

1989  
NORTON SOUND DISTRICT  
SALMON REPORT  
to the  
Alaska Board of Fisheries

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## 1989 NORTON SOUND SALMON SEASON SUMMARY

### Commercial Fishery

The commercial salmon fishing regulations state that the Norton Sound season opens on a date established by emergency order between June 8 and June 20 in subdistricts 2, 3, 4, 5, and 6, and on July 1 in subdistrict 1. The Shaktoolik and Unalakleet subdistricts opened June 15 for 24 hours; the Norton Bay subdistrict opened June 19 for 24 hours; the Golovin and Moses Point subdistricts opened June 29 for 24 hours; and the Nome subdistrict opened July 3 for 24 hours. The season, which closes on August 31 by regulation in subdistricts 1, 2, and 3, closed on August 30 in subdistricts 1, 2 and 3. The season, which closes on September 7 by regulation in subdistricts 4, 5, and 6, closed on September 6 in subdistricts 4, 5, and 6 (Figure 1).

The 1989 Norton Sound commercial salmon harvest totaled 92,811 fish, which was comprised of 5,707 chinook, 265 sockeye, 44,091 coho, 123 pink, and 42,625 chum salmon (Table 1).

The chinook harvest was 44% and 38% below the 1984-1988 and 1979-1988 averages, respectively. The coho harvest was the fourth highest on record, however it was 5% below both the 1984-1988 and 1979-1988 averages. This phenomenon is the result of increasing coho returns to the district in recent years, especially during the 1982-1984 seasons. The pink harvest was negligible due to the lack of a market. The chum harvest was 69% and 73% below the 1984-1988 and the 1979-1988 averages, respectively. The low chum harvests were due primarily to the lack of a chum salmon market in subdistricts 1, 2, 3, and 4. Historically, subdistrict 2, the Golovin subdistrict, produces approximately one-half of the annual commercial chum harvest. Historical catch data for the Norton Sound district is presented in Table 1.

A total of 194 CFEC permits were renewed, with 110 actually fished during the 1989 season. The number of participating fishermen this season was the lowest effort on record since total effort has been documented (1977 to present). The average effort for the past ten years (1979-1988) has been 161 fishermen. The low effort during the 1989 season can be attributed primarily to the lack of salmon markets during most of the season in the northern subdistricts of Norton Sound.

One domestic seafood buying company purchased the majority of commercially caught salmon in Norton Sound during 1989. Another domestic buyer operated in the Nome and Unalakleet subdistricts for two periods. In addition, a few fishermen from Unalakleet also

sold chinook salmon to an Emmonak (Lower Yukon) based processor and to local restaurant businesses, as permitted under catcher-seller status, during June.

Commercial fishermen received approximately \$355,928.00 for their catch in 1989. These earnings rank as the lowest value on record since 1976, and were 47% below the 1984-1988 average of \$668,400.00. This low fishery value was attributed to the lack of competitive markets and low prices paid per pound for all salmon species. Prices paid to the fishermen averaged \$0.73 per pound for chinook, \$0.73 per pound for sockeye, \$0.43 per pound for coho, \$0.10 per pound for pink, and \$0.18 per pound for chum salmon. These data are summarized in Table 2.

### Subsistence Fishery

Household subsistence surveys were not conducted during the 1989 season in Norton Sound villages due to budgetary restrictions. Daily surveys of Unalakleet River and ocean subsistence fishermen were conducted during the chinook salmon return. Although total harvests by subsistence fishers were not documented, effort and catch information was used to judge timing and magnitude of the chinook salmon return. This spring, due to high river water levels from the melt-off of record winter snowfalls, most early season subsistence fishing effort in the Shaktoolik and Unalakleet subdistricts took place in the ocean waters. Gill nets were not usable in the rivers during the high water period due to large debris loads from spring breakup. The commercial fishery was delayed until it was apparent subsistence needs were being met and chinook salmon were beginning their upstream migration as indicated by the Department test net in the lower Unalakleet River. In the Nome subdistrict, subsistence harvests are tabulated from the return of permits which are required by regulation in this subdistrict. These data are preliminary pending further permit returns.

### SEASON SUMMARY BY SUBDISTRICT

#### Nome - subdistrict 1

The commercial salmon season opened July 3 by emergency order. Two fishermen harvested 2 chinook, 123 pink, and 492 chum salmon for a combined total of 617 fish (Tables 3 and 5). Fishing effort was well below the 1984-1988 average of 9 fishermen. One buyer operated in the Nome subdistrict for two periods, from July 3-July 7. Inclement weather conditions and the lack of a buyer hindered fishing effort during much of the season. Fishermen did not sell any salmon as permitted under catcher-seller regulations. The Nome subdistrict was closed on August 30.

