

PRINCE WILLIAM SOUND MANAGEMENT AREA  
1995 ANNUAL FINFISH MANAGEMENT REPORT



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## PRINCE WILLIAM SOUND SALMON AND HERRING 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 and Copper Rivers 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 (CCH) located on the north shore of the Sound, and the A.F. Koernig Hatchery (AFK) 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.

As an avenue for the commercial fishing industry to formally provide management recommendations to the department, representatives from area processors, 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, wild spawn-on-kelp, 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*

### **Overview**

The 1995 Prince William Sound Area commercial salmon harvest of 19.38 million fish is the tenth highest on record. The harvest was comprised of 16.06 million pink, 1.52 million sockeye, 758,545 chum, 965,017 coho, and 67,083 chinook salmon. The majority of the catch, 13.81 million, was from the commercial fishery harvest and 5.56 million were harvested for hatchery cost recovery (exclusive of roe sales) and department test fisheries.

The estimated value of the combined commercial salmon harvest in 1995 was \$35.76 million, including hatchery sales. During the 1995 season, 518 drift gillnet permit holders fished. The drift gillnet catch was valued at \$22.52 million, setting the average earnings at \$44,148. The set gillnet catch was valued at \$223,747, setting the average earnings of the 26 permits at \$8,606. The seine fishery was worth \$7.42 million for an average ex-vessel value of \$39,691 for the 187 permit holders that participated this year. Revenue generated for hatchery operations (exclusive of roe sales) and test fisheries was approximately \$5.59 million.

### **Gillnet Fisheries**

*Copper River District.* The 1995 harvest forecast for the Copper River District was 43,000 chinook, 897,000 sockeye, and 333,000 coho salmon. The Gulkana Hatchery located north of Paxson Lake was expected to contribute approximately 200,000 sockeye salmon to the commercial catch.

The 1995 sockeye salmon harvest of 1,270,000 was the fourth largest and was 41% above the projected harvest. The harvest of 65,700 chinook salmon (53% above the projected) surpassed the previous record set in 1983 of 50,000. The inriver goal past Miles Lake sonar of 560,000 salmon was met; an estimated 600,000 salmon passed the sonar site. The sockeye aerial escapement index for the Copper River Delta systems was 77,000, 86% of the index goal.

The traditional fishing schedule for the Copper River District is two 24-hour periods per week. Periods begin at 7:00 a.m. Monday and 7:00 p.m. Thursday. Fishing periods are adjusted by emergency order as needed. After August 7, coho management begins with one 48-hour period 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 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 is 560,000 salmon, an increase of 44,000 salmon from 1994. By mid-June, aerial estimates of sockeye escapement in the Copper River Delta 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.

The 1995 commercial fishing season began on May 15 with a 24-hour period and continued on a schedule of two 24-hour periods per week until June 9 when a 12-hour period occurred. The chinook harvest

exceeded the projected harvest in all periods except one through the end of June. During the first two weeks of the fishery, the actual chinook harvest was nearly double the projected harvest. Sockeye harvest was only 80% of the projected harvest. In addition, upriver migration past the Miles Lake sonar was 8% below the anticipated through May 31. Based on the harvest from the first two weeks of the fishery, the strength of the chinook return was far above expectations while the sockeye return was within the lower range of preseason expectations.

Beginning the week of May 25 and continuing through the end of the sockeye fishery in mid-August, actual harvest rates exceeded the projected harvest, at times by more than 100 percent. Sonar counts, on the other hand, continued to lag behind the projected counts. By June 7, inriver passage past the sonar counter was 27% below that anticipated by this date. With commercial catch rates higher than that projected and daily inriver passage rates still less than that desired, the second weekly fishing period on Friday, June 9 was reduced to 12-hours. The sockeye harvest for this 12-hour period was 100,100. The projected sockeye harvest for a 24-hour period was 57,000 sockeye.

By June 10, the cumulative sockeye harvest was 28 percent above the projected harvest, while inriver passage past the sonar counter was only 77 percent of the desired by this date. With near record harvest rates on sockeye salmon, daily passage rates continued to perform below expectations. Low water conditions in the Copper River were believed to be causing sockeye salmon to hold offshore thereby increasing the harvest. Based on this conjecture, a 24-hour fishery for Monday, June 12 did not take place. Following the closure, water levels rose and inriver passage rates increased. By June 19, the actual inriver passage estimate had met and exceeded the anticipated inriver passage and remained above the anticipated until the sonar was pulled on August 2. No reductions in fishing time were necessary following the June 12 closure.

The coho salmon harvest of 542,000 was the sixth largest on record and was 60% above the projected harvest of 338,000. Escapement estimates of coho salmon into the Copper River delta systems were hampered this season by heavy rains and flooding. Peak aerial survey estimates generally occur in mid to late September. The last survey this year was conducted October 10 under good conditions. The peak aerial index of 32,240 coho salmon was observed during the October 10 survey. The projected aerial escapement index for this date is 15,100. Based on results from the late season survey, the index goal of 50,000 was met for 1995.

Coho management began with a single 48-hour period per week during the weeks of August 6 and August 13. By the end of the second 48-hour period, the coho harvest was 124,600, about 72% above the projected harvest. With indications of a strong run, management switched from one 48-hour period to two 36-hour periods per week. The harvest of nearly 200,000 coho during the two 36-hour periods the week of August 20 indicated the run was more than three times the projected size. Escapement, however, was not mimicking the current harvest trends. Escapement through the week of August 26 was only 40% of that desired. A dry August created low water conditions in the delta which may have kept fish from moving in.

The schedule of two weekly fishing periods continued, but was reduced slightly to a 36-hour and a 24-hour period. The combined weekly harvest of 120,400 coho was 68% above the projected harvest for the week of August 27. An aerial survey on August 29 observed 11,600 coho throughout the delta whereas the anticipated escapement was 19,000. With escapement falling further behind, fishing time was reduced to a single 30-hour period the week of September 3. Heavy rains began on September 6 and no surveys were possible until late September. Fleet efficiency and participation were greatly reduced due to the bad

weather which improved conditions for escapement. With a reduced fleet and the presumption that coho were entering into the streams, the Copper River District was placed on a schedule of two 30-hour fishing periods per week through October 20 when the district closed for the 1995 season.

***Bering River District.*** The 1995 harvest forecast for the Bering River District was 20,000 to 30,000 sockeye salmon and 132,000 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 21,600 was within the preseason projection. The coho harvest of 282,000 was the second largest and more than doubled the preseason expectation. The observed escapement indices for the Bering River system were 33,750 for sockeye and 27,450 for coho.

The Bering River District opened on June 15 for 24 hours and continued on the same schedule as the Copper River District. The district closed for the season on October 6.

***Coghill District.*** 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 PWSAC's corporate escapement.

The 1995 Coghill Lake sockeye forecast was 58,000, which included 33,000 sockeye of wild stock origin and 25,000 sockeye from PWSAC's remote releases near the mouth of the Coghill River. The Noerenberg Hatchery expected a return of 1.58 million early chum salmon to the Esther Subdistrict. PWSAC was slated to harvest 40 percent of the returning hatchery chum.

The total of both the common property harvest and the corporate escapement was 773,500 chum salmon, slightly less than 50% of the preseason forecast. The common property harvest of early chum salmon was 373,500. The hatchery harvested 227,400 chum salmon for cost recovery and the brood stock goal of 140,300 chum salmon was achieved. The total commercial harvest of sockeye salmon was 78,000. The escapement into Coghill Lake was 30,300, exceeding the goal by 5,300.

Based on the recent trend of poor sockeye salmon escapement into Coghill Lake, the Esther Subdistrict was managed in such a way to minimize the interception of sockeye salmon while still allowing a common property harvest of WNH chum salmon. This strategy was outlined in the 1995 PWS Commercial Salmon Management Outlook paper released in April. If necessary, the management plan called for restricting the commercial fishing effort to within the hatchery's Terminal Harvest Area (THA) to harvest the hatchery chum return. Two short openings per week within the Wally Noerenberg THA were slated during the peak of sockeye salmon migration through the area. This management strategy was entirely dependent upon the strength of the sockeye return to Coghill Lake.

The waters of the Esther Subdistrict opened June 12 and again on June 19 for 24-hours. The cumulative common property chum salmon harvest of 137,000 put PWSAC's corporate escapement at 28%, far below the 40% goal. With PWSAC behind in their corporate escapement and the Coghill Lake sockeye escapement at only 29 fish, the next fishing period on June 23 was reduced to 12-hours and was restricted to waters within one mile of Esther Island.

Following the June 23 fishing period, both the cost recovery harvest at WNH and the sockeye escapement past Coghill weir continued to fall behind their desired levels. On June 24, PWSAC's corporate escapement stood at 28% and Coghill's sockeye escapement stood at 205. The anticipated sockeye salmon escapement for this date was 2,770. The next commercial fishing period was delayed until June 29. The time and area parameters for this opening included a 12-hour fishing period within one mile of Esther Island and a 24-hour fishing period in the Wally Noerenberg THA. Following the extended closure, PWSAC's corporate escapement climbed to 40% allowing for a continued common property harvest. However, due to the continuing escapement shortfall at Coghill Lake, commercial fishing was restricted to two 12-hour periods per week in the Noerenberg THA through July 18.

As occurred in 1993 and 1994, PWSAC's remote released sockeye salmon milled for several weeks in Coghill Lagoon near the net pen site where they had been held for imprinting. During the time sockeye milled in front of the river, few Coghill wildstock fish moved upstream. By July 21, 11,000 sockeye had passed the weir. The projected escapement through July 21 was 22,000. Aerial estimates of the number of sockeye milling in the lagoon ranged from 10,000 to 15,000. Over the next six days 17,139 sockeye passed the weir. This brought the cumulative escapement to 28,100 sockeye, slightly more than the escapement goal. With the escapement goal having been met, a commercial fishing period occurred on July 31 for 6 hours in the Coghill Lagoon area, including waters up to the mouth of Coghill River. Three fishing periods followed, harvesting a total of 45,467 sockeye during the four commercial periods. Based on code-wire tag recovery, 55 percent of the sockeye harvested were of hatchery origin. However, scale pattern analysis indicated that over 90 percent of the sockeye harvest during the four commercial fishing periods were from PWSAC's remote release program. Based on scale pattern analysis, over 95 percent of the escapement past the weir were determined to be wild stock sockeye salmon. Coded wire tagged fish were not collected at the weir in 1995.

**Eshamy District.** Beginning in mid-June, the management strategy is based primarily upon the Coghill-stock sockeye salmon return to the Main Bay Hatchery. In July, management focuses on the Eshamy-stock sockeye salmon return to the Main Bay Hatchery and the Eshamy-stock sockeye salmon return to Eshamy Lake. The Eshamy Lake sockeye run is managed for an escapement goal of 35,000 sockeye. The Eshamy District also supports wild pink salmon stocks. The district's commercial harvest includes salmon from these local stocks as well as from stocks (both wild and hatchery) outside the district.

The 1995 common property harvest forecast of Main Bay Hatchery sockeye salmon was 360,000 composed almost entirely of Coghill-stock. Only 1,000 Eshamy-stock sockeye were expected to return. The Eshamy Lake sockeye salmon forecast was 150,000 fish composed of 44 percent remote released sockeye from Main Bay hatchery and 55 percent wild stock sockeye.

The common property harvest of sockeye salmon from all stocks was 88,800 fish, well below the preseason forecast of 510,000. PWSAC's Main Bay Hatchery sales harvest of 49,500 sockeye was also below their anticipated harvest of 114,000. In addition to the common property harvest of sockeye salmon, 89,000 pink salmon and 20,000 chum salmon were harvested. The hatchery brood stock goals for the Coghill and Eshamy-stocks were achieved. On July 14, PWSAC harvested 13,568 sockeye salmon for cost recovery at Marsha Bay on Knight Island. This return was from a small pre-smolt release in the fall of 1993.

The 1995 Eshamy District Management Plan was approved by the Salmon Harvest Task Force (SHTF) this spring and was also described in the 1995 PWS Salmon Management Outlook paper. The management plan was as follows: The entire Eshamy District should be open whenever possible; a

common property fishery in the Crafton Island Subdistrict in June or July would be based on the strength of the Coghill wild-stock sockeye return. Based on the 1995 forecast of Coghill wild-stocks, the Crafton Island Subdistrict should remain closed through mid-July. Based on the Department's 1995 Eshamy stock forecast, a common property fishery in the Crafton Island Subdistrict may occur in late July or early August if the Eshamy Lake wild-stock escapement was at or above the projected escapement. The preferred fishing schedule was a minimum of two 24-hour periods per week.

The season opened on July 3 for 24 hours with fishing limited to the Main Bay Subdistrict. The area restriction was necessary due to poor sockeye escapement at Coghill Lake where escapement through July 1 was 453 sockeye. The anticipated escapement by this date was 7,065 sockeye salmon. In addition to Eshamy District's area restrictions, time and area restrictions to the commercial fishery in the Coghill District were also in place. The Main Bay Subdistrict opened twice weekly the first two weeks of July, and for five days of continuous fishing during the third week of July, to harvest Coghill-stock sockeye returning to Main Bay Hatchery. By July 26, the Coghill-stock sockeye return was complete and management priorities switched to the Eshamy-stock sockeye return to Main Bay Hatchery. With the projected poor Eshamy-stock return to Main Bay Hatchery, the Main Bay Subdistrict closed on July 26 for the rest of the season. The Coghill-stock return to Main Bay was more than 50 percent below the forecast. Brood stock requirements were met at Main Bay Hatchery.

As recommended by the SHTF and based on the preseason forecast, the department was intending to open the Crafton Island Subdistrict to harvest surplus sockeye in late July or early August. During the last two weeks of July, the department conducted a seine test fishery in the Southwestern District to monitor pink salmon entry into PWS. The test fishery, targeting on pink salmon, harvested 5,357 sockeye. This greatly exceeded the 955 sockeye harvested in 1994. Escapement past the weir through August 1 was 1,180 sockeye versus the anticipated 9,011. Based on the high sockeye harvest in the seine test fishery, it was anticipated that the preseason forecast was correct and that surplus sockeye would be available to the commercial fishery. The Eshamy District would open for two 24-hour periods beginning August 7. Due to weak pink salmon escapement in the Coghill, Northwestern and Eshamy Districts, the 5 3/8 inch minimum mesh size restrictions were instituted.

The first 24-hour period harvested a meager 9,011 sockeye and slightly more than 39,000 pink salmon. Escapement past Eshamy weir continued to fall further behind and by August 8 only 1,573 sockeye had passed the weir versus an anticipated escapement of 12,662. With sockeye escapement falling further behind, a disappointingly low commercial sockeye harvest, and a higher than projected pink harvest, the second 24-hour period was reduced to 12-hours. During the 12-hour period only 4,828 sockeye and slightly more than 40,000 pink salmon were harvested. The cumulative escapement at the time the weir was pulled on September 20 was 21,702 sockeye, 38 percent below the goal. With escapement needs not met for Eshamy Lake the Eshamy District remained closed following the 12-hour period on Friday, August 11. Despite the minimum mesh size restriction of 5 3/8 inches, a significant harvest of pink salmon occurred in the district.

Escapement of sockeye salmon at Eshamy Lake fell short of the goal of 35,000 - 45,000 fish with only 21,400 fish past the weir. Actual escapement remained below the anticipated the entire season. Beginning in late July, a concentration of approximately 6,000 to 10,000 sockeye and pink salmon were observed congregating near the mouth of Eshamy river. However, migration upstream was limited. Finally on September 7, coinciding with increased precipitation, sockeye began moving upstream. Prior to that date, only 4,866 sockeye had passed the weir. Between September 7 and September 15, a total of 14,160 sockeye passed the weir. Following a drop in daily escapement, the weir was pulled on September 20.

An estimated 5,000 to 10,000 sockeye remained in Eshamy lagoon. As seen in 1993 and in 1994, these fish remained in the lagoon milling into late October. Since it remains unclear if the remote released sockeye that mill in the lagoon for long periods contribute to the spawning population of Eshamy Lake, little could be gained by counting these fish past the weir. Hydroacoustic surveys in the fall and zooplankton studies in the spring will study the fry population and food abundance in Eshamy Lake.

**Unakwik District.** The 1995 Unakwik District harvest was 2,116 sockeye with minor amounts of chum and pink salmon. The sockeye harvest was substantially below the 10-year average harvest of 11,357.

The Unakwik District opened on June 19 to a schedule of two 24-hour periods per week to target sockeye salmon. No changes were made to the fishing schedule until July 21 when the district was closed. Sockeye harvest peaked during the last week of June. The peak aerial survey estimate for Miners Lake was 300 sockeye. At Cowpen Lake the peak estimate was 180 sockeye salmon. The district remained closed for the rest of the 1995 season.

### **Purse Seine Fisheries**

**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 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, purse seine and drift gillnet gear are both allowed in the district. From August 25 through September 4, the use of seine gear is restricted to the Noerenberg Hatchery Terminal Harvest Area (THA). Beginning September 5, seine gear may only be operated in the THA if the harvestable surplus is predominately pink salmon. Fishing is allowed in all other districts 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. Subdistricts 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 mid-August. This year, VFDA elected to discontinue production of its small run of chum salmon that return in August each year. All VFDA returns are to the Solomon Gulch Hatchery in Port Valdez.

PWSAC has pink salmon stocks that peak in mid-August. PWSAC produced pink salmon return to the Cannery Creek, Noerenberg and A.F. Koernig Hatcheries. A moderate run of coho salmon is incidental to the late pink salmon fishery at the Noerenberg Hatchery. The outlook for the general purse seine fishery was a total return of 28.8 million pink salmon composed of 21.1 million hatchery (71% PWSAC, 29% VFDA) and 7.7 million wild stock pink salmon. The forecasted common property fishery harvest was 17.9 million pink salmon with 10.9 million slated for corporate and wild stock escapement. The wild stock chum salmon forecast was 258.5 thousand salmon with an escapement goal of 225 thousand.

The PWS Salmon Harvest Task Force met prior to the season. Seine representatives on the task force reviewed the 1994 recommendations and elected to put forth the same recommendations for the 1995

season. The seine representatives also recommended timely seine openings targeting VFDA's coho return in light of VFDA dropping their chum program which had management priority. The task force elected to not recommend approval of the Solomon Gulch Hatchery Annual Management Plan primarily because many processors were excluded from bidding on VFDA's cost recovery harvest. PWSAC annual management plans were recommended for approval. The corporate escapement rate for the PWSAC pink salmon return was to again be 40 percent. Site specific corporate escapement could fall above or below 40 percent at a site as all three sites would be managed collectively. To distinguish wild from hatchery pink salmon, inseason coded wire tag estimates of the commercial harvest would be used.

*Season Summary.* Pink salmon escapement goals were not met in four of the seine fishing districts in PWS. Southwestern District escapement was approximately 29% below the desired goal; the Coghill District was 74% below; the Northwestern District was 31% below; and the Northern District was 34% below its goal. The Eastern District's escapement was within the desired range coming in at approximately 6% below the goal. However, escapement within the district was not evenly distributed. Streams in the southern half of the Eastern District outperformed those in the northern half. The Southeastern District's escapement goal was met and the Montague District's escapement was 13% over the desired goal. The only district to achieve its chum salmon escapement goal was the Southeastern District. The Eastern and Northern Districts were within 23% of their chum salmon escapement goals. All other districts were at least 40% or more below their individual goals for chum salmon.

VFDA began corporate escapement harvesting on June 20 at the Solomon Gulch Hatchery. Ten seiners were used in their cost recovery fleet. The 1995 pink salmon revenue goal for VFDA was \$2.65 million. Initial harvests were low and sales tracked below the anticipated revenue curve. The average size of pink salmon being harvested was 3.7 pounds. By June 30, VFDA had attained 28 percent of their revenue goal and their sales harvest appeared to be back on track. The percentage of females at the end of June was below 20% indicating that the return had strength but was delayed slightly. The first seine fishery was announced for July 2 and took place in the western half of Port Valdez. A harvest of 796,270 pink salmon was taken by 107 boats. Sales harvests rebounded quickly after the first fishery and were tracking above the revenue curve prior to the next fishery on July 5. The second seine fishery was for 12-hours and again took place in the western half of Port Valdez. The harvest was 644,113 pink salmon and effort had increased to 133 boats. By regulation, VFDA's THA prior to July 5 includes all open waters east of 146°30.5' W. longitude. This year, VFDA was allowed to harvest in this area through July 7. Restricting the common property harvest to the western half of Port Valdez provided the hatchery operator enough pink salmon to remain on track towards meeting their revenue goal. This, in turn, allowed for frequent common property openings.

The next seine opening on July 8 included the western half of Port Valdez and waters on the western side of Valdez Arm north of Point Freemantle. The additional open area outside the port was provided primarily to address concerns raised by the Coast Guard regarding tanker safety and the crowded conditions at the port entrance. The additional area did not relieve congestion near the prime fishing locations at Potato Point and Entrance Point. The harvest on July 8 was 607,701 pink salmon and a total of 140 seiners participated. The percentage of females had reached 47% indicating that the run was at or near its peak. By then, VFDA had attained 75% of its revenue goal. Twelve-hour common property openings in Valdez Port and Arm were conducted on July 10 and 12 with harvests of 456,505 and 348,027 respectively. Two 66-hour openings between July 14 and July 19 followed and resulted in pink salmon harvests of 602,750 and 309,222 and chum harvests of 14,296 and 6,000 respectively. A six hour wild stock opening in the southern half of the Eastern District on July 14 (concurrent with the start of the first 66 hour opening in Valdez Port and Arm) attracted only 18 seiners who landed 7,603 pinks and

2,871 chum salmon. Most seiners continued to target the hatchery produced pink salmon returning to Port Valdez. By the beginning of the second 66-hour period, effort had declined to 52 seiners, down from the peak of 140 on July 8. On July 27, a 10 hour wild stock opener in the southern half of the Eastern District attracted 103 seiners who landed 96,105 pink and 8,528 chum salmon.

VFDA required a minimum of 323,000 pink salmon for brood stock. Solomon Gulch Hatchery lacks a brood enclosure contiguous to the hatchery that can protect brood stock from harvest during common property openers in the eastern half of Port Valdez. By July 12, VFDA was confident in their ability to meet revenue and brood stock goals with the fish available to them near the hatchery. By July 13, 160,000 brood stock had been captured and held in net pens. This method is used, in addition to volitional entry into the hatchery, to assure that some early components from the return are protected from harvest and used in the brood. On July 16, VFDA needed a minimum of 160,000 more pink salmon for brood and an additional 190,000 to meet their revenue goal. So that both goals could be met, no "clean up" common property opener was held in the eastern half of Port Valdez. Approximately 133,000 pink salmon were processed for roe salvage after the 1995 egg take was completed.

PWSAC began collecting pink salmon for corporate escapement on July 21 at the A.F. Koernig Hatchery, July 19 at the Noerenberg Hatchery, and July 31 at the Cannery Creek Hatchery. PWSAC employed one contract seiner at each hatchery for sales and brood stock collections and made provisions for a fleet assisted sales harvest should the need arise. The Southwestern District seine test fishery began on July 25 and continued until August 2. Six vessels were used per day to make test sets in ten key areas of the Southwestern District. On the first day of the test fishery, the average catch per boat/hour was 177 pink salmon. The highest daily average for all boats occurred on August 2 when 2,058 pink salmon per boat/hour were caught (686 pink salmon for a 20 minute set). During 1994, the highest daily average was on July 31 when 6,133 pink salmon per boat/hour were caught. While the test fishery was underway, aerial surveys indicated the pink and chum escapements in the southern half of the Eastern District were at or slightly above that anticipated for this time period and a 10-hour seine opening was held on July 27. A total of 103 seiners harvested 96,105 pink and 8,528 chum salmon.

In late July, it appeared that the VFDA return had come in at forecast with it's best ever odd year return. At the same time, PWSAC's actual sales harvests were below the anticipated level at all three pink salmon hatcheries. Based upon VFDA's return, there was significant concern that the PWSAC return would still come in at forecast but in a compressed time frame that would tax processing capacity similar to the 1991 return. Although steadily improving, test fishery catches were not indicating a significantly strong run entry into the Southwestern District. By August 1, the average catch per boat hour had risen to 825 pink salmon. The next day the average increased to 2,058 and a 15-hour seine opening was announced for August 4 in the southern half of the Southwestern District. The harvest from this opening was 878,680 pink, 8,345 sockeye and 5,042 chum salmon. The second seine opening in the Southwestern District on August 6 yielded a harvest of 660,597 pink salmon, 5,311 sockeye salmon and 2,978 chum salmon. Coded wire tag information indicated that the enhanced pink salmon components in the two harvests were approximately 66% and 68% respectively. During both openings, the contribution from Cannery Creek Hatchery was the greatest followed by Noerenberg Hatchery and AFK Hatchery.

Sales harvests were still well below expectations at all three PWSAC pink salmon hatcheries on August 6. The combined pink salmon sales harvest by that date was approximately 950,000 below preseason expectations. Following the two openings in the Southwestern District, PWSAC's corporate escapement stood at 29%, well below the goal of 40%. Concurrent with the strong showing of Cannery Creek pink salmon in the Southwestern District catch was a buildup of pink salmon in Unakwik Inlet. In order to

boost PWSAC's corporate escapement percentage, two days of fleet assisted cost recovery took place on August 7 and 8 on Unakwik Inlet's east side. PWSAC was able to harvest 702,000 pink salmon (618,346 from Unakwik Inlet) at their three hatcheries which brought their corporate escapement up to approximately 53%.

The fleet assisted sales harvest was followed by a twelve hour opening on August 9 which yielded a harvest of 1.08 million pink salmon from Unakwik Inlet in the Northern District and 172,680 pink salmon from the Esther Subdistrict. Initial coded wire tag information from the three days of commercial harvests in the Northern District indicated that as much as 50% of the catch could be of wild stock origin. This seemingly strong showing by wild stocks in the Northern District was not mirrored in the stream escapements throughout the district, particularly in Unakwik Inlet. The reason for this dichotomy was an apparent tag loss problem in pink salmon originating from Cannery Creek Hatchery. A significant percentage of adipose clipped pink salmon from the Unakwik Inlet harvest did not contain coded wire tags. The loss of tags from Cannery Creek stock inflated the initial estimate of wild stock contributions to the harvest. Once the tag loss problem was identified, Cannery Creek's contribution estimates were adjusted inseason based on historic tag retention percentages.

Because of escapement shortfalls in early August in the Southwestern, Northwestern, Coghill and Northern Districts, area restrictions were used in an attempt to minimize the harvest of weak wild stocks. In the Esther Subdistrict, the harvest was restricted to within one mile of Esther Island for all seine openings. Area restrictions were also used during the early harvest of the Cannery Creek return in an effort to improve Northern District wild stock escapements, particularly into Jonah and Siwash Bays. Bay counts were higher than anticipated in some areas in the Northern District. However, stream counts were consistently deficient in these same areas. It appeared that many pink salmon contributing to the positive bay counts in the district were enhanced fish returning to Cannery Creek.

PWSAC remained slightly ahead of its 40% escapement goal following the first seine openings in the Northern and Coghill Districts. During the next 12-hour opening on August 11, the Port San Juan Subdistrict was opened in addition to areas in the Northern and Coghill Districts to increase the fleets harvest of PWSAC stocks and to provide additional area in which the seine fleet could operate. The harvest from this opening was 168,468 pink salmon from the San Juan Subdistrict, 152,684 pink salmon from the Esther Subdistrict and 215,050 pink salmon from the east side of Unakwik Inlet in the Northern District. The percent female at AFK Hatchery was 50% on August 12 indicating the run there was at its peak. The low harvest from the San Juan Subdistrict on August 11, along with AFK Hatchery's weak sales harvest, indicated that the AFK return would come in well below forecast. To assure that brood stock needs would be met, no additional openings were held in the San Juan Subdistrict. This allowed PWSAC to manage the AFK return to maximum benefit and allow the fleet to target on the more abundant returns to Cannery Creek and Noerenberg hatcheries.

With continuing wild stock escapement shortfalls, the next opening on August 13 was again held in terminal areas adjacent to Noerenberg and Cannery Creek hatcheries. In the Northern District, only the waters on the east side of Unakwik Inlet, including Payday Point, were open. The harvest for this opening was 452,122 pink salmon from the Northern District and 263,520 pink salmon from the Esther Subdistrict. During the previous opening on August 11 the waters around Payday Point were closed. The wild stock component of the catch was estimated to be 18% on August 11. When the Payday Point area was reopened August 13, the estimated wild stock component of the catch rose to 44%. In the Esther Subdistrict, the wild stock contribution to the harvest within the one mile corridor off Esther Island was consistently 20% or less.

On August 14, an aerial survey of the Eastern and Northern Districts indicated that pink salmon escapement had improved since the previous survey on August 8. Area restrictions were eased on the assumption that pink salmon in closed waters would most likely be contributing to wild stock escapements. General waters of both districts were opened on August 15 for 12 hours, except that extensive bay closures were employed. This was done for quality considerations and to ensure that wild pink salmon in bays would be able to contribute to actual stream escapements which were still deficient in many areas. A survey of the Southeastern District indicated that the escapement goal was being met and the district was also opened for the 12-hour period. The harvest from the August 15 opening was 84,992 pink salmon from the Eastern District, 642,533 from the Northern District, 126,014 from the Esther Subdistrict and 5,283 from the Southeastern District.

With weekly escapement goals being met in the Southeastern, Eastern, and Northern Districts, 12-hour openings were held every other day between August 15 and August 23. Bay closures utilizing SHTF markers were used in most areas for both quality and escapement considerations. A majority of the remaining seining effort during this period targeted returns in the Eastern and Northern Districts. A total of 126 permit holders fished these districts during this period. By the August 23 opening, effort had declined to 61 permit holders. Two 60-hour periods were held between August 25 and August 30. The Montague District was added to the areas open to seining and 18,239 pink salmon were harvested from the district in 1995. Pink salmon brood requirements were met at all PWSAC hatcheries. Approximately 22,295 pink, 36,150 chum, 984 coho and 302 chinook salmon were processed for roe recovery at Noerenberg Hatchery.

By early September, VFDA had collected sufficient brood stock and operating revenues from their coho salmon return and the Valdez Silver Salmon Derby had concluded on September 4. A 36-hour seine period was announced for September 5 adjacent to Solomon Gulch Hatchery. A total of 29 seiners harvested 59,043 coho and 2,665 chum salmon during this period. A subsequent 60-hour period saw 18 seiners harvest an additional 10,109 coho salmon and 195 chum salmon. All of the major processors had ceased buying pink salmon in early September. The last common property seine harvest occurred during the coho salmon fishery in Port Valdez although openings continued into mid-September. Heavy precipitation during the month of September created flood conditions in many areas of PWS. Erosion and scouring may have severely impacted spawning streams throughout PWS.

## **1995 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. Prior to the 1994 BOF meeting this "home use" was unreported. The BOF placed into regulation the requirement that all chinook salmon harvested but not sold (home use) in the Copper and Bering River Districts 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. Harvest data for these areas is provided in Appendix G.1.

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

#### **Prince William Sound And Lower Copper River Fisheries**

Subsistence permits issued at the Cordova office allow subsistence users to fish during commercial fishing periods in Prince William Sound and the Copper and Bering River Districts. In 1995, 4 permits were issued for Prince William Sound, however, only two permits were returned and neither permit holder fished (Appendix G.2). For the Copper and Bering River Districts, 126 permits were issued and 110 permits were returned. Of the permits returned only 70 permit holders fished. The reported catch was 148 chinook, 648 sockeye, 31 coho and 3 other species (Appendix G.3).

The recording on fish tickets of take home or "home use" chinook salmon 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.

#### **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 commercial fishery opens in the permitted area; during all commercial fishing periods in the permitted area; and from two days after the commercial fishing seasons closes until September 30 in Southwestern and October 31 in the Eastern area for seven days a week.

In the Southwestern area, 10 permits were issued, mainly to residents of Chenega Bay village. Only 5 permit holders fished for a total catch of 152 sockeye, 67 pink, 41 chum, 67 coho and 2 chinook salmon (Appendix G.4). In the Eastern area, 15 permits were issued. Only three permits were returned and those three did not fish.

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

#### **Subsistence Fishery**

The magnitude of the 1995 Copper River salmon return was anticipated to allow unrestricted fishing for the subsistence fish wheel and dip net fishery. During the 1991 Board of Fisheries meeting, the subsistence guideline harvest level was increased from 25,000 to 35,000 salmon however, with the recent trend of an increasing subsistence harvest, the guideline harvest level was increased to 69,000 for 1995. The fish wheel and dip net fishery opens June 1 to seven day per week fishing. A total of 191 dip net and 667 fish wheel permits were issued, the estimated total (reported and unreported) salmon harvest was 55,329 (Appendix G.5).

## **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) which asked that the residents of Dot Lake and Menetasta 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 was provided for by Emergency Regulation (ER) at Batzulnetas to achieve settlement in the United States District Court. The "ER" established the 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 Menetasta or Dot Lake and the fishery was conducted during July and early August. A total of 22 sockeye salmon was reported in 1987. The Board of Fisheries reviewed the fishery prior to the 1988 season and set seasons, eliminated the quota, allowed each household of one 30 sockeye salmon, 60 for a household of two and 10 additional salmon for each additional 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 till 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 Menetasta Village Council for an injunction against the State requesting continuous fishing 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 no report of harvest. During 1991 and 1992 no permits were issued and there was no harvest reported. In 1993, one permit was issued and the harvest was 160 sockeye salmon. The fishery was open for a weekly 84-hour period from July 15 to September 1. In 1994, an injunction was filed by John et. al on June 3 in the United States District Court of Alaska to allow for 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 for a total harvest of 997 sockeye salmon. In 1995, four permits were issued, only two permits fished for a total harvest of 16 sockeye salmon.

## **Personal Use Fishery**

The personal use fishery in the Chitina Subdistrict opened during the first weekend in June (June 4) for 54-hours. The fishery was closed from August 8 through August 30 and then reopened to continuous fishing from September 1 until the season closed by regulation on September 30. The personal use fishery is restricted to a 60,000 seasonal salmon harvest, plus 25 percent of the escapement past Miles Lake sonar which exceed the 560,000 salmon objective. Fishing time may be reduced when actual harvest rates exceed the expected rate. In 1995, an extensive public information campaign targeting the personal use fishery was conducted by the department. The campaign incorporated frequent news releases and, provided dedicated phone lines with recorded fishery information in Glennallen, Fairbanks and Anchorage.

A total of 6,763 dip net permits were issued in 1995, representing a decrease from the 7,061 permits issued in 1994. The reported harvest for the season was 76,586 sockeye, 4,561 chinook and 4,726 coho salmon. The estimated total (reported and unreported) salmon harvest was 88,634. The combined upper Copper River personal use and subsistence fisheries estimated catch of 143,963 fish ranks as the third largest harvest on record.

## 1995 PRINCE WILLIAM SOUND HERRING FISHERIES

### *Preseason Outlook And Harvest Strategy*

There are five herring fisheries in the management area. During the spring, 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 produced by impounding herring and kelp. A food-and-bait fishery occurs in the fall. The wild spawn on kelp and food-and-bait fisheries are open entry.

At the February 1994 Board of Fisheries meeting the minimum herring spawning biomass threshold was increased. The board adopted the staff's proposal to raise the biomass threshold from 8,400 tons to 22,000 tons. The board also repealed the herring districts.

For management purposes, all herring fisheries target on what is treated as a single major stock of herring that spawns in PWS during the mid-April to early May period. The Prince William Sound Herring Management Plan, 5 AA 27.365, allocates the projected available surplus to the five fisheries based on a 0 to 20 percent harvest rate when stock size is between 22,000 and 42,500 tons, and the maximum harvest rate of 20 percent is applied when stock size is greater than 42,500 tons. When the stock is below threshold (22,000), no fishery would take place. The sac roe seine fishery is allocated 58.1 percent of the available surplus; the food and bait fishery 16.3 percent; the pound spawn-on-kelp fishery 14.2 percent; the wild spawn-on-kelp fishery 8.0 percent and the gillnet sac roe fishery 3.4 percent.

The projected 1995 spawning biomass was 19,000 tons. The forecast predicted a predominance of age-7 fish from the 1988 year class. Based on the Prince William Sound Herring Management Plan all herring fisheries were canceled for the 1994-95 management year.

### *1995 Season Summary*

Aerial surveys were conducted from April 1 through May 2. A summary of the spawning areas and timing of spawn are shown in Appendix H.1. The peak aerial biomass estimate was 7,100 tons, the lowest ever recorded. The estimate by area was southeastern 550 tons; northeastern area 950 tons; and Montague Island 5,600 tons.

There is imprecision in aerial biomass estimates in some locations of PWS because at times not all herring are visible from the air. The R/V Montague conducted sonar surveys at Montague Island beginning on April 16.

The herring spawning population, as expected, was dominated by the 1988 year class. Age composition indicated that over half the stock was age-7 and older. There were very few age-5 herring and age-6

comprised approximately 17 percent by number. Although three year old herring are not fully recruited to the fishery, approximately 23 percent of the herring were age-3, an improvement over the past few years. The majority of the spawning biomass in 1996 will continue to be from the 1988 brood year. The mortality rate of the 1988 brood year will continue to increase and, unless significant recruitment occurs, the spawning stock will decline.

Herring samples were collected on prespawning, spawning and post spawning herring to determine the extent of the herring population infected with viral hemorrhagic septicemia virus (VHSV) and/or *Ichthyophonus*. During the course of sampling, skin hemorrhages were observed on about five percent of herring sampled. Fish were sent to the pathology lab in Juneau and the VHS virus was again identified. The lab also found the fungal disease *Ichthyophonus* in 30 percent of the sampled fish, similar to the 1994 results.

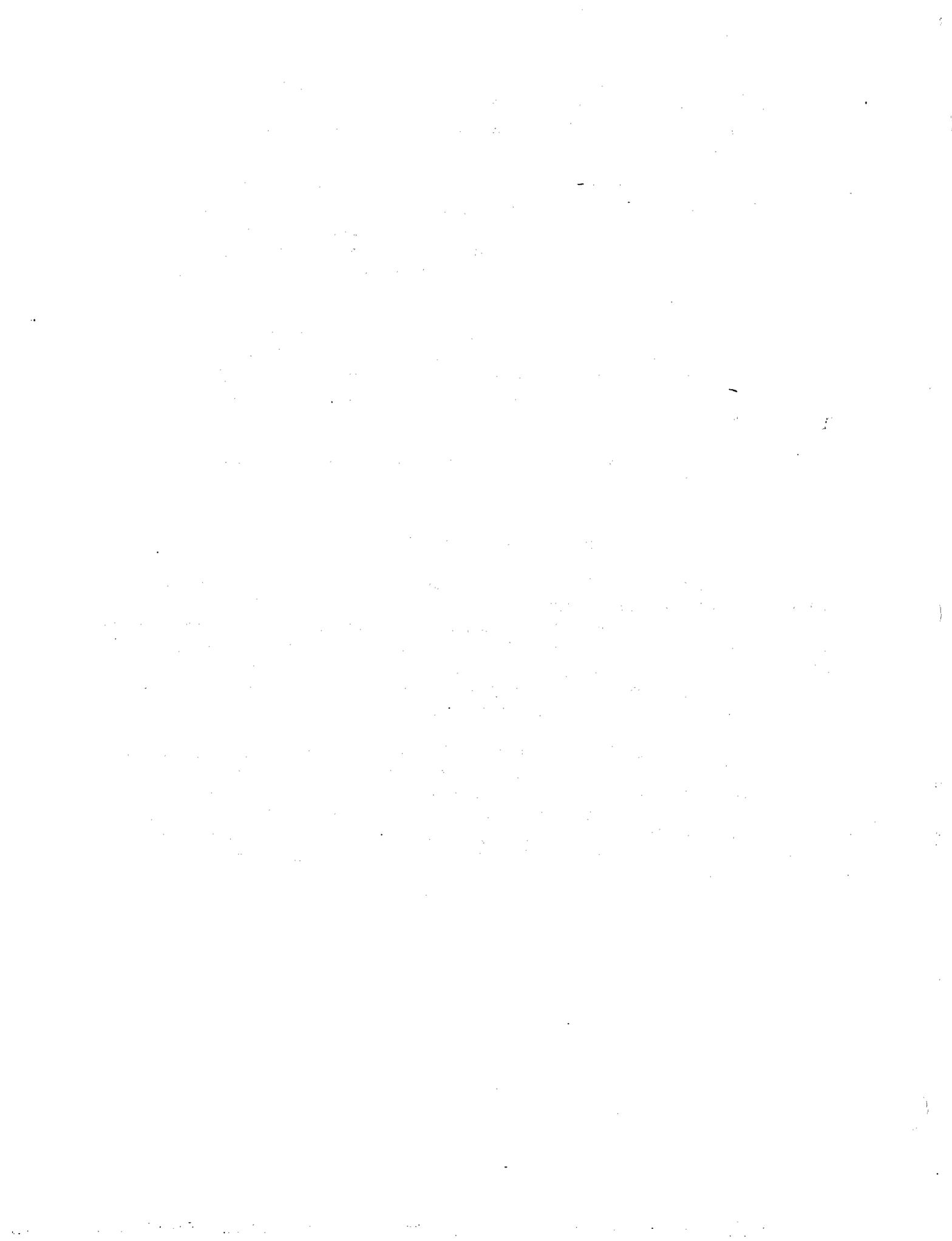
The peak of spawning was April 27, slightly later than in 1994 when peak spawn occurred on April 21. The total statute miles of shoreline spawn was 20.4, up from the record low of 14.6 miles in 1994. The majority of spawn was again at Montague Island with a total of 12.6 miles; 2.0 miles of spawn occurred in the Northeast area; and 5.8 miles of spawn in the Southeast area. There was no spawning activity on the North Shore or at Naked Island.

The 1995 food-and-bait fishery, the first fishery of the 1995-96 herring management year, was cancelled due to low stock condition.

#### ***1995-96 Herring Season Outlook***

The management year for herring is from July 1 through June 30. In regulation, the guideline harvest level for all fisheries is established before the fall food-and-bait season and is based upon the final spawning biomass estimate from the previous spring, cohort analysis, and projected recruitment. In practice the department has not been able to produce a final spring biomass estimate prior to the fall food-and-bait fishery. During the past several years, the fall food-and-bait fishery guideline harvest level was set based on a preliminary biomass estimate. The guideline harvest for the spring fisheries has been set in early winter after a final analysis of available data is complete.

