PRINCE WILLIAM SOUND MANAGEMENT AREA
1992 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.). The area includes the Bering River, Copper River and all of Prince William Sound with a total adjacent land area of approximately 38,000 square miles.

The Prince William Sound salmon management area is divided into eleven management 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 desired 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 management plans to manage fisheries and assist private non-profit (PNP) hatcheries in achieving cost recovery and brood stock objectives.

Gear types for the salmon fishery include purse seine, drift and set gillnets. Drift gillnet fishermen are the most numerous and are permitted to fish in the Bering River, Copper River, Coghill, Unakwik and Eshamy districts. During the 1992 season, 528 drift gillnet permit holders participated at least some time during the season. Set gillnet gear is legal only in the Eshamy district and 30 set gillnet fishermen participated in the fishery this season. Purse seine gear is legal in the Eastern, Northern, Unakwik, Coghill, Northwestern, Southwestern, Montague and Southeastern Districts. A total of 207 permits were active during the 1992 season.

Five herring fisheries occur in the area during the year. The management objective for herring is to target fisheries on a high quality segment of the biomass. All of the herring fisheries are managed by a guideline harvest level.

OVERVIEW OF AREA WIDE FISHERIES

The Prince William Sound Area commercial salmon harvest for 1992 was the smallest since 1978 with 11.4 million fish harvested, all species combined (Appendix A.2.). Pink salmon composed 75.7% of the season's harvest and was followed in abundance by sockeye salmon 15.5%, coho salmon 5.4%, chum salmon 2.9% and less than 1% chinook salmon.

The sockeye salmon harvest in the Copper River District was above the long term average. The sockeye escapement goal was achieved for the upper Copper River, however slightly less than desired escapement occurred on the Copper River Delta. Sockeye harvest in the Bering River District was average and escapement was above average. The harvest of coho salmon in the Copper and Bering River Districts was average, however escapement of coho salmon in both districts was below average. The sockeye salmon escapement goal was achieved at Eshamy and Coghill Lakes. The 1992 escapement goal for Coghill Lake

was reduced from 50,000 to the interim goal of 30,000 due to recent limnological information. Hatchery sockeye in the Eshamy District returned close to the forecasted level.

Pink salmon returns to all hatcheries were well below forecast. The wild stock pink salmon return was weak as expected. The harvest rate of wild pink salmon was above the rate necessary to achieve the escapement goal. The harvest rate caused the lowest escapement for an even year return since statehood. The wild stock chum salmon return was low throughout the summer and did not provide for a directed harvest. Hatchery coho and chum salmon did not return as forecast to the Sound's hatcheries.

The value of the combined commercial salmon harvest is estimated at $36.5 million, including hatchery sales (Appendix A.5.). The drift gillnet catch is valued at $26.8 million, setting the average earnings for the 528 permit holders at $50,782. Seiners harvested $3.7 million worth of fish setting the average earnings for the 207 permit holders at $17,729. The set gillnet harvest is valued at $1.6 million, making the average earnings for each of the 30 permit holders approximately $54,557.

The value of the 1992 herring fisheries is estimated at $11.8 million. The sac roe seine fishery is valued at $6.64 million, for an average earning of $63,846 for the 104 permit holders. The gillnet sac roe fishery is valued at $0.75 million, setting the average earnings for the 24 permit holders at $31,333. The pound spawn-on-kelp fishery is valued at $3.4 million, setting the average earnings for the 127 permit holders at $26,772. The wild spawn-on-kelp fishery is valued at $0.233 million, setting the average earnings for the 215 permit holders at $1,085. The food and bait fishery is valued at $0.78 million, setting the average earnings of the 17 permit holders at $45,885.

1992 SEASON SUMMARY BY DISTRICT

COPPER RIVER DISTRICT

PRESEASON OUTLOOK AND HARVEST STRATEGY

The 1992 harvest forecast for the Copper River District was 40,700 chinook, 960,200 sockeye, and 313,000 coho salmon. The Gulkana Hatchery was expected to contribute 116,700 sockeye to the commercial catch. Chum and pink salmon are also present along with steelhead but historically make up less than 2 percent of the catch so they are not forecasted.

The early season management strategy in the Copper River District is based on actual catch plus effort compared to the anticipated catch. The weekly anticipated catch is a percentage of the forecasted harvest. The percentage is based on the average weekly catch from 1971 - 1991, including only those years which have similar fishing patterns (ie, nonstrike years). This provides the most reliable method of evaluating early run strength prior to the installation of inriver sonar to estimate escapement. Two evenly spaced 24-hour periods per week beginning 7:00 a.m. on Mondays and 7:00 p.m. on Thursdays are optimum; however, the fishing schedule is adjusted inseason as the situation dictates. Effort, tides and environmental conditions also enter into the interpretation of the data. In late May, the upriver escapement data from Miles Lake sonar project becomes the primary factor governing the management of the fishery. By mid-June aerial estimates of sockeye escapement in the Copper River Delta are evident and are also considered

when periods are scheduled. Due to numerous spawning systems in the lower Copper River Delta, an actual escapement enumeration is not obtained. An escapement index is estimated through weekly aerial surveys. The observed escapements are then compared to the anticipated weekly escapement which is an average of past year's (1971 - 1991) escapement observations.

Typically, the coho management strategy is implemented the second week of August. In the past, the strategy provided a single fishing period per week but of longer duration than is commonly used during the sockeye season. As in the sockeye salmon fishery, escapement estimates for the early portion of the coho salmon return are not immediately available and the fleet is managed using catch and effort as indicators of run strength. Effort and harvest techniques have increased over time which requires adjustments in the management strategy. Reduction in the length of fishing periods has occurred thereby reducing the exploitation of coho salmon early in the season. Weekly fishing periods were reduced from 72 hours to 48 hours in 1989, from 12:00 noon Monday to 12:00 noon Wednesday. In 1992, the weekly schedule was altered to two 24-hour periods per week . The department felt this fishing schedule allowed greater flexibility in responding to catch data early in the run. Modification of fishing times during the coho salmon season occur based on escapement trends in the principal delta spawning streams.

SOCKEYE AND CHINOOK SALMON FISHERY

The sockeye salmon harvest within the Copper River District was 971,000 slightly above the 10-year average of 925,800 sockeye salmon (Appendix B.1). Escapement to the upper portion of the Copper River surpassed the minimum goal of 511,000 salmon for a total of 601,952 salmon. Escapement into the Copper River delta systems was 76,827 approximately 14 percent below the anticipated. The chinook salmon harvest was 39,810 slightly above the 10-year average of 37,850 chinook salmon.

The 1992 commercial season began at 7:00 a.m. Friday, May 15 for a 12-hour period. With a higher than average harvest forecast for both sockeye and chinook salmon, the preseason announcement on April 1 set May 15 as the opening for the 1992 season. Action was taken to reduce the harvest on the early portion chinook stock by reducing the period from the traditional 24-hour period to 12-hours. As May 15 approached, temperatures remained cold with little ice and snow melt occurring. This resulted in an extremely low water discharge with ice remaining on the river till late May. The late spring raised concern as to whether sockeye and chinook salmon would hold in the mouth of the river instead of migrating upriver. Break-up for a typical spring generally occurs in mid-May.

The May 15 opening harvested 10,250 sockeye salmon far below the 32,000 anticipated (Appendix. B.2-B.3). The chinook salmon harvest of 5,470 was slightly above the anticipated 4,500 (Appendix B.5). The low sockeye harvest was either attributable to a weak or late run, or that sockeye were holding offshore due to the low water level. A conservative approach was taken to ensure sufficient protection to early run stocks; two 12-hour periods followed. The reduced periods decreased the fleet's time to locate milling sockeye salmon after the clean-up near shore. The 12-hour periods also allowed additional time for escapement between periods.

The last week of May is historically the peak week for sockeye harvest in the Copper River District. With that approaching the department increased the fishing time to the traditional two 24-hour periods. It was expected that the Copper River would be flowing at its normal rate and sockeye would be entering the freshwater systems. The sockeye harvest of 208,000 was slightly above the 195,000 anticipated for that week.

Due to the late break-up, Miles Lake sonar was operational May 27, five days later then the past four years (Morstad, 1992). Escapement past the sonar station progressed slower than anticipated (Appendix B.7 and B.8). Cumulative sockeye escapement was 92 percent behind the anticipated on May 30, however, only three days of escapement had been monitored. Comparing the three days of actual escapement to the anticipated escapement, actual escapement was still 80 percent behind the anticipated. With extremely weak escapement up the Copper River, commercial fishing was reduced to one 12-hour period during the week of June 1. Escapement during the following two weeks offered some improvement and a continuation of two 12-hour periods per week continued.

Actual cumulative escapement matched the anticipated cumulative escapement at the Miles Lake sonar on June 15. Escapement into the lower delta systems (Appendix B.9) were performing well for mid-June. With escapement up to expectations and commercial fishing effort switching to district openings in Prince William Sound, the fishing schedule increased to one 24-hour and one 36-hour period each week. This schedule continued until the week of July 6 when the schedule increased to one 36-hour and one 48-hour period. This increase was due in part to the reduced fishing effort, the continued strong escapement past Miles Lake sonar and the lower delta. Additional time was allowed during the week of July 20, when the Copper River District was open for 108 hours. The following week the schedule was reduced to two 48-hour periods and reduced again during the week of August 3 to two 24-hour periods. This reduced fishing schedule was to protect milling coho salmon.

The Bendix side-scanning sonar counter was deployed in the Copper River near Miles Lake from May 27 until July 31, 1992. Since sockeye salmon make up an estimated 95 percent of the total sonar counts, all counts are referred to as sockeye. Chinook salmon are present through late June and coho appear in late July. The migration time for salmon to travel from the Copper River District to the sonar site at Miles Lake is estimated at seven to nine days.

Escapement of sockeye salmon for the upper Copper River surpassed the minimum objective of 511,000 salmon, for a cumulative total of 601,952 salmon past the Miles Lake sonar through July 31. Escapement of sockeye salmon within the lower delta systems was 76,800, 14 percent below the anticipated (Appendix B.9). In recent years, declining abundance has been observed for the lower delta stocks. Past management strategies have called for total area closures. The response has been a significant increase in the upriver component as well as an increase in the lower delta stocks as demonstrated in 1992. The increase in delta escapement occurs for a brief period and is also over compensated by surplus escapement upriver. Future strategies to increase the lower delta and upriver stocks include section closures within the commercial district and shorter fishing periods to correspond with area and times of peak delta stock abundance. Observations during the 1991 and 1992 seasons indicated the 12-hour periods during late May and early June may have reduced harvest on the milling offshore delta stocks while allowing adequate fishing time on the migrating upriver stock component. This strategy may alleviate future district wide closures to ensure Copper River Delta escapements.

COHO SALMON FISHERY

Management of the coho fishery began the week of August 10, with two 24-hour periods. The harvest for the week ending August 15, was 17,000 coho salmon, the anticipated for the same week was 25,600 (Appendix B.5). During the week ending August 22, two 24-hour periods occurred with a harvest of 71,850 coho salmon. The harvest was 30 percent above the anticipated for the week and eight percent above the anticipated cumulative total. The escapement index on August 20 was 1,800 coho salmon, far below the anticipated 5,100 (Appendix B.14). During the week of August 29, the fishing schedule was adjusted to one 48-hour period. The fishing schedule for the next two weeks was one 48-hour and one 24-hour period each week.

Catch was slightly below the anticipated by the week ending September 12. An aerial survey on September 8 indicated escapement was slightly above the anticipated. Several systems were not included in the survey due to poor weather conditions. The survey on September 14 estimated that delta systems were approximately 40 percent behind the anticipated. The district remained closed until September 21 when a 48-hour period was allowed. A survey on September 22 saw little change in the escapement and the Copper River District closed for the season on September 23.

The last aerial survey of the Copper River Delta was on October 5. The final peak aerial survey index for the Copper River was 44,563, fifteen percent below the anticipated (Appendix B.14). Escapement counts traditionally continue into late October but were discontinued due to lack of funds.

BERING RIVER DISTRICT

PRESEASON OUTLOOK AND HARVEST STRATEGY

The 1992 harvest forecast for the Bering River District was 20,000 to 30,000 sockeye salmon and 222,000 coho salmon. Chinook salmon are present but not in significant numbers. The Bering River District sockeye fishery begins in mid-June almost one month after the Copper River District opens. The sockeye run timing which has a very short time frame, typically occurs during the third week of June. Commercial fishing periods in the Bering River District generally coincide with the Copper River District (Appendix B.28). However, if escapement trends fall below the anticipated, the fishing schedule will be modified. Due to the short run timing of the Bering River sockeye stock, evaluating escapement sometimes results in shortfalls or surpluses in any given year. The Bering River District, unlike the Copper River District, does not have a long historical catch database for sockeye salmon. Prior to 1985, a majority of the sockeye salmon harvested were on the south side of Kayak Island and destined for other spawning systems (McCurdy, 1985). The Alaska Board of Fisheries (BOF) closed this area to commercial fishing in 1986. All catch information prior to 1986 includes those waters closed by the BOF. When a sufficient data base is constructed, weekly anticipated catches for the Bering River District will be available.

The Bering River District's coho salmon fishery is also managed concurrent with the Copper River District whenever possible. However, unlike Bering River sockeye salmon, assessment of coho salmon run strength prior to aerial surveys is based on weekly anticipated catch information and compared to the actual catch. The south side of Kayak Island was not fished during the coho season prior to 1986 so the influence observed in the sockeye fishery did not affect the coho fishery.

SOCKEYE SALMON FISHERY

The 1992 catch of 19,721 sockeye was slightly below the preseason harvest forecast (Appendix B20). The actual observed escapement index for the Bering River system was 55,895 and the anticipated was 31,773 sockeye salmon.

An aerial survey on June 11 observed 5,280 sockeye salmon in the Bering River and Bering Lake system. The anticipated index for the same time period was 1,517 sockeye salmon (Appendix B.22). Based on the strong escapement index the Bering River District opened June 15, with 33 fisherman harvesting 13 chinook, and 5,701 sockeye salmon (Appendix B.21). Sockeye salmon escapement continued above the anticipated throughout the season. With escapement above the anticipated, a continuation of the commercial fishery was allowed. The Bering River District remained on the same schedule as the Copper River District for the remainder of the sockeye season. Effort after the second period was minimal, with 51 deliveries reported during the following 15 periods.

COHO SALMON FISHERY

The cumulative harvest of 125,600 coho salmon was slightly above the 10-year average of 122,000 coho salmon. The final 1992 escapement index was 16,300 coho salmon, 25 percent below the historical average.

Effort for coho was first reported the week of August 17 when 4,250 coho were harvested by 22 vessels during two 24-hour periods. The anticipated harvest for the same time period was a mere 586 coho salmon (Appendix B.23). During the week of August 24 the fishing schedule was modified to one 48-hour period. Effort increased to 43 vessels harvesting 16,300 coho salmon, 50 percent above the anticipated. Harvest continued to surpass the anticipated and an additional 24-hour period was allowed the week of August 31. Aerial surveys were flown each week but prior to the first week of September both actual and anticipated were low (Appendix B.24). The survey flown on September 3 observed only 4,710 coho salmon, 60 percent below the anticipated. Fishing time was reduced to one 48-hour period the week of September 7. This action was necessary due to the lower than anticipated escapement. This schedule remained in effect until September 23 when the Bering River District closed for the season.

COGHILL DISTRICT (prior to July 21)

PRESEASON OUTLOOK AND HARVEST STRATEGY

Prior to July 21 drift gillnet is the only legal gear type in the Coghill District. Starting July 21 both purse seine and drift gillnets are allowed. The management strategy prior to July 21 is based primarily upon the natural return of sockeye salmon at Coghill Lake and the enhanced return of chum salmon at the Noerenberg Hatchery. A small return of hatchery chinook salmon is incidental to the early chum return.

The outlook for Coghill sockeye was a return of 18.5 thousand fish. During the winter of 1991-92 area management and research staff reviewed limnological information on Coghill Lake and developed an interim escapement goal of 25,000 to 30,000 sockeye until new information becomes available. Since the

interim escapement goal was greater than the expected return there was no anticipated surplus. If the Coghill return materialized as forecast, minimizing fishing time in the Esther Subdistrict for early chum salmon returning to the Noerenberg hatchery would be essential. The early chum run was forecast to be 1.09 million fish, of that approximately 818 thousand were projected for the common property fishery.

Based on the sockeye and chum salmon forecasts and run timing, the Esther Subdistrict was scheduled to open mid-June for two 24-hour fishing periods per week. However, based on recent chum performance this schedule was optimistic. Minimizing fishing time in the Esther Subdistrict would allow wild stock sockeye to reach Coghill Lake, yet allow the fleet an opportunity to target early hatchery chums and provide for corporate escapement. To alleviate congestion, openings would coincide with other drift gillnet openings whenever possible.

SEASON SUMMARY

The common property harvest of 173,595 early run chum salmon was well below forecast. The brood stock goal of 114,000 was exceeded and the hatchery operator sold 50,874 chum salmon throughout the season. The interim escapement goal of 25,000 sockeye at Coghill Lake was met. The hatchery harvested 1,091 chinook for brood stock and 849 for cost recovery. No directed management action was taken for chinook salmon. All commercial harvests were confined to the Esther Subdistrict.

The Esther Subdistrict opened on June 11, for 24-hours to target hatchery chum salmon. Lake and Quillian Bays were closed to commercial fishing to allow PWSAC to utilize this area to harvest salmon for corporate escapement. To help maintain quality of early chums, the markers in the south end of Esther Pass were temporarily moved north to the vicinity of Shoestring Cove. The balance of the Coghill District remained closed to protect sockeye salmon returning to Coghill Lake. The harvest for the first period was 4,087 chum and 121 sockeye (Appendix C.1). By June 14, only 3% of the expected chum brood stock was collected. After reviewing catch and brood stock acquisition information, the Esther Subdistrict was closed to provide the hatchery with additional brood and to conserve Coghill sockeye, where early escapement counts were less than expected.

Throughout June, hatchery chum and Coghill sockeye continued to perform well below expectations. In late June chum brood stock collection increased, closing the deficit to less than 10 percent. At the same time sockeye escapement at Coghill Lake increased although actual escapement was still less than 50 percent of expected. The Esther Subdistrict opened for a second 24-hour fishing period on June 29. The harvest was 73,727 chum and 11,857 sockeye. On July 1, PWSAC asked the department to manage the Noerenberg early chum and Main Bay sockeye runs in aggregate. The aggregate management goal was to divide the combined value of the two runs between the common property fishery and the hatchery operator so that PWSAC received 30 percent. Rather than basing management decisions on the number of fish by facility the department simultaneously tracked the harvested weight and value of both the chum and sockeye runs.

The next period on July 3 was reduced to 12-hours to conserve Coghill sockeye and the harvest was 35,990 chum and 13,910 sockeye salmon. Two weekly 12-hour periods continued until July 17. The terminal harvest area of Lake and Quillian Bays opened to the common property fleet on July 13 as the brood stock goal was met. Due to low escapements of wild pink and chum stocks in the northwestern sound the Esther Subdistrict closed from July 18 - July 26. On July 27 the directed pink salmon fishery

began. Further discussion of this portion of the fishing season is provided in the section pertaining to the *General Purse Seine Districts.*

Sockeye escapement at the Coghill weir was low during June, however escapement increased throughout July. The weir was pulled on August 2 and the cumulative sockeye salmon escapement was 29,642 fish, achieving the interim goal of 25 - 30,000 (Appendix C.4.). After two years of low escapement and the weak 1992 forecast this year's escapement was a welcome change (Appendix C.6.).

During the spring of 1992 a high incidence of bacterial kidney disease (BKD) infected juvenile coho at the Wally Noerenberg Hatchery. To reduce handling of diseased fish, coded wire tags were not applied. The annual management plan was amended to forego the tagging in 1992.

UNAKWIK DISTRICT

PRESEASON OUTLOOK AND HARVEST STRATEGY

The Unakwik District is the smallest in the management area. Both drift gillnet and purse seine are legal gear types during all commercial fishing periods. This district was established for management of sockeye runs to Miners and Cowpen Lakes. These runs are relatively small and a formal forecast is not made. Escapement enumeration into both lake systems is via aerial survey, however water clarity is poor thus escapement indices are considered qualitative at best.

Historically this district was managed concurrently with the Coghill District, as the commercial catch from both areas cycled in a similar fashion. However with the recent decline of the Coghill stock, the department has managed the Unakwik District on a schedule of two periods per week during the 1991 and 1992 seasons. The management strategy for the Unakwik District was to allow two 24-hour periods per week coinciding with other gillnet openings. Fishery performance, measured by catch/boat hour, was evaluated against historic catch and effort.

SEASON SUMMARY

The 1992 harvest was 17,236 pink and 2,266 sockeye salmon with minor amounts of chum, coho, and chinook. The sockeye harvest was below the 10-year average of 17,645 (Appendix C.10).

The Unakwik District opened on June 18, to a schedule of two 24-hours periods per week to target sockeye runs to Miners and Cowpen Lakes. The first reported harvest was on June 25 for drift gear and July 30 for seine gear. No changes were made to the fishing schedule throughout the season that extended until September 2. No landings from this district occurred after mid-August. Reported effort and harvest was initially low, however catch and effort increased in late June and early July. The peak aerial survey estimate for Miners Lake was 2,160 and for Cowpen Lake 250 (Appendix E.13).

PRESEASON OUTLOOK AND HARVEST STRATEGY

Both set and drift gillnets are allowed in the Eshamy District. The Main Bay Hatchery expected 739,800 (Coghill stock) sockeye salmon and 320,000 late run pink salmon. The pink salmon were remote released in Main Bay during 1991 and originated from the Wally Noerenberg Hatchery. The district has wild stock sockeye at Eshamy Lake and wild pink salmon throughout the district.

The management strategy for the Main Bay sockeye run was to allow two 36-hour periods per week coinciding with other gillnet openings whenever possible, to reduce congestion and effort. Adjustments to the schedule would occur depending upon corporate escapement in the special harvest area (SHA). This was the first season of cost recovery at the Main Bay Hatchery and a special harvest area was delineated at the head of Main Bay that encompassed approximately one half of the Main Bay Terminal Harvest Area. The Special Harvest Area was utilized by the hatchery operator during closed periods and the commercial fleet utilized the SHA during open periods. In addition, a brood holding area was defined by a barrier seine that encompassed approximately one half of the Alternating Gear Zone (AGZ). The brood area and waters within 50 feet of the barrier seine were closed to fishing. The creation of the brood holding area caused displacement of setnet sites. In the Main Bay Subdistrict an emergency order was issued allowing commercial fishing within the 500 yard anadromous stream closures from June 15 through July 7.

Since Coghill stock sockeye have an earlier run timing than Eshamy sockeye, the district was initially managed upon concerns for Coghill lake and the Main Bay hatchery. In mid-July management priority changed to Eshamy Lake sockeye and wild stocks of pink and chum salmon.

SEASON SUMMARY

The common property harvest of 518,164 sockeye salmon was very close to the harvest forecast. The hatchery operator sold 158,891 sockeye. The sockeye brood stock goal of 5,300 was achieved and acquisition by the hatchery tracked well with the preseason expectation. Gillnetters also harvested 544,115 pink salmon. The sockeye escapement goal at Eshamy Lake was met.

The entire district opened on June 15 and continued on a schedule of two periods per week through July 16 (Appendix D.9.). On July 1, PWSAC asked the department to manage the Noerenberg early chum and Main Bay sockeye runs in aggregate. Thereafter, the duration of commercial fishing periods was influenced by the value of corporate escapement of the combined Noerenberg chum and Main Bay sockeye runs. By the end of the season, PWSAC received 29.6 percent of the combined value of the two runs.

Shallow gear was retained by emergency order after the first Monday in July in the Coghill, Unakwik and Eshamy Districts. This action was intended to reduce the interception of Coghill and Unakwik sockeye salmon and remained in effect until July 20 when deep gear was allowed.

After the July 16 period the Crafton Island Subdistrict was closed to protect wild stocks. The Main Bay Subdistrict opened for 12-hours on July 20. The entire district was closed from July 21 - 26 to protect wild pink and chum escapements, improve wild sockeye escapement at Eshamy weir, and provide

corporate escapement for the Main Bay Hatchery. Beginning on July 27, the Main Bay Subdistrict opened for two 48-hour periods per week to harvest hatchery sockeye and remote released pink salmon returning to Main Bay, however the AGZ was closed from July 27 - August 5 to protect hatchery brood stock. The Main Bay Subdistrict including the AGZ was open on a continuous basis from August 6 until September 30.

By the end of July sockeye escapement into Eshamy Lake was slightly ahead of projection. On July 30 Eshamy Bay opened for a 12-hour period to target Eshamy Lake sockeye. Due to increasing escapements a 48-hour period was scheduled for August 3-5 and the area open in Eshamy Bay was enlarged to include a portion of Eshamy Lagoon. To protect pink salmon, mesh size was restricted to a minimum of 5 1/4 inches in Eshamy Bay and Lagoon. Beginning on August 6 Eshamy Bay and Lagoon were open on a continuous basis, however, the opening in Eshamy Lagoon was enlarged on August 10 to include all but the head of the lagoon. The Eshamy weir was removed on August 31 at which time the escapement was 36,231 (Appendix D.3.). The entire Eshamy District closed for the season on September 30.

The sockeye program at Main Bay has greatly increased effort in the Eshamy District over historic levels. In early July there were approximately 350 permits fishing the district. Due to this high number of vessels operating in a relatively small area, friction has developed between gear types in certain areas as they vie for preferred sets especially at the beginning of fishing periods when sockeye are schooled near the beach. Several times during the season Fish & Wildlife Protection had to maintain law and order rather than ensuring that fish resources were being protected in the Eshamy and Esther areas.

From June 21 until July 12 the department's research staff conducted a sockeye stock composition study. The department utilized commercial vessels during weekend test fisheries primarily in the Eshamy District and secondarily in the Esther Subdistrict. The project will attempt to discriminate stock composition in the two areas by using scale pattern analysis. The intent of this project is to improve understanding of migration routes of sockeye salmon destined for Coghill Lake and the relative interception during the Main Bay sockeye and the Esther chum fisheries. The project is expected to continue in 1993 and results will be reported in the department's report series.

GENERAL PURSE SEINE DISTRICTS

PRESEASON OUTLOOK AND HARVEST STRATEGY

The outlook for the general purse seine fishery was for a catch of 19 million pink salmon and 681 thousand chum salmon. Hatchery production was anticipated to account for 95% of the pink harvest while 85% of the chum harvest was expected from wild stocks.

Prior to the 1992 season, the P.W.S. Salmon Harvest Task Force (SHTF) prepared a management plan. The management recommendations developed for 1992 departed from the plan of the previous two years. During early to mid-July, priority was given to protecting the wild pink salmon stocks. The recommendations accepted greater risk with wild stocks in late July and August to harvest the expected large run of hatchery pink salmon.

To determine the level of management risk during early summer, escapement was defined by three categories.

1) Shortfall - Wild stocks less than 80% of expected weekly escapement. No general district fishing. Area specific chum fisheries can occur if little impact to early pink salmon. VFDA return harvested in terminal area.

2) Adequate - Wild stocks between 80 - 90% of the expected weekly escapement. Two 12-hour periods per week to occur with enlarged bay closures. VFDA return harvested in near terminal area.

3) Achievement - Districts performing at 90% of weekly escapement expectations or above. Allow fishing in eastern P.W.S to balance wild escapement with common property harvest. Valdez Arm area managed to achieve VFDA corporate escapement.

Beginning July 27 less emphasis was placed on achieving wild stock escapement. Nonterminal fishing would be allowed to assess the expected large hatchery return. If wild stocks are less than 80% of expected weekly escapement goals, the department would allow two 6-hour periods in the southern half of the Southwestern District (general waters). Two 12-hour periods in hatchery subdistricts will occur on the same day as the 6-hour openers. Additional periods in the subdistricts will be allowed to adjust corporate escapement with common property harvest. If wild stock escapement was at least 80 percent of the weekly goal the 6-hour periods would be replaced with 12-hour periods in the southern half of the Southwestern district. When wild stock escapement was at least 90 percent of the goal, general district fishing would occur in all districts that warrant fishing.

Beginning on or about August 1 the management strategy would place emphasis on the large hatchery return. With relatively little experience managing large hatchery runs the department agreed to a corridor strategy in western Prince William Sound to gain information on wild stock interception. Fishing periods of 12-hours duration were scheduled every other day. To provide a migration zone for wild stocks, the general waters of the southern half of the Southwestern District was divided into an east and west corridor. The eastern Montague Strait corridor and the western Knight Island corridor. The Knight Island corridor includes the east shore of Chenega Island except when a sockeye escapement shortfall develops at Eshamy Lake. The fishery would utilize the east corridor for a period and then the west corridor for the next period. The strategy for the season was to alternate corridors to allow wild stocks through the fishery.

In response to unutilized pink salmon during the 1991 season the Department of Commerce and Economic Development (DCED) reviewed processing capacity and market conditions for the 1992 season. DCED identified three conditions that may cause problems in 1992; if salmon entry into the sound is delayed; if the hatcheries are unable to sell cost recovery fish; or if the run is significantly larger than forecast. Based on DCED's finding, the State of Alaska was willing to address contingency plans to prevent a repeat of the 1991 season, especially if new markets could be developed that did not compete with the pink salmon market in the U.S. or Japan.

Oceantrawl Inc., of Seattle Washington obtained internal waters processing permit 92-01 in July of 1992. Under the permit Oceantrawl brought in the Russian vessel BATM Pioneer Nicolaeva to Prince William Sound. Under the terms of the permit, up to 3.3 million pounds of salmon could be purchased from 15 seiners from July 25 until September 15 during the expected large hatchery return.

SEASON SUMMARY

Aerial surveys to assess early chum and pink salmon in the Eastern and Northern Districts began in late June. Few chum or pink salmon were sighted. In early July surveys started in the Coghill, Northwestern, and Eshamy areas and in late July the Southwestern, Montague and Southeastern areas. The low escapement observed in the early surveys continued to all districts throughout the summer. In all areas except the Southwestern District, escapement never exceeded 60 percent of the season's desired goal. The Eastern, Southwestern, Montague and Southeastern Districts achieved between 40 and 65 percent of their goal while the Northern, Coghill, Northwestern and Eshamy Districts received 40 percent or less of their desired goal.

Valdez Fisheries Development Association (VFDA) began pink salmon cost recovery on June 22 at the Solomon Gulch Hatchery and on June 24 at the Boulder Bay remote release site. By July 7 only 910,000 fish were collected for corporate escapement. Based on ADF&G's forecast of 4 million, over two million fish should have returned by July 7. The peak of the VFDA pink salmon run typically occurs around the 4th - 6th of July.

VFDA's 1992 Annual Management Plan allowed the first commercial period after 40 percent of the revenue goal was attained. If 40 percent of the sales goal could not be met until late in the run, then the first commercial opening would occur at the peak of the run. If VFDA's preseason assumptions for average weight, value and marine survival were optimistic and the revenue goal was not obtainable, then VFDA guaranteed a minimum of one million fish to the commercial fleet.

The run peaked and the 40 percent revenue goal was obtained by July 11. The seine fishery opened on July 11 for 12-hours in Valdez Arm and the western portion of Port Valdez. To protect wild stocks, Galena, Jack and Sawmill Bays did not open. The Port of Valdez east of 146° 30.5' W. longitude remained closed to provide for corporate escapement. The harvest by 57 vessels was only 143,000 fish.

On July 13 VFDA requested Salmon Harvest Task Force members to discontinue the commercial fishery to allow for more corporate escapement. Since there was not unanimous agreement from Task Force members the fishery proceeded. Due to consideration of wild stocks the remainder of the fishery directed on the VFDA return was confined to the western portion of Port Valdez. This area opened on July 14 and was extended until July 20. From July 14-20 only 345,542 fish were caught. Due to the weak run the one million fish guarantee to the commercial fleet was not met. The total harvest was 2.14 million or approximately one-half of the ADF&G forecast. VFDA collected 1.65 million pink salmon for corporate escapement and the commercial fishery harvested 489,000. The return to Boulder Bay was extremely weak and there was no commercial fishery there.

In mid-July the weekly escapement survey of the Eastern District indicated that only 54 percent of the expected number of pink salmon were in the streams. For the season only 25 percent of the expected cumulative stream count had occurred. In the Northern District only 6 percent of the expected weekly stream count was observed and 3 percent of the cumulative season count. (Appendices E.6. and E.7.). The pink salmon run to the three Prince William Sound Aquaculture Association (PWSAC) hatcheries began in late July. By July 27 actual run entry was less than 25 percent of expected. Salmon Harvest Task Force recommendations called for a commercial opening on July 27 and 30. Due to low escapement the period length in the general waters of the Southwestern district was 6-hours and 12-hours in the hatchery subdistricts. The harvest on July 27 was 202,000 pink salmon and on July 30 313,000. During the July 30 period the Port San Juan Subdistrict was closed to increase corporate escapement. Based on

these low harvests the period scheduled for August 1 in the SHTF recommendations was cancelled. Fish entry into the Sound was assessed on August 1 with volunteer sets from several seine vessels. Those test sets did not indicate a large volume of salmon entering the sound. The percent female from the hatchery special harvest areas on August 1 ranged from 15 percent at AFK Hatchery to 26 percent at Cannery Creek hatchery. The sex ratio indicated that run timing was normal. These numbers also signalled that the PWSAC run was just beginning although total run entry was much less than expected.

Four periods occurred from August 3 - 11. The areas open included the hatchery subdistricts and general waters of the Southwestern District. General waters alternated between the Montague Strait Corridor and the Knight Island Corridor by period. Harvest ranged from 444,000 to 618,000 pinks per period. During the August 8 period the Esther Subdistrict was closed to protect wild stocks of the northwestern sound and to provide corporate escapement. The pink return to Esther was clearly the weakest of the three hatcheries.

The percentage of female salmon in hatchery sales harvests steadily increased and by August 10 the Cannery Creek run peaked. On August 12 and 15 the AFK and Esther runs peaked. Beginning on August 14 periods were scheduled for every third day. This strategy continued for the remainder of the season and all seine openings were confined to the hatchery terminal harvest areas. The Cannery Creek Hatchery terminal harvest area closed for the season on August 25 to allow the hatchery operator to finish brood stock collection and to protect wild stocks in the area. The Port San Juan Subdistrict was open periodically until September 9 to allow the fleet to harvest pink salmon.

Beginning August 25 and continuing until September 5 seine periods were scheduled in the waters of Lake and Quillian Bays of the Esther Subdistrict. Drift gillnets operated in the entire Esther Subdistrict during this time. The waters of Lake and Quillian Bays closed to seine gear on September 5 because the composition of the catch (number of fish) was primarily coho salmon. The Esther Subdistrict remained open to drift gillnet gear to harvest hatchery coho on a continuous basis until September 30. The coho harvest in the Esther Subdistrict was 114,000. Gillnetters harvested approximately 75 percent of the run.

The seine fleet harvested 4.37 million pink salmon from July 27 until season's end. The cumulative seine harvest was 4.86 million for the entire summer. Marine survival for VFDA is estimated at 1.4 percent and for PWSAC facilities between 1.0 and 2.1 percent. The average weight of pink salmon was approximately 3.4 pounds. Overall, fish quality was markedly improved over the 1991 season. Approximately 63 percent of the common property harvest was taken in the Southwestern District.

PWSAC harvested 2.26 million pink salmon for corporate escapement. Revenue from fish sales for both VFDA and PWSAC was substantially below the preseason revenue projections. The brood stock goal was achieved for each specie and facility. Results from the coded wire tag project indicate that the total PWSAC pink return (common property and corporate escapement) was 5.9 million pink salmon. For the entire season, the pink salmon wild escapement was 60 percent less than the mean even year index. The 1992 escapement ranks as the second lowest since statehood and the lowest even year escapement. In retrospect more protection should have been given to wild pink salmon during the late July - early August time period. The chum salmon escapement was also poor. Nearly all districts were below the mean index. For all districts combined, chum escapement was 53 percent below average for the season.

The common property fleet harvested 4.86 million pink salmon or 56% of the total pink salmon sales. The 1992 pink salmon harvest of 8.6 million is the lowest since 1978. The PWSAC pink run was less than 1/3 of the forecasted level whereas the wild stock run was close to the preseason forecast. The total pink

salmon return including commercial harvest, corporate escapement and wild stock escapement is estimated at 9.9 million.

1992 PRINCE WILLIAM SOUND AND COPPER RIVER SUBSISTENCE FISHERIES

Subsistence and personal use salmon 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 at and above Wood Canyon. In Prince William Sound and the Copper River Delta commercial fishermen may withhold a portion of their commercial catch for personal use. There is currently no mechanism to monitor this catch and it continues to go unreported. Subsistence fishing permits are issued from the Cordova office for the Copper River Delta, Prince William Sound, Chenega and Tatitlek areas. Harvests are provided for these areas in Appendices G.1.

PRINCE WILLIAM SOUND AREA SUBSISTENCE FISHERIES

PRINCE WILLIAM SOUND AND LOWER COPPER RIVER FISHERIES

Permits issued at the Cordova office allow subsistence users to fish open commercial periods in Prince William Sound and the Copper River Flats. In 1992, a total of ten permits were issued for Prince William Sound, but only three fished. The reported catch was twenty sockeye salmon (Appendix G.2).

A total of 126 permits were issued for the Copper River Flats, however only 67 of the 114 permits caught fish. The reported catch was 142 chinook, 785 sockeye, 42 coho and 30 other species (Appendix G.3).

EASTERN AND SOUTHWESTERN PRINCE WILLIAM SOUND FISHERIES

Residents of both Chenega Bay and Tatitlek are eligible for subsistence use permits in their respective area; however, in 1991 due to a court ruling all residents of Alaska are qualified for a subsistence permit in the Tatitlek or Chenega areas. The Chenega and Tatitlek subsistence permit program began in 1988. The permit holders are allowed to fish in their respective areas from May 15 until the commercial fishery opens in the permitted area and from the closure of the commercial fishery until September 30 in Chenega and October 31 in Tatitlek for seven days a week. During the commercial salmon fishing season, they are allowed to fish whenever a commercial opening occurs.

In the Southwestern area, 14 permits were issued, mainly to residents of Chenega Bay village. This was an increase of 2 from 1991. Only 8 permits fished for a total catch of 526 sockeye salmon, 313 pink salmon, 99 chum salmon, 23 coho salmon and 1 chinook salmon (Appendix G.4).

In the Tatitlek area, 5 of the 15 permits issued actually fished in 1992. A total catch of 441 sockeye salmon, 369 coho salmon, 49 chum salmon, 30 pink salmon and 2 chinook salmon were harvested.

UPPER COPPER RIVER SUBSISTENCE AND PERSONAL USE FISHERIES

SUBSISTENCE FISHERY

The 1992 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, subsistence harvest was increased from 25,000 to 35,000 salmon with the fish wheel and dip net fishery opening June 1 to seven day per week fishing. A total of 151 dip net and 504 fish wheel permits were issued with a preliminary harvest of 42,849 salmon. The estimated total (reported and unreported) salmon harvest was 49,276 (Appendix G.5).

BATZULNETAS SUBSISTENCE FISHERY

In 1987 an interim subsistence fishery was provided for by emergency regulation at Batzulnetas to achieve settlement in the United States District Court case John v. Alaska. The fishery was conducted near the mouth of and within Tanada Creek near the historical village site of Batzulnetas. Eight permits were issued to individuals or family groups from Mentasta or Dot Lake and the fishery was conducted during July and early August. A total 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, and provided for additional gear types. There has been no catch reported since 1987 and no permits were issued for the Batzulnetas fishery from 1988 through 1992.

PERSONAL USE FISHERY

The personal use fishery opened June 5 for 48 hours during the first weekend and time increased to 168 hours beginning June 29. On July 16, fishing time was reduced from 168-hours per week to 84-hours, from 12:00 noon Thursday to 12:00 noon Sunday and remained on this schedule for the remainder of the season. The personal use fishery is restricted to a seasonal 60,000 salmon harvest, plus 25 percent of the escapement past Miles Lake sonar which exceed the 516,000 salmon objective. Fishing time may be reduced when actual harvest rates exceed the expected as in 1992. An extensive public information effort was continued by the department incorporating frequent news releases and dedicated phone lines with recorded messages in Glennallen, Fairbanks and Anchorage.

A total of 6,387 dip net permits were issued in 1992, representing a slight increase over the permits issued in 1991. The reported harvest for the season was 84,450 sockeye, 3,316 chinook and 1,478 coho salmon. The estimated total (reported and unreported) salmon harvest was 92,457. The combined upper Copper River personal use and subsistence fisheries estimated catch of 141,733 fish ranks as the largest harvest.

PRESEASON OUTLOOK AND HARVEST STRATEGY

There are five herring fisheries in the management area. All target on what is treated as a single major stock of herring that spawns during the mid-April to early May period. During the spring season there are two sac roe fisheries (seine and gillnet) and two spawn-on-kelp fisheries (in pounds and wild harvest). A food and bait fishery occurs in the fall.

The Prince William Sound Herring Management Plan, 5 AAC 27.365, provides for harvest rates of 0 to 20 percent when stock size is between 8,400 tons and 42,500 tons. The 1992 spawning biomass was expected to be 121,342 tons and dominated by age-4 and age-8 fish. Since the spawning biomass was greater than 42,500 tons, the exploitation rate was set at the maximum 20%. Allocation of the harvestable surplus by fishery for the 1991-92 management year (July 1991 - June 1992) was; seine sac roe 14,100 tons, gill net sac roe 825 tons, pound spawn on kelp 3,446 tons, and wild spawn on kelp 1,941 tons. The 1992 food and bait guideline allocation of 3,416 tons was derived from the preliminary 1992-93 management year forecast of 104,789 tons.

The sac roe fisheries are limited entry. Purse seines can be 150 fathoms in length and 1000 meshes deep. Gillnets are limited to 100 fathoms in length and 120 meshes in depth. The management goal is to provide high quality product to enhance value within the harvest guideline. To obtain the highest quality product from the spawning biomass requires a rigorous sampling program. Test fish samples identify a location with large average fish size. Sampling also estimates roe recovery and helps to identify when roe recovery is expected to be near optimum. Aerial and sonar surveys help control harvest within processing capacity. Due to limited processing capacity for the large seine harvest, the department notified the industry that an effort would be made to divide the harvest into several openings. Daily processing capacity was not an issue for the gillnet fishery.

The spawn-on-kelp in pounds fishery is under limited entry. A total of 128 permanent and interim use permits were granted as of January 1, 1992. In addition to the CFEC permit, a commissioner's permit is also required. The commissioner's permit stipulates gear, method of operation, production limit, and harvest requirements.

The pound kelp fishery is usually the first spring herring fishery to open and continues for several weeks to facilitate seining, kelp placement and harvest of spawn on kelp. Participants import *Macrocystis* kelp from Southeast Alaska for this fishery. The pound fishery opening is generally allowed when an adequate biomass is sighted and sample results indicate mature fish are available.

Beginning in 1991 the Board of Fisheries directed the department to limit the number of kelp blades that can be utilized by each permit holder in the commissioner's permit. This action was taken to help control the utilization of herring. The Prince William Sound Herring Management Plan stipulates an allocation of herring for the pound fishery, however, in practice there is no definitive measure of assessing the actual biomass utilized by this fishery short of pumping each pound in operation. Allocation of the harvest guideline is based on the goal of one ton of product for every 12.5 tons of herring allocated to this fishery. That harvest quota is then distributed to each individual permit holder by a specified number of kelp blades.

The wild spawn-on-kelp fishery utilizing native Prince William Sound kelp occurs after a major spawning event on marketable kelp. Considerations for this fishery are to conduct the fishery in an area receiving adequate egg coverage and to ensure that harvesting does not denude an area of kelp.

The food-and-bait season runs from September 1 through January 31, however, industry concerns for product quality usually result in a delay of the season opening. The department canvasses all potential processors and establishes an opening date by emergency order. The current market demand is for crab and longline bait. Oil content and bait quality improves later in the fall and winter.

SAC ROE SEINE FISHERY

Aerial surveys to estimate biomass began on April 1 and the sac roe seine fleet was placed on the standard 48-hour advance notice. Aerial surveys occurred every other day until April 9 when a significant increase in biomass moved from the Gulf of Alaska into the Montague Island area through Hinchinbrook Entrance. An aerial survey on April 10 sighted 15,100 tons near Montague Island but sea lion activity suggested a larger biomass in the area. On April 10 the advance notice for the seine fleet was reduced to 24-hour and the R/V Montague was dispatched to coordinate fishery management. On April 11 the advance notice was reduced to 4-hour to allow for a quicker response to changing conditions. Sampling at various locations of northern Montague Island indicated fish size was generally small with a range in size from 71 to 118 grams. Mature roe recovery was highly variable from 4-9 percent.

Sampling continued at Montague Island through April 12. Sonar surveys with the R/V Montague indicated that herring remained several fathoms below the surface, therefore aerial estimates of abundance were not indicative of the actual biomass.

An aerial survey of the northeast sound on April 13 indicated that the biomass in that area was increasing. Sampling indicated a range in average weight of 126 - 143 grams and 8.5 to 11.0 percent roe recovery. At 4:00 p.m. the seine fleet was placed on 2-hour advance notice. The first of four seine openings occurred from 7:00 to 7:20 p.m. on April 13 in the Port Fidalgo and West Bay (Bligh Island) areas. The harvest was 6,279 tons averaging 9.9% mature roe and 118 grams average weight.

Aerial surveys, test fishing and sonar surveys continued in the northeast area on April 14 and 15. Fish of high quality were still available, however biomass was not increasing. Due to the importance of the northeast area, and especially the Tatitlek Narrows area as a significant historic spawning location in Prince William Sound, the remaining biomass in the northeast area was allowed to spawn, provide for subsistence harvests and to provide herring for the pound fishery.

On April 16 approximately 3,800 tons of herring were seen at Naked Island. Samples indicated an average weight of 117 grams with 10% mature roe. An aerial survey on April 17 indicated fewer herring than sighted on April 16, however average fish size ranged from 105 to 123 grams and 8.5 to 13.5 percent mature roe recovery. The second sac roe seine opening occurred in all waters within one nautical mile of the Naked Island group. The fishery lasted 1-hour from 5:00 to 6:00 p.m. and the seine fleet harvested 1,339 tons averaging 10.4% mature roe and 121 grams average weight. The cumulative harvest of 7,700 tons was approximately one half of the 1992 seine allocation.

Assessment efforts returned to Montague Island on April 18. Fish occurred from Zaikof Bay to Hanning Bay (approximately 50 miles) and an extensive sampling program began on April 20. Sampling indicated

that a portion of Rocky Bay contained the highest quality fish in the Montague Island area. Rocky Bay also contained a very large biomass.

On the evening of April 20, the department invited all processors to a meeting on the R/V Montague to discuss the situation in Rocky bay. At that meeting the industry decided that additional sampling should be conducted to identify a portion of the bay with the largest average size. Beginning at 6:00 a.m. April 21, four commercial vessels conducted eight sets in predetermined strata of the bay. By compiling the sample results, a harvest location was identified in the outer portion of the bay. At 9:00 a.m. the fleet was on 1/2 hour notice and at 10:00 a.m. a fishery was announced for 10:30 a.m. The harvest for the 20 minute opening was approximately 3,600 tons. The fleet was placed on 4-hour notice effective at 1:00 p.m. At 3:00 p.m. the department announced intentions to conduct a second seine opening in Rocky Bay later that day. The second opening lasted 20 minutes from 7:00 to 7:20 p.m. The harvest from both openings in Rocky Bay was 8,974 tons averaging 115 grams and 10.0 percent roe recovery, however the morning opening had a larger average size than the evening opening. This concluded the 1992 seine sac roe fishery with an unprecedented four seine openings.

The 1992 seine sac roe harvest was 16,592 tons, averaging 10.0% mature roe. The harvest was 18% above the 14,100 ton allocation. The estimated exvessel value of the fishery is $6.64 million ($400/ton). Of the 107 permit holders, 104 made at least one landing.

GILLNET SAC ROE FISHERY

On April 9 the gillnet sac roe fleet was on 48-hour advance notice. The notice period decreased to 24-hour, April 14, when a small amount of spawn was observed in Stockdale Harbor on Montague Island. These fish were composed of mixed age classes. However, sac roe gillnets are selective for larger fish and this herring biomass presented a harvest opportunity for the gillnet fleet. The advance notice period was further reduced to 6-hour on April 15. On April 17 several gillnet vessels made test sets in Stockdale Harbor and Rocky Bay. Although herring appeared abundant during an aerial survey, fish were difficult to capture in both locations and no sample was taken from Rocky Bay. The average weight of the Stockdale Harbor sample was 154 grams and the mature roe recovery was 10.3%. Several days later, on April 21, spawning occurred in new locations on Montague Island and test sets occurred at Rocky Bay, Graveyard Point and in active spawn in Port Chalmers. Most fish were still deep and out of range of gillnet gear. The average weight of these samples ranged from 149 to 156 grams and the mature roe recovery ranged from 9.3% to 14.2%. The largest herring biomass remained in Rocky Bay after the final purse seine sac roe opening, although other locations at Montague Island had herring. The gillnet fleet was on 1-hour advance notice at 7 a.m., April 22. After the morning announcement, fishermen and processors both wanted to postpone the opening in hopes of improving fish size and roe recovery.

On April 22, the large herring biomass was still in the area, but few fish were moving onshore during the morning. When the tide changed early in the afternoon an onshore movement was expected. Spawn was increasing in area and intensity, although not rapidly. Test fish boats deployed to Port Chalmers, Rocky Bay, and the shoreline between Montague Point and Graveyard Point. Test fishing results indicated mature roe recoveries from 4.8% to 13.1% and average weights from 123 to 167 grams. These disappointing results were generally attributed to the abundance of males in the samples. No additional spawn was seen during an aerial survey at noon.

An aerial survey of northern Montague Island early in the morning, April 23 indicated spawning was continuing at Graveyard Point and was spreading in Rocky Bay. Spawning was just beginning in Zaikof Bay. Roe recovery ranged from 5.5% to 13.8% and average fish weights fluctuated from 147 to 167 grams from the morning test fishing. The highest quality fish occurred in the outer portion of Rocky Bay and the shoreline from Graveyard to Montague Point. This was the area that ultimately opened. The fleet was on one-half hour advance notice at 12:30 p.m., April 23 to enable the department to respond quickly to changing conditions. At 1:00 p.m. an opening was announced to begin at 2:30 p.m. and continue for three hours. Anticipating an extension, an additional announcement was made at 4:30 p.m. Industry and fishermen voiced concerns that the roe recovery of the catch may not be acceptable and the initial short opening gave processors an opportunity to assess the quality of the harvest. During the fishery, processors monitored roe recovery and directed fishermen to areas of better quality fish. After two hours, quality was not an issue and the opening was extended until 9:00 p.m. for a total opening of 6.5 hours.

The harvest estimate for the first gillnet opening was 549.9 tons; this was less than the guideline harvest level of 825 tons. A second opening was likely on the next day with 275 tons remaining on the guideline. Additional test fishing during the morning of April 24 indicated an average fish weight of 165 grams and 10.9% average roe recovery. All waters of Rocky Bay opened to gillnets for a second sac roe opening at 2:00 p.m. April 24. The opening was extended twice as fish quality was good and the catch rate was lower than expected. The catch for the 4.5-hour period was 390.2 tons bringing the season total for the gillnet sac roe harvest to 940.1 tons. The harvest averaged 155 grams and 10.8% roe recovery. The estimated exvessel value of the harvest is $752,080.

SPAWN-ON-KELP IN POUNDS FISHERY

The 1992 fishery occurred in the traditional waters of Valdez Arm and Port Fidalgo. Commissioner's permits were issued to 127 permit holders. Galena Bay was again the primary location for pounds where 56 permit holders set up. The remaining permit holders located in Picnic Cove, 19; Ellamar Bay, 5; Boulder Bay, 28; Landlocked Bay, 17; and Two Moon Bay, 2.

On April 1, an aerial survey observed approximately 170 tons of herring along the northeast shore of Prince William Sound. The aerial survey on April 3, observed 700 tons along the northeast shore. The pound fishery was placed on 24-hour advance notice, effective at 12:00 noon Saturday, April 4. The first test fish samples from the northeast area were on April 4. Herring collected from two sets in Boulder Bay had small herring, averaging 92 and 97 grams with 1.3 and 3.2 percent mature row recovery.

Most of the fish were located in the middle of bays in deep water which are not accessible to test fishing. As indicated by later test results these fish were "green" and not quality fish for the pound fishery. In anticipation of higher quality fish moving in, the fishery was placed on 2-hour notice at 12:00 noon on April 5.

