

PRINCE WILLIAM SOUND MANAGEMENT AREA

1997 ANNUAL FINFISH MANAGEMENT REPORT



By:

Steve Morstad

Daniel Sharp

John Wilcock

Tim Joyce

J. Johnson

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Commercial Fisheries Management and Development Division, Central Region  
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## AUTHORS

Steve Morstad is the Copper/Bering River area finfish management biologist for the Alaska Department of Fish and Game, Commercial Fisheries Management and Development Division, P.O. Box 669, Cordova, Alaska, 99574.

Daniel Sharp is the Prince William Sound area finfish management biologist for the Alaska Department of Fish and Game, Commercial Fisheries Management and Development Division, P.O. Box 669, Cordova, Alaska, 99574.

John Wilcock is the Prince William Sound area salmon research project leader for the Alaska Department of Fish and Game, Commercial Fisheries Management and Development Division, P.O. Box 669, Cordova, Alaska, 99574.

Tim Joyce is the Prince William Sound area resource development biologist for the Alaska Department of Fish and Game, Commercial Fisheries Management and Development Division, P.O. Box 669, Cordova, Alaska, 99574.

J. Johnson is the Prince William Sound area assistant finfish management biologist for the Alaska Department of Fish and Game, Commercial Fisheries Management and Development Division, P.O. Box 669, Cordova, Alaska, 99574.

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## PRINCE WILLIAM SOUND SALMON FISHERIES

### *Management Area Description*

The Prince William Sound (PWS) management area encompasses all coastal waters and inland drainages entering the northcentral Gulf of Alaska between Cape Suckling and Cape Fairfield (Appendix A.1). This area includes the Bering River, Copper River and all of Prince William Sound with a total adjacent land area of approximately 38,000 square miles.

The salmon management area is divided into eleven districts that correspond to the local geography and distribution of the five species of salmon harvested by the commercial fishery. The management objective for all districts is the achievement of escapement goals for the major species while allowing for the orderly harvest of all fish surplus to spawning requirements. In addition, the department follows regulatory plans to manage fisheries and assist private non-profit (PNP) hatcheries in achieving cost recovery and brood stock objectives.

Six hatcheries contribute to the area's fisheries. Five are operated by the regional aquaculture association, Prince William Sound Aquaculture Corporation (PWSAC). The Gulkana Hatchery in Paxson augments the production of sockeye salmon to the Copper River. The Cannery Creek Hatchery located on the north shore of the Sound, and the A.F. Koernig Hatchery in the southwestern Sound produce pink salmon, the Noerenberg Hatchery in the northwestern Sound produces pink, chum, coho and chinook salmon and the Main Bay Hatchery in the western Sound produces sockeye salmon. Valdez Fisheries Development Association (VFDA) operates the Solomon Gulch Hatchery in Port Valdez and produces pink and coho salmon.

Gear for the salmon fishery includes purse seine, drift and set gillnet. Drift gillnet permits are the most numerous and are allowed in the Bering River, Copper River, Coghill, Unakwik and Eshamy Districts. Set gillnet gear is allowed only in the Eshamy District. Purse seine gear is allowed in the Eastern, Northern, Unakwik, Coghill, Northwestern, Southwestern, Montague and Southeastern Districts (Appendix A.2.).

As an avenue for the commercial fishing industry to formally provide management recommendations to the department, representatives from area processing, gear groups, and aquaculture associations sit on an advisory body known as the PWS Salmon Harvest Task Force (SHTF).

Five herring fisheries occur during the year. Four of the herring fisheries occur in the spring; gillnet sac roe, purse seine sac roe, spawn-on-kelp not in pounds, and spawn-on-kelp in pounds. A herring food and bait fishery occurs in the fall. All of the herring fisheries are managed for a guideline harvest level established by the Prince William Sound Herring Management Plan, 5 AAC 27.365. The management objective for herring is to target fisheries on a high quality segment of the biomass.

### *Overview of Area Wide Fisheries*

The 1997 Prince William Sound Area commercial salmon harvest of 32.36 million fish is the fifth highest on record (Appendix A.3). The harvest was comprised of 25.84 million pink, 4.16 million sockeye, 2.23 million chum, 83,113 coho, and 52,482 chinook salmon (Appendix A.2.). The majority of the catch, 21.43 million, was common property harvest and 10.94 million were sold for hatchery cost recovery (exclusive of roe/meal sales).

The estimated value of the combined commercial salmon harvest is \$42.75 million, including hatchery sales (Appendices A.5 and A.6). During the 1997 season, 520 drift gillnet permit holders fished. The drift gillnet catch is valued at \$23.87 million, setting the average earnings at \$45,909. The set gillnet catch is valued at \$1,093,504, setting the average earnings of the 26 participating permits at \$54,058. The seine fishery was worth \$8.82 million for an average ex-vessel value of \$77,359 for the 114 permit holders that participated this year (Appendix A.8). Revenue generated for hatchery operations (exclusive of roe/meal sales) was approximately \$8.97 million.

## 1997 SEASON SUMMARY BY DISTRICT

### *Copper River District*

#### Preseason Outlook and Harvest Strategy

The 1997 harvest forecast for the Copper River District was 46,000 chinook, 1.5 million sockeye, and 335,000 coho salmon. The Gulkana Hatchery, located north of Paxson Lake, was expected to contribute approximately 200,000 sockeye salmon to the commercial catch.

The 1997 sockeye salmon harvest of 2,955,430 is the largest on record surpassing 1996's record harvest of 2.35 million (Appendices B.1, B.2 and B.3). The harvest of 51,270 chinook salmon, was the fifth largest harvest and this occurred in spite of area restrictions in the first commercial fishing period. The inriver goal past Miles Lake sonar of 592,000 salmon was exceeded with an estimated 1,148,100 salmon passing the sonar site. The sockeye aerial escapement index for the Copper River Delta systems was 57,000, 23 % below the index goal of 74,500.

The traditional fishing schedule for the Copper River District is two 24-hour periods per week. Periods begin at 7:00 a.m. on Mondays and 7:00 p.m. on Thursdays. The lengths of fishing periods are adjusted by emergency order as needed. After August 7, coho management begins with two 24-hour periods per week, which is adjusted as needed, based on run strength. Fishing periods during the coho fishery begin at 12:00 noon.

Early in the season, management of the Copper River District is based on the actual harvest as compared to the anticipated harvest. This is the most reliable method of evaluating early run strength prior to the installation of the inriver sonar at Miles Lake. In late May, sonar counts and commercial harvest information become the primary factors governing management of the fishery. The inriver goal for the upper Copper River was increased in 1997 to 592,000 salmon. This increase occurred at the Board of Fisheries (BOF) meeting in December 1996 which provided an increase in the personal use fishery from 60,000 to 100,000 salmon and also authorized the department to set the subsistence harvest annually based on past performance. However, if the commercial fishery is closed for 13 consecutive days due to poor run strength the personal use allocation drops to 50,000 salmon.

By mid-June, aerial estimates of sockeye escapement in the Copper River Delta systems become an additional consideration when scheduling commercial fishing periods. Due to the many spawning systems in the lower Copper River Delta, an actual weekly escapement index of selected sockeye systems is compared to an anticipated weekly escapement index. The escapement index goal for the Copper River Delta is 90,000 sockeye salmon.

## Season Summary

The 1997 commercial fishing season began on May 15, harvesting 195,398 sockeye and 7,243 chinook salmon during the 24-hour period (Appendix B.4). The sockeye harvest (second largest on record) was more than six times the projected harvest of 30,000 while the chinook harvest was slightly more than the projected harvest of 5,689 (Appendices B.5 and B.6). This reduced chinook harvest can be attributed to the closed waters inside of the barrier islands from Pete Dahl Entrance to the east-side of Kokenhenik Island (Appendix B.7).

Water flow conditions for the Copper River were near average and the river was free of ice up to and including Miles Lake. The area's weather, up to this point, was characterized by above normal air and sea temperatures and calm seas. Miles Lake sonar began operations at midnight on May 16. Initial fish counts past the sonar site were low. Similar to 1996, the 1997 season began with a harvest exceeding projections and passage rates at the sonar site below the projected rates. During 1996, the commercial harvest started out strong and continued throughout the season. This season started out even stronger and the potential existed for an even larger return. With the first period's harvest four times the projected, a second 24-hour period occurred on Monday, May 19. This second period would further help to assess the strength of the salmon return. Weather conditions remained calm and clear during the second period and, like 1996, the second period's harvest increased to 208,753 sockeye and 11,052 chinook salmon. The sockeye harvest was nearly four times the projected harvest of 54,000 while the chinook harvest was double the projected harvest of 5,300.

ADF&G personnel operating the Miles Lake sonar were on site May 12, however, river and lake ice prevented sonar deployment until May 16. Ice in Miles Lake hampered sonar operations through the rest of May. The sonar site at Miles Lake is comprised of two Bendix side scan sonar counters. Transducers are deployed on a tripod early in the season when water levels are low and moved to the permanent concrete pads and rails as water levels rise. The first day of operation on May 16 estimated 64 salmon versus an anticipated count of 107 salmon (Appendices B.8 and B.9). Species apportionment between chinook and sockeye is not one of the objectives of the Miles Lake project. The inriver ratio of sockeye to chinook salmon approaches 100 to 1 and the two species' migration patterns are not alike. Chinook have a tendency to migrate further offshore and out of the ensonified zone, versus sockeye's near shore migration pattern. The migration time for salmon to travel from the commercial fishing district to the sonar site ranges from seven to nine days depending on the water level of the Copper River.

The cumulative harvest for the first two periods was 404,151 sockeye and 18,295 chinook; the projected harvest was 83,471 and 11,133 respectively. The sockeye harvest to date was over four times the projected. The sonar's inriver estimate through May 20 was only 942 salmon; the anticipated passage rate was 9,072 salmon. Similar circumstances occurred in 1996 when actual harvests were four times the projected during the first two periods and passage rates past the sonar were far below the projected. In 1996, the third period was delayed seven days, and actual passage rates past the sonar surpassed the projected seven days later and continued above the projected for the rest of the season. A decision on whether to fish on Thursday, May 22 was to be announced at 12:00 noon Wednesday, May 21.

Along with low passage rates past the sonar site, the sockeye harvest was surpassing processor capacities. The harvest during the first two periods exceeded anything experienced before. Early in the season, a vast majority of all fish enter the fresh market. Processing for the fresh market is much slower and processors were straining to clean up following the first two fishing periods. In addition, the peak harvest of sockeye

was expected to occur over the next 10 days. It was felt that with this kind of volume to the catch, a strong escapement through the commercial fishery was also occurring and would soon be reflected in higher counts at the sonar site. A decision was made to reduce fishing periods to 12-hours and fish every other day if possible. The reduced fishing time would increase escapement into the Copper River and keep harvest rates in line with processing capacity to avoid quality deterioration.

The third fishing period occurred on Friday, May 23 for 12-hours. The largest recorded harvest for a single period, 337,721 sockeye and 4,818 chinook, occurred in only 12-hours. Daily passage rates at Miles Lake sonar began to pick up, but were still below the expected. Through Friday, May 23, the anticipated cumulative count past Miles Lake was 18,000 fish; the actual passage was 5,892 fish. However, daily passage rates were increasing and it was felt that actual passage rates would soon be in line with the projected rates. With escapement past Miles Lake less of a concern, processing capacity for this record number of fish influenced the next decision. Through numerous telephone calls to processors, it was determined that they would be ready for fish on Monday, May 26. With expectations that most of the fish would be processed by Sunday evening and, with escapement needs being met, the next commercial fishing period was on Monday, May 26 for 12-hours. During the 12-hour period 230,357 sockeye were harvested. Following Monday's fishing period, the industry indicated it would take until Thursday to process the harvest.

The next scheduled announcement was 12:00 noon Tuesday, May 27. The cumulative passage rate past Miles Lake sonar exceeded the projected rate on May 25 and by May 26, 72,400 salmon had passed the sonar versus an anticipated count of 36,000 salmon. Escapement into the Copper River was double the projected number. The daily passage rate was increasing to four times the projected rate and it was expected to climb further. The timing of the next fishing period was therefore based on processor capacity. With processors ready for fish on Friday, the next fishing period was set for Thursday, May 29 for 12-hours. The harvest from that period was 239,444 sockeye and 4,116 chinook. To keep quality of the pack high, processors began canning sockeye salmon Grade 2 and lower following the third period. Canning also allowed processors to be ready for new fish sooner. In addition, a Norquest floating processor was scheduled to be on line in Cordova on June 3. With processors managing the harvest from Thursday's 12-hour period, the Copper River District was opened for two 12-hour periods; 7:00 a.m. Saturday, May 31 and 7:00 a.m. Monday, June 2. With additional processing capacity available, and the sockeye harvest subsiding, the fishing period on Monday, June 2 was extended an additional 12-hours. Beginning June 5, fishing periods were increased to 36-hours.

The inriver passage rate past Miles Lake on June 17 was 684,317 salmon. An aerial survey of the Copper River Delta on June 17 estimated 26,140 sockeye; the anticipated for that week was 19,900. The cumulative harvest through June 17 for the Copper River District was 2,195,000 sockeye and 49,700 chinook. The anticipated harvest was 845,000 sockeye and 45,500 chinook. With escapement above the projected in both the upper and lower Copper River systems and the commercial harvest still above the projected level, fishing time was increased to two 48-hour periods per week.

Escapements later began to drop in the lower delta systems and so, on July 5, the schedule was reduced to two 36-hour periods per week. Catches also began to drop, indicating the summer run was weaker than the return experienced in May from upriver stocks. Escapement into the lower Copper River Delta continued to lag the projected numbers, and a further reduction in fishing time occurred on July 26 when the Copper River went on a schedule of two 24-hour periods per week.

The Miles Lake sonar project ended on August 3, having estimated the passage of 1,148,079 salmon. The aerial survey index of sockeye salmon escapement within the lower delta systems was 57,070, less than the index goal of 75,000 for the surveyable systems. Aerial surveys of the Upper Copper River chinook and sockeye salmon spawning systems were conducted on July 19 and 20. A total of 7,321 chinook were observed in the nine index systems (Appendix B13). The anticipated aerial index was 3,000 chinook. A majority of the sockeye systems were not flown due to poor weather conditions.

### Coho Salmon Fishery

The coho salmon harvest of 20,000 was only 8% of the projected harvest of 344,000 (Appendix B.5). The coho season officially began on August 11. The fishing schedule was two 24-hour periods per week with adjustments based on the run strength. For the past four years, the recommendation by the SHTF was for a single 48-hour period per week with adjustments to the schedule based on the strength of the run. However, during the strike in 1996, one of the recommendations by the fishermen to the processors was to adjust the schedule to two 24-hour periods per week to improve quality. This recommendation carried over to the SHTF and is currently the management strategy.

Effort during the August 11 period was 180 permits, which is average for this time however, the harvest was only 2,100 coho. The projected weekly harvest was 35,000 coho. An aerial survey of the Copper River Delta on August 7 observed only 40 coho versus an anticipated aerial index of 1,300. The poor harvest from Monday's fishery was reflective of all known coho systems throughout the State. There were poor coho returns statewide and most were closed to commercial, sport, or subsistence fisheries. Based on weak returns in other areas of Alaska and a weak start in the Copper River coho fishery, a conservative approach was necessary and the second 24-hour period was postponed. An aerial survey on August 18 conducted under fair to moderate conditions observed 300 coho; the anticipated was 9,800 for the streams surveyed. With little change in escapement, the Copper River District did not open during the week of August 17. A survey on August 22 under moderate to good conditions observed only 1,200 coho; the projected was 9,800. With escapement still below the anticipated and with no commercial effort since August 11, the Copper River District remained closed during the week of August 25. (Appendix B.15).

The Copper River District had been closed since 12:00 noon Tuesday, August 12. Surveys were conducted when weather conditions allowed. The last survey was on August 22 and less than 10% of the anticipated escapement was observed. The subsistence fishery for the lower Copper River Delta is only open during commercial fishing periods. To provide for reasonable opportunity for subsistence of coho salmon in the Copper River District, an Emergency Order was issued to open the Copper River District to subsistence fishing effective 9:00 a.m. Thursday, August 29. In addition to allowing for subsistence opportunity, the department was able to interview participants on their fishing activity. If coho were holding offshore reluctant to move into freshwater, participants in the subsistence fishery would have little trouble harvesting their limits. In numerous cases, it took several tides to catch fish and many hour-long drifts produced no fish. This information substantiated that the coho return was poor and could not withstand a commercial fishery. The subsistence fishery remained open seven days per week until September 30 when it closed by regulation. The commercial fishery remained closed for the rest of the season.

Surveys were typically conducted under fair to moderate conditions this season. In general, it takes three or four days for systems to recede and clear after heavy rainfall. Due to the climatic conditions this season, most aerial surveys were sporadic and visibility was fair to moderate. In the Eyak Lake, Ibeck Creek, and the Martin Lake systems, glacial over-flow created poor visibility all season and peak estimates are not

reflective to what actually spawned. The final aerial survey estimate for the Copper River Delta was 54,740 coho salmon. The goal for the Copper River Delta is 41,600.

### *Bering River District*

#### Preseason Outlook and Harvest Strategy

The 1997 harvest forecast for the Bering River District was 20,000 to 30,000 sockeye salmon and 139,000 coho salmon. Commercial fishing periods in the Bering River District generally coincide with the Copper River District. The Bering River District escapement index goal is 32,000 for sockeye salmon and 23,000 for coho salmon.

The sockeye salmon harvest of 9,651 was slightly less than half the preseason projection and the lowest since 1990. The observed escapement indices for the Bering River system were 14,365 for sockeye and 39,000 for coho.

#### Season Summary

The Bering River District generally opens the second or third week of June. In 1997, the first period was Thursday, June 12. In 1996, the Bering River District opened a week earlier due to the above average escapement observed on June 4. The first aerial survey for 1997 was on June 5 and observed only 300 sockeye in Bering River and no sockeye in Bering Lake. The anticipated count for the week ending June 8 was 1,060 sockeye. Based on the results of the June 5 survey, an earlier than scheduled opening of the Bering River District was not warranted and remained closed until June 12. The 36-hour period on June 12 harvested 1,475 sockeye, which was within the expected range. The next commercial fishing period on June 16 was for 36-hours and harvested 3,744 sockeye. This was slightly less than expected. An aerial survey on June 17 observed 6,235 sockeye; the anticipated was 6,500. Based on catch and escapement information to date, the Bering River sockeye run was shaping up to be average. The third fishing period occurred on June 19 and harvested only 2,872 sockeye. This is generally the peak of the return and to have harvest drop at this point indicated a less than average run. Historically, 65% of the harvest has occurred by June 21; if this run tracks the curve, it would come in below average. To continue assessment of run strength, a fourth period was scheduled on June 23 which harvested only 1,558 sockeye. The survey on June 23 observed only 11,800 sockeye; the anticipated was 11,200. With catch rates dropping and escapement estimates only marginally above the projected, the Bering River District remained closed for the remainder of the sockeye run.

Aerial surveys for the Bering River District were also hampered this season due to weather. No surveys were completed from June 29 through August 7. Typically, peak survey estimates occur during the second and third week of July for Bering Lake, which comprises 70% of the escapement. Escapement was on track in late June and it was felt that, with the commercial fishery closed, sockeye escapement goals for the Bering River systems were met.

Since 1991, the Bering Lake system has produced an above average return. However, in 1997, the harvest was less than 50% of the projected and the escapement was only average. Unlike the Copper River, the Bering River area sockeye return was weak. This weak return may be attributed to the dumping of Berg Lake a large body of water impounded by the Bering Glacier. On May 31, 1994, Berg Lake broke through and flooded the Bering River valley. When this occurred, the entire area was flooded for a brief period.

Smolt preparing for outmigration and newly emerging fry from the previous year's spawn may have been washed out prematurely or left stranded in isolated water bodies that dried up as water receded.

## Coho Salmon

The coho salmon fishery is managed concurrently with the Copper River and coho management typically begins in early August. The first commercial fishing period for the Bering River District occurred on August 11. The harvest from the August 11 fishing period was significantly below expectations. Since less than three permit holders fished the Bering River District on August 11, catch information is considered confidential for two years.

Escapement into the Bering River/Controller Bay systems followed the trend observed in the Copper River Delta (Appendix B.23). However, the aerial survey on September 12 observed 24,700 coho versus the projected count of 20,200. The Bering River District remained closed for the season primarily because Copper River Delta stocks would have been harvested within the boundaries of the Bering River District. Secondly, the SHTF recommended to the department in 1993 that under no circumstances should the Bering River District be open while the Copper River District remained closed. Lastly, the run was not strong enough to support a commercial fishery.

### *Coghill District (Prior To July 21)*

#### Preseason Outlook and Harvest Strategy

The management strategy prior to July 21 (gillnet only fishery) is concerned primarily with the return of sockeye salmon to Coghill Lake and the return of chum salmon to the Wally Noerenberg Hatchery (WNH). Coghill sockeye are managed for an escapement goal of 25,000, while hatchery chum are managed to satisfy the allocation between the common property fishery and Prince William Sound Aquaculture Corporation's (PWSAC) corporate escapement.

The 1997 Coghill Lake sockeye forecast was 121,000, which included 97,000 sockeye of wild stock origin and 24,000 sockeye from PWSAC's remote releases near the mouth of the Coghill River. The Noerenberg Hatchery expected a return of 1.40 million early chum salmon to the Esther Subdistrict. PWSAC adopted a cost recovery plan for 1997 where they harvest enough fish to meet a revenue goal instead of taking a fixed percentage of the enhanced return. The revenue goal was \$2.4 million from non-pink species or roughly \$1.2 million from Noerenberg chum and \$1.2 million from Main Bay sockeye.

The total for both the common property harvest and the corporate harvest of chum salmon was 1,560,000 fish, slightly more than the preseason forecast. The common property harvest of early chum salmon was 690,000. The hatchery harvested 715,400 chum salmon for sales and the brood stock goal of 160,000 was achieved. The total commercial harvest of sockeye salmon in the district was 227,231. The escapement of sockeye salmon into Coghill Lake was 35,693 sockeye salmon, exceeding the goal by 10,693.

#### Season Summary

The management strategy agreed upon by the SHTF called for opening the Esther Subdistrict for a common property harvest when PWSAC reached a cumulative harvest of 20,000 chum salmon, which typically occurs around June 12. PWSAC was again given the option to harvest chum salmon in both the

Special Harvest Area (SHA) and Terminal Harvest Area (THA). PWSAC's plan for 1997 was to stay on top of the chum return, minimizing a build-up in the SHA. This was to be accomplished utilizing two seine boats. This was, by far, the most aggressive stance PWSAC has taken on chum salmon cost recovery in years and they were quickly harvesting more chums than projected. PWSAC was only expected to have harvested 10,420 chum by June 10. By June 6 PWSAC had harvested nearly 93,000 chum salmon worth \$300,000 or 13% of the non-pink revenue. Even with this high harvest of chum this early in the season, the strength of the run was still undetermined. The commercial fishery remained closed for further evaluation of run strength.

By June 10, PWSAC had collected approximately 160,000 chum salmon worth nearly \$490,000. This represented approximately 20% of the revenue goal for non-pinks. It was evident that the return to Noerenberg Hatchery was going to meet and possibly exceed the forecasted 1.4 million chum salmon. The Esther Subdistrict including the THA and the waters to Shoestring Cove were opened for a 24-hour period on June 12. PWSAC requested that they be allowed to fish outside their THA before the next commercial fishing period to allow additional chum salmon harvest. They were allowed to fish outside the hatchery THA for a 17-hour period from 2:00 p.m. Wednesday, June 11 until 7:00 a.m. Thursday, June 12. The open area included the waters within 0.5 miles of the southern end of Esther Island, from Esther Rock to the eastern side of Esther Island at the south end of Esther Passage.

During the June 12 commercial fishing period nearly 43,000 chum were harvested. A second 24-hour period was scheduled for Monday, June 16 in the same waters as previously described. A total of 65,416 chum were harvested during the June 16 period and the cumulative harvest for both the commercial fleet and PWSAC stood at 350,000 chum. The projected run entry through June 17 was 250,000 chum. It was apparent that the chum return was stronger than forecast. However, it was also suggested that the return may just be a few days early.

PWSAC had troubles collecting sales fish after the commercial fishery began. From June 13 through June 18 PWSAC harvested only 1,542 chum salmon for cost recovery. To allow PWSAC the opportunity to harvest fish and yet continue with two commercial fishing periods per week, they were allowed to fish outside the THA and SHA on June 18 and again on June 20. The expanded waters would be open following each commercial fishing period until two hours before the next commercial fishing period. The expanded area included the waters inside of a line from Hodgkin Point and 0.5 miles south of Hodgkin Point then west to a point 0.5 south of Esther Light to Esther Light. In addition, to allow PWSAC access to even more fish, the third commercial fishing period was reduced to 12-hours from 8:00 a.m. to 8:00 p.m. Friday, June 20.

The Coghill weir was fish tight the evening of June 5. By June 20, 175 sockeye had been passed through the weir; the anticipated for that time was 981. A skiff survey of Coghill River on June 20 estimated 2,000 sockeye from the weir downstream to the mouth. Typically, sockeye move up College Fjord and into Coghill River during the large tide series in late June and early July. The large tide series was occurring between June 18 through June 25. With a relatively strong showing of sockeye in Coghill River, a forecasted harvest of nearly 100,000 sockeye, and tides in favor of sockeye moving, the area for the June 23 fishing period was expanded to include all waters of Coghill District south of a line at 61° 00.00' N. latitude.

By June 20, PWSAC 's cost revenue of chum salmon had reached \$1.0 million, which represented 47% of the total non-pink revenue goal. The projected mid-point of the Noerenberg chum return was June 23 and the cumulative chum harvest at Noerenberg Hatchery through June 20 was 501,000. At a minimum, an

additional 700,000 chums could be expected if run timing was normal. Based on the current harvest and projected run entry, PWSAC was expected to meet their revenue goal within the next several days. With PWSAC assured of meeting their revenue goal and brood stock requirements, the commercial fishing period on June 23 was increased to 36-hours.

The June 23 period began at 8:00 a.m. and by 7:00 p.m. that evening available tenders were filled to capacity. Only a few boats were able to fish for the remainder of the period. The harvest from the 36-hour period was 146,592 chum and 17,412 sockeye. Product quality becomes an issue when the harvest exceeds tender capacity. To ensure that quality remained high, the duration of fishing periods was reduced but the frequency was increased. The waters of Coghill District south of a line at 61° 00.00' N. latitude opened for three 24-hour periods on an every other day schedule.

The projected 1997 Coghill Lake sockeye harvest was 96,000, which included 72,000 sockeye of wild stock origin and 24,000 sockeye from PWSAC's remote releases near the mouth of the Coghill River. By June 27, 1,264 sockeye had passed the Coghill River weir and a skiff survey below the weir estimated 7,000 sockeye. Through June 27, 43,000 sockeye had been harvested in the Coghill District by the commercial fleet. Historically, 26% of the harvest of sockeye in the Coghill District has occurred by June 27. It was apparent from both catch and escapement that the sockeye return to Coghill Lake was above forecast. With escapement ahead of schedule, the waters of the Coghill District were expanded during the June 28 and June 30 24-hour periods to include all waters of the Coghill District excluding the Noerenberg SHA.

Chum harvest dropped substantially during the June 28 and 30 fishing periods to 49,020 and 11,541 respectively. The sockeye harvest for those periods combined was 44,335, for a cumulative harvest to date of 87,335, slightly less than the projected season harvest of 96,000. The mid-point of the harvest historically occurs near July 3. With the chum harvest dropping, fishing effort shifting to Eshamy District, and Coghill Lake escapement on track, fishing periods in the Coghill District were increased to 36-hours. Through midnight July 4, escapement into Coghill Lake was 10,300 sockeye and an additional 10,000 sockeye were estimated to be in the river below the weir. The escapement goal for Coghill Lake is 25,000, and it was apparent that the goal for Coghill Lake would be met.

This year was the last expected return of the remote release sockeye planted in Coghill Lagoon. Rather than enter the lake, many of these fish return to their imprinting site in Coghill Lagoon and mill around in salt water. Eventually, some spawn in the estuaries of Coghill River. To prevent waste, Coghill Lagoon has been opened to commercial fishing to harvest these fish before quality deteriorates. Coghill Lagoon was only opened when escapement into Coghill Lake was assured. The Coghill Lagoon was open to commercial fishing to the mouth of Coghill River for two 36-hour periods on July 7 and July 10. Beginning the week of July 14, all waters of Coghill District, excluding the Noerenberg SHA, were open to a schedule of two 36-hour periods per week. Beginning July 27, all waters of the Coghill District north of a line at 61° 00.00' N. latitude were open to contiguous fishing.

The Coghill River weir was dismantled on August 4 after 35,517 sockeye has passed the weir. The cumulative harvest in the Coghill District was 227,231 sockeye and 689,977 chum salmon. PWSAC harvested 782,959 chum worth \$2.4 million and met their brood stock requirement of 160,000 chum. Based on CWT information, only 800 of 35,517 sockeye past the weir were of hatchery origin. The total wild stock sockeye salmon return to Coghill Lake, including both catch and escapement, was estimated to be 119,900 fish.

## *Unakwik District*

### Season Summary

The 1997 Unakwik District harvest was 3,411 sockeye with minor amounts of chum and pink salmon. The sockeye harvest was below the 10-year average harvest of 6,800.

The Unakwik District opened June 19 on a schedule of two 24-hour periods per week to target sockeye salmon. No changes were made to the fishing schedule until July 22 when the district closed until further notice. Sockeye harvest peaked the last week of June and only three permits fished. The peak aerial survey estimate for Miners Lake was 5,000 sockeye. The district remained closed for the duration of the 1997 season following the July 21 period (Appendix C.9. and C.10.).

## *Eshamy District*

### Preseason Outlook and Harvest Strategy

The 1997 forecast of Main Bay Hatchery sockeye salmon was 500,000 composed of 330,000 Coghill-stock and 170,000 Eshamy stock. The Eshamy wild stock return was forecast to be 58,000 sockeye of which 35,000 were needed for escapement and 23,000 would be available for a common property harvest.

The common property harvest of sockeye salmon from all stocks was a record 671,503 sockeye. Previously, PWSAC collected 40% of their return for sales but in 1997, they switched to a flat revenue goal. For non-pink species, the revenue goal was \$2.4 million with \$1.2 million coming from Main Bay sockeye. PWSAC presold 1.5 million pounds of their sockeye prior to the season based on an assumption of receiving \$0.75/lb. On average, PWSAC ended up receiving better than \$1.00/lb. and were able to meet their \$1.2 million revenue goal. Fulfilling their sales commitments put them over their stated revenue goal even though they fell short of providing their presold poundage by 24,000 pounds. The hatchery brood stock goals for both Eyak and Eshamy sockeye were achieved. The Coghill stock has been discontinued at Main Bay Hatchery and all Coghill stock returns were harvested for sales.

### Season Summary

PWSAC began cost recovery on June 17, harvesting 5,000 sockeye. PWSAC continued to fish every two or three days allowing small accumulations to build up in the SHA. By June 27, PWSAC had harvested 64,000 sockeye, which is more than two times any previous harvest for that time. With PWSAC ahead of schedule in cost recovery, the Eshamy District opened on June 30. The entire Eshamy District excluding the waters of Eshamy Lagoon opened on June 30 for 24-hours; the alternating gear zone (AGZ) was open to set gillnet gear for the first period. Based on the projected return of nearly 100,000 sockeye to Coghill Lake, commercial fishing was not restricted to the Main Bay Subdistrict for protection of the Coghill Lake stocks. The harvest of 163,500 sockeye was the largest single period in the Eshamy District. Tender capacity was stressed early and limited fishing occurred following the opening sets. Minimal waste occurred and the quality of pack remained good for the period because permit holders restricted themselves from fishing when tenders were full.

Following Monday's 24-hour period, PWSAC was able to harvest 23,675 sockeye for a cumulative harvest of 96,500. Through Thursday, July 3 nearly 260,000 sockeye have been harvested by the commercial fleet

and PWSAC. The projected total harvest for the Coghill portion of the return was only 330,000 sockeye. It was apparent that the Coghill stock return to Main Bay was above forecast. With PWSAC on track with cost recovery and the return larger than projected; a second 24-hour period was set for July 3; however, the AGZ remained closed to allow PWSAC access to fish following the period. Harvest dropped during the July 3 period to 85,000. This was not unexpected.

During the 1996 season, the Crafton Island Subdistrict remained open during the third week of July. Escapement into Eshamy Lake fell far short of the goal in 1996 with only 5,600 sockeye past the weir. During that third week of July, 30,000 sockeye were harvested in the commercial fishery. Based on the coded-wire tag information collected from the fishery, 50% were estimated to be Eshamy Lake wild stocks. To prevent the possible shortfall of escapement into Eshamy Lake for 1997, the Crafton Island Subdistrict was closed following the July 10 fishery. The Crafton Island Subdistrict would remain closed unless escapement past the weir dictated otherwise. The actual escapement into Eshamy Lake was slightly ahead of the anticipated escapement throughout most of the season. Even without a directed fishery in the district, for the escapement to remain only slightly ahead indicated that the low preseason forecast was accurate.

The Main Bay Subdistrict was open for two 24-hour periods per week until August 4 when PWSAC fell behind in sales. The Main Bay Subdistrict opened for a single 24-hour period during the weeks of August 4 and August 11. Catches were low and quality started deteriorating. During the week of August 18, the Main Bay Subdistrict was open for a 36-hour and a 24-hour period. The AGZ remained closed to protect brood stock. On August 23 the Eshamy Lake escapement goal of 35,000 sockeye was reached. With the Eshamy Lake escapement goal met, the Crafton Island Subdistrict reopened on August 25. Brood stock requirements at Main Bay Hatchery were falling behind so the final fishing period in the Eshamy District occurred on August 28. To protect the brood stock, the Main Bay Subdistrict's THA and SHA were closed for the final 24-hour period. The final escapement estimate past Eshamy weir was 39,700 sockeye.

### *General Purse Seine Districts*

#### Preseason Outlook and Harvest Strategy

The general purse seine districts include the Eastern, Northern, Coghill, Northwestern, Southwestern, Montague and Southeastern Districts. The Prince William Sound Management and Salmon Enhancement Allocation Plan (5 AAC 24.370) closes the Southwestern District prior to July 18. The plan also closes the Coghill District to purse seine gear prior to July 21. Beginning July 21, both purse seine and drift gillnet gear are allowed in the Coghill District. Seine gear is allowed in the district as long as the harvestable surplus is predominantly pink salmon by number. Fishing periods in all districts are established by emergency order.

The general purse seine districts are managed to achieve wild pink and chum salmon escapement goals by district and allow for the orderly harvest of surplus wild and hatchery stocks. Escapement of pink and chum salmon is tracked through the season by weekly aerial surveys of 209 index streams. Management to achieve hatchery corporate escapement goals is accomplished by opening and closing subdistricts near the hatcheries. Subdistrict openings are also utilized to target the fleet on hatchery stocks when wild salmon escapement is weak.

VFDA's Solomon Gulch Hatchery has a stock of pink salmon that peaks in early July and a run of coho salmon that begins in August. In 1995, VFDA elected to discontinue its production of chum salmon that

return during August each year. This year's chum return to Solomon Gulch Hatchery was comprised entirely of 5 and 6 year old fish and is expected to be the last large scale chum return to the hatchery. All of VFDA's enhanced production returns to the Solomon Gulch Hatchery in Port Valdez, with the exception of a small run of coho salmon that returns to Boulder Bay near the Village of Tatitlek.

PWSAC's pink salmon stocks peak in mid-August. Their pink salmon return to Cannery Creek, Noerenberg and A.F. Koernig Hatcheries. A moderate run of coho salmon at Noerenberg Hatchery is incidental to the late pink salmon fishery there. The outlook for the general purse seine fishery in 1997 was for a total return of 32.9 million pink salmon composed of 21.3 million hatchery and 5.2 million wild stock pink salmon (53% PWSAC, 30% VFDA, 17% wild). The forecasted common property fishery harvest was 20.0 million pinks with an additional 9.7 million slated for corporate escapement and 1.4 million needed for wild stock escapement. The wild stock chum salmon forecast called for a total return of 390,000 fish with an escapement goal of 225,000. The forecast for enhanced chum salmon in seine districts was 220,000 fish returning to Solomon Gulch Hatchery and 120,000 fish returning to a remote release site in the Montague District.

When the PWS Salmon Harvest Task Force met prior to the fishing season, seine representatives on the task force reviewed changes to the fishery being considered for the 1997 season. The most significant change on the horizon for the seine fishery was PWSAC's adoption of a cost recovery strategy based upon a set revenue goal rather than a fixed percentage of their returns. At 1997's forecasted return strength and using conservative price assumptions, achieving PWSAC's pink salmon revenue goal could require as much as 60% of the entire PWSAC pink return. To efficiently achieve their financial goal, PWSAC requested maximum flexibility from the Department in managing for their cost recovery. In 1996, PWSAC elected to not harvest cost recovery fish at AFK Hatchery and concentrated their cost recovery harvesting at Noerenberg and Cannery Creek Hatcheries. For 1997, PWSAC elected to initially resume harvesting at all three hatcheries and to presell their entire pink salmon cost recovery harvest. Fewer common property openings on hatchery stocks could be anticipated if PWSAC did indeed require 60% of their return.

Seine effort was expected to be well below average due to low prices for pink salmon. The consensus of the SHTF was that the participating seiners would likely concentrate their fishing efforts in areas where hatchery returns could be targeted. In 1996, Eastern and Southeastern District wild stocks were not heavily fished despite available surpluses as most seiners targeted hatchery stocks in locations where catch per effort was greatest. With the anticipation of a reduced seine fleet and therefore reduced pressure on wild stocks, the department again agreed to open a majority of the Eastern District during seine periods targeting the pink salmon return to Solomon Gulch Hatchery. This strategy would help to relieve congestion in the Valdez Narrows Subdistrict where a majority of the VFDA return has traditionally been harvested. Should Eastern District escapements fall short of weekly goals, closures would occur as needed to minimize wild stock interceptions.

VFDA's 1997 Annual Management Plan for Solomon Gulch Hatchery called for their pink salmon return to be managed to meet a \$2.73 million revenue goal. Fish determined to be surplus to the corporation's needs would be made available for common property harvesting. In 1995, Peter Pan Seafoods entered into a three-year contract with VFDA to purchase all of their cost recovery salmon. This was the third and final year of that agreement wherein VFDA would receive approximately \$0.27/lb. for their cost recovery pink salmon. The Peter Pan Seafoods plant in Valdez would be operating at full capacity in 1997 which would improve VFDA's prospects for efficiently achieving their cost recovery goal and allow for more timely common property openings targeting surplus enhanced fish.

According to PWSAC's annual management plans, the corporate escapement goal for pink salmon was based on brood stock needs of approximately 712,000 fish and a revenue goal of \$3.29 million. The department would collectively manage the pink salmon returns to Noerenberg, Cannery Creek and AFK Hatcheries to achieve the goal. Fish estimated to be surplus to the corporations needs would be made available for a common property harvest. Since Noerenberg and AFK Hatcheries share the same original brood stock, PWSAC elected to collect brood for both hatcheries at Noerenberg Hatchery thereby reducing manpower needs at AFK Hatchery.

This was to be the last year coded wire tagged pink salmon would be returning to PWS hatcheries and also the first year of otolith marked pink salmon returns. Otolith marks were used inseason to provide estimates of hatchery specific and wild stock contributions to the commercial harvest. The overlap of coded wire tag and otolith marked returns allows for a comparison of the two marking techniques as well as provides information on homing and straying of hatchery stocks.

### Season Summary

Aerial surveys to assess early chum and pink salmon in the Eastern and Northern Districts began in mid-June. In July, surveys started in all other seine districts. Similar to the 1996 season, most fishing effort was directed at the migration corridors used by hatchery fish. Open areas in the Eastern and Southeastern Districts outside these migration corridors went unfished or attracted little seine effort. The Southeastern District's pink salmon escapement was 5% below the season's goal and the Eastern District was 18% below its goal. The southern half of the Eastern District attracted less effort and had better escapement than the northern half of the district. In the Northern/Unakwik Districts, escapement was 49% below the season goal. The Northwestern and Coghill Districts were 35% and 70% below their respective goals. However, weir counts at Coghill River (a glacial system) had significantly higher pink salmon escapement numbers than were observed during routine aerial surveys. Pink salmon escapement past the Coghill River weir exceeded 100,000 fish versus peak aerial counts of 25,000 pink salmon. The Southwestern District was only 3% below its escapement goal for the season. The Montague District was 27% above its goal and the Eshamy District finished the season 84% below its pink salmon escapement goal. During the harvest of late timed pink salmon, a majority of common property seine openings took place in hatchery subdistricts or terminal areas and most seine harvests had enhanced pink salmon contributions of 90% or more. The ratio of enhanced pink salmon to wild pink salmon in 1997's total return is estimated to have been 10:1. Despite the terminal fishing strategy, wild stock escapements in the Northern, Coghill, Northwestern, and Eshamy Districts fell short of their respective goals. While the escapement goal was reached in the Southwestern District, otolith recoveries have indicated that hatchery contributions to stream escapements were significant in the area. In addition, straying behavior that did not directly impact escapements was apparent in other locations in western PWS as enhanced fish failed to successfully home to their natal hatchery and instead permanently occupied bays and coves along hatchery migration routes. In mid-August, over 700,000 milling pink salmon were harvested in and near Hidden Bay on Culross Island in the Northern District.

The enhanced chum salmon returns to PWS were strong and the area wide chum harvest set a record in 1997. Seiners were able to target wild chums in the Eastern and Southeastern Districts and enhanced chum returns in the Montague and Eastern Districts. This was the first season that a harvestable surplus of enhanced chum salmon would be returning to the Port Chalmers remote release site in the Montague District. It was also the last year in which multiple age classes of chum would be returning to Solomon Gulch Hatchery in Port Valdez. Overall, wild stock chum salmon escapement by district mirrored the

performance of pink escapements. The Eastern and Southeastern Districts met or exceeded their respective goals while other districts experienced escapement shortfalls.

VFDA began their corporate escapement harvesting on June 18 at the Solomon Gulch Hatchery using nine seine boats in their cost recovery fleet. The 1997 pink salmon revenue goal for VFDA was \$2.7 million. Based upon their sales contract with Peter Pan Seafoods, VFDA required approximately 10 million pounds of pink salmon to meet their revenue goal. Initial harvests were tracking close to the anticipated run entry curve and the average weight of pink salmon being harvested was 4.2 pounds. By July 1, VFDA had attained 33 percent of their goal. The percentage of female pinks in the sales harvest at the end of June was roughly 25% indicating that the return was on track. The first seine fishery in the Eastern District was announced for July 3 and included a majority of the Eastern District including the western half of Port Valdez. A total of 594,754 pink salmon were harvested by 57 permit holders. In past years, seine effort for the first opening in the Eastern District was 107 boats in 1995 and 48 boats in 1996.

VFDA resumed corporate sales harvesting on July 4 and continued until the next common property opening on July 7. The second opening saw 64 permit holders harvest 741,000 pink salmon. Seine effort on early pinks peaked during the third period when 70 permit holders harvested 467,000 pink salmon on July 12. By this time, VFDA had harvested approximately 85% of their revenue goal. Common property seine openings were extended to 15 hours and increased in frequency to every other day. Due to weaker than anticipated wild stock escapements into Galena and Jack Bays, open waters were reduced for the July 21 fishing period. Within the Eastern District, the seine fleet was restricted to fishing inside Port Valdez and south of Black Point to minimize interception of wild stocks destined for these two bays. By July 27, seine effort had dropped to 30 permit holders fishing in the Eastern District. Area restrictions in Valdez Arm remained in place through the August 14 seine period.

The opening in the Eastern District on Monday, July 28 coincided with the initial openings in other seine districts targeting PWSAC produced pink salmon. The PWS seine fleet took this opportunity to cease fishing in protest over low prices for pink salmon. The day before the strike, 26 seiners had harvested 109,000 pinks in the western half of Port Valdez. A harvest of this magnitude clearly indicated that daily run entry was still large enough to create a sizable surplus of enhanced salmon in Port Valdez should the strike persist.

Incidental to the targeted pink salmon, catches of chum salmon in Port Valdez and Valdez Arm began to increase in mid-July. The enhanced return to Solomon Gulch Hatchery was assumed to be contributing the majority of chum salmon to the harvest. There were no dedicated funds to scan the chum harvest for coded wire tags. The enhanced chum return historically peaks in early August. This peak roughly coincided with the timing of the seiner's strike. This lull in fishing resulted in a sizable surplus of chum salmon building up in Port Valdez along with the remaining pinks. With VFDA having discontinued its chum program, these enhanced fish were entirely available for a common property harvest.

Beginning August 6, fishing slowly resumed as seiners and processors started coming to terms regarding prices. Waters opened to seining in Port Valdez were expanded eastward to give seiners greater access to surplus salmon milling in the port. Because Solomon Gulch Hatchery lacks a brood stock enclosure, hatchery staff continued to express concerns regarding their pink salmon brood stock and commercial fishing near the hatchery.

The quality of pink salmon available nearest the hatchery did not fully meet market criteria and processors directed their seiners to fish on brighter, higher quality fish in Valdez Arm and the western half of Port

Valdez. Seine effort in the Eastern District increased from 3 seiners on August 6 to 38 seiners on August 14. Between August 6 and August 15 the western half Port Valdez was opened to commercial fishing, and seiners harvested 1.7 million pounds of chum, 1.2 million pounds of pink salmon and 105,000 pounds of coho salmon. The timing of the targeted seine effort on the surplus pink and chum salmon buildup in Port Valdez over-lapped with the beginning of the enhanced coho return to Solomon Gulch Hatchery. This small return of coho salmon is not allocated to any individual gear or user group but it has become increasingly popular with anglers and charter boat businesses. The unanticipated chum and pink salmon surplus in Port Valdez and the resultant commercial activity created a controversy as anglers and charter boat operators pressed the department for increased protection for the coho salmon return while seiners and the industry wanted continued access to the large surplus of enhanced salmon. The seine fleet was allowed to fish inside Port Valdez into mid-August until the pink and chum surplus was significantly reduced.

The Eastern District south of the Potato Point to Entrance Point line remained open daily throughout the latter half of August. Jack Bay and Galena Bay remained closed inside yellow Salmon Harvest Task Force markers to improve wild escapements in these bays. Effort declined in late August as most seiners were targeting the PWSAC pink salmon returns in other areas of PWS. For the past two seasons, the seine fleet has been allowed back into Port Valdez in early September to harvest surplus coho salmon near Solomon Gulch Hatchery. However, because of the large unharvested surplus of pink salmon milling near the hatchery and within Solomon Gulch Creek, coho brood stock collections were well behind schedule in early September. As a result, waters adjacent to the hatchery were not opened to seining until mid-September when sufficient coho brood stock had finally entered hatchery raceways. A total of 47,914 coho salmon were harvested by the seine fleet in the Eastern District this year. VFDA achieved their brood stock and revenue goals for both pink and coho salmon.

PWSAC began their pink salmon cost recovery efforts in late July at all three pink salmon hatcheries. Their sales harvest goal of 28 million pounds of pink salmon had been presold to a host of processors. PWSAC intended to use a cost recovery fleet of up to five seiners to harvest their cost recovery fish. Additional fleet assistance for corporate harvesting was a recognized option should the cost recovery seiners not keep pace with daily run entry into hatchery terminal areas.

Sales harvesting at Noerenberg Hatchery had been continuous since the chum return began in early June. Pink salmon were first reported in the sales harvest on July 13 and the peak sales harvest occurred on August 12 when 174,000 pinks were caught. A total of 2.28 million pinks were harvested for cost recovery at Noerenberg Hatchery. Sales harvesting began July 29 at Cannery Creek Hatchery and the peak harvest of 226,000 occurred on August 4. A total of 1.89 million pinks were taken for cost recovery at Cannery Creek Hatchery. At AFK Hatchery, sales harvesting began on July 24 and peaked on August 14 when 261,000 pinks were landed. A total of 3.2 million pinks were sold for cost recovery at AFK Hatchery.

Common property fishing periods for PWSAC produced pink salmon began with the announcement of a 12-hour seine period for Monday, July 28. Portions of the Southwestern, Southeastern, Eastern, Northern, and Coghill Districts would open concurrently for the 12-hour period. By design, the seiner's strike began at noon on July 28 and eventually ended beginning August 6. The strike's duration fueled concerns that hatchery terminal areas would become inundated with pink salmon. However, it appeared that Solomon Gulch Hatchery was the only facility where a large, unharvested surplus occurred. For the July 28 period, an estimated 63 seine boats were distributed throughout the open waters in PWS with a majority of the effort concentrated in Unakwik Inlet in the Northern District and in the Southwestern District. A total of 430,000 pink salmon were harvested in the abbreviated fishing period with more than half of the fish coming from the Northern District.

During the strike, PWSAC continued to aggressively harvest cost recovery salmon, eventually taking 10.7 million pounds of pink salmon while the seine fleet was idled. When common property fishing resumed on August 6, buildups of pink salmon were evident near the hatchery in Port Valdez, in terminal areas near AFK Hatchery, and in Unakwik Inlet in the Northern District. Lake Bay in front of Noerenberg Hatchery did not appear to contain a large surplus following the strike. An estimated surplus of 300,000 pink salmon near the hatchery in Port Valdez was not harvested because of quality and hatchery brood stock concerns. Terminal locations near all three PWSAC hatcheries remained open immediately after the strike to help reduce those buildups and maintain a high quality harvest.

The common property pink salmon harvest on August 6 was 319,000 fish from the Northern District, 21,400 from the Coghill District, 384,000 from the Southwestern District and 15,400 from the Eastern District. Otolith recoveries indicated that the hatchery contributions to the harvest were 90% or greater in all districts. By August 7, PWSAC had achieved 48% of their corporate escapement goal. Hatchery returns appeared to be weaker than anticipated at Cannery Creek and Noerenberg but were exceeding expectations at AFK in the Southwestern District. Wild stock escapements were below the desired level in northern and western PWS in early August. Because of the weak wild stock performance in these areas, most openings continued to be confined to hatchery subdistricts and terminal areas.

Similar to the past two seasons during early August, large numbers of pink salmon began to accumulate in the Perry Island Subdistrict along the east shore of Culross Island. Hidden Bay on Culross Island was again the focal point for a large aggregation of pink salmon. Hidden Bay is adjacent to the migratory corridor used by enhanced pink salmon returning to Noerenberg Hatchery approximately seven miles further north. A sizable perched lake feeds a waterfall that spills into Hidden Bay creating conditions similar to those in Lake Bay. In addition, juvenile enhanced salmon have been documented inhabiting this bay shortly after their release. Their brief stay in Hidden Bay and the local water conditions may have influenced their ability to successfully home to Noerenberg Hatchery. Five openings in the Perry Island Subdistrict between August 9 and August 22 resulted in a harvest of 729,000 pink salmon. Otolith recoveries from the first period on August 9 indicated that 95% of the catch were enhanced pink salmon from Noerenberg Hatchery and 5% were wild stock fish. Otoliths recovered from subsequent periods indicated 98% - 100% hatchery pink salmon. It was apparent, as fish continued to accumulate in Hidden Bay and along Culross Island, that the eastern shore of Culross Island should be managed for quality similar to a hatchery terminal area. The low number of wild pink salmon in the Hidden Bay harvest, along with the strong showing of pink salmon past the Coghill River weir, supported an aggressive harvest in this area.

In the remainder of the Northern District, fishing was limited to waters within Unakwik Inlet for the entire season. Waters adjacent to Unakwik (Payday) Point and Kiniklik at the entrances to Unakwik Inlet remained closed to limit the interception of wild stocks bound for streams elsewhere in the Sound. Those waters opened within Unakwik Inlet were adjusted as needed to provide for PWSAC's corporate escapement at Cannery Creek Hatchery. Jonah and Siwash Bays remained closed inside of Salmon Harvest Task Force markers to improve wild stock escapements into those bays. Late in the season when escapements improved into these bays, the expanded closed water restrictions were lifted. In summary, otolith recoveries indicated a total of 2.4 million pink salmon from Cannery Creek Hatchery, 665,000 from Noerenberg Hatchery, 62,000 wild pinks, 7,600 from Solomon Gulch Hatchery and 3,100 from AFK Hatchery were harvested during common property openings in the Northern District. As stated, the high Noerenberg Hatchery component in the harvest is attributed to fish caught in the Perry Island Subdistrict near Hidden Bay.

The total pink salmon return to Noerenberg Hatchery, estimated to have been 6.2 million fish, was close to the preseason forecast of 6.3 million. Seining within the Esther Subdistrict was generally restricted to waters within 1.5 miles of the south shore of Esther Island to limit interception of wild stocks destined for Port Wells. A total of 4.31 million pink salmon were harvested in the Coghill District; (2.03 million CPF and 2.28 million PWSAC). Of the 2.03 million pink salmon that were harvested in common property openings, an estimated 85,000 pink salmon (4%) were of wild origin. An estimated 1.5 million pink salmon (74%) were from Noerenberg Hatchery and 426,000 (21%) were from Cannery Creek Hatchery. The remaining 17,000 pinks were from Solomon Gulch and AFK Hatcheries. Wild pink salmon escapements on the west shore of Port Wells remained below the desired level the entire season. However, the Coghill River, which comprises over 70% of the district's escapement, exceeded its escapement goal.

Because of its status as the chief migratory pathway for pink salmon entering the Sound in July and August, the department closely monitors commercial seine harvests in the Southwestern District to assess contributions to the catch by the Sound's wild stocks and hatcheries. Recoveries of otolith marked fish from the cape fisheries in the Point Elrington Subdistrict can now quickly provide information on the relative abundance of wild and PWSAC produced pink salmon entering PWS. During this time period, as PWSAC's pink salmon run increases, the enhanced component in the harvest begins to predominate the overall catch. An early, accurate assessment of run strength and timing can be critical in managing for escapements and an orderly, high quality harvest of enhanced fish. Commercial harvests or test fisheries at strategic fishing locations in the district can be used to monitor the early component of the PWSAC return. Once individual hatchery contributions become evident, inseason management strategies based on corporate escapement needs and each hatchery's return strength can be planned. With PWSAC's significant corporate escapement needs this season, the initial management strategy was to provide sufficient early timed fish to hatchery terminal areas in order to meet PWSAC's daily harvesting and sales capacity.

The Point Elrington Subdistrict opened on July 28, primarily to provide timely run entry information from the cape areas. Twenty-one seine boats were present at the start of the period. Despite the abbreviated fishing period due to the strike, otolith recoveries provided some insight into the status of the late timed PWS pink salmon return. Otolith data indicated that hatchery produced fish comprised 81% of the 54,000 fish harvested. PWSAC contributions by facility were 12% from Cannery Creek Hatchery, 29% from AFK Hatchery, and 12% from Noerenberg Hatchery. Even in late July, Solomon Gulch pink salmon still comprised 26% of the catch in the Southwestern District, exceeding the wild stock contribution of 20%.

Department personnel stationed on the R/V Montague were on site to collect otolith samples from sets being made in the Point Elrington Subdistrict. Collecting otoliths directly from the fishery as opposed to sampling the catch once it was delivered to processors after the period closed decreased the turn around time for acquiring otolith data by 36-hours. On site sampling on July 28 indicated that 87% of the current run entry was from hatchery produced fish and 13% was from wild stocks. The percentages, by hatchery, from this sampling was 14% from Solomon Gulch Hatchery, 17% from Cannery Creek Hatchery, 22% from Noerenberg Hatchery, and 34% from AFK Hatchery. When compared to the otolith sampling at processors, the results were similar to the on site collection. The utility of on site otolith collections warrants further investigations to assess the accuracy and reliability of this sampling technique. The relatively high percentage of VFDA produced pink salmon in the Southwestern District in late July indicated that pinks would continue to enter Port Valdez well into August. The weak showing by wild stocks in late July did not support a strategy of general district openings in western or northern PWS seine districts. The 29% contribution from AFK Hatchery produced fish and the successful early cost recovery at the hatchery indicated that the return to that facility would be better than in recent years.

By August 6, PWSAC had harvested approximately 1.45 million pink salmon for cost recovery at AFK Hatchery. Aerial surveys had noted a moderate buildup of pinks in the AFK Hatchery THA and SHA. These fish were targeted during the first opening after the strike. A harvest of 384,000 pinks took place in the Port San Juan Subdistrict and otolith data indicated that 97% of the harvest was of AFK produced pink salmon. The remaining 3% were PWSAC produced fish from Noerenberg and Cannery Creek Hatcheries. Thereafter, common property harvests in the Southwestern District had wild stock contributions ranging from 3% to 13%. Approximately 420,000 wild stock pink salmon were harvested in the district during 25 fishing periods. For 12 of the 29 fishing periods, only waters of the Port San Juan Subdistrict were opened to seining. Restricting the seine fleet to this hatchery subdistrict resulted in a harvest of approximately 3.0 million pink salmon of which approximately 192,000 pink salmon, or 6%, were of wild stock origin. On August 16, the Point Elrington Subdistrict opened independently of other subdistricts in the Southwestern District. The harvest of 574,000 pinks included an estimated 51,000 pink salmon (9%) of wild stock origin.

The peak common property harvest in the Southwestern District took place on August 15 when 777,000 pinks were caught by 61 seiners in the Port San Juan Subdistrict. This date coincides with the historic peak for the late timed pink salmon returns. Otolith recoveries indicated 4% of the pink salmon were wild fish and 83% were from AFK Hatchery. The remainder were from PWSAC's other two hatcheries. In addition to this fishing period occurring at the peak of the return, the large harvest was also because the seine fleet last fished in the district on August 10. Common property openings in the area had been delayed to provide for PWSAC's ongoing cost recovery. The inactivity by the fleet had created a second buildup of pinks in the hatchery terminal area. Immediately prior to the August 15th opening, PWSAC harvested 261,000 pinks at AFK Hatchery bringing their AFK cost recovery total to 2.28 million pinks.

The Southwestern District's stream escapements were improving throughout August and appeared on track towards meeting the district's escapement goal. In response, the southern half of the Southwestern District opened for a single 12-hour period on August 22 to allow the seine fleet access to discreet surpluses of pink salmon outside the hatchery terminal areas. The harvest of 597,000 pinks by 45 seiners was the second largest harvest for the Southwestern District in 1997. The wild stock contribution to this period's harvest was estimated to be only 5%. By August 22, PWSAC had attained their pink salmon revenue goal and had ceased harvesting in the Southwestern District. In total, PWSAC harvested 3.2 million pink salmon at AFK Hatchery. The common property seine harvest in the Southwestern District was 5.93 million pink salmon of which 93% was estimated to be from enhanced production. Approximately 15,000 sockeye salmon were caught by seiners in the district in 1997.

The total return to AFK Hatchery in the Southwestern District was estimated to be 6.95 million pink salmon. This far outpaced the preseason forecast of 3.9 million fish and marked a significant turnaround in the survival percentages for pink salmon from this facility. PWSAC ultimately garnered 42% of their total pink salmon revenue goal from the AFK Hatchery return.

The Montague District was opened in early June to allow seiners access to the remote released chum salmon returning to Port Chalmers. The preseason forecast called for a harvest of 120,000 chum salmon. Following two seasons of test fishing which indicated little impact to wild stocks during the chum salmon return, the Port Chalmers Subdistrict was opened on a schedule of two 36-hour periods and one 60-hour period per week. Thirty-two permit holders reported fishing in the Montague District in 1997. The peak chum harvest occurred on July 4 when approximately 20,000 chum salmon were landed by seven permit holders. The peak pink salmon harvest occurred on August 14 when four permit holders landed

approximately 23,000 pink salmon. Catch and otolith data indicated that early timed pink salmon returning to Solomon Gulch Hatchery were present in the Montague District from early June to mid-August. Enhanced fish from the four pink salmon hatcheries contributed an estimated 61% of the district's pink harvest of 65,000 fish. The chum harvest of 184,000 exceeded the preseason forecast.

In the Southeastern District, harvests were reported during only six of the 24 fishing periods in 1997. Five permit holders fished in the district landing 28,000 pink salmon (97% wild) and 3,300 chum salmon. Similar to the 1996 season, concurrent openings in other districts provided greater opportunity for seiners to harvest fish elsewhere. As a result, the escapement goal was exceeded for the district.

#### Additional Escapement Information

In 1990 and 1991, as part of Exxon Valdez Oil Spill funded studies, the department applied coded wire tags to wild pink salmon at six streams in western PWS. Coded wire tag recoveries from daily stream surveys in 1991 and 1992 indicated that significant straying, by both enhanced and wild stocks, was occurring in streams in western PWS. However, the potential physiological effects of coded wire tagging lent considerable uncertainty to any interpretation of straying results based on coded wire tag recoveries alone. Having otolith marked pink salmon returning this season in conjunction with coded wire tagged fish provided an opportunity to address the relationship between coded wire tagging and straying. A total of 14 streams located in Port Valdez, the Eshamy District, the Northern District and the Southwestern District were surveyed for adipose clipped fish during the spawning season. Otolith samples were simultaneously collected. Preliminary otolith recovery data from these streams indicated that significant numbers of hatchery pink salmon strayed into these streams and, in most cases, exceeded the wild stock component of the escapement. Escapement estimates generated from coded wire tag recoveries provided similar straying results, indicating that tag induced straying by pink salmon may be negligible. The actual numbers and distribution of enhanced pink salmon straying into PWS streams cannot be accurately estimated with the presently limited evaluation program although otolith marked pink salmon will continue to make this information obtainable.

The high stream contribution by hatchery stocks in 1997 may be a reflection of the overall weak wild stock returns in western PWS compared to the successful enhanced returns. Severe flooding in the fall of 1995 and harsh winter conditions in the winter of 1995-96 may have contributed to the poor wild stock survivals seen in 1997. The timing of the influx of hatchery fish into streams was such that as the spawning season began to wane in late August, the enhanced component in the stream escapement increased. In late August, otolith data collected at 10 streams in the Southwestern District indicated that hatchery fish contributions ranged from 10% to 68% of the escapement. By mid-September, the range had increased to 31% to 91%.

Within the commercial harvest, otolith data indicated that the Sound's wild stocks only contributed 7% of the common property pink salmon harvest in 1997. This was the greatest disparity observed between hatchery and wild fish since PWS hatchery production began. Previously, the ratio of hatchery fish to wild fish was determined using coded wire tag data. During 1990's record pink salmon return of 46 million fish, the ratio of hatchery fish to wild fish was estimated to be 2.2:1. During the exceptionally poor return of 1993, the ratio was estimated to be 1.7:1. The previous peak hatchery fish to wild fish ratio occurred in 1988 and was 6.4:1. Regulations provide that sustained yield of wild stocks is the primary fishery management objective in mixed stock fisheries. In years with comparatively weak wild stock returns, management options to minimize wild stock interception while targeting enhanced stocks have included restricting fisheries to hatchery subdistricts and/or terminal harvest areas. Otolith data has revealed that

areas such as the Perry Island Subdistrict can, at times, be fished with minimal wild stock interception. Fisheries in other areas, such as the Port San Juan Subdistrict near AFK Hatchery, continue to present a mixed stock management challenge. Should weak wild stock escapements in western and northern PWS become chronic, additional time and area restrictions will be needed to provide for wild escapements.

## 1997 PRINCE WILLIAM SOUND AND COPPER RIVER SUBSISTENCE FISHERIES

Subsistence and personal use harvests continue to be minor by comparison to the commercial salmon harvest in the Prince William Sound management area. The largest subsistence and personal use fisheries occur on the upper Copper River, upstream of the regulatory markers above Haley Creek to Slana River. In Prince William Sound and the Copper and Bering River Districts, commercial fishermen may withhold a portion of their commercial catch for home use. During the BOF meeting in December of 1996, several regulations were adopted for the personal use and subsistence fisheries. These changes will be described under their specific heading. Since 1994, all chinook salmon in the Copper and Bering River Districts that is harvested in the commercial fishery but not sold (home use) must be reported on a fish ticket as not sold/personal use.

The only personal use fishery occurs on the upper Copper River in the Chitina Subdistrict. All remaining waters of the Prince William Sound Management area are closed to the personal use taking of finfish. Subsistence fishing permits are issued from the Cordova office for the Copper River Delta, Prince William Sound, Southwestern and Eastern areas.

### *Prince William Sound Area Subsistence and Home-Use Fisheries*

#### Prince William Sound and Lower Copper River Fisheries

During the December 96 BOF meeting several changes to the Copper River District subsistence fishery took place. The permit holder must immediately upon landing clip both tips of the tail fin. Also, all salmon caught must be recorded on the form provided by the department immediately after landing the salmon. Finally, subsistence fishing is open seven days a week from May 15 until two days before the first commercial fishing period of the Copper River District. Following the opening of the commercial fishery, subsistence harvesting is open only during established commercial fishing periods until the commercial fishing season is closed. Following the commercial fishing season closure, subsistence harvesting is open seven days a week until September 30 when it closes by regulation. No BOF changes were made in the Prince William Sound subsistence fisheries.

In 1997, four subsistence permits were issued for Prince William Sound. Only one permit fished, harvesting 3 sockeye salmon. For the Copper River District, 270 permits were issued in 1997, up from the 176 permits issued in 1996. This increase was due to the extended closure of the commercial fishery in August and the opening of the Copper River District only to subsistence fishing on August 28. As of March 20, 247 permits have been returned. Of the permits returned, 167 permit holders fished and 79 permit holders did not fish. The reported catch was 201 chinook, 1,033 sockeye and 1,777 coho (Appendices G.1 and G.3).

The recording of take home or "home use" chinook salmon on fish tickets from the Copper and Bering River District's commercial salmon fisheries began in 1994. During 1994, 12 chinook were recorded as

home use in the Bering River District and 751 in the Copper River District. In 1995, a total of 11 chinook were reported taken from the Bering River District and 1,688 were reported taken from the Copper River District. In 1996, a total of 2,169 chinook were reported taken from the Copper River District. For 1997, 1,243 chinook were listed as home use and 3 in the Bering River District.

#### Eastern and Southwestern Prince William Sound Fisheries

The Southwestern and Eastern subsistence permit program began in 1988. Residents of both Chenega Bay and Tatitlek are eligible for subsistence use permits in their respective areas. In 1991, a court ruling qualified all residents of Alaska for a subsistence permit in the Eastern or Southwestern areas. Permit holders are allowed to fish in these areas from May 15 until two days before the first commercial fishing period. Once the commercial fishing season is established, subsistence fishing may occur only during commercial fishing periods. Two days following the closure of the commercial fishery for the season, subsistence opens to seven day per week fishing until September 30 in Southwestern and October 31 in the Eastern area for seven days a week.

In the Southwestern area, 5 permits were issued, primarily to residents of the village of Chenega. Only 4 permit holders reported having fished, reporting a total catch of 44 chinook, 193 sockeye, 110 pink, 272 chum and 30 coho. In the Eastern area, 6 permits were issued. Only one permit was returned reporting a harvest of 67 sockeye and 10 coho salmon (Appendix G.4).

#### *Upper Copper River Subsistence And Personal Use Fisheries*

##### Subsistence Fishery

The projected magnitude of the 1997 Copper River salmon return would liberalize the fishing time allowed for the subsistence fish wheel and dip net fishery. During the 1996 BOF meeting, the subsistence guideline harvest level was set at a range of 60,000 to 75,000 salmon. This falls within the harvest range currently experienced. Regulations were passed regarding fishwheel ownership, permitted users, and the concept of a village permit was accepted. The following new regulations also went into effect prior to the 1997 season: 1) The owner of the fish wheel shall register that fish wheel with the department. 2) The registration number, along with the owners name and address, must be permanently affixed to the wheel when it is in the water; 3) The owner of the fish wheel is responsible for the fish wheel when it is in the water. 4) A permit holder may operate only one fish wheel at a time. 5) A fishwheel may be operated only by one permit holder at a time. 6) Only the permit holder and the authorized member of the household listed on the subsistence permit may take salmon. 7) A permit holder must record all salmon taken on the subsistence permit before the permit holder leaves the fishing site.