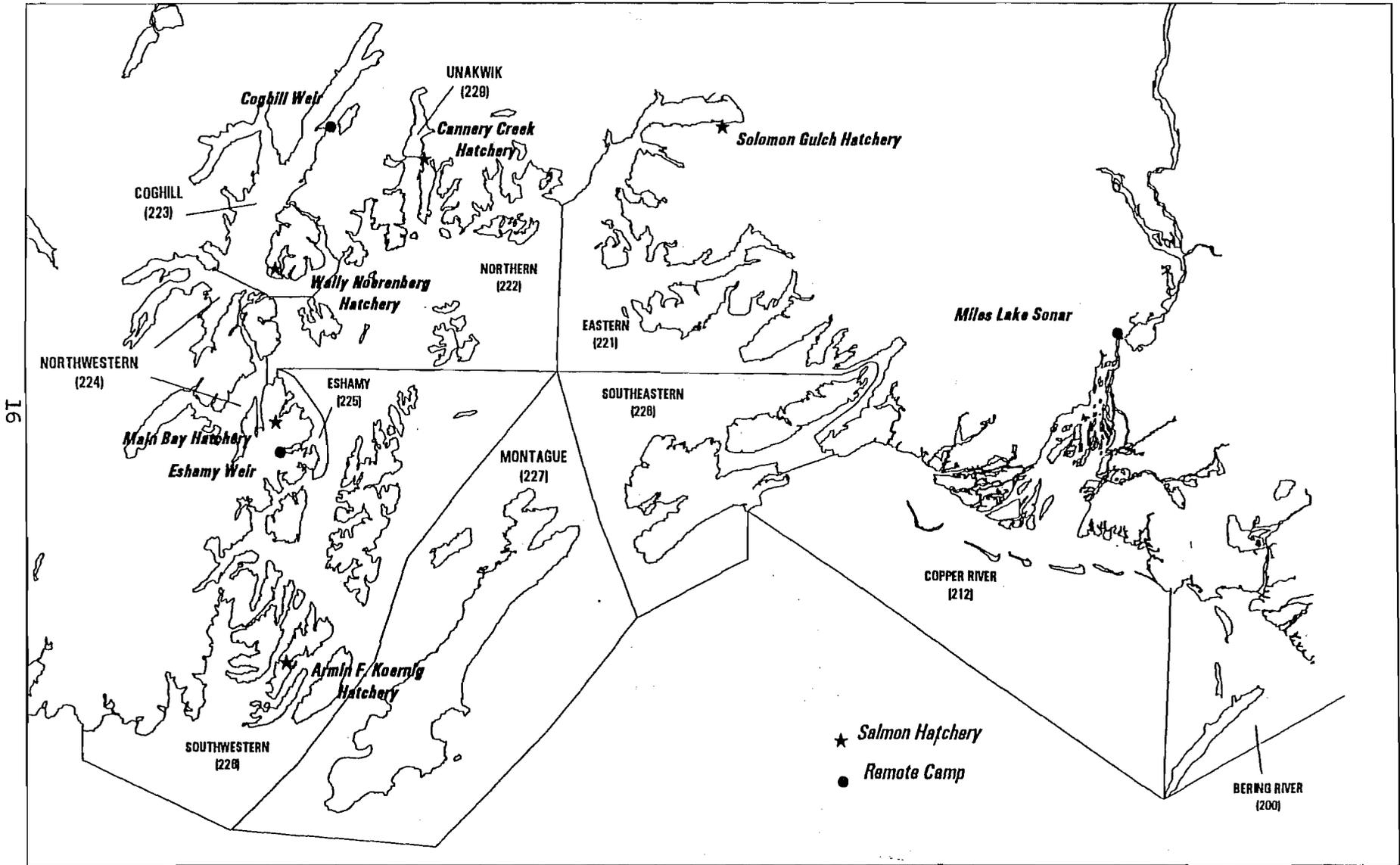
The herring forecast uses an Age Structured Analysis (ASA) model. The model incorporates previous spawn survey egg deposition estimates, the miles of spawn, growth, and age composition from the spawning stock and fishery harvests. Natural mortality is estimated by the ASA model whereas in prior years natural mortality was taken from the literature. The model hindcasted the 1995 spawning biomass at 20,640 tons. Accounting for growth and mortality the ASA model projects the 1996 spawning stock to be 24,330 tons. The spawning biomass should be dominated by age-8 herring. At the given stock size no harvests are expected.





APPENDIX A

PRINCE WILLIAM SOUND  
AREA WIDE INFORMATION



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, 1995.

District	Effort	Chinook	Sockeye	Coho	Pink	Chum	Total
Eastern	165	57	2,639	83,565	4,235,638	52,113	4,374,012
Northern	167	22	3,268	2,179	3,656,118	5,776	3,667,363
Coghill	118	33	20,670	5,337	917,200	2,597	945,837
Southwestern	181	16	14,195	3,907	1,707,745	8,334	1,734,197
Montague	4	0	22	283	18,239	32	18,576
Southeastern	2	0	2	78	11,418	40	11,538
Purse Seine	187	128	40,796	95,349	10,546,358	68,892	10,751,523
Bering River a	195	44	21,585	282,045	26	229	303,929
Copper River a	513	65,675	1,271,822	542,658	19,809	56,100	1,956,064
Unakwik	12	8	2,116	0	1	36	2,161
Coghill	277	468	57,797	29,343	161,493	379,659	628,760
Eshamy	144	21	29,851	1,468	60,712	13,284	105,336
Drift Gillnet	518	66,216	1,383,171	855,514	242,041	449,308	2,996,250
Eshamy	26	19	30,814	695	28,118	6,621	66,267
Set Gillnet	26	19	30,814	695	28,118	6,621	66,267
Solomon Gulch	1	15	35	8,095	2,535,578	1,239	2,544,962
Cannery Creek	1	0	0	0	1,036,611	0	1,036,611
Wally Noerenberg	1	704	0	5,153	928,938	227,414	1,162,209
Main Bay	1	0	49,427	0	43,401	2,886	95,714
Armin F. Koernig	2	0	13,864	0	545,624	0	559,488
Hatchery b	5	719	63,326	13,248	5,090,152	231,539	5,398,984
Donated Fish c	1	0	0	0	10,667	0	10,667
ADF&G Test Fish	1	1	5,357	211	147,895	2,167	155,631
Confiscated Fish	1	0	0	0	0	18	18
Total	2	1	5,357	211	158,562	2,185	166,316
<b>Prince William Sound</b>							
Total		67,083	1,523,464	965,017	16,065,231	758,545	19,379,340

a Does not include salmon taken for home use as reported on fish tickets.

b Hatchery sales for hatchery operating costs. Does not include fish from salmon roe sales.

c Pink salmon landed on a PWSAC hatchery permit and donated to Earth Inc.

Appendix A.3. Commercial salmon harvest by species from all gear types,  
Prince William Sound Area, 1971 - 1995.

Year <sup>a</sup>	Catch by Species					Total
	Chinook	Sockeye	Coho	Pink	Chum	
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
<hr/>						
Ten Year						
Average	37,096	1,421,740	581,865	23,218,527	1,168,564	26,427,793
(1985-94)						

<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.

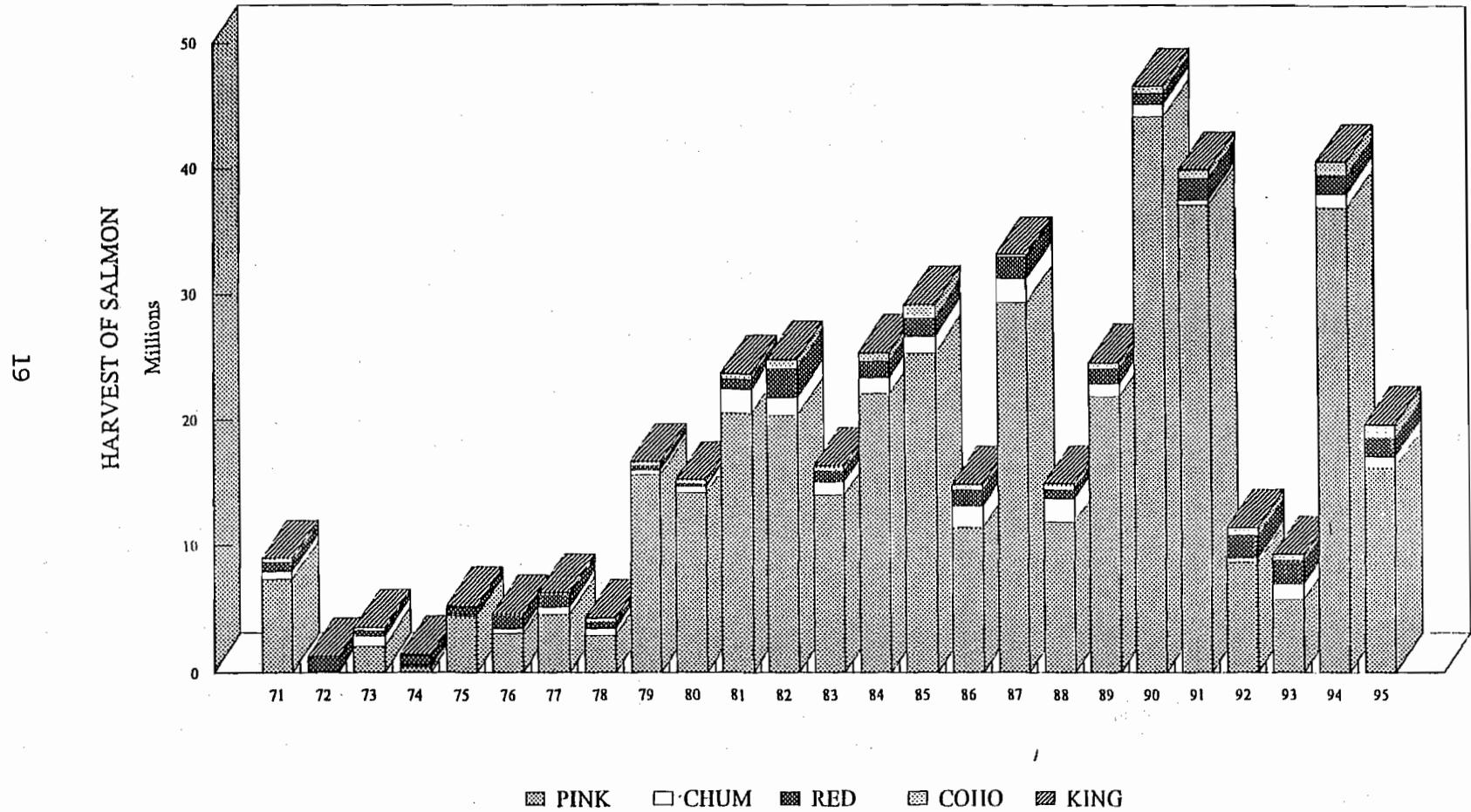
<sup>c</sup> Includes confiscated and educational special use permits, hatchery sales harvests, and donated and discarded catches.

<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 - 1995.

Appendix A.5. Mean price and estimated exvessel value of the total commercial salmon harvest by gear type, Prince William Sound, 1995.

PURSE SEINE

Species	Number	Pounds	Avg. Wt.	Price <sup>a</sup>	Value
Chinook	128	1,745	13.63	0.67	1,169.15
Sockeye	40,796	238,579	5.85	0.86	205,177.94
Coho	95,349	839,129	8.80	0.39	327,260.31
Pink	10,546,358	37,425,452	3.55	0.18	6,736,581.36
Chum	68,892	543,025	7.88	0.28	152,047.00
	10,751,523	39,047,930			\$7,422,235.76

DRIFT GILLNET

Species	Number	Pounds	Avg. Wt.	Price	Value
Chinook	66,216	1,639,380	24.76	2.18	3,573,848.40
Sockeye	1,383,171	7,990,132	5.78	1.61	12,864,112.52
Coho	855,514	8,091,689	9.46	0.52	4,207,678.28
Pink	242,041	870,855	3.60	0.19	165,462.45
Chum	449,308	3,562,147	7.93	0.48	1,709,830.56
	2,996,250	22,154,203			\$22,520,932.21

SET GILLNET

Species	Number	Pounds	Avg. Wt.	Price	Value
Chinook	19	230	12.11	0.79	181.70
Sockeye	30,814	169,769	5.51	1.07	181,652.83
Coho	695	5,414	7.79	0.37	2,003.18
Pink	28,118	104,954	3.73	0.18	18,891.72
Chum	6,621	53,892	8.14	0.39	21,017.88
	66,267	334,259			\$223,747.31

HATCHERY SALES <sup>b</sup>

Species	Number	Pounds	Avg. Wt.	Price	Value
Chinook	719	10,239	14.24	1.14	11,691.92
Sockeye	63,326	324,712	5.13	1.17	380,378.28
Coho	13,248	94,243	7.11	0.31	28,759.49
Pink	5,090,152	18,364,127	3.61	0.23	4,157,847.32
Chum	231,539	1,783,731	7.70	0.50	895,508.99
	5,398,984	20,577,052			\$5,474,186.00

OTHER GEAR <sup>c</sup>

Species	Number	Pounds	Avg. Wt.	Price	Value
Chinook	1	30	30.00	0.83	24.90
Sockeye	5,357	29,660	5.54	0.94	27,880.40
Coho	211	1,497	7.09	0.32	479.04
Pink	147,895	518,543	3.51	0.17	88,152.31
Chum	2,185	15,681	7.18	0.27	4,233.87
	155,649	565,411			\$120,770.52

Gear Type	Value of Catch	No. of Permits	Average Earnings
Purse Seine	7,422,235.76	187	\$39,691.10
Drift Gillnet	22,520,932.21	518	\$43,476.70
Set Gillnet	223,747.31	26	\$8,605.67
Subtotal-			
Value of CPF Catch	\$30,166,915.28		
Hatchery	\$5,474,186.00		
Other Gear	\$120,770.52		
<b>GRAND TOTAL</b>	<b>\$35,761,871.80</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.

<sup>c</sup> Includes the confiscated fish sales and ADF&G test fish.

Appendix A.6. Total commercial salmon harvest and estimated value by gear type and district,  
Prince William Sound Area, 1995.

District	Numbers of Fish					Total	Estimated Value a
	Chinook	Sockeye	Coho	Pink	Chum		
221 Eastern	57	2,639	83,565	4,235,638	52,113	4,374,012	3,231,679
222 Northern	22	3,268	2,179	3,656,118	5,776	3,667,363	2,313,686
223 Coghill	33	20,670	5,337	917,200	2,597	945,837	685,093
226 Southwestern	16	14,195	3,907	1,707,745	8,334	1,734,197	1,173,206
227 Montague	0	22	283	18,239	32	18,576	12,064
228 Southeastern	0	2	78	11,418	40	11,538	6,508
PURSE SEINE TOTAL	128	40,796	95,349	10,546,358	68,892	10,751,523	\$7,422,236
200 Bering River	44	21,585	282,045	26	229	303,929	1,614,662
212 Copper River	65,675	1,271,822	542,658	19,809	56,100	1,956,064	18,265,254
223 Coghill	468	57,797	29,343	161,493	379,659	628,760	2,246,289
225 Eshamy	21	29,851	1,468	60,712	13,284	105,336	373,214
229 Unakwik	8	2,116	0	1	36	2,161	21,513
DRIFT GILLNET TOTAL	66,208	1,381,055	855,514	242,040	449,272	2,994,089	\$22,520,932
225 Eshamy	19	30,814	695	28,118	6,621	66,267	223,747
SET GILLNET TOTAL	19	30,814	695	28,118	6,621	66,267	\$223,747
221 Solomon Gulch	15	35	8,095	2,535,578	1,239	2,544,962	2,579,022
222 Cannery Creek	0	0	0	1,036,611	0	1,036,611	642,815
223 Wally Noerenberg	704	0	5,153	928,938	227,414	1,162,209	1,547,547
225 Main Bay	0	62,995	0	43,401	2,886	109,282	424,826
226 Armin F. Koernig	0	296	0	545,624	0	545,920	279,976
HATCHERY SALES TOTAL	719	63,326	13,248	5,090,152	231,539	5,398,984	\$5,474,186 b
Donated Fish	0	0	0	10,667	0	10,667	0
ADF&G Test Fish	1	5,357	211	147,895	2,167	155,631	120,742
Confiscated	0	0	0	0	18	18	29
OTHER GEAR TOTAL	1	5,357	211	147,895	2,185	155,649	\$120,771
<b>PRINCE WILLIAM SOUND</b>							
GRAND TOTAL	67,075	1,521,348	965,017	16,054,563	758,509	19,366,512	\$35,761,872

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

b 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, 1986-1995.

Species <sup>a</sup>	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
<b>King Salmon</b>	1.45	1.75	2.23	2.25	2.24					
Copper/Bering Districts						1.65	2.50	1.82	1.43	2.19
Prince William Sound						1.00	1.55	1.07	0.80	0.91
<b>Sockeye Salmon</b>										
Copper River	1.65	1.90	3.20	2.30	2.13	1.28	2.50	1.32	1.27	1.67
Bering River	1.65	1.90	3.00	2.30	2.13	1.28	2.50	1.40	1.06	1.44
Coghill/Unakwik Districts	1.37	1.75	2.68	2.00	1.50	1.28	1.55	0.93	0.94	0.75
Eshamy	1.34	1.60	2.77		1.45	1.28	1.55	0.86	1.19	1.06
General Purse Seine	1.35	1.45	2.68	2.00	1.50	1.00	1.55	0.83	0.88	0.94
<b>Coho Salmon</b>										
Copper/Bering Districts	0.94	0.93	2.35	0.60	0.97	0.65	0.90	0.80	0.74	0.52
Prince William Sound	0.46	0.55	1.86	0.70	0.97	0.45	0.90	0.77	0.60	0.42
<b>Pink Salmon</b>	0.23	0.40	0.79	0.35	0.30	0.12	0.18	0.16	0.16	0.18
<b>Chum Salmon</b>	0.33	0.39	0.73	0.35	0.70	0.40	0.55	0.68	0.45	0.45

<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. Harvest projections for the 1995 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>	65.4	43.3 - 87.5	1,335.0	803.0 - 1,866.0	333.0	134.0 - 532.0				
Bering River <sup>c</sup>			7.8	0.0 - 76.6	132.0	0.0 - 269				
Coghill <sup>d</sup>			42.6	0.0 - 110.6						
Eshamy <sup>e</sup>			11.2	0.0 - 25.5	11.4	0.0 - 24.5	6,300.0	2,200.0 - 15,400.0	33.5	0.0 - 534.0
General P.W.S. Districts										
Total Wild Stock	65.4		1,396.6	0.0 - 212.7	476.4		6300.00	2,200.00 - 15,400.00	33.5	0.0 - 534.00
Solomon Gulch					27.4	24.8 - 41.0	2,600.0	1,700.0 - 3,600.0	34.2	25.1 - 43.2
Armin F. Koernig							2,500.0	2,100.0 - 3,000.0		
Wally Noerenberg	3.8	1.0 - 6.7			88.6	61.7 - 115.4	4,300.0	2,800.0 - 5,800.0	988.2	775.1 - 1,201.4
Cannery Creek							2,200.0	700.0 - 3,700.0		
Main Bay <sup>f</sup>			333.0	314.9 - 352.7						
Gulkana			316.0	290.0 - 341.0						
Total Hatchery	3.8		649.0		116.0		11,600.0		1,022.4	
Total Hatchery and Wild	69.2		2,045.6	604.5 - 906.4	592.4		18,000.00	9,600.00 - 31,400.00	1,055.9	800.20 - 1,778.3

<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 only made for those species which constitute a significant portion of the catch. The harvest projections do not include 8.34 million pinks, 221,530 chum, and 127,530 sockeye, projected for harvest by hatcheries for cost recovery.

<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.

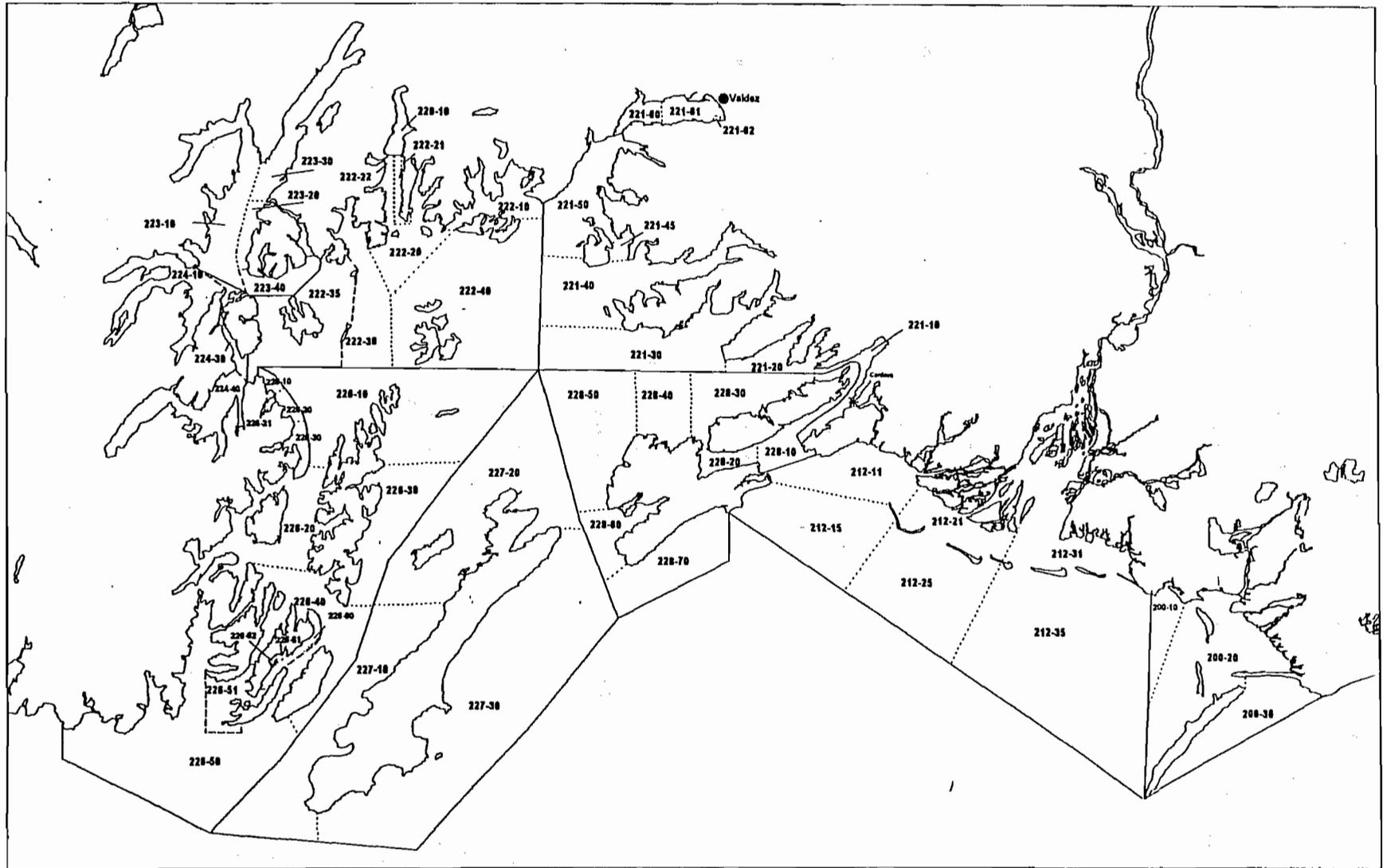
<sup>d</sup> Coghill sockeye returns are formally forecast using a sibling relationship model for the major age class and spawner recruit relationships for other age classes. The pink and chum harvest is included in the "General PWS Districts" projection.

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

Appendix A.9. A listing of finfish processors, their location of operation, and type of product processed, Prince William Sound Area, 1995.

Executive Names, Address Location of Operations	Processor Code	Type of Product	Executive Names, Address Location of Operations	Processor Code	Type of Product
Big Dipper Seafoods, Inc. P.O. Box 2816 Valdez, Alaska 99686 Jesse Frank	F1848	Salmon	Prime Select Seafoods, Inc. P.O. Box 846 Cordova, Alaska 99574 Jeff Bailey	F1816	Salmon
Cannery Row, Inc. P.O. Box 120 Cordova, Alaska 99574 Greg Meyer	F1673	Salmon	Prince William Sound Aquaculture P.O. Box 1110 Cordova, Alaska 99574	F1901	Salmon roe
Cook Inlet Processing P.O. Box 8163 Nikiski, Alaska 99635 John Dickerson	F0186 F1155	Salmon	St. Elias Ocean Products, Inc. P.O. Box 548 Cordova, Alaska 99574 Hap Symmonds	F1930	Salmon
Fish Tales Alaskan Seafood Products P.O. Box 904 Spearfish, S.D. 57783 Hope Williams	F1801	Salmon	Sahalee of Alaska, Inc. P.O. Box 104174 Anchorage, Alaska 99510 William Lind	F1485	Salmon
Glacier Creek Seafoods P.O. Box 1063 Girdwood, Alaska 99587 Steve Aberle	F1826	Salmon	Sea Hawk Seafoods P.O. Box 247 Valdez, AK 99686 Cary Cox	F0223	Salmon
Glacier Fish Company, Ltd. 1200 Westlake Ave. N., Suite #900 Seattle, Washington 98109 Maria Windrow	F1401 F0181	Salmon	Seward Fisheries P.O. Box 8 Seward, Alaska 99664 Jeff Poole	F0133 F0135 F0138	Salmon
Great Pacific Seafoods, Inc. P.O. Box 1648 Cordova, Alaska 99574 Billie Thomson	F1989 F1267	Salmon	Silver Lining Seafoods P.O. Box 260 Cordova, Alaska 99574 Bill Gilbert	F1486	Salmon
Inlet Salmon P.O. Box 530 Kenai, Alaska 99611 Sally Waechtler	F1039	Salmon	Trident Seafoods 5303 Shilshole Ave. N.W. Seattle, WA 98107 Dan Thompson	F1456 F1546	Salmon
Low Water Clam Company P.O. Box 2232 Cordova, Alaska 99574 Mitchell Nowicki	F0010	Salmon	Valdez Fisheries Development P.O. Box 125 Valdez, Alaska 99686 Dave Cobb/Laura Weaver	F1355	Salmon
Nautilus Foods P.O. Box 727 Valdez, Alaska 99686 Jim Van Stone	F2003	Salmon	Wards Cove Packing Co. P.O. Box 1710 Seward, AK 99664 David Brindle	F1379	Salmon
North Pacific Processors, Inc. P.O. Box 1040 Cordova, Alaska 99574 Ken Roemhildt	F0232	Salmon	Whitney Foods 2201 6th Ave., Suite 1300 Seattle, WA 98121 Denise Von Pressentin	F0827	Salmon
Peter Pan Seafoods, Inc. P.O. Box 1027 Valdez, Alaska 99686 James Poor	F1041	Salmon	Wild Card, Inc. P.O. Box 1871 Cordova, Alaska 99574 Lisa Walters	F1822	Salmon



Appendix A.10. Prince William Sound Area showing commercial fishing districts and statistical reporting areas, 1995.

APPENDIX B

COPPER AND BERING RIVER DISTRICTS

Appendix B.1. Commercial salmon catch by species in the Copper River District, 1974 - 1995.

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
<b>Ten Year</b>						
Average (1985-94)	35,858	1,006,500	338,820	10,853	12,087	1,404,118

Appendix B.2. Anticipated and actual weekly catch and escapement of sockeye salmon in the Copper River District drift gillnet fishery, 1995.

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	14,283	16,514	1,518	1,525
May 20	24	41,070	63,530	8,021	6,370
May 24	24	68,792	87,242	22,644	19,456
May 27	24	91,296	101,026	41,828	28,135
May 31	24	95,734	75,179	75,001	68,715
June 03	24	146,560	81,546	105,773	92,770
June 07	24	119,592	48,802	151,704	122,690
June 10	12	100,100	57,063	186,323	141,961
June 14	No Fishing		44,021	225,988	184,151
June 17	24	58,604	51,523	252,455	235,654
June 21	24	48,000	36,456	279,056	301,910
June 24	24	51,600	41,510	297,464	324,449
June 28	24	47,389	21,069	320,865	373,347
July 01	24	32,343	23,211	336,986	393,202
July 05	36	55,189	19,568	359,720	415,349
July 08	24	40,375	20,784	375,816	434,413
July 12	36	55,725	19,194	400,605	471,939
July 15	36	50,543	17,149	422,633	499,106
July 19	36	50,589	16,642	454,194	534,705
July 22	36	28,055	13,483	477,665	551,658
July 26	36	21,974	8,978	501,293	566,669
July 29	36	13,829	7,603	517,943	582,931
Aug 02	36	13,285	4,690	533,422	599,265 <sup>d</sup>
Aug 05	36	8,343	3,589		
Aug 12	48	9,378	3,634		
Aug 19	48	3,669	1,556		
Aug 26	72	3,633	553		
Sept. 2- Oct 20	444	1,872	329		
Season Total	1,260	1,271,822	886,444	560,000	

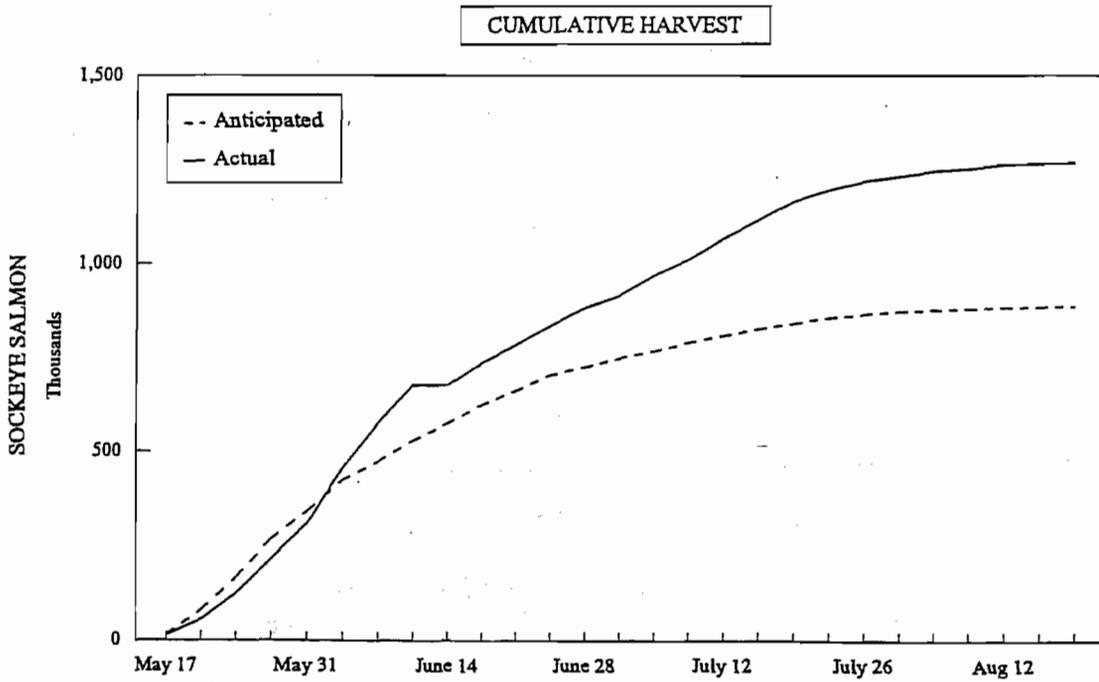
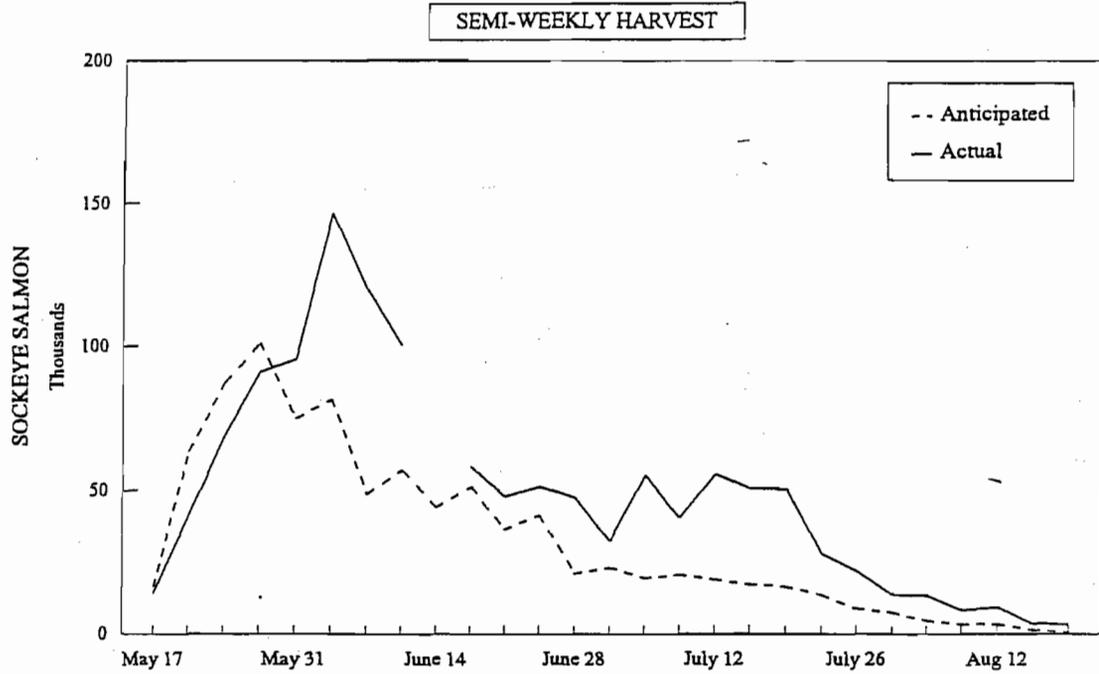
a Based on average historic catches for comparable dates (1969-1994).

b 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.

c Escapement estimate from sonar counters at Miles Lake.

d Miles Lake sonar operation ended August 1.

# COPPER RIVER DISTRICT COMMERCIAL SOCKEYE HARVEST



Appendix B.3. Anticipated and actual weekly and cumulative harvest of sockeye salmon in the Copper River drift gillnet fishery, 1995.

Appendix B.4. Commercial salmon harvest by period in the Copper District drift gillnet fishery, 1995.

Period	Date <sup>a</sup>	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
					Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds
01	5/15	24	415	540	10,051	253,760	14,283	81,760	0	0	0	0	282	1,858
02	5/18	24	471	643	10,478	256,997	41,070	231,734	1	6	0	0	620	4,774
03	5/22	24	486	668	6,937	166,950	68,792	392,381	1	5	0	0	923	6,340
04	5/25	24	452	679	9,894	250,276	91,296	523,399	8	68	0	0	4,002	27,331
05	5/29	24	487	641	7,008	175,452	95,734	545,624	2	12	0	0	5,384	36,725
06	6/01	24	491	790	7,094	173,647	146,560	839,735	91	714	0	0	7,588	54,869
07	6/05	24	499	757	6,348	157,295	119,592	690,304	11	73	1	3	12,370	89,203
08	6/09	12	485	571	4,520	115,774	100,100	578,941	9	58	0	0	5,447	39,778
09	6/15	24	379	513	1,389	34,025	58,604	342,521	34	204	20	62	11,475	83,652
10	6/19	24	289	397	986	24,546	48,000	280,842	2	13	12	42	1,918	14,666
11	6/22	24	290	370	377	9,952	51,600	300,965	5	33	65	258	597	4,609
12	6/26	24	380	459	223	5,760	47,389	273,429	95	701	87	322	877	6,820
13	6/29	24	301	356	83	1,905	32,343	188,334	123	863	263	945	1,658	12,509
14	7/03	36	282	416	55	1,305	55,189	323,961	182	1,394	259	1,017	568	4,288
15	7/06	24	255	335	30	635	40,375	235,328	134	1,012	2,193	9,327	740	5,501
16	7/10	36	266	383	18	377	55,725	326,117	149	1,037	425	1,587	406	2,981
17	7/13	36	272	383	48	526	50,543	295,287	426	3,284	503	1,750	371	2,740
18	7/17	36	286	402	67	710	50,589	294,867	993	7,307	1,360	5,253	439	3,240
19	7/20	36	294	376	16	167	28,055	164,072	904	6,844	2,058	7,731	229	1,672
20	7/24	36	191	264	9	97	21,974	126,991	423	3,141	2,143	8,118	81	597
21	7/27	36	163	212	2	50	13,829	80,438	1,292	10,360	2,319	8,495	46	334
22	7/31	36	142	187	8	116	13,285	77,564	3,292	25,341	2,267	8,510	19	137
23	8/03	36	125	153	16	226	8,343	48,694	6,597	53,162	1,815	7,006	31	218
24	8/07	48	179	334	6	57	9,378	55,213	29,015	239,706	3,307	12,022	18	139
25	8/14	48	323	688	4	68	3,669	22,035	80,710	729,948	569	2,053	6	48
26	8/21	36	340	710	3	45	2,192	13,033	107,091	1,006,654	119	425	3	23
27	8/24	36	333	654	1	18	1,441	8,682	82,832	800,717	4	15	1	6
28	8/28	36	291	554	3	35	1,094	6,491	65,696	635,401	19	78	1	8
29	9/01	24	250	355	0	0	408	2,408	54,712	535,122	0	0	0	0
30	9/04	30	244	419	1	20	274	1,659	49,993	490,986	0	0	0	0
31	9/11	30	176	261	0	0	46	300	30,751	296,688	1	7	0	0
32	9/14	24	151	204	0	0	31	198	12,513	125,744	0	0	0	0
33	9/18	30	45	55	0	0	16	93	6,712	68,301	0	0	0	0
34	9/21	30	16	16	0	0	0	0	2,218	21,400	0	0	0	0
35	9/25	30	61	62	0	0	1	7	4,721	45,912	0	0	0	0
36	9/28	30	15	15	0	0	2	6	920	7,882	0	0	0	0
37	10/02	30	0	0	0	0	0	0	0	0	0	0	0	0
38	10/05	30	0	0	0	0	0	0	0	0	0	0	0	0
39	10/09	30	0	0	0	0	0	0	0	0	0	0	0	0
40	10/12	30	0	0	0	0	0	0	0	0	0	0	0	0
41	10/16	30	0	0	0	0	0	0	0	0	0	0	0	0
42	10/19	30	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>1,260</b>	<b>513</b>	<b>14,822</b>	<b>65,675</b>	<b>1,630,791</b>	<b>1,271,822</b>	<b>7,353,413</b>	<b>542,658</b>	<b>5,120,093</b>	<b>19,809</b>	<b>75,026</b>	<b>56,100</b>	<b>405,066</b>
<b>Average Weight</b>						<b>24.83</b>		<b>5.78</b>		<b>9.44</b>		<b>3.79</b>		<b>7.22</b>

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

<sup>b</sup> From 5/15- 8/07 all 24-hour Monday openers started at 7:00 a.m. and Thursday openers started at 7:00 p.m. All 12-hour periods started at 7:00 a.m.; generally, after August 7 periods begin at 12:00 noon.

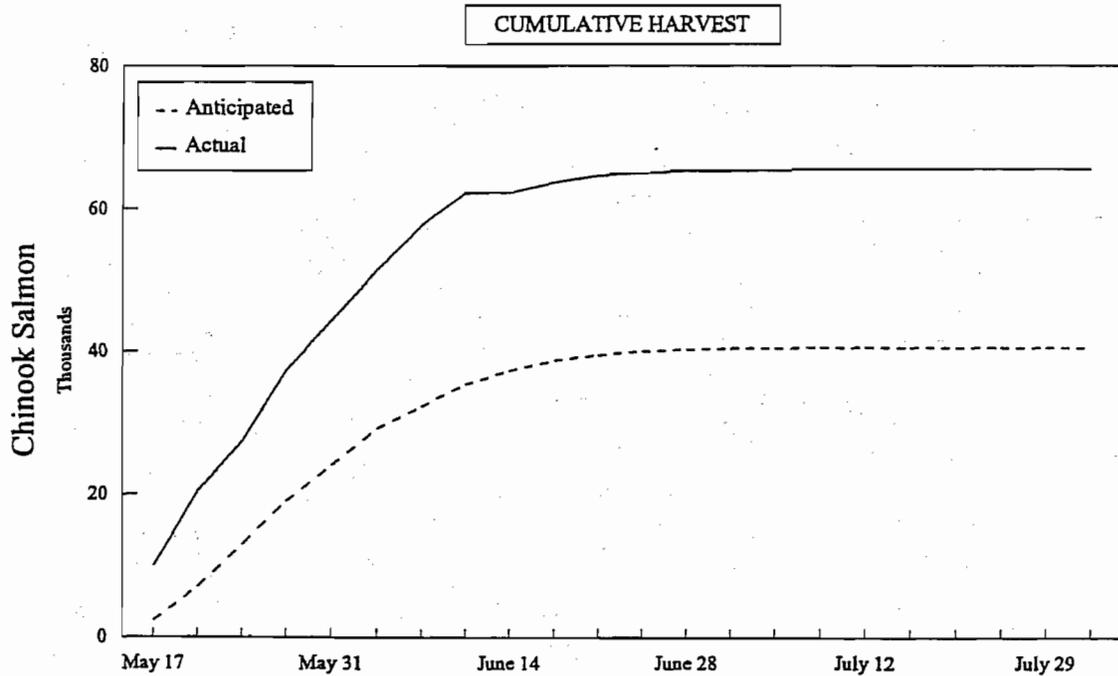
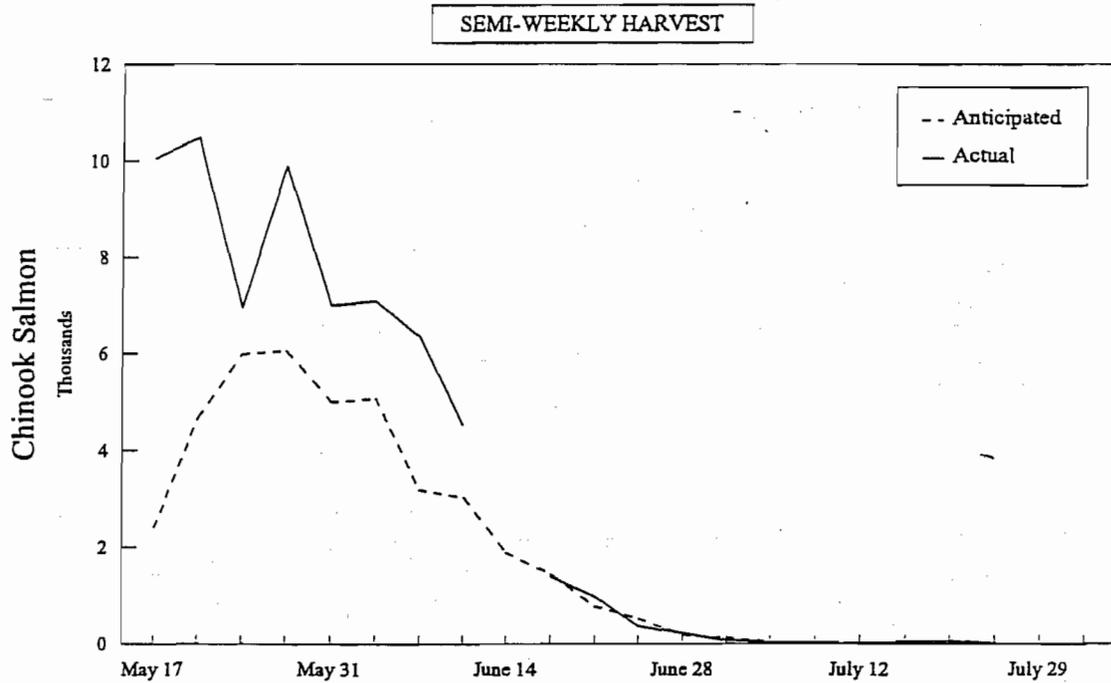
Appendix B.5. Anticipated and actual weekly catch of chinook and coho salmon in the Copper River District drift gillnet fishery, 1995.

