SOUTHEAST ALASKA SAC ROE HERRING FISHERY

2001 MANAGEMENT PLAN

Prepared by

Southeast Alaska Region Staff

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INTRODUCTION

Southeast Alaska commercial herring fisheries occur during the winter when herring are harvested for use primarily as bait and also during the spring when herring are harvested for their roe. The roe harvest includes the traditional sac roe fisheries (set gillnet and purse seine) and, in recent years, spawn-on-kelp pound fisheries. This management plan provides an overview of the 2001 sac roe herring fisheries for Southeast Alaska including expected harvest levels and management strategy. A separate management plan for the spawn-on-kelp pound fisheries will be available at local department area offices.

Southeast Alaska roe herring are commercially harvested by purse seine and set gillnet gear types, both of which are included in the limited entry system. There are currently five sac roe herring fishing areas in Southeast Alaska consisting of two exclusive purse seine and three exclusive gillnet areas (Figure 1).

Approximately 5,966 tons of herring were harvested in commercial sac roe herring fisheries conducted in Southeast Alaska during 2000. A harvest of approximately 9,966 tons is anticipated for the 2001 season.

GENERAL MANAGEMENT OVERVIEW

Commercial herring fishing regulations are contained in the Commercial Herring Regulations Booklet. Copies of the 2000-2001 editions may be obtained at any Department of Fish and Game office. Department staff listed at the conclusion of this plan are also available to provide further details. One change made during the January 2000 Board of Fisheries meeting in Juneau will affect Southeast Alaska herring sac roe fisheries in the 2001 season:

1. Additions to buyer and tender reporting requirements for the sac roe fisheries [5 AAC 27.162].

Sac roe herring fishers and processors should obtain a copy of the 2000-20001 regulatory booklets and familiarize themselves with this new regulation.

Vessel Check-In and Check-Out Procedure

The department requests that tenders and fishing vessels check-in and check-out of the fishing areas with department personnel located on the fishing grounds to facilitate timely assessment of herring landings. Operators who will transport fish out of Alaska prior to processing must submit a fish ticket before departing the state [5 AAC 39.130(c)].

Reporting Procedures for Floating Fish Processors

Operators of floating fish processing vessels are required to report in person, by radio, or telephone, to the local department representative in the management area of intended operation before processing begins [5 AAC 39.130 (g)]. The report must include the location and date of intended operation.

Announcement of Openings and Closures

Fishery openings and closures will be implemented via department emergency order. Announcements will be issued through normal news release channels and on the fishing grounds over VHF radio. The VHF radio frequency for receiving field announcements will be indicated on the fishing grounds. Harvesters should expect short notification of opening and closing times. This is necessary to provide fishing opportunities prior to major spawning and to maintain the harvest at desired levels.

The department will monitor herring in advance of the expected fishery opening dates. Fisheries will be placed on a two-hour notice prior to the first opening. During the Sitka fishery, the department will try to give the industry a 36-hour advance warning of a decision to place the fishery on 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. During the Seymour Canal gillnet fishery the department will provide the industry with a 12-hour advance notice. The 12-hour notice helps limit the amount of time vessels must remain on the fishing grounds prior to the start of the fishery.

Management Strategy

The harvest strategy for Southeast Alaska herring sac roe fisheries is based on the availability of mature herring containing quality roe (at least 10% mature roe), total biomass, age structure, recruitment, growth characteristics, and past spawning success. Southeast Alaska herring generally reach maturity at a standard length (tip of the snout to the end of the hypural plate) of 185 mm (8 inches), a size achieved by some three, and most four-year-old fish.