On April 6, the charter vessel Julia Breeze monitored test fishing operations in the northeast area. Results from a set in Boulder Bay indicated fish were maturing and larger fish were moving into the bays. However, the fish from that set were a mixture of age-4 and age-8. Test fishing continued on April 7 with mixed results. Fish in Boulder Bay ranged from 8.5 to 10.5% mature roe and fish sampled in Two Moon Bay averaged 6.5% mature roe.

On April 7, an aerial survey of the northeast shore estimated 1,700 tons. With 70 percent of the participants' kelp on the grounds and some mature fish in the area, the pound fishery opened at 4:00 p.m. Tuesday, April 7. The pound fishery remained open until April 13 when it closed at 6:00 p.m. for 12-hours. This closure was to alleviate gear conflict with the sac roe seine fishery that opened at 7:00 p.m. Saturday, April 13. The pound fishery reopened at 6:00 a.m. on April 14 and remained open until 6:00 p.m. Friday, April 17 when seining of herring for the introduction to pounds closed for the season.

On the evening of April 7, 72 permit holders had kelp placed in their pounds and were ready to fish. By the evening of April 8, an additional 34 permits introduced kelp and the remaining 21 permits had kelp by April 14. With the large quota for 1992, several groups used their tow pounds as an impoundment after the regular production pounds were filled. Permit holders generally import more kelp from southeast Alaska than can be legally placed into pounds. This excess kelp can be placed into pounds to help prevent deterioration however, it must be contained so herring cannot come into contact. Some permit holders placed their kelp in brailer bags, while some placed their kelp in totes on board, recycling salt water through it daily. Numerous groups kept surplus kelp (above the allocated amount) on board their vessels. Observations of the excess kelp throughout the fishery showed that some stored kelp maintained its quality while some deteriorated. Kelp left out of the water was susceptible to freezing and rot. A majority of the kelp that deteriorated was young thin *Macrocystis* blades in poor condition from the time of arrival. Staff observations of kelp stored in totes seemed to confirm that if the kelp is healthy when picked it can withstand storage in totes on a vessel.

On the evening of April 7 nine permit holders introduced herring into their pounds. The following two days most groups were fishing and 62 percent of the permit holders had introduced herring. With fish entering the northeast area, permit holders were not rushed to capture herring. By the evening of April 11, 83 percent had introduced herring. All but two permit holders had introduced herring by April 14, with the final two permits finishing up on the morning of April 17.

For the 1992 season, permit holders could hold their herring for eight days, two more than previously allowed. The department expressed concerns about kelp rot, eyed eggs, and higher mortality rates with the longer holding time. The mortality rate of penned herring wasn't noticeably different from the six day holding time, but several groups experienced problems with kelp rot. Kelp rot may be due to the additional time in the water. No problems with eyed eggs were observed. During the past two years herring in pounds retained an average of 38.5 percent of their total number of eggs after seven days in the pound. In 1992, herring were collected on the seventh day from 10 different pounds and the egg retention on average was 77 percent or double the egg retention of previous years. Of the fish that spawned, the majority were age-4 and age-5 while the older age fish were more likely to retain eggs.

Harvest of spawn on kelp began on April 15 and ended on April 25 with 241 tons of raw product harvested. A total of 127 permit holders produced product in 1992. The harvest of spawn on kelp closed by emergency order at 12:00 noon April 30. A total of 210 tons of final product was produced, short of the 276 tons of final product allocated to the fishery. The quality of the product produced in 1992 was lower than 1990 and 1991. During the season, the amount of grade two and better was 25 percent, while in 1990 grade two and better comprised 47.5 percent and in 1991 31.9 percent. The fleet received an average of $8.00 per pound for processed product, placing the value of the fishery at $3.4 million.

During the season 28 citations were issued for violations of the commissioner's permit. The problems most identified were: pounds not identified with the permit holder's name and permit number, lines of kelp

not labeled with number of blades and permit number, permit holder not present during the phases of operation, and finally over utilization of the allocated amount of herring.

WILD HARVEST SPAWN-ON-KELP FISHERY

The 1991 fishery was the first year fucus kelp was the species in demand in Prince William Sound. As a result, 385 permits were issued by CFEC in anticipation of a fucus dominated market in 1992. A survey of processors before the season indicated they had a market for both fucus and ribbon, but good quality product was going to be important. Fucus kelp, a predominately intertidal species, doesn't always occur in harvestable quantities with the traditional subtidal species (ribbon, sieve, and hair kelp). Given adequate spawning, openings in two different areas to harvest both fucus and the traditional species of kelp was possible. This harvest strategy would satisfy the market demand for both types of kelp.

Spawning began in the Tatitlek Narrows area April 9 and increased in intensity over the next week, peaking on April 17 with 9 miles of shoreline covered with spawn. Tatitlek Narrows is the historic area for harvesting the traditional species of wild spawn on kelp. Department divers from the spawn deposition project surveyed the area on April 20 and 21 and reported areas of good egg coverage on marketable kelp. The egg coverage on fucus kelp was fair. Wild spawn-on-kelp harvesters were put on 48-hour advance notice April 22 at noon. The first opening in the Tatitlek Narrows area was on April 24 for 8-hours. Most of the dive effort concentrated at Bidarka Point but hand picking of fucus on the beach was scattered throughout the open area. The harvest for this first opening was 34 tons of spawn on kelp, composed of 48% ribbon and 52% fucus. The quality of the fucus product was not as good as the industry had anticipated, but some excellent ribbon kelp was harvested. Additional 12-hour openings on April 25 and 26 allowed those harvesters with a market for the traditional dive species of kelp an opportunity to fill those markets. Buyers interested in fucus kelp were no longer buying from the Tatitlek area, anticipating an opening on Montague Island that would yield higher quality fucus. However, some processors were still interested in ribbon and felt there still was good quality product remaining to be harvested. As a result the Tatitlek area opened continuously until April 28.

A 13-hour opening at Montague Island was announced for April 28. Spawning began at Graveyard Point on Montague Island on April 20 and began spreading toward Montague Point and into Stockdale Harbor. Spawn was widely distributed on northern Montague Island with Port Chalmers, Zaikof and Rocky Bays all receiving spawn. Some shoreline received as much as 5 days of spawn. Reports to the department indicated good quality product from this area was available. Effort for this first opening on Montague Island concentrated at Graveyard Point and was primarily by shoreline harvesters. An effort survey during this opening estimated 145 harvesters, including both divers and shoreline harvesters. The harvest estimate for this opening was 39.4 tons bringing the cumulative harvest to 150.8 tons. Because this was less than the guideline harvest level of 243 tons, the Montague area opened for 16-hours April 29. Most processors were glutted with product during this opening and all but two small custom processors quit buying. The area was open for two 6-hour periods April 30 to satisfy these markets. The final harvest of wild spawn on kelp was 252.2 tons. The harvest was composed of 76% fucus, 21% ribbon, and 3 percent other species. Prices were the lowest ever this year; spawn on fucus kelp garnered $0.40 per pound and ribbon $0.70 per pound. The value of the wild spawn-on-kelp fishery was $233,381.

Interest was intense in the wild harvest spawn-on-kelp fishery this year. After the 1991 season, several fishermen petitioned CFEC to limit entry into the fishery and one result was an increase in permits to 385. Although this is not a record high, it is over 100 more than the 279 permits issued in 1991. More permit

holders participated this year, 217 total, 167 in the Tatitlek area and 137 in the Montague area. Of chief concern to the processors, fishermen and the department is the waste of harvested product. Currently, there is no reporting requirement nor is it a violation to discard product. Some trimming is traditional to enhance product salability but this year processors turned away boatloads of spawn on kelp. These fishermen may have delivered to another processor or they may have dumped their catch overboard. As there is no reporting requirement for discarded product it is impossible to determine the ultimate disposition of this product. The high number of harvesters, the number of new participants, and the accessibility of harvest locations contributed to the difficulty of advising the fleet of processor requirements for good quality product. A suggestion for the future is to have an on the grounds informational meeting where processors could comment on the quality of spawn-on-kelp samples to permit holders.

1992 FOOD-AND-BAIT FISHERY

The food-and-bait herring season opened by emergency order October 1, 1992. The regulatory opening date is September 1 but participating processors were canvassed and all wanted to postpone the opening. The current market demand is for crab and longline bait. Quality longline bait is a larger size fish with firm flesh and a high oil content. Fishermen and processors have reported that oil content and fish quality improves later in the fall and winter. The larger fish begin to show and become vulnerable to purse seine gear later as well. Several processors had stringent size requirements for specialized markets again this year and would have preferred a later opening but most were interested in buying herring for use as crab bait and needed to deliver their product by the end of October.

The open area included the Montague Herring District and the waters of the General Herring District west of 147°0.0' W. long. This is the same area that was open in 1991. By regulation, only the General Herring District is open to this fishery and the harvest traditionally occurs near Knowles Head. However, in 1990 both the Montague District and the entire General District were open and there was a marked difference in the quality, size and age composition in samples from the two areas. In the spring of 1991 and 1992, most of the spawning herring biomass was found in the Montague area. The closure of the eastern portion of the General Herring District was necessary to protect a small sub-stock of young small herring. Opening the western portion of the General District and the Montague Herring District was justified, as the majority of older, larger herring have been found here recently and this area had the potential of producing a catch of the highest quality.

The preliminary guideline harvest level issued in September was 3,416 tons based on the 1992 spawn deposition biomass estimate. The final guideline allocation, based on an age-structured analysis model (1992-93 management year) was issued in January after the fishery closed; The final guideline harvest level was 4,373 tons.

Because of competition with crab bait shipped from the U.S. east coast, market conditions and prices weren't as favorable as last year, but interest in the fishery was still good. Nine processors purchased herring and sixteen fishermen made deliveries this year; all used purse seine gear. The first delivery was reported October 3 and herring were landed virtually each day until the season closed October 22. Fishing was spotty the first week as the herring were moving and had not settled in one place. Catches averaged 235 tons per night until after the closure was announced when 815 tons were landed. By October 21, an estimated 3,120 tons of herring had been landed and given the poor weather forecast, it was expected that

the guideline harvest level would be reached the next day. The closure for 6:00 p.m. October 22 was announced at noon, October 21.

All of the harvest came from the Montague/Green Island area. With a total catch of 3,900.2 tons and an average price of $200 per ton, the estimated value of the harvest is $780,060. The catch was predominately 4-year old herring. The proportion of 4-year old fish decreased from 86.8% of the herring sampled from the October 6 catch to 49.1% on October 21. Seven and eight-year old fish comprised 40.9 percent of the October 21 sample. The average weight of herring samples increased from 124.5 grams on October 6 to 143.3 grams on October 21.

1992 STOCK ASSESSMENT

The 1992 herring spawning population was dominated by the 1988 year class, as expected, which returned as four year olds. Four year olds represented about 65% and eight year olds represented about 25% of the spawning population samples (Appendices H.21 - H.26).

The aerial survey program was conducted in 1992 from early April through late April. Herring biomass and spawning activity was documented throughout the season, and is summarized in Appendix H.13. The peak aerial biomass estimate was 53,835 tons with a majority of the biomass as recorded by air occurring in the Montague Island area (35,225 tons) and Tatitlek area (13,300 tons) (Appendix H.13). In contrast, the total spawning biomass as estimated from age structured analysis is 110,831 short tons. Of that 50% of the biomass occurred in the Montague Island area and 40% occurred in the Northeast area (Appendix H.13.). Historical biomass indices are listed in Appendices H.17. and H.18. for reference.

Spawning was documented over 74.7 shoreline miles an increase from 58 shoreline miles in 1991. Spawning areas were confirmed by skiff and diver surveys. The mileage and biomass by area is listed in Appendix H.13. A total of 35 miles of spawn, occurred in the Montague area; 32.2 miles of spawn in the Northeast area; and 7.2 miles of spawn in the Southeast area. The Montague Island area was again an important area for spawning accounting for approximately 50 percent of the biomass. The Northeast shore area was next in importance with about 41 percent of the biomass. The Southeast shore surprisingly contributed nearly 10 percent of the spawning biomass. There was no spawning activity on the North Shore, however, at Naked Island a minor amount of spawn was sighted during aerial surveys however diver surveys did not locate herring eggs. Overall egg deposition was good with 1,717 tons/mile in 1992 as compared to 2,000 tons of spawners per mile in 1991 and 1,200 tons of spawners per mile in 1990.

1993 HERRING SEASON OUTLOOK

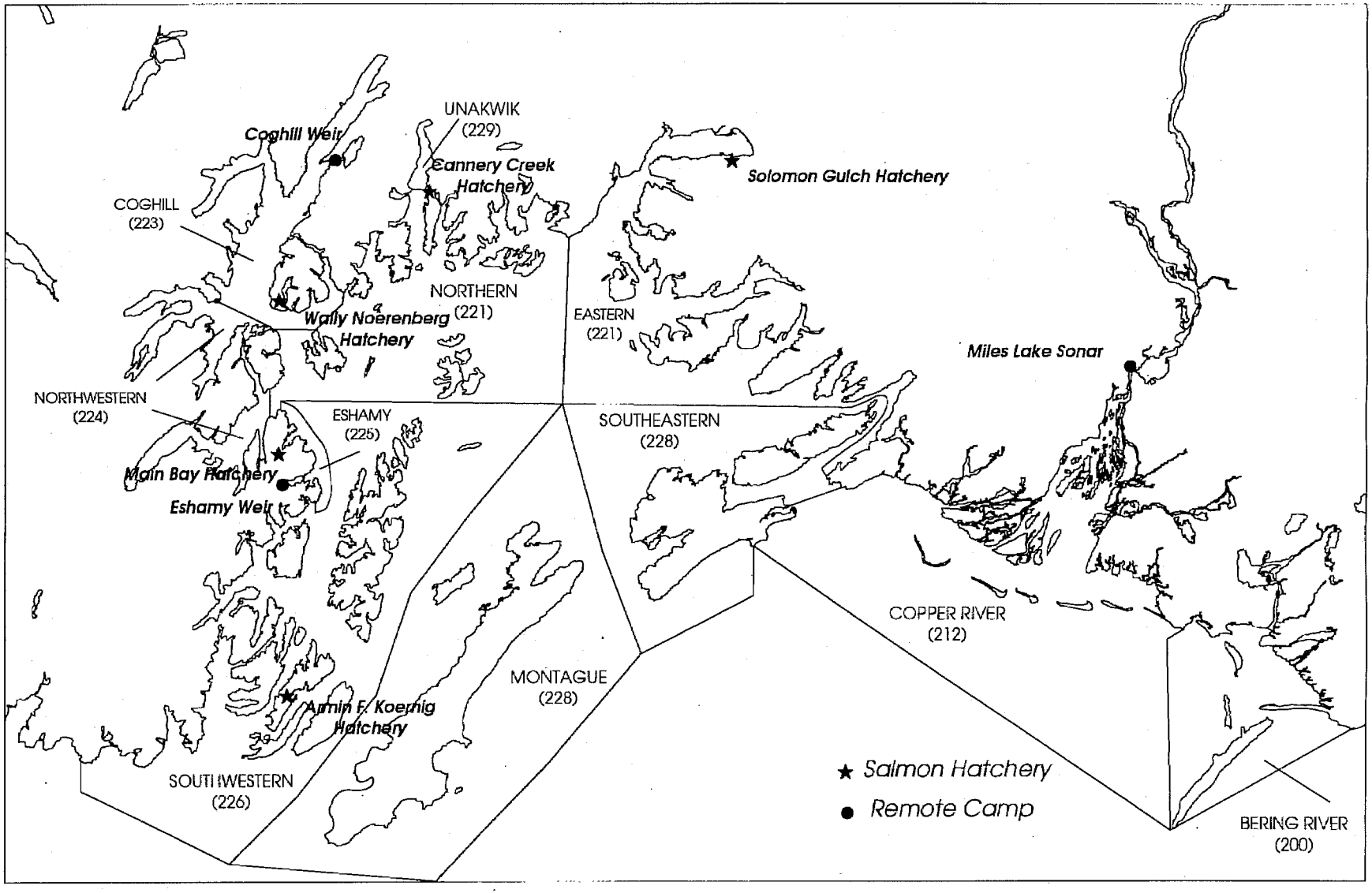
Due to the loss of the spawn deposition survey after the 1992 season, the forecast method changed for 1993. Regional and headquarters biometricians incorporated spawn survey egg deposition estimates, miles of spawn, growth, and age compositions from the spawning stock, gillnet and seine sac roe fisheries into an age-structured assessment (ASA) model of the spawning stock. The model estimates a biomass for 1993 of 134,133 tons, the highest projection on record. Natural mortality was estimated by the ASA model whereas in prior years natural mortality was taken from the literature. The spawning biomass should be dominated by age-5 herring (80%). Herring age-9 and older are expected to comprise 10% of the stock.

At the given stock size the maximum allowable harvest rate of 20% will be permitted for the 1992-1993 management year. The following allocations have been made to the five herring fisheries: 4,273 tons for the 1992 food and bait fishery; 2,146 tons of herring or 268 tons of spawn on kelp to be harvested by the wild spawn-on-kelp not in pounds fishery, 3,809 tons or 305 tons of spawn on kelp to be harvested by the spawn-on-kelp in pounds fishery, 15,586 tons of herring to be harvested by the sac roe seine fishery, and 912 tons to be harvested by the sac roe gillnet fishery. The total guideline harvest allocation for the 1992-1993 management year is 26,826 tons of herring.

APPENDIX A

PRINCE WILLIAM SOUND

AREA WIDE INFORMATION



Appendix A.1. Map of the Prince William Sound area showing commercial fishing districts, salmon hatcheries, weir locations, and the Miles Lake sonar site.

Appendix A.2. Commercial salmon harvest by species, gear type and district in the Prince William Sound Management Area, 1992.

District	Effort	Chinook	Sockeye	Coho	Pink	Chum	Total
Eastern	68	2	562	239	489,228	5,458	495,489
Northern	93	5	1,544	2,286	1,124,825	14,449	1,143,109
Unakwik	10	0	42	2	13,264	119	13,427
Coghill	59	6	765	27,382	196,503	1,603	226,259
Southwestern	174	103	30,059	9,075	3,039,775	8,459	3,087,471
Purse Seine	207	116	32,972	38,984	4,863,595	30,088	4,965,755
Bering River	183	21	19,721	125,616	4	1	145,363
Copper River	525	39,810	970,938	291,627	1,664	5,807	1,309,846
Unakwik	16	3	2,224	13	3,972	94	6,306
Coghill	345	242	57,919	86,782	167,384	182,433	494,760
Eshamy	375	158	373,596	1,017	153,018	50,974	578,763
Drift Gill Net	528	40,234	1,424,398	505,055	326,042	239,309	2,535,038
Eshamy	30	101	144,568	1,242	390,097	4,695	540,703
Set Gill Net	30	101	144,568	1,242	390,097	4,695	540,703
Solomon Gulch	1	1	65	27,409	1,344,664	6,036	1,378,175
Cannery Creek	1	0	0	0	363,667	0	363,667
Wally Noerenberg	2	849	4,124	46,121	518,652	50,474	620,220
Main Bay	1	0	158,891	0	4,839	882	164,612
Armin F. Koernig	1	0	6	0	822,411	0	822,417
Hatchery[a]		850	163,086	73,530	3,054,233	57,392	3,349,091
Ed. Permit[b]	1	2	1,113	631	3,116	700	5,562
Confiscated Fish	14	0	243	18	33	47	341
ADF&G Test Fish	1	3	5,232	0	0	2,145	7,380
Total		5	6,588	649	3,149	2,892	13,283
Prince William Sound Total		41,306	1,771,612	619,460	8,637,116	334,376	11,403,870

[a] Hatchery sales for hatchery operating costs.

[b] Cordova High School educational special use permit.

Appendix A.3. Commercial salmon harvest by species from all gear types, Prince William Sound, 1971 - 1992.[a]

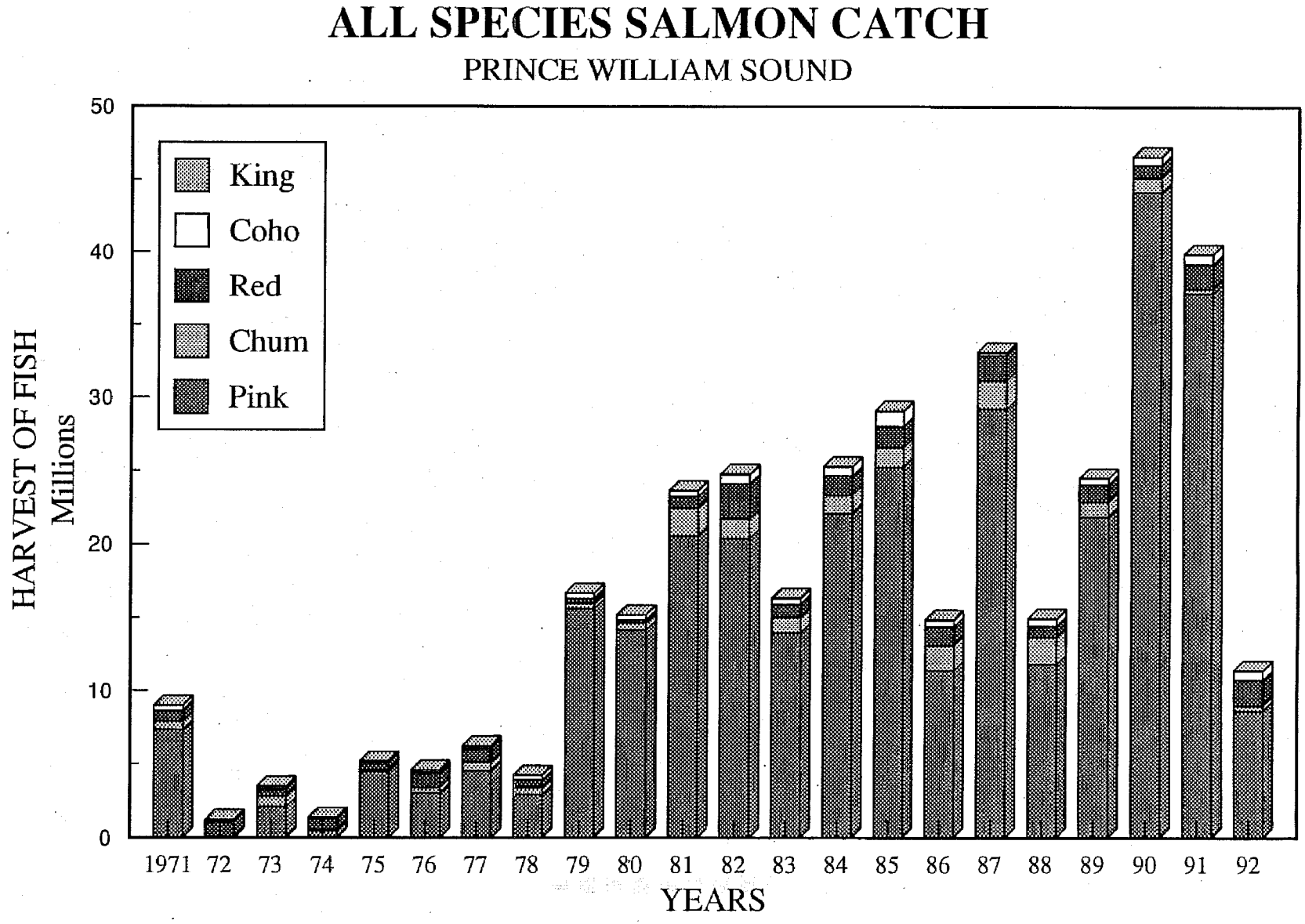
Year	Catch by Species					
	Chinook	Sockeye	Coho	Pink	Chum	Total
1971	20,142	741,945	327,697	7,312,730	579,552	8,982,066
1972	23,003	976,115	124,670	57,090	46,088	1,226,966
1973	22,638	473,044	199,019	2,065,844	740,017	3,500,562
1974	20,602	741,340	76,041	458,619	89,210	1,385,812
1975	22,325	546,634	84,109	4,453,041	101,286	5,207,395
1976	32,751	1,008,912	160,494	3,022,426	370,657	4,595,240
1977	22,864	943,943	179,417	4,536,459	573,166	6,255,849
1978	30,435	505,509	312,930	2,917,499	489,771	4,256,144
1979	20,078	369,583	315,774	15,615,810	349,615	16,670,860
1980	8,643	208,724	337,123	14,161,023	482,214	15,197,727
1981	20,782	784,469	396,163	20,558,304	1,888,822	23,648,540
1982	47,871	2,362,328	623,877	20,403,423	1,336,878	24,774,377
1983	53,879	908,469	365,469	13,977,116	1,048,737	16,353,670
1984	39,774	1,303,515	609,484	22,119,309	1,229,185	25,301,267
1985	43,735	1,464,563	1,025,046	25,252,924	1,321,538	29,107,806
1986	42,128	1,288,712	426,240	11,410,302	1,700,906	14,868,288
1987	41,909	1,737,989	175,214	29,230,303	1,919,415	33,104,830
1988[b]	31,797	767,674	477,816	11,820,121	1,843,317	14,940,725
1989[b]	32,006	1,175,238	424,980	21,886,466	1,001,809	24,520,499
1990[b]	22,163	911,607	524,274	44,165,077	967,384	46,590,505
1991[c]	35,355	1,734,544	641,854	37,135,561	352,321	39,899,635
1992[d]	41,306	1,771,612	619,460	8,637,116	334,376	11,403,870
Ten Year Average (1982-91)	39,062	1,365,464	529,425	23,740,060	1,272,149	26,946,160

[a] 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.

[b] Includes confiscated and educational special use permits. Also includes hatchery sales harvests and carcass sales.

[c] Includes confiscated and educational special use permits, hatchery sales harvests, and donated and discarded catches.

[d] Includes catches from confiscated and educational special use permits, and hatchery sales harvests.



Appendix A.4. Commercial salmon harvest by species for all gear types combined, Prince William Sound. 1971 - 1992.

Appendix A.5. Mean price and estimated exvessel value of the total commercial salmon harvest by gear type, Prince William Sound, 1992. [a]

PURSE SEINE

Species	Number	Pounds	Avg. Wt.	Price	Value
Chinook	116	1,319	11.37	1.55	2,044.45
Sockeye	32,972	202,448	6.14	1.55	313,794.40
Coho	38,984	308,535	7.91	0.90	277,681.50
Pink	4,863,595	16,392,959	3.37	0.18	2,950,732.62
Chum	30,088	228,435	7.59	0.55	125,639.25
	4,965,755	17,133,696			$3,669,892.22

DRIFT GILL NET

Species	Number	Pounds	Avg. Wt.	Price	Value
Chinook	40,234	1,004,198	24.96	1.55-2.50	2,504,789.30
Sockeye	1,424,398	8,581,273	6.02	1.55-2.50	18,901,370.40
Coho	505,167	4,617,592	9.14	0.90	4,155,832.80
Pink	326,042	1,188,869	3.65	0.18	213,996.42
Chum	239,309	1,885,513	7.88	0.55	1,037,032.15
	2,535,150	17,277,445			$26,813,021.07

SET GILL NET

Species	Number	Pounds	Avg. Wt.	Price	Value
Chinook	101	1,273	12.60	1.55	1,973.15
Sockeye	144,568	874,802	6.05	1.55	1,355,943.10
Coho	1,242	9,246	7.44	0.90	8,321.40
Pink	390,097	1,378,723	3.53	0.18	248,170.14
Chum	4,695	40,575	8.64	0.55	22,316.25
	540,703	2,304,619			$1,636,724.04

HATCHERY SALES[b]

Species	Number	Pounds	Avg. Wt.	Price	Value
Chinook	850	15,817	18.61	1.72	27,218.00
Sockeye	163,086	898,306	5.51	1.75	1,573,671.00
Coho	73,530	426,152	5.80	0.83	352,389.67
Pink	3,054,233	10,390,261	3.40	0.21	2,196,778.00
Chum	57,392	423,160	7.37	0.37	157,616.00
	3,349,091	12,153,696			$4,307,672.67

OTHER GEAR[c]

Species	Number	Pounds	Avg. Wt.	Price	Value
Chinook	5	92	18.40	1.55	142.60
Sockeye	6,588	41,141	6.24	1.55-2.05	80,140.55
Coho	649	5,881	9.06	0.90	5,292.90
Pink	3,149	11,479	3.65	0.18	2,066.22
Chum	2,892	22,806	7.89	0.55-0.60	13,388.85
	13,283	81,399			$101,031.12

Gear Type	Value of Catch	No. of Permits	Average Earnings
Purse Seine	3,669,892.22	207	$17,728.95
Drift Gill Net	26,813,021.07	528	$50,782.24
Set Gill Net	1,636,724.04	30	$54,557.47
Subtotal-Value of CPF Catch	$32,119,637.33		
Hatchery	$4,307,672.67		
Other Gear	$101,031.12		
GRAND TOTAL	$36,528,341.12		

[a]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.

[b]Prices are an average of sales harvest prices.

[c]Includes the Cordova High School special educational permit, 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, 1992.

District	Permits	Landings	Numbers of Fish						Estimated Value[a]
			Chinook	Sockeye	Coho	Pink	Chum	Total	
221 Eastern	68	190	2	562	239	489,228	5,458	495,489	309,337 [b]
222 Northern	93	419	5	1,544	2,286	1,124,825	14,449	1,143,109	779,597 [b]
229 Unakwik	10	16	0	42	2	13,264	119	13,427	9,012 [b]
223 Coghill	59	134	6	765	27,382	196,503	1,603	226,259	334,929 [b]
226 Southwestern	174	1,152	103	30,059	9,075	3,039,775	8,459	3,087,471	2,237,017 [b]
PURSE SEINE TOTAL	207	1,911	116	32,972	38,984	4,863,595	30,088	4,965,755	$3,669,892
200 Bering River	183	1,481	21	19,721	125,616	4	1	145,363	1,382,370
212 Copper River	525	13,489	39,810	970,938	291,627	1,664	5,807	1,309,846	19,329,184
229 Unakwik	16	42	3	2,224	13	3,972	94	6,306	24,221 [c]
223 Coghill	345	3,093	242	57,919	86,894	167,384	182,433	494,872	2,144,249
225 Eshamy	375	4,720	158	373,596	1,017	153,018	50,974	578,763	3,932,997
DRIFT GILL NET TOTAL	528	22,825	40,234	1,424,398	505,167	326,042	239,309	2,535,150	$26,813,021
225 Eshamy	30	1,783	101	144,568	1,242	390,097	4,695	540,703	1,636,724
SET GILL NET TOTAL	30	1,783	101	144,568	1,242	390,097	4,695	540,703	$1,636,724
221 Solomon Gulch		141	1	65	27,409	1,344,664	6,036	1,378,175	1,205,000
222 Cannery Creek		19	0	0	0	363,667	0	363,667	234,489 [d]
223 Wally Noerenberg		53	849	4,124	46,121	518,652	50,474	620,220	737,381 [d]
225 Main Bay		26	0	158,891	0	4,839	882	164,612	1,580,134 [d]
226 Armin F. Koernig		62	0	6	0	822,411	0	822,417	550,669 [d]
HATCHERY SALES TOTAL		301	850	163,086	73,530	3,054,233	57,392	3,349,091	$4,307,673
All Educational Drift Gill Net		58	2	1,113	631	3,116	700	5,562	20,886 [c]
EDUCATIONAL PERMIT TOTAL[e]		58	2	1,113	631	3,116	700	5,562	$20,886
ADF&G Test Fish		6	3	5,232	0	0	2,145	7,380	77,352
Confiscated		15	0	243	18	33	47	341	2,792 [c]
MISC. TOTAL		21	3	5,475	18	33	2,192	7,721	$80,145
PRINCE WILLIAM SOUND GRAND TOTAL			$41,306	$1,771,612	$619,572	$8,637,116	$334,376	$11,403,982	$36,528,341

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 Used the general purse seine district average price paid by species in estimating value.

c Used the Coghill District drift gill net average price paid by species in estimating value.

d Hatchery sales for hatchery operating costs. Does not include hatchery carcass sales.

e Cordova High School educational special use permit.

Appendix A.7. Average price paid to fishermen for salmon, Prince William Sound, 1983–1992.[a]

Species	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
King Salmon	1.05	1.30	1.65	1.45	1.75	2.23	2.25	2.24		
Copper/Bering districts									1.65	2.50
Prince William Sound									1.00	1.55
Sockeye Salmon	0.95	1.15	1.50							
Copper River	0.95	1.00	1.55	1.65	1.90	3.20	2.30	2.13	1.28	2.50
Bering River	0.85	0.95	1.10	1.65	1.90	3.00	2.30	2.13	1.28	2.50
Coghill/Unakwik districts		0.90	1.20	1.37	1.75	2.68	2.00	1.50	1.28	1.55
Eshamy		0.85	1.10	1.34	1.60	2.77	--	1.45	1.28	1.55
General Purse Seine				1.35	1.45	2.68	2.00	1.50	1.00	1.55
Coho Salmon										
Copper/Bering districts	0.75	1.10	0.85	0.94	0.93	2.35	0.60	0.97	0.65	0.90
Prince William Sound	0.30	1.10	0.40	0.46	0.55	1.86	0.70	0.97	0.45	0.90
Pink Salmon	0.24	0.26	0.22	0.23	0.40	0.79	0.35	0.30	0.12	0.18
Chum Salmon	0.24	0.26	0.29	0.33	0.39	0.73	0.35	0.70	0.40	0.55

[a]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 an estimate only; Caution should be used if using these prices to estimate value.

Appendix A.8. Harvest projections for the 1992 commercial salmon fishery by district and species, Prince William Sound. [a]

	COMMERCIAL HARVEST (1,000's of fish)									
	Chinook		**Sockeye**		**Coho**		**Pink**		**Chum**	
District	Point Estimate	Range	Point Estimate	Range	Point Estimate	Range	Point Estimate	Range	Point Estimate	Range
Copper River [b]	40.7		843.0		313.3	138.2 - 443.6				
Bering River [c]					122.5	0 - 234.8				
Coghill [d]			0.0							
Eshamy [e]										
General P.W.S. Districts			83.0	9 - 156.9	11.4	0 - 24.7	1,020.0	0 - 4,660	577.3	
Total Wild Stock	40.7		926.0		447.2		1,020.0	0 - 4,660	577.3	
Solomon Gulch					36.3		730.0	0 - 3,750	42.2	
Boulder Bay							10.0	0 - 1,270		
Armin F. Koernig							3,450.0	300 - 6,600		
Wally Noerenberg					212.2		9,580.0	2,220 - 16,940	818.1	
Cannery Creek							3,890.0	51 - 7,260	57.0	
Main Bay			516.0				320.0	93 - 6,010		
Gulkana			117.0							
Total Hatchery	0.0		633.0		248.5		17,980.0		917.3	
Total Hatchery and Wild	40.7		1,559.0		695.7		19,000.0	0.0 - 40,480	1,494.6	

[a] 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 assumed marine survival rates. Sockeye production is based upon mean fishery performance. Harvest estimates are only made for those species which constitute a significant portion of the catch. The harvest projections do not include 9.04 million pinks, 162,800 chum, 218,400 sockeye, and 162,800 chum projected for harvest by hatcheries for cost recovery.

[b] Formalized forecast procedures are used for Copper River chinook and sockeye returns. Copper River coho catches are based on mean fishery performance adjusted by escapement levels and environmental conditions.

[c] Bering River coho harvest estimates are based on mean fishery performance adjusted by escapement levels and environmental conditions.

[d] 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.

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

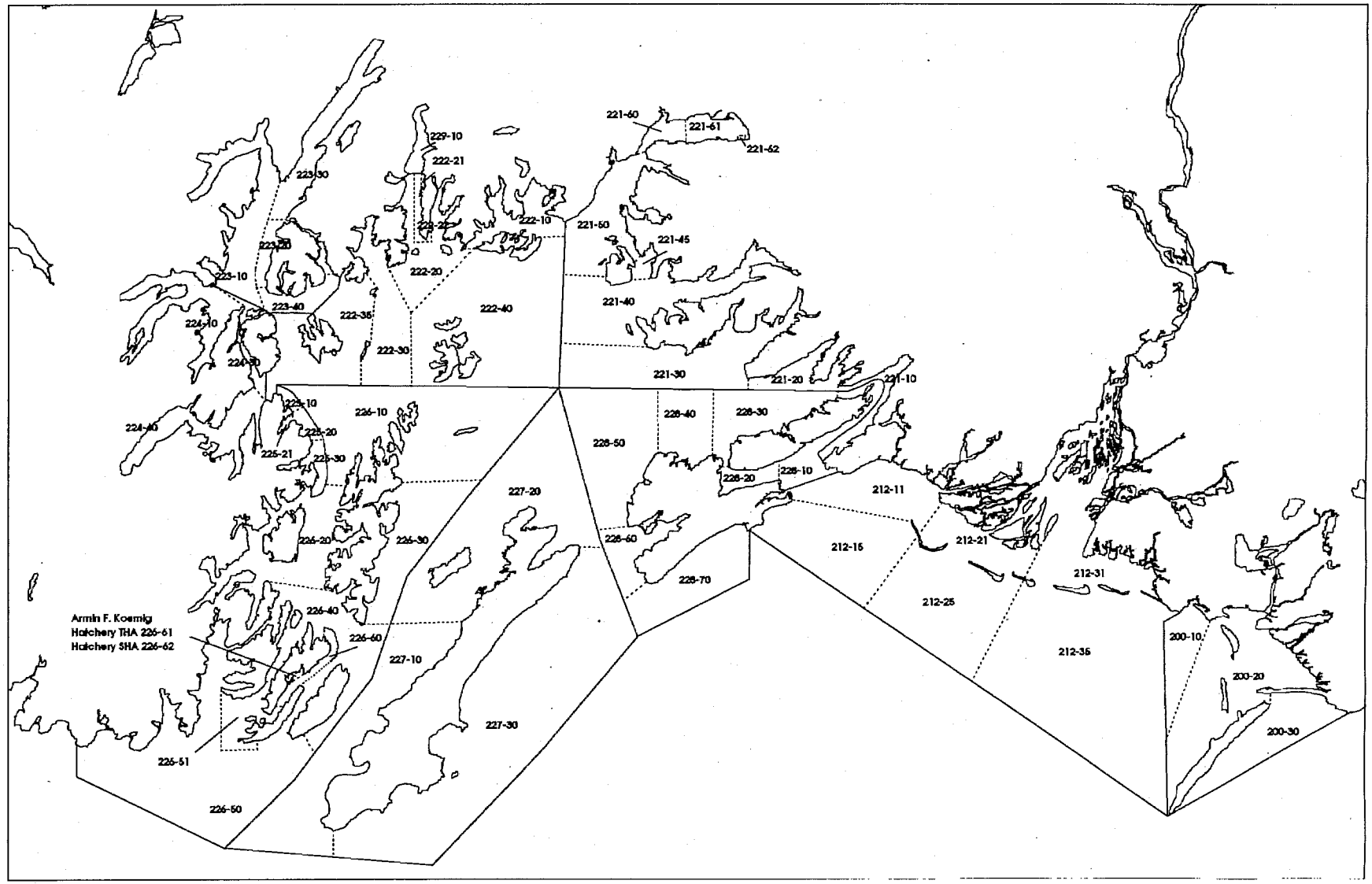
Appendix A.9. A listing of finfish processors, their location of operation, and type of product processed, Prince William Sound, 1992.

Executive Names, Address Location of Operations	Processor Code	Type of Product	Executive Names, Address Location of Operations	Processor Code	Type of Product
Alaska Fresh Seafoods, Inc. 105 Marine Way Kodiak, AK 99615 Dave Woodruff	F0321	Herring	Keener Packing Co., Inc. P.O. Box 890 Kenai, AK 99611 Sue Tauriainen	F0394	Salmon
All Alaskan Seafood, Inc. 111 Marine Way Kodiak, AK 99615 Gary Taylor	F0222	Herring	Lafayette Fisheries 4259 22nd Ave. West Seattle, WA 98199 John Garner	F0073 F1482 F1483	Herring
Arctic Fisheries, Inc. P.O. Box 79021 Seattle, WA 98119 John Schmidthe	F1132	Herring	Nautilus Marine, Inc. P.O. Box 727 Valdez, AK 99686 James A. Van Stone	F0815	Salmon
Cook Inlet Processing P.O. Box 8163 Nikiski, AK 99635 Pat Hardina	F0186 F1155	Herring Salmon	New West Fisheries 601 W. Chestnut St. Bellingham, WA 98225 Jerry Thom/Bill Monroe	F0602	Herring
Dragnet Fisheries Co., Inc. P.O. Box 1260 Kenai, AK 99611 Shirley Jankowski	F0030	Herring	North Coast Seafood Proc., Inc. 2801 N.W. Market Seattle, WA 98107 Jim Nagai	F0084	Herring
Eyak Packing Company P.O. Box 1131 Cordova, AK 99574 Gerald Masolini	F1515	Salmon	North Pacific Processors, Inc. P.O. Box 1040 Cordova, AK 99574 Ken or Don Roemhildt	F0232	Herring Salmon
Golden Age Fisheries 18 W. Mercer, Suite 400 Seattle, WA 98119 John Henderschedt	F1405	Salmon	Oceantrawl, Inc. 2025 First Ave., #1200 Seattle, WA 28121 Michael Nordby	F1559	Salmon
Great Pacific Seafoods, Inc. P.O. Box 710 Whittier, AK 99693 Joe Hale	F1267	Salmon	Pacific Orion Joint Venture 1700 Westlake Ave. N., Ste. 410 Seattle, WA 98109 Debra Hughes	F1567	Salmon
Inlet Fish Producers P.O. Box 114 Kenai, AK 99611 Steven Sather	F1039 F1197 F1231	Herring Salmon	Palisades Fisheries, Inc. 180 Nickerson St., Suite 309 Seattle, WA 98109 Bill Baker/Gaye Mouser	F1254	Herring Salmon
International Seafoods of AK P.O. Box 2997 Kodiak, AK 99615 Jean Franquelin	F0021	Herring	Pan Pacific Seafoods, Inc. 150 Nickerson, Suite 103 Seattle, WA 98109 Karen Nelson	F0923	Herring
J.D. Ventures H.C. 30 Box 5428 Wasilla, AK 99687 Jack Schultheis	10788	Herring	Peter Pan Seafoods, Inc. P.O. Box 1027 Valdez, AK 99686 Jim Poor/Bill Chord	F0142 F1041 F1042	Herring Salmon

- Continued -

Appendix A.9. (page 2 of 2)

Executive Names, Address Location of Operations	Processor Code	Type of Product	Executive Names, Address Location of Operations	Processor Code	Type of Product
Phoenix Fisheries, Inc. 800 Ocean Dock Road Anchorage, AK 99501 Perry Hendricks	F0597	Salmon	Speculator Marine 1515 E. 5th Ave. Anchorage, AK Rick McCracken	F1504	Herring
Prime Alaska Seafoods 6135 Mike Street Anchorage, AK 99518 Jack McLean	F1113	Herring	Taylor Aquatic Enterprises P.O. Box 112241 Anchorage, AK 99511 Gary Taylor	F0131	Herring
Royal Pacific Fisheries P.O. Box 1320 Kenai, AK 99611 Marvin Dragseth	F0409	Herring	Virgin Bay Kelp Co. P.O. Box 1724 Cordova, AK 99574 Steve Smith/Jeannine Buller	F1261	Herring
St. Elias Ocean Products, Inc. P.O. Box 548 Cordova, AK 99574 Bill Terhar	F1452 F1455	Herring Salmon	Wards Cove Packing Co. P.O. Box 1710 Seward, AK 99664 William Brindle/Jim Barr	F1379	Herring Salmon
Sagaya Corporation 3700 Old Seward Hwy. Anchorage, AK 99503 Paul Reid	F0803	Herring	Whitney Foods P.O. Box 190429 Anchorage, AK 99519 Norm Anderson	F0827	Salmon
Sahalee of Alaska P.O. Box 104174 Anchorage, AK 99510 Christa Lind	F1485	Salmon	Woodbine Alaska Fish Co. P.O. Box 218 Egegik, AK 99579 Amy Witherell	F0214	Herring
Sea Hawk Seafoods, Inc. P.O. Box 151 Valdez, AK 99686 Raymond Cesarini	F0223	Herring Salmon	Yak, Inc. 180 Nickerson, Suite 309 Seattle, WA 98109 Gaye Mouser/Al Chaffee	F0786	Herring
Seward Fisheries P.O. Box 8 Seward, AK 99664 Jeff A. Poole	F0133 F0137 F0134 F0138 F0135 F1142	Herring Salmon	Yamaya Seafoods 4100 N. Star St. Anchorage, AK 99503 Sam Yamaya	F1249	Herring
Silver Lining Seafoods P.O. Box 260 Cordova, AK 99574 Mike Schomer	F1486	Herring Salmon			
Smokey Bill's P.O. Box 700 Cordova, AK 99574 Brian Scott Reid	F1426	Salmon			
Specialty Fish Products 600 W. 41st. Ave., Unit C Anchorage, AK 99503 Harold Kalve	F0983	Salmon			



Appendix A.10. Map of the Prince William Sound area showing commercial fishing districts and statistical reporting areas, 1992.

APPENDIX B

COPPER AND BERING RIVER DISTRICTS

Appendix B.1. Commercial salmon catch by species in the Copper River District, 1973 – 1992.

Year	Catch by Species					Total
	Chinook	Sockeye	Coho	Pink	Chum	
1973	19,948	332,816	132,272	8,964	10,173	504,173
1974	18,980	607,766	46,625	9,839	664	683,874
1975	19,644	335,384	53,805	236	807	409,876
1976	31,483	865,254	111,900	3,392	178	1,012,207
1977	22,089	619,140	131,356	23,185	335	796,105
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	50,022	633,010	234,243	7,345	2,217	926,837
1984	38,955	899,776	382,432	32,194	6,935	1,360,292
1985	42,333	931,132	587,990	19,061	5,966	1,586,482
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
Ten Year Average (1982–91)	37,844	925,760	320,891	13,190	9,334	1,307,019

Appendix B.2. Anticipated and actual weekly catch and escapement of sockeye salmon in the Copper River District drift gillnet fishery, 1992.

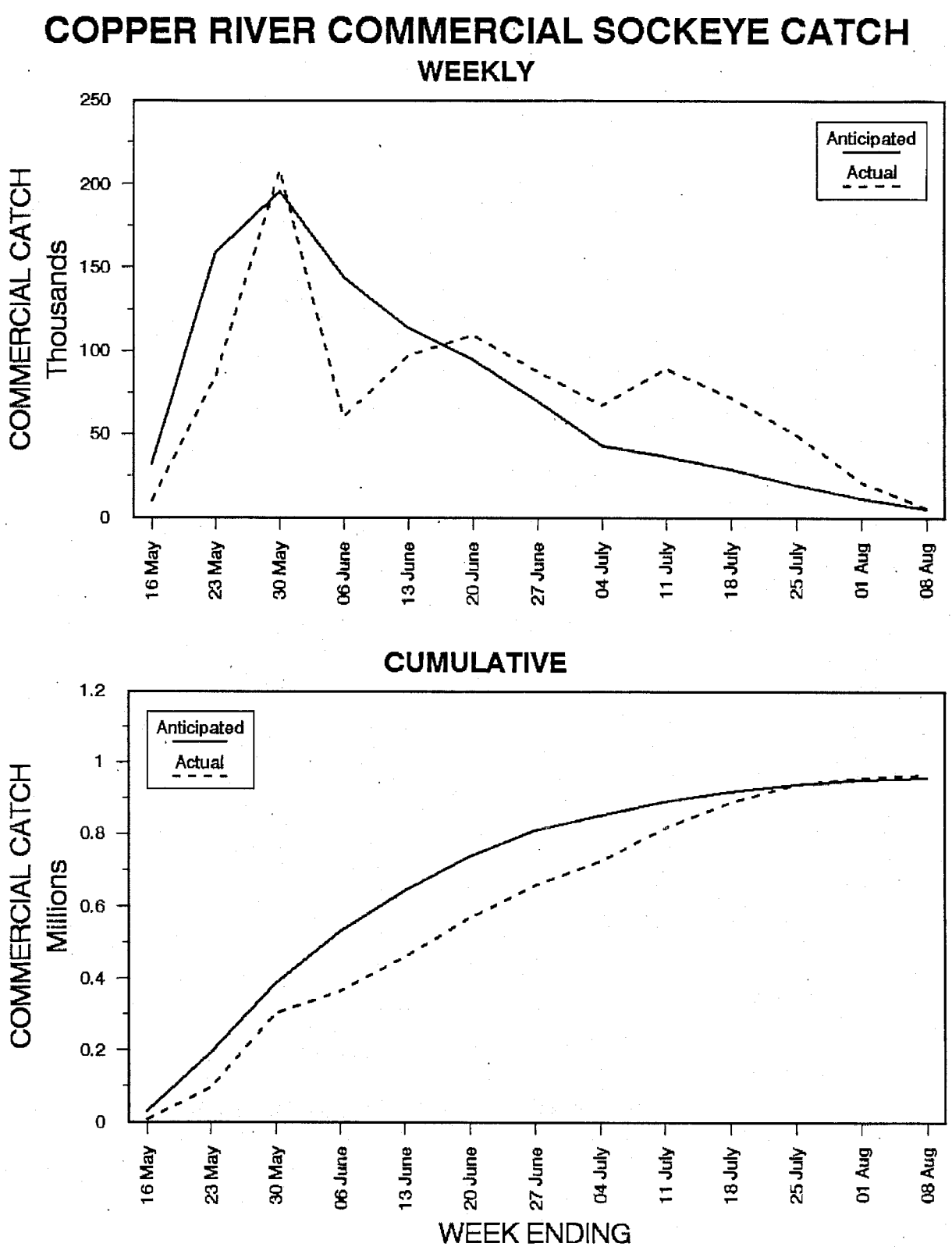
Week Ending Date	Stat. Week	Fishing Time (Hrs.)	Actual Catch	Anticipated Catch [a]	Anticipated Cumulative Escapement [b]	Actual Cumulative Escapement [c]
May 16	21	12	10,249	31,924	0	0
May 23	22	24	84,454	159,131	14,943	0
May 30	23	48	208,083	195,721	71,038	10,755
June 06	24	12	60,433	144,125	154,022	76,518
June 13	25	24	97,154	113,770	285,361	206,074
June 20	26	48	109,561	95,253	300,472	325,607
June 27	27	60	88,152	69,893	331,498	385,615
July 04	28	60	67,559	43,526	374,158	433,138
July 11	29	84	89,889	36,870	413,576	487,124
July 18	30	84	72,232	29,136	458,302	542,577
July 25	31	108	50,077	19,889	492,847	578,926
Aug 01	32	96	21,357	11,793	507,748	601,952 [d]
Aug 08	33	48	5,958	5,573	514,871	
Aug 15	34	48	3,533	2,062	515,500	
Aug 22	35	48	1,778	1,076		
Aug 29	36	48	305	323		
Sept 05	37	72	130	80		
Sept 12	38	72	30	36		
Sept 19	39	48	3	4		
Sept 26	40	48	1	6		
Season Total		1,092	970,938	960,191	516,267	601,952

a Based on average historic catches for comparable dates (1969–1991).

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 July 31.



Appendix B.3. Anticipated and actual weekly and cumulative catches of sockeye salmon in the Copper River District gillnet fishery, 1992.

Appendix B.4. Commercial salmon harvest by period in the Copper River District drift gillnet fishery, 1992.

