

Regional Information Report No. 3A09-03

2009 Norton Sound Salmon Fisheries Management Plan

by

Jim Menard

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Alaska Department of Fish and Game

Division of Commercial Fisheries



Symbols and Abbreviations

The following symbols and abbreviations, and others approved for the *Système International d'Unités* (SI), are used without definition in the following reports by the Divisions of Sport Fish and of Commercial Fisheries: Fishery Manuscripts, Fishery Data Series Reports, Fishery Management Reports, Special Publications and the Division of Commercial Fisheries Regional Reports. All others, including deviations from definitions listed below, are noted in the text at first mention, as well as in the titles or footnotes of tables, and in figure or figure captions.

Weights and measures (metric)		General		Measures (fisheries)	
centimeter	cm	Alaska Administrative Code	AAC	fork length	FL
deciliter	dL			mid-eye-to-fork	MEF
gram	g	all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.	mid-eye-to-tail-fork	METF
hectare	ha			standard length	SL
kilogram	kg			total length	TL
kilometer	km	all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.		
liter	L	at	@	Mathematics, statistics <i>all standard mathematical signs, symbols and abbreviations</i>	
meter	m	compass directions:		alternate hypothesis	H _A
milliliter	mL	east	E	base of natural logarithm	<i>e</i>
millimeter	mm	north	N	catch per unit effort	CPUE
		south	S	coefficient of variation	CV
Weights and measures (English)		west	W	common test statistics	(F, t, χ^2 , etc.)
cubic feet per second	ft ³ /s	copyright	©	confidence interval	CI
foot	ft	corporate suffixes:		correlation coefficient (multiple)	R
gallon	gal	Company	Co.	correlation coefficient (simple)	r
inch	in	Corporation	Corp.	covariance	cov
mile	mi	Incorporated	Inc.	degree (angular)	°
nautical mile	nmi	Limited	Ltd.	degrees of freedom	df
ounce	oz	District of Columbia	D.C.	expected value	<i>E</i>
pound	lb	et alii (and others)	et al.	greater than	>
quart	qt	et cetera (and so forth)	etc.	greater than or equal to	≥
yard	yd	exempli gratia (for example)	e.g.	harvest per unit effort	HPUE
		Federal Information Code	FIC	less than	<
Time and temperature		id est (that is)	i.e.	less than or equal to	≤
day	d	latitude or longitude	lat. or long.	logarithm (natural)	ln
degrees Celsius	°C	monetary symbols (U.S.)	\$, ¢	logarithm (base 10)	log
degrees Fahrenheit	°F	months (tables and figures): first three letters	Jan, ..., Dec	logarithm (specify base)	log ₂ , etc.
degrees kelvin	K	registered trademark	®	minute (angular)	'
hour	h	trademark	™	not significant	NS
minute	min	United States (adjective)	U.S.	null hypothesis	H ₀
second	s	United States of America (noun)	USA	percent	%
		U.S.C.	United States Code	probability	P
Physics and chemistry		U.S. state	use two-letter abbreviations (e.g., AK, WA)	probability of a type I error (rejection of the null hypothesis when true)	α
all atomic symbols				probability of a type II error (acceptance of the null hypothesis when false)	β
alternating current	AC			second (angular)	"
ampere	A			standard deviation	SD
calorie	cal			standard error	SE
direct current	DC			variance	
hertz	Hz			population	Var
horsepower	hp			sample	var
hydrogen ion activity (negative log of)	pH				
parts per million	ppm				
parts per thousand	ppt, ‰				
volts	V				
watts	W				

REGIONAL INFORMANTION REPORT NO. 3A09-03

2009 NORTON SOUND SALMON FISHERIES MANAGEMENT PLAN

by
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ABSTRACT

This management plan provides the expected run outlooks, management issues, and harvest strategies for Norton Sound salmon fisheries in 2009. Commercial and subsistence salmon fisheries occur in Norton Sound and the area is comprised of two commercial fishing districts, the Norton Sound District and the Port Clarence District. The Norton Sound District extends from Cape Douglas south to Point Romanof and includes over 500 miles of coastline. The area open to commercial salmon fishing 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. The Port Clarence District encompasses all waters from Cape Douglas north to Cape Prince of Wales. The area open to commercial salmon fishing is near the villages of Teller and Brevig Mission. Management strategies may change inseason based upon assessment of Chinook *Oncorhynchus tshawytscha*, chum *O. keta*, sockeye *O. nerka*, pink *O. gorbuscha*, and coho *O. kisutch* salmon runs.