During the 1989 season, a total of 171 subsistence permits were

issued in the Nome subdistrict. Subsistence harvest data will be compiled and presented in reports later this year.

#### Golovin - subdistrict 2

No salmon were commercially harvested in the Golovin subdistrict during the 1989 season due to the lack of a market.

#### Moses Point - subdistrict 3

The Moses Point subdistrict opened by emergency order on June 29 for a 24 hour period (Table 6). Thirteen fishermen harvested 62 chinook and 1,667 chum salmon during this period. No other commercial deliveries were made during the 1989 season. A domestic buyer was present during one period, and flew all salmon out, iced, in-the-round to Unalakleet for transport to Anchorage for processing. Inclement weather conditions and equipment problems hindered the fly-out operation which had been planned by this company for both subdistricts 2 and 3. On July 13, this subdistrict was closed to commercial salmon fishing due to a weak chum salmon return as indicated by Department tower counts on the Kwiniuk River. The Moses Point subdistrict was re-opened by emergency order on July 31 for the coho salmon return. The fishery was open for two 48 hours periods per week, however since there was no local buying station, no one fished during the month of August. The season closed on August 30.

#### Norton Bay - subdistrict 4

No salmon were commercially harvested in the Norton Bay subdistrict during the 1989 season due to the lack of a market.

#### Shaktoolik - subdistrict 5

The Shaktoolik subdistrict opened by emergency order on June 15 for a 24 hour period. Initial periods were set at 24 hours in length from June 15-20 (periods 1 and 2). On June 22, fishing time was increased to two 48 hour periods a week (Table 7). The Shaktoolik subdistrict fished on the regular schedule of two 48 hour periods a week throughout the remainder of the season. One domestic buyer conducted a fly-out operation. Fish were flown to Unalakleet, iced, in-the-round, for transport to processing facilities and fresh markets in Anchorage. This subdistrict was without a buyer for six periods (period 12 from 7/24-7/26 and periods 20-24, from 8/21-9/06) The Shaktoolik subdistrict closed to commercial salmon fishing on September 6.

Twenty-six fishermen harvested 1,241 chinook, 43 sockeye, 8,066

coho, and 19,641 chum salmon for a combined total of 28,991 fish (Tables 3 and 7). The chinook harvest was 43% and 39% below the 1984-1988 and 1979-1988 average catches of 2,177 and 2,025 fish, respectively. The coho salmon harvest was 24% and 1% above 1984-1988 and 1979-1988 average catches of 6,491 and 8,014 fish, respectively. The chum salmon harvest was 1% above and 25% below the 1984-1988 and 1979-1988 average catches of 19,489 and 26,158 fish, respectively.

#### Unalakleet - subdistrict 6

The Unalakleet subdistrict receives the most fishing effort in Norton Sound, and has historically not had problems obtaining buyers for their salmon, with the exception of pink salmon.

The commercial fishing periods, openings, and closures in the Unalakleet subdistrict were the same as those in the Shaktoolik subdistrict. Because of their close proximity (shared boundary) and the difficulty in obtaining timely escapement information, the Unalakleet inriver test net was used frequently as an index of salmon abundance and escapement in subdistricts 5 and 6. Table 8 summarizes catch and effort data by period for the Unalakleet subdistrict.

A total of 73 fishermen harvested 4,402 chinook, 222 sockeye, 36,025 coho, and 20,825 chum salmon for a combined total of 61,474 fish (Table 3). The chinook salmon harvest was 25% and 23% below the 1984-1988 and 1979-1988 average catches of 5,877 and 5,702 fish, respectively. The coho harvest was 46% and 21% above the 1984-1988 and 1979-1988 average catches of 26,647 and 29,573 fish, respectively. The chum salmon harvest was 27% and 52% below the 1984-1988 and 1979-1988 average catches of 28,311 and 42,912 fish, respectively.

One domestic buyer operated throughout the entire season. All salmon were flown out iced, in-the-round, to Anchorage to fresh markets or for further processing. The Norton Sound Fishermen's Co-op plant did not operate, however, this facility was leased to receive and ice the salmon delivered dockside. A second domestic buyer operated in the Unalakleet subdistrict for one period only, during the June chinook fishery. In addition, a few fishermen sold some of their catch to individuals, local businesses, and to an Emmonak-based buyer, as permitted under the catcher-seller regulations.

