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2008 Southeast Alaska Sac Roe Herring Fishery Management Plan

by

William Bergmann,

William Davidson

Dave Gordon,

Kevin Monagle,

and

Scott Walker

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Alaska Department of Fish and Game **Division of Commercial Fisheries**

Symbols and Abbreviations

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Weights and measures (metric)

centimeter	cm
deciliter	dL
gram	g
hectare	ha
kilogram	kg
kilometer	km
liter	L
meter	m
milliliter	mL
millimeter	mm

Weights and measures (English)

cubic feet per second	ft^3/s
foot	ft
gallon	gal
inch	in
mile	mi
nautical mile	nmi
ounce	oz
pound	lb
quart	qt
yard	yd

Time and temperature

day	d
degrees Celsius	°C
degrees Fahrenheit	°F
degrees kelvin	K
hour	h
minute	min
second	s

Physics and chemistry

all atomic symbols	
alternating current	AC
ampere	A
calorie	cal
direct current	DC
hertz	Hz
horsepower	hp
hydrogen ion activity (negative log of)	pH
parts per million	ppm
parts per thousand	ppt, ‰
volts	V
watts	W

General

Alaska Administrative Code	AAC
all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.
all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.
at	@
compass directions:	
east	E
north	N
south	S
west	W
copyright	©
corporate suffixes:	
Company	Co.
Corporation	Corp.
Incorporated	Inc.
Limited	Ltd.
District of Columbia	D.C.
et alii (and others)	et al.
et cetera (and so forth)	etc.
exempli gratia (for example)	e.g.
Federal Information Code	FIC
id est (that is)	i.e.
latitude or longitude	lat. or long.
monetary symbols (U.S.)	$, ¢
months (tables and figures): first three letters	Jan,...,Dec
registered trademark	®
trademark	™
United States (adjective)	U.S.
United States of America (noun)	USA
U.S.C.	United States Code
U.S. state	use two-letter abbreviations (e.g., AK, WA)

Measures (fisheries)

fork length	FL
mideye-to-fork	MEF
mideye-to-tail-fork	METF
standard length	SL
total length	TL

Mathematics, statistics

all standard mathematical signs, symbols and abbreviations	
alternate hypothesis	H_A
base of natural logarithm	*e*
catch per unit effort	CPUE
coefficient of variation	CV
common test statistics	(F, t, χ^2, etc.)
confidence interval	CI
correlation coefficient (multiple)	R
correlation coefficient (simple)	r
covariance	cov
degree (angular)	°
degrees of freedom	df
expected value	*E*
greater than	>
greater than or equal to	≥
harvest per unit effort	HPUE
less than	<
less than or equal to	≤
logarithm (natural)	ln
logarithm (base 10)	log
logarithm (specify base)	$\log_2$, etc.
minute (angular)	'
not significant	NS
null hypothesis	H_O
percent	%
probability	P
probability of a type I error (rejection of the null hypothesis when true)	α
probability of a type II error (acceptance of the null hypothesis when false)	β
second (angular)	"
standard deviation	SD
standard error	SE
variance	
population	Var
sample	var

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2008 SOUTHEAST ALASKA SAC ROE HERRING FISHERY MANAGEMENT PLAN

by
Dave Gordon and William Davidson
Alaska Department of Fish and Game, Division of Commercial Fisheries, Sitka

Kevin Monagle
Alaska Department of Fish and Game, Division of Commercial Fisheries, Juneau

William Bergmann
Alaska Department of Fish and Game, Division of Commercial Fisheries, Petersburg
and
Scott Walker
Alaska Department of Fish and Game, Division of Commercial Fisheries, Ketchikan

Alaska Department of Fish and Game
Division of Commercial Fisheries, Publications Section
802 3rd, Douglas, Alaska, 99824-0020

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The Regional Information Report Series was established in 1987 and was redefined in 2007 to meet the Division of Commercial Fisheries regional need for publishing and archiving information such as project operational plans, area management plans, budgetary information, staff comments and opinions to Board of Fisheries proposals, interim or preliminary data and grant agency reports, special meeting or minor workshop results and other regional information not generally reported elsewhere. Reports in this series may contain raw data and preliminary results. Reports in this series receive varying degrees of regional, biometric and editorial review; information in this series may be subsequently finalized and published in a different department reporting series or in the formal literature. Please contact the author or the Division of Commercial Fisheries if in doubt of the level of review or preliminary nature of the data reported. Regional Information Reports are available through the Alaska State Library and on the Internet at: http://www.sf.adfg.ak.us/statewide/divreprots/htlm/intersearch.cfm.

Dave Gordon and William Davidson
Alaska Department of Fish and Game, Division of Commercial Fisheries,
304 Lake St. Rm. 103
Sitka, AK 99835 USA

Kevin Monagle
Alaska Department of Fish and Game, Division of Commercial Fisheries,
802 3rd St.,
P.O. Box 110024, Douglas, AK. 99811-0024 USA

William Bergmann
Alaska Department of Fish and Game, Division of Commercial Fisheries,
16 Sing Lee Alley, PO Box 667
Petersburg, AK 99833 USA

And

Scott Walker
Alaska Department of Fish and Game, Division of Commercial Fisheries,
2039 Sea level Drive Suite 205,
Ketchikan, AK 99901, USA

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ABSTRACT

This report describes the Southeast Alaska herring sac roe fishery regulations, fishing areas, and Guideline Harvest Levels for 2008. Management plans for the 2008 purse seine and gillnet fisheries are reviewed, including procedures for announcing fishery openings and closures, vessel registration, and catch reporting requirements. A review of herring stock status is presented by spawning area . Alaska Department of Fish and Game management contacts are listed.

Key words: Herring, sac roe, set gillnet, purse seine, management, guideline harvest levels, commercial herring fishing regulations.

