SOUTHEAST ALASKA SAC ROE HERRING FISHERY

1991 MANAGEMENT PLAN

Prepared by

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Commercial Fisheries Division
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INTRODUCTION

The Southeast Alaska commercial herring fisheries occur during the winter when the product is used for bait and during the spring when the product is harvested for its roe. The roe harvest includes the traditional sac roe fishery and a roe-on-kelp pound fishery. This management plan provides an overview of the 1991 sac roe herring fishery for Southeast Alaska. The expected harvest levels and management strategy are discussed. A separate management plan for the roe-on-kelp pound fishery is available at local department offices.

The 1990 Southeast Alaska sac roe herring fishery harvested approximately 4,165 tons of herring. A harvest of approximately 3,880 tons is anticipated for the 1991 season.

Southeast Alaska roe herring are commercially harvested by purse seine and set gill net gear types, both of which are included in the limited entry system. During 1990, 72 set gill net and 51 purse seine permits were fished. There are currently four sac roe herring fishing areas in Southeast Alaska consisting of two exclusive purse seine and two exclusive gill net areas (Figure 1). Each of these fisheries will be discussed separately.

GENERAL MANAGEMENT OVERVIEW

Commercial herring fishing regulations are listed in the current Commercial Herring Regulations Booklet. Copies may be obtained at any Department of Fish and Game Office. Staff members listed at the conclusion of this plan are available to provide further details.

Vessel Check In And Check Out Procedure

The department requests that tenders and fishing vessels check in and out of the fishing areas, with personnel located on the fishing grounds to facilitate timely assessment of herring landings. Operators who would transport fish out of Alaska prior to processing must submit a fish ticket before departing the state.

Reporting Procedures for Floating Fish Processors

Operators of floating fish processing vessels will be required to report in person, or by radio or telephone, to the local representative of the department located within the management area of intended operation before the start of processing operations. The report must include the location and date of intended operation. These requirements are specified by regulation (5AAC 39.130(f)).

Announcement of Openings and Closures

Openings and closures of fishing areas will be made by Emergency Order. Announcements will be made on the fishing grounds over VHF radio and by contacting fishermen individually when possible. The VHF radio frequency for receiving these announcements will be indicated on the fishing grounds. Fishermen are advised that short notification of opening and closing times should be expected. This is necessary to ensure fishing opportunities prior to major spawning and to maintain the harvest at desired levels.

The department will attempt to monitor the stocks in advance of the expected fishery opening dates. If spawning threshold levels are determined to be met, the fisheries will be placed on a two hour notice prior to the first opening. The department will try to give the industry 36 hour advance warning of a decision to place a fishery on a two hour notice. However, if spawning is either earlier or heavier than anticipated and waiting 36 hours could result in loss of fishing opportunity, this much advance notice will not be given.

Management Strategy

The management strategy for Southeast Alaska herring fisheries considers the availability of mature herring which have quality roe. Good quality herring is generally considered to contain approximately 10% or more mature roe. Fishing is not allowed unless a minimum threshold level of mature herring is available for spawning. The "threshold level" is the herring biomass needed to meet minimum spawning requirements. The established threshold levels for the herring sac roe fishing areas are as follows:

1.	Seymour Canal	6,000,000 lbs.	(3,000 tons)
2.	Kah Shakes	10,000,000 lbs.	(5,000 tons)
3.	Lynn Canal	10,000,000 lbs.	(5,000 tons)
4.	Sitka Sound	15,000,000 lbs.	(7,500 tons)

The management strategy also considers total stock biomass, age, growth characteristics and past spawning success. Biomass estimates are derived from hydroacoustic and spawning ground aerial and dive surveys. Age and growth information is obtained by sampling the commercial catch, test fishing, beach seining, and from trawling conducted in conjunction with hydroacoustic surveys.

The allowable harvest is based on a graduated scale that allows for higher harvest rates as a herring population increases relative to its threshold spawning level. This approach is consistent with the policies of the Alaska Board of Fisheries for maintaining annual harvest rates between 10-20% of the mature herring in excess of established threshold spawning levels. When the spawning stock is at its minimum threshold level, a 10% harvest is allowed. The allowable harvest increases an additional 2% for every spawning stock biomass increase of an amount equal to the threshold level. It reaches a maximum of 20% when the population is six times the threshold level.