Key words: Norton Sound, Port Clarence, Chinook, *Oncorhynchus tshawytscha*, chum, *O. keta*, sockeye, *O. nerka*, pink, *O. gorbuscha*, coho, *O. kisutch*, outlook, subsistence, commercial, fishing, strategy, management plan.

INTRODUCTION

Norton Sound is comprised of two fishing districts, the Norton Sound District and the Port Clarence District (Figure 1). The Norton Sound District extends from Cape Douglas south to Point Romanof and includes over 500 miles of coastline. The area open to commercial salmon fishing 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. The Port Clarence District encompasses all waters from Cape Douglas north to Cape Prince of Wales. The area open to commercial salmon fishing is adjacent to the communities of Brevig Mission and Teller (Figure 2).

Alaska Department of Fish & Game (ADF&G) staffing for salmon management within Norton Sound includes two biologists, one program technician and 19 seasonal employees during the summer months. Norton Sound Economic Development Corporation (NSEDC) funds 10 interns to work on ADF&G projects and cooperative projects between NSEDC and ADF&G. Anticipated management projects in 2009 include: Kwiniuk River counting tower; Nome River weir; Niukluk 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 of the Unalakleet River. ADF&G staff will also track the salmon escapement counts reported on other cooperative projects administered by NSEDC on the following rivers: North, Snake, Eldorado, and Pilgrim and Sinuk (Glacial Lake).

2009 RUN OUTLOOK

Salmon outlooks and harvest projections for the 2009 salmon season are based on qualitative assessments of parent-year escapements, subjective determinations of freshwater overwintering and ocean survival, and in the case of the commercial fishery, the projections of local market conditions. Except for Chinook salmon and Golovin Subdistrict chum salmon there have been near record to record runs for all salmon species in most river drainages in Norton Sound since 2004. Parent-year escapements for Chinook salmon have been mostly poor in the 2000s. Parent-year escapements in 2005 were fair for chum and parent-year escapements in 2004 for this year's returning 5-year old chum salmon were poor to fair. Parent-year escapements for coho salmon

were good. Pink salmon parent-year escapements were average for an odd-numbered year, but had dropped considerably from the 2005 escapements.

The excellent salmon runs in recent years for most species indicates good ocean survival conditions and will likely help to counter poor parent-year escapements for this year's returning salmon. ADF&G is cautiously optimistic that most salmon runs in Norton Sound will be average and that the coho salmon run will be above average. However, because of poor parent-year escapements for many salmon species, ADF&G will take action to restrict fisheries if salmon runs show early signs of being weak.

The Chinook salmon run is expected to be weak and no commercial fishing targeting Chinook salmon is expected. Subsistence restrictions are expected again in southern Norton Sound. The Chinook salmon harvest will likely be low as an incidental catch in other salmon directed fisheries. Chum salmon runs are expected to be average, but limited commercial fishing targeting chum salmon is expected. There is some buyer interest in chum salmon this year and the harvest could be 50,000 to 75,000 fish. The only expected subsistence restrictions for chum salmon will be in the Nome Subdistrict where catch limits will be in effect. In the last several years there have been record breaking pink salmon runs in many locations when compared to the respective even- and odd-numbered year run cycles. However, in 2007 the pink run was average for an odd-numbered year and well below the run in 2005. In 2009, ADF&G expects the pink salmon run to be average and limited buyer interest for a commercial fishery. Because of limited markets the harvest will likely be less than 100,000 pink salmon. The coho salmon run in 2009 is expected to be above average based on good ocean survival conditions in recent years and the near record and record runs in recent years in southern Norton Sound. The commercial harvest is expected to be 80,000 to 100,000 fish and no subsistence fishing restrictions are expected, except for catch limits in the Nome Subdistrict.

The guideline harvest level (GHL) set by the Alaska Board of Fisheries (BOF) for the Port Clarence sockeye fishery allows for a harvest of up to 10,000 sockeye salmon. Based on excellent runs of sockeye salmon in recent years ADF&G expects the GHL would be reached if there is a sufficient fishing fleet. However, no more than 4 permit holders have fished since the Port Clarence District reopened to commercial fishing in 2007 and if the pattern of low effort continues the GHL would not be expected to be reached.