Period	Date[a,b]	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
					Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds
01	5/15	12	427	471	5,468	137,505	10,249	62,292	1	6	0	0	35	247
02	5/19	12	460	527	4,723	116,906	29,093	174,697	3	18	0	0	212	1,505
03	5/22	12	469	534	8,361	204,705	55,361	332,338	0	0	0	0	270	1,938
04	5/25	24	497	697	7,519	186,595	128,302	761,645	0	0	0	0	301	2,190
05	5/28	24	510	712	6,755	172,626	79,781	473,831	2	15	0	0	1,637	11,228
06	6/01	12	508	571	3,055	76,475	60,433	351,848	0	0	0	0	326	2,306
07	6/08	12	488	524	1,729	43,945	51,857	302,988	2	16	0	0	45	330
08	6/12	12	491	526	902	24,490	45,297	265,079	0	0	0	0	203	1,392
09	6/15	12	350	382	341	8,984	44,890	263,441	0	0	0	0	310	2,178
10	6/18	36	415	674	517	14,315	64,671	381,316	2	12	11	28	789	5,851
11	6/22	24	394	523	195	5,126	45,751	268,280	30	234	13	43	431	2,855
12	6/25	36	282	461	134	3,587	42,401	249,250	8	63	6	24	52	348
13	6/29	24	177	247	35	971	27,528	167,016	15	113	45	151	220	1,489
14	7/02	36	145	249	10	278	40,031	238,578	18	136	82	272	75	539
15	7/06	36	173	309	12	229	43,149	261,650	15	127	71	226	264	1,872
16	7/09	48	193	375	18	409	46,740	279,871	172	1,150	121	395	285	1,871
17	7/13	36	185	285	8	110	31,656	190,885	398	3,011	115	369	155	1,161
18	7/16	48	175	351	10	210	40,576	245,286	432	3,368	128	402	41	275
19	7/20	108	256	581	6	129	50,077	302,649	2,508	19,016	653	2,161	108	683
20	7/27	48	190	250	2	30	12,056	72,847	602	4,335	90	319	18	127
21	7/30	48	117	149	0	0	9,301	57,636	839	6,276	125	393	8	50
22	8/03	24	74	77	1	9	2,392	14,781	1,403	10,167	27	83	0	0
23	8/06	24	86	97	1	15	3,566	22,135	4,584	32,796	39	120	6	23
24	8/10	24	152	203	1	10	2,572	16,333	6,835	53,951	71	217	6	38
25	8/13	24	129	168	0	0	961	6,173	10,082	80,067	8	24	1	6
26	8/17	24	243	340	2	15	1,192	7,689	33,728	274,287	11	42	6	39
27	8/20	24	279	403	3	64	586	3,692	38,123	327,880	23	76	2	13
28	8/24	48	285	609	2	39	305	1,997	53,295	486,741	12	55	1	7
29	8/31	48	263	579	0	0	87	580	50,911	471,358	11	37	0	0
30	9/03	24	213	290	0	0	43	264	15,077	142,598	0	0	0	0
31	9/07	48	227	507	0	0	22	137	34,771	332,454	0	0	0	0
32	9/10	24	200	260	0	0	8	42	11,697	111,643	1	3	0	0
33	9/14	48	190	282	0	0	3	20	13,975	142,178	1	3	0	0
34	9/21	48	151	276	0	0	1	5	12,099	127,401	0	0	0	0
Total		1,092	525	13,489	39,810	997,777	970,938	5,777,271	291,627	2,631,417	1,664	5,443	5,807	40,561
Average Weight						25.06		5.95		9.02		3.27		6.98

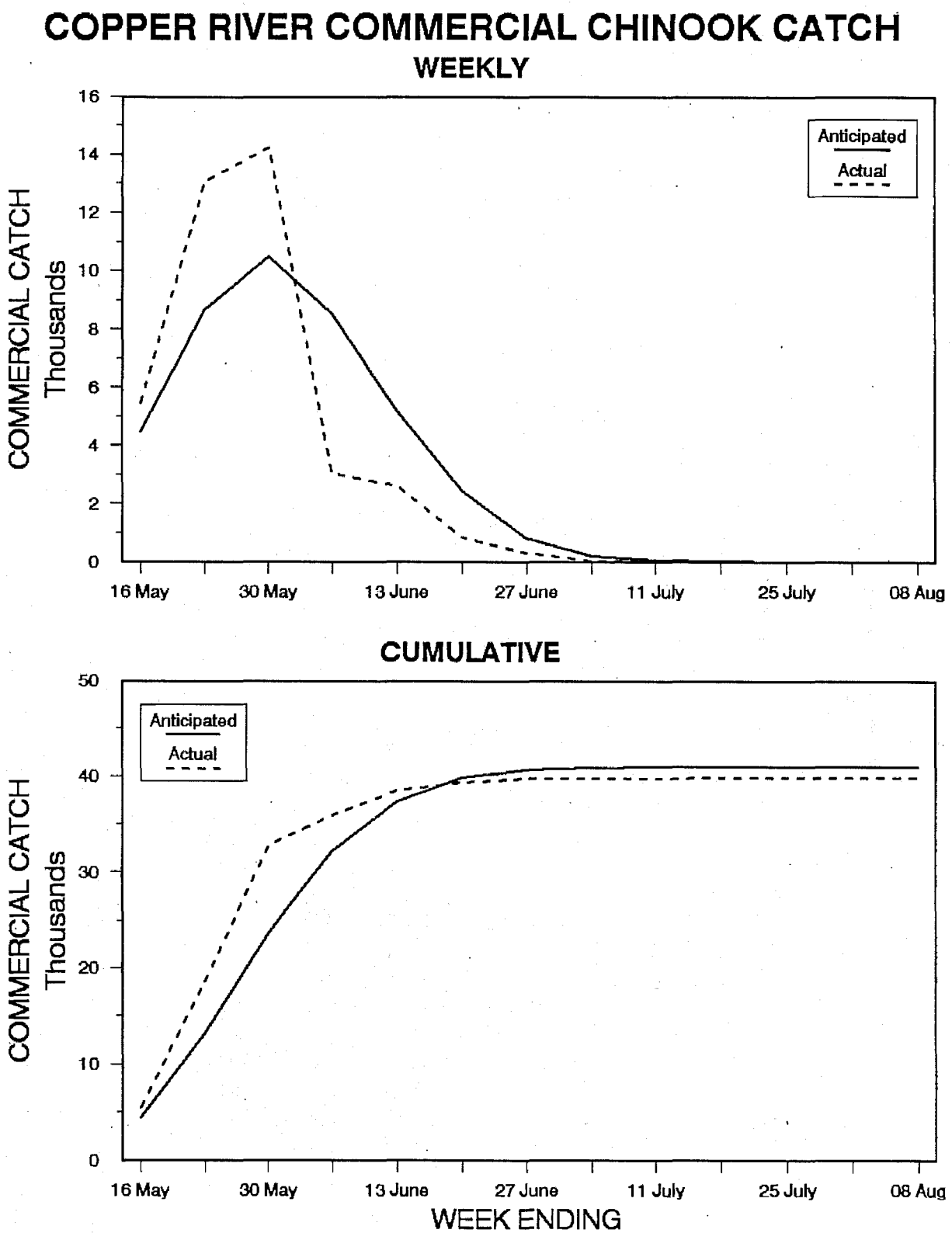
a Starting date of period.

b From 5/15 – 8/09 all 24–hour Monday openers started at 7:00 a.m. and Thursday openers started at 7:00 p.m. All 12–hour openers started at 7:00 a.m. after August 7, all periods began at 12:00 noon.

Appendix B.5. Anticipated and actual weekly catch of chinook and coho salmon in the Copper River District drift gillnet fishery, 1992.

Week Ending Date	Fishing Time (Hrs.)	Chinook		Coho	
		Actual Catch [a]	Anticipated Catch [a]	Actual Catch	Anticipated Catch [a]
May 16	12	5,468	4,470	1	
May 23	24	13,084	8,687	3	
May 30	48	14,274	10,505	2	
June 06	12	3,055	8,524	0	
June 13	24	2,631	5,181	2	
June 20	48	858	2,441	2	
June 27	60	329	828	38	
July 04	60	45	219	33	
July 11	84	30	64	187	
July 18	84	18	43	830	1,386
July 25	108	6	13	2,508	1,029
Aug 01	96	2	9	1,441	3,380
Aug 08	48	2	6	5,987	11,369
Aug 15	48	1	6	16,917	25,634
Aug 22	48	5	7	71,851	48,549
Aug 29	48	2	3	53,295	61,215
Sept 05	72	0	3	65,988	71,174
Sept 12	72			46,468	55,126
Sept 19	48			13,975	21,868
Sept 26	48			12,099	10,288
Oct 03					1,655
Oct 10					627
Season Total	1,092	39,810	41,009	291,627	311,018

a Based on average historic catches for comparable dates (1969–1991).



Appendix B.6. Anticipated and actual weekly and cumulative catches of chinook salmon in the Copper River District drift gillnet fishery, 1992.

Appendix B.7. Daily sockeye salmon escapement estimates at the Miles Lake sonar, 1992.

Date	Water Level [a]	Estimate North Bank	Estimate South Bank	Estimate Daily	Estimate Cumulative	Escapement Objective Daily	Escapement Objective Cumulative	Anticipated 0600	Anticipated Daily
22-May	39.62	0		0	0	2,996	10,382		
23-May	39.68	0		0	0	4,561	14,943		
24-May		0		0	0	6,913	21,856		0
25-May	39.92	0		0	0	7,031	28,887		0
26-May	40.10	0		0	0	7,025	35,912		0
27-May	40.30	210	1,016	1,226	1,226	8,905	44,817		0
28-May	40.55	328	1,103	1,431	2,657	10,092	54,909	307	1,228
29-May	40.73	380	1,982	2,362	5,019	7,384	62,293	399	1,596
30-May	40.94	548	5,188	5,736	10,755	8,745	71,038	1,221	4,884
31-May	40.97	217	7,714 [b]	7,931	18,686	11,039	82,077		
01-Jun	41.13	177	6,433	6,610	25,296	11,049	93,126	1,545	6,180
02-Jun	41.22	260	7,659	7,919	33,215	11,578	104,704	1,577	6,308
03-Jun	41.34	893	10,642	11,535	44,750	11,558	116,262	2,513	10,052
04-Jun	41.50	563	7,358	7,921	52,671	12,704	128,966	2,049	8,196
05-Jun	41.56	152	9,143	9,295	61,966	13,287	142,253	1,173	4,692
06-Jun	41.52	189	14,363	14,552	76,518	11,769	154,022	3,317	13,268
07-Jun	41.38	147	16,587	16,734	93,252	11,836	165,858	3,237	12,948
08-Jun	41.53	122	17,607	17,729	110,981	12,741	178,599	3,802	15,208
09-Jun	41.62	92	20,627	20,719	131,700	11,768	190,367	4,154	16,616
10-Jun	41.73	41	23,389	23,430	155,130	11,121	201,488	6,764	27,056
11-Jun	41.91	22	18,569	18,591	173,721	10,890	212,378	4,461	17,844
12-Jun	42.17	57	14,039	14,096	187,817	10,340	222,718	3,701	14,804
13-Jun	42.48	43	18,214	18,257	206,074	9,002	231,720	3,204	12,816
14-Jun	42.74	119	20,337	20,456	226,530	8,696	240,416	3,855	15,420
15-Jun	42.89	248	23,709	23,957	250,487	8,853	249,269	4,053	16,212
16-Jun	43.01	245	13,669	13,914	264,401	8,131	257,400	3,459	13,836
17-Jun	42.97	157	14,352	14,509	278,910	7,997	265,397	2,819	11,276
18-Jun	42.85	290	14,603	14,893	293,803	6,972	272,369	3,121	12,484
19-Jun	42.63	151	12,173	12,324	306,127	6,435	278,804	3,046	12,184
20-Jun	42.47	288	19,192	19,480	325,607	6,557	285,361	3,686	14,744
21-Jun	42.58	216	16,666	16,882	342,489	6,407	291,768	3,736	14,944
22-Jun	42.91	130	9,322	9,452	351,941	6,517	298,285	2,325	9,300
23-Jun	42.99	81	7,153	7,234	359,175	6,702	304,987	1,803	7,212
24-Jun	42.90	99	6,220	6,319	365,494	6,746	311,733	1,141	4,564
25-Jun	42.66	109	6,566	6,675	372,169	6,812	318,545	1,596	6,384
26-Jun	42.42	31	7,149	7,180	379,349	6,290	324,835	1,733	6,932
27-Jun	42.26	141	6,125	6,266	385,615	6,663	331,498	1,829	7,316
28-Jun	42.44	128	7,956	8,084	393,699	7,047	338,545	2,077	8,308
29-Jun	42.68	91	9,167	9,258	402,957	6,503	345,048	2,392	9,568
30-Jun	42.99	75	7,341	7,416	410,373	5,975	351,023	1,777	7,108

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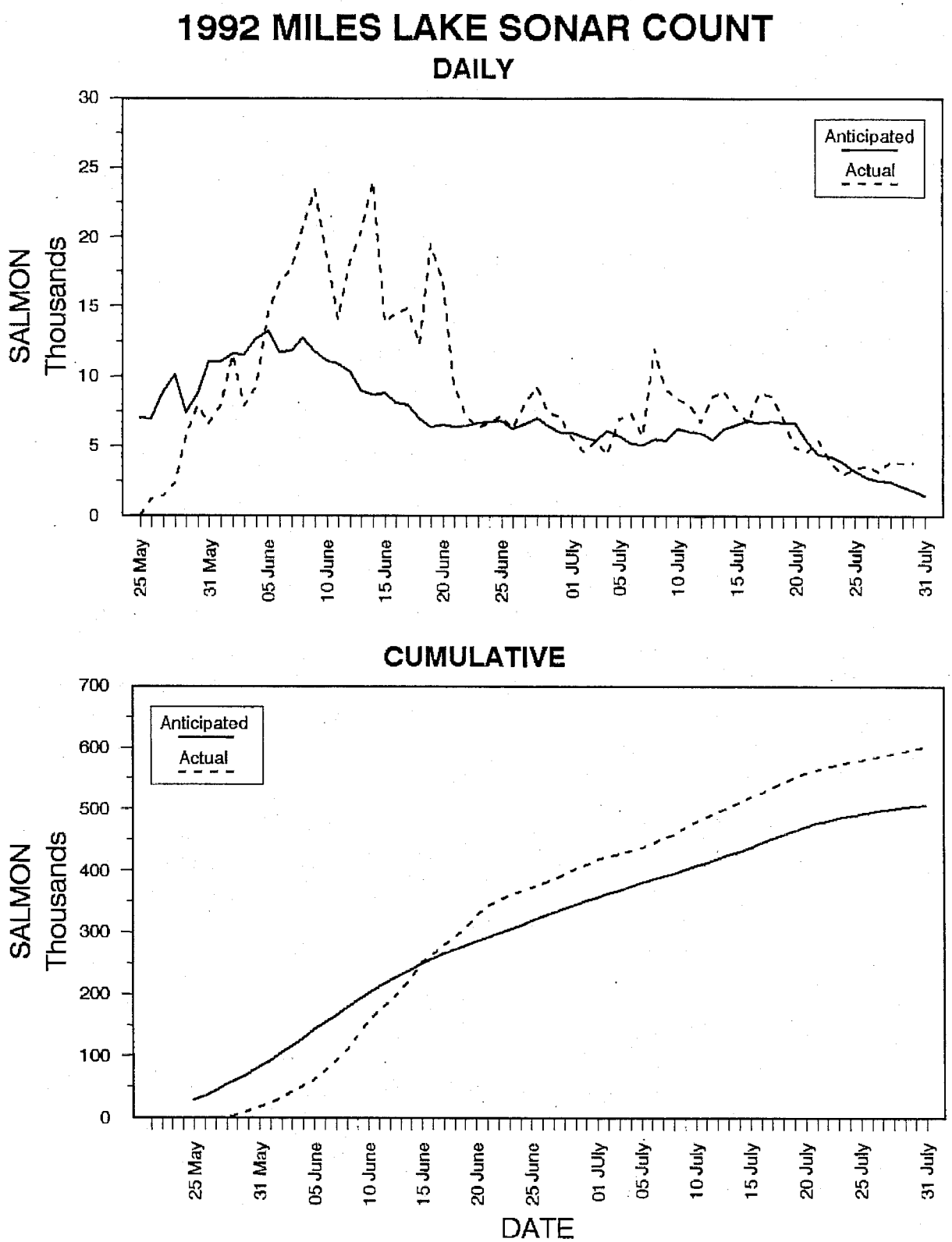
Appendix B.7. (page 2 of 2).

Date	Water Level [a]	Estimate North Bank	Estimate South Bank	Estimate Daily	Estimate Cumulative	Escapement Objective Daily	Escapement Objective Cumulative	Anticipated 0700	Anticipated Daily
01–Jul	43.28	152	6,968	7,120	417,493	5,872	356,895	1,657	6,628
02–Jul	43.61	217	5,374	5,591	423,084	5,738	362,633	1,740	6,960
03–Jul	44.15	222	4,419	4,641	427,725	5,412	368,045	1,177	4,708
04–Jul	44.35	127	5,286	5,413	433,138	6,113	374,158	884	3,536
05–Jul	44.53	138	4,286	4,424	437,562	5,763	379,921	1,527	6,108
06–Jul	44.55	246	6,741	6,987	444,549	5,184	385,105	829	3,316
07–Jul	44.38	350	7,011	7,361	451,910	5,111	390,216	1,230	4,920
08–Jul	44.19	507	5,251	5,758	457,668	5,567	395,783	847	3,388
09–Jul	43.71	562	11,375	11,937	469,605	5,418	401,201	3,043	12,172
10–Jul	43.39	417	8,722	9,139	478,744	6,299	407,500	2,303	9,212
11–Jul	43.34	330	8,050	8,380	487,124	6,076	413,576	2,375	9,500
12–Jul	43.48	477	7,482	7,959	495,083	6,011	419,587	1,941	7,764
13–Jul	43.72	646	6,095	6,741	501,824	5,466	425,053	1,548	6,192
14–Jul	43.65	453	8,121	8,574	510,398	6,242	431,295	1,244	4,976
15–Jul	43.42	364	8,607	8,971	519,369	6,551	437,846	1,663	6,652
16–Jul	43.41	504	7,179	7,683	527,052	6,909	444,755	2,140	8,560
17–Jul	43.27	492	6,226	6,718	533,770	6,717	451,472	1,875	7,500
18–Jul	43.19	480	8,327	8,807	542,577	6,830	458,302	2,210	8,840
19–Jul	43.16	413 [c]	8,202	8,615	551,192	6,703	465,005	1,656	6,624
20–Jul	43.16	273	6,829	7,102	558,294	6,693	471,698	2,093	8,372
21–Jul	43.31	188	4,710	4,898	563,192	5,345	477,043	1,246	4,984
22–Jul	43.34	177	4,435	4,612	567,804	4,390	481,433	1,059	4,236
23–Jul	43.14	209	5,217	5,426	573,230	4,286	485,719	1,249	4,996
24–Jul	42.92	147	3,674	3,821	577,051	3,856	489,575	757	3,028
25–Jul	42.84	115	2,869	2,984	580,035	3,272	492,847	567	2,268
26–Jul	43.11	131	3,281	3,412	583,447	2,798	495,645	446	1,784
27–Jul	43.26	139	3,480	3,619	587,066	2,563	498,208	891	3,564
28–Jul	43.18	123	3,082	3,205	590,271	2,490	500,698	618	2,472
29–Jul	42.99	152	3,802	3,954	594,225	2,117	502,815	1,120	4,480
30–Jul	42.88	149	3,723	3,872	598,097	1,864	504,679	848	3,392
31–Jul	42.81	148	3,707	3,855	601,952	1,522	506,201	503	2,012
Total		16,088	585,864	601,952					

a Meters above mean sea level.

b Went to permanent substrate.

c North bank pulled and all counts after July 19 are interpolated. North bank counts are derived from the average percent of North versus south bank counts of 3.9 percent.



Appendix B.8. Anticipated and actual daily and cumulative salmon escapement estimates, Miles Lake sonar, 1992.

Appendix B.9. Aerial escapement indices by date and location for sockeye salmon returning to the Copper River Delta, 1992.

Copper River Delta [a]		Aerial Escapement Indices by Survey Date						
System and Drainage	Survey System	11 June	18 June	23 June	30 June	15 July	23 July	08 August
Eyak River	Eyak River	450	25	NC	NS	NS	NS	NS
	West Shore Beaches	4,920	NS	4,353	820	10,800	14,200 *	4,100 +
	Middle Arm Beaches [b]	1,300 *	NS	1,400	2,500	4,900	4,400 *	3,100 +
	North Shore Beaches	NS	NS	50	3,400	860	1,570 *	250 +
	Hatchery Creek Delta	0	NS	800	800	380	600 *	1,800
	Hatchery Creek	0	NS	350	1,200	1,900	1,600 *	350
	Power Creek Delta	0	NS	0	0	1,100	1,200 *	0
	Power Creek	0	NS	0	0	15	220 *	50
Ibek Creek	Ibek Creek	NS	NS	NS	NS	NS	NS	NS
Alganik Slough	Alganik Slough	0	NC	NC	NS	NS	NS	NS
	McKinley Lake	0	NS	0	450	10,300 *	700	500 +
	Salmon Creek West Fork	NS	NS	0	0	25 *	NS	1,900
	Salmon Creek East Fork	NS	NS	0	0	0 *	NS	960
26/27 Mile Creek	26/27 Mile Creek	30	NC	520	830	1,420 *	320	280
39 Mile Creek	39 Mile Creek	0	0	0	20	600	1,500	2,300
Goat Mountain Creek	Goat Mountain Creek	0	0	0	0	0	0	0
Pleasent Creek	Pleasent Creek [b]	0	0	317 *	1,250 *	140	0	NS
Martin River	Martin River – Lower	720	NC	380	536	1,963	930	NC
	Ragged Point River	NS	NS	NS	0	0	0	1,000
	Ragged Point Lake Outlet	NS	NS	NS	NS	NS	NS	NS
	Ragged Point Lake	NS	NS	NS	NS	NS	NS	NS
	Martin River – Upper [b]	161	NC	760	2,100	1,400 *	720	NC
	Martin Lake Outlet	280	NC	1,150	2,000	800 *	150 +	NC
	Martin Lake	3,268	NC	4,130	10,900	6,300 *	1,600 +	NC
	Martin Lake Feeders	0	0	270	460	6,900 *	5,000	300
	Pothole River	0	0	30	530	300 *	400	NC
	Pothole Lake Outlet	0	0	0	0	800 *	20	NC
	Pothole Lake	0	0	0	0	200 *	400	NC
	Little Martin Lake Outlet	3	NS	0	110	20 *	0	NS
	Little Martin Lake	0	NS	0	170	1,760 *	3,200	NS
	Tokun Springs	6	NS	380	300 *	600 *	420	NS
	Tokun River	480	NS	720	700	430 *	80	NS
	Tokun Lake Outlet	280	NS	NC	650	300 *	NC	NS
	Tokun Lake	14	NS	NC	2,700	6,900 *	NC	NS
Martin River Slough	Martin River Slough	60	NS	3,280	3,670	3,955 *	NS	NS
Copper River Aerial Survey Daily Total		11,972	25	18,890	36,096	65,068	39,230	16,890
Anticipated Escapement		**1,949**	**5,021**	**18,748**	**25,906**	**44,151**	**46,811**	**57,690**

– Continued –

Copper River Delta [a] System and Drainage	Survey System	Aerial Escapement Indices by Survey Date 15 Aug	20 Aug	29 Aug	03 Sept	08 Sept	14 Sept	22 Sept
Eyak River	Eyak River	NS	0	NS	NC	0	0	0
	West Shore Beaches	5,600	NC	2,000 +	700	2,900	2,800	1,500
	Middle Arm Beaches [b]	3,200	3,500	2,700	500	4,600	4,000	3,300
	North Shore Beaches	1,200	1,050	800	100	2,100	1,500	1,250
	Hatchery Creek Delta	300	2,200	1,900	500	1,500	2,500	400
	Hatchery Creek	100	250	600	100	700	800	600
	Power Creek Delta	1,000	1,100	0	NS	300	800	0
	Power Creek	0	25	30	NS	75	700	200
Ibek Creek	Ibek Creek	4	40	NC	0	0	0	0
Alganik Slough	Alganik Slough	NS	0	NC	NC	0	0	0
	McKinley Lake	800	450	600	700	NS	800	600
	Salmon Creek West Fork	700	3,300	900	200	NS	900	900
	Salmon Creek East Fork	220	310	1,070	500	NS	450	320
26/27 Mile Creek	26/27 Mile Creek	200	435	120	170	80	65	0
39 Mile Creek	39 Mile Creek	4,500 *	3,260	3,600	1,000	2,340	1,200	1,100
Goat Mountain Creek	Goat Mountain Creek	600	620 *	0	0	20	60	20
Pleasent Creek	Pleasent Creek [b]	NS	NS	0	0	0	NS	NS
Martin River	Martin River – Lower	0	80	0	0	0	0	0
	Ragged Point River	260	180	300	10	0 *	100	50
	Ragged Point Lake Outlet	100	300	200	50	300 *	200	100
	Ragged Point Lake	400	600	700	400	2,300 *	1,000	800
	Martin River – Upper [b]	50	350	30 +	100	300	300	200
	Martin Lake Outlet	0	6	NS	0	NC	0	0
	Martin Lake	0	450	NS	0	NC	350	1,820
	Martin Lake Feeders	10	0	NS	0	12	20	100
	Pothole River	0	0	0	0	0	15	10
	Pothole Lake Outlet	0	15	0	0	10	0	70
	Pothole Lake	150	820	325	440	620	780	3,600
	Little Martin Lake Outlet	0	0	0	0	10	0	0
	Little Martin Lake	0	1,320	1,300	600	1,580	700	700
	Tokun Springs	0	0	0	0	0	0	0
	Tokun River	12	75	400	15	200	75	30
	Tokun Lake Outlet	0	150	0	0	100	0	0
	Tokun Lake	1,100	1,300	3,100	1,000	2,300	2,400	2,700
Martin River Slough	Martin River Slough	460	162	20	0	NS	0	0
Copper River Aerial Survey Daily Total		20,966	22,348	20,695	7,085	22,347	22,515	20,370
Anticipated Escapement Index		**40,374**	**42,726**	**47,539**	**34,530**	**29,124**	**23,394**	**9,608**

–Continued–

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

Copper River Delta [a] System and Drainage	Survey System	Survey Dates 05 October	Estimated Escapement Site [c]	system [d]	anticipated
Eyak River	Eyak River	0		25,090	**13,977**
	West Shore Beaches	300	14,200		
	Middle Arm Beaches [b]	1,400	5,700		
	North Shore Beaches	600	1,570		
	Hatchery Creek Delta	300	600		
	Hatchery Creek	200	1,600		
	Power Creek Delta	0	1,200		
	Power Creek	400	220		
Ibek Creek	Ibek Creek	0	40	40	
Alganik Slough	Alganik Slough	0		10,325	**13,998**
	McKinley Lake	300	10,300		
	Salmon Creek West Fork	NS	25		
	Salmon Creek East Fork	NS	0		
26/27 Mile Creek	26/27 Mile Creek	20	1,420	1,420	**3,748**
39 Mile Creek	39 Mile Creek	700	4,500	4,500	**9,599**
Goat Mountain Creek	Goat Mountain Creek	0	620	620	**1,048**
Pleasent Creek	Pleasent Creek [b]	NS	1,567 [e]	1,567	**920**
Martin River	Martin River – Lower	0	0	21,080	**30,224**
	Ragged Point River	0	0		
	Ragged Point Lake Outlet	0	300		
	Ragged Point Lake	400	2,300		
	Martin River – Upper [b]	0	1,400		
	Martin Lake Outlet	0	800		
	Martin Lake	1,300	6,300		
	Martin Lake Feeders	0	6,900		
	Pothole River	0	300		
	Pothole Lake Outlet	0	800		
	Pothole Lake	2,900	200		
	Little Martin Lake Outlet	0	20		
	Little Martin Lake	600	1,760		
	Tokun Springs	0	600	8,230	**9,403**
	Tokun River	75	430		
	Tokun Lake Outlet	0	300		
	Tokun Lake	1,700	6,900		
Martin River Slough	Martin River Slough	20	3,955	3,955	**6,699**
Copper River Aerial Survey Daily Total		11,215	76,827		
Anticipated Escapement Index		**7,540**			**89,616**

– 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 they have been for the purpose in the absence of any other escapement estimating method. The abbrevations 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 then one day may be astricted 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 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 counts across dates selected.

d The sum of the estimates by site within a system

Appendix B.10. Copper River and Bering River area sockeye salmon escapement estimates, 1983 – 1992.[a]

Stream/Lake[b]	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Eyak Lake	8,900	11,690	11,025	2,960	7,420	6,775	4,110	8,270	20,640	21,470
Hatchery Creek	2,000	3,700	850	650	1,975	1,225	1,150	2,800	5,100	2,200
Power Creek	200	500	muddy	0	0	350	0	205	1,870	1,420
Ibek Creek	0	0	25	0	0	0	120	160	120	40
McKinley Lake	12,000	15,000	19,000	12,000	10,300	9,700	6,300	1,400	2,000	10,300
Salmon Creek	8,500	11,000	8,000	900	2	100	630	2,000	3,330	25
26/27 Mile Creek	8,000	7,500	6,500	2,030	4,100	2,105	3,020	3,360	3,900	1,420
39 Mile Creek	13,000	17,000	27,000	9,500	6,100	3,620	7,420	5,000	5,340	4,500
Goat Mountain	100	1,500	150	600	1,000	220	3,150	420	20	620
Pleasant Creek	muddy	7,400	2,500	1,000	1	460	990	3,190	1,495	1,567
Martin River	3,650	5,000	0	2,875	1,480	0	0	350	2,045	1,400
Ragged Pt. R./Lake	10,000	8,950	18,500	3,900	4,100	2,060	4,420	8,950	5,900	2,600
Martin Lake	17,600	35,350	20,500	11,200	6,010	6,440	7,850	11,250	10,700	14,000
Pothole Lake	6,500	6,000	1,500	2,200	910	2,785	1,550	2,190	5,200	1,300
L. Martin Lake	6,400	10,500	11,000	1,500	3,320	2,200	3,030	5,700	11,700	1,780
Tokun Lake/River[c]	7,900	13,250	7,400	16,000	8,080	12,160	4,950	4,200	5,960	8,230
Martin River Slough	11,000	14,500	8,100	7,980	5,900	3,115	3,010	13,900	5,180	3,955
Copper Delta Total	115,750	168,840	142,050	75,295	60,698	53,315	51,700	73,345	90,500	76,827
Upper Copper R.[d]	545,724	536,806	436,313	509,275	483,478	488,398	607,869	581,859	579,412	601,952
Copper R. Dist. Tot.	661,474	705,646	578,363	584,570	544,176	541,713	659,569	655,204	669,912	678,779
Bering River/Lake		29,000	15,700	13,200	19,200	11,450	14,330	16,325	26,480	54,180
Shepherd Creek		14,500	8,000	3,600	4,100	950	340	1,260	3,400	1,200
Stillwater Cr.		3,500	100	1,350	2,000	100	250	700	1,200	150
Kushtaka Lake		1,500	500	825	1,225	480	1,530	256	880	100
Katalla River						350	6,850	1,200	260	265
Bering R. Area Tot.		48,500	24,300	18,975	26,525	13,330	23,300	19,741	32,220	55,895
Copper/Bering Total		754,146	602,663	603,545	570,701	555,043	682,869	674,945	702,132	734,674

a The escapement figures in this table are based on peak aerial survey estimates, sonar and weir 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 in years prior to 1984, different methodology was used and discrepancies may be found when cross references to the primary data.

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 Weir counts at Tokun Lake for 1983, 1984 and 1985 are 7,645, 28,041,and 10,993 respectively.

d Upriver escapement estimate from Miles Lake sonar counts.

Appendix B.11. Aerial survey indices of sockeye salmon escapement to the Upper Copper River drainage, 1982 – 1992. [a]

Location	Yearly Survey Indices											10 Year Average 1982 – 91
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	
Fish Lake	22,560	5,500	10,950	3,750	8,750	9,530	6,800	6,700	3,600	4,350	4,250	8,249
Bad Crossing #1&2	4,550	2,000	760	1,125	5,300	2,575	2,075	3,025	6,050	2,625	500	3,009
Suslota Lake	1,800	5,600	700	2,200	1,300	970	550	525	750	210	1,350	1,461
Dickey Lake	410	135	105	290	43	360	57	28	28	56	46	151
Keg Creek	495	620	2,505	825	200	400	360	1,450	160	95	630	711
Mahlo Creek	3,300	2,400	4,300	575	1,750	2,350	3,900	4,600	2,600	3,750	250	2,953
St. Anne Creek	8,800	9,700	10,300	1,250	4,600	6,980	6,100	3,100	1,700	4,700	450	5,723
Fish Cr. – Mentasta	1,700	900	900	1,800	1,100	250	650	1,500	1,000	1,050	480	1,085
Swede Lake	1,400	550	2,400	250	385	113	230	275	120	110	875	583
Tana River	1,100	2,485	3,665	1,145	1,825	472	2,034	245	89	750	740	1,381
Mentasta Lake	3,250	6,800	4,850	3,850	2,850	1,800	4,300	3,270	2,900	1,550	600	3,542
Tanada Lake	3,880	4,300	9,100	5,900	3,960	4,950	2,100	2,550	1,650	1,725	2,250	4,012
Salmon Creek	850	1,550	1,350	575	300	1,150	700	425	350	350	1,500	760
Paxson Inlt – Mud Cr	1,150	7,500	15,700	7,500	7,000	4,250	6,350	3,200	2,850	4,800	6,450	6,030
Mud Creek and Lake	1,900	470	270	200	70	0	150	0	35	100	425	320
Mendeltna Creek	400	2,850	1,900	2,300	3,325	2,275	1,550	2,000	3,700	3,050	1,750	2,335
Paxson Lake Outlet	3,800	3,300	4,100	3,600	1,810	5,100	3,200	900	1,350	2,300	950	2,946
Mud Cr. – Summit L.	17,400	5,700	9,600	8,150	3,375	9,050	15,400	6,800	2,950	9,625	3,800	8,805
Long Lake	1,700	5,600	1,360	590	1,300	1,225	1,125	1,225	1,950	1,919 [b]	1,050	1,799
Tonsina Lake	1,700	2,850	975	290	350	740	650	2,450	1,450	770 [b]	1,350	1,223
Totals	82,145	70,810	85,790	46,165	49,593	54,540	58,281	44,268	35,282	43,885	29,696	57,076

a The escapement figures in this table are based on peak aerial survey estimates and weir counts from a majority 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.

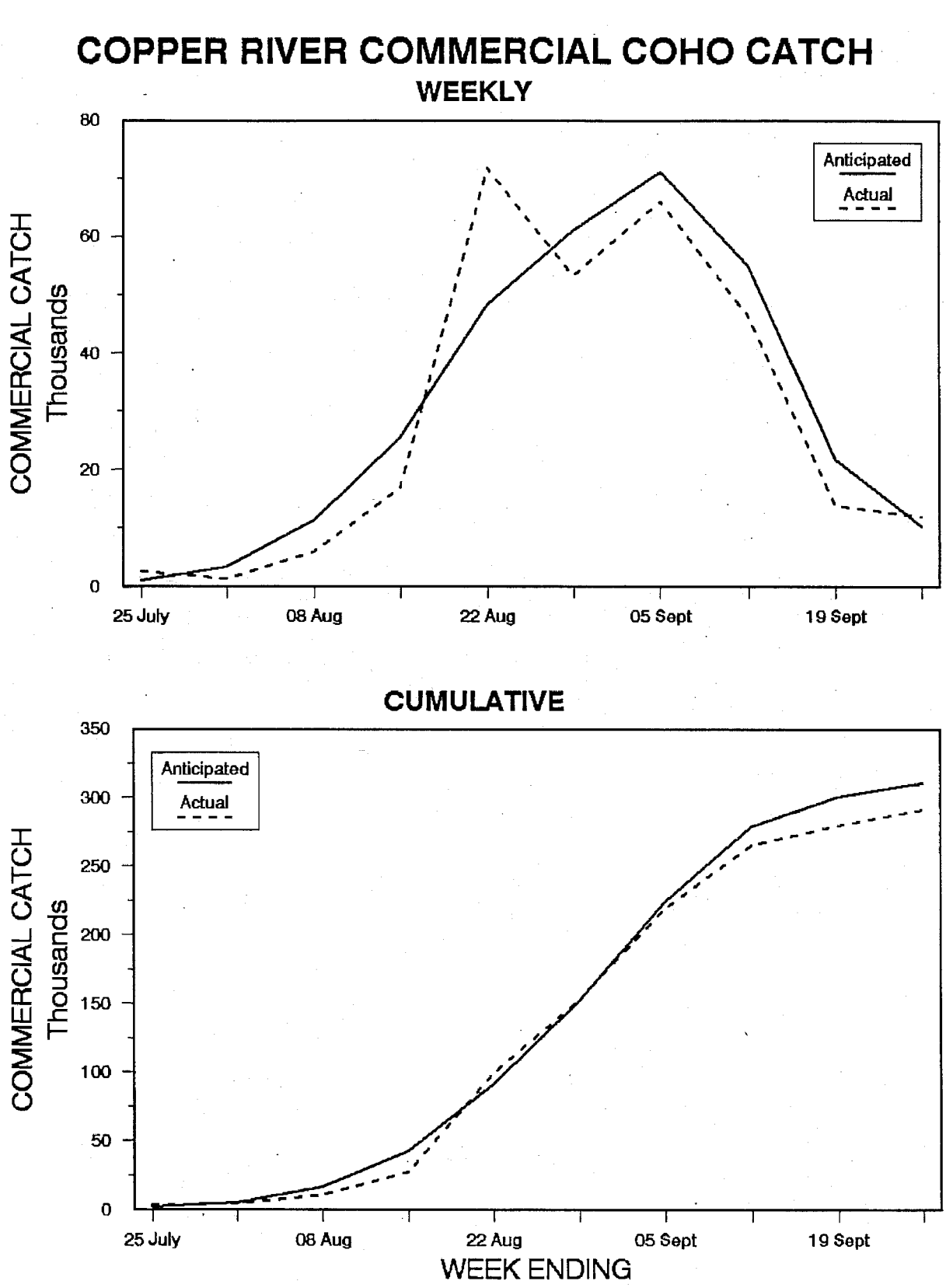
b No survey flown, counts are the historical average.

Appendix B.12. Aerial survey indices of chinook salmon escapement to the Copper River drainage, 1982 – 1992. [a]

Location	Yearly Survey Indices											10 Year Average 1982 – 1991
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	
East Fork Chistochina	1,260	575	577	360	618	764	684	740	615	865	88	688
Gulkana River	1,656	931	2,189	321	3,182	1,228	967	1,993	1,356	1,303	656	1,536
Mendeltna Creek	70	12	26	26	76	10	17	185	320	305	83	82
Kiana Creek	200	166	382	91	328	80	249	344	411	520	79	250
St. Anne Creek	35	87	89	15	182	192	62	90	42	115	12	88
Manker Creek	49	141	264	22	251	141	115	165	41	101	14	132
Grayling Creek	127	287	279	58	224	112	161	72	49	151	17	152
Little Tonsina River	440	330	568	203	424	247	75	65	57	54	107	268
Indian River	179	41	17	14	29 [b]	33	0	3	15	18	1	33
Total Survey Index	4,016	2,570	4,391	1,110	5,314	2,807	2,330	3,657	2,906	3,432	1,057	3,233

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.



Appendix B.13. Anticipated and actual weekly and cumulative catches of coho salmon in the Copper River District drift gillnet fishery, 1992.

Appendix B.14. Aerial escapement indices by date and location for coho salmon returning to the Copper River Delta, 1992.

Copper River Delta [a] System and Drainage	Survey System	Aerial Escapement Indices by Survey Date [b] 15 Aug	20 Aug	29 Aug	03 Sept	08 Sept	14 Sept	22 Sept	05 Oct
Eyak River	Eyak River	NS	210 +	NS	NC	720 +	530	750 *	450
	West Shore Beaches	0	NS	900	1,600	4,100	4,900	4,660 *	1,200
	Middle Arm Beaches	0	0	0	0	0	0	0 *	0
	North Shore Beaches	0	0	0	0	400	300	300 *	600
	Hatchery Creek Delta	0	0	400	600	500	500	800 *	1,700
	Hatchery Creek	0	0	0	0	200	100	300 *	600
	Power Creek Delta	0	0	400	NS	500	200	700 *	1,400
	Power Creek	0	0	30	NS	100	100	300 *	1,000
Ibek Creek	Ibek Creek	0	75	NC	1,200	1,760 +	2,080	1,700	9,600 *
Scott River	Scott River	NS	0	20	0	NC	0	480 *	0
	Elsner River	NS	0	0	0	100	70	10 *	0
	Scott Lake	NS	0	165	3	NC	40	60 *	0
Alganik Slough	Alganik Slough	NS	0	NC	100	NC	50	800	300 *
	18/20 Mile Creek	0	85	305	300	530	460	520	615 *
	McKinley Lake	0	0	60	800 *	NS	150	100	150
	Salmon Creek West Fork	0	0	0	0	NS	0	0	NS
	Salmon Creek East Fork	0	0	0	0	NS	135	0	NS
26/27 Mile Creek	26/27 Mile Creek	0	NC	7	50	80	15	380	475 *
39 Mile Creek	39 Mile Creek	0	60	400	600	1,600	1,600	1,100 +	1,900 *
Goat Mountain Creek	Goat Mountain Creek	0	90	75	20	65	80	200	480 *
Pleasent Creek	Pleasent Creek	NS	NS	8	2	0	NS	NS	NS
Martin River	Martin River – Lower	15	395	350 +	450	900	1,600	500	200 *
	Ragged Point River	0	0	0	20	0	0	0	10 *
	Ragged Point Lake Outlet	0	0	0	0	0	0	0	0
	Ragged Point Lake	0	0	0	150	0	0	0	300 *
	Martin River – Upper	0	70	450 +	2,200	6,100	5,600	3,600	1,700 *
	Martin Lake Outlet	0	0	NS	0	NC	100	0	0
	Martin Lake	0	0	NS	0	NC	0	0	0
	Martin Lake Feeders	0	0	NS	20	0	0	0	65 *
	Pothole River	0	45	40	0	0	30	20	0
	Pothole Lake Outlet	0	0	0	0	0	0	0	300 *
	Pothole Lake	0	0	0	0	0	0	0	0
	Little Martin Lake Outlet	0	0	800	1,300	1,800	1,300	2,600	10,500 *
	Little Martin Lake	0	0	75	200	0	0	600	300 *
	Tokun Springs	0	35	120	10	80	400	280 *	100
	Tokun River	0	0	25	0	0	10	230 *	200
	Tokun Lake Outlet	0	0	0	0	0	0	0	20
	Tokun Lake	0	0	0	100	0	0	0	0
Martin River Slough	Martin River Slough	0	715	3,460	2,960	NS	6,440	6,580	8,140 *
Copper River Aerial Survey Daily Total		15	1,780	8,090	12,685	19,535	26,790	27,570	42,305
Anticipated Escapement [b]		**1,756**	**5,086**	**11,442**	**23,337**	**16,607**	**45,147**	**35,386**	**34,089**

– Continued –

Appendix B.14. (page 2 of 3).

Copper River Delta [a] System and Drainage	Survey System	Estimated Escapement Site [c]	System [d]	Anticipated
Eyak River	Eyak River	750	7,810	**7,148**
	West Shore Beaches	4,660		
	Middle Arm Beaches	0		
	North Shore Beaches	300		
	Hatchery Creek Delta	800		
	Hatchery Creek	300		
	Power Creek Delta	700		
	Power Creek	300		
Ibek Creek	Ibek Creek	9,600	9,600	**6,428**
Scott River	Scott River	480	550	
	Elsner River	10		
	Scott Lake	60		
Alganik Slough	Alganik Slough	300	1,715	**3,521**
	18/20 Mile Creek	615		**922**
	McKinley Lake	800		
	Salmon Creek West Fork	0		
	Salmon Creek East Fork	0		
26/27 Mile Creek	26/27 Mile Creek	475	475	**287**
39 Mile Creek	39 Mile Creek	1,900	1,900	**4,164**
Goat Mountain Creek	Goat Mountain Creek	480	480	**1,113**
Pleasent Creek	Pleasent Creek	8	8	
Martin River	Martin River – Lower	200	200	
	Ragged Point River	10	310	**1,206**
	Ragged Point Lake Outlet	0		
	Ragged Point Lake	300		
	Martin River – Upper	1,700	1,700	**5,965**
	Martin Lake Outlet	0	65	**3,103**
	Martin Lake	0		
	Martin Lake Feeders	65		
	Pothole River	0	300	**1,817**
	Pothole Lake Outlet	300		
	Pothole Lake	0		
	Little Martin Lake Outlet	10,500	10,800	**4,575**
	Little Martin Lake	300		
	Tokun Springs	280	510	**1,353**
	Tokun River	230		
	Tokun Lake Outlet	0		
	Tokun Lake	0		
Martin River Slough	Martin River Slough	8,140	8,140	**10,893**
Copper River Aerial Survey Total			44,563	**52,495**

– 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 they have been for the purpose in the absence of any other escapement estimating method. The abbrevations 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 counts across dates selected.

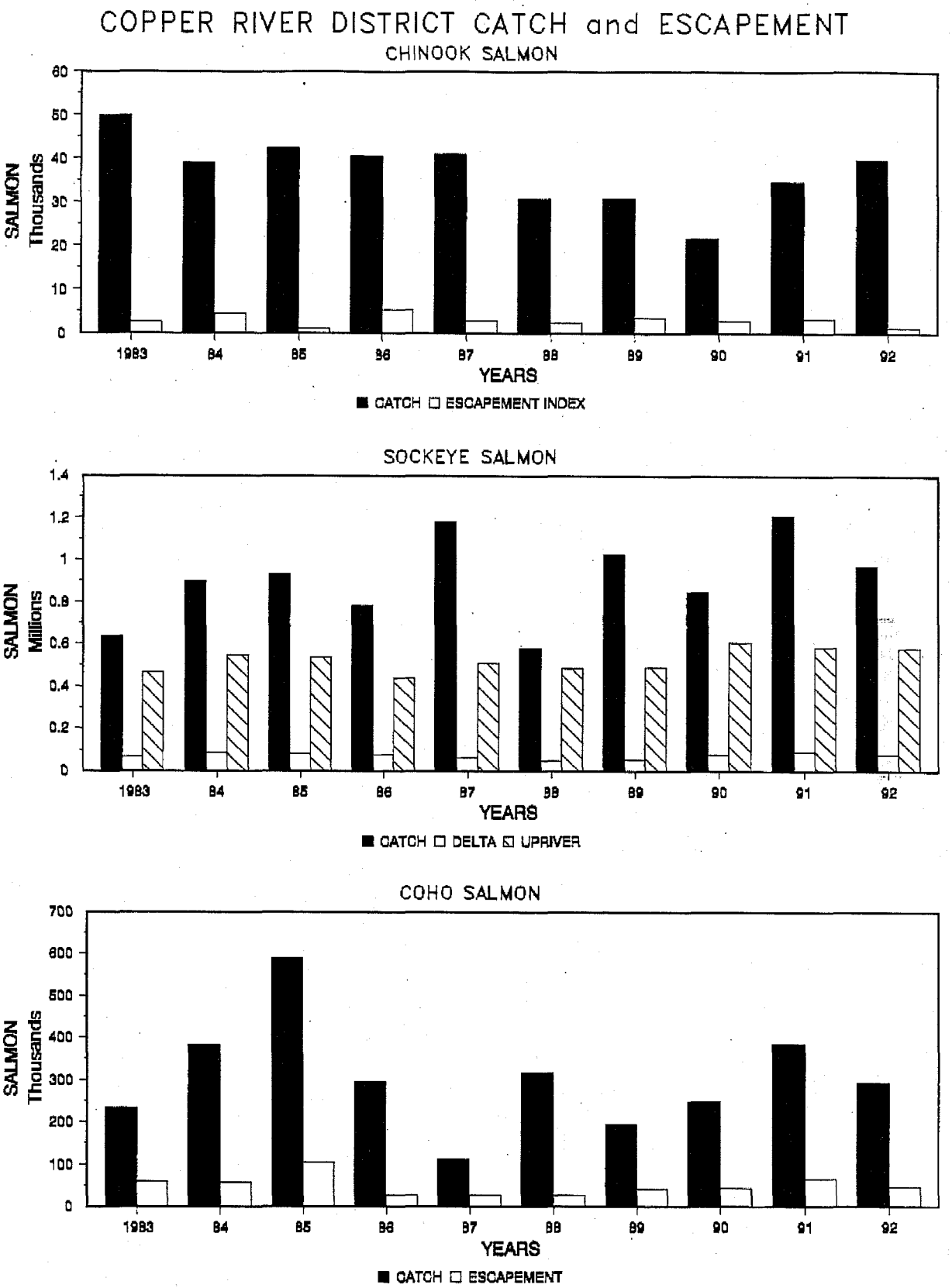
d The sum of the estimates by site within a system

Appendix B.15. Copper River Delta and Bering River coho salmon escapement estimates, 1983 – 1992. [a]

Stream/Lake [b]	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Eyak Lake	14,600	6,500	1,400	2,550	2,800	3,250	1,925	5,775	7,170	5,710
Hatchery Creek	1,000	1,750	7,010	400	850	100	400	1,940	0	1,100
Power Creek	1,000	1,900	1,800	0	4,800	350	0	650	0	1,000
Ibek Creek	4,200	9,700	8,500	4,200	3,100	2,400	4,330	3,950	13,540	9,600
Scott River						1,060	510	1,105	700	550
Alganik Slough						1,075	1,000	630	4,200	915
McKinley Lake	5,000	500	4,300	1,600	10	170	800	375	100	800
Salmon Creek	6,500	850	7,000	200	0	1,925	1,990	1,970	1,770	0
26/27 Mile	0	350	300	60	350	105	810	860	300	475
39 Mile	6,500	8,000	8,000	5,800	2,800	1,390	2,150	2,230	2,100	1,900
Goat Mountain		600	4,000	100	520	1,500	2,500	1,340	1,900	480
Pleasant Cr.	350	1,100	1,500	0	250	110	961	1	6	8
Martin River	3,100	4,000	11,500	4,820	3,060	3,400	470	400	1,600	1,900
Ragged Pt. River/Lk.	525	650	1,500	30	3,330	1,080	3,600	820	450	310
Martin Lake	6,100	4,700	9,100	275	70	145	590	320	1,500	65
Pothole Lake		900	8,500	640	70	350	1,300	2,670	6,000	300
Little Martin Lake	1,125	7,000	4,100	275	560	4,500	7,200	7,400	11,360	10,800
Tokun River/Lake	350	525	1,900	490	495	600	2,870	2,250	2,800	510
Martin River Slough	9,700	15,500	26,000	4,350	3,400	4,110	7,960	7,700	8,860	8,140
Copper Delta Total	60,050	64,525	106,410	25,790	26,465	27,620	41,366	42,386	64,356	44,563
Katalla R.	4,800	7,000	14,000	1,800	1,600	560	1,220	2,960	4,000	2,760
Bering Lake	4,000	2,000	18,000	1,350	900	2,350	1,000	2,040	12,300	3,540
Dick Creek	7,100	5,500	5,000	350	50	105	570	1,500	1,220	1,250
Shepard Cr.			1,500	10	45	70	70	100	NS	NS
Nichawak R.	800	1,000	3,500	1,700	250	3,670	2,550	2,900	2,560	1,970
Gandil R.			4,500				1,410	910	1,460	600
Controller Bay		4,500	34,000	4,210	2,740	4,660	9,000	14,390	9,760	6,180
Bering Area Total	16,700	20,000	80,500	9,420	5,585	11,415	15,820	24,800	31,300	16,300
Copper/Bering Total	76,750	84,525	186,910	35,210	32,050	39,035	57,186	67,186	95,656	60,863

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.



Appendix B.16. Chinook, sockeye and coho salmon catch and escapement in the Copper River District, 1983 - 1992.

Appendix B.17. Estimated age and sex composition of sockeye salmon harvest in the Copper River District drift gillnet fishery, 1992.

