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ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF COMMERCIAL FISHERIES

1992 UPPER COOK INLET

REPORT TO THE ALASKA BOARD OF FISHERIES

Regional Information Report[1] 2A92-19

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TABLE OF CONTENTS

Section	Page
INTRODUCTION	1
REVIEW OF THE 1992 SALMON FISHERY	1
Sockeye Salmon	2
Chum Salmon	4
Pink Salmon	5
Coho Salmon	5
Chinook Salmon	7
Stock Status and Outlook	7
UPPER COOK INLET HERRING FISHERY	9
1992 Herring Fishery	9
TABLES AND FIGURES	11

INTRODUCTION

The Upper Cook Inlet fisheries management area consists of that portion of Cook Inlet north of the latitude of Anchor Point. The area currently supports commercial fisheries for salmon, herring and razor clams. The salmon fishery targets primarily on sockeye salmon and produces approximately five percent of the statewide salmon harvest. A minor herring fishery for both sac roe and bait contributes less than one percent to the total Alaska harvest while the razor clam harvest annually comprises about sixty percent of the state's production.

Upper Cook Inlet is divided into two districts (Central and Northern) which are further divided into numerous subdistricts primarily to aid in standardizing fishery openings or closures on discrete salmon stocks (Figure 1). All five species of Pacific salmon are harvested in significant numbers in Upper Cook Inlet as they migrate to their streams of origin. The river systems responsible for the majority of salmon production include the Kenai River, the Kasilof River, the Susitna River and the Crescent River. Run timing characteristics and migration routes utilized by various species and stocks are such that the commercial harvest is largely mixed-stock and mixed-species in nature.

With one minor exception, gill nets are the only legal gear for harvesting salmon in Upper Cook Inlet. Set gill nets (approximately 750 permits) are employed around virtually the entire perimeter of the inlet while drift gill nets (approximately 600 permits) are used principally in the offshore areas of the Central District. Seine gear is permitted in the Chinitna Bay Subdistrict only by emergency order. Base fishing time for all gear types and areas is two twelve-hour periods (Mondays and Fridays, 7:00 a.m. to 7:00 p.m.) weekly.

Commercial harvest records exist for Cook Inlet back to 1893, although separate catch records for Upper and Lower Cook Inlet are available only back to 1954 (Table 1). Historically, set gill nets and traps were the only gear employed in the Upper Cook Inlet fishery. The use of drift gill nets did not become widespread until the early 50's. Since then their use has expanded steadily and this gear type now accounts for about 60 percent of the annual salmon harvest (Appendix A.1-6). Traps were outlawed at statehood.

In terms of economic value, sockeye salmon are by far the most important species, generally representing over 70 percent of the exvessel value of the annual salmon catch. The economic significance of the remaining species varies with their respective abundance.

1992 COMMERCIAL SALMON FISHERY

The 1992 commercial harvest of 10.4 million salmon in Upper Cook Inlet was just slightly below the record harvest of 10.45 million set in 1987 (Table 1). The harvest was valued at approximately $104 million, the second highest value on record and nearly an eight-fold increase over the previous season (Table 2).

Sockeye Salmon

The 1992 sockeye salmon harvest of 8.9 million was the second highest harvest on record, exceeded only by the 1987 harvest of 9.5 million. Valued at $99.7 million, the sockeye salmon harvest comprised 96% of the value of the total commercial salmon fishery. The distribution of the catch between drift gear (67%) and set net gear (33%) differed slightly from the long-term average (60% drift).

Management of the Upper Cook Inlet sockeye salmon fishery integrates information received from a variety of programs which together provide an in-season model of the actual return. These programs include offshore test fishing, escapement enumeration by sonar and weir, comparative analysis of historic commercial harvest and effort levels, and age composition studies.

The offshore test fishing program employs a chartered gill net vessel fishing standardized stations along a transect crossing Cook Inlet from Anchor Point to the Red River delta. The program provides an in-season estimation of sockeye salmon run-strength by determining fish passage rates (computed by correlating the vessel's daily catch with subsequent commercial harvests and escapement) and fitting these rates to the appropriate historic run-timing profile.

Hydroacoustic devices to quantify salmon escapement into glacial rivers were first employed in Upper Cook Inlet in the Kenai and Kasilof Rivers in 1968 and expanded to the Susitna River in 1978 and the Crescent River in 1979 (Table 3). Operations followed standard procedures in all systems in 1992 and no unusual problems were observed. The Susitna River escapement is monitored by sonar in the Yentna River tributary only due to technical problems with obtaining satisfactory estimates within the mainstem of the Susitna. The Yentna River escapement goal of 100,000 to 150,000 sockeye salmon was established based on the historical proportion of the total Susitna River escapement utilizing this tributary. Weirs placed on Fish Creek and Packers Creek provided daily escapement counts for those systems.

Upper Cook Inlet commercial catch statistics refined to gear type, area and date are available back to 1966. Availability of these statistics in a computerized database format make them extremely valuable for evaluating in-season fishery performance.

Inseason determination of the age composition of sockeye salmon entering the principle rivers frequently provides information helpful in estimating the stock contributions in various fisheries.

The 1992 season began with the May 25 opening of the sockeye salmon fishery near Big River in the Kustatan Subdistrict. A management plan adopted by the Board of Fisheries first opened this fishery in 1989. Difficulties in enforcing closed waters areas during 1989 resulted in a new definition of these areas by emergency order beginning with the 1990 season and also reduced fishing time from three weekly periods to two to compensate for the expected increased effectiveness of the fishery. Following the period on June 8, the 1,000 chinook salmon quota was estimated to be attained and the fishery was closed by emergency order for the remainder of the season. The sockeye salmon harvest of 3,674 fish is the lowest

harvest recorded in this fishery and continues a history of catches well below the level anticipated when this fishery was created.

The sockeye salmon return to the Crescent River on the west side of the Central District is sufficiently segregated from the other July sockeye salmon runs to allow management measures to be taken solely within the Western Subdistrict set gill net fishery. The 1992 return was somewhat improved over the very poor returns of the past few years and no closures of the fishery were required. The Western Subdistrict catch of 23,159 sockeye salmon was a slight improvement over the previous year, although only about half of the long-term average. The Crescent River escapement of 58,000 was within the desired escapement range of 50,000 - 100,000.

The remaining principle stocks of sockeye salmon (Kenai, Kasilof and Susitna Rivers) were expected to provide the bulk of the forecast harvest of 3.6 million fish. Fishermen were informed prior to the season that returns to the Susitna River were expected to be comparatively weak and that unless early season catches indicated otherwise, a regular period scheduled for within the July 10-15 time frame would likely be closed to drift gillnetting in the offshore areas of the Central District. This time frame was chosen because historically it has produced the highest single-period exploitation rate on Susitna-bound fish.

The drift fishing season began on the regulatory opening date of June 26 with sockeye salmon catches through early July being unremarkable. Initial escapement rates in the Kasilof River were sufficiently high to trigger an opening of the southern Upper Subdistrict set nets three days prior to the scheduled July 3 opening date (Table 4). The drift harvest on July 6 of over 300,000 sockeye was far above average for the date and significantly changed the outlook for the strength of the return. The age and size of the fish indicated that the dramatic increase in abundance was largely due to incoming Kenai River stocks. The July 10 fishing period produced an even stronger drift harvest of over 500,000 fish, again consisting mainly of Kenai River stocks. Coupled with the offshore test fish indices, these catches indicated the return was far stronger than forecast.

Sequential escapements well in excess of the maximum goal during the period from 1987-1989 strongly correlated with a precipitous decline in juvenile fish production from the Kenai River and at this point in the season it was evident that a fairly aggressive fishing posture would be necessary to hold the Kenai River escapement to reasonable levels. The fishing period on July 13 was allowed to go forward without restriction and again produced a harvest in excess of 500,000. A limited fishing period for the eastside set nets and drifting close to the east beach was opened on July 14 to slow the escapement into the Kenai and Kasilof Rivers and another period on July 15 permitted drifting from Kalgin Island south and opened set nets along the east side and on Kalgin Island. The eastside set nets were permitted to fish almost continuously from July 13 through July 18. Drifting was allowed in the 3-mile east side corridor on days when no fishing was allowed in the offshore areas. Catches continued to be very strong with the Upper Cook Inlet harvest approaching 4 million fish by July 18.

