (to transport herring to processors).

Between 1977 and 1982, the regulatory and management strategy went through a rapid developmental phase. Regulatory changes focused on gear efficiency, gear conflicts between seiners and gillnetters, gear level restrictions (exclusive registration and limited entry) and closed waters. In 1979 the sac roe season was reduced to May 1 through June 30, and the overall Guideline Harvest Level (GHL) was reduced to 2,400 tons distributed throughout the management area. A limit of 300 fathoms was also placed on the maximum length of gillnets and fishing periods were first limited to 48 hours open followed by 24 hour closures.

The maximum lengths for gillnets and purse seines were reduced again in 1981 to 150 fathoms and 100 fathoms, respectively. In addition, trawl and beach seine gear were eliminated as legal gear during the sac roe season. Fishing periods were established by emergency order in 1981, in which 24 hour fishing periods were followed by 24 hour closures. Beginning in 1982, the starting date for the season was changed from May 1, to April 15. In 1985 the fixed overall GHL of 2,400 tons was replaced by the current harvest strategy where GHL's are set annually on a stock by stock basis. The overall regulatory effect during the developmental phase (1977-

1982) has been the emergence of a relatively stable commercial sac roe herring fishery through 1991. During the last four years the herring stocks have dramatically increased with record high harvests occurring during the last three consecutive seasons, which have averaged 5,035 tons.

Beginning in 1979, combined gear levels increased substantially, reaching a high of 201 units (92 seiners and 109 gillnets) and 193 units (79 seiners and 114 gillnets) in 1980 and 1981 respectively (Table 1 and Figure 3). With the implementation of limited entry following the 1981 sac roe season, new entry into the fishery was restricted to past participants until permanent transferable permits could be awarded. Since 1982, gear levels have been relatively constant with 90 to 120 units of gear fished annually (Figure 3). Transferrable permits for both gear types are still increasing as the Limited Entry Commission continues its determinations of participants who may qualify for a transferable permit. Only 52-70% of the available permits have been fished annually since limited entry has been in place (Table 2).

Fishery Characteristics

The current KMA sac roe herring fishery occurs from April 15 through June 30 in 40-50 bays and coastal locations. The fishery opens annually at 12:00 Noon on April 15, with the entire management area opened at one time, excluding those stocks requiring biological protection. A unique characteristic of this fishery is that it commences prior to any major build-up of herring. This allows for a more general distribution of effort and reduces harvest rates within a bay. Both gear types fish the same areas during the same time periods. Roe recovery and quality standards are determined by industry personnel.

The overall trend in harvest during the past 15 years has been relatively stable, averaging 2,435 tons per year (Table 3). However, during the past two years harvests have substantially increased nearly doubling the long term average. Prior to 1978, the entire sac roe herring harvest was taken by seine gear. The percentage of the total harvest by seine gear ranged from a high of 85% to a low of 60% and averaged 75% from 1979-1993. In 1978 seven units of gillnet gear accounted for 3% of the total harvest. Gillnet percentage of total harvest peaked in 1988 at 40%, and averaged 25% from 1979-1993.

To reduce operational costs and to cover more areas, most purse seiners form combines of two to ten vessels. These combines include one or several tenders and spotter aircraft. By 1979 the use of small, single engine, float equipped airplanes became more prevalent. Airplanes are the most productive way to find and direct seiners to harvestable herring. In 1986, several seiners started using side scanning sonar to locate schools of herring. This technology enabled fishermen to work during any time of the day and in adverse weather conditions which were unworkable for airplanes. Sonar technology continues to improve and most seiners are now equipped with scanning sonar equipment.

Gillnet vessels generally work independently and usually rely on processors to provide tenders to deliver their fish to the processing location. A few gillnetters are equipped with scanning sonar but the majority of these fishermen rely on color down-sounding sonar to locate herring schools or fish areas where seiners are making sets.

Since 1979, seiners have gradually increased seine depths to the legal limit of 1,025 meshes, which includes 25 meshes of chaffing gear. Seines are restricted to 100 fathoms in length however there was no restriction on the size of web which could be used. With this loop-hole in the regulations, several seiners used one strip (200 meshes) of salmon web in the lower portion of the seine. Further, the weight of the lead line was increased which resulted in nets which fished deeper (18-20 fathoms), sank faster, and improved catch rates.

Similarly, the gillnet fleet has evolved from floating nets of 80-100 meshes in depth to sinking nets with 120-160 meshes in depth. Gear efficiency had appeared to have peaked prior to the 1994 season. In that any deeper nets would be too difficult to operate on the generally small gillnet vessels. However, this season several gillnetters used nets which were 240-300 meshes in depth effectively. Over the last few years the use of mechanical shakers has increased. The shaker is now a common tool and greatly reduces the time and effort needed to remove herring from net and greatly increases gear efficiency.

For the years 1978-1983 herring were harvested at or near their spawning area. As fishermen's knowledge increased in identifying these areas, gillnet gear has been fished in deeper waters, (15-25 fathoms), further from the spawning destination. Fishing deeper waters and nets has resulted in an increase in the amount of herring with low roe recovery rates. In most cases this fish is dumped and if ADF&G field crews are present this poundage is subtracted from the management unit GHL. In some cases the low quality herring is sold as bait and is also subtracted from the management unit GHL.

The Alaska Department of Fish and Game, (ADF&G), relies on the fishing industry to establish roe recovery standards. Generally, tenders will have a processor representative onboard to ensure that marketable sac roe quality herring are harvested. Competition among shore-based and floating processors results in this fishery having one of the highest exvessel values per ton in the state. The high quality of fish results from inseason handling of a relatively small amount of herring over a long time period.

Fishery Monitoring

The ADF&G, Commercial Fisheries Management and Development Division manages this fishery from its Kodiak Office. From 1974-1993, ADF&G has used one state vessel to monitor this fishery, with a second ADF&G vessel used in 1994. From 1979-1994, in conjunction with the state vessel, two person ADF&G field crews were also utilized to monitor this fishery. The annual harvest is distributed between 40-50 management units and there is a general sequence of harvest timing by groups of these units.

Field crews are stationed in anticipated management units, or bays, which have historically produced the major harvests for a district. These crews are positioned in remote bays by chartered float planes or vessel and are equipped with an inflatable boat or skiff, powered with an outboard motor. Daily contact with fishermen, spotters and tender operators is maintained to acquire fishery data. The information consisting of current harvest, effort levels, and fleet movements is then reported via single side band (SSB) radio at least three times per day. The use of field crews has been a key element in preventing an excessive harvest from occurring and exceeding

the GHL. Field crews also identify herring spawning areas and collect age-weight-length (AWL) samples from the commercial harvest. Frequent ADF&G aerial surveillance of the entire area supplements and often directs the placement of fishery monitoring field crews. The ADF&G office staff, consisting of an area and assistant area management biologists, tally field crew, processor, and tender reports to assess herring harvests and decide which management units may need to be closed to fishing. Industry spotter reports are also used to provide information concerning all aspects of the fishery. The "Kodiak Sac Roe Herring Harvest Strategy" is written and distributed annually which describes in detail, guideline harvest levels, regulatory changes, and expected fishing periods (Appendix A).

METHODS

Fishing Seasons and Weekly Fishing Periods

The fishing season for the Kodiak sac roe herring fishery opened by regulation on April 15 and closed by regulation on June 30 (ADF&G 1994-95 Herring Regulation Book). Fishing periods are established by emergency order. For the past 13 years, fishing periods began at 12:00 noon on odd numbered days, and closed at 12:00 noon on even numbered days of the month. Staggered days of fishing have the advantage of providing clearly defined closed periods which allows ADF&G staff time to assess, summarize, and update all harvest data from previous fishing periods, as well as verify between reported and actual harvests. Since 1979, the occurrence of excessive harvests within a management unit have primarily been prevented by these preestablished fishing periods.

Districts and Management Units

The KMA is divided into seven districts which define geographical areas used in managing the sac roe and food/bait herring fisheries. For the sac roe fishery, each district is further broken into management units which are intended to define the spawning area used by a stock of herring or may be used to define a geographical area. There are a total of 74 management units (Figure 4).

Guideline Harvest Levels

Preseason guideline harvest levels (GHL's) were established for all management units which have produced consistent herring harvests in previous seasons. These GHL's are meant to reflect the status of a particular stock of herring by management unit or district. Criteria for establishing the 1994 GHL include; 1) 1993 expected biomass vs. actual biomass estimates, 2) trends in age composition, 3) level of recruitment (age-3), 4) proportion of the spawning population age-5 and younger, 5) proportion of age-2 fish in the spawning biomass (indicator of future recruit strength) and 6) spawn observations (extent, frequency, amount deposited). This information is supplemented by fishery performance information, namely the expected vs. actual harvest timing, harvest duration, and harvest level. Some management units are designated "exploratory" and are assigned no GHL because these areas have had sporadic or no harvest of herring in past years.

Inseason closures in these exploratory areas are used to ensure that excessive harvests are minimized. If at any time during the season it appears that preseason expectations were incorrect, GHL's can be adjusted above or below preseason levels.

From 1979-1982 the KMA GHL was fixed at 2,400 tons. From 1983-1994 the aforementioned criteria has been used to set a preseason GHL for the KMA. The preseason GHL has accurately reflected the actual harvests (Figure 5.). These preseason harvest projections aid fishermen and processors in planning prior to the start of each season.

Inseason Fishery Management

Inseason management of the sac roe fishery relies primarily on ADF&G field crews stationed in management units where harvests are anticipated. Mobility of field crews to cover management units has improved over the past four years with the addition of three, 21 foot skiffs equipped with outboards. Presently two skiffs are used by field crews and a third skiff works from the ADF&G vessel K-Hi-C. These skiffs allow field crews to monitor more management units and under rougher sea conditions than the 12 foot inflatable boats. Two crews still utilize inflatable boats which permits the crews to be rapidly placed and moved by aircraft. A lease agreement was made with the Kodiak Island Borough School District for the use of a 42 foot seine vessel (K-Hi-C), for a three week period during the peak of the herring season. The K-Hi-C acts as mobile field station along with providing logistical support to field crews. The ADF&G vessel Resolution was also used for two weeks at the start of the 1994 season.

Generally, once the preseason GHL has been harvested for a management unit, it is closed for the season. Due to the rapid pace at which some fisheries occur, in-period closures are frequent. In management units which have an ADF&G field crew present, in-period closures may occur with as little as 15 minutes advanced notification time. In management units which do not have field crews present in-period closures may occur by, 1) announcement on single side band frequency 4.125 mhz following the marine weather forecast at 8:00 a.m. or 6:00 p.m. daily and at 11:00 P.M. by ADF&G announcement, 2) field announcement with the arrival by aircraft of an ADF&G representative.

Processors and independent tender operators are required to provide daily tallies of herring deliveries by management unit and accurate estimates of herring onboard tenders that have not yet delivered to the cannery. Timely and accurate harvest reports from ADF&G field crews, fishermen, spotters, and processors are critical in order to assess herring harvests and guide the management of the fishery. To date industry cooperation has been excellent in support of this fishery.

Actual fishery performance is used to evaluate the health of a particular fishery. Key components include, 1) duration of fishing time to harvest the management unit GHL, 2) catch per unit of effort, and 3) quality of herring harvested which considers factors such as roe recovery percentages, weights, and age compositions.

Fish Ticket Data

Commercial catch data is compiled by ADF&G, Division of Commercial Fisheries Management and Development personnel. Actual dock weights of herring are used inseason to verify initial harvest estimates. All final data are compiled post season from sales receipts (fish tickets) received from processors of purchased tonnages of herring they received from fishermen. Fish ticket data is then compiled with the aid of a computer and a summary of the herring harvest is generated. The ADF&G staff then edits this summary for errors and lost fish tickets.

Biomass Estimates

Previous attempts to estimate the total spawning biomass in the KMA by ADF&G with aerial surveys resulted in limited success. Aerial assessment provided only a limited evaluation and did not give a true representation of the herring stocks. Problems associated with aerial surveys in the Kodiak Area include: 1) herring tend to spawn in the evening, night and early morning hours, limiting the time which surveys can be conducted, 2) most management units have many distinct schools of herring which will spawn from April through June, 3) large numbers of juvenile herring, spawning herring, spawned out herring, and other fishes such as capelin can be found in sac roe herring fishery areas. These fish may stay within the fishery areas for the duration of the sac roe season or may move, so that aerial biomass estimates may be duplicated or be incomplete, 4) the large geographical area for the KMA (57 management units which have identified spawning stocks), and the limited time per day which the herring would be congregated in shallower more visible survey waters, and 5) adverse weather conditions. Industry (spotters) have helped greatly in past seasons by providing biomass estimates, spawn observations, fleet movements and harvest estimates. These spotters are very experienced, many having been involved for several seasons in the KMA and other statewide herring fisheries. Biomass estimates are compiled for each district from surveys flown by industry and ADF&G spotters. It has been estimated by both ADF&G and industry spotters that only 25% to 50% of the actual biomass is observed for the KMA herring stocks. There appears to be a significant amount of subtidal spawning occurring in waters 10-20 fathoms in depth. These fish and spawning activity may not be detected from aerial surveys. Previous attempts to assess this subtidal spawning with divers were not successful.

Commercial Catch Sampling

Commercial catch samples are taken from purse seine harvests, except when a management unit has only a gillnet harvest. Seine caught herring are the most desirable samples, since this gear type is less selective than gillnet gear. Field crews collect several samples from different seine sets within a management unit to obtain a representative sample of all age classes present for each herring stock. Samples are also obtained from tenders and/or fishing boats delivering to the processor if it is known that the catch being delivered came from one single management unit. Catch samples are frozen upon arrival in Kodiak and are analyzed by the end of the sac roe season. Commercial catch samples are thawed and analyzed for age, weight, length, sex, and sexual maturity.

A single scale is removed from the preferred area which is located on the left side of the fish, three rows below the lateral line and three scales posterior to the center of the opercular plate (Brodie, personal communication 1994). The scale is visually analyzed with the aid of a microscope to determine the age of the fish in years.

Standard length measurements are taken on all herring sampled. This length is the straight line distance from the anterior most part of the fish, including the lower jaw with the mouth closed, to the end of the vertebra (hypural plate). Lengths are taken on all samples using a herring measuring board to the nearest millimeter (mm).

Weight measurements are taken on a Mettler balance to the nearest gram (g) on all fish within a sample.

Sex and sexual maturity are determined on all herring in a sample. Each fish is slit open and visually inspected for gonad relative maturity. The relative maturity is broken down into a scale of key characteristics ranging from virgin herring through spawned out herring, with eight levels of maturity identifying gonad key characteristics.

RESULTS

Harvest and Effort Summary

The 1994 KMA sac roe herring season was 71 days in duration, extending from April 15 through June 30, (Table 3). A total of 5,893 tons of herring were harvested, which was 30% higher than the preseason GHIL of 4,550 tons. This is the third consecutive year that a new record high harvest occurred, the 1993 harvest was 4,929 tons. Seine caught herring totalled 4,976 tons, which was 84% of the total harvest, while gillnet gear accounted for 917 tons, which was 16% of the total harvest. A comparison of harvest by gear type from 1979-1994 averaged 75% and 25% for seine and gillnet gear, respectively (Figure 6). During the period 1979-1994, seine and gillnets accounted for an average harvests of 2,034 and 617 tons respectively. (Table 3). For 1994 roe recovery averaged 10.4% for seine caught fish and 10.9% for gillnet gear, for a combined average roe recovery of 10.6%. The average price per ton paid at the dock was difficult to establish due to factors such as the size of herring harvested and delivery method, tendered or dock delivery. Prices ranged from \$600 to \$1200 a ton and for ADF&G's purposes an average price of \$800 a ton was used to calculate estimated values of the fishery. The total exvessel value of the fishery was estimated at \$4.7 million.

A total of 66 seiners and 57 gillnetters fished during the 1994 season (Table 2). These effort levels are the highest since 1981 for seine gear and the lowest for gillnet gear. The average exvessel earnings for seiners was estimated at \$60,000 and \$13,000 for gillnetters. Seven floating processors and eight shorebased processors purchased herring during the 1994 season, there were no floating processors present for the 1993 fishery. A total of 111 tenders registered to transport herring within the KMA.

The increase in seine and floating processor effort can mainly be attributed to the closure of the Prince William Sound Management Area sac roe fishery. The relatively high preseason GHL for the KMA attracted both seiners and processors to Kodiak. The floating processors operated in the vicinity of Port Baily in Kupreanof Strait, which placed them near the major harvest locations of west Afognak Island and the Uganik District. The drop in effort levels for gillnet gear maybe attributed to the poor outlook for herring prices prior to the start of the season. The floating processors and the majority of the seiners departed the KMA at the end of April to participate in the Togiak herring fishery. Approximately 60% of the total 1994 sac roe herring harvest was purchased by floating processors.

Spring climatic conditions were good for the 1994 sac roe season and little fishing time was lost because of adverse weather conditions. High winds and temperatures as low as 10° F. were experienced during the first three 24 hour openings. These conditions slowed the fishery but harvest rates remained strong within the Uganik District and the Malina Bay management unit. Overall the good spring climatic conditions should be beneficial to the early marine survival of herring spawn.

District Summaries

The distribution of herring harvest by district during the last three years has seen an increase in the Afognak, Uganik, General, and Alitak Districts (Figure 7.). The Uyak District has experienced a sharp decline in harvest during the last two years. The harvest in the Mainland District is comparable to the past five years. Of the 74 management units in the KMA with herring stocks, 46 units had a herring harvest (Table 4), and 29 of these units were closed inseason by emergency order (Appendix B).

Afognak District

The bays of Afognak Island are among the earliest areas in which herring are harvested in the KMA. ADF&G stationed one field crew and the ADF&G research vessel (R/V) Resolution in management units which were anticipated to have the earliest harvests. Field crews were moved to new management units when the management unit they monitored was closed by emergency order or effort levels were less than anticipated. Field crews monitored the following management units: Crew #1 (Raspberry Straits and Foul Bay) and the Resolution (Malina and Paramanof-Foul Bays). Actual fishery activity started in the westside Afognak management units. As previously mentioned, weather conditions for the first three openings consisted of low temperatures and strong northwest winds. Weather conditions prevented the R/V K-Hi-C from reaching Malina Bay and the R/V Resolution monitored this unit. On April 15, Malina Bay had a harvest of 266 tons which closed the unit, with a preseason GHL of 180 tons. The Raspberry Strait management unit had a harvest of 341 tons (GHL of 290 tons) and closed April 20. The Paramanof Bay management unit had a strong showing of herring this season and was closed on April 21 with a harvest of 419 tons (GHL 250). The exceeding of the GHL's for these management units can primarily be attributed to stronger than expected spawning stocks. Age 6 herring were the dominant age class harvested in the aforementioned units. No other emergency orders were issued for this district. Three other management units had a combined harvest of 25 tons. Of the 17 management units of the Afognak District which have GHL's,

three were closed with the assistance of ADF&G field crews and the remainder were open through June 30. The total GHL's for the district was 1,005 tons, a total of 1,051 tons were harvested with 84% of the harvest coming from purse seine gear and 16% from gillnet gear. Herring stocks in the management units located on the north and south portions of the Afognak District appear to be in decline while the West Afognak stocks are robust. Adjustments in the GHL for the 1995 will be necessary to reflect these differing stock trends.

Uganik District

A skiff equipped crew was placed by the R/V Resolution in the Village Islands to monitor the Uganik District. The crew was stationed there to be nearer the early and larger harvest areas. This crew was able to monitor the Viekoda Bay, Terror Bay, West Uganik Passage, Village Island, N.E. Arm, East Arm and South Arm Uganik Bays which spans approximately 30 miles. Fishery activity started on April 15 with dreadful weather conditions which hampered the field crews ability to monitor the fishery. Further, the field crew was inexperienced in handling an intensive fishery that converged on the Uganik District. The South Arm Uganik and Village Island management units closed on April 16 with a harvest of 1,093 tons (75 ton GHL) and 356 tons (200 ton GHL) respectively. For the third year in a row a strong age class (age 6 in 1994) of herring has dominated the Uganik District herring biomass. The bulk of this biomass appears to move through several management units before spawning in the Village Islands. The substantial harvest from the South Arm management unit appears to be the result of wind and tide conditions which concentrated and pushed the herring into the South Arm. These herring were most likely destined for the Village Islands as the magnitude and timing of this harvest is more reflective of that stock. The ADF&G vessel K-Hi-C moved into the Uganik District on April 17 monitoring the West Uganik and Terror Bay management units. The East Arm Uganik Bay was closed on April 17 with a harvest of 324 tons (GHL 75 tons). The bulk of these herring were caught near the boundary line between the South and East Arm Uganik management units. These herring were caught as they were coming out of South Arm near Mink Point and again were likely destined to the Village Islands to spawn. The Terror Bay management unit closed on April 17, with a harvest of 338 tons (GHL 180 tons). The Northeast Arm and West Uganik management units closed on April 19, with a harvest of 34 tons (GHL 30 tons) and 81 tons (GHL 75 tons) respectively. The skiff equipped field crew was moved into Viekoda Bay on April 20. Fishery performance for the Viekoda Bay management unit was lower than anticipated, with only 58 tons harvested (GHL 160 tons). Of the eight management units in the Uganik District with GHL's, four were closed with the assistance of ADF&G field crews, two by ADF&G office staff, and the remainder were open through June 30. A district total of 2,284 tons were harvested from a district GHL of 805 tons, 97% of this harvest was with purse seine gear and 3% by gillnet.

General District

The R/V Resolution deployed a two person ADF&G field crew at Ameer Bay within the East Sitkalidak management unit. This crew was equipped with a 21 foot skiff which enabled them to monitor seven management units along the eastside of Kodiak Island. A raft equipped crew was also flown into Kiliuda Bay. The Inner Kiliuda management unit was divided into two units prior to the start of the season, creating east and west portions at 153°05'48" west longitude. The west portion of Inner Kiliuda Bay was closed on April 21 with a harvest of 112 tons (GHL of

60 tons). The east portion of Inner Kiliuda Bay was closed on April 28 with a harvest of 61 tons (GHL 80 tons), and the field crew was moved to the Shearwater Bay management unit. The East Sitkalidak management unit was closed on April 30 with a harvest of 283 tons (GHL 290 tons). The Shearwater management unit was closed on May 2 with a harvest of 113 tons (GHL 75 tons), and the field crew was next moved to the Inner Ugak Bay management unit. On May 4 the West Sitkalidak and Barling Bay management units were closed with a harvest of 320 tons (GHL 300 tons) and 62 tons (GHL 50 tons) respectively. The skiff equipped field crew was moved to the Alitak District on May 7. The Inner Ugak management unit closed on May 11 with a harvest of 129 tons (GHL 120 tons) and the field crew returned to Kodiak. The Pasagshak management unit was closed on May 12 with a harvest of 25 tons (GHL of 30 tons). The Kizhuyak management area was closed on May 16 due to poor fishery performance. The Outer Ugak management unit closed on May 18 and the S.W. Sitkalidak management unit on May 20 with harvests of 84 tons (GHL 60 tons) and 116 tons (GHL 120 tons) respectively. Of the 22 management units in the General District, ten units were closed with assistance of field crews, one unit was closed by the ADF&G office staff, and the remaining units were open until June 30. The total GHL for the General District was 1,445 tons. A total of 1,450 tons were actually harvested, with 63% of the harvest from purse seine gear and 37% of the harvest from gillnet gear.

Uyak District

The Uyak District was the largest herring producing district within the KMA through the 1980's. Since 1990 fishery performance and spotter observations have indicated a decline in abundance of herring in the Uyak District. ADF&G has responded to this decline by reducing the GHL's for these management units during the last four seasons. For the 1994 herring season no ADF&G field crews or vessels monitored this district. The Inner Uyak Bay management unit closed on May 18 with a harvest of 28 tons (GHL 50 tons), this harvest consisted of approximately 50% of age-3 herring. To prevent further exploitation of these younger herring this unit was closed prior to reaching the GHL. The Brown's Lagoon management unit was also closed on May 18 with a harvest of 21 tons (GHL 30 tons). The Spiridon Bay, Zachar Bay, and Larsen Bay management units were closed on May 26 with a combined harvest of ten tons. These management units were closed due to poor fishery performance and spotter survey results. For the 1995 season the GHL's for this district will again be reduced or additional management action maybe necessary to reverse the downward trend in these stocks. Of the six management units of the Uyak District with GHL's, four were closed by emergency order which were issued by the office staff and the remainder were open through June 30. In the Uyak District a total of 65 tons were harvested from a total district GHL of 185 tons. Seine gear harvested 75% and gillnet gear 25% of the total harvest.

Alitak District

The Alitak District is comprised of eight management units, two are exploratory areas, and six have GHL's. The K-Hi-C monitored the Alitak District from April 29 to May 10. The Sulua Bay management unit was closed on April 30 with a harvest of 292 tons (GHL 190 tons). The majority of seine vessels in the Alitak District departed for the Togiak herring fishery after the closure of the Sulua Bay management unit. A skiff equipped field crew was stationed in the Inner Deadman Bay management unit on May 10. The Inner Alitak management unit was closed

on May 18 with a harvest of 103 tons (GHL 75 tons). The Outer Deadman management unit was closed on May 23 with a harvest of 141 tons (GHL 150 tons). The remaining management units were open through June 30. The ADF&G crew moved from Inner Deadman Bay to Upper Olga Bay on May 27. The Upper Olga Bay management unit was monitored by ADF&G personnel stationed at salmon weirs in the Olga Bay area. Fishery performance in this unit has declined over the last four years and the GHL has been lowered annually in hopes of reversing this trend. This season 94 tons were harvested of the 110 ton GHL. The Inner Deadman Bay management unit remained open until June 30 and the harvest totalled 229 tons (GHL 250 tons). The Geese-Twoheaded exploratory unit had a harvest of 21 tons. The North Upper Olga Bay management unit had no harvest. The Lower Olga-Moser Bay management unit had a harvest of 12 tons, (GHL 20 tons). The Alitak District had a total harvest of 891 tons with a district total GHL of 805 tons. Seine gear harvested 86% of the harvest and gillnet gear 14%. Field crews assisted in the three emergency closures within this district, the remaining management units were open through June 30.

Mainland District

The Mainland District is comprised of 13 management units, four have GHL's, five are exploratory, and four units are offshore which were not expected to produce a sac roe harvest. The Mainland District experiences more extreme weather conditions than the other districts around Kodiak and Afognak Islands. Sea conditions encountered, while crossing the Shelikof Strait to reach this district greatly reduces the mobility of vessels which fish this area. The Mainland District frequently experiences high winds, low ceilings, and limited visibility, greatly limiting the effectiveness of spotters. Fishing effort in this district, generally involves only one or two seine combines and 5-10 gillnet vessels. Several management units on the southern part of this district are the farthest units from the port of Kodiak. No field crews are stationed in this district due to the high expense of placing and supplying crews in this remote area. The weather conditions, combined with the small number of vessels which fish these units reduces the likelihood that excessive harvests will occur. No emergency closures were issued for management units within the Mainland District and these areas remained open until June 30. Herring harvests by management unit include 18 tons for the Inner Kukak (GHL 65 tons), 50 tons for the Inner Katmai (GHL 65 tons), 6 tons for Alinchak (GHL 50 tons), and 78 tons for Wide Bay (GHL 125 tons).

Age Composition, Weights, and Lengths

During the 1994 season, age-6 herring comprised 42% of the commercial seine harvest, (Figure 8). The remaining age classes represented the following percentage of the harvest; age-3 (11%), age-4 (12%), age-5 (5%), age-7 (24%), and age-8-11+ (6%). Age-3 herring are considered "recruit herring", entering into the commercial fishery and spawning for the first time. In general the management units which extend from the westside of Afognak Island to the Uganik District had a dominance of age-6 herring while the eastside Kodiak Island management units had a dominance of age-7 herring (Figure 9 and Table 5).

When compared to previous brood years age-3 herring showed a decrease in average weight in the 1991 harvest. This trend continued in 1992-1994 when these fish were harvested as age-4-6 respectively, being the smallest by age observed in this fishery (Table 6). This reduction in

weight coincides with the increase in biomass for most KMA herring stocks. All other age classes in the 1994 fishery had comparable growth rates to the past four years (Table 7 and 8).

Spawning Biomass

In 1994, the spawning biomass index for that portion of the KMA fished was estimated to range from 39,500 to 53,000 tons as determined by industry spotter and ADF&G surveys. This is the second highest biomass estimate recorded for this fishery from 1979-1994. Since 1988 the indexed biomass has increased dramatically from 5,500 tons to 15,500 tons in 1990 and doubled by 1992 to 32,000 tons. A breakdown by district includes; 10,000-12,000 tons in the Afognak District, 10,000-14,000 tons in the General District, 11,000-15,000 tons in the Uganik District, 1,500-2,000 tons in the Uyak District, 5,000-7,000 tons in the Alitak District, and 2,000-3,000 tons in the Mainland District. The sac roe herring harvest of 5,893 tons represented a total indexed exploitation rate which ranges from 11% to 15% of the spawning biomass.

These exploitation rates should be qualified, since surveys represent an unknown and undoubtedly highly variable proportion of the actual biomass. These exploitation rates can be used for trend evaluation, but should not be compared to the spawning biomass indices achieved by ADF&G in Prince William Sound, Cook Inlet, and Bristol Bay. These areas have a relatively large biomass available for aerial indexing and the observed biomass is annually less variable, so there is more opportunity for observing a greater and more consistent proportion of the actual total biomass. The exploitation rates achieved in these fisheries would be more comparable between areas.

Enforcement Issues

The Alaska Department of Public Safety, Fish and Wildlife Protection (FWP) provided minimal enforcement coverage of the KMA herring fishery. A wheel equipped Cessna 185 provided aerial surveillance for the early portion of the fishery. The FWP vessel Trooper returned from the Kamishak herring fishery in early May and monitored management units of the General and Alitak District.

Conflicts arose concerning the legal descriptions of a few management unit boundaries, mostly within the Uganik District. The descriptions of management units in the regulation booklet was not updated to reflect the most recent, (1983 datum) marine charts. Confusion and disagreement occurred concerning the location of boundary lines between management units. The burden of identifying the lines by ADF&G field crews would have been eliminated if FWP were present to clarify these lines. ADF&G will need to update the descriptions of management units using the 1983 datum charts prior to the 1995 season.

In several cases seiners were observed fishing in closed waters by ADF&G field crews and other fishers. These violations were reported to FWP and information was gathered on these cases, but none were prosecuted. Numerous complaints were made to ADF&G and FWP staff by fishers concerning the length of seines and again no enforcement action was taken. The presence of FWP personnel lessens the burden on ADF&G field crews, especially during openings and

emergency closures. The presence of FWP is necessary for the 1995 fishery to prevent further disregard of fishery regulations.

1995 Management Plans and Issues

The 1995 management plan will be similar to those plans which have been in effect since 1982. Based on the age class data collected in 1994 and the high biomass estimates for the past three years, the preliminary GHL for 1995 is 4,500 tons, down slightly from the 1994 GHL. The 1995 harvest is expected to target the dominant age-7 and -8 year old fish which should comprise 60-70% of the harvest. These age compositions, spawn observations, and fishery performances indicate that the Kodiak area biomass should support a stable sac roe fishery over the next few years. Observations and harvests of age-2 and-3 herring during the 1995 season will provide the best insights into the future production of this fishery.

ADF&G will continue to rely greatly on industry spotter pilots, processors, and fishermen to provide information to help manage this fishery. The current harvest strategy has been tested with record harvests and gear levels during the last three years. The competition between fishers is intense and gear conflicts between fishers does occasionally occur. The increase in seine effort levels and the gillnetter's diminishing percentage of the total harvest has created unrest for gillnet permit holders. Any changes in the current harvest strategy which allocates the herring harvest can only be addressed by the Alaska State Board of Fisheries in November 1995. The present harvest strategy will be challenged in the 1995 season as herring abundance is near historic high levels with record high gear levels.

