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NORTON SOUND AREA COMMERCIAL AND SUBSISTENCE
SALMON FISHERIES MANAGEMENT PLAN 1996

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and

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INTRODUCTION

The Norton Sound area extends from Cape Douglas south to Canal Point Light and includes over 500 miles of coastline (Figure 1). This area is divided into six subdistricts. Each subdistrict contains at least one major spawning stream with commercial fishing effort located in the ocean near stream mouths.

Five species of Pacific salmon occur in the area. Pink salmon are the most abundant species and are likely to be the second most important species for revenue production during the 1996 season. The even year returns are stronger than the odd year returns which have declined drastically since 1983, but now seem to be recovering. In recent years, chum salmon have also declined in abundance. Coho salmon have produced the most commercial value for two of the last three years. Chinook salmon have been the third most important commercial species. Markets for pink salmon have developed in recent years. Pink salmon are potentially the most important commercial salmon species and may displace all other salmon in value. Sockeye salmon are in low abundance and rarely occur in streams other than the Sinuk and Pilgrim River systems where small spawning stocks exist.

Staffing for salmon management within Norton Sound includes two management biologists, a fish culturalist, a field office assistant and fourteen seasonal employees during the summer months. Anticipated management projects in 1996 include: Kwiniuk River counting tower; Nome River counting tower; Niukluk River counting tower; Shaktoolik River counting tower; age and stock biology sampling; periodic aerial surveys of index spawning streams; catch sampling and monitoring efforts at Unalakleet and Moses Point; and test fishing on the main stem of the Unalakleet River. In addition to those department operated projects, the following cooperative projects involving both department staff and other agencies will operate during 1996: Snake River counting tower; Eldorado counting tower; and North river counting tower.

STATUS OF STOCKS AND FISHERIES

Commercial fishing began in 1961 in the Unalakleet and Shaktoolik Subdistricts; 1962 in the Golovin, Moses Point, and Norton Bay Subdistricts; and in 1964 in the Nome Subdistrict.

The 1995 combined commercial catch of 181,392 salmon of all species included 8,860 chinook, 128 sockeye, 47,862 coho, 81,644 pink and 42,898 chum salmon. The chinook harvest was 31% and 15% above the 1990-1994 and 1985-1994 averages, respectively. The coho harvest was 36% below the previous 5 and 10% below previous ten year average. Because pink salmon are not often a targeted species, the 1995 harvest was projected at 500,000. Recent odd year pink salmon returns have been significantly smaller than even year returns and the parent year

escapements during 1993 seemed sufficient to provide for a harvest of 500,000. The pink salmon harvest was weak and was less than 20% of preseason expectations. The chum harvest was 30% and 49% below the recent five and ten year averages due to the conservation measures and poor market conditions during the 1995 season. Historical catch data for the Norton Sound District is presented in Table 1.

A total of 172 CFEC permits were renewed of which 105 actually fished during the 1995 season. The number of participating fishermen was 24% below the 10 year average of 138 fishermen. Decreased effort levels typically occur when there is a drop in salmon returns or when prices are low. The northern subdistricts have historically landed approximately 50% of the total commercial chum salmon harvest, but did not participate during late June to mid-July portion of the season due to chum restrictions and poor markets.

Two primary salmon buyers operated in Norton Sound during the 1995 season. One buyer purchased fish during the chinook and coho salmon seasons while the other buyer bought only pink salmon. Chinook and coho salmon were delivered at Unalakleet and Nome using tenders and aircraft, where they were headed and gutted then frozen before being shipped airfreight to Anchorage markets. Pink salmon were tendered between subdistricts and offloaded on the processing vessel. 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 \$.66 per pound, \$.50/lb for sockeye, \$.43/lb for coho, \$.18/lb for pink, and \$.18/lb for chum salmon. The total value of the raw fish, \$356,912 was 30% below the previous 5 year (1990-1994) average.

