NORTON SOUND AREA COMMERCIAL AND SUBSISTENCE SALMON FISHERIES MANAGEMENT PLAN 1991

By Charles Lean

and

Fred Bue

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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.

All five species of Pacific salmon occur in the area. Prior to 1985, pink salmon was the most abundant species. Since the record return of pink salmon in 1984, even year returns have declined slightly while odd year returns have declined drastically. In recent years, chum salmon have been the most abundant species, followed by coho, pink, and chinook salmon. Sockeye salmon occur only rarely and are in low abundance.

Staffing for management and research within Norton Sound includes two management biologists, one field office assistant and five seasonal employees during the summer months. Anticipated management and research projects in 1991 include: Kwiniuk River counting tower, periodic aerial surveys of index spawning streams, catch sampling and monitoring efforts at Unalakleet and Moses Point and test fishing on the main stem Unalakleet River.

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 1990 commercial catch of 131,665 salmon of all species included 8,895 chinook, 434 sockeye, 56,712 coho, 501 pink and 65,123 chum salmon. The chinook harvest was 4% and 9% above the 1985-1989 and 1980-1989 averages, respectively. The coho harvest was the third highest on record. The pink harvest was negligible due mostly to a lack of market. Historical catch data for the Norton Sound district is presented in Table 1.

During the 1990 season, 128 fishermen made at least one delivery. The number of participating fishermen during 1990 was the third lowest on record since total effort has been documented (1977 to present). The average effort during the previous 10 years (1980-1989) has been 154 fishermen. The low effort during the 1990 season can be attributed primarily to the lack of salmon markets during most of the season in the Northern subdistricts.

The cold temperatures and relatively small amounts of snowfall during the winters of 1981-1982 and 1983-1984 apparently contributed to the emergence of an odd-even year cycle of pink salmon returns. The past three odd year returns were well below the returns experienced during the 1978-1984 period. Even year returns were at high levels during the same time period; however, even with a record pink salmon return in 1984, the resultant 1986 return was well below the 5 year (1981-1985) and 10 year (1976-1985) averages.

The pink salmon market in Norton Sound has historically been very sporadic; therefore, catch statistics do not accurately reflect actual return strengths for this species from year to year. However, fishing effort and salmon markets have been fairly consistent in the Eastern Norton Sound subdistricts for over ten years. Thus, catch statistics, especially in the Unalakleet subdistrict, are an index of annual returns of chinook, coho, and chum salmon.

Commercial fishermen received approximately $497,623 for their catch in 1990. These earnings rank as the second lowest value on record since 1976, and were 16% below the 1985-1989 average of $595,388. 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 $1.01 per pound for chinook, $0.87 per pound for sockeye, $0.50 per pound for coho, $0.75 per pound for pink roe, and $0.23 per pound for chum salmon.

Outlook for 1991

Run forecasts and harvest projections for the 1991 commercial salmon season are based on qualitative assessments of brood year return strength, subjective determinations of survival of eggs and juvenile fish, and projected markets for the various subdistricts. In recent years fishermen in up to half the subdistricts have been unable to find buyers for their catch. Chinook escapements for primary parent years were average to slightly above average. Assuming relatively normal survival, the 1991 run should be average with a harvest ranging from 8,000 to 10,000. Pink salmon have small returns during odd numbered years and no market is anticipated for them; commercial sales are expecteded to be insignificant. Brood years for the chum salmon run had below average escapement. The chum salmon return is expected to be below average. If the recent lack of buyers continues, the commercial harvest is expected to fall between 50,000 and 100,000 chums. Coho salmon runs are expected to be near average, with the commercial harvest ranging from 20,000 to 40,000 salmon.

General Management Strategies

Each subdistrict is managed for a commercial target species, usually chum salmon, for most of the season. In years when an exceptionally large pink salmon run occurs, additional fishing periods can be provided in which only gill nets with 4-1/2" mesh or less may be fished.

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, with the exception of the Nome and Moses Point subdistricts where commercial fishing is allowed 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.

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 1990, and runs are not judged to be early and strong, the opening date will be approximately June 15. 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 test nets 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.