MANAGEMENT STRATEGIES

ADF&G staff will manage salmon fisheries to ensure that sufficient escapement occurs to the spawning grounds. Subsistence fishing will need to be restricted or closed if concerns for escapement arise. Commercial fishing will be allowed if a market is available and if the commercial fishery is not expected to jeopardize escapement or reasonable opportunity for subsistence fishing. Periodically, informational updates will be broadcast over Nome public radio stations to inform fishers of current regulations, catches, escapements and ADF&G activities. Also, biologists will attempt to visit each fishery to disseminate fishery information and answer questions. The Unalakleet office will be open daily, except Sunday, throughout the season. The public may also call the Nome office at the toll-free number of 1-800-560-2271 or the regular number of 443-5167 for information.

NOME SUBDISTRICT

Salmon management in 2009 in the Nome Subdistrict is expected to be similar as last year. There will be no Tier II subsistence fishing restrictions because the chum salmon surplus above escapement needs is expected to exceed the amount necessary for subsistence (ANS). All subsistence salmon fishing will require Tier I permits. In the last several years, exploitation of chum stocks in the Nome Subdistrict has been less than 5%. In 2006, 2007, and 2008 there were no Tier II restrictions, and all who applied for a Tier II permit by the deadline in 2004 and 2005, including the 10 day appeal period, received a permit.

In marine waters subsistence fishing is allowed 7 days a week prior to June 15 and after August 15. From June 15 through July 25 the marine waters of the subdistrict will be open to set gillnet fishing from 6 p.m. Thursday until 6 p.m. Sunday and from July 26 through August 15 will be open from 6 p.m. Monday until 6 p.m. Saturday. In fresh waters subsistence fishing is open 7 days a week prior to June 15 and after August 31. Beginning June 15 through August 31 subsistence set gillnet fishing will be open from 6 p.m. Monday until 6 p.m. Wednesday and from 6 p.m. Thursday until 6 p.m. Saturday. All state residents are eligible to receive a Tier I subsistence permit. The fishing schedule listed above will be in effect unless reduced or closed by emergency order because of weaker than expected salmon runs.

Harvests limits for salmon vary by marine and fresh waters. Marine and stream-specific harvest limits will be listed in the subsistence salmon fishing permits or the attachment given to subsistence fishers at the same time the permit is issued. Permit catch limits for Nome Subdistrict and Port Clarence District streams are listed in Table 2.

ADF&G will use the Eldorado River weir counts as an indicator of chum salmon run strength in the Nome Subdistrict east of Cape Nome. If the Eldorado River chum salmon escapement begins to lag behind historical run timing curves and indicates that the escapement goal range will likely not be met, then marine fishing periods will be suspended as well as fishing periods in the river. The Eldorado River escapement is expected to be met in 2009 and early escapement counts from the weir will be used to confirm that the run is tracking as expected. The Eldorado River weir counts will be used as index for escapement for the Flambeau, Bonanza and Solomon Rivers and aerial surveys will be used to confirm that escapement has been reached on those rivers. If aerial survey counts show escapement to be lagging then fresh water fishing periods will be suspended.

ADF&G will use the Nome River and Snake River escapement counts as an indicator of chum salmon run strength in the Nome Subdistrict west of Cape Nome. If either the Nome and Snake weir counts project that the chum salmon escapement goal range will not be reached, then marine fishing periods will be suspended and fresh water fishing in the river with lagging escapement counts will be closed. The Cripple and Penny Rivers are closed by regulation to subsistence chum salmon fishing. The Sinuk River is expected to reach the chum salmon escapement goal in 2009 and another average run of sockeye salmon is expected.

Commercial fishing for chum salmon is closed by regulation, and commercial fishing for other salmon species is not expected to occur in 2009.

GOLOVIN SUBDISTRICT

Low chum salmon runs have kept the subdistrict closed to commercial chum salmon fishing for most of the 2000s, but commercial fishing for pink salmon may occur if there is buyer interest.

The 2009 chum run is not expected to be strong enough to allow a commercial harvest and reach escapement goals. There is the possibility of limited commercial coho salmon fishing if there is buyer interest. The coho salmon run is expected to be average.