1996 OUTLOOK

Salmon forecasts and harvest projections for the 1996 commercial salmon season are based on qualitative assessments of brood year returns, subjective determinations of fresh water overwintering survival and ocean survival, and projections of local market conditions. Salmon buyers will probably operate in only four of the six subdistricts of Norton Sound during 1996. The chinook salmon return is expected to be average with a commercial harvest ranging from 5,000 to 8,000 fish. The often uncertain pink salmon market is expected to be present in 1996. However, the record parent year class which potentially could have produced another record return was followed by a catastrophic flood that likely reduced egg survival. Consequently, the pink salmon return is unpredictable and the harvest could vary from 100,000 to 1,000,000. The 1996 chum salmon return is expected to be about average, while the market is likely to be weak. The commercial harvest of chum will be managed conservatively with an expected harvest from 20,000 to 80,000. Based on the 1992 returns, which is the primary parent year for the 1996 return, the 1996 potential coho salmon commercial harvest could be near average. Commercial coho salmon harvests are expected to range from 50,000 to 75,000.

GENERAL MANAGEMENT STRATEGIES

Each subdistrict is managed for a commercially targeted species for portions of the season. Regulations exist to allow fishing periods in which only gillnets with 4-1/2" mesh or less may be fished in order to target pink salmon.

The basic regulation that controls the commercial salmon harvest is the scheduled weekly fishing period. Once the season is underway, commercial fishing is generally allowed 4 days per week, from 6:00 p.m. Monday to 6:00 p.m. Wednesday and from 6:00 p.m. Thursday to 6:00 p.m. Saturday. The Nome and Moses Point Subdistricts are exceptions to this fishing schedule, where commercial fishing is allowed only 2 days per week, from 6:00 p.m. Monday to 6:00 p.m. Tuesday and from 6:00 p.m. Thursday until 6:00 p.m. Friday. If a market for pink salmon develops during the 1996 season, fishing periods may be modified to take full advantage of the relatively short period when volumes of high quality pink salmon are available.

Regulations provide for the commercial fishing season to be opened by emergency order between June 8 and June 20. However, due to late breakups during recent seasons, the commercial fishery has opened by emergency order after June 20 during some years. If breakup timing in Norton Sound is normal in 1996, and runs are not judged to be early and strong, the opening date will be approximately June 17 for chinook, June 24 for chum, July 1 for pink and July 25 for coho salmon. The season ends by regulation on August 31 in the Nome, Golovin, and Moses Point Subdistricts and on September 7 in the Norton Bay, Shaktoolik, and Unalakleet Subdistricts. If an early ice breakup occurs in Norton Sound, fishermen will be encouraged to relay early subsistence catch data to Department representatives.

Timing and abundance of the chinook salmon run will be monitored by Department personnel conducting fishermen interviews and operating a test net in the Unalakleet River. Once increasing catches have been observed for at least 7 days at the mouth of the Unalakleet River, the Unalakleet and Shaktoolik fisheries will be opened by emergency order. King salmon periods will be scheduled twice weekly and will be 24 hours in length.

Initial fishing periods in any subdistrict may be only 24 hours in duration until run strength and timing information allows an assessment of run strength. Salmon stocks are not only susceptible to over harvest in an particular year, but are also suseptable to overharvest in a single location or time period. An attempt will be made to distribute the Norton Sound pink salmon harvest over Subdistricts 2 through 6 to address this concern. Although most of the chum harvest is likely to occur in the early part of the migration, the total harvest will be below average during the 1996 season. Other species that are to be harvested at the higher traditional rates will be managed to distribute harvest over the full duration their migration.

Market demand requires the directed chum harvest occur while chum salmon are still bright before July 4. Directed commercial fisheries will occur on chinook, chum, pink and coho salmon.