The same basic pattern of fishing was sustained through Wednesday, July 22. The 3-mile drift corridor was widened to 8 miles on July 22 to further increase the

effectiveness of the drift harvest. No fishing was opened on July 23 as the Kenai River sockeye escapement had slowed and the chinook salmon escapement was lagging. Lacking any significant escapement into the Yentna River and no evidence of substantial abundance of sockeye salmon in the Northern District led to the closure of that area for the regular period on July 24 and a restriction of the drift fleet to the 8-mile corridor (Table 5). Fish moved very strongly onto the east side beaches during the July 24 fishing period, producing a record 12-hour period harvest of 380,000 fish for the Upper Subdistrict set nets. By July 24, the projected final spawning escapement of late-run Kenai River chinook salmon dropped below 19,000, triggering fishery restrictions as required by the regulatory management plan. Restriction of the inriver recreational fishery to catch-and-release fishing only was coupled with the closure of the east side set net fishery and the 3-mile drift corridor on all but regularly scheduled openings. The drift fishery was allowed to continue within the 3-8 mile corridor through the weekend of July 25 and 26 and the regular period was again closed in the Northern District and the drift fleet limited to the 8-mile corridor. As of Monday, July 27, the chinook salmon projection had climbed above the 19,000 mark and the projected escapement of Kenai River sockeye salmon exceeded the maximum escapement goal of 700,000, relieving the management plan restrictions on the commercial salmon fishery. All areas fished the remaining regular periods without restriction and, in addition, the eastside set net fishery and drift fishing in the 8-mile or 3-mile corridors were opened daily through August 8.

The final sockeye salmon sonar count in the Kenai River totaled 994,760, well in excess of the maximum goal of 700,000. The Yentna River sonar count of 66,057 was just two-thirds of the lower end of the desired escapement range for that system. The Kasilof River count of 183,178 was well within the desired range of 150,000-250,000.

In response to a strong return of hatchery-produced sockeye salmon to Packers Creek on Kalgin Island, the Kalgin Island set nets were opened continuously from July 31 through August 8, harvesting nearly 40,000 sockeye during that period, nearly half of the season's catch for that area. Nearly 13,000 coho salmon were also harvested during the same time interval.

The Knik Arm set net fishery opened on July 19 and operated on a two-day-per-week schedule through July 26 as provided for in the recently amended Fish Creek Sockeye Salmon Management Plan. This fishery produced a harvest of 12,100 sockeye and 2,600 coho salmon.

Chum Salmon

Chum salmon returning to Upper Cook Inlet are bound principally for the Susitna River with much smaller returns bound for several streams along the west side of the Central District. The harvest occurs primarily in the drift fishery (87%), the Northern District set net fishery (6%) and the Central District west side set net fishery (6%). The timing of the Susitna River return significantly overlaps the timing of the sockeye salmon returns and as a result, management measures directed at sockeye salmon often influence the chum salmon harvest. The Susitna River chum salmon escapement is not measured and no escapement objectives are defined.

The 1992 harvest of 351,000 chum salmon was slightly more than half the long-term average and accounted for 1% of the exvessel value of the salmon fishery. The drift fishery restrictions (limiting fishing to the 8-mile corridor from July 21 through July 30) contributed to reducing the exploitation of the return and the resulting Susitna River escapement was subjectively judged to be average to good.

Chum salmon returns to Central District west side streams were also relatively poor and harvests from these areas were well below average. Escapement in the few streams monitored was generally fair to good.

Pink Salmon

Returns to the Susitna and Kenai rivers combine to account for the majority of the pink salmon production in Upper Cook Inlet. Both rivers have abundant returns only in even-numbered years. Susitna pink salmon return first, passing through the Central District during the latter half of July while Kenai-bound pink salmon are most abundant in the Central District in early August. The harvest occurs principally in the drift fishery (39%), the Central District east side set net fishery (35%) and the Northern District set net fishery (22%).

As with the Susitna chum salmon return, the Susitna pink salmon return overlaps the sockeye salmon return to such a large degree that harvest levels are often influenced by management measures directed at sockeye salmon. Specific fishery alterations directed at Susitna River pink salmon are uncommon. Kenai River pink salmon are harvested most heavily in the Central District east side set fishery in early August. Fishing time in this area after August 5 is typically controlled by the relative strength of the pink salmon return. Estimating the escapement of pink salmon has not proven practical in either system and specific escapement objectives do not exist.

The 1990 pink salmon return produced a harvest of 677,000 fish, well below average for an even-numbered year, and accounted for only 0.3% of the value of the salmon fishery. The Susitna River pink salmon run was damaged by the 1986 flooding. Subsequent returns have been poor but improving although the 1992 return showed little if any improvement over 1990 and generally followed the trend throughout southcentral Alaska of very poor returns. Lack of directed effort to harvest Susitna-bound pink salmon obviated any need for fishery restrictions. The escapement was subjectively judged to be poor.

The Kenai River pink salmon return, as indicated by daily harvest levels in the eastside set net fishery, was one of the poorest on record. Lack of substantial effort following the sockeye salmon return resulted in an escapement level that appeared to be fair to good.

Coho Salmon

For discussion purposes, it is useful to divide Upper Cook Inlet's diverse coho salmon stocks impacted by the commercial fishery into three broad categories.

The first category contains those stocks bound principally for the Susitna River, migrating through the Central District during the last three weeks of July. The Cook Inlet Salmon Management Plan identifies Susitna River coho salmon as a stock which should experience a minimized commercial interception, to the extent consistent with other goals established within the plan. While simple in concept, this directive is much more difficult to implement in practice. The management plan identifies a higher priority for the sustained commercial harvest of sockeye, chum and pink salmon stocks, many of which are bound for the same streams at similar times and along similar pathways utilized by Susitna River coho salmon stocks. Consequently, these stocks are normally exploited at fairly significant levels in the commercial drift and the Northern District set net fisheries. It is occasionally possible to time fishery closures aimed principally at stock conservation of sockeye salmon to take advantage of peaks in abundance of coho salmon but such opportunities arise too infrequently to consistently meet the Plan objectives.

The second category of interest is the early return of coho salmon to the Kenai River which peaks in abundance in early August and is intercepted in both the drift and east side set net fisheries. The allocation status is the same as for Susitna coho salmon. Due to the overlap with the Kenai River sockeye salmon return, it is difficult to avoid a substantial interception of this stock in the commercial fishery.

The third stock grouping consists of a diverse collection of coho salmon returns to the numerous streams along the west side of Cook Inlet and Northern District streams other than the Susitna River. Under the management plan, these stocks are managed primarily for commercial uses. Fishing time in the west side and Northern District set net fisheries after mid-August is based primarily on the strength of these returns.

The 1992 coho salmon harvest of 462,565 was significantly above average and accounted for 2.1% of the exvessel value of the salmon fishery. Commercial interception of Susitna River coho salmon was measurably reduced by the late July corridor restrictions of the drift fleet and the simultaneous closure of the Northern District set net fishery. Inriver abundance was not directly measured but appeared to be good to excellent.

The Kenai River early return exhibited good run strength as judged by daily catches in the east side set net fishery. Commercial interception of this stock was substantial due to the extended fishing time targeted on Kenai River sockeye salmon. Additional fishing time did not cease until August 8, the approximate midpoint of the early run of coho. The eastside set net harvest of 57,000 was significantly above average. Freshwater abundance, as indicated by harvest rates in the inriver recreational fishery, was slightly below average.

The west side and late Northern District coho salmon returns were generally average to above average and fishing in these areas was opened for an additional day each week beginning in August 19. Post-season estimates of abundance in the various freshwater systems producing these coho stocks indicate satisfactory escapements with the exception of Knik Arm stocks where abundance was very poor. Future years will require efforts to identify and restrict portions of the commercial and sport fisheries to insure adequate escapement .

Chinook Salmon

The principle stocks of chinook salmon harvested in the commercial fishery are the return to the Susitna River and the late run to the Kenai River. Created by the Board four years ago and conducted under the direction of the Susitna River Chinook Salmon Management Plan, a minor fishery occurs each June for set gill nets in the Northern District. Each participant is allowed one 35-fathom net and a minimum distance of 1200 feet must be maintained between nets (twice the normal distance). Fishing is permitted for 6 hours each Monday in June until the quota of 12,500 chinook has been harvested or the regular season opens on June 25. Harvest levels initially approached or reached the quota recent harvests have generally been well below the 12,500 level.

The 1992 Northern District chinook salmon fishery harvested 3,929 chinook salmon, by far the lowest catch since the inception of the fishery. The principle reason for the reduced harvest was the significantly reduced run-strength of chinook salmon as evidenced by reduced abundance in many rivers and tributaries. Conservation restrictions in many of the sport fisheries were accompanied by emergency order closure of the final scheduled period (June 22) in the commercial fishery.

The other major stock of chinook salmon harvested in the commercial fishery, the late run to the Kenai River, generates the greatest controversy in Upper Cook Inlet, pitting Kenai River recreational anglers against Upper Subdistrict ("east side") set netters. An average of over 13,000 chinook salmon were taken annually during the 1980's in the commercial set net fishery, frequently exceeding the sport fish harvest. Much smaller numbers are taken in the drift gill net fishery.

The 1992 east side set net fish ticket total of 10,241 chinook salmon represents the highest catch since 1989, due in part to the intense fishing directed at large surpluses of Kenai River sockeye salmon. As noted in the "Sockeye Salmon" section, above, the provisions of the Kenai River Late Run Chinook Salmon Management Plan resulted in the restriction of the eastside set net fishery and the drift fishery along the eastern shore on July 25 and 26.