The BOF also created a subsistence permit that can be issued to a village council or other similar qualified organization whose members operate fish wheels for subsistence on the Copper River. The fish wheel will be operated on behalf of the members of the village or organization. These permits will be issued after departmental review and approval of a harvest assessment plan submitted by the village or organization. The harvest assessment plan must include the following: 1) Provisions for recording daily catches for each fish wheel. 2) Sample data collection forms. 3) Other information specified by the department. 4) Location of the fish wheel(s). 5) The full legal name of the individual responsible for the lawful operation of each fish wheel. The village permits must follow regulations pertaining to the Upper Copper River subsistence fishery plus the following provisions: 1) The permit will list all household members for whom the fish

wheel is being operated. 2) The harvest will not exceed the combined seasonal limits and the permittee will notify the department when households are added to the list. Households listed on village permits are not permitted to apply for a separate household subsistence permit.

The subsistence fishery in the upper Copper River opened on June 1 ran seven days per week until it closed by regulation on September 30. The fish wheel and dip net fishery opened June 1 to seven day per week fishing. A total of 286 dip net and 847 fish wheel permits were issued. The estimated total (reported and unreported) salmon harvest was 86,270. In 1997, three village council permits were issued to Copper Center, Gakona and Chistochina. The Copper Center permit included eight households and reported a harvest of 62 sockeye and 12 chinook salmon. In Gakona, six households harvested 1,242 sockeye and 8 chinook and, in Chistochina four households took 342 sockeye, 105 chinook, 139 coho, and 88 steelhead.

In 1996 and again in 1997, Ahtna Heritage Foundation was issued an educational permit. The permit provided the foundation a subsistence fishery for five villages (Chitina, Copper Center, Tazlina, Gulkana and Gakona) on the Copper River beginning on May 20 for 10 days. In 1996, only two educational fishwheels operated, reporting a harvest of one sockeye each. In 1997, only one wheel operated under the educational permit and harvested 140 sockeye salmon.

#### Batzulnetas Subsistence Fishery

The Batzulnetas subsistence fishery began in 1985 when Katie John filed a civil suit in the United States Court (A85-698 Civil). Her suit asked that the residents of Dot Lake and Mentasta be allowed to subsistence fish with fish wheels, dip nets, and spears in the closed waters of the Copper River and Tanada Creek which were traditional waters of the old Batzulnetas village site. In 1987, an interim subsistence fishery at Batzulnetas was provided for by Emergency Regulation (ER) to achieve settlement in the United States District Court. The ER established fishery boundaries near the mouth of and within Tanada Creek near the historical village site of Batzulnetas. Fishwheels were allowed in the Copper River and spears in Tanada Creek. The quota was 1,000 sockeye and the open periods were two days per week in June and 3.5 days per week in July and August. Eight permits were issued to individuals or family groups from Mentasta or Dot Lake and the fishery was conducted during July and early August. A total harvest of 22 sockeye salmon was reported in 1987. After reviewing the fishery prior to 1988, the BOF established seasons and eliminated the 1,000 fish quota. Instead, the board allowed households with one individual a subsistence harvest of 30 salmon, 60 salmon for a household of two, and 10 additional salmon for each additional household member. Upon request, additional fish would be permitted. In 1988, an emergency order opened the same waters as in 1987 (traditional waters) for 48-hours per week from June 17 until the end of June and for 84-hours per week for the months of July and August. No permits were issued and no salmon was reported harvested during the 1988 season.

In 1989, another civil suit was filed by John, Charles and the Mentasta Village Council seeking an injunction against the State and requesting continuous fishing be allowed at Batzulnetas. The United States District Court of Alaska ruled in favor of John and ordered a continuous fishery with a quota of 1,000 sockeye salmon. No permits were issued and no reported harvest occurred. The fishery opened from 8:00 a.m. Friday, June 23 until 12:00 midnight September 1. In 1990, another injunction was filed to allow the use of gillnets along with continuous fishing. The U.S. District court ruled in favor of continuous fishing through September 1, or until 1,000 sockeye salmon were harvested, but denied the use of gillnets. No permits were issued and there was no reported harvest between 1990 - 1992. In 1993, one permit was issued and reported a harvest of 160 sockeye salmon. The fishery was open weekly for an 84-hour period

from July 15 to September 1. In 1994, John et al filed an injunction on June 3 in the United States District Court of Alaska seeking the allowance of continuous fishing in the Batzulnetas area from June 25 through September 1. The court denied the injunction on June 22, 1994. The subsistence fishery opened for a 48-hour period per week in June and an 84-hour period per week from July 1 to September 1. Four permits were issued and 997 sockeye salmon were harvested. In 1995, four permits were issued. Only two permits fished for a total harvest of 16 sockeye salmon. In 1996, no permits were issued and no harvest was reported. Of the three permits issued in 1997, only one household reported fishing, harvesting 176 sockeye.

### Personal Use Fishery

The personal use fishery occurs in the Chitina Subdistrict. Dipnets are the only legal gear and the season runs from June 1 to September 30 during periods established by emergency order. Several changes to the personal use fishery occurred during the last BOF meeting in Cordova. The most significant change was the increase in the quota from 60,000 to 100,000 salmon. In addition, the BOF allocated 100% of the salmon in excess of the Miles Lake sonar goal. Prior to this change, the personal use fishery was allocated 25% of the excess salmon past the Miles Lake sonar site. The BOF developed a management plan that is abundance based, which will distribute the PU harvest throughout the season. Eliminated from the previous plan was an automatic increase in bag limits if 45,000 salmon were not harvested after the fifth week. The BOF also applied a "chinook insurance policy" to the personal use fishery by reducing the bag limit from five chinook to four chinook, thereby reducing the potential harvest of chinook salmon by 5%. To reduce the harvest in the sport fishery by 5%, the BOF imposed a Tuesday closure on guiding for chinook salmon.

The personal use fishery was scheduled to open at 8:00 a.m. Saturday, June 7 until 8:00 p.m. Sunday, June 8. Passage rates past Miles Lake sonar through Sunday May 25 estimated a surplus of 22,700 salmon. Surplus salmon are salmon above the number needed to satisfy escapement and harvest allocations in upriver fisheries. With surplus fish available, the personal use fishery opened at 8:00 a.m. Friday, June 6 and remained open until September 30. The only deviation in the fishery occurred on September 5 when the personal use fishery was prohibited from taking coho salmon. A total of 9,086 dip net permits were issued in 1997, up from 7,199 permits issued in 1996. The reported harvest for the season was 150,000 sockeye, 5,336 chinook (both records for the fishery) and 322 coho salmon (Appendix G.5). The estimated total (reported and unreported) salmon harvest was 154,467, the largest PU harvest to date. The combined catch from the upper Copper River personal use and subsistence fisheries was 242,647 fish, ranking as the largest harvest on record.

## 1997 PRINCE WILLIAM SOUND HERRING FISHERIES

### *Preseason Outlook and Harvest Strategy*

The Prince William Sound (PWS) herring management area encompasses all coastal waters of the Gulf of Alaska between Cape Suckling and Cape Fairfield, extending offshore to 59° N. latitude. Five herring fisheries occur during the year.

During the spring season, two fisheries target herring for sac roe using either seine or gillnet gear. Two spawn-on-kelp fisheries harvest either naturally occurring spawn on kelp or spawn on kelp suspended in pounds. In the fall, a food-and-bait fishery occurs. Of the five herring fisheries, only the wild spawn-on-kelp and the food-and-bait fishery are open entry fisheries.

For management purposes, all herring fisheries target on what is treated as a single major stock of herring that spawns during the mid-April to early May period. At the 1994 BOF meeting in Cordova, the minimum spawning biomass threshold was raised from 8,400 to 22,000 tons for the PWS stock. No fishery may be opened if the estimated spawning biomass is below this level. The 22,000 ton threshold is 25 % of the potential spawning biomass from an unfished stock. The higher threshold will establish manageable harvest levels while reducing the risk of driving the population to low abundance through overfishing. When the stock size is between 22,000 and 42,500 tons, the PWS Herring Management Plan (5 AAC 27.365) allocates the projected available surplus to the five fisheries based on a 0 to 20 % harvest rate. The maximum harvest rate of 20 % is applied when stock size is greater than 42,500 tons. The sac roe seine fishery is allocated 58.1 % of the available surplus; the food-and-bait fishery 16.3 %; the pound spawn-on-kelp fishery 14.2 %; the wild spawn-on-kelp fishery 8.0 %; and the gillnet sac roe fishery is allocated 3.4 %.

### *1997 Season Summary*

The Prince William Sound Management Plan, 5 AAC 27.365, allocates the projected available surplus. This plan provides for harvest rates of 0 to 20% when stock size is between 22,000 tons and 42,500 tons. For management purposes, herring in all locations of the Sound are assumed to be one stock. The 1997 spawning biomass was projected to be 37,000 tons and dominated by age-4 fish (1993 year class) and age-9 (1988 year class). Since the spawning biomass was approaching the upper limit of 42,500 tons, the exploitation rate was set at 15%. Allocations by fishery were: seine sac roe 3,277 tons; gillnet sac roe 192 tons; pound kelp 801 tons equivalent herring harvest; and wild kelp 451 tons equivalent herring harvest. The 1997 spring herring fisheries utilized approximately 5,400 tons of herring. There has been no determined value of the sac roe fisheries to date.

### Sac Roe Seine Fishery

The management goal for sac roe fisheries is to provide a high quality product to enhance value within the harvest guideline. With the large harvest of small fish (130 grams and less) in San Francisco and British Columbia, minimum standards of 130 grams and 10% mature roe weight were placed on the fishery by the industry. With these restrictions, a rigorous pre-fishery sampling program was of paramount importance to conducting a successful fishery in 1997. Sampling helps identify areas with large average fish size. Daily sampling can provide estimates of roe maturity that helps to identify when roe recovery will be near optimum. Timely aerial and sonar survey data can help manage the harvest so that it stays within processing capacity limits. With a relatively small 3,277 ton guideline harvest, processing capacity was not anticipated to be a factor in meeting quality standards. Despite the fact that two processors left the area on April 12 to be on grounds in Kodiak for the April 15 herring fishery, the remaining processing capacity could still accommodate the entire guideline harvest tonnage.

During late March, the department conducted a hydroacoustic herring survey. Simultaneously, a comparison was made between the newly purchased Biosonics acoustic gear with the older Biosonics gear that had been in use for the past several years. The survey covered the Montague Island area and the northeast shore from Tatitlek to St. Matthews Bay. Preliminary estimates were that 35,000 to 40,000 tons of herring were in Zaikof Bay at the end of March. During the acoustic survey, the department collected numerous fish samples for both age composition and roe maturity. Samples collected at Montague Island indicated a predominance of age-3 and age-5 fish. Samples in the northeast area varied. Knowles Head samples collected on March 29 were 25% age-5 and 36% age-9; samples from Two Moon Bay on March 30 were nearly 90% age-3-and age-4; samples from St. Matthews Bay on March 5 were nearly 80% ages-

3,4&5. Based on the results of the hydroacoustic survey, the department managed the herring fishery on the pre-season forecast of 37,000 tons of herring.

The first aerial survey was flown on March 29 and daily surveys began April 2. On April 1 at 12:00 noon, the sac roe seine and gillnet fleets were placed on 48-hour advance notice. An aerial survey on April 2 observed approximately 1.3 miles of spawn near Sheep Bay and 0.2 mile of spawn near Tatitlek Village. The Port Gravina and Sheep Bay areas are traditional early spawning locations. In addition to the spawn, surveys observed 300 tons of herring in Sheep Bay and Port Gravina; 300 tons in Port Fidalgo and; 40 tons at Montague Island. Approximately 400 tons were observed in the Port Fidalgo area on April 3 and 700 tons were seen on April 4. With the herring biomass in the northeast area increasing daily, the sac roe seine and gillnet fisheries were placed on 24-hour advanced notice effective 4:00 p.m. Friday, April 4. Heavy rain, fog and gusty winds prevented an aerial survey on April 5. The survey on the morning of April 6 observed nearly 2,000 tons in the Port Fidalgo and Tatitlek area.

The department began collecting herring samples to assess roe maturity near Montague Island beginning on March 27. Samples there varied in size from 67 grams to 141 grams and roe maturity was less than 1%. The acoustic survey moved to the northeast area of PWS on March 30 and 31 with samples collected in the Port Fidalgo and St. Matthews Bay area.. The average herring size was larger in the northeast with slightly higher roe maturity. Samples ranged from 58 to 160 grams and roe maturity varied from 0 to 6%. Sampling efforts resumed in the Montague area on April 3 and 4. All samples were well below the industry standards, averaging nearly 110 grams and less than 6% mature roe. A single test set from Two Moon Bay on April 3 averaged 151 grams and 10% mature roe.

On the evening of April 6, the department attempted to dispatch several vessels to the northeast area and two vessels departed Cordova on the morning of April 7. No samples were collected during the trip. The R/V Montague was dispatched on April 7 to the northeast shore to increase sampling efforts and monitor the herring biomass. An aerial survey under good conditions on the morning of April 7 observed less herring than on April 6. Several spotter pilots reported they observed nearly 5,000 tons the evening of April 6. An evening survey on April 7 observed 1,800 tons in the Port Fidalgo and Tatitlek area, an increase from the 900 tons observed in the morning.

On the morning of April 8, with the industry and fishing fleet located in the northeast area, the sampling program was intensified. A total of seven sets were made throughout the northeast area.. Two sets in the Tatitlek Narrows area averaged 138 grams and 9.0% mature roe. At the head of Port Fidalgo, a sample averaged 173 grams and 11.6% mature roe. Galena Bay averaged 152 grams and 9.4% mature roe. Landlocked Bay herring averaged 169 grams and 10.2% mature roe. A test set near Goose Island had predominately spawned out and younger aged fish, possibly from the St. Matthews Bay area. By evening, the peak aerial estimate of the biomass in the northeast area was between 2,000 to 3,000 tons. The fleet was notified that at least 6,000 tons would be necessary to prosecute a commercial seine fishery. Sampling continued on April 9 in limited areas with the intention of holding a seine fishery if a biomass was located and the harvest could be limited to 2,000 tons. Fog covered most of the northeast area in the morning, limiting the aerial survey and sampling efforts. As weather conditions cleared, test fishing resumed and all samples exceeded industry minimums. An aerial survey that afternoon observed only 2,300 tons of herring throughout the northeast area. With the biomass far below the 6,000 ton minimum to prosecute a fishery, the seine fleet was informed the department would begin to evaluate the Montague area for a possible fishery beginning on April 10. With no build-up in the northeast area for the past several days, it was felt the possibilities of the biomass reaching 6,000 tons was unlikely at this point. The fleet was also advised that the R/V Montague would be stationed at Montague Island sometime on April 10.

Test fishing was concentrated around Montague Island beginning April 10. Samples taken in Port Chalmers and Rocky Bay were comprised of small immature fish; in Stockdale, fish averaged 125 grams with a mature roe percent of 9.2. An aerial survey observed less than 1,000 tons of herring in the northeast area and 4,000 plus tons around Montague Island. The sac roe seine fleet stood down until 10:00 a.m., when it resumed a 4-hour advanced notice status. Two large schools of herring, one in Rocky Bay the other in Stockdale, remained deep and undefined. No accurate visual estimate could be made of these schools however, they were thought to represent approximately 10,000 to 20,000 tons. Test fishing and aerial surveys continued on April 11 and 12 with similar results. Samples in Rocky Bay were small immature herring; samples in Stockdale Harbor were larger fish, however, those fish still remained below industry minimums. During the aerial survey on April 12, 88 seine vessels were observed in the Montague area.

Test fishing on April 13 concentrated efforts in both Stockdale Harbor and Rocky Bay. Rocky Bay samples remained below industry standards; one sample north of Graveyard Point averaged 145 grams and 11.5% mature roe. Samples in Stockdale Harbor averaged 146 grams and 11% mature roe. With all samples in Stockdale Harbor above industry minimums, a 20 minute seine fishery was announced for 1:00 p.m. that afternoon. The harvest for the first seine period was 651 tons and 9.3% mature roe. The reported average size was 137 grams. The seine fishery stood down until 10:00 a.m. April 14. Test fishing resumed in Rocky Bay and Stockdale Harbor. Samples from Rocky Bay averaged 120 grams and 10% mature roe. The average size for Stockdale Harbor was 130 grams and 9.6% mature roe. The observed biomass on April 14 around Montague Island was 7,000 tons and the large biomass in Rocky Bay remained undefined. A meeting with the processors was called at 12:00 noon to discuss the sample results collected that morning. Staff reviewed the sample results, spawning activity and the biomass sighted to date. A representative from each processor was in attendance and all but one processor requested that the department continue sampling and hold off on conducting a fishery. The department announced to the fleet that a fishery would not occur and it would continue to monitor the biomass.

On the morning of April 15, test boats were indicating that few fish remained in Stockdale Harbor. Of the two sets made, one sample averaged 83 grams with 1.8% mature roe and the other sample averaged 132 grams with 10.4% mature roe. A department aerial survey that morning observed 2,000 tons in Port Chalmers and test boats were dispatched to the area. The overall average from the four test sets was 145 grams and 9.1% mature roe. There was a meeting with the processors at 12:00 noon on April 15 to discuss the morning's sample results. A representative from each processor was in attendance and all but one processor was interested in the Port Chalmers fish. Processors requested that the department continue sampling efforts and if samples improved by the afternoon, a fishery that evening would be acceptable. One recommendation from the processors was if a fishery occurred, it would be best if the length of the fishery could be two hours. The longer periods would allow the processors a longer period of time to test the sets for roe maturity and average size. Marginal sets could then be released giving the permit holder another chance at a better product. This would improve the harvest all around. Four boats made sets following the meeting and all sets exceeded industry's minimum standards. The department estimated 2,700 tons were in the Port Chalmers area during the afternoon aerial survey. The department announced that a 90-minute fishery would begin at 5:30 p.m. The area opened was the waters of Port Chalmers northward to the southern point of Stockdale entrance. The harvest from the 90-minute fishery was 4,053 tons. Average roe maturity was 9.75% and the average size was 137 grams. The total harvest following the second period was 4,700 tons, which exceeded the guideline harvest of 3,300 tons. The herring sac roe purse seine fishery was closed for the 1997 season.

The actual size of the herring biomass and its age composition closely resembled the preseason forecast. In addition, there appears to be a strong year-class of age-3 recruit fish in the population. The total linear miles of shoreline spawn was 42.7 miles up from 26.0 miles in 1996. The peak aerial biomass estimate was 12,000 tons with 70% sighted at Montague Island. Based on the March acoustic survey, the actual biomass was close to the projected biomass of 37,000 tons of herring.

#### Gill Net Sac Roe Fishery

The gillnet sac roe herring fishery was placed on 48-hour advance notice at 12:00 noon on April 1. The advance notice period was reduced to 24-hours at 4:00 p.m. Friday, April 4 and then down to 2-hours advanced notice effective 9:00 a.m. Tuesday, April 8. Spawning in the Port Fidalgo and Tatitlek area was first documented on March 29, however spawning was very light.

On April 8, approximately 400 tons were observed at the head of Landlocked Bay. Two test boats were dispatched to the area and samples from those sets averaged 166 grams with a roe maturity of only 8.4%. On the afternoon of April 9, test boats fished in Snug Corner Cove, Fish Bay and Tatitlek Narrows. Samples collected in Snug Corner Cove averaged 158 grams and 8.2% mature roe; Fish Bay samples collected in active spawn averaged 167 grams and 6.2% mature roe and samples collected just north of Tatitlek Village averaged 167 grams and 9.96% mature roe. The gillnet fleet was placed on one hour advanced notice effective 10:00 a.m. April 9. With spawn occurring for the past two days in the Tatitlek Narrows area and samples averaging nearly 10%, the gillnet fishery was opened for a 4-hour period in the Tatitlek Narrows area from 7:30 p.m. until 11:30 p.m. on April 9.

The R/V Montague arrived near the fishery at approximately 8:00 p.m. One of the buyers sampling the catch immediately reported that the samples collected since the fishery began were poor with roe percentages near 7% due to high male counts. Through the industry aggressively sampling the catch, it was determined that the fishery should close early to limit the harvest. At 9:15, the department announced the closure for 10:00 p.m. The harvest for the 2.5-hour fishery was 178 tons at 8.0% mature roe. The harvest quota for the gillnet fishery was 192 tons. With the quota nearly taken, the gillnet fishery was closed for the 1997 season.

#### Wild Harvest Spawn-On-Kelp Fishery

On April 20, wild kelp harvesters were placed on 48-hour advance notice prior to a fishery. By that date, almost six shoreline miles of spawn had been observed on Montague Island. As only 14 miles of spawn had been observed in other areas of Prince William Sound, the northern Montague Island area with its large spawning biomass was the only area under consideration for a wild harvest opening. While Montague Island has a diverse composition of kelp species including most of the species found in other areas of Prince William Sound, Fucus sp. is the marketable species found in greatest quantity in this area. Very little of the traditional subtidal kelp species such as ribbon, hair, or sieve, occur here and the 1997 harvest was therefore expected to primarily target Fucus kelp. Skiff surveys conducted by department personnel and harvesters indicated that spawn deposition was intermittent along the beaches in the Port Chalmers and Stockdale Harbor areas. Small, scattered kelp beds had received marketable coverage of roe but these were closely surrounded by beds with poor roe coverage. Spawning was first observed in this area April 16 and continued to increase in distribution and intensity over the next few days. Advanced notice for a wild harvest was reduced to 36 hours on Monday, April 21 to better take advantage of low tides that would be occurring later in the week. On Tuesday, April 22, a 6-hour wild harvest period was announced for Thursday, April 24. Kelp buyers on the grounds examined samples of the available product and initially

indicated that there was acceptable product available in the areas under consideration. On the evening before the announced harvest period, buyers were reconsidering their willingness to buy kelp from the Port Chalmers or Stockdale Harbor area and subsequently asked the department to postpone the wild harvest period scheduled for the next day. Despite there being some acceptable product, buyers indicated that quality standards, market conditions, and harvester inexperience could result in as much as 85% of the harvest being discarded. Buyers felt that higher quality roe on kelp might be found in Rocky Bay, the other area on Montague Island where significant spawning had occurred. The wild harvest period scheduled for April 24 was postponed.

Beach surveys found spawn deposition in Rocky Bay to be similar to other areas on Montague Island with small discreet areas having good roe coverage surrounded by areas with unmarketable roe on kelp. Those locations with good roe coverage were small enough that a short harvest period would effectively allow these areas to be thoroughly picked over. To minimize the harvest of low quality kelp that would ultimately be discarded and; to provide access to all beaches with acceptable roe coverage, a four hour harvest period that included all the spawning locations in the Rocky Bay, Port Chalmers and Stockdale Harbor areas was announced for Friday, April 25. Five buyers were registered and a total of 36 permit holders made deliveries to four of the five buyers on the grounds. One buyer elected not to purchase roe on kelp citing poor market conditions for the available grades of PWS Fucus.

The estimated harvest for the first period was 18.7 tons of product. Buyers accepted all deliveries and did not discard on the grounds. Roe technicians would sort and grade kelp at shore based facilities. The second four hour period began on April 26 at 8:30 in the same areas as the previous opening. Some buyers did not participate in the second opening. The harvest for this period was 7.6 tons of product bringing the cumulative harvest for the two periods to 26.4 tons. This total was less than the guideline harvest level of 56.4 tons established for this fishery. After the second period, all buyers left the area and the fishery did not re-open. All of the product harvested was Fucus kelp. The exvessel value for the wild harvest fishery is estimated to be \$32,000 and 44 of the 196 permit holders registered to participate in the fishery harvested kelp.

#### Spawn-On-Kelp In Pounds

PWS herring pound permit holders were given the option pre-season of choosing to operate an open pound with a kelp quota of 640 blades or a closed pound with a kelp quota of 410 blades. Open pounds would also be allowed to fish in the Montague Island area where a majority of the PWS spawning biomass has been located in recent years. Of the 128 limited entry permit holders, 107 elected to operate open pounds and 9 elected to operate in a closed configuration. The rest were not planning to use their permits in 1997. The pound fishery occurred in the waters of Valdez Arm, Port Fidalgo and Montague Island. Permit holders began staging pound structures in the Port Fidalgo area and Montague Island area during the first week in April. Pound location was not static throughout the fishery with permit holders moving structures between bays depending on spawning activity and weather conditions. Permit holders initially set up pound structures in Virgin Bay, Boulder Bay, Landlocked Bay, Fish Bay, Irish Cove, Two Moon Bay and Snug Corner Cove in the Port Fidalgo area and near Stockdale Harbor in the Montague Island area. Many permit holders began fishing the Northeast area and then relocated their pound structures and kelp to the Montague Island area later in the season.

The first test fish samples from the Northeast area were collected on March 30 and 31 from the vicinity of Port Fidalgo. Samples collected from Landlocked Bay averaged 160 grams and 5.5% mature roe. The St. Matthews samples averaged 122 grams with 2% mature roe. Samples from Sunny Bay, Hells Hole, and

Two Moon Bay were all under 90 grams and were predominately immature fish. The pound fishery, along with the sac roe fisheries, was placed on 48-hour advance notice effective at 12:00 noon Tuesday, April 1.

The first aerial survey of the season was flown on April 2. Approximately 145 tons of herring were observed in St. Matthews Bay, 100 tons near Gravina Point with approximately 1.3 miles of spawn, 170 tons in Port Fidalgo, 50 tons in both Fish Bay and the Tatitlek Narrows and 10 tons in Landlocked Bay. An aerial survey flown on April 3 observed 1.5 miles of spawn along the northwest end of Sheep Bay, 0.2 miles in St. Matthews Bay, and 0.25 miles of spawn north of the Village of Tatitlek. Approximately 100 tons of herring were observed outside of Sheep Bay, 200 tons were seen from Olsen Bay east to Hells Hole, 100 tons were observed near Goose Island, 60 tons in Two Moon Bay, and less than 100 tons in the Tatitlek area. An aerial survey conducted on April 4 observed approximately 900 tons of herring in the northeastern area with the majority in Port Fidalgo. An aerial survey conducted on April 6 observed 75 tons of herring and 1.0 mile of spawn in the St. Matthews Bay area, 1,070 tons in the Port Fidalgo area with the majority in Landlocked Bay and 825 tons in the Tatitlek area.

The advance notice for the pound fishery in the northeast area and Montague Island area was reduced to 24 hours effective 4:00 p.m. April 6. Test fishing occurred in the Port Fidalgo area on April 7. Samples from Landlocked Bay averaged 160 grams and 10% mature roe. Test fishing continued in the Port Fidalgo area and samples from a set in Landlocked Bay averaged 169 grams and 9.6% mature roe on April 8. A sample taken southwest of Boulder Bay averaged 148 grams and 9.6% mature roe and samples from a set made near the west end of Goose Island averaged 84 grams, 1.5% mature roe and greater than 50% spawn outs. An aerial survey flown on April 8 observed less than 1,000 tons of herring in the northeast shore area. To date, the peak aerial biomass in the northeast area was slightly more than 2,000 tons. On April 8, the ADF&G chartered vessel Miss Emily arrived in Landlocked Bay. Department personnel were aboard to monitor the pound fishery and to conduct herring disease research in relation to closed pounding. The research, funded in part by the Exxon Valdez Trustee Council, is seeking to understand the relationship between closed pounding and stress induced disease outbreaks. Results from the herring pound disease study should be available in 1998.

The advance notice for the pound fishery in the northeast area was reduced to six hours effective 9:00 am, April 9. A test fishing sample from Snug Corner Cove averaged 143 grams and 12.6% mature roe. The average from three samples collected due south of Fish Bay was 159 grams and 9.5 % mature roe. A sample from Galena Bay averaged 132 grams and 12.9 % mature roe. A survey indicated that most permit holders in the area had kelp hung in their pounds. With several test sets from the Fidalgo area above 9.5 % mature roe, and the majority of permit holders ready to fish, seining herring for introduction into closed pounds, and open pounding was allowed to began in the northeast area effective 6:00 a.m. April 10. Open areas included those waters inside of a line from Point Freemantle to Porcupine Point. Additionally, the advance notice for the open pound fishery in the Montague area was reduced to 12 hours effective 12:00 noon April 10. By April 14, closed pounders operating in the two remaining closed pounds had introduced their maximum allocation of herring into their pounds. Seining for the introduction of herring into closed pounds was closed effective 2:45 p.m. April 14. Waters in northeast PWS remained open to open pound gear.

Test fishing continued in the Montague area on April 10. Samples from Stockdale Harbor averaged 125 grams and 9.2% mature roe. Samples from Rocky Bay averaged 96 grams and 6.8% mature roe. One sample from Port Chalmers averaged 114 grams and 7.9% mature roe. An aerial survey of the Montague area on April 10 observed 100 tons in Port Chalmers, 3,700 tons in Stockdale Harbor and 100 tons along the shoreline from Graveyard Point north to Montague Point. An aerial survey in the northeast area

observed 650 tons in Port Fidalgo, 250 tons in the Tatitlek Narrows area and less than 100 tons in Galena Bay. Through April 10, approximately nine miles of spawn had been observed in eastern and northern PWS from Hawkins Island to Tatitlek. Through April 11, approximately 14 mile days of spawn had been documented in eastern and northeastern PWS. No spawn had been documented around Montague Island at that time.

The pound fishery in the Montague area went on six hour advanced notice effective 9:00 a.m., April 12 and test fishing continued in the Montague area in support of a potential sac roe seine fishery. The aerial survey conducted on April 12 observed 150 tons in Port Fidalgo, 20 tons in Galena Bay and 2,000 tons at Montague Island. A total of 3.25 miles of spawn was observed in the Tatitlek and Port Fidalgo area. The advance notice for the pound fishery in the Montague area was reduced to two hours effective 2:00 p.m. April 13 and test fishing again continued in the area. Samples from Rocky Bay averaged 112 grams and 9.2 % mature roe, samples from Graveyard Point averaged 145 grams and 11.5 % mature roe and combined samples from Stockdale Harbor averaged 146.5 grams and 11 % mature roe. Effective 8:30 p.m. April 13, the open pound fishery in the Montague area was opened in Rocky Bay west of a line from Montague Point to Middle Point. This action allowed pounders there to drop webbing from around their kelp in anticipation of herring spawning. Samples of herring from the area indicated that there were a high percentage of age-3 herring. Most of these were found in a single large biomass within Rocky Bay. These fish were not desirable for a sac roe harvest and the open area would not likely cause interference with a sac roe fishery. For the same reasons, the area around Montague Island open to pounding was expanded on April 14 to include waters east of the cove near Graveyard Point. Waters along the shoreline of Montague Island from Graveyard Point to Middle Point were now open.

In the northeast area, the peak biomass estimate for the northeast shore occurred on April 9 with 2,700 tons observed. As of April 14, aerial surveys had estimated approximately 170 tons along the northeast shoreline. With the decline in the areas observed biomass, permit holders in the northeast area began to either harvest their spawn on kelp or repackaging kelp into boxes and moving their pound structures to the Montague Island area. Following the completion of the sac roe seine harvest on April 16, the waters opened to open pounding were expanded to include all waters of the Montague District as described in salmon regulations. Most permit holders originally fishing in the northeast area had either harvested their product or relocated the pound structures to the Montague area by April 18. Permit holders fishing open pounds reported marginal success with open pounding. Many permit holders were able to harvest some product, but no open pounds were able to produce the higher quality grades of spawn on kelp. Permit holders operating the remaining two closed pounds reported slightly better success with respect to roe coverage although one contained approximately 25% more herring than was permitted. The other closed pound was found to have holes in the webbing and the exact amount of herring used is uncertain.

Harvest of spawn on kelp commenced in the northeastern area on April 14. Most permit holders operating in the Montague District had harvested their kelp by April 28. The 1997 spawn on kelp in pounds fishery closed on May 6 at 12 noon. A total of 90 permit holders harvested approximately 68,400 lb. of unprocessed product. Loss from processing was estimated to average 22 % resulting in a total harvest of processed spawn on kelp of 53,352 lb. worth an estimated \$426,816.

#### Food and Bait Fishery

The opening date in regulation for the 1997 fall food-and-bait fishery was October 1. Market conditions and processor preferences delayed the commencement of the fishery until November 1. Twelve permit holders participated in the fishery and the entire preliminary quota of 550 tons was harvested on the

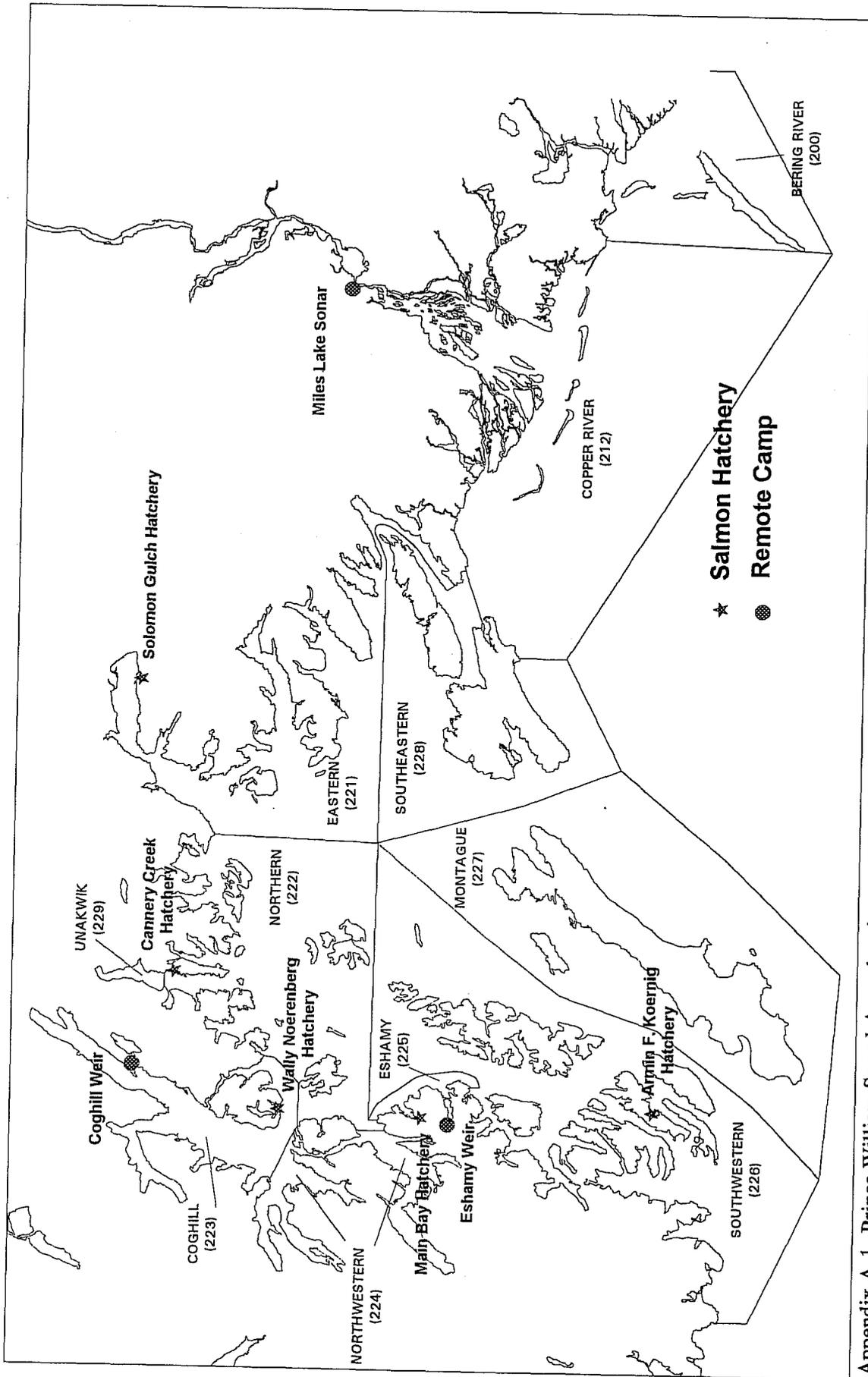
evening of November 1. A total of 578 tons were landed. Approximately 12 sets were made by the 6 seine boats on the grounds. All sets were retained and no herring were released. The preliminary guideline harvest level was established in October of 1997 using a conservative exploitation rate of 10% for the stock. Average size-at-age data collected during November's food-and-bait fishery was used to refine the preliminary guideline harvest to its current level. The revised forecast and associated guideline harvest level incorporates an exploitation rate of 15% which has increased the allocation for the food-and-bait fishery from 550 tons to 945 tons. The department reopened the food-and-bait fishery on February 19 to harvest the 367 tons remaining in the food and bait quota. Although several vessels made sets in the evening of February 19th, fish from only two sets were retained as the fish were too small. Total catch for the two sets was 101 tons. These landing brought the total harvest to 679.8 tons. With processor and permit holder interest waning, the food-and-bait fishery was closed at 11:19 PM, February 28, 1998.

### *1997-98 Herring Season Outlook*

#### Stock Status

Since the crash of the PWS herring stock in 1993, a rebuilding phase has been ongoing. The return in 1998 is projected to be of sufficient size to allow all five herring fisheries to occur.

The 1998 forecast was created using an age structured analysis model. Considering natural mortality and growth, the 1998 population is estimated to be 38,640 tons. A 15% exploitation rate on the stock was established, creating a guideline harvest level of 5,796 tons of herring for all five fisheries. The biomass is expected to be comprised of 57% age-3 and 4 herring, 25% age-5 and 6 herring, and 18% age-8 and older.



Appendix A.1. Prince William Sound Area showing commercial fishing districts, salmon hatcheries, weir locations, and Miles Lake sonar camp.

Appendix A.2. Commercial salmon harvest by species, gear type and district in the Prince William Sound Management Area, 1997.

District	Effort	Chinook	Sockeye	Coho	Pink	Chum	Total
Eastern	97	86	5,487	47,914	4,534,365	446,757	5,034,609
Northern	84	2	2,250	268	3,162,822	4,877	3,170,219
Coghill	71	7	5,694	1,269	1,875,617	33,139	1,915,726
Southwestern	85	9	14,985	5,342	5,929,544	6,656	5,956,536
Montague <sup>a</sup>	32	98	414	423	65,107	185,400	251,442
Southeastern	5	2	63	4	28,040	3,252	31,361
Purse Seine	114	204	28,893	55,220	15,595,495	680,081	16,359,893
Bering River <sup>b</sup>	16	23	9,651	97	2	0	9,773
Copper River <sup>a,b</sup>	516	51,273	2,955,647	18,656	8,483	2,465	3,036,524
Unakwik	4	3	3,411	0	0	177	3,591
Coghill	317	862	227,231	5,618	154,969	689,977	1,078,657
Eshamy	296	17	475,498	426	146,324	34,768	657,033
Drift Gillnet	520	52,178	3,671,438	24,797	309,778	727,387	4,785,578
Eshamy	26	12	196,005	163	76,610	8,475	281,265
Set Gillnet	26	12	196,005	163	76,610	8,475	281,265
Solomon Gulch	1	4	9	2,933	2,431,007	9,230	2,443,183
Cannery Creek	1	0	0	0	1,897,259	0	1,897,259
Wally Noerenberg	1	60	201	0	2,280,868	800,366	3,081,495
Main Bay	1	24	236,031	0	38,858	1,583	276,496
Armin F. Koernig	1	0	0	0	3,206,683	0	3,206,683
Gulkana	1	0	30,094	0	0	0	30,094
Hatchery <sup>c</sup>	6	88	266,335	2,933	9,854,675	811,179	10,935,210
Donated Fish	0	0	0	0	0	0	0
ADF&G Test Fish	0	0	0	0	0	0	0
Confiscated Fish	5	0	403	0	5	68	476
Total	5	0	403	0	5	68	476
<b>Prince William Sound</b>							
Total		52,482	4,163,074	83,113	25,836,563	2,227,190	32,362,422

<sup>a</sup> Totals include discarded sockeye and chum salmon.

<sup>b</sup> Does not include salmon taken for home use as reported on fish tickets.

<sup>c</sup> Hatchery sales for hatchery operating costs. Includes meal production/ roe salvage sales, carcass sales and processor discards. Excludes post egg-take roe sales at hatcheries.

Appendix A.3. Commercial salmon harvest by species from all gear types,  
Prince William Sound Area, 1971 - 1997.

Year <sup>a</sup>	Catch by Species					
	Chinook	Sockeye	Coho	Pink	Chum	Total
1971	20,142	741,945	327,697	7,312,730	579,552	8,982,066
1972	23,003	976,115	124,670	57,090	46,088	1,226,966
1973	22,638	473,044	199,019	2,065,844	740,017	3,500,562
1974	20,602	741,340	76,041	458,619	89,210	1,385,812
1975	22,325	546,634	84,109	4,453,041	101,286	5,207,395
1976	32,751	1,008,912	160,494	3,022,426	370,657	4,595,240
1977	22,864	943,943	179,417	4,536,459	573,166	6,255,849
1978	30,435	505,509	312,930	2,917,499	489,771	4,256,144
1979	20,078	369,583	315,774	15,615,810	349,615	16,670,860
1980	8,643	208,724	337,123	14,161,023	482,214	15,197,727
1981	20,782	784,469	396,163	20,558,304	1,888,822	23,648,540
1982	47,871	2,362,328	623,877	20,403,423	1,336,878	24,774,377
1983	53,879	908,469	365,469	13,977,116	1,048,737	16,353,670
1984	39,774	1,303,515	609,484	22,119,309	1,229,185	25,301,267
1985	43,735	1,464,563	1,025,046	25,252,924	1,321,538	29,107,806
1986	42,128	1,288,712	426,240	11,410,302	1,700,906	14,868,288
1987	41,909	1,737,989	175,214	29,230,303	1,919,415	33,104,830
1988 <sup>b</sup>	31,797	767,674	477,816	11,820,121	1,843,317	14,940,725
1989 <sup>b</sup>	32,006	1,175,238	424,980	21,886,466	1,001,809	24,520,499
1990 <sup>b</sup>	22,163	911,607	524,274	44,165,077	967,384	46,590,505
1991 <sup>c</sup>	35,355	1,734,544	641,854	37,135,561	352,321	39,899,635
1992 <sup>d</sup>	41,306	1,771,612	619,460	8,637,116	334,376	11,403,870
1993 <sup>e</sup>	32,005	1,851,133	445,612	5,761,097	1,186,365	9,276,212
1994 <sup>f</sup>	48,558	1,514,329	1,058,154	36,886,301	1,058,213	40,565,555
1995 <sup>f</sup>	67,083	1,523,464	992,798	16,221,493	864,245	19,669,083
1996 <sup>f</sup>	56,457	3,000,602	459,253	26,042,942	2,103,559	31,662,813
1997 <sup>f</sup>	52,482	4,163,074	83,113	25,836,563	2,227,190	32,362,422
Ten Year						
Average	40,864	1,598,819	581,942	23,778,648	1,163,100	27,163,373
(1987-96)						

<sup>a</sup> Includes catches by all gear types and hatchery sales from the Eastern, Northern, Coghill, Unakwik, Northwestern, Eshamy, Southwestern, Montague, Southeastern, Copper River and Bering River districts.

<sup>b</sup> Includes confiscated and educational special use permits. Also includes hatchery sales harvests and carcass sales.

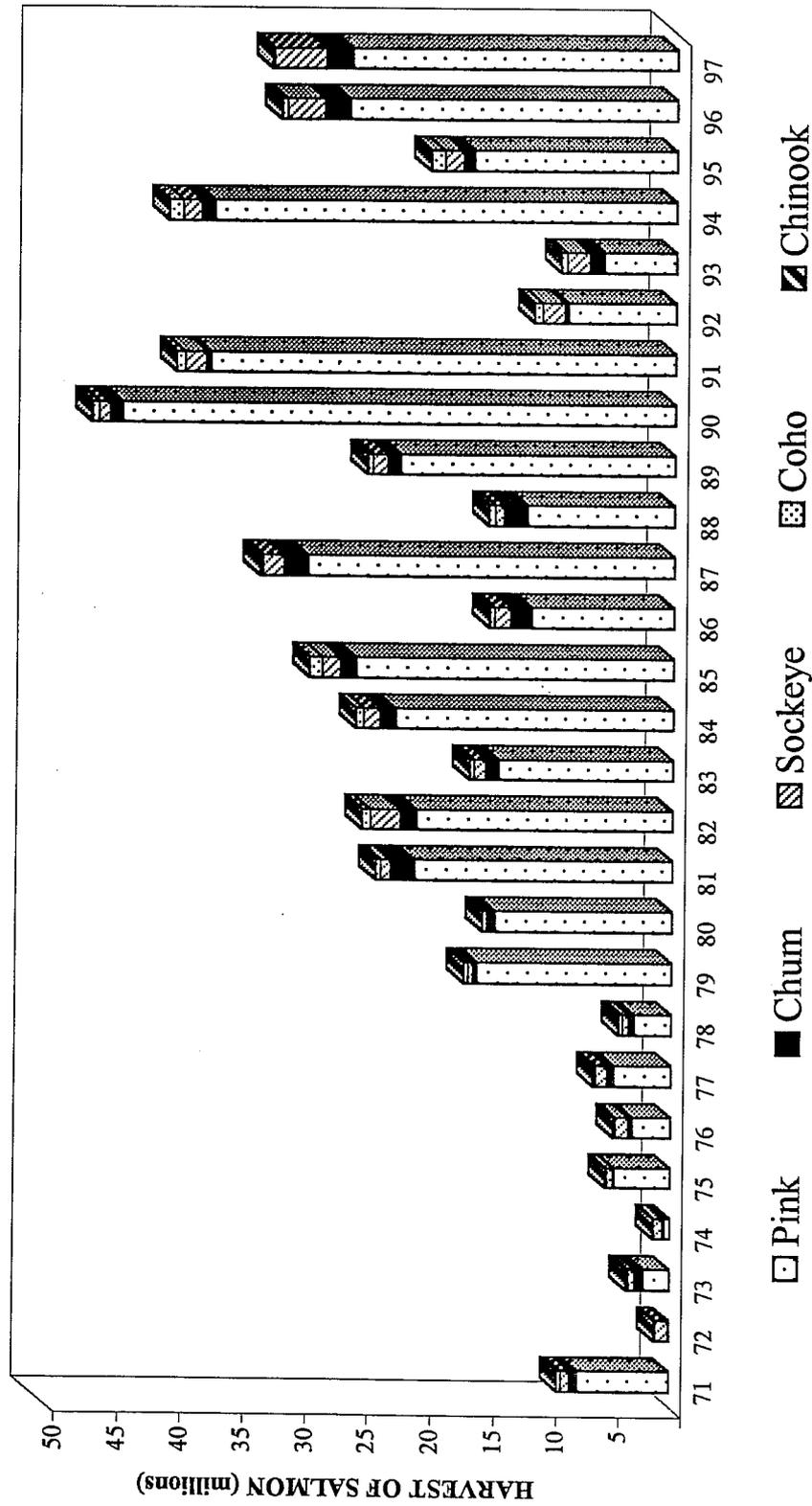
<sup>c</sup> Includes confiscated and educational special use permits, hatchery sales harvests, donated and discarded catches.

<sup>d</sup> Includes catches from confiscated and educational special use permits, hatchery sales harvest and test fisheries.

<sup>e</sup> Includes catches from confiscated permits, hatchery sales harvests, donated fish harvest and test fisheries.

<sup>f</sup> Includes catches from confiscated permits, all hatchery sales harvests (including roe salvage), and test fisheries.

# ALL SPECIES SALMON CATCH



Appendix A.4. Commercial salmon harvest by species for all gear types combined, Prince William Sound, 1971 - 97.

Appendix A.5. Mean price and estimated exvessel value of the total commercial salmon harvest by gear type, Prince William Sound, 1997.

PURSE SEINE

Species	Number	Pounds	Avg. Wt.	Price <sup>a</sup>	Value
Chinook	204	3,422	16.77	1.00	\$3,422
Sockeye	28,893	178,273	6.17	0.85	\$151,532
Coho	55,220	419,820	7.60	0.30	\$125,946
Pink	15,595,495	56,627,690	3.63	0.12	\$6,795,323
Chum	680,081	5,809,196	8.54	0.30	\$1,742,759
	16,359,893	63,038,401			\$8,818,982

DRIFT GILLNET

Species	Number	Pounds	Avg. Wt.	Price	Value
Chinook	52,178	1,214,122	23.27	1.95	\$2,367,538
Sockeye	3,671,438	23,289,612	6.34	0.85	\$19,796,170
Coho	24,797	192,661	7.77	0.30	\$57,798
Pink	309,778	1,191,398	3.85	0.07	\$83,398
Chum	727,387	6,270,104	8.62	0.25	\$1,567,526
	4,785,578	32,157,897			\$23,872,430

SET GILLNET

Species	Number	Pounds	Avg. Wt.	Price	Value
Chinook	12	159	13.25	1.00	\$159
Sockeye	196,005	1,241,513	6.33	0.85	\$1,055,286
Coho	163	1,360	8.34	0.25	\$340
Pink	76,610	292,534	3.82	0.07	\$20,477
Chum	8,475	68,966	8.14	0.25	\$17,242
	281,265	1,604,532			\$1,093,504

HATCHERY SALES <sup>b</sup>

Species	Number	Pounds	Avg. Wt.	Price	Value
Chinook	88	1,252	14.23	1.00	\$1,252
Sockeye	266,335	1,625,821	6.10	0.85	\$1,381,948
Coho	2,933	23,633	8.06	0.30	\$7,090
Pink	9,854,675	38,781,429	3.94	0.15	\$5,817,214
Chum	811,179	7,033,105	8.67	0.25	\$1,758,276
	10,935,210	47,465,240			\$8,965,780

OTHER GEAR <sup>c</sup>

Species	Number	Pounds	Avg. Wt.	Price	Value
Chinook	0	0	0.00	1.25	\$0
Sockeye	403	2,453	6.09	0.85	\$2,085
Coho	0	0	0.00	0.40	\$0
Pink	5	20	4.00	0.07	\$1
Chum	68	542	7.97	0.35	\$190
	476	3,015			\$2,276

Gear Type	Value of Catch	No. of Permits	Average Earnings
Purse Seine	\$8,818,982	114	\$77,359
Drift Gillnet	\$23,872,430	520	\$45,909
Set Gillnet	\$1,093,504	26	\$42,058
Subtotal-			
Value of CPF Catch	\$33,784,916		
Hatchery	\$8,965,780		
Other Gear	\$2,276		
<b>GRAND TOTAL</b>	<b>\$42,752,972</b>		

<sup>a</sup> Mean prices are estimated at the end of the season based on the average of cash buyers and the advance prices paid by the canneries on the grounds. They do not reflect the spring adjustments paid by some companies.

<sup>b</sup> Prices are an average of sales harvest prices excluding roe sales.

<sup>c</sup> Includes the sales of confiscated fish.

Appendix A.6. Total commercial salmon harvest and estimated value by gear type and district, Prince William Sound Area, 1997.

District	Numbers of Fish						Estimated
	Chinook	Sockeye	Coho	Pink	Chum	Total	Value <sup>a</sup>
Eastern	86	5,487	47,914	4,534,365	446,757	5,034,609	3,410,880
Northern	2	2,250	268	3,162,822	4,877	3,170,219	1,396,006
Coghill	7	5,694	1,269	1,875,617	33,139	1,915,726	899,827
Southwestern	9	14,985	5,342	5,929,544	6,656	5,956,536	2,588,766
Montague	98	414	423	65,107	185,400	251,442	501,745
Southeastern	2	63	4	28,040	3,252	31,361	21,757
<b>PURSE SEINE TOTAL</b>	<b>204</b>	<b>28,893</b>	<b>55,220</b>	<b>15,595,495</b>	<b>680,081</b>	<b>16,359,893</b>	<b>\$8,818,982</b>
200 Bering River	23	9,651	97	2	0	9,773	53,280
212 Copper River	51,273	2,955,647	18,656	8,483	2,465	3,036,524	18,316,246
223 Coghill	862	227,231	5,618	154,969	689,977	1,078,657	2,805,423
225 Eshamy	17	475,498	426	146,324	34,768	657,033	2,678,582
229 Unakwik	3	3,411	0	0	177	3,591	18,899
<b>DRIFT GILLNET TOTAL</b>	<b>52,178</b>	<b>3,671,438</b>	<b>24,797</b>	<b>309,778</b>	<b>727,387</b>	<b>4,785,578</b>	<b>\$23,872,430</b>
225 Eshamy	12	196,005	163	76,610	8,475	281,265	1,093,504
<b>SET GILLNET TOTAL</b>	<b>12</b>	<b>196,005</b>	<b>163</b>	<b>76,610</b>	<b>8,475</b>	<b>281,265</b>	<b>\$1,093,504</b>
221 Solomon Gulch	4	9	2,933	2,431,007	9,230	2,443,183	1,588,147
222 Cannery Creek	0	0	0	1,897,259	0	1,897,259	1,090,485
223 Wally Noerenberg	60	201	0	2,280,868	800,366	3,081,495	3,063,005
225 Main Bay	24	236,031	0	38,858	1,583	276,496	1,276,439
226 Armin F. Koernig	0	0	0	3,206,683	0	3,206,683	1,821,057
212 Gulkana	0	30,094	0	0	0	30,094	127,900
<b>HATCHERY SALES TOTAL</b>	<b>88</b>	<b>266,335</b>	<b>2,933</b>	<b>9,854,675</b>	<b>811,179</b>	<b>10,935,210</b>	<b>\$8,965,780 <sup>b</sup></b>
Donated Fish	0	0	0	0	0	0	0
ADF&G Test Fish	0	0	0	0	0	0	0
Confiscated	0	403	0	5	68	476	2,276
<b>OTHER GEAR TOTAL</b>	<b>0</b>	<b>403</b>	<b>0</b>	<b>5</b>	<b>68</b>	<b>476</b>	<b>\$2,276</b>
<b>PRINCE WILLIAM SOUND</b>							
<b>GRAND TOTAL</b>	<b>52,482</b>	<b>4,163,074</b>	<b>83,113</b>	<b>25,836,563</b>	<b>2,227,190</b>	<b>32,362,422</b>	<b>\$42,752,972</b>

<sup>a</sup> (Reported number of pounds delivered by species) x (estimated average price per pound for that species and district) = Estimated Value. Actual value may vary.

<sup>b</sup> Hatchery sales for hatchery operating costs. Does not include salmon roe sales.

Appendix A.7. Average price paid to fishermen for salmon, Prince William Sound, 1988-1997.

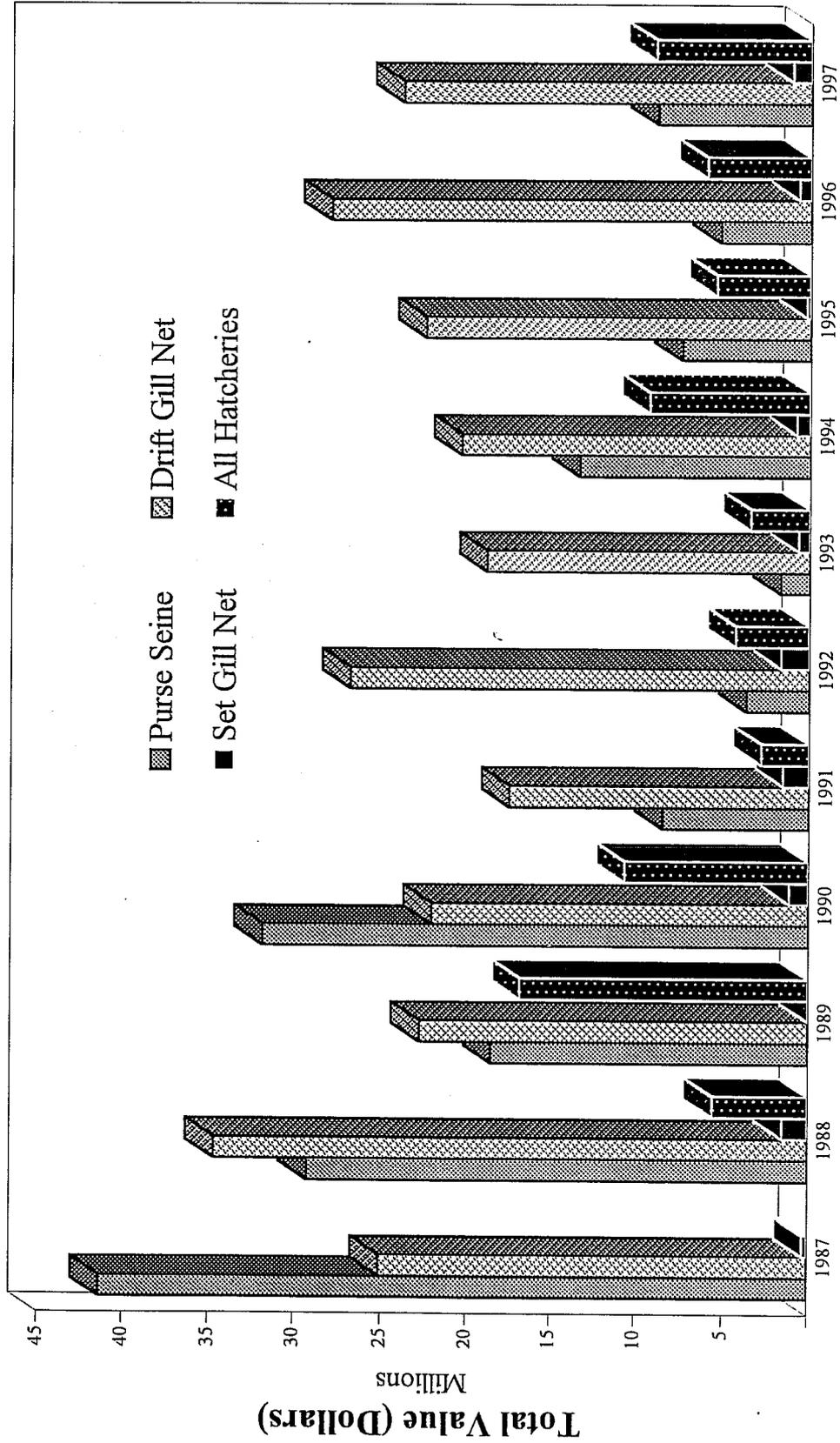
Species <sup>a</sup>	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
King Salmon	2.23	2.25	2.24	1.65	2.50	1.82	1.43	2.19	1.96	2.00
Copper/Bering Districts				1.00	1.55	1.07	0.80	0.91	0.71	1.00
Prince William Sound										
Sockeye Salmon										
Copper River	3.20	2.30	2.13	1.28	2.50	1.32	1.27	1.67	1.38	0.88
Bering River	3.00	2.30	2.13	1.28	2.50	1.40	1.06	1.44	1.21	0.88
Coghill/Unakwik Districts	2.68	2.00	1.50	1.28	1.55	0.93	0.94	0.75	0.82	0.80
Eshamy	2.77		1.45	1.28	1.55	0.86	1.19	1.06	0.85	0.80
General Purse Seine	2.68	2.00	1.50	1.00	1.55	0.83	0.88	0.94	0.73	0.85
Coho Salmon										
Copper/Bering Districts	2.35	0.60	0.97	0.65	0.90	0.80	0.74	0.52	0.53	0.30
Prince William Sound	1.86	0.70	0.97	0.45	0.90	0.77	0.60	0.42	0.36	0.30
Pink Salmon	0.79	0.35	0.30	0.12	0.18	0.16	0.16	0.18	0.07	0.12
Chum Salmon	0.73	0.35	0.70	0.40	0.55	0.68	0.45	0.45	0.13	0.27

<sup>a</sup> Based on processor reports, fish tickets and other sources. Prices are monitored throughout the season and a weighted average is generally used. Prices generally do not reflect post season adjustments. Prices are only an estimate. Caution should be used if using these prices to estimate value.

Appendix A.8. Estimated exvessel value of the total commercial salmon harvest by gear type, Prince William Sound, 1987 - 97.

Species	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
<b>PURSE SEINE</b>											
Chinook	4,910	8,307	23,731	2,178	1,732	2,044	379	1,104	1,169	570	3,422
Sockeye	1,466,837	405,897	128,766	219,753	113,493	313,794	169,236	432,156	205,178	111,337	151,532
Coho	50,186	420,594	389,124	388,516	49,165	277,682	21,288	208,661	327,260	314,773	125,946
Pink	35,145,491	21,347,949	15,967,454	29,428,887	8,148,452	2,950,733	1,469,531	12,537,403	6,736,581	4,445,231	6,795,323
Chum	4,678,581	7,047,235	2,031,356	1,792,801	107,202	125,639	22,344	164,181	152,047	386,967	1,742,129
	\$41,346,006	\$29,229,981	\$18,540,431	\$31,832,135	\$8,420,044	\$3,669,892	\$1,682,778	\$13,343,505	\$7,422,236	\$5,258,878	\$8,818,982
<b>DRIFT GILLNET</b>											
Chinook	1,983,039	1,852,847	1,866,575	1,269,847	1,310,334	2,504,789	1,180,382	1,534,059	3,573,848	2,259,958	2,367,538
Sockeye	19,702,924	13,771,838	17,853,841	11,452,509	11,817,211	18,901,370	11,767,820	9,209,486	12,864,113	23,037,225	19,796,170
Coho	1,093,812	9,996,147	1,533,704	3,716,174	3,328,387	4,155,833	2,702,999	7,129,685	4,207,678	1,450,095	57,798
Pink	1,053,898	4,969,494	880,618	1,999,326	104,274	213,996	115,040	127,997	165,462	11,028	83,398
Chum	1,243,155	4,065,385	617,440	3,643,487	928,104	1,037,032	3,091,611	2,393,837	1,709,831	1,229,842	1,567,526
	\$25,076,827	\$34,655,712	\$22,752,177	\$22,081,943	\$17,488,310	\$26,813,021	\$18,857,852	\$20,395,065	\$22,520,932	\$27,989,149	\$23,872,430
<b>SET GILLNET</b>											
Chinook	783	3,739	0	1,048	1,156	1,973	848	121	182	148	159
Sockeye	55,538	328,818	0	100,106	1,300,375	1,355,943	517,182	638,164	181,653	697,572	1,055,286
Coho	1,444	2,678	0	2,859	1,625	8,321	4,343	3,513	2,003	612	340
Pink	95,645	391,877	0	370,015	7,587	248,170	48,618	117,298	18,892	2,373	20,477
Chum	158,234	766,057	0	635,185	191,271	22,316	97,911	18,675	21,018	11,312	17,242
	\$311,644	\$1,493,169	\$0	\$1,109,214	\$1,502,013	\$1,636,724	\$668,901	\$777,770	\$223,747	\$712,017	\$1,093,504
<b>HATCHERY SALES</b>											
Chinook	0	0	0	0	0	27,218	26,736	11,526	11,692	91	1,252
Sockeye	0	0	0	451	0	1,573,671	371,621	358,077	380,378	444,198	1,381,948
Coho	107,042	141,632	79,481	216,146	352,390	82,571	11,712	82,571	28,759	100,413	7,090
Pink	5,180,820	16,119,012	10,443,198	2,573,773	2,196,778	1,472,128	1,457,847	7,222,015	4,076,578	5,814,214	4,076,578
Chum	251,225	552,999	101,985	14,609	157,616	1,576,882	1,576,882	1,598,524	895,509	1,430,814	1,758,276
	\$5,539,087	\$16,813,643	\$10,625,115	\$2,804,528	\$4,307,673	\$3,459,882	\$9,272,731	\$5,474,186	\$6,052,094	\$8,965,780	
<b>OTHER GEAR</b>											
Chinook	45	1,319	2,062	3,699	143	154	154	143	25	76	0
Sockeye	670	40,471	10,095	9,638	80,141	52,272	3,686	3,686	27,880	2,582	2,085
Coho	1,450	5,056	3,513	2,967	5,293	751	479	89	479	0	0
Pink	59,862	73,675	12,746	7,971	2,066	9,084	28,287	88,152	88,152	0	1
Chum	9,965	11,890	15,467	1,718	13,389	16,066	35,139	4,234	4,234	1	190
	\$71,992	\$132,860	\$43,883	\$25,993	\$101,031	\$78,327	\$67,344	\$120,771	\$2,659	\$2,276	
<b>AVERAGE EARNINGS</b>											
Purse Seine	\$159,023	\$114,627	\$76,298	\$119,670	\$33,281	\$17,729	\$11,686	\$78,032	\$39,691	\$58,432	\$77,359
Drift Gillnet	\$48,599	\$65,885	\$46,623	\$42,141	\$33,696	\$50,782	\$36,688	\$39,990	\$43,477	\$54,989	\$45,909
Set Gillnet	\$19,478	\$53,327	\$0	\$38,249	\$51,794	\$54,557	\$22,297	\$29,914	\$8,606	\$26,371	\$42,058
<b>NUMBER OF PERMITS FISHED</b>											
Purse Seine	260	255	243	266	253	207	144	171	187	90	114
Drift Gillnet	516	526	488	510	528	514	510	510	518	509	520
Set Gillnet	16	28	0	29	29	30	30	26	26	27	26

# Historic Value of Prince William Sound Fisheries



Appendix A.9. Exvessel value of the commercial salmon harvest by gear type, 1987 - 97.

Appendix A.10. Preseason harvest projections for the 1997 commercial salmon fishery by district and species, Prince William Sound Area.

COMMERCIAL HARVEST (1,000's of fish)											
District <sup>a</sup>	Chinook		Sockeye		Coho		Pink		Chum		
	Point Estimate	Range	Point Estimate	Range	Point Estimate	Range	Point Estimate	Range	Point Estimate	Range	
Copper River <sup>b</sup>	22.4	4.2 - 40.5	1,504.2	998.2 - 2009.7	337.2	133.8 - 540.5					
Bering River <sup>c</sup>					139.0	2.2 - 275.8					
Coghill <sup>d</sup>			71.5	8.2 - 265.3							
Eshamy <sup>e</sup>			18.0	0.0 - 136.1							
General P.W.S. Districts			11.0	8.3 - 13.7			3,800.0	900.0 - 9,900.0	160.0	0.0 - 590.0	
Total Wild Stock	22.4	4.2 - 40.5	1,604.7	1014.7 - 2424.8	476.2	136.0 - 816.4	3800.00	900.0 - 9,900.0	160.0	0.0 - 590.0	
Solomon Gulch											
Armin F. Koernig <sup>f</sup>					123.0	91.3 - 154.7	6,500.0	3,000.0 - 9,100.0	220.0	160.0 - 260.0	
Wally Noerenberg	12.5	9.4 - 16.0			12.4	9.2 - 15.7	3,900.0	3,900.0 - 6,500.0			
Cannery Creek							2,800.0	800.0 - 4,800.0	980.0	940.0 - 1,530.0	
Main Bay <sup>g</sup>			281.2	259.7 - 298.6			3,800.0	2,300.0 - 3,800.0			
Gulkana			171.7	114.0 - 229.5							
Total Hatchery	12.5	9.4 - 16.0	452.9	373.7 - 528.1	135.4	100.5 - 170.4	17,000.0	10,000.0 - 24,200.0	1,200.0	1,100.0 - 1,790.0	
Total Hatchery and Wild	34.9	13.6 - 56.5	2,057.6	1388.4 - 2952.9	611.6	236.5 - 986.8	20,500.00	10,900.0 - 34,100.0	1,320.0	1,100.0 - 2,240.0	

<sup>a</sup> Formal forecast procedures are used for estimating wild stock returns for pink and chum salmon in Prince William Sound. Hatchery contributions are based on known fry releases and average marine survival rates. General P.W.S. sockeye production is based upon average harvest. Harvest estimates are made only for those species which constitute a significant portion of the catch. The harvest projections do not include salmon projected for harvest by hatcheries for cost recover

<sup>b</sup> Formalized forecast procedures are used for Copper River chinook and sockeye returns. Copper River coho catches are based on mean annual harvest.

<sup>c</sup> Bering River coho harvest estimates are based on mean annual harvest.

<sup>d</sup> Coghill sockeye returns are formally forecast using a sibling relationship model for the major age class and spawner recruit relationships for other age classes. The Coghill District's wild pink and chum harvest is included in the "General PWS Districts" projection.

