SOUTHEAST ALASKA/YAKUTAT

ANNUAL HERRING RESEARCH REPORT,

2001/2002 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 2001/2002 season winter bait fisheries occurred in Craig and Tenakee Inlet. Additionally, a gillnet sac roe fishery was conducted in Seymour Canal where harvest totaled 1,066 tons. There was no spring gillnet sac roe harvest from the Kah Shakes/Cat Island or Hobart Bay/Port Houghton areas in 2002 due to below-threshold forecasts of returning spawning biomass. A seine sac roe harvest occurred in Sitka totaling 9,788 tons. Test fisheries occurred in Sitka Sound, West Behm Canal, and Seymour Canal. Spawn-on-kelp fisheries occurred in Craig and Hoonah Sound in 2002. The total exvessel value of the region's commercial herring fisheries was estimated at over $6.55 million. Approximately 7,300 herring were sampled for age and growth analysis from the major stocks. Recruitment of the 1997 and 1998 year classes was substantial in all major stocks, and for some stocks represented the dominant age classes. Spawn deposition surveys to compute spawning biomass were conducted on eight spawning stocks for a total escapement estimate of 79,353 tons for the stocks surveyed. A series of aerial and skiff spawning ground surveys conducted on those, and smaller stocks, documented a total of 149.8 nautical miles of beach receiving spawn in Southeast Alaska. Three fresh bait pounds were operated in Southeast Alaska during the 2001/2002 season, resulting in a small harvest near Sitka.

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 commercial fisheries throughout the region (Figure 1). Brief summaries of herring commercial fisheries in Southeast Alaska for 2001/2002 are included (Table 1).

COMMERCIAL FISHERIES

Management Strategy

The following management plan was in place for the 2002 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 2002 spawning biomass returns for Craig, Sitka Sound, Tenakee, and Seymour Canal.

Test Fisheries

A test fishery was conducted in Sitka Sound on March 27–April 3, 2002. The test fishery was designed to obtain funds to be used for management and research of the Sitka Sound herring stock. A total of 97 tons of herring was harvested for sac roe using purse seine gear. This was the third year in a row that sac roe test fishing was conducted in Sitka Sound to generate management funds. Prior to the 1999–2000 season, cost-recovery test fishing in Sitka Sound was conducted during winter months using a purse seine.

A test fishery was conducted May 12, 2002 in Seymour Canal to generate funds for herring management for stocks in the Juneau management area. The harvest was conducted using gillnets and 107 tons of herring were taken.

A test fishery was conducted in West Behm canal near Ketchikan April 3 and 4, 2002. The primary purpose of this test fishery program was 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. The harvest was conducted using gillnets and 106.8 tons of herring were taken.

Winter Trawl Samples

Trawl sampling was conducted by the department in January in Sitka Sound and in Lynn Canal. The purpose of this sampling was to improve the current ASA biomass forecast for Sitka with updated information on weight-at-age for the Sitka herring population. Results of January 2002 trawl samples indicated very good herring growth for all age classes. Analysis indicated herring were on average 12% larger than herring sampled during spring 2001 and were 24% larger than the previous 10-year average from winter surveys. The population of mature herring returning to Sitka Sound in the spring of 2002 was expected to consist primarily of age-4 and age-5-year-old herring.

Samples were collected in Lynn Canal from Fritz Cove and near Benjamin Island. Samples from this area are used primarily to test gear prior to the Sitka trip, but also to obtain age structure estimates for the Lynn Canal stock. Analysis indicated primarily age-4 herring with an average weight of 71 grams.

Sac Roe Fisheries

Commercial sac roe fisheries were conducted in the Sitka Sound and Seymour Canal areas during 2002 (Figure 2). Harvest in the commercial gillnet area totaled 1,066 tons from Seymour Canal. A commercial seine harvest occurred in the Sitka Sound area, where 9,788 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). A total of 337 tons were taken from Tenakee Inlet. 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 2002, where 40% of the established quota is allocated to the spawn-on-kelp fisheries and 60% is allocated to the winter food and bait commercial fisheries. Any portion of the harvest limit not taken by the bait fishery during a calendar year may be taken by the pound fishery during that year. A total of 35.3 tons of spawn on kelp product were harvested during the Craig fishery. A spawn-on-kelp fishery took place in Hoonah Sound, where 136.6 tons of product were harvested (Figure 4).

Fresh Bait and Tray Pack Fisheries

Relatively small quantities of herring were harvested during the 2001/2002 season for fresh bait pounds and tray-pack fisheries in Southeast Alaska. Three fresh bait pounds were operated in Sitka during the 2001/2002 season with an estimated harvest of 6.8 tons.

Results and Discussion

Sac Roe Fisheries

Sitka Sound

Aerial and skiff spawning ground surveys commenced on March 8 and continued through May 2. The guideline harvest level (GHL) for the 2002 Sitka sac roe fishery was set at 11,042 tons, based on a mature spawning biomass forecast of 55,209 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 2002. The fishery was opened to competitive harvest on March 27, 29, and 21, and April 2, 2002. After the four competitive openings, the total catch was 8,327 tons, approximately 2,700 tons short of the 11,042 GHL. On April 11 and 12 industry representatives agreed to a cooperative fishery to take the remaining quota. The total harvest from both the competitive and cooperative fishery was 9,789 tons. Average roe percent was 10.9%. Preliminary estimated exvessel value for the 2002 Sitka sac roe fishery was $2,936,700.

Hobart Bay/Port Houghton

Results from the 2001 surveys of the Hobart Bay/Port Houghton area produced a forecast biomass of 906 tons. This was below the 2,000 ton biomass threshold established for this area. Consequently there was no commercial sac roe gillnet fishery at Hobart Bay the 2001/2002 season.

Seymour Canal

Results from 2001 surveys of the Seymour Canal area produced a forecast biomass of 8,155 tons. This resulted in a 13.4% harvest rate and a quota of 1,096 tons. The 2002 fishery opened May 16, at 8:00 p.m. and closed on May 17 at 1:30 p.m. During the fishery 1,066 tons of herring were landed and 62 boats participated. Processors paid a price of approximately $300 a ton, giving the fishery an exvessel value of $319,800.

Winter Bait Fisheries

Craig

The Craig herring spawning biomass forecast of 8,387 tons allowed for a bait quota of 571 tons (60% of 952 ton total quota) for the traditional areas of Boca de Finas and Meares Passage. The fishery in the Craig area was open between December 3, 2001 and February 28, 2002. Due to fewer than three participants, harvest data is confidential.

Hobart Bay/Port Houghton

Due to below-threshold forecasted return, there was no commercial bait fishery at Hobart Bay during the 2001/2002 season.

Tenakee Inlet

The Tenakee Inlet winter food and bait fishery was opened on December 3, 2001 and closed February 28, 2002. The Tenakee Inlet area spawning biomass forecast was 6,726 tons. The quota was set at 840 tons, a target exploitation rate of 12.5%. There was 327 tons of herring harvested by three boats, with an exvessel value of $117,720.

Spawn-on-Kelp Pound Fisheries

Craig

There are two commercial spawn-on-kelp (SOK) 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 biomass forecast for 2002 was 8,387, with a pound fishery quota of 852 tons, which includes a 471-ton carry over from unharvested bait quota. Commercial Fishery Entry Commission (CFEC) permits and kelp harvest permits were required to participate in this fishery. Macrocystis kelp blade allocations 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. Effective 1200 hours, March 17, 2002 the department opened seining for the introduction of herring into the pounds. Participants were allowed to harvest herring between 0500 and 1700 hours each day until it closed May 20, 2002. Preliminary exvessel value for the 2002 Craig pound fishery was $113,977 with a total harvest of 35.3 tons of SOK.

Hoonah Sound

The spawning biomass forecast for Hoonah Sound was 6,320 tons and the fishery was opened in 2002 with a guideline harvest level of 1,264 tons. This was based on a 20% harvest rate of the projected 2002 mature spawning biomass. The total harvest of SOK in this year's fishery was 136.6 tons for an estimated total exvessel value of $1,999,824. A total of 98 permit holders made landings.

AGE AND GROWTH ANALYSIS

Methods and Procedure

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. 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 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 7,297 herring were aged, sexed, weighed and measured for length. Samples were taken from West Behm, Hobart Bay/Port Houghton, Craig, Sitka Sound, Hoonah Sound, Seymour Canal, Tenakee Inlet, Ernest Sound, and Lynn Canal. Most spawning populations were composed of multiple age classes, though age-4 and age-5 fish were dominate in many spawning populations (Figure 6). Populations with dominant age classes included Craig (ages 4 and 5), Hoonah Sound (ages 4, 5, and 8+), and Ernest Sound (age 4). In Hobart Bay/Port Houghton, cast net samples from active spawners indicated a large proportion of 8+ fish (34%) with 43% of the sample composed of age-4 and age-5 fish. The lack of clear evidence of significant recruitment combined with low levels of returning spawners for the past three years indicates this stock needs to rebuild. Tenakee Inlet winter bait fishery (purse seine) samples reveal a large age 4 and 5 component. Although 4 and 5 year olds were a substantial component in Tenakee cast net samples, age 8+ fish composed a significant percentage of the population. The Hoonah Sound population appears to consist of age 4, 5, and 8+ components, with few 6- and 7-year olds. Trawl samples taken in Lynn Canal during December 2001 revealed a population with a particularly strong age-4 component. The only spawning grounds sampled in Lynn Canal was Olivers Inlet where age structure was similar to the winter survey. In Sitka Sound samples from winter trawl and spring cast net samples indicated a relatively strong presence of all but age-3 fish age classes though age-3 fish were a larger component of purse seine samples. Age-4 herring were a significant component from Seymour Canal cast net samples though age-8+ herring comprised the greatest portion of the fishery samples. No herring spawn was observed in Kah Shakes and consequently no samples were collected for age analysis. Summaries of age, weight, and length samples completed during the 2001/2002 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 record spawning activities during the spring spawning period to document spawn timing and 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 2-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 5-meter intervals along the transects. Because the frames (i.e. samples) are spaced equidistant 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 random fashion (i.e. to minimize or avoid bias). Diver 1 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 (Tables 2 and 3). If time and conditions allow, Diver 2 also estimates the number of eggs for comparison with Diver 1's estimates and as a training exercise for Diver 2.

Starting points for transects 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 intertidal to either 15 meters of depth or until no further egg deposition is observed. Transects extend 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 conducted 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:

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

where a_i is the estimated total area (m^2) on which eggs have been deposited and $\overline{d_i}$ 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:

$$a_i = l_i \overline{w}_i \qquad (2)$$

where l_i is the total meters of shoreline receiving spawn (determined from aerial and skiff surveys) and w_i is the mean length of transects conducted at spawning area i.

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

$$\overline{d}_i = \left[\frac{\sum v_{hij} c_{hk}}{\sum m_{ji}} \right]^{-0.1} \qquad (3)$$

where vh_{ij} 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 **Error! Bookmark not defined.**factors (c_h) are estimated as:

$$c_h = \frac{\overline{k}_h}{\overline{v}_h} \qquad (4)$$

where $\overline{v_h}$ is the mean visual estimate of egg numbers for diver h and $\overline{k_h}$ 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:

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

(4)

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, 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 West Behm Canal, Craig, Ernest Sound, Hobart Bay/Port Houghton, Seymour Canal, Sitka Sound, Tenakee Inlet, and Hoonah Sound areas in 2002. 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 8, and the last was completed in Seymour Canal on May 31. The surveys estimated a total spawning biomass for these areas of 79,353 tons. Maps of the spawning area, transect locations, and individual transect data are presented in Appendix B and D. 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 149.8 nautical miles (including non-spawn deposition surveyed shore).

Kah Shakes/Cat Island

In the Cat Island and Kah Shakes areas, no herring spawn was observed during seven aerial surveys from March 22 through April 10, 2002 (Appendix C). Consequently, no spawn deposition survey was conducted in the Cat Island/Kah Shakes area in 2002. This is the first year that no spawn deposition survey was conducted for this stock since dive surveys were initiated in 1976.

West Behm Canal

In West Behm Canal 18.0 nautical miles of spawn were recorded from April 2–7. See Appendix D for distribution of spawn. Thirty-two randomly selected transects were completed during the spawn deposition survey during April 19–20. The average length was 59.5 meters with an average egg density of 465,030 eggs per square meter, resulting in an escapement of 11,188 tons.

Craig

Spawning was first documented on March 31 on the southern tip and northwest side of Fish Egg Island. Active spawning continued through April 7 and was centered around Fish Egg Island and Wadleigh Island, and approximately from Cape Suspiro to north of Crab Bay. A total of 18.0 nautical miles of spawn were observed in 2002 for the Craig area. The spawn deposition survey had 28 transects with an average length of 84.6 meters, average density of 277,578 eggs per square meter, and a 9,116 ton escapement.

Hobart Bay/Port Houghton

Active spawning began in the Hobart Bay area on April 28 and lasted through April 30. No spawning was observed in the Port Houghton area. A total of 6.0 nautical miles of spawn were recorded for 2002. A total of 24 transects were completed May 10 and 11, with an average transect length of 114.8 meters, and an average density of 52,408 eggs per square meter. The Hobart/Houghton area escapement estimate was 736 tons.

Seymour Canal

Aerial surveys were initiated on April 18 with active spawn recorded on May 2. Spawning ended on May 21. The spawn deposition survey was conducted on May 30–31, when 25 randomly selected transects were surveyed. This survey produced a 7,997 ton escapement (12.6 nautical miles, 72.6 meter average transect length, and an average 428,558 eggs per square meter).

Tenakee Inlet

Aerial surveys began April 17 with first spawn seen on April 23 and ending April 27. A total of 15.4 nautical miles of spawn were recorded. Spawn deposition surveys were conducted during May 3, 4, and 6 with 22 randomly selected transects completed. Average transect length was 93.2 meters with an average density of 143,740 eggs per square meter. The escapement was estimated to be 4,366 tons.

Sitka

Aerial surveys began on March 8 in the Sitka area. On March 24, about 0.9 miles of spawn were recorded on Kasiana Island and south Middle Island. Major spawning began March 25 with spawning continuing until April 3. Spawning resumed April 9 and continued through May 2. The total spawn recorded was 42.6 nautical miles. The spawn deposition surveys were conducted on April 8–11, before spawning was completed and before the commercial sac roe fishery was closed for the season. Since the dive survey was complete prior to fishery closure, information obtained from the survey was used to make inseason management decisions. This was an unusual occurrence since the survey is typically conducted after the season is closed, however an extended time period between fishery openings that occurred after spawning prevented usual survey timing relative to the fishing activity. When the dive survey commenced, 37.0 nautical miles of spawn had been recorded. A total of 40 transects were completed in the Sitka Sound area. The average length was 99.9 meters, average density was 491,269 eggs per square meter resulting in an escapement estimate, through April 11, of 39,170 tons. After the spawn deposition survey, an additional 5.6 nautical miles of spawn was recorded. The post-survey mileage was reduced by 50% to account for suspected lower egg density due to less spawning intensity. The sum of the pre- and post-survey spawn, with 50% reduction accounted for, is 39.8 nautical miles.

Hoonah Sound

A total of 11.4 nautical miles of herring spawn were recorded in Hoonah Sound in 2002. The spawn occurred during April 25–May 3, in the traditional areas of Emmons Island, Vixen Islands and the Chichagof shore between Fick Cove and Rodgers Point. Spawn deposition surveys were conducted on May 7. A total of 20 randomly selected transects were completed. The average transect length was 80.5 meters with a density of 211,481 eggs per square meter. The resultant escapement estimate was 3,894 tons.

Ernest Sound

Aerial Surveys commenced in Ernest Sound on April 5, with spawn beginning on April 15, peaking on April 17, and ending April 21. A total of 4.8 nautical miles of spawn were recorded. Spawn deposition surveys were conducted April 21 with the completion of 14 randomly selected transects. The average length was 73.9 meters with an average density of 361,237 eggs per square meter. The escapement was estimated to be 2,878 tons.

Bradfield Canal

Aerial and skiff surveys of Bradfield Canal were conducted from March 29 through April 18. A total of 13.4 nautical miles of spawn (March) and eggs on shore (April skiff) was recorded. No spawn deposition survey was conducted in this area in 2002. The spawn mileage observed in this area was much higher than records from past years. Historically, this area has not been targeted for regular department aerial surveys and has relied on reports and observations of commercial pilots.

Lisianski Inlet

Aerial surveys of Lisianski Inlet and Lisianski Strait were conducted from April 26 to May 4. Total beach with spawn was 4.0 nautical miles. No spawn deposition survey was conducted in this area in 2002.

Lynn Canal

Limited aerial surveys are recorded for Lynn Canal and Auke Bay in 2002. Department flights occurred April 26 and 29, and May 19 and 29 with approximately 3.0 nmi of spawn recorded in Berners Bay on May 29.

Other Areas

A small amount of herring spawn was noted in the following areas during aerial surveys during 2002 (Appendix C): Oliver's Inlet, East Behm Canal, Kassan Bay, Ship Island, Farragut Bay, Sunset Cove/Windham Bay, and Port Camden. However, the total spawn of approximately 10.5 nmi for these areas was negligible compared to the total of 142.3 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 2002 calibration samples correction ratios 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 were 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 2001–2002 season herring fisheries.

WINTER FOOD AND BAIT FISHERY

Opening	Closing	Area	District	Forecast 2002 (tons)	Target Exploitation Rate (%)	Quota (tons)	Harvest[a] (tons)	Exvessel[c] Value
3-Dec-01	28-Feb-02	Craig	3/4	8,387	11.4	571	[redacted]	[redacted]
--	--	Hobart Bay/Port Houghton	10	906	--	0	0	0
3-Dec-01	28-Feb-02	Tenakee Inlet	12	6,726	12.5	840	327	$ 117,720
Total				16,019		1,411	[redacted]	[redacted]

SAC ROE FISHERY

Opening	Closing	Area	District	Gear	Forecast 2002 (tons)	Target Exploitation Rate (%)	Quota (tons)	Harvest (tons)	Roe % Fishery	Exvessel[c] Value
27-Mar-01	2-Apr-01	Sitka Sound	13	Seine	55,209	20.0	11,042	9,789	10.9	$ 2,936,700
16-May-02	17-May-02	Seymour Canal	11	Gillnet	8,155	13.4	1,096	1,066	12.7	$ 319,800
--	--	Hobart Bay/Port Houghton	10	Gillnet	906	0	0	0		
--	--	Kah Shakes/Cat Island	1	Gillnet	2,283	0	0	0		
Total					64,270		12,138	10,855		$ 3,256,500

TEST FISHERIES

Opening	Closing	Area	District	Forecast 2002 (tons)	Target (tons)	Harvest (tons herring)	Exvessel[c] Value
27-Mar-02	3-Apr-02	Sitka Sound test fishery (sac roe)	13	55,209	100	97	$ 33,499
3-Apr-03	4-Apr-03	West Behm Canal	1	4,610	100	106.6	$ 32,012
18-May-02	20-May-02	Seymour Canal	11	8,155	100	107.4	$ 32,252
Total				67,974	300	311.145	$ 97,762.71

SPAWN-ON-KELP FISHERY

Opening	Closing	Area	District	Gear	Forecast 2002 (tons)	Quota (tons herring)	Harvest[b] (tons)	Value[c]
17-Mar-02	22-Apr-02	Craig	3	Pound	8,387	860	35.3	$ 113,977
6-Apr-02	30-Apr-02	Hoonah Sound	13	Pound	6,320	1,264	136.6	$ 1,999,824
Total					14,707	2,124	171.9	$ 2,113,801

[a] Blacked out values signify data considered confidential due to fewer than three participants.
[b] Harvest represented in tons of spawn-on-kelp product.
[c] Preliminary estimates.

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 8-11, 2002	
Spawning Dates		
Nautical miles of spawn	39.8	
Number of transects	40	
Number of quadrate samples estimated	799	
Total number of eggs estimated (1,000s)	39,252	
Average length of transect (meters)	99.9	(799 estimates/40 transects*5 meters)
Average number of eggs counted per transect	981	
Average quadrate density (1,000s/.1 meter)	49.13	(total eggs counted/total # of observations)
Average number of eggs per square meter in survey	491,269	
Area of survey in square meters	7,361,746	(37nm*1852m*99.9m)
Total number of eggs in survey area	3,616,595,614,690	
Estimated biomass from eggs (tons)	35,261	(total number of eggs/fecundity constant 102,567,376)
Estimated total spawning biomass in tons (10% mort)	39,179	

Spawning Area	**Craig**	
Survey Dates	April 16-18, 2002	
Spawning Dates		
Nautical miles of spawn	18.0	
Number of transects	28	
Number of quadrate samples estimated	474	
Total number of eggs estimated (1,000s)	13,157	
Average length of transect (meters)	84.6	(474 estimates/28 transects*5 meters)
Average number of eggs counted per transect	470	
Average quadrate density (1,000s/.1 meter)	27.76	(total eggs counted/total # of observations)
Average number of eggs per square meter in survey	277,578	
Area of survey in square meters	2,821,654	(18.0nm*1852m*84.6m)
Total number of eggs in survey area	783,228,724,714	
Estimated biomass from eggs (tons)	8,204	(total number of eggs / 95,464,357 eggs per ton of spawners)
Estimated total spawning biomass in tons (10% mort)	9,116	

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Table 4. (page 2 of 4)

Spawning Area	**West Behm**	
Survey Dates	April 19-20, 2002	
Spawning Dates		
Nautical miles of spawn		18.0
Number of transects		32
Number of quadrate samples estimated		381
Total number of eggs estimated (1,000s)		17,718
Average length of transect (meters)		59.5(381 estimates/32 transects*5 meters)
Average number of eggs counted per transect		554
Average quadrate density (1,000s/.1 meter)		46.50(total eggs counted/total # of observations)
Average number of eggs per square meter in survey		465,030
Area of survey in square meters		1,984,534(17.2 nm*1852m*58.3m)
Total number of eggs in survey area		922,868,094,375
Estimated biomass from eggs (tons)		10,069(total number of eggs / 91,654,735 eggs per ton of spawners)
Estimated total spawning biomass in tons (10% mort)		11,188

Spawning Area	**Ernest Sound**	
Survey Dates	April 21, 2002	
Spawning Dates		
Nautical miles of spawn		4.8
Number of transects		14
Number of quadrate samples estimated		207
Total number of eggs estimated (1,000s)		7,478
Average length of transect (meters)		73.9(207 estimates/14 transects *5 meters)
Average number of eggs counted per transect		534
Average quadrate density (1,000s/.1 meter)		36.12(total eggs counted/total # of observations)
Average number of eggs per square meter in survey		361,237
Area of survey in square meters		657,195(4.8 nm*1852m*73.9m)
Total number of eggs in survey area		237,403,117,714
Estimated biomass from eggs (tons)		2,590(total number of eggs / 91,654,735 eggs per ton of spawners)
Estimated total spawning biomass in tons (10% mort)		2,878

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Table 4. (page 3 of 4)

Spawning Area	**Tenakee Inlet**	
Survey Dates	May 3,4,6 2002	
Spawning Dates		
Nautical miles of spawn		15.4
Number of transects		22
Number of quadrate samples estimated		410
Total number of eggs estimated (1,000s)		5,893
Average length of transect (meters)		93.2(410 estimates/22 transects *5 meters)
Average number of eggs counted per transect		268
Average quadrate density (1,000s/.1 meter)		14.37(total eggs counted/total # of observations)
Average number of eggs per square meter in survey		143,740
Area of survey in square meters		2,657,620(15.4 nm*1852m*93.2m)
Total number of eggs in survey area		382,005,002,400
Estimated biomass from eggs (tons)		3,929(total number of eggs / 97,225,915 eggs per ton of spawners)
Estimated total spawning biomass in tons (10% mort)		4,366

Spawning Area	**Hoonah Sound**	
Survey Dates	May 7, 2002	
Spawning Dates		
Nautical miles of spawn		11.4
Number of transects		20
Number of quadrate samples estimated		322
Total number of eggs estimated (1,000s)		6,810
Average length of transect (meters)		80.5(322 estimates/20 transects *5 meters)
Average number of eggs counted per transect		340
Average quadrate density (1,000s/.1 meter)		21.15(total eggs counted/total # of observations)
Average number of eggs per square meter in survey		211,481
Area of survey in square meters		1,699,580(11.4 nm*1852m*80.5m)
Total number of eggs in survey area		359,428,529,760
Estimated biomass from eggs (tons)		3,504(total number of eggs/fecundity constant 102,567,376)
Estimated total spawning biomass in tons (10% mort)		3,894

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Table 4. (page 4 of 4)

Spawning Area	**Hobart Bay**		
Survey Dates	May 10 &11, 2002		
Spawning Dates			
Nautical miles of spawn		6.0	
Number of transects		24	
Number of quadrate samples estimated		551	
Total number of eggs estimated (1,000s)		2,888	
Average length of transect (meters)		114.8	(551 estimates/24 transects *5 meters)
Average number of eggs counted per transect		120	
Average quadrate density (1,000s/.1 meter)		5.24	(total eggs counted/total # of observations)
Average number of eggs per square meter in survey		52,408	
Area of survey in square meters		1,275,565	(6.0 nm*1852m*114.8m)
Total number of eggs in survey area		66,849,792,000	
Estimated biomass from eggs (tons)		663	(total number of eggs / 100,878,673 eggs per ton of spawners)
Estimated total spawning biomass in tons (10% mort)		736	BELOW THRESHOLD

Spawning Area	**Seymour Canal**		
Survey Dates	May 30 and 31, 2002		
Spawning Dates			
Nautical miles of spawn		12.6	
Number of transects		25	
Number of quadrate samples estimated		363	
Total number of eggs estimated (1,000s)		15,557	
Average length of transect (meters)		72.6	(363 estimates/25 transects *5 meters)
Average number of eggs counted per transect		622	
Average quadrate density (1,000s/.1 meter)		42.86	(total eggs counted/total # of observations)
Average number of eggs per square meter in survey		428,558	
Area of survey in square meters		1,694,136	(14.7 nm*1852m*113m)
Total number of eggs in survey area		726,035,078,160	
Estimated biomass from eggs (tons)		7,197	(total number of eggs / 100,878,673 eggs per ton of spawners)
Estimated total spawning biomass in tons (10% mort)		7,997	

Table 5. 2002 Diver calibration ratios (lab:visual) based on data from 2002.

	Substrate				
	Eel Grass	Fucus	Hair Kelp	Large Brown Kelp	Other[a]
Bergmann (WB)	1.87	1.94	1.44	1.92	1.64
Doherty (PD)	0.78	0.88	1.07	1.23	0.64
Gordon (DG)	0.98	1.27	1.52	1.27	0.94
Hebert (KH)	1.01	1.03	0.83	1.04	1.15
Lynch (BL)	1.83	1.50	1.69	1.93	1.57
Meucci (JM)	0.67	0.70	1.41	0.54	0.94
O'Connell (TO)	0.49	0.95	0.89	0.51	0.39
Pritchett (MP)	1.01	1.39	1.43	1.82	1.23
Thynes (TT)	0.88	1.20	1.05	1.15	1.10
Walker (SW)	1.42	1.90	1.10	1.49	1.93

[a] All other substrate types not listed.

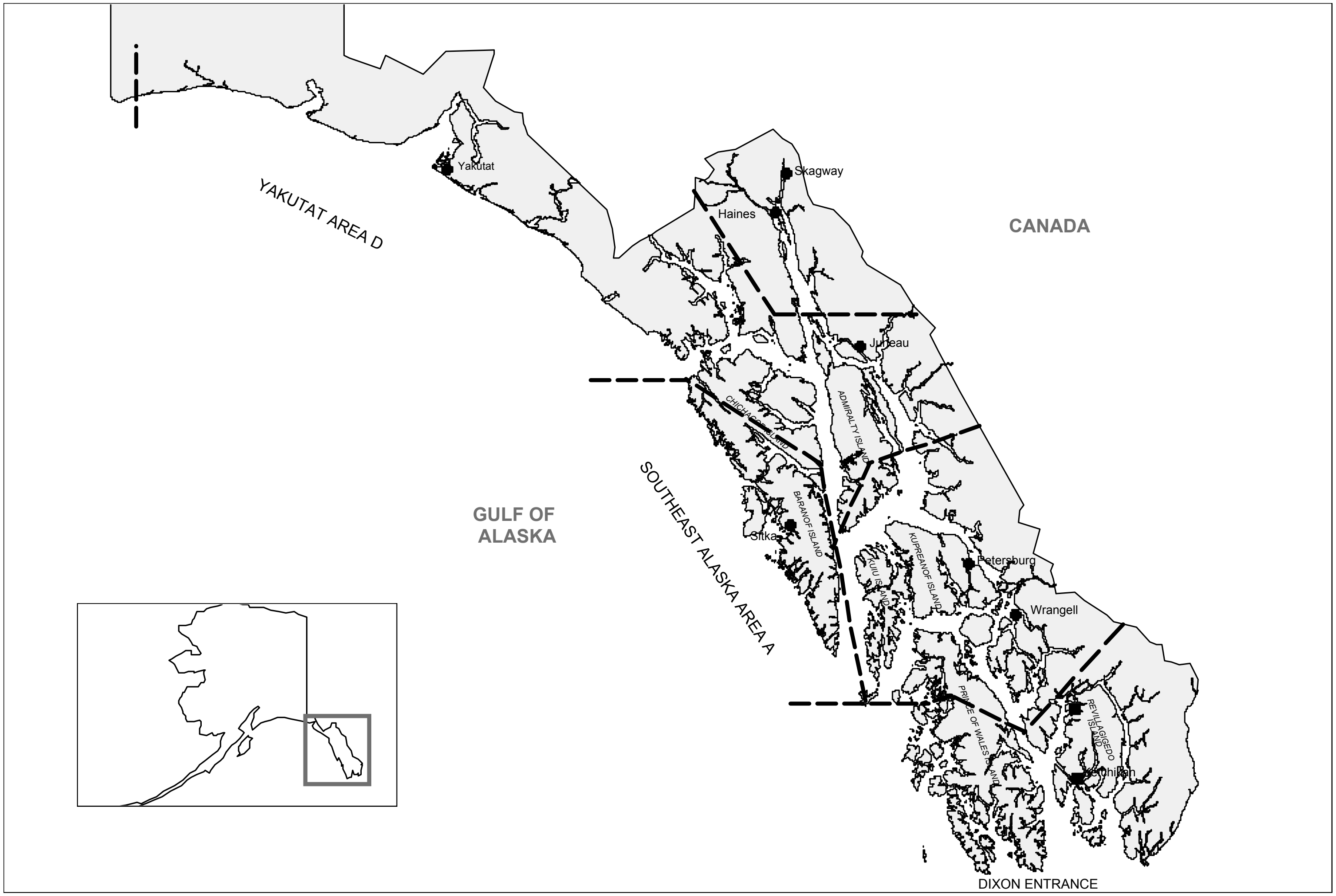

Figure 1. Southeast Alaska Region (Region 1) herring registration areas (Southeast Alaska Area A and Yakutat Area D) and management area boundaries.