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 20	24 and 24	20,529	7,068	1	
May 27	24 and 24	16,831	12,052	9	
June 03	24 and 24	14,102	10,081	93	
June 10	24 and 12	10,868	6,224	20	
June 17	24	1,389	3,332	34	
June 24	24 and 24	1,363	1,316	7	
July 01	24 and 24	306	321	218	
July 08	36 and 24	85	92	316	
July 15	36 and 36	66	41	575	
July 22	36 and 36	83	24	1,897	2,647 <sup>b</sup>
July 29	36 and 36	11	11	1,715	2,137
Aug 05	36 and 36	24	6	9,889	7,028
Aug 12	48	6	6	29,015	18,361
Aug 19	48	4	7	80,710	42,313
Aug 26	36 and 36	4	5	189,923	61,429
Sept 02	36 and 24	3	4	120,408	71,851
Sept 09	30	1		49,993	67,571
Sept 16	30 and 24	0		43,264	38,251
Sept 23	30 and 30	0		8,930	15,326
Sept 30	30 and 30	0		5,641	4,862
Oct 07	30 and 30	0		0	1,160
Oct 14	30 and 30	0		0	14
Oct 21	30 and 30	0		0	0
Season Total		65,675	40,590	542,658	332,950

<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



Appendix B.6. Anticipated and actual weekly and cumulative harvest of chinook salmon in the Copper River drift gillnet fishery, 1995.

Appendix B.7. Daily sockeye salmon escapement estimates at Miles Lake sonar, 1995.

Date	Water Level <sup>a</sup>	Estimate				Escapement Objective		0600 Count
		North Bank	South Bank	Daily	Cumulative	Daily	Cumulative	
15-May	40.71	23 <sup>b</sup>	476 <sup>c</sup>	499	499			
16-May		22	457	479	978	107	107	
17-May		25	522	547	1,525	1,411	1,518	
18-May	40.27	25	497	522	2,047	1,844	3,362	
19-May	40.09	63	1,232	1,295	3,342	2,117	5,479	
20-May	39.65	144	2,884	3,028	6,370	2,542	8,021	
21-May	39.87	167	3,337	3,504	9,874	2,494	10,515	
22-May	39.90	134	2,674	2,808	12,682	3,231	13,746	
23-May	39.98	205	4,096	4,301	16,983	3,211	16,957	
24-May	40.08	118	2,355	2,473	19,456	5,687	22,644	
25-May	40.31	88	1,753	1,841	21,297	5,292	27,936	
26-May	40.71	144	2,888	3,032	24,329	6,564	34,500	
27-May	41.06	181	3,625	3,806	28,135	7,328	41,828	
28-May	41.04	341	6,827	7,168	35,303	8,918	50,746	
29-May	41.04	470	9,408	9,878	45,181	7,016	57,762	
30-May	40.88	609	12,170 <sup>d</sup>	12,779	57,960	7,109	64,871	4,506
31-May	40.69	512	10,243	10,755	68,715	10,130	75,001	1,132
01-Jun	40.54	428	8,552	8,980	77,695	10,032	85,033	2,761
02-Jun	40.45	449	8,979	9,428	87,123	10,570	95,603	1,609
03-Jun	40.37	269	5,378	5,647	92,770	10,170	105,773	1,710
04-Jun	40.26	321	6,424	6,745	99,515	11,042	116,815	2,100
05-Jun	40.22	281	5,614	5,895	105,410	13,181	129,996	1,418
06-Jun	40.22	440	8,796	9,236	114,646	11,110	141,106	1,886
07-Jun	40.29	383	7,661 <sup>e</sup>	8,044	122,690	10,598	151,704	2,501
08-Jun	40.45	273 <sup>e</sup>	5,465	5,738	128,428	12,189	163,893	1,711
09-Jun	40.63	261	5,218	5,479	133,907	11,074	174,967	864
10-Jun	40.81	384	7,670	8,054	141,961	11,356	186,323	1,056
11-Jun	41.35	569	11,381	11,950	153,911	11,311	197,634	2,496
12-Jun	42.09	462	6,812 <sup>d</sup>	7,274	161,185	10,606	208,240	2,131
13-Jun	42.71	622	8,323	8,945	170,130	9,091	217,331	2,157
14-Jun	43.04	247	13,774	14,021	184,151	8,657	225,988	4,309
15-Jun	43.22	252	11,601	11,853	196,004	10,179	236,167	3,701
16-Jun	43.33	887	18,845	19,732	215,736	8,218	244,385	3,368
17-Jun	43.09	667	19,251	19,918	235,654	8,070	252,455	4,489
18-Jun	42.67	1,832	16,106	17,938	253,592	7,064	259,519	4,284
19-Jun	42.62	1,467	14,558	16,025	269,617	6,660	266,179	3,456
20-Jun	42.65	1,216	15,647	16,863	286,480	6,490	272,669	4,014
21-Jun	42.68	2,089	13,341	15,430	301,910	6,387	279,056	4,533
22-Jun	42.65	746	9,116	9,862	311,772	6,348	285,404	3,117
23-Jun	42.67	866	4,454	5,320	317,092	6,188	291,592	1,420
24-Jun	42.85	395	6,962	7,357	324,449	5,872	297,464	1,204
25-Jun	42.60	256	8,955	9,211	333,660	6,579	304,043	2,476
26-Jun	42.22	298	9,691	9,989	343,649	5,813	309,856	2,087
27-Jun	42.35	608	15,417	16,025	359,674	5,566	315,422	2,986
28-Jun	42.11	709	12,964	13,673	373,347	5,443	320,865	4,642
29-Jun	42.20	514	9,209	9,723	383,070	5,655	326,520	3,260
30-Jun	42.35	222	4,180	4,402	387,472	5,655	332,175	961

-Continued-

Appendix B.7 (page 2 of 2)

Date	Water Level <sup>a</sup>	North Bank	Estimate		Escapement Objective		0600 Count	
			South Bank	Daily	Cumulative	Daily		Cumulative
01-Jul	42.53	214	5,516	5,730	393,202	4,811	336,986	1,371
02-Jul	42.76	267	4,951	5,218	398,420	4,997	341,983	1,434
03-Jul	42.98	248	4,603	4,851	403,271	5,766	347,749	1,219
04-Jul	43.16	201	4,090	4,291	407,562	6,013	353,762	870
05-Jul	43.23	231	7,556	7,787	415,349	5,958	359,720	1,114
06-Jul	43.40	483	7,689	8,172	423,521	5,197	364,917	2,027
07-Jul	43.60	474	6,146	6,620	430,141	5,248	370,165	
08-Jul	43.75	557	3,715	4,272	434,413	5,651	375,816	1,219
09-Jul	43.71	910	5,935	6,845	441,258	5,623	381,439	1,163
10-Jul	43.58	852	13,994	14,846	456,104	6,714	388,153	4,559
11-Jul	43.53	401	8,967	9,368	465,472	6,035	394,188	2,259
12-Jul	43.61	346	6,121	6,467	471,939	6,417	400,605	1,759
13-Jul	43.51	368	5,610	5,978	477,917	6,564	407,169	1,624
14-Jul	43.40	897	8,705	9,602	487,519	7,715	414,884	1,879
15-Jul	43.35	1,196	10,391	11,587	499,106	7,749	422,633	2,481
16-Jul	43.30	764	5,171	5,935	505,041	7,700	430,333	1,177
17-Jul	43.01	1,022	9,836	10,858	515,899	7,338	437,671	1,736
18-Jul	43.01	853	9,789	10,642	526,541	8,255	445,926	2,906
19-Jul	43.12	382	7,782	8,164	534,705	8,268	454,194	2,378
20-Jul	43.10	312	6,691	7,003	541,708	8,299	462,493	1,925
21-Jul	43.17	342	5,012	5,354	547,062	7,984	470,477	1,267
22-Jul	43.32	282	4,314	4,596	551,658	7,188	477,665	919
23-Jul	43.59	351	3,905	4,256	555,914	6,103	483,768	1,142
24-Jul	43.74	412	3,843	4,255	560,169	5,814	489,582	1,101
25-Jul	43.42	442	2,868	3,310	563,479	5,945	495,527	691
26-Jul	43.16	469	2,721	3,190	566,669	5,766	501,293	673
27-Jul	42.89	969	4,227	5,196	571,865	4,930	506,223	688
28-Jul	42.72	664	4,429	5,093	576,958	5,583	511,806	1,399
29-Jul	42.38	629	5,344	5,973	582,931	6,137	517,943	1,441
30-Jul	42.31	343	5,938	6,281	589,212	5,726	523,669	1,932
31-Jul	42.33	673	4,366	5,039	594,251	4,961	528,630	1,287
01-Aug	42.33		3,425	3,425	597,676	4,792	533,422	939
02-Aug	42.33		1,589	1,589	599,265		533,422	801
Total								

a Meters above sea level.

b North bank counts are derived from an average of five percent of north bank counts versus south bank counts based on past performance from 1988-1993.

c South bank transducer was deployed on the tripod

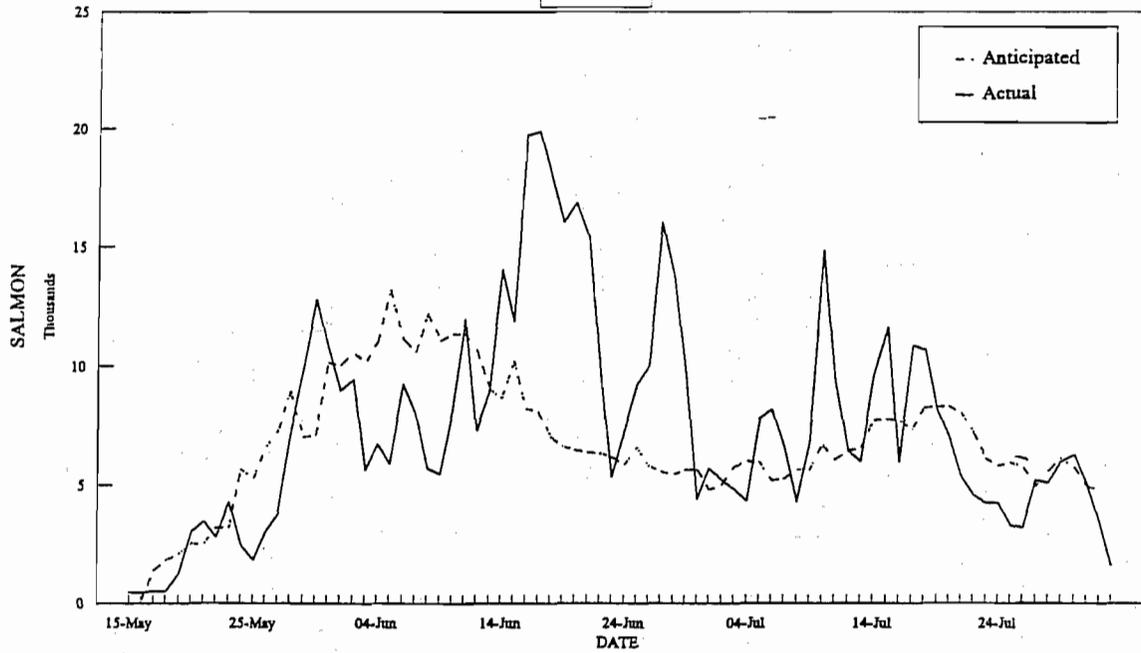
d South bank transducer was deployed on the permanent substrate at midnight.

e North bank tripod was deployed.

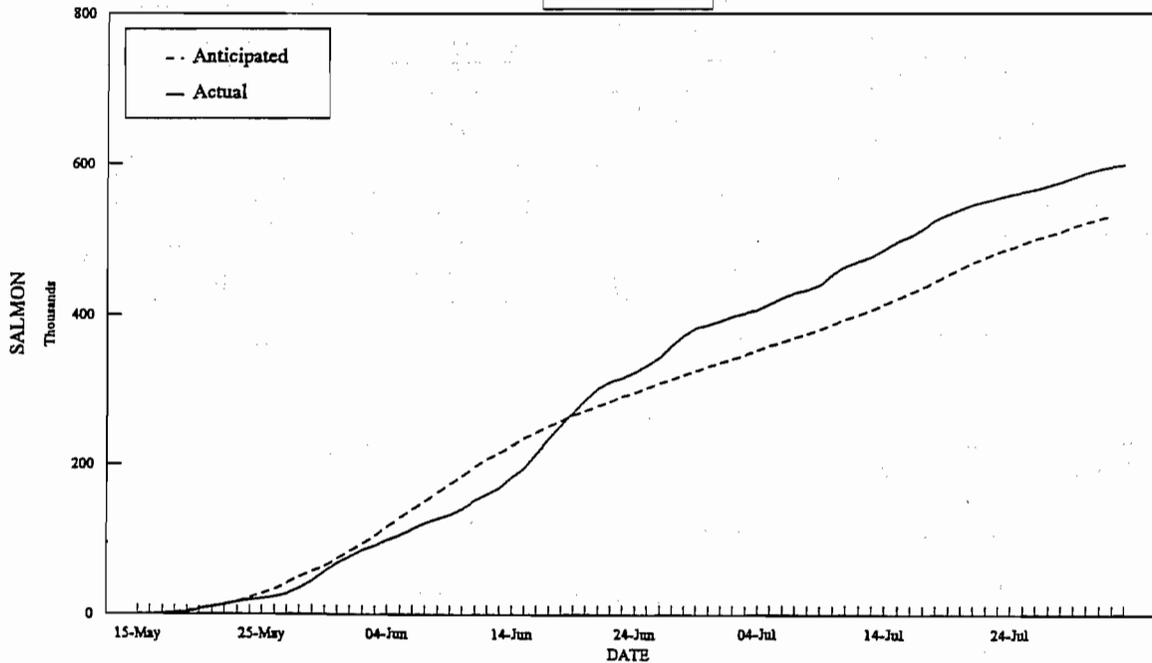
f North banks counter was pulled at 12:00 midnight.

# 1995 MILES LAKE SONAR COUNTS

DAILY



CUMULATIVE



Appendix B.8. Anticipated and actual daily and cumulative salmon escapement estimates, Miles Lake sonar, 1995.

Appendix B.9. Aerial escapement indices by date and location for sockeye salmon returning to the Copper River Delta, 1995.

Copper River Delta System and Drainage Survey System		Aerial Escapement Indices by Survey Date						
		5 June	12 June	19 June	26 June	8 July	18 July	28 July
Eyak River	Eyak River	30 +	850 +*	700	800 +	1,200	700	1,650
	West Shore Beaches	0	NC	100	220	1,400	4,000	6,000
	East Shore Beaches	0	NC	900	800	1,400	2,400	3,300
	Middle Arm Beaches b	400	800 *	500	700	2,100	2,800	3,800
	North Shore Beaches	10	NC	350	3,000	8,500	3,500	1,100
	Hatchery Creek Delta	75	NC	250	400	900	1,400	100
	Hatchery Creek	0	NC	180	380	600	400	1,000
	Power Creek Delta	0	NC	20	80	700	900	700
	Power Creek	NS 515	NC	NS	NS	NS	1,500	900
Ibek Creek	Ibek Creek	NS	NS	NS	NS	NS	NS	NS
Alaganik Slough	Alaganik Slough	0	NC	NS	NS	NS	NS	NS
	McKinley Lake	0	NC	500	300	8,700	13,100 *	10,300
	Salmon Creek West Fork	NS	NS	0	0	100	70 *	1,400
	Salmon Creek East Fork	NS	NS	NS	NS	NS	130 *	350
26/27 Mile Creek	26/27 Mile Creek	0	80	1,100	1,100	2,000 *	2,000	1,550
39 Mile Creek	39 Mile Creek	0	0	0	0	NC	NC	NC
Goat Mountain Creek	Goat Mountain Creek	0	0	0	0	80	250	250
Pleasant Creek	Pleasant Creek	0	0	15	1,270	1,600 *	0	NS
Martin River	Martin River - Lower	50	NC	NC	1,030 +	1,950	2,500	1,500
	Ragged Point River	NS	NS	NS	0	0	900	650
	Ragged Point Lake Outlet	NS	NS	NS	NS	NS	20	700
	Ragged Point Lake	NS	NS	NS	NS	NS	100	1,200
	Martin River - Upper b	110	NC	1,200	1,400	1,900	1,300	1,100 *
	Martin Lake Outlet	0	NC	200	500	450 *	100	100
	Martin Lake	75	NC	5,400	5,750	6,900 *	1,450	550
	Martin Lake Feeders	NS	NS	0	100	2,100 *	5,025	3,300
	Pothole River	NS	NS	NS	NS	1,200 *	900	250
	Pothole Lake	NS	NS	NS	NS	0 *	0	70
	Little Martin River	0	20	0	160	0	100	100 *
	Little Martin Lake	0	0	20	60	330	2,100	2,400 *
	Tokun Springs	0	0	180	600	1,300	1,800	900
	Tokun River	0	120	325	370	830	700	400
Tokun Lake Outlet	NS	0	0	0	250	100	300	
Tokun Lake	NS	0	100	400	1,400	2,000	700	
<u>Martin River Slough</u>	<u>Martin River Slough</u>	<u>10</u>	<u>125</u>	<u>2,100</u>	<u>3,000</u>	<u>3,350 *</u>	<u>3,200</u>	<u>700</u>
<u>Copper River Aerial Survey Daily Total</u>		<u>1,275</u>	<u>1,995</u>	<u>14,140</u>	<u>22,420</u>	<u>51,240</u>	<u>55,445</u>	<u>47,320</u>
<u>Anticipated Escapement</u>		<u>1,790</u>	<u>1,374</u>	<u>20,079</u>	<u>26,593</u>	<u>39,569</u>	<u>43,700</u>	<u>45,750</u>

-Continued-

Appendix B.9. (page 2 of 4).

Copper River Delta System and Drainage		Aerial Escapement Indices by Survey Date						
		5 August	16 August	21 August	25 August	29 August	5 Sept.	16 Sept.
Eyak River	Eyak River	900	1,000 *	300	600	400	100	NS
	West Shore Beaches	3,700	3,300 *	3,400	1,800	950	700	NC
	East Shore Beaches	3,400	3,900 *	3,400	2,320	2,100	1,300	NC
	Middle Arm Beaches	3,200	5,900 *	4,400	6,000	5,300	4,700	3,300
	North Shore Beaches	1,350	1,970 *	2,200	850	1,100	400	NC
	Hatchery Creek Delta	1,600	2,800 *	1,800	2,300	500	600	80
	Hatchery Creek	700	900 *	1,100	700	600	900	300
	Power Creek Delta	500	300 *	1,200	400	1,100	150	100
	Power Creek	800	350 *	0	40	100	75	250
	Ibek Creek	Ibek Creek	NS	NC	NC	NC	NC	NC
Alaganik Slough	Alaganik Slough	NS	NS	NS	NS	NS	NC	0
	McKinley Lake	2,000	1,200	650	400	400	600	400
	Salmon Creek West Fork	3,000	1,500	1,500	1,300	900	700	100
	Salmon Creek East Fork	300	235	600	610	515	60	10
26/27 Mile Creek	26/27 Mile Creek	1,300	750	1,500	450	600	200	200
39 Mile Creek	39 Mile Creek	5,400 *	4,600	4,000 +	4,300	3,700	2,400	3,200
Goat Mountain Creek	Goat Mountain Creek	450	350	NS	650 *	350	300	40
Pleasant Creek	Pleasant Creek	NS	NS	NS	0	0	0	0
Martin River	Martin River - Lower	950	400 *	400	100	350	150	0
	Ragged Point River	600	2,200 *	1,400	600	800	400	200
	Ragged Point Lake Outlet	500	600 *	300	0	100	100	100
	Ragged Point Lake	1,500	3,400 *	2,300	2,100	1,900	2,500	1,600
	Martin River - Upper	900	800	900	1,200	900	300	600
	Martin Lake Outlet	150	400	1,000	500	650	150	100
	Martin Lake	500	700	2,000	1,460	1,550	980	530
	Martin Lake Feeders	1,800	150	0	0	0	NS	NS
	Pothole River	100	60	100	100	100	240	100
	Pothole Lake	1,300	1,100	200	400	250	800	1,000
	Little Martin River	0	0	0	50	20	0	100
	Little Martin Lake	2,000	1,100	400	350	650	650	700
	Tokun Springs	1,150 *	1,200	600	500	250	100	200
	Tokun River	600 *	700	700	400	380	350	600
	Tokun Lake Outlet	0 *	200	200	0	100	0	0
Tokun Lake	5,400 *	3,700	1,200	1,060	1,175	3,460	1,900	
Martin River Slough	Martin River Slough	500	350	220	70	110	40	0
Copper River Aerial Survey Daily Total		46,550	46,115	37,970	31,610	27,900	23,405	15,710
Anticipated Escapement		53,882	41,454	43,530	43,530	32,840	30,335	20,600

-Continued-

Appendix B.9. (page 3 of 4).

Copper River Delta a System and Drainage		Aerial Escapement Indices by Survey Date		Estimated Escapement		
		10 Oct.		Site c	System e	Anticipated
Eyak River	Eyak River	NS		1,850	22,070	14,500
	West Shore Beaches	0		3,300		
	East Shore Beaches	100		3,900		
	Middle Arm Beaches b	100		6,700		
	North Shore Beaches	0		1,970		
	Hatchery Creek Delta	50		2,800		
	Hatchery Creek	100		900		
	Power Creek Delta	0		300		
	Power Creek	300		350		
Ibek Creek	Ibek Creek	100		NC d		
Alaganik Slough	Alaganik Slough	0			13,300	13,800
	McKinley Lake	100		13,100		
	Salmon Creek West Fork	75		70		
	Salmon Creek East Fork	0		130		
26/27 Mile Creek	26/27 Mile Creek	80		2,000	2,000	3,650
39 Mile Creek	39 Mile Creek	700		5,400	5,400	9,400
Goat Mountain Creek	Goat Mountain Creek	0		650	650	1,000
Pleasant Creek	Pleasant Creek	0		1,600	1,600	950
Martin River	Martin River - Lower	0		400	20,850	29,800
	Ragged Point River	20		2,200		
	Ragged Point Lake Outlet	10		600		
	Ragged Point Lake	300		3,400		
	Martin River - Upper b	400		1,100		
	Martin Lake Outlet	100		450		
	Martin Lake	520		6,900		
	Martin Lake Feeders	0		2,100		
	Pothole River	300		1,200		
	Pothole Lake	940		0		
	Little Martin River	0		100		
	Little Martin Lake	0		2,400		
	Tokun Springs	0		1,150	7,150	9,350
	Tokun River	0		600		
	Tokun Lake Outlet	0		0		
Tokun Lake	1,000		5,400			
Martin River Slough	Martin River Slough	0		3,350	3,350	6,600
Copper River Aerial Survey Daily Total		5,295			76,370	
Anticipated Escapement Index		1,972				89,050

-Continued-

- 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, 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 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.

Appendix B.10. Copper River and Bering River area sockeye salmon escapement estimates, 1987 - 1995.

Stream/Lake <sup>a,b</sup>	1987	1988	1989	1990	1991	1992	1993	1994	1995
Eyak Lake	7,420	6,775	4,110	8,270	20,640	21,470	16,400	18,040	17,720
Hatchery Creek	1,975	1,225	1,150	2,800	5,100	2,200	1,100	2,800	3,700
Power Creek	0	350	0	205	1,870	1,420	700	500	650
Ibek Creek	0	0	120	160	120	40	glacial	800	glacial
McKinley Lake	10,300	9,700	6,300	1,400	2,000	10,300	7,700	12,700	13,100
Salmon Creek	2	100	630	2,000	3,330	25	3,000	420	200
26/27 Mile Creek	4,100	2,105	3,020	3,360	3,900	1,420	1,625	4,900	2,000
39 Mile Creek	6,100	3,620	7,420	5,000	5,340	4,500	4,000	7,000	5,400
Goat Mountain	1,000	220	3,150	420	20	620	NC	600	650
Pleasant Creek	1	460	990	3,190	1,495	1,567	2,270	1,400	1,600
Martin River	1,480	0	0	350	2,045	1,400	1,500	4,700	1,500
Ragged Pt. R./Lake	4,100	2,060	4,420	8,950	5,900	2,600	1,325	0	6,200
Martin Lake	6,010	6,440	7,850	11,250	10,700	14,000	6,700	13,100	9,450
Pothole Lake	910	2,785	1,550	2,190	5,200	1,300	700	950	1,200
L. Martin Lake	3,320	2,200	3,030	5,700	11,700	1,780	1,900	1,760	2,500
Tokun Lake/River	8,080	12,160	4,950	4,200	5,960	8,230	3,400	2,850	7,150
Martin River Slough	5,900	3,115	3,010	13,900	5,180	3,955	5,400	5,850	3,350
<b>Copper Delta Total</b>	<b>60,698</b>	<b>53,315</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>Upper Copper R. <sup>c</sup></b>	<b>483,478</b>	<b>488,398</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>Copper R. Dist. Tot.</b>	<b>544,176</b>	<b>541,713</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>
Bering River/Lake	19,200	11,450	14,330	16,325	26,480	54,180	23,120	23,000	28,650
Shepherd Creek	4,100	950	340	1,260	3,400	1,200	3,100	1,400	2,600
Stillwater Cr.	2,000	100	250	700	1,200	150	500	800	900
Kushtaka Lake	1,225	480	1,530	256	880	100	205	150	400
Katalla River		350	6,850	1,200	260	265	800	1,200	900
<b>Bering R. Area Tot.</b>	<b>26,525</b>	<b>13,330</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>Copper/Bering Total</b>	<b>570,701</b>	<b>555,043</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>

- a. 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.
- b. 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.
- c. Upriver escapement estimate from Miles Lake sonar counts.

Appendix B.11. Aerial survey indices of sockeye salmon escapement to the Upper Copper River drainage, 1985 - 1995.

Location <sup>a</sup>	Yearly Survey Indices										10 Year Average 1983-92	
	1985	1986	1987	1988	1989	1990	1991	1992	1993 <sup>c</sup>	1994 <sup>c</sup>		1995 <sup>c</sup>
Fish Lake	3,750	8,750	9,530	6,800	6,700	3,600	4,350	4,250				6,418
Bad Crossing #1&2	1,125	5,300	2,575	2,075	3,025	6,050	2,625	500				2,604
Suslota Lake	2,200	1,300	970	550	525	750	210	1,350				1,416
Dickey Lake	290	43	360	57	28	28	56	46				115
Keg Creek	825	200	400	360	1,450	160	95	630				725
Mahlo Creek	575	1,750	2,350	3,900	4,600	2,600	3,750	250				2,648
St. Anne Creek	1,250	4,600	6,980	6,100	3,100	1,700	4,700	450				4,888
Fish Cr.-Mentasta	1,800	1,100	250	650	1,500	1,000	1,050	480				963
Swede Lake	250	385	113	230	275	120	110	875				531
Tana River	1,145	1,825	472	2,034	245	89	750	740				1,345
Mentasta Lake	3,850	2,850	1,800	4,300	3,270	2,900	1,550	600				3,277
Tanada Lake	5,900	3,960	4,950	2,100	2,550	1,650	1,725	2,250	6,270	3,100		3,849
Salmon Creek	575	300	1,150	700	425	350	350	1,500				825
Paxson Inlt-Mud Cr	7,500	7,000	4,250	6,350	3,200	2,850	4,800	6,450				6,560
Mud Creek and Lake	200	70	0	150	0	35	100	425				172
Mendelma Creek	2,300	3,325	2,275	1,550	2,000	3,700	3,050	1,750				2,470
Paxson Lake Outlet	3,600	1,810	5,100	3,200	900	1,350	2,300	950				2,661
Mud Cr.- Summit L.	8,150	3,375	9,050	15,400	6,800	2,950	9,625	3,800				7,445
Long Lake	590	1,300	1,225	1,125	1,225	1,950	1,919 <sup>b</sup>	1,050				1,577
Tonsina Lake	290	350	740	650	2,450	1,450	770 <sup>b</sup>	1,350				1,080
<b>Totals</b>	<b>46,165</b>	<b>49,593</b>	<b>54,540</b>	<b>58,281</b>	<b>44,268</b>	<b>35,282</b>	<b>43,885</b>	<b>29,696</b>				<b>51,569</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 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 allow 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, counts are the historical average.

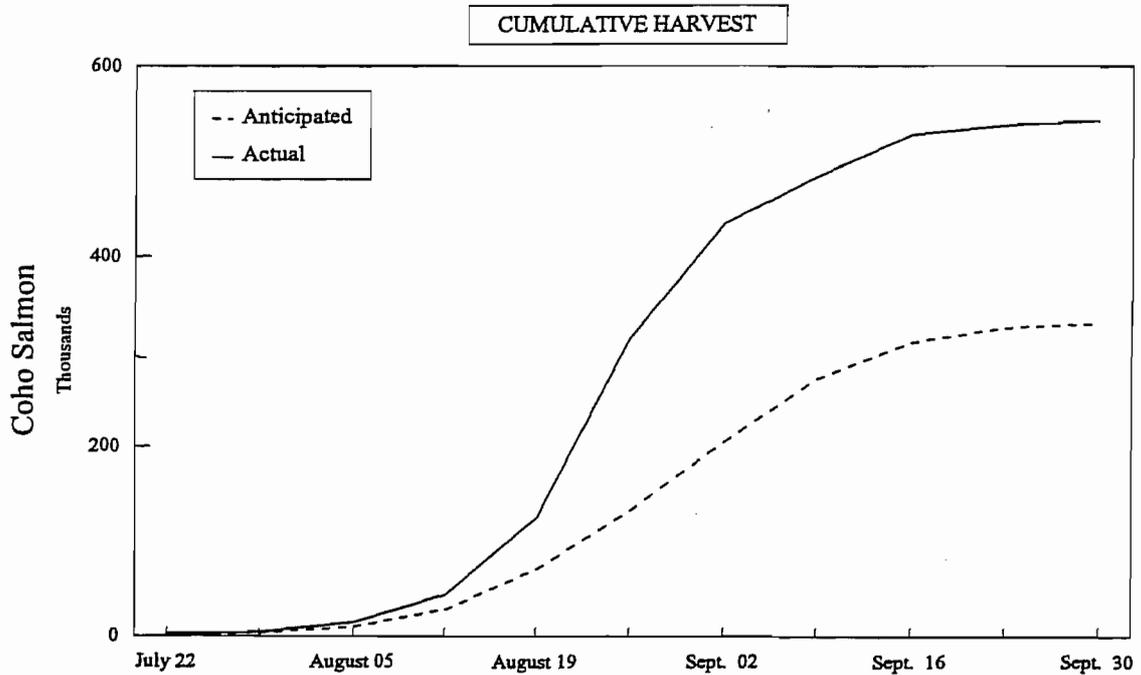
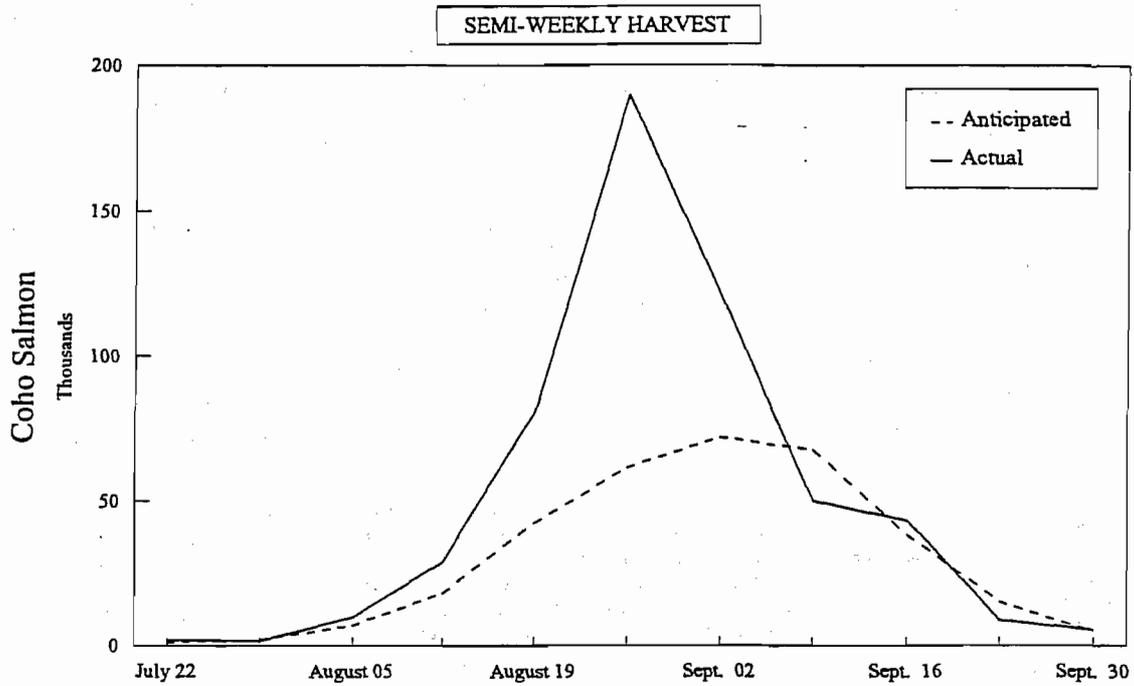
<sup>c</sup> The Tanada Lake system was the only system surveyed in 1994 and 1995, no surveys were flown in 1993.

Appendix B.12. Aerial survey indices of chinook salmon escapement to the upper Copper River, 1985 - 1995.

Location <sup>a</sup>	Yearly Survey Indices											10 Year
	1985	1986	1987	1988	1989	1990	1991	1992 <sup>c</sup>	1993	1994	1995	Average 1985- 1994
East Fork Chistochina	360	618	764	684	740	615	865	88	d	508	37	582
Gulkana River	321	3,182	1,228	967	1,993	1,356	1,303	656	1,156	1,682	720	1,384
Mendeltna Creek	26	76	10	17	185	320	305	83	126	121	41	127
Kiana Creek	91	328	80	249	344	411	520	79	65	430	110	260
St. Anne Creek	15	182	192	62	90	42	115	12	d	250	26	107
Manker Creek	22	251	141	115	165	41	101	14	d	75	8	103
Grayling Creek	58	224	112	161	72	49	151	17	d	2	26	94
Little Tonsina River	203	424	247	75	65	57	54	107	d	4	25	137
Indian River	14	29 <sup>b</sup>	33	0	3	15	18	1	d	47	2	18
<b>Total Survey Index</b>	<b>1,110</b>	<b>5,314</b>	<b>2,807</b>	<b>2,330</b>	<b>3,657</b>	<b>2,906</b>	<b>3,432</b>	<b>1,057</b>	<b>1,347</b>	<b>3,119</b>	<b>995</b>	<b>2,812</b>

- a 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 allow 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.
- b Interpolated counts.
- c Due to poor weather conditions surveys were late for 1992; live and carcass counts were used.
- d No aerial surveys conducted in 1993.

# COPPER RIVER DISTRICT COMMERCIAL COHO HARVEST



Appendix B.13. Anticipated and actual weekly and cumulative harvest of coho salmon in the Copper River drift gillnet fishery, 1995.

Appendix B.14. Aerial escapement indices by date and location for coho salmon returning to the Copper River Delta, 1995.

Copper River Delta System and Drainage	Survey System	Aerial Escapement Indices by Survey Date							
		5 August	16 August	21 August	25 August	29 August	5 Sept.	16 Sept.	10 Oct.
Eyak River	Eyak River	0	400	750	1,300	1,900 *	800	NS	NS
	East Shore Beaches	0	0	150	550	950 *	950	NC	100
	West Shore Beaches	0	0	0	100	200 *	200	NC	200
	Middle Arm Beaches	0	0	0	500	700 *	400	1,200	400
	North Shore Beaches	0	0	0	220	300 *	200	NC	200
	Hatchery Creek Delta	0	0	0	200	100 *	300	300	300
	Hatchery Creek	0	0	0	100	70 *	300	400	400
	Power Creek Delta	0	0	0	200	300 *	50	450	100
	Power Creek	0	0	0	0	0 *	15	600	1,500
Ibek Creek	Ibek Creek	NS	NC	NC	NC	NC	NC	NC	3,000 *
Scott River	Scott River	NS	0	0	0	0	20	NC+	540 *
	Elsner Lake	NS	0	0	NS	NS	0	NS	0
	Scott Lake	NS	0	0	0	0	NS	0	0
Alaganik Slough	Alaganik Slough	NS	NS	NS	NS	NS	NC+	400 +*	150
	18/20 Mile Creek	NS	130	170	225	120	435	2,150 *	950
	McKinley Lake	0	0	40	0	0	100	250	400 *
	Salmon Creek West Fork	0	0	0	0	0	0	0	400 *
	Salmon Creek East Fork	0	0	0	0	0	0	350	850 *
26/27 Mile Creek	26/27 Mile Creek	0	0	NC	0	0	170	900	1,300 *
39 Mile Creek	39 Mile Creek	0	0	400	600	900	800	3,200	3,800 *
Goat Mountain Cr.	Goat Mountain Creek	0	0	NC	30	25	220	2,000	2,800 *
Pleasant Creek	Pleasant Creek	NS	NS	NS	NS	NS	25	100	100 *
Martin River	Martin River - Lower	20	900	2,800	3,400	3,480	4,570	1,300	1,000 *
	Ragged Point River	0	0	0	0	0	10	0	100 *
	Ragged Point Lake Outlet	0	0	0	0	0	0	0	0 *
	Ragged Point Lake	0	0	0	0	0	0	0	0 *
	Martin River - Upper	0	150	500	750	1,100	1,700	1,200	4,000 *
	Martin Lake Outlet	0	0	0	0	0	0	0	10 *
	Martin Lake	0	0	0	0	0	0	0	0 *
	Martin Lake Feeders	0	0	0	0	0	0	0	0 *
	Pothole River	0	0	0	0	0	0	0	300 *
	Pothole Lake	0	0	0	0	0	0	0	0 *
	Little Martin River	0	0	0	0	0	40	1,500	1,500 *
	Little Martin Lake	0	0	0	0	0	0	0	0 *
	Tokun Springs	0	0	0	0	0	30	400	700 *
	Tokun River	0	0	200	0	20	0	400	1,200 *
Tokun Lake Outlet	0	0	0	0	0	0	0	0 *	
Tokun Lake	0	0	0	0	0	0	0	0 *	
Martin River Slough	Martin River Slough	0	200	535	850	1,400	2,970	5,950 *	5,940
Copper River Aerial Survey Daily Total		20	1,780	5,545	9,025	11,565	14,305	23,050	32,240
Anticipated Escapement		1,310	3,857	12,200	12,361	18,950	27,105	36,350	15,100

-Continued-

Appendix B.14. (page 2 of 3)

Copper River Delta a System and Drainage		Survey System	Estimated Escapement		
			Site c	System e	Anticipated
Eyak River	Eyak River	1,900	4,520	6,100	
	East Shore Beaches	950			
	West Shore Beaches	200			
	Middle Arm Beaches	700			
	North Shore Beaches	300			
	Hatchery Creek Delta	100			
	Hatchery Creek	70			
	Power Creek Delta	300			
	Power Creek	0			
Ibek Creek	Ibek Creek	3,000	3,000	6,600	
Scott River	Scott River	540 d			
	Elsner Lake	0 d			
	Scott Lake	0 d			
Alaganik Slough	Alaganik Slough	400			
	18/20 Mile Creek	2,150	2,150	1,000	
	McKinley Lake	400	2,050	2,500	
	Salmon Creek West Fork	400			
	Salmon Creek East Fork	850			
26/27 Mile Creek	26/27 Mile Creek	1,300	1,300	400	
39 Mile Creek	39 Mile Creek	3,800	3,800	3,800	
Goat Mountain Cr.	Goat Mountain Creek	2,800	2,800	1,350	
Pleasant Creek	Pleasant Creek	100 d			
Martin River	Martin River - Lower	1,000	5,000	5,700	
	Ragged Point River	100	100	1,200	
	Ragged Point Lake Outlet	0			
	Ragged Point Lake	0			
	Martin River - Upper	4,000			
	Martin Lake Outlet	10	10	1,950	
	Martin Lake	0			
	Martin Lake Feeders	0			
	Pothole River	300	300	2,350	
	Pothole Lake	0			
	Little Martin Lake Outlet	1,500	1,500	6,000	
	Little Martin Lake	0			
	Tokun Springs	700	1,900	1,100	
	Tokun River	1,200			
	Tokun Lake Outlet	0			
Tokun Lake	0				
Martin River Slough	Martin River Slough	5,940	5,940	9,200	
Copper River Aerial Survey Total			34,370	49,250	
Anticipated Escapement e					

-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 b).
- b For systems not flown on any given survey the expected for that system was subtracted from the total anticipated for that survey.
- c 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.
- d This stream is not included in the estimated escapement delta wide, it is a non-index stream.

Appendix B.15. Copper River Delta and Bering River coho salmon escapement estimates, 1987 - 1995.

Stream/Lake <sup>a,b</sup>	1987	1988	1989	1990	1991	1992	1993	1994	1995
Eyak Lake	2,800	3,250	1,925	5,775	7,170	5,710	NC <sup>d</sup>	9,900	4,050
Hatchery Creek	850	100	400	1,940	0	1,100	NC <sup>d</sup>	700	170
Power Creek	4,800	350	0	650	0	1,000	NC <sup>d</sup>	700	300
Ibek Creek	3,100	2,400	4,330	3,950	13,540	9,600	NC <sup>d</sup>	3,060	3,000
Scott & Elsner River <sup>c</sup>		1,060	510	1,105	700	550	1,580	1,600	540
18/20 Mile		1,075	1,000	630	4,200	915	1,750	3,300	2,550
McKinley Lake	10	170	800	375	100	800	700	2,100	400
Salmon Creek	0	1,925	1,990	1,970	1,770	0	1,400	0	1,250
26/27 Mile	350	105	810	860	300	475	1,500	1,300	1,300
39 Mile	2,800	1,390	2,150	2,230	2,100	1,900	1,600	4,150	3,800
Goat Mountain	520	1,500	2,500	1,340	1,900	480	650	1,000	2,800
Pleasant Cr. <sup>c</sup>	250	110	961	1	6	8	NS	45	100
Martin River	3,060	3,400	470	400	1,600	1,900	4,540	10,600	5,000
Ragged Pt. River/Lk.	3,330	1,080	3,600	820	450	310	300	0	100
Martin Lake	70	145	590	320	1,500	65	150	0	10
Pothole Lake	70	350	1,300	2,670	6,000	300	730	0	300
Little Martin Lake	560	4,500	7,200	7,400	11,360	10,800	6,400	200	1,500
Tokun River/Lake	495	600	2,870	2,250	2,800	510	950	1,780	1,900
Martin River Slough	3,400	4,110	7,960	7,700	8,860	8,140	11,200	5,120	5,950
<b>Copper Delta Total</b>	<b>26,465</b>	<b>27,620</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>

Katalla R.	1,600	560	1,220	2,960	4,000	2,760	4,400	4,500	4,500
Bering Lake	900	2,350	1,000	2,040	12,300	3,540	5,900	5,800	10,600
Dick Creek	50	105	570	1,500	1,220	1,250	200	100	100
Shepherd Cr.	45	70	70	100	NS	NS	600	900	800
Nichawak R.	250	3,670	2,550	2,900	2,560	1,970	4,100	2,000	2,700
Gandil R.			1,410	910	1,460	600	1,250	950	1,350
Controller Bay	2,740	4,660	9,000	14,390	9,760	6,180	13,600	14,300	7,400
<b>Bering Area Total</b>	<b>5,585</b>	<b>11,415</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>Copper/Bering Total</b>	<b>32,050</b>	<b>39,035</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>
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- a. 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 allow 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.
- b. 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.
- c. Not an indexed stream.
- d. Due to glacial water conditions these systems are listed as "NC" no count. See Appendix B.14. for weekly observations.

