

Regional Information Report No. 3A13-05

2013 Norton Sound Salmon Fisheries Outlook and Management Strategies

by

Jim Menard

May 2013

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, and Special Publications. 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		Mathematics, statistics	
centimeter	cm	Alaska Administrative Code	AAC	<i>all standard mathematical signs, symbols and abbreviations</i>	
deciliter	dL	all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.	alternate hypothesis	H_A
gram	g			base of natural logarithm	e
hectare	ha	all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.	catch per unit effort	CPUE
kilogram	kg			coefficient of variation	CV
kilometer	km	at	@	common test statistics	(F, t, χ^2 , etc.)
liter	L	compass directions:		confidence interval	CI
meter	m	east	E	correlation coefficient (multiple)	R
milliliter	mL	north	N	correlation coefficient (simple)	r
millimeter	mm	south	S	covariance	cov
		west	W	degree (angular)	$^\circ$
		copyright	©	degrees of freedom	df
Weights and measures (English)		corporate suffixes:		expected value	E
cubic feet per second	ft ³ /s	Company	Co.	greater than	>
foot	ft	Corporation	Corp.	greater than or equal to	≥
gallon	gal	Incorporated	Inc.	harvest per unit effort	HPUE
inch	in	Limited	Ltd.	less than	<
mile	mi	District of Columbia	D.C.	less than or equal to	≤
nautical mile	nmi	et alii (and others)	et al.	logarithm (natural)	ln
ounce	oz	et cetera (and so forth)	etc.	logarithm (base 10)	log
pound	lb	exempli gratia		logarithm (specify base)	log ₂ , etc.
quart	qt	(for example)	e.g.	minute (angular)	'
yard	yd	Federal Information Code	FIC	not significant	NS
		id est (that is)	i.e.	null hypothesis	H_0
Time and temperature		latitude or longitude	lat. or long.	percent	%
day	d	monetary symbols		probability	P
degrees Celsius	°C	(U.S.)	\$, ¢	probability of a type I error (rejection of the null hypothesis when true)	α
degrees Fahrenheit	°F	months (tables and figures): first three letters	Jan,...,Dec	probability of a type II error (acceptance of the null hypothesis when false)	β
degrees kelvin	K	registered trademark	®	second (angular)	"
hour	h	trademark	™	standard deviation	SD
minute	min	United States (adjective)	U.S.	standard error	SE
second	s	United States of America (noun)	USA	variance	
		U.S.C.	United States Code	population sample	Var var
Physics and chemistry		U.S. state	use two-letter abbreviations (e.g., AK, WA)		
all atomic symbols					
alternating current	AC				
ampere	A				
calorie	cal				
direct current	DC				
hertz	Hz				
horsepower	hp				
hydrogen ion activity (negative log of)	pH				
parts per million	ppm				
parts per thousand	ppt, ‰				
volts	V				
watts	W				

REGIONAL INFORMANTION REPORT NO. 3A13-05

**2013 NORTON SOUND SALMON FISHERIES OUTLOOK
AND MANAGEMENT STRATEGIES**

by
Jim Menard
Division of Commercial Fisheries, Nome

Alaska Department of Fish and Game
Division of Commercial Fisheries
333 Raspberry Road, Anchorage, AK 99518

May 2013

The Regional Information Report Series was established in 1987 and was redefined in 2006 to meet the Division of Commercial Fisheries regional need for publishing and archiving information such as project operational plans, area management plans, budgetary information, staff comments and opinions to Board of Fisheries proposals, interim or preliminary data and grant agency reports, special meeting or minor workshop results and other regional information not generally reported elsewhere. Reports in this series may contain raw data and preliminary results. Reports in this series receive varying degrees of regional, biometric and editorial review; information in this series may be subsequently finalized and published in a different department reporting series or in the formal literature. Please contact the author or the Division of Commercial Fisheries if in doubt of the level of review or preliminary nature of the data reported. Regional Information Reports are available through the Alaska State Library and on the Internet at <http://www.adfg.alaska.gov/sf/publications/>.

*Jim Menard,
Alaska Department of Fish and Game, Division of Commercial Fisheries,
PO Box 1148, Nome, Alaska, 99762, USA*

This document should be cited as:

Menard, J. 2013. 2013 Norton Sound salmon fisheries outlook and management strategies. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report No. 3A13-05, Anchorage.