HERRING FOOD/BAIT FISHERY

INTRODUCTION

Historical Perspective

Historically, the earliest recorded herring harvest for the KMA was in 1912. The herring fishery did not notably expand until the early 1920's when industry personnel searched for new areas where large herring were available. Large herring were preferred since the initial products were utilized as food, such as salted and pickled herring. This fishery developed primarily from the demand for food products created by World War I. By the late 1920's the demand for herring food products had declined, but demand for reduction products such as fish meal and oil increased. During the fishery's peak production years (1934-1950) it was primarily a reduction fishery and yielded tonnages which dwarf current food/bait harvests (Figure 10). During a seventeen year period (1934-1950) an average harvest of 31,600 tons was sustained (Table 9). The primary product was fish meal and oil, which required large quantities of herring. Also

limited amounts were used for salted food and bait products. Major harvest areas were located in eastern Shelikof Strait and adjacent bays and straits along the west side of Kodiak and Afognak Islands. Quotas and harvest weights were measured by barrels (where 250 lbs. of herring equals one barrel) until 1956 when the unit of measure was changed to short tons. Historically large, approximately 70 foot long, "sardine seiner" type vessels were used in conjunction with "holding pounds" to supply herring to five major reduction plants. In addition, small local seine vessels and gillnets were used for a portion of the food industry delivering to floating and small shore based salting and pickling operations.

From the early 1960's to 1973, there were no harvest quotas or closed seasons. Beginning in 1974, the fishing season dates were changed to run from August 1 through February 28; however no regulatory GHL's were in effect until 1979. In 1979 and 1980, the GHL was 12,600 tons for the food and bait season. As a result of the rapidly developing sac roe fishery, the GHL for the food/bait season was reduced to 1,000 tons in 1981 and remained at that level through 1987. Regulatory GHL's for the food/bait herring fishery were initially replaced with a regulatory harvest strategy in 1988 which was further defined in 1993 to address harvest activities in the Shelikof Strait (Appendix C).

METHODS

Fishery Characteristics

The current food/bait herring fishery can be characterized as a secondary commercial fishery on herring concentrations located in Kodiak waters. It is primarily a bait fishery providing a frozen product for longline and crab/cod pot fishers. Effort and harvest levels are at historical lows for the food/bait fishery, while the sac roe fishery supports relatively high levels of effort and harvest. The food/bait fishery is an open-to-entry fishery, while the sac roe fishery has been limited-to-entry since 1981. Existing regulations designate priority status to the sac roe fishery, in that regulatory harvest strategy allocates a very major percentage of the allowable harvest on local stocks to the sac roe fishery.

During the early 1980's, major concentrations of herring were located in eastern Shelikof Strait and in adjacent bays to the west side of Kodiak and Afognak Islands. The biomass found in this area exceeded that of known Kodiak spawning stocks. These herring were targeted by food/bait fishers and questions arose concerning the stock of origin of these fish. In 1986, a stock identification study based on scale pattern analysis was performed on herring harvested from a large biomass located in the east part of the Shelikof Strait (Johnson 1988). The study concluded that at least 80% of the East Shelikof herring sampled were of Kamishak Bay spawning stock origins, which is within the Lower Cook Inlet Management Area.

In March 1988, the Alaska State Board of Fisheries allocated not more than two percent of the previous season's total available spawning biomass from Kamishak to be harvested during Kodiak's food/bait herring fishery. For local Kodiak spawning stocks, which are exploited during the sac roe fishery, the food/bait GHL on those same stocks is 10% of the previous seasons sac roe harvest.

Problems arose from this management plan because it was difficult to assign harvest levels to the intermixed spawning stocks of Kodiak and Kamishak. This plan was in affect through the 1992/93 season.

1994/95 Harvest Strategy

In November 1992, the Alaska Board of Fisheries approved a new management plan (5AAC27.465) Kamishak Bay District Herring Management Plan which outlined criteria for the future management of the Kamishak Bay sac roe herring and Shelikof Strait food/bait fishery, (1994 Herring Regulation Book). This plan defines allocations to these fisheries based on biomass estimates.

The allocation of Kamishak Bay herring stocks to the Shelikof Strait food and bait fishery is based on the spawning biomass of age 5 and older herring and not on the biomass of juveniles. The quantity of herring stocks aged four years and younger caught during the food/bait fishery will be adjusted to approximate the biomass of a similar number of age 5 herring.

Age 4 and younger herring were selected because in the Kamishak spawning stocks, herring are not considered to have attained complete recruitment into the spawning biomass until they have reached age 5.

In January 1993, the Alaska Board of Fisheries approved a new harvest strategy (5AAC 27.535) which defined criteria for managing the Kodiak food/bait herring fishery (1994 Herring Regulation Book). The major change in this new strategy was to combine the Kamishak stock GHL with the Kodiak stock GHL for food/bait management units FB 1, FB 4, and FB 5. When this combined GHL is achieved the Shelikof Strait food and bait management units are closed collectively. This plan alleviates the problem of identifying the spawning stock of a harvest in areas where intermixing may occur.

A harvest strategy is published annually (Appendix C) which details the aforementioned management plans, GHL's, and regulations which pertain to this fishery.

By regulation, the herring food/bait season extends from August 1 through February 28. The entire KMA is open to continuous fishing on August 1 for all legal gear types, which include purse seine, gillnet and trawl. There are no exclusive gear areas.

During the January 1993 Alaska Board of Fisheries meeting a new regulation was adopted concerning the gear restrictions placed on purse seines. The purse seine specifications were increased to 150 fathoms in length and 1,625 meshes in depth. Prior to the 1985/86 food/bait season there were no gear restrictions. Restrictions on seine and gillnet gear were imposed for the 1986/87 season and seine gear efficiency was reduced (Figure 11). Gillnets are only restricted to a length of 150 fathoms and there are no trawl restrictions.

All permit holders and buyers are required to register at the Kodiak ADF&G office prior to fishing or purchasing herring. At that time, management plans are issued and catch reporting procedures and current regulations are reviewed. Each landing is sampled for age, weight, length

(AWL) information and skipper interviews are conducted to evaluate which sac roe stocks are being impacted.

RESULTS

1994-95 Season Summary

The 1994-95 allocation for Kamishak herring stocks over wintering in Shelikof Strait was 330 tons. In addition for the Kodiak stocks in food/bait management units FB 1, FB 4, and FB 5 there was 340 ton GHL. The combined GHL for both stocks affected by (5 AAC 27.465) Kamishak Bay District Herring Management Plan was 670 tons.

For the Kodiak spawning stocks the total GHL was 585 tons, which represents 10% of the previous spring's sac roe harvest on a stock by stock basis. The total GHL for the KMA was 915 tons, (330 tons Kamishak allocation and 585 tons Kodiak stocks).

Kodiak's food/bait herring season started August 1, 1994 and remained open until February 28, 1995. Fishing periods were 24 hours per day and seven days a week. Two emergency orders (E.O.'s) were issued, one which established fishing periods and areas open and the second which closed areas to fishing after a harvest had occurred. The East Afognak (Food/bait unit #3) and the North Afognak (Food/bait unit #2) were closed prior to the start of the food/bait herring season. The sac roe herring stocks within these units have declined during the last three years and they were closed to prevent further exploitation during the food/bait fishery.

For the 1994-95 season a total of 677 tons were harvested in the KMA. Ten vessels and four buyer/processors registered for this fishery. Trawl gear accounted 62% of the total harvest and purse seine gear 38%. The total exvessel value of this fishery was approximately \$270,000 dollars.

The food\bait management units FB1, FB4, FB5, FB11, and FB12 (Appendix C) which are affected by the combined harvest of Kamishak herring stocks, were closed on September 30. The actual harvest was 672 tons. As stated in the Kamishak Bay District Herring Management Plan (5 AAC 27.465) the quantity of age 4 and younger herring harvested will be adjusted to a similar number of age 5 herring, this adjusted harvest totalled 719 tons (Table 10). The combined GHL for these units was 670 tons.

AWL samples along with herring biomass observations from the fishers were obtained upon delivery to the processors. A portion of this years harvest was delivered to Homer and processed in plants at Kenai and Homer.

The Alitak food\bait management unit FB7 had a 5 ton harvest and no other food\bait management units had a harvest.

No ADF&G hydroacoustic surveys were conducted in 1994 on overwintering herring concentrations.

1995-96 Management Plans and Issues

The success of purse seine gear in this fishery the last two years will likely encourage other seiners to participate next season. Further, it appears that the Prince William Sound food/bait fishery will likely be closed and some effort may shift to the KMA fishery. Additional on-grounds monitoring of the fishery will be necessary as gear levels escalate. Improvements in the timeliness of catch reporting may be needed with increasing gear levels. Hydroacoustic surveys to better assess the magnitude of herring stocks are badly needed.

HERRING SUBSISTENCE/PERSONAL USE FISHERY

The Fishery

The subsistence and personal use fishery for herring is regulated only during the sac roe herring fishery season, April 15 through June 30. During this time period, a permit is required for individuals who are not sac roe commercial fishermen to harvest herring. Sac roe commercial fishermen may retain herring from their lawfully taken commercial catch to fulfill their subsistence or personal use needs. Most of the herring caught during this time period are used for bait in commercial longline fisheries. However small amounts are used for food, sport fishing bait, and fertilizer. The conditions of this permit can be seen in Appendix D.

1994 Harvest and Effort

A total of 45 permits were issued in 1994 and 14 were returned with harvest data. The total harvest was 4,306 pounds with 2,106 pounds from the General District, 2,000 pounds from the Uganik District, and 200 pounds from the Uyak District. Nine of the permits returned accounted for the harvest.

LITERATURE CITED

ADF&G (Alaska Department Fish and Game). 1994-95 Commercial herring fishing regulations, 1994 edition. Alaska Department of Fish and Game, Division of Commercial Fisheries, Juneau.

Johnson, B.A. and C. Burkey, and D. Gaudet. (Draft manuscript 1988). Stock identification of Pacific herring in the bait fishery in Shelikof Strait, Alaska, 1985/86. Alaska Department of Fish and Game, Division of Commercial Fisheries. Juneau.

Table 1. Historical harvest and effort level for the sac roe herring fishery for the Kodiak Management Area, 1964-1994.

Year	Tons Harvested	Seine	Number		Number of Vessels			
			Gillnet	Buyer	Trawl	Gillnet	Seine	Total
1964	568	568	-	2	0	0	5	5
1965	657	657	-	2	0	0	8	8
1966	2,769	2,769	-	4	0	0	11	11
1967	1,662	1,662	-	4	0	0	5	5
1968	2,001	2,001	-	4	0	0	10	10
1969	1,130	1,130	-	9	0	0	21	21
1970	342	342	-	5	0	0	13	13
1971	284	284	-	2	0	0	4	4
1972	215	215	-	1	0	0	4	4
1973	831	831	-	4	0	0	11	11
1974	868	868	-	4	0	0	26	26
1975	8	8	-	3	0	0	2	2
1976	5	5	-	1	0	0	1	1
1977	338	338	-	3	0	0	11	11
1978	904	881	23	7	2	7	28	35
1979	1,735	1,457	278	8	0	125	57	182
1980	2,383	2,009	374	9	1	109	92	201
1981	2,065	1,596	469	9	0	114	79	193
1982	1,771	1,447	324	6	0	67	45	112
1983	2,318	1,797	521	7	0	64	41	105
1984	2,163	1,691	472	7	0	69	39	108
1985	1,968	1,244	724	7	0	81	34	115
1986	1,558	1,111	447	8	0	71	31	102
1987	2,146	1,591	555	8	0	62	29	91
1988	2,171	1,304	867	6	0	76	33	109
1989	2,249	1,513	736	6	0	83	37	120
1990	2,347	1,644	703	6	0	63	27	90
1991	2,432	1,697	735	6	0	64	32	96
1992	4,283	3,260	1,023	6	0	74	40	114
1993	4,929	4,203	726	6	0	86	41	127
1994	5,893	4,976	917	15	0	57	66	123

Table 2. Status of Kodiak sac roe herring limited entry permits, 1989-1994.

Gear Type	Year					
	1989	1990	1991	1992	1993	1994
Gillnet						
Transferable	68	72	74	97	95	99
Non-Transferable	<u>44</u>	<u>27</u>	<u>28</u>	<u>11</u>	<u>8</u>	<u>8</u>
TOTAL	112	99	102	108	103	107
FISHED	83	63	64	74	86	57
Seine						
Transferable	47	47	48	59	66	69
Non-Transferable	<u>25</u>	<u>25</u>	<u>22</u>	<u>13</u>	<u>12</u>	<u>14</u>
TOTAL	72	72	70	72	78	83
FISHED	37	27	32	40	41	66
Combined Totals						
Transferable	115	119	122	156	161	168
Non-Transferable	<u>69</u>	<u>52</u>	<u>50</u>	<u>24</u>	<u>20</u>	<u>22</u>
TOTAL	184	171	172	180	181	190
FISHED	120	90	96	114	127	123

Table 3. Kodiak sac roe herring fishery summary by year and gear, 1979-1994.

YEAR	SEASON LENGTH (DAYS)	GUIDELINE HARVEST LEVEL (TONS)	TOTAL HARVEST (TONS)	HARVEST BY GEAR TYPE (TONS)		PERCENT HARVEST BY GEAR TYPE (TONS)		NUMBER OF LANDINGS		NUMBER OF UNITS OF GEAR		AVG. \$'S EARNED	
				SEINE	G/N	SEINE	G/N	SEINE	G/N	SEINE	G/N	SEINE	G/N
1979	36	2,400	1,735	1,457	278	84	16	-	-	57	125	38,347	3,333
1980	35	2,400	2,383	2,009	374	84	16	-	-	92	109	14,978	2,573
1981	48	2,400	2,065	1,596	469	77	23	207	406	79	114	14,402	3,471
1982	59	2,400	1,771	1,447	324	82	18	138	191	45	67	17,819	2,719
1983	51	2,400	2,319	1,797	522	78	22	164	284	41	64	35,061	6,520
1984	54	2,400	2,163	1,691	472	78	22	138	212	39	69	34,691	5,467
1985	59	2,000	1,968	1,244	724	63	37	118	348	34	81	32,935	8,039
1986	61	1,690	1,558	1,110	448	71	29	132	385	31	71	34,010	6,002
1987	61	1,640	2,146	1,591	554	74	26	122	411	29	62	54,872	8,945
1988	59	2,065	2,171	1,304	867	60	40	169	555	33	76	51,350	14,837
1989	76	2,415	2,249	1,513	736	67	33	171	627	37	83	34,749	7,537
1990	75	2,375	2,347	1,644	703	70	30	156	544	27	63	51,724	9,652
1991	83	2,510	2,432	1,697	735	70	30	169	587	32	64	45,077	9,762
1992	77	2,720	4,283	3,260	1,023	76	24	185	706	40	74	40,750	6,912
1993	77	3,525	4,929	4,203	726	85	15	237	294	41	86	56,380	4,640
1994	71	4,550	5,893	4,976	917	84	16	285	485	66	57	60,320	12,860
16-YR AVG.	61	2,493	2,651	2,034	617	75	25	149	377	45	79	38,592	7,079

Table 4. Sac roe herring harvest summary listing guideline harvest levels by management unit, harvest in tons by gear type, percentage of harvest by gear type, total harvest, and date the management unit closed for the Kodiak Management Area, 1994.

Stat. Area	Mgmt. Units	Guideline Harvest Level	Purse (Tons)	%	Gillnet (Tons)	%	Total (Tons)	Date Closed
AFOGNAK DISTRICT								
A010	Raspberry Sts.	290 TONS	190.2	56	150.9	44	341.1	4/20
A020	Malina Bay	180 TONS	257.3	97	9.0	3	266.3	4/15
A031	Paramanof Bay	250 TONS	414.7	99	4.8	1	419.5	4/21
A032	Foul Bay	75 TONS	22.5	100	0	-	22.5	6/30
A040	Devils Inlet	10 TONS	0	-	0	-	0	6/30
A040	Blue Fox	50 TONS	0	-	0	-	0	6/30
A050	Offshore W. Afog. ^a	-	0	-	0	-	0	6/30
A060	Shuyak Is.	20 TONS	0	-	0	-	0	6/30
A070	Perenosa Bay	15 TONS	0	-	0	-	0	6/30
A071	Delphin Bay	10 TONS	0	-	0	-	0	6/30
A072	Seal Bay	10 TONS	0	-	0	-	0	6/30
A080	Tonki Bay	15 TONS	0	-	0	-	0	6/30
A090	Izhut Bay	15 TONS	0	-	0	-	0	6/30
A091	Kitoi Bay	10 TONS	0	-	0.8	100	0.8	6/30
A092	MacDonalds Lagoon	10 TONS	0	-	0	-	0	6/30
A100	Danger Bay	25 TONS	0	-	1.2	100	1.2	6/30
A101	Litnik	10 TONS	0	-	0	-	0	6/30
A102	Duck Bay	10 TONS	0	-	0	-	0	6/30
DISTRICT TOTAL		1,005 TONS	884.7		166.7		1051.4	

-Continued-

Table 4. (page 2 of 4)

Stat. Area	Mgmt. Units	Guideline Harvest Level	Purse (Tons)	%	Gillnet (Tons)	%	Total (Tons)	Date Closed
UYAK DISTRICT								
UY10	Offshore Uyak ^a	-	0	-	0	-	0	6/30
UY20	Harvester Island	10 TONS	0	-	0	-	0	6/30
UY30	Inner Uyak	50 TONS	28.4	100	0	-	28.4	5/18
UY31	Larsen Bay	10 TONS	5.5	58	4.0	42	9.5	5/26
UY32	Browns Lagoon	30 TONS	14.3	69	6.3	31	20.6	5/18
UY40	Zachar Bay	40 TONS	0	-	0	-	0	5/26
UY50	Spiridon Bay	45 TONS	0	-	6.1	100	6.1	5/26
	DISTRICT TOTAL	185 TONS	48.2		16.4		64.6	
UGANIK DISTRICT								
UG10	Kupreanof	10 TONS	0	-	0	-	0	6/30
UG20	Viekoda	160 TONS	48.3	84	9.3	16	57.6	6/30
UG21	Terror	180 TONS	337.7	99	0.5	1	338.2	4/17
UG21	Uganik Is. Lagoon ^a	0 TONS	0	-	0	-	0	6/30
UG30	Village Island	200 TONS	350.0	99	5.6	1	355.6	4/16
UG31	W. Uganik Pass	75 TONS	71.2	88	9.5	12	80.7	4/19
UG32	NE Arm Uganik	30 TONS	34.4	100	0	-	34.4	4/19
UG33	E. Arm Uganik	75 TONS	292.3	90	32.0	10	324.3	4/17
UG34	S. Arm Uganik	75 TONS	1093.5	100	0	-	1093.5	4/16
UG40	Offshore Uganik ^a	-	0	-	0	-	0	6/30
	DISTRICT TOTAL	805 TONS	2227.4		56.9		2284.3	
ALITAK DISTRICT								
AL10	Outer Alitak	(Exploration)	0	-	0	-	0	6/30
AL20	Inner Alitak	75 TONS	99.8	97	2.8	3	102.6	5/18
AL21	Inner Deadman Bay	250 TONS	205.4	90	23.8	10	229.2	6/30
AL21	Outer Deadman Bay	150 TONS	116.5	83	24.2	17	140.7	5/23
AL30	Sulua/Portage Bay	190 TONS	225.8	77	66.4	23	292.2	4/30

-Continued-

Table 4. (page 3 of 4)

Stat. Area	Mgmt. Units	Guideline Harvest Level	Purse (Tons)	%	Gillnet (Tons)	%	Total (Tons)	Date Closed
ALITAK DISTRICT (Cont.)								
AL40	Lower Olga/Moser	20 TONS	11.6	100	0	-	11.6	6/30
AL40	N. Upper Olga B.	10 TONS	0	-	0	-	0	6/30
AL50	Upper Olga Bay	110 TONS	88.7	94	5.3	6	94.0	6/30
AL60	Geese/Twoheaded	(Exploration)	17.9	86	2.8	14	20.7	6/30
DISTRICT TOTAL		805 TONS	765.7		125.3		891.0	
STURGEON/HALIBUT DIST.								
SH10	Sturgeon/Halibut	(Exploration)	0	-	0	-	0	6/30
DISTRICT TOTAL		0 TONS	0		0		0	
GENERAL DISTRICT								
GO10	Kaiugnak	20 TONS	12.5	96	0.5	4	13.0	6/30
GO20	W. Sitkalidak St.	300 TONS	106.0	33	213.6	67	319.6	5/04
GO20	S.W. Sitkalidak St.	120 TONS	63.5	55	52.1	45	115.6	5/20
GO21	Barling	50 TONS	12.1	19	50.4	81	62.5	5/04
GO22	E. Sitkalidak St.	290 TONS	200.5	71	82.9	29	283.4	4/30
GO23	Tanginak Anchorage	15 TONS	2.1	100	0	-	2.1	4/18
GO30	Outer Sitkalidak	(Exploration)	0	-	0	-	0	6/30
GO40	Outer Kiliuda	(Exploration)	0	-	3.1	100	3.1	6/30
GO41	Inner Kiliuda (East)	80 TONS	59.7	97	1.6	3	61.4	4/28
GO41	Inner Kiliuda (West)	60 TONS	112.0	100	0	-	112.0	4/21
GO42	Shearwater	75 TONS	70.1	62	42.8	38	113.0	5/02
GO50	Pasagshak	30 TONS	0	-	24.5	100	24.5	5/12
GO50	Outer Ugak	60 TONS	79.0	94	5.3	6	84.3	5/18
GO51	Inner Ugak	120 TONS	113.7	88	15.5	12	129.2	5/11
GO60	Womens Bay	100 TONS	77.1	71	31.6	29	108.7	6/30
GO70	Monashka/Mill B.	(Exploration)	0	-	0	-	0	6/30
GO80	Anton Larsen	10 TONS	0	-	0	-	0	6/30

-Continued-

Table 4. (page 4 of 4)

Stat. Area	Mgmt. Units	Guideline Harvest Level	Purse (Tons)	%	Gillnet (Tons)	%	Total (Tons)	Date Closed
GENERAL DISTRICT (Cont.)								
GO81	Sheratin	10 TONS	0	-	0	-	0	6/30
GO90	Kizhuyak	50 TONS	8.3	56	6.6	44	14.9	5/16
G100	Kalsin Bay	15 TONS	0	-	0	-	0	6/30
G101	Middle Bay	20 TONS	0	-	.8	-	.8	6/30
G102	Inshore Chiniak	10 TONS	0	-	1.5	100	1.5	6/30
G103	Spruce Island	10 TONS	0	-	0.6	100	0.6	6/30
DISTRICT TOTAL		1445 TONS	916.6		533.4		1450.0	
MAINLAND DISTRICT								
M010	North Mainland	(Exploration)	0	-	0	-	0	6/30
M020	Inner Kukak	65 TONS	0	-	17.6	100	17.6	6/30
M030	Outer Kukak ^a	-	0	-	0	-	0	6/30
M040	Inner Missak	(Exploration)	0	-	0	-	0	6/30
M040	Outer Missak ^a	-	0	-	0	-	0	6/30
M050	Inner Katmai	65 TONS	50.1	100	0	-	50.1	6/30
M060	Outer Katmai ^a	-	0	-	0	-	0	6/30
M070	Alinchak	50 TONS	6.0	100	0	-	6.0	6/30
M080	Puale Bay	(Exploration)	0	-	0	-	0	6/30
M090	Portage Bay	(Exploration)	0	-	0	-	0	6/30
M100	Outer Portage ^a	-	0	-	0	-	0	6/30
M110	Wide Bay	125 TONS	77.6	100	0	-	77.6	6/30
M120	Lower Shelikof	(Exploration)	0	-	0	-	0	6/30
DISTRICT TOTAL		305 TONS	133.7		17.6		151.3	
GRAND TOTAL		4550 TONS	4976.3		916.3		5892.6	

^a These are offshore management units which are not expected to yield herring of sac-roe quality. These units are more applicable to the food/bait fishery. (See Herring Food/Bait Fishery Management Plan.)

Table 5. Age Composition, by percent, of sac roe herring stocks, Kodiak Management Area, 1994.^a

Area	Harvest (tons)	Percent at Age										N
		2	3	4	5	6	7	8	9	10	11+	
Raspberry Straits	341	-	1.0	10.6	2.0	81.4	3.3	-	.3	1.3	-	301
Malina Bay	266	-	.5	5.5	1.1	85.2	5.5	-	1.6	.5	-	183
Paramanof Bay	419	-	.5	3.5	2.5	84.2	4.8	1.3	1.0	2.3	-	399
Viekoda Bay	58	.5	15.5	17.1	5.2	38.6	14.5	.7	2.1	3.3	2.6	427
Terror Bay	338	-	6.4	24.0	4.6	61.2	1.8	-	.8	1.3	-	392
Village Islands	356	-	.3	9.7	2.3	85.7	1.3	-	-	.6	-	308
W. Uganik Passage	81	-	12.4	26.6	2.7	55.3	2.1	-	-	.9	-	338
N.E. Arm Uganik	34	-	1.0	12.4	2.1	79.4	4.1	-	-	-	1.0	97
E. Arm Uganik	324	-	.6	5.5	2.2	87.3	3.9	-	-	.6	-	181
S. Arm Uganik	1093	-	1.6	9.4	1.6	81.3	2.3	.8	2.3	.8	-	128
Inner Uyak Bay	28	.4	54.6	16.3	4.0	19.4	4.4	-	-	.9	-	227
Inner Alitak Bay	103	.3	24.3	5.7	2.5	31.6	24.5	5.4	.3	3.3	2.2	367
Deadman Bay	370	-	19.9	5.2	.6	18.7	20.2	7.2	2.9	11.8	13.5	347
Sulua Bay	292	-	.7	2.4	1.4	84.7	9.2	.7	.3	.7	-	294
Upper Olga/Moser Bay	94	-	16.4	-	9.6	2.7	11.0	46.6	1.4	9.6	2.7	73
Barling Bay	62	-	6.3	4.7	-	9.4	75.0	-	-	1.6	3.1	64
E. Sitkalidak St.	283	.2	11.6	19.8	.2	24.9	40.5	.8	.2	1.2	.6	899
Inner Kiliuda Bay	173	-	2.2	5.4	1.6	11.8	74.5	2.2	.5	1.6	.3	372
Shearwater Bay	113	-	12.9	5.4	1.4	7.5	72.1	.7	-	-	-	147
Outer Uyak Bay	84	-	2.3	1.4	7.8	1.8	78.1	6.4	-	.5	1.8	219
Inner Uyak Bay	129	.5	4.3	3.4	4.8	2.9	72.0	4.3	1.4	2.4	3.9	207
Womens Bay	109	.3	14.4	9.7	3.8	5.4	59.2	1.0	.3	2.6	3.3	390
Kizhuyak Bay	15	-	43.5	11.1	-	31.5	12.0	-	.9	.9	-	108
Mid-Mainland	56	-	9.2	9.2	29.2	50.8	1.5	-	-	-	-	130
Inner Katmai Bay	5	.6	29.1	13.9	21.2	33.9	.6	-	.6	-	-	165
Wide Bay	78	-	23.8	21.3	14.9	36.6	2.5	-	-	-	1.0	202
26 Mgmt. Units	5,299	.1	11.5	11.6	3.8	42.4	24.5	1.9	.7	2.0	1.5	6,965

^a Of the 42 stocks exploited in 1994, samples were collected from 26 (62%). These 26 stocks yielded 5,299 tons or 90% of the management area's total harvest of 5,893 tons.

^b Of the 56 tons harvested in the mid-mainland area 50 tons came from the Inner Katmai Bay area.

Table 6. Comparison of age, weight, and length (AWL) of sac roe herring, Kodiak Management Area, 1989-1994.

Year	Age										Total Avg.	N
	2	3	4	5	6	7	8	9	10	11+		
% Age												
1989	.3	7.1	6.2	42.0	19.3	1.0	10.0	4.5	8.5	1.1		3,026
1990	.7	52.0	3.7	3.3	20.4	8.5	.6	3.0	2.6	5.2		7,672
1991	.05	26.3	49.4	2.6	1.4	8.7	5.2	.6	2.7	3.05		5,498
1992	.5	2.9	62.35	26.9	2.0	.7	2.0	1.2	.05	1.4		9,325
1993	.3	8.7	4.5	63.5	18.2	1.2	.2	1.6	.8	1.0		7,396
1994	.1	11.5	11.6	3.8	42.4	24.5	1.9	.7	2.0	1.5		6,965
Average Weights												
1989	60	85	130	176	224	251	269	271	276	284	199	2,569
1990	52	95	141	167	191	248	229	280	283	290	152	4,885
1991	53	81	137	169	191	221	255	261	301	292	153	4,239
1992	40	87	114	176	201	226	247	284	283	303	140	8,139
1993	58	94	134	144	203	226	226	250	281	310	156	6,852
1994	78	99	129	166	182	251	251	256	282	316	188	6,836
Average Lengths												
1989	168	185	210	227	247	254	259	259	260	263	235	3,026
1990	158	188	214	226	232	250	245	261	258	260	212	7,671
1991	166	184	215	225	235	244	251	257	266	263	215	5,497
1992	162	194	202	231	240	250	254	264	265	268	214	9,323
1993	161	191	211	216	240	247	244	254	261	264	219	7,394
1994	175	194	211	227	231	253	252	253	259	267	231	6,965

Table 7. Average weight in grams, by age, of sac roe herring stocks, Kodiak Management Area, 1994.^a

Area	Harvest (tons)	Average Weight at Age										Avg.	Total N
		2	3	4	5	6	7	8	9	10	11+		
Raspberry Straits	341	-	100	129	158	172	202	-	219	250	-	169	301
Malina Bay	266	-	64	133	136	177	213	-	231	276	-	177	183
Paramanof Bay	419	-	73	138	167	181	208	211	208	230	-	182	391
Viekoda Bay	58	-	94	118	153	169	214	269	254	273	295	163	425
Terror Bay	338	-	91	118	139	160	160	-	177	183	-	145	391
Village Islands	356	-	87	121	134	168	184	-	-	208	-	163	308
W. Uganik Passage	81	-	82	110	137	153	182	-	-	171	-	133	338
N.E. Arm Uganik	34	-	72	114	166	167	193	-	-	-	270	162	97
E. Arm Uganik	324	-	77	118	165	176	211	-	-	214	-	174	181
S. Arm Uganik	1093	-	113	139	162	177	197	297	199	288	-	176	122
Inner Uyak Bay	28	70	107	136	195	201	224	-	-	304	-	140	227
Inner Alitak Bay	103	66	97	137	182	207	248	256	243	304	326	194	367
Deadman Bay	370	-	95	149	178	202	248	261	291	298	317	221	347
Sulua Bay	292	-	101	172	213	212	242	243	326	233	-	214	293
Upper Olga/Moser Bay	94	-	94	-	166	171	212	230	210	274	266	203	73
Barling Bay	62	-	105	125	-	223	261	-	-	315	420	247	64
E. Sitkalidak St.	283	80	105	141	166	217	257	249	308	350	335	205	798
Inner Kiliuda Bay	173	-	107	144	210	220	258	261	311	309	311	245	372
Shearwater Bay	113	-	114	134	229	203	262	269	-	-	-	231	144
Outer Ugak Bay	84	-	122	140	195	244	256	270	-	337	337	249	218
Inner Ugak Bay	129	100	119	157	190	217	250	260	310	334	316	242	207
Womens Bay	109	86	108	134	175	199	259	259	319	287	322	222	390
Kizhuyak Bay	15	-	106	132	-	173	195	-	221	292	-	143	108
Mid-Mainland	56 ^b	-	74	123	161	188	223	-	-	-	-	165	129
Inner Katmai Bay	-	66	79	122	162	187	245	-	224	-	-	141	165
Wide Bay	78	-	94	136	163	192	213	-	-	-	277	154	197
26 Mgmt. Units	5,299	78	99	129	166	182	251	251	256	282	316	188	6,836

^a Of the 42 stocks exploited in 1994, samples were collected from 26 (62%). These 26 stocks yielded 5,299 tons or 90% of the management area's total harvest of 5,893 tons.

^b Of the 56 tons harvested in the mid-mainland area 50 tons came from the Inner Katmai Bay area.