Appendix B.16. Estimated age and sex composition of sockeye salmon harvested in the Copper River District commercial common property drift gillnet fishery, 1995.

		Brood Year and Age Group												
		1992		1991			1990			1989			1988	
		0.2	1.1	0.3	1.2	2.1	0.4	1.3	2.2	1.4	2.3	3.2	2.4	Total
<b>Strata Combined:</b>		05/15 - 07/30												
<b>Sampling dates:</b>		05/16 - 07/29												
<b>Sample size:</b>		4,971												
<b>Female</b>	Percent of sample	0.1	0.0	2.5	10.3	0.0	0.0	35.1	1.6	0.1	5.1	0.0	0.0	54.8
	Number in catch	1,239	0	31,322	126,934	0	0	431,933	20,101	655	62,810	0	0	674,994
<b>Male</b>	Percent of sample	0.3	0.0	1.8	13.0	0.0	0.0	25.6	1.2	0.1	3.0	0.0	0.0	45.1
	Number in catch	4,106	275	22,621	159,569	230	213	315,112	14,233	1,435	37,380	228	301	555,703
<b>Total</b>	Percent of sample	0.4	0.0	4.4	23.3	0.0	0.0	60.7	2.8	0.2	8.1	0.0	0.0	100.0
	Number in catch	5,345	275	53,943	287,006	230	213	747,487	34,334	2,090	100,191	228	301	1,231,642
	Standard error	1,318	275	3,997	7,936	163	151	9,372	3,412	837	4,930	228	301	

Appendix B.17. Estimated age and sex composition of the chinook salmon harvested in the Copper River District commercial common property drift gillnet fishery, 1995.

		Brood Year and Age Group								Total
		1992	1991	1990		1989		1988		
		1.1	1.2	1.3	2.2	1.4	2.3	1.5	2.4	
Strata Combined:	05/15 - 09/04									
Sampling dates:	05/15 - 06/03									
Sample size:	2,118									
Female	Percent of sample	0.0	1.4	34.2	0.0	21.3	0.5	0.3	0.0	57.8
	Number in catch	0	912	22,483	0	13,985	317	211	20	37,927
Male	Percent of sample	0.3	4.5	19.3	0.1	16.9	0.2	0.6	0.0	41.9
	Number in catch	184	2,926	12,644	82	11,120	143	423	20	27,544
Total	Percent of sample	0.3	5.9	53.7	0.1	38.3	0.7	1.0	0.1	100.0
	Number in catch	184	3,869	35,280	82	25,125	460	634	40	65,675
	Standard error	94	380	740	60	700	126	134	28	

Appendix B.18. Estimated age and sex composition of the coho salmon harvested in the Copper River District commercial common property drift gillnet fishery, 1995.

		Brood Year and Age Group					Total	
		1993	1992	1991	1990			
		0.1	1.1	2.1	2.2	3.1		
Strata Combined:		05/19 - 09/26						
Sampling dates:		08/09 - 09/13						
Sample size:		1,228						
49	Female	Percent of sample	0.0	19.2	28.8	0.0	0.4	48.4
		Number in catch	0	103,313	154,661	0	2,103	260,078
	Male	Percent of sample	0.1	20.1	30.8	0.1	0.4	51.5
		Number in catch	301	107,887	165,610	607	2,112	276,517
Total		Percent of sample	0.1	39.4	59.7	0.1	0.8	100.0
		Number in catch	301	211,501	320,271	607	4,216	536,896
		Standard error	301	7,787	7,813	607	1,321	

Appendix B.19. Commercial salmon catch by species in the Bering River District, 1973 - 1995.

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
Ten Year Average (1985-94)	74	18,801	131,880	44	1,036	151,834

<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, 1995.

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	6/15	24	16	24	11	110	5,199	31,154	0	0	0	0	168	1,700
2	6/19	24	19	27	17	459	5,233	30,512	0	0	0	0	44	393
3	6/22	24	12	20	4	88	3,276	19,023	0	0	0	0	6	44
4	6/26	24	15	20	2	53	2,226	12,700	0	0	4	15	10	80
5	6/29	24	6	8	0	0	1,161	6,577	0	0	0	0	1	6
6	7/03	36	6	8	4	90	1,598	9,605	0	0	0	0	0	0
7	7/06	24	7	8	0	0	749	4,508	0	0	0	0	0	0
8	7/10	36	6	6	0	0	700	4,246	2	16	0	0	0	0
9	7/13	36	c											
10	7/17	36	c											
11	7/20	36	0	0	0	0	0	0	0	0	0	0	0	0
12	7/24	36	c											
13	7/27	36	c											
14	7/31	36	0	0	0	0	0	0	0	0	0	0	0	0
15	8/03	36	0	0	0	0	0	0	0	0	0	0	0	0
16	8/07	48	0	0	0	0	0	0	0	0	0	0	0	0
17	8/14	48	13	27	0	0	23	136	3,825	35,776	11	36	0	0
18	8/21	36	51	144	2	22	156	893	23,350	217,278	5	15	0	0
19	8/24	36	101	231	1	24	108	628	43,836	400,943	0	0	0	0
20	8/28	36	136	373	1	20	207	1,283	59,959	574,715	4	15	0	0
21	9/01	24	117	220	0	0	30	185	42,149	401,276	0	0	0	0
22	9/04	30	150	339	1	21	98	576	60,020	589,631	2	7	0	0
23	9/11	30	109	214	0	0	24	143	34,309	339,225	0	0	0	0
24	9/14	24	57	81	0	0	10	65	6,093	60,589	0	0	0	0
25	9/18	30	21	49	0	0	0	0	7,513	76,066	0	0	0	0
26	9/21	30	4	4	0	0	0	0	273	2,860	0	0	0	0
27	9/25	30	7	14	0	0	0	0	716	7,500	0	0	0	0
28	9/28	30	0	0	0	0	0	0	0	0	0	0	0	0
29	10/02	30	0	0	0	0	0	0	0	0	0	0	0	0
30	10/05	30	0	0	0	0	0	0	0	0	0	0	0	0
Total		960	195	1,817	44	908	21,585	127,046	282,045	2,705,875	26	88	229	2,223
Average Weight (lbs)						20.64		5.89		9.59		3.38		9.71

a For starting times of specific openings refer to Appendix B.26.

b Starting date of period.

c 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, 1995.

Bering River Delta		Aerial Escapement Indices by Survey Date						
System and Drainage	Survey System	12 June	19 June	26 June	8 July	18 July	28 July	5 August
Bering River	Bering River	NS	3,000	600 +	100 *	NC	100	NC
	Bering Lake	NC	1,500	2,100 +	28,300 *	11,000 +	5,400	2,100
	Dick Creek	0	0	0	250 *	4,200	6,000	5,700
	Shepherd Creek - Lagoon	NS	NS	NC	2,600 *	600 +	NC	0
	Shepherd Creek	NS	NS	NC	NS	400	NS	NS
	Carbon Creek	NS	NS	0	NS	120	NS	NS
	Trout Creek	NS	NS	NS	NS	NS	NS	NS
	Clear Creek	NS	NS	NS	NS	400	900 *	500
	Kushtaka Lake	NS	NS	NS	NS	0	200 *	210
	Shockum Creek	NS	NS	NS	NS	0	200 *	150
Kattalla River	Kattalla River	NS	170	160 +	500	900 *	300	50
Bering River Aerial Survey Daily Index		0	4,670	2,860	31,750	17,620	13,100	8,710
Anticipated Escapement Index		NA	6,205	11,750	23,835	24,240	17,723	7,955

Bering River Delta		Aerial Escapement Indices by Survey Date						
System and Drainage	Survey System	16 August	21 August	25 August	29 August	5 Sept.	16 Sept.	10 Oct.
Bering River	Bering River	150	30	150	100	250	375	0
	Bering Lake	900	450	350	700	390	252	0
	Dick Creek	2,500	720	550	600	550	350	0
	Shepherd Creek - Lagoon	NS	NC	350	400	0	NC	NC
	Shepherd Creek	NS	NS	50	NS	NS	NS	NS
	Carbon Creek	NS	NS	100	NS	NS	NS	NS
	Trout Creek	NS	NS	NS	NS	NS	NS	NS
	Clear Creek	NS	NS	NS	NS	NS	NS	NS
	Kushtaka Lake	NS	NS	NS	NS	NS	NS	NS
	Shockum Creek	NS	NS	NS	NS	NS	NS	NS
Kattalla River	Kattalla River	50	100	100	100	75	75	0
Bering River Aerial Survey Daily Index		3,600	1,300	1,650	1,900	1,265	1,052	0
Anticipated Escapement Index		3,457	862	1,024	1,179	900	120	

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Appendix B.21 (page 2 of 2).

Bering River Delta System and Drainage		Aerial Escapement Indices by Survey Date		Estimated Escapement	
		Survey System	Sites	System	Anticipated
Bering River	Bering River	100	28,650	23,500	
	Bering Lake	28,300			
	Dick Creek	250			
	Shepherd Creek - Lagoon	2,600	2,600	6,000	
	Shepherd Creek	NS			
	Carbon Creek	NS			
	Trout Creek	NS			
	Clear Creek	900	900	1,500	
	Kushtaka Lake	200	400	1,600	
	Shockum Creek	200			
Kattalla River	Kattalla River	1,200	1,200		
Bering River Aerial Survey Daily Index				33,750	32,600
Anticipated Escapement Index					

- a 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, 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  $\tau$  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 b).
- b 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.
- c 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, 1995.

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 29		2	381		
July 29	36 and 36	0	21		
Aug 05	36 and 36	No effort	86		
Aug 12	48	No effort	156	0	600
Aug 19	48	3,825	3,434	700	1,190
Aug 26	36 and 36	67,186	18,681	3,760	7,500
Sept 02	36 and 24	102,108	36,384	6,530	11,250
Sept 09	30	60,020	39,732	8,180	21,300
Sept 16	30 and 24	40,402	24,908	26,650	20,100
Sept 23	30 and 30	7,786	6,882		19,000
Sept 30	30 and 30	716	1,172		17,400
Oct 07	30 and 30	0	164	8,280	NA
Season Total		282,045	132,001	27,450	22,117

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

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

Appendix B.23. Aerial escapement indices by date and location for coho salmon returning to the Bering River Delta, 1995.

Bering River Delta System and Drainage	Survey System	Aerial Escapement Indices by Survey Date						
		16 August	21 August	25 August	29 August	5 Sept.	16 Sept.	10 Oct.
Bering River	Bering River <sup>a</sup>	250	570	600	1,240	1,250	3,900 *	10
	Bering Lake	0	200	150	100	890	6,700 *	3,880
	Dick Creek	0	0	0	0	0	100 *	2,090
	Shepherd Creek - Lagoon	NS	NC	350	800 *	600	NC	NC
	Shepherd Creek	NS	NS	NC	NC	NC	NS	NS
	Carbon Creek	NS	NS	0	NS	NS	NS	NS
Katalla River	Katalla River	350	950	1,000	750	1,100	4,500 *	2,300
Lower Bering River	Gandil River	0	0	10	0	200	1,350 *	NS
	Nichawak River	100	340	450	460	450	2,700 *	NS
Controller Bay	Campbell River	NS	0	0	0	0	500 *	NS
	Edwards River	NS	300	350	1,250	1,350	3,500 *	NS
	Okalee River	NS	1,100	850	1,900	2,000	2,200 *	NS
	Other Clear Streams	NS	0	0	30	340	1,200 *	NS
Bering River Aerial Survey Daily Index		700	3,460	3,760	6,530	8,180	26,650	8,280
Anticipated Aerial Index		1,200	7,500	7,500	11,250	21,250	21,150	1,859

Bering River Delta System and Drainage	Survey System	Aerial Escapement Indices by Survey Date		Estimated Escapement		
		Site <sup>c</sup>	System <sup>d</sup>	Site <sup>c</sup>	System <sup>d</sup>	Anticipated
Bering River	Bering River <sup>a</sup>			3,900	10,700	5,658
	Bering Lake			6,700		
	Dick Creek			100		
	Shepherd Creek - Lagoon			800	800	
	Shepherd Creek			NS		
	Carbon Creek			NS		
Katalla River	Katalla River			4,500	4,500	3,989
Lower Bering River	Gandil River			1,350	4,050	2,593
	Nichawak River			2,700		
Controller Bay	Campbell River			500	7,400	9,877
	Edwards River			3,500		
	Okalee River			2,200		
	Other Clear Streams			1,200		
Bering River Aerial Survey Total					27,450	22,117

a 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, 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 b).

b Bering River counts include coho observed in the Don Miller Hill tributaries.

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 duplication of counts across dates is selected.

d 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, 1995.

		Brood Year and Age Group			
		1992	1991	1990	
		1.1	2.1	3.1	Total
Strata Combined: 07/10 - 09/19					
Sampling dates: 08/23 - 09/06					
Sample size: 800					
50	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 fishery in the Bering River and Copper River Districts, 1995.

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-01-95 a
			2	5/18 - 5/19	24	2-F-E-02-95
			3	5/22 - 5/23	24	2-F-E-03-95
			4	5/25 - 5/26	24	2-F-E-04-95
			5	5/29 - 5/30	24	2-F-E-05-95
						2-F-E-06-95 b
			6	6/01 - 6/02	24	2-F-E-07-95
			7	6/05 - 6/06	24	2-F-E-09-95
			8	6/09	12	2-F-E-10-95
1	6/15 - 6/16	24	9	6/15 - 6/16	24	2-F-E-11-95
2	6/19 - 6/20	24	10	6/19 - 6/20	24	2-F-E-16-95
3	6/22 - 6/23	24	11	6/22 - 6/23	24	2-F-E-17-95
4	6/26 - 6/27	24	12	6/26 - 6/27	24	2-F-E-19-95
5	6/29 - 6/30	24	13	6/29 - 6/30	24	2-F-E-20-95
6	7/03 - 7/04	36	14	7/03 - 7/04	36	2-F-E-26-95
7	7/06 - 7/07	24	15	7/06 - 7/07	24	2-F-E-27-95
8	7/10 - 7/11	36	16	7/10 - 7/11	36	2-F-E-31-95
9	7/13 - 7/15	36	17	7/13 - 7/15	36	2-F-E-32-95
10	7/17 - 7/18	36	18	7/17 - 7/18	36	
11	7/20 - 7/22	36	19	7/20 - 7/22	36	2-F-E-38-95
12	7/24 - 7/25	36	20	7/24 - 7/25	36	
13	7/27 - 7/29	36	21	7/27 - 7/29	36	2-F-E-41-95 c
14	7/31 - 8/01	36	22	7/31 - 8/01	36	
15	8/03 - 8/05	36	23	8/03 - 8/05	36	
16	8/07 - 8/09	48	24	8/07 - 8/09	48	
19	8/14 - 8/16	48	25	8/14 - 8/16	48	2-F-E-48-95
20	8/21 - 8/22	36	26	8/21 - 8/22	36	2-F-E-55-95 d
21	8/24 - 8/26	36	27	8/24 - 8/26	36	2-F-E-58-95 e
22	8/28 - 8/29	36	28	8/28 - 8/29	36	2-F-E-63-95 d
23	9/01 - 9/02	24	29	9/01 - 9/02	24	2-F-E-64-95
24	9/04 - 9/05	30	30	9/04 - 9/05	30	2-F-E-66-95
25	9/11 - 9/12	30	31	9/11 - 9/12	30	2-F-E-70-95
26	9/14 - 9/15	24	32	9/14 - 9/15	24	2-F-E-73-95
27	9/18 - 9/19	30	33	9/18 - 9/19	30	2-F-E-74-95
28	9/21 - 9/22	30	34	9/21 - 9/22	30	2-F-E-76-95 f
29	9/25 - 9/26	30	35	9/25 - 9/26	30	
30	9/28 - 9/29	30	36	9/28 - 9/29	30	
31	10/02 - 10/03	30	37	10/02 - 10/03	30	
32	10/05 - 10/06	30	38	10/05 - 10/06	30	2-F-E-77-95 g
			39	10/09 - 10/10	30	
			40	10/12 - 10/13	30	
			41	10/16 - 10/17	30	
			42	10/19 - 10/20	30	

- a 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-hours periods began at 7:00 a.m.
- b The Copper River District was extended an additional 12 hours for a total of a 24-hour period from 7:00 a.m. Monday to 7:00 a.m. Tuesday.
- c All fishing periods after August 7 in the Copper and Bering River Districts began at 12:00 noon.
- d The fishing period was modified to begin at 8:00 a.m.
- e The fishing period was modified to begin at 8:00 p.m.
- f The Copper and Bering River Districts were placed on a schedule of two 30-hour periods per week.
- g The Copper River District closed for the 1995 season effective 6:00 p.m. Friday, October 20. The Bering River District closed effective 6:00 p.m. Friday, October 6.

**APPENDIX C**

**COGHILL AND UNAKWIK DISTRICTS**

Appendix C.1. Commercial salmon harvest by period in the Coghill District commercial drift gillnet and purse seine fisheries, Prince William Sound, 1995.

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>														
01	6/15	24	106	235	75	1,129	113	666	1	9	1	4	58,057	493,856
02	6/19	24	196	437	103	1,612	618	3,745	0	0	3	10	79,181	657,421
03	6/23	12	172	218	22	341	554	3,410	6	36	24	78	35,296	285,854
04	6/29	12,24	144	296	105	1,643	1,464	9,007	20	149	11	43	73,871	584,614
05	7/03	12	95	153	29	532	526	3,367	16	112	1	5	40,202	316,706
06	7/06	12	78	115	25	413	945	5,666	1	6	59	276	30,176	236,228
07	7/10	12	100	139	23	425	395	2,424	14	104	26	108	24,064	183,308
08	7/13	12	66	85	37	523	426	2,555	26	200	77	277	23,095	173,365
09	7/17	12	62	70	15	261	392	2,285	73	583	304	1,121	9,589	70,675
10	7/31	6	77	83	1	5	24,842	144,587	5	35	1,178	4,069	946	7,385
11	8/04	24	80	133	14	199	15,939	84,653	47	401	3,103	11,264	2,896	22,191
12	8/07	24	21	29	3	36	3,407	17,860	31	271	577	1,917	329	2,464
13	8/09	12	46	62	0	0	516	2,847	86	708	26,649	97,438	346	2,522
14	8/10	36	10	15	4	49	1,279	6,913	48	359	217	751	396	3,168
15	8/11	12	21	31	1	18	427	2,342	81	648	10,564	34,910	203	1,463
16	8/13	12	29	37	1	15	509	2,880	180	1,547	18,229	67,505	157	1,193
17	8/14	24	11	11	1	10	797	3,803	66	591	124	390	241	1,676
18	8/15	12	31	37	0	0	611	3,540	121	949	13,607	49,335	158	1,156
19	8/17	12	40	49	4	69	1,225	7,188	113	936	22,429	84,126	168	1,310
20	8/19	12	36	46	3	28	825	4,769	139	1,133	20,495	74,940	106	792
21	8/21	12	27	29	1	6	229	1,311	115	886	9,212	30,300	62	473
22	8/23	12	18	21	0	0	177	972	128	1,051	9,437	32,915	48	337
23	8/28	60	18	55	0	0	868	4,855	1,343	10,978	11,494	39,945	37	279
24	8/31	60	20	46	0	0	389	2,280	1,651	13,954	8,508	29,777	19	131
25	9/03	60	27	69	1	5	227	1,301	3,882	32,448	4,589	16,091	11	71
26	9/07	60	26	54	0	0	64	402	4,592	39,498	553	1,883	2	19
27	9/10	84	25	67	0	0	26	146	4,979	43,119	20	61	3	18
28	9/14	60	26	53	0	0	6	34	5,092	45,603	2	6	0	0
29	9/18	60	23	33	0	0	1	5	2,681	23,979	0	0	0	0
30	9/21	60	13	27	0	0	0	0	2,978	26,690	0	0	0	0
31	9/25	60	8	10	0	0	0	0	828	7,434	0	0	0	0
32	9/28 c	60	0	0	0	0	0	0	0	0	0	0	0	0
33	10/02 c	60	0	0	0	0	0	0	0	0	0	0	0	0
34	10/05 c	60	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>332</b>	<b>277</b>	<b>2,745</b>	<b>468</b>	<b>7,319</b>	<b>57,797</b>	<b>325,813</b>	<b>29,343</b>	<b>254,417</b>	<b>161,493</b>	<b>579,545</b>	<b>379,659</b>	<b>3,048,675</b>
<b>Average Weight</b>					<b>15.64</b>		<b>5.64</b>		<b>8.67</b>		<b>3.59</b>		<b>8.03</b>	
<b>PURSE SEINE</b>														
01	7/31	6	40	41	25	239	15,817	91,092	8	59	1,338	4,671	1,190	9,485
02	8/04 c	24	0	0	0	0	35	188	0	0	20	67	6	55
03	8/07	24	2	2	0	0	35	455	167	1,236	146,031	508,441	282	2,157
04	8/09	12	51	52	2	35	455	2,769	167	1,236	146,031	508,441	282	2,157
05	8/10 c	36	0	0	0	0	0	0	0	0	0	0	0	0
06	8/11	12	50	50	0	0	577	3,384	197	1,545	142,120	486,044	361	2,655
07	8/13	12	62	64	5	55	1,255	7,384	382	3,145	239,005	797,882	360	2,617
08	8/14 c	24	0	0	0	0	0	0	0	0	0	0	0	0
09	8/15	12	39	39	0	0	639	3,754	113	899	119,998	406,894	193	1,396
10	8/17	12	35	35	1	2	995	6,003	190	1,516	96,084	327,875	131	993
11	8/19	12	14	14	0	0	312	1,905	64	605	54,062	180,106	28	239
12	8/21	12	10	10	0	0	31	186	26	167	8,423	28,687	9	66
13	8/23	12	5	5	0	0	54	332	58	442	19,115	67,804	2	15
14	8/28	60	7	19	0	0	308	1,557	1,774	15,891	55,830	180,147	31	219
15	8/31	60	10	20	0	0	187	1,004	1,856	16,663	31,864	102,144	3	18
16	9/03	60	5	5	0	0	5	26	502	4,518	3,310	10,592	1	6
17	9/07 c	60	0	0	0	0	0	0	0	0	0	0	0	0
18	9/10 c	84	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>		<b>122</b>	<b>118</b>	<b>356</b>	<b>33</b>	<b>331</b>	<b>20,670</b>	<b>119,584</b>	<b>5,337</b>	<b>46,686</b>	<b>917,200</b>	<b>3,101,354</b>	<b>2,597</b>	<b>19,921</b>
<b>Average Weight</b>						<b>10.03</b>		<b>5.79</b>		<b>8.75</b>		<b>3.38</b>		<b>7.67</b>
<b>Combined Total</b>		<b>454</b>	<b>395</b>	<b>3,101</b>	<b>501</b>	<b>7,650</b>	<b>78,467</b>	<b>445,397</b>	<b>34,680</b>	<b>301,103</b>	<b>1,078,693</b>	<b>3,680,899</b>	<b>382,256</b>	<b>3,068,596</b>
<b>Average Weight</b>						<b>15.27</b>		<b>5.68</b>		<b>8.68</b>		<b>3.41</b>		<b>8.03</b>

a Starting date of period.

b For area and opening times refer to Appendix C.10.

c No reported catch.

Appendix C.2. Commercial salmon catch by species in the Coghill District,  
Prince William Sound, 1976 - 1995.

Year	CATCH BY SPECIES					
	Chinook	Sockeye	Coho	Pink	Chum	Total
<b>DRIFT GILLNET</b>						
1976	102	54,334	72	53,219	89,170	196,897
1977	124	154,342	49	332,859	127,476	614,850
1978	469	193,899	64	49,527	-110,679	354,638
1979	543	75,753	1,837	259,372	56,916	394,421
1980	107	56,957	1,053	355,684	68,071	481,872
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
Ten Year Average (1985-94)	364	143,998	51,989	568,491	303,286	1,068,127
<b>PURSE SEINE</b>						
1976	83	6,159	29	56,967	30,328	93,566
1977	40	16,436	50	230,215	37,102	283,843
1978	206	9,623	34	13,059	14,007	36,929
1979	692	3,047	55	38,560	5,709	48,063
1980	0	2,159	0	134,876	4,702	141,737
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
Ten Year Average (1985-94)	57	10,175	12,954	1,283,115	27,335	975,444
<b>COMBINED GEARS</b>						
1976	185	60,493	101	110,186	119,498	290,463
1977	164	170,778	99	563,074	164,578	898,693
1978	675	203,522	98	62,586	124,686	391,567
1979	1,235	78,800	1,892	297,932	62,625	442,484
1980	107	59,116	1,053	490,560	72,773	623,609
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
Ten Year Average (1985-94)	421	154,172	64,942	1,851,605	330,621	2,401,762

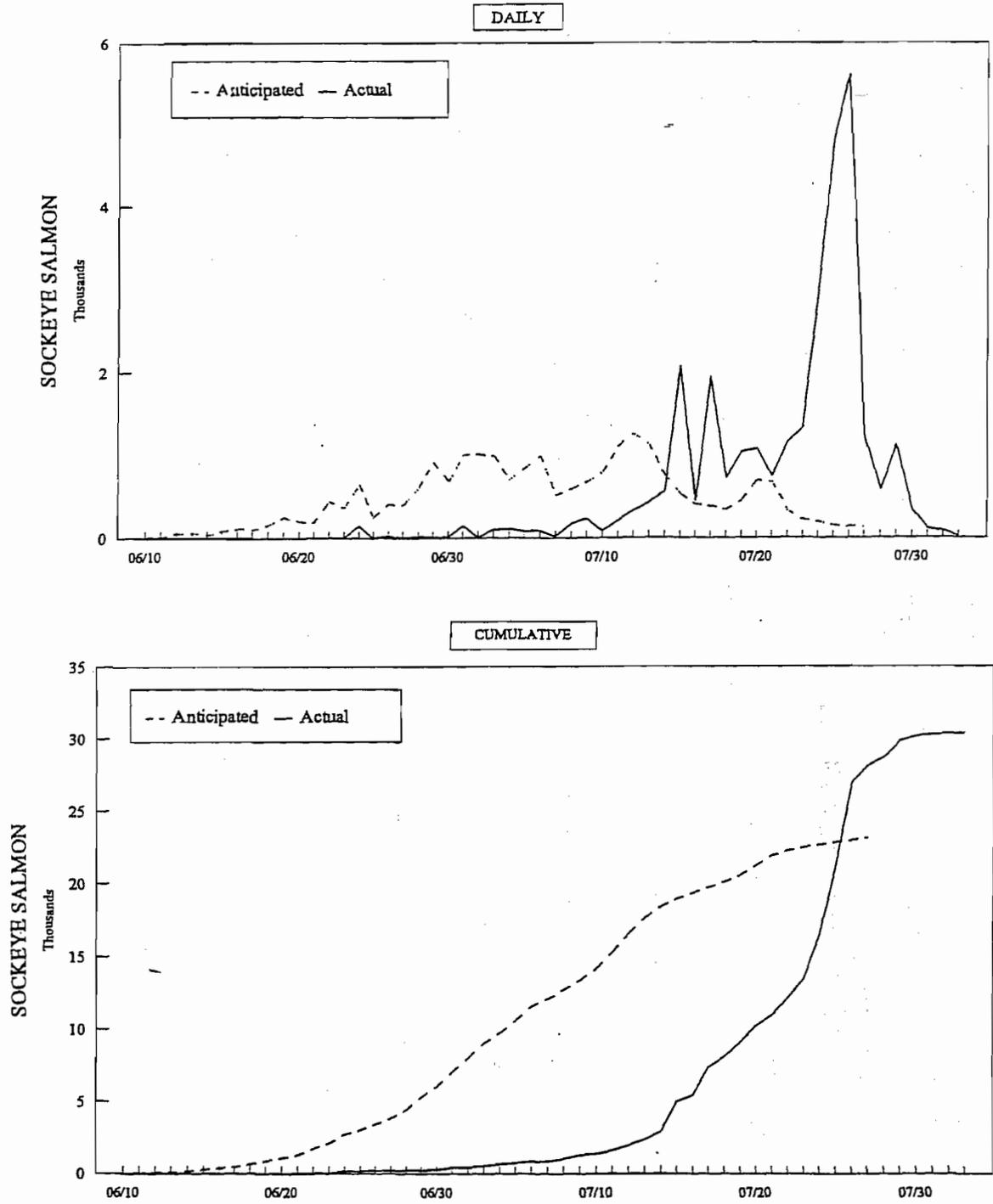
Appendix C.3. Daily salmon escapement through the Coghill River weir, Prince William Sound, 1995.

Date	Sockeye <sup>a</sup>		Pink <sup>b</sup>		Chum		Coho		Chinook	
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
06/11	0	0	0	0	0	0	0	0	0	0
06/12	0	0	0	0	0	0	0	0	0	0
06/13	1	1	0	0	0	0	0	0	0	0
06/14	0	1	0	0	0	0	0	0	0	0
06/15	1	2	0	0	0	0	0	0	0	0
06/16	0	2	0	0	0	0	0	0	0	0
06/17	4	6	0	0	0	0	0	0	0	0
06/18	5	11	0	0	0	0	0	0	0	0
06/19	5	16	0	0	0	0	0	0	0	0
06/20	2	18	0	0	0	0	0	0	0	0
06/21	11	29	0	0	0	0	0	0	0	0
06/22	9	38	0	0	0	0	0	0	0	0
06/23	11	49	0	0	0	0	0	0	0	0
06/24	156	205	0	0	0	0	0	0	0	0
06/25	6	211	0	0	0	0	0	0	0	0
06/26	27	238	0	0	0	0	0	0	0	0
06/27	9	247	0	0	0	0	0	0	0	0
06/28	23	270	0	0	0	0	0	0	0	0
06/29	17	287	0	0	0	0	0	0	0	0
06/30	14	301	0	0	0	0	0	0	0	0
07/01	152	453	0	0	0	0	0	0	0	0
07/02	11	464	0	0	0	0	0	0	0	0
07/03	107	571	0	0	0	0	0	0	0	0
07/04	114	685	0	0	0	0	0	0	0	0
07/05	88	773	0	0	0	0	0	0	0	0
07/06	94	867	0	0	1	1	0	0	0	0
07/07	24	891	0	0	0	1	0	0	0	0
07/08	180	1,071	0	0	1	2	0	0	0	0
07/09	239	1,310	0	0	0	2	0	0	1	1
07/10	86	1,396	0	0	0	2	0	0	0	1
07/11	216	1,612	6	6	0	2	0	0	2	3
07/12	334	1,946	8	14	3	5	0	0	1	4
07/13	432	2,378	10	24	0	5	0	0	0	4
07/14	567	2,945	25	49	0	5	0	0	0	4
07/15	2,071	5,016	83	132	3	8	0	0	1	5
07/16	444	5,460	30	162	4	12	0	0	1	6
07/17	1,932	7,392	173	335	3	15	0	0	0	6
07/18	724	8,116	108	443	0	15	1	1	0	6
07/19	1,040	9,156	258	701	2	17	0	1	0	6
07/20	1,078	10,234	356	1,057	2	19	0	1	0	6
07/21	744	10,978	356	1,413	3	22	0	1	0	6
07/22	1,155	12,133	1,099	2,512	11	33	0	1	1	7
07/23	1,327	13,460	4,043	6,555	6	39	1	2	0	7
07/24	3,000	16,460	6,718	13,273	7	46	1	3	1	8
07/25	4,819	21,279	15,877	29,150	4	50	1	4	0	8
07/26	5,612	26,891	8,543	37,693	6	56	5	9	1	9
07/27	1,226	28,117	7,435	45,128	6	62	1	10	0	9
07/28	583	28,700	3,677	48,805	2	64	1	11	1	10
07/29	1,120	29,820	9,699	58,504	8	72	1	12	1	11
07/30	339	30,159	4,280	62,784	6	78	4	16	0	11
07/31	115	30,274	770	63,554	3	81	4	20	1	12
08/01	88	30,362	1,713	65,267	4	85	6	26	2	14
08/02	20	30,382	459	65,726	0	85	0	26	0	14
<b>Total</b>	<b>30,382</b>		<b>65,726</b>		<b>85</b>		<b>26</b>		<b>14</b>	

<sup>a</sup> Count includes 77 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



Appendix C4. Anticipated, actual daily, and cumulative sockeye salmon escapement past the Coghill River weir, Prince William Sound, 1995.

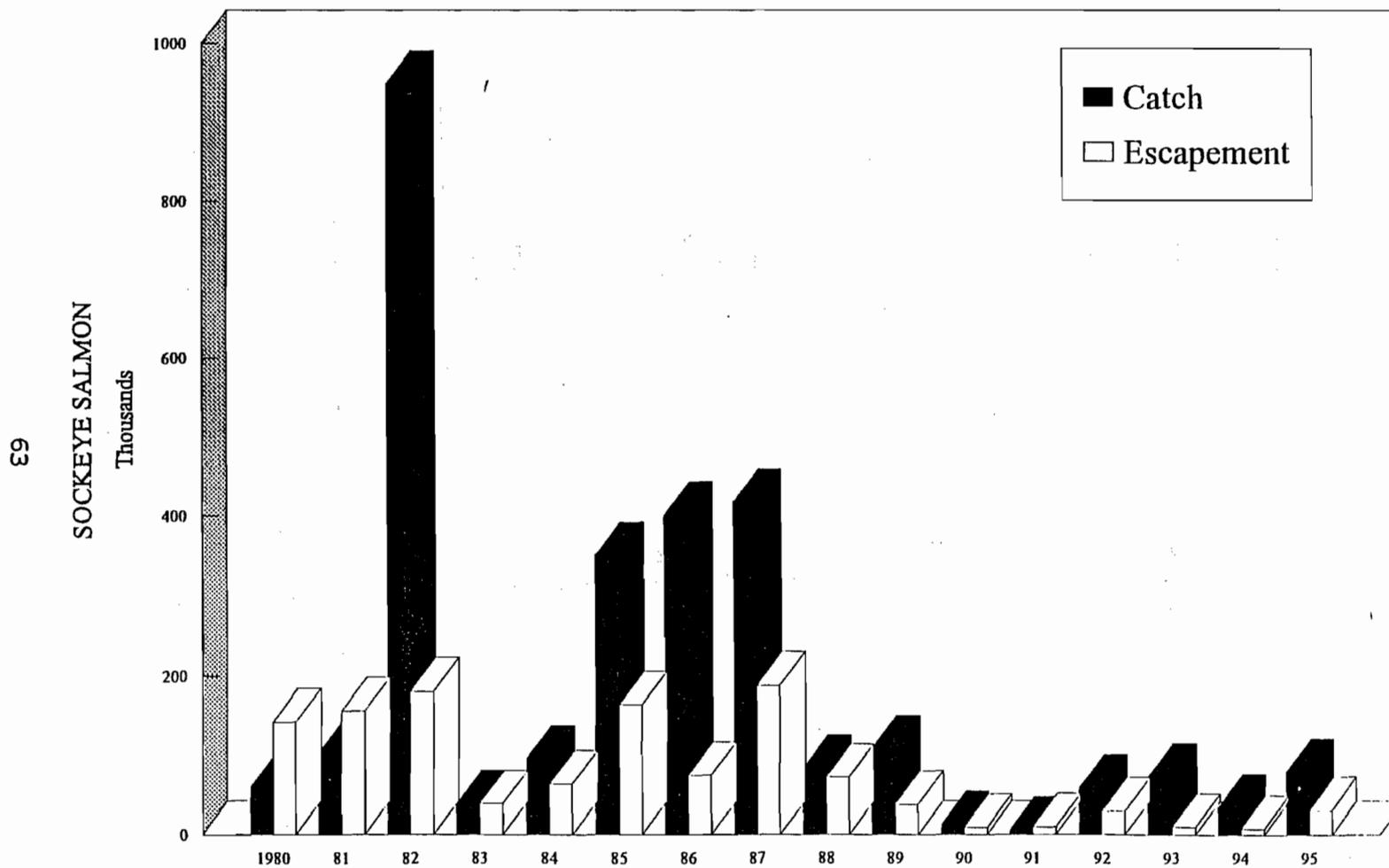
Appendix C.5. Salmon escapement by species in the Coghill District, Prince William Sound, 1969 - 1995.

Year	Sockeye a	Pink b	Chum b
1969	81,000	39,020	8,410
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
10 Year Average (1985-1994)	59,631	90,700	18,641

a Escapement count of sockeye salmon past the Coghill River weir.

b 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, 1980 - 1995.

Appendix C.7. Temporally stratified age and sex composition of sockeye salmon from the commercial common property drift gillnet and purse seine fishery in the Esther Subdistrict, 1995.

		Brood Year and Age Group					
		1991	1990		1989		
		1.2	1.3	2.2	1.4	2.3	Total
Stratum dates: 06/15 - 06/24							
Sampling dates: 06/24 - 06/24							
Sample size: 75							
Gear Type: Drift Gillnet							
Female	Percent of sample	13.3	10.7	0	0	0	24
	Number in catch	171	137	0	0	0	308
Male	Percent of sample	42.7	6.7	0	0	1.3	50.7
	Number in catch	548	86	0	0	17	651
Total	Percent of sample	70.7	25.3	1.3	0	2.7	100
	Number in catch	908	326	17	0	34	1285
	Standard error	68	65	17	0	24	
Stratum dates: 06/25 - 07/05							
Sampling dates: 07/01 - 07/02							
Sample size: 188							
Gear Type: Drift Gillnet							
Female	Percent of sample	31.4	11.2	0.5	0	1.6	44.7
	Number in catch	625	222	11	0	32	889
Male	Percent of sample	41.5	4.3	2.7	0	0.5	48.9
	Number in catch	826	85	53	0	11	974
Total	Percent of sample	77.7	17	3.2	0	2.1	100
	Number in catch	1545	339	64	0	42	1990
	Standard error	61	55	26	0	21	
Stratum dates: 07/06 - 07/12							
Sampling dates: 07/08 - 07/08							
Sample size: 120							
Gear Type: Drift Gillnet							
Female	Percent of sample	38.3	11.7	0	0.8	0.8	51.7
	Number in catch	514	156	0	11	11	692
Male	Percent of sample	41.7	4.2	0.8	0	1.7	48.3
	Number in catch	558	56	11	0	22	648
Total	Percent of sample	80	15.8	0.8	0.8	2.5	100
	Number in catch	1072	212	11	11	34	1340
	Standard error	49	45	11	11	19	
Stratum dates: 07/13 - 08/08							
Sampling dates: 07/15 - 07/15							
Sample size: 33							
Gear Type: Drift Gillnet							
Female	Percent of sample	39.4	9.1	3	0	0	51.5
	Number in catch	322	74	25	0	0	421
Male	Percent of sample	30.3	18.2	0	0	0	48.5
	Number in catch	248	149	0	0	0	397
Total	Percent of sample	69.7	27.3	3	0	0	100
	Number in catch	570	223	25	0	0	818
	Standard error	66	64	25	0	0	

-Continued-

		Brood Year and Age Group					
		1991	1990		1989		
		1.2	1.3	2.2	1.4	2.3	Total
Stratum dates:	08/09 - 09/18						
Sampling dates:	08/09 - 08/23						
Sample size:	56						
Gear Type:	Drift Gillnet & Purse Seine						
Female	Percent of sample	42.7	9	0	0	0	51.7
	Number in catch	4660	987	0	0	0	5647
Male	Percent of sample	37.3	10.9	0	0	0	48.3
	Number in catch	4077	1194	0	0	0	5271
Total	Percent of sample	80	20	0	0	0	100
	Number in catch	8737	2181	0	0	0	10918
	Standard error <sup>a</sup>						
Strata Combined:	06/15 - 09/18						
Sampling dates:	06/24 - 08/23						
Sample size:	416						
Female	Percent of sample	38.5	9.6	0.2	0.1	0.3	48.7
	Number in catch	6292	1577	35	11	43	7958
Male	Percent of sample	38.3	9.6	0.4	0	0	48.6
	Number in catch	6257	1569	64	0	0	7940
Total	Percent of sample	78.5	20.1	0.7	0.1	0	100
	Number in catch	12833	3281	117	11	0	16351
	Standard error <sup>a</sup>						

<sup>a</sup> The first four samples were collected from drift gillnet catches. The last strata is based on coded wire tag recoveries and includes both drift gillnet and purse seine catches. Hatchery fish contributed approximately 77% of the catch in the last strata based on unadjusted tag recoveries. The hatchery fish age composition is applied to the total catch.

<sup>b</sup> Standard error terms were not calculated for the last strata or the strata combined.

Appendix C.8. Temporally stratified age composition of sockeye salmon harvested in the Coghill District, statistical area 223-30, commercial common property drift gillnet and purse seine fisheries. 1995. Age composition based on coded wire tag recoveries.

		Brood Year and Age Group		
		1991	1990	Total
		1.2	1.3	
Stratum dates:		07/31 - 07/31		
Sampling dates:		07/31 - 07/31		
Sample size:		88		
Female	Percent of sample	40.8	23.9	64.7
	Number in catch	16,574	9,722	26,296
Male	Percent of sample	24.5	10.9	35.3
	Number in catch	9,944	4,419	14,363
Total	Percent of sample	64.5	35.5	100.0
	Number in catch	26,207	14,452	40,659
	Standard error <sup>a</sup>			
Stratum dates:		08/01 - 08/15		
Sampling dates:		08/04 - 08/05		
Sample size:		88		
Female	Percent of sample	44.2	20.6	64.8
	Number in catch	9,482	4,424	13,906
Male	Percent of sample	23.3	11.9	35.2
	Number in catch	4,990	2,561	7,552
Total	Percent of sample	67.5	32.5	100.0
	Number in catch	14,473	6,984	21,457
	Standard error <sup>a</sup>			
Strata Combined:		07/31 - 08/15		
Sampling dates:		07/31 - 08/05		
Sample size:		176		
Female	Percent of sample	41.9	22.8	64.7
	Number in catch	26,056	14,146	40,201
Male	Percent of sample	24.0	11.2	35.3
	Number in catch	14,935	6,980	21,915
Total	Percent of sample	66.0	34.0	100
	Number in catch	40,990	21,126	62,116
	Standard error <sup>a</sup>			

<sup>a</sup> Standard error terms were not calculated.