The Alaska Department of Fish and Game (ADF&G) administers all programs and activities free from discrimination based on race, color, national origin, age, sex, religion, marital status, pregnancy, parenthood, or disability. The department administers all programs and activities in compliance with Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, Title II of the Americans with Disabilities Act (ADA) of 1990, the Age Discrimination Act of 1975, and Title IX of the Education Amendments of 1972.

If you believe you have been discriminated against in any program, activity, or facility please write:

ADF&G ADA Coordinator, P.O. Box 115526, Juneau, AK 99811-5526

U.S. Fish and Wildlife Service, 4401 N. Fairfax Drive, MS 2042, Arlington, VA 22203

Office of Equal Opportunity, U.S. Department of the Interior, 1849 C Street NW MS 5230, Washington DC 20240

The department's ADA Coordinator can be reached via phone at the following numbers:

(VOICE) 907-465-6077, (Statewide Telecommunication Device for the Deaf) 1-800-478-3648,

(Juneau TDD) 907-465-3646, or (FAX) 907-465-6078

For information on alternative formats and questions on this publication, please contact:

ADF&G, Division of Sport Fish, Research and Technical Services, 333 Raspberry Rd, Anchorage AK 99518 (907) 267-2375

TABLE OF CONTENTS

	Page
LIST OF TABLES.....	i
LIST OF FIGURES.....	i
ABSTRACT.....	1
INTRODUCTION.....	1
2013 RUN OUTLOOK.....	1
MANAGEMENT STRATEGIES.....	2
Nome Subdistrict.....	2
Golovin Subdistrict.....	3
Elim Subdistrict.....	4
Norton Bay Subdistrict.....	4
Shaktoolik and Unalakleet Subdistricts.....	5
Port Clarence District.....	6
TABLES AND FIGURES.....	7

LIST OF TABLES

Table	Page
1. Commercial salmon catches by species, Norton Sound District, 1961–2012.....	8
2. Norton Sound and Port Clarence Districts subsistence permit limits.....	9

LIST OF FIGURES

Figure	Page
1. Norton Sound District and Port Clarence District.....	10
2. Port Clarence District commercial salmon fishing area.....	11

ABSTRACT

This report provides the expected run outlooks, management issues, and harvest strategies for Norton Sound salmon fisheries in 2013. 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 often 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 three permanent biologists, a program technician and 20 seasonal employees during the summer months. Norton Sound Economic Development Corporation (NSEDC) funds 21 interns to work on department projects and cooperative projects between NSEDC and ADF&G. Anticipated department management projects in 2013 include: Kwiniuk River counting tower; Nome River weir; periodic aerial surveys of index spawning streams; and catch sampling and monitoring efforts at Unalakleet. The test fishing project on the main stem of the Unalakleet River will not operate in 2013 and the funding will be used for supporting continued monitoring efforts in Norton Sound. Cooperative projects with other agencies will occur at the Unalakleet River weir (BLM, NSEDC and Unalakleet IRA); Snake River weir (NSEDC); and Glacial Lake weir (NSEDC). Department staff will also track the salmon escapement counts reported on other cooperative projects administered by NSEDC on the following rivers: North, Shaktoolik, Inglutalik, Eldorado, and Pilgrim.

2013 RUN OUTLOOK

Salmon outlooks and harvest projections for the 2013 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. The Chinook salmon run is expected to be weak and no commercial fishing targeting Chinook salmon is expected in Norton Sound. Subsistence restrictions for Chinook salmon are expected again in southern Norton Sound. Chum salmon runs are expected to be below average

to average, and less commercial fishing targeting chum salmon is expected in northern Norton Sound compared to southern Norton Sound. Buyer interest in chum salmon has increased in recent years and the harvest could be 40,000 to 70,000 fish. The department expects the pink salmon run to be average for an odd-numbered year and based on buyer interest the harvest could be 50,000 to 100,000 pink salmon. A harvest of this magnitude would be dependent on pink salmon directed fishing periods. A new regulation gives the department emergency order authority to increase allowable commercial gillnet gear from 100 fathoms to 200 fathoms in a pink salmon directed fishery. The coho salmon run in 2013 is expected to be below average to average based on ocean survival conditions in recent years. The commercial harvest is expected to be 30,000 to 60,000 fish. In the Port Clarence District the department expects the commercial fishery to remain closed, but does expect the sockeye salmon run to continue to improve since the crash of 2009 and run should be similar to the last couple of years.