Table 8. Average length in millimeters, by age, of sac roe herring stocks, Kodiak Management Area, 1994.^a

Area	Harvest (tons)	Average length at Age										Avg.	N
		2	3	4	5	6	7	8	9	10	11+		
Raspberry Straits	341	-	197	209	225	226	238	-	242	248	-	225	301
Malina Bay	266	-	177	208	214	227	239	-	251	258	-	227	183
Paramanof Bay	419	-	180	211	223	228	238	240	232	246	-	228	399
Viekoda Bay	58	155	193	207	221	229	247	258	255	260	263	224	427
Terror Bay	338	-	192	205	215	224	228	-	239	237	-	218	392
Village Islands	356	-	190	208	213	227	233	-	-	238	-	225	308
W. Uganik Passage	81	-	186	202	215	222	237	-	-	234	-	212	338
N.E. Arm Uganik	34	-	177	208	224	226	243	-	-	-	259	224	97
E. Arm Uganik	324	-	186	208	227	230	241	-	-	241	-	229	181
S. Arm Uganik	1093	-	205	215	230	231	235	268	241	275	-	230	128
Inner Uyak Bay	28	172	194	211	230	231	247	-	-	257	-	208	227
Inner Alitak Bay	103	177	189	207	229	235	247	249	242	262	269	228	367
Deadman Bay	370	-	191	216	230	235	247	252	257	259	264	236	347
Sulua Bay	292	-	201	226	244	242	252	254	269	247	-	242	294
Upper Olga/Moser Bay	94	-	187	-	225	226	244	246	249	261	266	236	73
Barling Bay	62	-	204	212	-	254	261	-	-	281	285	255	64
E. Sitkalidak St.	283	182	202	218	228	243	254	249	264	267	266	238	899
Inner Kiliuda Bay	173	-	203	219	246	245	257	259	280	273	278	253	372
Shearwater Bay	113	-	210	219	247	243	261	268	-	-	-	251	147
Outer Ugak Bay	84	-	210	211	238	253	256	263	-	272	278	254	219
Inner Ugak Bay	129	198	205	221	238	245	251	256	273	272	273	249	207
Womens Bay	109	184	200	213	231	239	252	258	273	263	271	240	390
Kizhuyak Bay	15	-	196	210	-	230	238	-	244	254	-	214	108
Mid-Mainland	56	-	182	209	226	235	250	-	-	-	-	225	130
Inner Katmai Bay	6	175	187	210	229	239	256	-	250	-	-	217	165
Wide Bay	78	-	193	215	227	236	245	-	-	-	272	221	202
26 Mgmt. Units	5,299	175	194	211	227	231	253	252	253	259	267	231	6,965

^a Of the 42 stocks exploited in 1994, samples were collected from 26 (62%). These 26 stocks yielded 5,299 tons or 90% of the management area's total harvest of 5,893 tons.

^b Of the 56 tons harvested in the mid-mainland area, 50 tons came from the Inner Katmai Bay area.

Table 9. Historical food/bait herring harvest for the Kodiak Management Area, 1912-1994.

YEAR	TONS	YEAR	TONS	YEAR	TONS
1912	20.0	1940	22677.0	1968	15.4
1913	0.0	1941	40083.5	1969	11.0
1914	0.0	1942	16791.0	1970	7.5
1915	0.0	1943	35352.0	1971	44.2
1916	70.0	1944	26835.0	1972	49.8
1917	137.9	1945	31114.0	1973	178.0
1918	118.4	1946	47505.9	1974	40.1
1919	259.7	1947	50743.0	1975	5.2
1920	45.9	1948	46428.0	1976	No Data
1921	944.9	1949	0.0	1977	No Data
1922	1482.6	1950	44132.5	1978	398.9
1923	321.5	1951	4299.0	1979	124.8
1924	4823.0	1952	1389.0	1980	380.7
1925	9997.0	1953	725.0	1981	18.0
1926	2680.9	1954	0.0	1982	326.0
1927	2592.9	1955	0.0	1983	33.4
1928	625.0	1956	13524.0	1984	123.0
1929	No Data	1957	21218.5	1985	102.0
1930	622.0	1958	1711.0	1986	213.0
1931	1000.0	1959	3831.0	1987	217.1
1932	3594.0	1960	0.0	1988	340.2
1933	2312.5	1961	0.0	1989	344.6
1934	60000.0	1962	0.0	1990	312.6
1935	No Data	1963	0.0	1991	215.3
1936	24748.0	1964	309.8	1992	311.5
1937	27659.3	1965	35.0	1993	837.0
1938	24522.0	1966	198.0	1994	677.0
1939	38600.5	1967	300.3		

Table 10. Commercial food/bait herring age-weight-length summary harvest for the Shelikof Strait, 1994/95.

Age (years)	Sex			Percent of Total	Weight			Std. Length			Adj. Tons	Tons	
	Male	Female	Unknown		Mean (g)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured			
0	-	-	-	-	-	-	-	-	-	-	-	-	
1	-	-	-	-	-	-	-	-	-	-	-	-	
2	20	21	-	41	3.9	82	15.2	41	175	8.6	41	9.91	25.68
3	32	36	-	68	6.5	140	17.7	68	208	9.1	68	28.09	42.60
4	86	96	-	183	17.4	180	22.2	183	224	9.0	183	97.21	114.63
5	66	74	-	140	13.3	213	26.4	140	236	10.1	140	87.70	87.70
6	275	237	2	514	48.9	235	26.9	512	241	8.9	514	356.20	356.20
7	22	16	-	38	3.6	254	30.5	38	248	10.3	38	28.44	28.44
8	11	12	-	23	2.2	301	29.6	23	260	6.9	23	20.38	20.38
9	3	5	-	8	.8	291	43.5	8	258	11.8	8	6.86	6.86
10	12	15	-	27	2.6	326	53.0	27	263	13.6	27	25.94	25.94
11+	5	5	-	10	1.0	366	32.0	10	234	7.9	10	10.79	10.79
Total	532	517	2	1052	100.0	217	54.4	1050	234	19.3	1052	671.51	719.21

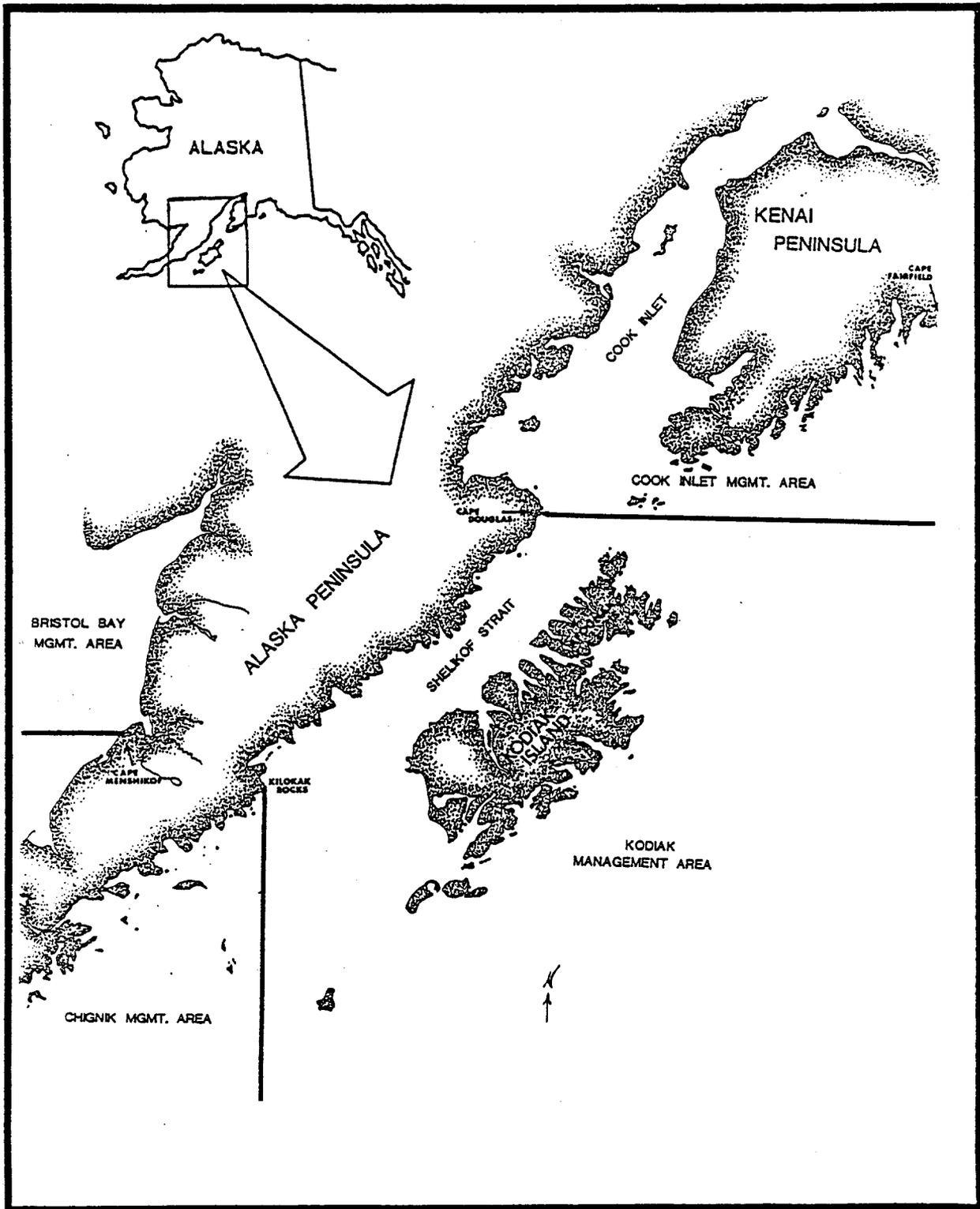


Figure 1. Map of southwestern Alaska emphasizing the Kodiak Management Area and it's relationship to surrounding management areas.

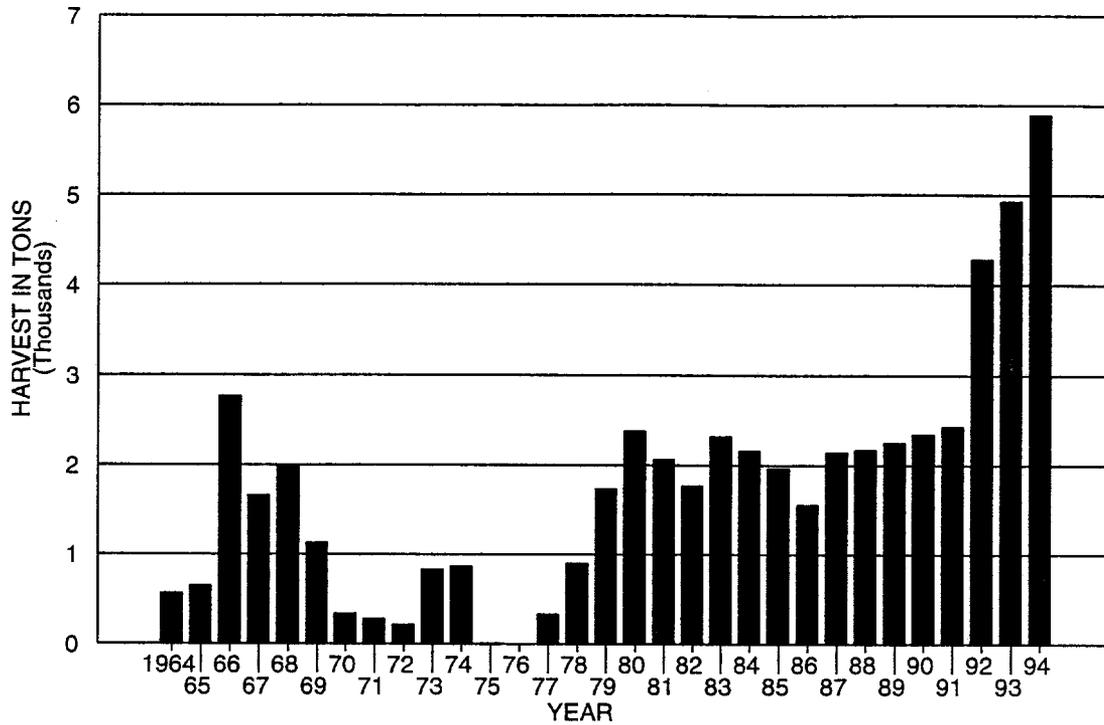


Figure 2. Sac roe herring harvests in the Kodiak Management Area, 1964-1994.

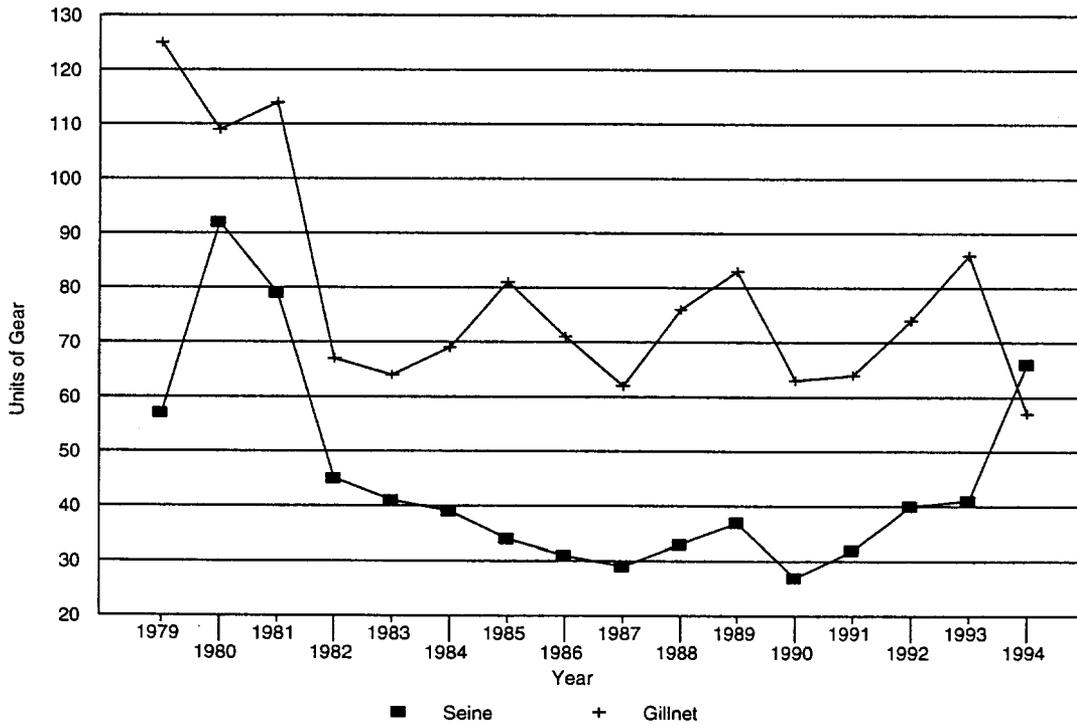
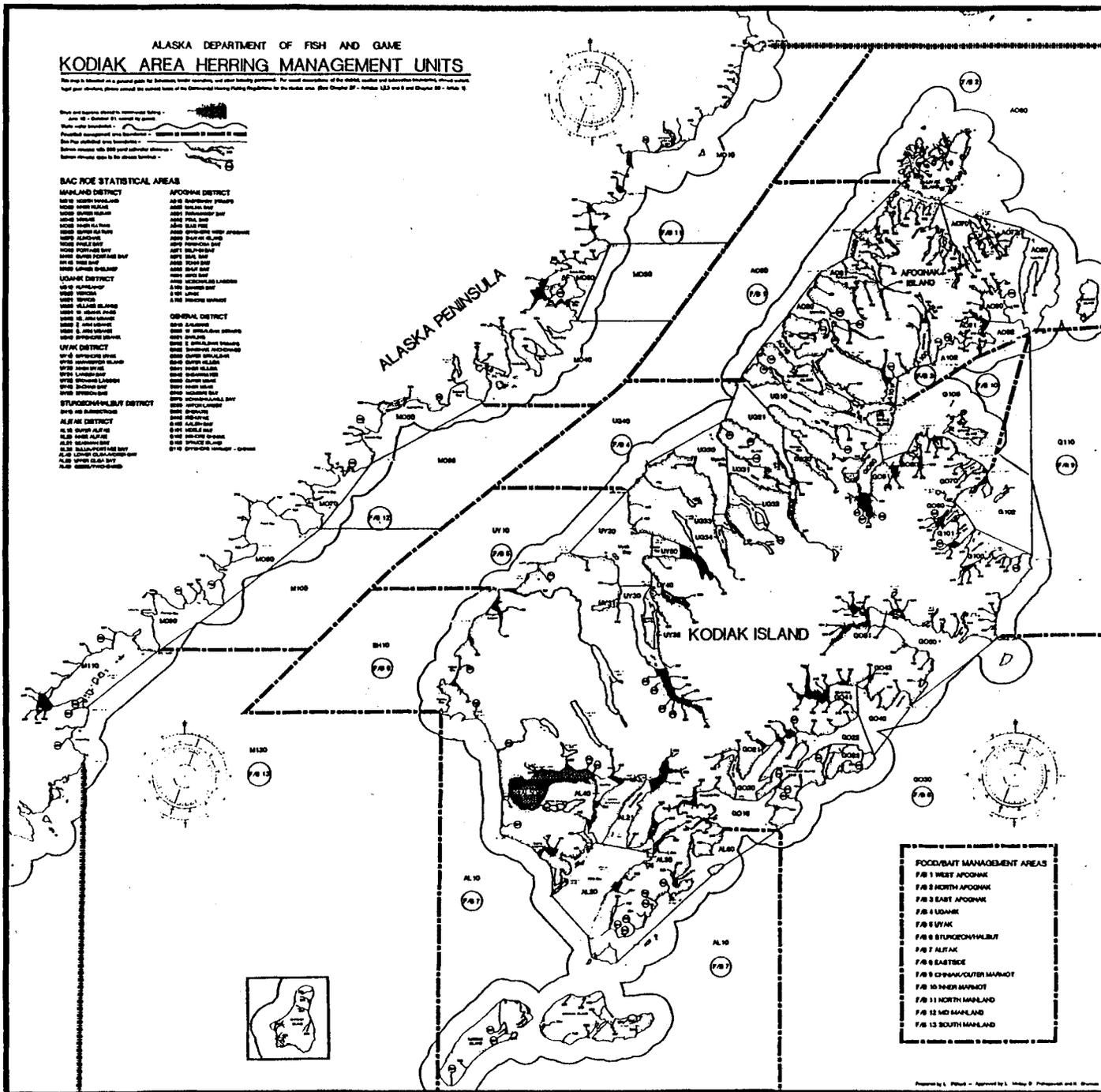


Figure 3. Number of units of each gear type which made landings in the Kodiak Management Area sac roe herring fishery, 1979-1994.

Figure 4. Map of the Kodiak Management Area with the management units for herring fishing shown.



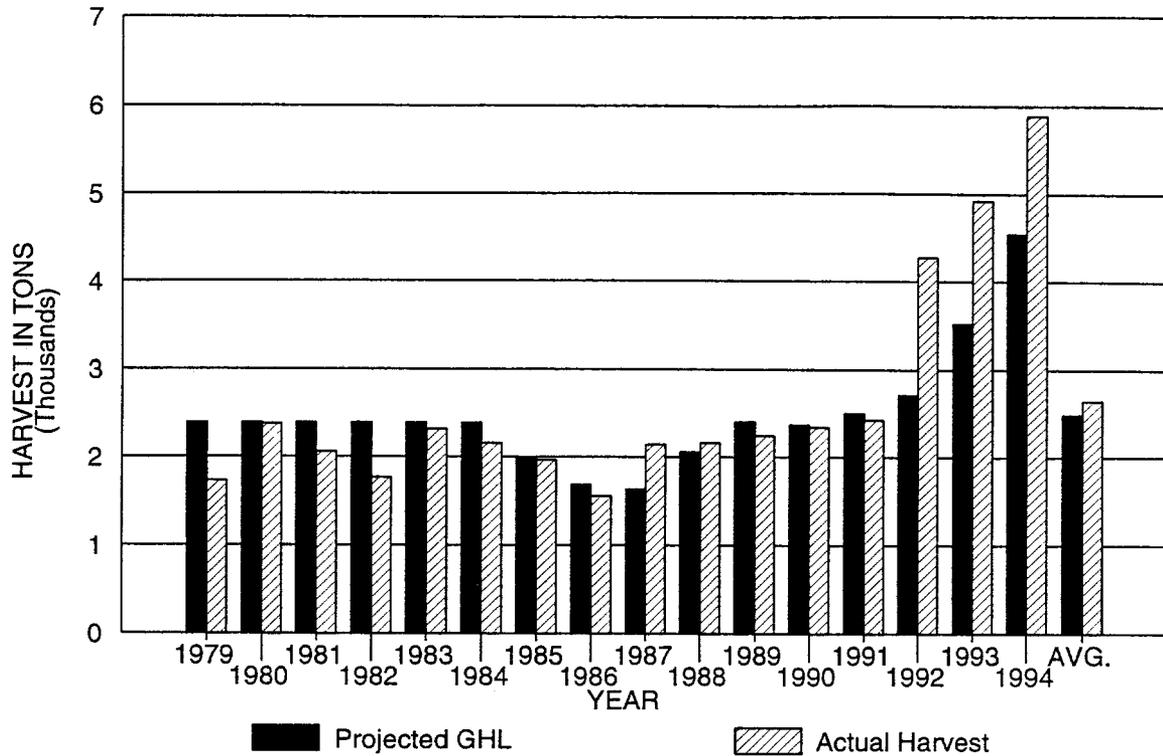


Figure 5. Comparison of the projected guideline harvest level (GHL) to the actual sac roe herring harvest in the Kodiak Management Area, 1979-1994.

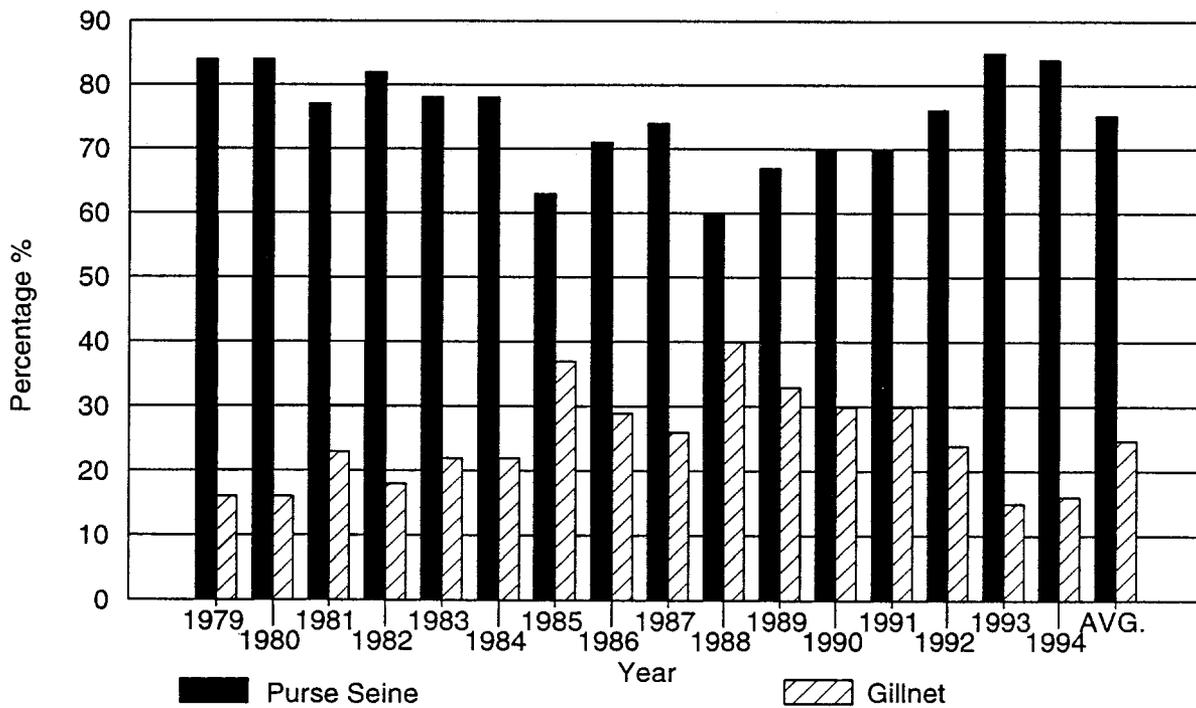


Figure 6. Percent of sac roe herring harvest by gear type in the Kodiak Management Area, 1979-1994.

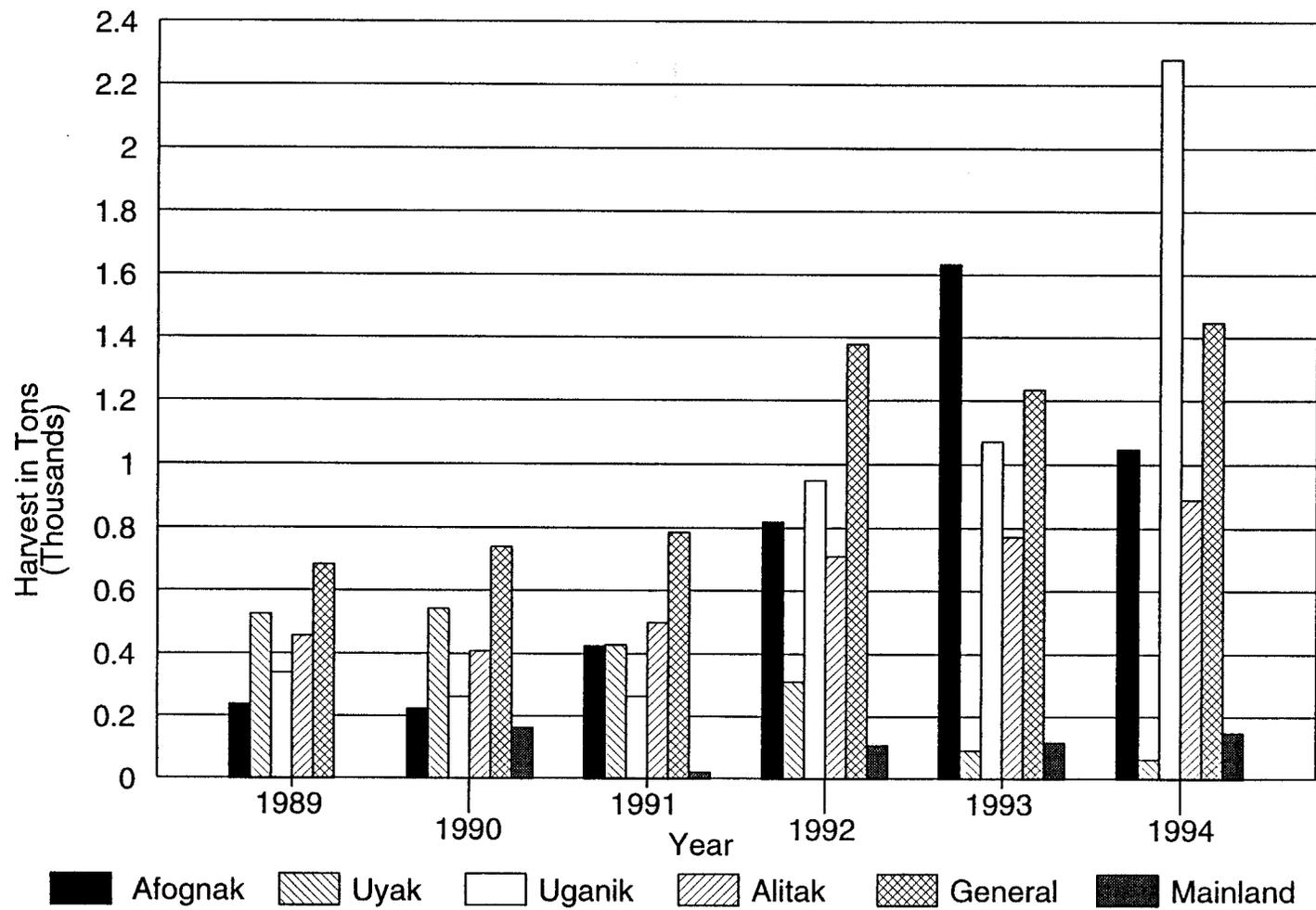


Figure 7. Sac roe herring harvest by district and year for the Kodiak Management Area, 1989-1994.

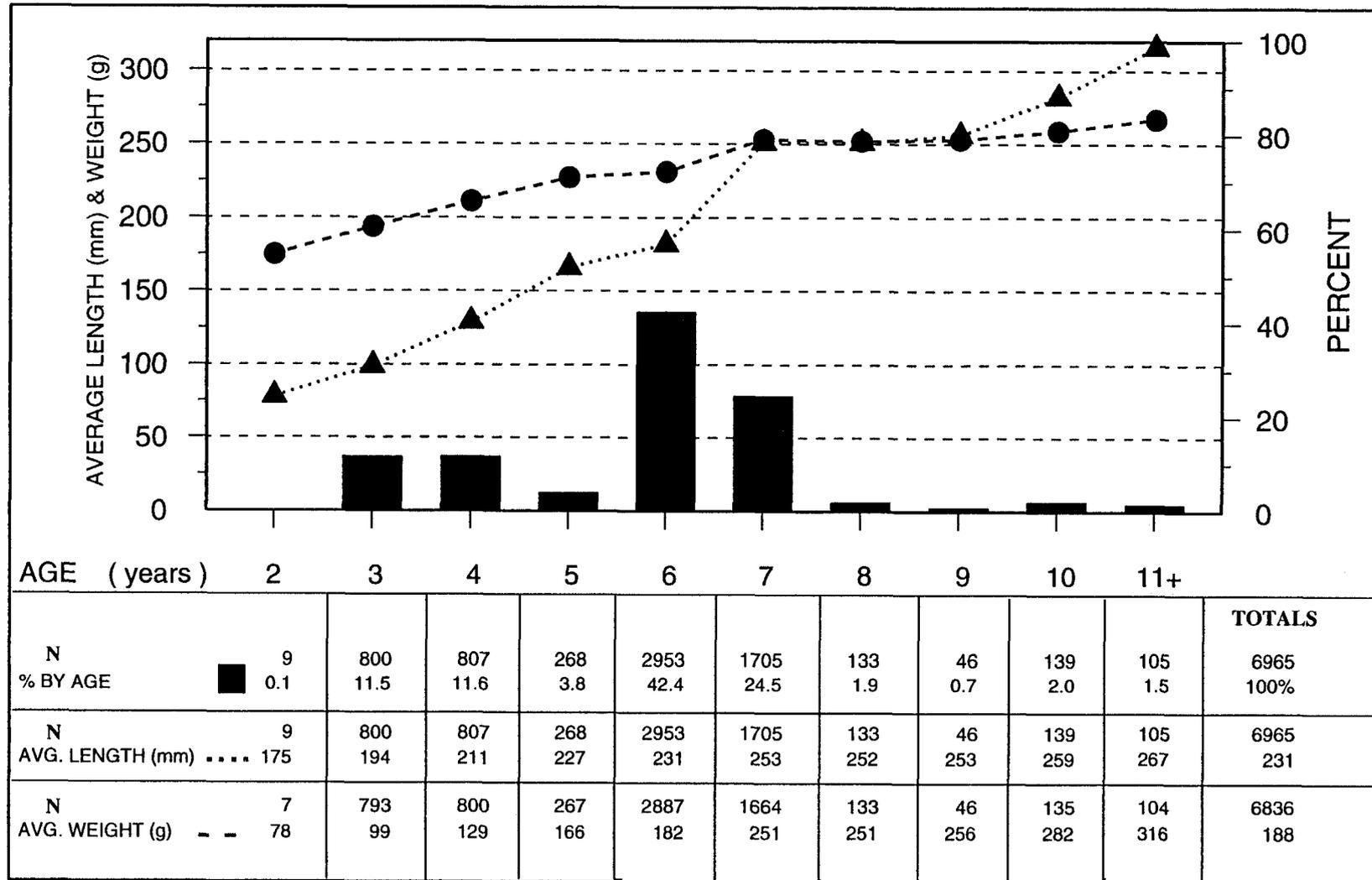


Figure 8. Summary of sac roe herring average length and weight at age, and percent of each age class in commercial catch samples, in the Kodial Management Area, 1994.

