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2017 Southeast Alaska Herring Spawn-On-Kelp Pound Fishery Management Plan

by

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and

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March 2017

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

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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

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ABSTRACT

This management plan provides an overview of the management approach, permit requirements, and regulations for the 2017 herring spawn-on-kelp pound fisheries in Southeast Alaska. A spawn-on-kelp pound fishery will only occur in Craig-Klawock. Staff biologists 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 2017 management approach, permit requirements, and regulations for the Southeast Alaska herring (*Clupea pallasii*) 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 kelp and the kelp with eggs 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 2016–2017 herring guideline harvest level (GHL) for the Craig/Klawock area stock is 872 tons of herring. Forty percent (40%) or 348 tons is allocated to the SOK fishery plus any unharvested portion of the winter food and bait quota. The 2016–2017 winter food and bait fishery closed on February 28, 2017, with a final harvest of 527 tons leaving no remainder to add to the SOK GHL. This puts the GHL for the Craig/Klawock spawn-on-kelp fishery at 348 tons, placing the fishery in the 250-399 ton kelp allocation range. **Fishermen are advised that new regulations are in place for the Craig/Klawock fishery for the 2017 season (see Fishery Conduct and Management section)**.

No fishery will occur in Ernest Sound during the 2016–2017 season. The 2016–2017 mature spawning biomass forecast for Ernest Sound is 724 tons of herring, which is below the 2,500 ton threshold necessary to conduct a commercial fishery. Future assessment and fisheries are dependent on available funding.

No fishery will occur in Hoonah Sound during the 2016–2017 season. In 2016, no spawning biomass was observed therefore no forecast was generated for the 2016-2017 season. Future assessment and fisheries are dependent on available funding.

No fishery will occur in Tenakee Inlet during the 2016–2017 season. No spawning biomass was observed in 2016; 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 Biomass Accounting (BA) method of forecasting is used to determine the expected pre-fishery mature spawning biomass and to establish the fishery GHL in Hoonah Sound and Ernest Sound. The BA method uses the most recent year's spawn deposition estimate of eggs, the age composition of the spawning biomass, and weights-at-age to project the following year's return of mature herring. The Hoonah Sound projection uses the estimated survival and maturity estimates from the age-structured-analyses (ASA) 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 projection uses the estimated survival and maturity estimates from the ASA for the Craig herring stock and a median historical recruitment of age-3 herring specific to Ernest Sound is applied to forecast biomass.

This BA method is unlike the ASA method used for forecasting herring biomass for several of the larger stocks in Southeast Alaska, including Craig/Klawock and Tenakee Inlet. The ASA method also uses the spawn deposition estimate of the eggs and the age composition to project the following year's return of mature herring. However, the ASA model calculates survival and maturation rates specific to the spawning stock. The ASA model utilizes a long time series of spawn deposition and age composition information to provide an estimate of the most recent biomass from which the forecast biomass for the next year is determined. ADF&G will continue to consider converting to use of the preferred ASA method for forecasting once there is an adequate time series of data to do so.

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)

Fishermen are advised that new regulations are in place for the Craig/Klawock fishery for the 2017 season (see Fishery Conduct and Management section).

Winter food and bait herring fisheries have occurred in Section 3-B (in the Mears Passage and Bocas de Finas areas) since the 1960s. Seasonal landings from the 1960s through 1985 were small, averaging approximately 210 tons. From the start of the herring SOK fishery in 1992, the Craig/Klawock herring GHLs have averaged 2,041 tons, ranging from a low of 626 tons in 2000 to a high of 6,847 tons in 2012 (Table 1). Spawn-on-kelp fishing 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. The 2017 forecast for the Craig area is 7,833 tons. The 11.1% harvest rate will allow a combined quota of 872 tons for the winter food and bait and the

SOK fisheries. The forecast anticipates a strong return of age-3 herring (35%) and age-5 year fish (36%).

The GHL for the Section 3-B stock is allocated between both the winter food and bait fishery and the herring SOK fishery. When the fishery was created, 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% going to the herring SOK fishery.

The 2016–2017 winter food and bait fishery closed on February 28, 2017. The entire GHL was harvested leaving no unharvested winter food and bait quota to add to the GHL for the SOK fishery. The kelp allocation in the Section 3-B SOK fishery will fall within the 250-399 ton range.

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. Figure 1 shows the open area for the Craig/Klawock SOK fishery.

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 2016 there have been SOK GHLs in 6 years. Effort has 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. For the 2016–2017 season, Ernest Sound's forecast is 724 tons and is below the threshold to allow for commercial herring fisheries. The forecast is predominantly comprised of age-3 herring (49%). However, the age-3 forecast may include considerable uncertainty due to use of the median abundance of age-3 mature herring over the past 10 years.

Historical spawning biomass, forecast, GHLs, spawning dates, harvest, and fishery dates are summarized in Tables 3, 4, and 5. Monitoring herring spawn, collecting samples of spawning herring, and spawn deposition estimate in 2017 will be dependent on available funds.

TENAKEE INLET (SECTION 12-A)

The Tenakee Inlet stock has been utilized for the winter food and bait fishery since the 1978–1979 season. During seasons that the estimated spawning biomass was above the 3,000 ton threshold, the GHL has ranged from a low of 200 tons in the initial season to a peak of 1,700 tons in 1985–1986 (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. Summary results of the Tenakee Inlet SOK fisheries are presented in Table 6.

ADF&G has been conducting 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 dive surveys have been used since 1987 as the most reliable and accurate means to assess the spawning biomass.

The Tenakee 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 1996. 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 and 2015 was approximately 2.0 nmi each year. No herring spawn was documented within the inlet in 2016.

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 along the south shoreline of Tenakee Inlet between Saltery Bay and South Passage Point with the core areas centered east and west of the Kadashan River flats. In addition, spawn has been documented intermittently along the Chatham Strait shoreline from South Passage Point to Basket Bay. In 2016, a congregation of gulls was observed on the same shoreline in consecutive aerial surveys indicating a possible spot spawn just north of Basket Bay.

No commercial herring fisheries will occur in Tenakee Inlet during the 2016-2017 season. Aerial surveys will begin in mid-April of 2017.

