SOUTHEAST ALASKA/YAKUTAT

ANNUAL HERRING RESEARCH REPORT,

2000/2001 SEASON

By

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and
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ABSTRACT

Pacific herring, *Clupea pallasi*, support a number of commercial fisheries and is an important food fish in Southeast Alaska. During the 2000/2001 season winter bait fisheries occurred in Craig and Tenakee Inlet. Additionally, a gillnet sac roe fishery was conducted in Seymour Canal where harvest totaled 620 tons. There was no spring gillnet sac roe harvest from the Kah Shakes/Cat Island or Hobart Bay/Port Houghton areas in 2001 due to below-threshold forecasts of returning spawning biomass. A seine sac roe harvest occurred in Sitka totaling 12,034 tons. Test fisheries occurred in Sitka Sound, West Behm Canal, Seymour Canal, and Hobart Bay/Port Houghton areas. Spawn-on-kelp fisheries occurred in Craig and Hoonah Sound in 2001. The total exvessel value of the region's commercial herring fisheries was estimated at over $6.55 million. Approximately 7,000 herring were sampled for age and growth analysis from the major stocks. Recruitment of the 1998 year class was substantial in all major stocks, and for some stocks (including Kah Shakes/Cat Island) represented one of the dominant age classes. In Sitka Sound, three, four, six, and seven year-old herring dominated the population, with a small proportion of age-five fish. Spawn deposition surveys to compute spawning biomass were conducted on nine spawning stocks for a total escapement estimate of 100,528 tons for the stocks surveyed. A series of aerial and skiff spawning ground surveys conducted on those, and smaller stocks, documented a total of 151.5 nautical miles of beach receiving spawn in Southeast Alaska. Substrate-estimator-specific visual estimate correction factors, used to correct for bias during spawn deposition estimates, were based on data collected during 1982–1988, 1993–1999, 2001 and ranged from 0.77 to 2.66.

INTRODUCTION

The Alaska Department of Fish and Game's herring research project was initiated in 1971 in response to greater demands on the resource by the commercial bait and developing sac roe fisheries. The goal of this project is to provide the biological data necessary for the scientific management of the region's herring stocks. Current program project objectives are to monitor spawning populations through age and growth analysis and spawn deposition studies on an annual basis. Project personnel conduct aerial and skiff surveys to document spawning activities and assist in the inseason management of the commercial fisheries throughout the region (Figure 1). Summaries of all herring commercial fisheries in Southeast Alaska for 2000/2001 are included (Table 1).

COMMERCIAL FISHERIES

Management Strategy

The following management plan was in place for the 1999 Southeast Alaska commercial herring fisheries. It was formalized at the January 1994 Board of Fisheries meeting.

5 AAC 27.190. HERRING MANAGEMENT PLAN FOR STATISTICAL AREA A. For the management of herring fisheries in Statistical Area A, the department:

(1) shall identify stocks of herring on a spawning area basis;

(2) shall establish minimum spawning biomass thresholds below which fishing will not be allowed;

(3) shall assess the abundance of mature herring for each stock before allowing fishing to occur;

(4) except as provided elsewhere, may allow a harvest of herring at an exploitation rate between 10 percent and 20 percent of the estimated spawning biomass when that biomass is above the minimum threshold level;

(5) may identify and consider sources of mortality in setting harvest guidelines;

(6) by emergency order, may modify fishing periods to minimize incidental mortalities during commercial fisheries.

A "threshold level" is the minimum herring biomass needed to ensure sustained yield and maintain biological productivity. Threshold levels have been established for each of the winter bait, sac roe, and spawn-on-kelp pound spawning stocks. Threshold levels are based on all available stock performance data and may be evaluated and revised over time. Current threshold levels vary from 1,000 to 20,000 tons for the major sac roe, winter bait, and pound fishery stocks.

Herring stocks with a spawning biomass of less than 2,000 tons, of which there are many, are not considered for harvesting in either the Southeast Alaska winter bait or sac roe fisheries. Under the current approach for setting seasonal harvest limits, herring stocks of 2,000 tons of adult fish would allow for an annual harvest of 200 tons of herring. The region's current management capability prevents successful

management of the winter bait or sac roe fisheries for harvests of less than 200 tons. The exception is the Yakutat area, where the spawning threshold for a winter bait fishery is 1,000 tons.

Methods and Procedures

Age Structured Analysis

Beginning in 1994, the department modified the primary method of forecasting herring abundance for major spawning stocks in Southeast Alaska. Age Structured Analysis (ASA), which relies on a time series of herring population assessment data, was used to forecast herring biomass for those stocks with significant historical data. Age Structured Analysis uses field survey estimates of catch-at-age, fishery and cast net age composition, weight-at-age, spawn deposition, and fecundity at weight to yield model estimates of annual recruitment, maturity, fishery selectivity, and natural mortality. In combination, these estimates account for inter-annual gains and losses in biomass and allow forecasting of probable biomass for the forthcoming year. This method was used to forecast the 2001 spawning biomass returns for Kah Shakes/Cat Island, Craig, Sitka Sound, and Seymour Canal.

Test Fisheries

A test fishery was conducted in January in the Sitka Sound area. The purpose of this test fishery was to improve the current ASA biomass forecast with updated information on age composition and weight-at-age for the Sitka herring population. Samples from January 2001 trawl samples indicated that there had been a slight overall decrease in the estimated weight (from 116 to 105 grams), as compared to 2000 spring samples. Age structures of sampled fish revealed strong representation of two-, three-, four-, and six-year-old age classes, compromising 73% of the stock. Average weights ranged from 9.2 grams for age 1 fish, to 182.5 grams for age-8+ fish.

A second test fishery was conducted in Sitka Sound on March 27, 2001. The test fishery was designed to obtain funds to be used for management and research of the Sitka Sound herring stock. A total of 62 tons of herring was harvested for sac roe using purse seine gear. This was the second year in a row that sac roe test fishing was conducted in Sitka Sound to generate management funds.

A test fishery was conducted during May 2–4 on herring stocks in the Hobart Bay/Port Houghton area. The test fishery was designed to obtain funds to be used for management and research of stocks located throughout the Petersburg-Wrangell management area. A total of 33 tons of herring was harvested for sac roe.

A test fishery was conducted May 12, 2001 in Seymour Canal to generate funds for herring management for stocks in the Juneau management area. The harvest was conducted using gillnets and 29 tons of herring were taken.

A test fishery was scheduled in West Behm canal near Ketchikan, but was not successful due to miss timing of harvest before spawning was complete. The primary purpose of this test fishery program is to obtain data on age structure, spawn timing, and abundance of the herring spawning population in the West Behm Canal area. Revenues generated from this test fish program are usually used to defray costs for

managing and assessing herring populations in the Ketchikan area. No herring were harvested for sac roe, however an age-weigh-length sample was obtained during the harvest attempt.

Sac Roe Fisheries

Commercial sac roe fisheries were conducted in the, Sitka Sound and Seymour Canal areas during 2001 (Figure 2). Harvest in the commercial gillnet area totaled 620 tons from Seymour Canal. A commercial seine harvest occurred in the Sitka Sound area, where 12,034 tons of herring were harvested for sac roe (Table 1). There was no sac roe fishery in the Hobart Bay and Kah Shakes/Cat Island areas due to below-threshold forecast of returning spawning biomass.

Winter Bait Fisheries

Winter food and bait fisheries were conducted near Craig and Tenakee Inlet (Figure 3). Herring were harvested from Tenakee Inlet, where 775 tons were taken. Due to fewer than three participants during the Craig fishery, harvest data is confidential.

Spawn-on-Kelp Pound Fisheries

A spawn-on kelp fishery occurred in Craig during 2001, where 15% of the established quota is allocated to the spawn-on-kelp fisheries and 85% is allocated to the winter food and bait commercial fisheries. A total of 27.2 tons of spawn on kelp product were harvested during the Craig fishery. A spawn-on-kelp fishery took place in Hoonah, where 65 tons of product were harvested (Figure 4).

Results and Discussion

Sac Roe Fisheries

Sitka Sound

Aerial spawning ground surveys commenced on February 22 and continued through April 20. The guideline harvest level (GHL) for the 2001 Sitka sac roe fishery was set at 10,600 tons, based on a mature spawning biomass forecast of 52,985 tons and a harvest rate of 20.0%. The biomass forecast was based on a population model for the Sitka Sound herring stock updated with weight-at-age information from a test fishery conducted by the department in Eastern Channel during January, 2001. The fishery was opened to competitive harvest on March 22, 2001 for two openings, on March 26, 2001 for one opening, and on March 27, 2001 for one opening. The total harvest was 12,034 tons. Average roe percent was 10.9%. Processors paid a base price of approximately $415 per ton for sac roe herring, which produced an exvessel value of $5,001,330.

Hobart Bay-Port Houghton

Results from 2000 surveys of the Hobart Bay/Port Houghton area produced a forecast biomass of 544 tons. This was well below the 2,000 ton biomass threshold established for this area. Consequently there was no commercial sac roe gillnet fishery at Hobart Bay the 2000/2001 season.

Seymour Canal

Results from 2000 surveys of the Seymour Canal area produced a forecast biomass of 4,349 tons. This resulted in an 10.9% harvest rate and a quota of 474 tons. The fishery was opened on May 11, 2001 and closed on May 12, 2001. During the fishery 620 tons of herring were landed and 54 boats participated. Processors paid a price of approximately $300 a ton, giving the fishery an exvessel value of $186,000.

Winter Bait Fisheries

Craig

The Craig herring spawning biomass forecast of 9,091 tons allowed for a bait quota of 635 tons (60% of 1,058 ton total quota) for the traditional areas of Boca de Finas and Meares Passage. The fishery in the Craig area was open between December 4, 2000 and February 28, 2001. Due to fewer than three participants, harvest and value data is confidential.

Hobart Bay/Port Houghton

Due to below-threshold forecasted return, there was no commercial bait fishery at Hobart Bay the 2000/2001 season.

Tenakee Inlet

The Tenakee Inlet winter food and bait fishery was opened on December 1, 2000 and closed on March 5, 2001. The Tenakee Inlet area spawning biomass forecast was 7,109 tons. The quota was set at 906 tons, a target exploitation rate of 12.7%. There was 775 tons of herring harvested, with an exvessel value of $280,550.

Spawn-on-Kelp Pound Fisheries

Craig

There are two commercial spawn-on-kelp pound fisheries in Southeast Alaska, which occur near the communities of Craig and Hoonah Sound. The spawn-on-kelp fishery for the Craig area was initiated in the spring of 1992. Through spring of 1999, the harvest limit was established at 15% of the total guideline harvest level for the Craig stock, plus the unharvested portion of the bait quota. Due to Board of Fisheries action, the Craig herring stock harvestable biomass was allocated as 60% bait fishery and 40% pound fishery, plus remaining bait quota. The forecasted biomass for 2001 was 9,091, with a pound fishery quota

of 913 tons, which includes a 491-ton carry over from unharvested bait quota. A Craig/Klawock herring pound management plan was in effect beginning this season, eliminating the need for pound application forms. Commercial Fishery Entry Commission (CFEC) permits and kelp harvest permits were still required. Allocations of blades of *Macrocystis* kelp were issued in the following manner: 200 blades for single permit closed pounds, 600 blades for multiple permit closed pounds, 200 fronds or 2,000 blades for single permit open pounds and 600 fronds or 6,000 blades for multiple permit open pounds. No herring was allocated due to Board of Fish action. Effective 12:00, March 17, 2001 the department opened seining for the introduction of herring into the pounds. Participants were allowed to harvest herring between 04:00 and 21:00 each day until it closed at 19:00, May 1, 2000.

Hoonah Sound

The spawning biomass forecast for Hoonah Sound was 2,720 and the fishery was opened in 2001. A guideline harvest level of 366 tons was established for the fishery. This was based on a 13.4% harvest rate of the projected 2001 mature spawning biomass. The spawn-on-kelp (SOK) harvest objective for 2001 was 29 tons (12.5 tons of herring per ton of spawn-on-kelp product). The total harvest of SOK in this year's fishery was 65 tons for an estimated total exvessel value of $1,002,265. A total of 91 permit holders made landings.

AGE AND GROWTH ANALYSIS

Methods and Procedures

Herring samples were collected during research surveys, aerial surveys, and the commercial fisheries from stocks located throughout Southeast Alaska (Figure 5). Collection gear varied with location, but included trawl gear, purse seines, gillnets and cast nets. Cast nets were used when fish were in shallow water during spawning. Sampling was conducted on the spawning grounds and in pre-spawning areas. Herring sampled from the commercial fisheries were collected from individual fishers or tenders on the fishing grounds. The times and geographic locations of collection were recorded. The target collection goal is at least 420 fish from each commercial fishery and each spawning location. All samples were either processed fresh or frozen for examination and collection of scales in the laboratory.

After thawing in the laboratory, the standard length (mm) of each fish, (tip of snout to posterior margin of the hypural plate) was measured on a caliper measuring board. Fish were weighed on an electronic balance to the nearest whole gram.

A scale was removed from each fish for age analysis. The preferred location is on the left side, two rows above the lateral line, anterior to the dorsal fin or beneath the left pectoral fin. Scales were cleaned and dipped in a solution of 10% mucilage glue and water and placed unsculptured side down on glass slides. Aging was conducted using a dissecting microscope, varying the light source for optimum image of the annuli. Scale reading results were spot-checked by a second reader for age verification. The fish were

assigned an anniversary date for each completed growing season. All samples were collected before growth resumed in the spring. For example, if a herring hatched in the spring of 1991 and was collected in the fall of 1992, two growing seasons had occurred (age 2). If the herring had been collected in the spring of 1993 before growth had resumed, it was also recorded as age 2.

In order to provide real-time age frequency analysis either prior to or during a commercial fishery, some sampling was conducted onboard department research vessels. This enabled department personnel to provide the commercial fishing fleet and processors with timely age, length, and weight information.

Results and Discussion

A total of 7,057 herring were aged, sexed, weighed, and measured for length. Samples were taken from Kah Shakes/Cat Island, West Behm, Hobart Bay/Port Houghton, Craig, Sitka Sound, Hoonah Sound, Seymour Canal, Tenakee Inlet, Ernest Sound, and Lynn Canal. Most spawning populations were dominated by one or two age classes, with the exceptions of Sitka Sound and Lynn Canal, where samples revealed substantial proportions of several age classes (Figure 6). Populations with clear dominant age classes included Craig, Kah Shakes/Cat Island, Hoonah Sound, Hobart Bay/Port Houghton, and Ernest Sound. The Kah Shakes/Cat Island stock appears to be most extreme case, where 45% of spawning fish were age 3 and age 5+ fish comprised only 25% of the population. High proportions of age-3 and age-4 fish in the Kah Shakes/Cat Island population are encouraging signs for potential increased biomass during the next few years. Conversely, in Hobart Bay/Port Houghton, cast net samples from active spawners indicated a large proportion of 8+ fish. The lack of clear evidence of significant recruitment combined with low levels of returning spawners for the past two years indicates this stock needs to rebuild. Tenakee Inlet winter bait fishery (purse seine) samples reveal a large age-3 and age-4 component. Although 3- and 4-year olds were a substantial component in Tenakee cast net samples, age-7 and age-8 fish were more dominant. The Hoonah Sound population appears to have a large age-4 component, but few 5- and 6-year olds. Trawl samples taken in Lynn Canal during January 2001 revealed a population with substantial proportions of several age classes and particularly strong age-3 and age-4 components, suggesting good recent recruitment. In Sitka Sound samples from winter trawl, spring purse seine and spring cast net all indicate strong presence of all but 5 and 7+ age classes. Summaries of age, weight and length samples completed during 2000/2001 season are included in Appendix A.

SPAWN DEPOSITION SURVEYS

Methods and Procedures

The spawn deposition survey technique for estimating numbers of herring eggs by spawning area has been used in Southeast Alaska since 1976. The goal of the spawn deposition survey is to compute the total

number of eggs within a defined spawning area. This estimate of total egg numbers is converted into a spawning population biomass estimate directly through use of an egg to biomass conversion factor or used as a key element in ASA.

A series of aerial and vessel surveys are conducted to document the occurrence of spawning activities at sites during the spring spawning period to document spawn timing and to provide an index of abundance in terms of the nautical miles of beach that received herring spawn. The presence of eggs on intertidal kelp, milt present in the water, herring schools, and bird and sea mammal activity are all important indicators of herring and spawn abundance.

The basic field sampling procedure entails two-person scuba teams swimming along line transects and recording visual estimates of the number of eggs within a square, 0.10 m^2 sampling frame placed on the bottom at a fixed 5-meter distance along the transects. Because the frames (i.e. samples) are spaced equidistantly along transects, the record of the number of frames along a transect is also used to compute transect length. Along each transect, diver 1 swims the specified inter-frame distance and places the frame on the bottom in a haphazard fashion (i.e. to minimize or avoid bias). Diver 2 then visually estimates the number of eggs within the frame boundary and records the number of eggs within the frame on a preprinted data form carried by diver 2. Diver 2 records the sequential number of the sample along with data on depth, substrate and vegetation type (Table 2 and 3). If time and conditions allow, diver 1 also estimates the number of eggs for comparison with diver 2's estimates and as a training exercise for diver 1.

Starting points for transects in the control area are located randomly along the shore in areas where aerial or skiff surveys indicated probable spawn deposition. Transects are oriented perpendicular to the shoreline. Transects extend from the intertidal to either 15 meters of depth or until no further egg deposition is observed. Transects are extended above the waterline as far as egg deposition occurs. Dives are limited to 15 meters because deeper dives severely limit total bottom time for SCUBA divers and pose safety risks when done repetitively over several days. In addition, little if any herring egg deposition normally occurs deeper than 15 meters. The number of transects for any spawning site is estimated from previous surveys to achieve a statistical objective of producing an estimate of mean egg density with a standard error within +/- 20% of the mean. Practical considerations due to weather or vessel scheduling can result in a fewer number of transects.

Visual Estimate Correction

Since visual estimates, rather than actual counts, of eggs within the sampling frame are recorded, measurement error occurs. To minimize the influence of measurement error on final estimates of total egg deposition, diver-specific correction coefficients (h_i) are used to adjust estimates of egg density. Correction coefficients are estimated by visually estimating the number of eggs within a sampling frame and then collecting all of the eggs within the frame for later enumeration. To collect the eggs, divers either remove them from the substrate (e.g., rock) or collect the vegetation (e.g., kelp) for later removal of the eggs.

Estimates of Total Egg Deposition

Total egg deposition for a particular spawning ground (t_i) is estimated as:

$$t_i = a_i \bar{d}_i, \qquad (1)$$

where a_i is the estimated total area (m^2) on which eggs have been deposited and $\bar{d}_i$ is the estimated mean density of eggs (eggs/m^2) at spawning area i. The total area on which eggs have been deposited (a_i) is estimated as:

$$a_i = l_i \bar{w}_i, \tag{2}$$

where l_i is the total meters of shoreline receiving spawn (determined from aerial and skiff surveys) and $\bar{w}_i$ is the mean length of transects conducted at spawning area i.

The mean density of eggs/m^2 at area i ($\bar{d}_i$) is estimated as:

$$\bar{d}_i = \left[\frac{\sum v_{hij} c_{hk}}{\sum m_{ji}} \right]^{-0.1}, \tag{3}$$

where v_{hij} is the visual estimate of egg numbers by diver h, at area i, quadrant j. The c_{hk} term refers to a diver-specific correction coefficient to adjust visual estimates made by diver h for substrate k, and m_{ij} is the number of quadrants visually estimated at area i. Divers visually estimate egg density within 0.1 m quadrants. The -0.1 exponent expands the mean density from a 0.1 m^2 to a 1.0 m^2 unit basis. Diver-specific correction factors (c_h) are estimated as:

$$c_h = \frac{\bar{k}_h}{\bar{v}_h}, \tag{4}$$

where $\bar{v}_h$ is the mean visual estimate of egg numbers for diver h and $\bar{k}_h$ is the mean laboratory count of egg samples collected from substrate specific quadrants visually estimated by diver h.

Spawning Biomass Estimation

The total number of eggs per spawning area is a key element used in forecasting herring spawning biomass. The estimate is calculated by an age and weight specific fecundity for the four ASA areas, or an overall egg to biomass calculation based on the fecundity to weight relationship from the closest ASA spawning stock. Based on fecundity sampling conducted during the spawn of 1996 (1998 for Sitka) the specific age to biomass relationships used for the non-ASA areas were:

$$b = \frac{t}{L * EggConversionFactor} \tag{5}$$

Where: b = estimated total spawning biomass

L = egg loss correction factor (=0.9) that accounts for an estimated 10% egg mortality between the time eggs are deposited and spawn deposition surveys are conducted.

ECF = 91,654,735 eggs per ton Kah Shakes/Cat Island (West Behm, Ship Is., Ernest Sound)
95,464,357 eggs per ton Craig
100,878,673 eggs per ton Seymour Canal (Farragut, Hobart/Houghton)
102,567,376 eggs per ton Sitka (Hoonah Sound, Tenakee Inlet)

Results and Discussion

Comprehensive spawning ground egg deposition surveys utilizing scuba were conducted in the Kah Shakes/Cat Island, West Behm Canal, Craig, Ernest Sound, Hobart Bay/Port Houghton, Seymour Canal, Sitka Sound, Tenakee Inlet, and Hoonah Sound areas in 2001. Length and width of spawn, egg density and resultant escapements derived from egg to biomass conversions are summarized for these areas (Table 4). The first survey was initiated in Sitka Sound on April 9, and the last was completed in Seymour Canal on May 21. The surveys documented a total escapement for these areas of 100,528 tons. Maps of the spawning area, transect locations, and individual transect data are presented in Appendix B. Recorded logs of spawning activity from aerial and skiff surveys conducted between early March and late May, documenting spawning in each of the major spawning areas, are presented in Appendix C. Spawn locations, transect locations, and transect coordinates are presented in Appendix D. The total spawn for Southeast Alaska was 151.5 nautical miles.

Kah Shakes/Cat Island

In the Cat Island and Kah Shakes areas, 2.2 nautical miles of beach received herring spawn between April 2 and April 6. The Kah Shakes/Cat Island spawn survey was conducted April 20, 2001. Ten transects were selected at random in 2001 to estimate egg density. The average transect length was 100 meters with an average egg density of 165,093 eggs per square meter. The resultant escapement was 819 tons.

West Behm Canal

In West Behm Canal 17.2 nautical miles of spawn were recorded from April 2–13. See Appendix D for distribution of spawn. Twenty randomly selected transects were completed during the spawn deposition survey during April 21–22. The average length was 58 meters with an average egg density of 247,821 eggs per square meter, resulting in an escapement of 5,574 tons.

Craig

Spawning was first documented on April 1 around Abbess Island. Active spawning continued through April 7 and was centered around Abbess Island, Fish Egg Island, and Wadleigh Island. A total of 16.7 nautical miles of spawn were observed in 2001 for the Craig area. The spawn deposition survey had 22

transects with an average length of 95 meters, average density of 234,603 eggs per square meter and a 8,042 ton escapement.

Hobart Bay/Port Houghton

Active spawning began in Hobart Bay/Port Houghton area on April 30 and lasted through May 3. A total of 6.9 nautical miles of spawn were recorded for 2001. A total of 20 transects were completed May 11 and 12, with an average transect length of 111 meters, and an average density of 63,526 eggs per square meter. The estimate of escapement for the Hobart/Houghton area was 992 tons.

Seymour Canal

Aerial surveys were initiated on April 16 with active spawn recorded on May 10 around Twin Island. Spawning ended on May 15 and peak spawning occurred on May 14. The spawn deposition survey was conducted on May 21–22, when 20 randomly selected transects were examined. This survey produced a 8,773 ton escapement (14.7 nautical miles, 113 meters transect length and 258,913 eggs per square meter density).

Tenakee Inlet

Aerial observation surveys revealed spawn beginning on April 21 and ending May 1. Peak spawning occurred on April 30. A total of 12.2 nautical miles of spawn were recorded. Spawn deposition surveys were conducted during May 8–9 with the completion of 18 randomly selected transects. The average length was 160 meters with an average density of 183,029 eggs per square meter. The escapement was determined to be 7,575 tons.

Sitka

Aerial surveys began on February 22 in the Sitka area. On March 25, about 3 miles of spawn were recorded along Halibut Point road. Major spawning began on April 3 with active spawn at Promisla and Eastern bays, Kasiana Group, Apple Islands, Samsing Cove, Parker Group, Chaichei Islands, Redoubt Bay, Taigud Islands, and Kanga Bay. Spawning continued until April 20. The total spawn recorded was 61.0 nautical miles. The spawn deposition surveys were conducted on April 9–10. A total of 28 transects completed in the Sitka Sound area. The average length was 92 meters and average density was 520,031 eggs per square meter, resulting in an escapement of 58,756 tons.

Hoonah Sound

A total of 13.7 nautical miles of herring spawn were recorded in Hoonah Sound in 2001. The spawn occurred during April 27–May 1, in the traditional areas of Emmons Island, Vixen Islands, and the Chichagof shore between Fick Cove and Rodgers Point. Aerial surveys were conducted from April 5 to May 3 with spawn deposition surveys conducted on May 6–7. A total of 17 randomly selected transects were completed. The average transect length was 93 meters with a density of 298,742 eggs per square meter. The resultant escapement estimate was 7,946 tons.

Ernest Sound

Aerial Surveys commenced in Ernest Sound on April 5, with spawn beginning on April 10, peaking on April 11, and ending April 12. A total of 6.9 nautical miles of spawn were recorded. Spawn deposition surveys were conducted during April 24 with the completion of 17 randomly selected transects. The average length was 89 meters with an average density of 148,072 eggs per square meter. The escapement was determined to be 2,041 tons.

Lisianski Inlet

Aerial surveys of Lisianski Inlet and Lisianski Strait were conducted from April 14 to May 3. Total beach with spawn was 3.7 nautical miles. No spawn deposition survey was conducted in this area in 2001.

Lynn Canal

Aerial surveys of Lynn Canal and Auke Bay began on April 15 and ended June 7. Spawning began on May 5 when a spot spawn was observed on eastern shore of Berner's Bay. Most spawning occurred in and around Berner's Bay. Active spawning dissipated until May 6. A total of 4.0 nautical miles of spawn were recorded in the area. Consequently, no spawn deposition survey was conducted in Lynn Canal in 2001.

Other Areas

Small amounts of herring spawn was noted in the following areas during aerial surveys of other areas during 2001 (Appendix C): Oliver's Inlet, Kassan Bay, Port Camden, Port Frederick, and Taku Harbor. However, the total spawn of 7.8 nm for these areas was negligible compared to the total of 151.5 nm for the major herring stocks in Southeast Alaska.

DIVER VISUAL ESTIMATION CALIBRATION

Methods and Procedures

Samples of substrate with eggs were collected during the spawn deposition surveys for enumeration at the ADF&G Aging and Tag laboratory in Juneau to verify visual density estimates. The objective of this phase of the project is to determine a diver substrate-specific calibration factor that is used to adjust visual egg density estimates for individual divers each year.

A 0.1 square meter sample with vegetation and eggs is collected in small sample bags (approximately 2 liter capacity) during the spawn deposition surveys. These kelp and egg samples were transferred from the

diver's bag to 4 liter (1 gallon) size, water-tight zip lock bags, salted (NaCl) and preserved in 100% salt brine solution. Detailed procedures for determining egg densities from collected samples are discussed in the 1993 Annual Report, RIR IJ93-19.

Results and Discussion

Data from 2001 calibration samples were pooled with data from selected previous years (i.e. not 2000 samples, where high values led to concerns about data quality) for each diver-substrate combination. The resulting correction ratios by diver and substrate for all samples taken 1982–1988, 1993–1999, and 2001 have total correction ratios that range from 0.77 to 2.66 (Table 5). The lack of individual diver effects is attributed to the training and experience of the divers. The correction ratios are used in the spawn deposition surveys to adjust the total visual estimates of each diver before summing the total eggs in the survey area.

Table 1. Summary of 2000–2001 season herring fisheries.

WINTER FOOD AND BAIT FISHERY

Opening	Closing	Area	District	Forecast 1997 (tons)	Target Exploitation Rate (%)	Quota (tons)	Harvest[a] (tons)	Exvessel Value[a]
4-Dec-00	28-Feb-01	Craig	3/4	9,091	7.0	635	*	*
--	--	Hobart Bay/Port Houghton	10	544	--	0	0	$0
1-Dec-00	5-Mar-01	Tenakee Inlet	12	7,109	12.7	906	775	$280,550
Total				16,744		1,541	775	$280,550

SAC ROE FISHERY

Opening	Closing	Area	District	Gear	Forecast 1997 (tons)	Target Exploitation Rate (%)	Quota (tons)	Harvest (tons)	Roe % Fishery	Exvessel value
22-Mar-01	27-Mar-01	Sitka Sound	13	Seine	52,985	20.0	10,600	12,034	10.9	$5,001,330
11-May-01	12-May-01	Seymour Canal	11	Gillnet	4,349	10.9	474	620	--	$186,000
--	--	Hobart Bay/Port Houghton	10	Gillnet	544	0	0	0	--	$0
--	--	Kah Shakes/Cat Island	1	Gillnet	2382	0	0	0	--	$0
Total					57,878		11,074	12,654		$5,187,330

TEST FISHERIES

Opening	Closing	Area	District	Forecast 1997 (tons)	Target (tons)	Harvest (tons herring)	Exvessel value
27-Mar-01	27-Mar-01	Sitka Sound test fishery (sac roe)	13	52,985	50	62	$25,767
--	--	West Behm Canal	1	3,218	50	0	$0
12-May-01	12-May-01	Seymour Canal	11	4,349	30	29	$8,700
2-May-01	4-May-01	Hobart Bay/Port Houghton	10	544	30	33	$9,900
Total				61,096	160	124	$44,367

SPAWN-ON-KELP FISHERY

Opening	Closing	Area	District	Gear	1997 (tons)	(tons herring)	(tons)	value
17-Mar-01	24-Apr-01	Craig	3	Pound	9,091	913	27.2	$80,419
25-Apr-01	28-Apr-01	Hoonah Sound	13	Pound	2,720	366	65.0	$1,002,265
Total					11,811	1,279	92.2	$1,082,684

[a]Asterisks signify data considered confidential due to fewer than three participants.
[b] For the Craig area, includes 491 ton carry-over from unharvested bait quota.
[c] Harvest represented in tons of spawn-on-kelp product.

Table 2. Key to vegetative substrate types used for herring spawn deposition survey.

Code	Expanded code	Species included	Latin names
AGM	Agarum	Sieve kelp	*Agarum clathratum*
ALA	Alaria	Ribbon kelps	*Alaria marginata, A. nana, A. fistulosa*
ELG	Eel grass	Eel grass, surfgrasses	*Zostera marina, Phyllospadix serrulatus, P. scouleri*
FIL	Filamentous algae	Sea hair	*Enteromorpha intestinalis*
FIR	Fir kelp	Black pine, Oregon pine (red algae)	*Neorhodomela larix, N.oregona*
FUC	Fucus	Rockweed	*Fucus gardneri*
HIR	Hair kelp	Witch's hair, stringy acid kelp	*Desmarestia aculeata, D. viridis*
LAM	Laminaria	split kelp, sugar kelp, suction-cup kelp	*Laminaria bongardiana, L. saccharina, L. yezoensis (when isolated and identifiable)*
LBK	Large Brown Kelps	Five-ribbed kelp, three-ribbed kelp, split kelp, sugar kelp, sea spatula, sieve kelp, ribbon kelp	*Costaria costata, Cymathere triplicata, Laminaria spp., Pleurophycus gardneri, Agarum, Alaria spp.*
MAC	Macrocystis	Small perennial kelp	*Macrocystis sp.*
NER	Nereocystis	Bull kelp	*Nereocystis leutkeana*
RED	Red algae	All red leafy algae (red ribbons, red blades, red sea cabbage, Turkish washcloth)	*Palmaria mollis, P. hecatensis, P. callophylloides, Dilsea californica, Neodilsea borealis, Mastocarpus papillatus, Turnerella mertensiana*
ULV	Ulva	Sea lettuce	*Ulva fenestrata, Ulvaria obscura*
COR	Coralline algae	Coral seaweeds (red algae)	*Bossiella, Corallina, Serraticardia*

Table 3. Key to bottom types used for herring spawn deposition survey.

Code	Expanded code	Definition
RCK	Bedrock	Various rocky substrates > 1 meter in diameter
BLD	Boulder	Substrate between 25 cm and 1 meter
CBL	Cobble	Substrate between 6 cm and 25 cm
GVL	Gravel	Substrate between 0.4 cm and 6 cm
SND	Sand	Clearly separate grains of < 0.4 cm
MUD	Mud	Soft, paste-like material
SIL	Silt	Fine organic dusting (very rarely used)
BAR	Barnacle	Area primarily covered with barnacles
SHL	Shell	Area primarily covered with whole or crushed shells
MUS	Mussels	Area primarily covered with mussels
WDY	Woody debris	Any submerged bark, logs, branches or root systems

Table 4. Southeast Alaska herring spawn deposition survey results, 2001.

Spawning area	**Sitka Sound**								
Survey Dates	April 9–10, 2001								
Spawning dates									
Nautical miles of spawn	61.0	Sum of eggs by diver	4,014	4,701	4,750	6,814	5,248	1,358
Number of transects	28	Count of quadrates by diver	80	138	77	91	108	23
Number of quadrate samples estimated	517							
Total number of eggs estimated (1,000s)	26,886							
Average length of transect (meters)	92	(517 estimates/28 transects*5 meters)						
Average number of eggs counted per transect	960							
Average quadrate density (1,000s/.1 meter)	52	(total eggs counted/total # of observations)						
Average number of eggs per square meter in survey	520,031							
Area of survey in square meters	10,429,736	(59.1nm*1852m*92.3m)						
Total number of eggs in survey area	5,423,783,702,643							
Estimated biomass from eggs (tons)	52,880	(total number of eggs/fecundity constant 102,567,376)						
Estimated total spawning biomass in tons (10% mort)	58,756							
Spawning area	**Craig**								
Survey Dates	April 18–19, 2001								
Spawning dates									
Nautical miles of spawn	16.7	Sum of eggs by diver	2,269	1,465	184	810	1,506	3,597
Number of transects	22	Count of quadrates by diver	72	46	34	55	90	122
Number of quadrate samples estimated	419							
Total number of eggs estimated (1,000s)	9,830							
Average length of transect (meters)	95	(419 estimates/22 transects*5 meters)						
Average number of eggs counted per transect	447							
Average quadrate density (1,000s/.1 meter)	23	(total eggs counted/total # of observations)						
Average number of eggs per square meter in survey	234,603							
Area of survey in square meters	2,945,227	(16.7nm*1852m*95.2m)						
Total number of eggs in survey area	690,960,137,709							
Estimated biomass from eggs (tons)	7,238	(total number of eggs / 95,464,357 eggs per ton of spawners)						
Estimated total spawning biomass in tons (10% mort)	8,042							

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Table 4. (page 2 of 5)

Spawning area	**Kah Shakes**								
Survey Dates	April 20, 2001								
Spawning dates									
							1234.7		
Nautical miles of spawn	2.21	Sum of eggs by diver	1123.54	940.93	0	2	2.66		
Number of transects	10	Count of quadrates by diver	44	65	10	54	27		
Number of quadrate samples estimated	200.0								
Total number of eggs estimated (1,000s)	3,302								
Average length of transect (meters)	100	(200 estimates/10 transects*5 meters)							
Average number of eggs counted per transect	330								
Average quadrate density (1,000s/.1 meter)	17	(total eggs counted/total # of observations)							
Average number of eggs per square meter in survey	165,093								
Area of survey in square meters	409,292	(10.0 nm*1852m*74.2m)	check	1,374,184					
Total number of eggs in survey area	67,571,039,510								
Estimated biomass from eggs (tons)	737	(total number of eggs / 91,654,735 eggs per ton of spawners)							
Estimated total spawning biomass in tons (10% mort)	819	**BELOW THRESHOLD**							
Spawning area	**West Behm Canal**								
Survey Dates	April 21–22, 2001								
Spawning dates									
Nautical miles of spawn	17.2	Sum of eggs by diver	808.52	1475.83	936.6	506.89	1889.85	156.53	
Number of transects	20	Count of quadrates by diver	52	35	35	56	41	14	
Number of quadrate samples estimated	233.0								
Total number of eggs estimated (1,000s)	5,774								
Average length of transect (meters)	58	(233 estimates/20 transects*5 meters)							
Average number of eggs counted per transect	289								
Average quadrate density (1,000s/.1 meter)	25	(total eggs counted/total # of observations)							
Average number of eggs per square meter in survey	247,821								
Area of survey in square meters	1,855,519	(17.2 nm*1852m*58.3m)	check	1,857,112					
Total number of eggs in survey area	459,835,783,920								
Estimated biomass from eggs (tons)	5,017	(total number of eggs / 91,654,735 eggs per ton of spawners)							
Estimated total spawning biomass in tons (10% mort)	5,574								

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Table 4. (page 3 of 5)

Spawning area	**Ernest Sound**								
Survey Dates	April 24, 2001								
Spawning dates									
Nautical miles of spawn	6.9	Sum of eggs by diver	935	734	895	728	502	708	
Number of transects	17	Count of quadrates by diver	32	88	30	70	56	28	
Number of quadrate samples estimated	304.0								
Total number of eggs estimated (1,000s)	4,501								
Average length of transect (meters)	89	(304 estimates/17 transects *5 meters)							
Average number of eggs counted per transect	265								
Average quadrate density (1,000s/.1 meter)	15	(total eggs counted/total # of observations)							
Average number of eggs per square meter in survey	148,072								
Area of survey in square meters	1,142,575	(6.4 nm*1852m*89.4m)	check	1,142,425					
Total number of eggs in survey area	169,183,419,212								
Estimated biomass from eggs (tons)	1,846	(total number of eggs / 91,654,735 eggs per ton of spawners)							
Estimated total spawning biomass in tons (10% mort)	2,051	**BELOW THRESHOLD**							
Spawning area	**Tenakee Inlet**								
Survey Dates	May 8 & 9 2001								
Spawning dates									
Nautical miles of spawn	12.2	Sum of eggs by diver	2,976	1,951	1,476	190	848	3,121	
Number of transects	18	Count of quadrates by diver	116	53	119	56	81	152	
Number of quadrate samples estimated	577.0								
Total number of eggs estimated (1,000s)	10,561								
Average length of transect (meters)	160	(577 estimates/18 transects *5 meters)							
Average number of eggs counted per transect	587								
Average quadrate density (1,000s/.1 meter)	18	(total eggs counted/total # of observations)							
Average number of eggs per square meter in survey	183,029								
Area of survey in square meters	3,621,380	(12.2 nm*1852m*160m)							
Total number of eggs in survey area	662,816,138,333								
Estimated biomass from eggs (tons)	6,817	(total number of eggs / 97,225,915 eggs per ton of spawners)							
Estimated total spawning biomass in tons (10% mort)	7,575								

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Table 4. (page 4 of 5)

Spawning area	**Hoonah Sound**								
Survey Dates	May 6 & 7, 2001								
Spawning dates									
Nautical miles of spawn	13.7	Sum of eggs by diver	2,321	1,501	442	3,706	1,093	766	
Number of transects	17	Count of quadrates by diver	65	48	44	103	58	11	
Number of quadrate samples estimated	329.0								
Total number of eggs estimated (1,000s)	9,829								
Average length of transect (meters)	97	(329 estimates/17 transects *5 meters)							
Average number of eggs counted per transect	578								
Average quadrate density (1,000s/.1 meter)	30	(total eggs counted/total # of observations)							
Average number of eggs per square meter in survey	298,742								
Area of survey in square meters	2,455,153	(13.0 nm*1852m*96.8m)							
Total number of eggs in survey area	733,457,876,729								
Estimated biomass from eggs (tons)	7,151	(total number of eggs/fecundity constant 102,567,376)							
Estimated total spawning biomass in tons (10% mort)	7,946								
Spawning area	**Hobart Bay**								
Survey Dates	May 11 &12, 2001								
Spawning dates									
Nautical miles of spawn	6.9	Sum of eggs by diver	52	95	203	399	1,445	628	
Number of transects	20	Count of quadrates by diver	55	37	46	134	99	73	
Number of quadrate samples estimated	444.0								
Total number of eggs estimated (1,000s)	2,821								
Average length of transect (meters)	111	(444 estimates/20 transects *5 meters)							
Average number of eggs counted per transect	141								
Average quadrate density (1,000s/.1 meter)	6	(total eggs counted/total # of observations)							
Average number of eggs per square meter in survey	63,526								
Area of survey in square meters	1,418,447	(6.9 nm*1852m*111.0m)							
Total number of eggs in survey area	90,108,430,320								
Estimated biomass from eggs (tons)	893	(total number of eggs / 100,878,673 eggs per ton of spawners)							
Estimated total spawning biomass in tons (10% mort)	992	**BELOW THRESHOLD**							

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Table 4. (page 5 of 5)

Spawning area	**Seymour Canal**							
Survey Dates	May 21–22, 2001							
Spawning dates								
Nautical miles of spawn	14.7	Sum of eggs by diver	716	2,050	3,355	1,636	3,946	
Number of transects	20	Count of quadrates by diver	89	62	116	107	78	
Number of quadrate samples estimated	452.0	Count of quadrates						
Total number of eggs estimated (1,000s)	11,703							
Average length of transect (meters)	113	(452 estimates/20 transects *5 meters)						
Average number of eggs counted per transect	585							
Average quadrate density (1,000s/.1 meter)	26	(total eggs counted/total # of observations)						
Average number of eggs per square meter in survey	258,913							
Area of survey in square meters	3,076,357	(14.7 nm*1852m*113m)						
Total number of eggs in survey area	796,509,035,070							
Estimated biomass from eggs (tons)	7,896	(total number of eggs / 100,878,673 eggs per ton of spawners)						
Estimated total spawning biomass in tons (10% mort)	8,773							

Table 5. 2001 Diver calibration ratios (lab:visual)[a] based on data from 1982–1988, 1993–1999, and 2001.

	Substrate				
	Eel Grass	Fucus	Hair Kelp	Large Brown Kelp	Other[b]
Bergmann (WB)	0.77	1.24	1.19	0.89	1.10
Doherty (PD)	1.29	1.00	1.21	1.20	1.31
Gordon (DG)	1.17	1.53	1.32	1.58	1.59
Hebert (KH)	2.66	1.70	1.18	1.30	1.11
Larson (RL)	1.09	1.08	1.28	1.12	1.09
Lynch (BL)	1.18	1.76	1.30	1.46	1.15
Pritchett (MP)	1.06	1.91	1.15	2.08	0.89
Walker (SW)	1.26	1.25	1.29	1.10	0.79
Thynes (TT)	1.16	2.30	1.60	2.54	1.09

[a] Overall ratio weighted by the annual sample size.

[b] I.e. all other substrate types.

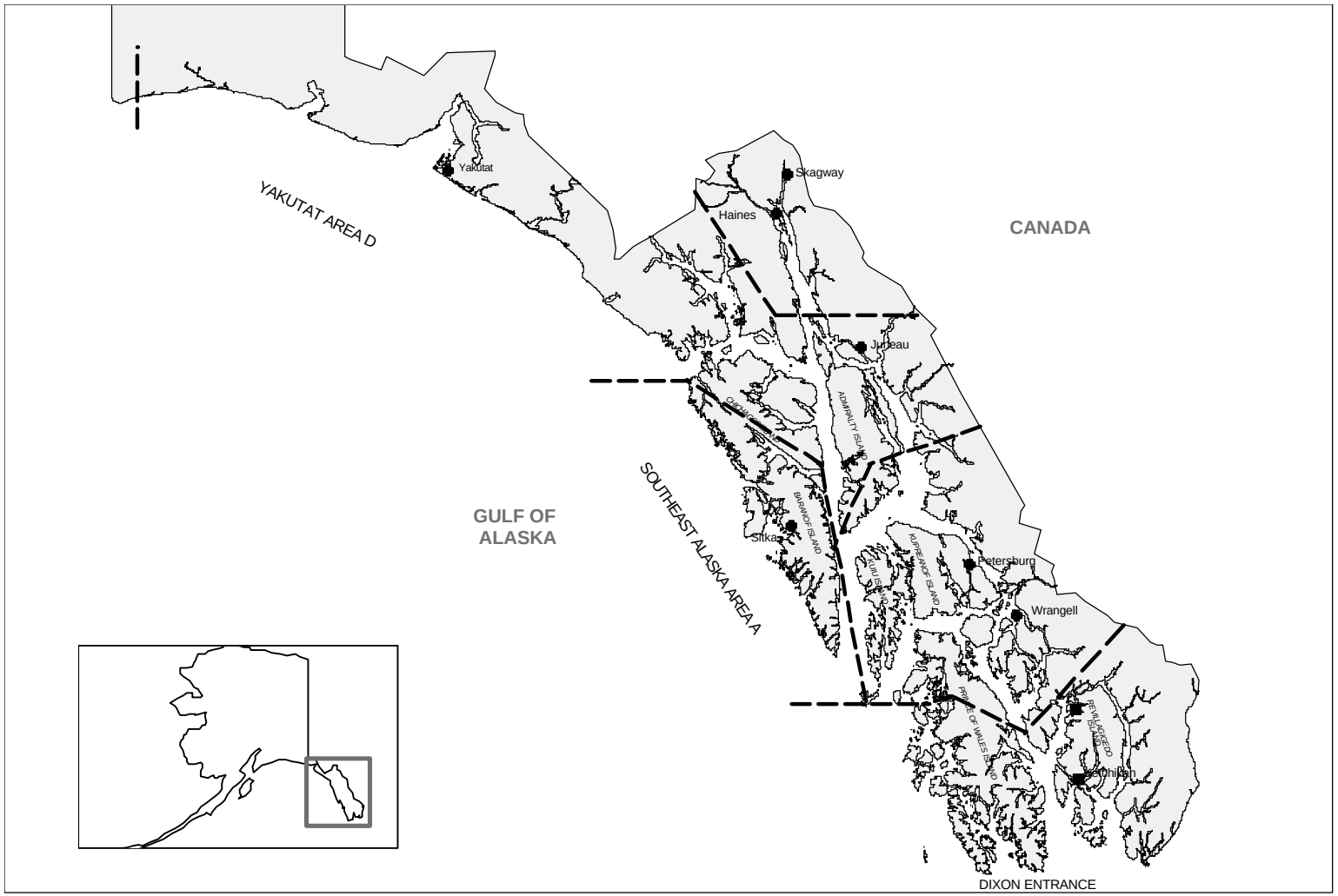

Figure 1. Southeast Alaska Region (Region 1) herring registration areas (Southeast Alaska Area A and Yakutat Area D) and management area boundaries.

