

1994
NORTON SOUND DISTRICT
SALMON REPORT
to the
Alaska Board of Fisheries

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1994 NORTON SOUND SALMON SEASON SUMMARY

Introduction

The Norton Sound Salmon District consists of all waters between Cape Douglas in the North and Canal Point Light in the South. The district is divided into 6 subdistricts: The Nome Subdistrict; the Golovin Bay Subdistrict; Moses Point; Norton Bay; Shaktoolik; and the Unalakleet Subdistrict. Each of these subdistricts contains at least one major salmon producing stream and the boundaries were established to facilitate management of individual salmon stocks.

All commercial salmon fishing in the district is by set gillnets in marine waters and fishing effort is usually concentrated near stream mouths. Commercial fishing typically begins in mid June and targets chinook salmon. Emphasis switches to chum salmon around June 25 and the coho fishery begins the third week in July. The season closes on September 7. Pink salmon may be very abundant on even year returns and special pink periods may occur coincidental with the regularly scheduled season.

Salmon management has changed significantly during recent years due to limited market conditions and marginal returns of many salmon stocks in the area. The Eastern subdistricts, Norton Bay, Shaktoolik, and Unalakleet all have fairly healthy salmon stocks. Commercial fishing is managed for all species using comparative commercial fishing stats and the Unalakleet River test net project. Both the Golovin Bay and the Moses Point Subdistricts recently have suffered poor chum salmon returns. There, management first assures that escapement needs are met and a surplus is available before any directed commercial fishing is allowed on chum salmon. The Nome Subdistrict is managed intensively for subsistence uses. Subsistence restrictions include registration permits, closed waters, reduced fishing periods, restricted gear, and bag limits. Restrictions are modified daily as the returns develop and escapement information becomes more complete.

Commercial Fishery Overview

The 1994 Norton Sound District commercial salmon fishing season was first opened by emergency order in the Unalakleet and Shaktoolik Subdistricts on June 20 and ended by regulation on September 7. The commercial salmon harvest totaled 1,108,184 fish which was comprised of 5,285 chinook, 80 sockeye, 102,140 coho, 982,389 pink, and 18,290 chum salmon (Table 1). Approximately 119 permit holders participated in the fishery and received \$864,882 for their catch (Table 2 and 3).

The 1994 Salmon Management Plan for Norton Sound did not allow for chum salmon directed fishing due to conservation concerns. Chinook salmon were targeted early in the season using minimum mesh size restrictions and pink salmon were targeted using maximum mesh size restrictions. Mesh size restrictions were lifted only after the proportion of coho salmon exceeded the proportion of chum

salmon in the fishery and chum escapement levels were judged fair to good in most subdistricts. Coho salmon became the target species once the coho return began to increase dramatically and the fishery would have little affect on any additional chum escapement.

Table 1 lists the Norton Sound historical salmon and the current year run strength relative to the previous 5 year (1989-1993) and the previous 10 year (1984-1993) averages. The chinook salmon harvest was 23% below the previous 5 year average and 34% below the previous 10 year average. The coho salmon harvest was the second highest on record at 63% above the previous 5 year average and 104% above the previous 10 year average catches. Historically Norton Sound has had very limited markets for pink salmon. In 1994, a strong pink market developed on a strong pink return. This years pink harvest far exceeded the previous record of 325,503 salmon where it was 2,900% above the previous 5 year average and 2,300% above the previous 10 year average catches. The chum salmon harvest was held to the lowest on record due to conservation concerns. The chum salmon commercial harvest was 72% below the 5 year average and 81% below the 10 year average catches for Norton Sound.

A total of 200 CFEC permits were renewed of which 119 actually fished during the 1994 season (Table 2). The number of participating fishermen this season was 16% below the 10 year average of 142 fishermen. Effort levels typically occur when there is a drop in salmon returns or when prices are low. The northern subdistricts had historically landed approximately 50% of the total commercial chum salmon harvest, but did not participate during that portion of the season due to chum restrictions and markets. In addition, they did not participate in the pink salmon fishery due to long distances required to tender their catch.

Three primary salmon buyers operated in Norton Sound during the 1994 season. Two of the buyers split the early chinook harvest that concentrated in the eastern subdistricts (Subdistricts 5 and 6). The third buyer was the only company to purchase pink salmon and only operated in Norton Sound during the pink season. The company custom processed the pink salmon using pollock fillet machines and packaging then held the product onboard the processing freezer vessel. Pink salmon were tendered between subdistricts and offloaded on the processing vessel. Only one primary buyer remained for the coho portion of the season. Coho were collected at Unalakleet and Nome where they were headed and gutted then frozen before shipped airfreight to Anchorage markets. In addition, a few individual fishermen sold their catch of fresh salmon locally and to wholesale distributors, as permitted under the catcher-seller status. The average price paid for chinook was \$1.02 per pound, \$.49/lb for sockeye, \$.52/lb for coho, \$.15/lb for pink, and \$.29/ for chum salmon. The total value of the raw fish, \$864,882 was 113% above the previous 5 year (1989-1993) average (Table 3).

Subsistence Fishery

There are 10 villages scattered along the coast and the major river systems of Norton Sound from Nome to Stebbins (Figure 2). Nearly all of the local people are dependent to varying degrees on the fish and game resources for their

livelihood. Subsistence fishermen operate gillnets or seines in the main rivers and, to a lesser extent, in the coastal marine waters capturing primarily salmon, herring, whitefish, Dolly Varden, pike, and saffron cod. Beach seines are used near the spawning grounds to catch schooling or spawning salmon and other species of fish. The major portion of fish taken during the summer months is air dried or smoked for later consumption by villagers or their dogs.

Subsistence catch information has been derived from interviews of fishermen, actual counts of fish, and subsistence catch calendars returned by fishermen. Subsistence salmon catches in the Nome Subdistrict (Subdistrict 1) have been determined from the return of catch calendars as required under a permit system. The Department conducted annual surveys of the important subsistence salmon fisheries from the early 1960's until 1982. The majority of salmon taken are pinks and chums. Subsistence harvest information prior to 1960 is incomplete or entirely lacking for many years. Since 1983 budgetary restrictions have made it impossible to conduct systematic surveys in each village as was done from 1964 to 1982. For the last 5 years that complete surveys were conducted for Norton Sound (1978-1982) the average subsistence catch was 71,000 salmon including all species (Table 10). These reported harvests are primarily based on village household surveys. Since not all fishermen are contacted, these harvests should be considered minimum figures.

Low salmon stock levels in the Nome Subdistrict combined with a large concentration of users have required issuing subsistence harvest permits for the area since 1974. These permits identify the body of water to be fished, the type of gear used, and the bag limit which is specific to that body of water. In addition there is a catch calendar where the permit holder records the catches in numbers of each species of fish for each day fished. If the subsistence fishers have filled their bag limits or would like to fish another location, they can be issued another permit generally for another area after the previous one has been returned. These permits are important to inseason management because they identify users and bag limits, but the actual catch information can not be compiled until well after the season when the permits are returned to Fish and Game.

The Subsistence Division of Fish and Game has recently received money to conduct subsistence surveys in most villages in both the Kotzebue Sound and Norton Sound districts this fall. The survey will provide 1994 subsistence salmon harvest information and whether or not the users felt their needs were met. In addition, the survey is designed to lay the groundwork for more indepth follow-up surveys should money become available in the future. Preliminary results of these surveys will be available at a later date.

SEASON SUMMARY BY SUBDISTRICT

Nome - Subdistrict 1

The commercial salmon season was opened by Emergency Order(E.O.) on August 1. This management action which delayed the season was taken in order to avoid the

harvest of chum salmon that were expected to return in low numbers to the Nome Subdistrict. Both subsistence and sport fishing in the area were closed prior to the beginning of the chum salmon return. Subsistence fishing restrictions were incrementally relaxed on a stream-by-stream basis as chum escapements appeared assured and the pink salmon return developed. An Emergency Order required that all chum salmon captured in beach seines be released throughout the entire season. This allowed fishermen to take advantage of the abundant pinks while protecting the weak chum return.

As stated above, the Nome Subdistrict opened for a directed commercial fishery on coho salmon beginning August 1. Only one fisherman reported any sales and the reason for the low effort was due to poor weather conditions. Unlike other Norton Sound streams, rivers in the Nome Subdistrict were experiencing slow coho returns. Once again on August 8, Emergency Orders restricting subsistence and sport fishing in the Nome area were issued to help bolster coho salmon escapements. The total commercial harvest included 1 sockeye, 287 coho, and 66 chum salmon (Tables 2 and 5). One hundred thirty six subsistence permits were issued for the Nome area. Harvest data will be presented in a later report following the return of the permits.