Norton Bay, Moses Point and Golovin subdistricts are managed initially for chum salmon and are not opened to fishing until chums are observed entering freshwater in those districts. The Nome Subdistrict opens by regulation after July 1. Initial fishing periods may be only 24 hours in duration until additional run strength and timing information allows as assessment of run strength. Fishing periods will not exceed 24 hours in the Nome and Moses Point subdistricts.

Reduced fishing time may be required for conservation purposes if run magnitudes are below average and fishing effort remains high. Effort, catch and escapement data will be compared with previous seasons to assess relative return strength for the current season. Action to bolster chum salmon escapements should be initiated on or before the second week of July. By that time roughly 50% of the chum return should have entered the rivers and limited time remains for effective management action.

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 Kwiniuk River counting tower, and the Unalakleet River test fishery catches will be radioed on a daily basis to the Nome office. In season commercial catch rates and various escapement projects are used as primary escapement indices. 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 insure adequate spawning escapements. Commercial fishermen may retain a portion of their commercial catch for personal use or fish for subsistence before and after their commercial fishing season. Except, in the Unalakleet and Shaktoolik Rivers commercial fishermen may use gill nets and beach seines with mesh sizes not exceeding four and one-half inches to take salmon. Also, persons not engaged in commercial

salmon fishing as CFEC permit holders, crew members, or tender boat personnel may subsistence fish 7 days a week in all subdistricts, except the Nome subdistrict, and in the Unalakleet River. The Alaska Board of Fisheries adopted a regulation in December 1984 which became effective during the 1985 season 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 gill nets with mesh size of 4-1/2 inches or less.

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 stocks, which are less abundant than in other portions of Norton Sound, requires special management strategies. Unlike other subdistricts, nearly all the spawning streams are accessible by road to subsistence and sport fishermen. During the last five years (1986-1990), an average of 208 permits have been issued yearly for subsistence fishing in the Nome subdistrict. Reported subsistence harvests have averaged over 10,450 salmon during the past 5 years. The commercial fishery, which targets chum salmon during most years, has been managed very conservatively due to the importance of subsistence fishing, the limited abundance of local chum salmon stocks and the interception of other stocks bound for Kotzebue Sound, Port Clarence and eastern Norton Sound fisheries. Commercial catches have averaged approximately 4,704 chum salmon over the 5 years, 1985 to 1989. There was no buyer during the 1990 season.

Chum salmon escapement objectives for the five major index streams (Nome, Eldorado, Bonanza, Flambeau and Sinuk Rivers) totals about 16,500 fish. Maintaining escapements at these levels ensures that sufficient spawning will occur to perpetuate future salmon runs. During the most recent five years the Nome and Eldorado Rivers has averaged less than 2/3 of the escapement objective.

Although management of the Nome Subdistrict fisheries has grown more conservative over the last ten years, chum salmon escapements have dropped off dramatically. During the 1990 season, chum salmon escapement was generally less than one-quarter of the escapement goals set for the area. The fishery managers responsible for the area have decided to change the management strategy used to manage the subdistrict during the chum salmon migration. All rivers in the subdistrict with salmon fisheries will close June 15 and will remain closed until the escapement goal for a particular stream seems assured or until the chum migration will no longer be impacted. If those goals are approached in individual rivers, a relaxation of the restrictions on those rivers will occur. However, if escapements remain poor the closures will remain in effect until August 1. Chum escapements will be monitored by aerial surveys and boat surveys

throughout the summer. Patrols of the subdistrict will be conducted by Fish and Wildlife Protection officers both by road, plane and boat. Permit catch limits for Nome subdistrict (also Port Clarence district) streams are presented in Table 3.

Golovin Subdistrict

Poor market conditions caused the commercial fishery at Golovin to operate only three periods during the 1990 season. Should a market develop during 1990 fishing periods will be adjusted to insure adequate escapement while maximizing harvest of chum salmon.