HOONAH SOUND (SECTION 13-C)

ADF&G began monitoring the Hoonah Sound herring population in 1971. Since that time, the herring spawning stock has averaged 7.5 nmi of spawn and an estimated average escapement of 4,025 tons. Since 1990, the year the SOK fishery started, the stock has averaged 9.9 nmi of spawn and 5,922 tons of estimated escapement (Table 9). The highest recorded escapement biomass occurred in 2008 with an estimated 14.5 nmi of spawn and an escapement 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.

In 2016, no herring spawn was observed; because of this, no estimate of escapement biomass was generated. The biomass has been decreasing in this area since 2008. 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 2017 season. Therefore, no commercial fishery will occur in Hoonah Sound in 2017.

CALENDAR OF EVENTS

The following is a calendar of events to be considered by pound operators for the 2017 fishing season.

January 12	News Release announcing the 2017 Ernest Sound, Hobart Bay/Port Houghton, Hoonah Sound and Tenakee Inlet closures, and the 2017 Craig/Klawock GHL.
March 15	2017 Southeast Alaska Herring Spawn-On-Kelp Pound Fishery Management Plan will be available at all Southeast Alaska area offices.
March 17	The Craig/Klawock fishery will be open to seining of herring for placement in pounds effective 12:00 noon. **Daily fishing hours will be from 6:00 a.m. through 6:00 p.m**.
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*.

The BOF met in Sitka on February 21–March 2, 2015, and adopted four regulatory changes to the SOK management plan. These changes included: a reworking of the kelp allocation table [5 AAC 27.185 (c)]; removing the restriction on fishermen adding herring to two joined pound structures and clarification on how far the web between the pounds can be lowered between the structures [5 AAC 27.185 (r)]; redefining the time when herring may be released from a closed pound [5 AAC 27.185 (s)].

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)). New for 2016, 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. The "*first day*" under 5 AAC 27.185 (q), is the day that 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)). 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)). 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).

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).

Other Regulations

Additional regulations pertaining to the pound fisheries can be found in the 2015/2016 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. A regulation was adopted at the 2012 Alaska Board of Fisheries meeting that further specifies gear marking and removal requirements.

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 2017

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.

Due to the low GHL for 2017, **herring may only be placed in a closed pound that is operated by 6 or more permit holders.** Therefore, there is one kelp allocation for closed pound operators. There are no changes for open pounds.

Section 3-B (Craig/Klawock):

- Closed pounds with **6 or more** permit holders —500 blades of *Macrocystis* kelp;
- Single permit open pounds—1,000 blades of *Macrocystis* kelp;
- Multiple permit open pounds—3,000 blades of *Macrocystis* kelp.

FISHERY CONDUCT AND MANAGEMENT

The Craig/Klawock herring pound fishery will be the only SOK fishery for 2017.

Fishermen are advised that the following regulations are in place for the Craig/Klawock fishery for the 2017 season:

- **Pursuant to the department's authority to restrict the placement of herring into pounds as necessary for the conservation of herring stocks, in the Craig herring pound fishery, herring may only be placed in a closed pound that is operated by 6 or more permit holders.** The department's intent is to allow all interested permit holders to participate in the fishery, have an orderly fishery, and keep the harvest within the GHL. Herring may not be placed in a closed pound operated by fewer than 6 permit holders. Product from an unauthorized closed pound will become property of the State of Alaska.
- In Section 3-B (Craig/Klawock) herring may be captured for placement in closed pounds starting at 12:00 noon, March 17 until 12:00 noon, May 10 unless closed earlier by emergency order. **Daily fishing hours will be from 6:00 a.m. through 6:00 p.m.** Fishing will be closed at night so that seining can be easily observed by both the department and enforcement personnel.
- If the department observes more than 20 closed pound structures on the grounds that are being prepared to introduce fish or have fish, the department **may** close the fishery to any further harvest and placement of herring into closed pounds in order to keep the harvest within the GHL.

For 2017, all 6 permit holders must be present during operation of a closed pound. All permit holders involved in the operation of a pound, must be physically present at their pound fishing site at all times during the *operation of the pound. Operation of the pound* is defined as:

1. The capture and transfer of herring into the pound;

2. When an open pound is being moved;
3. The collection and sale of herring SOK product produced in the pound;
4. All permit holders must be present when two pounds are joined together.

ADF&G will be closely monitoring herring activity using vessel and aerial surveys. Results of aerial surveys will be announced by department news release or in fishery updates.

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. Towable 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 intended to fill multiple pounds 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) The 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) Small top-off sets may be added over a 4 day period;
5) The herring density in the net should be limited since spawning is retarded 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

The open waters for Section 3-B include: the waters of San Alberto Bay, Shinaku Inlet, and San Christoval Channel north of a line from Entrance Point to the southernmost tip of Clam Island to the southernmost tip of Fern Point and East of 133°20′ W. longitude (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. latitude, 133°20′ W. longitude to 55°35.17′ N. latitude, 133°20′ W. longitude to 55°33.37′ N. latitude, 133°17.52′ W. longitude to 55°33.50′ N. latitude, 133°17.28′ W. longitude;
- Those waters of Fish Egg and Ballena Islands south of 55°31′ N. latitude and north of the southernmost tip of Cape Suspiro and east of the longitude of Ballena Island Shoal Light.

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

In the Hoonah Sound and Tenakee Inlet areas, 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 at the Sitka Ranger District Office, 204 Siginaka Way, Sitka, Alaska 99835, (907-747-6671). Completed applications should be submitted to the Sitka Ranger District 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
Dan Gray Southeast Alaska Regional Management Biologist	304 Lake St., Rm. 103 Sitka, Alaska 99835 (907) 747-6688
Kyle Hebert Herring Research Biologist	802 3rd Street Douglas, Alaska 99824 (907) 465-4250
Scott Walker Area Management Biologist Bo Meredith or Justin Breese Assistant Management Biologists	2030 Sea Level Dr. Ste. 205 Ketchikan, Alaska 99901 (907) 225-5195
Troy Thynes Area Management Biologist Kevin Clark Assistant Management Biologist	16 Sing Lee Alley Petersburg, AK 99833 USA (907) 772-3801
Tom Kowalske Assistant Management Biologist	215 Front Street Wrangell, AK 99929-0200 (907) 874-3822
Eric Coonradt Area Management Biologist Aaron Dupuis Assistant Management Biologist	304 Lake St., Rm. 103 Sitka, Alaska 99835 (907) 747-6688
Dave Harris Area Management Biologist Scott Forbes Assistant Management Biologist	802 3rd Street Douglas, Alaska 99824 (907) 465-4250

TABLES AND FIGURES

Table 1.–Craig/Klawock stock size and winter food and bait harvests, 1987–2016.

