ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF COMMERCIAL FISHERIES

LOWER COOK INLET AREA
ANNUAL FINFISH MANAGEMENT REPORT

1987

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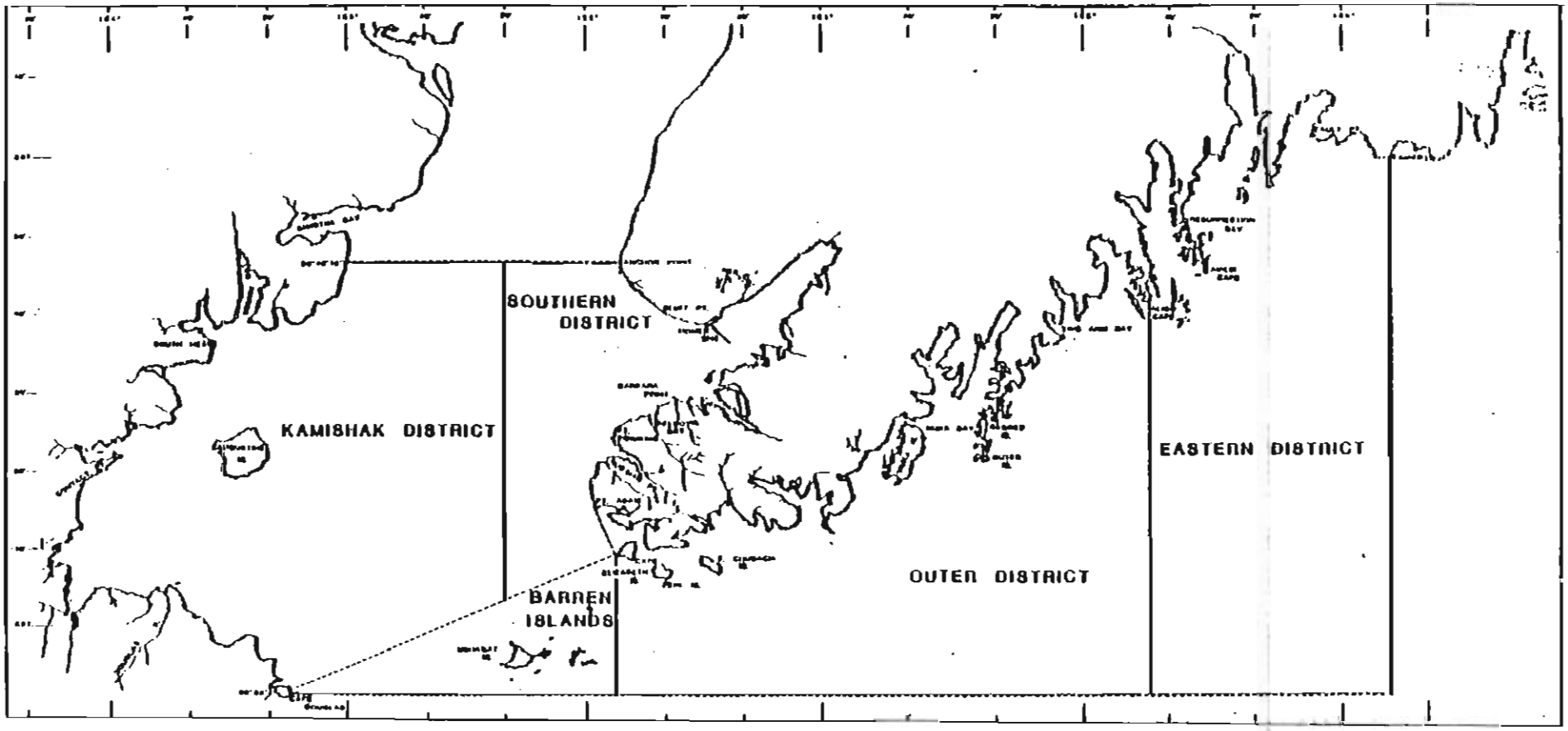

Figure 1. Lower Cook Inlet Management Area.

ANNUAL MANAGEMENT REPORT
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COMMERCIAL SALMON FISHERY

INTRODUCTION

The Lower Cook Inlet management area is comprised of all waters west of the longitude of Cape Fairfield, north of the latitude of Cape Douglas and south of the latitude of Anchor Point and has been divided into five fishing districts (Figure 1). The Barren Islands District is the only non-salmon and herring producer and the remaining four districts have been divided into 25 subdistricts and sections to facilitate management of discrete stocks of salmon and herring.

The 1987 commercial salmon fishery had a few bright spots, but, in general was a dismal failure. Total harvest for all species of 622,828 fish was 38 percent below average, 72 percent below the preseason forecasted harvest and was due entirely to the failure of pink salmon returns to the Southern and Outer Districts (Table 1, Appendix Tables 16 and 17 and Figure 2). Approximately 66 of the 79 seine permits and 29 set gillnet permits fished the area this year (Appendix Table 1).

Effort was low due to poor catches in LCI and the strong sockeye harvest in Upper Cook Inlet. Many fishermen are multiple permit holders and will choose the most lucrative fishing area or gear during a particular year. The ex-vessel value of the harvest was estimated at $2.989 million (appendix Table 2). Prices were excellent for sockeye and continued an upward swing for pink salmon, since the sharp drop after the 1981 fishery (Appendix Table 3). Pink and chum salmon prices saw a resurgence in 1987

from the low prices paid since 1982. Poor pink salmon returns in Southeast Alaska reduced the warehouse casepack holdover, resulting in the higher prices. Final settlements for pink salmon reached $.42 per pound early in 1988 and chum salmon prices increased to $.25 per pound for dark fish and $.55 per pound for bright fish, averaging $.46 per pound for the entire fishery. However, the $1.55 - $1.65 per pound paid for sockeye salmon resulted in sockeye being the most economically important species in Lower Cook Inlet, contributing 65 percent of the total ex-vessel value (Appendix Tables 2 and 3). Figures in Appendix Table 3 have been adjusted since the 1986 annual report based on information received from processors on retroactive price settlements.

Sockeye salmon accounted for 40 percent of the catch and harvests were above average in all districts except the Eastern District (Appendix Table 21 and Figure 3). The harvest of 248,848 sockeye was the third highest on record and three times the average for Lower Cook Inlet (Table 8). Another strong return to Chenik Lake in the Kamishak District resulted in a harvest of 98,500 sockeye and was the primary reason for the pre-season forecasted harvest being exceeded by 35 percent (Appendix Table 13.)

Only two failures occurred in LCI sockeye returns. The English Bay return was extremely weak for the third consecutive year and forced a closure of the set gillnet and subsistence fishery in that area. Aialik Lake, often called Pederson Lake, located in the Eastern District had only a mediocre return. The harvest of 3,500 sockeye was far below an expected strong harvest based on the large escapements in 1982 and 1983 (Appendix Tables 7 and 13).

Pink salmon returns were generally poor in the Southern, Outer and Eastern Districts. The harvest of 201,429 pink salmon was 89 percent below the preseason forecasted harvest of 1.8 million

(Table 1). Tutka Bay, Port Dick and Humpy Creek were the biggest disappointments and with almost complete closures in most of the Southern and Outer Districts, escapement levels averaged only 33 percent of the desired goals in these two districts (Table 2). The Kamishak District produced unexpected strong returns to both Sunday Creek and Brown's Peak Creek. The district catch of 72,684 was 54 percent above average and excellent escapements were achieved in the three major spawning streams (Table 2).

Chum salmon returns were generally good as expected. The harvest of 157,018 was 18 percent below the pre-season projected harvest of 185,000 fish, but was still 28 percent above the 30 year average (Table 1). The Eastern District harvest of 14,900 was a record with 93 percent of the harvest being produced by Tonsina Creek in Resurrection Bay (Appendix Tables 12 and 19). The Kamishak District produced 70 percent of the total chum salmon harvest (Table 1). Harvests were spread uniformly throughout the district with the exception of Iniskin Bay, which produced no harvest (Appendix Table 12). Island Creek in Port Dick Bay produced a fair return, but was below the projected return based on past escapement data (Appendix Table 6). Adequate escapements were achieved in most major spawning systems (Table 3).

SOUTHERN DISTRICT

Sockeye Salmon

The Southern District sockeye salmon harvest of 89,662 fish was the fourth highest on record and over twice the average for this district (Table 1 and Appendix Table 16). The set gillnet harvest of 28,209 sockeye salmon was 10 percent above average, but seiners accounted for the majority of the harvest.

This year marked the third consecutive failure in the English Bay Lake sockeye return. Subsistence gillnet catches in May and early June again gave a strong indication of a weak return. Aerial surveys of the lake system on June 14 and 18 indicated an escapement of only 1,500 sockeye with no sign of fish moving into English Bay Lagoon from the ocean. As in the previous two years, the Port Graham subdistrict was closed to commercial set gillnet fishing on June 17. The subsistence fishery was not allowed to remain open for an additional week, as occurred the previous two years. The final harvest of 2,500 sockeye for the Port Graham subdistrict was far below the 15,000 fish average harvest since 1976 (Appendix Table 13). Sockeye escapement to the English Bay Lakes system of 7,000 fish was below the lower end of the escapement range (Table 4).

Harvests in the remainder of the set gillnet fishery were good, but were not indicative of the extremely strong Upper Cook Inlet return. Strong southeast and northeast winds in late June and early July prevented fish from moving into Kachemak Bay. Sockeye harvests increased dramatically between July 13 and 24 after winds shifted to the southwest. The set gillnet harvest of 28,209 was 10 percent above average (Appendix Table 14), but was reduced by the Port Graham Subdistrict closure. An additional closure, due to the weak pink salmon returns, further reduced the set gillnet catches of sockeye salmon in late July. The Halibut

Cove section of the Humpy Creek Subdistrict was closed for six days from June 25 - 30 and the Seldovia Bay, Barabara Creek and Tutka Bay Subdistricts were closed for 12 days from July 25 until August 6. The China Poot Bay Subdistrict was opened to seining on June 25 and fishing time was allowed five days per week, a 24 hour increase from previous years. Sockeye salmon returns to Leisure Lake in China Poot Bay accounted for approximately 21,500 fish of the total Southern District harvest (Table 7a). However, fishing in the China Poot Subdistrict and the Halibut cove section of the Humpy Creek Subdistrict for Leisure Lake bound fish resulted in the harvest of an additional 37,000 sockeye salmon, which were considered to be primarily of UCI origin.

Pink Salmon

Returns of pink salmon to spawning streams in the Southern District were extremely weak and were totally unexpected and unexplained, except for the possible effects of the "El Nino" current which apparently existed in the north Pacific during the ocean life of these fish. After a winter meeting with fishermen, it was agreed that the Tutka Bay Subdistrict would be opened to seining on a seven day per week basis in an attempt to reduce the lagoon buildup of fish and provide a better quality fish to processors.

The Tutka Bay Subdistrict was opened to seining seven days per week on June 25. Catches were very slow through July 4 with a total harvest of less than 7,000 pink salmon (Table 7). Catches increased the following week, but coupled with aerial survey estimates of fish in Tutka Lagoon of less than 4,000 fish on July 10, indicated the return was weak. Fishing time was reduced back to the standard two 48 hour weekly fishing periods on July 11, but when catches during the week of July 13-18 dropped from the previous week, it became obvious that the hatchery return had totally failed for the first time.

The subdistrict was closed on July 22 and the harvest of 52,795 pink salmon was the lowest since hatchery returns began in 1978 (Table 7). The response timing with an emergency order closure was far too slow in coming and should have been made 10-12 days earlier. Tutka Hatchery was able to achieve less than 40 percent of its egg take goal and natural spawning in Tutka Creek was less than half of the desired level (Tables 2 and 7). The only other area opened to the harvest of pink salmon was the Halibut Cove area. Tutka Hatchery pink salmon fry were taken to Halibut Cove Lagoon and short-term-reared in 1986. This was done as an experiment to see whether ocean survival could be increased by the use of secondary release sites for Tutka fry rather than releasing all of the hatchery fish into the Tutka Bay area. Even though both pink salmon returns were weak, survival rates for the Halibut Cove pinks appeared to be at least three times that of the returning Tutka Bay fish.

A special harvest section, called the Halibut Cove Section of the Humpy Creek Subdistrict was created to harvest the anticipated return. The Halibut Cove section, including Halibut Cove Lagoon, was opened to seining on July 1 and fishing was allowed five days per week. Total pink salmon harvested in this area was 30,500, but only 28,500 fish were attributed to the Halibut Cove rearing project.

The total Southern District pink salmon harvest of 90,522 was the lowest since 1974 and 71 percent below average (Appendix Table 16). Spawning stream escapements were very poor and totalled only 35 percent of the goals for the major spawning streams. Humpy Creek and China Poot Creek were the only streams achieving, what could be termed, adequate spawning escapements (Table 2).

Miscellaneous Species

King salmon have always been a minor species in the LCI harvest with set gillnets accounting for 70 percent of the historic catch (Appendix Tables 14 and 16). The 1987 harvest of 1,158 king salmon was over two and a half times the average harvest with 43 percent of the harvest being made by seiners (Table 1). Increases in the seine harvest of king salmon occurred primarily in the Halibut Cove Section where seiners fished for the first year due to the projected pink salmon return to Halibut Cove Lagoon.

Coho salmon are primarily harvested by set gillnets in the Southern District with the majority of the harvest occurring in the Port Graham and English Bay area. The 1987 coho harvest of 2,163 fish was 40 percent below average and was the lowest harvest since 1977 (Table 1 and Appendix Table 16). Set gillnets accounted for 94 percent of the coho harvest with 68 percent of the set gillnet harvest occurring in the English Bay area. No escapement data are gathered on this species in the English Bay Lakes system.

OUTER DISTRICT

Sockeye Salmon

Delight and Desire Lakes located in the east arm of Nuka Bay are the primary sockeye producing systems in the Outer District. The sockeye salmon harvest of 31,845 fish was taken entirely from this area and was almost double the average (Table 1 and appendix Tables 13 and 17). Twenty three vessels fished the area during the summer and this increased effort resulted in late season closures to achieve the required sockeye salmon escapements.

Aerial surveys were begun on June 13 and over 3,000 fish were estimated off the mouth of Desire Lake Creek. By June 18, fish had begun moving to the lake and the escapement was estimated at 4,400. No fish were observed near Delight Lake Creek during either of these surveys. A 12 hour opening from noon to midnight on June 20 was announced for the East Nuka subdistrict and the subdistrict reopened on June 22 on the standard two 48 hour weekly fishing period schedule. This short opening on June 20 was allowed to slow the rate of movement into the Desire Lake system and assess the strength of the return.

Catches were very poor during the remainder of June and adverse weather prevented accurate aerial estimates of escapements in either lake until July 8. Surveys on July 3 and 7 in poor counting conditions accounted for 3,500 to 3,700 sockeye in Desire Lake and less than 500 in the freshwater lagoon at Delight. The July 8 aerial survey indicated that the 10,000 fish escapement goal for Desire Lake had been achieved with 9,400 fish in the lake and an additional 200 in the stream. Surveys of Delight Lake indicated over 2,800 fish in the lake with an additional 2,200 holding in the freshwater lagoon.

Markers were removed at the mouth of Desire Lake Creek, McCarty

Lagoon was opened to fishing and fishing was allowed seven days per week effective July 9. Catches progressed well over the next 10 days and the Desire Lake escapement exceeded 13,000 fish. The Delight Lake escapement reached 8,000 sockeye on July 20, but very few fish were moving through the seine fleet into the freshwater lagoon. McCarty Lagoon and a one mile radius around the mouth of Delight Creek were closed to fishing on July 23 and fishing time in the subdistrict was reduced back to the standard two 48 hour weekly periods to allow an additional 2,000 sockeye to escape into the lake. An aerial survey on July 27 indicated an additional 1,700 fish had moved into the freshwater lagoon. McCarty Lagoon and the one mile closure area were reopened to fishing at noon on July 27. Sockeye catches began dropping off by early August and with increasing catches of pink salmon, the markers at Desire Lake Creek were put back in effect on August 3. Sockeye escapements were achieved at both lake systems (Table 4).

Pink Salmon

Pink salmon returns to the Outer District in 1987 were total failures. The East Nuka subdistrict was the only area opened specifically for the harvest of pink salmon. Of the total district harvest of 23,890 pink salmon, 20,900 were taken from the return to Desire Lake Creek with an additional 3,000 fish being taken in a directed chum salmon fishery in Port Dick Bay (Table 1 and Appendix Table 10).

As previously mentioned, pink salmon harvests in the East Nuka subdistrict increased in late July and with decreasing sockeye catches and an escapement of only 500 pink salmon on July 27 the markers at Desire Lake Creek were put back in effect. It was evident from catches being made that the pink salmon return was not unusually strong and with most other returns being very weak, fishing time was kept to the standard weekly fishing periods. By August 6, the pink salmon escapement was estimated at 7,000 fish

and by August 10 had increased to 9,000. Markers at Desire Creek were removed on August 13 to allow a maximum harvest of the remaining pinks.

Four openings of the Port Dick North section, which allowed fishing on Island Creek chum salmon, resulted in minor harvests of pink salmon. Sixty percent of the pink harvest occurred during the last 18 hour opening on August 14-15. While the ground survey counts indicated an escapement of only 100 fish at Island Creek (Table 2), aerial surveys on August 31 indicated approximately 2,200 pink salmon schooled off the mouth of the creek. Pink salmon escapements in the Outer District were 68 percent below average and were less than 20 percent of the mid-point of the escapement goal (Table 2). Only Desire Lake Creek and streams in the Port Chatham area received adequate spawning escapements.

Chum Salmon

Chum salmon returns to the Outer District, like their pink salmon relatives, were extremely weak. Island Creek located in Port Dick Bay was the only return that produced a significant harvest. Of the total district chum salmon harvest of 28,663, 95 percent or 27,113 fish were caught near Island Creek in Port Dick.

Chum salmon were first observed near Island Creek on July 7. Numbers of fish increased gradually until July 19 when 7,200 fish were observed along the northshore of Port Dick from Middle Creek to Island Creek. By July 24, over 1,700 chum salmon had moved into the creek, 8,600 fish were schooled inside of the department markers and an additional 2,600 fish were observed along the shore between Middle Creek and Island Creek. After an aerial survey on July 27 indicated the stream escapement had increased to 3,500 fish, an 18 hour opening was announced for the Port Dick North section southeast of Middle Creek for July 28 and 29.

Markers were adjusted during this opening to allow fishing in the southeast corner of the Island Creek closed waters area.

Harvests from this period totalled over 14,000 chum salmon and since the spawning escapement was still protected inside the reduced closed waters area, an additional opening for 48 hours from July 30 until August 1 was allowed. Two additional openings were allowed, 24 hours on August 7-8 and 18 hours on August 14-15. However, when the August 14-15 harvest indicated that 44 percent of the harvest was pink salmon, the area was left closed for the remainder of the season.

Port Dick Creek had a fair chum salmon return, but no fishing was allowed due to the weak pink salmon return. Port Dick Head End Creek and Island Creek were the only streams in the Outer District that achieved the escapement goals for chum salmon (Table 3). Total chum salmon escapements in the major producing streams in the Outer District were 40 percent below average and reached only 50 percent of the mid point escapement goal

Coho Salmon

A fairly significant coho salmon harvest occurred in the East Nuka subdistrict for the third consecutive year. Harvests began mid-way through the pink salmon return, but did not appear to be as strong as the two previous years. Surveys in late August indicated less than 500 coho salmon present in Delight Creek lagoon and only 100 in Desire Creek. The area was allowed to close on August 31 and no extension of fishing time was allowed, as occurred the previous two years. The harvest of 2,481 coho was the third highest on record and four times the average for the district (Table 1 and Appendix Table 17).

KAMISHAK DISTRICT

Salmon fisheries in the Kamishak District were exceptional again in 1987. The total harvest of 312,836 fish of all species accounted for over half of the entire Lower Cook Inlet salmon harvest and was the second largest harvest on record for this district (Table 1 and Appendix Table 18). Sockeye and chum salmon harvests were excellent and the strong pink salmon returns and harvest in Ursus Cove and Rocky Cove were completely unexpected after the failure of the Southern and Outer Districts' pink salmon returns. These large harvests are only the beginning of future trends in this district due to a variety of fishery enhancement projects that will increase production of various species over the next decade.

Sockeye Salmon

Sockeye salmon harvests in the Kamishak District remained high for the third consecutive year. The harvest of 123,654 fish was the second highest on record and over eight times the average for the district (Table 1 and Appendix Table 18). Although, the harvest of 20,700 sockeye from the Mikfik Lake return can be considered excellent, it was far outweighed by the second consecutive, large return to Chenik Lake that produced a harvest of 99,400 fish (Appendix Table 13).

The Kamishak District south of the latitude of Sunday Creek in Rocky Cove was opened to fishing on June 1 to allow the harvest of numerous small sockeye returns. Mikfik Lake usually provides the earliest return of sockeye salmon in the district with fish normally arriving from June 6-11. This year's return caught the seine fleet and processors by surprise and when fish began showing on June 1 only two boats were present on the fishing grounds with no available tender service. By June 6, only five vessels were in the area, but only two vessels were actively

fishing due to the lack of tender service.

Fishing time was immediately extended to seven days per week on June 5 and three, two hour fishing periods were announced for McNeil Lagoon on June 6 and 7 on the late evening high tides and on June 8 on the late morning high tide. The catch increased to 13,000 fish with approximately 4,200 fish being taken in the lagoon. By June 7 fifteen boats had arrived in the area, but gale force winds prevented fishing in McNeil Bay and aerial surveys of the area.

Game Division personnel estimated that an additional 1,000 fish had moved into the creek on June 7. Commercial Fisheries Division personnel flew to the lagoon and installed a Department net across the stream on June 8. The net did not work due to fish gilling in the meshes of the seine and attracting bears and the net was removed. Lagoon catches remained minimal on June 8 and an additional 500 - 600 fish went upriver. Another lagoon opening for three hours was announced for June 9 due to the continued bad weather and movement of fish into the stream at a rate of 60 - 100 per tide.

Effort had increased to approximately 22 boats on June 9 with 16 anchored inside the lagoon and six anchored behind Nordyke Island. A meeting was held with fishermen to explain the situation and discuss possible alternatives to harvest the return, given the controversial nature of the situation. An announcement, resulting from that meeting, opened the lagoon for two hours prior to each book listed high tide and fishing markers were adjusted up to the tip of the spit. The lagoon was closed to fishing on June 11 after further review of the situation and a further constraint being placed on the management of the return. This restriction required that a minimum of 1,000 fish had to be in the lagoon before an opening could be allowed.

Aerial surveys of the area were ineffective from June 6-14 due to the weather, which muddied the water, preventing estimates of fish accumulated in the lagoon. On June 14, an aerial survey indicated over 1,100 fish schooled in the lagoon and that the escapement had increased to an estimated 8,000 fish. A two hour lagoon opening was announced for June 14, but only 600 fish were taken from the lagoon.

Again poor weather prevented aerial surveys and fishing in the area from June 14-16. Seiners harvested over 6,000 sockeye from June 11-14 and only 600 had come from the lagoon, indicating a continuing strong return. With weather preventing aerial surveys of the lagoon, it was felt that another lagoon opening should be allowed to see if any further accumulation of fish had occurred in the lagoon. An opening was announced for June 17, but fishermen did not fish the area after learning that only 20 fish had been observed on an aerial survey in extremely bad weather. Little fishing occurred after this date and the final sockeye escapement to Mikfik Lake was estimated at 9,000 fish (Table 4).

In anticipation of another strong sockeye return to Chenik Lake, the Chenik section of the Bruin Bay Subdistrict was created by emergency order. This section included all waters north of Nordyke Island and south of 59 15' N. latitude. Fishing markers were established at Chenik in an attempt to reduce the number of special openings by allowing continued fishing in the area while protecting adequate spawning escapement inside the markers. Due to problems encountered by sockeye in trying to ascend the newly constructed fish ladder in 1986, the Cook Inlet Aquaculture Association made some adjustments in the six pools prior to the arrival of adult sockeye.

Fish were first observed at Chenik on June 22 and by June 30 6,500 to 7,000 fish were schooled off the mouth. Catches were slow with less than 1,500 sockeye harvested through July 8. An

aerial survey on July 8 indicated over 28,000 sockeye were schooled off the mouth of Chenik Creek with actual numbers estimated at 30-35,000. Fish were having a very difficult time ascending the fish pass due to the large volume of water coming down Chenik Creek from snow meltoff. With minus tides just beginning, waters of the Chenik Section between the northernmost and southernmost markers were closed to fishing to prevent fish from being harvested during the "back-out" tides. Department personnel flew to Chenik on July 9 and sandbagged the upper portion of the fish ladder and funneled half of the water down a side channel of the falls. Fish were immediately able to ascend the fish ladder and even with considerable bear activity, over 1,000 sockeye escaped upriver in two hours.

Aerial surveys estimated 46-48,000 sockeye schooled off the mouth on July 9. Three openings were allowed inside the markers at Chenik on July 9 and 10 with the third being a flare opening. Ground counts on July 10 indicated another 1,400-1,800 fish moved through the fish ladder and the total escapement stood at 4,500-5,000 prior to the flare opening. Eighteen vessels delivered over 56,000 sockeye through July 11 and fishing was allowed up to the regular markers on July 11. Over 12,000 sockeye were estimated to be remaining off the mouth after the July 10 opening.

Numerous other marker adjustments were made throughout the remainder of the month to allow movement of some fish into the lake throughout the run, while still maximizing the harvest. The final sockeye escapement was estimated at 10,000 fish (Table 4).

Additional sockeye salmon were harvested from small returns in the Kamishak-Douglas River systems, but the harvest only amounted to only 2,300 fish. Some seining did occur in the central Inlet east of Augustine Island. The open area kept vessels approximately two to three miles south of the middle rip-tide and

only 1,300 fish were harvested before the fishing was curtailed on July 16.

Pink Salmon

One of the surprises in the 1987 Kamishak District salmon return was the unexpected strong pink salmon returns to spawning streams in Rocky and Ursus Coves. Bruin Bay River, Sunday Creek and Brown's Peak Creek are the three primary pink salmon producing systems in the Kamishak District and based upon their 1985 spawning escapements and the pink salmon return failure in the Southern and Outer Districts, no appreciable harvest was expected in 1987.

Aerial surveys of these three streams from July 23-27 indicated building accumulations of pink salmon in all three locations. On July 27, 4,000 pink salmon had entered Bruin Bay River, but muddy water prevented estimates in the bay. Sunday Creek, located in Rocky Cove, had an escapement of only 1,000 pink salmon, but 40,000 fish were schooled along the beach on July 27 and Brown's Peak Creek had 3,700 fish in the creek with over 3,000 schooled along the beach. Short openings were allowed at all three streams on July 28 with the Sunday Creek opening being by flare.

The Bruin Bay Subdistrict was reopened for 48 hours July 30-August 1, but Bruin Bay proper was kept closed. Ursus cove subdistrict was also reopened for 48 hours at the same time. Bad weather prevented fishing and aerial survey assessment of escapements and the Kamishak District was closed on August 3 with a harvest of only 14,000 pink salmon. Aerial surveys were finally flown on August 5 and pink salmon escapements had increased to 10,000 fish in Bruin Bay River, 19,000 in Sunday Creek and 10,000 in Brown's Peak Creek. The Kamishak District south of Ursus Head was reopened on August 7 on the regular weekly fishing periods and fishing was allowed up to the mouths

of both Sunday Creek and Brown's Peak Creek. Escapement estimates from an August 13 survey had increased to 20,000, 30,000 and 35,000 in Bruin Bay, Sunday Creek and Brown's Peak Creek, respectively and fishing time was increased to seven days per week.