Golovin - Subdistrict 2

The 1994 Salmon Management Plan informed fishermen that the Golovin Subdistrict commercial harvest would be limited to 10,000 chum salmon in an attempt to protect the chum stock which has been experiencing decreasing returns over the past 6 years. If a pink salmon market were to develop in 1994, a commercial pink fishery would only begin after early aerial surveys indicated that adequate chum salmon escapements would be achieved. The aerial survey flown July 9 indicated that chum escapement goals had been reached. Both fishermen and buyers were notified that a commercial fishery could begin, but there was no interest in fishing periods at the time.

An Emergency Order issued August 1 opened the Golovin Bay Subdistrict to the standard two 48 hour periods per week schedule directed at coho salmon. Good escapements and low fishing effort were the reasons for additional E.O.'s that liberalized fishing in the subdistrict. An E.O. issued August 13 extended fishing period length to 7 days per week which was followed by another E.O. issued August 31 that extended the fishing season to September 7. Five fishermen made sales with a total commercial harvest of 3,424 coho and 111 chum salmon (Table 2 and 6). All the fish were flown to Nome by small aircraft for processing.

Moses Point - Subdistrict 3

The Moses Point Subdistrict has also experienced depressed chum salmon returns in recent years despite conservative management actions. The department notified fishermen during preseason fisherman's meeting and through a mail out of the 1994 Salmon Management Plan that a poor chum salmon return was expected. The

prospect for a chum directed fishery was very low. There was the additional possibility of a subsistence closure during the season if the chum escapement levels appear certain to fall short of the Kwiniuk River counting tower goal of 19,500 chum salmon. Attempts would be made to minimize the impact on the subsistence harvest by allowing directed fishing on pink salmon. The return was closely monitored throughout the run at the counting tower.

The commercial fishing season was delayed to assess the chum salmon return strength as outlined in the management plan. The Kwiniuk River chum salmon escapement goal was reached early on July 7 and the pink salmon return was just starting to build. Fishermen and buyers were informed that a pink directed fishery would be allowed if commercial markets developed and fishermen were interested. The only pink buyer was set up to buy pinks in the Shaktoolik and Unalakleet Subdistrict where the supply of fish already exceeded their processing capacity. As the supply of pinks dwindled in the eastern subdistricts, the run appeared to hold strong at Moses Point, but the buyer had already laid off one tender and the other was out of operation with mechanical problems. The processing vessel could have moved, but the choice was made to stay on low numbers of good quality fish rather than move to an area with potentially higher numbers of pink salmon but of lower market quality.

The Moses Point Subdistrict initially opened on July 25 with its standard two 24 hour periods per week schedule. Early coho abundance was stronger than usual, but fishing effort was lower than normally observed at this time. On August 1, the fisheries outer boundary was extended to improve the product quality. The coho salmon abundance continued to increase which warranted extending the fishing time to two 48 hour periods per week on August 2. The fishing period length was again extended to 7 days per week on August 13 because effort was very low and more flexibility was provided to transport fish out of the subdistrict for processing. The season was extended 7 additional days so that the closure date would be consistent with other subdistricts.

The Moses point total harvest included 5,345 coho and 414 chum salmon (Table 2 and 7). Sales were made by 21 different permits holders. The coho salmon catch was 250% higher than the previous 5 year average and 112% higher than the previous 10 year average. The chum salmon harvest was 58% and 96% below the previous 5 and 10 year averages respectively. Commercial chum salmon harvests have been depressed in the Moses Point Subdistrict since 1988.

Norton Bay - Subdistrict 4

The Norton Bay Subdistrict has always had difficulty attracting a buyer due to its remoteness and reputation for water-marked fish. There were no biological reasons why a limited commercial harvest could not occur on either chinook, coho, or pink salmon, during the 1994 season, but no buyers expressed interest in buying and transporting fish out of the subdistrict. The subdistrict remained closed until August 1 when it was placed on the standard two 48 hour periods per week schedule. This was done to provide opportunity for individual permit holders who might find their own markets. The fishing period length was extended

to 7 days per week beginning August 13 and the season was extended by 7 additional days on August 31. There were no reported sales in the Norton Bay Subdistrict for 1994. This was the fourth season out of the last 6 years that no commercial harvest occurred in the subdistrict.

Shaktoolik and Unalakleet - Subdistricts 5 and 6

The Shaktoolik and Unalakleet Subdistricts in recent years have consistently attract commercial markets due to larger salmon returns and availability of transportation services. These subdistricts are typically managed as a unit because salmon returning to terminal spawning streams in these subdistricts tend to intermingle and harvest in one subdistrict affects the movement of fish in both subdistricts. The department's test net in the Unalakleet River and daily subsistence interviews at Unalakleet are used to set early chinook salmon fishing periods. As the season progresses, the test net and commercial catch indices are used to assess return strengths of each salmon species. Aerial surveys were not conducted in either subdistrict due to poor conditions in 1994 (Table 4).

The first commercial fishing period in both subdistricts opened on June 20 for 24 hours. It was directed at chinook salmon using a minimum mesh size restriction of 7.5 inches. This was followed by a second 24 hour chinook salmon directed period on June 23. Early test openings on pink salmon took place on June 26 and 29 using maximum mesh size restrictions to avoid chum salmon (4.0 to 4.5 inch mesh). The pink salmon harvest area in each subdistrict was restricted to sections of the coast where pink salmon tend to congregate and chum salmon are found in lower concentrations. The incidental chum salmon catches during the pink salmon directed commercial periods were minimized by utilizing both gear and harvest area restrictions. A third chinook salmon directed period was scheduled between the two pink periods so as to not create gear conflicts, but there was very little effort.

It was determined that the fishermen could easily catch more pinks salmon than the buyer could process in a timely manner while maintaining quality. Based on the apparent strong pink salmon return, the low level of incidental chum catch, and the limited daily processing capacity, the fishing period on June 29 was extended and scheduled to close on July 20. The buyer regulated daily fishing times based on daily production capability and mobility of tenders. Two additional 24 hour chinook salmon directed periods were scheduled on June 29 and July 4. Commercial harvest rates for chinook salmon were decreasing and therefore, no further openings were allowed which targeted that species.

On July 7, a single 48 hour chum salmon directed period was allowed in both subdistricts to test chum salmon run strength and evaluate effort levels. The department's test net in the Unalakleet River indicated that high numbers of chum salmon were passing upstream. At the time, the directed commercial pink salmon fishery was continuing to catch very few chum. No deliveries were made during the special period held on July 7 due to lack of fisherman interest. Consequently, no additional chum periods were scheduled for the remainder of the season. On July 20, the scheduled pink salmon commercial period was extended 3

additional days to July 25 in order to obtain the targeted catch of one million pink salmon. Pink salmon abundance declined dramatically at the time, and the buyer ceased operations on July 23.

Both subdistricts reopened on July 25 for the directed coho salmon fishery. Gear restrictions were set at 6 inch maximum mesh size. No area restrictions were required. The coho salmon directed fishery was opened only after it was observed for several days that coho significantly outnumbered chum salmon in both the incidental pink salmon commercial fishery and the Unalakleet River test net catches. The coho salmon return was strong and the chum catches were low. On August 31, the period length was extended to 7 days per week for the remainder of the season which closed by regulation on September 7.

Commercial catches in the Shaktoolik Subdistrict included 885 chinook, 45 sockeye, 22,065 coho, 502,231 pink, and 5,411 chum salmon (Table 2 and 8). The chinook salmon harvest was 51% below the previous 5 year average and 56% below the previous 10 year average. The coho salmon harvest was the second highest on record for the subdistrict at 120% and 167% above the 5 and 10 year averages respectively. The pink salmon harvest far exceeded all previous years. Conversely, the chum salmon harvest was the lowest since 1968 at 78% and 75% below both the 5 and 10 year averages respectively.

The Unalakleet Subdistrict commercial harvest included 4,400 chinook, 71 sockeye, 71,019 coho, 480,158 pink, and 12,288 chum salmon (Table 2 and 9). The chinook salmon catch was 9% below the previous 5 year average and 18% below the previous 10 year average. The coho salmon harvest was the second highest on record for the subdistrict at 41% and 90% above the previous 5 and 10 year averages respectively. The pink salmon harvest was also very high at approximately 500% above previous averages. The total chum salmon harvest in the subdistrict was held to 63% below the previous 5 year average and 60% below the previous 10 year average which was the lowest since 1967.