INTRODUCTION

Southeast Alaska commercial herring fisheries occur during the winter when herring are harvested for use primarily as bait, and during the spring when herring are harvested for their roe. The roe harvest includes the traditional sac roe fisheries and, in recent years, spawn-on-kelp pound fisheries. A combined management plan for the northern and southern Southeast Alaska spawn-on-kelp pound fisheries is available at local department area offices as publication RIR No. 1J08-08. This management plan provides an overview of the 2008 sac roe herring fisheries for Southeast Alaska including expected harvest levels and management strategy.

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 six sac roe herring fishing areas in Southeast Alaska consisting of two exclusive purse seine and three exclusive gillnet areas. An additional area in West Behm Canal will be open on alternate years for set gillnet or purse seine gear when the threshold level is met. Sac roe fishing areas are shown in Figure 1.

Approximately 12,678 tons of herring were harvested in commercial sac roe herring fisheries conducted in Southeast Alaska during 2007. A harvest of approximately 16,390 tons is anticipated for the 2008 season.

REGULATIONS

Commercial herring fishing regulations are outlined by the Alaska Department of Fish and Game (ADF&G) in the 2007–2008 Statewide Commercial Herring Fishing Regulations pamphlet. Copies of the pamphlet may be obtained at any ADF&G office. Management plans which apply to the herring harvest in the sac roe fisheries include: statewide Management Guidelines for Commercial Herring Sac Roe Fisheries [5AAC 27.059], Herring Management Plan for Southeast Alaska Area [5AAC 27.190], the Sitka Sound Commercial Sac Roe Herring Fishery Management Plan [5AAC 27.195] and [5AAC 27.197] SECTIONS 1-E AND 1-F COMMERCIAL SAC ROE HERRING FISHERY.

Regulations were adopted by the Alaska Board of Fisheries during the January 2006 meeting. These regulations;

- clarify that the West Behm Canal herring sac-roe fishery will alternate between fisheries and not calendar years,
- repeal the requirement that herring purse seine Commercial Fisheries Entry Commission (CFEC) permit holders were required to agree to a West Behm Canal Cooperative Fishery Management Plan (CFMP) for a purse seine fishery to occur in West Behm Canal.

- allow a herring gillnet vessel with two permit holders on board to fish with a net not exceeding 75 fathoms [5AAC 27.131 (i)].

ADF&G staff listed at the conclusion of this plan is available to provide further details.

VESSEL CHECK-IN, CHECK-OUT, AND REPORTING PROCEDURE

Buyers or buyer's agents shall register all vessels employed in transporting and processing herring with ADF&G prior to commencing with those activities and make daily reports of herring purchased from fishers as specified by a local representative of ADF&G [5AAC 27.162(a)]. ADF&G requests that tenders and fishing vessels not previously registered through buyers or buyer's agents, check-in and check-out of the fishing areas with department personnel located on the fishing grounds to facilitate timely and complete assessment of herring landings.

Fish tickets must be provided to the CFEC permit holder at the time of delivery to the first buyer or buyer's agent [5 AAC 27.162(c)]. This means that there must be a separate fish ticket for each delivery to a tender before the tender leaves the fishing grounds to make a landing. At the request of the CFEC permit holder, on-the-grounds weight and estimated roe content shall both be recorded on the fish ticket. Operators who will transport fish out of Alaska before processing must submit a fish ticket to the department before departing the state [5 AAC 39.130(c)]. Fully completed fish tickets with updated accurate and final weights and roe percentages must be submitted to ADF&G within 10 days after the termination of buying operations, unless otherwise specified by ADF&G [5 AAC 27.162(a)(3)].

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 dates of intended operation.

ANNOUNCEMENT OF OPENINGS AND CLOSURES

Fishery openings and closures will be implemented via department emergency order (EO). Announcements of EO's will be issued through normal news release channels and on the fishing grounds over VHF radio. The VHF radio channel 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.

ADF&G 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, ADF&G will try to give the industry a 36-hour advance warning of the time that the fishery goes on two-hour notice. Announcement of the time 2-hour notice goes into effect will be made by an ADF&G News Release. 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 and the Hobart/Houghton gillnet fisheries, ADF&G will provide the industry with a 12-hour advance notice of a possible decision to place the fishery on two-hour 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 and distribution of mature herring containing quality roe (at least 10% mature roe), mature spawning biomass estimates, population age structure, recruitment, size-at-age, and past spawning success.

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 5AAC 27.190 HERRING MANAGEMENT PLAN FOR SOUTHEASTERN ALASKA AREA, 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
West Behm Canal	6,000 tons

Varieties of methods have been used to assess the status of herring populations in Southeast Alaska. Before 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 hydro acoustic 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, average fecundity, average weight at age, and age composition, to yield an estimate of spawning biomass. In past years, estimates of spawning biomass from one year were used as the forecast to set harvest quotas for individual spawning stocks for the following year.

Beginning in 1993, ADF&G began using age-structured analysis (ASA) to forecast abundance for selected spawning stocks with sufficient historic stock information. The ASA method relies on a time series of herring population assessment data (e.g., survey estimates of egg deposition (trillions of eggs), fecundity, age composition and weight-at-age from samples of spawning herring, catch age composition and weight-at-age, weight-at-age from winter test sampling, and estimates of harvest-related mortality) to forecast herring biomass for specific spawning stocks. 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, growth, and

maturity are often not equal to the loss of biomass due to natural mortality, as is assumed when using the spawn deposition method for forecasting abundance. The ASA method is currently used to forecast herring abundance for the Sitka, and Seymour Canal fisheries.