Appendix C.9. Temporally stratified age and sex composition of sockeye salmon escapement through the Coghill River weir, 1995.

		Brood Year and Age Group								
		1992	1991	1990		1989		1988		
		1.1	1.2	1.3	2.2	2.3	3.2	3.3	Total	
Stratum dates: 06/13 - 07/08										
Sampling dates: 06/25 - 07/05										
Sample size: 464										
Female	Percent of sample	0.0	42.7	5.8	1.5	0.9	0.0	0.0	50.9	
	Number in escapement	0	457	62	16	9	0	0	545	
Male	Percent of sample	0.0	33.8	12.7	0.6	1.9	0.0	0.0	49.1	
	Number in escapement	0	362	136	7	21	0	0	526	
Total	Percent of sample	0.0	76.5	18.5	2.2	2.8	0.0	0.0	100.0	
	Number in escapement	0	819	199	23	30	0	0	1,071	
	Standard error	0	21	19	7	8	0	0		
Stratum dates: 07/09 - 07/15										
Sampling dates: 07/11 - 07/13										
Sample size: 456										
Female	Percent of sample	0.0	16.9	4.2	1.3	0.9	0.2	0.0	23.5	
	Number in escapement	0	666	164	52	35	9	0	926	
Male	Percent of sample	0.2	57.5	15.8	1.5	1.5	0.0	0.0	76.5	
	Number in escapement	9	2,267	623	61	61	0	0	3,019	
Total	Percent of sample	0.2	74.3	20.0	2.9	2.4	0.2	0.0	100.0	
	Number in escapement	9	2,933	787	112	95	9	0	3,945	
	Standard error	9	81	74	31	28	9	0		
Stratum dates: 07/16 - 07/23										
Sampling dates: 07/18 - 07/19										
Sample size: 448										
Female	Percent of sample	0.0	21.2	11.2	1.6	2.0	0.0	0.0	35.9	
	Number in escapement	0	1,791	942	132	170	0	0	3,035	
Male	Percent of sample	0.0	42.2	20.1	0.2	1.3	0.0	0.2	64.1	
	Number in escapement	0	3,562	1,696	19	113	0	19	5,409	
Total	Percent of sample	0.0	63.4	31.3	1.8	3.3	0.0	0.2	100.0	
	Number in escapement	0	5,353	2,639	151	283	0	19	8,444	
	Standard error	0	192	185	53	72	0	19		
Stratum dates: 07/24 - 08/02										
Sampling dates: 07/26 - 07/28										
Sample size: 426										
Female	Percent of sample	0.2	37.6	16.9	0.9	1.6	0.0	0.0	57.3	
	Number in escapement	40	6,356	2,860	159	278	0	0	9,692	
Male	Percent of sample	0.2	19.0	22.1	0.2	1.2	0.0	0.0	42.7	
	Number in escapement	40	3,218	3,734	40	199	0	0	7,230	
Total	Percent of sample	0.5	56.6	39.0	1.2	2.8	0.0	0.0	100.0	
	Number in escapement	79	9,573	6,594	199	477	0	0	16,922	
	Standard error	56	407	400	88	136	0	0		

-Continued-

		Brood Year and Age Group							
		1992	1991	1990		1989		1988	
		1.1	1.2	1.3	2.2	2.3	3.2	3.3	Total
Strata Combined: 06/13 - 08/02									
Sampling dates: 06/25 - 07/28									
Sample size: 1,794									
Female	Percent of sample	0.1	30.5	13.3	1.2	1.6	0.0	0.0	46.7
	Number in escapement	40	9,269	4,029	359	492	9	0	14,197
Male	Percent of sample	0.2	31.0	20.4	0.4	1.3	0.0	0.1	53.3
	Number in escapement	48	9,409	6,189	126	393	0	19	16,185
Total	Percent of sample	0.3	61.5	33.6	1.6	2.9	0.0	0.1	100.0
	Number in escapement	88	18,678	10,219	485	885	9	19	30,382
	Standard error	57	458	448	108	156	9	19	

Appendix C.10. Commercial salmon harvest by period in the Unakwik District drift gillnet and purse seine fisheries, Prince William Sound, 1995.

Period	Date b, c	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum		
					Numbers	Pounds									
<b>DRIFT GILLNET a</b>															
1	06/19	24	0	0	0	0	0	0	0	0	0	0	0	0	
2	06/22	24	2	2	4	36	14	93	0	0	0	0	1	8	
3	06/26	24	3	6	1	10	740	4,455	0	0	0	0	0	0	
4	06/29	24	8	8	3	57	845	5,337	0	0	1	3	12	74	
5	07/03	24	5	5	0	0	365	2,212	0	0	0	0	23	194	
6	07/06	24	2	2	0	0	152	1,043	0	0	0	0	0	0	
7	07/10	24	0	0	0	0	0	0	0	0	0	0	0	0	
8	07/13	24	0	0	0	0	0	0	0	0	0	0	0	0	
9	07/17	24	0	0	0	0	0	0	0	0	0	0	0	0	
10	07/20	24	0	0	0	0	0	0	0	0	0	0	0	0	
<b>Total</b>				12	23	8	103	2,116	13,140	0	0	1	3	36	276
<b>Average Weight</b>							12.88		6.21			3.00		7.67	

a No purse seine catch was reported in 1995.

b Starting date of period.

c For area and opening times refer to Appendix C.12.

Appendix C.11. Commercial salmon catch by species in the Unakwik District,  
Prince William Sound, 1980 - 1995.

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
Ten Year Average (1985-94)	10	11,138	21	8,803	1,088	21,060
<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
1984	0	138	0	28,210	4,123	32,471
1985	0	76	0	4,718	4,675	9,469
1986	0	146	0	187,752	6,549	194,447
1987	0	667	7	57,844	23,860	82,378
1988	0	819	3	121,068	79	121,969
1989	0	42	2	13,264	119	13,427
1990	0	79	0	3,233	67	3,379
1991	0	226	102	388,901	73	389,302
1992	0	274	14	100,624	4,943	105,855
1993	0	274	14	100,624	4,943	105,855
1994	0	274	14	100,624	4,943	105,855
1995	0	274	14	100,624	4,943	105,855
Ten Year Average (1985-94)	0	274	14	100,624	4,943	105,855
<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
Ten Year Average (1985-94)	10	11,357	32	89,302	5,043	105,744

\* No catch recorded.

Appendix C.12. Summary of periods, dates, hours open, and emergency orders issued for the commercial salmon fisheries in the Coghill and Unakwik Districts, Prince William Sound, 1995.

Unakwik (229)			Coghill (223)			Emergency Orders Issued	
Periods	Dates	Hours Open	Periods P/S GN		Dates		Hours Open
			1		6/15 - 6/16	24	2-F-E-12-95 a
1	6/19 - 6/20	24	2		6/19 - 6/20	24	2-F-E-15-95 a,b
			3		6/23	12	2-F-E-18-95 c
2	6/22 - 6/23	24					2-F-E-19-95 d
3	6/26 - 6/27	24	4		6/29 - 6/30	12/24	2-F-E-21-95 e
4	6/29 - 6/30	24	5		7/03	12	2-F-E-26-95 f
5	7/03 - 7/04	24	6		7/06 - 7/07	12	2-F-E-27-95 f
6	7/06 - 7/07	24	7		7/10	12	2-F-E-28-95 f
7	7/10 - 7/11	24	8		7/13 - 7/14	12	2-F-E-32-95 f
8	7/13 - 7/14	24	9		7/17	12	2-F-E-33-95 f
9	7/17 - 7/18	24					
10	7/20 - 7/21	24					2-F-E-38-95 g
			1	10	7/31	6	2-F-E-42-95 h
			2	11	8/04 - 8/05	24	2-F-E-43-95 h,i
			3	12	8/07 - 8/08	24	2-F-E-43-95 h
			4	13	8/09	12	2-F-E-51-95 c
			5	14	8/10 - 8/12	36	2-F-E-49-95 h
			6	15	8/11	12	2-F-E-54-95 c
			7	16	8/13	12	2-F-E-56-95 c
			8	17	8/14 - 8/15	24	2-F-E-52-95 h
			9	18	8/15	12	2-F-E-57-95 c
			10	19	8/17	12	2-F-E-59-95 c
			11	20	8/19	12	2-F-E-60-95 c
			12	21	8/21	12	2-F-E-61-95 c
			13	22	8/23	12	2-F-E-62-95 c
			14	23	8/28 - 8/30	60	2-F-E-67-95 j
			15	24	8/31 - 9/02	60	2-F-E-68-95 j
			16	25	9/02 - 9/05	60	2-F-E-69-95 j
			17	26	9/07 - 9/09	60	2-F-E-71-95 j
			18	27	9/10 - 9/13	84	2-F-E-72-95 j
			19	28	9/14 - 9/16	60	2-F-E-73-95 j
			20	29	9/18 - 9/20	60	2-F-E-78-95 i
			21	30	9/21 - 9/23	60	2-F-E-76-95 k
			22	31	9/25 - 9/27	60	
			23	32	9/28 - 9/30	60	
			24	33	10/02 - 10/04	60	
			25	34	10/05 - 10/07	60	2-F-E-77-95 m

-Continued-

- a The Esther Subdistrict, excluding the waters of Lake Bay and Quillian Bay inside of a line from Hodgkin Point to Esther Light as marked was open to fishing. In addition, waters of the General Subdistrict between the Esther Subdistrict boundary in lower Esther Passage to markers located near Shoestring Cove at approximately 60° 50' 45" N. Latitude were open.
- b This emergency order opened the commercial fishing season in the Unakwik District and established a schedule of two 24-hour periods per week 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.
- c Waters within one nautical mile of Esther Island, within the Esther Subdistrict, were open for 12-hours.
- d The 60 mesh depth restriction was retained until further notice.
- e Waters within one nautical mile of Esther Island, within the Esther Subdistrict were open for 12-hours. In addition, waters of the General Subdistrict between the Esther Subdistrict boundary in lower Esther Passage to markers located near Shoestring Cove at approximately 60° 50' 45" N. Latitude were opened. The Wally Noerenberg Hatchery Terminal Harvest Area (THA) was open for a 24-hour period, the Special Harvest Area (SHA) remained closed.
- f The Noerenberg Hatchery THA and the waters of Esther Bay north of 60° 48.1' N. latitude were open for 12-hours.
- g The Unakwik District closed effective 8:01 a.m. ADT Friday, July 21, until further notice.
- h Waters of College Fiord north of a line at 61° 01' 00" N latitude to the mouth of Coghill River was open to commercial fishing for both drift gillnet and purse seine gear.
- i The gillnet mesh depth restriction was lifted beginning at 1:00 p.m. Monday, July 31.
- j After August 25 seine gear may operate only in the Noerenberg Hatchery THA and SHA. All waters of the Esther Subdistrict was open to gillnet gear only. The Noerenberg Hatchery THA was open to both drift gillnet and purse seine gear. The Noerenberg Hatchery SHA remained closed.
- k All waters of the Esther Subdistrict excluding the Noreneberg Hatchery SHA were open to drift gillnet fishing on a schedule of two 60-hour period per week, until further notice. The periods were from 8:00 a.m. Monday to 8:00 p.m. Wednesday and from 8:00 a.m. Thursday until 8:00 p.m. Saturday.
- l The Unakwik District closed for the 1995 season effective 8:00 p.m. Wednesday, September 20.
- m The Coghill District closed for the 1995 season effective 8:00 p.m. Saturday, October 7.

**APPENDIX D**

**ESHAMY DISTRICT**

Appendix D.1. Commercial salmon harvest by period in the Eshamy District commercial drift gillnet and set gillnet fisheries, Prince William Sound, 1995

Period	Date <sup>a,b</sup>	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
					Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds
<b>DRIFT GILLNET</b>														
1	07/03	24	47	69	5	60	3,697	19,880	14	95	49	184	3,243	27,100
2	07/06	24	41	48	0	0	2,985	16,221	47	347	133	524	2,461	19,687
3	07/10	36	49	66	2	37	3,409	18,671	112	911	240	823	1,907	15,705
4	07/13	48	44	78	5	61	4,116	23,391	124	1,009	867	3,214	2,020	15,874
5	07/17	108	37	100	1	20	4,433	24,933	276	2,135	3,138	11,015	1,864	14,068
6	07/24	48	27	60	0	0	3,188	17,842	159	1,257	2,081	7,833	673	4,860
7	08/07	24	100	171	2	33	5,999	36,935	592	4,424	29,846	107,312	779	6,032
8	08/11	12	45	64	6	48	2,024	12,847	144	1,126	24,358	85,288	337	2,581
<b>Total</b>		324	144	656	21	259	29,851	170,720	1,468	11,304	60,712	216,193	13,284	105,907
<b>Average Weight</b>					12.33		5.72		7.70		3.56		7.97	
<b>SET GILLNET</b>														
1	07/03	24	21	30	3	35	3,859	19,738	8	53	32	103	1,449	12,363
2	07/06	24	19	32	1	2	2,947	16,302	18	135	57	220	1,076	9,825
3	07/10	36	20	41	4	55	3,031	15,877	109	826	154	492	741	6,268
4	07/13	48	20	65	5	47	5,808	32,051	115	870	395	1,498	1,161	9,196
5	07/17	108	19	94	2	29	6,049	33,725	116	870	1,415	5,181	1,063	8,128
6	07/24	48	18	54	4	62	3,304	18,041	79	622	434	1,675	449	3,440
7	08/07	24	23	54	0	0	3,012	17,631	142	1,159	9,211	36,099	386	3,177
8	08/11	12	24	44	0	0	2,804	16,404	108	879	16,420	59,686	296	2,395
<b>Total</b>		26	164	414	19	230	30,814	169,769	695	5,414	28,118	104,954	6,621	54,792
<b>Average Weight</b>					12.11		5.51		7.79		3.73		8.28	
<b>Combined Total</b>			308	1,070	40	489	60,665	340,489	2,163	16,718	88,830	321,147	19,905	160,699
<b>Average Weight</b>					12.23		5.61		7.73		3.62		8.07	

73

a Starting date of period.

b 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, 1980 - 1995.

Year <sup>a</sup>	CATCH BY SPECIES					Total
	Chinook	Sockeye	Coho	Pink	Chum	
<b>DRIFT GILLNET</b>						
1980	0	684	25	3,235	130	4,074
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>b</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
Ten Year Average (1985-94)	54	97,515	461	115,704	85,409	294,704
<b>SET GILLNET</b>						
1980	0	2,000	38	2,471	134	4,643
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>b</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
Ten Year Average (1985-94)	49	62,930	502	168,667	35,733	267,880
<b>COMBINED GEAR</b>						
1980	0	2,684	63	5,706	264	8,717
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>b</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
Ten Year Average (1985-94)	102	160,445	963	284,371	121,141	567,023

<sup>a</sup> Fishing was closed during the following years: 1981 and 1982.

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

Appendix D.5. Daily salmon escapement through the Eshamy weir, Prince William Sound, 1995.

Date	Sockeye <sup>a</sup>		Pink <sup>b</sup>		Chum		Coho		Chinook	
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
07/04	0	0	0	0	0	0	0	0	0	0
07/05	3	3	0	0	1	1	0	0	0	0
07/06	102	105	0	0	4	5	0	0	0	0
07/07	33	138	0	0	0	5	0	0	0	0
07/08	25	163	0	0	4	9	0	0	0	0
07/09	35	198	0	0	2	11	0	0	0	0
07/10	11	209	0	0	1	12	0	0	0	0
07/11	0	209	0	0	0	12	0	0	0	0
07/12	40	249	0	0	8	20	0	0	0	0
07/13	47	296	0	0	19	39	0	0	1	1
07/14	33	329	0	0	25	64	0	0	1	2
07/15	23	352	0	0	7	71	0	0	0	2
07/16	20	372	0	0	23	94	0	0	0	2
07/17	32	404	0	0	40	134	0	0	0	2
07/18	16	420	0	0	29	163	0	0	1	3
07/19	11	431	0	0	9	172	0	0	0	3
07/20	9	440	0	0	12	184	0	0	0	3
07/21	16	456	0	0	16	200	0	0	0	3
07/22	6	462	0	0	22	222	0	0	0	3
07/23	3	465	0	0	19	241	0	0	0	3
07/24	14	479	0	0	21	262	0	0	0	3
07/25	26	505	0	0	26	288	0	0	0	3
07/26	20	525	0	0	8	296	0	0	0	3
07/27	3	528	0	0	3	299	0	0	0	3
07/28	120	648	2	2	7	306	0	0	0	3
07/29	42	690	0	2	11	317	0	0	0	3
07/30	163	853	1	3	12	329	4	4	0	3
07/31	220	1,073	3	6	13	342	1	5	1	4
08/01	107	1,180	5	11	6	348	1	6	0	4
08/02	18	1,198	2	13	2	350	0	6	0	4
08/03	24	1,222	2	15	0	350	0	6	0	4
08/04	250	1,472	3	18	5	355	0	6	2	6
08/05	32	1,504	0	18	2	357	2	8	0	6
08/06	15	1,519	2	20	0	357	1	9	0	6
08/07	35	1,554	6	26	0	357	2	11	0	6
08/08	19	1,573	5	31	4	361	2	13	0	6
08/09	140	1,713	12	43	5	366	5	18	0	6
08/10	158	1,871	45	88	2	368	1	19	1	7
08/11	81	1,952	50	138	6	374	3	22	0	7
08/12	150	2,102	26	164	2	376	2	24	0	7
08/13	316	2,418	75	239	12	388	27	51	0	7
08/14	181	2,599	87	326	3	391	3	54	0	7
08/15	124	2,723	41	367	0	391	3	57	0	7
08/16	271	2,994	68	435	2	393	7	64	0	7
08/17	218	3,212	87	522	0	393	1	65	0	7
08/18	140	3,352	64	586	0	393	2	67	0	7
08/19	89	3,441	102	688	0	393	1	68	0	7
08/20	54	3,495	116	804	0	393	0	68	0	7
08/21	78	3,573	116	920	0	393	0	68	0	7
08/22	116	3,689	338	1,258	1	394	2	70	0	7
08/23	115	3,804	543	1,801	0	394	5	75	0	7
08/24	33	3,837	428	2,229	2	396	1	76	0	7
08/25	49	3,886	710	2,939	3	399	4	80	0	7

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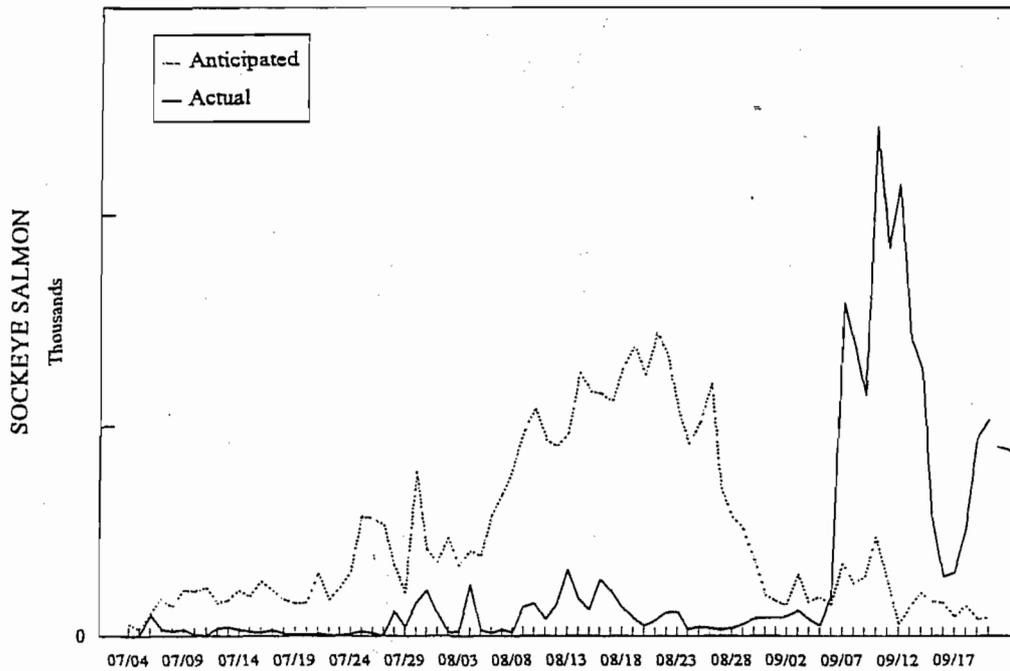
Date	Sockeye <sup>a</sup>		Pink <sup>b</sup>		Chum		Coho		Chinook	
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
08/26	39	3,925	1,103	4,042	1	400	3	83	0	7
08/27	34	3,959	1,030	5,072	0	400	1	84	0	7
08/28	39	3,998	1,933	7,005	2	402	2	86	0	7
08/29	59	4,057	1,708	8,713	2	404	3	89	0	7
08/30	82	4,139	2,552	11,265	1	405	32	121	0	7
08/31	90	4,229	1,602	12,867	2	407	18	139	0	7
09/01	89	4,318	1,633	14,500	0	407	38	177	0	7
09/02	98	4,416	830	15,330	0	407	73	250	0	7
09/03	124	4,540	599	15,929	0	407	98	348	0	7
09/04	83	4,623	510	16,439	0	407	44	392	0	7
09/05	51	4,674	332	16,771	0	407	10	402	0	7
09/06	192	4,866	601	17,372	0	407	144	546	0	7
09/07	1,582	6,448	682	18,054	0	407	404	950	0	7
09/08	1,372	7,820	146	18,200	0	407	44	994	0	7
09/09	1,146	8,966	45	18,245	0	407	32	1,026	0	7
09/10	2,429	11,395	108	18,353	0	407	14	1,040	0	7
09/11	1,846	13,241	135	18,488	0	407	8	1,048	0	7
09/12	2,152	15,393	43	18,531	0	407	3	1,051	0	7
09/13	1,411	16,804	30	18,561	0	407	4	1,055	0	7
09/14	1,271	18,075	14	18,575	0	407	7	1,062	0	7
09/15	550	18,625	8	18,583	0	407	3	1,065	0	7
09/16	282	18,907	5	18,588	0	407	2	1,067	0	7
09/17	303	19,210	6	18,594	0	407	3	1,070	0	7
09/18	512	19,722	6	18,600	0	407	4	1,074	0	7
09/19	951	20,673	1	18,601	0	407	2	1,076	0	7
09/20	1,028	21,701	0	18,601	0	407	0	1,076	0	7
Totals	21,701		18,601		407		1,076		7	

<sup>a</sup> Count includes 1214 sockeye jacks.

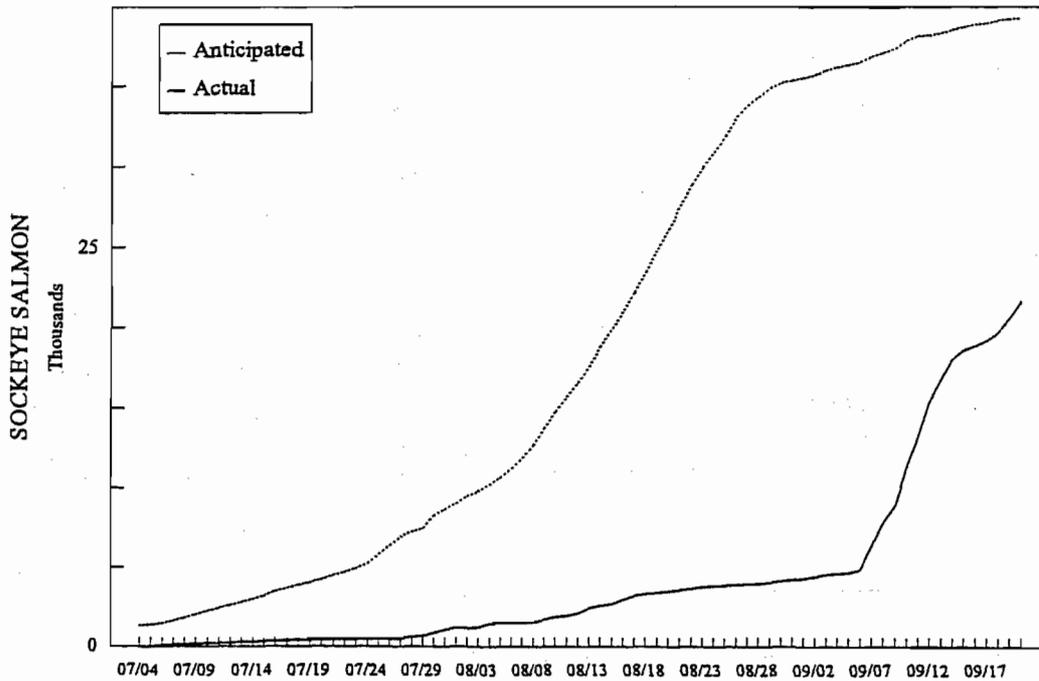
<sup>b</sup> Count may be incomplete. The Eshamy weir is designed to prohibit the passage of sockeye salmon but smaller pink salmon may pass through the weir uncounted.

# 1995 ESHAMY LAKE SOCKEYE SALMON ESCAPEMENT

DAILY



CUMULATIVE



Appendix D4. Anticipated, actual daily, and cumulative sockeye salmon escapement past the Eshamy River weir, Prince William Sound, 1995.

Appendix D.5. Salmon escapement by species at the Eshamy weir, Prince William Sound, 1967 - 1995.

Year	Escapement by Species a					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 b	97	3,179	0	4,230
1972 c		28,683				28,683
1973	0	10,202	205	1,698	0	12,105
1974 c		633				633
1975 c		1,724				1,724
1976 c		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 d						
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
<hr/>						
20 Year						
Average	1	26,566	242	7,176	27	33,228
(1975-1994)						

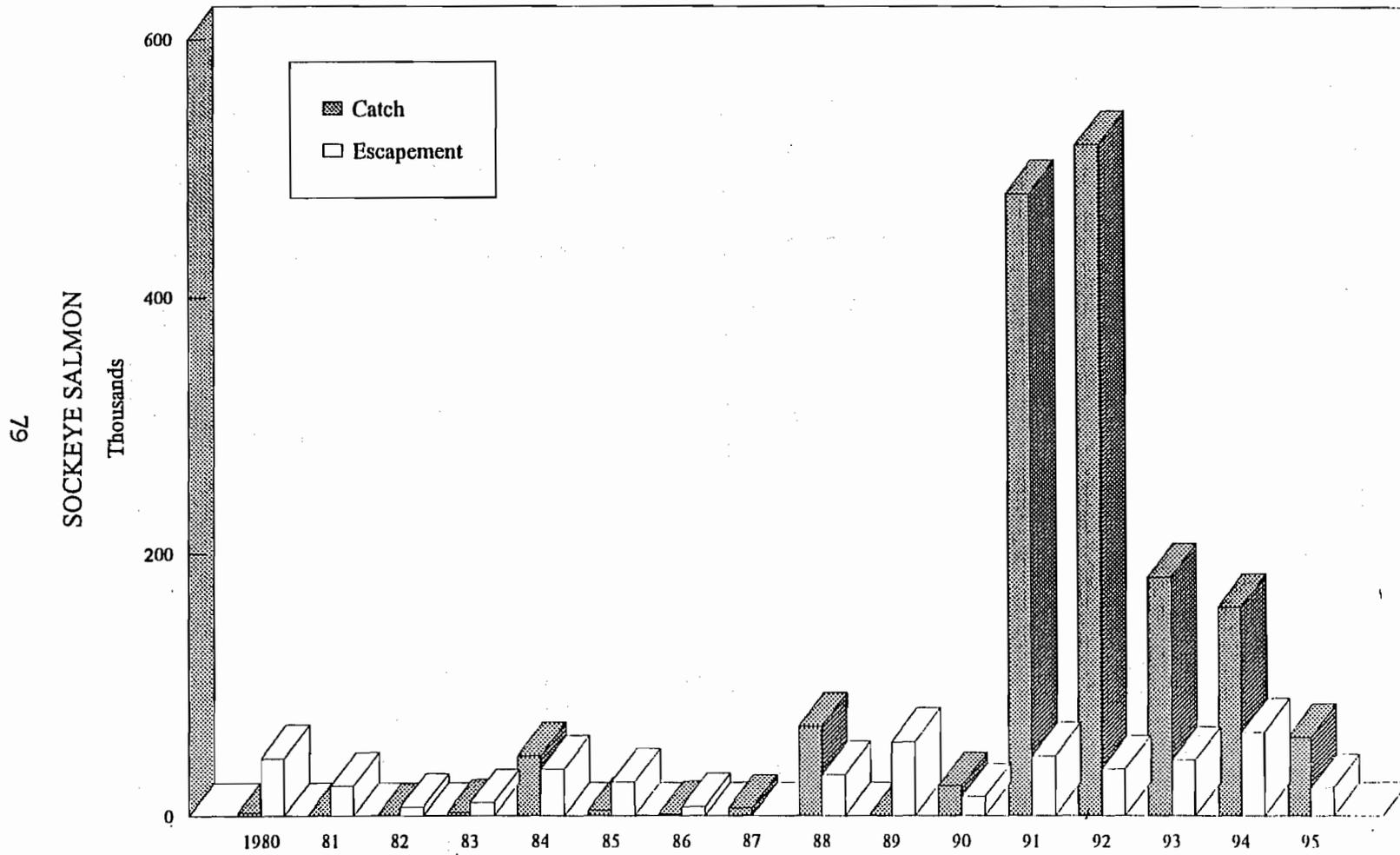
a For break down of jacks versus adult sockeye see specific years daily escapement enumeration table.

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

c Incidental passage of salmon other than sockeye were not recorded for each year.

d 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, 1980 - 1995.

Appendix D.7. Temporally stratified age and sex composition of sockeye salmon harvested in the Eshamy District commercial common property gillnet fishery, 1995.

		Brood Year and Age Group						Total
		1992	1991	1990		1989		
		0.2	1.2	1.3	2.2	1.4	2.3	
Stratum dates:		07/03 - 07/04						
Sampling dates:		07/03 - 07/03						
Sample size:		230						
Female	Percent of sample	0.0	32.6	8.7	0.0	0.0	0.0	41.3
	Number in catch	0	2,464	657	0	0	0	3,121
Male	Percent of sample	0.0	52.2	6.1	0.4	0.0	0.0	58.7
	Number in catch	0	3,942	460	33	0	0	4,435
Total	Percent of sample	0.0	84.8	14.8	0.4	0.0	0.0	100.0
	Number in catch	0	6,406	1,117	33	0	0	7,556
	Standard error	0	179	177	33	0	0	
Stratum dates:		07/05 - 07/11						
Sampling dates:		07/11 - 07/11						
Sample size:		168						
Female	Percent of sample	0.0	36.9	24.4	0.0	0.6	0.0	61.9
	Number in catch	0	4,566	3,019	0	74	0	7,659
Male	Percent of sample	0.0	28.0	10.1	0.0	0.0	0.0	38.1
	Number in catch	0	3,461	1,252	0	0	0	4,713
Total	Percent of sample	0.0	64.9	34.5	0.0	0.6	0.0	100.0
	Number in catch	0	8,027	4,271	0	74	0	12,372
	Standard error	0	457	455	0	74	0	
Stratum dates:		07/12 - 07/26						
Sampling dates:		07/15 - 07/15						
Sample size:		382						
Female	Percent of sample	0.0	38.5	29.6	0.3	0.5	0.0	68.8
	Number in catch	0	10,351	7,957	70	141	0	18,519
Male	Percent of sample	0.0	21.2	9.4	0.3	0.0	0.3	31.2
	Number in catch	0	5,704	2,535	70	0	70	8,379
Total	Percent of sample	0.0	59.7	39.0	0.5	0.5	0.3	100.0
	Number in catch	0	16,054	10,492	141	141	70	26,898
	Standard error	0	676	672	99	99	70	
Main Bay Subdistrict 225-21								
Strata Combined:		07/03 - 07/26						
Sampling dates:		07/03 - 07/15						
Sample size:		780						
Female	Percent of sample	0.0	37.1	24.8	0.2	0.5	0.0	62.6
	Number in catch	0	17,381	11,633	70	214	0	29,299
Male	Percent of sample	0.0	28.0	9.1	0.2	0.0	0.2	37.4
	Number in catch	0	13,107	4,247	103	0	70	17,527
Total	Percent of sample	0.0	65.1	33.9	0.4	0.5	0.2	100.0
	Number in catch	0	30,488	15,880	174	214	70	46,826
	Standard error	0	835	831	105	124	70	

-Continued-

		Brood Year and Age Group						Total
		1992	1991	1990		1989		
		0.2	1.2	1.3	2.2	1.4	2.3	
<b>Crafton Island Subdistrict</b>								
Stratum dates:		08/07 - 08/11						
Sampling dates:		08/07 - 08/09						
Sample size:		356						
Female	Percent of sample	0.6	51.1	4.8	1.4	0.0	0.3	58.1
	Number in catch	78	7,075	661	194	0	39	8,047
Male	Percent of sample	0.0	37.9	2.8	0.8	0.0	0.3	41.9
	Number in catch	0	5,248	389	117	0	39	5,792
Total	Percent of sample	0.6	89.0	7.6	2.2	0.0	0.6	100.0
	Number in catch	78	12,323	1,050	311	0	78	13,839
	Standard error	55	229	194	109	0	55	
<b>Eshamy District Total</b>								
Strata Combined:		07/03 - 08/11						
Sampling dates:		07/03 - 08/09						
Sample size:		1,136						
Female	Percent of sample	0.1	40.3	20.3	0.4	0.4	0.1	61.6
	Number in catch	78	24,456	12,294	265	214	39	37,345
Male	Percent of sample	0.0	30.3	7.6	0.4	0.0	0.2	38.4
	Number in catch	0	18,355	4,635	220	0	109	23,320
Total	Percent of sample	0.2	20.4	1.9	0.6	0.1	0.2	100.0
	Number in catch	151	12,396	1,123	384	73	151	60,665
	Standard error	55	866	853	151	124	89	

- Main Bay Subdistrict (225-21) was the only portion of the Eshamy District open for the first three strata and Crafton Island Subdistrict was the only portion open for the last stratum.

Appendix D.8. Temporally stratified age and sex composition of the sockeye salmon escapement through the weir at the head of Eshamy Lagoon, 1995.

		Brood Year and Age Group						Total
		1992	1991		1990		1989	
		1.1	1.2	2.1	1.3	2.2	2.3	
Stratum dates:		07/05 - 08/02						
Sampling dates:		07/18 - 07/31						
Sample size:		444						
Female	Percent of sample	0.0	24.3	0.2	8.6	20.7	5.6	59.5
	Number in escapement	0	291	3	103	248	67	712
Male	Percent of sample	2.3	19.1	2.0	5.9	10.1	1.1	40.5
	Number in escapement	27	229	24	70	121	13	486
Total	Percent of sample	2.3	43.5	2.3	14.4	30.9	6.8	100.0
	Number in escapement	27	521	27	173	370	81	1,198
	Standard error	8	28	8	20	26	14	
Stratum dates:		08/03 - 08/26						
Sampling dates:		08/05 - 08/12						
Sample size:		472						
Female	Percent of sample	0.0	24.4	0.0	7.2	14.6	2.8	48.9
	Number in escapement	0	664	0	196	399	75	1,335
Male	Percent of sample	1.5	21.2	3.6	7.2	14.8	2.8	51.1
	Number in escapement	40	578	98	196	404	75	1,392
Total	Percent of sample	1.5	45.6	3.6	14.4	29.4	5.5	100.0
	Number in escapement	40	1,242	98	393	803	150	2,727
	Standard error	15	63	23	44	57	29	
Stratum dates:		08/27 - 09/20						
Sampling dates:		09/08 - 09/09						
Sample size:		426						
Female	Percent of sample	0.0	32.4	0.0	6.3	3.1	0.5	42.3
	Number in escapement	0	5,758	0	1,127	542	83	7,511
Male	Percent of sample	2.3	50.2	0.2	3.1	1.6	0.2	57.7
	Number in escapement	417	8,930	42	542	292	42	10,265
Total	Percent of sample	2.3	82.6	0.2	9.4	4.7	0.7	100.0
	Number in escapement	417	14,688	42	1,669	835	125	17,776
	Standard error	131	327	42	252	182	72	
Strata Combined:		07/05 - 09/20						
Sampling dates:		07/18 - 09/09						
Sample size:		1,342						
Female	Percent of sample	0.0	30.9	0.0	6.6	5.5	1.0	44.0
	Number in escapement	0	6,714	3	1,426	1,189	226	9,558
Male	Percent of sample	2.2	44.9	0.8	3.7	3.8	0.6	56.0
	Number in escapement	485	9,737	164	809	818	130	12,143
Total	Percent of sample	2.2	75.8	0.8	10.3	9.2	1.6	100.0
	Number in escapement	485	16,451	167	2,235	2,007	356	21,701
	Standard error	132	334	49	256	193	79	

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, 1995.

Main Bay Subdistrict (225-21)			Crafton Island Subdistrict (225-10, 20, 30)			Emergency Orders Issued
Periods	Dates	Hours Open	Periods	Dates	Hours Open	
1	7/03 - 7/04	24				2-F-E-19-95 <sup>a</sup>
2	7/06 - 7/07	24				2-F-E-27-95
3	7/10 - 7/11	36				2-F-E-28-95
4	7/13 - 7/15	48				2-F-E-32-95
5	7/17 - 7/21	108				2-F-E-33-95
						2-F-E-37-95 <sup>b</sup>
6	7/24 - 7/26	48				2-F-E-40-95 <sup>c</sup>
						2-F-E-43-95 <sup>c</sup>
			1	8/07 - 8/08	24	2-F-E-46-95 <sup>d</sup>
			2	8/11	12	2-F-E-49-95 <sup>e</sup>
						2-F-E-76-95 <sup>f</sup>

- <sup>a</sup> The Main Bay Subdistrict of the Eshamy District was opened to fishing. This Emergency Order also retained the 60 mesh gillnet depth restriction until further notice in Eshamy, Coghill and Unakwik Districts effective 12:00 a.m. Monday, July 3.
- <sup>b</sup> The Main Bay Subdistrict of the Eshamy District was extended an additional 60-hours.
- <sup>c</sup> The 60 mesh depth restriction was rescinded in the Eshamy, Coghill and Unakwik Districts effective 1:00 p.m. Monday, July 31.
- <sup>d</sup> The waters of the Eshamy District excluding the Main Bay Subdistrict was opened to commercial fishing for two 24-hour periods.
- <sup>e</sup> This "E.O." reduced the second 24-hour period to 12-hours on Friday, August 11.
- <sup>f</sup> The Eshamy District was closed for the season effective at 8:00 a.m. Thursday, September 21.

**APPENDIX E**

**PRINCE WILLIAM SOUND**

**PURSE SEINE DISTRICTS**

Appendix E.1. Prince William Sound commercial purse seine salmon harvest by day, 1995. Includes the common property from all districts open to purse seines: Coghill, Eastern, Northern, Montague, Southeastern, and Southwestern.

Catch Date	Chinook				Sockeye		Coho		Pink		Chum	
	Permits	Landings	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds
07/02a	107	131	6	102	76	454	38	272	796,270	2,949,583	864	7,111
07/05	133	148	4	46	125	794	56	440	644,113	2,405,387	1,813	14,563
07/08b	140	148	12	157	174	1,027	67	472	607,701	2,281,154	3,357	25,589
07/10	130	135	2	6	164	968	89	614	456,505	1,665,775	2,991	24,275
07/12c	129	130	4	48	99	572	95	661	348,027	1,251,866	2,797	22,809
07/14d	100	109	4	50	253	1,461	303	2,479	353,370	1,287,559	8,742	70,382
07/15	73	76	2	20	190	1,140	285	2,121	154,537	583,122	3,979	32,372
07/16	37	39	1	22	144	825	142	1,001	94,843	362,206	1,575	13,294
07/17	30	30	2	13	128	733	132	984	95,253	365,774	2,000	15,900
07/18	31	33	0	0	215	1,294	240	1,711	116,364	451,226	2,493	21,144
07/19	34	35	1	20	125	709	97	595	97,605	364,352	1,507	12,273
07/27e	103	103	18	390	778	4,512	678	5,073	96,105	331,847	8,528	65,996
07/31f	40	41	25	239	15,817	91,092	8	59	1,338	4,671	1,190	9,485
08/04g	173	188	3	77	8,345	49,644	2,152	16,329	878,680	3,053,905	5,042	39,428
08/06	175	189	13	180	5,311	31,054	1,574	11,841	660,597	2,309,892	2,978	22,933
08/07	2	2	0	0	35	188	0	0	20	67	6	55
08/09h	177	210	11	146	694	4,168	253	1,909	1,231,054	4,243,021	919	7,066
08/11i	177	186	1	12	1,167	6,960	421	3,300	525,638	1,822,163	778	5,876
08/13j	169	176	9	87	1,402	8,290	480	3,894	690,157	2,398,257	667	4,992
08/15k	168	184	3	60	1,367	8,197	1,250	10,077	886,514	3,083,098	2,746	20,771
08/17l	163	168	4	24	1,705	10,131	5,758	48,366	560,739	1,916,485	4,588	34,588
08/19m	146	169	3	46	883	5,414	2,895	27,779	669,132	2,322,488	2,636	21,810
08/21n	122	123	0	0	475	2,811	2,911	21,181	219,936	752,664	2,359	16,534
08/23	66	67	0	0	257	1,625	1,531	11,076	132,669	466,663	1,203	8,828
08/25o	31	32	0	0	123	711	410	3,195	46,363	167,247	134	996
08/26	11	13	0	0	56	263	108	1,027	27,303	91,307	43	341
08/27	7	7	0	0	83	412	34	321	23,812	73,374	31	228
08/28p	11	12	0	0	174	942	393	3,433	49,369	155,547	40	300
08/29	6	7	0	0	124	587	352	3,141	13,743	44,557	5	32
08/30	10	10	0	0	113	562	1,087	9,769	33,115	106,302	17	110
08/31q	8	8	0	0	128	732	994	8,944	18,965	60,980	1	6
09/01	3	3	0	0	17	77	163	1,466	5,048	16,154	0	0
09/02	9	9	0	0	42	195	699	6,253	7,851	25,010	2	12
09/03	4	4	0	0	5	26	388	3,494	2,530	8,097	1	6
09/04	1	1	0	0	0	0	114	1,024	780	2,495	0	0
09/05r	24	30	0	0	2	9	34,385	312,948	312	1,157	1,305	10,653
09/06	20	23	0	0	0	0	24,658	210,796	0	0	1,360	10,629
09/07	18	19	0	0	0	0	9,109	91,100	0	0	8	66
09/08	4	4	0	0	0	0	952	9,514	0	0	182	1,536
09/09s	1	1	0	0	0	0	48	470	0	0	5	36
Total	187	3,003	128	1,745	40,796	238,579	95,349	839,129	10,546,358	37,425,452	68,892	543,025
Average Weight				13.63		5.85		8.80		3.55		7.88

- a Open waters included the Eastern District and Valdez Narrows Subdistrict east of a line from Potato Point to Entrance Point and west of 146° 30.5' W. Longitude.
- b Open waters included the Valdez Narrows Subdistrict east of a line from Potato Point to Entrance Point and west of 146° 30.5' W. longitude and in the western half of Valdez Arm within one-half mile of the shore from the latitude of Point Freemantle north to Potato Point.
- c Open waters included the Valdez Narrows Subdistrict east of a line from Potato Point to Entrance Point and west of a line from an ora buoy on the south shore located at 146° 25.25' W. longitude to a marker on the north shore located at 146° 23.9' W. longitude.
- d Open waters included those south of a line from the latitude of the southern tip of Goose Island to the mainland, to the Salmon Harve Task Force Markers in Saint Matthews Bay, Olsen Bay, Port Gravina, and Sheep Bay.

