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**KODIAK MANAGEMENT AREA  
SAC ROE HERRING HARVEST STRATEGY, 1998**

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By

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## OVERVIEW

This document is intended to provide commercial fishermen and buyers with pertinent information that the Alaska Department of Fish and Game (ADF&G) will use to manage the Kodiak Management Area (KMA) commercial sac roe herring fishery. The 1998 KMA sac roe herring fishery overall guideline harvest level (GHL) is 2,030 (short) tons.

The 1998 season will begin at 12:00 Noon on April 15 and will close at 12:00 Noon on June 30. Fishing periods for purse seines from April 15 through May 4 will be 13 hours in duration starting at 12:00 Noon until 10:00 P.M. on odd-numbered days and from 9:00 A.M. until 12:00 Noon on even-numbered days. From May 5 through June 30 the fishing periods for purse seines is 12:00 Noon on odd-numbered days until 12:00 Noon on even-numbered days, 24 hour periods. Fishing periods for gillnetters from April 15 through June 30 are 12:00 Noon on odd-numbered days until 12:00 Noon on even-numbered days. Depending on ADF&G's assessment of effort levels, harvest rates, and ability to monitor the fishery, the length of fishing periods for either or both gear groups may be increased or reduced.

The KMA sac roe herring fishery is currently managed within 13 districts and 82 management sections (Figures 1-9). Historic herring harvests have occurred within 63 of these sections, and each section is treated as an individual herring stock. For the 1998 season 50 management sections will remain closed throughout the season due to either low stock abundance or no record of historical sac roe herring harvest.

For the remaining 32 management sections GHL's have been established for 1998 season. Inseason emergency order closures will occur as the GHL for each management section is achieved. Management section closures may also be implemented prior to attaining the GHL if fishery performance indicates that stock abundance is weaker than expected.

All inseason emergency order closures or reopenings will be broadcast from the field on VHF channel 6, on the single side band radio on 4.125 MHz following the daily marine weather broadcasts at 8:00 A.M. and 6:00 P.M., and from April 15- May 4 at 10:30 P.M.. All permit holders and tender operators should monitor VHF channel 6 during fishing periods to ensure that they hear inperiod emergency closures by the ADF&G staff. Announcements will be made by ADF&G staff aboard state vessels, from field crews stationed in tent camps, or from state or chartered aircraft. News releases will be available both inside and outside the Kodiak ADF&G office at 211 Mission Road. Additionally, the most current closure announcements will be available 24 hours a day on the ADF&G record-a-phone at 486-4559.

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

Permit holders are encouraged to check with their markets prior to fishing to determine acceptable minimum herring size/weight and roe percentage standards to prevent waste. All herring harvested

during the sac roe season which are sold as bait or discarded due to quality problems will be included as part of the total sac roe herring harvest, and should be included on fishtickets.

## **INTRODUCTION**

The KMA sac roe herring fishery has occurred annually since 1964 and harvests have averaged 1,948 tons (Table 1). This fishery was open to entry from 1964 to 1980, under a moratorium to new entries from 1981 to 1984, and has been designated a limited entry fishery since 1985.

From 1988-1997 the annual harvest has averaged about 3,553 tons and has ranged from 2,171 tons in 1988 to 5,893 tons in 1994. The 1997 harvest was 3,235 tons and the exvessel value of this fishery was estimated at \$970,500 dollars, a record low value for the fishery (Table 2).

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

## **GENERAL HARVEST POLICY**

This harvest strategy outlines the criteria used to manage the KMA sac roe herring fishery. The commercial fishery is intended to occur in an orderly fashion, with minimal waste of the resource and within conservation limits as determined by the ADF&G. Consequently, the 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 including the food/bait herring fishery. Roe recovery standards are determined by industry personnel.

## **FISHERY MANAGEMENT**

### ***Districts and Management Sections***

The KMA is divided into 13 districts which define geographical areas used in managing the sac roe herring fishery (Figures 1-9). Each district is then further divided into sections. Management sections are intended to define the spawning area used by a stock of herring or to define a geographical harvest location. Statistical charts which illustrate districts and sections are available at the Kodiak ADF&G office.

### ***Guideline Harvest Levels***

Harvest projections or guideline harvest levels (GHL's) are established for all management sections which have produced consistent herring harvests in previous sac roe seasons. 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) 1997 expected biomass vs. actual biomass estimates, 2) average school size, 3) trends in age composition, and 4) spawn observations. This information is supplemented by fishery performance information, including the expected vs. actual harvest timing, harvest duration, and harvest level. Management sections that were designated "exploratory" in 1997 have either been closed to fishing due to a lack of harvest history, or closed because the biomass is considered too small to support a fishery. Some of exploratory sections have been assigned a GHL for the 1998 season.

### ***Management Section Closures***

An evaluation of the KMA herring stocks over the last six years has revealed that several herring stocks have experienced a decline in abundance. In several cases the GHL's for these areas have been reduced over several years and yet the decline has continued. Further, some sections which were designated "exploratory" or were offshore areas that were more applicable to the food and bait herring fishery have been closed for the 1998 season. The following sections will be closed for the entire 1998 season.

#### **North Afognak District**

(NA10) Shuyak Island  
(NA20) Delphin Bay  
(NA30) Perenos Bay  
(NA40) Seal Bay

#### **West Afognak District**

(WA10) Raspberry Strait  
(WA20) Malina Bay  
(WA50) Offshore West Afognak

#### **South Afognak District**

(All sections closed within this district)

#### **Uganik District**

(UG10) Kupreanof  
(UG40) Offshore Uganik

#### **Eastside District**

(EA31) Tanginak Anchorage  
(EA40) Outer Sitkalidak

#### **Alitak District**

(AL10) Outer Alitak  
(AL21) Inner Deadman Bay  
(AL22) Outer Deadman Bay  
(AL30) Sulua Bay  
(AL40) Lower Olga\Moser  
(AL41) No.Upper Olga Bay  
(AL50) Upper Olga Bay

#### **North Mainland District**

(NM10) Hallo Bay  
(NM30) Outer Kukak  
(NM40) Missak Bay

**Uyak District**

(All sections closed within this district)

**Northeast District**

(All sections closed within this district)

**Inner Marmot District**

(All sections closed within this district)

**Mid-Mainland District**

(MM20) Outer Katmai

(MM40) Puale Bay

(MM50) Portage Bay

(MM60) Outer Portage

**South Mainland District**

(SM20) Lower Shelikof

***1998 Harvest Projections***

The 1998 total sac roe herring fishery GHL for the KMA is approximately 2,030 tons. The preseason GHL's by management section will be used as an aid in making inseason management decisions (Table 3). The GHL's are distributed by district as follows: North Afognak District 15 tons, West Afognak District 510 tons, South Afognak District closed, Uganik District 650 tons, Uyak District closed, Sturgeon/Halibut District closed, Alitak District 75 tons, Eastside District 640 tons, Northeast District closed, Inner Marmot District closed, North Mainland District 25 tons, Mid Mainland District 65 tons, and the South Mainland District 50 tons. The forecasted harvest for the KMA is approximately 4.1% of the projected statewide sac roe herring harvest of 49,418 tons, (Table 4).

***Season Dates and Fishing Periods***

The 1998 sac roe herring season will run from April 15 through June 30. Depending on ADF&G's assessment of effort levels, harvest rates, and ability to monitor the fishery, the length of fishing periods for either or both gear groups may be increased or reduced inseason.

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

***Purse Seine Fishing Periods***

Unless modified by emergency order, fishing periods for purse seines from April 15 through May 4 will be 13 hours in duration starting at 12:00 Noon until 10:00 P.M. on odd-numbered days and from 9:00 A.M. until 12:00 Noon on even-numbered days. From May 5 through June 30 the fishing periods for purse seines are 12:00 Noon on odd-numbered days until 12:00 Noon on even-numbered days, followed by 24 hour closed periods. The ADF&G may adjust the May 5 date

earlier or later depending on the assessment of effort, harvest rates, and the departments ability to monitor the fishery.

### *Gillnet Fishing Periods*

Unless modified by emergency order, fishing periods for gillnetters from April 15 through June 30 will be 24 hours in duration starting at 12:00 Noon on odd-numbered days until 12:00 Noon on even-numbered days, followed by 24 hour closed periods.

## INSEASON FISHERY MANAGEMENT

### *General Discussion*

Inseason management of the sac roe herring fishery relies primarily on harvest data collected by ADF&G field crews stationed in management sections where harvests are anticipated. During the 1998 season four ADF&G field crews and two ADF&G vessels (R/V K-Hi-C and R/V Resolution) will monitor the fishery.