		Brood year and age group										
		1989		1988		1987			1986		1985	
		0.2	1.1	0.3	1.2	0.4	1.3	2.2	1.4	2.3	2.4	Total
Strata combined:	05/15 - 09/23											
Sampling dates:	05/15 - 08/04											
Sample size:	5,063											
Female	Percent of sample	0.5	0.0	2.7	5.1	0.1	35.8	0.6	0.5	4.1	0.1	49.3
	Number in catch	4,379	118	25,846	49,434	963	347,248	5,603	4,866	39,583	573	478,614
Male	Percent of sample	0.7	0.1	2.8	7.7	0.1	33.2	0.7	0.2	3.8	0.1	49.4
	Number in catch	6,725	801	26,949	75,008	1,199	322,640	6,743	2,252	36,973	792	480,082
Total	Percent of sample	1.2	0.1	5.5	13.1	0.2	69.7	1.3	0.7	8.1	0.1	100.0
	Number in catch	11,391	919	53,335	126,718	2,162	676,876	12,507	7,118	78,546	1,365	970,938
	Standard error	1,670	355	3,332	5,200	722	7,102	1,760	1,317	4,031	578	

Appendix B.18. Estimated age and sex composition of the chinook salmon commercial harvest in the Copper River District drift gillnet fishery, 1992

		Brood year and age group														
		1989	1988		1987			1986				1985		1984		
		1.1	0.3	1.2	0.4	1.3	2.2	0.5	1.4	2.3	3.2	1.5	2.4	2.5	3.4	Total
Strata combined: 05/15 - 06/12 Sampling dates: 05/15 - 06/13 Sample size: 1,996																
Female	Percent of sample	0.0	0.2	1.0	0.2	8.0	0.2	0.0	42.1	1.0	0.1	0.3	2.9	0.1	0.1	56.2
	Number in catch	0	64	382	92	3,178	89	0	16,779	388	29	137	1,167	21	29	22,357
Male	Percent of sample	0.1	0.0	3.3	0.1	4.5	0.4	0.0	30.2	0.3	0.0	0.6	1.9	0.0	0.1	41.7
	Number in catch	50	0	1,314	48	1,809	176	19	12,025	134	7	227	774	0	29	16,614
Total	Percent of sample	0.1	0.2	4.3	0.4	12.8	0.7	0.0	74.1	1.3	0.1	0.9	4.9	0.1	0.1	100.0
	Number in catch	50	64	1,696	141	5,113	266	19	29,487	522	36	364	1,969	21	58	39,810
	Standard Error	36	37	198	55	322	81	19	421	111	30	91	211	21	41	

Appendix B.19. Estimated age and sex composition of the coho salmon commercial harvest in the Copper River District commercial drift gillnet fishery, 1992.

			Brood year and age group				
			1990	1989	1988	1987	
			1.0	1.1	2.1	3.1	Total
Stratum combined:	05/15 -	09/23					
Sampling dates:	08/11 -	09/09					
Sample size:	1,138						
Female	Percent of sample		0.0	32.8	19.0	0.6	52.4
	Number in catch		0	95,642	55,512	1,788	152,942
Male	Percent of sample		0.1	26.5	19.6	1.0	47.1
	Number in catch		241	77,255	57,110	2,835	137,442
Total	Percent of sample		0.1	59.5	38.8	1.6	100.0
	Number in catch		241	173,519	113,243	4,623	291,627
	Standard error		241	4,470	4,438	1,133	

Appendix B.20. Commercial salmon catch by species in the Bering River District, 1973–1992.

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 [a]	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
Ten Year Average (1982–91)	166	50,714	129,540	153	3,563	184,135

a In 1980 no fishing was allowed prior to August 11.

Appendix B.21. Commercial salmon harvest by period in the Bering River District drift gillnet fishery, 1992.

Period	Date [ab]	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
					Number	Pound	Number	Pound	Number	Pound	Number	Pound	Number	Pound
1	6/15	12	33	38	13	271	5,701	35,063	0	0	0	0	1	8
2	6/18	36	30	53	2	43	6,053	36,030	0	0	0	0	0	0
3	6/22	24	11	19	1	26	3,498	20,239	0	0	0	0	0	0
4	6/25	36	14	21	0	0	2,368	13,879	0	0	0	0	0	0
5	6/29	24	5	11	4	65	1,662	9,992	0	0	0	0	0	0
6	7/02	36	[c]	[c]	0	0	356	2,141	0	0	0	0	0	0
7	7/06	36	0	0	0	0	0	0	0	0	0	0	0	0
8	7/09	36	0	0	0	0	0	0	0	0	0	0	0	0
9	7/13	36	0	0	0	0	0	0	0	0	0	0	0	0
10	7/16	48	0	0	0	0	0	0	0	0	0	0	0	0
11	7/20	108	0	0	0	0	0	0	0	0	0	0	0	0
12	7/27	48	0	0	0	0	0	0	0	0	0	0	0	0
13	7/30	48	0	0	0	0	0	0	0	0	0	0	0	0
14	8/03	24	0	0	0	0	0	0	0	0	0	0	0	0
15	8/06	24	0	0	0	0	0	0	0	0	0	0	0	0
16	8/10	24	0	0	0	0	0	0	0	0	0	0	0	0
17	8/13	24	0	0	0	0	0	0	0	0	0	0	0	0
18	8/17	24	4	6	0	0	0	0	776	6,555	0	0	0	0
19	8/20	24	22	36	0	0	41	275	3,474	32,529	3	14	0	0
20	8/24	48	43	107	0	0	31	191	16,317	148,944	1	3	0	0
21	8/31	48	126	351	0	0	6	42	35,753	342,269	0	0	0	0
22	9/03	24	91	142	0	0	1	6	10,221	97,351	0	0	0	0
23	9/07	48	100	269	1	10	3	20	29,581	288,707	0	0	0	0
24	9/14	48	115	286	0	0	0	0	22,301	221,492	0	0	0	0
25	9/21	48	74	139	0	0	1	6	7,193	69,503	0	0	0	0
Total		936	183	1,478	21	415	19,721	117,884	125,616	1,207,350	4	17	1	8
Average Weight (lbs)						19.76		5.98		9.61		4.25		8.00

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

b Starting date of period.

c Less then the required 3 permits fishing in that area.

Appendix B.22. Aerial escapement indices by date and location for sockeye salmon returning to the Bering River Delta, 1992.

Bering River Delta [a]		Aerial Escapement Indicies by Survey Date						
System and Drainage	Survey System	11 June	18 June	23 June	30 June	15 July	23 July	15 Aug
Bering River	Bering River	600	NS	NC	750	2,200	NC	0
	Bering Lake	4,680	NC	3,100	18,700	14,180	4,120 +	150
	Dick Creek	0	NS	0	0	37,800	NC	2,100
	Shepherd Creek – Lagoon	NS	NS	0	50 +	1,200 +*	NC	30
	Shepherd Creek	NS	NS	NS	NS	NS	200	200
	Carbon Creek	NS	NS	NS	NS	NS	150	NS
	Maxwell Creek	NS	NS	NS	NS	NS	0	0
	Trout Creek	NS	NS	NS	NS	NS	NS	0
	Clear Creek	NS	NS	NS	NS	NS	NS	150 *
	Kushtaka Lake	NS	NS	NS	NS	NS	0	20 *
	Shockum Creek	NS	NS	NS	NS	NS	0	80 *
Kattalia River	Katalla River	NS	NS	NC	NS	265 *	NC SP	50
Bering River Aerial Survey Daily Index		5,280	0	3,100	19,500	55,645	4,470	2,780
Anticipated Escapement Index		**1,517**	**3,484**	**7,700**	**13,673**	**24,766**	**24,231**	**6,725**

Bering River Delta [a]		Aerial Escapement Indicies by Survey Date						
System and Drainage	Survey System	20 Aug	29 Aug	03 Sept	08 Sept	14 Sept	22 Sept	05 Oct
Bering River	Bering River	NC	NS	0	NS	0	0	0
	Bering Lake	850	115	0	0	0	400	0
	Dick Creek	1,650	475	0	90	0	160	0
	Shepherd Creek – Lagoon	NC	NS	NS	NS	NS	NS	NS
	Shepherd Creek	30	NS	NS	NS	NS	NS	NS
	Carbon Creek	350	NS	NS	NS	NS	NS	NS
	Maxwell Creek	NS	NS	NS	NS	NS	NS	NS
	Trout Creek	0	NS	NS	NS	NS	NS	NS
	Clear Creek	60	NS	NS	NS	NS	NS	NS
	Kushtaka Lake	43	NS	NS	NS	NS	NS	NS
	Shockum Creek	80	NS	NS	NS	NS	NS	NS
Kattalla River	Katalla River	90	30	0	NS	0	0	0
Bering River Aerial Survey Daily Index		3,153	620	0	90	0	560	0
Anticipated Escapement Index		**4,807**	**1,725**	**1,725**	**1,012**	**85**	**12**	**0**

–Continued–

Appendix B.22 (page 2 of 2).

Bering River Delta [a] System and Drainage	Survey System	Estimated Escapement Site [b]	System [c]	Anticipated
Bering River	Bering River	2,200	54,180	**22,054**
	Bering Lake	14,180		
	Dick Creek	37,800		
	Shepherd Creek – Lagoon	1,200	1,200	**6,356**
	Shepherd Creek			
	Carbon Creek			
	Maxwell Creek			
	Trout Creek			
	Clear Creek	150	150	**1,625**
	Kushtaka Lake	20	100	**1,738**
	Shockum Creek	80		
Kattalla River	Katalla River	265	265	
Bering River Aerial Survey Daily Index			55,895	**31,773**

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 they have been for the purpose in the absence of any other escapement estimating method. The abbrevations 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 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 counts across dates selected.

c The sum of the estimates by site within a system.

Appendix B.23. Anticipated and actual weekly catch and escapement of coho salmon in the Bering River District drift gillnet fishery, 1992.

Week Ending Date	Fishing Time (Hrs.)	Coho		Coho Escapement	
		Actual Catch	Anticipated Catch [a]	Peak Aerial Index	Anticipated Peak Index [b]
Prior to July 25		0	344		
July 25	108	0	77		
Aug 01	96	0	26		
Aug 08	48	0	75		
Aug 15	48	0	162		872
Aug 22	48	4,250	586	887	1,588
Aug 29	48	16,317	10,272	6,725	7,255
Sept 05	72	45,974	27,364	4,710	11,879
Sept 12	72	29,581	40,108	6,580	21,648
Sept 19	48	22,301	32,225	11,670	19,776
Sept 26	48	7,193	8,814	13,730	5,831
Oct 03			2,262	4,700	7,116
Oct 10			185		
Season Total	636	125,616	122,500	16,300	21,648

a Based on average historic catches for comparable dates (1969–1991).

b Based on average historic aerial escapement surveys for comparable dates (1969–1991).

Appendix B.24 Aerial escapement indices by date and location for coho salmon returning to the Bering River Delta, 1992.

Bering River Delta [a] System and Drainage	Survey System	Aerial Escapement Indicies by Survey Date 20 Aug	29 Aug	03 Sept	08 Sept	14 Sept	22 Sept	05 Oct
Bering River	Bering River [b]	110 +	550	600	400 +	940 *	960	400
	Bering Lake	190	460	300	700	2,600 *	1,600	1,500
	Dick Creek	0	550	800	900	1,250 *	930	1,900
	Shepherd Creek – Lagoon	NC	NS	NS	NS	NS	NS	NS
	Shepherd Creek	0	NS	NS	NS	NS	NS	NS
	Carbon Creek	0	NS	NS	NS	NS	NS	NS
	Maxwell Creek	NS	NS	NS	NS	NS	NS	NS
Kattalla River	Katalla River	350	1,260	900	NS	2,150	2,760 *	900
Lower Bering River	Gandil River	15	175	110	220	180	600 *	NS
	Nichawak River	110	1,970 *	650	1,100	800	700	NS
Controller Bay	Campbell River	0	0	100	120	50	160 *	NS
	Edwards River	65	625	650	2,500	2,400	3,600 *	NS
	Okalee River	0	1,025	600	590 +	1,300	2,160 *	NS
	Other Clear Streams	47	110	0	50	0	260 *	NS
Bering River Aerial Survey Daily Index		887	6,725	4,710	6,580	11,670	13,730	4,700
Anticipated Escapement Index		**1,588**	**7,255**	**11,879**	**21,648**	**19,776**	**NA**	**7,116**

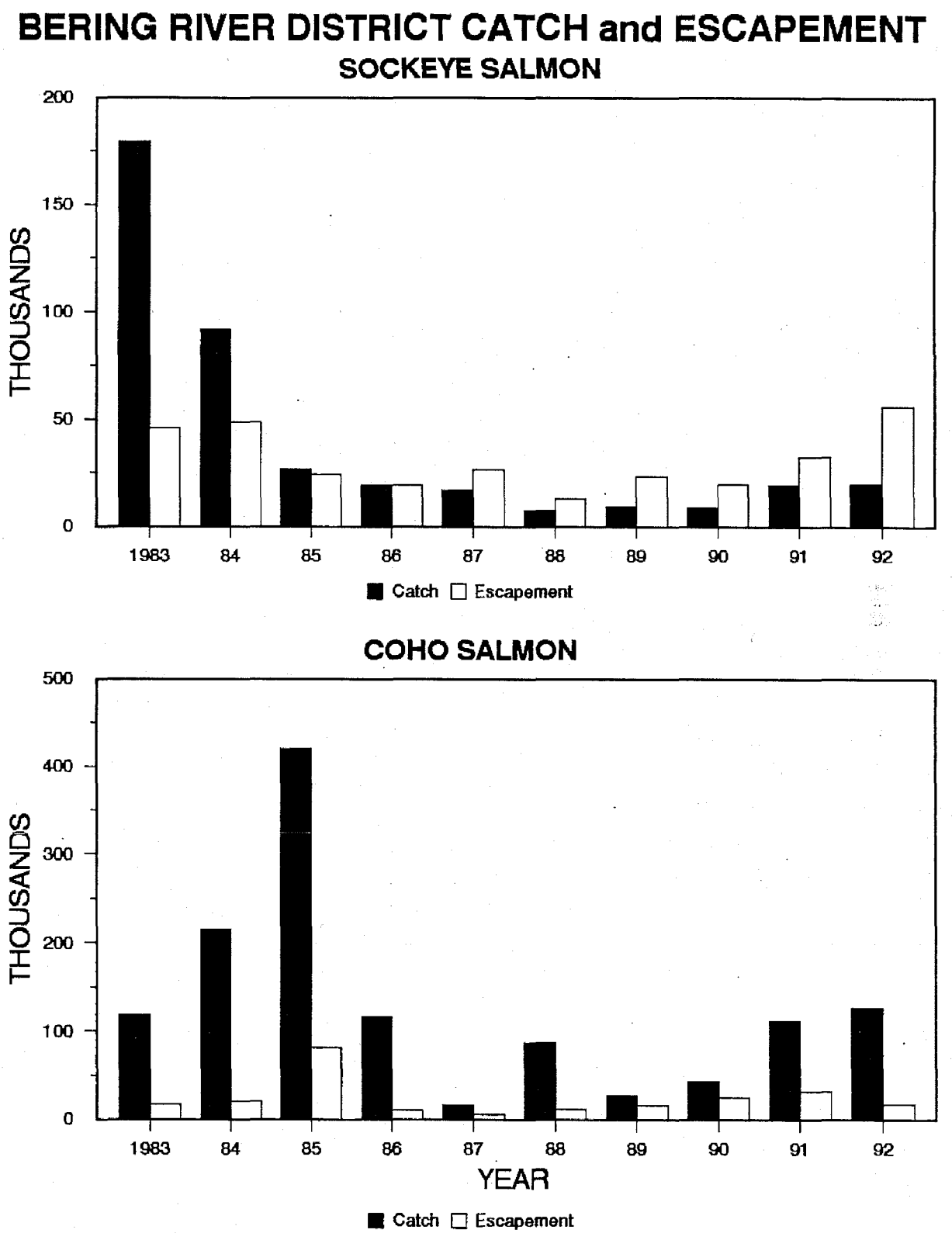
Bering River Delta [a] System and Drainage	Survey System	Estimated Escapement Site [c]	System [d]	Anticipated
Bering River	Bering River [b]	940	4,790	**6,088**
	Bering Lake	2,600		
	Dick Creek	1,250		
	Shepherd Creek – Lagoon	NS		
	Shepherd Creek	NS		
	Carbon Creek	NS		
	Maxwell Creek	NS		
Kattalla River	Katalla River	2,760	2,760	**5,037**
Lower Bering River	Gandil River	600	2,570	**2,531**
	Nichawak River	1,970		
Controller Bay	Campbell River	160	6,180	**7,992**
	Edwards River	3,600		
	Okalee River	2,160		
	Other Clear Streams	260		
Bering River Aerial Survey Total		16,300		**21,648**

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 they have been for the purpose in the absence of any other escapement estimating method. The abbrevations 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 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 counts across dates selected.

d The sum of the estimates by site within a system



Appendix B.25. Sockeye and coho salmon catch and escapement in the Bering River District, 1983-1992.

Appendix B.26. Estimated age and sex composition of sockeye salmon harvested in the Bering River District commercial drift gillnet fishery, 1992.

		Brood year and age group								
		1989		1988		1987		1986	1985	
		0.2	1.1	0.3	1.2	1.3	2.2	2.3	2.4	Total
Stratum dates:	06/15 - 09/23									
Sampling dates:	06/16									
Sample size:	568									
Female	Percent of sample	0.2	0.0	0.7	3.5	51.1	0.2	0.5	0.0	56.2
	Number in catch	0	0	0	0	0	0	0	0	0
Male	Percent of sample	0.4	0.2	0.4	5.5	36.4	0.4	0.4	0.2	43.7
	Number in catch	0	0	0	0	0	0	0	0	0
Total	Percent of sample	0.5	0.2	1.1	9.0	87.7	0.5	0.9	0.2	100.0
	Number in catch	0	0	0	0	0	0	0	0	0
	Standard error	0	0	0	0	0	0	0	0	

Appendix B.27. Estimated age and sex composition of coho salmon harvested in the Bering River District commercial drift gillnet fishery, 1992.

			Brood year and age group			
			1989	1988	1987	
			1.1	2.1	3.1	Total
Strata combined:	08/17 -	09/23				
Sampling dates:	09/03 -	09/17				
Sample size:	721					
Female	Percent of sample		28.6	30.1	2.2	60.9
	Number in catch		35,957	37,805	2,798	76,559
Male	Percent of sample		19.0	18.4	1.6	39.0
	Number in catch		23,924	23,090	1,961	48,975
Total	Percent of sample		47.7	48.5	3.8	100.0
	Number in catch		59,962	60,895	4,759	125,616
	Standard error		2,657	2,655	1,047	

Appendix B.28. Summary of periods, dates, hours fished, and emergency orders issued for the commercial salmon gillnet fisheries in the Bering River and Copper River Districts, 1992.

Bering River (200)			Copper River (212)			Emergency Orders Issued
Periods	Dates	Hours Fished	Periods	Dates	Hours Fished	
			1	5/15	12	[a] 2-F-E-21-92
			2	5/19	12	2-F-E-22-92
			3	5/22	12	2-F-E-23-92
			4	5/24 - 5/25	24	2-F-E-24-92
			5	5/28 - 5/29	24	2-F-E-25-92
			6	6/01	12	2-F-E-26-92
			7	6/08	12	2-F-E-28-92
			8	6/12	12	2-F-E-29-92
1	6/15 - 6/15	12	9	6/15	12	[b] 2-F-E-32-92
2	6/18 - 6/20	36	10	6/18 - 6/20	36	2-F-E-34-92
3	6/22 - 6/23	24	11	6/22 - 6/23	24	2-F-E-36-92
4	6/25 - 6/27	36	12	6/25 - 6/27	36	2-F-E-37-92
5	6/29 - 6/30	24	13	6/29 - 6/30	24	2-F-E-38-92
6	7/02 - 7/04	36	14	7/02 - 7/04	36	[c] 2-F-E-40-92
7	7/06 - 7/07	36	15	7/06 - 7/07	36	
8	7/09 - 7/11	48	16	7/09 - 7/11	48	[d] 2-F-E-46-92
9	7/13 - 7/14	36	17	7/13 - 7/14	36	
10	7/16 - 7/18	48	18	7/16 - 7/18	48	
11	7/20 - 7/24	108	19	7/20 - 7/24	108	[e] 2-F-E-54-92
12	7/27 - 7/29	48	20	7/27 - 7/29	48	[f] 2-F-E-59-92
13	7/30 - 8/01	48	21	7/30 - 8/01	48	
14	8/03 - 8/04	24	22	8/03 - 8/04	24	[g] 2-F-E-60-92
15	8/06 - 8/07	24	23	8/06 - 8/07	24	
16	8/10 - 8/11	24	24	8/10 - 8/11	24	[h] 2-F-E-68-92
17	8/13 - 8/14	24	25	8/13 - 8/14	24	2-F-E-69-92
18	8/17 - 8/18	24	26	8/17 - 8/18	24	2-F-E-72-92
19	8/20 - 8/21	24	27	8/20 - 8/21	24	2-F-E-73-92
20	8/24 - 8/26	48	28	8/24 - 8/26	48	2-F-E-76-92
21	8/31 9/02	48	29	8/31 - 9/02	48	2-F-E-79-92
22	9/03 - 9/04	24	30	9/03 - 9/04	24	2-F-E-81-92
23	9/07 - 9/09	48	31	9/07 - 9/09	48	2-F-E-85-92
			32	9/10 - 9/11	24	2-F-E-86-92
24	9/14 - 9/16	48	33	9/14 - 9/16	48	
25	9/21 - 9/23	48	34	9/21 - 9/23	48	2-E-F-87-92
						[g] 2-F-E-88-92

a The Copper River District's fishing season is officially opened for 12 hour period from 7:00 a.m. Friday to 7:00 p.m. Friday. The Copper River fishing schedule is typically two 24 hour periods per week; the first is from 7:00 a.m. Monday to 7:00 a.m. Tuesday with the second weekly period begining 7:00 p.m. Thursday to 7:00 p.m. Friday. For periods of 12-hours in duration, the beginning time will be 7:00 a.m.

b The Bering River District opened for the 1992 season.

c Until further notice, the Copper River and Bering River Districts are on two 36-hour periods per week schedule, from 7:00 p.m. Thursday to 7:00 a.m. Saturday and from 7:00 a.m. Monday to 7:00 p.m. Tuesday.

d Until further notice, the Copper River and Bering River Districts will be open for one 48-hour and one 36-hour fishing periods per week, from 7:00 p.m. Thursday to 7:00 p.m. Saturday and from 7:00 a.m. Monday to 7:00 p.m. Tuesday.

e Until further notice, the Copper and Bering River Districts will be on a schedule of one 108-hour period, from 7:00 a.m. Monday to 7:00 p.m. Friday.

-Continued-

f Until further notice, the Copper River and Bering River Districts are on two 48-hour periods per week schedule, from 7:00 p.m. Thursday to 7:00 p.m. Saturday and from 7:00 a.m. Monday to 7:00 a.m. Wednesday.

g Until further notice, the Copper River and Bering River Districts are on two 24-hour periods per week schedule, from 7:00 a.m. Monday to 7:00 a.m. Tuesday and from 7:00 p.m. Thursday to 7:00 p.m. Saturday.

h All fishing periods on or after August 7 in the Copper and Bering River Districts will begin at 12:00 noon.

i This announcement offically closes the Copper and Bering River Districts to commercial fishing for the 1992 season.

APPENDIX C

COGHILL AND UNAKWIK DISTRICTS

Appendix C.1. Commercial salmon harvest by statistical week in the Coghill District commercial drift gill net and purse seine fisheries, P.W.S., 1992. The statistical weeks listed are those with active fishing participation.

Date[a]	Stat Week	Permits	Landings	Chinook Numbers	Chinook Pounds	Sockeye Numbers	Sockeye Pounds	Coho Numbers	Coho Pounds	Pink Numbers	Pink Pounds	Chum Numbers	Chum Pounds
GEAR: DRIFT GILL NET													
06/13[b]	24	15	33	54	955	121	780	0	0	0	0	4,087	34,653
07/04[b]	27	270	698	39	671	25,767	161,362	12	81	1,475	5,232	109,717	844,139
07/11[b]	28	121	199	32	558	13,275	87,732	18	131	1,613	6,112	22,834	164,082
07/18[c,d]	29	161	280	100	1,524	11,574	71,023	69	523	5,466	20,255	36,957	289,505
08/01[e]	31	55	88	11	156	4,196	24,793	152	1,104	12,844	47,346	4,005	30,106
08/08[e]	32	59	88	2	39	1,563	9,436	664	5,153	19,543	73,776	2,146	15,894
08/15[e]	33	47	105	1	16	518	3,072	2,122	15,681	23,656	87,215	1,101	7,999
08/22[e]	34	51	172	2	32	216	1,333	6,423	49,382	37,592	136,956	1,297	9,480
08/29[e,f]	35	83	287	0	0	219	1,415	19,489	167,608	47,637	175,643	202	1,523
09/05	36	108	595	1	6	255	1,642	38,986	356,816	16,965	63,826	70	486
09/12	37	112	460	0	0	180	1,181	16,900	155,806	588	2,282	16	120
09/19	38	33	76	0	0	31	223	1,687	15,385	5	26	1	7
09/26[g]	39	9	10	0	0	4	26	260	2,191	0	0	0	0
Total		345	3,091	242	3,957	57,919	364,018	86,782	769,861	167,384	618,669	182,433	1,397,994
Average Weight					16.35		6.28		8.87		3.70		7.66
GEAR: PURSE SEINE													
08/01[b]	31	4	4	1	23	240	1,446	25	194	3,165	12,349	87	715
08/08[e]	32	3	3	0	0	118	689	19	204	3,507	12,799	110	905
08/15[e]	33	27	35	2	17	234	1,476	2,639	18,431	53,165	179,915	476	3,271
08/22[e]	34	25	40	2	19	51	329	6,766	54,194	52,294	180,236	837	6,239
08/29[h]	35	22	28	1	7	111	692	11,405	93,932	64,211	217,505	88	713
09/05	36	12	24	0	0	11	61	6,528	55,155	20,161	70,105	5	29
Total		59	134	6	66	765	4,693	27,382	222,110	196,503	672,909	1,603	11,872
Average Weight					11.00		6.13		8.11		3.42		7.41
Combined Total		404	3,225	248	4,023	58,684	368,711	114,164	991,971	363,887	1,291,578	184,036	1,409,866
Average Weight					16.22		6.28		8.69		3.55		7.66

[a] Statistical week ending date.

[b] Only the Esther Subdistrict was open to fishing.

[c] Fishing was permitted in the Terminal Harvest Area of Lake and Quillion Bays, however the Special Harvest Area in Lake Bay remained closed.

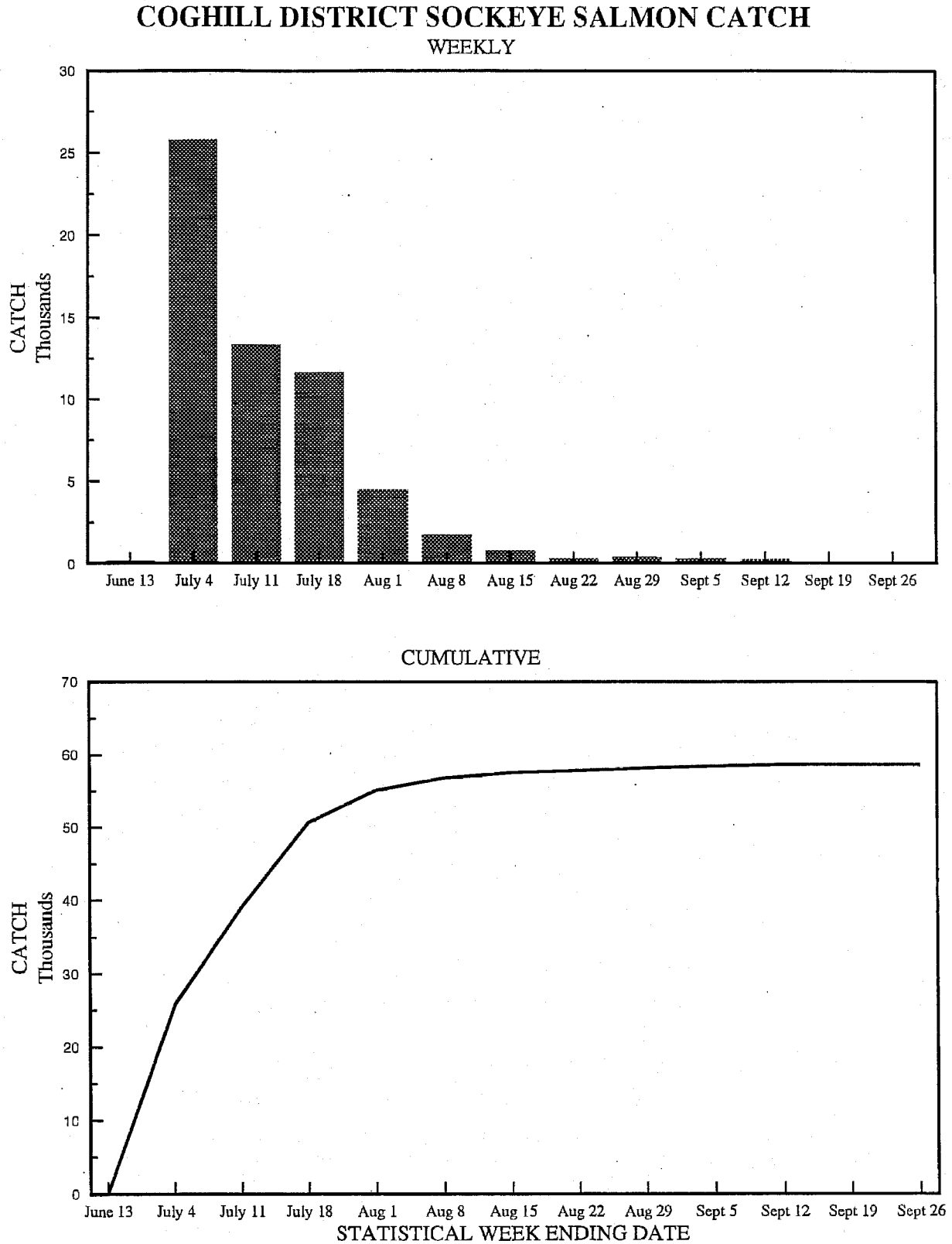
[d] The 60 mesh depth restriction was rescinded at 8:00 a.m. July 20.

[e] Open waters included the Esther Subdistrict except the Special Harvest Area of Lake and Quillion Bays.

[f] The waters of Lake and Quillion Bays of the Esther Subdistrict, excluding the Special Harvest Area of Lake Bay, were open from 8:00 a.m. Thursday, August 27 until 8:00 p.m. Saturday, August 29. Fishing was later extended to 8:00 p.m. Wednesday, September 30.

[g] The season officially closed at 8:00 p.m. Wednesday, September 30.

[h] Only the waters of Lake and Quillion Bays of the Esther Subdistrict, excluding the Special Harvest Area of Lake Bay, were open from 8:00 a.m. Thursday, August 27 until 8:00 p.m. Saturday, August 29. Fishing was later extended to 8:00 p.m. Saturday, September 5. The district was closed to purse seines at 8:00 p.m. Saturday, September 5.



Appendix C.2. Weekly and cumulative sockeye salmon catches in the Coghill District, 1992. No directed commercial harvest was projected for 1992.

Appendix C.3. Commercial salmon catch by species in the Coghill District, Prince William Sound, 1975 – 1992.

	CATCH BY SPECIES					
Year	Chinook	Sockeye	Coho	Pink	Chum	Total
GEAR: DRIFT GILL NET						
1975	525	142,864	357	99,492	32,438	275,676
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
Ten Year Average (1982–91)	330	236,579	34,612	663,059	241,202	1,175,782
GEAR: PURSE SEINE						
1975	246	4,985	30	145,155	2,561	152,977
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
Ten Year Average (1982–91)	49	9,133	6,992	980,196	41,016	1,037,386
COMBINED GEARS						
1975	771	147,849	389	244,647	34,999	428,655
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
Ten Year Average (1982–91)	378	245,713	41,604	1,643,255	282,218	2,213,168

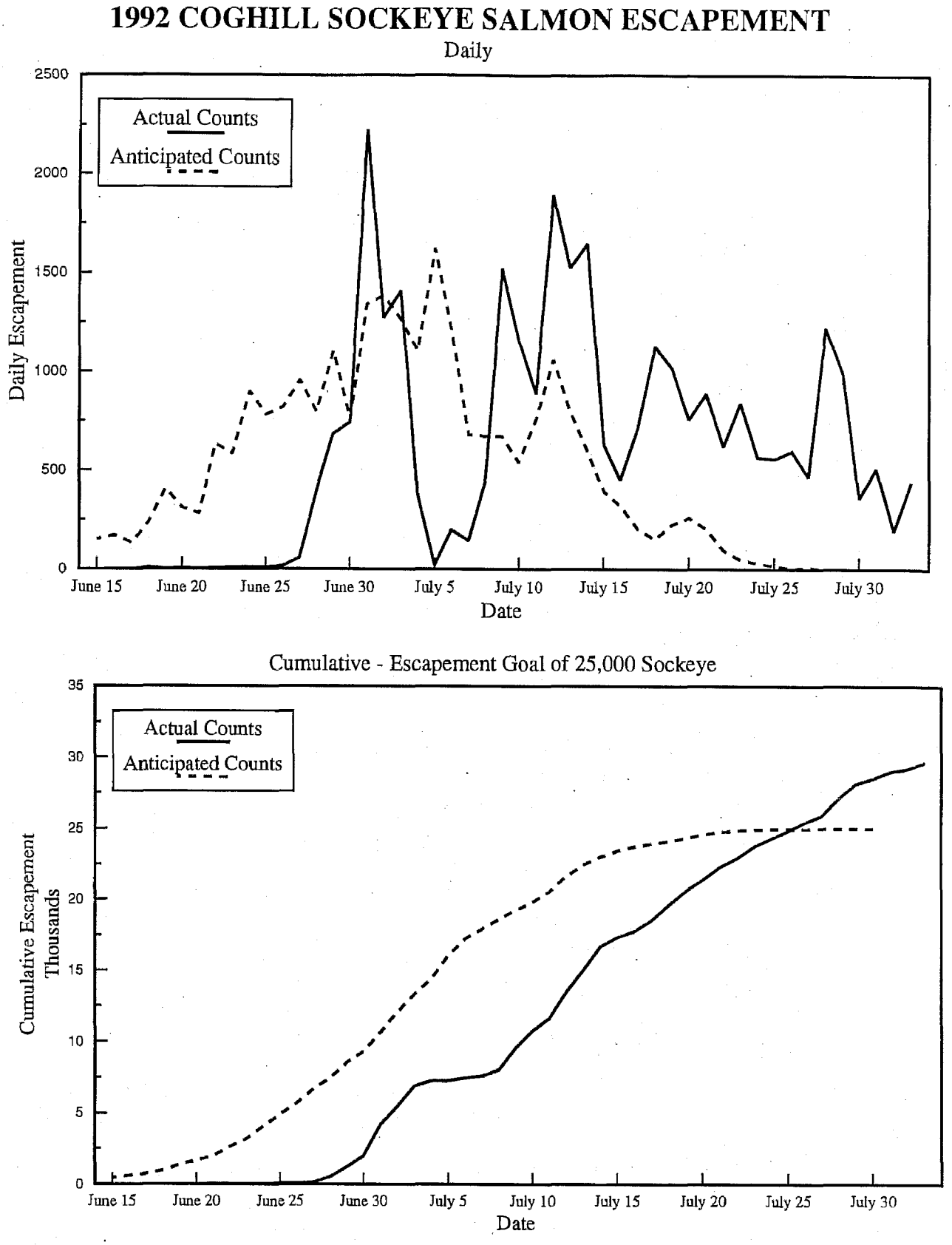
Appendix C.4. Daily salmon escapement through the Coghill River weir, Prince William Sound, 1992.[c]

	Sockeye[a]		Pink[b]		Chum		Chinook	
Date	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
06/14				WEIR INSTALLED				
06/15	0	0	0	0	0	0	0	0
06/16	0	0	0	0	0	0	0	0
06/17	2	2	0	0	0	0	0	0
06/18	9	11	0	0	0	0	0	0
06/19	3	14	0	0	0	0	0	0
06/20	5	19	0	0	0	0	0	0
06/21	4	23	0	0	0	0	0	0
06/22	6	29	0	0	0	0	0	0
06/23	8	37	0	0	0	0	0	0
06/24	10	47	0	0	0	0	0	0
06/25	11	58	0	0	0	0	0	0
06/26	16	74	0	0	0	0	0	0
06/27	59	133	0	0	0	0	0	0
06/28	397	530	0	0	1	1	0	0
06/29	684	1,214	0	0	1	2	0	0
06/30	744	1,958	0	0	0	2	0	0
07/01	2,223	4,181	0	0	0	2	0	0
07/02	1,273	5,454	0	0	1	3	0	0
07/03	1,408	6,862	0	0	0	3	0	0
07/04	371	7,233	0	0	0	3	0	0
07/05	20	7,253	0	0	0	3	0	0
07/06	199	7,452	1	1	1	4	0	0
07/07	144	7,596	0	1	0	4	0	0
07/08	452	8,048	0	1	0	4	0	0
07/09	1,521	9,569	2	3	0	4	1	1
07/10	1,156	10,725	1	4	0	4	1	2
07/11	891	11,616	3	7	0	4	1	3
07/12	1,893	13,509	3	10	4	8	0	3
07/13	1,526	15,035	9	19	0	8	0	3
07/14	1,647	16,682	9	28	0	8	1	4
07/15	629	17,311	3	31	0	8	0	4
07/16	450	17,761	2	33	2	10	0	4
07/17	712	18,473	5	38	0	10	1	5
07/18	1,129	19,602	5	43	1	11	0	5
07/19	1,018	20,620	7	50	2	13	0	5
07/20	758	21,378	18	68	3	16	0	5
07/21	889	22,267	11	79	1	17	1	6
07/22	622	22,889	35	114	1	18	0	6
07/23	842	23,731	20	134	4	22	1	7
07/24	566	24,297	12	146	2	24	0	7
07/25	560	24,857	47	193	3	27	0	7
07/26	598	25,455	49	242	6	33	3	10
07/27	469	25,924	46	288	4	37	2	12
07/28	1,223	27,147	186	474	11	48	3	15
07/29	996	28,143	175	649	7	55	0	15
07/30	360	28,503	19	668	1	56	0	15
07/31	508	29,011	47	715	0	56	2	17
08/01	191	29,202	24	739	0	56	0	17
08/02	440	29,642	43	782	0	56	0	17
Total	29,642		782		56		17	

[a]Count includes 332 jacks.

[b]Count may be incomplete. The Coghill weir is designed to prohibit the passage of sockeye salmon and because of their smaller size some pink salmon are able to pass uncounted.

[c]A total of 31 coho salmon passed the weir in 1992.



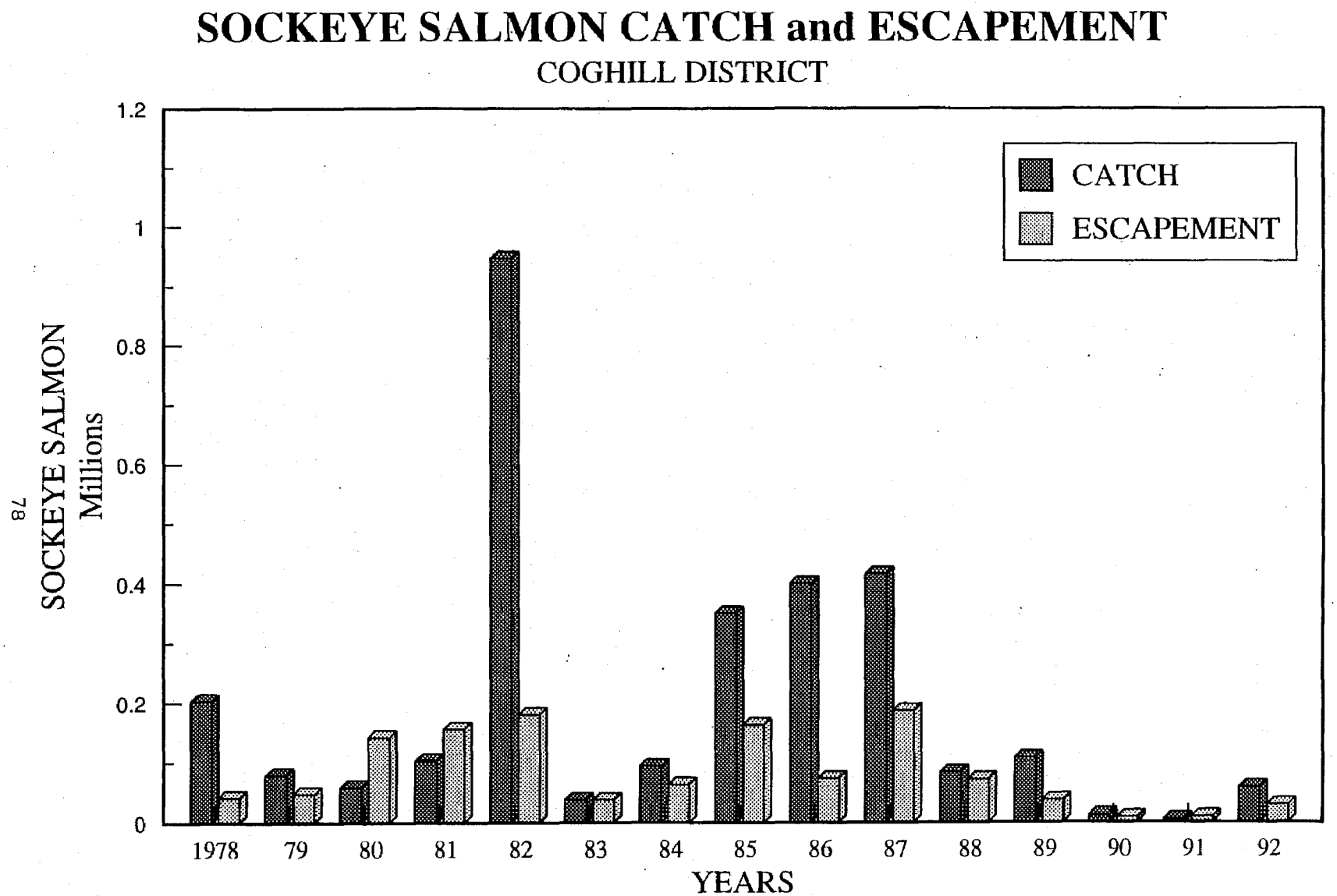
Appendix C.5. Anticipated and actual daily and cumulative sockeye salmon escapement at the Coghill weir, Prince William Sound, 1992.

Appendix C.6. Salmon escapement by species in the Coghill District, Prince WIlliam Sound, 1969 - 1992.

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	3,600	3,000
20 Year Average (1972-1991)	71,281	179,179	25,511

[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.



Appendix C.7. Sockeye salmon catch and escapement in the Coghill District, Prince William Sound, 1978 - 1992.

Appendix C.8. Estimated age and sex composition of the sockeye salmon escapement through the Coghill Lake weir and of the commercial drift gillnet sockeye catch from the Coghill District, 1992.

		Brood year and age group								
		1989	1988		1987		1986		1985	
		0.2	0.3	1.2	1.3	2.2	1.4	2.3	2.4	Total
COMMERCIAL DRIFT GILLNET FISHERY										
Strata combined: 06/13 - 09/26 Sampling dates: 06/12 - 07/13 Sample size: 628										
Female	Percent of sample	0.0	0.4	15.2	31.2	2.3	0.0	1.8	0.0	50.9
	Number in catch	0	217	8,788	18,087	1,335	0	1,036	0	29,462
Male	Percent of sample	0.0	0.0	18.7	26.1	1.7	0.2	2.2	0.2	49.1
	Number in catch	0	0	10,842	15,136	1,005	108	1,257	108	28,457
Total	Percent of sample	0.0	0.4	33.9	57.4	4.0	0.2	4.0	0.2	100.0
	Number in catch	0	217	19,630	33,223	2,340	108	2,292	108	57,919
	Standard error	0	153	1,098	1,154	471	108	454	108	
COGHILL LAKE ESCAPEMENT										
Strata combined: 06/14 - 08/02 Sampling dates: 06/28 - 07/17 Sample size: 1,293										
Female	Percent of sample	0.0	0.5	0.5	34.9	0.3	0.2	2.1	0.0	38.5
	Number in escapement	0	138	156	10,349	88	50	629	0	11,410
Male	Percent of sample	0.0	0.8	3.2	52.5	0.4	0.6	3.9	0.0	61.5
	Number in escapement	12	233	962	15,564	119	183	1,159	0	18,232
Total	Percent of sample	0.0	1.3	3.8	87.4	0.7	0.8	6.0	0.0	100.0
	Number in escapement	12	371	1,118	25,913	207	233	1,787	0	29,642
	Standard error	12	101	160	303	76	80	228	0	

Appendix C.9. Commercial salmon harvest by statistical week in the Unakwik District drift gill net and purse seine fisheries, P.W.S., 1992. The statistical weeks listed are for those that registered active fishing participation. For a listing of all fishing periods see Appendix C.12. [a]

Date[b]	Stat Week	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
				Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds
GEAR: DRIFT GILL NET													
06/27	26	1	1	0	0	47	272	0	0	0	0	0	0
07/04	27	7	9	1	16	1,194	7,437	0	0	3	9	12	115
07/18	29	2	2	0	0	147	940	0	0	94	347	8	98
07/25	30[c]	7	10	0	0	474	2,882	5	35	320	994	48	385
08/01	31	6	13	0	0	293	1,807	2	16	1,446	4,349	21	202
08/08	32	22	4	2	20	39	234	0	0	1,019	3,318	2	28
08/15	33[d]	2	3	0	0	30	182	6	46	1,090	3,718	3	21
Total		16	42	3	36	2,224	13,754	13	97	3,972	12,735	94	849
Average Weight					12.00		6.18		7.46		3.21		9.03
GEAR: PURSE SEINE													
08/01	31	4	5	0	0	3	20	0	0	5,170	16,568	49	416
08/08	32	4	4	0	0	5	33	0	0	3,433	11,905	48	387
08/15	33	6	6	0	0	33	205	2	12	4,599	16,089	21	163
08/22	34[d]	1	1	0	0	1	60	0	0	62	200	1	7
Total		10	16	0	0	42	318	2	12	13,264	44,762	119	973
Average Weight							6.29		6.00		3.37		8.18
Combined Total		26	58	3	36	2,266	14,072	15	109	17,236	57,497	213	1,822
Average Weight					12.00		6.21		7.27		3.34		8.55

[a] The Unakwik District was opened on June 18 to two 24–hour periods per week. The weekly schedule was 8:00 a.m. Monday until 8:00 a.m. Tuesday and from 8:00 p.m. Thursday until 8:00 p.m. Friday.

[b] Statistical week ending date.

[c] The 60 mesh depth restriction for gill nets was rescinded at 8:00 a.m. July 20.

Appendix C.10. Commercial salmon catch by species in the Unakwik District, Prince William Sound, 1975 – 1992.

Year	CATCH BY SPECIES Chinook	Sockeye	Coho	Pink	Chum	Total
GEAR : DRIFT GILL NET						
1975	4	11,922	0	84	70	12,080
1976	4	8,421	0	2,744	331	11,500
1977	3	7,912	2	257	141	8,315
1978	24	9,116	0	2,082	597	11,819
1979	11	9,250	9	2,359	289	11,918
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
Ten Year Average (1982–91)	10	17,460	19	11,001	1,896	30,386
GEAR: PURSE SEINE						
1975 [a]						
1976	0	7	0	8,526	225	8,758
1977 [a]						0
1978	3	268	5	55,115	5,025	60,416
1979 [a]						
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 [a]						
1985	0	138	0	28,210	4,123	32,471
1986	0	76	0	4,718	4,675	9,469
1987	0	146	0	187,752	6,549	194,447
1988	0	667	7	57,844	23,860	82,378
1989 [a]						
1990 [a]						
1991	0	819	3	121,068	79	121,969
1992	0	42	2	13,264	119	13,427
Ten Year Average (1982–91)	0	265	2	70,296	5,788	76,351
COMBINED GEARS						
1975	4	11,922	0	84	70	12,080
1976	4	8,428	0	11,270	556	20,258
1977	3	7,912	2	257	141	8,315
1978	27	9,384	5	57,197	5,622	72,235
1979	11	9,250	9	2,359	289	11,918
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
Ten Year Average (1982–91)	10	17,645	20	60,209	5,948	83,832

[a] No catch recorded.

Appendix C.11. Estimated age and sex composition of sockeye salmon harvested in the Unakwik District commercial drift gillnet fishery, Prince William Sound, 1992.

		Brood year and age group							
		1989	1988		1987		1986		
		0.2	0.3	1.2	1.3	2.2	1.4	2.3	Total
Stratum dates: 06/27 - 08/15 Sampling dates: 07/28 Sample size: 41									
Female	Percent of sample	2.4	0.0	22.0	9.8	2.4	2.4	9.8	48.8
	Number in catch	54	0	488	217	54	54	217	1,085
Male	Percent of sample	2.4	2.4	24.4	22.0	0.0	0.0	0.0	51.2
	Number in catch	54	54	542	488	0	0	0	1,139
Total	Percent of sample	4.9	2.4	46.3	31.7	2.4	2.4	9.8	100.0
	Number in catch	108	54	1,031	705	54	54	217	2,224
	Standard error	76	54	175	164	54	54	104	

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, 1992.

Unakwik (229)			Coghill (223)			Emergency Orders Issued
Periods	Dates	Hours Open	Periods	Dates	Hours Open	
			1	6/11 – 6/12	24	2-F-E-30-92 [a]
1	6/18 – 6/19	24				2-F-E-30-92 [b]
						2-F-E-33-92 [c]
2	6/22 – 6/23	24				
3	6/25 – 6/26	24				
4	6/29 – 6/30	24	2	6/29 – 6/30	24	2-F-E-39-92 [d]
5	7/02 – 7/03	24	3	7/03	12	2-F-E-41-92 [e]
6	7/06 – 7/07	24	4	7/06	12	2-F-E-43-92 [e]
7	7/09 – 7/10	24	5	7/09 – 7/10	12	2-F-E-47-92 [f]
8	7/13 – 7/14	24	6	7/13	12	2-F-E-48-92 [g]
9	7/16 – 7/17	24	7	7/17	12	2-F-E-52-92 [e]
10	7/20 – 7/21	24				2-F-E-55-92 [h]
11	7/23 – 7/24	24				
12	7/27 – 7/28	24	8	7/27	12	2-F-E-58-92 [e]
13	7/30 – 7/31	24	9	7/30	12	2-F-E-61-92 [e]
14	8/03 – 8/04	24	10	8/03	12	2-F-E-63-92 [e]
			11	8/05	12	2-F-E-65-92 [e]
15	8/06 – 8/07	24				
16	8/10 – 8/11	24	12	8/11	15	2-F-E-67-92 [i]
17	8/13 – 8/14	24				
			13	8/14 – 8/15	30	2-F-E-70-92 [j]
18	8/17 – 8/18	24	14	8/18 – 8/19	36	2-F-E-71-92 [k]
19	8/20 – 8/21	24	15	8/21 – 8/22	36	2-F-E-74-92 [l]
20	8/24 – 8/25	24	16	8/24	12	2-F-E-75-92 [e]
21	8/27 – 8/28	24				
22	8/31 – 9/01	24	17	8/27 – 9/05	228	2-F-E-78-92 [m]
				9/05 – 9/30	600	2-F-E-80-92 [n] [o]
						2-F-E-82-92 [o]
						2-F-E-83-92 [p,q,r]

[a] The season was officially open beginning 8:00 p.m. on Thursday, June 11. The Esther Subdistrict opened to a weekly schedule of two 24 hour fishing periods per week. The weekly 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.

[b] The Unakwik District opened to a weekly fishing schedule of two 24 hour fishing periods per week. The weekly 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] This emergency order closed the Esther Subdistrict until further notice to allow for increased brood stock collection at the Noerenberg hatchery. The 24 hour fishing period scheduled for Monday, June 15 did not occur.

[d] This emergency order opens the Esther Subdistrict for a 24 hour commercial fishing period from 8:00 a.m. Monday, June 29 until 8:00 a.m. Tuesday, June 30.

–continued–

[e] This emergency order opens the Esther Subdistrict for a 12 hour commercial fishing period from 8:00 a.m. until 8:00 p.m.

[f] This emergency order opens the Esther Subdistrict for a 12 hour commercial fishing period from 8:00 p.m. July 9 until 8:00 a.m. July 10.

[g] The Esther Subdistrict was open for a 12 hour period beginning at 8:00 a.m., Monday, July 13, and continuing until 8:00 p.m. Monday, July 13. The Terminal Harvest Area of Lake and Quillion Bays was open to commercial fishing. The special harvest area in Lake Bay will remain closed for brood stock collection.

[h] The 60 mesh depth retriction was rescinded effective 8:00a.m. July 20.

[i] The Esther Subdistrict was open for 15 hours from 8:00 a.m.to 11:00 p.m. August 11.

[j] The Esther Subdistrict was open for 30 hours from 8:00 a.m. Friday, August 14 until 2:00 p.m. Saturday, August 15.

[k] The Esther Subdistrict was open for 36 hours beginning at 8:00 a.m. Tuesday, August 18 until 8:00 p.m. Wednesday August 19.

[l] The Esther Subdistrict was open for 36 hours beginning at 8:00 a.m. on Friday, August 21 until 8:00 p.m. Saturday, August 22.

[m] The Esther Subdistrict excluding the Special Harvest Area of Lake Bay was opened for 60 hours beginning 8:00 a.m. Thursday, August 27 until 8:00 p.m. Saturday, August 29.