Moses Point Subdistrict

Poor escapements on both the Kwiniuk and Tubutulik Rivers have been a concern in the management of the Moses Point chum fishery for several years. During the past 5 years the Kwiniuk River escapement goal has only been met once. Commercial fishing periods will be held to 24 hours twice each week until the escapement goals are assured.

Unalakleet and Shaktoolik Subdistricts

During the chinook salmon run in late June, increased subsistence fishing effort was observed in the lower Unalakleet River in 1983 and 1984. As many as 30 nets were observed in the first mile of the river. Household subsistence surveys were conducted in Unalakleet in 1983 and 1984 documenting a reported chinook salmon harvest of 1,868 and 1,650, respectively. These represent the largest catches on record and more than double the previous 5 year average catch (1978-1982). Approximately 80% of the 1983-84 harvest was taken from the Unalakleet River with the average fisherman reporting a harvest of about 25 chinook salmon. Again, during the 1985-1988 period, large concentrations of nets were observed in the lower mile of the Unalakleet River. The lack of accurate and complete historical chinook salmon escapement data for the Unalakleet drainage has made it difficult to judge what the effect of an increased catch will have on the reproductive potential of the stock. There is concern that the increasing subsistence harvest coupled with the commercial harvest may reduce escapement to such a degree that the reproductive potential of the stock may be damaged.

Also during the 1986 and 1987 seasons, nets apparently left untended were found to contain decomposing chinook salmon. For this reason, in addition to concern for the reproductive potential of this highly valued salmon species, the Alaska Board of Fisheries adopted several new regulations during their December 1987 meeting.

Commercial Fishery:

Provide for commercial gill net mesh size reduction during periods established by emergency order.

Sport Fishery:

Reduce the sport fishery bag and possession limit for chinook salmon in the Unalakleet River drainage to one salmon.

Subsistence Fishery:

Establish a fishing period for the Unalakleet subsistence salmon fishery of 8:00 a.m. Monday through 8:00 p.m. Saturday in the Unalakleet River with gill nets of no more than 25 fathoms, from June 1 - July 15.

It is intended, through the use of emergency order regulations, to allow the Department the flexibility to shift commercial fishing effort from chinook salmon to the smaller salmon species, by enacting a restriction in the mesh size of the commercial gear. If subsistence fishing effort remains high in the lower Unalakleet River in 1989, commercial fishing time will additionally be reduced so that adequate escapement can occur. As in 1987 and 1988, commercial fishing time may be restricted to 2 days per week if it appears adequate escapements are not occurring even with the use of mesh size restriction regulations. If commercial fishing time is restricted in the Unalakleet subdistrict it is possible fishermen will move north to the Shaktoolik subdistrict where fishing periods are longer. If this happens, fishing pressure will continue on Unalakleet bound fish traveling through the Shaktoolik subdistrict and will also increase on Shaktoolik stocks. Since neither of these results are desired, fishing time would also be reduced or staggered in the Shaktoolik subdistrict.

The reduction of sport bag and possession limits for the Unalakleet River was enacted by the Board in an attempt to reduce chinook salmon harvests and to allow for adequate escapement.

The new subsistence regulation which will provide a 36 hour period when no nets may be fished in the Unalakleet River during the chinook return is an effort to reduce wastage as well as improve escapement.

Table 1. Commercial salmon catches by species, Norton Sound District, 1961-1990.

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
5-Yr Avg [a]	8,535	425	32,637	24,379	106,978	172,954
10-Yr Avg [b]	8,157	226	43,389	100,830	153,460	306,063

[a] 1985-1989
[b] 1980-1989

Table 2. Norton Sound chum salmon escapement objectives.[a]

Subdistrict	Stream	Escapement Objective
1) Nome	Sinuk	4,500
	Nome	2,000
	Flambeau	3,250
	Eldorado	5,250
	Bonanza	1,500
2) Golovin	Fish	17,500
	Niukluk	8,000
	Boston	2,500
3) Moses Point	Kwiniuk[b]	25,000
	Tubutulik	12,000
5) Shaktoolik	Shaktoolik	11,000
6) Unalakleet	North River[b]	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
Solomon River	100 salmon/family
Penny River	200 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	No sockeye/20 salmon/family
Salmon Lake	No salmon/closed after 7/15
Kuzitrin River Above the confluence of the Pilgrim River	No sockeye/100 salmon/family

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.