Once the preseason GHL has been achieved for a management section, it is generally closed for the season. Due to the rapid pace of harvest in certain locations, inperiod closures are frequent. **Inperiod closures may occur with as little as 5 minutes advanced notice prior to the closure time which will be announced on VHF channel 6. Additional ways of hearing emergency order closures are referenced on page 6, "Getting the Word".**

At any time during the season if it appears that preseason expectations are incorrect, GHL's can be adjusted above or below preseason levels. Consequently, sections may be closed prior to reaching their GHL's or a harvest in excess of the GHL's could be allowed depending on observed stock abundance.

The ADF&G may also make adjustments in the management of some sections based on inseason changes in fish behavior or harvest patterns. In the event that a large single biomass of herring is identified which is moving or likely to move between immediately adjacent management sections, and if a harvest has previously occurred on that biomass that exceeds 20% of the estimated tonnage of those herring, then the Department may close those management sections through which these herring will likely move. This closure may occur regardless of any unharvested GHL's in the adjacent management sections. Management sections closed under these circumstances may be reopened once the protected biomass is no longer available to further exploitation.

Management sections which have been closed because the GHL has been achieved may be reopened if it is determined by ADF&G that additional herring arriving on the grounds has increased the available biomass to the point that the initial exploitation rate has dropped below 10 percent for that stock (Table 3). Any reopenings will require confirmation that juvenile herring,

post spawners, or other forage fish are not present and that ADF&G has the ability to monitor and regulate the reopenings on the grounds. At least 24 hours advance notice shall be given prior to any management sections being reopened. However, due to the imprecise method of determining specific inseason biomass estimates with the anticipated high seine gear effort, reopenings are unlikely to occur in 1998.

All fishers, spotter pilots, and processors are encouraged provide the ADF&G management staff with any information on herring biomass estimates and spawn sightings. This information will be kept in strict confidence and may improve the management of the fishery. The Department is particularly interested in any observations of herring in closed management sections. Timely information will be used to direct the ADF&G aerial surveys.

### *Catch Reporting*

Processors and independent tender operators are required to provide timely daily catch reports of herring deliveries by management section. Herring catches onboard tenders that have not yet been delivered to the cannery must also be reported daily. **Tender operators are urged to monitor VHF channel 6 while participating in this fishery to keep aware of management section closures.**

Timely and accurate harvest reports from ADF&G field crews, fishers, 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 or GHLS being greatly exceeded.

Individual code sheets are available for those tender operators and processors who will report catches via VHF or SSB radio. **Tender operators and buyers are required to register with ADF&G in Kodiak prior to starting operations and will be given a packet containing regulations, statistical charts, etc. Reporting times and schedules will be specified at the time of registration.**

### *ADF&G Field Crews/Fisher Cooperation*

The ADF&G personnel aboard state vessels and in remote tent camps will make frequent contact with fishers to collect harvest data, fleet movement information, spawn observations, and observations of juvenile herring concentrations (Table 5). ADF&G field crews will also monitor and map herring spawning activities. Fishers and spotter pilots are encouraged to provide biomass estimates, juvenile herring observations, and spawn observations to the ADF&G field crews or management staff. This information will remain confidential. Past cooperation has been excellent and has helped to evaluate stock status and gain critical management information.

Cooperation by fishers is appreciated when ADF&G personnel request herring samples from their commercial catch. Samples of juvenile herring inadvertently caught will also be accepted by

ADF&G personnel. Samples are primarily used to monitor age composition, and when used with other stock performance indicators, will assist in determining stock status.

### ***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 the Kodiak office, or telephone at 486-1830; 2) contact with ADF&G field personnel and vessels, on VHF Channel 6, on SSB frequency 3.230 MHz (call sign WON32 Kodiak Fish and Game), or 4.125 MHz (call sign WHM29 Kodiak Fish and Game); 3) contacting local herring processors to transmit the latest Kodiak herring news release; 4) calling the ADF&G 24 hour recorded message phone at 486-4559; 5) listening for emergency order updates 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 10:30 P.M. from April 15 through May 4 on 4.125 MHz; 6) obtaining a copy of the most recent emergency order, which will be posted outside the main entrance to the Kodiak Fish and Game office; or 7) listening to the Fish and Game reports broadcast over the local AM and FM radio stations (consult stations for broadcast times).

Inperiod emergency closure announcements for management sections do occur with short notification. **All permit holders and tender operators should monitor VHF channel 6 during fishing periods to ensure that they hear inperiod emergency closures by the ADF&G staff. Announcements will be made by ADF&G staff aboard state vessels, from field crews stationed in tent camps, or from state or chartered aircraft.** 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***

The 1997-98 Commercial Herring Fishing Regulation booklet along with the herring statistical chart are available at the Kodiak ADF&G Office. **Note: Regulation 5 AAC 27.505. Descriptions of Districts and Sections, lists the correct legal descriptions of districts and sections using the 1983 North America datum NOAA marine charts. The 1997-98 herring regulation book lists all descriptions of management sections and closed water areas in latitude and longitude readings which are in decimals and are listed as degrees and minutes.**

### *Gear Regulations*

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 sac roe herring 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 sac roe herring season.

### *Seine Specifications and Operations*

5 AAC 27.525. Seine specifications and operations.

(a) From April 1 through July 31, no purse seine shall exceed 20 fathoms stretch measure in depth or 100 fathoms in length. The depth shall be determined by using a stretch measure of the web from the corkline to the bottom of the net including any lines that hang below the lead line. See Regulation 5 AAC 39.975 (11), Definitions, for the definition of stretched measure.

(d) From April 1 through July 31, an Area K sac roe herring 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 Kodiak ADF&G office to use a replacement vessel.** Only one replacement seine vessel may be registered by at a time by a permit holder.

### *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. Gillnets may not exceed 230 meshes in depth. Regulation 5 AAC 27.050 (c) describes gillnet mesh sizes as follows, "The mesh size of a herring gillnet may not be less than two and one-eighth inches or more than two and one-half inches."

(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 gillnet 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 5 AAC 27.520 (d), when the following conditions exist herring gillnetters are allowed a four hour period before having to completely remove their gear from the water.

(d) Herring gillnets may remain in the water for four hours after the announced closing time for any opening of three hours or less of fishing time. No herring gillnet may be set or reset after a closure time. Herring gillnets may remain in the water up to four hours after an emergency closure if that closure is announced by the department less than three hours before the closure time. No herring gillnet may remain in the water past the 12:00 Noon even-day closure time.

### ***Additional Waters Closed to Herring Fishing***

Following is a listing of additional closed water areas to herring fishing for the period April 15 through June 30 (5 AAC 27,530).

- (1) Women's Bay: all waters enclosed by a line from Shannon's Point (57° 43.67' N. lat., 152° 31.73' W. long.) to Nymans Peninsula (57° 43.37' N. lat., 152° 31.55' W. long.).
- (2) Brown's Lagoon: all waters, beginning at the seaward entrance.
- (3) Uganik Island: the lagoons of Uganik Island as follows:
  - (A) south and west of a line from 57° 51.10' N. lat., 153° 13.53" W. long., to 57° 52. 12' N. lat., 153° 15.20' W. long.;
  - (B) north of a line from 57° 49.37' N. lat., 153° 17.65' W. long., to 57° 49.47' N. lat., 153° 19.30' W. long.;
  - (C) east of a line from 57° 50.85' N. lat., 153° 19.18' W. long., to 57° 49.43' N. lat., 153° 19.20' W. long.

## *Registration Requirements*

### Tender and Processor Registration 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.

### 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 the permit card. (See regulation 5 AAC 27.525)

## *Herring Size Limits*

As stated in 5 AAC 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 AND 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 commercial harvest data and effort levels for the sac roe herring fishery of the Kodiak Management Area, 1964-1997.