- continued -

- e Open waters included those south of a line at the latitude of the southern tip of Goose Island extending to the mainland north of Knov Head including waters of Port Gravina up to the Salmon Harvest Task Force Markers at Saint Mathews and Olsen Bays. Task Force Markers in Sheep Bay and yellow markers between Beartrap and Comfort Bays were not in effect. Beartrap Bay was only open west of 146° 00.7' W. longitude.
- f Open waters included those of the Coghill District north of 61° 01.0' N. latitude in College Fiord.
- g Open waters included those south of a line at the latitude of Dual Head at 60° 15' N latitude, and the waters east of Knight Island south of Marsha Bay at 60° 19' N. latitude.
- h Open waters of the Coghill District included the Esther Subdistrict within one nautical mile of Esther island. The Noerenberg Terminal and Special Harvest Areas remained closed. Open waters of the Northern District included those south of 60° 59.2' N. latitude, waters north of the tip of Olsen Is. at 60° 52.5' N latitude and west of 147° 30.2' W. latitude.
- i Open waters within Unakwik Inlet included those inside the following boundaries: south of 61° 01.0' N. latitude; east of 147° 34.0' W longitude; and north of 60° 54.4' N. latitude. Within the Southwestern District, The Port San Juan Subdistrict was also open, but the A.F.K. Terminal and Special Harvest Areas were not.
- j Open waters within Unakwik Inlet included those inside the following boundaries: south of the Unakwik District boundary line at 61° N. latitude; east of 147° 34.0' W. longitude; north of 60° 52.5' N. latitude; and west of 147° 30.2' W. longitude.
- k Eastern District open waters included those south of 61° 0.0' N. latitude. Port Fidalgo Subdistrict and waters inside the Salmon Harvest Task Force Markers were not opened. Northern District open waters included those east of 147° 40.0' W. longitude. Wells Bay and Unakwik Inlet were closed north of 60° 54.0' N. latitude and Long Bay was closed inside of the Salmon Harvest Task Force markers. All of the Southeastern District was open except where anadromous salmon stream closures were in effect.
- l Open waters included all those south of the Potato Point to Entrance Point Line except the Port Fidalgo and Valdez Narrows Subdistricts did not open. Waters inside of Salmon Harvest Task Force Markers were not opened.
- m Open waters included all waters in the Northern District east of 147° 40.0' W. latitude, except in Wells Bay north of 60° 54.0' N. latitude and Unakwik Inlet north of 60° 59.3' N. latitude and Long and Siwash Bays were closed inside the Salmon Harvest Task Force markers.
- n The Northern District was opened with the following exceptions: The Perry Island Subdistrict was not opened; Wells Bay was closed north of 60° 54.0' N. latitude; Unakwik Inlet was closed north of 60° 59.3' N. latitude; and Long, Eaglek, and Siwash Bays were closed inside of the Salmon Harvest Task Force Markers.
- o Open waters included all of the Montague District. All anadromous salmon stream closures remained in effect.
- p The Northern District was opened with the following exceptions: The Perry Island Subdistrict was not opened. Unakwik Inlet was closed north of 60° 58.7' N. latitude. Eaglek, Siwash, Cedar, Granite, Wells, and Long Bays were closed inside of the Salmon Harvest Task Force Markers. Within the Coghill District, only the Noerenberg Hatchery Terminal Harvest Area was open.
- q Open waters included all those north of the latitude of Point Freemantle and south of the Potato Point to Entrance Point Line. Waters inside of the Salmon Harvest Task Force Markers were not opened.
- r Open waters were limited to the Valdez Narrows Subdistrict. Open waters were enclosed by a line running from Allison Point due north 1000 yards and then east approximately 3000 yards to a yellow buoy located 750 yards from shore on the closed water boundary at the head of Port Valdez. Additionally, 5 yellow buoys were positioned around Solomon Gulch Hatchery to indicate the closed waters around the hatchery.
- s The seining closed for the season in the Eastern, Montague, Northern, Southeastern, and Southwestern and Unakwik Districts on September 20. The seine season closed in the Coghill District on October 7.

Appendix E.2. Commercial salmon harvest by species, all gear and districts combined.  
Prince William Sound, 1971 - 1995.

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
Ten Year Average (1985-94)	1,135	394,614	111,104	23,190,921	1,152,846	24,850,620

<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 the educational special use 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, 1969-1995. 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	338,326	308,797	100,338	371,328		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	146,778	657,429		1,945,505	
1974 <sup>b</sup>			163,328		285,441					448,769	
1975	712,328	171,657	303,597	420,891		1,673,887	118,467	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	77,104	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	1,347,413	4,160,925		15,333,312	
1980	3,140,134	1,271,177	134,876	306,109		7,507,776	950	1,271,389		13,632,411	
1981	4,797,583	1,194,621	34,155	46,874		10,371,220	278,879	3,221,268		19,944,600	
1982	2,959,601	2,331,903	1,000,524	520,972	3,997	10,801,771	6,444	747,116		18,372,328	
1983	2,430,063	1,021,345	273,131	714,522		5,957,068	158,241	1,482,013		12,036,383	
1984	4,525,029	2,194,904	996,483	1,412,822	544,082	10,197,349	11,587	1,245,042		21,127,298	
1985	6,715,143	1,002,872	523,773	127,132	58,183	10,843,752	1,448,809	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	111,011	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	3,925,487	181,565				73,177		13,795,415	
1990	7,970,364	5,482,585	2,692,788	891,444	534,951	17,811,479	10,658	12,323		35,406,594	
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	11,554,320	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	18,239	11,418		10,796,682	
10 year Average (1985-94)	4,714,643	2,947,779	1,853,358	440,657	255,934	8,055,622	392,620	654,016		19,314,629	

<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.

Appendix E.4. Aerial escapement indices for pink and chum salmon by district, Prince William Sound, 1995.

PINK SALMON (ODD CYCLE)						
District	Escapement Goal	Odd Cycle Escapement Range		1965-93 Mean Index	Observed Escapement Index <sup>a</sup>	Deviation From Goal
Eastern	422,000	380,000	- 465,000	417,103	396,696	-6.0%
Northern/Unakwik	128,000	115,000	- 141,000	125,931	84,447	-34.0%
Coghill	178,000	160,000	- 196,000	156,154	46,029	-74.1%
Northwestern	83,000	75,000	- 92,000	80,114	50,582	-39.1%
Eshamy	5,700	5,100	- 6,200	6,986	10,182	78.6%
Southwestern	116,000	105,000	- 128,000	118,026	82,490	-28.9%
Montague	162,000	146,000	- 179,000	167,975	183,448	13.2%
Southeastern	333,000	300,000	- 366,000	344,691	336,310	1.0%
Total	1,427,700			1,416,980	1,190,184	-16.6%

CHUM SALMON						
District	Escapement Goal	Desired Escapement Range		1965-94 Mean Index	Observed Escapement Index <sup>a</sup>	Deviation From Goal
Eastern	98,100	87,200	- 109,000	89,698	75,655	-22.9%
Northern/Unakwik	33,075	29,400	- 36,750	40,635	28,899	-12.6%
Coghill	33,325	29,600	- 37,050	20,575	11,596	-65.2%
Northwestern	21,350	19,000	- 23,700	13,788	4,883	-77.1%
Eshamy	0	0	- 0	39	0	
Southwestern	3,825	3,400	- 4,250	1,868	2,250	-41.2%
Montague	12,825	11,400	- 14,250	2,494	1,000	-92.2%
Southeastern	22,500	20,000	- 25,000	15,356	23,200	3.1%
Total	225,000			184,453	147,483	-42.0%

<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, PWS, 1965 - 1995. Historical data revised in 1989.

Year	PINK SALMON ESCAPEMENTS <sup>a</sup>									Hatchery		Common Property Catch <sup>b</sup>	Total Run <sup>c</sup>
	Eastern	Northern/ Unakwik	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	172,770	52,350	179,120	1,156,510			2,452,168	3,608,678
69	160,600	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	8,423,514
72	344,470	83,900	30,960	39,020	1,100	29,530	33,140	79,060	641,180			54,783	695,963
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	958,120			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	57,090	68,150	5,840	52,120	13,790	117,590	926,260			3,018,995	3,945,255
77	390,930	69,980	130,510	80,890	16,450	178,670	152,960	277,780	1,298,170	7,745	16,112	4,514,431	5,844,258
78	279,120	163,010	85,450	132,300	5,430	258,980	56,690	164,030	1,145,010	114,188	40,432	2,780,073	4,079,703
79	642,220	200,730	70,980	124,020	0	231,300	219,400	728,630	2,217,280	223,748	54,207	15,393,223	17,888,458
1980	535,960	189,140	214,930	159,260	13,100	133,470	118,400	307,680	1,671,940	346,728	145,061	13,434,024	15,597,753
81	599,340	243,170	106,450	51,210	3,990	93,630	255,420	359,870	1,713,080	707,037	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	239,945	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	686,963	258,062	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	415,393	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	2,621,330	1,209,960	640,340	23,959,698	28,431,328
86	356,380	141,420	101,600	81,490	3,840	74,980	44,680	155,830	960,220	905,464	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	2,691,190	1,158,908	26,125,769	31,442,107
88	362,370	143,850	37,070	73,780	490	126,440	67,990	152,540	964,530	1,632,701	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	856,927	13,854,209	23,796,279
1990	443,660	131,580	49,110	115,870	17,870	150,100	113,572	304,090	1,325,852	6,691,160	749,910	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	5,201,860	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	2,626,248	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	3,548,694	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	1,467,755	26,364,862	39,767,240
95	396,696	84,447	46,029	50,582	10,182	82,490	183,448	336,310	1,190,184	5,090,152	1,154,635	10,975,079	18,410,050
EVEN CYCLE AVG. (1966-94)													
AVG.	463,265	195,958	123,925	128,274	8,697	139,591	70,575	231,103	1,361,389	2,734,228	564,139	10,384,146	13,888,865
ODD CYCLE AVG. (1965-93)													
Avg.	417,103	125,931	156,154	80,114	6,986	118,026	167,975	344,691	1,416,981	2,376,897	662,541	11,617,618	15,107,121

<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 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, 1995.

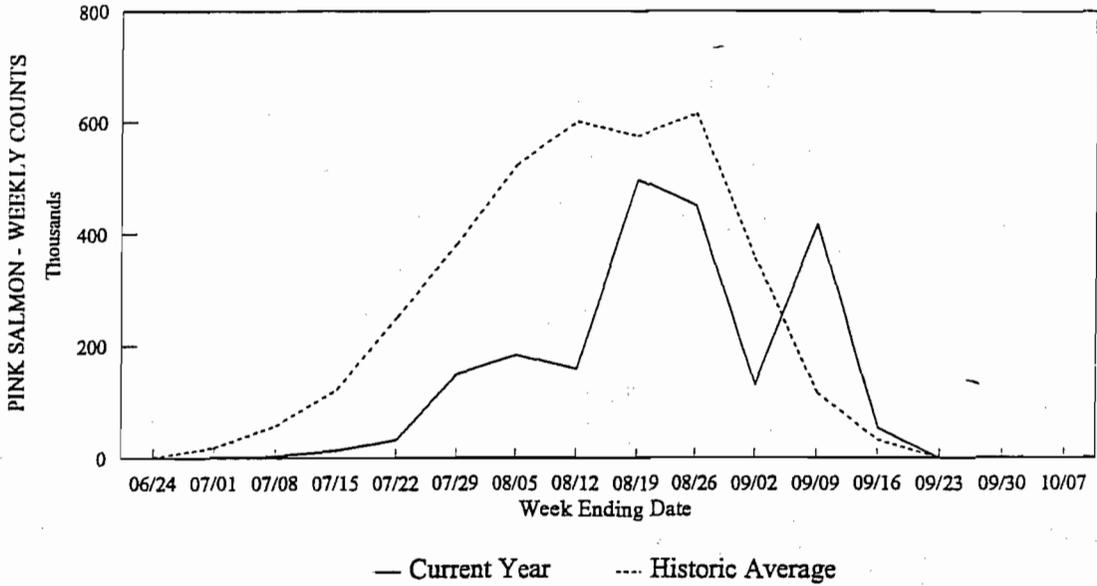
Survey Location	Week Ending Dates *																Adjusted Totals	
	06/24	07/01	07/08	07/15	07/22	07/29	08/05	08/12	08/19	08/26	09/02	09/09	09/16	09/23	09/30	10/07		
Orca Inlet	22110	NS	0	0	250	600	1,900	3,250	2,200	7,100	6,750	2,600	2,140	5	NS	0	0	13,042
Simpson & Sheep Bay	22120	0	0	300	1,050	1,950	6,300	11,200	42,550	50,000	60,480	NS	60,550	NS	375	NS	NS	138,902
Port Gravina	22130	0	405	1280	1600	4020	13310	13610	21400	42825	26,950	NS	39,150	NS	NS	0	NS	99,319
Port Fidalgo	22140	0	0	1,025	7,280	4,445	6,280	8,625	9,555	18,050	18,650	NS	30,200	NS	NS	100	NS	63,405
Valdez Arm	22150	0	30	0	1,160	1,165	1,755	7,760	13,310	28,762	25,500	NS	39,825	NS	NS	50	NS	77,757
Port Valdez	22161	0	2	10	0	120	352	NS	1,150	2,200	2,350	NS	800	NS	NS	95	NS	4,231
<b>Eastern District Total</b>		0	437	2,615	11,340	12,300	30,097	44,445	90,165	148,937	140,680	2,600	172,665	5	NS	620	0	396,696
Columbia & Long Bay	22210	0	0	240	400	270	1,940	1,800	4,010	7,200	15,850	NS	10,380	NS	NS	0	NS	25,705
Wells Bay & Unakwik Inlet	22220	0	0	50	1,500	3,250	4,400	4,570	12,940	14,165	14,465	4,850	7,530	1,024	NS	0	NS	36,982
Eagle Bay	22230	NS	NS	NS	NS	150	1,160	1,495	4,051	11,190	9,000	13,300	NS	2,370	NS	0	NS	21,317
<b>Northern District Total</b>		0	0	290	1,900	3,670	7,500	7,865	21,001	32,555	39,315	18,150	17,910	3,394	NS	0	NS	84,004
Upper Unakwik Inlet	22910	NS	NS	NS	NS	0	0	0	70	20	100	NS	350	NS	NS	NS	NS	443
<b>Unakwik District (229) Total</b>		NS	NS	NS	NS	0	0	0	70	20	100	NS	350	NS	NS	NS	NS	443
West Side Port Wells	22310	NS	NS	NS	NS	0	1120	850	3175	3105	1630	2050	NS	435	NS	0	NS	5969
Esther Passage	22320	NS	NS	NS	NS	0	0	50	125	130	250	300	NS	5	NS	NS	NS	399
College Fjord	22330	NS	NS	NS	NS	600	20000	3000	5250	32035	5000	22000	NS	0	NS	NS	NS	39661
<b>Coghill District Total</b>		NS	NS	NS	0	600	21,120	3,900	8,550	35,270	6,880	24,350	NS	440	NS	0	NS	46,029
Passage Canal & Cochrane	22410	NS	NS	NS	NS	0	2,260	800	3,325	7,580	4,635	4,250	NS	3,105	NS	0	NS	12,497
Culross Passage	22430	NS	NS	NS	NS	0	810	2,000	1,850	5,300	1,800	3,600	NS	2,180	NS	NS	NS	8,665
Port Nellie Juan	22440	NS	NS	NS	NS	200	5,150	NS	11,262	17,400	5,600	9,800	NS	2,915	NS	0	NS	29,420
<b>Northwestern District Total</b>		NS	NS	NS	0	200	8,220	2,800	16,437	30,280	12,035	17,650	NS	8,200	NS	0	NS	50,582
Craflon/Eshamy	22530	NS	NS	NS	NS	0	0	NS	1,310	1,100	2,400	8,800	NS	2,060	NS	NS	NS	10,182
<b>Eshamy District Total</b>		NS	NS	NS	NS	0	0	NS	1,310	1,100	2,400	8,800	NS	2,060	NS	NS	NS	10,182
Chenega Is. & Dangerous P.	22620	NS	NS	NS	NS	NS	1,600	NS	3,800	26,690	20,030	NS	41,500	1,960	NS	0	50	57,307
East Knight Is.	22630	NS	NS	NS	NS	NS	0	NS	250	350	425	NS	4,500	1,400	NS	NS	0	4,739
Bainbridge & Latouche Pass	22640	NS	NS	NS	NS	NS	0	NS	200	2,305	3,060	NS	16,200	2,295	NS	NS	0	17,943
Port Bainbridge	22650	NS	NS	NS	NS	NS	70	NS	200	2,300	750	NS	1,100	175	NS	NS	0	2,501
<b>Southwestern District Total</b>		NS	NS	NS	NS	0	1,670	0	4,450	31,645	24,265	NS	63,300	5,830	NS	0	50	82,490
Montague Strait	22710	NS	NS	NS	NS	NS	1,695	NS	14,850	37,741	56,375	NS	55,000	9,454	NS	NS	0	104,719
Green Island	22720	NS	NS	NS	NS	NS	0	NS	2,700	18,595	23,200	NS	69,000	8,073	NS	NS	0	78,729
<b>Montague District Total</b>		NS	NS	NS	NS	0	1,695	0	17,550	56,336	79,575	NS	124,000	17,527	NS	NS	0	183,448
Orca Is. & East Hawkins	22810	NS	NS	NS	NS	0	2,000	200	NS	1,800	700	300	1,600	2,900	NS	NS	NS	4,431
Hawkins Cutoff	22820	NS	NS	NS	NS	4,980	38,400	38,050	NS	51,700	37,300	33,400	10,930	210	NS	NS	0	95,608
North Hawkins & Canoe P.	22830	NS	NS	NS	NS	760	3,970	7,385	NS	21,400	21,000	25,000	26,270	7,415	NS	NS	0	52,479
Double Bay	22840	NS	NS	NS	NS	1,400	3,220	14,350	NS	21,300	23,700	NS	NS	620	NS	NS	0	41,684
Johnstone Point	22850	NS	NS	NS	NS	2,760	8,800	12,900	NS	18,600	15,700	NS	NS	930	NS	NS	0	35,429
Port Etches	22860	NS	NS	NS	NS	6,700	23,480	52,300	NS	46,300	47,160	NS	NS	2,725	NS	NS	0	106,679
<b>Southeast District Total</b>		NS	NS	NS	NS	16,600	79,870	125,185	0	161,100	145,560	58,700	38,800	14,800	NS	NS	0	336,310
<b>TOTAL OF 9 DISTRICTS</b>		0	437	2,905	13,240	33,370	150,172	184,195	159,463	497,293	450,730	130,350	416,675	52,606	NS	620	50	1,190,184

\* 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 surveys were good or, the maximum of the two counts if conditions during the minimum count were poor.

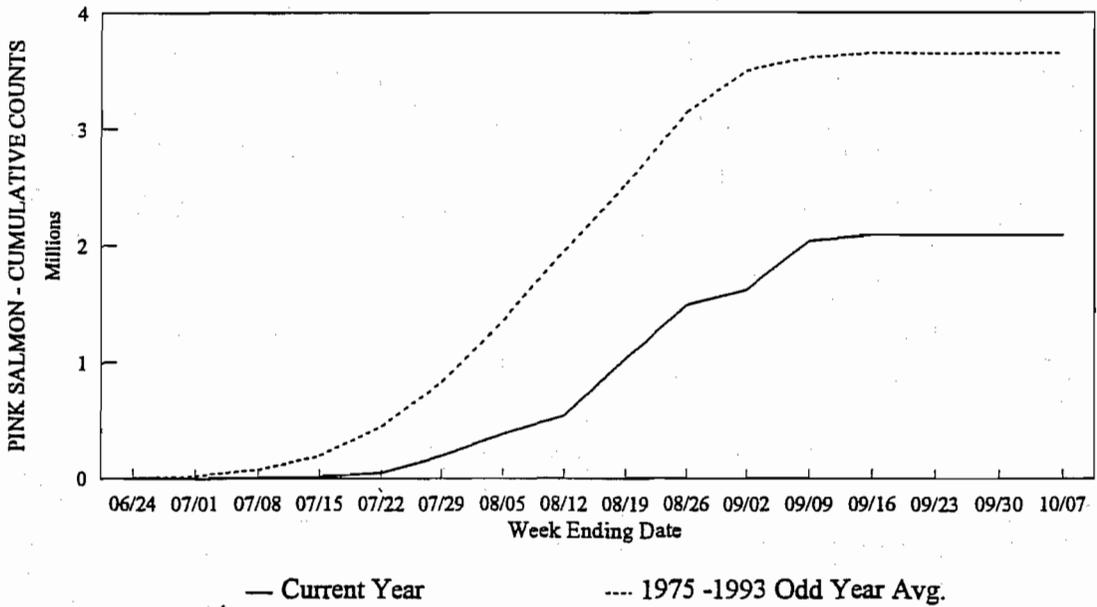
† The adjusted total is an escapement estimate based a geometric method used since the inception of the systematic survey program in the early 1960's. In this method, aerial observers are assumed to count without error or bias. Linear interpolations between observations are used to estimate numbers of 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 Olsen Creek pink salmon 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.

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**PWS PINK STREAM COUNTS - ALL DISTRICTS**  
CURRENT YEAR VS. 1975 - 93 ODD YEAR AVERAGE

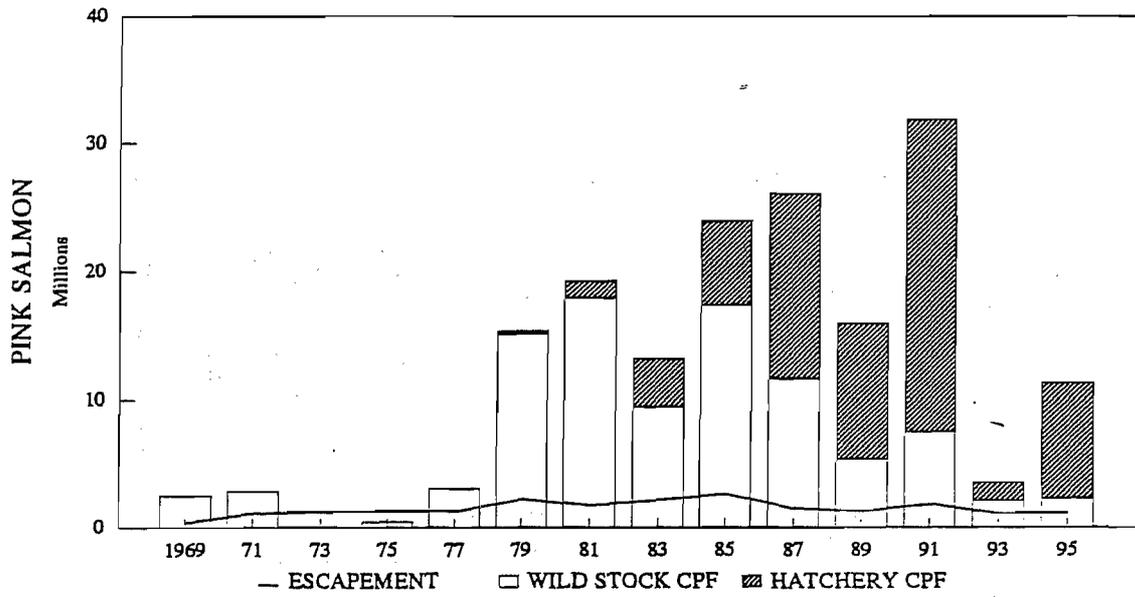


**CUMULATIVE**

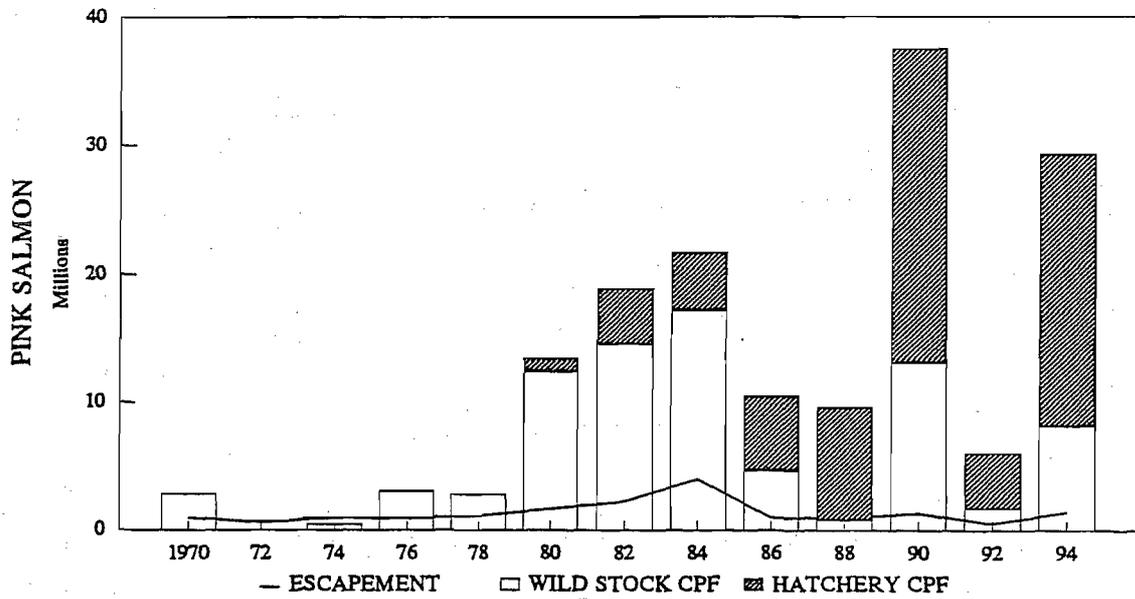


**Appendix E.7. Current year and historical weekly pink salmon escapement performance of index spawning streams, Prince William Sound, 1995.**

### PINK SALMON ODD YEAR CATCH AND ESCAPEMENT



### PINK SALMON EVEN YEAR CATCH AND ESCAPEMENT



Appendix E.8. Pink salmon catch and escapement, odd years (1969 - 95), and even years (1970 - 94), Prince William Sound, Alaska.

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Appendix E.9. Chum salmon harvests and escapement indices, including hatchery sales harvests and brood stock, Prince William Sound, 1965 - 1995.

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	58,690	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	112,950	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			100,479	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	231,539	172,542	527,006	1,078,570
1965-94													
AVG	89,698	40,635	20,575	13,788	39	1,868	2,494	15,356	184,452	77,017	77,316	708,087	964,551

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<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, 1995.

Survey Location	Week Ending Dates																Adjusted Totals
	06/24	07/01	07/08	07/15	07/22	07/29	08/05	08/12	08/19	08/26	09/02	09/09	09/16	09/23	09/30	10/07	
Orca Inlet 22110	NS	0	0	0	0	150	25	0	0	0	0	0	0	NS	0	0	150
Simpson & Sheep Bay 22120	10	0	225	875	3,700	4,650	4,580	7,950	8,050	0	NS	0	NS	NS	10	NS	16,399
Port Gravina 22130	292	2150	8410	9800	20600	15700	11200	8100	4125	600	NS	0	NS	NS	0	NS	31,453
Port Fidalgo 22140	0	8	2	420	2,200	2,320	1,900	2,555	500	900	NS	2,100	NS	NS	0	NS	6,420
Valdez Arm 22150	0	124	754	1,825	3,790	6,995	3,400	6,125	662	3,350	NS	10,000	NS	NS	0	NS	20,194
Port Valdez 22161	0	0	0	0	10	0	NS	265	50	350	NS	525	NS	NS	0	NS	839
<b>Eastern District Total</b>	<b>302</b>	<b>2,282</b>	<b>9,391</b>	<b>12,920</b>	<b>30,300</b>	<b>29,815</b>	<b>21,105</b>	<b>24,995</b>	<b>13,387</b>	<b>5,200</b>	<b>0</b>	<b>12,625</b>	<b>0</b>	<b>NS</b>	<b>10</b>	<b>0</b>	<b>75,655</b>
Columbia & Long Bay 22210	0	75	350	1,900	3,800	4,400	4,050	6,150	1,025	0	NS	0	NS	NS	0	NS	8,729
Wells Bay & Unakwik Inlet 22220	17	1,200	0	6,050	7,342	7,330	8,185	7,712	2,110	1,025	1,100	0	60	NS	0	NS	18,701
Eaglek Bay 22230	NS	NS	NS	NS	675	400	800	150	0	0	120	NS	0	NS	0	NS	1,469
<b>Northern District Total</b>	<b>17</b>	<b>1,275</b>	<b>350</b>	<b>7,950</b>	<b>11,817</b>	<b>12,130</b>	<b>13,035</b>	<b>14,012</b>	<b>3,135</b>	<b>1,025</b>	<b>1,220</b>	<b>0</b>	<b>60</b>	<b>NS</b>	<b>0</b>	<b>NS</b>	<b>28,899</b>
Upper Unakwik Inlet 22910	NS	NS	NS	NS	0	0	0	0	0	0	0	NS	0	NS	NS	NS	0
<b>Unakwik District (229) Total</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>NS</b>	<b>0</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>0</b>
West Side Port Wells 22310	NS	NS	NS	NS	77	590	1310	1285	2250	950	300	NS	90	NS	0	NS	3342
Esther Passage 22320	NS	NS	NS	NS	0	0	0	0	0	0	0	NS	0	NS	NS	NS	0
College Fiord 22330	NS	NS	NS	NS	100	4000	3000	2000	6000	5000	1000	NS	0	NS	NS	NS	8254
<b>Coghill District Total</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>177</b>	<b>4,590</b>	<b>4,310</b>	<b>3,285</b>	<b>8,250</b>	<b>5,950</b>	<b>1,300</b>	<b>NS</b>	<b>90</b>	<b>NS</b>	<b>0</b>	<b>NS</b>	<b>11,596</b>
Passage Canal & Cochrane 22410	NS	NS	NS	NS	825	950	1,900	2,085	2,780	690	300	NS	20	NS	0	NS	4,231
Culross Passage 22430	NS	NS	NS	NS	0	0	0	0	0	0	0	NS	0	NS	NS	NS	0
Port Nellie Juan 22440	NS	NS	NS	NS	240	50	NS	500	0	0	0	NS	0	NS	0	NS	652
<b>Northwestern District Total</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>1,065</b>	<b>1,000</b>	<b>1,900</b>	<b>2,585</b>	<b>2,780</b>	<b>690</b>	<b>300</b>	<b>NS</b>	<b>20</b>	<b>NS</b>	<b>0</b>	<b>NS</b>	<b>4,883</b>
Crafton/Bshamy 22530	NS	NS	NS	NS	0	0	NS	0	0	0	0	NS	0	NS	NS	NS	0
<b>Bshamy District Total</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>0</b>	<b>0</b>	<b>NS</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>NS</b>	<b>0</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>0</b>
Chenega Is. & Dangerous P. 22620	NS	NS	NS	NS	NS	250	NS	0	2,000	0	NS	0	0	NS	0	0	2,250
East Knight Is. 22630	NS	NS	NS	NS	NS	0	NS	0	0	0	NS	0	0	NS	NS	0	0
Bainbridge & Latouche Pass 22640	NS	NS	NS	NS	NS	0	NS	0	0	0	NS	0	0	NS	NS	0	0
Port Bainbridge 22650	NS	NS	NS	NS	NS	0	NS	0	0	0	NS	0	0	NS	NS	0	0
<b>Southwestern District Total</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>250</b>	<b>NS</b>	<b>0</b>	<b>2,000</b>	<b>0</b>	<b>NS</b>	<b>0</b>	<b>0</b>	<b>NS</b>	<b>0</b>	<b>0</b>	<b>2,250</b>
Montague Strait 22710	NS	NS	NS	NS	NS	0	NS	0	400	1,000	NS	0	0	NS	NS	0	1,000
Green Island 22720	NS	NS	NS	NS	NS	0	NS	0	0	0	NS	0	0	NS	NS	0	0
<b>Montague District Total</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>0</b>	<b>NS</b>	<b>0</b>	<b>400</b>	<b>1,000</b>	<b>NS</b>	<b>0</b>	<b>0</b>	<b>NS</b>	<b>NS</b>	<b>0</b>	<b>1,000</b>
Orca Is. & East Hawkins 22810	NS	NS	NS	NS	0	0	0	NS	0	0	0	0	0	NS	NS	NS	0
Hawkins Cutoff 22820	NS	NS	NS	NS	0	0	300	NS	0	0	0	0	0	NS	NS	0	300
North Hawkins & Canoe P. 22830	NS	NS	NS	NS	0	0	0	NS	0	0	0	0	0	NS	NS	0	0
Double Bay 22840	NS	NS	NS	NS	200	0	2,000	NS	0	0	NS	NS	0	NS	NS	0	2,000
Johnstone Point 22850	NS	NS	NS	NS	1,900	0	950	NS	0	0	NS	NS	0	NS	NS	0	1,900
Port Etches 22860	NS	NS	NS	NS	3,000	4,500	4,500	NS	12,000	4,000	NS	NS	0	NS	NS	0	19,000
<b>Southeast District Total</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>5,100</b>	<b>4,500</b>	<b>7,500</b>	<b>NS</b>	<b>12,000</b>	<b>4,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>NS</b>	<b>NS</b>	<b>0</b>	<b>23,200</b>
<b>TOTAL OF 9 DISTRICTS</b>	<b>319</b>	<b>3,557</b>	<b>9,741</b>	<b>20,870</b>	<b>48,459</b>	<b>52,285</b>	<b>48,100</b>	<b>44,877</b>	<b>41,952</b>	<b>17,865</b>	<b>2,820</b>	<b>12,625</b>	<b>170</b>	<b>NS</b>	<b>10</b>	<b>0</b>	<b>147,483</b>

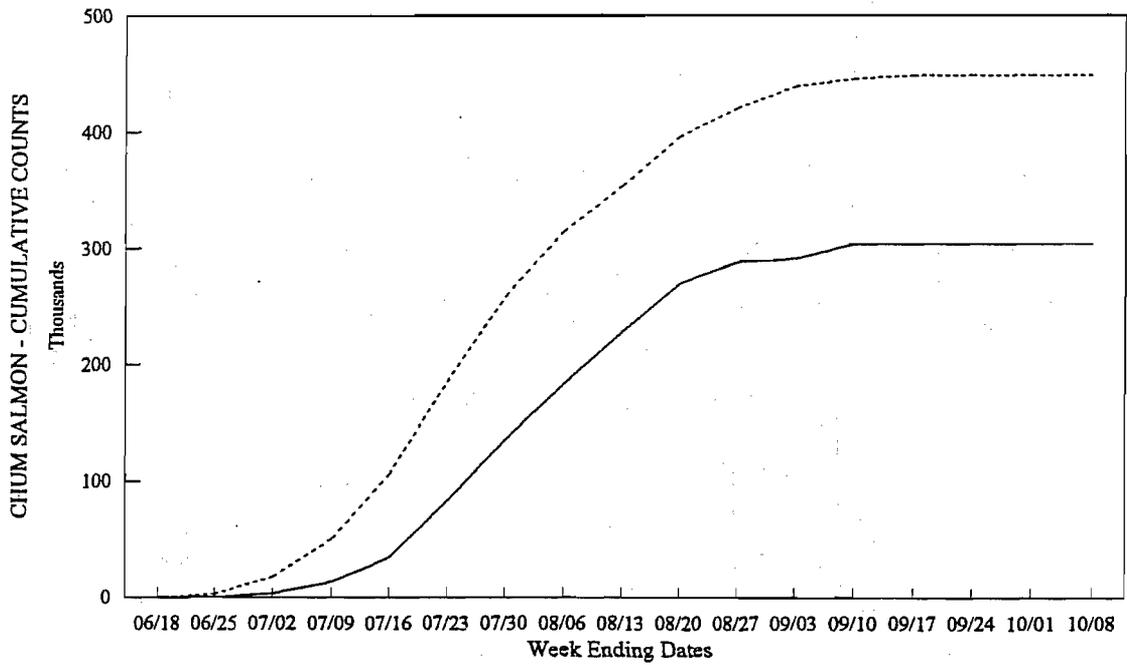
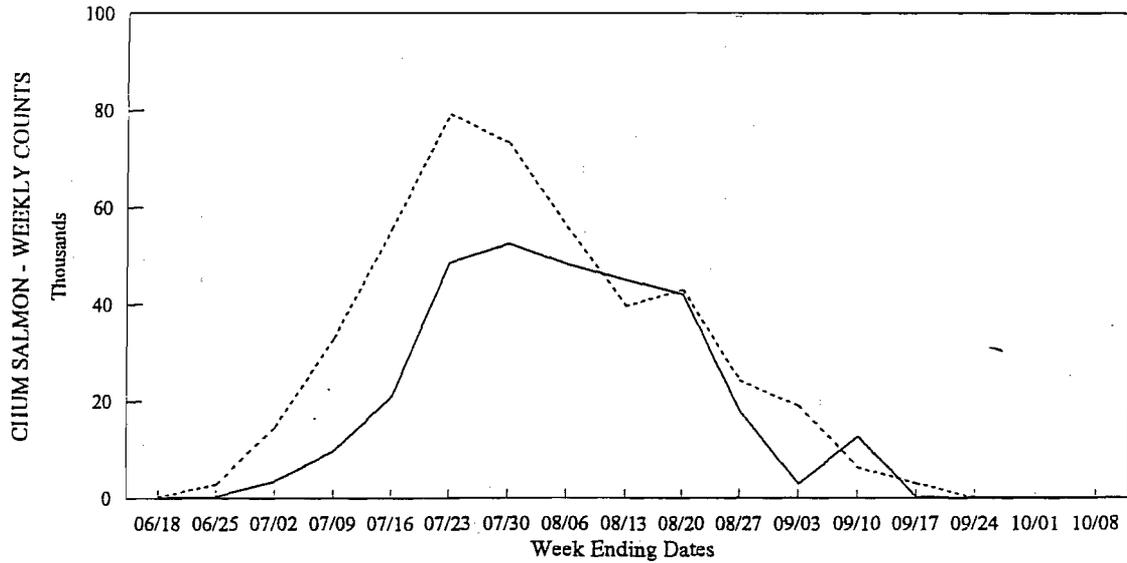
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There are a total of 209 streams included in the systematic aerial survey program. The survey program commences in the Eastern District where the earliest escapements in the Sound occur. Weather and conditions permitting, each stream is flown weekly. 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 surveys were good or, the maximum of the two counts if conditions during the minimum count were poor.

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 Olson Creek pink salmon 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. 1980-94 HISTORICAL AVERAGE



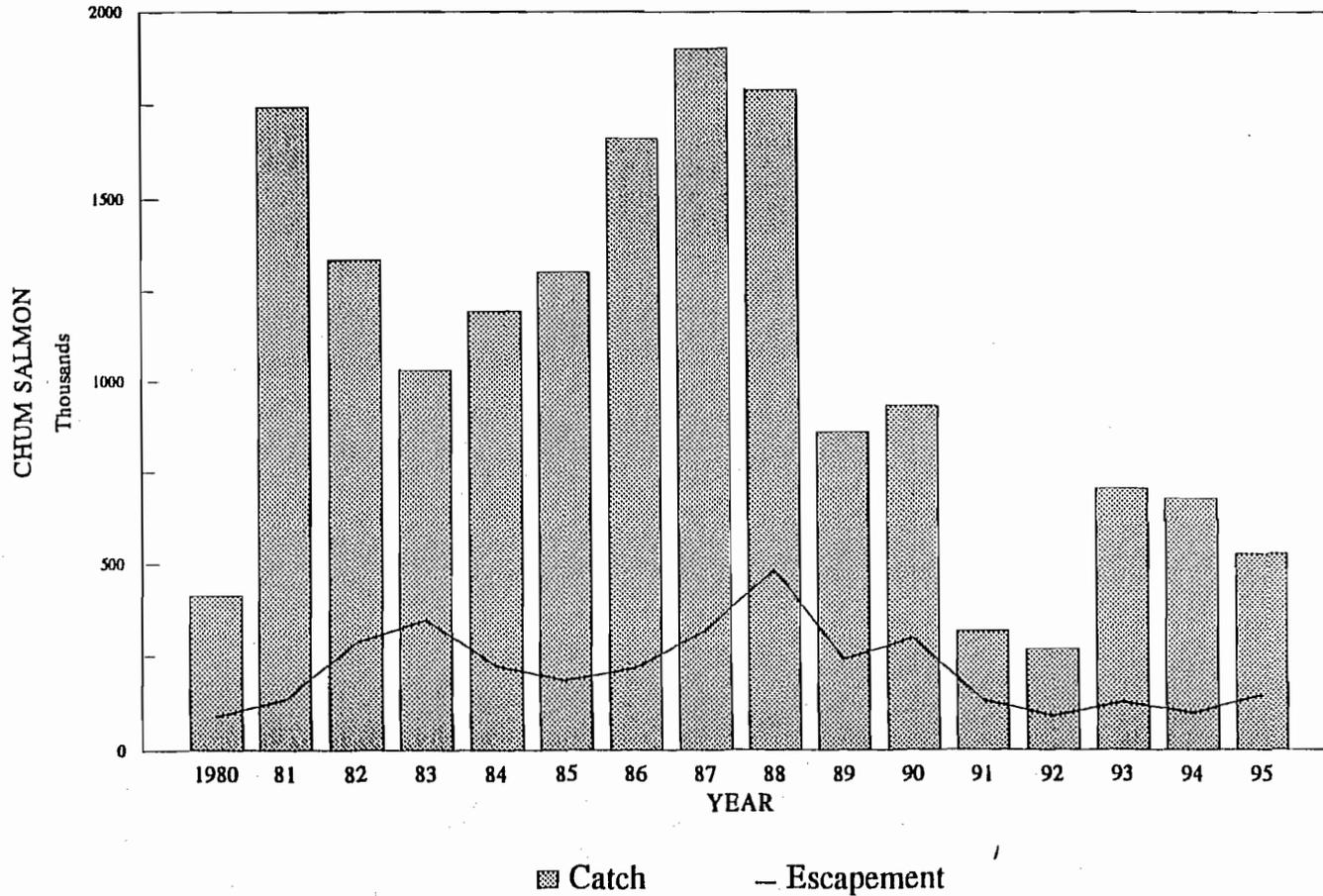
— Current Year

--- Historic 1980-94 Average

Appendix E.11. Current year and historical weekly chum salmon escapement performance from index spawning streams, Prince William Sound, 1995.