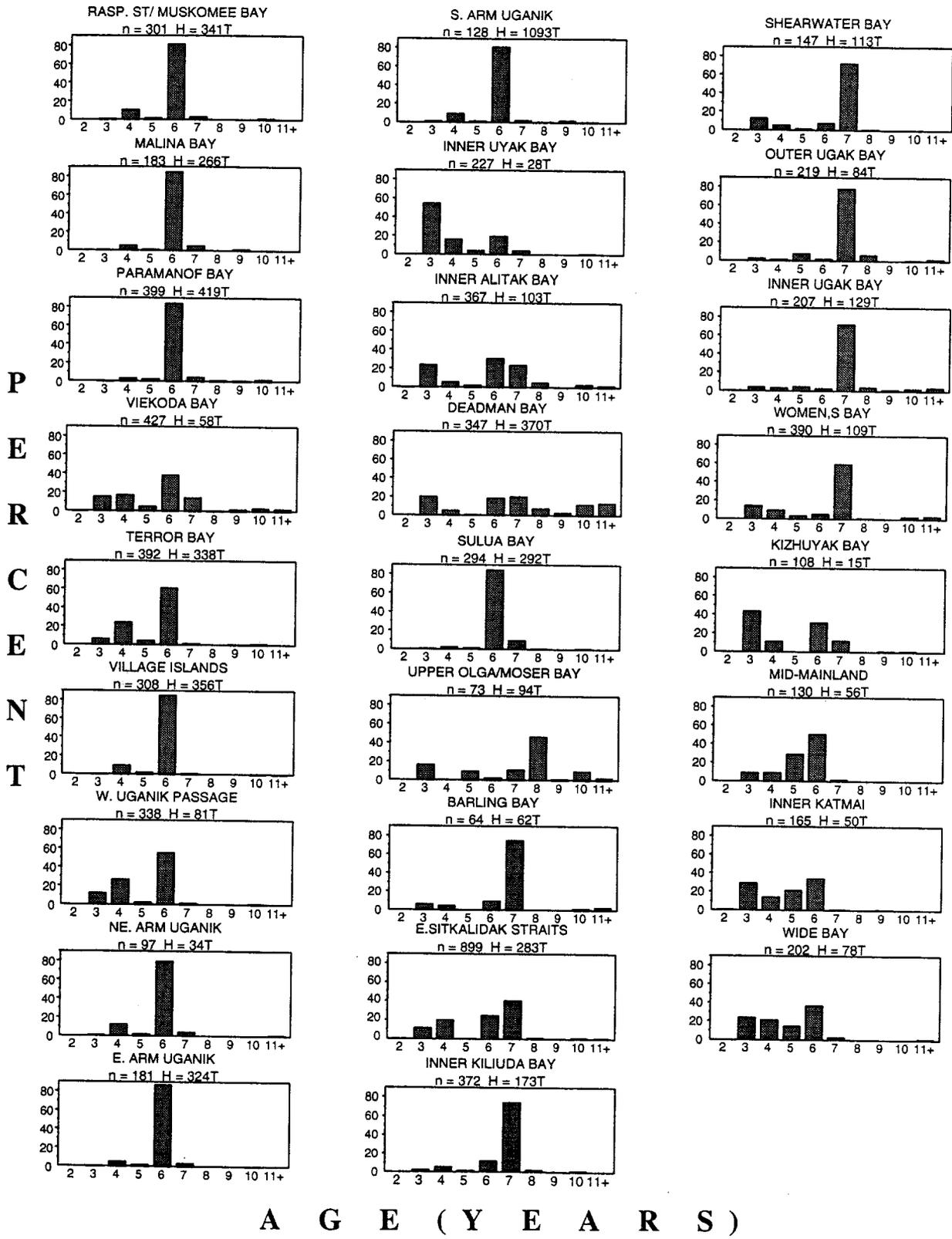


Figure 9. Age frequency (%) by management unit for the 1994 Kodiak sac roe herring fishery.

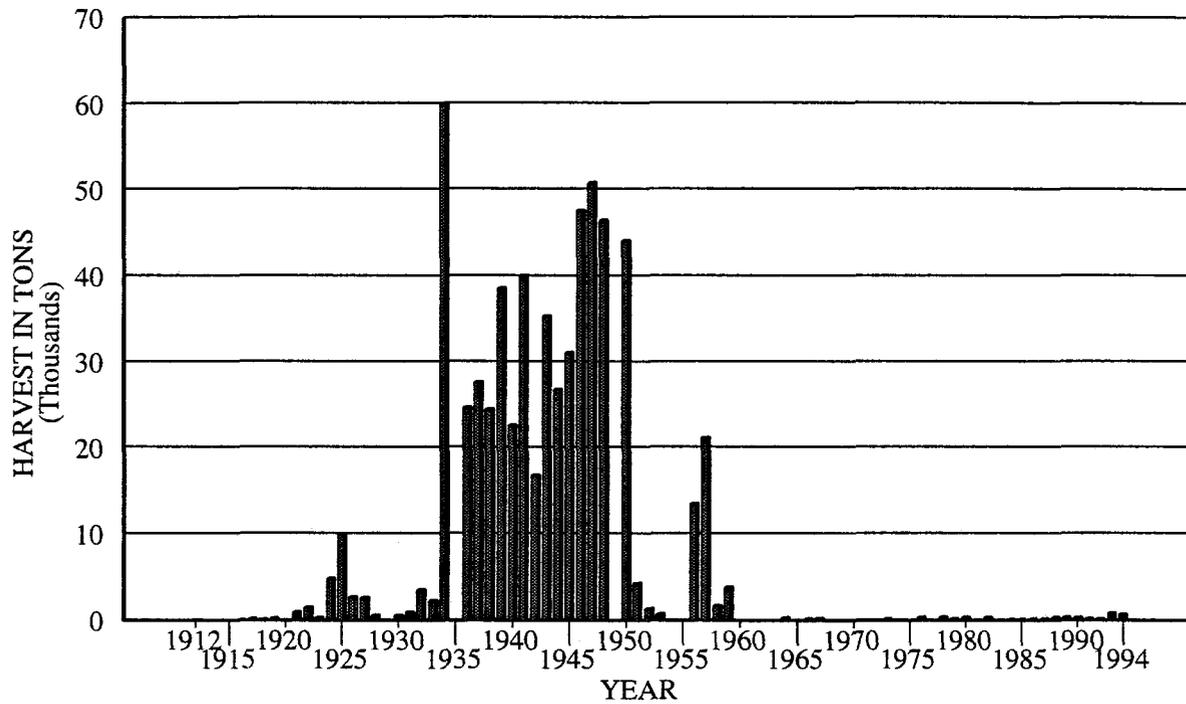


Figure 10. Historic food/bait herring harvest for the Kodiak Management Area, 1912-1994.

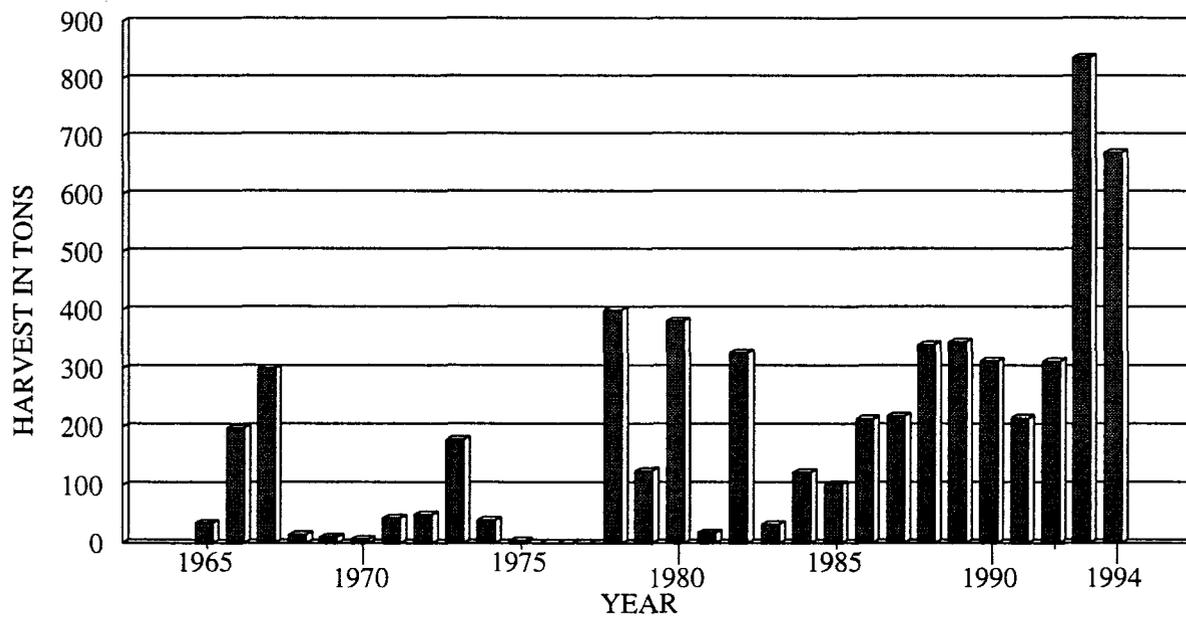


Figure 11. Historic food/bait herring harvest for the Kodiak Management Area, 1965-1994.

APPENDIX

**KODIAK MANAGEMENT AREA
SAC ROE HERRING HARVEST STRATEGY, 1994**

By

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OVERVIEW

This document is intended to provide commercial fishermen and buyers with the pertinent information the Alaska Department of Fish and Game (ADF&G) will use to manage the Kodiak commercial sac roe herring fishery.

The 1994 Kodiak sac roe herring fishery guideline harvest level (GHL) is 4,550 tons. The season will begin at 12:00 noon on April 15 and will close at 12:00 noon on June 30. Fishing periods will be 24 hours in duration starting at 12:00 noon on odd numbered days and ending at 12:00 noon on even numbered days.

The Kodiak sac roe herring fishery is currently managed within 75 management units. Historic herring harvests have occurred within 57 of these units and each unit is treated as an individual herring stock. Additionally, there are 11 exploratory management units which potentially support sac roe herring stocks and 7 management units located offshore that lack habitat suitable for spawning.

GHL's are established for each of the 57 management units. Inseason emergency order closures will occur as the GHL's for each unit are achieved. Unit closures may also be implemented prior to attaining the GHL if the fishery performance indicates that stock status is weaker than expected.

All inseason emergency order closures or reopenings will be broadcast on 4.125 mhz following the daily marine weather broadcasts at 8:00 a.m. and 6:00 p.m., also from (April 15- May 1) at 11:00 p.m. News releases will be available both inside and outside the Kodiak ADF&G building. Additionally, the most current closure announcements will be available 24 hours/day on the ADF&G record-a-phone at 486-4559.

All herring buyers/processors and all tender operators are required to register at the Kodiak ADF&G office before starting operations in the Kodiak Area. (Fishing vessels are not required to register.)

To prevent waste, permit holders are encouraged to check with their markets prior to fishing to determine acceptable minimum size/weight and roe percentages. All herring which are harvested during the sac roe season which are sold as bait or are discarded due to quality problems will be included as part of the total sac roe herring harvest.

INTRODUCTION

The Kodiak Area sac roe herring fishery has occurred annually since 1964, (Table 1). This fishery was an open-to-entry fishery from 1964 to 1980, under a moratorium to new entries from 1981 to 1984, and has been a limited entry fishery since 1985.

Since 1964 the harvest has averaged approximately 1,523 tons. Since 1979 the annual harvest has averaged about 2,356 tons and has provided a stable fishery with harvests ranging from 1,559 tons in 1986 to 4,929 in 1993, (Table 2). In recent years approximately 40 purse seiners and 80 gillnetters participate in this fishery annually. In 1993 the ex-vessel value of this fishery was estimated at \$2.7 million dollars.

This fishery targets on individual herring stocks immediately prior to spawning to ensure the greatest roe development and maximum roe recovery. Annual roe recovery for this fishery averages 10%.

This harvest strategy will outline the criteria for the management of the sac roe fishery.

GENERAL HARVEST POLICY

This commercial fishery is intended to occur in an orderly fashion, with minimal waste of the resource and within conservation limits as determined by ADF&G. Consequently, ADF&G will manage the fishery per the statewide general herring guideline harvest policy which provides for catches in traditional inshore areas, for the greatest roe recovery, and not to exceed a 20% exploitation rate on the available spawning biomass. Roe recovery standards are determined by industry personnel.

FISHERY MANAGEMENT

Districts and Management Units

The Kodiak Management Area (KMA) is divided into seven districts which define geographical areas used in managing the sac roe herring fishery. Each district is then broken into management units which are intended to define the spawning area used by a stock of herring or to define a geographical area. There are a total of 75 management units (Figure 1).

Guideline Harvest Levels

Harvest projections or guideline harvest levels (GHL's) were established for all management units which have produced consistent herring harvests in previous sac roe seasons. These GHL's are meant to reflect the status of a particular stock of herring by management unit and an estimate of harvest for the unit. These GHL's are **not guaranteed quotas** and the actual harvest may exceed or fall short of these projections. Criteria for establishing the GHL include; 1) 1993

expected biomass vs. actual biomass estimates, 2) average school size, 3) trends in age composition, 4) level of recruitment (age-3), 5) proportion of the spawning population age-5 and younger, 6) proportion of age-2 fish in the spawning biomass (indicator of future recruit strength) and 7) spawn observations (extent, frequency, amount deposited). This information is supplemented by fishery performance information, namely the expected vs. actual harvest timing, harvest duration, and harvest level. Some management units are designated "exploratory" and are assigned no GHL because these areas have had sporadic or no harvest of herring in past years. Inseason closures in these exploratory areas help to avoid excessive harvests.

1994 Harvest Projections

The 1994 KMA sac roe guideline harvest is approximately 4,550 short tons. The 1994 harvest may be at record or near record levels. The actual harvest will depend on the accuracy of the preseason forecast, and the weather conditions during the season. The GHL's by management unit (Table 3) will be used as an aid in making inseason management decisions. The GHL's are distributed by district as follows: Afognak District 1,005 tons, Uganik District 805 tons, Uyak District 185 tons, General District 1,445 tons, Alitak District 805 tons, and the Mainland District 305 tons. The forecasted harvest for the KMA is 8% of the projected statewide sac roe herring harvest of 56,100 tons, (Table 4).

Season Dates and Fishing Periods

The 1994 sac roe herring season will run from April 15 through June 30. Initial fishing periods will be 24 hours in duration and will begin at 12:00 Noon on odd numbered days and end at 12:00 Noon on even numbered days.

Because of the differential timing and abundance of Kodiak's various herring stocks, relatively high gear levels to GHL's, and the competition between gear types, this fishery is best served by a fixed opening date, which opens all units of the KMA collectively prior to any significant herring buildups. Staggered days of fishing provide clearly defined closed periods. These periods allow staff time to collect, summarize, and update all harvest data. The closures also allows for comparisons between reported and actual harvests.

INSEASON FISHERY MANAGEMENT

General Discussion

Inseason management of the sac roe fishery relies primarily on harvest data collected by ADF&G field crews stationed in management units where harvests are anticipated. During the 1994 season four ADF&G field crews and the ADF&G vessels R/V K-Hi-C and Resolution will monitor the fishery.

Generally, once the preseason GHL has been reached for a management unit, it is closed for the season. Due to the rapid pace at which some fisheries occur, inperiod closures are frequent. In management units which have an ADF&G field crew present, inperiod closures may occur with as little as 15 minutes advanced notification time. In management units without field crews inperiod closures may occur by, 1) announcement on single side band frequency 4.125 mhz following the daily marine weather forecast at 8:00 A.M. and 6:00 P.M., 2) field announcement by an ADF&G representative, or 3) by announcement by an ADF&G representative on single side band radio frequency 4.125 mhz at 11:00 P.M. from April 15 through May 1. Further details on Emergency Closures can be seen on page 6, "Getting the Word".

If at any time during the season it appears that preseason expectations were incorrect, GHL's can be adjusted above or below preseason levels. Consequently, units may be closed prior to reaching their GHL's or allow a harvest in excess of the GHL's depending on the assessed spawning biomass. During the regulatory season, April 15 to June 30, stocks which have been closed to harvesting may be reopened if it is determined by ADF&G that new fish have increased the available spawning biomass to the point that the initial exploitation rate has dropped below 10% for that stock, (Table 1). Any reopenings will require confirmation that the "new" fish are not juvenile herring, post spawners, or other forage fish and that ADF&G has the ability to monitor and regulate the reopening "on the grounds". At least 24 hours notice will be given prior to any reopenings.

Actual fishery performance is used to evaluate the health of a particular fishery. Key fishery performance components include: 1) duration of fishing time to harvest the management unit GHL, 2) catch per unit of effort, and 3) quality of herring (i.e. roe recovery percentages, weights, and age compositions). All fishermen, spotter pilots, and processors are encouraged to provide the ADF&G management staff with any information on stocks to improve the management of the fishery.

Changes in Fishing Period Duration

Depending on effort levels, harvest rates, and ADF&G's ability to monitor the fishery, the length of fishing periods during the first two weeks of the season may be reduced. Any changes to the "normal" 24 hour periods will be announced by emergency order.

Later in the season (usually early June) when fleet size and exploitable stocks are fewer, fishing periods may be modified to more adequately harvest late spawning stocks. However, ADF&G's ability to monitor this fishery is limited in late May and June, and this factor will be considered in modifying the fishing periods.

Management Unit Boundary Clarification

Over the past several years some management units have experienced harvests in new locations which may indicate the presence of a new herring stock. To allow for a traditional fishery, along with the development of new fisheries, additional boundaries within existing management units may be needed. If needed these inseason boundaries will be put in affect by an emergency order. Maps which depict these potential inseason boundaries by district can be seen in (Figures 2-5).

Catch Reporting

Processors and independent tender operators are required to provide timely daily tallies of herring deliveries by management unit and accurate estimates of herring onboard tenders that have not yet delivered to the cannery. Timely and accurate harvest reports from ADF&G field crews, fishermen, spotters, and processors are critical in order to assess herring harvests and guide the management of the fishery. Inaccurate or late information could result in premature area closures. To date industry cooperation has been excellent in support of this fishery.

Individual code sheets will be provided to each tender operator or processor required to report catches on a daily basis by radio. Each tender operator and buyer must register with the Department prior to fishing and will be given a packet containing regulations, statistical charts, etc.

ADF&G Field Crews/Fisher Cooperation

The crews aboard the Department's R/V K-Hi-C and Resolution and seasonal personnel in remote tent camps will assist the Area Management Biologists, by making frequent fishermen contacts to collect data on harvest levels and rates, fleet movements, and fleet observations of herring

herring concentrations, (Table 5). Fisher cooperation will be appreciated when Department personnel request herring samples from their commercial catch. Samples of juvenile herring inadvertently caught will also be gladly accepted by all ADF&G personnel. Samples will be used primarily for monitoring age composition, and when used with other stock performance indicators, will assist in determining stock status. Copies of historical age data by stock are available at the Kodiak ADF&G office.

ADF&G field crews will also monitor and map spawning activities, and solicit information on commercial sightings to supplement information gathered by ADF&G. Fishermen and spotter pilots are encouraged to provide biomass and spawning information, which will remain confidential. Past cooperation has been excellent and has helped evaluate stock status and gain critical management information.

Emergency Order Announcements: "Getting the Word"

By regulation, both purse seine and gillnet gear are allowed to fish in any open area. This allows for a wide dispersion of gear throughout the management area. Consequently, it is important for the fleet to be aware of any changes in closures or reopenings. This can be accomplished by: 1) personal contact with the herring management staff in Kodiak via office visits, or telephone at 486-1830, or radio-telephone, 2) contact with ADF&G field personnel and ADF&G vessels, the R/V K-Hi-C and Resolution, on VHF Channel 6 or SSB on 3.230 mhz, 3) contacting any local herring processor and having them transmit the latest Kodiak herring emergency order, 4) **calling the 24-hour recorded message phone at 486-4559**, 5) listening for any emergency order update which will be broadcast following the daily 8:00 A.M. and 6:00 P.M. marine weather broadcasts, on 4.125 mhz or by ADF&G announcement at 11:00 p.m. from April 15 through May 1 on 4.125 mhz, 6) obtaining a copy of the most recent emergency order, which are posted outside the entrance to the Kodiak Fish and Game building, and 7) listening to the Fish and Game reports broadcast over the local AM and FM radio stations (consult stations for broadcast times). No announcements will be given via VHF due to the limited broadcast range from the Kodiak office, however special consideration may be given to the Chiniak Bay fishery.

Inperiod closure announcements for management units do occur. Because of the extensive announcements associated with this fishery, **it is recommended that fishermen document the latest E.O. announcement broadcast by either marking a chart or making a tape recording of the broadcast.**

REGULATORY SUMMARY

Regulation Booklet and Statistical Chart

There are no regulation changes for the 1994 sac roe herring season. ADF&G annually publishes a regulation booklet, which details Kodiak and statewide herring regulations. The regulation booklet and a statistical chart which illustrates the Kodiak herring management units are available at the Kodiak Fish and Game Office.

Several regulation changes adopted in 1993 by the Alaska State Board of Fisheries and other pertinent regulations are as follows;

Gear

5 AAC 27.515 Gear.

(a) Herring may be taken only by seines, gillnets, and trawls, except that beach seines and trawls may not be used to take herring during the herring sac roe season.

(b) A herring fishing vessel may operate or assist in operating, or have aboard it, only one legal limit of herring fishing gear in the aggregate, except that a herring fishing vessel may tow or transport other herring fishing vessels containing those vessels own gear.

(g)The use of leads with any gear used for commercial herring fishing is prohibited during the herring sac roe season.

Seine Specifications and Operations

5 AAC 27.525. Seine specifications and operations.

(a) From April 1 through July 31, no purse seine may be more than 1,025 meshes in depth, including meshes used as chaffing gear, or more than 100 fathoms in length.

(d)From April 1 through July 31, an Area K CFEC sac roe seine permit holder may use, to take herring, only the vessel identified on the permit, unless the permit holder has registered, in person, at the Department's Kodiak office, to use a replacement vessel. Only one replacement seine vessel may be registered by a CFEC permit holder at a time.

Gillnet Specifications and Operations

5 AAC 27.520. Gillnet specifications and operations.

- (a) The aggregate length of herring gillnets in use by a CFEC permit holder may not exceed 150 fathoms.
- (b) The interim-use or entry permit holder **must be physically present** while the gillnet is being fished.
- (c) Each drift gillnet in operation must have a buoy at one end and the opposite end must be attached to the fishing vessel. Each set net in operation must be anchored and **buoyed** at both ends. **All buoys must be at least 10 inches in diameter and all buoys used on an individual gillnet must be of the same color. Each buoy must be plainly and legibly marked with the permanent vessel license plate number (ADF&G number) of the vessel operating the gear.** The buoy may bear only a single number and this number must be that of the vessel used in operating the gear. The number must be painted on the top one-third of the buoy in numerals at least four inches in height, one-half inch in width and in a color contrasting to that of the buoy. The buoy markings must be visible on the buoy above the water surface. **Set gillnets must have a buoy** spaced every 25 fathoms along the net and the buoys must be floating on the surface of the water.

Extra Time For Gillnetters

Additionally as stated in 5AAC 27.520 (d) when the following conditions exist, herring gillnetters are allowed a **two hour** grace period before having to completely remove their gear from the water.

1. Herring gillnets may remain in the water up to **two hours** after the "primary closure time" for those fishing periods having fishing time of three hours or less.
2. Herring gillnets may remain in the water up to **two hours** after the announced "primary" closure time for those fishing periods greater than three hours in length, where the announcement occurs less than three hours before the scheduled "primary closure time" of the fishing period.

The "primary closure time" is the time at which all seine gear must have completed fishing. When it applies, the "secondary closure time", i.e. at the end of the two hour grace period for gillnet gear, **ALL GILLNETS MUST BE COMPLETELY OUT OF THE WATER AND NO GILLNET GEAR MAY BE SET OR RESET AFTER THE "PRIMARY CLOSING TIME".**

Waters Closed to Herring Fishing

5 AAC 27.530. Waters closed to herring fishing. (a) During the period July 1 through October 31, herring may not be taken in waters described in 5 AAC 18.350 and 5 AAC 39.290. (Waters closed to salmon fishing).

(b)(1) Brown's Lagoon: all waters, beginning at the seaward entrance, are closed to herring fishing from April 15 through June 30.

(3) Uganik Island: lagoons on Uganik Island described as follows are closed to herring fishing from April 15 through June 30:

(A) south and west of a line from (57°51'06" N. lat. 153°13'32" W. long.), to (57°52'07" N. lat., 153°15' W. long.);

(B) north of a line from (57°49'22" N. lat., 153°17'39" W. long.), to (57°49'28" N. lat., 153°19'18" W. long.)

(C) east of a line from (57°50'51" N. lat., 153°19'11" W. long.), to (57°50'04" N. lat., 153°19'11" W. long.);

REGISTRATION REQUIREMENTS

Tenders and Processors

The tender registration procedure requires:

- Each tender operator and processor must register with the Kodiak ADF&G office either in person or by an authorized agent for that tender or processor.
- Registration must occur prior to taking fish on board the tender or taking fish at the processing plant.

-(See Regulation 5 AAC 27.540 of the Commercial Herring Regulations for additional information. Note: This regulation will be strictly enforced.

Details of tender and floating processor reporting requirements will be finalized at the time of registration.

Fishing Vessels

There are **no special registration requirements** for either seine or gillnet vessels unless a purse seine permit holder intends to use a different vessel than is listed on their permit card. (See regulation 5AAC 27.525)

Herring Size Limits

As stated in 5AAC 27.536, no CFEC herring seine permit holder may sell or have aboard a vessel any herring that were taken during the sac roe herring season if the number of individual herring per 50 lbs. of net weight exceeds 250 fish (approximately 91 grams average weight).

TO PREVENT WASTE, PERMIT HOLDERS ARE ENCOURAGED TO CHECK WITH THEIR MARKETS PRIOR TO FISHING TO DETERMINE THE ACCEPTABLE MINIMUM SIZE/WEIGHT AND ROE PERCENTAGES. ALL HERRING WHICH ARE HARVESTED DURING THE SAC ROE SEASON WHICH ARE SOLD AS BAIT OR ARE DISCARDED DUE TO QUALITY PROBLEMS WILL BE INCLUDED AS PART OF THE TOTAL SAC ROE HARVEST.

Aircraft

There are no restrictions on the use of aircraft.

Table 1. Historical harvest by gear type for the Kodiak sac roe herring fishery, 1964-1993.

Year	Total Harvest Tons	Seine Tons	Gillnet	Number of Companies	Number of Vessels		
					Seine	Gillnet	Total
1964	568	568		2	5		5
1965	657	657		2	8		8
1966	2,769	2,769		4	11		11
1967	1,662	1,662		4	5		5
1968	2,001	2,001		4	10		10
1969	1,130	1,130		9	21		21
1970	342	342		5	13		13
1971	284	284		2	4		4
1972	215	215		1	4		4
1973	831	831		4	11		11
1974	868	868		4	26		26
1975	8	8		3	2		2
1976	5	5		1	1		1
1977	338	338		3	11		11
1978	904	881	23	7	28	7	35
1979	1,735	1,457	278	8	57	125	182
1980	2,383	2,009	374	9	92	109	201
1981	2,065	1,596	469	9	79	114	193
1982	1,771	1,447	324	6	45	67	112
1983	2,319	1,797	522	7	41	64	105
1984	2,163	1,691	472	7	39	69	108
1985	1,968	1,244	724	7	34	81	115
1986	1,558	1,111	448	8	31	71	102
1987	2,146	1,591	555	8	29	62	91
1988	2,171	1,304	868	6	33	76	109
1989	2,249	1,513	736	6	37	83	120
1990	2,347	1,644	703	6	27	63	90
1991	2,432	1,697	735	6	32	64	96
1992	4,283	3,260	1,023	6	40	74	114
1993	4,929	4,203	726	8	41	86	127
Total	49,101	40,123	8,980				
Average	1,637	1,337	561				

Table 2. Kodiak Management Area sac roe herring fishery industry summary, 1979-1993.

Year	Gear Type	Units of Gear	Est. Number Landings	Est. Harvest (Tons)	Est. Harvest Percent	Est. Total Value	Est. Average Earnings	Average Tons/Boat	Average Tons/Landings	Average Landings/Boat
1979	Purse Seine	57	-	1457.2	84	\$2,185,788	\$38,347	25.6	-	-
	Gillnet	125	-	277.9	16	\$416,670	\$3,333	2.2	-	-
	TOTAL	182	-	1735.1	100	\$2,602,458	-	-	-	-
1980	Purse Seine	92	-	2009.0	84	\$1,377,987	\$14,978	21.8	-	-
	Gillnet	109	-	374.0	16	\$280,423	\$2,573	3.4	-	-
	TOTAL	201	-	2383.0	100	\$1,685,410	-	-	-	-
1981	Purse Seine	79	207	1596.2	77	\$1,137,764	\$14,402	20.2	7.7	2.6
	Gillnet	114	406	469.2	23	\$395,640	\$3,471	4.1	1.2	3.6
	TOTAL	193	613	2065.4	100	\$1,633,404	-	-	-	-
1982	Purse Seine	45	138	1447.0	82	\$801,840	\$17,819	32.2	10.5	3.1
	Gillnet	67	191	323.6	18	\$182,160	\$2,719	4.8	1.7	1.8
	TOTAL	112	329	1770.6	100	\$1,533,404	-	-	-	-
1983	Purse Seine	41	164	1796.9	78	\$1,437,520	\$35,061	43.8	11	4
	Gillnet	64	284	521.6	22	\$417,280	\$6,520	8.2	1.8	4.4
	TOTAL	105	448	2318.5	100	\$1,854,800	-	-	-	-
1984	Purse Seine	39	138	1691.2	78	\$1,352,960	\$34,691	43.3	12.3	3.5
	Gillnet	69	212	471.5	22	\$377,200	\$5,467	6.8	2.2	3.1
	TOTAL	108	350	2162.7	100	\$1,730,160	-	-	-	-
1985	Purse Seine	34	118	1244.2	63	\$1,119,780	\$32,935	36.6	10.5	3.5
	Gillnet	81	348	723.5	37	\$651,150	\$8,039	8.9	2.1	4.3
	TOTAL	115	466	1967.7	100	\$1,770,930	-	-	-	-
1986	Purse Seine	31	132	1110.8	71	\$1,054,310	\$34,010	35.8	8.4	4.3
	Gillnet	71	385	448.6	29	\$426,170	\$6,002	6.3	1.2	5.4
	TOTAL	102	517	1559.4	100	\$1,480,480	-	-	-	-
1987	Purse Seine	29	122	1591.3	74	\$1,591,300	\$54,872	54.9	13	4.2
	Gillnet	62	411	554.6	26	\$554,600	\$8,945	9	1.35	6.6
	TOTAL	91	533	2145.9	100	\$2,145,900	-	-	-	-
1988	Purse Seine	33	169	1303.6	60	\$1,694,550	\$51,350	39.5	7.7	5.1
	Gillnet	76	555	867.2	40	\$1,127,620	\$14,837	11.4	1.6	7.3
	TOTAL	109	724	2170.8	100	\$2,822,170	-	-	-	-

-Continued-

Table 2. (page 2 of 2)

Year	Gear Type	Units of Gear	Est. Number Landings	Est. Harvest (Tons)	Est. Harvest Percent	Est. Total Value	Est. Average Earnings	Average Tons/Boat	Average Landings/Boat
1989	Purse Seine	37	171	1512.6	67	\$1,285,710	\$34,749	40.9	8.8
	Gillnet	83	627	736.0	33	\$625,600	\$7,537	8.9	1.2
	TOTAL	120	798	2248.6	100	\$1,911,310			4.6
1990	Purse Seine	27	156	1644.0	70	\$1,397,400	\$51,724	60.9	10.5
	Gillnet	63	544	703.0	30	\$597,550	\$9,652	11.2	1.3
	TOTAL	90	700	2347.0	100	\$1,994,950			8.6
1991	Purse Seine	32	169	1697.0	70	\$1,442,450	\$45,077	53.0	10
	Gillnet	64	587	735.0	30	\$624,750	\$9,762	11.5	1.3
	TOTAL	96	756	2432.0	100	\$2,067,200			5.3
1992	Purse Seine	40	185	3260.0	76	\$1,630,000	\$40,750	81.5	17.6
	Gillnet	74	706	1023.0	24	\$511,500	\$6,912	13.8	1.4
	TOTAL	114	891	4283.0	100	\$2,141,500			9.5
1993	Purse Seine	41	237	4203.0	85	\$2,312,000	\$56,380	102.5	17.7
	Gillnet	86	294	726.0	15	\$399,000	\$4,640	8.4	2.5
	TOTAL	127	531	4929.0	100	\$2,711,000			3.4

57
13

Table 3. Sac roe herring fishery guideline harvest levels by stock, Kodiak Management Area, 1994.