Final pink salmon harvest figures for the district totalled 72,684 fish, 96 percent of which were taken from the Ursus Cove and Rocky Cove Subdistricts (Table 1 and Appendix Table 10). The harvest was 54 percent above average and was considered excellent for what was felt to be an "off" year (Appendix Table 18). Pink salmon escapements were considered adequate for Bruin Bay and excellent for both Sunday Creek and Brown's Peak Creek (Table 2).

Chum Salmon

Chum salmon returns throughout the Kamishak District were generally good to excellent in 1987. The total harvest of 108,412 chums was the third highest on record and 2 1/2 times the average (Table 1 and Appendix Table 18). Harvests were uniformly spread throughout the district and the only failure was the Iniskin Bay return. Escapements totalled 106,400 in the ten major spawning streams with only the Big Kamishak River being considerably below the goal (Table 3).

Chum salmon began arriving at McNeil River in early July and by July 8 over 10,000 fish had been harvested. Aerial surveys through July 8 indicated only 2,200 fish had escaped the commercial fishery and a closure was anticipated. The fleet harvested an additional 8,000 chum salmon on July 9, but aerial surveys indicated over 6,000 new fish had moved into the river and the escapement was progressing very well. With the seine fleet concentrating on Chenik sockeye, it was felt that the chum escapement would continue to increase. However, the fish decided to hold in the bay rather than move into the lagoon and river and

the harvest increased to 27,000 before a closure was announced for July 12.

Chum escapement in McNeil River built rapidly from 11,000 on July 15 to 16,000 on July 19. The July 19 survey also indicated a strong buildup of fish in the intertidal lagoon area and out in McNeil Bay. A 24 hour fishing period was announced for July 21-22, but only five vessels moved to the area, due to good fishing in other areas. An additional 3,500 chum salmon were harvested and when a July 23 aerial survey indicated that the McNeil escapement had increased to 26,000, the subdistrict was reopened immediately. Very few fish were caught after the reopening on July 23 and the final harvest of 32,900 was the third highest on record and an excellent harvest for this system (Appendix Table 12).

Bad weather set in and prevented fishing throughout the district for several days after the McNeil Subdistrict closure on July 13. Fishing resumed on July 18 in the Kamishak River area and 18,000 chums were caught in two days. Effort moved further east to the Douglas River and Silver Beach area on July 22 and good chum catches began immediately. Aerial survey estimates of the chum salmon escapement in the Big Kamishak River were impossible due to flooding and muddy water conditions until mid August. Little Kamishak River had similar water conditions, but fish could be observed in small portions of the river and along sandbars and it was used as a guide to escapement levels for both rivers. Douglas River systems were similarly affected and escapement figures for these systems are only minimal estimates. Seiners harvested 24,600 chum salmon from the Big and Little Kamishak River returns and an additional 23,700 from the Douglas River-Silver Beach area, many of which are considered to be from the Kamishak Rivers' returns (Appendix Table 12).

Although the Ursus Cove opening on July 28 was primarily directed

towards pink salmon, a strong chum salmon return to streams in Ursus Lagoon was occurring at the same time. Chum catches were slow during early August with only 2,900 fish being taken through August 13. The lagoon chum salmon escapement, which was 1,200 before the commercial opening, increased by only 300 fish through August 10. Surveys & visibility were hampered by bad weather and the August 13 survey indicated an accumulation of over 6,800 chums in the lagoon. The subdistrict was reopened on August 13 and good catches were made over the next 10 days. The final chum salmon harvest of 17,200 was the second highest on record for this subdistrict and was considered excellent (Appendix Table 12).

Chum salmon were very slow in arriving at Iniskin Bay and Cottonwood Bay and may have been slowed up by heavy rains and flooding in early August. By July 31, only 1,000 and 500 chum salmon had entered Iniskin River and Cottonwood Creek, respectively. Surveys of each area on August 10 indicted fair increases in both streams. Iniskin River had an escapement of 3,800 chums, but no fish were observed in the bay and the area was kept closed. The Iniskin Bay Subdistrict was allowed to open in the general Kamishak District opening on August 13 after the escapement had increased to 6,500 fish. The final chum salmon escapement of 9,100 fish in Iniskin River was considered very good (Table 3).

Only a slight increase in chum salmon escapement of 700 fish was observed in Cottonwood Creek on the August 13 survey. Good numbers of fish were finally schooling on beaches in the bay, but with the egg-take requirement for the Tutka Hatchery, 2,000-3,000 adults were needed in addition to the natural escapement goal. An aerial survey on August 18 indicated the escapement had more than doubled to 6,800 fish and over 8,000 chums were schooled along beaches in Cottonwood Bay.

The Cottonwood Subdistrict was opened to seining for 72 hours August 19-22 and was closed prior to the beginning of the series of minus "back-out" tides on August 23. The entire subdistrict catch of 9,700 chum salmon occurred during this three day opening. Radio communication with hatchery personnel on the ground at Cottonwood Creek indicated that the stream escapement had increased to over 10,000 fish and that half of the fish had already been seined up for the egg-take. Therefore, the Cottonwood Subdistrict east of Diamond Point was reopened to fishing on August 25. No effort occurred after the three day opening on August 19-22 and after an August 31 aerial survey indicated 12,800 chum salmon in the stream and 4,200 in the bay, the spawning escapement figures increased significantly. Cottonwood Creek chum salmon escapement of 17,000 fish was considered quite excessive for this limited spawning area stream (Table 3).

Coho Salmon

Strong coho salmon returns were expected in the Kamishak-Douglas subdistrict in 1987 based on the excellent escapements which occurred in 1983. However, as occurred in 1986, the coho return was marginal and escapements in late August were below recent levels. Coho began showing in the catches during the second week of August with the primary catch period being August 17-28. The total coho salmon harvest reached 8,079 fish, 2.5 times the average, before the district was closed to fishing on August 31 (Table 1 and Appendix Table 18). Coho averaged only eight pounds, whereas, average weights since 1982 have been over nine pounds. No additional fishing time was allowed for coho salmon due to escapement levels in the Kamishak River and Douglas River which totalled only 3,000 fish.

EASTERN DISTRICT

Sockeye Salmon

Aialik Bay was opened to seining on the regular two 48 hour weekly fishing periods on June 22 in anticipation of a strong return of sockeye salmon. Only 50 fish were observed in Aialik Lake prior to the opening and no fish were observed in Aialik Lagoon until July 8. On July 13, an aerial survey indicated 3,000 sockeye had reached the lake and another 3,600 were schooled in the lagoon. Aialik Lagoon was opened to fishing for two hours on July 14 and over 2,300 sockeye were harvested.

Bad weather hindered aerial surveys for a week and a survey of Aialik Lake on July 20 indicated the sockeye escapement had increased to 9,200 fish. No fishing effort had occurred in the Aialik Subdistrict prior to or after the July 14 lagoon opening. The lagoon was opened again for two hours on July 21 and extended until July 31. Only 180 sockeye were harvested on July 21 and 22, but on July 25 two vessels took over 1,000 sockeye from the lagoon. Almost an equal number of pink salmon were taken on July 25 and the lagoon was closed to fishing. Two additional openings were allowed, but only pink salmon were harvested. The final escapement of 9,200 fish was almost double the upper end of the goal for this very small lake (Table 4).

Pink and Chum Salmon

Eastern District pink salmon returns were affected by the same ocean survival conditions that appeared to affect returns to the rest of Lower Cook Inlet. Excellent escapements occurred on the major spawning streams in Resurrection Bay and Aialik Bay in 1985, except that unusually large escapements occurred at both Tonsina Creek and Thumb Cove in Resurrection Bay (Appendix Table 5), and strong returns were expected in 1987.

Pink salmon harvests in Aialik Bay totalled only 2,500 fish. Fish were caught during all of the Aialik Lagoon openings for sockeye with 72 percent of the pink salmon being harvested on July 25 and 28. Just under 1,000 chum salmon were also harvested in the Aialik Bay area.

Three openings were allowed in the Resurrection Bay area and were primarily directed at the strong chum salmon return to Tonsina Creek. Openings were allowed on July 23, July 30 to August 1 and on August 6. Harvests for these three openings were 11,800 pink salmon and 13,900 chum salmon (Appendix Tables 10 and 12). The Eastern District pink salmon harvest of 14,333 fish was the lowest harvest since 1979, but the harvest of 14,913 chum salmon was a record and was 42 percent above the previous record and over six times the average chum salmon harvest for this district (Appendix Table 19). The pink salmon escapements in the Eastern District were very poor (Table 2), but an excellent escapement of 9,400 chum salmon was achieved in Tonsina Creek.

SUBSISTENCE AND PERSONAL USE FISHERIES

Kachemak Bay Personal Use

The Kachemak Bay personal use set gillnet fishery which targets on coho salmon was open from August 17 until September 12. A total of 361 permits were issued, six percent above the previous year, but still similar to the recent seven year average number of permits issued of 358 (Table 9). A total of 4,372 salmon were harvested (Table 10). The harvest was down considerably from the previous year, but was due entirely to the poor returns of pink salmon in the Lower Cook Inlet area. Pink salmon harvests were 60 percent below average, but catches of the primary target species, coho salmon, were similar to the previous three years (Table 10). The harvest of 3,977 coho salmon was 53 percent above average even though natural returns were somewhat below average. Based on mark-recoveries from the gillnet fishery, 1,200 coho or 30 percent of the harvest came from the Caribou Lake coho fry stocking project. Three aerial surveys of Clearwater Slough in the Fox River drainage were conducted between August 19-31. Only 275 coho salmon were observed on the last survey, but survey and water conditions were poor.

English Bay-Port Graham Subsistence

The sockeye salmon return to the English Bay Lake system was extremely weak for the third consecutive year. Poor harvests occurred in the late May and June subsistence catches and in the first two weeks of the commercial set gillnet fishery. An entire closure for the commercial, subsistence and recreational fishery occurred on June 17. Subsistence fishing was allowed to remain open an additional week after the commercial set net closures in 1985 and 1986, but since those extensions still did not allow achievement of the sockeye escapement in those years, the subsistence fishery was not extended in 1987. The Port Graham

village harvest of only 186 sockeye was the lowest on record and 80 percent below average. Harvests of pink and chum salmon were close to average, but coho harvests were 50 percent above average (Table 11).

The English Bay village sockeye salmon harvests were better than Port Graham, but were still 40 percent below average (Table 12). Pink and coho salmon harvests were also below average and it appears that both villages obtained less than half of their annual salmon requirements.

ENHANCEMENT AND REHABILITATION

Tutka Hatchery

Tutka Hatchery released a total of 22.865 million pink salmon fry and 449,000 chum salmon fry in 1987 (Table 13). Only 4.4 million were directly released into Tutka Bay with the remaining 16.1 million being reared in Tutka Lagoon for 30-40 days. Reared fry achieved excellent growth due to warmer estuarine water temperatures and the use of primarily OMP fish food.

The 1987 return was the first complete failure of the hatchery production with the total return of only 79,577 fish (Table 6) representing an ocean survival rate of only 0.3 percent, lowest in the facility's history. Hatchery production is presently in the second year of developing an August returning chum salmon run using Cottonwood Creek brood-stock from the Kamishak District. Slightly over 4.0 million eggs were taken in 1987.

Leisure Lake

Leisure Lake continues to be the premier sockeye project for the FRED division and 1987 produced some new and startling information. After an excellent fall acoustic estimate of rearing fingerling present in the lake, the 1987 smolt outmigration set a new record for numbers of smolt produced. Over 925,000 sockeye smolt (861,000 age-I fish and 64,000 age-II fish) left Leisure Lake in 1987. Age-I smolt were not as large as hoped for, averaging only 72 mm and 2.65 gr. and therefore, are not expected to have ocean survival rates above 20 percent. Holdover of fish to age-II smolt plus the stocking of 3.6 million fry, of which 1.5 million were assumed to have died in transport, could have resulted in a larger than expected rearing population in the lake. The project goal is to produce the maximum number

of quality smolt (80 mm or larger) in order to maximize ocean survival at the 35-42 percent level.

A total of 21,500 sockeye were harvested commercially from the 1987 return and another 2,200 fish were taken by personal use dipnet fishermen and sport anglers.

Chenik Lake

Prior to the arrival of returning adult sockeye salmon, the CIAA made some modifications in the steep-pass or fish-ladder pools that were constructed in 1986. Small notched grooves were made in the sills or lips of each pool, creating a water chute that allowed sockeye to ascend the ladder more easily. Another tremendous return occurred this year totalling over 112,000 fish. Returning fish averaged only 3.78 pounds, still a full pound below the original Tustemena Lake brood-stock.

Chenik Lake was stocked with 1.0 million fry and was fertilized for the first time. The fertilization project is a joint project with the Department funded by the Cook Inlet Seiners Association with additional grant monies from the City of Homer. Preliminary sampling during the first year of fertilization indicates that the lake may be more productive than Leisure Lake. Lake stocking levels will be increased in 1988 to utilize the larger amount of available food being produced and a smolt outmigration project may be initiated.

Paint River Lakes

Inadequate numbers of available sockeye salmon fry prevented Upper and Lower Paint Lakes from being stocked in 1987. These lakes along with a third lake in the system, Elusivak Lake, will be stocked again in 1988.

Port Dick and Kirschner Lakes

Port Dick Lake and Kirschner Lake were two new additions to the sockeye salmon lake stocking program in Lower Cook Inlet in 1987. Kirschner Lake, approximately 350 acres in size is located in the Kamishak District north of Bruin Bay. Salmon access to this lake is prevented by a 30-40 foot water falls at tide level. Approximately 867,000 sockeye fry were stocked in the lake this year with the first anticipated adult returns expected in 1990 (Table 13).

Port Dick Lake, 210 acres in size and located in the Outer District, was stocked with 705,000 fry (Table 13). Port Dick Lake is located at an elevation of about 500 feet and salmon are prevented from reaching the lake due to a series of falls and rapids that begin right at tide level. The lake appears to be devoid of other fish species and limnological samples indicate vast amounts of food are present for rearing sockeye fry.

Halibut Cove Lagoon

Halibut Cove Lagoon (HCL) was used again in 1987 as a secondary release site for Tutka Hatchery pink salmon. The Cook Inlet Seiners Association, in conjunction with CIAA and the City of Homer, provided funds to rear 3.0 million pink salmon fry in 1987. This project was designed to introduce fry into a new, under-utilized nursery area, thus increasing growth and ocean survival and dispersing the commercial fleet.

Adult pink salmon returning to Halibut Cove Lagoon in 1987 was estimated at 29,000 fish and the 1.4 percent survival rate was over four times that of the Tutka Bay return.

King salmon returns to the Halibut cove Lagoon area continued to provide a very popular recreational fishery for the public. Over

1,700 king salmon returned to HCL in 1987, the fourth largest return on record. Set gillnet and seine harvests accounted for almost half of this year's harvest. Another 94,000 king salmon smolt were released to continue this valuable enhancement project.

Homer Spit

The king salmon return to the Homer Spit is quickly becoming a very popular recreational fishery. Although over 2,000 fish returned in 1987, very few fish are considered to have entered the commercial fishery in Kachemak Bay. Over 104,000 king salmon smolt were released on the Spit again in 1987 (Table 13). A new project at the same location on the Homer Spit was begun in 1987. The Cook Inlet Seiners Association and the Lower Cook Inlet Sport Fishermen's Association reared 295,000 pink salmon fry from the Tutka Hatchery and released them at the same location as the king salmon smolt. This release should provide a return of 15-20,000 adult pink salmon to enhance the recreational fishery in 1988.

Caribou and Seldovia Lake Coho Stocking

Caribou and Seldovia Lakes were stocked again in 1987 to provide additional fish for recreational, personal use and commercial set gillnet fisheries in the Kachemak Bay area. The stocking of 150,000 fry in Caribou Lake was similar to previous years, but the stocking level in Seldovia Lake was reduced 42 percent from the previous two years to 45,000 fry (Table 13). Adult coho salmon returns to these lakes in 1987 were estimated to be 1,200 and 1,000 fish for Caribou Lake and Seldovia Lake, respectively.

COMMERCIAL HERRING FISHERY

INTRODUCTION

The 1987 Lower Cook Inlet Pacific herring sac roe fishery was projected to be an excellent one and wound up exceeding all expectations. With increasing biomass levels over the previous four years (Table 15) and uniform age class composition in the Kamishak District herring stock (Figure), the 1987 pre-season projection was for a harvest of 4,300 tons, plus an additional harvest of 300-500 tons of younger, recruit age-3 and age-4 herring. Management strategy was not changed from the previous two years, except that the Outer, Eastern and Kamishak Districts, scheduled to open on April 20, were not opened to fishing until 6:00 a.m. April 21 to avoid the Easter Sunday holiday.

Harvests in the Kamishak District occurred over a three day period and resulted in a record harvest of 6,132 tons (Table 14). The previous record set in 1976 was exceeded by 27 percent and when combined with the Outer and Eastern Districts' harvest of 786 tons, yielded a total Lower Cook Inlet area record harvest of 6,918 tons, 43 percent above the previous record (Table 14). Based on an average ex-vessel price of $1,100 per ton for 10 percent roe herring, the 1987 harvest was valued at $8.352 million. Roe percentages ranged from 6.6 - 11.1 percent for Outer and Eastern Districts to an average of 11.34 percent for Kamishak District herring. Although all permit holders appeared to be present during the 1987 fishery, only 69 permit holders made deliveries during the season.

OUTER AND EASTERN DISTRICTS

Harvests were spread throughout both the Outer and Eastern Districts from Day Harbor to the East Arm of Nuka Bay. Total sac roe harvest for both districts was 687 tons (Table 14), but roe recoveries were very low, except for the Nuka Bay area, averaging only 8.2 percent. Eleven boats made deliveries from these districts, but the ex-vessel value of the catch was severely reduced due to the low roe recovery rates and relatively small size of the herring. Aerial surveys of these districts were minimal again in 1987 due to budgetary restrictions and only four surveys were flown between April 27 and May 11.

A small catch of 6.6 tons occurred in Nuka bay on April 24, but the first major harvests occurred the following day with 155.6 tons and 74 tons being taken in Day Harbor and Harris Bay, respectively. From April 27-29, an additional 117.7 tons were taken from the East Arm of Nuka Bay. The Nuka Bay harvest averaged 10.75 percent roe recovery and, while samples indicated that age-3 herring comprised over 67 percent of the catch, fish up to age-11 were well represented in the samples (Table 20). Fish from the catch samples averaged only 107 grams in weight, compared to 210 grams from fish in the Kamishak District fishery (Table 18) and were indicative of the young age composition of the catch. Aerial surveys of the Outer District never accounted for more than 200 tons of fish and no spawning was ever observed. The Outer and Eastern Districts, except for Aialik Bay and Resurrection Bay, were closed to fishing on April 28.

Herring were first harvested from Aialik Bay on April 30. Little processor interest in purchasing these fish was shown due to the poor roe recoveries from both the Day Harbor and Harris Bay fish and only 30 tons were taken. Some processors urged a closure of the area due to the small size of fish and poor roe recoveries. It was considered to be a ruse, at the time, and that these

processors merely did not want to bother with these marginal herring due to the upcoming halibut fishery on May 3-4.

An aerial survey of the area on May 4 indicated considerable spawning was occurring and had taken place in Aialik Bay. A total of 700 ton of herring were observed in Aialik Bay in addition to the spawning and 535 tons were observed in Resurrection Bay. An announcement closing the remainder of the Eastern District to herring sac roe fishing at noon on May 8 was issued on May 6. On May 7, a fisherman notified the Department that a processor, formerly unwilling to purchase fish from Aialik Bay, was now willing to do so and that he planned on taking the remaining 170 ton harvest from the area.

Upon flying to the area early on the morning of May 8, three fishermen were observed with very large sets along with four tenders. An additional two tenders had already left the area and two more were on their way from Seward. The area was announced closed at 9:15 a.m. May 8 and the final harvest of 428 tons was over double the desired harvest goal. Fish harvested on May 7 and 8 were 91.4 percent age-3 and 8.1 percent age-4 herring and averaged only 7.6 percent roe and 71 grams, one third the size of kamishak District herring (Tables 18 and 21). The processing company purchasing the herring did not register four of the seven tenders prior to operating in the area and the case was turned over to Fish and Wildlife Protection, but no citation was issued.

This year marked the third consecutive year that the Eastern District sac roe herring harvested contained over 90 percent age-3 fish. It does not appear that herring are growing older in this area and is indicative that, in fact, these herring may be Prince William Sound fish that are spawning in this district at age-3, but recruit into the PWS fishery at age-4. If this can be substantiated in the future, harvests in this district may have to be curtailed or kept at very minimal levels. Total biomass

estimates were considered to be approximately 2,000 tons for Resurrection Bay and 4,000 - 6,000 tons in Aialik Bay.

KAMISHAK DISTRICT

The Pacific herring sac roe seine fishery in the Kamishak District has embarked on a new era of increased harvests based on the rebuilt strength of the population. After a period of, what appeared to be, over harvest in the 1970's and a resultant five year closure from 1980-1984, the Kamishak District herring stock has built back to record proportions. The population has exhibited widespread, healthy age class composition from age-3 to age-11+. Biomass estimates of the population, which got a tremendous boost in 1987 from the first of three suspected strong recruit year classes, have increased from 36-100 percent in each of the last three years and an increase of 30-35 percent is expected again in 1988 (Table 15 and Figures 11 and 12).

Management strategy for the Kamishak District was to open the fishery on April 20, but after an aerial survey on April 15, the opening was delayed due to the Easter weekend. No fish were observed during the survey and, even though weather in the Homer to PWS area had been fairly mild, the Kamishak Bay area appeared to still be in the throes of winter.

The fishery was opened in the district at 6:00 a.m. April 21 and much to everyone's surprise, fish were caught immediately in Iniskin Bay, 7-10 days earlier than the previous two years. All sets were being made by sonar equipment and by 9:00 a.m. the harvest was estimated at a minimum of 400 tons. Roe recoveries were running 11-12 percent, even though fish were not yet visibly being seen at the water surface, and general age composition appeared as expected based on sample average weights of 210-240 grams.

An aerial survey was flown of the district at 9:00 - 10:30 a.m. and indicated a second fleet of eight boats had just begun catching fish near fortification Bluff. No fish were visible in

the district from the air and all of these sets were being directed using sonar. Samples were obtained from three sets in this area and appeared similar to those in Iniskin Bay.

Catches slowed in the Iniskin Bay area by 10:00 a.m. and upon returning from the survey, half to two thirds of the fleet was headed south to the Fortification Bluff area. The Pandalus remained in Iniskin Bay to monitor the remaining 20 boats and the Boston Whaler was taken south to monitor the Fortification Bluff fishery. Noon catch reports from processors indicated a harvest of 750 tons from Iniskin Bay and since the majority of the fleet had left, Iniskin Bay was left open. By late afternoon, catches near Fortification Bluff appeared to be 1,200 - 1,400 tons. A partial closure of the Kamishak District was announced for 9:00 p.m. April 21 and included: (1) waters located between the latitudes of Sunday Creek and the northern entrance to Bruin Bay and (2) waters north of the latitude of South Head and west of Pomeroy Island, which essentially closed Iniskin, Cottonwood and Iliamna Bays.

Harvests for the April 21 fishery were expected to be 2,500-2,700 tons, but under reporting of the Iniskin Bay harvest by one company brought the total harvest to 3,267 tons. Roe recoveries averaged 11.3 percent and over 80 percent of the harvest consisted of age-6 or older herring, as expected (Table 18).

Most of the fleet moved to Ursus Cove on the morning of April 22 trying to anticipate where the next group of fish would begin showing, while a portion of the fleet stayed near Bruin Bay. Strong east winds prevented fishing and acoustic location of fish on April 22, but during a 7:00 a.m. survey on April 23 several boats were observed making sets near Bruin Bay. Strong northeast winds prevented landing to assess the catches. The entire fleet headed south from Ursus Cove, but with the existing sea conditions, catches were expected to be slow. The Fish and

Wildlife Protection vessel was sent to the area to monitor the closure line from April 21 with the Pandalus following behind.

Early catch reports indicated small catches, but just before noon it became obvious that large catches had been made. A closure for the entire Kamishak District was announced for 1:00 p.m. with fishermen being put on a 24 hour notice for any future openings. Preliminary estimates put the harvest at 2,500 ton with final figures totalling 2,813 tons. Roe percent again was excellent averaging 11.3 percent and the age composition of the harvest contained a higher percentage of age-3 and age-4 herring (Table 18). Again, all catches were made using acoustic sonar equipment and aerial spotters proved of little use during the actual fishing operations.

Total harvest for the district of 6,132 tons was a new record and was 27 percent above the previous record catch of 4,842 tons taken in 1976 (Table 14). An error was made in calculating the pre-season harvest forecast and, instead of 4,300 tons, the forecasted harvest should have been 5,000 - 5,300 tons.

Herring were first spotted on aerial surveys in Iniskin Bay on April 23, but the first major tonnages were not observed until April 25 with spawning already occurring. Biomass estimates for this early spawning portion of the population was estimated at 18,200 ton (Table 16). Most of the early spawning schools of fish disappeared during the middle of May and then a new group of fish were observed on a May 24 survey. A vessel was chartered and samples were obtained from these later arriving fish which were expected to be primarily the younger, recruit age fish. Where the earlier spawning fish were comprised of only 22 percent age-3,age-4 and age-5 herring, samples from test fishing sets made near Iniskin Bay on May 27 indicated 82 percent of the samples were Age 3, 4 and 5 herring (Tables 18 and 19). Total biomass of the later arriving herring was estimated at 11,000

tons which brought the total spawning biomass to 29,200 tons and the total biomass for the Kamishak District including the harvest, to 35,332 tons (Table 16). Harvest rates were estimated at 12.8 percent for young recruit age herring and 19.6 percent for older age fish and averaged 17.4 percent for the entire population (Table 17).

Perhaps the most interesting aspect of this year's return was the increase in biomass from age-3 herring in 1986 to age-4 herring in 1987. Almost a five fold increase was observed, indicating that a particular year class of herring may only recruit into the fishery at a 20 percent rate at age-3 with the majority of the recruitment occurring at age-4. While growth in any given year will most likely vary this percentage, it leaves open the possibility of a tremendous biomass increase in 1988 as tonnage of age-3 spawners was estimated at approximately 3,400 tons. Pre-season biomass estimates based on the recent cohort analysis of the Kamishak District herring data indicate the 1988 biomass could approach 47,900 tons, which could provide a harvest close to 7,000 tons (Table 17). This data is only being used as a guide at this time and the 1988 harvest will be kept to 5,000-6,000 tons with additional harvest allowed only if the strong age-4 recruitment is substantiated.

COMMERCIAL GROUNDFISH FISHERY

REGION 2 GROUNDFISH FISHERY

Groundfish landings into Region 2 ports totaled 308,560 pounds in 1981. Since that time, developing fisheries in both state and federal waters have contributed to a steady, and in some years, dramatic increase in Region 2 groundfish landings. In 1987, groundfish landings from state and federal waters totaled 21,162,280 pounds, almost twice the 1986 total of 11,811,236 pounds (table 22). Sablefish and rockfish harvests from federal waters of the Gulf of Alaska accounted for 9.3 and 8.2 million pounds respectively of the 1987 total. While sablefish landings into Region 2 ports dropped just slightly from the 9.4 million pounds recorded in 1986, rockfish landings, mostly from catcher processors operating in the Gulf of Alaska, boosted the catch far above the 2.1 million pounds recorded in 1986. The pacific cod harvest also increased dramatically from less than 190,000 pounds landed in 1986 to slightly over 3,000,000 pounds landed in 1987. The largest increase in pacific cod landings into the region came from state waters of Lower Cook Inlet which accounted for almost 1,800,000 pounds of the 1987 total. Regional landings of groundfish from state waters totaled 2,803,680 pounds, while landings from federal waters accounted for 18,358,600 pounds (Table 23).