Stock Status and Outlook

Upper Cook Inlet's salmon stocks are in varied condition with some stocks in excellent condition, others stable and a few in poor condition. The most notable in the last category are Kenai River sockeye salmon. Recent sockeye salmon production has been particularly vigorous with the nine highest years of production all having occurred in the last eleven years. Smolt and fry surveys indicate that Kenai River returns will decline precipitously over the next several years, to the point that no harvestable surplus may be available by 1994 and 1995. The Board will receive a separate report detailing the condition of the Kenai River sockeye salmon run.

Kasilof River returns, very strong through the early and mid 1980's, declined significantly in the late 1980's and are expected to remain at a generally stable

healthy level over the next few years. Susitna River escapements in several of the recent parent years were significantly below desired levels and returns to this system for 1993 will likely be poor but substantially improved for 1994 and 1995. Despite consistently satisfactory parent-year escapements, recent production from Crescent River has been poor. The near-term outlook for this system is difficult to project although nearly all recent escapements have been in excess of the minimum goal.

Chum salmon production has been highly variable in recent years, in part due to the 1986 flooding of the Susitna Basin. Lacking quantitative escapement information, it is more difficult to speculate on near-term returns but it is likely that chum salmon returns will be fair to good over the next several years.

Susitna River pink salmon have recovered substantially from the 1986 flood but this recovery has been offset by poor survival in either the freshwater or marine life stage that has recently impacted most southcentral pink salmon stocks. Kenai River pink salmon were similarly affected and the outlook for these stocks is uncertain.

Upper Cook Inlet's coho salmon stocks generally produced very strong returns throughout most of the 1980's and no downturn in this trend has been observed. Susitna River escapements have been good to excellent for the last several years and the outlook for this return is good. Early-run Kenai River coho salmon returns have ranged from average to good in recent years but harvests have been very high in both the commercial fishery and in the rapidly growing sport fishery. The condition of this stock will need to be carefully monitored in the coming years. The condition of Knik Arm coho stocks appears to have declined in recent years and fishery restrictions will likely be needed to prevent further decline.

An evaluation of chinook salmon stock status and the outlook for future returns will be provided to the Board by Sport Fish Division staff.

UPPER COOK INLET HERRING FISHERY

The Upper Cook Inlet area consists of those waters north of the latitude of Anchor Point. Herring fishing in this area dates back to 1973 with a fishery on the eastside of the Central District. Since that time additional fisheries have developed on the western shore in Chinitna Bay beginning in 1978 and in Tuxedni Bay in 1979. The fishery on the eastside is for bait-quality herring utilized primarily by the recreational halibut fishery. The fishery on the westside has been primarily a sac-roe fishery, however some bait-quality herring have also been taken in these fisheries. In 1992 a total of 156 herring gillnet permits were issued, however only 26 permits were used to make deliveries.

Glacial turbidity in Upper Cook Inlet precludes the use of aerial surveys to determine stock strength. Therefore it is necessary to use catch per unit of effort statistics and age class composition from the commercial fishery to estimate stock strength. Since 1988 harvests in the Eastside and Tuxedni Bay fisheries have been declining. The Chinitna Bay stocks have declined recently, but to a lesser degree than the other two areas. Since 1990 the Department has been monitoring this situation very closely anticipating some improvement, however the stocks in these areas have continued to decline, with no sign of improving.

1992 Herring Fishery

The 1992 herring fishery along the eastern shore of Upper Cook Inlet opened by regulation on April 15. The first harvests were reported on May 3, however harvests through the closure on May 31 remained sporadic and extremely poor. The daily harvests in this fishery remained well below the levels seen in recent years, indicating that this stock was much weaker than expected. The total harvest for the entire east side fishery was 24.7 tons of bait quality herring (Table 6). The 1992 harvest was a modest improvement over 1991 however it was still much lower than the long term harvest in this fishery. The age composition of the east side harvest was 0.5 percent age 3, 2.7 percent age 5, 19.6 percent age 6, 38.0 percent age 7, 27.7 percent age 8, 8.7 percent age 9 and 2.5 percent age 10 or older (Table 7).

The fishery on the west side opens by regulation on April 22. There are two areas where the harvest typically occurs, Chinitna and Tuxedni Bays. Tuxedni Bay stocks have been in a depressed condition as evidenced by the precipitous decline in commercial harvests beginning in 1988. This area was closed by Emergency Order prior to the 1992 season to protect the remaining portion of the stock. In addition the Lower Subdistrict of the Central District was also closed by the same Emergency Order to provide some additional protection to these Tuxedni Bay Stocks.

In recent years, fishing effort in the Chinitna Bay area has spread to waters outside of the bay resulting in a harvest of immature fish of inferior quality which are subsequently dumped and not reported. Prior to the 1992 herring season, the waters outside of Chinitna Bay, the Lower Subdistrict, was closed by emergency order to prevent this waste and also to conserve any Tuxedni Bay stocks that migrate through this area. The guideline harvest level in the Chinitna Bay

Subdistrict is 50 tons. The fishery in Chinitna Bay generally begins by early May and is over by mid May. In 1992 the first harvests of 3.3 tons were reported on May 13. Harvest levels averaging 1 ton per day continued until May 19 when processors were no longer interested in tendering herring from this area and the fishery essentially ended for lack of participation at that time, however the area was not closed by Emergency Order until May 31. The total reported harvest in this fishery when it closed by Emergency Order was 10.4 tons. The age composition of the harvest was 4.3 percent age 4, 7.8 percent age 5, 13.8 percent age 6, 19.0 percent age 7, 25.9 percent age 8, 23.3 percent age 9, and 6.0 percent age 10 and older (Table 8).

The Upper Cook Inlet herring stocks appear to be in a generally depressed state. Commercial harvests in all areas have steadily declined to insignificant levels. There appears to have been no appreciable recruitment in any of the stocks in recent years. Sustained closures of these fisheries will be required to allow the stocks to rebuild followed by a conservative approach in reopening fishing to prevent further damage to recovering stocks.

Table 1. Upper Cook Inlet commercial salmon harvest by species, 1954-1992.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1954	63,780	1,207,046	321,525	2,189,207	510,068	4,291,726
1955	45,926	1,027,528	170,777	101,680	248,343	1,594,254
1956	64,977	1,258,789	198,189	1,595,375	782,051	3,899,381
1957	42,158	643,712	125,434	21,228	1,001,470	1,834,002
1958	22,727	477,392	239,765	1,648,548	471,697	2,860,129
1959	32,651	612,676	106,312	12,527	300,319	1,064,485
1960	27,512	923,314	311,461	1,411,605	659,997	3,333,889
1961	19,737	1,162,303	117,778	34,017	349,628	1,683,463
1962	20,210	1,147,573	350,324	2,711,689	970,582	5,200,378
1963	17,536	942,980	197,140	30,436	387,027	1,575,119
1964	4,531	970,055	452,654	3,231,961	1,079,084	5,738,285
1965	9,741	1,412,350	153,619	23,963	316,444	1,916,117
1966	8,544	1,852,114	289,837	2,005,745	532,756	4,688,996
1967	7,859	1,380,062	177,729	32,229	296,837	1,894,716
1968	4,536	1,104,904	469,850	2,278,197	1,119,114	4,976,601
1969	12,407	692,244	100,962	34,030	269,842	1,109,485
1970	8,358	746,634	279,989	826,639	800,829	2,662,449
1971	19,765	636,798	100,636	35,624	327,029	1,119,852
1972	16,086	879,724	80,933	628,576	630,016	2,235,335
1973	5,194	670,025	104,373	326,183	667,561	1,773,336
1974	6,586	497,160	200,125	484,035	396,938	1,584,844
1975	4,773	678,736	221,739	335,629	950,981	2,191,858
1976	10,867	1,664,131	208,710	1,256,743	469,806	3,610,257
1977	14,792	2,052,511	192,599	553,855	1,233,722	4,047,479
1978	17,302	2,621,667	219,360	1,689,098	571,959	5,119,386
1979	13,738	924,415	265,166	72,982	650,357	1,926,658
1980	13,795	1,573,637	271,378	1,786,430	390,810	4,036,050
1981	12,240	1,439,235	485,148	127,169	833,549	2,897,341
1982	20,870	3,259,864	793,937	790,648	1,433,866	6,299,185
1983	20,634	5,049,733	516,322	70,327	1,114,858	6,771,874
1984	10,041	2,105,860	449,903	617,298	680,089	3,860,839
1985	24,086	4,060,260	667,213	87,828	772,829	5,612,216
1986	39,240	4,787,982	756,830	1,299,360	1,134,173	8,017,585
1987	39,661	9,500,186	451,404	109,801	349,132	10,450,184
1988	29,060	6,834,342	560,022	469,972	708,573	8,601,969
1989	26,742	5,010,698	339,201	67,430	122,027	5,566,098
1990	16,105	3,604,064	500,026	603,630	351,197	4,986,100
1991	13,535	2,177,576	425,724	14,663	280,223	2,911,721
1992	16,722	8,901,566	462,565	677,346	350,914	10,409,113
Average	20,642	2,217,740	316,325	776,762	628,633	3,960,043

Table 2. Approximate exvessel value of the Upper Cook Inlet commercial salmon harvest by species, 1960-1992.