STAT. AREA	MGMT. UNITS	1994 GUIDELINE HARVEST LEVEL	REQUIRED SPAWNING BIOMASS	
			@10% EXPLOITATION	@20% EXPLOITATION
AFOGNAK DISTRICT				
A010	Raspberry St.	290 TONS	2,900 Tons	1,450 Tons
A020	Malina Bay	180 TONS	1,800 Tons	900 Tons
A031	Paramanof Bay	250 TONS	2,500 Tons	1,250 Tons
A032	Foul Bay	75 TONS	750 Tons	375 Tons
A040	Devils Inlet	10 TONS	100 Tons	50 Tons
A040	Blue Fox	50 TONS	500 Tons	250 Tons
A050	Offshore W. Afog. ^a	-	- ^a	- ^a
A060	Shuyak Is.	20 TONS	200 Tons	100 Tons
A070	Perenosa Bay	15 TONS	150 Tons	75 Tons
A071	Delphin Bay	10 TONS	100 Tons	50 Tons
A072	Seal Bay	10 TONS	100 Tons	50 Tons
A080	Tonki Bay	15 TONS	150 Tons	75 Tons
A090	Izhut Bay	15 TONS	150 Tons	75 Tons
A091	Kittoi Bay	10 TONS	100 Tons	50 Tons
A092	MacDonalds Lagoon	10 TONS	100 Tons	50 Tons
A100	Danger Bay	25 TONS	250 Tons	125 Tons
A101	Litnik	10 TONS	100 Tons	50 Tons
A102	Duck Bay	10 TONS	100 Tons	50 Tons
District Totals		1,005 TONS	10,050 Tons	5,025 Tons
UGANIK DISTRICT				
UG10	Kupreanof	10 TONS	100 Tons	50 Tons
UG20	Viekoda	160 TONS	1,600 Tons	800 Tons
UG21	Terror ^d	180 TONS	1,800 Tons	900 Tons
UG30	Village Island ^d	200 TONS	2,000 Tons	1,000 Tons
UG31	W. Uganik Pass	75 TONS	750 Tons	375 Tons
UG32	NE Arm Uganik	30 TONS	300 Tons	150 Tons
UG33	E. Arm Uganik	75 TONS	750 Tons	375 Tons
UG34	S. Arm Uganik	75 TONS	750 Tons	375 Tons
UG40	Offshore Uganik ^a	-	- ^a	- ^a
District Totals		805 TONS	8,050 Tons	4,025 Tons
UYAK DISTRICT				
UY10	Offshore Uyak ^a	-	- ^a	- ^a
UY20	Harvester Island	10 TONS	100 Tons	50 Tons
UY30	Inner Uyak	50 TONS	500 Tons	250 Tons
UY32	Browns Lagoon	30 TONS	300 Tons	150 Tons
UY31	Larsen Bay	10 TONS	100 Tons	50 Tons
UY40	Zachar Bay	40 TONS	400 Tons	200 Tons
UY50	Spiridon Bay	45 TONS	450 Tons	225 Tons
District Totals		185 TONS	1,850 Tons	925 Tons

-Continued-

Table 3. (page 2 of 3)

STAT. AREA	MGMT. UNITS	1994 GUIDELINE HARVEST LEVEL	REQUIRED SPAWNING BIOMASS		
			@10% EXPLOITATION	@20% EXPLOITATION	
ALITAK DISTRICT					
AL10	Outer Alitak	(Exploration)		b	b
AL20	Inner Alitak	75 TONS	750 Tons		375 Tons
AL21	Outer Deadman Bay ^d	150 TONS	1,500 Tons		750 Tons
AL21	Inner Deadman Bay ^d	250 TONS	2,500 Tons		1,250 Tons
AL30	Sulua/Portage Bay	190 TONS	1,900 Tons		950 Tons
AL40	Lower Olga/Moser ^c	20 TONS	200 Tons		100 Tons
AL40	No. Upper Olga Bay ^c	10 TONS	100 Tons		50 Tons
AL50	So. Upper Olga Bay ^c	110 TONS	1,100 Tons		550 Tons
AL60	Geese/Twoheaded	(Exploration)		b	b
District Totals		805 TONS	8,050 Tons		4,025 Tons
STURGEON/HALIBUT DISTRICT					
SH10	Sturgeon/Halibut	(Exploration)		b	b
GENERAL DISTRICT					
GO10	Kaiugnak ^d	20 TONS	200 Tons		100 Tons
GO20	W. Sitkalidak St. ^d	300 TONS	3,000 Tons		1,500 Tons
GO20	SW Sitkalidak St.	120 TONS	1,200 Tons		600 Tons
GO21	Barling	50 TONS	500 Tons		250 Tons
GO22	E. Sitkalidak St.	290 TONS	2,900 Tons		1,450 Tons
GO23	Tanginak Anchorage	15 TONS	150 Tons		75 Tons
GO30	Outer Sitkalidak	(Exploration)		b	b
GO40	Outer Kiliuda	(Exploration)		b	b
GO41	Inner Kiliuda (East) ^d	80 TONS	800 Tons		400 Tons
GO41	Inner Kiliuda (West) ^d	60 TONS	600 Tons		300 Tons
GO42	Shearwater	75 TONS	750 Tons		375 Tons
GO52	Pasagshak	30 TONS	300 Tons		150 Tons
GO50	Outer Ugak	60 TONS	600 Tons		300 Tons
GO51	Inner Ugak	120 TONS	1,200 Tons		600 Tons
GO60	Womens Bay	100 TONS	1,000 Tons		500 Tons
GO70	Monashka/Mill B.	(Exploration)		b	b
GO80	Anton Larsen	10 TONS	100 Tons		50 Tons
GO81	Sheratin	10 TONS	100 Tons		50 Tons
GO90	Kizhuyak	50 TONS	500 Tons		250 Tons
G100	Kalsin Bay	15 TONS	150 Tons		75 Tons
G101	Middle Bay	20 TONS	200 Tons		100 Tons
G102	Inshore Chiniak	10 TONS	100 Tons		50 Tons
G103	Spruce Island	10 TONS	100 Tons		50 Tons
District Total		1,445 TONS	14,450 Tons		7,225 Tons
MAINLAND DIST.					
M010	North Mainland	(Exploration)		b	b
M020	Inner Kukak	65 TONS	650 Tons	a	325 Tons
M030	Outer Kukak ^a	-		a	a
M040	Inner Missak	(Exploration)		b	b
M040	Outer Missak ^a	-		a	a
M050	Inner Katmai	65 TONS	650 Tons		325 Tons

-Continued-

Table 3. (page 3 of 3)

STAT. AREA	MGMT. UNITS	1994 GUIDELINE HARVEST LEVEL	REQUIRED SPAWNING BIOMASS	
			@10% EXPLOITATION	@20% EXPLOITATION
MAINLAND DISTRICT (Cont.)				
M060	Outer Katmai ^a	-	a	a
M070	Alinchak	50 TONS	500 Tons	250 Tons
M080	Puale Bay	(Exploration) ^b	b	b
M090	Portage Bay	(Exploration)	b	b
M100	Outer Portage ^a	-	a	a
M110	Wide Bay	125 TONS	1,250 Tons	625 Tons
M120	Lower Shelikof	(Exploration)	b	b
District Total		305 TONS	3,050 Tons	1,525 Tons
GRAND TOTAL		4,550 TONS	45,500 Tons	22,750 Tons

^a These are offshore management units which are not expected to yield herring of sac roe quality. These units are more applicable to the food/bait fishery. (See Herring Food/Bait Fishery Management Plan.)

^b Adequate biomass to justify an "exploratory" harvest; the actual harvest should not exceed 20% of the available biomass.

^c The following management units have been modified either in name or boundaries for the purpose of inseason management of the Olga/Moser Bay herring stocks. Each unit will be described by emergency order when closures are issued for these units.

-AL40 Lower Olga/Moser Unit: Formerly that portion of the Olga/Moser Bay Section south of the latitude of Stockholm Point.

-AL50 North Upper Olga Unit: Formerly that portion of the Olga/Moser Bay Section north of the latitude of Stockholm Point.

-AL50 South Upper Olga Unit: Formerly called the Upper Olga Bay Section.

^d The boundaries for the following management units maybe modified inseason as shown in Figures 2-5.

-Uganik District: The Village Island and Terror Bay Management Units.

-Alitak District: Deadman Bay Management Unit.

-General District: West Sitkalidak, Kaiugnak Bay, and the Inner Kiluida Bay Management Units.

Table 4. 1993 Alaska statewide sac roe herring harvests and preliminary 1994 harvest projections.

Fishery	1993 ACTUAL		Harvest (s. tons)	Expl. Rate	Mean Wt. (g)	1994 PROJECTIONS	
	Opening or First Harvest	Harvest (s. tons)				Spawning Biomass (s. tons)	Stock Status/Trend
Southeastern							
Kah Shakes	4/10	725	1,032	11%		9,299	Moderate/Increasing
Sitka	3/27	10,154	4,100	16%		25,634	Moderate/decreasing
Seymour Canal	Closed		0	10%		3,552	Moderate/Increasing
Lynn Canal	Closed		0			-	Depressed/Stable
Hoonah Snd. Pound	4/06	12.	12 ^a			-	No data
Craig Pound	4/17	19 ^a	11.			12,350	Moderate/Stable
Prince William Sound							
Seine	No harvest	0	2,615				
Gillnet	4/15	1,030	153				
Pound Kelp	4/10	163 ^a	305 ^a				
Wild Kelp	4/09	175 ^a	268 ^a				
Total		1,368	3,341	15%		30,000	High/Stable
Cook Inlet							
Kamishak District	4/21	3,570	3,421	15% ^b	207	25,344	Moderate/Stable
Kodiak							
Sac Roe	4/15	4,929	4,550			Unknown	No data
Chignik Sac Roe							
No Fishery						Unknown	No data
Alaska Peninsula							
North Peninsula							
Port Heiden		0					
Port Moller		536	1,200			Unknown	High/Stable
South Peninsula							
		97	200			Unknown	Moderate/Stable
Bristol Bay (Togiak)							
Seine	4/27	14,041	18,832				
Gill Net	4/29	3,562	6,277				
Spawn on Kelp	5/01	191 ^a	175 ^a				
Total			25,284	20% ^c		142,498	Moderate/Decreasing
Kuskokwim Area							
Security Cove	5/12	5	1,528	20%		6,282	High/Stable
Goodnews Bay	5/12	906	1,136	20%		3,600	High/Stable
Cape Avinof	5/23	210	424	15%		2,358	Moderate/Stable
Nunivak Island	No harvest	0	736	15%		3,942	Moderate/Stable
Nelson Island	5/17	732	733	15%		3,514	Moderate/Stable
Cape Romanzof	5/17	369	414	15%		2,369	No data
Norton Sound							
Gillnet	5/25	4,291	7,031				
Beach Seine	5/24	742	781				
Total		7,255	12,783	20%		45,270	High/Increasing
Port Clarence							
No Harvest						Unknown	
Sac Roe Harvest Total ^d		46,459	56,099			316,012	

^a Harvest of spawn-on-kelp product in short tons.

^b Kamishak District exploitation rate includes the eastern Shelikof food and bait harvests.

^c Togiak exploration rate includes allowances for spawn-on-kelp fishery and Dutch Harbor food and bait harvest.

^d Sac roe statewide total harvests do not include allowances for spawn-on-kelp fishery mortality.

Table 5. Alaska Department of Fish and Game, Division of Commercial Fisheries 1994 management staff.

Office Staff:

Regional Supervisor
Regional Finfish Coordinator

Larry Nicholson
Pete Probasco

Area Management Biologist
Assistant Management Biologist
Assistant Management Biologist
Fishery Biologist
Publication Technician II

Dave Prokopowich
Kevin Brennan
Dennis Gretsck
Joan Brodie
Lucinda Neel

M/V K-Hi-C:

Boat Officer
Fishery Biologist

Tom Emerson
Dennis Gretsck

M/V Resolution:

Boat Officer
Boat Officer

Ron Kutchick
Tim Howland

Field Crews:

Fishery Technician
Fishery Technician

Kim Rudge
Mo Lambdin
Jon Becker
Ed Hajdys
Paul Kuriscak
Shawna Rudio
Mike Barnes
George Pappas

ALASKA DEPARTMENT OF FISH AND GAME
KODIAK AREA HERRING MANAGEMENT UNITS

This map is intended as a general guide for fishermen, charter operators, and other fishery personnel. For exact description of the 1000', contour and elevation boundaries, consult the topographic maps, please consult the current issue of the Department's Herring Fishing Regulations for the Kodiak area. (See Chapter 27 - Article 1.2.2 and 3 and Chapter 30 - Article 9)

Open and herring closed to commercial fishing -
 June 15 - October 31, except by permit.
 Open water boundaries -
 Fished management area boundaries -
 No herring allowed area boundaries -
 Section corners with 1000' grid reference -
 Section corners open to the stream boundary -

SAC RICE STATISTICAL AREAS

MANLAND DISTRICT

- MAN 10 NORTH MANLAND
- MAN 11 NORTH MANLAND
- MAN 12 NORTH MANLAND
- MAN 13 NORTH MANLAND
- MAN 14 NORTH MANLAND
- MAN 15 NORTH MANLAND
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AFOONAK DISTRICT

- AFO 1 WEST AFOONAK
- AFO 2 NORTH AFOONAK
- AFO 3 EAST AFOONAK
- AFO 4 SOUTH AFOONAK
- AFO 5 WEST AFOONAK
- AFO 6 NORTH AFOONAK
- AFO 7 EAST AFOONAK
- AFO 8 SOUTH AFOONAK
- AFO 9 WEST AFOONAK
- AFO 10 NORTH AFOONAK
- AFO 11 EAST AFOONAK
- AFO 12 SOUTH AFOONAK

LUYAK DISTRICT

- LUY 1 WEST LUYAK
- LUY 2 NORTH LUYAK
- LUY 3 EAST LUYAK
- LUY 4 SOUTH LUYAK
- LUY 5 WEST LUYAK
- LUY 6 NORTH LUYAK
- LUY 7 EAST LUYAK
- LUY 8 SOUTH LUYAK
- LUY 9 WEST LUYAK
- LUY 10 NORTH LUYAK
- LUY 11 EAST LUYAK
- LUY 12 SOUTH LUYAK

GENERAL DISTRICT

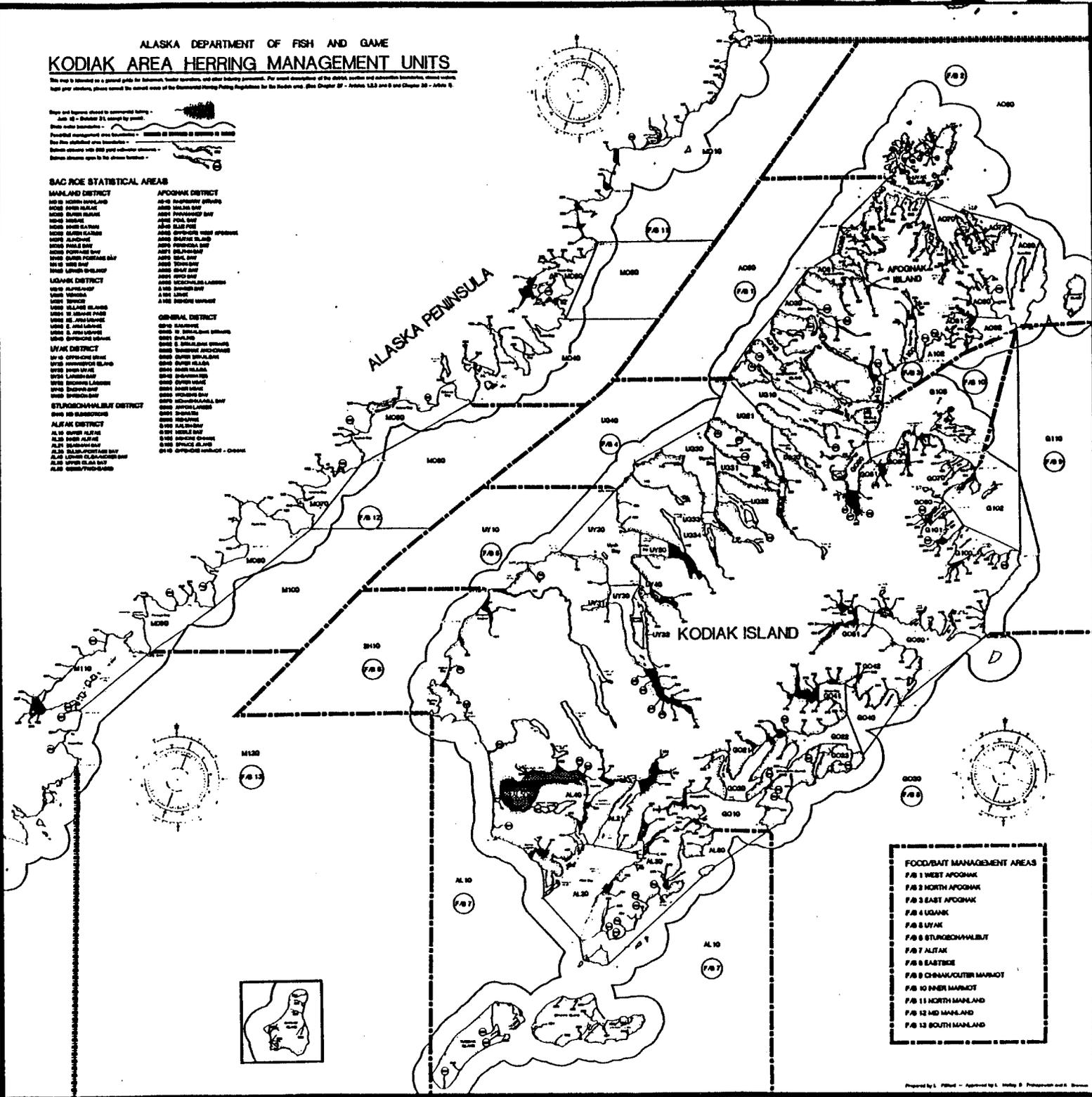
- GEN 1 WEST GENERAL
- GEN 2 NORTH GENERAL
- GEN 3 EAST GENERAL
- GEN 4 SOUTH GENERAL
- GEN 5 WEST GENERAL
- GEN 6 NORTH GENERAL
- GEN 7 EAST GENERAL
- GEN 8 SOUTH GENERAL
- GEN 9 WEST GENERAL
- GEN 10 NORTH GENERAL
- GEN 11 EAST GENERAL
- GEN 12 SOUTH GENERAL

STURGEONVALE DISTRICT

- STU 1 WEST STURGEONVALE
- STU 2 NORTH STURGEONVALE
- STU 3 EAST STURGEONVALE
- STU 4 SOUTH STURGEONVALE
- STU 5 WEST STURGEONVALE
- STU 6 NORTH STURGEONVALE
- STU 7 EAST STURGEONVALE
- STU 8 SOUTH STURGEONVALE
- STU 9 WEST STURGEONVALE
- STU 10 NORTH STURGEONVALE
- STU 11 EAST STURGEONVALE
- STU 12 SOUTH STURGEONVALE

ALTAK DISTRICT

- ALTA 1 WEST ALTAK
- ALTA 2 NORTH ALTAK
- ALTA 3 EAST ALTAK
- ALTA 4 SOUTH ALTAK
- ALTA 5 WEST ALTAK
- ALTA 6 NORTH ALTAK
- ALTA 7 EAST ALTAK
- ALTA 8 SOUTH ALTAK
- ALTA 9 WEST ALTAK
- ALTA 10 NORTH ALTAK
- ALTA 11 EAST ALTAK
- ALTA 12 SOUTH ALTAK



- FOOD/BAIT MANAGEMENT AREAS**
- F/B 1 WEST AFOONAK
 - F/B 2 NORTH AFOONAK
 - F/B 3 EAST AFOONAK
 - F/B 4 LUYAK
 - F/B 5 LUYAK
 - F/B 6 STURGEONVALE
 - F/B 7 ALTAK
 - F/B 8 EASTICE
 - F/B 9 CHANUKULIYI MARSH
 - F/B 10 INNER MARSH
 - F/B 11 NORTH MARSH
 - F/B 12 MD MARSH
 - F/B 13 SOUTH MARSH

Figure 1. Reduced scale map of the Kodiak area herring management units, a full scale map can be obtained from the Kodiak ADFG office.

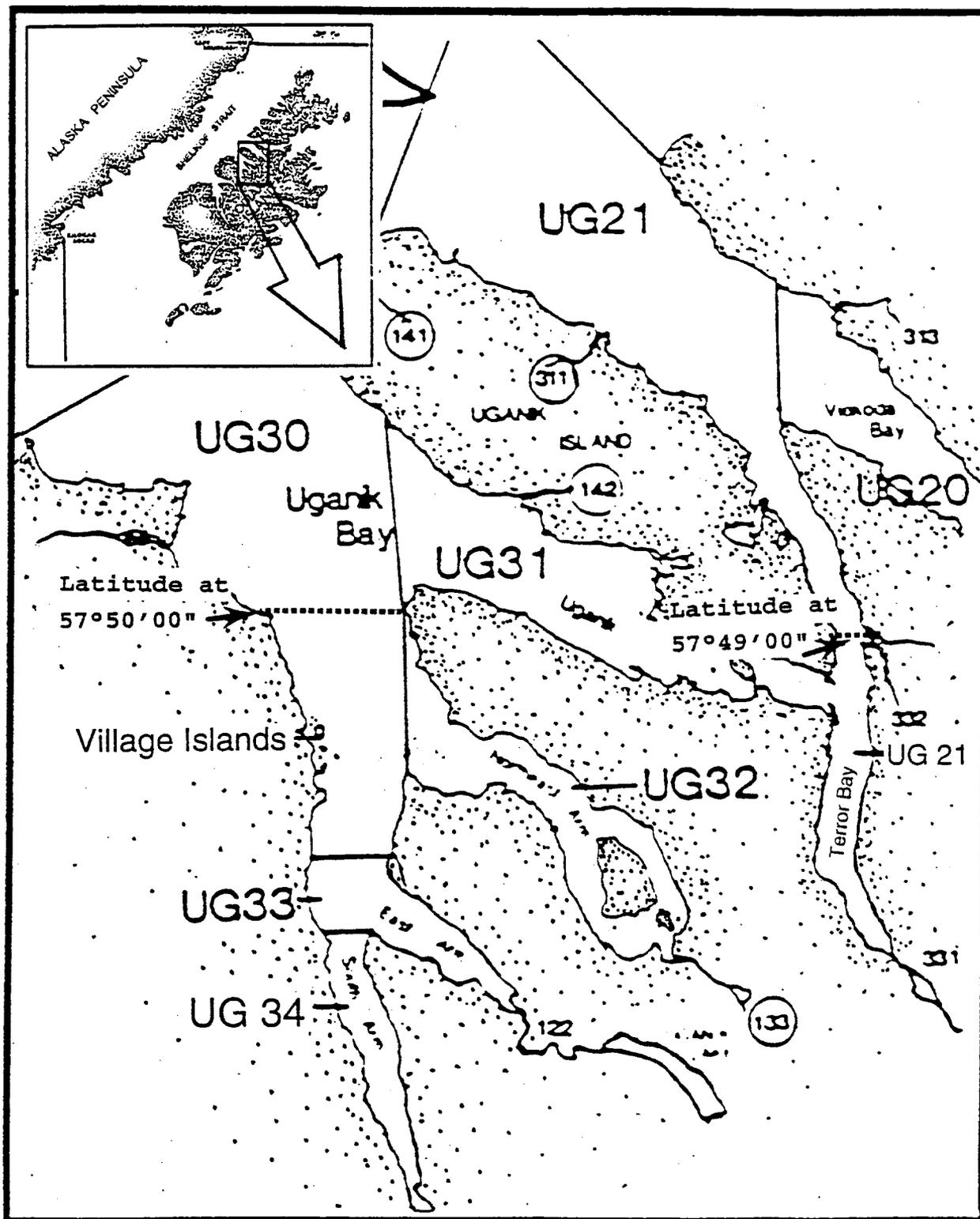


Figure 2. Potential inseason boundary changes for the Village Islands and Terror Bay management units of the Uganik District.

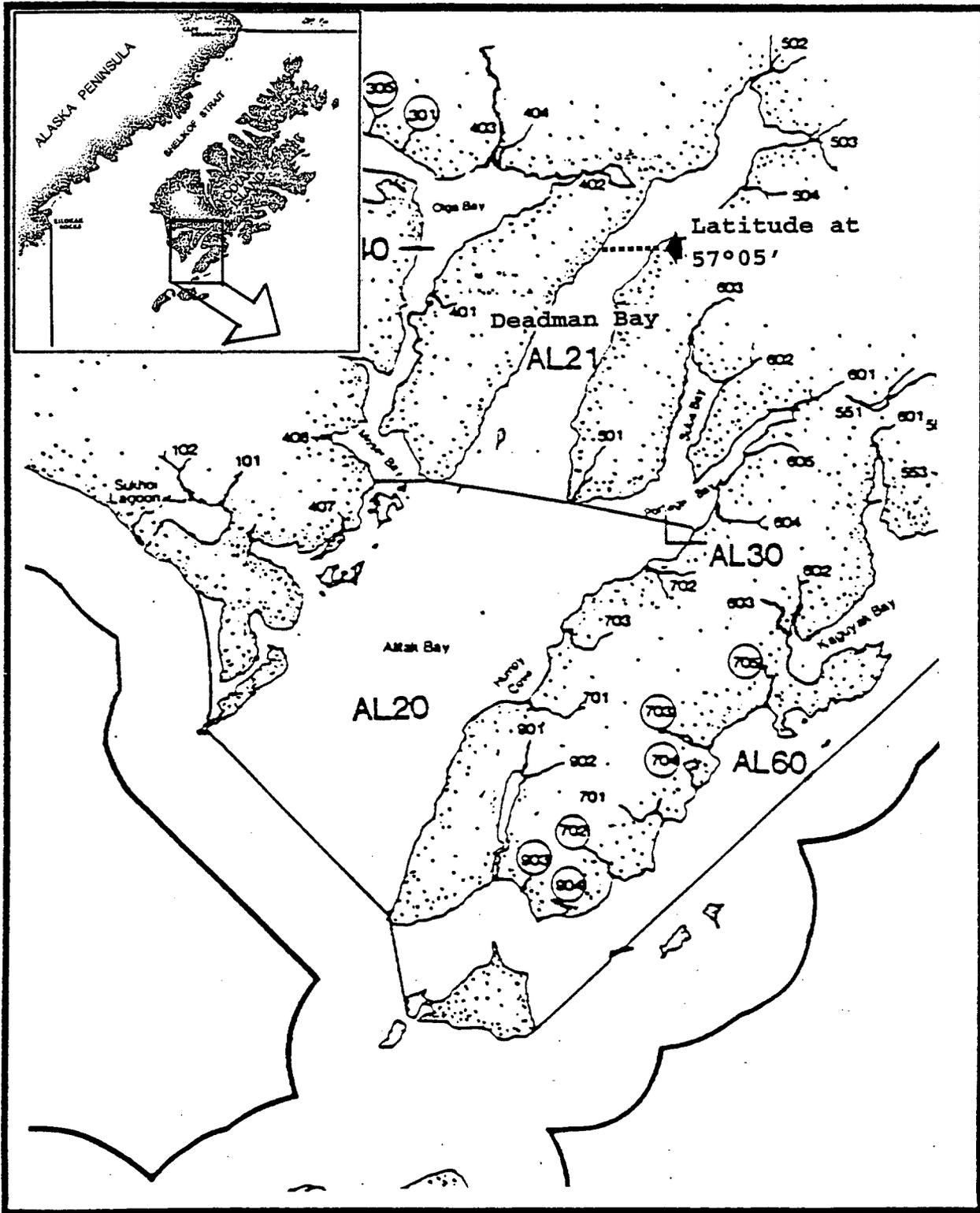


Figure 3. Potential inseason boundary changes for the Deadman Bay management unit of the Alitak District.

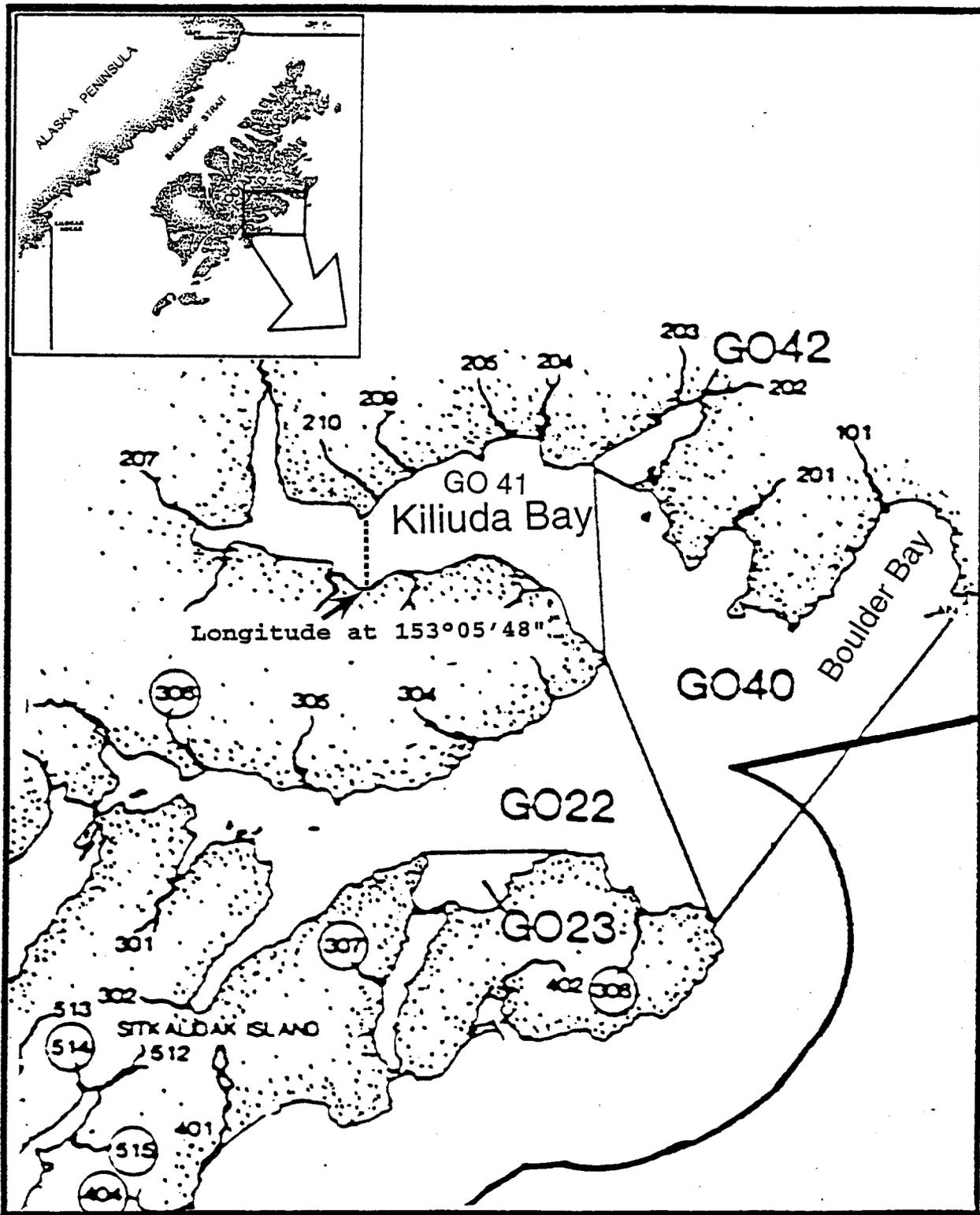


Figure 4. Potential inseason boundary changes for the Inner Kiliuda Bay management unit of the General District.