The total ex-vessel value of groundfish delivered to ports within Region 2 during 1987 totaled an estimated $13,476,163 (Table 24), up from the 1986 total value of $11,161,387. Table 25 shows the dramatic increase of ex-vessel dollars generated from groundfish landings into Region 2 ports since 1981 when the total ex-vessel value of regional groundfish contributions was less than $110,000. Approximately 27% of the 1987 total estimated value of groundfish landed in Region 2 was generated from floating processors which do not use shore-side processing facilities, and

therefore, contribute very few ex-vessel dollars to local ports from which their products are sometimes transhipped.

PACIFIC COD FISHERY

The development of fisheries on groundfish stocks in state waters of Region 2 since 1980 has been slow compared to the dramatic development of domestic groundfish fisheries in federal waters of the Gulf of Alaska adjacent to Region 2. The sablefish fishery in Prince William Sound and an intermittent jig fishery on near-shore pelagic rockfish in the Outer and Eastern Districts of Lower Cook Inlet were, until recently, the only targeted fisheries on regional bottomfish stocks in state waters. In 1984, declines in the availability of east coast bottomfish products, due to depressed conditions of those stocks, created domestic market opportunities for Pacific cod and other pacific bottomfish species. An abundance of Pacific cod in relatively shallow areas of Lower Cook Inlet and Prince William Sound, accessible to smaller vessels, contributed to a dramatic increase in Pacific cod landings in the fall of 1986. Pacific cod landings jumped from a 1985 total of 68,324 pounds to a total of 189,544 pounds in 1986. Further development of the domestic food fish market and an increased demand for hanging crab bait fueled a mostly small boat longline fishery that in 1987 landed slightly over 3 million pounds of pacific cod to Region 2 ports. Of this total, over 2.1 million pounds came from within regional state waters (table 23).

COOK INLET PACIFIC COD RESEARCH PROJECT

A short term state funded study to more closely examine the recent upsurge in regional groundfish landings from state waters was initiated in December of 1987. Project goals were to (1) identify the specie(s) making the largest contribution to the rapid growth in near-shore fisheries, (2) identify ports within the region most actively involved in bottomfish processing, and

(3) examine the economic impact of this growth. Baseline biological information on size and age composition and conversion factors from processed weight back to round weight were collected on species dominant within the fishery from dockside sampling and onboard observations.

Fishticket landing statistics indicated that Pacific cod was the dominant species being removed from state waters within the region, and that Homer, Seldovia, Cordova and Seward the four ports most actively involved in this newly developing fishery. Pacific cod was the species upon which biological baseline data was collected because of its dominance in the commercial catch. Catch per unit of effort data on Pacific cod and data on the harvest of other species within the catch was collected during onboard observations in addition to AWL data.

Limitations in catch summary reports available through the State of Alaska fish-ticket system necessitated the development of in-house fish-ticket data summary programs. Study results are aimed at the biological community and fisherman and processors involved or interested in this fishery. This report will be available as a Regional Information Report.

PRINCE WILLIAM SOUND SABLEFISH FISHERY

The sablefish fishery in inside waters of Prince William Sound is managed within a guideline harvest range established several years ago by projecting the usable sablefish habitat of Prince William Sound. Comparisons were made of the catch per unit of area of Clarence Strait (in inside waters of Southeast Alaska), an area oceanographically similar to the Sound with a long and successful sablefish management history. These catch per unit area projections yielded a guideline harvest range of 88,000 to 308,000 pounds for Prince William Sound. The harvest level or goal within that range was determined for Prince William Sound by

looking at the long term harvest history of Clarence Strait, which has in recent years harvested at approximately 55% of the high end of that area's guideline harvest range. The 1986 and 1987 harvest goal of 170,000 pounds for Prince William Sound was 55% of the maximum harvest range for Prince William Sound.

The 1987 fishery in Prince William Sound was opened by regulation on April 1, concurrently with federally regulated waters of the Gulf of Alaska Exclusive Economic Zone or E.E.Z. for enforcement considerations, and harvests totaled approximately 186,679 pounds. It is believed an additional amount equal to approximately 10% of the total commercial harvest was also lost to Killer Whales (Orcinus orca) during haul-back of commercial longline gear based on a research study conducted in Prince William Sound by the National Marine Fisheries Service. The fishery was closed by emergency order at noon on June 25th. The total 1987 harvest was slightly lower than the 1986 harvest of 189,852 pounds, and significantly lower than the 383,285 pounds harvested in 1985 prior to establishment of the guideline harvest range.

During the 1987 fishery 71 vessels made 120 landings to processors located in Cordova, Valdez, Whittier, Seward, Homer and Anchorage (via truck from the port of Seward). This is over double the number of vessels which participated in the 1986 fishery. The ex-vessel value of the 1987 fishery is estimated at approximately $186,679.00 ($1.00/pound average), as compared to the $213,000.00 value estimated for the 1986 fishery. A total of 116 department use permits required for this fishery were issued from department offices throughout the region. Table 26 summarizes the Prince William Sound sablefish fishery 1984-1987.

LITERATURE CITED

Alaska Department of Fish and Game. Alaska Catch and Production, Commercial Fisheries Statistics. Statistical Leaflets, 1962-70.

Alaska Department of Fish and Game. Division of Commercial Fisheries, Unpublished Records, 1954-1987.

Alaska Department of Fish and Game. IBM Computer Catch Summaries, 1954-1987.

Commercial Fisheries Entry Commission. License Statistics. Unpublished Data, 1974-1987.

Dudiak, Nick. 1987. Lower Cook Inlet FRED Division 1987 Annual Report. Alaska Department of Fish and Game, FRED Division Unpublished Report. pp.

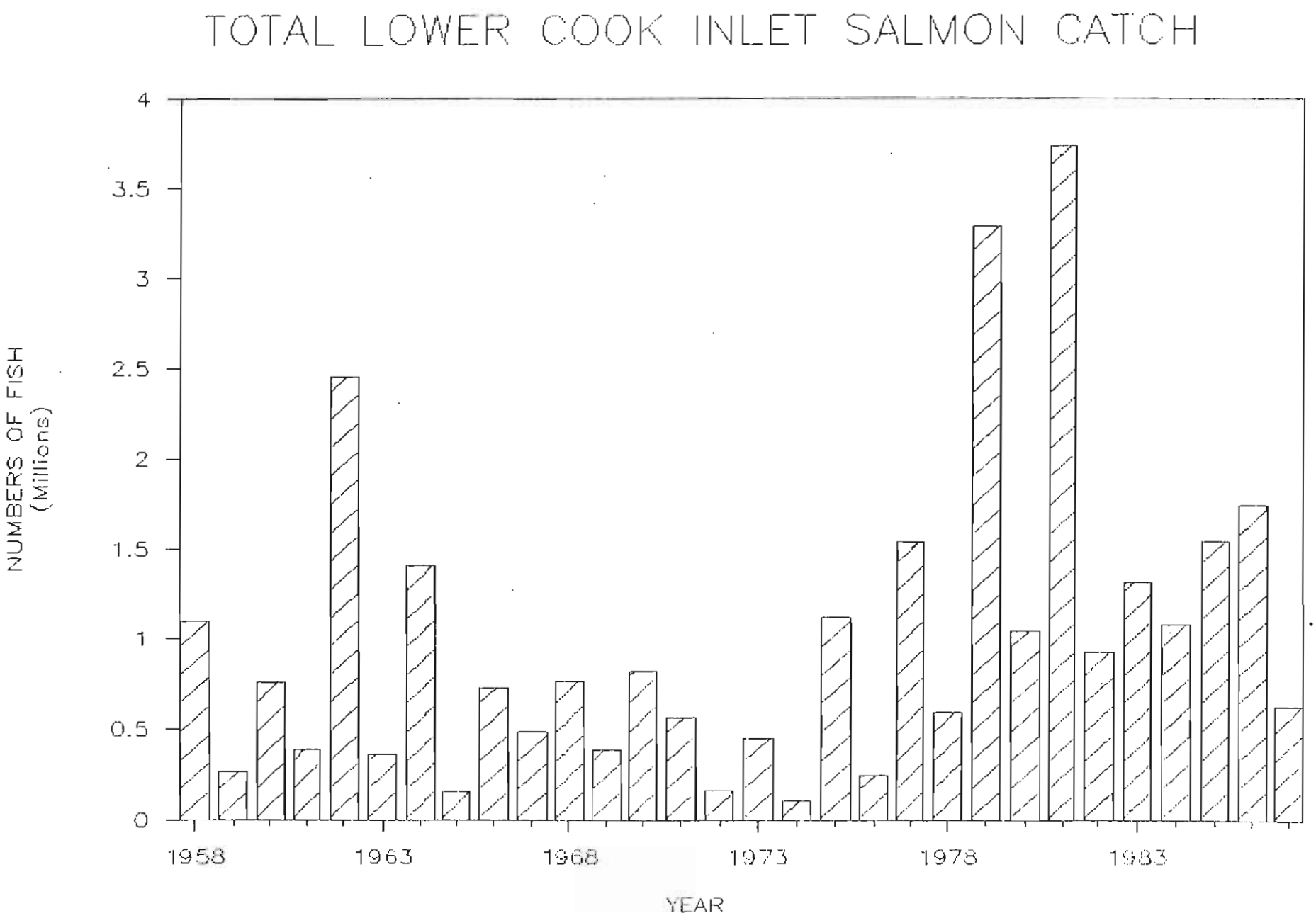

Figure 2. Lower Cook Inlet total salmon catch, 1957 - 1987.

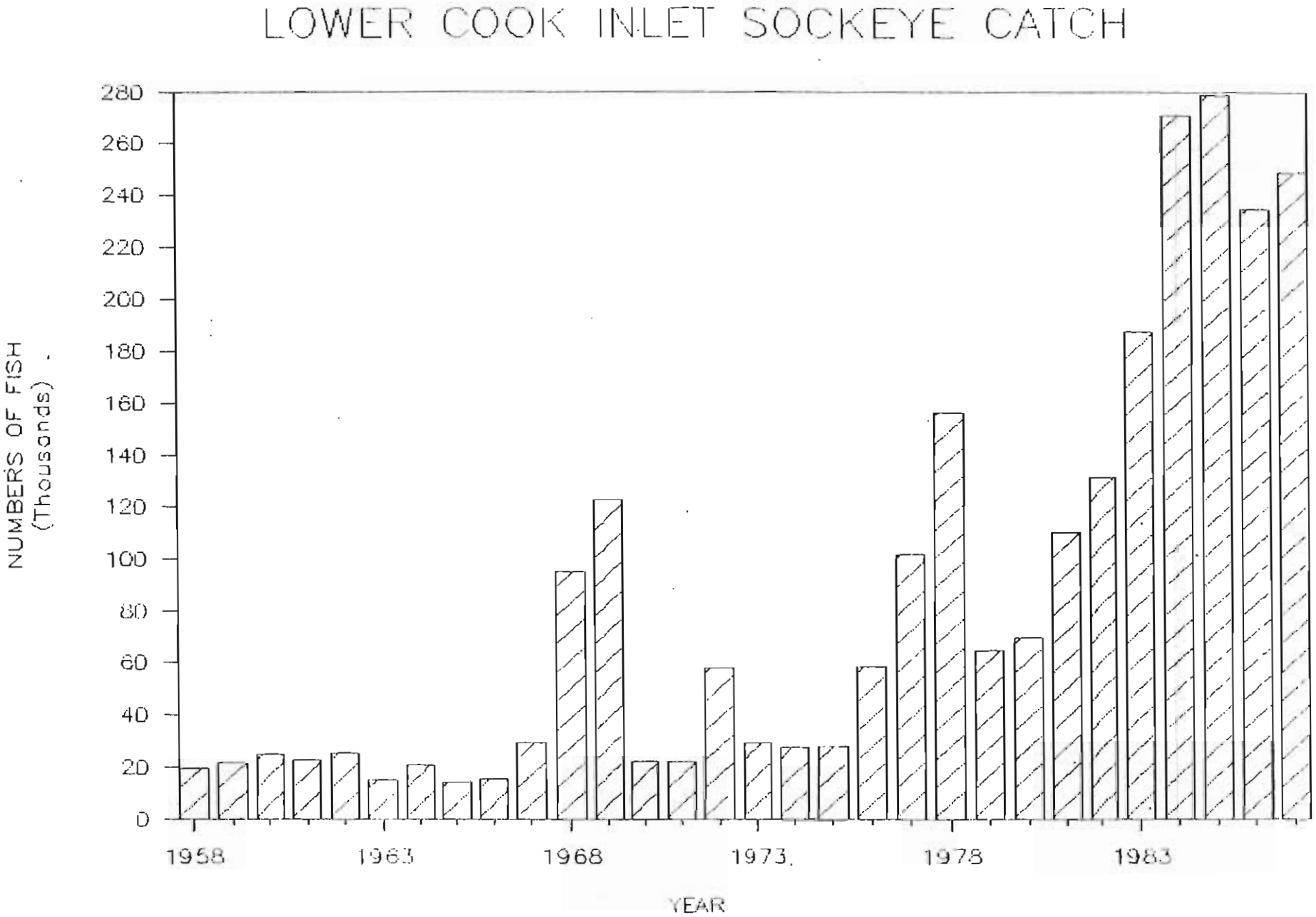

Figure 3. Lower Cook Inlet sockeye salmon catch, 1957 - 1987.

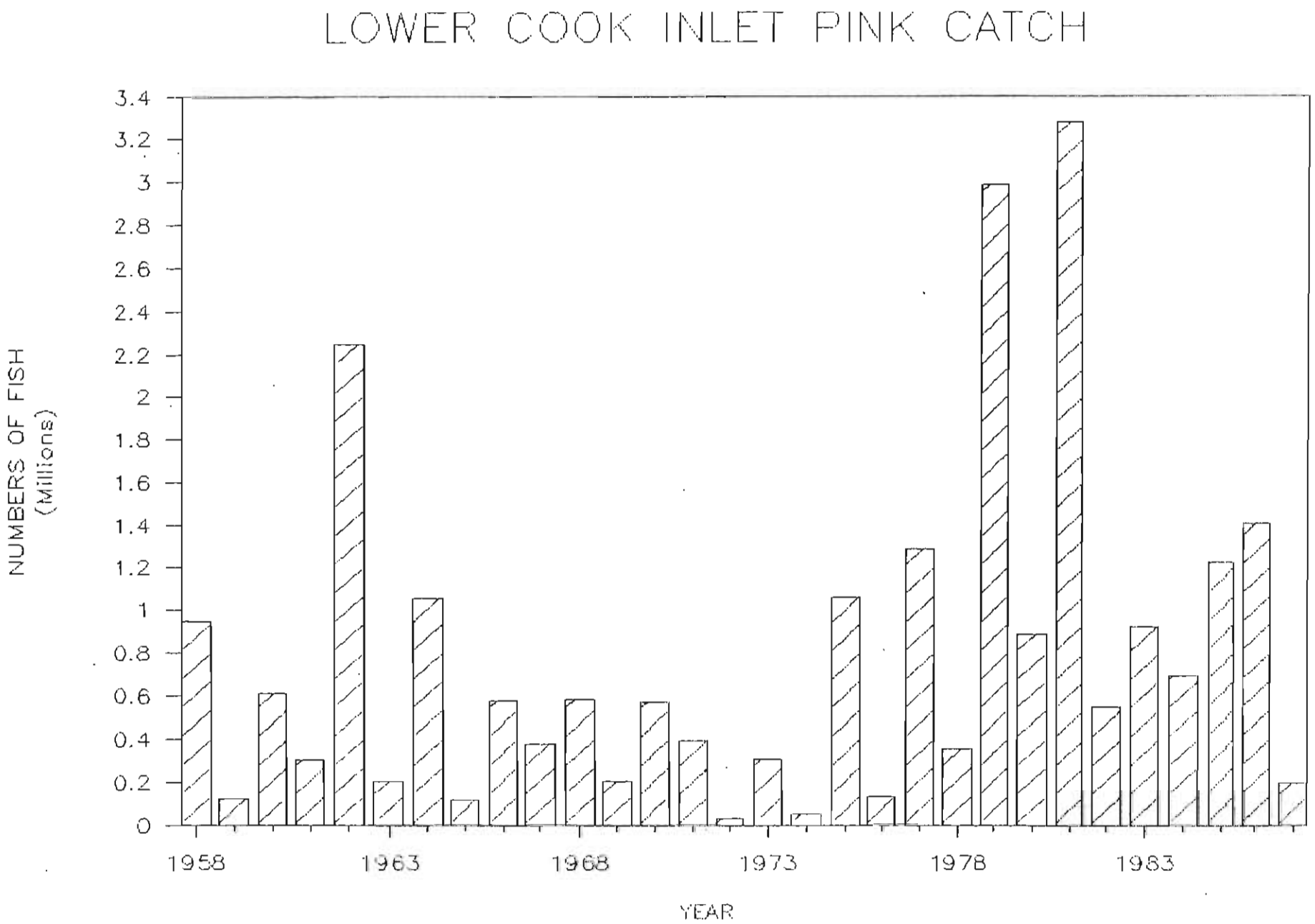

Figure 4. Lower Cook Inlet pink salmon catch, 1957 - 1987.

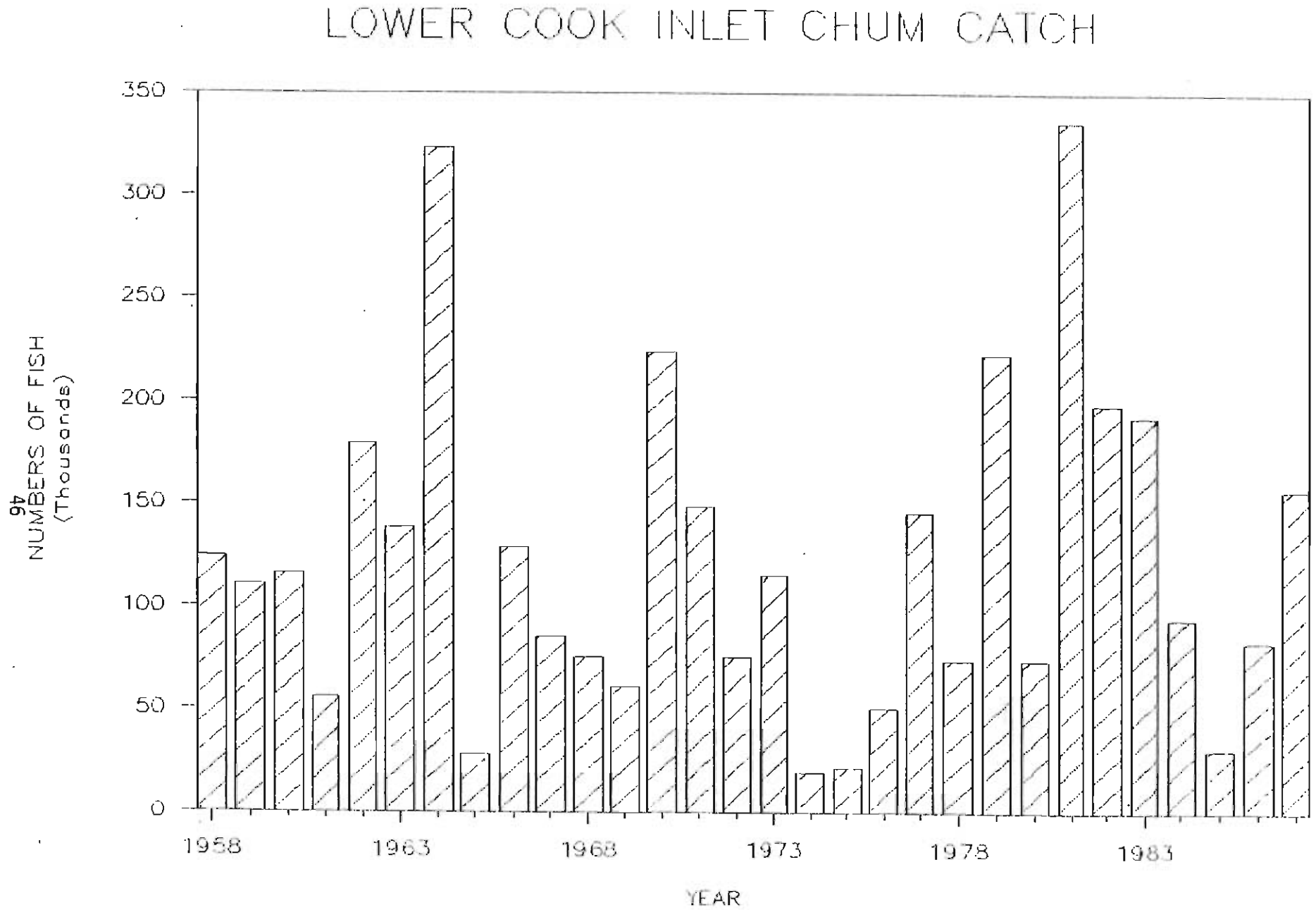

Figure 5. Lower Cook Inlet chum salmon catch, 1957 - 1987.

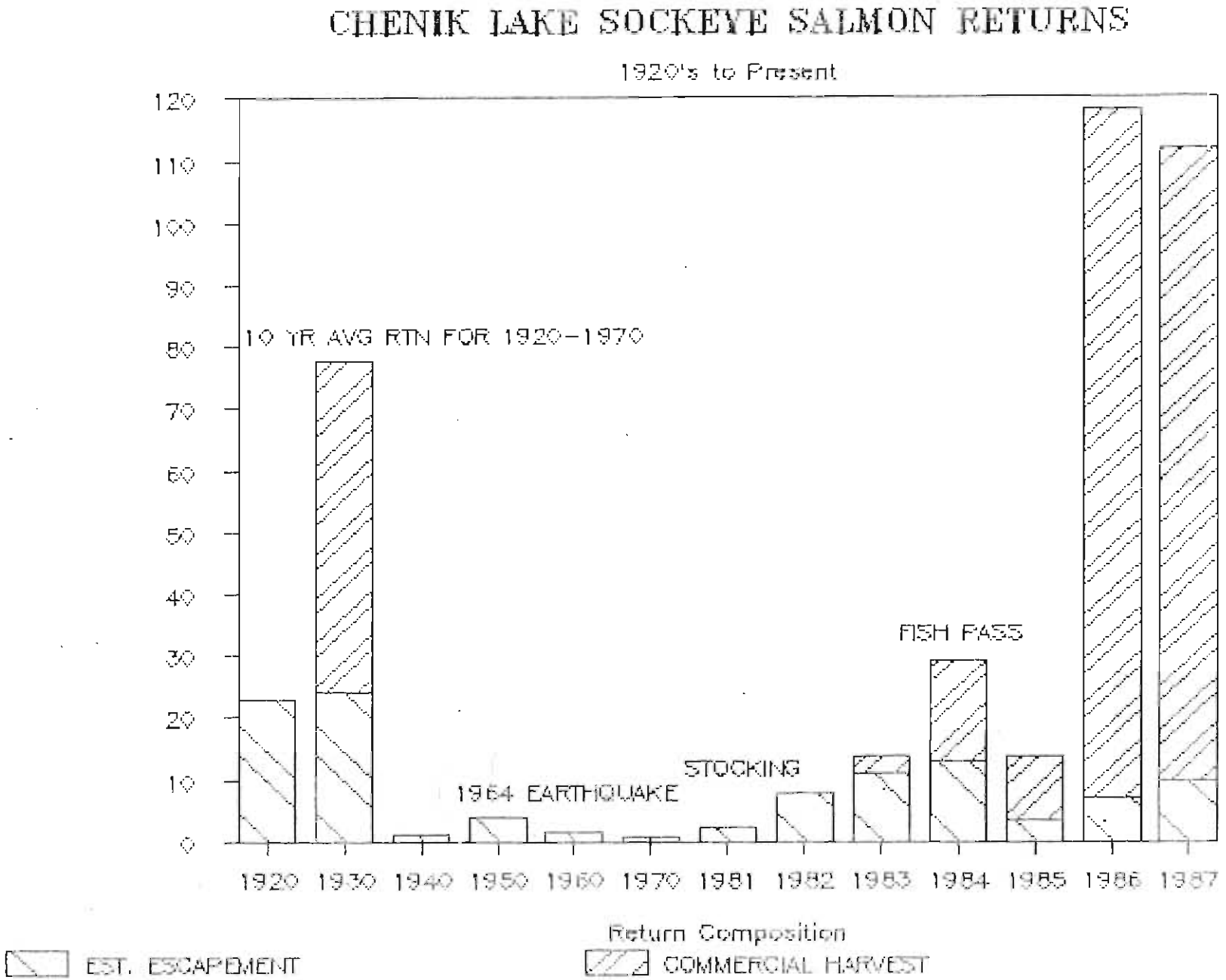

Figure 6. Historical sockeye salmon returns to Chenik Lake, 1920 - 1987.

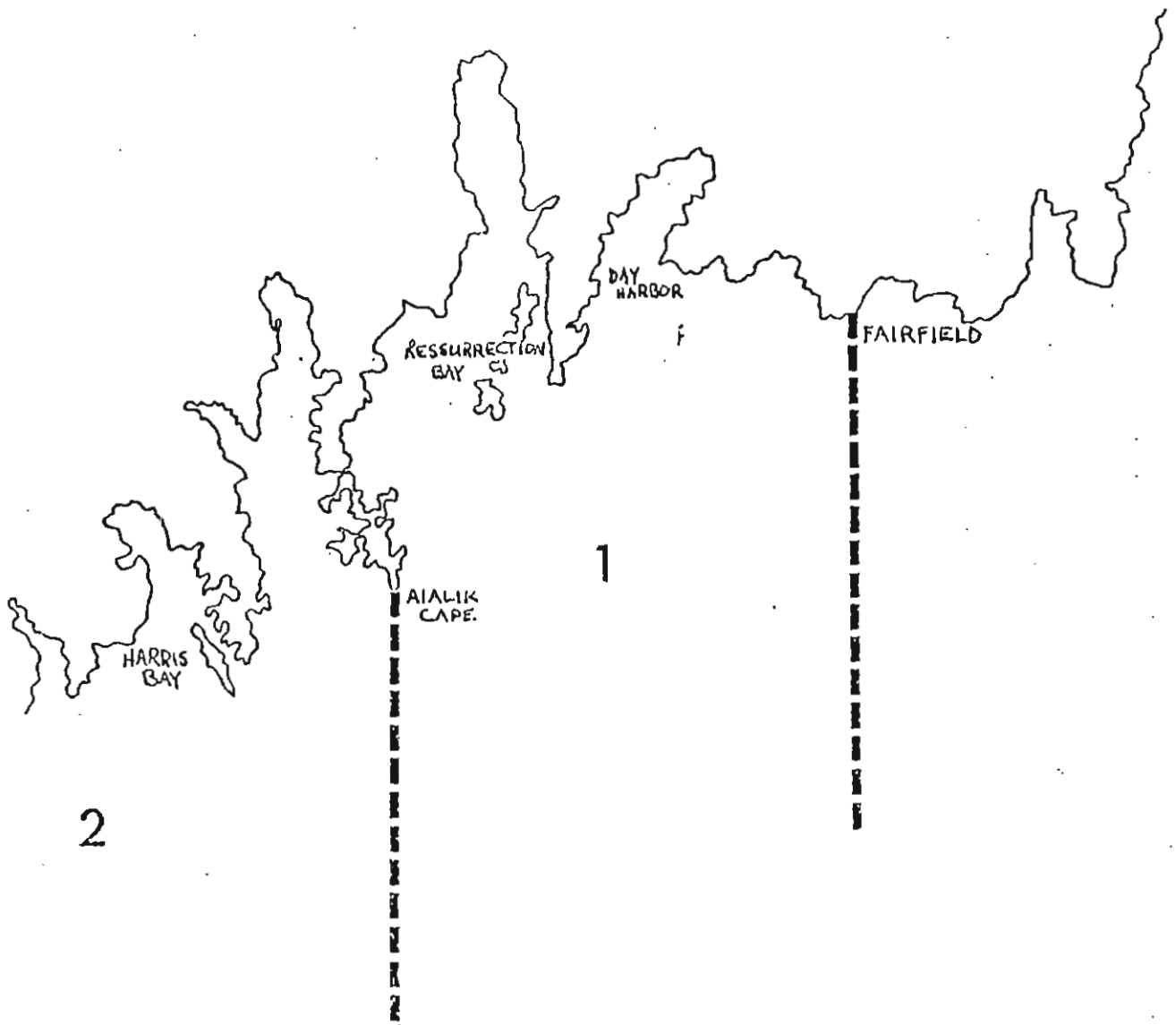

Figure 7. Herring management areas 1 and 2.