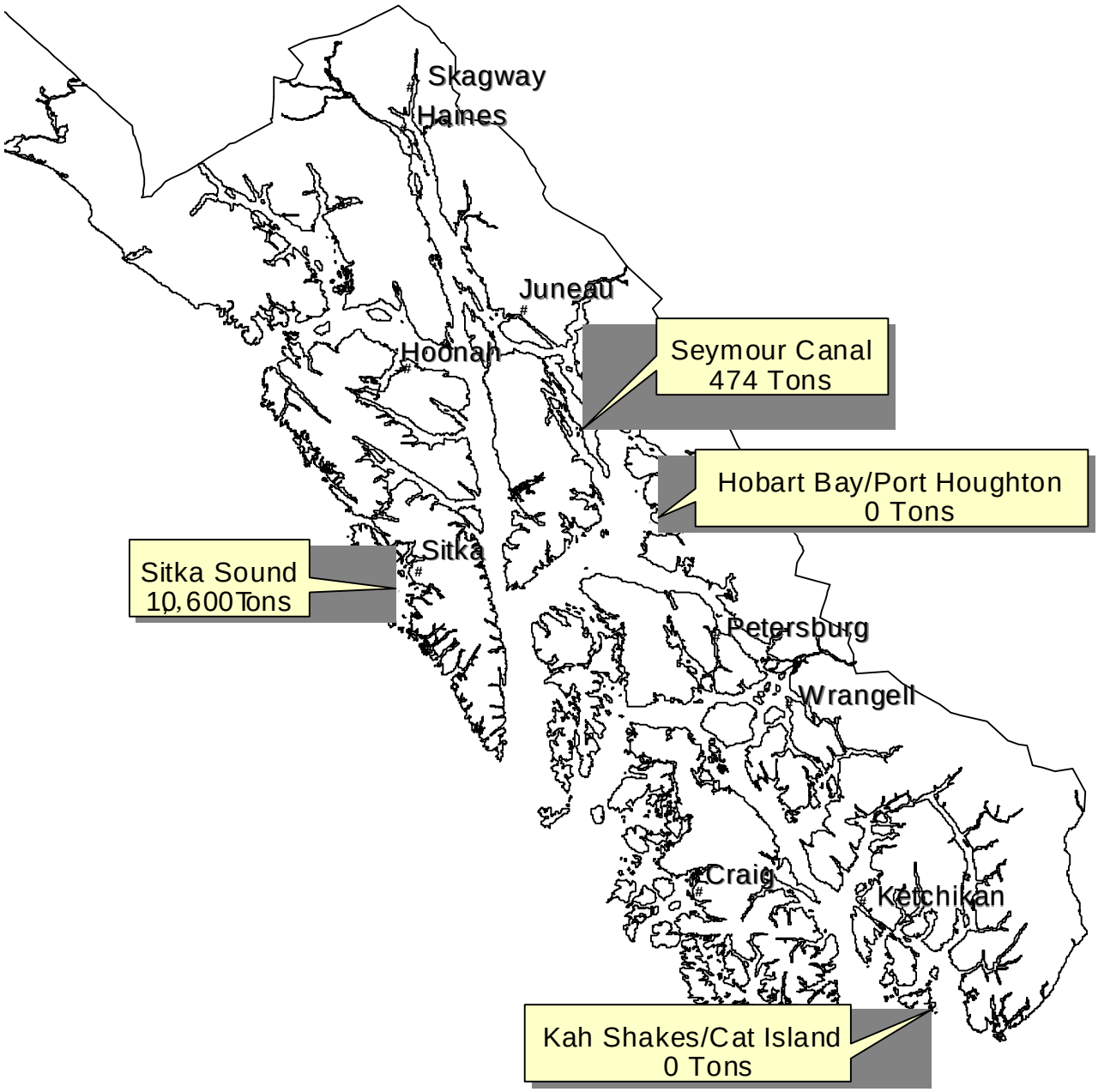

Figure 2. Sac roe areas quotas for 2001.

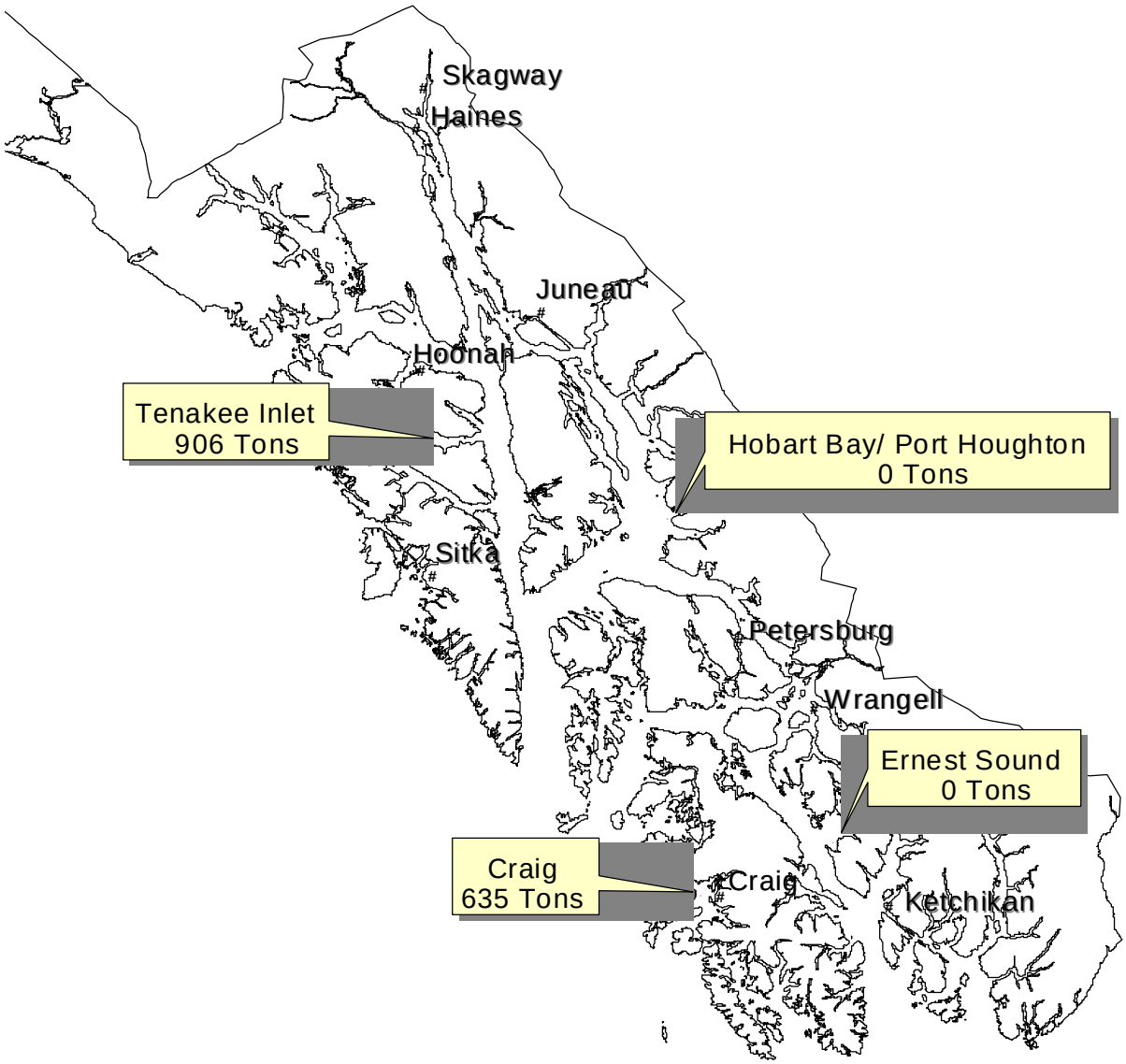

Figure 3. Food and bait fishing areas quotas for 2001.

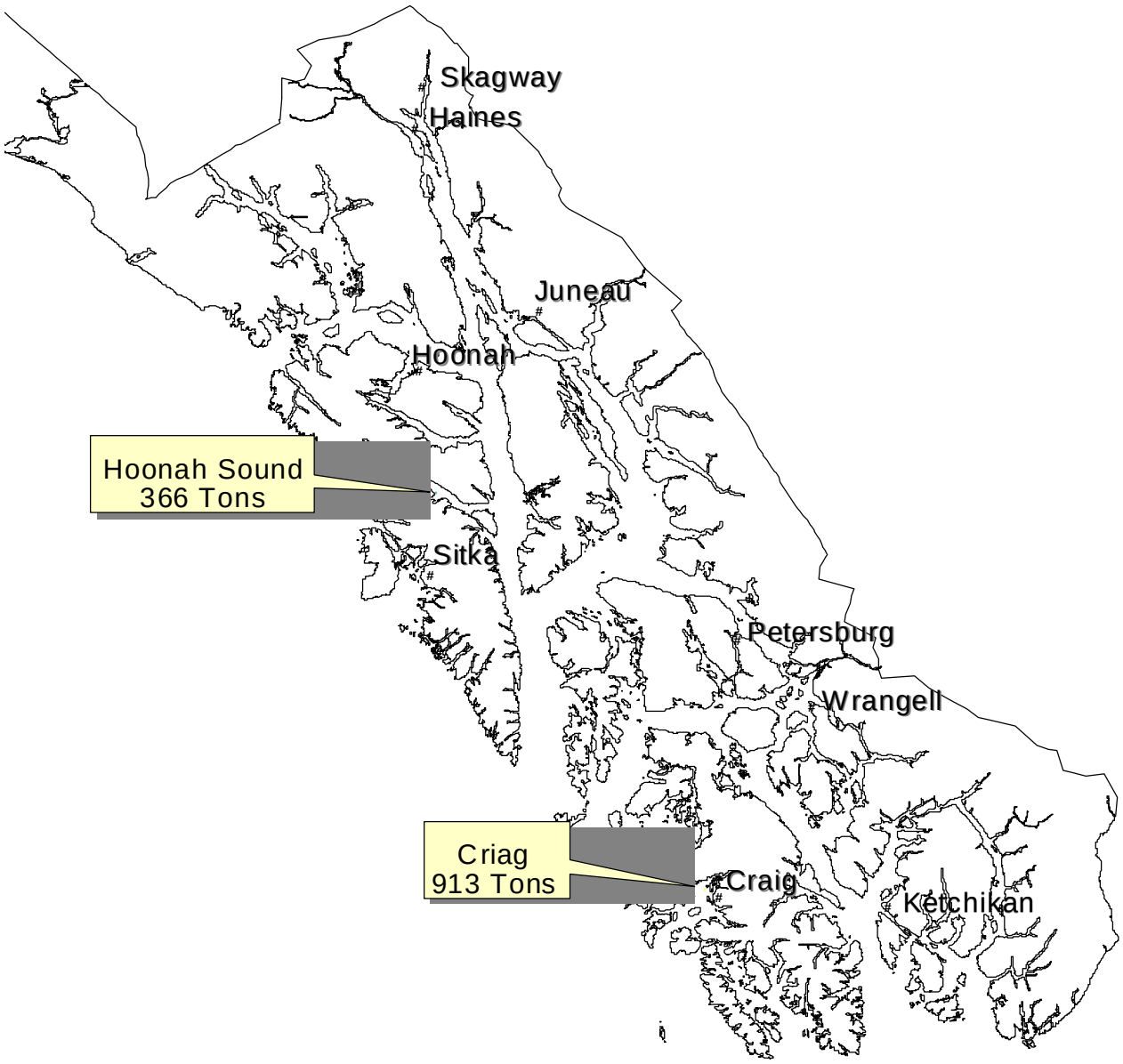

Figure 4. Spawn-on-kelp pound fishing area herring quotas for 2001.

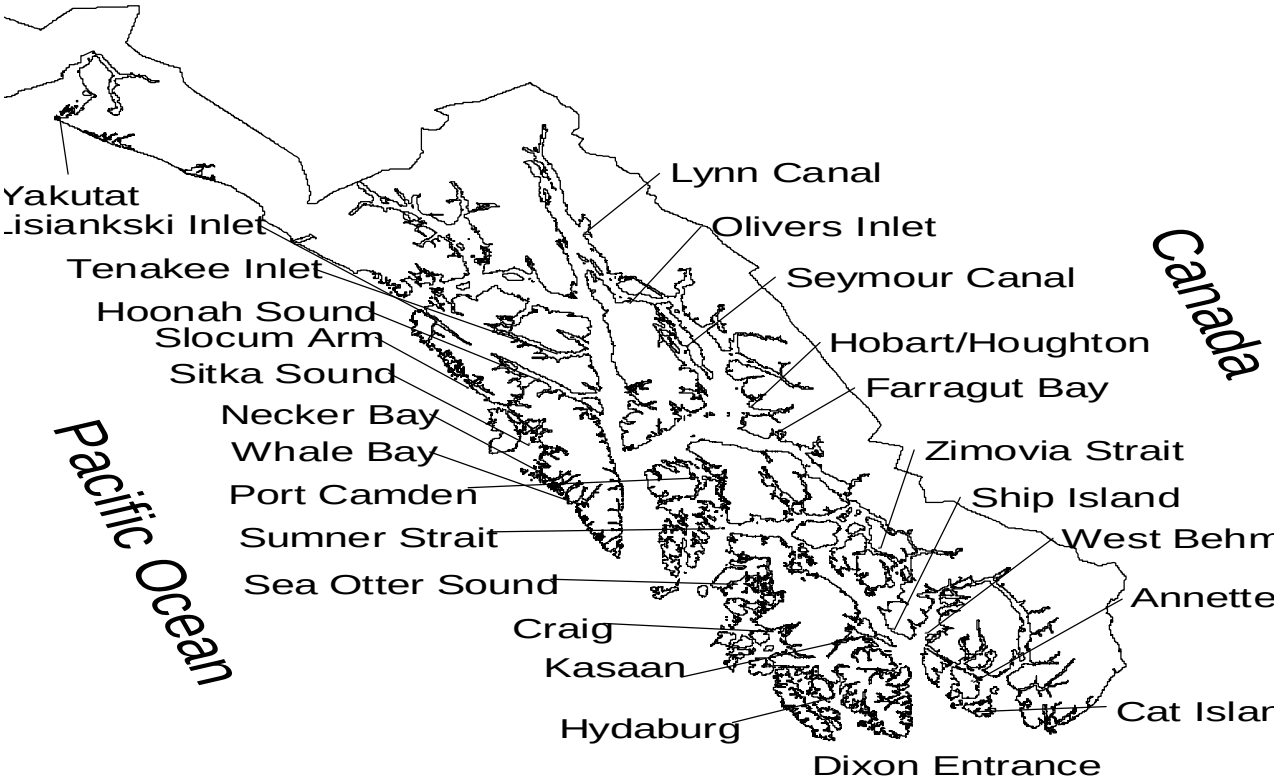

Figure 5. Southeast Alaska herring spawn stocks and AWL study areas.

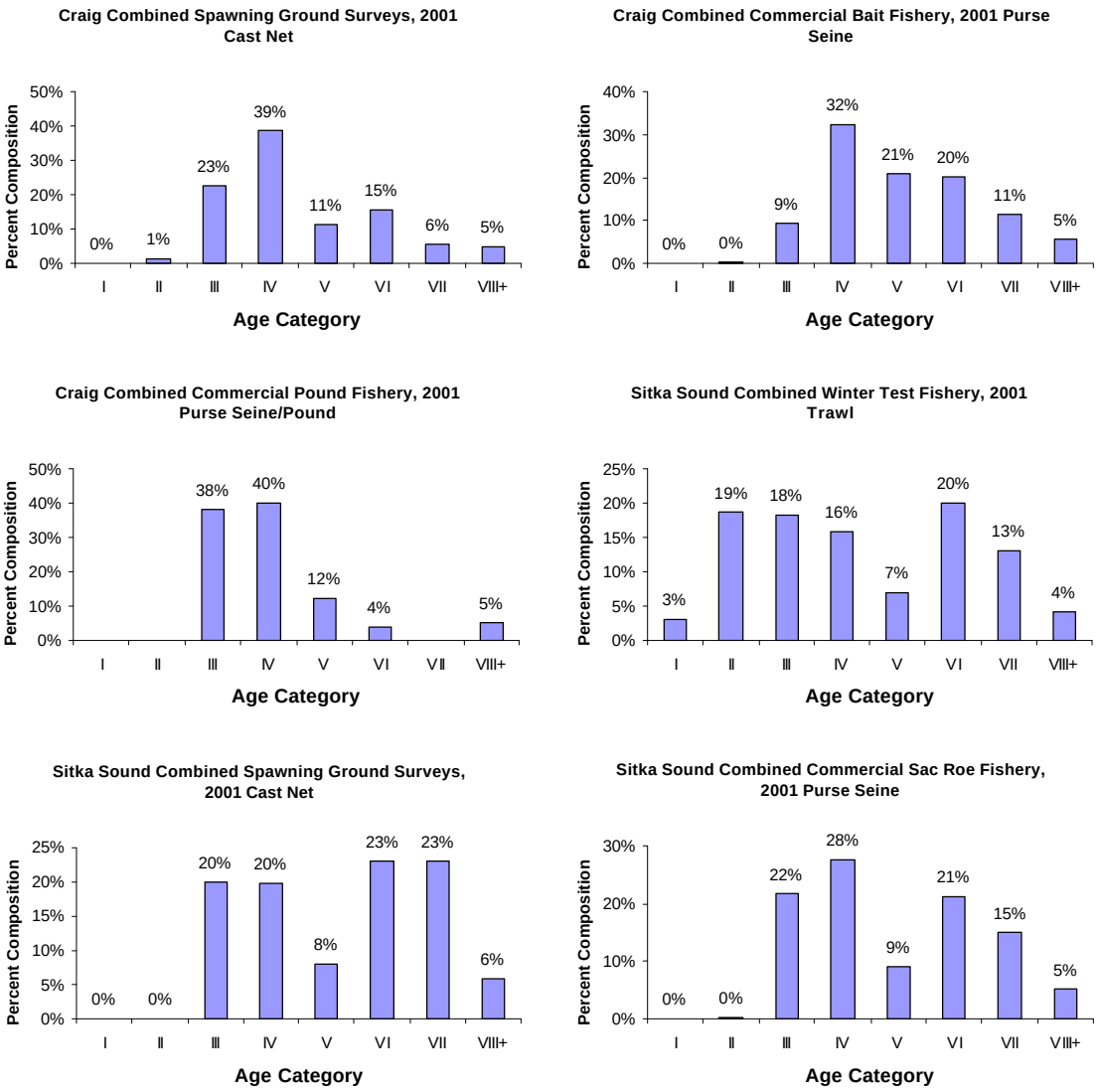

Figure 6. Summary of Southeast Alaska herring age compositions, 2000–2001 season.

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Figure 6. (page 2 of 3)

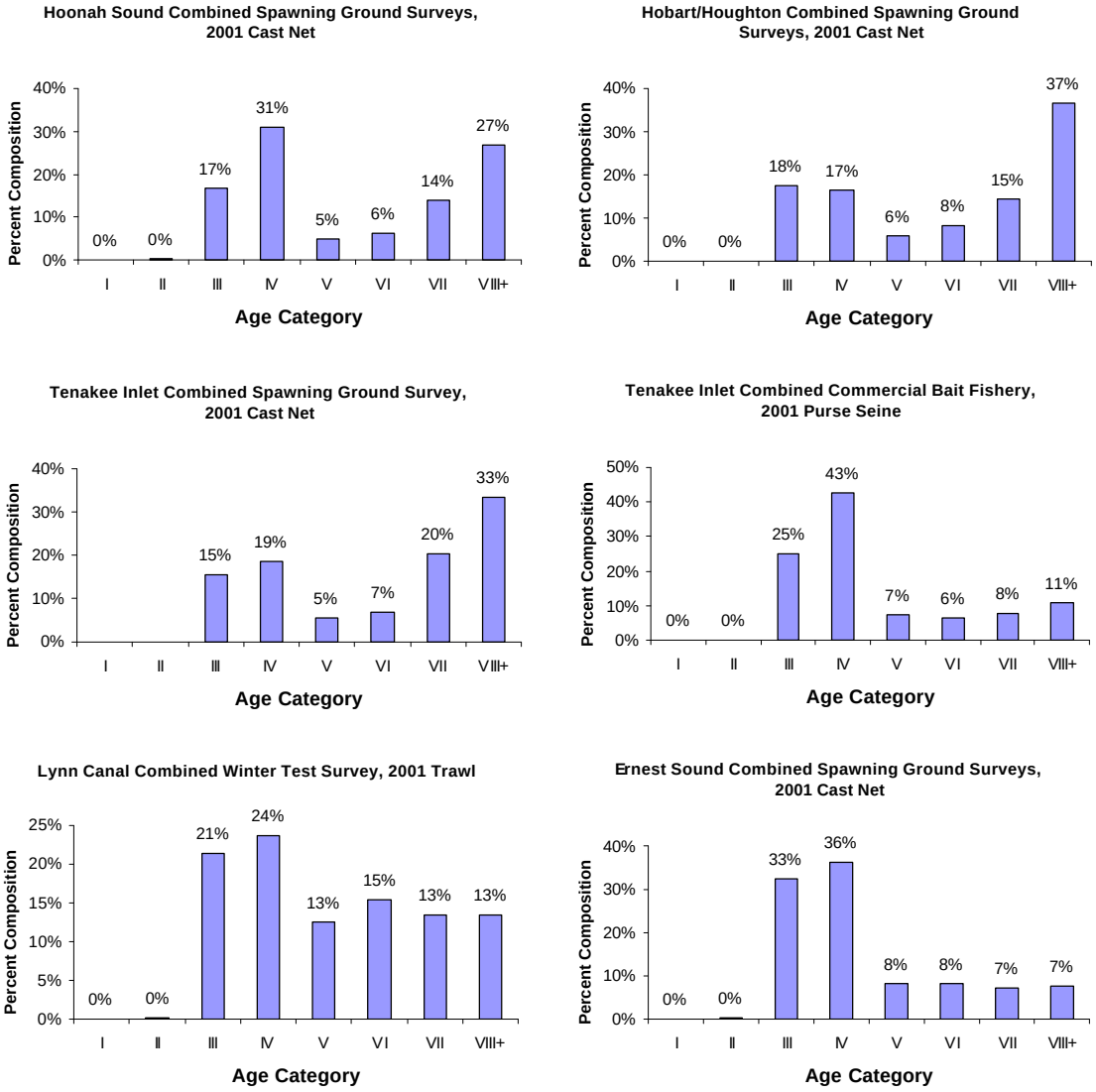

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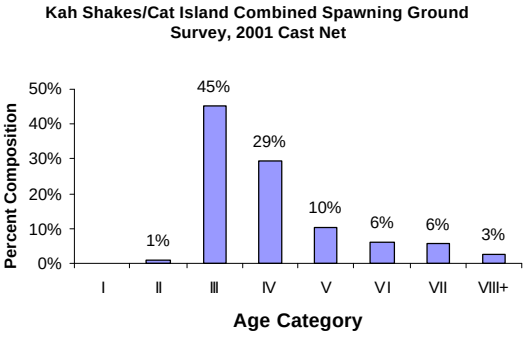
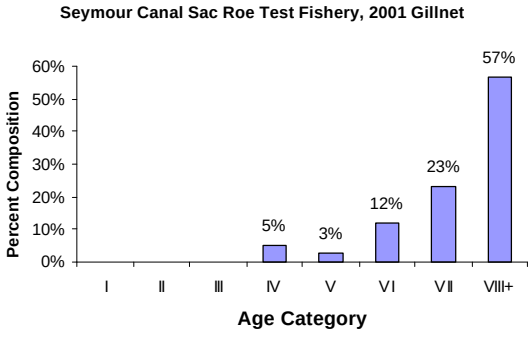
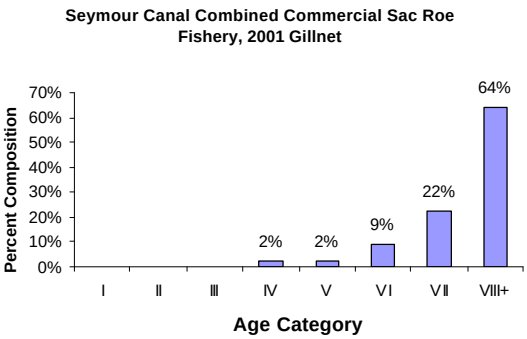
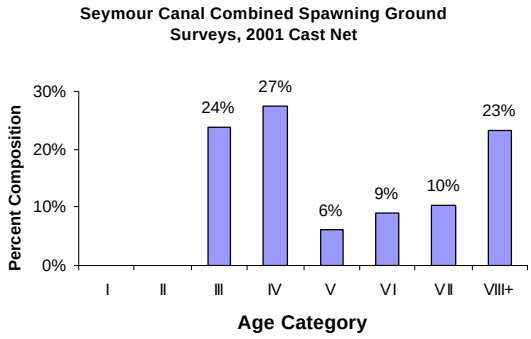
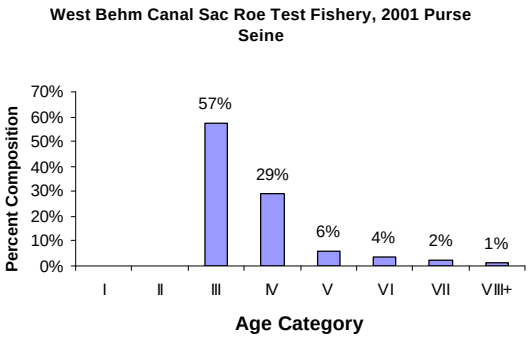
Figure 6. (page 3 of 3)

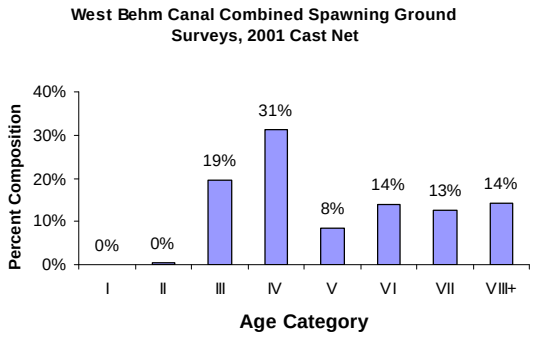












APPENDIX

Appendix A. Summarized age, length, weight, and gender data for major spawning stocks in Southeast Alaska, 2001.

Appendix A.1. Craig 2001.

Boca de Finas/Craig Winter Bait December 8, 2000 Purse Seine

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)		164.0	168.1	179.9	188.1	195.8	198.5	203.3	187.4
Average Weight (g)		54.0	63.4	80.7	95.9	111.0	115.5	129.9	95.6
Count of Age Category		1	20	83	41	44	31	18	238
Percent Age Composition		0.00	0.08	0.35	0.17	0.18	0.13	0.08	1.00
Percent Female		0.00	0.05	0.18	0.08	0.09	0.10	0.06	0.57
Percent Male		0.00	0.03	0.17	0.10	0.09	0.03	0.01	0.43
Percent Unknown		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Boca de Finas/Craig Winter Bait December 9, 2000 Purse Seine

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)		160.0	170.6	180.7	189.2	192.6	202.6	203.8	187.2
Average Weight (g)		47.0	66.3	80.9	95.7	109.8	123.0	129.8	95.0
Count of Age Category		1	24	70	58	51	23	8	235
Percent Age Composition		0.00	0.10	0.30	0.25	0.22	0.10	0.03	1.00
Percent Female		0.00	0.06	0.16	0.15	0.11	0.06	0.02	0.56
Percent Male		0.00	0.05	0.14	0.10	0.11	0.04	0.02	0.44
Percent Unknown		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Craig Combined Commercial Bait December 8–9, 2000 Purse Seine

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)		162.0	169.4	180.2	188.8	194.1	200.2	203.5	187.3
Average Weight (g)		50.5	65.0	80.8	95.8	110.4	118.7	129.9	95.3
Count of Age Category		2	44	153	99	95	54	26	473
Percent Age Composition		0.00	0.09	0.32	0.21	0.20	0.11	0.05	1.00
Percent Female		0.00	0.05	0.17	0.11	0.10	0.08	0.04	0.56
Percent Male		0.00	0.04	0.15	0.10	0.10	0.03	0.01	0.44
Percent Unknown		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Craig Commercial Pound April 4, 2001 Seine/Pound

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			163.6	178.2	185.6	196.3		201.8	175.5
Average Weight (g)			51.3	73.4	81.4	111.0		121.8	70.0
Count of Age Category			37	39	12	4		5	97
Percent Age Composition			0.38	0.40	0.12	0.04		0.05	1.00
Percent Female			0.08	0.13	0.06	0.01		0.02	0.31
Percent Male			0.30	0.27	0.06	0.03		0.03	0.69
Percent Unknown			0.00	0.00	0.00	0.00		0.00	0.00

Craig-San Alberto Island Cast Net April 3, 2001

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			161.2	183.1	200.6	201.9	208.8		180.9
Average Weight (g)			60.4	88.2	118.2	122.6	149.0		89.1
Count of Age Category			24	31	5	8	5		73
Percent Age Composition			0.33	0.42	0.07	0.11	0.07		1.00
Percent Female			0.18	0.25	0.04	0.10	0.04		0.60
Percent Male			0.15	0.18	0.03	0.01	0.03		0.40
Percent Unknown			0.00	0.00	0.00	0.00	0.00		0.00

Craig-NW Abbess Island Cast Net April 1, 2001

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)		159.7	169.4	185.2	192.5	204.0	209.7	208.7	187.2
Average Weight (g)		51.5	59.7	82.0	93.0	119.5	130.9	126.3	87.6
Count of Age Category		6	34	84	24	26	7	10	191
Percent Age Composition		0.03	0.18	0.44	0.13	0.14	0.04	0.05	1.00
Percent Female		0.03	0.09	0.15	0.04	0.04	0.02	0.02	0.38
Percent Male		0.01	0.09	0.29	0.09	0.09	0.02	0.03	0.62
Percent Unknown		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Craig-W Alberto Island Cast Net April 4, 2001

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)		160.0	168.0	181.7	188.8	205.5	197.8	216.4	188.5
Average Weight (g)		54.0	63.9	80.8	90.8	117.3	108.8	139.1	92.4
Count of Age Category		1	13	31	12	16	4	7	84
Percent Age Composition		0.01	0.15	0.37	0.14	0.19	0.05	0.08	1.00
Percent Female		0.00	0.05	0.17	0.05	0.08	0.02	0.04	0.40
Percent Male		0.01	0.11	0.20	0.10	0.11	0.02	0.05	0.60
Percent Unknown		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Craig-W Clam Island Cast Net April 4, 2001

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			166.1	185.6	203.6	202.8	204.7	209.1	187.9
Average Weight (g)			60.1	85.8	112.9	111.7	121.4	128.3	91.2
Count of Age Category			41	46	16	27	12	7	149
Percent Age Composition			0.28	0.31	0.11	0.18	0.08	0.05	1.00
Percent Female			0.14	0.17	0.06	0.05	0.02	0.00	0.44
Percent Male			0.13	0.14	0.05	0.13	0.06	0.05	0.56
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix A.2. Lynn Canal 2001

Craig Combined Spawning Ground Surveys April 1–4, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)		159.7	166.3	184.4	195.6	203.7	205.7	211.1	186.7
Average Weight (g)		51.9	60.5	83.7	100.3	116.6	126.9	130.6	89.7
Count of Age Category		7	112	192	57	77	28	24	497
Percent Age Composition		0.01	0.23	0.39	0.11	0.15	0.06	0.05	1.00
Percent Female		0.01	0.11	0.17	0.05	0.06	0.02	0.01	0.43
Percent Male		0.00	0.11	0.21	0.07	0.10	0.03	0.03	0.57
Percent Unknown		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Benjamin Island-Lynn Canal December 6, 2000 Trawl *R/V Medeia*

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			177.5	182.2	197.5	204.9	207.9	209.9	201.4
Average Weight (g)			79.5	91.7	107.4	123.9	133.8	134.6	119.6
Count of Age Category			2	18	21	27	24	26	118
Percent Age Composition			0.02	0.15	0.18	0.23	0.20	0.22	1.00
Percent Female			0.01	0.08	0.13	0.16	0.12	0.07	0.56
Percent Male			0.01	0.08	0.05	0.07	0.08	0.15	0.44
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Douglas Island-Lynn Canal December 5, 2000 Trawl 1 R/V Medeia

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			165.6	181.9	186.1	188.5	190.9	198.3	180.6
Average Weight (g)			61.0	85.1	93.1	93.8	100.4	120.8	84.3
Count of Age Category			56	59	22	24	18	15	194
Percent Age Composition			0.29	0.30	0.11	0.12	0.09	0.08	1.00
Percent Female			0.18	0.19	0.07	0.06	0.06	0.04	0.59
Percent Male			0.11	0.12	0.05	0.07	0.04	0.04	0.41
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Douglas Island-Lynn Canal December 5, 2000 Trawl 2 R/V Medeia

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)		157.0	162.9	179.4	182.5	184.9	187.9	198.4	179.3
Average Weight (g)		53.0	62.3	83.4	93.5	94.4	99.5	117.4	86.4
Count of Age Category		1	32	23	10	14	15	16	111
Percent Age Composition		0.01	0.29	0.21	0.09	0.13	0.14	0.14	1.00
Percent Female		0.00	0.13	0.07	0.06	0.10	0.08	0.06	0.50
Percent Male		0.01	0.14	0.13	0.03	0.03	0.05	0.08	0.47
Percent Unknown		0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.03

Appendix A.3. Ernest Sound 2001

Lynn Canal Combined Winter Test Survey December 5–6, 2000 Trawl

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)		157.0	164.9	181.4	190.0	194.5	197.3	203.6	186.1
Average Weight (g)		53.0	61.8	85.9	98.8	106.4	114.2	126.1	94.7
Count of Age Category		1	90	100	53	65	57	57	423
Percent Age Composition		0.00	0.21	0.24	0.13	0.15	0.13	0.13	1.00
Percent Female		0.00	0.12	0.13	0.08	0.10	0.08	0.05	0.56
Percent Male		0.00	0.09	0.11	0.04	0.06	0.05	0.08	0.43
Percent Unknown		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01

Ernest Sound-Vixen Inlet April 12, 2001 Cast Net 1

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			158.6	165.1	185.0	189.6	208.0	203.6	174.2
Average Weight (g)			46.9	52.0	75.5	89.7	119.3	106.8	66.8
Count of Age Category			58	64	15	18	19	14	188
Percent Age Composition			0.31	0.34	0.08	0.10	0.10	0.07	1.00
Percent Female			0.15	0.15	0.05	0.04	0.06	0.05	0.49
Percent Male			0.16	0.19	0.03	0.06	0.04	0.02	0.51
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Ernest Sound-Vixen Inlet April 12, 2001 Cast Net 2

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)		134.0	158.0	168.3	179.7	191.9	186.0	198.6	169.5
Average Weight (g)		26.0	47.4	58.8	78.6	94.9	75.0	108.6	62.4
Count of Age Category		1	42	47	10	7	3	9	119
Percent Age Composition		0.01	0.35	0.39	0.08	0.06	0.03	0.08	1.00
Percent Female		0.00	0.21	0.22	0.04	0.02	0.02	0.04	0.55
Percent Male		0.01	0.14	0.18	0.04	0.04	0.01	0.03	0.45
Percent Unknown		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Ernest Sound Combined Spawning Ground Surveys April 12, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)		134.0	158.4	166.5	182.9	190.2	205.0	201.6	172.4
Average Weight (g)		26.0	47.1	54.9	76.8	91.2	113.3	107.5	65.1
Count of Age Category		1	100	111	25	25	22	23	307
Percent Age Composition		0.00	0.33	0.36	0.08	0.08	0.07	0.07	1.00
Percent Female		0.00	0.17	0.18	0.05	0.03	0.04	0.05	0.51
Percent Male		0.00	0.15	0.19	0.04	0.05	0.03	0.03	0.49
Percent Unknown		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix A.4. Hobart Bay-Port Houghton 2001

Hobart Bay-Boom Point May 1, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			157.9	179.9	196.4	200.9	205.0	208.5	192.0
Average Weight (g)			52.0	77.1	97.2	114.9	114.7	130.4	99.9
Count of Age Category			24	27	13	12	21	43	140
Percent Age Composition			0.17	0.19	0.09	0.09	0.15	0.31	1.00
Percent Female			0.07	0.11	0.03	0.05	0.11	0.19	0.56
Percent Male			0.10	0.08	0.06	0.04	0.04	0.12	0.44
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hobart Bay-Boom Point May 2, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			163.8	186.0		202.3	214.3	213.0	203.5
Average Weight (g)			53.0	76.0		105.3	127.8	116.1	104.6
Count of Age Category			5	4		3	4	24	40
Percent Age Composition			0.13	0.10		0.08	0.10	0.60	1.00
Percent Female			0.13	0.10		0.03	0.08	0.53	0.85
Percent Male			0.00	0.00		0.05	0.03	0.08	0.15
Percent Unknown			0.00	0.00		0.00	0.00	0.00	0.00

Hobart Bay-Herring Sanctuary May 1, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			168.3	174.5	197.0	185.0	201.5	201.9	196.3
Average Weight (g)			75.0	78.8	95.0	99.0	121.1	134.4	119.6
Count of Age Category			3	4	1	1	11	22	42
Percent Age Composition			0.07	0.10	0.02	0.02	0.26	0.52	1.00
Percent Female			0.05	0.05	0.00	0.02	0.12	0.10	0.33
Percent Male			0.02	0.05	0.02	0.00	0.14	0.43	0.67
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hobart Bay-N. of Entrance Is. May 2, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			159.0	182.0	190.8	202.8	203.8	211.4	191.0
Average Weight (g)			48.5	72.0	85.5	112.0	108.0	119.0	90.7
Count of Age Category			24	9	4	6	13	30	86
Percent Age Composition			0.28	0.10	0.05	0.07	0.15	0.35	1.00
Percent Female			0.15	0.05	0.02	0.03	0.07	0.14	0.47
Percent Male			0.13	0.06	0.02	0.03	0.08	0.21	0.53
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Hobart Bay-Sunset Cove May 3, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			159.2	184.3	185.6	194.6	201.7	205.0	189.1
Average Weight (g)			49.8	80.2	82.6	94.8	110.3	114.5	89.9
Count of Age Category			12	20	5	10	7	21	75
Percent Age Composition			0.16	0.27	0.07	0.13	0.09	0.28	1.00
Percent Female			0.09	0.16	0.05	0.07	0.07	0.19	0.63
Percent Male			0.07	0.11	0.01	0.07	0.03	0.09	0.37
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hobart Bay/Port Houghton Combined Spawning Ground Surveys May 1–3, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			159.4	181.6	193.1	198.9	204.3	208.3	192.9
Average Weight (g)			51.5	77.4	91.9	106.7	114.8	123.8	98.5
Count of Age Category			68	64	23	32	56	140	383
Percent Age Composition			0.18	0.17	0.06	0.08	0.15	0.37	1.00
Percent Female			0.10	0.10	0.03	0.04	0.09	0.20	0.56
Percent Male			0.08	0.07	0.03	0.04	0.06	0.16	0.44
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix A.5. Hoonah Sound 2001

Hoonah Sound-E. Vixen Island April 27, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)		146.0	175.3	189.0	186.0	207.0	208.8	217.8	192.6
Average Weight (g)		33.0	60.2	78.4	101.0	102.7	104.9	119.0	84.1
Count of Age Category		1	20	27	1	6	10	10	75
Percent Age Composition		0.01	0.27	0.36	0.01	0.08	0.13	0.13	1.00
Percent Female		0.00	0.11	0.13	0.00	0.03	0.05	0.01	0.33
Percent Male		0.01	0.16	0.23	0.01	0.05	0.08	0.12	0.67
Percent Unknown		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hoonah Sound-Finger River April 30, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)				187.6	200.0	200.8	206.6	210.6	203.2
Average Weight (g)				80.8	109.0	97.0	107.4	118.4	104.9
Count of Age Category				15	1	5	8	28	57
Percent Age Composition				0.26	0.02	0.09	0.14	0.49	1.00
Percent Female				0.11	0.02	0.04	0.11	0.21	0.48
Percent Male				0.14	0.00	0.05	0.04	0.29	0.52
Percent Unknown				0.00	0.00	0.00	0.00	0.00	0.00

Hoonah Sound-N. Emmons Island April 29, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)		152.0	174.7	192.4	198.0	207.3	206.1	214.4	191.1
Average Weight (g)		41.0	66.4	91.9	100.7	122.0	115.9	133.9	92.5
Count of Age Category		1	31	27	3	3	8	14	87
Percent Age Composition		0.01	0.36	0.31	0.03	0.03	0.09	0.16	1.00
Percent Female		0.00	0.12	0.15	0.03	0.03	0.05	0.11	0.49
Percent Male		0.01	0.30	0.22	0.01	0.01	0.05	0.08	0.69
Percent Unknown		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hoonah Sound-N. Emmons Island April 28, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			170.9	183.0	201.6	208.3	211.0	211.3	188.2
Average Weight (g)			61.7	80.9	112.3	120.0	129.6	129.8	90.1
Count of Age Category			20	29	7	3	5	10	74
Percent Age Composition			0.27	0.39	0.09	0.04	0.07	0.14	1.00
Percent Female			0.18	0.14	0.04	0.03	0.01	0.09	0.49
Percent Male			0.09	0.26	0.05	0.01	0.05	0.04	0.51
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hoonah Sound-W. Emmons Island April 30, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			171.7	186.9	202.6	198.7	207.8	208.5	197.9
Average Weight (g)			64.4	86.2	101.8	101.5	116.4	123.9	103.6
Count of Age Category			20	58	12	15	37	68	210
Percent Age Composition			0.10	0.28	0.06	0.07	0.18	0.32	1.00
Percent Female			0.06	0.15	0.03	0.04	0.09	0.10	0.47
Percent Male			0.03	0.13	0.03	0.03	0.09	0.22	0.53
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hoonah Sound-W. Vixen Island April 29, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			179.0	186.5	194.0	204.2	203.6	212.0	198.2
Average Weight (g)			65.7	85.3	98.6	105.0	113.1	127.7	103.5
Count of Age Category			9	27	5	5	15	29	90
Percent Age Composition			0.10	0.30	0.06	0.06	0.17	0.32	1.00
Percent Female			0.04	0.08	0.02	0.00	0.07	0.08	0.29
Percent Male			0.06	0.22	0.03	0.06	0.10	0.24	0.71
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix A.6. Kah Shakes-Cat Island 2001

Hoonah Sound Combined Spawning Ground Surveys April 27–30, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)		149.0	173.8	187.4	199.7	202.6	207.1	210.8	195.6
Average Weight (g)		37.0	63.8	84.5	103.9	104.7	114.3	124.6	98.0
Count of Age Category		2	100	183	29	37	83	159	593
Percent Age Composition	0.00	0.00	0.17	0.31	0.05	0.06	0.14	0.27	1.00
Percent Female	0.00	0.00	0.08	0.13	0.02	0.03	0.07	0.09	0.42
Percent Male	0.00	0.00	0.09	0.18	0.03	0.04	0.07	0.17	0.58
Percent Unknown	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Kah Shakes April 5, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)		133.0	166.5	177.1	187.5	205.9	200.8	202.5	176.9
Average Weight (g)		25.0	54.0	65.7	77.7	104.2	94.1	96.8	66.2
Count of Age Category		1	65	42	15	9	8	4	144
Percent Age Composition		0.01	0.45	0.29	0.10	0.06	0.06	0.03	1.00
Percent Female		0.00	0.16	0.15	0.03	0.01	0.02	0.02	0.40
Percent Male		0.01	0.29	0.14	0.07	0.05	0.03	0.01	0.60
Percent Unknown		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Appendix A.7. Seymour Canal 2001.