#### ESCAPEMENT

Table 4 lists aerial survey and tower escapement counts in the major index streams of Norton Sound. In general, weather and survey conditions were very poor during most of the season. River water levels were very high during the spring from melt-off of

record snowfall levels, and remained unusually high and turbid during the summer. Predominant weather conditions throughout the summer were low ceilings (clouds and fog) and rain. No peak chum or chinook salmon surveys were attained during the entire season. One chum salmon survey was attained on June 30 on the Kwiniuk River, prior to the run peak. Surveys were flown on select streams in the Nome and Golovin subdistricts for coho salmon in late August and early September. In general, conditions were rated fair, at best, for these surveys. High water levels appeared to have washed away most salmon carcasses. Tannic colored or turbid water conditions were prevalent in most streams from extended periods of rain and high water levels.

The Nome subdistrict of Norton Sound received the most intensive survey efforts, with several aerial stream surveys attempted, as well as two boat surveys of the Nome River. Salmon stocks local to the Nome area are limited, easily accessed (extensive road system) and exposed to extensive subsistence and sport fishing pressure. However, most surveys were inconclusive due to poor survey conditions or non-peak timing of surveys.

Chum salmon escapements in the Nome subdistrict could not be quantified, but appeared to be below average. In the Nome River, the highest chum count (72) was obtained during a late season (August 17) boat survey for coho salmon. The observer, during an aerial survey flown on the Nome River on August 14 noted "apparently very small escapements of chum and pink salmon. Very few redds observed for these species". Chum salmon escapements appeared below average in the Eldorado, Sinuk, and Solomon Rivers as well (Table 4); these surveys were flown under fair conditions during the August coho return, well past the peak chum salmon returns.

Chum salmon escapements in three Golovin subdistrict streams (Fish, Niukluk, Boston) could not be estimated. Weather and stream conditions prevented aerial observation of salmon during July and most of August. Chum salmon escapements in the Moses Point subdistrict Tubutulik River could not be documented by aerial survey. However, even with just one 24 hour period fished commercially in this subdistrict, the average escapement goal of 25,000 chum salmon was not attained on the Kwiniuk River. This was indicated by the preliminary expanded tower count of 13,689 chum salmon in the Kwiniuk River (Table 4).

Chum salmon escapement counts in the Norton Bay subdistrict were not documented. However, since no salmon were commercially harvested in subdistrict 4 this season, it is likely that at least average escapement occurred. Chum salmon escapements could not be documented in the Shaktoolik and Unalakleet subdistricts. Comparative commercial catch figures and the Department test net catches in the lower Unalakleet River indicate the return of chum salmon was average to slightly below average to these drainages.

The Unalakleet and Shaktoolik subdistricts contain the major chinook salmon returns although the Norton Bay, Moses Point and Golovin subdistricts are gradually producing more chinook in recent years. Chinook escapement surveys were also prevented this season due to inclement weather and poor stream conditions. The only escapement count in Norton Sound for chinook during 1989 was the Kwiniuk River tower count of 232 fish (preliminary expanded figure). This may be considered below average when compared to the 1979-1988 average tower count of 356 chinook salmon. The Department test fishery in the Unalakleet River indicated a chinook return which was early, but just average overall escapement when compared to previous years' test net catches. These data will be summarized and presented in separate project reports later this year.

The major coho producing streams in Norton Sound are also in the Shaktoolik and Unalakleet subdistricts, although coho salmon are found in nearly all of the chum producing streams throughout the district. Because of the inclement weather normally experienced in this area during August and September, escapement data for all subdistricts is somewhat sketchy. This year, coho salmon counts were attempted in select subdistrict 1 and 2 streams in mid August and early September. Most counts were obtained under fair viewing conditions, and were flown at or near peak spawning activity.

Overall, coho salmon escapements appeared to be poor in northern Norton Sound. The Nome River aerial survey count of 375, made on September 9, was considered to be below average. The Sinuk River count of 75 coho salmon was very poor, as were the Eldorado and Solomon River counts of 87 and 25 fish, respectively. The Niukluk River system count of 182 coho salmon (includes Ophir Creek) was considered to be very poor. No aerial surveys for coho salmon were flown in subdistricts 3, 4, 5, and 6.

Pink salmon escapements and return strengths were difficult to judge during the 1989 season since no surveys could be flown in July, and since there was no market for pink salmon in the Shaktoolik and Unalakleet subdistricts. Some pink salmon were observed during August coho surveys on the Nome, Eldorado, and Sinuk Rivers (Table 4).