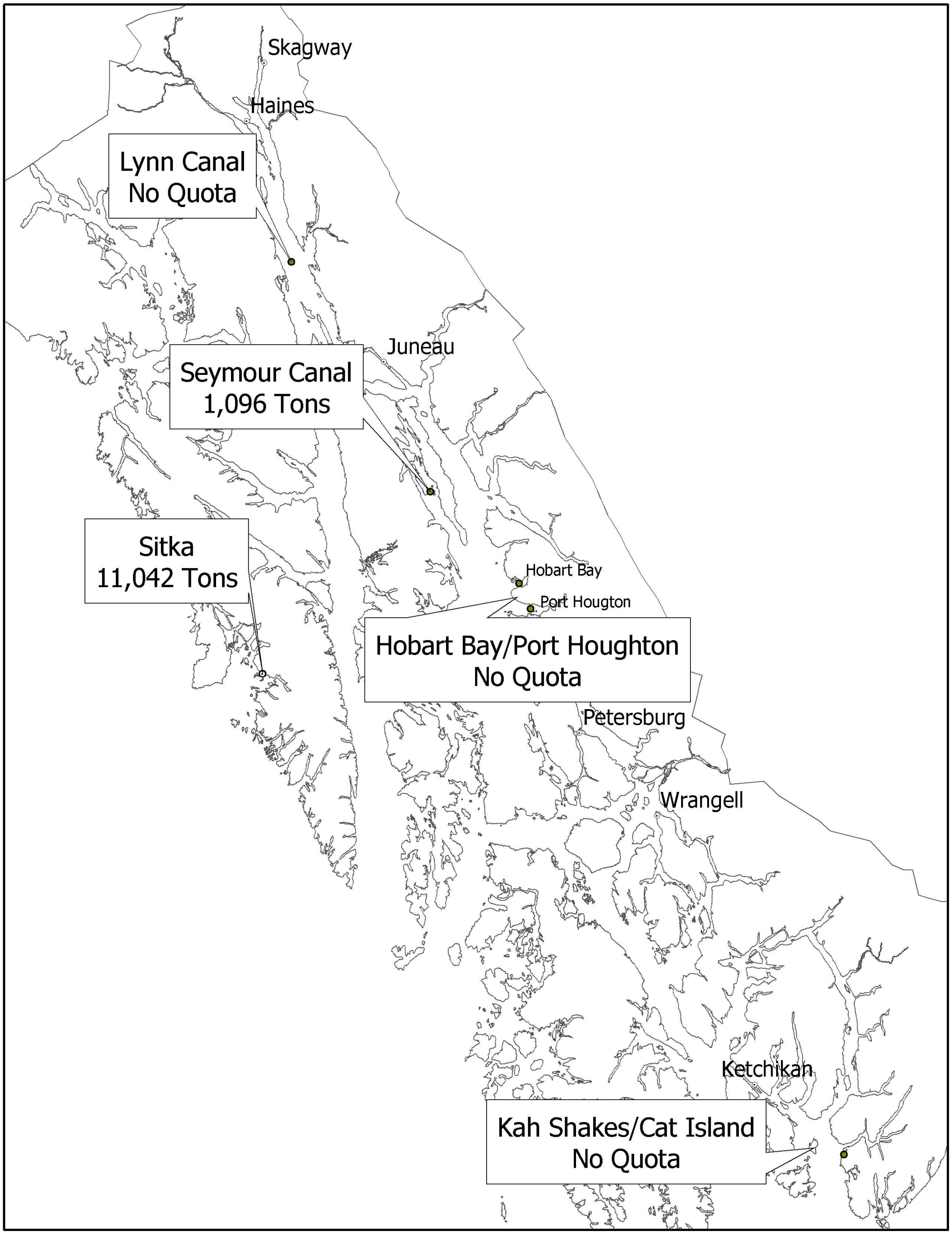

Figure 2. Sac roe fishing areas and 2002 guideline harvest levels.

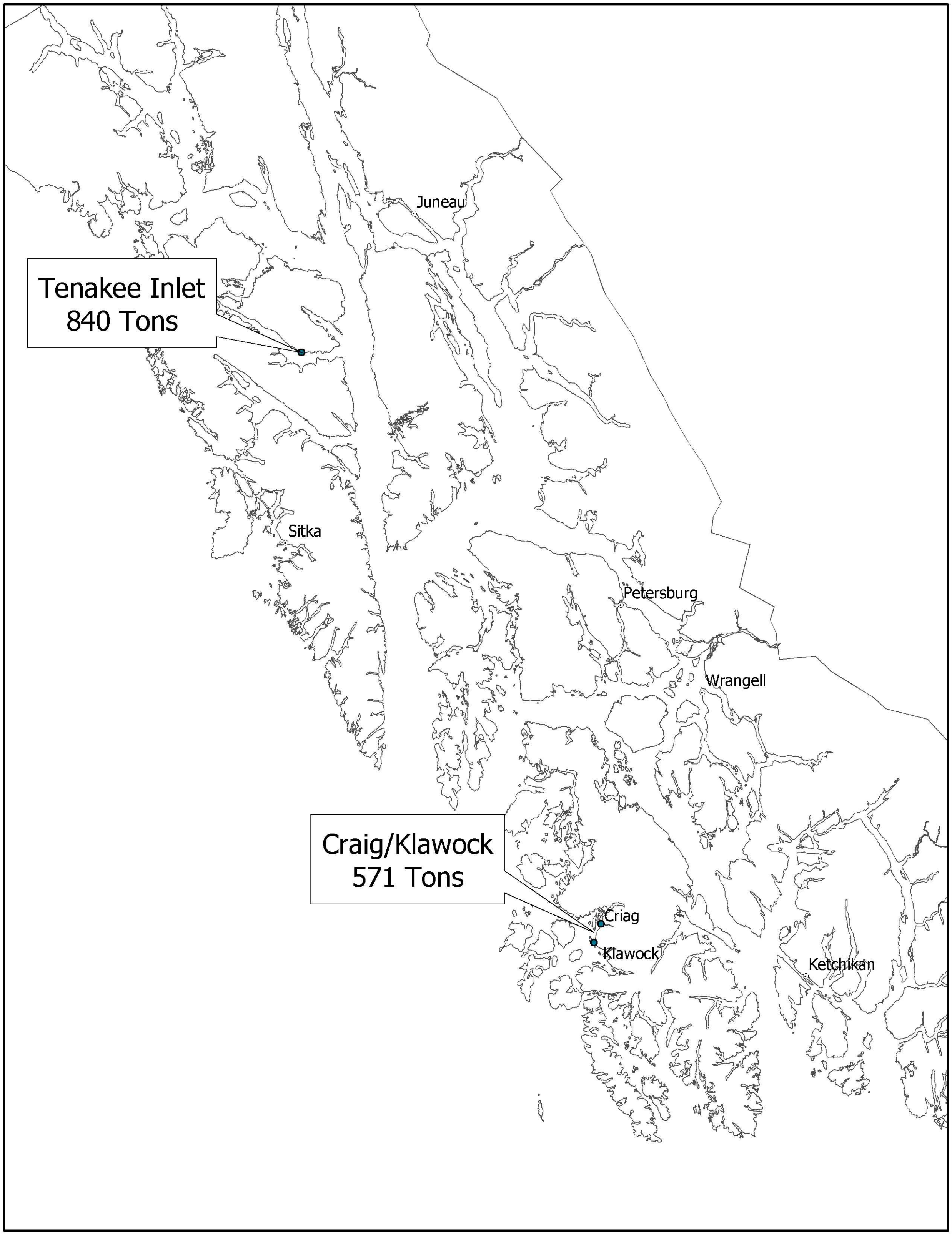

Figure 3. Food and bait fishing areas and guideline harvest levels, 2002.

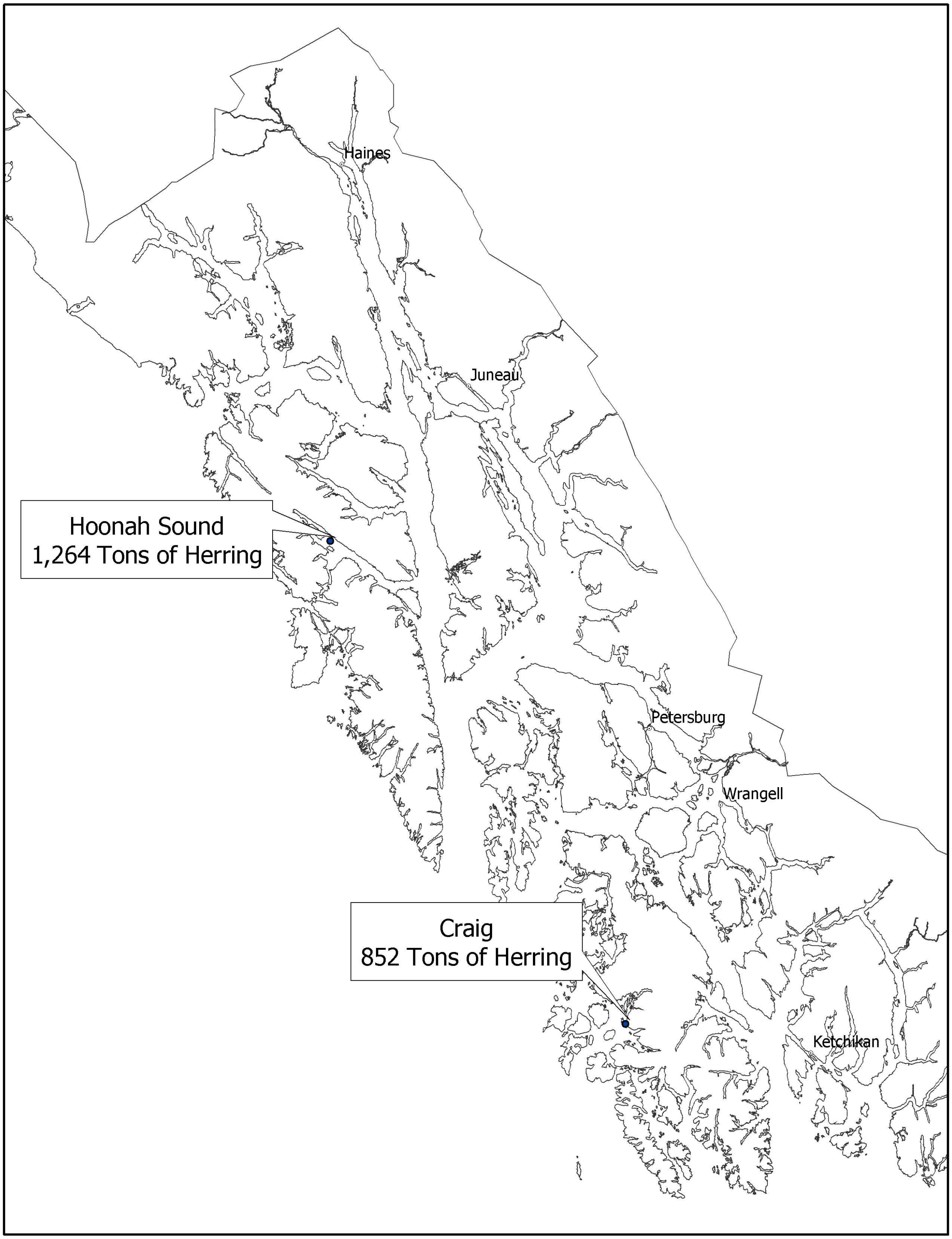

Figure 4. Spawn-on-kelp pound fishing area herring quotas for 2002.

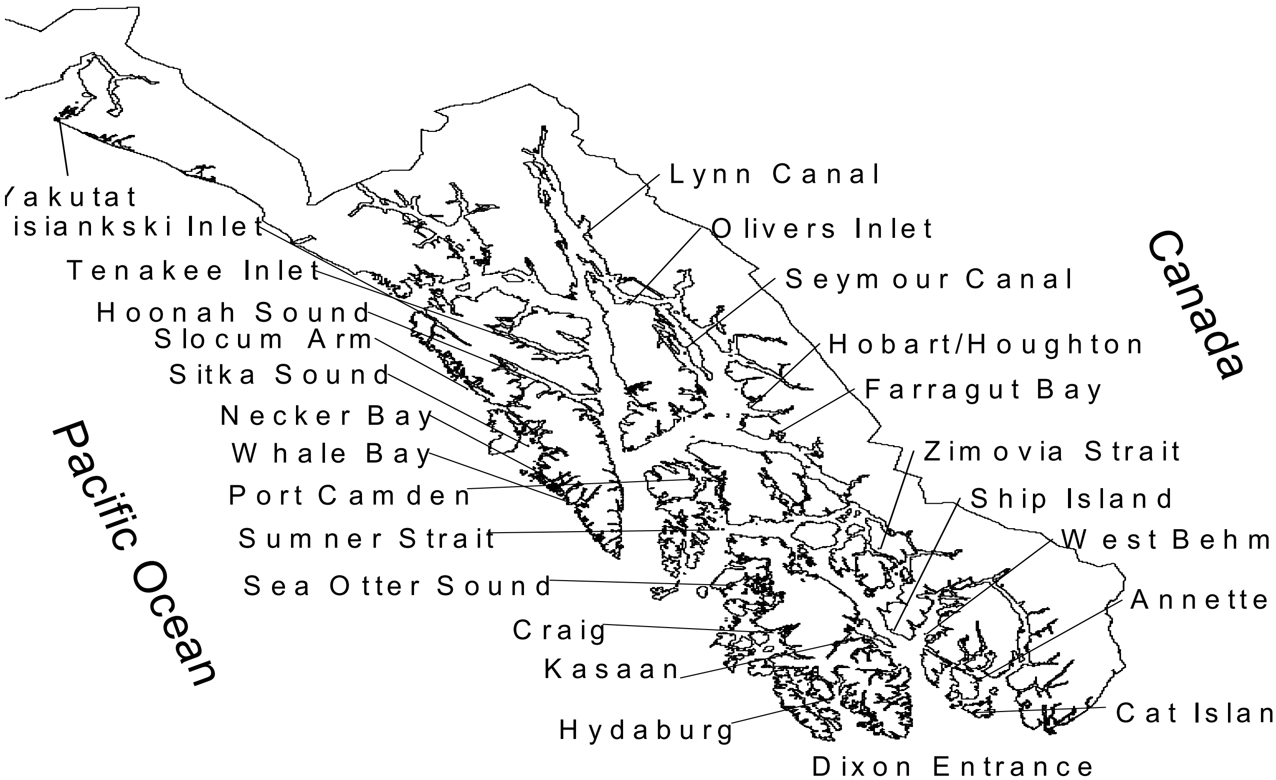

Figure 5. Southeast Alaska herring spawn stocks and AWL study areas.

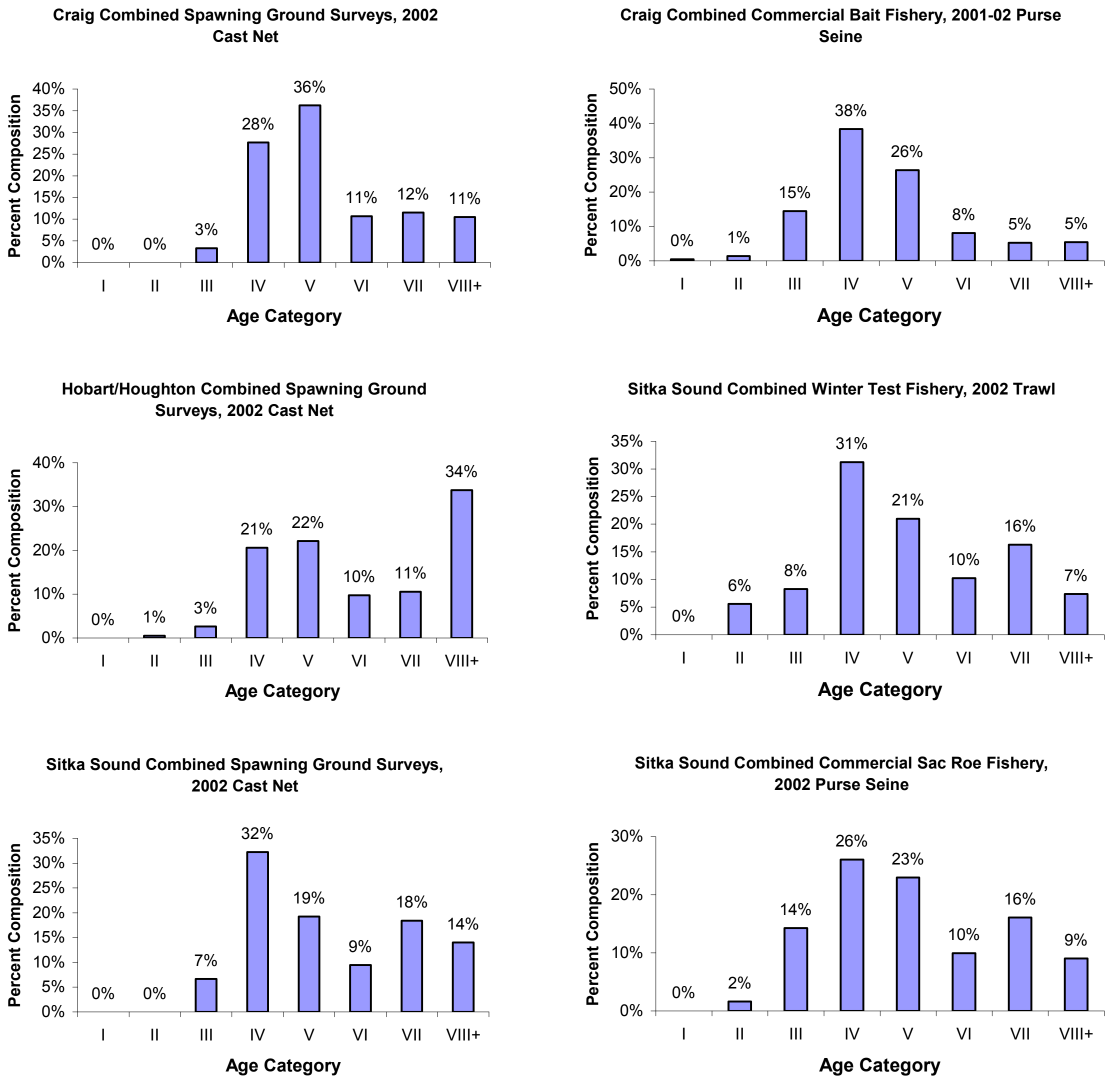

Figure 6. Summary of Southeast Alaska herring age compositions, 2001/2002 season. See Appendix A for data.

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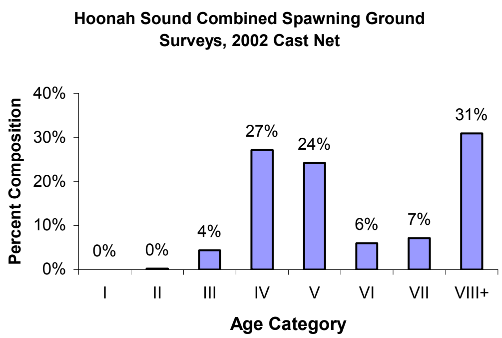

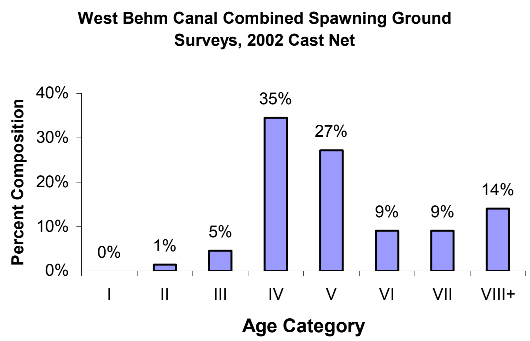

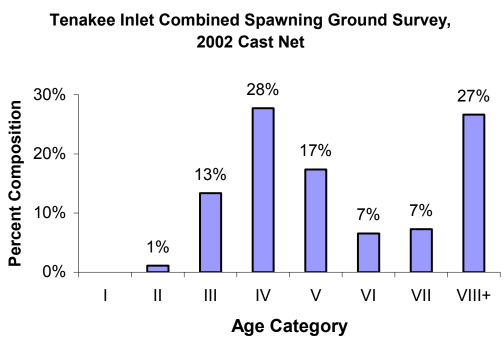

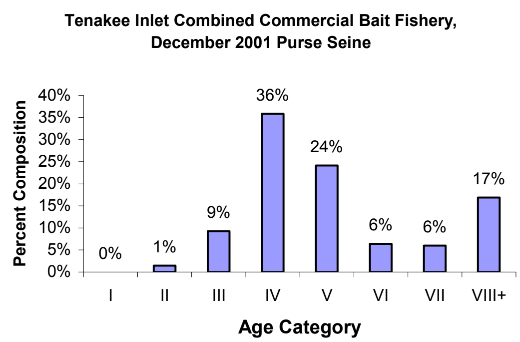

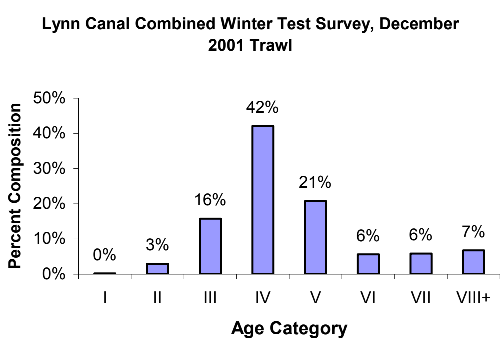

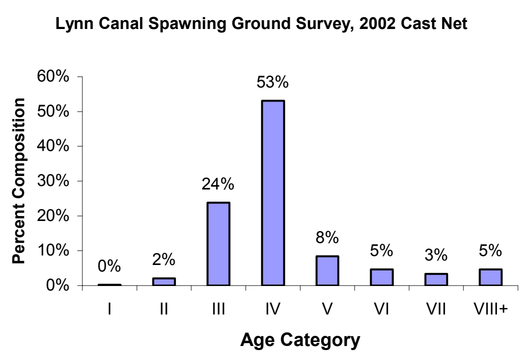

Figure 6. (page 2 of 3)

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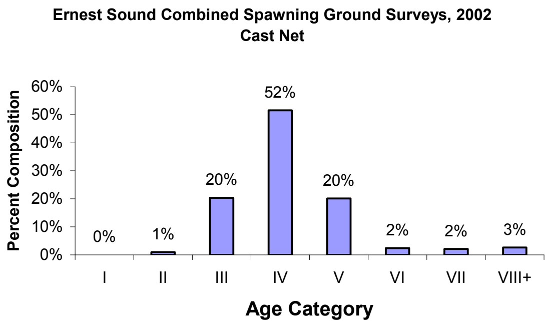

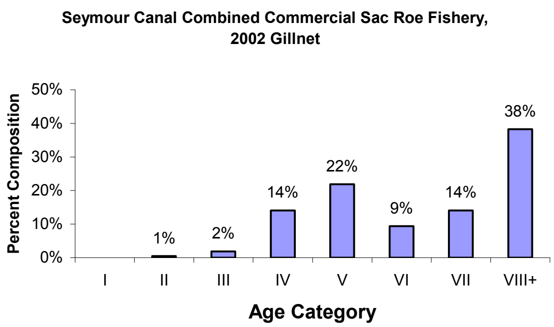

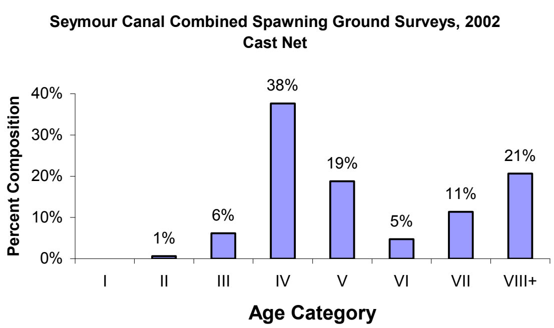

Figure 6. (page 3 of 3)

APPENDICES

Appendix A. Summarized age, length, weight, and gender data for major spawning stocks in Southeast Alaska, 2002. See Figure 6 for charts.

Craig Combined Spawning Ground Surveys, 2002 Cast Net

Age Category	I	II	III	IV	V	VI	VII	VIII+	Total
Average Length (mm)			172.4	182.6	192.0	197.0	206.0	204.8	192.2
Average Weight (g)			66.5	82.8	97.3	108.3	120.9	127.7	99.3
Count of Age Category			19	158	207	61	66	60	571
Percent Age Composition	0%	0%	3%	28%	36%	11%	12%	11%	100%
Proportion Female	0.00	0.00	0.02	0.12	0.18	0.05	0.06	0.05	0.48
Proportion Male	0.00	0.00	0.01	0.15	0.19	0.05	0.06	0.05	0.52

Craig Cast Net Samples	Date Collected	Fish Samples
Alberto Island	4/3/2002	60
Cape Suspiro	4/4/2002	60
N. Albertos & S.W. Wadleigh Is.	4/3/2002	212
North Fish Egg	4/3/2002	60
S. End Ballena Is.	4/2/2002	59
S. end Fish Egg Island	3/31/2002	60
S. W. Fish Egg Island	4/1/2002	60
		571

Craig Combined Commercial Bait Fishery, 2001/2002 Purse Seine

Age Category	I	II	III	IV	V	VI	VII	VIII+	Total
Average Length (mm)	125.0	134.0	156.4	168.0	177.4	190.3	197.2	196.4	173.0
Average Weight (g)	21.0	33.1	57.8	73.7	87.3	107.1	121.6	132.5	82.6
Count of Age Category	2	6	61	161	111	34	22	23	420
Percent Age Composition	0%	1%	15%	38%	26%	8%	5%	5%	100%
Proportion Female	0.00	0.00	0.05	0.19	0.12	0.03	0.03	0.02	0.45
Proportion Male	0.00	0.01	0.09	0.19	0.14	0.05	0.03	0.03	0.55

Craig Bait Fishery Samples	Date Collected	Fish Samples
Bautista Is. - Cape Cambom	12/11/2001	302
Mearse Pass	12/19/2001	118
		420

Hobart Bay/Port Houghton Combined Spawning Ground Surveys, 2002 Cast Net

Age Category	I	II	III	IV	V	VI	VII	VIII+	Total
Average Length (mm)		143.5	167.5	182.6	193.5	198.0	209.1	210.6	198.2
Average Weight (g)		36.0	62.2	84.7	103.2	110.4	129.9	134.2	111.9
Count of Age Category		2	10	78	84	37	40	128	379
Percent Age Composition	0%	1%	3%	21%	22%	10%	11%	34%	100%
Proportion Female	0.00	0.00	0.01	0.08	0.10	0.05	0.06	0.16	0.46
Proportion Male	0.00	0.01	0.02	0.12	0.12	0.05	0.04	0.17	0.54

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Hobart Bay/Port Houghton Samples	Date Collected	Fish Samples
E Entrance Is.	4/30/2002	112
Herring Lagoon - Sanctuary	4/29/2002	82
Sunset Cove	4/28/2002	185
		379

Appendix A. continued

Sitka Sound Combined Winter Test Fishery, 2002 Trawl

Age Category	I	II	III	IV	V	VI	VII	VIII+	Total
Average Length (mm)		145.6	179.3	199.9	209.2	217.8	222.5	222.8	204.3
Average Weight (g)		43.3	87.1	126.3	146.5	166.4	183.3	185.4	140.4
Count of Age Category		25	37	140	94	46	73	33	448
Percent Age Composition	0%	6%	8%	31%	21%	10%	16%	7%	100%
Proportion Female	0.00	0.04	0.03	0.15	0.10	0.05	0.05	0.03	0.45
Proportion Male	0.00	0.02	0.05	0.17	0.11	0.05	0.11	0.05	0.55

Sitka Sound Test Fish Samples	Date Collected	Fish Samples
0.6 nmi south of Guide Island	1/24/2002	119
0.6 nmi S. of Guide Island	1/24/2002	285
East Siginaka Island	1/23/2002	44
		448

Sitka Sound Combined Spawning Ground Surveys, 2002 Cast Net

Age Category	I	II	III	IV	V	VI	VII	VIII+	Total
Average Length (mm)			186.2	202.5	208.9	220.2	225.3	231.6	212.6
Average Weight (g)			84.9	110.7	125.5	145.7	158.3	177.3	133.2
Count of Age Category			38	184	110	54	105	80	571
Percent Age Composition	0%	0%	7%	32%	19%	9%	18%	14%	100%
Proportion Female	0.00	0.00	0.02	0.13	0.08	0.04	0.08	0.05	0.40
Proportion Male	0.00	0.00	0.05	0.20	0.11	0.06	0.10	0.09	0.60

Sitka Sound Cast Net Samples	Date Collected	Fish Samples
Apple Is.	3/26/2002	98
Apple Is.	3/27/2002	104
Harbor Pt.	3/29/2002	180
Jamestown Bay	3/28/2002	100
S. Halibut Point	3/25/2002	89
		571

-continued-

Appendix A. (page 3 of 6)

Sitka Sound Combined Commercial Sac Roe Fishery, 2002 Purse Seine

Age Category	I	II	III	IV	V	VI	VII	VIII+	Total
Average Length (mm)		161.0	179.9	199.9	211.9	222.4	225.6	231.6	208.4
Average Weight (g)		50.7	77.5	110.1	135.9	163.5	175.0	189.0	133.3
Count of Age Category		9	79	144	127	55	89	50	553
Percent Age Composition	0%	2%	14%	26%	23%	10%	16%	9%	100%
Proportion Female	0.00	0.00	0.06	0.14	0.12	0.04	0.09	0.05	0.50
Proportion Male	0.00	0.01	0.08	0.12	0.11	0.06	0.07	0.04	0.50

Sitka Sound Fishery Samples	Date Collected	Fish Samples
Camp Coogan	3/29/2002	70
Indian River	4/14/2002	89
Krestof Sound	3/31/2002	100
Silver Bay	3/27/2002	253
St. John's Bay	4/2/2002	41
		553

Appendix A. continued

Hoonah Sound Combined Spawning Ground Surveys, 2002 Cast Net

Age Category	I	II	III	IV	V	VI	VII	VIII+	Total
Average Length (mm)		148.0	166.6	186.2	195.5	200.5	205.5	207.8	196.5
Average Weight (g)		43.0	67.0	94.7	113.5	125.0	137.9	141.7	117.4
Count of Age Category		1	22	137	122	30	36	156	504
Percent Age Composition	0%	0%	4%	27%	24%	6%	7%	31%	100%
Proportion Female	0.00	0.00	0.03	0.14	0.12	0.03	0.04	0.14	0.50
Proportion Male	0.00	0.00	0.02	0.13	0.13	0.03	0.03	0.17	0.50

Hoonah Sound Cast Net Samples	Date Collected	Fish Samples
E. Vixen Is.	4/26/2002	73
Fick Cove	4/26/2002	59
Fick Cove Island	4/27/2002	139
North Emmons Island	4/25/2002	110
W. Emmons	4/26/2002	67
unknown	4/26/2002	56
		504

West Behm Canal Combined Spawning Ground Surveys, 2002 Cast Net

Age Category	I	II	III	IV	V	VI	VII	VIII+	Total
Average Length (mm)		130.5	163.8	175.8	185.1	191.8	200.6	205.6	185.0
Average Weight (g)		25.8	54.6	71.4	85.5	97.6	111.2	124.5	87.3
Count of Age Category		11	34	258	203	68	68	105	747
Percent Age Composition	0%	1%	5%	35%	27%	9%	9%	14%	100%
Proportion Female	0.00	0.00	0.02	0.15	0.14	0.05	0.04	0.07	0.48
Proportion Male	0.00	0.01	0.03	0.20	0.13	0.04	0.05	0.07	0.52

-continued-

West Behm Cast Net Samples	Date Collected	Fish Samples
Helm Bay N. #2	4/6/2002	99
Helm Point	4/6/2002	230
North Tongass Channel	4/4/2002	260
Survey Point	4/10/2002	105
Vallenar Bay	4/6/2002	53
		747