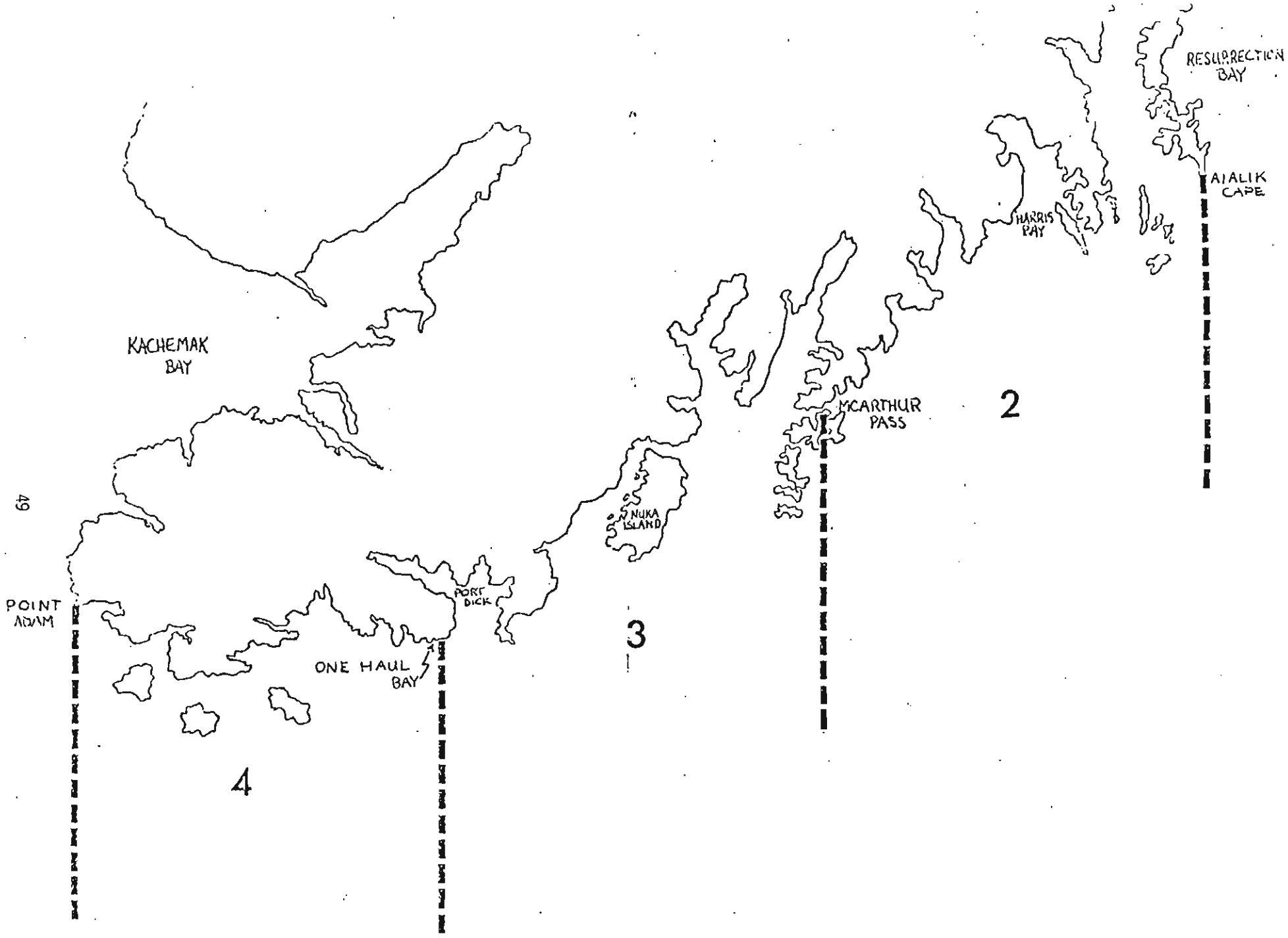

Figure 8. Herring management areas 2, 3 and 4.

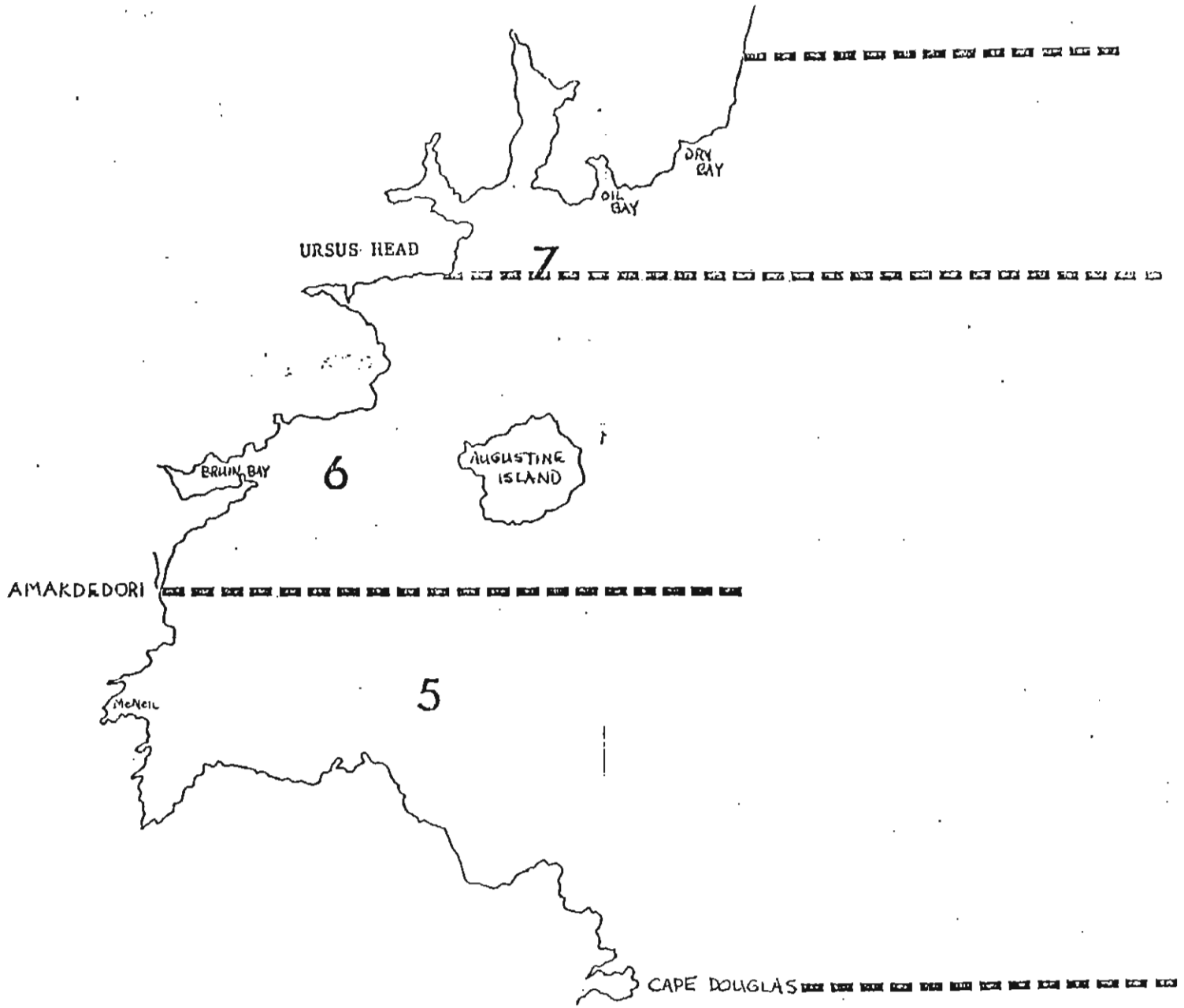

Figure 9. Herring management areas 5, 6 and 7.

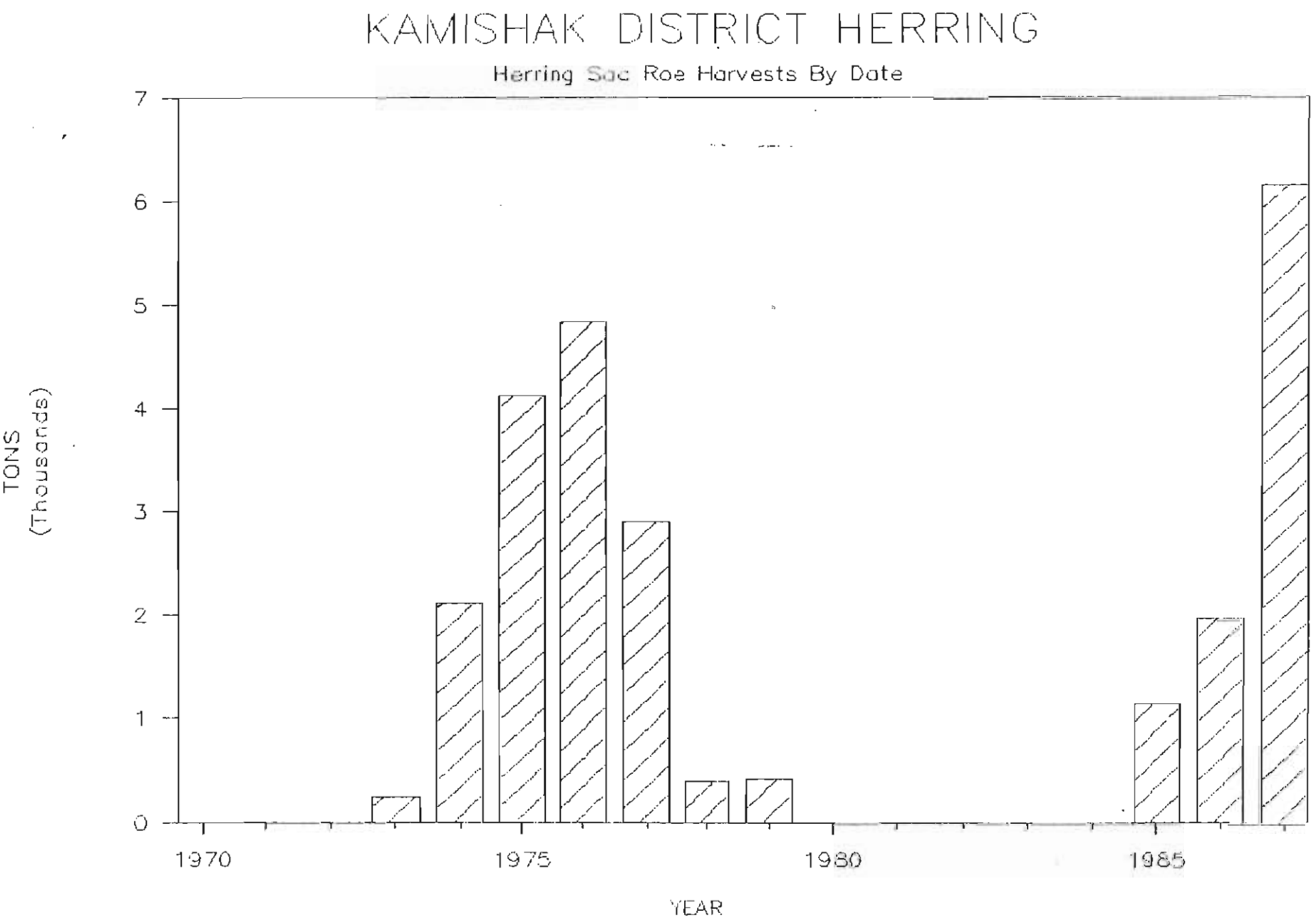

Figure 10. Lower Cook Inlet herring sac roe harvests.

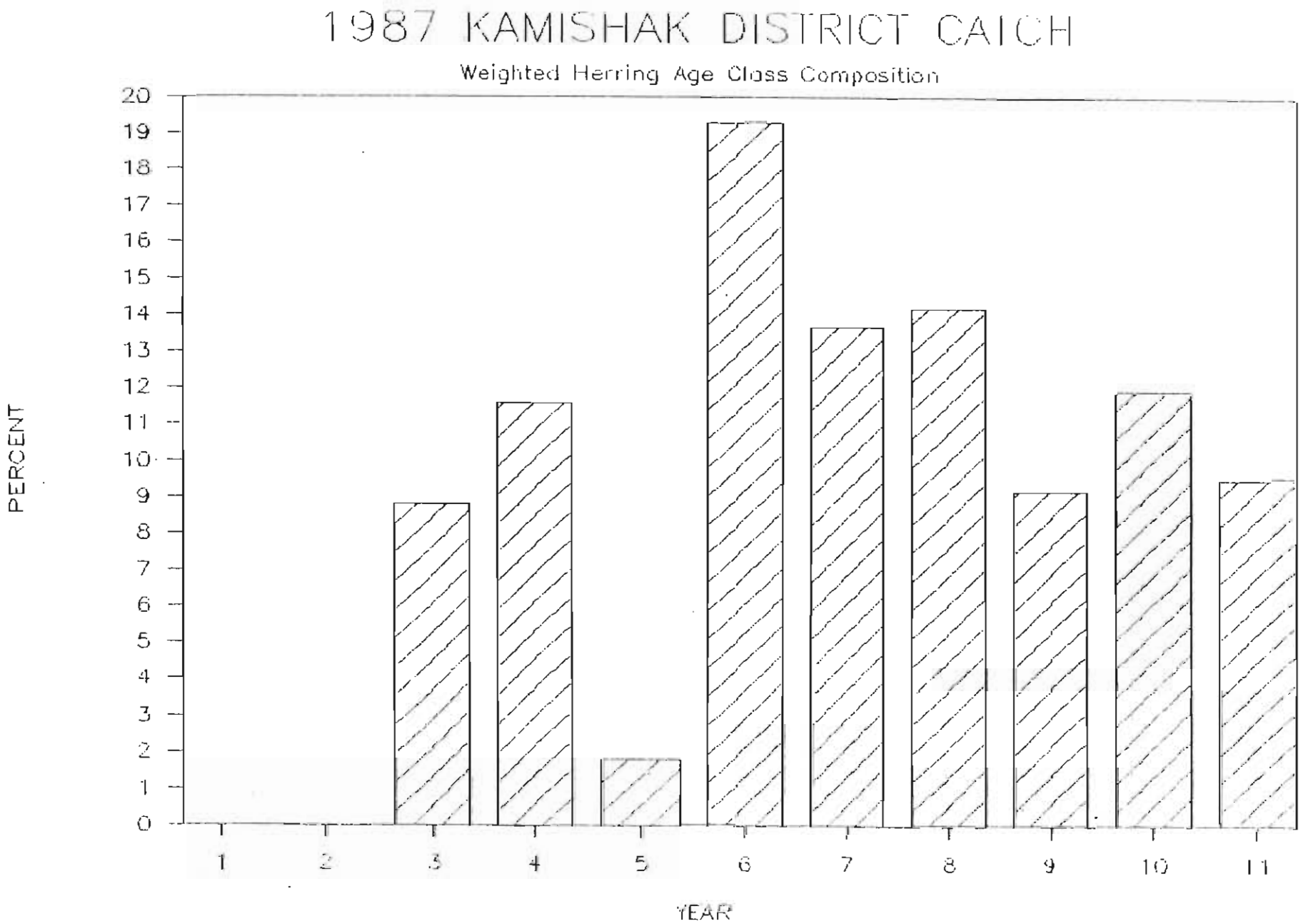

Figure 11. Age class composition of the Kamishak District herring sac roe harvest, 1987.

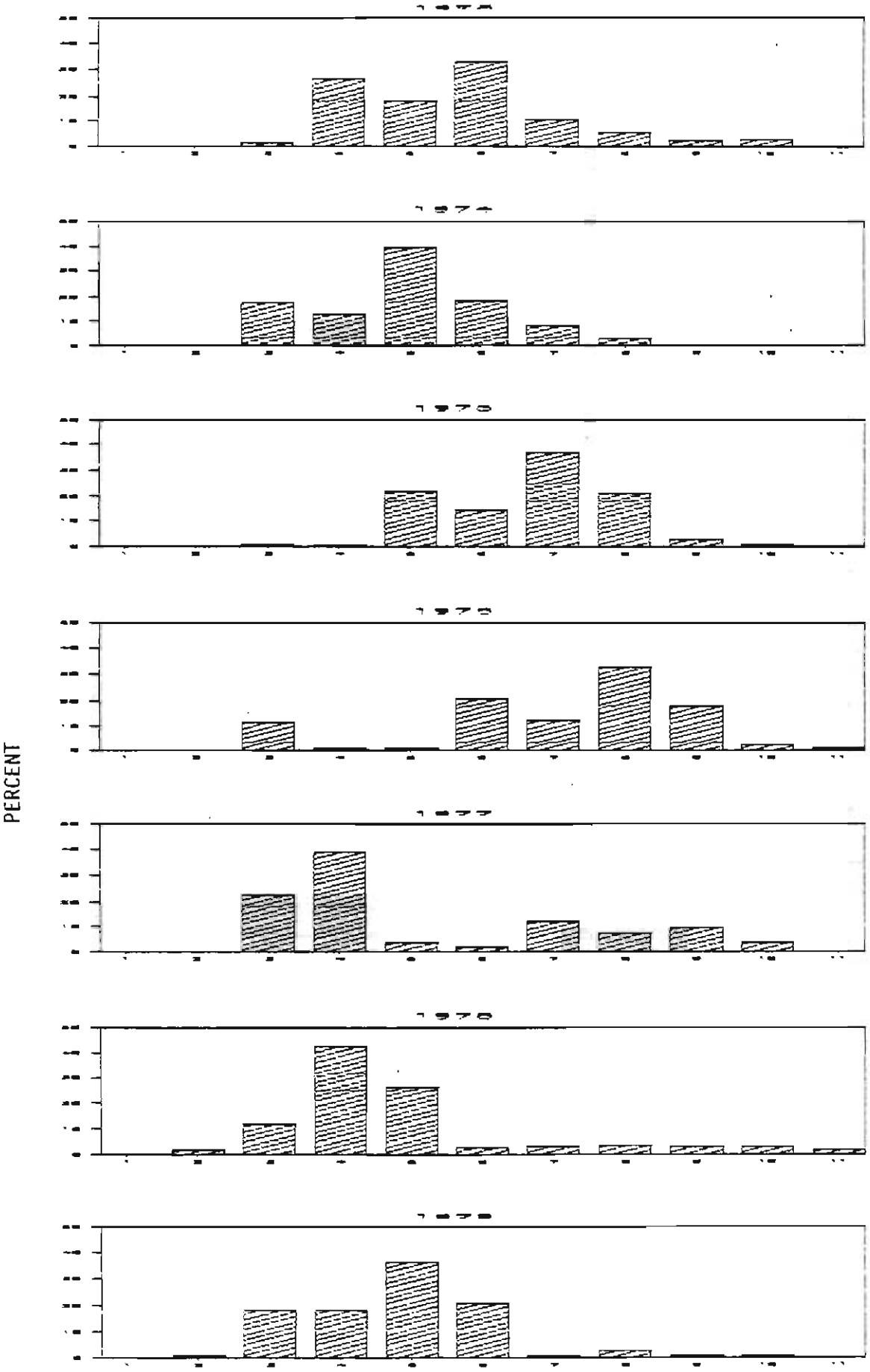

Figure 12. Comparison of the age class composition of the Pacific herring sac roe harvest from the Kamishak District by year.

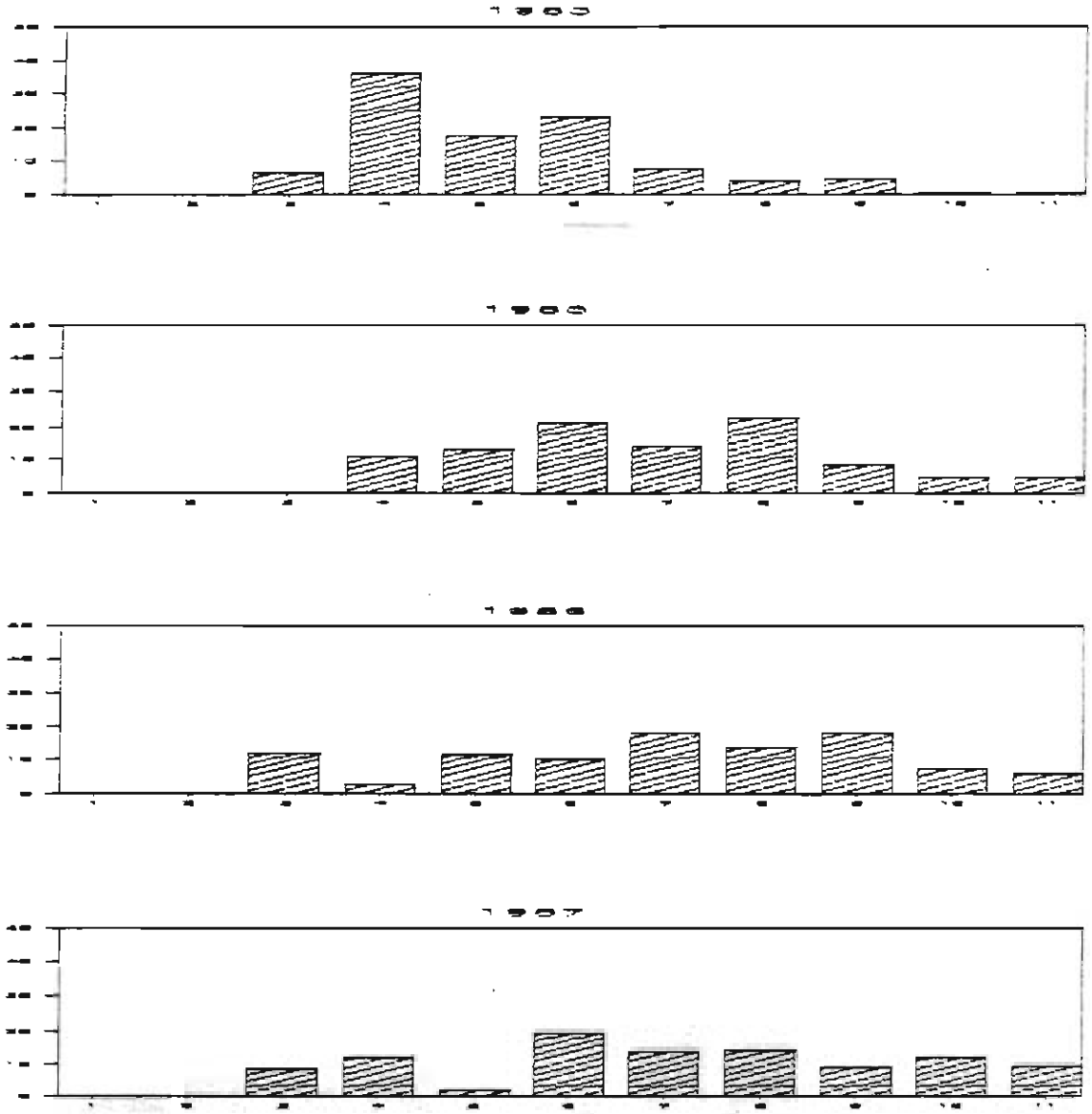

Figure 12. (continued)

Table 1. Lower Cook Inlet salmon catch by species, district and gear, 1987.

DISTRICT	KING	SOCKEYE	COHO	PINK	CHUM	TOTAL
SOUTHERN						
Set Net	653	28,209	2,025	9,224	2,419	42,530
Seine	505	61,453	138	81,298	2,611	146,005
Total	1,158	89,662	2,163	90,522	5,030	188,535
OUTER	14	31,845	2,481	23,890	28,663	86,893
KAMISHAK	7	123,654	8,079	72,684	108,412	312,836
EASTERN	0	3,687	1,631	14,333	14,913	34,564
TOTAL	1,179	248,848	14,354	201,429	157,018	622,828
Percent	0.19	39.95	2.31	32.34	25.21	100.00
30 YEAR AVERAGE	417	84,140	8,178	795,796	123,427	1,011,958

* Preliminary Data.

Table 2. Lower Cook Inlet escapement goals, average observed, and 1987 escapements of pink salmon.

SOUTHERN DISTRICT	ESC. GOAL	AVE. ESC. 1/	1987 ESC
Humpy Creek	25,000 - 50,000	53,500	26,600
Tutka Lagoon	6,000 - 10,000	12,200	4,800
Seldovia Creek	25,000 - 35,000	38,400	7,600
Port Graham River	20,000 - 40,000	14,800	3,800
China Poot Bay	5,000	9,000	3,100
Barabara Creek	18,000 - 24,000	5,000	300
Total	99,000 - 164,000	132,900	46,200
OUTER DISTRICT			
Port Chatham Streams	10,000 - 15,000	10,000	10,200
Rocky River	50,000	19,800	4,500
Windy Left River	30,000 - 50,000	15,500	5,600
Windy Right River	10,000	4,700	2,000
Port Dick Creek	20,000 - 100,000	46,800	4,500
Island Creek	12,000 - 18,000	6,900	2,200
South Nuka Creek	10,000	13,000	2,800
Desire Lake Creek	10,000 - 20,000	10,900	11,000
James Lagoon	5,000 - 10,000	7,100	1,100
Total	157,000 - 283,000	134,700	43,900
KAMISHAK DISTRICT			
Big Kamishak River	20,000	31,000	-
Little Kamishak River	20,000	22,000	-
Amakdedori Creek	5,000	16,000	400
Bruin Bay River	25,000 - 50,000	74,000	24,000
Sunday Creek	10,000	11,000	29,700
Brown's Peak Creek	10,000	10,000	40,200
Total	90,000 - 115,000	164,000	94,300
EASTERN DISTRICT 2/			
Aialik Lagoon	5,000	5,500	1,500
Bear Creek	5,000	9,800	3,500
Salmon Creek	10,000	16,100	1,700
Mayor Creek	2,000	3,000	-
Clear Creek	2,000	1,300	-
Thumb Cove	4,000	3,300	2,700
Humpy Cove	2,000	3,000	300
Tonsina Creek	5,000	3,900	3,400
Total	35,000	46,500	13,100
LOWER COOK INLET TOTAL	381,000 - 597,000	478,700	197,500

1/ Average escapement figures are based on weir counts, ground and aerial surveys conducted between 1951 and 1987. For many streams only several years data exist.
2/ Average escapements for pinks are for even years only.