Herring populations are assessed annually to determine whether individual spawning stocks are above threshold and to determine the appropriate harvest rate (see **Sliding Scale Harvest Rate** on next page). As specified in **5 AAC 27.190. HERRING MANAGEMENT PLAN FOR STATISTICAL AREA A,** harvest of a particular spawning stock is not allowed unless an assessment of the abundance and general condition of that spawning stock has been conducted and the estimated biomass is above the minimum spawning biomass threshold level. The threshold level is the herring biomass needed to meet minimum spawning and/or allocation requirements. The established threshold levels for the herring sac roe fishing areas are:

Fishing Area	Threshold Level
Seymour Canal	3,000 tons
Revilla Channel	6,000 tons
Lynn Canal	5,000 tons
Sitka Sound	20,000 tons
Hobart/Houghton	2,000 tons

A variety of methods have been used to assess the status of herring populations in Southeast Alaska. Prior to 1970, herring abundance was assessed through visual estimates made from vessels using depth sounders and sonar immediately prior to spawning or on wintering aggregations. In addition, miles of spawn were documented with aerial or skiff surveys. A computer-assisted hydroacoustic survey method was developed in the early 1970s and used extensively during the late 1970s to the mid-1980s. Spawn deposition surveys were first used in 1976 and continue to be a key component of current assessment methods. The spawn deposition method combines diver estimates of herring egg deposition on the spawning grounds along with estimates of total area receiving spawn and average fecundity, to yield an estimate of spawning biomass. The estimates of spawning biomass from one year are used as a basis to forecast and to set harvest quotas for individual spawning stocks for the following year. This method was used to establish a forecast for the Hobart/Houghton spawning stock.

Beginning in 1994, the department began using age-structured analysis (ASA) to forecast abundance for some spawning stocks. The ASA method relies on a time series of herring population assessment data (e.g., egg deposition, age composition, fecundity, and weight-at-age) to forecast herring biomass for those spawning stocks with sufficient data. This method applies estimates of recruitment, growth, maturation, and natural mortality to an estimate of spawning escapement from one year to forecast biomass for the next year. This is an important development because gains in herring biomass due to recruitment and growth are often not equal to the loss of biomass due to natural mortality. The ASA method is currently used to forecast herring abundance for the Sitka, Revilla Channel, Seymour Canal, Craig/Klawock, and Tenakee Inlet fisheries.

Sliding Scale Harvest Rate

The allowable harvest is based on a graduated scale that allows for higher harvest rates as a herring population increases relative to the threshold level. This approach maintains annual harvest rates between 10 and 20% of the spawning stock in excess of established threshold levels. When the spawning stock biomass is at the 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 and 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 calculation:

$$Percent\ \ Harvest\ Rate = 8 + 2\left[\frac{Spawning\ Population\ Size}{Threshold\ Level}\right] \qquad (1)$$

An exception to the harvest rate formula now applies to the Sitka Sound sac roe herring fishery based on Board of Fisheries action taken at the 1997 meeting in Sitka. For the Sitka fishery, the new harvest rate is calculated as follows using a 20,000-ton threshold (Figure 3):

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

Roe Quality

Sac roe herring fisheries are managed in compliance with regulation 5 AAC 27.059. MANAGEMENT GUIDELINES FOR COMMERCIAL HERRING SAC ROE FISHERIES. This regulation outlines ways the department can manage sac roe fisheries to enhance value. To determine the best time to fish, the department samples prespawning herring populations in cooperation with harvesters and trained industry technicians. All test-fishing activities must be authorized by department biologists on the fishing grounds.

GILLNET FISHERIES

There are three set gillnet sac roe fishing areas in Southeast Alaska; the Revilla Channel fishery in regulatory Section 1-F, the Seymour Canal fishery in Section 11-D, and the Hobart-Houghton fishery in District 10. A summary of historical harvest and fishing time information for each fishery is shown in Table 1. Gillnetters are reminded that regulations require identification tags, issued by the department, to be placed on one buoy at each end of a herring set gillnet. The department will charge five dollars for each buoy identification tag (ten dollars total) to recoup printing and administrative costs.

Revilla Channel

Set gillnet sac roe fisheries have occurred in the Revilla Channel area (Section 1-F) since 1976 (Table 1). Seasonal landings have ranged from a low of 171 tons in 1978 to a high of 3,250 tons in 1983. In 1990 and 2000 the minimum threshold level was not reached and no fishery was permitted. In 1999 a GHL of 870 tons was established. However, due to on-grounds concerns over the lack of herring located in state waters no herring were harvested.