Year	Miles Spawn[a]	Forecasted Pre-fishery Biomass[b]	Total GHL Bait and SOK[c](Tons)	Bait Quota (Tons)	Bait Harvest (Tons)
87–88[d]	27	16,550	N/A	2,200	2,014
88–89	31.7	16,350	N/A	1,810	1,730
89–90	30	19,800	N/A	3,150	3,221
90–91	22	18,350	N/A	2,841	3,272
91–92	23	17,800	2,684	2,281	2,295
92–93[e]	8.4	12,350	1,602	1,362	623
93–94	8	7,996	895	760	636
94–95	5.5	6,778	725	617	124
95–96	9.9	6,262	658	558	4
96–97	13.2	6,755	715	615	517
97–98[f]	11	7,018	755	455	254
98–99	15.4	6,951	750	450	102
99–00	12.9	6,013	626	376	346
00–01	16.7	9,091	1,058	635	145
01–02	18	8,387	952	571	92
02–03	11.2	6,045	630	378	145
03–04	12	13,204	1,754	1,052	157
04–05	18	15,577	2,217	1,330	553
05–06	8.2	14,262	1,955	1,173	689
06–07	22.3	13,768	1,860	1,116	576
07–08	11.0	14,213	1,945	1,167	565
08–09	17.0	14,213	1,945	1,167	142
09–10	18.7	14,870	2,074	1,244	confidential
10–11[g]	14.8	17,886	2,710	1,140	confidential
11–12	14.9	34,235	6,847	4,060	confidential
12–13	15.3	23,391	4,060	2,436	confidential
13–14	13.6	26,085	4,808	2,884	confidential
14–15	11.5	15,803	2,362	1,367	905
15–16	12.3	12,303	1,590	954	898
Average	15.9	13,478	2,035	1,420	747

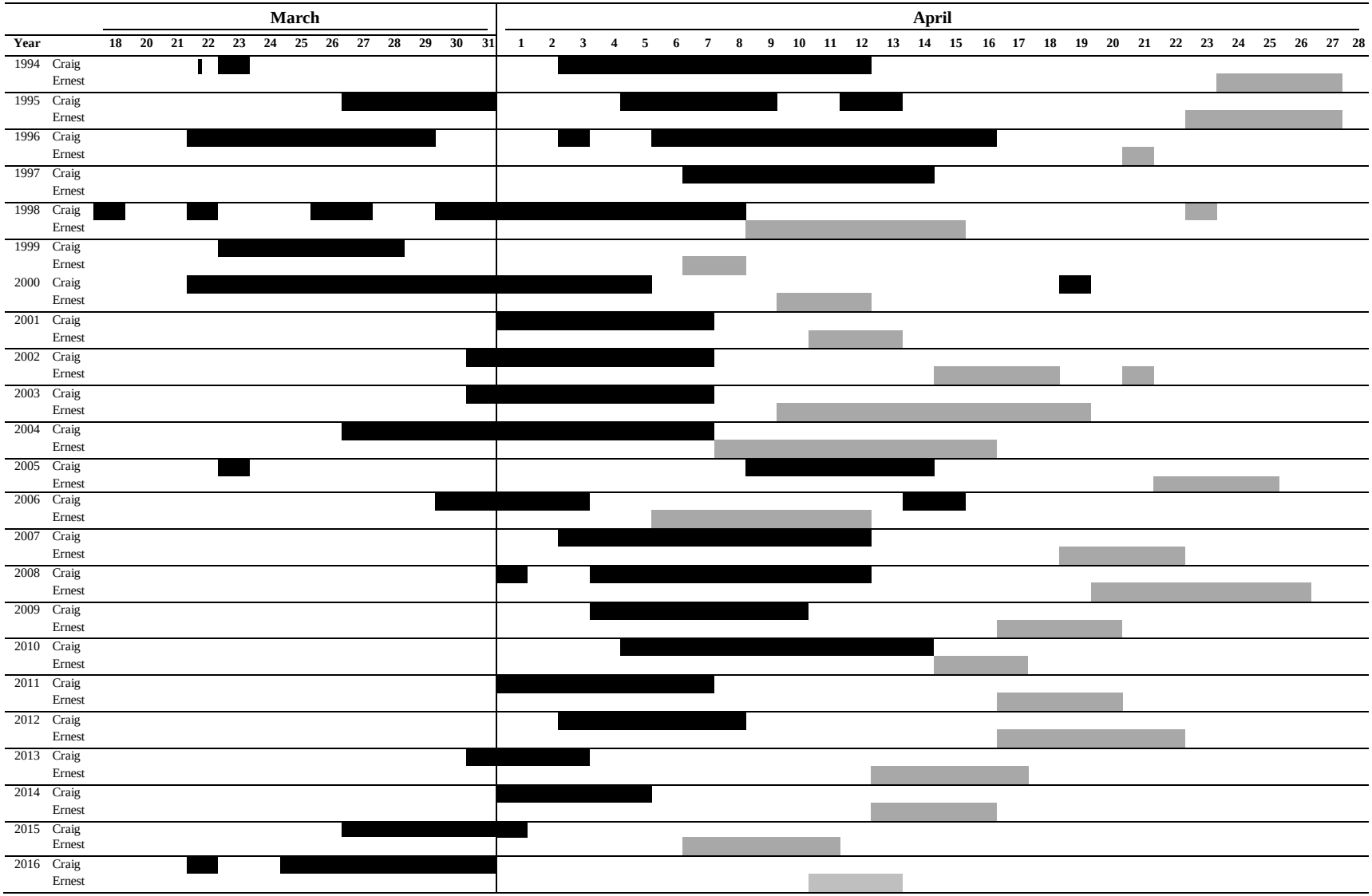
[a] Spawn year is beginning year of regulatory season listed in the adjacent year column.
[b] Forecasted pre-fishery biomass values were estimated with hydroacoustics for 86/87, spawn deposition surveys for 87/88 to 92/93, and age-structured models for 93/94 to 14/15.
[c] Spawn On Kelp (SOK)
[d] Reduced 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 spawn-on-kelp fishery summary, 1998–2016.