Table 3. Lower Cook Inlet escapement goals, average observed and 1987 escapements for chum salmon. 1/

OUTER DISTRICT	ESCAPEMENT GOAL (RANGE)	AVE. OBS. ESCAPE.	1987 Escape
Dogfish Lagoon	5,000 - 10,000	6,400	2,000
Port Chatham (streams)	*	1,500	800
Windy Right River	*	1,500	300
Windy Left River	*	1,300	-
Rocky River	20,000	9,000	200
Head End Creek	4,000	5,200	6,100
Island Creek	10,000 - 15,000	9,800	13,200
Middle Creek	*	2,000	600
Petrof River	2,000 - 5,000	3,000	800
Total	41,000 - 54,000	39,700	24,000
KAMISHAK DISTRICT			
Silver Beach (streams)	*	4,000	1,300
Main Left (streams)	5,000 - 10,000	6,000	600
Big Kamishak River	20,000	14,900	12,000
Little Kamishak River	20,000	12,000	18,000
McNeil River	10,000 - 20,000	24,500	26,000
Bruin River	5,000	7,400	10,000
Rocky Cove (Sunday Creek)	*	1,000	300
Ursus Cove (streams)	5,000 - 10,000	6,500	9,900
Cottonwood Creek	10,000	6,100	17,000 2/
Iniskin River	10,000	8,900	9,100
Total	85,000 - 110,000	91,300	106,400
SOUTHERN DISTRICT			
Tutka Creek	*	1,100	400
Seldovia River	*	1,200	400
Port Graham River	4,000 - 8,000	2,100	1,500
Total	4,000 - 8,000	4,400	2,300
LOWER COOK INLET TOTAL	130,000 - 172,000	135,400	132,700

1/ Average escapement figures are based on weir counts and ground and aerial surveys conducted between 1951 and 1987. For many streams, only several years of data exist.

2/ Estimate. 2,689 additional fish taken for Tutka Hatchery.

*No established goal.

Table 4. Lower Cook Inlet escapement goals, average observed and 1987 escapements for sockeye salmon.

	Escapement Goal	Average Escape.	1987 Escape
SOUTHERN DISTRICT			
English Bay	10,000 - 20,000	8,500	7,000
Clearwater Slough	*	-	-
Total	10,000 - 20,000	8,500	7,000
OUTER DISTRICT			
Desire Lake	10,000	8,300	13,400
Delight Lake	10,000	6,900	10,500
Anderson Beach	2,000	500	200
Total	22,000	15,700	24,100
EASTERN DISTRICT			
Aialik Lake	2,500 - 5,000	8,500	9,200
Bear Lake	1,000+	*	300
Total	3,500 - 6,000	8,500	9,500
KAMISHAK DISTRICT			
Mikfik Lake	5,000	6,700	9,000
Chenik Lake	10,000 - 20,000	2,400	10,000
Kamishak River	*	2,800	-
Douglas River	*	1,200	100
Douglas Beach	*	400	-
Total	15,000 - 25,000	13,500	19,100
LOWER COOK INLET TOTAL	50,500 - 73,000	46,200	59,700

*Data not available.

Table 5. Emergency Order commercial fishing periods in Lower Cook Inlet, 1987.

Number	Date	Description
2-F-H-001-87	April 16	Opens the Outer, Eastern and Kamishak Bay districts, to herring sac roe fishing at 6:00 a.m. Tuesday April 21.
2-F-H-002-87	April 21	Closes the following waters of the Kamishak district to sac roe fishing at 9:00 p.m. Tuesday April 21: (1) Water of the Kamishak district west of the easternmost tip of Pomeroy Island located at 153 22' 03" W. longitude and north of the latitude of South Head located at 59 36' 21" N. latitude. (2) Waters of the Kamishak district south of the latitude of Sunday Creek in Rocky Cove located at 59 26' 48" N. latitude, west of 153 40' W. longitude, and North of the latitude of the northern entrance to Bruin Bay located at 59 23' 06" N. latitude. These closures essentially close Iniskin, Cottonwood and Iliamna Bays and waters between Bruin Bay and Sunday Creek in Rocky Cove.
2-F-H-003-87	April 23	Closes the entire Kamishak district to sac roe fishing at 1:00 p.m. Thursday April 23. Fisherman are put on 24 hour notice for reopening of the district.
2-F-H-004-87	April 27	Closes waters of the Outer and Eastern districts east of Gore Point, except for Aialik Bay and Resurrection Bay, to sac roe fishing at 12:00 noon Tuesday April 28.
2-F-H-005-87	May 6	Closes the entire Outer and Eastern districts to sac roe fishing at 12:00 noon Friday May 8.
2-F-H-006-87	May 8	Closes Aialik Bay and Resurrection Bay to sac roe fishing at 9:15 a.m. Friday May 8. This emergency order supercedes E.O. #2-F-H-005-87.

Table 5. Continued

Number	Date	Description
2-F-H-007-87	May 27	Closes the Outer, Eastern, Kamishak Bay and Barren Islands districts to the taking of herring from July 1, 1987 until February 28, 1988.
2-F-H-008-87	May 27	Opens the Kamishak district South of the latitude of Sunday Creek in Rocky Cove, located at 59 26' 48" N. latitude, to salmon seining at 6:00 am Monday June 1. Fishing will be allowed on the standard two 48 hour weekly periods and the markers at Amakdedori Creek will not be in effect.
2-F-H-009-87	May 27	Creates the Chenik section of the Bruin Bay subdistrict and the Halibut Cove section of the Humpy Creek subdistrict as follows: (1) The Chenik section includes all waters of the Bruin Bay subdistrict located between the latitude of the northernmost tip of Nordyke Island and 59 15' N. latitude; (2) The Halibut Cove section includes all waters of the Humpy Creek subdistrict southeast of a line from Peterson Point to a Department marker located on Glacier Spit.
2-F-H-010-87	June 5	Extends fishing time in the Kamishak district to seven days per week effective June 5.
2-F-H-011-87	June 5	Opens McNeil Lagoon to salmon seining for three two hour periods as follows: Saturday June 6 from 9:00 - 11:00 p.m., Sunday June 7 from 10:00 - 12:00 midnight and Monday June 8 from 11:00 a.m. - 1:00 p.m.
2-F-H-012-87	June 15	Closes inside waters of Prince William Sound to the commercial harvest of Sablefish (black cod) effective 12:00 p.m. June 25, 1987.

Table 5. Continued

Number	Date	Description
2-F-H-013-87	June 9	Opens McNeil Lagoon to seining for three hours 11:00 a.m. until 2:00 p.m. Tuesday June 9.
2-F-H-014-87	June 9	Opens McNeil Lagoon for two hours prior to each book listed high tide beginning at 11:00 p.m. Tuesday June 9, allows fishing up to the Department marker in Mikfik Creek and allows fishing outside the lagoon up to the end of the spit at the lagoon entrance.
2-F-H-015-87	June 11	Closes McNeil Lagoon to seining at 12:00 noon Thursday June 11.
2-F-H-016-87	June 14	Opens McNeil Lagoon to seining for two hours from 4:00 until 6:00 p.m. Sunday June 14.
2-F-H-017-87	June 15	Closes the Port Graham and English Bay area to commercial set gillnetting effective at 6:00 a.m. Wednesday June 17.
2-F-H-018-87	June 17	Opens McNeil Lagoon to seining for two hours from 6:30 until 8:30 p.m. Wednesday June 17.
2-F-H-019-87	June 18	Opens East Nuka and Aialik Bay subdistricts to salmon seining for 12 hours from 12:00 noon until 12:00 midnight Saturday June 20 and reopens both subdistricts at 6:00 a.m. Monday June 22.
2-F-H-020-87	June 17	Opens the Tutka Bay subdistrict to salmon seining seven days per week and opens the China Poot subdistrict to seining five days per week from 6:00 a.m. Monday until 6:00 a.m. Saturday effective at 6:00 a.m. Thursday June 25. The markers at the HEA powerline in China Poot Bay will not be in effect and fishing is allowed up to the Department marker at the mouth of China Poot Creek.

Table 5. Continued

Number	Date	Description
2-F-H-021-87	June 29	Opens the Halibut Cove section of the Humpy Creek subdistrict to seining at 6:00 a.m. Wednesday July 1 on a five day per week basis from 6:00 a.m. Monday until 6:00 a.m. Saturday. Halibut Cove Lagoon will be open to fishing during this opening of the Halibut Cove section.
2-F-H-022-87	June 29	Closes waters of the Chenik section of the Bruin Bay subdistrict between the latitudes of the northernmost and southernmost Department markers located near Chenik Lagoon effective at 6:00 p.m. Wednesday July 8.
2-F-H-023-87	July 8	Removes markers at Desire Lake Creek opens McCarty Lagoon to fishing and allows fishing seven days per week in the East Nuka subdistrict at 6:00 am Thursday July 9.
2-F-H-024-87	July 9	Opens the Chenik section of the Bruin Bay subdistrict inside the regular markers for two hours from 6:00 until 8:00 p.m. Thursday July 9, for one hour from 8:00 until 9:00 a.m. Friday July 10 and by flare for 1 1/2 hours from 2:00 until 3:30 p.m. Friday July 10.
2-F-H-025-87	July 10	Reopens the Port Graham subdistrict to commercial set gillnetting at 6:00 a.m. Monday July 13.
2-F-H-026-87	July 10	Reduces fishing time in the Tutka Bay subdistrict from seven days per week to five days per week from 6:00 a.m. Monday until 6:00 a.m. Saturday effective at 6:00 a.m. Saturday July 11.
2-F-H-027-87	July 10	Allows fishing up to the regular markers in the Chenik section of the Bruin Bay subdistrict effective at 6:00 a.m. Saturday July 11.

Table 5. Continued

Number	Date	Description
2-F-H-028-87	July 11	Closes the McNeil River subdistrict to fishing at 6:00 a.m. Sunday July 12 and removes the markers at Chenik Lagoon effective at 3:00 p.m. Sunday July 12.
2-F-H-029-87	July 13	Opens Aialik Lagoon by flare to salmon seining for two hours from 9:00 until 11:00 a.m. Tuesday July 14.
2-F-H-030-87	July 15	Restores the Chenik Lagoon markers effective at 3:00 p.m. Wednesday July 15.
2-F-H-031-87	July 11	Closes the general Kamishak district to salmon seining and reopens only the Kamishak-Douglas subdistrict and waters of the Bruin Bay subdistrict south of the latitude of Amakdedori Creek effective at 12:00 noon Thursday July 16.
2-F-H-032-87	July 19	Reopens the Chenik Lagoon area and removes the Department markers effective at 10:00 p.m. Sunday July 19.
2-F-H-033-87	July 20	Reopens the McNeil subdistrict to seining for 24 hours from 6:00 a.m. Tuesday July 21 until 6:00 a.m. Wednesday July 22 and opens Aialik Lagoon for two hours from 8:00 until 10:00 a.m. Tuesday July 21.
2-F-H-034-87	July 20	Closes Tutka Bay to salmon seining at 6:00 a.m. Wednesday July 22 and closes McCarty Lagoon and waters of the East Nuka subdistrict within a one mile radius of the mouth of Delight Lake Creek to salmon seining at 6:00 a.m. Thursday July 23.

Table 5. Continued

Number	Date	Description
2-F-H-035-87	July 21	Opens waters of Resurrection Bay within a one mile radius of Tonsina Creek to salmon seining for 6 hours from 6:00 a.m. until 12:00 noon Thursday July 23 and extends fishing time in Aialik Lagoon from 10:00 a.m. Tuesday July 21 until 6:00 a.m. Friday July 31.
2-F-H-036-87	July 22	Closes Halibut Cove Lagoon to salmon seining effective at 6:00 p.m. Wednesday July 22.
2-F-H-037-87	July 23	Puts the markers back in effect at Chenik Lagoon and reopens the McNeil subdistrict effective at 3:00 p.m. Thursday July 23.
2-F-H-038-87	July 24	Closes the Halibut Cove section of the Humpy Creek subdistrict to commercial salmon seining and set gillnet fishing and closes the Seldovia Bay, Barabara Creek and Tutka Bay subdistricts to set gillnet fishing effective at 6:00 a.m. Saturday July 25. Fishing time is reduced to the normal two 48 hour weekly periods for salmon seining in the East Nuka and China Poot subdistricts and in the Kamishak Bay district effective at 6:00 a.m. Saturday July 25. Closes Aialik Lagoon to salmon seining effective at 6:00 a.m. Saturday July 25.
2-F-H-039-87	July 27	Reopens McCarty Lagoon and the closed waters area at the mouth of Delight Lake Creek at 12:00 noon Monday July 27, opens waters of the Port Dick North section of the Port Dick subdistrict east of the easternmost marker at Middle Creek to salmon seining for 18 hours from 12:00 noon Tuesday July 28 until 6:00 a.m. Wednesday July 29 and adjusts markers in the Island Creek closed area.

Table 5. Continued

Number	Date	Description
2-F-H-040-87	July 27	Removes the markers in the Chenik subdistrict at 5:00 pm Monday July 27 and allows fishing up to the mouth of Chenik Creek.
2-F-H-041-87	July 27	Reopens Aialik Lagoon from 12:00 noon Tuesday July 28 until 6:00 a.m. Wednesday July 29. Opens the Bruin Bay subdistrict for two hours from 4:00 until 6:00 p.m. Tuesday July 28, the Ursus Cove subdistrict for six hours from 4:00 until 10:00 p.m. Tuesday July 28 and the Rocky Cove subdistrict south of the mouth of Sunday Creek for one hour by flare from approximately 4:00 until 5:00 p.m. Tuesday July 28.
2-F-H-042-87	July 29	Opens waters of Resurrection Bay between the latitudes of Caines Head and Lowell Point, Aialik Lagoon, waters of the Port Dick North section east of the easternmost marker at Middle Creek, the Ursus Cove subdistrict and the Bruin Bay subdistrict, except for waters of Bruin Bay proper west of the longitude of Contact Point, to salmon seining for 48 hours from 6:00 a.m. Thursday July 30 until 6:00 a.m. Saturday August 1. Set gillnet fishing will reopen in the Halibut Cove section of the Humpy Creek subdistrict at 6:00 a.m Thursday July 30.
2-F-H-043-87	July 31	Closes the entire Kamishak district and China Poot and Aialik subdistricts to salmon seining at 6:00 a.m. Saturday August 1 and puts the markers at the mouth of Desire Creek back in effect at 6:00 a.m. Monday August 3.
2-F-H-044-87	August 5	Reopens the Seldovia Bay, Barabara Creek and Tutka Bay subdistricts to set gillnet fishing effective at 6:00 a.m. Thursday August 6.

Table 5. Continued

Number	Date	Description
2-F-H-045-87	August 5	Opens water of Resurrection Bay within 500 yards of the mouth of Tonsina Creek to salmon seining for six hours from 6:00 a.m. until 12:00 noon Thursday August 6 and opens waters of the Port Dick North Section east of the easternmost marker at Middle Creek to salmon seining for 24 hours from 6:00 a.m. Friday August 7 until 6:00 a.m. Saturday August 8.
2-F-H-046-87	August 6	Open the Kamishak district south of Ursus Head to salmon seining at 6:00 a.m. Friday August 7 and removes the markers at Brown's Peak Creek, Sunday Creek and Chenik Creek and allows fishing up to the mouth of those streams.
2-F-H-047-87	August 12	Closes waters of the Kamishak district to salmon seining north of the latitude of the mouth of Amakdedori Creek effective at 6:00 a.m. Thursday August 13.
2-F-H-048-87	August 13	Close McCarty Lagoon to salmon seining and removes markers at Desire Creek at 12:00 noon Thursday August 13. Opens waters of the Port Dick North section east of the easternmost marker at Middle Creek to salmon seining for 18 hours from 12:00 noon Friday August 14 until 6:00 a.m. on Saturday August 15.
2-F-H-049-87	August 13	Opens the entire Kamishak district, except for the Cottonwood Bay subdistrict, to salmon seining seven days per week effective at 6:00 p.m. Thursday August 13 and removes the markers at Sunday Creek and Brown's Peak Creek.
2-F-H-050-87	August 18	Opens the Cottonwood Bay subdistrict to salmon seining for 72 hours from 6:00 a.m. Wednesday August 19 until 6:00 a.m. Saturday August 22.

Table 5. Continued

Number	Date	Description
2-F-H-051-87	August 25	Opens the Cottonwood Bay subdistrict east of the longitude of Diamond Point to salmon seining at 12:00 noon Wednesday August 25.

Table 6. Preliminary Estimate of Adult Pink Salmon return to Tutka Bay and Lagoon, 1987.

Commercial Harvest:	
Seine	52,795
Set Net	3,670
Sub-Total	56,465
Sport Catch	500
Escapement:	
Tutka Creek and Channel	4,800
Egg-Take	22,000
Total Return	83,765

Tutka Lagoon Hatchery contribution estimated at 79,577 or 95% of the total run.

Table 7. Tutka Bay (241-16) Pink Salmon Seine Catch by Statistical Week.

Stat Week	1978 Entire Subdistrict	1978 Lagoon Only	1979 Entire Subdistrict	1979 Lagoon Only	1980 Entire Subdistrict	1980 Lagoon Only	1981 Entire Subdistrict	1981 Lagoon Only	1982 Entire Subdistrict	1982 Lagoon Only	1983 Entire Subdistrict	1983 Lagoon Only
25												
26			3,786		3,691		8,647					
27			129,659		17,630		101,301		3,560		13,782	
28	24,683		178,178	68,500	76,810		239,547		49,703	8,500	92,230	
29	19,077		50,873	24,000	130,608	35,074	301,919	42,000	40,730		152,038	35,000
30	83,681	47,143	22,574	20,700	34,669		166,796	35,000	24,933		247,119	35,000
31	19,980	17,143	15,392	14,500	22,014	20,500	107,918	12,000	44,326	24,000	68,522	18,000
32	12,357	11,100			22,755	21,481	47,096	10,000	4,091		28,380	10,000
33	818						19,071	13,700	10,434	11,000	1,751	
34							7,543	7,243	--			
Total Seine Catch	160,596	75,386	400,462	127,700	308,177	77,055	999,838	119,943	177,777	57,100	603,822	98,000
Set Net Catch	7,266		21,354		13,336		26,736		7,099		11,637	
Sport Catch	---		2,000		5,000		6,000		2,000		5,000	
Egg Take	21,100		21,200		26,897		22,000		41,200		53,800	
Escapement	15,000		10,600		17,300		28,000		18,500		12,900	
Total Return	203,962		455,616		370,710		1,082,574		246,576		687,159	

Table 7. (continued)

Stat Week	1984 Entire Subdistrict	1984 Lagoon Only	1985 Entire Subdistrict	1985 Lagoon Only	1986 Entire Subdistrict	1986 Lagoon Only	1987 Entire Subdistrict	1987 Lagoon Only
25								
26	7,312		17,656		1,992		107	
27	40,700		63,632		49,948		6,685	
28	91,774	38,200	129,020	31,300	175,863	47,000	27,738	
29	76,639	44,700	111,211	34,800	134,039	36,900	14,758	
30	14,629		40,583		32,504	14,500	3,507	
31			45,644	22,200	570			
32			44,685	17,600	26			
33			23,397	13,800				
34			8,771	5,200				
Total Seine Catch	231,054	82,900	484,293	124,900	394,922	98,400	52,795	
Set Net Catch	10,000		6,888		5,228		3,670	
Sport Catch	8,000		8,000		8,000		500	
Egg Take	41,000		43,000		43,000		22,000	
Escapement	10,500		14,000		13,400		4,800	
Total Return	300,554		556,181		464,550		83,765	

Table 7a. Harvest of China Poot Bay (Leisure Lake) sockeye salmon returns by user group.

Return Year	Sport Harvest	Personal Use	Commercial Harvest	Total Return 1/
1979	650	0	ND	650
1980	1,000	1,000	12,000	14,000
1981	1,500	0	10,000	11,500
1982	450	1,320	200	3,400
1983	480	5,910	84,020	90,420
1984	500	2,000	114,360	117,360
1985	500	3,000	61,500	65,920
1986	100	150	18,350	18,800
1987	200	2,000	21,500	23,700
Totals	5,380	15,380	321,930	345,750

ND = No data.

1/ Total return counts include estimates for escapements (i.e. non-harvested fish).

Table 8. Lower Cook Inlet salmon catch by species, 1958-1987. 1/

Year	King	Red	Coho	Pink	Chum	Total
1958	120	19,450	1,796	949,766	124,482	1,095,614
1959	132	21,637	6,352	124,748	110,838	263,707
1960	27	24,726	2,692	611,647	116,082	755,174
1961	41	22,776	1,619	303,377	55,593	383,406
1962	60	25,286	7,727	2,248,341	179,259	2,460,673
1963	96	15,121	6,736	203,616	138,510	364,079
1964	91	20,654	9,460	1,055,417	323,335	1,408,957
1965	10	14,002	862	115,598	28,076	158,548
1966	62	15,333	5,411	579,240	129,062	729,108
1967	176	29,044	2,726	375,488	85,445	492,879
1968	64	95,242	4,883	585,441	75,134	760,764
1969	64	122,796	623	202,444	61,203	387,130
1970	106	20,898	4,696	716,212	242,427	984,339
1971	73	22,234	4,561	392,871	148,602	568,341
1972	88	57,897	2,234	28,663	75,543	164,425
1973	145	29,136	2,101	307,403	115,513	454,298
1974	183	27,428	6,514	50,601	19,210	103,936
1975	142	28,142	6,211	1,063,338	21,646	1,119,479
1976	450	58,159	3,216	136,445	50,822	249,092
1977	217	101,597	1,798	1,293,932	145,789	1,543,333
1978	1,747	156,404	6,529	352,561	73,518	590,759
1979	1,238	64,417	12,393	2,990,929	218,490	3,287,467
1980	424	69,442	14,505	889,703	73,492	1,047,566
1981	1,086	110,255	10,776	3,279,183	336,093	3,737,393
1982	1,066	131,320	46,892	551,589	198,185	929,052
1983	873	187,645	11,219	927,607	192,319	1,319,663
1984 2/	713	270,756	17,271	698,276	93,804	1,080,820
1985	1,043	278,694	10,327	1,229,717	30,638	1,550,419
1986	796	234,861	18,852	1,408,293	82,688	1,745,490
1987 2/	1,179	248,848	14,354	201,429	157,018	622,828
30 Year Total	12,512	2,524,200	245,336	23,873,875	3,702,816	30,358,739
30 Year Average	417	84,140	8,178	795,796	123,427	1,011,958
% of Total	0.04	8.31	0.81	78.64	12.20	100.00

1/ Data source: final IBM computer runs, 1958-1987 and processor catch reports.
2/ Preliminary data.

Table 9. Summary of subsistence fishermen in Lower Cook Inlet by area of residence.

Area Residence of Permittee	Homer #	Homer %	Anchorage Area #	Anchorage Area %	Halibut Cove #	Halibut Cove %	Anch. Pt. Ninilchik #	Anch. Pt. Ninilchik %	Seldovia #	Seldovia %	Pt Graham/ Eng. Bay #	Pt Graham/ Eng. Bay %	Kenai/ Soldotna #	Kenai/ Soldotna %	Other #	Other %	Total Permits Issued
1974	108	73.0	20	13.5	6	4.1	4	2.7	1	0.7	3	2.0	5	3.4	1	0.7	148
1975	118	75.2	13	8.3	6	3.8	7	4.5	5	3.2	2	1.3	4	2.5	2	1.3	157
1976	182	70.0	24	9.2	9	3.5	25	9.6	5	1.9	4	1.5	6	2.3	5	1.9	260
1977	153	77.3	8	4.0	8	4.0	17	8.6	7	3.6	0	0	2	1.0	3	1.6	198
1978	214	68.8	40	12.9	5	1.6	30	9.6	12	3.8	3	1.0	4	1.3	3	1.0	311
1979	276	62.7	67	15.2	2	0.5	61	13.9	3	0.7	0	0	11	2.5	20	4.6	440
1980	310	58.2	81	15.2	0	0	80	15.0	7	1.3	0	0	42	7.9	13	2.4	533
1981	274	71.4	43	11.2	8	2.1	37	9.6	3	0.8	1	0.3	14	3.6	4	1.0	384
1982	295	74.7	19	4.8	9	2.3	44	11.1	0	0	0	0	7	1.8	21	5.3	395
1983	267	77.9	24	7.0	3	0.9	33	9.6	8	2.3	0	0	0	0	8	2.3	343
1984	266	72.0	20	5.4	6	1.6	62	16.8	5	1.4	1	0.3	5	1.4	4	1.1	369
1985	251	79.4	15	4.8	6	1.9	33	10.4	6	1.9	0	0	2	0.6	3	1.0	316
1986	280	82.8	18	5.3	4	1.2	29	8.6	1	0.3	0	0	1	0.3	5	1.5	338
1987	284	78.7	25	6.9	3	0.8	37	10.3	7	1.9	0	0	2	0.6	3	0.8	361
14 Year Total	3,278	-	417	-	75	-	499	-	70	-	14	-	105	-	95	-	4,553
14 Year Average	234	71.8	30	9.2	5	1.5	36	11.0	5	1.5	1	0.3	8	2.5	7	2.2	326

Table 10. Subsistence fishery catches for the Southern district of Cook Inlet. 1969-1986.

Year	Issued	Returned	Permits Not Fished	Returned	King	Sockeye	Coho	Pink	Chum	Other	Total
1969	47	44	9	93.6	0	9	752	38	0	17	816
1970	78	73	18	93.6	0	12	1,179	143	13	39	1,386
1971	112	95	42	84.8	2	16	1,549	44	7	20	1,638
1972	135	105	41	77.8	1	11	975	48	69	19	1,123
1973	143	128	46	89.5	0	18	1,304	84	40	9	1,455
1974	148	118	66	80.3	0	16	376	43	77	27	539
1975	292	276	55	94.5	4	47	1,960	632	61	95	2,739
1976	242	221	83	91.3	16	46	1,962	1,513	56	75	3,668
1977	197	179	42	90.9	12	46	2,216	639	119	84	3,116
1978	311	264	113	84.9	4	35	2,482	595	34	89	3,239
1979	437	401	163	91.8	6	37	2,118	2,251	41	130	4,583
1980	533	494	195	92.7	43	32	3,491	1,021	25	153 1/	4,765
1981	384	374	100	97.4	25	64	4,314	732	89	+100	5.324
1982	395	378	71	95.7	39	46	7,303	955	123	8	8,474
1983	360	328	118	91.1	4	21	2,525	330	40	2	2,922
1984	390	346	127	88.7	4	25	3,666	821	87	25	4,628
1985	316	302	97	95.6	5	43	3,372	166	35	3	3,624
1986	338	310	63	91.7	7	68	3,831	3,132	56	0	7,094
1987	361	338	89	93.6	5	50	3,977	279	61	0	4.372
19 Year Total	5,181	4,765	1,538	-	179	642	49,352	13,466	1,033	895	65,565
19 Year Average	273	251	81	91.9	9	34	2,597	709	54	47	3,451

1/ Steelhead.