The ASA forecast of biomass for the Revilla Channel spawning population in state managed waters for the 2001 season is approximately 2,400 tons. This is well below the threshold level of 6,000 tons, hence no commercial harvest will occur in the state waters of Revilla Channel. The department will, however, continue to monitor the status of the Revilla Channel herring in 2001. Spawning will be mapped, samples will be taken for age class distribution, and dive surveys will be conducted to estimate the spawning biomass. The population estimate determined in 2001 will be used to set the harvest level for 2002.

Seymour Canal

Set gillnet fisheries have occurred intermittently in Seymour Canal (Section 11-D) since the fishery was changed from a seine area to a gillnet area in 1980. Annual landings during years fished by gillnets have ranged from a low of 302 tons in 1987 to a high of 706 tons in 1999.

The ASA forecast of the mature spawning biomass for the Seymour Canal herring spawning stock is approximately 4,350 tons. Using the sliding scale harvest rate, this biomass allows a harvest rate of 10.9% of the population and a GHL of 474 tons for the 2000-2001 fishing season.

Opening dates for the Seymour Canal gillnet fishery have ranged from April 26 to May 14. Since 1980, spawning has started as early as April 19 and as late as May 9. Department personnel will begin to monitor the Seymour Canal area in mid-April. Initially, monitoring will be limited to aerial surveys. Depending on observed herring activity, vessels with department personnel will be on the fishing grounds by late April or early May.

Set gillnet buoy stickers must be obtained and placed on buoys prior to fishing. Identification stickers will be available from the Douglas fish and game office prior to the time the department's vessel is on the fishing grounds; thereafter, identification stickers can only be obtained from the department's vessel. The stickers will only be issued to valid permit holders and proper picture identification will be required.

Legal gear for the Seymour Canal fishery is one, 50-fathom net, with a minimum mesh size of 2 1/8 inches stretched mesh and a maximum depth of 120 meshes. If, during the course of the fishery, a buoy sticker 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 gillnet 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 herring is left on the GHL. The department will announce if a grace period will not be allowed due to an opening of one hour or less.

Hobart/Houghton

The Alaska Board of Fisheries adopted a regulation in January 1997 that allocates any unharvested portion of the guideline harvest level (GHL) for the Hobart/Houghton winter food and bait fishery to the sac roe gillnet fishery. Sac roe harvests occurred in 1997 through 1999. In 2000 the GHL was harvested in the winter bait fishery (Table 1). The 2001 forecast of the mature spawning biomass for the Hobart/Houghton herring spawning stock is 550 tons. This is below the minimum threshold level of 2,000 tons. Therefore, there will not be a set gillnet sac roe fishery in 2001.

PURSE SEINE FISHERIES

There are two purse seine herring sac roe areas in Southeast Alaska: Lynn Canal and Sitka Sound. Commercial fishing will be allowed only in Sitka Sound during the 2001 season. A summary of harvest and fishing time information for each fishery is shown in Table 2.

Lynn Canal

The Lynn Canal herring sac roe fishing area encompasses regulatory Sections 15-B and 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 on-the-grounds surveys conducted in the Lynn Canal fishing area during the spring of 2000 indicated that the population is still well below the spawning threshold level of 5,000 tons. Therefore, this fishery will not open in 2001.

Sitka Sound

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

The 2001 forecast of the mature spawning biomass for the Sitka Sound herring spawning stock is 47,460 tons. This biomass estimate is the result of applying the ASA model using weight-at-age data from a test fishery conducted in January, 2000. The estimated spawning biomass results in a harvest rate of 20% and a preliminary GHL of 9,492 tons. Following a test fishery in January 2001 weight-at-age information will be updated and the 2001 GHL will finalized and reported in a news release.