Beginning in 1995, ADF&G began using a biomass accounting (BA) method to forecast abundance for stocks without sufficient historic stock information for ASA modeling. Spawn deposition estimates were obtained for these areas as an initial indication of the likelihood that the spawning biomass would be above the respective thresholds for each area. For those areas likely to be above their thresholds, biomass accounting was then used to forecast biomass. The BA method uses the most recent year's spawn deposition estimate of eggs, the age composition of the spawning biomass, weight-at-age, and fecundity to project the following year's return of mature herring. It also uses survival and maturity-at-age estimates from the forecast of the nearest stock for which ASA modeling was used. The median historical level of recruitment of age-3 herring specific to each stock is also applied to forecast biomass. The BA method is currently used to forecast herring abundance for the West Behm Canal and the Hobart/Houghton 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 forecast spawning stock if the forecasted biomass is greater than 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:

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

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):

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

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 ADF&G can manage sac roe fisheries to enhance value. To determine the best time to fish, ADF&G 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 exclusive 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. During the 2003 Alaska Board of Fisheries meeting in Sitka the board adopted a new sac roe gillnet fishery for West Behm Canal (Section 1-E and 1 F). The new gillnet fishery will operate on alternate years with a purse seine sac roe fishery. 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 ADF&G, to be placed on one buoy at each end of a herring set gillnet [5 AAC 27.131 (g)].

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 3,113 tons in 1983. In 1990, and from 2000 through 2007, the minimum threshold level was not reached and no fishery was permitted. In 1999, a Guideline Harvest Level (GHL) of 870 tons was established. However, due to on-grounds concern over the lack of herring located in Alaska waters, the fishery was not opened and no herring were harvested.

In 2007, very limited herring spawn was observed in the Kah Shakes/Cat Island area. Therefore, no sac roe herring fishery will take place there in 2008. ADF&G, however, will continue to monitor the status of the Revilla Channel herring. 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 2008 will be used to set the harvest level for 2009.

WEST BEHM CANAL

The Alaska Board of Fisheries passed regulations in January 2003 to open the West Behm Canal area (Section 1-E and portions of Section 1-F) for sac roe herring fishing and bait pound operation. Elements of the commercial herring fishery plan include:

1. Annual, alternating fishing schedule between set gillnet and purse seine gear in years which the threshold level is met with the first fishery being set gillnet;
2. A cooperative purse seine fishery in years when the purse seine fishing gear is allowed;
3. Closed waters in the Clover Passage and Tongass Narrows area, and;
4. The establishment of a bait pound fishery, which is allocated 10% of the GHL for the West Behm Canal spawning population (5AAC 27.160 (b)(4)).

The 2004 BA forecast of mature spawning biomass for the West Behm Canal herring population was 9,366 tons, establishing a GHL of 1,042 tons. This GHL included 940 tons for the sac roe herring fishery and 102 tons for the bait pound fishery. However, due to on-grounds concerns over the lack of herring in West Behm Canal, the fishery was not opened and no herring were harvested. The actual spawning biomass observed in 2004 was 443 tons, substantially lower than the forecast. The 2008 BA forecast for West Behm Canal is 2,531 tons, and is below the threshold level of 6,000 tons. This means there will be no sac roe herring fishery in West Behm Canal for 2008.

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 1,519 tons in 2003 (Table 1).

The 2008 ASA forecast of the mature spawning biomass for the Seymour Canal herring stock is 8,721 tons. Using the sliding scale harvest rate, this biomass allows a harvest rate of 13.8% of the population and a GHL of 1,205 tons for the 2008 fishing season. The forecast indicates that the spawning stock will consist of primarily ages 6, 7, and 8+ herring.

Opening dates for the Seymour Canal gillnet fishery have ranged from April 26 to May 16. Since 1980, spawning has started as early as April 19 and as late as May 15. 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 free of charge from the Douglas, Ketchikan, and Petersburg Fish and Game offices prior to the time that ADF&G's vessel is on the fishing grounds; thereafter, identification stickers can only be obtained from ADF&G's vessel. The stickers will only be issued to valid permit holders and proper picture identification will be required. If during the course of the fishery a buoy sticker is lost, a replacement sticker must be obtained from ADF&G before fishing is resumed.

Legal gear for the Seymour Canal fishery is one 50-fathom net, except as noted above under the "Regulations" section of this management plan, with a minimum mesh size of 2 1/8 inches stretched mesh and a maximum depth of 120 meshes.

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, ADF&G 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 GHL for the Hobart/Houghton winter food and bait fishery to the sac roe gillnet fishery [5 AAC 27.160 (f)]. Sac roe harvests occurred in 1997 through 1999, and in 2005. In 2000, the GHL was harvested in the winter bait fishery (Table 1). No harvest occurred from 2001 through 2004 and in 2006 or 2007.

The 2008 BA forecast of mature spawning biomass for the Hobart/Houghton herring spawning stock is 3,884 tons. Using the sliding scale harvest rate, this biomass forecast allows a harvest rate of 11.9 % of the population and a GHL of 462 tons for the 2008 fishing season. The forecast indicates that the spawning stock will consist of primarily age age-5 and age-6 herring.

During the past ten years, the average peak spawning date at Hobart/Houghton has been April 30. During those years, spawning started as early as April 19 and as late as May 4. The last fishery that occurred in Hobart/Houghton was April 24, 2005. ADF&G personnel will start monitoring the Hobart/Houghton area in mid-April. Initially, monitoring will be limited to aerial surveys. A vessel with Department personnel on board will be on the grounds once the fishery appears imminent. This is expected to occur in late April.

Set gillnet buoy stickers must be obtained and placed on the buoys prior to fishing. These stickers will be available free of charge from the Petersburg, Douglas and Ketchikan office's prior to the time ADF&G's vessel is on the fishing grounds: thereafter, buoy stickers can only be obtained from ADF&G personnel aboard the vessel on the grounds. The stickers will only be issued to valid permit holders and proper picture identification will be required. If during the course of the fishery a buoy sticker is lost, a replacement sticker must be obtained from ADF&G before fishing is resumed.