Permits are required when subsistence salmon fishing and few restrictions to fishing are expected. In most years in the last decade the harvests of chum salmon have been less than 5% of the run. The coho salmon run is expected to reach the minimum escapement goal of 2,400 coho salmon past Niukluk River tower. However, a restriction in subsistence fishing time or a closure in late August may occur if the run is not projected to reach escapement. In the last decade, the subsistence harvest of coho salmon has been less than 15% of the run for most years.

MOSES POINT SUBDISTRICT

No subsistence salmon fishing restrictions have occurred in this subdistrict in 20 years and no restrictions are expected in 2009. Subsistence permits are required when subsistence salmon fishing in the marine or fresh waters of the Moses Point Subdistrict.

No commercial fishing is expected for Chinook salmon because of an expected weak run. There is the possibility of commercial fishing for chum and pink salmon if a market is available. Also, there is the possibility of commercial coho salmon openings depending on buyer availability and sufficient escapement as indicated by historical comparisons of the Kwiniuk River aerial survey and tower counts and subsistence fishing catch reports.

NORTON BAY SUBDISTRICT

In 2008 there was commercial fishing, for the first time in 10 years, in the Norton Bay Subdistrict. Previous to 2008 salmon markets had not been sufficient to attract interested fishers or buyers. Existing inseason escapement monitoring indices and subsistence harvest indices for this subdistrict are not reliable and ADF&G will use information from nearby subdistricts to determine if commercial fishing time is warranted. Chum, pink and coho salmon directed fisheries are possible in 2009. No subsistence restrictions are expected.

UNALAKLEET AND SHAKTOOLIK SUBDISTRICTS

Unalakleet and Shaktoolik Subdistricts will be managed as one fishery because past studies have shown salmon bound for these subdistricts intermingle and that harvests in one subdistrict most likely will affect the other. If there is a sufficient salmon surplus for commercial fishing a fishery will occur. However, no commercial fishing is expected for Chinook salmon because of recent poor runs and poor parent-year escapements. If there is a market interest, chum and pink salmon will be targeted in July. A chum salmon fishery would likely occur after July 13 to allow more time for Chinook salmon to pass through the subdistricts. ADF&G will switch to coho management in late July and a commercial fishery is expected.

Timing and abundance of the Chinook salmon run will be monitored by ADF&G personnel conducting interviews with subsistence fishers and Chinook salmon passage estimates from a tower located on the North River, an important Chinook salmon spawning tributary in the Unalakleet River drainage. The escapement goal range for the North River is 1,200 to 2,600 Chinook salmon and the aerial survey escapement goal range for the Unalakleet River and Old Woman River index area is 550 to 1,100 Chinook salmon. For a commercial fishery to occur, ADF&G must project an escapement of a minimum of 1,900 Chinook salmon past the North

River tower. However, if the Chinook salmon run is as poor as expected, commercial fishing will not be allowed and subsistence fishing time may be suspended.

This year will be the third year a subsistence fishing schedule will be in effect beginning in mid-June in Subdistricts 5 and 6 to protect Chinook salmon. Beginning June 15, the subsistence fishing schedule in the marine waters of Shaktoolik and Unalakleet Subdistricts will be from 6:00 p.m. Monday until 6:00 p.m. Wednesday and from 6:00 p.m. Thursday until 6:00 p.m. Saturday, and the schedule in the Unalakleet River will be from 8:00 a.m. Monday until 8:00 p.m. Tuesday and from 8:00 a.m. Friday until 8:00 p.m. Saturday.

In the 2000s, the number of larger Chinook salmon reaching the spawning grounds has been in serious decline based on age and sex composition of fisheries harvests, and test net and beach seine catches. Concerns have been expressed by fishers about the lack of larger Chinook salmon on the spawning grounds of the Unalakleet River drainage. To address these concerns subsistence gillnet mesh size will likely be restricted to no more than 6 inches in the Unalakleet River in late June through mid-July to conserve older, larger Chinook salmon. Also, if the run is as poor as expected, ADF&G may need to restrict gillnet mesh size to 6 inches or less in the marine waters of Subdistricts 5 and 6 in late June. A subsistence gillnet closure will occur in both subdistricts and the Unalakleet River the first weekend of July if it is projected that the North River tower Chinook salmon passage will not exceed the lower end of the escapement goal range. However, if projections show the Chinook salmon escapement goal range will likely be met then the subsistence fishing schedule will remain in effect through July 15.