[n] This emergency order extended the Esther Subdistrict opening until 8:00 p.m. Friday, September 4.

[o] The Esther Subdistrict opening was extended for continuous fishing until further notice. This E.O. also permitted purse seine gear to be operated in Lake and Quillion bays until Sept. 9.

[p] Lake and Qullion bays closed to purse seine gear at 8:00 p.m. Sept. 5.

[q] The Unakwik District was closed for the season at 8:00 p.m. September 2

[r] The Coghill District was closed for the season at 8:00 p.m. September 30.

APPENDIX D

ESHAMY DISTRICT

Appendix D.1. Commercial salmon harvest by statistical week in the Eshamy District commercial drift gill net and set gill net fisheries, P.W.S., 1992. The statistical weeks listed are those with active fishing participation.

Date[a]	Stat Week	Permits	Landings	Chinook Numbers	Chinook Pounds	Sockeye Numbers	Sockeye Pounds	Coho Numbers	Coho Pounds	Pink Numbers	Pink Pounds	Chum Numbers	Chum Pounds
GEAR: DRIFT GILL NET													
06/20	25[b]	88	274	37	447	4,286	28,808	3	24	101	337	4,964	44,510
06/27	26	204	739	64	794	49,186	315,458	12	90	913	3,167	11,707	103,975
07/04	27	335	1,028	20	326	93,059	576,680	26	186	6,701	23,916	13,648	121,866
07/11	28[c]	316	1,163	18	200	129,149	791,171	107	825	14,093	49,251	10,505	91,118
07/18	29	279	819	19	246	72,059	440,532	143	1,033	17,602	62,232	8,226	69,817
07/25	30[d]	78	82	0	0	3,627	21,402	1	8	859	3,108	64	526
08/01	31[e,f]	51	155	0	0	9,632	55,852	23	179	8,126	31,542	782	5,728
08/08	32[g,h]	51	140	0	0	5,653	35,402	102	904	14,451	53,489	536	4,338
08/15	33[h]	47	188	0	0	4,802	29,492	249	1,979	44,384	165,118	422	3,358
08/22	34	32	95	0	0	1,786	11,300	256	2,029	35,694	124,448	106	765
08/29	35	15	36	0	0	344	2,157	82	654	9,628	33,747	13	95
09/05	36[i]	–	–	0	0	13	92	13	116	466	1,650	1	5
Total		375	4,720	158	2,013	373,596	2,308,346	1,017	8,027	153,018	552,005	50,974	446,101
Average Weight					12.74		6.18		7.89		3.61		8.75
GEAR: SET GILL NET													
06/20	25[b]	29	102	65	697	1,691	10,773	0	0	11	44	847	7,136
06/27	26	29	175	14	232	14,473	91,222	0	0	50	189	1,105	10,567
07/04	27	28	173	5	85	28,327	178,478	1	11	776	2,887	720	6,671
07/11	28[c]	29	163	4	63	32,336	195,779	3	21	2,029	7,431	414	3,668
07/18	29	27	133	2	31	21,143	123,452	12	52	3,313	11,938	375	3,206
07/25	30[d]	19	26	1	24	2,987	17,397	0	0	949	3,397	21	167
08/01	31[e,f]	25	126	1	17	16,008	91,278	7	44	9,385	35,557	289	2,202
08/08	32[g,h]	24	171	3	47	9,433	53,885	45	371	22,550	79,302	288	2,351
08/15	33[h]	25	240	6	77	8,460	51,924	287	2,058	74,845	272,691	368	2,706
08/22	34	23	245	0	0	6,316	39,209	411	3,019	152,500	533,736	202	1,441
08/29	35	21	157	0	0	2,326	14,563	312	2,448	92,910	325,526	51	356
09/05	36	11	59	0	0	822	5,277	131	916	30,175	103,726	15	104
09/12	37	–	11	0	0	233	1,477	30	283	604	2,299	0	0
09/19	38[i]	–	–	0	0	13	88	3	23	0	0	0	0
Total		30	1,783	101	1,273	144,568	874,802	1,242	9,246	390,097	1,378,723	4,695	40,575
Average Weight					12.60		6.05		7.44		3.53		8.64
Combined Total		405	6,503	259	3,286	518,164	3,183,148	2,259	17,273	543,115	1,930,728	55,669	486,676
Average Weight					12.69		6.14		7.65		3.55		8.74

[a] Statistical week ending date.

[b] The Eshamy District was opened on June 15 to two 36-hour periods per week. The weekly schedule was 8:00 a.m. Monday until 8:00 p.m. Tuesday and from 8:00 p.m. Thursday until 8:00 a.m. Saturday. The Alternating Gear Zone opened to the drift gill nets for 36 hours at 8:00 a.m. Monday, June 15. Drift and set gill nets alternated by fishing period for the remainder of the season in the Alternationg Gear Zone. Commercial fishing was closed within 50 feet of the hatchery barrier seine.

[c] The Main Bay Subdistrict 500 yard anadromous stream closures were in effect at 12:01 a.m. Saturday, July 8.

[d] The Main Bay Subdistrict was opened for 12 hours beginning at 8:00 a.m. July 20 until 8:00 p.m. July 20. The 60 mesh depth restriction was rescinded at 8:00 a.m. July 20.

[e] The Main Bay Subdistrict was opened to two 48-hour periods per week. The weekly schedule was 8:00 a.m. Monday until 8:00 a.m. Wednesday and from 8:00 p.m. Thursday until 8:00 p.m. Saturday. The Alternating Gear Zone was closed.

[f] The waters of Eshamy Bay opened for a 12-hour period beginning at 8:00 a.m. Thursday, July 30. Open waters included waters west of a line from a point on the south shore at 60° 29.0' N. lat., 147° 57.5' W. long., to a point on the north shore at 60° 29.0' N. lat., 147° 58.1' W. long.

[g] The Main Bay Subdistrict was opened at 8:00 a.m. Monday, August 3 until 8:00 a.m. Wednesday, August 5. Eshamy Bay and Eshamy Lagoon west of a line from a point on the south shore at 60° 28.0' N. lat., 147° 57.5' W. long. to a point on the north shore at 60° 29.0' N. lat. 147° 58.1' W. long. and east of 148° 02.6' W. long. opened at 8:00 a.m. Monday, August 3 until 8:00 a.m. Wednesday, August 5.

[h] The Main Bay Subdistrict including the Alternating Gear Zone, Eshamy Bay and a portion of Eshamy Lagoon opened at 8:00 p.m. Thursday, August 6 until 8:00 p.m. Wednesday, August 12. The gill net mesh size was restricted to a minimum of five and one quarter inches in Eshamy Bay and Eshamy Lagoon only. Effective 8:00 a.m. August 10, the boundary in Eshamy Lagoon was 148° 05' W. long. On August 12, fishing was then extended to continuous fishing until further notice.

[i] The season officially closed at 8:00 p.m. Wednesday, September 30.

Appendix D.2. Commercial salmon catch by species in the Eshamy District, Prince William Sound, 1977 – 1992.

Year [a]	CATCH BY SPECIES Chinook	Sockeye	Coho	Pink	Chum	Total
GEAR: DRIFT GILL NET						
1977	22	16,916	49	63,036	8,344	88,367
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 [b]						
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
Ten Year Average (1982–91)	40	48,225	266	124,710	87,505	260,746
GEAR: SET GILL NET						
1977	9	9,889	2	24,743	4,218	38,861
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 [b]						
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
Ten Year Average (1982–91)	35	30,872	240	147,290	37,136	215,573
COMBINED GEAR						
1977	31	26,805	51	87,779	12,562	127,228
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 [b]						
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
Ten Year Average (1982–91)	75	79,097	507	272,000	124,641	476,319

[a] Fishing was closed during the following years: 1975, 1976, 1978, 1979, 1981 and 1982.

[b] Fishing was closed due to oil contamination on the beaches.

Appendix D.3. Daily salmon escapement through the Eshamy Lake weir, Prince William Sound, 1992.

	Sockeye[a]		Pink[b]		Chum		Coho	
Date	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
06/26	0	2	0	0	0	0	0	0
06/27	17	19	0	0	0	0	0	0
06/28	35	54	0	0	0	0	0	0
06/29	70	124	0	0	0	0	0	0
06/30	10	134	0	0	0	0	0	0
07/01	38	172	0	0	0	0	0	0
07/02	62	234	0	0	0	0	0	0
07/03	84	318	0	0	0	0	0	0
07/04	27	345	0	0	0	0	0	0
07/05	4	349	0	0	0	0	0	0
07/06	96	445	0	0	0	0	0	0
07/07	127	572	0	0	0	0	0	0
07/08	59	631	0	0	0	0	0	0
07/09	33	664	1	1	0	0	0	0
07/10	170	834	0	1	0	0	0	0
07/11	104	938	0	1	0	0	0	0
07/12	103	1,041	0	1	0	0	0	0
07/13	114	1,155	2	3	0	0	0	0
07/14	267	1,422	0	3	0	0	0	0
07/15	260	1,682	2	5	0	0	0	0
07/16	212	1,894	3	8	0	0	0	0
07/17	475	2,369	2	10	0	0	0	0
07/18	109	2,478	1	11	0	0	0	0
07/19	244	2,722	0	11	0	0	0	0
07/20	353	3,075	6	17	0	0	0	0
07/21	710	3,785	3	20	0	0	0	0
07/22	681	4,466	1	21	0	0	0	0
07/23	329	4,795	1	22	0	0	0	0
07/24	1,580	6,375	4	26	0	0	0	0
07/25	826	7,201	3	29	0	0	0	0
07/26	2,771	9,972	6	35	0	0	0	0
07/27	891	10,863	7	42	0	0	0	0
07/28	523	11,386	3	45	0	0	0	0
07/29	427	11,813	9	54	0	0	0	0
07/30	2,455	14,268	33	87	0	0	0	0
07/31	3,222	17,490	22	109	0	0	0	0
08/01	1,619	19,109	18	127	0	0	0	0
08/02	1,591	20,700	18	145	2	2	1	1
08/03	991	21,691	7	152	0	2	0	1
08/04	2,982	24,673	141	293	0	2	0	1
08/05	823	25,496	73	366	0	2	1	2
08/06	978	26,474	54	420	0	2	0	2
08/07	748	27,222	21	441	1	3	0	2
08/08	778	28,000	53	494	0	3	0	2
08/09	775	28,775	80	574	0	3	0	2
08/10	1,009	29,784	85	659	1	4	1	3
08/11	225	30,009	33	692	0	4	1	4
08/12	2	30,011	0	692	0	4	0	4
08/13	317	30,328	26	718	0	4	0	4
08/14	449	30,777	75	793	0	4	0	4
08/15	669	31,446	88	881	0	4	0	4
08/16	1,078	32,524	126	1,007	0	4	1	5
08/17	652	33,176	98	1,105	0	4	1	6
08/18	580	33,756	40	1,145	0	4	2	8
08/19	535	34,291	42	1,187	0	4	1	9
08/20	255	34,546	32	1,219	0	4	0	9
08/21	385	34,931	114	1,333	0	4	0	9
08/22	183	35,114	82	1,415	0	4	0	9
08/23	73	35,187	83	1,498	0	4	0	9
08/24	580	35,767	917	2,415	1	5	9	18

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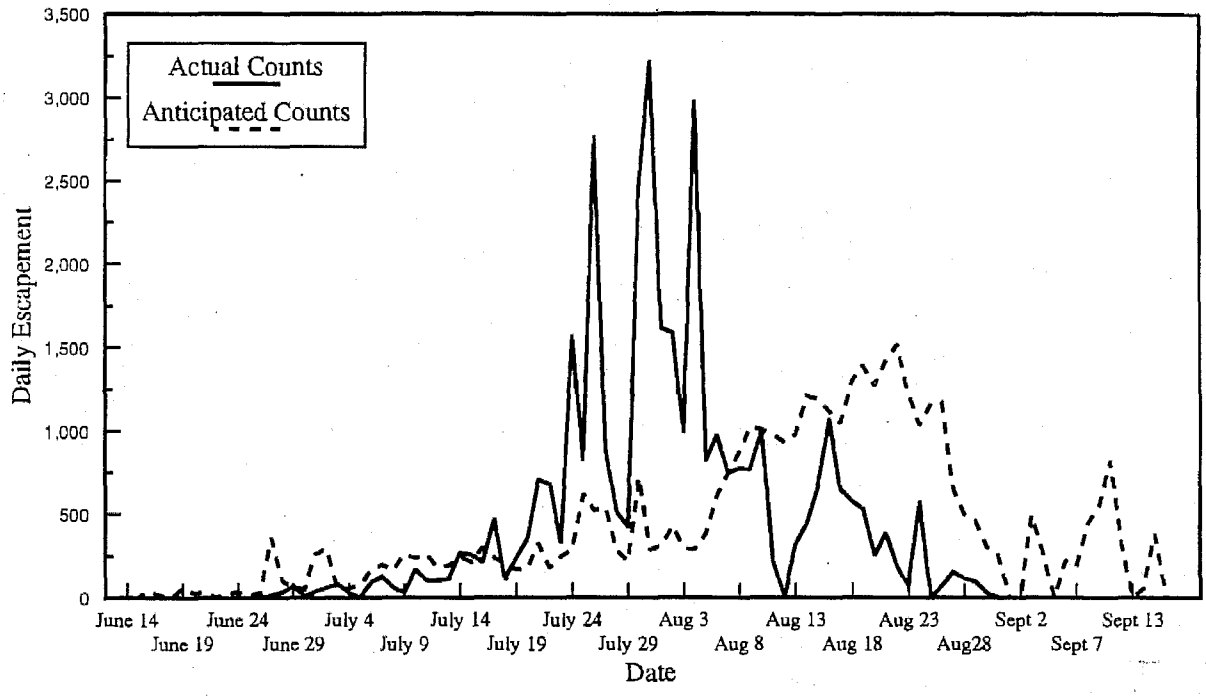
	Sockeye[a]		Pink[b]		Chum		Coho	
Date	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
08/25	0	35,767	0	2,415	0	5	0	18
08/26	73	35,840	76	2,491	0	5	2	20
08/27	153	35,993	98	2,589	0	5	8	28
08/28	114	36,107	184	2,773	0	5	16	44
08/29	96	36,203	149	2,922	0	5	7	51
08/30	28	36,231	55	2,977	0	5	1	52
08/31	6	36,237	27	3,004	0	5	0	52
Totals	36,236		3,004		5		52	

[a]Count includes 350 sockeye jacks.

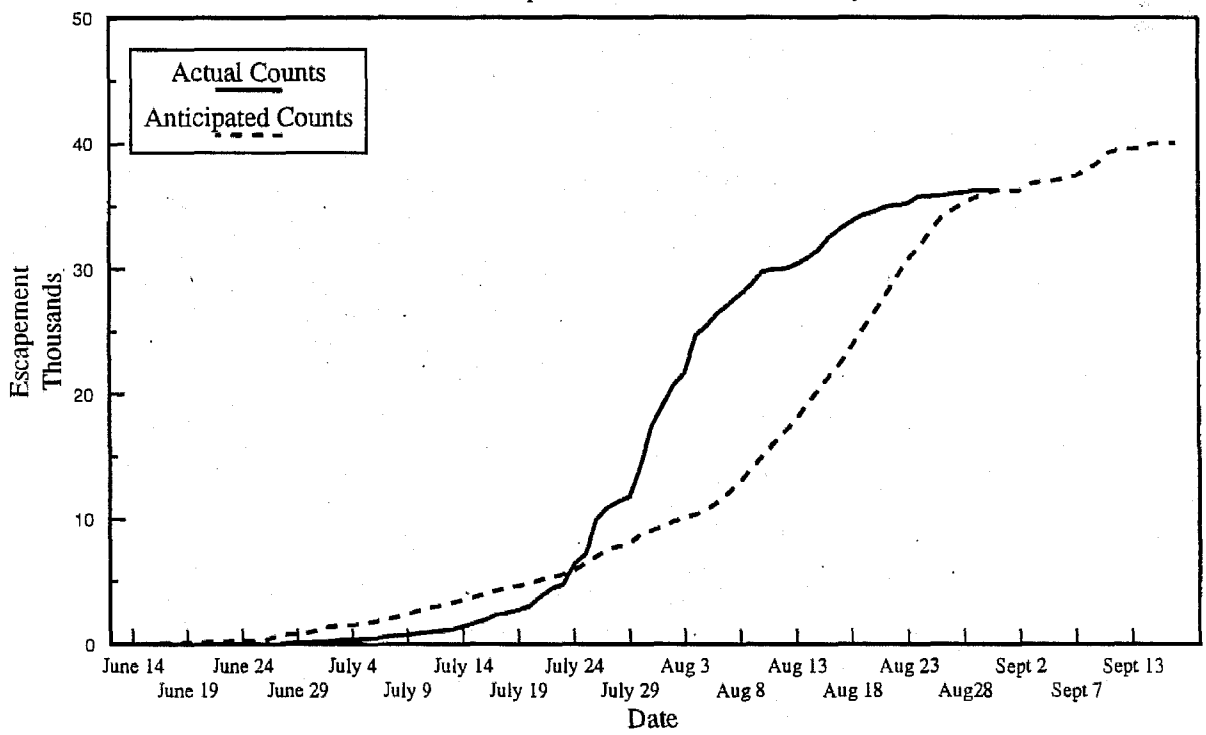
[b]Count may be incomplete. The Eshamy weir is designed to prohibit the passage of sockeye salmon and some pink salmon are able to pass uncounted because of their smaller size.

1992 ESHAMY SOCKEYE SALMON ESCAPEMENT

Daily



Cumulative - Escapement Goal of 40,000 Sockeye



Appendix D.4. Anticipated and actual daily and cumulative sockeye salmon escapement at the Eshamy weir, Prince William Sound, 1992.

Appendix D.5. Salmon escapement by species at the Eshamy weir, Prince William Sound, 1967 – 1992.

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		28,683				28,683
1973	0	10,202	205	1,698	0	12,105
1974		633				633
1975		1,724				1,724
1976		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 [c]	249	5,956	13	29,267
1982	0	6,782 [d]	79	1,056	79	7,996
1983	0	10,348	40	7,047	4	17,439
1984	2	36,121 [e]	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[f]						
1988	2	31,747	48	1,205	1	33,003
1989	1	57,106 [g]	0	6,283	210	63,600
1990	0	14,191 [h]	43	2,209	5	16,448
1991	2	46,229 [i]	907	31,241	17	78,396
1992	1	36,237 [j]	52	3,004	5	39,299
20 Year Average (1972–1991)	1	21,056	199	7,013	24	26,769

[a]Incidental passage of salmon other than sockeye were not recorded for each year.

[b]Probably inaccurate because of holes in weir. Actual escapement is estimated to be at least 3,000.

[c]Assuming the run was 90 percent complete, an additional 2,600 sockeye are estimated to have escaped following weir removal.

[d]An estimated 270 sockeye below the weir when pulled is included in the total count.

[e]An estimated 25 sockeye below the weir at removal are included in the total count.

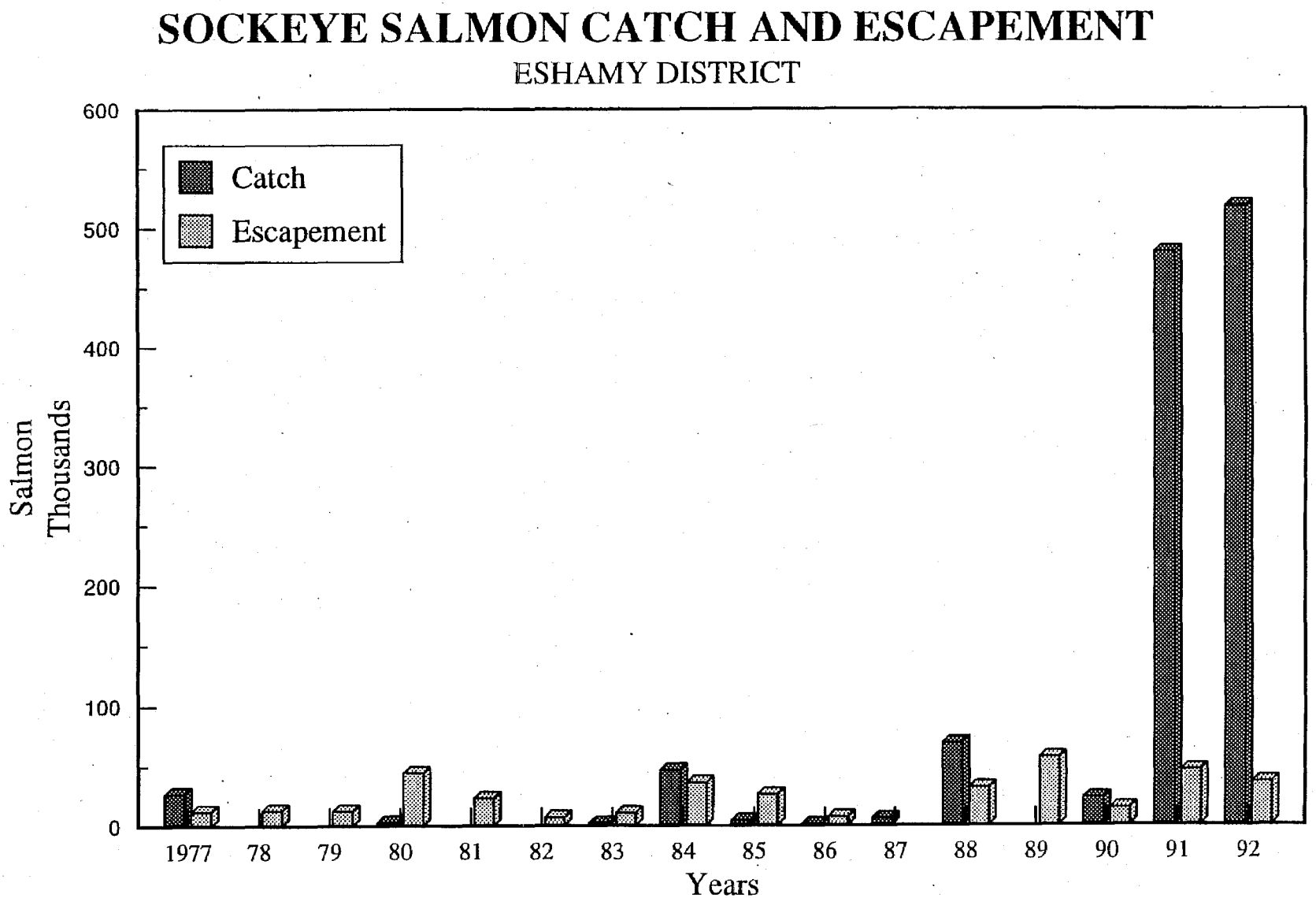
[f]The Eshamy weir was not in operation during 1987.

[g]Total does not include 126 jacks counted through.

[h]Total does not include 286 sockeye jacks counted through.

[i]Count includes 681 jacks.

[j]Count includes 350 jacks.



Appendix D.6. Sockeye salmon catch and escapement, Eshamy District, Prince William Sound, 1977 - 1992.

Appendix D.7. Estimated age and sex composition of sockeye salmon harvested in the Eshamy District common property commercial gillnet fishery, Prince William Sound, 1992.

		Brood year and age group									
		1990	1989		1988		1987		1986		
		0.1	0.2	1.1	0.3	1.2	1.3	2.2	1.4	2.3	Total
Stratum dates: 06/15 - 06/23 Sampling dates: 06/17 - 06/22 Sample size: 862											
Female	Percent of sample	0.0	0.1	0.0	0.3	13.5	31.7	0.0	0.1	0.5	46.2
	Number in catch	0	22	0	67	2,574	6,057	0	22	89	8,831
Male	Percent of sample	0.0	0.1	0.0	0.3	16.5	32.1	0.2	0.1	0.2	49.7
	Number in catch	0	22	0	67	3,151	6,146	44	22	44	9,496
Total	Percent of sample	0.0	0.2	0.0	0.7	31.8	66.1	0.2	0.2	0.7	100.0
	Number in catch	0	44	0	133	6,079	12,647	44	44	133	19,126
	Standard error	0	31	0	54	304	308	31	31	54	
Stratum dates: 06/25 - 07/02 Sampling dates: 06/29 Sample size: 867											
Female	Percent of sample	0.0	0.0	0.0	0.0	29.2	22.0	0.5	0.0	0.2	51.9
	Number in catch	0	0	0	0	22,152	16,723	350	0	175	39,400
Male	Percent of sample	0.0	0.0	0.0	0.0	22.3	17.8	0.1	0.0	0.1	40.3
	Number in catch	0	0	0	0	16,898	13,484	88	0	88	30,557
Total	Percent of sample	0.0	0.0	0.0	0.0	56.2	42.9	0.6	0.0	0.3	100.0
	Number in catch	0	0	0	0	42,640	32,571	438	0	263	75,911
	Standard error	0	0	0	0	1,280	1,277	195	0	151	
Stratum dates: 07/03 - 07/09 Sampling dates: 07/06 - 07/07 Sample size: 972											
Female	Percent of sample	0.0	0.1	0.0	0.0	40.3	19.2	0.6	0.0	0.2	60.5
	Number in catch	0	132	0	0	51,616	24,623	790	0	263	77,424
Male	Percent of sample	0.0	0.0	0.2	0.1	22.9	15.7	0.2	0.0	0.3	39.5
	Number in catch	0	0	263	132	29,363	20,146	263	0	395	50,563
Total	Percent of sample	0.0	0.1	0.2	0.1	63.3	35.0	0.8	0.0	0.5	100.0
	Number in catch	0	132	263	132	80,979	44,769	1,053	0	658	127,987
	Standard error	0	132	186	132	1,980	1,959	371	0	294	
Stratum dates: 07/10 - 07/14 Sampling dates: 07/13 Sample size: 847											
Female	Percent of sample	0.0	0.1	0.0	0.0	42.5	19.7	0.4	0.0	0.1	62.8
	Number in catch	0	120	0	0	43,145	20,014	360	0	120	63,758
Male	Percent of sample	0.0	0.1	0.2	0.0	21.5	15.2	0.1	0.0	0.0	37.2
	Number in catch	0	120	240	0	21,812	15,460	120	0	0	37,752
Total	Percent of sample	0.0	0.2	0.2	0.0	64.0	34.9	0.5	0.0	0.1	100.0
	Number in catch	0	240	240	0	64,957	35,475	479	0	120	101,510
	Standard error	0	169	169	0	1,675	1,664	239	0	120	

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Appendix D.7. (Page 2 of 2)

		Brood year and age group									
		1990	1989		1988		1987		1986		
		0.1	0.2	1.1	0.3	1.2	1.3	2.2	1.4	2.3	Total
Stratum dates: 07/16 - 08/06 Sampling dates: 07/21 Sample size: 414											
Female	Percent of sample	0.0	0.0	0.7	0.0	34.1	15.2	0.2	0.0	0.5	50.7
	Number in catch	0	0	285	0	13,394	5,985	95	0	190	19,948
Male	Percent of sample	0.0	0.2	0.7	0.0	31.4	16.9	0.0	0.0	0.0	49.3
	Number in catch	0	95	285	0	12,349	6,649	0	0	0	19,379
Total	Percent of sample	0.0	0.2	1.4	0.0	65.5	32.1	0.2	0.0	0.5	100.0
	Number in catch	0	95	570	0	25,743	12,634	95	0	190	39,327
	Standard error	0	95	231	0	920	904	95	0	134	
Stratum dates: 08/07 - 08/30 Sampling dates: 08/17 - 08/21 Sample size: 323											
Female	Percent of sample	0.0	0.0	0.0	0.0	36.5	2.2	8.7	0.0	0.0	47.4
	Number in catch	0	0	0	0	3,556	211	844	0	0	4,611
Male	Percent of sample	0.3	0.0	0.6	0.0	39.3	2.2	10.2	0.0	0.0	52.6
	Number in catch	30	0	60	0	3,828	211	995	0	0	5,124
Total	Percent of sample	0.3	0.0	0.6	0.0	75.9	4.3	18.9	0.0	0.0	100.0
	Number in catch	30	0	60	0	7,384	422	1,838	0	0	9,735
	Standard error	30	0	43	0	232	110	212	0	0	
Strata combined: 06/15 - 08/30 Sampling dates: 06/17 - 08/21 Sample size: 4,285											
Female	Percent of sample	0.0	0.1	0.1	0.0	36.5	19.7	0.7	0.0	0.2	57.3
	Number in catch	0	274	285	67	136,437	73,613	2,439	22	837	213,973
Male	Percent of sample	0.0	0.1	0.2	0.1	23.4	16.6	0.4	0.0	0.1	40.9
	Number in catch	30	237	848	198	87,401	62,096	1,510	22	527	152,870
Total	Percent of sample	0.0	0.1	0.3	0.1	61.0	37.1	1.1	0.0	0.4	100.0
	Number in catch	30	511	1,133	265	227,783	138,518	3,948	44	1,364	373,596
	Standard error	30	237	344	142	3,059	3,027	537	31	380	

Appendix D.8. Estimated age and sex composition of the sockeye salmon escapement through the weir at the head of Eshamy Lagoon, 1992.

		Brood year and age group									
		1990	1989		1988		1987		1986		
		0.1	0.2	1.1	0.3	1.2	1.3	2.2	1.4	2.3	Total
Strata combined:	06/14 - 08/31										
Sampling dates:	07/17 - 08/29										
Sample size:	1,211										
Female	Percent of sample	0.0	0.9	0.2	56.9	0.0	1.6	1.3	0.0	0.0	60.9
	Number in escapement	0	329	89	20,618	3	562	462	0	3	22,065
Male	Percent of sample	0.0	0.3	0.6	35.7	0.5	0.8	1.1	0.0	0.1	39.1
	Number in escapement	0	124	207	12,922	170	274	415	0	43	14,157
Total	Percent of sample	0.0	1.3	0.8	92.6	0.5	2.3	2.4	0.0	0.1	100.0
	Number in escapement	0	453	299	33,552	173	836	877	0	46	36,237
	Standard error	0	135	101	304	82	177	173	0	41	

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, 1992.

Main Bay Subdistrict (225-21)			Crafton Island Subdistrict (225-10, 20, 30)			Emergency Orders Issued
Periods	Dates	Hours Open	Periods	Dates	Hours Open	
1	6/15 – 6/16	36	1	6/15 – 6/16	36	2-F-E-30-92 [a]
						2-F-E-31-92 [b]
2	6/18 – 6/20	36	2	6/18 – 6/20	36	
3	6/22 – 6/23	36	3	6/22 – 6/23	36	
4	6/25 – 6/27	36	4	6/25 – 6/27	36	
5	6/29 – 6/30	24	5	6/29 – 6/30	24	2-F-E-39-92 [c]
6	7/02 – 7/04	36	6	7/02 – 7/04	36	2-F-E-41-92 [d]
7	7/06 – 7/07	36	7	7/06 – 7/07	36	2-F-E-43-92 [d]
8	7/09 – 7/10	24	8	7/09 – 7/10	24	2-F-E-47-92 [e]
9	7/13 – 7/14	24	9	7/13 – 7/14	24	2-F-E-48-92 [f]
10	7/16 – 7/17	24	10	7/16 – 7/17	24	2-F-E-52-92 [e]
11	7/20	12				2-F-E-55-92 [g]
12	7/27 – 7/29	48				2-F-E-58-92 [h]
13	7/30 – 8/01	48	13	7/30	12	2-F-E-61-92 [i]
14	8/03 – 8/05	48	14	8/03 – 8/05	48	2-F-E-63-92 [j]
						2-F-E-64-92 [k]
15	8/06 – 9/30	102	15	8/06 – 9/30	102	2-F-E-65-92 [l]
						2-F-E-66-92 [m]
						2-F-E-67-92 [n]
						2-F-E-70-92 [o]
						2-F-E-89-92 [p]

[a] The Eshamy District, excluding the brood holding area at the head of Main Bay, was opened at 8:00 a.m. on June 15 to a weekly schedule of two 36 hour periods per week. The weekly schedule was from 8:00 a.m. Monday until 8:00 p.m. Tuesday and from 8:00 p.m. Thursday until 8:00 a.m. Saturday. The Alternating Gear Zone opened to drift gill nets for 36 hrs. at 8:00 a.m., Monday, June 15. Drift and set gill nets alternated by fishing period for the remainder of the season in the Alternating Gear Zone. Commercial fishing was closed within 50 feet of the hatchery barrier seine.

[b] Commercial fishing within the 500 yard anadromous stream closures in the Main Bay Subdistrict was open June 15 at 8:00 a.m. through July 7, 1992.

[c] The fishing period for Eshamy District was reduced to 24 hours opening at 8:00 a.m. June 29 until 8:00 a.m. Tuesday, June 30. The 60 mesh maximum gill net restriction remains in effect.

[d] All waters in the Eshamy District were open for a 36 hour period.

[e] All waters in the Eshamy District were open for a 24 hour period.

[f] All waters in the Eshamy District were open for a 24 hour period. Waters of the Main Bay Subdistrict are closed within 50 feet of the hatchery barrier seine.

-Continued-

[g] The Main Bay Subdistrict was open for 12 hours starting at 8:00 a.m. Monday, July 20 until 8:00 p.m. Monday, July 20. The 60 mesh maximum mesh depth restriction for gill nets was rescinded.

[h] The Main Bay Subdistrict, excluding the Alternating Gear Zone, was opened to two 48 hour periods per week beginning 8:00 a.m. Monday until 8:00 a.m. Wednesday and from 8:00 p.m. Thursday until 8:00 p.m. Saturday.

[i] Waters of Eshamy Bay of the Eshamy District west of a line from a point on the south shore at 60° 28.0' N. lat., 147° 57.5' W.long., to a point on the north shore at 60° 29.0'N. lat., 147° 58.1' W. long., and east of 148°02.6 W. long., was open for 12 hours.

[j] Waters of Eshamy Bay and Eshamy Lagoon were open for a 12 hour period. Minimum mesh size of 5 1/4 inches was in effect.

[k] Waters of Eshamy Bay and Eshamy Lagoon were extended to a 48 hour period from 8:00 a.m. Monday August 3 until 8:00 a.m. Wednesday, August 5.

[l] Waters of Eshamy Bay, Eshamy Lagoon and the Main Bay Subdistrict was open for a 48 hour period.

[m] The fishing period in the Main Bay Subdistrict and in the Eshamy Bay and Eshamy Lagoon was extended until 8:00 p.m. on Wednesday, August 12.

[n] Effective 8:00 a.m. Monday, August 10, the western boundary in Eshamy Lagoon will be 148° 05' W. Long..

[o] Effective 8:00 a.m. Wednesday, August 12 Eshamy Bay, Eshamy Lagoon and the Main Bay Subdistrict was opened to continuous fishing.

[p] The season closed at 8:00 p.m., Wednesday, September 30.

APPENDIX E

PRINCE WILLIAM SOUND

PURSE SEINE DISTRICTS

Appendix E.1. Prince William Sound commercial purse seine salmon harvest by day, 1992. Includes the common property salmon catch from all districts open to purse seines: Eastern, Northern, Unakwik, Coghill, and Southwestern.

Catch Date	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
			Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds
07/11[a]	57	57	1	11	69	461	17	150	143,201	454,053	716	5,779
07/14[b]	35	37	0	0	52	311	8	61	53,613	168,101	445	3,742
07/15	24	24	0	0	76	470	4	34	77,070	237,986	705	5,930
07/16	15	16	1	14	40	243	4	32	30,019	93,315	355	2,913
07/17	12	13	0	0	99	608	9	51	61,313	195,797	897	6,805
07/18	8	8	0	0	46	302	2	9	18,537	58,212	374	3,109
07/19	9	10	0	0	54	346	25	165	42,513	134,384	754	6,322
07/20	24	24	0	0	126	763	48	376	62,477	197,156	1,212	10,431
07/27[c,d,e]	132	132	4	41	6,633	41,181	299	1,924	202,445	671,829	4,572	32,785
07/30[f,g,h]	145	146	31	346	5,088	31,450	450	3,037	313,494	1,050,325	3,795	28,658
07/31	3	3	0	0	0	0	0	0	3,540	10,874	31	273
08/03[f,i]	180	182	58	690	4,065	24,995	473	3,271	502,473	1,736,289	3,915	29,551
08/05[f,j]	167	168	6	34	4,647	28,537	1,239	8,417	448,227	1,527,990	3,883	29,753
08/07	4	4	0	0	5	33	0	0	3,433	11,905	48	387
08/08[af,k]	192	195	2	20	3,310	19,961	698	5,098	618,806	2,061,631	1,888	14,268
08/10	6	6	0	0	33	205	2	12	4,599	16,089	21	163
08/11[l,m]	196	199	6	95	4,110	25,087	1,300	9,859	520,436	1,768,648	2,126	15,535
08/14[l,n]	90	93	0	0	529	3,200	928	6,247	209,603	710,215	645	4,840
08/15[l,n]	141	144	3	27	1,417	8,424	2,716	19,508	413,744	1,384,371	1,572	11,511
08/17	1	1	0	0	1	6	0	0	62	200	1	7
08/18[l,n]	68	70	1	15	265	1,733	1,676	12,802	139,337	480,517	251	1,748
08/19[l,n]	113	120	1	10	803	4,951	4,341	32,742	329,864	1,141,116	1,285	9,481
08/21[l,n]	46	46	0	0	235	1,411	762	6,236	110,770	380,275	150	1,109
08/22[l,n]	77	77	1	9	896	5,446	4,536	36,844	272,304	923,543	296	2,222
08/24[n]	30	30	1	7	124	789	3,871	30,949	59,851	206,022	59	421
08/25[n]	40	41	0	0	132	843	440	3,383	116,078	407,284	35	218
08/27[n,o]	20	20	0	0	45	256	3,771	29,928	40,111	137,933	24	178
08/28[n]	11	11	0	0	51	320	1,316	11,038	21,828	78,124	28	267
08/29[n]	9	9	0	0	10	55	3,399	30,063	23,201	77,229	0	0
08/30	5	5	0	0	10	56	1,894	15,625	11,276	39,492	4	26
08/31	4	4	0	0	0	0	1,178	10,485	3,083	10,474	0	0
09/01[p]	4	4	0	0	0	0	1,449	11,863	2,312	7,658	0	0
09/02	3	3	0	0	0	0	651	4,811	2,029	7,285	0	0
09/03	5	5	0	0	0	0	909	8,342	1,051	3,579	0	0
09/04	2	2	0	0	0	0	410	3,658	759	2,580	0	0
09/05[q]	2	2	0	0	1	5	159	1,515	136	478	1	3
Total	207	1,911	116	1,319	32,972	202,448	38,984	308,535	4,863,595	16,392,959	30,088	228,435
Average Weight				11.37		6.14		7.91		3.37		7.59

[a] Open waters included waters of Valdez Arm north of the latitude of the Coast Guard marker at Rocky Point (60° 57.0' N. latitude) and those waters of Port Valdez west of 146° 30.5' W. longitude excluding all waters of Jack Bay east of a line from 61° 02.15' N. lat., 146° 39.65' W. long. to 61° 03.0' N. lat., 146° 39.1' W. longitude, and excluding all waters of Galena Bay east of a line from Rocky Point at 60° 57.6' N. lat., 146° 45.0' W. long., to 60° 58.1' N. Lat., 146° 43.1' W. long. and exluding all waters of Sawmill Bay west of a line from 61° 02.6' N. lat., 146° 46.90' W. long., to 61° 02.6' N. lat., 146° 45.9' W. longitude.

[b] Opening was scheduled for Tuesday, July 14 from 8:00 a.m. until Monday, July 20 at 8:00 p.m. Open waters included waters of the Valdez Narrows Subdistrict east of a line from Potato Point to Entrance Point and west of 146° 30.5' W. longitude.

[c] Open waters include all waters of the Northern District north of the latitude of 60° 54.5' N. latitude excluding the waters of Siwash Bay west of a line from a point on the north shore at approximately 60° 58.3' N. latiude, 147° 37.2' W. longitude to a point on the south shore at approximately 60° 57.0' N. latitude, 147° 35.9' W. longitude and excluding the waters of Jonah Bay west of a line from a point on the north shore at approximately 61° 01.1' N. latitude, 147° 35.2' W. longitude to a point on the south shore at approximately 61° 0.4' N. latitude, 147° 36.0' W. longitude.

[d] Only the Esther Subdistrict wof the Coghill District was opened to fishing for the entire season.

[e] Waters open for 12 hours included the Port San Juan and Point Elrington Subdistricts, excluding the Special Harvest Area of Sawmill Bay. The general waters of the southern portion of the Southwestern District west of Point Helen south of the latitude of 60° 15.23' N. latitude and the general waters east of Point Helen south of the latitude of 60° 16.0' N. latitude were open for 6 hours beginning 8:00 a.m. July 27.

-Continued-

[f] Open waters include all waters of the Northern District north of the latitude of 60° 54.4' N. latitude excluding the waters of Siwash Bay west of a line from a point on the north shore at approximately 60° 58.3' N. latiude, 147° 37.2' W. longitude to a point on the south shore at approximately 60° 57.0' N. latitude, 147° 35.9' W. longitude and excluding the waters of Jonah Bay west of a line from a point on the north shore at approximately 61° 01.1' N. latitude, 147° 35.2' W. longitude to a point on the south shore at approximately 61° 0.4' N. latitude, 147° 36.0' W. longitude.

[g] Waters open for 12 hours included the Point Elrington Subdistrict. The general waters of the southern portion of the Southwestern District west of Point Helen south of the latitude of 60° 15.23' N. latitude and general waters east of Point Helen south of the latitude of 60° 16.0' N. latitude were open for 6 hours beginning 8:00 a.m. July 30.

[h] The Unakwik District was open for two 24-hour periods per week beginning June 18. The weekly schedule wwas 8:00 a.m. Monday until 8:00 a.m. Tuesday and from 8:00 p.m. Thursday until 8:00 p.m. Friday.

[i] Open waters included the Point Elrington and Port San Juan Subdistricts as well as the general waters of the Southwestern District on the east side of Knight Island south of 60° 23.15' N. latitude and east of a line from the west entrance to Italian Bay at 60° 13.3" N. lat., 147° 54.6' W. long. to the northermost tip of Evans Island at 60° 09.6' N. lat., 147° 58.7' W. long., and east of a line due south from Elrington Island at 148° 10.0' W. longitude (Montague Strait Migration Corridor).

[j] Open waters included the Point Elrington Subdistrict and the general waters of the Southwestern District west of Knight Island south of 60° 23.15' N. lat., and west of a line from the west entrance to Italian Bay at 60° 13.3' N. lat., 147° 54.6' W. long., to the northemmost tip of Evans Island at 60° 09.6' N. lat., 147° 58.7' W. long., and east of a line from the old Chenega village at 60° 16.5' N. lat., 148° 05.5' W. long., to Point Countess at 60° 13.3 N. lat., 148° 05.5' W. long., and west of a line due south from Elrington Island at 148° 10.0' W. long. (Knight Island Migration Corridor).

[k] Waters open for 12 hours included the Port San Juan Subdistrict and the Montague Strait Migration Corridor of the Southwestern District. The Point Elrington Subdistrict opened for 6 hours beginning at 8:00 a.m. August 8.

[l] Open waters include all waters of the Northern District north of 60° 55.6' N. Latitude (which is approximately 1.1 nautical miles north of the previous boundary) excluding the waters of Siwash Bay west of a line from a point on the north shore at approximately 60° 58.3' N. latitude, 147° 37.2' W. longitude to a point on the south shore at approximately 60° 57.0' N. latitude, 147° 35.9' W. longitude and excluding the waters of Jonah Bay west of a line from a point on the north shore at approximately 61° 01.1' N. latitude 147° 35.2' W. longitude to a point on the south shore at approximately 61° 0.4' N. latitude 147° 36.0' W. longitude.

[m] Open waters included the Port San Juan Subdistrict for 15 hours. The Point Elrington Subdistrict and the Knight Island Migration Corridor were open for 6 hours beginning at 8:00 a.m. until 2:00 p.m. Tuesday, August 11.

[n] Open waters included the Port San Juan Subdistrict only.

[o] Only the waters of Lake and Quillion bays of the Esther Subdistrict, excluding the Special Harvest Area of Lake Bay, were open from 8:00 a.m. Thursday, August 27 until 8:00 p.m., Saturday, August 29. Fishing was later extended until 8:00 p.m. Saturday, September 5.

[p] Open waters included waters of Valdez Arm north of the Coast Guard marker at Rocky Point located at 60° 57.0' N. latitude and south of a line from Potato Point to Entrance Point and waters of Port Fidalgo east of 146° 24.0' W. longitude.

[q] The purse seine season officially closed at 8:00 p.m. Wednesday, September 9 in the Southwestern District, Saturday, September 5 in the Coghill District, and Unakwik District closed for the season at 8:00 p.m. Wednesday, September 2.

Appendix E.2. Commercial salmon harvest by species, all gear and districts combined, Prince William Sound, 1971 - 1992.[a]

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
			CATCH BY SPECIES			
1971	3,551	88,368	30,551	7,310,964	574,265	8,007,699
1972 [b]	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 [b]	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
Ten Year Average (1982-91)	814	387,124	78,618	23,715,996	1,256,598	25,439,150

[a] Includes purse seine, drift gill net and set gill net 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.

[b] General purse seine season closed.

Appendix E.3. Commercial pink salmon harvest for all gear types, by district, Prince William Sound, 1969–1992. Includes purse seine, drift gill net and set gill net catches from all Prince William Sound districts; Unakwik catches are included in the Northern District. Does not include hatchery cost recovery, discarded, donated, educational, confiscated and test fish harvests.

	DISTRICT								
Year	Eastern	Northern	Coghill	Northwestern	Eshamy	Southwestern	Montague	Southeastern	Total
1969	963,583	262,403	43,134	268,240	0	2,565,737		696,182	4,799,279
1970	358,326	308,797	100,338	371,528	0	1,518,700		90,438	2,748,127
1971 [a]	1,974,605	666,308	323,841	163,401		3,901,939		276,605	7,306,699
1972 [b]			9,408		54,781				64,189
1973	327,453	183,467	95,793	127,197	0	407,388	146,778	657,429	1,945,505
1974 [b]			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	0	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	0	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	527,132	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	[c]	[c]	[c]	73,177	13,795,415
1990	7,970,364	5,482,585	2,692,788	891,444	534,951	17,811,479	10,658	12,325	35,406,594
1991	2,617,222	4,150,612	2,211,575	0	64,591	17,849,425	0	0	26,893,425
1992	489,228	1,142,061	363,887		543,115	3,039,775			5,578,066
10 year Average (1982–91)	4,030,293	2,629,954	1,634,899	529,226	207,566	9,858,874	218,344	739,827	19,784,557

[a] The Eshamy District was closed to fishing.

[b] The general purse seine district was closed to fishing.

[c] These districts were closed due to the Exxon Valdez oil spill.

Appendix E.4. Commercial catch and aerial escapement indices for pink and chum salmon by district, Prince William Sound, 1992.

PINK SALMON (EVEN CYCLE)

District	Even Cycle Desired Escapement Range			1966–90 Mean Index	Observed Escapement Index [a]	Deviation From Mean
Eastern	427,000	–	521,000	471,595	204,383	–56.7%
Northern/Unakwik	192,000	–	235,000	206,947	72,915	–64.8%
Coghill	129,000	–	158,000	136,124	23,611	–82.7%
Northwestern	122,000	–	149,000	133,885	42,308	–68.4%
Eshamy	7,000	–	9,000	8,919	2,709	–69.6%
Southwestern	130,000	–	159,000	144,880	66,953	–53.8%
Montague	63,000	–	77,000	73,281	47,156	–35.7%
Southeastern	215,000	–	263,000	244,249	95,070	–61.1%
Total	1,285,000	–	1,571,000	1,419,880	555,105	–60.9%

CHUM SALMON

District	Desired Escapement Range			1965–91 Mean Index	Observed Escapement Index a	Deviation From Mean
Eastern	84,000	–	102,000	93,844	48,804	–48.0%
Northern/Unakwik	37,000	–	45,000	41,027	12,903	–68.5%
Coghill	20,000	–	24,000	22,102	10,003	–54.7%
Northwestern	11,000	–	14,000	12,985	11,072	–14.7%
Eshamy	15	–	20	30	300	900.0%
Southwestern	1,300	–	1,600	1,868	2,940	57.4%
Montague	2,700	–	3,300	2,881	783	–72.8%
Southeastern	15,000	–	18,000	16,683	3,881	–76.7%
Total	171,015	–	207,920	191,420	90,686	–52.6%

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

Appendix E.5. Pink salmon harvests and escapement indices, including hatchery sales harvests and brood stock, Prince William Sound, 1965 - 1992. Historical data revised in 1989.

	PINK SALMON ESCAPEMENTS[a]									Hatchery		Common Property	
Year	Eastern	Northern	Coghill	Northwest	Eshamy	Southwest	Montague	Southeastern	Total	Sales	Brood	Catch[b]	Total Run[c]
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
EVEN CYCLE AVG. (1966-90)													
AVG.	471,595	206,947	136,124	133,885	8,919	144,880	73,281	244,249	1,419,880	1,637,195	401,054	9,524,556	12,198,994
ODD CYCLE AVG. (1965-91)													
Avg.	425,839	131,060	172,186	84,659	6,589	121,954	168,527	347,403	1,458,217	1,609,222	464,723	10,783,028	13,483,625

[a]Coghill and Northwestern escapement figures correspond to current district boundaries.

[b]Includes the common property harvest of both wild and hatchery stocks. Does not include hatchery sales harvests.

[c]Represents the sum of the commercial catch, hatchery sales and brood, 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, 1992.