MANAGEMENT STRATEGIES

Department staff will manage salmon fisheries to ensure escapement goals are achieved. Subsistence fishing may 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 fishermen 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 beginning the first week of June. The Unalakleet office number is 624-3921. 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 2013 in the Nome Subdistrict is expected to be similar to 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). Subsistence fishing permits will be required for anyone subsistence fishing for salmon. In the last several years, exploitation of chum salmon stocks in the Nome Subdistrict has been less than 5%. Since 2006 there have been no Tier II restrictions. In 2009 the chum salmon run fell 7% short of the lower end of the Nome Subdistrict escapement goal range of 23,000 to 35,000 fish and except for 2003, this was the only year since 1999 when the escapement goal was not achieved.

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 Nome Subdistrict, west of Cape Nome, will be open to set gillnet fishing from 6 p.m. Wednesday until 6 p.m. Saturday and from July 26 through August 15 will be open from 6 p.m. Monday until 6 p.m. Saturday. Marine waters east of Cape Nome will remain open 7 days a week throughout the season unless closed by emergency order. 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 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. There is the possibility of an extension of fishing time in the marine waters west of Cape Nome if weather prevents subsistence fishermen from setting nets in the ocean. Beach seining is allowed during gillnet fishing periods from June 15 through July 25.

Harvest limits for salmon vary by marine and fresh waters. Marine and stream-specific harvest limits will be listed in the subsistence salmon fishing permits. Permit catch limits for Nome Subdistrict and Port Clarence District streams are listed in Table 2.

The department will use the Eldorado River weir counts as an indicator of chum salmon run strength in 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 not be met, then marine fishing periods may be suspended and likely fishing periods in the river. The Eldorado River chum salmon escapement is expected to be met in 2013 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 is sufficient on those rivers. If aerial survey counts show escapement to be lagging then fresh water fishing periods will be suspended.

The department 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 the Nome River and Snake River weir counts project that the chum salmon escapement goal range will not be reached, then marine fishing periods may be suspended and fresh water fishing in the river with lagging escapement counts will be closed if subsistence fishing is having a significant impact on escapement goals not being reached. The Cripple and Penny Rivers are closed by regulation to subsistence chum salmon fishing. The Sinuk River is expected to have a good chum salmon run in 2013 and sockeye salmon escapement to Glacial Lake is expected to improve compared to recent years.

Commercial fishing for chum salmon is possible in Nome Subdistrict if there is a sufficient surplus. Commercial fishing may occur for pink salmon, but because of the lower run size during odd-numbered years fishing time will be limited. There also is the possibility for commercial fishing for coho salmon in August depending on run strength. If there are commercial fishing periods for salmon they will likely be 24 hours or less in length with mesh size restrictions depending on the target species.

GOLOVIN SUBDISTRICT

Low chum salmon runs and/or a lack of markets have kept the Golovin Subdistrict closed to commercial chum salmon fishing for most of the 2000s. Although good commercial chum salmon fishing occurred in 2010 and 2011 the chum salmon run is expected to be below average compared to those years and the department will be cautious about any commercial chum salmon fishing time. The lease for the Niukluk River tower site was not renewed and the department does not expect to operate an escapement counting project in the Fish River drainage in the near future. Kwiniuk River escapement counts in the adjacent Elim Subdistrict will be used as an indicator of the chum salmon run in Golovin Subdistrict. Comparing Niukluk River tower chum salmon counts (1995-2012) with Kwiniuk River tower chum salmon counts of the same year there was agreement whether both rivers achieved or did not achieve the chum salmon escapement goals in 16 of 18 years. The department will also compare catch per unit of effort

(CPUE) if there is commercial fishing with historical commercial fishing periods to determine if additional fishing time is warranted. The pink salmon run should be sufficient to allow for commercial fishing periods likely after mid-July and there is the possibility of limited coho salmon commercial fishing periods. Additional commercial coho salmon fishing time will depend on the coho salmon commercial fishery CPUE. Also, the department plans to aerial survey Niukluk River and Ophir Creek and will compare those counts to the former aerial survey goal of 950-1900 coho salmon that was established before being replaced by the Niukluk River counting tower goal of 2,400-7,200 coho salmon.