Seymour Canal Commercial Sac Roe Fishery May 12, 2001 Gillnet

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)				192.1	197.9	203.6	203.6	205.7	204.5
Average Weight (g)				99.9	107.7	115.8	116.4	124.5	120.9
Count of Age Category				10	10	39	95	272	426
Percent Age Composition				0.02	0.02	0.09	0.22	0.64	1.00
Percent Female				0.01	0.01	0.03	0.10	0.33	0.49
Percent Male				0.01	0.02	0.06	0.12	0.31	0.51
Percent Unknown				0.00	0.00	0.00	0.00	0.00	0.00

Seymour Canal Sac Roe Test Fishery May 12, 2001 Gillnet

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)				169.6	201.3	203.5	203.6	206.1	203.2
Average Weight (g)				99.6	119.3	126.9	129.6	133.0	129.4
Count of Age Category				5	3	12	23	57	100
Percent Age Composition				0.05	0.03	0.12	0.23	0.57	1.00
Percent Female				0.02	0.00	0.03	0.10	0.29	0.44
Percent Male				0.03	0.03	0.09	0.13	0.28	0.56
Percent Unknown				0.00	0.00	0.00	0.00	0.00	0.00

Seymour Canal- #9 Rock May 14, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			153.6	169.3	175.0	168.5	186.0	192.6	166.3
Average Weight (g)			47.9	66.4	75.7	67.0	85.8	98.9	63.7
Count of Age Category			28	15	3	2	5	7	60
Percent Age Composition			0.47	0.25	0.05	0.03	0.08	0.12	1.00
Percent Female			0.28	0.12	0.03	0.03	0.07	0.05	0.58
Percent Male			0.18	0.13	0.02	0.00	0.02	0.07	0.42
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Seymour Canal - Sore Finger Cove, May 14, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			157.1	169.4	180.0	188.0	194.3	186.9	169.3
Average Weight (g)			51.1	60.3	72.0	85.0	93.7	91.1	64.2
Count of Age Category			23	22	1	1	3	10	60
Percent Age Composition			0.38	0.37	0.02	0.02	0.05	0.17	1.00
Percent Female			0.18	0.13	0.02	0.00	0.02	0.10	0.45
Percent Male			0.20	0.23	0.00	0.02	0.03	0.07	0.55
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Seymour Canal - 0.5 mile South of Rock Garden, May 10, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			160.6	169.2	179.6	179.2	182.8	198.4	177.6
Average Weight (g)			52.7	60.3	66.2	72.3	78.4	103.6	72.2
Count of Age Category			11	6	5	9	5	9	45
Percent Age Composition			0.24	0.13	0.11	0.20	0.11	0.20	1.00
Percent Female			0.11	0.11	0.04	0.16	0.00	0.07	0.49
Percent Male			0.13	0.02	0.07	0.04	0.11	0.13	0.51
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Seymour Canal - Twin Islands/Blackjack, May 10, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			159.2	173.9	176.5	187.2	182.0	197.9	180.2
Average Weight (g)			48.7	70.1	72.0	88.5	73.3	100.2	77.4
Count of Age Category			6	17	2	6	3	11	45
Percent Age Composition			0.13	0.38	0.04	0.13	0.07	0.24	1.00
Percent Female			0.09	0.18	0.04	0.07	0.07	0.13	0.58
Percent Male			0.04	0.20	0.00	0.07	0.00	0.11	0.42
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Seymour Canal - South Blackjack, May 10, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			162.7	174.3	173.8	193.4	188.3	204.2	187.0
Average Weight (g)			50.0	66.8	68.3	91.6	88.2	99.8	81.8
Count of Age Category			7	13	4	5	10	20	59
Percent Age Composition			0.12	0.22	0.07	0.08	0.17	0.34	1.00
Percent Female			0.05	0.10	0.03	0.03	0.08	0.17	0.47
Percent Male			0.07	0.12	0.03	0.05	0.08	0.17	0.53
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Seymour Canal - Twin Islands/Blackjack, May 12, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			160.3	176.8	181.3	187.4	200.8	196.6	182.7
Average Weight (g)			49.8	69.2	74.0	69.8	84.5	96.9	76.3
Count of Age Category			15	28	8	5	4	30	90
Percent Age Composition			0.17	0.31	0.09	0.06	0.04	0.33	1.00
Percent Female			0.09	0.18	0.06	0.02	0.00	0.12	0.47
Percent Male			0.08	0.13	0.03	0.03	0.04	0.21	0.53
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Seymour Canal Combined Spawning Ground Surveys May 10, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			158.2	172.4	177.6	182.7	188.5	196.7	177.6
Average Weight (g)			50.1	65.2	69.9	75.4	83.4	97.5	72.2
Count of Age Category			106	122	27	40	46	103	444
Percent Age Composition			0.24	0.27	0.06	0.09	0.10	0.23	1.00
Percent Female			0.13	0.13	0.04	0.05	0.04	0.11	0.49
Percent Male			0.11	0.14	0.02	0.04	0.07	0.13	0.51
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Seymour Canal - Various combined samples, May 10, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			162.0	170.7	173.5	178.7	188.3	193.4	177.9
Average Weight (g)			51.5	60.8	62.0	67.3	80.8	93.8	70.0
Count of Age Category			16	21	4	12	16	16	85
Percent Age Composition			0.19	0.25	0.05	0.14	0.19	0.19	1.00
Percent Female			0.09	0.11	0.02	0.09	0.06	0.09	0.47
Percent Male			0.09	0.14	0.02	0.05	0.13	0.09	0.53
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Appendix A.8. Sitka Sound 2001.

Sitka Sound - Commercial Sac Roe, March 22, 2001 Purse Seine (*F/V Defiant*)

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			188.1	197.1	213.8	220.7	226.3	230.3	206.9
Average Weight (g)			92.3	106.3	140.8	159.9	171.4	179.0	129.3
Count of Age Category			16	20	6	15	9	3	69
Percent Age Composition	0.00	0.00	0.23	0.29	0.09	0.22	0.13	0.04	1.00
Percent Female	0.00	0.00	0.12	0.16	0.01	0.10	0.06	0.01	0.46
Percent Male	0.00	0.00	0.12	0.13	0.07	0.12	0.07	0.03	0.54
Percent Unknown	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sitka Sound - Commercial Sac Roe, March 27, 2001 Purse Seine (*F/V Jean C*)

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			189.1	200.7	209.3	220.3	231.8	230.4	207.1
Average Weight (g)			85.2	107.8	120.3	150.5	175.5	168.8	121.3
Count of Age Category			20	26	11	18	6	5	86
Percent Age Composition	0.00	0.00	0.23	0.30	0.13	0.21	0.07	0.06	1.00
Percent Female	0.00	0.00	0.09	0.15	0.12	0.09	0.00	0.02	0.48
Percent Male	0.00	0.00	0.14	0.15	0.01	0.12	0.07	0.03	0.52
Percent Unknown	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sitka Sound - Commercial Sac Roe, March 27, 2001 Purse Seine (*F/V Invincible*)

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			195.3	201.7	205.0	221.1	230.8	229.3	212.6
Average Weight (g)			89.9	110.2	112.5	155.8	178.8	165.3	133.9
Count of Age Category			7	13	4	16	5	4	49
Percent Age Composition	0.00	0.00	0.14	0.27	0.08	0.33	0.10	0.08	1.00
Percent Female	0.00	0.00	0.10	0.16	0.02	0.16	0.04	0.02	0.51
Percent Male	0.00	0.00	0.04	0.10	0.06	0.16	0.06	0.06	0.49
Percent Unknown	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sitka Sound - Commercial Sac Roe, March 26, 2001 Purse Seine (*F/V Pacific Sea*)

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			180.4	195.4	211.0	219.1	223.7	212.5	196.3
Average Weight (g)			77.6	101.5	140.8	156.0	169.4	143.5	108.2
Count of Age Category			31	30	4	7	10	2	84
Percent Age Composition	0.00	0.00	0.37	0.36	0.05	0.08	0.12	0.02	1.00
Percent Female	0.00	0.00	0.21	0.15	0.00	0.01	0.04	0.00	0.42
Percent Male	0.00	0.00	0.15	0.20	0.05	0.07	0.08	0.02	0.58
Percent Unknown	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sitka Sound - Commercial Sac Roe, March 22, 2001 Purse Seine (*F/V Jambore*)

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)		162.0	183.1	201.2	204.9	220.4	213.1	223.0	204.5
Average Weight (g)		55.0	85.6	120.0	122.1	159.2	163.4	172.5	130.7
Count of Age Category		1	16	21	7	16	14	4	79
Percent Age Composition	0.00	0.01	0.20	0.27	0.09	0.20	0.18	0.05	1.00
Percent Female	0.00	0.00	0.10	0.16	0.04	0.11	0.08	0.03	0.52
Percent Male	0.00	0.01	0.10	0.10	0.05	0.09	0.10	0.03	0.48
Percent Unknown	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sitka Sound - Commercial Sac Roe, March 26, 2001 Purse Seine (*F/V Shadow Fax*)

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			192.0	202.5	205.9	217.6	222.7	227.6	213.8
Average Weight (g)			96.0	120.4	129.6	150.1	168.6	175.4	145.3
Count of Age Category			7	13	8	23	23	5	79
Percent Age Composition	0.00	0.00	0.09	0.16	0.10	0.29	0.29	0.06	1.00
Percent Female	0.00	0.00	0.01	0.03	0.05	0.19	0.09	0.04	0.41
Percent Male	0.00	0.00	0.08	0.14	0.05	0.10	0.20	0.03	0.59
Percent Unknown	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sitka Sound Combined Commercial Sac Roe Fishery March 22, 2001 Purse Seine

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)		162.0	185.8	199.2	208.3	219.8	222.7	226.7	206.4
Average Weight (g)		55.0	85.1	109.7	126.8	154.6	169.4	169.4	127.4
Count of Age Category		1	97	123	40	95	67	23	446
Percent Age Composition		0.00	0.22	0.28	0.09	0.21	0.15	0.05	1.00
Percent Female		0.00	0.11	0.13	0.04	0.11	0.05	0.02	0.46
Percent Male		0.00	0.11	0.14	0.05	0.11	0.10	0.03	0.54
Percent Unknown		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sitka Sound-Goddard April 4, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			194.1	202.2	212.5	220.1	226.1	234.2	214.4
Average Weight (g)			90.7	105.9	119.9	139.4	150.8	164.8	128.4
Count of Age Category			16	24	8	39	27	5	119
Percent Age Composition			0.13	0.20	0.07	0.33	0.23	0.04	1.00
Percent Female			0.05	0.04	0.03	0.14	0.06	0.02	0.34
Percent Male			0.08	0.16	0.04	0.18	0.17	0.03	0.66
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sitka Sound-Dorothy Narrows April 3, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			189.0	200.9	219.6	219.9	224.9	240.5	210.3
Average Weight (g)			78.3	95.5	116.8	130.6	145.5	184.0	114.6
Count of Age Category			12	16	5	10	14	2	59
Percent Age Composition			0.20	0.27	0.08	0.17	0.24	0.03	1.00
Percent Female			0.15	0.15	0.05	0.08	0.15	0.02	0.61
Percent Male			0.05	0.12	0.03	0.08	0.08	0.02	0.39
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sitka Sound-Promisla Island April 1, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			182.6	203.1	207.8	215.1	224.3	233.0	203.3
Average Weight (g)			79.5	105.8	111.5	136.6	149.8	177.0	113.1
Count of Age Category			29	14	4	14	17	2	80
Percent Age Composition			0.36	0.18	0.05	0.18	0.21	0.03	1.00
Percent Female			0.14	0.11	0.04	0.05	0.06	0.03	0.43
Percent Male			0.23	0.06	0.01	0.13	0.15	0.00	0.58
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Sitka Sound-Mielkoi Cove April 3, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			192.5	204.2	217.0	221.1	226.5	235.0	216.6
Average Weight (g)			76.3	105.4	131.0	140.8	150.3	162.0	129.8
Count of Age Category			4	5	1	9	10	1	30
Percent Age Composition			0.13	0.17	0.03	0.30	0.33	0.03	1.00
Percent Female			0.00	0.03	0.03	0.10	0.07	0.00	0.23
Percent Male			0.13	0.13	0.00	0.20	0.27	0.03	0.77
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sitka Sound-Sea Mart Area March 23, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			189.5	198.3	214.4	216.9	223.5	231.9	211.4
Average Weight (g)			85.8	102.9	132.7	143.1	155.7	169.9	130.2
Count of Age Category			36	36	14	45	49	18	198
Percent Age Composition			0.18	0.18	0.07	0.23	0.25	0.09	1.00
Percent Female			0.09	0.07	0.06	0.13	0.11	0.03	0.48
Percent Male			0.09	0.11	0.02	0.10	0.14	0.07	0.52
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sitka Sound-Samsing Cove April 1, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			190.9	199.2	210.8	217.7	228.5	234.3	209.4
Average Weight (g)			80.3	97.0	118.5	129.6	158.8	162.0	116.8
Count of Age Category			16	12	6	10	12	4	60
Percent Age Composition			0.27	0.20	0.10	0.17	0.20	0.07	1.00
Percent Female			0.17	0.05	0.08	0.10	0.10	0.05	0.55
Percent Male			0.10	0.15	0.02	0.07	0.10	0.02	0.45
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sitka Sound-Whiting Harbor April 5, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			179.0	206.3	223.3	211.6	221.4	221.0	209.8
Average Weight (g)			72.0	108.6	137.5	128.6	143.0	131.0	119.7
Count of Age Category			4	9	4	5	7	1	30
Percent Age Composition			0.13	0.30	0.13	0.17	0.23	0.03	1.00
Percent Female			0.03	0.20	0.10	0.03	0.03	0.00	0.40
Percent Male			0.10	0.10	0.03	0.13	0.20	0.03	0.60
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sitka Sound-Taigud Is. April 3, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			191.9	203.8	214.2	224.4	234.1	229.8	216.0
Average Weight (g)			85.7	102.1	115.0	142.0	162.5	157.3	126.4
Count of Age Category			10	10	9	15	11	4	59
Percent Age Composition			0.17	0.17	0.15	0.25	0.19	0.07	1.00
Percent Female			0.07	0.07	0.07	0.12	0.08	0.03	0.44
Percent Male			0.10	0.10	0.08	0.14	0.10	0.03	0.56
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sitka Sound/Eastern Channel Test Fishery January 17, 2001 Trawl 1

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)		160.3	175.3	194.2	194.1	210.8	213.4	221.5	195.2
Average Weight (g)		59.0	77.5	108.2	111.0	146.4	156.8	169.3	115.3
Count of Age Category		4	49	45	15	36	22	8	179
Percent Age Composition		0.02	0.27	0.25	0.08	0.20	0.12	0.04	1.00
Percent Female		0.01	0.19	0.14	0.03	0.09	0.09	0.02	0.58
Percent Male		0.02	0.08	0.11	0.05	0.11	0.03	0.02	0.42
Percent Unknown		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sitka Sound Combined Spawning Ground Surveys March 23-April 5, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			188.6	201.2	214.4	218.7	225.5	232.6	211.2
Average Weight (g)			82.8	102.7	123.0	139.0	152.9	166.9	124.1
Count of Age Category			127	126	51	147	147	37	635
Percent Age Composition			0.20	0.20	0.08	0.23	0.23	0.06	1.00
Percent Female			0.09	0.08	0.05	0.11	0.09	0.02	0.45
Percent Male			0.11	0.12	0.03	0.12	0.14	0.03	0.55
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sitka Sound Combined Winter Test Fishery January 17, 2001 Trawl

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)	94.7	136.3	174.0	194.7	201.0	213.3	217.5	226.2	185.4
Average Weight (g)	9.2	30.2	75.6	107.8	121.1	151.5	168.3	182.5	105.2
Count of Age Category	14	86	84	73	32	92	60	19	460
Percent Age Composition	0.03	0.19	0.18	0.16	0.07	0.20	0.13	0.04	1.00
Percent Female	0.02	0.07	0.11	0.09	0.03	0.10	0.08	0.02	0.52
Percent Male	0.01	0.12	0.08	0.07	0.04	0.10	0.05	0.02	0.48
Percent Unknown	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix A.9. Tenakee Inlet 2001.

Sitka Sound/Eastern Channel Test Fishery January 17, 2001 Trawl 2

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)	94.7	135.1	172.1	195.5	207.0	215.0	219.8	229.5	179.1
Average Weight (g)	9.2	28.8	72.9	107.2	130.0	154.8	174.9	192.2	98.8
Count of Age Category	14	82	35	28	17	56	38	11	281
Percent Age Composition	0.05	0.29	0.12	0.10	0.06	0.20	0.14	0.04	1.00
Percent Female	0.03	0.11	0.05	0.06	0.03	0.11	0.07	0.01	0.48
Percent Male	0.02	0.18	0.07	0.04	0.03	0.09	0.06	0.02	0.52
Percent Unknown	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Tenakee Inlet-Head Inlet Commercial Bait Fishery December 6, 2000 Purse Seine

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			177.6	186.4	200.0	204.3	202.6	203.6	187.9
Average Weight (g)			70.8	84.7	109.0	123.2	114.4	119.8	88.4
Count of Age Category			26	55	8	6	5	5	105
Percent Age Composition			0.25	0.52	0.08	0.06	0.05	0.05	1.00
Percent Female			0.18	0.27	0.04	0.01	0.04	0.02	0.55
Percent Male			0.07	0.26	0.04	0.05	0.01	0.03	0.45
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Tenakee Inlet Commercial Bait Fishery December 4, 2000 Purse Seine-*F/V Haida Chief*

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			170.8	182.2	188.2	167.7	194.1	190.0	179.7
Average Weight (g)			73.6	92.8	100.0	70.9	119.8	113.8	89.5
Count of Age Category			37	53	6	7	12	5	120
Percent Age Composition			0.31	0.44	0.05	0.06	0.10	0.04	1.00
Percent Female			0.18	0.21	0.04	0.02	0.04	0.02	0.50
Percent Male			0.13	0.23	0.01	0.04	0.06	0.03	0.50
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Tenakee Inlet-Town Site Commercial Bait Fishery December 12, 2000 Purse Seine

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			181.4	192.9	195.9	208.4	206.8	210.6	194.2
Average Weight (g)			76.6	95.8	101.4	126.6	120.3	135.5	99.7
Count of Age Category			25	37	10	7	4	12	95
Percent Age Composition			0.26	0.39	0.11	0.07	0.04	0.13	1.00
Percent Female			0.16	0.28	0.04	0.07	0.03	0.08	0.67
Percent Male			0.11	0.11	0.06	0.00	0.01	0.04	0.33
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Tenakee Inlet-Head Inlet Commercial Bait Fishery December 4, 2000 Purse Seine

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			172.7	183.9	184.1	207.8	207.3	204.5	190.4
Average Weight (g)			68.8	88.1	90.3	132.8	129.2	124.0	99.7
Count of Age Category			22	43	8	8	13	25	119
Percent Age Composition			0.18	0.36	0.07	0.07	0.11	0.21	1.00
Percent Female			0.07	0.13	0.03	0.03	0.09	0.13	0.49
Percent Male			0.12	0.23	0.03	0.04	0.02	0.08	0.51
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Tenakee Inlet-E. Kadashan Bay April 29, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			175.1	190.3	199.2	208.7	209.6	212.1	200.9
Average Weight (g)			64.8	89.5	100.9	119.2	119.9	132.8	109.0
Count of Age Category			66	80	23	29	87	143	428
Percent Age Composition			0.15	0.19	0.05	0.07	0.20	0.33	1.00
Percent Female			0.08	0.07	0.03	0.04	0.11	0.13	0.46
Percent Male			0.07	0.12	0.03	0.03	0.09	0.20	0.54
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix A.10. West Behm Canal 2001.

Tenakee Inlet Combined Bait Fishery December 4–12, 2000 Purse Seine

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			175.2	185.9	192.5	197.2	201.9	204.4	187.7
Average Weight (g)			72.7	90.0	100.3	113.7	122.7	125.4	94.2
Count of Age Category			110	188	32	28	34	47	439
Percent Age Composition			0.25	0.43	0.07	0.06	0.08	0.11	1.00
Percent Female			0.14	0.22	0.04	0.03	0.05	0.06	0.55
Percent Male			0.11	0.21	0.03	0.03	0.03	0.04	0.45
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

West Behm Canal-Helm Bay April 3, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			170.3	174.7	193.0	196.6	213.1	204.5	190.3
Average Weight (g)			58.0	66.6	82.3	107.8	126.0	119.5	92.7
Count of Age Category			6	20	3	10	7	14	60
Percent Age Composition			0.10	0.33	0.05	0.17	0.12	0.23	1.00
Percent Female			0.03	0.13	0.02	0.05	0.03	0.13	0.40
Percent Male			0.07	0.20	0.03	0.12	0.08	0.10	0.60
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

West Behm Canal-Bond Bay April 3, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			170.3	179.5	186.6	201.9	208.9	199.6	189.5
Average Weight (g)			66.1	73.8	89.8	109.0	132.6	124.7	96.3
Count of Age Category			8	24	11	8	9	15	75
Percent Age Composition			0.11	0.32	0.15	0.11	0.12	0.20	1.00
Percent Female			0.04	0.08	0.07	0.07	0.08	0.05	0.39
Percent Male			0.07	0.24	0.08	0.04	0.04	0.15	0.61
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

West Behm Canal-Survey Pt. April 9, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			154.9	169.7	183.5	191.6	195.8	199.4	182.2
Average Weight (g)			54.3	71.4	95.5	104.1	119.7	122.6	93.7
Count of Age Category			9	16	2	12	9	12	60
Percent Age Composition			0.15	0.27	0.03	0.20	0.15	0.20	1.00
Percent Female			0.12	0.13	0.00	0.05	0.03	0.13	0.47
Percent Male			0.03	0.13	0.03	0.15	0.12	0.07	0.53
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

West Behm Canal-Point Stewart April 3, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)		147.5	169.4	178.2	192.6	202.6	201.8	206.7	186.9
Average Weight (g)		34.0	57.9	69.8	87.0	102.3	107.2	121.9	83.3
Count of Age Category		2	30	46	13	23	19	14	147
Percent Age Composition		0.01	0.20	0.31	0.09	0.16	0.13	0.10	1.00
Percent Female		0.01	0.07	0.20	0.07	0.10	0.05	0.04	0.54
Percent Male		0.01	0.13	0.11	0.02	0.05	0.08	0.05	0.46
Percent Unknown		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

West Behm Canal-W. Betton Island April 4, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			168.5	178.1	189.4	204.8	205.8	206.9	187.2
Average Weight (g)			56.2	71.7	88.3	118.3	116.4	124.7	87.3
Count of Age Category			30	31	16	12	16	15	120
Percent Age Composition			0.25	0.26	0.13	0.10	0.13	0.13	1.00
Percent Female			0.13	0.11	0.05	0.06	0.03	0.04	0.41
Percent Male			0.13	0.15	0.08	0.04	0.11	0.08	0.59
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

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West Behm Canal-Trunk Is. April 3, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			158.4	170.3	131.0	190.4	202.8	197.9	175.4
Average Weight (g)			50.5	64.5	31.0	93.3	107.9	109.3	73.1
Count of Age Category			24	35	1	12	10	8	90
Percent Age Composition			0.27	0.39	0.01	0.13	0.11	0.09	1.00
Percent Female			0.13	0.20	0.00	0.07	0.04	0.03	0.48
Percent Male			0.13	0.19	0.01	0.07	0.07	0.06	0.52
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

West Behm Canal-Vallenar Bay Sac Roe Test Fishery April 21, 2001 Purse Seine

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)			162.8	172.8	175.6	196.8	214.0	213.5	169.6
Average Weight (g)			56.7	70.7	89.3	118.2	130.0	167.0	68.3
Count of Age Category			77	39	8	5	3	2	134
Percent Age Composition			0.57	0.29	0.06	0.04	0.02	0.01	1.00
Percent Female			0.25	0.10	0.02	0.00	0.02	0.00	0.40
Percent Male			0.33	0.19	0.04	0.04	0.00	0.01	0.60
Percent Unknown			0.00	0.00	0.00	0.00	0.00	0.00	0.00

West Behm Canal Combined Spawning Ground Surveys April 3–9, 2001 Cast Net

Age Category	1	2	3	4	5	6	7	8+	Grand Total
Average Length (mm)		147.5	165.6	175.6	188.3	198.5	204.1	202.9	185.3
Average Weight (g)		34.0	56.1	69.4	87.0	105.1	116.2	121.4	86.4
Count of Age Category		2	107	172	46	77	70	78	552
Percent Age Composition		0.00	0.19	0.31	0.08	0.14	0.13	0.14	1.00
Percent Female		0.00	0.09	0.15	0.04	0.07	0.04	0.06	0.46
Percent Male		0.00	0.10	0.16	0.04	0.07	0.08	0.08	0.54
Percent Unknown		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B. Spawn deposition surveys.

Appendix B.1. Kah Shakes/Cat Island spawn deposition survey.

Dates: April 20, 2001.

Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	PD cor	RL cor	SW	MP cor	KH cor
1	1	SW	fuc	0			0		
1	2	SW	fuc	0			0		
1	3	SW	cor	0			0		
1	4	SW	lam	0			0		
1	5	SW	lam	0			0		
1	6	SW	lam	0			0		
1	7	SW	lam	0			0		
1	8	SW	lam	0			0		
1	9	SW		0			0		
1	10	SW		0			0		
2	1	MP	fuc	0				0	
2	2	MP	fuc	0				0	
2	3	MP	fuc	0				0	
2	4	MP	fir	0				0	
2	5	MP	fil	0				0	
2	6	MP	fir	200				178	
2	7	MP	fir	0				0	
2	8	MP	fir	40				35.6	
2	9	MP	elg	2				2.12	
2	10	MP	hir	50				57.5	
2	11	MP	elg	2				2.12	
2	12	MP	elg	10				10.6	
2	13	MP	elg	5				5.3	
2	14	MP	red	25				22.25	
2	15	MP	elg	30				31.8	
2	16	MP	elg	10				10.6	
2	17	MP	elg	3				3.18	
2	18	MP	elg	2				2.12	
2	19	MP	elg	3				3.18	
2	20	MP	elg	5				5.3	
2	21	MP	elg	1				1.06	
2	22	MP	elg	2				2.12	
2	23	MP	elg	1				1.06	
2	24	MP	elg	3				3.18	
2	25	MP	elg	15				15.9	
2	26	MP	elg	5				5.3	
2	27	MP	elg	15				15.9	
2	28	MP	elg	20				21.2	
2	29	MP		0				0	
2	30	MP	hir	1				1.15	
2	31	MP		0				0	
2	32	MP		0				0	
2	33	MP		0				0	
3	1	RL		0		0			
3	2	RL	fuc	0		0			
3	3	RL	elg	0		0			
3	4	RL	elg	0		0			
3	5	RL	ulv	0		0			
3	6	RL	ulv	0		0			
3	7	RL	ulv	0		0			
3	8	RL	ulv	0		0			
3	9	RL	elg	0		0			
3	10	RL	elg	0		0			
4	1	KH		0					0
4	2	KH	ulv	0					0
4	3	KH	ala	0					0

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	PD cor	RL cor	SW	MP cor	KH cor
4	4	KH	lbk	0					0
4	5	KH	hir	0					0
4	6	KH	lbk	0					0
4	7	KH		0					0
4	8	KH		0					0
4	9	KH		0					0
4	10	KH		0					0
4	11	KH		0					0
5	1	MP	fuc	0				0	
5	2	MP		0				0	
5	3	MP		0				0	
5	4	MP	ulv	0				0	
5	5	MP	fil	0				0	
5	6	MP	elg	15				15.9	
5	7	MP	elg	3				3.18	
5	8	MP	elg	15				15.9	
5	9	MP	elg	15				15.9	
5	10	MP	elg	40				42.4	
5	11	MP	elg	70				74.2	
5	12	MP	elg	50				53	
5	13	MP	elg	40				42.4	
5	14	MP	elg	50				53	
5	15	MP	elg	80				84.8	
5	16	MP	elg	60				63.6	
5	17	MP	elg	80				84.8	
5	18	MP	elg	60				63.6	
5	19	MP	elg	60				63.6	
5	20	MP	elg	35				37.1	
5	21	MP	elg	80				84.8	
6	1	PD	fuc	0	0				
6	2	PD	fuc	0	0				
6	3	PD	fir	0	0				
6	4	PD	ulv	0	0				
6	5	PD	ulv	0	0				
6	6	PD	lam	0	0				
6	7	PD	hir	5	6.05				
6	8	PD	lam	1	1.2				
6	9	PD	hir	90	108.9				
6	10	PD	hir	30	36.3				
6	11	PD	hir	160	193.6				
6	12	PD	hir	200	242				
6	13	PD	lam	90	108				
6	14	PD	hir	100	121				
6	15	PD	elg	0	0				
6	16	PD	elg	0	0				
6	17	PD	elg	0	0				
6	18	PD	elg	0	0				
6	19	PD	elg	0	0				
6	20	PD	elg	0	0				
7	1	RL		0		0			
7	2	RL		0		0			
7	3	RL		0		0			
7	4	RL		0		0			
7	5	RL		0		0			
7	6	RL		0		0			
7	7	RL		0		0			
7	8	RL		0		0			
7	9	RL		0		0			
7	10	RL		0		0			
7	11	RL		0		0			

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	PD cor	RL cor	SW	MP cor	KH cor
7	12	RL		0		0			
7	13	RL	ulv	0		0			
7	14	RL	ulv	0		0			
7	15	RL	ulv	0		0			
7	16	RL	ulv	0		0			
7	17	RL	fil	0		0			
7	18	RL	ulv	0		0			
7	19	RL	ulv	0		0			
7	20	RL	lam	0		0			
7	21	RL	lam	0		0			
7	22	RL	lam	0		0			
7	23	RL	lam	25		28			
7	24	RL	lam	2		2.24			
7	25	RL	lam	3		3.36			
7	26	RL	lam	5		5.6			
7	27	RL	lam	1		1.12			
7	28	RL	mac	200		218			
7	29	RL	lam	10		11.2			
7	30	RL	lam	20		22.4			
7	31	RL	lam	150		168			
7	32	RL		3		3.27			
7	33	RL		0		0			
8	1	RL		0		0			
8	2	RL	fir	0		0			
8	3	RL	elg	5		5.45			
8	4	RL	lam	10		11.2			
8	5	RL	lam	1		1.12			
8	6	RL	lam	10		11.2			
8	7	RL	lam	2		2.24			
8	8	RL	fir	40		43.6			
8	9	RL	lam	5		5.6			
8	10	RL	lam	15		16.8			
8	11	RL	lam	10		11.2			
8	12	RL	lam	8		8.96			
8	13	RL	lam	75		84			
8	14	RL	elg	3		3.27			
8	15	RL	mac	20		21.8			
8	16	RL	mac	160		174.4			
8	17	RL	lam	20		22.4			
8	18	RL		50		54.5			
8	19	RL		0		0			
8	20	RL		0		0			
8	21	RL		0		0			
8	22	RL	elg	0		0			
9	1	PD	fuc	0	0				
9	2	PD	fuc	0	0				
9	3	PD	fuc	10	10				
9	4	PD	fuc	1	1				
9	5	PD	fuc	1	1				
9	6	PD	fir	1	1.31				
9	7	PD	fir	6	7.86				
9	8	PD	fir	15	19.65				
9	9	PD		0	0				
9	10	PD	elg	1	1.29				
9	11	PD	elg	2	2.58				
9	12	PD	elg	5	6.45				
9	13	PD	hir	150	181.5				
9	14	PD	lam	20	24				
9	15	PD	lam	5	6				

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	PD cor	RL cor	SW	MP cor	KH cor
9	16	PD	lam	5	6				
9	17	PD	lam	10	12				
9	18	PD	lam	1	1.2				
9	19	PD	lam	5	6				
9	20	PD	hir	10	12.1				
9	21	PD	red	5	6.55				
9	22	PD		0	0				
9	23	PD		0	0				
9	24	PD		0	0				
10	1	KH	fuc	0					0
10	2	KH	ulv	0					0
10	3	KH	fir	0					0
10	4	KH	ulv	0					0
10	5	KH	elg	0					0
10	6	KH	elg	1					2.66
10	7	KH	elg	0					0
10	8	KH	elg	0					0
10	9	KH	elg	0					0
10	10	KH	elg	0					0
10	11	KH	elg	0					0
10	12	KH	elg	0					0
10	13	KH	elg	0					0
10	14	KH	elg	0					0
10	15	KH	elg	0					0
10	16	KH	elg	0					0

Appendix B2. West Behm Canal spawn deposition survey.

Dates: April 21–22, 2001.

Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	PD cor	RL cor	SW	MP cor	KH cor	TT cor
20	1	MP	fuc	0				0		
20	2	MP	fuc	25				47.75		
20	3	MP	fuc	10				19.1		
20	4	MP	ulv	2				1.78		
20	5	MP	ulv	1				0.89		
20	6	MP	ulv	1				0.89		
20	7	MP	fil	5				4.45		
20	8	MP	fir	60				53.4		
20	9	MP	elg	15				15.9		
20	10	MP	elg	5				5.3		
20	11	MP	elg	1				1.06		
20	12	MP	elg	0				0		
20	13	MP		0				0		
6	1	KH	fuc	0					0	
6	2	KH	fir	90					99.9	
6	3	KH	fir	130					144.3	
6	4	KH	fir	100					111	
6	5	KH		0					0	
6	6	KH	red	2					2.22	
6	7	KH	lam	0					0	
6	8	KH		0					0	
8	1	SW	fuc	1			1.25			
8	2	SW	fuc	60			75			
8	3	SW	ulv	35			27.65			
8	4	SW	fir	60			47.4			
8	5	SW	lb	0			0			
8	6	SW	lam	5			5.5			
8	7	SW	lam	0			0			
8	8	SW	lam	0			0			
8	9	SW		0			0			
7	1	PD	fuc	10	10					
7	2	PD	fir	70	91.7					
7	3	PD	fir	80	104.8					
7	4	PD	fuc	120	120					
7	5	PD	hir	20	24.2					
7	6	PD		0	0					
18	1	RL	fuc	25		27				
18	2	RL	fuc	50		54				
18	3	RL	red	10		10.9				
18	4	RL		10		10.9				
18	5	RL		5		5.45				
18	6	RL	fuc	15		16.2				
18	7	RL	lam	40		44.8				
18	8	RL	elg	30		32.7				
18	9	RL	elg	4		4.36				
18	10	RL	elg	0		0				
18	11	RL		0		0				
19	1	RL	fuc	0		0				
19	2	RL	fuc	10		10.8				
19	3	RL	fuc	20		21.6				
19	4	RL	ulv	25		27.25				
19	5	RL	ulv	45		49.05				
19	6	RL	fir	225		245.25				
19	7	RL	lam	40		44.8				
19	8	RL		2		2.18				
19	9	RL		1		1.09				
19	10	RL		0		0				
11	1	KH	fuc	0					0	

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	PD cor	RL cor	SW	MP cor	KH cor	TT cor
11	2	KH	fuc	0					0	
11	3	KH	fir	0					0	
11	4	KH		0					0	
11	5	KH	lam	0					0	
11	6	KH	lam	0					0	
11	7	KH	lam	0					0	
11	8	KH		0					0	
14	1	SW	fuc	0			0			
14	2	SW	fuc	0			0			
14	3	SW		0			0			
14	4	SW		0			0			
14	5	SW	agm	0			0			
14	6	SW		30			23.7			
14	7	SW	red	40			31.6			
14	8	SW		0			0			
14	9	SW		0			0			
12	1	RL	fuc	0		0				
12	2	RL	fuc	0		0				
12	3	RL	fuc	0		0				
12	4	RL	lam	0		0				
12	5	RL	lam	0		0				
12	6	RL		0		0				
12	7	RL		0		0				
12	8	RL		0		0				
13	1	MP	fuc	0				0		
13	2	MP	fuc	20				38.2		
13	3	MP	fir	35				31.15		
13	4	MP	red	5				4.45		
13	5	MP		0				0		
15	1	KH	fuc	5					8.5	
15	2	KH	fuc	1					1.7	
15	3	KH	fuc	1					1.7	
15	4	KH	fir	5					5.55	
15	5	KH	lam	800					1040	
15	6	KH	elg	120					319.2	
15	7	KH	hir	80					94.4	
15	8	KH	elg	1					2.66	
15	9	KH	elg	1					2.66	
15	10	KH		0					0	
15	11	KH		0					0	
17	1	SW	fir	30			23.7			
17	2	SW	fuc	1			1.25			
17	3	SW	fuc	5			6.25			
17	4	SW	fuc	5			6.25			
17	5	SW	ulv	30			23.7			
17	6	SW	ulv	45			35.55			
17	7	SW	fuc	80			100			
17	8	SW	fil	50			39.5			
17	9	SW	fil	120			94.8			
17	10	SW	fir	150			118.5			
17	11	SW	lam	50			55			
17	12	SW	lam	100			110			
17	13	SW	lam	20			22			
17	14	SW	lam	50			55			
17	15	SW	lam	30			33			
17	16	SW		0			0			
17	17	SW		0			0			
16	1	PD	fuc	1	1					
16	2	PD	fuc	3	3					
16	3	PD	fuc	1	1					

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	PD cor	RL cor	SW	MP cor	KH cor	TT cor
16	4	PD	fil	1	1.31					
16	5	PD	fuc	1	1					
16	6	PD	fuc	15	15					
16	7	PD	fuc	5	5					
16	8	PD	fuc	20	20					
16	9	PD	fuc	5	5					
16	10	PD	fuc	0	0					
16	11	PD		0	0					
16	12	PD		1	1.31					
16	13	PD	fuc	40	40					
16	14	PD	ulv	1	1.31					
16	15	PD	ulv	0	0					
16	16	PD	ulv	0	0					
16	17	PD	ulv	0	0					
16	18	PD	fir	70	91.7					
16	19	PD	elg	5	6.45					
16	20	PD	fir	20	26.2					
16	21	PD	fir	2	2.62					
16	22	PD	lam	8	9.6					
16	23	PD	lam	5	6					
16	24	PD	lam	5	6					
16	25	PD	lam	15	18					
16	26	PD	agm	40	48					
16	27	PD	lam	35	42					
16	28	PD	lam	10	12					
16	29	PD		2	2.62					
16	30	PD		0	0					
9	1	TT	fuc	20						46
9	2	TT	fuc	40						92
9	3	TT		0						0
9	4	TT		3						3.27
9	5	TT		0						0
9	6	TT		0						0
9	7	TT	hir	5						8
9	8	TT	lam	2						5.08
9	9	TT	lam	0						0
9	10	TT		1						1.09
9	11	TT		1						1.09
9	12	TT		0						0
9	13	TT	agm	0						0
9	14	TT		0						0
5	1	PD	fuc	0	0					
5	2	PD	fuc	0	0					
5	3	PD	ulv	0	0					
5	4	PD	lam	0	0					
5	5	PD	lam	0	0					
5	6	PD	lam	0	0					
5	7	PD	lam	0	0					
5	8	PD	fir	0	0					
5	9	PD	cos	0	0					
5	10	PD	lam	0	0					
5	11	PD	fir	0	0					
5	12	PD	ala	0	0					
10	1	MP	fuc	0				0		
10	2	MP		0				0		
10	3	MP	fil	0				0		
10	4	MP	elg	0				0		
10	5	MP	fil	0				0		
10	6	MP	elg	0				0		
10	7	MP	elg	0				0		

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Appendix B.2. (page 4 of 4)

Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	PD cor	RL cor	SW	MP cor	KH cor	TT cor
10	8	MP		0				0		
10	9	MP	fuc	0				0		
10	10	MP	fuc	0				0		
10	11	MP	fuc	0				0		
10	12	MP	fil	0				0		
10	13	MP	fil	0				0		
10	14	MP	ulv	0				0		
10	15	MP	fir	0				0		
10	16	MP	fir	0				0		
10	17	MP	ulv	0				0		
4	1	MP	fuc	0				0		
4	2	MP	fir	1				0.89		
4	3	MP	ulv	3				2.67		
4	4	MP	red	0				0		
4	5	MP	fil	0				0		
4	6	MP	red	3				2.67		
4	7	MP	lam	10				20.8		
4	8	MP	lam	4				8.32		
4	9	MP	lam	25				52		
4	10	MP	lam	8				16.64		
4	11	MP	lam	1				2.08		
4	12	MP	lam	2				4.16		
4	13	MP	lam	2				4.16		
4	14	MP	lam	15				31.2		
4	15	MP		2				1.78		
4	16	MP	lam	15				31.2		
4	17	MP	lam	30				62.4		
4	18	MP	lam	20				41.6		
4	19	MP		0				0		
4	20	MP		0				0		
4	21	MP		0				0		
1	1	KH	fuc	0					0	
1	2	KH	fuc	0					0	
1	3	KH	fuc	0					0	
1	4	KH	elg	5					13.3	
1	5	KH	elg	8					21.28	
1	6	KH	hir	10					11.8	
1	7	KH		0					0	
1	8	KH		0					0	
2	1	KH	fuc	1					1.7	
2	2	KH	fuc	0					0	
2	3	KH	elg	3					7.98	
2	4	KH	lam	0					0	
2	5	KH	lam	0					0	
2	6	KH		0					0	
3	1	PD	fuc	0	0					
3	2	PD	fuc	0	0					
3	3	PD	fuc	0	0					
3	4	PD	fir	70	91.7					
3	5	RL	fir	150		163.5				
3	6	RL	hir	250		320				
3	7	RL	hir	300		384				
3	8	RL		0		0				
3	9	RL		0		0				
3	10	RL		0		0				

Appendix B.3. Craig spawn deposition survey.

Dates: April 18–19, 2001.

Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	PD cor	RL cor	SW	MP cor	KH cor	TT cor
1	1	KH	fuc	0					0	
1	2	KH	fir	0					0	
1	3	KH	elg	0					0	
1	4	KH	elg	0					0	
1	5	KH	elg	0					0	
1	6	KH	ulv	0					0	
1	7	KH	elg	0					0	
1	8	KH	fir	0					0	
1	9	KH	elg	0					0	
1	10	KH	fir	0					0	
1	11	KH	lam	0					0	
1	12	KH	lam	0					0	
1	13	KH	fir	0					0	
1	14	KH	fir	0					0	
1	15	KH	lam	0					0	
1	16	KH	elg	0					0	
1	17	KH	elg	0					0	
1	18	KH	elg	0					0	
1	19	KH	elg	0					0	
1	20	KH	lam	0					0	
1	21	KH	elg	0					0	
1	22	KH	elg	0					0	
1	23	KH	elg	0					0	
1	24	KH	lam	0					0	
1	25	KH	lam	0					0	
1	26	KH	lam	0					0	
1	27	KH	lam	0					0	
2	1	TT	fuc	0						0
2	2	TT	fuc	0						0
2	3	TT	ulv	0						0
2	4	TT	fil	0						0
2	5	TT	fil	0						0
2	6	TT	fil	0						0
2	7	TT	elg	0						0
2	8	TT	fir	0						0
2	9	TT	fil	0						0
2	10	TT	elg	0						0
2	11	TT	lam	0						0
2	12	TT	mac	3						3.27
2	13	TT	elg	0						0
2	14	TT	elg	0						0
2	15	TT	elg	0						0
2	16	TT	lam	0						0
2	17	TT	elg	0						0
2	18	TT	lam	0						0
2	19	TT	lam	0						0
2	20	TT	lam	0						0
2	21	TT	mac	0						0
2	22	TT	lam	0						0
2	23	TT	agm	0						0
2	24	TT	lam	0						0
2	25	TT	elg	0						0
2	25	TT	fuc	0						0
2	26	TT	elg	0						0
2	27	TT	elg	0						0
2	28	TT	fil	0						0
2	29	TT	elg	0						0

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	PD cor	RL cor	SW	MP cor	KH cor	TT cor
2	30	TT	mac	25						27.25
2	31	TT	mac	0						0
2	32	TT	mac	3						3.27
2	33	TT	mac	10						10.9
2	34	TT	mac	0						0
2	35	TT	mac	4						4.36
2	36	TT	lam	2						5.08
2	37	TT	mac	0						0
2	38	TT	agm	10						25.4
2	39	TT	lam	0						0
2	40	TT	lam	0						0
2	41	TT	agm	0						0
2	42	TT		0						0
2	43	TT	agm	0						0
2	44	TT	agm	0						0
2	45	TT	lbk	0						0
2	46	TT	lam	0						0
2	47	TT	lam	0						0
2	48	TT	agm	0						0
2	49	TT	agm	0						0
2	50	TT	agm	0						0
2	51	TT	agm	0						0
2	52	TT	mac	0						0
2	53	TT	agm	0						0
3	1	MP	fuc	0				0		
3	2	MP	ulv	0				0		
3	3	MP	elg	40				42.4		
3	4	MP	fir	1				0.89		
3	5	MP	fir	15				13.35		
3	6	MP	lam	2				4.16		
3	7	MP	red	25				22.25		
3	8	MP	elg	0				0		
3	9	MP	elg	0				0		
3	10	MP	lam	0				0		
3	11	MP	elg	0				0		
3	12	MP	lam	0				0		
3	13	MP	lam	0				0		
3	14	MP	lbk	0				0		
3	15	MP	lbk	0				0		
3	16	MP	lbk	0				0		
3	17	MP	lbk	0				0		
3	18	MP	lbk	100				208		
3	19	MP	agm	0				0		
3	20	MP	agm	0				0		
3	21	MP	lbk	0				0		
3	22	MP	agm	0				0		
4	1	SW	fuc	0			0			
4	2	SW	fuc	0			0			
4	3	SW		0			0			
4	4	SW	fil	0			0			
4	5	SW	lam	0			0			
4	6	SW	lam	0			0			
4	7	SW	lam	20			22			
4	8	SW	lam	0			0			
4	9	SW	lam	0			0			
4	10	SW	lam	0			0			
5	1	PD		0	0					
5	2	PD	ulv	0	0					

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Appendix B.3. (page 3 of 8)

Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	PD cor	RL cor	SW	MP cor	KH cor	TT cor
5	3	PD	elg	0	0					
5	4	PD	elg	0	0					
5	5	PD	ulv	0	0					
5	6	PD	cor	0	0					
5	7	PD	cor	0	0					
5	8	PD	cor	0	0					
5	9	PD	elg	0	0					
5	10	PD	elg	0	0					
5	11	PD	elg	0	0					
5	12	PD	elg	0	0					
5	13	PD	lam	0	0					
5	14	PD	fir	0	0					
5	15	PD	cor	0	0					
5	16	PD	cor	0	0					
5	17	PD	mac	60	78.6					
5	18	PD	mac	50	65.5					
5	19	PD	mac	5	6.55					
5	20	PD	mac	70	91.7					
5	21	PD	mac	400	524					
5	22	PD	mac	50	65.5					
5	23	PD	agm	2	2.4					
5	24	PD	agm	1	1.2					
5	25	PD	agm	0	0					
5	26	PD	agm	0	0					
5	27	PD		0	0					
6	1	RL	fuc	0		0				
6	2	RL		0		0				
6	3	RL		0		0				
6	4	RL	fuc	0		0				
6	5	RL	elg	1		1.09				
6	6	RL	lam	1		1.12				
6	7	RL	mac	100		109				
6	8	RL	mac	250		272.5				
6	9	RL	mac	80		87.2				
6	10	RL	lam	1		1.12				
6	11	RL	lam	2		2.24				
6	12	RL	lam	3		3.36				
6	13	RL	lam	1		1.12				
6	14	RL	lam	5		5.6				
6	15	RL	lam	1		1.12				
6	16	RL	lam	0		0				
6	17	RL	lam	0		0				
6	18	RL	lam	0		0				
6	19	RL	lam	0		0				
6	20	RL	lam	0		0				
7	1	MP	fuc	4				7.64		
7	2	MP		1				0.89		
7	3	MP	fuc	20				38.2		
7	4	MP	fuc	10				19.1		
7	5	MP	fuc	25				47.75		
7	6	MP	fir	40				35.6		
7	7	MP	red	50				44.5		
7	8	MP	ulv	15				13.35		
7	9	MP	fil	30				26.7		
7	10	MP	lam	40				83.2		
7	11	MP	lam	10				20.8		
7	12	MP	red	200				178		
7	13	MP	lam	0				0		

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Appendix B.3. (page 4 of 8)

Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	PD cor	RL cor	SW	MP cor	KH cor	TT cor
7	14	MP	lam	0				0		
7	15	MP		0				0		
7	16	MP	lam	0				0		
7	17	MP	lam	0				0		
7	18	MP	lam	0				0		
8	1	TT	fuc	2						4.6
8	2	TT	fir	3						3.27
8	3	TT	hir	20						32
8	4	KH	lam	80					104	
8	5	KH	mac	100					111	
8	6	KH	mac	120					133.2	
8	7	KH	mac	90					99.9	
8	8	KH	mac	120					133.2	
8	9	KH	mac	80					88.8	
8	10	KH	mac	100					111	
8	11	KH	mac	60					66.6	
8	12	KH		0					0	
8	13	KH	lam	10					13	
8	14	KH	lam	1					1.3	
8	15	KH	lam	2					2.6	
8	16	KH		0					0	
8	17	KH		0					0	
9	1	TT	fuc	2						4.6
9	2	TT	fuc	5						11.5
9	3	TT		0						0
9	4	TT	fuc	25						57.5
9	5	TT	elg	60						69.6
9	6	TT	fir	80						87.2
9	7	TT	lam	90						228.6
9	8	TT	lam	50						127
9	9	TT	lam	7						17.78
9	10	TT	mac	60						65.4
9	11	TT	mac	200						218
9	12	TT	mac	70						76.3
9	13	TT	elg	6						6.96
9	14	TT	lam	10						25.4
9	15	TT	lam	30						76.2
9	16	TT	lam	4						10.16
9	17	TT	mac	375						408.75
9	18	TT	lam	15						38.1
9	19	TT	lam	20						50.8
9	20	TT	lam	30						76.2
9	21	TT	elg	15						17.4
9	22	TT	mac	300						327
9	23	TT	fir	150						163.5
9	24	TT	fir	20						21.8
9	25	TT	fir	80						87.2
9	26	TT	mac	75						81.75
9	27	TT	fir	90						98.1
9	28	TT	red	55						59.95
9	29	TT	hir	5						8
9	30	TT	lam	45						114.3
9	31	TT	cor	9						9.81
9	32	TT	fir	40						43.6
9	33	TT	fir	25						27.25
9	34	TT	lam	15						38.1
9	35	TT	fir	10						10.9
9	36	TT	cor	25						27.25

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	PD cor	RL cor	SW	MP cor	KH cor	TT cor
10	1	SW		0			0			
10	2	SW		0			0			
10	3	SW		0			0			
10	4	SW	ulv	0			0			
10	5	SW	elg	50			63			
10	6	SW	elg	20			25.2			
10	7	SW	elg	5			6.3			
10	8	SW	lbk	0			0			
10	9	SW	lbk	3			3.3			
10	10	SW	lbk	0			0			
10	11	SW	hir	0			0			
10	12	SW	lbk	0			0			
10	13	SW	lbk	0			0			
11	1	PD	fuc	0	0					
11	2	PD	fuc	0	0					
11	3	PD		0	0					
11	4	PD	fir	0	0					
11	5	RL	elg	90		98.1				
11	6	RL	elg	150		163.5				
11	7	RL	elg	125		136.25				
11	8	RL	elg	25		27.25				
11	9	RL	elg	1		1.09				
11	10	RL	elg	0		0				
11	11	RL		0		0				
11	12	RL		0		0				
11	13	RL	lam	0		0				
12	1	RL	fuc	0		0				
12	2	RL		2		2.18				
12	3	RL	fuc	35		37.8				
12	4	RL	fir	90		98.1				
12	5	RL	lam	60		67.2				
12	6	RL	fil	20		21.8				
12	7	RL		0		0				
12	8	RL	red	0		0				
12	9	RL	agm	80		89.6				
12	10	RL	lam	50		56				
12	11	RL	agm	1		1.12				
12	12	RL	lam	0		0				
12	13	RL	red	0		0				
13	1	PD	ulv	0	0					
13	2	PD	fuc	0	0					
13	3	PD	fil	50	65.5					
13	4	PD	lam	70	84					
13	5	PD	lam	110	132					
13	6	PD	fir	130	170.3					
13	7	PD	fir	160	209.6					
13	8	PD	fir	70	91.7					
13	9	PD	fuc	60	60					
13	10	PD	lam	70	84					
13	11	PD	lam	50	60					
13	12	PD	lam	50	60					
13	13	PD	lam	120	144					
13	14	PD	lam	30	36					
13	15	PD		5	6.55					
13	16	PD	lam	2	2.4					
13	17	PD	lam	10	12					
13	18	PD		1	1.31					
13	19	PD	lam	1	1.2					

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	PD cor	RL cor	SW	MP cor	KH cor	TT cor
13	20	PD		3	3.93					
13	21	PD		0	0					
13	22	PD		0	0					
13	23	PD		0	0					
13	24	PD		0	0					
14	1	PD	fuc	0	0					
14	2	PD		0	0					
14	3	PD		0	0					
14	4	PD		0	0					
14	5	PD	fuc	0	0					
14	6	PD		0	0					
14	7	PD		0	0					
14	8	PD	fuc	5	5					
14	9	PD	elg	40	51.6					
14	10	PD	fir	75	98.25					
14	11	PD	elg	40	51.6					
14	12	PD	elg	1	1.29					
14	13	PD	elg	1	1.29					
14	14	PD		0	0					
14	15	PD		0	0					
14	16	PD		0	0					
14	17	PD		0	0					
15	1	SW	fuc	0			0			
15	2	SW		0			0			
15	3	RL	agm	125		140				
15	4	RL	lam	35		39.2				
15	5	RL		0		0				
15	6	RL		0		0				
16	1	SW	fuc	0			0			
16	2	SW	fuc	0			0			
16	3	SW	fuc	15			18.75			
16	4	SW	fil	0			0			
16	5	SW	fil	25			19.75			
16	6	SW	elg	20			25.2			
16	7	SW	elg	0			0			
16	8	SW		0			0			
16	9	SW		0			0			
17	1	TT	fuc	20						46
17	2	TT	elg	9						10.44
17	3	TT	elg	70						81.2
17	4	TT	lam	1						2.54
17	5	TT	elg	30						34.8
17	6	TT	red	25						27.25
17	7	TT	elg	7						8.12
17	8	TT	elg	15						17.4
17	9	TT	elg	60						69.6
17	10	TT	elg	80						92.8
17	11	TT	elg	70						81.2
17	12	TT	elg	5						5.8
17	13	TT	ulv	0						0
17	14	TT	fir	10						10.9
17	15	TT	lam	3						7.62
17	16	TT	lam	15						38.1
17	17	TT	lam	15						38.1
17	18	TT	elg	4						4.64
17	19	TT	lam	0						0
17	20	TT	lam	0						0
17	21	TT	cor	2						2.18

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	PD cor	RL cor	SW	MP cor	KH cor	TT cor
17	22	TT	lam	25						63.5
17	23	TT	lam	15						38.1
17	24	TT	lam	1						2.54
17	25	TT	lam	0						0
17	26	TT	lam	1						2.54
17	27	TT	lam	0						0
17	28	TT	lam	0						0
17	29	TT	lam	0						0
18	1	MP	cym	0				0		
18	2	MP	elg	3				3.18		
18	3	MP	elg	0				0		
18	4	MP	lam	0				0		
18	5	MP	lam	0				0		
18	6	MP		0				0		
18	7	MP		0				0		
19	1	KH	fuc	0					0	
19	2	KH	elg	25					66.5	
19	3	KH	elg	70					186.2	
19	4	KH	elg	75					199.5	
19	5	KH	elg	10					26.6	
19	6	KH	elg	20					53.2	
19	7	KH	elg	15					39.9	
19	8	KH	elg	3					7.98	
19	9	KH	elg	3					7.98	
19	10	KH	elg	1					2.66	
19	11	KH	lam	1					1.3	
19	12	KH	lam	1					1.3	
19	13	KH	lam	2					2.6	
19	14	KH	lam	2					2.6	
19	15	KH	elg	2					5.32	
19	16	KH	elg	1					2.66	
19	17	KH	lam	3					3.9	
19	18	KH	lam	5					6.5	
19	19	KH	lam	5					6.5	
19	20	KH	lam	3					3.9	
19	21	KH	lam	4					5.2	
19	22	KH	lam	1					1.3	
19	23	KH	lam	1					1.3	
19	24	KH	lam	0					0	
19	25	KH	lam	0					0	
19	26	KH	lam	0					0	
19	27	KH	lam	2					2.6	
19	28	KH	lam	1					1.3	
19	29	KH	lam	0					0	
19	30	KH	lam	0					0	
19	31	KH		0					0	
20	1	KH		0					0	
20	2	KH	ulv	0					0	
20	3	KH	elg	0					0	
20	4	KH	elg	0					0	
20	5	KH	elg	0					0	
20	6	KH	elg	0					0	
20	7	KH	elg	0					0	
20	8	KH	elg	0					0	
20	9	KH	elg	0					0	
20	10	KH	elg	0					0	
20	11	KH	elg	0					0	
20	12	KH		0					0	

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	PD cor	RL cor	SW	MP cor	KH cor	TT cor
21	1	MP		0				0		
21	2	MP	ulv	0				0		
21	3	MP	elg	0				0		
21	4	MP	elg	0				0		
21	5	MP	elg	0				0		
21	6	MP		0				0		
21	7	MP		0				0		
21	8	MP		0				0		
22	1	KH	fuc	0					0	
22	2	KH	lbk	0					0	
22	3	KH	elg	1					2.66	
22	4	KH	elg	0					0	
22	5	KH	elg	0					0	
22	6	KH	elg	0					0	

Appendix B4. Hobart Bay/Port Houghton spawn deposition survey.

Dates: May 11–12, 2001.

Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	PD cor	MP cor	KH cor	WB cor	TT cor
1	1	DG	fuc	0	0					
1	2	DG	fuc	10	15.3					
1	3	DG	elg	0	0					
1	4	DG	elg	0	0					
1	5	DG	lam	0	0					
1	6	DG	elg	0	0					
1	7	DG	elg	1	1.17					
1	8	DG	elg	2	2.34					
1	9	DG	elg	0	0					
1	10	DG	elg	0	0					
1	11	DG	elg	0	0					
1	12	DG		0	0					
2	1	TT		0						0
2	2	TT		0						0
2	3	TT		0						0
2	4	TT		0						0
2	5	TT		0						0
2	6	TT		0						0
2	7	TT	elg	0						0
2	8	TT	elg	0						0
2	9	TT		0						0
10	1	DG		0	0					
10	2	DG		0	0					
10	3	DG		0	0					
10	4	DG		0	0					
10	5	DG	lbk	3	4.74					
10	6	DG	red	0	0					
10	7	DG	red	0	0					
10	8	DG	lbk	1	1.58					
10	9	DG	red	0	0					
10	10	DG	ulv	1	1.59					
10	11	DG	ulv	0	0					
10	12	DG	ala	2	3.16					
10	13	DG	ulv	0	0					
10	14	DG	ala	1	1.58					
10	15	DG	lbk	0	0					
10	16	DG	lbk	0	0					
10	17	DG	agm	5	7.9					
10	18	DG	lbk	0	0					
10	19	DG	lbk	0	0					
10	20	DG		0	0					
10	21	DG	lbk	1	1.58					
10	22	DG		0	0					
10	23	DG		0	0					
10	24	DG	lam	0	0					
10	25	DG	lam	0	0					
20	1	MP	ala	0			0			
20	2	MP	ala	2			4.16			
20	3	MP	lam	0			0			
20	4	MP	agm	0			0			
20	5	MP	agm	0			0			
19	1	PD		0		0				
19	2	PD		0		0				
19	3	PD		0		0				
19	4	PD	ulv	1		1.31				
19	5	PD	fuc	40		40				
19	6	PD	lam	10		12				
19	7	PD	lam	1		1.2				

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	PD cor	MP cor	KH cor	WB cor	TT cor
19	8	PD	lam	1		1.2				
19	9	PD	hir	5		6.05				
19	10	PD		0		0				
19	11	PD	lam	0		0				
19	12	PD		0		0				
19	13	PD		0		0				
19	14	PD	lam	0		0				
15	1	KH	fuc	10				17		
15	2	KH	fuc	25				43		
15	3	KH	fuc	3				5		
15	4	DG	fuc	1	1.53					
15	5	DG	fuc	1	1.53					
15	6	DG		0	0					
15	7	DG	fuc	3	4.59					
15	8	DG		0	0					
15	9	DG	fuc	1	1.53					
15	10	DG		0	0					
15	11	DG		0	0					
15	12	DG		0	0					
15	13	DG		0	0					
15	14	DG	ulv	1	1.59					
15	15	DG		0	0					
15	16	DG		0	0					
15	17	DG	hir	0	0					
15	18	DG		0	0					
15	19	DG		0	0					
15	20	DG		0	0					
15	21	DG		0	0					
3	1	WB	fuc	0					0	
3	2	WB		0					0	
3	3	WB		0					0	
3	4	WB	fuc	0					0	
3	5	WB		0					0	
3	6	WB	red	0					0	
3	7	WB	fuc	0					0	
3	8	WB	ulv	0					0	
3	9	WB	ulv	3					3.27	
3	10	KH	ulv	5				6		
3	11	KH	lbk	5				7		
3	12	KH	ulv	5				6		
3	13	KH	hir	15				18		
3	14	KH	lbk	10				13		
3	15	KH	hir	1				1		
3	16	KH	lbk	0				0		
3	17	KH	agm	0				0		
3	18	KH	lbk	0				0		
3	19	KH	lbk	1				1		
3	20	KH	agm	0				0		
3	21	KH	agm	0				0		
3	22	KH	agm	1				1		
3	23	KH	fil	0				0		
3	24	KH	lbk	0				0		
3	25	KH	lbk	0				0		
3	26	KH	lbk	0				0		
3	27	KH	lbk	1				1		
3	28	KH	hir	25				30		
3	29	KH	fil	0				0		
3	30	KH		0				0		

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	PD cor	MP cor	KH cor	WB cor	TT cor
3	31	KH		0				0		
4	1	TT	fuc	1						2.3
4	2	TT	fuc	1						2.3
4	3	TT	fuc	10						23
4	4	TT		1						1.09
4	5	TT	fir	10						10.9
4	6	WB	ala	5					4.45	
4	7	WB	cym	25					22.25	
4	8	WB	lam	1					0.89	
4	9	WB	lam	2					1.78	
4	10	WB	agm	55					48.95	
4	11	WB	lam	0					0	
4	12	WB	lam	0					0	
5	1	KH	fuc	10				17		
5	2	KH	fuc	10				17		
5	3	KH		0				0		
5	4	KH		0				0		
5	5	KH		0				0		
5	6	KH	fuc	10				17		
5	7	KH	ulv	0				0		
5	8	KH	fuc	5				9		
5	9	KH	fil	0				0		
5	10	KH	ulv	0				0		
5	11	KH	agm	5				7		
5	12	KH	ala	0				0		
5	13	WB	lbk	10					8.9	
5	14	WB	lbk	15					13.35	
5	15	WB	agm	20					17.8	
5	16	WB	lam	0					0	
5	17	WB	agm	0					0	
5	18	WB		0					0	
6	1	TT	ala	15						38.1
6	2	TT		0						0
6	3	TT		0						0
6	4	TT	agm	2						5.08
6	5	TT	lam	25						63.5
6	6	TT		0						0
7	1	KH	fuc	10				17		
7	2	KH	fuc	1				2		
7	3	KH		0				0		
7	4	KH		0				0		
7	5	KH		0				0		
7	6	KH	ulv	0				0		
7	7	KH	ulv	20				22		
7	8	KH	fuc	4				7		
7	9	KH	ulv	10				11		
7	10	KH	ulv	5				6		
7	11	KH	ulv	5				6		
7	12	KH	lam	3				4		
7	13	KH	lam	1				1		
7	14	KH		0				0		
7	15	KH	lam	1				1		
7	16	KH	ulv	0				0		
7	17	KH	red	0				0		
7	18	KH	ulv	0				0		
7	19	KH	ulv	0				0		
7	20	KH	ulv	0				0		
7	21	KH	lam	0				0		

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	PD cor	MP cor	KH cor	WB cor	TT cor
7	22	KH	lam	0				0		
7	23	KH	lam	0				0		
7	24	KH	ulv	0				0		
7	25	KH	ulv	0				0		
7	26	KH	hir	0				0		
7	27	KH	lam	0				0		
8	1	WB	fir	1					1.09	
8	2	WB	fir	25					27.25	
8	3	WB	fir	10					10.9	
8	4	WB	fir	25					27.25	
8	5	WB	lam	5					4.45	
8	6	WB	hir	12					14.28	
8	7	WB	agm	0					0	
8	8	WB	agm	0					0	
8	9	WB		3					3.27	
8	10	WB	lbk	0					0	
8	11	WB		0					0	
9	1	WB	fuc	120					148.8	
9	2	WB	fuc	5					6.2	
9	3	TT	fuc	50						115
9	4	TT	fuc	50						115
9	5	TT	red	0						0
9	6	TT		0						0
9	7	TT		0						0
9	8	TT	red	0						0
9	9	TT	lam	40						101.6
9	10	TT	agm	10						25.4
9	11	TT	hir	2						3.2
9	12	TT		0						0
9	13	TT	hir	1						1.6
9	14	TT		0						0
9	15	TT	lam	0						0
9	16	TT	red	0						0
9	17	TT		0						0
11	1	WB	ulv	10					10.9	
11	2	WB	ulv	0					0	
11	3	WB		0					0	
11	4	WB		5					5.45	
11	5	WB	fuc	1					1.24	
11	6	WB		0					0	
11	7	WB	fuc	0					0	
11	8	WB	lam	1					0.89	
11	9	WB	lam	1					0.89	
11	10	WB	fuc	0					0	
11	11	WB	lam	30					26.7	
11	12	WB		2					2.18	
11	13	WB	lam	15					13.35	
11	14	WB	ulv	4					4.36	
11	15	WB	lam	0					0	
11	16	WB	lam	2					1.78	
11	17	WB	lam	25					22.25	
11	18	WB	lam	35					31.15	
11	19	WB	lam	6					5.34	
11	20	WB	lam	10					8.9	
11	21	WB	lam	10					8.9	
11	22	WB		1					1.09	
11	23	WB	lam	1					0.89	
11	24	WB	hir	0					0	

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Appendix B.4. (page 5 of 8)

Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	PD cor	MP cor	KH cor	WB cor	TT cor
12	1	KH	fuc	0				0		
12	2	KH	fuc	0				0		
12	3	KH		0				0		
12	4	KH		0				0		
12	5	KH	fuc	0				0		
12	6	KH	ulv	0				0		
12	7	KH	fuc	0				0		
12	8	KH	fir	0				0		
12	9	KH	fir	0				0		
12	10	KH	fir	1				1		
12	11	KH	agm	5				7		
12	12	KH		0				0		
12	13	KH	agm	2				3		
12	14	KH	lam	0				0		
12	15	KH		4				4		
12	16	KH		0				0		
12	17	KH		0				0		
13	1	PD	fuc	0		0				
13	2	PD		0		0				
13	3	PD	fuc	0		0				
13	4	PD	fuc	0		0				
13	5	PD	fuc	0		0				
13	6	PD		0		0				
13	7	PD	ulv	0		0				
13	8	PD		0		0				
13	9	PD	lam	0		0				
13	10	PD	fil	0		0				
13	11	PD	ulv	0		0				
13	12	PD	fuc	0		0				
13	13	PD	ala	0		0				
13	14	PD	lam	0		0				
13	15	PD	agm	5		6				
13	16	PD	cym	20		24				
13	17	PD		0		0				
13	18	PD	lam	0		0				
13	19	PD	agm	0		0				
13	20	PD	agm	0		0				
14	1	TT	fuc	0						0
14	2	TT	fuc	0						0
14	3	TT		0						0
14	4	TT		0						0
14	5	TT		0						0
14	6	TT		0						0
14	7	TT		0						0
14	8	TT		0						0
14	9	TT	ulv	0						0
14	10	TT	ulv	0						0
14	11	TT		0						0
14	12	TT	red	0						0
14	13	TT	lam	1						2.54
14	14	TT	lam	7						17.78
14	15	TT	elg	0						0
14	16	TT	lam	9						22.86
14	17	TT		0						0
14	18	TT	lam	1						2.54
14	19	TT		0						0
14	20	TT	lam	0						0
14	21	TT	lam	1						2.54

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Appendix B.4. (page 6 of 8)

Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	PD cor	MP cor	KH cor	WB cor	TT cor
14	22	TT	red	0						0
14	23	TT	lbk	1						2.54
14	24	TT		1						1.09
14	25	TT	hir	5						8
14	26	TT	lam	5						12.7
14	27	TT	agm	3						7.62
14	28	TT	hir	1						1.6
14	29	TT	lam	5						12.7
14	30	TT	lam	1						2.54
14	31	TT	lam	2						5.08
14	32	TT	red	0						0
16	1	TT	fuc	0						0
16	2	TT		0						0
16	3	TT	fuc	1						2.3
16	4	TT		0						0
16	5	TT	fuc	1						2.3
16	6	TT	lbk	5						12.7
16	7	KH		50				56		
16	8	KH		0				0		
16	9	KH		0				0		
16	10	KH	fuc	0				0		
16	11	KH	fir	0				0		
16	12	KH		0				0		
16	13	KH		0				0		
16	14	KH		0				0		
16	15	KH		0				0		
16	16	KH		0				0		
16	17	KH		0				0		
16	18	KH		0				0		
16	19	KH		0				0		
16	20	KH		0				0		
16	21	KH		0				0		
16	22	KH		0				0		
16	23	KH	elg	0				0		
16	24	KH	elg	0				0		
16	25	KH	elg	1				3		
16	26	KH	elg	0				0		
16	27	KH	elg	1				3		
16	28	KH	elg	1				3		
16	29	KH	elg	1				3		
16	30	KH	elg	1				3		
16	31	KH		0				0		
16	32	KH		0				0		
16	33	KH		0				0		
16	34	KH		0				0		
16	35	KH		0				0		
16	36	KH		0				0		
16	37	KH		0				0		
16	38	KH		0				0		
16	39	KH		0				0		
16	40	KH		0				0		
16	41	KH		0				0		
16	42	KH	elg	1				3		
16	43	KH	elg	0				0		
16	44	KH	elg	1				3		
16	45	KH		0				0		
16	46	KH	elg	2				5		
16	47	KH	elg	1				3		

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	PD cor	MP cor	KH cor	WB cor	TT cor
16	48	KH	elg	2				5		
16	49	KH	elg	0				0		
16	50	KH	elg	1				3		
16	51	KH		0				0		
16	52	KH	elg	1				3		
16	53	KH		0				0		
16	54	KH		0				0		
16	55	KH		0				0		
16	56	KH		0				0		
16	57	KH		0				0		
16	58	KH	lam	1				1		
16	59	KH		0				0		
17	1	PD		0		0				
17	2	PD	fuc	1		1				
17	3	PD	fuc	2		2				
17	4	MP		0			0			
17	5	MP		0			0			
17	6	MP		0			0			
17	7	MP		0			0			
17	8	MP		0			0			
17	9	MP		0			0			
17	10	MP		0			0			
17	11	MP		0			0			
17	12	MP		0			0			
17	13	MP		0			0			
17	14	MP		0			0			
17	15	MP		0			0			
17	16	MP		0			0			
17	17	MP		0			0			
17	18	MP		0			0			
17	19	MP		0			0			
17	20	MP	hir	3			3.45			
17	21	MP	hir	3			3.45			
17	22	MP	elg	5			5.3			
17	23	MP	elg	5			5.3			
17	24	MP	elg	2			2.12			
17	25	MP	elg	2			2.12			
17	26	MP	elg	1			1.06			
17	27	MP	elg	1			1.06			
17	28	MP	elg	2			2.12			
17	29	MP	elg	1			1.06			
17	30	MP	elg	1			1.06			
17	31	MP		0			0			
17	32	MP	lam	1			2.08			
17	33	MP	agm	5			10.4			
17	34	MP	agm	2			4.16			
17	35	MP	agm	30			62.4			
17	36	MP	agm	2			4.16			
17	37	MP	agm	5			10.4			
17	38	MP	agm	0			0			
17	39	MP	agm	25			52			
17	40	MP	agm	10			20.8			
17	41	MP	agm	0			0			
17	42	MP	agm	0			0			
17	43	MP	agm	2			4.16			
17	44	MP	agm	0			0			
18	1	WB	fuc	60					74.4	
18	2	WB	lam	5					4.45	

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	PD cor	MP cor	KH cor	WB cor	TT cor
18	3	WB	lam	90					80.1	
18	4	WB	lam	30					26.7	
18	5	WB	lam	1					0.89	
18	6	WB	lam	600					534	
18	7	WB	fuc	0					0	
18	8	WB	lam	5					4.45	
18	9	WB	fuc	0					0	
18	10	WB	fir	0					0	
18	11	WB	fuc	0					0	
18	12	WB	fuc	0					0	
18	13	WB	fuc	0					0	
18	14	WB	fir	0					0	
18	15	WB	fuc	2					2.48	
18	16	WB	fuc	10					12.4	
18	17	WB		1					1.09	
18	18	WB	fuc	2					2.48	
18	19	WB		2					2.18	
18	20	WB	fuc	2					2.48	
18	21	WB		1					1.09	
18	22	WB	fuc	4					4.96	
18	23	WB	fuc	5					6.2	
18	24	WB	fuc	15					18.6	
18	25	WB	fuc	45					55.8	
18	26	WB	ulv	7					7.63	
18	27	WB	fil	20					21.8	
18	28	WB	fil	5					5.45	
18	29	WB	fil	2					2.18	
18	30	WB	lam	2					1.78	
18	31	WB	lam	0					0	
18	32	WB	lam	20					17.8	
18	33	WB	lam	15					13.35	
18	34	WB	lam	5					4.45	
18	35	WB	lam	1					0.89	
18	36	WB	lam	0					0	
18	37	WB	hir	20					23.8	
18	38	WB		0					0	
18	39	WB	lam	0					0	
18	40	WB		0					0	

Appendix B5. Seymour Canal spawn deposition survey.

Dates: May 21–22, 2001.

Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	MP cor	KH cor	WB cor	TT cor
1	1	MP		0		0			
1	2	MP	lam	50		104			
1	3	MP	lam	25		52			
1	4	MP	lam	0		0			
2	1	KH		0			0		
2	2	KH	fil	35			39		
2	3	KH	lam	90			117		
2	4	KH		2			2		
2	5	KH	lam	1			1		
2	6	KH		0			0		
3	1	TT	fuc	0					0
3	2	TT	fuc	2					4.6
3	3	TT	fil	10					10.9
3	4	TT	fuc	1					2.3
3	5	TT	ala	60					152.4
3	6	TT	ala	120					304.8
3	7	TT	lam	35					88.9
3	8	TT	hir	1000					1600
3	9	TT	lam	10					25.4
3	10	TT		0					0
3	11	TT		0					0
3	12	TT	lam	0					0
3	13	TT	lam	0					0
4	1	TT	fuc	0					0
4	2	TT		0					0
4	3	TT	fuc	60					138
4	4	MP	ala	80		166.4			
4	5	MP	ala	35		72.8			
4	6	MP		0		0			
4	7	MP		2		1.78			
4	8	MP		0		0			
4	9	MP		0		0			
4	10	MP		0		0			
4	11	MP		0		0			
4	12	MP		0		0			
5	1	MP	fuc	0		0			
5	2	MP	fir	10		8.9			
5	3	MP	fuc	0		0			
5	4	MP	fir	5		4.45			
5	5	MP	fuc	0		0			
5	6	MP	fuc	1		1.91			
5	7	MP	fuc	0		0			
5	8	MP		0		0			
5	9	MP		1		0.89			
5	10	MP	fuc	10		19.1			
5	11	MP	fuc	2		3.82			
5	12	MP	fuc	30		57.3			
5	13	MP		60		53.4			
5	14	MP		80		71.2			
5	15	MP	ulv	5		4.45			
5	16	MP	lam	60		124.8			
5	17	MP	lam	35		72.8			
5	18	MP	lam	15		31.2			
5	19	MP	lam	5		10.4			
5	20	MP	hir	450		517.5			
5	21	MP	lbk	65		135.2			
5	22	MP	lbk	10		20.8			
5	23	MP	agm	50		104			

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	MP cor	KH cor	WB cor	TT cor
5	24	MP	agm	25		52			
5	25	MP	lbk	75		156			
5	26	MP	lam	15		31.2			
5	27	MP	lbk	80		166.4			
5	28	MP		3		2.67			
5	29	MP	agm	0		0			
6	1	WB		0				0	
6	2	WB		0				0	
6	3	WB		0				0	
6	4	WB		0				0	
6	5	WB	fuc	1				1.24	
6	6	WB	fuc	7				8.68	
6	7	WB		0				0	
6	8	WB	ala	100				89	
6	9	WB	ala	40				35.6	
6	10	WB	ulv	1				1.09	
6	11	WB		1				1.09	
6	12	WB		0				0	
6	13	WB		0				0	
6	14	WB		1				1.09	
6	15	WB		0				0	
6	16	WB		0				0	
6	17	WB		0				0	
7	1	WB	fuc	0				0	
7	2	WB		0				0	
7	3	WB		0				0	
7	4	WB		0				0	
7	5	WB	fuc	0				0	
7	6	WB		0				0	
7	7	WB		0				0	
7	8	WB		0				0	
7	9	WB		0				0	
7	10	WB		0				0	
7	11	WB		0				0	
7	12	WB	ulv	0				0	
7	13	WB	fuc	0				0	
7	14	WB	red	0				0	
7	15	WB	fuc	0				0	
7	16	WB	ala	70				62.3	
7	17	WB	lam	100				89	
7	18	WB		130				141.7	
7	19	WB	agm	80				71.2	
7	20	WB	agm	40				35.6	
7	21	WB	agm	15				13.35	
7	22	WB	agm	15				13.35	
7	23	WB	agm	3				2.67	
7	24	WB	agm	2				1.78	
7	25	WB	lam	1				0.89	
7	26	WB	agm	1				0.89	
7	27	WB	agm	3				2.67	
7	28	WB	lam	0				0	
7	29	WB		0				0	
8	1	TT		0					0
8	2	TT	fir	2					2.18
8	3	TT	fuc	3					6.9
8	4	TT		0					0
8	5	TT		0					0
8	6	TT		0					0
8	7	TT		0					0

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	MP cor	KH cor	WB cor	TT cor
8	8	TT	ala	0					0
8	9	TT	fir	1					1.09
8	10	TT		0					0
8	11	TT		2					2.18
8	12	TT		4					4.36
8	13	TT		2					2.18
8	14	TT		5					5.45
8	15	TT		35					38.15
8	16	TT		10					10.9
8	17	TT		0					0
8	18	TT		3					3.27
8	19	TT		30					32.7
8	20	TT		1					1.09
8	21	TT		2					2.18
8	22	TT		1					1.09
8	23	TT		2					2.18
8	24	TT	ala	3					7.62
8	25	TT	ala	2					5.08
8	26	TT	ala	0					0
8	27	TT	lam	0					0
8	28	TT	hir	0					0
8	29	TT	hir	0					0
9	1	WB		0				0	
9	2	WB		0				0	
9	3	WB		2				2.18	
9	4	WB		3				3.27	
9	5	WB		1				1.09	
9	6	WB		0				0	
9	7	WB		0				0	
9	8	WB		0				0	
9	9	WB		0				0	
10	1	DG		0	0				
10	2	DG		0	0				
10	3	DG	lam	12	18.96				
10	4	DG	lam	1	1.58				
10	5	DG	lam	4	6.32				
10	6	DG	lam	1	1.58				
10	7	DG	lam	1	1.58				
10	8	DG	lam	7	11.06				
10	9	DG	lam	2	3.16				
10	10	DG	lam	25	39.5				
10	11	DG	lam	20	31.6				
10	12	DG	lam	1	1.58				
10	13	DG	lam	3	4.74				
10	14	DG	lam	1	1.58				
10	15	DG	ala	0	0				
10	16	DG	ala	1	1.58				
10	17	DG	cym	2	3.16				
10	18	DG	lam	0	0				
10	19	DG	hir	0	0				
10	20	DG	lam	1	1.58				
10	21	DG	hir	0	0				
10	22	DG	lam	1	1.58				
10	23	DG	lam	2	3.16				
10	24	DG	hir	40	52.8				
10	25	DG	lam	1	1.58				
10	26	DG	lam	35	55.3				
10	27	DG	lam	10	15.8				
10	28	DG	lam	4	6.32				

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Appendix B.5. (page 4 of 8)

Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	MP cor	KH cor	WB cor	TT cor
10	29	DG	lam	0	0				
10	30	DG		0	0				
10	31	DG	lam	0	0				
10	32	DG	hir	20	26.4				
10	33	DG	lam	2	3.16				
10	34	DG	lam	0	0				
10	35	DG	agm	1	1.58				
10	36	DG	agm	5	7.9				
10	37	DG	agm	5	7.9				
10	38	DG	agm	5	7.9				
10	39	DG	lam	4	6.32				
10	40	DG	agm	8	12.64				
10	41	DG	Agm	3	4.74				
10	42	DG	lam	3	4.74				
10	43	DG	agm	5	7.9				
10	44	DG	agm	0	0				
10	45	DG	agm	0	0				
10	46	DG	agm	2	3.16				
10	47	DG	agm	2	3.16				
10	48	DG	agm	6	9.48				
10	49	DG	agm	8	12.64				
10	50	DG	lam	1	1.58				
10	51	DG	agm	5	7.9				
10	52	DG	agm	6	9.48				
10	53	DG	agm	15	23.7				
10	54	DG	agm	20	31.6				
10	55	DG	lam	1	1.58				
10	56	DG	fir	35	55.65				
10	57	DG	lam	3	4.74				
10	58	DG	lam	1	1.58				
10	59	DG	lam	1	1.58				
10	60	DG	lam	3	4.74				
10	61	DG	agm	1	1.58				
10	62	DG	lam	0	0				
10	63	DG	lam	0	0				
10	64	DG	agm	0	0				
10	65	DG	lam	1	1.58				
10	66	DG	lam	1	1.58				
10	67	DG	agm	0	0				
10	68	DG	agm	0	0				
10	69	DG	lam	0	0				
10	70	DG	lam	0	0				
10	71	DG	lam	0	0				
11	1	KH		0			0		
11	2	KH		0			0		
11	3	KH		0			0		
11	4	KH	ulv	2			2		
11	5	KH	fuc	10			17		
11	6	KH	fuc	1			2		
11	7	KH		0			0		
11	8	KH		0			0		
11	9	KH		0			0		
11	10	KH		0			0		
11	12	KH	ulv	3			3		
11	13	KH	ulv	15			17		
11	14	KH	fuc	85			145		
11	15	KH	fuc	0			0		
11	16	KH	ala	75			98		
11	17	KH	ala	75			98		

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	MP cor	KH cor	WB cor	TT cor
11	18	KH	red	1			1		
11	19	KH	red	0			0		
11	20	KH		0			0		
11	21	KH	ala	10			13		
11	22	KH	red	0			0		
11	23	KH	ulv	0			0		
11	24	KH	red	65			72		
11	25	KH	cym	5			7		
11	26	KH	lam	15			20		
11	27	KH	lam	8			10		
11	28	KH	agm	20			26		
11	29	KH	ulv	25			28		
11	30	KH	red	25			28		
11	31	KH	fir	15			17		
11	32	KH	red	15			17		
11	33	KH	ulv	0			0		
11	34	KH	agm	25			33		
11	35	KH	agm	50			65		
11	36	KH	hir	55			65		
11	37	KH	agm	40			52		
11	38	KH	agm	10			13		
11	39	KH	agm	25			33		
11	40	KH	agm	50			65		
11	41	KH	agm	30			39		
11	42	KH	agm	1			1		
11	43	KH	agm	0			0		
11	44	KH	agm	0			0		
11	45	KH	agm	0			0		
11	46	KH	lam	0			0		
11	47	KH	agm	0			0		
11	48	KH	agm	0			0		
11	48	KH	agm	0			0		
11	49	KH	agm	0			0		
11	50	KH	agm	0			0		
11	51	KH	agm	0			0		
11	52	KH	agm	0			0		
11	53	KH	agm	0			0		
11	54	KH	agm	3			4		
11	55	KH	agm	1			1		
11	56	KH	agm	10			13		
11	57	KH	agm	0			0		
11	58	KH	agm	0			0		
11	59	KH	agm	0			0		
11	60	KH	agm	0			0		
11	61	KH	agm	50			65		
11	62	KH	agm	30			39		
11	63	KH	agm	10			13		
11	64	KH	agm	1			1		
11	65	KH	lam	25			33		
11	66	KH	lam	1			1		
11	67	KH	agm	25			33		
11	68	KH	agm	50			65		
11	69	KH	agm	25			33		
11	70	KH	agm	1			1		
11	71	KH	cym	10			13		
11	72	KH	hir	100			118		
11	73	KH	lam	15			20		
11	74	KH	lam	0			0		
12	1	TT	fil	0					0

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	MP cor	KH cor	WB cor	TT cor
12	2	TT	fuc	120					276
12	3	TT	ulv	30					32.7
12	4	TT	ulv	25					27.25
12	5	TT	lam	15					38.1
12	6	TT	lam	10					25.4
12	7	TT	hir	35					56
12	8	TT		5					5.45
12	9	TT	lam	1					2.54
12	10	TT	hir	325					520
12	11	TT	agm	100					254
12	12	TT	lam	35					88.9
12	13	TT	agm	15					38.1
12	14	TT		0					0
12	15	TT		0					0
12	16	TT	lam	2					5.08
12	17	TT		0					0
13	1	WB		0				0	
13	2	WB		6				6.54	
13	3	WB		0				0	
13	4	WB		1				1.09	
13	5	WB	lbk	80				71.2	
13	6	WB	red	1				1.09	
13	7	WB	hir	5				5.95	
13	8	WB		1				1.09	
13	9	WB	hir	440				523.6	
13	10	WB	lam	5				4.45	
13	11	WB	lam	50				44.5	
13	12	WB	agm	65				57.85	
13	13	WB	lam	35				31.15	
13	14	WB	lam	40				35.6	
13	15	WB	lam	10				8.9	
13	16	WB	lam	80				71.2	
13	17	WB	lam	40				35.6	
13	18	WB	lam	15				13.35	
13	19	WB	agm	20				17.8	
13	20	WB	fil	1				1.09	
13	21	WB	fil	0				0	
13	22	WB		0				0	
13	23	WB	agm	1				0.89	
13	24	WB	fil	0				0	
14	1	MP		0		0			
14	2	MP		0		0			
14	3	MP	fuc	0		0			
14	4	MP	fuc	1		1.91			
14	5	MP	fuc	0		0			
14	6	MP	fuc	0		0			
14	7	MP		0		0			
14	8	MP		0		0			
14	9	MP		0		0			
14	10	MP		0		0			
14	11	MP		0		0			
15	1	DG		0	0				
15	2	DG		0	0				
15	3	DG	elg	0	0				
15	4	DG	elg	1	1.17				
15	5	DG	elg	8	9.36				
15	6	DG	elg	25	29.25				
15	7	DG	elg	30	35.1				
15	8	DG	elg	40	46.8				

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	MP cor	KH cor	WB cor	TT cor
15	9	DG	elg	30	35.1				
15	10	DG	elg	20	23.4				
15	11	DG	elg	1	1.17				
15	12	DG	elg	0	0				
15	13	DG		0	0				
15	14	DG		0	0				
15	15	DG		0	0				
15	16	DG		0	0				
15	17	DG		0	0				
15	18	DG		0	0				
16	1	KH	fuc	5			9		
16	2	KH	fuc	60			102		
16	3	KH	fuc	15			26		
16	4	KH	fuc	5			9		
16	5	KH	fuc	35			60		
16	6	KH		0			0		
16	7	KH	fuc	7			12		
16	8	KH	fuc	50			85		
16	9	KH	fuc	15			26		
16	10	KH	fir	10			11		
16	11	KH	fuc	60			102		
16	12	KH	fuc	0			0		
16	13	KH	fuc	100			170		
16	14	KH	fuc	50			85		
16	15	KH		0			0		
16	16	KH	fuc	0			0		
16	17	KH		0			0		
16	18	KH	fuc	0			0		
16	19	KH	fir	80			89		
16	20	KH	fir	100			111		
16	21	KH	fir	100			111		
16	22	KH	lam	40			52		
16	23	KH	lam	20			26		
16	24	KH	hir	50			59		
16	25	KH	lam	15			20		
16	26	KH	lam	0			0		
16	27	KH	lam	0			0		
16	28	KH	lam	0			0		
16	29	KH		0			0		
17	1	TT		0					0
17	2	TT		0					0
17	3	TT		0					0
17	4	TT	fir	0					0
17	5	TT	fir	0					0
17	6	TT	lam	0					0
17	7	TT	lam	0					0
17	8	TT	lam	0					0
17	9	TT	lam	0					0
17	10	TT	lam	0					0
17	11	TT	lam	0					0
17	12	TT	lam	0					0
18	1	WB	fuc	0				0	
18	2	WB		0				0	
18	3	WB		0				0	
18	4	WB	ala	0				0	
18	5	WB	agm	0				0	
18	6	WB	agm	0				0	
18	7	WB	lbk	0				0	
18	8	WB	lam	0				0	

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	MP cor	KH cor	WB cor	TT cor
18	9	WB	lam	5				4.45	
18	10	WB	lam	1				0.89	
18	11	WB	lam	0				0	
18	12	WB	lam	0				0	
18	13	WB	hir	0				0	
18	14	WB	lam	0				0	
18	15	WB	ala	0				0	
18	16	WB	lam	0				0	
18	17	WB	lam	0				0	
18	18	WB	lam	0				0	
18	19	WB	lam	0				0	
18	20	WB	lam	0				0	
18	21	WB		0				0	
18	22	WB	hir	0				0	
18	23	WB	hir	0				0	
19	1	WB	fuc	12				14.88	
19	2	WB	fuc	70				86.8	
19	3	WB	red	15				16.35	
19	4	WB		0				0	
19	5	WB	ulv	0				0	
19	6	KH	ulv	5			6		
19	7	KH	elg	100			266		
19	8	KH	elg	120			319		
19	9	KH		0			0		
19	10	KH	agm	0			0		
19	11	KH	lam	5			7		
19	12	KH	lam	1			1		
20	1	TT	fir	15					16.35
20	2	TT	fir	20					21.8
20	3	TT	fir	70					76.3
20	4	MP		0		0			
20	5	MP		0		0			
20	6	MP		0		0			
20	7	MP		0		0			
20	8	TT	elg	5					5.8
20	9	MP	elg	1		1.06			
20	10	MP	lam	0		0			
20	12	MP		0		0			
20	13	MP	lam	0		0			
20	14	MP	lam	0		0			

Appendix B.6. Tenakee spawn deposition survey.