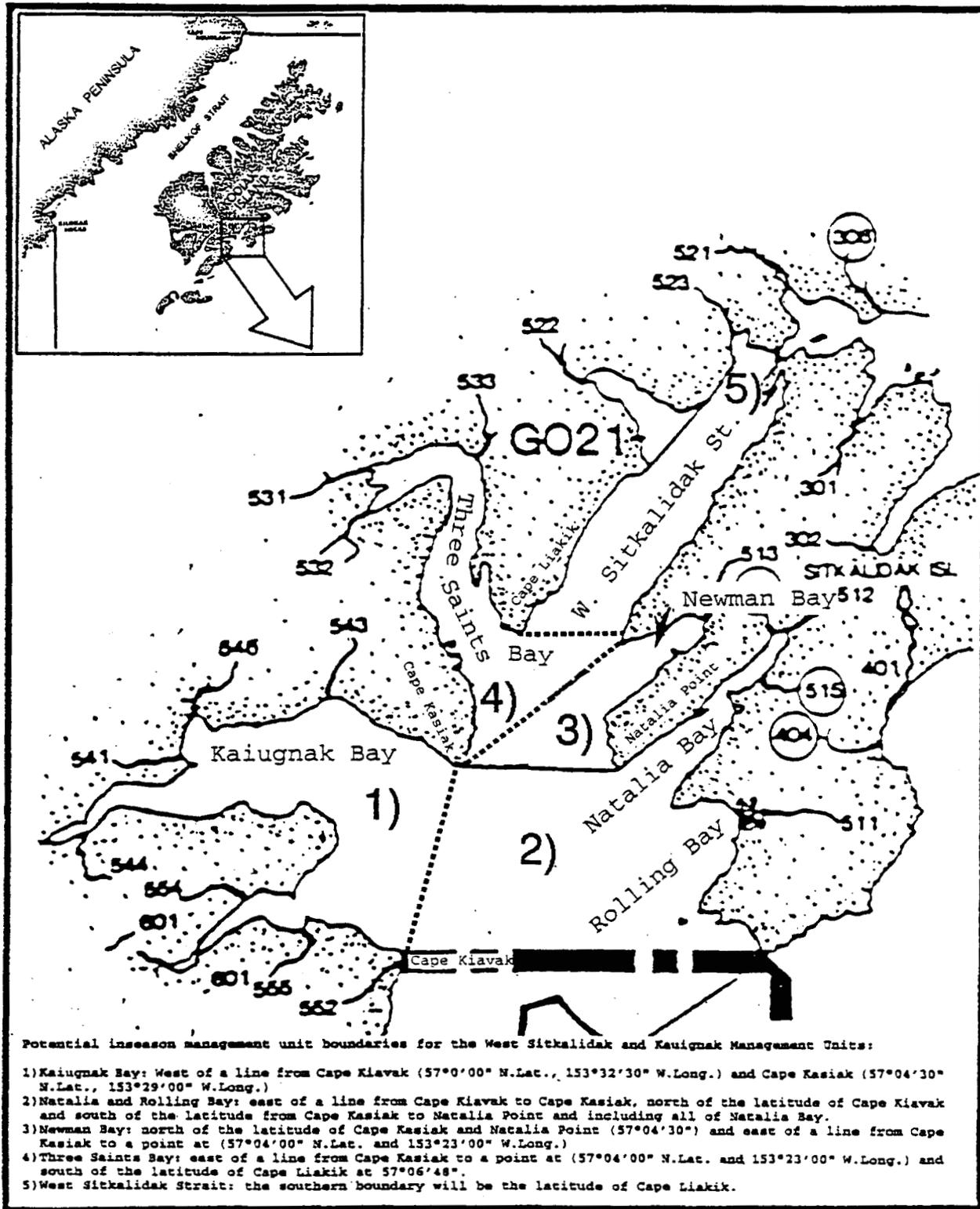


Figure 5. Potential inseason boundary changes for the West Sitkalidak and Kaiuqnak Bay management units of the General District.

Appendix B. Summary of emergency order abstracts issued for the sac roe herring fishery, Kodiak Management Area, 1994.

EMERGENCY ORDER NO. 4-FH-K-01-94
EFFECTIVE DATE: April 15, 1994

EXPLANATION:

This emergency order establishes fishing periods for the 1994 Kodiak Area commercial sac roe herring fishery, describes the initial fishing period, and clarifies waters closed to commercial herring fishing.

The fishery will open for 24 hour fishing periods, each of which begins at 12:00 Noon on the odd numbered days of the month and closes at 12:00 Noon on the even numbered days of the month. Each 24 hour opening will be separated by a 24 hour closure in the entire management area. During open periods the following waters will remain closed, as listed in Commercial Herring Fishing Regulation 5 AAC 27.530.(b):

- (1) Women's Bay inside of a line from Shannon's Point to the southern tip of Nyman's Peninsula
- (2) All lagoons on Uganik Island
- (3) Inside Brown's Lagoon proper

The only exception to this "24 hour on - 24 hour off" rule is the period from 12:00 Noon May 31 through 12:00 Noon June 2 when the fishery shall actually be open for a 48 hour period due to the occurrence of two consecutive odd numbered days.

Further, in this emergency order the northern boundary line between the Inner Alitak Section and the Sulua-Portage Section of the Alitak Bay District is clarified. The northern boundary of the Inner Alitak Section is described as a line at the latitude of Bun Point in Moser Bay, continuing from Bun Point to Cape Hepburn, and from Cape Hepburn at 56°57'18" N. lat., 153°58'00" W. long. eastward across Sulua and Portage Bays to a point at 56°56'30" N. lat., 153°51'27" W. long.

JUSTIFICATION:

Regulations adopted by the Board of Fisheries established that fishing periods for the commercial sac roe herring fishery in the Kodiak Area would be announced by Emergency Order. During the sac roe herring fishing season, April 15 through June 30, the small herring

-Continued-

stocks of the Kodiak Area are concentrated and so vulnerable to over exploitation. This Emergency Order is necessary to establish the initial and inseason fishing periods for the commercial sac roe herring fishery.

A system of 24 hour openings separated by 24 hour closures provides reduced time that individual stocks are subject to exploitation and assists the Department by allowing adequate closed periods to collect harvest information and assess the situations in the various management units. Also, set 24 hour open periods allow Kodiak herring fishers opportunity to spread out throughout open areas, and to test and release herring which do not meet the market's current stringent standards for size and maturity.

In addition, during the 1992 commercial sac roe herring fishing season it was discovered that there was an inconsistency between the legal description in the regulation book and the established boundaries of the Inner Alitak Bay Section and the Sulua-Portage Bay Section of the Alitak Bay District. The boundary description was unclear, the latitude and longitude listed for Cape Hepburn was incorrect, and the northeastern point of the boundary was incorrectly listed. To rectify these problems it is necessary to redescribe these points and boundaries in regulation.

EMERGENCY ORDER NO. 4-FH-K-02-94
EFFECTIVE DATE: April 15, 1994

EXPLANATION:

This emergency order closes to commercial herring fishing the Malina Bay Section (AO20) of the Afognak District effective at 8:30 P.M. Friday April 15, 1994 until further notice.

JUSTIFICATION:

The 1994 Kodiak Management Area Herring Sac Roe Harvest Strategy (R.I.R. #4K94-11) states that the guideline harvest for the Malina Bay Section of the Afognak District (AO20) is 180 tons. Preliminary catch information indicates the catch for this area is at or over the guideline harvest level. Consequently a closure of the entire management unit is warranted to prevent over exploitation.

-Continued-

EMERGENCY ORDER NO. 4-FH-K-03-94

EFFECTIVE DATE: April 16, 1994

EXPLANATION:

This emergency order closes to commercial herring fishing the Village Islands Subsection (UG30) and the South Arm Subsection (UG34) of the Uganik District effective at 12:00 Noon Saturday April 16, 1994 until further notice.

JUSTIFICATION:

The 1994 Kodiak Management Area Sac Roe Herring Harvest Strategy (R.I.R. #4K94-11) states that the guideline harvest for the Village Islands Subsection (UG30) is 200 tons and for the South Arm Uganik Subsection (UG34) is 75 tons. Preliminary catch information indicates the catch in these subsections of the Uganik District are at or over the guideline harvest level. Consequently a closure of these entire management units is warranted to prevent over exploitation.

EMERGENCY ORDER NO. 4-FH-K-04-94

EFFECTIVE DATE: April 17, 1994

EXPLANATION:

This emergency order closes to commercial herring fishing the Terror Bay Section (UG21) of the Uganik District effective at 11:45 P.M. Sunday April 17, 1994 until further notice.

JUSTIFICATION:

The 1994 Kodiak Management Area Herring Sac Roe Harvest Strategy (R.I.R. #4K94-11) states that the guideline harvest level for the Terror Bay Subsection (Unit UG21) of the Uganik District is 180 tons. Preliminary catch information indicates that the catch in this area is at or over the guideline harvest level. Consequently closure of this management unit is warranted to prevent over exploitation.

-Continued-

EMERGENCY ORDER NO. 4-FH-K-05-94

EFFECTIVE DATE: April 18, 1994

EXPLANATION:

This emergency order closes to commercial herring fishing the East Arm Uganik Section (UG33) of the Uganik District effective at 7:11 A.M. Monday April 18, 1994 until further notice.

JUSTIFICATION:

The 1994 Kodiak Management Area Herring Sac Roe Harvest Strategy (R.I.R. #4K94-11) states that the guideline harvest level for the East Arm Uganik Subsection (Unit UG33) of the Uganik District is 75 tons. Preliminary catch information indicates that the catch in this area is at or over the guideline harvest level. Consequently closure of this management unit is warranted to prevent over exploitation.

EMERGENCY ORDER NO. 4-FH-K-06-94

EFFECTIVE DATE: April 19, 1994

EXPLANATION:

This emergency order closes to commercial herring fishing the West Uganik Pass Subsection (Unit UG31) of the Uganik District effective at 8:45 P.M. Tuesday April 19, 1994 until further notice.

JUSTIFICATION:

The 1994 Kodiak Management Area Sac Roe Herring Harvest Strategy (R.I.R. #4K94-11) states that the guideline harvest level for the West Uganik Pass Subsection (Unit UG31) of the Uganik District is 75 tons. Preliminary catch information indicates that the catch in this area is at or over the guideline harvest level. Consequently closure of this management unit is warranted to prevent over exploitation.

-Continued-

EMERGENCY ORDER NO. 4-FH-K-07-94

EFFECTIVE DATE: April 19, 1994

EXPLANATION:

This emergency order closes to commercial herring fishing the Northeast Arm Uganik Subsection (Unit UG32) of the Uganik District effective at 8:45 P.M. Tuesday April 19, 1994 until further notice.

JUSTIFICATION:

The 1994 Kodiak Management Area Sac Roe Herring Harvest Strategy (R.I.R. #4K94-11) states that the guideline harvest level for the Northeast Arm Uganik Subsection (Unit UG32) of the Uganik District is 30 tons. Preliminary catch information indicates that the catch in this area is at or over the guideline harvest level. Consequently closure of this management unit is warranted to prevent over exploitation.

EMERGENCY ORDER NO. 4-FH-K-08-94

EFFECTIVE DATE: April 20, 1994

EXPLANATION:

This emergency order closes to commercial herring fishing the Raspberry Strait Section (Unit A010) of the Afognak District effective at 12:00 Noon Wednesday April 20, 1994 until further notice.

JUSTIFICATION:

The 1994 Kodiak Management Area Sac Roe Herring Harvest Strategy (R.I.R. #4K94-11) states that the guideline harvest level for the Raspberry Strait Section (Unit A010) of the Afognak District is 290 tons. Preliminary catch information indicates that the catch in this area is at or over the guideline harvest level. Consequently closure of this management unit is warranted to prevent over exploitation.

-Continued-

EMERGENCY ORDER NO. 4-FH-K-09-94

EFFECTIVE DATE: April 21, 1994

EXPLANATION:

This emergency order closes to commercial herring fishing the Paramanof Bay Subsection (Unit A031) of the Afognak District effective at 4:00 P.M. Thursday April 21, 1994 until further notice.

JUSTIFICATION:

The 1994 Kodiak Management Area Sac Roe Herring Harvest Strategy (R.I.R. #4K94-11) states that the guideline harvest for the Paramanof Bay Subsection (Unit A031) of the Afognak District is 250 tons. Preliminary catch information indicates the catch in this area is at or over the guideline harvest level. Consequently closure of this management unit is warranted to prevent over exploitation.

EMERGENCY ORDER NO. 4-FH-K-10-94

EFFECTIVE DATE: April 21, 1994

EXPLANATION:

This emergency order closes to commercial herring fishing that portion of the Inner Kiliuda Bay Subsection (Unit G041) of the General District, which is west of 153°05'48" West longitude effective at 5:45 P.M. Thursday April 21, 1994 until further notice.

JUSTIFICATION:

The 1994 Kodiak Management Area Sac Roe Herring Harvest Strategy (R.I.R. #4K94-11) states that the guideline harvest level for the Inner Kiliuda Subsection (Unit G041) of the General District is 80 tons. Preliminary catch information indicates that the catch is at or over the guideline harvest level. To prevent over exploitation of the stocks in this area a closure of Inner Kiliuda Bay west of 153°05'48" W. longitude is warranted, while the remainder of the subsection will remain open to preserve traditional harvest opportunities.

-Continued-

EMERGENCY ORDER NO. 4-FH-K-11-94

EFFECTIVE DATE: April 28, 1994

EXPLANATION:

This emergency order closes to commercial herring fishing the entire Inner Kiliuda Bay Subsection (Unit GO41) of the General District effective at 12:00 Noon Thursday April 28, 1994 until further notice.

JUSTIFICATION:

The 1994 Kodiak Management Area Sac Roe Herring Harvest Strategy (R.I.R. #4K94-11) states that the guideline harvest level for that portion of the Inner Kiliuda Bay Subsection (Unit GO41) east of 153°05'48" West longitude is 60 tons. Preliminary catch information indicates that the catch in this area is at or over the guideline harvest level. Consequently closure of this management unit is warranted to prevent over exploitation.

The west portion of the Inner Kiliuda Subsection was closed previously in Emergency Order 4-FH-K10-94.

EMERGENCY ORDER NO. 4-FH-K-12-94

EFFECTIVE DATE: April 30, 1994

EXPLANATION:

This emergency order closes to commercial herring fishing the Sulua/Portage Bay Section (Unit AL30) of the Alitak District effective at 1:30 A.M. Saturday April 30, 1994 until further notice.

JUSTIFICATION:

The 1994 Kodiak Management Area Sac Roe Herring Harvest Strategy (R.I.R. #4K94-11) states that the guideline harvest level for the Sulua-Portage Bay Section (Unit AL30) of the Alitak Bay District is 190 tons. Preliminary catch information indicates that the catch in this area is at or over the guideline harvest level. Consequently, a closure of this management unit is warranted to prevent over exploitation.

-Continued-

EMERGENCY ORDER NO. 4-FH-K-13-94

EFFECTIVE DATE: April 30, 1994

EXPLANATION:

This emergency order closes to commercial herring fishing the East Sitkalidak Subsection (GO22) of the General District effective at 12:00 Noon Saturday April 30, 1994 until further notice.

JUSTIFICATION:

The 1994 Kodiak Management Area Sac Roe Herring Harvest Strategy (R.I.R. #4K94-11) states that the guideline harvest for the East Sitkalidak Subsection of the General District (GO22) is 290 tons. Preliminary catch information indicates the catch is at or over the guideline harvest level. Consequently a closure of the entire management unit is warranted to prevent over exploitation.

EMERGENCY ORDER NO. 4-FH-K-14-94

EFFECTIVE DATE: May 2, 1994

EXPLANATION:

This emergency order closes to commercial herring fishing the Shearwater Subsection (Unit G042) of the General District effective at 11:00 A.M. Monday May 2, 1994 until further notice.

JUSTIFICATION:

The 1994 Kodiak Management Area Sac Roe Herring Harvest Strategy (R.I.R. #4K94-11) states that the guideline harvest level for the Shearwater Subsection (Unit G042) of the General District is 75 tons. Preliminary catch information indicates that the catch in this area is at or over the guideline harvest level. Consequently closure of this management unit is warranted to prevent over exploitation.

-Continued-

EMERGENCY ORDER NO. 4-FH-K-15-94

EFFECTIVE DATE: May 4, 1994

EXPLANATION:

This emergency order closes to commercial herring fishing the Barling Bay Subsection (Unit GO21) of the General District. Further, it closes that portion of the West Sitkalidak Subsection (GO20) north of a line extending from Cape Liakik eastward to the shore of Sitkalidak Island at 57°06'48" North Latitude of the General District. The closure for these subsections is effective at 12:00 Noon Wednesday, May 4, 1994 until further notice.

JUSTIFICATION:

The 1994 Kodiak Management Area Sac Roe Herring Harvest Strategy (R.I.R. #4K94-11) states that the guideline harvest level for the Barling Bay Subsection (Unit G021) of the General District is 50 tons. Further, the Kodiak Management Area Sac Roe Herring Harvest Strategy states that the guideline harvest level for the West Sitkalidak Subsection (Unit GO20) is 300 tons. Preliminary catch information indicates that the catch in these areas is at or over the guideline harvest level. Consequently closure of these management units is warranted to prevent over exploitation.

EMERGENCY ORDER NO. 4-FH-K-16-94

EFFECTIVE DATE: May 11, 1994

EXPLANATION:

This emergency order closes to commercial herring fishing the Inner Ugak Subsection (Unit GO51) of the General District effective at 3:15 P.M. Wednesday, May 11, 1994 until further notice.

JUSTIFICATION:

The 1994 Kodiak Management Area Sac Roe Herring Harvest Strategy (R.I.R. #4K94-11) states that the guideline harvest level for the Inner Ugak Subsection (Unit G051) of the General District is 120 tons. Preliminary catch information indicates that the catch in this area is at or over the guideline harvest level. Consequently closure of this management unit is warranted to prevent over exploitation.

-Continued-

EMERGENCY ORDER NO. 4-FH-K-17-94

EFFECTIVE DATE: May 12, 1994

EXPLANATION:

This emergency order closes to commercial herring fishing the Pasagshak Subsection (Unit GO52) of the General District effective at 12:00 Noon Thursday, May 12, 1994 until further notice.

JUSTIFICATION:

The 1994 Kodiak Management Area Sac Roe Herring Harvest Strategy (R.I.R. #4K94-11) states that the guideline harvest level for the Pasagshak Subsection (Unit G052) of the General District is 30 tons. Preliminary catch information indicates that the catch in this area is at or over the guideline harvest level. Consequently closure of this management unit is warranted to prevent over exploitation.

EMERGENCY ORDER NO. 4-FH-K-18-94

EFFECTIVE DATE: May 16, 1994

EXPLANATION:

This emergency order closes to commercial herring fishing the Kizhuyak Bay Section (Unit GO90) of the General District effective at 12:00 Noon Monday, May 16, 1994 until further notice.

JUSTIFICATION:

The 1994 Kodiak Management Area Sac Roe Herring Harvest Strategy (R.I.R. #4K94-11) states that the guideline harvest level for the Kizhuyak Bay Section (Unit G090) of the General District is 50 tons. However, fishery performance has been less than expected by this date for the Kizhuyak Bay Section. Through May 16, only 15 tons have been harvested. The harvest strategy (R.I.R. #4K94-11) further states that, "at any time during the season it appears that preseason expectations were incorrect, GHL's can be adjusted above or below preseason levels." Consequently closure of this management unit is warranted to prevent further exploitation.

-Continued-

EMERGENCY ORDER NO. 4-FH-K-19-94

EFFECTIVE DATE: May 18, 1994

EXPLANATION:

This emergency order closes to commercial herring fishing the following management units; the Outer Ugak Bay Subsection (Unit GO50) of the General District, the Brown's Lagoon (Unit UY32) and Inner Uyak Bay (Unit UY30) Subsections of the Uyak District, and that portion of the Inner Alitak Bay Section (AL20) east of 154° West longitude. These management units are closed effective at 12:00 Noon Monday, May 18, 1994 until further notice.

JUSTIFICATION:

The 1994 Kodiak Management Area Sac Roe Herring Harvest Strategy (R.I.R. #4K94-11) states that the guideline harvest level for the Outer Ugak Bay Subsection (Unit G050) of the General District is 60 tons. Further, guideline harvest levels for the Brown's Lagoon and Inner Uyak Bay Subsections of the Uyak District are 30 and 50 tons respectively. Finally, the guideline harvest level for the Inner Alitak Bay Subsection (AL20) for that portion east of 154° West longitude is 75 tons. The remainder of the Inner Alitak Bay Subsection west of 154° West longitude will remain open as an exploratory area. For the Inner Uyak Bay Subsection a closure is warranted to prevent further exploitation of younger age class herring which were harvested during the May 17-18 opening. Preliminary catch information for the Outer Ugak Bay, Brown's Lagoon, and the partial closure of the Inner Alitak Subsections indicates that the catch in these areas is at or over the guideline harvest levels. Consequently closure of these management units is warranted to prevent further exploitation.

EMERGENCY ORDER NO. 4-FH-K-20-94

EFFECTIVE DATE: May 20, 1994

EXPLANATION:

This emergency order closes to commercial herring fishing the entire Inner Alitak Bay Subsection (Unit AL20) of the Alitak District. Further, it closes that portion of the West Sitkalidak Subsection (GO20) west of a line extending from Cape Kasiak to Cape Liakik. The closure for these subsections is effective at 12:00 Noon Friday, May 20, 1994 until further notice.

-Continued-

JUSTIFICATION:

The western portion, (west of 154° W.Long), of the Inner Alitak Bay Subsection has been designated an "exploratory area". As stated in the 1994 Kodiak Management Area Sac Roe Herring Harvest Strategy (R.I.R. #4K94-11), "exploratory areas" are assigned no guideline harvest level because these areas have had sporadic or no harvest of herring in past years. Consequently a recent catch from the western portion of the Inner Alitak Bay Section warrants a closure to prevent over exploitation. The eastern portion of the Inner Alitak Bay Section was closed in a previous announcement, E.O. No. 4-FH-K-19-94. The entire Inner Alitak Bay Subsection is now closed.

The 1994 Kodiak Management Area Sac Roe Herring Harvest Strategy (R.I.R. #4K94-11) states that the guideline harvest level for the Southwest Sitkalidak Strait (Unit G020) of the General District is 120 tons. This guideline harvest level is split between the Three Saints Bay and Newman Bay. These bays are the main harvest locations for the Southwest Sitkalidak Strait management unit. Preliminary catch information indicates that the catch in the Three Saints Bay portion is at or over the guideline harvest level. Consequently this partial closure is warranted to prevent further exploitation.

EMERGENCY ORDER NO. 4-FH-K-21-94
EFFECTIVE DATE: May 23, 1994

EXPLANATION:

This emergency order closes to commercial herring fishing that portion of the Deadman Bay Subsection (Unit AL21) south of 57° 05' North latitude of the Alitak District effective at 7:00 P.M. Monday, May 12, 1994 until further notice.

JUSTIFICATION:

The 1994 Kodiak Management Area Sac Roe Herring Harvest Strategy (R.I.R. #4K94-11) states that the guideline harvest level for the Outer Deadman Bay Subsection (Unit AL21) of the Alitak District is 150 tons. Preliminary catch information indicates that the catch in this area is at or over the guideline harvest level. Consequently closure of this management unit is warranted to prevent over exploitation.

-Continued-

EMERGENCY ORDER NO. 4-FH-K-22-94

EFFECTIVE DATE: May 26, 1994

EXPLANATION:

This emergency order closes to commercial herring fishing the Larsen Bay (Unit UY31), Zachar Bay (UY 40), and Spiridon Bay (UY50) Sections of the Uyak District effective at 12:00 Noon Thursday, May 26, 1994 until further notice.

JUSTIFICATION:

The 1994 Kodiak Management Area Sac Roe Herring Harvest Strategy (R.I.R. #4K94-11) states that the guideline harvest level for the Larsen Bay (Unit UY31) of the Uyak District is 10 tons. Preliminary catch information indicated that the catch for this area is at or over the guideline harvest level. Consequently, a closure of the entire management unit is warranted to prevent further exploitation.

For the Zachar Bay (UY 40) and Spiridon Bay (UY50) Sections of the Uyak District the guideline harvest levels are 40 and 45 tons respectively. Fishery performance has been less than expected by this date for these sections of the Uyak District. Through May 26, only 6 tons have been harvested from the Spiridon Bay Section with no harvest from the Zachar Bay Section. The harvest strategy (R.I.R. #4K94-11) states that, "at any time during the season it appears that preseason expectations were incorrect, GHL's can be adjusted above or below preseason levels." Consequently closure of these management units is warranted to prevent further exploitation.

EMERGENCY ORDER NO. 4-FH-K-23-94

EFFECTIVE DATE: August 20, 1994

EXPLANATION:

This emergency order establishes fishing periods for the Kodiak Area food/bait herring season. Effective at 9:00 A.M. Saturday, August 20 fishing periods will run 24 hours per day, seven days per week until further notice.

Further, this emergency order closes the following food/bait herring management units for the entire 1994/95 season:

-Continued-

- 1) East Afognak Unit (Food/Bait Unit #3)
- 2) North Afognak Unit (Food/Bait Unit #2)

Finally, the registration requirements are emphasized for participation in this fishery. Persons intending to participate in this fishery are reminded that fishermen and buyers/processors are required to register with the Kodiak Alaska Department of Fish and Game Office prior to fishing, buying or processing herring.

All remaining closed waters are as listed in the ADF&G 1993 Commercial Herring Fishing Regulations Book.

JUSTIFICATION:

The 1993 Commercial Herring Fishing Regulations states for the Kodiak Area, regulation 5AAC 27.510. FISHING SEASONS AND WEEKLY FISHING PERIODS. (a) Herring may be taken from August 1 through February 28 (food and bait season). (b) Herring may be taken only during periods established by emergency order. This emergency order establishes fishing periods effective at 9:00 A.M. August 20, which are 24 hours per day in duration, seven days per week, until further notice.

For the East Afognak Management Unit (F/B 3) and the North Afognak Management Unit (F/B 2) a closure of these management units is warranted. The Kodiak herring spawning stocks which are found in these two management units have declined in abundance during the last three years. During the 1994 Kodiak commercial sac roe herring fishery only two tons were harvested from these areas. To prevent further exploitation on these declining stocks, a closure is warranted for these units for the entire 1994/95 food/bait season.

EMERGENCY ORDER NO. 4-FH-K-24-94
EFFECTIVE DATE: September 30, 1994

EXPLANATION:

This emergency order closes the following management units to commercial herring fishing effective at 12:00 Noon Friday, September 30, 1994, through 12:00 Midnight, February 28, 1995:

- 1) West Afognak Unit (Food/Bait Unit #1)
- 2) North Afognak Unit (Food/Bait Unit #2)

-Continued-

- 3) Uganik Unit (Food/Bait Unit #4)
- 4) Uyak Unit (Food/Bait Unit #5)
- 5) North Mainland Unit (Food/Bait Unit #11)
- 6) Mid-Mainland Unit (Food/Bait Unit #12)

Finally, as announced in E.O. 4-FH-K-23-94 the East Afognak Management Unit (F/B #3) and the North Afognak Management Unit (F/B #2) will remain closed to commercial food/bait herring fishing for the entire 1994/95 season.

All remaining closed waters are as listed in the ADF&G 1993 Commercial Herring Fishing Regulations Book.

JUSTIFICATION:

Over the past week there has been a significant harvest of bait herring from the westside of Kodiak and Afognak Islands. Based on preliminary sampling of the harvest, along with the harvest location and estimates of the herring biomass obtained from skipper interviews, it is likely that these herring are mixed Kodiak and Kamishak spawning stocks. As described in the 1993 Kodiak Herring Fishing Regulation 5AAC 27.535.(b), and shown in the 1994/95 Harvest Strategy for the Kodiak Management Area Commercial Food/Bait Herring Fishery (R.I.R. #4K94-33), the guideline harvest level (GHL) for local Kodiak stocks in management units along the west side of the Afognak District, the Uganik District, and the Uyak District are combined with the allowable food/bait herring harvest of Kamishak stocks. The combined GHL for Kamishak and local Kodiak stocks on the west side is 670 tons. Preliminary catch reports indicate that the total harvest from these areas is approximately 672 tons. Therefore, to prevent additional exploitation of Kamishak or local Kodiak spawning stocks a closure of the following food/bait management areas is warranted: West Afognak Unit (Food/Bait Unit #1); Uganik Unit (Food/Bait Unit #4); Uyak Unit (Food/Bait Unit #5); North Mainland Unit (Food/Bait Unit #11); and the Mid-Mainland Unit (Food/Bait Unit #12).

KODIAK MANAGEMENT AREA
COMMERCIAL FOOD/BAIT HERRING FISHERY
HARVEST STRATEGY
1994/95

By

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INTRODUCTION

The Kodiak Management Area (KMA) food/bait herring fishery has a long history dating back to 1912. Early harvests were primarily utilized for food and reduction products and harvests far surpassed current levels. Since, the early 1960's the harvest has been utilized primarily as bait for the crab and longline fisheries.

This fishery targets both Kodiak and Kamishak spawning stocks which are present in the KMA during the food/bait season (August 1, 1994 to February 28, 1995), Figure 1. Since the herring sac roe fisheries in the Kodiak and Cook Inlet areas are closed-to-entry fisheries, they are treated as primary fisheries. These fisheries are managed to provide for the majority of the harvest on the affected stocks to occur during the Kodiak and Kamishak sac roe fisheries. The food/bait fishery on these stocks are subsequently treated as secondary fisheries. The associated harvest levels are directly related to the results of the sac roe fisheries of these stocks.

This harvest strategy will summarize regulations which are in affect and how this fishery will be managed.

HARVEST STRATEGIES

During the Board of Fisheries meeting held in Anchorage in November of 1992 and in Kodiak in January of 1993, new harvest strategies were adopted which direct the management of the KMA food/bait herring fishery. This will be the second year this fishery will be managed under these new harvest strategies.

KAMISHAK HERRING STOCKS

The 1993 Commercial Herring Fishing Regulations, Cook Inlet Area Section, lists the Kamishak Bay District Herring Management Plan (5AAC 27.465.) which outlines criteria for the management of the Kamishak Bay sac roe herring fishery and Shelikof Strait food/bait fishery as follows: (Note: no 1994 Herring Regulation Books were printed and the 1993 Regulation Book remains effective).

5 AAC 27.465 Kamishak Bay District Herring Management Plan.

- a) The purpose of the Kamishak Bay District herring management plan is to describe the management strategies used to set the guideline harvest levels for the Kamishak Bay sac roe fishery, and for that portion of the Kamishak Bay stock allocated to the food and bait fishery conducted in the North Afognak Island, West Afognak Island, Uganik, North Mainland, and Mid-Mainland food and bait management units of the Kodiak management area, known as the Shelikof Strait food and bait fishery, as described in (5 ACC 27.535(c)), Figure 2.