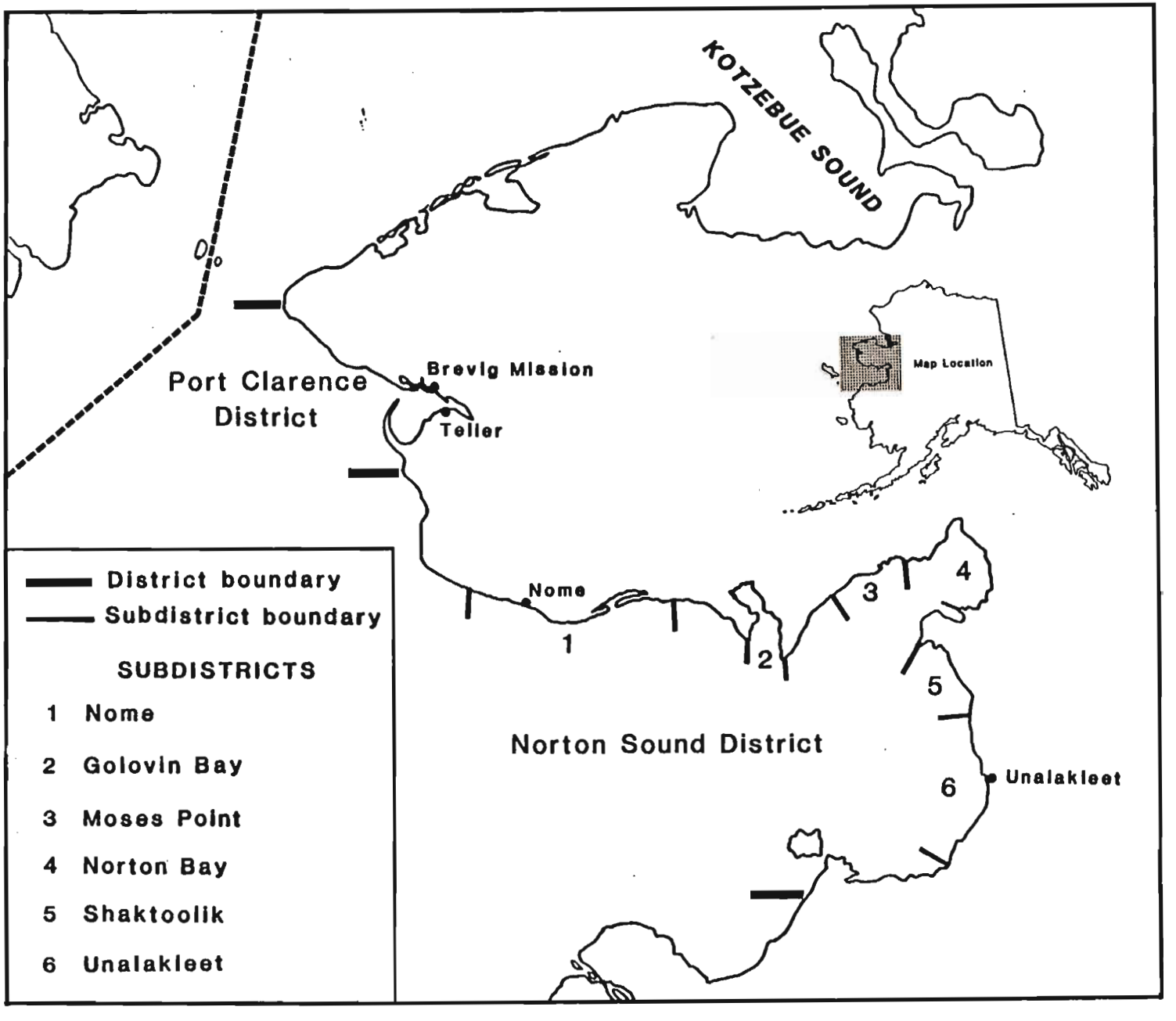

Figure 1. Norton Sound commercial salmon fishing subdistricts.