ESCAPEMENT

Table 4 lists aerial survey and tower escapement counts in the major index streams of Norton Sound. Survey conditions were poor throughout the entire district in 1994. Record levels of pink salmon created species identification problems for aerial surveyors during the peak chum salmon spawning period. Persistent rain caused water levels in area rivers to rise and become turbid in mid July. Additional heavy rains in early August, which when added to the already high water, caused severe flooding. Stream banks were eroded and river channels changed. Water levels did not recede substantially until mid September which was after much of the coho salmon spawning had already taken place. Some early surveys for chum salmon and late surveys for coho salmon were obtained, but have limited value when comparisons are made with previous seasons. The Nome Subdistrict streams received the most intensive survey efforts because salmon stocks local to the Nome area are limited, easily accessed by road system, and exposed to intensive subsistence and sport fishing pressure.

Escapement projects in the Norton Sound District include counting towers on the Kwiniuk, Nome, and Niukluk Rivers and the Unalakleet River test net. Both the Unalakleet test net and the Kwiniuk tower projects have been in operation for many years. They provide comparable and timely information which is greatly relied upon as a basis for inseason salmon management decisions. The Nome River tower first began in late 1993 and was operational throughout 1994 while the Niukluk tower began in late 1994. Both projects have limited historical data that can be used when making comparisons, but will become more valuable the longer they operate.

Chinook Salmon

The Unalakleet and Shaktoolik Subdistricts are the primary chinook salmon producers in Norton Sound. Although on a smaller scale, the Norton Bay, Moses Point and Golovin Subdistricts have experienced a gradually increasing trend of chinook returns in recent years. Aerial escapement surveys were not obtained for chinook in any Norton Sound index areas due to poor survey conditions. Daily subsistence fishermen interviews conducted at Unalakleet, the Department's test fish project in the Unalakleet River, and comparative commercial catch data indicated chinook escapements were only average to slightly below average in the Shaktoolik and Unalakleet Subdistricts. The Kwiniuk River counting tower had a slightly higher than average chinook salmon passage.

Chum Salmon

As stated earlier, chum salmon escapement was difficult to assess this year due to both large numbers of pink salmon and high water conditions. Streams in the Nome Subdistrict were surveyed early with mixed results. Escapements were generally slightly below escapement goals at that time, however, two of the six surveyed streams were at or above their respective goals already. Therefore, it is believed that had survey conditions been better, most streams would have made their chum escapements goals in the Nome area. The Golovin Subdistrict has one primary river system with escapement goals set for individual tributaries. An early aerial survey this season put the chum salmon escapement at 33% above the escapement goal for the combined system which was likely to increase. The Kwiniuk tower produced the only escapement information for the Moses Point Subdistrict. The total chum count at the tower was 33,030 which is 69% above the tower passage goal of 19,500 chum salmon.

No aerial surveys were obtained for the Norton Bay, Shaktoolik, or Unalakleet Subdistricts in 1994 due to weather. Typically, commercial catch data provides an indicator of relative run strength from year to year. Since there was no directed chum fishery this year and no aerial surveys, the Unalakleet test net became the primary index of relative chum abundance for the eastern subdistricts. The test net catch was above average and would indicate that chum escapement was adequate in those subdistricts.

Coho Salmon

Coho salmon are found in nearly all of the chum producing streams throughout Norton Sound with the primary commercial contributors being the Unalakleet and Shaktoolik Rivers. Because of the inclement weather normally experienced in this area during August and September, escapement data for all subdistricts has been difficult to obtain. During the 1994 season, only streams in the northern subdistricts were surveyed and conditions were fair to poor. The Unalakleet test net did not operate due to high water for several days in August. Based on past observations, the coho salmon tend to avoid high current velocities during peak water levels, therefore it is believed little of the run was missed due to poor conditions.

Overall coho salmon escapements appeared to be above average for much of Norton Sound based on the Unalakleet test net, the Kwiniuk counting tower, and comparable commercial catch statistics. The Nome Subdistrict had mixed survey results. The early surveys indicated low or delayed returns and the late surveys were generally unusable except for the Snake River which had the second highest count on record for that stream. The Nome River tower had passed 695 coho before being washed out in 1994 as compared to a cumulative count of 2,462 coho on the same date in 1993.

No coho surveys were obtained for the Norton Bay, Shaktoolik, or Unalakleet Subdistricts in 1994 due to poor conditions. The Unalakleet test net and the commercial harvest both indicated above average runs. Therefore, coho salmon escapement in the eastern subdistricts was assumed to adequate. Additionally, no acceptable surveys were obtained for the Golovin and Moses Point Subdistricts. Based on anecdotal information for Golovin, tower counts for Moses Point, and the early initial return of coho to both subdistricts, coho escapement may have been similar to the eastern Norton Sound streams which would imply escapements were also adequate.

Pink Salmon

Pink salmon returns to Norton Sound have recently followed an odd/even year cycle with the even years typically much larger than the odd years. The 1994 pink salmon return equaled or exceeded previous records for nearly all streams in Norton Sound. Only a few aerial surveys were obtained to document the escapement, but again based on anecdotal information, run timing, counting tower data, the Unalakleet test net, and commercial catch statistics, it is believed there was a large surplus of pink salmon well above escapement needs. Even in areas where substantial commercial harvests occurred it was difficult to detect any pulse generated by commercial fishing periods which suggests a return large enough to dampen the effects of the harvest.

MANAGEMENT CONCERNS

Chum salmon stocks have declined throughout Norton Sound over the past six or seven years with escapements in the northern subdistricts continuing to be a conservation concern. Chum salmon escapements have consistently fallen short of goals even at times when all forms of harvest have been drastically reduced or eliminated. The Nome Subdistrict was closed during nearly the entire chum run to sport, commercial and subsistence fishing for chum. The Golovin and Moses Point Subdistricts both exceeded their escapement goals and could have harvested 10,000 chum salmon each. However, the return sizes were still below historical run magnitudes which allowed typical commercial harvests of 20,000 to 40,000 in each subdistrict. Likewise, both the Shaktoolik and Unalakleet Subdistricts had the smallest commercial catches on record in 1994 and escapements were believed to be good, but not exceptional to the extent accounted for by the reduced exploitation of the chum salmon return. The low chum salmon returns are no longer simply single age class failures in Norton Sound. Chum salmon returns can be expected to be low for the next several years since the returns will be coming from low parent years. Total chum salmon returns were at best 3/4 strength of historical average return sizes in 1994.

The flood event that followed both chum and pink salmon spawning probably destroyed a significant portion of the eggs buried in the stream bed. Two years from now the pink salmon return will give an early indication of what to expect when the chum salmon from the same brood year return in 1998. Even though escapements were good in Norton Sound, the returns from this year may be quite low.

The renewed interest in Norton Sound pink salmon this season, where one fish buyer had adapted his pollock processing equipment to fillet pink salmon, proved very feasible and manageable. In future years, management plans will have to be developed that set exploitation levels and escapement needs, gear and harvest requirements, and consider incidental harvest of other species.

The Unalakleet Subdistrict has experienced a black market fishery for king salmon over the past several years. In order to maintain escapement and provide subsistence opportunity, the legitimate commercial fishery has been cut back by delaying the opening and restricting fishing periods to 24 hours in length. Subsistence fishing has been occasionally restricted in early summer to the lower section of the river in order to prevent the untraditional seining of pools where kings mill. More recently there have been complaints that coho salmon strips are now being illegally marketed outside of the local area. The illegal sale of salmon strips will continue to be a matter of concern in upcoming years.

1995 OUTLOOK

Salmon forecasts and harvest projections for the 1995 commercial salmon season are based on qualitative assessments of brood year returns, subjective determinations of fresh water over-wintering survival and ocean survival, and projections of local market conditions. Salmon buyers will probably operate in

only half the subdistricts of Norton Sound during 1995. The chinook return is expected to be average with a commercial harvest ranging from 6,000 to 8,000 fish. Pink salmon are anticipated to be strong particularly for the odd year cycle. In recent years, there has been no market for Norton Sound pink salmon and none is expected during 1995. Should a market develop for pink salmon or for any species where a surplus exists, harvests could markedly increase. Generally adequate chum salmon escapements were observed during 1991, indicating an average return of chum salmon is likely. Commercial harvests of chum are expected to range from 20,000 to 80,000, assuming exploitation rates are similar to past years and if inseason assessment of chum returns will provide for adequate escapement and subsistence harvests. The 1994 return and the 1991 coho salmon escapement indicates an above average coho return. Commercial coho salmon harvests are expected to range from 50,000 to 80,000.