The percent harvest rate for any multiple of the threshold level from one to six can be estimated from Figure 2, or by performing the following mathematical calculation:

$$\text{Percent Harvest Rate} = 8 + \left[(2) \times \frac{\text{Spawning Population Size}}{\text{Threshold Level}}\right]$$

The spawning population size and threshold levels are expressed in millions of pounds. The spawning biomass is determined from either spawn deposition sampling conducted during the previous season or current year hydroacoustic surveys. When only spawning ground surveys can be utilized, the estimates include only mature herring that spawned the previous season. These estimates do not account for any mortality of the herring since the spawning occurred nor do they include additional recruitment since the surveys were completed. For fisheries where the population estimate is derived acoustically, only those herring that would be expected to contribute to the spawn are included. Such is determined by sampling the population for size composition. Current management uses the spawning ground survey as the primary population estimator for the management of the sac roe herring fisheries.

Southeast Alaska herring generally reach maturity when they obtain a standard length of 185 mm (as measured from the tip of the snout to the hypural plate, the bony plate where the tail fin rays are attached), a size achieved by some 3, and most 4-year-old fish. A herring this size is approximately 8 inches total length. All herring estimated to be less than 185 mm are not included in the calculation of threshold harvest levels or harvest rates as the 185 mm size is designed to base harvests on larger, mature herring.

Roe Quality

One management objective is to conduct the fishery at a time when the roe percentage is high to maximize its value to the industry. To determine the best time to fish the department samples prespawning herring populations in cooperation with fishermen and trained industry technicians. All such test fishing activities must be authorized by department biologists on the fishing grounds.

GILL NET FISHERIES

The two set gill net sac roe fishing areas in Southeast Alaska are Kah Shakes in regulatory Section 1-F, and Seymour Canal in Section 11-D; however, no fishing will be permitted at Seymour Canal in 1991. A summary of important information for each fishery is shown in Table 1. Fishermen are reminded that regulations require identification tags, issued by the department, to be placed on one buoy at each end of a herring set gill net.

Kah Shakes

Set gill net sac roe fisheries have occurred in the Kah Shakes area since 1976 (table 1). Seasonal landings have ranged from 171 tons (1978) to 3,250 tons (1983). In 1990, for the first time since the inception of the fishery, the threshold level of 10,000,000 lbs. was not reached; subsequently, no fishery occurred at Kah Shakes in 1990.

The estimated size of the Kah Shakes herring population is based upon spawn deposition surveys accomplished by department herring research personnel. This has proven to be the only practical assessment method for the Kah Shakes herring stock and has been used since 1978 to establish harvest levels. These surveys indicated that approximately 12,800,000 lbs. of herring spawned in the Kah Shakes area in 1990. Using this as an estimate of the 1990 population size, the calculation formula discussed earlier allows a harvest rate of 10.6%, or a guideline harvest level of 680 tons of herring for the 1991 season.

In past years, the opening dates for the Kah Shakes fishery have ranged from March 20 (1981 and 1989) to April 4 (1978). Department personnel will begin to monitor the Kah Shakes area in mid-March. At first, the monitoring will be limited to aerial surveys. Pending observation of herring activity, the

department vessels and personnel will be on the fishing grounds starting in mid to late March and remain there through the completion of the fishery.

As in past years, the required set gill net buoy stickers may be obtained only on the fishing grounds. Fishermen are encouraged to obtain these stickers as soon as possible after arriving on the fishing grounds to allow plenty of time to securely affix them to each set gill net buoy. The stickers will only be issued to valid permit holders and identification will be required.

The legal amount of gear at Kah Shakes is one 50 fathom net with a minimum mesh size of 2 1/4 inches, and the net may not exceed 120 meshes in depth. The buoys at both ends of the net must have an identification sticker attached to them. If, during the course of the fishery, the sticker or buoy is lost, a replacement sticker must be obtained from the department before fishing is resumed.

Regulations require a one hour grace period for nets to be removed from the water following the announced closure time. No gill net may be reset after the closure time. Additionally, the department has been given the authority to open the fishery for one hour or less **without a grace period.** An opening of this nature could occur if after the initial opening a small, but manageable, amount of the herring is left from the guideline harvest level. The department will announce if a grace period will not be allowed due to an opening of one hour or less.

Seymour Canal

Set gill net fisheries have occurred intermittently in Seymour Canal (Section 11-D) since the fishery was changed from a seine area to a gill net area in 1980. Annual landings during years fished by gill nets have ranged from 339 tons (1986) to 615 tons (1981).

