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2021 Southeast Alaska Herring Spawn-On-Kelp Pound Fishery Management Plan

by

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February 2021

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)

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

REGIONAL INFORMATION REPORT 1J21-02

2021 SOUTHEAST ALASKA HERRING SPAWN-ON-KELP POUND FISHERY MANAGEMENT PLAN

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ABSTRACT

This management plan provides an overview of the management approach, permit requirements, and regulations for the 2021 herring spawn-on-kelp pound fisheries in Southeast Alaska. A herring spawn-on-kelp pound fishery will only occur in the Section 3-B (Craig-Klawock) area. Department staff listed at the end of this document are available to answer questions regarding this plan. Pound operators are also advised to review the section of this plan that describes requirements of other agencies.

Key words: Pacific herring, *Clupea pallasii*, herring pound, *Macrocystis* kelp, allocation, management plan, spawn on kelp

INTRODUCTION

This plan provides an overview of the 2021 management approach, permit requirements, and regulations for Pacific herring (*Clupea pallasii*) harvest in the Southeast Alaska spawn-on-kelp fisheries. 5 AAC 27.185 *Management Plan for Herring Spawn on Kelp in Southeastern Alaska* establishes the regulatory framework for the Southeast Alaska spawn-on-kelp (SOK) fisheries and provides for fisheries in Sections 3-B (Craig/Klawock), 12-A (Tenakee Inlet), 13-C (Hoonah Sound), and in District 7 (Ernest Sound).

A *closed-pound fishery* involves capturing sexually mature herring and releasing them into a net impoundment in which kelp is suspended. The herring are released from the pound after they spawn on the suspended kelp and the kelp with eggs attached is then sold. An *open-pound fishery* involves suspending kelp from a floating frame structure in an area where herring are spawning. The herring are not impounded but instead are allowed to naturally spawn on the suspended kelp. The kelp blades with eggs are removed from the water then sold. In the Southeast Alaska herring SOK fisheries, a closed or an open pound may be operated by one or more Commercial Fisheries Entry Commission (CFEC) permit holders.

The 2020/21 season (October 1–September 30) herring guideline harvest level (GHL) for the Craig/Klawock area stock is 19,456 tons of herring. Forty percent (40%) or 7,702 tons is allocated to the SOK fishery plus any unharvested portion of the winter food and bait quota. The current GHL for the Craig/Klawock spawn-on-kelp fishery will put the fishery in the 1,500 or more tons kelp allocation range.

No fishery will occur in Ernest Sound during the 2020/21 season. A forecast was not generated due to the low mileage of herring spawn observed in 2020. In 2021, Ernest Sound will be monitored throughout the duration of historical spawn timing. If enough herring spawn is observed and funding is available, a spawn deposition survey may be conducted.

No fishery will occur in Hoonah Sound during the 2020/21 season. In 2020, no herring or herring spawn was observed therefore no forecast was generated for the 2020/21 season. Future assessment and fisheries are dependent on available funding.

No fishery will occur in Tenakee Inlet during the 2020/21 season. Approximately 1.9 nautical miles (nmi) of spawn was observed in 2020, but no samples were collected, a spawn deposition survey was not conducted therefore no forecast was generated. Future assessment and fisheries are dependent on available funding.

HERRING STOCK STATUS AND HISTORICAL FISHERY PERFORMANCE

METHODS OF FORECASTING HERRING BIOMASS

The age-structured analysis (ASA) method is used for forecasting herring biomass for several of the larger stocks in Southeast Alaska, including Craig/Klawock and Tenakee Inlet. The ASA method primarily uses a time series of estimates of total egg deposition, age compositions of spawning and commercially caught herring, and commercial catch to project the following year's return of mature herring. The ASA model utilizes a three to four decade longtime series of these data sets to estimate the current biomass, historical biomass, and forecast biomass for the next year. The ASA model also calculates survival and maturation rates specific to the spawning stock and is the preferred model when data sets are adequate.

The biomass accounting (BA) method of forecasting is simpler alternative to the ASA method and used for areas with historical datasets that are shorter or less complete. This method is used to forecast the pre-fishery mature biomass and to establish the fishery GHL in Hoonah Sound and Ernest Sound. The BA method uses only the current year's estimate of egg deposition, the current age compositions of the spawning and commercially caught biomass, weight at age, and fecundity estimates to project the following year's return of mature herring. The Hoonah Sound forecast uses the estimated survival and maturity estimates derived from the ASA model for the nearby Sitka Sound herring stock. A median historical level of recruitment of age-3 herring specific to Hoonah Sound is also applied to forecast biomass. The Ernest Sound forecast uses the estimated survival and maturity estimates derived from the ASA model for the Craig herring stock and a median historical recruitment of age-3 herring specific to Ernest Sound is applied to forecast biomass.

Once a forecast of the season's biomass is calculated, a variable harvest rate formula allows for a harvest rate of 10–20% of the forecast of mature spawning biomass. When the spawning biomass forecast for an area equals the threshold, the exploitation rate is 10% of the estimated spawning biomass. For each incremental increase in the spawning biomass equal to the threshold, the exploitation rate increases by 2%.

CRAIG-KLAWOCK (SECTION 3-B)

Herring fisheries have occurred in Section 3-B since the 1960s. The first commercial harvest was in the form of a wild SOK fishery in the Craig/Klawock area beginning in the early 1960s that ended in 1967. A small winter bait herring fishery began in 1965. Initial harvests were small, less than five tons through 1973, and there was never a formal GHL established. Beginning in 1973, hydroacoustic surveys began and the winter bait harvest increased with an average harvest of 1,147 tons from 1973–1991. The Section 3-B SOK fishery was established by the board in 1992. The GHL for the Section 3-B stock was allocated between both the winter food and bait fishery and the herring SOK fishery. When the fishery was created in 1992, the GHL allocation was 85% for the winter food and bait fishery and 15% for the SOK fishery. In 1998, the allocation was modified so that the winter food and bait fishery is allocated 60% of the GHL with the remaining 40% and any unharvested portion of the food and bait fishery going to the herring SOK fishery. Since 1992, the Craig/Klawock herring GHL has averaged 2,994 tons, ranging from a low of 626 tons in 2000 to a high of 19,456 tons in 2021 (Table 1). The herring spawn-on-kelp fishery effort, harvest, spawning dates, fishery dates, and product values are summarized in Table 2.

Annual harvest levels are based on a formula that allows for higher harvest rates as the herring population increases relative to the threshold level. No harvest is allowed if the biomass estimate for the stock is less than the threshold level. The established threshold level for the Craig/Klawock stock is 5,000 tons.

Herring biomass information collected in 2019 indicated a pronounced recruitment pulse of herring, not just in Craig, but throughout Southeast Alaska and the Gulf of Alaska. Specifically, samples from both cast net and the commercial catch during the 2019 spawning event in Craig indicate that the mature biomass was dominated by age-3 fish, 81% of cast net samples and 85% of the commercial harvest. This large proportion of age-3 fish was observed in several Southeast Alaska herring stocks, including Ernest Sound, Revilla Channel, Seymour Canal and Sitka Sound. Due to the very large uncertainty associated with the 2019 age-3 abundance, the department based the 2019/20 Craig/Klawock GHL on the 2019 spawn deposition estimate of 55,072 tons. Both cast net and commercial catch samples taken in 2020 indicated that the mature biomass was dominated by the 2016-year class; age-3 herring in 2019 and age-4 herring in 2020. There is increased uncertainty in the model estimate due to this extremely large year class but given two years of consistent age data and spawn deposition estimates, the department is utilizing the model forecast for the 2020/21 GHL. The forecasted mature spawning biomass for 2020/21 is 97,282 tons of herring. This biomass estimate allows for a 20% harvest rate and a combined GHL of 19,456 for the winter food and bait and the SOK fisheries. Therefore, the GHL is 11,674 tons to the winter food and bait fishery and 7,782 tons to the SOK fishery. The department anticipates a strong return of age-5 herring, approximately 91% of the spawning biomass, based on the age structure of the 2020 spawning biomass.

The 2020/21 winter food and bait fishery will close by regulation on February 28, 2021. All unharvested winter food and bait quota will be added to the GHL for the SOK fishery. The allocated SOK GHL of 7,782 tons along with the remainder of the food and bait fishery will allow for the kelp allocation in the Section 3-B SOK fishery to fall above the maximum allocation of 1,500 or more tons.

Herring spawning normally occurs in the Craig/Klawock area between mid-March and early April. The earliest spawning observed since the mid-1970s was March 9 and the latest date of initial spawning was April 9.