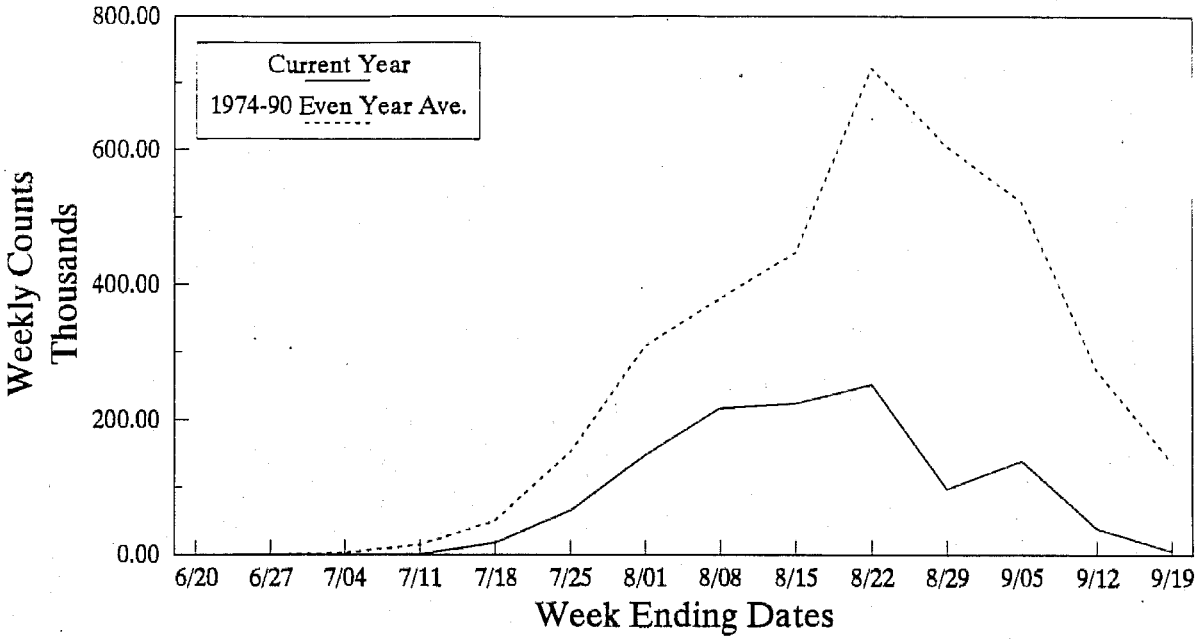
Survey Location		Week Ending Dates [a]														Adjusted Total [b]
		6/20	6/27	7/04	7/11	7/18	7/25	8/01	8/08	8/15	8/22	8/29	9/05	9/12	9/19	
Orca Inlet	221-10	NS	NS	0	0	0	450	175	80	1,143	250	80	95	5	1	2,258
Simpson/Sheep	221-20	0	0	0	0	0	255	4,195	5,386	1,051	9,201	1,400	6,575	2,301	NS	15,264
Port Gravina	221-30	0	0	0	50	350	4,640	10,153	13,700	10,690	18,713	8,340	8,590	4,800	0	33,512
Port Fidalgo	221-40	0	0	0	0	0	3,040	13,175	13,458	16,300	13,410	9,970	5,550	9,250	NS	37,295
Valdez Arm	221-50	0	0	0	25	15,175	28,425	51,959	41,663	41,150	33,670	14,960	12,350	4,450	NS	105,954
Port Valdez	221-60	NS	NS	NS	0	25	3,120	6,720	4,270	6,400	550	0	80	200	NS	10,100
Eastern District Total		0	0	0	75	15,550	39,930	86,377	78,557	76,734	75,794	34,750	33,240	21,006	1	204,383
Columbia/Long	222-10	NS	0	0	0	0	1,920	2,765	7,600	9,380	9,050	3,092	3,240	926	NS	15,037
Wells/Unakwik	222-20	0	0	0	0	60	3,262	5,308	14,580	16,260	18,110	10,250	6,150	9,610	0	37,426
Eaglek	222-30	NS	NS	NS	0	150	2,960	5,740	10,895	7,065	10,725	3,435	1,025	1,800	NS	17,952
Northern District Total		0	0	0	0	210	8,142	13,813	33,075	32,705	37,885	16,777	10,415	12,336	0	70,415
Unakwik District (229) Total		NS	NS	NS	NS	0	0	NS	0	40	0	250	300	2,500	NS	2,500
W. Port Wells	223-10	NS	NS	NS	NS	0	0	0	250	260	100	325	525	50	NS	711
Esther Passage	223-20	NS	NS	NS	0	0	1,555	2,320	6,070	7,520	9,250	9,600	3,275	0	80	18,150
E. Port Wells	223-30	NS	NS	NS	0	0	1,375	190	905	1,900	550	3,650	575	35	NS	4,750
Coghill District Total		NS	NS	NS	0	0	2,930	2,510	7,225	9,680	9,900	13,575	4,375	85	80	23,611
Passage/Cochrane	224-10	NS	NS	NS	0	400	2,205	2,220	10,605	7,830	9,075	5,350	6,375	25	770	19,494
Culross Pass	224-30	NS	NS	NS	0	0	820	1,300	3,880	3,250	2,400	3,000	2,425	25	320	6,644
Nellie Juan	224-40	NS	NS	NS	0	100	2,865	1,980	9,700	8,930	9,005	6,000	4,150	250	165	16,170
Northwestern District Total		NS	NS	NS	0	500	5,890	5,500	24,185	20,010	20,480	14,350	12,950	300	1,255	42,308
Crafton/Eshamy	225-30	NS	NS	NS	0	0	0	110	1,550	0	654	375	1,500	0	200	2,709
Eshamy District Total		NS	NS	NS	0	0	0	110	1,550	0	654	375	1,500	0	200	2,709
Chenega	226-20	NS	NS	NS	NS	320	5,973	11,508	21,208	17,510	18,349	8,960	21,785	0	588	45,794
W. Knight Island	226-30	NS	NS	NS	NS	600	1,600	1,400	3,400	900	2,200	2,500	2,000	NS	100	5,898
Bainbridge/Latouche	226-40	NS	NS	NS	NS	20	603	2,769	5,069	3,700	3,045	5,775	10,845	360	770	14,177
Port Bainbridge	226-50	NS	NS	NS	NS	0	0	400	400	300	500	250	650	NS	50	1,084
Southwestern District Total		NS	NS	NS	NS	940	8,176	16,077	30,077	22,410	24,094	17,485	35,280	360	1,508	66,953
S. Montague	227-10	NS	NS	NS	NS	0	0	399	2,910	7,750	17,275	0	8,235	895	0	20,521
N. Montague	227-20	NS	NS	NS	NS	0	40	486	4,440	10,265	20,026	0	10,598	1,180	2	26,635
Montague District Total		NS	NS	NS	NS	0	40	885	7,350	18,015	37,301	0	18,833	2,075	2	47,156
S. Hawkins	228-10	NS	NS	NS	NS	NS	0	0	250	0	NS	NS	50	0	NS	250
Hawkins Cutoff	228-20	NS	NS	NS	NS	NS	0	7,040	6,905	7,100	0	0	1,350	0	60	13,232
N. Hawkins	228-30	NS	NS	NS	NS	NS	0	752	2,050	2,950	0	0	2,260	50	0	5,843
Double Bay	228-40	NS	NS	NS	NS	NS	700	600	4,275	9,700	13,000	0	3,628	60	0	18,426
Johnstone	228-50	NS	NS	NS	NS	NS	0	829	750	3,200	4,400	0	1,620	230	0	5,823
Port Etches	228-60	NS	NS	NS	NS	NS	210	13,400	21,220	21,720	29,035	0	13,400	0	2,115	51,496
Southeastern District Total		NS	NS	NS	NS	NS	910	22,621	35,450	44,670	46,435	0	22,308	340	2,175	95,070
TOTAL OF 9 DISTRICTS		0	0	0	75	17,200	66,018	147,893	217,469	224,264	252,543	97,562	139,201	39,002	5,221	555,104

[a] 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 permiting, 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 (ie. 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.

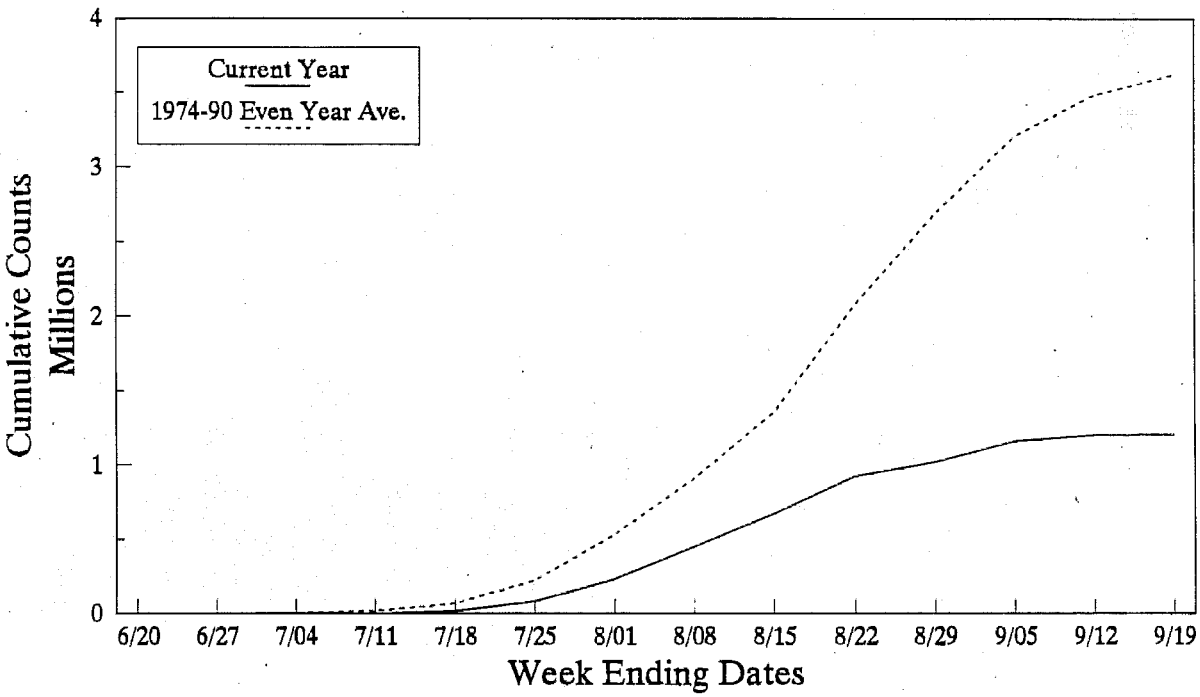
[b] The adjusted total is an escapement estimate based a geometric method used since the inception of the systematic survey program in the early 1960's. In this method, aerial observers are assumed to count without error or bias. Linear interpolations between observations are used to estimate numbers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

PWS PINK STREAM COUNTS - ALL DISTRICTS

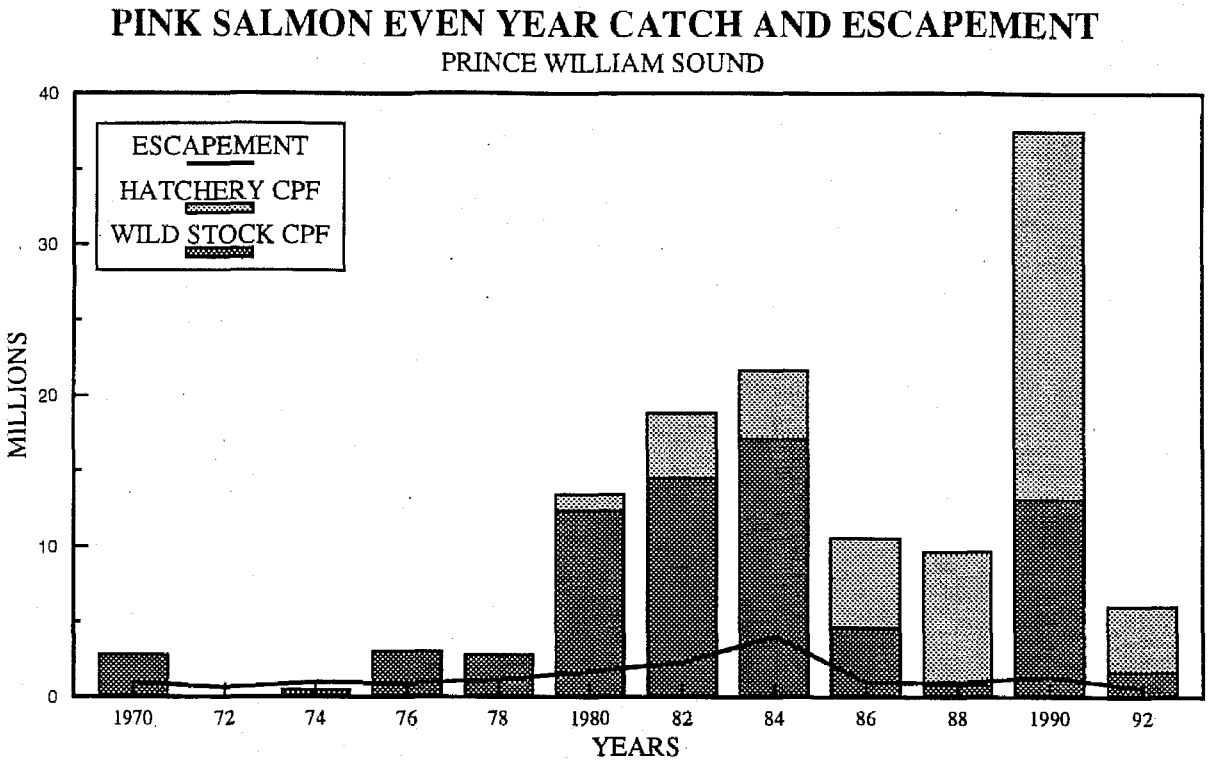
CURRENT YEAR v. 1974 - 90 EVEN YEAR AVERAGE

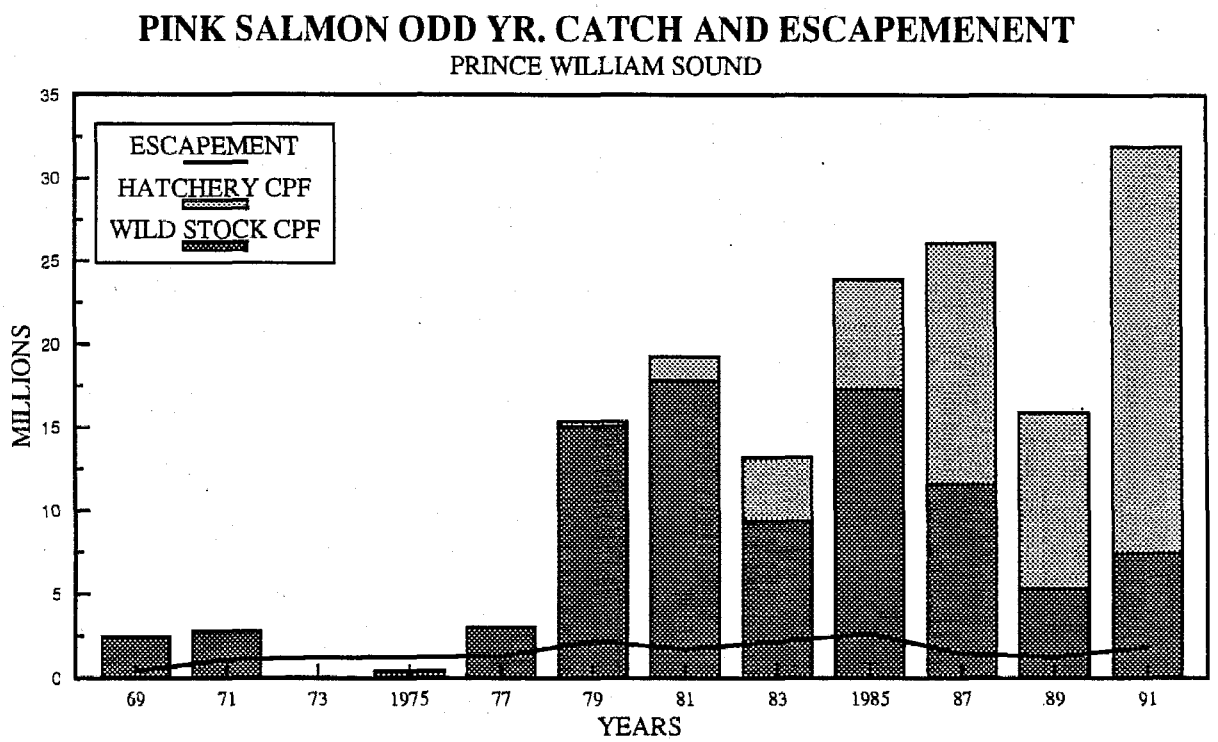


CUMULATIVE



Appendix E.7. Current year and historical weekly pink salmon escapement performance of index spawning streams, Prince William Sound, 1992.





Appendix E.8. Pink salmon catch and escapement, even years (1970 - 1992) and odd years (1969 - 1991), Prince William Sound.

Appendix E.9. Chum salmon harvests and escapement indices, including hatchery sales harvests and brood stock, Prince William Sound, 1965 - 1992.

	CHUM SALMON ESCAPEMENTS[a]									Hatchery		Common Property	
Year	Eastern	Northern	Coghill	Northwestern	Eshamy	Southwestern	Montague	Southeastern	Total	Sales	Brood	Catch[b]	Total Run[c]
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
1965-91 AVG	94,354	41,330	20,880	13,236	27	1,771	2,643	15,484	186,355	18,642	51,471	699,550	914,781

[a]Coghill and Northwestern escapement figures correspond to current district boundaries.

[b]Includes the common property harvest of both wild and hatchery stocks. Does not include hatchery sales harvests.

[c]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, 1992.

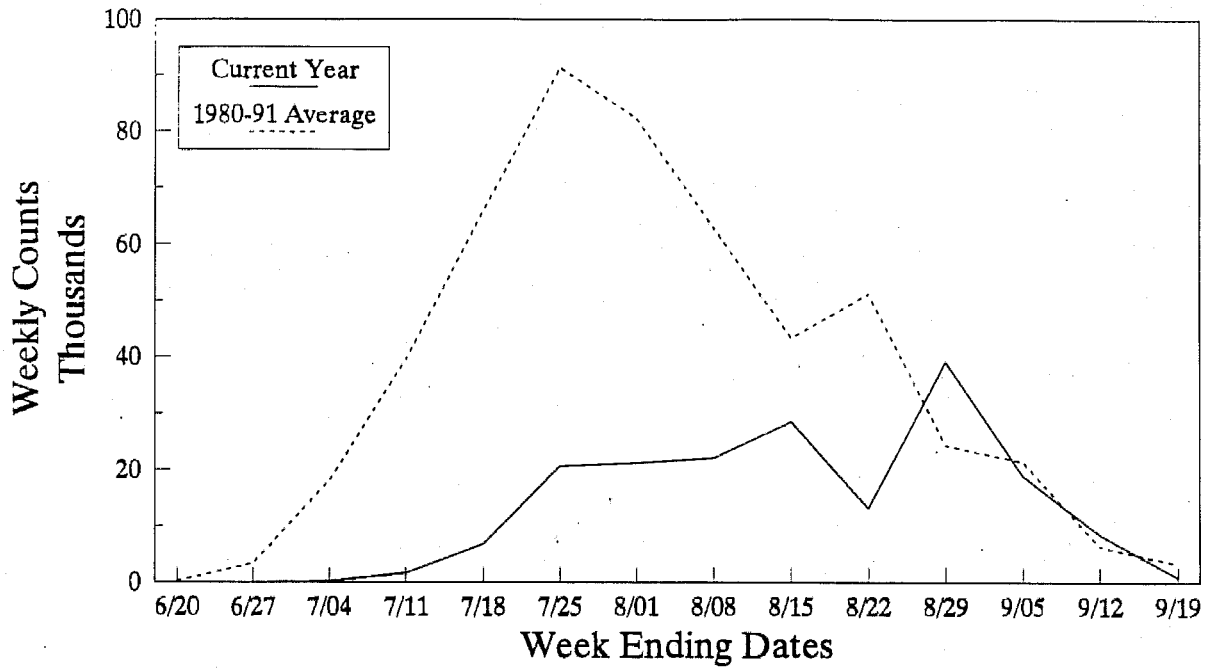
Survey Location		Week Ending Dates [a]														Adjusted Total [b]
		6/20	6/27	7/04	7/11	7/18	7/25	8/01	8/08	8/15	8/22	8/29	9/05	9/12	9/19	
Orca Inlet	221-10	NS	NS	0	0	0	20	0	0	200	0	0	100	0	10	361
Simpson/Sheep	221-20	0	0	0	30	1,052	731	470	670	500	1,001	802	806	300	NS	2,561
Port Gravina	221-30	0	50	190	1,381	2,410	2,850	2,560	5,300	500	600	1,950	505	100	0	8,050
Port Fidalgo	221-40	0	0	0	50	80	200	2,380	2,050	9,000	700	9,320	4,600	2,930	NS	15,532
Valdez Arm	221-50	0	0	20	160	1,700	1,000	5,650	6,400	0	3,450	13,840	2,300	3,100	NS	17,971
Port Valdez	221-60	NS	NS	NS	0	440	0	1,163	1,103	1,200	300	1,490	1,040	1,511	NS	4,329
Eastern District Total		0	50	210	1,621	5,682	4,801	12,223	15,523	11,400	6,051	27,402	9,351	7,941	10	48,804
Columbia/Long	222-10	NS	0	0	40	400	550	1,745	98	1,200	1,600	1,600	670	200	NS	3,436
Wells/Unakwik	222-20	0	10	30	80	500	1,815	3,147	700	1,650	300	3,160	1,450	225	0	6,049
Eaglek	222-30	NS	NS	NS	0	20	1,760	30	0	1,473	200	2,350	1,575	0	NS	3,417
Northern District Total		0	10	30	120	920	4,125	4,922	798	4,323	2,100	7,110	3,695	425	0	12,903
Unakwik District (229) Total		NS	NS	NS	NS	0	0	NS	0	0	0	0	0	0	NS	0
W. Port Wells	223-10	NS	NS	NS	NS	0	0	0	0	0	0	25	0	0	NS	25
Esther Passage	223-20	NS	NS	NS	0	14	1,288	760	253	1,800	1,910	3,225	2,900	0	275	5,778
E. Port Wells	223-30	NS	NS	NS	0	0	4,200	0	0	300	0	0	0	0	NS	4,200
Coghill District Total		NS	NS	NS	0	14	5,488	760	253	2,100	1,910	3,250	2,900	0	275	10,003
Passage/Cochrane	224-10	NS	NS	NS	0	20	2,553	990	3,030	4,050	1,860	1,360	2,200	0	301	7,326
Culross Pass	224-30	NS	NS	NS	0	0	1,000	370	400	530	0	0	0	0	0	1,116
Nellie Juan	224-40	NS	NS	NS	0	20	1,830	600	0	1,730	0	0	0	0	20	2,630
Northwestern District Total		NS	NS	NS	0	40	5,383	1,960	3,430	6,310	1,860	1,360	2,200	0	321	11,072
Crafton/Eshamy	225-30	NS	NS	NS	0	0	0	0	300	0	0	0	0	0	0	300
Eshamy District Total		NS	NS	NS	0	0	0	0	300	0	0	0	0	0	0	300
Chenega	226-20	NS	NS	NS	NS	100	(2)	390	900	2,530	0	65	50	0	50	2,640
W. Knight Island	226-30	NS	NS	NS	NS	0	0	0	0	0	0	0	0	NS	0	0
Bainbridge/Latouche	226-40	NS	NS	NS	NS	0	0	300	300	0	0	0	0	0	0	300
Port Bainbridge	226-50	NS	NS	NS	NS	0	0	0	0	0	0	0	0	NS	0	0
Southwestern District Total		NS	NS	NS	NS	100	(2)	690	1,200	2,530	0	65	50	0	50	2,940
S. Montague	227-10	NS	NS	NS	NS	0	0	0	0	300	0	0	0	0	0	300
N. Montague	227-20	NS	NS	NS	NS	0	0	20	50	0	400	0	300	50	0	483
Montague District Total		NS	NS	NS	NS	0	0	20	50	300	400	0	300	50	0	783
S. Hawkins	228-10	NS	NS	NS	NS	NS	0	0	0	0	NS	NS	0	0	NS	0
Hawkins Cutoff	228-20	NS	NS	NS	NS	NS	30	100	0	0	0	0	0	0	0	130
N. Hawkins	228-30	NS	NS	NS	NS	NS	0	0	0	0	0	0	0	0	0	0
Double Bay	228-40	NS	NS	NS	NS	NS	0	0	0	1,000	0	0	0	0	0	1,000
Johnstone	228-50	NS	NS	NS	NS	NS	190	550	0	0	400	0	0	0	0	950
Port Etches	228-60	NS	NS	NS	NS	NS	690	0	600	500	500	0	500	0	300	1,801
Southeastern District Total		NS	NS	NS	NS	0	910	650	600	1,500	900	0	500	0	300	3,881
TOTAL OF 9 DISTRICTS		0	60	240	1,741	6,756	20,705	21,225	22,154	28,463	13,221	39,187	18,996	8,416	956	90,686

[a] 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 permiting, 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 (ie. 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.

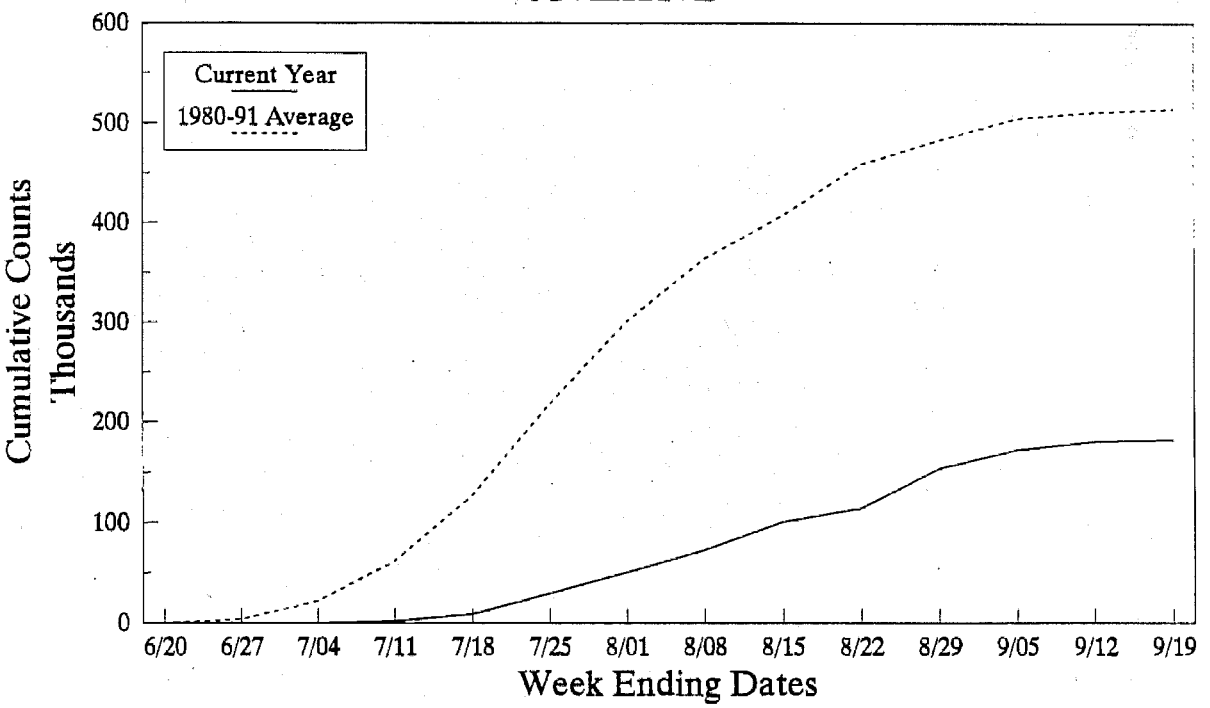
[b] The adjusted total is an escapement estimate based a geometric method used since the inception of the systematic survey program in the early 1960's. In this method, aerial observers are assumed to count without error or bias. Linear interpolations between observations are used to estimate numbers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

PWS CHUM STREAM COUNTS - ALL DISTRICTS

CURRENT YEAR v. HISTORICAL AVERAGE

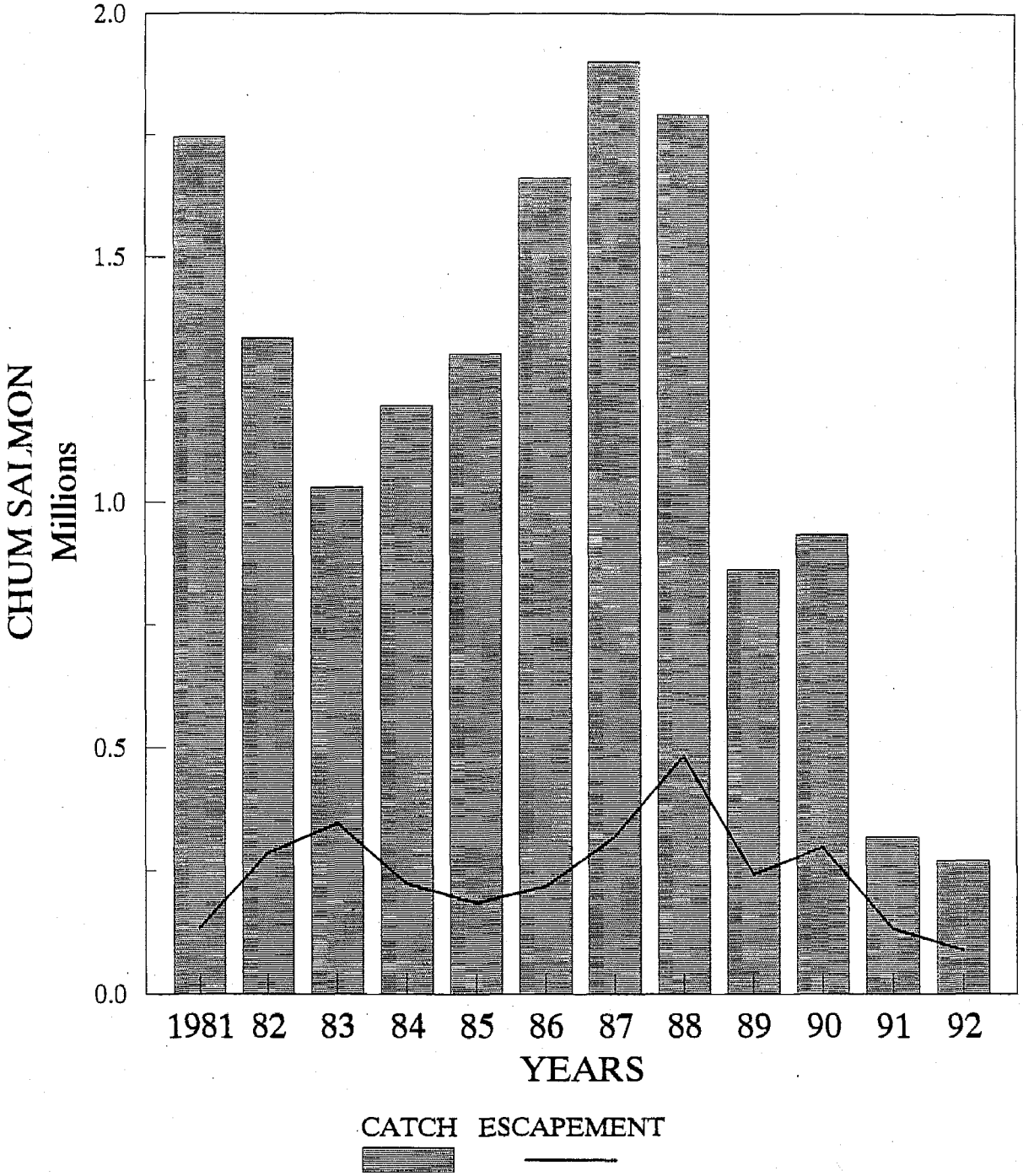


CUMULATIVE



Appendix E.11. Current year and historical weekly chum salmon escapement performance from index spawning streams, Prince William Sound, 1992.

CHUM SALMON CATCH AND ESCAPEMENT
PRINCE WILLIAM SOUND



Appendix E.12. Chum salmon catch and escapement, Prince William Sound, 1981 - 1992.

Appendix E.13. Sockeye salmon escapement counts from selected systems, Prince William Sound, 1992.[a]

Stream Name	Stream Number	Weekly Count (week ending dates)									
		18-Jul	25-Jul	01-Aug	08-Aug	15-Aug	22-Aug	29-Aug	05-Sep	12-Sep	19-Sep
Robe River	138	NS	NS	NS	80	NS	NS	NS	NS	NS	NS
Billy's Hole	218	600	40	125	0	8	10	0	0	NS	NS
Cowpen Lake	242	0	30	NS	5	60	0	0	0	250	NS
Miners Lake	244	10	2,160	NS	450	1,800	1,000	NC	400	80	NS
Red Lake	300	0	510	20	170	180	25	0	10	0	NS
Golden Lagoon[b]	310	3,000	4,500	970	3,700	1,100	0	0	0	0	NS
Halferty Creek	454	0	0	0	0	200	0	0	0	NS	0
Cochrane Creek	461	0	0	0	0	60	0	0	50	NS	NS
Shrode Lake	476	500	1,180	500	380	900	400	2,000	1,500	NS	1,300
Culross Creek	479	0	0	0	0	0	0	0	0	50	0
Jackpot Lakes	608	700	950	2,140	1,950	700	1,600	725	850	NS	270
Bainbridge	630	250	350	960	500	200	350	100	75	NS	25
Point Creek	702	NS	0	0	0	50	0	NS	NS	0	NS
Cabin Creek	747	NS	0	0	0	50	0	NS	NS	0	NS
Total		5,060	9,720	4,715	7,235	5,308	3,385	2,825	2,885	380	1,595

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

[b]Believed to be returns from hatchery sockeye released into Davis Lake.

Appendix E.14. Estimated age and sex composition of Prince William Sound commercial chum salmon catches by district, 1992.

		Brood year and age group					
		1989	1988	1987	1986	1985	
		0.2	0.3	0.4	0.5	0.6	Total
Eastern District							
Stratum dates:	07/11 - 07/21						
Sampling dates:	07/21						
Sample size:	179						
Female	Percent of sample	0.0	46.9	7.3	0.6	0.0	54.7
	Number in catch	0	2,561	396	30	0	2,988
Male	Percent of sample	0.0	34.1	10.1	1.1	0.0	45.3
	Number in catch	0	1,860	549	61	0	2,470
Total	Percent of sample	0.0	81.0	17.3	1.7	0.0	100.0
	Number in catch	0	4,421	945	91	0	5,458
	Standard error	0	160	155	53	0	
Coghill District							
Stratum dates:	06/11 - 09/18						
Sampling dates:	06/13 - 07/13						
Sample size:	1,576						
Female	Percent of sample	0.4	53.7	12.2	0.4	0.0	66.8
	Number in catch	695	98,046	22,225	810	0	121,776
Male	Percent of sample	0.6	23.3	8.8	0.6	0.0	33.2
	Number in catch	1,042	42,483	15,974	1,042	0	60,541
Total	Percent of sample	1.0	77.1	20.9	1.0	0.0	100.0
	Number in catch	1,736	140,645	38,200	1,852	0	182,433
	Standard error	446	1,932	1,870	461	0	
Eshamy District							
Stratum dates:	06/15 - 09/30						
Sampling dates:	06/17 - 06/29						
Sample size:	1,909						
Female	Percent of sample	0.4	32.1	18.2	8.6	0.0	59.2
	Number in catch	233	17,847	10,119	4,782	0	32,981
Male	Percent of sample	0.2	14.9	11.0	7.7	0.2	34.0
	Number in catch	117	8,282	6,124	4,287	117	18,926
Total	Percent of sample	0.7	49.4	32.2	17.4	0.2	100.0
	Number in catch	379	27,528	17,934	9,711	117	55,669
	Standard error	105	637	596	484	58	

-continued-

		Brood year and age group					
		1989	1988	1987	1986	1985	
		0.2	0.3	0.4	0.5	0.6	Total
Southwestern District							
Stratum dates:	07/27 - 08/29						
Sampling dates:	07/28 - 08/09						
Sample size:	563						
Female	Percent of sample	4.6	47.4	10.5	0.9	0.0	63.4
	Number in catch	1,388	14,255	3,150	267	0	19,061
Male	Percent of sample	3.9	22.0	9.1	0.7	0.0	35.7
	Number in catch	1,175	6,620	2,723	214	0	10,732
Total	Percent of sample	8.7	70.2	19.5	1.6	0.0	100.0
	Number in catch	2,616	21,089	5,873	481	0	30,059
	Standard error	357	580	503	159	0	
All District							
Strata combined:	07/11 - 08/29						
Sampling dates:	07/21 - 08/09						
Sample size:	4,227						
Female	Percent of sample	0.8	48.5	13.1	2.2	0.0	64.6
	Number in catch	2,316	132,710	35,891	5,890	0	176,807
Male	Percent of sample	0.9	21.7	9.3	2.0	0.0	33.9
	Number in catch	2,333	59,245	25,370	5,603	117	92,668
Total	Percent of sample	1.7	70.8	23.0	4.4	0.0	100.0
	Number in catch	4,732	193,684	62,952	12,135	117	273,619
	Standard error	581	2,121	2,032	689	58	

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, 1992. The Northwestern, Montague, and Southeastern districts were closed the entire season. See Appendix C.12. for Unakwik District openings.

Eastern (221)		Northern (222)		Coghill (223)		Southwestern (226)		Emergency Orders Issued
Dates	Hours Open	Dates	Hours Open	Dates	Hours Open	Dates	Hours Open	
7/11	12 [a]							2-F-E-49-92
7/14 - 7/20	156 [b]							2-F-E-50-92 , 2-F-E-51-92
								2-F-E-53-92 , 2-F-E-56-92
		7/27	12 [c]	7/27	12 [d]	7/27	12 [e]	2-F-E-58-92
		7/30	12 [f]	7/30	12 [d]	7/30	12 [g]	2-F-E-61-92
		8/03	12 [f]	8/03	12 [d]	8/03	12 [h]	2-F-E-63-92
		8/05	12 [f]	8/05	12 [d]	8/05	12 [i]	2-F-E-65-92
		8/08	12 [f]		[d]	8/08	12 [j]	2-F-E-66-92
		8/11	15 [k]	8/11	15 [d]	8/11	15 [l]	2-F-E-67-92
		8/14 - 8/15	30 [k]	8/14 - 8/15	30 [d]	8/14 - 8/15	30 [g]	2-F-E-70-92
		8/18 - 8/19	36 [k]	8/18 - 8/19	36 [d]	8/18 - 8/19	36 [g]	2-F-E-71-92
		8/21 - 8/22	36 [k]	8/21 - 8/22	36 [d]	8/21 - 8/22	36 [g]	2-F-E-74-92
				8/24	12 [d]	8/24 - 8/25	36 [g]	2-F-E-75-92
8/31 - 9/01	36 [o]							2-F-E-80-92
				8/27 - 9/05	228 [n] [p]	8/27 - 9/09	324 [g]	2-F-E-82-92
								2-F-E-83-92
	[q]		[q]				[q]	2-F-E-84-92

[a] Open waters included waters of Valdez Arm north of the latitude of the Coast Guard marker at Rocky Point (60° 57.0' N. latitude) and those waters of Port Valdez west of 146° 30.5' W. longitude excluding all waters of Jack Bay east of a line from 61° 02.15' N. lat., 146° 39.65' W. long. to 61° 03.0' N. lat., 146° 39.1' W. longitude, and excluding all waters of Galena Bay east of a line from Rocky Point at 60° 57.6' N. lat., 146° 45.0' W. long., to 60° 58.1' N. Lat., 146° 43.1' W. long. and exluding all waters of Sawmill Bay west of a line from 61° 02.6' N. lat., 146° 46.90' W. long., to 61° 02.6' N. lat., 146° 45.9' W. longitude.

[b] Opening was scheduled for Tuesday, July 14 from 8:00 a.m. until Monday, July 20 at 8:00 p.m. Open waters included waters of the Valdez Narrows Subdistrict east of a line from Potato Point to Entrance Point and west of 146° 30.5' W. longitude.

[c] Open waters include all waters of the Northern District north of the latitude of 60° 54.5' N. latitude excluding the waters of Siwash Bay west of a line from a point on the north shore at approximately 60° 58.3' N. latiude, 147° 37.2' W. longitude to a point on the south shore at approximately 60° 57.0' N. latitude, 147° 35.9' W. longitude and excluding the waters of Jonah Bay west of a line from a point on the north shore at approximately 61° 01.1' N. latitude, 147° 35.2' W. longitude to a point on the south shore at approximately 61° 0.4' N. latitude, 147° 36.0' W. longitude.

[d] Only the Esther Subdistrict was open to fishing.

[e] Waters open for 12 hours included the Port San Juan and Point Elrington Subdistricts, excluding the Special Harvest Area of Sawmill Bay. The general waters of the southern portion of the Southwestern District west of Point Helen south of the latitude of 60° 15.23' N. latitude and the general waters east of Point Helen south of the latitude of 60° 16.0' N. latitude were open for 6 hours beginning 8:00 a.m. July 27.

[f] Open waters include all waters of the Northern District north of the latitude of 60° 54.4' N. latitude excluding the waters of Siwash Bay west of a line from a point on the north shore at approximately 60° 58.3' N. latiude, 147° 37.2' W. longitude to a point on the south shore at approximately 60° 57.0' N. latitude, 147° 35.9' W. longitude and excluding the waters of Jonah Bay west of a line from a point on the north shore at approximately 61° 01.1' N. latitude, 147° 35.2' W. longitude to a point on the south shore at approximately 61° 0.4' N. latitude, 147° 36.0' W. longitude.

[g] Waters open for 12 hours included the Point Elrington Subdistrict. The general waters of the southern portion of the Southwestern District west of Point Helen south of the latitude of 60° 15.23' N. latitude and general waters east of Point Helen south of the latitude of 60° 16.0' N. latitude were open for 6 hours beginning 8:00 a.m. July 30.

[h] Open waters included the Point Elrington and Port San Juan Subdistricts as well as the general waters of the Southwestern District on the east side of Knight Island south of 60° 23.15' N. latitude and east of a line from the west entrance to Italian Bay at 60° 13.3" N. lat., 147° 54.6' W. long. to the northermost tip of Evans Island at 60° 09.6' N. lat., 147° 58.7' W. long., and east of a line due south from Elrington Island at 148° 10.0' W. longitude (Montague Strait Migration Corridor).

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i Open waters included the Point Elrington Subdistrict and the general waters of the Southwestern District west of Knight Island south of 60° 23.15' N. lat., and west of a line from the west entrance to Italian Bay at 60° 13.3' N. lat., 147° 54.6' W. long., to the northernmost tip of Evans Island at 60° 09.6' N. lat., 147° 58.7' W. long., and east of a line from the old Chenega village at 60° 16.5' N. lat., 148° 05.5' W. long., to Point Countess at 60° 13.3 N. lat., 148° 05.5' W. long., and west of a line due south from Elrington Island at 148° 10.0' W. long. (Knight Island Migration Corridor).

j Waters open for 12 hours included the Port San Juan Subdistrict and the Montague Strait Migration Corridor of the Southwestern District. The Point Elrington Subdistrict opened for 6 hours beginning at 8:00 a.m. August 8.

k Open waters include all waters of the Northern District north of 60° 55.6' N. Latitude (which is approximately 1.1 nautical miles north of the previous boundary) excluding the waters of Siwash Bay west of a line from a point on the north shore at approximately 60° 58.3' N. latitude, 147° 37.2' W. longitude to a point on the south shore at approximately 60° 57.0' N. latitude, 147° 35.9' W. longitude and excluding the waters of Jonah Bay west of a line from a point on the north shore at approximately 61° 01.1' N. latitude 147° 35.2' W. longitude to a point on the south shore at approximately 61° 0.4' N. latitude, 147° 36.0' W. longitude.

l Open waters included the Port San Juan Subdistrict for 15 hours. The Point Elrington Subdistrict and the Knight Island Migration Corridor were open for 6 hours beginning at 8:00 a.m. until 2:00 p.m. Tuesday, August 11.

m Open waters included the Port San Juan Subdistrict only.

n Only the waters of Lake and Quillion Bays of the Esther Subdistrict, excluding the Special Harvest Area of Lake Bay, were open from 8:00 a.m. Thursday, August 27 until 8:00 p.m. Saturday, August 29. Fishing was later extended to 8:00 p.m. Saturday, September 5.

o Open waters included waters of Valdez Arm north of the Coast Guard marker at Rocky Point located at 60° 57.0' N. latitude and south of a line from Potato Point to Entrance Point and waters of Port Fidalgo east of 146° 24.0' W. longitude.

p The district was officially closed to purse seines at 8:00 p.m. Saturday, September 5.

q The season officially closed at 8:00 p.m. Wednesday, September 9.

APPENDIX F

HATCHERY RETURNS

Appendix F.1. Daily salmon sales harvests and sex ratios at the Wally Noerenberg Hatchery, 1992. Brood stock and sex ratio data provided by the Prince William Sound Aquaculture Corporation.

	HATCHERY SALES HARVESTS IN NUMBERS OF FISH					Pink Salmon
Date	Pinks	Chinook	Chum	Coho	Pounds Sold	% Female
06/11	0	450	0	0	8,648	
06/12	0	138	0	0	2,412	
06/16	0	147	0	0	2,714	
06/20	0	114	0	0	2,037	
06/30	0	0	3,635	0	30,712	
07/03	0	0	5,195	0	42,654	
07/07	0	0	0	0	27,800	
07/13	0	0	7,776	0	57,231	
07/15	193	0	8,748	0	64,808	
07/22	1,126	0	3,956	0	31,915	
07/24	2,037	0	4,424	0	38,252	
07/27	7,011	0	4,367	18	55,765	13.0%
07/29	15,517	0	2,974	0	75,490	15.0%
07/30	12,301	0	445	49	46,865	17.0%
08/01	18,209	0	646	0	67,801	16.0%
08/03	25,008	0	385	174	88,569	18.0%
08/05	56,635	0	380	1,227	204,884	20.0%
08/06	4,517	0	6,816	47	60,612	18.5%
08/07	30,496	0	138	440	104,614	23.0%
08/08	64,230	0	192	1,724	219,372	23.0%
08/09	8,177	0	35	432	29,417	32.0%
08/10	11,725	0	38	138	38,511	37.0%
08/12	1,087	0	6	832	8,755	39.0%
08/14	41,879	0	0	1,897	160,625	43.0%
08/15	23,320	0	0	1,939	90,643	43.0%
08/16	33,851	0	0	3,093	134,719	57.0%
08/17	12,937	0	0	990	51,271	54.0%
08/18	34,063	0	187	3,345	142,236	60.7%
08/19	34,804	0	131	2,365	139,153	61.0%
08/21	544	0	0	1,959	14,254	60.0%
08/26	24,220	0	0	6,529	142,029	71.0%
08/27	40,929	0	0	6,179	205,967	71.0%
08/28	13,816	0	0	1,796	67,351	74.0%
08/29	16	0	0	893	6,495	
09/02	4	0	0	578	4,926	
09/05	0	0	0	580	4,930	
09/08	0	0	0	776	6,204	
09/11	0	0	0	3,902	21,280	
09/12	0	0	0	2,297	12,104	
09/13	0	0	0	1,629	8,615	
09/14	0	0	0	293	1,551	
Totals	518,652	849	50,474	46,121	2,524,191	
Pounds Sold	1,826,638	15,811	367,145	285,395		

	Pink	Chinook	Chum	Coho
Average Weights:	3.52	18.62	7.27	6.19
Average Price/Lb.:	$0.190	$1.721	$0.412	$0.727

BROOD STOCK SUMMARY:

	PINK	CHINOOK	EARLY CHUM	COHO
Fish spawned at hatchery	168,655	365	89,954	0
Green/bad/excessed	55,038	183	50,158	2,715
Eggtake mortality	6,897	93	4,204	0
Total available brood stock	230,590	641	144,316	0
Fish estimated remaining in brood pond	2,000	150	14,000	0
Fish estimated remaining in bay	5,000	200	0	0
Estimated unseen mortality	10,000	100	1,500	0
Estimated creek spawners	0	0	0	0
Estimated total return to hatchery (not sold)	247,590	1,091	159,816	2,715

Appendix F.2. Daily salmon sales harvests and sex ratios at the Armin F. Koernig Hatchery, 1992. Brood stock and sex ratio data provided by the Prince William Sound Aquaculture Corporation.

Date	HATCHERY HARVESTS IN NUMBERS OF FISH Pinks	Pounds Sold	Pink Salmon % Female
07/27	13,143	43,374	9.4%
07/28	12,701	44,455	9.9%
07/29	8,024	27,283	10.4%
07/30	23,667	75,733	10.5%
07/31	30,605	102,263	12.6%
08/01	14,750	47,201	15.2%
08/02	29,499	94,479	17.0%
08/03	22,584	72,268	18.1%
08/04	12,493	39,978	20.3%
08/05	39,496	126,387	30.5%
08/06	48,476	159,972	36.9%
08/07	20,264	67,360	37.3%
08/08	9,001	30,604	40.2%
08/09	21,295	70,271	45.6%
08/10	25,098	82,332	48.5%
08/11	4,965	17,379	47.3%
08/12	11,517	39,158	49.7%
08/13	50,589	172,153	58.2%
08/14	37,077	129,059	56.7%
08/15	0	0	62.6%
08/16	33,893	122,815	62.6%
08/17	72,887	263,504	62.1%
08/18	31,229	113,775	70.4%
08/19	22,995	85,083	70.9%
08/20	8,142	30,124	65.8%
08/21	28,010	103,637	71.0%
08/22	13,302	50,545	69.5%
08/23	10,648	39,398	69.5%
08/24	15,390	58,480	67.2%
08/25	33,370	129,684	67.2%
08/26	0	0	68.8%
08/27	16,383	63,894	68.6%
08/28	47,232	179,932	73.4%
08/29	11,181	43,606	73.4%
08/30	21,637	82,224	76.1%
08/31	11,899	45,218	
09/01	8,969	34,083	
Totals	822,411	2,887,711	

Average Weight: 3.51 lbs.
Average Price/Lb.: $0.191

BROOD STOCK SUMMARY:

Spawned at hatchery	112,975
Excessed	31,742
Green/overripe	5,711
Fishway/system mortality	1,495
Total available brood stock	**151,923**
Estimated diversion channel mortality	7,000
Estimated unseen mortality	60,494
Fish estimated remaining in bay	5,000
Fish estimated remaining behind barrier seine	12,000
Estimated total return to hatchery (not sold)	236,417

Appendix F.3. Daily pink salmon sales harvests and sex ratios at the Solomon Gulch Hatchery, 1992. Sex ratios and brood stock data provided by Valdez Fisheries Development Association.

	FISH SALES										
	Solomon Gulch Pinks		%	Boulder Bay Pinks		%	Solomon Gulch Coho		Chum		Pounds
Date	Daily	Cumulative	Female	Daily	Cumulative	Female	Daily	Cumulative	Daily	Cumulative	Sold
06/22	80	80		0	0		0	0	13	13	338
06/23	27	107		0	0		0	0	0	13	80
06/24	973	1,080		800	800		0	0	9	22	5,012
06/25	3,718	4,798	8.0%	3,063	3,863	12.6%	0	0	18	40	19,835
06/26	7,101	11,899	11.5%	3,386	7,249	10.4%	0	0	11	51	30,464
06/27	15,566	27,465	9.7%	6,181	13,430	9.3%	2	2	25	76	64,253
06/28	5,072	32,537	14.0%	2,526	15,956	11.9%	0	2	6	82	23,237
06/29	23,166	55,703	10.9%	3,739	19,695	13.6%	1	3	28	110	81,618
06/30	28,930	84,633	14.2%	1,282	20,977	16.3%	0	3	22	132	90,914
07/01	58,630	143,263	15.1%	1,379	22,356	18.0%	0	3	19	151	183,085
07/02	102,402	245,665	15.2%	5,860	28,216	21.5%	0	3	18	169	335,022
07/03	106,786	352,451	18.7%	10,621	38,837	29.9%	0	3	156	325	371,508
07/04	82,122	434,573	23.6%	15,375	54,212	36.1%	0	3	97	422	320,230
07/05	160,781	595,354	31.0%	19,688	73,900	31.8%	0	3	89	511	596,167
07/06	111,702	707,056	34.7%	22,923	96,823	40.9%	0	3	9	520	439,704
07/07	68,572	775,628	38.4%	26,752	123,575	45.0%	0	3	0	520	319,905
07/08	121,798	897,426	41.4%	21,458	145,033	49.3%	0	3	0	520	474,214
07/09	119,873	1,017,299	48.5%	20,746	165,779	55.6%	0	3	0	520	477,418
07/10	76,129	1,093,428		16,809	182,588	56.1%	0	3	0	520	54,125
07/11	44,567	1,137,995		13,393	195,981	57.6%	0	3	0	520	44,733
07/12				10,688	206,669		0	3	0	520	35,847
07/13						67.0%	0	3	0	520	259,599
07/14			50.0%				0	3	0	520	151,975
07/15							0	3	0	520	0
08/20							1,797	1,800	1,107	1,527	15,474
08/24							918	2,718	1,945	3,572	19,942
08/26							2,093	4,811	2,338	5,910	25,369
08/28							1,267	6,078	0	5,910	4,566
08/31							2,078	8,156	0	5,910	9,326
09/01							2,002	10,158	0	5,910	9,269
09/02							3,083	13,241	0	5,910	16,078
09/04							2,438	15,679	0	5,910	13,574
09/05							535	16,314	0	5,910	3,379
09/08							3,925	20,239	0	5,910	22,428
09/10							1,530	21,769	0	5,910	9,489
09/11							1,225	22,994	94	6,004	8,185
09/14							1,364	24,358	5	6,009	9,164
09/15							387	24,745	0	6,009	2,816
09/16							205	24,950	2	6,011	1,302
09/17							270	25,220	0	6,011	1,663
09/18							113	25,333	0	6,011	697
09/21							236	25,569	0	6,011	1,488
10/22[a]							1,824	27,393	0	6,011	9,375
Totals	1,137,995			206,669			27,393		6,011		4,562,867

[a]VFDA sold 1,567 pounds of coho salmon roe on 10/23.

PINK BROOD STOCK SUMMARY:

Spawned at hatchery	159,084
Green/overripe	4,274
System mortalities/excessed	75,145
Total available brood stock	**238,503**
Estimated creek spawners	30,044
Fish estimated remaining above weir	4,546
Estimated total return to hatchery	273,093

CHUM BROOD STOCK SUMMARY:

Spawned at hatchery	11,505
Green/overripe	644
System mortalities/excessed	10,826
Total available brood stock	**22,975**
Estimated creek/bay spawners	1,149
Estimated total return to hatchery	24,124

COHO BROOD STOCK SUMMARY:

Spawned at hatchery	629
Green/overripe	282
System mortalities/excessed	316
Total available brood stock	**1,227**
Estimated creek/bay spawners	1,427
Estimated total return to hatchery	2,654

Average Pink Weight: 3.25 pounds
Average Coho Weight: 5.14 pounds

Average price/pound for pinks = $0.24
Average price/pound for coho = $0.99

Appendix F.4. Daily salmon sales harvests and sex ratios at the Cannery Creek Hatchery, 1992. Brood stock and sex ratio data provided by the Prince William Sound Aquaculture Corporation.