Table 1. Commercial salmon catches by species, Norton Sound District, 1961–1994.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1961	5,300	35	13,807	34,327	48,332	101,801
1962	7,286	18	9,156	33,187	182,784	232,431
1963	6,613	71	16,765	55,625	154,789	233,863
1964	2,018	126	98	13,567	148,862	164,671
1965	1,449	30	2,030	220	36,795	40,524
1966	1,553	14	5,755	12,778	80,245	100,345
1967	1,804	—	2,379	28,879	41,756	74,818
1968	1,045	—	6,885	71,179	45,300	124,499
1969	2,392	—	6,836	86,949	82,795	178,972
1970	1,853	—	4,423	64,908	107,034	178,218
1971	2,593	—	3,127	4,895	131,362	141,977
1972	2,938	—	454	45,182	100,920	149,494
1973	1,918	—	9,282	46,499	119,098	176,797
1974	2,951	—	2,092	148,519	162,267	315,829
1975	2,393	2	4,593	32,388	212,485	251,861
1976	2,243	11	6,934	87,916	95,956	193,060
1977	4,500	5	3,690	48,675	200,455	257,325
1978	9,819	12	7,335	325,503	189,279	531,948
1979	10,706	57	31,438	167,411	140,789	350,344
1980	6,311	40	29,842	227,352	180,792	444,337
1981	7,929	56	31,562	232,479	169,708	441,734
1982	5,892	10	91,690	230,281	183,335	511,208
1983	10,308	27	49,735	76,913	319,437	456,420
1984	8,455	6	67,875	119,381	146,442	342,159
1985	19,491	166	21,968	3,647	134,928	180,200
1986	6,395	233	35,600	41,260	146,912	230,400
1987	7,080	207	24,279	2,260	102,457	136,283
1988	4,096	1,252	37,247	74,604	107,967	225,166
1989	5,707	265	44,091	123	42,625	92,811
1990	8,895	434	56,712	501	65,123	131,665
1991	6,068	203	63,647	221	86,871	157,010
1992	4,541	296	105,418	6,284	83,394	199,933
1993	8,972	279	43,283	157,574	53,562	263,670
1994	5,285	80	102,140	982,389	18,290	1,108,184

Previous 5–Yr Avg ^a	6,837	295	62,630	32,941	66,315	169,018
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Previous 10–Yr Avg ^b	7,970	334	50,012	40,586	97,028	195,930
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^a 1989–1993

^b 1984–1993

Table 2. Norton Sound commercial salmon harvest summary by subdistrict, 1994.

		Subdistricts						Total
		1	2	3	4	5	6	Number
Number of Fishermen		1	5	21	0	39	71	119 ^a
Chinook	Number					885	4,400	5,285
	Weight(lbs.)					16,530	81,962	98,492
Sockeye	Number	1				8	71	80
	Weight(lbs.)	8				52	465	525
Coho	Number	287	3,424	5,345		22,065	71,019	102,140
	Weight(lbs.)	2,751	24,571	41,380		165,213	536,981	770,896
Pink	Number					502,231	480,158	982,389
	Weight(lbs.)					1,090,661	1,094,405	2,185,066
Chum	Number	66	111	414		5,411	12,288	18,290
	Weight(lbs.)	578	672	2,781		35,499	83,010	122,540
Totals	Number	354	3,535	5,759	0	530,600	567,936	1,108,184
	Weight(lbs.)	3,337	25,243	44,161	0	1,307,955	1,796,823	3,177,519

^a Some fishermen fished more than one subdistrict.

Table 3. Norton Sound salmon dollar value and average price paid to the fisherman, by species, 1994.

Species		Dollar value	Average price per lb.
Chinook	\$	100,462.00	\$1.02
Sockeye		257.00	\$0.49
Coho		400,866.00	\$0.52
Pink		327,760.00	\$0.15
Chum		35,537.00	\$0.29
Total Value	\$	864,882.00	

Table 4. Salmon survey counts of Norton Sound streams and associated chum salmon escapement goals, 1994.

Stream Name	Chinook	Coho	Sockeye	Pink	Chum	Chum Goal
Salmon L.			4,970			
Glacial L.			1,230			
Sinuk R.	10	307 ^d		492,000	1,140 ^a	4,500
Snake R.		624 ^b		63,860	688 ^a	1,000
Nome R.	41	1,263 ^e		141,116 ^c	2,974 ^c	2,000 ^g
Flambeau R.	1			290	4,960	3,250
Eldorado R.	2	242 ^d		53,890	5,140 ^a	5,250
Bonanza R.				20 ^c		1,500
Solomon R.		184 ^d		53,600		550
Fish R.	55 ^c			910,000 ^c	16,500 ^{c&a}	17,500
Boston Cr.	95 ^c			355,600 ^c	4,270 ^{c&a}	2,500
Niukluk R.	7 ^c	274 ^d		1,294,100 ^c	16,470 ^{c&a}	8,000
Ophir Cr.		197 ^d				
Kwiniuk R.	627 ^e	2,841 ^{c&e}		2,303,112 ^e	33,010 ^e	19,500 ^f
Tubutulik R.						12,000
Inglutalik R.						8,500
Ungalik R.		No surveys due to poor conditions.				2,500
Shaktoolik R.						11,000
Unalakeet R.						
North R.						2,000
Old Woman R.						100

Note: A multitude of factors affect escapement estimates. The numbers above are strict values that are instantaneous counts which may not truly represent the strength of the return. Refer to text for an evaluation of the return.

^a Species identification difficult where large numbers of pinks salmon were observed.

^b Counts should be considered minimums due to counting conditions.

^c Early count.

^d Late count. Chum goal for tower count.

^e Preliminary expanded tower counts.

^f Chum goal for tower count.

^g Chum goal for aerial survey. Tower count goal not yet developed.

Table 5. Commercial salmon set gillnet catches from Nome, Subdistrict 1, Norton Sound, 1994.

Period Number	Period Dates	Hours Fished	No. of Fishermen	Period Catch and Catch Per Unit Effort						Cumulative Catch and Catch Per Unit Effort						
				Chinook	Sockeye	Coho	CPUE	Chum	CPUE	Chinook	Sockeye	Coho	CPUE	Chum	CPUE	
1 Coho	8/01-8/02	24	0													
2 Coho	8/04-8/05	24	1	0	1	123	5.13	62	2.58	0	1	123	5.13	62	2.58	
3 Coho	8/08-8/9	24	0							0	1	123	5.13	62	2.58	
4 Coho	8/11-8/12	24	0							0	1	123	5.13	62	2.58	
5 Coho	8/15-8/16	24	0							0	1	123	5.13	62	2.58	
6 Coho	8/18-8/19	24	0							0	1	123	5.13	62	2.58	
7 Coho	8/22-8/23	24	0							0	1	123	5.13	62	2.58	
8 Coho	8/25-8/26	24	1	0	0	164	6.83	4	0.17	0	1	287	5.98	66	1.38	
9 Coho	8/29-8/30	24	0							0	1	287	5.98	66	1.38	

All salmon sold as permitted under Catcher/Seller status.
 No pink salmon were sold.
 Total Hours fished = 48
 Total number of permits used = 1

Table 6. Commercial salmon set gillnet catches from Golovin, Subdistrict 2, Norton Sound, 1994.