ERNEST SOUND (DISTRICT 7)

The Ernest Sound SOK pound fishery was created in January 2003 by the BOF. Additionally, the BOF created a herring bait pound fishery that is allocated 10% of the area's GHL and is similar to other herring fisheries in that its allocation is based upon the GHL remaining after the herring food and bait fisheries occur. Any remaining GHL from the winter food and bait fishery, or the bait pound fishery after March 15, is allocated to the SOK fishery. SOK fisheries in Ernest Sound have occurred intermittently and at various levels of effort and harvest since the first fishery occurred in 2004. From 2004 through 2020, there have been SOK GHLs in 6 years. Effort varied from 0 participants in 2011 to 129 in 2014 (Table 5).

The Ernest Sound herring stock has a threshold level of 2,500 tons. A forecast was not developed for 2021 because no spawn deposition survey was conducted. Historical spawning biomass, forecast, GHLs, spawning dates, harvest, and fishery dates are summarized in Tables 3, 4, and 5.

No commercial herring fisheries will occur in Ernest Sound during the 2020/21 season. Monitoring herring spawn, collecting samples of spawning herring, and spawn deposition survey are planned for 2021.

TENAKEE INLET (SECTION 12-A)

The Tenakee Inlet stock has been utilized for the winter food and bait fishery since the 1978/79 season. During seasons that the estimated spawning biomass was above the 3,000-ton threshold, the GHL ranged from a low of 200 tons in the initial season to a peak of 1,700 tons in the 1985/86 season (Table 5). Regulations adopted by the BOF in January 2003, provide for a SOK fishery in Tenakee Inlet if sufficient GHL remains at the close of the winter food and bait fishery. The SOK fishery occurred for the first time in April 2003. Summaries of the Tenakee Inlet SOK fisheries are presented in Table 6.

ADF&G has conducted aerial surveys in Tenakee Inlet since the early 1970s, documenting the total miles of spawn each season to provide an indication of herring stock size or biomass. Aerial surveys were supplemented with hydroacoustic surveys from 1979 through 1986. Spawn-deposition surveys began in 1987 as the most reliable and accurate means to assess the spawning biomass and have not been conducted in Tenakee Inlet since 2015.

With respect to historical stock assessment, the Tenakee Inlet stock includes spawn documented within the inlet itself and any spawn documented along the Chichagof Island shoreline in Chatham Strait between Tenakee Inlet and Pt. Hayes. This spawning stock has historically exhibited cycles of abundance. After a decade of fisheries, the stock declined below threshold in the early 1990s and no fisheries took place until the 1996/97 season. Good recruitment led to nearly a decade of harvestable surplus until the forecasted biomass again declined below threshold in 2006. Aerial spawn surveys and spawn deposition dive surveys conducted in 2008 indicated a significant increase in spawning biomass to the levels seen in 1997–1999. However, recent surveys conducted since 2009 once again indicated a decreasing trend in mature spawning biomass. The herring spawn mileage observed in 2014, 2015, and 2017 was approximately 2.0 nmi each year, but no herring spawn was documented within the inlet in 2016. Since 2017, observed spawn milage within Tenakee Inlet has shown a continual decline: 1.4 nmi in 2018, 0.5 nmi in 2019, and 0.15 nmi of weak spawn observed in the spring of 2020. An additional total of 1.75 nmi of herring spawn was observed in several scattered spot spawns along the Chichagof Island shoreline in Chatham Strait between Little Basket Bay and Pt. Hayes.

Spawning in Tenakee Inlet has generally occurred between the last week in April and the first week in May (Tables 5 and 7). Traditionally, herring spawn primarily in Tenakee Inlet along the southern shoreline between Saltery Bay and South Passage Point, with the core areas centered east and west of the Kadashan River flats. Spawn has also been documented intermittently along the Chatham Strait shoreline from South Passage Point to Point Hayes. The 2020 Tenakee Inlet spawn occurred in the traditional core area on the west side of the Kadashan River flats over the course of two days and was characterized as very light. The Chatham Strait spot spawns were observed concurrently over the course of four days between Little Basket Bay and Pt. Hayes.

No commercial herring fisheries will occur in Tenakee Inlet during the 2020/21 season. Aerial surveys will begin in mid-April of 2021.

HOONAH SOUND (SECTION 13-C)

ADF&G began monitoring the Hoonah Sound herring stock in 1971. From 1971–2019, the herring spawning stock has averaged 7.0 nmi of spawn and an estimated average spawning biomass of 3,711 tons. From 1990, the year the SOK fishery started, through 2019 the stock has averaged 8.9 nmi of spawn and 5,273 tons of estimated spawning biomass (Table 9). The highest recorded spawning biomass occurred in 2008 with an estimated spawning biomass of 19,975 tons based on the spawn deposition survey.

In 1990, when Hoonah Sound became an SOK fishery, the minimum threshold at which a fishery could occur was reduced from 2,000 tons to 1,000 tons. In 2015, to be more consistent with similar sized stocks around the region, the threshold in Hoonah Sound was increased to 2,000 tons. A summary of historic herring spawn timing and herring SOK harvest in Hoonah Sound is available in Tables 8 and 10, respectively.

In 2020, no herring spawn was observed; because of this, no estimate of spawning biomass was generated. The biomass in this area sharply decreased in 2012 and, based on aerial surveys, appears to have remained at a very low level since that time. The reason for this decrease is not known, however, there are many oceanographic and biological influences on herring populations that are not well understood. There will be no formal forecast of herring biomass for the 2020/21 season; therefore, no commercial fishery will occur in Hoonah Sound in 2021.

CALENDAR OF EVENTS

The following is a calendar of events to be considered by pound operators for the 2021 herring season.

By February 28	2021 Southeast Alaska Herring Spawn-On-Kelp Pound Fishery Management Plan will be available at all Southeast Alaska area offices.
March 3	Advisory announcement of the 2021 Ernest Sound, Hoonah Sound, and Tenakee Inlet closures, and the 2021 Craig/Klawock GHL.
March 17	The Craig/Klawock fishery will be open to seining of herring for placement in pounds effective 12:00 noon.
May 31	Pounds and all associated equipment in support of the fishery must be completely removed from the waters of the herring pound fishing area in Section 3-B. This includes the area covered by extreme high tide.

REGULATIONS

GENERAL SPAWN-ON-KELP REGULATIONS

The regulatory framework for the SOK fishery is found in 5 AAC 27.185. *Management Plan for Herring Spawn on Kelp in Pounds in Sections 3-B, 12-A, 13-C, and District 7*.

Placement and Release of Herring in Pounds

Herring may be placed in or added to a pound for four days starting with the initial placement of herring in a pound. After 11:59 p.m. on the fourth day, no additional herring may be added to the pound (5 AAC 27.185 (q)). All herring in the pound must be released by 12:00 noon on the seventh day after the initial placement of herring in a pound (5 AAC 27.185 (s)). Under 5 AAC 27.185 (s), the "*first day*" is defined as the day herring are first placed into a pound. Once herring have been released or SOK product has been harvested, no additional herring or kelp may be introduced into a pound (5 AAC 27.185 (q)). Fishermen must take responsibility to ensure that when adding herring to a pound that herring are not at the same time swimming out of the pound as this would be a violation of 5 AAC 27.185 (q). When releasing herring, at least one full side of the pound's webbing must be lowered a minimum of two feet below the surface of the water (5 AAC 27.185 (s)).

Post-Harvest Requirements

After a permit holder releases herring and harvests product from the pound, the permit holder must maintain the webbing in place for at least four weeks. To optimize hatching success, the permit holder must position egg-covered webbing in the original size and configuration of the pound structure with adequate water circulation on all sides. The webbing support system must be above the surface of the water and clearly marked as per 5 AAC 27.185 (k).

Harvest and Production

Each permit holder's SOK blades must remain separate from other permit holder's SOK blades until after processing and grading is completed. Permit holders will be allowed to harvest all spawn on kelp produced in their pounds. A permit holder's fish ticket must report only the spawn on kelp they harvested from their pound. Each permit holder fishing a jointly operated pound shall be

issued a fish ticket and the sum of the weights of those tickets shall equal the total weight of product produced in the jointly operated pound. All permit holders and any vessel carrying commercial SOK product from the fishing grounds must first contact ADF&G with the estimated amount of SOK product harvested and indicate the intended time and location of the delivery. For any product that has been delivered on the grounds to a licensed processor, the processor (not the permit holder) will be required to contact the department with delivery weight for each landing on board.

REQUIREMENTS FOR BUYERS

Reporting requirements for buyers and processors of SOK product from Southeast Alaska SOK fisheries can be found in 5 AAC 27.187 *Buyer and Processors Reporting Requirements for Spawn-On-Kelp in Pounds for the Southeastern Alaska Area*. Buyers, processors, and permit holders should read and become familiar with these reporting requirements.