Year	Chinook	%	Sockeye	%	Coho	%	Pink	%	Chum	%	Total
1960	$140,000	5.0	$1,334,000	47.9	$307,000	11.0	$663,000	23.8	$343,000	12.3	$2,787,000
1961	$100,000	4.7	$1,687,000	79.4	$118,000	5.6	$16,000	0.8	$204,000	9.6	$2,125,000
1962	$100,000	2.5	$1,683,000	42.3	$342,000	8.6	$1,274,000	32.0	$582,000	14.6	$3,981,000
1963	$89,000	4.6	$1,388,000	72.3	$193,000	10.1	$13,000	0.7	$236,000	12.3	$1,919,000
1964	$20,000	0.5	$1,430,000	38.9	$451,000	12.3	$1,131,000	30.8	$646,000	17.6	$3,678,000
1965	$50,000	2.0	$2,099,000	82.1	$109,000	4.3	$70,000	2.7	$230,000	9.0	$2,558,000
1966	$50,000	1.2	$2,727,000	64.4	$295,000	7.0	$823,000	19.4	$338,000	8.0	$4,233,000
1967	$49,000	1.9	$2,135,000	82.6	$187,000	7.2	$13,000	0.5	$202,000	7.8	$2,586,000
1968	$30,000	0.7	$1,758,000	40.4	$515,000	11.8	$1,209,000	27.8	$843,000	19.4	$4,355,000
1969	$70,000	4.3	$1,231,000	75.2	$109,000	6.7	$23,000	1.4	$204,000	12.5	$1,637,000
1970	$49,000	1.8	$1,135,000	42.5	$354,000	13.3	$387,000	14.5	$745,000	27.9	$2,670,000
1971	$189,000	10.7	$1,102,000	62.2	$143,000	8.1	$22,000	1.2	$316,000	17.8	$1,772,000
1972	$217,000	6.3	$1,795,000	52.0	$135,000	3.9	$473,000	13.7	$834,000	24.1	$3,454,000
1973	$122,000	2.0	$3,214,000	52.2	$320,000	5.2	$363,000	5.9	$2,134,000	34.7	$6,153,000
1974	$210,000	3.2	$3,058,000	46.5	$843,000	12.8	$946,000	14.4	$1,521,000	23.1	$6,578,000
1975	$65,000	1.0	$2,596,000	39.0	$821,000	12.3	$423,000	6.4	$2,753,000	41.3	$6,658,000
1976	$276,000	2.0	$8,626,000	63.2	$818,000	6.0	$1,879,000	13.8	$2,040,000	15.0	$13,639,000
1977	$525,000	2.4	$13,274,000	61.8	$933,000	4.3	$772,000	3.6	$5,991,000	27.9	$21,495,000
1978	$667,000	2.0	$26,128,000	80.3	$1,388,000	4.3	$2,154,000	6.6	$2,217,000	6.8	$32,554,000
1979	$625,000	4.3	$8,094,000	55.2	$1,658,000	11.3	$89,000	0.6	$4,201,000	28.6	$14,667,000
1980	$417,000	3.2	$7,932,000	61.6	$902,000	7.0	$2,114,000	16.4	$1,516,000	11.8	$12,881,000
1981	$422,000	2.6	$11,071,000	67.9	$2,638,000	16.2	$179,000	1.1	$2,005,000	12.3	$16,315,000
1982	$753,000	2.1	$25,029,000	69.0	$4,139,000	11.4	$515,000	1.4	$5,851,000	16.1	$36,287,000
1983	$585,000	2.0	$23,841,000	81.5	$1,603,000	5.5	$38,000	0.1	$3,195,000	10.9	$29,262,000
1984	$311,990	1.8	$12,445,633	71.8	$2,041,480	11.8	$522,419	3.0	$2,007,827	11.6	$17,329,349
1985	$799,173	2.3	$27,479,840	80.0	$3,358,083	9.8	$57,440	0.2	$2,646,553	7.7	$34,341,089
1986	$881,356	1.9	$37,665,832	83.3	$2,838,881	6.3	$698,527	1.5	$3,123,485	6.9	$45,208,081
1987	$1,609,681	1.6	$96,331,886	94.9	$2,368,968	2.3	$84,547	0.1	$1,115,477	1.1	$101,510,559
1988	$1,204,321	1.0	$111,102,230	91.2	$4,731,340	3.9	$650,309	0.5	$4,113,356	3.4	$121,801,556
1989	$803,494	1.4	$56,194,753	95.0	$1,674,393	2.8	$86,012	0.1	$415,535	0.7	$59,174,187
1990	$436,822	1.1	$35,804,485	88.0	$2,419,202	5.3	$512,590	1.3	$1,495,827	3.7	$40,668,906
1991	$348,553	2.3	$12,259,753	80.4	$1,996,348	13.1	$5,472	0.0	$643,392	4.2	$15,253,518
1992	$627,075	0.6	$99,695,154	96.0	$2,227,051	2.1	$335,154	0.3	$1,010,439	1.0	$103,849,873

Table 3. Escapement goals and counts of sockeye salmon in selected streams of Upper Cook Inlet, 1968-1992.

	Kenai River		Kasilof River		Fish Creek	
Year	Escapement Goal	Escapement Estimate[1]	Escapement Goal	Escapement Estimate[1]	Escapement Goal	Escapement Estimate[2]
1968	0	88,000	0	93,000	0	19,616
1969	150,000	53,000	75,000	46,000	0	12,456
1970	150,000	73,000	75,000	37,000	0	25,000
1971	150,000	--	75,000	--	0	31,900
1972	150,000-250,000	318,000	75,000-150,000	112,000	0	6,981
1973	150,000-250,000	367,000	75,000-150,000	40,000	0	2,705
1974	150,000-250,000	161,000	75,000-150,000	64,000	0	16,225
1975	150,000-250,000	142,000	75,000-150,000	48,000	0	29,882
1976	150,000-250,000	380,000	75,000-150,000	140,000	0	14,032
1977	150,000-250,000	708,000	75,000-150,000	155,000	0	5,183
1978	350,000-500,000	399,000	75,000-150,000	117,000	0	3,555
1979	350,000-500,000	285,000	75,000-150,000	152,000	0	68,739
1980	350,000-500,000	464,000	75,000-150,000	187,000	0	62,828
1981	350,000-500,000	408,000	75,000-150,000	257,000	0	50,479
1982	350,000-500,000	620,000	75,000-150,000	180,000	50,000	28,164
1983	350,000-500,000	630,000	75,000-150,000	210,000	50,000	118,797
1984	350,000-500,000	345,000	75,000-150,000	232,000	50,000	192,352
1985	350,000-500,000	501,000	75,000-150,000	503,000	50,000	68,577
1986	350,000-500,000	501,000	150,000-250,000	276,000	50,000	29,800
1987	400,000-700,000	1,597,000	150,000-250,000	249,000	50,000	91,215
1988	400,000-700,000	1,021,500	150,000-250,000	202,000	50,000	71,603
1989	400,000-700,000	1,599,959	150,000-250,000	158,206	50,000	67,224
1990	400,000-700,000	658,908	150,000-250,000	144,136	50,000	48,717
1991	400,000-700,000	645,000	150,000-250,000	238,000	50,000	50,500
1992	400,000-700,000	994,760	150,000-250,000	183,178	50,000	72,108

	Susitna River		Crescent River		Packers Creek	
Year	Escapement Goal	Escapement Estimate[1]	Escapement Goal	Escapement Estimate[1]	Escapement Goal	Escapement Estimate[2]
1978	200,000	94,000	0	N/C	0	N/C
1979	200,000	157,000	50,000	87,000	0	N/C
1980	200,000	191,000	50,000	91,000	0	16,477
1981	200,000	340,000	50,000	41,000	0	13,024
1982	200,000	216,000[3]	50,000	59,000	0	15,687
1983	200,000	112,000[4]	50,000	92,000	0	18,403
1984	200,000	194,000[5]	50,000	118,000	0	30,684
1985	200,000	228,000[5]	50,000	129,000	0	36,850
1986	200,000	92,000[6]	50,000-100,000	N/A	0	29,604
1987	200,000	66,000[6]	50,000-100,000	119,000	0	35,401
1988	100,000-150,000[6]	52,347[6]	50,000-100,000	57,716	15,000-25,000	18,607
1989	100,000-150,000[6]	96,269[6]	50,000-100,000	71,064	15,000-25,000	22,304
1990	100,000-150,000[6]	140,290[6]	50,000-100,000	52,238	15,000-25,000	31,778
1991	100,000-150,000[6]	105,000[6]	50,000-100,000	44,500	15,000-25,000	41,275
1992	100,000-150,000[6]	66,057[6]	50,000-100,000	58,227	15,000-25,000	30,143

[1] Derived from sonar counters unless otherwise noted.
[2] Weir counts.
[3] Poor field conditions make this a minimum estimate; mark/recapture estimate from Su-Hydro studies was 265,000.
[4] Minimum estimate. Combining Yentna sonar with Sunshine Station mark/recapture estimate yields 176,000.
[5] Yentna River sonar count combined with Sunshine Station mark/recapture estimate.
[6] Yentna River only.