Period Number	Period Dates	Hours Fished	No. of Fishermen	Period Catch and Catch Per Unit Effort						Cumulative Catch and Catch Per Unit Effort						
				Chinook	Sockeye	Coho	CPUE	Chum	CPUE	Chinook	Sockeye	Coho	CPUE	Chum	CPUE	
1 Coho	8/01-8/03	48	No one fished....	No buyer												
2 Coho	8/04-8/06	48	4	0	0	806	4.2	54	0.28			806	4.20	54	0.28	
3 Coho	8/08-8/10	48	5	0	0	548	2.28	22	0.09			1354	3.13	76	0.18	
4 Coho	8/11-8/12	30	4	0	0	353	2.94	8	0.07			1707	3.09	84	0.15	
5 Coho	8/13	24	No one fished....	Too rough								1707	3.09	84	0.15	
6 Coho	8/14	24	4	0	0	314	3.27	1	0.01			2021	3.12	85	0.13	
7 Coho	8/15	24	3	0	0	92	1.28	0	0			2113	2.93	85	0.12	
8 Coho	8/16	24	1	0	0	11	0.46	0	0			2124	2.85	85	0.11	
9 Coho	8/17	24	1	0	0	73	3.04	0	0			2197	2.86	85	0.11	
10 Coho	8/18	24	No one fished....	Too rough								2197	2.86	85	0.11	
11 Coho	8/19	24	No one fished....	Too rough								2197	2.86	85	0.11	
12 Coho	8/20	24	No one fished....	Too rough								2197	2.86	85	0.11	
13 Coho	8/21	24	1	0	0	35	1.46	1	0.04			2232	2.82	86	0.11	
14 Coho	8/22	24	3	0	0	143	1.99	1	0.01			2375	2.75	87	0.10	
15 Coho	8/23	24	4	0	0	206	2.15	6	0.06			2581	2.69	93	0.10	
16 Coho	8/24	24	5	0	0	350	2.92	12	0.1			2931	2.71	105	0.10	
17 Coho	8/25	24	3	0	0	99	1.38	1	0.01			3030	2.63	106	0.09	
18 Coho	8/26	24	1	0	0	27	1.13	1	0.04			3057	2.60	107	0.09	
19 Coho	8/27	24	2	0	0	67	1.4	0	0			3124	2.55	107	0.09	
20 Coho	8/28	24	2	0	0	95	1.98	4	0.08			3219	2.53	111	0.09	
21 Coho	8/29	24	2	0	0	129	2.69	0	0			3348	2.54	111	0.08	
22 Coho	8/30	24	1	0	0	36	1.5	0	0			3384	2.52	111	0.08	
23 Coho	8/31	24	1	0	0	28	1.17	0	0			3412	2.49	111	0.08	
24 Coho	9/01	24	1	0	0	12	0.5	0	0			3424	2.46	111	0.08	
25 Coho	9/02	24	No one fished....	Too rough								3424	2.46	111	0.08	
26 Coho	9/03	24	No one fished....	Too rough								3424	2.46	111	0.08	
27 Coho	9/04	24	No one fished....	Too rough								3424	2.46	111	0.08	
28 Coho	9/05	24	No one fished....	Too rough								3424	2.46	111	0.08	
29 Coho	9/06	24	No one fished....	Too rough								3424	2.46	111	0.08	
30 Coho	9/07	18	No one fished....	Too rough								3424	2.46	111	0.08	

Total Hours fished = 486
 Total number of permits used = 5

Table 7. Commercial salmon set gillnet catches from Moses Point, Subdistrict 3, Norton Sound, 1994.

Period Number	Period Dates	Hours Fished	No. of Fishermen	Period Catch and Catch Per Unit Effort						Cumulative Catch and Catch Per Unit Effort					
				Chinook	Sockeye	Coho	CPUE	Chum	CPUE	Chinook	Sockeye	Coho	CPUE	Chum	CPUE
1 Coho	7/25-7/26	24	7	0	0	104	0.62	85	0.51	0	0	104	0.62	85	0.51
2 Coho	7/28-7/29	24	6	0	0	190	1.32	25	0.17	0	0	294	0.94	110	0.35
3 Coho	8/01-8/03	48	8	0	0	410	1.07	13	0.03	0	0	704	1.01	123	0.18
4 Coho	8/04-8/06	48	14	0	0	894	1.33	25	0.04	0	0	1598	1.17	148	0.11
5 Coho	8/08-8/10	48	5	0	0	223	0.93	0	0	0	0	1821	1.13	148	0.09
6 Coho	8/11-8/12	30	0	No one fished.... Too rough						0	0	1821	1.13	148	0.09
7 Coho	8/13	24	0	No one fished.... Too rough						0	0	1821	1.13	148	0.09
8 Coho	8/14	24	1	0	0	31	1.29	0	0	0	0	1852	1.13	148	0.09
9 Coho	8/15	24	2	0	0	133	2.77	4	0.08	0	0	1985	1.18	152	0.09
10 Coho	8/16	24	0	No one fished.... Too rough						0	0	1985	1.18	152	0.09
11 Coho	8/17	24	0	No one fished.... Too rough						0	0	1985	1.18	152	0.09
12 Coho	8/18	24	0	No one fished.... Too rough						0	0	1985	1.18	152	0.09
13 Coho	8/19	24	0	No one fished.... Too rough						0	0	1985	1.18	152	0.09
14 Coho	8/20	24	0	No one fished.... Too rough						0	0	1985	1.18	152	0.09
15 Coho	8/21	24	4	0	0	157	1.64	4	0.04	0	0	2142	1.21	156	0.09
16 Coho	8/22	24	7	0	0	476	2.83	19	0.11	0	0	2618	1.35	175	0.09
17 Coho	8/23	24	8	0	0	621	3.23	23	0.12	0	0	3239	1.52	198	0.09
18 Coho	8/24	24	5	0	0	173	1.44	7	0.06	0	0	3412	1.51	205	0.09
19 Coho	8/25	24	8	0	0	246	1.28	32	0.17	0	0	3658	1.49	237	0.10
20 Coho	8/26	24	6	0	0	163	1.13	11	0.08	0	0	3821	1.47	248	0.10
21 Coho	8/27	24	7	0	0	124	0.74	7	0.04	0	0	3945	1.43	255	0.09
22 Coho	8/28	24	7	0	0	196	1.17	24	0.14	0	0	4141	1.41	279	0.10
23 Coho	8/29	24	5	0	0	279	2.33	23	0.19	0	0	4420	1.45	302	0.10
24 Coho	8/30	24	5	0	0	96	0.8	5	0.04	0	0	4516	1.43	307	0.10
25 Coho	8/31	24	6	0	0	133	0.92	7	0.05	0	0	4649	1.40	314	0.09
26 Coho	9/01	24	8	0	0	128	0.67	10	0.05	0	0	4777	1.36	324	0.09
27 Coho	9/02	24	5	0	0	45	0.38	6	0.05	0	0	4822	1.33	330	0.09
28 Coho	9/03	24	6	0	0	70	0.49	15	0.1	0	0	4892	1.30	345	0.09
29 Coho	9/04	24	9	0	0	133	0.62	15	0.07	0	0	5025	1.26	360	0.09
30 Coho	9/05	24	8	0	0	140	0.73	17	0.09	0	0	5165	1.24	377	0.09
31 Coho	9/06	24	7	0	0	134	0.8	26	0.15	0	0	5299	1.22	403	0.09
32 Coho	9/07	18	4	0	0	46	0.64	11	0.15	0	0	5345	1.21	414	0.09

Total Hours fished = 666
 Total number of permits used = 21

Table 8. Commercial salmon set gillnet catches from Shaktoolik, Subdistrict 5, Norton Sound, 1994.