Tenakee Inlet Combined Spawning Ground Survey, 2002 Cast Net

Age Category	I	II	III	IV	V	VI	VII	VIII+	Total
Average Length (mm)		149.4	159.6	180.8	190.4	192.1	193.9	205.8	187.7
Average Weight (g)		45.2	55.9	87.3	106.1	109.4	112.7	146.8	105.1
Count of Age Category		7	86	179	112	42	47	172	645
Percent Age Composition	0%	1%	13%	28%	17%	7%	7%	27%	100%
Proportion Female	0.00	0.00	0.05	0.11	0.08	0.03	0.03	0.11	0.42
Proportion Male	0.00	0.01	0.09	0.16	0.09	0.04	0.04	0.16	0.58

Tenakee Inlet Cast Net Samples	Date Collected	Fish Samples
Trap Bay	4/23/2002	206
Corner Bay Pt.	4/26/2002	262
Trap Bay	4/23/2002	177
		645

Appendix A. continued

Tenakee Inlet Combined Commercial Bait Fishery, December 2001 Purse Seine

Age Category	I	II	III	IV	V	VI	VII	VIII+	Total
Average Length (mm)		153.1	168.4	186.2	197.8	197.7	205.5	211.3	193.0
Average Weight (g)		48.5	71.9	102.5	127.2	132.6	148.4	165.8	120.2
Count of Age Category		7	45	174	117	31	29	82	485
Percent Age Composition	0%	1%	9%	36%	24%	6%	6%	17%	100%
Proportion Female	0.00	0.00	0.04	0.18	0.13	0.03	0.03	0.07	0.48
Proportion Male	0.00	0.01	0.05	0.18	0.12	0.04	0.03	0.10	0.52

Tenakee Inlet Commercial Samples	Date Collected	Fish Samples
Tenakee Inlet	12/6/2001	174
Tenakee Inlet	12/7/2001	188
Tenakee Inlet	12/11/2001	123
		485

-continued-

Lynn Canal Combined Winter Test Survey, December 2001 Trawl

Age Category	I	II	III	IV	V	VI	VII	VIII+	Total
Average Length (mm)	176.0	146.5	157.1	165.0	172.3	176.8	182.2	178.6	167.3
Average Weight (g)	80.0	45.9	60.5	71.0	81.5	87.3	97.6	90.7	74.6
Count of Age Category	1	13	70	187	92	25	26	30	444
Percent Age Composition	0%	3%	16%	42%	21%	6%	6%	7%	100%
Proportion Female	0.00	0.01	0.07	0.18	0.09	0.03	0.03	0.04	0.46
Proportion Male	0.00	0.02	0.08	0.24	0.11	0.03	0.03	0.02	0.54

Lynn Canal Winter Test Samples	Date Collected	Fish Samples
Fritz Cove	12/19/2001	444

Lynn Canal Spawning Ground Surveys, 2002 Cast Net

Age Category	I	II	III	IV	V	VI	VII	VIII+	Total
Average Length (mm)		131.0	146.1	155.8	168.5	173.3	176.9	178.3	156.6
Average Weight (g)		34.9	47.5	58.0	73.9	81.7	85.4	88.4	59.8
Count of Age Category		5	57	127	20	11	8	11	239
Percent Age Composition	0%	2%	24%	53%	8%	5%	3%	5%	100%
Proportion Female	0.00	0.00	0.13	0.26	0.04	0.03	0.02	0.01	0.49
Proportion Male	0.00	0.02	0.10	0.27	0.04	0.02	0.02	0.04	0.51

Lynn Canal Cast Net Samples	Date Collected	Fish Samples
Olivers Inlet	5/22/2002	239

Appendix A. continued

Ernest Sound Combined Spawning Ground Surveys, 2002 Cast Net

Age Category	I	II	III	IV	V	VI	VII	VIII+	Total
Average Length (mm)		133.3	156.6	161.6	170.7	185.4	191.4	192.9	164.2
Average Weight (g)		33.3	50.0	56.6	65.2	84.0	101.4	98.9	59.5
Count of Age Category		4	86	218	85	10	9	11	423
Percent Age Composition	0%	1%	20%	52%	20%	2%	2%	3%	100%
Proportion Female	0.00	0.00	0.05	0.18	0.06	0.01	0.01	0.01	0.33
Proportion Male	0.00	0.01	0.15	0.34	0.14	0.02	0.01	0.01	0.67

Ernest Sound Cast Net Samples	Date Collected	Fish Samples
S. W. Corner - Union Bay	4/16/2002	112
S.W. Shore Union Bay Site #3	4/17/2002	107
S.W. Shore Union Bay Site #4	4/17/2002	101
Unknown	4/16/2002	103
		423

-continued-

Appendix A. (page 6 of 6)

Seymour Canal Combined Commercial Sac Roe Fishery, 2002 Gillnet

Age Category	I	II	III	IV	V	VI	VII	VIII+	Total
Average Length (mm)		152.0	157.4	172.3	187.4	190.4	192.4	196.9	189.2
Average Weight (g)		41.1	56.6	78.7	107.3	107.8	112.0	122.5	108.5
Count of Age Category		2	7	54	84	36	54	147	384
Percent Age Composition	0%	1%	2%	14%	22%	9%	14%	38%	100%
Proportion Female	0.00	0.01	0.01	0.08	0.13	0.04	0.07	0.21	0.53
Proportion Male	0.00	0.00	0.01	0.07	0.09	0.05	0.08	0.17	0.47

Seymour Canal Commercial Samples	Date Collected	Fish Samples
Pt. Hugh	5/16/2002	198
Two miles South of Blackjack Cove	5/17/2002	110
(blank)	5/15/2002	76
		384

Seymour Canal Combined Spawning Ground Surveys, 2002 Cast Net

Age Category	I	II	III	IV	V	VI	VII	VIII+	Total
Average Length (mm)		143.3	155.2	166.0	178.3	185.9	188.4	193.5	176.7
Average Weight (g)		42.1	50.3	64.0	82.8	96.8	100.0	112.1	82.1
Count of Age Category		3	30	182	91	23	55	100	484
Percent Age Composition	0%	1%	6%	38%	19%	5%	11%	21%	100%
Proportion Female	0.00	0.00	0.02	0.17	0.07	0.02	0.05	0.07	0.40
Proportion Male	0.00	0.00	0.05	0.21	0.11	0.03	0.07	0.14	0.60

Seymour Canal Cast Net Samples	Date Collected	Fish Samples
One Mile South of Blackjack Cove	5/13/2002	221
South of Blackjack Cove	5/13/2002	99
South of Blackjack Cove	5/14/2002	164
		484

Appendix B1. West Behm Canal spawn deposition survey, 2002.

Dates: April 19-20, 2002									
Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	TT cor	PD cor	SW cor
1	1	-12	fuc	0	0				
1	2	-8	fuc	15	28.65				
1	3	-4	fir	25	22.25				
1	4	-3	fir	25	22.25				
1	5	-1	fil	3	2.67				
1	6	2	lam	45	93.6				
1	7	2	lam	70	145.6				
1	8	4	lam	80	166.4				
1	9	6	lam	140	291.2				
1	10	7	agm	70	145.6				
1	11	8	elg	80	84.8				
1	12	9	elg	50	53				
1	13	10	elg	30	31.8				
1	14	11	elg	15	15.9				
1	15	12	elg	0	0				
1	16	13	lam	1	2.08				
1	17	15	lam	0	0				
1	18	16		0	0				
1	19	17		0	0				
1	20	18		0	0				
1	21	19		0	0				
1	22	20		0	0				
1	23	21		0	0				
1	24	22		0	0				
1	25	23	agm	0	0				
1	26	24	agm	1	2.08				
1	27	24	agm	90	187.2				
1	28	25	agm	50	104				
1	29	25	agm	40	83.2				
1	30	26	agm	70	145.6				
1	31	26		0	0				
1	32	26	agm	2	4.16				
1	33	26		0	0				
1	34	26	agm	50	104				
1	35	27	agm	45	93.6				
1	36	27	agm	70	145.6				
1	37	27	agm	40	83.2				
1	38	26	agm	60	124.8				
1	39	26		0	0				
1	40	26	agm	35	72.8				
1	41	26	agm	10	20.8				
1	42	26	agm	110	228.8				
1	43	26	agm	70	145.6				
1	44	26	agm	1	2.08				
1	45	26	agm	3	6.24				
1	46	27	agm	60	124.8				
1	47	27	agm	25	52				
1	48	27	agm	50	104				
1	49	27	agm	5	10.4				
1	50	27		0	0				
1	51	28		4	3.56				
1	52	28		0	0				
1	53	28	agm	90	187.2				
1	54	28	agm	40	83.2				
1	55	28	agm	80	166.4				
1	56	28	agm	10	20.8				
1	57	29	agm	130	270.4				
1	58	29	agm	35	72.8				
1	59	29	agm	40	83.2				

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Appendix B.1. (page 2 of 7)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	TT cor	PD cor	SW cor
1	60	29	agm	70	145.6				
1	61	29	agm	30	62.4				
1	62	29	agm	60	124.8				
1	63	30	agm	90	187.2				
1	64	30	agm	100	208				
1	65	30	agm	60	124.8				
1	66	31	agm	20	41.6				
1	67	31		0	0				
1	68	32	agm	70	145.6				
1	69	32	agm	50	104				
1	70	32	agm	80	166.4				
1	71	31		0	0				
1	72	32	agm	70	145.6				
1	73	32	agm	20	41.6				
1	74	33		0	0				
1	75	34	agm	3	6.24				
1	76	34	agm	30	62.4				
1	77	34		0	0				
1	78	34		0	0				
1	79	35	agm	7	14.56				
1	80	34	agm	2	4.16				
1	81	34		0	0				
1	82	35		0	0				
1	83	35		0	0				
1	84	36	agm	0	0				
1	85	36		0	0				
1	86	36		0	0				
2	1	-8	fuc	0				0	
2	2	-8	fuc	0				0	
2	3	-6	fuc	7				7	
2	4	-5	fir	3				3.93	
2	5	-3	fir	45				58.95	
2	6	2	lam	5				6	
2	7	6	lam	40				48	
2	8	7	lam	110				132	
2	9	8	lam	130				156	
2	10	9	lam	130				156	
2	11	10	lam	50				60	
2	12	11	lam	110				132	
2	13	12	hir	25				30.25	
2	14	13	hir	20				24.2	
2	15	15	ulv	0				0	
2	16	15	fir	0				0	
2	17	16	hir	0				0	
2	18	16	hir	0				0	
3	1	-5	fuc	3		5.1			
3	2	-4	fuc	3		5.1			
3	3	-1	fir	5		5.55			
3	4	1	lam	5				6	
3	5	4	fir	75				98.25	
3	6	6	elg	20				25.8	
3	7	7	elg	35				45.15	
3	8	8	elg	3				3.87	
3	9	10	elg	3				3.87	
3	10	11	elg	1				1.29	
3	11	0	elg	0				0	
3	12	15	elg	5				6.45	
3	13	15	lam	5				6	
3	14	15	agm	40				48	
3	15	16	agm	50				60	
3	16	15	agm	3				3.6	

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Appendix B.1. (page 3 of 7)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	TT cor	PD cor	SW cor
3	17	17	agm	40				48	
3	18	17	agm	60				72	
3	19	17	agm	30				36	
3	20	17	agm	90				108	
3	21	17	agm	80				96	
3	22	18	agm	15				18	
3	23	18		0				0	
3	24	19		0				0	
4	1	-9	fuc	0	0				
4	2	-4	fir	1	0.89				
4	3	-1	fil	0	0				
4	4	3	lbk	0	0				
4	5	3	lbk	0	0				
4	6	2		0	0				
4	7	2	lbk	0	0				
4	8	1	lbk	0	0				
4	9	2	lbk	0	0				
4	10	3	lbk	0	0				
4	11	4	lbk	0	0				
4	12	7	lbk	0	0				
4	13	6	lbk	0	0				
5	1	-1	fil	0				0	
5	2	-1	fil	0				0	
5	3	4	lbk	0				0	
5	4	5		0				0	
5	5	6		0				0	
5	6	6		0				0	
5	7	7	hir	0				0	
5	8	7	hir	0				0	
5	9	5	ala	0				0	
5	10	5		0				0	
6	1	0	elg	50		133			
6	2	5	cor	0		0			
6	3	6	elg	0		0			
6	4	8	elg	0		0			
6	5	9	elg	0		0			
6	6	11		0		0			
7	1	-7		0	0				
7	2	-4	fuc	25	47.75				
7	3	-3	elg	20	21.2				
7	4	0	elg	160	169.6				
7	5	2	lbk	3	6.24				
7	6	4	lbk	0	0				
7	7	6	lbk	0	0				
7	8	8	hir	80	92				
7	9	9	elg	2	2.12				
7	10	10	lbk	0	0				
7	11	12	elg	0	0				
7	12	14	elg	0	0				
7	13	15		0	0				
8	1	-8		3			3.27		
8	2	-5	fuc	95			218.5		
8	3	-3	red	35			38.15		
8	4	-1	fir	45			49.05		
8	5	0	fil	15			16.35		
8	6	1	lbk	0			0		
8	7	7	lbk	0			0		
8	8	14	agm	0			0		
9	1	-7	fuc	0					0
9	2	0	fir	70					55.3
9	3	3		0					0
-continued-									

Appendix B.1. (page 4 of 7)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	TT cor	PD cor	SW cor
9	4	4		0					0
9	5	10	lam	0					0
9	6	16	lam	0					0
9	7	22		0					0
10	1	-4		0				0	
10	2	-3		0				0	
10	3	-1		0				0	
10	4	1		0				0	
10	5	3		0				0	
10	6	5		0				0	
10	7	6		0				0	
10	8	14		0				0	
10	9	19		0				0	
11	1	-8		0				0	
11	2	-6	fuc	4				4	
11	3	-4	fuc	45				45	
11	4	-1	fir	50				65.5	
11	5	1	fir	30				39.3	
11	6	4	lam	80				96	
11	7	7	lam	1				1.2	
11	8	12	lam	0				0	
11	9	13		0				0	
12	1	-10	fuc	0	0				
12	2	-8		0	0				
12	3	-7	fuc	10	19.1				
12	4	1	fir	75	66.75				
12	5	2	fir	5	4.45				
12	6	4	lam	1	2.08				
12	7	6		0	0				
12	8	9		0	0				
12	9	13	lam	0	0				
13	1	-9	fuc	1				1	
13	2	-4	fuc	100				100	
13	3	1	lbk	1				1.2	
13	4	2	hir	310				375.1	
13	5	5	hir	180				217.8	
13	6	8		0				0	
13	7	12		0				0	
14	1	-9		0	0				
14	2	-2	lbk	0	0				
14	3	4	lbk	0	0				
14	4	9		0	0				
14	5	17		0	0				
15	1	-6		0				0	
15	2	9		0				0	
16	1	-9	fuc	0		0			
16	2	4	lam	0		0			
16	3	12		0		0			
16	4	24		0		0			
17	1	-3		0					0
17	2	0	ulv	2					1.58
17	3	2	fir	210					165.9
17	4	3	lam	90					99
17	5	6	lam	30					33
17	6	10	elg	0					0
17	7	14		0					0
18	1	-4	fuc	2		3.4			
18	2	-2		0		0			
18	3	-1		0			0		
18	4	0		0			0		
18	5	2		0			0		
-continued-									

Appendix B.1. (page 5 of 7)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	TT cor	PD cor	SW cor
18	6	3	red	0			0		
18	7	6	elg	0			0		
18	8	10	elg	0			0		
19	1	-2	ulv	1				1.31	
19	2	0	red	5				6.55	
19	3	1	lbk	90				108	
19	4	3	lbk	130				156	
19	5	5		35				45.85	
19	6	6		20				26.2	
19	7	7	elg	80				103.2	
19	8	7	elg	10				12.9	
19	9	10	elg	15				19.35	
19	10	11		1				1.31	
19	11	13		0				0	
19	12	14		0				0	
20	1	-5	fuc	0			0		
20	2	4		0			0		
20	3	5		0			0		
20	4	9	lbk	0			0		
20	5	20	lbk	0			0		
21	1	-5	fuc	10	19.1				
21	2	4	hir	10	11.5				
21	3	14	lbk	30	62.4				
21	4	21	lbk	30	62.4				
21	5	31		0	0				
22	1	-5		0					0
22	2	3		0					0
22	3	6		0					0
22	4	9		0					0
22	5	20		0					0
22	6	23		0					0
23	1	-7		0			0		
23	2	-5		5			5.45		
23	3	-4	elg	75			87		
23	4	-3	fuc	70			161		
23	5	0	fir	60		66.6			
23	6	8	lbk	80		104			
23	7	9	elg	200		532			
23	8	11	lbk	10		13			
23	9	10	lbk	45		58.5			
23	10	9	lbk	70		91			
23	11	8	lbk	25		32.5			
23	12	6	lbk	4		5.2			
23	13	8	lbk	20		26			
23	14	10	lbk	1		1.3			
23	15	8	lbk	1		1.3			
23	16	12		0		0			
23	17	16	lbk	5		6.5			
23	18	18		0		0			
23	19	18		0		0			
24	1	-4		0				0	
24	2	-3		20				26.2	
24	3	-1		60				78.6	
24	4	1	fir	110				144.1	
24	5	3	fir	650				851.5	
24	6	5	hir	520				629.2	
24	7	6	fir	550				720.5	
24	8	7	elg	10				12.9	
24	9	9	elg	15				19.35	
24	10	11	elg	10				12.9	
-continued-									

Appendix B.1. (page 6 of 7)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	TT cor	PD cor	SW cor
24	11	13		1				1.31	
24	12	15		0				0	
24	13	16		0				0	
25	1	-14	fuc	0					0
25	2	-9	fuc	0					0
25	3	-6	fuc	40					50
25	4	2		2			2.18		
25	5	4		13			14.17		
25	6	5	lbk	150			381		
25	7	5	lbk	90			228.6		
25	8	6	lbk	35			88.9		
25	9	6	lbk	140			355.6		
25	10	16	lbk	35			88.9		
25	11	21	lbk	5			12.7		
26	1	3	fuc	0	0				
26	2	-8	fuc	10	19.1				
26	3	-6	fuc	40	76.4				
26	4	-4	fuc	120	229.2				
26	5	1		100	89				
26	6	3	elg	450	477				
26	7	5	elg	20	21.2				
26	8	8	elg	15	15.9				
26	9	12		0	0				
26	10	17		0	0				
27	1	-13	fuc	2		3.4			
27	2	-7	fuc	95		161.5			
27	3	-1		40		44.4			
27	4	1		45					35.55
27	5	2	fir	70					55.3
27	6	3	fir	10					7.9
27	7	5	elg	15					18.9
27	8	7	elg	3					3.78
27	9	12		0					0
28	1	1		0				0	
28	2	2		0				0	
28	3	3		0				0	
28	4	5		0				0	
28	5	6		0				0	
28	6	9		0				0	
28	7	10		0				0	
28	8	15		0				0	
28	9	20		0				0	
28	10	23		0				0	
29	1	-7	fuc	0			0		
29	2	-5	fuc	25			57.5		
29	3	-4	fuc	35			80.5		
29	4	4	lbk	5		6.5			
29	5	8	lbk	2		2.6			
29	6	13	lbk	0		0			
29	7	15	lbk	0		0			
29	8	17		25		27.75			
29	9	21	lbk	0		0			
29	10	24	lbk	0		0			
30	1	-2		0				0	
30	2	2	lam	80				96	
30	3	5	red	90				117.9	
30	4	7	lam	10				12	
30	5	17	agm	0				0	
30	6	27		0				0	
31	1	-14	fuc	0					0
31	2	-12	fuc	35					43.75

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Appendix B.1. (page 7 of 7)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	TT cor	PD cor	SW cor
31	3	-7	fuc	10					12.5
31	4	-3	ulv	10					7.9
31	5	0	red	40		44.4			
31	6	2	fir	250		277.5			
31	7	3	fir	225		249.8			
31	8	5	lam	100		130			
31	9	11	lam	0		0			
31	10	14		0		0			
31	11	16		0		0			
32	1	-7	fuc	100	191				
32	2	-2	fuc	100	191				
32	3	0		1	0.89				
32	4	1	fir	15	13.35				
32	5	2	fir	100	89				
32	6	4	lbk	60	124.8				
32	7	6	lbk	1	2.08				
32	8	8	elg	0	0				
32	9	11	elg	0	0				

Appendix B.2. Craig spawn deposition survey, 2002.

Survey Dates: April 16-18, 2002.									
Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	TT cor	PD cor	SW cor
1	1	-4		0				0	
1	2	-3		0				0	
1	3	-2	fuc	10				10	
1	4	0	fuc	30				30	
1	5	1	cor	0	0				
1	6	3	lam	0	0				
1	7	5	mac	90	80.1				
1	8	7	lam	0	0				
1	9	9	lam	0	0				
1	10	9		0	0				
1	11	13	lam	0	0				
1	12	14	lbk	0	0				
2	1	-4		0					0
2	2	-3		0					0
2	3	0	ulv	2					1.58
2	4	2	elg	10					12.6
2	5	3	elg	0					0
2	6	3	elg	0					0
2	7	3	elg	0					0
2	8	4	lbk	0					0
2	9	5	lbk	0					0
2	10	6	lbk	0					0
2	11	7	lbk	0					0
2	12	8	lbk	0					0
2	13	9	lbk	0					0
2	14	10	lbk	0					0
2	15	11	lbk	0					0
2	16	12	lbk	0					0
2	17	13	lbk	0					0
2	18	14	lbk	0					0
2	19	14	lbk	0					0
2	20	14	lbk	5					5.5
2	21	15	lbk	1					1.1
2	22	16		0					0
2	23	15		0					0
2	24	15		0					0
2	25	14		0					0
2	26	14		0					0
2	27	14		0					0
2	28	13		0					0
2	29	13		0					0
2	30	12		0					0
2	31	12		0					0
2	32	12		0					0
2	33	12		0					0
2	34	12		0					0
2	35	11		0					0
2	36	11		0					0
2	37	11		0					0
2	38	11	mac	20					15.8
2	39	7	elg	0					0
2	40	6	elg	1					1.26
2	41	5	lbk	50					55
2	42	3	lbk	20					22
2	43	2	lbk	50					55
2	44	1	elg	0					0
2	45	0	hir	0					0
3	1	-6		0					0
3	2	-5		0					0

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Appendix B.2. (page 2 of 8)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	TT cor	PD cor	SW cor
3	3	-3	fuc	30					37.5
3	4	-2	elg	80					100.8
3	5	-1	elg	75					94.5
3	6	0	elg	30					37.8
3	7	2	lbk	2					2.2
3	8	3	lbk	0					0
3	9	5	lbk	0					0
3	10	7	elg	0					0
3	11	8	lbk	0					0
4	1	-4		0					0
4	2	-3	fil	2					1.58
4	3	-1	fil	0					0
4	4	0	fil	10					7.9
4	5	1	lam	15					16.5
4	6	3	lam	8					8.8
4	7	9	lam	0					0
4	8	11	lam	0					0
4	9	13	lam	0					0
4	10	18	lam	0					0
5	1	-2		0					0
5	2	-1	fuc	0					0
5	3	-1		0					0
5	4	-1	elg	2					2.52
5	5	1	fuc	0					0
5	6	1	elg	35					44.1
5	7	4	elg	0					0
5	8	9	0	9					7.11
5	9	15		0					0
6	1	-2	elg	5		13.3			
6	2	0	elg	35		93.1			
6	3	2	elg	40		106.4			
6	4	3	elg	5		13.3			
6	5	6	elg	5		13.3			
6	6	8	elg	0		0			
6	7	12	elg	0		0			
7	1	-1	elg	50				64.5	
7	2	0	elg	130				167.7	
7	3	1	elg	30				38.7	
7	4	2	elg	20				25.8	
7	5	3	elg	5				6.45	
7	6	5	elg	2				2.58	
7	7	7		0				0	
7	8	10	elg	1				1.29	
7	9	12		0				0	
7	10	13		0				0	
8	1	-3	elg	30	31.8				
8	2	-1	hir	5	5.75				
8	3	0	fir	100	89				
8	4	1	lam	50				60	
8	5	3	cor	60				78.6	
8	6	7	mac	60				78.6	
8	7	10	mac	420				550.2	
8	8	13	mac	90				117.9	
8	9	14	mac	220				288.2	
8	10	17	mac	5				6.55	
8	11	18	lam	10				12	
8	12	19	lam	0				0	
8	13	20	lam	0				0	
8	14	22	lam	0				0	
8	15	23	agm	0				0	
9	1	2	mac	0				0	
9	2	4	fir	0				0	

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Appendix B.2. (page 3 of 8)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	TT cor	PD cor	SW cor
9	3	4	fir	0				0	
9	4	4	fir	0				0	
9	5	6	fir	0				0	
9	6	7		0				0	
9	7	7	mac	0				0	
9	8	7	mac	0				0	
9	9	8	lam	0				0	
9	10	8	fir	0				0	
9	11	8	fir	0				0	
9	12	9	fir	0				0	
9	13	9	lam	0				0	
9	14	11	mac	0				0	
9	15	12		0				0	
9	16	13	mac	0				0	
9	17	16		0				0	
9	18	18		0				0	
9	19	20		0				0	
10	1	-4		0		0			
10	2	-3		0		0			
10	3	-3		0		0			
10	4	-2		0		0			
10	5	-2		0		0			
10	6	-2	elg	0		0			
10	7	-2	elg	0		0			
10	8	-2	elg	0		0			
10	9	-2	elg	0		0			
10	10	-2	elg	0		0			
10	11	-2	elg	0		0			
10	12	-2	elg	0		0			
10	13	-2	elg	0		0			
10	14	-1	elg	1		2.66			
10	15	-1	elg	4		10.64			
10	16	-1	elg	0		0			
10	17	-1	elg	0		0			
10	18	-1	elg	0		0			
10	19	-2	elg	0		0			
10	20	-2	elg	0		0			
10	21	-2	elg	0		0			
10	22	-2	elg	0		0			
10	23	-2	elg	0		0			
10	24	-2	elg	0		0			
10	25	-2	elg	0		0			
10	26	-2	elg	50		133			
10	27	-2	elg	40		106.4			
10	28	-1	elg	40		106.4			
10	29	0	elg	60		159.6			
10	30	0	elg	80		212.8			
10	31	1	elg	100		266			
10	32	2	elg	75		199.5			
10	33	4	elg	50		133			
10	34	4	elg	30		79.8			
10	35	5	elg	5		13.3			
10	36	6	elg	5		13.3			
10	37	6	elg	5		13.3			
10	38	6	elg	1		2.66			
10	39	7	elg	2		5.32			
10	40	7	elg	5		13.3			
10	41	7	lbk	20		26			
10	42	6	mac	60		66.6			
10	43	7	lbk	30		39			
10	44	7	lbk	10		13			

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Appendix B.2. (page 4 of 8)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	TT cor	PD cor	SW cor
10	45	8	lbk	10		13			
10	46	8	lbk	10		13			
10	47	8	lbk	25		32.5			
10	48	8	lbk	10		13			
10	49	10	lbk	0		0			
10	50	10	lbk	0		0			
10	51	10	lbk	0		0			
11	1	-3		0			0		
11	2	-2		0			0		
11	3	0	elg	120			139.2		
11	4	1	elg	120			139.2		
11	5	3	elg	60			69.6		
11	6	4	elg	1			1.16		
11	7	4	elg	0			0		
11	8	5	elg	0			0		
11	9	6	elg	0			0		
11	10	7	elg	0			0		
12	1	-3		0				0	
12	2	-3	elg	15				19.35	
12	3	-2	elg	10				12.9	
12	4	-1	elg	20				25.8	
12	5	0	ulv	5				6.55	
12	6	1	elg	1				1.29	
12	7	1	elg	20				25.8	
12	8	4	elg	15				19.35	
12	9	5	elg	0				0	
12	10	6	elg	5				6.45	
12	11	6	elg	5				6.45	
12	12	8	elg	0				0	
12	13	8	elg	0				0	
12	14	8	elg	0				0	
12	15	9	elg	0				0	
13	1	-2	fuc	1	1.91				
13	2	-1	fir	1	0.89				
13	3	-1	fir	1	0.89				
13	4	-1	elg	20	21.2				
13	5	0	elg	30	31.8				
13	6	1	elg	40	42.4				
13	7	3	elg	15	15.9				
13	8	5	elg	1	1.06				
13	9	8		0	0				
13	10	9		0	0				
13	11	11		0	0				
14	1	-6	fuc	30			69		
14	2	-5	fuc	40			92		
14	3	-1	fuc	20			46		
14	4	1	elg	160			185.6		
14	5	5	elg	5			5.8		
14	6	12	elg	1			1.16		
14	7	15		0			0		
14	8	19		0			0		
14	9	22		0			0		
15	1	-4		0				0	
15	2	-2	fuc	0				0	
15	3	-1	elg	3				3.87	
15	4	0	lam	1				1.2	
15	5	2	elg	10				12.9	
15	6	5	elg	0				0	
15	7	10	elg	0				0	
15	8	13		0				0	

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Appendix B.2. (page 5 of 8)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	TT cor	PD cor	SW cor
16	2	0	ulv	0				0	
16	3	2	elg	10				12.9	
16	4	2	elg	15				19.35	
16	5	4	elg	0				0	
16	6	6	elg	0				0	
16	7	7	elg	0				0	
16	8	8	elg	0				0	
16	9	9	elg	0				0	
16	10	10	lbk	0				0	
16	11	14	lam	0				0	
16	12	11	lam	0				0	
16	13	8	lam	0				0	
16	14	9	lam	0				0	
16	15	3	mac	0				0	
16	16	2	mac	0				0	
17	1	-8	fuc	0	0				
17	2	-5		0	0				
17	3	-3		0	0				
17	4	-2		0	0				
17	5	0	elg	25	26.5				
17	6	2	elg	22	23.32				
17	7	5	elg	0	0				
17	8	7	elg	0	0				
17	9	10	elg	0	0				
17	10	17		0	0				
18	1	-4	fir	10	8.9				
18	2	-3	elg	180	190.8				
18	3	-2	elg	150	159				
18	4	-2	fir	80	71.2				
18	5	0	elg	80	84.8				
18	6	2	elg	110			127.6		
18	7	3	lam	75			190.5		
18	8	4	fir	70			76.3		
18	9	5	elg	20			23.2		
18	10	6	elg	8			9.28		
18	11	6	elg	3			3.48		
18	12	8	elg	1			1.16		
18	13	9	elg	1			1.16		
18	14	11	elg	0			0		
18	15	12	elg	0			0		
18	16	13		0			0		
19	1	-4	fuc	0				0	
19	2	-4	fir	5				6.55	
19	3	-4	fuc	1				1	
19	4	-4	elg	0				0	
19	5	-4	elg	0				0	
19	6	-3	elg	75				96.75	
19	7	-3	elg	120				154.8	
19	8	-3	elg	120				154.8	
19	9	-3	elg	140				180.6	
19	10	-3	elg	120				154.8	
19	11	-3	elg	120				154.8	
19	12	-4	elg	90				116.1	
19	13	-4	elg	30				38.7	
19	14	-4	elg	50				64.5	
19	15	-4	fuc	0				0	
19	16	-2	fir	10				13.1	
19	17	0	elg	10	10.6				
19	18	6	fir	1	0.89				
19	19	7	agm	5	10.4				
19	20	9	mac	80	71.2				