Table 4. Commercial salmon fishing periods, Upper Cook Inlet, 1992.

Date	Day	Time	Set Gill Net	Drift Gill Net
May 25	Mon	0700-1900	Big River Area	
May 29	Fri	0700-1900	Big River Area	
June 1	Mon	0700-1300	Northern District, Big River	
		1300-1900	Big River Area	
June 5	Fri	0700-1900	Big River Area	
June 8	Mon	0700-1300	Northern District, Big River	
		1300-1900	Big River Area	
June 15	Mon	0700-1300	Northern District	
June 19	Fri	0700-1900	Western	
June 22	Mon	0700-1900	Western	
June 26	Fri	0700-1900	All except Upper Subdistrict	All
June 29	Mon	0700-1900	All except Upper Subdistrict	All
June 30	Tue	0700-1900	Upper south of mid K-Beach	South of Blanchard Line within 3 mi.
July 3	Fri	0700-1900	All	All
July 6	Mon	0700-1900	All	All
July 10	Fri	0700-1900	All	All
July 13	Mon	0700-1900	All	All
		1900-2200	Upper	Upper s. of Colliers within 3 mi.
		2200-2400	Upper	
July 14	Tue	0000-0500	Upper	
		0500-2200	Upper	Upper s. of Colliers within 3 mi.
July 15	Wed	0700-1900	Upper, Kalgin	S. of Colliers to North Kalgin
		1900-2200	Upper	Upper s. of Colliers within 3 mi.
		2200-2400	Upper	
July 16	Thur	0000-0500	Upper	
		0500-2200	Upper	Upper s. of Colliers within 3 mi.
		2200-2400	Upper	
July 17	Fri	0000-0500	Upper	
		0500-0700	Upper	Upper s. of Colliers within 3 mi.
		0700-1900	All	All
		1900-2200	Upper	Upper s. of Colliers within 3 mi.
		2200-2400	Upper	
July 18	Sat	0000-0500	Upper	
		0500-2200	Upper	Upper s. of Colliers within 3 mi.
July 19	Sun	0700-1900	Knik Arm	
July 20	Mon	0700-1900	All	All
		1900-2200	Upper	Upper s. of Colliers within 3 mi.
		2200-2400	Upper	

Table 4. Page 2 of 3.

Date	Day	Time	Set Gill Net	Drift Gill Net
July 21	Tues	0000-0500	Upper	
		0500-0700	Upper	Upper s. of Colliers within 3 mi.
		0700-1900	Upper, Knik Arm	Upper s. of Colliers within 3 mi.
		1900-2200	Upper	Upper s. of Colliers within 3 mi.
		2200-2400	Upper	
July 22	Wed	0000-0500	Upper	
		0500-2200	Upper	South of Colliers within 8 mi.
		2200-2300	Upper	
July 24	Fri	0700-1900	All except Northern District	South of Colliers within 8 mi.
July 25	Sat	0500-2200		South of Colliers from 3-8 mi.
July 26	Sun	0500-0700		South of Colliers from 3-8 mi.
		0700-1900	Knik Arm	South of Colliers from 3-8 mi.
		1900-2200		South of Colliers from 3-8 mi.
July 27	Mon	0700-1900	All except Northern District	South of Colliers within 8 mi.
		1900-2200	Upper	South of Colliers within 8 mi.
		2200-2400	Upper	
July 28	Tue	0000-0500	Upper	
		0500-2200	Upper	South of Colliers within 8 mi.
		2200-2400	Upper	
July 29	Wed	0000-0500	Upper	
		0500-2200	Upper	South of Colliers within 8 mi.
		2200-2400	Upper	
July 30	Thur	0000-0600	Upper	
		0600-2200	Upper	South of Colliers within 8 mi.
		2200-2400	Upper	
July 31	Fri	0000-0600	Upper	
		0600-0700	Upper	South of Colliers within 8 mi.
		0700-1900	All	All except Chinitna
		1900-2200	Upper, Kalgin	South of Colliers within 8 mi.
		2200-2400	Upper, Kalgin	
Aug 1	Sat	0000-0600	Upper, Kalgin	
		0600-2200	Upper, Kalgin	South of Colliers within 8 mi.
		2200-2400	Upper, Kalgin	
Aug 2	Sun	0000-0600	Upper, Kalgin	
		0600-2200	Upper, Kalgin	South of Colliers within 8 mi.
		2200-2400	Upper, Kalgin	
Aug 3	Mon	0000-0600	Upper, Kalgin	
		0600-0700	Upper, Kalgin	South of Colliers within 8 mi.
		0700-1900	All	All except Chinitna
		1900-2200	Upper, Kalgin	South of Colliers within 3 mi.
		2200-2400	Upper, Kalgin	
Aug 4	Tue	0000-0600	Upper, Kalgin	
		0600-2200	Upper, Kalgin	South of Colliers within 3 mi.
		2200-2400	Upper, Kalgin	
Aug 5	Wed	0000-0600	Upper, Kalgin	
		0600-2200	Upper, Kalgin	South of Colliers within 3 mi.
		2200-2400	Upper, Kalgin	

Table 4. Page 3 of 3.

Date	Day	Time	Set Gill Net	Drift Gill Net
Aug 6	Thur	0000-0600	Upper, Kalgin	
		0600-2200	Upper, Kalgin	South of Colliers within 8 mi.
		2200-2400	Upper, Kalgin	
Aug 7	Fri	0000-0600	Upper, Kalgin	
		0600-0700	Upper, Kalgin	South of Colliers within 8 mi.
		0700-1900	All	All except Chinitna
		1900-2200	Upper, Kalgin	South of Colliers within 8 mi.
		2200-2400	Upper, Kalgin	
Aug 8	Sat	0000-0600	Upper, Kalgin	
		0600-2200	Upper, Kalgin	South of Colliers within 8 mi.
Aug 10	Mon	0700-1900	All	All except Chinitna
Aug 14	Fri	0700-1900	All	All except Chinitna
Aug 17	Mon	0700-1900	All except Upper Subdistrict	All except Chinitna or within 5 miles of Kenai Peninsula
Aug 19	Wed	0700-1900	All except Chinitna, Upper	All except Chinitna or within 5 miles of Kenai Peninsula
Aug 21	Fri	0700-1900	All except Upper Subdistrict	All except within 5 mi of Kenai Pen.
Aug 24	Mon	0700-1900	All except Upper Subdistrict	All except within 5 mi of Kenai Pen.
Aug 26	Wed	0700-1900	All except Chinitna, Upper	All except Chinitna or within 5 miles of Kenai Peninsula
Aug 28	Fri	0700-1900	All except Upper Subdistrict	All except within 5 mi of Kenai Pen.

Fishing continued each Monday, Wednesday and Friday as described for 8/24-8/28 for the remainder of the season.

Table 5. Sockeye salmon escapement by date and river, 1992[1].