Permits are required when subsistence salmon fishing and no restrictions in subsistence fishing time are expected. In most years in the last decade subsistence harvests of chum salmon have been estimated to be less than 5% of the subdistrict run. If escapement is projected to be sufficient then commercial chum salmon fishing would be allowed. In the last decade the subsistence harvest of coho salmon in the subdistrict has been estimated to be less than 15% of the run for most years. Likewise, if the department determines that the escapement will be sufficient then commercial coho salmon fishing will be allowed.

ELIM SUBDISTRICT

No subsistence salmon fishing restrictions have occurred in Elim Subdistrict in over 20 years and no restrictions are expected in 2013. Subsistence permits are required when subsistence salmon fishing in the Elim Subdistrict.

No commercial fishing is expected for Chinook salmon because escapement is expected to fall below the high end of the escapement goal range of 300 to 550 fish. Commercial fishing for chum salmon may be delayed until July depending on escapement numbers. A commercial pink salmon directed fishery can occur if subsistence needs are expected to be met and chum salmon escapement goals are projected to be achieved, or after July 6 if it is determined there is a harvestable surplus of pink salmon and that a directed pink salmon commercial fishery will not have a significant impact on the escapement or subsistence use of chum salmon. The pink salmon run is expected to be average for an odd-numbered year. Chum salmon directed fishing periods will have gear restricted to a maximum mesh size of 6 inches and pink salmon directed fishing periods will have gear restricted to a maximum mesh size of 4 ½ inches. Commercial coho salmon openings are possible depending on run strength which is expected to be below average to average in 2013.

NORTON BAY SUBDISTRICT

Commercial salmon fishing returned to the Norton Bay Subdistrict in 2008 after 10 years without a buyer and commercial fishing has occurred each year since. Previously, salmon markets had not been sufficient to attract interested fishermen or buyers. Inseason escapement monitoring indices for this subdistrict had not been available in previous years and the department used information from nearby subdistricts to determine if commercial fishing time was warranted. However, beginning in 2011, NSEDC has operated a counting tower on the Inglutalik River and the department plans to use salmon escapement counts from the project as an index and in comparison with other projects in 2013. Chum, pink and coho salmon directed commercial fisheries are likely in 2013 if there is market interest. No subsistence restrictions are expected.

SHAKTOOLIK AND UNALAKLEET SUBDISTRICTS

Shaktoolik and Unalakleet Subdistricts have been 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 market interest, chum and pink salmon will be targeted. A chum salmon fishery would likely occur after June to allow more time for Chinook salmon to pass through the subdistricts. There is the possibility of fishing in June for chum salmon if the Chinook salmon run is projected to reach escapement goals with no additional subsistence fishing closures. The department will switch to coho salmon management in late July and a commercial fishery is expected.

Timing and abundance of the Chinook salmon run will be monitored by department personnel by conducting interviews with subsistence fishermen and 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 1,200–2,600 Chinook salmon and the aerial survey escapement goal range for the Unalakleet River and Old Woman River index area is 550–1,100 Chinook salmon. For a Chinook salmon directed commercial fishery to occur, the department must project an escapement of a minimum of 1,900 Chinook salmon past the North River tower.

A subsistence fishing schedule will be in effect beginning in mid-June in the Shaktoolik and Unalakleet Subdistricts to protect Chinook salmon. The regular subsistence fishing schedule in the marine waters of Shaktoolik and Unalakleet Subdistricts is 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. The schedule in the Unalakleet River would 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. However, in recent years the department has had difficulty in reaching the North River Chinook salmon escapement goal and may determine it necessary to further restrict fishing time or have mesh size restrictions, or both. Meetings were held in Unalakleet and Shaktoolik in late April and early May to get input from subsistence fishermen. If further restrictions are needed this year the majority of Unalakleet fishermen at their meeting preferred restricted fishing time in marine waters to two 24-hour fishing periods per week, but mesh size restrictions of 4 ½ inches or smaller in Unalakleet River. The majority of Shaktoolik fishermen at their meeting preferred mesh size restrictions of 6 inches or smaller in marine waters. Considering the input of fishermen the department may restrict fishing time in Unalakleet Subdistrict marine waters, but only have mesh size restrictions in Unalakleet River. In Shaktoolik Subdistrict marine waters there may be a normal fishing schedule with mesh size restrictions of 6 inches or smaller. However, the Shaktoolik River would have mesh size restrictions of 4 ½ inches or smaller. The department may be able to determine the effectiveness of each strategy in the adjoining subdistricts and determine the most successful way to allow sufficient Chinook salmon escapement while still allowing some subsistence fishing opportunity. A new regulation allows use of 4 ½ inch or smaller mesh size beach seines from July 1 through August 10 to harvest salmon other than Chinook salmon in both subdistricts.