The ASA forecasting model indicates the 2001 spawning population will consist of 7.4% age-3, 45.4% age-4, 6.8% age-5, 22.5% age-6, 14.6% age-7, and 3.3% age-8 herring. Applying expected age structure to average winter weight-at-age would yield an overall average weight of 112 grams. Observed winter weights-at-age are reflective of expected sizes the following spring.

Herring distribution and roe quality will be monitored prior to and during the fishing period. Monitoring methods for 2001 will include aerial surveys, hydroacoustic surveys, and test fishing. The areas open to fishing will depend on the distribution of herring and the need to provide for a fishery that will harvest good quality herring.

The department is requesting registration information for all fishing boats, tenders, and processors prior to the fishery. Registration is greatly simplified if coordinated and provided by each processing company. Processing companies should contact the Sitka fish and game office for a registration form. In addition each processor should update the Sitka fish and game office with expected daily (24-hour) processing capacity and/or exporting plans. Company affiliations and processing capacities will be considered confidential. Based on prior year's processing capacity the 9,492 ton GHL for the 2000 season is expected to be harvested during at least three open fishing periods in order to provide for high quality frozen product as well as an opportunity to harvest the entire GHL during competitive openings. The department has scheduled a planning meeting with interested fishers and processing companies in Juneau on February 28, 2001. A final meeting to review and coordinate planning for the fishery will occur in Sitka when the fishery has been placed on two-hour notice.

LIST OF MANAGEMENT CONTACTS

The following ADF&G Division of Commercial Fisheries personnel may be contacted regarding this management plan:

Scott Marshall Region I Supervisor Douglas Regional Office	P.O. Box 240020 Douglas, Alaska 99824 (907) 465-4250
Scott Kelley Region I Management Coordinator Douglas Regional Office	P.O. Box 240020 Douglas, Alaska 99824 (907) 465-4250
Andy McGregor & Craig Farrington Area Management Biologist Douglas Regional Office	P.O. Box 240020 Douglas, Alaska 99824 (907) 465-4250
Robert Larson & Kyle Hebert Herring Research Biologists Petersburg Area Office	P.O. Box 667 Petersburg, Alaska 99833 (907) 772-3801
Phil Doherty, Scott Walker, & Don House Area Management Biologists Ketchikan Area Office	2030 Sea Level Dr., Suite 205 Ketchikan, Alaska 99901 (907) 255-5195
William Bergmann and Brian Lynch Area Management Biologists Petersburg Area Office	P.O. Box 667 Petersburg, Alaska 99833 (907) 772-3801
Bill Davidson and Dave Gordon Area Management Biologists Sitka Area Office	304 Lake St. Rm. 103 Sitka, Alaska 99835 (907) 747-6688
Vacant Assistant Area Management Biologist Wrangell Area Office	P.O. Box 200 Wrangell, Alaska 99929 (907) 874-3822

Copies of this management plan may also be found at the following web site:

http://www.cf.adfg.state.ak.us/region1/finfish/herring/herrhom1.htm

Table 1. Southeast Alaska gillnet sac roe herring fisheries information summary, 1976-2000.

	Seymour Canal[a]				Revilla Channel			
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	--	--	--	--
1991	--	--	Fishery Not Open	--	680	660	March 28	April 8-11
1992	--	--	Fishery Not Open	--	1,200	1,256	April 1	April 3
1993	--	--	Fishery Not Open	--	717[b]	737	March 31	April 10
1994	368	382	April 28	April 29	880[b]	749	April 9	April 9,11
1995	316	319	April 30	May 14	630	626	April 11	April 12
1996	_	_	Fishery Not Open	_	871	605	April 8	April 10
1997	-	-	Fishery Not Open		912	1,137	April 6	April 6
1998	633	585	April 30	May 1-4	620	616	April 1	April 1, 2
1999	595	706	April 30	April 30	870	0		
2000	346	394	May 3	May 5	0	0		

-continued-

Table 1. (page 2 of 2)

Hobart Bay/Port Houghton[c]