Operators of floating processing vessels, tender vessels, and catcher-processors will be required to report in person, by VHF radio, or by telephone, to the local ADF&G office or directly to department area management biologists on the grounds before the start of processing operations in Southeast Alaska. These reporting requirements are specified by regulation 5 AAC 39.130 (f) and (g).

CLOSURE OF SOME POUND TYPES

The department may close fishing for some pound types, if necessary, to avoid exceeding the GHL. In years when the GHL is low, the department, instead of closing the fishery, may instead close the fishery to certain pound types, such as single closed and double closed. **There will be no restrictions on pound types for the 2021 Craig/Klawock SOK fishery.**

OTHER REGULATIONS

Additional regulations pertaining to the pound fisheries can be found in the 2020–2021 Statewide Commercial Herring Fishing Regulations booklet under CHAPTER 27, ARTICLE 4, SOUTHEAST ALASKA AREA under the following sections: 5 AAC 27.110 *Fishing Seasons for Southeastern Alaska Area* (f), 5 AAC 27.130 *Lawful Gear for Southeastern Alaska Area* (d), and (e); 5 AAC 27.185 *Management Plan for Herring Spawn on Kelp in Pounds* (a) through (dd); 5 AAC 27.187 *Buyer and Processors Reporting Requirements for Spawn on Kelp in Pounds for the Southeastern Alaska Area*; harvesting requirements for *Macrocystis* kelp in 5 AAC 37.100 *Permits*; and 5 AAC 37.300 *Harvesting Requirements for Macrocystis*.

Under 5 AAC 27.185 (w) all pounds and associated equipment used in these fisheries must be removed from the water by a specific date for a specific period of time. ADF&G and Alaska Wildlife Troopers (AWT) are advising permit holders that any pounds, nets, buoys, lines, and anchors left on the grounds will be removed and impounded or destroyed.

It is the responsibility of permit holders to carefully review and follow these regulations.

HARVEST AND ALLOCATION OF KELP FOR 2021

A permit issued by ADF&G is required to harvest kelp for use in pounds (5 AAC 37.900). Kelp harvest permits may be obtained from local department offices. Kelp blades will be allocated equally among permit holders fishing the same type of gear. The amount of kelp allowed for

harvest for each permit holder is based on the kelp allocation table as indicated under regulation 5 AAC 27.185 (d) plus an allowance for breakage and loss during transport.

SECTION 3-B (CRAIG/KLAWOCK)

- Single permit closed pound—600 blades of *Macrocystis* kelp
- Double permit closed pound—900 blades of *Macrocystis* kelp
- Triple permit closed pound—1,000 blades of *Macrocystis* kelp
- Quadruple permit or more closed pound—1,000 blades of *Macrocystis* kelp
- Single permit open pound—3,000 blades of *Macrocystis* kelp
- Multiple permit open pounds—9,000 blades of *Macrocystis* kelp

FISHERY CONDUCT AND MANAGEMENT

The Craig/Klawock herring pound fishery will be the only SOK fishery in Southeast Alaska for 2021.

ADF&G will be closely monitoring herring activity using vessel and aerial surveys. Results of aerial surveys will be announced by department advisory announcements on the day that an aerial survey occurs and may be updated on the grounds on Marine VHF Channel 10.

ADF&G will continue to monitor the practice of *top-off fishing*. Regulation 5 AAC 27.185 (q) prevents a permit holder from releasing any herring from their pound when they are adding fresh herring.

To avoid mortality, the transport of herring to the pound site should be done with the pound itself or a pushable/towable net pen. Net pens used only for transporting herring must be marked "Tow Pound" and include the CFEC permit number of a participating permit holder. Transporting with a purse seine is discouraged except for very short distances. Pound operators should slowly push pounds or tow the pound alongside to avoid prop wash and prevent crushing herring against the net. Permit holders are asked to avoid making and holding large sets to avoid herring mortality and stress.

Although regulations determine the maximum allowable number of kelp blades that can be harvested and placed in each permit holder’s pound, fishermen are encouraged to fish the number of blades which will provide the maximum overall quality and value of their product rather than simply to fish the total amount allowed. Other measures have successfully been used in the fishery that may be considered when trying to maximize spawn on kelp quality and value including the following:

1) Pound nets may be shaped with internal frames to provide the full net volume.
2) Kelp depths in the pound may be matched with the depth of active spawning by testing spawn deposition with a weighted string.
3) Fishing and transferring herring to pounds should only occur once herring are fully mature.
4) Top-off sets may be added over a 4-day period.
5) The herring density in the pound should be closely monitored since successful spawning is inhibited by excessive crowding.

6) Web depth may be adjusted (consistent with specifications under 5 AAC 27.130 (e)(1)(C) or 5 AAC 27.185(cc)) to provide good water exchange.

OPEN WATERS

In Section 3-B, pounds for the taking of herring spawn on kelp and seines for the taking of herring for placement in pounds may be operated in the waters of the Gulf of Esquibel, San Alberto Bay, Shinaku Inlet, and San Christoval Channel south of the latitude of the northernmost tip of Saint Philips Island at 55°39.31′ N lat, 133°25.12′ W long, east of a line from the northernmost tip of Saint Phillips Island to the northernmost tip of Point Garcia at 55°33.65′ N lat, 133°26.47′ W long, and north of a line from Entrance Point at 55°31.10′ N lat, 133°09.00′ W long to the southernmost tip of Clam Island at 55°30.96′ N lat, 133°09.43′ W long to the southernmost tip of Fern Point 55°30.05′ N lat, 133°16.97′ W long, and east of 133°20.00′ W long (Figure 1).

CLOSED WATERS

In Section 3-B, certain areas are closed to the operation of herring pounds and seines for taking of herring for placement in pounds. Those areas are shown in Figure 1 and include:

- Klawock Inlet and Big Salt Lake
- those waters of San Christoval Channel in the main channel enclosed by a line from 55°35.62′ N lat, 133°20.00′ W long to 55°35.17′ N lat, 133°20.00′ W long to 55°33.37′ N lat, 133°17.52′ W long to 55°33.50′ N lat, 133°17.28′ W long
- those waters of Fish Egg and Ballenas Islands south of 55°31.00′ N lat, north of the southernmost tip of Cape Suspiro at 55°27.47′ N lat, 133°08.40′ W long, and east of the longitude of Ballena Island Shoal Light at 133°13.25′ W long

OTHER AGENCY REQUIREMENTS

Prospective pound operators are advised to consider other agency requirements for constructing and operating pounds in Craig/Klawock, Ernest Sound, Tenakee Inlet, and Hoonah Sound. Pound operators are urged to contact the Alaska Department of Natural Resources, U.S. Forest Service, the U.S. National Marine Fisheries Service, and the U.S. Coast Guard to determine other regulations and requirements. Phone numbers for those agencies are listed below.

ALASKA DEPARTMENT OF NATURAL RESOURCES

The Alaska Department of Natural Resources (907-465-3400) manages the use of tidelands and submerged lands seaward of mean high water.

U.S. FOREST SERVICE

The U.S. Forest Service has jurisdiction over and manages most of the lands above mean high tide. People who plan to use National Forest land in connection with the fishery must apply for a special use permit from the U.S. Forest Service prior to any occupancy. Special use permit applications are available from local USFS offices. Completed applications should be submitted well in advance of operations to ensure that a permit is received in time for the fishery. Examples of use needing a permit include (but are not limited to): camping on National Forest land in conjunction with the commercial fishery and storage of gear on the National Forest.

U.S. COAST GUARD

Structures such as floating fish pens are subject to the requirements of the Code of Federal Regulations, Title 33, Part 64. This regulation requires an owner to apply for a U.S. Coast Guard permit and to install and maintain a light or other private aid to navigation if the U.S. Coast Guard determines it to be necessary to protect maritime navigation.

Herring pounds used in the SOK pound fishery do not require permits for private aids to navigation at this time, provided the owners:

- Place two signs on opposite corners of the structure. These signs will be worded "Danger, Fish Pens" (Figure 3).
- Place a single, all-points white light on one corner of structures less than 400 square feet in size.
- Place a single, all-points white light on every corner of structures larger than 400 square feet in size.
- Anchor fish pens within the boundary areas specified in ADF&G regulation 5 AAC 27.185(f) (Figure 1).

If all these conditions are not met, the permit holder must apply to the U.S. Coast Guard for an individual "Private Aids to Navigation Permit." If you have questions, call the U.S. Coast Guard Aids to Navigation office, at (907) 463-2254.