Gear and time will be regulated to hold the harvest of chum salmon to 10,000 fish prior to July 10 from Subdistrict 2. Reduced fishing time may be required for conservation purposes if run magnitudes are below average and fishing effort remains high. Fishing time may be increased if run strength is judged to be strong or fishing effort is low. Effort, catch and escapement data will be compared with previous seasons to assess relative return strength for the current season.

Aerial surveys of index spawning streams will begin in early July and will continue through peak spawning periods in late July for chinook, chum, and pink salmon and mid-September for coho salmon. Catch and effort data from the commercial fishery will be compiled after each fishing period for each subdistrict. Counts of salmon moving past the Nome River, Niukluk River and Kwiniuk River counting towers and the Unalakleet River test fishery catches will be radioed on a daily basis to the Nome office. Inseason commercial catch rates and various escapement projects will be used as primary escapement indices since aerial surveys usually take place late in the season after effective conservation actions could be implemented in the fishery. Escapement objectives for chum salmon for selected Norton Sound index streams are presented in Table 2.

Commercial fishermen may not fish for subsistence purposes during weekly closures of the commercial fishing season. The purpose of this regulation is to minimize the illegal sale of subsistence caught salmon and ensure adequate spawning escapements. Commercial fishermen may retain a portion of their commercial catch for their own use or fish for subsistence before and after their commercial fishing season. Also, persons not engaged in commercial salmon fishing as CFEC permit holders, crew members, or tender boat personnel may fish for subsistence seven days per week in all subdistricts, except the Nome subdistrict and in the Unalakleet River.

The Alaska Board of Fisheries adopted a regulation in December 1984 allowing commercial fishermen to subsistence fish in the Unalakleet and Shaktoolik River drainages 7 days per week from July 15 to August 1 with beach seines and gillnets with mesh size of 4-1/2 inches or less. More recently, the Board adopted a regulation requiring commercial salmon fishermen to report their unsold salmon catch on their fish tickets. Unanchored subsistence nets are prohibited in the Unalakleet River from June 1 to July 15.

An informational program will be broadcast over a Nome public radio station to inform fishermen of current regulations, catches, escapements and department activities. Also, permanent personnel will periodically visit each fishery to disseminate fishery information and answer questions. The Unalakleet office will be open daily, except Sunday, throughout the season.

SPECIAL MANAGEMENT STRATEGIES

Nome Subdistrict

The cumulative fishing pressure of commercial, subsistence and sport fishing on local Nome Subdistrict stocks, which are less abundant than in other portions of Norton Sound, have required special management strategies. The Nome Subdistrict opens by regulation after July 1 although no commercial openings are anticipated during July. Unlike other subdistricts, nearly all the spawning streams are accessible by road to subsistence and sport fishermen. During the last five years (1991-1995), an average of 142 permits have been issued yearly for subsistence fishing in the Nome subdistrict. Reported subsistence harvests have averaged 2,836 chum salmon and over 7,677 total salmon during the last five years. During 1995, 107 permits were issued and 5,344 chum were caught from a total of 7,974 total salmon. The commercial fishery has been closed during June and July since 1990. Commercial fishing has not opened until August with less than 200 chum salmon being harvested incidentally to the coho salmon harvest since 1993.

Chum salmon escapement objectives for the seven major index streams (Sinuk, Snake, Nome, Flambeau, Eldorado, Bonanza and Solomon Rivers) totals about 18,000 fish. Maintaining escapements at these levels ensures that sufficient spawning will occur to perpetuate future salmon runs. During the five years prior to 1991, the Nome and Eldorado Rivers have averaged less than 2/3 of their individual escapement objectives. Conservative fisheries management actions, including closures of commercial, sport, and subsistence chum salmon fisheries were responsible for reversing the declining escapement trend during the past four seasons.