# CHUM SALMON CATCH AND ESCAPEMENT

Prince William Sound



Appendix E.12. Chum salmon catch and escapement, Prince William Sound, 1980-1995.

Appendix E.13. Sockeye salmon escapement counts from selected systems, Prince William Sound, 1995.

Stream Name	Stream Number	Weekly Count (week ending dates)											
		07/22	07/29	08/05	08/12	08/19	08/26	09/02	09/09	09/16	09/23	09/30	10/07
Bainbridge Creek	630	NS	500	NS	0	500	0	NS	0	0	NS	NS	0
Billy's Hole	218	0	0	150	0	200	0	NS	0	NS	NS	0	NS
Coghill River	322	9000	3000	0	0	0	7500	1000	NS	0	NS	NS	NS
Cowpen Lake	242	0	0	0	20	0	0	0	NS	180	NS	NS	NS
Eshamy River	511	NS	0	NS	NS	NS	0	0	NS	NS	NS	NS	NS
Halferty Creek	454	0	0	0	0	0	0	100	NS	0	NS	NS	NS
Hobo Creek	417	0	0	0	0	0	0	20	NS	0	NS	NS	NS
Jackpot River	608	NS	2000	NS	200	5000	0	NS	0	0	NS	NS	0
Miner's River	244	0	125	160	75	300	0	50	0	0	NS	NS	NS
Red Creek	300	250	200	400	20	0	0	0	NS	0	NS	NS	NS
Shrode Creek	476	0	0	0	1700	2500	0	300	0	550	NS	0	NS
Vanishing Creek	216	0	0	0	0	0	0	NS	0	NS	NS	5	NS
West Finger Creek	485	0	0	NS	0	0	150	0	NS	0	NS	0	NS
Wells River	234	0	0	0	0	20	0	NS	0	NS	NS	0	NS
<b>Total</b>		9,250	5,325	710	2,015	8,020	7,650	1,470	0	730	0	5	0

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aCounts 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 and 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, 1995.

		Brood Year and Age Group					Total
		1993	1992	1991	1990	1989	
		0.1	0.2	0.3	0.4	0.5	
<b>Eastern District</b>							
Strata Combined:	07/02 - 07/27						
Sampling dates:	07/11 - 07/19						
Sample size:	779						
Female	Percent of sample	0.0	10.0	36.5	10.8	6.3	63.5
	Number in catch	0	5,202	18,998	5,621	3,287	33,108
Male	Percent of sample	0.0	4.6	20.2	6.0	5.4	36.2
	Number in catch	0	2,392	10,516	3,125	2,838	18,871
Total	Percent of sample	0.0	14.6	56.9	16.8	11.8	100.0
	Number in catch	0	7,594	29,649	8,745	6,125	52,113
	Standard error	0	738	1,052	779	691	
<b>Coghill District - Esther Subdistrict</b>							
Strata Combined:	06/15 - 09/11						
Sampling dates:	06/16 - 07/15						
Sample size:	1,965						
Female	Percent of sample	0.0	3.9	38.2	16.4	7.1	65.6
	Number in catch	0	14,675	143,147	61,569	26,519	245,910
Male	Percent of sample	0.0	1.4	19.4	8.1	5.3	34.3
	Number in catch	0	5,312	72,764	30,530	20,047	128,652
Total	Percent of sample	0.0	5.3	57.6	24.6	12.4	100.0
	Number in catch	0	19,986	215,910	92,388	46,566	374,851
	Standard error	0	2,004	4,311	3,769	2,947	
<b>Southwestern District</b>							
Stratum dates:	08/04 - 08/05						
Sampling dates:	08/05						
Sample size:	433						
Female	Percent of sample	0.0	17.6	33.9	10.6	2.5	64.7
	Number in catch	0	1,463	2,829	885	212	5,389
Male	Percent of sample	0.2	6.9	10.9	5.1	3.5	26.6
	Number in catch	19	577	905	423	289	2,213
Total	Percent of sample	0.2	26.8	50.3	16.6	6.0	100.0
	Number in catch	19	2,233	4,196	1,386	500	8,334
	Standard error	19	178	200	149	95	
<b>All Districts Combined</b>							
Strata Combined:	06/15 - 09/11						
Sampling dates:	06/16 - 08/05						
Sample size:	3,177						
Female	Percent of sample	0.0	4.9	37.9	15.6	6.9	65.3
	Number in catch	0	21,339	164,974	68,075	30,018	284,407
Male	Percent of sample	0.0	1.9	19.3	7.8	5.3	34.4
	Number in catch	19	8,281	84,185	34,078	23,173	149,736
Total	Percent of sample	0.0	6.8	57.4	23.6	12.2	100.0
	Number in catch	19	29,813	249,755	102,520	53,191	435,298
	Standard error	19	2,143	4,442	3,852	3,029	

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, 1995.  
See Appendix C.12. 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	
7/02	12 a											2-F-E-22-95
7/05	12 a											2-F-E-23-95
7/08	12 b											2-F-E-25-95
7/10	12 b											2-F-E-30-95
7/12	12 c											2-F-E-34-95
7/14	6 d											2-F-E-35-95
7/14-7/16	66 b											2-F-E-35-95
7/17-7/19	66 b											2-F-E-36-95
7/27	10 e											2-F-E-44-95
				7/31	6 f							2-F-E-42-95
				8/04-8/05	24 f	8/04	15 g					2-F-E-47-95
				8/07-8/08	24 f	8/06	15 g					2-F-E-43-95
		8/09	12 i	8/09	12 h							2-F-E-50-95
				8/10-8/12	36 f							2-F-E-43-95
		8/11	12 j	8/11	12 h	8/11	12 k					2-F-E-51-95
		8/13	12 l	8/13	12 h							2-F-E-49-95
				8/14-8/15	24 f							2-F-E-54-95
8/15	12 m	8/15	12 n	8/15	12 h					8/15	12 o	2-F-E-56-95
8/17	12 p	8/17	12 n	8/17	12 h					8/17	12 o	2-F-E-52-95
8/19	12 p	8/19	12 q	8/19	12 h					8/19	12 o	2-F-E-57-95
8/21	12 p	8/21	12 r	8/21	12 h					8/21	12 o	2-F-E-59-95
8/23	12 p	8/23	12 r	8/23	12 h					8/23	12 o	2-F-E-60-95
8/25-8/27	60 p	8/25-8/27	60 r					8/25-8/27	60 s	8/25-8/27	60 o	2-F-E-61-95
8/28-8/30	60 p	8/28-8/30	60 t	8/28-8/30	60 u			8/28-8/30	60 s	8/28-8/30	60 o	2-F-E-62-95
8/31-9/02	60 v	8/31-9/02	60 t	8/31-9/02	60 u							2-F-E-65-95
9/03-9/05	60 v	9/03-9/05	60 t	9/03-9/05	60 u							2-F-E-68-95
9/05-9/06	36 w											2-F-E-69-95
9/07-9/09	60 w	9/07-9/09	60 t	9/07-9/09	60 u							2-F-E-69-95
9/10-9/13	84 w			9/10-9/13	84 u							2-F-E-71-95
9/14-9/17	84 x											2-F-E-72-95
												2-F-E-75-95

- a Open waters included the Eastern District and Valdez Narrows Subdistrict east of a line from Potato Point to Entrance Point and west of 146° 30.5' W. longitude.
- b Open waters included the Valdez Narrows Subdistrict east of a line from Potato Point to Entrance Point and west of 146° 30.5' W. longitude, and in the western half of Valdez Arm within one-half mile of the shore from the latitude of Point Freemantle north to Potato Point.
- c Open waters included the Valdez Narrows Subdistrict east of a line from Potato Point to Entrance Point and west of a line from an orange buoy on the south shore located at 146° 25.25' W. longitude to a marker on the north shore located at 146° 23.9' W. longitude.
- d Open waters included those south of a line from the latitude of the southern tip of Goose Island to the mainland, to the Salmon Harvest Task Force Markers in Saint Mathews Bay, Olsen Bay, Port Gravina, and Sheep Bay.
- e Open waters included those south of a line at the latitude of the southern tip of Goose Island extending to the mainland north of Knowles Head, including waters of Port Gravina up to the Salmon Harvest Task Force Markers at Saint Mathews and Olsen Bays. Task Force Markers in Sheep Bay and yellow markers between Beartrap and Comfort Bays were not in effect. Beartrap Bay was only open west of 146° 00.7' W. longitude.
- f Open waters included those of the Coghill District north of 61° 01.0' N. latitude in College Fiord.
- g Open waters included those south of a line at the latitude of Dual Head at 60° 15' N. latitude, and the waters east of Knight Island south of Marsha Bay at 60° 19' N. latitude.
- h Open waters included the Esther Subdistrict within one nautical mile of Esther Island. The Noerenberg Terminal and Special Harvest Areas remained closed.
- i Open waters included those south of 60° 59.2' N. latitude, waters north of northern tip of Olsen Island at 60° 52.5' N. latitude and west of 147° 30.2' W. longitude.
- j Open waters within Unakwik Inlet included those inside the following boundaries: south of 61° 01.0' N. latitude; east of 147° 34.0' W. longitude; and north of 60° 54.4' N. latitude.
- k Open waters included the Port San Juan Subdistrict, except the A.F.K Terminal and Special Harvest Areas which were not opened.

- Continued -

Appendix E.15. (page 2 of 2)

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- l Open waters within Unakwik Inlet included those inside the following boundaries: south of the Unakwik District boundary line at 61° 01.0' N. latitude; east of 147° 34.0' W. longitude; north of 60° 52.5' N. latitude; and west of 147° 30.2' W. longitude.
- m Open waters included the waters south of 61° 0.0' N. latitude. Port Fidalgo Subdistrict and waters inside the Salmon Harvest Task Force Markers were not opened.
- n Open waters included those east of 147° 40.0' W. longitude. Wells Bay and Unakwik Inlet were closed north of 60° 54.0' N. latitude and Long Bay was closed inside of the Salmon Harvest Task Force Markers.
- o Open waters included all of the Southeastern District. Anadromous salmon stream closures remained in effect.
- p Open waters included all those south of the Potato Point to Entrance Point Line except the Port Fidalgo and Valdez Narrows Subdistricts did not open. Waters inside of Salmon Harvest Task Force Markers were not opened.
- q Open waters included all waters in the Northern District east of 147° 40.0' W. longitude, except in Wells Bay north of 60° 54.0' N. latitude and Unakwik Inlet north of 60° 59.3' N. latitude and Long and Siwash Bays were closed inside the Salmon Harvest Task Force markers.
- r The Northern District was opened with the following exceptions: The Perry Island Subdistrict was not opened; Wells Bay was closed north of 60° 54.0' N. latitude; Unakwik Inlet was closed north of 60° 59.3' N. latitude; and Long, Eaglek, and Siwash Bays were closed inside of the Salmon Harvest Task Force Markers.
- s Open waters included all of the Montague District. All anadromous salmon stream closures remained in effect.
- t The Northern District was opened with the following exceptions: The Perry Island Subdistrict was not opened. Unakwik Inlet was closed north of 60° 58.7' N. latitude. Eaglek, Siwash, Cedar, Granite, Wells, and Long Bays were closed inside of the Salmon Harvest Task Force Markers.
- u Open waters included the Esther Subdistrict only within the Noerenberg Hatchery Terminal Harvest Area.
- v Open waters included all those north of the latitude of Point Freemantle and south of the Potato Point to Entrance Point Line. Waters inside of the Salmon Harvest Task Force Markers were not opened.
- w Open waters were limited to the Valdez Narrows Subdistrict. Open waters were enclosed by a line running from Allison Point due north 1000 yards and then east approximately 3000 yards to a yellow buoy located 750 yards from shore on the closed water boundary at the head of Port Valdez. Additionally, 5 yellow buoys were positioned around Solomon Gulch Hatchery to indicate the closed waters around the hatchery.
- x Open waters included the Valdez Narrows Subdistrict except inside a series of 5 yellow buoys placed around the Solomon Gulch Hatchery. Area closed began at a shore marker approximately 200 yards west of Solomon Gulch Creek. The seine season officially closed at 8:00 p.m. September 20.

APPENDIX F

HATCHERY RETURNS

Appendix F.1. Daily salmon sales harvests and sex ratios at the Wally Noerenberg Hatchery, 1995.  
 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
06/11		0	212	4,614	0	0
06/12		0	35	3,224	0	0
06/13		0	0	4,124	0	0
06/14		0	11	9,372	0	0
06/15		0	0	4,783	0	0
06/17		0	61	3,515	0	0
06/18		0	152	3,622	0	0
06/19		0	76	3,633	0	0
06/25		0	82	5,139	0	0
06/26		0	0	21,008	0	0
06/27		0	0	9,675	0	0
06/28		0	0	21,991	0	0
06/29		0	0	8,403	0	0
06/30		0	2	3,477	0	0
07/02		0	0	7,404	0	0
07/05		0	37	4,723	0	0
07/08		0	7	7,899	0	0
07/09		0	0	8,972	0	0
07/11		0	0	4,993	0	0
07/12		0	0	4,648	0	0
07/13		0	0	2,649	0	0
07/15		0	0	3,646	0	0
07/16		0	0	8,289	0	0
07/17		0	0	6,984	0	0
07/18		15	2	2,852	0	0
07/19		0	0	11,178	0	0
07/20		329	20	10,188	0	0
07/21		100	0	4,726	0	0
07/23		372	0	6,480	0	0
07/24		1,010	0	4,147	0	0
07/26	4.7%	1,182	0	2,829	0	0
07/28	11.5%	2,224	7	6,398	0	0
08/01	16.0%	3,674	0	4,779	0	0
08/02	9.5%	28,416	0	3,598	0	0
08/03	11.0%	78,045	0	1,924	0	0
08/04	17.2%	8,148	0	206	0	0
08/05	19.4%	16,102	0	406	0	0
08/06	21.1%	44,124	0	293	0	0
08/07	18.4%	13,356	0	152	0	0
08/08	29.3%	29,260	0	234	0	0
08/09	26.1%	19,908	0	237	0	0
08/11	35.1%	40,718	0	0	0	0
08/12	44.1%	27,571	0	0	0	0

-Continued-

## HATCHERY SALES HARVEST IN NUMBERS OF FISH

Date	Pink Salmon % Female	Pinks	Chinook	Chum	Coho	Sockeye
08/13	49.8%	27,832	0	0	0	0
08/14	51.9%	132,757	0	0	0	0
08/15	55.6%	81,614	0	0	0	0
08/16	56.7%	63,604	0	0	0	0
08/17	60.4%	78,209	0	0	0	0
08/18	61.2%	37,183	0	0	0	0
08/19	61.7%	29,766	0	0	0	0
08/20	67.2%	24,689	0	0	0	0
08/21	70.9%	24,665	0	0	0	0
08/23	70.5%	17,783	0	0	0	0
08/25		0	0	0	424	0
08/26	65.0%	24,651	0	0	1,085	0
08/27	67.2%	31,647	0	0	549	0
08/29	63.6%	20,474	0	0	848	0
08/30	59.8%	4,919	0	0	552	0
09/01	64.9%	8,252	0	0	315	0
09/04	65.9%	6,339	0	0	263	0
09/09		0	0	0	1,117	0
09/18		10,667	0	0	0	0
Totals		939,605	704	227,414	5,153	0

## SALES SUMMARY:

	Pink	Chinook	Chum	Coho	Sockeye
Pounds Sold	3,330,083	10,098	1,752,383	31,201	0
Average Weights:	3.54	14.34	7.71	6.05	0
Average Price/Lb:	\$0.19	\$1.17	\$0.51	\$0.52	\$0.00
Roe Sales/Lbs:	8,730	623	36,150	643	0
Average Price/Lb:	\$2.20	\$3.22	\$4.68	\$3.95	\$0.00

## BROOD STOCK SUMMARY:

	Pink	Chinook	Chum	Coho
Fish spawned at hatchery	196,676	67	83,627	256
Green/bad/excess	93,673	9	23,312	137
Eggtake mortality	6,515	26	7,477	86
<b>Total available brood stock</b>	<b>296,864</b>	<b>102</b>	<b>114,416</b>	<b>479</b>
Surplus processed for roe/excessed	22,295	302	48,600	984
Estimated remaining in brood pond	5,800	250	6,026	0
Estimated remaining in bay	0	0	0	0
Estimated unseen mortality	4,000	50	3,500	3,500
Mortalities prior to eggtake	0	0	0	0
Estimated creek spawners	0	0	0	0
Estimated total return to hatchery	328,959	704	172,542	4,963

Appendix F.2. Daily salmon sales harvests and sex ratios at the  
 Armin F. Koernig Hatchery, 1995.  
 Brood stock and sex ratio data provided by the  
 Prince William Sound Aquaculture Corporation.

HATCHERY SALES HARVESTS IN NUMBERS OF FISH			
Date	Pinks	Sockeye	Pink Salmon % Female
07/26	2,549	231	0.058
07/30	10,732	65	5.8%
08/01	14,626	0	9.9%
08/02	14,590	0	9.9%
08/03	12,128	0	14.0%
08/04	20,354	0	14.7%
08/05	32,563	0	15.6%
08/06	20,932	0	21.4%
08/07	20,214	0	22.6%
08/08	13,886	0	30.7%
08/09	12,265	0	36.4%
08/10	20,741	0	42.4%
08/11	17,872	0	50.0%
08/14	47,849	0	51.1%
08/16	30,524	0	58.1%
08/17	54,374	0	62.0%
08/18	41,971	0	64.1%
08/19	18,785	0	62.8%
08/20	40,036	0	62.7%
08/21	19,847	0	62.7%
08/23	20,309	0	67.9%
08/25	33,235	0	61.9%
08/26	10,561	0	66.5%
08/28	14,681	0	60.9%
<b>Totals</b>	<b>545,624</b>	<b>296</b>	

**SALES SUMMARY:**

	Pinks	Sockeye
Pounds Sold	1,855,399	1,666
Average Weight:	3.40 lbs.	5.63 lbs.
Average Price/lb:	\$0.15	\$1.00

**PINK BROOD STOCK SUMMARY:**

Spawned at hatchery	133,706
Excessed	13,105
Green/overripe	9,392
Fishway/system mortality	20,000
<b>Total available brood stock</b>	<b>176,203</b>
Surplus processed for roe	0
Estimated diversion channel mortality	5,000
Estimated unseen mortality	6,000
Fish estimated remaining in bay	5,000
<b>Fish estimated in barrier seine</b>	<b>35,000</b>
Estimated total return to hatchery	227,203

Appendix F.3. Daily pink salmon sales harvests and sex ratios at the Solomon Gulch Hatchery, 1995. Sex ratios and brood stock data provided by Valdez Fisheries Development Association, Inc.

HATCHERY SALES HARVESTS IN NUMBERS OF FISH							
Date	Pinks		%	Coho		Chum	
	Daily	Cumulative	Female	Daily	Cumulative	Daily	Cumulative
06/20	93	93		0	0	35	35
06/21	209	302	8.8%	0	0	22	57
06/22	411	713	9.4%	0	0	25	82
06/23	1,588	2,301	11.0%	0	0	192	274
06/24	5,981	8,282	10.6%	0	0	178	0
06/25	26,975	35,257	14.1%	1	1	137	411
06/26	52,192	87,449	15.0%	1	2	182	593
06/27	72,821	160,270	16.0%	0	2	191	784
06/28	128,369	288,639	17.0%	0	2	130	914
06/29	222,962	511,601	18.0%	0	2	57	971
06/30	190,518	702,119	20.8%	0	2	56	1,027
07/01	184,986	887,105	23.0%	0	2	23	1,050
07/03	213,639	1,100,744	25.0%	0	2	6	1,056
07/04	219,369	1,320,113	25.0%	0	2	0	0
07/06	299,280	1,619,393	34.0%	0	2	0	1,056
07/07	321,901	1,941,294	47.0%	0	2	1	1,057
07/09	259,173	2,200,467	49.4%	0	2	4	1,061
07/11	235,666	2,436,133	51.0%	0	2	0	0
07/17	99,445	2,535,578	48.0%	0	2	0	0
08/24	0	2,535,578		625	627	0	1,061
08/26	0	2,535,578		1,281	1,908	0	1,061
09/01	0	2,535,578		1,506	3,414	0	0
09/07	0	2,535,578		4,681	8,095	0	1,061
Totals		2,535,578			8,095		1,239

SALES SUMMARY:

	Pink	Coho	Chum
Total Pounds Sold:	9,489,882	63,042	9,393
Average Weights:	3.74	7.79	7.50
Average price/pound	\$0.27	\$0.20	\$0.41
Roe Sales (lbs.)	42,134	22,227	6,204 <sup>a</sup>
Roe price/pound:	\$3.58	\$4.63	\$4.90

PINK BROOD STOCK SUMMARY:

Spawned at hatchery	232,567
Green/overripe	4,524
System mortalities/excessed	69,076
<b>Total available brood stock</b>	<b>306,167</b>
Roe Sales	133,967
Estimated creek spawners	888
Fish estimated remaining above weir	0
Estimated total return to hatchery	441,022

COHO BROOD STOCK SUMMARY:

Spawned at hatchery	818
Green/overripe	1,211
System mortalities/excessed	1,827
<b>Total available brood stock</b>	<b>3,856</b>
Roe Sales	27,114
Estimated creek/bay spawners	50
Estimated total return to hatchery	31,020

<sup>a</sup> 15,641 chum salmon processed for roe extraction at hatchery during normal eggtake operations.

Appendix F.4. Daily pink salmon sales harvests and sex ratios at the Cannery Creek Hatchery, 1995. Brood stock and sex ratio data provided by the Prince William Sound Aquaculture Corporation.

HATCHERY SALES IN NUMBERS OF FISH

Date	Pinks	% Female
08/02	13,398	14.7%
08/04	6,232	15.8%
08/05	36,999	18.9%
08/06	5,138	19.1%
08/07	382,934	23.2%
08/08	252,783	23.2%
08/10	36,420	25.5%
08/11	27,645	38.5%
08/12	17,972	33.4%
08/13	13,798	42.9%
08/15	11,266	57.6%
08/17	15,050	61.4%
08/19	34,539	62.3%
08/20	33,224	61.8%
08/21	41,470	65.4%
08/22	39,424	62.1%
08/23	48,747	66.7%
08/24	11,784	65.0%
08/25	7,788	66.0%
Totals	1,036,611	

**SALES SUMMARY:**

Pounds Sold: 3,571,195

Average Weight: 3.45lbs.

Average Price/Lb: \$0.18

*Pink*

**BROOD STOCK SUMMARY:**

Spawned at hatchery	154,606
Excessed	43,111
Green/bad mortality	21,422
<b>Total available broodstock</b>	<b>219,139</b>
Estimated Unseen Mortality	15,000
Post Eggtake Creek Mortality	21,100
Estimated stream spawners	44,100
Estimated total return to hatchery	299,339

Appendix F.5. Daily salmon sales harvests at the Main Bay Hatchery, 1995. Brood stock data provided by the Prince William Sound Aquaculture Corporation.

HATCHERY SALES HARVEST IN NUMBERS OF FISH						
Date	Sockeye		Pink		Chum	
	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
06/20	4,201	4,201	0	0	126	126
06/24	2,583	6,784	0	0	59	185
06/27	5,064	11,848	0	0	333	518
06/30	3,936	15,784	0	0	343	861
07/03	8,120	23,904	0	0	391	1,252
07/06	4,904	28,808	0	0	551	1,803
07/08	2,170	30,978	0	0	176	1,979
07/10	5,985	36,963	0	0	411	2,390
07/14 <sup>a</sup>	16,076	53,039	0	0	82	2,472
07/17	1,805	54,844	0	0	62	2,534
07/31	3,020	57,864	108	108	170	2,704
08/05	3,704	61,568	511	619	94	2,798
08/12	967	62,535	1,946	2,565	88	2,886
08/23	460	62,995	10,546	13,111	0	2,886
08/26	0	62,995	9,919	23,030	0	2,886
08/28	0	62,995	10,946	33,976	0	2,886
09/02	0	62,995	9,425	43,401	0	2,886
Totals		62,995		43,401		2,886

<sup>a</sup> 13,568 (63,768 lbs) sockeye salmon were from Marsha Bay on Knight Island.

SALES SUMMARY:	Sockeye	Pinks	Chum
Pounds Sold	322,868	155,649	22,055
Average Weights:	5.13	3.59	7.64
Average price/pound:	\$1.19	\$0.20	\$0.43

**MAIN BAY SOCKEYE BROOD STOCK SUMMARY:**

Main Bay Early Stock/Eyak Lake		Main Bay Middle Stock/Coghill Lake	
Good	1,148	Spawnd at hatchery	1,609
Green/overripe	166	Green/overripe	214
System mortalities/excessed/bad	1,699	System mortalities/excessed/bad	3,250
<b>Total available brood stock</b>	<b>3,013</b>	<b>Total available brood stock</b>	<b>5,073</b>
		Fish remaining in bay	200
		<b>Total</b>	<b>5,273</b>
Main Bay Late Stock/Eshamy Lake			
Spawnd at hatchery	0		
Green/overripe	0		
System mortalities/excessed/bad	0		
<b>Total available brood stock</b>	<b>0</b>		
Fish remaining in bay	0		
<b>Total</b>	<b>0</b>		

Appendix F.6. Sales harvests of salmon by species from private nonprofit hatcheries as reported on fish tickets, Prince William Sound, 1977 - 1995.

Year	Hatchery <sup>b</sup>	Catch by Species <sup>a</sup>				Total
		Sockeye	Coho	Pink	Chum	
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
<b>TOTAL</b>		<b>419,691</b>	<b>246,903</b>	<b>53,618,296</b>	<b>1,388,607</b>	<b>55,673,497</b>

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

<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)

<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 the closure of the common property fishery.

Appendix F.7. Summary of pink and chum salmon returns to Prince William Sound hatcheries, 1994.

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

Hatchery	1993 Fry Release (millions)	1994 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	141.9	5,150,000	12,735,021	9.0%	9,647,154	2,657,755	423,895	214.5
A. F. Koernig	113.3	5,430,000	1,744,142	1.5%	563,092	950,493	211,884	125.5
Wally Noerenberg	172.1	7,800,000	6,145,508	3.6%	4,162,803	1,582,480	464,972	188.0
Cannery Creek	140.0	6,310,000	9,640,886	6.9%	6,800,224	2,422,854	398,835	158.3
<b>Total Pink</b>	<b>567.3</b>	<b>24,690,000</b>	<b>30,265,557</b>	<b>5.2%</b>	<b>21,173,273</b>	<b>7,613,582</b>	<b>1,499,586</b>	<b>686.3</b>

Chum salmon returns to P.W.S. hatcheries.<sup>a</sup>

Hatchery	1994 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	48960	No estimate made.		2868	2316	1.5
A. F. Koernig	0	0	0	0	0	0
Wally Noerenberg <sup>d</sup>	1135000	No estimate made.		347375	112338	109.1
Cannery Creek	0	0	0	0	0	0
<b>Total Chum</b>	<b>1183960</b>	<b>0</b>	<b>0</b>	<b>350243</b>	<b>114654</b>	<b>110.6</b>

<sup>a</sup> Contribution estimates of pink and chum salmon from PWS hatcheries are based on analysis of CWT recoveries and location of catch as reported on fish tickets. No CWT based estimates for hatchery chum returns.

<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 bay. These data used in the analysis of CWT recoveries.

<sup>d</sup> Includes both early and late chum returns.

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 - 1995.

Brood Year	Return Year	Fry Release <sup>a</sup>	CWT Applied to Fry Release <sup>b</sup>	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
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	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							

<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, broodstock 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.

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 - 1995.

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

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<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, broodstock 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.

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 - 1995.

Brood Year	Return Year	Fry Release <sup>a</sup>	CWT Applied to Fry Release <sup>b</sup>	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>e</sup>	Total Hatchery Return	Estimated Marine Survival
1975	1977	0	0	0	0	0	0	0	0	0.00%
1976	1978	0	0	0	0	0	0	0	0	0.00%
1977	1979	0	0	0	0	0	0	0	0	0.00%
1978	1980	0	0	0	0	0	0	0	0	0.00%
1979	1981	0	0	0	0	0	0	0	0	0.00%
1980	1982	0	0	0	0	0	0	0	0	0.00%
1981	1983	0	0	0	0	0	0	0	0	0.00%
1982	1984	0	0	0	0	0	0	0	0	0.00%
1983	1985	0	0	0	0	0	0	0	0	0.00%
1984	1986	0	0	0	0	0	0	0	0	0.00%
1985	1987	34,525,575	220,369	276,947	305,946	305,946	0	2,429,062	3,011,955	8.72%
1986	1988	75932715	0	222,790	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	2,121,349	0	3,207,218	5,718,794	2.92%
1988	1990	159,713,663	313,004	282,022	3,364,172	2,991,569	0	10,280,000	13,553,591	8.49%
1989	1991	235,378,496	467,587	456,061	1,044,093	964,618	2,479,492	7,790,063	11,690,234	4.97%
1990	1992	214,941,068	395,313	230,590	518,652	442,702	10,781	1,322,054	2,006,127	0.93%
1991	1993	163,802,656	299,241	357,510	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	1,582,480	12,533	4,162,803	6,145,508	3.57%
1993	1995	162,406,765	316,171	319,159	939,605	824,020	7,931	1,163,166	2,314,276	1.42%
1994	1996	168,864,536	281,270							

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<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, broodstock 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.

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 - 1995.

Brood Year	Return Year	Fry Release <sup>a</sup>	CWT Applied to Fry Release <sup>b</sup>	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
1975	1977	0	0	0	0	0	0	0	0	0.00%
1976	1978	0	0	0	0	0	0	0	0	0.00%
1977	1979	0	0	0	0	0	0	0	0	0.00%
1978	1980	0	0	0	0	0	0	0	0	0.00%
1979	1981	0	0	0	0	0	0	0	0	0.00%
1980	1982	0	0	0	0	0	0	0	0	0.00%
1981	1983	7,900,000	0	12,484	78,961	78,961	0	no estimate	91,445	1.16%
1982	1984	5,600,000	0	77,828	28,247	28,247	0	25,000	131,075	2.34%
1983	1985	8,390,000	0	196,827	223,819	223,819	0	64,961	485,607	5.79%
1984	1986	51,275,265	0	117,665	91,392	91,392	0	1,008,193	1,217,250	2.37%
1985	1987	54,630,942	0	183,411	1,106,910	1,106,910	0	4,000,000	5,290,321	9.68%
1986	1988	59,830,980	178,461	192,164	542,040	542,040	0	300,000	1,034,204	1.73%
1987	1989	130,830,267	277,365	214,891	720,048	670,952	0	2,412,008	3,297,851	2.52%
1988	1990	128,518,252	312,196	154,612	2,146,469	1,911,667	0	6,857,288	8,923,567	6.94%
1989	1991	122,255,027	210,854	275,066	3,220,450	2,900,513	0	2,515,597	5,691,176	4.66%
1990	1992	131,296,671	250,051	238,503	1,344,664	1,240,324	4,953	380,251	1,864,031	1.42%
1991	1993	86,900,725	160,733	168,749	1,326,463	942,993	0	572	1,112,314	1.28%
1992	1994	141,865,235	235,764	423,895	3,181,846	2,657,755	6,217	9,647,154	12,735,021	8.98%
1993	1995	149,473,648	305,678	440,134	2,535,578	2,528,659	4,255	3,792,309	6,765,357	4.53%
1994	1996	205,371,130	337,834							

<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, broodstock 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 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.

Appendix F.12. Estimated total hatchery and wild stock production of pink salmon, Prince William Sound, 1977 to 1995.

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	d	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	1,859,078	2,391,140	1,995,346	0	1,516,369	7,761,933	2,222,782
1993	1,112,314	1,528,425	1,492,039	0	712,223	4,845,001	2,875,916
1994	12,567,633	1,735,011	6,222,788	0	9,400,689	29,926,121	9,841,119
1995	6,765,357	856,048	2,314,276	0	5,072,900	15,008,581	3,401,469

<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).

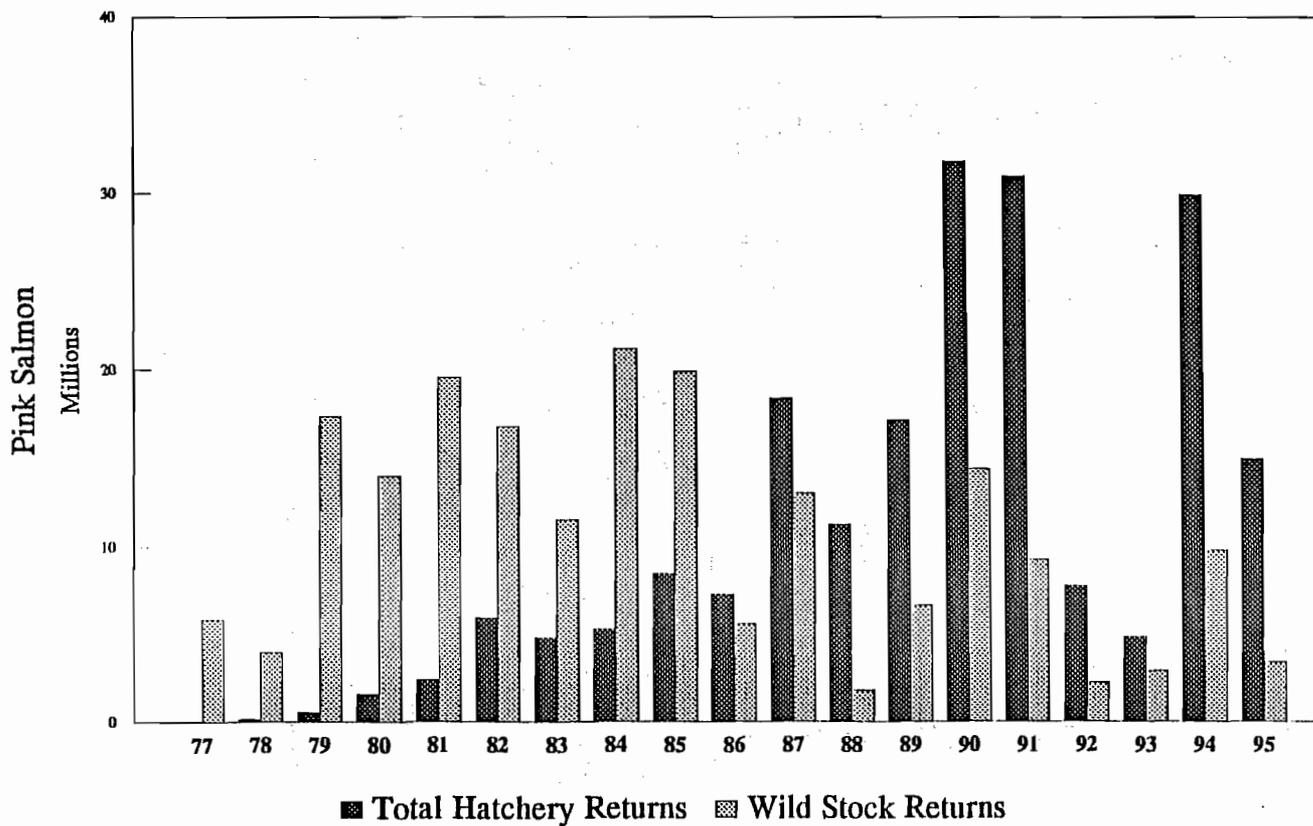
<sup>b</sup> Hatchery totals include cost recovery harvests, brood stock collection and escapement, and estimated common property fishery interception.

<sup>c</sup> Total wild stock return represents the estimated wild stock catch plus the aerial escapement index. 1995 wild stock component = 2,211,285 catch plus 1,190,184 escapement index.

<sup>d</sup> Not available.

# Hatchery and Wild Stock Pink Salmon Returns

## Prince William Sound



Appendix F.13. Estimated total pink salmon return to hatcheries and wild stock systems, Prince William Sound, 1977-1995

Appendix F.14. Historical catch contributions, coded wire tag (CWT) releases, and total returns of pink salmon to all hatcheries combined, Prince William Sound, 1977 - 1995.

Brood Year	Return Year	Fry Release <sup>a</sup>	CWT Applied to Fry Release <sup>b</sup>	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
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	5,057,418	4,703,457	78,020	9,072,469	15,008,581	3.07%
1994	1996	613,158,229	1,017,782							

<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, broodstock 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.

**APPENDIX G**

**SUBSISTENCE AND PERSONAL USE FISHERIES**

Appendix G.1. Subsistence salmon harvest by species and gear type, Prince William Sound and Upper Copper River, 1995

Area	Permits Issued	Permits Fished	Gear Type	Chinook	Sockeye	Coho	Pink	Chum	Other <sup>a</sup>	Total
Prince William Sound	4	0	Drift Gillnet	0	0	0	0	0	0	0
	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	0	0	0	0	0	0
Copper River Flats	126	72	Drift Gillnet	154	692	31			3	880
Upper Copper River	191		Dip Net	99	3,364	160			3	3,626
	667		Fish Wheel	1,641	45,051	661			28	47,381
Eastern	15	b	Drift Gillnet and Dip Net	0	0	0	0	0	0	0
Southwestern	10	5	Drift Gillnet and Dip Net	2	152	67	67	41	0	329
Batzulnetas	4	2	Fish Wheel	0	16	0	0	0	0	16
Total	1,017	79		1,896	49,275	919	67	41	34	52,232

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

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

Appendix G.2. Salmon catch and effort in the Prince William Sound subsistence fishery, 1960 - 1995.

Year	Permits		Catches <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							

<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 - 95.

Year	Total Issued	Permits Issued			Catch			Total
		Fished	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>

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

<sup>b</sup> Total also includes dolly varden.

Appendix G.4. Salmon catch and effort in the Eastern (Tatitlek) and Southwestern (Chenega) subsistence fishery, Prince William Sound, 1988 - 1995.

Year	Permits		Catch						
	Issued	Fished	Chinook	Sockeye	Coho	Pink	Chum	Unknown	Total
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 a	15								
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

a 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 - 1995.

Year	Permits Issued			Reported Catch <sup>a</sup>			Reported Catch by Species			Total Salmon Catch	
	Dip Net	Fish Wheel	Total	Dip Net	Fish 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 <sup>b</sup>	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 <sup>s</sup>	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 <sup>sc</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	43,959
s&p	4,005	431	4,436	42,286	26,190	68,476	2,916	64,684	785	68,385	72,376
1987 <sup>sc</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	46,884
s&p	4,245	445	4,690	43,956	24,724	68,680	3,280	61,900	498	65,678	80,964
1988 <sup>s</sup>	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	45,895
s&p	4,275	385	4,660	42,352	20,193	62,545	3,395	58,294	695	62,384	76,208
1989 <sup>s</sup>	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	58,858
s&p	4,525	445	4,970	55,556	28,600	84,156	2,904	80,221	890	84,015	88,083
1990 <sup>s</sup>	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	70,317
s&p	5,726	369	6,095	69,944	28,689	98,633	3,198	93,740	1,533	98,471	102,600
1991 <sup>s</sup>	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	84,622
s&p	6,515	418	6,933	88,894	31,634	120,528	5,164	111,788	3,477	120,429	124,692
1992 <sup>s</sup>	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	91,400
s&p	6,538	504	7,042	94,090	40,198	134,288	4,705	127,670	1,817	134,192	137,795
1993 <sup>s</sup>	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	97,500
s&p	7,928	759	8,687	93,999	49,792	143,791	4,037	138,211	1,428	143,676	151,870
1994 <sup>s</sup>	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	99,430
s&p	7,328	703	8,031	102,057	58,504	160,561	5,423	153,049	1,958	160,430	169,092
1995 <sup>s</sup>	191	667	858	3,626	47,481	51,107	1,740	48,415	821	50,976	55,329
p	6,763	NA	6,763	85,906	NA	85,906	4,561	76,586	4,726	85,873	88,634
s&p	6,954	667	7,621	89,532	47,481	137,013	6,301	125,001	5,547	136,849	143,963

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

<sup>b</sup> Return requirement enforced

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

s = subsistence

p = personal use

s&p = total catch

The 1995 data is very preliminary, both the subsistence and personal use fisheries are still on going at this time.

**APPENDIX H**

**HERRING FISHERIES**



Appendix H.2. Prince William Sound commercial Pacific herring harvest summary with fishing location and effort by gear type for calendar year 1995.