#### **MANAGEMENT CONCERNS**

Once again chum salmon escapements in the streams of the Nome and Moses Point subdistricts were of concern, or fell short of escapement goals. The lack of chum salmon escapement in the Nome River is particularly disturbing when one considers that the Board of Fisheries approved regulations during the 1987 winter meetings further restricting both subsistence and sport fisheries on the Nome River in addition to restrictions in place since 1984. Sport

fishermen were restricted to only 3 chum salmon per day and all subsistence beach seining for salmon was eliminated in the Nome River. Gill net subsistence fishers were restricted to a limit of 50 feet of gear, and were allowed to fish only in a section of the lower river from 200 yards above the mouth to Osborne, approximately 8 river miles. Surveys could not be conducted during July to estimate chum salmon escapement, however, the August coho salmon surveys documented few chum and pink salmon redds. Apparently ocean subsistence fishing may also have to be reduced to bring this salmon stock back to its former size.

In the Moses Point subdistrict only half the chum salmon escapement goal was reached (Table 4). This is especially disturbing when considering the fact that just one 24 hour commercial fishing period was actually fished.

Table 1. Commercial salmon catches by species, Norton Sound District, 1961-1989.

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	--	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	6,303	233	35,600	41,260	146,912	230,308
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
5-Yr Avg. 1/	10,226	426	46,212	48,255	136,266	241,385
10-Yr Avg. 2/	9,228	226	46,538	117,571	167,539	342,097
1/	1984-1988					
2/	1979-1988					

Table 2. Norton Sound salmon dollar value and average price paid to the fishermen, by species, 1989.

Species	Dollar value	Average price paid
<hr style="border-top: 1px dashed black;"/>		
Chinook	\$ 76,525.00	\$ 0.73
Sockeye	1,345.00	0.73
Coho	144,760.00	0.43
Pink	44.00	0.10
Chum	133,254.00	0.18
<hr style="border-top: 1px dashed black;"/>		
Total	\$ 355,928.00	

Table 3. Norton Sound salmon season summary by subdistrict, 1989

s.d.	fm	Chinook / lbs	Sockeye / lbs	Coho / lbs	Pink / lbs	Chum / lbs	Total / Total lbs
1	2	2 / 37	0 / 0	0 / 0	123 / 439	492 / 3133	617 / 3609
2	0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
3	13	62 / 835	0 / 0	0 / 0	0 / 0	1667 / 11898	1729 / 12733
4	0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
5	26	1241 / 20561	43 / 297	8066 / 60367	0 / 0	19641 / 135634	28991 / 216859
6	73	4402 / 83396	222 / 1545	36025 / 276285	0 / 0	20825 / 146491	61474 / 507717
Total 110 1/		5707 / 104829	265 / 1842	44091 / 336652	123 / 439	42625 / 297156	92811 / 740918
Avg. wt.		18.4	7.0	7.6	3.6	7.0	

1/ Some fishermen fished more than one subdistrict.

Table 4. Aerial survey counts of Norton Sound streams and associated chum salmon escapement goals, 1989. 1/

Stream Name	Chum	Chum Goal	Pink	Chinook	Coho
Nome River	72 2/	2,000	1,365 2/	2	375
Flambeau River 3/		3,300			
Eldorado River	350	5,300	1,550	-	87
Sinuk River	1,025	-	26,850	-	75
Solomon River	60	-	1,370	-	25
Fish River 3/		17,500			
Niukluk River	-	8,000	-	-	182 4/
Boston Creek 3/		2,500			
Tubutulik River 3/		12,000			
Kwiniuk River 5/	13,689	25,000	30,275	232	-
Ungalik River 3/		-			
Inglutalik River 3/		-			
Shaktoolik River 3/		11,000			
North River 3/		4,500			
Unalakleet System 3/		-			

- 1/ Chum salmon surveys could not be flown due to inclement weather conditions.  
2/ Boat survey.  
3/ Not surveyed.  
4/ Includes 70 coho salmon counted in Ophir Creek.  
5/ Preliminary expanded tower counts.

Table 5. Commercial salmon catches from Nome, subdistrict 1, Norton Sound, set gill nets, 1989.