Year	Total Harvest (Tons)	Harvest by Gear Type		Number of Vessels Making Landings		Total	Number of Processors
		Seine (Tons)	Gillnet (Tons)	Seine	Gillnet		
1964	568	568	0	5	0	5	2
1965	657	657	0	8	0	8	2
1966	2,769	2,769	0	11	0	11	4
1967	1,662	1,662	0	5	0	5	4
1968	2,001	2,001	0	10	0	10	4
1969	1,130	1,130	0	21	0	21	9
1970	342	342	0	13	0	13	5
1971	284	284	0	4	0	4	2
1972	215	215	0	4	0	4	1
1973	831	831	0	11	0	11	4
1974	868	868	0	26	0	26	4
1975	8	8	0	2	0	2	3
1976	5	5	0	1	0	1	1
1977	338	338	0	11	0	11	3
1978	904	881	23	28	7	35	7
1979	1,735	1,457	278	57	125	182	8
1980	2,383	2,009	374	92	109	201	9
1981	2,065	1,596	469	79	114	193	9
1982	1,771	1,447	324	45	67	112	6
1983	2,318	1,797	521	41	64	105	7
1984	2,163	1,691	472	39	69	108	7
1985	1,968	1,244	724	34	81	115	7
1986	1,558	1,111	447	31	71	102	8
1987	2,146	1,591	555	29	62	91	8
1988	2,171	1,304	867	33	76	109	6
1989	2,249	1,513	736	37	83	120	6
1990	2,347	1,644	703	27	63	90	6
1991	2,432	1,697	735	32	64	96	6
1992	4,283	3,260	1,023	40	74	114	6
1993	4,929	4,203	726	41	86	127	6
1994	5,893	4,976	917	66	57	123	15
1995	4,604	3,837	767	73	71	144	17
1996 <sup>a</sup>	3,386	2,322	1,064	57	74	131	15
1997 <sup>a</sup>	3,235	2,629	606	64	59	123	10
<b>Average</b>							
1964-1997	1,948	1,585	363	32	43	75	6

<sup>a</sup> Approximately 15 additional purse seine vessels participated in the 1996 and 1997 fisheries but made no deliveries.

Table 2. Sac roe herring fishery summary of season length, guideline harvest level (GHL), harvest data by gear type, percentage of harvest by gear type, number of landings, and exvessel earnings, Kodiak Management Area, 1979-1997.

Year	Season Length (Days)	G-H-L (Tons)	Total Harvest (Tons)	Harvest by Gear Type		Percent Harvest by Gear Type		Number of Landings by Gear Type		Units of Gear Making Landings		Average Catch by Gear		Average Earnings		Price per Ton (\$)	Exvessel Total Value (\$)
				Seine (Tons)	Gillnet (Tons)	Seine	Gillnet	Seine	Gillnet	Seine	Gillnet	Seine (Tons)	Gillnet (Tons)	Seine (\$)	Gillnet (\$)		
1979	36	2,400	1,735	1,457	278	84%	16%	-	-	57	125	26	2	\$38,342	\$3,336	\$1,500	\$2,602,500
1980	35	2,400	2,383	2,009	374	84%	16%	-	-	92	109	22	3	\$15,068	\$2,368	\$690	\$1,644,270
1981	48	2,400	2,065	1,596	469	77%	23%	207	406	79	114	20	4	\$14,647	\$2,983	\$725	\$1,497,125
1982	59	2,400	1,771	1,447	324	82%	18%	138	191	45	67	32	5	\$17,686	\$2,660	\$550	\$974,050
1983	51	2,400	2,319	1,797	522	77%	23%	164	284	41	64	44	8	\$35,063	\$6,525	\$800	\$1,855,200
1984	54	2,400	2,163	1,691	472	78%	22%	138	212	39	69	43	7	\$34,687	\$5,472	\$800	\$1,730,400
1985	59	2,000	1,968	1,244	724	63%	37%	118	348	34	81	37	9	\$32,929	\$8,044	\$900	\$1,771,200
1986	61	1,890	1,558	1,110	448	71%	29%	132	385	31	71	36	6	\$34,016	\$5,994	\$950	\$1,480,100
1987	61	1,840	2,146	1,591	554	74%	26%	122	411	29	62	55	9	\$54,862	\$8,935	\$1,000	\$2,146,000
1988	59	2,065	2,171	1,304	667	60%	40%	169	555	33	76	40	11	\$51,370	\$14,830	\$1,300	\$2,822,300
1989	76	2,415	2,249	1,513	736	67%	33%	171	627	37	83	41	9	\$34,749	\$7,535	\$850	\$1,911,149
1990	75	2,375	2,347	1,644	703	70%	30%	156	544	27	63	61	11	\$51,756	\$9,485	\$850	\$1,994,950
1991	83	2,510	2,432	1,697	735	70%	30%	169	587	32	64	53	11	\$45,077	\$9,762	\$850	\$2,067,200
1992	77	2,720	4,283	3,260	1,023	76%	24%	185	706	40	74	82	14	\$40,750	\$6,912	\$500	\$2,141,500
1993	77	3,525	4,929	4,203	726	85%	15%	237	294	41	86	103	8	\$56,382	\$4,643	\$550	\$2,710,950
1994	71	4,550	5,893	4,976	917	84%	16%	285	485	66	57	75	16	\$60,315	\$12,870	\$800	\$4,714,400
1995	73	4,480	4,604	3,837	768	83%	17%	280	642	73	71	53	11	\$66,858	\$13,759	\$1,272	\$5,856,288
1996	69	4,180	3,386	2,322	1,064	69%	31%	202	890	57	74	41	14	\$81,474	\$28,757	\$2,000	\$6,772,000
1997	49	3,435	3,233	2,629	606	81%	19%	183	415	64	59	41	10	\$12,323	\$3,081	\$300	\$970,500
<b>Averages</b>																	
1979-1997	62	2,736	2,823	2,175	648	76%	24%	161	420	48	78	48	9	\$42,557	\$8,604	\$938	\$2,593,977
Five Year																	
1993-1997	68	4,034	4,400	3,593	816	81%	19%	237	546	80	69	62	12	\$55,470	\$12,622	\$994	\$4,204,828
Ten Year																	
1988-1997	71	3,226	3,553	2,739	815	75%	25%	204	575	47	71	59	12	\$50,105	\$11,163	\$927	\$3,196,124

Table 3. Sac roe herring fishery guideline harvest levels by stock, Kodiak Management Area, 1998.

STATISTICAL AREA	MANAGEMENT UNITS	1998 GUIDELINE HARVEST LEVEL (Tons)	REQUIRED SPAWNING BIOMASS	
			@10% EXPLOITATION (Tons)	@20% EXPLOITATION (Tons)
<b>NORTH AFOGNAK DISTRICT</b>				
NA10	Shuyak Island	CLOSED	-	-
NA20	Delphin Bay	CLOSED	-	-
NA30	Perenos Bay	CLOSED	-	-
NA40	Seal Bay	CLOSED	-	-
NA50	Tonki Bay	15	150	75
<b>DISTRICT TOTAL</b>		<b>15</b>	<b>150</b>	<b>75</b>
<b>WEST AFOGNAK DISTRICT</b>				
WA10	Raspberry Strait	CLOSED	-	-
WA20	Malina Bay	CLOSED	-	-
WA31	Paramanof Bay	400	4,000	2,000
WA32	Foul Bay	100	1,000	500
WA40	Blue Fox/Devil's Inlet	10	100	50
WA50	Offshore W. Afognak	CLOSED	-	-
<b>DISTRICT TOTAL</b>		<b>510</b>	<b>5,100</b>	<b>2,550</b>
<b>SOUTH AFOGNAK DISTRICT</b>				
SA10	Izhut Bay	CLOSED	-	-
SA20	Kitoi Bay	CLOSED	-	-
SA30	MacDonalds Lagoon	CLOSED	-	-
SA40	Danger Bay	CLOSED	-	-
SA50	Litnik	CLOSED	-	-
SA60	Duck Bay	CLOSED	-	-
<b>DISTRICT TOTAL</b>		<b>CLOSED</b>	<b>-</b>	<b>-</b>
<b>UGANIK DISTRICT</b>				
UG10	Kupreanof	CLOSED	-	-
UG20	Viekoda	75	750	375
UG21	Terror Bay	200	2,000	1,000
UG30	Village Island	150	1,500	750
UG31	West Uganik Pass	20	200	100
UG32	NE Arm Uganik	30	300	150
UG33	E. Arm Uganik	75	750	375
UG34	S. Arm Uganik	100	1,000	500
UG40	Offshore Uganik	CLOSED	-	-
<b>DISTRICT TOTAL</b>		<b>650</b>	<b>6,500</b>	<b>3,250</b>
<b>UYAK DISTRICT</b>				
UY10	Offshore Uyak	CLOSED	-	-
UY20	Harvester Island	CLOSED	-	-
UY30	Inner Uyak	CLOSED	-	-
UY32	Browns Lagoon	CLOSED	-	-
UY31	Larsen Bay	CLOSED	-	-

-Continued-

Table 3. (page 2 of 3)