Dates: May 8–9, 2001.

Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	PD cor	MP cor	KH cor	WB cor	TT cor
18	1	MP	fuc	0			0			
18	2	MP	fuc	0			0			
18	3	MP	fuc	0			0			
18	4	MP	fuc	0			0			
18	5	MP	ala	1			2.08			
18	6	MP	fuc	1			1.91			
18	7	MP		0			0			
18	8	MP	ala	2			4.16			
18	9	MP		0			0			
18	10	MP		0			0			
18	11	MP	ala	1			2.08			
18	12	MP	ala	10			20.8			
18	13	MP	hir	30			34.5			
18	14	MP	hir	25			28.75			
18	15	MP	ala	10			20.8			
18	16	MP	hir	35			40.25			
18	17	MP		25			22.25			
18	18	MP	fil	1			0.89			
18	19	MP	lam	25			52			
18	20	MP	hir	15			17.25			
18	21	MP	hir	5			5.75			
18	22	MP		0			0			
18	23	MP	lam	0			0			
18	24	MP		0			0			
16	1	PD	fuc	5		5				
16	2	PD		0		0				
16	3	PD		0		0				
16	4	PD		0		0				
16	5	PD		0		0				
16	6	PD	elg	0		0				
16	7	PD	elg	10		12.9				
16	8	PD	elg	20		25.8				
16	9	PD	elg	0		0				
16	10	PD		0		0				
17	1	DG		0	0					
17	2	DG	fuc	15	22.95					
17	3	DG	fuc	90	137.7					
17	4	DG	fuc	110	168.3					
17	5	DG	fuc	60	91.8					
17	6	DG		10	15.9					
17	7	DG	fil	0	0					
17	8	DG		0	0					
17	9	DG	fuc	20	30.6					
17	10	DG	fil	25	39.75					
17	11	DG		0	0					
17	12	DG	elg	40	46.8					
17	13	DG	elg	80	93.6					
17	14	DG	elg	100	117					
17	15	DG	elg	70	81.9					
17	16	DG	elg	80	93.6					
17	17	DG	elg	20	23.4					
17	18	DG	elg	15	17.55					
17	19	DG	hir	320	422.4					
17	20	DG	elg	2	2.34					
17	21	DG		1	1.59					
17	22	DG		1	1.59					
17	23	DG	hir	25	33					

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	PD cor	MP cor	KH cor	WB cor	TT cor
17	24	DG	hir	40	52.8					
17	25	DG		0	0					
17	26	DG	hir	15	19.8					
17	27	DG		0	0					
17	28	DG		0	0					
17	29	DG		0	0					
17	30	DG	lam	5	7.9					
17	31	DG		0	0					
17	32	DG	lam	2	3.16					
17	33	DG		0	0					
17	34	DG		0	0					
17	35	DG		0	0					
17	36	DG	lam	12	18.96					
17	37	DG	lam	15	23.7					
17	38	DG	lam	20	31.6					
17	39	DG		1	1.59					
17	40	DG	lam	10	15.8					
17	41	DG		0	0					
17	42	DG	lam	15	23.7					
17	43	DG		0	0					
17	44	DG	hir	10	13.2					
17	45	DG		0	0					
17	46	DG		0	0					
17	47	DG		0	0					
17	48	DG	lam	1	1.58					
17	49	DG	lam	2	3.16					
17	50	DG		0	0					
17	51	DG	lam	5	7.9					
17	52	DG		0	0					
17	53	DG	hir	10	13.2					
17	54	DG	lam	20	31.6					
17	55	DG	lam	10	15.8					
17	56	DG	lam	15	23.7					
17	57	DG	hir	5	6.6					
17	58	DG		0	0					
17	59	DG		0	0					
17	60	DG		0	0					
17	61	DG		0	0					
17	62	DG		0	0					
17	63	DG		0	0					
17	64	DG		0	0					
17	65	DG	lam	20	31.6					
17	66	DG	hir	10	13.2					
17	67	DG		0	0					
17	68	DG		0	0					
17	69	DG		0	0					
17	70	DG		0	0					
15	1	MP	fuc	10			19.1			
15	2	MP	fuc	1			1.91			
15	3	MP		0			0			
15	4	MP		0			0			
15	5	MP		1			0.89			
15	6	MP		0			0			
1	1	KH	fuc	0				0		
1	2	KH	fuc	0				0		
1	3	KH	fuc	0				0		
1	4	KH	fuc	0				0		
1	5	KH		0				0		

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	PD cor	MP cor	KH cor	WB cor	TT cor
1	6	KH	fil	0				0		
1	7	KH		0				0		
1	8	KH	fil	0				0		
1	9	KH	fir	0				0		
1	10	KH	fir	0				0		
1	11	KH		0				0		
1	12	KH	hir	40				47		
1	13	KH	hir	15				18		
1	14	KH	elg	0				0		
1	15	KH	elg	0				0		
1	16	KH		0				0		
2	1	WB		0					0	
2	2	WB	fuc	0					0	
2	3	WB		0					0	
2	4	WB		0					0	
2	5	WB	fuc	0					0	
2	6	WB		0					0	
2	7	WB	fuc	0					0	
2	8	WB	hir	60					71.4	
2	9	WB	lam	10					8.9	
2	10	WB	lam	60					53.4	
2	11	WB	lam	20					17.8	
2	12	WB	lam	1					0.89	
2	13	WB	lam	0					0	
2	14	WB	lam	0					0	
3	1	WB	fuc	0					0	
3	2	WB	fuc	0					0	
3	3	WB	fir	1					1.09	
3	4	WB		0					0	
3	5	WB	fuc	1					1.24	
3	6	WB	fir	1					1.09	
3	7	WB	fuc	0					0	
3	8	WB	fuc	9					11.16	
3	9	WB	fuc	0					0	
3	10	WB	fuc	1					1.24	
3	11	WB		1					1.09	
3	12	WB		0					0	
3	13	WB		0					0	
3	14	WB	fuc	0					0	
3	15	WB		0					0	
3	16	WB	fuc	0					0	
3	17	WB		0					0	
3	18	WB		0					0	
3	19	WB	lbk	2					1.78	
3	20	WB		0					0	
3	21	WB		0					0	
3	22	WB	fuc	0					0	
3	23	WB		0					0	
3	24	WB		0					0	
3	25	WB		0					0	
3	26	WB	fuc	0					0	
3	27	WB	fil	0					0	
3	28	WB	fuc	45					55.8	
3	29	WB	fuc	70					86.8	
3	30	WB	fuc	1					1.24	
3	31	WB	fir	90					98.1	
3	32	WB	fir	75					81.75	
3	33	WB	fil	20					21.8	

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	PD cor	MP cor	KH cor	WB cor	TT cor
3	34	WB	elg	5					3.85	
3	35	WB	elg	2					1.54	
3	36	WB	elg	1					0.77	
3	37	WB	lam	50					44.5	
3	38	WB	lam	12					10.68	
3	39	WB		0					0	
3	40	WB	lam	15					13.35	
3	41	WB		0					0	
3	42	WB	lam	15					13.35	
3	43	WB		0					0	
3	44	WB	lam	3					2.67	
3	45	WB	lam	35					31.15	
3	46	WB	lam	2					1.78	
3	47	WB		0					0	
3	48	WB		0					0	
3	49	WB	lam	1					0.89	
3	50	WB	lam	1					0.89	
3	51	WB	lam	2					1.78	
3	52	WB	lam	0					0	
3	53	WB		0					0	
4	1	TT		0						0
4	2	TT	fuc	0						0
4	3	TT	fuc	0						0
4	4	TT		0						0
4	5	TT		0						0
4	6	TT		0						0
4	7	TT	fil	0						0
4	8	TT	ala	2						5.08
4	9	TT	lam	20						50.8
4	10	TT	lam	1						2.54
4	11	TT	lam	0						0
4	12	TT		0						0
5	1	KH		0				0		
5	2	KH		0				0		
5	3	KH		0				0		
5	4	KH	fuc	0				0		
5	5	KH	fuc	0				0		
5	6	KH	fuc	0				0		
5	7	KH	fuc	0				0		
5	8	KH		0				0		
5	9	KH		0				0		
5	10	KH	fil	0				0		
5	11	KH	fil	45				50		
5	12	KH	lam	20				26		
5	13	KH		0				0		
5	14	KH		0				0		
6	1	WB	fuc	0					0	
6	2	WB	fil	0					0	
6	3	WB	fuc	15					18.6	
6	4	WB	fir	15					16.35	
6	5	WB	hir	45					53.55	
6	6	WB		0					0	
6	7	WB		0					0	
6	8	WB		0					0	
6	9	WB		0					0	
7	1	TT		0						0
7	2	TT	fuc	5						11.5
7	3	TT		0						0

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	PD cor	MP cor	KH cor	WB cor	TT cor
7	4	TT	elg	0						0
7	5	TT	elg	3						3.48
7	6	TT		0						0
7	7	TT		0						0
7	8	TT		0						0
7	9	TT	elg	0						0
7	10	TT	elg	3						3.48
7	11	TT		0						0
7	12	TT		0						0
7	13	TT	elg	1						1.16
7	14	TT	elg	35						40.6
7	15	TT		0						0
9	1	KH	fuc	3				5		
9	2	KH	fuc	0				0		
9	3	KH		0				0		
9	4	KH		0				0		
9	5	KH	fil	0				0		
9	6	KH	fil	0				0		
9	7	KH	fil	0				0		
9	8	KH	fil	0				0		
9	9	KH	fil	0				0		
9	10	KH	fil	0				0		
9	11	KH		0				0		
9	12	KH	fuc	10				17		
9	13	KH	fil	0				0		
9	14	KH		0				0		
9	15	KH		0				0		
9	16	KH		0				0		
9	17	KH		0				0		
9	18	KH		0				0		
9	19	KH		0				0		
9	20	KH		0				0		
9	21	KH		0				0		
9	22	TT	lam	3						7.62
9	23	TT		0						0
9	24	TT		0						0
9	25	TT		1						1.09
9	26	TT	lam	5						12.7
9	27	TT	elg	10						11.6
9	28	TT	lam	1						2.54
9	29	TT	lam	1						2.54
9	30	TT		0						0
9	31	TT	elg	3						3.48
9	32	TT	elg	2						2.32
9	33	TT	elg	0						0
9	34	TT	lam	1						2.54
9	35	TT		0						0
9	36	TT		0						0
9	37	TT		0						0
9	38	TT	agm	15						38.1
9	39	TT		0						0
9	40	TT		0						0
9	41	TT		0						0
9	42	TT	lam	15						38.1
9	43	TT	lam	1						2.54
9	44	TT	lam	2						5.08
9	45	TT	lam	1						2.54
9	46	TT	lam	30						76.2

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	PD cor	MP cor	KH cor	WB cor	TT cor
9	47	TT	red	15						16.35
9	48	TT	red	40						43.6
9	49	TT	red	25						27.25
9	50	TT	lam	7						17.78
9	51	TT	red	80						87.2
9	52	TT	red	90						98.1
9	53	TT	red	90						98.1
9	54	TT	red	60						65.4
9	55	TT	lam	35						88.9
9	56	TT	red	60						65.4
9	57	TT	red	2						2.18
9	58	TT	red	2						2.18
9	59	TT	red	35						38.15
9	60	TT	red	40						43.6
9	61	TT	red	65						70.85
9	62	TT	red	50						54.5
9	63	TT	red	60						65.4
9	64	TT	lam	6						15.24
9	65	TT	red	15						16.35
9	66	TT	red	1						1.09
9	67	TT	red	20						21.8
9	68	TT	red	5						5.45
9	69	TT	red	20						21.8
9	70	TT	red	25						27.25
9	71	TT	red	35						38.15
9	72	TT	red	45						49.05
9	73	TT	red	60						65.4
9	74	TT	red	70						76.3
9	75	TT	red	60						65.4
9	76	TT	red	80						87.2
9	77	TT	red	70						76.3
9	78	TT	red	80						87.2
9	79	TT	red	80						87.2
9	80	TT	red	80						87.2
9	81	TT	red	100						109
9	82	TT	red	100						109
9	83	TT	red	90						98.1
9	84	TT	red	100						109
9	85	TT	red	90						98.1
9	86	TT	red	100						109
9	87	TT	red	100						109
9	88	TT	red	2						2.18
9	89	TT	red	1						1.09
9	90	TT	lam	3						7.62
9	91	TT	lam	1						2.54
9	92	TT	lam	3						7.62
9	93	TT	lam	7						17.78
9	94	TT	lam	1						2.54
9	95	TT	lam	1						2.54
9	96	TT	lam	2						5.08
9	97	TT	lam	3						7.62
9	98	TT	lam	5						12.7
9	99	TT	lam	1						2.54
9	100	TT	lam	5						12.7
9	101	TT	lam	5						12.7
9	102	TT		0						0
9	103	TT		0						0
9	104	TT	lam	4						10.16

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	PD cor	MP cor	KH cor	WB cor	TT cor
9	105	TT	lam	5						12.7
9	106	TT		0						0
9	107	TT		0						0
9	108	TT	lam	6						15.24
9	109	TT	lam	10						25.4
9	110	TT	lam	1						2.54
9	111	TT	lam	2						5.08
9	112	TT	lam	6						15.24
9	113	TT	lam	1						2.54
9	114	TT	lam	2						5.08
9	115	TT	lam	2						5.08
9	116	TT		0						0
9	117	TT	lam	1						2.54
9	118	TT		0						0
9	119	TT	lam	1						2.54
9	120	TT		0						0
9	121	TT		0						0
9	122	TT		0						0
9	123	TT		0						0
9	124	TT		0						0
9	125	TT	lam	1						2.54
9	126	TT		0						0
9	127	TT	lam	2						5.08
9	128	TT	lam	1						2.54
9	129	TT		0						0
9	130	TT		0						0
9	131	TT	lam	0						0
9	132	TT	lam	5						12.7
9	133	TT		0						0
9	134	TT	lam	1						2.54
9	135	TT	lam	1						2.54
9	136	TT	lam	2						5.08
9	137	TT	lam	10						25.4
9	138	TT		0						0
9	139	TT		0						0
9	140	TT		0						0
9	141	TT	lam	15						38.1
9	142	TT	lam	5						12.7
9	143	TT	lam	10						25.4
9	144	TT	lam	1						2.54
9	145	TT		0						0
9	146	TT		0						0
13	1	DG	fuc	3	4.59					
13	2	DG		0	0					
13	3	DG		5	7.95					
13	4	DG	fuc	35	53.55					
13	5	DG		1	1.59					
13	6	DG		0	0					
13	7	DG		1	1.59					
13	8	DG		2	3.18					
13	9	DG	elg	3	3.51					
13	10	DG	elg	75	87.75					
13	11	PD	elg	110		141.9				
13	12	PD	elg	110		141.9				
13	13	PD	elg	150		193.5				
13	14	PD	elg	50		64.5				
13	15	PD	elg	20		25.8				
13	16	PD	elg	10		12.9				

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	PD cor	MP cor	KH cor	WB cor	TT cor
13	17	PD	elg	5		6.45				
13	18	PD	elg	2		2.58				
13	19	PD	elg	1		1.29				
13	20	PD		0		0				
13	21	PD		0		0				
12	1	PD	fuc	2		2				
12	2	PD		0		0				
12	3	PD	fuc	5		5				
12	4	PD		120		157.2				
12	5	PD	fuc	30		30				
12	6	PD		5		6.55				
12	7	PD		0		0				
12	8	PD		0		0				
12	9	PD		0		0				
12	10	PD	elg	5		6.45				
12	11	PD		0		0				
12	12	PD	elg	40		51.6				
12	13	PD	elg	50		64.5				
12	14	PD	elg	50		64.5				
12	15	PD	elg	35		45.15				
12	16	PD	elg	70		90.3				
12	17	PD	elg	30		38.7				
12	18	PD	elg	60		77.4				
12	19	PD	elg	110		141.9				
12	20	PD	elg	160		206.4				
12	21	PD	elg	90		116.1				
12	22	PD	elg	110		141.9				
12	23	MP	elg	10			10.6			
12	24	MP	lam	2			4.16			
12	25	MP	lam	25			52			
12	26	MP	fir	4			3.56			
12	27	MP	elg	100			106			
12	28	MP	elg	80			84.8			
12	29	MP	elg	60			63.6			
12	30	MP	fir	1			0.89			
12	31	MP	lam	2			4.16			
12	32	MP	lam	2			4.16			
12	33	MP	lam	25			52			
12	34	MP		10			8.9			
12	35	MP		0			0			
12	36	MP		0			0			
12	37	MP		0			0			
12	38	MP	lam	8			16.64			
12	39	MP		0			0			
12	40	MP	hir	120			138			
12	41	MP		0			0			
12	42	MP		0			0			
12	43	MP	lam	25			52			
12	44	MP	lam	2			4.16			
12	45	MP		0			0			
12	46	MP		1			0.89			
12	47	MP	ala	1			2.08			
12	48	MP	hir	5			5.75			
12	49	MP		0			0			
12	50	MP	hir	50			57.5			
12	51	MP	hir	15			17.25			
12	52	MP		2			1.78			
12	53	MP		0			0			

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	PD cor	MP cor	KH cor	WB cor	TT cor
12	54	MP		0			0			
12	55	MP		0			0			
12	56	MP		0			0			
12	57	MP	lam	2			4.16			
12	58	MP		0			0			
11	1	MP	fuc	5			9.55			
11	2	MP	fil	0			0			
11	3	MP	fuc	10			19.1			
11	4	MP	fuc	75			143.25			
11	5	MP	fuc	50			95.5			
11	6	MP	fir	2			1.78			
11	7	MP		0			0			
11	8	MP	fuc	45			85.95			
11	9	MP	fil	10			8.9			
11	10	MP		1			0.89			
11	11	MP	elg	1			1.06			
11	12	MP	elg	0			0			
11	13	MP	elg	0			0			
11	14	MP	elg	0			0			
11	15	MP		0			0			
11	16	MP		0			0			
11	17	MP		0			0			
11	18	MP		0			0			
11	19	MP		0			0			
11	20	MP		0			0			
11	21	MP		0			0			
11	22	MP		0			0			
11	23	MP		0			0			
11	24	MP		0			0			
11	25	MP		0			0			
11	26	MP		0			0			
11	27	MP		0			0			
11	28	MP		0			0			
11	29	MP		0			0			
11	30	MP		0			0			
11	31	MP		0			0			
11	32	MP		0			0			
11	33	MP		0			0			
11	34	MP		0			0			
11	35	MP		0			0			
11	36	MP		0			0			
11	37	MP		0			0			
11	38	MP		0			0			
11	39	MP		0			0			
11	40	MP	elg	5			5.3			
11	41	MP		0			0			
11	42	MP		0			0			
11	43	MP		0			0			
11	44	MP	fuc	1			1.91			
11	45	MP	elg	0			0			
11	46	MP	elg	20			21.2			
11	47	MP		0			0			
11	48	MP		0			0			
11	49	DG	elg	4	4.68					
11	50	DG	elg	1	1.17					
11	51	DG		0	0					
11	52	DG		0	0					
11	53	DG		0	0					

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	PD cor	MP cor	KH cor	WB cor	TT cor
11	54	DG		0	0					
11	55	DG		0	0					
14	1	MP	fuc	20			38.2			
14	2	MP	fuc	5			9.55			
14	3	MP		0			0			
14	4	MP	elg	0			0			
14	5	MP	elg	60			63.6			
14	6	DG	elg	50	58.5					
14	7	DG	elg	50	58.5					
14	8	DG	elg	140	163.8					
14	9	DG	elg	60	70.2					
14	10	DG	elg	35	40.95					
14	11	DG	elg	30	35.1					
14	12	DG	elg	5	5.85					
14	13	DG		1	1.59					
14	14	DG		0	0					
14	15	DG		0	0					
14	16	DG		0	0					
14	17	DG		0	0					
10	1	DG	fuc	4	6.12					
10	2	DG	fuc	3	4.59					
10	3	DG	fuc	1	1.53					
10	4	DG	fil	5	7.95					
10	5	DG	fil	5	7.95					
10	6	DG	fuc	2	3.06					
10	7	DG	fuc	4	6.12					
10	8	DG	fuc	60	91.8					
10	9	DG	fuc	60	91.8					
10	10	DG	fuc	100	153					
10	11	DG	fil	70	111.3					
10	12	DG		0	0					
10	13	DG	fil	20	31.8					
10	14	DG		0	0					
10	15	DG		3	4.77					
10	16	DG		10	15.9					
10	17	DG		20	31.8					
10	18	PD	hir	5		6.05				
10	19	PD		25		32.75				
10	20	PD		15		19.65				
10	21	PD	hir	10		12.1				
10	22	PD		0		0				
10	23	PD		0		0				
10	24	PD		0		0				
10	25	PD		0		0				
10	26	PD		0		0				
10	27	PD		0		0				
8	1	WB	elg	25					19.25	
8	2	WB	elg	15					11.55	
8	3	WB	elg	30					23.1	
8	4	WB	elg	20					15.4	
8	5	WB	elg	60					46.2	
8	6	KH		0				0		
8	7	KH	elg	10				27		
8	8	KH	elg	0				0		
8	9	KH		0				0		
8	10	KH		0				0		

Appendix B.7. Sitka Sound spawn deposition survey.

Dates: April 9–10, 2001.

Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	BL cor	PD cor	DG cor	MP cor	KH cor	TT cor
1	1	DG		0			0			
1	2	DG	lam	0			0			
1	3	DG	lam	0			0			
1	4	DG	lam	0			0			
1	5	DG	lam	0			0			
2	1	KH	fuc	0					0	
2	2	KH		0					0	
2	3	KH	lam	0					0	
2	4	KH	cos	1					1.3	
2	5	KH	lam	80					104	
2	6	KH	mac	90					99.9	
2	7	KH	mac	150					166.5	
2	8	KH		50					55.5	
2	9	KH	mac	130					144.3	
2	10	KH	hir	60					70.8	
2	11	KH		15					16.65	
2	12	KH	mac	90					99.9	
2	13	KH	mac	100					111	
2	14	KH	lam	10					13	
2	15	KH	mac	110					122.1	
2	16	KH		1					1.11	
2	17	KH	mac	90					99.9	
2	18	KH	mac	80					88.8	
2	19	KH		10					11.1	
2	20	KH	lam	5					6.5	
2	21	KH	lam	15					19.5	
2	22	KH	lam	10					13	
2	23	KH	lam	2					2.6	
2	24	KH		0					0	
2	25	KH		0					0	
2	26	KH		0					0	
3	1	PD	lbk	5		6				
3	2	PD	cor	8		10.48				
3	3	PD	cor	0		0				
3	4	PD	lbk	0		0				
3	5	PD	lbk	0		0				
3	6	PD	mac	5		6.55				
3	7	PD	mac	40		52.4				
3	8	PD	mac	80		104.8				
3	9	PD	lam	0		0				
3	10	PD	mac	120		157.2				
3	11	PD	mac	8		10.48				
3	12	PD	lam	10		12				
3	13	PD	mac	180		235.8				
3	14	PD	red	1		1.31				
3	15	PD	mac	50		65.5				
3	16	PD	agm	5		6				
3	17	PD		5		6.55				
3	18	PD	agm	2		2.4				
3	19	PD	agm	15		18				
3	20	PD	agm	10		12				
3	21	PD	lbk	1		1.2				
3	22	PD	lbk	3		3.6				
3	23	PD		0		0				
4	1	BL	fuc	10	17.6					
4	2	BL	fuc	160	281.6					
4	3	BL	fuc	130	228.8					

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	BL cor	PD cor	DG cor	MP cor	KH cor	TT cor
4	4	BL		0	0					
4	5	BL	elg	80	94.4					
4	6	BL	lam	120	175.2					
4	7	BL	elg	200	236					
4	8	BL	lam	1	1.46					
4	9	BL	elg	1	1.18					
4	10	BL	lam	50	73					
4	11	BL	lam	50	73					
4	12	BL	lam	80	116.8					
4	13	BL	lam	60	87.6					
4	14	BL	cos	3	4.38					
4	15	BL	cos	4	5.84					
4	16	BL	lam	80	116.8					
4	17	BL	lam	1	1.46					
4	18	BL		0	0					
4	19	BL	red	2	2.3					
4	20	BL	lam	100	146					
4	21	BL	lam	50	73					
4	22	BL	lam	150	219					
4	23	BL	lam	20	29.2					
4	24	BL	lam	80	116.8					
5	1	PD		0		0				
5	2	PD	lam	120		144				
5	3	PD	ala	15		18				
5	4	PD		1		1.31				
5	5	PD	lam	160		192				
5	6	PD	red	1		1.31				
5	7	PD	hir	230		278.3				
5	8	PD	lam	15		18				
5	9	PD	hir	130		157.3				
5	10	PD	lam	90		108				
5	11	PD	lam	50		60				
5	12	PD	lam	15		18				
5	13	PD	lam	10		12				
5	14	PD	lam	40		48				
5	15	PD	hir	110		133.1				
5	16	PD	lam	25		30				
5	17	PD	lam	60		72				
5	18	PD	lam	20		24				
5	19	PD	fil	10		13.1				
5	20	PD	lam	100		120				
5	21	PD	lam	90		108				
5	22	PD	lam	5		6				
5	23	PD	lam	10		12				
5	24	PD		0		0				
5	25	PD		0		0				
6	1	MP		30				26.7		
6	2	MP	fuc	50				95.5		
6	3	MP	lam	150				312		
6	4	MP	lam	35				72.8		
6	5	MP	lam	50				104		
6	6	MP	lam	30				62.4		
6	7	MP	lam	40				83.2		
6	8	MP		2				1.78		
6	9	MP		1				0.89		
6	10	MP		0				0		
6	11	MP		0				0		
6	12	MP		0				0		

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	BL cor	PD cor	DG cor	MP cor	KH cor	TT cor
7	1	PD		0		0				
7	2	PD	fuc	120		120				
7	3	PD	fuc	150		150				
7	4	TT	elg	0						0
7	5	TT		0						0
7	6	TT		0						0
8	1	BL	fir	50	57.5					
8	2	BL	fir	80	92					
8	3	BL	fir	80	92					
8	4	BL	hir	80	104					
8	5	MP	hir	15				17.25		
8	6	MP	elg	10				10.6		
8	7	MP	hir	40				46		
8	8	MP		1				0.89		
8	9	MP	mac	75				66.75		
8	10	MP		20				17.8		
8	11	MP	red	80				71.2		
8	12	MP	hir	5				5.75		
8	13	MP		2				1.78		
8	14	MP	mac	250				222.5		
8	15	MP	hir	15				17.25		
8	16	MP	hir	50				57.5		
8	17	MP	lam	1				2.08		
8	18	MP	mac	200				178		
8	19	MP	lam	40				83.2		
8	20	MP	mac	25				22.25		
8	21	MP		1				0.89		
8	22	MP		30				26.7		
8	23	MP	mac	150				133.5		
8	24	MP	hir	30				34.5		
8	25	MP	mac	175				155.75		
8	26	MP	mac	40				35.6		
8	27	MP	red	80				71.2		
8	28	MP	red	100				89		
8	29	MP	mac	90				80.1		
8	30	MP	mac	250				222.5		
9	1	TT	fuc	10						23
9	2	TT		0						0
9	3	TT	fuc	3						6.9
9	4	TT	fuc	0						0
9	5	TT	fuc	2						4.6
9	6	TT	fuc	70						161
9	7	TT	cor	60						65.4
9	8	KH	elg	120					319.2	
9	9	KH	elg	110					292.6	
9	10	KH	elg	140					372.4	
9	11	KH	elg	80					212.8	
9	12	KH	cor	0					0	
9	13	KH	cor	0					0	
9	14	KH		0					0	
9	15	KH	lam	1					1.3	
9	16	KH	elg	10					26.6	
9	17	KH	lam	5					6.5	
9	18	KH	cor	3					3.33	
9	19	KH		0					0	
9	20	KH	fil	0					0	
9	21	KH		0					0	
9	22	KH	cor	0					0	

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	BL cor	PD cor	DG cor	MP cor	KH cor	TT cor
9	23	KH		0					0	
9	24	KH		0					0	
10	1	KH		10					11.1	
10	2	KH	red	2					2.22	
10	3	KH	hir	5					5.9	
10	4	KH	elg	100					266	
10	5	KH	elg	100					266	
10	6	KH	elg	60					159.6	
10	7	KH	lbk	30					39	
10	8	KH	lbk	2					2.6	
10	9	KH	mac	75					83.25	
10	10	KH	hir	0					0	
10	11	KH	cor	0					0	
10	12	KH	fuc	0					0	
11	1	DG	cor	0			0			
11	2	DG	lam	15			23.7			
11	3	DG	cor	0			0			
11	4	DG	cor	20			31.8			
11	5	DG	lam	60			94.8			
11	6	DG	lam	10			15.8			
11	7	DG		0			0			
11	8	DG		0			0			
11	9	DG		0			0			
11	10	DG		0			0			
12	1	PD	fuc	10		10				
12	2	PD	lbk	5		6				
12	3	PD		0		0				
12	4	PD	agm	2		2.4				
12	5	PD	agm	0		0				
12	6	PD		0		0				
12	7	PD	agm	0		0				
12	8	PD		0		0				
13	1	DG	fuc	100			153			
13	2	DG	fuc	20			30.6			
13	3	DG	fuc	5			7.65			
13	4	BL	lam	80	116.8					
13	5	BL	lam	40	58.4					
13	6	BL	lam	100	146					
13	7	BL	lam	20	29.2					
13	8	BL	lam	20	29.2					
13	9	BL	lam	5	7.3					
13	10	BL	lam	5	7.3					
13	11	BL	lam	10	14.6					
13	12	BL		3	3.45					
13	13	BL	lam	1	1.46					
13	14	BL	lam	5	7.3					
13	15	BL	lam	10	14.6					
13	16	BL		0	0					
13	17	BL	lam	1	1.46					
13	18	BL		0	0					
14	1	TT	fuc	50						115
14	2	PD	agm	10		12				
14	3	PD	lam	50		60				
14	4	PD	lam	1		1.2				
14	5	PD	lam	40		48				
14	6	PD	lam	25		30				
14	7	PD	lam	50		60				
14	8	PD	lbk	35		42				

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	BL cor	PD cor	DG cor	MP cor	KH cor	TT cor
14	9	PD	lbk	60		72				
14	10	PD	lbk	50		60				
14	11	PD	lbk	40		48				
14	12	PD	lbk	10		12				
14	13	PD	lbk	45		54				
14	14	PD	lbk	30		36				
14	15	PD	agm	35		42				
14	16	PD	agm	5		6				
14	17	PD	agm	30		36				
14	18	PD	agm	10		12				
14	19	PD	lam	10		12				
14	20	PD		0		0				
14	21	PD	agm	0		0				
14	22	PD		0		0				
15	1	BL	fuc	0	0					
15	2	BL	lam	0	0					
15	3	BL		0	0					
15	4	BL		30	34.5					
15	5	BL	agm	40	58.4					
15	6	BL	agm	2	2.92					
15	7	BL		0	0					
15	8	BL	lam	4	5.84					
15	9	BL	agm	10	14.6					
15	10	BL	agm	10	14.6					
15	11	BL		7	8.05					
15	12	BL		10	11.5					
15	13	BL		0	0					
15	14	BL		1	1.15					
15	15	BL	lam	10	14.6					
15	16	BL		0	0					
15	17	BL		0	0					
15	18	BL	lam	1	1.46					
15	19	BL	lam	1	1.46					
15	20	BL		0	0					
15	21	BL	lam	2	2.92					
15	22	BL	lam	50	73					
15	23	BL	lam	100	146					
15	24	BL	agm	100	146					
15	25	BL		100	115					
15	26	BL	agm	160	233.6					
15	27	BL	agm	40	58.4					
15	28	BL	lam	10	14.6					
15	29	BL	lam	55	80.3					
15	30	BL		0	0					
15	31	BL		3	3.45					
15	32	BL		30	34.5					
15	33	BL	lam	2	2.92					
15	34	BL		0	0					
15	35	BL	lam	15	21.9					
15	36	BL		25	28.75					
15	37	BL		0	0					
16	1	PD	lam	80		96				
16	2	PD	lam	70		84				
16	3	PD	mac	0		0				
16	4	PD		0		0				
16	5	PD	lam	0		0				
16	6	PD		0		0				
16	7	PD		0		0				

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	BL cor	PD cor	DG cor	MP cor	KH cor	TT cor
17	1	DG		0			0			
17	2	DG	red	200			318			
17	3	DG	ala	5			7.9			
17	4	DG		4			6.36			
17	5	DG	ala	2			3.16			
17	6	DG	ala	0			0			
17	7	DG	lam	20			31.6			
17	8	DG	lam	35			55.3			
17	9	DG	lam	80			126.4			
17	10	DG	lam	60			94.8			
17	11	DG	lam	30			47.4			
17	12	DG	lam	40			63.2			
17	13	DG	lam	80			126.4			
17	14	DG	lam	90			142.2			
17	15	DG	lam	80			126.4			
17	16	DG	lam	60			94.8			
17	17	DG	lam	100			158			
17	18	DG	lam	100			158			
17	19	DG	lam	30			47.4			
17	20	DG	agm	80			126.4			
17	21	DG	lam	60			94.8			
17	22	DG	lam	3			4.74			
17	23	DG		0			0			
17	24	DG		0			0			
17	25	DG		0			0			
18	1	MP	fuc	65				124.15		
18	2	PD	fil	2		2.62				
18	3	PD	lam	40		48				
18	4	PD	lam	60		72				
18	5	PD	lam	30		36				
18	6	PD		0		0				
18	7	PD	lam	100		120				
18	8	PD	agm	50		60				
18	9	PD	cym	55		66				
18	10	PD	agm	150		180				
18	11	PD	lam	60		72				
18	12	PD	lam	40		48				
18	13	PD	lbk	50		60				
18	14	PD	lbk	20		24				
18	15	PD	agm	10		12				
18	16	PD	red	30		39.3				
18	17	PD		40		52.4				
18	18	PD	agm	70		84				
18	19	PD	lam	50		60				
18	20	PD	lbk	60		72				
18	21	PD		5		6.55				
18	22	PD		0		0				
18	23	PD		0		0				
18	24	PD		0		0				
18	25	PD	agm	20		24				
18	26	PD	lam	7		8.4				
18	27	PD		0		0				
18	28	PD		0		0				
18	29	PD		0		0				
18	30	PD	agm	30		36				
18	31	PD	lam	5		6				
19	1	MP	ala	0				0		
19	2	MP	fir	0				0		

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	BL cor	PD cor	DG cor	MP cor	KH cor	TT cor
19	3	MP	agm	30				62.4		
19	4	MP	agm	80				166.4		
19	5	MP	agm	30				62.4		
19	6	MP		0				0		
19	7	MP	lam	3				6.24		
19	8	MP	lam	5				10.4		
19	9	MP	agm	2				4.16		
19	10	MP	agm	20				41.6		
19	11	MP	agm	60				124.8		
19	12	MP		0				0		
19	13	MP		0				0		
20	1	MP	fuc	45				85.95		
20	2	MP	fuc	120				229.2		
20	3	MP	fuc	80				152.8		
20	4	MP	fuc	50				95.5		
20	5	MP	elg	0				0		
20	6	MP	elg	0				0		
21	1	MP	fuc	0				0		
21	2	MP	fuc	0				0		
21	3	MP	elg	0				0		
21	4	MP	elg	0				0		
21	5	MP	elg	0				0		
21	6	MP	elg	0				0		
21	7	MP	elg	0				0		
21	8	MP	elg	0				0		
21	9	MP	elg	0				0		
21	10	MP	elg	0				0		
21	11	MP	elg	0				0		
21	12	MP	elg	0				0		
21	13	MP		0				0		
21	14	MP		0				0		
21	15	MP	hir	0				0		
22	1	DG	cor	0			0			
22	2	DG	ala	0			0			
22	3	DG	lam	0			0			
22	4	DG	lam	0			0			
22	5	DG	lam	0			0			
22	6	DG	lam	0			0			
22	7	DG	fil	0			0			
22	8	DG	ala	0			0			
22	9	DG	agm	0			0			
22	10	DG		0			0			
22	11	DG		0			0			
22	12	DG		0			0			
22	13	DG	fil	1			1.59			
22	14	DG	fil	0			0			
22	15	DG	fil	0			0			
22	16	DG		0			0			
22	17	DG		0			0			
23	1	MP		5				4.45		
23	2	MP		20				17.8		
23	3	MP	elg	400				424		
23	4	MP	elg	500				530		
23	5	PD	cor	35		45.85				
23	6	PD	cor	5		6.55				
23	7	PD	lam	2		2.4				
23	8	PD	lam	1		1.2				
23	9	PD	lam	0		0				

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	BL cor	PD cor	DG cor	MP cor	KH cor	TT cor
23	10	PD		0		0				
23	11	PD		0		0				
23	12	PD	lam	0		0				
23	13	PD		0		0				
24	1	TT	fuc	5						11.5
24	2	TT	fuc	15						34.5
24	3	TT	lam	60						152.4
24	4	PD	lam	10		12				
24	5	PD		0		0				
24	6	PD		0		0				
24	7	PD		1		1.31				
24	8	PD		1		1.31				
24	9	PD		2		2.62				
24	10	PD		5		6.55				
24	11	PD		15		19.65				
24	12	PD	lam	10		12				
24	13	PD	lam	2		2.4				
24	14	PD		0		0				
24	15	PD		0		0				
25	1	KH	elg	0					0	
25	2	KH	lbk	10					13	
25	3	KH	red	8					8.88	
25	4	KH	red	30					33.3	
25	5	KH	red	10					11.1	
25	6	KH	mac	900					999	
25	7	KH	red	4					4.44	
25	8	KH	mac	600					666	
25	9	KH	lbk	1					1.3	
25	10	KH	lam	5					6.5	
25	11	KH	lam	3					3.9	
25	12	KH	lam	2					2.6	
25	13	KH	red	25					27.75	
25	14	KH	lbk	5					6.5	
25	15	KH		2					2.22	
25	16	KH		1					1.11	
25	17	KH	agm	1					1.3	
25	18	KH		10					11.1	
25	19	KH		3					3.33	
25	20	KH	agm	5					6.5	
25	21	KH	agm	5					6.5	
25	22	KH		1					1.11	
25	23	KH		1					1.11	
25	24	KH		1					1.11	
25	25	KH		0					0	
25	26	KH		0					0	
25	27	KH		1					1.11	
25	28	KH	agm	3					3.9	
25	29	KH		0					0	
25	30	KH		0					0	
25	31	KH		1					1.11	
25	32	KH		0					0	
25	33	KH	agm	25					32.5	
25	34	KH	agm	25					32.5	
25	35	KH	lam	1					1.3	
25	36	KH		0					0	
25	37	KH	mac	20					22.2	
25	38	KH		2					2.22	
25	39	KH		0					0	

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	BL cor	PD cor	DG cor	MP cor	KH cor	TT cor
25	40	KH	mac	1					1.11	
25	41	KH		1					1.11	
25	42	KH	lam	1					1.3	
25	43	KH		1					1.11	
25	44	KH		2					2.22	
25	45	KH		1					1.11	
25	46	KH	lam	2					2.6	
25	47	KH		1					1.11	
25	48	KH		0					0	
25	49	KH		0					0	
25	50	KH		1					1.11	
25	51	KH		1					1.11	
25	52	KH		0					0	
25	53	KH		0					0	
26	1	MP	fuc	100				191		
26	2	MP	fuc	75				143.25		
26	3	MP	fuc	200				382		
26	4	MP	lam	250				520		
26	5	MP	lam	250				520		
26	6	MP	lam	150				312		
26	7	MP		10				8.9		
26	8	MP	lam	10				20.8		
26	9	MP	lam	20				41.6		
26	10	MP	lam	30				62.4		
26	11	MP		5				4.45		
26	12	MP	lam	15				31.2		
26	13	MP		0				0		
26	14	MP	lam	2				4.16		
27	1	TT	fuc	1						2.3
27	2	TT	fil	210						228.9
27	3	TT		125						136.25
27	4	TT		90						98.1
27	5	TT	red	200						218
27	6	TT		90						98.1
27	7	TT		0						0
27	8	TT		1						1.09
27	9	TT		1						1.09
28	1	DG	fuc	1			1.53			
28	2	DG		0			0			
28	3	DG		30			47.7			
28	4	DG	elg	700			819			
28	5	DG		1			1.59			
28	6	DG	elg	350			409.5			
28	7	DG	elg	300			351			
28	8	DG	elg	80			93.6			
28	9	DG	elg	300			351			
28	10	DG	elg	150			175.5			
28	11	DG	elg	150			175.5			
28	12	DG	elg	110			128.7			
28	13	DG	elg	1			1.17			
28	14	DG		1			1.59			
28	15	DG		0			0			
28	16	DG		0			0			
28	17	DG		0			0			

Appendix B.8. Hoonah Sound spawn deposition survey.

Dates: May 6–7, 2001.

Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	PD cor	MP cor	KH cor	WB cor	TT cor
3	5	TT		0						0
3	1	TT	fuc	7						16.1
3	2	TT	fuc	275						632.5
3	4	TT	fir	10						10.9
3	6	TT	elg	0						0
3	7	TT	elg	30						34.8
3	8	TT	elg	50						58
3	9	TT	elg	10						11.6
3	10	TT		0						0
3	11	TT		0						0
3	3	TT	fuc	1						2.3
4	2	KH		0				0		
4	19	KH	fuc	10				17		
4	20	KH	fir	2				2		
4	21	KH	hir	400				472		
4	22	KH		0				0		
4	23	KH	hir	450				531		
4	24	KH	fir	0				0		
4	25	KH		0				0		
4	26	KH	lam	0				0		
4	17	KH	fuc	0				0		
4	16	KH		0				0		
4	18	KH	ulv	0				0		
4	1	KH		0				0		
4	14	KH		0				0		
4	3	KH		0				0		
4	15	KH		0				0		
4	4	KH	ulv	1				1		
4	5	KH	fuc	0				0		
4	6	KH	fuc	0				0		
4	7	KH		0				0		
4	8	KH		0				0		
4	9	KH	fir	0				0		
4	13	KH		0				0		
4	12	KH		0				0		
4	11	KH		0				0		
4	10	KH	fir	1				1		
5	8	MP		0			0			
5	11	MP		2			1.78			
5	9	MP		0			0			
5	25	MP	ulv	0			0			
5	10	MP		0			0			
5	20	MP		1			0.89			
5	1	MP	fuc	0			0			
5	28	MP	hir	0			0			
5	27	MP	ulv	0			0			
5	26	MP	ulv	2			1.78			
5	2	MP	fuc	0			0			
5	24	MP	ulv	0			0			
5	7	MP	fuc	10			19.1			
5	23	MP	fuc	20			38.2			
5	21	MP		0			0			
5	12	MP	fuc	3			5.73			
5	19	MP		0			0			
5	18	MP		0			0			
5	17	MP		0			0			
5	16	MP	fuc	4			7.64			

-continued-

Appendix B.8. (page 2 of 6)

Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	PD cor	MP cor	KH cor	WB cor	TT cor
5	15	MP		0			0			
5	14	MP	fuc	20			38.2			
5	13	MP	fuc	1			1.91			
5	22	MP	fuc	10			19.1			
5	5	MP	fuc	0			0			
5	4	MP	fuc	0			0			
5	3	MP	fuc	0			0			
5	6	MP	fuc	10			19.1			
6	5	WB	elg	20					15.4	
6	10	WB		0					0	
6	9	WB	elg	0					0	
6	8	WB	elg	2					1.54	
6	6	WB	elg	15					11.55	
6	4	WB	elg	25					19.25	
6	3	WB	elg	15					11.55	
6	2	WB		10					10.9	
6	1	WB		20					21.8	
6	7	WB	elg	7					5.39	
7	3	WB	fuc	50					62	
7	2	WB	fuc	4					4.96	
7	4	KH	lam	5				7		
7	5	KH	lam	0				0		
7	6	KH		0				0		
7	7	KH		0				0		
7	1	WB	fuc	1					1.24	
8	19	WB	lam	10					8.9	
8	20	WB	lam	10					8.9	
8	28	WB	agm	1					0.89	
8	24	WB	agm	4					3.56	
8	21	WB	lam	12					10.68	
8	22	WB	lam	7					6.23	
8	23	WB	lam	5					4.45	
8	25	WB	lam	1					0.89	
8	26	WB	lam	2					1.78	
8	31	WB	lam	1					0.89	
8	30	WB		0					0	
8	29	WB	agm	3					2.67	
8	18	WB	lam	4					3.56	
8	3	WB	fuc	17					21.08	
8	27	WB	lam	5					4.45	
8	8	WB	fuc	60					74.4	
8	32	WB	lam	0					0	
8	12	WB	lam	3					2.67	
8	1	WB		0					0	
8	2	WB	fuc	35					43.4	
8	4	WB	fuc	85					105.4	
8	5	WB		0					0	
8	7	WB	fuc	80					99.2	
8	17	WB		1					1.09	
8	9	WB	fuc	20					24.8	
8	11	WB		0					0	
8	13	WB	lam	35					31.15	
8	14	WB	agm	35					31.15	
8	15	WB	agm	45					40.05	
8	16	WB	agm	50					44.5	
8	6	WB	fir	40					43.6	
8	10	WB	fuc	40					49.6	
9	5	DG	hir	25	33					
9	13	DG	lam	0	0					

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	PD cor	MP cor	KH cor	WB cor	TT cor
9	12	DG	lam	0	0					
9	11	DG	lam	5	7.9					
9	10	DG	lam	25	39.5					
9	9	DG	lam	35	55.3					
9	8	DG	lam	60	94.8					
9	6	DG	hir	45	59.4					
9	4	DG	elg	15	17.55					
9	3	DG	fir	0	0					
9	2	DG	fir	15	23.85					
9	1	DG	fuc	2	3.06					
9	7	DG	lam	45	71.1					
10	12	PD		0		0				
10	1	PD	fir	0		0				
10	2	PD	fil	0		0				
10	3	PD	fil	0		0				
10	4	PD	fuc	0		0				
10	5	PD	fil	0		0				
10	6	PD	fir	0		0				
10	7	PD	fir	0		0				
10	8	PD		0		0				
10	9	PD	lam	5		6				
10	11	PD	hir	200		242				
10	13	PD		0		0				
10	14	PD		0		0				
10	10	PD	hir	100		121				
11	4	DG	fil	2	3.18					
11	3	DG	fil	10	15.9					
11	2	DG	fuc	50	76.5					
11	1	DG	fuc	0	0					
11	6	DG	lam	0	0					
11	7	DG	lam	0	0					
11	8	DG	lam	0	0					
11	5	DG	lam	2	3.16					
12	43	DG		0	0					
12	42	DG	lam	30	47.4					
12	41	DG	lam	80	126.4					
12	40	DG	lam	70	110.6					
12	39	DG	lam	20	31.6					
12	44	DG		0	0					
12	37	DG	lam	120	189.6					
12	3	DG	fir	0	0					
12	36	DG	lam	70	110.6					
12	38	DG	lam	50	79					
12	8	DG	fuc	1	1.53					
12	6	DG	fuc	0	0					
12	4	DG	fir	0	0					
12	2	DG	fuc	0	0					
12	1	DG	fir	0	0					
12	9	DG		0	0					
12	35	DG	lam	90	142.2					
12	7	DG	fuc	0	0					
12	5	DG	fuc	1	1.53					
12	13	DG		0	0					
12	34	DG	lam	60	94.8					
12	10	DG		0	0					
12	12	DG		0	0					
12	14	DG	fir	5	7.95					
12	15	DG	ulv	35	55.65					
12	16	DG	ulv	30	47.7					

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	PD cor	MP cor	KH cor	WB cor	TT cor
12	17	DG	ulv	55	87.45					
12	18	DG	lam	35	55.3					
12	19	DG	lam	40	63.2					
12	20	DG	lam	50	79					
12	21	DG	lam	60	94.8					
12	22	DG	hir	150	198					
12	31	DG		0	0					
12	11	DG		0	0					
12	23	DG	lam	15	23.7					
12	33	DG	lam	10	15.8					
12	32	DG		0	0					
12	30	DG	lam	15	23.7					
12	26	DG	lam	45	71.1					
12	28	DG	lam	10	15.8					
12	24	DG	lam	20	31.6					
12	27	DG		1	1.59					
12	29	DG	lam	5	7.9					
12	25	DG		1	1.59					
13	36	KH	lam	60				78		
13	35	KH	lam	50				65		
13	34	KH	lam	110				143		
13	33	KH	lam	50				65		
13	30	KH	lam	100				130		
13	31	KH	lam	20				26		
13	37	KH	lam	60				78		
13	66	KH	lam	0				0		
13	29	KH		0				0		
13	28	KH		0				0		
13	27	KH	fir	2				2		
13	32	KH	lam	70				91		
13	38	KH	lam	100				130		
13	39	KH	lam	250				325		
13	40	KH	lam	50				65		
13	41	KH	lam	120				156		
13	43	KH	lam	60				78		
13	45	KH	fil	40				44		
13	47	KH	agm	0				0		
13	26	KH	hir	225				266		
13	12	KH	fir	0				0		
13	49	KH	ala	0				0		
13	48	KH	fir	1				1		
13	42	KH		100				111		
13	13	KH	fuc	8				14		
13	1	KH	fuc	0				0		
13	2	KH	fuc	0				0		
13	3	KH		0				0		
13	4	KH	fuc	0				0		
13	5	KH	fuc	0				0		
13	6	KH	fuc	0				0		
13	7	KH	fuc	0				0		
13	8	KH	fir	1				1		
13	9	KH	fuc	0				0		
13	10	KH	fuc	0				0		
13	14	KH	fuc	40				68		
13	46	KH	agm	40				52		
13	25	KH	lam	20				26		
13	50	KH	ala	0				0		
13	15	KH	lam	50				65		
13	16	KH	ala	2				3		

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	PD cor	MP cor	KH cor	WB cor	TT cor
13	17	KH	fil	2				2		
13	18	KH	cor	10				11		
13	19	KH	ulv	1				1		
13	20	KH	fir	100				111		
13	21	KH	red	25				28		
13	22	KH		3				3		
13	23	KH		90				100		
13	24	KH	lam	1				1		
13	11	KH	fuc	0				0		
13	63	KH	agm	0				0		
13	51	KH	ala	0				0		
13	44	KH	lam	70				91		
13	64	KH	agm	15				20		
13	62	KH	agm	5				7		
13	61	KH		0				0		
13	60	KH	agm	30				39		
13	59	KH	lam	20				26		
13	57	KH	agm	20				26		
13	56	KH	lam	5				7		
13	55	KH	lam	1				1		
13	54	KH	lam	15				20		
13	58	KH	lam	30				39		
13	52	KH	lam	0				0		
13	65	KH	lam	0				0		
13	53	KH	agm	10				13		
14	1	PD	fuc	0		0				
14	20	PD	lam	1		1.2				
14	19	PD	lam	2		2.4				
14	7	PD	fuc	50		50				
14	5	PD	lam	1		1.2				
14	2	PD	fir	0		0				
14	18	PD	lam	40		48				
14	21	PD		0		0				
14	6	PD	fuc	2		2				
14	3	PD	fuc	0		0				
14	15	PD	fir	25		32.75				
14	4	PD	fir	0		0				
14	22	PD		0		0				
14	16	PD	fir	70		91.7				
14	17	PD	lam	10		12				
14	14	PD	hir	35		42.35				
14	13	PD	hir	75		90.75				
14	12	PD	fuc	50		50				
14	11	PD	fuc	15		15				
14	10	PD	fir	40		52.4				
14	9	PD		2		2.62				
14	8	PD	fuc	70		70				
15	8	PD	elg	90		116.1				
15	12	PD	elg	0		0				
15	11	PD	elg	1		1.29				
15	5	PD		0		0				
15	9	PD	elg	80		103.2				
15	7	PD	elg	110		141.9				
15	6	PD	elg	50		64.5				
15	1	PD	fuc	0		0				
15	2	PD	fir	40		52.4				
15	3	PD		8		10.48				
15	4	PD		0		0				
15	10	PD	elg	60		77.4				

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Transect no	Observation no	Diver #1	Vegetation type	Diver #1 eye	DG cor	PD cor	MP cor	KH cor	WB cor	TT cor
17	4	WB	fir	100					109	
17	7	WB	hir	0					0	
17	1	WB		0					0	
17	3	WB		1					1.09	
17	2	WB	fuc	1					1.24	
17	6	WB	lam	1					0.89	
17	5	WB	hir	80					95.2	
18	4	KH	fil	0				0		
18	7	KH	lam	0				0		
18	5	KH	hir	40				47		
18	3	KH		0				0		
18	2	KH		0				0		
18	1	KH		0				0		
18	6	KH	lam	0				0		
19	2	WB		0					0	
19	1	WB		20					21.8	
19	6	WB	lam	0					0	
19	5	WB	lam	25					22.25	
19	4	WB	ala	7					6.23	
19	3	WB	ala	0					0	
20	11	MP	elg	120			127.2			
20	1	MP		0			0			
20	2	MP		0			0			
20	3	MP		0			0			
20	4	MP		1			0.89			
20	5	MP		0			0			
20	6	MP		0			0			
20	7	MP		0			0			
20	8	MP		0			0			
20	10	MP	elg	25			26.5			
20	12	MP	elg	100			106			
20	13	MP	elg	20			21.2			
20	14	MP	elg	5			5.3			
20	15	MP		0			0			
20	16	MP		0			0			
20	9	MP	elg	1			1.06			

Appendix C. Aerial and skiff herring spawn surveys in Southeast Alaska, 2001.

Note: Days when active spawn are observed have "spawn" bolded.

DD = Dave Doyon, PD = Phil Doherty, DH = Don House, JS = Jim Scudero, SW = Scott Walker

Appendix C.1. Kah Shakes and Cat Island.

3-9-01 SW No activity.
3-21-01 PD No activity.
3-27-01 SW Sea lions around Cat Island.
3-31-01 SW No activity.
4-2-01 PD ¾ mile of **spawn** on Kah Shakes Point. Herring on Kah Shakes Point.
4-3-01 SW Birds and fish around Kah Shakes Point. No other activity.
4-4-01 SW I mile of **spawn** on Kah Shakes Point. **Spot spawn** south of Kah Shakes Cove.
4-5-01 SW 1 mile of **spawn** on Kah Shakes Point. ¾ mile of **spawn** south of Kah Shakes
4-6-01 SW **Spot spawn** on west of shore of Cat Island. No other activity.
4-7-01 SW Herring off of Kah Shakes Point. No other activity.
4-9-01 SW No activity.
4-11-01 SW No activity.
4-16-01 PD No activity.

Appendix C.2. Annette Island.

3-21-01 PD Sea lions from Cascade Inlet to Kwain Bay.
3-27-01 SW Sea lions south of Crab Bay.
3-31-01 SW Numerous sea lions from Cascade Inlet to Crab Bay.
4-2-01 PD ½ mile of **spawn** north of Crab Bay. Sea lions on east side of Annette Island.
4-3-01 SW 2 miles of **spawn** north of Crab Bay.
4-4-01 SW 2 miles of **spawn** around Crab Bay.
4-5-01 SW 4 miles of **spawn** around Crab Bay. 1.5 miles of **spawn** on Ham Island.
4-6-01 SW 2 miles of **spawn** on Ham Island. Spawn in Crab Bay and south of Crab Bay.
4-7-01 SW **Spot spawn** south of Crab Bay. ¾ mile of **spawn** on Ham Island. 2 miles of **spawn** in Cascade Inlet.

Appendix C.3. West Behm Canal.

3-21-01 PD No activity.
3-26-00 SW Sea lions on Point Higgins. No other activity.
3-28-01 JS Jim Scudero = test fisher. No activity.
4-2-01 DD Dave Doyon. 5 miles of **spawn** on the east shore of Cleveland Peninsula.
4-3-01 PD 5.5 miles of **spawn** on the east shore of Cleveland Peninsula.
4-4-01 SW Two areas of **spot spawns** on NW Betton Island. Sea lions on NW Betton Island. Birds and scooters on Cleveland Peninsula.
4-5-01 SW Two areas of **spot spawns** on NW Betton Island. Sea lions on NW Betton Island. Birds and scooters on Cleveland Peninsula.
4-6-01 SW Fish on NW Betton Island.

4-7-01 SW 1 mile of **spawn** on Vallenar Point. Spot spawn south of Point Higgins. Fish in Clover Pass.
4-8-01 SW Fish near Vallenar Point. Fish in Clover Pass.
4-9-01 SW **Spot spawn** on Point Higgins. Fish in Clover Pass. Sea lions south of Smugglers Cove.
4-10-01 SW **Spot spawn** in Vallenar Bay south of Vallenar Point. **Spot spawn** on Point Higgins and inside of Pond Reef. Fish in Clover Pass.
4-11-01 SW **Spot spawn** south of Point Higgins. Sea lions off of Point Higgins and Tatoosh Islands. Fish in Clover Pass.
4-13-01 PD **Spot spawn** on Pond Reef. Spot spawn south of Point Higgins. Sea lions near Vallenar Rock and Point Higgins.
4-14-01 PD Sea lions at Point Higgins and near Settlers Cove.
4-16-01 PD Sea lions on Point Higgins and Vallenar Point.

Appendix C.4. Craig.

3-21-01 DH sea lions around Fish Egg Island and Abbess Island.
3-22-01 DH Skiff Survey. Sea lions on the north end of Alberto Reef, west of Clam Island. Gulls and birds south of Clam Island.
3-23-01 DH Skiff Survey. No Activity.
3-24-01 DH Vessel Survey in Klawock Inlet. No activity.
3-26-01 DH Skiff Survey. Sea lions in the eastern Ballena Islands, the western Ballena Island, the southwest side of Fish Egg Island, the west side of Fish Egg Island, the northeast side of Klawock Reef. Eagles and gulls around the Alberto Islands west of the pounds.
3-27-01 DH Skiff Survey. Sea lions in Port Bagial, the western Ballena Island, the southwest side of Fish Egg Island, Klawock Reef, the east side of San Fernando Island,
3 –28-01 DH Skiff Survey. Sea lions at the Ballena Islands, Fish Egg Island, between Klawock Reef and Clam Island and the Witness Islands.
3-29-01 DH Skiff Survey. Sea lions on SW Fish Egg Island and Klawock Reef.
3-31-01 DH Skiff Survey. Sea lions on Klawock Reef and Abbess Island.
4-1-01 DH Skiff survey. 1/8 mile **spawn** on Abbess Island.
4-2-00 DH Skiff Survey. ½ mile of **spawn** on NW Abbess Island
4-3-01 PD 3 miles of **spawn** on W. Abbess Island, Island SW of Abbess Island, Island S of Abbess Island, North Cove, Alberto Islands and Wadleigh Rocks.
4-4-01 DH 3 miles of **spawn** on Abbess Island, Islands north of Abbess Island, North Cove, Alberto Cove, Alberto Islands and Clam Island.
4-5-01 DH 6 miles of **spawn** on W Fish Egg Island, Abbess Island, Bay south of Alberto Islands, NW Wadleigh Island, North Cove, Clam Island, Klawock Reef, W of Shiniku, Picnic Bay and around Point Ildefonzo.
4-6-01 DH 3.5 miles of **spawn** on W Fish Egg Island, Abbess Island, Bay south of Alberto Islands, N. Wadleigh Island, North Cove, Clam Island, Klawock Reef, W of Shiniku, Picnic Bay and around Point Ildefonzo.
4-7-01 DH ¾ of a mile of **spawn** on W Fish Egg Island, Abbess Island, Bay south of Alberto Islands, W Wadleigh Island, North Cove, Entrance Point area, W of Shiniku, and around Point Ildefonzo.
4-8-01 DH No spawning activity.

Appendix C.5. Kasaan.

4-3-01 PD 4 miles of **active spawn** were seen south and north of the village of Kasaan on the Cleveland Peninsula.

Appendix C.6. Sea Otter Sound: No surveys.

Appendix C.7. Hydaburg Area: No surveys.

Appendix C.8. Sitka Sound.

February 22. 9:05-10:05. Survey conditions good. Covered Sitka Sound north of Cape Burunof. No herring seen. Sea lion distribution was as follows: 45 off Lisianski Peninsula, 20 east side of Little Gavanski, 20 east side of Middle Island, 60 off the south side of Guide Island, 12 on the north side of Guide Island, 8 off Kresta Point, 22 off Mountain Point, 10 off Inner Point, 30 off Harris Island, 25 off Entry Point, and 5 along Sugarloaf shoreline. No sea lions were seen south of Eastern Channel or west of Crow Island/Chaichie Island group.

March 3. 09:15-10:10. Clear and calm. Surveyed Sitka Sound north of Cape Burunof. No herring or spawn seen. The largest concentration of sea lions was found in the Hayward Strait area where nearly 125 were observed as well as one humpback whale. Approximately 100 sea lions were seen on the Kruzof shoreline between Mountain Point and Inner Point. Another 110 sea lions were seen west of Gagarin Island near Bieli Rocks. There were a few small groups of sea lions scattered along the shoreline between Lisianski Point and Dog Point. Only 2 sea lions were observed in the waters between Halibut Point Road and Gavanski, Middle and Kasiana Islands. Also very quiet in the Eastern Channel and Silver Bay areas.

March 8. 9:10-10:10. Surveyed Sitka Sound north of Long Island. No herring or spawn was seen. One humpback whale was seen on the north side of the Siginaka Islands. Sea lions were clustered in the vicinities of Bieli Rock and Gagarin Island (175), Hayward Strait (30), Inner Point (35), with smaller groups scattered throughout inner Sitka Sound. Sea lions observed during the survey were particularly inactive.

March 13. 8:15-10:15. Broken clouds. Surveyed Sitka Sound, Salisbury Sound and south to Crawfish Inlet including the offshore haulout rocks. Highlights of the survey were 70 sea lions at Inner Point, 120 sea lions at Beili Rock, 30 sea lions in Crow Pass, and 80 sea lions and a whale on the northeast side of Middle Island. Sea lions outside Bieli Rock and NE of Middle were actively feeding. A large herring school was seen on the NE side of Middle Island off the beach. There were 8-10 large herring schools along the beach between Harbor Point and Halibut Point. At the haulout rocks it was estimated that Biali Rock had 400 sea lions, Jacob Rock had none, and the rock west of Biorka Island had approximately 300.

March 14. 8:10-9:15. Clear and calm. Surveyed Sitka Sound north of Cape Burunof. Did not cover the Kruzof Island shoreline. There was no spawn. There were increasingly large concentrations of herring at the surface both in very large schools and bands of fish leading the beach. Numerous large fish schools were observed in the Aleutkina Bay area outside of Samsing Cove, at the mouth of Deep Inlet, in Leesofskaia Bay and by Silver Point. Small schools were seen between Entry Point at the mouth of Silver Bay and Jamestown Bay and along the small islands west of Crescent Bay. A large school was observed by Watson Point and Whiting Harbor showed several massive schools. Three schools were seen off SW Kasiana Island. The largest concentration of sea lions was west of Crow Island.

March 15. The department conducted two aerial surveys today. The morning survey (7:00-7:45) was to determine if spawning was in progress prior to a scheduled department/industry meeting. This survey showed no herring or spawn. The second survey was conducted from 10:30-11:30. There was no spawn

and only scattered small schools of herring. There were 5-6 small schools west of Deep Inlet in Aleutkina Bay, 2 small schools at Starrigavin Bay, and 2 medium sized schools south and east of Big Gavanski Island.

March 16. Cloudy. The department conducted two aerial surveys today. The morning survey (8:35-9:55) covered most of the beach line from Kanga Bay to the south and Hayward Strait to the north. Highlights of the morning survey were no spawn, but large schools of herring in Deep Inlet, outside of Leesofskaia Bay from Silver Point past the bay mouth, smaller schools at the mouth of Deep Inlet and outside of Samsing Cove, large schools off Harris Island, Dove Island and the Indian River flats, and smaller schools by the Twin Islands and Galankin Island. There was sea lion activity north of town around Kasiana Island, at the south end of Middle Island, north of Middle and Crow Islands and in Crow Pass. The second survey was done aboard the FWP helicopter from 12:15-13:15. The area of the survey was more limited to areas where fish had been seen on the morning surveys. Highlights of this survey was a ¾ mile long school toward the head of Deep Inlet, a ¾ mile long school from the O'Connell Bridge to the Indian River flats, a ½ mile long school from Silver Point toward Leesofskaia Bay, and several other schools of various sizes off the south end of the Sitka airport runway, in the islands south of the airport runway, in Crescent Bay, and near Harris Island. No spawn has been seen or reported by anyone.

March 17. 8:45-10:05. This morning's aerial survey was dramatically different from the two surveys yesterday. Very little herring was seen with only 2 small schools in Eastern Channel south of Whale and Bamdoroshni Islands and 3 balls in Crescent Bay. There were notable sea lion concentrations at the mouth of Deep Inlet and in the islands south of the Sitka airport causeway, and wrapped around Gagarin Island and Crow Island to the west, north of Crow and Middle Island and east of Middle Island to the southern tip of Middle Island and north of Kasiana Island. Sea lions around Crow, Middle and Kasiana Islands were very actively feeding, but no big schools were seen. Two whales were seen south of Chaichei Islands, two at Mosquito Cove at the mouth of Katilian Bay, and 4 whales were seen between Middle and Kasiana Islands.

March 18. 8:35-9:45. This aerial survey covered from Povorotni Point to out past Shoals Point under very windy conditions with light overcast skies. Visibility was restricted by the wind. Large volumes of herring were seen along the Kruzof Island shoreline from Freds Creek, west of Inner Point, to Kamenoi Point with no other schools seen. Sea lions were distributed as yesterday afternoon. Sea lion concentrations were also noted around Bamdoroshni Island and Whale Island south of the Sitka airport, and at the mouth of Deep Inlet.

March 19. The department conducted two aerial surveys today. The morning survey (8:45-9:50) was in poor conditions with 30 knot winds and snow showers covering Sitka Sound north of Povorotni Point and including east shore of Kruzof Island. There was no spawn. Only two schools were seen: a large school just north of Inner Point on Kruzof Island, and a small school at Aleutkina Bay. Sea lion distribution patterns were noted and are similar to yesterday. The second survey was from 16:30-17:20 covering Halibut Point, Middle Island, and the east and south shores of Kruzof Island. Several very large schools of herring were observed between Halibut Point and Middle Island. Two schools in the kelp south of Inner Point and a large biomass (2,000-3,000 tons) of herring were seen along the south shore of Kruzof Island west of Shoals Point.

March 20. 8:45-1020. Sunny with north winds to 30 knots. There was no spawn. Large schools of herring were observed along the South coast of Kruzof Island between Shoals Point and Sitka Point. No other schools were observed by aerial survey. Large groups of sea lions had accumulated in the vicinity of

Halibut Point and along the eastern shoreline of Middle Island. Scattered smaller groups of sea lions were observed elsewhere throughout Sitka Sound.

March 21. 8:30-10:00. High overcast and cold – NE winds to 20 knots. Covered Sitka Sound north of Povorotni Point. No spawn. The only herring schools observed were along the south shore of Kruzof Island from Shoals Point to the longitude of St. Lazaria Island. Sea lion concentrations found off Halibut Point, along the NE shore of Middle Island and off Bieli Rock.

March 22. 7:55-9:00. Sunny and cold. Covered Sitka Sound north of Cape Burunof. No spawn and less herring observed long the south shore of Kruzof Island today than yesterday. There were 30 sea lions at the mouth of Deep Inlet 10 sea lions inside of Deep Inlet, 10 sea lions in Crescent Bay, and concentrations of sea lions continued to be found between Halibut Point and Middle Island, and near Bieli Rock. (fishery openings: 11:30-11:45 and 15:45-16:00)

March 23. 8:40-10:10. Windy and overcast. Covered all areas of Sitka Sound north of West Crawfish Inlet as well as the south and west shore of Kruzof Island to Shelikof Bay. **Spawn** beginning on Halibut Point with a total of 1.5 nautical miles of active spawn. No other spawn was observed. Sea lions continue to be found around Middle Island, Kasiana I., and Halibut Point. Waters south of the bridge to Cape Burunof were relatively quiet with few sea lions and no herring seen. A herring "mud stir" as well as 10 seas lions were observed in a cove between Frosty Reef and Kanga Bay. A significant showing of sea lions was also noted off the northwest shoreline of Elovoi Island near Goddard Hot Springs.

March 24. 8:35-9:30. Conditions were windy and visibility poor. Covered Sitka Sound north of Dorothy Narrows. There was 2.8 nautical miles of **active spawn** along the Halibut Point shoreline and no other spawn. No herring schools were seen although a spotter pilot reported a school west of Hot Springs Bay. No fish, spawn, or predator activity was seen along the South Kruzof shoreline where schools have been seen during recent surveys. Sea lion activity was noted west of Gagarin and Crow Islands, south of Little Gavanski Island and north of Middle Island. Other sea lion activity was noted in the vicinity of Frosty Reef and north of Elovoi Island outside of Warm Springs Bay.

March 25. 8:10-9:10. Cloudy and very windy. Covered Sitka Sound south to Hot Springs Bay. **Spawn** continuing to expand slowly on the north side with active spawn along the Halibut Point Road system from Watson Point to the Cove. **Active spawning** also has started on Kasiana Island for a total of 4.0 nm of active spawn. Large schools of herring were seen inside and outside the breakwater and around Kasiana Island. Flying conditions south of town were poor with turbulent winds. No herring or spawn were seen in the Kanga Bay and Hot Springs Bay areas though sea lions were present in both areas.

March 26. 8:10-8:50. Snow, sleet and winds to 40 knots. Due to weather this survey was conducted for the purpose of mapping spawn and not to determine the distribution of fish schools. Spawning had subsided to only 2.9 nm of **active spawn** today, with spawning diminishing along the Halibut Point shoreline, increasing slightly on Kasiana Island, and **spot spawning** starting in Whiting Harbor and at the Apple Islands. (Fishery 15:30-15:45)

March 27. 8:10-9:40. Survey conditions had improved over the poor flying weather recently. Covered Sitka Sound south to Windy Pass. **Spawning** yesterday had subsided to ¼ n. mile along the east shoreline of Kasiana Island and some **spot spawns**. Total cumulative spawn 4.8 nm. The survey showed significant herring schools south of the O'Connell Bridge, inside Thompson Harbor, north of the harbor breakwall, and along the Halibut Point shoreline at Sandy Beach and east of Old Sitka Rocks. Sea lion concentrations

were observed west of Kasiana Island, around the Chaichei and Parker Island groups, at Starrigaven Bay, and at the mouth of Katlian Bay. To the south, significant additional herring was observed in Kanga Bay, and accumulations of sea lions were noted in Windy Pass.

March 28. 11:05-12:00. Poor conditions with snow squalls. Covered Sitka Sound south to Windy Pass. No spawn or herring seen. 50 sea lions in Kanga Bay, 50 in north Windy Pass, sea lions scattered in the Whiting Harbor and Western Channel area and a large concentration of sea lions off Bieli Rock.

March 29. 9:00-10:30. Covered Sitka Sound south to West Crawfish Inlet. Big mud stir between Middle Island and Kasiana Island. Groups of sea lions scattered along north Kasiana, south Middle Island, north of Causeway, and 250-300 sea lions off Bieli Rock. To the south groups of sea lions were seen in West Crawfish Inlet, Windy Pass, south of Elovoi Island, and Kanga Bay.

March 30. 9:00-10:00. Survey conditions very poor. Surveyed Dorothy Narrows to Salisbury Sound. Active spawn in Promisla Bay (0.7 nm). Good concentrations of sea lions along East Middle Island, near the Chaichei Islands, and a few in Crow Pass. South of Sitka sea lions seen off Sandy Cove and Samsing Cove. Sea lions and birds noted south of the Taigud Islands. A few sea lions from Frosty Reef to Calligan Island. Nothing seen in Hayward Strait or Salisbury Sound.

March 31. 9:00-10:25. Survey conditions good. Covered Sitka Sound south to West Crawfish Inlet. Around 400 sea lions continue to be found scattered around Gagarin, Crow, Middle and Kasiana Islands, and in Western Channel. **Spawn** expanded in Promisla Bay totaling 1.2 nm and **spawn** beginning in Samsing Cove for 0.1 nm. A mud stir and sea lions were seen in Kanga Bay and a group of sea lions were off Kolosh Island.

April 1. 10:10-11:40. Surveying conditions good. Surveyed Sitka Sound and south to Whale Bay. **Active spawn** in Promisla Bay (2.2 nm), Kasiana Island (0.9 nm), and Samsing Cove (1.9 nm). Schools of herring seen around Elovoi Island and in Hot Springs Bay. Nothing seen in either Whale of Necker Bays.
April 2. 9:30-10:55. Survey conditions good. Covered Sitka Sound south to West Crawfish Inlet. Spawn expanding in Promisla Bay (3.4 nm), Kasiana Island (2.0 nm), and Samsing Cove (3.2 nm). New spawn at Apple Islands (1.2 nm), and Redoubt Bay (1.8 nm) for a total of 11.6 nm **active spawn** and a cumulative to date of 15.6 nm. Sea lions continue to be scattered in the Hot Springs Bay and Windy Pass areas.

April 3. 8:20-9:30. Survey conditions good. Covered Sitka Sound south to West Crawfish Inlet. **Total active spawn 26.6 nm (peak spawn). Spawn** expanded in Promisla and Eastern Bays (4.5 nm), Kasiana Group (3.5 nm), Apple Islands (1.3 nm), and Samsing Cove area (5.7 nm). New spawn at Parker Group (1.2 nm), Chaichei Islands (0.2 nm), Battery and Neva Islands (0.2 nm), Watson Point (0.2 nm), south Middle Island (0.1 nm), Whiting Harbor and north Causeway (0.7 nm), Cape Burunof to Povorotni Point (2.2 nm), Redoubt Bay, Taigud Islands and Kanga Bays (4.7 nm), Hot Springs Bay (1.3 nm), and Golf Island (0.4 nm).

April 4. 9:30-10:55. Snowing. Covered Sitka Sound south to West Crawfish Inlet. Total active spawn 16.6 nm. **Spawning** subsiding in Promisla Bay and Eastern Bays (0.9 nm), Kasiana Group (0.5 nm), Samsing Cove area (0.9 nm), and Cape Burunof to Povorotni Point (1.1 nm). **Spawning** expanding in Whiting Harbor/North Causeway (1.1 nm), Redoubt Bay, Kanga Bay, and Taigud Islands (5.7 nm), Hot Springs Bay (5.4 nm) and Golf Island area (2.1 nm).

April 5. 14:20-15:35. Scattered snow showers. Covered Sitka Sound south to West Crawfish Inlet. Total **active spawn** 14.8 nm. **Active spawning** in Promisla and Eastern Bays (2.1 nm), South Middle Island (0.9 nm), Whiting Harbor and North Causeway (0.9 nm), Pirates Cove (0.3 nm), Redoubt Bay, Kanga Bay and Taigud Islands (1.3 nm), Hot Springs Bay (5.7 nm), North Windy Pass (0.1 nm), Golf Island (2.5 nm), and Gornoi Island (0.7 nm).

April 6. 8:00-9:00. Sunny and calm. Total active spawn 15.6 nm. **Active spawn** at Kresta Point (0.1 nm), Eastern Bay (0.5 nm), Siginaka Islands (0.1 nm), South Middle Island (0.6 nm), Whiting Harbor and North Causeway (0.9 nm), Kanga Bay (1.2 nm), Hot Springs Bay (8.9 nm), North Windy Pass (0.8 nm), Golf Island (2.5 nm), and Gornoi Island (0.9 nm).

April 7. 8:50-10:05. Survey conditions good. Total active spawn 15.4 nm. No active spawn north of Kanga Bay. **Active spawn** in Kanga Bay (0.7 nm), Hot Springs Bay (10.0 nm), Torsar Island (0.6 nm), Tava/Ataku Islands (0.7 nm), North Windy Pass (2.1 nm), Jacknife Islands (0.2 nm), Golf Island (0.3 nm), and Gornoi Island (0.3 nm).

April 8. 10:15-11:05. Survey conditions good. Spawning subsiding in most areas. Total active spawn 4.1 nm. **Active spawn** in Hot Springs Bay (3.0 nm), Torsar Island (0.5 nm), and Tava/Ataku Islands (0.6 nm).

April 9. 9:35-11:05. Survey conditions good. Surveyed south to Whale Bay. Only 1.9 nm of **active spawn** today. Good spawn still going at Tava/Ataku Islands, with smaller weak spawns continuing in Hot Springs Bay, Torsar Island, and the south end of Golf Island. Nothing seen in either Whale or Necker bays.

April 10. 11:00-12:00. Survey conditions good. 1.2 nm of **active spawn** continuing at Tava/Ataku Islands only.

April 9-10. Skiff surveys at low tide. Additions include 0.5 nm on the northernmost Siginaka Island, 0.3 nm on Kresta Point, 0.1 nm on Watson Point, 0.3 nm on Povorotni Point, 0.9 nm on Korga Island, 0.2 nm on the Taigud Islands, 0.5 nm in Redoubt Bay, and 1.5 nm on Golf Island. Total skiff additions 4.3 nm.
April 16. 12:50-14:50. Surveyed Whale Bay to Hoonah Sound. Total active spawn in Sitka Sound 0.5 nm with 0.1 nm in Jamestown Bay, 0.3 nm in Crescent Bay, and 0.1 nm on the south side of the Causeway. In the Great Arm of Whale Bay 0.2 nm of **active spawn**. Nothing seen in Necker Bay.

April 17. 8:20-8:50. Surveyed south to Whale Bay. In Sitka Sound there was less than 0.1 nm of **active spawn** in Jamestown Bay, 0.1 nm in Crescent Bay, less than 0.1 nm on the south side of the Causeway, and 0.2 nm at the Echolms. In Whale Bay there was 0.8 nm of **active spawn** in the Great Arm. Nothing seen in Necker Bay.

April 20. 8:15-9:00. Surveyed south to Whale Bay. No active spawning in Sitka Sound. In Whale Bay Great Arm there was 1.2 nm of **active spawn**. In Necker Bay there was 0.5 nm of active spawn in Dorothy Cove.

Total cumulative spawns: Sitka Sound – 61.5 nm, Whale Bay – 1.6 nm, and Necker Bay – 0.5 nm.

Appendix C.9. Hoonah Sound and Lisianski Inlet.

April 5. 9:45-10:15 (30 minutes Hoonah Sound). Sunny and calm. Surveyed Emmons/Vixen area, South Arm, and south shore of Peril Strait from Nismeni Point to Rodman Bay in route to the Sundance in Warm

Springs Bay for green urchin survey. In Hoonah Sound no herring or spawn seen. Very quiet throughout the area surveyed. Saw no sea lions.

April 9. 10:15-11:05. Areas of Hoonah Sound fogged in but breaking up over Emmons/Vixen and to the north. No herring or spawn seen. 100 seals in North Arm, 2 sea lions at the mouth of the North Arm, one sea lion on north Emmons, and 2 sea lions off Emmons Point. One pound on the grounds. Looks very quiet.

April 14. 7:35-9:40. Overcast with 15-20 knot winds. Surveyed Hoonah Sound and Lisianski Inlet. Hoonah Sound: The only significant concentration of sea lions was 40 off Finger River. 4 sea lions were seen near the mouth of North Arm, one off White Cliff, one in South Arm, 6 off the north side of Emmons Island and 2 sea lions in the channel between Emmons and the shoreline. Lisianski: 3 sea lions off Phonograph Creek, 5 sea lions off Pelican, 11 sea lions in two groups at the entrance to Lisianski Strait, 10 sea lions on the west shore of Lisianski Inlet 1 nautical mile south of Junction Island, and 8 sea lions on the west shore west of Pelican.

April 16. 12:50-14:50. (45 minutes Sitka Sound to Whale Bay, 75 minutes Hoonah Sound). Survey conditions good. Surveyed Hoonah Sound and Peril Straits west of Rodman Bay. 5 sea lions at Broad Creek, 5 sea lions at West Broad Creek, 55 sea lions off Finger River, 5 sea lions in North Arm, 16 sea lions off Pederson Point, 10 sea lions off White Cliff, 5 sea lions in South Arm, 10 sea lions north side of Emmons Island, 2 sea lions on the south side of Emmons Island, and 4 off Ushk Bay.

April 18. 9:55-11:15. Surveyed Hoonah Sound and Peril Straits west of Rodman Bay. The distribution of sea lions remained basically unchanged from the previous survey. The highest concentration of sea loins continues to be found around Finger River and the southeast side of Moser Island (Pederson Pt). 8 sea lions were in the mouth of Fick Cove and 6 sea lions were seen outside of Emmons Island.

April 19. 9:15-11:05. Surveyed Hoonah Sound and Peril Straits west of Rodman Bay, and Lisianski Inlet. Hoonah Sound has not changed from yesterday with no large numbers of sea lions in any one place other than they continue to be scattered in small groups around the south side of Moser Island (total of 23). There were 18 sea lions in the Fick Cove /South Arm area and 18 from Finger River into North Arm. I saw only 5 around Emmons/Vixen. Peschani Point to Point Elizabeth area had 2 whales and 13 sea lions as well as a couple of small schools of herring on the beach. Lisianski Inlet had no visible herring or spawn and only saw a few sea lions.

April 21. 9:05-10:25. Overcast and calm. Surveyed Hoonah Sound and Peril Straits west of Rodman Bay. No herring schools or herring spawn seen. Sea lions were widely scattered throughout the area with a total count of 155. Larger concentrations of sea lions were seen off Finger River, between Fick Cove and Rodgers Point, and south of Emmons Island. Whales were seen offshore of Finger River, East Emmons Island along shore, and 2 whales were seen south of Emmons Island off shore.

April 23. 11:27-13:31. Overcast with 15-20 knot winds. Surveyed Hoonah Sound and Lisianski Inlet. In Hoonah Sound there was no herring spawn, however 3 small schools were seen in shallow water: one along the western Emmons Island shoreline, and two at Uhsk Point. 90 sea lions were seen scattered around the area with the larger concentrations at south Moser Island, between Fick Cove and Vixen Island, at east Vixen Island and at southern Emmons Island. Two whales were observed north of Vixen Island. Lower sea lion and whale counts are most likely due to obstructed visibility due to winds. In Lisianski Inlet there were a dozen small schools around the two small islands just to the north of Phonograph Creek. No herring spawn or herring predators were visible elsewhere in the area, and the survey did not include Lisianski Strait.

April 25. 9:45-11:40. Cloudy with light winds. Surveyed Hoonah Sound and Lisianski Inlet. In Hoonah Sound there was no herring spawn, however schools were seen in increasing numbers in several locations. Several good sized schools were seen along the beach on the southeast Moser Island shoreline, two small schools were seen at Point Reynard in the South Arm, and several good sized schools were seen along the Chichagof Island shoreline north of Fick Cove. Two whales were bubble feeding between Vixen Islands and Fick Cove, and another whale was observed by False Island. Sea lion concentrations were noted at south Moser Island, Point Reynard, and between Fick Cove and the Vixen Islands. In Lisianski Inlet there was no herring, no spawn and only a few herring predators.

April 26. 10:35-11:50. Pick up from O'Kisutch in Olga Strait and drop off in lower Salisbury Sound. Survey conditions were fair with winds to 20 knots. Surveyed Hoonah Sound from Rodman Bay and west. Sea lions were most concentrated around the Fick Cove area of the South Arm with a count of 53. There were a few sea lions in North Arm, 20 sea lions scattered from Pederson Point to White Cliff, 13 sea lions on the north side of Emmons Island, 5 sea lions north of Vixen Island, and 5 sea lions off Rodgers Point. There were two schools of herring observed at the mid-point of Moser Island in North Arm, 3 schools in the Channel west of Emmons Island, 2 schools along shoreline between Patterson Bay and Fick Cove, and one school in the pound area.

April 27. 12:15-13:05. Surveying conditions good. Pick up in Hoonah Sound. Surveyed Hoonah Sound. **Active spawn** on South Vixen Island (0.5 nm) and on North Emmons Island (0.5 nm). Herring schools observed the length of East Emmons Island with the largest on the south end. Two large schools were off Rodgers Point, and several schools from west of the pound area to Rodgers Point.

April 28. 9:15-10:40. Windy conditions. Pick up in Hoonah Sound. Surveyed Hoonah Sound and Lisianski Inlet/Strait. In Hoonah Sound two **light spawns** either side of the river flat west of Vixen Island, **spawn** on East Vixen Island, and spawn from North Emmons Island following the east shore to South Emmons Island. Total active spawn 3.4 nm. Good concentrations of sea lions along the south side of Emmons Island and off Emmons Spit. In Lisianski Inlet there was a light spawn south of Pelican, underneath the cold storage dock, on the northernmost Island in front of Pelican, at Sunnyside, and north of Soloma Flats. Total active spawn 0.6 nm. There were 12 herring schools at the head of Lisianski Inlet. Nothing seen in Lisianski Strait or around Yakobi Island.

April 29. 9:00-10:20. Survey conditions fair. Pick up in Hoonah Sound. Surveyed Hoonah Sound from Rodman Bay and west as well as Lisianski Inlet. In Hoonah Sound a total of 5.1 nm of **active spawn** mostly around Emmons and Vixen Islands. Some active spawn on the Chichagof shoreline west of the pound area, and a spot southeast of Finger River. 150 sea lions off Emmons Point and South Emmons Island. In Lisianski Inlet there was 0.3 nm of **active spawn** with some just south of Pelican and **small spawn** at Sunnyside, and **spawn** on the creek flat about 1.5 nm northwest of Soloma Flats.

April 30. 8:25-9:25. Survey conditions good. Pick up in Hoonah Sound. Surveyed Hoonah Sound and Lisianski Inlet. In Hoonah Sound there was 6.5 nm of **active spawn** with 1.4 nm on the shoreline between Finger River and West Broad Creek, 3.2 nm between Fick Cove and Rodgers Point, 1.1 nm on Emmons Island, and 0.8 nm on Vixen Island. Did a skiff survey of the area between Finger River and West Broad Creek from 15:30-18:00 and added an additional 1 nm of **active spawn**. Total cumulative spawn to date 9.6 nm. In Lisianski Inlet there was 0.6 nm of **active spawn** on the shoreline between Soloma Flat and Phonograph Creek. There was also two spots south of Pelican.

May 1. 8:50-10:00. Survey conditions good. Pick up in Hoonah Sound. Surveyed Hoonah Sound and Lisianski Inlet. In Hoonah Sound there was a total 1.4 nm of **active spawn** mostly around the Fick Cove area. No active spawn on Emmons or Vixen Islands. A spot still going on the Finger River shoreline. In Lisianski Inlet there was a total of 3.4 nm of **active spawn** most of which was on the shoreline between Soloma Flats and Phonograph Creek. There was some **active spawn** on the shoreline to the south of Pelican, at the cold storage dock and at Sunnyside.

May 3. 7:55-9:30. Rainy and windy. Surveyed Hoonah Sound and Lisianski Inlet. No spawn or herring seen in either Hoonah Sound or Lisianski Inlet. Last aerial survey of the season.