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Appendix B.2. (page 6 of 8)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	TT cor	PD cor	SW cor
19	21	10	mac	250	222.5				
19	22	12	lbk	50	104				
19	23	13	mac	450	400.5				
19	24	14	mac	40	35.6				
19	25	15	mac	250	222.5				
19	26	17	lam	1	2.08				
19	27	18		0	0				
19	28	20		0	0				
19	29	22		0	0				
19	30	23		0	0				
19	31	25		0	0				
19	32	26	lam	0	0				
20	1	2	lbk	0		0			
20	2	3	lbk	70		91			
20	3	4	lbk	1		1.3			
20	4	4	elg	2		5.32			
20	5	4	elg	0		0			
20	6	5	elg	1		2.66			
20	7	5	elg	5		13.3			
20	8	5	elg	2		5.32			
20	9	5	lbk	4		5.2			
20	10	5	lbk	7		9.1			
20	11	4	lbk	10		13			
20	12	4	lbk	0		0			
20	13	4	mac	150		166.5			
20	14	4	mac	20		22.2			
20	15	4	mac	110		122.1			
20	16	4	lbk	5		6.5			
20	17	3	mac	35		38.85			
20	18	4	lbk	30		39			
20	19	5	lbk	2		2.6			
20	20	4	lbk	10		13			
20	21	5	lbk	1		1.3			
20	22	6	lbk	1		1.3			
20	23	7	lbk	1		1.3			
20	24	7	lbk	1		1.3			
20	25	7	mac	220		244.2			
20	26	9	mac	180		199.8			
20	27	9	lbk	0		0			
20	28	11	lbk	0		0			
20	29	12	lbk	0		0			
20	30	13	lbk	2		2.6			
21	1	-4	fir	0					0
21	2	0	elg	2					2.52
21	3	-1	fir	0					0
21	4	2	elg	5					6.3
21	5	2	elg	60					75.6
21	6	2	elg	35					44.1
21	7	1	elg	50					63
21	8	1	elg	65					81.9
21	9	1	elg	50					63
21	10	1	elg	60					75.6
21	11	2	elg	70					88.2
21	12	3	lbk	35					38.5
21	13	3	mac	110					86.9
21	14	5	mac	70					55.3
21	15	5	lam	20					22
21	16	5	lam	35					38.5
21	17	6	elg	45					56.7
21	18	7	lam	35					38.5
21	19	8	lam	10					11

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Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	TT cor	PD cor	SW cor
21	20	10	lam	9					9.9
21	21	12	elg	0					0
21	22	13	lam	2					2.2
21	23	14	lam	0					0
21	24	16	lam	0					0
21	25	18	lam	0					0
21	26	21	lam	0					0
22	1	-3	red	0					0
22	2	0	red	0					0
22	3	5	mac	70					55.3
22	4	10	lbk	5					5.5
22	5	16	lbk	0					0
22	6	21	lbk	0					0
22	7	25		0					0
23	1	-10		2			2.18		
23	2	-8		0			0		
23	3	-7		0			0		
23	4	-6	fuc	2			4.6		
23	5	-5	fuc	45			103.5		
23	6	-4		0			0		
23	7	-1	fir	0			0		
23	8	-1	fir	25				32.75	
23	9	1	elg	50				64.5	
23	10	3	elg	30				38.7	
23	11	6	lbk	5				6	
23	12	10	elg	0				0	
23	13	13		0				0	
23	14	17		0				0	
23	15	21	lbk	0				0	
23	16	24		0				0	
24	1	-6		0					0
24	2	-3	fil	0					0
24	3	-3	fil	0					0
24	4	-2	elg	0					0
24	5	-1	elg	0					0
24	6	-1	elg	1					1.26
24	7	-1	elg	0					0
24	8	-1	elg	35					44.1
24	9	-1	elg	1					1.26
24	10	-1	fuc	80					100
24	11	-1	fuc	55					68.75
24	12	-1	fuc	45					56.25
24	13	0	fuc	20					25
24	14	0	elg	50					63
24	15	1	fir	55					43.45
24	16	1	fir	80					63.2
24	17	1	fir	60					47.4
24	18	3	elg	90					113.4
24	19	4	elg	10					12.6
24	20	5	elg	0					0
24	21	5	elg	1					1.26
24	22	6	elg	0					0
24	23	7	elg	0					0
24	24	8	elg	0					0
24	25	9	elg	0					0
24	26	10	elg	0					0
24	27	11	elg	0					0
25	1	-3		0	0				
25	2	0	fir	0	0				
25	3	2	elg	50	53				
25	4	5	elg	40	42.4				

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Appendix B.2. (page 8 of 8)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	TT cor	PD cor	SW cor
25	5	9	elg	30	31.8				
25	6	13	elg	1	1.06				
25	7	15	lam	0	0				
25	8	17	lam	5	10.4				
25	9	21	lam	10	20.8				
25	10	23	agm	1	2.08				
25	11	26	red	0	0				
25	12	28		0	0				
25	13	29	red	0	0				
26	1	-7		0		0			
26	2	-2	fir	0		0			
26	3	0	elg	150		399			
26	4	2	elg	150		399			
26	5	6	elg	80		212.8			
26	6	11	elg	0		0			
26	7	15	lbk	0		0			
26	8	19	lbk	1		1.3			
26	9	23	lbk	1		1.3			
26	10	26	lbk	0		0			
26	11	27	lbk	0		0			
27	1	-5		0				0	
27	2	-2		0				0	
27	3	-1	elg	110				141.9	
27	4	2	elg	160				206.4	
27	5	3	elg	70				90.3	
27	6	4	elg	30				38.7	
27	7	6	elg	10				12.9	
27	8	7	elg	10				12.9	
27	9	9	elg	5				6.45	
27	10	9	elg	10				12.9	
27	11	9	elg	5				6.45	
27	12	9	elg	0				0	
27	13	9	elg	0				0	
27	14	10	elg	0				0	
27	15	11	snd	0				0	
27	16	11	elg	0				0	
28	1	-5		0					0
28	2	-4		0					0
28	3	-3		0					0
28	4	-1	fil	1					0.79
28	5	0	fil	0					0
28	6	0	elg	35					44.1
28	7	2	elg	50					63
28	8	4	elg	30					37.8
28	9	5	elg	20					25.2
28	10	7	elg	3					3.78
28	11	9		0					0
28	12	12	lbk	0					0

Appendix B.3. Hobart Bay spawn deposition survey, 2002.

Survey Dates: May 10 & 11, 2002.										
Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	PD cor	WB cor	SW cor	DG cor
1	1	3		0	0					
1	2	5		0	0					
1	3	7	elg	0	0					
1	4	9		0	0					
1	5	10	ulv	0	0					
1	6	11	elg	0	0					
1	7	12	ulv	0	0					
1	8	13	ulv	0	0					
1	9	14	lam	0	0					
1	10	15	hir	0	0					
1	11	16	fil	0	0					
1	12	16	lam	0	0					
1	13	17	hir	0	0					
1	14	18		0	0					
1	15	19	lam	0	0					
1	16	19	lam	0	0					
1	17	20		0	0					
2	1	1	fil	0	0					
2	2	2	elg	0	0					
2	3	3	ulv	0	0					
2	4	4	elg	2	2.12					
2	5	5	elg	1	1.06					
2	6	5	elg	0	0					
2	7	6		0	0					
2	8	7	lam	0	0					
2	9	4	lam	0	0					
2	10	6	lam	0	0					
2	11	8	lam	0	0					
2	12	10	lam	0	0					
2	13	12	lam	0	0					
2	14	13	lam	0	0					
2	15	14	lam	0	0					
2	16	16	lam	0	0					
2	17	18	lam	0	0					
2	18	21	lam	0	0					
2	19	23	lam	0	0					
3	1	-14	fuc	2		3.4				
3	2	-8	fuc	2		3.4				
3	3	-7	fuc	1		1.7				
3	4	-6		0		0				
3	5	-5	fuc	1		1.7				
3	6	-1	fir	1					0.79	
3	7	2	ulv	0					0	
3	8	3	ulv	0					0	
3	9	3	lam	2					2.2	
3	10	5	lam	0					0	
3	11	5	lam	0					0	
3	12	5	lam	0					0	
3	13	5	lam	0					0	
3	14	5	hir	20					25.8	
3	15	5	lam	5					5.5	
3	16	5	lam	15					16.5	
3	17	5	hir	10					12.9	
3	18	4	agm	0					0	
3	19	1	ala	0					0	
3	20	-1	ala	0					0	
3	21	0	ala	0					0	
3	22	0	lam	0					0	
3	23	1	lam	0					0	
3	24	5	lam	0					0	

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Appendix B.3. (page 2 of 9)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	PD cor	WB cor	SW cor	DG cor
3	25	7	hir	0					0	
3	26	9	hir	0					0	
3	27	9	cym	0					0	
3	28	13	lam	0					0	
3	29	13	lam	0					0	
3	30	14	lam	0					0	
3	31	16	lam	0					0	
3	32	19	lam	0					0	
3	33	21	lam	0					0	
3	34	22	lam	0					0	
3	35	23	lam	0					0	
3	36	25	lam	0					0	
4	1	-4	ulv	0			0			
4	2	-3	ala	0			0			
4	3	-2	ala	0			0			
4	4	3	lam	0			0			
4	5	13	lam	0			0			
4	6	2	lam	0			0			
4	7	8	agm	0			0			
4	8	18	lam	0			0			
5	1	-4	fil	0	0					
5	2	-2	fuc	10	19.1					
5	3	-2	red	5	4.45					
5	4	-1	red	10	8.9					
5	5	-1	ulv	15	13.35					
5	6	0	fil	2	1.78					
5	7	5	ulv	10	8.9					
5	8	6	ulv	15	13.35					
5	9	6	ulv	20	17.8					
5	10	7	fuc	30	57.3					
5	11	6	ulv	2	1.78					
5	12	6	red	5	4.45					
5	13	6	ulv	3	2.67					
5	14	6	lam	0	0					
5	15	7	lam	0	0					
5	16	7	ulv	0	0					
5	17	7	ulv	0	0					
6	1	-6		0					0	
6	2	-6		0					0	
6	3	-5		0					0	
6	4	-5		0					0	
6	5	-4		0					0	
6	6	-4		0					0	
6	7	-4		0					0	
6	8	-4		0					0	
6	9	-4		0					0	
6	10	-4		0					0	
6	11	-4		0					0	
6	12	-3		0					0	
6	13	-3		0					0	
6	14	-3		0					0	
6	15	-2		0					0	
6	16	-2		0					0	
6	17	-2		0					0	
6	18	-2		0					0	
6	19	-1		0					0	
6	20	-1		0					0	
6	21	-1		0					0	
6	22	-1		0					0	
7	1	-6		0						0
7	2	-5	fuc	0						0
7	3	-4	fuc	0						0

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Appendix B.3. (page 3 of 9)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	PD cor	WB cor	SW cor	DG cor
7	4	-3	fuc	0						0
7	5	-2		0						0
7	6	-1		0						0
7	7	0		0						0
7	8	0		0						0
7	9	1		0						0
7	10	2	ulv	0						0
7	11	2		0						0
7	12	2	lam	1						1.58
7	13	2	ulv	0						0
7	14	2	ulv	0						0
7	15	3	ulv	2						3.18
7	16	2	fuc	5						7.65
7	17	3	ulv	4						6.36
7	18	3	elg	10						11.7
7	19	3	elg	25						29.25
7	20	3	elg	35						40.95
7	21	4	elg	30						35.1
7	22	4	elg	45						52.65
7	23	4	elg	20						23.4
7	24	4	elg	50						58.5
7	25	4	elg	25						29.25
7	26	5	ulv	1						1.59
7	27	5		0						0
7	28	5	elg	2						2.34
7	29	6		0						0
7	30	7		0						0
7	31	7		0						0
7	32	2	lam	1						1.58
7	33	3		0						0
7	34	5	lam	20						31.6
7	35	4	lam	3						4.74
7	36	4	lam	25						39.5
7	37	3	lam	60						94.8
7	38	4	lam	3						4.74
7	39	3	lam	3						4.74
7	40	5	lam	2						3.16
7	41	5	lam	4						6.32
7	42	5	lam	2						3.16
7	43	5		0						0
7	44	4	hir	0						0
8	1	-12	fuc	0				0		
8	2	-7	fuc	40				49.6		
8	3	-11	fuc	0				0		
8	4	-5		0				0		
8	5	-8		0				0		
8	6	-8	fuc	5				6.2		
8	7	-8	fuc	15				18.6		
8	8	-8	fuc	25				31		
8	9	-3	red	1			1.31			
8	10	-2	red	4			5.24			
8	11	-2	fir	2			2.62			
8	12	-2	fir	2			2.62			
8	13	-1	lam	10			12			
8	14	-1	lam	10			12			
8	15	-1	ulv	10			13.1			
8	16	-1	fuc	5			5			
8	17	1	lam	20			24			
8	18	7	lam	15			18			
8	19	8	lam	5			6			
8	20	8	hir	10			12.1			

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Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	PD cor	WB cor	SW cor	DG cor
8	21	9	lam	5			6			
8	22	9	lam	1			1.2			
8	23	9	lam	1			1.2			
8	24	9		0			0			
8	25	10		0			0			
8	26	10	lam	3			3.6			
8	27	10	lam	7			8.4			
8	28	11	lam	0			0			
8	29	11	hir	5			6.05			
8	30	11		0			0			
8	31	12	ulv	2			2.62			
8	32	12	hir	1			1.21			
8	33	13	hir	0			0			
8	34	13	lam	0			0			
8	35	13		0			0			
8	36	14		1			1.31			
9	1	-12	fuc	0				0		
9	2	-9		0				0		
9	3	-8		0				0		
9	4	-5		0				0		
9	5	-4	fuc	20				24.8		
9	6	-2	ulv	2				2.18		
9	7	-2	fuc	100				124		
9	8	-1	fil	5				5.45		
9	9	-1	ulv	7				7.63		
9	10	-1	lam	15				13.35		
9	11	2	lam	10				8.9		
9	12	2	lam	40				35.6		
9	13	3	lam	50				44.5		
9	14	5		20				21.8		
9	15	7	lam	2				1.78		
9	16	8	lam	2				1.78		
9	17	8		0				0		
9	18	9	elg	2				1.54		
9	19	9	elg	1				0.77		
9	20	10	elg	2				1.54		
9	21	11	elg	2				1.54		
9	22	12	elg	1				0.77		
9	23	13	hir	3				3.57		
9	24	13	lam	5				4.45		
9	25	13	lam	2				1.78		
9	26	14	lam	4				3.56		
9	27	14	hir	10				11.9		
9	28	13	lam	10				8.9		
9	29	13	lam	15				13.35		
9	30	12	lam	5				4.45		
9	31	10	lam	15				13.35		
9	32	12	lam	1				0.89		
9	33	14	lam	0				0		
9	34	14	lam	1				0.89		
9	35	13	lam	0				0		
9	36	11	lam	0				0		
9	37	12	lam	0				0		
9	38	12	lam	0				0		
9	39	9	lam	0				0		
9	40	9	lam	0				0		
9	41	13	lam	0				0		
10	1	-4		10				10.9		
10	2	-4		0				0		
10	3	-4		0				0		
10	4	-2	ala	0				0		

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Appendix B.3. (page 5 of 9)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	PD cor	WB cor	SW cor	DG cor
10	5	0		0				0		
10	6	0		0				0		
10	7	0		0				0		
10	8	-1		0				0		
10	9	-1		0				0		
10	10	-1		1				1.09		
10	11	-1		1				1.09		
10	12	-1		0				0		
10	13	-1		0				0		
10	14	0		0				0		
10	15	0		0				0		
10	16	0		0				0		
10	17	0		0				0		
10	18	0		0				0		
10	19	0		0				0		
10	20	1		0				0		
10	21	1		0				0		
10	22	2		0				0		
10	23	2		2				2.18		
10	24	1		0				0		
10	25	1		0				0		
10	26	1		0				0		
10	27	1		0				0		
10	28	1		0				0		
10	29	2		0				0		
10	30	2		0				0		
10	31	2		1				1.09		
10	32	2		0				0		
10	33	3		0				0		
10	34	4	elg	0				0		
10	35	6		0				0		
10	36	7	elg	0				0		
10	37	8	elg	1				0.77		
10	38	9	elg	1				0.77		
10	39	10	lbk	3				2.67		
10	40	10	elg	1				0.77		
10	41	11	hir	1				1.19		
10	42	11	hir	2				2.38		
10	43	12	ala	1				0.89		
10	44	12	hir	4				4.76		
10	45	13	hir	30				35.7		
10	46	13	elg	1				0.77		
10	47	13	elg	0				0		
10	48	14		0				0		
10	49	14		0				0		
10	50	15		0				0		
10	51	15	hir	5				5.95		
10	52	15		0				0		
10	53	15		0				0		
10	54	15	hir	1				1.19		
10	55	16		0				0		
10	56	16		0				0		
10	57	16	lbk	0				0		
10	58	16		0				0		
10	59	17		0				0		
10	60	17		0				0		
11	1	-5		0					0	
11	2	-4	lam	1					1.1	
11	3	-3	ala	1					1.1	
11	4	-4		0					0	
11	5	-4	ulv	1					0.79	

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Appendix B.3. (page 6 of 9)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	PD cor	WB cor	SW cor	DG cor
11	6	-5	red	0					0	
11	7	-4	fil	0					0	
11	8	-4		0					0	
11	9	-2	lam	10					11	
11	10	-2	lam	35					38.5	
11	11	-2	lam	5					5.5	
11	12	-1	fil	2					1.58	
11	13	-5	ala	3					3.3	
11	14	-2	lam	15					16.5	
11	15	0	ala	20					22	
11	16	-3	ala	4					4.4	
11	17	-1	lam	15					16.5	
11	18	0	ala	20					22	
11	19	-1	ala	2					2.2	
11	20	0	lam	5					5.5	
11	21	2	lam	30					33	
11	22	3	lam	20					22	
11	23	3	lam	15					16.5	
11	24	3	cym	50					55	
11	25	4	lam	2					2.2	
11	26	6	agm	4					4.4	
11	27	7	am	2					1.58	
11	28	7	hir	1					1.29	
11	29	7	lam	1					1.1	
11	30	7	agm	10					11	
11	31	6	hir	10					12.9	
11	32	5	hir	1					1.29	
11	33	5	lam	1					1.1	
11	34	7	hir	15					19.35	
11	35	4	lam	40					44	
11	36	5	cos	20					22	
11	37	5	lam	2					2.2	
11	38	9	lam	45					49.5	
11	39	10	lam	0					0	
11	40	8	lam	0					0	
11	41	10	lam	0					0	
11	42	11	lam	0					0	
11	43	13	lam	0					0	
11	44	14	lam	0					0	
11	45	17	lam	0					0	
12	1	-7	lbk	0						0
12	2	-6	fuc	0						0
12	3	-6		0						0
12	4	-6	ulb	1						1.59
12	5	-5	fil	4						6.36
12	6	-5		2						3.18
12	7	-5		0						0
12	8	-5	ulv	1						1.59
12	9	-5	lam	5						7.9
12	10	-5		5						7.95
12	11	-4	lam	20						31.6
12	12	-6	lam	3						4.74
12	13	-3		1						1.59
12	14	-3		1						1.59
12	15	-3	ulv	2						3.18
12	16	-2		1						1.59
12	17	-2	lam	2						3.16
12	18	-2	lam	1						1.58
12	19	-4		0						0
12	20	2	hir	0						0
12	21	7		0						0

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Appendix B.3. (page 7 of 9)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	PD cor	WB cor	SW cor	DG cor
12	22	7	hir	1						1.32
12	23	7	lam	0						0
12	24	7	lam	1						1.58
12	25	8	hir	0						0
12	26	8	lam	1						1.58
12	27	8	lam	0						0
12	28	8	lam	0						0
12	29	11		0						0
12	30	7	lam	0						0
12	31	11		0						0
12	32	12	lam	0						0
12	33	12	lam	0						0
13	1	-6		0	0					
13	2	-3		0	0					
13	3	-2	ulv	0	0					
13	4	-1	red	0	0					
13	5	-1	fir	15	13.35					
13	6	0	red	5	4.45					
13	7	0	elg	10	10.6					
13	8	1	elg	1	1.06					
13	9	-1	ala	1	2.08					
13	10	-2	fil	2	1.78					
13	11	-1	ala	4	8.32					
13	12	-2	ala	5	10.4					
13	13	-1	hir	5	5.75					
13	14	5		0	0					
13	15	5	elg	0	0					
13	16	7	elg	0	0					
13	17	8	elg	3	3.18					
13	18	9	lam	2	4.16					
13	19	10	elg	0	0					
13	20	11		0	0					
13	21	12	ala	0	0					
13	22	14		0	0					
14	1	-12		0					0	
14	2	-6		0					0	
14	3	-6		0					0	
14	4	-4		0					0	
14	5	-4	ala	0					0	
14	6	-3		0					0	
14	7	-5	fuc	0					0	
14	8	-4	red	0					0	
14	9	-2	ala	0					0	
14	10	3	lam	0					0	
14	11	7	lam	0					0	
14	12	13	agm	0					0	
14	13	15		0					0	
14	14	16	agm	0					0	
15	1	-10	fuc	0			0			
15	2	-8		0			0			
15	3	-7		2			2.62			
15	4	-6		1			1.31			
15	5	-6		2			2.62			
15	6	-4		0			0			
15	7	-3	ala	0			0			
15	8	-2	ala	2			2.4			
15	9	-1	ulv	1			1.31			
15	10	1	ala	0			0			
15	11	3	lam	0			0			
15	12	3	lam	0			0			
15	13	2	lam	2			2.4			
15	14	0	ala	0			0			

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Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	PD cor	WB cor	SW cor	DG cor
15	15	1	lam	1			1.2			
15	16	1	agm	10			12			
15	17	3	hir	85			102.9			
15	18	4	lam	55			66			
15	19	5	lam	5			6			
15	20	4	lam	0			0			
15	21	8	hir	50			60.5			
15	22	21		0			0			
15	23	24		0			0			
16	1	-9		0					0	
16	2	-7		0					0	
16	3	-5		0					0	
16	4	-4		0					0	
16	5	-3	fil	0					0	
16	6	-2	ala	20					22	
16	7	1	ala	3					3.3	
16	8	3	lam	0					0	
16	9	5		0					0	
16	10	5		0					0	
16	11	6	elg	0					0	
16	12	7	elg	0					0	
16	13	9	lam	0					0	
16	14	9	lam	1					1.1	
16	15	11	lam	0					0	
16	16	12	hir	0					0	
16	17	13	lam	0					0	
16	18	14	lam	0					0	
16	19	16	hir	100					129	
16	20	19	lam	0					0	
16	21	22	lam	0					0	
16	22	24	lam	0					0	
17	1	-12		0				0		
17	2	-8	fuc	75				93		
17	3	-6		2				2.18		
17	4	-4		0				0		
17	5	-4	ulv	0				0		
17	6	-3	ala	10				8.9		
17	7	2	lam	2				1.78		
17	8	8		0				0		
17	9	9		0				0		
17	10	10		0				0		
17	11	11		0				0		
18	1	-10	fuc	0	0					
18	2	-8	fuc	2	3.82					
18	3	-5	fuc	0	0					
18	4	0	ala	3	6.24					
18	5	3	lam	8	16.64					
18	6	5	lam	25	52					
18	7	9	lam	1	2.08					
18	8	12	lam	0	0					
18	9	15	hir	0	0					
18	10	19	lam	0	0					
19	1	-13	fuc	40						61.2
19	2	-8	fuc	0						0
19	3	-5		0						0
19	4	-6	lbk	0						0
19	5	-5	fuc	4						6.12
19	6	-4	fuc	2						3.06
19	7	-3	fuc	1						1.53
19	8	-3	fuc	5						7.65
19	9	-2	fuc	10						15.3

-continued-

Appendix B.3. (page 9 of 9)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	PD cor	WB cor	SW cor	DG cor
19	10	-2	fuc	15						22.95
19	11	-2	fil	1						1.59
19	12	-2	fuc	1						1.53
19	13	-2	fuc	1						1.53
19	14	-2	fil	3						4.77
19	15	-2	fil	3						4.77
19	16	-2	fuc	1						1.53
19	17	-1	lam	4						6.32
19	18	-1	lam	20						31.6
19	19	2	lam	10						15.8
19	20	3	hir	0						0
19	21	4		0						0
19	22	4		0						0
19	23	3	hir	0						0
20	1	-1	elg	0			0			
20	2	-1	elg	0			0			
20	3	0		0			0			
20	4	1	elg	0			0			
20	5	1	elg	0			0			
20	6	2		0			0			
20	7	2	elg	0			0			
20	8	3		0			0			
20	9	3	elg	1			1.29			
20	10	3	elg	15			19.35			
20	11	3	elg	20			25.8			
20	12	3	elg	5			6.45			
20	13	4	elg	2			2.58			
20	14	4	elg	2			2.58			
20	15	4	elg	5			6.45			
20	16	4	elg	3			3.87			
20	17	5	elg	0			0			
20	18	6	elg	1			1.29			
20	19	7	elg	5			6.45			
20	20	8	elg	2			2.58			
20	21	9	elg	0			0			
20	22	9		0			0			
20	23	11		0			0			
20	24	12		0			0			
21	1	-5		0					0	
22	1	-5	fuc	0				0		
22	2	2	hir	0				0		
22	3	3		0				0		
22	4	3		0				0		
22	5	3		0				0		
22	6	3		0				0		
22	7	3		0				0		
22	8	3		0				0		
23	1	-2		0	0					
23	2	-2	ulv	0	0					
23	3	-1	red	0	0					
23	4	-1	red	0	0					
23	5	1	ala	0	0					
23	6	1	ala	0	0					
23	7	5	lam	0	0					
23	8	15	agm	0	0					
23	9	25		0	0					
24	1	-2	ala	0			0			
24	2	9		0			0			
24	3	11		0			0			
24	4	13		0			0			
24	5	18		0			0			
24	6	23	ala	0			0			

Appendix B.4. Seymour Canal spawn deposition survey, 2002.

Survey Dates: May 30 & 31, 2002.							
Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	WB cor
1	1	-3	fuc	100	191		
1	2	0	fil	0	0		
1	3	1	ulv	1	0.89		
1	4	3	lbk	0	0		
1	5	5	fil	0	0		
1	6	5	cym	0	0		
1	7	5	lbk	1	2.08		
1	8	5	lbk	20	41.6		
1	9	3	lbk	30	62.4		
1	10	3	lbk	60	124.8		
1	11	10	lbk	35	72.8		
1	12	21	lbk	1	2.08		
1	13	34	lbk	0	0		
2	1	-3		0	0		
2	2	-2		0	0		
2	3	-2	ulv	1	0.89		
2	4	-1	hir	5	5.75		
2	5	-1	lbk	5	10.4		
2	6	-1	ulv	3	2.67		
2	7	-1	ulv	1	0.89		
2	8	0	ulv	10	8.9		
2	9	0	hir	30	34.5		
2	10	0	hir	15	17.25		
2	11	1	ulv	1	0.89		
2	12	1	lbk	0	0		
2	13	1	lbk	0	0		
2	14	1	lbk	0	0		
2	15	1	ulv	0	0		
2	16	1	lbk	0	0		
2	17	1		0	0		
2	18	0		0	0		
2	19	-1		0	0		
2	20	-1		0	0		
2	21	-1	hir	0	0		
2	22	-1	lbk	0	0		
2	23	-1	hir	0	0		
2	24	0	hir	0	0		
2	25	0	ulv	0	0		
2	26	0	lam	0	0		
3	1	1	fil	0	0		
3	2	2	lam	1	2.08		
3	3	3	lam	15	31.2		
3	4	2	lam	35	72.8		
3	5	4	lam	10	20.8		
3	6	4	lam	20	41.6		
3	7	5	lam	3	6.24		
3	8	7	lam	10	20.8		
3	9	10	lbk	1	2.08		
3	10	11	lbk	0	0		
3	11	12	lbk	0	0		
3	12	13	lbk	0	0		
3	13	14	lbk	0	0		
4	1	-6		0			0
4	2	-2		0			0
4	3	-2	ala	40			35.6
4	4	3	fir	3			3.27
4	5	6	lam	100			89
4	6	10	lam	35			31.15
4	7	20	lbk	0			0
4	8	28	lbk	0			0
continued-							

Appendix B.4. (page 2 of 6)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	WB cor
5	1	-8		0	0		
5	2	-8		0	0		
5	3	-3		0	0		
5	4	-2	ulv	1	0.89		
5	5	1	fir	10	8.9		
5	6	3	fir	150	133.5		
5	7	5	lbk	30	62.4		
5	8	7	lbk	40	83.2		
5	9	10	lbk	25	52		
5	10	13	lbk	10	20.8		
5	11	15	lbk	5	10.4		
5	12	20	lbk	0	0		
5	13	22	lbk	0	0		
5	14	25	lbk	0	0		
5	15	27	lbk	0	0		
6	1	-10	fuc	0			0
6	2	-7	fuc	4			4.96
6	3	-5	fuc	2			2.48
6	4	-4	fuc	0			0
6	5	-3	fuc	40			49.6
6	6	-3	ulv	25			27.25
6	7	-1	ulv	15			16.35
6	8	0	fuc	80			99.2
6	9	0	fuc	20			24.8
6	10	0	ulv	5			5.45
6	11	1	ulv	5			5.45
6	12	1	ulv	2			2.18
6	13	2	ulv	1			1.09
6	14	2	ulv	0			0
6	15	2		0			0
6	16	3	fil	2			2.18
6	17	2	fil	1			1.09
6	18	1	fuc	90			111.6
6	19	2	ulv	1			1.09
6	20	1	fuc	100			124
6	21	0	fil	20			21.8
6	22	0	fil	65			70.85
6	23	4	fuc	5			6.2
6	24	3	fil	30			32.7
6	25	3	fil	85			92.65
6	26	2	fuc	80			99.2
6	27	4	ulv	70			76.3
6	28	3	lbk	150			133.5
6	29	6	lbk	110			97.9
6	30	8	lbk	120			106.8
6	31	13	lbk	35			31.15
6	32	17	lbk	10			8.9
6	33	19	lbk	30			26.7
6	34	21	lbk	2			1.78
6	35	28	lam	0			0
7	1	3	fir	10	8.9		
7	2	3	lbk	15	31.2		
7	3	5	lbk	70	145.6		
7	4	6	lbk	90	187.2		
7	5	4	lbk	30	62.4		
7	6	6	lbk	25	52		
7	7	13	lbk	5	10.4		
7	8	17	lbk	1	2.08		
7	9	25	lbk	0	0		
7	10	33	lbk	0	0		
8	1	-4	lam	2	4.16		
8	2	-4	ulv	1	0.89		
continued-							

Appendix B.4. (page 3 of 6)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	WB cor
8	3	-5		0	0		
8	4	-4	fuc	1	1.91		
8	5	-4	fil	0	0		
8	6	-1	lbk	30	62.4		
8	7	-3	red	0	0		
8	8	-4	fuc	0	0		
8	9	-3	lbk	30	62.4		
8	10	1	hir	50	57.5		
8	11	7		0	0		
8	12	9		0	0		
9	1	-8		0			0
9	2	-7		0			0
9	3	-6		0			0
9	4	-6	ulv	0			0
9	5	-5		0			0
9	6	-5		0			0
9	7	-5		0			0
9	8	-5	fuc	0			0
9	9	-5	fuc	0			0
9	10	-7	ulv	0			0
9	11	-7		0			0
9	12	-6		0			0
9	13	-6		0			0
9	14	-8		0			0
9	15	-8		0			0
9	16	-8		0			0
9	17	-7		0			0
9	18	-6		0			0
9	19	-7		0			0
9	20	-7		0			0
9	21	-8		0			0
9	22	-3		0			0
9	23	0	ala	70			62.3
9	24	5	hir	220			261.8
9	25	7	hir	280			333.2
9	26	9	lam	15			13.35
9	27	9		0			0
9	28	3	lam	5			4.45
9	29	7	lbk	0			0
9	30	10	lbk	0			0
9	31	22	lbk	0			0
10	1	-5		20	17.8		
10	2	-2		30	26.7		
10	3	-1	lbk	40	83.2		
10	4	0	hir	20	23		
10	5	1	lbk	15	31.2		
10	6	2	hir	40	46		
10	7	3	hir	250	287.5		
10	8	4	hir	200	230		
10	9	6	lam	2	4.16		
10	10	9	agm	0	0		
10	11	12	lbk	0	0		
10	12	16		0	0		
11	1	-10		0	0		
11	2	-2	fuc	10	19.1		
11	3	1	fir	80	71.2		
11	4	3	cos	60	124.8		
11	5	6	lbk	25	52		
11	6	10	lbk	0	0		
11	7	11	lbk	0	0		
11	8	12	lbk	0	0		
11	9	13	lbk	0	0		
continued-							