Chum and pink salmon directed commercial fishing periods are expected in July. Because of the expected restrictions to Chinook salmon subsistence fishing the department will prohibit the sale of Chinook salmon during other salmon directed fishing periods. The chum salmon run is

expected to be below average to average and pink salmon runs are expected to be average. In Shaktoolik and Unalakleet Subdistricts, the commercial chum and pink salmon fishery may occur only if it is determined there is a harvestable surplus of chum or pink salmon and that a directed chum or pink salmon commercial fishery will not have a significant impact on escapement or subsistence use of Chinook salmon, and no earlier than July 1 if either gillnet mesh-size or subsistence fishing time are restricted in the Chinook salmon subsistence fishery. If early projections show sufficient Chinook salmon passage at the North River tower then a restricted mesh commercial opening for chum salmon is possible in June. If Chinook salmon escapements are lagging, then other salmon directed fisheries may need to be delayed to minimize Chinook salmon harvest. Chum salmon directed fishing periods will have gear restricted to a maximum mesh size of 6 inches and pink salmon directed fishing periods will have gear restricted to a maximum mesh size of 4 ½ inches. If there is sufficient run strength, coho salmon commercial fishing openings will continue to occur as they have been in recent years. The coho salmon season is considered to begin July 25, or when coho salmon catches exceed chum salmon catches. 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 is not expected to occur in the Port Clarence District. The sockeye salmon run is not expected to reach the inriver goal of 30,000 fish in Pilgrim River. However, if the run is projected to reach 30,000 sockeye salmon in Pilgrim River and a market is available then commercial fishing time will be allowed.

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. A new regulation allows for the use of a dip net to harvest salmon in Pilgrim River.

The sockeye salmon run in the Pilgrim River crashed in 2009 with only 953 fish through the weir after the previous 6 years had record passage from 20,452 to 85,417 sockeye salmon. The sockeye salmon run was only 1,654 fish in 2010, but the escapement improved in 2011 (8,449) and 2012 (7,117) and based on the 2012 escapement and sockeye salmon smolt outmigration data the department expects the 2013 run to be similar to the previous two years. The department will compare the 2013 run with historical escapement counts at the weir and subsistence fishing restrictions may be necessary the second week of July if the run is weak.

TABLES AND FIGURES

Table 1.–Commercial salmon catches by species, Norton Sound District, 1961–2012.

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	0	2,379	28,879	41,756	74,818
1968	1,045	0	6,885	71,179	45,300	124,409
1969	2,392	0	6,836	86,949	82,795	178,972
1970	1,853	0	4,423	64,908	107,034	178,218
1971	2,593	0	3,127	4,895	131,362	141,977
1972	2,938	0	454	45,182	100,920	149,494
1973	1,918	0	9,282	46,499	119,098	176,797
1974	2,951	0	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	21	17,060	0	3,560	20,653
2004 ^a	22	47	42,016	0	6,296	48,381
2005	151	12	85,523	0	3,983	89,669
2006	20	3	130,808	0	10,042	140,873
2007	19	2	126,136	3,769	22,431	152,357
2008	83	60	120,309	75,525	25,124	221,101
2009 ^a	84	126	87,041	17,364	34,122	138,737
2010	140	103	62,079	31,557	117,743	211,622
2011	185	369	58,917	7,141	110,555	177,167
2012 ^a	197	134	37,056	205,498	62,772	305,657
Average 2007-2011	102	132	90,896	27,071	61,995	180,197
Average 2002-2011	72	74	73,165	13,536	33,446	120,293

Note: Harvest numbers may include a small number of salmon retained for personal use reported on fish tickets that were not commercially sold.

^a All Chinook salmon caught were not sold, but were used for subsistence.

Table 2.–Norton Sound and Port Clarence Districts subsistence permit limits.