LIST OF MANAGEMENT CONTACTS

Following are ADF&G Division of Commercial Fisheries contacts regarding this management plan:

Name and Title	Address and Phone Number
Lowell Fair Southeast Alaska Regional Supervisor	802 3rd Street Douglas, Alaska 99824 (907) 465-4250
Troy Thynes Southeast Alaska Regional Management Biologist	16 Sing Lee Alley Petersburg, AK 99833 USA (907) 772-3801
Kyle Hebert Herring Research Biologist	802 3rd Street Douglas, Alaska 99824 (907) 465-4250
Bo Meredith Area Management Biologist and Justin Breese or Whitney Crittenden Assistant Management Biologists	2030 Sea Level Dr. Ste. 205 Ketchikan, Alaska 99901 (907) 225-5195
Paul Salomone Area Management Biologist and Tom Kowalske or Katie Taylor Assistant Management Biologists	16 Sing Lee Alley Petersburg, AK 99833 USA (907) 772-3801
Aaron Dupuis Area Management Biologist and Jason Jones Assistant Management Biologist	304 Lake St., Rm. 103 Sitka, Alaska 99835 (907) 747-6688
Dave Harris Area Management Biologist and Scott Forbes Assistant Management Biologist	802 3rd Street Douglas, Alaska 99824 (907) 465-4250

TABLES AND FIGURES

Table 1.–Craig/Klawock herring stock size and fishery summary, 1990–2020.

Season	Miles Spawn	Forecasted Pre-fishery Biomass	Total GHL Bait and SOK[c](Tons)	Bait GHL(Tons)	Bait Harvest (Tons)	Number of Permits	Exvessel Value
1990/91	22.0	18,350	N/A	2,841	3,272	27	$981,600
1991/92	23.0	17,800	2,684	2,281	2,295	28	$619,650
1992/93[e]	8.4	12,350	1,602	1,362	623	10	$150,960
1993/94	8.0	7,996	895	760	636	6	$187,578
1994/95	5.5	6,778	725	617	***	***	***
1995/96	9.9	6,262	658	558	***	***	***
1996/97	13.2	6,755	715	615	517	4	$137,788
1997/98[f]	11.0	7,018	755	455	***	***	***
1998/99	15.4	6,951	750	450	***	***	***
1999/00	12.9	6,013	626	376	***	***	***
2000/01	16.7	9,091	1,058	635	***	***	***
2001/02	18.0	8,387	952	571	***	***	***
2002/03	11.2	6,045	630	378	***	***	***
2003/04	12.0	13,204	1,754	1,052	***	***	***
2004/05	18.0	15,577	2,217	1,330	553	3	$199,012
2005/06	8.2	14,262	1,955	1,173	689	3	$247,934
2006/07	22.3	13,768	1,860	1,116	576	3	$139,000
2007/08	11.0	14,213	1,945	1,167	565	3	$133,300
2008/09	17.0	14,213	1,945	1,167	142	3	$51,304
2009/10	18.7	14,870	2,074	1,244	***	***	***
2010/11	14.8	17,886	2,710	1,140	***	***	***
2011/12	14.9	34,235	6,847	4,060	309	3	$113,784
2012/13	15.3	23,391	4,060	2,436	321	3	$116,000
2013/14	13.6	26,085	4,808	2,884	***	***	***
2014/15	11.5	15,803	2,362	1,367	964	3	$396,205
2015/16	12.3	12,303	1,590	954	898	3	$369,660
2016/17	22.8	7,833	872	523	527	3	$210,800
2017/18	17.3	16,083	2,312	1,387	527	5	$310,000
2018/19	28.9	22,810	3,906	2,344	710	6	$301,750
2019/20	56.1	55,072	11,014	6,608	995	4	$410,000
2020/21	–	97,282	19,456	11,674	–	–	–
Average	16.3	17,700	2,858	1,791	840	6	$335,000

*** confidential

[a] Spawn year is second year of regulatory season listed in the adjacent year column.

[b] Forecasted pre-fishery biomass values were estimated with hydroacoustics for 86/87, spawn deposition surveys for 87/88 to 92/93, and age-structured models for 93/94 to 18/19.

[c] Spawn-On-Kelp (SOK).

[d] Bait quota reduced to 1,600 tons on the grounds.

[e] First year bait quota was split between pound fishery 85%:15%.

[f] Herring allocation changed to 60% for the winter food and bait fishery, 40% to the pound fishery.

[g] Updated forecast based on updated scale ages.

Table 2.–Craig/Klawock herring SOK detailed fishery summary, 2003–2020.

Statistic	2003	2004	2005	2006	2007	2008
GHL (tons)	528	1,579	1,667	1266	1,284	1,380
Total SOK Harvest (tons)	69.2	50	115.2	28.9	44.5	148.5
Exvessel Value	$423,000	$325,000	$604,000	$299,000	$1,088,000	$3,067,000
Average Price/lb	$3	$3.25	$2.62	$5.15	$12.08	$10.33
Average Income	$3,385	$3,420	$9,011	$8,782	$23,139	$25,138
Number of Pounds	61	50	42	50	52	66
Number of Landings	118	95	67	34	47	122
Blade Allocation	[a]	[b]	[c]	[d]	[d]	[d]
Total Kelp Harvest (tons)	7.5	14.0	4.9	4.6	5.6	12.2
Herring Spawning Dates	3/31– 4/7	3/26–4/7	4/9-4/14	3/30-4/3	4/3–4/12	4/3–4/12
Nautical Miles of Spawn	11.2	12.0	18.0	8.2	22.3	11.0
Forecasted Pre-fishery Biomass (tons)	6,045	13,204	15,577	14,262	13,768	14,213
	2009	2010	2011	2012	2013	2014
GHL (tons)	1,802	1,953	2,710	6,847	4,060	4,808
Total SOK Harvest (tons)	137.3	116.7	70	98.1	137.7	confidential
Exvessel Value	$1,257,000	$885,000	$718,000	$2,100,000	$3,100,000	confidential
Average Price/lb	$4.58	$3.80	$5.13	$10.69	$12.00	confidential
Average Income	$9,107	$8,268	$14,003	$32,795	$23,656	confidential
Number of Pounds	96	63	34	35	80	75
Number of Landings	137	107	52	64	131	136
Blade Allocation	[d]	[d]	[d]	[d]	[d]	[d]
Total Kelp Harvest (tons)	7.3	8.2	4.6	5.3	9.3	19.2
Herring Spawning Dates	4/3-4/10	4/5-4/14	4/1-4/7	4/3-4/8	3/31-4/3	4/1-4/5
Nautical Miles of Spawn	17.0	18.7	14.8	14.9	15.3	13.6
Forecasted Pre-fishery Biomass (tons)	14,213	14,870	17,886	34,235	23,391	26,085
	2015	2016	2017	2018	2019	2020
GHL (tons)	2,362	1,590	872	1,602	2,911	1,602
Total SOK Harvest (tons)	confidential	confidential	69.9	205.3	202.4	205.3
Exvessel Value	confidential	confidential	$933,000	$3,262,900	$3,293,000	$3,256,000
Average Price/lb	confidential	confidential	$6.68	$7.95	$8.15	$7.95
Average Income	confidential	confidential	$8,042	$8,042	$23,571	$8,042
Number of Pounds	76	46	19	66	73	66
Number of Landings	135	133	116	120	140	120
Blade Allocation	[d]	[e]	[f]	[g]	[g]	[g]
Total Kelp Harvest (tons)	19.2	9.2	10.2	9.4	9.8	11.4
Herring Spawning Dates	3/27-4/1	3/25-3/31	3/24-4/2 & 4/6-4/8	3/29-4/4	3/27-4/6	3/29-4/6
Nautical Miles of Spawn	11.5	12.3	22.8	17.3	28.9	17.3
Forecasted Pre-fishery Biomass (tons)	15,803	12,303	7,833	16,039	22,810	55,072**

** A model-based forecast was not used for the 2020 forecast year and instead the 2019 spawn deposition estimate was used to set the GHL.

[a] 70 blades for a single closed pound, 210 for a multiple pound permit holder.

[b] 200 blades - single closed pound, 600 blades/permit holder multiple closed pound.

[c] 350 blades for a single closed pound, 750 blades for a double closed pound, 1,125 blades for a triple closed pound.

[e] 300 blades for a single closed pound, 400 blades for a double closed pound, 700 blades for a triple closed pound.

[f] 500 blades per permit with six permit holders per pound structure.

[g] 600 blades for a single closed pound, 900 blades for a double closed pound, 1,000 blades for a triple closed pound.

Table 3.–Craig and Ernest Sound herring spawning dates comparison, 2001–2020.

Note: Black bars indicate spawning dates for Craig and gray bars indicate spawning dates for Ernest Sound.