Year	Guideline Harvest Level[d] (Tons)	Catch (Tons)		Date Two Hour Notice Was Effective For Sac Roe	Opening Dates
		Bait	Sac Roe		Bait/Sac Roe
1977	0	40	0		October 1
1978	0	0	0		Fishery Not Open
1979	0	0	0		Fishery Not Open
1980	0	0	0		Fishery Not Open
1981	0	0	0		Fishery Not Open
1982	0	0	0		Fishery Not Open
1983	0	0	0		Fishery Not Open
1984	0	0	0		Fishery Not Open
1985	0	0	0		Fishery Not Open
1986	0	0	0		Fishery Not Open
1987	0	0	0		Fishery Not Open
1988	0	0	0		Fishery Not Open
1989	0	0	0		Fishery Not Open
1990	0	0	0		Fishery Not Open
1991	0	0	0		Fishery Not Open
1992	200	0	0		January 13, 1992
1993	500	0	0		January 12, 1993
1994	230	140	0		October 17, 1993
1995	250	229	0		October 1, 1994
1996	700	230	0		October 15, 1995
1997	550	100	442	April 19	October 1, 1996-April 28
1998	260	0	351	April 19	October 1,1997-April 20
1999	436	0	506	April 25	October 14, 1998-April 26
2000	418	432	0	No Fishery	December 1, 1999-Gillnet not opened

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

[b] Quota reduced by 150 tons as an allocation for the Annette Island sac roe harvest.

[c] Hobart Bay was opened to Gillnet Sac Roe Fishing in 1997.

[d] Gillnet quota is the portion left after the winter bait fishery is completed.

Table 2. Southeast Alaska purse seine sac roe herring fisheries information summary, 1976-2000.

	Juneau[a]-Lynn Canal					Sitka Sound			
Year	Guideline Harvest Level (Tons)	Catch (Tons)		Date 2-Hour Notice Was Effective	Opening Dates	Guideline Harvest Level (Tons)	Catch (Tons)	Date 2-Hour Notice Was Effective	Opening Dates
1976	750	432	Seine		April 26	780	800	April 10	April 16
		124	Gillnet		April 29				
1977	875	709	Seine		April 19	--	--	Fishery Not Open	--
		217	Gillnet		April 20				
1978	500	602	Seine	April 19	April 20	250	175	April 4	April 5
	200	346	Gillnet	April 21					
1979	--	--		Fishery Not Open	--	2,000	2,250	April 7	April 12
1980	600	975	Seine	April 13	April 26	4,000	4,385	April 4	April 4, 5
1981	725	761	Seine	April 17	April 23	2,700	3,506	March 23	March 24, 26
1982	375	551	Seine	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, 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
1991	--	--		Fishery Not Open	--	3,200	1,908	March 29	April 10 - April 13
1992	--	--		Fishery Not Open	--	3,356	5,368	March 30	April 6
1993	--	--		Fishery Not Open	--	9,691	10,186	March 26	March 27 - April 3
1994	--	--		Fishery Not Open	--	4,432	4,753	March 28	March 29,31
1995	--	--		Fishery Not Open	--	2,609	2,908	March 23	March 25, 27
1996	--	--		Fishery Not Open	--	8.144	8,144	March 23	March 23, March 31-Apr.9
1997	--	--		Fishery Not Open	--	10,900	11,147	March 18	March 18-March 23
1998	--	--		Fishery Not Open	--	6,900	6,705	March 16	March 16, 18, 19
1999	--	--		Fishery Not Open	--	8,476	9,136	March 19	March 22, 24, 26-27
2000	--	--		Fishery Not Open	--	5,120	4,572	March 13	March 19, 22

[a] The Juneau fishery was both a gillnet and seine area prior to 1980.