<sup>e</sup> No formal forecast exists for Eshamy sockeye production. The pink and chum harvest is included in the "General PWS Districts" projection.

<sup>f</sup> WHN chum harvest estimate includes all on site and remote returns of chum salmon.

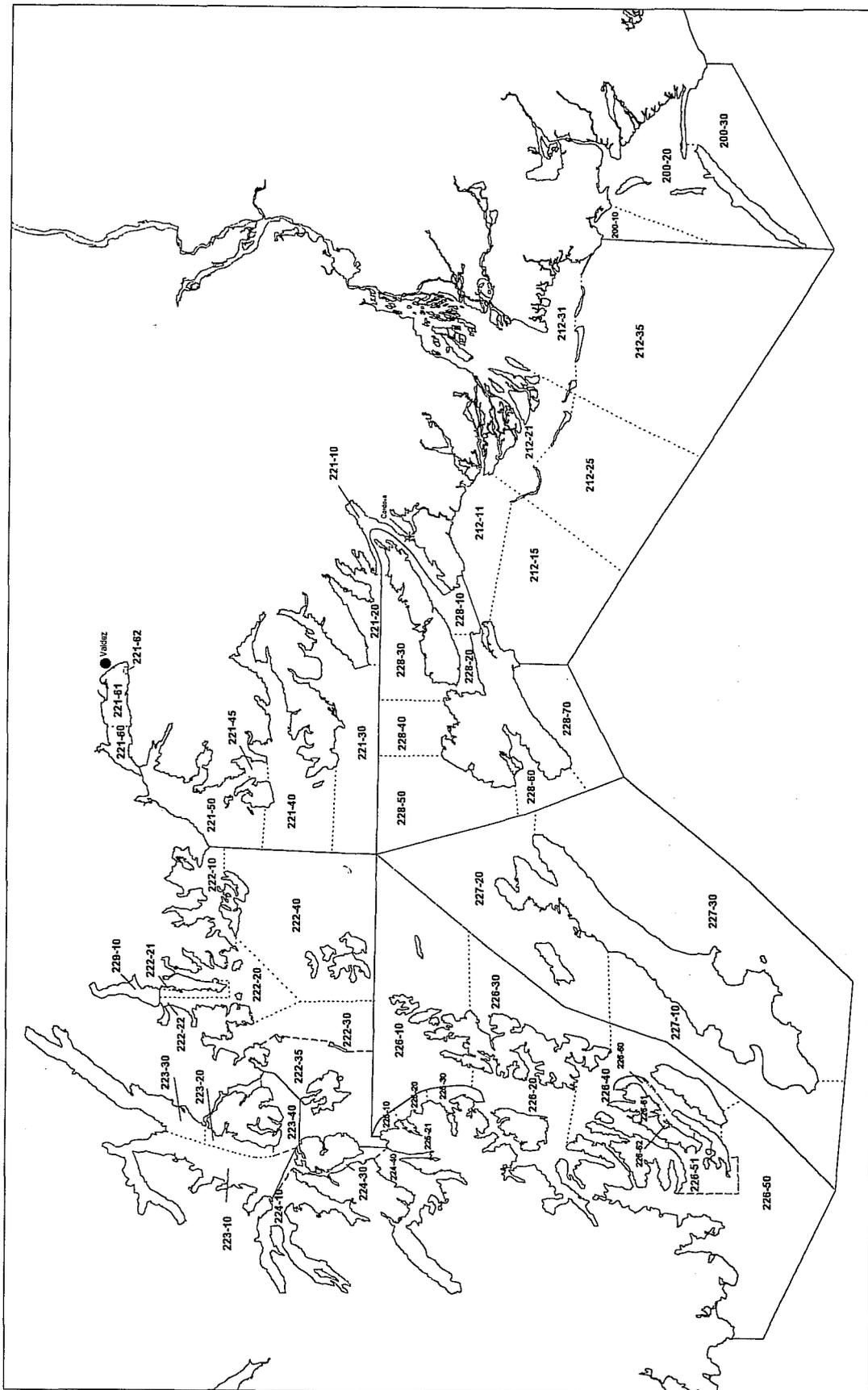
<sup>g</sup> Main Bay sockeye harvest estimate includes all on site and remote returns of sockeye salmon.

Appendix A11. A listing of finfish processors, their location of operation, and type of product processed, Prince Willam Sound Area, 1997.

Executive Names, Address Location of Operations	Processor Code	Type of Product	Executive Names, Address Location of Operations	Processor Code	Type of Product
Anchor Services Unlimited P.O. Box 606 Whittier, AK 99693 Paul McMullin	F2379	Salmon	North Alaska Fisheries, Inc. P.O. Box 92737 Anchorage, AK 99509	F1681	Herring roe
Cannery Row, Inc. P.O. Box 120 Cordova, Alaska 99574 Greg Meyer	F1673	Salmon	Norquest Seafoods P.O. Box 260 Cordova, AK 99574 Bill Gilbert	F1486	Salmon Herring
Cook Inlet Processing P.O. Box 8163 Nikiski, Alaska 99635 John Dickerson	F0186 F1155	Salmon Herring	North Pacific Processors, Inc. P.O. Box 1040 Cordova, Alaska 99574 Ken Roemhildt	F0232	Salmon Herring
Crosswind P.O. Box 303 Glennallen, AK 99580 Eric Kaiser	F2902	Salmon	Northern Victor Partnership 4209 21st West, Suite 402 Seattle, WA 98199 Peter Kuttel	F1319	Salmon
Dragnet Fisheries Co., Inc. P.O. Box 1260 Kenai, AK 99611	F0030	Herring	Ocean Beauty Seafoods P.O. Box 548 Cordova, AK 99574 Hap Symmonds	F1930	Salmon Herring
Fish Business Co. P.O. Box 311 King Salmon, AK 99613 John Foss	F2300	Salmon	Peter Pan Seafoods, Inc. P.O. Box 1027 Valdez, Alaska 99686 James Poor	F1041	Salmon
Glacier Creek Seafoods H.C. 52 Box 8610 Bird Creek, AK 99540 Steve Aberle	F1826	Salmon	Port Graham Seafoods, Inc. P.O. Box 60003 Shoreline, WA 98160 Jay Lind	F2309	Salmon
Great Pacific Seafoods, Inc. P.O. Box 710 Whittier, AK 99693 Nancy Davidson	F1989 F1267	Salmon	Potter's Own Fine Fish P.O. Box 1472 Cordova, AK 99574 Lynn and Carol Potter	F2842	Salmon
Icicle Seafoods Inc. P.O. Box 8 Seward, Alaska 99664 Jeff Poole	F0133 F0135 F0137	Salmon Herring	Prime Select Seafoods, Inc. P.O. Box 846 Cordova, Alaska 99574 Jeff Bailey	F1816	Salmon
Inlet Fisheries P.O. Box 530 Kenai, Alaska 99611 Scott Earsley	F1039	Salmon	Prince William Sound Aquaculture P.O. Box 1110 Cordova, Alaska 99574 Monica Bradley	F1901	Salmon Salmon roe
Low Water Clam Company P.O. Box 2232 Cordova, Alaska 99574 Mitchell Nowicki	F0010	Salmon	Royal Pacific P.O. Box 4609 Kenai, Alaska 99611	F0409	Herring
Nautilus Foods P.O. Box 727 Valdez, Alaska 99686 Tom Waterer	F2003 F0815	Salmon	Sahalee of Alaska, Inc. P.O. Box 104174 Anchorage, Alaska 99510 William Lind	F1485	Salmon

Appendix A.11. (page 2 of 2)

Executive Names, Address Location of Operations	Processor Code	Type of Product	Executive Names, Address Location of Operations	Processor Code	Type of Product
Sea Hawk Seafoods P.O. Box 247 Valdez, AK 99686 Joe Haugsven	F0223	Salmon	Wild Card Inc. P.O. Box 1871 Cordova, AK 99574 Lisa Walters	F1822	Salmon
Seward Fisheries P.O. Box 8 Seward, Alaska 99664 Jeff Poole	F0133 F0135 F0137	Salmon Herring	Woodbine Alaska Fish Company P.O. Box 218 Naknek, Alaska 99633	F0214	Herring
Ward's Cove Packing Company P.O. Box 1710 Seward, Alaska 99664	F1379	Herring	Valdez Fisheries Development P.O. Box 125 Valdez, Alaska 99686 Dave Cobb/Laura Weaver	F1355	Salmon Salmon roe



Appendix A.12. Prince William Sound Area showing commercial fishing districts and statistical reporting areas, 1997.

Appendix B.1. Commercial salmon catch by species in the Copper River District, 1974 - 1997.

Year	Catch by Species					Total
	Chinook	Sockeye	Coho	Pink	Chum	
1974	18,980	607,766	46,625	9,839	664	683,874
1975	19,644	335,384	53,805	236	807	409,876
1976	31,479	865,195	111,900	3,392	178	1,012,144
1977	21,722	602,737	131,356	23,185	335	779,335
1978	29,062	249,872	220,338	3,512	2,233	505,017
1979	17,678	80,528	194,885	1,295	107	294,493
1980	8,454	18,908	225,299	3,966	198	256,825
1981	20,178	477,662	310,154	23,952	1,799	833,745
1982	47,362	1,177,632	454,763	7,154	1,177	1,688,088
1983	52,500	626,735	234,243	7,345	2,217	923,040
1984	38,957	900,043	382,432	32,194	6,935	1,360,561
1985	42,214	927,553	587,990	19,061	5,966	1,582,784
1986	40,670	780,808	295,980	3,016	17,614	1,138,088
1987	41,001	1,180,782	111,599	31,635	14,796	1,379,813
1988	30,741	576,950	315,568	2,775	11,022	937,056
1989	30,863	1,025,923	194,454	25,877	5,845	1,282,962
1990	21,702	844,778	246,797	1,596	7,545	1,122,418
1991	34,787	1,206,811	385,086	1,246	20,220	1,648,150
1992	39,810	970,938	291,627	1,664	5,807	1,309,846
1993	29,727	1,398,234	281,469	9,579	13,002	1,732,011
1994	47,061	1,152,220	677,633	12,079	19,055	1,908,048
1995	65,675	1,271,822	542,658	19,809	56,100	1,956,064
1996	55,646	2,356,365	193,042	6,372	25,533	2,636,958
1997	51,273	2,955,431	18,656	8,483	2,465	3,036,308
Ten Year Average (1987-96)	39,701	1,198,482	323,993	11,263	17,893	1,591,333

Appendix B.2. Anticipated and actual weekly catch and escapement of sockeye salmon in the Copper River District drift gillnet fishery, 1997.

Semi-Weekly Date	Fishing Time (Hrs.)	Actual Catch	Anticipated Catch <sup>a</sup>	Anticipated Cumulative Escapement <sup>b</sup>	Actual Cumulative Escapement <sup>c</sup>
May 17	24	195,398	29,440	1,446	152
May 21	24	208,753	54,031	11,949	1,406
May 24	12	337,721	77,726	23,588	18,088
May 28	12	228,357	155,275	52,952	150,560
May 31	12 & 12	381,279	112,443	77,162	280,850
June 04	24	191,311	125,486	119,537	378,791
June 07	36	236,162	81,198	155,200	437,576
June 11	36	181,875	84,815	204,434	573,744
June 14	36	127,607	53,342	234,918	622,307
June 18	36	106,773	71,877	273,099	706,409
June 21	48	133,877	68,134	294,057	735,353
June 25	48	97,487	66,035	322,722	771,381
June 28	48	118,066	58,293	341,388	801,804
July 02	48	70,909	51,458	366,751	852,244
July 05	48	66,552	57,162	387,165	895,740
July 09	36	52,020	60,042	415,822	939,911
July 12	36	36,327	63,441	440,886	980,525
July 16	36	54,859	52,879	472,570	1,032,389
July 19	36	32,789	54,396	495,083	1,068,632
July 23	36	31,376	44,353	522,479	1,103,768
July 26	36	23,640	25,706	537,932	1,116,050
July 30	24	11,582	20,448	557,136	1,131,381
Aug 02	24	10,779	12,187	564,507	1,143,065
Aug 06	24	8,920	9,844		1,148,079 <sup>d</sup>
Aug 09	24	6,960	8,133		
Aug 13	24	4,052	2,932		
<hr/>					
Season Total	816	2,955,431	1,501,076	592,000	

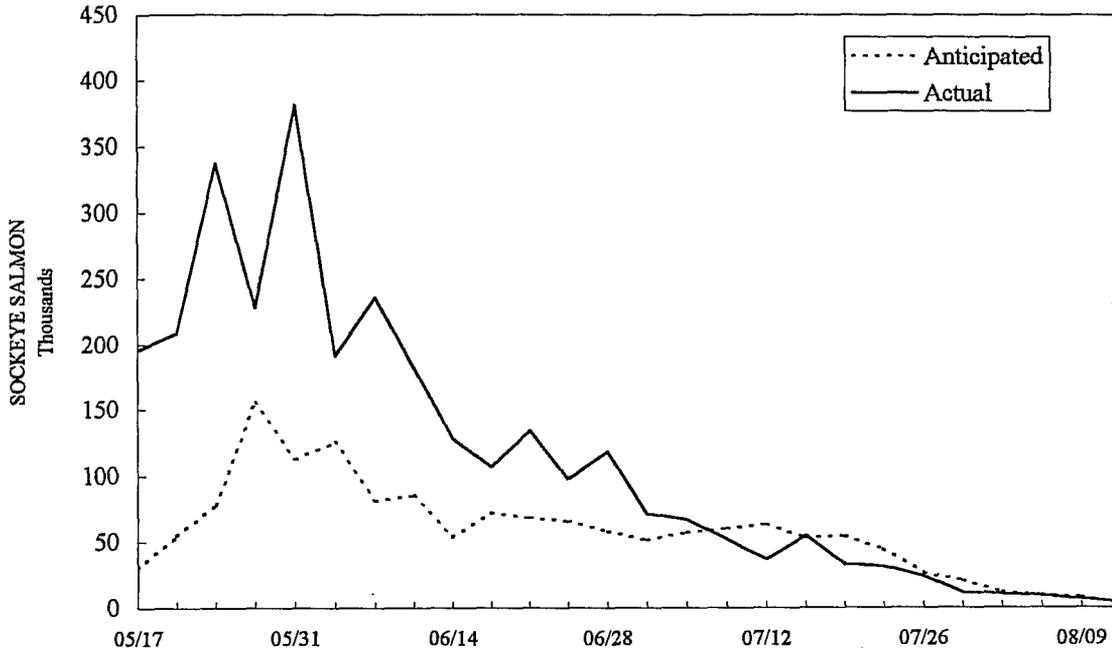
<sup>a</sup> Based on average historic catches for comparable dates (1969-1994).

<sup>b</sup> Based on historical escapements at Miles Lake sonar, includes upriver chinook escapement component and sockeye brood stock for the Gulkana Hatchery. Does not include sockeye escapements for the Copper/Bering delta streams.

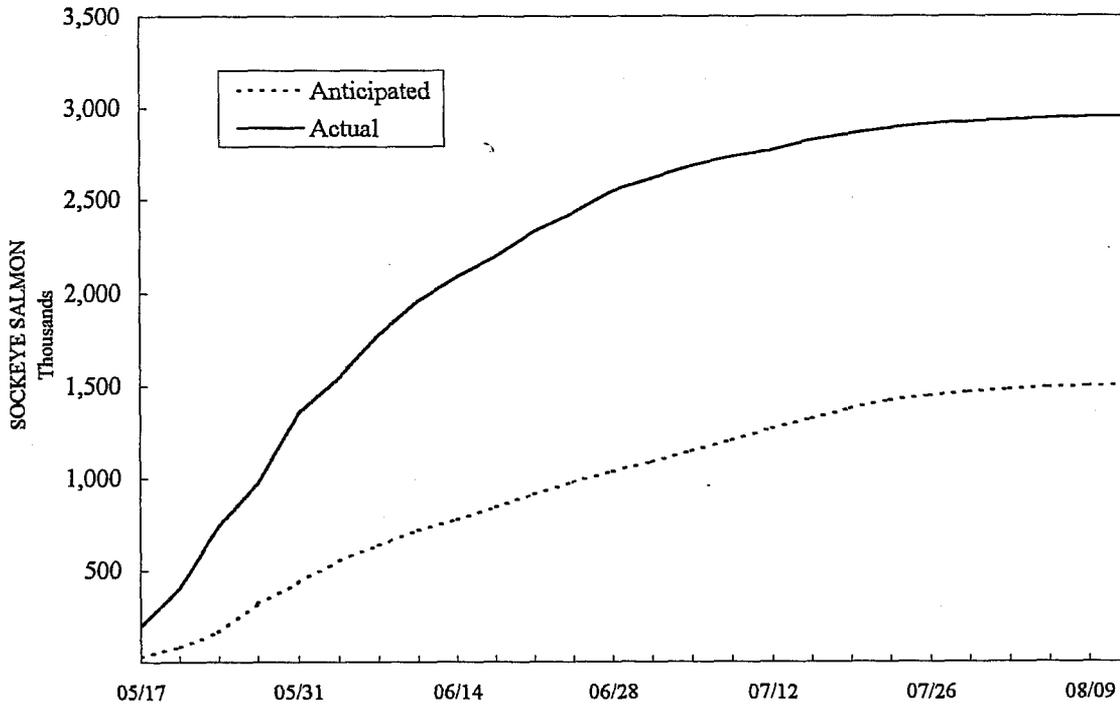
<sup>c</sup> Escapement estimate from sonar counters at Miles Lake.

<sup>d</sup> Miles Lake sonar operation ended August 3.

**COPPER RIVER DISTRICT COMMERCIAL SOCKEYE HARVEST**  
SEMI-WEEKLY HARVEST



CUMULATIVE HARVEST



Appendix B.3. Anticipated versus actual semi-weekly and cumulative harvest of sockeye salmon in the Copper River drift gillnet fishery, 1997.

Appendix B.4. Commercial salmon harvest by period in the Copper District drift gillnet fishery, 1997.

Period	Date <sup>a,b</sup>	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
					Number	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds
01	5/15	24	471	788	7,243	162,831	195,398	1,235,246	0	0	0	0	308	2,149
02	5/19	24	501	935	11,052	254,307	208,753	1,311,462	0	0	0	0	622	4,697
03	5/23	12	496	835	4,818	114,994	337,721	2,093,481	0	0	0	0	85	571
04	5/26	12	501	807	3,795	86,294	228,357	1,426,193	0	0	0	0	56	418
05	5/29	12	484	736	4,116	97,695	239,444	1,506,138	0	0	0	0	36	250
06	5/31	12	465	643	3,598	88,999	141,835	896,243	0	0	0	0	0	0
07	6/02	24	492	956	3,894	91,051	191,311	1,208,316	0	0	0	0	6	48
08	6/05	36	468	1093	4,875	110,510	236,162	1,497,532	1	6	1	2	16	126
09	6/09	36	484	1096	3,984	97,752	181,875	1,149,954	2	12	1	2	76	524
10	6/12	36	373	609	1,356	32,753	127,607	807,089	4	21	0	0	7	47
11	6/16	36	387	774	992	24,957	106,773	679,058	7	46	1	3	23	155
12	6/19	48	371	831	897	22,839	133,877	849,976	9	66	9	32	55	424
13	6/23	48	273	618	298	7,831	97,487	619,986	10	75	10	33	23	199
14	6/26	48	226	597	143	3,484	118,066	745,764	11	69	409	1,344	99	759
15	6/30	48	238	494	66	1,589	70,909	443,846	11	101	170	587	110	725
16	7/03	48	187	371	38	877	66,552	413,384	12	87	326	1,172	34	319
17	7/07	36	196	311	32	654	52,020	327,032	160	1,094	406	1,554	46	390
18	7/10	36	164	213	19	384	36,327	228,796	141	1,129	117	456	26	151
19	7/14	36	197	353	24	394	54,859	346,443	2,200	15,509	938	3,870	458	3,189
20	7/17	36	198	274	8	103	32,789	206,749	2,459	16,894	413	1,709	49	376
21	7/21	36	190	292	8	128	31,376	196,779	3,241	24,812	1,643	6,252	63	496
22	7/24	36	162	223	12	189	23,640	146,098	1,556	11,564	1,347	5,361	105	831
23	7/28	24	103	112	0	0	11,582	70,177	536	4,068	814	3,159	67	558
24	7/31	24	90	99	1	17	10,779	64,737	1,478	11,019	634	2,596	7	64
25	8/04	24	84	92	1	24	8,920	53,110	1,619	12,077	634	2,583	49	398
26	8/07	24	91	98		0	6,960	40,722	3,078	24,217	473	1,690	21	158
27	8/11	24	107	107	3	61	4,052	23,703	2,121	16,487	137	544	18	119
Total		840	516	14,357	51,273	1,200,717	2,955,431	18,588,014	18,656	139,353	8,483	32,949	2,465	18,141
Average Weight						23.42		6.29		7.47		3.88		7.36

<sup>a</sup> Starting date of period.

<sup>b</sup> From 5/15- 8/07 all 24-hour periods started at either 7:00 a.m. or 7:00 p.m. all 12-hour periods began at 7:00 a.m. After August 7 periods began at 12:00 noon.

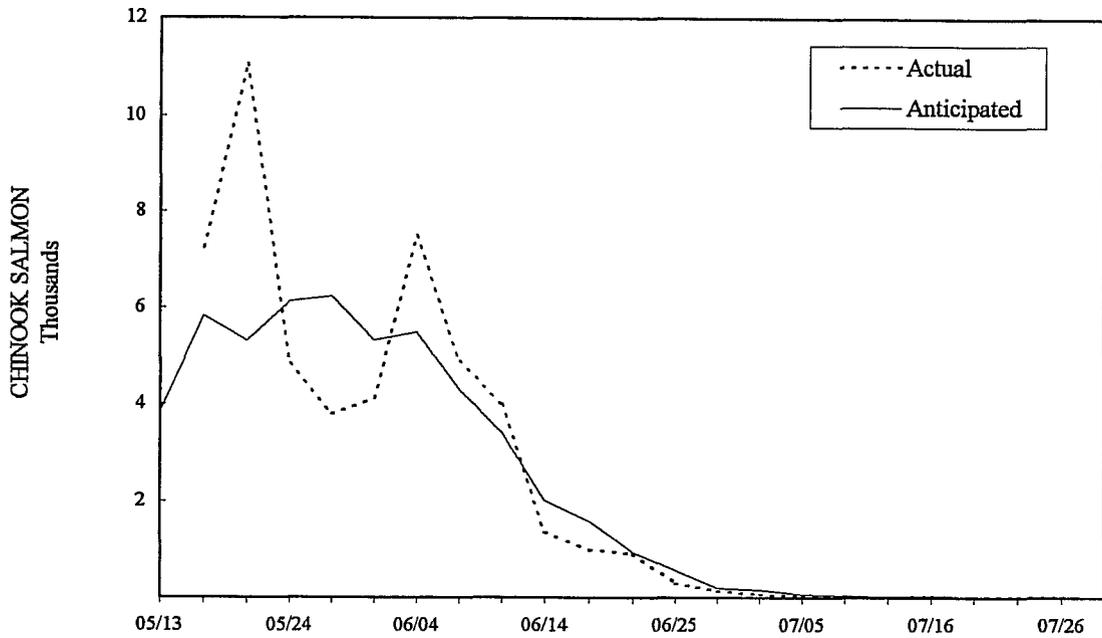
Appendix B.5. Anticipated and actual weekly catch of chinook and coho salmon in the Copper River District drift gillnet fishery, 1997.

Week Ending Date	Length of Fishing Periods (Hrs)	Chinook		Coho	
		Actual Catch	Anticipated Catch <sup>a</sup>	Actual Catch	Anticipated Catch <sup>a</sup>
May 17	24	7,243	5,829	0	
May 24	24 and 12	15,870	11,429	0	
May 31	12, 12 and 12	11,509	11,547	0	
June 07	24 and 36	8,769	9,764	1	
June 14	36 and 36	5,340	5,407	6	
June 21	36 and 48	1,889	2,505	16	
June 28	48 and 48	441	751	21	
July 05	48 and 48	104	216	23	
July 12	36 and 36	51	62	301	
July 19	36 and 36	32	39	4,659	2,881 <sup>b</sup>
July 26	36 and 36	20	14	4,797	2,139
Aug 02	24 and 24	1	10	2,014	5,402
Aug 09	24 and 24	1	7	4,697	17,696
Aug 16	24	3	5	2,121	34,909
Aug 23					57,132
Aug 30					71,346
Sept 06					74,988
Sept 13					45,391
Sept 20					16,130
Sept 27					7,466
Season Total		51,273	47,585	18,656	335,480

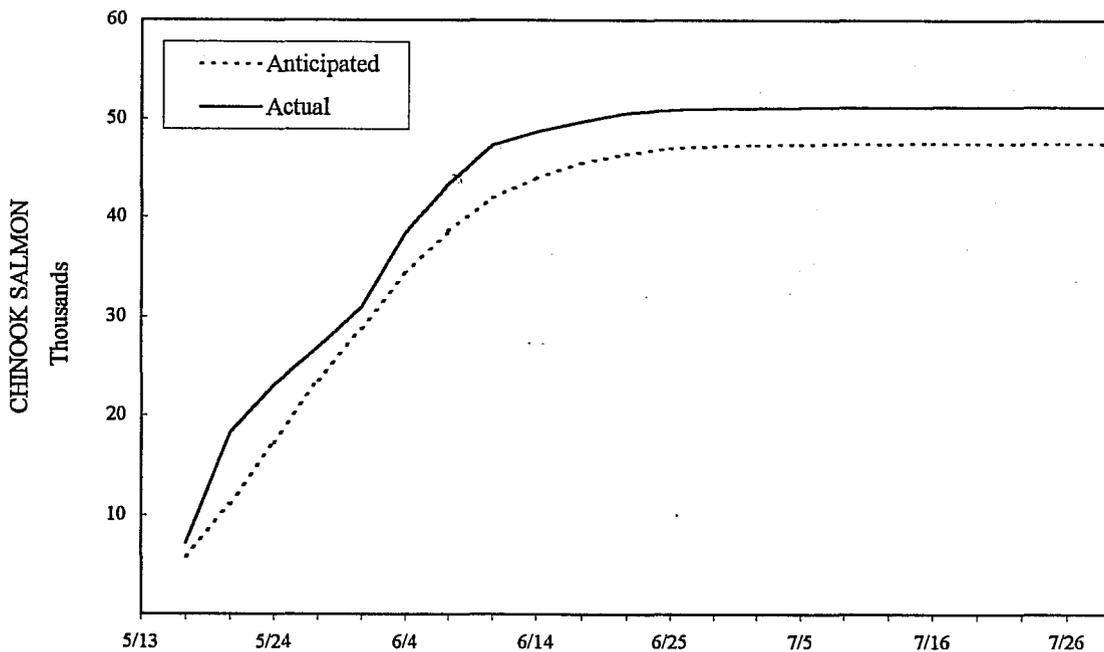
<sup>a</sup> Based on average historic catches for comparable dates (1969 - 1993).

<sup>b</sup> The anticipated cumulative harvest through July 22.

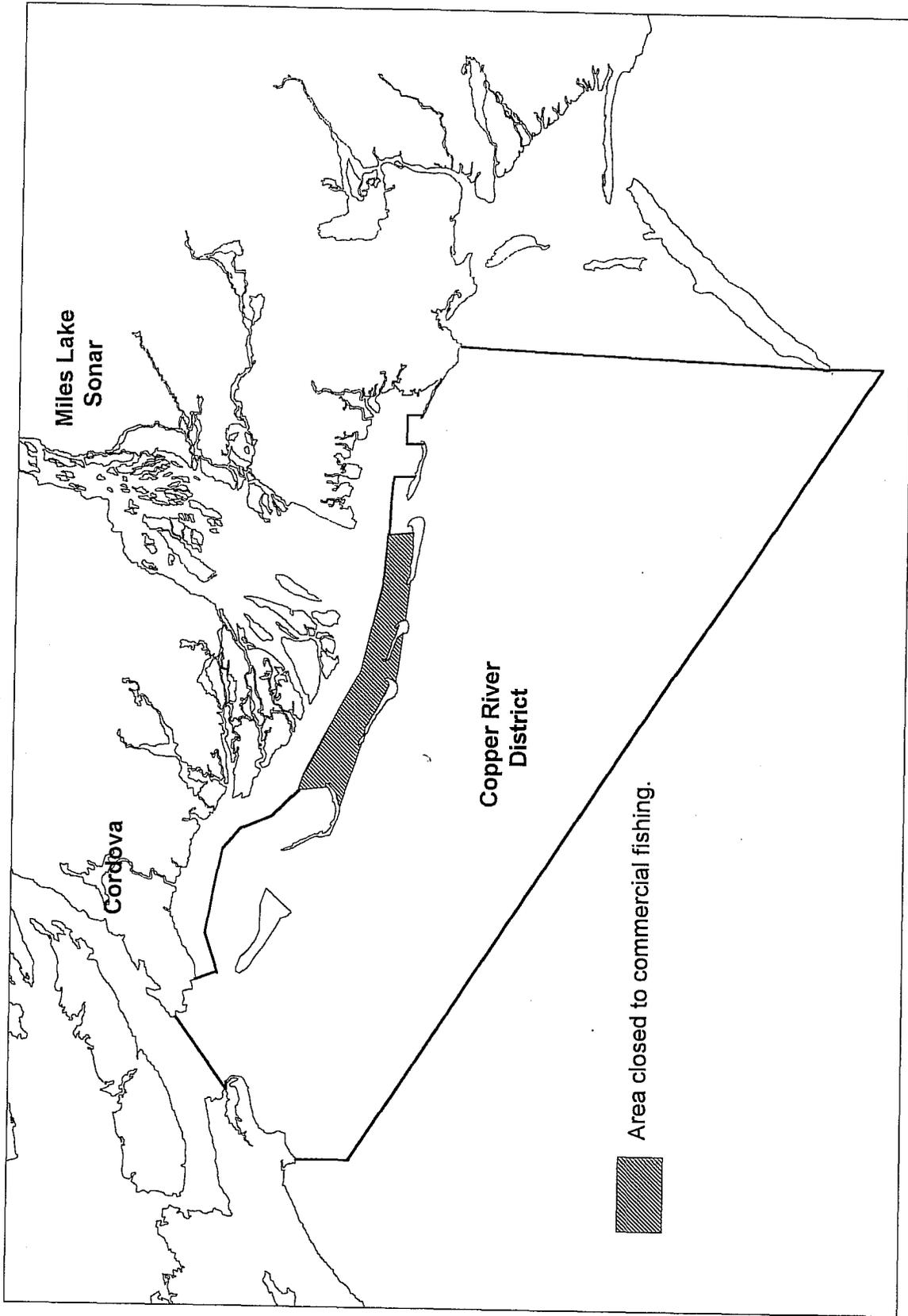
**COPPER RIVER DISTRICT COMMERCIAL CHINOOK HARVEST  
SEMI-WEEKLY HARVEST**



**CUMULATIVE HARVEST**



Appendix B.6. Anticipated versus actual semi-weekly and cumulative harvest of chinook salmon in the Copper River drift gillnet fishery, 1997.



Appendix B.7. Copper River District area closed to chinook salmon harvest during the first fishing period, 1997.

Appendix B.8. Daily sockeye salmon escapement estimates at Miles Lake sonar, 1997.

Date	Water Level <sup>a</sup>	Estimated Daily Escapement				Escapement Objective		0600 Count	Projected Daily
		North Bank	South Bank	Daily	Cumulative	Daily	Cumulative		
15-May	39.65								
16-May	39.65		64 <sup>b</sup>	64	64	107	107		
17-May	39.49		88	88	152	1,339	1,446		
18-May	39.44		136	136	288	2,052	3,498		
19-May	39.35		168	168	456	2,542	6,040		
20-May	39.28		486	486	942	3,032	9,072		
21-May	39.29		464	464	1,406	2,877	11,949		
22-May	39.62		1,742	1,742	3,148	2,917	14,866		
23-May	40.08		2,744	2,744	5,892	3,179	18,045		
24-May	40.49		12,196	12,196	18,088	5,543	23,588		
25-May	40:50		26,923	26,923	45,011	5,454	29,042	5,742	
26-May	40.40		27,389	27,389	72,400	6,973	36,015	6,722	
27-May	40.27		31,978	31,978	104,378	7,952	43,967	7,200	
28-May	40.22		46,182	46,182	150,560	8,985	52,952	9,729	
29-May	40.22		46,539	46,539	197,099	6,929	59,881	11,556	
30-May	40.40		37,554	37,554	234,653	7,053	66,934	10,287	
31-May	40.42		46,197	46,197	280,850	10,228	77,162	12,912	
01-Jun	40.40		31,557	31,557	312,407	9,981	87,143	9,177	
02-Jun	40.45		30,744	30,744	343,151	10,941	98,084	10,584	
03-Jun	40.45		18,078	18,078	361,229	10,357	108,441	6,585	
04-Jun	40.37		17,562	17,562	378,791	11,096	119,537	3,384	
05-Jun	40.57		16,188	16,188	394,979	13,286	132,823	4,686	
06-Jun	41.06	167 <sup>c</sup>	19,818	19,985	414,964	11,288	144,111	4,167	
07-Jun	41.42	478	22,134 <sup>d</sup>	22,612	437,576	11,089	155,200	5,504	
08-Jun	41.49	448	33,521	33,969	471,545	12,791	167,991	7,879	
09-Jun	41.45	855	36,223	37,078	508,623	12,254	180,245	8,133	
10-Jun	41.45	1,203	32,977	34,180	542,803	12,162	192,407	6,630	
11-Jun	41.46	2,551	28,390	30,941	573,744	12,027	204,434	7,321	
12-Jun	41.44	1,317	17,802	19,119	592,863	11,420	215,854	5,208	
13-Jun	41.45	1,144	12,220	13,364	606,227	9,774	225,628	3,438	
14-Jun	41.51	1,026	15,054	16,080	622,307	9,290	234,918	2,435	
15-Jun	41.51	854	22,366	23,220	645,527	11,261	246,179	5,172	
16-Jun	41.49	563	16,426	16,989	662,516	9,503	255,682	3,988	
17-Jun	41.48	445	21,356	21,801	684,317	9,438	265,120	5,020	
18-Jun	41.41	2,107	19,985	22,092	706,409	7,979	273,099	4,410	
19-Jun	41.52	1,901	10,810	12,711	719,120	7,263	280,362	3,230	
20-Jun	41.69	1,042	6,802	7,844	726,964	6,799	287,161	1,363	
21-Jun	41.67	928	7,461	8,389	735,353	6,896	294,057	1,988	
22-Jun	41.73	680	16,873	17,553	752,906	6,912	300,969	4,187	
23-Jun	42.03	628	7,077	7,705	760,611	7,438	308,407	3,158	
24-Jun	42.43	938	4,372	5,310	765,921	6,857	315,264	1,249	
25-Jun	42.72	404	5,056	5,460	771,381	7,458	322,722	1,607	
26-Jun	42.99	300	7,685	7,985	779,366	6,371	329,093	1,562	
27-Jun	43.28	265	11,746	12,011	791,377	6,234	335,327	2,181	
28-Jun	43.28	224	10,203	10,427	801,804	6,061	341,388	2,316	
29-Jun	43.66	365	10,044	10,409	812,213	6,513	347,901	2,375	
30-Jun	43.71	346	13,395	13,741	825,954	6,920	354,821	3,248	

-Continued-

Appendix B.8. (page 2 of 2)

Date	Water Level <sup>a</sup>	North Bank	Estimate South Bank		Escapement Objective		0600 Count	Projected Daily	
			Daily	Cumulative	Daily	Cumulative			
01-Jul	43.75	788	11,936	12,724	838,678	5,748	360,569	3,864	15,456
02-Jul	43.71	1,147	12,419	13,566	852,244	6,182	366,751	2,810	11,240
03-Jul	43.70	1,053	14,377	15,430	867,674	6,713	373,464	3,849	15,396
04-Jul	43.65	654	13,964	14,618	882,292	6,903	380,367	3,613	14,452
05-Jul	43.71	1,034	12,414	13,448	895,740	6,798	387,165	3,241	12,964
06-Jul	43.76	515	10,509	11,024	906,764	6,172	393,337	2,799	11,196
07-Jul	43.71	1,024	10,510	11,534	918,298	6,563	399,900	2,296	9,184
08-Jul	43.72	497	13,239	13,736	932,034	7,991	407,891	3,260	13,040
09-Jul	43.46	759	7,118	7,877	939,911	7,931	415,822	1,872	7,488
10-Jul	43.22	476	13,281	13,757	953,668	8,916	424,738	3,276	13,104
11-Jul	43.18	491	16,207	16,698	970,366	8,166	432,904	5,898	23,592
12-Jul	43.24	465	9,694	10,159	980,525	7,982	440,886	2,911	11,644
13-Jul	43.17	298	8,951	9,249	989,774	7,446	448,332	2,881	11,524
14-Jul	43.14	609	12,299	12,908	1,002,682	8,198	456,530	2,616	10,464
15-Jul	43.11	1,166	14,585	15,751	1,018,433	7,921	464,451	4,803	19,212
16-Jul	43.05	598	13,358	13,956	1,032,389	8,119	472,570	3,181	12,724
17-Jul	43.04	781	14,330	15,111	1,047,500	7,341	479,911	4,065	16,260
18-Jul	42.97	832	9,032	9,864	1,057,364	7,377	487,288	2,563	10,252
19-Jul	42.93	719	10,549	11,268	1,068,632	7,795	495,083	2,887	11,548
20-Jul	42.90	851	10,523	11,374	1,080,006	8,014	503,097	2,467	9,868
21-Jul	42.87	763	9,213	9,976	1,089,982	7,199	510,296	3,022	12,088
22-Jul	42.65	704	6,045	6,749	1,096,731	6,262	516,558	1,600	6,400
23-Jul	42.66	1,119	5,918	7,037	1,103,768	5,921	522,479	1,835	7,340
24-Jul	42.66	672	4,539	5,211	1,108,979	5,319	527,798	1,464	5,856
25-Jul	42.75	286	3,307	3,593	1,112,572	4,999	532,797	1,123	4,492
26-Jul	42.85	376	3,102	3,478	1,116,050	5,135	537,932	555	2,220
27-Jul	42.85	228	4,042	4,270	1,120,320	4,589	542,521	641	2,564
28-Jul	43.28	356	4,133	4,489	1,124,809	4,801	547,322	1,182	4,728
29-Jul	43.63	657	2,661	3,318	1,128,127	5,043	552,365	657	2,628
30-Jul	43.80	442	2,812	3,254	1,131,381	4,771	557,136	836	3,344
31-Jul	43.81	391	2,188	2,579	1,133,960	4,090	561,226	757	3,028
01-Aug	43.65	813	3,583	4,396	1,138,356	3,735	564,961	859	3,436
02-Aug	43.45	607 <sup>e</sup>	4,102	4,709	1,143,065	3,281	564,507	1,027	4,108
03-Aug	43.34		5,014	5,014	1,148,079	3,281	568,242	1,131	4,524
Total		43,350	1,104,729	1,148,079					

<sup>a</sup> Meters above sea level.

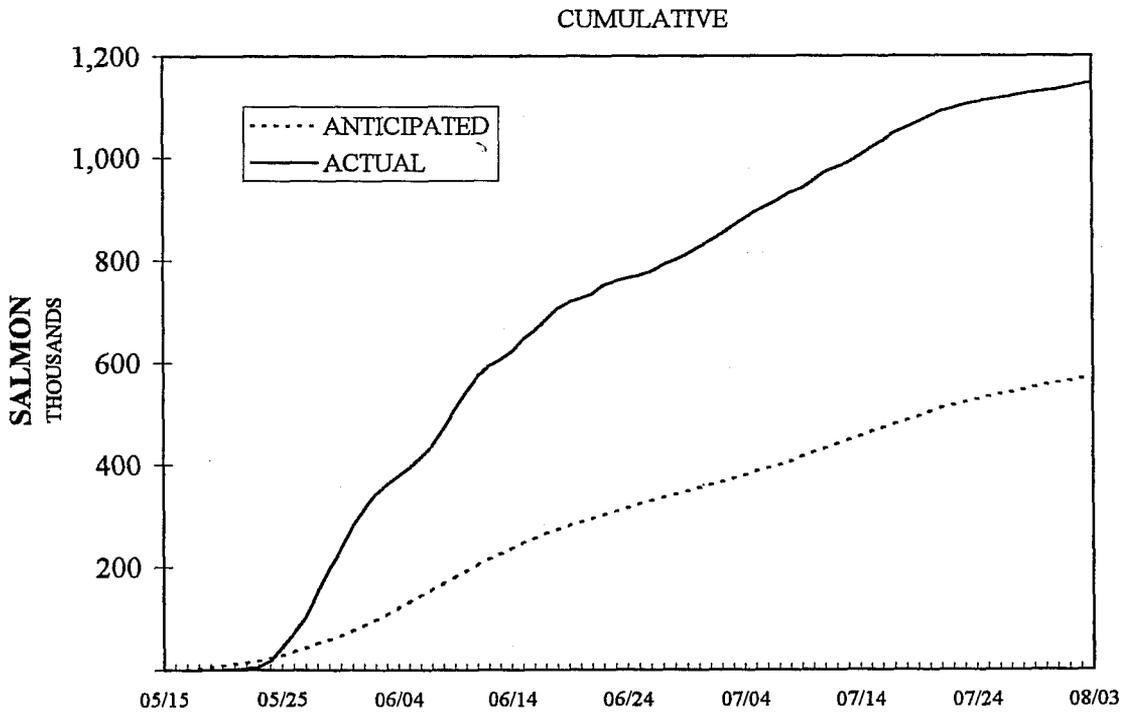
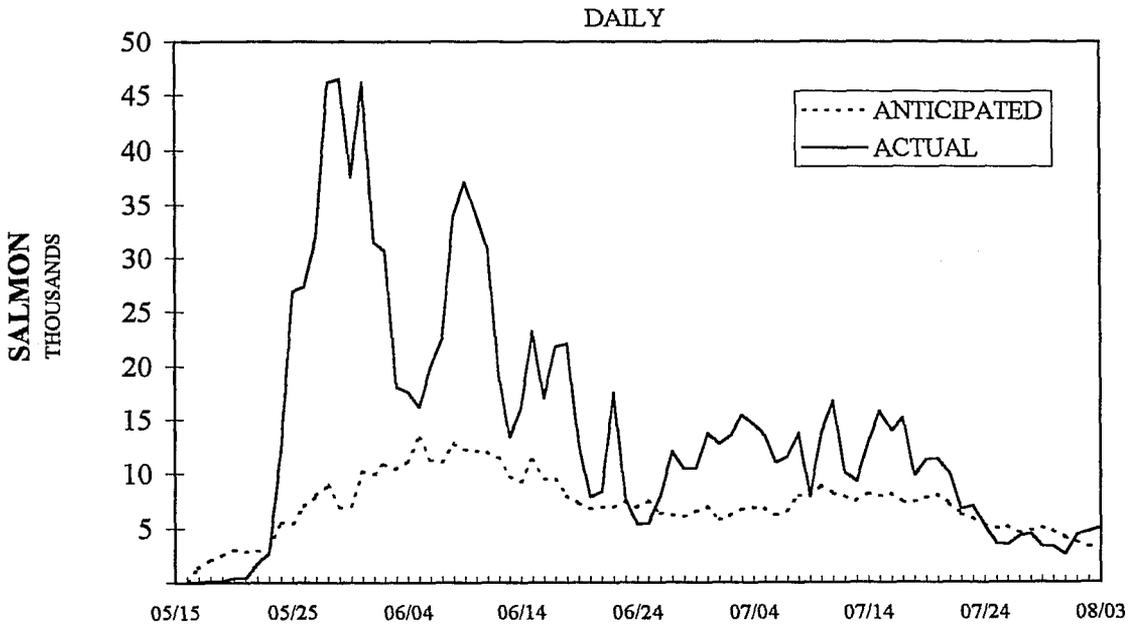
<sup>b</sup> South bank transducer was deployed on the tripod

<sup>c</sup> North bank tripod was deployed.

<sup>d</sup> South bank transducer was deployed on the permanent substrate at midnight.

<sup>e</sup> North Bank counter was pulled at 12:00 midnight.

# 1997 MILES LAKE SONAR COUNTS



Appendix B.9. Anticipated versus actual daily and cumulative salmon escapement, Miles Lake sonar, 1997.

Appendix B.10. Aerial escapement indices by date and location for sockeye salmon returning to the Copper River Delta, 1997.

Copper River Delta <sup>a</sup>		Aerial Escapement Indices by Survey Date						
System and Drainage	Survey System	30 May	5 June	12 June	17 June	23 June	29 June	8 July
Eyak River	Eyak River	NC	NC	NC	NS +	NC	NC	NC
	West Shore Beaches	110	160	NC	200	200	400	500
	East Shore Beaches	0	0	NC	0	0	200	400
	Middle Arm Beaches <sup>b</sup>	600	600	NC	760	1,000	800	1,100
	North Shore Beaches	125	2,200	NC	3,000 +	4,000 +	NC	NC
	Hatchery Creek Delta	0	0	NC	250	200	NC	NC
	Hatchery Creek	0	0	NC	60	400	300	1,400
	Power Creek Delta	0	0	NC	0	0	NC	NC
	Power Creek	NS	NS	NS	NS	NS	NS	NC
Ibek Creek	Ibek Creek	NS	NS	NS	NS	NS	NS	NS
Alaganik Slough	Alaganik Slough	0	NS	NS	NS	NS	NS	NS
	McKinley Lake	0	0	0	150	200	1,200	6,000
	Salmon Creek West Fork	NS	NS	0	0	0	0	200
	Salmon Creek East Fork	NS	NS	0	0	0	0	0
26/27 Mile Creek	26/27 Mile Creek	0	0	80	250	1,200	1,300	NC
39 Mile Creek	39 Mile Creek	NS	NS	0	0	1,300	NC	NS
Goat Mountain Creek	Goat Mountain Creek	NS	NS	0	NS	0	0	NS
Pleasant Creek	Pleasant Creek	NS	NS	NC	3,400	5,000 *	4,100	NS
Martin River	Martin River - Lower	125	730	NC	1,350 +	1,250	1,200	NS
	Ragged Point River	NS	NS	NS	NS	NS	NS	NS
	Ragged Point Lake Outlet	NS	NS	NS	NS	NS	NS	NS
	Ragged Point Lake	NS	NS	NS	NS	NS	NS	NS
	Martin River - Upper <sup>b</sup>	100	190	NC	1,000	1,000	400	NS
	Martin Lake Outlet	0	75	NC	700	400 *	300	NS
	Martin Lake	0	2,660	NC	7,700	8,800 *	7,600	NS
	Martin Lake Feeders	NS	NS	NC	0	900 *	1,800	NS
	Pothole River	NS	NS	NS	NS	300 *	430	NS
	Pothole Lake	NS	NS	NS	NS	0 *	0	NS
	Little Martin River	NS	NS	NS	NS	NS	NS	NS
	Little Martin Lake	NS	NS	NS	NS	NS	NS	NS
	Tokun Springs	NS	NS	NC	220	250 *	550	NS
Tokun River	NS	NS	NC	600	700 *	360	NS	
Tokun Lake Outlet	NS	NS	NC	200	400 *	NC	NS	
Tokun Lake	NS	NS	NC	2,300	4,400 *	NC	NS	
Martin River Slough	Martin River Slough	NS	NS	NC	4,000	4,000 *	3,800	NS
Copper River Aerial Survey Daily Total		1,060	6,615	80	26,140	35,900	24,740	9,600
Anticipated Escapement		NA	2,000	180	19,900	24,900	30,000	14,100

-Continued-

Appendix B.10. (page 2 of 4).

Copper River Delta <sup>a</sup>		Aerial Escapement Indices by Survey Date						
System and Drainage	Survey System	17 July	23 July	7 August	18 August	22 August	29 August	3 Sept.
Eyak River	Eyak River	NS	NS	NS	NC	NS	NC	NC
	West Shore Beaches	2,700	1,700	1,300	NC	NC	NC	NC
	East Shore Beaches	NC	NC	1,900	NC	NC	NC	NC
	Middle Arm Beaches <sup>b</sup>	3,200	NC	1,000	NC	2,000	2,900	NC
	North Shore Beaches	NC	NC	NC	NC	NS	NC	NC
	Hatchery Creek Delta	NC	NC	800	NC	NS	1,000	NC
	Hatchery Creek	NC	1,200	600	800	NS	1,300	NC
	Power Creek Delta	NC	NC	NC	NC	NS	NC	NC
	Power Creek	NC	NS	NS	NC	NS	NC	NS
Ibek Creek	Ibek Creek	NS	NS	NS	0	NS	NC	NC
Alaganik Slough	Alaganik Slough	NS	NS	NS	NS	NS	NC	NC
	McKinley Lake	NC	8,500 *	4,400	800	NS	1,200	600
	Salmon Creek West Fork	NC	2,900 *	4,300	3,500	NS	3,500	122
	Salmon Creek East Fork	NC	200 *	1,100	1,200	NS	780	500
26/27 Mile Creek	26/27 Mile Creek	NC	1,700 *	1,100	550	NC	250	200
39 Mile Creek	39 Mile Creek	5,800	9,300 *	NC	8,300	NS	7,500	7,500 +
Goat Mountain Creek	Goat Mountain Creek	NC	300	350 *	NS	NS	NC	NS
Pleasant Creek	Pleasant Creek	NC	1,400	NS	0	NS	0	0
Martin River	Martin River - Lower	800	650	440	10	20	100 *	0
	Ragged Point River	NS	1,300	1,300	1,000	1,300	1,100 *	600
	Ragged Point Lake Outlet	NS	100	100	400	0	300 *	300
	Ragged Point Lake	NS	300	900	2,800	1,700	3,000 *	2,200
	Martin River - Upper <sup>b</sup>	800	1,000	1,000	600	400	800	1,000
	Martin Lake Outlet	100	100	520	500	80	400	300
	Martin Lake	NC	1,200	270	NC	NC	830	0
	Martin Lake Feeders	4,500	NC	2,000	80	NC	0	0
	Pothole River	400	300	50	0	NC	300	100
	Pothole Lake	NC	100	0	NC	NS	500	600
	Little Martin River	NS	50	70 *	20	0	3	10
	Little Martin Lake	NS	100	400 *	100	200	150	200
	Tokun Springs	300	500	200	50	0	250	150
	Tokun River	100	300	350	550	500	400	550
Tokun Lake Outlet	NC	0	100	0	0	0	0	
Tokun Lake	NC	1,900	1,500	1,500	1,200	2,350	3,250	
Martin River Slough	Martin River Slough	NC	3,100	800	170	100	175	130
Copper River Aerial Survey Daily Total		18,700	38,200	26,850	22,930	7,500	29,088	18,312
Anticipated Escapement		NA	43,550	35,250	31,200	NA	23,300	19,250

-Continued-

Appendix B.10. (page 3 of 4).

Copper River Delta <sup>b</sup>		Aerial Escapement Indices by Survey Date				Estimated Escapement			
System and Drainage	Survey System	12 Sept.	15 Sept.	29 Sept.	13 Oct.	Site <sup>c</sup>	System <sup>c</sup>	Anticipated	
Eyak River	Eyak River	NS	NS	NS	NS		<sup>f</sup>	<b>14,500</b>	
	West Shore Beaches	NS	NC	NC	NC				
	East Shore Beaches	NS	NC	NC	NC				
	Middle Arm Beaches <sup>b</sup>	NS	1,700	600	100				
	North Shore Beaches	NS	NC	NC	300				
	Hatchery Creek Delta	NS	NC	100	300				
	Hatchery Creek	NS	NC	400	300				
	Power Creek Delta	NS	100	100	0				
	Power Creek	NS	NS	100	100				
Ibek Creek	Ibek Creek	NC	0	0	0		<sup>d</sup>		
Alaganik Slough	Alaganik Slough	NC	NC	NC	NS		11,600	<b>13,800</b>	
	McKinley Lake	NS	400	200	NS	8,500			
	Salmon Creek West Fork	NS	500	400	NS	2,900			
	Salmon Creek East Fork	NS	250	150	NS	200			
26/27 Mile Creek	26/27 Mile Creek	200	200	50	NS	1,700	1,700	<b>3,650</b>	
39 Mile Creek	39 Mile Creek	NS	6,000	5,100	NS	9,300	9,300	<b>9,400</b>	
Goat Mountain Creek	Goat Mountain Creek	NS	NS	NC	NS	350	350	<b>1,000</b>	
Pleasant Creek	Pleasant Creek	NS	0	0	NS	5,000	5,000	<b>950</b>	
Martin River	Martin River - Lower	NC	0	NC	NS	100	19,370	<b>29,800</b>	
	Ragged Point River	NS	100	100	0	1,100			
	Ragged Point Lake Outlet	NS	100	50	0	300			
	Ragged Point Lake	NS	2,000	1,000	300	3,000			
	Martin River - Upper <sup>b</sup>	NC	1,300	NC	NC	1,000			
	Martin Lake Outlet	NC	NC	NC	NC	400			
	Martin Lake	NC	600	3,000 *	NC	11,800			
	Martin Lake Feeders	NS	NS	NS	NS	900			
	Pothole River	NC	200	NC	200	300			
	Pothole Lake	900	1,300	NC	1,400	0			
	Little Martin River	0	0	0	0	70			
	Little Martin Lake	100	100	50	0	400			
	Tokun Springs	50	50	0	0	250	5,750		<b>9,350</b>
	Tokun River	150	150	100	0	700			
Tokun Lake Outlet	0	100	0	0	400				
Tokun Lake	NS	2,000	700	400	4,400				
Martin River Slough	Martin River Slough	100	200	150	NS	4,000	4,000	<b>6,600</b>	
Copper River Aerial Survey Daily Total		1,500	17,350	12,350	3,400		57,070		
Anticipated Escapement Index		NA	<b>10,700</b>	<b>7,200</b>	<b>550</b>			<b>74,550</b>	

-Continued-

Appendix B.10. (page 4 of 4).

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- a The survey sites represent most of the known sockeye salmon spawning locations in the Copper River Delta drainage. Weather permitting, the sites are surveyed weekly. The surveys provide information about the relative strength of escapement among years and within a year, run timing for spawning sites, and relative escapement strengths among sites. The indices are not intended to provide an actual estimate of escapement for coastal stocks, but have been used for that purpose in the absence of any other escapement estimating method. The abbreviations used in the table have the following meaning: NS = no survey, NC = surveyed but no count due to poor conditions. A + sign after a count indicates that the count is the minimum estimate seen in less than ideal conditions. The symbol \* indicates that this survey count was used as the peak survey for the site without duplication of counts for survey sites along migratory corridors (see footnote b).
- b The sites typically have very protracted run timing or two temporally segregated spawning populations at the same sites. Aerial counts from more than one day may be restricted and used in the escapement estimate if the surveyor indicates that these counts represented different fish.
- c The escapement estimates for each site is in the restricted survey estimate. Where the survey site is a terminal spawning area, the peak count is used. However, if the site is a schooling area for migratory fish bound for sites further upstream, the count which minimizes possible duplicate of counts across dates is selected.
- d This stream is not included in the estimated escapement delta wide, it is a non-index stream.
- e The sum of the estimates by site within a system.
- f Due to poor survey conditions no peak estimate was available for the year.

Appendix B.11. Copper River and Bering River area sockeye salmon escapement estimates, 1989 - 1997.

Stream/Lake <sup>a,b</sup>	1989	1990	1991	1992	1993	1994	1995	1996	1997
Eyak Lake	4,110	8,270	20,640	21,470	16,400	18,040	17,720	16,110	<sup>d</sup>
Hatchery Creek	1,150	2,800	5,100	2,200	1,100	2,800	3,700	1,900	<sup>d</sup>
Power Creek	0	205	1,870	1,420	700	500	650	1,200	<sup>d</sup>
Ibek Creek	120	160	120	40	glacial	800	glacial	100	<sup>d</sup>
McKinley Lake	6,300	1,400	2,000	10,300	7,700	12,700	13,100	8,600	8,500
Salmon Creek	630	2,000	3,330	25	3,000	420	200	2,600	3,100
26/27 Mile Creek	3,020	3,360	3,900	1,420	1,625	4,900	2,000	1,440	1,700
39 Mile Creek	7,420	5,000	5,340	4,500	4,000	7,000	5,400	6,200	9,300
Goat Mountain	3,150	420	20	620	NC	600	650	1,000	350
Pleasant Creek	990	3,190	1,495	1,567	2,270	1,400	1,600	1,400	5,000
Martin River	0	350	2,045	1,400	1,500	4,700	1,500	2,700	1,100
Ragged Pt. R./Lake	4,420	8,950	5,900	2,600	1,325	0	6,200	1,540	4,400
Martin Lake	7,850	11,250	10,700	14,000	6,700	13,100	9,450	9,000	13,100
Pothole Lake	1,550	2,190	5,200	1,300	700	950	1,200	1,160	300
L. Martin Lake	3,030	5,700	11,700	1,780	1,900	1,760	2,500	300	470
Tokun Lake/River	4,950	4,200	5,960	8,230	3,400	2,850	7,150	7,150	5,750
Martin River Slough	3,010	13,900	5,180	3,955	5,400	5,850	3,350	3,070	4,000
<b>Copper Delta Total</b>	<b>51,700</b>	<b>73,345</b>	<b>90,500</b>	<b>76,827</b>	<b>57,720</b>	<b>78,370</b>	<b>76,370</b>	<b>65,470</b>	<b>57,070</b>
<b>Upper Copper R. <sup>c</sup></b>	<b>607,869</b>	<b>581,859</b>	<b>579,412</b>	<b>601,952</b>	<b>833,387</b>	<b>715,577</b>	<b>599,265</b>	<b>906,239</b>	<b>1,148,079</b>
<b>Copper R. Dist. Tot.</b>	<b>659,569</b>	<b>655,204</b>	<b>669,912</b>	<b>678,779</b>	<b>891,107</b>	<b>793,947</b>	<b>675,635</b>	<b>971,709</b>	<b>1,205,149</b>
Bering River/Lake	14,330	16,325	26,480	54,180	23,120	23,000	28,650	22,420	<sup>d</sup>
Shepherd Creek	340	1,260	3,400	1,200	3,100	1,400	2,600	2,000	1,400
Stillwater Cr.	250	700	1,200	150	500	800	900	1,100	700
Kushtaka Lake	1,530	256	880	100	205	150	400	990	65
Katalla River	6,850	1,200	260	265	800	1,200	900	800	700
<b>Bering R. Area Tot.</b>	<b>23,300</b>	<b>19,741</b>	<b>32,220</b>	<b>55,895</b>	<b>27,725</b>	<b>26,550</b>	<b>33,450</b>	<b>27,310</b>	<b>2,865</b>
<b>Copper/Bering Total</b>	<b>682,869</b>	<b>674,945</b>	<b>702,132</b>	<b>734,674</b>	<b>918,832</b>	<b>820,497</b>	<b>709,085</b>	<b>999,019</b>	<b>1,208,014</b>

<sup>a</sup> The escapement figures in this table are based on peak aerial survey estimates and sonar counts from a majority of known salmon spawning areas in the Copper and Bering River Delta. These indices are not intended to provide a true estimate of total escapement for the coastal stocks, but a comparable index based upon the best data currently available. An effort has been made to standardize the estimates across years.

<sup>b</sup> The areas in this table represent combined survey sites corresponding to the "system" designations for the current year survey results presented elsewhere in this report.

<sup>c</sup> Upriver escapement estimate from Miles Lake sonar counts.

<sup>d</sup> Peak escapement estimates were not possible for these systems due to poor weather conditions.

Appendix B.12. Aerial survey indices of sockeye salmon escapement to the Upper Copper River drainage, 1987 - 1997.

Location <sup>a</sup>	1987	1988	1989	1990	1991	1992	1993 <sup>c</sup>	1994 <sup>c</sup>	1995 <sup>c</sup>	1996	1997	10 Year Average 1983-92
Fish Lake	9,530	6,800	6,700	3,600	4,350	4,250				4,800		6,418
Bad Crossing 1&2	2,575	2,075	3,025	6,050	2,625	500				780		2,604
Suslota Lake	970	550	525	750	210	1,350				4,100		1,416
Dickey Lake	360	57	28	28	56	46				0		115
Keg Creek	400	360	1,450	160	95	630				850	420	725
Mahlo Creek	2,350	3,900	4,600	2,600	3,750	250				3,800	11,800	2,648
St. Anne Creek	6,980	6,100	3,100	1,700	4,700	450				3,500	4,800	4,888
Fish Cr.-Mentasta	250	650	1,500	1,000	1,050	480				400		963
Swede Lake	113	230	275	120	110	875				20		531
Tana River	472	2,034	245	89	750	740						1,345
Mentasta Lake	1,800	4,300	3,270	2,900	1,550	600				2,800		3,277
Tanada Lake	4,950	2,100	2,550	1,650	1,725	2,250		6,270	3,100			3,849
Salmon Creek	1,150	700	425	350	350	1,500						825
Paxson Inlt-Mud Cr	4,250	6,350	3,200	2,850	4,800	6,450				16,800		6,560
Mud Creek and Lake	0	150	0	35	100	425				240		172
Mendeltna Creek	2,275	1,550	2,000	3,700	3,050	1,750				1,250	400	2,470
Paxson Lake Outlet	5,100	3,200	900	1,350	2,300	950						2,661
Mud Cr.- Summit L.	9,050	15,400	6,800	2,950	9,625	3,800						7,445
Long Lake	1,225	1,125	1,225	1,950		1,050						1,577
Tonsina Lake	740	650	2,450	1,450		1,350						1,080
Totals	54,540	58,281	44,268	35,282	41,196	29,696						51,569

<sup>a</sup> The escapement figures in this table are based on peak aerial survey estimates and weir counts from a majority of the known salmon spawning areas in the upper Copper River drainage. These indices are not intended to provide a true estimate of total escapement for these stocks, but a comparable index based upon the best data currently available. An effort has been made to standardize the estimate across years, however counts were obtained only as environmental conditions allowed and may not necessarily correspond to periods of peak abundance. Missing counts are generally a result of bad weather, high water, turbulence or other factors that prevent surveys for that given year.

<sup>b</sup> No survey flown.

<sup>c</sup> The Tanada Lake system was the only system surveyed in 1994 and 1995, no surveys were flown in 1993.

Appendix B.13. Aerial survey indices of chinook salmon escapement to the upper Copper River, 1987 - 1997.

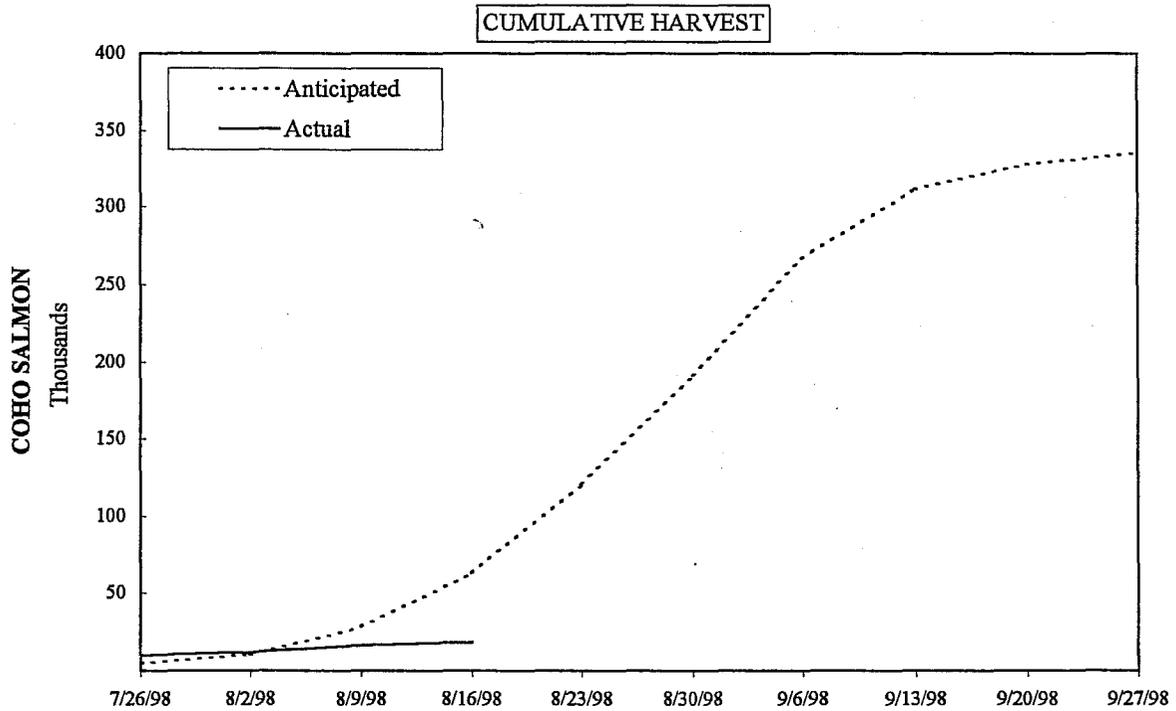
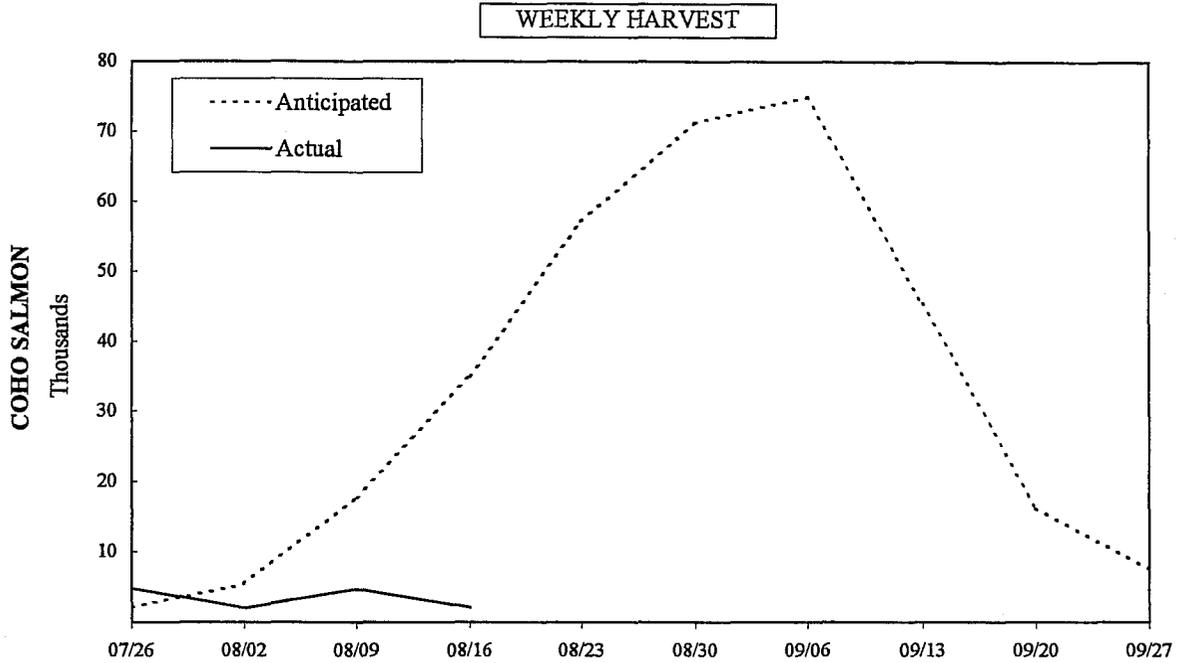
Location <sup>a</sup>	Yearly Survey Indices										10 Year Average	
	1987	1988	1989	1990	1991	1992 <sup>b</sup>	1993	1994	1995 <sup>b</sup>	1996	1997	1985- 1994
East Fork Chistochina	764	684	740	615	865		<sup>c</sup> 508			2,050	2,245	582
Gulkana River	1,228	967	1,993	1,356	1,303		1,156	1,682		2,321	2,250	1,384
Mendeltna Creek	10	17	185	320	305		126	121		370	350	127
Kiana Creek	80	249	344	411	520		65	430		723	455	260
St. Anne Creek	192	62	90	42	115		<sup>c</sup> 250			117	900	107
Manker Creek	141	115	165	41	101		<sup>c</sup> 75			192	466	103
Grayling Creek	112	161	72	49	151		<sup>c</sup> 2			164	330	94
Little Tonsina River	247	75	65	57	54		<sup>c</sup> 4			45	55	137
Indian River	33	0	3	15	18		<sup>c</sup> 47			207	270	18
<b>Total Survey Index</b>	<b>2,807</b>	<b>2,330</b>	<b>3,657</b>	<b>2,906</b>	<b>3,432</b>	<b>0</b>	<b>1,347</b>	<b>3,119</b>	<b>0</b>	<b>6,189</b>	<b>7,321</b>	<b>2,812</b>

<sup>a</sup> The escapement figures in this table are based on peak aerial survey estimates and weir counts from a majority of the known spawning areas in the upper Copper River drainage. These indices are not intended to provide a true estimate of total escapement for these stocks, but a comparable index based upon the best data currently available. An effort has been made to standardize the estimate across years, however counts were obtained only as environmental conditions allowed and may not necessarily correspond to periods of peak abundance. Missing counts are generally a result of bad weather, high water, turbulence or other factors that prevented surveys for that given year.