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- b) The management year for the Kamishak Bay herring stock is July 1 through June 30.
- c) The allocation of the allowable harvest of the Kamishak Bay herring stock is 90 percent to the Kamishak Bay sac roe fishery, and 10 percent to the Shelikof Strait food and bait fishery.
- d) The guideline harvest level for the fall Shelikof Strait food and bait fishery and the following spring Kamishak Bay sac roe fishery will be based on the projected biomass as determined by the most recent aerial surveys, age class composition, historical mortality, and recruitment trends.
- e) The maximum exploitation rate for the Kamishak Bay herring stock is 20 percent of the spawning biomass, and will be determined as follows:
 - 1) if the spawning biomass is 30,000 short tons or more, the maximum exploitation rate is 20 percent, with 18 percent allocated to the Kamishak sac roe fishery and 2 percent allocated to the Shelikof Strait food and bait fishery;
 - 2) if the spawning biomass is 20,000 short tons or more, but less than 30,000 short tons, the maximum exploitation rate is 15 percent, with 13.5 percent allocated to the Kamishak sac roe fishery and 1.5 percent allocated to the Shelikof Strait food and bait fishery;
 - 3) if the spawning biomass is 8,000 short tons or more, but less than 20,000 short tons, the allowable exploitation rate is 10 percent, with 9 percent allocated to the Kamishak sac roe fishery and 1 percent allocated to the Shelikof Strait food and bait fishery;
 - 4) if the spawning biomass is less than 8,000 short tons, the Kamishak Bay sac roe fishery and the Shelikof food and bait fishery north of the latitude of Miner's Point will be closed, Figure 3.
- f) The management strategy for the Kamishak sac roe fishery is to target the fishery on older age classes, and to limit exploitation rates on younger age class herring (age five and younger) to 10 percent or less.
- g) The allocation of Kamishak Bay herring stocks to the Shelikof Strait food and bait fishery will be based on the spawning biomass of age five and older herring and not on the biomass of juveniles. The quantity of herring stocks aged four years and younger caught in the Shelikof Strait food and bait fishery will be adjusted to approximate the biomass of a similar number of age five herring.

KODIAK FOOD/BAIT HARVEST STRATEGY

The specific management plan which guides the KMA food/bait fishery is described in the Kodiak Area 1993 Commercial Herring Fishing Regulation 5 AAC 27.535. The allocation of

Kamishak Bay herring stock which overwinter in the Shelikof Strait in the KMA food/bait fishery is described in the Kamishak Bay District Herring Management Plan (5 AAC 27.465). The 1994/95 Kodiak Harvest Strategy combines the Kamishak food/bait guideline harvest level (GHL) with the Kodiak GHL for the West Afognak, Uganik, and Uyak food/bait management units. Kodiak herring stocks have dramatically increased over the past five years. Intermixing of Kodiak and Kamishak stocks occurs during the winter months on the west side of the Kodiak Island group. Actual inseason management is guided by the following regulation:

5 AAC 27.535. HARVEST STRATEGIES.

- a) Except as otherwise provided in this section, the department shall manage the herring food/bait fishery so that the food/bait harvest does not exceed 10 percent of the actual Kodiak herring sac roe harvest in the previous season.
- b) The department shall manage the herring food/bait fishery in waters set out in the Afognak District (5 AAC 27.505 (a)(1)-(5)), in the Uganik District (5 AAC 27.505(b)) and Uyak District (5 AAC 27.505(c)) so that the total harvest does not exceed the sum of (1) the allowable harvest of the Kamishak spawning stock that overwinter in the Shelikof Strait as determined under the Kamishak Bay District herring management plan (5 AAC 27.465) and (2) GHL set for the food/bait fishery in these waters as provided in (c), Figure 2.
- c) The GHL for the herring food/bait fishery in waters set out in the Afognak District (5 AAC 27.505 (a)(1)-(5)), Uganik District (5 AAC 27.505(b)) and Uyak District (5 AAC 27.505(c)) shall not exceed 10 percent of the herring sac roe harvest of the previous season in these waters.
- d) When the Kamishak Bay herring spawning biomass is below 8,000 short tons the department shall close the food/bait fishery in Shelikof Strait north of the latitude of Miner's Point, Figure 3.

MANAGEMENT UNITS

To accommodate this harvest strategy, thirteen (13) food/bait management units have been established to include geographical groupings of sac roe stocks and adjacent offshore areas.

Each food/bait management unit consists of several sac roe herring fishery management units, Figures 4-13. Each food/bait management unit GHL is based upon 10% of the total sac roe herring harvest which occurred within the food/bait management unit boundaries.

GUIDELINE HARVEST LEVELS

The 1994-1995 food/bait G.H.L. for the KMA will be affected by the following management considerations:

Kodiak Spawning Stocks

For Kodiak spawning stocks, as described in 5 AAC 27.535(a) Harvest Strategies, the department shall limit the food/bait harvest to 10% of the previous spring's sac roe harvest on a stock by stock basis, (Table 1). Harvest levels on Kodiak stocks in the adjacent offshore areas will reflect the combined food/bait G.H.L. for the sac roe stocks included within that management unit. Partial closure of food/bait management units may occur. A maximum of 585 tons properly distributed throughout the KMA will be the food/bait guideline harvest on Kodiak spawning stocks.

The herring stocks within Food/Bait Management Units F/B 2 North Afognak (Figure 5) and F/B 3 East Afognak (Figure 10) have declined during the last three years. During the 1994 commercial sac roe herring fishery only two tons were harvested from these areas. To prevent further exploitation on these declining stocks, these units will be closed to commercial food/bait fishing for the entire 1994-95 season.

Kamishak Spawning Stocks

The 1994 Kamishak spawning biomass is estimated at 22,000 tons. As described in 5 AAC 27.535(e)(2) if the spawning biomass is 20,000 short tons or more, but less than 30,000 short tons, the maximum exploitation rate is 15 percent, with 13.5 percent allocated to the Kamishak sac roe fishery and 1.5 percent allocated to the Shelikof Strait food and bait fishery.

The GHL for the Kamishak Bay herring stocks for the Shelikof Strait Bait Fishery is 330 tons.

As discussed in 5 AAC 27.535(b) Harvest Strategies, the GHL's for the Kodiak food/bait management units (F/B 1, F/B 4, and F/B 5) will be combined with the Kamishak Bay herring allocation.

The Kamishak Bay GHL of 330 tons plus the Kodiak stock combined GHL's for food/bait units F/B 1, F/B 4, and F/B 5 of 340 tons, gives a combined GHL of 670 tons. When the 670 ton GHL is reached or approached, the following management units will be closed collectively to further food/bait herring fishing, F/B 1, F/B 4, F/B 5, F/B 11, and F/B 12, Figure 2. Herring harvested in food and bait management units F/B 11 and F/B 12 are attributed to the Kamishak Bay GHL.

REGULATIONS

Season Dates

From August 1, 1994 through February 28, 1995.

Fishing Periods

Open to continuous fishing from 12:01 A.M. 8/1/94 to 12:00 P.M. 2/28/95 unless superseded by emergency order closures.

However if effort and harvest levels escalate, there may be a need to establish set fishing periods to maintain an orderly fishery. Changes in fishing periods will be made by an emergency order.

Closed Waters

The North Afognak F/B 2 and East Afognak F/B 3 food/bait herring management units are closed to commercial food/bait herring fishing for the entire 1994/95 season.

See CLOSED WATERS section of the 1993 Commercial Herring Fishing Regulations (page 38), 5 AAC 27.530.

Consult 1993 Commercial Salmon Fishing Regulations, (5 AAC 18.350), for a listing of closed waters for the Kodiak food/bait herring fishery for the period August 1 through October 31, 1994, pages 29-33.

Permits Required

Interim Use Permit is required before a registration permit will be issued. Interim use permits are issued from the Commercial Fisheries Entry Commission in Juneau for the following gear types:

- H01K Purse Seine
- H34K Gillnet
- H07K Trawl

Registration Permit - Kodiak ADF&G Office

- All fishers and processor/buyers are required to register with the Kodiak ADF&G office prior to fishing.

Registration Permit will be used for:

- Monitoring fleet size by gear type.
- Clarifying catch reporting procedures, closed water areas, and in-season emergency order announcement procedures.

Legal Gear Restrictions

Following are the gear restrictions by type for purse seine, gillnet, and trawl gear for the 1994/95 Kodiak Food/Bait Fishery.

Gear Code

- 01 - Purse Seines
 - Maximum length: 150 fathoms
 - Maximum depth: 1,625 meshes. For Area K there are no web size restrictions.
 - Lead length unrestricted.

- 34 - Gillnets
 - Maximum length: 150 fathoms; mesh size: 2-1/8" to 2-1/2".
 - No depth restrictions.

- 07 - Trawl
 - No restrictions

Consult the 1993 Commercial Herring Fishing Regulations for a complete listing of all regulations.

EMERGENCY ORDER (E.O.) ANNOUNCEMENTS

It is important for Kodiak food/bait fishers to be aware of management unit closures. This can be accomplished by 1) personal contact with the Kodiak ADF&G management staff via office visits or by calling 486-1830, 2) contacting Kodiak ADF&G management staff on SSB radio frequency 3.230 mhz, 3) contacting local herring processors, 4) calling the Kodiak ADF&G recorded message phone at 486-4559, 5) listening for an emergency order update which will be broadcasted at 8:00 A.M. and 6:00 P.M. after the marine weather on SSB radio frequency 4.125 mhz or 6) by picking up the most recent emergency order from the holder mounted outside the ADF&G office.

The ADF&G vessel M/V K-Hi-C may be present on the fishing grounds and will initiate management unit closures once GHl's are achieved. The M/V K-Hi-C can be reached on VHF channel 6 or SSB radio frequency 3.230 mhz.. The crew of the M/V K-Hi-C will also contact fishers in person to inform them of closures and obtain harvest data.

REPORTS REQUIRED BY FISHERMEN

All landings of herring for food/bait purposes must be verbally reported to ADF&G before the product is totally unloaded at the dock.

The following phone numbers will reach Fish and Game personnel 24 hours per day:

- ADF&G Office: Monday through Friday
8:00 A.M. to 4:30 P.M. - 486-1807 or 486-1830.

- After Office Hours: 4:30 P.M. to 8:00 A.M.
- 486-6007 (Dave Prokopowich)

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- 486-3031 (Dennis Gretschi)
- 486-6475 (Kevin Brennan)

All fish tickets must be completed and sent to the Kodiak Fish and Game office within a week of the landing.

Send to: Alaska Department of Fish and Game
Division of Commercial Fisheries
ATTN: Dave Prokopowich
211 Mission Road
Kodiak, Alaska 99615

FISHER COOPERATION

Department personnel will conduct confidential skipper interviews to obtain biomass estimates, average school size, and herring distribution data. Additionally, fisher cooperation will be appreciated when Department personnel request herring samples. These samples will be used to determine age composition, and length and weight characteristics of the commercial harvest.

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Table 1. Kodiak Management Area 1994/95 herring food/bait harvest strategy. A listing of guideline harvest levels by food/bait management units^a. (G.H.L. harvest numbers represent short tons).

Food/Bait Mgmt. Units	Sac Roe Management Units		1994 Sac Roe		1994/95 Food/Bait
	No.	Name	G.H.L.	Harvest	G.H.L.
F/B 1 West Afognak Unit	AO10	Raspberry	290	341	34
	AO20	Malina	180	266	27
	AO31	Paramanof	250	419	42
	AO32	Foul Bay	75	22	2
	AO40	Blue Fox/Devil's Inlet	60	0	0
	AO50	Offshore Afognak	Exploration	0	Exploration
UNIT TOTALS:			855	1,048	105
F/B 2 ^b North Afognak Unit	AO60	Shuyak	20	0	0
	AO70	Perenosa	15	0	0
	AO71	Delphin	10	0	0
	AO72	Seal Bay	10	0	0
	AO80	Tonki	15	0	0
UNIT TOTALS:			70	0	0
F/B 3 ^b East Afognak Unit	AO90	Izhut	15	0	0
	AO91	Kitoi	10	1	0
	AO92	McDonalds	10	0	0
	A100	Danger	25	1	0
	A101	Litnik	10	0	0
	A102	Inshore Marmot	10	0	0
UNIT TOTALS:			80	2	0
F/B 4 Uganik Unit	UG10	Kupreanof	10	0	0
	UG20	Viekoda	160	58	6
	UG21	Terror	180	338	34
	UG30	Village Islands	200	356	36
	UG31	W. Uganik Passage	75	81	8
	UG32	N.E. Arm Uganik	30	34	3
	UG33	E. Arm Uganik	75	324	32
	UG34	S. Arm Uganik	75	1,093	109
	UG40	Offshore Uganik	Exploration	0	0
	UNIT TOTALS:			805	2,284
F/B 5 Uyak Unit	UY10	Offshore Uyak	Exploration	0	Exploration
	UY20	Harvester	10	0	0
	UY30	Inner Uyak	50	28	3
	UY32	Browns Lagoon	30	21	2
	UY31	Larsen Bay	10	9	1
	UY40	Zachar	40	0	0
	UY50	Spiridon	45	6	1
UNIT TOTALS:			185	64	7

-Continued-

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Table 1. (page 2 of 3)

Food/Bait Mgmt. Units	Sac Roe Management Units		1994 Sac Roe		1994/95 Food/Bait
	No.	Name	G.H.L.	Harvest	G.H.L.
F/B 6 Sturgeon/ Halibut Unit	SH01	Sturgeon/Halibut	Exploration	0	Exploration
F/B 7 Alitak Unit	AL10	Outer Alitak	Exploration	0	0
	AL20	Inner Alitak	75	103	10
	AL21	Deadman	400	370	37
	AL30	Sulua	190	292	29
	AL40	Lower Olga/N. Upper Olga	30	12	1
	AL50	Upper Olga/Moser	110	94	9
	AL60	Geese/Twoheaded	Exploration	20	2
UNIT TOTALS:			805	891	88
F/B 8 Eastside Unit	GO10	Kaiugnak	20	13	1
	GO20	W. Sitkalidak	420	435	43
	GO21	Barling	50	62	6
	GO22	E. Sitkilidak	290	283	28
	GO23	Tanginak	15	2	0
	GO30	Outer Sitkalidak	Exploration	0	Exploration
	GO40	Outer Kiliuda	Exploration	3	0
	GO41	Inner Kiliuda	140	173	17
	GO42	Shearwater	75	113	11
	GO50	Outer Ugak	60	84	8
	GO51	Inner Ugak	120	129	13
	GO52	Pasagshak	30	24	2
UNIT TOTALS:			1,220	1,321	129
F/B 9 Chiniak Unit	GO60	Womens Bay	100	109	11
	G100	Kalsin Bay	15	0	0
	G101	Middle Bay	20	1	0
	G102	Inshore Chiniak	10	0	0
UNIT TOTALS:			145	110	11
F/B 10 North Kodiak Unit	GO70	Monashka/Mill Bay	Exploration	0	Exploration
	GO80	Anton Larsen	10	0	0
	GO81	Sheratin	10	0	0
	GO90	Kizhuyak	50	15	1
	G103	Spruce Island	10	1	0
UNIT TOTALS:			80	16	1
F/B 11 No. Mainland Unit	MO10	North Mainland	Exploration	0	Exploration
	MO20	Inner Kukak	65	18	2
	MO30	Outer Kukak	Exploration	0	Exploration
	MO40	Inner/Outer Missak	Exploration	0	Exploration
UNIT TOTALS:			65	18	2

-Continued-

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Table 1. (page 3 of 3)

Food/Bait Mgmt. Units	Sac Roe Management Units		1994 Sac Roe		1994/95 Food/Bait
	No.	Name	G.H.L.	Harvest	G.H.L.
F/B 12 Mid-Mainland Unit	MO50	Inner Katmai	65	50	5
	MO60	Outer Katmai	Exploration	0	Exploration
	MO70	Alinchak	50	6	1
	MO80	Puale Bay	Exploration	0	Exploration
	MO90	Portage Bay	Exploration	0	Exploration
UNIT TOTALS:			115	56	6
F/B 13 So. Mainland Unit	M100	Outer Portage	-	0	Exploration
	M110	Wide Bay	125	78	8
	M120	Lower Shelikof	Exploration	0	Exploration
UNIT TOTALS:			125	78	8
GRAND TOTALS:			4,550	5,888	585

^a The Kodiak Area total G.H.L. for food/bait fishery, as indicated in the 1994 Herring Regulations, is managed so that the food/bait harvest does not exceed 10% of the actual herring sac-roë harvest in the previous season. This table reflects the available food/bait harvest for each sac-roë stock or food/bait unit, whichever applies. (See Harvest Strategy.) G-H-L and harvest figures are rounded to the nearest ton.

^b These management units will be closed for the entire 1994/95 Food/Bait Herring season.

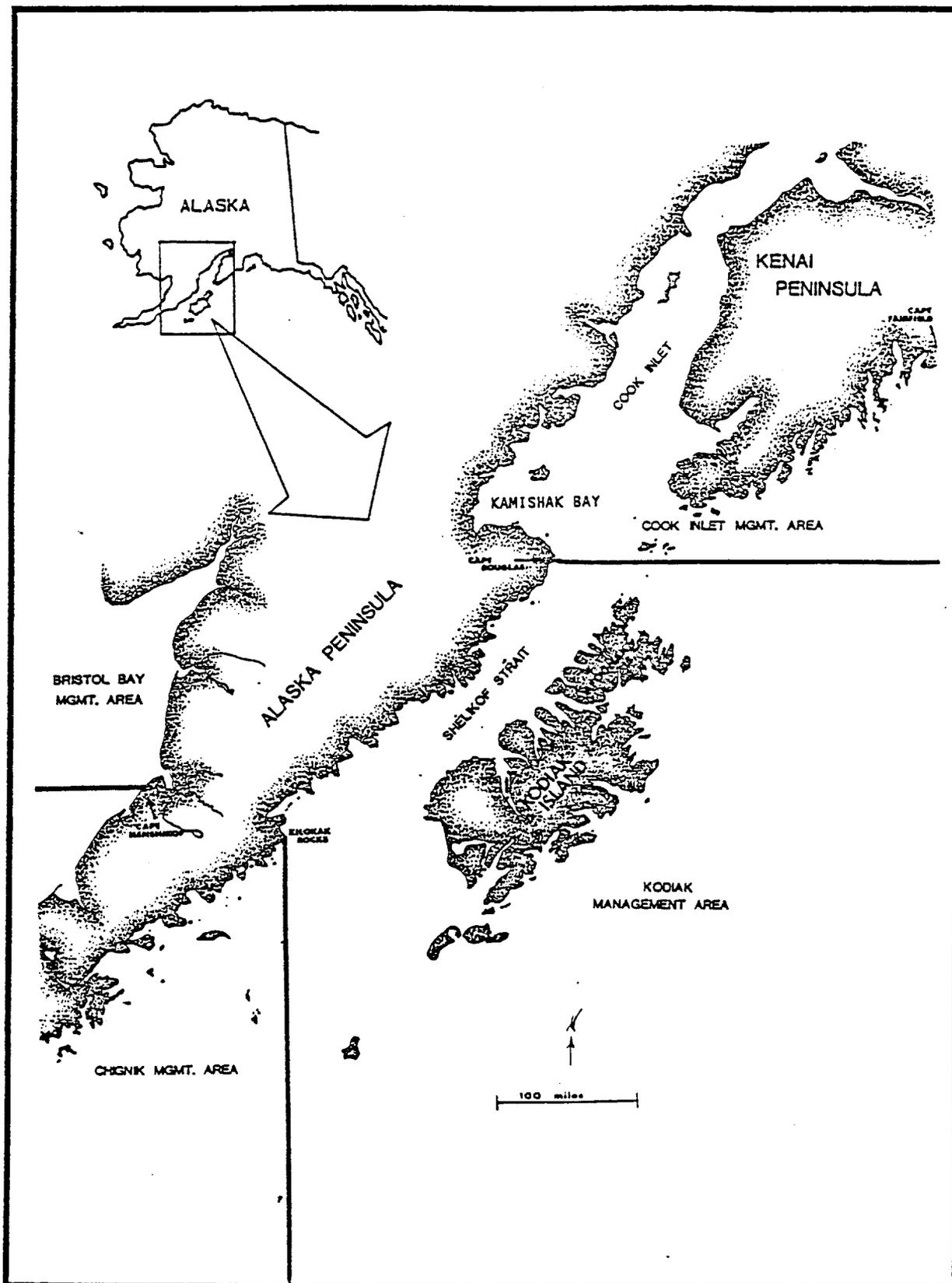


Figure 1. Map of southcentral Alaska showing the Kodiak and Cook Inlet herring management areas, along with the location of Kamishak Bay and Shelikof Strait.

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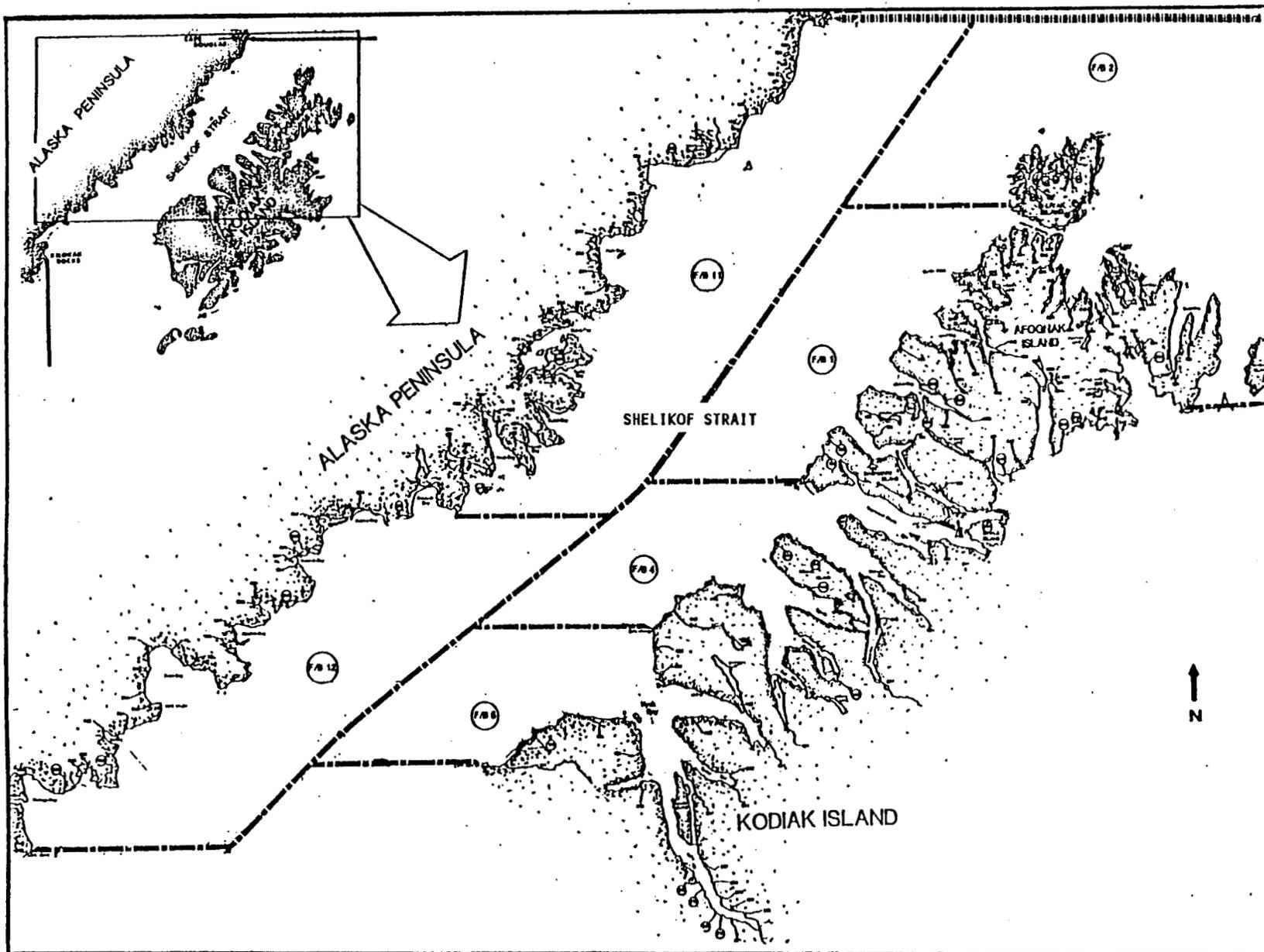


Figure 2. Kodiak food and bait herring management units, (FB1, FB2, FB4, FB5, FB11, and FB12) which are affected by the harvest of Kamishak Bay herring.

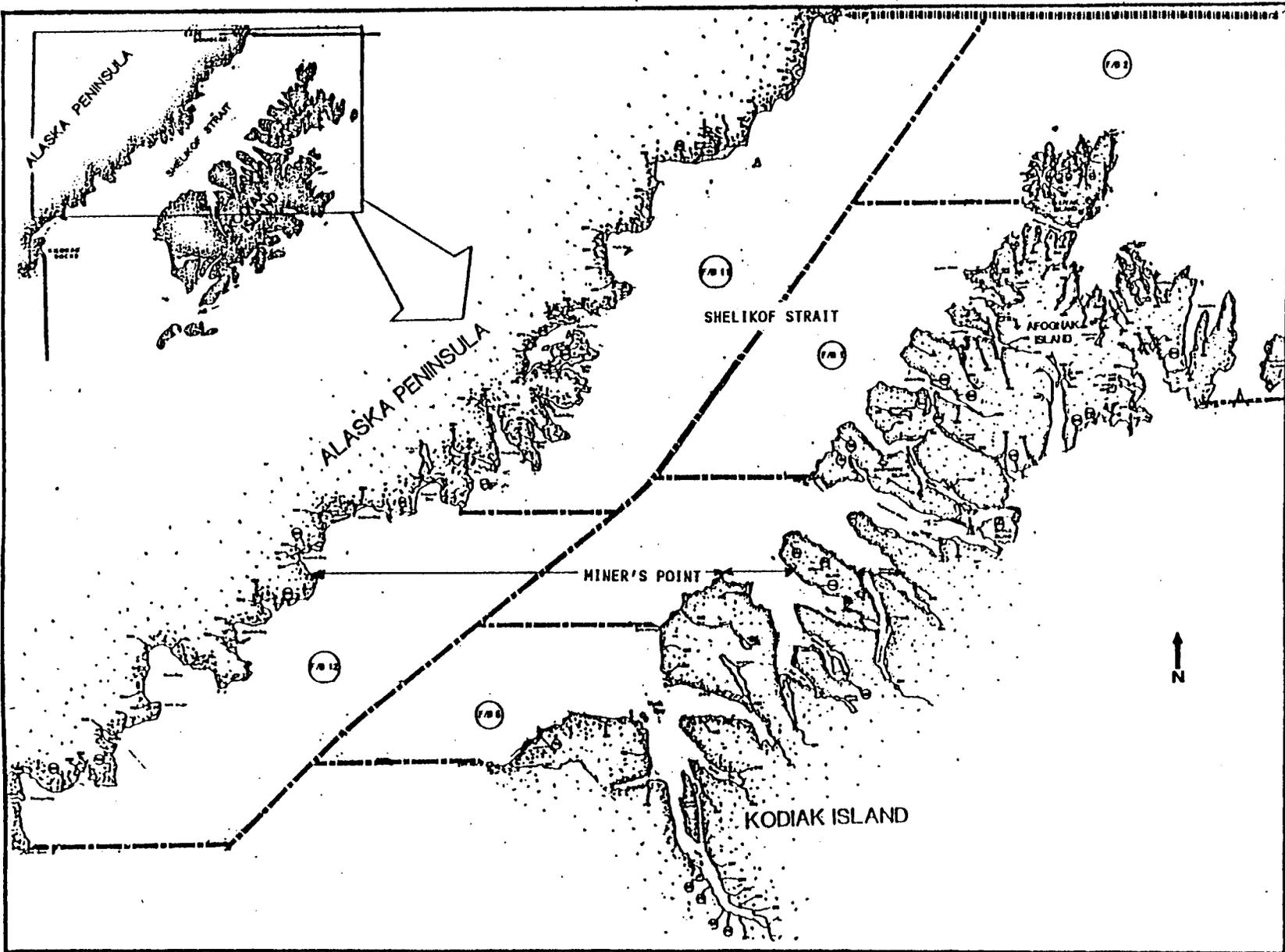


Figure 3. Kodiak food and bait management area north of the latitude of Miner's Point which would be closed if the Kamishak Bay herring biomass is below 8,000 tons.

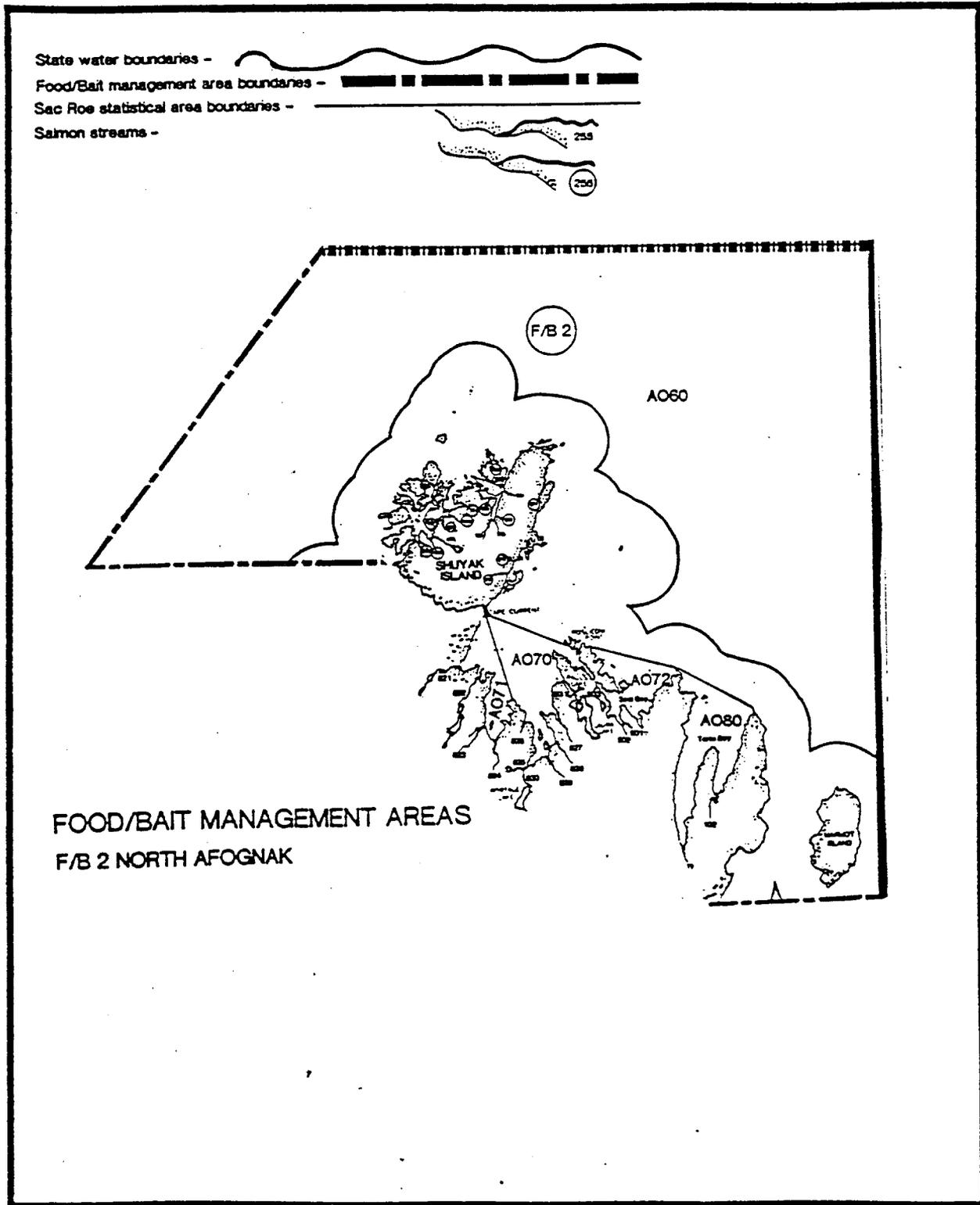


Figure 5. Map #1, food and bait herring management unit 2, Kodiak Management Area.