Buoy stickers issued for the Hobart/Houghton fishery will be valid for the Seymour Canal fishery. Fishermen must still register with ADF&G upon reaching the Hobart/Houghton fishing area.

Legal gear for the Hobart/Houghton fishery is one 50-fathom net, except as noted above under the 'Regulations" section of this management plan for persons fishing 2 permits aboard one vessel. The minimum mesh size is 2 1/8 inches stretched mesh and a maximum depth of 120 meshes.

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, ADF&G may 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.

PURSE SEINE FISHERIES

There are two exclusive 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 2008 season. A summary of harvest and fishing time information for each fishery is shown in Table 2. During the 2003 Alaska Board of Fisheries meeting in Sitka, the board adopted a new sac roe purse seine fishery for West Behm Canal. The new seine fishery will operate on alternate years with a gillnet sac roe fishery in years when the threshold level is met.

LYNN CANAL

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

The Lynn Canal fishery has not been open since 1982. Aerial and on-the-grounds surveys conducted in Lynn Canal during the spring of 2007 documented 7.4 nautical miles of spawn. A spawn deposition survey was conducted in Berners Bay on May 25, 2007 leading to a mature spawning biomass estimate of 1,461 tons, which is well below the spawning threshold level of 5,000 tons. This fishery will not open in 2008.

WEST BEHM CANAL

The Alaska Board of Fisheries passed regulations in January 2003 that allowed for a cooperative purse seine fishery on alternate years in which the threshold level is met. Since the 2008 West Behm Canal forecast is below threshold level, there will be no herring fishery in West Behm Canal in 2008.

SITKA SOUND

The Sitka Sound sac roe fishing area encompasses the waters of Section 13-B north of the latitude of Aspid Cape and Salisbury Sound in Section 13-A. Though regulations defining the sac roe seine area do not include Section 13-A, the department has allowed commercial harvest in Salisbury Sound by emergency order in 1989, 1999, 2002, and 2006. The department considers herring that spawn in Salisbury Sound part of the Sitka Sound herring spawning stock and has included Salisbury Sound spawn in the stock assessment.

This fall the department ran several ASA model runs exploring various biological parameters affecting the Sitka Sound herring stock and other model parameters to improve the fit of the model to the observed data. The ASA model uses a long time series of abundance and age composition data from department surveys conducted during the spring fishery. The best fitting ASA model run included splitting the maturity schedule estimates for the periods 1978–2001 and 2002–2007. The maturity schedule is the estimation of what age the herring are reaching maturity and capable of spawning. The model is showing that during the period 2002–2007 a smaller portion of age-3 through age-7 herring are recruiting as mature herring to the spawning grounds and the fishery. Maturation of herring is a function of growth and in recent years younger herring have been growing at a slower rate. The preliminary 2008 forecast for the Sitka Sound herring spawning biomass is 78,446 tons. Based on this forecast and a 20% harvest rate the preliminary GHL would be 15,689 tons. However, the department has selected a more conservative GHL than that forecast using the ASA model because it is not fully understood how changes in the environment that are affecting herring growth, maturation and survival will affect the herring population in future years. The preliminary GHL announced December 4, 2007 was 13,796 tons and was based on averaging the 2007 forecast biomass with the 2008 forecast biomass and a 20% harvest rate. Based on size-at-age data from winter samples collected in Sitka Sound on February 6, 2008, the GHL for the 2008 sac roe herring fishery has been revised to a final GHL of 14,723 tons. The ASA model forecast indicates the 2008 spawning population will consist of 4% age-3, 6% age-4, 9% age-5, 13% age-6, 12% age-7, and 57% age-8+ herring.

Herring distribution and roe quality will be monitored prior to and during the fishing period. Monitoring methods for 2008 will include aerial surveys, hydroacoustic surveys, and test fishing. In 2008, ADF&G will continue to coordinate the test boat program through a fisherman-coordinator who will assign daily test fishing boats requested by ADF&G. Prior to making test sets, the identified test boats will contact ADF&G biologists on the grounds to monitor set locations and to plan for transport of herring samples to a central location for analysis by industry technicians. The areas open to fishing will depend on the distribution of herring, the need to provide for a fishery that will harvest good quality herring, and the need to provide a reasonable opportunity for subsistence.

In order to help ADF&G to ensure that a reasonable opportunity is provided for subsistence, a Memorandum of Agreement (MOA) was signed by ADF&G and the Sitka Tribe of Alaska (STA) on November 4, 2002, and finalized by the Alaska Board of Fisheries on December 17,

2002. This agreement brings consideration of potential impacts of the commercial sac roe herring fishery on the subsistence herring fishery in Sitka Sound to the ADF&G fishery manager through an in-season consultation process. An in-season Tribal Liaison will be consulted prior to each commercial opening. If the Tribe concludes that there is a potential for subsistence harvesters to be negatively impacted by the proposed opening, the Tribal Liaison will provide this conclusion and reasoning to the department verbally and in writing. An in-season task force consisting of the Tribal, industry and ADF&G representatives will meet immediately after receiving notification of an objection to a commercial opening. It will be necessary to specifically identify the composition of representatives and the individuals on the task force prior to the fishery being placed on 2-hour notice. In the event of dissenting recommendations from task force members, the ADF&G manager would be the final arbiter after having considered all input from the task force.

Beginning with the 2002 season STA, working in collaboration with ADF&G Subsistence Division, has developed a methodology using a household survey, in lieu of using a permit system, to estimate the subsistence herring roe harvest. Following each season, the Sitka Tribe of Alaska conducts a "census" type survey whereby all known participants in the subsistence fishery are contacted to determine the results of the subsistence harvest. The list of participants is changed each season to reflect newly identified participants and to remove past participants who have either moved or passed away. The survey information is used to determine the amount and quality of the subsistence harvest, and would indicate whether the amount reasonably necessary for subsistence (105,000–158,000 pounds) had been successfully harvested. In 2004 and 2005 ADF&G Subsistence Division was not able to collaborate due to budget constraints. The results of the 2007 harvest survey are not yet completed. Previous season's harvest were 219,356 pounds in 2006, 75,572 pounds in 2005, 294,000 in 2004, 210,000 in 2003 and 112,000 in 2002.