Statistic	1999	2000	2001	2002	2003	2004
Herring Quota (tons)	650	280	914	852	528	1579
Total harvest SOK (tons)	36	0	26.9	41.7	69.2	50
Exvessel value	$212,121	$0	$146,859	$218,700	$423,000	$325,000
Average Price/lb	$2.94	$0.00	$2.70	$3.10	$3	$3.25
Average Income	$2,060	$0	$2,880	$2,460	$3,385	$3,420
Number of pounds	70	50	31	50	61	50
Number of landings	103	0	51	89	118	95
Blade allocation	[a]	[b]	[c]	[c]	[c]	[b]
Total kelp harvest (tons)	2.9	2.0	3.2	8.2	7.5	14.0
Herring spawning dates	3/23–3/28	3/22–4/5	4/1–4/7	3/31– 4/7	3/31– 4/7	3/26–4/7
Miles of spawn	15.4	12.9	16.7	18.4	11.2	12.0
Forecasted Pre-Fishery biomass (tons)	6,951	9,951	8,042	8,387	6,045	13,204
	2005	**2006**	**2007**	**2008**	**2009**	**2010**
Herring Quota (tons)	1667	1266	1,284	1,380	1,802	1,953
Total harvest SOK (tons)	115.2	28.9	44.5	148.5	137.3	116.7
Exvessel value	$603,723	$298,575	$1,087,532	$3,066,788	$1,256,777	$884,715
Average Price/lb	$2.62	$5.15	$12.08	$10.33	$4.58	$3.80
Average Income	$9,011	$8,782	$23,139	$25,138	$9,107	$8,268
Number of pounds	42	50	52	66	96	63
Number of landings	67	34	47	122	137	107
Blade allocation	[d]	[e]	[e]	[e]	[e]	[e]
Total kelp harvest (tons)	4.9	4.6	5.6	12.2	7.3	8.2
Herring spawning dates	4/9–4/14	3/30–4/3	4/3–4/12	4/3–4/12	4/3–4/10	4/5–4/14
Miles of spawn	18.0	8.2	22.3	11.0	17.0	18.7
Forecasted Pre-Fishery biomass (tons)	15,577	14,262	13,768	14,213	14,213	14,870
	2011	**2012**	**2013**	**2014**	**2015**	**2016**
Herring Quota (tons)	2,710	6,847	4,060	4,808	2,362	1,590
Total harvest SOK (tons)	70	98.1	137.7	confidential	confidential	confidential
Exvessel value	$728,147	$2,099,002	$3,099,002	confidential	confidential	confidential
Average Price/lb	$5.13	$10.69	$12.00	confidential	confidential	confidential
Average Income	$14,003	$32,795	$23,656	confidential	confidential	confidential
Number of pounds	34	35	80	75	76	46
Number of landings	52	64	131	136	135	133
Blade allocation	[e]	[e]	[e]	[e]	[e]	[f]
Total kelp harvest (tons)	4.6	5.3	9.3	19.2	19.2	9.2
Herring spawning dates	4/1–4/7	4/3–4/8	3/31–4/3	4/1–4/5	3/27–4/1	3/25–3/31
Miles of spawn	14.8	14.9	15.3	13.6	11.5	12.3
Forecasted Pre-Fishery biomass (tons)	17,886	34,235	23,391	26,085	15,803	12,303

[a] 120 blades for a single closed pound, 180 blades for a multiple pound permit holder, 360 blades for single open pound.
[b] 155 blades for a single closed pound, 235 blades for a multiple pound permit holder, 470 blades for a single open pound.
[c] 70 blades for a single closed pound, 210 for a multiple pound permit holder.
[d] 200 blades for a single closed pound, 600 blades for a multiple pound permit holder
[e] 350 blades for a single closed pound, 750 blades for a double closed pound, 1,125 blades for a triple closed pound.
[f] 600 blades for a single closed pound, 750 blades for a double closed pound, 1,125 blades for a triple closed pound.

Table 3.–A comparison of Craig and Ernest Sound herring spawning dates for years 1994–2016.



Note: Black bars indicate dates of active spawning for the Craig stock and gray bars indicate dates of active spawning for the Ernest Sound stock.

Table 4.–Ernest Sound miles of spawn, stock size and harvest, 1969–2016.

Season	Date of first spawn[a]	Nautical miles of spawn[b]	Forecast Used for GHL Determination[c] (tons)	Spawning Biomass (tons)[d]	Guideline Harvest Level (tons)[e]	Bait harvest (tons)[f]	SOK Harvest (lbs)	Sac Roe Harvest (tons)	SOK GHL (tons)
1969/1970	--	--	--	--	--	17	--	--	--
1970/1971	--	3	--	13,100	--	206	--	--	--
1971/1972	--	--	13,100	3,650	--	967	--	--	--
1972/1973	--	--	3,650	450	--	775	--	--	--
1973/1974	--	--	450	400	--	535	--	--	--
1974/1975	--	--	400	2,900	--	593	--	--	--
1975/1976	--	3	2,900	4,350	580	708	--	--	0
1976/1977[g]	--	3	4,350	3,035	870	901	--	49	0
1977/1978	3-May	--	3,035	1,505	455	340	--	--	115
1978/1979	16-Apr	2.6	1,505	255	--	--	--	--	--
1979/1980	2-May	4	255	500	--	--	--	--	--
1980/1981	--	3.5	500	410	--	--	--	--	--
1981/1982	--	--	410	160	--	--	--	--	--
1982/1983	--	--	160	1,640	--	--	--	--	--
1983/1984	11-Apr	--	1,640	1,000	--	--	--	--	--
1984/1985	--	4.5	1,000	1,000	--	--	--	--	--
1985/1986	--	--	1,000	1,000	--	--	--	--	--
1986/1987	--	1	1,000	--	--	--	--	--	--
1987/1988	21-Apr	2	--	--	--	--	--	--	--
1988/1989	17-Apr	2.4	--	500	--	--	--	--	--
1989/1990	--	2.1	500	1,000	--	--	--	--	--
1990/1991	--	--	1,000	3,000	--	--	--	--	--
1991/1992	16-Apr	9.1	3,000	2,650	--	--	--	--	--
1992/1993	23-Apr	9	2,650	684	200	8	--	--	192
1993/1994	26-Apr	8.4	684	2,544	0	--	--	--	--
1994/1995	25-Apr	6.5	2,544	2,470	255	111	--	--	144
1995/1996	16-Apr	6.9	2,744	2,665	280	220	--	--	60
1996/1997	16-Apr	0	4,852	0	377	6	--	--	371
1997/1998	9-Apr	11.8	--	5,998	0	--	--	--	--
1998/1999	5-Apr	1.8	5,381	No survey	662	96	--	--	566
1999/2000	8-Apr	9.1	--	920	0	--	--	--	--
2000/2001	11-Apr	6.9	--	2,052	0	--	--	--	--
2001/2002	15-Apr	4.8	1,653	2,406	0	--	--	--	--

-continued-

Note: Table footnotes are at the bottom of the following page.