Period Number	Period Dates	Hours Fished	No. of Fishermen	Period Catch and Catch Per Unit Effort								Cumulative Catch and Catch Per Unit Effort							
				Chinook	CPUE	Sockeye	Coho	CPUE	Chum	CPUE	Pink	CPUE	Chinook	CPUE	Sockeye	Coho	CPUE	Chum	Pink
1 King	6/20-6/21	24	19	520	1.14	0	0	0.00	0	0.00	0	0.00	520	1.14	0	0	0	0	
2 King	6/23-6/24	24	18	291	0.67	0	0	0.00	50	0.12	0	0.00	811	0.91	0	0	50	0	
Pink 1	6/26-6/27	18	17	28	0.09	0	0	0.00	181	0.59	27,566	90.08	839	0.94	0	0	231	27,566	90.08
3 King	6/27-6/28	24	1	14	0.58	0	0	0.00	0	0.00	0	0.00	853	0.94	0	0	231	27,566	
Pink 2	6/29	18	10	0	0.00	0	0	0.00	7	0.04	11,095	61.64	853	0.94	0	0	238	38,661	79.55
Pink 3	6/30	24	21	3	0.01	0	0	0.00	14	0.03	33,894	67.25	856	0.94	0	0	252	72,555	73.29
4 King	6/30-7/01	24	No one fished....										856	0.94	0	0	252	72,555	73.29
Pink 4	7/01	24	22	18	0.03	0	0	0.00	37	0.07	43,949	83.24	874	0.96	0	0	289	116,504	76.75
Pink 5	7/02	24	21	1	0.00	0	0	0.00	28	0.06	45,880	91.03	875	0.96	0	0	317	162,384	80.31
Pink 6	7/03	24	No one fished....										875	0.96	0	0	317	162,384	80.31
Pink 7	7/04	24	25	2	0.00	0	0	0.00	48	0.08	34,266	57.11	877	0.96	0	0	365	196,650	75.00
5 King	7/04-7/05	24	No one fished....										877	0.96	0	0	365	196,650	
Pink 8	7/05	24	19	1	0.00	0	0	0.00	289	0.63	34,511	75.68	878	0	0	0	654	231,161	75.10
Pink 9	7/06	24	No one fished....										878	0	0	0	654	231,161	75.10
Pink 10	7/07	24	No one fished....										878	0	0	0	654	231,161	75.10
6 Chum	7/7-7/9	48	No one fished....										878	0	0	0	654	231,161	
Pink 11	7/08	24	No one fished....										878	0	0	0	654	231,161	75.10
Pink 12	7/09	24	16	0	0.00	0	1	0.00	8	0.02	46,255	120.46	878	0	1	0	662	277,416	80.13
Pink 13	7/10	24	6	0	0.00	0	0	0.00	0	0.00	10,167	70.60	878	0	1	0	662	287,583	79.75
Pink 14	7/11	24	21	0	0.00	0	0	0.00	0	0.00	51,971	103.12	878	0	1	0	662	339,554	82.62
Pink 15	7/12	24	24	0	0.00	0	6	0.01	15	0.03	51,154	88.81	878	0	7	0	677	390,708	83.38
Pink 16	7/13	24	No one fished....										878	0	7	0	677	390,708	83.38
Pink 17	7/14	24	22	0	0.00	0	9	0.02	51	0.10	30,716	58.17	878	0	16	0	728	421,424	80.83
Pink 18	7/15	24	No one fished....										878	0	16	0	728	421,424	80.83
Pink 19	7/16	24	20	0	0.00	1	18	0.04	69	0.14	17,168	35.77	878	1	34	0	797	438,592	77.03
Pink 20	7/17	24	7	0	0.00	0	30	0.18	50	0.30	9,507	56.59	878	1	64	0	847	448,099	76.44
Pink 21	7/18	24	13	0	0.00	0	23	0.07	125	0.40	23,718	76.02	878	1	87	0	972	471,817	76.42
Pink 22	7/19	24	2	0	0.00	0	0	0.00	0	0.00	392	8.17	878	1	87	0	972	472,209	75.89
Pink 23	7/20	24	12	0	0.00	0	38	0.13	40	0.14	12,633	43.86	878	1	125	1,012	484,842	74.48	
Pink 24	7/21	24	12	1	0.00	0	81	0.28	109	0.38	17,389	60.38	879	1	206	1,121	502,231	73.88	
Pink 25	7/22	24	No one fished....										879	1	206	1,121	502,231		
Pink 26	7/23	18	No one fished....										879	1	206	1,121	502,231		
7 Coho	7/25-7/27	48	11	2	0.00	1	4,153	7.87	1,353	2.56			881	2	4,359	2,474	502,231		
8 Coho	7/28-7/31	48	18	4	0.00	3	6,954	8.05	1,348	1.56	0	0.00	885	5	11,313	8.13	3,822	502,231	
9 Coho	8/01-8/03	48	14	0	0.00	0	2,713	4.04	387	0.58	0	0.00	885	5	14,026	6.80	4,209	502,231	
10 Coho	8/04-8/06	48	16	0	0.00	0	1,231	1.60	250	0.33	0	0.00	885	5	15,257	5.39	4,459	502,231	
11 Coho	8/08-8/10	48	16	0	0.00	0	549	0.71	112	0.15	0	0.00	885	5	15,806	4.39	4,571	502,231	
12 Coho	8/11-8/13	48	No one fished....										885	5	15,806	4.39	4,571	502,231	
13 Coho	8/15-8/17	48	18	0	0.00	1	1,990	2.30	157	0.18	0	0.00	885	6	17,796	3.99	4,728	502,231	
14 Coho	8/18-8/20	48	10	0	0.00	0	285	0.59	57	0.12	0	0.00	885	6	18,081	3.66	4,785	502,231	
15 Coho	8/22-8/24	48	17	0	0.00	0	1,395	1.71	134	0.16	0	0.00	885	6	19,476	3.38	4,919	502,231	
16 Coho	8/25-8/27	48	12	0	0.00	2	694	1.20	31	0.05	0	0.00	885	8	20,170	3.18	4,950	502,231	
17 Coho	8/29-8/30	54	10	0	0.00	0	1,001	1.85	260	0.48	0	0.00	885	8	21,171	3.08	5,210	502,231	
18 Coho	9/01	24	6	0	0.00	0	186	1.29	63	0.44	0	0.00	885	8	21,357	3.04	5,273	502,231	
19 Coho	9/02	24	6	0	0.00	0	187	1.30	55	0.38	0	0.00	885	8	21,544	3.01	5,328	502,231	
20 Coho	9/03	24	9	0	0.00	0	130	0.60	22	0.10	0	0.00	885	8	21,674	2.94	5,350	502,231	
21 Coho	9/04	24	8	0	0.00	0	270	1.41	50	0.26	0	0.00	885	8	21,944	2.90	5,400	502,231	
22 Coho	9/05	24	No one fished....										885	8	21,944	2.90	5,400	502,231	
23 Coho	9/06	24	No one fished....										885	8	21,944	2.90	5,400	502,231	
24 Coho	9/07	18	2	0	0.00	0	121	3.36	11	0.31	0	0.00	885	8	22,065	2.90	5,411	502,231	

fished = 1092
 permits used = 39

Table 9. Commercial salmon set gillnet catches from Unalakleet, Subdistrict 6, Norton Sound, 1994.