To the extent that the commercial harvest can affect subsistence opportunities the department is determined to act on opportunities for openings outside of the high use subsistence areas as they arise. The department recognizes that fishing within the high use subsistence area may be necessary in order to provide an opportunity for the commercial fishery to harvest and to reach the season's GHL.

ADF&G, STA and industry will continue to work collaboratively in identifying sac roe harvest opportunities in the greater Sitka Sound area and whether it is necessary to distribute the harvest time and area in the commercial fishery in order to provide a reasonable opportunity for subsistence. Mechanisms of consideration for distribution of commercial harvest may include the following:

1. Limiting harvest in the highest frequency spawning area along the Halibut Point Road shoreline in proportion to historical use patterns established by past commercial competitive fisheries (50–55% of the GHL).
2. Choosing dispersal of time and area by selecting appropriate in-season options.
3. Considering recommendations from in-season task force members.

ADF&G held a Southeast Alaska sac roe fisheries pre-season planning meeting in Sitka on January 31, 2008. There was general agreement that the harvest strategy would be to harvest this season's GHL in four openings with at least one day between openings. This is consistent with previous season's harvesting rates assuming similar tendering and processing capacities. This

will serve as a general plan of approach for the 2008 fishery. It will be necessary to remain flexible and adapt specific opening target harvest levels in consideration of in-season assessment of herring distribution and quality, changes in available processing and tendering capacity, input from industry representatives, and dispersing the harvest by time and area away from traditional subsistence harvesting areas. A general pre-fishery meeting immediately prior to the fishery will be held in Sitka when the fishery is being placed on 2-hour notice.

In recent years the United States Coast Guard has been closely monitoring fishery openings for violations of "Rules of the Road" during the conduct of the fishery. For further information regarding the application of "Rules of the Road" during the conduct of the fishery, contact the USCG Marine Safety Detachment at 966–5454.

The Magnuson-Stevens Fishery Conservation and Management Act restricts the use of foreign vessels outside of internal waters and the port of Sitka. Fishery openings outside of internal waters and the port of Sitka are possible. Operators of foreign vessels wanting to participate in the Sitka Sound herring sac roe fishery are encouraged to contact the National Marine Fisheries Service at (907) 747-6940 for more details.

LIST OF MANAGEMENT CONTACTS

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

Scott Kelley Region I Supervisor Douglas Regional Office	P.O. Box 240020 Douglas, Alaska 99824 (907) 465-4250
Bill Davidson Region I Management Coordinator Sitka Area Office	304 Lake St. Rm. 103 Sitka, Alaska 99835 (907) 747-6688
Kevin Monagle and David Harris Area Management Biologists Douglas Regional Office	P.O. Box 240020 Douglas, Alaska 99824 (907) 465-4250
Marc Pritchett Herring Research Biologist Douglas Regional Office	P.O. Box 240020 Douglas, Alaska 99824 (907) 465-4250
Scott Walker, Justin Breese, and Bo Meredith Area Management Biologists Ketchikan Area Office	2030 Sea Level Dr., Suite 205 Ketchikan, Alaska 99901 (907) 255-5195
William Bergmann and Troy Thynes Area Management Biologists Petersburg Area Office	P.O. Box 667 Petersburg, Alaska 99833 (907) 772-3801
Dave Gordon and Eric Coonradt Area Management Biologists Sitka Area Office	304 Lake St. Rm. 103 Sitka, Alaska 99835 (907) 747-6688
Scott Forbes Assistant Area Management Biologist Wrangell Area Office	P.O. Box 200 Wrangell, Alaska 99929 (907) 874-3822

TABLES AND FIGURES

Table 1.–Southeast Alaska gillnet sac roe herring fisheries information summary, 1976–2007.

Year	Seymour Canal[a]				Revilla Channel			
	Guideline Harvest Level (Tons)	Catch[b] (Tons)	Date 2-Hour Notice Effective	Opening Dates	Guideline Harvest Level (Tons)	Catch[c] (Tons)	Date 2-Hour Notice Effective	Opening Dates
1976	200	195		May 9	300	494	March 23	April 2
1977	500	485	May 4	May 9	800	776	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	524	March 28	March 29
1980	--	--	Fishery Not Open	--	1,100	1,149	March 25	March 25
1981	600	615	April 28	April 28	1,550	1,871	March 20	March 20
1982	--	--	Fishery Not Open	--	1,700	2,319	March 20	March 26
1983	--	--	Fishery Not Open	--	2,500	3,113	March 23	March 24
1984	375	499	April 20	April 26	2,100	2,177	March 20	March 29
1985	--	--	Fishery Not Open	--	2,300	2,159	March 28	March 29
1986	300	392	May 5	May 10	1,100	1,530	March 29	March 31
1987	419	302	May 1	May 5, 6	1,200	1,452	March 24	March 26, 27
1988	530	586	April 20	April 26-May 1	953	1,145	March 24	March 25
1989	332	547	April 21	April 28	647	595	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	1,246	April 1	April 3
1993	--	--	Fishery Not Open	--	717[d]	737	March 31	April 10
1994	368	374	April 28	April 29	880[d]	730	April 9	April 9,11
1995	316	319	April 30	May 14	630	610	April 11	April 12
1996	_	_	Fishery Not Open	_	871	601	April 8	April 10
1997	-	-	Fishery Not Open		912	1,159	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	No Fishery	Fishery Not Opened
2000	346	421	May 3	May 5	0	0	No Fishery	Fishery Not Opened
2001	474	620	May 6	May 11-12	0	0	No Fishery	Fishery Not Opened
2002	1,096	1,066	May 12	May 16-17	0	0	No Fishery	Fishery Not Opened
2003	1,712	1,519	Apr 28	Apr 29-May 2	0	0	No Fishery	Fishery Not Opened
2004	838	804	May 1	May 3	0	0	No Fishery	Fishery Not Opened
2005	894	945	April 26	May 1	0	0	No Fishery	Fishery Not Opened
2006	1,508	1,187	April 28	May 4-May7	0	0	No Fishery	Fishery Not Opened
2007	1,292	1,107	May 8	May 13-May 14	0	0	No Fishery	Fishery Not Opened