STATISTICAL AREA	MANAGEMENT UNITS	1998 GUIDELINE HARVEST LEVEL (Tons)	REQUIRED SPAWNING BIOMASS	
			@10% EXPLOITATION (Tons)	@20% EXPLOITATION (Tons)
UY40	Zachar Bay	CLOSED	-	-
UY50	Spiridon Bay	CLOSED	-	-
<b>DISTRICT TOTAL</b>		<b>CLOSED</b>	-	-
<b>ALITAK DISTRICT</b>				
AL10	Outer Alitak	CLOSED	-	-
AL20	Inner Alitak	10	100	50
AL21	Inner Deadman Bay	CLOSED	-	-
AL22	Outer Deadman Bay	CLOSED	-	-
AL30	Sulua Bay	CLOSED	-	-
AL31	Portage Bay	50	500	250
AL40	Lower Olga/Moser	CLOSED	-	-
AL41	No. Upper Olga Bay	CLOSED	-	-
AL50	Upper Olga Bay	CLOSED	-	-
AL60	Geese/Twoheaded	15	150	75
<b>DISTRICT TOTAL</b>		<b>75</b>	<b>750</b>	<b>375</b>
<b>STURGEON/HALIBUT DISTRICT</b>				
SH10	Sturgeon/Halibut	CLOSED	-	-
<b>EASTSIDE DISTRICT</b>				
EA10	Kaiugnak	10	100	50
EA20	SW. Sitkalidak	10	100	50
EA21	Three Saints Bay	30	300	150
EA22	Newman Bay	10	100	50
EA23	W. Sitkalidak Strait	50	500	250
EA24	Barling Bay	40	400	200
EA30	E. Sitkalidak St.	50	500	250
EA31	Tanginak Anchorage	CLOSED	-	-
EA40	Outer Sitkalidak	CLOSED	-	-
EA41	Boulder Bay	10	100	50
EA42	Shearwater Bay	90	900	450
EA43	Outer Kiliuda Bay	90	900	450
EA44	Inner Kiliuda Bay	90	900	450
EA50	Outer Ugak Bay	60	600	300
EA51	Inner Ugak Bay	90	900	450
EA52	Pasagshak	10	100	50
<b>DISTRICT TOTAL</b>		<b>640</b>	<b>6,400</b>	<b>3,200</b>
<b>NORTHEAST DISTRICT</b>				
NE10	Womens Bay	CLOSED	-	-
NE20	Kalsin Bay	CLOSED	-	-
NE30	Middle Bay	CLOSED	-	-

-Continued-

Table 3. (page 3 of 3)

STATISTICAL AREA	MANAGEMENT UNITS	1998 GUIDELINE HARVEST LEVEL (Tons)	REQUIRED SPAWNING BIOMASS	
			@10% EXPLOITATION (Tons)	@20% EXPLOITATION (Tons)
NE40	Inshore Chiniak	CLOSED	-	-
NE50	Offshore Chiniak	CLOSED	-	-
<b>DISTRICT TOTAL</b>		<b>CLOSED</b>	<b>-</b>	<b>-</b>
<b>INNER MARMOT DISTRICT</b>				
IM10	Monashka Bay	CLOSED	-	-
IM20	Anton Larsen Bay	CLOSED	-	-
IM30	Sharatin Bay	CLOSED	-	-
IM40	Kizhuyak Bay	CLOSED	-	-
IM50	Spruce Island	CLOSED	-	-
<b>DISTRICT TOTAL</b>		<b>CLOSED</b>	<b>-</b>	<b>-</b>
<b>NORTH MAINLAND DISTRICT</b>				
NM10	Hallo Bay	CLOSED	-	-
NM20	Inner Kukak	25	250	125
NM30	Outer Kukak	CLOSED	-	-
NM40	Missak Bay	CLOSED	-	-
<b>DISTRICT TOTAL</b>		<b>25</b>	<b>250</b>	<b>125</b>
<b>MID MAINLAND DISTRICT</b>				
MM10	Inner Katmai	50	500	250
MM20	Outer Katmai	CLOSED	-	-
MM30	Alinchak	15	150	75
MM40	Puale Bay	CLOSED	-	-
MM50	Portage Bay	CLOSED	-	-
MM60	Outer Portage	CLOSED	-	-
<b>DISTRICT TOTAL</b>		<b>65</b>	<b>650</b>	<b>325</b>
<b>SOUTH MAINLAND DISTRICT</b>				
SM10	Wide Bay	50	500	250
SM20	Lower Shelikof	CLOSED	-	-
<b>DISTRICT TOTAL</b>		<b>50</b>	<b>500</b>	<b>250</b>
<b>GRAND TOTAL</b>		<b>2,030</b>	<b>20,300</b>	<b>10,150</b>

Table 4. Alaska statewide average sac roe herring harvests for 1993-1997 and preliminary 1998 harvest projections.

<b>Fishery Location</b>	<b>Average Harvest 1993-1997</b>	<b>1998 Harvest Projection</b>
<b>Southeast</b>		
Kah Shakes	769	635
Sitka Sound	7,358	6,900
Seymour Canal	140	633
Hobart/Houghton	442	258
<b>Total All Areas</b>	<b>8,709</b>	<b>8,426</b>
<b>Prince William Sound</b>		
<b>Total All Fisheries</b>	<b>1,183</b>	<b>2,078</b>
<b>Cook Inlet</b>		
Kamishak District	2,734	1,780
Upper Cook Inlet	0	0
<b>Total All Areas</b>	<b>2,734</b>	<b>1,780</b>
<b>Kodiak</b>		
<b>Total Area</b>	<b>4,409</b>	<b>2,030</b>
<b>Alaska Peninsula</b>		
North Peninsula	212	0
South Peninsula	78	100
<b>Total Area</b>	<b>290</b>	<b>100</b>
<b>Bristol Bay (Togiak)</b>		
Seine	18,728	15,841
Gill Net	5,914	5,280
<b>Total Area</b>	<b>24,642</b>	<b>21,855</b>
<b>AYK Area</b>		
Security Cove	810	803
Goodnews Bay	1,016	813
Cape Avinof	527	643
Nunivak Island	31	1070
Nelson Island	876	764
Cape Romanzof	600	753
Norton Sound		
Gillnet	4,053	7,324
Beach Seine	507	814
Port Clarence	0	165
<b>AYK Total</b>	<b>8,420</b>	<b>13,149</b>
<b>Statewide Total Harvest</b>	<b>50,387</b>	<b>49,418</b>

Table 5. Alaska Department of Fish and Game, Commercial Fisheries Management and Development Division management staff, 1998.

<b>Office Staff:</b>	
Regional Supervisor	Pete Probasco
Regional Management Biologist	Wayne Donaldson
Area Management Biologist	Dave Prokopowich
Assistant Management Biologist	Dennis Gretsck
Assistant Management Biologist	Kevin Brennan
Fishery Biologist	Joan Brodie
Fishery Technician	Joan Shaker
<b>Field Staff:</b>	
<b>R/V K-Hi-C:</b>	
Boat Officer	Tom Emerson
Fishery Biologist	Dennis Gretsck
<b>R/V Resolution:</b>	
Boat Officer	Ron Kutchick
Fishery Biologist	Kevin Brennan
<b>Field Crews:</b>	
Fishery Technician	Jon Becker
Fishery Technician	Donna Higginbotham
Fishery Technician	Joey Lindberg
Fishery Technician	Darren Swisher
Fishery Technician	Steve Thompson
Fishery Technician	Pam Humphreys
Fishery Technician	Kim Rudge