Spawning ground egg deposition surveys conducted during May of 1990 indicated a mature herring spawning stock of 5,700,000 lbs. This is below the minimum threshold level of 6,000,000 lbs. so no commercial harvest will occur in 1991.

The department will continue to monitor the spawning stock. Samples will be taken to determine the age class distribution throughout the spawning cycle. Aerial, skiff, and dive surveys will be conducted to estimate the size of the spawning stock. The population estimate determined in 1991 will be used to set the harvest level for the 1992 season.

PURSE SEINE FISHERIES

There are two purse seine herring areas in Southeast Alaska, Lynn Canal and Sitka Sound. Commercial fishing will be allowed only in Sitka Sound during the 1991 season. A summary of important information for each fishery is shown in Table 2.

Lynn Canal

The Lynn Canal herring roe area encompasses regulatory Sections 15-B, 15-C, and that portion of Section 11-A north of Shrine Island.

The Lynn Canal fishery has not been open since 1982. Aerial and vessel surveys conducted in the Lynn Canal fishing area during the spring of 1990 indicated the population is still depressed and well below the spawning threshold level, thus the fishery will not open in 1991. The reasons for the continued low stock level are not known.

Sitka Sound

Except for the waters of Whale and Necker Bays, the Sitka Sound sac roe fishing area encompasses the waters of Section 13-B north of the latitude of Aspid Cape.

In the spring of 1990, approximately 39 miles of beach were recorded as having received herring spawn in the Sitka Sound fishing area. Subsequent spawn deposition surveys provided an estimated spawning population of approximately 45,500,000 lbs. The harvest strategy discussed earlier provides for a 1991 harvest rate of 14.1% of the estimated mature herring stock and a harvest of 3,200 tons.

During the period that a fishery might be expected (March 24 to April 16), herring distribution levels will be monitored throughout the Sitka area. The areas open to fishing will depend on the distribution of herring stocks and the need to provide for a fishery that will harvest good quality herring. The department anticipates that seven-year-old herring will dominate the population.

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Table 1. Southeast Alaska gill net sac roe herring fisheries information summary, 1976-1990.

	Seymour Canal[1]				Kah Shakes			
Year	Guideline Harvest Level (Tons)	Catch (Tons)	Date Two Hour Notice Was Effective	Opening Dates	Guideline Harvest Level (Tons)	Catch (Tons)	Date Two Hour Notice Was Effective	Opening Dates
1976	200	195		May 9	300	426	March 23	April 2
1977	500	485	May 4	May 9	800	820	March 29	April 1
1978	500	729	May 2	May 8	680	171	March 26	April 4
1979	250	269	May 3	May 3	585	528	March 28	March 29
1980			Fishery Not Open		1,100	1,140	March 25	March 25
1981	600	615	April 28	April 28	1,550	1,840	March 20	March 20
1982			Fishery Not Open		1,700	2,279	March 20	March 26
1983			Fishery Not Open		2,500	3,250	March 23	March 24
1984	375	518	April 20	April 26	2,100	2,182	March 20	March 29
1985			Fishery Not Open		2,300	2,161	March 28	March 29
1986	300	339	May 5	May 10	1,100	1,536	March 29	March 31
1987	419	302	May 1	May 5, 6	1,200	1,440	March 24	March 26, 27
1988	530	586	April 20	April 26-May 1	953	1,087	March 24	March 25
1989	332	547	April 21	April 28	647	592	March 20	March 20, 21
1990	312	359	April 21	April 28-29	Fishery Not Open			

[1] Seymour Canal was purse seine fishing area prior to 1980.

Table 2. Southeast Alaska purse seine sac roe herring fisheries information summary, 1976-1990.

	Juneau[1]-Lynn Canal				Sitka Sound			
Year	Guideline Harvest Level (Tons)	Catch (Tons)	Date Two Hour Notice Was Effective	Opening Dates	Guideline Harvest Level (Tons)	Catch (Tons)	Date Two Hour Notice Was Effective	Opening Dates
1976	750	432 Seine		April 26	780	800	April 10	April 16
		124 Gill Net		April 29				
1977	875	709 Seine		April 19			Fishery Not Open	
		217 Gill Net		April 20				
1978	500	602 Seine	April 19	April 20	250	175	April 4	April 5
	200	346 Gill Net	April 21					
1979	Fishery Not Open				2,000	2,250	April 7	April 12
1980	600	975	April 13	April 26	4,000	4,385	April 4	April 4 & 5
1981	725	761	April 17	April 23	2,700	3,506	March 23	March 24 & 26
1982	375	551	April 30	April 30	3,000	4,363	March 26	March 30
1983	Fishery Not Open				5,500	5,463	March 23	March 26 & 29
1984	Fishery Not Open				5,000	5,711	March 22	March 26, 27 & 28
1985	Fishery Not Open				7,700	7,475	March 24	March 29 and April 1 & 5
1986	Fishery Not Open				5,029	5,443	March 28	April 2 & 8
1987	Fishery Not Open				3,600	4,216	March 23	March 31
1988	Fishery Not Open				9,200	9,573	March 25	April 4 - 14
1989	Fishery Not Open				11,700	11,831	March 23	March 31 - April 8
1990	Fishery Not Open				4,146	3,804	April 4	April 5 & 6