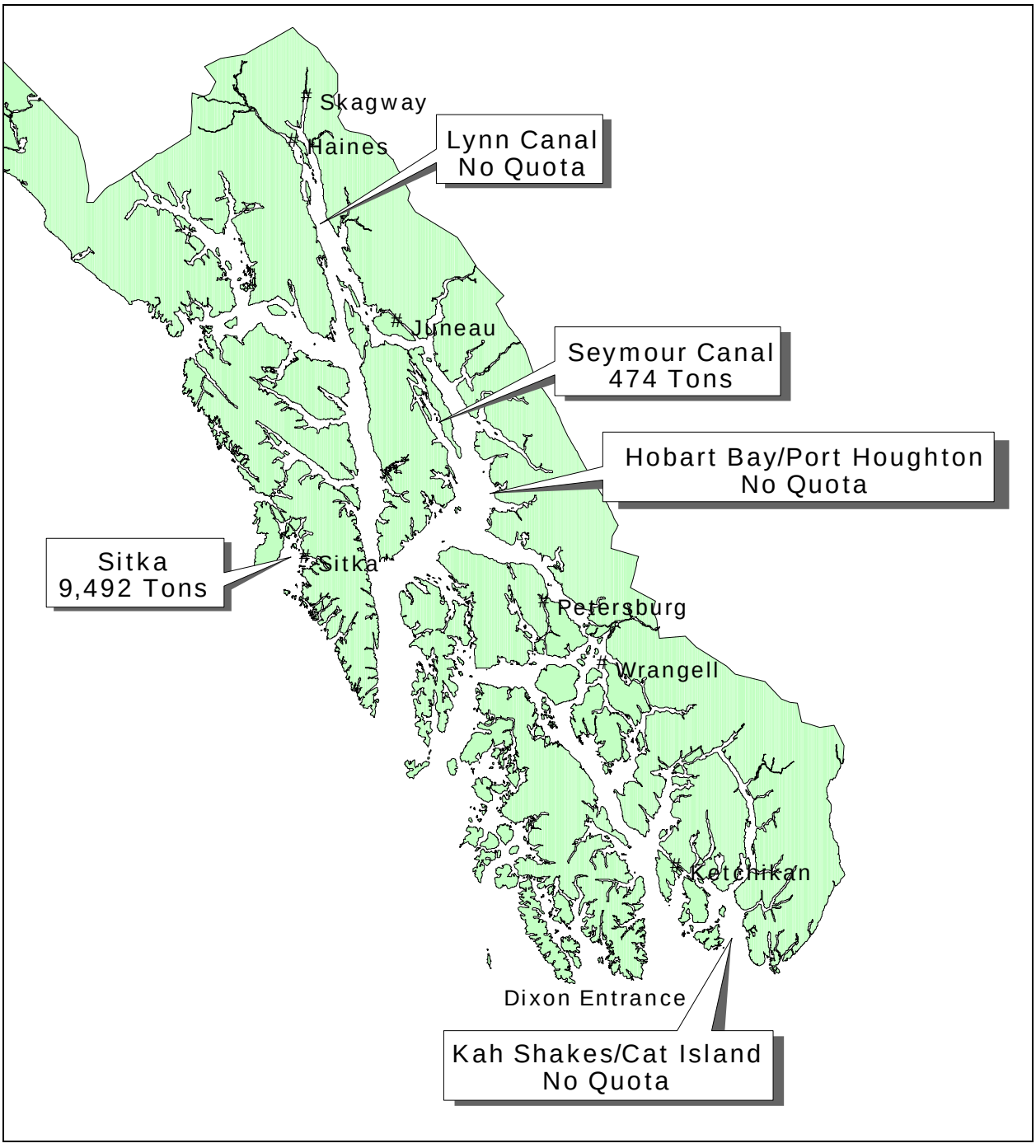

Figure 1. Southeast Alaska sac roe herring areas and preliminary GHLs for 2001.