Appendix B.4. (page 4 of 6)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	WB cor
12	1	-1	lbk	10	20.8		
12	2	2	hir	200	230		
12	3	3	hir	160	184		
12	4	7	lam	100	208		
12	5	8	lam	20	41.6		
12	6	9	lam	0	0		
12	7	11	fil	0	0		
12	8	12	lbk	0	0		
12	9	11		0	0		
13	1	-2	fuc	0			0
13	2	1	ala	15			13.35
13	3	4	fir	200			218
13	4	5	fir	300			327
13	5	6	lam	25			22.25
13	6	7	lam	35			31.15
13	7	5	lam	10			8.9
13	8	4	ala	70			62.3
13	9	2	ala	50			44.5
13	10	8	lam	20			17.8
13	11	10	lam	3			2.67
13	12	14	lam	0			0
13	13	15	cym	0			0
13	14	14	lam	0			0
13	15	13	lam	0			0
13	16	18	lam	0			0
14	1	-1		0	0		
14	2	-1	fuc	0	0		
14	3	1	lbk	20	41.6		
14	4	3	fir	200	178		
14	5	2	fir	200	178		
14	6	3	fir	600	534		
14	7	6	fir	450	400.5		
14	8	6	lam	40	83.2		
14	9	9	lam	20	41.6		
14	10	14	lam	0	0		
14	11	16	lam	0	0		
14	12	16	lam	0	0		
15	1	-1	fuc	50	95.5		
15	2	1	fil	50	44.5		
15	3	3	red	40	35.6		
15	4	3	red	100	89		
15	5	4	fir	45	40.05		
15	6	4	fir	20	17.8		
15	7	5	cym	60	124.8		
15	8	7	cym	150	312		
15	9	11	cym	100	208		
15	10	12	lbk	20	41.6		
15	11	13	lbk	50	104		
15	12	16	lbk	5	10.4		
15	13	19	lbk	10	20.8		
15	14	22	lbk	20	41.6		
15	15	25	lbk	0	0		
15	16	27	lbk	0	0		
15	17	29	lbk	0	0		
16	1	-11	fuc	2		3.4	
16	2	-10	fir	12		13.32	
16	3	-10	fuc	1		1.7	
16	4	-9		2		2.22	
16	5	-8		0		0	
16	6	-7	fuc	5		8.5	
16	7	-6	fuc	5		8.5	
continued-							

Appendix B.4. (page 5 of 6)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	WB cor
16	8	-5		2		2.22	
16	9	-5		0		0	
16	10	-5	fuc	0		0	
16	11	-5		2		2.22	
16	12	-3		0		0	
16	13	-1		0		0	
16	14	1		0		0	
16	15	1	ala	3		3.9	
16	16	2	ala	110		143	
16	17	4		2		2.22	
16	18	3		0		0	
16	19	4		0		0	
16	20	5		0		0	
16	21	6	fil	0		0	
16	22	7	fil	0		0	
16	23	8	lam	0		0	
16	24	9	lam	0		0	
17	1	-1	fuc	10	19.1		
17	2	0	fuc	110	210.1		
17	3	1	lam	150	312		
17	4	3	fir	5	4.45		
17	5	5	hir	500	575		
17	6	7	hir	40	46		
17	7	11		0	0		
17	8	20		0	0		
18	1	-1	fuc	0	0		
18	2	0	fuc	15	28.65		
18	3	1	fuc	50	95.5		
18	4	3	ala	150	312		
18	5	3	ala	180	374.4		
18	6	6	hir	300	345		
18	7	9	hir	250	287.5		
18	8	18	lam	0	0		
18	9	26	lam	0	0		
19	1	2	fir	70			76.3
19	2	3	lbk	70			62.3
19	3	5	lam	60			53.4
19	4	7	lam	75			66.75
19	5	11	lbk	20			17.8
19	6	18	lbk	0			0
19	7	23		0			0
20	1	0	ala	100	208		
20	2	1	ala	120	249.6		
20	3	2	ala	15	31.2		
20	4	3	lam	50	104		
20	5	6	hir	450	517.5		
20	6	9	lam	20	41.6		
20	7	12	agm	70	145.6		
20	8	15	agm	10	20.8		
20	9	23	agm	0	0		
21	1	1	ala	20		26	
21	2	2	ala	25		32.5	
21	3	6	hir	400		472	
21	4	11	agm	30		39	
21	5	21	lam	5		6.5	
21	6	36		30		33.3	
21	7	50		4		4.44	
22	1	0		0	0		
22	2	8	cym	80	166.4		
22	3	15	cym	2	4.16		
22	4	22	lbk	0	0		
continued-							

Appendix B.4. (page 6 of 6)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	WB cor
22	5	32	lbk	0	0		
23	1	1	ala	20		26	
23	2	11	fil	500		555	
23	3	14	fil	100		111	
23	4	21	lam	50		65	
23	5	33	fil	10		11.1	
23	6	37	fil	0		0	
24	1	2		0	0		
24	2	4		0	0		
24	3	4	cym	5	10.4		
24	4	5	cym	8	16.64		
24	5	7	cym	2	4.16		
24	6	8	fil	5	4.45		
24	7	9	lbk	80	166.4		
24	8	10	fir	40	35.6		
24	9	11	lbk	30	62.4		
24	10	12	red	1	0.89		
24	11	13	red	2	1.78		
24	12	14	lbk	10	20.8		
24	13	16	lbk	1	2.08		
24	14	17		0	0		
24	15	19		0	0		
24	16	21	fir	120	106.8		
24	17	21	fir	10	8.9		
24	18	23	fir	5	4.45		
24	19	23	fir	80	71.2		
24	20	24	lbk	0	0		
24	21	25	lbk	4	8.32		
24	22	26	lbk	1	2.08		
24	23	27	lbk	5	10.4		
24	24	28	lbk	3	6.24		
24	25	29	lbk	3	6.24		
24	26	29	lbk	0	0		
24	27	30	lbk	0	0		
24	28	32		0	0		
24	29	34		0	0		
25	1	2		0			0
25	2	9		0			0
25	3	10	fil	0			0
25	4	11	lbk	0			0
25	5	11	lbk	0			0
25	6	11	lbk	0			0
25	7	13	lbk	0			0
25	8	15	lam	0			0
25	9	15	lam	0			0
25	10	15	lbk	0			0
25	11	17	lam	0			0
25	12	19	lam	0			0
25	13	21	lam	0			0
25	14	23	lam	0			0
25	15	23	lam	0			0
25	16	25	lam	0			0
25	17	27	lam	0			0
25	18	27	lam	0			0
25	19	30	ala	10			8.9
25	20	30		0			0
25	21	30	fil	0			0

Appendix B.5. Tenakee Inlet spawn deposition survey, 2002.

Survey Dates: May 3, 4, & 6, 2002										
Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	PD cor	WB cor	SW cor	DG cor
1	1	-8		0		0				
1	2	-5		0		0				
1	3	2	lam	150		195				
1	4	4	lam	40		52				
1	5	5	lam	120		156				
1	6	6		0		0				
1	7	8	lam	2		2.6				
1	8	8	lam	2		2.6				
1	9	9	lam	0		0				
1	10	9	lam	1		1.3				
1	11	10	lam	0		0				
1	12	11		0		0				
1	13	12	lam	0		0				
1	14	13		0		0				
2	1	-9		0						0
2	2	1	ala	15						23.7
2	3	13		0						0
2	4	15	agm	75						118.5
2	5	16	lam	40						63.2
2	6	16	fuc	80						122.4
2	7	17	fuc	100						153
2	8	18	fuc	10						15.3
2	9	18	lam	4						6.32
2	10	18		3						4.77
2	11	20		0						0
2	12	20	lam	0						0
2	13	21	hir	1						1.32
2	14	21	agm	6						9.48
2	15	22	lam	3						4.74
2	16	24	lam	1						1.58
2	17	26	lam	1						1.58
2	18	27		0						0
2	19	28	lam	10						15.8
2	20	29	lam	1						1.58
2	21	31	hir	3						3.96
2	22	33		0						0
2	23	34	lam	0						0
2	24	35	lam	0						0
3	1	-8	lbk	0	0					
3	2	-7	lbk	0	0					
3	3	-2	lbk	0	0					
3	4	-1	fil	0	0					
3	5	-1		0	0					
3	6	0	fil	0	0					
3	7	1	fil	3	2.67					
3	8	1	ulv	0	0					
3	9	0	lam	0	0					
3	10	1	fil	0	0					
3	11	-2		0	0					
3	12	-2	fil	0	0					
3	13	-2	fil	0	0					
3	14	0	lam	3	6.24					
3	15	0	lam	4	8.32					
3	16	-1	lam	1	2.08					
3	17	2	lam	0	0					
3	18	2	lam	1	2.08					
3	19	2	lam	15	31.2					
3	20	8	lam	30	62.4					
3	21	15	lam	5	10.4					
3	22	19	lam	0	0					

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Appendix B.5. (page 2 of 7)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	PD cor	WB cor	SW cor	DG cor
3	23	20	lam	1	2.08					
3	24	22	lam	0	0					
3	25	26	lam	0	0					
3	26	30	lam	0	0					
4	1	-11		0			0			
4	2	2	ala	5			6			
4	3	13	ala	0			0			
4	4	18	lbk	15			18			
4	5	18	hir	10			12.1			
4	6	19	lbk	1			1.2			
4	7	21	lbk	10			12			
4	8	22		25			32.75			
4	9	23		45			58.95			
4	10	23	lbk	10			12			
4	11	24		15			19.65			
4	12	24		30			39.3			
4	13	24		50			65.5			
4	14	25		60			78.6			
4	15	25		70			91.7			
4	16	26	lbk	80			96			
4	17	27	hir	240			290.4			
4	18	27	lbk	45			54			
4	19	29		20			26.2			
4	20	30		5			6.55			
4	21	31	lbk	35			42			
4	22	31		1			1.31			
4	23	33		1			1.31			
4	24	34		3			3.93			
4	25	35		140			183.4			
4	26	35		120			157.2			
4	27	37		170			222.7			
4	28	36		10			13.1			
4	29	36		2			2.62			
4	30	37		1			1.31			
4	31	37		0			0			
4	32	37		0			0			
4	33	37		1			1.31			
4	34	35	lbk	1			1.2			
4	35	34		240			314.4			
4	36	34		0			0			
5	1	-4	fuc	0		0				
5	2	-2	ulv	0		0				
5	3	0	ulv	0		0				
5	4	0	ulv	0		0				
5	5	1	lam	0		0				
5	6	1		0		0				
5	7	1		0		0				
5	8	1		0		0				
5	9	2		0		0				
5	10	2		0		0				
5	11	3		0		0				
5	12	4		0		0				
5	13	5		0		0				
5	14	6		0		0				
5	15	6	lam	1		1.3				
5	16	9	lam	2		2.6				
5	17	10	lam	0		0				
5	18	10	lam	0		0				
5	19	10	lam	0		0				
5	20	12	lam	0		0				
5	21	14	lam	0		0				

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Appendix B.5. (page 3 of 7)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	PD cor	WB cor	SW cor	DG cor
5	22	16	lam	0		0				
6	1	-6		0				0		
6	2	-5		0				0		
6	3	-3		0				0		
6	4	0	ulv	5				5.45		
6	5	2	lam	10				8.9		
6	6	4	lam	25				22.25		
6	7	5	lam	7				6.23		
6	8	6	hir	25				29.75		
6	9	7	hir	40				47.6		
6	10	8	lam	0				0		
6	11	9	lam	7				6.23		
6	12	10	agm	55				48.95		
6	13	11	lam	5				4.45		
6	14	12		0				0		
6	15	14	lam	3				2.67		
6	16	14	lam	1				0.89		
6	17	15	lam	0				0		
6	18	16		0				0		
6	19	17	lam	0				0		
6	20	18		0				0		
6	21	18		0				0		
7	1	-10	fuc	0					0	
7	2	1	ulv	0					0	
7	3	4	ulv	0					0	
7	4	5	ulv	0					0	
7	5	8	agm	35					38.5	
7	6	9	lam	0					0	
7	7	13		0					0	
7	8	17		0					0	
7	9	21	agm	5					5.5	
7	10	26	lam	0					0	
7	11	30	lam	0					0	
7	12	34	lam	2					2.2	
7	13	37	lam	0					0	
8	1	-20		0				0		
8	2	-18		5				5.45		
8	3	-15		2				2.18		
8	4	-13		0				0		
8	5	-10		0				0		
8	6	-8		0				0		
8	7	-6		0		0				
8	8	-5		0		0				
8	9	-3		0		0				
8	10	-1		0		0				
8	11	0	lam	0		0				
8	12	1	lam	1		1.3				
8	13	2	red	0		0				
8	14	3	ulv	0		0				
8	15	3	ulv	0		0				
8	16	4	fil	1		1.11				
8	17	5	lam	0		0				
8	18	4	red	0		0				
8	19	5	lam	0		0				
8	20	5	fir	0		0				
8	21	5	lam	0		0				
8	22	6	fil	0		0				
8	23	7	lam	0		0				
8	24	7	lam	0		0				
8	25	8	lam	0		0				
9	1	-5		0				0		
9	2	-4		0				0		

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Appendix B.5. (page 4 of 7)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	PD cor	WB cor	SW cor	DG cor
9	3	-4		0				0		
9	4	-3	fil	0				0		
9	5	-3	fil	0				0		
9	6	-2	fil	0				0		
9	7	-1	fil	0				0		
9	8	0	red	0				0		
9	9	0	lam	0				0		
9	10	1	lam	2				1.78		
9	11	1	lam	1				0.89		
9	12	3	lam	5				4.45		
9	13	4	lam	1				0.89		
9	14	5		0				0		
9	15	5	red	1				1.09		
9	16	7	cym	0				0		
9	17	8	lam	0				0		
9	18	10	lbk	0				0		
9	19	14	lam	0				0		
10	1	-8	fuc	0				0		
10	2	-6	fuc	35				43.4		
10	3	-5		0				0		
10	4	-4	fuc	0				0		
10	5	-4	ulv	0				0		
10	6	-4		0				0		
10	7	-2	ala	5				4.45		
10	8	-1	ala	20				17.8		
10	9	0	ulv	30				32.7		
10	10	1	lam	10				8.9		
10	11	2	lam	20				17.8		
10	12	3	lam	45				40.05		
10	13	4	lam	30				26.7		
10	14	5	lam	30				26.7		
10	15	6	lam	45				40.05		
10	16	7	lam	3				2.67		
10	17	8	lam	2				1.78		
10	18	9	hir	120				142.8		
10	19	10	lam	0				0		
10	20	11		0				0		
10	21	12		0				0		
10	22	13		0				0		
10	23	14		0				0		
10	24	15	lam	0				0		
10	25	16	lam	0				0		
10	26	17	lam	0				0		
11	1	-10		0						0
11	2	-9	lam	0						0
11	3	-8		0						0
11	4	-5	ala	40						63.2
11	5	-3	fir	0						0
11	6	-2	hir	1						1.32
11	7	-2		0						0
11	8	-1	lam	0						0
11	9	-1		0						0
11	10	0		0						0
11	11	0	ulv	0						0
11	12	0	ala	0						0
11	13	1	red	0						0
11	14	1	ala	0						0
11	15	1	ulv	0						0
11	16	1	ala	0						0
11	17	1	ala	0						0
11	18	1	lam	0						0
11	19	2	lam	0						0

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Appendix B.5. (page 5 of 7)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	PD cor	WB cor	SW cor	DG cor
11	20	4	hir	0						0
11	21	5	lam	0						0
11	22	5	lam	0						0
11	23	7	lam	0						0
11	24	9	lam	0						0
11	25	11	lam	0						0
11	26	12	lam	0						0
11	27	13	lam	0						0
11	28	14	lam	0						0
11	29	15	lam	0						0
11	30	15	agm	0						0
11	31	17		0						0
11	32	19		0						0
11	33	20	lam	0						0
11	34	21		0						0
11	35	22	lam	0						0
12	1	-20		0				0		
12	2	-15		0				0		
12	3	-12		0				0		
12	4	-10		1				1.09		
12	5	-8		0		0				
12	6	-6		0		0				
12	7	-3	fuc	0		0				
12	8	-1		0		0				
12	9	-5	fuc	0		0				
12	10	-4	fil	0		0				
12	11	4		0		0				
12	12	5	lbk	2		2.6				
12	13	5	lbk	300		390				
12	14	5	lbk	30		39				
12	15	4	lbk	10		13				
12	16	7	hir	20		23.6				
12	17	8	lbk	10		13				
12	18	8	lbk	10		13				
12	19	9	lbk	0		0				
12	20	10	hir	0		0				
12	21	11	lbk	0		0				
12	22	13	lbk	0		0				
13	1	-10		0	0					
13	2	-3	fuc	15	28.65					
13	3	-1	fuc	3	5.73					
13	4	1	lam	1	2.08					
13	5	3	lam	10	20.8					
13	6	3	lam	0	0					
13	7	5		0	0					
13	8	6		0	0					
13	9	6		0	0					
13	10	7		0	0					
14	1	-10		0				0		
14	2	0		0				0		
14	3	2	lam	0				0		
14	4	4	lam	0				0		
14	5	4	lam	0				0		
14	6	5		0				0		
14	7	5		0				0		
14	8	6		0				0		
14	9	7	fil	0				0		
14	10	7		0				0		
14	11	8	fil	0				0		
14	12	9	lam	0				0		
14	13	9	lam	0				0		

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Appendix B.5. (page 6 of 7)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	PD cor	WB cor	SW cor	DG cor
14	14	9	lam	0				0		
14	15	10		0				0		
14	16	10	fil	0				0		
14	17	11	lam	0				0		
14	18	13	lam	0				0		
15	1	-9		0						0
15	2	-6	fuc	0						0
15	3	-5	fil	0						0
15	4	-4	lam	0						0
15	5	10	lam	0						0
15	6	13	lam	0						0
15	7	17		0						0
15	8	20	lam	0						0
15	9	31		0						0
16	1	-17		0				0		
16	2	-15		240				261.6		
16	3	-13	fuc	60				74.4		
16	4	-11	fuc	30				37.2		
16	5	-8	fuc	2				2.48		
16	6	-7		15				16.35		
16	7	-4	fuc	20		34				
16	8	-3	hir	15		17.7				
16	9	-2	hir	90		106.2				
16	10	-1	hir	350		413				
16	11	1	lam	10		13				
16	12	3		0		0				
16	13	7	lam	4		5.2				
16	14	13		0		0				
16	15	16		0		0				
17	1	-3		0	0					
17	2	-1	fir	4	3.56					
17	3	0	ulv	20	17.8					
17	4	5	lam	10	20.8					
17	5	11	lam	60	124.8					
17	6	19	lam	5	10.4					
17	7	22	lam	5	10.4					
17	8	25	lam	60	124.8					
17	9	28	lam	1	2.08					
17	10	30		0	0					
17	11	33		0	0					
17	12	35		0	0					
18	1	-3		0						0
18	2	0	fir	3						4.77
18	3	2	ala	5						7.9
18	4	3	lam	40						63.2
18	5	6		0						0
18	6	10	lam	0						0
18	7	16		0						0
18	8	19	fil	1						1.59
18	9	23		0						0
18	10	25	lam	5						7.9
18	11	27		0						0
18	12	29	lam	1						1.58
18	13	30	lam	1						1.58
18	14	30		0						0
18	15	30		0						0
18	16	26	lam	2						3.16
18	17	24	lam	1						1.58
18	18	27		0						0
18	19	29		0						0
18	20	30		0						0

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Appendix B.5. (page 7 of 7)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	PD cor	WB cor	SW cor	DG cor
18	21	31		0						0
19	1	-5		0	0					
19	2	-4		0	0					
19	3	-3		0	0					
19	4	-2		0	0					
19	5	0		0	0					
19	6	2		0	0					
19	7	4		0	0					
19	8	10		0	0					
19	9	20		0	0					
19	10	30		0	0					
20	1	-9	fuc	0			0			
20	2	-4	ulv	3			3.93			
20	3	1		0			0			
20	4	4	lam	55			66			
20	5	7	lam	60			72			
20	6	17		0			0			
20	7	22		0			0			
20	8	24		0			0			
21	1	-2		0					0	
21	2	0		0					0	
21	3	2	fuc	0					0	
21	4	3	elg	1					1.26	
21	5	3	elg	10					12.6	
21	6	4	elg	10					12.6	
21	7	5	elg	4					5.04	
21	8	5	elg	30					37.8	
21	9	6	elg	25					31.5	
21	10	7	elg	5					6.3	
21	11	8	elg	5					6.3	
21	12	9	elg	15					18.9	
21	13	10	elg	2					2.52	
21	14	12	elg	0					0	
21	15	13	elg	0					0	
21	16	17		0					0	
22	1	3		0						0
22	2	3	elg	1						1.17
22	3	4		0						0
22	4	7		0						0
22	5	9		0						0
22	6	15		0						0
22	7	16		0						0
22	8	18		0						0

Appendix B.6. Sitka Sound area spawn deposition survey, 2002.

Survey Dates: April 8-11, 2002.								
Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	BL cor	DG cor	MP cor	KH cor
1	1	-3	ulv	0		0		
1	2	2	lbk	0		0		
1	3	6	lbk	0		0		
1	4	10	lbk	0		0		
1	5	11	lbk	0		0		
1	6	11	mac	0		0		
1	7	12		0		0		
1	8	13	lbk	0		0		
1	9	12		0		0		
1	10	12		0		0		
1	11	12		0		0		
2	1	-5		0		0		
2	2	8	lbk	0		0		
2	3	15	lbk	0		0		
2	4	30		0		0		
3	1	-8		0				0
3	2	8	lbk	3				3.9
3	3	16	lbk	15				19.5
3	4	19	lbk	35				45.5
3	5	24	lbk	45				58.5
3	6	30	lbk	8				10.4
3	7	39	lbk	25				32.5
3	8	46		0				0
3	9	47		5				5.55
3	10	56		1				1.11
3	11	64		0				0
3	12	66		0				0
4	1	-8	fuc	1				1.7
4	2	-5	hir	20				23.6
4	3	-1	fuc	45				76.5
4	4	4	cor	120				133.2
4	5	10	lbk	120				156
4	6	13	lbk	100				130
4	7	16	lbk	70				91
4	8	17	lbk	90				117
4	9	19	lbk	60				78
4	10	17		1				1.11
4	11	24	lbk	5				6.5
4	12	28	red	0				0
4	13	31	lbk	4				5.2
4	14	35	lbk	1				1.3
4	15	38	lbk	1				1.3
4	16	43	lbk	2				2.6
4	17	45		0				0
5	1	-9	fuc	25				42.5
5	2	-3	fuc	40				68
5	3	2	lbk	15				19.5
5	4	5	lbk	80				104
5	5	6	lbk	65				84.5
5	6	7	lbk	90				117
5	7	10	lbk	65				84.5
5	8	14	lbk	15				19.5
5	9	16	lbk	15				19.5
5	10	17	lbk	1				1.3
5	11	18	lbk	15				19.5
5	12	20	red	0				0
5	13	22	red	4				4.44
5	14	23	lbk	8				10.4
5	15	24	lbk	25				32.5
5	16	26	lbk	5				6.5

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Appendix B.6. (page 2 of 13)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	BL cor	DG cor	MP cor	KH cor
5	17	26	lbk	5				6.5
5	18	27	red	0				0
5	19	28	lbk	10				13
5	20	27	lbk	5				6.5
5	21	29		0				0
5	22	28	lbk	65				84.5
5	23	29	cor	15				16.65
5	24	29	lbk	65				84.5
5	25	30	red	30				33.3
5	26	30	lbk	35				45.5
5	27	33	lbk	10				13
5	28	33	lbk	80				104
5	29	33	lbk	50				65
5	30	32	lbk	35				45.5
5	31	38	lbk	10				13
5	32	44	lbk	2				2.6
5	33	46		0				0
6	1	-4	fuc	260			496.6	
6	2	5	ala	120			249.6	
6	3	14	lbk	60			124.8	
6	4	16	lbk	35			72.8	
6	5	18		0			0	
6	6	21	red	10			8.9	
6	7	23	red	1			0.89	
6	8	25		0			0	
6	9	27		0			0	
7	1	-5	fuc	200	352			
7	2	-1	fir	120	138			
7	3	7	lam	220	321.2			
7	4	13	lam	90	131.4			
7	5	18	lam	110	160.6			
7	6	26	lam	10	14.6			
7	7	31		0	0			
7	8	37		0	0			
7	9	43	lam	5	7.3			
7	10	48		0	0			
8	1	-4	fuc	180	316.8			
8	2	-2		15	17.25			
8	3	0	fuc	160	281.6			
8	4	5	lbk	240	350.4			
8	5	8	lbk	20	29.2			
8	6	11	red	0	0			
8	7	14	lbk	0	0			
8	8	17	lbk	0	0			
9	1	-6	fuc	0	0			
9	2	3	lbk	0	0			
9	3	8	cos	0	0			
9	4	15	cos	1	1.46			
9	5	16	cos	1	1.46			
9	6	17	cos	1	1.46			
9	7	17	cos	5	7.3			
9	8	15	cos	5	7.3			
9	9	16	red	100	115			
9	10	12	mac	200	230			
9	11	13	red	50	57.5			
9	12	12	cos	10	14.6			
9	13	11	red	15	17.25			
9	14	11	cos	2	2.92			
9	15	10	red	10	11.5			
9	16	8	lam	20	29.2			
9	17	-1	red	0	0			
9	18	-3	fuc	0	0			

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Appendix B.6. (page 3 of 13)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	BL cor	DG cor	MP cor	KH cor
9	19	1	lam	0	0			
9	20	5	lam	30	43.8			
9	21	12	lam	0	0			
9	22	17	lam	0	0			
9	23	17	lam	0	0			
10	1	-6	fuc	20	35.2			
10	2	-3	fuc	5	8.8			
10	3	-1		0	0			
10	4	2		0	0			
10	5	2	hir	250	325			
10	6	3	elg	200	236			
10	7	4	fir	120	138			
10	8	5	lam	20	29.2			
10	9	5	hir	300	390			
10	10	6	lam	20	29.2			
10	11	7	lam	60	87.6			
10	12	8	lam	2	2.92			
10	13	9	hir	30	39			
10	14	10	red	80	92			
10	15	11	lam	40	58.4			
10	16	12	lam	7	10.22			
10	17	13	lam	5	7.3			
10	18	13	lam	3	4.38			
10	19	15	red	2	2.3			
10	20	16	red	2	2.3			
10	21	16	lam	0	0			
10	22	17	lam	1	1.46			
10	23	18	lam	1	1.46			
10	24	19	lam	0	0			
10	25	20	lam	0	0			
10	26	21	lam	0	0			
10	27	23		0	0			
10	28	24		0	0			
11	1	-7	fuc	5			9.55	
11	2	4	lbk	5			10.4	
11	3	7	lbk	60			124.8	
11	4	17	red	80			71.2	
11	5	21	red	1			0.89	
11	6	23	lbk	15			31.2	
11	7	24	lbk	8			16.64	
11	8	26	lbk	5			10.4	
11	9	27	lbk	10			20.8	
11	10	28	red	1			0.89	
11	11	28	red	15			13.35	
11	12	28		0			0	
11	13	29	lbk	1			2.08	
11	14	29	lbk	2			4.16	
11	15	23	lbk	20			41.6	
11	16	20	lbk	30			62.4	
11	17	18	lbk	25			52	
11	18	19	lbk	5			10.4	
11	19	16	lbk	3			6.24	
11	20	16	lbk	5			10.4	
11	21	25		0			0	
11	22	26	lbk	0			0	
11	23	27	lbk	0			0	
11	24	27	lbk	5			10.4	
11	25	27	lbk	5			10.4	
11	26	28	lbk	15			31.2	
12	1	-6	fuc	4		6.12		
12	2	-4	fuc	110		168.3		
12	3	2	fir	90		143.1		

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Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	BL cor	DG cor	MP cor	KH cor
12	4	2	fir	100		159		
12	5	2	hir	100		132		
12	6	3	fir	120		190.8		
12	7	3	hir	140		184.8		
12	8	4	hir	340		448.8		
12	9	5	hir	60		79.2		
12	10	6	cor	45		71.55		
12	11	7	lbk	60		94.8		
12	12	7	lbk	35		55.3		
12	13	9	lbk	25		39.5		
12	14	10	lbk	15		23.7		
12	15	11	cor	1		1.59		
12	16	15	cod	1		1.59		
12	17	16	lbk	0		0		
12	18	17	lbk	0		0		
12	19	18	lbk	0		0		
12	20	20	lbk	0		0		
13	1	-4	fuc	0				0
13	2	2	red	40				44.4
13	3	9	red	10				11.1
13	4	16	cor	0				0
13	5	20	lbk	0				0
13	6	21	lbk	0				0
13	7	26	lbk	0				0
14	1	-8		0	0			
14	2	4	lbk	40	58.4			
14	3	14	lbk	5	7.3			
14	4	17	lbk	0	0			
14	5	20	lbk	0	0			
14	6	23	lbk	0	0			
14	7	26	lbk	0	0			
15	1	-7	fuc	0	0			
15	2	3	ala	0	0			
15	3	7	lam	0	0			
15	4	14	lam	0	0			
15	5	17	lam	0	0			
15	6	21		0	0			
15	7	29		0	0			
15	8	33	red	0	0			
16	1	-8		0	0			
16	2	4	lam	50	73			
16	3	4	lam	60	87.6			
16	4	12	lam	0	0			
16	5	14	lam	0	0			
16	6	16	lam	0	0			
17	1	-8	fuc	70				119
17	2	0	fir	80				88.8
17	3	12		90				99.9
17	4	15	lbk	0				0
17	5	18		0				0
17	6	21	lbk	0				0
17	7	25	lbk	1				1.3
17	8	29		0				0
18	1	-7	fuc	0			0	
18	2	-1	cos	0			0	
18	3	11	lam	0			0	
18	4	17	mac	180			160.2	
18	5	22	mac	1000			890	
18	6	26	mac	750			667.5	
18	7	30		0			0	
19	1	-8	fuc	10	17.6			
19	2	-1	fuc	3	5.28			