There is the possibility of chum or pink salmon directed fishing periods in July. If Chinook salmon escapements are lagging then other salmon directed fisheries may need to be restricted to minimize Chinook salmon interception. Chum directed fishing periods will have gear restricted to a maximum mesh size of 6 inches and pink directed fishing periods will have gear restricted to a maximum mesh size of 4.5 inches.

If there is sufficient run strength, coho salmon openings will continue to occur as they have been in recent years. The coho season is considered to begin July 25. Coho gear will be restricted to a maximum mesh size of 6 inches and the regular 48-hour periods will be in effect if there are no escapement concerns.

PORT CLARENCE DISTRICT

A commercial fishery for sockeye salmon may occur in the Port Clarence District with openings established by emergency order. ADF&G may allow for some early season commercial openings prior to the regular July 1 opening date to determine if sockeye salmon to chum salmon catch ratios are higher in June. The last 2 years the commercial salmon catch for each period in July had more chum salmon than sockeye salmon. The commercial salmon fishing area is all waters inside of the ADF&G regulatory marker from the western tip of Cape Riley to the ADF&G regulatory marker at the entrance to Brevig Lagoon and from the ADF&G regulatory marker at Four Mile Point across Grantley Harbor to the mouth of Sunset Creek.

If subsistence fishing reports indicate normal catches of sockeye salmon, then commercial fishing will be allowed with openings announced by emergency order. Continued commercial fishing will be dependent on sufficient subsistence fishing catches and an inriver goal of 30,000 sockeye salmon projected to be met at Pilgrim River.

Subsistence salmon fishing permits are required for the Port Clarence District, Pilgrim River drainage and Salmon Lake. Catch limits are listed on subsistence permits and in Table 2.

The sockeye salmon runs in the Pilgrim River have greatly improved in recent years as the last 6 years have had record passage through the Pilgrim River weir ranging from 20,452 to 85,417 sockeye salmon. ADF&G will compare the 2009 run with escapement counts from the last few years at the weir and historical counts from previous years previous years of aerial surveys of Salmon Lake to determine if fishing restrictions are necessary. No subsistence fishing time restrictions are expected in 2009, but if the weir project and aerial surveys indicate poor runs of a particular species ADF&G may need to implement fishing restrictions.

TABLES AND FIGURES

Table 1.—Commercial salmon catches by species, Norton Sound District, 1961–2008.

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	124,409
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	350,401
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	37,214	74,604	107,966	225,132
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	0	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	128	47,862	81,644	42,898	181,392
1996	4,984	1	68,206	487,441	10,609	571,241
1997	12,573	161	32,284	20	34,103	79,141
1998	7,429	7	29,623	588,013	16,324	641,396
1999	2,508	0	12,662	0	7,881	23,051
2000	752	14	44,409	166,548	6,150	217,873
2001	213	44	19,492	0	11,100	30,849
2002	5	1	1,759	0	600	2,365
2003	12	16	17,058	0	3,560	20,646
2004	0	40	42,016	0	6,296	48,352
2005	151	280	85,255	0	3,983	89,669
2006	12	3	130,808	0	10,042	140,865
2007	19	2	126,115	3,769	22,431	152,336
2008	83	60	120,293	75,384	25,124	220,944
Previous 5-Yr Avg ^a	39	68	80,250		9,262	90,374
Previous 10-Yr Avg ^b	1,110	41	50,920		8,837	136,740

^a 2003-2007

^b 1998-2007

Table 2.–Nome Subdistrict, Port Clarence District subsistence permit limits.