Fisheries management was changed beginning in the 1991 season for the Nome Subdistrict. All rivers in the subdistrict with subsistence salmon fisheries were closed on June 15 and remained closed until the escapement goal for a particular stream seemed assured or until the chum migration was no longer impacted. As escapement goals were approached in individual rivers, a relaxation of the restrictions on those rivers occurred. In those streams where escapements remained poor, the closures remained in effect until August 1. Chum escapements were monitored by aerial surveys and boat surveys throughout the summer. The escapements in 1991 were much improved, with most streams meeting their chum escapement goals. However, subsistence chum catches were slightly more than one-half the long term average. During 1992, a similar approach was used to manage the fishery. The record run of pink salmon that materialized during the second week of July allowed most streams to be opened for subsistence fishing except for chum salmon by beach seine. Escapement index counts for chum salmon were generally overwhelmed by the numbers of pinks and were not meaningful as a result. The strength of the pink salmon return has determined most of the subsistence salmon openings for the past five years. Odd years with weaker pink salmon returns have had strict subsistence closures in recent years. Management of the Nome Subdistrict will closely parallel that of the 1992 and 1994

seasons. Permit catch limits for Nome Subdistrict (also Port Clarence District) streams are presented in Table 3.

Golovin Subdistrict

The Golovin Subdistrict will be managed with a maximum chum salmon harvest of 10,000 prior to when the chum salmon return can be assessed in Mid-July. This action will essentially eliminate directed fishing for chum salmon because of quality and market response. Small incidental harvests of chum salmon are unavoidable during the pink and coho salmon directed fisheries. Significant incidental harvests are highly unlikely. If the chum salmon escapement goals do not appear likely to be met, fishing will be restricted. Fishermen may be required to release subsistence beach seine caught chum salmon. Closure of subsistence gillnet fishing may also be announced if inseason assessment of chum salmon returns suggest escapement goals are not being met.

Moses Point Subdistrict

Poor escapements on both the Kwiniuk and Tubutulik Rivers have been a concern in the management of the Moses Point chum salmon fishery for several years. Although the Kwiniuk River escapement goal has been decreased from 25,000 to 19,500 chum salmon, that goal has only been met three times since 1984. Commercial fishing will remain closed through June and July to protect the chum salmon stock. With the possible exception of a directed commercial pink salmon fishery.

Subsistence closures will be enacted if the chum salmon escapement is projected to fall significantly below the escapement requirements set for the Subdistrict. If subsistence closures are deemed necessary, an attempt will be made to minimize the impact on the subsistence harvest by allowing directed fishing on pink salmon.

Norton Bay Subdistrict

The Alaska Board of Fisheries approved a boundary change effective this season. The change is intended to enhance the quality of the salmon caught in Norton Bay. The Board was made aware of the fact that this movement in fishing effort was likely to target salmon bound for the Koyuk and Inglutalik Rivers and reduce the harvest of salmon bound for the Ungalik River. Salmon passing through the area are thought to be bound for rivers draining onto Norton Bay where salmon stocks seem healthy. The affect of the new regulation is expected to be a modest fishing effort in the vicinity of Six Mile Point to Isaac's Point. The interception of salmon bound for the Moses Point Subdistrict was not thought to be a significant concern.

The standard two 48 hour fishing per week will be allowed initially. Fishery participation will be monitored. Existing escapement indices are poor as are subsistence harvest indices. Staff will work with post-season indicators to assess impacts and work out management indices if appropriate over the next winter.

Unalakleet and Shaktoolik Subdistricts

Beginning in 1990, a few fishermen began drifting gillnets through the deep pools in the Unalakleet River where chinook salmon mill before moving up river to spawn. The large scale of this fishery and its timing after the more traditional commercial and subsistence fisheries again caused concern that the escapement needs were not being met. Prior to the 1993 season, a new regulation was put in place to prohibit the use of unanchored subsistence nets in the Unalakleet River from June 1 to July 15.

Unalakleet and Shaktoolik Subdistricts will be managed alike since past studies have shown salmon bound for these subdistricts intermingle and that harvests in one subdistrict most likely will affect the other. Only special problems like the one outlined above will cause management to target a single subdistrict with an action. Commercial salmon fisheries in June will be assumed to target chinook salmon, those in July, pink and in August the fisheries will target coho.