Date	KENAI RIVER daily	KENAI RIVER cumulative	KASILOF RIVER daily	KASILOF RIVER cumulative	CRESCENT RIVER daily	CRESCENT RIVER cumulative	YENTNA RIVER daily	YENTNA RIVER cumulative	FISH CREEK daily	FISH CREEK cumulative	PACKERS CREEK daily	PACKERS CREEK cumulative
6-15 Mon			707	707								
6-16 Tue			884	1591								
6-17 Wed			1136	2727							10	10
6-18 Thu			1952	4679							0	10
6-19 Fri			1380	6059							60	70
6-20 Sat			2088	8147							30	100
6-21 Sun			2625	10772							87	187
6-22 Mon			3234	14006							56	243
6-23 Tue			3569	17575							10	253
6-24 Wed			4395	21970							0	253
6-25 Thu			3977	25947							86	339
6-26 Fri			5073	31020							44	383
6-27 Sat			7477	38497							15	398
6-28 Sun			6522	45019							1	399
6-29 Mon			7455	52474							0	399
6-30 Tue			6073	58547							335	734
7-01 Wed	2782	2782	2687	61234	2596	2596					94	828
7-02 Thu	2332	5114	2072	63306	1595	4191					30	858
7-03 Fri	2957	8071	4222	67528	1396	5587					95	953
7-04 Sat	2163	10234	994	68522	1074	6661					62	1015
7-05 Sun	1191	11425	3162	71684	1382	8043					57	1072
7-06 Mon	2484	13909	3529	75213	850	8893					93	1165
7-07 Tue	954	14863	969	76182	357	9250	150	150			87	1252
7-08 Wed	1456	16319	1697	77879	791	10041	76	226			32	1284
7-09 Thu	1180	17499	1930	79809	1116	11157	126	352			50	1334
7-10 Fri	2739	20238	2624	82433	1192	12349	118	470	39	39	38	1372
7-11 Sat	1718	21956	1778	84211	1790	14139	83	553	94	133	35	1407
7-12 Sun	20672	42628	10901	95112	2864	17003	110	663	0	133	52	1459
7-13 Mon	67632	110260	11838	106950	2513	19516	136	799	268	401	240	1699
7-14 Tue	64127	174387	2300	109250	2525	22041	286	1085	6579	6980	504	2203
7-15 Wed	26795	201182	1695	110945	2627	24668	387	1472	10946	17926	430	2633
7-16 Thu	15645	216827	1654	112599	2269	26937	870	2342	8499	26425	225	2858
7-17 Fri	11112	227939	2189	114788	2868	29805	1734	4076	10198	36623	396	3254
7-18 Sat	16882	244821	3066	117854	1595	31400	1574	5650	5453	42076	348	3602
7-19 Sun	8403	253224	3657	121511	1974	33374	2246	7896	3585	45661	320	3922
7-20 Mon	29047	282271	7384	128895	2111	35485	1894	9790	5326	50987	948	4870
7-21 Tue	49662	331933	3639	132534	2510	37995	2360	12150	7523	58510	502	5372
7-22 Wed	36142	368075	2750	135284	2802	40797	3016	15166	6552	65062	99	5471
7-23 Thu	31463	399538	5605	140889	4154	44951	4417	19583	1670	66732	320	5791
7-24 Fri	49356	448894	13584	154473	3408	48359	5049	24632	379	67111	64	5855
7-25 Sat	83184	532078	8355	162828	2711	51070	4930	29562	24	67135	597	6452
7-26 Sun	76952	609030	7991	170819	1220	52290	4746	34308	2757	69892	391	6843
7-27 Mon	64922	673952	5346	176165	833	53123	5737	40045	281	70173	968	7811
7-28 Tue	62641	736593	1670	177835	883	54006	4477	44522	53	70226	669	8480
7-29 Wed	57354	793947	1194	179029	1170	55176	3973	48495	91	70317	2734	11214
7-30 Thu	32174	826121	947	179976	703	55879	3964	52459	887	71204	6261	17475
7-31 Fri	12484	838605	1178	181154	859	56738	2066	54525	101	71305	4725	22200
8-01 Sat	10958	849563	948	182102	706	57444	2140	56665	28	71333	1490	23690
8-02 Sun	10097	859660	1076	183178	783	58227	1555	58220	52	71385	354	24044
8-03 Mon	6344	866004					994	59214	95	71483	9	24053
8-04 Tue	6231	872235					917	60131	78	71561	581	24634
8-05 Wed	11435	883670					310	60441	15	71576	206	24840
8-06 Thu	14787	898457					446	60887	44	71620	722	25562
8-07 Fri	12199	910656					475	61362	81	71701	1332	26894
8-08 Sat	14584	925240					821	62183	17	71718	321	27215
8-09 Sun	11569	936809					1647	63830	56	71744	105	27320
8-10 Mon	13626	950435					1168	64998	9	71783	249	27569
8-11 Tue	13588	964023					1059	66057	7	71790	520	28089
8-12 Wed	11866	975889							56	71846	272	28361
8-13 Thu	18871	994760								72108		30143

Table 6. Commercial herring harvest by fishery, Upper Cook Inlet, 1973-1992.

	Harvest (Tons)			
Year	Eastside	Chinitna Bay	Tuxedni Bay	Total
1973	13.8	0	0	13.8
1974	36.7	0	0	36.7
1975	6.2	0	0	6.2
1976	5.8	0	0	5.8
1977	17.3	0	0	17.3
1978	8.3	55.3	0	63.6
1979	67.3	96.2	24.8	188.3
1980	37.4	20.0	86.5	143.9
1981	86.2	50.5	84.9	221.6
1982	60.2	91.8	50.2	202.2
1983	165.3	49.2	238.2	452.7
1984	117.5	90.6	159.0	367.1
1985	121.7	47.4	220.5	389.6
1986	178.9	111.1	191.9	481.9
1987	130.5	65.1	152.5	348.1
1988	50.7	23.4	14.1	88.2
1989	55.2	122.3	34.3	211.7
1990	55.4	55.9	16.1	127.4
1991	13.4	15.7	1.6	30.7
1992	24.7	10.4	closed by E.O.	35.1

Table 7. Age, sex, and size composition of herring caught in gillnets, Eastside, Upper Cook Inlet, 21-27 May, 1992.

		Sex (No.)						Percent	Weight			Length			Biomass		
	Age	Male	Imm. Female	Ripe Female	Spawned Female	Unknown	Total No.	of Total	Mean (g)	SD	Number Weighed	Mean (mm)	SD	Number Measured	No. Fish X 1000	Tons	Tonnes
21-27 May	1																
	2																
	3	1	0	0	0	0	1	0.5	73	0.0	1	182	0.0	1	28	2.3	2.1
	4																
	5	0	0	3	2	0	5	2.7	153	38.4	5	222	12.6	5	141	23.8	21.6
	6	11	0	12	13	0	36	19.6	165	16.7	36	233	7.9	36	1014	184.8	167.7
	7	23	0	17	30	0	70	38.0	172	25.0	70	239	7.9	70	1971	374.4	339.7
	8	16	0	15	20	0	51	27.7	182	28.6	51	242	7.5	51	1436	288.5	261.7
	9	4	0	2	10	0	16	8.7	189	23.6	16	248	7.1	16	451	94.1	85.4
	10	2	0	0	1	0	3	1.6	195	25.8	3	251	13.1	3	84	18.1	16.4
	11	0	0	0	1	0	1	0.5	208	0.0	1	253	0.0	1	28	6.5	5.9
	12																
	13	1	0	0	0	0	1	0.5	244	0.0	1	244	0.0	1	28	7.6	6.9
	14																
	15																
	16																
Sample Total		58	0	49	77	0	184	100.0	175	27.6	184	239	10.2	184	5182	1000.0	907.2
Sex Composition		31.5	.0	26.6	41.8												
Unaged		17	0	8	11	0	36	19.6	176	29.3	36	241	10.0	36			
Sex Composition		47.2	.0	22.2	30.6												

Table 8. Age, sex, and size composition of herring caught in gillnets, Chinitna Bay, Upper Cook Inlet, 13-19 May, 1992.

		Sex (No.)						Percent	Weight			Length			Biomass		
	Age	Male	Imm. Female	Ripe Female	Spawned Female	Unknown	Total No.	of Total	Mean (g)	SD	Number Weighed	Mean (mm)	SD	Number Measured	No. Fish X 1000	Tons	Tonnes
	1																
	2																
	3																
	4	3	0	2	0	0	5	4.3	109	42.6	5	218	17.3	5	190	22.7	20.6
	5	4	0	5	0	0	9	7.8	170	33.3	9	239	14.0	9	341	63.9	58.0
	6	9	0	7	0	0	16	13.8	192	37.9	16	247	10.5	16	607	128.7	116.8
	7	10	0	12	0	0	22	19.0	192	30.7	22	248	8.0	22	834	176.4	160.0
13-19 May	8	14	0	16	0	0	30	25.9	227	37.8	30	260	9.6	30	1138	285.0	258.6
	9	17	0	10	0	0	27	23.3	220	34.9	27	258	8.2	27	1024	247.9	224.9
	10	2	0	0	0	0	2	1.7	242	37.5	2	261	2.8	2	76	20.2	18.3
	11	0	0	3	0	0	3	2.6	267	30.1	3	274	4.0	3	114	33.4	30.3
	12	0	0	2	0	0	2	1.7	259	46.7	2	261	24.0	2	76	21.7	19.6
	13																
	14																
	15																
	16																
Sample Total		59	0	57	0	0	116	100.0	206	45.7	116	252	14.4	116	4400	1000.0	907.2
Sex Composition		50.9	.0	49.1	.0												
Unaged		22	0	21	0	0	43	37.1	209	40.9	42	254	10.7	43			
Sex Composition		51.2	.0	48.8	.0												