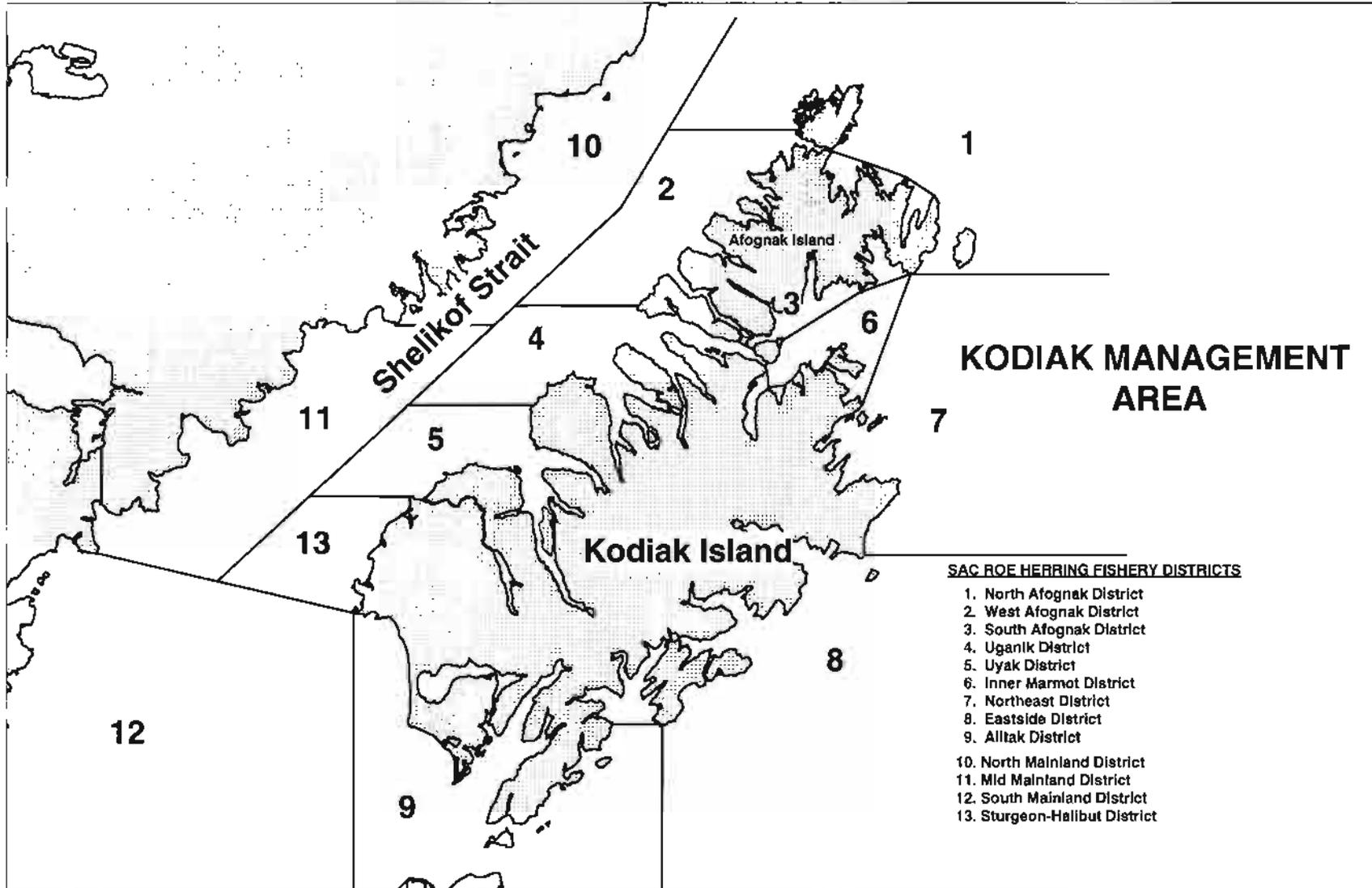


Figure 1. Map of the Kodiak Management Area illustrating the sac roe herring fishery districts and areas closed to fishing.

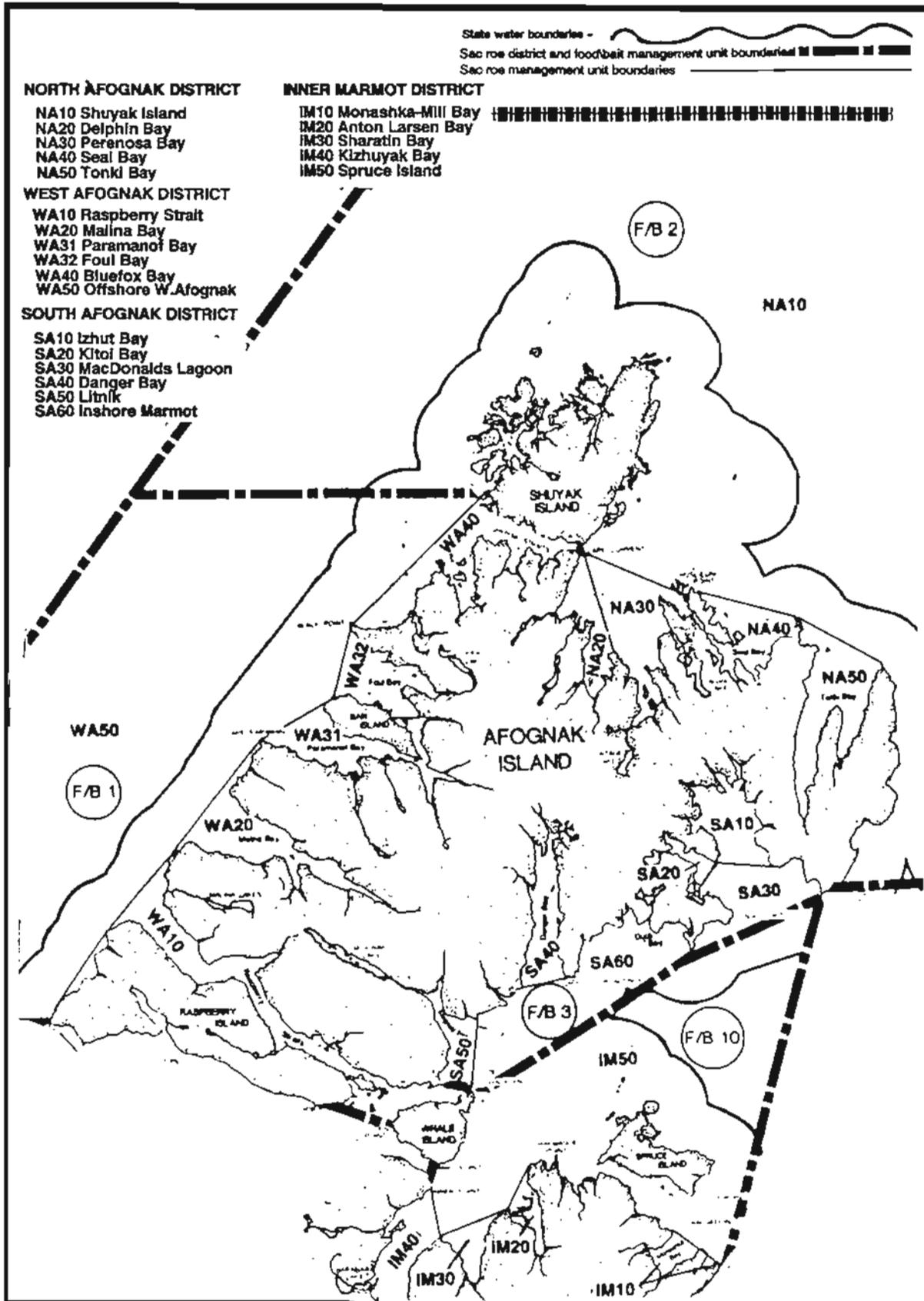


Figure 2. Statistical chart showing the North Afognak, West Afognak, South Afognak, and Inner Marmot Districts and Sections.