Table 11. Port Graham subsistence salmon harvest by year.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1981	116	1,694	625	298	150	2,883
1982	98	798	508	851	193	2,448
1983	57	1,066	440	169	65	1,797
1984	21	2,095	166	215	6	2,503
1985	156	469	190	42	22	879
1986	118	279	179	234	13	823
1987a	21	170	251	139	25	606
1987b	21	186	574	264	69	1,114
Totals	587	6,587	2,682	2,073	518	12,447
Average	84	941	383	296	74	1,778

a = setnet harvest only.
b = setnet and rod and reel harvests combined.

Table 12. English Bay subsistence salmon harvest by year.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1981	24	1,075	314	621	19	2,053
1982	13	1,584	1,305	1,850	36	4,788
1983	0	1,784	367	363	10	2,524
1984	18	1,225	385	404	0	2,032
1985	5	696	530	313	2	1,546
1986	4	378	296	825	2	1,505
1987a	1	563	178	183	4	929
1987b	1	628	322	476	45	1,472
Totals	66	7,370	3,519	4,852	114	15,920
Average	9	1,053	503	693	16	2,274

a = setnet harvest only.
b = setnet and rod and reel harvests combined.

Table 13. FRED division salmon stocking projects in Lower Cook Inlet and releases of salmon fry, fingerling or smolt by year in millions of fish.

Lake, River or Bay	Species	1984	1985	1986	1987	Projected 1988
Leisure Lake	Sockeye	2.110	2.018	2.350	2.022	2.00
Chenik Lake	Sockeye	-	-	0.839	1.000	2.50
Paint River Lakes						
Upper	Sockeye			0.500	-	1.25
Lower	Sockeye			0.320	-	0.75
Elusivak	Sockeye					0.75
Kirschner Lake	Sockeye				0.867	2.00
Port Dick Lake	Sockeye				0.705	1.50
Hazel Lake	Sockeye					1.25
Gore Point Lake	Sockeye 1/					
Petrof Lake	1/					
Grewingk Lake	1/					
Nuka Island Lake	1/					
Bruin Bay Lake #1	1/					
Bruin Bay Lake #2	1/					
Ursus Lagoon Lake	1/					
Bear Lake	1/					
English Bay Lakes	1/					
Rocky River Lake	1/					
Spotted Glacier Lake	1/					
Total Sockeye Stocked		2.110	2.018	4.009	4.594	12.00
Tutka Bay Hatchery	Pink	14.73	19.56	22.50	20.50	12.500
	Chum	0.087	0.026	0.018	0.400	4.000
Caribou Lake	Coho		0.139	0.138	0.150	0.150
Seldovia Lake	Coho		0.083	0.072	0.045	0.050
Seldovia Bay	King				0.084	0.105
Hal. Cove Lag.	King		0.098	0.101	0.094	0.105
	Pink			2.000	3.000	3.000
Homer Spit	King		0.152	0.104	0.104	0.210
	Pink				0.295	0.300
	Coho					0.060

1/ Potential systems for stocking in future.

Table 14. Lower Cook Inlet Pacific herring catches in short tons by district, 1961-1987.

Year	District				
	Southern	Kamishak	Eastern	Outer	Total
1961	0	0	1	0	1
1962	0	0	0	0	0
1963	1	0	0	0	1
1964	+	0	0	0	+
1965	2	0	0	0	2
1966	0	0	7	0	7
1967	0	0	0	0	0
1968	20	0	0	0	20
1969	551	0	758	38	1,347
1970	2,709	0	2,100	0	4,809
1971	13	0	831	0	844
1972	1	0	30	0	31
1973	204	243	831	301	1,579
1974	110	2,114	47	384	2,655
1975	24	4,119	0	0	4,143
1976	0	4,842	0	0	4,842
1977	291	2,908	0	0	3,199
1978	17	402	0	0	419
1979	13	415	0	0	428
1980	0	0	0	0	0
1981	0	0	0	0	0
1982	0	0	0	0	0
1983	0	0	0	0	0
1984	0	0	0	0	0
1985	0	1,132	204	12	1,348
1986	0	1,959	167	28	2,154
1987	0	6,132	584	202	6,918
Total	3,956	24,266	5,560	965	34,748
Average	283	2,427	505	161	1,287

Data Source: Final IBM runs.

Table 15. Pacific herring biomass estimates in tons and harvest rates for the Kamishak district of Lower Cook Inlet.

Year	Spawning Biomass 1/	Commercial Harvest	Total Biomass	Harvest Rate %
1978	800	402	1,202	33.4
1979	2,900	415	3,315	12.5
1980	-	0	-	-
1981	5,130	0	5,130	-
1982	4,835	0	4,835	-
1983	4,750	0	4,750	-
1984	2,885 2/	0	6,500	-
1985	12,188	1,132	13,320	8.5
1986	24,042	1,959	26,001	7.5
1987	29,200	6,132	35,332	17.4

1/ Spawning biomass estimates are minimal estimates based on aerial surveys and an attempt not to duplicate tonnages.

2/ Spawning had already begun on first survey. Total spawning estimate was felt to be above 6,500 ton level. Peak survey estimate was only 2,885 tons.

Table 16. Kamishak Bay District age class composition of Pacific herring in the commercial sac roe seine fishery and spawning biomass estimates for 1987.

	Spawning Biomass Estimate									
	Early		Late		Total		Total			
Age Class	Tons	Percent	Tons	Percent	Tons	Percent	Commercial Harvest	Percent	Total Biomass	Percent
3	718	3.9	2,650	24.1	3,368	11.5	627	10.2	3,995	11.3
4	1,363	7.5	4,742	43.1	6,105	20.9	726	11.8	6,831	19.3
5	261	1.4	282	2.6	543	1.9	112	1.8	655	1.9
6	3,316	18.2	988	9.0	4,304	14.7	1,081	17.6	5,385	15.2
7	2,580	14.2	980	8.9	3,560	12.2	811	13.2	4,371	12.4
8	2,960	16.3	735	6.7	3,695	12.7	842	13.8	4,537	12.8
9	1,984	10.9	206	1.9	2,190	7.5	556	9.1	2,746	7.8
10	2,746	15.1	314	2.8	3,060	10.5	761	12.4	3,821	10.8
11+	2,272	12.5	103	0.9	2,375	8.1	616	10.1	2,991	8.5
Total	18,200	100.0	11,000	100.0	29,200	100.0	6,132	100.0	32,332	100.0

Table 17. Biomass estimates and harvest rates for 1987, 1988 estimated biomass available for harvest and 1988 projected harvests of Kamishak District herring.

Age Class	1987 Total Biomass	Harvest Rates	1988 Projected Biomass	Harvest Rate	1988 Projected Harvest
3	3,995		3,163	10%	316
4	6,831	12.8 %	9,810	10%	981
5	655		13,096	10%	1,310
6	5,385		954	20%	191
7	4,371		6,297	20%	1,259
8	4,537	19.6%	4,562	20%	912
9	2,746		4,040	20%	808
10	3,821		2,103	20%	421
11+	2,991		3,876	20%	775
Total	35,332	17.4%	47,901	14.6%	6,973

* No estimate made.

** Kamishak district only.

Table 18. Age, sex and size data for Pacific herring from the commercial sac roe seine fishery in the Kamishak District of Lower Cook Inlet, 1987.

Sample Period	Age (years)	Sex			Total	Percent of Total	Weight			Std. Length		
		Male	Female	Unknown			Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	70	60	-	130	6.7	96	30.2	130	188	15.2	130
	4	107	119	-	226	11.6	139	25.3	226	212	14.6	226
	5	13	19	-	32	1.6	165	26.5	32	223	9.7	32
4/21	6	210	221	-	431	22.1	197	25.9	431	233	12.0	431
	7	141	143	-	284	14.6	217	27.2	284	239	9.3	284
	8	132	152	-	284	14.6	240	28.3	284	246	8.9	284
	9	90	87	-	177	9.1	248	29.3	177	248	9.6	177
	10	103	108	-	211	10.8	266	30.0	211	252	9.7	211
	11+	92	84	-	176	9.0	276	32.0	176	256	10.5	176
Period total		958	993	-	1951	100.0	211	57.5	1951	236	21.0	1951
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	67	56	-	123	13.4	91	12.5	123	183	7.1	123
	4	54	52	-	106	11.5	131	16.2	106	205	13.4	106
	5	10	10	-	20	2.2	170	42.2	20	222	16.7	20
4/23	6	43	81	-	124	13.5	199	19.1	124	231	11.5	124
	7	49	61	-	110	12.0	217	32.5	110	235	9.9	110
	8	55	68	-	123	13.4	242	27.1	123	242	9.9	123
	9	52	34	-	86	9.3	253	26.8	86	245	8.5	86
	10	62	69	-	131	14.2	267	30.7	131	248	8.3	131
	11+	48	49	-	97	10.5	276	32.9	97	252	10.3	97
Period total		440	480	-	920	100.0	207	67.6	920	229	24.7	920
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	137	116	-	253	8.8	94	23.4	253	186	12.2	253
	4	161	171	-	332	11.6	136	23.0	332	210	14.6	332
	5	23	29	-	52	1.8	166	33.1	52	223	12.7	52
All periods	6	253	302	-	555	19.3	198	24.6	555	232	11.9	555
	7	190	204	-	394	13.7	217	28.7	394	238	9.7	394
	8	187	220	-	407	14.2	241	27.9	407	245	9.4	407
	9	142	121	-	263	9.2	250	28.6	263	247	9.4	263
	10	165	177	-	342	11.9	266	30.2	342	251	9.4	342
	11+	140	133	-	273	9.5	276	32.3	273	255	10.5	273
Total		1398	1473	-	2871	100.0	210	61.0	2871	234	22.5	2871

Table 19. Age, sex and size data for Pacific herring from test seine sets made near Iniskin Bay, Lower Cook Inlet, 1987.

Sample Period	Age (years)	Sex			Total	Percent of Total	Weight			Std. Length		
		Male	Female	Unknown			Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	244	207	-	451	36.9	77	17.4	451	175	10.7	451
	4	268	254	-	522	42.7	119	20.5	522	200	11.7	522
	5	15	10	-	25	2.0	148	19.2	25	215	11.2	25
5/27	6	39	35	-	74	6.1	175	30.4	74	225	11.1	74
	7	38	31	-	69	5.6	189	31.7	69	230	13.3	69
	8	22	25	-	47	3.8	205	45.3	47	233	18.3	47
	9	6	6	-	12	1.0	225	32.7	12	241	8.9	12
	10	9	8	-	17	1.4	242	26.6	17	245	5.9	17
	11+	2	3	-	5	.4	269	39.2	5	255	5.7	5
Period total		643	579	-	1222	100.0	118	48.5	1222	197	23.4	1222

Table 20. Age, sex and size data for Pacific herring from the commercial sac roe seine fishery in Nuka Bay, Lower Cook Inlet, 1987.

Sample Period	Age (years)	Sex				Percent of Total	Weight			Std. Length		
		Male	Female	Unknown	Total		Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	2	3	-	5	1.3	57	29.2	5	158	31.9	5
	3	113	155	-	268	67.7	76	16.1	268	177	13.4	268
	4	13	19	-	32	8.1	106	29.6	32	193	16.2	32
	5	6	7	-	13	3.3	144	37.0	13	213	18.5	13
4/27	6	7	16	-	23	5.8	185	24.1	23	230	9.5	23
	7	4	13	-	17	4.3	219	15.5	17	239	7.2	17
	8	6	9	-	15	3.8	218	27.1	15	244	8.0	15
	9	3	10	-	13	3.3	237	21.5	13	246	7.5	13
	10	2	2	-	4	1.0	247	28.8	4	254	9.0	4
	11+	4	2	-	6	1.5	170	105.8	6	197	41.9	6
Period total		160	236	-	396	100.0	107	58.6	396	191	28.3	396

Table 21. Age, sex and size data for Pacific herring from the commercial sac roe seine fishery in Alalik Bay, Lower Cook Inlet 1987.

Sample Period	Age (years)	Sex: Male	Female	Unknown	Total	Percent of Total	Weight: Mean (gm)	Std. Dev.	Number Weighed	Std. Length: Mean (mm)	Std. Dev.	Number Measured
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	239	177	-	416	91.4	69	10.3	416	171	7.4	416
	4	23	14	-	37	8.1	76	13.0	37	176	7.9	37
	5	2	-	-	2	.4	77	1.4	2	175	2.8	2
5/ 6	6	-	-	-	-	-	-	-	-	-	-	-
	7	-	-	-	-	-	-	-	-	-	-	-
	8	-	-	-	-	-	-	-	-	-	-	-
	9	-	-	-	-	-	-	-	-	-	-	-
	10	-	-	-	-	-	-	-	-	-	-	-
	11+	-	-	-	-	-	-	-	-	-	-	-
Period total		264	191	-	455	100.0	69	10.7	455	172	7.5	455
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	402	251	-	653	94.1	71	9.3	653	173	6.7	653
	4	24	11	-	35	5.0	75	14.1	35	176	8.9	35
	5	3	1	-	4	.6	100	9.6	4	196	7.1	4
5/ 8	6	-	2	-	2	.3	130	19.1	2	206	17.0	2
	7	-	-	-	-	-	-	-	-	-	-	-
	8	-	-	-	-	-	-	-	-	-	-	-
	9	-	-	-	-	-	-	-	-	-	-	-
	10	-	-	-	-	-	-	-	-	-	-	-
	11+	-	-	-	-	-	-	-	-	-	-	-
Period total		429	265	-	694	100.0	72	10.4	694	173	7.3	694
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	641	428	-	1069	93.0	70	9.8	1069	172	7.0	1069
	4	47	25	-	72	6.3	76	13.5	72	176	8.3	72
	5	5	1	-	6	.5	92	13.9	6	189	12.2	6
All periods	6	-	2	-	2	.2	130	19.1	2	206	17.0	2
	7	-	-	-	-	-	-	-	-	-	-	-
	8	-	-	-	-	-	-	-	-	-	-	-
	9	-	-	-	-	-	-	-	-	-	-	-
	10	-	-	-	-	-	-	-	-	-	-	-
	11+	-	-	-	-	-	-	-	-	-	-	-
Total		693	456	-	1149	100.0	71	10.6	1149	173	7.4	1149

Table 22. Region 2 groundfish landings, from all waters 1981-1987.

Year	P.Cod	Flounder	Rockfish	Sablefish	Other	Total
1981	11,020	72,732	134,444	2,204	88,160	308,560
1982	26448	132240	22040	130036	70528	381,292
1983	22,040	28,652	37,468	304,152	136,648	528,960
1984	8,816	11,020	94,772	3,193,596	15,428	3,323,632
1985	68,324	74,936	3,920,916	6,012,512	185,136	10,261,824
1986	189,544	59,508	2,129,064	9,406,672	26,448	11,811,236
1987*	3,015,950	428,088	8,212,848	9,353,485	151,909	21,162,280

* Preliminary data.

Table 23. 1987 Groundfish landings* by Region 2 port by species from state and federal waters.

STATE WATERS

	P. Cod	Flatfish	Lingcod	Rockfish	Sablefish	Other	Total
Homer	783,318	136,036	11,430	102,098	11,201	56,225	1,100,308
Seldovia	454,268	0	10,109	69,380	1,867	0	535,624
Seward	254,374	10	722	9,662	31,735	1,521	298,024
Valdez	47,751	1,626	247	17,729	18,668	4,096	90,117
Whittier	19,955	0	0	23,608	44,803	58	88,424
Cordova	349,963	26,815	428	24,486	76,538	5,756	483,986
Kenai	164,574	0	0	163	1,867	3,374	169,978
Anchorage	585	0	550	671	0	0	1,806
Other	33,253	0	0	1,680	0	480	35,413
Total	2,108,041	164,487	23,486	249,477	186,679	71,510	2,803,680

FEDERAL WATERS

	P.Cod	Flatfish	Lingcod	Rockfish	Sablefish	Other	Total
Homer	130,922	120	421	7,911	424,091	1,636	565,101
Seldovia	159,531	0	578	1,267	125,255	0	286,631
Seward	222,583	234,820	321	2,437,259	5,743,875	1,415	8,640,273
Valdez	36,467	1,328	247	2,696	79,119	1,825	121,682
Whittier	15,569	0	0	2,404	36,379	0	54,352
Cordova	142,388	24,093	2,022	15,217	1,129,647	1,168	1,314,535
Kenai	31,063	0	0	3,426	23,794	45,698	103,981
Anchorage	2,464	0	0	33	0	0	2,497
Other	166,922	3,240	135	5,493,158	1,604,646	1,447	7,269,548
TOTAL	907,909	263,601	3,724	7,963,371	9,166,806	53,189	18,358,600

STATE AND FEDERAL WATERS COMBINED

	P.Cod	Flatfish	Lingcod	Rockfish	Sablefish	Other	Total
Homer	914,240	136,156	11,851	110,009	435,292	57,861	1,665,409
Seldovia	613,799	0	10,687	70,647	127,122	0	822,255
Seward	476,957	234,830	1,043	2,446,921	5,775,610	2,936	8,938,297
Valdez	84,218	2,954	494	20,425	97,787	5,921	211,799
Whittier	35,524	0	0	26,012	81,182	58	142,776
Cordova	492,351	50,908	2,450	39,703	1,206,185	6,924	1,798,521
Kenai	195,637	0	0	3,589	25,661	49,072	273,959
Anchorage	3,049	0	550	704	0	0	4,303
Other	200,175	3,240	135	5,494,838	1,604,646	1,927	7,304,961
Total	3,015,950	428,088	27,210	8,212,848	9,353,485	124,699	21,162,280

*Preliminary data

Table 24. Total 1987 ex-vessel value* of groundfish by Region 2 port and fish group, state and federal waters combined.

	P.Cod	Flatfish	Lingcod	Rockfish	Sablefish	Other	Total
Homer	212,052	35,916	5,145	32,651	448,351	9,737	$743,852
Seldo	151,451	0	4,675	21,678	130,936	0	$308,740
Sewar	107,638	70,449	126	801,738	5,948,878	281	$6,929,110
Valde	21,895	297	255	6,031	100,721	732	$129,931
Whitt	10,633	0	0	16,600	83,617	22	$110,872
Cordo	147,979	17,378	979	16,290	1,242,731	1,979	$1,427,336
Kenai	47,260	0	0	1,685	26,431	44,545	$119,921
Ancho	2,133	0	963	1,200	0	0	$4,296
Other	104,682	895	67	1,943,296	1,652,785	380	$3,702,105
Total	$805,723	$124,935	$12,210	$2,841,169	$9,634,450	$57,676	$13,476,163

* Preliminary data.

Table 25. Ex-vessel value of Region 2 groundfish 1981-1987*.

Year	P. Cod	Flatfish	Lingcod	Rockfish	Sablefish	Other	Total
1981							$109,850
1892							$157,600
1983							$245,950
1984							$2,127,479
1985							$7,767,556
1986							$11,161,387
1987*	$805,723	$124,935	$12,210	$2,841,169	$9,634,450	$57,676	$13,476,163

* Preliminary data.

Table 26. Summary of the Prince William Sound sablefish fishery, total removals, number of vessels, number of landings and number of department permits issued 1984-1987*.

Year	#Vessels	#Landings	Removals	#Permits Issued
1984	20	37	109,917	
1985	29	108	383,285	
1986	32	36	189,852	88
1987*	71	120	186,679	116

* Preliminary data. It is estimated that an additional 10% of the total catch was likely consumed by Killer Whales"(Orcinus orca) during haul back of commercial longline gear.

Appendix Table 1. Salmon fishing licenses and permits issued and fished in Lower Cook Inlet, 1960-1987.

	Seines					
Year	Gear License	Permanent Permit	Interim Permit	Total	Seines Fished	Set Nets Fished
1960	95			95		
1961	89			89		
1962	91			91		
1963	112			112		
1964	108			108		
1965	72			72		
1966	77			77	75	
1967	58			58	54	
1968	91			91	88	
1969	75			75	17	
1970	89			89	9	
1971	81			81	32	
1972	83			83	52	
1973	86			86	49	
1974	110			110	49	32
1975		49	51	100	63	27
1976		63	16	79	53	25
1977		72	10	82	72	26
1978		74	9	83	72	39
1979		75	9	84	75	38
1980		75	9	84	83	40
1981		75	10	85	85	40
1982		77	7	84	69	39
1983		78	5	83	83	24
1984 1/		78	3	81	39	35
1985 1/		80	1	81	51	34
1986 1/		79	0	79	62	34
1987 1/		79	0	79	66	29
Total		869	130	2,316	1,232	433
Average		72	11	86	59	33

*Data source: CFEC microfiche printouts and final IBM computer runs.

1/ Preliminary Data.

***Needs new totals and averages.

Appendix Table 2. Ex-vessel value of Lower Cook Inlet commercial salmon harvest in thousands of dollars by species, 1960-1987.

Year	King	Sockeye	Coho	Pink	Chum	Total
1960	0	36	3	287	127	453
1961	0	33	2	144	36	215
1962	0	37	8	1,056	108	1,209
1963	1	22	7	87	84	201
1964	0	30	9	369	194	602
1965	0	21	1	34	20	76
1966	0	23	5	237	82	347
1967	1	45	3	157	58	264
1968	0	152	5	311	57	525
1969	0	219	1	137	46	403
1970	1	35	6	273	215	530
1971	1	38	7	248	144	438
1972	1	130	6	22	146	305
1973	3	113	5	310	251	682
1974	5	283	30	100	77	495
1975	3	106	27	1,456	71	1,663
1976	7	287	13	207	217	731
1977	7	620	9	1,719	604	2,959
1978	62	1,516	52	370	341	2,341
1979	36	621	68	4,495	1,097	6,317
1980	12	336	64	1,196	298	1,906
1981	18	740	69	5,334	1,346	7,507
1982	28	827	367	406	820	2,448
1983	20	704	57	696	513	1,990
1984 2/	23	1,393	120	635	242	2,413
1985	47	1,637	86	974	78	2,822
1986	21	1,414	132	1,245	201	3,013
1987 2/	27	1,951	118	295	598	2,989
28 Year Total	324	13,369	1,280	22,800	8,071	45,844
28 Year Average	12	477	46	814	288	1,637

1/ Values obtained by using the formula: average price per lb. x average weight of fish x catch = Ex-vessel value.

2/ Preliminary data.

Appendix Table 3. Average salmon price per pound by species in dollars, Lower Cook Inlet, 1960-1987.

Year	King	Sockeye	Coho	Pink	Chum
1960	0.25 2/	0.27	0.18	0.15	0.16
1961	0.24 2/	0.24	0.15	0.11	0.08
1962	0.23 2/	0.27	0.16	0.15	0.07
1963	0.25 2/	0.27	0.15	0.13	0.08
1964	0.24 2/	0.27	0.15	0.10	0.07
1965	0.22 2/	0.24	0.11	0.08	0.08
1966	0.22 2/	0.24	0.14	0.11	0.08
1967	0.26	0.26	0.15	0.11	0.08
1968	0	0.25	0.17	0.18	0.09
1969	0	0.27	0.23	0.17	0.13
1970	0.35	0.27	0.18	0.12	0.13
1971	0.53	0.28	0.24	0.18	0.15
1972	0.45	0.36	0.44	0.20	0.28
1973	0.93	0.48	0.39	0.27	0.29
1974	0.76	1.54	0.72	0.48	0.56
1975	0.61	0.61	0.49	0.37	0.43
1976	0.91	0.77	0.59	0.37	0.48
1977	1.07	0.86	0.55	0.35	0.45
1978	1.09	1.31	0.97	0.30	0.54
1979	1.54	1.53	0.89	0.43	0.60
1980	1.30	0.88	0.85	0.42	0.52
1981	1.35	1.10	0.75	0.44	0.49
1982	1.29	1.05	0.87	0.23	0.46
1983	1.00	0.75	0.70	0.25	0.29
1984	1.29	1.05	0.77	0.26	0.28
1985	1.60	1.25	0.85	0.22	0.31
1986	1.25	1.40	0.85	0.26	0.30
1987 1/	1.25	1.60	1.00	0.42 2/	0.46 2/

1/ Preliminary data.

2/ Weighted averages between primary two processors. Chum salmon price is weighted by dark and bright prices.

Appendix Table 4. Salmon average weight per fish in pounds, Lower Cook Inlet, 1960-1987. 1/

Year	King	Sockeye	Coho	Pink	Chum
1960	20.2	5.4	6.2	3.2	6.8
1961	20.5	6.0	8.2	4.5	7.8
1962	21.5	5.4	6.4	3.2	8.0
1963	19.7	5.4	7.1	3.4	7.2
1964	20.8	5.4	6.3	3.5	8.4
1965	22.2	6.2	10.1	3.6	8.7
1966	23.1	5.9	6.4	3.6	7.5
1967	21.9	6.0	7.2	3.9	8.1
1968	26.2	6.3	5.9	3.0	8.3
1969	18.2	6.7	7.0	3.9	7.3
1970	26.6	5.8	6.8	3.9	7.1
1971	25.9	6.0	6.3	3.5	6.6
1972	25.0	6.2	6.1	3.9	6.9
1973	22.3	8.1	6.1	3.7	7.4
1974	36.1	6.7	6.4	4.1	7.2
1975	33.2	6.2	8.8	3.7	7.6
1976	16.1	6.4	7.0	4.1	8.9
1977	30.1	7.2	5.9	3.8	9.2
1978	32.3	7.4	8.2	3.5	8.6
1979	18.9	6.3	6.2	3.5	8.2
1980	21.7	5.5	5.2	3.2	7.8
1981	12.5	6.1	8.5	3.7	8.1
1982	20.6	6.0	9.0	3.2	9.0
1983	22.8	5.0	7.2	3.0	9.2
1984 2/	25.0	4.9	9.0	3.5	9.2
1985	28.0	4.7	9.8	3.5	8.2
1986	20.6	4.3	8.6	3.4	8.1
1987	18.1	4.9	8.2	3.5	8.3
28 Year Total	625.1	166.4	204.1	100.5	223.7
28 Year Average	22.3	5.9	7.3	3.6	8.0

1/ 1960-1974 values obtained from commercial fish catch & production statistical leaflets. Remaining years from IBM computer runs.
2/ Preliminary data.