Fishery	Fishing Information				Harvest and Use (tons)	
	Area	Date	Duration	Effort	Spawn on Kelp	Pacific Herring
Sac Roe Purse Seine	NO OPENINGS					0.0
	Total					0.0
Sac Roe Gillnet	NO OPENINGS					
	Total					0.0
Wild Spawn-on-Kelp <sup>a</sup>	NO OPENINGS					
	Total				0.0	0.0 <sup>b</sup>
Pound Spawn-on-Kelp <sup>c</sup>	NO OPENINGS					
	Total				0.0	0.0 <sup>d</sup>
Food/Bait Fishery	NO OPENINGS					
	Total					0.0
<u>Harvest and Use - Total</u>					0.0	0.0

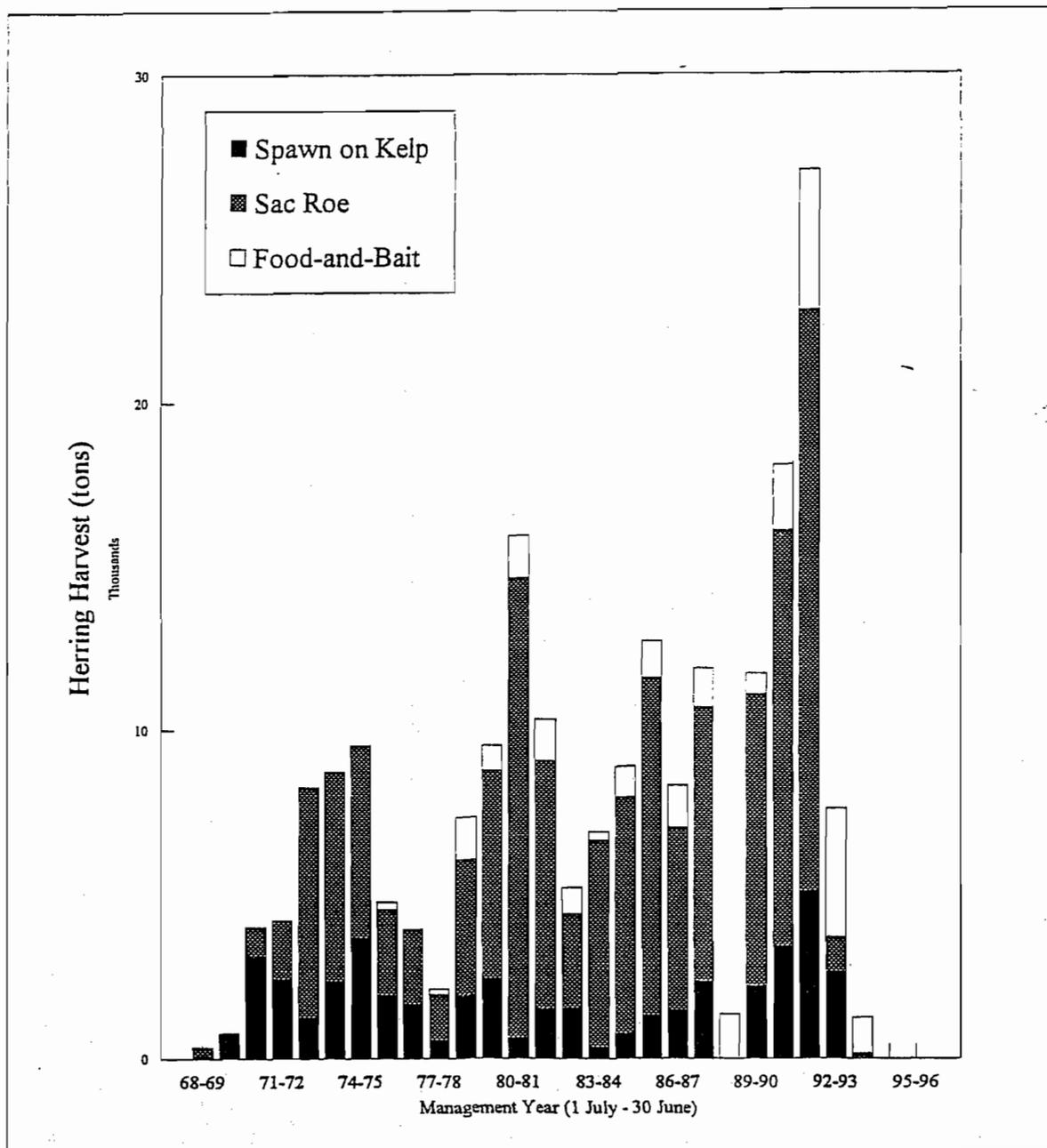
<sup>a</sup> The harvest of naturally occurring herring spawn on native kelp species in Prince William Sound.

<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.

<sup>d</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, 1968-1996.

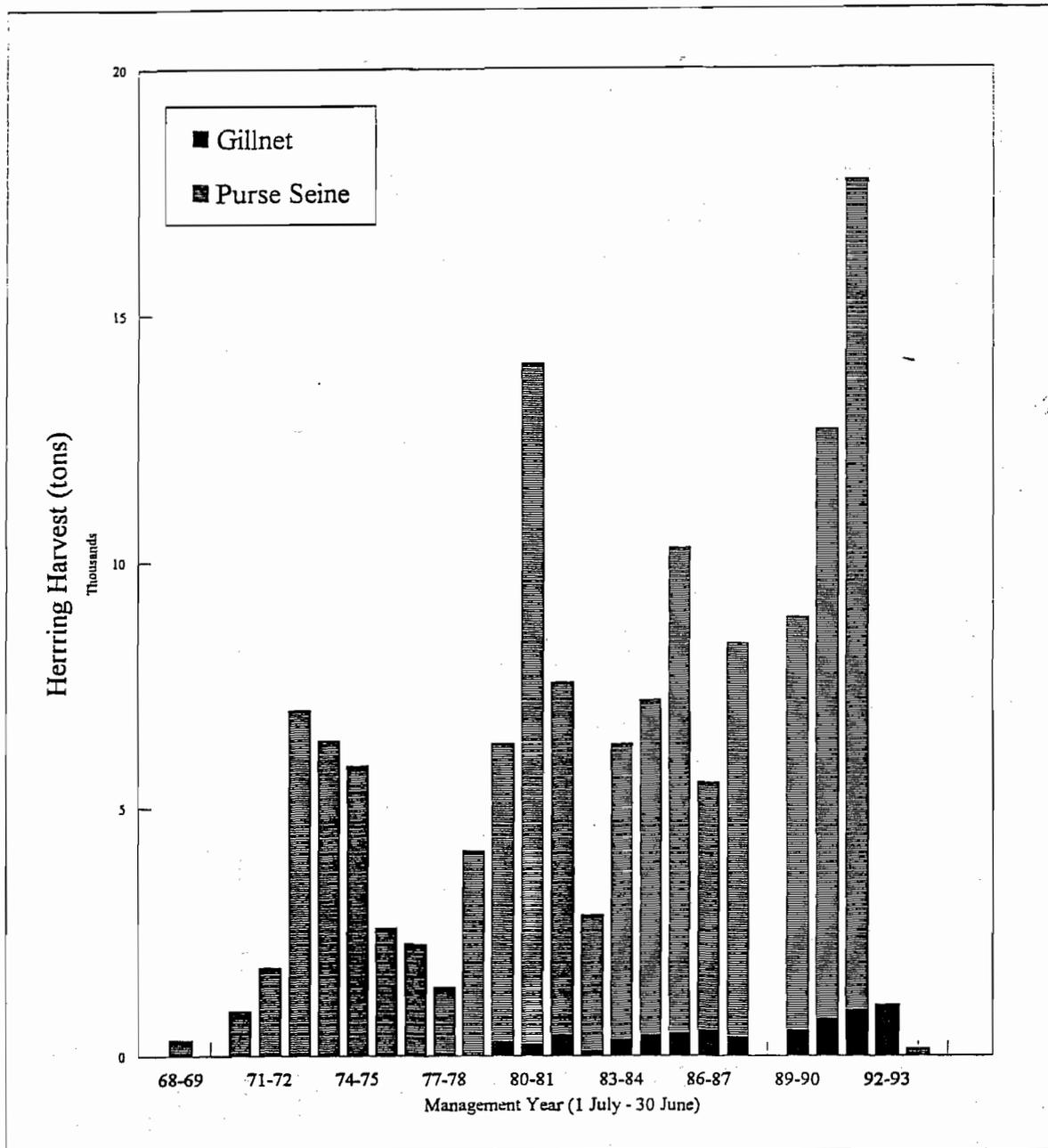
Appendix H.4. Pacific herring sac roe seine and gillnet fishery effort, anticipated and actual harvest, Prince William Sound, 1969 - 1995.

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										355.7
1970	3/01 - 6/30														
1971	3/01 - 6/30		12		919.2										919.2
1972	3/01 - 6/30		18		1,777.2										1,777.2
1973	4/23 - 5/09		31		6,991.9										6,991.9
1974	4/10 - 4/17		72		6,371.0			4/10 - 04/17		3		3.8			6,374.8
1975	4/15 - 4/22	14.0	76		5,853.8	5.50			14.0						5,853.8
1976	5/08 & 6/01	13.0	66		2,584.2	3.01			13.0						2,584.2
1977	4/09 - 4/10	38.0	58		2,265.6	1.03		4/09 - 04/10	38.0	1		1.6	0.04		2,267.1
1978	4/17 - 4/21 <sup>b</sup>	106.0	75	5,000	1,329.5	0.17		4/17 - 04/21	106.0	38		61.7	0.02		1,391.2
1979	4/07 - 4/19	215.5	89	5,000	4,138.0	0.22		CLOSED <sup>c</sup>							4,138.0
1980	4/01 - 4/09	162.0	76	5,000	6,042.2	0.49		4/17 - 5/05		16		264.4			6,306.7
1981	4/01 - 4/09	60.0	106	5,000	13,768.2	2.16		4/16 - 4/18	53.0	18		234.5	0.25		14,002.8
1982	4/23	2.0	95	5,000	7,148.3	37.62	10-14%	4/24 - 4/26	54.0	18		393.9	0.41	12-15%	7,542.2
1983	4/13	1.0	103 <sup>d</sup>	5,000	2,728.5	26.49	11.0%	4/21 - 4/22	24.0	22		105.4	0.20	11.0%	2,833.9
1984	4/14	3.0	105 <sup>e</sup>	5,000	5,946.1	18.88	10-11%	4/18 - 4/22	59.0	23	250	342.7	0.25	8-14%	6,288.8
1985	4/28 - 4/29	4.0	103 <sup>f</sup>	5,000	6,764.1	16.42	10-12%	4/29 - 5/01	34.0	21	250	413.3	0.58	10-12%	7,177.4
1986	4/17	3.0	106	5-7,000	9,828.1	30.91	11.0%	4/24 - 4/28	90.0	24	3-400	448.6	0.21	11.4%	10,276.7
1987	4/08 - 4/09	1.5	96	3-5,000	4,982.2	34.60	10.0%	4/10 - 4/11	24.0	24	2-300	533.3	0.93	9.5%	5,515.5
1988	4/21 - 4/22	2.0	105	4-5,000	7,977.3	37.99	10.5%	4/23	5.5	24	275	353.0	2.67	10.0%	8,330.3
1989 <sup>g</sup>	Season Closed			6,400							375				0.0
1990	04/12	0.3	96	6,038	8,362.1	290.35	10.0%	04/13	4.0	24	353	505.4	5.26	10.6%	8,867.5
1991	4/09, 4/10, & 4/19	1.3	104	11,233	11,923.0 <sup>h</sup>	85.32	10.5%	04/18	10.5	24	657	742.0	2.94	11.06%	12,665.1
1992	4/13, 4/17, & 4/21	2.0	104	14,100	16,784.2 <sup>i</sup>	80.25	10.0%	4/23 - 4/24	11.0	24	825	940.6	3.56	10.8%	17,724.8
1993	No Harvest			15,586				4/15, 4/17-4/19	36.0	24	912	1,029.9	1.19	11.01%	1,029.9
1994 <sup>j</sup>	Season Closed			0	151.0 <sup>k</sup>						0				151.0
1995 <sup>j</sup>	Season Closed			0							0				0.0

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- <sup>a</sup> Guideline harvest based on pre-season harvest projections 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> Out of 103 boats participating, 72 actually made deliveries.
- <sup>e</sup> Out of 105 boats participating, 101 actually made deliveries.
- <sup>f</sup> Out of 103 boats participating, 62 made deliveries at Montagu Island and 90 made deliveries in the north-shore area.
- <sup>g</sup> All Pacific herring commercial sac 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 T/V Exxon Valdez oil spill.
- <sup>h</sup> Total for 1991 includes a 92.2 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 catch 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, 1969-1995.

Appendix H.6. Pacific herring spawn-on-kelp harvests from natural spawning, Prince William Sound, 1969 - 1995.

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	Percent	Price			
1969	5/18-5/31		3									5,424	2.7	21.7	
1970	4/19-6/06		34									190,374	95.2	761.5	
1971	4/18-5/15		159									769,481	384.7	3,077.9	
1972	4/30-5/20		397									600,453	300.2	2,401.8	
1973	4/23-5/26		176									306,358	153.2	1,225.4	
1974	4/22-5/04		143									580,588	290.3	2,322.4	
1975	4/25-5/10		328									916,919	458.5	3,667.7	
1976	4/21- ?		279									485,043	242.5	1,940.2	
1977	4/27-12/31		104									417,000	208.5	1,668.0	
1978	4/20-4/30		66	165	23%		50%				27% <sup>b</sup>	141,268	70.6	565.1	
1979	4/25-5/03		97	200								474,242	237.1	1,897.0	
1980	4/23-4/30	10	458	200	60%	\$1.25	40%	\$0.85				603,880	301.9	2,415.5	
1981	4/25	12	196	200	38%	\$1.25	60%	\$0.85			2%	122,532	61.3	490.1	
1982	5/05-5/08	73	152	187	83%	\$1.42	11%	\$0.95			6% <sup>b</sup> \$0.74	291,430	145.7	1,165.7	
1983	4/27	12	185	187	51%	\$2.00-2.45	35%	\$1.50-1.70			14% <sup>c</sup>	298,362	149.2	1,193.4	
1984	Season Closed <sup>d</sup>		225	187											
1985	5/06 & 5/08	20	106	169	51%	\$1.25	49%	\$0.50				60,832	30.4	243.3	
1986	4/30-5/03	86	29	142	97%	\$1.75		\$0.80			<sup>b</sup> \$0.80	95,205	47.6	380.8	
1987	4/15-4/17	44	59	103	90%	\$1.70		\$0.85			<sup>b</sup> \$0.80	176,485	88.2	705.9	
1988	4/29 & 4/30	12	159	103	64%	\$1.50	24%	\$0.75-1.00			12% <sup>b</sup> \$0.75-1.00	194,762	97.4	779.0	
1989	Season Closed <sup>e</sup>			110											
1990	4/21-4/22	16	134	104	37%	\$0.99	6%	\$0.52			57% <sup>b</sup> \$0.88	237,575	118.8	950.3	
1991	5/11-5/17	95	48	195					100%	\$0.75-0.85		215,147	107.6	860.8	
1992	4/24-4/30	101	217	243	21%	\$0.70			76%	\$0.40	3%	504,663	252.3	2,018.7	
1993	4/19-4/24	114	83	268					100%	\$0.55		325,181	162.6	1,300.7	
1994	Season Closed <sup>f</sup>			110											
1995	Season Closed <sup>g</sup>			0											

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- <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 *Macrocystis* 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 sac 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 T/V *Exxon Valdez* oil spill.
- <sup>g</sup> Season remained closed due to low herring abundance.

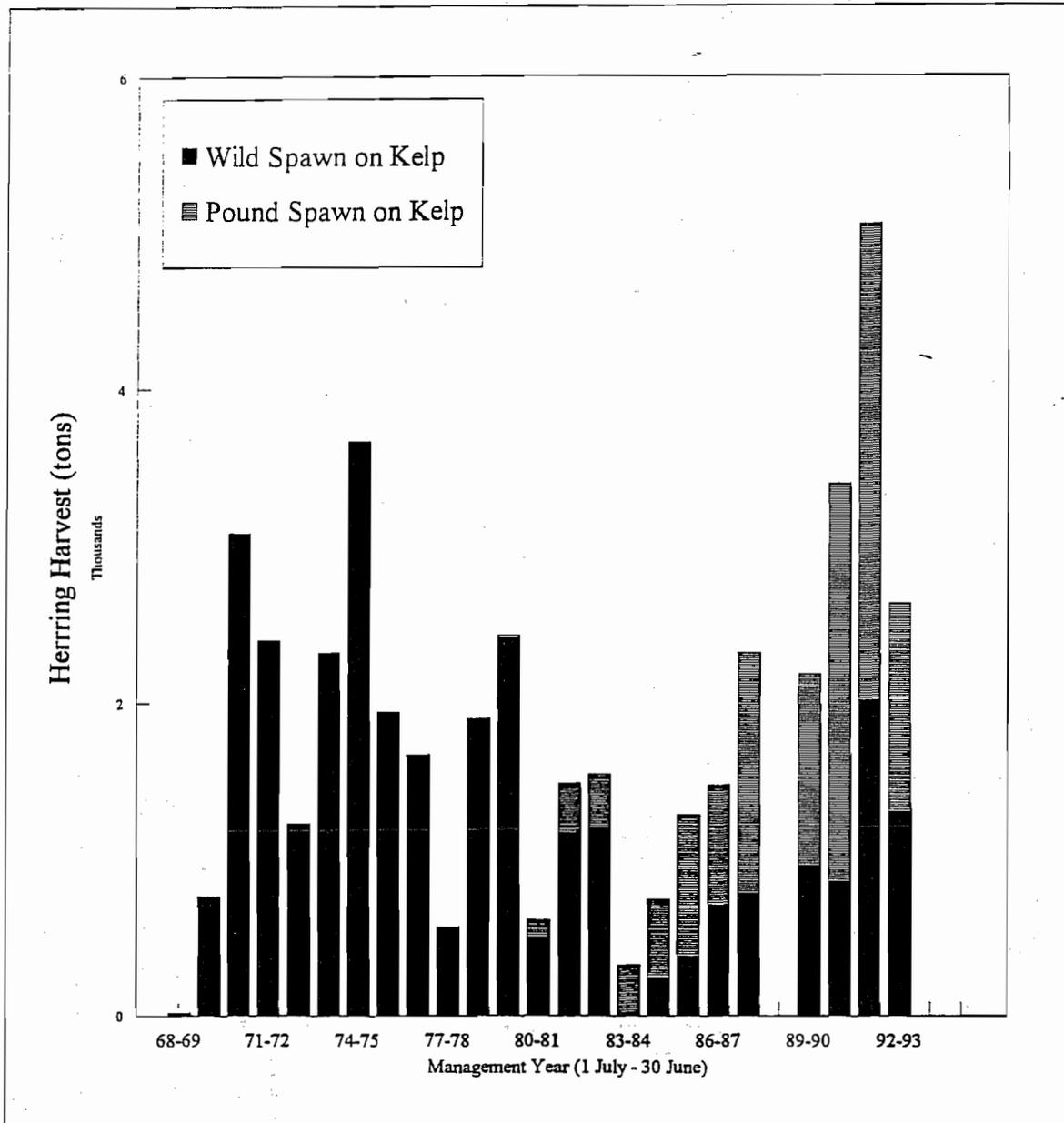
Appendix H.7. Pacific herring spawn-on-kelp harvest produced in pounds, Prince William Sound, 1979 - 1995.

Year	Fishery Dates <sup>a</sup>	Effort			Guideline Harvest (tons)	Blades Per Permit Holder	Spawn-on-Kelp Harvest <sup>b</sup> (tons)			Herring Utilized (tons) <sup>c</sup>
		Permits Issued <sup>b</sup>	Pounds Built <sup>c</sup>	Producing Pounds <sup>d</sup>			Ribbon	Macrocystis	Total	
1979		2	0							
1980	4/14	14	4	2	8		0.9	0.4	1.3	16.6
1981	4/14	18	18	7	16		8.6	1.1	9.7	120.7
1982	4/29-5/10	25	20	18	26		25.1	0.5	25.5	319.2
1983	4/30-5/04	47	38	26	26		17.7	10.1	27.9	348.8
1984	4/24-5/08	65	45	37	26		6.4	18.8	25.8	322.8
1985	4/25-5/07	81	59	50	40		12.1	28.1	40.2	502.1
1986	4/21-4/28	104	82	81	60		0	72.2	72.2	903.0
1987	4/10-4/21	111	111	108	85		0	61.2	61.2	765.1
1988	4/12-4/23	122	122	119	85		0	123.2	123.2	1,540.5
1989	Season Closed <sup>f</sup>									
1990	4/11-4/26	128	128	122	118		0	98.8	98.8	1,235.3
1991	4/07-4/20	126	126	119	220	1,200	0	202.4	202.4	2,530.5
1992	4/07-4/24	127	127	127	276	1,770	0	242.2	242.2	3,027.7
1993	4/10-4/22	128	124	52	305	1,950	0	106.4	106.4	1,330.5
1994	Season Closed <sup>g</sup>									
1995	Season Closed <sup>g</sup>									

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- a Dates that the fishery was opened to seines for the capture and placement of Pacific herring into pounds.
- b Commissioner's permits issued to applicants on register prior to the March 1 deadline.
- c Number of individual pounds constructed by the April 1 deadline, and consequently the number of individuals receiving an equal allocation of the guideline harvest.
- d Number of pounds 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.
- e The equivalent harvest of Pacific herring due to stress mortality and the removal of reproductive capacity of the population based on the assumption that 12.5 tons of Pacific herring are used to produce 1 ton of spawn-on-kelp product.
- f All Pacific herring commercial sac 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 T/V Exxon Valdez oil spill.
- g 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, 1968-1995.

Appendix H.9. Prince William Sound commercial Pacific herring food/bait fishery effort and harvests, management years 1969-1995.

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	a	-	14.0						
1970-1971	10/01/70	- 06/30/71	a									0.0	
1971-1972	10/01/71	- 06/30/72	a	-	20.0							20.0	
1972-1973	10/01/72	- 05/09/73	a	-	9.0							9.0	
1973-1974	08/27/73	- 04/17/74	a	b	8.5							8.5	
1974-1975	07/15/74	- 03/10/75	b									0.0	
1975-1976	06/01/75	- 06/25/75	c	b	4	226.7						226.7	
1976-1977	02/01/77	- 03/09/77	b									0.0	
1977-1978	10/01/77	- 02/28/78	b	-	17.0		-	145.3				162.3	
1978-1979	10/16/78	- ?	d	b	-	195.4	7	988.7	-	9.4	-	81.0	1,274.4
1979-1980	09/16/79	- 02/28/80	a	1,400	-	510.8	4	145.1	-	103.2	-	2.6	761.7
1980-1981	09/15/80	- 11/07/80		1,400	-	1,030.4	6	275.7					1,306.1
1980-1982	09/15/81	- 09/30/81		1,400	7	1,189.4	-	73.1					1,262.5
1982-1983	09/15/82	- 01/31/83		1,400	6	797.3							797.3
1983-1984	09/15/83	- 01/31/84		1,400	-	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	f	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	g	3,151	5	1,955.0			-	60.8			2,015.9
1991-1992	10/01/91	- 10/14/91		3,956	14	4,258.5							4,258.5
1992-1993	10/01/92	- 10/22/92	h	3,416	17	3,900.3							3,900.3
1993-1994	10/07/93	- 10/10/93	i	978	8	1,087.0							1,087.0
1994-1995	Season Closed j												0.0
1995-1996	Season Closed j												0.0
1996-1997													0.0

a Openings set by regulation. Ending date coincides with regulatory ending of sac roe season.

b No Official quota, but unofficial goal was 1,500 tons.

c 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 sac roe fisheries.

d Fishery closed from 1 January to 6 January 1979.

e Fishery closed from 1 January to 15 February 1980.

f 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 23. 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.

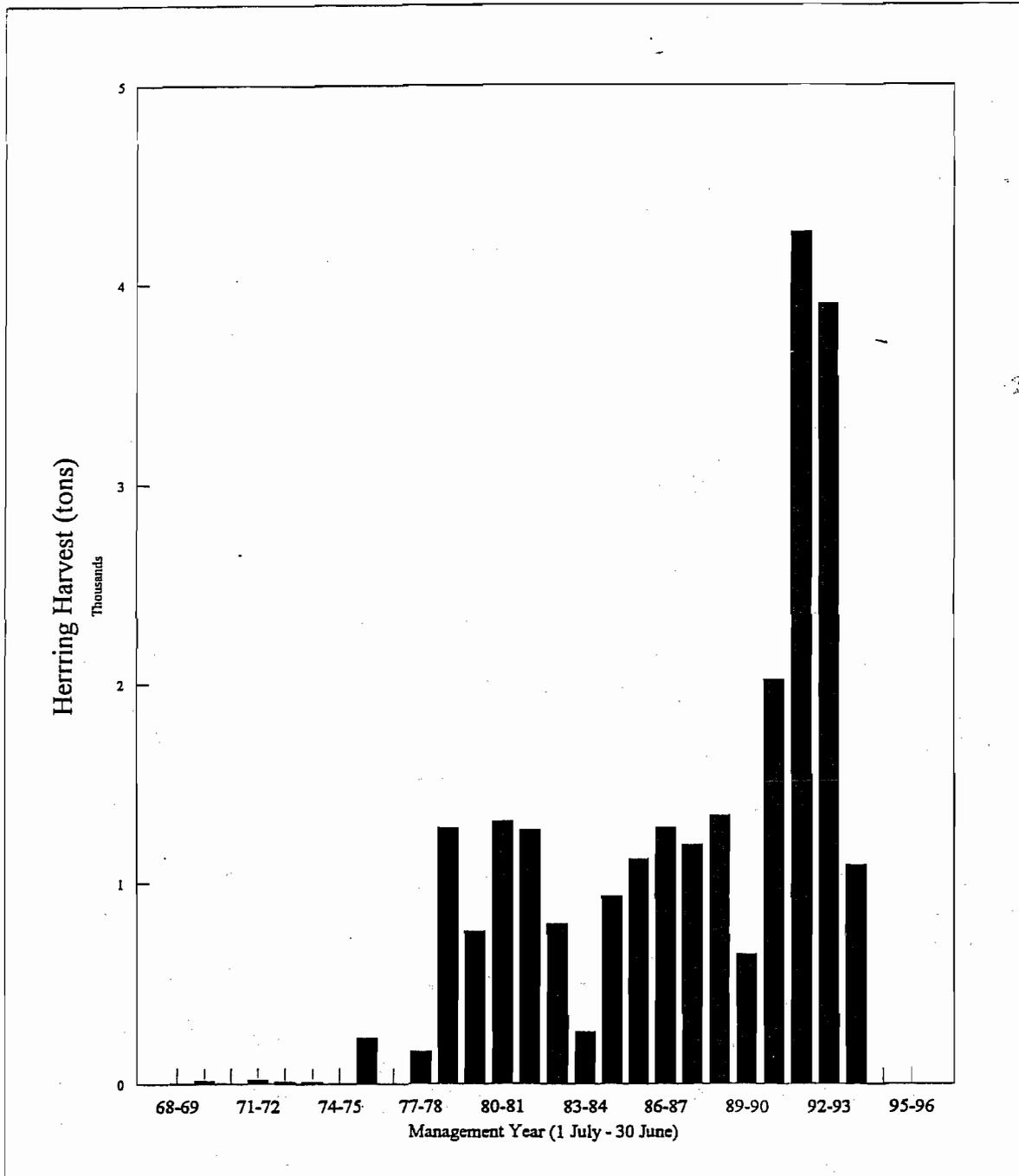
g Fishery open from September 21 until November 24. The Montague Island area was open from September 24 until November 24.

h 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 4,373 tons.

i Preseason guideline harvest level based on preliminary aerial survey biomass estimate of 40,000 tons.

j Season closed due to low herring abundance.

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



Appendix H.10. Prince William Sound commercial food-and-bait herring harvest, 1968-1995.

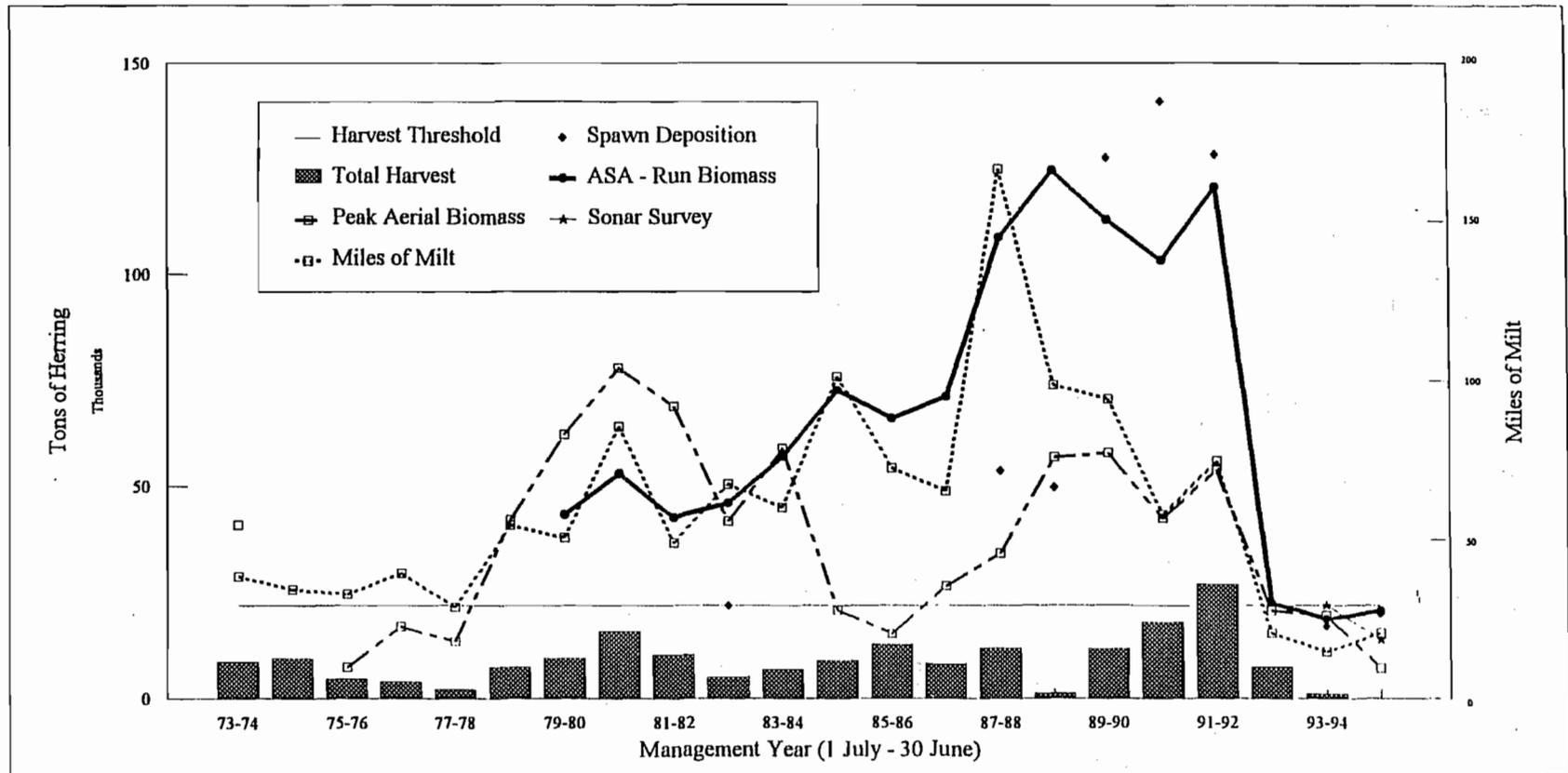
Appendix H.11. Annual Pacific herring biomass indices, Prince William Sound, for herring management years 1974-1995 and the forecast of prefishery run biomass for 1996.

Management Year	Aerial Survey Estimates					Unexploited Escapement Biomass		Pre-Fishery Run Biomass	Acoustic Survey Estimates	
	Total Sac Roe Harvest <sup>a</sup> (tons)	Peak Biomass Estimate <sup>b</sup> (tons)	Maximum Possible Observed Biomass <sup>c</sup>	Miles of Spawn <sup>d</sup>	Mile Days of Spawn <sup>e</sup>	Spawn Deposition Surveys <sup>f</sup> (tons)	Age Structured Analysis (tons)	Age Structured Analysis (tons)	Fall (tons)	Spring (tons)
		7,330	25,247	32.8	33.7		27,628.3	43,401.3		
1973-1974	6,374.8	41,080	107,290	38.5	75.2					
1974-1975	5,853.8			34.2	42.4					
1975-1976	2,584.2	7,330	25,247	32.8	33.7					
1976-1977	2,267.1	16,830	17,460	39.3	73.5					
1977-1978	1,391.2	13,410	36,540	28.7	36.3					
1978-1979	4,138.0	42,100	107,390	54.5	73.2					
1979-1980	6,306.7	62,110	122,050	50.5	73.9		27,628.3	43,401.3		
1980-1981	14,002.8	77,810	161,690	85.4	140.1		25,296.9	52,989.1		
1980-1982	7,542.2	68,790	97,620	49.0	65.1		22,731.8	42,903.0		
1982-1983	2,833.9	41,850	107,710	67.4	99.8	22,000 <sup>g</sup>	30,407.2	46,196.7		
1983-1984	6,288.8	58,870	158,760	60.1	86.8	58,089	38,157.6	57,022.5		
1984-1985	7,177.4	20,830	60,954	101.2	149.5		49,899.4	72,695.1		
1985-1986	10,276.7	15,180	54,820	72.4	152.3		41,541.7	65,971.0		
1986-1987	5,515.5	26,580	52,192	65.3	155.9		52,462.2	71,156.3		
1987-1988	8,330.3	34,270	67,175	166.3	236.9	53,785	84,199.9	108,671.2		
1988-1989	<sup>h</sup> 56,915	186,708	98.4	185.8	49,914	107,616.3	124,465.1			
1989-1990	8,867.5	57,900	145,013	94.1	144.4	127,478	98,289.7	112,998.9		
1990-1991	12,665.1	42,765	141,375	58.0	64.8	140,964	97,466.3	103,548.8		
1991-1992	17,724.8	53,835	130,569	74.7	99.5	128,263	130,100.1	120,657.8		
1992-1993	1,029.9	20,725	109,865	20.4	40.8		18,145.1	22,634.8		
1993-1994 <sup>i</sup>	0.0	19,640	154,008	14.6	20.0	17,069	18,420.7	18,852.8	22,046.2	
1994-1995 <sup>i</sup>	0.0	7,113	20,868	20.4	32.3	20,022	20,639.7	20,639.7	13,839.5	13,227.7
1995-1996 <sup>j</sup>								24,332.4		

- <sup>a</sup> Represents the combined common property seine and gillnet sac roe harvest in short tons.
- <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 spawn.
- <sup>e</sup> The sum of the daily observed linear miles of Pacific herring spawn.
- <sup>f</sup> Estimates are made from underwater surveys of spawn deposition.
- <sup>g</sup> Partial estimate of spawning biomass from feasibility study.
- <sup>h</sup> All Pacific herring commercial sac 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 TY Exxon Valdez oil spill.
- <sup>i</sup> Unexploited escapement and run biomass estimates from age structured analysis, November 1995.
- <sup>j</sup> Forecast from age structured analysis, November 1995.

## PWS Herring Biomass Estimates

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Appendix H.12. Prince William Sound annual herring biomass indices, harvest, and harvest threshold by management year, 1973-1995.

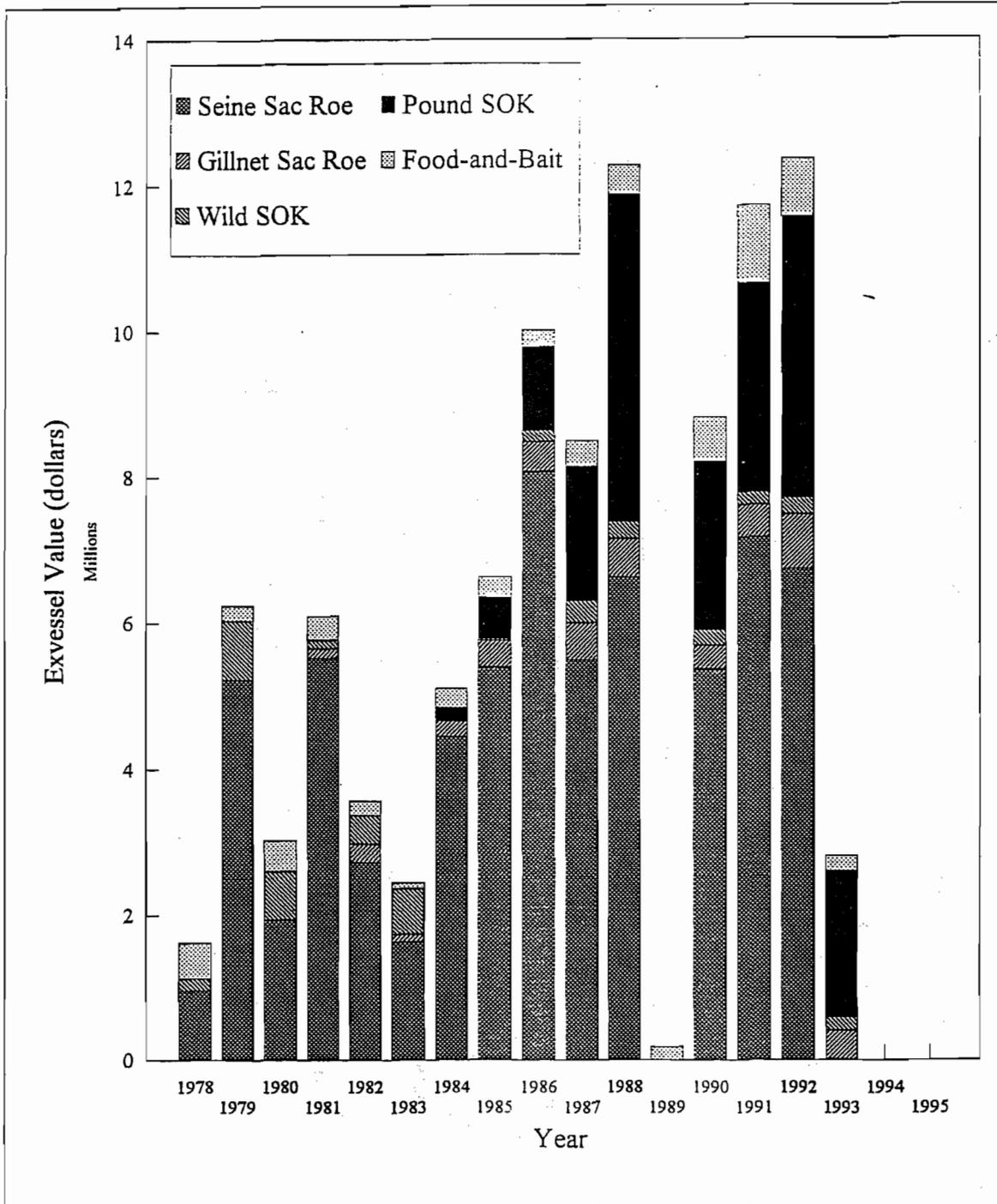
Appendix H.13. Mean price and estimated exvessel value of the commercial Pacific herring harvest by gear type based on verbal post season estimates from processors and fishermen, Prince William Sound for calendar years 1978-1995.

Calendar Year	Sac Roe Fisheries				Spawn on Kelp Fisheries				Food-and-Bait Fishery		
	Purse Seine		Gillnet		Wild Spawn on Kelp		Pounds		Mixed Gear		
	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	TOTAL VALUE
1978	\$720	\$956,800		\$0	\$1.25	\$175,000		\$0	\$380	\$489,820	\$1,621,700
1979	\$1,260	\$5,213,880		\$0	\$1.74	\$821,280		\$0	\$300	\$196,800	\$6,231,960
1980	\$320	\$1,933,760		\$0	\$1.09	\$667,080		\$0	\$300	\$424,800	\$3,025,640
1981	\$400	\$5,508,000	\$580	\$135,720	\$1.00	\$122,000		\$0	\$260	\$328,120	\$6,093,840
1982	\$380	\$2,716,240	\$640	\$251,520	\$1.29	\$397,320		\$0	\$220	\$194,260	\$3,559,340
1983	\$600	\$1,634,400	\$1,040	\$109,200	\$2.10	\$634,200		\$0	\$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	\$1,155,200	\$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		SEASON CLOSED		SEASON CLOSED		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	\$752,480	\$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		SEASON CLOSED		SEASON CLOSED		SEASON CLOSED		\$0
1995	SEASON CLOSED		SEASON CLOSED		SEASON CLOSED		SEASON CLOSED		SEASON CLOSED		\$0

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

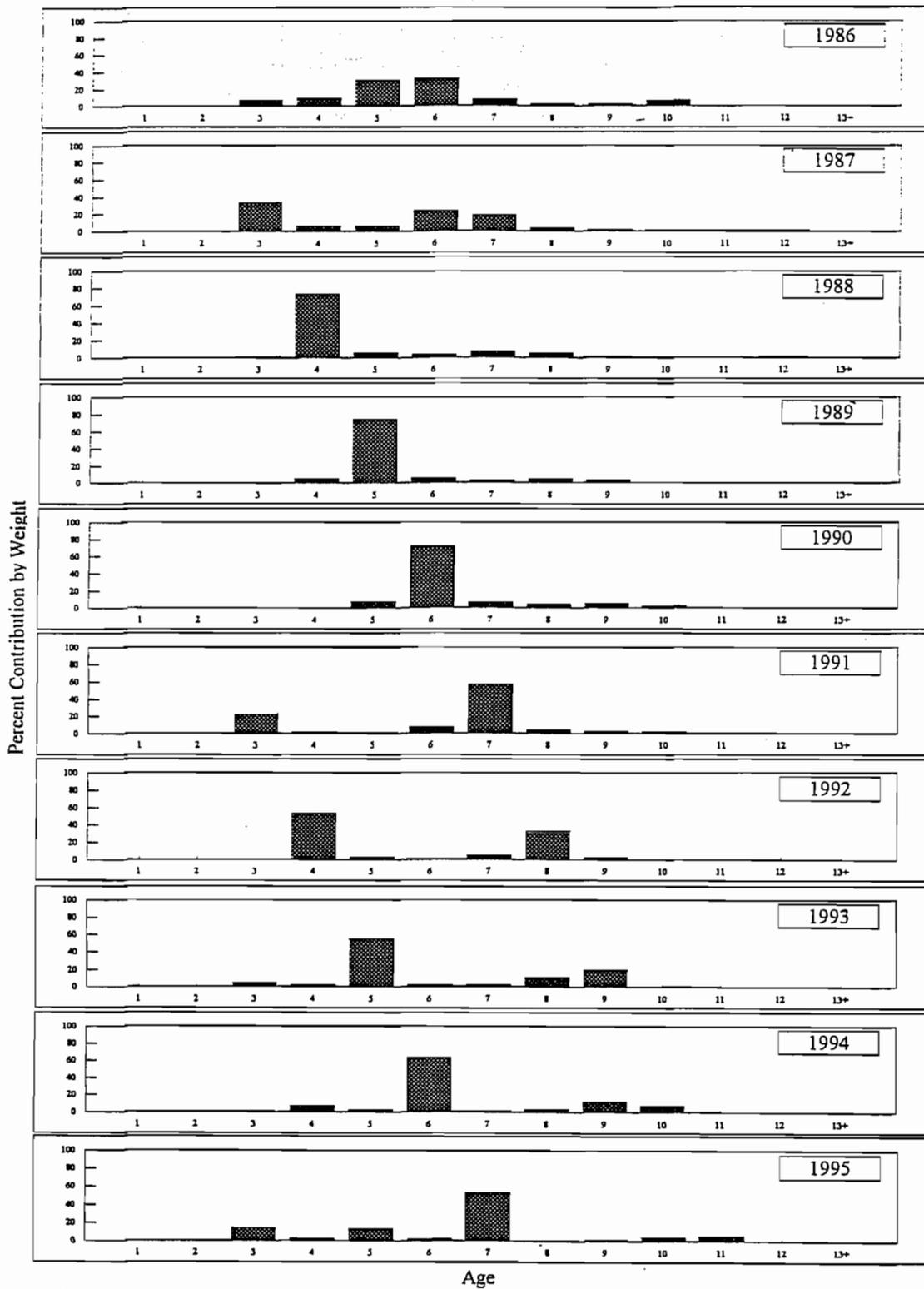
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## Exvessel Value of Herring Fisheries Prince William Sound



Appendix H.14. Average annual exvessel value of commercial herring fisheries, Prince William Sound, 1978-1995.

# 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, 1986-1995.

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