Given the poor chum salmon market projected for 1996, little or no directed chum harvests are expected for chum salmon. Conservation actions are unlikely to be required in these subdistricts on the behalf of chum salmon. The chinook and coho salmon openings will be conducted as they have been in recent years. Chinook salmon openings will be restricted to 24 hours in length and gillnet mesh will be greater than 7 1/2 inches. Coho salmon season is defined in regulation to begin August 1. Coho gear will be unrestricted and the standard periods will be in effect if there are no conservation concerns. It is important to spread the harvest proportionally over the entire run of the stocks that are being exploited at relatively high rates. In Norton Sound, king and coho salmon are fully exploited and care must be taken not to over harvest the early portion of the return or survival could be adversely affected.

A demand for pink salmon that could require a closure based on conservation during an even year exists for the first time in a decade this season. A normal even year return of pinks is expected so the following fishery restrictions will be in place to take advantage of the pink market during the special pink gear openings.

- 1) In the Shaktoolik Subdistrict, commercial pink salmon fishing will be allowed between the mouth of the Shaktoolik River and the first bluff at Foothills.
- 2) In the Unalakleet Subdistrict, commercial pink salmon fishing will be allowed between the mouth of the Egavik River and Black Point.
- 3) Only four and one-half inch stretched mesh or smaller gillnets will be allowed during pink salmon directed openings.

Table 1. Commercial salmon catches by species, Norton Sound District, 1961-1995.

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
1990	8,895	434	56,712	501	65,123	131,665
1991	6,608	203	63,647	221	86,871	156,789
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
1995	8,860	258	47,862	81,644	42,898	181,392
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5-Yr Avg ^a	6,752	258	74,240	229,394	61,448	372,092
10-Yr Avg ^b	7,653	342	53,439	126,886	86,213	272,532
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^a 1990-1994						
^b 1985-1994						

Table 2. Norton Sound chum salmon escapement objectives.^a

Subdistrict	Stream	Escapement Objective
1) Nome	Sinuk	4,500
	Snake	1,000
	Nome	2,000
	Flambeau	3,250
	Eldorado	5,250
	Bonanza	1,500
	Solomon	550
2) Golovin	Fish	17,500
	Niukluk	8,000
	Boston	2,500
	Kachavik	2,500
3) Moses Point	Kwiniuk ^b	19,500
	Tubutulik	12,000
4) Norton Bay	Ungalik	2,500
	Inglutalik	8,500
5) Shaktoolik	Shaktoolik	11,000
6) Unalakleet	North River ^b	3,500
	Upper Unalakleet	13,000
	Old Woman	2,000

^a Based on aerial survey counts which represent minimum escapement estimates unless otherwise noted.

^b Based on tower counts.

Table 3. Nome Subdistrict, Port Clarence District subsistence permit limits.

Nome Subdistrict

Nome River	250 salmon/family (no more than 20 chum and 20 coho)
Snake River	100 salmon/family (no more than 20 chum and 20 coho)
Sinuk River	100 salmon/family
Cripple River	100 salmon/family
Solomon River	100 salmon/family (no more than 20 chum and 20 coho)
Penny River	100 salmon/family
Flambeau River	200 salmon/family
Bonanza River	200 salmon/family
Eldorado River	200 salmon/family
Marine Waters	No catch limitations

Port Clarence District

Pilgrim River	20 salmon/family
Salmon Lake	No salmon/closed after 7/15
Kuzitrin River	100 salmon/family
Above the confluence of the Pilgrim River	

Note: All waters of the Nome Subdistrict are subject to weekly closures from June 15 to August 31. The Sinuk River is outside the Nome Subdistrict boundary and, therefore, subsistence fishing can occur 7 days a week. The Port Clarence District is also subject to weekly closures from July 1 until August 15.