Appendix Table 5. Estimated pink salmon escapements in thousands of fish in the major spawning systems in Lower Cook Inlet. 1/

Stream	Year											
	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971
Humpy Creek	10.0	22.6	56.0	34.7	18.5	28.0	30.0	25.0	24.7	5.4	55.2	45.0
China Poot	9.0	2.0	26.0	-	-	-	-	2.5	6.0	0.2	1.5	2.1
Tutka Lagoon	15.0	15.0	30.0	10.0	20.0	20.0	12.0	7.0	7.9	6.5	6.5	16.7
Barabara Creek	2.0	0.1	1.5	0.1	-	-	5.0	-	2.0	0.9	0.4	4.0
Seldovia River	25.0	25.0	50.0	13.0	60.0	30.0	86.0	55.0	53.2	60.0	23.0	31.1
Port Graham River	15.0	5.0	50.0	2.0	16.0	1.5	24.0	2.0	24.4	4.0	16.6	13.2
Dogfish Lagoon	2.0	-	3.0	-	-	-	-	-	-	-	-	0.3
Port Chatham Creeks	4.0	7.0	7.0	-	-	-	10.0	-	-	-	3.0	15.5
Windy Right Creek	8.0	10.0	12.5	4.9	6.2	2.0	7.0	6.0	2.8	3.2	2.1	13.0
Windy Left Creek	8.0	5.0	12.5	4.5	7.7	10.0	7.0	6.0	6.9	23.0	13.0	35.4
Rocky River	130.0	2.0	200.0	12.0	80.0	0.3	44.0	1.0	43.1	1.0	32.0	1.6
Port Dick Creek	35.0	14.0	40.0	16.0	31.5	50.0	35.0	20.0	29.0	12.0	34.5	97.8
Island Creek	23.2	2.0	15.0	3.6	30.0	0.5	7.0	0.5	4.3	0.1	5.5	0.1
South Nuka Creek	20.0	2.0	22.0	0.1	10.0	-	10.0	-	10.0	3.0	11.0	14.0
Desire Lake Creek	-	-	18.0	-	1.3	-	-	-	-	-	-	30.0
James Lagoon	-	-	-	-	-	-	-	-	-	-	-	-
Aialik Lagoon	-	-	25.0	0.3	-	-	2.0	-	-	-	-	-
Bear Creek	1.4	-	3.1	-	6.4	-	-	-	3.1	-	-	-
Salmon Creek	-	-	-	-	-	-	-	-	-	-	-	-
Mayor Creek	-	-	-	1.4	-	-	-	-	1.6	-	-	-
Clear Creek	-	-	0.2	-	1.5	-	-	-	-	0.1	-	-
Thumb Cove	-	-	-	-	-	-	-	-	-	-	-	-
Humpy Cove	-	-	-	-	-	-	-	-	-	-	-	-
Tonsina Creek	-	-	-	-	-	-	-	-	2.9	0.1	-	-
Big Kamishak River	-	-	100.0	75.0	75.0	-	13.0	-	-	-	-	-
Little Kamishak River	-	-	100.0	24.0	-	-	28.0	3.5	-	0.5	2.0	-
Amakdedori Creek	60.0	-	80.0	-	10.0	-	8.0	-	-	1.0	13.0	-
Bruin Bay River	18.0	-	300.0	25.0	-	-	20.0	0.5	-	5.0	40.0	22.0
Sunday Creek	1.5	-	5.0	2.0	-	-	20.0	-	-	1.0	2.0	43.0
Brown's Peak Creek	-	-	25.0	10.0	20.0	10.0	11.0	-	-	2.0	-	8.0
Total	387.1	111.7	1181.8	238.6	394.1	152.3	379.0	129.0	221.9	129.0	261.3	392.8

Appendix Table 5. (Continued)

Stream	Year											
	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Humpy Creek	13.8	36.9	17.4	64.0	27.2	86.0	46.1	200.0	64.4	115.0	31.9	104.0
China Poot	1.0	6.0	5.2	21.6	2.0	3.9	11.2	20.6	12.3	5.0	3.1	14.1
Tutka Lagoon	1.5	6.5	2.6	17.6	11.5	14.0	15.0	10.6	17.3	21.1	18.5	12.9
Barabara Creek	0.6	-	0.2	22.7	0.2	5.7	1.4	10.0	5.8	16.8	2.1	14.8
Seldovia River	5.8	14.5	13.7	36.2	25.6	35.7	24.6	43.7	65.5	62.7	38.4	27.9
Port Graham River	2.4	7.0	2.8	27.3	6.5	20.6	6.7	32.7	40.2	18.4	28.9	4.6
Dogfish Lagoon	-	1.0	-	2.3	-	8.1	0.6	7.3	0.3	2.6	2.6	1.0
Port Chatham Creeks	1.0	5.0	0.2	7.7	-	14.2	0.3	20.8	7.7	11.2	2.0	3.5
Windy Right Creek	0.1	4.6	0.1	18.7	0.2	11.1	0.3	10.4	3.3	4.7	4.7	4.3
Windy Left Creek	0.4	12.9	0.1	9.7	0.2	47.3	1.1	74.8	10.9	31.3	4.4	11.9
Rocky River	8.2	2.0	1.5	4.4	2.7	36.7	8.2	85.0	6.4	25.0	6.6	16.6
Port Dick Creek	10.0	26.4	1.5	62.8	12.7	109.3	44.9	116.0	56.1	106.0	19.9	64.1
Island Creek	1.7	0.5	0.5	0.1	-	0.6	0.4	0.6	2.2	25.0	15.0	15.3
South Nuka Creek	0.3	16.0	-	28.0	-	12.0	-	15.0	0.3	16.0	0.4	22.2
Desire Lake Creek	0.3	3.0	-	0.4	0.6	0.8	1.0	3.0	16.0	5.0	12.0	8.5
James Lagoon	-	-	-	-	-	-	-	-	4.6	14.0	6.0	5.1
Aialik Lagoon	-	-	0.1	-	0.4	-	-	-	-	-	5.0	3.0
Bear Creek	0.5	-	4.9	-	10.0	-	7.8	-	13.3	0.4	7.9	0.8
Salmon Creek	-	-	-	-	16.9	-	11.0	-	15.5	0.1	21.0	0.5
Mayor Creek	0.4	-	0.5	-	4.3	-	2.9	-	3.8	0.6	3.4	-
Clear Creek	0.2	-	-	-	0.3	0.2	-	-	0.5	-	0.2	-
Thumb Cove	-	-	1.1	-	2.0	-	2.0	-	1.2	1.0	7.9	4.9
Humpy Cove	-	-	0.6	-	1.4	-	0.9	-	5.7	0.4	4.0	2.0
Tonsina Creek	-	-	1.4	-	5.7	-	1.5	-	0.7	0.2	7.5	5.4
Big Kamishak River	-	15.0	1.0	-	8.0	-	12.0	10.0	2.0	-	5.0	-
Little Kamishak River	-	13.0	-	-	6.0	-	0.4	3.5	0.6	-	2.2	-
Amakdedori Creek	0.2	3.0	1.0	5.0	-	-	0.9	6.0	3.8	1.5	6.3	0.2
Bruin Bay River	2.5	2.0	0.6	20.0	13.5	60.0	33.0	200.0	400.0	95.0	75.0	4.0
Sunday Creek	2.0	5.0	0.1	20.0	0.3	9.0	0.2	12.0	5.2	14.2	12.0	4.7
Brown's Peak Creek	1.2	3.2	0.1	10.0	1.2	13.0	0.9	15.0	2.3	17.7	3.5	1.7
Total	54.1	183.5	57.2	378.5	159.4	488.2	235.3	897.0	767.9	610.9	357.4	358.0

Appendix Table 5. (Continued)

Stream	Year 1984	1985	1986	1987	Total	Avg.
Humpy Creek	84.2	117.0	49.7	26.6	1,412.7	52.3
China Poot	8.4	1.9	11.5	3.1	177.1	7.7
Tutka Lagoon	10.5	14.0	13.4	4.8	353.6	13.1
Barabara Creek	1.0	1.6	1.8	0.3	100.7	4.4
Seldovia River	14.2	22.8	28.2	7.6	970.8	36.0
Port Graham River	10.9	26.3	17.5	3.8	426.5	15.8
Dogfish Lagoon	0.6	0.2	0.4	1.2	32.3	2.2
Port Chatham Creeks	7.8	8.9	11.5	10.2	148.3	7.4
Windy Right Creek	3.4	5.4	2.5	2.0	151.0	5.6
Windy Left Creek	2.5	8.9	2.2	5.6	357.6	13.2
Rocky River	9.0	12.1	12.0	4.5	783.4	29.0
Port Dick Creek	44.6	65.3	41.6	4.5	1,196.0	44.3
Island Creek	35.0	27.9	16.6	0.1	235.3	8.7
South Nuka Creek	0.6	3.6	7.0	2.8	223.5	10.2
Desire Lake Creek	23.0	62.5	32.0	11.0	217.4	12.8
James Lagoon	4.0	9.0	6.6	1.1	49.3	7.0
Aialik Lagoon	4.0	9.4	6.0	1.5	55.2	5.5
Bear Creek	7.7	4.1	14.0	3.5	85.4	5.7
Salmon Creek	10.2	2.1	8.3	1.7	85.6	9.5
Mayor Creek	1.5	0.5	1.9	-	22.8	1.9
Clear Creek	0.8	0.3	0.4	-	4.7	0.4
Thumb Cove	4.2	14.5	4.0	2.7	42.8	4.3
Humpy Cove	2.5	5.0	0.9	0.3	23.4	2.3
Tonsina Creek	6.0	48.2	11.2	3.4	90.8	7.6
Big Kamishak River	-	-	5.0	-	321.0	21.4
Little Kamishak River	0.1	1.6	2.0	-	187.4	12.5
Amakdedori Creek	-	1.0	6.0	0.4	206.9	11.5
Bruin Bay River	110.0	3.5	1200.0	24.0	2,649.6	115.2
Sunday Creek	12.0	11.4	109.0	29.7	291.6	13.3
Brown's Peak Creek	6.8	7.0	28.0	40.2	197.6	9.0
Total	425.5	496.0	1651.2	196.6	11,100.3	411.1

Appendix Table 6. Estimated chum salmon escapements in thousands of fish in the major spawning systems in Lower Cook Inlet. 1/

Year	Port Graham	Dogfish Lagoon	Rocky River	Pt.Dick Head	Island Creek	Big Kamishak	Little Kamishak	McNeil River	Bruin Bay	Ursus Cove	Cottonwood Creek	Iniskin Bay	Total
1964	1.0	12.0	5.0	8.0	8.0	25.0	*	90.0	*	*	*	11.0	160.0
1965	*	3.5	*	3.5	4.0	*	*	*	*	*	*	0.7	11.7
1966	*	11.0	7.0	4.0	6.0	5.0	0.5	*	*	*	*	*	33.5
1967	*	15.0	5.0	3.0	5.0	*	*	*	*	*	*	*	28.0
1968	1.5	1.5	3.0	20.0	1.5	*	*	*	*	*	5.0	5.0	37.5
1969	*	*	3.0	4.5	4.0	*	*	*	*	*	*	*	11.5
1970	0.9	5.0	*	6.0	8.5	*	*	*	*	*	0.6	*	21.0
1971	1.0	5.0	7.0	3.0	3.5	*	*	*	1.0	*	9.0	13.0	42.5
1972	1.5	3.0	3.0	6.0	2.0	*	*	*	1.0	1.6	4.0	10.0	32.1
1973	2.0	1.0	2.0	9.0	7.0	4.0	1.0	10.0	8.0	3.0	4.0	12.0	63.0
1974	0.5	0.6	1.0	0.8	5.0	7.1	0.6	1.5	3.0	3.5	2.5	7.0	33.1
1975	3.0	5.0	25.0	4.0	7.4	1.1	1.9	1.5	1.5	5.0	8.0	7.0	70.4
1976	0.4	3.0	12.0	1.5	1.0	24.0	21.0	10.0	4.0	6.0	5.0	13.5	101.4
1977	5.2	6.4	10.5	5.0	11.1	*	*	20.0	18.0	9.3	10.0	4.4	99.9
1978	4.8	9.3	6.3	8.9	16.9	23.0	30.0	45.0	4.0	9.7	12.5	11.4	181.8
1979	2.2	8.2	35.0	4.0	16.8	15.0	15.0	8.0	15.0	5.0	2.5	4.0	130.7
1980	1.1	4.0	23.0	4.2	10.9	10.0	13.0	8.0	15.0	8.0	4.2	9.3	110.7
1981	4.8	11.5	12.5	4.1	17.5	11.0	6.0	30.0	10.0	10.0	9.0	9.0	135.4
1982	2.5	8.5	2.8	1.7	8.7	25.0	18.0	25.0	10.0	9.0	7.0	12.8	131.0
1983	1.9	5.3	4.0	4.5	36.2	25.0	25.0	48.0	5.5	7.7	8.3	12.0	183.4
1984	2.1	8.6	3.5	2.7	25.6	19.0	12.0	21.0	8.0	7.0	6.5	9.8	125.8
1985	0.5	4.9	2.5	1.0	9.1	6.0	4.5	9.5	2.0	3.0	3.0	5.0	51.0
1986	0.6	2.5	2.0	1.7	8.6	24.0	17.0	22.0	2.0	11.0	11.0	5.9	108.3
1987	1.5	2.0	0.2	6.1	13.2	12.0	18.0	26.0	10.0	9.9	17.0	9.1	125.0
24 Year Total	39.0	136.8	175.3	117.2	237.5	236.2	183.5	375.5	118.0	108.7	129.1	171.9	2,028.7
Avg.	2.0	5.9	8.0	4.9	9.9	14.8	12.2	23.5	6.9	6.8	6.8	8.6	84.5
Escap. Goal	4.0-5.0	10-15	20-40	4.0-5.0	10-15	20-50	20-30	20-50	5-10	8-12	10-15	10-15	141-262

* No surveys conducted due to numerous factors: i.e weather, money.

1/ Most of these estimated escapements are either peak counts from aerial surveys or adjusted figures from aerial surveys based on survey conditions and time of surveys.

Appendix Table 7. Estimated sockeye salmon escapements in thousands of fish in major spawning systems in Lower Cook Inlet. 1/

Year	English Bay	Anderson Beach	Delight Lake	Desire Lake	Bear Lake	Aialik Lake	Mikfik Lake	Chenik Lake	Amakde. Creek	Kamishak River	Douglas River	Douglas Beach	Total
1959	5.0		5.0	-	-	-	1.0	-	-				11.0
1960	16.0		1.0	4.0	9.3	-	-	0.8	1.5		0.4		33.0
1961	10.0	1.0	10.0	10.0	3.0	10.0	3.0	0.1	2.5		-		49.5
1962	2.0	0.2	5.0	4.0	3.6	16.0	2.6	1.5	2.5		2.5		39.9
1963	10.0		8.0	1.4	8.9	20.0	0.2	0.3	7.0				55.8
1964	-		0.3	10.0	4.7	2.0	-	-	-				17.0
1965	3.0		-	-	3.8	-	-	-	-				6.8
1966	3.0		4.3	9.0	1.9	4.0	-	0.2	2.0				24.4
1967	6.0		-	0.3	3.3	-	-	2.5	0.2				12.3
1968	-		-	0.3	59.0	-	0.7	-	-				60.0
1969	5.0		-	8.0	21.2	-	-	-	1.5				35.7
1970	8.0		4.6	2.0	5.8	-	1.0	-	0.3				21.7
1971	6.5		5.0	5.0	0.4	3.0	5.0	2.0	1.2				28.1
1972	14.5		10.0	8.0	0.7	0.6	13.0	0.7	1.0				48.5
1973	4.4		2.5	5.2	0.2	1.5	2.7	0.3	2.2				19.0
1974	-		-	-	0.1	2.2	0.9	0.1	0.4				3.7
1975	2.5		2.0	6.5	+	8.0	6.0	0.1	0.8				25.9
1976	6.0		6.0	11.0	0.6	8.0	10.0	0.9	1.6		0.2	0.1	44.4
1977	12.5		5.2	10.7	+	5.0	9.8	0.2	2.6		2.6	0.4	49.0
1978	13.5	0.6	8.0	10.0	+	3.0	12.0	0.1	2.6	1.0	-	0.1	47.4
1979	4.4		8.0	12.0	+	5.0	6.0	+	1.0	0.4	-	0.3	37.1
1980	12.0	0.3	10.0	17.0	1.5	6.6	6.5	3.5	2.6	0.1	0.4	0.5	61.3
1981	10.5		7.3	12.0	0.7	1.8	5.3	2.5	1.9	0.8	0.2	0.3	43.3
1982	20.0	0.6	25.0	18.0	0.5	22.4	35.0	8.0	3.2	10.0	4.2	1.6	148.5
1983	12.0	0.5	7.0	12.0	0.7	20.0	7.0	11.0	1.2	5.0	0.5	0.4	77.3
1984	11.1	1.2	10.5	15.0	0.5	22.0	6.0	13.0	1.4	2.5	0	0.1	83.3
1985	5.0	0.1	26.0	18.0	1.1	8.0	20.0	3.5	0.9	0.8	+	+	83.4
1986	2.8	0.9	13.0	10.0	0.8	7.6	7.8	7.0	1.9	5.0	0.2	0.2	57.2
1987	7.0	0.2	10.5	13.4		9.2	9.0	10.0	1.1	-	0.1	-	
Total	212.7	5.6	194.2	232.8	132.3	185.9	170.5	68.3	45.1	25.6	11.3	4.0	1,224.3
Ave.	8.2	0.6	8.1	9.0	4.9	8.5	7.4	3.0	1.8	2.6	0.9	0.3	43.7
Esc.Goal	10-20	2.0	10.0	10.0	0.5-1.0	2.5-5.0	5.0	10.0	1.0	*	*	*	51-64

* No escapement goal set.

1/ Most escapements are estimated from peak aerial survey counts or are adjusted figures from aerial surveys based on weather conditions.

2/ Limited by Bear Lake Management Plan since 1971.

Appendix Table 8. Pink salmon catch in thousands of fish for fishing districts in Lower Cook Inlet, 1936- 1987. 1/

Year	Catch	Year	Catch	Year	Catch
1936	526	1956	208	1976	136
1937	457	1957	286	1977	1,294
1938	345	1958	950	1978	353
1939	292	1959	124	1979	2,991
1940	1,659	1960	612	1980	890
1941	692	1961	303	1981	3,279
1942	695	1962	2,248	1982	552
1943	1,361	1963	204	1983	928
1944	1,446	1964	1,055	1984 2/	698
1945	1,302	1965	116	1985	1,230
1946	870	1966	579	1986	1,408
1947	1,396	1967	375	1987	201
1948	591	1968	585		
1949	366	1969	202		
1950	311	1970	716		
1951	378	1971	393		
1952	972	1972	29		
1953	513	1973	307		
1954	271	1974	51		
1955	1,184	1975	1,063		

	Total	Average
52 Year	39,993	769
Odd-Year (26)	21,237	817
Even-Year (26)	18,756	721

1/ Data source: 1953-63 data very sketchy - U.S.F.& W.S. Statistical Digest #50 and INPFC Document #1134, Rich & Ball; ADF&G computer runs, 1960-1987.
2/ Preliminary data.

Appendix Table 9. Pink salmon catch for Lower Cook Inlet in thousands of fish by bay during odd numbered years. 1/

Catch Location	1959	1961	1963	1965	1967	1969	1971	1973	1975
Humpy Creek	13.2	67.9	57.4	13.8	40.4	0.6	11.4	44.3	339.3
Tutka Bay	14.4	106.8	37.7	44.6	31.6	32.9	10.3	20.0	89.2
Seldovia Bay	4.9	15.1	1.6	19.2	11.7	28.8	27.3	19.4	429.6
Port Graham Bay	5.3	1.0	2.7	12.4	5.1	2.0	1.0	13.9	18.3
Dogfish Bay	1.6	0	0	0.1	2.3	0	10.4	0.3	0
Port Chatham	1.2	0	0.8	0	0	0	26.3	20.6	16.0
Windy Bay	3.1	2.2	0	5.4	0	0	57.3	68.5	18.1
Rocky Bay	2.3	0	1.4	0.1	0	0	0.1	0.2	0
Port Dick Bay	28.2	92.9	19.0	15.3	259.9	51.5	94.6	96.6	90.3
Nuka Bay	33.3	2.0	0.3	0	0.1	0	119.7	8.1	35.4
Resurrection Bay	8.4	0	0	0	1.2	0	0	0	0
Bruin Bay	0	0	12.3	0.9	2.1	0	11.7	0	0
Rocky-Ursus Coves	3.7	2.7	44.2	0	13.0	52.8	16.4	7.9	0
Iniskin and Cottonwood Bays	1.5	3.3	21.8	0	0.1	26.0	0	4.7	0
Miscellaneous	3.6	9.5	4.4	3.8	8.0	7.8	6.4	2.9	27.1
Total	124.7	303.4	203.6	115.6	375.5	202.4	392.9	307.4	1,063.3

Catch Location	1977	1979	1981	1983	1985	1987
Humpy Creek	42.7	304.0	250.9	26.9	11.4	30.5
Tutka Bay	21.9	416.8	1,026.6	616.0	491.2	56.5
Seldovia Bay	47.6	140.8	126.4	43.3	3.8	1.2
Port Graham Bay	44.8	124.7	45.9	4.1	12.5	2.3
Dogfish Bay	5.0	7.4	22.9	0.2	0	0
Port Chatham	1.4	174.4	55.8	3.3	7.0	0
Windy Bay	173.2	552.7	82.9	0	4.8	0
Rocky Bay	11.6	122.2	16.5	1.3	0	0
Port Dick Bay	881.7	964.8	1,140.9	140.0	455.6	3.0
Nuka Bay	56.3	121.7	395.1	55.0	150.8	20.9
Resurrection Bay	0	0	32.6	27.1	74.6	11.8
Bruin Bay	6.2	40.3	51.9	0.3	0	1.2
Rocky-Ursus Cove	0	14.4	14.1	0	0	69.4
Iniskin and Cottonwood Bays	0.1	0.2	0	0.3	0	0.2
Miscellaneous	1.4	6.5	16.7	9.8	18.0	4.4
Total	1,293.9	2,990.9	3,279.2	927.6	1,229.7	201.4

1/ Data source IBM computer runs, 1959-87.
2/ Preliminary data.

Appendix Table 10. Pink salmon catch for Lower Cook Inlet in thousands of fish by bay during even numbered years. 1/

Catch Location	1960	1962	1964	1966	1968	1970	1972	1974
Humpy Creek	71.6	108.8	82.4	40.7	43.9	114.1	2.1	35.4
Tutka Bay	87.6	279.5	100.9	53.5	26.9	43.9	5.2	5.5
Seldovia Bay	42.6	142.8	37.4	44.1	23.6	29.0	0.2	3.5
Port Graham Bay	7.1	18.1	38.4	5.1	23.0	19.6	1.1	4.5
Dogfish Bay	1.8	1.4	0.1	7.1	0	9.8	0.3	0
Port Chatham	15.7	102.2	67.1	6.7	10.0	1.9	0	0
Windy Bay	29.2	85.5	68.6	20.1	3.4	0.8	0	0
Rocky Bay	17.0	225.9	53.2	0	10.8	36.8	0	0
Port Dick Bay	257.4	1,118.3	526.3	296.8	55.0	336.5	0	0.6
Nuka Bay	26.6	129.8	23.8	0	90.2	48.4	0.3	0.7
Resurrection Bay	5.8	0.1	0.3	0	37.4	40.2	18.2	0
Bruin Bay	2.6	0	0	0	126.2	10.2	0	0
Rocky-Ursus Coves	6.6	3.2	13.5	2.9	18.0	7.5	0	0
Iniskin and Cottonwood Bays	2.1	3.2	4.3	0	9.9	3.5	0	0
Miscellaneous	37.9	29.5	39.1	102.2	107.1	14.0	1.3	0.4
Total	611.6	2,248.3	1,055.4	579.2	585.4	716.2	28.7	50.6

Catch Location	1976	1978	1980	1982	1984 2/	1986
Humpy Creek	73.1	44.0	53.3	6.0	61.7	116.7
Tutka Bay	18.0	167.9	312.5	184.9	276.6	400.2
Seldovia Bay	3.0	35.8	81.7	70.3	0.1	2.8
Port Graham Bay	3.9	4.0	30.5	35.4	0.3	8.8
Dogfish Bay	0	0.3	4.7	1.7	1.4	0
Port Chatham	0	0	1.8	12.6	0	0
Windy Bay	0	0	0	0	0	0
Rocky Bay	0	0	1.4	0	0	0
Port Dick Bay	0	63.6	133.3	44.0	89.9	304.0
Nuka Bay	0.1	6.3	12.8	8.7	0.7	97.8
Resurrection Bay	35.4	29.7	155.8	137.4	125.5	36.5
Bruin Bay	0	0	100.6	13.3	137.1	349.7
Rocky-Ursus Coves	0	0.1	0	20.2	19.3	71.1
Iniskin and Cottonwood Bays	0.1	0.1	0.1	0.4	0.1	0.2
Miscellaneous	2.8	0.8	0.2	16.7	8.1	20.5
Total	136.4	352.6	889.7	551.6	720.8	1,408.3

1/ Data resource IBM computer runs, 1960-86.
2/ Preliminary data.

Appendix Table 11. Chum salmon catch for Lower Cook Inlet in thousands of fish by bay by year. 1/

Catch Location	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
Tutka	0.1	2.4	1.8	2.9	2.4	5.6	1.1	3.9	4.0	1.3	0.7	1.6
Port Graham	2.3	1.8	0.5	4.0	3.8	2.1	0.9	5.3	3.0	2.3	1.3	4.8
Dogfish	4.9	0.4	0.1	0	0.2	0	0	7.0	15.3	0.1	0	50.9
Port Chatham	1.0	2.5	0	2.8	4.3	5.2	0	17.8	0	1.0	0	0.1
Rocky-Windy	14.9	6.4	2.2	8.5	0.3	33.8	8.1	1.7	0	0.5	0	39.4
Port Dick	42.4	51.0	36.8	112.0	110.8	227.4	14.2	60.9	36.0	10.9	5.4	41.2
Nuka	1.7	8.4	1.7	0.5	1.5	0	0	0	1.5	6.9	0	5.9
Resurrection	0.1	0.5	0	0	0	0	0	0	0.1	0.7	0	0.6
Douglas River	0.2	0	0	0	0	0	0	0	0	0	0	0
Kamishak River	0	0	0	0	0	0	0	0	0	3.7	0.4	0
McNeil River	0	0.4	0	0	0	2.7	0.9	0	0.4	8.3	4.4	1.9
Bruin	0	0.3	0.5	0	0.1	0	0.4	0	1.0	7.5	0	12.8
Ursus-Rocky Coves	8.5	8.6	1.8	1.1	2.8	1.2	0	4.0	2.9	1.0	3.6	8.9
Cottonwood and Iniskin	12.1	33.4	10.2	41.7	10.9	38.4	0	0	19.0	25.5	44.4	71.9
Miscellaneous	22.6	0	0	5.8	1.4	6.9	2.5	28.5	2.2	5.4	1.0	2.4
Total	110.8	116.1	55.6	179.3	138.5	323.3	28.1	129.1	85.4	75.1	61.2	242.4

Catch Location	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
Tutka	0.5	1.3	0.8	1.4	2.0	0.9	0.8	2.6	2.7	1.8	7.9	8.3
Port Graham	2.0	3.2	2.6	1.0	2.2	0.5	5.0	2.4	4.3	2.5	11.2	7.4
Dogfish	114.5	41.1	0.4	0	0	0	9.4	0	8.5	2.1	71.8	15.6
Port Chatham	2.4	0	0.4	0	0.6	0	0.1	0	1.7	1.3	59.6	16.2
Rocky-Windy	1.4	0	0.9	0	0.3	0	17.7	0	76.7	2.1	7.4	0
Port Dick	0.7	0	33.4	8.1	6.8	0	25.6	10.3	79.0	19.0	95.8	30.3
Nuka	0.1	2.3	40.8	3.9	3.6	0.4	17.4	0.4	14.7	7.8	3.8	0.9
Resurrection	0.4	0.7	0	0	0	0	0	0.1	0	0.7	2.4	7.7
Douglas River	0	0	0	0	0.1	7.1	4.0	2.9	0.7	10.0	46.7	37.1
Kamishak River	0	2.4	0	1.8	0	10.5	0	23.9	17.8	2.8	8.6	9.2
McNeil River	0	2.3	0	2.0	0	16.9	38.5	4.9	6.5	6.3	11.6	32.6
Bruin	1.6	1.8	0	0.7	0	0	0	0	4.0	11.0	1.7	1.3
Ursus-Rocky Coves	10.3	0.2	5.7	0	2.0	2.8	7.8	1.9	0.5	0.3	1.5	13.5
Cottonwood and Iniskin	14.5	19.7	29.9	0	2.8	11.5	15.3	14.9	0.2	5.4	3.5	21.6
Miscellaneous	0.2	0.5	0.6	0.3	1.2	0.2	4.2	9.2	1.2	0.4	2.6	3.5
Total	148.6	75.5	115.5	19.2	21.6	50.8	145.8	73.5	218.5	73.5	336.1	198.0

Appendix Table 11. (Continued)

Catch Location	1983	1984 2/	1985	1986	1987
Tutka	9.9	8.6	3.2	3.9	3.9
Port Graham	1.7	0.3	1.3	0.8	0.4
Dogfish	2.8	1.4	0	0	0
Port Chatham	2.1	0	1.3	0	0
Rocky-Windy	3.2	0	0	0	0
Port Dick	18.0	1.0	9.6	10.4	27.1
Nuka	0.8	0.6	0.8	1.3	1.6
Resurrection	6.9	3.9	3.0	3.5	13.9
Douglas River	27.2	17.9	8.0	11.6	23.7
Kamishak River	23.9	6.0	0.1	0.1	24.6
McNeil River	67.9	11.5	0	13.7	32.9
Bruin	2.6	4.6	0	5.4	0.1
Ursus-Rocky Coves	0	11.7	0	22.1	17.2
Cottonwood and Iniskin	21.4	20.2	0	8.8	9.7
Miscellaneous	3.9	6.1	3.3	1.1	1.9
Total	192.3	93.8	30.6	82.7	157.0

1/ Data source IBM computer runs, 1959-87.
2/ Preliminary data.