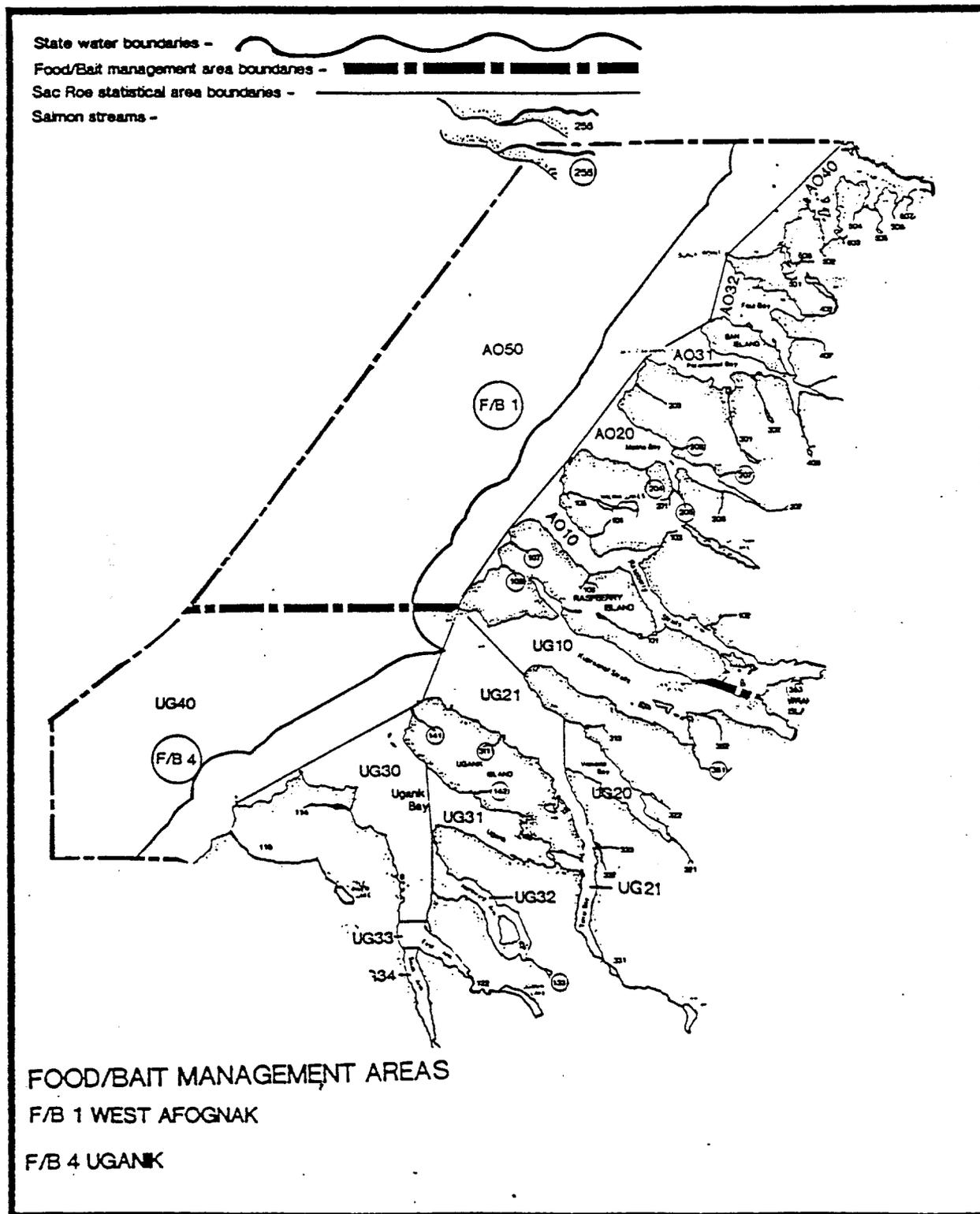


Figure 6. Map #2, food and bait herring management units 1 and 4, Kodiak Management Area.

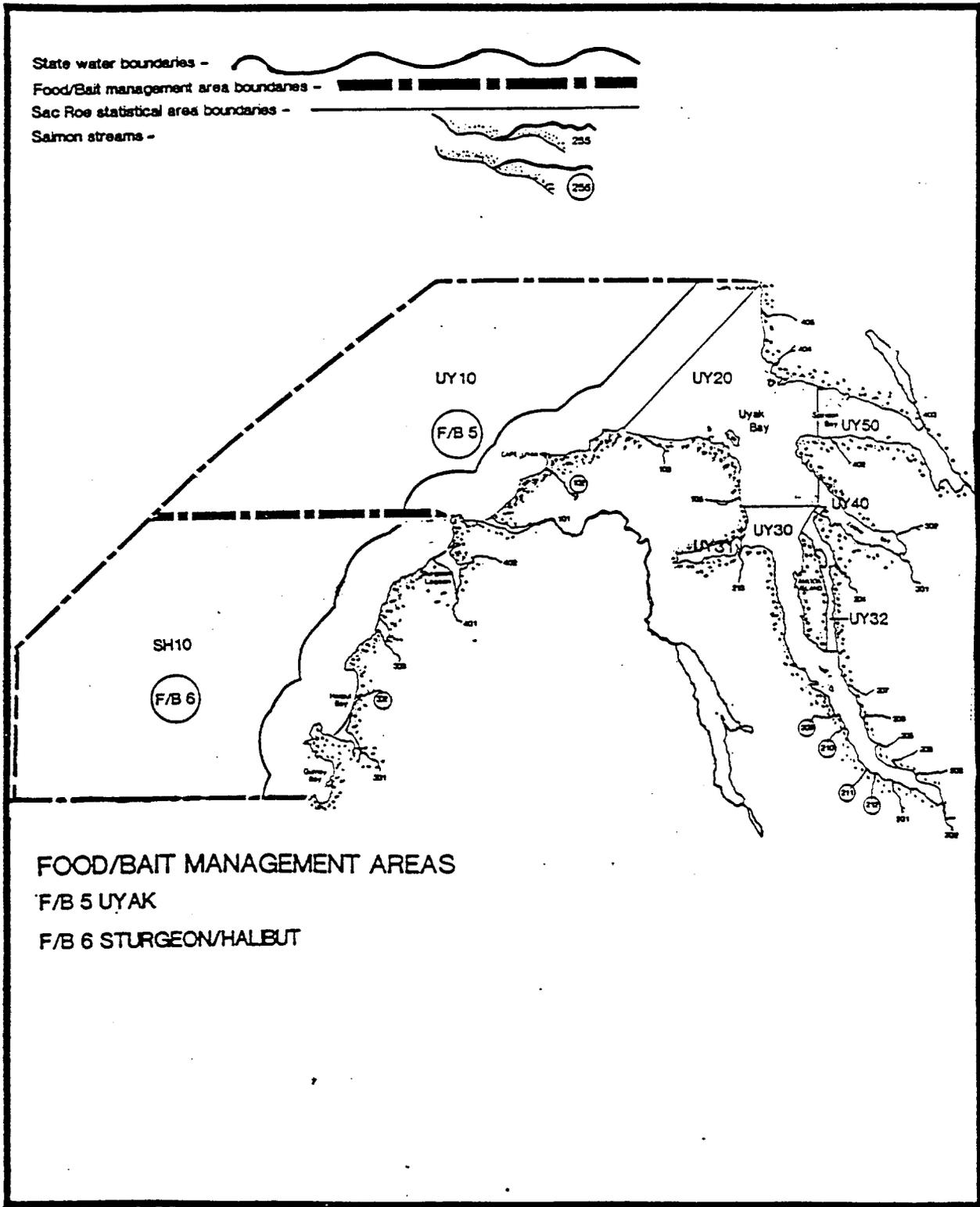


Figure 7. Map #3, food and bait herring management units 5 and 6, Kodiak Management Area.

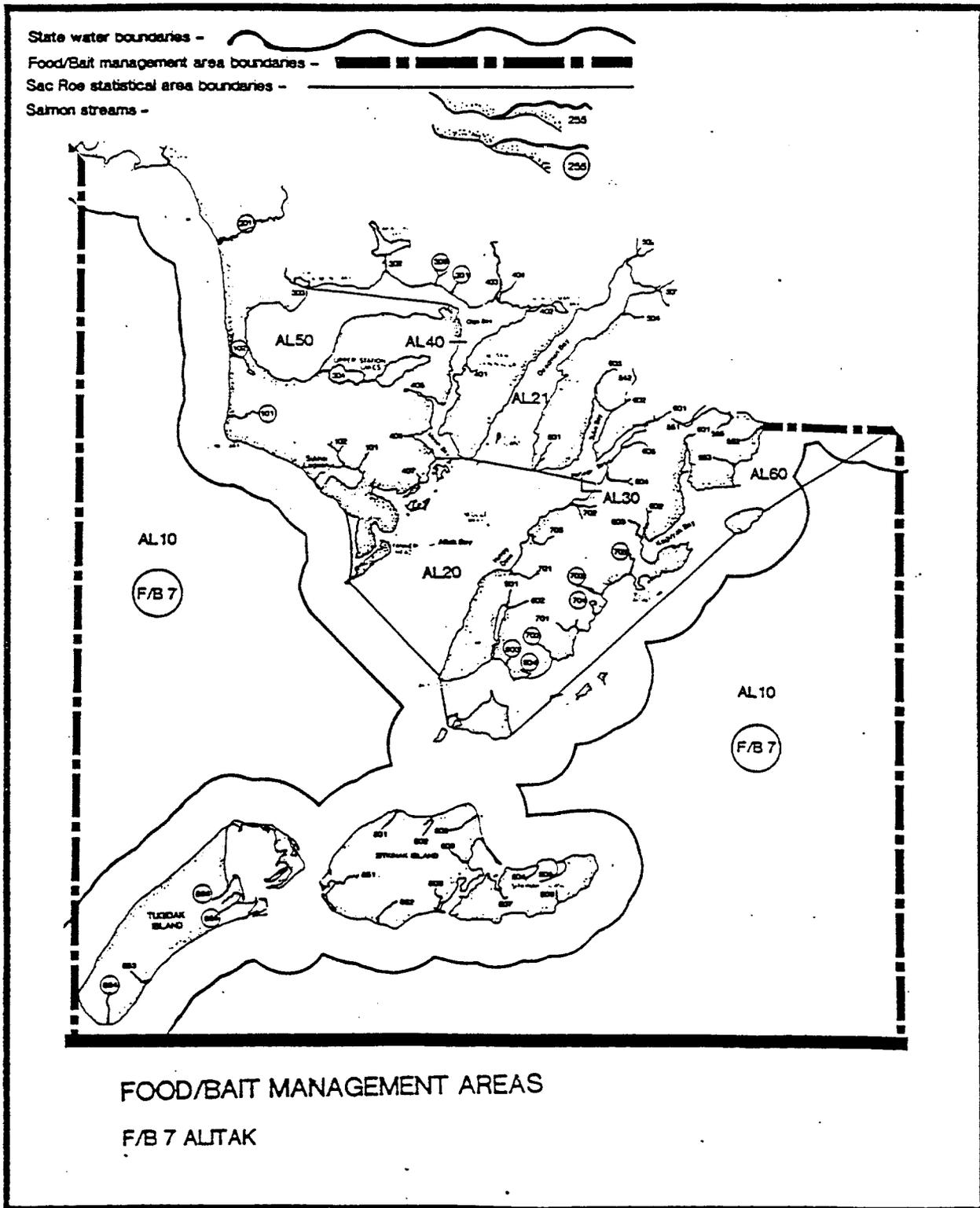


Figure 8. Map #4, food and bait herring management unit 7, Kodiak Management Area.

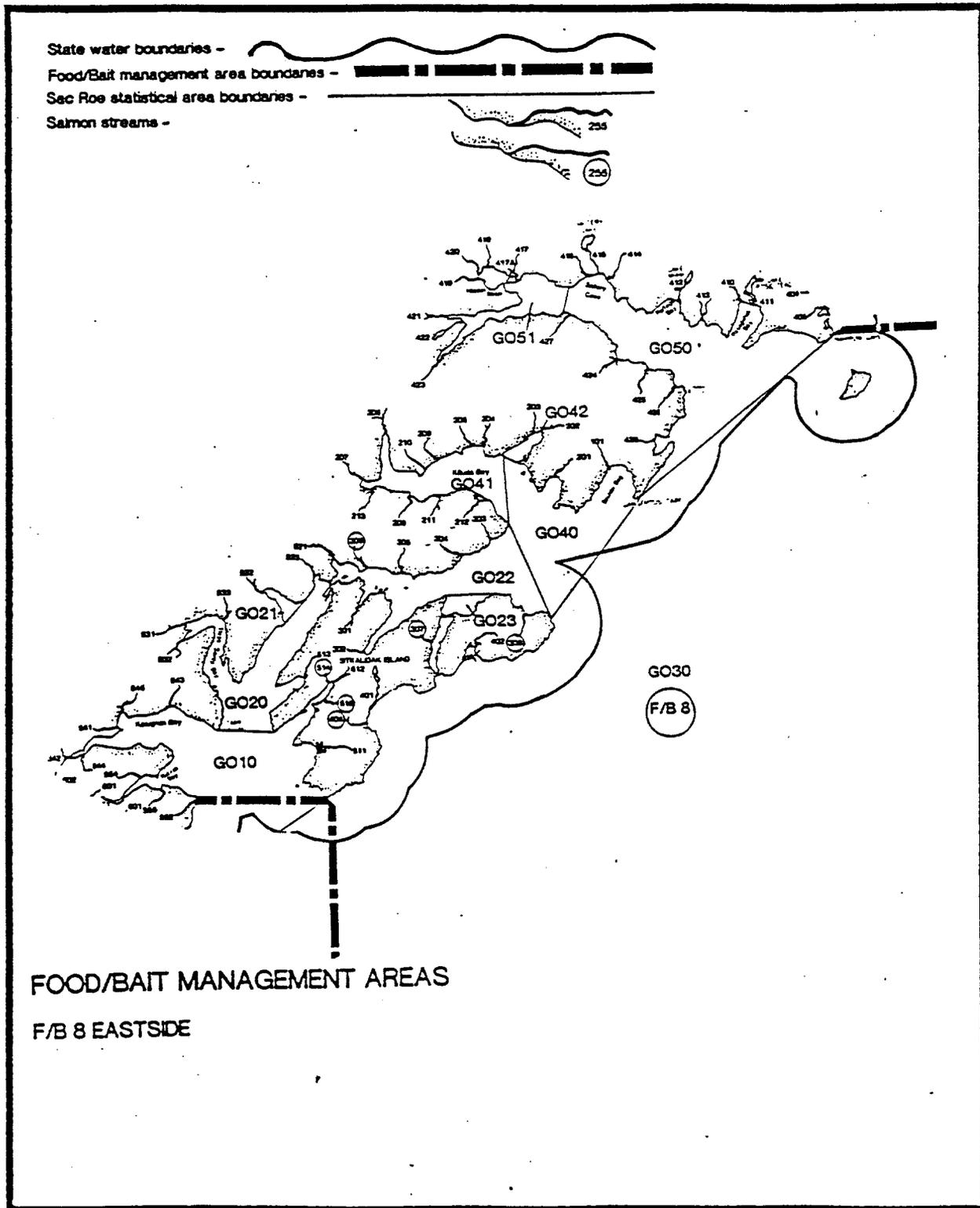


Figure 9. Map #5, food and bait herring management unit 8, Kodiak Management Area.

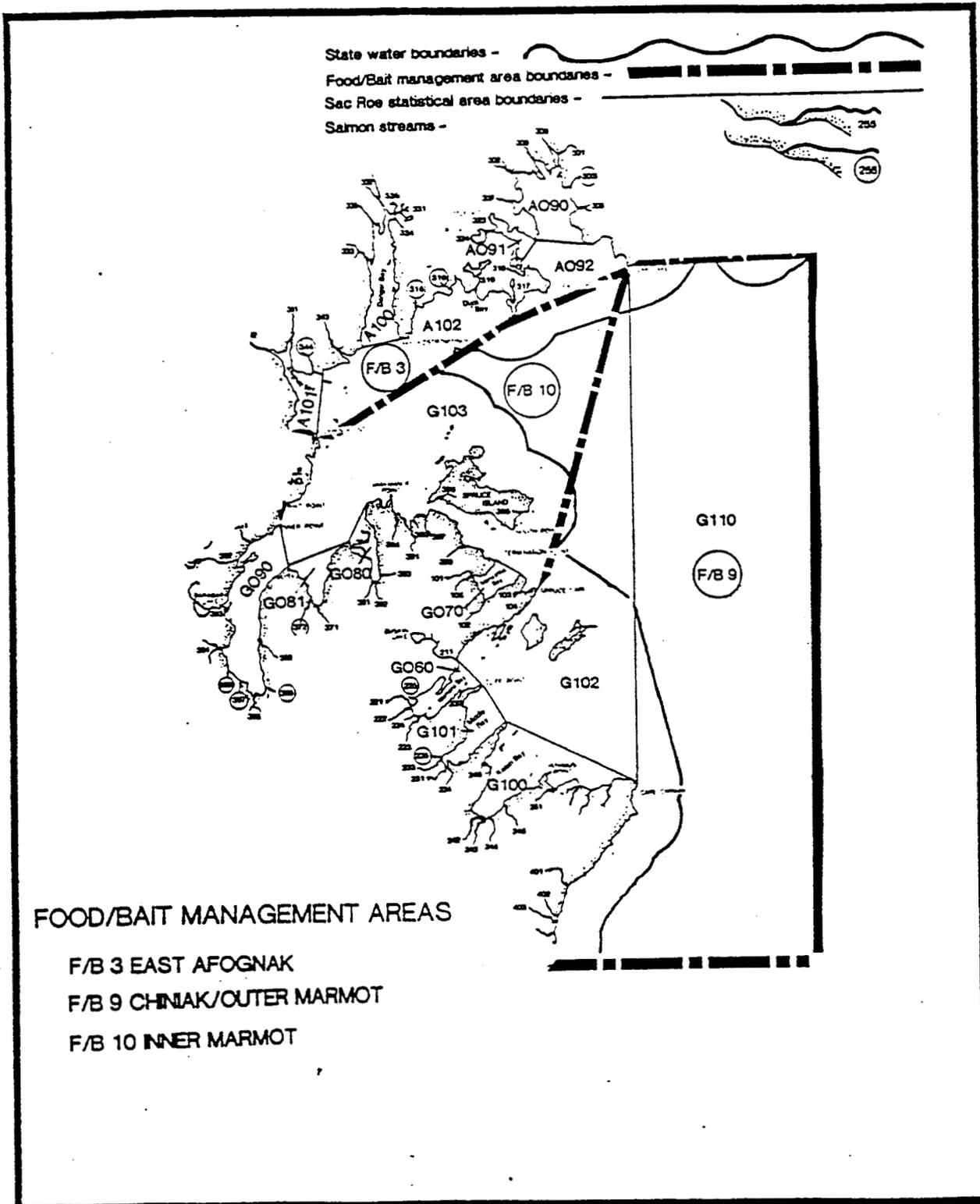


Figure 10. Map #6, food and bait herring management units 3, 9, and 10, Kodiak Management Area.

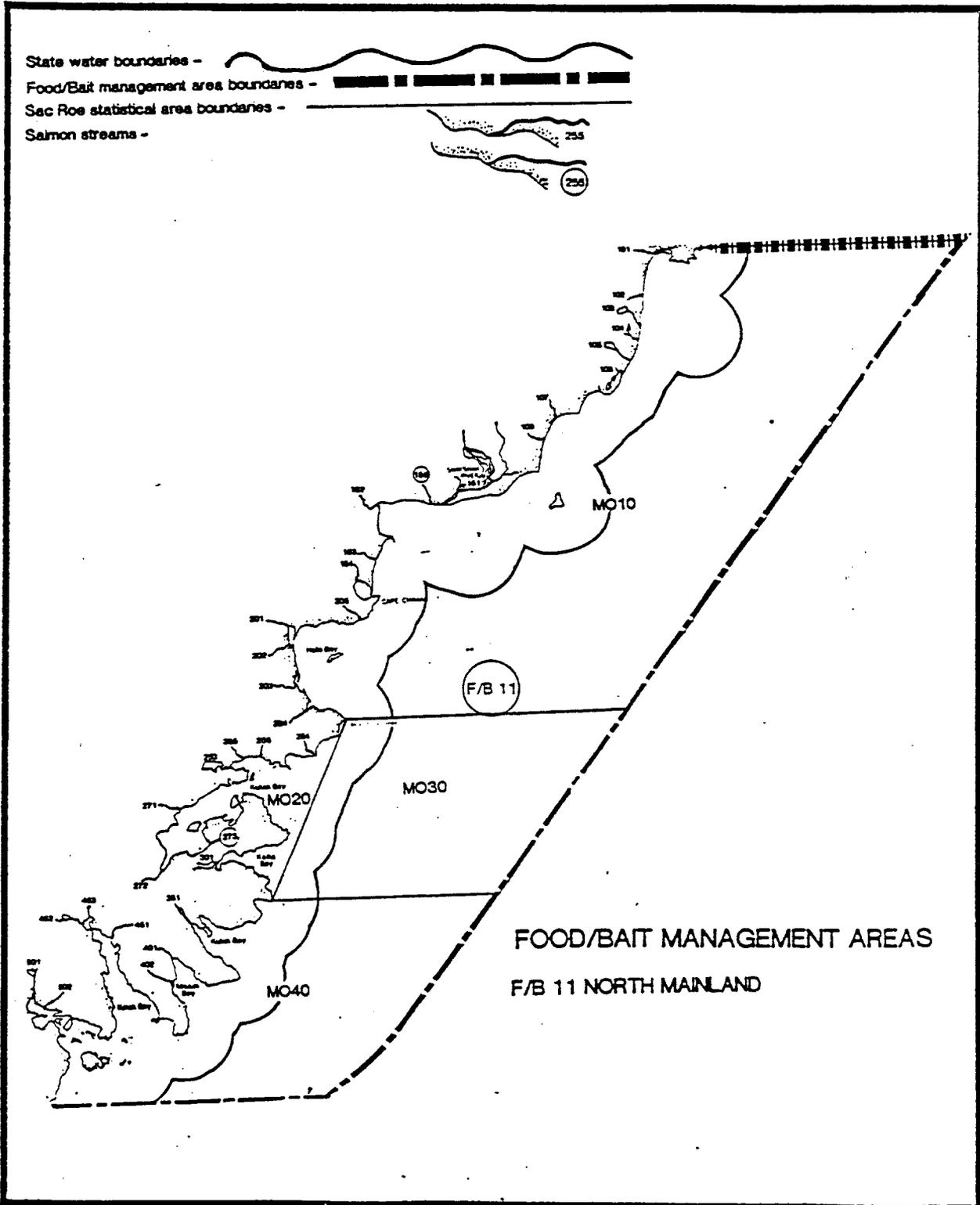


Figure 11. Map #7, food and bait herring management unit 11, North Mainland, Kodiak Management Area.

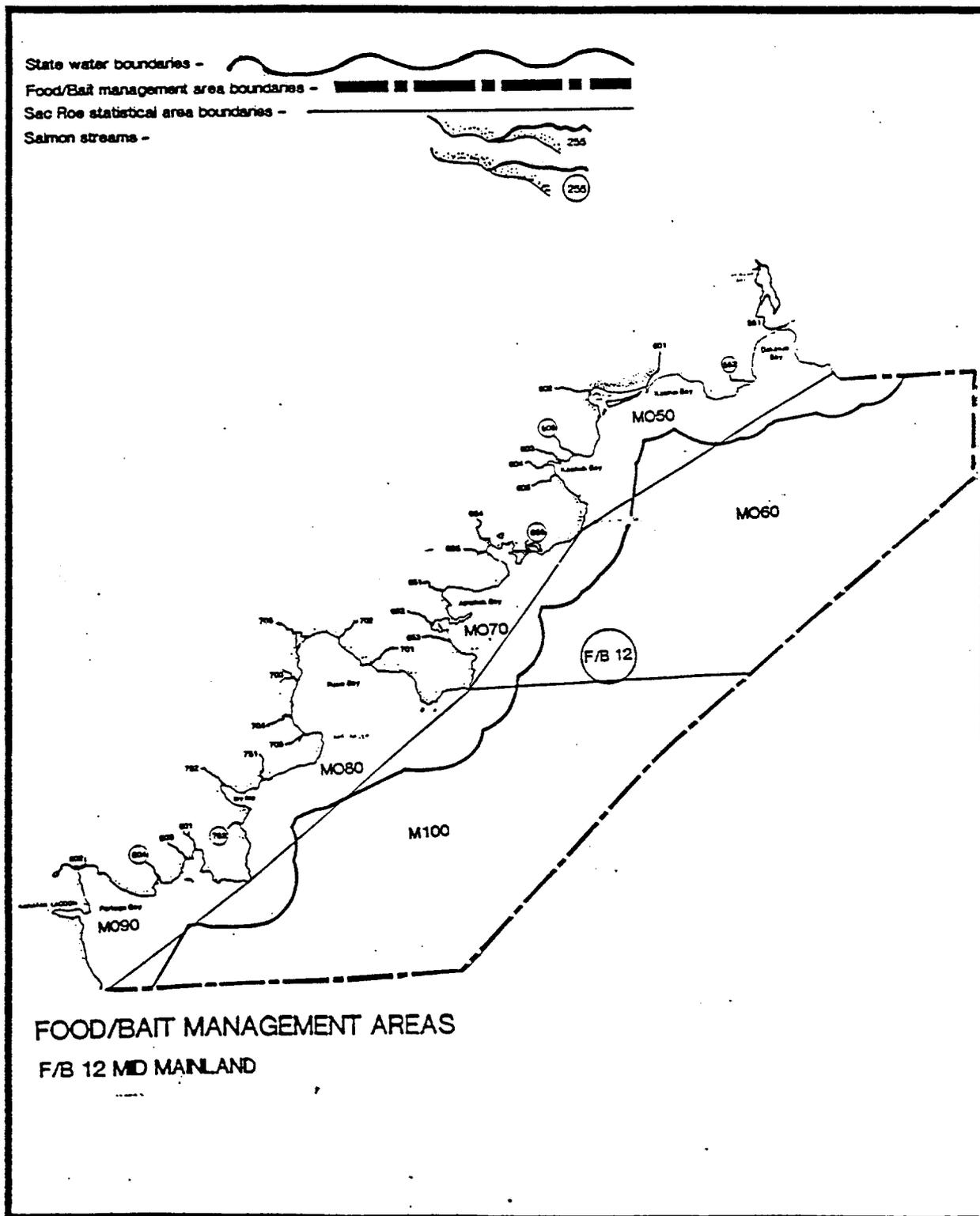


Figure 12. Map #8, food and bait herring management unit 12, mid-Mainland, Kodiak Management Area.

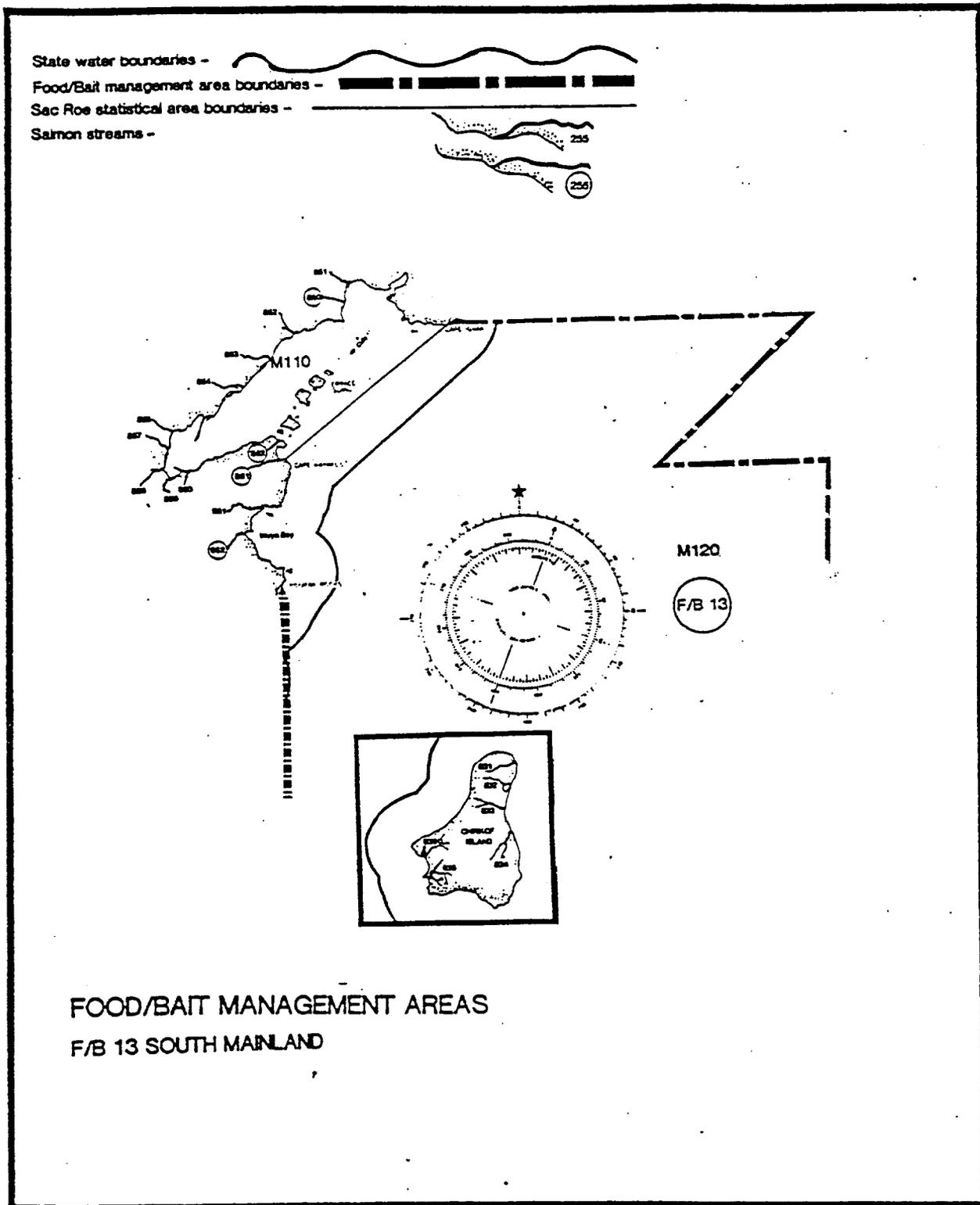


Figure 13. Map #9, food and bait herring management unit 13, South Mainland, Kodiak Management Area.

CONDITIONS OF THIS PERMIT

1. This permit provides for the taking of herring for subsistence/personal use purposes during the commercial herring sac-roe fishery. Herring caught under the conditions of this permit are for personal use only and may not be sold.
2. This permit is valid only for persons not participating in the commercial sac-roe fishery as a permit holder or crewman.
3. Commercial sac-roe fishermen participating in the Kodiak sac-roe fishery as a permit holder or crewman may retain herring from their lawfully taken commercial catch to fulfill their personal bait or food requirements.
4. For the purposes of this permit participating in the commercial sac-roe fishery means: being a permit holder or crewman who is operating commercial herring gear or on a vessel which has commercial herring gear on board.

WHEN: This permit is only required from April 15 through June 30; no permit is required to take subsistence/personal use herring during the remainder of the year, from July 1 through April 14. During the sac-roe season there are no closed periods to subsistence/personal use fishing.

WHERE: This permit is valid for all waters of the Kodiak Management Area, including those closed to commercial herring fishing. However, at any time, if biological or unlawful circumstances warrant it, emergency order closures of pertinent areas may be required.

HOW: This permit limits the type and quantity of gear to gillnet gear not exceeding 25 fathoms in length. The net must be attended at all times while fishing and be marked with buoys which have your name and address on them.

HOW MUCH: There are no restrictions on the amount of herring which can be taken with this permit.

REPORTING REQUIREMENTS: A complete record of harvest activity must be kept on the reverse side of this permit, to include harvest estimate in pounds of fish and the harvest location as well as type of use.

MISCELLANEOUS: No herring caught under the conditions of a herring subsistence/personal use permit may be onboard a vessel which also has commercially caught herring on board.

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