Table 4.–Ernest Sound herring stock and fishery summary, 1969–2020.

Season	Date of First Spawn[a]	Nautical Miles of Spawn[b]	Forecast used for GHL Determination[c,d] (tons)	Spawning Biomass (tons)[e]	GHL (tons)[f]	Bait Harvest (tons)[g]	SOK Harvest (lbs)	Sac Roe Harvest (tons)	Remaining GHL (tons)
1969/70	–	–	–	–	–	17	–	–	–
1970/71	–	3	–	13,100	–	206	–	–	–
1971/72	–	–	13,100	3,650	–	967	–	–	–
1972/73	–	–	3,650	450	–	775	–	–	–
1973/74	–	–	450	400	–	535	–	–	–
1974/75	–	–	400	2,900	–	593	–	–	–
1975/76	–	3	2,900	4,350	580	708	–	–	–
1976/77[g]	–	3	4,350	3,035	870	901	–	49	0
1977/78	5/3	–	3,035	1,505	455	340	–	–	0
1978/79	4/16	2.6	1,505	255	–	–	–	–	115
1979/80	5/2	4	255	500	–	–	–	–	–
1980/81	–	3.5	500	410	–	–	–	–	–
1981/82	–	–	410	160	–	–	–	–	–
1982/83	–	–	160	1,640	–	–	–	–	–
1983/84	4/11	–	1,640	1,000	–	–	–	–	–
1984/85	–	4.5	1,000	1,000	–	–	–	–	–
1985/86	–	–	1,000	1,000	–	–	–	–	–
1986/87	–	1	1,000	–	–	–	–	–	–
1987/88	4/21	2	–	–	–	–	–	–	–
1988/89	4/17	2.4	–	500	–	–	–	–	–
1989/90	–	2.1	500	1,000	–	–	–	–	–
1990/91	–	–	1,000	3,000	–	–	–	–	–
1991/92	4/16	9.1	3,000	2,650	–	–	–	–	–
1992/93	4/23	9	2,650	684	200	8	–	–	192
1993/94	4/26	8.4	684	2,544	0	–	–	–	–
1994/95	4/25	6.5	2,544	2,470	255	111	–	–	144
1995/96	4/16	6.9	2,744	2,665	280	220	–	–	60
1996/97	4/16	0	4,852	0	377	6	–	–	371
1997/98	4/9	11.8	–	5,998	0	–	–	–	–
1998/99	4/5	1.8	5,381	No survey	662	96	–	–	566
1999/00	4/8	9.1	–	920	0	–	–	–	–
2000/01	4/11	6.9	–	2,052	0	–	–	–	–
2001/02	4/15	4.8	1,653	2,406	0	–	–	–	–

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Table 4.–continued (Page 2 of 2).

Season	Date of First Spawn[a]	Nautical Miles of Spawn[b]	Forecast Used for GHL Determination[c,d] (tons)	Spawning Biomass (tons)[e]	GHL (tons)[f]	Bait harvest (tons)[g]	SOK Harvest (lbs)	Sac Roe Harvest (tons)	Remaining GHL (tons)
2002/03	4/10	8.5	2,407	5,509	0	–	–	–	–
2003/04	4/11	7.1	6,592	2,413	875	44	112,286	–	831
2004/05	4/22	10.1	1,906	3,268	0	–	–	–	–
2005/06	4/6	7.9	2,284	2,538	0	–	–	–	–
2006/07	4/19	11.3	1,955	7,353	0	–	–	–	–
2007/08	4/20	15.4	9,060	4,846	1382	***	19,650	–	>700
2008/09	4/17	6.6	4,545	2,862	529	***	4911	–	100-299
2009/10	4/14	7.8	2,879	3,523	297	***	–	–	<50
2010/11	4/17	8.1	5,080	2,559	476	***	0	–	100-299
2011/12	4/16	8.9	2,682	3,193	272	***	–	–	<50
2012/13	4/16	9.7	3,509	7,556	379	***	129,265	–	100-299
2013/14	4/14	3.7	7,613	2,631	1073	***	***	–	>700
2014/15	4/8	5.5	1,991	562	0	–	–	–	–
2015/16	4/10	4.4	1,207	346	0	–	–	–	–
2016/17	4/14	4.4	–	–	–	–	–	–	–
2017/18	4/24	3.5	–	–	–	–	–	–	–
2018/19	4/14	1	–	–	–	–	–	–	–
2019/20	4/19	0.3	–	–	–	–	–	–	–
Recent 10-yr Average.	4/15	5	3,566	2,910	367	**	**	–	216
Long term Average	4/15	6.9	3,836	3,511	377	44	**	–	831

Note: *** indicates data is confidential.

[a] Since the 1997/1998 season, the first spawn and the major spawn have been within five days of each other.

[b] 1996/1997 No spawn deposition survey conducted; 7.5 miles of spawn observed along Ship Island; 1998/1999 No spawn deposition survey conducted; 1.8 miles of spawn observed

[c] from the 1971/1972 season through the 1984/1985 season forecasts were based on computer generated estimates derived using hydroacoustic techniques; from 1985/1986 through 1991/1992 forecasts were based on visual estimates; from 1992/1993 through 1994/1995 forecasts were based on spawn deposition estimates; from 1995/1996 through 2006/2007 the method used was biomass accounting forecasts.

[d] beginning with the 1976/1977 season fishery threshold established at 2,500 tons.

[e] from1969/1970 through 1983/1984 biomass estimates were -computer generated estimates derived using hydroacoustic techniques; from1984/1985 through 1990/1991 estimates were based on visual observations and from1991/1992 through 2005/2006 were spawn deposition estimates. 1975/1976 & 1976/1977 GHLs are based upon 20% of the hydroacoustic estimate. 1977/1978 GHL is based upon 15% of the hydroacoustic estimate.

[f] 2003/2004 GHL includes 90 tons rolled over from the bait pound fishery.

[g] 1973/1974,1974/1975, 1976/1977 also include harvests from Fools and Menefee Inlets. Does not include harvests from statistical area 107-40.

Table 5.–Ernest Sound SOK detailed fishery summary, 2004, 2008–2009, 2011, and 2013–2014.

Statistic	2004	2008	2009
GHL (tons)	875	1,382	529
GHL Available for SOK (tons)	775	***	***
SOK Harvest (tons)	56.1	9.8	2.5
Exvessel Value	$514,900	$131,100	$18,400
Average Price/lb	$4.59	$6.87	$3.67
Average Income/permit	$8,046	$10,091	$4,590
Number of Permits	64	13	4
Number of Pounds	51/6/0/1[a]	1/6/0/0 [a]	0/2/0/0 [a]
Number of Landings	64	13	4
Kelp Allocation (blades)	[b]	[c]	[d]
Kelp Blade Harvest (lbs)	4,600	29,400	2,400
Fishery Open—Closed	4/1–5/10	4/1–5/10	4/1–5/10
Fishing Occurred	4/10–4/17	4/16/–4/24	4/17–4/21
Harvest Occurred	4/14–1/17	24-Apr	21-Apr
	2011	2013	2014
GHL (tons)	476	379	1,073
GHL Available for SOK (tons)	***	***	***
SOK Harvest (tons)	0	64.3	***
Exvessel Value	$0	$1,574,700	***
Average Price/lb	$0	$12.25	***
Average Income/permit	$0	$19,441	***
Number of Permits	0	81	129
Number of Pounds	0	1/5/1/22/0 [e]	25/52/0 [a]
Number of Landings	0	81	129
Kelp Allocation (blades)	[d]	[d]	[c]
Kelp Blade Harvest (lbs)	0	6,400	29,000
Fishery Open—Closed	4/1–5/10	4/1–5/10	4/1–5/10
Fishing Occurred	NA	4/10–4/16	4/12–4/20
Harvest Occurred	NA	4/15-4/16	4/18–4/20

Note: *** indicates data is confidential.

[a] Single/double/triple/open.

[b] 1,000 blades single-closed/1,000 blades double-closed/1,000 blades triple-closed/2,500 blades single-open/7,500 multiple-permit-open.

[c] 1,000 blades single-closed/2,000 blades double-closed/1,000 blades triple-closed/2,500 blades single-open/7,500 multiple-permit-open.

[d] 200 blades single-closed/400 blades double-closed/500 blades triple-closed/1,500 blades single-open/4,500 multiple-permit-open.

[e] Single/double/combined double/triple/open.

Table 6.–Tenakee Inlet herring stock and fishery summary, 1978–2020.