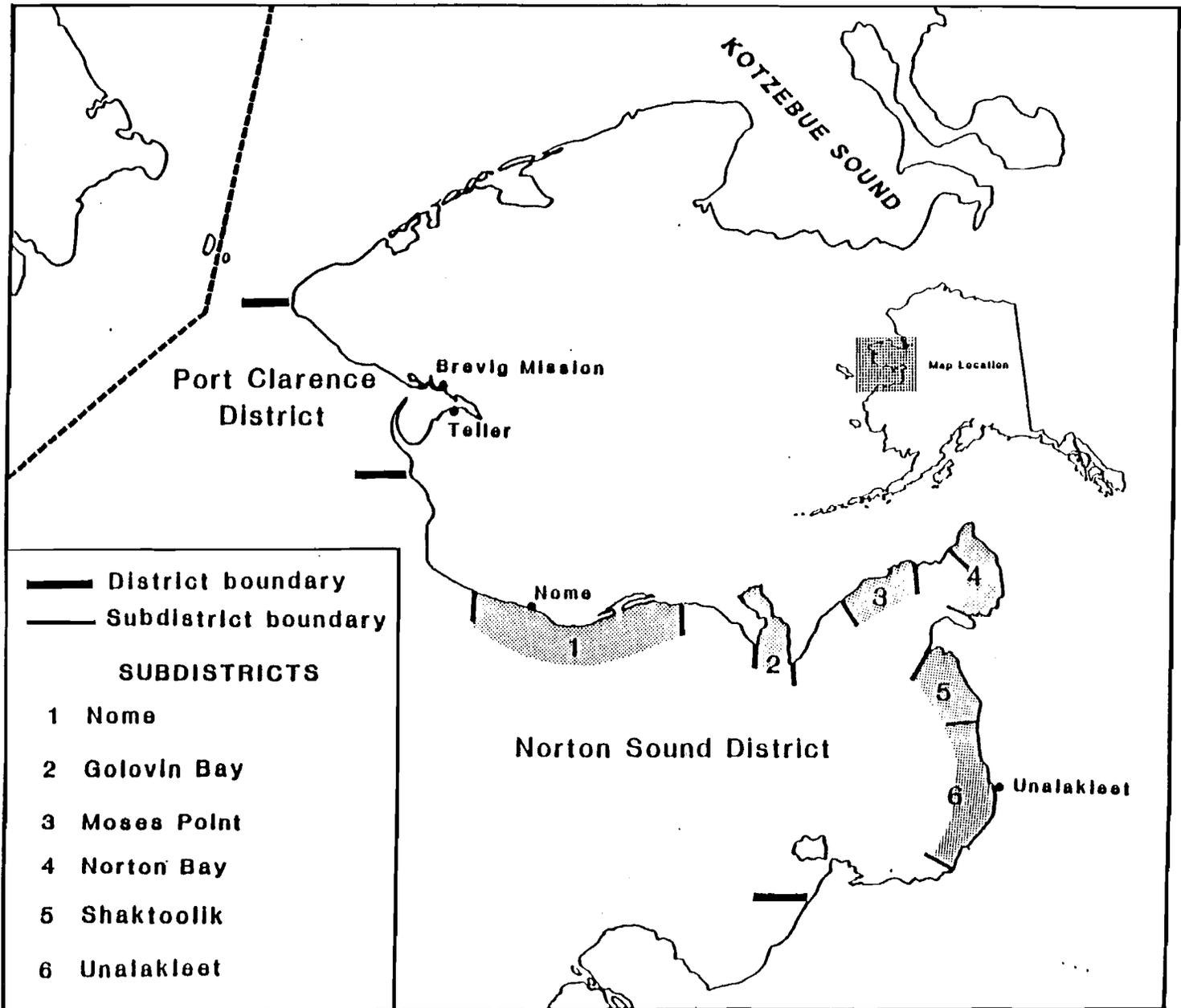


Figure 1. Norton Sound commercial salmon fishing subdistricts.