<u>Nome Subdistrict</u>	
Sinuk River	600 salmon/family (no more than 100 chum, 80 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 60 chum, and 60 coho)
Snake River	400 salmon/family (no more than 60 chum, and 60 coho)
Eldorado River	800 salmon/family (no more than 300 chum, and 40 coho)
Flambeau River	800 salmon/family (no more than 300 chum, and 40 coho)
Bonanza River	600 salmon/family (no more than 200 chum, and 80 coho)
Solomon River	300 salmon/family (no more than 20 chum, and 20 coho)
Safety Sound/Bonanza Channel	600 salmon/family (no more than 200 chum, and 40 coho)
Marine Waters	900 salmon/family (no more than 400 chum, and 200 coho)
 <u>Norton Sound District from Cape Douglas to Rocky Point</u> (outside the Nome Subdistrict)	
Marine Waters	No catch limits
Fresh Waters	100 salmon /family (no more than 20 chum and 10 coho)
 <u>Golovin, Elim, Norton Bay, Shaktoolik and Unalakleet Subdistricts</u>	
Marine Waters & 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, 25 red & 3 coho)
Salmon Lake	Opened by emergency order only; 100 salmon/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 area and, therefore, subsistence fishing can occur 7 days a week unless closed by an emergency order.

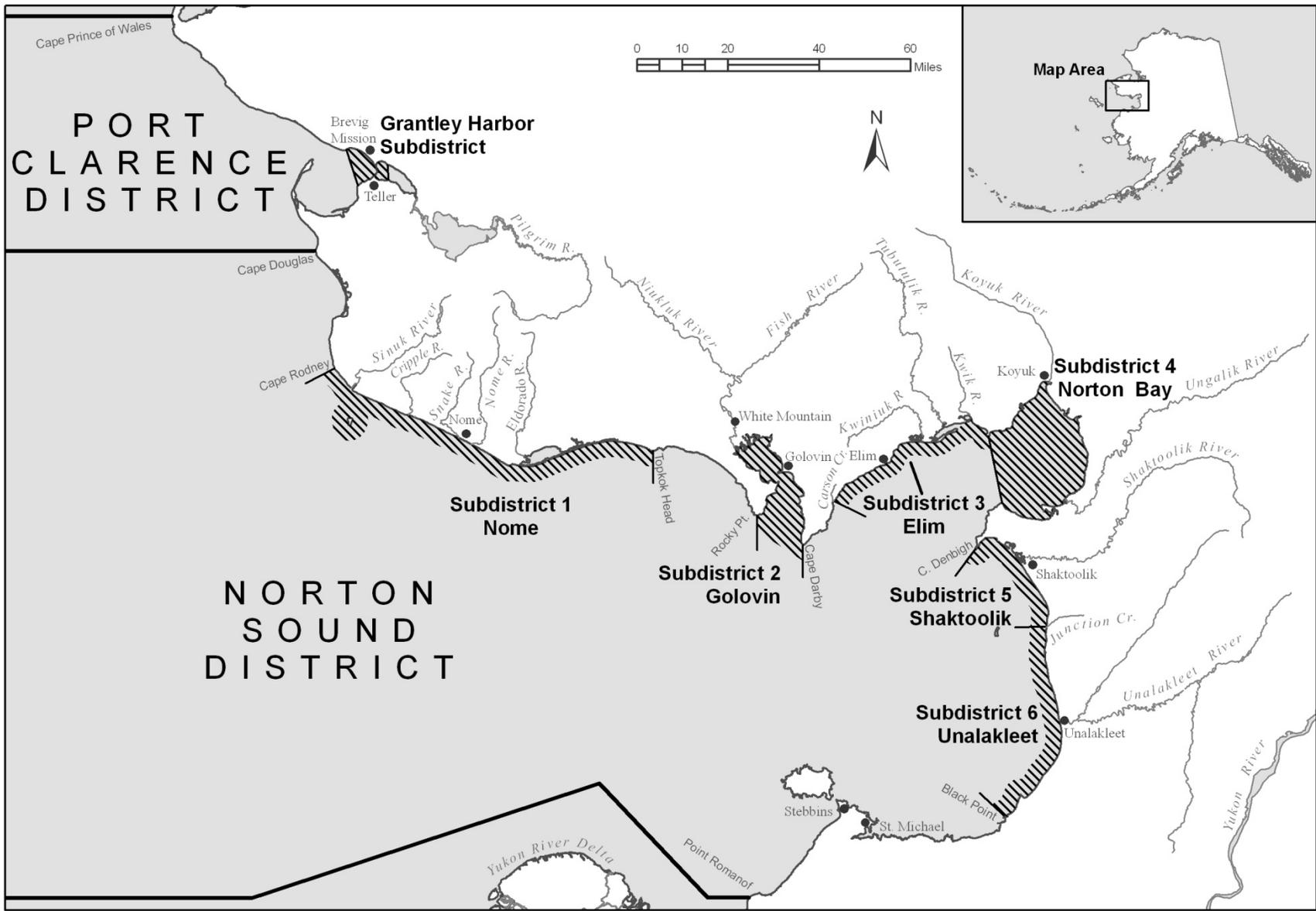


Figure 1.—Norton Sound District and Port Clarence District.

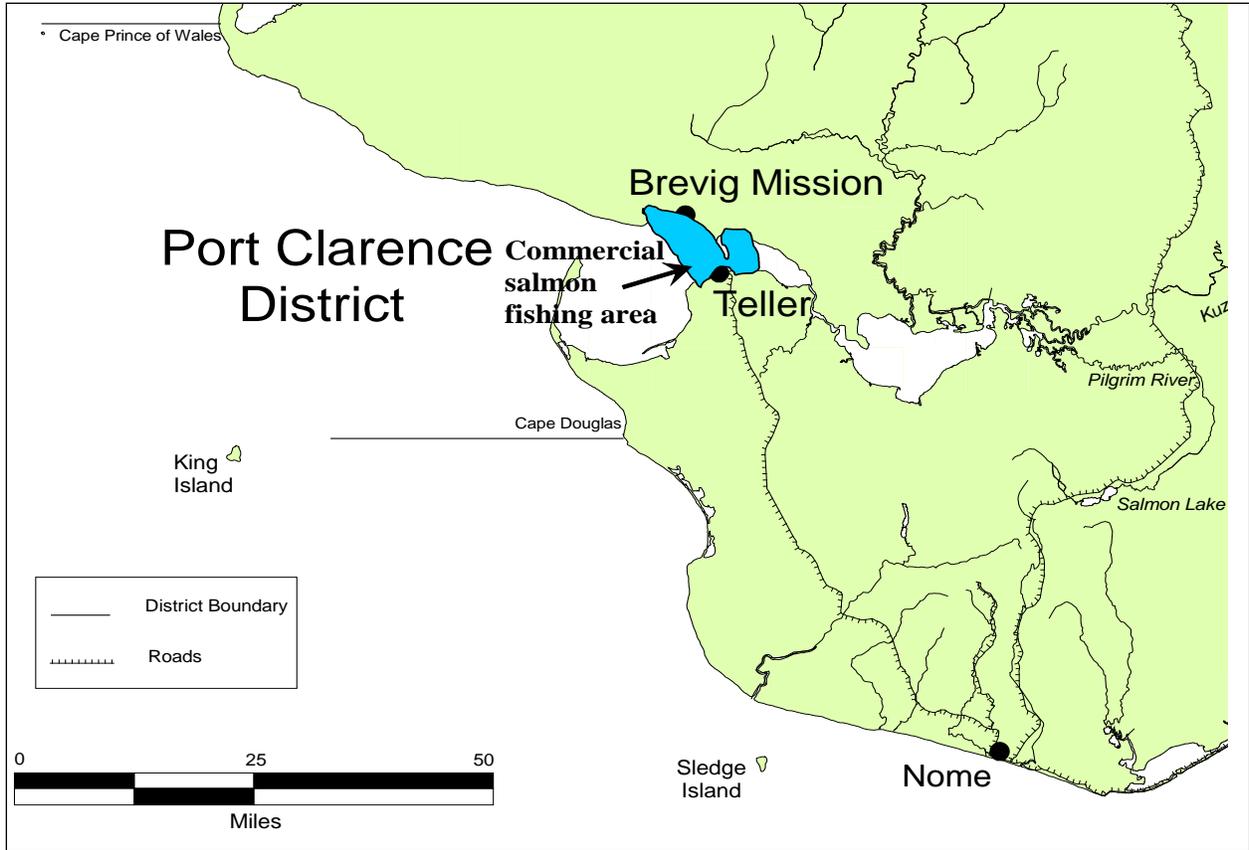


Figure 2.—Port Clarence District commercial salmon fishing area.