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Table 1.–(Page 2 of 2)

	Hobart-Houghton[e]					West Behm Canal			
Year	Guideline Harvest Level (Tons)	Catch (Tons)[f]		Date 2-Hour Notice Effective	Opening Dates	Guideline Harvest Level (Tons)	Catch (Tons)	Date 2-Hour Notice Effective	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	104	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				
2001	0	0	0	No Fishery	Fishery Not Opened				
2002	0	0	0	No Fishery	Fishery Not Opened				
2003	0	0	0	No Fishery	Fishery Not Opened	First fishery Set for 2004 by Board of Fisheries			
2004	0	0	0	No Fishery	Fishery Not Opened	940	0	No Fishery	Fishery Not Opened
2005	223	0	204	April 24	April 24	0	0	No Fishery	Fishery Not Opened
2006	0	0	0	No Fishery	Fishery Not Opened	0	0	No Fishery	Fishery Not Opened
2007	0	0	0	No Fishery	Fishery Not Opened	0	0	No Fishery	Fishery Not Opened

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

[b] Seymour Canal Catch includes all herring for sac roe including confiscated and test fishery catch based on IFDIB query March, 2007.

[c] Revilla Channel Catch includes all herring for sac roe based on IFDIB query March, 2007.

[d] Revilla Channel GHL reduced by 150 tons as an allocation for the Annette Island sac roe harvest.

[e] Hobart Bay was opened to Gillnet Sac Roe Fishing in 1997. Gillnet quota is the portion left after the winter bait fishery is completed.

[f] Hobart Bay Catch includes all herring for sac roe based on IFDIB query March, 2007. Bait catch is reported by season which includes Oct–Dec of prior calenadar year.

Table 2.–Southeast Alaska purse seine sac roe herring fisheries information summary, 1976–2007.

Year	Juneau[a]-Lynn Canal					Sitka Sound			
	Guideline Harvest Level (Tons)	Catch[b] (Tons)		Date 2-Hour Notice Was Effective	Opening Dates	Guideline Harvest Level (Tons)	Catch(Tons)[c]	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	--
		211	Gillnet		April 20				
1978	500	602	Seine	April 19	April 20	250	175	April 4	April 5
	200	363	Gillnet	April 21					
1979	--	--		Fishery Not Open	--	2,000	2,559	April 7	April 12
1980	600	975	Seine	April 13	April 26	4,000	4,385	April 4	April 4, 5
1981	725	775	Seine	April 17	April 23	2,700	3,506	March 23	March 24, 26
1982	375	551	Seine	April 30	April 30	3,000	4,445	March 26	March 30
1983	--	--		Fishery Not Open	--	5,500	5,449	March 23	March 26, 29
1984	--	--		Fishery Not Open	--	5,000	5,771	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	9,390	March 25	April 4–14
1989	--	--		Fishery Not Open	--	11,700	11,714	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	1,838	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	4,758	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

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Table 2–(Page 2 of 2)

Year	Juneau[a]-Lynn Canal				Sitka Sound			
	Guideline Harvest Level (Tons)	Catch (Tons)	Date 2-Hour Notice Was Effective	Opening Dates	Guideline Harvest Level (Tons)	Catch[b] (Tons)	Date 2-Hour Notice Was Effective	Opening Dates
1997	--	--	Fishery Not Open	--	10,900	11,147	March 18	March 18-March 23
1998	--	--	Fishery Not Open	--	6,900	6,638	March 16	March 16, 18, 19
1999	--	--	Fishery Not Open	--	8,476	9,218	March 19	March 22, 24, 26–27
2000	--	--	Fishery Not Open	--	5,120	4,675	March 13	March 19, 22
2001	--	--	Fishery Not Open	--	10,597	12,034	March 15	March 22, 26, 27
2002	--	--	Fishery Not Open	--	11,042	9,885	March 25	March 27, 29, 31, April 2, April 12–15
2003	--	--	Fishery Not Open	--	6,969	7,069	March 20	March 22, 23, 26
2004	--	--	Fishery Not Open	--	10,618	10, 569	March 19	March 21, 25, 27
2005	--	--	Fishery Not Open	--	11,192	11, 425	March 20	March 23, 25, 27–29
2006	--	--	Fishery Not Open	--	10,412	9,967	March 23	March 24, 26, 27, 29
2007	--	--	Fishery Not Open	--	11,904	11,571	March 24	March 26, 30, April 1, 3

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

[b] The Lynn Canal Catch includes all herring for sac roe, by gear based on IFDB query March, 2007.

[c] The Sitka catch includes all herring for sac roe including confiscated catch and test fishery harvest based on IFDIB query March, 2007.