Season	Major Spawning Dates	Nautical Miles of Spawn	Spawning Biomass[a] (tons)	Food/Bait GHL (tons)	Food/Bait Harvest (tons)
1978/79	5/9–5/11	3.3	2,500	200	0
1979/80	4/28–5/2	3.9	4,485	400	504
1980/81	4/27–5/5	9.3	7,500	750	847
1981/82	4/25–5/7	11.1	6,650	650	687
1982/83	4/25–5/6	13.1	8,870	875	749
1983/84	4/20–4/26	8.3	12,100	850	619
1984/85	4/24–5/1	9.9	11,000	1,400	1,406
1985/86	4/27–5/1	8.3	12,500	1,700	2,040
1986/87	4/22–4/30	7.9	6,600	800	1,275
1987/88	4/22–4/27	9.1	6,000	1,450	1,577
1988/89	4/26–4/29	10.3	5,360	720	655
1989/90	4/25–5/6	2.9	2000	650	595
1990/91	4/25–5/4	2.1	400	–	–
1991/92	5-May	trace	200	–	–
1992/93	4/21–4/23	6.4	904	–	–
1993/94	4/24–4/26	0.25	400	–	–
1994/95	26-Apr	0.05	200	–	–
1995/96	5/4–5/14	18.1	4,560	–	–
1996/97	4/26–5/7	14.4	9,926	300	98
1997/98	4/24–4/29	12.4	10,419	825	586
1998/99	4/25–4/28	11	11,049	1,023	835
1999/00	4/26–5/3	13.8	9,425	542	494
2000/01	4/21–5/1	12.2	7,576	906	775
2001/02	4/23–4/27	15.4	4,084	840	355
2002/03	4/25–4/28	12.2	3,529	528	328
2003/04	4/28–5/3	13	4,728	399	***
2004/05	4/26–5/2	8.9	**3,036**	476	0
2005/06	5/2–5/6	5.9	5,110	–	–
2006/07	4/23–4/26	4.4	3,346	–	–
2007/08	4/30; 5/7–5/8	11.4	**11,252**	–	–
2008/09	4/25–4/26; 4/29–4/30	6.9	**5,283**	875	254
2009/10	5/7–5/9	2.7	1,437	583	***
2010/11	9-May	1	–	–	–
2011/12	4/20–4/23	4.6	5,119	–	–
2012/13	5/7–5/10	5.4	4,936	–	–

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Table 6.–continued (Page 2 of 2).

Season	Major Spawning Dates	Nautical Miles of Spawn	Spawning Biomass[a] (tons)	Food/Bait GHL (tons)	Food/Bait Harvest (tons)
2013/14	29-Apr	2	**927**	557	***
2014/15	4/22–4/25	2.3	**2,223**	–	–
2015/16	–	0	–	–	–
2016/17	5/13–5/16	2.1	–	–	–
2017/18	5/7–5/9	1.4	–	–	–
2018/19	5/12–5/14	0.5	–	–	–
2019/20	5/5-5/6	1.9	–	–	–

Note: *** indicates data is confidential.

[a] Spawning biomass estimates were calculated from hydro-acoustical surveys from 1979 through 1986, and from spawn deposition surveys from 1987 through 2015—bolded values were derived from ASA models.

Table 7.–Tenakee Inlet herring SOK detailed fishery summary, 2003–2005, 2009, and 2014.

Statistic	2003	2004	2005
GHL (tons)	528	399	476
GHL Available for SOK	180	***	476
SOK Harvest (tons)	47.6	100.7	101.4
Exvessel Value	$580,500	$981,500	$512,900
Average Price/lb	$6.10	$4.68	$2.53
Average Income/permit	$10,560	$11,680	$5,640
Number of Permits	55	85	98
Number of Pounds	1/15/8/0[a]	1/32/6/2/2[b]	1/29/13/3[a]
Number Permits Landing	55	85	91
Kelp Allocation (blades)	200/400/550/0[a]	300/500/500/2000[a]	300/500/500/2000[a]
Kelp Blade Harvest (lbs)	35,375	39,000	53,850
Fishery Open—Closed	4/6–5/6	4/6–5/6	4/6–5/5
Fishing Occurred	4/25–4/28	4/28–5/1	4/27–4/30
Harvest Occurred	4/30–5/4	5/3–5/6	5/2–5/4

Statistic	2009	2014
GHL (tons)	875	557
GHL Available for SOK	621	***
SOK Harvest (tons)	64.1	84.4
Exvessel Value	$558,900	$1,155,300
Average Price/lb	$4.36	$6.85
Average Income/permit	$6,500	$16,270
Number of Permits	86	78
Number of Pounds	11/27/7/0[a]	2/25/5/1[c]
Number Permits Landing	86	71
Kelp Allocation (blades)	400/500/500/0[a]	300/500/500/0[a]
Kelp Blade Harvest (lbs)	42,600	41,250
Fishery Open—Closed	4/6–5/5	4/6–5/4
Fishing Occurred	4/28–5/1	4/27–5/1
Harvest Occurred	5/2–5/5	5/2–5/4

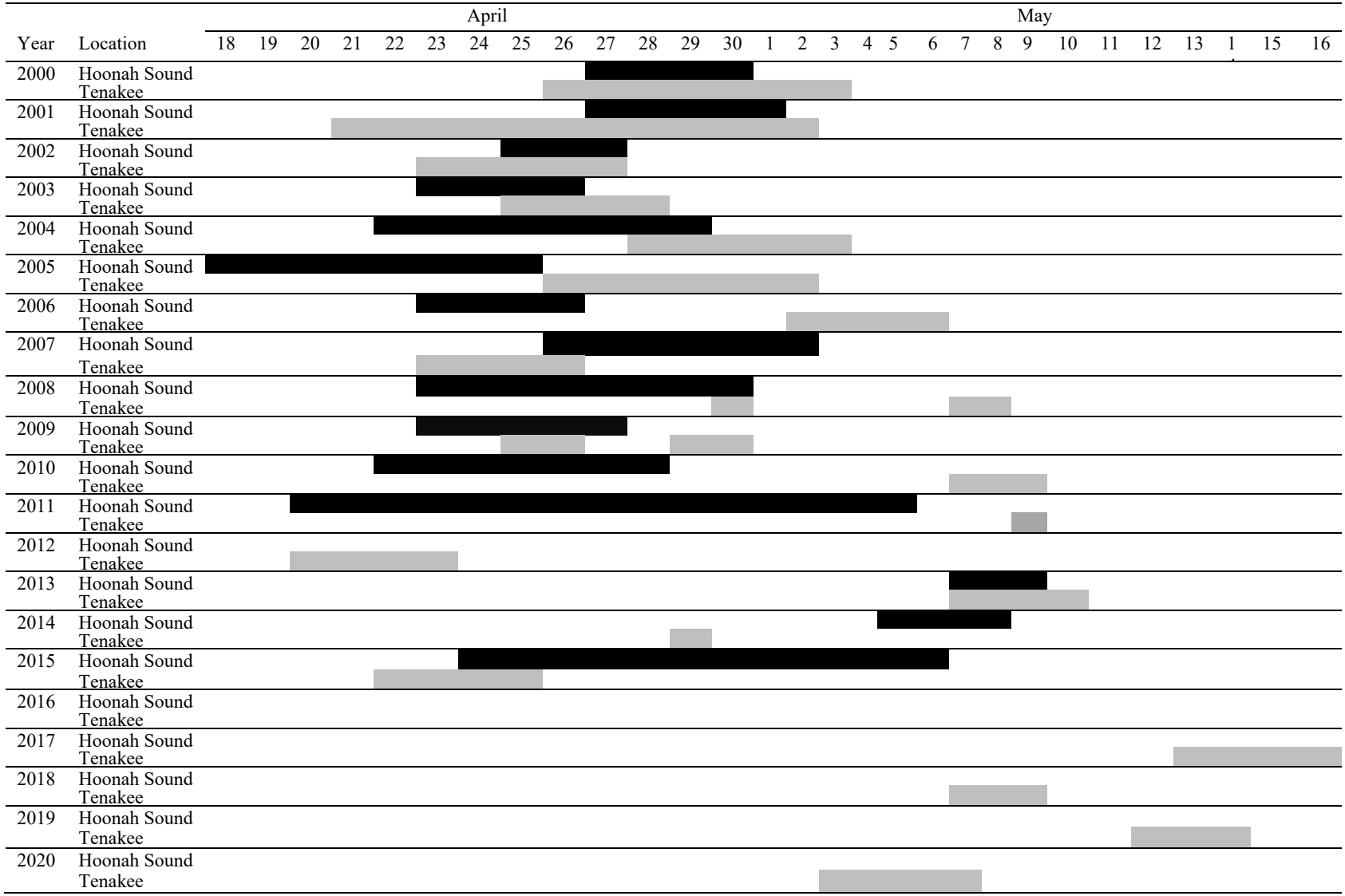
Note: *** indicates data is confidential.