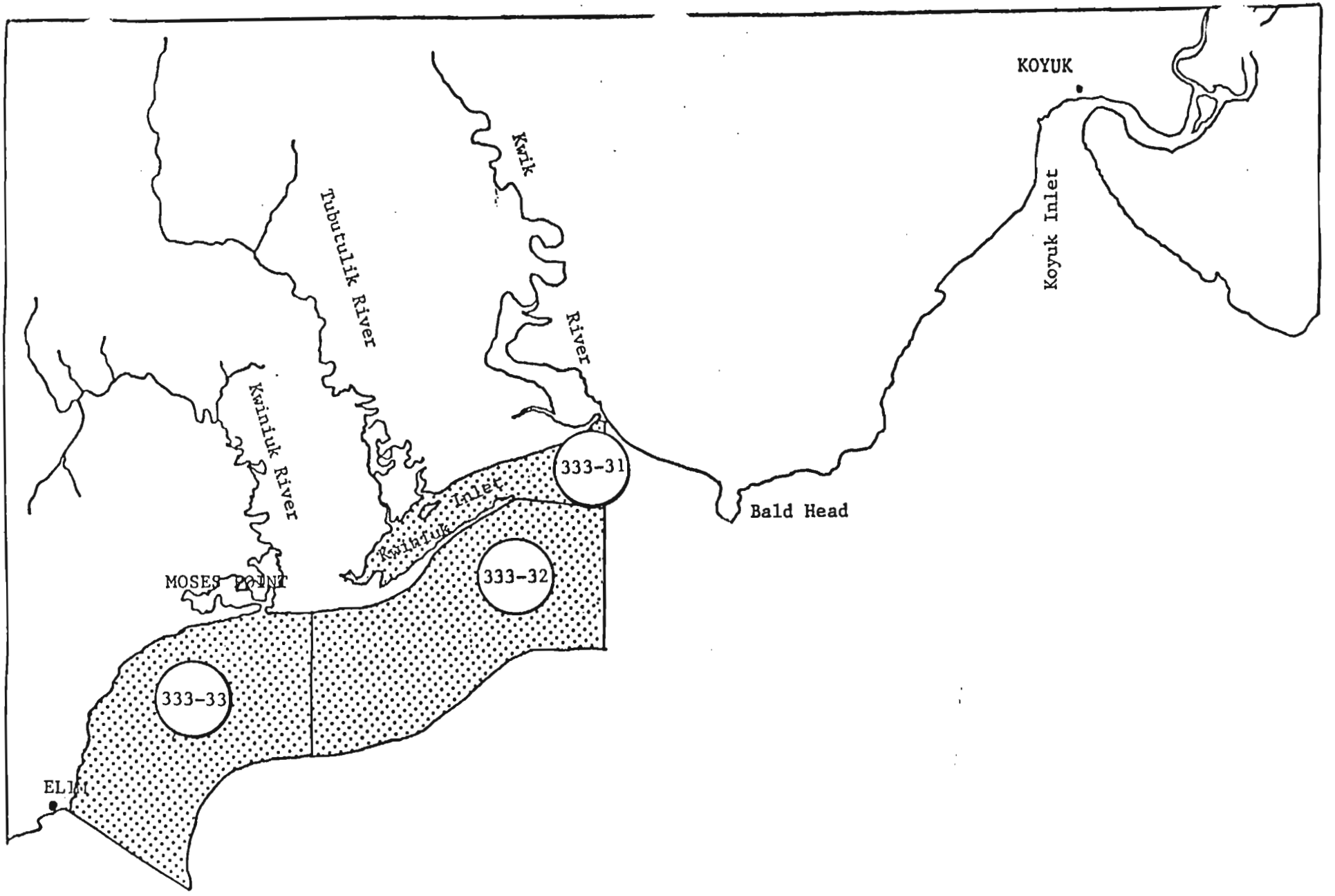

Figure 2. Statistical areas of the Moses Point commercial salmon fishing subdistrict, Norton Sound.