Table 4.–Page 2 of 2.

Season	Date of first spawn[a]	Nautical miles of spawn[b]	Forecast Used for GHL Determination[c] (tons)	Spawning Biomass (tons)[d]	Guideline Harvest Level (tons)[e]	Bait harvest (tons)[f]	SOK Harvest (lbs)	Sac Roe Harvest (tons)	SOK GHL (tons)
2002/2003	10-Apr	8.5	2,407	5,509	0	--	--	--	--
2003/2004	11-Apr	7.1	6,592	2,413	875	44	112,286	--	831
2004/2005	22-Apr	10.1	1,906	3,268	0	--	--	--	--
2005/2006	6-Apr	7.9	2,284	2,538	0	--	--	--	--
2006/2007	19-Apr	11.3	1,955	7,353	0	--	--	--	--
2007/2008	20-Apr	15.4	9,060	4,846	1,382	**	19,650	--	>700
2008/2009	17-Apr	6.6	4,545	2,862	529	**	4,911	--	100-299
2009/2010	14-Apr	7.8	2,879	3,523	297	**	--	--	<50
2010/2011	17-Apr	8.1	5,080	2,559	476	**	0	--	100-299
2011/2012	16-Apr	8.9	2,682	3,193	272	**	--	--	<50
2012/2013	16-Apr	9.7	3,509	7,556	379	**	129,265	--	100-299
2013/2014	14-Apr	3.7	7,613	2,631	1,073	**	**	--	>700
2014/2015	8-Apr	5.5	1,991	562	0	--	--	--	--
2015/2016	10-Apr	4.4	1,207	346	0	--	--	--	--
10-yr Average	16-Apr	8.1	4,052	3,543	441	**	**	--	578
Total Average	16-Apr	6.1	2,590	2,591	332	368	**	49	353

Note: ** indicates data is confidential.

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

[b] 1996/1997 No survey, fish all spawned (7.5 miles) along Ship Island; 1998/1999 No survey, only 1.8 miles of spawn observed, surveys probably missed main spawn; spawn year is the beginning year of regulatory season.

[c] 1971/1972 through 1984/1985 forecasts were based on hydroacoustical-computer generated estimates; 1985/1986 through 1991/1992 forecasts were based on visual estimates; 1992/1993 through 1994/1995 were based on spawn deposition estimates; 1995/1996 through 2006/2007 were biomass accounting forecasts.

[d] 1969/1970 through 1983/1984 biomass estimates were hyrdoacoustical-computer generated estimates; 1984/1985 through 1990/1991 were visual estimates; and 1991/1992 through 2005/2006 were spawn deposition estimates. 1975/1976 & 1976/1977 GHLs are based upon 20% of the acoustical estimate. 1977/1978 GHL is based upon 15% of the acoustical estimate.

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

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

[g] Since 1976/1977 season the threshold for a fishery has been 2,500 tons.

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

Statistic	2004	2008	2009
Ernest Sound GHL (tons)	875	1,382	529
GHL Available for SOK (tons)	775	**	**
SOK Harvest (tons)	56.1	9.8	2.5
Exvessel Value	$514,912	$131,059	$18,359
Average Price/lb	$4.59	$6.87	$3.67
Average Income/permit	$8,046	$10,091	$4,590
Number of Permits participating	64	13	4
Number of Pounds	51/6/0/1[a]	1/6/0/0 [a]	0/2/0/0 [a]
Number Permits Landing Product	64	13	4
Kelp Allocation (blades)	[c]	[d]	[e]
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
Statistic	2011	2013	2014
Ernest Sound GHL (tons)	476	379	1,073
GHL Available for SOK (tons)	**	**	**
SOK Harvest (tons)	0	64.3	**
Exvessel Value	$0	$1,574,729	**
Average Price/lb	$0	$12.25	**
Average Income/permit	$0	$19,441	**
Number of Permits participating	0	81	129
Number of Pounds	0	1/5/1/22/0 [b]	25/52/0 [a]
Number Permits Landing Product	0	81	129
Kelp Allocation (blades)	[e]	[e]	[d]
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] single/double/combined double/triple/open

[c] 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

[d] 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

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

Table 6.–Tenakee Inlet herring seasonal spawning dates and mileage, biomass estimate, and harvest.