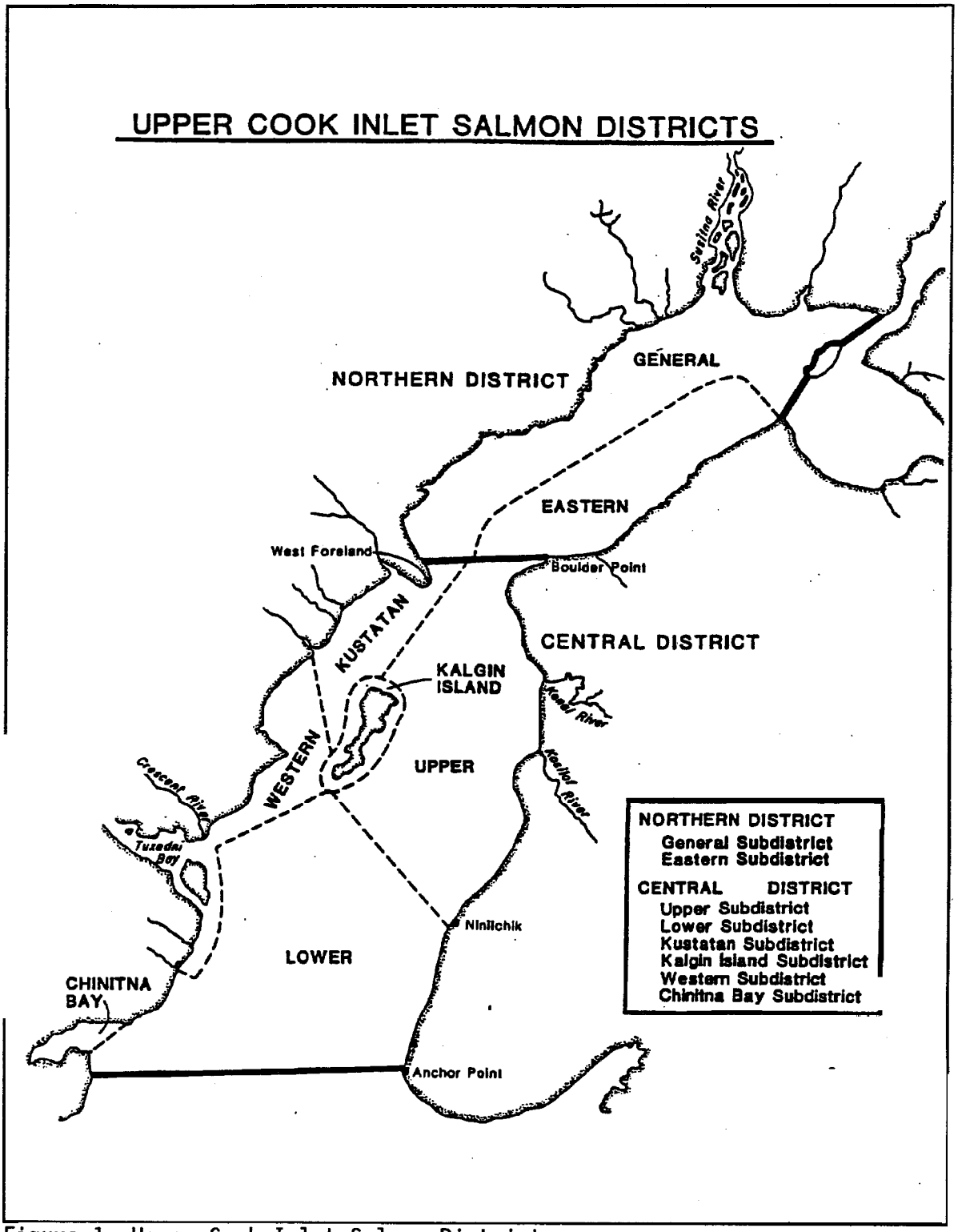

Figure 1. Upper Cook Inlet Salmon Districts

Appendix A.1. Upper Cook Inlet commercial chinook salmon harvest by gear type and area, 1966-1992.

	Central District Drift Gill Net		Central District Set Gill Net				Northern District Set Gill Net		
			East Side		Kalgin/West Side				
Year	Number	%	Number	%	Number	%	Number	%	Total
1966	392	4.6	7,329	85.8	401	4.7	422	4.9	8,544
1967	489	6.2	6,686	85.1	500	6.4	184	2.3	7,859
1968	182	4.0	3,304	72.8	579	12.8	471	10.4	4,536
1969	363	2.9	5,834	47.0	3,295	26.6	2,904	23.4	12,407
1970	367	4.4	5,366	64.2	1,165	13.9	1,460	17.5	8,358
1971	237	1.2	7,055	35.7	2,875	14.5	9,598	48.6	19,765
1972	375	2.3	8,600	53.5	2,199	13.7	4,912	30.5	16,086
1973	244	4.7	4,411	84.9	369	7.1	170	3.3	5,194
1974	422	6.4	5,570	84.6	425	6.5	169	2.6	6,586
1975	250	5.2	3,678	77.1	716	15.0	129	2.7	4,773
1976	692	6.4	8,249	75.9	1,469	13.5	457	4.2	10,867
1977	3,411	23.1	9,732	65.8	1,084	7.3	565	3.8	14,792
1978	2,072	12.0	12,468	72.1	2,093	12.1	669	3.9	17,302
1979	1,089	7.9	8,671	63.1	2,264	16.5	1,714	12.5	13,738
1980	889	6.4	9,643	69.9	2,273	16.5	990	7.2	13,795
1981	2,319	18.9	8,359	68.3	837	6.8	725	5.9	12,240
1982	1,293	6.2	13,658	65.4	3,203	15.3	2,716	13.0	20,870
1983	1,124	5.4	15,043	72.9	3,534	17.1	933	4.5	20,634
1984	1,377	13.7	6,165	61.4	1,495	14.9	1,004	10.0	10,041
1985	2,046	8.5	17,723	73.6	2,427	10.1	1,890	7.8	24,086
1986	1,834	4.7	19,810	50.5	2,108	5.4	15,488	39.5	39,240
1987	4,552	11.5	21,379	53.9	1,029	2.6	12,701	32.0	39,661
1988	2,217	7.6	12,870	44.3	1,137	3.9	12,836	44.2	29,060
1989	0	0.0	10,919	40.8	3,092	11.6	12,731	47.6	26,742
1990	621	3.9	4,319	25.7	1,763	10.9	9,582	59.5	16,105
1991	241	1.8	4,891	36.1	1,544	11.4	6,859	50.7	13,535
1992	662	4.0	10,241	61.2	1,242	7.4	4,577	27.4	16,722
Average[1]	1,145	7.2	9,264	63.6	1,616	11.4	3,620	17.8	15,646

[1] 1989 excluded from averages. Figures for 1992 are inseason preliminary numbers.

Appendix A.2. Upper Cook Inlet commercial sockeye salmon harvest by gear type and area, 1966-1992.

	Central District Drift Gill Net		Central District Set Gill Net				Northern District Set Gill Net		
			East Side		Kalgin/West Side				
Year	Number	%	Number	%	Number	%	Number	%	Total
1966	1,103,261	59.6	485,330	26.2	132,443	7.2	131,080	7.1	1,852,114
1967	890,152	64.5	305,431	22.1	66,414	4.8	118,065	8.6	1,380,062
1968	561,737	50.8	317,535	28.7	85,049	7.7	140,575	12.7	1,104,904
1969	371,751	53.7	210,877	30.5	71,191	10.3	38,065	5.5	692,244
1970	474,718	63.6	142,701	19.1	62,724	8.4	66,458	8.9	746,634
1971	423,107	66.4	111,505	17.5	61,639	9.7	40,533	6.4	636,798
1972	505,935	57.5	204,617	23.3	83,422	9.5	85,737	9.7	879,724
1973	375,695	56.1	188,743	28.2	59,973	9.0	45,614	6.8	670,025
1974	265,751	53.5	136,889	27.5	52,957	10.7	41,563	8.4	497,160
1975	368,116	54.2	177,336	26.1	67,758	10.0	65,526	9.7	678,736
1976	1,055,767	63.4	476,376	28.6	62,338	3.7	69,649	4.2	1,664,131
1977	1,073,098	52.3	751,368	36.6	104,265	5.1	123,780	6.0	2,052,511
1978	1,803,358	68.8	660,918	25.2	105,767	4.0	51,624	2.0	2,621,667
1979	454,707	49.2	248,828	26.9	108,422	11.7	112,449	12.2	924,415
1980	770,247	48.9	559,812	35.6	137,922	8.8	105,647	6.7	1,573,637
1981	633,145	44.0	496,193	34.5	60,220	4.2	249,662	17.3	1,439,235
1982	2,103,429	64.5	971,423	29.8	66,952	2.1	118,060	3.6	3,259,864
1983	3,222,007	63.8	1,508,963	29.9	134,544	2.7	184,219	3.6	5,049,733
1984	1,234,669	58.6	490,273	23.3	161,953	7.7	218,695	10.4	2,105,860
1985	2,032,957	50.1	1,561,031	38.4	285,081	7.0	181,191	4.5	4,060,260
1986	2,834,534	59.2	1,657,904	34.6	153,714	3.2	141,830	3.0	4,787,982
1987	5,631,746	59.3	3,495,802	36.8	208,036	2.2	164,602	1.7	9,500,186
1988	4,129,878	60.4	2,428,597	35.5	146,154	2.1	129,713	1.9	6,834,342
1989	3	0.0	4,543,066	90.7	186,828	3.7	280,801	5.6	5,010,698
1990	2,305,742	64.0	1,116,975	31.0	84,949	2.4	96,398	2.7	3,604,064
1991	1,117,514	51.3	844,156	38.8	99,705	4.6	116,201	5.3	2,177,576
1992	5,942,970	66.8	2,765,709	31.1	123,510	1.4	69,397	0.8	8,901,566
Average[1]	1,603,307	57.9	858,280	29.5	107,196	6.2	111,782	6.5	2,680,593

[1] 1989 excluded from average. Figures for 1992 are inseason preliminary numbers.

Appendix A.3. Upper Cook Inlet commercial coho salmon harvest by gear type and area, 1966-1992.