Period Number	Period Dates	Hours Fished	No. of Fishermen	Period Catch and Catch Per Unit Effort								Cumulative Catch and Catch Per Unit Effort							
				Chinook	CPUE	Sockeye	Coho	CPUE	Chum	CPUE	Pink	CPUE	Chinook	CPUE	Sockeye	Coho	CPUE	Chum	Pink
1 King	6/20-6/21	24	42	1,173	1.16	0	1	0.00	118	0.12	0	0.00	1,173	1.16	0	1	118	0	
2 King	6/23-6/24	24	47	1,323	1.17	1	0	0.00	200	0.18	0	0.00	2,496	1.17	1	1	318	0	
Pink 1	6/26-6/27	18	32	154	0.27	0	0	0.00	155	0.27	60,526	105.08	2,650	1.24	1	1	473	60,526	105.08
3 King	6/27-6/28	24	22	947	1.79	0	0	0.00	284	0.54	0	0.00	3,597	1.35	1	1	757	60,526	
Pink 2	6/29	18	10	2	0.01	0	0	0.00	8	0.04	10,471	58.17	3,599	1.35	1	1	765	70,997	93.91
Pink 3	6/30	24	11	8	0.03	0	0	0.00	11	0.04	18,822	71.30	3,607	1.35	1	1	776	89,819	88.06
4 King	6/30-7/01	24	40	446	0.46	0	0	0.00	256	0.27	85	0.09	4,053	1.12	1	1	1,032	89,904	
Pink 4	7/01	24	4	0	0.00	0	0	0.00	0	0.00	3,922	40.85	4,053	1.12	1	1	1,032	93,826	84.07
Pink 5	7/02	24	17	0	0.00	0	0	0.00	48	0.12	25,869	63.40	4,053	1.12	1	1	1,080	119,695	78.54
Pink 6	7/03	24	No one fished....										4,054	1.12	1	1	1,087	119,695	78.54
Pink 7	7/04	24	22	1	0.00	0	0	0.00	7	0.01	34,838	65.98	4,339	1.20	4	2	1,329	154,533	75.31
5 King	7/04-7/05	24	25	285	0.48	3	1	0.00	242	0.40	0	0.00	4,339	1.20	4	2	1,329	154,533	
Pink 8	7/05	24	8	2	0.01	0	0	0.00	157	0.82	18,756	97.69	4,341	1.20	4	2	1,486	173,289	77.22
Pink 9	7/06	24	No one fished....										4,341	1.20	4	2	1,486	173,289	77.22
Pink 10	7/07	24	No one fished....										4,341	1.20	4	2	1,486	173,289	77.22
6 Chum	7/7-7/9	48	No one fished....										4,341	1.20	4	2	1,486	173,289	77.22
Pink 11	7/08	24	No one fished....										4,341	1.20	4	2	1,486	173,289	77.22
Pink 12	7/09	24	6	1	0.01	0	0	0.00	8	0.06	11,675	81.08	4,342	1.20	4	2	1,494	184,964	77.46
Pink 13	7/10	24	15	0	0.00	0	0	0.00	7	0.02	26,919	74.78	4,342	1.20	4	2	1,501	211,883	77.10
Pink 14	7/11	24	14	1	0.04	0	0	0.00	2	0.01	23,911	71.16	4,343	1.20	4	2	1,503	235,794	78.46
Pink 15	7/12	24	30	0	0.00	0	1	0.00	27	0.04	41,616	57.80	4,343	1.20	4	3	1,530	277,410	72.93
Pink 16	7/13	24	No one fished....										4,343	1.20	4	3	1,530	277,410	72.93
Pink 17	7/14	24	25	1	0.00	0	17	0.03	30	0.05	48,337	80.56	4,344	1.20	4	20	1,560	325,747	73.97
Pink 18	7/15	24	No one fished....										4,344	1.20	4	20	1,560	325,747	73.97
Pink 19	7/16	24	30	0	0.00	0	2	0.00	24	0.03	45,978	63.86	4,344	1.20	4	22	1,584	371,725	72.55
Pink 20	7/17	24	22	0	0.00	0	7	0.01	14	0.03	34,688	65.70	4,344	1.20	4	29	1,598	406,413	71.91
Pink 21	7/18	24	19	1	0.00	1	48	0.11	323	0.71	32,184	70.58	4,345	1.20	5	77	1,921	438,597	71.81
Pink 22	7/19	24	No one fished....										4,345	1.20	5	77	1,921	438,597	71.81
Pink 23	7/20	24	17	3	0.01	1	299	0.73	124	0.30	20,266	49.67	4,348	1.20	6	376	2,045	458,863	70.42
Pink 24	7/21	24	17	0	0.00	0	163	0.40	103	0.25	17,798	43.62	4,348	1.20	6	539	2,148	476,661	68.84
Pink 25	7/22	24	No one fished....										4,348	1.20	6	539	2,148	476,661	68.84
Pink 26	7/23	18	6	4	0.04	13	139	1.29	66	0.61	3,497	32.38	4,352	1.20	19	678	2,214	480,158	68.28
7 Coho	7/25-7/27	48	44	12	0.01	13	9,306	4.41	2,636	1.25	0	0.00	4,364	1.20	32	9,984	4.73	4,850	480,158
8 Coho	7/28-7/31	48	47	14	0.01	26	8,405	3.73	1,382	0.61	0	0.00	4,378	1.20	58	18,389	4.21	6,232	480,158
9 Coho	8/01-8/03	48	48	7	0.00	7	12,495	5.42	2,173	0.94	0	0.00	4,385	1.20	65	30,884	4.63	8,405	480,158
10 Coho	8/04-8/06	48	52	6	0.00	1	12,256	4.91	1,402	0.56	0	0.00	4,391	1.20	66	43,140	4.71	9,807	480,158
11 Coho	8/08-8/10	48	50	2	0.00	1	4,120	1.72	734	0.31	0	0.00	4,393	1.20	67	47,260	4.09	10,541	480,158
12 Coho	8/11-8/13	48	25	4	0.00	1	5,210	4.34	642	0.54	0	0.00	4,397	1.20	68	52,470	4.11	11,183	480,158
13 Coho	8/15-8/17	48	30	2	0.00	1	2,458	1.71	150	0.10	0	0.00	4,399	1.20	69	54,928	3.87	11,333	480,158
14 Coho	8/18-8/20	48	17	0	0.00	0	1,153	1.41	45	0.06	0	0.00	4,399	1.20	69	56,081	3.73	11,378	480,158
15 Coho	8/22-8/24	48	24	0	0.00	2	4,185	3.63	212	0.18	0	0.00	4,399	1.20	71	60,266	3.73	11,590	480,158
16 Coho	8/25-8/27	48	16	0	0.00	0	1,224	1.59	43	0.06	0	0.00	4,399	1.20	71	61,490	3.63	11,633	480,158
17 Coho	8/29-8/30	54	16	0	0.00	0	2,339	2.71	155	0.18	0	0.00	4,399	1.20	71	63,829	3.58	11,788	480,158
18 Coho	9/01	24	16	0	0.00	0	1,594	4.15	98	0.26	0	0.00	4,399	1.20	71	65,423	3.60	11,888	480,158
19 Coho	9/02	24	24	0	0.00	0	1,839	3.19	153	0.27	0	0.00	4,399	1.20	71	67,262	3.58	12,039	480,158
20 Coho	9/03	24	22	0	0.00	0	1,241	2.35	67	0.13	0	0.00	4,399	1.20	71	68,503	3.55	12,106	480,158
21 Coho	9/04	24	18	0	0.00	0	786	1.82	50	0.12	0	0.00	4,399	1.20	71	69,289	3.51	12,156	480,158
22 Coho	9/05	24	16	0	0.00	0	628	1.64	49	0.13	0	0.00	4,399	1.20	71	69,917	3.48	12,205	480,158
23 Coho	9/06	24	17	0	0.00	0	583	1.43	49	0.12	0	0.00	4,399	1.20	71	70,500	3.44	12,254	480,158
24 Coho	9/07	18	16	1	0.00	0	519	1.80	34	0.12	0	0.00	4,400	1.20	71	71,019	3.41	12,288	480,158

Total Hours fished = 1230
 Total number of permits used = 71

Table 10. Commercial and subsistence salmon catches by species, by year for all subdistricts in Norton Sound District, 1961-1994.^{a,c}

ALL SUBDISTRICTS																		
Year	Commercial						Subsistence						Combined					
	Chinook	Sockeye	Coho	Pink	Chum	Total	Chinook	Sockeye	Coho	Pink	Chum	Total	Chinook	Sockeye	Coho	Pink	Chum	Total
1961	5300	35	13807	34327	48332	101801	-	-	-	-	-	-	5300	35	13807	34327	48332	101801
1962	7286	18	9156	33187	182784	232431	-	-	-	-	-	-	7286	18	9156	33187	182784	232431
1963	6613	71	16765	55625	154789	233863	5	-	118	16607	17635	34365	6618	71	16883	72232	172424	268228
1964	2018	126	98	13567	148862	164671	565	-	2567	9225	12486	24843	2583	126	2665	22792	161348	189514
1965	1449	30	2030	220	36795	40524	574	-	4812	19131	30772	55289	2023	30	6842	19351	67567	95813
1966	1553	14	5755	12778	80245	100345	269	-	2210	14335	21873	38687	1822	14	7965	27113	102118	139032
1967	1804	-	2379	28679	41756	74818	817	-	1222	17516	22724	42279	2621	-	3601	46395	64480	117097
1968	1045	-	6885	71179	45300	124409	237	-	2391	36912	11661	51201	1282	-	9276	108091	56961	175610
1969	2392	-	6836	86949	82795	178972	436	-	2191	18562	15615	36804	2828	-	9027	105511	98410	215776
1970	1853	-	4423	64908	107034	178218	561	-	4675	26127	22763	54126	2414	-	9098	91035	129797	232344
1971	2593	-	3127	4895	131362	141977	1026	197	4097	10863	21618	37801	3619	197	7224	15758	152980	179778
1972	2938	-	454	45182	100920	149494	804	93	2319	14158	13873	31247	3742	-	2773	59340	114793	180741
1973	1918	-	9282	46499	119098	176797	392	-	520	14770	7185	22867	2310	-	9802	61269	126283	199664
1974	2951	-	2092	148519	162267	315829	420	-	1064	16426	3958	21868	3371	-	3156	164945	166225	337697
1975	2393	2	4593	32388	212485	251861	186	11	192	15803	8113	24305	2579	13	4785	48191	220598	276166
1976	2243	11	6934	87919	95956	193063	203	-	1004	18048	7718	26973	2446	11	7938	105967	103674	220036
1977	4500	5	3690	48675	200455	257325	846	-	2530	14296	26607	44279	5346	5	6220	62971	227062	301604
1978	9819	12	7335	325503	189279	531948	1211	-	2981	35281	12257	51730	11030	12	10316	360784	201536	583678
1979	10706	57	31438	167411	140789	350401	747	-	8487	25247	11975	46456	11453	57	39925	192658	152764	399657
1980	6311	40	29842	227352	180792	444337	1397	-	8625	63778	19622	93422	7708	40	38467	291130	200414	537759
1981	7929	56	31562	232479	169708	441734	2021	38	13416	28741	32866	77082 ^c	9950	94	44978	261220	202574	518816
1982	5892	10	91690	230281	183335	511208	1011	8	14612	54249	18580	88460 ^c	6903	18	106302	284530	201915	509668
1983	10308	27	49735	76913	319437	456420	-	-	-	-	-	-	-	-	-	-	-	-
1984	8455	6	67875	119381	146442	342159	-	-	-	-	-	-	-	-	-	-	-	-
1985	19491	166	21968	3647	134928	180200	-	-	-	-	-	-	-	-	-	-	-	-
1986	6395	233	35600	41260	146912	230400	-	-	-	-	-	-	-	-	-	-	-	-
1987	7080	207	24279	2260	102457	136283	-	-	-	-	-	-	-	-	-	-	-	-
1988	4096	1252	37214	74604	107966	225132	-	-	-	-	-	-	-	-	-	-	-	-
1989	5707	265	44091	123	42625	92811	-	-	-	-	-	-	-	-	-	-	-	-
1990	8895	434	56712	501	65123	131665	-	-	-	-	-	-	-	-	-	-	-	-
1991	6068	203	63647	-	86871	156789	-	-	-	-	-	-	-	-	-	-	-	-
1992	4541	296	105418	6284	83394	199933	-	-	-	-	-	-	-	-	-	-	-	-
1993	8972	279	43283	157574	53562	263670	-	-	-	-	-	-	-	-	-	-	-	-
1994	5285	80	102140	982389	18290	1108184	-	-	-	-	-	-	-	-	-	-	-	-
5-year avg. ^a	6837	295	62630	32896	66315	168974	-	-	-	-	-	-	-	-	-	-	-	-
10-year avg. ^b	7970	334	50009	40563	97028	195904	-	-	-	-	-	-	-	-	-	-	-	-

^a 1989-1993

^b 1984-1993

^c These figures also include data from Stebbins and St. Michael.