<sup>b</sup> Due to poor weather conditions surveys were conducted late and are not comparable.

<sup>c</sup> No aerial survey conducted in 1993.

# COPPER RIVER DISTRICT COMMERCIAL COHO HARVEST



Appendix B.14. Anticipated and actual weekly and cumulative harvest of coho salmon in the Copper River drift gillnet fishery, 1997.

Appendix B.15. Aerial escapement indices by date and location for coho salmon returning to the Copper River Delta, 1997.

Copper River Delta <sup>a</sup>		Aerial Escapement Indices by Survey Date <sup>b</sup>						
System and Drainage	Survey System	7 August	18 August	22 August	29 August	3 Sept.	12 Sept.	15 Sept.
Eyak River	Eyak River	NS	NS	NS	NC	NC	NS	NS
	East Shore Beaches	0	NC	NC	NC	NC	NS	NC
	West Shore Beaches	0	NC	NC	NC	NC	NS	NC
	Middle Arm Beaches	0	NC	0	0	NC	NS	0
	North Shore Beaches	NC	NC	NS	NC	NC	NS	NC
	Hatchery Creek Delta	0	NC	NS	0	NC	NS	NC
	Hatchery Creek	0	0	NS	0	NC	NS	NC
	Power Creek Delta	NC	NC	NS	NC	NC	NS	800
	Power Creek	NS	NS	NS	NC	NC	NS	NS
Ibek Creek	Ibek Creek	NS	NC	NS	NC	NC	NC	1,500 +
Scott River	Scott River <sup>c</sup>	NS	NC	NS	NC	NC	NC	NC
	Elsner Lake <sup>c</sup>	NS	NC	NS	0	0	0	NC
	Scott Lake <sup>c</sup>	NS	NC	NC	0	0	0	NC
Alaganik Slough	Alaganik Slough	NS	NC	NC	NC	NC	NC	NC
	18/20 Mile Creek	NS	0	35	75	650	2,400	3,300 *
	McKinley Lake	0	0	0	15	100	200	300
	Salmon Creek West Fork	0	0	NS	40	50	50	150
	Salmon Creek East Fork	0	0	NS	0	400	400	1,300
26/27 Mile Creek	26/27 Mile Creek	40	0	NC	0	300	700	900
39 Mile Creek	39 Mile Creek	NC	NC	NS	NC	NC	NC	NC
Goat Mountain Cr.	Goat Mountain Creek	0	0	NS	55	250	NS	550
Pleasant Creek	Pleasant Creek <sup>c</sup>	NS	0	NS	10	0	0	620
Martin River	Martin River - Lower	0	300	800	2,950	2,250	NC	NC
	Ragged Point River	0	0	0	0	0	NS	0
	Ragged Point Lake Outlet	0	0	0	0	0	NS	0
	Ragged Point Lake	0	0	0	0	0	NS	0
	Martin River - Upper	0	0	250	1,100	3,800	NC	NC
	Martin Lake Outlet	0	0	0	50	50	NC	NC
	Martin Lake	0	NC	NC	0	0	NC	NC
	Martin Lake Feeders	0	0	NS	0	0	NC	NC
	Pothole River	0	0	NS	20	0	0	0
	Pothole Lake	0	0	NS	0	0	0	0
	Little Martin River	0	0	0	0	1,300	2,500	2,300
	Little Martin Lake	0	0	0	0	0	0	50
	Tokun Springs	0	0	0	0	0	0	250
	Tokun River	0	0	0	0	0	0	250
	Tokun Lake Outlet	0	0	0	0	0	0	0
Tokun Lake	0	0	0	0	0	NS	NS	
Martin River Slough	Martin River Slough	0	0	100	520	3,390	6,500	8,100
Copper River Aerial Survey Daily Total		40	300	1,185	4,835	12,540	12,750	20,370
Anticipated Escapement		1,310	3,857	12,200	12,361	18,950	27,105	36,350

-Continued-

Appendix B.15. (page 2 of 3)

Copper River Delta <sup>a</sup>		Aerial Escapement Indices by Survey Date <sup>b</sup>		Estimated Escapement		
System and Drainage	Survey System	29 Sept.	13 Oct.	Site <sup>d</sup>	System <sup>e</sup>	Anticipated
Eyak River	Eyak River	NS	NS	NS	10,900	6,100
	East Shore Beaches	NC	NC	NC		
	West Shore Beaches	NC	1,200 *	1,200		
	Middle Arm Beaches	200	300 *	300		
	North Shore Beaches	NC	800 *	800		
	Hatchery Creek Delta	900	2,600 *	2,600		
	Hatchery Creek	1,000	1,400 *	1,400		
	Power Creek Delta	1,700	1,900 *	1,900		
	Power Creek	2,000	2,700 *	2,700		
Ibek Creek	Ibek Creek	4,200	4,700 *	4,700	4,700	6,600
Scott River	Scott River <sup>c</sup>	1,700	2,200			
	Elsner Lake <sup>c</sup>	100	0			
	Scott Lake <sup>c</sup>	0	0			
Alaganik Slough	Alaganik Slough	NC	NS			
	18/20 Mile Creek	2,800	NS	3,300	3,300	1,000
	McKinley Lake	1,100 *	NS	1,100	3,600	2,500
	Salmon Creek West Fork	200 *	NS	200		
	Salmon Creek East Fork	2,300 *	NS	2,300		
26/27 Mile Creek	26/27 Mile Creek	2,300 *	NS	2,300	2,300	400
39 Mile Creek	39 Mile Creek	6,100 *	NS	6,100	6,100	3,800
Goat Mountain Cr.	Goat Mountain Creek	1,400 *	NS	1,400	1,400	1,350
Pleasant Creek	Pleasant Creek <sup>c</sup>	20	NS			
Martin River	Martin River - Lower	NC	NC	NC		5,700
	Ragged Point River	40	80 *	80	80	1,200
	Ragged Point Lake Outlet	0	0	0		
	Ragged Point Lake	0	0	0		
	Martin River - Upper	NC	NC	NC		
	Martin Lake Outlet	NC	NC	NC		1,950
	Martin Lake	NC	NC	NC		
	Martin Lake Feeders	NC	NS	NC		
	Pothole River	0	60 *	60	60	2,350
	Pothole Lake	0	0	0		
	Little Martin Lake Outlet	10,500 *	7,000	10,500	10,500	6,000
	Little Martin Lake	0	200	0		
	Tokun Springs	700 *	400	700	1,300	1,100
	Tokun River	600 *	350	600		
	Tokun Lake Outlet	0 *	0	0		
Tokun Lake	0 *	0	0			
<b>Martin River Slough</b>	<b>Martin River Slough</b>	<b>10,500 *</b>	<b>NS</b>	<b>10,500</b>	<b>10,500</b>	<b>9,200</b>
<b>Copper River Aerial Survey Total</b>		<b>50,360</b>	<b>25,890</b>		<b>54,740</b>	<b>41,600</b>
<b>Anticipated Escapement</b>		<b>15,100</b>	<b>13,350</b>			

-Continued-

- a The survey sites represent most of the known coho salmon spawning locations in the Copper River Delta drainage. Weather permitting, the sites are surveyed weekly. The surveys provide information about the relative strength of escapement among years and within a year, time for spawning sites and relative escapement strength among sites. The indices are not intended to provide an actual estimate of escapement for coastal stocks but have been used for that purpose in the absence of any other escapement estimating method. The abbreviations used in the following table have the following meaning: NS = no survey, NC = surveyed but no count due to poor conditions. The + sign after some counts indicates that the count is the minimum estimate seen in less than ideal conditions. The symbol \* indicates that this survey count was used as the peak survey for the site without duplication of counts for survey sites along migratory corridors (see footnote d).
- b For systems not flown on any given survey the expected for that system was subtracted from the total anticipated for that survey.
- c This stream is not included in the estimated escapement delta wide, it is a non-index stream.
- d The escapement estimates for each site is in the astricted survey estimate. Where the survey site is a terminal spawning area the peak count is used. However, if the site is a schooling area for migratory fish bound for sites further upstream, the count which minimizes possible duplication of counts across dates is selected.
- e The sum of the estimates by site within the index systems.

Appendix B.16. Copper River Delta and Bering River coho salmon escapement estimates, 1989 - 1997.

Stream/Lake <sup>a,b</sup>	1989	1990	1991	1992	1993	1994	1995	1996	1997
Eyak Lake	1,925	5,775	7,170	5,710	NC <sup>d</sup>	9,900	4,050	5,100	6,800
Hatchery Creek	400	1,940	0	1,100	NC <sup>d</sup>	700	170	0	1,400
Power Creek	0	650	0	1,000	NC <sup>d</sup>	700	300	0	2,700
Ibek Creek	4,330	3,950	13,540	9,600	NC <sup>d</sup>	3,060	3,000	6,300	4,700
Scott & Elsner River <sup>c</sup>	510	1,105	700	550	1,580	1,600	540	1,000	2,200
18/20 Mile	1,000	630	4,200	915	1,750	3,300	2,550	3,800	3,300
McKinley Lake	800	375	100	800	700	2,100	400	NC <sup>d</sup>	1,100
Salmon Creek	1,990	1,970	1,770	0	1,400	0	1,250	1,500	2,500
26/27 Mile	810	860	300	475	1,500	1,300	1,300	1,480	2,300
39 Mile	2,150	2,230	2,100	1,900	1,600	4,150	3,800	5,250	6,100
Goat Mountain	2,500	1,340	1,900	480	650	1,000	2,800	1,000	1,400
Pleasant Cr. <sup>c</sup>	961	1	6	8	NS	45	100	40	620
Martin River	470	400	1,600	1,900	4,540	10,600	5,000	15,400	NC <sup>d</sup>
Ragged Pt. River/Lk.	3,600	820	450	310	300	0	100	0	80
Martin Lake	590	320	1,500	65	150	0	10	0	NC <sup>d</sup>
Pothole Lake	1,300	2,670	6,000	300	730	0	300	140	60
Little Martin Lake	7,200	7,400	11,360	10,800	6,400	200	1,500	700	10,500
Tokun River/Lake	2,870	2,250	2,800	510	950	1,780	1,900	1,300	1,300
Martin River Slough	7,960	7,700	8,860	8,140	11,200	5,120	5,950	4,100	10,500
<b>Copper Delta Total</b>	<b>41,366</b>	<b>42,386</b>	<b>64,356</b>	<b>44,563</b>	<b>33,450</b>	<b>45,555</b>	<b>35,020</b>	<b>47,110</b>	<b>57,560</b>

Katalla R.	1,220	2,960	4,000	2,760	4,400	4,500	4,500	6,800	8,000
Bering Lake	1,000	2,040	12,300	3,540	5,900	5,800	10,600	6,000	14,800
Dick Creek	570	1,500	1,220	1,250	200	100	100	0	1,300
Shepherd Cr.	70	100	NS	NS	600	900	800	NC <sup>d</sup>	NC <sup>d</sup>
Nichawak R.	2,550	2,900	2,560	1,970	4,100	2,000	2,700	2,000	4,300
Gandil R.	1,410	910	1,460	600	1,250	950	1,350	1,000	1,900
Controller Bay	9,000	14,390	9,760	6,180	13,600	14,300	7,400	11,000	12,100
<b>Bering Area Total</b>	<b>15,820</b>	<b>24,800</b>	<b>31,300</b>	<b>16,300</b>	<b>30,050</b>	<b>28,550</b>	<b>27,450</b>	<b>26,800</b>	<b>42,400</b>

<b>Copper/Bering Total</b>	<b>57,186</b>	<b>67,186</b>	<b>95,656</b>	<b>60,863</b>	<b>63,500</b>	<b>74,105</b>	<b>62,470</b>	<b>73,910</b>	<b>99,960</b>
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<sup>a</sup> The escapement figures in this table are based on peak aerial survey estimates counts from a majority of the known salmon spawning areas in the Copper and Bering River Delta. These indices are not intended to provide a true estimate of total escapement for the coastal stocks, but a comparable index based upon the best data currently available. An effort has been made to standardize the estimates across years, however counts were obtained only as environmental conditions allowed and may not necessarily correspond to periods of peak abundance. Missing counts are generally a result of bad weather, high water, turbulence or other factors that prevent surveys for that given year.

<sup>b</sup> The areas in this table represent combined survey sites corresponding to the "system" designations for the current year survey results presented elsewhere in this report.

<sup>c</sup> Not an indexed stream.

<sup>d</sup> Due poor stream or weather conditions these systems are listed as "NC" no count. See Appendix B.15. for weekly observations.

Appendix B.17. Estimated age and sex composition of sockeye salmon harvested in the Copper River district commercial common property drift gillnet fishery, 1997.

	Brood Year and Age Group										Total	
	1994		1993		1992		1991					
	0.2	1.1	0.3	1.2	0.4	1.3	2.2	1.4	2.3			
Strata Combined:	05/15 -	08/12										
Sampling dates:	05/16 -	07/19										
Sample size:	4,394											
Female	0.1	0.0	10.4	3.8	0.0	33.2	0.2	0.2	4.4	0.2	4.4	52.3
Percent of sample	4,050	0	307,090	112,693	906	981,027	5,893	5,664	129,803	5,664	129,803	1,547,126
Number in catch												
Male	0.3	0.0	9.4	4.2	0.0	28.5	0.3	0.1	3.2	0.1	3.2	46.1
Percent of sample	10,153	493	278,330	122,992	1,020	843,007	8,221	4,211	94,228	4,211	94,228	1,362,654
Number in catch												
Total	0.5	0.0	20.0	8.2	0.1	62.7	0.5	0.3	7.7	0.3	7.7	100.0
Percent of sample	14,202	986	592,011	241,604	1,926	1,854,130	14,360	9,875	226,337	9,875	226,337	2,955,431
Number in catch	2,900	491	19,725	10,570	1,364	23,239	3,398	2,778	13,564	2,778	13,564	
Standard error												

Appendix B.18. Estimated age and sex composition of the chinook salmon harvested in the Copper River District commercial common property drift gillnet fishery, 1997.

	Brood Year and Age Group										Total	
	1992	1991	1990	1989	1988	1.1	1.2	1.3	1.4	1.5		2.4
Strata Combined:	05/15	-	09/04									
Sampling dates:	05/15	-	06/03									
Sample size:	2,118											
Female	0.0	1.4	34.2	21.3	0.3	0.0	0.0	0.0	0.0	0.3	0.0	57.8
Number in catch	0	912	22,483	13,985	211	0	0	0	0	211	20	37,927
Male	0.3	4.5	19.3	16.9	0.6	0.1	0.2	0.2	0.2	0.6	0.0	41.9
Number in catch	184	2,926	12,644	11,120	423	82	143	143	143	423	20	27,544
Total	0.3	5.9	53.7	38.3	1.0	0.1	0.7	0.7	0.7	1.0	0.1	100.0
Number in catch	184	3,869	35,280	25,125	634	82	460	460	460	634	40	65,675
Standard error	94	380	740	700	134	60	126	126	126	134	28	

Appendix B.19. Commercial salmon catch by species in the Bering River District, 1973 - 1997.

Year	Catch by Species					Total
	Chinook	Sockeye	Coho	Pink	Chum	
1973	285	15,426	65,348	2	5	81,066
1974	32	4,208	28,615	7	2	32,864
1975	162	21,637	24,162	0	0	45,961
1976	228	30,908	42,423	43	1	73,603
1977	127	14,445	47,218	192	221	62,203
1978	331	33,554	91,097	266	2,391	127,639
1979	385	139,015	114,046	6,895	23,094	283,435
1980 <sup>a</sup>	0	0	108,872	0	0	108,872
1981	200	55,585	82,626	9,882	8,307	156,600
1982	254	129,667	144,752	47	333	275,053
1983	610	179,273	117,669	851	4,615	303,018
1984	330	91,784	214,632	309	20,408	327,463
1985	215	26,561	419,276	214	9,642	455,908
1986	128	19,038	115,809	15	243	135,233
1987	34	16,926	15,864	54	7	32,885
1988	19	7,152	86,539	23	181	93,914
1989	30	9,225	26,952	7	2	36,216
1990	14	8,332	42,952	2	1	51,301
1991	28	19,181	110,951	4	195	130,359
1992	21	19,721	125,616	4	1	145,363
1993	130	33,951	115,833	82	22	150,018
1994	121	27,926	259,003	34	63	287,147
1995	44	21,585	282,045	26	229	303,929
1996	111	37,712	93,763	0	30	131,616
1997	23	9,651	97	2	0	9,773
Ten Year Average (1987-96)	55	20,171	115,952	24	73	136,275

<sup>a</sup> In 1980 no fishing was allowed prior to August 11.

Appendix B.20. Commercial salmon harvest by period in the Bering River District drift gillnet fishery, 1997.

Period	Date <sup>a,b</sup>	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
					Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1	6/12	36	9	12	9	221	1,475	9,072	0	0	0	0	0	0
2	6/16	36	10	23	10	194	3,744	23,236	0	0	0	0	0	0
3	6/19	48	11	21	3	76	2,872	18,081	0	0	0	0	0	0
4	6/23	48	5	12	1	26	1,558	10,340	0	0	0	0	0	0
5	8/11	24	<sup>c</sup>											
Total		192	16	70	23	517	9,651	60,742					0	0
Average Weight (lbs)						22.48		6.29						

<sup>a</sup> For starting times of specific openings refer to Appendix B.26.

<sup>b</sup> Starting date of period.

<sup>c</sup> Confidentiality fisheries information; less than the required three permits fishing in a statistical area.

Appendix B.21. Aerial escapement indices by date and location for sockeye salmon returning to the Bering River Delta, 1997.

Bering River Delta <sup>a</sup>		Aerial Escapement Indices by Survey Date					
System and Drainage	Survey System	30 May	5 June	12 June	17 June	23 June	29 June
Bering River	Bering River	20	300	NC	1,800	NC	NC
	Bering Lake	NS	0	NC	4,300	11,000	12,200
	Dick Creek	NS	NS	NC	0	0	0
	Shepherd Creek - Lagoon	NS	NS	NC	NC	NC	NC
	Shepherd Creek	NS	NS	NS	NS	NC	NC
	Carbon Creek	NS	NS	NS	NS	NC	NC
	Clear Creek	NS	NS	NS	NS	NS	NS
	Kushtaka Lake	NS	NS	NS	NS	NS	NS
	Shockum Creek	NS	NS	NS	NS	NS	NS
	Katalla River <sup>b</sup>	Katalla River	NS	NS	NS	135	700
Bering River Aerial Survey Daily Index		20	300		6,235	11,700	12,900
Anticipated Escapement Index <sup>c</sup>		NA	1,060	5,300	6,500	12,800	11,000

Bering River Delta <sup>a</sup>		Aerial Escapement Indices by Survey Date					
System and Drainage	Survey System	7 Aug.	18 Aug.	22 Aug.	29 Aug.	3 Sept.	12 Sept.
Bering River	Bering River	NC	NC	80	50	200	300
	Bering Lake	1,500	200	0	500	300	0
	Dick Creek	4,300	1,100	NS	1,300	900	NS
	Shepherd Creek - Lagoon	NC	NC	NS	NS	NC	0
	Shepherd Creek	1,300 *	NS	NS	NS	NS	NS
	Carbon Creek	100 *	NS	NS	NS	NS	NS
	Clear Creek	700 *	NS	NS	NS	NS	NS
	Kushtaka Lake	35 *	NS	NS	NS	NS	NS
	Shockum Creek	30 *	NS	NS	NS	NS	NS
	Katalla River <sup>b</sup>	Katalla River	350	250	NS	300	400
Bering River Aerial Survey Daily Index		8,315	1,550	80	2,150	1,800	400
Anticipated Escapement Index <sup>c</sup>		21,100	1,100	1,100	1,100	800	800

-Continued-

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Bering River Delta <sup>a</sup>		Aerial Escapement Indices by Survey Date		Estimated Escapement		
System and Drainage	Survey System	15 Sept.	29 Sept.	Site <sup>d</sup>	System <sup>f</sup>	Anticipated
	Bering River	200	NS	NC <sup>e</sup>		<b>23,500</b>
	Bering Lake	500	NS	NC <sup>e</sup>		
	Dick Creek	500	NS	NC <sup>e</sup>		
	Shepherd Creek - Lagoon	0	NS	1,400	1,400	<b>6,000</b>
	Shepherd Creek	NS	NS	NS		
	Carbon Creek	NS	NS	NS		
	Clear Creek	NS	NS	700	700	<b>1,500</b>
	Kushtaka Lake	NS	NS	35	65	<b>1,600</b>
	Shockum Creek	NS	NS	30		
			NS			
Katalla River <sup>b</sup>	Katalla River	200	NS	700		
Bering River Aerial Survey Daily Index		1,400			2,165	
<b>Anticipated Escapement Index <sup>c</sup></b>		<b>200</b>	<b>NA</b>			<b>9,100</b>

<sup>a</sup> The survey sites represent most of the known sockeye salmon spawning locations in the Bering River drainage. Weather permitting, the sites are surveyed weekly. The surveys provide information about the relative strength of escapement among years and within a year, run timing for spawning sites and relative escapement strengths among sites. The indices are not intended to provide an actual estimate of escapement for coastal stocks but have been used for that purpose in the absence of any other escapement estimating method. The abbreviations used in this table have the following meaning: NS = no survey, NC = surveyed but no count due to poor conditions. A + sign after a count indicates that the count is the minimum estimate seen in less than ideal conditions. The symbol \* indicates that this survey count was used as the peak survey for the site without duplication of counts for survey sites along migratory corridors (see footnote d).

<sup>b</sup> This stream is not included in the estimated escapement delta wide, it is a non-index stream.

<sup>c</sup> For systems not flown on any given survey the expected for that system was subtracted from the total anticipated for that survey.

<sup>d</sup> The escapement estimates for each site is in the astricted survey estimate. Where the survey site is a terminal spawning area the peak count is used. However, if the site is a schooling area for migratory fish bound for sites further upstream, the count which minimizes possible duplication of counts across dates is selected.

<sup>e</sup> Due to poor weather conditions during the peak of the run, no estimate was possible.

<sup>f</sup> The sum of the estimates by site within a system.

Appendix B.22. Anticipated and actual weekly catch and escapement of coho salmon in the Bering River District drift gillnet fishery, 1997.

Week Ending Date	Fishing Time (Hrs.)	Coho		Coho Escapement	
		Actual Catch	Anticipated Catch <sup>a</sup>	Peak Aerial Index	Anticipated Peak Index <sup>b</sup>
Prior to July 26		0	378		
July 26	0		20		
Aug 02	0		66		
Aug 09	24	<sup>c</sup>	160	0	600
Aug 16	0		911	NS	1,190
Aug 23	0		11,637	126	7,500
Aug 30	0		31,403	5,830	11,250
Sept 06	0		44,513	12,075	21,300
Sept 13	0		34,830	24,700	20,100
Sept 20	0		11,178	32,550	19,000
Sept 27	0		3,388	NS	17,400
Season Total	24		138,484	33,950	22,117

<sup>a</sup> Based on average historic catches for comparable dates (1969-1996).

<sup>b</sup> Based on average historic aerial escapement surveys for comparable dates (1984 - 1992).

<sup>c</sup> Confidential information; less than the required three permits fishing in a statistical area.

Appendix B.23. Aerial escapement indices by date and location for coho salmon returning to the Bering River Delta, 1997.

Bering River Delta <sup>a</sup>		Aerial Escapement Indices by Survey Date						
System and Drainage	Survey System	7 Aug.	18 Aug.	22 Aug.	29 Aug.	3 Sept.	12 Sept.	15 Sept.
Bering River	Bering River <sup>b</sup>	0	100	20	100	750	1,200	3,500
	Bering Lake	0	0	0	200	1,100	4,700	3,700
	Dick Creek	0	0	NS	0	0	NS	250
Shepherd Drainage <sup>c</sup>	Shepherd Creek - Lagoon	NC	NC	NS	NS	NC	NC	400
	Shepherd Creek	0	0	NS	NS	NS	NS	NS
	Carbon Creek	0	0	NS	NS	NS	NS	NS
Katalla River	Katalla River	0	0	NS	1,100	2,400	4,200	7,100
Lower Bering River	Gandil River	NS	6	0	10	400	1,500	1,200
	Nichawak River	NS	0	0	320	1,400	3,400	4,300 *
Controller Bay	Campbell River	NS	0	0	0	0	0	0 *
	Edwards River	NS	10	0	1,000	2,100	4,000	7,500 *
	Okalee River	NS	10	NC +	3,100	3,800	5,000 *	3,500
	Other Clear Streams	NS	0	0	0	125	700	1,100 *
Bering River Aerial Survey Daily Index		0	126	20	5,830	12,075	24,700	32,550
<b>Anticipated Aerial Index <sup>d</sup></b>		<b>600</b>	<b>7,500</b>	<b>5,100</b>	<b>11,200</b>	<b>21,200</b>	<b>20,200</b>	<b>20,200</b>

Bering River Delta <sup>a</sup>		Aerial Escapement Indices by Survey Date		Estimated Escapement		
System and Drainage	Survey System	29 Sept.		Site <sup>e</sup>	System <sup>f</sup>	Anticipated
Bering River	Bering River <sup>b</sup>	2,000 *		2,000	16,100	5,700
	Bering Lake	12,800 *		12,800		
	Dick Creek	1,300 *		1,300		
Shepherd Drainage <sup>c</sup>	Shepherd Creek - Lagoon	200				
	Shepherd Creek	NS				
	Carbon Creek	NS				
Katalla River	Katalla River	8,000 *		8,000	8,000	4,000
Lower Bering River	Gandil River	1,900 *		1,900	6,200	2,600
	Nichawak River	NS		4,300		
Controller Bay	Campbell River	NS		0	13,600	9,900
	Edwards River	NS		7,500		
	Okalee River	NS		5,000		
	Other Clear Streams	NS		1,100		
Bering River Aerial Survey Total					43,900	
<b>Anticipated Aerial Index <sup>d</sup></b>						<b>22,200</b>

<sup>a</sup> The survey sites represent most of the known coho salmon spawning locations in the Bering River drainage. Weather permitting, the sites are surveyed weekly. The surveys provide information about the relative strength of escapement among years and within a year, run timing for spawning sites and relative escapement strengths among sites. The indices are not intended to provide an actual estimate of escapement for coastal stocks but have been used for that purpose in the absence of any other escapement estimating method. The abbreviations used in this table have the following meaning: NS = no survey, NC = surveyed but no count due to poor conditions. A + sign after a count indicates that the count is the minimum estimate seen in less than ideal conditions.

The symbol \* indicates that this survey count was used as the peak survey for the site without duplication of counts for survey sites along migratory corridors (see footnote e).

<sup>b</sup> Bering River counts include coho observed in the Don Miller Hill tributaries.

<sup>c</sup> This stream is not included in the estimated escapement delta wide, it is a non-index stream.

<sup>d</sup> For systems not flown on any given survey the expected for that system was subtracted from the total anticipated for that survey.

<sup>e</sup> The escapement estimates for each site is in the restricted survey estimate. Where the survey site is a terminal spawning area, the peak count is used. However, if the site is a schooling area for migratory fish bound for sites further upstream, the count which minimizes possible duplication of counts across dates is selected.

<sup>f</sup> The sum of the estimates by site within a system

Appendix B.24. Estimated age and sex composition of coho salmon harvested in the Bering River District commercial common property drift gillnet fishery, 1997.

		Brood Year and Age Group				
		1992	1991	1990		Total
		1.1	2.1	3.1		
Strata Combined:	07/10 - 09/19					
Sampling dates:	08/23 - 09/06					
Sample size:	800					
Female	Percent of sample	20.5	29.6	0.2		50.3
	Number in catch	57,625	83,146	516		141,287
Male	Percent of sample	19.3	30.0	0.4		49.7
	Number in catch	54,273	84,283	1,032		139,588
Total	Percent of sample	39.9	59.6	0.6		100.0
	Number in catch	112,079	167,429	1,548		281,056
	Standard error	5,345	5,364	892		

Appendix B.25. Summary of periods, dates, hours fished, and emergency orders issued for the commercial salmon gillnet fisheries in the Bering River and Copper River Districts, 1997.

Bering River District (200)			Copper River District (212)			Emergency Orders Issued
Periods	Dates	Hours Fished	Periods	Dates	Hours Fished	
			1	5/15 - 5/16	24	2-F-E-16-97 <sup>a</sup>
						2-F-E-17-97 <sup>b</sup>
			2	5/19 - 5/20	24	2-F-E-19-97
			3	5/23	12	2-F-E-20-97
			4	5/26	12	2-F-E-21-97
			5	5/29	12	2-F-E-22-97
				5/31	12	2-F-E-23-97
			6	6/02 - 6/03	24	2-F-E-24-97 <sup>c</sup>
			7	6/05 - 6/06	36	2-F-E-25-97
			8	6/09 - 6/10	36	2-F-E-26-97
1	6/12 - 6/14	36	9	6/12 - 6/14	36	2-F-E-29-97
2	6/16 - 6/17	36	10	6/16 - 6/17	36	2-F-E-33-97
3	6/19 - 6/21	48	11	6/19 - 6/21	48	2-F-E-37-97 <sup>d</sup>
4	6/23 - 6/25	48	12	6/23 - 6/25	48	
			13	6/26 - 6/28	48	2-F-E-40-97 <sup>e</sup>
			14	6/30 - 7/02	48	
			15	7/03 - 7/05	48	
			16	7/07 - 7/08	36	2-F-E-46-97 <sup>f</sup>
			17	7/10 - 7/12	36	
			18	7/14 - 7/15	36	
			19	7/17 - 7/19	36	
			20	7/21 - 7/22	36	
			21	7/24 - 7/26	36	
			22	7/28 - 7/29	24	2-F-E-70-97 <sup>g</sup>
			23	7/31 - 8/01	24	
			24	8/04 - 8/05	24	
			25	8/07 - 8/08	24	
5	8/11 - 8/12	24	26	8/11 - 8/12	24	2-F-E-74-97 <sup>h</sup>
						2-F-E-115-97 <sup>i</sup>

<sup>a</sup> The Copper River schedule is typically two 24-hour periods per week; from 7:00 a.m. Monday to 7:00 a.m. Tuesday and from 7:00 p.m. Thursday to 7:00 p.m. Friday. All 12-hour periods began at 7:00 a.m.

<sup>b</sup> The following waters were closed to commercial fishing for the 24-hour period on May 5:  
The waters inside of a line from the Steamboat marker to the U.S.C.G. light on the west side of Pete Dahl entrance to the ADF&G marker located on the east side of Pete Dahl entrance and from the U.S.C.G. light on the west side of Grass Island entrance to the ADF&G marker located on the east side of Grass Island entrance and from the U.S.C.G. light on the west side of Kokenhinik Island entrance to the ADF&G marker located on the east side of Kokenhinik Island entrance and all waters west of the ADF&G marker at Coffee Creek.

<sup>c</sup> The Copper River District was extended and additional 12-hours.

<sup>d</sup> The Copper River and Bering River District's were placed on a schedule of two 48-hour periods per week.

<sup>e</sup> The Bering River District closed until further notice, the Copper River District remained on the two 48-hour periods per week schedule.

<sup>f</sup> The schedule of two 48-hour periods per week was reduced to two 36-hour periods in the Copper River District.

<sup>g</sup> The schedule of two 36-hour periods per week was reduced to two 24-hour periods in the Copper River District.

<sup>h</sup> All fishing periods after August 8 in the Copper and Bering River Districts began at 12:00 noon. The Copper River and Bering River Districts open for a 24-hour period at 12:00 noon.

<sup>i</sup> The Copper and Bering River Districts closed for the 1997 season at 12:01 p.m. Wednesday September 24, 1997.

Appendix C.1. Commercial salmon harvest by period in the Coghill District drift gillnet and purse seine fisheries, Prince William Sound, 1997.

Period	Date <sup>a,b</sup>	Hours	Permits	Landings	Chinook		Sockeye		Coh		Pink		Chum	
					Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Pounds	
<b>DRIFT GILLNET</b>														
01	6/12	24	78	180	347	5,212	404	2,625	0	0	1	3	42,969	368,257
02	6/16	24	90	228	142	2,073	2,573	16,893	0	0	0	0	65,416	579,015
03	6/20	12	103	209	31	489	1,808	12,298	0	0	2	8	68,526	592,539
04	6/23	36	204	698	196	2,637	17,412	120,603	4	28	6	24	146,592	1,284,415
05	6/26	24	229	594	38	559	20,422	143,489	1	8	52	195	115,293	1,038,495
06	6/28	24	205	504	33	525	30,848	221,831	1	7	61	275	49,020	421,670
07	6/30	24	79	132	2	30	13,487	95,769	0	0	89	357	11,541	110,856
08	7/03	36	163	328	14	207	25,066	176,737	3	18	119	437	30,123	247,051
09	7/07	36	154	365	16	202	36,164	250,153	8	58	1,448	5,347	33,412	276,209
10	7/10	36	148	304	24	352	18,818	124,089	49	390	5,724	23,447	40,254	327,614
11	7/14	36	151	351	10	161	14,476	98,978	43	232	10,532	41,364	49,904	418,734
12	7/17	36	97	197	4	53	10,678	70,483	26	184	16,274	62,122	19,387	155,101
13	7/21	48	80	140	1	10	6,899	44,723	27	186	17,671	70,733	7,193	55,869
14	7/24	48	37	82	0	0	7,234	44,412	11	83	12,631	46,583	2,940	21,816
15	7/27	160	27	139	2	18	10,468	67,917	34	263	21,355	84,527	3,592	35,293
16	8/03	168	42	173	2	56	9,655	57,688	151	1,079	43,809	174,365	-3,692	33,338
17	8/10	168	0	0	0	0	0	0	0	0	0	0	0	0
18	8/21	12	5	6	0	0	24	176	2	9	2,332	8,527	14	103
19	8/22	12	5	5	0	0	24	142	17	168	1,454	5,798	4	28
20	8/23	12	1	1	0	0	5	36	5	40	283	850	0	0
21	8/24	12	0	0	0	0	0	0	0	0	0	0	0	0
22	8/25	12	4	4	0	0	43	262	11	102	796	3,186	4	38
23	8/26	12	5	6	0	0	44	263	21	169	1,029	4,118	18	135
24	8/27	12	5	7	0	0	73	438	45	379	2,155	8,617	9	68
25	8/28	12	6	6	0	0	76	460	40	321	2,767	11,070	17	133
26	8/29	12	4	4	0	0	30	192	20	147	1,988	7,157	2	20
27	8/30	12	2	2	0	0	12	72	9	74	599	2,100	3	24
28	8/31	60	5	9	0	0	70	416	115	956	3,277	12,346	8	63
29	9/03	84	6	14	0	0	119	732	273	2,401	5,128	18,208	34	260
30	9/07	60	6	11	0	0	187	1,117	552	4,419	2,197	7,696	9	80
31	9/10	84	5	5	0	0	75	451	220	1,767	1,190	4,170	1	10
32	9/14	60	1	1	0	0	5	33	187	1,769	0	0	0	0
33	9/17	84	2	5	0	0	22	114	471	4,459	0	0	0	0
34	9/21	60	3	3	0	0	4	20	370	3,727	0	0	0	0
35	9/24	84	5	9	0	0	6	40	763	7,578	0	0	0	0
36	9/28	60	4	4	0	0	0	0	619	5,076	0	0	0	0
37	10/01	84	4	8	0	0	0	0	1,167	9,776	0	0	0	0
38	10/05	60	0	0	0	0	0	0	0	0	0	0	0	0
39	10/08	84	5	8	0	0	0	0	353	3,256	0	0	0	0
40	10/12	60	0	0	0	0	0	0	0	0	0	0	0	0
41	10/15	84	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>2,068</b>	<b>317</b>	<b>4,762</b>	<b>862</b>	<b>12,584</b>	<b>227,231</b>	<b>1,553,652</b>	<b>5,618</b>	<b>49,129</b>	<b>154,969</b>	<b>603,630</b>	<b>689,977</b>	<b>5,967,234</b>
<b>Average Weight</b>					<b>14.60</b>		<b>6.84</b>		<b>8.74</b>		<b>3.90</b>		<b>8.65</b>	
<b>PURSE SEINE <sup>b</sup></b>														
1	7/21	48	14	16	5	49	883	5,645	19	144	38,397	147,468	24,626	181,245
2	7/24	48	10	18	1	14	583	3,758	2	15	139,304	500,758	6,089	48,084
3	7/27	160	7	9	1	14	1,000	6,463	31	184	26,878	102,595	1,327	11,799
4	8/03	168	35	49	0	0	1,325	8,476	61	408	233,684	862,766	534	4,275
5	8/10	168	13	33	0	0	715	4,837	110	853	177,689	666,425	380	3,325
6	8/21	12	8	9	0	0	177	1,103	30	250	87,902	294,817	28	223
7	8/22	12	11	15	0	0	108	666	37	264	133,056	418,455	35	302
8	8/23	12	16	25	0	0	294	1,762	30	225	194,094	645,926	28	266
9	8/24	12	17	23	0	0	208	1,370	63	498	204,393	724,334	28	173
10	8/25	12	19	21	0	0	226	1,377	46	360	145,676	489,354	17	146
11	8/26	12	10	10	0	0	51	307	30	216	40,686	134,847	5	37
12	8/27	12	1	1	0	0	0	0	0	0	9,069	35,823	0	0
13	8/28	12	0	0	0	0	0	0	0	0	0	0	0	0
14	8/29	12	3	3	0	0	36	218	41	247	20,531	77,461	3	29
15	8/30	12	0	0	0	0	0	0	0	0	0	0	0	0
16	8/31	60	4	4	0	0	41	264	233	2,149	166,787	598,105	16	157
17	9/03	84	3	4	0	0	39	255	216	2,157	194,051	679,181	21	208
18	9/07	60	2	3	0	0	8	42	270	2,045	58,359	194,035	2	10
19	9/10	84	1	2	0	0	0	0	50	400	5,061	15,185	0	0
<b>Average Weight</b>		<b>1,000</b>	<b>71</b>	<b>245</b>	<b>7</b>	<b>77</b>	<b>5,694</b>	<b>36,543</b>	<b>1,269</b>	<b>10,415</b>	<b>1,875,617</b>	<b>6,587,335</b>	<b>33,139</b>	<b>250,279</b>
<b>Combined Total</b>					<b>869</b>	<b>12,661</b>	<b>232,925</b>	<b>1,590,195</b>	<b>6,887</b>	<b>59,544</b>	<b>2,030,586</b>	<b>7,190,965</b>	<b>723,116</b>	<b>6,217,513</b>
<b>Average Weight</b>					<b>14.57</b>		<b>6.83</b>		<b>8.65</b>		<b>3.54</b>		<b>8.60</b>	

<sup>a</sup> Starting date of period.

<sup>b</sup> No reported catch by purse seine gear for periods 20 through 27.

Appendix C.2. Commercial salmon catch by species in the Coghill District,  
Prince William Sound, 1981 - 1997.

CATCH BY SPECIES						
Year	Chinook	Sockeye	Coho	Pink	Chum	Total
<b>DRIFT GILLNET</b>						
1981	152	101,058	1,008	526,739	131,399	760,356
1982	127	929,965	213	181,925	252,077	1,364,307
1983	340	38,273	1,013	233,263	234,022	506,911
1984	396	94,956	563	897,496	264,878	1,258,289
1985	380	339,296	1,131	454,531	246,824	1,042,162
1986	617	381,565	789	68,887	218,971	670,829
1987	352	377,454	13,396	712,897	318,842	1,422,941
1988	501	82,294	41,307	1,314,061	346,388	1,784,551
1989	364	106,114	80,737	628,522	194,584	1,010,321
1990	126	11,988	128,605	1,907,510	301,209	2,349,438
1991	92	3,888	78,363	231,501	34,223	348,067
1992	242	57,919	86,782	167,384	182,433	494,760
1993	576	66,532	37,898	141,279	635,208	881,493
1994	390	12,928	50,879	58,334	554,181	676,712
1995	468	57,797	29,343	161,493	379,659	628,760
1996	575	177,530	20,926	59,447	612,969	871,447
1997	862	227,231	5,618	154,969	689,977	1,078,657
Ten Year Average (1987-96)	373	115,848	54,810	539,187	316,570	1,026,787
<b>PURSE SEINE</b>						
1981	1	1,997	0	34,083	23,378	59,459
1982	23	17,466	29	1,006,579	135,553	1,159,650
1983	0	175	16	41,048	8,958	50,197
1984	0	21	0	10,911	1,126	12,058
1985	85	10,757	112	69,242	19,330	99,526
1986	186	18,514	98	145,706	27,078	191,582
1987	58	38,899	1,956	865,671	59,252	965,836
1988	63	1,623	15,787	1,600,481	11,755	1,629,709
1989	61	2,030	39,484	3,296,965	124,639	3,463,179
1990	2	286	11,819	785,278	10,951	808,336
1991	11	1,562	621	1,980,074	11,519	1,993,787
1992	6	765	27,382	196,503	1,603	226,259
1993	46	6,250	1,760	352,468	3,645	364,169
1994	50	21,060	30,517	3,538,760	3,575	3,593,962
1995	33	20,670	5,337	917,200	2,597	945,837
1996	1	2,640	5,319	1,484,422	463	1,492,845
1997	7	5,694	1,269	1,875,617	33,139	1,915,726
Ten Year Average (1987-96)	52	11,166	13,476	1,367,911	25,661	1,418,266
<b>COMBINED GEARS</b>						
1981	153	103,055	1,008	560,822	154,777	819,815
1982	150	947,431	242	1,188,504	387,630	2,523,957
1983	340	38,448	1,029	274,311	242,980	557,108
1984	396	94,977	563	908,407	266,004	1,270,347
1985	465	350,053	1,243	523,773	266,154	1,141,688
1986	803	400,079	887	214,593	246,049	862,411
1987	410	416,353	15,352	1,578,568	378,094	2,388,777
1988	564	83,917	57,094	2,914,542	358,143	3,414,260
1989	425	108,144	120,221	3,925,487	319,223	4,473,500
1990	128	12,274	140,424	2,692,788	312,160	3,157,774
1991	103	5,450	78,984	2,211,575	45,742	2,341,854
1992	248	58,684	114,164	363,887	184,036	721,019
1993	622	72,782	39,658	493,747	638,853	1,245,662
1994	440	33,988	81,396	3,597,094	557,756	4,270,674
1995	501	78,467	34,680	1,078,693	382,256	1,574,597
1996	576	180,170	26,245	1,543,869	613,432	2,364,292
1997	869	232,925	6,887	2,030,586	723,116	2,994,383
Ten Year Average (1987-96)	402	105,023	70,822	2,040,025	378,970	2,595,241

Appendix C.3. Daily salmon escapement through the Coghill River weir,  
Prince William Sound, 1997.

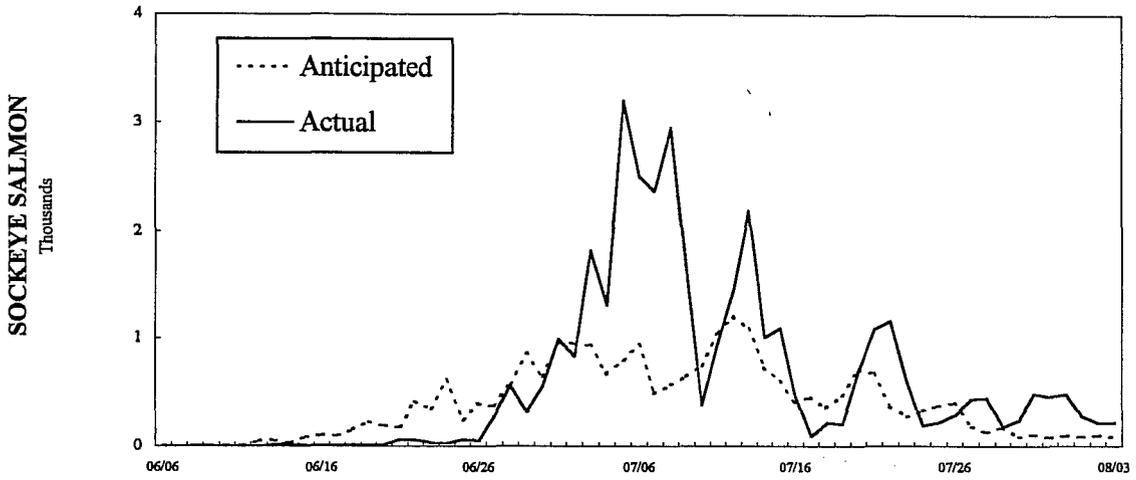
Date	Sockeye <sup>a</sup>		Pink <sup>b</sup>		Chum		Coho		Chinook	
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
06/05	0	0	0	0	0	0	0	0	0	0
06/06	1	1	0	0	0	0	0	0	0	0
06/07	4	5	0	0	0	0	0	0	0	0
06/08	4	9	0	0	0	0	0	0	0	0
06/09	0	9	0	0	0	0	0	0	0	0
06/10	2	11	0	0	0	0	0	0	0	0
06/11	0	11	0	0	0	0	0	0	0	0
06/12	15	26	0	0	0	0	0	0	0	0
06/13	16	42	0	0	0	0	0	0	0	0
06/14	14	56	0	0	0	0	0	0	0	0
06/15	5	61	0	0	0	0	0	0	0	0
06/16	7	68	0	0	0	0	0	0	0	0
06/17	17	85	0	0	0	0	0	0	0	0
06/18	13	98	0	0	0	0	0	0	0	0
06/19	15	113	0	0	0	0	0	0	0	0
06/20	62	175	0	0	0	0	0	0	0	0
06/21	60	235	0	0	0	0	0	0	0	0
06/22	33	268	0	0	0	0	0	0	0	0
06/23	28	296	0	0	0	0	0	0	0	0
06/24	65	361	0	0	0	0	0	0	0	0
06/25	54	415	0	0	0	0	0	0	0	0
06/26	285	700	0	0	1	1	0	0	1	1
06/27	564	1,264	0	0	0	1	0	0	0	1
06/28	320	1,584	0	0	0	1	0	0	0	1
06/29	551	2,135	1	1	1	2	0	0	1	2
06/30	998	3,133	1	2	0	2	0	0	0	2
07/01	832	3,965	4	6	0	2	0	0	0	2
07/02	1,819	5,784	21	27	2	4	0	0	0	2
07/03	1,302	7,086	5	32	1	5	0	0	0	2
07/04	1,202	10,288	15	47	3	8	0	0	1	3
07/05	2,511	12,799	9	56	0	8	0	0	0	3
07/06	2,368	15,167	136	192	0	8	0	0	0	3
07/07	2,953	18,120	838	1,030	2	10	0	0	0	3
07/08	1,593	19,713	677	1,707	2	12	0	0	0	3
07/09	383	20,096	221	1,928	1	13	0	0	0	3
07/10	965	21,061	1,752	3,680	4	17	0	0	0	3
07/11	1,448	22,509	3,974	7,654	4	21	0	0	1	4
07/12	2,192	24,701	5,308	12,962	5	26	0	0	0	4
07/13	1,007	25,708	4,967	17,929	9	35	0	0	0	4
07/14	1,093	26,801	2,566	20,495	5	40	0	0	2	6
07/15	486	27,287	1,382	21,877	1	41	0	0	2	8
07/16	91	27,378	253	22,130	0	41	0	0	0	8
07/17	224	27,602	1,631	23,761	5	46	0	0	0	8
07/18	204	27,806	1,612	25,373	1	47	0	0	0	8
07/19	694	28,500	4,797	30,170	4	51	0	0	1	9
07/20	1,085	29,585	9,961	40,131	22	73	0	0	0	9
07/21	1,158	30,743	13,183	53,314	12	85	0	0	1	10
07/22	614	31,357	6,472	59,786	1	86	0	0	0	10
07/23	193	31,550	1,505	61,291	0	86	0	0	0	10
07/24	220	31,770	2,197	63,488	1	87	0	0	0	10
07/25	290	32,060	1,736	65,224	1	88	0	0	0	10
07/26	434	32,494	2,034	67,258	1	89	0	0	1	11
07/27	447	32,941	2,442	69,700	3	92	0	0	1	12
07/28	182	33,123	461	70,161	1	93	0	0	0	12
07/29	244	33,367	1,812	71,973	0	93	0	0	0	12
07/30	490	33,857	3,557	75,530	2	95	0	0	0	12
07/31	462	34,319	4,610	80,140	2	97	0	0	1	13
08/01	482	34,801	3,323	83,463	4	101	0	0	0	13
08/02	278	35,079	1,934	85,397	2	103	2	2	0	13
08/03	214	35,293	536	85,933	2	105	0	2	0	13
08/04	224	35,517	926	86,859	3	108	2	4	0	13

<sup>a</sup> Count includes 760 jacks.

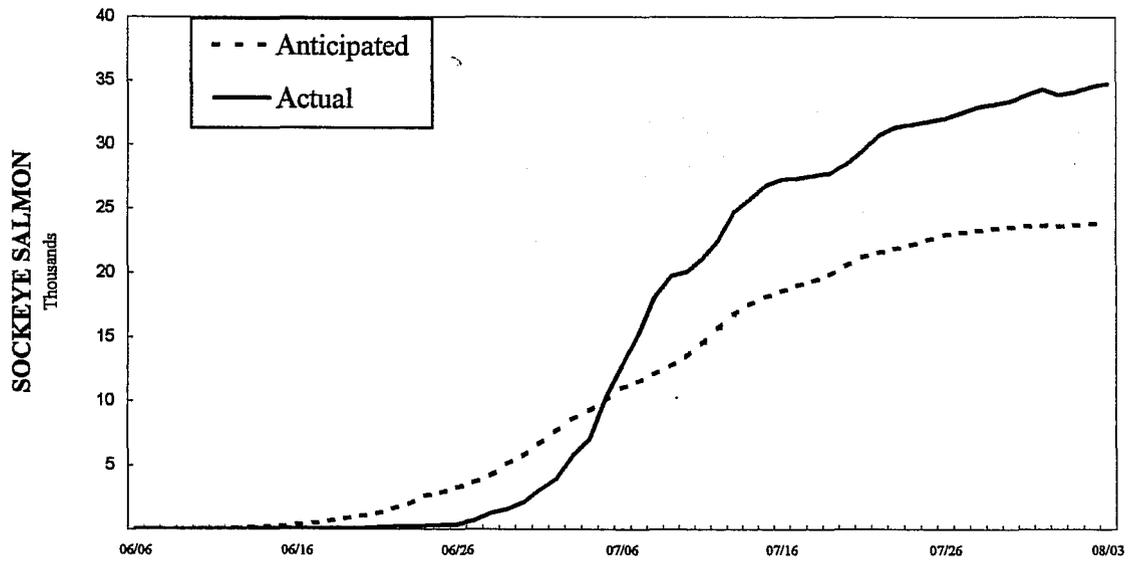
<sup>b</sup> Count may be incomplete. The Coghill weir is designed to prohibit the passage of sockeye salmon, but smaller pink salmon may pass through the weir uncounted.

# COGHILL LAKE SOCKEYE SALMON ESCAPEMENT

DAILY



CUMULATIVE



Appendix C.4. Anticipated daily and cumulative sockeye salmon escapement versus actual escapement past the Coghill River weir, Prince William Sound, 1997.

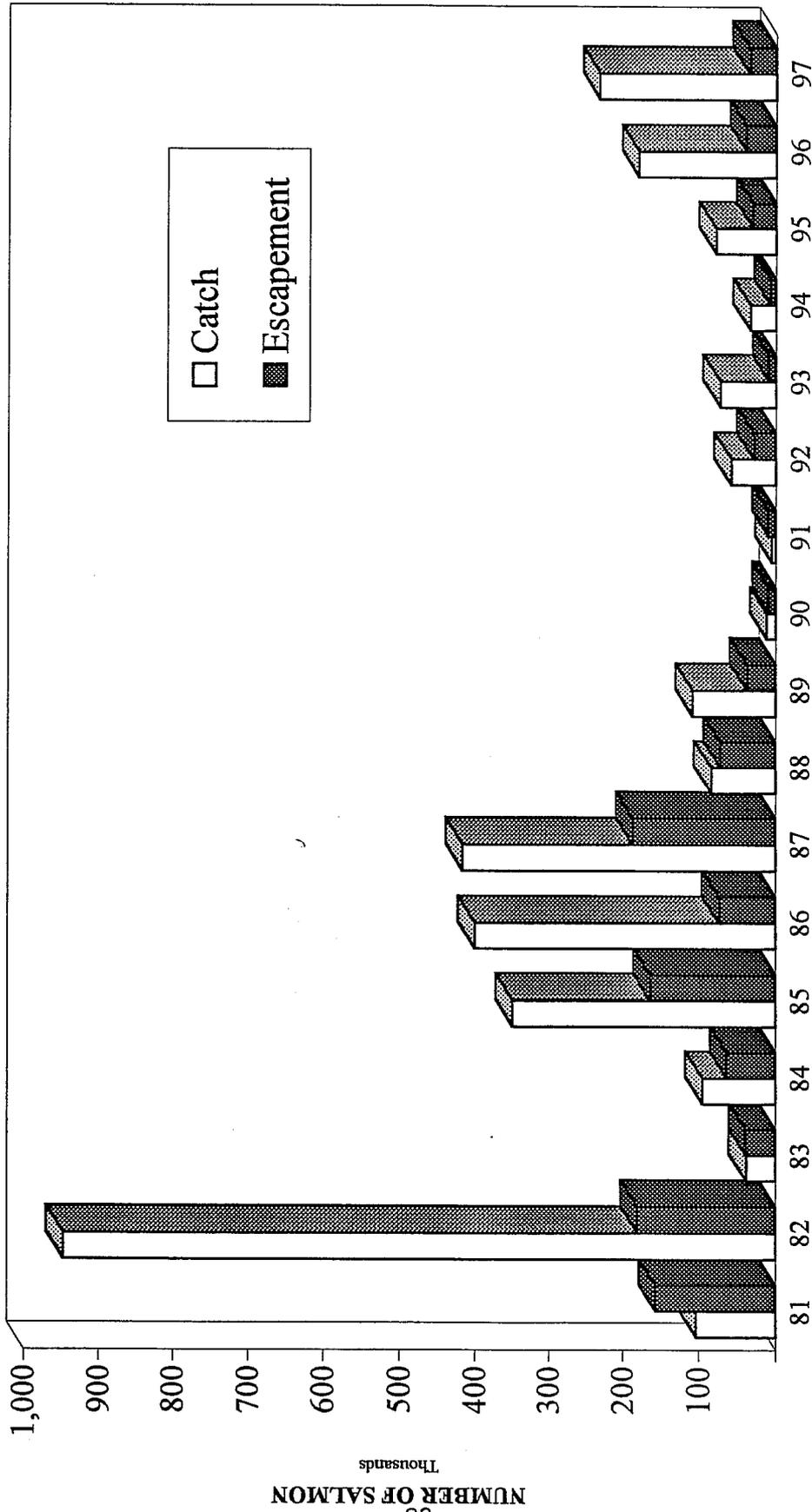
Appendix C.5. Salmon escapement by species in the Coghill District, Prince William Sound, 1970 - 1997.

Year	Sockeye <sup>a</sup>	Pink <sup>b</sup>	Chum <sup>b</sup>
1970	35,200	95,170	11,880
1971	15,000	62,160	6,600
1972	51,000	30,960	28,160
1973	55,000	493,780	72,610
1974	22,333	56,940	29,280
1975	34,855	452,430	3,640
1976	9,056	57,090	25,670
1977	31,562	130,510	43,940
1978	42,284	85,450	18,160
1979	48,281	70,980	6,330
1980	142,253	214,930	23,340
1981	156,112	106,450	2,050
1982	180,314	368,380	22,130
1983	38,783	310,330	61,410
1984	63,622	429,450	19,690
1985	163,311	296,970	22,140
1986	71,095	101,600	13,140
1987	187,263	147,060	24,510
1988	72,052	37,070	39,240
1989	37,751	45,510	22,680
1990	8,949	49,110	26,020
1991	9,752	98,580	6,070
1992	29,642	23,611	10,003
1993	9,232	41,837	8,430
1994	7,264	65,648	14,176
1995	30,382	46,029	11,596
1996	38,693	104,781	19,669
1997	35,517	52,961	3,101
10 Year Average (1987-1996)	43,098	65,924	18,239

<sup>a</sup> Escapement count of sockeye salmon past the Coghill River weir.

<sup>b</sup> Pink and chum escapements estimated for streams in district by aerial surveys. Historical data revised in 1990.

# SOCKEYE SALMON CATCH AND ESCAPEMENT IN THE COGHILL DISTRICT



Appendix C.6. Sockeye salmon catch and escapement in the Coghill District, Prince William Sound, 1981 - 97.

Appendix C.7. Temporally stratified age and sex composition of sockeye salmon harvested in the Coghill District commercial common property drift gillnet fisheries, 1997.

		Brood Year and Age Group						Total
		1994	1993		1992		1991	
		0.2	0.3	1.2	1.3	2.2	2.3	
Stratum dates: 06/12 - 06/18								
Sampling dates: 06/17 - 06/17								
Sample size: 235								
Female	Percent of sample	0.0	0.4	2.6	29.8	0.4	3.4	36.6
	Number in catch	0	13	76	887	13	101	1,089
Male	Percent of sample	0.0	0.0	17.9	40.9	1.3	3.4	63.4
	Number in catch	0	0	532	1,216	38	101	1,888
Total	Percent of sample	0.0	0.4	20.4	70.6	1.7	6.8	100.0
	Number in catch	0	13	608	2,103	51	203	2,977
	Standard error	0	13	78	89	25	49	
Stratum dates: 06/19 - 06/25								
Sampling dates: 06/24 - 06/24								
Sample size: 422								
Female	Percent of sample	0.0	0.0	11.8	31.5	0.5	1.2	45.0
	Number in catch	0	0	2,277	6,057	91	228	8,654
Male	Percent of sample	0.0	0.2	22.5	31.0	0.5	0.7	55.0
	Number in catch	0	46	4,327	5,966	91	137	10,566
Total	Percent of sample	0.0	0.2	34.4	62.6	0.9	1.9	100.0
	Number in catch	0	46	6,604	12,024	182	364	19,220
	Standard error	0	46	445	453	91	128	
Stratum dates: 06/26 - 07/02								
Sampling dates: 06/30 - 06/30								
Sample size: 436								
Female	Percent of sample	0.0	0.0	3.2	46.1	0.0	0.5	49.8
	Number in catch	0	0	2,079	29,854	0	297	32,230
Male	Percent of sample	0.0	0.0	8.3	40.4	0.2	0.7	49.5
	Number in catch	0	0	5,347	26,140	149	446	32,081
Total	Percent of sample	0.0	0.0	11.5	86.9	0.2	1.4	100.0
	Number in catch	0	0	7,426	56,291	149	891	64,757
	Standard error	0	0	989	1,047	149	362	

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Appendix C.7. (Page 2 of 2)

		Brood Year and Age Group						Total
		1994	1993		1992		1991	
		0.2	0.3	1.2	1.3	2.2	2.3	
Stratum dates:		07/03 - 07/12						
Sampling dates:		07/10 - 07/10						
Sample size:		420						
Female	Percent of sample	0.0	0.0	1.2	23.8	0.2	0.0	25.2
	Number in catch	0	0	953	19,059	191	0	20,203
Male	Percent of sample	0.0	0.0	0.7	15.0	0.0	0.0	15.7
	Number in catch	0	0	572	12,007	0	0	12,579
Total	Percent of sample	0.0	0.5	5.7	93.1	0.5	0.2	100.0
	Number in catch	0	381	4,574	74,521	381	191	80,048
	Standard error	0	269	908	991	269	191	
Stratum dates:		07/13 - 09/25						
Sampling dates:		07/16 - 07/16						
Sample size:		408						
Female	Percent of sample	0.0	0.0	20.8	30.1	0.5	0.7	52.2
	Number in catch	0	0	12,548	18,157	295	443	31,443
Male	Percent of sample	0.2	0.0	13.2	33.6	0.5	0.2	47.8
	Number in catch	148	0	7,971	20,224	295	148	28,786
Total	Percent of sample	0.2	0.0	34.1	63.7	1.0	1.0	100.0
	Number in catch	148	0	20,519	38,381	590	590	60,229
	Standard error	148	0	1,415	1,435	294	294	
Strata Combined		06/12 - 09/25						
Sampling dates:		06/17 - 07/16						
Sample size:		1,921						
Female	Percent of sample	0.0	0.0	7.9	32.6	0.3	0.5	41.2
	Number in catch	0	13	17,933	74,014	590	1,069	93,619
Male	Percent of sample	0.1	0.0	8.3	28.8	0.3	0.4	37.8
	Number in catch	148	46	18,749	65,554	573	831	85,900
Total	Percent of sample	0.1	0.2	17.5	80.7	0.6	1.0	100.0
	Number in catch	148	439	39,732	183,320	1,353	2,239	227,231
	Standard error	148	273	2,002	2,086	436	522	

Appendix C.8. Temporally stratified age and sex composition of sockeye salmon escapement through the Coghill River weir, 1997.

		Brood Year and Age Group						Total
		1993		1992		1991		
		0.3	1.2	1.3	2.2	1.4	2.3	
Stratum dates:		06/06 - 06/30						
Sampling dates:		06/15 - 06/26						
Sample size:		02/12						
Female	Percent of sample	0.0	1.5	26.4	0.0	0.2	0.0	28.1
	Number in escapement	0	46	827	0	8	0	881
Male	Percent of sample	0.0	12.5	58.9	0.2	0.0	0.0	71.6
	Number in escapement	0	391	1,846	8	0	0	2,244
Total	Percent of sample	0.0	13.9	85.6	0.2	0.2	0.0	100.0
	Number in escapement	0	437	2,681	8	8	0	3,133
	Standard error	0	54	54	8	8	0	
Stratum dates:		07/01 - 07/06						
Sampling dates:		07/03 - 07/03						
Sample size:		397						
Female	Percent of sample	0.3	1.0	52.1	0.3	0.5	0.0	54.2
	Number in escapement	30	121	6,275	30	61	0	6,517
Male	Percent of sample	0.0	6.0	39.8	0.0	0.0	0.0	45.8
	Number in escapement	0	727	4,789	0	0	0	5,517
Total	Percent of sample	0.3	7.1	91.9	0.3	0.5	0.0	100.0
	Number in escapement	30	849	11,064	30	61	0	12,034
	Standard error	30	155	165	30	43	0	
Stratum dates:		07/07 - 07/14						
Sampling dates:		07/09 - 07/10						
Sample size:		381						
Female	Percent of sample	0.0	1.0	49.6	0.0	0.3	0.0	50.9
	Number in escapement	0	122	5,771	0	31	0	5,924
Male	Percent of sample	0.3	4.5	44.1	0.3	0.0	0.0	49.1
	Number in escapement	31	519	5,130	31	0	0	5,710
Total	Percent of sample	0.3	5.5	93.7	0.3	0.3	0.0	100.0
	Number in escapement	31	641	10,901	31	31	0	11,634
	Standard error	31	136	145	31	31	0	

-continued-

		Brood Year and Age Group						Total
		1993		1992		1991		
		0.3	1.2	1.3	2.2	1.4	2.3	
Stratum dates: 07/15 - 08/04								
Sampling dates: 07/18 - 07/19								
Sample size: 395								
Female	Percent of sample	0.0	4.8	44.1	0.0	0.0	1.8	50.6
	Number in escapement	0	428	3,923	0	0	158	4,509
Male	Percent of sample	0.0	5.3	43.0	0.3	0.0	0.8	49.4
	Number in escapement	0	473	3,833	23	0	68	4,397
Total	Percent of sample	0.0	10.1	87.1	0.3	0.0	2.5	100.0
	Number in escapement	0	902	7,756	23	0	225	8,906
	Standard error	0	135	150	23	0	70	
Strata Combined: 06/06 - 08/04								
Sampling dates: 06/15 - 07/19								
Sample size: 1,582								
Female	Percent of sample	0.1	2.0	47.0	0.1	0.3	0.4	49.9
	Number in escapement	30	718	16,796	30	99	158	17,831
Male	Percent of sample	0.1	5.9	43.7	0.2	0.0	0.2	50.0
	Number in escapement	31	2,111	15,598	61	0	68	17,868
Total	Percent of sample	0.2	7.9	90.7	0.3	0.3	0.6	100.0
	Number in escapement	61	2,828	32,402	91	99	225	35,707
	Standard error	43	252	272	49	53	70	

Appendix C.9. Commercial salmon harvest by period in the Unakwik District drift gillnet and purse seine fisheries, Prince William Sound, 1997.

Period	Date <sup>a,b</sup>	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
					Numbers	Pounds								
<b>DRIFT GILLNET<sup>c</sup></b>														
1	06/19	24	0	0	0	0	0	0	0	0	0	0	0	0
2	06/23	24	3	3	3	69	868	6,128	0	0	0	0	132	1,202
3	06/26	24	<sup>d</sup>											
4	06/30	24	<sup>d</sup>											
5	07/03	24	<sup>d</sup>											
6	07/07	24	3	3	0	0	559	4,029					40	382
7	07/10	24	0	0	0	0	0	0	0	0	0	0	0	0
8	07/14	24	<sup>d</sup>											
9	07/17	24	<sup>d</sup>											
10	07/21	24	0	0	0	0	0	0	0	0	0	0	0	0
Total			4	12	3	69	3,411	24,708	0	0	0	0	177	1,624
Average Weight					23		7.24						9.18	

<sup>a</sup> For area and opening times refer to Appendix C.12.

<sup>b</sup> Starting date of period.

<sup>c</sup> No purse seine catch was reported in 1997.

<sup>d</sup> Confidential information; less than the required three permits fishing in a statistical area.

Appendix C.10. Commercial salmon catch by species in the Unakwik District,  
Prince William Sound, 1980 - 1997.