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Appendix B.6. (page 5 of 13)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	BL cor	DG cor	MP cor	KH cor
19	3	1	elg	30	35.4			
19	4	2	elg	120	141.6			
19	5	3	lbk	60	87.6			
19	6	4	lbk	40	58.4			
19	7	5	lbk	60	87.6			
19	8	5	lbk	20	29.2			
19	9	5	lbk	40	58.4			
19	10	8	lbk	80	116.8			
19	11	8	lbk	80	116.8			
19	12	9	lbk	100	146			
19	13	10	lbk	50	73			
19	14	11	lbk	2	2.92			
19	15	12	lbk	70	102.2			
19	16	13	lbk	5	7.3			
19	17	15	lbk	20	29.2			
19	18	17	lbk	3	4.38			
19	19	18	lbk	1	1.46			
19	20	21	lbk	1	1.46			
19	21	23	lbk	0	0			
19	22	25		0	0			
20	1	-4	fir	40	46			
20	2	-1	fir	60	69			
20	3	0	lam	30	43.8			
20	4	1	lam	50	73			
20	5	2	elg	250	295			
20	6	3	lam	120	175.2			
20	7	4	lam	60	87.6			
20	8	4	lam	150	219			
20	9	5	lam	30	43.8			
20	10	5	lam	120	175.2			
20	11	6	lam	50	73			
20	12	8	lam	50	73			
20	13	8	lam	60	87.6			
20	14	8	lam	70	102.2			
21	1	-7	fuc	3		4.59		
21	2	-7		0		0		
21	3	-7		0		0		
21	4	-7		15		23.85		
21	5	-7	fuc	15		22.95		
21	6	-7	fuc	15		22.95		
21	7	-7	fuc	1		1.53		
21	8	-7	fuc	15		22.95		
21	9	-7	fuc	2		3.06		
21	10	-7	fuc	12		18.36		
21	11	-7	fuc	20		30.6		
21	12	-7	fuc	2		3.06		
21	13	-7	fuc	7		10.71		
21	14	-7		0		0		
21	15	-6	fuc	5		7.65		
21	16	-6		1		1.59		
21	17	-5		1		1.59		
21	18	-5	fuc	10		15.3		
21	19	-4	fuc	8		12.24		
21	20	-4	fuc	10		15.3		
21	21	-3	fuc	10		15.3		
21	22	-3	fuc	30		45.9		
21	23	-3	fuc	1		1.53		
21	24	-3	fuc	0		0		
21	25	-3	fuc	1		1.53		
21	26	-3	fuc	0		0		
21	27	-3	fuc	3		4.59		
21	28	-3	fuc	30		45.9		

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Appendix B.6. (page 6 of 13)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	BL cor	DG cor	MP cor	KH cor
21	30	-3		0		0		
21	31	-3	fuc	1		1.53		
21	32	-3	fuc	0		0		
21	33	-3	fuc	3		4.59		
21	34	-1	fuc	35		53.55		
21	35	0	fuc	8		12.24		
21	36	0	ulv	2		3.18		
21	37	1	hir	10		13.2		
21	38	1	hir	30		39.6		
21	39	2	hir	60		79.2		
21	40	3	hir	4		5.28		
21	41	3	hir	8		10.56		
21	42	3	red	4		6.36		
21	43	3	hir	2		2.64		
21	44	4	lbk	13		20.54		
21	45	4	elg	110		128.7		
21	46	6	elg	45		52.65		
21	47	7	lbk	2		3.16		
21	48	7	red	1		1.59		
21	49	8	lbk	20		31.6		
21	50	9	lbk	25		39.5		
21	51	11	lbk	1		1.58		
21	52	14	lbk	0		0		
21	53	16	lbk	0		0		
21	54	20	lbk	0		0		
22	1	-3	red	3				3.33
22	2	0	elg	170				452.2
22	3	4	cod	120				133.2
22	4	6	mac	150				166.5
22	5	12	red	45				49.95
22	6	17	lbk	10				13
22	7	20	red	0				0
22	8	22	red	1				1.11
22	9	23	mac	2				2.22
22	10	24	lbk	50				65
22	11	24	lbk	0				0
22	12	24	lbk	0				0
22	13	24	lbk	0				0
22	14	23	lbk	0				0
22	15	21	lbk	0				0
22	16	15	lbk	0				0
22	17	17	lbk	0				0
22	18	22	mac	20				22.2
22	19	23	lbk	0				0
22	20	22	mac	0				0
22	21	21	mac	0				0
22	22	21	lbk	0				0
22	23	18	lbk	0				0
22	24	22	lbk	0				0
22	25	22	lbk	0				0
22	26	20	lbk	0				0
22	27	18	mac	0				0
23	1	-7	fuc	20				34
23	2	2	hir	100				118
23	3	4	lbk	90				117
23	4	6	fir	25				27.75
23	5	7	lbk	120				156
23	6	8	fir	100				111
23	7	11	lbk	20				26
23	8	13	hir	175				206.5
23	9	13	lbk	25				32.5
23	10	14	hir	450				531

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Appendix B.6. (page 7 of 13)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	BL cor	DG cor	MP cor	KH cor
23	11	15	lbk	45				58.5
23	12	16	lam	120				156
23	13	17	lbk	10				13
23	14	17	lbk	10				13
23	15	18	lbk	7				9.1
23	16	19	red	0				0
23	17	21	red	0				0
23	18	21	red	0				0
24	1	-9		0			0	
24	2	-2	lbk	0			0	
24	3	1	lbk	0			0	
24	4	3	lbk	1			2.08	
24	5	6	lbk	30			62.4	
24	6	8	lbk	0			0	
24	7	11		0			0	
24	8	22		0			0	
24	9	14		3			2.67	
24	10	15		0			0	
24	11	16		0			0	
24	12	15		0			0	
25	1	-4		0			0	
25	2	-2		0			0	
25	3	-1		0			0	
25	4	-1	elg	60			63.6	
25	5	0		0			0	
25	6	0		0			0	
25	7	1	fir	1			0.89	
25	8	2		0			0	
25	9	2		0			0	
25	10	4		0			0	
25	11	5		0			0	
25	12	6		0			0	
25	13	11		0			0	
25	14	11		0			0	
25	15	11		0			0	
25	16	11	lbk	0			0	
25	17	13	red	0			0	
25	18	14	lbk	3			6.24	
25	19	16	red	0			0	
25	20	17		0			0	
25	21	19		0			0	
26	1	0	cod	0				0
26	2	2	lbk	10				13
26	3	10	red	70				77.7
26	4	15	lam	60				78
26	5	15	lam	20				26
26	6	15	red	40				44.4
26	7	16	lbk	45				58.5
26	8	17	red	90				99.9
26	9	17	lbk	55				71.5
26	10	18	fir	100				111
26	11	19	red	90				99.9
26	12	19	elg	110				292.6
26	13	21	red	15				16.65
26	14	21	red	40				44.4
26	15	22	lbk	25				32.5
26	16	21	lbk	90				117
26	17	22	lbk	20				26
26	18	22	red	2				2.22
26	19	22	lbk	75				97.5
26	20	23	cod	120				133.2

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Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	BL cor	DG cor	MP cor	KH cor
26	21	23	lbk	75				97.5
26	22	22	red	15				16.65
27	1	-6		0			0	
27	2	2	lbk	400			832	
27	3	5	lbk	120			249.6	
27	4	6	hir	500			575	
27	5	7	hir	50			57.5	
27	6	7	hir	60			69	
27	7	8	hir	60			69	
27	8	8	hir	200			230	
27	9	9	lbk	65			135.2	
27	10	9	lbk	100			208	
27	11	10	lbk	100			208	
27	12	11	lbk	80			166.4	
27	13	11	hir	25			28.75	
27	14	12	lbk	125			260	
27	15	13	lbk	80			166.4	
27	16	14	lbk	15			31.2	
27	17	14	lbk	30			62.4	
27	18	10	lbk	200			416	
27	19	15	lbk	80			166.4	
27	20	15	lbk	90			187.2	
27	21	16	lbk	40			83.2	
27	22	14	rck	250			222.5	
27	23	15	lbk	100			208	
27	24	15	lbk	55			114.4	
27	25	18		25			22.25	
27	26	19		0			0	
27	27	20	lbk	15			31.2	
27	28	20	red	1			0.89	
27	29	20	red	5			4.45	
27	30	20		2			1.78	
27	31	20	red	25			22.25	
27	32	20		0			0	
27	33	21	lbk	30			62.4	
27	34	21	lbk	80			166.4	
27	35	21	lbk	30			62.4	
27	36	22	lbk	20			41.6	
27	37	20	lbk	45			93.6	
27	38	21	lbk	30			62.4	
27	39	23	lbk	45			93.6	
27	40	25	lbk	20			41.6	
27	41	26		0			0	
27	42	26		2			1.78	
27	43	27		0			0	
27	44	28		0			0	
27	45	28		0			0	
27	46	29		0			0	
27	47	30		0			0	
27	48	30		0			0	
28	1	-4		0	0			
28	2	8	lbk	200	292			
28	3	14	lbk	160	233.6			
28	4	21	lbk	120	175.2			
28	5	26	lbk	90	131.4			
28	6	30	lbk	60	87.6			
28	7	34	lbk	30	43.8			
28	8	36	lbk	40	58.4			
28	9	40		0	0			
28	10	42	lbk	70	102.2			
28	11	44	lbk	30	43.8			
28	12	46	red	1	1.15			

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Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	BL cor	DG cor	MP cor	KH cor
28	13	48	red	3	3.45			
28	14	50	lbk	60	87.6			
28	15	52	lbk	30	43.8			
28	16	52	red	0	0			
28	17	51	lbk	60	87.6			
28	18	51	lbk	40	58.4			
29	1	0	lbk	0		0		
29	2	16	lam	120		189.6		
29	3	24	red	70		111.3		
29	4	30	lbk	100		158		
29	5	33	lam	75		118.5		
29	6	35	lbk	25		39.5		
29	7	38	lbk	60		94.8		
29	8	46		0		0		
29	9	47		0		0		
29	10	51	red	50		79.5		
29	11	52		0		0		
29	12	56		0		0		
29	13	65	lbk	0		0		
30	1	-9	fuc	2				3.4
30	2	-7	fuc	50				85
30	3	-3	fuc	110				187
30	4	1	fuc	120				204
30	5	4	lbk	100				130
30	6	4	lbk	75				97.5
30	7	4	lbk	55				71.5
30	8	5	lbk	110				143
30	9	6	lbk	125				162.5
30	10	8	lbk	50				65
30	11	9	lbk	110				143
30	12	10	lbk	80				104
30	13	11	lbk	120				156
30	14	12	lbk	140				182
30	15	13	lbk	135				175.5
30	16	15	lbk	120				156
30	17	16	lbk	110				143
30	18	10	lbk	145				188.5
30	19	10	lbk	100				130
30	20	8	lbk	60				78
30	21	14	lbk	90				117
30	22	22	lbk	135				175.5
30	23	32	lbk	85				110.5
30	24	35	lbk	80				104
30	25	40	lbk	50				65
30	26	45	lbk	95				123.5
30	27	49	lbk	55				71.5
30	28	56	lbk	40				52
30	29	60	lbk	20				26
30	30	63		0				0
31	1	-2		0	0			
31	2	0	fir	10	11.5			
31	3	2	cor	0	0			
31	4	5	hir	0	0			
31	5	7	hir	80	104			
31	6	9	hir	1	1.3			
31	7	11	lam	1	1.46			
31	8	13	lam	1	1.46			
31	9	14	lam	0	0			
31	10	18	lam	0	0			
31	11	20		0	0			
31	12	22		0	0			
32	1	-6	fuc	5		7.65		

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Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	BL cor	DG cor	MP cor	KH cor
32	2	0	ala	125		197.5		
32	3	8	lam	100		158		
32	4	19	lam	8		12.64		
32	5	28		0		0		
32	6	33	lam	0		0		
32	7	38	lam	0		0		
33	1	-1	fuc	0	0			
33	2	0	lbk	0	0			
33	3	2	lbk	0	0			
33	4	2	lbk	0	0			
33	5	7	lbk	0	0			
33	6	8	lbk	0	0			
33	7	11	lbk	0	0			
33	8	13	lbk	0	0			
33	9	14	lbk	0	0			
33	10	17	lbk	0	0			
33	11	18	lbk	0	0			
33	12	18		0	0			
33	13	18	lbk	0	0			
34	1	-3	fuc	60			114.6	
34	2	3	lbk	60			124.8	
34	3	7		20			17.8	
34	4	9	lbk	5			10.4	
34	5	10	mac	150			133.5	
34	6	10	mac	200			178	
34	7	10	mac	200			178	
34	8	11	mac	150			133.5	
34	9	10	mac	100			89	
34	10	5	mac	500			445	
34	11	7	lbk	45			93.6	
34	12	13	lbk	180			374.4	
34	13	13	lbk	100			208	
34	14	16	mac	200			178	
34	15	17	mac	60			53.4	
34	16	17	mac	100			89	
34	17	17	mac	30			26.7	
34	18	17	lbk	5			10.4	
34	19	17	lbk	10			20.8	
34	20	15	mac	240			213.6	
34	21	15	mac	30			26.7	
34	22	18	lbk	0			0	
34	23	21	mac	5			4.45	
34	24	28		0			0	
34	25	29	mac	0			0	
34	26	30	lbk	0			0	
35	1	-3	fuc	1			1.91	
35	2	1	lam	2			4.16	
35	3	6	cod	10			8.9	
35	4	10	mac	200			178	
35	5	11	mac	40			35.6	
35	6	12	lam	0			0	
35	7	13	mac	0			0	
35	8	14	lam	0			0	
35	9	15	lam	0			0	
35	10	16		0			0	
35	11	17	mac	0			0	
35	12	22	lam	0			0	
35	13	27		0			0	
35	14	33	agm	0			0	
36	1	-9	fuc	10		15.3		
36	2	-10		0		0		
36	3	-6	fuc	5		7.65		

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Appendix B.6. (page 11 of 13)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	BL cor	DG cor	MP cor	KH cor
36	4	4	fir	170		270.3		
36	5	8	lbk	75		118.5		
36	6	8	lbk	100		158		
36	7	11	lbk	65		102.7		
36	8	13	lbk	50		79		
36	9	15	lbk	50		79		
36	10	19	lbk	50		79		
36	11	21	lbk	80		126.4		
36	12	26	lbk	25		39.5		
36	13	30	lbk	35		55.3		
36	14	33	lbk	45		71.1		
36	15	35	lbk	30		47.4		
36	16	42	lbk	8		12.64		
36	17	45	lbk	7		11.06		
36	18	48		0		0		
36	19	46		0		0		
36	20	56	lbk	0		0		
36	21	56		0		0		
37	1	-5	fuc	0		0		
37	2	-1	fuc	1		1.53		
37	3	-2	fuc	1		1.53		
37	4	-1	elg	4		4.68		
37	5	0	elg	7		8.19		
37	6	-1	cor	0		0		
37	7	2	fuc	1		1.53		
37	8	-1	elg	5		5.85		
37	9	1	elg	2		2.34		
37	10	-1	lbk	1		1.58		
37	11	1	lbk	4		6.32		
37	12	1	cor	40		63.6		
37	13	2	cor	15		23.85		
37	14	3	lbk	0		0		
37	15	3	mac	10		15.9		
37	16	5	cor	70		111.3		
37	17	5	red	1		1.59		
37	18	6	cor	2		3.18		
37	19	7	mac	40		63.6		
37	20	10	cor	1		1.59		
37	21	11	red	5		7.95		
37	22	12	hir	1		1.32		
37	23	13		5		7.95		
37	24	13		0		0		
37	25	14	red	7		11.13		
37	26	14	elg	50		58.5		
37	27	14	red	0		0		
37	28	13	hir	45		59.4		
37	29	13	red	2		3.18		
37	30	15	red	0		0		
37	31	13	red	0		0		
37	32	16	red	0		0		
37	33	17		0		0		
37	34	17		0		0		
37	35	17	fil	0		0		
37	36	17		0		0		
37	37	17	cor	0		0		
37	38	16	cor	0		0		
37	39	17		0		0		
37	40	18		0		0		
38	1	-7	fuc	0			0	
38	2	-3	fuc	0			0	
38	3	-2	fuc	0			0	

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Appendix B.6. (page 12 of 13)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	BL cor	DG cor	MP cor	KH cor
38	4	0	elg	10			10.6	
38	5	2	lbk	1			2.08	
38	6	3	lbk	50			104	
38	7	5	lbk	80			166.4	
38	8	7	lbk	150			312	
38	9	7	lbk	250			520	
38	10	6	lbk	80			166.4	
38	11	5	lbk	0			0	
38	12	6	lbk	10			20.8	
38	13	9	mac	100			89	
38	14	10	lbk	1			2.08	
38	15	10	lbk	10			20.8	
38	16	13	mac	80			71.2	
38	17	13	elg	15			15.9	
38	18	13	red	120			106.8	
38	19	14	mac	100			89	
38	20	14	red	3			2.67	
38	21	13	red	50			44.5	
38	22	13	red	5			4.45	
38	23	12	elg	30			31.8	
38	24	13	mac	250			222.5	
38	25	10	mac	1			0.89	
38	26	8	mac	220			195.8	
38	27	8	mac	5			4.45	
38	28	7	mac	40			35.6	
38	29	10	lbk	30			62.4	
38	30	9	lbk	50			104	
38	31	11	lbk	60			124.8	
38	32	10	lbk	2			4.16	
38	33	9	lbk	5			10.4	
38	34	8	mac	480			427.2	
38	35	8	lbk	2			4.16	
38	36	11	lbk	5			10.4	
38	37	11	lbk	5			10.4	
38	38	13	lbk	0			0	
38	39	16	lbk	0			0	
38	40	18	mac	250			222.5	
38	41	16	red	0			0	
38	42	16	lbk	0			0	
38	43	15	lbk	0			0	
38	44	15	lbk	0			0	
38	45	18	red	0			0	
38	46	21	red	0			0	
38	47	22	red	0			0	
38	48	23	red	0			0	
38	49	24		0			0	
38	50	23	red	5			4.45	
38	51	22	lbk	0			0	
38	52	24	hir	0			0	
38	53	25		0			0	
38	54	26		0			0	
39	1	-2		0				0
39	2	0		0				0
39	3	3		0				0
39	4	3		0				0
39	5	4		0				0
39	6	4	elg	2				5.32
39	7	5	fil	0				0
39	8	6	fil	0				0
39	9	6	elg	0				0
39	10	7	elg	0				0
39	11	7	hir	0				0

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Appendix B.6. (page 13 of 13)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	BL cor	DG cor	MP cor	KH cor
39	12	8	fil	0				0
39	13	5		0				0
39	14	8		0				0
39	15	9	elg	0				0
39	16	5	lbk	0				0
39	17	9	elg	0				0
39	18	9	lbk	0				0
39	19	10		0				0
39	20	11		0				0
39	21	12		0				0
39	22	8		0				0
39	23	11	lbk	0				0
39	24	9	lbk	0				0
39	25	11		0				0
39	26	13	lbk	0				0
39	27	13	lbk	0				0
39	28	3	lbk	0				0
39	29	-2	fil	0				0
39	30	-1	fuc	0				0
39	31	13	ala	0				0
39	32	12	lbk	0				0
39	33	13	mac	0				0
39	34	16		0				0
39	35	17	mac	0				0
39	36	17	lbk	0				0
39	37	16	red	0				0
39	38	16		0				0
39	39	17		0				0
39	40	15		0				0
39	41	15		0				0
40	1	-1	lbk	0	0			
40	2	0	lbk	0	0			
40	3	2	lbk	0	0			
40	4	1	lbk	0	0			
40	5	2	lbk	0	0			
40	6	2	lbk	0	0			
40	7	6	lbk	0	0			
40	8	6	lbk	0	0			
40	9	4	lbk	0	0			
40	10	2	lbk	1	1.46			
40	11	4	lbk	0	0			
40	12	7	lbk	0	0			
40	13	9	lbk	0	0			
40	14	12	lbk	0	0			
40	15	11	lbk	0	0			
40	16	5	lbk	0	0			
40	17	8	lbk	0	0			
40	18	15	red	0	0			
40	19	17	red	0	0			
40	20	17	red	0	0			
40	21	20	red	0	0			
40	22	19	mac	0	0			
40	23	23	ala	0	0			
40	24	23	ala	0	0			
40	25	23	mac	0	0			
40	26	24	mac	0	0			
40	27	26	lbk	0	0			
40	28	26	lbk	0	0			
40	29	26	lbk	0	0			

Appendix B.7. Hoonah Sound spawn deposition survey, 2002.

Survey Date: May 7, 2002										
Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	PD cor	WB cor	SW cor	DG cor
1	1	-2	ulv	0					0	
1	2	-1		0					0	
1	3	-1		0					0	
1	4	-1		0					0	
1	5	0		0					0	
1	6	1		0					0	
1	7	2	lam	3					3.3	
1	8	3	lam	0					0	
1	9	4	elg	1					1.26	
1	10	10		0					0	
1	11	10		0					0	
2	1	-1		0					0	
2	2	1	fuc	0					0	
2	3	4	lam	2					2.2	
2	4	8	lam	0					0	
2	5	15		0					0	
2	6	22		0					0	
2	7	25	lam	0					0	
3	1	-1	fuc	0				0		
3	2	0	fuc	1				1.24		
3	3	0	lam	2				1.78		
3	4	0	elg	3				2.31		
3	5	4	lam	2				1.78		
3	6	5	ulv	1				1.09		
3	7	7	lam	0				0		
3	8	11		0				0		
3	9	14		0				0		
4	1	-8		0	0					
4	2	-7	fuc	0	0					
4	3	-7		0	0					
4	4	-6		0	0					
4	5	-5		0	0					
4	6	-5		0	0					
4	7	-4		0	0					
4	8	-4		0	0					
4	9	-3		0	0					
4	10	-3		0	0					
4	11	-3		0	0					
4	12	-2		0	0					
4	13	-2		0	0					
4	14	-1		0	0					
4	15	0		0	0					
4	16	0		0	0					
4	17	0		0	0					
4	18	0		0	0					
4	19	1		0	0					
4	20	1		0	0					
4	21	1	ulv	4	3.56					
4	22	2	lam	0	0					
4	23	3	lam	5	10.4					
4	24	4	lam	0	0					
4	25	4		0	0					
4	26	5	lam	0	0					
4	27	5	lam	0	0					
4	28	6		0	0					
4	29	7	lam	0	0					
5	1	-7		0			0			
5	2	-6		0			0			
5	3	-4		0			0			
5	4	-3	fuc	0			0			

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Appendix B.7. (page 2 of 6)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	PD cor	WB cor	SW cor	DG cor
5	5	-2	fuc	0			0			
5	6	-1	fuc	0			0			
5	7	1	ulv	0			0			
5	8	1	hir	30			36.3			
5	9	3	lbk	2			2.4			
5	10	6	lbk	0			0			
5	11	9	lbk	0			0			
5	12	15		0			0			
5	13	19		0			0			
6	1	-11		0						0
6	2	-9		0						0
6	3	-7	fir	0						0
6	4	-6	fil	0						0
6	5	-4		0						0
6	6	-3	fuc	3						4.59
6	7	-1	fir	40						63.6
6	8	1	lam	4						6.32
6	9	6	lam	5						7.9
6	10	14	lam	0						0
6	11	22		0						0
7	1	-11	fuc	1	1.91					
7	2	-9	fuc	4	7.64					
7	3	-8		0	0					
7	4	-8		0	0					
7	5	-4	fil	5	4.45					
7	6	-3	fuc	65	124.2					
7	7	-2	fuc	45	85.95					
7	8	-1		0	0					
7	9	1	fil	5	4.45					
7	10	1		0	0					
7	11	2		0	0					
7	12	3		0	0					
8	1	-14		0			0			
8	2	-14		0			0			
8	3	-14	fuc	10			10			
8	4	-13	fuc	50			50			
8	5	-12	fuc	30			30			
8	6	-11	fuc	70			70			
8	7	-8		0			0			
8	8	-7	fuc	10			10			
8	9	-6	fuc	5			5			
8	10	-5	fuc	15			15			
8	11	-4	fuc	45			45			
8	12	-3	fuc	40			40			
8	13	-1	red	20			26.2			
8	14	-1	lbk	35			42			
8	15	1	lbk	85			102			
8	16	2	lbk	90			108			
8	17	2	lbk	40			48			
8	18	3	lbk	55			66			
8	19	5	lbk	1			1.2			
8	20	6		0			0			
8	21	7	lbk	5			6			
8	22	8	lbk	2			2.4			
8	23	9		0			0			
8	24	10		0			0			
8	25	10	lbk	5			6			
8	26	11	lbk	0			0			
8	27	17	lbk	0			0			
9	1	-2	fuc	5					6.25	
9	2	0	fuc	30					37.5	
9	3	1	fuc	20					25	

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Appendix B.7. (page 3 of 6)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	PD cor	WB cor	SW cor	DG cor
9	4	2	hir	1					1.29	
9	5	4		0					0	
9	6	6		0					0	
9	7	9		0					0	
9	8	12		0					0	
9	9	14		0					0	
10	1	-5	fuc	2						3.06
10	2	-5		1						1.59
10	3	-4		0						0
10	4	-4	fuc	10						15.3
10	5	-3	fuc	1						1.53
10	6	-2		0						0
10	7	-1	fil	0	0					
10	8	0	fil	0	0					
10	9	1	lam	0	0					
10	10	2	lam	0	0					
10	11	4	lam	1	2.08					
10	12	5	lam	0	0					
10	13	6		0	0					
10	14	7		0	0					
10	15	8		0	0					
11	1	-9	fuc	0					0	
11	2	-7	fuc	0					0	
11	3	-5	fuc	35					43.75	
11	4	-4	fuc	45					56.25	
11	5	-3	fuc	80					100	
11	6	-2	fuc	30					37.5	
11	7	0	fuc	30					37.5	
11	8	2	fir	35					27.65	
11	9	4	lam	10					11	
11	10	6		0					0	
11	11	8	lam	0					0	
11	12	9		0					0	
11	13	11		0					0	
11	14	14		0					0	
12	1	-7	fuc	0				0		
12	2	-5	fil	0				0		
12	3	-3	fuc	10				12.4		
12	4	0	ulv	80				87.2		
12	5	2	lam	110				97.9		
12	6	3	lam	100				89		
12	7	4	fil	0				0		
12	8	4		0				0		
12	9	6		0				0		
12	10	7		0				0		
12	11	7		0				0		
12	12	6		0				0		
13	1	-8	fuc	50				62		
13	2	-7	fuc	60				74.4		
13	3	-7	fuc	35				43.4		
13	4	-6	fuc	0				0		
13	5	-6	fuc	4				4.96		
13	6	-6	fuc	3				3.72		
13	7	-3		5				5.45		
13	8	-1	fuc	8				9.92		
13	9	1	ulv	1				1.09		
13	10	1	lam	35				31.15		
13	11	2	lam	85				75.65		
13	12	4	lam	60				53.4		
13	13	6	lam	80				71.2		
13	14	7	lam	60				53.4		
13	15	8	lam	90				80.1		

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Appendix B.7. (page 4 of 6)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	PD cor	WB cor	SW cor	DG cor
13	16	9	lam	80				71.2		
13	17	10	lam	35				31.15		
13	18	11	lam	20				17.8		
13	19	10	lam	60				53.4		
13	20	11	agm	60				53.4		
13	21	11	agm	30				26.7		
13	22	13	agm	20				17.8		
13	23	14	agm	30				26.7		
13	24	14	lam	10				8.9		
13	25	15	agm	10				8.9		
13	26	16	agm	5				4.45		
13	27	16	agm	2				1.78		
13	28	18	agm	0				0		
13	29	18	lam	0				0		
13	30	19	lam	0				0		
14	1	-1	fuc	30			30			
14	2	0	fuc	5			5			
14	3	1	fuc	5			5			
14	4	1	lbk	25			30			
14	5	2	fuc	100			100			
14	6	3	fir	90			117.9			
14	7	3	hir	60			72.6			
14	8	3	hir	150			181.5			
14	9	4	lbk	25			30			
14	10	5	lbk	20			24			
14	11	5	hir	70			84.7			
14	12	5	hir	160			193.6			
14	13	5	lbk	25			30			
14	14	6	lbk	3			3.6			
14	15	7		0			0			
14	16	7		0			0			
14	17	8		0			0			
15	1	-4		0						0
15	2	-3		0						0
15	3	-1	fuc	30						45.9
15	4	0	fuc	20						30.6
15	5	1	lam	20						31.6
15	6	2	red	60						95.4
15	7	3	lam	30						47.4
15	8	4	hir	1						1.32
15	9	4		0						0
15	10	4	elg	4						4.68
15	11	5	elg	40						46.8
15	12	6	hir	400						528
15	13	6	elg	5						5.85
15	14	7	lam	3						4.74
15	15	8		0						0
15	16	8		0						0
15	17	9	elg	35						40.95
15	18	10	elg	6						7.02
15	19	11	elg	5						5.85
15	20	11	elg	3						3.51
15	21	12	elg	1						1.17
15	22	13	elg	2						2.34
15	23	14	elg	0						0
15	24	15	elg	0						0
15	25	16	elg	0						0
16	1	-5	fuc	4				4.96		
16	2	-4	fuc	2				2.48		
16	3	-3		0				0		
16	4	-1	fuc	1				1.24		
16	5	1	fuc	15				18.6		

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Appendix B.7. (page 5 of 6)

Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	PD cor	WB cor	SW cor	DG cor
16	6	2	ulv	0				0		
16	7	3		0				0		
16	8	4		0				0		
16	9	6		0				0		
16	10	10		0				0		
16	11	14		0				0		
17	1	-7	fuc	3	5.73					
17	2	-4		5	4.45					
17	3	-3		30	26.7					
17	4	-3	fuc	40	76.4					
17	5	-2	fuc	60	114.6					
17	6	3	fir	200	178					
17	7	5	fir	15	13.35					
17	8	7	lam	1	2.08					
17	9	10	lam	10	20.8					
17	10	12	lam	10	20.8					
17	11	14	lam	0	0					
17	12	16		0	0					
17	13	15	lam	60	124.8					
17	14	14	lam	20	41.6					
17	15	10	lam	15	31.2					
17	16	16	lam	20	41.6					
17	17	32		0	0					
18	1	-5		0						0
18	2	-5	fil	0						0
18	3	-5	fil	0						0
18	4	-4	fuc	20						30.6
18	5	-4	fir	4						6.36
18	6	-3	fil	2						3.18
18	7	-2	fuc	4						6.12
18	8	-2	fil	0						0
18	9	-1	fuc	40						61.2
18	10	1	fil	0						0
18	11	2	fil	0						0
18	12	3	lbk	5						7.9
18	13	4	lbk	50						79
18	14	6	hir	240						316.8
18	15	7	lbk	30						47.4
18	16	8	hir	120						158.4
18	17	10	hir	65						85.8
18	18	12	lbk	0						0
18	19	14		0						0
18	20	15	hir	0						0
18	21	16		0						0
18	22	17		0						0
19	1	-12	fuc	25	47.75					
19	2	-11	fuc	100	191					
19	3	-8	fuc	5	9.55					
19	4	-7	fuc	1	1.91					
19	5	-7	fil	2	1.78					
19	6	-5	fuc	55	105.1					
19	7	-2	fir	35	31.15					
19	8	-2		200	178					
19	9	1	ulv	2	1.78					
19	10	2	lam	7	14.56					
19	11	5		0	0					
19	12	6	lam	0	0					
19	13	8	lam	0	0					
19	14	10	lam	0	0					
20	1	-10		0				0		
20	2	-6		0				0		
20	3	-5	fuc	0				0		

-continued-

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Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	PD cor	WB cor	SW cor	DG cor
20	4	-4	fuc	70				86.8		
20	5	-3	fil	2				2.18		
20	6	-2	elg	1				0.77		
20	7	0	elg	3				2.31		
20	8	-1	elg	5				3.85		
20	9	0	elg	10				7.7		
20	10	0	elg	100				77		
20	11	2	elg	60				46.2		
20	12	3	elg	12				9.24		
20	13	4	elg	1				0.77		
20	14	5	elg	0				0		
20	15	8	lam	0				0		
20	16	11	lam	0				0		
20	17	14		0				0		

Appendix B.8. Earnest Sound spawn deposition survey, 2002.