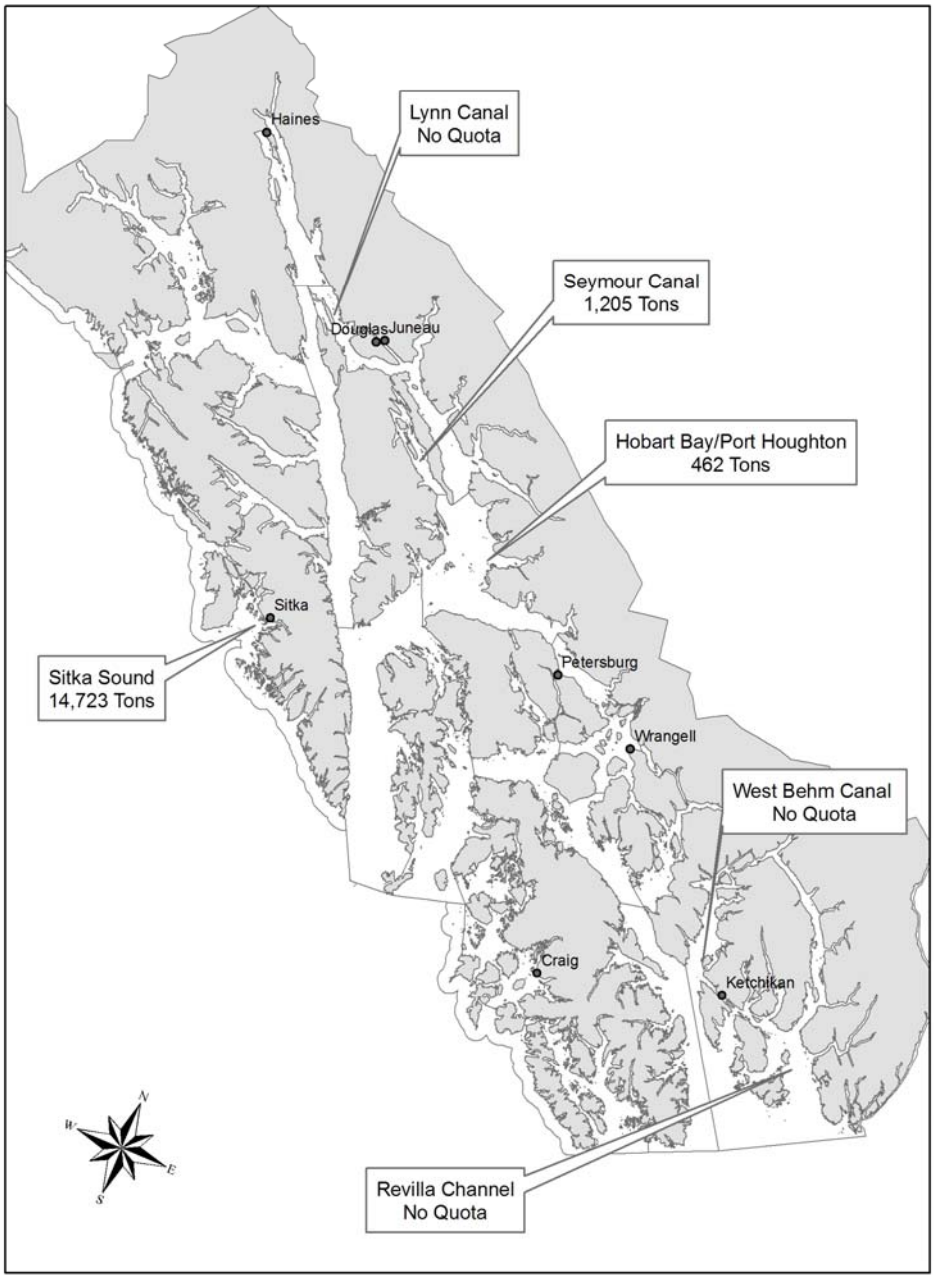

Figure 1.–Southeast Alaska sac roe herring areas and Guideline Harvest Levels for 2008.