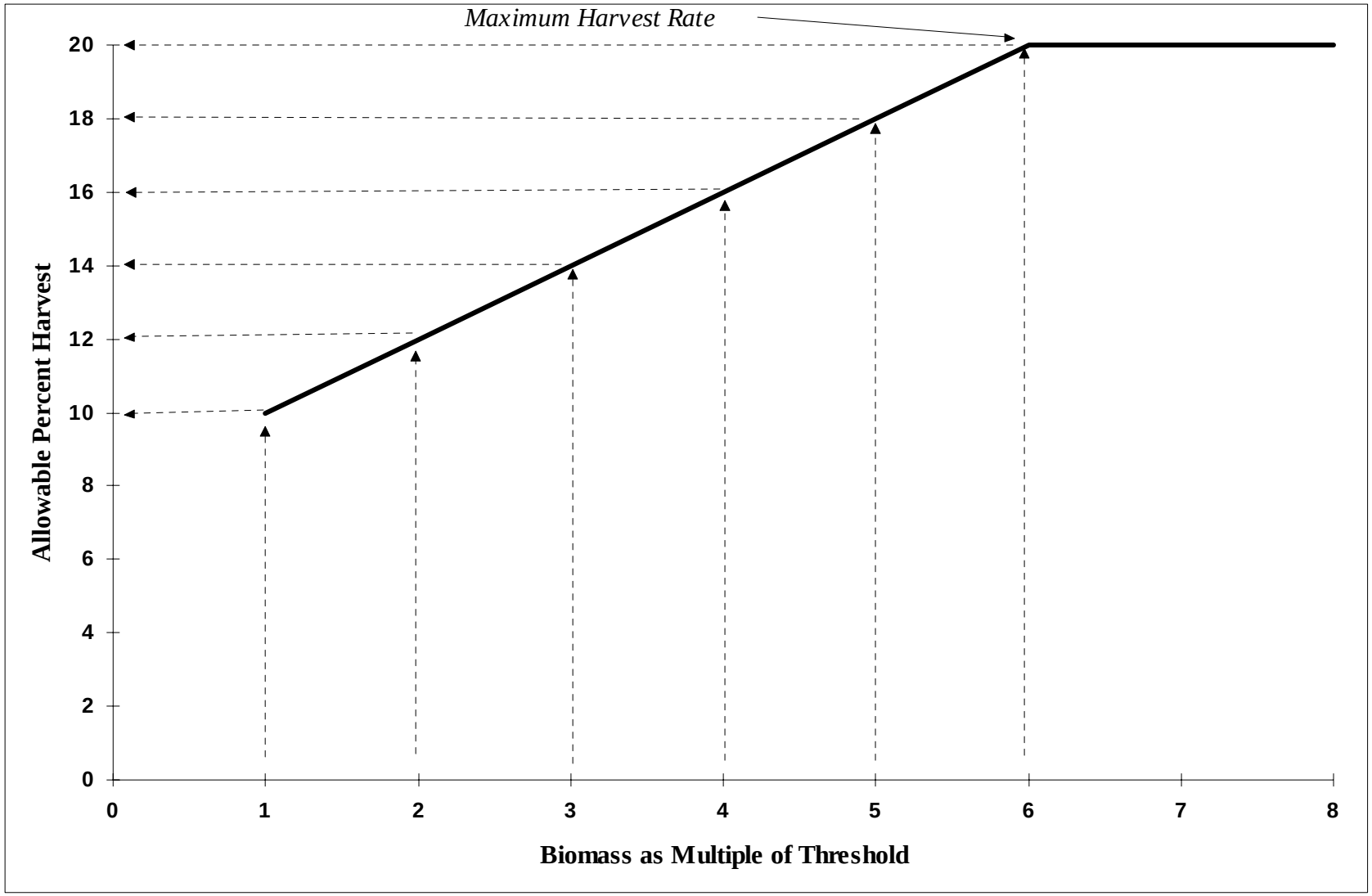

Figure 2. Generalized harvest strategy for Southeast Alaska herring. The allowable percent annual harvest is plotted against the estimated biomass of mature herring expressed as a multiple of the established harvest threshold level.