	Central District Drift Gill Net		Central District Set Gill Net				Northern District Set Gill Net		
			East Side		Kalgin/West Side				
Year	Number	%	Number	%	Number	%	Number	%	Total
1966	80,901	27.9	68,877	23.8	59,509	20.5	80,550	27.8	289,837
1967	53,071	29.9	40,738	22.9	40,066	22.5	43,854	24.7	177,729
1968	167,383	35.8	80,828	17.3	63,301	13.5	156,648	33.5	468,160
1969	33,064	32.8	18,988	18.8	28,392	28.1	20,425	20.2	100,869
1970	114,392	40.9	30,318	10.8	52,363	18.7	82,722	29.6	279,795
1971	35,491	35.4	16,589	16.5	26,188	26.1	22,094	22.0	100,362
1972	21,578	26.7	24,673	30.5	15,319	18.9	19,346	23.9	80,916
1973	31,784	30.5	23,901	22.9	24,744	23.7	23,944	22.9	104,373
1974	75,640	37.8	36,837	18.4	40,610	20.3	47,038	23.5	200,125
1975	88,569	39.9	46,209	20.8	53,910	24.3	33,051	14.9	221,739
1976	80,731	38.7	47,873	22.9	42,224	20.2	37,850	18.1	208,678
1977	110,184	57.2	23,693	12.3	38,093	19.8	20,623	10.7	192,593
1978	76,252	34.8	34,141	15.6	61,711	28.1	47,256	21.5	219,360
1979	114,496	43.2	29,727	11.2	68,306	25.8	52,635	19.8	265,164
1980	89,510	33.0	40,281	14.8	51,487	19.0	90,098	33.2	271,376
1981	226,257	46.6	36,031	7.4	88,492	18.2	134,362	27.7	485,142
1982	416,274	52.5	108,393	13.7	182,205	23.0	85,352	10.8	792,224
1983	326,962	63.3	37,666	7.3	97,827	18.9	53,867	10.4	516,322
1984	213,336	47.4	37,166	8.3	84,615	18.8	114,786	25.5	449,903
1985	357,388	53.6	70,657	10.6	147,331	22.1	91,837	13.8	667,213
1986	506,405	66.9	76,385	10.1	85,932	11.4	88,108	11.6	756,830
1987	202,306	44.8	74,977	16.6	74,930	16.6	98,920	21.9	451,404
1988	277,703	49.6	55,419	9.9	77,058	13.8	149,742	26.7	560,022
1989	743	0.2	81,744	24.1	81,004	23.9	175,710	51.8	339,201
1990	246,845	49.4	40,351	8.1	73,429	14.7	139,401	27.9	500,026
1991	175,504	41.2	30,435	7.1	87,515	20.6	132,270	31.1	425,724
1992	263,888	57.0	57,491	12.4	53,284	11.5	87,902	19.0	462,565
Average[1]	168,689	42.9	45,717	15.0	66,109	20.0	75,180	22.0	355,710

[1] 1989 excluded from average. Figures for 1992 are inseason preliminary numbers.

Appendix A.4. Upper Cook Inlet commercial pink salmon harvest by gear type and area, 1966-1992.

	Central District Drift Gill Net		Central District Set Gill Net: East Side		Central District Set Gill Net: Kalgin/West Side		Northern District Set Gill Net		
Year	Number	%	Number	%	Number	%	Number	%	Total
1966	593,654	29.6	969,624	48.3	70,507	3.5	371,960	18.5	2,005,745
1967	7,475	23.2	13,038	40.5	3,256	10.1	8,460	26.2	32,229
1968	880,512	38.7	785,887	34.5	75,755	3.3	534,839	23.5	2,276,993
1969	8,336	25.1	11,416	34.4	5,714	17.2	7,680	23.2	33,146
1970	346,485	41.9	281,067	34.0	24,763	3.0	174,193	21.1	826,508
1971	6,433	18.1	18,097	50.8	2,637	7.4	8,423	23.7	35,590
1972	115,096	18.3	403,706	64.2	18,936	3.0	90,830	14.5	628,568
1973	91,901	28.2	80,596	24.7	16,437	5.0	137,249	42.1	326,183
1974	140,734	29.1	291,408	60.2	9,014	1.9	42,879	8.9	484,035
1975	113,868	33.9	112,423	33.5	18,385	5.5	90,953	27.1	335,629
1976	599,600	47.7	479,009	38.1	30,044	2.4	148,090	11.8	1,256,743
1977	286,308	51.7	125,817	22.7	25,212	4.6	116,518	21.0	553,855
1978	934,178	55.3	372,865	22.1	54,785	3.2	327,270	19.4	1,689,098
1979	19,554	26.8	20,033	27.4	7,061	9.7	26,332	36.1	72,980
1980	964,526	54.0	299,444	16.8	47,963	2.7	474,488	26.6	1,786,421
1981	53,888	42.4	15,659	12.3	4,276	3.4	53,325	41.9	127,148
1982	270,380	34.2	432,715	54.7	14,242	1.8	73,307	9.3	790,644
1983	26,628	37.9	18,310	26.0	3,785	5.4	21,604	30.7	70,327
1984	273,411	44.3	220,895	35.8	16,708	2.7	106,284	17.2	617,298
1985	34,228	39.0	17,715	20.2	5,653	6.4	30,232	34.4	87,828
1986	614,453	47.3	530,445	40.8	15,460	1.2	139,002	10.7	1,299,360
1987	38,660	35.2	47,707	43.4	5,229	4.8	18,205	16.6	109,801
1988	226,776	48.3	179,092	38.1	9,890	2.1	54,210	11.5	469,972
1989	1	0.0	37,971	56.3	5,580	8.3	23,878	35.4	67,430
1990	323,955	53.7	225,429	37.3	10,302	1.7	43,944	7.3	603,630
1991	5,791	39.5	2,670	18.2	1,049	7.2	5,153	35.1	14,663
1992	413,588	61.1	235,507	34.8	4,290	0.6	23,961	3.5	677,346
Average[1]	284,247	38.6	238,099	35.2	19,283	4.6	120,361	21.6	661,990

[1] 1989 excluded from average. Figures for 1992 are inseason preliminary numbers.

Appendix A.5. Upper Cook Inlet commercial chum salmon harvest by gear type and area, 1966-1992.

	Central District Drift Gill Net		Central District Set Gill Net: East Side		Central District Set Gill Net: Kalgin/West Side		Northern District Set Gill Net		
Year	Number	%	Number	%	Number	%	Number	%	Total
1966	424,972	79.8	7,461	1.4	64,725	12.1	35,598	6.7	532,756
1967	233,041	78.5	399	0.1	25,013	8.4	38,384	12.9	296,837
1968	1,022,900	90.7	1,563	0.1	44,986	4.0	58,454	5.2	1,127,903
1969	238,497	89.2	399	0.1	16,949	6.3	11,386	4.3	267,231
1970	705,467	90.4	1,228	0.2	48,783	6.3	24,507	3.1	779,985
1971	274,567	84.8	128	0.0	32,647	10.1	16,603	5.1	323,945
1972	564,253	90.1	1,727	0.3	40,567	6.5	19,780	3.2	626,327
1973	605,730	90.7	1,965	0.3	29,019	4.3	30,847	4.6	667,561
1974	344,594	86.8	506	0.1	15,346	3.9	36,492	9.2	396,938
1975	886,474	93.2	979	0.1	32,741	3.4	30,787	3.2	950,981
1976	405,773	86.5	1,484	0.3	47,877	10.2	14,050	3.0	469,184
1977	1,153,454	93.5	1,413	0.1	54,708	4.4	23,861	1.9	1,233,436
1978	489,065	85.5	4,617	0.8	40,946	7.2	37,331	6.5	571,959
1979	609,239	93.8	907	0.1	30,342	4.7	9,270	1.4	649,758
1980	339,970	87.4	2,147	0.6	30,105	7.7	16,728	4.3	388,950
1981	756,848	91.0	2,415	0.3	26,513	3.2	46,208	5.6	831,984
1982	1,348,510	94.1	4,777	0.3	36,647	2.6	43,006	3.0	1,432,940
1983	1,044,644	93.7	2,764	0.2	38,129	3.4	29,321	2.6	1,114,858
1984	567,480	83.4	3,675	0.5	34,207	5.0	74,727	11.0	680,089
1985	700,848	90.7	4,133	0.5	31,746	4.1	36,122	4.7	772,849
1986	1,012,028	89.2	7,027	0.6	39,078	3.4	76,040	6.7	1,134,173
1987	211,573	60.6	16,608	4.8	53,558	15.3	67,180	19.3	348,919
1988	580,650	81.9	11,841	1.7	40,354	5.7	75,728	10.7	708,573
1989	72	0.1	12,302	10.1	27,705	22.7	81,948	67.2	122,027
1990	289,521	82.4	4,611	1.3	21,355	6.1	35,710	10.2	351,197
1991	215,469	76.9	2,387	0.9	22,974	8.2	39,393	14.1	280,223
1992	310,963	88.6	3,119	0.9	12,488	3.6	24,344	6.9	350,914
Average[1]	578,731	87.5	3,295	0.6	34,248	5.9	35,236	6.1	651,511

[1] 1989 excluded from average. Figures for 1992 are inseason preliminary numbers.