May 7. 7:00-8:00. Skiff survey at low tide. Windy conditions. Added 1 nm on South Emmons Island and 0.4 nm near Rodgers Point.

Total cumulative spawns: Hoonah Sound – 13.6 nm, Lisianski Inlet – 3.7 nm.

Appendix C.10. Hobart Bay, Port Houghton, and Windham Bay.

4/17/01 Port Houghton: No spawn or herring observed. 60 Sea Lions.
Hobart Bay: No spawn or herring observed. 14 Sea Lions.
Windham Bay: No Spawn or herring observed. 0 Sea Lions.
4/19/01 Port Houghton: No spawn or herring observed. 23 Sea Lions.
Hobart Bay: No spawn or herring observed. 16 Sea Lions.
Windham Bay: No Spawn or herring observed. 0 Sea Lions.
4/20/01 Port Houghton: No spawn or herring observed. 9 Sea Lions.
Hobart Bay: No spawn or herring observed. 108 Sea Lions
Windham Bay: No Spawn or herring observed. 6 Sea Lions.
4/21/01 Port Houghton: No spawn or herring observed. 4 Sea Lions. Clam spawn. 2 Whales.
Hobart Bay : No spawn or herring observed. Some calm milt seen in Port Houghton. 82 Sea Lions
Windham Bay: No Spawn or herring observed. 5 Sea Lions.
4/22/01 Port Houghton: No spawn or herring observed. 1 Sea Lions.
Hobart Bay: No spawn or herring observed. 84 Sea Lions.
Windham Bay: No Spawn or herring observed. 3 Sea Lions.
4/23/01 Port Houghton: No spawn or herring observed. 0 Sea Lions.
Hobart Bay: No spawn or herring observed. 100 Sea Lions.
Windham Bay: No Spawn or herring observed. 0 Sea Lions.
4/24/01 Port Houghton: No spawn or herring observed. 0 Sea Lions.
Hobart Bay: No spawn or herring observed.
Windham Bay: No Spawn or herring observed. 0 Sea Lions.
4/26/01 Port Houghton: No spawn or herring observed. 0 Sea Lions, 100 Scoters.
Hobart Bay: No spawn or herring observed. 113 Sea Lions, 600 gulls.
Windham Bay: No Spawn or herring observed. 36 Sea Lions.
4/27/01 Port Houghton: No spawn or herring observed. 0 Sea Lions, 500 Scoters.
Hobart Bay: No spawn or herring observed. 35 Sea Lions, 400 gulls.
Windham Bay: No Spawn or herring observed. 0 Sea Lions.
4/28/01 Port Houghton: No spawn or herring observed. 0 Sea Lions, 200 Scoters.
Hobart Bay: No spawn or herring observed. 36 Sea Lions, 800 gulls.
Windham Bay: No Spawn or herring observed. 3 Sea Lions.
4/29/01 Port Houghton: No spawn or herring observed. 0 Sea Lions, 2000 Scoters.

Hobart Bay: No spawn observed. First 4 schools observed in Hobart Bay. 44 Sea Lions, 3000 gulls.
Windham Bay: No Spawn or herring observed. 0 Sea Lions.

4/30/01 Port Houghton: No spawn or herring observed. 0 Sea Lions, 300 Scoters.
Hobart Bay: 1 school of herring. **First spawn** of .1 nm of spawn observed in Herring Lagoon.
Windham Bay: No Spawn or herring observed. 0 Sea Lions.

5/1/01 Port Houghton: No spawn or herring observed. 0 Sea Lions, 1500 Scoters.
Hobart Bay: 8 schools of herring. 3.6 nm of **spawn**. 63 Sea Lions.
Windham Bay: No Spawn or herring observed. 0 Sea Lions.

5/2/01 Hobart Bay: No aerial survey. 1.5 nm **spawn** observed by skiff.

5/3/01 Port Houghton: No spawn or herring observed..
Hobart Bay: .1 nm **spawn** North of Entrance Is. and Sunset Cove. No schools observed. 85 Sea Lions
Windham Bay: One school of herring. **First spawn**, .35 nm.

5/4/01 Port Houghton: 1 small school. No spawn observed.
Hobart Bay: No spawn or herring observed.
Windham Bay: No Spawn or herring observed. 0 Sea Lions.

5/5/01 Hobart Bay: Two small **spawns** in Port Houghton, and **spot spawn** North of Sunset Cove. Five small schools by narrows in Hobart Bay.

Appendix C.11. Farragut Bay.

4/17/01 No spawn or herring observed. 1 Sea Lion.
4/19/01 No spawn or herring observed. 1 Sea Lion.
4/21/01 No Spawn or herring observed. 3 Sea Lions.
4/22/01 No Spawn or herring observed. 5 Sea Lions.
4/23/01 No Spawn or herring observed. 4 Sea Lions.
4/26/01 Five schools in Farragut Bay. 12 Sea Lions
4/27/01 No active spawn. 2 Schools of herring. Birds on eggs, probably .35 miles of eggs.
4/29/01 No active spawn or herring observed. Birds on eggs, probably .25 miles of eggs.

Appendix C.12. Ernest Sound - Vixen Inlet.

4/5/01 No spawn or herring observed. 4 groups of Sea Lions and 60 gulls in Vixen.
4/7/01 No spawn or herring observed. 62 sea Lions in Vixen and 10 in Emerald Bay.
4/9/01 First herring observed, S. of Emerald Bay. No spawn observed. 52 Sea Lions and 305 birds concentrated in Vixen Inlet.
4/10/01 2.5 miles active spawn along NW shore of Vixen Inlet 1.5 nm **active spawn** NE of Foul Cove in Emerald Bay. 134 Sea Lions, 1400 gulls.
4/11/01 3 schools herring, 2.6 nm of **active spawn**. 55 Sea Lions, 3300 gulls.
4/12/01 Old spawn areas around Vixen plus 1.5 nm of **spot spawns**. 250 Sea Lions, 2000 gulls.
4/13/01 Spawn seems to be finished. 9 Sea Lions, 4000 gulls, 100 scoters.
4/14/01 No spawn or herring observed.
4/16/01 No spawn or herring observed.

Appendix C.13. Ship Island.

4/5/01 No spawn or herring observed. 0 Sea lions.
4/7/01 No spawn or herring observed. 0 Sea lions.
4/9/01 No spawn or herring observed. 3 Sea lions.
4/10/01 No spawn or herring observed. 0 Sea lions.
4/11/01 No spawn or herring observed. 0 Sea lions.
4/12/01 No spawn or herring observed. 19 Sea lions.
4/13/01 No spawn or herring observed. 6 Sea lions.
4/14/01 No spawn or herring observed. 0 Sea lions.
4/16/01 No spawn or herring observed. 2 Sea lions.

Appendix C.14. Port Camden.

5/1/01 Port Camden: 0.6 nm of **spawn**, no herring observed.

Appendix C.15. Gambier Bay and Pybus Bay.

5/5/01 No herring or Spawn observed.

Appendix C.16. Three Mile Arm.

5/1/01 Three Mile Arm. No spawn or herring observed.

Appendix C.17. Lynn Canal.

Total miles of spawn: 4.0 nautical miles
Spawning dates: 5/5 and 5/6
Peak spawning: 5/5
Escapement biomass: N/A

4/15 61Z w/ Farrington. 12:00. Several balls of herring seen in the Auke Bay vicinity. No spawn.
4/20 61Z w/ Farrington. 2:00 pm. Several balls of herring seen in the Auke Bay vicinity and in Tee Harbor as well. No spawn. 50 to 75 sea lions on the haulout at Benjamin I.

4/23 61Z w/ Farrington. 9:40 am. No herring nor spawn seen. Poor visibility with brown algae in the water. 20 sea lions on the haulout at Benjamin I.

4/26 61Z w/ Farrington. 10:48 am. 5 small balls of herring seen in the Auke Bay vicinity. No spawn.

4/28 61Z. 11:15 am. No herring. No spawn.

4/30 61Z. 2 big schools of herring in the Auke Bay boat harbor. No spawn.

5/3 61Z. 1 school of herring seen near Sawmill Cr. No spawn seen.

5/5 61Z w/ McGregor. 10:00 am. Herring seen at Mab I. Herring and **spawn** on the eastern shore of Berners Bay from approx 1 mile north of Sawmill Cr to the USFS cabin. Also 2 balls of herring in Auke Bay near Fisherman's Bend.

5/6 61Z. Herring seen near the ferry terminal in Auke Bay. Herring and **spawn** on he eastern shoreline of Berners Bay from south of Sawmill Cr to near the mouth of the Antler/Gilkey (corner of Berners). Birds were working yesterday's spawn.

5/9 61Z. No herring. No spawn. Birds were working the prior spawns.

5/15 61Z w/ Farrington. 11:20 am. Surveyed Auke Bay vicinity only. 2 big schools of herring in Auke Bay near Fisherman's Bend. No spawn.

5/16 61Z. 3:00 pm. Surveyed Auke Bay vicinity only. 3 big schools of herring in Auke Bay near Fisherman's Bend. No spawn.

5/17 61Z. 3:00 pm. 4 balls of herring inside Auke Bay boat harbor (they are not going to spawn in balls), and 3 balls of herring inside Tee Harbor. No spawn. 2 whales seen inside Benjamin I between the mainland.

5/24 Skiff survey. 7:00 am. Low tide. Showed a slight increase in shoreline w/ **spawn**. Egg coverage is light – several feet tidal range in the intertidal zone and very light density (1000 eggs/meter^2). The coverage is fairly continuous from near the USFS cabin to Sawmill reef, with a couple notable absences. There is no dive survey to determine spawn deposition. It would appear by eye that there was insufficient escapement to achieve the threshold minimum.

6/5 TAL Air. Noon. High flood tide. Surveyed Auke Bay, Tee Harbor, and breadline. No herring, no spawn seen.

6/7 Foot survey. 8:30 am. Low tide. Confirm reports of a **spawn** in Tee Harbor on or about 6/4. There is a narrow band of egg deposition on intertidal Fucus and hair kelp. It extends for 0.75 nautical miles of the north end of Tee Harbor.

Appendix C.18. Seymour Canal.

Total miles of spawn:	15.5 nautical miles
Spawning dates:	5/5 – 5/15
Peak spawning:	5/14
Escapement biomass:	N/A

4/16 61Z w/ Farrington. 3:30 pm. 1 hour after extreme low tide. Clear skies. Fair amount of predators present: sea lions and whales distributed from Pt Hugh to Faust I. No herring, no spawn seen.

4/19 61Z w/ Farrington. 9:30 am. Rising tide. Partly sunny making for excellent visibility. Marine predators – 297 sea lions and 5 whales. No herring, no spawn seen.

4/21 61Z w/ Farrington. 3:50 pm. Ebb near low tide. Marine predators – 149 sea lions and no whales from Pt Hugh to Faust I. No herring, no spawn seen.

4/22 61Z w/ Kelley. 6:00 pm. Overcast and raining with gusty winds. Poor visibility. No herring, no spawn seen.

4/24 61Z w/ Kelley. Overcast and showery with gusty winds. No herring, no spawn seen.

4/26	15V w/ Bergmann. Flood tide. 236 sea lions, 6 whales, and 8 killer whales seen. Good visibility. No herring, no spawn seen.
4/27	61Z w/ Kelley. Overcast and rainy, with winds. No herring, no spawn seen.
4/28	61Z. 2:30 pm. Flood tide. Mostly cloudy. Whales and sea lions seen in the Dorn Island area. No herring, no spawn seen.
4/29	61Z w/ Kelley. Overcast with rain and winds. No herring, no spawn seen. Kittiwake III. Herring seen on depth sounder in several locations. No spawn seen.
5/1	Kittiwake III. 9:30 am. High tide. 9 schools of herring seen on depth sounder. No spawn seen.
5/3	Kittiwake III. 4:30 pm. Low tide. Herring seen on depth sounder. No spawn seen. 61Z and Bachman. 2:24 pm. Mid ebb tide. Mostly cloudy and windy. Poor visibility. No herring, no spawn seen.
5/4	Kittiwake III. 8:40 am. No herring, no spawn seen. 61Z w/ Kelley. Herring schools seen close to beach on SE corner of Bug Island and between Bug Island and Glass Peninsula.
5/5	61Z w/ McGregor. 7:30 am. Spot spawn opposite south end of Dorn Island. 61Z w/ Kelley. 6:30 pm. Mostly cloudy with light rain. Good visibility. Herring schools seen lining beaches in the #9 Rock area. No spawn seen.
5/6	61Z w/ Farrington. 5:41 am. Low ebb tide. Herring balls seen in the Cypress Rock area. No spawn seen. 61Z w/ Farrington. 9:43 am. Low flood tide. High overcast and excellent visibility. Herring balls seen in the Sore Finger Cove area. No spawn seen. 61Z w/ Farrington. 7:30 pm. Herring schools near the beach in the Sore Finger Cove area. No spawn seen.
5/8	Kittiwake III. 8:45 am. Rain and SE winds to 25 mph. The herring activity is much reduced, with most schools having left the beaches and only a few schools present. A spot spawn starts on the point of land opposite the south end of Dorn Island.
5/9	61Z w/ Farrington. 8:00 am. Clouds and wind. Low tide. No spawn seen. 61Z w/ Farrington. 11:15 am. Mostly cloudy. Mid flood tide. No herring, no spawn seen.
5/10	61Z w/ Farrington. 8:30 am. Mostly cloudy. Low ebb tide. **Spawns** developing at Twin I. and Blackjack Cove. 61Z w/ Kelley. 9:00 am. Mostly cloudy. Low ebb tide. **Spawns** continue at Twin I. and Blackjack Cove. Significant schools at #9 Rk and Sorethumb. Schools also observed in the Mole Harbor vicinity. 61Z w/ Davidson. 9:40 am. Mostly cloudy. Low ebb tide. **Spawns** at Twin I. and Blackjack Cove are ceasing. 61Z w/ Farrington. 12:00 noon. Partly cloudy. Mid flood tide. Excellent vis. **Spot spawns** are ongoing south of Blackjack Cove. Herring are lining the beaches at the Rock Garden, south of Twin I., and north of #9 Rk. 61Z w/ Farrington. 15:15 Cloudy. High tide. **Spot spawns** at Twin I.

Appendix C.19. Tenakee.

Total miles of spawn:	19 nautical miles
Spawning dates:	4/21– 5/1
Peak spawning:	4/30
Escapement:	N/A

Appendix C.20. Oliver's Inlet.

Total miles of spawn:	3.0 nautical miles
Spawning dates:	5/5 – 5/13
Peak spawning:	5/6
Escapement:	N/A

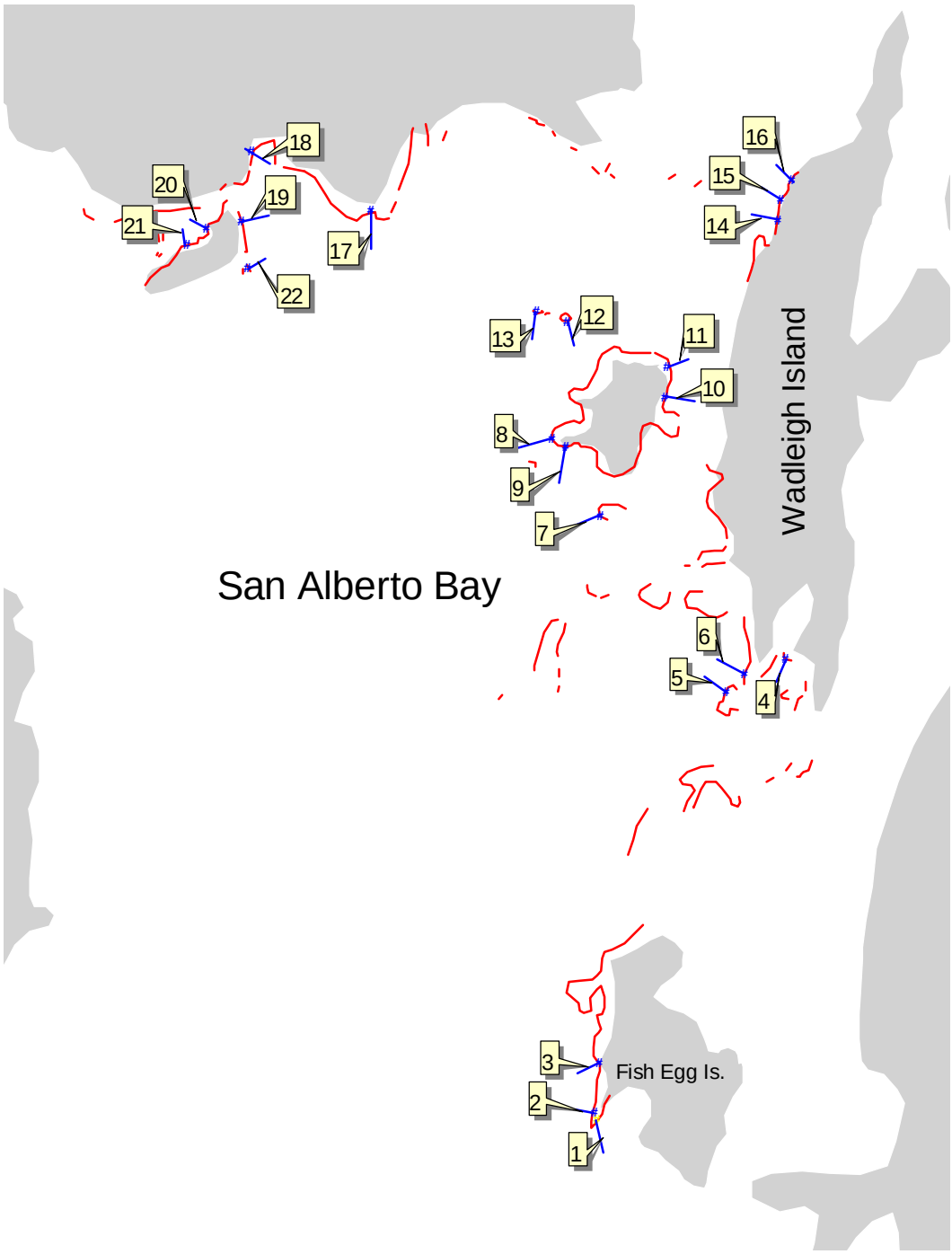
Appendix C.21. Port Frederick.

Total miles of spawn:	0.1 nautical mile
Spawning dates:	6/15/01
Peak spawning:	6/15/01
Escapement:	N/A

Appendix C.22. Taku Harbor.

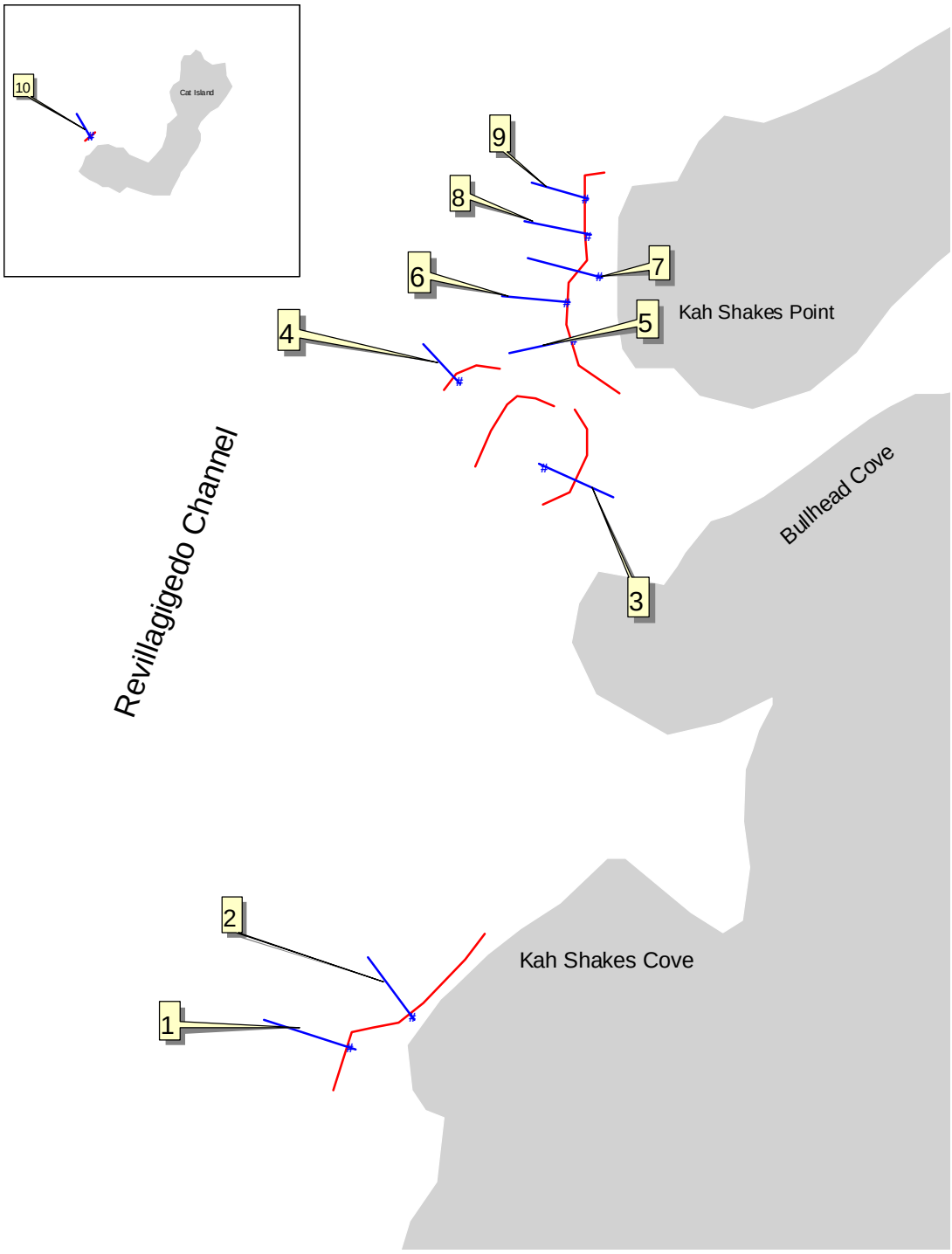
Total miles of spawn:	0.1 nautical mile
Spawning dates:	5/6/01
Peak spawning:	5/6/01
Escapement:	N/A

Appendix D. Locations of herring spawn and transects used during spawn deposition surveys in 2001. Lines indicate spawn. Due to map detail, spawn may not always appear to be associated with shoreline when around small islands and shallow reefs.



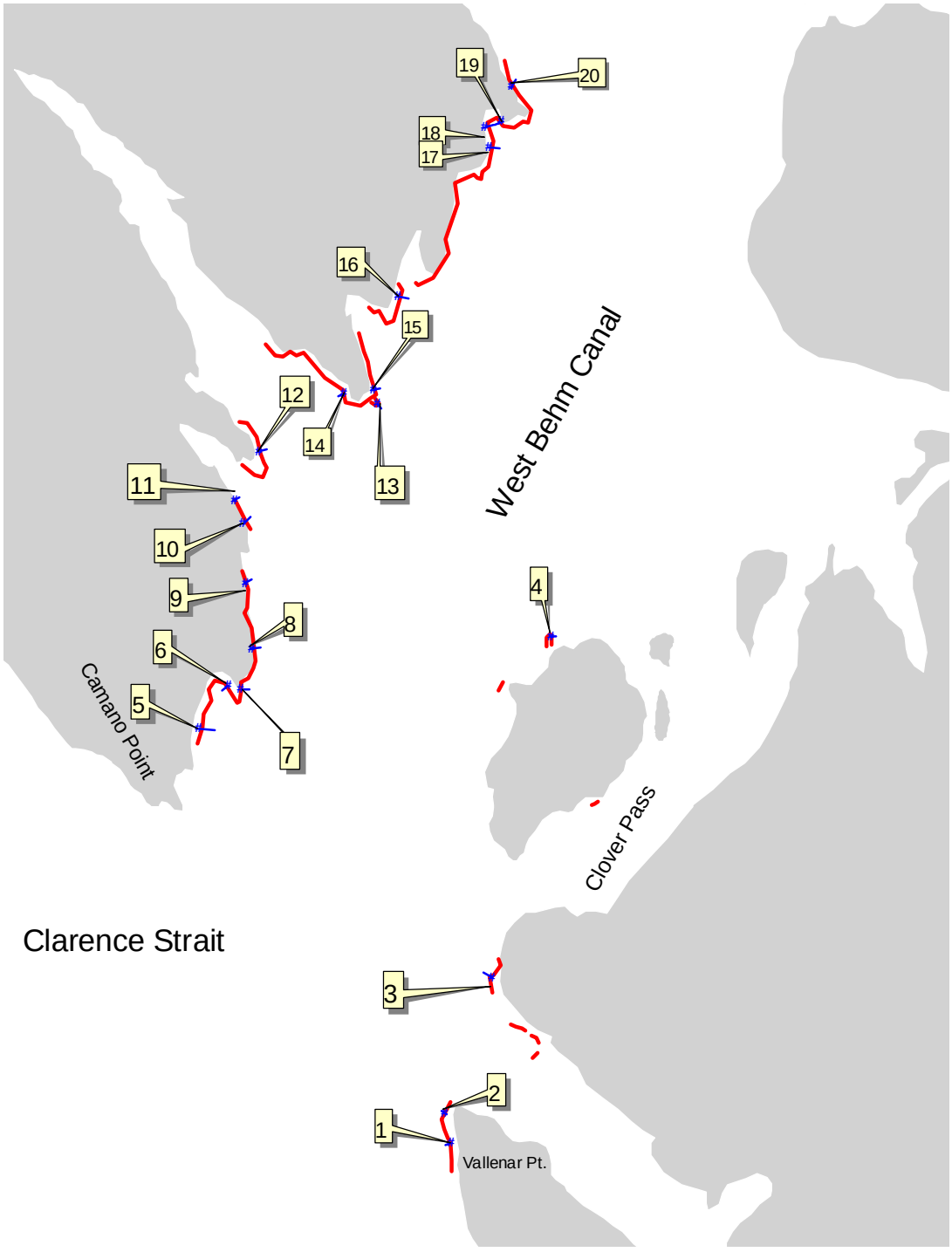
Appendix D.1. Craig spawning population.

Spawning Stock	Transect no	Latitude (degrees)	Longitude (degrees)
Craig	1	55.4834	-133.1833
	2	55.4842	-133.1837
	3	55.4894	-133.1827
	4	55.5310	-133.1489
	5	55.5275	-133.1597
	6	55.5294	-133.1560
	7	55.5459	-133.1824
	8	55.5537	-133.1913
	9	55.5531	-133.1890
	10	55.5581	-133.1710
	11	55.5612	-133.1703
	12	55.5659	-133.1886
	13	55.5668	-133.1944
	14	55.5763	-133.1501
	15	55.5783	-133.1496
	16	55.5802	-133.1476
	17	55.5773	-133.2243
	18	55.5833	-133.2464
	19	55.5761	-133.2481
	20	55.5754	-133.2543
	21	55.5736	-133.2582
	22	55.5713	-133.2468



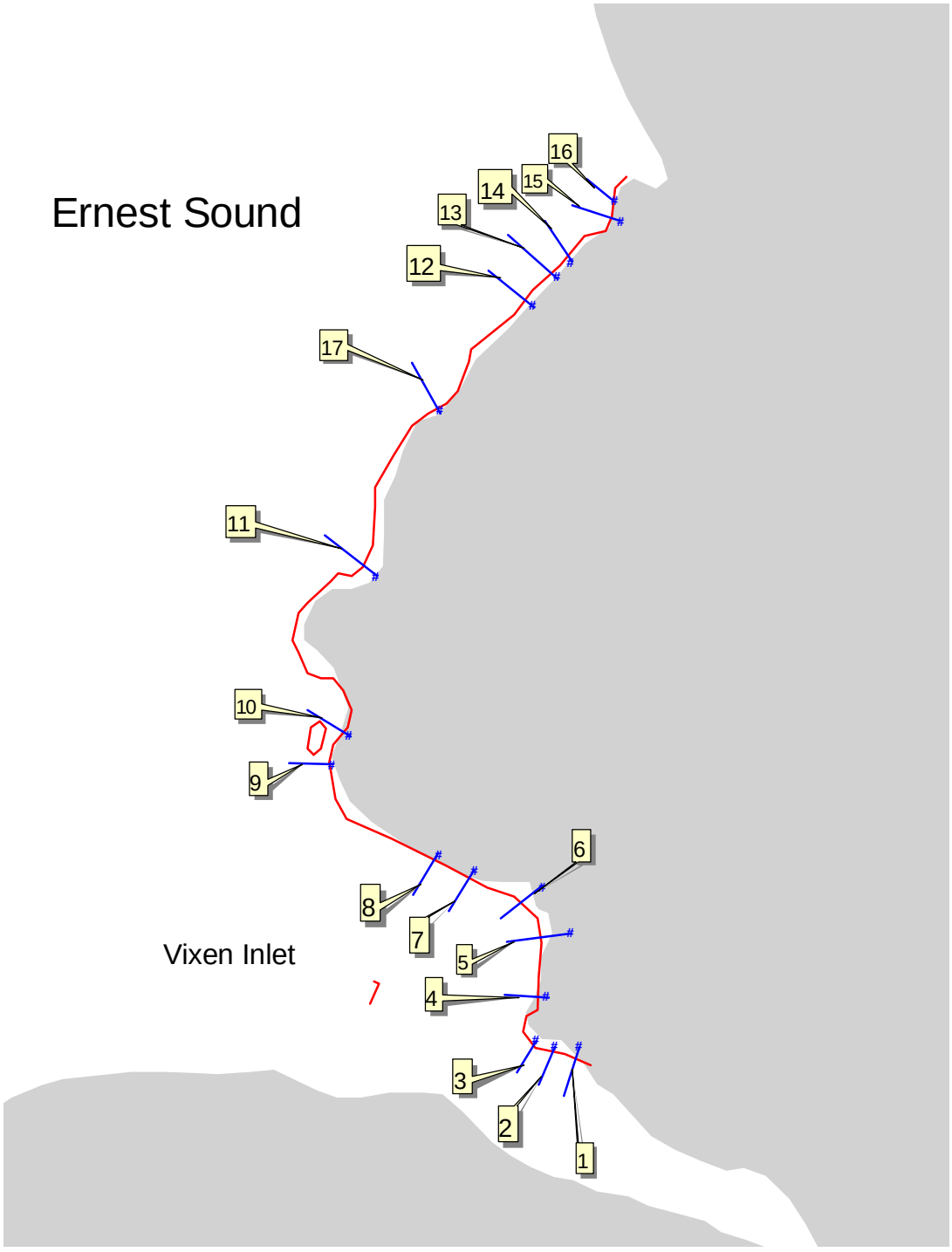
Appendix D.2. Kah Shakes/Cat Island spawning population.

Spawning Stock	Transect no	Latitude (degrees)	Longitude (degrees)
Kah Shakes/Cat Island	1	55.0299	-131.0076
	2	55.0311	-131.0030
	3	55.0552	-131.9932
	4	55.0588	-131.9994
	5	55.0607	-131.9907
	6	55.0624	-130.9911
	7	55.0635	-130.9887
	8	55.0653	-130.9894
	9	55.0669	-130.9898
	10	55.0231	-131.2737



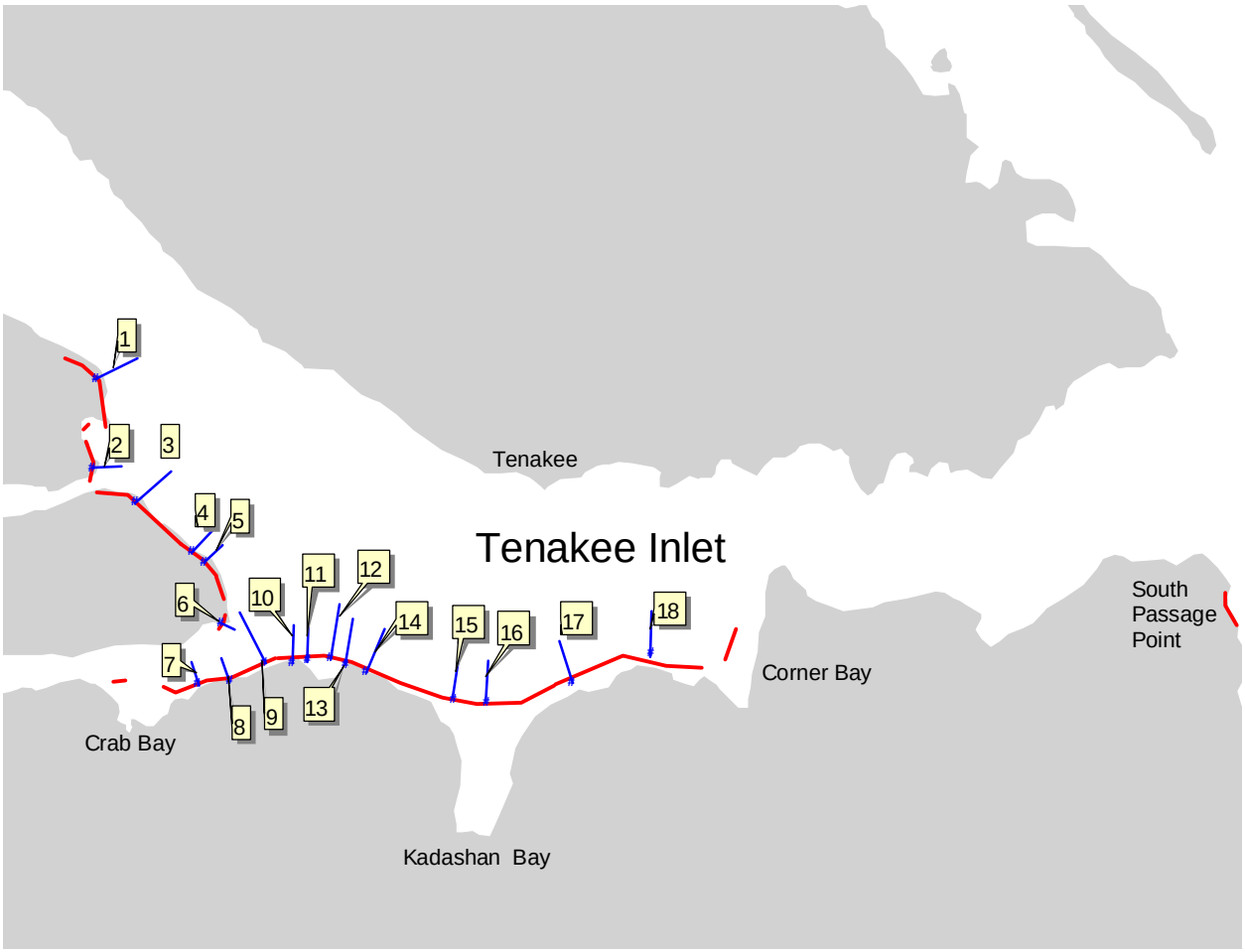
Appendix D.3. West Behm Canal spawning population.

Spawning Stock	Transect no	Latitude (degrees)	Longitude (degrees)
West Behm Canal	1	55.4164	-131.8522
	2	55.4238	-131.8546
	3	55.4575	-131.8344
	4	55.5420	-131.8087
	5	55.5189	-131.9620
	6	55.5297	-131.9493
	7	55.5287	-131.9435
	8	55.5389	-131.9389
	9	55.5549	-131.9417
	10	55.5698	-131.9425
	11	55.5754	-131.9466
	12	55.5875	-131.9360
	13	55.5992	-131.8842
	14	55.6018	-131.8987
	15	55.6027	-131.8861
	16	55.6257	-131.8750
	17	55.6625	-131.8353
	18	55.6673	-131.8373
	19	55.6688	-131.8300
	20	55.6774	-131.8258



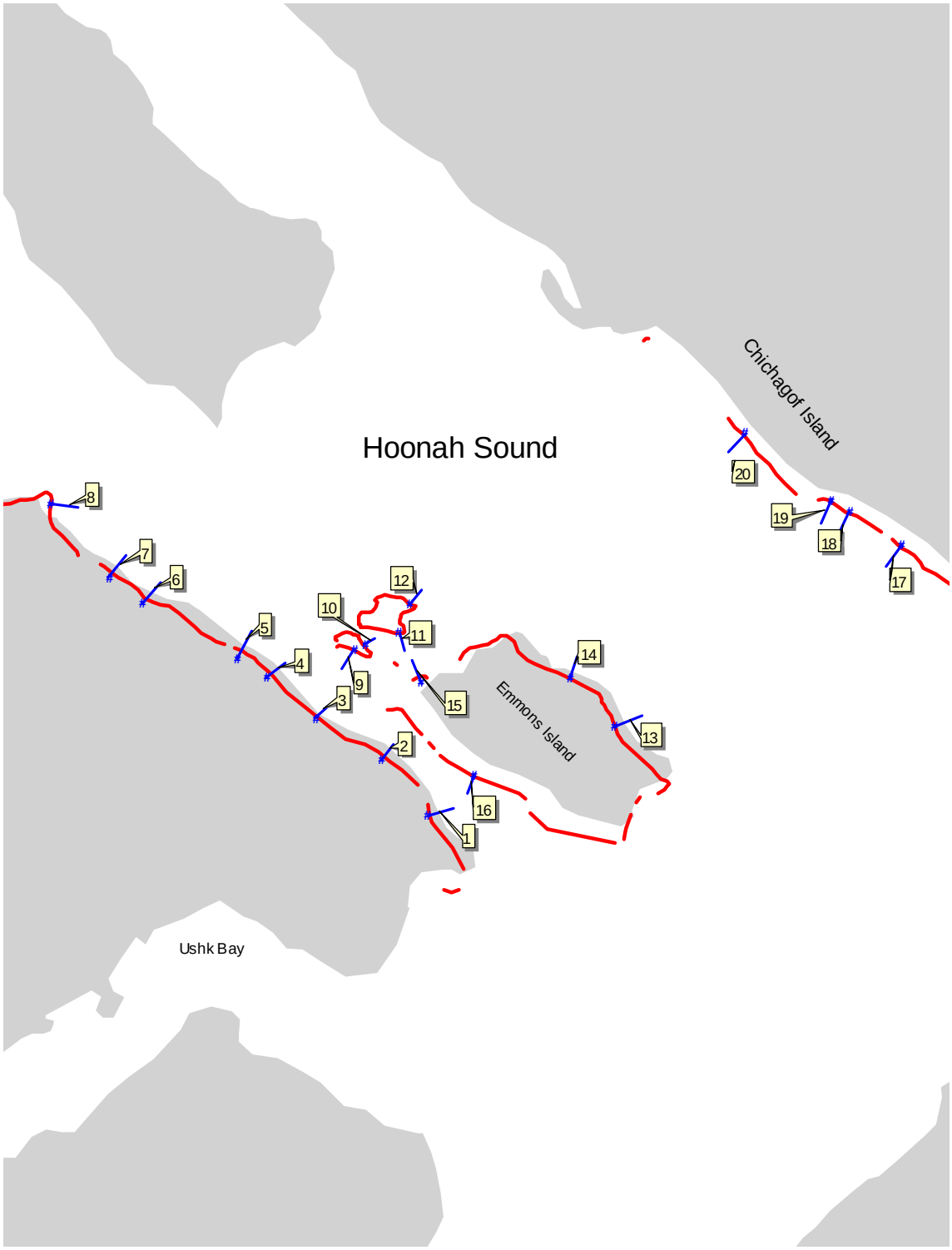
Appendix D.4. Ernest Sound spawning population.

Spawning Stock	Transect no	Latitude (degrees)	Longitude (degrees)
Ernest Sound	1	55.8131	-132.0545
	2	55.8131	-132.0582
	3	55.8137	-132.0611
	4	55.8174	-132.0594
	5	55.8229	-132.0558
	6	55.8268	-132.0600
	7	55.8282	-132.0704
	8	55.8296	-132.0758
	9	55.8372	-132.0922
	10	55.8399	-132.0897
	11	55.8535	-132.0855
	12	55.8767	-132.0616
	13	55.8793	-132.0579
	14	55.8805	-132.0558
	15	55.8840	-132.0481
	16	55.8857	-132.0490
	17	55.8678	-132.0757



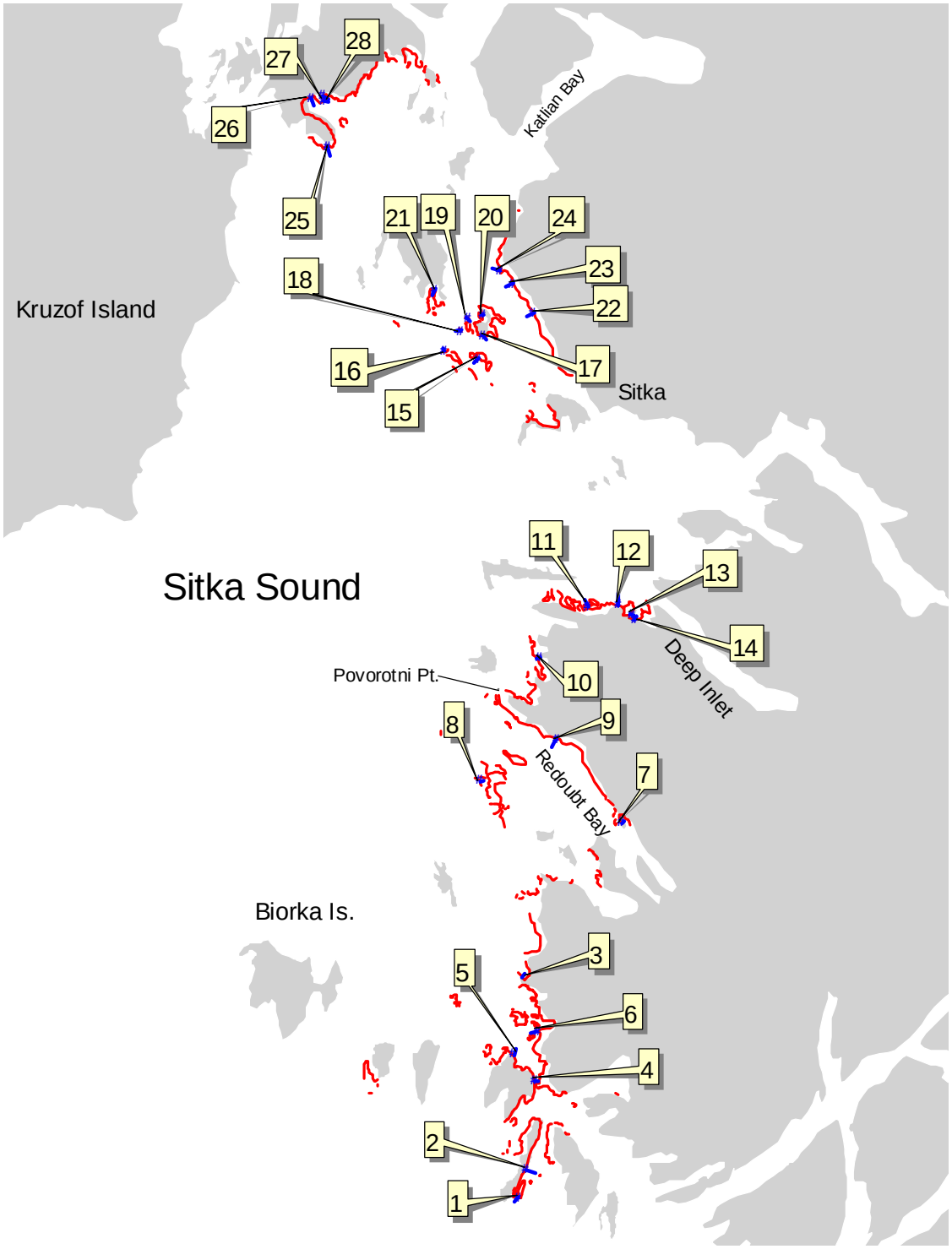
Appendix D.5. Tenakee Inlet spawning population.