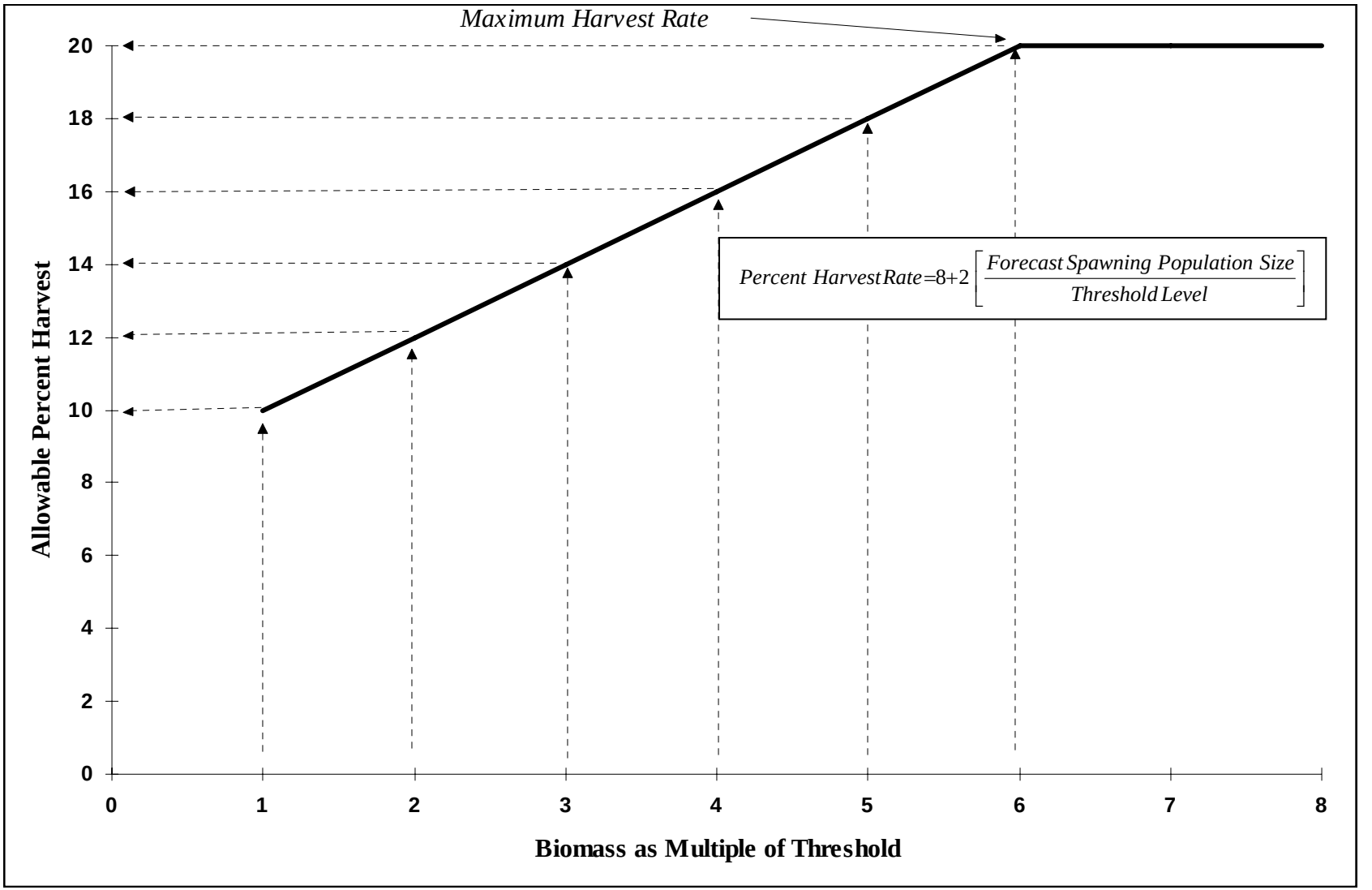

Figure 2.–Generalized harvest strategy for Southeast Alaska herring (does not include Sitka Sound). The allowable percent annual harvest is plotted against the estimated biomass of mature herring expressed as a multiple of the established harvest threshold level.

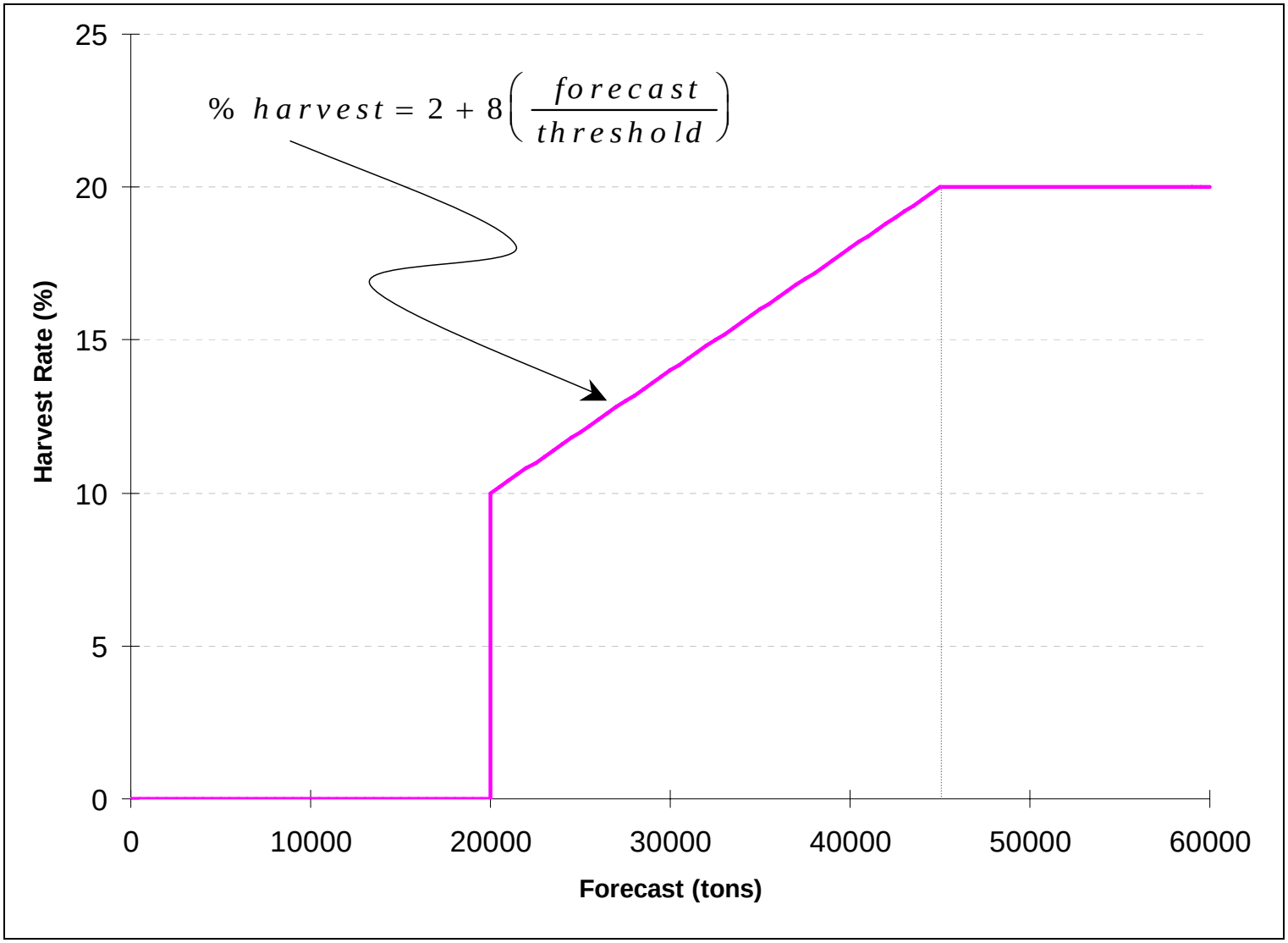

Figure 3.–Harvest rate and formula for Sitka Sound under 20,000 ton minimum threshold level [5 AAC 27.160 (g)].