<u>Nome Subdistrict</u>	
Sinuk River	500 salmon/family (no more than 40 chum, 40 coho, and 100 red)
Cripple River	300 pink salmon/family (no chum and 3 coho)
Penny River	300 pink salmon/family (no chum and 3 coho)
Nome River	500 salmon/family (no more than 40 chum, and 40 coho)
Snake River	400 salmon/family (no more than 40 chum, and 40 coho)
Eldorado River	500 salmon/family (no more than 200 chum, and 40 coho)
Flambeau River	500 salmon/family (no more than 200 chum, and 40 coho)
Bonanza River	400 salmon/family (no more than 80 chum, and 40 coho)
Solomon River	300 salmon/family (no more than 20 chum, and 20 coho)
Safety Sound/Bonanza Channel	400 salmon/family (no more than 100 chum, and 40 coho)
Marine Waters	750 salmon/family (no more than 300 chum, and 40 coho)
<u>Norton Sound District from Cape Douglas to Rocky Point (outside the Nome Subdistrict)</u>	
Marine Waters	No catch limits
Fresh Waters	100 salmon /family (no more than 20 chum and 10 coho)
<u>Golovin and Moses Point Subdistricts</u>	
Marine Waters	No catch limits
Fresh Waters	No catch limits
<u>Port Clarence District</u>	
Marine Waters	No catch limits
Pilgrim River	500 salmon/family (no more than 3 king, 250 red & 3 coho)
Salmon Lake	Opened by emergency order only/100 salmon per family
Kuzitrin River	100 salmon/family (above the confluence of the Pilgrim River), no more than 3 king & 3 coho.

Note: The waters of the Nome Subdistrict are subject to closures from June 15 to September 30. The Port Clarence District is outside the Nome Subdistrict boundary and, therefore, subsistence fishing can occur 7 days a week unless closed by an Emergency Order.