Spawning Stock	Transect no	Latitude (degrees)	Longitude (degrees)
Tenakee Inlet	1	57.8004	-135.3761
	2	57.7816	-135.3775
	3	57.7741	-135.3604
	4	57.7636	-135.3381
	5	57.7613	-135.3329
	6	57.7486	-135.3263
	7	57.7359	-135.3354
	8	57.7364	-135.3231
	9	57.7402	-135.3092
	10	57.7403	-135.2982
	11	57.7407	-135.2923
	12	57.7414	-135.2827
	13	57.7397	-135.2768
	14	57.7381	-135.2688
	15	57.7320	-135.2340
	16	57.7319	-135.2220
	17	57.7363	-135.1872
	18	57.7424	-135.1556



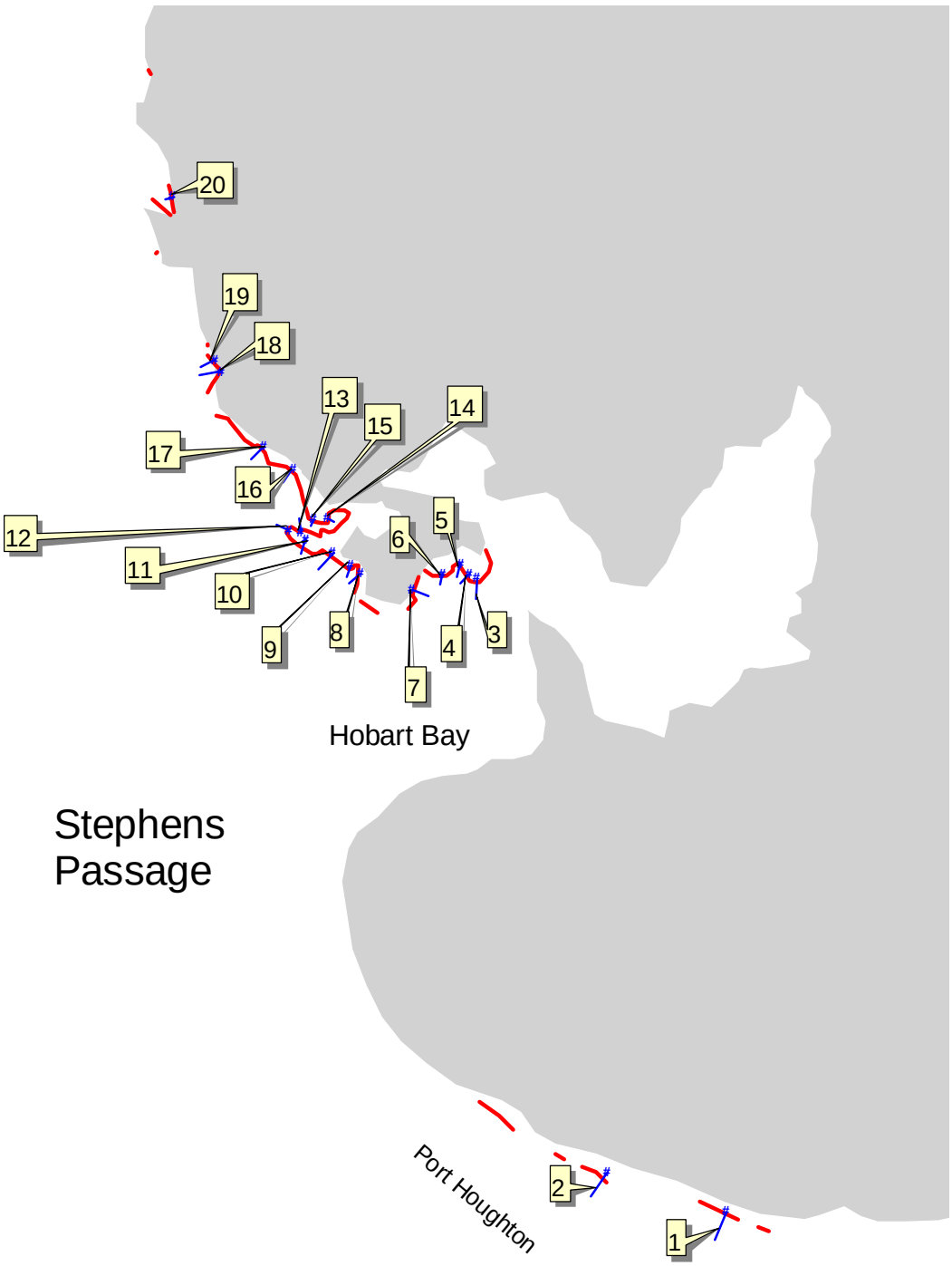
Appendix D.6. Hoonah Sound spawning population.

Spawning Stock	Transect no	Latitude (degrees)	Longitude (degrees)
Hoonah Sound	3	57.6033	-135.5923
	4	57.6086	-135.6040
	5	57.6109	-135.6109
	6	57.6179	-135.6332
	7	57.6209	-135.6409
	8	57.6302	-135.6547
	9	57.6119	-135.5835
	10	57.6126	-135.5811
	11	57.6141	-135.5730
	12	57.6177	-135.5706
	13	57.6024	-135.5227
	14	57.6084	-135.5330
	15	57.6079	-135.5680
	17	57.6251	-135.4555
	18	57.6290	-135.4676
	19	57.6307	-135.4718
	20	57.6391	-135.4919



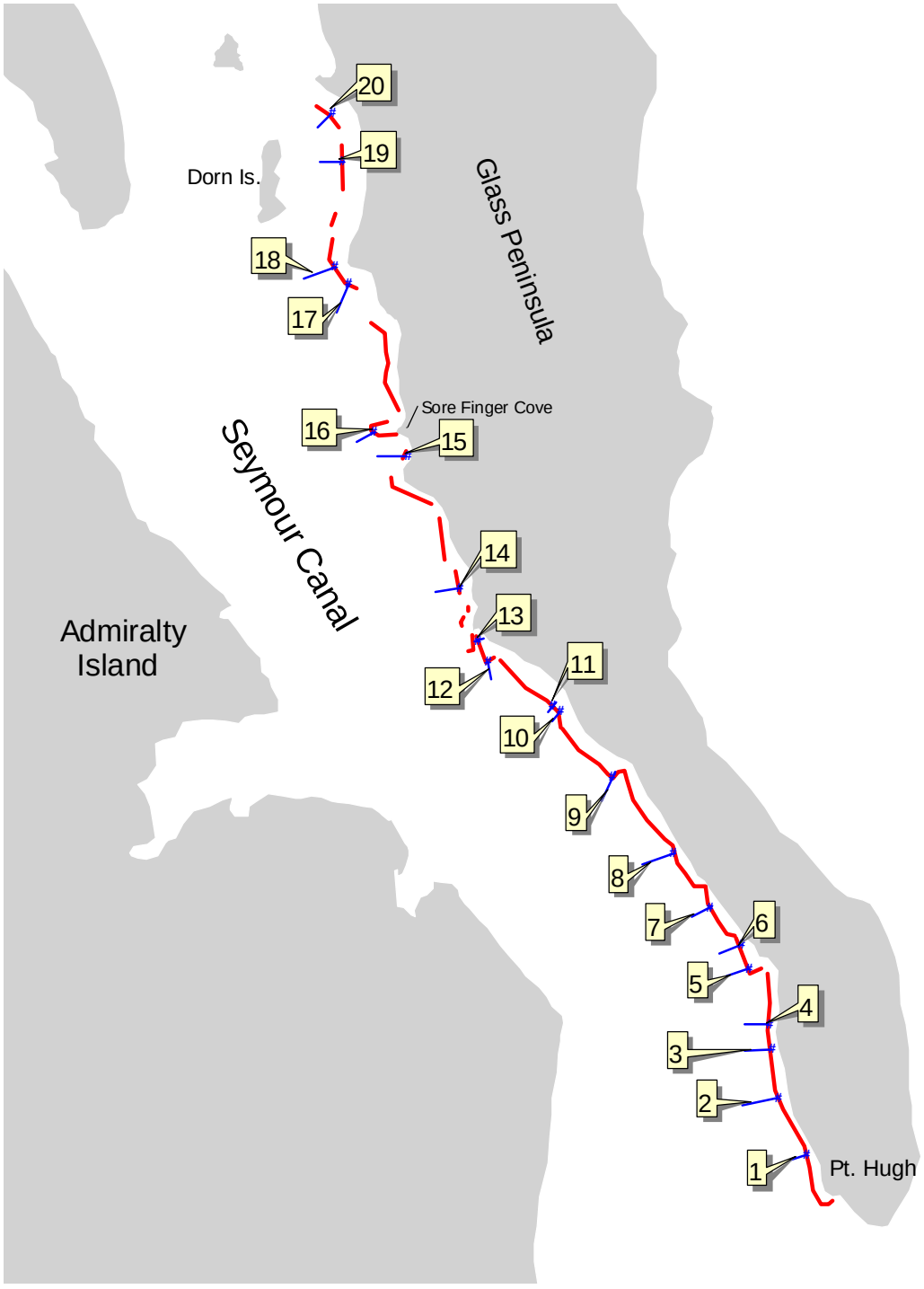
Appendix D.7. Sitka Sound spawning population.

Spawning Stock	Transect no	Latitude (degrees)	Longitude (degrees)
Sitka Sound	1	56.7791	-135.3908
	2	56.7886	-135.3856
	3	56.8550	-135.3885
	4	56.8193	-135.3759
	5	56.8285	-135.3931
	6	56.8364	-135.3793
	7	56.9084	-135.3254
	8	56.9229	-135.3254
	9	56.9368	-135.3671
	10	56.9654	-135.3772
	11	56.9830	-135.3462
	12	56.9836	-135.3276
	13	56.9801	-135.3198
	14	56.9787	-135.3172
	15	56.0682	-135.4161
	16	57.0708	-135.4374
	17	57.0761	-135.4132
	18	57.0778	-135.4264
	19	57.0823	-135.4230
	20	57.0831	-135.4137
	21	57.0917	-135.4432
	22	57.0837	-135.3813
	23	57.0938	-135.3946
	24	57.0984	-135.4020
	25	57.1409	-135.5107
	26	58.1576	-135.5212
	27	57.1565	-135.5133
	28	57.1584	-135.5138



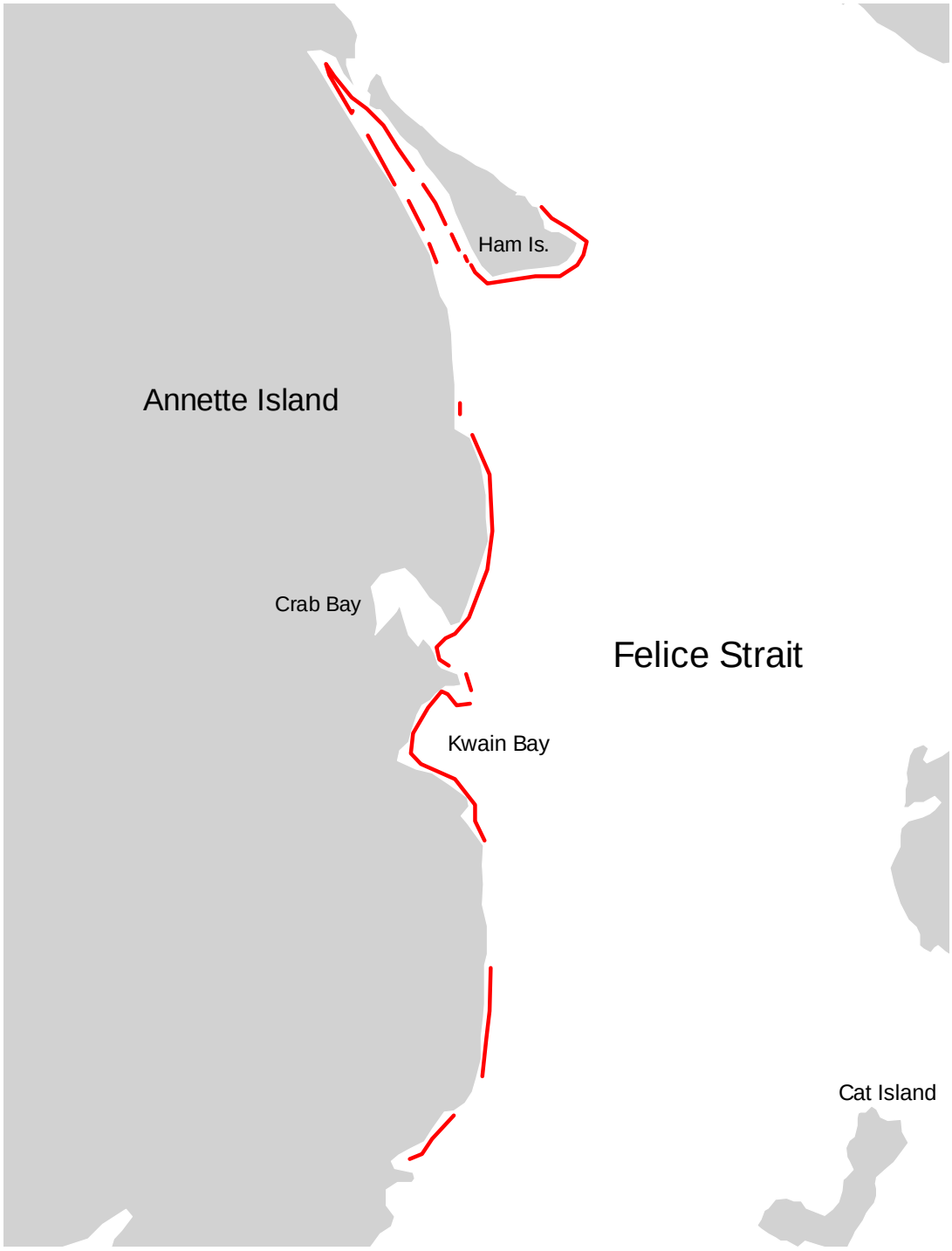
Appendix D.8. Hobart Bay/Port Houghton spawning population.

Spawning Stock	Transect no	Latitude (degrees)	Longitude (degrees)
Hobart/Houghton	1	57.3361	-133.3709
	2	57.3417	-133.4021
	3	57.4253	-133.4362
	4	57.4259	-133.4382
	5	57.4273	-133.4405
	6	57.4259	-133.4454
	7	57.4236	-133.4532
	8	57.4260	-133.4667
	9	57.4207	-133.4693
	10	57.4321	-133.4856
	11	57.4308	-133.4810
	12	57.4321	-133.4856
	13	57.4338	-133.4754
	14	57.4318	-133.4825
	15	57.4336	-133.4791
	16	57.4406	-133.4846
	17	57.4439	-133.4923
	18	57.4545	-133.5032
	19	57.4560	-133.5050
	20	57.4789	-133.5158

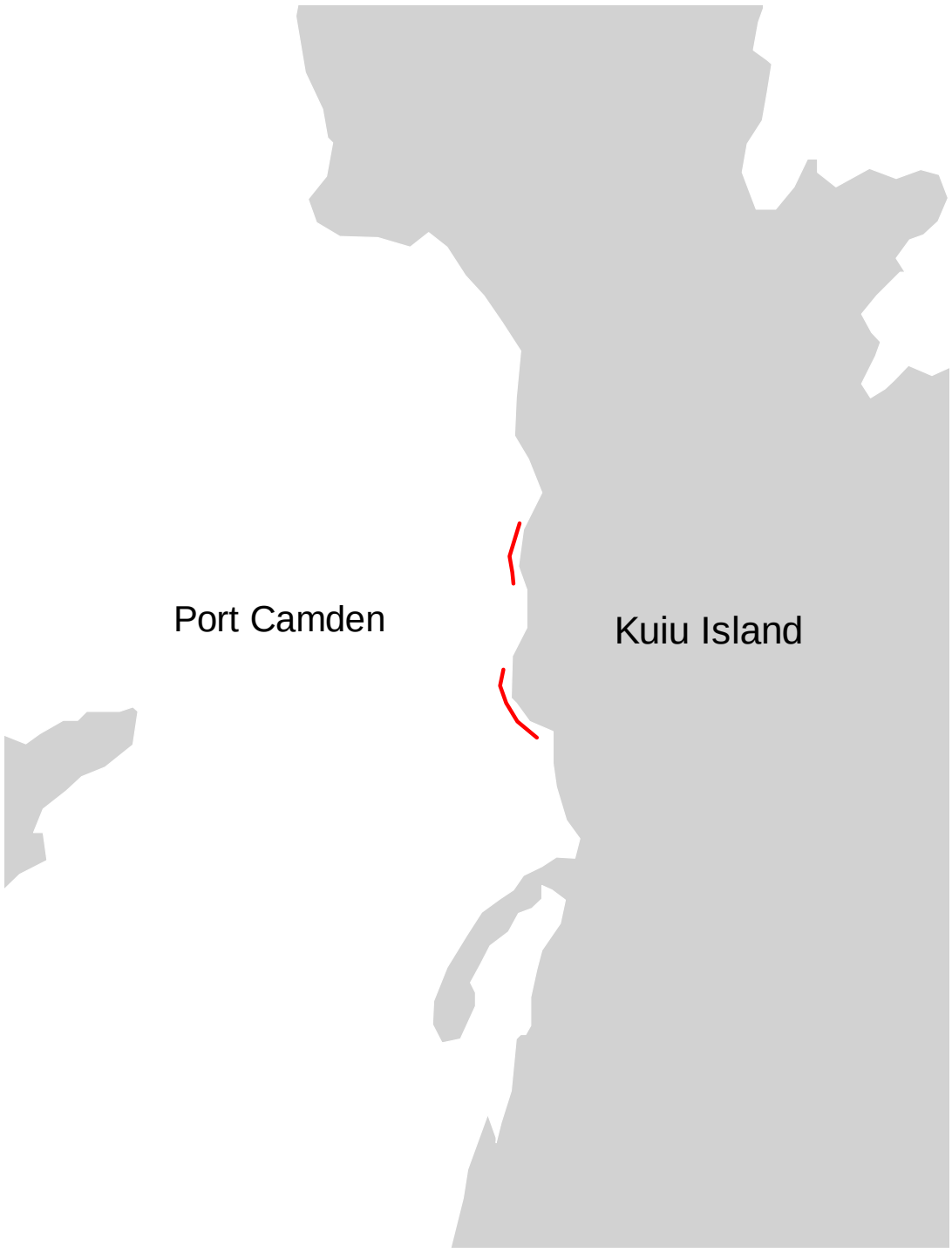


Appendix D.9. Seymour Canal spawning population.

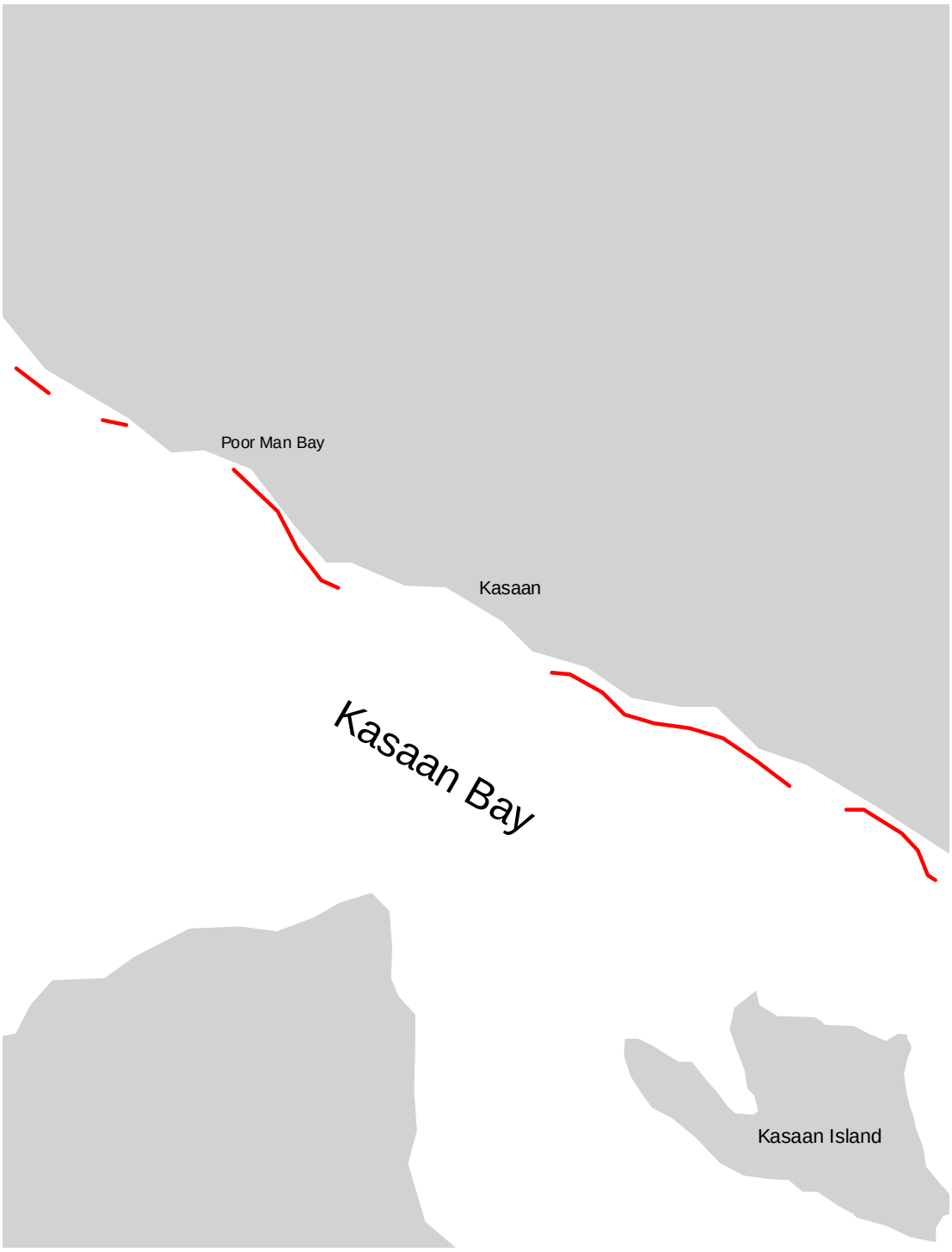
Spawning Stock	Transect no	Latitude (degrees)	Longitude (degrees)
Seymour Canal	1	57.5862	-133.8428
	2	57.5979	-133.8534
	3	57.6077	-133.8557
	4	57.6127	-133.8567
	5	57.6239	-133.8644
	6	57.6287	-133.8672
	7	57.6363	-133.8791
	8	57.6471	-133.8926
	9	57.6624	-133.9159
	10	57.6757	-133.9355
	11	57.6768	-133.9381
	12	57.6857	-133.9627
	13	57.6900	-133.9665
	14	57.7006	-133.9732
	15	57.7272	-133.9928
	16	57.7319	-134.0057
	17	57.7618	-134.0150
	18	57.7652	-134.0203
	19	57.7863	-134.0173
	20	57.7960	-134.0216



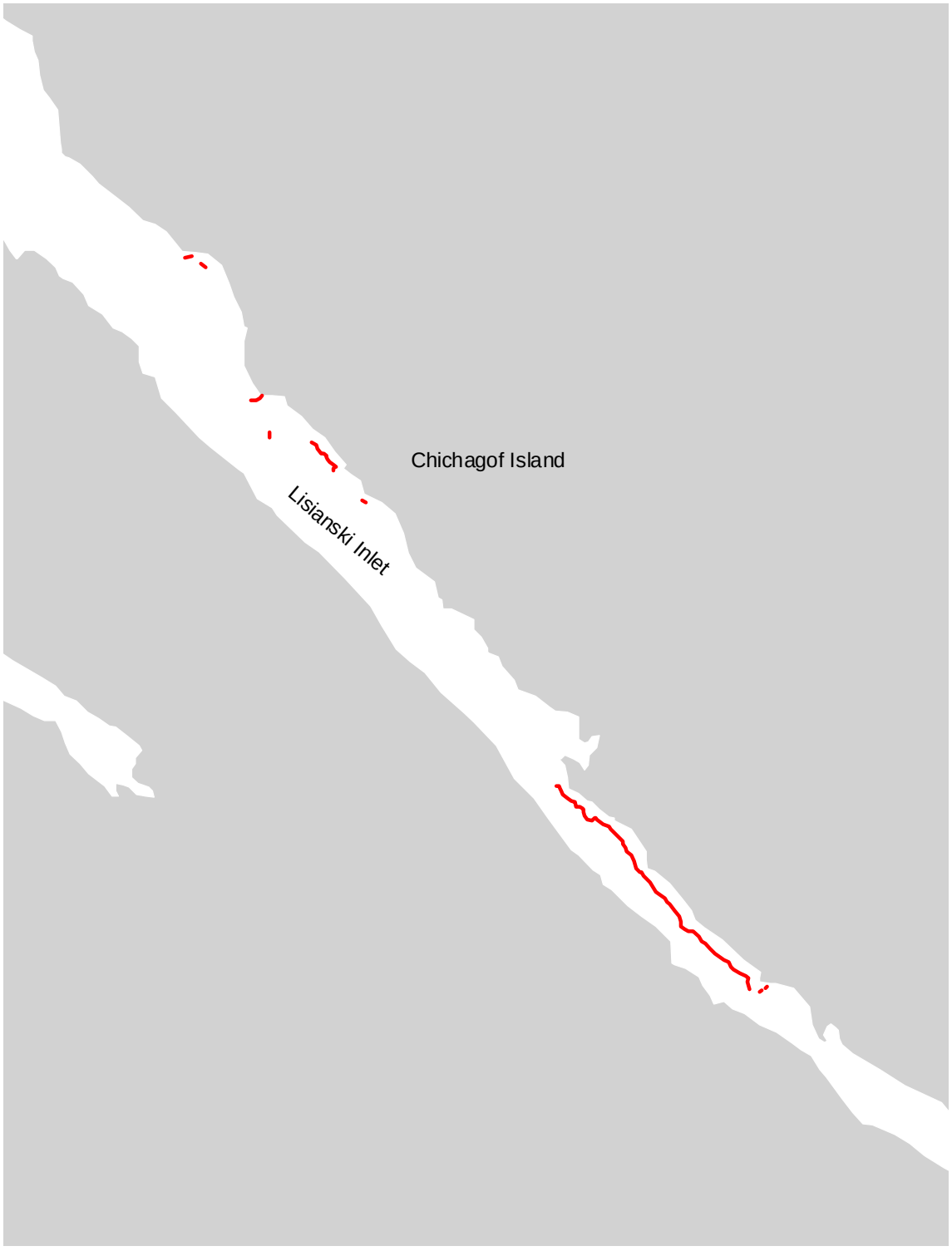
Appendix D.10. Annette Island spawning population.



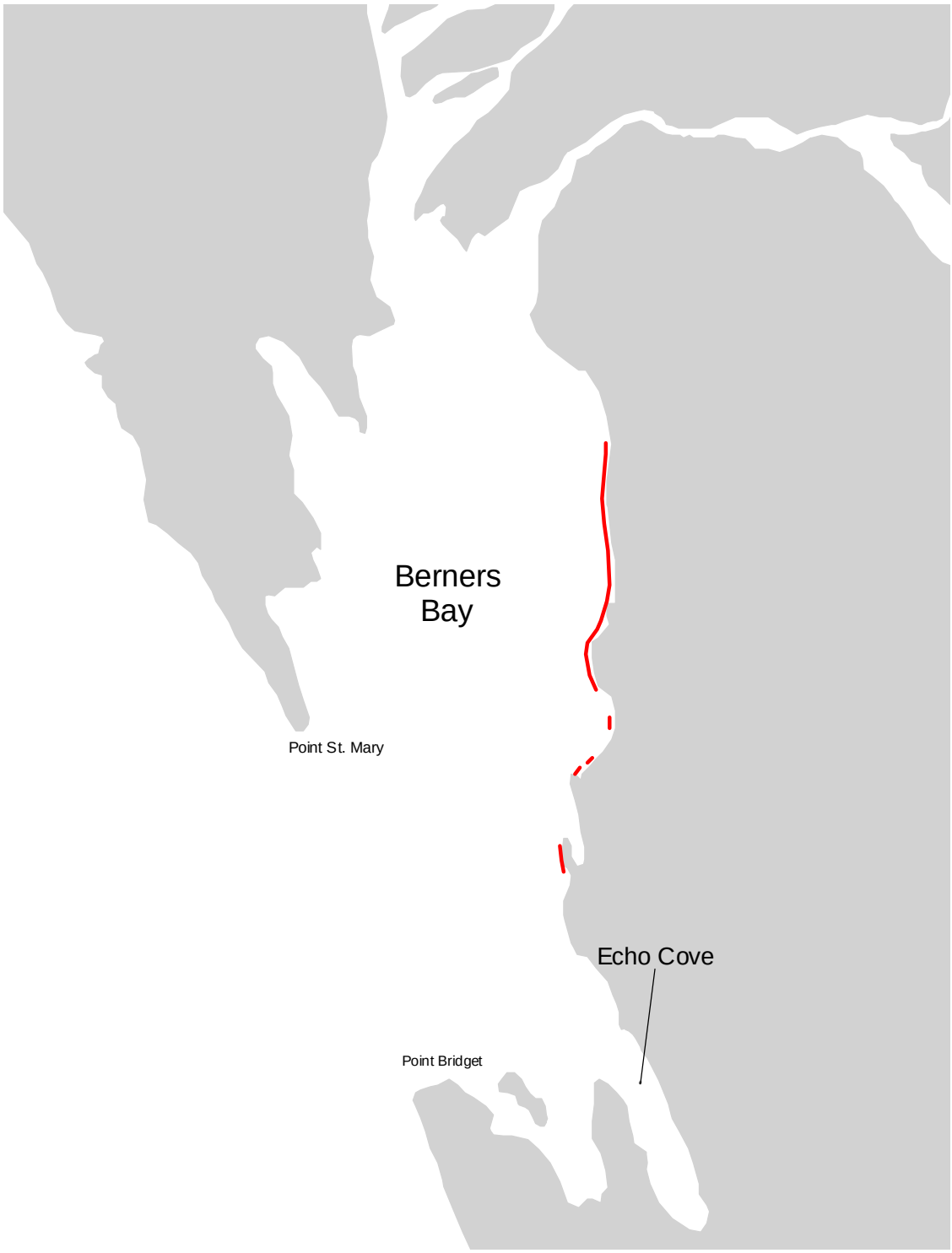
Appendix D.11. Port Camden spawning population.



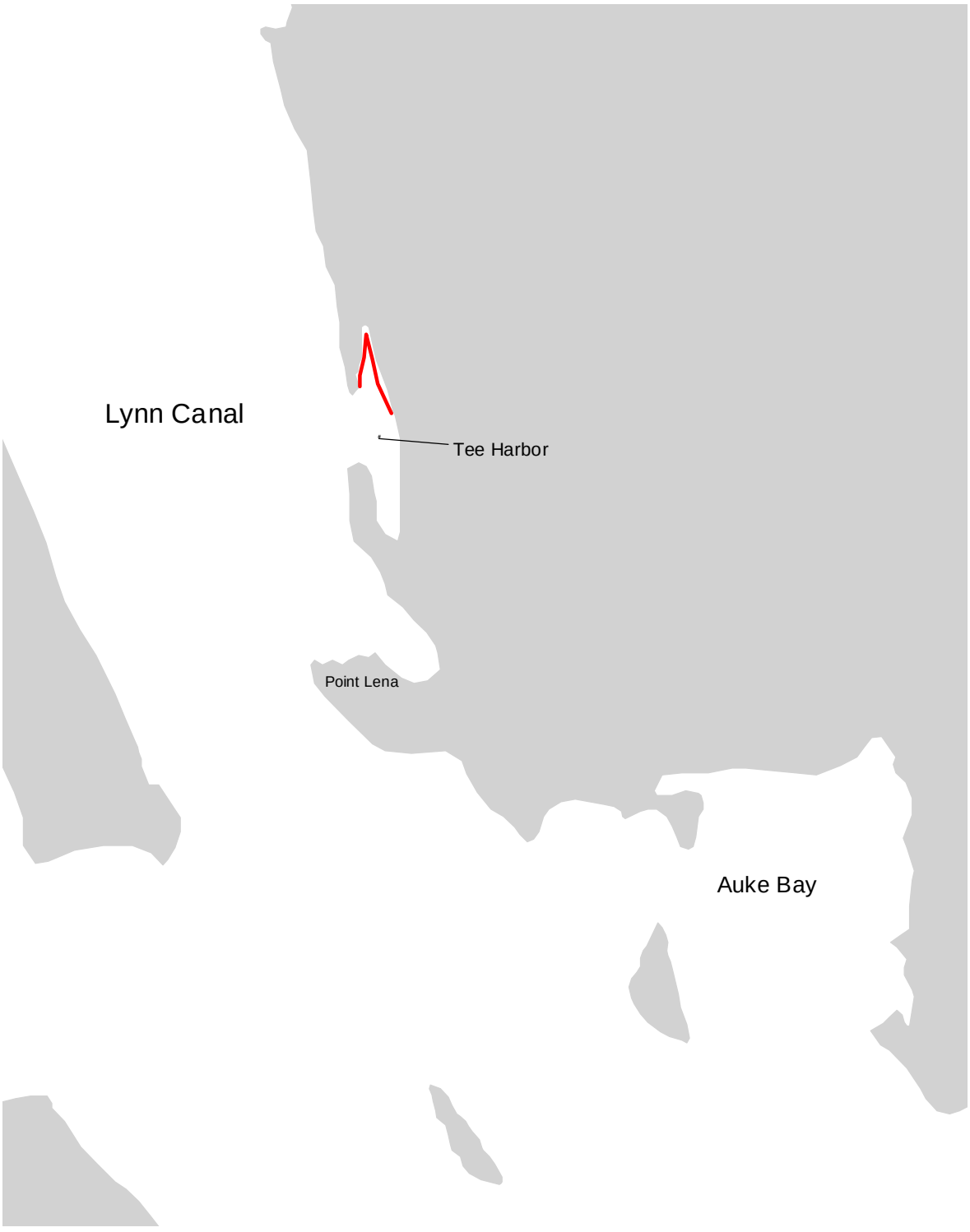
Appendix D.12. Kassan Bay spawning population.



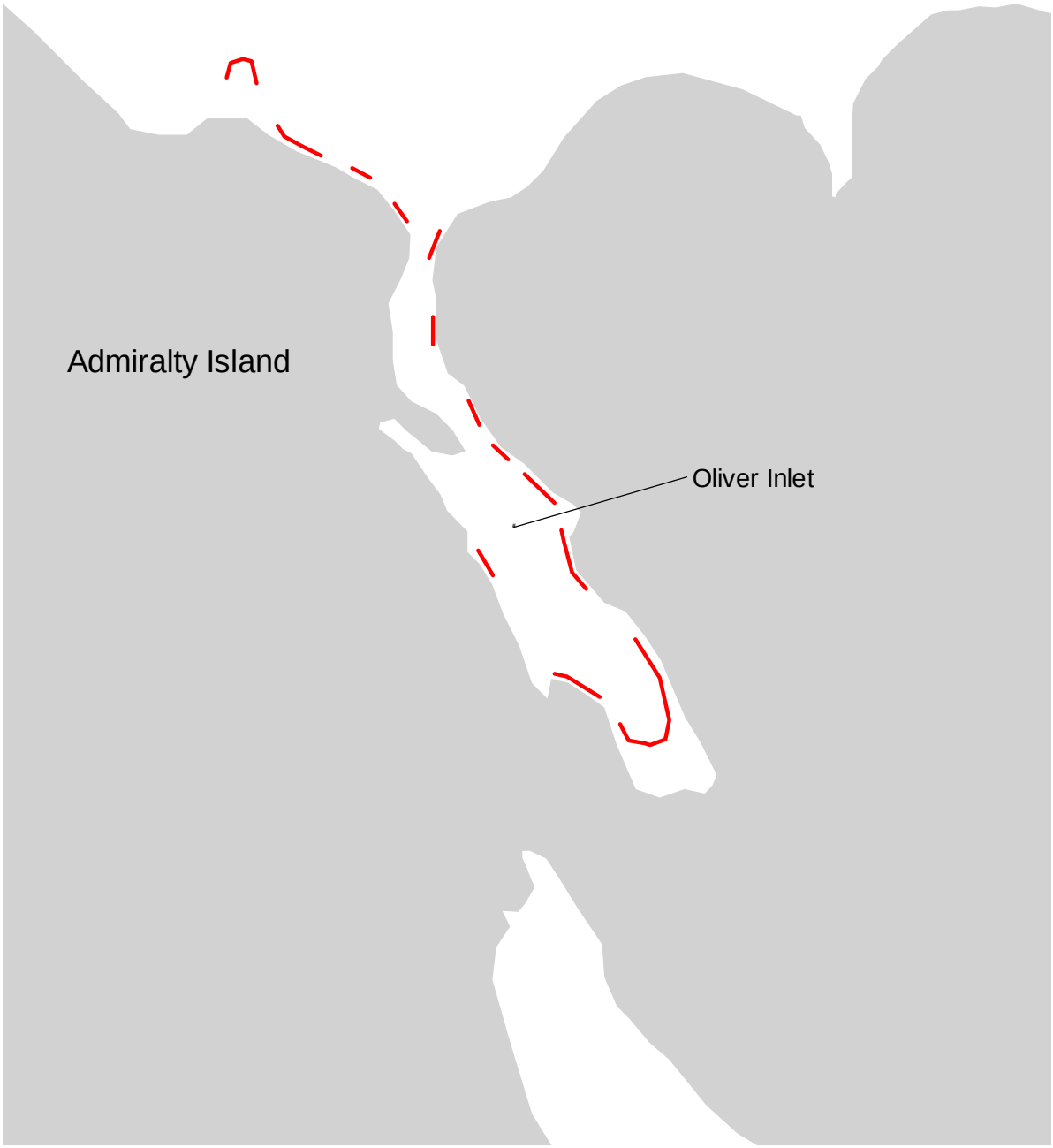
Appendix D.13. Lisianski Inlet spawning population.



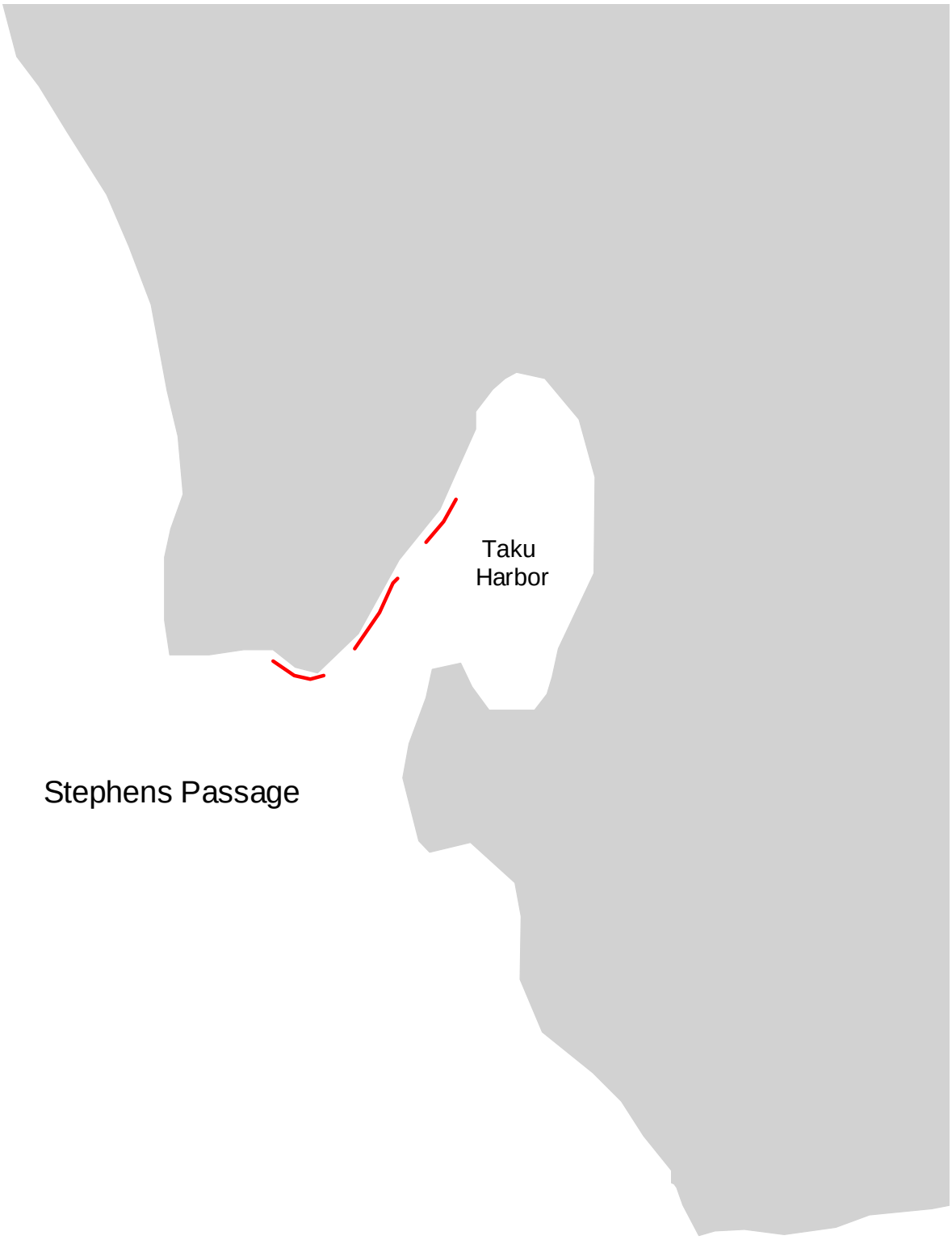
Appendix D.14. Lynn Canal-Berner's Bay spawning population.



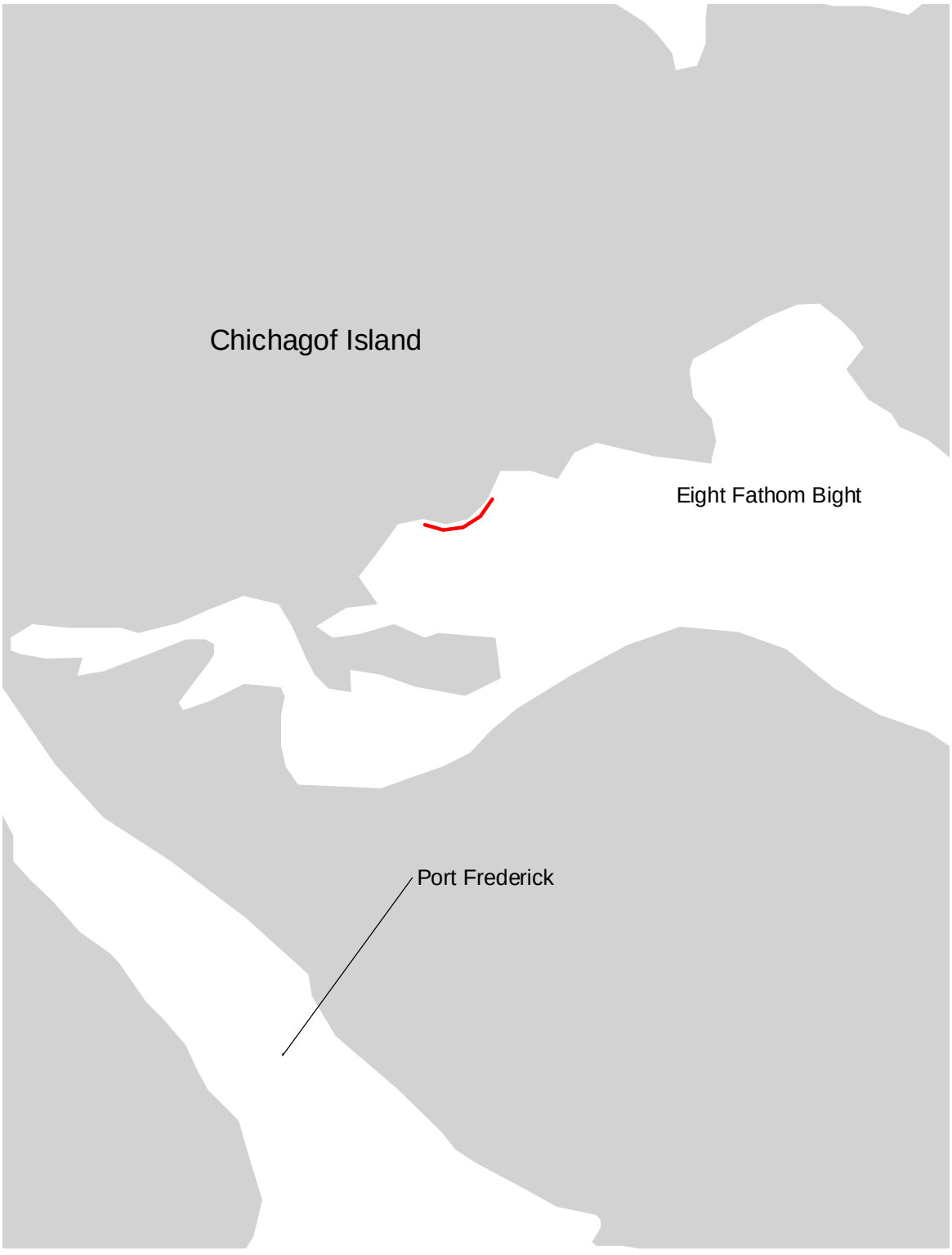
Appendix D.15. Lynn Canal-Tee Harbor spawning population.



Appendix D.16. Oliver Inlet spawning population



Appendix D.17. Taku Harbor spawning population.



Appendix D.18. Port Frederick spawning population.

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