Survey Date: April 21, 2002.									
Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	TT cor	WB cor	SW cor
1	1	-11	fuc	0	0				
1	2	-7	fuc	10	19.1				
1	3	-2	hir	35	40.25				
1	4	8	lbk	0	0				
1	5	14	lbk	0	0				
2	1	-12	fuc	7					8.75
2	2	-11	fuc	10					12.5
2	3	-3	fir	45					35.55
2	4	3	lam	3					3.3
2	5	11	lam	0					0
2	6	15	lam	0					0
2	7	17	lam	0					0
3	1	-11	fuc	0					0
3	2	-6	fuc	2					2.5
3	3	2	lbk	30					33
3	4	8	lbk	0					0
3	5	11	lbk	0					0
3	6	14	lbk	0					0
3	7	18	lbk	0					0
4	1	-14	fuc	0	0				
4	2	-10	fuc	30	57.3				
4	3	2	hir	25	28.75				
4	4	2	lbk	40	83.2				
4	5	10	lbk	4	8.32				
4	6	15	lbk	1	2.08				
4	7	22	lbk	0	0				
4	8	26	lbk	0	0				
5	1	-12	fuc	60	114.6				
5	2	0	ulv	30	26.7				
5	3	9	lbk	10	20.8				
5	4	22	lbk	1	2.08				
5	5	27	lbk	0	0				
6	1	-12	fuc	35	66.85				
6	2	-7	fuc	40	76.4				
6	3	1	ulv	140	124.6				
6	4	3	red	20	17.8				
6	5	5	lbk	90	187.2				
6	6	6	lbk	70	145.6				
6	7	9	lbk	90	187.2				
6	8	8	lbk	70	145.6				
6	9	11	lbk	3	6.24				
6	10	12	lbk	35	72.8				
6	11	12	hir	240	276				
6	12	12	lbk	40	83.2				
6	13	13	lbk	5	10.4				
6	14	12	lbk	30	62.4				
6	15	12	lbk	35	72.8				
6	16	15	lbk	30	62.4				
6	17	18	lbk	60	124.8				
6	18	21	lbk	30	62.4				
6	19	22	lbk	30	62.4				
6	20	24		0	0				
6	21	25	lbk	30	62.4				
6	22	26	lbk	30	62.4				
6	23	27	lbk	35	72.8				
6	24	27	lbk	2	4.16				
6	25	29	lbk	2	4.16				
6	26	32	lbk	10	20.8				
6	27	34	lbk	10	20.8				
6	28	37	lbk	0	0				

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Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	TT cor	WB cor	SW cor
6	29	39		0	0				
7	1	-10	fuc	20	38.2				
7	2	-7	fuc	45	85.95				
7	3	-4	fuc	15	28.65				
7	4	-2	fuc	50	95.5				
7	5	-1	fuc	100	191				
7	6	1	fuc	25	47.75				
7	7	3	red	30	26.7				
7	8	4	red	1	0.89				
7	9	4	elg	55	58.3				
7	10	5	elg	120	127.2				
7	11	5	elg	80	84.8				
7	12	4	elg	80	84.8				
7	13	3	lbk	60	124.8				
7	14	2	red	40	35.6				
7	15	2	red	100	89				
7	16	1	red	80	71.2				
7	17	0	ulv	60	53.4				
7	18	3	red	110	97.9				
7	19	1	ulv	200	178				
7	20	1	red	175	155.8				
7	21	3	red	50	44.5				
7	22	3	lbk	150	312				
7	23	7	lbk	5	10.4				
7	24	9	lbk	5	10.4				
7	25	10	lbk	15	31.2				
7	26	11	lbk	5	10.4				
7	27	12	lbk	15	31.2				
7	28	8	lbk	10	20.8				
7	29	9	lbk	5	10.4				
7	30	12	lbk	3	6.24				
7	31	17	lbk	20	41.6				
7	32	20	lbk	3	6.24				
7	33	23	lbk	0	0				
7	34	30	lbk	0	0				
7	35	33		0	0				
7	36	36		0	0				
8	1	-10	fuc	4		6.8			
8	2	-3	fuc	20		34			
8	3	-1	fuc	3		5.1			
8	4	0	fuc	25		42.5			
8	5	0		0		0			
8	6	0		0		0			
8	7	1		0		0			
8	8	1	fuc	8		13.6			
8	9	1	elg	20		53.2			
8	10	2	ulv	25		27.75			
8	11	3	elg	15		39.9			
8	12	3	elg	35		93.1			
8	13	4	elg	140		372.4			
8	14	4	elg	130		345.8			
8	15	4	lam	3		3.9			
8	16	4	agm	1		1.3			
8	17	3	lam	2		2.6			
8	18	7	agm	20		26			
8	19	7	lam	0		0			
8	20	4	lam	1		1.3			
8	21	6	agm	30		39			
8	22	8	lam	25		32.5			
8	23	8	agm	35		45.5			
8	24	11	agm	45		58.5			
8	25	11	agm	35		45.5			

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Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	TT cor	WB cor	SW cor
8	26	13	lam	20		26			
8	27	19	lam	2		2.6			
8	28	23	lam	1		1.3			
8	29	28	lam	0		0			
8	30	30		0		0			
8	31	31		0		0			
9	1	-10	fuc	0			0		
9	2	-5	fuc	5			11.5		
9	3	-1	fuc	30			69		
9	4	1		3			3.27		
9	5	3	red	2			2.18		
9	6	5	lbk	35			88.9		
9	7	5	lbk	15			38.1		
9	8	10	lbk	7			17.78		
9	9	11	agm	30			76.2		
9	10	12	lam	35			88.9		
9	11	14	lam	8			20.32		
9	12	17	lam	0			0		
9	13	18		0			0		
9	14	21	lam	0			0		
9	15	22		0			0		
10	1	-6		0				0	
10	2	-2		0				0	
10	3	-1		0				0	
10	4	0		0				0	
10	5	2	fir	15				16.35	
10	6	4	red	30				32.7	
10	7	6	lam	40				35.6	
10	8	8	lam	1				0.89	
10	9	12	lam	2				1.78	
10	10	14	lam	1				0.89	
10	11	16	hir	0				0	
10	12	17	lam	0				0	
11	1	-6		0			0		
11	2	-1	fuc	7			16.1		
11	3	1	fuc	30			69		
11	4	3	red	15			16.35		
11	5	4	lbk	35			88.9		
11	6	7	lbk	1			2.54		
11	7	8	lbk	0			0		
11	8	13	lbk	0			0		
11	9	22		0			0		
12	1	-2	fuc	60		102			
12	2	0	ulv	35		38.85			
12	3	4	ulv	35		38.85			
12	4	6	elg	35		93.1			
12	5	7	agm	20		26			
12	6	8	elg	40		106.4			
12	7	9	elg	1		2.66			
12	8	9	elg	1		2.66			
12	9	10	elg	1		2.66			
12	10	10	lam	1		1.3			
12	11	8	elg	1		2.66			
12	12	4	lam	1		1.3			
12	13	1	ulv	1		1.11			
12	14	2	ulv	0		0			
12	15	4	lam	0		0			
12	16	3	ulv	0		0			
12	17	7	lam	0		0			
12	18	10	lam	0		0			
12	19	13	lam	0		0			
13	1	0		0				0	

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Trans.	Obs.	MLLW Depth	Vegetation	Diver Eye	MP cor	KH cor	TT cor	WB cor	SW cor
13	2	1		0				0	
13	3	1	ulv	1				1.09	
13	4	2	ulv	35				38.15	
13	5	4	elg	50				38.5	
13	6	4	elg	5				3.85	
13	7	5	elg	1				0.77	
13	8	4	elg	12				9.24	
13	9	5	elg	15				11.55	
13	10	5	elg	40				30.8	
13	11	7	ulv	20				21.8	
13	12	7	elg	40				30.8	
13	13	8	lam	15				13.35	
13	14	9	hir	30				35.7	
13	15	9	lam	1				0.89	
13	16	11	lam	0				0	
13	17	12	elg	0				0	
13	18	14	elg	0				0	
13	19	17		0				0	
14	1	-4	fuc	0			0		
14	2	5	lbk	0			0		
14	3	6	lbk	0			0		
14	4	11	lam	0			0		
14	5	21	lam	0			0		

Appendix C. Aerial and skiff herring spawn surveys in Southeast Alaska, 2002.

Appendix C.1. 2002 Sitka Sound herring aerial survey notes.

<u>March 8. 9:30-11:20.</u> During our first aerial survey of the season we flew Sitka Sound and an extended area including southern Salisbury Sound to west of Crawfish Inlet to document early sea lion distribution patterns. Visibility was excellent and no herring schools were seen. We counted a total of 869 sea lions including 700 on three outside haulouts located south of Biorka Island, 28 in an area south of Kruzof Island and 141 in Inner Sitka Sound. The Inner Sitka Sound counts include 126 in Northern Sitka Sound and 15 in the Eastern Channel Area. This was 100 sea lions less than was counted in inner Sitka Sound the same date last year. There were 2 whales feeding between Gagarin Island and Mountain Point, south of Hayward Strait.

<u>March 12. 9:10-10:05.</u> Our second aerial survey was flown this morning covering Sitka Sound north of Cape Burunof. The number of sea lions observed was similar to that observed on March 8. The distribution changed only slightly with numbers increasing off the Lisianski Peninsula and in the outer portion of Silver Bay. The bulk of the sea lions continue to be found in an area encompassed by Inner Point, Hayward Strait and Bieli Rock where 104 sea lions were counted. In general things looked quiet. The next survey is scheduled for Friday, March 15 .

<u>March 15. 9:25-10:35.</u> We conducted an aerial survey this morning covering Sitka Sound and south to West Crawfish Inlet. Weather was sunny, temperatures around 30 deg F and generally calm except for winds out of bays and passes. In short, in Sitka Sound there was no real changes from the last survey with sea lion numbers and distribution about the same. No herring were seen. The West Crawfish and Goddard areas were very quiet.

<u>March 18. 10:20-11:15.</u> This mornings aerial survey showed no herring and no significant changes in herring predator distribution from the previous survey on March 15. Conditions were sunny and windy with 30 mph winds out of bays from the east. Visibility was somewhat obscured by wind. A total of 140 sea lions were observed; 88 west of Beili Rocks and Crow Island, 31 in the Hayward Strait area, 20 along the Lisianski Peninsula, 1 at the Sitka Airport, and none in Aleutkina Bay area. Today's survey did not include Silver Bay due to winds. 1 Humpback whale was seen between Gagarin Island and Hayward Strait. The next aerial survey is scheduled for Wednesday morning, March 20.

<u>March 20. 9:15-10:50</u>. An aerial herring survey this morning showed a moderate increase in sea lions in the inner Sitka Sound area compared with previous surveys. Two small herring schools were observed on the surface: one at Dog Point and one west of Beili Rock. Sea lion counts today included 195 west of Beili Rock-Gagarin Island-Crow Island, 32 in the Hayward Strait area, and 26 in the Lisianski Peninsula area including Katlian & Nakwasina Bays, the Siginaka Islands and Gagarin Islands. With 9 other widely scattered sea lions today's total count was 262. There were 4 humpback whales west of Gagarin Island

<u>March 22. 9:10-10:20.</u> An aerial survey was conducted this morning covering Sitka Sound and south to Windy Pass. Viewing conditions were ideal with high overcast and calm winds. No herring were seen on this flight. Sea lion numbers have increased significantly since the last survey - from 262 on March 20 to 445 sea lions this morning. The bulk of the sea lions were seen in the areas west of Crow Island, along the north side of Middle Island and west of the Gavanski Islands. Smaller groups were scattered around other areas of North Sitka Sound. Six whales were also seen in the area. This sea lion distribution indicates the herring are beginning to move into the inner reaches of North Sitka Sound in preparation for spawning.

South of Sitka was quiet except for 26 seas lions actively feeding off the old Pulp Mill site in Silver Bay. There was no activity in the Goddard/Windy Pass area.

March 24. 9:00-10:20. This morning the large aggregation of herring observed during recent days has dispersed to traditional spawning areas of Sitka Sound. There was **0.9 nautical miles of spawn** on Kasiana Island and south Middle Island. Large surface schools were observed in Hayward Strait, along Halibut Point Road, and in Leesofskaia Bay. Additional schools were seen around Middle and Kasiana Islands.

March 25. 6:40-7:45. This morning **spawning expanded to 5.6 nautical miles** including: 3.4 around Kasiana Island, 1.9 along Halibut Point Road to Thompson breakwall, 0.2 on the Apple Islands, and 0.1 off Indian River and just south of the bridge. During the aerial survey this morning visibility was obscured by wind. Fish schools were observed in Aleutkina Bay, Leesofskaia Bay, Thimbleberry Bay, off Indian River, west of Kasiana Island, south and west of Middle Island, and at Halibut Point. No fish was seen in Hayward Strait.

March 26. 8:10-9:30. Aerial survey this morning showed **spawn** continuing to expand on the north side of town with **7.5 nm** active and beginning to expand in Crescent Bay with **1.3 active**. The **total active spawn was 8.8 nm for a cumulative of 9.6 nm to date**. No herring or herring predator activity was noted in areas north of Middle Island and all was fairly quiet in the Redoubt Bay/Goddard/Windy Pass areas.

March 27. 8:05-9:40. An aerial survey was conducted this morning over broken low clouds and calm winds. Spawn has not expanded since yesterday with 7.4 nautical miles active. South of town herring schools were observed in Thimbleberry Bay, Silver Bay and in Aleutkina Bay. Deep Inlet had 70 sea lions mid-way up the inlet but no herring were seen.

March 28. 8:05-9:25. The department conducted an aerial survey this morning covering Sitka Sound and south to Windy Pass. There was **12.8 nautical miles of active spawn**. Most of this spawn was on the Halibut Point Road system and Kasiana Island on the north side and in Crescent/Jamestown Bays on the south side. Large schools of herring were observed in Silver Bay and in the Aleutkina Bay areas and large numbers of sea lions continue to be found at the mouth of Deep Inlet. There was a **spot spawn** in Sandy Cove which is near Deep Inlet. There were also schools of pre-spawning herring schools observed off the south side of Middle Island as well as inside Gagarin Island. **Total cumulative spawn to date is 13.4 nm**.

March 29. 8:15-10:05. An aerial survey conducted this morning revealed expanding spawn particularly on the south side of Sitka. In the Crescent Bay/Jamestown Bay areas the total active spawn was **5.4 nautical miles** and on the north side of town there was **10.9 nautical miles** of active spawn for a total of **16.3 nm** active spawn in Sitka Sound. **Total cumulative shoreline receiving spawn is 19.0 nm**. Large schools of herring were observed along the Kruzof Island shoreline from Kamenoi Point to Shoals Point and large numbers of sea lions continue to be found in the Deep Inlet area.

March 30. 8:00-9:45. This morning's aerial survey revealed **14.0 nautical miles of active spawn**, down somewhat from 16.3 miles of active spawn yesterday. **Cumulative shoreline with spawn is now 24 nautical miles**. **Spawning** was observed today at Thompson Harbor, Whiting Harbor, along Halibut Point Road from Halibut Point to Harbor Point, on the east and west sides of Middle Island, throughout the Apple Islands and Parker Islands, on Kruzof Island from South of Inner Point and at Freds Creek, east of the airport, Crescent Bay, and Jamestown Bay. Herring schools were observed in the Magoun Islands, along the Kruzof Island shoreline from Shoals Point to Inner Point, in Silver Bay, and there were small schools in eastern Aleutkina Bay. Sea lion concentrations indicated possible herring concentrations in Deep Inlet and along the Eastern Channel shoreline from Silver Point to Sugarload Point in Silver Bay.

March 31. 8:00-10:00. An aerial survey this morning revealed **19.6 nautical miles of active spawn**. A large spawn was developing on the Kruzof shoreline from Inner Point to Shoals Point totaling **4.8 nm**, Middle Island area had **1.8 nm**, Halibut Point Road - **1.1 nm**, North Japonski and the Causeway - **2.4 nm**, Crescent Bay/Jamestown Bay/Thimbleberry Bay - **8.9 nm**, Long Island - **0.2 nm**, north of Povorotni Point - **0.4 nm** of active spawn . **Total cumulative to date is 33.9 nm**.

April 1. 7:40-9:50. Today's aerial survey covered from Salisbury Sound to the north to West Crawfish Inlet to the south. Spawn generally dissipating on the north side of town but still going strong on Kruzof Island, in Thimble Berry and Metz Island. **Total active spawn was 10.8 nm**. Several schools were sighted in St. John Baptiste Bay and a smaller school was seen in north Krestof Sound. A few sea lions spotted in the Windy Pass area.

April 2. 8:15-10:00. An aerial survey this morning showed less than 1/2 nautical mile of active. **Total cumulative spawn to date is around 36 nautical miles**. Sea lion activity continues to be found in the Deep Inlet/Samsing Cove areas and in the area of Middle Channel.

April 3. 8:30-10:15. Today spawn declined to **1/4 mile in Thimbleberry Bay**. **Cumulative spawn remains at 36 nautical miles**. Sea lions were seen south of the airport, in Deep Inlet and a few in Kanga Bay.

April 4. 8:10-9:50. Today there was no spawn. Sea lion concentrations were noted around the islands south of the airport, in Deep Inlet, and in Kanga Bay. On this mornings aerial survey, two schools were observed in Redoubt Bay. 180 Sea Lions were observed in and around Deep Inlet, 30 sea lions were seen between Cape Burunof and Povorotni Point, and another 20 were seen in Saint John Baptist Bay.

April 5. 7:45-9:00. No spawn or herring schools seen on the morning aerial survey. Large numbers of sea lions continue to be found in Deep Inlet; with a few in Aleutkina Bay, Cape Burunof to Povorotni Point and a few around the Taigud Island group. Sea lions in Deep Inlet were notably more active. A few sea lions scattered about Windy Pass.

April 6. 7:40-9:20. No herring or herring spawn seen during the survey. Large numbers (200+) of sea lions continue to be found in Deep Inlet.

April 7. 8:00-9:30. Large concentrations of sea lions in the Deep Inlet area, plus additional concentrations of sea lions in Redoubt Bay (40) and at Windy Pass (15). No herring or spawn seen.

April 8. 8:15-9:35. Today there was no new spawn and no surface schools were seen on aerial surveys. Good numbers of sea lions in Deep Inlet, most midway down the inlet to the head. Scattered small groups of sea lions in Redoubt Bay. Six sea lions at the head of Kanga Bay. Ten sea lions south of Dorothy Narrows.

April 9. 8:30-9:45. Observed a **spot spawn** on Big Gavanski Island and no surface schools. Sea lion distributions have been similar during recent surveys.

April 10. 8:20-9:35. Today's aerial survey showed no surface schools and **0.3 nautical miles of spawning** on Big Gavanski Island. Sea lion distributions have been similar during recent surveys.

April 12. 11:30-12:50. The department's aerial survey observed **0.6 nautical miles of spawn** on the west side of Big Gavanski Island, no surface schools of herring. 160 sea lions in Deep Inlet and 20 sea lions in Kanga Bay. A few sea lions in Windy Pass.

April 13. 9:05-10:30. Spawning has stopped on Big Gavanski Island. **Active spawn (0.1 nm)** at the head of Deep Inlet. Over 100 sea lions in Deep Inlet. Forty sea lions in Kanga Bay. Surveyed Whale Bay and Necker Bay and nothing seen in either bay.

April 14. 9:15-10:55. Surveyed Windy Pass to Hoonah Sound. Kanga Bay had 20 sea lions. Deep Inlet with **0.2 nm of active spawn** at head and still large numbers of sea lions present in the Inlet.

April 15. 12:30-13:30. Back of Kanga Bay had 30 sea lions, south of Dorothy Narrows 25 sea lions, Frangrant Island in Hot Springs Bay 10 sea lions, **spawn** over in Deep Inlet, with only a few sea lions remaining in the Inlet.

April 17. 10:40-11:45. Surveyed Salisbury Sound to Windy Pass. No herring or herring predators seen in Salisbury Sound, North Sitka Sound was quiet. Some smaller schools of herring between Whale and Galankin Islands. Deep Inlet had 140 sea lions, and in Windy Pass there was 35 sea lions between Golf and Elevoi Islands.

April 18. 10:30-12:25. **Spot spawn** in Big Bay and **0.2 nm of active spawn in Starrigavin Bay**. Sea lion counts: 12 in Dorothy Narrows, 12 in entrance to Big Bay, 6 inside Big Bay, 15 in Mouth of Deep Inlet.

April 19. 9:35-10:45. Surveyed Salisbury to West Crawfish. Small areas of **active spawning** in Starrigavin Bay, Big Bay, Indian River, and Sealing Harbor. Around 30 sea lions at the mouth of Deep Inlet.

April 20. 8:35-9:25. Surveyed Nakwasina to Windy Pass. Low ceiling, 500-1,000’. Only saw a few sea lions in Deep Inlet otherwise quiet.

April 21. 9:15-10:45. Surveyed Sitka Sound and Hoonah Sound. Low ceiling, 500’, and moderate turbulence. No herring or herring predators seen throughout the survey.

April 22. 11:40-12:35. Surveyed Sitka Sound and south to Whale Bay. Viewing conditions were good. Nothing seen except a **spot spawn** in Starrigavin Bay.

April 23. 9:40-11:35. Surveyed Sitka Sound and Hoonah Sound. In Sitka Sound there was **0.4 nm** of active spawn in Katlian Bay, **0.3 nm** of spawn in Starrigavin Bay, and **0.1 nm** in Whiting Harbor.

April 24. 8:45-9:35. Surveyed Sitka Sound from Katlian Bay to Windy Pass. In Katlian Bay **0.6 nm of active spawn**, with additional **small spawns** in Starrigavin Bay, the Causeway, Silver Point, Sandy Cove, and in Windy Pass around 0.2 nm. Two 10-ton schools observed in Deep Inlet.

April 25. 13:25-14:55. Picked up from *M/V Okisutch* traveling to Hoonah Sound pound fishery. Surveyed Sitka Sound south to Windy Pass. A total of **0.7 nm of spawn** found in Katlain Bay, Little Gavanski Island, Sandy Cove and Windy Pass.

May 2. 11:00-15:00. Skiff surveyed Dorothy Narrows/Windy Pass area on low tide. Added just under **1.0 nm** of shoreline in Dorothy Narrows and Big Bay. Spawn in Dorothy Narrows was pretty light and the spawn in Big Bay was heavier.

Appendix C.2. 2002 Hoonah Sound/Lisianski Inlet herring aerial survey notes.

April 7. 13:10 -14:20. Covered **Hoonah Sound** out to Broad Island. Six sea lions midway up North Arm, two sea lions east Moser Island, 10 sea lions off Fick Cove, and one whale between Vixen and Moser Islands. No herring or herring spawn seen.

April 14. 9:15-10:55. **Hoonah Sound.** No herring or spawn seen. Sea lion distribution was as follows: 4 west of Fick Cove, 5 off White Cliff, and 10 off Ushk point.

April 18. 10:30-12:25. **Hoonah Sound.** No herring or spawn observed. Sea lions were noted at White Cliff Point, and along the Chichagof Island shore between Fick Cove and the Emmons Island Spit. No sea lions observed elsewhere.

April 21. 9:15-10:45. **Hoonah Sound.** Sea lion distribution indicating herring moving into waters off shore of traditional spawning areas around Emmons Island, Vixen Island and the shore between Rodgers Point and Fick Cove. No herring schools or spawn seen. Sea lion counts: NW Vixen I. – 14, South Emmons I. – 6, East Emmons/Emmons Point – 20, White Cliff – 5, Chichagof shoreline west of Vixen I. – 25, Ushk Point – 1.

April 23. 9:40-11:35. Covered Hoonah Sound and out to Rodman Bay. Two sea lions off Point Elisabeth, 5 off False Island, 2 at Oly Creek, 5 off Broad Creek, 50 off Finger River, 35 sea lions off southeast side of Moser Island, 31 sea lions from Fick Cove to Emmons Spit, 6 north of Vixen Island, and 45 on the northeast side of Emmons Island. There were 3 whales north of Pederson Point and 4 whales between Fick Cove and Vixen Island.

April 25. 13:25-14:55. Pick up off O'Kisutch. Hoonah Sound**.** First day of spawn with **2.3 nautical** miles of active spawn. Most of the spawn was on the north side of Emmons Island with a little starting on Vixen Island. Large schools of herring were observed between Rodgers Point and Ushk Point, some schools north of Rodgers Point, and herring were banded along the south side of Emmons Island. Sea lion counts; 10 off Finger River, 20 north of Fick Cove, 20 off Emmons Point, and 10 off south Emmons.

April 26. 8:40-10:10. Surveyed Lisianski Inlet and Hoonah Sound. Lisianski quiet. In Hoonah Sound there was 2.0 nm on the Chichagof shoreline between Fick Cove and the Emmons Spit, 4.6 nm on Emmons Island, 1.7 nm on Vixen Island, and 0.4 nm near Finger River.

April 27. 8:10.-9:10. Hoonah Sound**.** Active spawn between along the Chichagof Island shoreline between Fick Cove and Vixen Island Spit. Total active spawn **1.9 nm**. Sea lion counts; 20 north of Fick Cove, 5 off White Cliff, 32 off Emmons Point, and 25 south of Finger River.

April 28. 11:00-11:45. Hoonah Sound**.** No active spawn or herring seen. Sea lion counts; 30 between Fick Cove and Vixen Island, 20 off White Cliff, 3 north of Finger, and 5 off South Emmons.

April 30. 9:00-10:30. Fog and clouds. Hoonah Sound: A light dissipating **spawn** (50-100 yards) near the mouth of Finger River. 28 sea lions scattered north of Finger River. Six sea lions in channel between

Emmons Island and Chichagof Shore. Lisianski Inlet: **Spot spawn** south of Phonograph Creek and around 200 tons of herring on beach. Too cloudy to fly Lisianski Strait.

May 2. 14:50-16:40. Hoonah Sound: One-quarter nautical mile of **active spawn** north of Peschani Point. Nothing else seen. Lisianski Inlet: nothing in Strait. I the Inlet **small spawns** at Dace Rock and opposite side of mouth. Around **one nautical mile of spawn** north of Phonograph Creek. Khaz Bay – Possible **old spawn** in Kukkan Passage. No birds.

May 3 – 15:10-17:50. Hoonah Sound: No herring or spawn seen. Lisianski Inlet: **Spawn** expanded north of Phonograph Creek. Approximately **2.5 nm** of active spawn. No other herring or herring predators seen.

May 4. 8:15-9:45. Lisianski Inlet: Light spawn approximately **1.5 nm** from Phongraph Creek to **1 nm** south of Pelican. Khaz Bay**:** Nothing.

Appendix C.3. 2002 Petersburg/Wrangell area herring survey log.

Bradfield Canal

Total miles of spawn: 13.4
Spawning dates: 3/29

29-March	**6.9 nm spawn** observed by Sunrise Aviation N. shore W. of Harding River and S. shore W. of Duck Pt.
11-April	**6.1 nm eggs** observed by skiff. 13.0 nm cumulative spawn on N. shore E. of Harding River and shore E. of Duck Pt.
17- April	No fish or spawn. 3 SL, 100 scoters. Eyed eggs in intertidal @ Eagle Creek
18- April	**0.4 nm eggs, S. shore E. of Duck Pt. 13.4 nm cumulative spawn.**

Vixen Inlet/ Union Bay

Total miles of spawn: 4.1
Spawning dates: 4/15-4/18, 4/21
Peak spawning: 4/17

5-April	No fish or spawn. 5 SL
9-April	No fish or spawn. 3 whales, 3 SL, Vixen Inlet North
12-April	No fish or Spawn. 2 whales, 20 SL, Vixen Inlet,
15-April	1.3 nm active spawn SW shore of Union Bay. 64 SL
16-April	1.4 nm spawn SW shore of Union Bay. 2.2 nm spawn cumulative spawn. 39 SL
17-April	1.7 nm active spawn (old milt on either side) SW & W Union Bay. 2.9 nm cumulative spawn. 2 whales, 50 SL, 350 birds
18-April	1.1 nm active spawn NW shore Union Bay 4.0 Nm cumulative spawn. 44 SL, 350 birds.
19-April	No fish or spawn, 22 SL
21-April	0.1 nm spawn added by skiff survey 4.1 nm cumulative spawn. 45 SL, 3000 gulls, 1000 scoters.
23-April	No fish or spawn. 2 SL , 9400 birds

Onslow/Stone/Brownson Island

Total miles of spawn: 0

5-April	No fish or spawn. 0 SL, 0 birds

9-April	No fish or spawn.
18-April	No fish or spawn. 0 SL, 0 birds
23-April	No fish or spawn.

Ship Island
Total miles of spawn: 0.7
Spawning dates: 4/16
Peak spawning: 4/16

5-April	No fish or spawn.
9-April	No fish or spawn. 5 SL
12-April	No fish or spawn. 0 SL, 0 birds
16-April	**0.7 nm active spawn** 2 miles below Three Islands. 3 SL
17-April	No fish or spawn.
18-April	No fish or spawn. 2 SL, 20 birds
19-April	No fish or spawn.
21-April	No fish or spawn.
23-April	No fish or spawn.

Canoe Pass
Total miles of spawn: 0

5-April	No fish or spawn.
9- April	No fish or spawn.
17- April	No fish or spawn.
18- April	No fish or spawn.
19- April	No fish or spawn.

Zimovia St. Eastern Pass
Total miles of spawn: 0

19-April	No fish or spawn.

Farragut Bay
Total miles of spawn: 0.2

18-April	2 Schools W. shore North Arm (1 small, 1 medium) , no milt 1 SL
22-April	No fish or spawn. 12 SL
24-April	No fish or spawn. 6 SL
26-April	No fish or spawn. 8 SL
28-April	No fish or spawn.
29-April	No fish or spawn. 6 SL
30-April	3 schools W. shore North Arm, no milt 14 SL.
1-May	2 schools W. Shore outside North Arm, no milt, 1 SL.
9-May	**0.2 nm of eggs** mapped by skiff.

Hobart Bay
Total miles of spawn: 3.5
Spawning dates: 4/28-4/30
Peak spawning: 4/29

18-April No fish or spawn. 78 SL
22- April No fish or spawn. 94 SL
24- April No fish or spawn. 85 SL
26- April No fish or spawn. 92 SL, 1 whale
28- April 6 Herring schools from Herring Lagoon & North Spawn started N. of CAA station 0.1 nm spawn-milt 66 SL, 2 whales, 400 gulls, 300 scoters
29- April 3.0 nm active spawn 3.1 nm cumulative spawn. 132 SL, 4 whales, 4500 scoters, 1000 gulls, schools at Libby Cr. & S. of Herring Lagoon & at Foul Pt.
30- April 1.7 nm milt, Herring Lagoon N. Foul Pt. S. 3.5 nm cumulative. 36 SL, 500 gulls, 800 scoters 11 schools of Herring
1-May No fish or spawn. 100 SL, 3000 gulls, 4500 scoters

Port Houghton
Total miles of spawn: 0

18-April No fish or spawn. 10 SL, 50 gulls, 100 scoters
22- April No fish or spawn. 8 SL, 1 whale
24- April No fish or spawn. 3 SL, 100 gulls, 700 scoters
26- April No fish or spawn. 1 whale, 700 scoters
28- April No fish or spawn. 5 SL, 200 gulls
29- April No fish or spawn. 50 gulls
30- April No fish or spawn. 5 SL
1-May 6 small schools W. of Bluffs, no spawn, 200 scoters

Sunset Cove, Windham Bay
Total miles of spawn: 2.5
Spawning dates: 4/28-4/30
Peak Spawning: 4/28
Escapement: N/A

18-April No fish or spawn. 5SL, +100 SL on Sunset Cove haulout and 170 SL on Sunset Is. Haulout.
24- April No fish or spawn.
26- April No fish or spawn. 16 SL
28- April **2.0 nm spawn** Rockpile Cove 2 schools N. Rockpile Cove. 50 SL
29- April **0.3 nm spawn** Sunset Cove and N. to Rockpile 2.2 nm cumulative spawn. 57 SL, 600 gulls. 3 schools in Sunset Cove and N. to Rockpile.
30- April **0.5 nm spawn** N. and S. Rockpile. 2.5 cumulative spawn. 13 SL, 200 scoters, 200 gulls. 12 schools Sunset Cove and N. of Rockpile
1-May No fish and 2 spots of milt. 0 SL, 4000 gulls

Port Camden

Total miles of spawn: 0.1(+)
Spawning dates: 4/28-4/29
Peak spawning: 4/28
Escapement: N/A

24-April No fish or spawn. 3000 gulls N. Port Camden, 12 Killer whales @ Pinta Pt.