Period Dates	Hours Fished	No. of Fisherman	Period Catch and Catch Per Unit Effort 1/						Cumulative Catch and Catch Per Unit Effort					
			CHINOOK	CPUE	PINK	CPUE	CHUM	CPUE	CHINOOK	CPUE	PINK	CPUE	CHUM	CPUE
01 7/03-7/04	24	2	1	0.00	88	1.83	285	5.94	1	0.01	88	1.83	285	5.94
02 7/06-7/07	24	1	1	0.00	35	1.46	207	8.60	2	0.01	123	1.70	492	6.80
03 7/10-7/11	24	0	NO BUYER						2	0.01	123	1.70	492	6.80
04 7/13-7/14	24	0	NO BUYER						2	0.01	123	1.70	492	6.80
05 7/17-7/18	24	0	NO BUYER						2	0.01	123	1.70	492	6.80
06 7/20-7/21	24	0	NO BUYER						2	0.01	123	1.70	492	6.80
07 7/24-7/25	24	0	NO BUYER						2	0.01	123	1.70	492	6.80
08 7/27-7/28	24	0	NO BUYER						2	0.01	123	1.70	492	6.80
09 7/31-8/01	24	0	NO BUYER						2	0.01	123	1.70	492	6.80
10 8/03-8/04	24	0	NO BUYER						2	0.01	123	1.70	492	6.80
11 8/07-8/08	24	0	NO BUYER						2	0.01	123	1.70	492	6.80
12 8/10-8/11	24	0	NO BUYER						2	0.01	123	1.70	492	6.80
13 8/14-8/15	24	0	NO BUYER						2	0.01	123	1.70	492	6.80
14 8/17-8/18	24	0	NO BUYER						2	0.01	123	1.70	492	6.80
15 8/21-8/22	24	0	NO BUYER						2	0.01	123	1.70	492	6.80
16 8/24-8/25	24	0	NO BUYER						2	0.01	123	1.70	492	6.80
17 8/28-8/29	24	0	NO BUYER						2	0.01	123	1.70	492	6.80
Season Total	48 1/	2	2		123		492		2		123		492	

1/ No sockeye or coho salmon were sold.  
 2/ Total hours actually fished.

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Table 6. Commercial salmon catches from Moses Point, subdistrict 3, Norton Sound, set gill nets, 1989.

Period Dates	Hours Fished	No. of Fishermen	1/2/ Period Catch and Catch Per Unit Effort				Cumulative Catch and Catch Per Unit Effort			
			CHINOOK	CPUE	CHUM	CPUE	CHINOOK	CPUE	CHUM	CPUE
01 6/29-6/30	24	13	62	0.20	1,667	5.34	62	0.20	1,667	5.34
02 7/03-7/04	24	0	NO BUYER				62	0.20	1,667	5.34
03 7/06-7/07	24	0	NO BUYER				62	0.20	1,667	5.34
04 7/10-7/11	24	0	NO BUYER				62	0.20	1,667	5.34
05 7/31-8/02	48	0	REOPEN BY E. O. NO BUYER				62	0.20	1,667	5.34
06 8/03-8/05	48	0	NO BUYER				62	0.20	1,667	5.34
07 8/07-8/09	48	0	NO BUYER				62	0.20	1,667	5.34
08 8/10-8/12	48	0	NO BUYER				62	0.20	1,667	5.34
09 8/14-8/16	48	0	NO BUYER				62	0.20	1,667	5.34
10 8/17-8/19	48	0	NO BUYER				62	0.20	1,667	5.34
11 8/21-8/23	48	0	NO BUYER				62	0.20	1,667	5.34
12 8/24-8/26	48	0	NO BUYER				62	0.20	1,667	5.34
13 8/28-8/31	48	0	NO BUYER				62	0.20	1,667	5.34
Season Total	24 3/	13	62				62		1,667	

- 1/ Closed by emergency order from 7/13-7/31/89.  
 2/ No sockeye, coho, or pink salmon were sold.  
 3/ Total hours actually fished

Table 7. Commercial salmon catches from Shaktoolik, subdistrict 5, Norton Sound, set gill nets, 1989.