[1] The Juneau fishery was both a gill net and seine area prior to 1980.

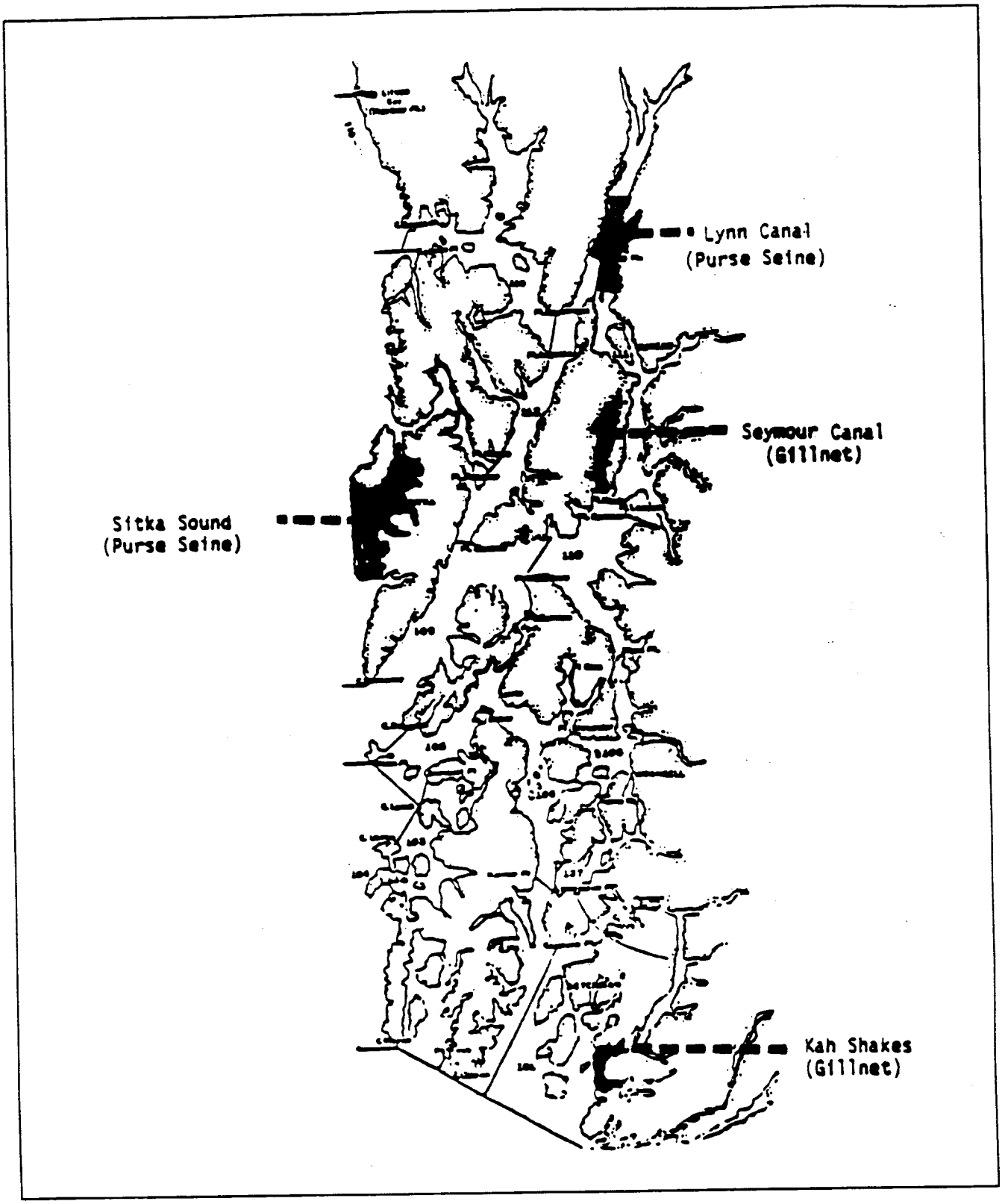

Figure 1. Southeast Alaska sac roe herring areas.