CATCH BY SPECIES						
Year	Chinook	Sockeye	Coho	Pink	Chum	Total
<b>DRIFT GILLNET</b>						
1980	0	1,547	6	4,815	727	7,095
1981	0	2,445	0	4,152	1,330	7,927
1982	1	48,947	0	335	598	49,881
1983	3	13,215	0	1,515	1,426	16,159
1984	2	18,522	0	27,742	7,125	53,391
1985	26	27,532	22	9,191	3,942	40,713
1986	5	25,759	1	1,973	2,463	30,201
1987	2	5,894	1	4,871	1,356	12,124
1988	15	8,589	0	281	1,504	10,389
1989	31	21,412	27	41,820	404	63,694
1990	3	247	127	9,986	23	10,386
1991	13	4,482	11	12,299	118	16,923
1992	3	2,224	13	3,972	94	6,306
1993	5	14,691	4	3,338	978	19,016
1994	0	548	0	300	0	848
1995	8	2,116	0	1	36	2,161
1996	3	6,063	0	17	694	6,777
1997	3	3,411	0	0	177	3,591
Ten Year Average (1987-96)	8	6,627	18	7,689	521	17,205
<b>PURSE SEINE</b>						
1980	0	6	0	9,113	355	9,474
1981	0	108	0	71,624	17,650	89,382
1982	0	2	4	89,137	517	89,660
1983	0	6	0	3,344	716	4,066
1986*						
1985	0	138	0	28,210	4,123	32,471
1986	0	76	0	4,718	4,675	9,469
1987	0	146	0	187,752	6,549	194,447
1988	0	667	7	57,844	23,860	82,378
1989*						
1990*						
1991	0	819	3	121,068	79	121,969
1992	0	42	2	13,264	119	13,427
1993	0	79	0	3,233	67	3,379
1994	0	226	102	388,901	73	389,302
1995*						
1996*						
1997*						
Ten Year Average (1987-96)	0	330	19	128,677	5,125	116,339
<b>COMBINED GEARS</b>						
1980	0	1,553	6	13,928	1,082	16,569
1981	0	2,553	0	75,776	18,980	97,309
1982	1	48,949	4	89,472	1,115	139,541
1983	3	13,221	0	4,859	2,142	20,225
1984	2	18,522	0	27,742	7,125	53,391
1985	26	27,670	22	37,401	8,065	73,184
1986	5	25,835	1	6,691	7,138	39,670
1987	2	6,040	1	192,623	7,905	206,571
1988	15	9,256	7	58,125	25,364	92,767
1989	31	21,412	27	41,820	404	63,694
1990	3	247	127	9,986	23	10,386
1991	13	5,301	14	133,367	197	138,892
1992	3	2,266	15	17,236	213	19,733
1993	5	14,770	4	6,571	1,045	22,395
1994	0	774	102	389,201	73	390,150
1995	8	2,116	0	1	36	2,161
1996	3	6,063	0	17	694	6,777
1997	3	3,411	0	0	177	3,591
Ten Year Average (1987-96)	8	6,825	30	84,895	3,595	95,353

\*No catch recorded.

Appendix C.11. Summary of periods, dates, hours open, and emergency orders issued for the commercial salmon fisheries in the Coghill and Unakwik Districts, Prince William Sound, 1997.

Unakwik (229)				Emergency Orders Issued	Coghill (223)			
Periods		Dates	Hours Open		Periods		Dates	Hours Open
P/S	GN			P/S	GN			
					1	6/12 - 6/13	24	2-F-E-28-97 <sup>a</sup>
					2	6/16 - 6/17	24	2-F-E-34-97
1	1	6/19 - 6/20	24		3	6/20	12	2-F-E-36-97 <sup>c</sup>
2	2	6/23 - 6/24	24		4	6/23 - 6/24	36	2-F-E-38-97 <sup>d</sup>
								2-F-E-39-97 <sup>e</sup>
3	3	6/26 - 6/27	24		5	6/26 - 6/27	24	2-F-E-41-97 <sup>f</sup>
4	4	6/30 - 7/01	24		6	6/28 - 6/29	24	2-F-E-43-97 <sup>g</sup>
5	5	7/03 - 7/04	24		7	6/30 - 7/01	24	
6	6	7/07 - 7/08	24		8	7/03 - 7/05	36	2-F-E-44-97 <sup>h</sup>
7	7	7/10 - 7/11	24		9	7/07 - 7/08	36	2-F-E-45-97 <sup>i</sup>
8	8	7/14 - 7/15	24		10	7/10 - 7/12	36	2-F-E-50-97 <sup>i</sup>
9	9	7/17 - 7/18	24		11	7/14 - 7/15	36	2-F-E-54-97 <sup>j</sup>
10	10	7/21 - 7/22	24		12	7/17 - 7/19	36	
					1	7/21 - 7/22	36	2-F-E-60-97 <sup>l</sup>
					2	7/24 - 7/26	36	
					3	7/27 - 8/02	160	2-F-E-69-97 <sup>m</sup>
						7/28	12	2-F-E-76-97 <sup>n</sup>
						7/30	12	2-F-E-78-97 <sup>n</sup>
						7/31	12	2-F-E-79-97 <sup>o</sup>
						8/01	12	
						8/02	12	
				4	16	8/03 - 8/09	168	
						8/03	12	
						8/04	12	
						8/05	12	
						8/06	12	
						8/07	12	
						8/08	12	2-F-E-83-97 <sup>n</sup>
				5	17	8/10 - 8/16	168	2-F-E-94-97 <sup>p</sup>
								2-F-E-95-97 <sup>q</sup>
						8/15	12	2-F-E-89-97 <sup>r</sup>
						8/16	12	2-F-E-90-97 <sup>r</sup>
				6	18	8/21	12	2-F-E-98-97 <sup>s</sup>
				7	19	8/22	12	2-F-E-100-97 <sup>t</sup>
				8	20	8/23	12	2-F-E-101-97 <sup>u</sup>
				9	21	8/24	12	
				10	22	8/25	12	
				11	23	8/26	12	
				12	24	8/27	12	

-Continued-

Periods		Unakwik (229)		Emergency Orders Issued	Periods		Coghill (223)		Emergency Orders Issued
P/S	GN	Dates	Hours Open		P/S	GN	Dates	Hours Open	
					13	25	8/28	12	2-F-E-107-97 <sup>v</sup>
					14	26	8/29	12	
					15	27	8/30	12	
					16	28	8/31 - 9/02	60	2-F-E-108-97 <sup>w</sup>
					17	29	9/03 - 9/06	84	
					18	30	9/07 - 9/09	60	
					19	31	9/10 - 9/13	84	
					20	32	9/14 - 9/16	60	
					21	33	9/17 - 9/20	84	
					22	34	9/21 - 9/23	60	
					23	35	9/24 - 9/27	84	
					24	36	9/28 - 9/30	60	
					25	37	10/01 - 10/04	84	2-F-E-115-97 <sup>x</sup>
					26	38	10/05 - 10/07	60	2-F-E-116-97 <sup>y</sup>
					27	39	10/08 - 10/11	84	
					28	40	10/12 - 10/14	60	
					29	41	10/15 - 10/18	84	2-F-E-117-97 <sup>z</sup>

<sup>a</sup> The Esther Subdistrict, excluding the waters of the Noreneberg Hatchery Special Harvest Area (SHA) was open. In addition, waters of Coghill District between the Esther Subdistrict boundary in lower Esther Passage to markers located near Shoestring Cove at approximately 60° 50' 45" N. Lat. were opened.

<sup>b</sup> The Unakwik District season was opened to commercial fishing and a schedule of two 24-hour periods per week was established beginning June 19. The schedule was from 8:00 a.m. Monday until 8:00 a.m. Tuesday and from 8:00 p.m. Thursday until 8:00 p.m. Friday.

<sup>c</sup> The Esther Subdistrict, excluding the waters of the Terminal Harvest Areas (THA) and SHA opened for a 12-hour period. In addition, waters of Coghill District between the Esther Subdistrict boundary in lower Esther Passage to markers located near Shoestring Cove at approximately 60° 50' 45" N. Latitude.

<sup>d</sup> The general waters of the Coghill District south of a line at 61° 00' 00" N. Lat., excluding the waters of the Noerenberg Hatchery THA and SHA were open for a 24-hour period.

<sup>e</sup> This E.O. superseded E.O. No. 2-F-E-38-97 opening the waters of Noerenberg Hatchery THA.

<sup>f</sup> The general waters of the Coghill District south of a line at 61° 00' 00" N. Lat., excluding the waters of the Noerenberg Hatchery SHA were open for three 24-hour periods.

<sup>g</sup> This E.O. superseded E.O. No. 2-F-E-41-97 by opening all waters of Coghill District excluding the Noerenberg Hatchery SHA.

<sup>h</sup> All waters of the Coghill District excluding the SHA opened for a 36-hour period.

-Continued-

- <sup>i</sup> All waters of the Coghill District including the waters of Coghill Lagoon to the mouth of Coghill River were open for a 36-hour period. The waters of the Noerenberg Hatchery SHA remained closed.
- <sup>j</sup> All waters of the Coghill District excluding the Norenberg SHA were open to a schedule of two 36-hour periods per week.
- <sup>k</sup> The Unakwik District closed for the 1997 season effective 7:00 a.m. Tuesday July 22.
- <sup>l</sup> Expands the area in E.O. 2-F-E-54-97 to include WNH's SHA to a line of buoys near the barrier seine.
- <sup>m</sup> The general waters of the Coghill District north of Pt. Packenham opened to continuous fishing from 8:00 a.m. Sunday July 27, until further notice.
- <sup>n</sup> The waters of the Esther Subdistrict within one mile of the southern shore of Esther Island, excluding WNH's THA and SHA will open from 8:00 a.m. to 8:00 p.m., a 12-hour period.
- <sup>o</sup> The waters of the Esther Subdistrict within one mile of the southern shore of Esther Island, excluding WNH's THA and SHA will open to a daily schedule from 8:00 a.m. to 8:00 p.m.
- <sup>p</sup> The waters of the Coghill District north of Pt. Packenham closed at 8:00 p.m. Saturday, August 23.
- <sup>q</sup> Supersedes E.O.2-F-E-94-97 and closes the waters of the Coghill District north of Pt. Packenham at 8:00 p.m. Saturday, August 16.
- <sup>r</sup> The waters of the Esther Subdistrict east of Hodgkin Point and waters within one and one-half miles of of Esther Island were open from 8:00 a.m. to 8:00 p.m. a 12-hour period.
- <sup>s</sup> The waters of the Esther Subdistrict east of 147°57.62' W. Long., were open from 8:00 a.m. until 8:00 p.m.
- <sup>t</sup> The waters of the Esther Subdistrict including the WNH's THA and SHA to a line of buoys near the barrier seine, were open from 8:00 a.m. until 8:00 p.m.
- <sup>u</sup> The waters of the Esther Subdistrict including the WNH's THA and SHA to a line of buoys near the barrier seine, were open daily from 8:00 a.m. until 8:00 p.m. until further notice.
- <sup>v</sup> The waters of the Esther Subdistrict including the WNH's THA were open daily from 8:00 a.m. to 8:00 p.m.
- <sup>w</sup> The waters of the Esther Subdistrict including the WNH's THA and SHA to a line of buoys near the barrier seine, went on a schedule of a 60 and 84-hour period per week. Periods were from 8:00 a.m. Sunday until 8:00 p.m. Tuesday and from 8:00 a.m. Wednesday until 8:00 p.m. Saturday.
- <sup>x</sup> The Coghill District closed for the 1997 season effective 8:00 p.m. Saturday, October 4.
- <sup>y</sup> E.O. 2-F-E-115-97 was superseded and E.O. F-E-108-97 resumed.
- <sup>z</sup> The Coghill District closed for the 1997 season effective 8:00 p.m. Saturday, October 18.

Appendix D.1. Commercial salmon harvest by period in the Eshamy District drift gillnet and set gillnet fisheries, Prince William Sound, 1997.

Period	Date <sup>a</sup>	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
					Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds
<b>DRIFT GILLNET</b>														
1	06/30	24	160	383	6	89	130,339	865,389	1	8	24	92	13,315	108,950
2	07/03	24	195	366	3	34	65,187	422,328	3	18	171	622	8,423	70,523
3	07/07	24	113	263	2	31	50,520	327,345	0	0	281	1,174	4,773	38,412
4	07/10	24	89	156	4	57	28,047	172,254	33	212	2,474	8,993	5,500	43,241
5	07/14	24	61	100	0	0	22,963	141,246	1	9	200	784	509	4,134
6	07/17	24	81	149	0	0	30,071	192,943	15	123	867	3,220	665	5,014
7	07/21	24	101	149	2	24	16,476	106,453	4	25	2,953	10,800	456	3,846
8	07/24	24	78	159	0	0	29,230	188,831	29	213	10,596	37,848	303	2,387
9	07/28	24	117	225	0	0	29,867	194,698	22	177	14,230	52,378	279	2,171
10	07/31	24	119	188	0	0	21,787	130,007	10	77	21,830	83,382	379	3,103
11	08/04	24	106	169	0	0	16,414	103,014	4	36	19,690	70,480	32	261
12	08/11	24	58	103	0	0	13,628	88,264	15	113	15,270	59,323	29	269
13	08/18	36	78	168	0	0	11,799	73,266	41	327	26,258	101,643	36	269
14	08/21	24	46	86	0	0	4,023	24,369	70	520	12,628	49,560	12	103
15	08/25	24	57	88	0	0	3,612	21,660	127	1,092	13,261	53,155	47	346
16	08/28	24	24	33	0	0	1,535	9,133	51	417	5,591	21,355	10	76
Total		396	296	2,785	17	235	475,498	3,061,200	426	3,367	146,324	554,809	34,768	283,105
Average Weight					13.82		6.44		7.90		3.79		8.14	
<b>SET GILLNET</b>														
1	06/30	24	21	70	4	48	33,178	226,101	0	0	23	94	2,241	18,431
2	07/03	24	23	70	2	26	20,135	130,533	0	0	110	483	1,761	14,720
3	07/07	24	25	68	0	0	19,885	122,200	0	0	508	2,216	1,695	13,954
4	07/10	24	24	65	1	12	18,064	108,257	0	0	1,287	5,077	1,377	10,816
5	07/14	24	20	33	2	24	11,326	70,149	1	9	137	579	200	1,699
6	07/17	24	20	51	2	29	16,487	102,747	3	26	233	903	252	2,140
7	07/21	24	19	31	0	0	5,427	33,969	2	18	1,064	3,748	190	1,699
8	07/24	24	19	38	1	20	16,651	105,598	6	51	1,871	7,377	127	1,039
9	07/28	24	18	41	0	0	10,715	68,582	7	60	6,411	22,918	368	2,321
10	07/31	24	19	36	0	0	10,934	66,455	9	70	8,189	29,693	144	1,188
11	08/04	24	17	35	0	0	7,722	46,750	6	43	9,001	30,931	45	353
12	08/11	24	13	34	0	0	10,634	65,785	3	28	7,262	29,189	30	254
13	08/18	36	15	61	0	0	8,439	54,297	42	326	14,526	57,645	23	178
14	08/21	24	11	24	0	0	3,618	21,921	16	134	9,091	35,630	7	56
15	08/25	24	11	23	0	0	1,874	11,863	39	328	9,894	40,480	14	109
16	08/28	24	8	14	0	0	916	6,306	29	267	7,003	25,571	1	9
Total		396	26	694	12	159	196,005	1,241,513	163	1,360	76,610	292,534	8,475	68,966
Average Weight					13.25		6.33		8.34		3.82		8.14	
<b>COMBINED GEAR</b>														
1	06/30	24		453	10	137	163,517	1,091,490	1	8	47	186	15,556	127,381
2	07/03	24		436	5	60	85,322	552,861	3	18	281	1,105	10,184	85,243
3	07/07	24		331	2	31	70,405	449,545	0	0	789	3,390	6,468	52,366
4	07/10	24		221	5	69	46,111	280,511	33	212	3,761	14,070	6,877	54,057
5	07/14	24		133	2	24	34,289	211,395	2	18	337	1,363	709	5,833
6	07/17	24		200	2	29	46,558	295,690	18	149	1,100	4,123	917	7,154
7	07/21	24		180	2	24	21,903	140,422	6	43	4,017	14,548	646	5,545
8	07/24	24		197	1	20	45,881	294,429	35	264	12,467	45,225	430	3,426
9	07/28	24		266	0	0	40,582	263,280	29	237	20,641	75,296	647	4,492
10	07/31	24		224	0	0	32,721	196,462	19	147	30,019	113,075	523	4,291
11	08/04	24		204	0	0	24,136	149,764	10	79	28,691	101,411	77	614
12	08/11	24		137	0	0	24,262	154,049	18	141	22,532	88,512	59	523
13	08/18	36		229	0	0	20,238	127,563	83	653	40,784	159,288	59	447
14	08/21	24		110	0	0	7,641	46,290	86	654	21,719	85,190	19	159
15	08/25	24		111	0	0	5,486	33,523	166	1,420	23,155	93,635	61	455
16	08/28	24		47	0	0	2,451	15,439	80	684	12,594	46,926	11	85
Total		396		3,479	29	394	671,503	4,302,713	589	4,727	222,934	847,343	43,243	352,071
Average Weight					13.59		6.41		8.03		3.80		8.14	

<sup>a</sup> Starting date of period.

<sup>b</sup> For area and opening times refer to Appendix D.9.

Appendix D.2. Commercial salmon catch by species in the Eshamy District,  
Prince William Sound, 1983 - 1997.

CATCH BY SPECIES						
Year	Chinook	Sockeye	Coho	Pink	Chum	Total
<b>DRIFT GILLNET</b>						
1983	1	924	8	162,541	3,427	166,901
1984	7	23,490	282	247,326	15,451	286,556
1985	1	667	0	24,899	1,021	26,588
1986	0	4	1	938	65	1,008
1987	2	642	3	3,225	7,060	10,932
1988	94	50,868	794	348,873	206,060	606,689
1989 <sup>a</sup>						
1990	110	12,967	574	165,362	264,772	443,785
1991	107	296,234	468	44,516	202,183	543,508
1992	158	373,596	1,017	153,018	50,974	578,763
1993	8	80,807	673	45,974	27,045	154,507
1994	2	61,848	623	254,535	9,497	326,505
1995	21	29,851	1,468	60,712	13,284	105,336
1996	19	179,064	1,056	19,043	23,552	222,734
1997	17	475,498	426	146,324	34,768	657,033
<b>Ten Year</b>						
Average (1987-96)	58	120,653	742	121,695	89,381	332,529
<b>SET GILLNET</b>						
1983	1	1,328	10	167,942	4,463	173,744
1984	5	23,226	98	278,176	3,000	304,505
1985	1	3,439	74	33,284	1,295	38,093
1986	9	1,043	86	42,123	5,764	49,025
1987	31	5,387	336	86,677	45,099	137,530
1988	100	18,321	283	180,456	93,577	292,737
1989 <sup>a</sup>						
1990	56	10,204	532	369,589	94,494	474,875
1991	76	184,028	504	20,075	49,394	254,077
1992	101	144,568	1,242	390,097	4,695	540,703
1993	55	101,717	832	84,568	20,369	207,541
1994	9	97,664	628	311,134	6,908	416,343
1995	19	30,814	695	28,118	6,621	66,267
1996	13	132,268	309	16,648	9,276	158,514
1997	12	196,005	163	76,610	8,475	281,265
<b>Ten Year</b>						
Average (1987-96)	51	80,552	596	165,262	36,715	283,176
<b>COMBINED GEAR</b>						
1983	2	2,252	18	330,483	7,890	340,645
1984	12	46,716	380	525,502	18,451	591,061
1985	2	4,106	74	58,183	2,316	64,681
1986	9	1,047	87	43,061	5,829	50,033
1987	33	6,029	339	89,902	52,159	148,462
1988	194	69,189	1,077	529,329	299,637	899,426
1989 <sup>a</sup>						
1990	166	23,171	1,106	534,951	359,266	918,660
1991	183	480,262	972	64,591	251,577	797,585
1992	259	518,164	2,259	543,115	55,669	1,119,466
1993	63	182,524	1,505	130,542	47,414	362,048
1994	11	159,512	1,251	565,669	16,405	742,848
1995	40	60,665	2,163	88,830	19,905	171,603
1996	32	311,332	1,365	35,691	32,828	381,248
1997	29	671,503	589	222,934	43,243	938,298
<b>Ten Year</b>						
Average (1987-96)	109	201,205	1,337	286,958	126,096	615,705

<sup>a</sup> Fishing was closed due to oil contamination on the beaches.

Appendix D.3. Daily salmon escapement through the Eshamy weir, Prince William Sound, 1997.

Date	Sockeye <sup>a</sup>		Pink <sup>b</sup>		Chum		Coho		Chinook	
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
07/02	85	85	0	0	0	0	0	0	0	0
07/03	21	106	0	0	0	0	0	0	0	0
07/04	99	205	0	0	0	0	0	0	0	0
07/05	49	254	0	0	0	0	0	0	0	0
07/06	126	380	0	0	0	0	0	0	0	0
07/07	1	381	0	0	0	0	0	0	0	0
07/08	78	459	0	0	1	1	0	0	0	0
07/09	49	508	0	0	0	1	0	0	0	0
07/10	142	650	0	0	0	1	0	0	0	0
07/11	128	778	0	0	0	1	0	0	0	0
07/12	306	1,084	0	0	0	1	0	0	0	0
07/13	236	1,320	0	0	2	3	0	0	0	0
07/14	279	1,599	0	0	0	3	0	0	0	0
07/15	170	1,769	0	0	0	3	0	0	0	0
07/16	552	2,321	0	0	0	3	0	0	0	0
07/17	210	2,531	0	0	0	3	0	0	0	0
07/18	1,166	3,697	4	4	0	3	0	0	0	0
07/19	265	3,962	1	5	0	3	0	0	0	0
07/20	493	4,455	1	6	1	4	0	0	0	0
07/21	1,273	5,728	0	6	6	10	0	0	0	0
07/22	6	5,734	0	6	1	11	0	0	0	0
07/23	279	6,013	1	7	0	11	0	0	0	0
07/24	891	6,904	1	8	0	11	0	0	0	0
07/25	495	7,399	0	8	1	12	0	0	0	0
07/26	64	7,463	0	8	0	12	0	0	0	0
07/27	407	7,870	0	8	0	12	0	0	0	0
07/28	1,085	8,955	0	8	0	12	0	0	0	0
07/29	359	9,314	0	8	0	12	0	0	0	0
07/30	332	9,646	0	8	0	12	0	0	0	0
07/31	1,090	10,736	2	10	0	12	0	0	0	0
08/01	103	10,839	0	10	0	12	0	0	0	0
08/02	55	10,894	0	10	1	13	0	0	0	0
08/03	24	10,918	0	10	0	13	0	0	0	0
08/04	336	11,254	0	10	0	13	0	0	0	0
08/05	315	11,569	0	10	0	13	0	0	0	0
08/06	278	11,847	0	10	0	13	0	0	0	0
08/07	221	12,068	0	10	0	13	0	0	0	0
08/08	99	12,167	0	10	0	13	0	0	0	0
08/09	491	12,658	1	11	0	13	0	0	0	0
08/10	5,973	18,631	346	357	0	13	1	1	0	0
08/11	2,351	20,982	250	607	0	13	0	1	0	0
08/12	2,992	23,974	393	1,000	0	13	0	1	0	0
08/13	1,914	25,888	357	1,357	0	13	4	5	0	0
08/14	1,404	27,292	277	1,634	1	14	3	8	1	1
08/15	1,384	28,676	260	1,894	0	14	4	12	0	1
08/16	1,604	30,280	207	2,101	0	14	2	14	0	1
08/17	1,276	31,556	286	2,387	1	15	8	22	0	1
08/18	618	32,174	115	2,502	0	15	2	24	0	1
08/19	1,005	33,179	428	2,930	0	15	5	29	0	1
08/20	540	33,719	305	3,235	1	16	4	33	1	2

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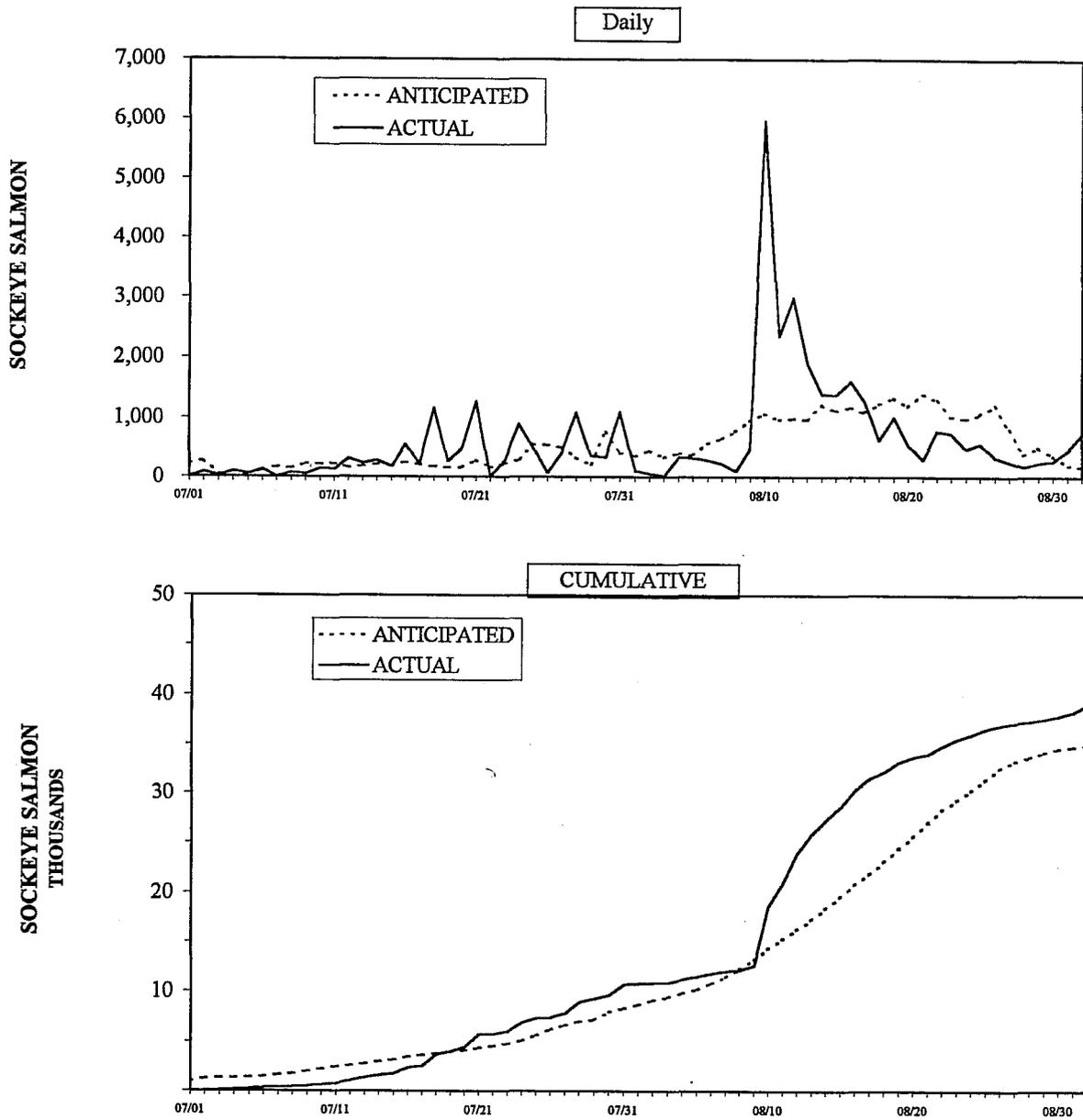
Appendix D.3. (page 2 of 2)

Date	Sockeye <sup>a</sup>		Pink <sup>b</sup>		Chum		Coho		Chinook	
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
08/21	291	34,010	153	3,388	1	17	0	33	0	2
08/22	779	34,789	677	4,065	1	18	3	36	0	2
08/23	740	35,529	646	4,711	0	18	9	45	0	2
08/24	477	36,006	690	5,401	0	18	1	46	0	2
08/25	565	36,571	665	6,066	0	18	11	57	0	2
08/26	331	36,902	954	7,020	0	18	0	57	0	2
08/27	250	37,152	913	7,933	0	18	1	58	0	2
08/28	173	37,325	929	8,862	0	18	1	59	0	2
08/29	240	37,565	1,193	10,055	0	18	4	63	0	2
08/30	273	37,838	1,427	11,482	0	18	0	63	0	2
08/31	454	38,292	2,360	13,842	0	18	14	77	0	2
09/01	723	39,015	1,300	15,142	0	18	34	111	0	2
Totals	39,015		15,142		18		111		2	

<sup>a</sup> Count includes 1,432 sockeye jacks.

<sup>b</sup> The weir is designed to prohibit passage of sockeye salmon, smaller pink salmon may pass through the weir uncounted.

# 1997 ESHAMY LAKE SOCKEYE ESCAPEMENT



Appendix D.4. Anticipated daily and cumulative sockeye salmon escapement versus actual escapement past the Eshamy River weir, 1997.

Appendix D.5. Salmon escapement by species at the Eshamy weir, Prince William Sound, 1967-97.

Year	Escapement by Species <sup>a</sup>					Total
	Chinook	Sockeye	Coho	Pink	Chum	
1967	0	10,821	192	10,433	1	21,447
1968	1	68,048	450	919	1	69,419
1969	0	61,196	96	3,095	2	64,389
1970	0	11,460	25	387	0	11,872
1971	0	954 <sup>b</sup>	97	3,179	0	4,230
1972 <sup>c</sup>		28,683				28,683
1973	0	10,202	205	1,698	0	12,105
1974 <sup>c</sup>		633				633
1975 <sup>c</sup>		1,724				1,724
1976 <sup>c</sup>		19,367				19,367
1977	0	11,746	230	32,080	0	44,056
1978	0	12,580	20	552	0	13,152
1979	0	12,169	5	3,654	1	15,829
1980	5	44,263	128	963	2	45,361
1981	1	23,048	249	5,956	13	29,267
1982	0	6,782	79	1,056	79	7,996
1983	0	10,348	40	7,047	4	17,439
1984	2	36,121	881	3,970	0	40,974
1985	0	26,178	96	6,271	0	32,545
1986	2	6,949	55	1,004	31	8,041
1987 <sup>d</sup>						
1988	2	31,747	48	1,205	1	33,003
1989	1	57,232	0	6,283	210	63,726
1990	0	14,477	43	2,209	5	16,734
1991	2	46,229	907	31,241	17	78,396
1992	1	36,237	52	3,004	5	39,299
1993	1	42,893	92	3,435	9	46,430
1994	1	64,660	1,184	12,061	87	77,993
1995	7	21,701	1,076	18,601	407	41,792
1996	2	5,271	108	7,959	9	13,349
1997	2	39,015	111	15,142	18	54,288
10 Year						
Average	2	35,605	390	9,555	83	45,636
(1987-1996)						

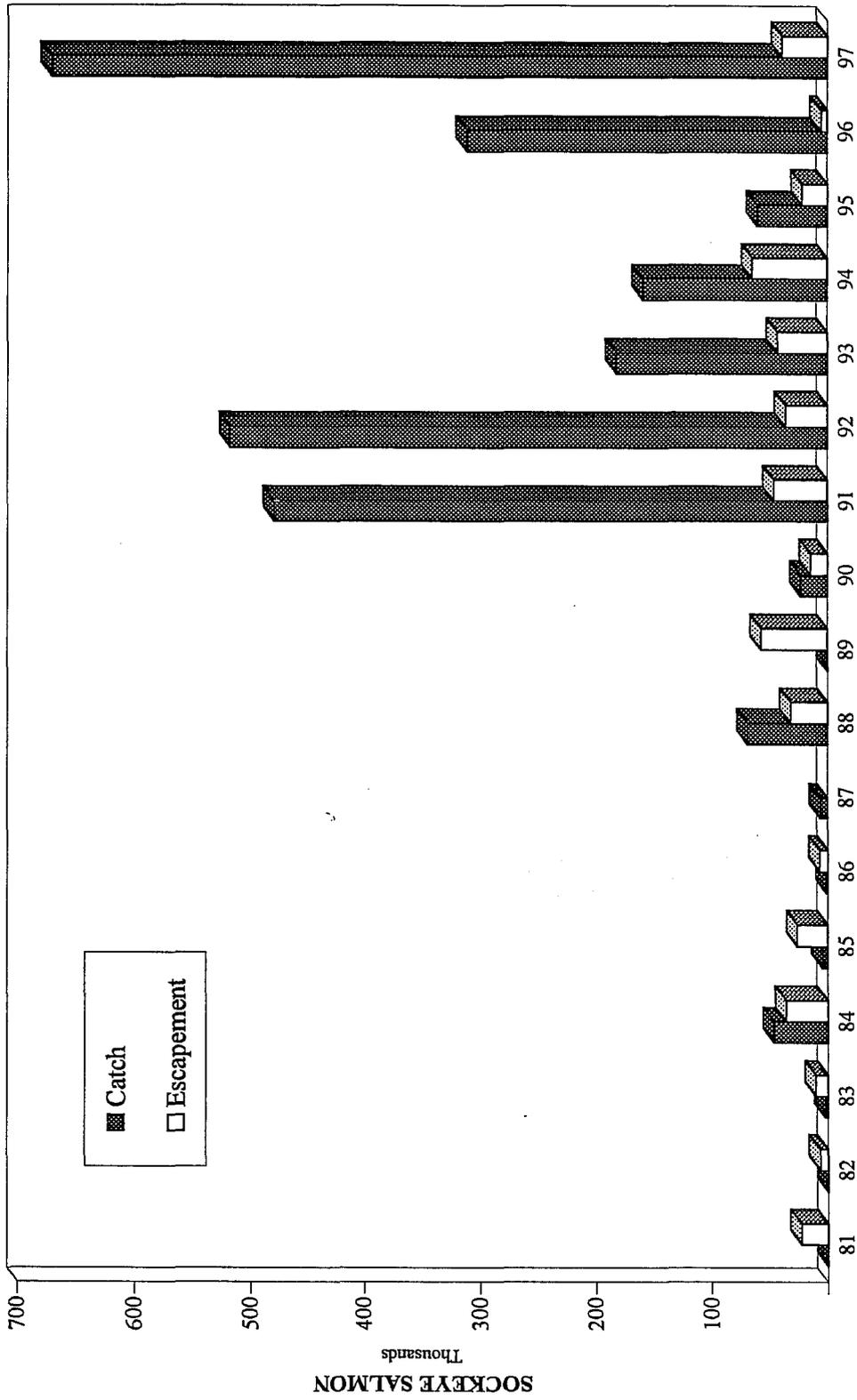
<sup>a</sup> For break down of jacks versus adult sockeye see specific year's daily escapement enumeration table.

<sup>b</sup> Enumeration low due to holes in weir. Actual escapement is estimated to be more than 3,000.

<sup>c</sup> Incidental passage of salmon other than sockeye was not recorded for each year.

<sup>d</sup> The Eshamy weir was not in operation during 1987.

**SOCKEYE SALMON CATCH AND ESCAPEMENT IN THE ESHAMY DISTRICT**



Appendix D.6. Sockeye salmon catch and escapement in the Eshamy District, Prince William Sound, 1981 - 97.

Appendix D.7. Temporally stratified age and sex composition of sockeye salmon harvested in the Eshamy District commercial common property gillnet fishery, 1997.

		Brood Year and Age Group <sup>a</sup>							Total
		1994	1993		1992		1991		
		0.2	0.3	1.2	2.1	1.3	2.2	2.3	
Stratum dates:	06/30 - 07/06								
Sampling dates:	07/01 - 07/01 <sup>b</sup>								
Sample size:	419								
Female	Percent of sample	0.0	0.0	27.2	0.0	13.1	0.0	0.0	40.3
	Number in catch	0	0	67,703	0	32,664	0	0	100,367
Male	Percent of sample	0.2	0.0	43.9	0.0	15.0	0.0	0.2	59.4
	Number in catch	594	0	109,275	0	37,415	0	594	147,878
Total	Percent of sample	0.2	0.0	71.4	0.0	28.2	0.0	0.2	100.0
	Number in catch	594	0	177,572	0	70,079	0	594	248,839
	Standard error	594	0	5,502	0	5,474	0	594	
Stratum dates:	07/07 - 07/12								
Sampling dates:	07/08 - 07/08 <sup>b</sup>								
Sample size:	402								
Female	Percent of sample	0.0	0.7	39.8	0.0	11.7	0.0	0.2	52.5
	Number in catch	0	870	46,375	0	13,623	0	290	61,156
Male	Percent of sample	0.2	0.0	36.3	0.0	10.2	0.2	0.5	47.5
	Number in catch	290	0	42,317	0	11,883	290	580	55,360
Total	Percent of sample	0.2	0.7	76.1	0.0	21.9	0.2	0.7	100.0
	Number in catch	290	870	88,691	0	25,506	290	870	116,516
	Standard error	290	501	2,481	0	2,406	290	501	
Stratum dates:	07/13 - 07/19								
Sampling dates:	07/15 - 07/15 <sup>c</sup>								
Sample size:	381								
Female	Percent of sample	0.0	0.0	60.6	0.3	6.8	0.5	0.0	68.2
	Number in catch	0	0	49,017	212	5,517	424	0	55,171
Male	Percent of sample	0.0	0.0	24.9	0.0	6.8	0.0	0.0	31.8
	Number in catch	0	0	20,159	0	5,517	0	0	25,676
Total	Percent of sample	0.0	0.0	85.6	0.3	13.6	0.5	0.0	100.0
	Number in catch	0	0	69,176	212	11,034	424	0	80,847
	Standard error	0	0	1,458	212	1,424	300	0	
Stratum dates:	07/20 - 07/26								
Sampling dates:	07/23 - 07/23 <sup>c</sup>								
Sample size:	363								
Female	Percent of sample	0.0	0.0	53.7	0.0	5.0	0.0	0.0	58.7
	Number in catch	0	0	36,413	0	3,361	0	0	39,774
Male	Percent of sample	0.0	0.0	31.4	0.0	9.6	0.0	0.0	41.0
	Number in catch	0	0	21,288	0	6,536	0	0	27,823
Total	Percent of sample	0.0	0.0	85.1	0.0	14.9	0.0	0.0	100.0
	Number in catch	0	0	57,700	0	10,084	0	0	67,784
	Standard error	0	0	1,268	0	1,268	0	0	

		Brood Year and Age Group <sup>a</sup>							Total
		1994	1993			1992		1991	
		0.2	0.3	1.2	2.1	1.3	2.2	2.3	
Stratum dates:	07/27 - 08/29								
Sampling dates:	08/02 - 08/02 <sup>c</sup>								
Sample size:	363								
Female	Percent of sample	0.0	0.0	48.8	0.0	6.1	0.0	0.0	54.8
	Number in catch	0	0	76,806	0	9,546	0	0	86,352
Male	Percent of sample	0.0	0.0	39.9	0.0	5.2	0.0	0.0	45.2
	Number in catch	0	0	62,920	0	8,245	0	0	71,165
Total	Percent of sample	0.0	0.0	88.7	0.0	11.3	0.0	0.0	100.0
	Number in catch	0	0	139,726	0	17,791	0	0	157,517
	Standard error	0	0	2,621	0	2,621	0	0	
<hr/>									
Strata Combined:	06/30 - 08/29								
Sampling dates:	07/01 - 08/02								
Sample size:	1,928								
Female	Percent of sample	0.0	0.1	41.1	0.0	9.6	0.1	0.0	51.1
	Number in catch	0	870	276,314	212	64,711	424	290	342,821
Male	Percent of sample	0.1	0.0	38.1	0.0	10.4	0.0	0.2	48.8
	Number in catch	884	0	255,958	0	69,596	290	1,174	327,901
Total	Percent of sample	0.1	0.1	79.4	0.0	20.0	0.1	0.2	100.0
	Number in catch	884	870	532,866	212	134,494	714	1,463	671,503
	Standard error	661	501	6,858	212	6,801	417	777	

<sup>a</sup> The samples combined contain a total of 160 resorbed scales which are not included in the age summary.

<sup>b</sup> Eshamy District.

<sup>c</sup> Main Bay Subdistrict only.

Appendix D.8. Temporally stratified age and sex composition of the sockeye salmon escapement through the Eshamy River weir, 1997.

		Brood Year and Age Group							Total
		1994	1993		1992		1991		
		1.1	1.2	2.1	1.3	2.2	1.4	2.3	
Stratum dates: 07/02 - 07/24									
Sampling dates: 07/12 - 07/13									
Sample size: 456									
Female	Percent of sample	0.0	48.7	0.0	2.6	8.8	0.0	0.4	60.5
	Number in escapement	0	3,361	0	182	606	0	30	4,179
Male	Percent of sample	2.0	30.9	0.0	1.3	5.0	0.0	0.2	39.5
	Number in escapement	136	2,135	0	91	348	0	15	2,725
Total	Percent of sample	2.0	79.6	0.0	3.9	13.8	0.0	0.7	100.0
	Number in escapement	136	5,496	0	273	954	0	45	6,904
	Standard error	45	130	0	63	112	0	26	
Stratum dates: 07/25 - 08/09									
Sampling dates: 08/04 - 08/05									
Sample size: 460									
Female	Percent of sample	0.0	41.1	0.0	1.3	7.2	0.0	0.0	49.6
	Number in escapement	0	2,364	0	75	413	0	0	2,852
Male	Percent of sample	3.7	36.1	3.9	0.9	5.7	0.2	0.0	50.4
	Number in escapement	213	2,076	225	50	325	13	0	2,902
Total	Percent of sample	3.7	77.2	3.9	2.2	12.8	0.2	0.0	100.0
	Number in escapement	213	4,441	225	125	738	13	0	5,754
	Standard error	51	113	52	39	90	13	0	
Stratum dates: 08/10 - 09/01									
Sampling dates: 08/18 - 08/18									
Sample size: 450									
Female	Percent of sample	0.0	44.9	0.0	0.0	7.1	0.0	0.0	52.0
	Number in escapement	0	11,831	0	0	1,874	0	0	13,706
Male	Percent of sample	1.8	32.4	6.9	0.9	5.8	0.0	0.2	48.0
	Number in escapement	469	8,551	1,816	234	1,523	0	59	12,651
Total	Percent of sample	1.8	77.3	6.9	0.9	12.9	0.0	0.2	100.0
	Number in escapement	469	20,383	1,816	234	3,397	0	59	26,357
	Standard error	164	521	315	117	417	0	59	
Strata Combined: 07/02 - 09/01									
Sampling dates: 07/12 - 08/18									
Sample size: 1,366									
Female	Percent of sample	0.0	45.0	0.0	0.7	7.4	0.0	0.1	53.1
	Number in escapement	0	17,557	0	257	2,893	0	30	20,736
Male	Percent of sample	2.1	32.7	5.2	1.0	5.6	0.0	0.2	46.9
	Number in escapement	817	12,763	2,041	375	2,196	13	74	18,279
Total	Percent of sample	2.1	77.7	5.2	1.6	13.0	0.0	0.3	100.0
	Number in escapement	817	30,319	2,041	632	5,089	13	104	39,015
	Standard error	178	549	319	138	441	13	64	

Appendix D.9. Summary of periods, dates, hours open, and emergency orders issued for the commercial salmon fisheries in the Eshamy District, Prince William Sound, 1997.

Main Bay Subdistrict (225-21)			Crafton Island Subdistrict (225-10, 20, 30)			Emergency Orders Issued
Periods	Dates	Hours Open	Periods	Dates	Hours Open	
1	6/30 - 7/01	24	1	6/30 - 7/01	24	2-F-E-42-97 <sup>a</sup>
2	7/03 - 7/04	24	2	7/03 - 7/04	24	2-F-E-44-97 <sup>b</sup>
3	7/07 - 7/08	24	3	7/07 - 7/08	24	2-F-E-45-97 <sup>c</sup>
4	7/10 - 7/11	24	4	7/10 - 7/11	24	2-F-E-50-97
5	7/14 - 7/15	24				2-F-E-54-97 <sup>d</sup>
6	7/17 - 7/18	24				2-F-E-56-97
7	7/21 - 7/22	24				2-F-E-62-97
8	7/24 - 7/25	24				2-F-E-65-97
9	7/28 - 7/29	24				2-F-E-70-97
9	7/31 - 8/01	24				2-F-E-71-97
10	8/04 - 8/05	24				2-F-E-73-97
11	8/11 - 8/12	24				2-F-E-75-97
12	8/18 - 8/19	36				2-F-E-96-97
13	8/21 - 8/22	24				2-F-E-99-97
14	8/25 - 8/26	24	5	8/25 - 8/26	24	2-F-E-102-97 <sup>e</sup>
15	8/28 - 8/29	24	6	8/28 - 8/29	24	2-F-E-106-97 <sup>f</sup>

<sup>a</sup> The Eshamy District opened for the season to commercial fishing. The area open included all waters of the Eshamy District excluding Eshamy Lagoon. The Alternating Gear Zone (AGZ) was open to set gillnet gear for the first period and alternated between set and drift gillnet gear with each period. Fishing periods, unless otherwise specified, began at 8:00 a.m. Monday's and 8:00 p.m. Thursday's.

<sup>b</sup> Same area as E.O 2-F-E-42-97 except, the AGZ was closed.

<sup>c</sup> The AGZ was open to drift gillnet gear. Unless specified, the AGZ was open to commercial fishing alternating between drift and set gillnet gear.

<sup>d</sup> Only the waters of the Main Bay Subdistrict including the AGZ were open to commercial fishing.

<sup>e</sup> All waters in the Eshamy District excluding Eshamy Lagoon were open.

<sup>f</sup> In addition to Eshamy Lagoon, the AGZ and the Terminal Harvest Area within the Main Bay Subdistrict were closed to commercial fishing. Also, the Eshamy District closed for the season effective at 8:00 p.m. Friday, August 29.

Appendix E.1. Prince William Sound commercial purse seine salmon harvest by day, 1997.

Catch Date	Chinook				Sockeye		Coho		Pink		Chum	
	Permits	Landings	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds
06/09 <sup>a</sup>	1	1	0	0	0	0	0	0	0	0	48	417
06/17 <sup>a</sup>	2	2	46	888	70	494	14	84	120	374	1,334	11,480
06/18 <sup>a</sup>	1	1	0	0	21	135	0	0	0	0	1,348	13,080
06/19 <sup>b</sup>	1	1	0	0	0	0	0	0	0	0	580	5,772
06/20 <sup>b</sup>	1	1	0	0	0	0	0	0	0	0	292	2,840
06/22 <sup>a</sup>	3	3	0	0	11	77	0	0	0	0	9,781	88,040
06/23 <sup>b</sup>	7	7	13	241	86	515	46	271	503	1,860	8,250	73,552
06/25 <sup>a</sup>	6	8	0	0	2	12	0	0	0	0	12,524	109,578
06/26 <sup>b</sup>	9	11	4	82	13	80	0	0	83	300	4,844	40,522
06/27 <sup>b</sup>	8	8	24	484	64	387	5	30	412	1,216	4,427	33,914
06/28 <sup>a</sup>	7	7	6	149	0	0	0	0	0	0	8,799	77,370
06/29 <sup>a</sup>	1	1	1	20	0	0	0	0	0	0	720	6,487
06/30 <sup>b</sup>	8	10	0	0	3	13	0	0	53	202	17,009	139,743
07/01 <sup>b</sup>	6	6	0	0	2	8	0	0	24	88	8,935	80,251
07/02 <sup>a</sup>	5	5	0	0	11	59	3	17	163	578	12,136	109,217
07/03 <sup>c</sup>	59	86	9	114	490	3,007	37	221	594,836	2,367,272	11,483	100,179
07/04 <sup>b</sup>	7	8	0	0	0	0	2	13	140	561	19,732	157,053
07/05 <sup>a</sup>	4	4	2	52	7	45	4	30	132	524	7,340	60,238
07/06 <sup>a</sup>	7	10	0	0	2	11	1	7	85	332	12,262	94,056
07/07 <sup>c</sup>	65	108	4	54	588	3,721	28	175	741,328	2,965,553	9,889	81,168
07/08 <sup>b</sup>	2	2	0	0	0	0	1	6	82	326	3,268	28,065
07/09 <sup>a</sup>	6	6	0	0	0	0	0	0	3	14	8,712	64,012
07/10 <sup>b</sup>	2	2	0	0	0	0	0	0	17	71	4,146	29,027
07/11 <sup>b</sup>	2	2	0	0	0	0	0	0	42	178	7,101	53,342
07/12 <sup>d</sup>	71	89	9	117	426	2,718	25	165	467,991	1,876,559	16,714	143,836
07/13 <sup>a</sup>	1	1	0	0	0	0	0	0	105	420	3,612	32,507
07/14 <sup>b</sup>	2	2	0	0	0	0	0	0	868	3,472	6,744	60,662
07/15 <sup>c</sup>	67	90	7	135	503	3,163	389	2,855	483,041	1,917,753	52,587	460,482
07/17 <sup>c</sup>	69	80	2	17	336	2,206	225	1,556	371,089	1,485,538	25,251	216,071
07/19 <sup>d</sup>	63	72	6	81	366	2,323	379	2,605	353,527	1,398,697	37,862	312,295
07/21 <sup>e</sup>	62	70	8	164	897	5,645	404	2,755	243,665	952,555	41,382	335,758
07/22 <sup>f</sup>	8	8	4	26	447	2,900	7	55	21,056	76,227	7,173	55,496
07/23 <sup>g</sup>	54	61	8	122	392	2,498	491	3,310	267,630	990,295	19,769	163,778
07/24 <sup>h</sup>	1	1	0	0	0	0	0	0	4,216	18,130	1,120	10,088
07/25 <sup>i</sup>	53	62	7	73	1,097	6,975	248	1,698	362,017	1,344,982	18,463	151,393
07/26 <sup>h</sup>	7	7	0	0	129	885	0	0	32,958	121,071	1,584	12,239
07/27 <sup>j</sup>	28	30	4	35	344	2,318	197	1,299	112,068	419,597	13,785	121,824
07/28 <sup>k</sup>	63	81	12	165	2,923	18,062	635	4,151	430,473	1,654,667	11,117	97,928
07/30 <sup>l</sup>	1	1	0	0	236	1,300	0	0	13,646	44,350	95	728
07/31 <sup>m</sup>	1	1	0	0	0	0	0	0	92	275	788	7,094
08/01 <sup>m</sup>	1	1	0	0	150	825	2	11	12,442	40,439	12	92
08/04 <sup>n</sup>	1	1	0	0	52	306	1	8	13,650	44,389	4	36
08/05 <sup>o</sup>	3	3	0	0	21	132	2	11	75,717	287,968	46	397
08/06 <sup>p</sup>	35	80	0	0	111	723	177	1,431	740,846	2,667,373	33,770	288,842
08/07 <sup>q</sup>	74	107	1	20	1,074	6,575	142	1,038	716,715	2,639,349	15,696	145,060
08/08 <sup>r</sup>	84	106	1	10	2,081	13,141	310	2,449	478,799	1,771,770	33,491	316,400
08/09 <sup>s</sup>	91	120	2	41	2,270	13,207	1,076	7,594	811,427	2,901,346	18,458	162,051
08/10 <sup>t</sup>	52	63	1	19	1,326	7,938	1,926	14,399	474,012	1,717,146	16,203	135,259
08/11 <sup>u</sup>	63	64	1	15	96	618	1,456	11,584	156,569	569,938	17,080	155,605
08/12 <sup>v</sup>	30	31	2	21	53	353	1,878	13,604	59,993	210,295	21,764	184,642
08/13 <sup>w</sup>	59	62	3	44	280	1,671	2,468	17,161	188,487	681,354	16,318	134,364
08/14 <sup>x</sup>	42	44	4	73	171	1,046	5,902	44,644	95,659	330,000	30,719	273,575
08/15 <sup>y</sup>	92	132	5	44	1,171	7,323	1,972	15,112	919,324	3,212,242	13,819	122,887
08/16 <sup>z</sup>	86	105	3	72	1,826	11,389	1,812	14,300	678,196	2,314,105	4,769	39,842
08/17 <sup>aa</sup>	17	18	0	0	47	254	1,888	14,244	39,267	150,428	3,339	28,117
08/18 <sup>aa</sup>	25	25	2	12	79	472	4,912	39,466	70,911	236,039	5,617	48,201
08/19 <sup>aa</sup>	33	33	2	9	75	411	4,620	37,195	48,613	167,225	4,148	35,764

-continued-

Appendix E.1. (continued)

Catch Date	Chinook				Sockeye		Coho		Pink		Chum	
	Permits	Landings	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds
08/20 <sup>aa</sup>	16	16	0	0	23	142	3,069	24,371	22,763	74,385	3,552	30,280
08/21 <sup>bb</sup>	82	113	0	0	1,857	10,991	1,437	11,293	874,529	3,076,511	1,930	14,270
08/22 <sup>cc</sup>	80	114	0	0	1,945	11,879	1,549	11,920	1,061,976	3,609,385	1,061	7,708
08/23 <sup>dd</sup>	75	95	0	0	1,516	9,265	1,421	11,678	723,476	2,443,422	667	5,490
08/24 <sup>cc</sup>	72	83	0	0	864	5,559	2,443	17,340	554,784	1,957,021	1,632	13,029
08/25 <sup>ff</sup>	49	54	0	0	591	3,645	141	1,092	348,962	1,205,830	68	545
08/26 <sup>ff</sup>	37	45	0	0	590	3,540	1,177	8,955	275,456	936,826	1,214	11,265
08/27 <sup>cc</sup>	20	24	0	0	301	1,954	396	2,866	201,574	722,565	96	668
08/28 <sup>gg</sup>	16	19	0	0	212	1,349	136	1,317	180,626	659,019	67	626
08/29 <sup>gg</sup>	16	19	0	0	131	805	387	2,496	143,662	530,800	90	740
08/30 <sup>gg</sup>	10	0	0	233	1,498	128	977	85,152	291,122	31	218	218
08/31 <sup>hh</sup>	4	6	0	0	73	481	115	1,060	114,475	407,062	19	177
09/01 <sup>ii</sup>	3	5	0	0	55	300	386	2,699	108,457	350,952	57	396
09/02 <sup>jj</sup>	26	27	1	23	55	326	4,595	37,545	161,040	577,898	679	5,693
09/03 <sup>ii</sup>	2	2	0	0	0	0	0	0	16,679	58,377	0	0
09/04 <sup>ii</sup>	7	12	0	0	13	85	72	719	234,786	789,497	7	69
09/05 <sup>ii</sup>	3	3	0	0	7	40	0	0	30,684	94,169	0	0
09/06 <sup>ii</sup>	4	5	0	0	29	190	145	1,445	169,298	609,060	14	139
09/07 <sup>ii</sup>	2	2	0	0	8	42	76	488	22,202	77,708	2	10
09/08 <sup>ii</sup>	2	2	0	0	0	0	0	0	47,253	149,616	0	0
09/09 <sup>ii</sup>	1	1	0	0	0	0	194	1,557	20,446	61,338	0	0
09/10 <sup>ii</sup>	1	2	0	0	0	0	50	400	17,543	58,874	0	0
09/11 <sup>ii</sup>	2	2	0	0	0	0	0	0	22,140	77,491	0	0
09/12 <sup>kk</sup>	5	5	0	0	39	231	2,558	16,382	0	0	589	4,778
09/13 <sup>ll</sup>	1	1	0	0	2	10	521	4,165	0	0	14	114
09/14 <sup>mm</sup>	1	1	0	0	0	0	539	3,501	0	0	33	265
09/18 <sup>nn</sup>	1	1	0	0	0	0	0	0	37,054	111,162	0	0
09/20 <sup>nn</sup>	1	1	0	0	0	0	0	0	37,386	112,157	0	0
Total	114	2,621	204	3,422	28,893	178,273	55,220	419,820	15,595,495	56,627,690	680,081	5,809,196
Average Weight				16.77		6.17		7.60		3.63		8.54

<sup>a</sup> Within the Montague District, the Port Chalmers Subdistrict was open. Anadromous stream closures were not in effect.

<sup>b</sup> Within the Montague District, the Port Chalmers Subdistrict was open. Anadromous stream closures were not in effect. The Unakwik District was also open.

<sup>c</sup> The Port Chalmers Subdistrict was open. Anadromous stream closures were not in effect. The Eastern District was open except for the Valdez Narrows Subdistrict east of 146° 30.62' W. longitude and waters of Jack Bay east of a line from Entrance Point to the yellow regulatory marker on Tongue Point. The Unakwik District was also open.

<sup>d</sup> The Port Chalmers Subdistrict was open. Anadromous stream closures were not in effect. The Eastern District was open except for the Valdez Narrows Subdistrict east of 146° 30.62' W. longitude and waters of Jack Bay east of a line from Entrance Point to the yellow regulatory marker on Tongue Point.

<sup>e</sup> The Port Chalmers Subdistrict was open. Anadromous stream closures were not in effect. The Valdez Narrows Subdistrict inside a line from Potato Point to Entrance Point and west of 146° 30.62' W. longitude was open along with the Eastern District south of the latitude of Black Point. The Coghill District including the Noerenberg Hatchery SHA to a line of buoys near the barrier seine was open. The Southeastern District and the Unakwik district were open.

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## Appendix E. I. (Continued)

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- <sup>f</sup> The Coghill District including the Noerenberg Hatchery SHA to a line of buoys near the barrier seine was open. Open waters included the Unakwik District. The Unakwik District closed for the season July 22
- <sup>g</sup> Open waters within the Eastern District included the Valdez Narrows Subdistrict inside a line from Potato Point to Entrance Point and west of 146° 30.62' W. longitude. Eastern District waters south of the latitude of Black Point were also open. The Southeastern District was open.
- <sup>h</sup> The Coghill District including the Noerenberg Hatchery SHA to a line of buoys near the barrier seine was open.
- <sup>i</sup> Open waters within the Eastern District included the Valdez Narrows Subdistrict inside a line from Potato Point to Entrance Point and west of 146° 30.62' W. longitude. Eastern District waters south of the latitude of Black Point were also open. Open waters included the entire Coghill District and the Noerenberg Hatchery SHA to a line of buoys near the barrier seine. The Southeastern District was open.
- <sup>j</sup> Open waters included the Valdez Narrows Subdistrict west of 146° 30.62' W. longitude and inside of a line from Entrance Point to Potato Point. Within the Coghill District, waters north of Point Pakenham were open.
- <sup>k</sup> Open waters included the Valdez Narrows Subdistrict west of 146° 30.62' W. longitude and inside of a line from Entrance Point to Potato Point. Waters south of Black Point were opened for 12-hours. Within the Coghill District, waters north of Point Pakenham and waters of the Esther Subdistrict within one mile of Esther island, excluding the Noerenberg Hatchery THA and SHA, were open. Open waters in the Northern District included Unakwik Inlet north of 60° 54.42' N. latitude. The Cannery Creek Hatchery Terminal Harvest Area (THA) and SHA were also open. Waters of Siwash and Jonah Bays inside the yellow regulatory markers remained closed. Within the Southwestern District, only the waters of the Point Elrington Subdistrict were open. The entire Southeastern District was open.
- <sup>l</sup> Open waters included the Valdez Narrows Subdistrict west of 146° 30.62' W. longitude and inside of a line from Entrance Point to Potato Point. Waters south of Black Point were open. Open waters in the Northern District included Unakwik Inlet north of 60° 54.42' N. latitude. The Cannery Creek Hatchery THA and SHA were not open. Waters of Siwash and Jonah Bays inside the yellow regulatory markers were closed. Within the Coghill District, waters north of Point Pakenham and waters of the Esther Subdistrict within one mile of Esther Island, excluding the Noerenberg Hatchery THA and SHA, were open. Waters of the Port San Juan Subdistrict were open. The AFK Hatchery THA and SHA were not open. Open waters included the entire Southeastern District.
- <sup>m</sup> Open waters included the Valdez Narrows Subdistrict west of 146° 30.62' W. longitude and inside of a line from Entrance Point to Potato Point. Waters south of Black Point were open. Open waters included Unakwik Inlet north of 60° 54.42' N. latitude and south of 60° 58.26' N. latitude. Waters of Siwash Bay inside the yellow regulatory markers remained closed. Within the Coghill District, waters north of Point Pakenham and waters of the Esther Subdistrict within one mile of Esther Island, excluding the Noerenberg Hatchery THA and SHA, were open. Waters of the Port San Juan Subdistrict were open. The AFK Hatchery THA and SHA were not open. Open waters included the entire Southeastern District.
- <sup>n</sup> Open waters included the Valdez Narrows Subdistrict west of 146° 30.62' W. longitude and inside of a line from Entrance Point to Potato Point. Waters south of Black Point were open. Open waters included Unakwik Inlet north of 60° 54.42' N. latitude and south of 60° 58.26' N. latitude. Waters of Siwash Bay inside the yellow regulatory markers remained closed. Within the Coghill District, waters north of Point Pakenham and waters of the Esther Subdistrict within one mile of Esther Island, excluding the Noerenberg Hatchery THA and SHA, were open. Waters of the Port San Juan Subdistrict including the AFK Hatchery THA were open. The AFK Hatchery SHA was not open. Open waters included the entire Southeastern District.
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## Appendix E. I. (Continued)

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<sup>o</sup> Open waters included the Valdez Narrows Subdistrict west of 146° 30.62' W. longitude and inside of a line from Entrance Point to Potato Point. Waters south of Black Point were open.

Open waters included Unakwik Inlet north of 60° 54.42' N. latitude and south of 60° 58.26' N. latitude. Waters of Siwash Bay inside the yellow regulatory markers remained closed.

Within the Coghill District, waters north of Point Pakenham and waters of the Esther Subdistrict within one mile of Esther Island, excluding the Noerenberg Hatchery THA and SHA were open.

Waters of the Port San Juan Subdistrict including the AFK Hatchery THA and SHA, were open.

Open waters included the entire Southeastern District. All anadromous salmon stream closures remained in effect.

<sup>p</sup> Open waters included the Valdez Narrows Subdistrict inside of a line from Potato Point to Entrance point and west of 146° 22.67' W. longitude. Waters south of the latitude of Black Point were also open.

Open waters included Unakwik Inlet north of 60° 54.42' N. latitude and south of 60° 58.26' N. latitude. Waters of Siwash Bay inside the yellow regulatory markers remained closed.

Within the Coghill District, waters north of Point Pakenham and waters of the Esther Subdistrict within one mile of Esther Island, excluding the Noerenberg Hatchery THA and SHA were open.

Waters of the Port San Juan Subdistrict including the AFK Hatchery THA and SHA, were open.

Open waters also included the entire Southeastern District.

<sup>q</sup> Open waters included the Valdez Narrows Subdistrict inside of a line from Potato Point to Entrance point and west of 146° 22.67' W. longitude. Waters south of the latitude of Black Point were also open.

Open waters included Unakwik Inlet north of 60° 54.42' N. latitude and south of 60° 58.26' N. latitude. Waters of Siwash Bay inside the yellow regulatory markers remained closed.

Within the Coghill District, waters north of Point Pakenham and waters of the Esther Subdistrict within one mile of Esther Island, excluding the Noerenberg Hatchery THA and SHA were open.

Waters of the Port San Juan Subdistrict including the AFK Hatchery THA were open. The AFK Hatchery SHA was not open.

Open waters also included the entire Southeastern District.

<sup>r</sup> Open waters included the Valdez Narrows Subdistrict inside of a line from Potato Point to Entrance point and west of 146° 22.67' W. longitude. Waters south of the latitude of Black Point were also open.

Within the Coghill District, waters north of Point Pakenham and waters of the Esther Subdistrict within one mile of Esther Island, excluding the Noerenberg Hatchery THA and SHA were open.

Waters of the Port San Juan Subdistrict including the AFK Hatchery THA were open. The AFK Hatchery SHA was not open.

Open waters also included the entire Southeastern District.

<sup>s</sup> Open waters included the Valdez Narrows Subdistrict inside of a line from Potato Point to Entrance point and west of 146° 22.67' W. longitude. Waters south of the latitude of Black Point were also open.

Open waters within the Northern District included those of Unakwik Inlet north of 60° 54.42' N. latitude and south of 60° 58.26' N. latitude. Waters of Siwash Bay inside of the yellow regulatory markers remained closed. The waters of Hidden Bay on Culross Island west of 148° 06.5' W. longitude were also open. Anadromous stream closures inside Hidden Bay were not in effect.

Within the Southwestern District, only the waters of the Port San Juan Subdistrict were open. The AFK Hatchery THA and SHA were not open.

Open waters also included the entire Southeastern District.

<sup>t</sup> Open waters included the Valdez Narrows Subdistrict inside of a line from Potato Point to Entrance point and west of 146° 22.67' W. longitude. Waters south of the latitude of Black Point were also open.

Within the Northern District, only the waters of Hidden Bay on Culross Island west of 148° 06.5' W. longitude were open. Anadromous salmon stream closures inside Hidden Bay were not in effect.

Within the Southwestern District, only the waters of the Port San Juan Subdistrict were open. The AFK Hatchery THA and SHA were not open. Open waters also included the entire Southeastern District.

<sup>u</sup> Open waters included the Valdez Narrows Subdistrict inside of a line from Potato Point to Entrance point and west of 146° 22.67' W. longitude. Waters south of the latitude of Black Point were also open.

Open waters included Unakwik Inlet north of 60° 54.42' N. latitude and south of 60° 58.26' N. latitude. Waters of Siwash Bay inside of the yellow regulatory markers remained closed.

The Southeastern and Montague Districts were open.

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## Appendix E.1. (Continued)

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- <sup>v</sup> Open waters included the Valdez Narrows Subdistrict inside of a line from Potato Point to Entrance point and west of 146° 22.67' W. longitude. Waters south of the latitude of Black Point were also open. The Southeastern and Montague Districts were open.
- <sup>w</sup> Open waters included the Valdez Narrows Subdistrict inside of a line from Potato Point to Entrance point and west of 146° 22.67' W. longitude. Waters south of the latitude of Black Point were also open.  
Within the Northern District, only the waters of Hidden Bay on Culross Island west of 148° 06.5' W. longitude were open.  
Anadromous salmon stream closures inside Hidden Bay were not in effect.  
The Southeastern and Montague Districts were open.
- <sup>x</sup> Open waters included the Valdez Narrows Subdistrict inside of a line from Potato Point to Entrance point and west of 146° 22.67' W. longitude. Waters south of the latitude of Black Point were also open.  
The entire Montague District was open. All anadromous salmon stream closures remained in effect.  
Open waters included the entire Southeastern District. All anadromous salmon stream closures remained in effect.
- <sup>y</sup> Within the Eastern District, waters south of a line from Potato Point to Entrance Point were open. Waters of Port Valdez inside the Potato Point to Entrance Point line were not open. The waters of Jack and Galena Bays inside of the yellow regulatory markers were closed.  
Waters of the Esther Subdistrict east of Hodgkins Point within one and one-half miles of Esther Island were open.  
Waters of the Port San Juan Subdistrict, including the AFK Hatchery SHA and THA, were open.  
The Southeastern and Montague Districts were open.
- <sup>z</sup> Within the Eastern District, waters south of a line from Potato Point to Entrance Point were open. Waters of Port Valdez inside the Potato Point to Entrance Point line were not open. The waters of Jack and Galena Bays inside of the yellow regulatory markers were closed.  
Waters of the Esther Subdistrict east of Hodgkins Point were open.  
Only the waters of the Point Elrington Subdistrict were open.  
The Southeastern and Montague Districts were open.
- <sup>aa</sup> Within the Eastern District, waters south of a line from Potato Point to Entrance Point were open. Waters of Port Valdez inside the Potato Point to Entrance Point line were not open. The waters of Jack and Galena Bays inside of the yellow regulatory markers were closed.  
The Southeastern and Montague Districts were open.
- <sup>bb</sup> Within the Eastern District, waters south of a line from Potato Point to Entrance Point were open. Waters of Port Valdez inside the Potato Point to Entrance Point line were not open. The waters of Jack and Galena Bays inside of the yellow regulatory markers were closed.  
Open waters within the Northern District included those of the Perry Island Subdistrict and Unakwik Inlet north of 60° 54.42' N. latitude and south of 60° 58.26' N. latitude. The waters of Siwash Bay inside the yellow regulatory markers were closed.  
Anadromous stream closures along the east side of Culross Island were not in effect.  
Waters of the Esther Subdistrict east of 147° 57.62' W. longitude were open.  
Waters of the Port San Juan Subdistrict were open. The AFK Hatchery THA and SHA were not open.  
The Southeastern and Montague Districts were open.
- <sup>cc</sup> Within the Eastern District, waters south of a line from Potato Point to Entrance Point were open. Waters of Port Valdez inside the Potato Point to Entrance Point line were not open. The waters of Jack and Galena Bays inside of the yellow regulatory markers were closed.  
In the Northern District, the waters of Unakwik Inlet north of 60° 54.42' N. latitude were open. The Cannery Creek Hatchery THA and SHA were closed. Waters of Siwash and Jonah Bays inside of the yellow regulatory markers were closed. The Perry Island Subdistrict was also open.  
Anadromous stream closures along the east side of Culross Island were not in effect.  
Waters of the Esther Subdistrict including the Noerenberg THA and SHA to the line of buoys in front of the barrier seine were open.  
Waters south of a line at the latitude of Dual Head, near the entrance of Whale Bay at 60° 15.0' N. latitude and waters east of Knight Island, south of Bay of Isles, at 60° 23.0' N. latitude were open. The AFK Hatchery THA and SHA were closed.  
The Southeastern and Montague Districts were open.
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Appendix E.1. (Continued)

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<sup>dd</sup> Within the Eastern District, waters south of a line from Potato Point to Entrance Point were open. Waters of Port Valdez inside the Potato Point to Entrance Point line were not open. The waters of Jack and Galena Bays inside of the yellow regulatory markers were closed.