Period Dates	Hours Fished	No. of Fishermen	Period Catch and Catch Per Unit Effort 1/							Cumulative Catch and Catch Per Unit Effort 2/								
			CHINOOK	CPUE	SOCKEYE	CPUE	COHO	CPUE	CHUM	CPUE	CHINOOK	CPUE	SOCKEYE	CPUE	COHO	CPUE	CHUM	CPUE
01 6/15-6/16	24	17	184	0.45	0	0.00	0	0.00	51	0.12	184	0.45	0	0.00	0	0.00	51	0.12
02 6/19-6/20	24	21	360	0.71	0	0.00	0	0.00	339	0.67	544	0.60	0	0.00	0	0.00	390	0.42
03 6/22-6/24	48	20	136	0.14	0	0.00	0	0.00	881	0.91	680	0.36	0	0.00	0	0.00	1,271	0.67
04 6/26-6/28	48	22	324	0.31	0	0.00	0	0.00	5,197	4.92	1,004	0.34	0	0.00	0	0.00	6,468	2.20
05 6/29-7/01	48	24	115	0.10	9	(+)	0	0.00	2,951	2.56	1,119	0.27	9	(+)	0	0.00	9,419	2.30
06 7/03-7/05	48	19	64	0.07	4	(+)	0	0.00	4,018	4.41	1,183	0.23	13	(+)	0	0.00	13,437	2.69
07 7/06-7/08	48	18	26	0.03	4	(+)	0	0.00	1,959	2.27	1,209	0.20	17	(+)	0	0.00	15,396	2.63
08 7/10-7/12	48	10	8	0.02	4	(+)	0	0.00	662	1.38	1,217	0.19	21	(+)	0	0.00	16,058	2.53
09 7/13-7/15	48	9	5	0.01	0	0.00	3	(+)	322	0.75	1,222	0.18	21	(+)	3	(+)	16,380	2.42
10 7/17-7/19	48	7	1	(+)	0	0.00	6	(+)	288	0.86	1,223	0.18	21	(+)	9	(+)	16,668	2.34
11 7/20-7/22	48	13	5	(+)	4	(+)	120	0.19	616	0.99	1,228	0.15	25	(+)	129	0.20	17,284	2.23
12 7/24-7/28	48	0	NO BUYER								1,228	0.15	25	(+)	129	0.20	17,284	2.23
13 7/27-7/29	48	16	4	(+)	4	(+)	999	1.30	1,161	1.51	1,232	0.15	29	(+)	1,128	0.81	18,445	2.17
14 7/31-8/02	48	18	4	(+)	1	(+)	2,135	2.47	580	0.67	1,236	0.15	30	(+)	3,263	1.51	19,025	2.03
15 8/03-8/05	48	6	0	0.00	0	0.00	543	1.89	127	0.44	1,236	0.12	30	(+)	3,806	1.55	19,152	1.98
16 8/07-8/09	48	20	2	(+)	1	(+)	2,195	2.29	190	0.20	1,238	0.12	31	(+)	6,001	1.76	19,342	1.83
17 8/10-8/12	48	12	3	(+)	0	0.00	844	1.47	77	0.13	1,241	0.11	31	(+)	6,845	1.72	19,419	1.77
18 8/14-8/16	48	16	0	0.00	10	0.01	808	1.05	170	0.22	1,241	0.11	41	(+)	7,653	1.61	19,589	1.64
19 8/17-8/19	48	9	0	0.00	2	(+)	413	0.96	52	0.12	1,241	0.10	43	(+)	8,066	1.50	19,641	1.60
20 8/21-8/23	48	0	NO BUYER								1,241	0.10	43	(+)	8,066	1.50	19,641	1.60
21 8/24-8/26	48	0	NO BUYER								1,241	0.10	43	(+)	8,066	1.50	19,641	1.60
22 8/28-8/30	48	0	NO BUYER								1,241	0.10	43	(+)	8,066	1.50	19,641	1.60
23 8/31-9/02	48	0	NO BUYER								1,241	0.10	43	(+)	8,066	1.50	19,641	1.60
24 9/04-9/06	48	0	NO BUYER								1,241	0.10	43	(+)	8,066	1.50	19,641	1.60
Season Totals	816 3/	26	1,241		43		8,066		19,641		1,241		43		8,066		19,641	

1/ No pink salmon were sold.

2/ Cumulative coho boat hours began when 100 coho were caught.

3/ Total hours actually fished.

Table 8. Commercial salmon catches from Unalakleet, subdistrict 6, Norton Sound, set gill nets, 1989.