Date	HATCHERY HARVEST IN NUMBERS OF FISH Pinks Daily	Pinks Cumulative	Pounds Sold	Pink Salmon % Female
07/30	13,942	13,942	48,797	15.8%
07/31	31,375	45,317	109,811	26.0%
08/01	0	45,317	0	26.0%
08/02	30,652	75,969	107,283	23.4%
08/03	0	75,969	0	23.4%
08/04	8,018	83,987	27,262	26.5%
08/05	11,534	95,521	39,216	28.6%
08/06	0	95,521	0	28.6%
08/07	0	95,521	0	28.6%
08/08	29,872	125,393	104,553	42.3%
08/09	10,904	136,297	35,983	38.5%
08/10	9,127	145,424	31,031	50.9%
08/11	21,252	166,676	74,382	50.5%
08/12	0	166,676	0	
08/13	19,062	185,738	64,812	56.6%
08/14	56,129	241,867	196,448	59.0%
08/15	20,861	262,728	77,185	60.7%
08/16	33,178	295,906	119,442	65.0%
08/17	13,389	309,295	48,199	66.0%
08/18	54,372	363,667	201,179	66.9%
Totals	363,667		1,285,583	

Average Weight: 3.54 lbs.
Average Price/Lb.: $0.182

BROOD STOCK SUMMARY:

Spawned at hatchery	120,299
Excessed	31,264
Green/bad mortality	5,589
Eggtake mortality	11,712
Total available broodstock	**168,864**
Estimated eggtake mortality	30,000
Estimated stream spawners	77,500
Estimated fish below weir	32,500
Estimated total return to hatchery (not sold)	308,864

Appendix F.5. Daily salmon sales harvests at the Main Bay Hatchery, 1992. Brood stock data provided by the Prince William Sound Aquaculture Corporation.

HATCHERY SALES HARVESTS IN NUMBERS OF FISH

Date	Sockeye		Pink		Chum		Pounds
	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Sold
06/21	1,417	1,417	0	0	122	122	10,385
06/24	2,624	4,041	0	0	52	174	16,373
06/25	3,057	7,098	0	0	33	207	19,425
06/27	1,329	8,427	0	0	41	248	8,444
06/28	2,390	10,817	0	0	0	248	14,438
06/29	3,774	14,591	0	0	29	277	22,798
07/01	13,464	28,055	0	0	106	383	80,324
07/02	12,088	40,143	112	112	43	426	69,963
07/04	3,139	43,282	61	173	4	430	17,130
07/05	14,778	58,060	160	333	43	473	80,128
07/06	3,353	61,413	112	445	79	552	19,937
07/08	6,550	67,963	285	730	33	585	33,261
07/09	8,825	76,788	74	804	0	585	48,024
07/12	26,170	102,958	173	977	11	596	137,491
07/14	5,429	108,387	33	1,010	8	604	27,915
07/15	11,998	120,385	216	1,226	50	654	65,844
07/16	4,879	125,264	177	1,403	51	705	26,900
07/18	6,250	131,514	1,057	2,460	44	749	34,842
07/19	7,175	138,689	802	3,262	36	785	43,283
07/21	4,937	143,626	437	3,699	22	807	29,679
07/22	3,775	147,401	317	4,016	21	828	21,658
07/24	9,729	157,130	606	4,622	38	866	54,402
07/26	1,761	158,891	217	4,839	16	882	10,675
Totals	158,891		4,839		882		893,319

SOCKEYE BROOD STOCK SUMMARY:

Spawned at hatchery	1,471
System mortalities/excessed/bad	160
Unprocessed bad adults	3,696
Unprocessed bad jacks	858
Total available brood stock	**6,185**
Fish remaining in bay	4,000
Total	10,185

Average Sockeye Weight: 5.47 pounds

Average price/pound for sockeye = $1.81

SOCKEYE REMOTE EGGTAKES

Eyak Lake	
Good	62
Green/overripe	6
System mortalities/excessed/bad	3
Total	**71**
Coghill Lake	
Good	521
Green/overripe	62
System mortalities/excessed/bad	68
Total	**651**
Davis Lake	
Good	667
Green/overripe	35
System mortalities/excessed/bad	168
Total	**870**

Appendix F.6. Sales harvests of salmon by species from private nonprofit hatcheries as reported on fish tickets, Prince William Sound, 1977 - 1992.[a]

Year	Hatchery[b]	Catch by Species				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[c]	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[d]	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
TOTAL		163,086	207,942	35,783,635	301,555	36,440,673

[a]Includes salmon harvested by private nonprofit hatcheries in Prince William Sound to generate revenues to offset operational costs. Does not include carcass sales.

[b]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)
WHN = Wally Noerenberg Hatchery (PWSAC) (formerly Esther Hatchery)
MB = Main Bay (PWSAC) (formerly operated by ADF&G)

[c]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.

[d]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, 1992.

Pink salmon returns to P.W.S. hatcheries.[a]

Hatchery	1991 Fry Release (millions)	1992 Forecast Return	Estimated Total Return	Marine Survival	Estimated C.P.F. Contribution	Estimated Sales Harvest Contribution[b]	Escmt. and Brood[c]	Eggs Taken (millions)
Solomon Gulch[d]	131.3	4,090,000	1,859,078	1.4%	380,251	1,240,324	238,503	208.8
A. F. Koernig	115.7	5,140,000	2,391,140	2.1%	1,602,127	637,090	151,923	127.4
Wally Noerenberg	205.7	12,840,000	1,995,346	1.0%	1,322,054	442,702	230,590	184.8
Cannery Creek	143.7	5,820,000	1,516,369	1.1%	1,041,373	306,132	168,864	153.7
Total Pink	596.4	27,890,000	7,761,933		4,345,805	2,626,248	789,880	674.7

Chum salmon returns to P.W.S. hatcheries.[a]

Hatchery	1992 Forecast Return	Estimated Total Return	Estimated C.P.F. Comm Catch	Sales Harvest[b]	Escmt. and Brood[c]	Eggs Taken (millions)
Solomon Gulch	47,200	--- NO ESTIMATES MADE ---		6,011	22,975	19.8
A. F. Koernig	0	--- NO ESTIMATES MADE ---		0	0	0
Wally Noerenberg[e]	1,091,600	--- NO ESTIMATES MADE ---		50,474	144,316	112.4
Cannery Creek	0	--- NO ESTIMATES MADE ---		0	0	0
Total Chum	1,138,800		0	56,485	167,291	132.2

[a]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. Preliminary information.

[b]Does not include carcass sales which are part of the brood stock.

[c]Includes brood stock, overmature/green fish, holding mortalities and excess fish. Does not include watershed spawners, unseen mortalities or fish remaining in bay. These data used in the analysis of CWT recoveries.

[d]Includes Boulder Bay remote release.

[e]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 - 1992.

Brood Year	Return Year	Fry Release[a]	CWT Applied to Fry Release[b]	Brood Stock[a]	Total Cost Recovery Harvest[c]	Hatchery Contribution to CR Harvest[b]	Hatchery Contribution to Other Harvest[d]	Hatchery Contribution to the CPF[a]	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	112,527,515	227,133	389,610	1,237,332	1,237,332	0	5,986,219 [e]	7,613,161	6.77%
1986	1988	116,117,645	0	281,660	646,833	646,833	0	5,148,000	6,076,493	5.23%
1987	1989	110,042,019	215,909	124,045	3,715,739	2,474,884	0	29,698	2,628,627	2.39%
1988	1990	160,496,574	342,531	123,021	2,669,519	1,297,941	0	5,388,128	6,809,090	4.24%
1989	1991	113,847,301	213,123	244,589	1,089,168	650,686	339,236	3,883,058	4,778,333	4.20%
1990	1992	115,678,918	211,319	151,923	822,411	637,090	0	1,602,127	2,391,140	2.07%
1991	1993	112,824,481	202,421							

[a] Data for BY 1985 and 1987 - 1991 provided by the ADF&G CWT project. PWSAC provided data for all other years.

[b] Data for all years provided by the ADF&G CWT project.

[c] Data for all years from ADF&G fishticket information.

[d] Includes donated and discarded fish. Data provided by the ADF&G CWT project.

[e] 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 - 1992.

Brood Year	Return Year	Fry Release[a]	CWT Applied to Fry Release[b]	Brood Stock[a]	Total Cost Recovery Harvest[c]	Hatchery Contribution to CR Harvest[b]	Hatchery Contribution to Other Harvest[d]	Hatchery Contribution to the CPF[a]	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	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	31,117,978	234,335	308,940	41,002	41,002	0	1,781,784 [e]	2,131,726	6.85%
1986	1988	42,600,000	0	127,688	0	0	0	100,000	227,688	0.53%
1987	1989	95,575,654	179,199	127,764	631,284	500,726	0	4,912,175	5,540,665	5.80%
1988	1990	58,972,036	132,740	190,255	552,498	489,983	0	1,854,059	2,534,297	4.30%
1989	1991	143,671,570	267,144	348,539	765,430	686,043	755,077	6,711,637	8,501,296	5.92%
1990	1992	141,534,133	264,417	168,864	363,667	306,132	0	1,041,373	1,516,369	1.07%
1991	1993	131,989,469	233,521							

[a] Data for BY 1985 and 1987 - 1991 provided by the ADF&G CWT project. PWSAC provided data for all other years.

[b] Data for all years provided by the ADF&G CWT project.

[c] Data for all years from ADF&G fishticket information.

[d] Includes donated and discarded fish. Data provided by the ADF&G CWT project.

[e] Contribution estimate from Geiger, 1990.

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 - 1992.

Brood Year	Return Year	Fry Release[a]	CWT Applied to Fry Release[b]	Brood Stock[a]	Total Cost Recovery Harvest[c]	Hatchery Contribution to CR Harvest[b]	Hatchery Contribution to Other Harvest[d]	Hatchery Contribution to the CPF[a]	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	34,533,053	234,428	276,947	305,946	305,946	0	2,429,062 [e]	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	195,619,561	299,335	390,227	2,786,348	2,121,349	0	3,207,218	5,718,794	2.92%
1988	1990	159,724,477	329,457	282,022	3,364,172	2,991,569	0	10,280,000	13,553,591	8.49%
1989	1991	235,389,038	495,408	456,061	880,513	964,618	2,479,492	7,790,063	11,690,234	4.97%
1990	1992	214,953,258	415,580	230,590	518,652	442,702	0	1,322,054	1,995,346	0.93%
1991	1993	163,799,237	299,241							

[a] Data for BY 1985 and 1987 - 1991 provided by the ADF&G CWT project. PWSAC provided data for all other years.

[b] Data for all years provided by the ADF&G CWT project.

[c] Data for all years from ADF&G fishticket information.

[d] Includes donated and discarded fish. Data provided by the ADF&G CWT project.

[e] Contribution estimate from Geiger, 1990.

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 - 1992.

Brood Year	Return Year	Fry Release[a]	CWT Applied to Fry Release[b]	Brood Stock[a]	Total Cost Recovery Harvest[c]	Hatchery Contribution to CR Harvest[b]	Hatchery Contribution to Other Harvest[d]	Hatchery Contribution to the CPF[a]	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[e]	5,290,321	9.68%
1986	1988	59,830,980	188,395	192,164	542,040	542,040	0	300,000[e]	1,034,204	1.73%
1987	1989	130,830,267	283,261	214,891	679,002	670,952	0	2,412,008	3,297,851	2.52%
1988	1990	128,518,252	335,815	154,612	2,146,469	1,911,667	0	6,857,288	8,923,567	6.94%
1989	1991	122,255,027	227,577	275,066	3,220,450	2,900,513	0	2,515,597	5,691,176	4.66%
1990	1992	131,296,671	253,832	238,503	1,344,664	1,240,324	0	380,251	1,859,078	1.42%
1991	1993	86,900,725	160,733							

[a] Data for BY 1985 and 1987 - 1991 provided by the ADF&G CWT project. VFDA provided data for all other years.

[b] Data for all years provided by the ADF&G CWT project.

[c] Data for all years from ADF&G fishticket information.

[d] Includes donated and discarded fish. Data provided by the ADF&G CWT project.

[e] Contribution estimate from Geiger, 1990.

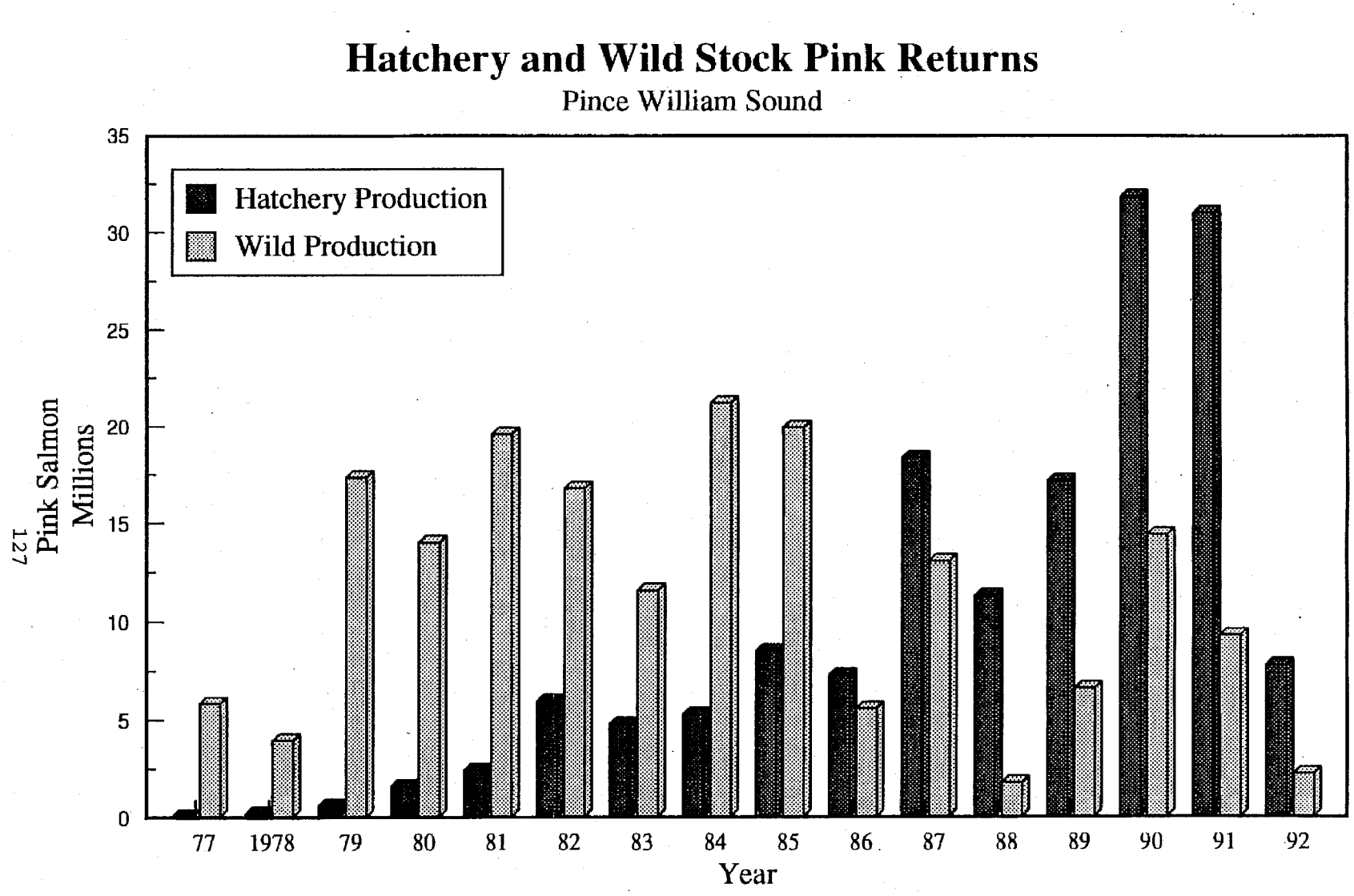
Appendix F.12. Estimated total hatchery and wild stock production of pink salmon, Prince William Sound, 1977 to 1992.[a]

Year	Total Return by Hatchery[b]					Total Hatchery Production	Total Wild Stock Component[c]
	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	-	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

[a]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).

[b]Hatchery totals include cost recovery harvests, brood stock collection and escapement, and estimated common property fishery interception.

[c]Total wild stock return represents the estimated wild stock catch plus the aerial escapement index. 1992 wild stock component = 1,667,678 catch plus 555,104 escapement index.



Appendix F.13. Estimated total pink salmon returns to hatcheries and wild stock systems, Prince William Sound, 1977 - 1992

APPENDIX G

SUBSISTENCE AND PERSONAL USE FISHERIES

Appendix G.1. Subsistence salmon harvest by species and gear type, Prince William Sound, 1992.

Area	Permits Issued	Permits Fished	Gear [a] Type	Chinook	Sockeye	Coho	Pink	Chum	Other [b]	Total
	9	2	D.G.N.	0	18	0			0	18
Prince William Sound	0	0	P.S.	0	0	0			0	0
	1	1	S.N.	0	2	0			0	2
P.W.S. TOTAL	10	3		0	20	0			0	20
Copper River Flats	126	80	D.G.N.	142	785	42			30	999
Upper Copper River	151	151	D.N.	105	3,959	11			0	4,075
	504	504	F.W.	1,215	37,240	319			42	38,774
Tatitlek	15	5	MX.	2	441	369	30	49	0	891
Southwestern	14	8	MX.	1	526	23	313	99	0	962
Total	820	751		1,465	42,971	764	343	148	72	45,721

[a]D.G.N. = Drift gill net; P.S. = Purse seine; S.N. = Set net; MX. = Combination of gear (drift gill net and dip net); D.N. = Dip Net; F.W. = Fish Wheel

[b]Includes cutthroat and Dolly Varden as well as misc. salmon species.

Appendix G.2. Salmon catch and effort in the Prince William Sound subsistence fishery, 1960 – 1992.

	Permits		Catch						
Year	Issued	Returned	Chinook	Sockeye	Coho	Pink	Chum	Unknown	Total
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

a Includes only catches from Prince William Sound proper.

Appendix G.3. Salmon catch and effort in the Copper River District subsistence gillnet fishery, 1965–1992

Year	Total Issued	Permits Issued				Catch			
		Unused	Unsuccessful	Successful	Total	Chinook	Sockeye	Coho	Total
1965	31	5	2	13	20	12	459	85	556
1966	45	10	2	19	31	47	175		222
1967	61	19	9	28	56	83	153		236
1968	17	8	1	6	15	11	36		47
1969	49	13	7	13	33	16	63	85	164
1970	32	3	1	23	27	66	179		245
1971	29	9	12	5	26	10	32	4	46
1972	104	5		75	80	149	569	53	771
1973	94			89	89	153	326	180	659
1974	9	2	2	1	5	5	4	2	11
1975	2			2	2	0	5	0	5
1976	27			14	14	1	10	0	11
1977	23			22	22	10	71	0	81
1978	34	19		9	28	37	18	12	67
1979	49	20	4	17	41	45	26	17	88
1980	39	17	6	12	35	19	27	17	63
1981	72	21	4	26	51	48	145	104	297
1982	108	42	3	45	90	60	634	106	802 [a]
1983	87	42	4	27	73	79	107	57	254 [a]
1984	118	47	14	43	104	68	324	135	549 [a]
1985	94	27	9	58	94	88	261	83	433 [a]
1986	88	28	9	48	85	86	348	47	481 [a]
1987	95	50	5	34	89	49	359	14	510 [a]
1988	114	40	17	40	97	59	226	42	440 [a]
1989	75	32	2	30	64	56	339	51	454 [a]
1990	88	38	0	38	76	60	469	82	611 [a]
1991	129	43	11	61	115	136	830	38	1,009 [a]
1992	126	46	7	60	113	142	785	42	999 [a]

a Total also includes pink salmon, chum salmon, whitefish, dolly varden and cutthroat.

Appendix G.4. Salmon catch and effort in the Tatitlek and Southwestern subsistence fishery, Prince William Sound, 1988 – 1992.

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

Appendix G.5. Salmon catch by species and numbers of permits by gear type for the Upper Copper River subsistence and personal use fisheries, 1965 – 1992.

	Permits Issued			Reported Catch			Reported Catch by Species			Total Catch	
Year	Dip Net	Fish Wheel	Total	Dip Net	Fish Wheel	Total	Chinook	Sockeye	Coho	Reported	Estimated
1965	982	143	1,125	7,215	5,813	13,028	664	12,760	52	13,476	16,818
1966	1,132	138	1,270	7,452	9,188	16,640	555	16,718	.	17,273	21,896
1967	1,166	154	1,320	6,146	8,360	14,506	419	14,457		14,876	19,007
1968	1,235	143	1,378	8,040	6,071	14,111	644	14,819	233	15,696	20,383
1969	1,415	167	1,582	18,054	6,220	24,274	719	27,604	224	28,547	29,266
1970	3,220	267	3,487	22,700	9,886	32,586	427	36,500	554	37,481	42,757
1971 [a]	4,168	374	4,542	28,115	9,370	37,485	1,363	37,517	363	39,243	48,449
1972 [b]	3,485	205	3,690	18,996	7,854	26,850	1,501	26,850	248	28,599	32,468
1973 [c]	3,840	305	4,145	16,407	10,943	27,350	1,846	27,350	51	29,247	29,248
1974 [d]	3,305	288	3,593	15,143	7,657	22,800	1,141	22,800	163	24,104	26,001
1975	2,452	350	2,802	7,694	5,626	13,320	1,705	13,320		15,025	15,357
1976	2,512	451	2,963	12,130	8,321	20,451	2,017	20,451	17	22,485	23,623
1977	3,526	540	4,066	22,612	12,751	35,363	2,171	35,363	454	37,988	41,815
1978	3,313	392	3,705	12,569	6,638	19,207	2,050	19,207	633	21,890	22,029
1979	2,730	470	3,200	11,887	10,251	22,138	2,372	22,138	705	25,215	30,963
1980	2,804	399	3,203	14,650	9,805	24,455	2,256	21,437	639	24,332	35,081
1981	3,555	523	4,078	28,872	26,924	55,796	1,913	53,008	849	55,770	68,746
1982 [e]	5,475	615	6,090	62,614	38,120	100,734	2,532	96,799	1,246	100,577	110,006
1983	6,911	630	7,541	72,257	35,791	108,228	5,421	100,995	1,690	108,106	118,728
1984 s	104	458	562	1,288	20,374	21,662	415	20,999	237	21,651	23,093
p	5,311	17	5,328	46,018	223	46,241	1,592	44,079	552	46,223	49,940
s&p	5,415	475	5,890	47,306	20,597	67,903	2,007	65,078	789	67,874	73,033
1985	4,153	533	5,686	29,856	22,877	52,733	1,673	50,488	544	52,705	64,200
1986 s[f]	39	366	405	645	25,136	25,781	622	24,890	264	25,776	28,423
p	3,966	65	4,031	41,641	1,054	42,695	2,294	39,794	521	42,609	44,047
s&p	4,005	431	4,436	42,286	26,190	68,476	2,916	64,684	785	68,385	72,470
1987 s(f)	59	372	431	1,148	21,821	22,969	541	22,286	100	22,969	35,035
p	4,186	73	4,259	42,301	470	42,771	2,739	39,614	398	42,771	46,115
s&p	4,245	445	4,690	43,449	22,291	65,740	3,280	61,900	498	65,740	81,150
1988 s	70	339	409	1,860	18,955	20,815	672	19,761	245	20,678	30,514
p	4,205	46	4,251	40,492	1,238	41,730	2,723	38,533	450	41,730	45,921
s&p	4,275	385	4,660	42,352	20,193	62,545	3,395	58,294	695	62,545	76,435
1989 s	78	309	386	2,235	25,377	27,612	744	26,716	65	27,525	29,317
p	4,447	137	4,584	53,321	3,223	56,544	2,160	53,505	825	56,490	58,914
s&p	4,525	446	4,970	55,556	28,600	84,156	2,904	80,221	890	84,015	88,231
1990 s	95	311	406	2,703	27,942	30,645	604	29,947	87	30,638	32,290
p	5,631	46	5,677	67,241	747	67,988	2,594	63,793	1,446	67,833	70,478
s&p	5,726	357	6,083	69,944	28,689	98,633	3,198	93,740	1,533	98,471	102,768
1991 s	293	418	711	5,347	30,255	35,602	1,206	34,139	215	35,560	43,621
p	6,222	0	6,222	81,189	0	81,189	3,902	73,929	3,297	81,128	85,763
s&p	6,515	418	6,933	86,536	30,255	116,791	5,108	108,068	3,512	116,688	129,384
1992 s	151	504	655	4,075	38,774	42,849	1,320	41,199	330	42,849	49,276
p	6,387	0	6,387	89,244	0	89,244	3,316	84,450	1,478	89,244	92,457
s&p	6,538	504	7,042	93,319	38,774	132,093	4,636	125,649	1,808	132,093	141,733

a Last use of Dip Net/Fishwheel combination permits.

b First issue of permits at Chitina

c Last "Blacklist" used

d Issue of permits at Chitina and Glennallen only.

e Return requirement enforced.

f Subsistence dip net catch estimated.

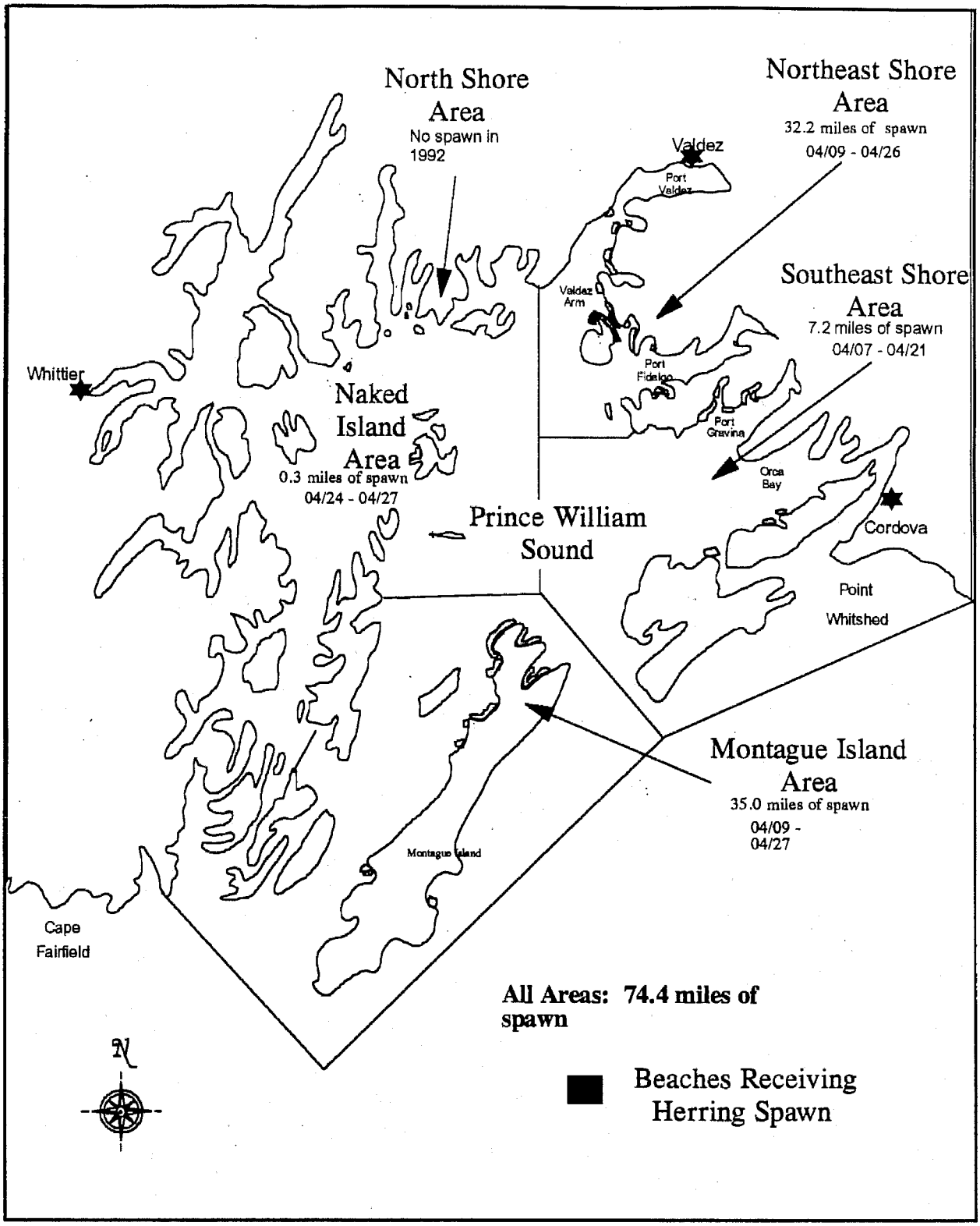
s = subsstence

p = personal use

s&p = total catch

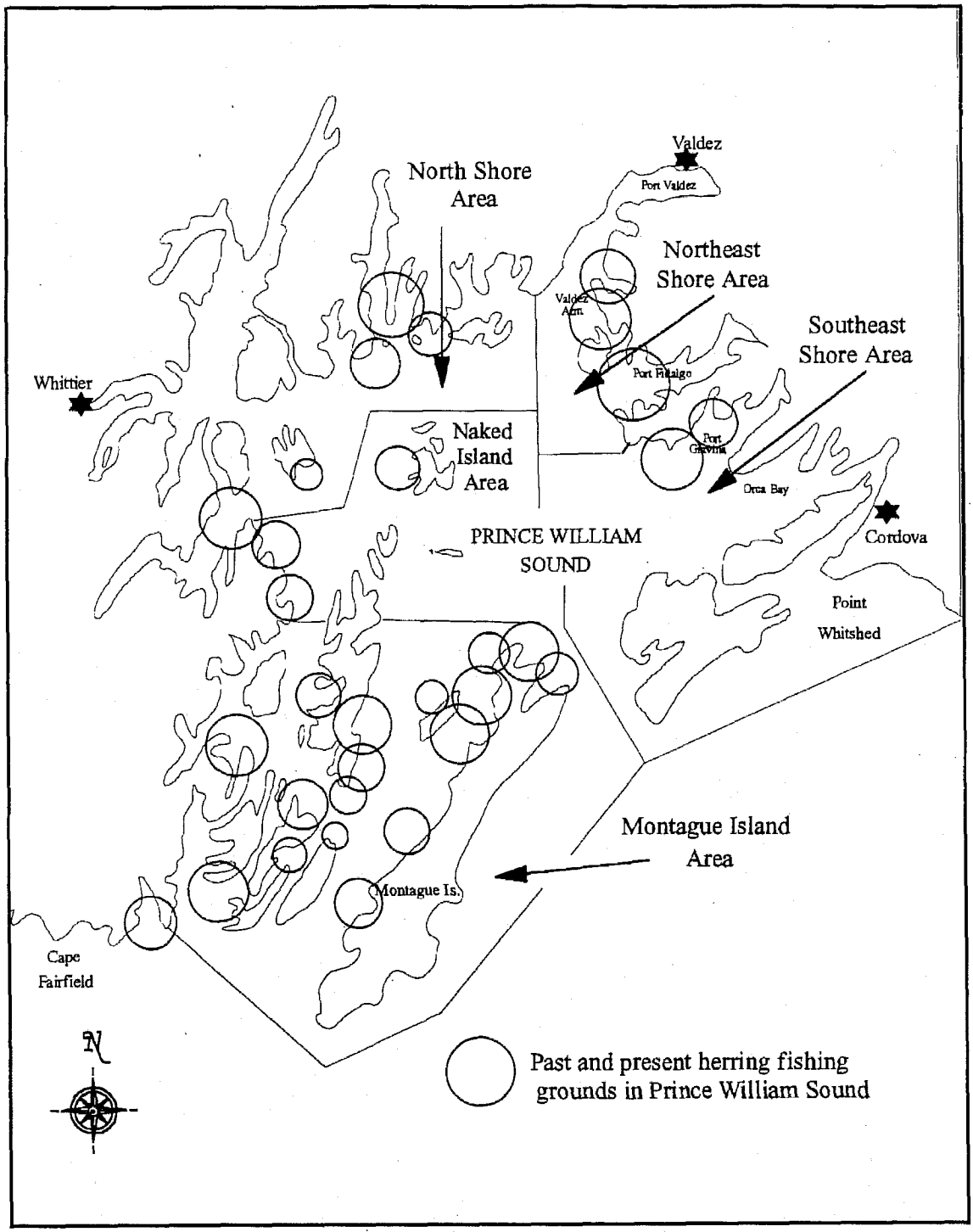
APPENDIX H

HERRING FISHERIES



Appendix H.1. Miles and dates of Pacific herring spawn in Prince William Sound in 1992, delineated by aerial surveys in four major areas used in spawn deposition biomass estimation.

Prince William Sound Historical Herring Fishing Grounds



Appendix H.2. Historic herring fishing grounds in Prince William Sound from 1914 to the present time.

Appendix H.3. Commercial Pacific herring harvest summary with fishing locations and effort by gear type, Prince William Sound, 1992.

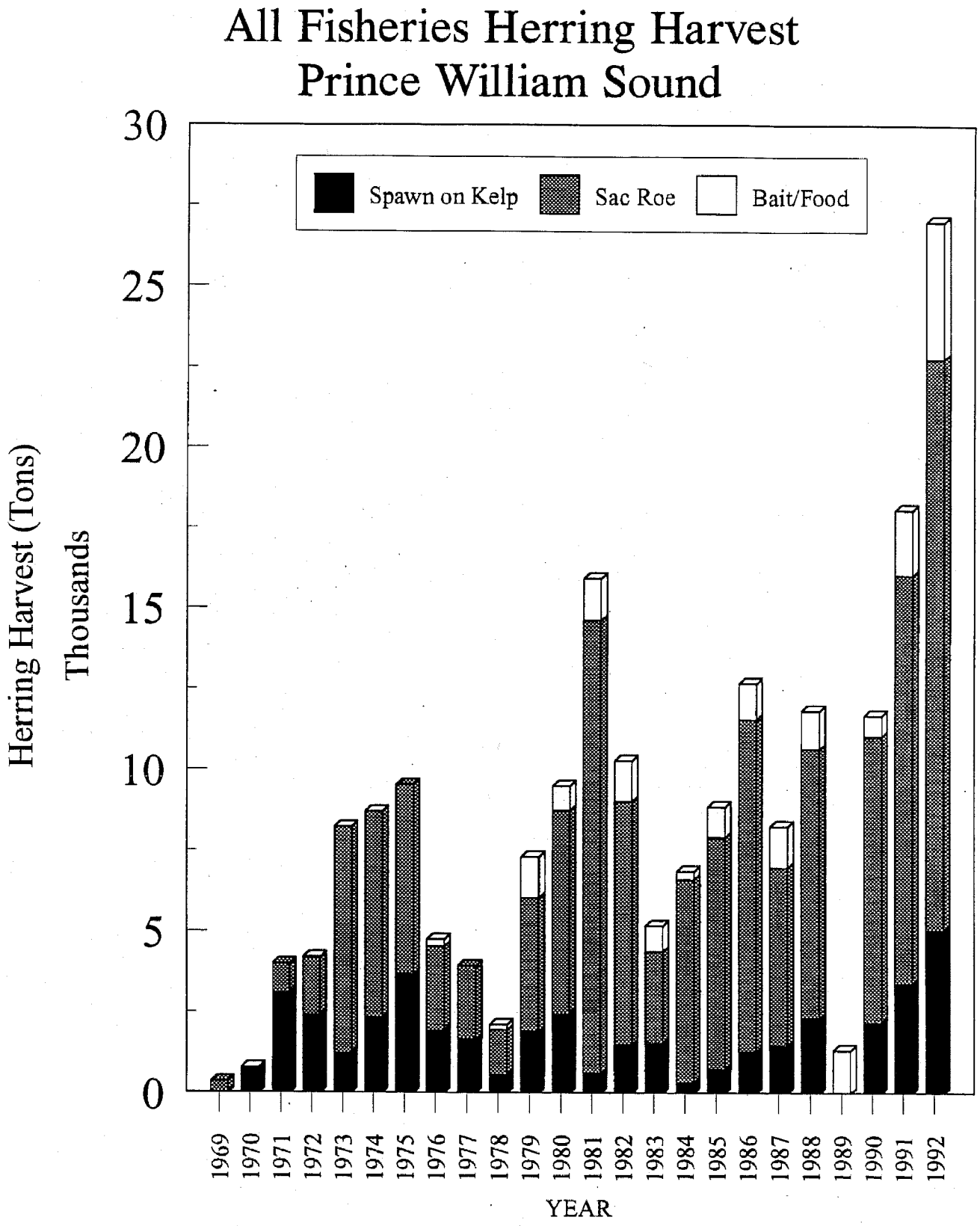
Fishery		Fishing Information				Harvest (tons)	
		Area	Date	Duration	Effort	Spawn on Kelp	Pacific Herring
Sac Roe and Spawn-on-Kelp Fisheries	Sac Roe Purse Seine	Northeast	13 April	20 min	89 permits		6,279.2
		Northeast Test Fish - Department					192.5
		Naked I.	17 April	60 min	46 permits		1,338.6
		Montague I.	21 April	40 min	97 permits		8,973.9
		Total		2.0 h	104 permits		16,784.2
	Sac Roe Gill Net	Montague I.	23 April	6.5 h	24 permits		550.4
		Montague I.	24 April	4.5 h	23 permits		390.2
		Total		11.0 h	24 permits		940.6
	Wild Spawn-on-Kelp[a]	Northeast	24 April	8.0 h	92 permits	34.3	274.8 [b]
		Northeast	25 April	12.0 h	105 permits	49.3	394.4 [b]
		Northeast	26 April	12.0 h	47 permits	24.9	198.9 [b]
		Northeast	27-28 April	41.0 h	6 permits	2.8	22.5 [b]
		Montague I.	28 April	13.0 h	40 permits	39.4	315.5 [b]
		Montague I.	29 April	16.0 h	77 permits	49.8	398.6 [b]
		Montague I.	30 April	12.0 h	46 permits	51.7	413.9 [b]
		Total		114.0 h	217 permits	252.3	2,018.7 [b]
	Pound Spawn-on-Kelp[c]	Northeast	07-17 April		127 permits	242.2	3,027.7 [d]
		Total				242.2	3,027.7 [d]
	1992 Harvest and Equivalent Use - Total					494.5	22,771.1
Bait and Food Fishery		Montague I.	1 Oct - 22 Oct		17 permits		3,900.3
		Total			17 permits		3,900.3
Harvest and Equivalent Use - Total						494.5	26,671.4

[a] The harvest of naturally occurring herring spawn on native kelp species in Prince William Sound.

[b] The equivalent harvest of herring due to the removal of reproductive capacity from the population based on the assumption that the average herring spawn recovery is 10%, and 80% of the spawn on kelp harvest weight consists of eggs.

[c] The harvest of herring spawn-on-kelp produced in net pens or pounds.

[d] The equivalent harvest of herring due to stress mortality and the 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.



Appendix H.4. Commercial herring harvest by fishery, Prince William Sound, 1969-1992.

Appendix II.5. Pacific herring sac roe seine and gillnet fishery effort, anticipated and actual harvest, Prince William Sound, 1969 – 1992.

	Seine Fishery							Gillnet Fishery							Total
Year	Opening Dates	Hours	Effort (Boats)	Guideline Harvest[a]	Harvest (tons)	CPUE (tons/Boat Hr)	Estimated Roe %	Opening Dates	Hours	Effort (Boats)	Guideline Harvest[a]	Harvest (tons)	CPUE (tons/Boat Hr)	Estimated Roe %	Harvest (tons)
1969	3/01 – 6/30		5		325.4										355.7
1970	3/01 – 6/30[c]														
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	76		5,853.8	5.50			14						5,853.8
1976	5/08 & 6/01	13	66		2,584.2	3.01			13						2,584.2
1977	4/09 – 4/10	38	58		2,265.6	1.03		4/09 – 04/1	38	1		1.6	0.04		2,267.1
1978	4/17 – 4/21[b]	106	75	5,000	1,329.5	0.17		4/17 – 04/2	106	38		61.7	0.02		1,391.2
1979	4/07 – 4/19	215.5	89	5,000	4,138.0	0.22		CLOSED[c]							4,138.0
1980	4/01 – 4/09	162	76	5,000	6,042.2	0.49		4/17 – 5/05		16		264.4			6,306.7
1981	4/01 – 4/09	60	106	5,000	13,768.2	2.16		4/16 – 4/18	53	18		234.5	0.25		14,002.8
1982	4/23	2	95	5,000	7,148.3	37.62	10–14%	4/24 – 4/26	54	18		393.9	0.41	12–15%	7,542.2
1983	4/13	1	103[d]	5,000	2,728.5	26.49	11.0%	4/21 – 4/22	24	22		105.4	0.20	11.0%	2,833.9
1984	4/14	3	105[e]	5,000	5,946.1	18.88	10–11%	4/18 – 4/22	59	23	250	342.7	0.25	8–14%	6,288.8
1985	4/28 – 4/29	4	103[f]	5,000	6,764.1	16.42	10–12%	4/29 – 5/01	34	21	250	413.3	0.58	10–12%	7,177.4
1986	4/17	3	106	5–7,000	9,828.1	30.91	11.0%	4/24 – 4/28	90	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	24	2–300	533.3	0.93	9.5%	5,515.5
1988	4/21 – 4/22	2	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[g]	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	24	353	505.4	5.26	10.6%	8,867.5
1991	4/09, 4/10, & 4/19	1.3	104	11,232.6	11,923.0[h]	85.32	10.5%	04/18	10.5	24	657.3	742.0	2.94	11.06%	12,665.1
1992	4/13, 4/17, & 4/21	2.0	104	14,100.0	16,784.2[i]	80.25	10.0%	4/23 – 4/24	11	24	825	940.6	3.56	10.8%	17,724.8

[a] Guideline harvest based on pre–season harvest projections beginning in 1986.

[b] An additional opening on 6/14 for 6 hours resulted in no harvest.

[c] Gillnet fishery closed by Board of Fisheries action.

[d] Out of 103 boats participating, 72 actually made deliveries.

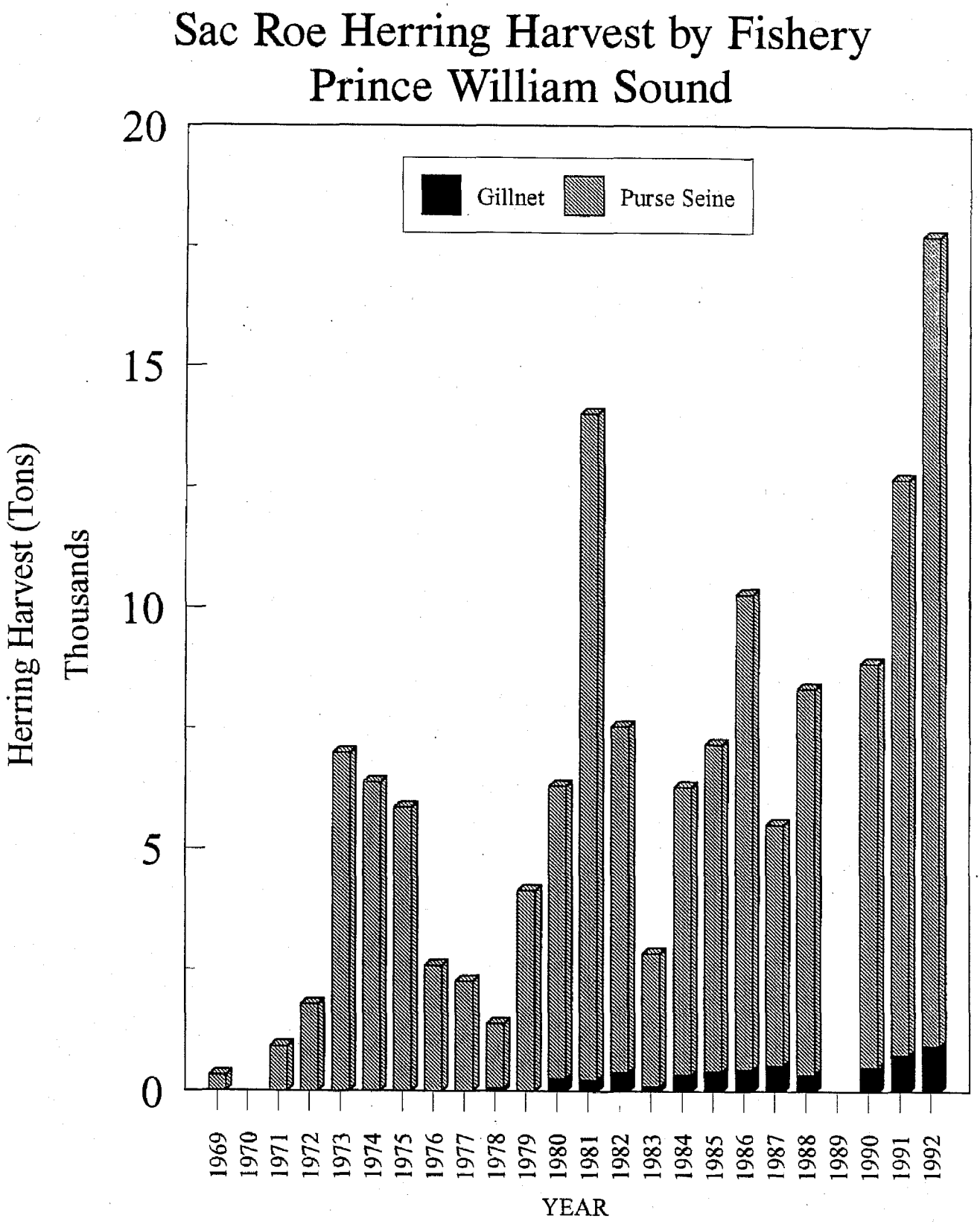
[e] Out of 105 boats participating, 101 actually made deliveries.

[f] Out of 103 boats participating, 62 made deliveries at Montague Island and 90 made deliveries in the north–shore area.

[g] 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.

[h] Total for 1991 includes a 92.2 ton test fishing set made by ADF&G for aerial survey calibration.

[i] Total for 1992 includes a 192.5 ton test fishing catch made by ADF&G for aerial survey calibration.



Appendix H.6. Commercial herring sac roe purse seine and gillnet harvest, Prince William Sound, 1969-1992.

Appendix H.7. Pacific herring eggs on kelp harvests from natural spawning, Prince William Sound, 1969 – 1992.

Year	Fishery Dates	Hours	Effort (Divers)	Guideline Harvest (tons)	Harvest by Kelp Species and Grounds Price ($/lb)								Spawn on Kelp Harvest		Herring Utilized[a] (tons)
					Ribbon		Sieve		Fucus		Other				
					Percent	Price	Percent	Price	Percent	Price	Percent	Price	(lb)	(tons)	
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		Mostly Ribbon – Some Sieve and Hair				$0.60–0.75				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% [b]		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% [b]	$0.60	122,532	61.3	490.1
1982	5/05–5/08	73	152	187	83%	$1.42	11%	$0.95			6% [b]	$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% [c]		298,362	149.2	1,193.4
1984	Season Closed [d]		225 [e]	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			[b]	$0.80	95,205	47.6	380.8
1987	4/15–4/17	44	59	103	90%	$1.70		$0.85			[b]	$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% [b]	$0.75–1.00	194,762	97.4	779.0
1989	Season Closed [f]			110											
1990	4/21–4/22	16	134	104	37%	$0.99	6%	$0.52			57% [b]	$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

[a] 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.

[b] Hair kelp.

[c] Mostly Macrocystis spp. Some hair kelp.

[d] Season remained closed due to lack of suitable spawn.

[e] Permits issued.

[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.

Appendix H.8. Pacific herring eggs on kelp produced in pounds, Prince William Sound, 1979 – 1992.

Year	Fishery Dates[a]	Effort			Guidline Harvest (tons)	Blades Per Permit Holder	Spawn–on–Kelp Harvest[b] (tons)			Herring Utilized (tons)[e]
		Permits Issued[b]	Pounds Built[c]	Producing Pounds[d]			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[f]									
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

[a] Dates that the fishery was opened to seines for the capture and placement of Pacific herring into pounds.

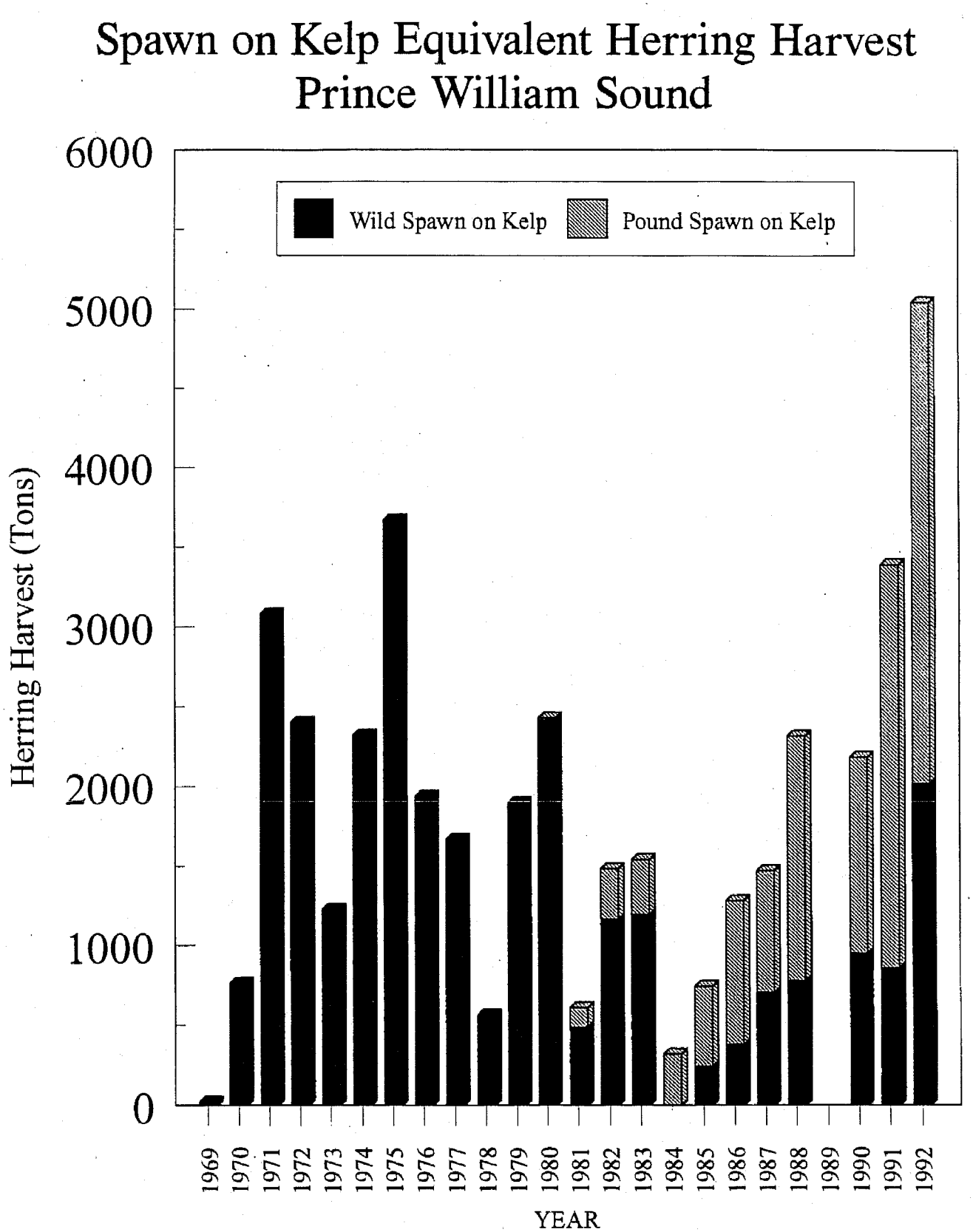
[b] Commssioner's permits issued to applicants on register prior to the March 1 deadline.

[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.



Appendix H.9. Commercial spawn on kelp equivalent herring harvest, Prince William Sound, 1969-1992.

Appendix H.10. Daily commercial Pacific herring bait and food harvest as reported on fish tickets, Prince William Sound, 1992.