Within the Northern District, the waters of Unakwik Inlet north of 60° 54.42' N. latitude were open. The Cannery Creek Hatchery

THA and SHA were not open. Waters of Siwash and Jonah Bays inside of the yellow regulatory markers remained closed.

Waters of the Esther Subdistrict including the Noerenberg THA and SHA to the line of buoys in front of the barrier seine were open.

Open waters included the Point Elrington and Port San Juan Subdistrict including the AFK Hatchery THA and SHA.

The Southeastern and Montague Districts were open.

<sup>cc</sup> Within the Eastern District, waters south of a line from Potato Point to Entrance Point were open. Waters of Port Valdez inside the Potato Point to Entrance Point line were not open. The waters of Jack and Galena Bays inside of the yellow regulatory markers were closed.

In the Northern District, the waters of Unakwik Inlet north of 60° 54.42' N. latitude were open. The Cannery Creek Hatchery THA and SHA were closed. Waters of Siwash and Jonah Bays inside of the yellow regulatory markers were closed. The Perry Island Subdistrict was also open. Anadromous stream closures along the east side of Culross Island were not in effect.

Waters of the Esther Subdistrict including the Noerenberg THA and SHA to the line of buoys in front of the barrier seine were open.

Open waters included the Point Elrington and Port San Juan Subdistrict including the AFK Hatchery THA and SHA.

The Southeastern and Montague Districts were open.

<sup>ff</sup> Within the Eastern District, waters south of a line from Potato Point to Entrance Point were open. Waters of Port Valdez inside the Potato Point to Entrance Point line were not open. The waters of Jack and Galena Bays inside of the yellow regulatory markers were closed.

In the Northern District, the waters of Unakwik Inlet north of 60° 54.42' N. latitude were open. The Cannery Creek Hatchery THA and SHA were closed. Waters of Siwash and Jonah Bays inside of the yellow regulatory markers were closed. The Perry Island Subdistrict was also open. Anadromous stream closures along the east side of Culross Island were not in effect.

Waters of the Esther Subdistrict including the Noerenberg THA and SHA to the line of buoys in front of the barrier seine were open.

Waters of the Port San Juan Subdistrict, including the AFK Hatchery SHA and THA, were open.

The Southeastern and Montague Districts were open.

<sup>gg</sup> Within the Eastern District, waters south of a line from Potato Point to Entrance Point were open. Waters of Port Valdez inside the Potato Point to Entrance Point line were not open. The waters of Jack and Galena Bays inside of the yellow regulatory markers were closed.

In the Northern District, waters of Unakwik Inlet north of 60° 54.42' N. latitude, including the Cannery Creek Hatchery THA were open.

The Cannery Creek SHA was closed.

Waters of the Esther Subdistrict including the Noerenberg THA were open.

Waters of the Port San Juan Subdistrict, including the AFK Hatchery SHA and THA, were open.

The Southeastern and Montague Districts were open.

<sup>hh</sup> Open waters within the Eastern District included all waters south of a line from Potato Point to Entrance Point.

In the Northern District, waters of Unakwik Inlet north of 60° 54.42' N. latitude, including the Cannery Creek Hatchery THA were open.

The Cannery Creek SHA was closed. In the Perry Island Subdistrict, waters within one mile of the eastern shore of Culross Island were also open. Anadromous stream closures along the eastern shore of Culross Island were not in effect.

Waters of the Esther Subdistrict including the Noerenberg THA and SHA to the line of buoys in front of the barrier seine were open.

The entire Southwestern District was open for 12-hours.

Open waters included the Point Elrington and Port San Juan Subdistrict including the AFK Hatchery THA and SHA.

The Southeastern and Montague Districts were open.

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## Appendix E. I. (Continued)

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- <sup>ii</sup> Open waters within the Eastern District included all waters south of a line from Potato Point to Entrance Point.  
In the Northern District, waters of Unakwik Inlet north of 60° 54.42' N. latitude, including the Cannery Creek Hatchery THA were open. The Cannery Creek SHA was closed. In the Perry Island Subdistrict, waters within one mile of the eastern shore of Culross Island were also open. Anadromous stream closures along the eastern shore of Culross Island were not in effect.  
Waters of the Esther Subdistrict including the Noerenberg THA and SHA to the line of buoys in front of the barrier seine were open. Open waters included the Point Elrington and Port San Juan Subdistrict including the AFK Hatchery THA and SHA. The Southeastern and Montague Districts were open.
- <sup>jj</sup> Open waters within the Eastern District included all waters south of a line from Potato Point to Entrance Point.  
For the last 12-hours of this period the Valdez Narrows Subdistrict west of 146° 30.62' W. longitude were also open.  
In the Northern District, waters of Unakwik Inlet north of 60° 54.42' N. latitude, including the Cannery Creek Hatchery THA were open. The Cannery Creek SHA was closed. In the Perry Island Subdistrict, waters within one mile of the eastern shore of Culross Island were also open. Anadromous stream closures along the eastern shore of Culross Island were not in effect.  
Waters of the Esther Subdistrict including the Noerenberg THA and SHA to the line of buoys in front of the barrier seine were open. Open waters included the Point Elrington and Port San Juan Subdistrict including the AFK Hatchery THA and SHA. The Southeastern and Montague Districts were open.
- <sup>kk</sup> Open waters within the Eastern District included all waters south of a line from Potato Point to Entrance Point.  
Also in the Eastern District, the waters of Port Valdez, including the Solomon Gulch Hatchery SHA were open.  
In the Northern District, waters of Unakwik Inlet north of 60° 54.42' N. latitude, including the Cannery Creek Hatchery THA were open. The Cannery Creek Hatchery SHA was closed. In the Perry Island Subdistrict, waters within one mile of the eastern shore of Culross Island were also open. Anadromous stream closures along the eastern shore of Culross Island were not in effect.  
Waters of the Esther Subdistrict including the Noerenberg THA and SHA to the line of buoys in front of the barrier seine were open. Open waters included the Point Elrington and Port San Juan Subdistrict including the AFK Hatchery THA and SHA. The Southeastern and Montague Districts were open.
- <sup>ll</sup> The Eastern District including the Solomon Gulch Hatchery SHA was open.  
In the Northern District, waters of Unakwik Inlet north of 60° 54.42' N. latitude, including the Cannery Creek Hatchery THA were open. The Cannery Creek Hatchery SHA was closed. In the Perry Island Subdistrict, waters within one mile of the eastern shore of Culross Island were also open. Anadromous stream closures along the eastern shore of Culross Island were not in effect.  
Waters of the Esther Subdistrict including the Noerenberg THA and SHA to the line of buoys in front of the barrier seine were open. Open waters included the Point Elrington and Port San Juan Subdistrict including the AFK Hatchery THA and SHA.
- <sup>mmm</sup> Open waters within the Eastern District included all waters south of a line from Potato Point to Entrance Point.  
In the Northern District, waters of Unakwik Inlet north of 60° 54.42' N. latitude, including the Cannery Creek Hatchery THA were open. The Cannery Creek SHA was closed. In the Perry Island Subdistrict, waters within one mile of the eastern shore of Culross Island were also open. Anadromous stream closures along the eastern shore of Culross Island were not in effect.  
Waters of the Esther Subdistrict including the Noerenberg THA and SHA to the line of buoys in front of the barrier seine were open. Open waters included the Point Elrington and Port San Juan Subdistrict including the AFK Hatchery THA and SHA.
- <sup>nn</sup> In the Eastern District, the waters of Port Valdez, including the Solomon Gulch Hatchery SHA were open.  
In the Northern District, waters of Unakwik Inlet north of 60° 54.42' N. latitude, including the Cannery Creek Hatchery THA were open. The Cannery Creek SHA was closed. In the Perry Island Subdistrict, waters within one mile of the eastern shore of Culross Island were also open. Anadromous stream closures along the eastern shore of Culross Island were not in effect.  
Waters of the Esther Subdistrict including the Noerenberg THA and SHA to the line of buoys in front of the barrier seine were open. Open waters included the Point Elrington and Port San Juan Subdistrict including the AFK Hatchery THA and SHA.

Appendix E.2. Commercial salmon harvest by species, all gear and districts combined,  
Prince William Sound, 1971 - 1997.

CATCH BY SPECIES						
Year <sup>a</sup>	Chinook	Sockeye	Coho	Pink	Chum	Total
1971	3,551	88,368	30,551	7,310,964	574,265	8,007,699
1972 <sup>b</sup>	547	197,526	1,634	54,783	45,370	299,860
1973	2,405	124,802	1,399	2,056,878	729,839	2,915,323
1974 <sup>b</sup>	1,590	129,366	801	448,773	88,544	669,074
1975	2,519	189,613	6,142	4,452,805	100,479	4,751,558
1976	1,044	112,809	6,171	3,018,991	370,478	3,509,493
1977	648	310,358	843	4,513,082	572,610	5,397,541
1978	1,042	222,083	1,495	2,913,721	485,147	3,623,488
1979	2,015	150,040	6,843	15,607,620	326,414	16,092,932
1980	189	189,816	2,952	14,157,057	482,016	14,832,030
1981	404	251,222	4,383	20,524,470	1,878,716	22,659,195
1982	255	1,055,099	24,362	20,396,222	1,335,368	22,811,306
1983	1,048	92,111	10,496	14,038,796	1,041,309	15,183,760
1984	489	311,955	12,420	22,086,806	1,201,842	23,613,512
1985	1,104	493,278	19,753	25,056,663	1,280,093	26,850,891
1986	1,330	488,715	12,277	11,407,271	1,683,049	13,592,642
1987	874	540,109	47,751	29,198,507	1,904,494	31,691,735
1988	1,037	183,572	75,709	11,817,323	1,832,114	13,909,755
1989	1,113	140,090	203,574	21,860,582	995,962	23,201,321
1990	447	58,497	234,525	44,163,479	959,838	45,416,786
1991	445	507,815	145,311	37,134,311	331,906	38,119,788
1992	1,475	780,932	202,311	8,635,448	328,568	9,948,734
1993	2,148	418,948	48,310	5,761,436	1,173,341	7,404,183
1994	1,376	334,183	121,518	36,874,188	1,039,095	38,370,360
1995	1,364	230,057	140,314	16,045,396	702,216	17,119,347
1996	700	606,525	172,448	26,036,570	2,077,996	28,894,239
1997	1,186	1,197,776	64,360	25,828,078	2,224,725	29,316,125
Ten Year Average (1987-96)	1,098	380,073	139,177	23,752,724	1,134,553	25,407,625

<sup>a</sup>Includes purse seine, drift gillnet and set gillnet catches from all P.W.S. fishing districts; Eastern, Northern, Unakwik, Coghill, Northwestern, Eshamy, Southwestern, Montague and Southeastern. Also includes hatchery sales harvests confiscated fish, donated and discarded fish catch, the surimi study fish, and special use educational permit catches.

<sup>b</sup>General purse seine season closed.

Appendix E.3. Commercial pink salmon harvest for all gear types, by district, Prince William Sound, 1969-1997. Includes purse seine, drift gillnet, and set gillnet catches from all Prince William Sound districts; Unakwik catches are included in the Northern District. Does not include hatchery cost recovery, confiscated and test fish harvests.

Year	DISTRICT										Total
	Eastern	Northern	Coghill	Northwestern	Eshamy	Southwestern	Montague	Southeastern			
1969	963,583	262,403	43,134	268,240		2,565,737		696,182		4,799,279	
1970	358,326	308,797	100,338	371,528		1,518,700		90,438		2,748,127	
1971 <sup>a</sup>	1,974,605	666,308	323,841	163,401		3,901,939		276,605		7,306,699	
1972 <sup>b</sup>			9,408		54,781					64,189	
1973	327,453	183,467	95,793	127,197		407,388		657,429		1,945,505	
1974 <sup>c</sup>			163,328		285,441					448,769	
1975	712,328	171,657	303,597	420,891		1,673,887		875,456		4,276,283	
1976	1,380,943	384,267	217,696	207,190		589,458		82,366		2,861,920	
1977	1,673,044	147,964	230,215	208,727		930,469		824,374		4,091,897	
1978	1,516,076	933,013	13,059					216,696		2,678,844	
1979	4,500,032	115,886	38,560	59,423		5,111,073		4,160,925		15,333,312	
1980	3,140,134	1,271,177	134,876	306,109		7,507,776		1,271,389		13,632,411	
1981	4,797,583	1,194,621	34,155	46,874		10,371,220		278,879		19,944,600	
1982	2,959,601	2,331,903	1,000,524	520,972	3,997	10,801,771		747,116		18,372,328	
1983	2,430,063	1,021,345	273,131	714,522		5,957,068		1,482,013		12,036,383	
1984	4,525,029	2,194,904	996,483	1,412,822	544,082	10,197,349		1,245,042		21,127,298	
1985	6,715,143	1,002,872	523,773	527,132	58,183	10,843,752		2,733,562		23,853,226	
1986	2,488,540	944,871	214,593	285,184	43,061	6,374,535		147,268		10,498,052	
1987	6,964,549	2,419,611	1,578,568	750,877	89,902	13,341,940		955,988		26,212,446	
1988	481,324	286,743	2,932,072	7,738	529,329	5,411,424		1,776		9,650,406	
1989	3,151,096	6,464,090	3,975,487	181,565				73,177		13,795,415	
1990	7,970,364	5,482,585	2,692,788	891,444	534,951	17,811,479		12,325		33,406,394	
1991	2,617,222	4,150,612	2,211,575		64,591	17,849,425				26,893,425	
1992	489,228	1,142,061	363,887		543,115	3,039,775				5,578,066	
1993		413,308	493,747		130,542	2,475,798				3,513,395	
1994	11,534,320	7,171,038	3,597,094		565,669	3,408,093				26,296,214	
1995	4,235,638	3,656,119	1,078,693		88,830	1,707,745		11,418		10,796,682	
1996 <sup>d</sup>	6,039,063	5,039,988	1,543,869		35,691	5,046,919				17,725,530	
1997 <sup>e</sup>	4,534,365	3,162,822	2,030,586		222,934	5,929,544		28,040		15,973,398	
10 year Average	4,835,867	3,622,616	2,041,778	457,906	258,262	7,009,260		210,937		17,586,817	

<sup>a</sup>The Eshamy District was closed to fishing.

<sup>b</sup>The general purse seine district was closed to fishing.

<sup>c</sup>These districts were closed due to the Exxon Valdez oil spill.

<sup>d</sup>Eastern and Northern District totals include discarded salmon.

<sup>e</sup>Montague District totals include discarded salmon.

Appendix E.4. Aerial escapement indices for pink and chum salmon by district,  
Prince William Sound, 1997.

PINK SALMON (ODD CYCLE)						
District	Escapement Goal	Odd Cycle Escapement Range	1965-95 Mean Index	Observed Escapement Index <sup>a</sup>	Deviation From Goal	
Eastern	422,000	380,000 - 465,000	417,103	345,725	-18.1%	
Northern/Unakwik	128,000	115,000 - 141,000	125,931	65,260	-49.0%	
Coghill	178,000	160,000 - 196,000	156,154	52,961	-70.2%	
Northwestern	83,000	75,000 - 92,000	80,114	53,740	-35.3%	
Eshamy	5,700	5,100 - 6,200	6,986	914	-84.0%	
Southwestern	116,000	105,000 - 128,000	118,026	112,010	-3.4%	
Montague	162,000	146,000 - 179,000	167,975	206,943	27.7%	
Southeastern	333,000	300,000 - 366,000	344,691	315,201	-5.3%	
Total	1,427,700		1,416,981	1,152,754	-19.3%	

CHUM SALMON						
District	Escapement Goal	Desired Escapement Range	1965-95 Mean Index	Observed Escapement Index <sup>a</sup>	Deviation From Goal	
Eastern	98,100	87,200 - 109,000	90,765	93,146	-5.0%	
Northern/Unakwik	33,075	29,400 - 36,750	40,735	19,429	-41.3%	
Coghill	33,325	29,600 - 37,050	20,266	3,101	-90.7%	
Northwestern	21,350	19,000 - 23,700	13,841	8,387	-60.7%	
Eshamy	0	0 - 0	36	0		
Southwestern	3,825	3,400 - 4,250	1,891	800	-79.1%	
Montague	12,825	11,400 - 14,250	2,532	4,000	-68.8%	
Southeastern	22,500	20,000 - 25,000	16,600	43,274	92.3%	
Total	225,000		186,668	172,137	-28.3%	

<sup>a</sup> Based on weekly aerial survey counts of 209 index spawning streams in Prince William Sound. This does not represent the total spawning escapement but rather a comparable annual index.

Appendix E.5. Pink salmon harvests and escapement indices, including hatchery sales harvests and brood stock, Prince William Sound, 1965 - 1997. Historical data revised in 1989.

Year	PINK SALMON ESCAPEMENTS*										Hatchery			Common Property Catch <sup>b</sup>	Total Run <sup>c</sup>
	Eastern	Northern/ Unalutk	Coghill	Northwest	Eshamy	Southwest	Montague	Southeastern	Total	Sales	Brood				
1965	257,853	59,820	91,584	159,011	9,340	65,380	77,042	255,926	975,956				2,460,471	3,436,427	
66	544,980	288,710	135,440	79,960	11,720	115,570	42,220	204,570	1,423,170				2,699,418	4,122,588	
67	255,240	144,200	65,240	82,980	5,020	42,950	10,020	236,610	842,260				2,626,340	3,468,600	
68	364,930	151,120	108,020	117,430	10,770	52,350	179,120	1,156,510	1,156,510				2,452,168	3,608,678	
69	160,690	94,770	39,020	23,830	0	57,890	1,550	26,910	404,570				4,828,579	5,233,149	
1970	387,090	125,360	95,170	82,660	7,610	66,790	73,880	140,660	979,220				2,809,996	3,789,216	
71	352,800	126,210	62,160	14,320	1,710	79,140	296,730	179,480	1,112,550				7,310,964	8,425,514	
72	344,470	83,900	30,960	39,020	1,100	29,530	33,140	79,060	641,180				54,793	693,963	
73	309,040	69,660	493,780	2,910	0	52,320	119,520	177,780	1,225,010				2,056,878	3,281,888	
74	256,880	206,750	56,940	163,930	6,240	160,980	11,750	94,650	938,120				448,773	1,406,893	
1975	412,560	38,260	452,430	4,990	0	77,270	85,380	194,670	1,265,560				4,452,805	5,718,365	
76	472,080	139,600	37,090	68,150	5,840	52,120	13,790	117,590	926,260				3,016,995	3,945,255	
77	390,930	69,980	130,510	80,890	16,450	-178,670	152,960	277,780	1,298,170				4,314,431	5,844,258	
78	279,120	163,010	85,450	132,300	5,430	258,980	56,680	164,030	1,145,010			16,112	2,780,073	4,079,703	
79	642,220	200,720	70,980	124,020	0	231,300	219,400	728,630	2,217,280			54,207	15,393,223	17,888,458	
1980	535,960	189,140	214,930	159,260	13,100	133,470	118,420	307,680	1,671,940			145,061	13,434,024	15,597,753	
81	599,340	243,170	106,450	51,210	3,990	93,630	253,420	339,870	1,713,080			268,501	19,286,542	21,975,160	
82	573,070	332,560	368,380	174,290	15,080	195,950	132,380	482,860	2,274,570			1,354,732	18,858,647	22,727,894	
83	481,950	168,410	310,330	196,630	12,610	161,290	230,200	601,680	2,163,100			238,062	13,309,461	16,347,586	
84	1,209,740	593,310	429,450	452,370	16,860	345,760	191,810	792,560	4,031,860			341,259	21,683,076	26,471,588	
1985	750,530	214,210	296,970	199,190	1,410	181,270	332,240	645,510	2,621,320			1,209,960	23,959,698	28,431,328	
86	356,380	141,420	101,600	81,490	3,840	74,980	44,680	155,630	960,220			466,471	10,498,052	12,830,207	
87	514,570	132,960	147,060	75,390	3,450	112,920	149,260	330,630	1,466,240			2,091,190	26,125,769	31,442,107	
88	362,370	143,850	37,070	73,780	490	126,440	67,990	152,540	964,530			824,302	9,650,406	13,071,939	
89	359,730	106,530	45,510	68,540	19,470	176,230	181,760	315,000	1,272,770			5,737,911	13,854,209	21,796,279	
1990	443,660	131,580	49,110	115,870	17,870	150,100	113,572	304,090	1,325,852			6,691,160	35,430,821	46,239,241	
91	474,380	165,930	98,580	101,320	18,800	197,095	247,890	533,170	1,837,165			1,324,255	31,178,750	40,295,731	
92	204,383	72,915	23,611	42,308	2,709	66,953	47,156	95,070	555,105			802,117	5,578,099	9,984,715	
93	315,209	95,614	41,837	46,011	9,348	98,573	144,784	315,093	1,066,469			2,212,403	893,462	7,721,028	
94	615,240	178,151	65,648	141,290	11,799	144,594	60,084	196,378	1,413,184			10,521,439	26,364,862	39,767,240	
1995	396,696	84,447	46,029	50,582	10,182	82,490	183,448	336,310	1,190,184			5,090,152	10,975,079	18,410,050	
96	584,236	218,022	104,781	86,709	3,000	63,337	92,666	330,285	1,483,336			8,291,205	17,745,365	28,784,607	
97	345,725	65,260	52,961	53,740	914	112,010	206,943	585,135	1,422,688			9,854,675	15,973,403	28,299,251	
EVEN CYCLE AVG. (1966-96)	470,912	197,462	122,728	125,676	8,341	134,895	72,054	237,311	1,369,379			3,289,926	10,844,222	14,820,218	
ODD CYCLE AVG. (1965-95)	417,103	125,931	156,154	80,114	6,986	118,026	167,975	344,691	1,416,991			2,376,897	11,617,618	15,107,121	

\*Coghull and Northwestern escapement figures correspond to current district boundaries.

<sup>b</sup>Includes the common property harvest of both wild and hatchery stocks. Does not include hatchery sales harvests.

<sup>c</sup>Represents the sum of the commercial catch, hatchery sales, brood (including roe recoveries), plus the escapement index. Does not account for wild stock escapement into non-index streams.

Appendix E.6. Weekly aerial estimates of pink salmon escapement by statistical area, Prince William Sound, 1997.

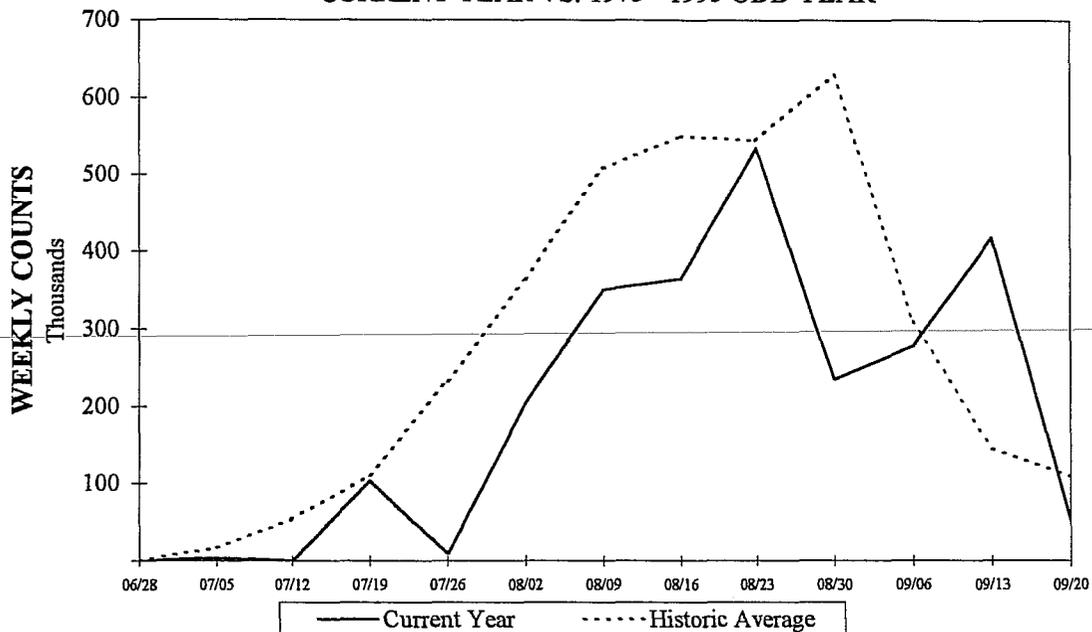
Survey Location	Week Ending Dates*														Adjusted Total <sup>b</sup>
	06/28	07/05	07/12	07/19	07/26	08/02	08/09	08/16	08/23	08/30	09/06	09/13	09/20	09/27	
Orea Inlet	0	NS	0	2,012	NS	2,700	4,700	3,000	6,300	550	NS	NS	NS	0	11,646
Simpson & Sheep Bay	0	3,000	0	16,250	NS	95,560	30,200	37,200	34,550	NS	29,500	NS	NS	10,570	148,444
Port Gravina	0	500	160	7,480	NS	22,480	16,900	58,300	50,050	NS	8,100	NS	NS	1,070	85,309
Port Fidalgo	0	135	10	8,475	NS	14,750	7,110	30,500	22,950	NS	8,350	NS	NS	1,350	49,964
Valdez Arm	50	150	0	710	NS	5,085	7,100	35,605	26,100	NS	9,350	NS	NS	1,560	45,862
Port Valdez	0	0	NS	0	NS	NS	NS	400	4,500	1,100	NS	NS	NS	0	4,500
<b>Eastern District Total</b>	<b>50</b>	<b>3,785</b>	<b>170</b>	<b>34,927</b>	<b>NS</b>	<b>140,575</b>	<b>66,410</b>	<b>169,105</b>	<b>141,050</b>	<b>550</b>	<b>55,450</b>	<b>NS</b>	<b>NS</b>	<b>14,530</b>	<b>345,725</b>
Columbia & Long Bay	0	0	NS	530	NS	0	1,300	7,320	1,700	NS	1,700	NS	NS	200	8,917
Wells Bay & Unakwik Inlet	0	0	NS	800	800	6,300	3,300	16,250	9,710	8,570	1,025	NS	NS	16,330	46,787
Baglek Bay	NS	NS	NS	0	116	300	4,100	6,270	2,300	NS	NS	NS	NS	590	8,991
<b>Northern District Total</b>	<b>0</b>	<b>0</b>	<b>NS</b>	<b>1,330</b>	<b>916</b>	<b>6,600</b>	<b>4,600</b>	<b>27,670</b>	<b>17,680</b>	<b>10,870</b>	<b>2,725</b>	<b>NS</b>	<b>NS</b>	<b>17,120</b>	<b>64,695</b>
Upper Unakwik Inlet	NS	NS	NS	0	0	100	NS	0	0	50	NS	NS	NS	400	565
<b>Unakwik District (229) Total</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>0</b>	<b>0</b>	<b>100</b>	<b>NS</b>	<b>0</b>	<b>0</b>	<b>50</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>400</b>	<b>565</b>
West Side Port Wells	NS	NS	NS	0	203	6,600	NS	9,760	8,310	2,680	NS	NS	NS	0	14,430
Esther Passage	NS	NS	NS	0	0	200	NS	0	500	100	NS	NS	NS	1,000	1,500
College Fjord	NS	NS	NS	250	6,500	23,000	NS	4,000	25,000	9,100	NS	NS	NS	100	37,031
<b>Coghil District Total</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>250</b>	<b>6,703</b>	<b>29,800</b>	<b>NS</b>	<b>13,760</b>	<b>33,810</b>	<b>11,880</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>1,100</b>	<b>52,961</b>
Passage Canal & Cochrane	NS	NS	NS	120	807	1,100	NS	1,545	4,950	1,950	NS	NS	NS	NS	5,668
Culross Passage	NS	NS	NS	100	700	1,800	NS	20,200	6,400	35,600	NS	NS	NS	NS	36,434
Port Nellie Juan	NS	NS	NS	100	282	5,000	NS	3,800	10,230	3,100	NS	NS	NS	NS	11,638
<b>Northwestern District Total</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>320</b>	<b>1,789</b>	<b>7,900</b>	<b>NS</b>	<b>25,545</b>	<b>21,580</b>	<b>40,650</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>53,740</b>
Crafton/Fishamy	NS	NS	NS	5	0	NS	NS	500	NS	800	NS	NS	NS	NS	914
<b>Esahmy District Total</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>5</b>	<b>0</b>	<b>NS</b>	<b>NS</b>	<b>500</b>	<b>NS</b>	<b>800</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>914</b>
Chenege Is. & Dangerous P.	NS	NS	NS	NS	NS	1,370	NS	26,650	37,450	28,550	32,995	NS	NS	NS	71,858
East Knight Is.	NS	NS	NS	NS	NS	NS	NS	2,300	1,500	3,100	2,900	NS	NS	NS	5,017
Bainbridge & Latouche Pass	NS	NS	NS	NS	NS	150	NS	7,600	7,130	12,865	20,200	NS	NS	NS	26,069
Port Bainbridge	NS	NS	NS	NS	NS	800	NS	7,000	1,000	5,000	3,400	NS	NS	NS	9,066
<b>Southwestern District Total</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>2,520</b>	<b>NS</b>	<b>43,550</b>	<b>47,080</b>	<b>49,515</b>	<b>59,495</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>112,010</b>
Montague Strait	NS	NS	NS	NS	NS	12,767	NS	61,300	39,770	75,270	55,000	NS	NS	NS	137,543
Green Island	NS	NS	NS	NS	NS	3,730	NS	23,100	30,175	44,480	36,740	NS	NS	NS	69,400
<b>Montague District Total</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>16,497</b>	<b>NS</b>	<b>84,400</b>	<b>69,945</b>	<b>119,750</b>	<b>91,740</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>206,943</b>
Orea Is. & East Hawkins	NS	NS	NS	0	NS	NS	5,000	NS	1,300	NS	0	NS	NS	NS	6,294
Hawkins Cutoff	NS	NS	NS	33,400	NS	NS	54,800	NS	38,800	NS	3,950	NS	NS	NS	127,435
North Hawkins & Canoe P.	NS	NS	NS	150	NS	NS	68,020	NS	86,600	NS	17,950	NS	NS	NS	156,491
Double Bay	NS	NS	NS	1,700	NS	NS	53,000	NS	10,300	NS	4,750	NS	NS	NS	68,444
Johnstone Point	NS	NS	NS	3,150	NS	NS	33,100	NS	3,400	NS	2,300	NS	NS	NS	40,907
Port Etches	NS	NS	NS	28,600	NS	NS	65,100	NS	64,200	NS	40,050	NS	NS	NS	185,564
<b>Southeast District Total</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>67,000</b>	<b>NS</b>	<b>NS</b>	<b>279,020</b>	<b>NS</b>	<b>204,600</b>	<b>NS</b>	<b>69,000</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>585,135</b>
<b>TOTAL OF 9 DISTRICTS</b>	<b>50</b>	<b>3,785</b>	<b>170</b>	<b>103,827</b>	<b>9,413</b>	<b>203,992</b>	<b>350,030</b>	<b>364,530</b>	<b>535,745</b>	<b>234,065</b>	<b>278,410</b>	<b>NS</b>	<b>NS</b>	<b>33,170</b>	<b>1,422,688</b>

\*There are a total of 209 streams included in the systematic aerial survey program. The survey program commences in the Eastern District where the earliest escapements in the Sound occur. Weather and conditions permitting, each stream is flown weekly. Failure to fly a survey due to run timing or bad survey conditions is denoted by NS (no survey). A notation of NC (no count) occurs when a stream is flown but no count is possible because of survey conditions (i.e. water clarity). During the peak of the pink salmon run many streams are flown twice weekly to provide fisheries managers with more timely escapement data. In cases where more than one survey per week was flown the weekly observation shown in this table is the average of the two counts if observing conditions during both were good or, the maximum of the two counts if conditions during the minimum count were poor.

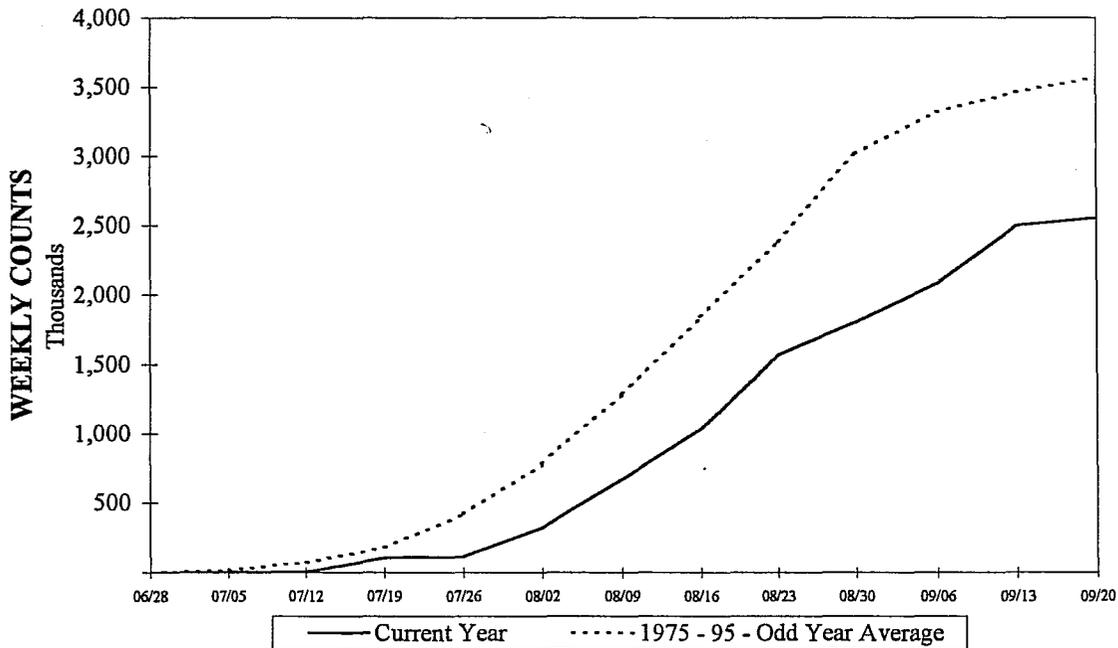
<sup>b</sup>The adjusted total is an escapement estimate based on a geometric method used since the inception of the systematic survey program in the early 1960's. In this method, aerial observers are assumed to count without error or bias. Linear interpolations between observations are used to estimate numbers of fish in the stream on days when no surveys are flown. All daily observations and interpolations are summed across the season. Because fish seen on day *t*+1 may include fish seen on day *t*, the sum of all daily observations and interpolations must be divided by some residence time for fish in the stream to account for duplicate observations. The residence time of 17.5 days which has historically been used in this calculation is from tagging data completed by National Marine Fisheries Service on Olen Creek in the early 1960's. Since observer bias does occur and since both observer bias and stream life are stream specific, adjusted totals in this table may be used for interannual comparisons but should not be interpreted as the true escapement.

# PWS PINK STREAM COUNTS - ALL DISTRICTS

CURRENT YEAR VS. 1975 - 1995 ODD YEAR

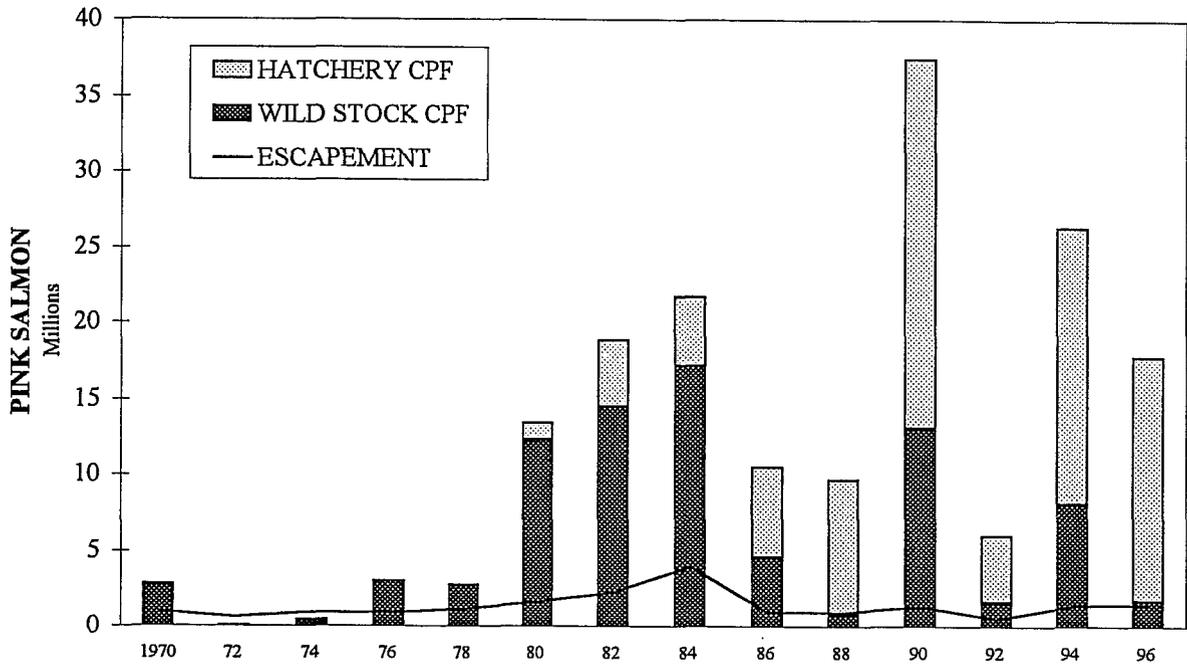


## CUMULATIVE

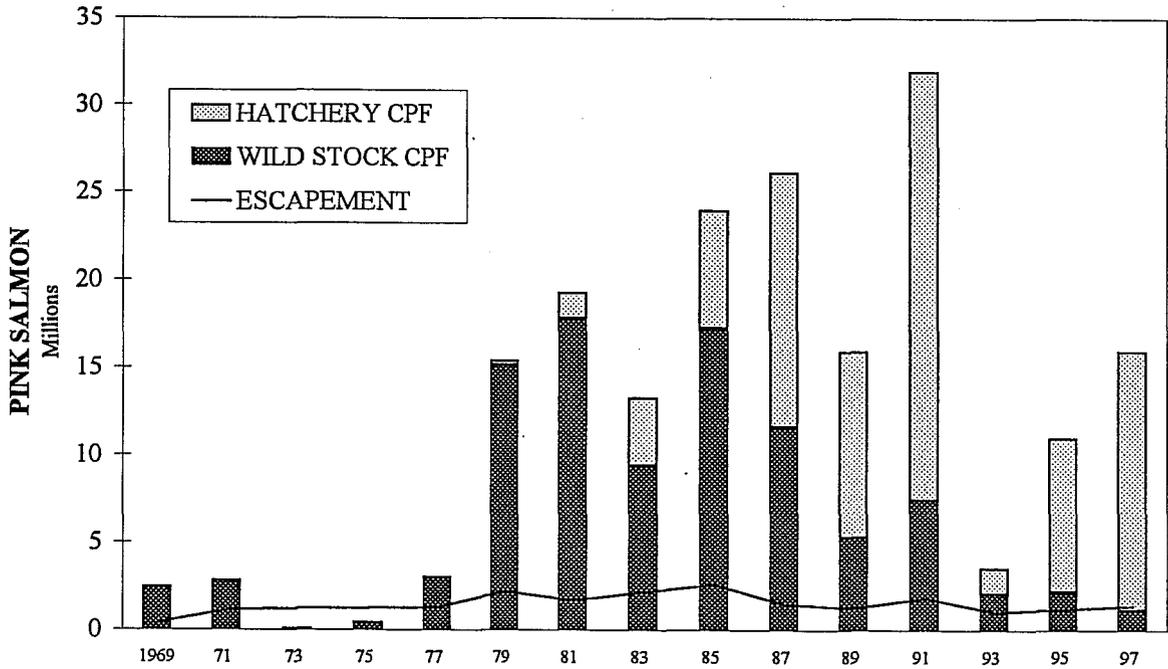


Appendix E.7. Current year and historic weekly pink salmon escapement performance of index spawning streams, Prince William Sound, 1997.

### PINK SALMON EVEN YEAR CATCH AND ESCAPEMENT



### PINK SALMON ODD YEAR CATCH AND ESCAPEMENT



Appendix E.8. Pink salmon catch and escapement, even years (1970 - 96), and odd years (1969 - 97), Prince William Sound, Alaska.

Appendix E.9. Chum salmon harvests and escapement indices, including hatchery sales harvests and brood stock, Prince William Sound, 1965 - 1997.

Year	CHUM SALMON ESCAPEMENTS <sup>a</sup>											Hatchery			Common Property Catch <sup>b</sup>	Total Run <sup>c</sup>
	Eastern	Northern	Coghill	Northwestern	Eshamy	Southwestern	Montague	Southeastern	Total	Sales	Brood					
1965	69,180	20,980	20,768	18,907	0	1,829	17,500	46,480	195,644			201,043	396,687			
66	75,690	24,870	10,540	5,770	0	2,180	14,100	9,410	142,560			426,628	569,188			
67	74,570	23,270	7,450	1,670	0	6,200	4,980	9,070	127,210			274,234	401,444			
68	48,960	10,620	8,780	800	0	580	220	4,610	74,570			342,939	417,509			
69	38,690	17,340	8,410	780	0	0	0	6,320	91,540			320,977	412,517			
1970	34,430	4,020	11,880	2,720	0	550	0	7,950	61,550			230,661	292,211			
71	49,730	11,870	6,600	5,600	100	1,430	27,990	6,450	109,770			574,265	684,035			
72	112,930	70,760	28,160	22,980	0	4,010	3,340	26,990	269,190			45,370	314,560			
73	213,170	140,030	72,610	13,250	0	1,020	3,110	48,080	491,270			729,839	1,221,109			
74	72,010	55,510	29,280	6,580	0	240	80	3,200	166,900			88,544	255,444			
1975	30,040	8,910	3,640	430	0	1,280	140	2,850	47,290			109,479	147,769			
76	16,260	29,430	25,670	8,300	0	90	0	770	80,520			370,478	450,998			
77	47,880	48,600	43,940	10,090	0	700	0	8,280	159,490			575,839	735,329			
78	90,250	27,480	18,160	12,940	0	790	0	6,550	156,170			485,147	641,317			
79	42,630	17,320	6,330	8,770	0	90	0	5,140	80,280			324,040	404,320			
1980	26,720	27,880	23,340	3,060	0	2,040	70	6,710	89,820	6		412,948	502,774			
81	71,560	28,670	2,050	15,130	0	710	0	16,010	134,130	118		1,745,869	1,880,117			
82	146,120	68,580	22,130	21,880	0	1,530	0	25,260	285,500	0	86,200	1,335,368	1,707,068			
83	143,800	85,720	61,410	31,660	340	3,170	0	21,410	347,510	0	44,000	1,030,546	1,422,056			
84	129,190	59,080	19,690	7,920	0	20	0	8,650	224,550	4,886	3,000	1,196,785	1,429,221			
1985	111,310	33,410	22,140	13,290	0	620	0	4,470	185,240	3,840	0	1,302,090	1,491,170			
86	126,690	50,740	13,140	17,420	0	1,890	0	8,830	218,710	20,683	12,523	1,662,366	1,914,282			
87	183,620	38,700	24,510	26,460	0	1,690	0	44,020	319,000	2,549	15,574	1,902,063	2,239,186			
88	258,560	75,420	39,240	40,780	0	2,350	500	66,930	483,780	42,694	108,271	1,792,616	2,427,361			
89	112,080	46,470	22,680	27,430	320	11,690	0	22,640	243,310	129,551	74,513	862,551	1,309,925			
1990	115,100	112,480	26,020	37,020	0	80	1,050	7,275	299,025	24,554	107,284	935,284	1,366,147			
91	86,360	19,080	6,070	8,960	0	2,800	925	9,203	133,398	13,471	114,814	318,435	580,118			
92	48,804	12,903	10,003	11,072	300	2,940	783	3,881	90,686	57,392	183,940	271,176	603,194			
93	54,102	24,975	8,430	18,966	0	1,300	30	19,172	126,975	475,148	140,330	706,196	1,448,649			
94	40,476	23,942	14,176	12,992	100	2,225	0	4,057	97,968	380,365	114,654	677,848	1,270,835			
1995	75,655	28,899	11,596	4,883	0	2,250	1,000	23,200	147,483	231,559	172,542	486,510	1,038,074			
96	137,908	55,568	19,669	24,405	0	2,231	5,216	47,334	292,331	1,066,705	253,751	1,011,291	2,624,078			
97	93,146	19,429	3,101	8,287	0	800	4,000	43,274	172,137	811,179	178,933	1,413,546	2,575,795			
1965-96 AVG	90,765	40,735	20,266	13,841	36	1,891	2,532	16,600	186,668	144,324	95,426	710,638	1,018,709			

<sup>a</sup>Coghill and Northwestern escapement figures correspond to current district boundaries.

<sup>b</sup>Includes the common property harvest of both wild and hatchery stocks. Does not include hatchery sales harvests.

<sup>c</sup>Represents the sum of the common property catch, hatchery sales and brood, plus the escapement index. Does not account for wild stock escapement into non-index streams.

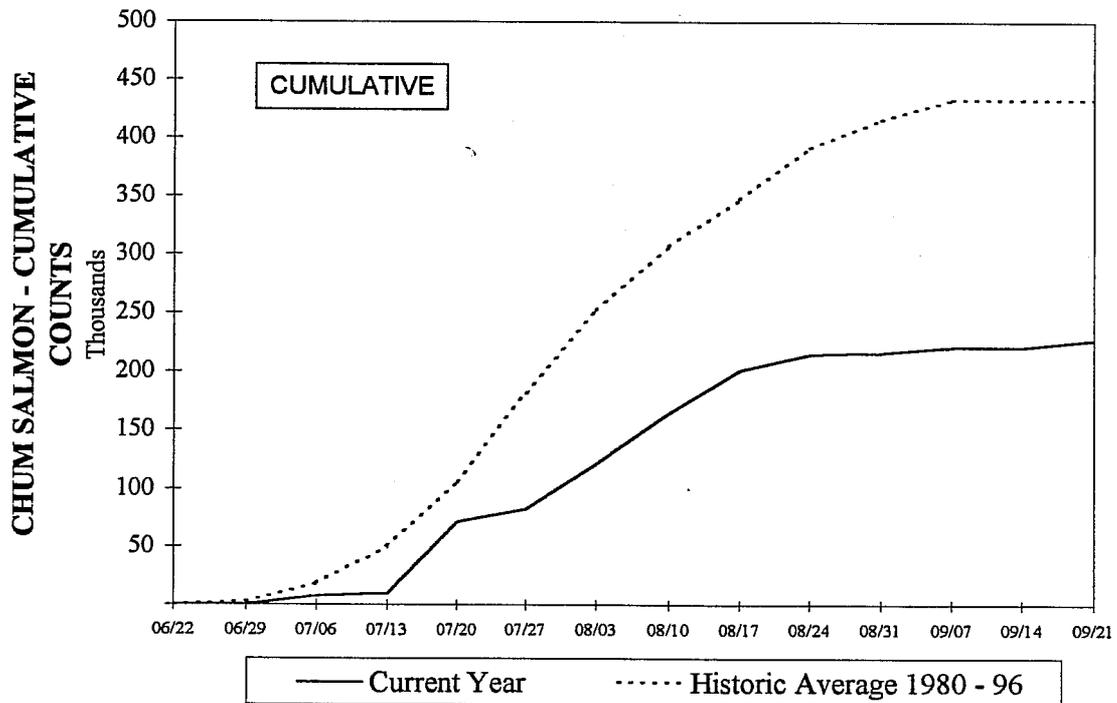
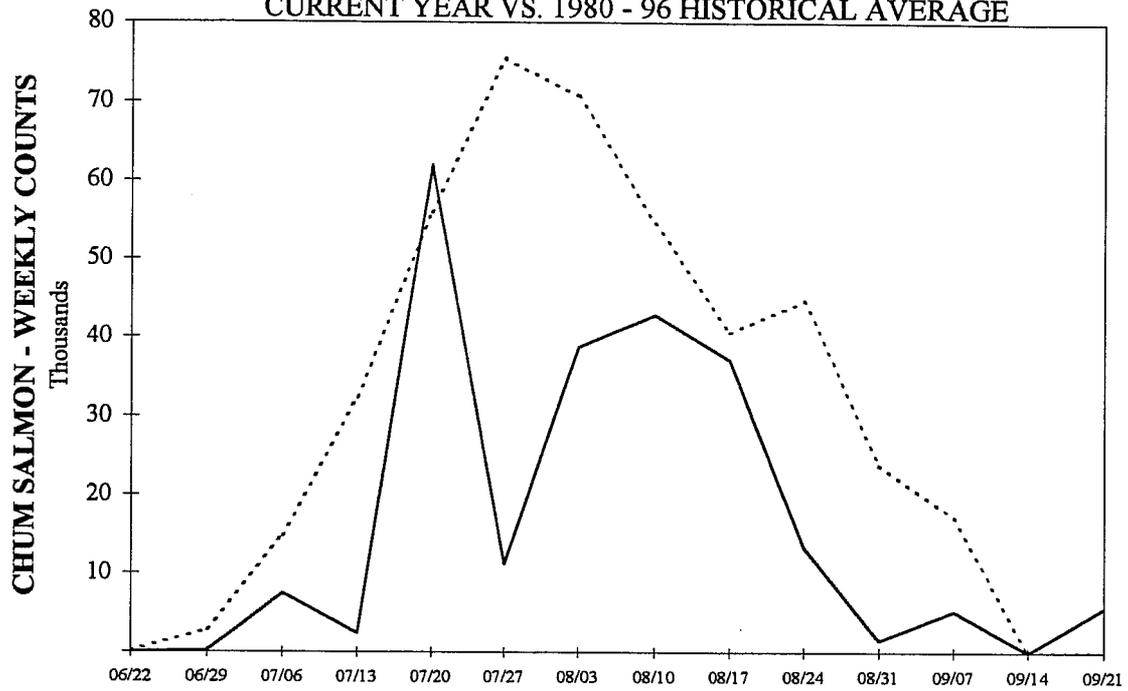
Appendix E.10. Weekly aerial estimates of chum salmon escapement by statistical area, Prince William Sound, 1997.

Survey Location	Week Ending Dates <sup>a</sup>														Adjusted Total <sup>b</sup>
	06/28	07/05	07/12	07/19	07/26	08/02	08/09	08/16	08/23	08/30	09/06	09/13	09/20		
Orea Inlet	0	NS	0	1,850	NS	0	5,200	0	350	0	NS	NS	0	7,069	
Simpson & Sheep Bay	0	5,005	0	15,000	NS	20,450	3,550	5,200	250	NS	100	NS	20	33,850	
Port Gravina	0	1,325	800	11,150	NS	8,000	4,650	11,000	1,300	NS	200	NS	50	22,297	
Port Fidalgo	0	0	1,110	1,605	NS	0	1,480	1,500	500	NS	4,450	NS	5,350	12,178	
Valdez Arm	150	625	510	8,680	NS	3,860	1,810	10,900	0	NS	150	NS	250	17,742	
Port Valdez	0	0	NS	10	NS	NS	NS	0	0	NS	0	NS	0	10	
Eastern District Total	150	6,955	2,420	38,295	NS	32,310	16,690	28,700	2,400	0	4,900	NS	5,670	93,146	
Columbia & Long Bay	0	15	NS	3,680	NS	0	1,170	710	0	NS	150	NS	25	5,703	
Wells Bay & Unakwik Inlet	60	450	NS	7,805	3,835	800	350	1,150	200	250	75	NS	0	13,011	
Eaglek Bay	NS	NS	NS	250	305	220	NS	300	0	0	NS	NS	0	715	
Northern District Total	60	465	NS	11,735	4,140	1,020	1,520	2,160	200	250	275	NS	25	19,429	
Upper Unakwik Inlet	NS	NS	NS	0	0	0	NS	0	0	0	NS	NS	0	0	
Unakwik District (229) Total	NS	NS	NS	0	0	0	NS	0	0	0	NS	NS	0	0	
West Side Port Wells	NS	NS	NS	10	270	270	NS	535	0	10	NS	NS	0	870	
Escher Passage	NS	NS	NS	0	0	0	NS	0	0	0	NS	NS	0	0	
College Fjord	NS	NS	NS	0	550	2,000	NS	0	0	900	NS	NS	0	2,231	
Coghill District Total	NS	NS	NS	10	820	2,270	NS	535	0	910	NS	NS	0	3,101	
Passage Canal & Cochrane	NS	NS	NS	2,335	2,952	1,300	NS	1,550	200	375	NS	NS	NS	4,787	
Culross Passage	NS	NS	NS	0	1,250	100	NS	100	0	0	NS	NS	NS	1,350	
Port Nellie Juan	NS	NS	NS	1,304	2,040	800	NS	0	0	0	NS	NS	NS	2,250	
Northwestern District Total	NS	NS	NS	3,639	6,242	2,200	NS	1,650	200	375	NS	NS	NS	8,387	
Crafton/Eschamy	NS	NS	NS	NS	0	0	NS	0	NS	0	NS	NS	NS	0	
Eschamy District Total	NS	NS	NS	NS	0	0	NS	0	NS	0	NS	NS	NS	0	
Cherega Is. & Dangerous P.	NS	NS	NS	NS	NS	700	NS	0	100	0	0	NS	NS	800	
East Knight Is.	NS	NS	NS	NS	NS	0	NS	0	0	0	0	NS	NS	0	
Bainbridge & Latouche Pass	NS	NS	NS	NS	NS	0	NS	0	0	0	0	NS	NS	0	
Port Bainbridge	NS	NS	NS	NS	NS	0	NS	0	0	0	0	NS	NS	0	
Southwestern District Total	NS	NS	NS	NS	NS	700	NS	0	100	0	0	NS	NS	800	
Montague Strait	NS	NS	NS	NS	NS	0	NS	3,000	0	0	0	NS	NS	3,000	
Green Island	NS	NS	NS	NS	NS	250	NS	1,000	0	0	0	NS	NS	1,000	
Montague District Total	NS	NS	NS	NS	NS	250	NS	4,000	0	0	0	NS	NS	4,000	
Orea Is. & East Hawkins	NS	NS	NS	0	NS	NS	0	NS	0	NS	0	NS	NS	0	
Hawkins Cutoff	NS	NS	NS	350	NS	NS	10,900	NS	0	NS	50	NS	NS	11,615	
North Hawkins & Canoe P.	NS	NS	NS	0	NS	NS	1,000	NS	0	NS	0	NS	NS	1,029	
Double Bay	NS	NS	NS	0	NS	NS	1,000	NS	5,000	NS	0	NS	NS	5,686	
Johnstone Point	NS	NS	NS	1,500	NS	NS	4,000	NS	400	NS	0	NS	NS	6,012	
Port Etches	NS	NS	NS	6,400	NS	NS	7,700	NS	5,000	NS	0	NS	NS	18,932	
Southeast District Total	NS	NS	NS	8,250	NS	NS	24,600	NS	10,400	NS	50	NS	NS	43,274	
<b>TOTAL OF 9 DISTRICTS</b>	<b>210</b>	<b>7,420</b>	<b>2,420</b>	<b>61,929</b>	<b>11,202</b>	<b>38,750</b>	<b>42,810</b>	<b>37,045</b>	<b>13,300</b>	<b>1,355</b>	<b>5,175</b>	<b>NS</b>	<b>5,695</b>	<b>172,137</b>	

<sup>a</sup>There are a total of 209 streams included in the systematic aerial survey program. The survey program commences in the Eastern District where the earliest escapements in the Sound occur. Weather and conditions permitting, each stream is flown weekly. Failure to fly a survey due to run timing or bad survey conditions is denoted by NS (no survey). A notation of NC (no count) occurs when a stream is flown but no count is possible because of survey conditions (i.e. water clarity). During the peak of the pink salmon run many streams are flown twice weekly to provide fisheries managers with more timely escapement data. In cases where more than one survey per week was flown the weekly observation shown in this table is the average of the two counts if observing conditions during both were good or, the maximum of the two counts if conditions during the minimum count were poor.

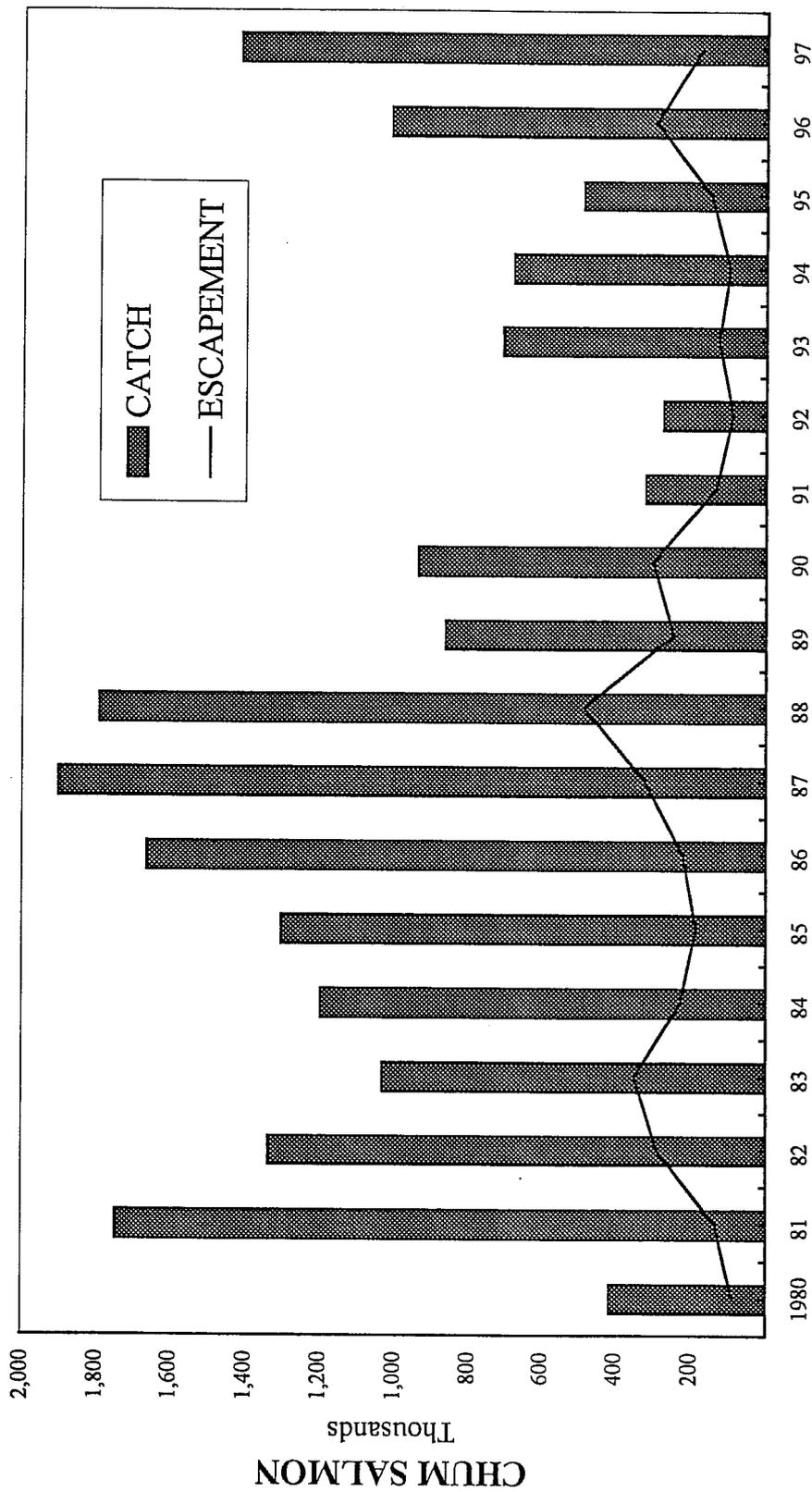
<sup>b</sup>The adjusted total is an escapement estimate based a geometric method used since the inception of the systematic survey program in the early 1960's. In this method, aerial observers are assumed to count without error or bias. Linear interpolations between observations are used to estimate numbers of fish in the stream on days when no surveys are flown. All daily observations and interpolations are summed across the season. Because fish seen on day *i*+1 may include fish seen on day *i*, the sum of all daily observations and interpolations must be divided by some residence time for fish in the streams to account for duplicate observations. The residence time of 17.5 days which has historically been used in this calculation is from tagging data completed by National Marine Fisheries Service on Olenek Creek in the early 1960's. Since observer bias does occur and since both observer bias and stream life are stream specific, adjusted totals in this table may be used for interannual comparisons but should not be interpreted as the true escapement.

## PWS CHUM STREAM COUNTS - ALL DISTRICTS CURRENT YEAR VS. 1980 - 96 HISTORICAL AVERAGE



Appendix E.11. Current year and historical weekly chum salmon escapement performance from index spawning streams, Prince William Sound, 1997.

# CHUM SALMON CATCH AND ESCAPEMENT



Appendix E.12. Chum salmon catch and escapement, Prince William Sound, 1980 - 1997.

Appendix E.13. Sockeye salmon escapement counts from selected systems, Prince William Sound, 1997.

Stream Name <sup>a</sup>	Stream Number	Weekly Count (week ending dates)													
		06/28	07/05	07/12	07/19	07/26	08/02	08/09	08/16	08/23	08/30	09/06	09/13	09/20	
Bainbridge	630	NS	NS	NS	NS	NS	80	NS	0	0	0	0	0	0	0
Billy's Creek	218	25	600	NS	500	NS	NS	NS	0	0	NS	50	0	NS	30
Cochrane Creek	461	NS	NS	NS	0	0	0	NS	0	0	0	NS	0	NS	NS
Coghill River	322	NS	NS	NS	200	1,000	500	NS	0	0	0	NS	0	NS	0
Cowpen Creek	242	NS	NS	NS	0	0	0	NS	0	0	0	NS	0	NS	0
Fish Creek	89	NS	0	0	0	NS	0	0	0	0	NS	0	0	NS	0
Jackpot River	608	NS	NS	NS	NS	NS	0	NS	1,001	100	0	NS	0	NS	NS
Jonah Creek	258	NS	NS	NS	0	0	0	NS	10	0	0	NS	0	NS	0
Keta Creek	83	NS	0	0	0	NS	0	20	0	0	NS	0	NS	NS	0
Miners River	244	NS	NS	NS	2,500	5,000	0	NS	0	2,200	500	NS	NS	NS	0
Red Creek	300	NS	NS	NS	0	100	100	NS	0	0	0	NS	NS	NS	NS
Shrode Creek	476	NS	NS	NS	100	600	150	NS	140	0	80	NS	NS	NS	NS
Twin Falls Creek	152	0	0	0	0	NS	0	0	0	0	NS	0	NS	NS	0

<sup>a</sup>Counts contained in this table are obtained in conjunction with the regular pink and chum aerial survey program. Many of these sockeye systems are difficult to survey by air, thus the counts do not necessarily represent total live abundance at a particular time.

Appendix E.14. Estimated age and sex composition of Prince William Sound commercial chum salmon catches, by district, 1997.

		Brood Year and Age Group						Total
		1995	1994	1993	1992	1991	1990	
		0.1	0.2	0.3	0.4	0.5	0.6	
<b>Eastern District</b>								
Stratum dates:	07/03 - 09/16							
Sampling dates:	07/08 - 07/08							
Sample size:	383							
Female	Percent of sample	0.0	0.8	31.3	29.5	0.5	0.0	62.1
	Number in catch	0	3,499	139,976	131,811	2,333	0	277,619
Male	Percent of sample	0.0	0.0	19.8	17.5	0.5	0.0	37.9
	Number in catch	0	0	88,652	78,153	2,333	0	169,138
Total	Percent of sample	0.0	0.8	51.2	47.0	1.0	0.0	100.0
	Number in catch	0	3,499	228,628	209,964	4,666	0	446,757
	Standard error	0	2,015	11,426	11,408	2,324	0	
<b>Coghill District</b>								
Strata Combined:	06/12 - 09/10							
Sampling dates:	06/14 - 07/06							
Sample size:	1,610							
Female	Percent of sample	0.0	0.1	21.8	42.1	0.4	0.1	64.4
	Number in catch	0	897	150,114	290,631	2,549	480	444,671
Male	Percent of sample	0.0	0.2	11.8	23.4	0.1	0.0	35.6
	Number in catch	0	1,377	81,727	161,721	480	0	245,306
Total	Percent of sample	0.0	0.3	33.6	65.6	0.4	0.1	100.0
	Number in catch	0	2,274	231,842	452,353	3,029	480	689,977
	Standard error	0	1,017	8,179	8,205	1,162	480	
<b>Southwestern District</b>								
Stratum dates:	07/28 - 09/02							
Sampling dates:	08/16 - 08/17							
Sample size:	398							
Female	Percent of sample	0.0	0.3	53.5	4.0	0.0	0.0	57.8
	Number in catch	0	17	3,562	268	0	0	3,846
Male	Percent of sample	0.3	0.5	36.9	4.5	0.0	0.0	42.2
	Number in catch	17	33	2,458	301	0	0	2,810
Total	Percent of sample	0.3	0.8	90.5	8.5	0.0	0.0	100.0
	Number in catch	17	50	6,021	569	0	0	6,656
	Standard error	17	29	98	93	0	0	
<b>All Districts Combined</b>								
Strata Combined:	06/12 - 09/16							
Sampling dates:	06/14 - 08/17							
Sample size:	2,391							
Female	Percent of sample	0.0	0.4	25.7	37.0	0.4	0.0	63.5
	Number in catch	0	4,413	293,653	422,710	4,882	480	726,137
Male	Percent of sample	0.0	0.1	15.1	21.0	0.2	0.0	36.5
	Number in catch	17	1,410	172,837	240,176	2,813	0	417,253
Total	Percent of sample	0.0	0.5	40.8	58.0	0.7	0.0	100.0
	Number in catch	17	5,823	466,490	662,885	7,695	480	1,143,390
	Standard error	17	2,257	14,052	14,053	2,598	480	

Appendix E.15. Summary of periods, dates, hours open, and emergency orders issued by district, for the commercial purse seine salmon fishery, Prince William Sound, 1997. See Appendix C.11. for Unakwik District openings.