Season	Major Spawning Dates	Nautical Miles of Spawn (nmi)	Spawning Biomass[a] (tons)	Food/Bait GHL (tons)	Food/Bait Harvest (tons)
1978/1979	5/9–5/11	3.3	2,500	200	0
1979/1980	4/28–5/2	3.9	4,485	400	504
1980/1981	4/27–5/5	9.3	7,500	750	847
1981/1982	4/25–5/7	11.1	6,650	650	687
1982/1983	4/25–5/6	13.1	8,870	875	749
1983/1984	4/20–4/26	8.3	12,100	850	619
1984/1985	4/24–5/1	9.9	11,000	1,400	1,406
1985/1986	4/27–5/1	8.3	12,500	1,700	2,040
1986/1987	4/22–4/30	7.9	6,600	800	1,275
1987/1988	4/22–4/27	9.1	6,000	1,450	1,577
1988/1989	4/26–4/29	10.3	5,360	720	655
1989/1990	4/25–5/6	2.9	2000	650	595
1990/1991	4/25–5/4	2.1	400	No fishery	
1991/1992	5/5	trace	200	No fishery	
1992/1993	4/21–4/23	6.4	904	No fishery	
1993/1994	4/24–4/26	0.25	400	No fishery	
1994/1995	4/26	0.05	200	No fishery	
1995/1996	5/4–5/14	18.1	4,560	No fishery	
1996/1997	4/26–5/7	14.4	9,926	300	98
1997/1998	4/24–4/29	12.4	10,419	825	586
1998/1999	4/25–4/28	11.0	11,049	1,023	835
1999/2000	4/26–5/3	13.8	9,425	542	494
2000/2001	4/21–5/1	12.2	7,576	906	775
2001/2002	4/23–4/27	15.4	4,084	840	355
2002/2003	4/25–4/28	12.2	3,529	528	328
2003/2004	4/28–5/3	13.0	4,728	399	confidential
2004/2005	4/26–5/2	8.9	**3,036**	476	0
2005/2006	5/2–5/6	5.9	5,110	No fishery	
2006/2007	4/23–4/26	4.4	3,346	No fishery	
2007/2008	4/30; 5/7–5/8	11.4	**11,252**	No fishery	
2008/2009	4/25–4/26; 4/29–4/30	6.9	**5,283**	875	254
2009/2010	5/7–5/9	2.7	1,437	583	confidential
2010/2011	5/9	1.0	N/A	No fishery	
2011/2012	4/20–4/23	4.6	5,119	No fishery	
2012/2013	5/7–5/10	5.4	4,936	No fishery	
2013/2014	4/29	2.0	**927**	557	confidential
2014/2015	4/22–4/25	2.3	**2,223**	No fishery	
2015/2016	none	0.0	No forecast	No fishery	

[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 spawn-on-kelp fishery summary, 2003–2005, 2009, and 2014.

Statistic	2003	2004	2005
Tenakee Inlet GHL (tons)	528	399	476
GHL Available for SOK (tons)	180	confidential	476
SOK Harvest (tons)	47.6	100.7	101.4
Exvessel Value	$580,500	$981,464	$512,900
Average Price/lb	$6.10	$4.68	$2.53
Average Income/permit	$10,555	$11,684	$5,636
Number of Permits participating	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 Product	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	
Tenakee Inlet GHL (tons)	875	557	
GHL Available for SOK (tons)	621	confidential	
SOK Harvest (tons)	64.1	84.4	
Exvessel Value	$558,900	$1,155,276	
Average Price/lb	$4.36	$6.85	
Average Income/permit	$6,499	$16,271	
Number of Permits participating	86	78	
Number of Pounds	11/27/7/0[a]	2/25/5/1[c]	
Number Permits Landing Product	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	

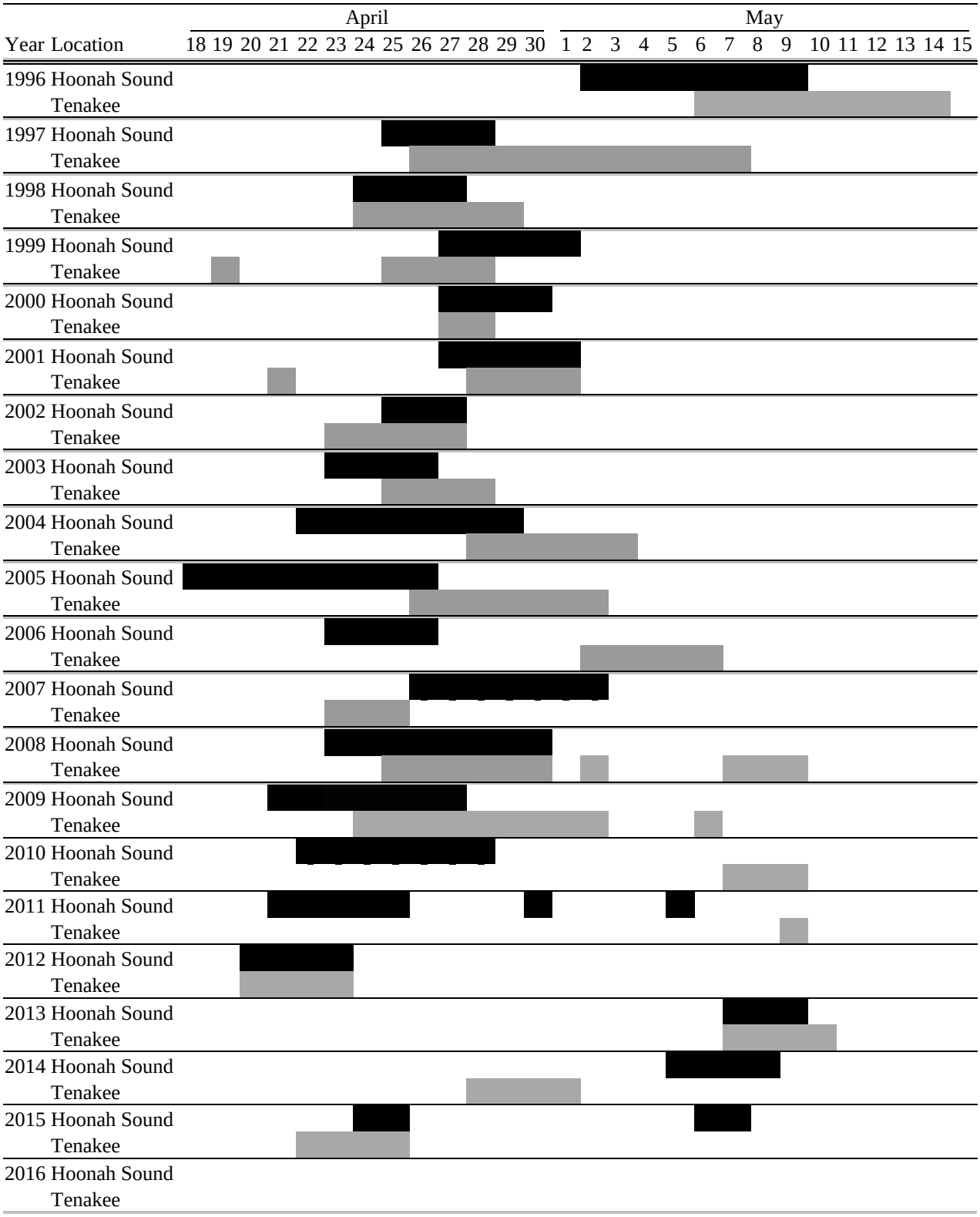
Note: No fishery occurred from 2006–2008 since the biomass forecast was below the 3,000-ton threshold.