29- April	First spawn occurred 4/28, 0.1 nm old milt on W. shoreline. 6 schools around island on west shoreline.
30- April	2 small schools NW shore
2-May	small spawn on W. shore N. (no amount stated) 1 school W. shore, 2 small and 2 large on E. shoreline.

Three Mile Arm

Total miles of spawn: 0

24-April	No fish or spawn, 0 SL, 0 birds
29- April	No fish or spawn, 0 SL, 0 birds

Gambier Bay

Total miles of spawn: 0

29-April	No fish or spawn
1-May	No fish or spawn

Pybus Bay

Total miles of spawn: 0

29- April	No fish or spawn
1-May	1 school Midway Island, no spawn. 0 SL, 0 birds

Appendix C. 4. 2002 Craig herring spawn surveys.

Tuesday, March 19, 2002. A small active spot spawn was reported to the Craig ADF&G office

Thursday, March 21, 2002. A skiff survey was conducted from mid morning to early afternoon. No activity was seen except for sea lions and birds. (House)

Friday, March 23, 2002. A skiff survey was conducted during midday from Cape Suspiro to Abbess Island. No activity except for sea lions. (House)

Tuesday, March 26, 2002. An aerial survey was conducted this morning. No herring or herring activity was observed. Sea lion activity in the area has been building. (House)

Wednesday, March 27, 2002. A skiff survey was conducted today between 10 am and 1 pm. Sea Lion and eagle activity seen. (House)

Thursday, March 28, 2002. A skiff survey was conducted from Cape Suspiro to the northern end of Fish Egg Island. At the north end of Fish Egg Island, the survey was terminated due to engine problems. (House)

Friday, March 29, 2002. An aerial survey was conducted mid morning. South of the northern end of Fish Egg Island there has been a limited increase in predators. Sea Lion and bird activity seen. (House)

Saturday, March 30, 2002. A skiff survey was conducted during mid morning to mid afternoon. Schools of herring were seen leading the beach, in the shallows, but no active spawning has occurred. Predator and fish activity continues to increase. (House)

Sunday, March 31, 2002. Skiff and aerial survey were conducted**. 1/2 to 3/4 mile of Active spawn** was observed on the southern tip of Fish Egg Island and also on the northwest side of the island. Several large schools of herring were observed on the northeast side of Fish Egg Island. (House)

Monday, April 1, 2002. An aerial survey was conducted of the mid morning. **1.5 miles of active herring spawn** was observed on the west side of Fish Egg Island. Schools of herring were sighted on the southeast side of Fish Egg Island and northwest of the westernmost Ballena Island. (Doherty)

Tuesday, April 2, 2002. An aerial survey was conducted mid morning. Approximately **4 miles of spawn** were seen around Fish Egg Island and in the Ballena Islands area.

Over ¾ of a mile of active spawn was seen in the Alberto Islands. Numerous schools of herring were seen in front of the pounds and in among the pounds. Several large schools of herring were seen stirring up the bottom sediment. **Active spawn** was seen in the north cove and at the head of the bay in the Albertos Islands. Schools of herring were seen west of Clam Island and in Klawock Inlet south of Entrance Point. (House and Walker)

Wednesday, April 3, 2002. A aerial survey was conducted at 9:30 am and **active spawn** was seen around Fish Egg Island and along the western shore of the west Ballena Island. **Active spawn** was seen from the ballpark along the western shore to Cape Suspiro. **Active spawn** was seen on the southwest side of Craig and also along the northern shore near the state airplane dock. **Spot spawns** were observed at the entrance of Crab Bay and along the western shore of False Island, continuing to north of the fuel dock. **Active spawn** was observed along the south side of the eastern Alberto Island and from north cove along the western shore of Wadleigh Island to an unnamed small cove on the northwest side of Wadleigh island. This day was the peak of spawn activity in the Craig/Klawock area. (Doherty)

Thursday, April 4, 2002. An Aerial survey was conducted mid morning and **active spawn** was observed on the west side of Fish Egg Island with **spot spawns** on the southern tip of the island, a small spawn on the north end of the eastern Ballena Island, two **spot spawns** near Cape Suspiro and several **spot spawns** on the north side of Craig to north of the fuel dock. **Small spawns** were also seen in the pounding area on the southwest side of the eastern Alberto Island and on the west side of Wadleigh Island near the pounds in the Alberto Islands, in north cove, and on the northwest side of the island. (House and Walker)

Friday, April 5, 2002. A skiff survey was conducted and a **small spawn** was seen Just north of Cape Suspiro. (House)

Saturday, April 6, 2002. A aerial survey was conducted mid morning and a **small spawn** was seen just south of shelter cove and another one in Crab Bay. Predator activity is decreasing. (House)

Sunday, April 7, 2002. A aerial survey was conducted mid morning and **small spot spawns** were seen on the southern end of Fish Egg Island on the bay near the Craig airplane dock. A **spot spawn** was seen near the Alberto Islands. (House)

Tuesday, April 9, 2002. An aerial survey was conducted mid morning and no spawn was seen. Large concentrations of sea lions were seen around the Alberto Islands. (Walker)

Friday, April 12, 2002. An aerial survey was conducted mid morning and no spawn was seen. (House)

Appendix C. 5. 2002 Kah Shakes/Cat Island/Annette Island herring surveys.

Friday, March 22, 2002. An aerial survey was conducted mid day. Weather was overcast with light rain. There was minimal bird activity and one school of herring was seen outside of Kah Shakes Cove.

20 sea lions were seen on the west shore of Annette Island (Walker)

Thursday, March 28, 2002. An aerial survey was conducted from 8:00 to 9:00 am. Weather was light overcast. Nothing was seen except for some birds on the northwest side of Mary Island.

60 Sea lions all around Ham Island and concentrated on the south end. Three whales seen on the southeast end of Ham Island. 6 sea lions just north of Ham Island. 30 sea lions seen around Crab Bay. (Walker)

Sunday, March 31, 2002. An aerial survey was conducted from 8:45 to 9:30 am. Weather was clear/sunny with snow squalls. Nothing was seen except for some birds near Kah Shakes Cove.

81 sea lions and lots of bird activity seen around Ham Island and Cascade Inlet. Some sea lions and birds north of Crab Bay. Continuous sea lion activity on eastern shore of Annette Island. No spawn. Fishery not active yet. (Walker)

Wednesday, April 03, 2002. Aerial Survey. No herring activity was noted in the Cat Island area or the mainland shore from Foggy Bay to Point Sykes. No sea lion or bird activity was seen in these areas.

Spawn starting just north of Crab Bay. Approximately 40 Annette Island gillnet fishermen have nets in water. Approximately 100 sea lions are located from Kwain Bay north into Cascade Inlet. Schools of herring were noted in Crab Bay neat the area of active spawn. (Doherty)

Friday, April 5, 2002. No herring activity was noted in the Cat Island area or the mainland shore from Foggy Bay to Point Sykes. No sea lion or bird activity was seen in these areas.

Spawn in Kwain Bay and from Crab Bay north for approximately 1.5 nautical miles. Annette Island Gillnet fishing continues. No other herring are seen along the Annette Island shore. (Walker)

Sunday, April 7, 2002. Aerial survey. No herring activity was noted in the Cat Island area or the mainland shore from Foggy Bay to Point Sykes. No sea lion or bird activity was seen in these areas.

Small spot spawn in Kwain Bay on Annette Island. Commercial gillnet fishing activity is over. No other herring seen along Annette Island shore. (Doherty)

Wednesday, April 10, 2002. An aerial survey from 9:00 to 9:30 showed no spawn or herring activity in the Revilla Channel area. The survey included the Annette Island shore, Duke, Cat, and Mary Islands, and the mainland shoreline from Foggy Bay to Point Sykes. (Doherty)

Appendix C. 6. 2002 West Behm Canal herring stock surveys.

Several partial surveys done in association with eulachon research and little activity seen except for sea lions along the Cleveland Peninsula and some on Survey Point. (Walker)

Thursday, March 28, 2002. An aerial survey was conducted from 9:00 to 10:00 am. Weather was light overcast and light wind. 4 pods of sea lions on Point Higgins and Survey Point. Sea lions around Clover Island, Flag Island and around Pup Island for a total of 47 sea lions. 50 sea lions seen around Tatoosh Islands and on the western shore of Betton Island. The largest concentrations of sea lions were inside the Tatoosh Islands. 8 sea lions seen at Vallenar Point. One pod of sea lions seen at Raymond Cove and one at Wadding Cove. 6 sea lions seen in Bond Bay along with a few birds. (Walker)

Sunday, March 31, 2002. An aerial survey was conducted from 7:30 to 8:30 am. Weather was clear/sunny with snow squalls. No spawn seen. 500 pacific white-sided dolphins seen in Vallenar Bay. Sea lions at Pond Reef, Survey Point, Pup Island, Clover Island and Tatoosh Rocks for a total of 76. 15 sea lions seen on the north end of Betton Island. 8 sea Lions seen on South side of Grant Island.
10 sea Lions seen around Raymond and Wadding Cove. Sea lions around Helm Point. Sea Lions in Bond Bay feeding on herring. (Walker)

Monday, April 01, 2002. An aerial survey was conducted from 10:45 am to 11:30 am. Weather was sunny and clear. No herring or spawn was seen. 5 sea lions we seen near Caamano Point and 5 sea lions were seen near Helm Point. Around Betton Island 60 sea lions were seen. 5 sea lions were seen near Survey Point. (Doherty)

Tuesday, April 02, 2002. Aerial survey. After a report of spawn, Dave Doyon flew a late afternoon aerial survey to look for spawn. Approximately **2 miles of spawn** were seen on the Cleveland Peninsula shore near Wading Cove. Test fisherman Dave Lawler was informed and he started fishing late that night. No other spawn was seen in the West Behm Canal area. 30+ sea lions in the Betton Island/Survey Point area. (Doyon)

Wednesday April 03, 2002. An aerial survey starting at 8:30 showed **5 miles of spawn** from Helm Point to Point Francis. Test fishers Dave Lawler and Jim Scudero were actively fishing near Helm Point. Sea lions were scattered along the shoreline from Helm Bay to Bond Bay. In the Clover Pass/Betton Island area several pods of sea lions were noted, but no herring or herring spawn was mapped. No herring were seen in the Vallenar Bay area. Survey conditions were clear and calm. Excellent conditions. (Doherty)

Thursday April 04, 2002. An aerial survey was done from 8:30 through 9:30. **Active spawn** was mapped near Mud Bight and Pond Reef. **Good spawn** was mapped in the Point Higgins/Survey Point area. Approximately **¾ mile of spawn** was mapped at Indian Point. **Good spawn** was mapped from Point Francis to inside Helm Bay. **Spawn was just starting** at South Vallenar Point and Vallenar Point. Lawler and Scudero were almost finished fishing. They had fished near Helm Point for the entire test fishery. (Doherty)

Friday, April 05, 2002. Aerial survey from 8:30 through 9:00. **Continuing spawn** was mapped in the Survey Point/Point Higgins area. **Active spawn** was mapped near Helm Point, Mike Point, and Point Francis. Spawning in these areas was less than the day before. **New spawn** was mapped along the east side of Vallenar Bay and a continuing **spawn was mapped** at South Vallenar Point. (Doyon)

Saturday, April 06,2002. An aerial survey was conducted from 7:30 through 8:30. Spawning in most areas had subsided from the previous two days. **Light spawn** was mapped near Whipple Creek, Point Higgins, Helm Point, the east side of Vallenar Bay, and South Vallenar Point. (Walker)

Sunday, April 07,2002. An aerial survey was done from 8:30 through 9:00. **Spot spawns** were mapped near Helm Point, Point Francis, and South Vallenar Point. The remainder of the area looked as though the herring and spawning activity for the year had come to an end. (Doherty)

Wednesday, April 10, 2002. An aerial survey was conducted from 10:00 through 10:30. No spawn or herring were seen. Scattered sea lions were noted but the numbers were much less than previous surveys. (Doherty)

Appendix C. 7. 2002 Kasaan Bay

Wednesday, April 03, 2002. Aerial survey. Mapped approximately **2 miles of spawn** just west of Kasaan Village. 20 sea lions were seen in the area. (Doherty)

Thursday, April 04, 2002. Aerial survey. **Active spawn** seen west of Kasaan Village. Amount of spawn was less then the previous day. (Doyon)

Misc.

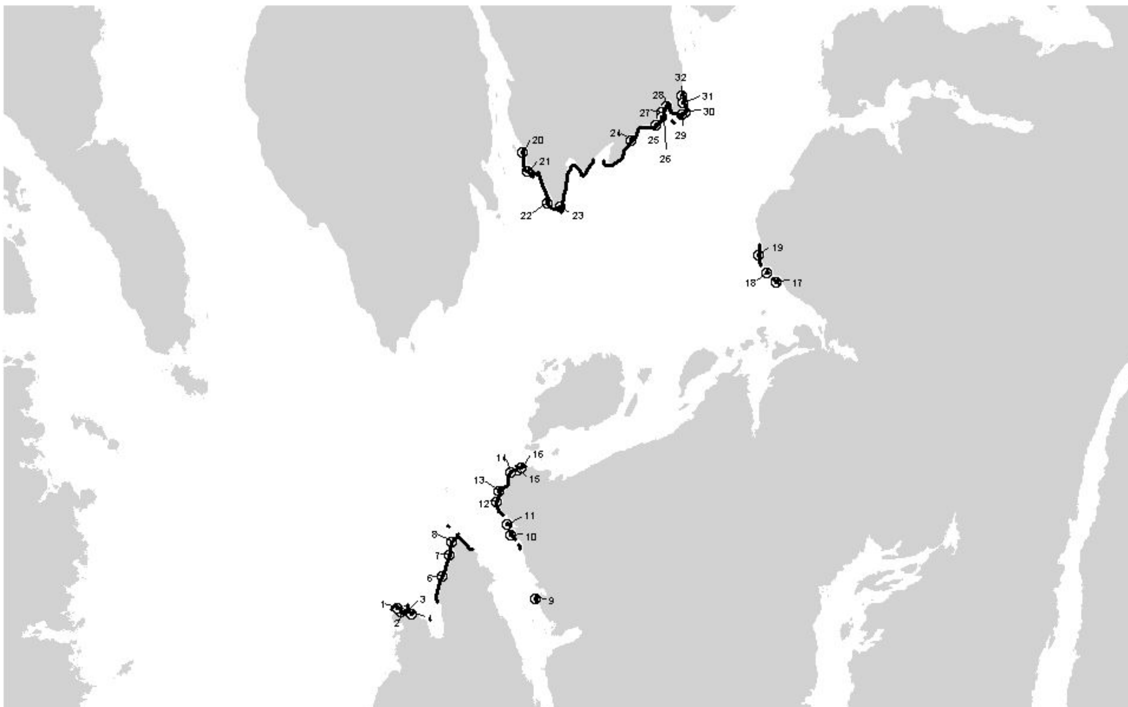
April 23, 2002. **1/4 mile of intense spawn** seen at Herman Creek in West Behm Canal. (Doyon). Approximately **two miles of spawn** were seen near the mouth of the Unuk River. (Walker). Surveyors; Dave Doyon, Phil Doherty, Don House and Scott Walker.

Appendix C. 8. 2002 Juneau Area

A synopsis for Juneau area 2002 herring surveys is not available. Juneau surveys include Tenakee Inlet, Lynn Canal, Olivers Inlet, Seymour Canal, and surrounding areas. For information regarding 2002 Juneau area surveys please contact the Juneau Area Management Biologist (907 465-4250).

Appendix D. Locations of herring spawn, transect, and transect coordinates (decimal degrees) used during spawn deposition surveys in 2002. Lines indicate spawn. Due to map detail, spawn may not always appear to be associated with shoreline when around small islands and shallow reefs.

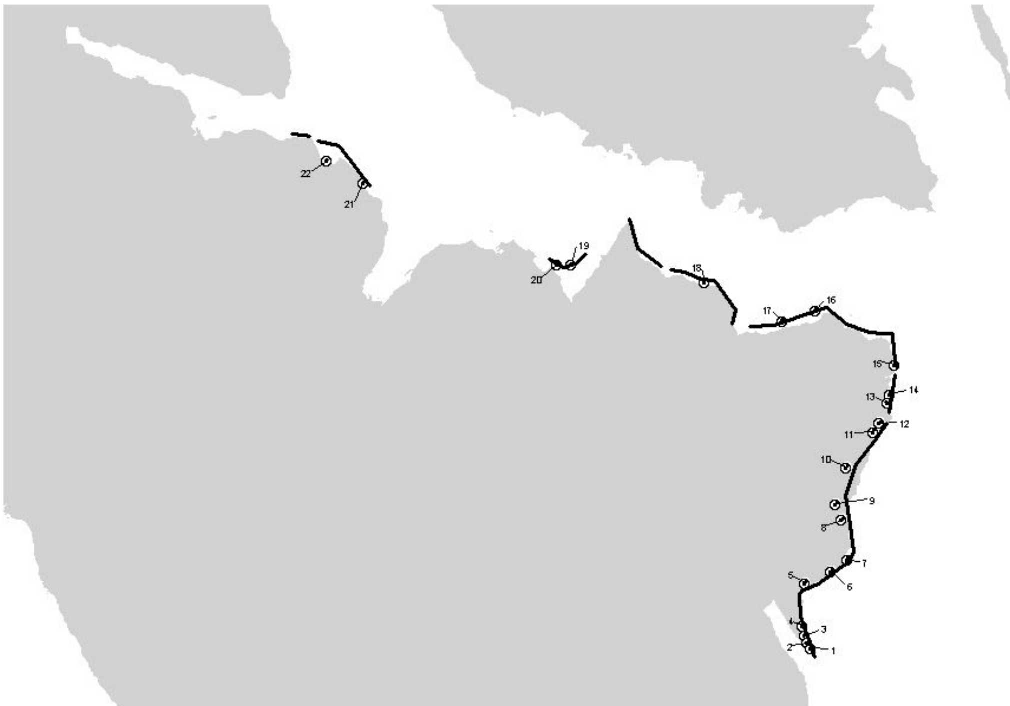
Appendix D.1. West Behm Canal spawning stock 2002 transect locations and spawn.



West Behm Canal 2002 Transect Coordinates

Transect	Latitude	Longitude	Transect	Latitude	Longitude
1	55.38123	-131.87625	17	55.61037	-131.68105
2	55.38063	-131.87174	18	55.61276	-131.69246
3	55.38178	-131.86810	19	55.61889	-131.70532
4	55.38190	-131.86186	20	55.61895	-131.93658
5	55.38434	-131.86925	21	55.61113	-131.92527
6	55.40536	-131.85102	22	55.60038	-131.89812
7	55.41671	-131.85227	23	55.60163	-131.88584
8	55.42359	-131.85467	24	55.64673	-131.85112
9	55.41393	-131.76642	25	55.65860	-131.83640
10	55.43870	-131.80939	26	55.66410	-131.83420
11	55.44273	-131.81563	27	55.66620	-131.83580
12	55.45129	-131.83280	28	55.66960	-131.83470
13	55.45685	-131.83414	29	55.66900	-131.81890
14	55.46770	-131.83184	30	55.67090	-131.81730
15	55.47042	-131.82704	31	55.67480	-131.82230
16	55.47200	-131.82484	32	55.67780	-131.82580

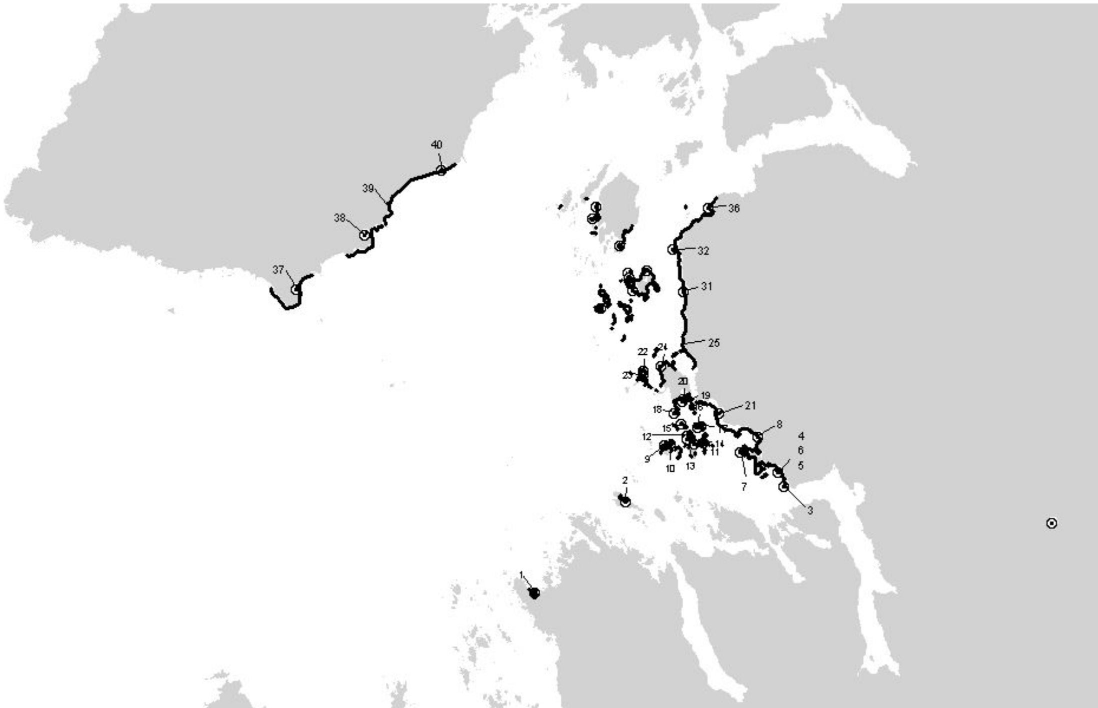
Appendix D.2. Tenakee Inlet spawning stock 2002 transect locations and spawn.



Tenakee Inlet 2002 Transect Coordinates

Transect	Latitude	Longitude		Transect	Latitude	Longitude
1	57.66423	-134.90151		12	57.73802	-134.92250
2	57.66519	-134.90510		13	57.74486	-134.92380
3	57.66691	-134.90829		14	57.74766	-134.92440
4	57.66944	-134.91161		15	57.75661	-134.92951
5	57.68204	-134.92145		16	57.76153	-134.98551
6	57.68903	-134.91046		17	57.75381	-135.00028
7	57.69444	-134.90458		18	57.75422	-135.05212
8	57.70518	-134.91800		19	57.74089	-135.12793
9	57.70895	-134.92529		20	57.73911	-135.13573
10	57.72085	-134.92900		21	57.73542	-135.26013
11	57.73440	-134.92376		22	57.73686	-135.28530

Appendix D.3. Sitka Sound spawning stock 2002 transect locations and spawn.



Sitka Sound 2002 Transect Coordinates

Transect	Latitude	Longitude	Transect	Latitude	Longitude
1	56.95170	-135.38330	21	57.04790	-135.31980
2	57.00000	-135.35320	22	57.05000	-135.38300
3	57.03300	-135.25360	23	57.04840	-135.38160
4	57.03700	-135.26200	24	57.05470	-135.37290
5	57.03700	-135.26200	25	57.06600	-135.06630
6	57.03700	-135.26200	26	57.06470	-135.43070
7	57.03750	-135.29340	27	57.07660	-135.41550
8	57.04600	-135.28660	28	57.08080	-135.42140
9	57.02690	-135.34510	29	57.08230	-135.42390
10	57.02840	-135.34210	30	57.08620	-135.41220
11	57.03230	-135.32640	31	57.08500	-135.38200
12	57.03410	-135.33370	32	57.09840	-135.40200
13	57.03280	-135.33180	33	57.09050	-135.43780
14	57.03440	-135.32060	34	57.09520	-135.46470
15	57.03730	-135.34060	35	57.10030	-135.46570
16	57.03900	-135.32910	36	57.11940	-135.39200
17	57.03980	-135.32720	37	57.01840	-135.63590
18	57.04000	-135.34920	38	57.04990	-135.60840
19	57.04540	-135.34740	39	57.36410	-135.60370
20	57.04680	-135.34720	40	57.08640	-135.57900

Appendix D.4. Seymour Canal spawning stock 2002 transect locations and spawn.

Seymour Canal 2002 Transect Locations

Transect	Latitude	Longitude	Transect	Latitude	Longitude
1	57.68694	-133.96351	14	57.63640	-133.87928
2	57.68140	-133.94791	15	57.63052	-133.87335
3	57.67687	-133.94114	16	57.62050	-133.85601
4	57.67346	-133.93554	17	57.61221	-133.85746
5	57.66627	-133.92346	18	57.60429	-133.85467
6	57.66351	-133.91686	19	57.59792	-133.85344
7	57.65925	-133.90836	20	57.58627	-133.84303
8	57.64882	-133.89606	21	57.57119	-133.82637
9	57.64882	-133.89326	22	57.56896	-133.82167
10	57.64702	-133.89248	23	57.56848	-133.81630
11	57.64408	-133.88990	24	57.56968	-133.81317
12	57.64294	-133.88744	25	57.59888	-133.80377
13	57.63976	-133.88051			

Appendix D.5. Hoonah Sound spawning stock 2002 transect locations and spawn.

Hoonah Sound 2002 Transect Coordinates

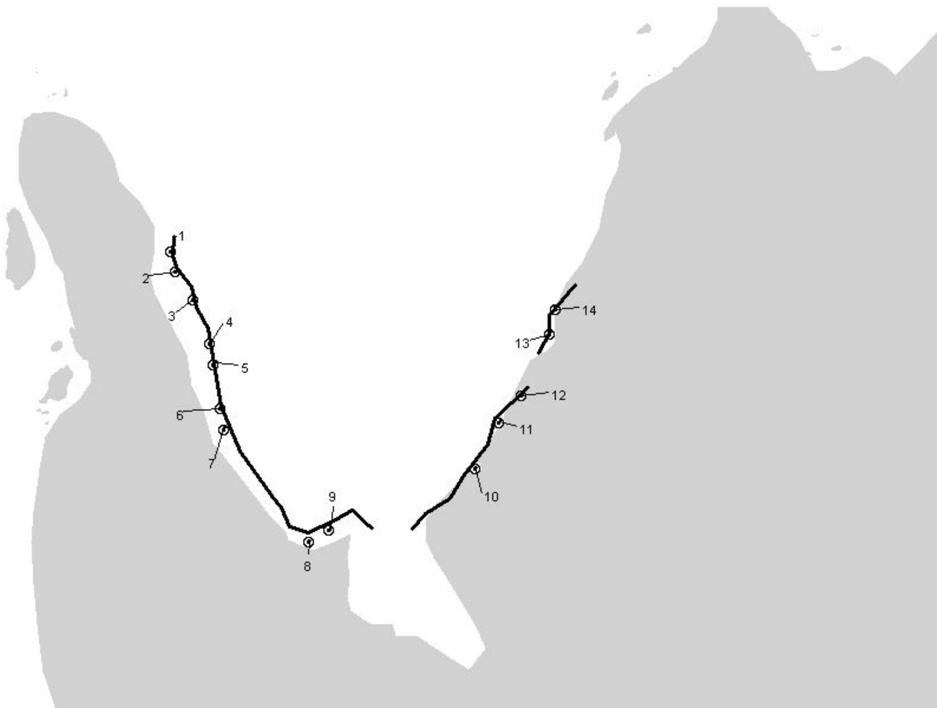
Transect	Latitude	Longitude	Transect	Latitude	Longitude
1	57.54182	-135.33648	11	57.58856	-135.52743
2	57.59689	-135.57274	12	57.58847	135.52063
3	57.59872	-135.57631	13	57.59466	-135.51070
4	57.60776	-135.60212	14	57.60763	-135.52967
5	57.61248	-135.61332	15	57.61097	-135.54362
6	57.62001	-135.63656	16	57.59760	-135.56054
7	57.62281	-135.64400	17	57.61309	-135.57133
8	57.62976	-135.65415	18	57.61885	-135.57820
9	57.59097	-135.54038	19	57.61685	-135.58140
10	57.58941	-135.53656	20	57.63790	-135.49060

Appendix D.6. Hobart Bay spawning stock 2002 transect locations and spawn.

Hobart Bay 2002 Transect Coordinates

Transect	Latitude	Longitude	Transect	Latitude	Longitude
1	57.42660	-133.45020	13	57.44410	-133.49480
2	57.42530	-133.45230	14	57.45000	-133.50640
3	57.42400	-133.45340	15	57.46060	-133.50940
4	57.43160	-133.48570	16	57.46060	-133.50940
5	57.43190	-133.47720	17	57.47880	-133.51650
6	57.43200	-133.47310	18	57.50300	-133.52590
7	57.43430	-133.47480	19	57.51580	-133.52130
8	57.43320	-133.47740	20	57.51760	-133.51720
9	57.43590	-133.48120	21	57.51870	-133.51440
10	57.44110	-133.48590	22	57.52030	-133.51430
11	57.44140	-133.48910	23	57.52260	-133.51480
12	57.44210	-133.49080	24	57.53250	-133.51510

Appendix D.7. Earnest Sound spawning stock 2002 transect locations and spawn.



Earnest Sound 2002 Transect Coordinates

Transect	Latitude	Longitude
1	55.75678	-132.25224
2	55.75515	-132.25003
3	55.75328	-132.24527
4	55.75000	-132.23950
5	55.74830	-132.23750
6	55.74460	-132.23330
7	55.74280	-132.23130

Transect	Latitude	Longitude
8	55.73610	-132.20970
9	55.73790	-132.20720
10	55.74930	-132.18820
11	55.75440	-132.18770
12	55.75770	-132.18600
13	55.76440	-132.18580
14	55.76690	-132.18660

Appendix D.8. Craig spawning stock 2002 transect locations and spawn.

Craig 2002 Transect Coordinates

Transect	Latitude	Longitude	Transect	Latitude	Longitude
1	55.46163	-133.14576	15	55.50197	-133.16894
2	55.46350	-133.14810	16	55.50452	-133.17147
3	55.46750	-133.14710	17	55.49784	-133.16352
4	55.47350	-133.15250	18	55.50334	-133.17505
5	55.48050	-133.14220	19	55.49817	-133.18981
6	55.48760	-133.14240	20	55.48298	-133.18520
7	55.49420	-133.13680	21	55.48246	-133.18404
8	55.46500	-133.19000	22	55.53854	-133.17367
9	55.47050	-133.20300	23	55.54835	-133.16271
10	55.48180	-133.16130	24	55.55234	-133.16133
11	55.48700	-133.15990	25	55.55613	-133.15948
12	55.49542	-133.16675	26	55.55953	-133.15994
13	55.49817	-133.17147	27	55.57340	-133.15487
14	55.49981	-133.16917	28	55.57600	-133.15083