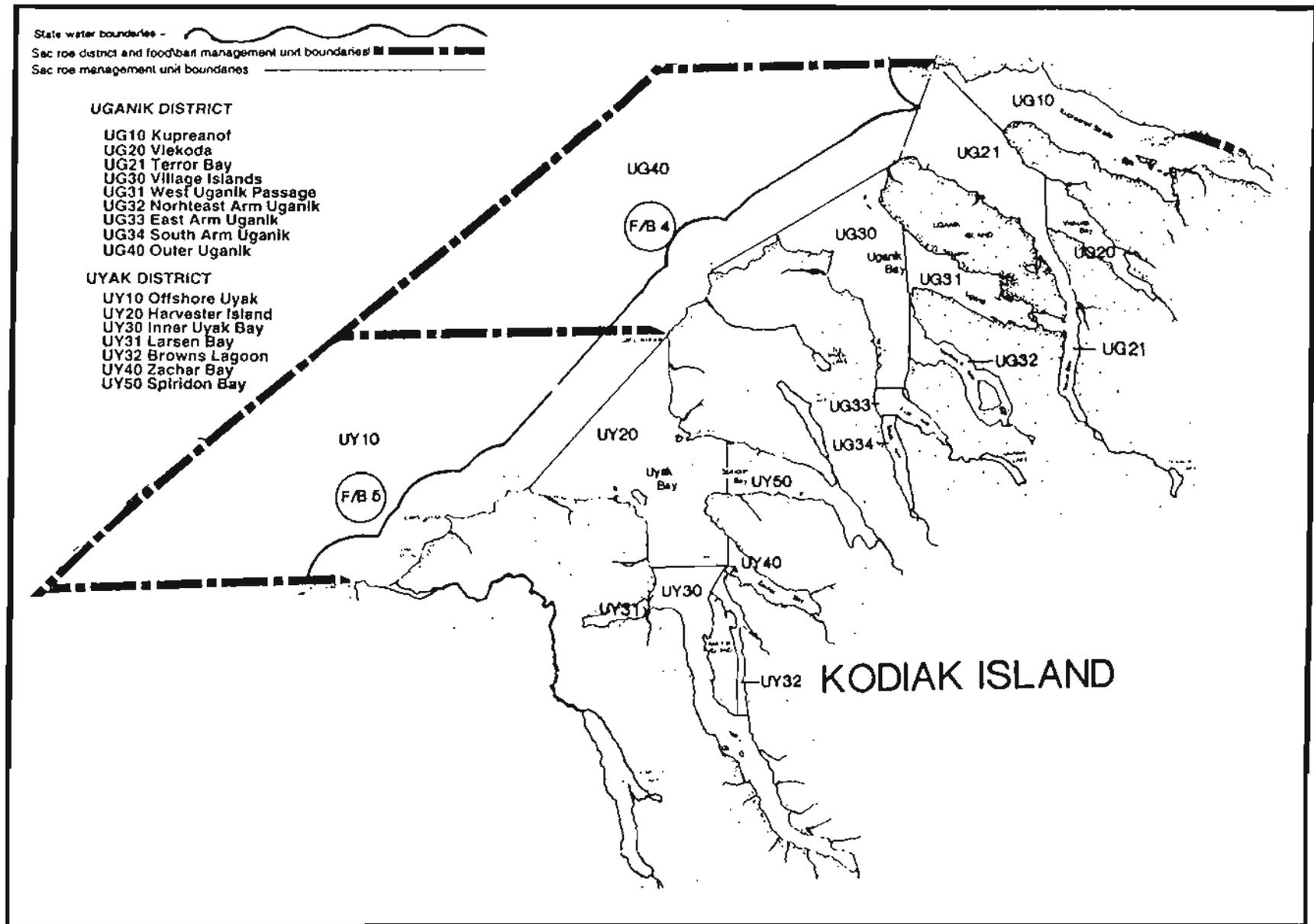


Figure 3. Statistical chart showing the Uganik and Uyak Districts and Sections.

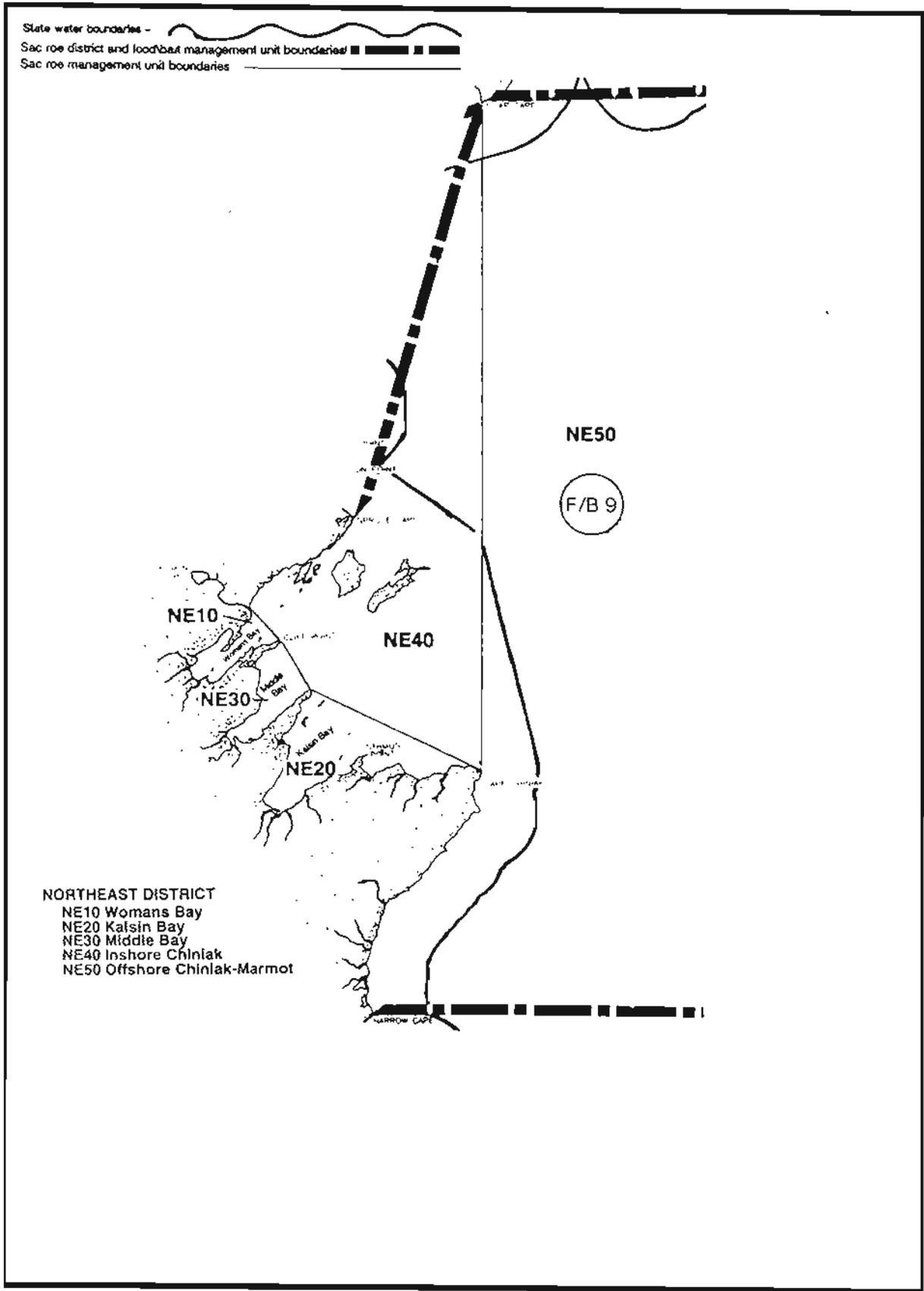


Figure 4. Statistical chart showing the Northeast District and Sections.