Eastern (221)		Northern (222)		Coghill (223)		Southwestern (226)		Montague (227)		Southeastern (228)		Emergency Orders Issued
Dates	Hours Open	Dates	Hours Open	Dates	Hours Open	Dates	Hours Open	Dates	Hours Open	Dates	Hours Open	
								06/02-06/03	36 <sup>a</sup>			2-F-E-31-97
								06/04-06/06	60 <sup>a</sup>			2-F-E-31-97
								06/07-06/08	36 <sup>a</sup>			2-F-E-31-97
								06/09-06/10	36 <sup>a</sup>			2-F-E-31-97
								06/11-06/13	60 <sup>a</sup>			2-F-E-31-97
								06/14-06/15	36 <sup>a</sup>			2-F-E-31-97
								06/16-06/17	36 <sup>a</sup>			2-F-E-31-97
								06/18-06/20	60 <sup>a</sup>			2-F-E-31-97
								06/21-06/22	36 <sup>a</sup>			2-F-E-31-97
								06/23-06/24	36 <sup>a</sup>			2-F-E-31-97
								06/25-06/27	60 <sup>a</sup>			2-F-E-31-97
								06/28-06/29	36 <sup>a</sup>			2-F-E-31-97
								06/30-07/01	36 <sup>a</sup>			2-F-E-31-97
								07/02-07/04	60 <sup>a</sup>			2-F-E-31-97
07/03-07/03	12 <sup>b</sup>											2-F-E-48-97
								07/05-07/06	36 <sup>a</sup>			2-F-E-31-97
07/07-07/07	12 <sup>b</sup>											2-F-E-49-97
								07/07-07/08	36 <sup>a</sup>			2-F-E-31-97
								07/09-07/11	60 <sup>a</sup>			2-F-E-31-97
07/12-07/12	12 <sup>b</sup>											2-F-E-52-97
								07/12-07/13	36 <sup>a</sup>			2-F-E-31-97
								07/14-07/15	36 <sup>a</sup>			2-F-E-31-97
07/15-07/15	15 <sup>b</sup>											2-F-E-55-97
								07/16-07/18	60 <sup>a</sup>			2-F-E-31-97
07/17-07/17	15 <sup>b</sup>											2-F-E-57-97
07/19-07/19	15 <sup>b</sup>											2-F-E-59-97
07/21-07/21	15 <sup>c</sup>							07/19-07/20	36 <sup>a</sup>			2-F-E-53-97
								07/21-07/21	15 <sup>a</sup>	07/21-07/21	15 <sup>d</sup>	2-F-E-60-97, 2-F-E-61-97
				07/21-07/22	36 <sup>a</sup>							2-F-E-60-97
07/23-07/23	15 <sup>c</sup>									07/23-07/23	15 <sup>d</sup>	2-F-E-67-97
				07/24-07/26	36 <sup>a</sup>							2-F-E-60-97
07/25-07/25	15 <sup>c</sup>									07/25-07/25	15 <sup>d</sup>	2-F-E-68-97
07/27-07/28	36 <sup>f</sup>			07/27-08/16	492 <sup>a</sup>							2-F-E-69-97, 2-F-E-95-97
07/28-07/28	12 <sup>h</sup>	07/28-07/28	12 <sup>i</sup>	07/28-07/28	12 <sup>j</sup>	07/28-07/28	12 <sup>k</sup>			07/28-07/28	12 <sup>d</sup>	2-F-E-76-97, 2-F-E-77-97
07/30-07/30	12 <sup>c</sup>	07/30-07/30	12 <sup>l</sup>	07/30-07/30	12 <sup>j</sup>	07/30-07/30	12 <sup>m</sup>			07/30-07/30	12 <sup>d</sup>	2-F-E-78-97
07/31-07/31	12 <sup>c</sup>	07/31-07/31	12 <sup>n</sup>	07/31-07/31	12 <sup>j</sup>	07/31-07/31	12 <sup>m</sup>			07/31-07/31	12 <sup>d</sup>	2-F-E-79-97
08/01-08/01	12 <sup>c</sup>	08/01-08/01	12 <sup>n</sup>	08/01-08/01	12 <sup>j</sup>	08/01-08/01	12 <sup>m</sup>			08/01-08/01	12 <sup>d</sup>	2-F-E-79-97
08/02-08/02	12 <sup>c</sup>	08/02-08/02	12 <sup>n</sup>	08/02-08/02	12 <sup>j</sup>	08/02-08/02	12 <sup>m</sup>			08/02-08/02	12 <sup>d</sup>	2-F-E-79-97
08/03-08/03	12 <sup>c</sup>	08/03-08/03	12 <sup>n</sup>	08/03-08/03	12 <sup>j</sup>	08/03-08/03	12 <sup>o</sup>			08/03-08/03	12 <sup>d</sup>	2-F-E-79-97, 2-F-E-80-97
08/04-08/04	12 <sup>c</sup>	08/04-08/04	12 <sup>n</sup>	08/04-08/04	12 <sup>j</sup>	08/04-08/04	12 <sup>o</sup>			08/04-08/04	12 <sup>d</sup>	2-F-E-79-97
08/05-08/05	12 <sup>c</sup>	08/05-08/05	12 <sup>n</sup>	08/05-08/05	12 <sup>j</sup>	08/05-08/05	12 <sup>p</sup>			08/05-08/05	12 <sup>d</sup>	2-F-E-79-97, 2-F-E-81-97
08/06-08/06	12 <sup>q</sup>	08/06-08/06	12 <sup>n</sup>	08/06-08/06	12 <sup>j</sup>	08/06-08/06	12 <sup>p</sup>			08/06-08/06	12 <sup>d</sup>	2-F-E-79-97
08/07-08/07	12 <sup>q</sup>	08/07-08/07	12 <sup>n</sup>	08/07-08/07	12 <sup>j</sup>	08/07-08/07	12 <sup>o</sup>			08/07-08/07	12 <sup>d</sup>	2-F-E-82-97, 2-F-E-83-97
08/08-08/08	12 <sup>q</sup>			08/08-08/08	12 <sup>j</sup>	08/08-08/08	12 <sup>o</sup>			08/08-08/08	12 <sup>d</sup>	2-F-E-83-97
		08/09-08/09	12 <sup>r</sup>			08/09-08/09	12 <sup>m</sup>					2-F-E-84-97
08/09-08/10	36 <sup>q</sup>									08/09-08/10	36 <sup>d</sup>	2-F-E-84-97
		08/10-08/10	12 <sup>t</sup>			08/10-08/10	12 <sup>m</sup>					2-F-E-85-97
		08/11-08/11	12 <sup>n</sup>									2-F-E-86-97
08/11-08/12	36 <sup>q</sup>							08/11-08/12	36 <sup>a</sup>	08/11-08/12	36 <sup>d</sup>	2-F-E-86-97
08/13-08/13	12 <sup>q</sup>	08/13-08/13	12 <sup>t</sup>					08/13-08/13	12 <sup>a</sup>	08/13-08/13	12 <sup>d</sup>	2-F-E-87-97
08/14-08/14	12 <sup>q</sup>							08/14-08/14	12 <sup>a</sup>	08/14-08/14	12 <sup>d</sup>	2-F-E-88-97
08/15-08/15	12 <sup>n</sup>			08/15-08/15	12 <sup>v</sup>	08/15-08/15	12 <sup>p</sup>	08/15-08/15	12 <sup>a</sup>	08/15-08/15	12 <sup>d</sup>	2-F-E-88-97, 2-F-E-89-97
08/16-08/16	12 <sup>n</sup>			08/16-08/16	12 <sup>w</sup>	08/16-08/16	12 <sup>k</sup>	08/16-08/16	12 <sup>a</sup>	08/16-08/16	12 <sup>d</sup>	2-F-E-88-97, 2-F-E-90-97
08/17-08/17	12 <sup>n</sup>							08/17-08/17	12 <sup>a</sup>	08/17-08/17	12 <sup>d</sup>	2-F-E-88-97, 2-F-E-91-97
08/18-08/18	12 <sup>n</sup>							08/18-08/18	12 <sup>a</sup>	08/18-08/18	12 <sup>d</sup>	2-F-E-88-97, 2-F-E-92-97

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Appendix E.15. (page 2 of 3)

Eastern (221)		Northern (222)		Coghill (223)		Southwestern (226)		Montague (227)		Southeastern (228)		Emergency Orders Issued
Dates	Hours Open	Dates	Hours Open	Dates	Hours Open	Dates	Hours Open	Dates	Hours Open	Dates	Hours Open	
08/19-08/19	12 <sup>u</sup>							08/19-08/19	12 <sup>a</sup>	08/19-08/19	12 <sup>d</sup>	2-F-E-88-97, 2-F-E-93-97
08/20-08/20	12 <sup>u</sup>							08/20-08/20	12 <sup>a</sup>	08/20-08/20	12 <sup>d</sup>	2-F-E-88-97, 2-F-E-97-97
08/21-08/21	12 <sup>u</sup>	08/21-08/21	12 <sup>x</sup>	08/21-08/21	12 <sup>y</sup>	08/21-08/21	12 <sup>m</sup>	08/21-08/21	12 <sup>a</sup>	08/21-08/21	12 <sup>d</sup>	2-F-E-88-97, 2-F-E-98-97
08/22-08/22	12 <sup>u</sup>	08/22-08/22	12 <sup>z</sup>	08/22-08/22	12 <sup>aa</sup>	08/22-08/22	12 <sup>bb</sup>	08/22-08/22	12 <sup>a</sup>	08/22-08/22	12 <sup>d</sup>	2-F-E-88-97, 2-F-E-100-97
08/23-08/23	12 <sup>u</sup>	08/23-08/23	12 <sup>i</sup>	08/23-08/23	12 <sup>aa</sup>	08/23-08/23	12 <sup>cc</sup>	08/23-08/23	12 <sup>a</sup>	08/23-08/23	12 <sup>d</sup>	2-F-E-88-97, 2-F-E-101-97
08/24-08/24	12 <sup>u</sup>	08/24-08/24	12 <sup>z</sup>	08/24-08/24	12 <sup>aa</sup>	08/24-08/24	12 <sup>cc</sup>	08/24-08/24	12 <sup>a</sup>	08/24-08/24	12 <sup>d</sup>	2-F-E-88-97, 2-F-E-101-97
08/25-08/25	12 <sup>u</sup>	08/25-08/25	12 <sup>z</sup>	08/25-08/25	12 <sup>aa</sup>	08/25-08/25	12 <sup>pp</sup>	08/25-08/25	12 <sup>a</sup>	08/25-08/25	12 <sup>d</sup>	2-F-E-101-97, 2-F-E-104-97
08/26-08/26	12 <sup>u</sup>	08/26-08/26	12 <sup>z</sup>	08/26-08/26	12 <sup>aa</sup>	08/26-08/26	12 <sup>pp</sup>	08/26-08/26	12 <sup>a</sup>	08/26-08/26	12 <sup>d</sup>	2-F-E-101-97, 2-F-E-104-97
08/27-08/27	12 <sup>u</sup>	08/27-08/27	12 <sup>z</sup>	08/27-08/27	12 <sup>aa</sup>	08/27-08/27	12 <sup>cc</sup>	08/27-08/27	12 <sup>a</sup>	08/27-08/27	12 <sup>d</sup>	2-F-E-101-97, 2-F-E-105-97
08/28-08/28	12 <sup>u</sup>	08/28-08/28	12 <sup>dd</sup>	08/28-08/28	12 <sup>cc</sup>	08/28-08/28	12 <sup>cc</sup>	08/28-08/28	12 <sup>a</sup>	08/28-08/28	12 <sup>d</sup>	2-F-E-101-97, 2-F-E-107-97
08/29-08/29	12 <sup>u</sup>	08/29-08/29	12 <sup>dd</sup>	08/29-08/29	12 <sup>cc</sup>	08/29-08/29	12 <sup>cc</sup>	08/29-08/29	12 <sup>a</sup>	08/29-08/29	12 <sup>d</sup>	2-F-E-101-97, 2-F-E-107-97
08/30-08/30	12 <sup>u</sup>	08/30-08/30	12 <sup>dd</sup>	08/30-08/30	12 <sup>cc</sup>	08/30-08/30	12 <sup>cc</sup>	08/30-08/30	12 <sup>a</sup>	08/30-08/30	12 <sup>d</sup>	2-F-E-88-97, 2-F-E-101-97
						08/31-08/31	12 <sup>ff</sup>					2-F-E-108-97
08/31-09/02	60 <sup>ss</sup> 12 <sup>ii</sup>	08/31-09/02	60 <sup>hh</sup>	08/31-09/02	60 <sup>aa</sup>	08/31-09/02	60 <sup>cc</sup>	08/31-09/02	60 <sup>a</sup>	08/31-09/02	60 <sup>d</sup>	2-F-E-108-97
09/02-09/02												2-F-E-109-97
09/03-09/06	84 <sup>ss</sup>	09/03-09/06	84 <sup>hh</sup>	09/03-09/06	84 <sup>aa</sup>	09/03-09/06	84 <sup>cc</sup>	09/03-09/06	84 <sup>a</sup>	09/03-09/06	84 <sup>d</sup>	2-F-E-108-97
09/07-09/09	60 <sup>ss</sup>	09/07-09/09	60 <sup>hh</sup>	09/07-09/09	60 <sup>aa</sup>	09/07-09/09	60 <sup>cc</sup>	09/07-09/09	60 <sup>a</sup>	09/07-09/09	60 <sup>d</sup>	2-F-E-108-97
								09/10-09/12	60 <sup>a</sup>	09/10-09/12	60 <sup>d</sup>	2-F-E-110-97
09/10-09/13	84 <sup>ss</sup> 36 <sup>jj</sup>	09/10-09/13	84 <sup>hh</sup>	09/10-09/13	84 <sup>aa</sup>	09/10-09/13	84 <sup>cc</sup>					2-F-E-108-97
09/12-09/13												2-F-E-108-97
09/14-09/16	60 <sup>ss</sup> 84 <sup>jj</sup>	09/14-09/16	60 <sup>hh</sup> 84 <sup>kk</sup>	09/14-09/16	60 <sup>aa</sup> 84 <sup>aa</sup>	09/14-09/16	60 <sup>cc</sup> 84 <sup>cc</sup>					2-F-E-108-97
09/17-09/20		09/17-09/20	84 <sup>kk</sup> 60 <sup>kk</sup>	09/17-09/20	84 <sup>aa</sup>	09/17-09/20	84 <sup>cc</sup>					2-F-E-112-97, 2-F-E-113-97
		09/18-09/20	60 <sup>kk</sup>									2-F-E-113-97

- <sup>a</sup> Open waters within the Montague District included only the Port Chalmers Subdistrict. Regulatory waters and anadromous salmon stream closures were not in effect.
- <sup>b</sup> Open waters included the Eastern District except for the Valdez Narrows Subdistrict east of 146° 30.62' W. longitude and waters of Jack Bay east of a line from Entrance Point to the yellow regulatory marker on Tongue Point.
- <sup>c</sup> Open waters within the Eastern District included the Valdez Narrows Subdistrict inside a line from Potato Point to Entrance Point and west of 146° 30.62' W. longitude. Eastern District waters south of the latitude of Black Point were also open.
- <sup>d</sup> Open waters included the entire Southeastern District. All anadromous salmon stream closures remained in effect.
- <sup>e</sup> Open waters included the entire Coghill District and the Noerenberg Hatchery Special Harvest Area (SHA) up to a line of buoys in front of the barrier seine.
- <sup>f</sup> Open waters included the Valdez Narrows Subdistrict west of 146° 30.62' W. longitude and inside of a line from Entrance Point to Potato Point. Entrance Point to Potato Point.
- <sup>g</sup> Coghill District waters north of Pt. Packenham were open. All anadromous salmon stream closures remained in effect.
- <sup>h</sup> Eastern District waters south of Black Point were open. All anadromous salmon stream closures remained in effect.
- <sup>i</sup> Open waters in the Northern District included Unakwik Inlet north of 60° 54.42' N. latitude. The Cannery Creek Hatchery Terminal Harvest Area (THA) and SHA were also open. Waters of Siwash and Jonah Bays inside the yellow regulatory markers remained closed.
- <sup>j</sup> Within the Coghill District, waters of the Esther Subdistrict within one mile of Esther Island were open. The Noerenberg Hatchery THA and SHA were not open.
- <sup>k</sup> Within the Southwestern District, only the waters of the Point Elrington Subdistrict were open.
- <sup>l</sup> Open waters in the Northern District included Unakwik Inlet north of 60° 54.62' N. latitude. The Cannery Creek Hatchery THA and SHA were not open. Waters of Siwash and Jonah Bays inside of the yellow regulatory markers remained closed.
- <sup>m</sup> Within the Southwestern District, only the waters of the Port San Juan Subdistrict were open. The AFK Hatchery THA and SHA were not open.
- <sup>n</sup> Open waters included Unakwik Inlet north of 60° 54.42' N. latitude and south of 60° 58.26' N. latitude. Waters of Siwash Bay inside of the yellow regulatory markers remained closed.

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- <sup>o</sup> Within the Southwestern District, only the waters of the Port San Juan Subdistrict were open. The AFK Hatchery SHA was not open.
- <sup>p</sup> Within the Southwestern District, the waters of the Port San Juan Subdistrict including the AFK Hatchery SHA and THA were open.
- <sup>q</sup> Open waters within the Eastern District included the Valdez Narrows Subdistrict inside of a line from Potato Point to Entrance Point and west of 146° 22.67' W. longitude. Eastern District waters south of the latitude of Black Point were also open.
- <sup>r</sup> Open waters within the Northern District included those of Unakwik Inlet north of 60° 54.42' N. latitude and south of 60° 58.26' N. latitude. Waters of Siwash Bay inside of the yellow regulatory markers remained closed. The waters of Hidden Bay on Culross Island west of 148° 06.5' W. longitude were also open. Anadromous stream closures inside Hidden Bay were not in effect.
- <sup>s</sup> Open waters included the entire Montague District. All anadromous salmon stream closures remained in effect.
- <sup>t</sup> Within the Northern District, only the waters of Hidden Bay on Culross Island west of 148° 06.5' W. longitude were open. Anadromous salmon stream closures inside Hidden Bay were not in effect.
- <sup>u</sup> Within the Eastern District, waters south of a line from Potato Point to Entrance Point were open. Waters of Port Valdez inside the Potato Point to Entrance Point line were not open. The waters of Jack and Galena Bays inside of the yellow regulatory markers were closed.
- <sup>v</sup> Waters within the Esther Subdistrict east of Hodgkins Point within one mile and one-half mile of Esther Island were open.
- <sup>w</sup> Waters of the Esther Subdistrict east of Hodgkins Point were open.
- <sup>x</sup> Open waters within the Northern District included those of the Perry Island Subdistrict and Unakwik Inlet north of 60° 54.42' N. latitude and south of 60° 58.26' N. latitude. The waters of Siwash Bay inside the yellow regulatory markers were closed. Anadromous stream closures along the east side of Culross Island were not in effect.
- <sup>y</sup> Within the Coghill District, waters of the Esther Subdistrict east of 147° 57.62' W. longitude were open.
- <sup>z</sup> In the Northern District, the waters of Unakwik Inlet north of 60° 54.42' N. latitude were open. The Cannery Creek Hatchery THA and SHA were closed. Waters of Siwash and Jonah Bays inside of the yellow regulatory markers were closed. The Perry Island Subdistrict was also open. Anadromous stream closures along the east side of Culross Island were not in effect.
- <sup>aa</sup> Waters of the Esther Subdistrict, including the Noerenberg Hatchery THA and SHA to the line of buoys in front of the barrier seine were open.
- <sup>ab</sup> Waters of the Southwestern District south of a line at the latitude of Dual Head, near the entrance of Whale Bay at 60° 15.0' N. latitude and waters east of Knight Island, south of Bay of Isles, at 60° 23.0' N. latitude were open. The AFK Hatchery THA and SHA were closed.
- <sup>ac</sup> Open waters in the Southwestern District included the Point Elrington and Port San Juan Subdistricts and the AFK Hatchery THA and SHA.
- <sup>ad</sup> In the Northern District, waters of Unakwik Inlet north of 60° 54.42' N. latitude, including the Cannery Creek Hatchery THA were open. The Cannery Creek SHA was closed.
- <sup>ae</sup> Waters of the Esther Subdistrict, including the Noerenberg Hatchery THA were open.
- <sup>af</sup> Open waters included the entire Southwestern District. All anadromous salmon stream closures remained in effect.
- <sup>ag</sup> Open waters within the Eastern District included all waters south of a line from Potato Point to Entrance Point.
- <sup>ah</sup> In the Northern District, waters of Unakwik Inlet north of 60° 54.42' N. latitude, including the Cannery Creek Hatchery THA were open. The Cannery Creek Hatchery SHA was closed. In the Perry Island Subdistrict, waters within one mile of the eastern shore of Culross Island were also open. Anadromous stream closures along the eastern shore of Culross Island were not in effect.
- <sup>ai</sup> In the Eastern District, the waters of Port Valdez west of 146° 30.62' W. longitude were open.
- <sup>aj</sup> In the Eastern District, the waters of Port Valdez, including the Solomon Gulch Hatchery SHA were open.
- <sup>ak</sup> In the Northern District, the waters of the Cannery Creek Hatchery SHA were open.

Appendix F.1. Daily salmon sales harvests and sex ratios at the Wally Noerenberg Hatchery  
 1997. Brood stock and sex ratio data provided by the Prince William Sound  
 Aquaculture Corporation.

HATCHERY SALES HARVEST IN NUMBERS OF FISH						
Date	Pink Salmon % Female	Pinks	Chinook	Chum	Coho	Sockeye
06/02		0	13	2,985	0	0
06/03		0	10	11,864	0	0
06/04		0	2	16,813	0	0
06/05		0	6	27,028	0	0
06/06		0	0	28,283	0	0
06/07		0	0	9,234	0	0
06/08		0	0	9,514	0	0
06/09		0	7	18,569	0	0
06/10		0	0	23,784	0	0
06/11		0	22	23,611	0	0
06/12		0	0	35,435	0	0
06/17		0	0	1,542	0	0
06/18		0	0	13,103	0	0
06/19		0	0	27,499	0	0
06/20		0	0	23,514	0	0
06/21		0	0	49,936	0	0
06/22		0	0	38,027	0	0
06/23		0	0	13,265	0	0
06/24		0	0	15,202	0	0
06/25		0	0	11,702	0	0
06/26		0	0	13,944	0	0
06/27		0	0	20,141	0	0
06/28		0	0	18,148	0	0
06/29		0	0	7,584	0	0
06/30		0	0	8,156	0	0
07/01		0	0	6,370	0	0
07/02		0	0	4,626	0	0
07/03		0	0	7,932	0	0
07/04		0	0	7,127	0	0
07/05		0	0	18,551	0	0
07/06		0	0	38,514	0	89
07/07		0	0	13,496	0	0
07/08		0	0	42,750	0	0
07/09		0	0	15,186	0	0
07/10		0	0	25,035	0	0
07/11		0	0	24,046	0	0
07/12		0	0	10,321	0	0
07/13	37.5%	399	0	24,104	0	0

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HATCHERY SALES HARVEST IN NUMBERS OF FISH

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Date	Pink Salmon % Female	Pinks	Chinook	Chum	Coho	Sockeye
07/14		0	0	15,695	0	0
07/15	18.2%	448	0	12,262	0	0
07/16	25.0%	156	0	10,089	0	0
07/17	12.0%	846	0	17,964	0	0
07/18	13.3%	1,243	0	7,375	0	0
07/20	9.0%	1,258	0	4,213	0	0
07/26	14.1%	4,442	0	568	0	0
07/27	24.5%	14,764	0	709	0	0
07/28	22.9%	36,197	0	3,928	0	0
07/29	24.4%	40,354	0	590	0	112
07/30	29.4%	40,780	0	11,759	0	0
07/31	33.0%	30,899	0	1,955	0	0
08/01	33.4%	86,063	0	991	0	0
08/02	34.3%	81,242	0	550	0	0
08/03	38.6%	92,790	0	1,592	0	0
08/04	42.0%	79,775	0	460	0	0
08/05	41.9%	117,798	0	556	0	0
08/06	44.8%	102,668	0	0	0	0
08/07	38.1%	85,482	0	72	0	0
08/08	42.0%	41,709	0	336	0	0
08/09	49.3%	30,917	0	288	0	0
08/10	52.6%	92,881	0	0	0	0
08/11	51.6%	131,451	0	0	0	0
08/12	54.4%	174,397	0	0	0	0
08/13	49.3%	157,172	0	0	0	0
08/14	56.2%	107,929	0	0	0	0
08/15	52.7%	102,564	0	0	0	0
08/16	53.5%	39,341	0	0	0	0
08/17	50.1%	26,886	0	0	0	0
08/18	54.3%	98,826	0	0	0	0
08/19	53.4%	135,590	0	0	0	0
08/20	51.2%	129,661	0	0	0	0
08/21	53.5%	98,648	0	0	0	0
08/31		23,838	0	1,473	0	0
09/14		10,471	0	0	0	0
09/15		4,275	0	0	0	0
09/16		8,896	0	0	0	0
09/18		12,996	0	0	0	0
09/19		13,335	0	0	0	0

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HATCHERY SALES HARVEST IN NUMBERS OF FISH

Date	Pink Salmon % Female	Pinks	Chinook	Chum	Coho	Sockeye
09/22		14,021	0	0	0	0
09/23		7,460	0	0	0	0
Totals		2,280,868	60	800,366	0	201

SALES SUMMARY:

	Pink	Chinook	Chum	Coho	Sockeye
Pounds Sold	8,819,350	60	6,950,715		1,448
Average Weights:	3.87	15.13	8.68		7.20
Roe Sales/Lbs:	27,686	0	12,889		0

BROOD STOCK SUMMARY:

	Pink	Chinook	Chum	Coho
Fish spawned at hatchery	272,630	0	116,265	576
Green/bad/excess	91,601	0	31,860	229
Eggtake mortality	18,365	0	8,618	27
<b>Total available brood stock</b>	<b>382,596</b>	<b>0</b>	<b>156,743</b>	<b>832</b>
Surplus processed for roe/excessed	25,875	0	13,214	4584
Estimated return to hatchery	408,471	0	169,954	5416

Appendix F.2. Daily salmon sales harvests and sex ratios at the Armin F. Koernig Hatchery, 1997. Brood stock and sex ratio data provided by the Prince William Sound Aquaculture Corporation.

HATCHERY SALES HARVESTS IN NUMBERS OF FISH

Date	Pink Salmon	
	% Female	Pinks
07/24	19.5%	41,519
07/25	19.1%	28,775
07/26	22.6%	136,080
07/27	18.2%	152,551
07/28	26.5%	149,391
07/29	28.3%	110,417
07/30	32.1%	114,183
07/31	34.6%	103,287
08/01	37.5%	109,249
08/02	37.5%	113,293
08/03	43.4%	145,451
08/04	44.9%	157,889
08/05	47.8%	93,398
08/08	48.5%	123,318
08/09	46.4%	40,716
08/10	47.4%	80,773
08/11	47.7%	83,825
08/12	50.1%	89,132
08/13	50.1%	142,335
08/14	52.3%	261,376
08/16	53.8%	69,601
08/17	51.3%	139,072
08/18	51.3%	241,305
08/19	50.5%	96,124
08/20	50.9%	191,954
08/21	50.6%	109,890
08/22	52.6%	81,779
<b>Totals</b>		<b>3,206,683</b>
<b>SALES SUMMARY:</b>		<b>Pinks</b>
Pounds Sold		12,137,767
Average Weight:		3.79
<b>PINK BROOD STOCK SUMMARY:<sup>a</sup></b>		
Spawned at hatchery		0
Excessed		0
Green/overripe		0
Fishway/system mortality		0
<b>Total available brood stock</b>		<b>0</b>

<sup>a</sup> AFK brood stock collected at Noerenberg Hatchery in 1997.

Appendix F.3. Daily pink salmon sales harvests and sex ratios at the Solomon Gulch Hatchery, 1997. Sex ratios and brood stock data provided by Valdez Fisheries Development Association, Inc.

HATCHERY SALES HARVESTS IN NUMBERS OF FISH

Date	Pink	Chum	Coho	Sockeye	Chinook
06/18	5,242	182	3	3	3
06/20	3,372	173	0	0	1
06/22	36,913	1,123	0	2	0
06/23	34,846	213	0	0	0
06/24	37,828	21	0	0	0
06/25	68,727	61	0	0	0
06/26	67,516	91	0	3	0
06/27	134,471	62	0	0	0
06/28	52,028	42	0	0	0
06/29	155,745	257	0	0	0
06/30	188,696	100	0	0	0
07/01	68,268	96	0	0	0
07/02	177,137	20	0	0	0
07/04	156,731	0	0	0	0
07/05	162,068	0	0	0	0
07/06	126,712	16	0	1	0
07/08	172,845	10	0	0	0
07/09	184,467	0	0	0	0
07/10	193,463	0	0	0	0
07/11	167,529	0	0	0	0
07/13	177,474	0	0	0	0
07/14	43,847	0	0	0	0
08/22	10,418	1,669	0	0	0
09/03	4,664	1,394	176	0	0
09/09	0	2,613	0	0	0
09/10	0	796	0	0	0
09/12	0	291	0	0	0
09/24	0	0	2,754	0	0
Totals	2,431,007	9,230	2,933	9	4

SALES SUMMARY:

Total Pounds Sold:	10,422,042	69,043	23,633	69	95
Average Weights:	4.29	7.48	8.06	7.67	23.75
Roe Sales (lbs.)	53,606	7,648	13,838		
Milt Sales (lbs.)			575		

PINK BROOD STOCK SUMMARY:

Spawned at hatchery	189,101
Green/overripe/excessed/roe sales	96,738
System mortalities	10,377
Total available brood stock	296,216
Estimated creek spawners	0
Fish estimated remaining above weir	0
Estimated return to hatchery	296,216

COHO BROOD STOCK SUMMARY:

Spawned at hatchery	886
Green/overripe/excessed/roe sales	17,958
System mortalities	520
Total available brood stock	19,364
Estimated creek/bay spawners	0
Fish estimated remaining above weir	36
Estimated return to hatchery	19,400

Appendix F.4. Daily pink salmon sales harvests and sex ratios at the Cannery  
Creek Hatchery, 1997. Brood stock and sex ratio data  
provided by the Prince William Sound Aquaculture Corporation.

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**HATCHERY SALES IN NUMBERS OF FISH**

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Date	Pinks	% Female
07/29	9,101	27.8%
07/30	39,478	25.3%
07/31	34,772	28.7%
08/01	115,529	38.3%
08/02	152,066	30.7%
08/03	157,947	38.9%
08/04	225,776	41.1%
08/05	189,601	44.4%
08/06	76,359	44.6%
08/07	52,814	48.9%
08/08	117,953	52.4%
08/09	161,551	51.9%
08/10	3,312	51.9%
08/11	95,706	54.3%
08/13	42,294	
08/14	73,081	53.6%
08/15	96,999	52.6%
08/16	85,241	62.1%
08/17	32,193	53.5%
08/18	31,461	56.1%
08/19	21,910	58.9%
08/21	48,078	55.7%
09/15	10,221	
09/16	8,679	
09/17	5,866	
09/22	9,271	
<b>Totals</b>	<b>1,897,259</b>	

**SALES SUMMARY:**

Pounds Sold:	7,268,336
Average Weight	3.83

**PINK BROOD STOCK SUMMARY:**

Spawned at hatchery	180,472
Green/bad	80,308
Mortality	59,533
<b>Total available broodstock</b>	<b>320,313</b>
Surplus processed for roe	258,407
Estimated return to hatchery	578,720

Appendix F.5. Daily salmon sales harvests at the Main Bay Hatchery, 1997. Brood stock data provided by the Prince William Sound Aquaculture Corporation.

HATCHERY SALES HARVEST IN NUMBERS OF FISH

Date	Sockeye	Pink	Chum	Chinook
06/17	5,008	0	438	18
06/19	3,314	0	83	0
06/22	14,469	0	0	0
06/23	18,961	0	99	0
06/25	4,141	0	36	0
06/26	7,514	0	160	0
06/27	10,307	0	245	4
06/28	2,590	0	0	0
06/29	6,547	0	0	0
07/02	16,347	0	126	2
07/03	7,328	0	0	0
07/05	13,464	0	0	0
07/06	9,441	23	47	0
07/09	9,054	0	0	0
07/10	17,141	0	0	0
07/13	12,740	0	0	0
07/16	11,243	0	349	0
07/20	12,260	0	0	0
07/23	3,338	0	0	0
07/24	5,809	0	0	0
07/27	8,146	1,107	0	0
07/31	7,085	672	0	0
08/03	7,647	5,574	0	0
08/09	12,990	8,320	0	0
08/16	9,147	23,162	0	0
<b>Totals</b>	<b>236,031</b>	<b>38,858</b>	<b>1,583</b>	<b>24</b>

SALES SUMMARY:	Sockeye	Pink	Chum	Chinook
Pounds Sold	1,473,834	133,934	13,347	249
Average Weights:	6.24	3.45	8.43	10.38

MAIN BAY SOCKEYE BROOD STOCK SUMMARY:

**Main Bay Early Stock/Eyak Lake**

Good	2,034
Green/overripe	56
System mortalities/excessed/bad	2,518
<b>Total available brood stock</b>	<b>4,608</b>

**Main Bay Late Stock/Eshamy Lake**

Spawned at hatchery	3,886
Green/overripe	241
System mortalities/excessed/bad	3,763
<b>Total available brood stock</b>	<b>7,890</b>

Appendix F.6. Sales harvests of salmon by species from private nonprofit hatcheries as reported on fish tickets, Prince William Sound, 1977 - 1997.

Catch by Species <sup>a</sup>						
Year	Hatchery <sup>b</sup>	Sockeye	Coho	Pink	Chum	Total
1977	AFK			15,545		15,545
1978	AFK			114,188		114,188
1979	AFK			223,748		223,748
1980	AFK, N			346,728	6	346,734
1981	AFK			707,037	118	707,155
1982	AFK			1,354,732		1,354,732
1983	AFK			616,963		616,963
1984	AFK, SG			415,393	4,886	420,279
1985	AFK, SG			1,209,960	3,840	1,213,800
1986	AFK, SG		2,156	905,464	20,683	928,303
1987 <sup>c</sup>	AFK, SG, E, CC		7,015	2,691,190	2,549	2,700,754
1988	AFK, SG, E		6,110	1,632,701	42,694	1,681,505
1989 <sup>d</sup>	AFK, SG, WNH, CC, MB		52,307	7,812,373	131,362	7,996,042
1990	AFK, SG, WNH, CC		14,199	8,732,658	24,554	8,771,411
1991	AFK, SG, WNH, CC		52,625	5,955,561	13,471	6,021,657
1992	AFK, SG, WNH, CC, MB	163,086	73,530	3,049,394	57,392	3,343,402
1993	AFK, SG, WNH, CC, MB	113,738	3,259	2,212,403	475,148	2,804,548
1994	AFK, SG, WNH, CC, MB	79,541	22,454	10,521,439	380,365	11,003,799
1995	AFK, SG, WNH, CC, MB	63,326	13,248	5,100,819	231,539	5,408,932
1996 <sup>e</sup>	AFK, SG, WNH, CC, MB	86,911	38,945	8,291,205	1,066,683	9,483,744
1997	AFK, SG, WNH, CC, MB, GH	266,335	2,933	9,776,254	811,179	10,856,701
TOTAL		772,937	288,781	71,685,755	3,266,469	76,013,942

<sup>a</sup> Includes salmon harvested by private nonprofit hatcheries in Prince William Sound to generate revenues to offset operating costs. Does not include carcass sales or fish processed only for roe extraction after egg takes.

<sup>b</sup> Hatcheries: AFK = Armin F. Koernig (PWSAC) (formerly Port San Juan Hatchery)  
 E = Esther Hatchery (PWSAC), renamed WNH in 1989  
 SG = Solomon Gulch Hatchery (VFDA)  
 N = NERKA Inc.  
 CC = Cannery Creek (PWSAC)  
 WNH = Wally Noerenberg Hatchery (PWSAC) (formerly Esther Hatchery)  
 MB = Main Bay (PWSAC) (formerly operated by ADF&G)  
 GH = Gulkana Hatchery (Crosswind Lake Weir)

<sup>c</sup> PWSAC administered a sales harvest at the state owned Cannery Creek hatchery. A majority of the coho salmon sold were carcasses and surplus brood fish from the Solomon Gulch hatchery.

<sup>d</sup> PWSAC administered a sales harvest at the state owned Main Bay Hatchery to harvest a surplus of chum salmon due to closure of the common property fishery.

<sup>e</sup> Includes 269,848 pink salmon Peter Pan Seafoods bought from VFDA and then discarded after roe salvage. Also includes approximately 250,000 chum processed by PWSAC for meal production and roe salvage.

**Pink salmon returns to P.W.S. hatcheries from CWT<sup>a</sup>**

Hatchery	1996 Fry Release (millions)	1997 Forecast Return	Estimated Total Return	Marine Survival	Estimated C.P.F. Contribution	Estimated Sales Harvest Contribution <sup>b</sup>	Escmt. and Brood <sup>c</sup>	Eggs Taken (millions)
Solomon Gulch	233.1	10,000,000	7,012,054	3.0%	4,325,620	2,429,645	296,216	230,473,218
A. F. Koernig	108.6	3,900,000	6,605,685	6.1%	3,418,049	3,187,636	0	0
Wally Noerenberg	176.4	6,300,000	5,571,768	3.2%	3,069,701	2,152,705	408,471	228,802,178
Cannery Creek	140.4	7,500,000	4,513,121	3.2%	3,140,428	1,137,396	578,720	152,731,933
<b>Total Pink Return</b>	<b>658.5</b>	<b>27,700,000</b>	<b>23,702,628</b>	<b>3.6%</b>	<b>13,953,798</b>	<b>8,907,382</b>	<b>1,283,407</b>	<b>612,007,329</b>

**Pink salmon returns to P.W.S. hatcheries from otoliths<sup>d</sup>**

Hatchery	1996 Fry Release (millions)	1997 Forecast Return	Estimated Total Return	Marine Survival	Estimated C.P.F. Contribution	Estimated Sales Harvest Contribution <sup>b</sup>	Escmt. and Brood <sup>c</sup>	Eggs Taken (millions)
Solomon Gulch	233.1	10,000,000	6,789,545	2.9%	4,005,264	2,428,010	296,216	230,473,218
A. F. Koernig	108.6	3,900,000	6,954,318	6.4%	3,815,265	3,139,053	0	0
Wally Noerenberg	176.4	6,300,000	6,194,964	3.5%	3,464,254	2,321,255	408,471	228,802,178
Cannery Creek	140.4	7,500,000	5,779,918	4.1%	3,608,272	1,852,317	578,720	152,731,933
<b>Total Pink Return</b>	<b>658.5</b>	<b>27,700,000</b>	<b>25,718,745</b>	<b>3.9%</b>	<b>14,893,055</b>	<b>9,740,635</b>	<b>1,283,407</b>	<b>612,007,329</b>

**Chum salmon returns to P.W.S. hatcheries**

Hatchery	1997 Forecast Return	Estimated Total Return	Estimated C.P.F. Comm Catch	Sales Harvest <sup>b</sup>	Escmt. and Brood <sup>c</sup>	Eggs Taken (millions)
Solomon Gulch	390,000	267,220	255,400	11,820		
Wally Noerenberg	1,400,000	1,600,000	629,680	800,366	169,954	128,402,503
Port Chalmers	140,000	183,600	183,600			
<b>Total Chum Return</b>	<b>1,930,000</b>	<b>1,867,220</b>	<b>885,080</b>	<b>812,186</b>	<b>169,954</b>	<b>128,402,503</b>

<sup>a</sup> Contribution estimates of pink salmon from PWS hatcheries are based on analysis of CWT recoveries and location of catch as reported on fish tickets.

<sup>b</sup> Does not include carcass sales which are part of the brood stock.

<sup>c</sup> Includes brood stock, overmature/green fish, holding mortalities, excess fish and fish processed for roe extraction. Does not include watershed spawners, unseen mortalities or fish remaining in the bay.

<sup>d</sup> Contribution estimates of pink and chum salmon from PWS hatcheries are based on analysis of otolith recoveries and location of catch as reported on fish tickets.

Appendix F.8. Historical catch contributions, coded wire tag (CWT) releases, and total returns of pink salmon to Armin F. Koernig Hatchery, Prince William Sound, 1977 - 1997.

Brood Year	Return Year	Fry Release <sup>a</sup>	CWT			Total Cost Recover Harvest <sup>c</sup>	Hatchery Contribution to CR Harvest	Hatchery Contribution to Other Harvest <sup>d</sup>	Hatchery Contribution to the CPF <sup>a</sup>	Total Hatchery Return	Estimated Marine Survival
			Applied to Fry Release <sup>b</sup>	Brood Stock <sup>a</sup>	Cost Recover Harvest <sup>c</sup>						
1975	1977	1,000,000	0	16,112	15,545	7,745	0	4,000	27,857	2.79%	
1976	1978	1,010,577	0	40,432	114,188	114,188	0	0	154,620	1.40%	
1977	1979	16,950,784	0	54,207	223,748	223,748	0	275,000	552,955	3.26%	
1978	1980	22,774,739	0	108,061	346,728	346,728	0	1,038,700	1,493,489	6.56%	
1979	1981	21,500,000	0	198,901	707,037	707,037	0	1,358,907	2,264,845	10.53%	
1980	1982	69,787,000	0	164,545	1,354,732	1,354,732	0	3,615,086	5,134,363	7.36%	
1981	1983	70,118,000	0	124,278	608,002	608,002	0	2,990,225	3,722,505	5.31%	
1982	1984	87,384,533	0	186,431	387,146	387,146	0	2,226,423	2,800,000	3.20%	
1983	1985	76,746,000	0	271,513	986,141	986,141	0	3,772,962	5,030,616	6.55%	
1984	1986	103,531,000	0	277,706	814,072	814,072	0	3,872,222	4,964,000	4.79%	
1985	1987	111,266,808	207,756	389,610	1,237,332	1,237,332	0	5,986,219 <sup>e</sup>	7,613,161	6.84%	
1986	1988	116,117,645	0	281,660	646,833	646,833	0	5,148,000	6,076,493	5.23%	
1987	1989	110,036,728	209,063	124,045	3,715,739	2,474,884	0	29,698	2,628,627	2.39%	
1988	1990	160,486,843	323,030	123,021	2,669,519	1,297,941	0	5,388,128	6,809,090	4.24%	
1989	1991	113,843,914	202,265	244,589	1,089,168	650,686	339,236	3,883,058	5,117,569	4.50%	
1990	1992	115,762,047	201,835	151,923	822,411	637,090	11,209	1,602,127	2,402,349	2.08%	
1991	1993	112,830,588	202,421	211,257	357,058	239,178	10,516	1,095,084	1,556,035	1.38%	
1992	1994	113,337,345	197,729	211,884	1,160,359	950,493	18,673	563,092	1,744,142	1.54%	
1993	1995	92,078,951	178,858	176,203	545,624	468,351	2,563	208,931	856,048	0.93%	
1994	1996	108,583,112	181,124	0	118	4,128	0	1,762,753	1,766,881	1.63%	
1995	1997	108,636,976	183,098	0	3,206,633	3,187,636	0	3,418,049	6,605,685	6.08%	
1996	1998	52,384,532	0	0	0	0	0	0	0	0	

<sup>a</sup> Data for BY 1985 and 1987 - 1995 provided by the ADF&G CWT project. PWSAC provided data for all other years. Starting in 1994, brood stock number includes fish processed for roe as reported by PWSAC.

<sup>b</sup> Data for all years provided by the ADF&G CWT project. Sales numbers include inter-hatchery contributions.

<sup>c</sup> Data for all years from ADF&G fishticket information.

<sup>d</sup> Includes fish donated and/or discarded in 1991. Data provided by the ADF&G CWT project.

<sup>e</sup> Contribution estimate from Geiger, 1990.

<sup>f</sup> All BY 1995 fry released bore thermal otolith marks.

Appendix F.9. Historical catch contributions, coded wire tag (CWT) releases, and total returns of pink salmon to Cannery Creek Hatchery, Prince William Sound, 1977 - 1997.

Brood Year	Return Year	Fry Release <sup>a</sup>	CWT		Total Recover Harvest <sup>c</sup>	Hatchery Contribution		Hatchery Contribution to Other Harvest <sup>d</sup>	Hatchery Contribution to CPPE <sup>a</sup>	Total Hatchery Return	Estimated Marine Survival
			Fry Release <sup>b</sup>	Applied to		to CR Harvest	to CPPE <sup>a</sup>				
1975	1977	0	0	0	0	0	0	0	0	0	0.00%
1976	1978	0	0	0	0	0	0	0	0	0	0.00%
1977	1979	0	0	0	0	0	0	0	0	0	0.00%
1978	1980	2,826,000	0	37,000	0	0	0	0	53,348	90,348	3.20%
1979	1981	2,694,000	0	69,600	0	0	0	0	71,840	141,440	5.25%
1980	1982	21,289,000	0	75,400	0	0	0	0	688,814	764,214	3.59%
1981	1983	13,933,000	0	121,300	0	0	0	0	348,141	469,441	3.37%
1982	1984	22,123,000	0	77,000	0	0	0	0	1,062,000	1,139,000	5.15%
1983	1985	31,200,000	0	172,000	0	0	0	0	2,422,000	2,594,000	8.31%
1984	1986	36,500,000	0	71,100	0	0	0	0	781,900	853,000	2.34%
1985	1987	31,115,388	218,436	308,940	41,002	41,002	0	0	1,781,784 <sup>e</sup>	2,131,726	6.85%
1986	1988	42,600,000	0	127,688	0	0	0	0	100,000	227,688	0.53%
1987	1989	95,571,232	172,591	127,764	631,284	500,726	0	0	4,912,175	5,540,665	5.80%
1988	1990	58,969,539	125,869	190,255	552,498	489,983	0	0	1,854,059	2,534,297	4.30%
1989	1991	143,662,511	248,193	348,539	765,430	686,043	755,077	0	6,711,637	8,501,296	5.92%
1990	1992	141,519,850	244,204	168,864	363,667	306,132	3,347	0	1,041,373	1,519,716	1.07%
1991	1993	132,166,231	160,733	183,557	172,824	92,451	0	0	436,215	712,223	0.54%
1992	1994	140,030,396	232,526	398,835	3,558,438	2,422,854	18,973	0	6,800,224	9,640,886	6.88%
1993	1995	84,616,614	141,104	219,139	1,036,611	882,427	63,271	0	3,908,063 <sup>f</sup>	5,072,900	6.00%
1994	1996	130,339,451	217,554	191,798	1,805,159	1,073,004	0	0	5,251,870	6,516,672	5.00%
1995	1997	140,441,131 <sup>g</sup>	224,251	235,297	1,872,493	1,137,396	0	0	3,140,428	4,513,121	3.21%
1996	1998	136,838,852	0	0	0	0	0	0	0	0	0.00%

<sup>a</sup> Data for BY 1985 and 1987 - 1995 provided by the ADF&G CWT project. PWSAC provided data for all other years. Starting in 1994, brood stock number includes fish processed for roe as reported by PWSAC.

<sup>b</sup> Data for all years provided by the ADF&G CWT project. Sales numbers include inter-hatchery contributions.

<sup>c</sup> Data for all years from ADF&G fishticket information.

<sup>d</sup> Includes fish donated and/or discarded in 1991. Data provided by the ADF&G CWT project.

<sup>e</sup> Contribution estimate from Geiger, 1990.

<sup>f</sup> Contribution estimate adjusted for CWT losses in CCH stock.

<sup>g</sup> All BY 1995 fry released bore thermal otolith marks.

Appendix F.10. Historical catch contributions, coded wire tag (CWT) releases, and total returns of pink salmon to Wally Noerenberg Hatchery, Prince William Sound, 1977 - 1997.

Brood Year	Return Year	Fry Release <sup>a</sup>	CWT		Brood Stock <sup>a</sup>	Total Cost Recovery Harvest <sup>c</sup>	Hatchery Contribution		Hatchery Contribution to Other Harvest <sup>d</sup>	Hatchery Contribution to the CPF <sup>a</sup>	Total Hatchery Return	Estimated Marine Survival
			Applied to Fry Release <sup>b</sup>	Applied to Harvest <sup>c</sup>			to CR Harvest	to the CPF <sup>a</sup>				
1975	1977	0	0	0	0	0	0	0	0	0	0	0.00%
1976	1978	0	0	0	0	0	0	0	0	0	0	0.00%
1977	1979	0	0	0	0	0	0	0	0	0	0	0.00%
1978	1980	0	0	0	0	0	0	0	0	0	0	0.00%
1979	1981	0	0	0	0	0	0	0	0	0	0	0.00%
1980	1982	0	0	0	0	0	0	0	0	0	0	0.00%
1981	1983	0	0	0	0	0	0	0	0	0	0	0.00%
1982	1984	0	0	0	0	0	0	0	0	0	0	0.00%
1983	1985	0	0	0	0	0	0	0	0	0	0	0.00%
1984	1986	0	0	0	0	0	0	0	0	0	0	0.00%
1985	1987	34,525,575	220,369	276,947	305,946	305,946	305,946	0	2,429,062 <sup>e</sup>	3,011,955	8,72%	
1986	1988	75932715	0	222,790	443,828	443,828	443,828	0	3,200,000	3,866,618	5.09%	
1987	1989	195,607,739	280,479	390,227	2,786,348	2,786,348	2,121,349	0	3,207,218	5,718,794	2.92%	
1988	1990	159,713,663	313,004	282,022	3,364,172	2,991,569	2,991,569	0	10,280,000	13,553,591	8.49%	
1989	1991	235,378,496	467,587	456,061	1,044,093 <sup>f</sup>	964,618	442,702	2,479,492	7,790,063	11,690,234	4.97%	
1990	1992	214,941,068	395,313	230,590	518,652	783,637	270,105	10,781	1,322,054	2,006,127	0.93%	
1991	1993	163,802,656	299,241	357,510	783,637	783,637	270,105	4,132	860,291	1,492,038	0.91%	
1992	1994	172,087,494	284,957	387,692	2,407,526	2,407,526	1,582,480	12,533	4,162,803	6,145,508	3.57%	
1993	1995	162,406,765	316,171	319,159	939,605	939,605	824,020	7,931	1,163,166	2,314,276	1.42%	
1994	1996	168,864,536	281,270	208,399	4,114,858	2,269,492	2,269,492	0	2,658,625	5,136,516	3.04%	
1995	1997	169,508,993 <sup>g</sup>	295,802	349,362	2,266,121	2,152,705	2,152,705	0	3,069,701	5,571,768	3.29%	
1996	1998	106,440,456	0	0	0	0	0	0	0	0	0	0.00%

<sup>a</sup> Data for BY 1985 and 1987 - 1995 provided by the ADF&G CWT project. PWSAC provided data for all other years. Starting in 1994, brood stock number includes fish processed for roe as reported by PWSAC.

<sup>b</sup> Data for all years provided by the ADF&G CWT project. Sales numbers include inter-hatchery contributions.

<sup>c</sup> Data for all years from ADF&G fishticket information.

<sup>d</sup> Includes fish donated and/or discarded in 1991. Data provided by the ADF&G CWT project.

<sup>e</sup> Contribution estimate from Geiger, 1990.

<sup>f</sup> Includes 163,583 fish made into surimi on a trial basis.

<sup>g</sup> All BY 1995 fry released bore thermal otolith marks.

Appendix F.11. Historical catch contributions, coded wire tag (CWT) releases, and total returns of pink salmon to Solomon Gulch Hatchery, Prince William Sound, 1977 - 1997.

Brood Year	Return Year	Fry Release <sup>a</sup>	CWT		Brood Stock <sup>a</sup>	Total Cost Recovery Harvest <sup>c</sup>	Hatchery Contribution to CR Harvest <sup>b</sup>	Hatchery Contribution to Other Harvest <sup>d</sup>	Hatchery Contribution to the CPF <sup>a</sup>	Total Hatchery Return	Estimated Marine Survival
			Applied to Fry Release <sup>b</sup>	Applied to Fry Release <sup>b</sup>							
1975	1977	0	0	0	0	0	0	0	0	0	0.00%
1976	1978	0	0	0	0	0	0	0	0	0	0.00%
1977	1979	0	0	0	0	0	0	0	0	0	0.00%
1978	1980	0	0	0	0	0	0	0	0	0	0.00%
1979	1981	0	0	0	0	0	0	0	0	0	0.00%
1980	1982	0	0	0	0	0	0	0	0	0	0.00%
1981	1983	7,900,000	0	12,484	78,961	78,961	78,961	no estimate	91,445	91,445	1.16%
1982	1984	5,600,000	0	77,828	28,247	28,247	28,247	25,000	131,075	131,075	2.34%
1983	1985	8,390,000	0	196,827	223,819	223,819	223,819	64,961	485,607	485,607	5.79%
1984	1986	51,275,265	0	117,665	91,392	91,392	91,392	1,008,193	1,217,250	1,217,250	2.37%
1985	1987	54,630,942	0	183,411	1,106,910	1,106,910	1,106,910	4,000,000 <sup>e</sup>	5,290,321	5,290,321	9.68%
1986	1988	59,830,980	178,461	192,164	542,040	542,040	542,040	300,000 <sup>e</sup>	1,034,204	1,034,204	1.73%
1987	1989	130,830,267	277,365	214,891	720,048	720,048	670,952	2,412,008	3,297,851	3,297,851	2.52%
1988	1990	128,518,252	312,196	154,612	2,146,469	2,146,469	1,911,667	6,857,288	8,923,567	8,923,567	6.94%
1989	1991	122,255,027	210,854	275,066	3,220,450	3,220,450	2,900,513	2,515,597	5,691,176	5,691,176	4.66%
1990	1992	131,296,671	250,051	238,503	1,344,664	1,344,664	1,240,324	380,251	1,864,031	1,864,031	1.42%
1991	1993	86,900,725	160,733	168,749	1,326,463	1,326,463	942,993	572	1,112,314	1,112,314	1.28%
1992	1994	141,865,235	235,764	423,895	3,181,846	3,181,846	2,657,755	6,217	12,735,021	12,735,021	8.98%
1993	1995	149,473,648	305,678	440,134	2,535,578	2,535,578	2,528,659	4,255	6,765,357	6,765,357	4.53%
1994	1996	205,371,130	337,834	144,334	2,365,031	2,365,031	2,016,927	0	6,990,211	6,990,211	3.40%
1995	1997	233,088,327	376,203	256,789	2,431,007	2,431,007	2,429,645	0	7,012,054	7,012,054	3.01%
1996	1998	188,862,094	0	0	0	0	0	0	0	0	0.00%

<sup>a</sup> Data for BY 1985 and 1987 - 1995 provided by the ADF&G CWT project. VFDA provided data for all other years. Starting in 1994, brood stock number includes fish processed for roe as reported by VFDA.

<sup>b</sup> Data for all years provided by the ADF&G CWT project. Sales numbers include inter-hatchery contributions.

<sup>c</sup> Data for all years from ADF&G fishlicket information.

<sup>d</sup> Includes fish donated and/or discarded in 1991. Data provided by the ADF&G CWT project.

<sup>e</sup> Contribution estimate from Geiger, 1990.

<sup>f</sup> All BY 1995 fry released bore thermal otolith marks.

Appendix F.12. Historical catch contributions, thermal marked otolith releases, and total returns of pink salmon to Prince William Sound hatcheries, 1995 - 1997.

**Solomon Gulch**

Brood Year	Return Year	Fry Release	Thermal Mark Applied to Fry Release	Brood Stock	Total Cost Recover		Hatchery Contribution to CR Harvest	Hatchery Contribution to Other Harvest	Hatchery Contribution to CPF	Total Hatchery Return	Estimated Marine Survival
					Harvest	Harvest					
1995	1997	233,088,327	233,088,327	356,271	2,431,007	2,428,010	0	0	4,005,264	6,789,545	2.90%
1996	1998	188,862,094	188,862,094								

**Armin F. Koernig**

Brood Year	Return Year	Fry Release	Thermal Mark Applied to Fry Release	Brood Stock	Total Cost Recover		Hatchery Contribution to CR Harvest	Hatchery Contribution to Other Harvest	Hatchery Contribution to CPF	Total Hatchery Return	Estimated Marine Survival
					Harvest	Harvest					
1995	1997	108,636,976	108,636,976	0	3,206,683	3,139,053	0	0	3,815,265	6,954,318	6.40%
1996	1998	52,384,532	52,384,532								

**Wally Noerenberg**

Brood Year	Return Year	Fry Release	Thermal Mark Applied to Fry Release	Brood Stock	Total Cost Recover		Hatchery Contribution to CR Harvest	Hatchery Contribution to Other Harvest	Hatchery Contribution to CPF	Total Hatchery Return	Estimated Marine Survival
					Harvest	Harvest					
1995	1997	176,431,919	176,431,919	409,455	2,280,868	2,321,255	0	0	3,464,254	6,194,964	3.50%
1996	1998	106,440,456	106,440,456								

**Cannery Creek**

Brood Year	Return Year	Fry Release	Thermal Mark Applied to Fry Release	Brood Stock	Total Cost Recover		Hatchery Contribution to CR Harvest	Hatchery Contribution to Other Harvest	Hatchery Contribution to CPF	Total Hatchery Return	Estimated Marine Survival
					Harvest	Harvest					
1995	1997	140,441,131	140,441,131	319,329	1,897,259	1,852,317	0	0	3,608,272	5,779,918	4.10%
1996	1998	136,838,852	136,838,852								

Appendix F.13 Estimated total hatchery and wild stock production of pink salmon, Prince William Sound, 1977 - 1997.

Year <sup>b</sup>	Total Return by Hatchery <sup>a</sup>					Total Hatchery Production	Total Wild Stock Component <sup>c</sup>
	Solomon Gulch (VFDA)	Armin F Koernig (PWSAC)	Wally Noerenberg (PWSAC)	Main Bay (ADF&G - PWSAC)	Cannery Cr. (ADF&G - PWSAC)		
1977		27,857				27,857	5,816,401
1978		154,620				154,620	3,925,083
1979		552,955				552,955	17,335,503
1980		1,493,489			90,348	1,583,837	14,013,916
1981		2,264,854			141,440	2,406,294	19,568,866
1982		5,134,363		35,000	764,214	5,933,577	16,794,317
1983	91,445	3,722,502		496,850	469,441	4,780,238	11,567,348
1984	131,075	2,800,000		1,200,000	1,139,000	5,270,075	21,201,513
1985	485,607	5,030,616		383,000	2,594,000	8,493,223	19,938,105
1986	1,217,250	4,964,000		232,000	853,000	7,266,250	5,563,957
1987	5,290,321	7,613,161	3,011,955	328,000	2,131,726	18,375,163	13,066,944
1988	1,034,204	6,076,493	3,866,618	100,000	227,688	11,305,003	1,766,936
1989	3,297,851	2,628,627	5,718,794	0	5,540,665	17,185,937	6,610,342
1990	8,923,567	6,809,090	13,553,591	0	2,534,297	31,820,545	14,418,696
1991	5,691,176	5,117,569	11,690,234	0	8,501,296	31,000,275	9,295,456
1992	1,864,031	2,391,140	2,006,127	0	1,519,716	7,781,014	2,203,701
1993	1,112,314	1,528,425	1,492,039	0	712,223	4,845,001	2,875,916
1994	12,735,021	1,744,142	6,145,508	0	9,640,886	30,265,557	9,501,683
1995	6,765,357	856,048	2,314,276	0	5,072,900	15,008,581	3,401,469
1996	6,990,211	1,766,881	5,136,516	0	6,516,672	20,410,280	8,374,327
1997	7,012,054	6,605,685	5,571,768	0	4,513,121	23,702,628	4,596,623

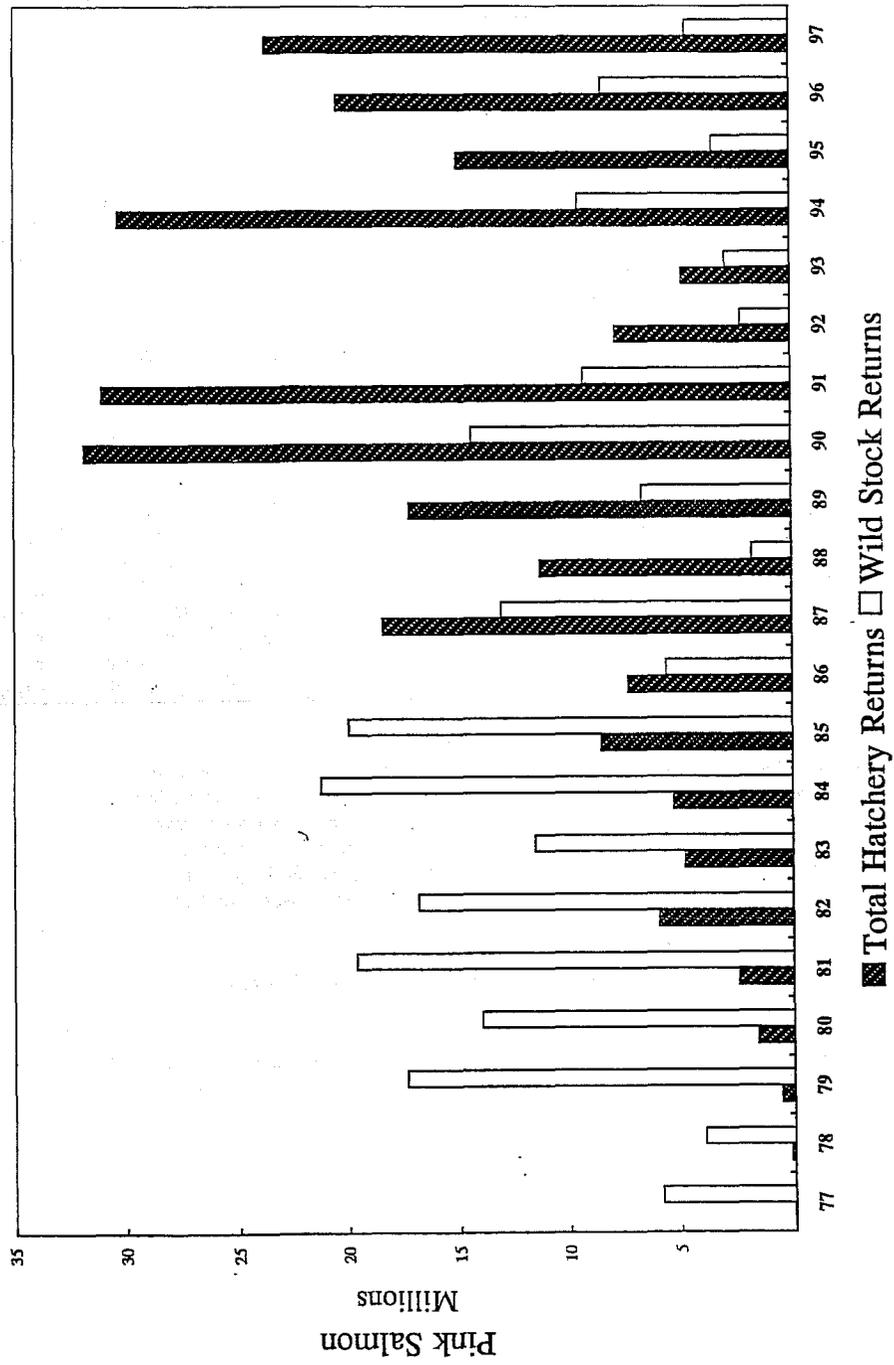
<sup>a</sup> Prior to 1987, there was no definitive or statistically valid method of separating hatchery and wild stock composition in the commercial catch. The above estimates are based on presumed wild stock exploitation rates which in turn are determined by the wild stock escapement estimate. The wild stock escapement index is only a minimum estimate. The true wild stock escapement is not known. Consequently estimates prior to 1987 may exaggerate hatchery contributions somewhat. In 1987 returning adults from the Cannery Creek, Armin F. Koernig and Esther hatcheries were marked with half length coded wire tags. In a jointly funded program conducted by ADF&G and PWSAC, these marked fish were recovered and analyzed to estimate hatchery contributions to the fishery (Geiger, 1990).

<sup>b</sup> Hatchery totals include cost recovery harvests, brood stock collection and escapement, and estimated common property fishery interception.

<sup>c</sup> Total wild stock return represents the estimated wild stock catch plus the aerial escapement index. 1997 wild stock component = 3,173,935 catch plus 1,422,688 escapement index.

# Hatchery and Wild Stock Pink Salmon Returns

Prince William Sound



Appendix F.14. Estimated total pink salmon returns to hatcheries and wild stock systems, Prince William Sound, 1977 - 1997.

Appendix F.15. Historical catch contributions, coded wire tag (CWT) releases, and total returns of pink salmon to all hatcheries combined, Prince William Sound, 1977 - 1997.

Brood Year	Return Year	Fry Release <sup>a</sup>	CWT Applied to		Brood Stock <sup>a</sup>	Total Cost Recovery Harvest <sup>e</sup>	Hatchery Contribution to CR Harvest <sup>b</sup>	Hatchery Contribution to Other Harvest <sup>d</sup>	Hatchery Contribution to the CPF <sup>a</sup>	Total Hatchery Return	Estimated Marine Survival
			Fry Release <sup>b</sup>	Fry Release <sup>a</sup>							
1975	1977	1,000,000	0	16,112	15,545	7,745	0	4,000	27,857	2.79%	
1976	1978	11,010,577	0	40,432	114,188	114,188	0	0	154,620	1.40%	
1977	1979	16,950,784	0	54,207	223,748	223,748	0	275,000	552,955	3.26%	
1978	1980	25,600,739	0	145,061	346,728	346,728	0	1,092,048	1,583,837	6.19%	
1979	1981	24,194,000	0	268,501	707,037	707,037	0	1,430,747	2,406,285	9.95%	
1980	1982	91,076,000	0	239,945	1,354,732	1,354,732	0	4,303,900	5,898,577	6.48%	
1981	1983	91,951,000	0	258,062	686,963	686,963	0	3,338,366	4,283,391	4.66%	
1982	1984	115,107,533	0	341,259	415,393	415,393	0	3,313,423	4,070,075	3.54%	
1983	1985	116,336,000	0	640,340	1,209,960	1,209,960	0	6,259,923	8,110,223	6.97%	
1984	1986	191,306,265	0	466,471	905,464	905,464	0	5,662,315	7,034,250	3.68%	
1985	1987	231,538,713	646,561	1,158,908	2,691,190	2,691,190	0	14,197,065	18,047,163	7.79%	
1986	1988	218,830,647	568,688	824,302	1,632,701	1,632,701	0	8,748,000	11,205,003	5.12%	
1987	1989	532,045,966	939,498	856,927	7,853,419	5,767,911	0	10,561,099	17,185,937	3.23%	
1988	1990	507,688,297	1,074,099	749,910	8,732,658	6,691,160	0	24,379,475	31,820,545	6.27%	
1989	1991	615,139,948	1,128,899	1,324,255	6,119,141	5,201,860	3,573,805	20,900,355	31,000,275	5.04%	
1990	1992	603,519,636	1,091,403	789,880	3,049,394	2,626,248	30,290	4,345,805	7,792,223	1.29%	
1991	1993	495,700,200	823,128	921,073	2,639,982	1,544,727	14,648	2,392,162	4,872,610	0.98%	
1992	1994	567,320,470	950,976	1,422,306	10,308,169	7,613,582	56,396	21,173,273	30,265,557	5.33%	
1993	1995	488,575,978	941,811	1,154,635	5,037,418	4,703,457	78,020	9,072,469	15,008,581	3.07%	
1994	1996	613,158,229	1,017,782	544,531	8,285,166	5,363,551	0	14,502,198	20,410,280	3.33%	
1995	1997	651,675,427	1,079,354	841,448	9,776,254	8,907,382	0	13,953,798	23,702,628	3.64%	
1996	1998	484,525,934									

<sup>a</sup> Data for BY 1985 and 1987 - 1995 provided by the ADF&G CWT project. PWSAC provided data for all other years. Starting in 1994, brood stock number includes fish processed for roe as reported by PWSAC.

<sup>b</sup> Data for all years provided by the ADF&G CWT project. Sales numbers include inter-hatchery contributions.

<sup>c</sup> Data for all years from ADF&G fishticket information.

<sup>d</sup> Includes donated and/or discarded fish in 1991. Data provided by the ADF&G CWT project.

<sup>e</sup> All BY 1995 fry released bore thermal otolith marks.

Appendix G.1. Subsistence salmon harvest by species and gear type, Prince William Sound and Upper Copper River, 1997.

Area	Permits		Gear							Total
	Issued	Fished	Type	Chinook	Sockeye	Colto	Pink	Chum	Other <sup>a</sup>	
Prince William Sound	4	1	Drift Gillnet	0	3	0	0	0	0	3
	0	0	Purse Seine	0	0	0	0	0	0	0
	0	0	Set Net	0	0	0	0	0	0	0
P.W.S. TOTAL	4	0		0	3	0	0	0	0	3
Copper River Flats	269	165	Drift Gillnet	201	1,033	1,777	5	4	2	3,022
Upper Copper River	286		Dip Net	253	7,711	0	0	0	0	7,964
	847		Fish Wheel	2,155	69,677	177	0	0	157	72,166
Eastern	6	3	Drift Gillnet and Dip Net	0	107	45	0	54	0	206
Southwestern	5	4	Drift Gillnet and Dip Net	44	193	30	110	272	0	649
Batzulnetas	0	0	Fish Wheel	0	0	0	0	0	0	0
Total	1,417	172		2,653	78,724	2,029	115	330	159	84,010

<sup>a</sup>Includes cutthroat, steelhead and Dolly Varden as well as misc. salmon species.