[a] Single/double/triple/test.

[b] Single/double/triple/long line/test.

[c] Single/double/triple/quadruple.

Table 8.–Hoonah Sound and Tenakee Inlet herring spawn dates comparison, 2000–2020.



Note: Black bars indicate spawning dates for Hoonah Sound and gray bars indicate spawning dates for Tenakee Inlet.

Table 9.–Hoonah Sound herring spawning stock and fishery summary, 1971–2020.

Year	Spawn Dates	Nautical Miles of Spawn	Spawning Biomass (tons)	SOK Harvest (tons)
1971	5/10–5/17	2.5	833	–
1972	5/11–5/12	1.5	666	–
1973	N/A	1.0	333	–
1974	14-May	3.0	999	–
1975	N/A	N/A	–	–
1976	5-May	1.0	333	–
1977	N/A	3.5	1,166	–
1978	N/A	5.3	1,765	–
1979	N/A	0.5	167	–
1980	N/A	N/A	–	–
1981	4/30–5/01	2.3	750	–
1982	4/29–5/01	1.5	500	–
1983	1-May	1.0	333	–
1984	4/26–5/01	3.0	540	–
1985	5/01–5/03	3.5	1,166	–
1986	4/28–5/01	3.8	1,249	–
1987	4/28–5/02	3.8	740	–
1988	4/30–5/01	5.0	1,665	–
1989	4/16–4/20	17.0	4,000	–
1990	4/13–4/28	10.0	2,350	11.9
1991	4/19–4/24	8.7	2,175	13.3
1992	4/22–4/24	10.8	5,714	23.1
1993	4/27–4/29	5.7	1,099	14.0
1994	4/21–4/23	9.0	2,450	32.7
1995	4/20–4/21	4.5	274	27.4
1996	5/02–5/9	10.1	4,023	–
1997	4/25–4/28	14.5	5,884	65.2
1998	4/23–4/27	14.5	6,472	85.6
1999	4/27–5/1	13.8	4,426	71.6
2000	4/27–4/30	13.0	3,635	35.7
2001	4/27–5/1	13.7	8,538	66.2
2002	4/25–4/27	11.9	4,936	136.6
2003	4/23–4/27	16.7	9,423	141.5
2004	4/22–4/29	11.1	7,502	237.4
2005	4/18–4/25	10.3	6,924	190.6
2006	4/23–4/26	9.0	6,028	162.1
2007	4/46–5/2	16.5	10,946	159.4
2008	4/23–4/30	14.5	19,975	202.3
2009	4/22–4/27	10.3	15,829	234.7
2010	4/22 – 4/28	12.4	15,264	290.4
2011	4/20–5/5	12.6	14,215	193.7
2012	4/20–4/23	4.2	923	186.0
2013	5/7–5/9	2.4	412	–
2014	5/5–5/8	3.2	444	–
2015	4/24–5/6	4.2	23	–
2016	N/A	N/A	–	–
2017	N/A	N/A	–	–
2018	N/A	N/A	–	–
2019	N/A	N/A	–	–
2020	N/A	N/A	–	–
Average	1971–2019	7.6	4,118	N/A
Average	1990–2019	7.7	4,196	117

Note: Shaded estimated escapements are based on average spawn density from years 1989 to 2002; due to funding, comprehensive aerial surveys have not been conducted since 2016.

Table 10.–Hoonah Sound herring SOK detailed fishery summary, 2003–2017.

Statistic	2003	2004	2005	2006	2007
Herring GHL (tons)	427	1,207	728	669	681
Harvest (tons)	141.6	237.4	190.6	162.1	144.5
Exvessel Value	$1,922,500	$2,071,347	$1,117,568	$1,943,422	$4,491,070
Average Price/lb	$6.79	$4.36	$2.93	$6.00	$14.09
Average Income	$17,800	$19,541	$11,889	$24,600	$49,352
Number of Pounds	49/1/3[a]	92/12/2[b]	81/5/3[c]	17/45[a]	67/12[a]
Number Selling Product	108	106	94	79	91
Kelp Allocation (blades)	500/300/750[a]	1,000/1,000/ 3,000[b]	1,000/1,000/ 1,500[c]	2,500/1,000/ 1,500[a]	2,500/1,000/ 1,500[a]
Kelp Blade Harvest	60,301	126,000	118,450	136,698	122,565
Fishery Open—Closed	4/6–4/25	4/6–4/28	4/6–4/28	4/6–4/27	4/6–5/4
Fishing Occurred	4/19–4/24	4/20–4/25	4/19–4/28	4/18–4/23	4/23–4/29
Harvest Occurred	4/24–4/27	4/26–4/28	4/25–4/28	4/23–4/27	4/30–5/4
	2008	2009	2010	2011	2012
Herring Quota (tons)	2,238	2,238	3,182	3,015	2,139
Harvest (tons)	223	234.7	290.4	193.7	186.5
Exvessel Value	$5,115,459	$2,332,514	$2,580,517	$1,820,952	$4,033,078
Average Price/lb	$11.47	$4.97	$4.44	$4.70	$10.81
Average Income/Landing	$51,155	$23,094	$25,550	$20,460	$55,248
Number of Pounds	98/3[a]	99/4[a]	97/2[a]	85/4[a]	83/4[a]
Number Selling Product	100	101	101	89	73
Kelp Allocation (blades)	3,000/2,000/ 1,500[a]	3,000/2,000/ 1,500[a]	3,000/2,000/ 1,500[a]	3,000/2,000/ 1,500[a]	3,000/2,000/ 1,500[a]
Kelp Blade Harvest	201,262	196,492	178,898	169,922	155,104
Fishery Open–Closed	4/6–5/02	4/6–4/30	4/6–4/30	4/6–4/30	4/6–5/15
Fishing Occurred	4/22–4/27	4/22–4/25	4/21–4/25	4/20–4/24	4/19–4/21
Harvest Occurred	4/27–5/1	4/26–4/29	4/22–4/28	4/26–4/29	4/26–4/27
Statistic	2013	2014	2015	2016	2017
Herring Quota (tons)	130	0	0	0	0
Harvest (tons)	0	0	0	0	0
Exvessel Value	$0	$0	$0	$0	$0
Average Price/lb	$0	$0	$0	$0	$0
Average Income/Landing	$0	$0	$0	$0	$0
Number of Pounds	3 open	0	0	0	0
Number Selling Product	0	0	0	0	0
Kelp Allocation (blades)	600 open	0	0	0	0
Kelp Blade Harvest	7,940	0	0	0	0
Fishery Open—Closed	4/6–5/15	NA	NA	NA	NA
Fishing Occurred	NA	NA	NA	NA	NA
Harvest Occurred	NA	NA	NA	NA	NA

Note: Fisheries did not occur in 1996 and 2014–2020 since the biomass forecast was either below the 1,000-ton threshold or no survey was conducted due to minimum herring spawn observed.

[a] Double closed pounds/single closed pounds/triple closed pounds.

[b] Double closed pounds/single closed pounds/open pounds.

[c] Single-permit closed pound/double-permit closed pound/triple-permit closed pounds.