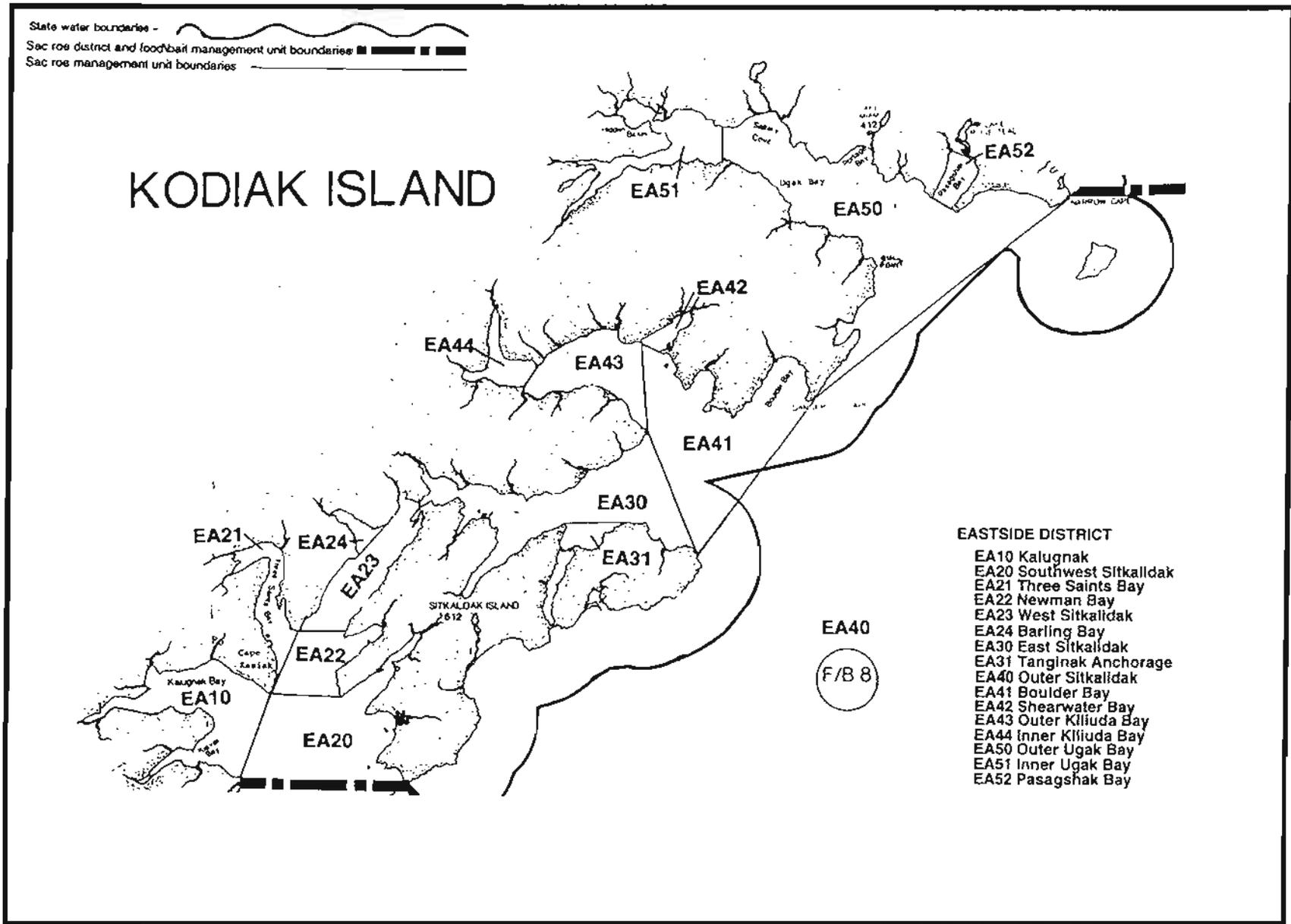


Figure 5. Statistical chart showing the Eastside District and Sections.

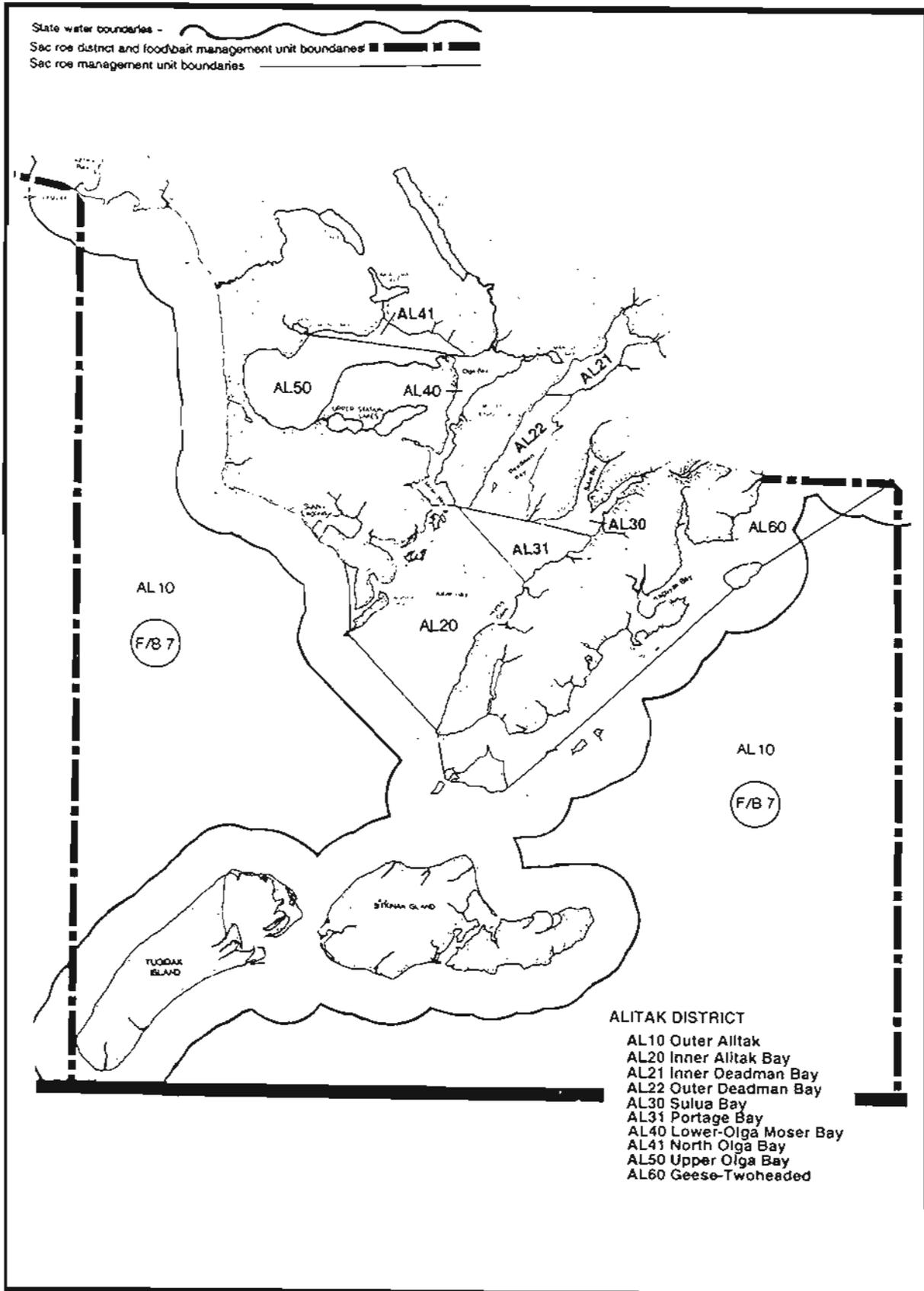


Figure 6. Statistical chart showing the Alitak District and Sections.

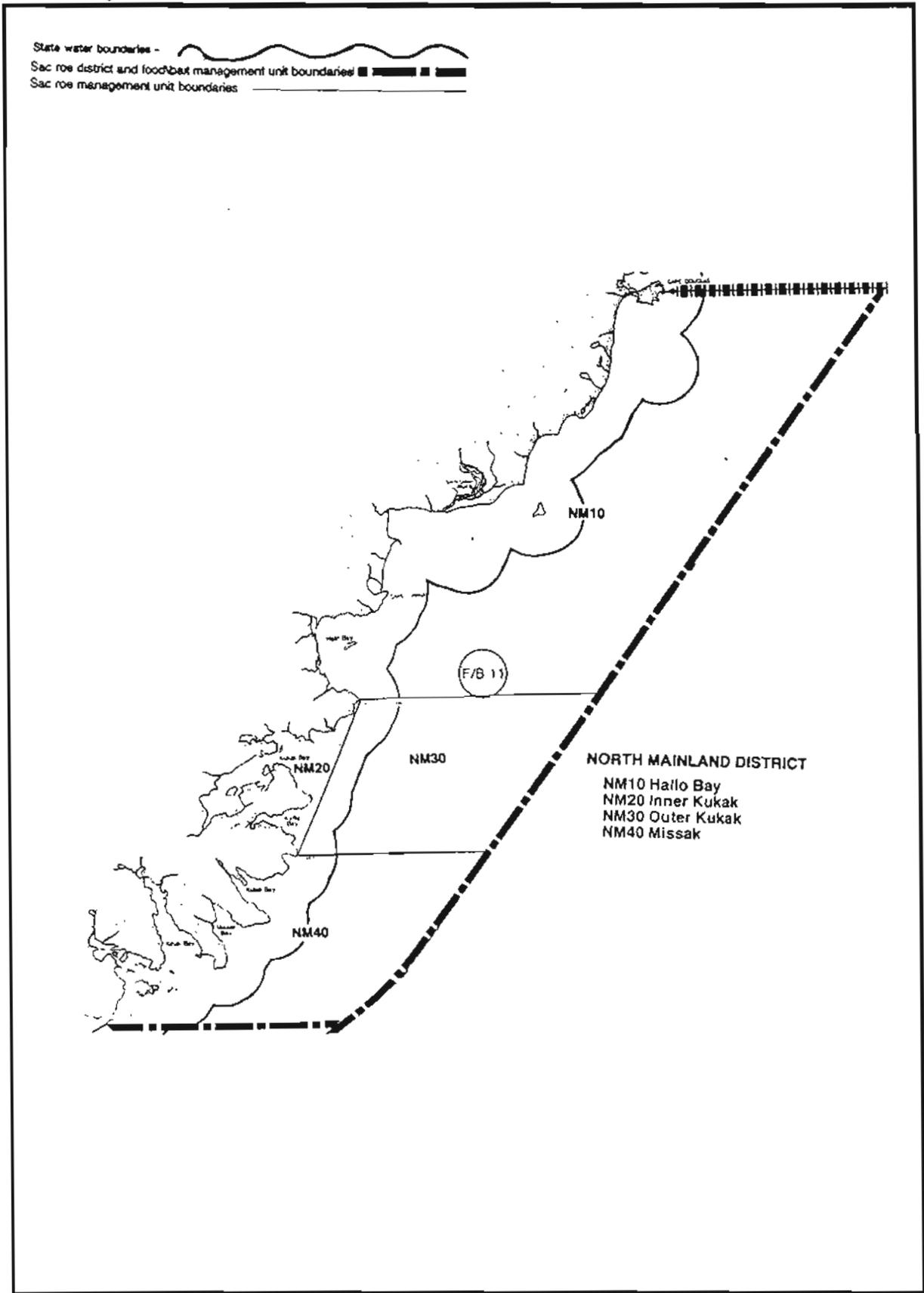


Figure 7. Statistical chart showing the North Mainland District and Sections.