Appendix Table 12. Sockeye salmon catch for Lower Cook Inlet in thousands of fish by bay by year. 1/

Catch Location	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
Resurr. Bay	0	0.1	0	0	0	0	0	0	0	74.5	99.4	1.8
Aialik Bay	1.3	0.2	4.3	2.6	0.5	0	0	0	0	0	0	3.1
Nuka Bay	8.3	6.7	8.2	5.1	0.5	0	2.0	0	2.2	1.5	0	1.0
Humpy Creek	1.3	1.4	0.8	2.0	1.1	0.7	1.4	1.5	1.9	2.7	1.7	1.3
Tutka Bay	1.1	1.7	3.0	5.2	2.9	9.0	5.2	6.0	11.8	6.3	5.6	6.0
Seldovia Bay	0.4	1.2	1.2	1.7	1.2	2.1	0.9	1.0	2.2	1.9	1.1	1.2
Port Graham Bay	6.6	7.8	5.2	6.8	7.8	5.5	3.5	2.7	10.4	7.7	4.3	3.7
Kamishak-Douglas	0	0	0	0	0	0	0	0	0	0	0	0
Mikfik Creek	0	0.7	0	0	0	1.9	0.2	0	0	0	8.9	2.8
Chenik Creek	0	0	0	0	0	0	0	0	0.2	0	1.9	0
Miscellaneous	2.6	4.9	0.1	1.9	1.1	1.5	0.8	4.1	0.3	0.6	0.1	0
Total	21.6	24.7	22.8	25.3	15.1	20.7	14.0	15.3	29.0	95.2	122.8	20.9

Catch Location	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
Resurr. Bay	2.2	0.1	0	0	0	0	0	0	0	0	0.6	0
Aialik Bay	0	0.3	3.1	0.2	0.6	0	5.8	0	0	0.1	8.7	3.0
Nuka Bay	1.6	26.1	1.1	0.1	0	18.9	31.1	10.6	24.4	21.5	17.2	66.3
Humpy Creek	1.3	3.7	2.1	3.0	3.5	5.4	3.8	12.9	6.2	11.5	11.3	1.2
Tutka Bay	10.0	14.8	8.1	10.8	12.6	14.2	21.3	92.1	15.6	13.2	41.0	15.8
Seldovia Bay	1.5	2.3	2.2	2.3	2.1	2.1	3.0	5.6	2.6	1.6	5.3	5.0
Port Graham Bay	5.6	10.5	11.7	10.9	9.2	13.6	26.6	30.5	12.9	16.5	20.3	21.5
Kamishak-Douglas	0	0	0	0	0	0.2	5.3	4.6	0.5	0	4.9	0
Mikfik Creek	0	0	0	0	0	3.8	2.1	0	1.2	3.9	0	17.8
Chenik Creek	0	0	0	0	0	0	0	0	0	0	0	0.3
Miscellaneous	0	0.1	0.8	0.1	0.1	0	2.6	0.1	1.0	1.1	1.0	0.4
Total	22.2	57.9	29.1	27.4	28.1	58.2	101.6	156.4	64.4	69.4	110.3	131.3

Catch Location	1983	1984 2/	1985	1986	1987 2/
Resurr. Bay	0	5.9	0.3	0	0.2
Aialik Bay	25.9	48.5	24.1	3.0	3.5
Nuka Bay	16.8	28.4	91.8	48.4	31.8
Humpy Creek	77.7	107.1	63.2	15.3	69.1
Tutka Bay	35.8	55.1	14.9	16.3	14.7
Seldovia Bay	6.7	0.1	2.6	3.2	3.5
Port Graham Bay	13.4	0	3.5	2.0	2.4
Kamishak-Douglas	2.8	1.1	0.7	7.6	2.3
Mikfik Creek	5.8	9.5	67.0	27.5	21.4
Chenik Creek	2.7	13.9	10.6	111.3	98.5
Miscellaneous	0	12.0	0	0.3	1.4
Total	187.6	270.8	278.7	234.9	248.8

1/ Data source IBM computer runs, 1959-87.
2/ Preliminary data.

Appendix Table 13. Salmon catch by species for set gillnets in the Southern District of Lower Cook Inlet, 1958-1987. 1/

Year	Kings	Reds	Cohos	Pinks	Chums	Total
1958	42	3,872	165	2,293	2,274	8,646
1959	49	6,148	377	4,342	361	11,277
1960	6	7,007	398	3,894	347	11,652
1961	15	8,631	216	8,201	425	17,488
1962	13	11,793	1,281	12,207	1,558	26,852
1963	9	8,305	314	1,490	812	10,930
1964	5	16,632	1,576	25,935	1,972	46,120
1965	9	10,998	314	7,267	679	19,267
1966	31	10,317	505	24,981	1,790	37,624
1967	112	22,097	504	13,962	1,929	38,604
1968	31	15,741	1,431	12,614	1,289	31,106
1969	33	11,570	246	10,717	1,298	23,864
1970	26	11,455	1,154	18,512	1,575	32,722
1971	41	18,398	1,449	8,564	1,352	29,804
1972	69	31,340	323	6,303	2,819	40,854
1973	134	23,970	1,089	20,222	2,374	47,789
1974	175	26,996	3,010	11,097	2,713	43,991
1975	96	26,588	2,337	49,490	4,020	82,531
1976	176	33,993	1,321	13,412	1,353	50,255
1977	175	54,404	869	38,064	2,765	96,277
1978	1,052	86,934	3,053	11,556	4,117	106,712
1979	483	34,367	7,595	69,368	5,266	117,079
1980	225	29,922	8,038	26,613	2,576	67,374
1981	222	53,665	6,735	68,794	8,524	137,940
1982	894	42,389	5,557	15,838	7,113	71,791
1983	822	41,707	1,799	20,533	4,377	69,238
1984 2/	643	45,806	2,979	20,764	5,412	75,604
1985	958	23,188	3,908	22,898	4,217	55,169
1986	745	21,807	2,827	14,244	2,426	42,049
1987	653	28,209	2,025	9,224	2,419	42,530
30 Year Total	7,944	768,249	63,395	573,399	80,152	1,493,139
30 Year Average	265	25,608	2,113	19,113	2,672	49,771
% of Total	0.53	51.45	4.25	38.40	5.37	100.00

1/ Data source: final IBM computer runs 1958-1987.
2/ Preliminary data.

Appendix Table 14. Lower Cook Inlet total salmon catch by district, 1957-1987. 1/

Year	Southern	Outer	Kamishak	Eastern	Total
1958	253,457	841,957	0	200	1,095,614
1959	72,711	137,211	30,491	23,294	263,707
1960	227,577	460,754	56,698	10,145	755,174
1961	206,075	158,832	18,499	0	383,406
1962	591,850	1,821,382	43,654	3,787	2,460,673
1963	124,593	140,915	96,309	2,262	364,079
1964	304,213	1,038,790	65,098	856	1,408,957
1965	104,646	46,345	7,557	0	158,548
1966	223,357	489,849	15,902	0	729,108
1967	145,110	302,028	41,818	3,923	492,879
1968	181,884	213,746	248,307	116,827	760,764
1969	86,475	57,036	144,196	99,423	387,130
1970	231,693	573,393	121,405	57,848	984,339
1971	74,518	431,500	58,545	3,778	568,341
1972	46,759	70,545	26,794	20,327	164,425
1973	126,614	273,666	48,181	5,837	454,298
1974	81,865	13,452	7,517	1,102	103,936
1975	929,617	171,387	17,370	1,105	1,119,479
1976	138,961	19,398	55,060	35,673	249,092
1977	219,859	1,233,262	79,498	10,714	1,543,333
1978	404,203	100,280	55,854	30,422	590,759
1979	1,044,517	2,151,556	91,098	296	3,287,467
1980	537,535	208,827	144,157	157,047	1,047,566
1981	1,561,782	1,971,187	146,416	58,008	3,737,393
1982	366,546	197,600	209,527	155,379	929,052
1983	842,497	243,900	162,652	70,614	1,319,663
1984 2/	513,703	120,649	245,602	200,866	1,080,820
1985	613,821	725,252	88,613	122,733	1,550,419
1986	588,790	466,986	641,889	47,825	1,745,490
1987 2/	188,535	86,893	312,836	34,564	622,828
30 Year Total	11,033,763	14,768,578	3,281,543	1,274,855	30,358,739
30 Year Average	367,792	492,286	109,385	42,495	1,011,958
% of Total	36.34	48.65	10.81	4.20	100.00

1/ Data source: Final IBM computer runs, 1957-1987 and processor catch reports.
2/ Preliminary data.

Appendix Table 15. Southern district salmon catch by species, 1958-1987. 1/

Year	King	Sockeye	Coho	Pink	Chum	Total
1958	119	17,731	1,713	209,798	24,096	253,457
1959	71	7,720	709	50,244	13,967	72,711
1960	12	12,239	1,237	209,989	4,100	227,577
1961	39	10,104	1,149	191,867	2,916	206,075
1962	58	16,569	2,095	564,050	9,078	591,850
1963	88	13,142	4,020	99,820	7,523	124,593
1964	84	17,283	8,905	266,412	11,529	304,213
1965	10	11,185	733	90,260	2,458	104,646
1966	60	12,192	4,807	177,544	28,754	223,357
1967	173	26,349	2,379	92,793	23,416	145,110
1968	61	18,716	4,671	154,033	4,403	181,884
1969	59	12,578	485	70,753	2,600	86,475
1970	90	12,120	3,544	208,066	7,873	231,693
1971	41	18,403	3,151	50,066	2,857	74,518
1972	69	31,345	1,283	9,126	4,936	46,759
1973	139	24,072	1,241	97,574	3,588	126,614
1974	182	27,029	3,054	48,875	2,725	81,865
1975	142	27,393	3,039	893,615	5,428	929,617
1976	442	35,280	1,905	99,817	1,517	138,961
1977	182	54,663	1,255	157,025	6,734	219,859
1978	1,511	141,088	4,318	251,761	5,525	404,203
1979	1,199	37,342	10,846	986,909	8,221	1,044,517
1980	414	42,929	11,568	478,019	4,605	537,535
1981	1,024	77,880	7,976	1,453,982	20,920	1,561,782
1982	926	43,433	7,165	296,556	18,466	366,546
1983	858	133,671	3,433	690,254	14,281	842,497
1984 2/	661	163,244	3,415	336,785	9,598	513,703
1985	1,007	84,149	4,258	518,898	5,509	613,821
1986	776	36,838	3,095	542,521	5,560	588,790
1987	1,158	89,662	2,163	90,522	5,030	188,535
30 Year Total	11,655	1,256,349	109,612	9,387,934	268,213	11,033,763
30 Year Average	389	41,878	3,654	312,931	8,940	367,792
% of Total	0.11	11.39	0.99	85.08	2.43	100.00

1/ Data source: Final IBM computer runs, 1958-1987, and processor catch reports.
2/ Preliminary data.

Appendix Table 16. Outer district salmon catch by species, 1958-1987. 1/

Year	King	Sockeye	Coho	Pink	Chum	Total
1958	1	1,719	83	739,768	100,386	841,957
1959	3	8,049	109	69,054	59,996	137,211
1960	4	11,614	574	381,375	67,187	460,754
1961	2	12,671	456	105,491	40,212	158,832
1962	2	8,697	1,893	1,684,023	126,767	1,821,382
1963	6	1,974	369	21,471	117,095	140,915
1964	2	1,370	431	767,473	269,514	1,038,790
1965	0	2,009	7	21,886	22,443	46,345
1966	1	3,120	357	398,751	87,620	489,849
1967	2	2,165	70	262,258	37,533	302,028
1968	1	1,550	106	191,691	20,398	213,746
1969	0	92	11	51,533	5,400	57,036
1970	5	1 037	243	434,700	137,408	573,393
1971	0	1,625	174	310,706	118,995	431,500
1972	7	26,092	17	963	43,466	70,545
1973	1	2,006	31	195,342	76,286	273,666
1974	1	206	21	1,300	11,924	13,452
1975	0	124	7	159,908	11,348	171,387
1976	7	18,886	0	93	412	19,398
1977	34	33,733	78	1,129,250	70,167	1,233,262
1978	236	10,695	45	70,080	19,224	100,280
1979	30	25,297	135	1,945,536	180,558	2,151,556
1980	10	22,514	16	154,041	32,246	208,827
1981	61	18,133	485	1,714,115	238,393	1,971,187
1982	129	66,781	92	67,523	63,075	197,600
1983	14	16,835	54	199,794	27,203	243,900
1984 2/	3	28,411	90	89,068	3,077	120,649
1985	19	91,957	3,210	618,222	11,844	725,252
1986	6	48,472	5,052	401,755	11,701	466,986
1987	14	31,845	2,481	23,890	28,663	86,893
30 Year Total	601	499,679	16,697	12,211,060	2,040,541	14,768,578
30 Year Average	20	16,656	557	407,035	68,018	492,286
% of Total	0.00	3.38	0.11	82.68	13.82	100.00

1/ Data source: Final IBM computer runs, 1958-1987, and processor catch reports.
2/ Preliminary data.

Appendix Table 17. Kamishak Bay district salmon catch by species, 1958-1987. 1/

Year	King	Sockeye	Coho	Pink	Chum	Total
1958	0	0	0	0	0	0
1959	0	1,549	43	5,325	23,574	30,491
1960	11	768	28	11,563	44,328	56,698
1961	0	1	14	6,019	12,465	18,499
1962	0	20	11	219	43,404	43,654
1963	2	4	97	82,314	13,892	96,309
1964	5	1,979	115	20,719	42,280	65,098
1965	0	808	122	3,452	3,175	7,557
1966	1	21	247	2,945	12,688	15,902
1967	1	182	74	17,340	24,221	41,818
1968	0	492	101	198,253	49,461	248,307
1969	2	10,723	121	80,157	53,193	144,196
1970	0	2,846	218	22,500	95,841	121,405
1971	0	3	121	32,094	26,327	58,545
1972	0	47	31	342	26,374	26,794
1973	0	1	28	12,568	35,584	48,181
1974	0	0	2,915	48	4,554	7,517
1975	0	29	3,041	9,432	4,868	17,370
1976	1	3,988	1,111	1,112	48,848	55,060
1977	1	7,425	105	6,308	65,659	79,498
1978	0	4,619	1,584	982	48,669	55,854
1979	9	1,778	1,116	58,484	29,711	91,098
1980	0	3,877	2,495	101,864	35,921	144,157
1981	1	4,972	1,845	66,097	73,501	146,416
1982	11	18,014	38,685	43,871	108,946	209,527
1983	1	11,207	7,138	1,405	142,901	162,652
1984 2/	2	24,642	13,230	137,133	70,595	245,602
1985	6	78,250	2,024	194	8,139	88,613
1986	14	146,496	9,935	423,774	61,670	641,889
1987	7	123,654	8,079	72,684	108,412	312,836
30 Year Total	75	448,395	94,674	1,419,198	1,319,201	3,281,543
30 Year Average	3	14,947	3,156	47,307	43,973	109,385
% of Total	0.00	13.66	2.89	43.25	40.20	100.00

1/ Data source: Final IBM computer runs, 1958-1987, and processor catch reports.
2/ Preliminary data.

Appendix Table 18. Eastern district salmon catch by species, 1958-1987. 1/

Year	King	Sockeye	Coho	Pink	Chum	Total
1958	0	0	0	200	0	200
1959	58	4,319	5,491	125	13,301	23,294
1960	0	105	853	8,720	467	10,145
1961	0	0	0	0	0	0
1962	0	0	3,728	49	10	3,787
1963	0	1	2,250	11	0	2,262
1964	0	22	9	813	12	856
1965	0	0	0	0	0	0
1966	0	0	0	0	0	0
1967	0	348	203	3,097	275	3,923
1968	2	74,484	5	41,464	872	116,827
1969	3	99,403	6	1	10	99,423
1970	11	4,895	691	50,946	1,305	57,848
1971	32	2,203	1,115	5	423	3,778
1972	12	413	903	18,232	767	20,327
1973	5	3,057	801	1,919	55	5,837
1974	0	193	524	378	7	1,102
1975	0	596	124	383	2	1,105
1976	0	5	200	35,423	45	35,673
1977	0	5,776	360	1,349	3,229	10,714
1978	0	2	582	29,738	100	30,422
1979	0	0	296	0	0	296
1980	0	122	426	155,779	720	157,047
1981	0	9,270	470	44,989	3,279	58,008
1982	0	3,092	950	143,639	7,698	155,379
1983	0	25,932	594	36,154	7,934	70,614
1984 2/	47	54,459	536	135,290	10,534	200,866
1985	11	24,338	835	92,403	5,146	122,733
1986	0	3,055	770	40,243	3,757	47,825
1987	0	3,687	1,631	14,333	14,913	34,564
30 Year Total	181	319,777	24,353	855,683	74,861	1,274,855
30 Year Average	6	10,659	812	28,523	2,495	42,495
% of Total	0.01	25.08	1.91	67.12	5.87	100.00

1/ Data source: Final IBM computer runs, 1958-1987, and processor catch reports.

2/ Preliminary data.

Appendix Table 19. King salmon catch by district for Lower Cook Inlet, 1958-1987. 1/

Year	Southern	Outer	Kamishak	Eastern	Total
1958	119	1	0	0	120
1959	71	3	0	58	132
1960	12	4	11	0	27
1961	39	2	0	0	41
1962	58	2	0	0	60
1963	88	6	2	0	96
1964	84	2	5	0	91
1965	10	0	0	0	10
1966	60	1	1	0	62
1967	173	2	1	0	176
1968	61	1	0	2	64
1969	59	0	2	3	64
1970	90	5	0	11	106
1971	41	0	0	32	73
1972	69	7	0	12	88
1973	139	1	0	5	145
1974	182	1	0	0	183
1975	142	0	0	0	142
1976	442	7	1	0	450
1977	182	34	1	0	217
1978	1,511	236	0	0	1,747
1979	1,199	30	9	0	1,238
1980	414	10	0	0	424
1981	1,024	61	1	0	1,086
1982	926	129	11	0	1,066
1983	858	14	1	0	873
1984 2/	661	3	2	47	713
1985	1,007	19	6	11	1,043
1986	776	6	14	0	796
1987	1,158	14	7	0	1,179
30 Year Total	11,655	601	75	181	12,512
30 Year Average	389	20	3	6	417
% of Total	93.15	4.80	0.60	1.45	100.00

1/ Data source: Final IBM computer runs, 1958-1987 and processor catch reports.

2/ Preliminary data.

Appendix Table 20. Sockeye salmon catch by district for Lower Cook Inlet, 1958-1987. 1/

Year	Southern	Outer	Kamishak	Eastern	Total
1958	17,731	1,719	0	0	19,450
1959	7,720	8,049	1,549	4,319	21,637
1960	12,239	11,614	768	105	24,726
1961	10,104	12,671	1	0	22,776
1962	16,569	8,697	20	0	25,286
1963	13,142	1,974	4	1	15,121
1964	17,283	1,370	1,979	22	20,654
1965	11,185	2,009	808	0	14,002
1966	12,192	3,120	21	0	15,333
1967	26,349	2,165	182	348	29,044
1968	18,716	1,550	492	74,484	95,242
1969	12,578	92	10,723	99,403	122,796
1970	12,120	1,037	2,846	4,895	20,898
1971	18,403	1,625	3	2,203	22,234
1972	31,345	26,092	47	413	57,897
1973	24,072	2,006	1	3,057	29,136
1974	27,029	206	0	193	27,428
1975	27,393	124	29	596	28,142
1976	35,280	18,886	3,988	5	58,159
1977	54,663	33,733	7,425	5,776	101,597
1978	141,088	10,695	4,619	2	156,404
1979	37,342	25,297	1,778	0	64,417
1980	42,929	22,514	3,877	122	69,442
1981	77,880	18,133	4,972	9,270	110,255
1982	43,433	66,781	18,014	3,092	131,320
1983	133,671	16,835	11,207	25,932	187,645
1984 2/	163,244	28,411	24,642	54,459	270,756
1985	84,149	91,957	78,250	24,338	278,694
1986	36,838	48,472	146,496	3,055	234,861
1987	89,662	31,845	123,654	3,687	248,848
30 Year Total	1,256,349	499,679	448,395	319,777	2,524,200
30 Year Average	41,878	16,656	14,947	10,659	84,140
% of Total	49.77	19.80	17.76	12.67	100.00

1/ Data source: Final IBM computer runs,1958-1987 and processor catch reports.

2/ Preliminary data.

Appendix Table 21. Coho salmon catch by district for Lower Cook Inlet, 1958-1987. 1/

Year	Southern	Outer	Kamishak	Eastern	Total
1958	1,713	83	0	0	1,796
1959	709	109	43	5,491	6,352
1960	1,237	574	28	853	2,692
1961	1,149	456	14	0	1,619
1962	2,095	1,893	11	3,728	7,727
1963	4,020	369	97	2,250	6,736
1964	8,905	431	115	9	9,460
1965	733	7	122	0	862
1966	4,807	357	247	0	5,411
1967	2,379	70	74	203	2,726
1968	4,671	106	101	5	4,883
1969	485	11	121	6	623
1970	3,544	243	218	691	4,696
1971	3,151	174	121	1,115	4,561
1972	1,283	17	31	903	2,234
1973	1,241	31	28	801	2,101
1974	3,054	21	2,915	524	6,514
1975	3,039	7	3,041	124	6,211
1976	1,905	0	1,111	200	3,216
1977	1,255	78	105	360	1,798
1978	4,318	45	1,584	582	6,529
1979	10,846	135	1,116	296	12,393
1980	11,568	16	2,495	426	14,505
1981	7,976	485	1,845	470	10,776
1982	7,165	92	38,685	950	46,892
1983	3,433	54	7,138	594	11,219
1984 2/	3,415	90	13,230	536	17,271
1985	4,258	3,210	2,024	835	10,327
1986	3,095	5,052	9,935	770	18,852
1987	2,163	2,481	8,079	1,631	14,354
30 Year Total	109,612	16,697	94,674	24,353	245,336
30 Year Average	3,654	557	3,156	812	8,178
% of Total	44.68	6.81	38.59	9.93	100.00

1/ Data source: Final IBM computer runs,1958-1987 and processor catch reports.

2/ Preliminary data.

Appendix Table 22. Pink salmon catch by district for Lower Cook Inlet, 1958-1987. 1/

Year	Southern	Outer	Kamishak	Eastern	Total
1958	209,798	739,768	0	200	949,766
1959	50,244	69,054	5,325	125	124,748
1960	209,989	381,375	11,563	8,720	611,647
1961	191,867	105,491	6,019	0	303,377
1962	564,050	1,684,023	219	49	2,248,341
1963	99,820	21,471	82,314	11	203,616
1964	266,412	767,743	20,719	813	1,055,417
1965	90,260	21,886	3,452	0	115,598
1966	177,544	398,751	2,945	0	579,240
1967	92,793	262,258	17,340	3,097	375,488
1968	154,033	191,691	198,253	41,464	585,441
1969	70,753	51,533	80,157	1	202,444
1970	208,066	434,700	22,500	50,946	716,212
1971	50,066	310,706	32,094	5	392,871
1972	9,126	963	342	18,232	28,663
1973	97,574	195,342	12,568	1,919	307,403
1974	48,875	1,300	48	378	50,601
1975	893,615	159,908	9,432	383	1,063,338
1976	99,817	93	1,112	35,423	136,445
1977	157,025	1,129,250	6,308	1,349	1,293,932
1978	251,761	70,080	982	29,738	352,561
1979	986,909	1,945,536	58,484	0	2,990,929
1980	478,019	154,041	101,864	155,779	889,703
1981	1,453,982	1,714,115	66,097	44,989	3,279,183
1982	296,556	67,523	43,871	143,639	551,589
1983	690,254	199,794	1,405	36,154	927,607
1984 2/	336,785	89,068	137,133	135,290	698,276
1985	518,898	618,222	194	92,403	1,229,717
1986	542,521	401,755	423,774	40,243	1,408,293
1987	90,522	23,890	72,684	14,333	201,429
30 Year Total	9,387,934	12,211,060	1,419,198	855,683	23,873,875
30 Year Average	312,931	407,035	47,307	28,523	795,796
% of Total	39.32	51.15	5.94	3.58	100.00

1/ Data source: Final IBM computer runs, 1958-1987 and processor catch reports.

2/ Preliminary data.

Appendix Table 23. Chum salmon catch by district for Lower Cook Inlet, 1958-1987. 1/

Year	Southern	Outer	Kamishak	Eastern	Total
1958	24,096	100,386	0	0	124,482
1959	13,976	59,996	23,574	13,301	110,838
1960	4,100	67,187	44,328	467	116,082
1961	2,916	40,212	12,465	0	55,593
1962	9,078	126,767	43,404	10	179,259
1963	7,523	117,095	13,892	0	138,510
1964	11,529	269,514	42,280	12	323,335
1965	2,458	22,443	3,175	0	28,076
1966	28,754	87,620	12,688	0	129,062
1967	23,416	37,533	24,221	275	85,445
1968	4,403	20,398	49,461	872	75,134
1969	2,600	5,400	53,193	10	61,203
1970	7,873	137,408	95,841	1,305	242,427
1971	2,857	118,995	26,327	423	148,602
1972	4,936	43,466	26,374	767	75,543
1973	3,588	76,286	35,584	55	115,513
1974	2,725	11,924	4,554	7	19,210
1975	5,428	11,348	4,868	2	21,646
1976	1,517	412	48,848	45	50,822
1977	6,734	70,167	65,659	3,229	145,789
1978	5,525	19,224	48,669	100	73,518
1979	8,221	180,558	29,711	0	218,490
1980	4,605	32,246	35,921	720	73,492
1981	20,920	238,393	73,501	3,279	336,093
1982	18,446	63,075	108,946	7,698	198,185
1983	14,281	27,203	142,901	7,934	192,319
1984 2/	9,598	3,077	70,595	10,534	93,804
1985	5,509	11,844	8,139	5,146	30,638
1986	5,560	11,701	61,670	3,757	82,688
1987	5,030	28,663	108,412	14,913	157,018
30 Year Total	268,213	2,040,541	1,319,201	74,861	3,702,816
30 Year Average	8,940	68,018	43,973	2,495	123,427
% of Total	7.24	55.11	35.63	2.02	100.00

1/ Data source: Final IBM computer runs, 1958-1987 and processor catch reports.
2/ Preliminary data.