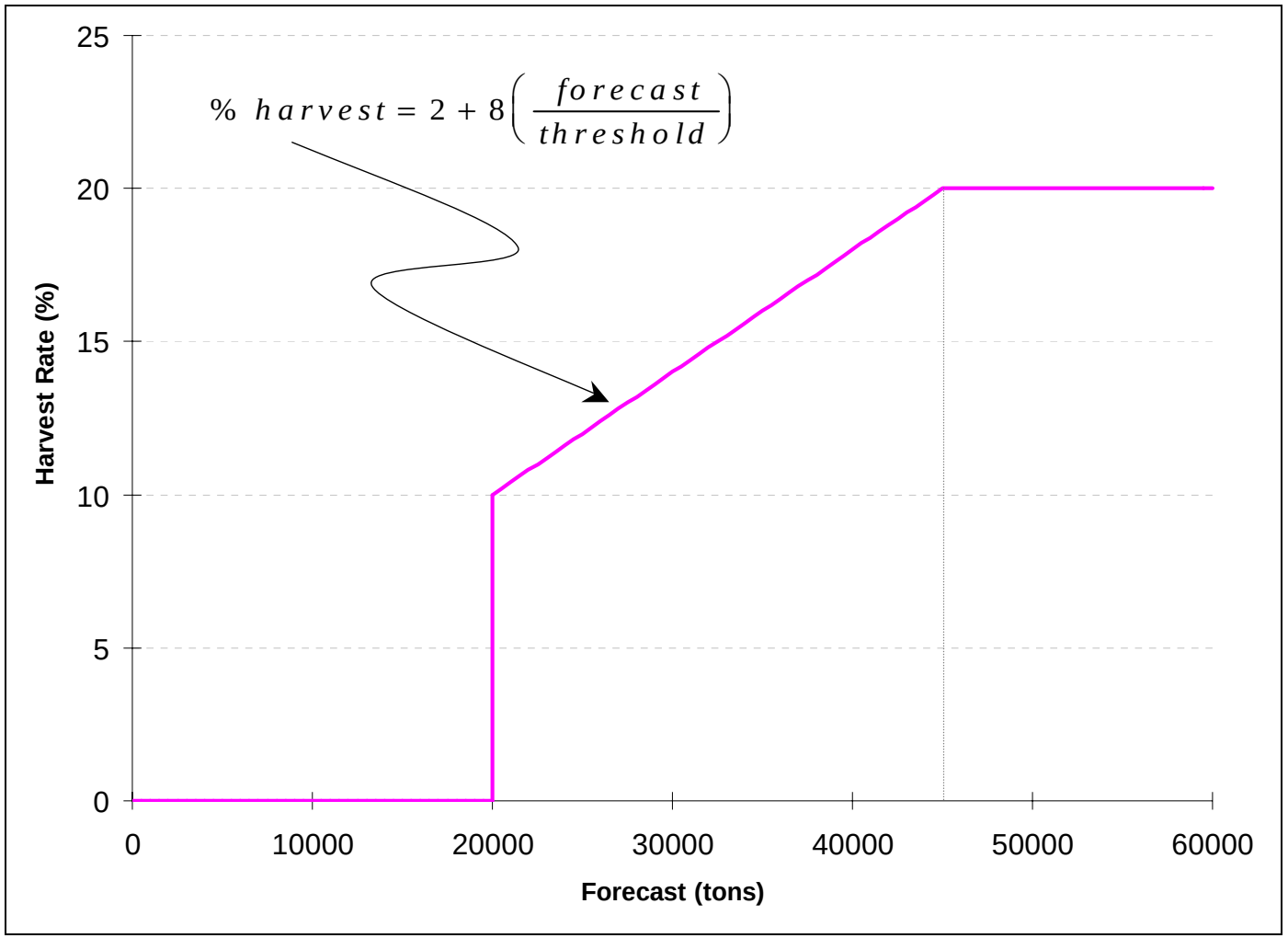

Figure 3. Harvest rate and formula for Sitka Sound under 20,000 ton minimum threshold level [5 AAC 27.160 (g)].

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