	Period Dates	Hours Fished	No. of Fishermen	Period Catch and Catch Per Unit Effort 1/							Cumulative Catch and Catch Per Unit Effort 2/								
				CHINOOK	CPUE	SOCKEYE	CPUE	COHO	CPUE	CHUM	CPUE	CHINOOK	CPUE	SOCKEYE	CPUE	COHO	CPUE	CHUM	CPUE
01	6/15-6/16	24	47	756	0.67	0	0.00	0	0.00	124	0.11	756	0.67	0	0.00	0	0.00	124	0.11
02	6/19-6/20	24	55	1,424	1.08	0	0.00	0	0.00	316	0.24	2,180	0.89	0	0.00	0	0.00	440	0.18
03	6/22-6/24	48	56	858	0.31	0	0.00	0	0.00	601	0.22	3,038	0.59	0	0.00	0	0.00	1,041	0.20
04	6/26-6/28	48	49	864	0.37	11	(+)	0	0.00	1,934	0.82	3,902	0.52	11	0.00	0	0.00	2,975	0.40
05	6/29-7/01	48	34	198	0.12	0	0.00	0	0.00	713	0.43	4,100	0.44	11	0.00	0	0.00	3,688	0.40
06	7/03-7/05	48	17	111	0.14	5	(+)	0	0.00	3,030	3.71	4,211	0.42	16	0.00	0	0.00	6,718	0.68
07	7/06-7/08	48	19	46	0.05	10	(+)	0	0.00	2,655	2.90	4,257	0.39	26	0.00	0	0.00	9,373	0.86
08	7/10-7/12	48	21	58	0.06	13	0.01	1	0.00	2,375	2.36	4,315	0.36	39	(+)	(+)	11,748	0.99	
09	7/13-7/15	48	22	26	0.02	9	0.01	10	0.01	2,018	1.91	4,341	0.58	48	0.00	11	(+)	13,766	1.86
10	7/17-7/19	48	17	7	0.01	2	(+)	54	0.07	742	0.91	4,348	0.52	50	0.00	65	(+)	14,508	1.77
11	7/20-7/22	48	20	8	0.01	4	(+)	197	0.21	694	0.72	4,356	0.47	54	0.00	262	0.27	15,202	1.66
12	7/24-7/26	48	23	6	(+)	5	(+)	973	0.88	876	0.79	4,362	0.47	59	0.00	1,235	0.60	16,078	1.56
13	7/27-7/29	48	36	5	(+)	2	(+)	1,821	1.05	829	0.48	4,367	0.47	61	0.00	3,056	0.81	16,907	1.41
14	7/31-8/02	48	48	6	(+)	21	0.01	4,783	2.08	1,013	0.44	4,373	0.30	82	0.00	7,839	1.28	17,920	1.25
15	8/03-8/05	48	42	4	(+)	25	0.01	8,179	4.06	1,188	0.59	4,377	0.26	107	0.00	16,018	1.97	19,108	1.17
16	8/07-8/09	48	48	5	(+)	10	(+)	3,938	1.71	481	0.21	4,382	0.23	117	0.00	19,956	1.91	19,589	1.05
17	8/10-8/12	48	40	3	(+)	12	(+)	2,485	1.29	271	0.14	4,385	0.21	129	0.00	22,441	1.82	19,860	0.97
18	8/14-8/16	48	42	3	(+)	19	0.01	5,668	2.81	400	0.20	4,388	0.19	148	0.00	28,109	1.96	20,260	0.90
19	8/17-8/19	48	34	2	(+)	6	(+)	2,335	1.43	159	0.10	4,390	0.18	154	0.00	30,444	1.90	20,419	0.84
20	8/21-8/23	48	34	3	(+)	13	0.01	1,912	1.17	150	0.09	4,393	0.17	167	0.00	32,356	1.84	20,569	0.80
21	8/24-8/26	48	35	3	(+)	15	0.01	1,173	0.70	105	0.06	4,396	0.16	182	0.00	33,529	1.74	20,674	0.77
22	8/28-8/30	48	26	4	(+)	19	0.02	1,380	1.11	86	0.07	4,400	0.15	201	0.00	34,909	1.70	20,760	0.73
23	8/31-9/02	48	19	0	0.00	16	0.02	525	0.58	35	0.04	4,400	0.15	217	0.00	35,434	1.65	20,795	0.71
24	9/04-9/06	48	14	2	(+)	5	(+)	591	0.88	30	0.04	4,402	0.15	222	0.00	36,025	1.63	20,825	0.70
Season Total				1152 3/	73	4,402		222	36,025	20,825		4,402		222		36,025		20,825	

1/ No pink salmon were sold.

2/ Cumulative coho boat hours began when 100 coho were caught.

3/ Total hours actually fished.

TABLE 11., Nome (subdistrict 1) subsistence salmon catches, Norton Sound District, 1989.