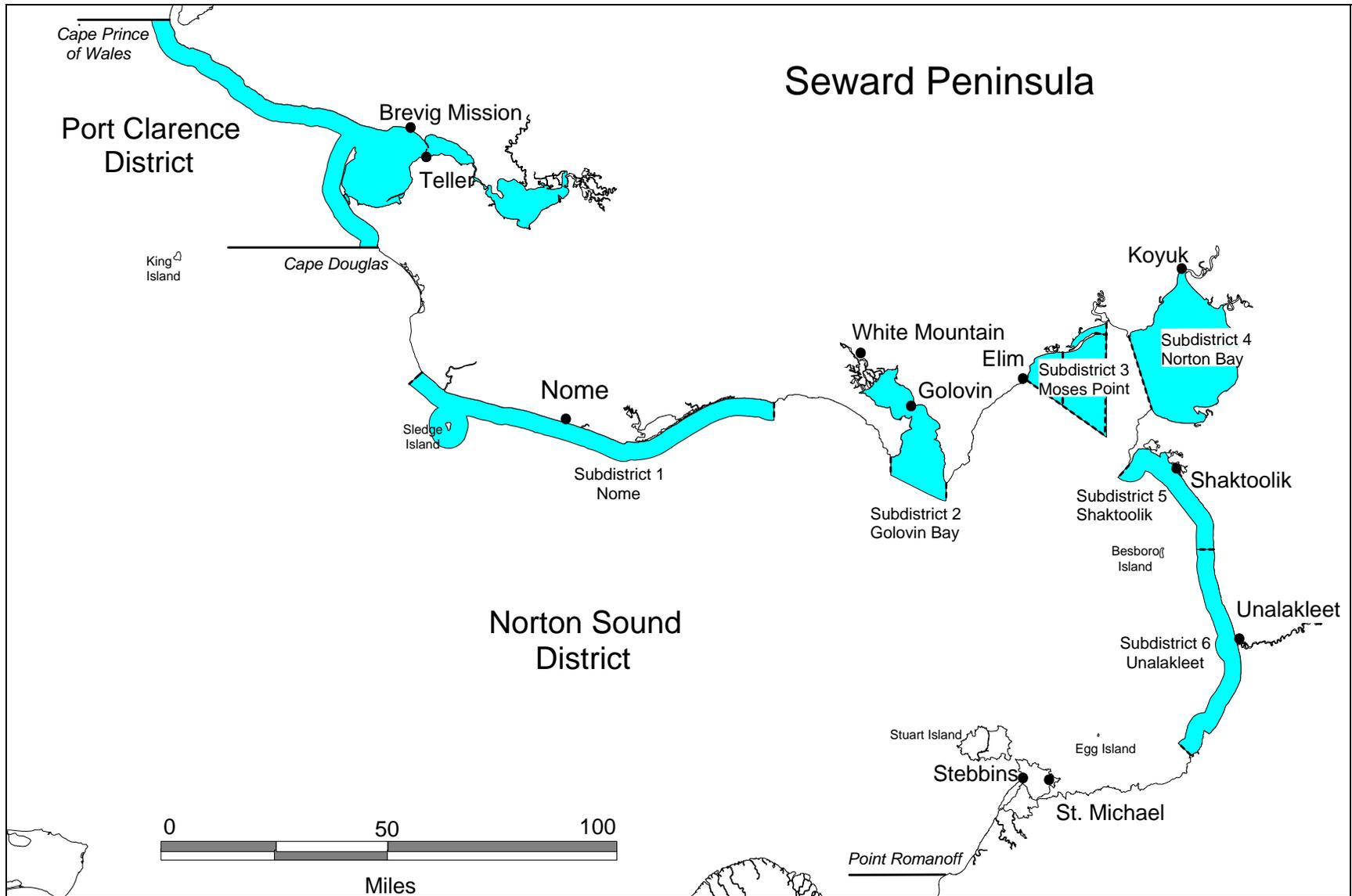


Figure 1.—Norton Sound District and Port Clarence District.

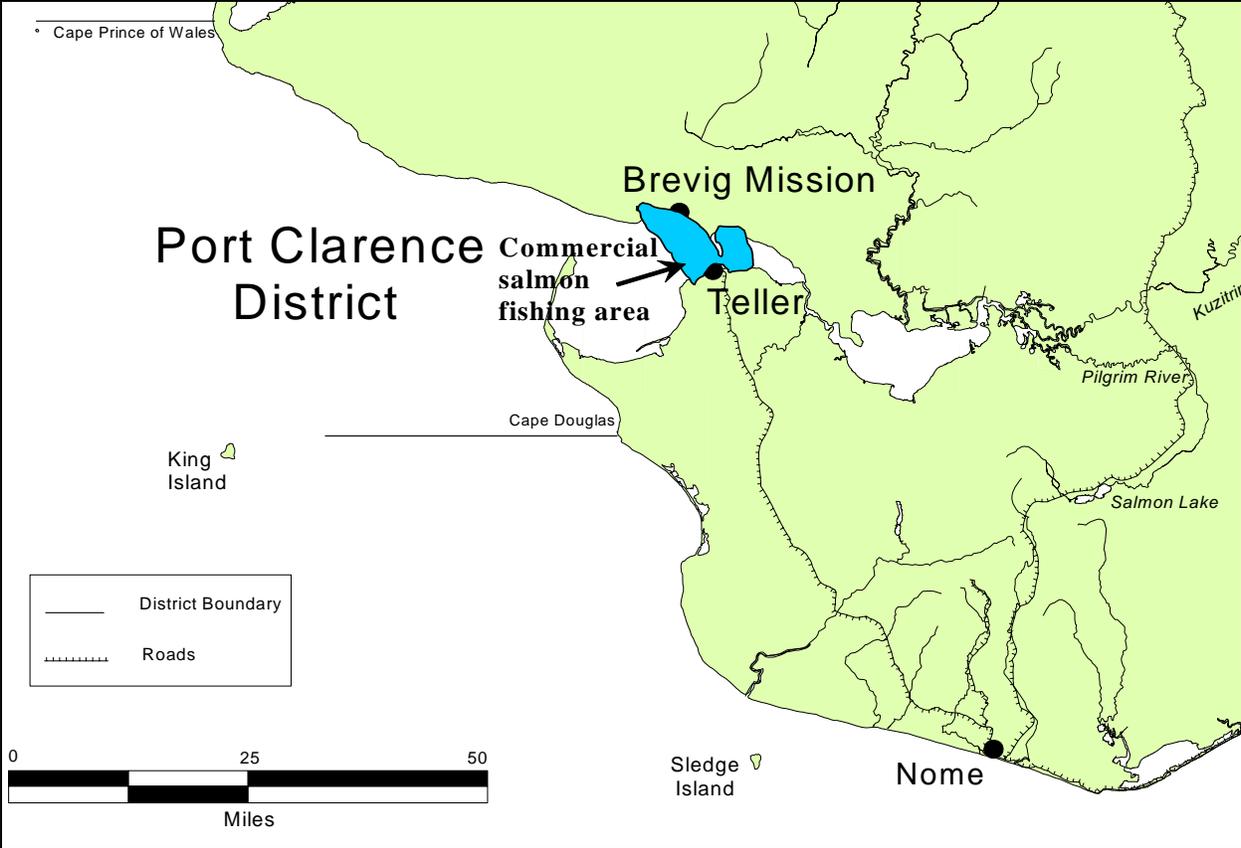


Figure 2.—Port Clarence District commercial salmon fishing area.