^d District wide subsistence surveys discontinued in 1983.

^e District wide subsistence survey to be conducted in Fall of 1994.

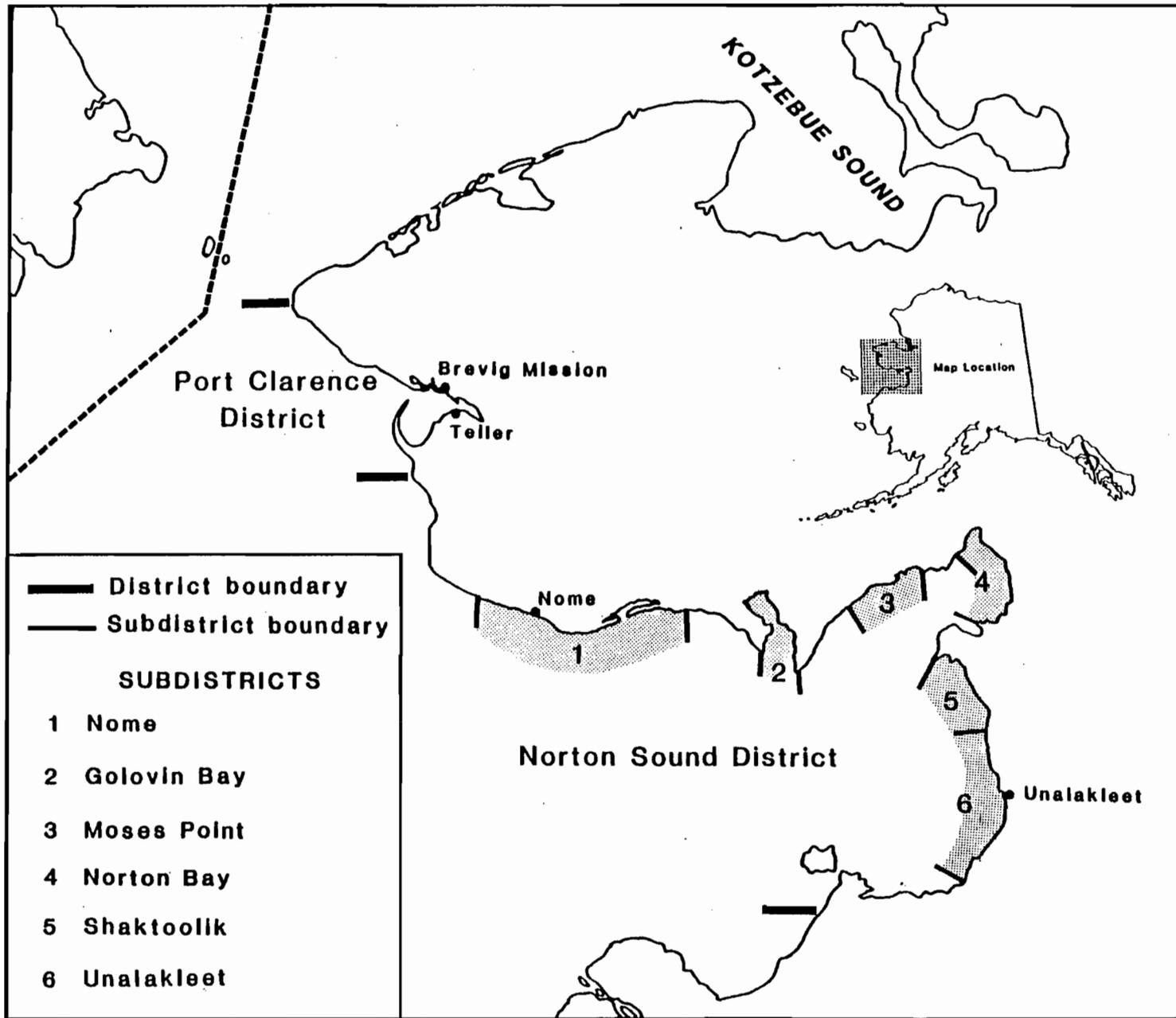


Figure 1. Norton Sound commercial salmon fishing subdistricts.

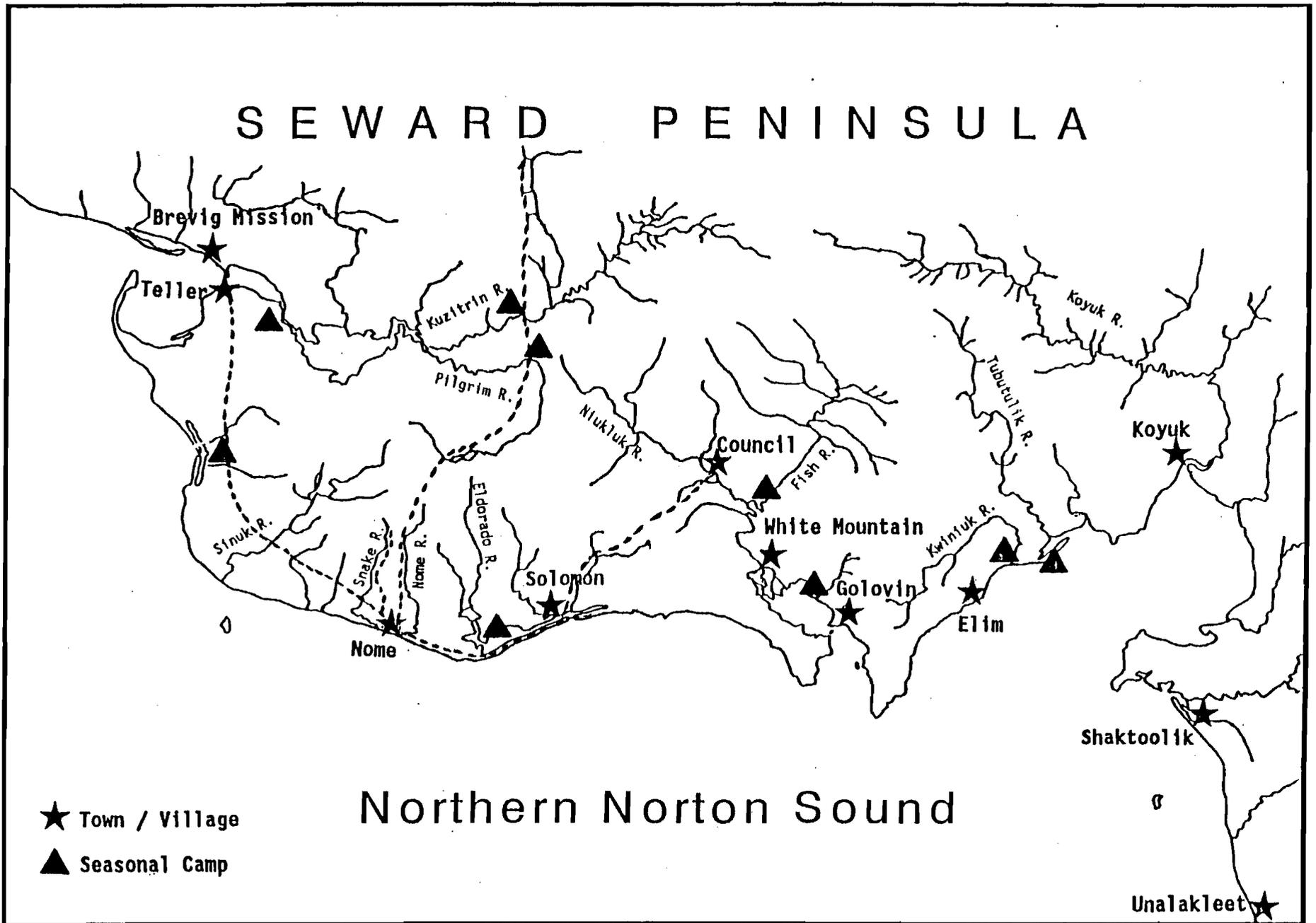


Figure 2. Northern Norton Sound subsistence fishing sites.