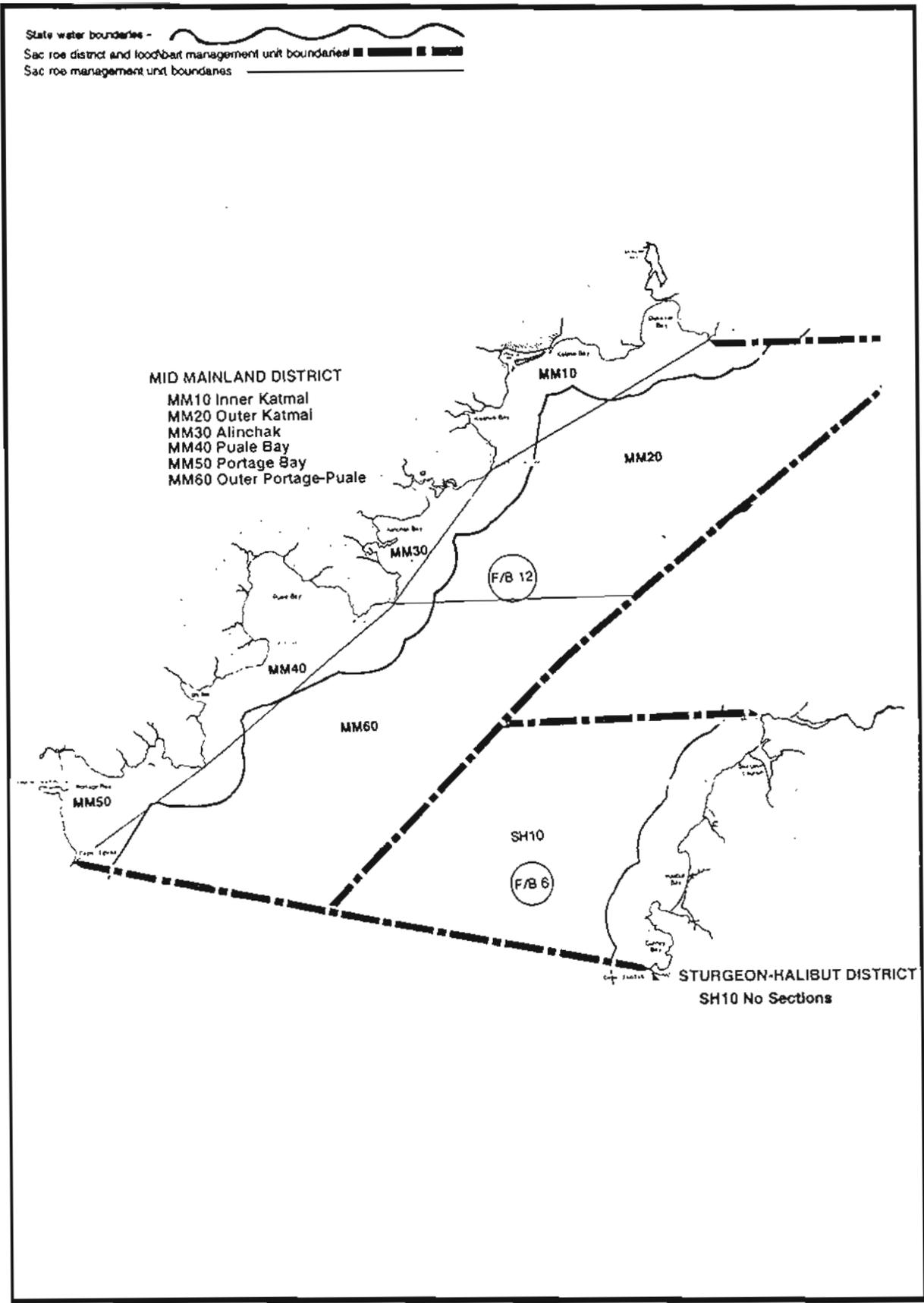


Figure 8. Statistical chart showing the Mid Mainland and Sturgeon-Halibut Bay Districts and Sections.

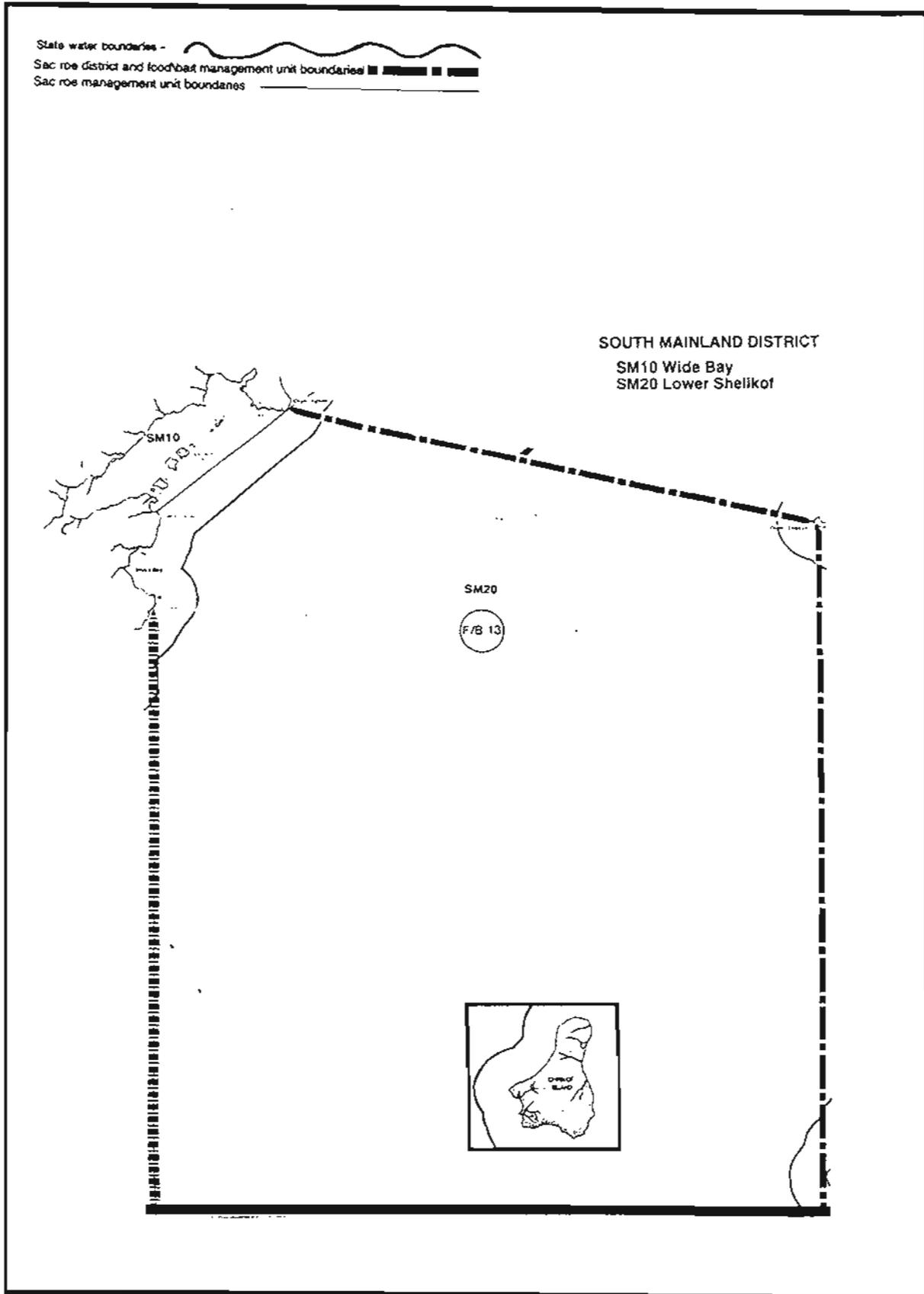


Figure 9. Statistical chart showing the South Mainland District and Sections.

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