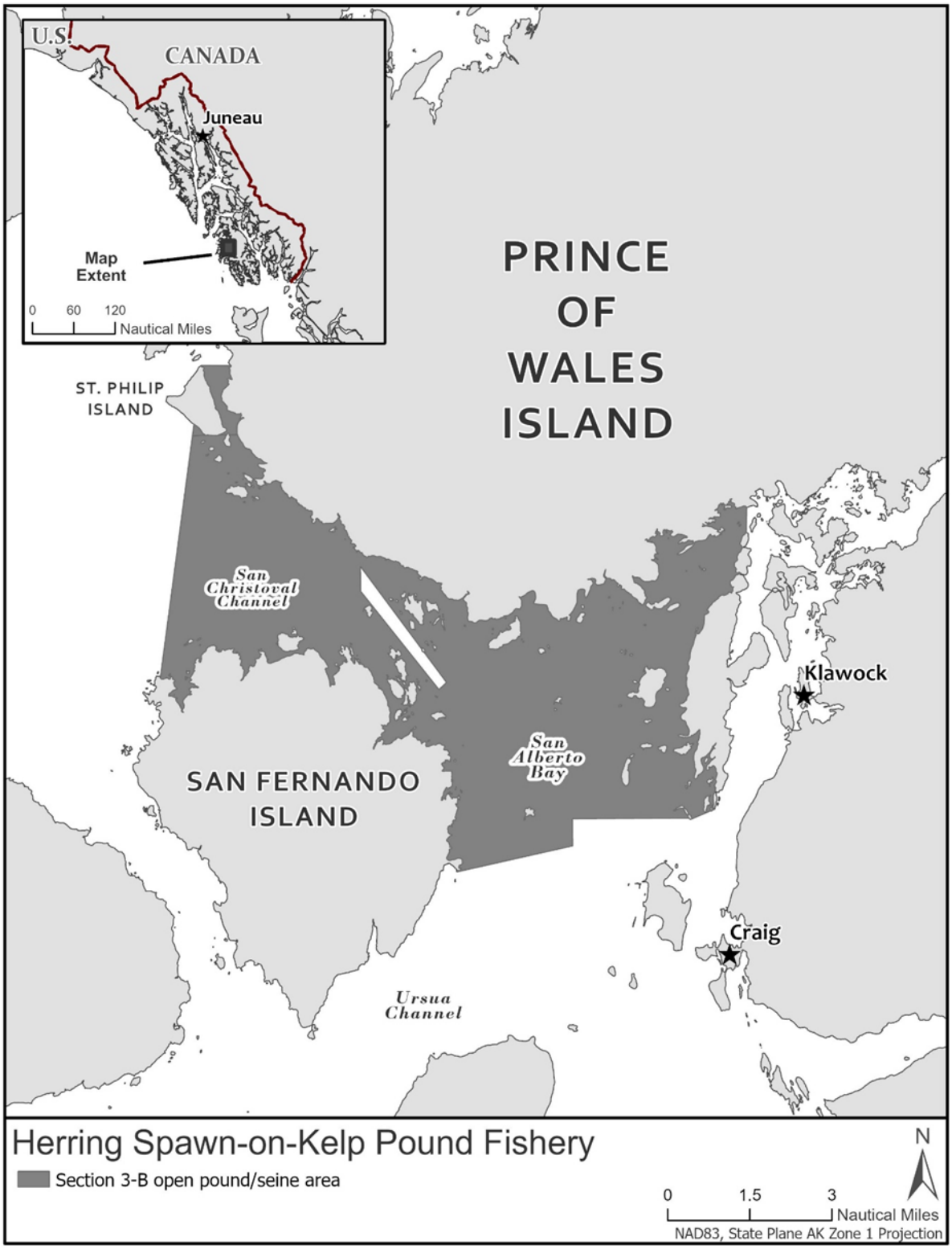


Figure 1.–Craig/Klawock (Section 3-B) herring SOK fishery open area.

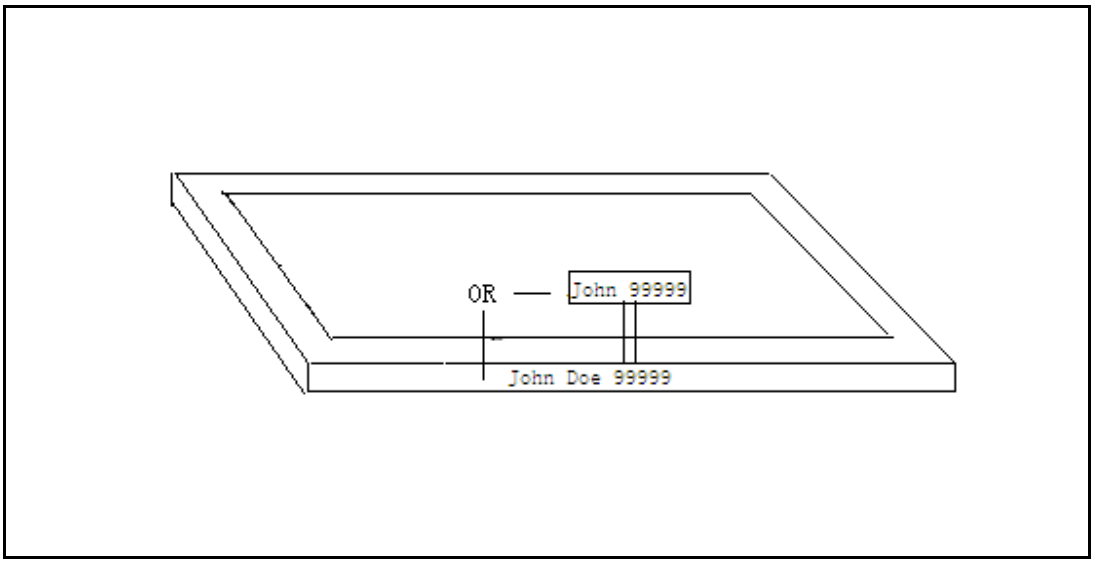


Figure 2.–Diagram of a herring pound showing two alternatives methods of marking herring pounds.

Note: Regulations require vertical signs with the permit holder's first and last name and five-digit CFEC permit number (5 AAC 27.185(k)). Letters and numbers must be at least six inches high and at least one-half inch wide, must contrast with the background and must be above the waterline at all times.

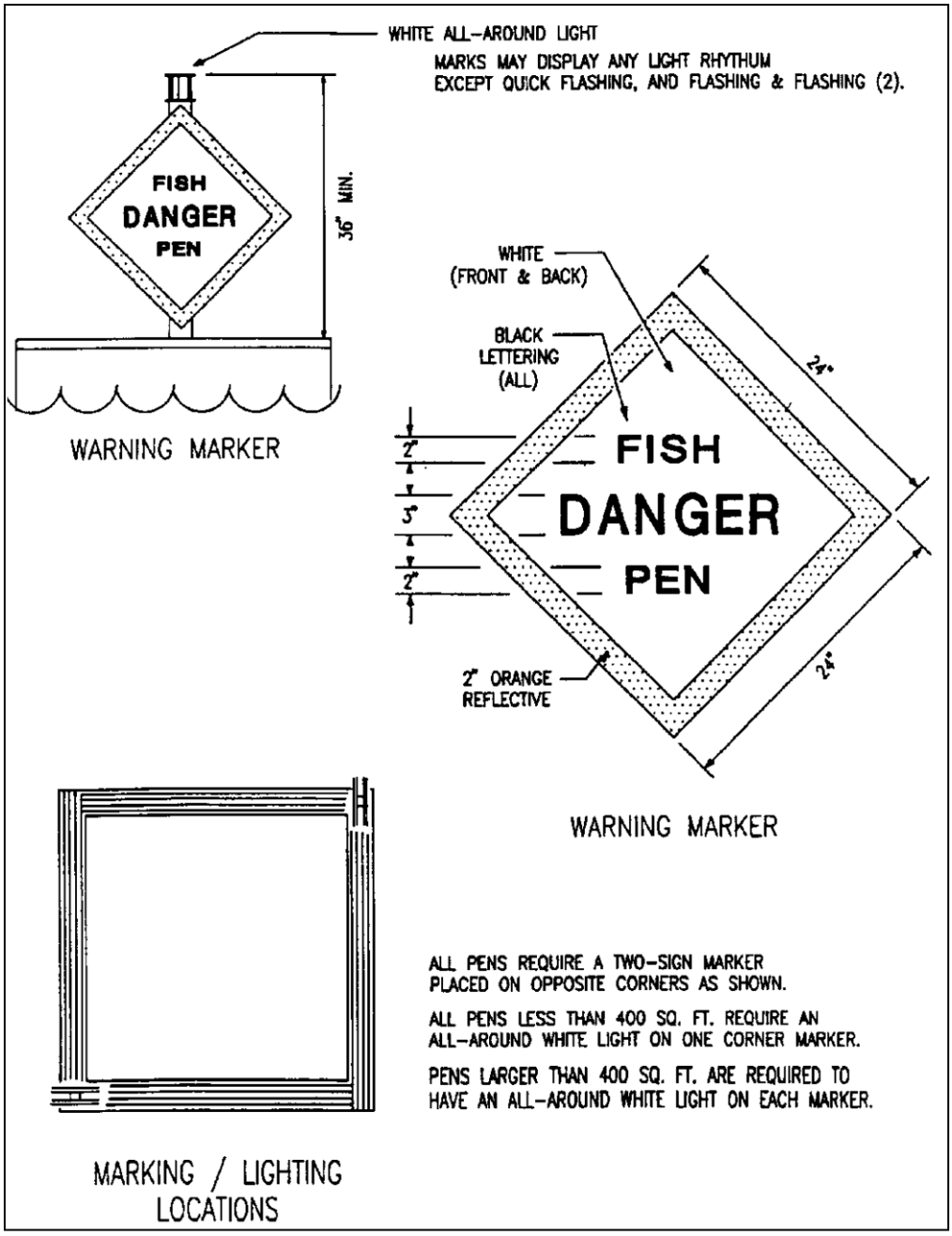


Figure 3.–Coast Guard requirements for marking pounds.