Date	Permits	Harvest (tons)	
		Daily	Cumulative
10/03	–	68.1	68.1
10/04	–	0.0	68.1
10/05	–	20.0	88.1
10/06	–	95.0	183.1
10/07	–	87.0	270.1
10/08	–	83.5	353.6
10/09	–	282.4	636.0
10/10	6	171.4	807.4
10/11	4	111.1	918.5
10/12	4	238.3	1,156.8
10/13	4	549.3	1,706.1
10/14	9	248.6	1,954.7
10/15	4	175.1	2,129.8
10/16	–	0.0	2,129.8
10/17	6	302.6	2,432.4
10/18	5	316.8	2,749.2
10/19	–	120.8	2,870.0
10/20	4	214.8	3,084.8
10/21	4	254.9	3,339.7
10/22	5	560.5	3,900.2
Total	17	3,900.2	

Appendix H.11. Commercial Pacific herring food–and–bait fishery effort and harvests, Prince William Sound, 1970–1992.

Harvest Management Year [a]	Fishing Dates Opened	Fishing Dates Closed	Guideline Harvest	Purse Seine Effort (Boats)	Purse Seine Harvest (tons)	Pair Trawl Effort (Boats)	Pair Trawl Harvest (tons)	Mid–Water Trawl Effort (Boats)	Mid–Water Trawl Harvest (tons)	Otter Trawl Effort (Boats)	Otter Trawl Harvest (tons)	Total Harvest (tons)
1970	10/01/69 –	06/30/70 [a]		–	14.0							14.0
1971	10/01/70 –	06/30/71 [a]										0.0
1972	10/01/71 –	06/30/72 [a]		–	20.0							20.0
1973	10/01/72 –	05/09/73 [a]		–	9.0							9.0
1974	08/27/73 –	04/17/74 [a]	[b]	–	8.5							8.5
1975	07/15/74 –	03/10/75	[b]									0.0
1976	06/01/75 –	06/25/75 [c]	[b]	4	226.7							226.7
1977	02/01/77 –	03/09/77	[b]									0.0
1978	10/01/77 –	02/28/78	[b]	–	17.0	–	145.3					162.3
1979	10/16/78 –	? [d]	[b]	–	195.4	7	988.7	–	9.4	–	81.0	1,274.4
1980	09/16/79 –	02/28/80 [e]	1,400	–	510.8	4	145.1	–	103.2	–	2.6	761.7
1981	09/15/80 –	11/07/80	1,400	–	1,030.4	6	275.7					1,306.1
1982	09/15/81 –	09/30/81	1,400	7	1,189.4	–	73.1					1,262.5
1983	09/15/82 –	01/31/83	1,400	6	797.3							797.3
1984	09/15/83 –	01/31/84	1,400	–	257.6							257.6
1985	09/15/84 –	01/31/85	1,400	–	936.2							936.2
1986	09/01/85 –	02/15/86	1,400	6	1,118.1							1,118.1
1987	09/01/86 –	10/24/86	1,400	6	1,276.2							1,276.2
1988	09/02/87 –	11/12/87 [f]	1,400	7	1,189.4							1,189.4
1989	11/01/88 –	11/05/88	1,400	8	1,335.3							1,335.3
1990	11/01/89 –	01/31/90	1,694	–	646.1							646.1
1991	09/21/90 –	11/24/90 [g]	3,151	5	1,955.0			–	60.8			2,015.9
1992	10/01/91 –	10/14/91	3,956	14	4,258.5							4,258.5
1993	10/01/92 –	10/22/92	3,416[h]	17	3,900.3							3,900.3

[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 occured 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.

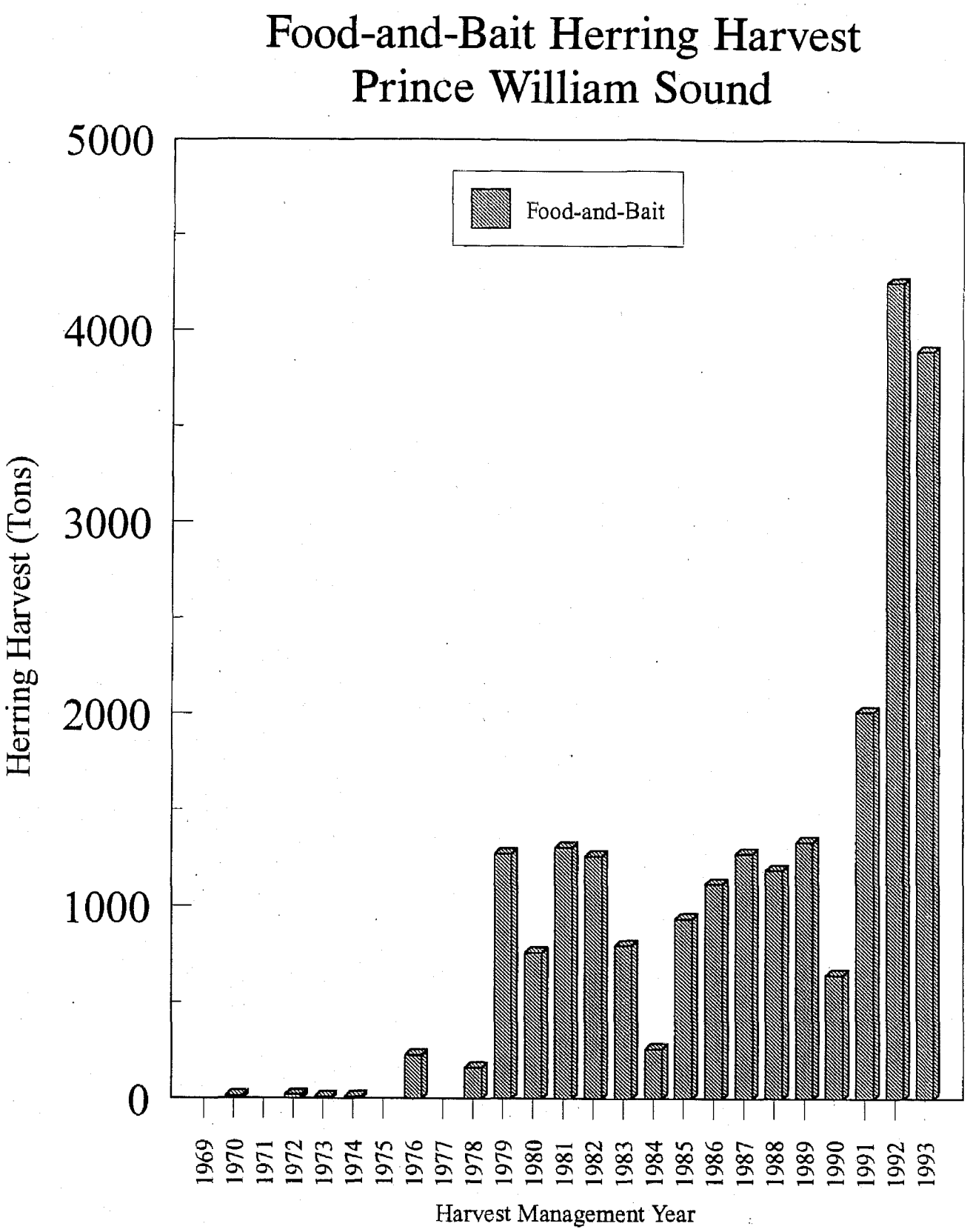
[d] Fishery closed from 1 January to 6 January 1979.

[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 quideline harvest based on age–structured analysis was issued in January 1993 and was 4,373 tons.



Appendix H.12. Commercial food-and-bait herring harvest, Prince William Sound, 1969-1992.

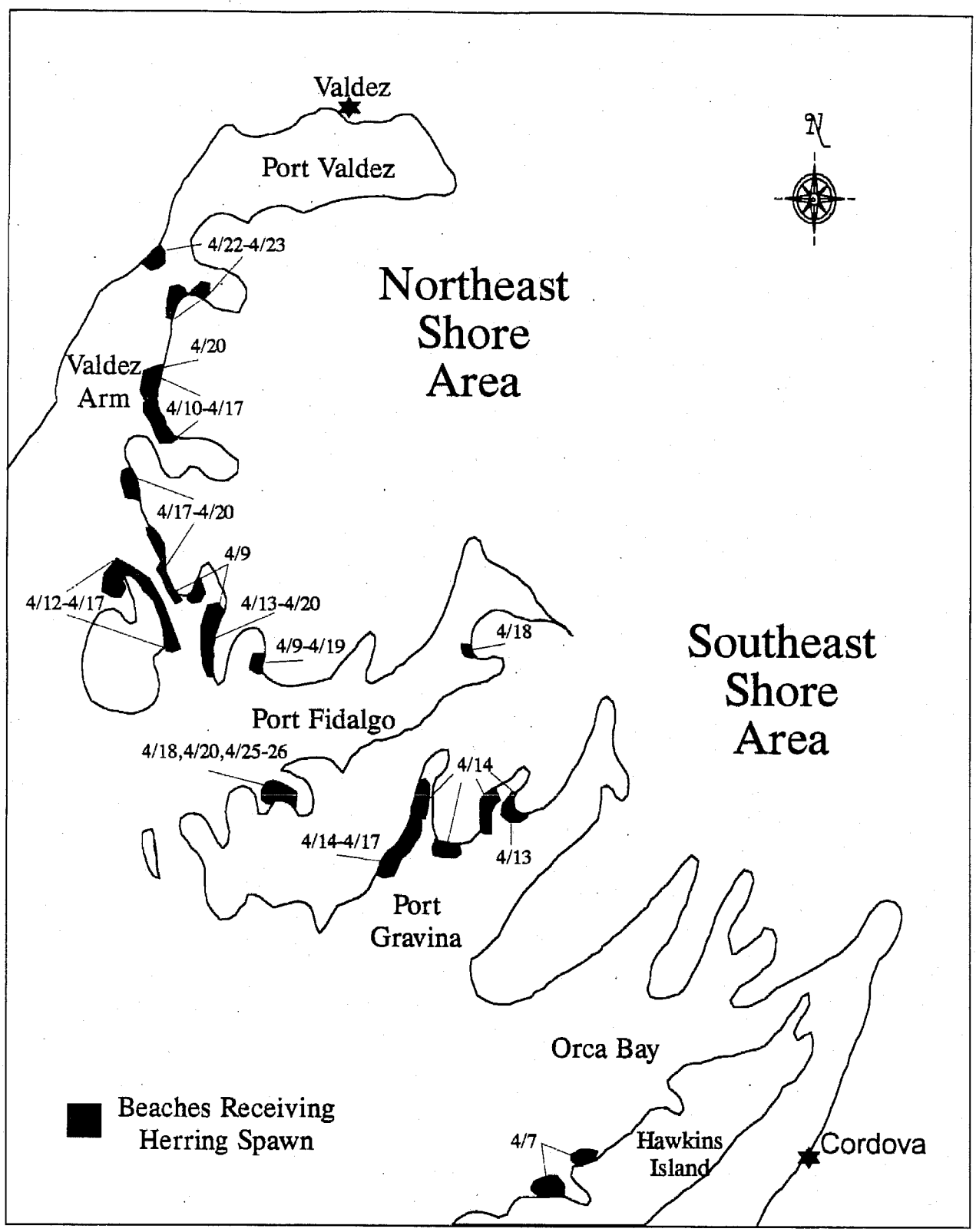
Appendix H.13. Peak aerial survey herring biomass, spawn deposition biomass esitmates, and miles of spawn by area, Prince William Sound, 1992.

Survey Area	Peak Aerial Survey Date	Spawning Biomass Estimates: Peak Aerial Survey (tons)	Spawning Biomass Estimates: Spawn Deposition (tons)	Mile–days of Spawning[a]	Miles of Spawning[b]	Biomass of Herring per Mile (tons): Aerial Survey Estimate	Biomass of Herring per Mile (tons): Spawn Deposition Estimate	Biomass Ratio[c]
Southeast–shore area								
Simpson and Sheep Bays		0.0						
Hinchinbrook Island	4/10	400.0						
Port Gravina	4/13	980.0						
Area Total		1,380.0	12,475.8	6.8	7.2	191.7	1,732.8	9.04
Northeast–shore area								
Port Fidalgo	4/13	4,100.0						
Tatitlek Narrows	4/13	5,500.0						
Valdez Arm and Port Valdez	4/07 & 4/13	3,700.0						
Area Total		13,300.0	49,594.6	39.1	32.2	413.0	1,540.2	3.73
North–shore area								
Pt. Freemantle–Granite Pt.		0.0						
Granite Pt. Esther Pass	4/17	120.0						
Area Total		120.0	0.0	0.0	0.0	0.0	0.0	0.00
Naked Island area								
Naked Island	4/16	3,810.0						
Knight Island		0.0						
Area Total		3,810.0	19.5	2.0	0.3	12,700.0	65.0	0.01
Montague Island area								
Montague Island	4/09 & 4/19	35,225.0						
Green Island		0.0						
Area Total		35,225.0	66,173.1	51.6	35.0	1,006.4	1,890.7	1.88
Total – All Areas		53,835.0	128,263.0	99.5	74.7	720.7	1,717.0	2.38

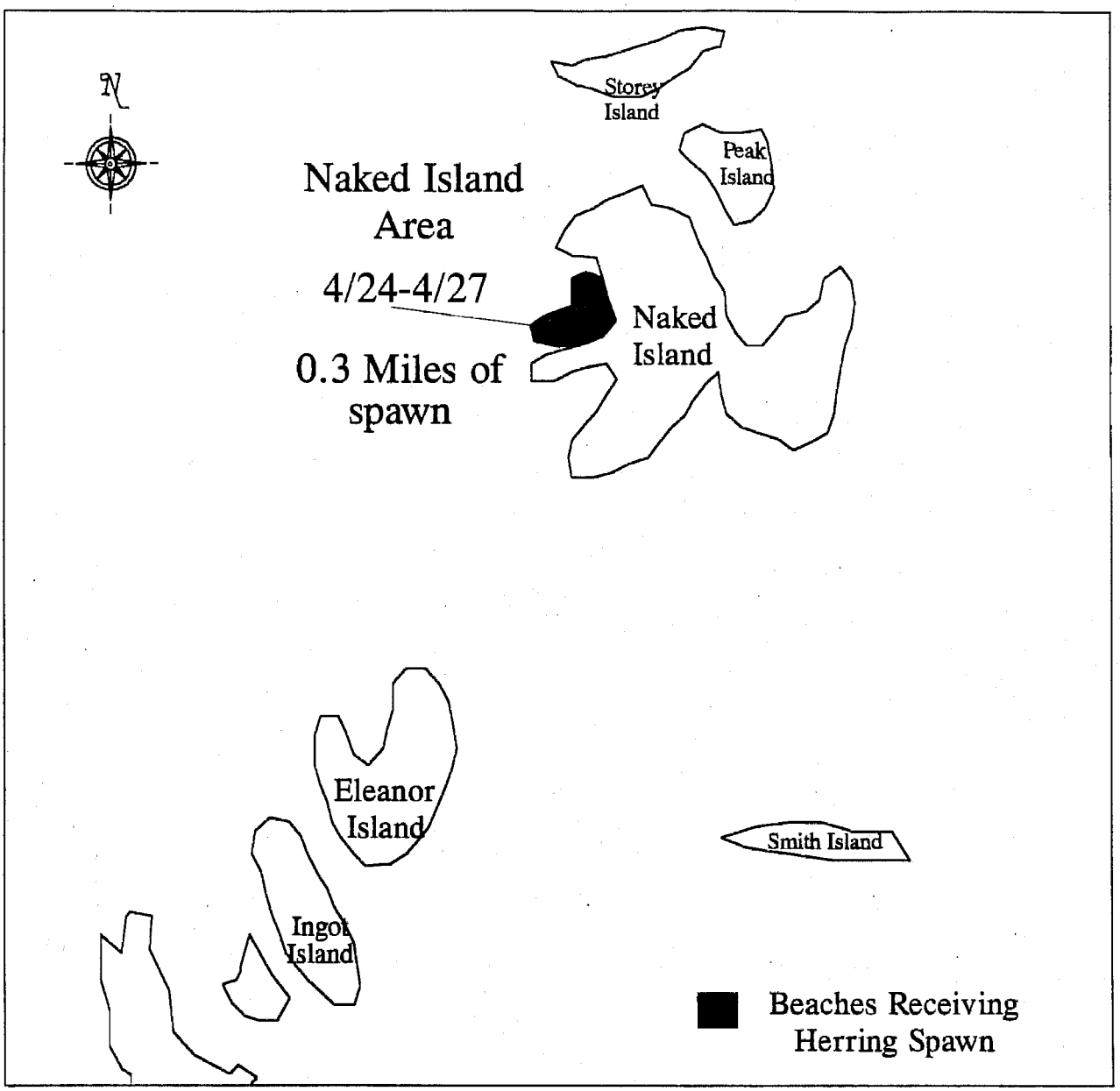
[a] The mile–days of spawning are measured and mapped during aerial surveys.

[b] The miles of spawning are measured during aerial surveys and corroborated during spawn deposition surveys. The miles of spawning will usually be smaller than the mile–days of spawning. However, there are instances when the miles of spawning may exceed the mile–days of spawning. This usually occurs because aerial surveys are not flown every day in all areas of Prince William Sound.

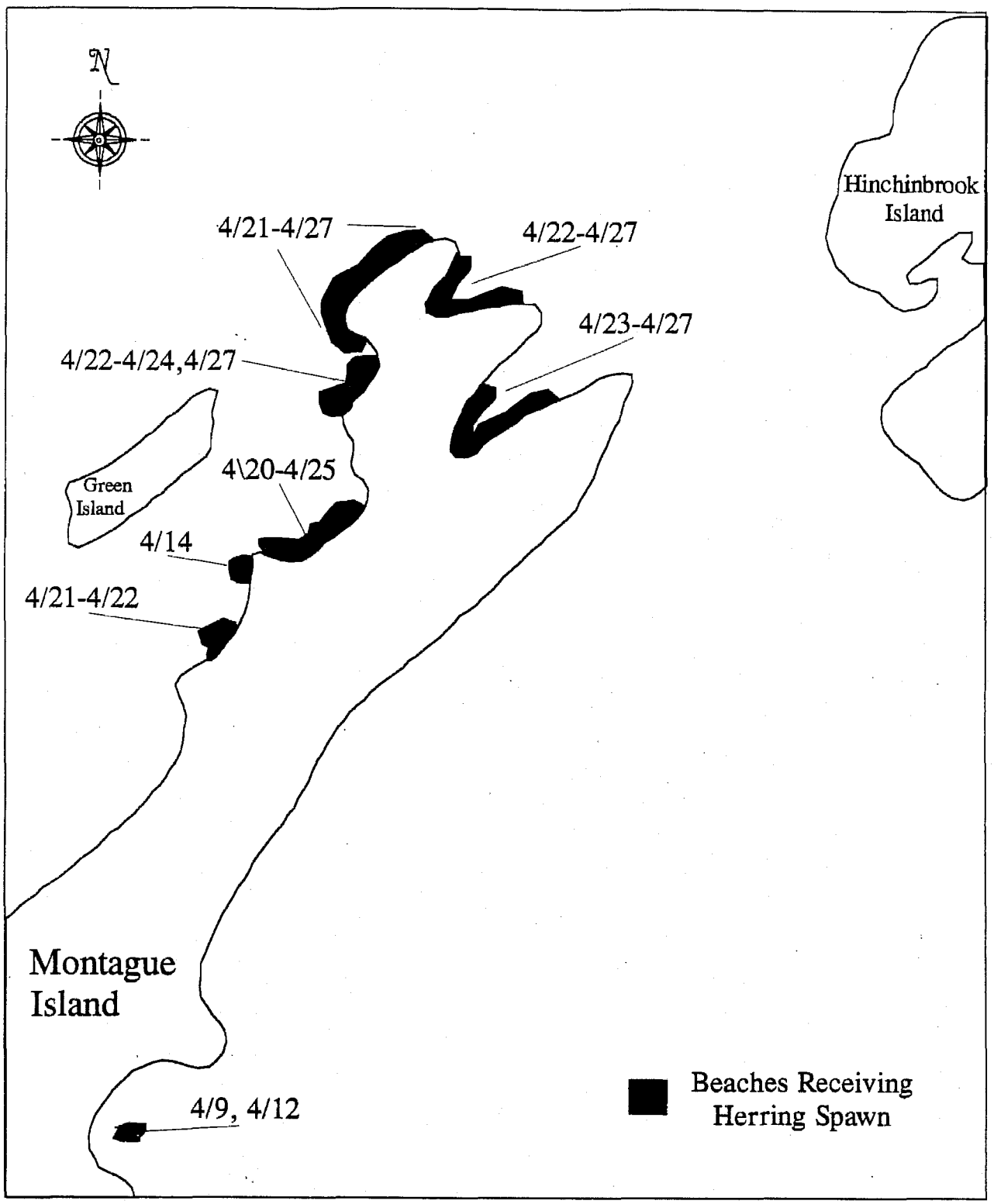
[c] The biomass ratio is the spawn deposition biomass estimate over the peak aerial survey estimate.



Appendix H.14. Herring spawn and spawning dates in the Northeast and Southeast Shore areas of Prince William Sound, 1992.



Appendix H.15. Herring spawn and spawning dates in the Naked Island area, Prince William Sound, 1992.



Appedix H.16. Herring spawn and spawning dates in the Montague Island area, Prince William Sound, 1992.

Appendix H.17. Annual Pacific herring biomass indices, Prince William Sound, 1974 – 1992.

Year	Total Sac Roe Harvest [a] (tons)	Peak Aerial Estimate [b] (tons)	Maximum Possible Observed Biomass [c]	Miles of Spawn [d]	Mile Days of Spawn [e]	Est. Biomass from Spawn Surveys [f] (tons)
1974	6,374.8	41,080	107,290	38.5	75.2	
1975	5,853.8			34.2	42.4	
1976	2,584.2	7,330	25,247	32.8	33.7	
1977	2,267.1	16,830	17,460	39.3	73.5	
1978	1,391.2	13,410	36,540	28.7	36.3	
1979	4,138.0	42,100	107,390	54.5	73.2	
1980	6,306.7	62,110	122,050	50.5	73.9	
1981	14,002.8	77,810	161,690	85.4	140.1	
1982	7,542.2	68,790	97,620	49.0	65.1	
1983	2,833.9	41,850	107,710	67.4	99.8	22,000
1984	6,288.8	58,870	158,760	60.1	86.8	58,089
1985	7,177.4	20,830	60,954	101.2	149.5	
1986	10,276.7	15,180	54,820	72.4	152.3	
1987	5,515.5	26,580	52,192	65.3	155.9	
1988	8,330.3	34,270	67,175	166.3	236.9	53,785
1989	[g]	56,915	186,708	98.4	185.8	49,914
1990	8,867.5	57,900	145,013	94.1	144.4	127,478
1991	12,665.1	42,765	141,375	58.0	64.8	140,964
1992	17,724.8	53,835	130,569	74.7	99.5	128,263

[a] Represents the combined seine and gillnet sac roe harvest in short tons.

[b] Largest single day aerial estimate of Pacific herring biomass in short tons. Peak estimates for different areas (ie. Valdez Arm vs. Montague) may occur on different days.

[c] The sum of all daily aerial biomass estimates for a given year.

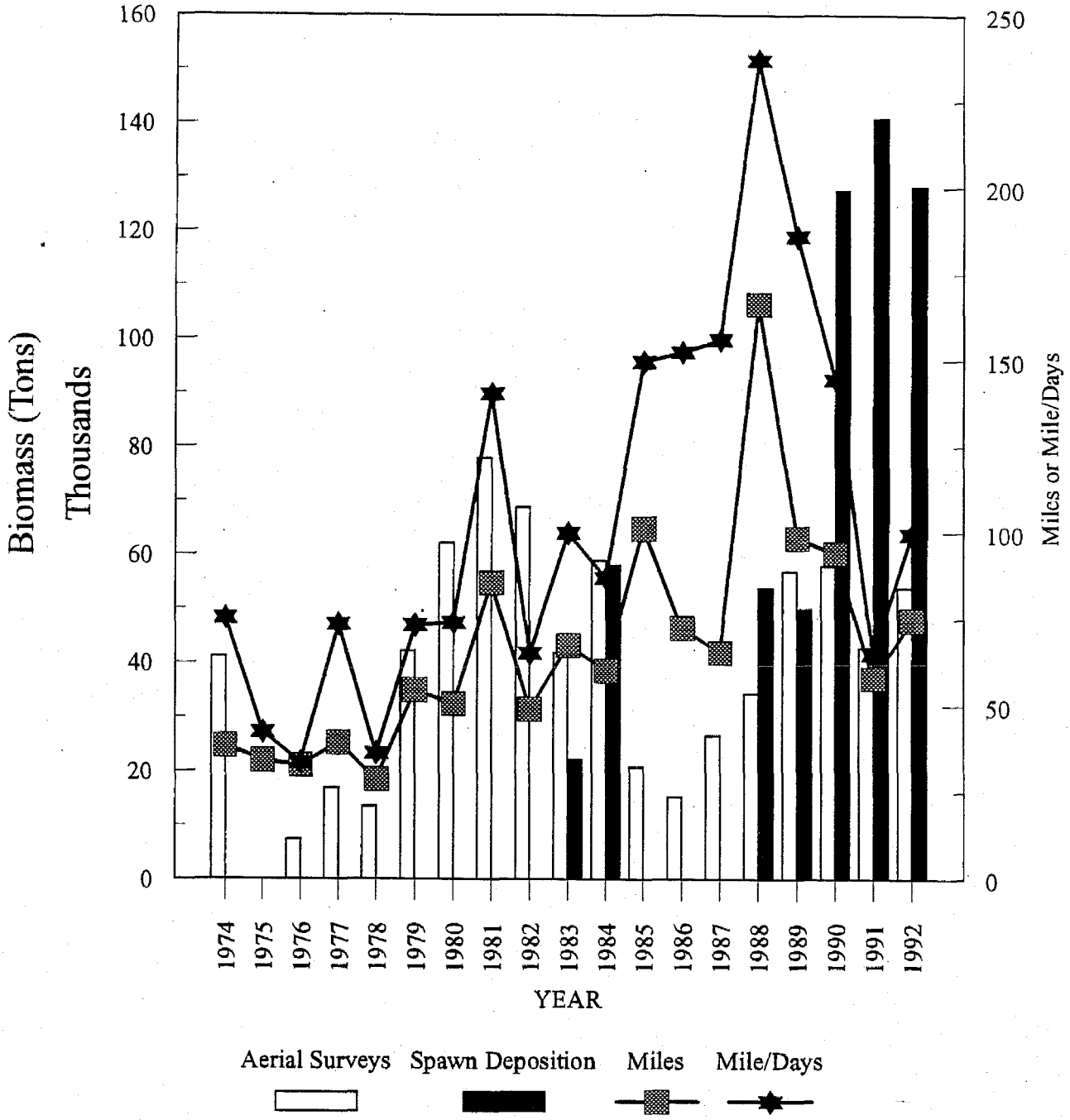
[d] Total linear miles of spawn.

[e] The sum of the daily observed linear miles of Pacific herring spawn.

[f] Estimates are made from underwater surveys of spawn deposition; 1983 is a partial estimate of the spawning biomass, while 1984, and 1988–1991 estimates are of the entire spawning biomass.

[g] 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.

Herring Biomass Indices
Prince William Sound



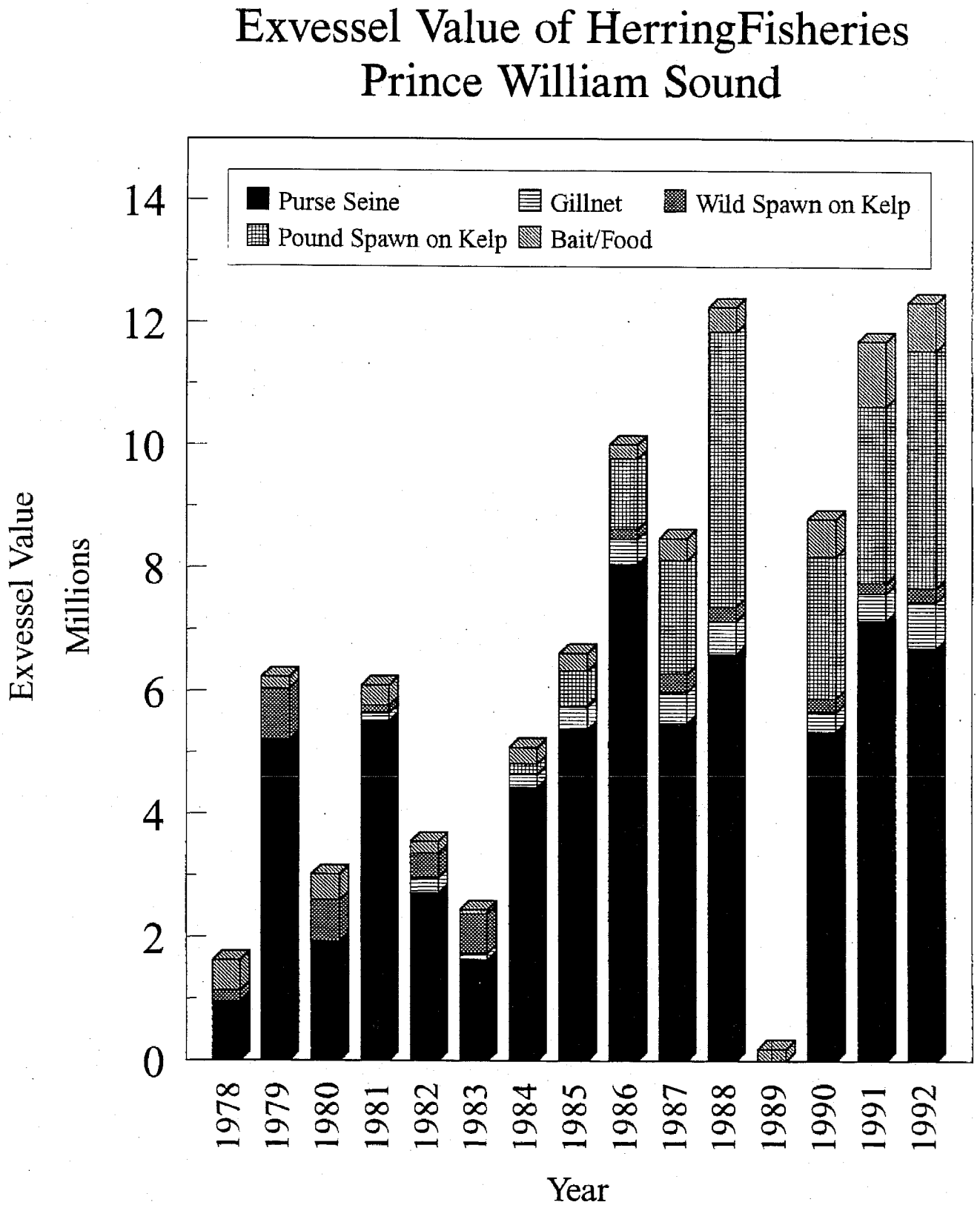
Appendix H.18. Annual herring biomass indices, Prince William Sound, 1974-1992.

Appendix H.19. Mean price and estimated exvessel value of the commercial Pacific herring harvest by gear type, Prince William Sound, 1978 – 1992.[a]

	Sac Roe Fisheries				Spawn on Kelp Fisheries				Food–and–Bait Fishery		
	Purse Seine		Gillnet		Wild Spawn on Kelp		Pounds		Mixed Gear		
Year	Price per ton	Total Value	Price per ton	Total Value	Price per lb	Total Value	Price per lb	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

[a]Value of harvest and price per ton are based on verbal post season estimates from processors and fishermen.

[b]The price per pound for spawn on kelp in pounds is based on the final product weight, not harvest weight.



Appendix H.20. Annual exvessel value of commercial herring fisheries, Prince William Sound, 1978-1992.

Appendix H.21. Age, sex, and size composition of Pacific herring sampled from commercial purse seine sac roe harvest, 1992.

Sample Location and Date	AGE	MALES Number	MALES Percent	MALES LENGTH MEAN	MALES LENGTH STD	MALES WEIGHT MEAN	MALES WEIGHT STD	FEMALES Number	FEMALES Percent	FEMALES LENGTH MEAN	FEMALES LENGTH STD	FEMALES WEIGHT MEAN	FEMALES WEIGHT STD	SEXES COMBINED* Number	SEXES COMBINED* Percent	SEXES COMBINED* LENGTH MEAN	SEXES COMBINED* LENGTH STD	SEXES COMBINED* WEIGHT MEAN	SEXES COMBINED* WEIGHT STD
Northeast Shore: Port Fidalgo West Bay Two Moon Bay Snug Corner 4/13/92	2	2	0.2	154	8	43	1	0	0.0	NA	NA	NA	NA	2	0.2	154	8	43	1
	3	3	0.2	183	13	72	14	3	0.2	184	6	79	5	6	0.5	184	9	76	10
	4	422	33.6	196	9	90	15	315	25.1	198	10	94	15	743	59.1	197	10	92	15
	5	13	1.0	204	10	102	19	6	0.5	198	10	97	20	19	1.5	202	10	100	19
	6	3	0.2	221	13	120	8	6	0.5	207	18	110	26	9	0.7	212	17	113	22
	7	36	2.9	223	9	138	21	25	2.0	225	11	144	29	61	4.9	224	10	140	24
	8	183	14.6	225	10	142	22	196	15.6	229	9	154	22	380	30.2	227	10	148	23
	9	13	1.0	233	9	162	23	8	0.6	244	10	192	18	21	1.7	237	11	173	26
	10	4	0.3	231	6	161	10	9	0.7	240	19	163	45	13	1.0	237	16	162	37
	11	3	0.2	244	5	185	17	0	0.0	NA	NA	NA	NA	3	0.2	244	5	185	17
	12	0	0.0	NA	NA	NA	NA	0	0.0	NA	NA	NA	NA	0	0.0	NA	NA	NA	NA
	13	0	0.0	NA	NA	NA	NA	0	0.0	NA	NA	NA	NA	0	0.0	NA	NA	NA	NA
	Total	682	54.3	207	17	109	31	568	45.2	211	19	120	36	1,257	100.0	209	18	113.8	34
	Unaged	11	50.0	211	22	119	37	11	50.0	210	18	123	35	22	100.0	210	20	121	35
Naked Island: 4/17/92	2	0	0.0	NA	NA	NA	NA	0	0.0	NA	NA	NA	NA	0	0.0	NA	NA	NA	NA
	3	1	0.2	177	NA	68	NA	0	0.0	NA	NA	NA	NA	1	0.2	177	NA	68	NA
	4	142	31.9	198	8	93	13	108	24.3	201	10	99	17	260	58.4	199	9	95	15
	5	7	1.6	201	9	101	15	6	1.3	209	10	113	20	14	3.1	204	10	104	19
	6	2	0.4	205	13	102	23	2	0.4	219	10	145	25	4	0.9	212	12	123	31
	7	9	2.0	218	6	129	11	11	2.5	222	10	136	19	20	4.5	220	8	133	16
	8	61	13.7	226	11	145	22	73	16.4	230	9	153	23	135	30.3	229	10	150	22
	9	4	0.9	228	7	145	12	1	0.2	234	NA	167	NA	5	1.1	229	7	149	14
	10	3	0.7	231	31	142	51	0	0.0	NA	NA	NA	NA	3	0.7	231	31	142	51
	11	2	0.4	233	12	143	11	0	0.0	NA	NA	NA	NA	2	0.4	233	12	143	11
	12	0	0.0	NA	NA	NA	NA	0	0.0	NA	NA	NA	NA	0	0.0	NA	NA	NA	NA
	13	1	0.2	258	NA	222	NA	0	0.0	NA	NA	NA	NA	1	0.2	258	NA	222	NA
	Total	232	52.1	208	16	111	30	201	45.2	213	17	122	32	445	100.0	210	17	115.3	32
	Unaged	3	75.0	217	16	123	41	1	25.0	253	NA	210	NA	4	100.0	226	23	145	55
Montague Island: Rocky Bay 4/21/92	2	0	0.0	NA	NA	NA	NA	0	0.0	NA	NA	NA	NA	0	0.0	NA	NA	NA	NA
	3	2	0.2	185	0	68	0	3	0.4	186	6	79	16	6	0.7	179	16	67	22
	4	240	28.0	196	7	89	12	245	28.6	198	8	95	13	500	58.3	197	8	91	13
	5	6	0.7	203	14	100	22	6	0.7	204	14	102	28	12	1.4	203	13	101	24
	6	7	0.8	221	8	130	16	11	1.3	224	12	149	27	18	2.1	223	11	142	25
	7	25	2.9	222	9	132	22	21	2.5	227	10	143	17	46	5.4	224	9	137	20
	8	129	15.1	227	9	144	20	134	15.6	228	9	149	22	265	30.9	227	9	147	21
	9	2	0.2	232	6	167	17	1	0.1	232	NA	150	NA	3	0.4	232	4	161	16
	10	1	0.1	238	NA	158	NA	3	0.4	261	6	226	19	4	0.5	256	13	209	37
	11	1	0.1	258	NA	186	NA	1	0.1	246	NA	196	NA	2	0.2	252	8	191	7
	12	0	0.0	NA	NA	NA	NA	1	0.1	234	NA	196	NA	1	0.1	234	NA	196	NA
	13	0	0.0	NA	NA	NA	NA	0	0.0	NA	NA	NA	NA	0	0.0	NA	NA	NA	NA
	Total	413	48.2	208	17	110	31	426	49.7	210	17	117	33	857	100.0	209	17	112.9	33
	Unaged	21	48.8	209	20	113	32	21	48.8	213	16	123	31	43	100.0	210	19	117	32

* Sample size for sexes combined may be greater than the sum of males and females due to immature fish for which sex could not be determined.

Appendix H.22. Age, sex, and size composition of Pacific herring sampled from commercial gillnet sac roe harvest, Prince William Sound, 1992.

Sample Location and Date	AGE	MALES Number	MALES Percent	MALES LENGTH MEAN	MALES LENGTH STD	MALES WEIGHT MEAN	MALES WEIGHT STD	FEMALES Number	FEMALES Percent	FEMALES LENGTH MEAN	FEMALES LENGTH STD	FEMALES WEIGHT MEAN	FEMALES WEIGHT STD	SEXES COMBINED[a] Number	SEXES COMBINED[a] Percent	SEXES COMBINED[a] LENGTH MEAN	SEXES COMBINED[a] LENGTH STD	SEXES COMBINED[a] WEIGHT MEAN	SEXES COMBINED[a] WEIGHT STD
Montague Island: Rocky Bay Graveyard Pt. 4/23–24/92	2	0	0.0	NA	NA	NA	NA	0	0.0	NA	NA	NA	NA	0	0.0	NA	NA	NA	NA
	3	0	0.0	NA	NA	NA	NA	0	0.0	NA	NA	NA	NA	0	0.0	NA	NA	NA	NA
	4	6	0.8	206	8	108	16	4	0.5	214	9	127	11	10	1.3	209	9	116	17
	5	1	0.1	224	NA	151	NA	2	0.3	221	4	139	11	3	0.4	222	3	143	10
	6	5	0.7	226	12	148	23	6	0.8	226	5	140	7	11	1.4	226	8	144	16
	7	44	5.7	228	7	144	13	36	4.7	231	6	151	14	80	10.4	229	7	147	14
	8	323	42.1	231	7	154	15	274	35.7	233	7	157	15	602	78.5	232	7	155	15
	9	17	2.2	232	11	152	18	15	2.0	237	12	168	22	32	4.2	235	11	160	21
	10	6	0.8	246	11	182	20	4	0.5	247	12	185	28	10	1.3	246	11	183	22
	11	9	1.2	246	8	176	17	4	0.5	244	17	177	37	13	1.7	245	11	176	23
	12	4	0.5	247	9	178	19	1	0.1	241	NA	187	NA	5	0.7	246	8	180	17
	13	0	0.0	NA	NA	NA	NA	1	0.1	251	NA	179	NA	1	0.1	251	NA	179	NA
	Total	415	54.1	231	9	153	17	347	45.2	233	8	157	17	767	100.0	232	9	154.8	17
	Unaged	59	64.1	231	8	150	15	32	34.8	232	7	155	14	92	100.0	231	8	152	15

[a] Sample size for sexes combined may be greater than the sum of males and females due to immature fish for which sex could not be determined.

Appendix H.23. Age, sex, and size composition of Pacific herring sampled from commercial pound spawn–on–kelp fishery purse seine catches, Prince William Sound, 1992.

Sample Location and Date	AGE	MALES						FEMALES						SEXES COMBINED[a]					
		Number	Percent	LENGTH MEAN	LENGTH STD	WEIGHT MEAN	WEIGHT STD	Number	Percent	LENGTH MEAN	LENGTH STD	WEIGHT MEAN	WEIGHT STD	Number	Percent	LENGTH MEAN	LENGTH STD	WEIGHT MEAN	WEIGHT STD
Northeast Shore: 4/9–13/92	2	2	0.1	154	12	43	1	0	0.0	NA	NA	NA	NA	2	0.1	154	12	43	1
	3	4	0.2	187	13	77	14	3	0.1	184	7	79	6	7	0.3	186	9	78	10
	4	637	29.8	197	9	91	15	538	25.2	199	9	96	14	1,187	55.5	197	9	93	15
	5	21	1.0	205	13	106	22	16	0.7	201	10	99	18	37	1.7	203	11	103	20
	6	16	0.7	215	10	119	18	10	0.5	210	18	115	25	26	1.2	213	14	117	21
	7	54	2.5	223	9	139	20	49	2.3	226	10	145	28	104	4.9	225	10	141	24
	8	322	15.1	226	10	144	24	364	17.0	230	9	155	22	692	32.4	228	10	150	24
	9	26	1.2	232	11	160	26	22	1.0	240	10	186	18	49	2.3	236	11	172	25
	10	11	0.5	234	7	166	17	15	0.7	239	17	170	41	26	1.2	237	14	168	32
	11	5	0.2	246	10	188	40	2	0.1	260	0	213	0	7	0.3	250	8	195	30
	12	1	0.0	244	NA	174	NA	1	0.0	257	NA	206	NA	2	0.1	251	0	190	0
	13	0	0.0	NA	NA	NA	NA	0	0.0	NA	NA	NA	NA	0	0.0	NA	NA	NA	NA
	Total	1,099	51.4	208	17	112	32	1,020	47.7	213	18	123	36	2,139	100.0	210	18	117.5	34
	Unaged	19	43.2	209	18	110	32	25	56.8	216	15	133	30	44	100.0	213	16	123	32

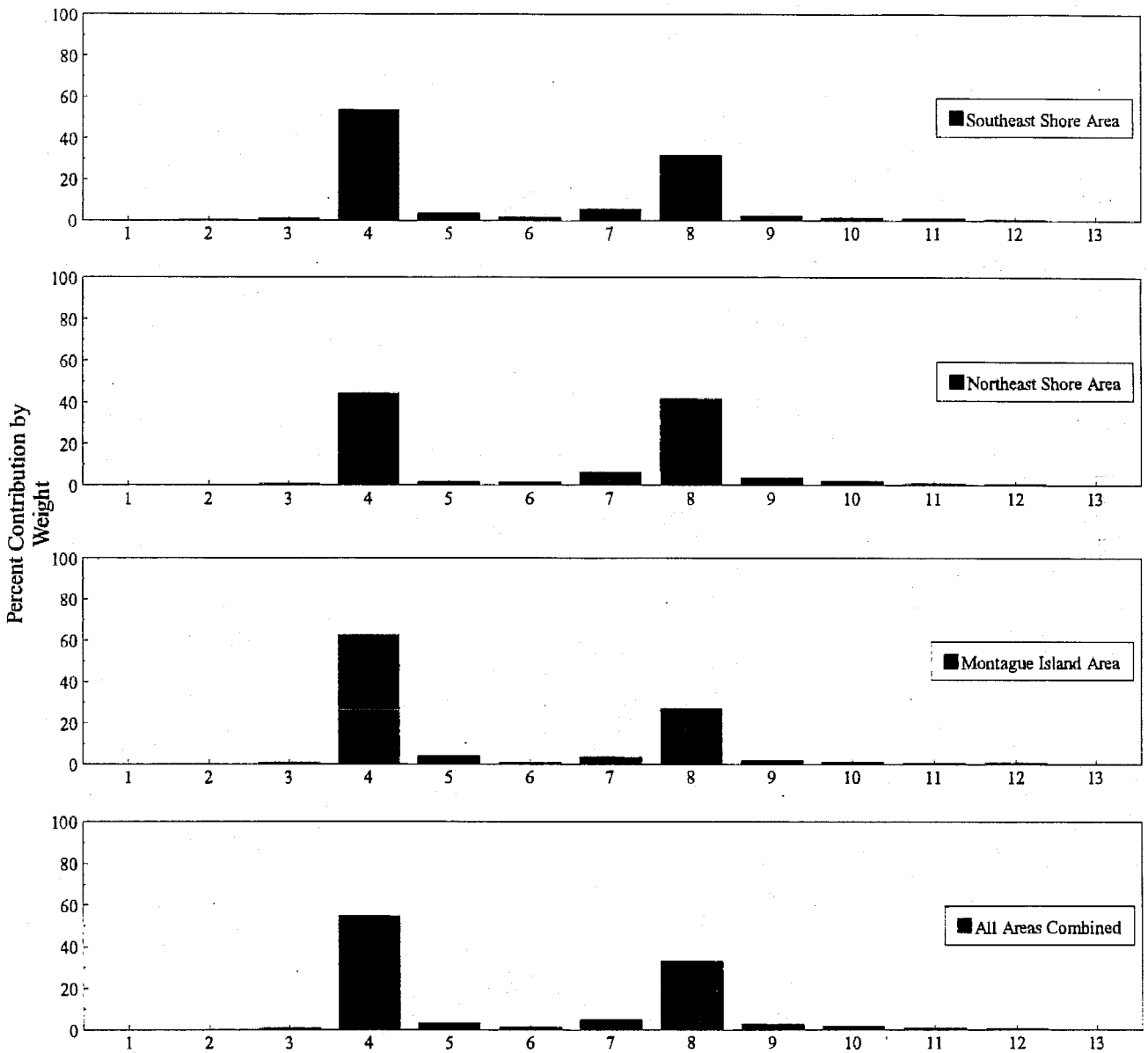
[a] Sample size for sexes combined may be greater than the sum of males and females due to immature fish for which sex could not be determined.

Appendix H.24. Age, sex, and size composition of Pacific herring sampled from commercial food–and–bait fishery purse seine catches, Prince William Sound, 1992.

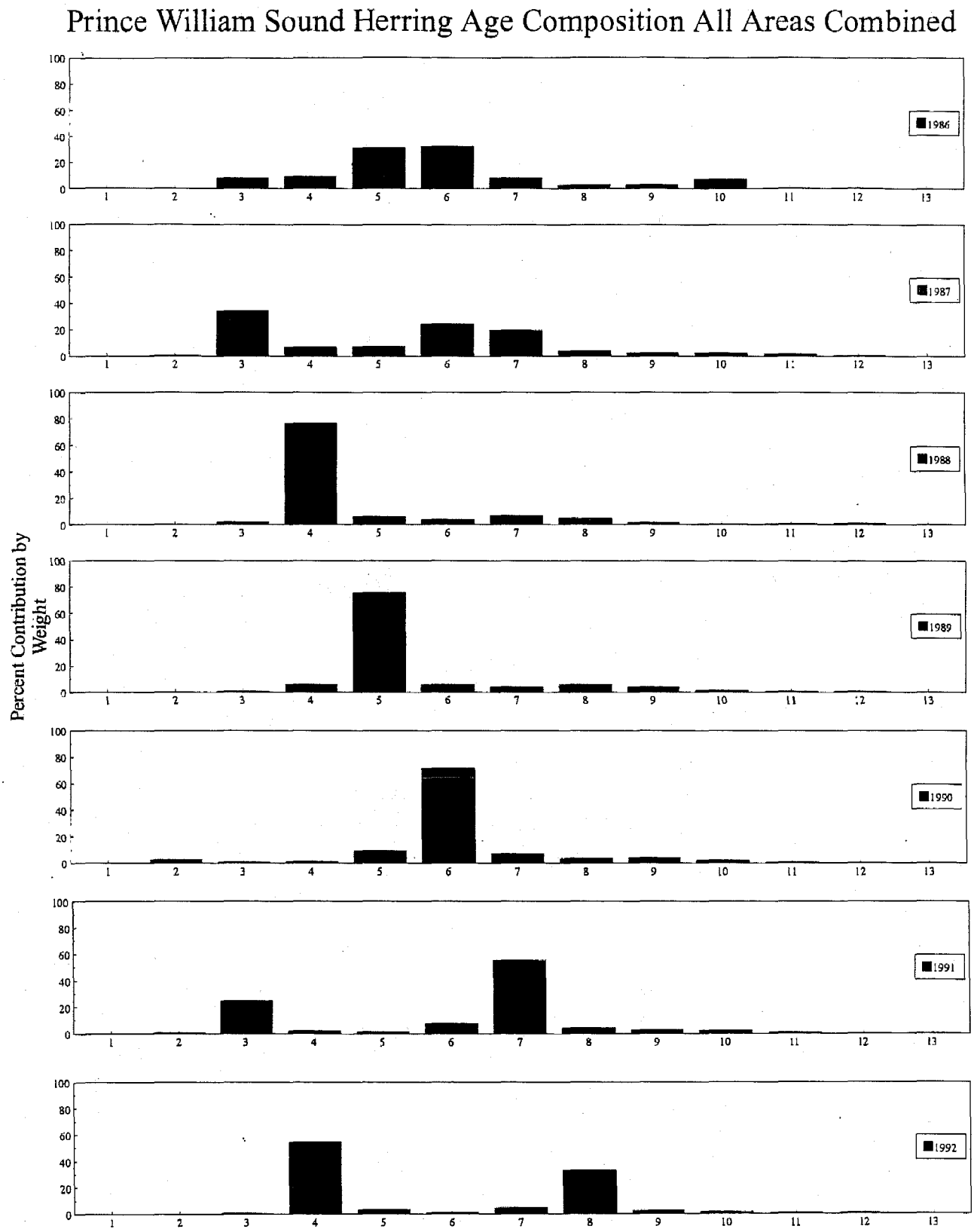
Sample Location and Date	AGE	MALES						FEMALES						SEXES COMBINED[a]					
		Number	Percent	LENGTH MEAN	LENGTH STD	WEIGHT MEAN	WEIGHT STD	Number	Percent	LENGTH MEAN	LENGTH STD	WEIGHT MEAN	WEIGHT STD	Number	Percent	LENGTH MEAN	LENGTH STD	WEIGHT MEAN	WEIGHT STD
Montague Island: McCleod Hbr. Green Island Graveyard Pt. 10/5–10/21	2	29	1.9	71	8	27	10	41	2.7	97	12	37	12	91	6.0	94	12	35	14
	3	42	2.8	113	16	60	30	27	1.8	82	19	46	39	73	4.8	100	18	53	34
	4	546	36.2	143	16	85	31	489	32.4	145	14	87	30	1,048	69.5	144	15	86	31
	5	10	0.7	147	10	91	26	7	0.5	158	7	102	19	17	1.1	151	17	96	29
	6	29	1.9	178	18	120	41	31	2.1	148	15	104	35	60	4.0	163	18	112	45
	7	84	5.6	211	17	148	47	81	5.4	201	13	145	30	166	11.0	206	15	147	40
	8	26	1.7	167	8	123	17	22	1.5	178	18	127	48	48	3.2	172	18	125	43
	9	2	0.1	239	6	191	22	2	0.1	115	0	80	0	4	0.3	177	7	135	24
	10	0	0.0	NA	NA	NA	NA	0	0.0	NA	NA	NA	NA	0	0.0	NA	NA	NA	NA
	11	1	0.1	224	NA	161	NA	0	0.0	NA	NA	NA	NA	1	0.1	224	NA	161	NA
	12	0	0.0	NA	NA	NA	NA	0	0.0	NA	NA	NA	NA	0	0.0	NA	NA	NA	NA
	13	0	0.0	NA	NA	NA	NA	0	0.0	NA	NA	NA	NA	0	0.0	NA	NA	NA	NA
	Total	769	51.0	148	23	92	44	700	46.4	147	25	91	47	1,508	100.0	148	25	90.6	47
	Unaged	22	53.7	225	15	155	23	19	46.3	224	11	152	21	41	100.0	225	13	153	25

[a] Sample size for sexes combined may be greater than the sum of males and females due to immature fish for which sex could not be determined.

Prince William Sound Herring Spawning Biomass Age Composition



Appendix H.25. Percent contribution by age class in the herring spawning biomass, Prince William Sound, 1992.



Appendix H.26. Percent contribution by age class in the herring spring run biomass, Prince William Sound, 1986-1992.