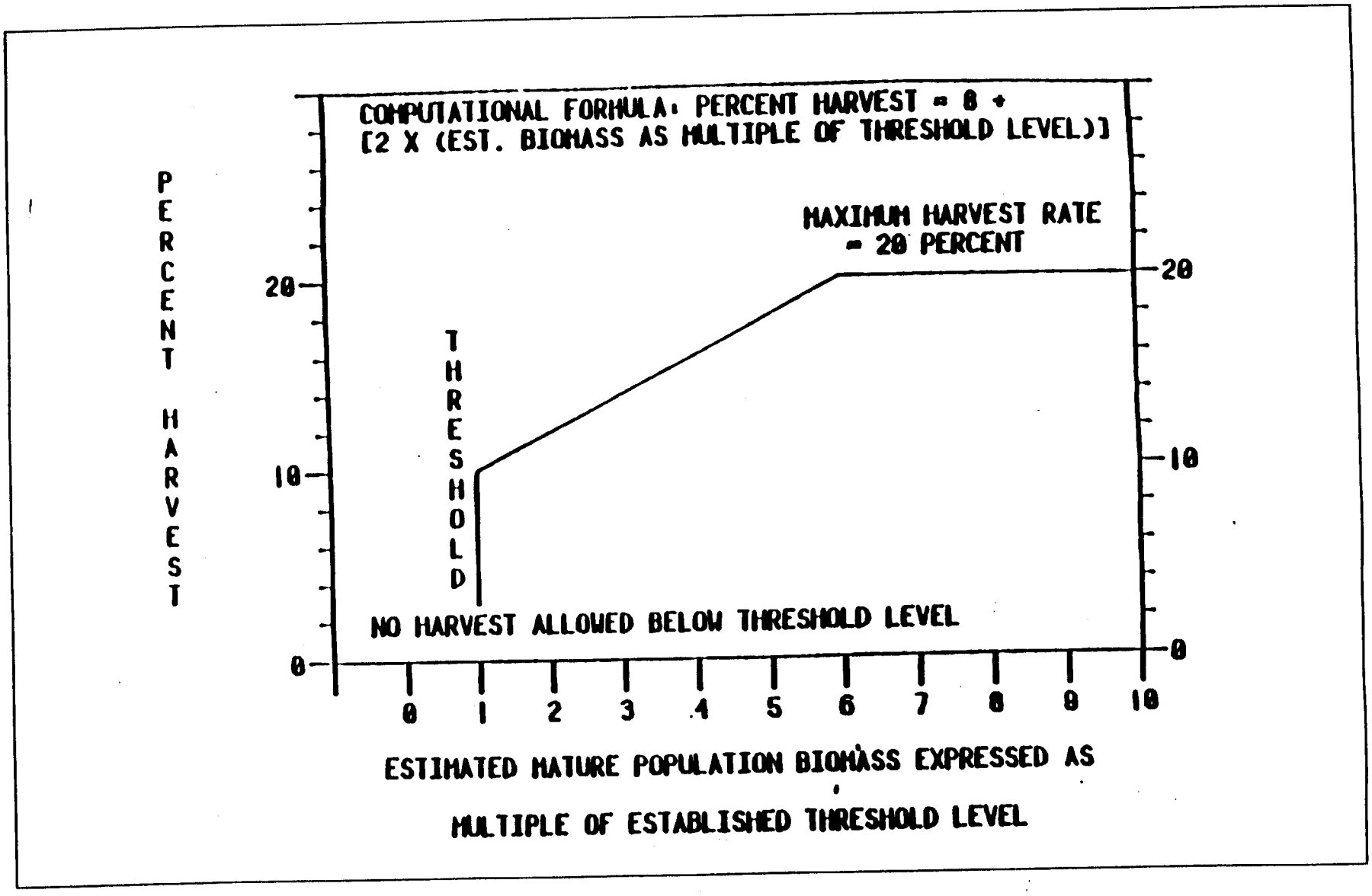

Figure 2. Generalized harvest strategy for Southeast Alaska herring stocks showing allowable percent annual harvest related to estimated biomass of mature stock expressed as a multiple of the established harvest threshold level.

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