Location	Permits Issued	Permits Returned	Permits Fished	Chinook	Sockeye	Coho	Pink	Chum	Total Salmon
Nome River	17	11	9	0	0	77	68	57	239
Marine Waters	84	64	39	10	60	153	394	1,870	2,674
Sinuk River	1	1	1	0	0	1	1	0	5
Eldorado River	21	18	10	0	33	50	194	1,104	1,430
Flambeau River	6	3	2	0	0	4	4	34	53
Snake River	12	8	7	1	3	16	10	10	67
Penny River	1	0	0	0	0	0	0	0	1
Solomon River	2	2	1	0	0	0	0	0	5
Feather River	0	0	0	0	0	0	0	0	0
Bonanza River	11	8	6	3	0	29	62	34	153
Cripple River	3	3	2	0	0	20	0	4	32
Safety Sound	2	2	0	0	0	0	0	0	7
Eld/Flam Rivers	0	0	0	0	0	0	0	0	0
Totals	160	120	78	14	96	350	735	3,113	4,666

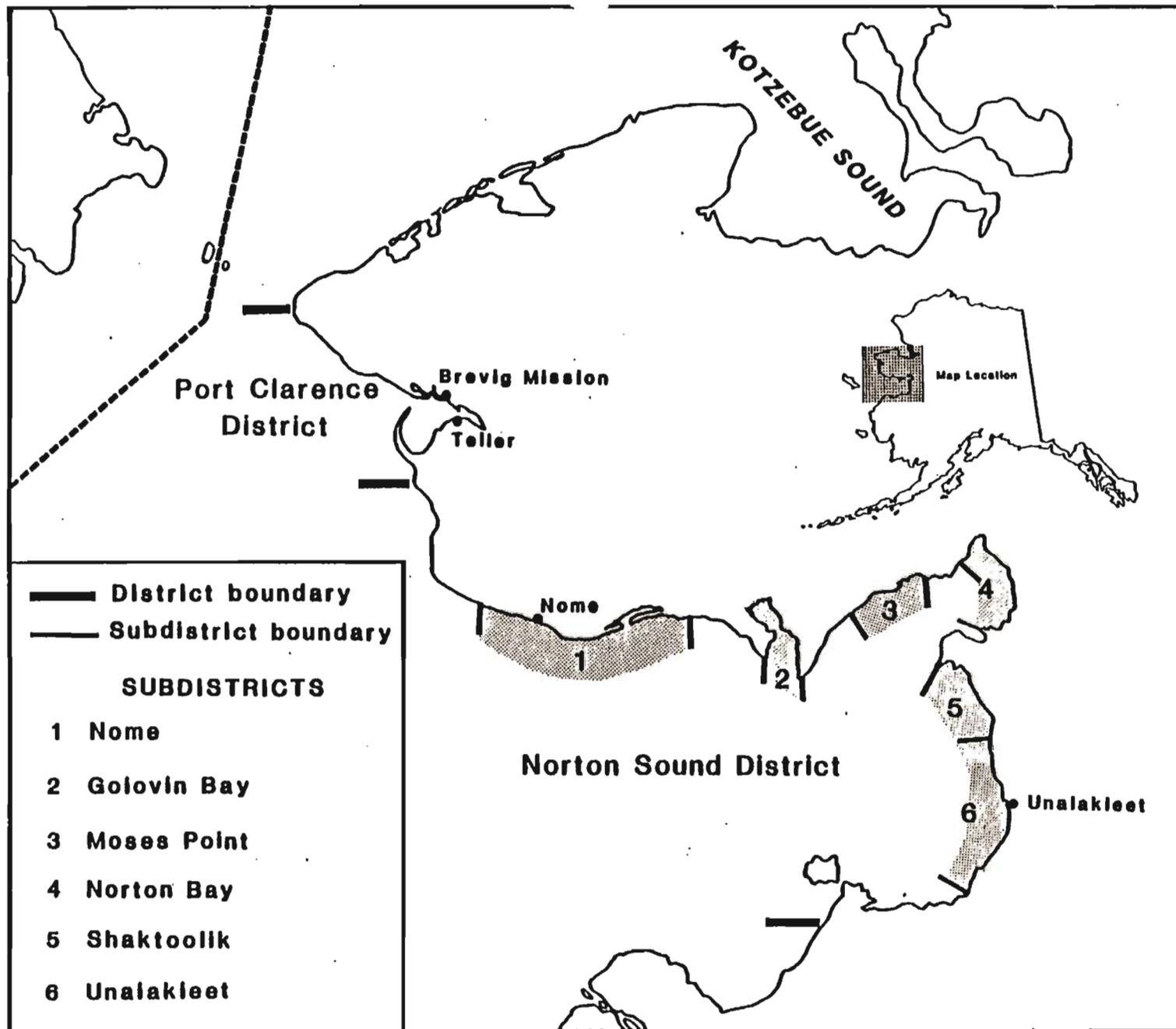


Figure 1. Norton Sound commercial salmon fishing subdistricts.