[a] single/double/triple/test.

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

[c] single/double/triple/quadruple.

Table 8.–A comparison of Hoonah Sound and Tenakee Inlet herring spawn dates for years 1996–2016.



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 performance, 1971–2016.

Year	Spawn Dates	Nautical Miles Spawn	Estimated Escapement (tons)	SOK Harvested (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	0.0
2014	5/5–5/8	3.2	444	0.0
2015	4/24–5/6	4.2	23	0.0
2016	N/A	N/A	--	0.0
Average	1971–2016	7.5	4,025	N/A
Average	1990–2016	9.9	5,922	100.9

Note: Shaded estimated escapements are based on average spawn density from years 1989–2002.

Table 10.–Hoonah Sound herring spawn-on-kelp fishery summary, 2003–2016.

Statistic	2003	2004	2005	2006	2007
Herring Quota (tons)	427	1,207	728	669	681
Harvest Quota (tons)	NA	NA	NA	NA	NA
Harvest (tons)	141.6	237.4	190.6	162.1	144.5
Exvessel Value	$1,922,50	$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 Applicants	NA	NA	NA	NA	NA
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
Statistic	2008	2009	2010	2011	2012
Herring Quota (tons)	2,238	2,238	3,182	3,015	2,139
Harvest Quota (tons)	NA	NA	NA	NA	NA
Harvest (tons)	223	234.7	290.4	193.7	186.5
Exvessel Value	$5,115,45	$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 Applicants	NA	NA	NA	NA	NA
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	
Herring Quota (tons)	130	0	0	0	
Harvest Quota (tons)	NA	NA	NA	NA	
Harvest (tons)	0	0	0	0	
Exvessel Value	$0	$0	$0	$0	
Average Price/lb	$0	$0	$0	$0	
Average Income/Landing	$0	$0	$0	$0	
Number of Applicants	NA	NA	NA	NA	
Number of Pounds	3 open	0	0	0	
Number Selling Product	0	0	0	0	
Kelp Allocation (blades)	600 open	0	0	0	
Kelp Blade Harvest	7,940	0	0	0	
Fishery Open—Closed	4/6–5/15	NA	NA	NA	
Fishing Occurred	NA	NA	NA	NA	
Harvest Occurred	NA	NA	2015	NA	

Note: No fishery occurred in 1996 since the biomass forecast was below the 1,000-ton threshold

[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.

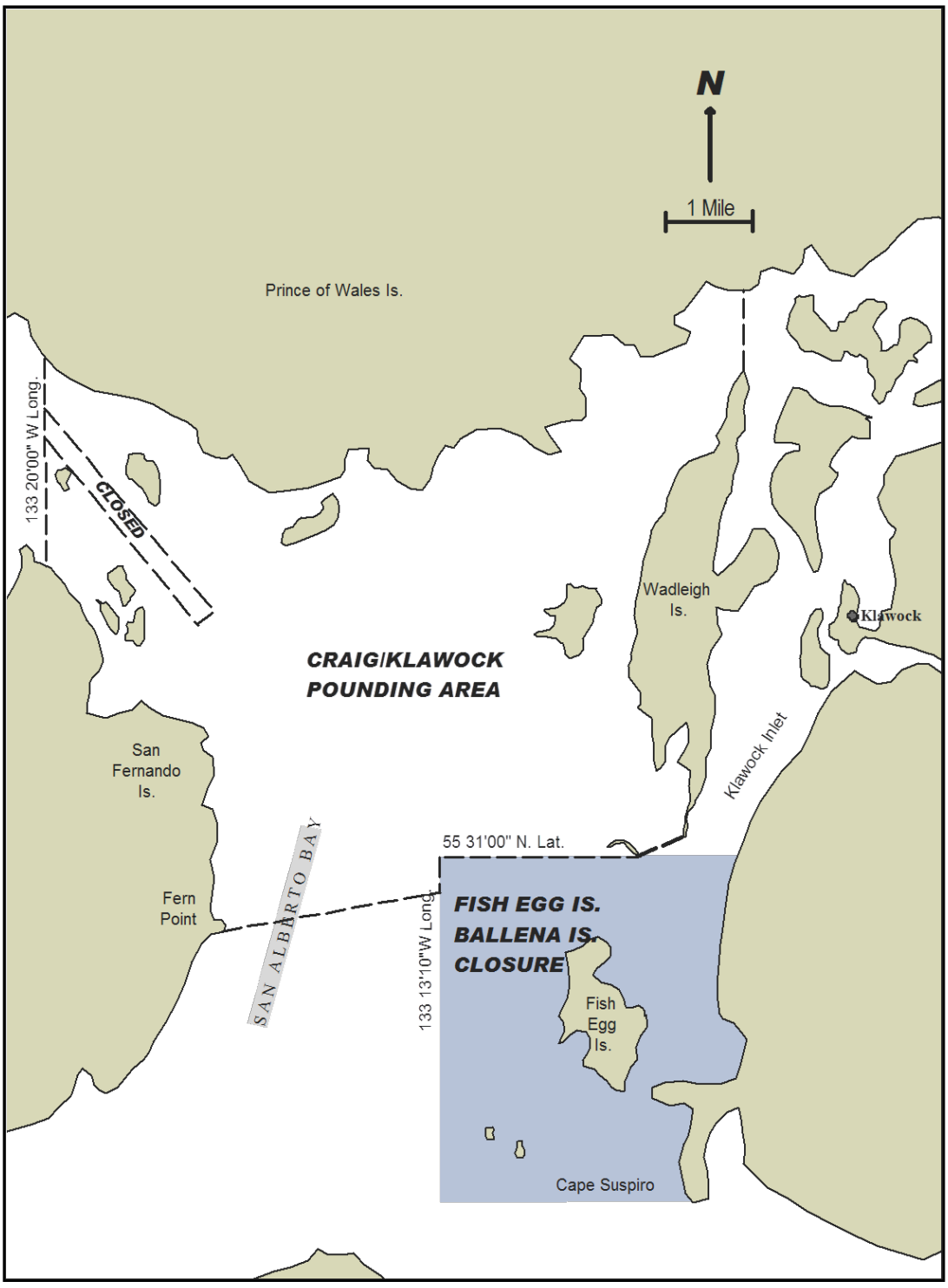


Figure 1.–Open area for Craig/Klawock (Section 3-B) herring SOK fishery.