Appendix G.2. Salmon catch and effort in the Prince William Sound subsistence fishery, 1960 - 1997.

Year	Permits		Catch <sup>a</sup>							Total
	Issued	Returned	Chinook	Sockeye	Coho	Pink	Chum	Unknown		
1960	50		1	139	505	1,292	75	150	2,162	
1961	12		3	41	123	732	3		902	
1962	9				119	214	142		475	
1963	9				406	298	24		728	
1964	15			11		900			911	
1965	22	16				179	25		204	
1966	3	3		3	19	20	50		92	
1967	4	3			4	4			8	
1968	4	3			20	156		22	198	
1969	7	3			16				16	
1970	1	1							0	
1971	3	2				46			46	
1972	0								0	
1973	19	16			289				289	
1974	3	1							0	
1975	2	0							0	
1976	0								0	
1977	4	4							0	
1978	3	2							0	
1979	15	2							0	
1980	26	15		7	6				13	
1981	12	8		3	29		2		34	
1982	35	27		84	4	31	24		143	
1983	26	21		22	36	9	79		146	
1984	8	8		10		11	2		23	
1985	22	16	1	27	16	14	26		84	
1986	25	14		5	15				20	
1987	18	17	5	31	6		16		58	
1988	7	7	2	51	7	10	9		79	
1989	11	7	0	0	0	0	3	0	3	
1990	8	8	0	0	7	4	0	0	11	
1991	9	5	0	2	0	0	0	0	2	
1992	10	6	0	20	0	0	0	0	20	
1993	6	6	1	104	10	0	0	0	115	
1994	5	4	0	0	0	0	0	0	0	
1995	4	2	0	0	0	0	0	0	0	
1996	10	2	0	0	0	0	0	0	3	
1997	4	3	0	3	0	0	0	0	3	

<sup>a</sup> Includes catches from Prince William Sound, exclusive of the Copper River Flats.

Appendix G.3. Salmon catch and effort in the Copper River District subsistence gillnet fishery, 1965-1997.

Year	Total	Permits Issued			Catch			Total
	Issued	Fished <sup>a</sup>	Not Fished	Not returned	Chinook	Sockeye	Coho	
1965	31	15	5	11	12	459	85	556
1966	45	21	10	14	47	175		222
1967	61	37	19	5	83	153		236
1968	17	7	8	2	11	36		47
1969	49	20	13	16	16	63	85	164
1970	32	24	3	5	66	179		245
1971	29	17	9	3	10	32	4	46
1972	104	75	5	24	149	569	53	771
1973	94	89	N/A	5	153	326	180	659
1974	9	3	2	4	5	4	2	11
1975	2	2	N/A	0	0	5	0	5
1976	27	14	N/A	13	1	10	0	11
1977	23	22	N/A	1	10	71	0	81
1978	34	9	19	6	37	18	12	67
1979	49	21	20	8	45	26	17	88
1980	39	18	17	4	19	27	17	63
1981	72	30	21	21	48	145	104	297
1982	108	48	42	18	60	634	106	802 <sup>b</sup>
1983	87	31	42	14	79	107	57	254 <sup>b</sup>
1984	118	57	47	14	68	324	135	549 <sup>b</sup>
1985	94	67	27	0	88	261	83	433 <sup>b</sup>
1986	88	57	28	3	86	348	47	481 <sup>b</sup>
1987	95	39	50	6	49	359	14	510 <sup>b</sup>
1988	114	57	40	17	59	226	42	440 <sup>b</sup>
1989	75	32	32	11	56	339	51	454 <sup>b</sup>
1990	88	38	38	12	60	469	82	611 <sup>b</sup>
1991	129	72	43	14	136	830	38	1,009 <sup>b</sup>
1992	126	67	46	13	142	785	42	999 <sup>b</sup>
1993	111	50	43	18	120	428	29	601 <sup>b</sup>
1994	101	60	37	4	164	474	67	708 <sup>b</sup>
1995	126	72	40	14	154	692	31	880 <sup>b</sup>
1996	176	101	56	19	276	969	47	1,292
1997	269	165	78	26	201	1033	1777	3,022 <sup>b</sup>

<sup>a</sup>Includes all permit holders, successful or unsuccessful.

<sup>b</sup>Total also includes pink, chum and dolly varden.

Appendix G.4. Salmon catch and effort in the Eastern (Tatitlek) and Southwestern (Chenega) subsistence fishery, Prince William Sound, 1988 - 1997.

Year	Permits		Catch							Total
	Issued	Fished	Chinook	Sockeye	Coho	Pink	Chum	Unknown		
EASTERN										
1988	17	9	2	210	249	143	297	0	901	
1989	14	7	1	107	653	28	43	0	832	
1990	13	8	0	5	241	10	4	0	260	
1991	19	7	0	107	984	320	28	0	1,439	
1992	15	5	2	441	369	30	49	0	891	
1993	18	7	2	512	305	144	74	180	1,217	
1994	14	4	0	50	143	50	70	0	313	
1995 <sup>a</sup>	15									
1996	6	1	0	0	38	0	0	0	38	
1997	6	3	0	107	45	0	54	0	206	

SOUTHWESTERN										
1988	10	5	1	50	8	251	294	0	604	
1989	8	7	0	322	0	554	180	0	1,056	
1990	7	2	1	36	5	20	2	0	64	
1991	12	4	3	345	42	195	53	0	638	
1992	14	8	1	526	23	313	99	0	962	
1993	22	17	2	835	50	232	124	0	1,243	
1994	16	8	5	192	77	402	161	0	837	
1995	10	5	2	152	67	67	41	0	329	
1996	7	3	0	107	7	105	46	0	265	
1997	5	4	44	193	30	110	272	0	649	

<sup>a</sup> No permits were returned.

Appendix G.5. Salmon catch by species and numbers of permits by gear type for the Upper Copper River subsistence and personal use fisheries, 1981 - 1997.

Year	Permits Issued			Reported Catch <sup>a</sup>			Reported Catch by Species			Total Salmon Catch	
	Dip Net	Wheel	Total	Dip Net	Wheel	Total	Chinook	Sockeye	Coho	Reported	Estimated
1981	3,555	523	4,078	28,872	26,924	55,796	1,913	53,008	849	55,770	68,654
1982	5,475	615	6,090	62,614	38,120	100,734	2,532	96,799	1,246	100,577	109,557
1983	6,911	630	7,541	72,257	35,971	108,228	5,421	100,995	1,690	108,106	118,599
1984 s	104	458	562	1,288	20,374	21,662	415	20,999	237	21,651	28,617
p	5,311	17	5,328	46,018	223	46,241	1,592	44,079	552	46,223	50,714
s&p	5,415	475	5,890	47,306	20,597	67,903	2,007	65,078	789	67,874	79,331
1985	4,153	533	5,686	29,856	22,877	52,733	1,673	50,488	544	52,705	64,164
1986 s <sup>b</sup>	39	366	405	645	25,136	25,781	622	24,890	264	25,776	28,417
p	3,966	65	4,031	41,641	1,054	42,695	2,294	39,794	521	42,609	44,047
s&p	4,005	431	4,436	42,286	26,190	68,476	2,916	64,684	785	68,385	72,464
1987 s <sup>b</sup>	59	372	431	1,114	24,157	25,271	531	21,615	105	22,251	34,080
p	4,186	73	4,259	42,842	567	43,409	2,749	40,285	393	43,427	46,908
s&p	4,245	445	4,690	43,956	24,724	68,680	3,280	61,900	498	65,678	80,988
1988 s	70	339	409	1,860	18,955	20,815	672	19,761	245	20,678	30,313
p	4,205	46	4,251	40,492	1,238	41,730	2,723	38,533	450	41,706	45,855
s&p	4,275	385	4,660	42,352	20,193	62,545	3,395	58,294	695	62,384	76,168
1989 s	78	308	386	2,235	25,377	27,612	744	26,716	65	27,525	29,225
p	4,447	137	4,584	53,321	3,223	56,544	2,160	53,505	825	56,490	58,941
s&p	4,525	445	4,970	55,556	28,600	84,156	2,904	80,221	890	84,015	88,166
1990 s	95	311	406	2,703	27,942	30,645	604	29,947	87	30,638	32,283
p	5,631	58	5,689	67,241	747	67,988	2,594	63,793	1,446	67,833	70,812
s&p	5,726	169	6,095	69,944	28,689	98,633	3,198	93,740	1,533	98,471	103,095
1991 s	293	418	711	6,127	31,634	37,761	1,217	36,289	213	37,719	40,070
p	6,222	NA	6,222	82,767	NA	82,767	3,947	75,499	3,264	82,710	85,059
s&p	6,515	418	6,933	88,894	31,634	120,528	5,164	111,788	3,477	120,429	125,129
1992 s	151	504	655	4,250	40,198	44,448	1,368	42,689	330	44,387	46,395
p	6,387	NA	6,387	89,840	NA	89,840	3,337	84,981	1,487	89,805	91,683
s&p	6,538	504	7,042	94,090	40,198	134,288	4,705	127,670	1,817	134,192	138,078
1993 s	14	759	773	252	49,792	50,044	1,308	48,582	70	49,960	54,370
p	7,914	NA	7,914	93,747	NA	93,747	2,729	89,629	1,358	93,716	97,767
s&p	7,928	759	8,687	93,999	49,792	143,791	4,037	138,211	1,428	143,676	152,137
1994 s	267	703	970	6,154	58,504	64,658	1,827	62,717	55	64,658	69,662
p	7,061	NA	7,061	95,903	NA	95,903	3,596	90,332	1,903	95,831	99,822
s&p	7,328	703	8,031	102,057	58,504	160,561	5,423	153,049	1,958	160,430	169,484
1995 s	191	665	856	3,626	47,481	51,107	1,740	48,415	821	50,976	55,329
p	6,760	NA	6,760	85,997	NA	85,997	4,568	76,670	4,726	85,964	88,617
s&p	6,951	667	7,616	89,623	47,481	137,104	6,308	125,085	5,547	136,940	143,946
1996 s	219	631	850	5,757	45,086	50,843	1,388	48,747	522	50,657	54,091
p	7,198	NA	7,198	99,511	NA	99,511	3,493	92,590	3,295	99,378	101,972
s&p	7,417	631	8,048	105,268	45,086	150,354	4,881	141,337	3,817	150,035	156,063
1997 s	286	847	1,133	7,964	72,166	80,130	2,408	77,388	177	79,973	86,270
p	9,086	NA	9,086	151,387	NA	151,387	5,336	145,881	155	151,372	154,467
s&p	9,372	847	10,219	159,351	72,166	231,517	7,744	223,269	332	231,345	240,737

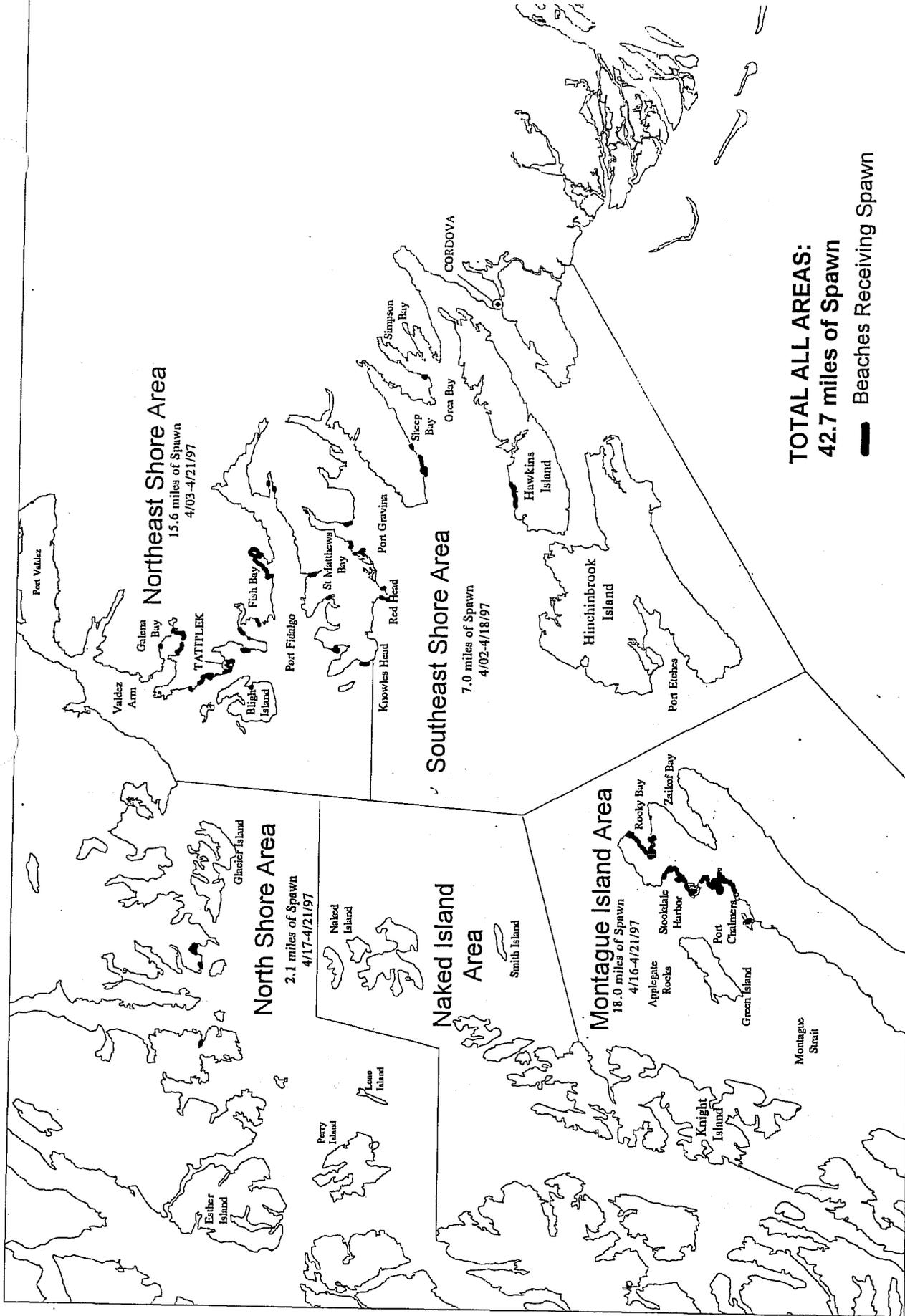
<sup>a</sup> Includes all reported species

s = subsistence

p = personal use

s&p = total catch

<sup>b</sup> Subsistence dip net catch estimated



Appendix H.1. Location of spawning herring and miles of spawn observed during aerial surveys in Prince William Sound, Alaska, 1997.

Appendix H.2. Prince William Sound commercial Pacific herring harvest summary with fishing location and effort by gear type, 1997.

Fishery	Fishing Information				Harvest and Use (tons)	
	Area	Date	Duration	Effort	Spawn on Kelp	Pacific Herring
Sac Roe Purse Seine	Montague Is.	13 Apr	20 min	15		650.7
	Montague Is.	15 Apr	90 min	56		4,052.8
	Total					
Sac Roe Gillnet	Northeast	9 Apr	2.5 hr	22		175.7
	Total					
Wild Spawn-on-Kelp <sup>a</sup>	Montague Is.	25 Apr	4 hr	39	20.6	164.8
	Montague Is.	26 Apr	4 hr	15	5.8	46.4
	Total					26.4
Pound Spawn-on-Kelp <sup>c</sup>	Montague Is.	10 Apr-6 May		73 <sup>d</sup>	26.1	208.8
	Port Fidalgo	13 Apr-6 May		14 <sup>d</sup>	4.6	36.9
	Port Fidalgo	13 Apr-6 May		3 <sup>e</sup>	3.6	44.8
	Total					34.3
Food/Bait Fishery	Montague Is.	1 Nov 97	11.5 hr	12		578.1
	Montague Is.	19 Feb-28 Feb 98	9 d	-		101.6
	Total					
<b>Harvest and Use - Total</b>					<b>60.7</b>	<b>6,060.6</b>

<sup>a</sup> The harvest of naturally occurring herring spawn on native kelp species in Prince William Sound.

<sup>b</sup> The biomass of herring subjected to removal of reproductive capacity of the population based on the assumptions that 10% of the biomass of pre-spawning herring consists of eggs and that 80% of the weight of harvested spawn on kelp consists of eggs.

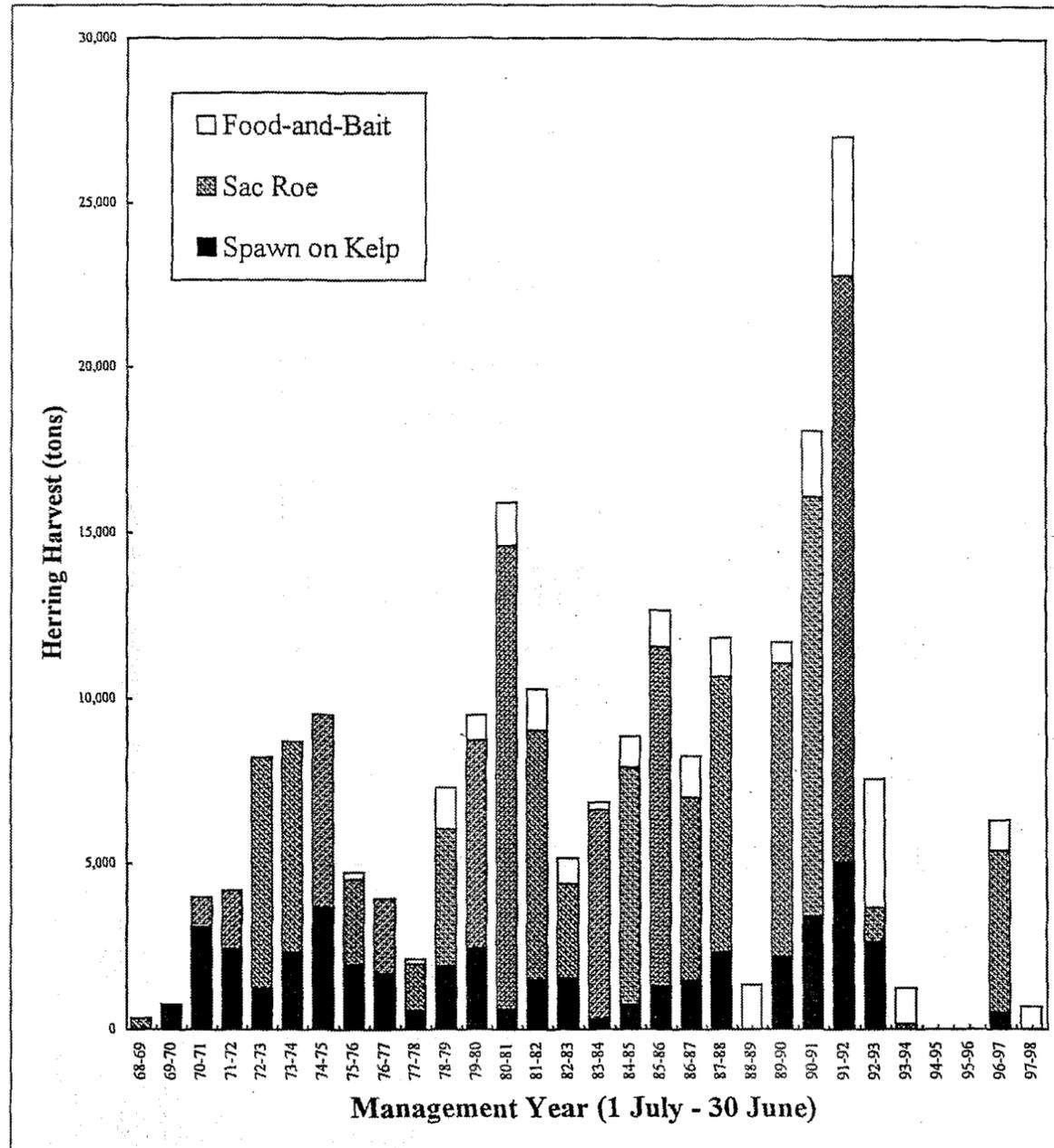
<sup>c</sup> The harvest of herring spawn on kelp produced in net pens or pounds. Includes pounds fished in open configuration.

<sup>d</sup> Open pound configuration

<sup>e</sup> Closed pound configuration.

<sup>f</sup> The biomass of herring subjected to stress mortality and removal of reproductive capacity of the population based on the assumption that 12.5 tons of herring are used to produce one ton of spawn on kelp.

### All Fisheries Herring Harvest Prince William Sound



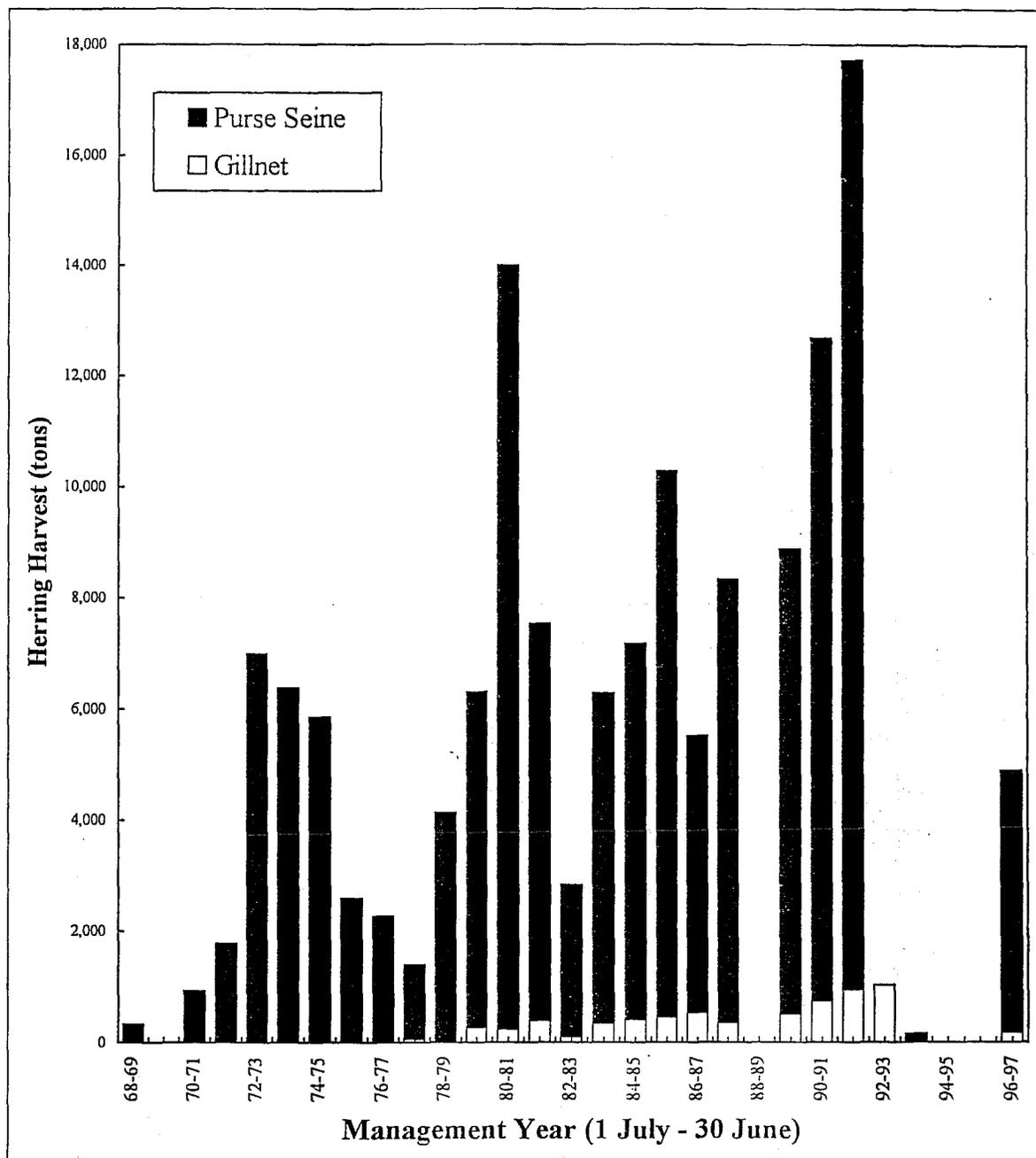
Appendix H.3. Prince William Sound commercial herring harvest by management year and fishery, 1968-1997.

Appendix H.4. Pacific herring sac roe seine and gillnet fishery effort, anticipated harvest, and actual harvest, Prince William Sound, 1969-1997.

Calendar Year	Seine Fishery				Gillnet Fishery				Total Harvest (tons)						
	Opening Dates	Hours	Effort (Boats)	Guideline Harvest <sup>a</sup>	Harvest (tons)	CPUE (tons/Boat Hr)	Estimated Roe %	Opening Dates		Hours	Effort (Boats)	Guideline Harvest <sup>a</sup>	Harvest (tons)	CPUE (tons/Boat Hr)	Estimated Roe %
1969	3/01 - 6/30		5		325.4										325.4
1970	3/01 - 6/30				919.2										919.2
1971	3/01 - 6/30		12		1,777.2										1,777.2
1972	3/01 - 6/30		18		6,991.9										6,991.9
1973	4/23 - 5/09		31		6,371.0							3.8			6,374.8
1974	4/10 - 4/17		72		5,853.8										5,853.8
1975	4/15 - 4/22	14.0	76		2,584.2	5.50									2,584.2
1976	5/08 & 6/01	13.0	66		2,265.6	3.01									2,267.1
1977	4/09 - 4/10	38.0	58		1,329.5	1.03						1.6			1,391.2
1978	4/17 - 4/21 <sup>b</sup>	106.0	75	5,000	4,138.0	0.17						61.7	0.02		4,138.0
1979	4/07 - 4/19	215.5	89	5,000	6,042.2	0.22						264.4			6,306.7
1980	4/01 - 4/09	162.0	76	5,000	13,768.2	0.49						234.5	0.25		14,002.8
1981	4/01 - 4/09	60.0	106	5,000	7,148.3	2.16						393.9	0.41	12-15%	7,542.2
1982	4/23	2.0	95	5,000	2,728.5	37.62	10-14%					105.4	0.20		2,833.9
1983	4/13	1.0	103	5,000	5,946.1	26.49	11.0%					342.7	0.25	8-4%	6,288.8
1984	4/14	3.0	105	5,000	9,764.1	18.88	10-11%				250	413.3	0.58	10-12%	7,177.4
1985	4/28 - 4/29	4.0	103	5,000	6,828.1	16.42	10-12%				21	3-400	0.21	11-4%	10,276.7
1986	4/17	3.0	106	5-7,000	4,982.2	30.91	11.0%				24	2-300	0.93	9.5%	5,515.5
1987	4/08 - 4/09	1.5	96	3-5,000	7,977.3	34.60	10.0%				24	353.0	2.67	10.0%	8,330.3
1988	4/21 - 4/22	2.0	105	4-5,000	8,362.1	37.99	10.5%				375	505.4	5.26	10.6%	8,867.5
1989	Season Closed <sup>c</sup>		6,400		11,923.0 <sup>d</sup>	290.35	10.0%				353	742.0	2.94	11.06%	12,665.1
1990	04/12	0.3	96	6,038	16,784.2	85.32	10.5%				657	940.6	3.56	10.8%	17,724.8
1991	4/09, 4/10, & 4/19	1.3	104	11,233	151.0 <sup>e</sup>	80.69	10.0%				912	1,029.9	1.19	11.01%	1,029.9
1992	4/13, 4/17, & 4/21	2.0	104	14,100							0	0			151.0
1993	No Harvest			15,586							0	0			0.0
1994	Season Closed <sup>f</sup>			0							0	0			0.0
1995	Season Closed <sup>g</sup>			0							0	0			0.0
1996	Season Closed <sup>h</sup>			0							0	0			0.0
1997	04/13, 04/15	1.8	71	2,965	4,703.5	36.80	9.75%				175	175.7	3.19	8.00%	4,879.2

<sup>a</sup> Guideline harvest based on pre-season harvest projection beginning in 1986.  
<sup>b</sup> An additional opening on 6/14 for 6 hours resulted in no harvest.  
<sup>c</sup> Gillnet fishery closed by Board of Fisheries action.  
<sup>d</sup> OF 103 boats participating, 72 actually made deliveries.  
<sup>e</sup> OF 103 boats participating, 101 actually made deliveries.  
<sup>f</sup> OF 103 boats participating, 62 made deliveries at Montague Island and 90 made deliveries in the north-shore area.  
<sup>g</sup> All Pacific herring commercial sac roe and spawn-on-keel fisheries in Prince William Sound were closed during the spring of 1989 due to the potential for contamination of catches from the TTV Escrow Valdez oil spill.  
<sup>h</sup> Total for 1991 includes a 192.5 ton test fishing set made by ADF&G for aerial survey calibration.  
<sup>i</sup> Total for 1992 includes a 192.5 ton test fishing set made by ADF&G for aerial survey calibration.  
<sup>j</sup> Season closed due to low herring abundance.  
<sup>k</sup> Harvest for 1994 consisted of a single test fishing catch made by ADF&G for aerial survey calibration.

## Sac Roe Herring Harvest by Fishery Prince William Sound



Appendix H.5. Prince William Sound commercial herring sac roe purse seine and gillnet harvest by management year, 1969-1997.

Appendix H.6. Pacific herring spawn-on-kelp harvests from natural spawning, Prince William Sound, 1969 - 1997.

Calendar Year	Fishery Dates	Hours	Effort (Divers)	Guideline Harvest (tons)	Harvest by Kelp Species and Grounds Price (\$/lb)				Spawn-on-Kelp Harvest		Herring Utilized (tons)
					Ribbon	Sieve	Fucus	Other	(lb)	(tons)	
					Percent	Price	Percent	Price	Percent	Price	
1969	5/18-5/31		3								21.7
1970	4/19-6/06		34								190,374
1971	4/18-5/15		159								761.5
1972	4/30-5/20		397								3,077.9
1973	4/23-5/26		176								2,401.8
1974	4/22-5/04		143								1,225.4
1975	4/25-5/10		328								2,322.4
1976	4/21- ?		279								3,667.7
1977	4/27-12/31		104								1,668.0
1978	4/20-4/30		66	165	23%		50%		27%		565.1
1979	4/25-5/03		97	200							1,897.0
1980	4/23-4/30		10	458	60%	\$1.25	40%	\$0.85	2%	\$0.60	2,415.5
1981	4/25		12	196	38%	\$1.25	60%	\$0.85	6%	\$0.74	490.1
1982	5/05-5/08		73	152	83%	\$1.42	11%	\$0.95	14%		1,165.7
1983	4/27		12	185	51%	\$2.00-2.45	35%	\$1.50-1.70	14%		1,193.4
1984	Season Closed		225	187							
1985	5/06 & 5/08		20	106	51%	\$1.25	49%	\$0.50			243.3
1986	4/30-5/03		86	29	97%	\$1.75		\$0.80			380.8
1987	4/15-4/17		44	59	90%	\$1.70		\$0.85			705.9
1988	4/29 & 4/30		12	159	64%	\$1.50	24%	\$0.75-1.00	12%	\$0.75-1.00	779.0
1989	Season Closed			110							
1990	4/21-4/22		16	134	37%	\$0.99	6%	\$0.52	57%	\$0.88	950.3
1991	5/11-5/17		95	48							860.8
1992	4/24-4/30		101	217	21%	\$0.70		\$0.40	3%		2,018.7
1993	4/19-4/24		114	83				\$0.55			1,300.7
1994	Season Closed			110							
1995	Season Closed			0							
1996	Season Closed			0							
1997	4/25 & 4/26		26.4	45					100%		211.2

<sup>a</sup> Indicates the annual removal of reproductive capacity from the population based on the assumption that average fish roe recovery is 10%, and 80% of spawn-on-kelp harvest weight consists of eggs.

<sup>b</sup> Hair kelp.

<sup>c</sup> Mostly Macrocyctis spp. Some hair kelp.

<sup>d</sup> Season remained closed due to lack of suitable spawn.

<sup>e</sup> Permits issued.

<sup>f</sup> All Pacific herring commercial sea roe and spawn-on-kelp fisheries in Prince William Sound were closed during the spring of 1989 due to the potential for contamination of catches from the TIV Exxon Valdez oil spill.

<sup>g</sup> Season remained closed due to low herring abundance.

Appendix H.7. Pacific herring spawn-on-kelp harvest produced in pounds, Prince William Sound, 1979 - 1997.

Calendar Year	Fishery Dates <sup>e</sup>	CFEC Permits <sup>d</sup>	Effort		Guideline Harvest (tons)	Blades per Permit Holder		Spawn-on-Kelp Harvest (tons)		Herring Utilized <sup>b</sup> (tons)
			Permits Committed <sup>e</sup>	Permits Producing <sup>f</sup>		Closed <sup>f</sup>	Open <sup>g</sup>	Ribbon	Macrocyctis	
1979		2	0							
1980	4/14	14	4	2	8			0.9	0.4	1.3
1981	4/14	18	18	7	16			8.6	1.1	9.7
1982	4/29-5/10	25	20	18	26			25.1	0.5	25.5
1983	4/30-5/04	47	38	26	26			17.7	10.1	27.7
1984	4/24-5/08	65	45	37	26			6.4	18.8	25.2
1985	4/25-5/07	81	59	50	40			12.1	28.1	40.2
1986	4/21-4/28	104	82	81	60			0	72.2	72.2
1987	4/10-4/21	111	111	108	85			0	61.2	61.2
1988	4/12-4/23	122	122	119	85			0	123.2	123.2
1989	Season Closed <sup>h</sup>									
1990	4/11-4/26	128	128	122	118			0	98.8	98.8
1991	4/07-4/20	126	126	119	220	1,200		0	202.4	202.4
1992	4/07-4/24	127	127	127	276	1,770		0	242.2	242.2
1993	4/10-4/22	128	124	52	305	1,950		0	106.4	106.4
1994	Season Closed <sup>i</sup>									
1995	Season Closed <sup>i</sup>									
1996	Season Closed <sup>i</sup>									
1997	4/10-5/6	128	116	7	84	640		0	34.3	34.3
										290.5

<sup>a</sup> Number of permits that were successful in producing spawn-on-kelp product. Due to the group cooperation in this fishery production is frequently reported for a few individuals whose pounds did not produce spawn-on-kelp product.

<sup>b</sup> The equivalent harvest of Pacific herring due to stress mortality and the removal of reproductive capacity from the population based on the assumption that 12.5 tons of Pacific herring are used to produce 1 ton of spawn-on-kelp product.

<sup>c</sup> Dates that the fishery was opened to seines for the capture and placement of Pacific herring into pounds. Prior to 1994, Commissioner's permits issued to applicants registering prior to the March 1 deadline. After 1994, the number of permits represents limited entry permits. Beginning in 1997, permit holders were allowed to operate pounds in open or closed configuration, and required to state intended configuration prior to season.

<sup>d</sup> The number of individuals receiving an equal allocation of the guideline harvest. Prior to 1994 this represents the number of individual pounds constructed by the April 1 deadline. Beginning in 1997, this number represents permit holders stating intended configuration prior to season.

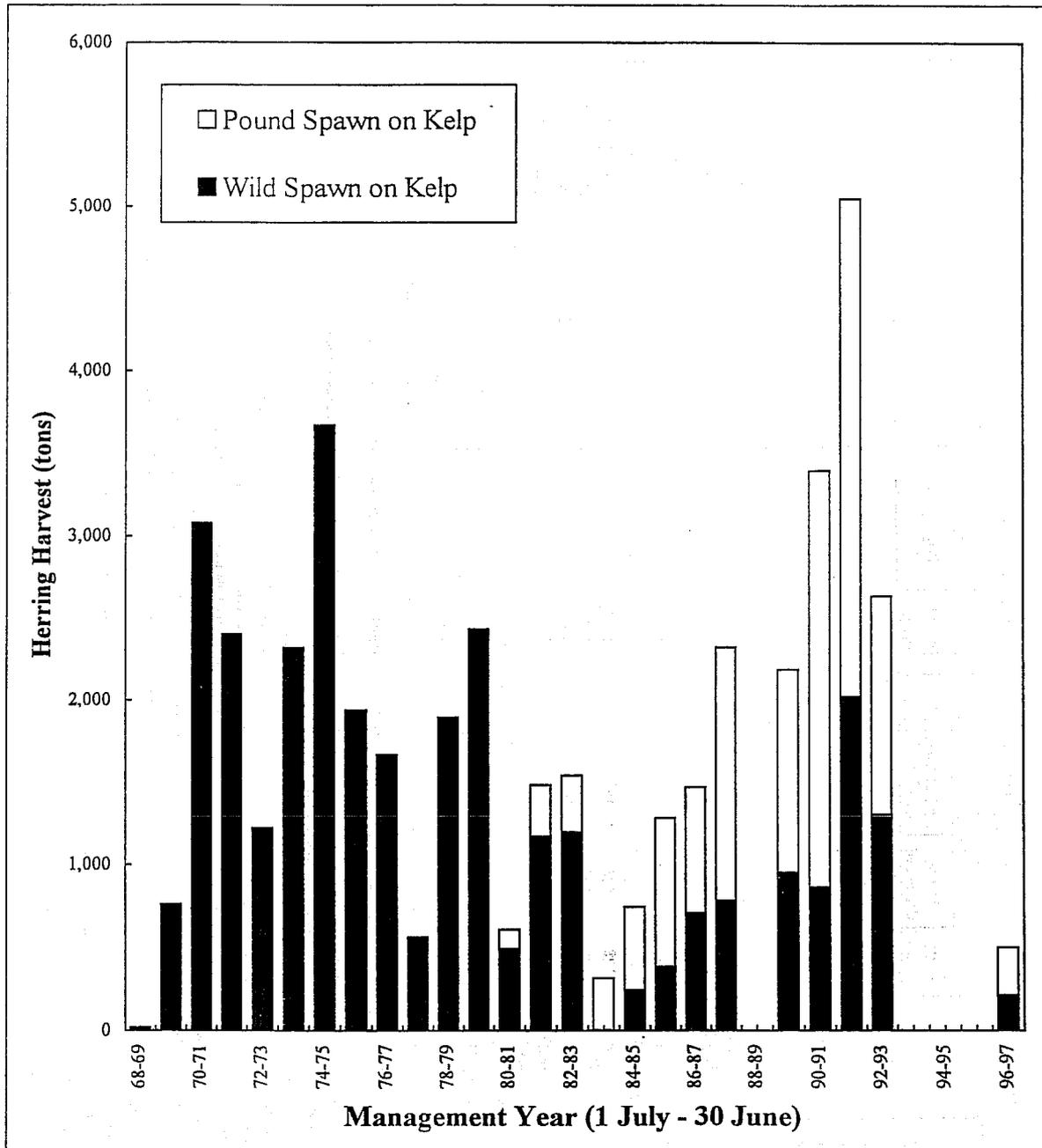
<sup>e</sup> A pound fished in a closed configuration consists of a rectangular floating frame with webbing suspended below, that encloses herring and kelp for period of time during spawning.

<sup>f</sup> A pound fished in an open configuration consists of a rectangular floating frame with either no webbing suspended below, or with webbing that permits volitional entry and exit of herring on at least one side.

<sup>g</sup> All Pacific herring commercial sea roe and spawn-on-kelp fisheries in Prince William Sound were closed during the spring of 1989 due to the potential for contamination of catches from the *ITV Exxon Valdez* oil spill.

<sup>h</sup> Season closed due to low herring abundance.

## Spawn on Kelp Herring Usage Prince William Sound



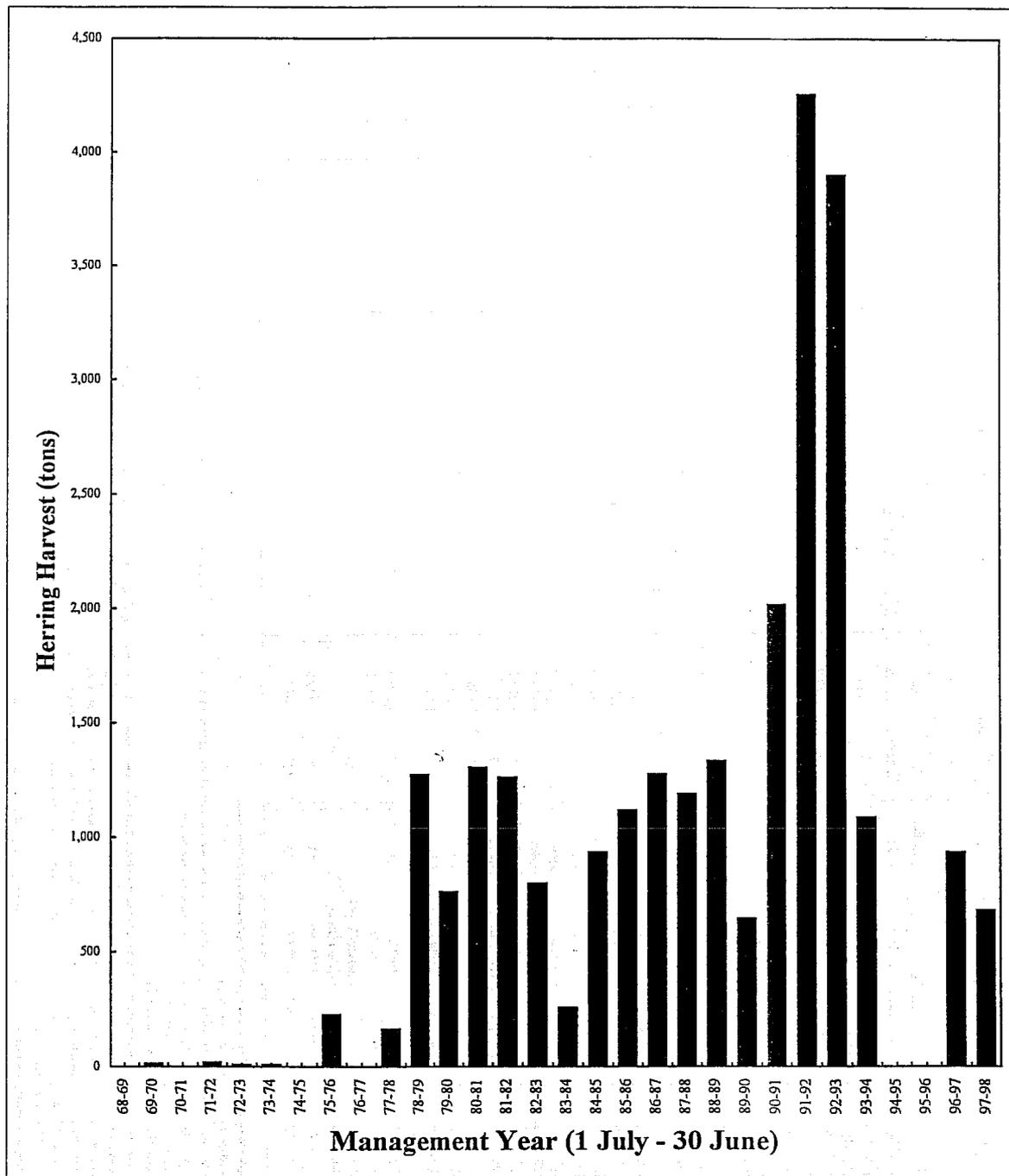
Appendix H.8. Prince William Sound commercial spawn-on-kelp herring usage by management year, 1968-1997.

Appendix H.9. Prince William Sound commercial Pacific herring food and bait fishery effort and harvests, management years 1969-1998.

Management Year	Fishing Dates		Guideline Harvest	Purse Seine		Pair Trawl		Mid-Water Trawl		Otter Trawl		Total Harvest (tons)
	Opened	Closed		Effort (Boats)	Harvest (tons)	Effort (Boats)	Harvest (tons)	Effort (Boats)	Harvest (tons)	Effort (Boats)	Harvest (tons)	
1969-1970	10/01/69	- 06/30/70 *		-	14.0							14.0
1970-1971	10/01/70	- 06/30/71 *		-								0.0
1971-1972	10/01/71	- 06/30/72 *		-	20.0							20.0
1972-1973	10/01/72	- 05/09/73 *		-	9.0							9.0
1973-1974	08/21/73	- 04/17/74 *		-	8.5							8.5
1974-1975	07/15/74	- 03/10/75 *		-								0.0
1975-1976	06/01/75	- 06/23/75 *		4	226.7							226.7
1976-1977	02/01/77	- 03/09/77 *		-								0.0
1977-1978	10/01/77	- 02/28/78 *		-	17.0							17.0
1978-1979	10/16/78	- ? *		-	195.4							195.4
1979-1980	09/16/79	- 02/28/80 *	1,400	-	510.8		7	988.7	9.4		81.0	1,274.4
1980-1981	09/15/80	- 11/07/80 *	1,400	-	1,030.4		4	145.1	103.2		2.6	1,276.2
1981-1982	09/15/81	- 09/30/81 *	1,400	-	1,189.4		6	275.7				1,465.1
1982-1983	09/15/82	- 01/31/83 *	1,400	7	797.3		-					797.3
1983-1984	09/15/83	- 01/31/84 *	1,400	6	257.6							257.6
1984-1985	09/15/84	- 01/31/85 *	1,400	-	936.2							936.2
1985-1986	09/01/85	- 02/15/86 *	1,400	6	1,118.1							1,118.1
1986-1987	09/01/86	- 10/24/86 *	1,400	6	1,276.2							1,276.2
1987-1988	09/02/87	- 11/12/87 *	1,400	7	1,189.4							1,189.4
1988-1989	11/01/88	- 11/05/88 *	1,400	8	1,335.3							1,335.3
1989-1990	11/01/89	- 01/31/90 *	1,694	-	646.1							646.1
1990-1991	09/21/90	- 11/24/90 *	3,151	5	1,955.0							1,955.0
1991-1992	10/01/91	- 10/14/91 *	3,956	14	4,258.5				60.8			4,319.3
1992-1993	10/01/92	- 10/22/92 *	3,416 <sup>h</sup>	17	3,900.3							3,900.3
1993-1994	10/07/93	- 10/10/93 *	978 <sup>i</sup>	8	1,087.0							1,087.0
1994-1995	Season Closed <sup>j</sup>											0.0
1995-1996	Season Closed <sup>j</sup>											0.0
1996-1997	11/01/96	- 11/03/96 *	825	6	933.9							933.9
1997-1998 <sup>k</sup>	11/19/97	2/19/98	02/28/98	12	679.7							679.7

<sup>a</sup> Openings set by regulation. Ending date coincides with regulatory ending of the roe season.  
<sup>b</sup> No Official opens, but unofficial goal was 1,500 tons.  
<sup>c</sup> Harvest from special June food-and-bait fishery opening. Although this harvest actually occurred at the end of the 1975 management year, it is included in the 1976 harvest management year to be consistent with other food-and-bait harvests which occur after spring sea roe fisheries.  
<sup>d</sup> Fishery closed from 1 January to 6 January 1979.  
<sup>e</sup> Fishery closed from 1 January to 15 February 1980.  
<sup>f</sup> Fishing season opened by regulation on September 1, 1987 in the General District. The north-shore and east-shore Pacific herring districts opened on September 21. The season was closed by emergency order on October 6 for a period of five weeks, reopened on November 9, and closed for the duration of the 1987-88 season on November 12, 1987.  
<sup>g</sup> Fishery open from September 21 until November 24. The Mounigue Island area was open from September 24 until November 21.  
<sup>h</sup> Preseason guideline harvest level based on spawn deposition biomass estimate. Final guideline harvest based on age-structured analysis was issued in January 1993 and was 4,377 tons.  
<sup>i</sup> Preseason guideline harvest level based on preliminary aerial survey biomass estimate of 40,000 tons.  
<sup>j</sup> Season closed due to low herring abundance.  
<sup>k</sup> Season reopened in spring 1998 based on final age structured assessment modelling. Of the total harvest, 378.1 tons were taken in November 1997 and 101.6 tons were taken in February 1998.

## Food-and-Bait Herring Harvest Prince William Sound



Appendix H.10. Prince William Sound commercial food-and-bait herring harvest, management years 1969-1998.

Appendix H.11. Annual Pacific herring biomass indices for harvest management years 1974-1997 and the forecast of prefishery run biomass for 1998, Prince William Sound.

Harvest Management Year	Total Spring Use and Harvest Mortality <sup>a</sup> (tons)	Aerial Survey Estimates				Unexploited Escapement Biomass		Pre-Fishery Run Biomass Age Structured Analysis <sup>g</sup> (tons)	Acoustic Survey Estimates		Prior Year Forecast (tons)
		Peak Biomass Estimate <sup>b</sup> (tons)	Maximum Possible Observed Biomass <sup>c</sup>	Miles of Spawning <sup>d</sup>	Mile Days of Spawning <sup>e</sup>	Spawning Surveys <sup>f</sup> (tons)	Age Structured Analysis <sup>g</sup> (tons)		Fall (tons)	Spring (tons)	
1973-1974	6,375	41,080	107,290	38.5	75.2						
1974-1975	5,854			34.2	42.4						
1975-1976	2,584	7,330	25,247	32.8	33.7						
1976-1977	2,267	16,830	17,460	39.3	73.5						
1977-1978	1,391	13,410	36,540	28.7	36.3						
1978-1979	4,138	42,100	107,390	54.5	73.2						
1979-1980	6,323	62,110	122,050	50.5	73.9			52,079			
1980-1981	14,124	77,810	161,690	85.4	140.1			50,245			
1981-1982	7,861	68,790	97,620	49.0	65.1			45,546			
1982-1983	3,181	41,850	107,710	67.4	99.8	22,000 <sup>h</sup>		57,628			
1983-1984	6,604	58,870	158,760	60.1	86.8	58,089		68,528			
1984-1985	7,679	20,830	60,954	101.2	149.5			83,550			
1985-1986	11,180	15,180	54,820	72.4	152.3			67,993			
1986-1987	6,281	26,530	52,192	65.3	155.9			82,005			
1987-1988	9,871	34,270	67,175	166.3	236.9	53,785		117,071			43,992
1988-1989		56,915	186,708	98.4	185.8	49,914		126,286			54,899
1989-1990	10,103	57,900	145,013	94.1	144.4	127,478		99,955			51,692
1990-1991	15,196	42,765	141,375	58.0	64.8	140,964		83,902			96,666
1991-1992	20,752	53,835	130,569	74.7	99.5	128,263		89,317			121,342
1992-1993	2,360	20,725	109,865	20.4	40.8			22,690			134,133
1993-1994	151	19,640	154,008	14.6	20.0	17,069		19,889	25,999		29,787
1994-1995	0	7,113	20,868	20.4	32.3	20,022		21,087	11,832	14,643	19,009
1995-1996	0	10,691	37,771	27.2	39.1	27,670		24,375	26,776	29,001	24,332
1996-1997	5,170	10,838	57,114	42.7	56.0	23,171		31,841	3,086	30,000 <sup>i</sup>	37,599
1997-1998											38,640

<sup>a</sup> Represents the common property seine and gillnet sea roe harvest, and equivalent use of herring in closed pound SOK fisheries.

<sup>b</sup> Largest single day aerial estimate of Pacific herring biomass in short tons.

<sup>c</sup> The sum of all daily aerial biomass estimates for a given year.

<sup>d</sup> Total linear miles of spawning.

<sup>e</sup> The sum of the daily observed linear miles of Pacific herring spawning.

<sup>f</sup> Estimates are made from underwater surveys of spawning deposition.

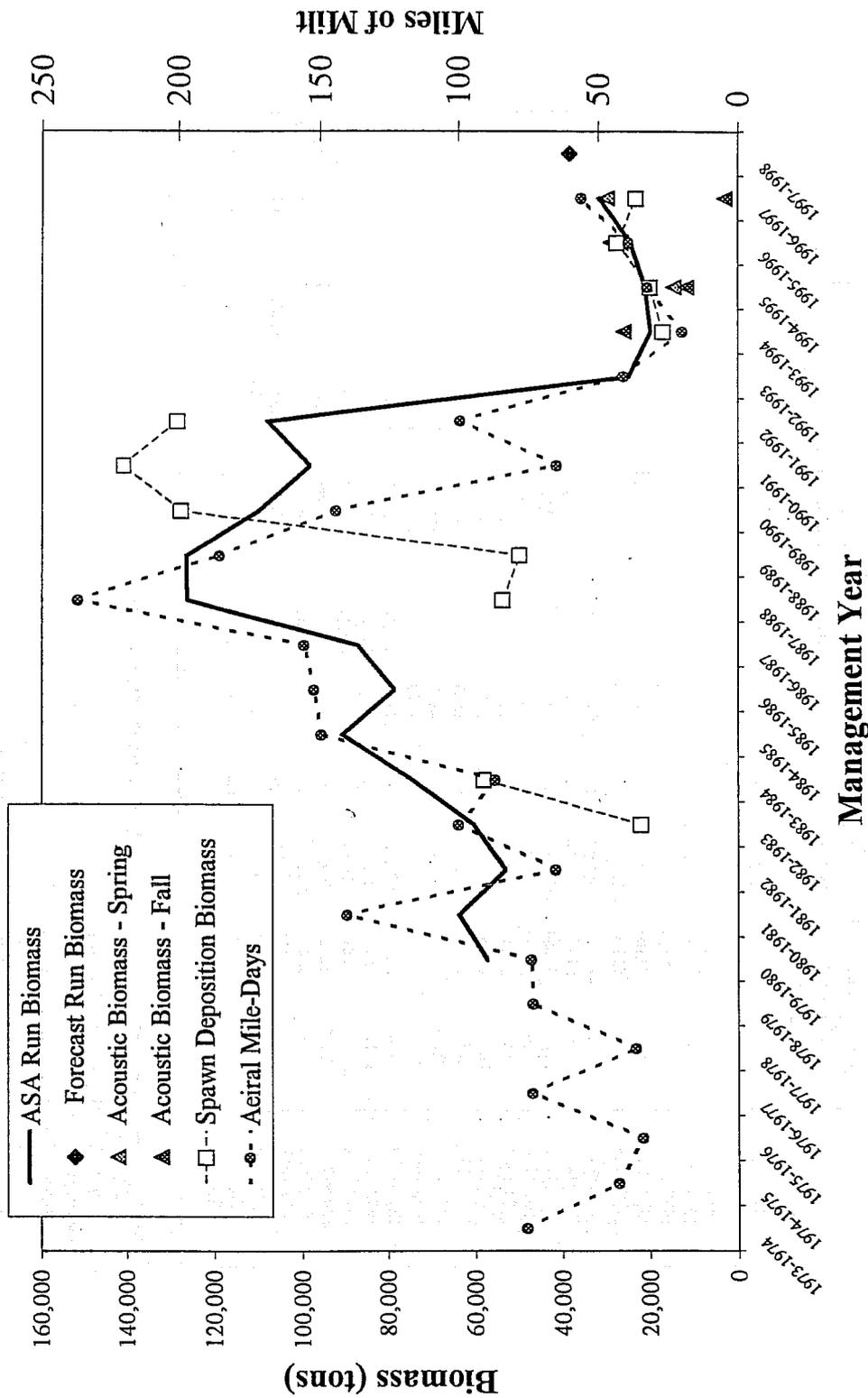
<sup>g</sup> Unexploited escapement and run biomass estimates from age structured analysis, February 1998.

<sup>h</sup> Partial estimate of spawning biomass from feasibility study.

<sup>i</sup> All Pacific herring commercial sea roe and spawn-on-kelp fisheries in Prince William Sound were closed during the spring of 1989 due to the potential for contamination of catches from the 777 Exxon Valdez oil spill.

<sup>j</sup> Preliminary.

# PWS Herring Biomass Estimates and Indices



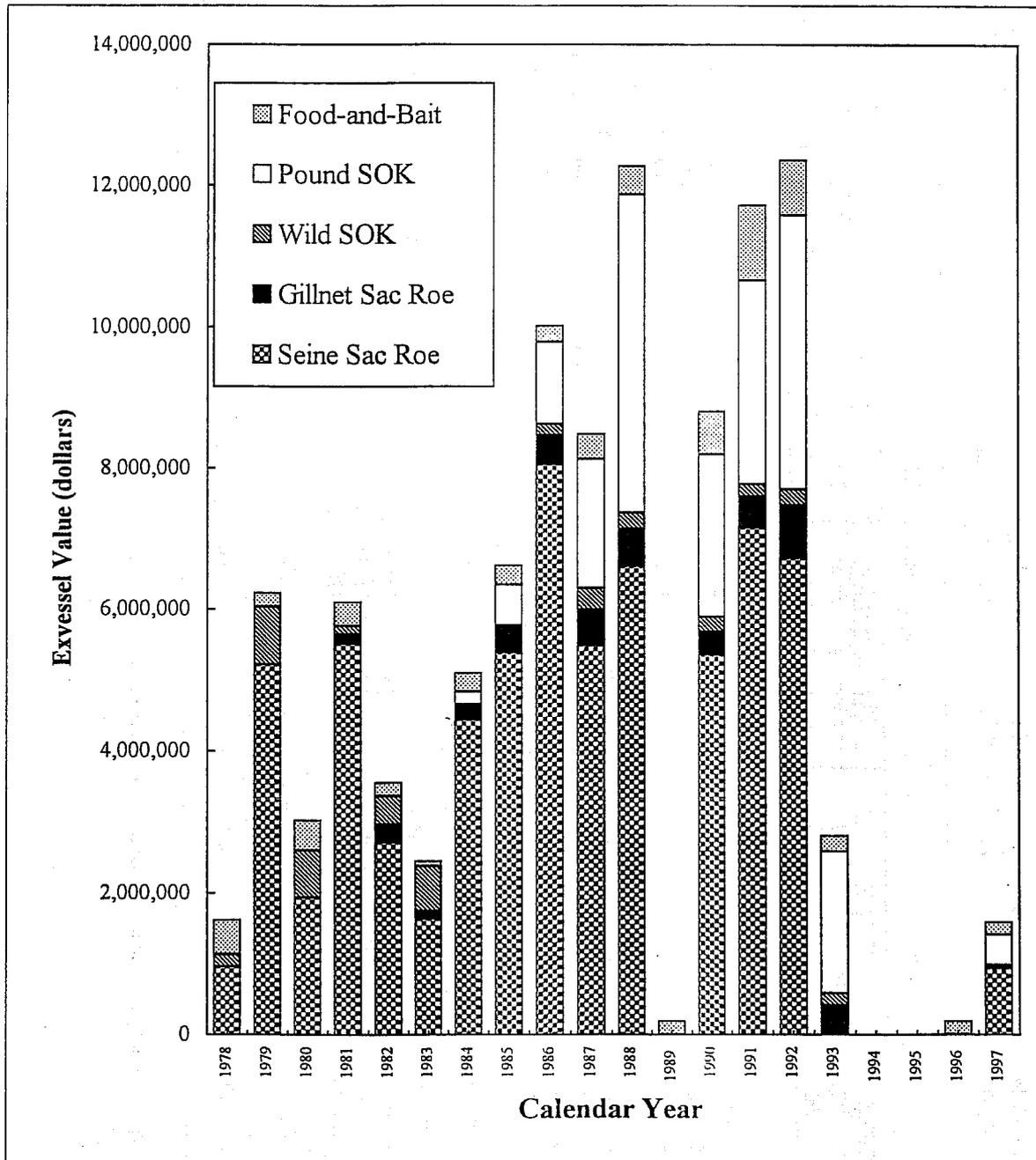
Appendix H.12 Prince William Sound annual herring biomass indices by management year, 1973-1997, and forecast run biomass for 1998 from ASA modeling.

Appendix H.13. Mean price and estimated exvessel value of the commercial Pacific herring harvest by gear type based on verbal post season estimates from processors and fishermen, Prince William Sound, calendar years 1978-1997.

Calendar Year	Sac Roe Fisheries				Spawn on Kelp Fisheries				Food-and-Bait Fishery			
	Purse Seine		Gillnet		Wild Spawn on Kelp		Pounds		Mixed Gear		TOTAL	
	Price per ton	Total Value	Price per ton	Total Value	Price per lb	Total Value	Price per lb <sup>a</sup>	Total Value	Price per ton	Total Value	Price per ton	TOTAL VALUE
1978	\$ 720	\$ 956,800			\$ 1.25	\$ 175,000			\$ 380	\$ 489,820	\$	\$ 1,621,700
1979	\$ 1,260	\$ 5,213,880			\$ 1.74	\$ 821,280			\$ 300	\$ 196,800	\$	\$ 6,231,960
1980	\$ 320	\$ 1,933,760			\$ 1.09	\$ 667,080			\$ 300	\$ 424,800	\$	\$ 3,025,640
1981	\$ 400	\$ 5,508,000	\$ 580	\$ 135,720	\$ 1.00	\$ 122,000			\$ 260	\$ 328,120	\$	\$ 6,093,840
1982	\$ 380	\$ 2,716,240	\$ 640	\$ 251,520	\$ 1.29	\$ 397,320			\$ 220	\$ 194,260	\$	\$ 3,559,340
1983	\$ 600	\$ 1,634,400	\$ 1,040	\$ 109,200	\$ 2.10	\$ 634,200			\$ 260	\$ 70,980	\$	\$ 2,448,780
1984	\$ 760	\$ 4,435,360	\$ 640	\$ 218,880	NO HARVEST		\$ 3.50	\$ 176,439	\$ 260	\$ 265,460	\$	\$ 5,096,139
1985	\$ 760	\$ 5,380,800	\$ 900	\$ 371,700	\$ 0.48	\$ 19,200	\$ 7.09	\$ 569,058	\$ 250	\$ 279,500	\$	\$ 6,620,258
1986	\$ 820	\$ 8,058,960	\$ 920	\$ 412,160	\$ 1.70	\$ 159,800	\$ 8.00	\$ 1,153,200	\$ 180	\$ 229,680	\$	\$ 10,015,800
1987	\$ 1,100	\$ 5,480,200	\$ 960	\$ 511,680	\$ 1.70	\$ 299,200	\$ 15.00	\$ 1,836,000	\$ 300	\$ 356,700	\$	\$ 8,483,780
1988	\$ 840	\$ 6,600,000	\$ 1,400	\$ 537,000	\$ 1.20	\$ 232,000	\$ 18.00	\$ 4,500,000	\$ 300	\$ 400,590	\$	\$ 12,236,500
1989					SEASON CLOSED				\$ 300	\$ 193,830	\$	\$ 193,830
1990	\$ 640	\$ 5,351,744	\$ 640	\$ 323,456	\$ 0.90	\$ 213,840	\$ 11.40	\$ 2,305,080	\$ 300	\$ 605,130	\$	\$ 8,799,250
1991	\$ 600	\$ 7,153,800	\$ 600	\$ 445,200	\$ 0.80	\$ 172,160	\$ 9.00	\$ 2,880,000	\$ 250	\$ 1,064,625	\$	\$ 11,715,785
1992	\$ 400	\$ 6,713,680	\$ 800	\$ 732,480	\$ 0.46	\$ 232,116	\$ 8.00	\$ 3,875,200	\$ 200	\$ 780,060	\$	\$ 12,353,536
1993	NO HARVEST		\$ 400	\$ 411,960	\$ 0.55	\$ 178,860	\$ 10.00	\$ 2,000,000	\$ 200	\$ 217,400	\$	\$ 2,808,220
1994					SEASON CLOSED							SEASON CLOSED
1995					SEASON CLOSED							SEASON CLOSED
1996					SEASON CLOSED							SEASON CLOSED
1997	\$ 200	\$ 940,600	\$ 80	\$ 14,080	\$ 0.61	\$ 32,000	\$ 8.00	\$ 426,816	\$ 250	\$ 187,000	\$	\$ 1,583,496

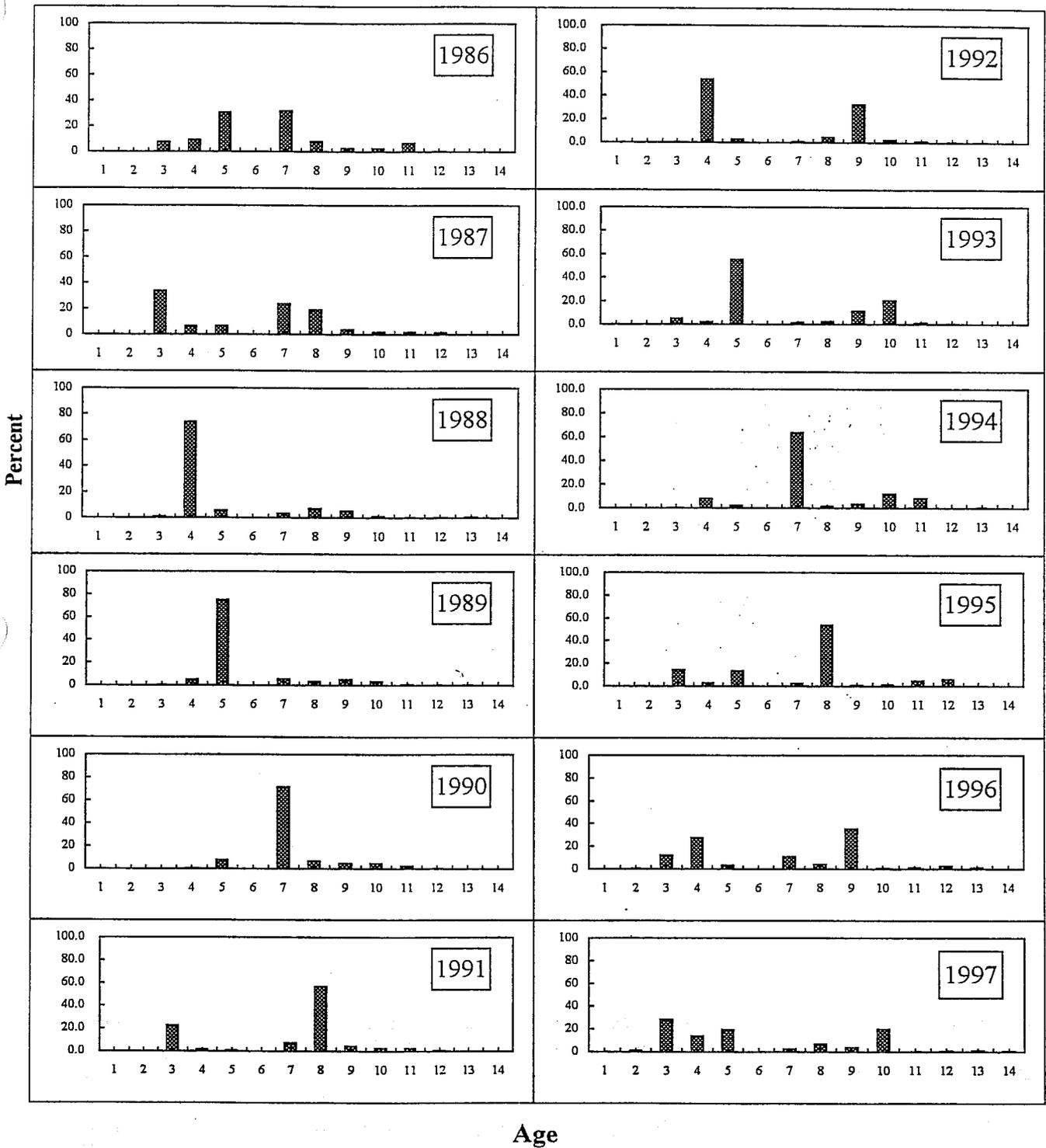
<sup>a</sup> The price per pound for spawn on kelp in pounds is based on the final product weight, not harvest weight.

## Exvessel Value of Herring Fisheries Prince William Sound



**Appendix H.14 Average annual exvessel value of commercial herring fisheries, Prince William Sound, calendar years 1978-1997.**

# Prince William Sound Herring Spring Run Biomass Age Composition



Appendix H.15. Percent contribution by weight of each age to spring run biomass, Prince William Sound, 1986-1997.

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