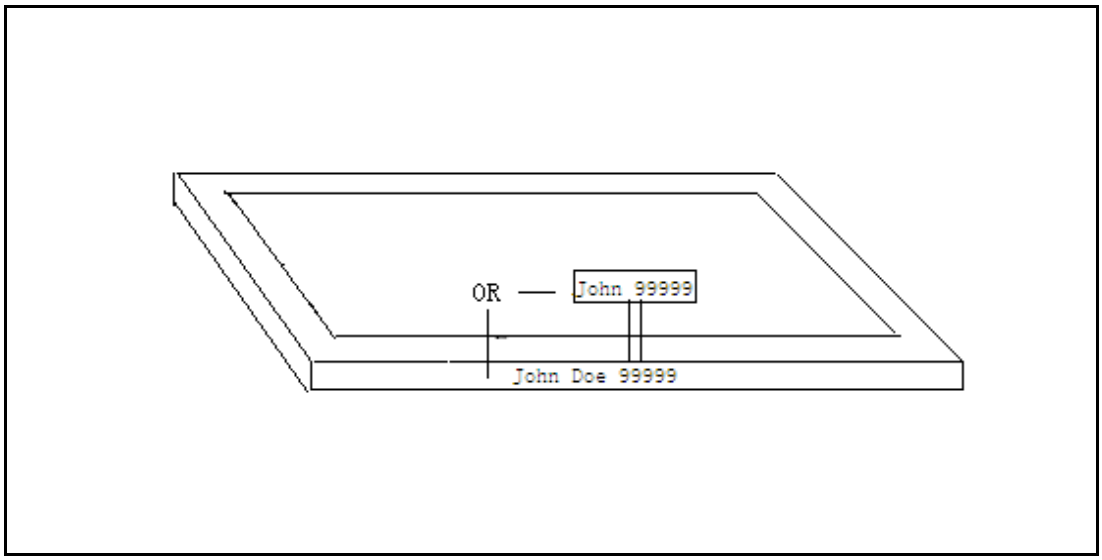


Figure 2.– Diagram of a herring pound showing two alternatives methods of marking herring pounds.

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.

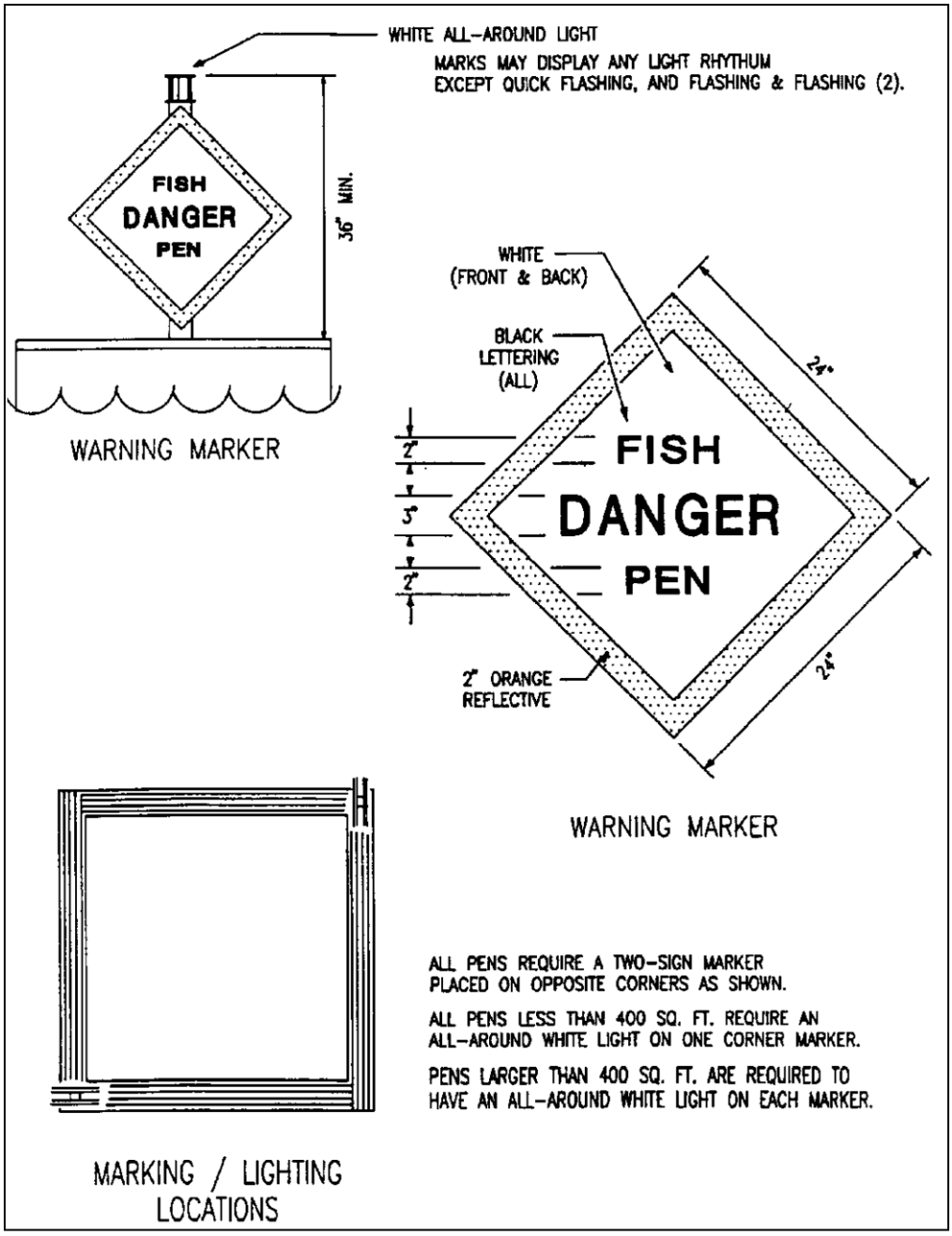


Figure 3.–Coast Guard Requirements for marking pounds.