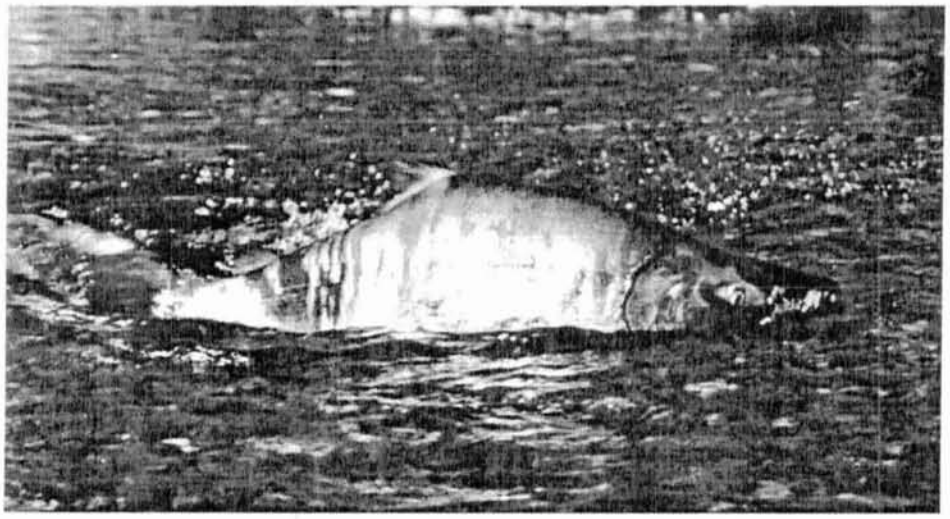
NORTON SOUND AND KOTZEBUE SOUND MANAGEMENT AREA

SALMON CATCH AND ESCAPEMENT REPORT, 2001



By

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ABSTRACT

The 2001 commercial and subsistence harvest and escapement information for the five species of Pacific salmon *Oncorhynchus* found in the Norton Sound and Port Clarence Management Area and the one species of *Oncorhynchus* found in the Kotzebue Sound Management Area in significant abundance are presented, along with available age, sex, and length information. The 2001 Norton Sound District commercial harvest totaled 30,849 salmon and was composed of 213 chinook (*O. tschawytscha*), 11,100 chum (*O. keta*), 19,492 coho (*O. kisutch*) and 44 sockeye salmon *(O. keta)*. The commercial harvest was 96% below the 1996-2000 average for chinook salmon, 26% below for chum salmon, and 48% below for coho salmon. No pink salmon (*O. gorbuscha*) were purchased in 2001 and sockeye salmon *(O. keta*) are only present in small numbers in this area. Six counting tower projects and one weir project were operational in Norton Sound in 2001 to provide more complete information on salmon spawning escapements, and those data are reported here. In the Kotzebue District, the commercial harvest totaled 211,672 chum salmon, and an incidental catch of 6 chinook salmon was reported. Subsistence catches of these species plus whitefish (*Coregonus sp.*), sheefish (*Stenodus leucichthys*), northern pike (*Esox lucius*) and burbot (*Lota lota*) occur in the Kotzebue District. The chum salmon commercial harvest in 2001 was 79% of the 1980-2000 average of 269,233 fish.

KEY WORDS: Norton Sound, Kotzebue Sound, harvest, escapement, *Oncorhynchus tshawytscha, O. nerka, O. keta, O. kisutch, O. gorbuscha*, age-sex-length composition.

INTRODUCTION

The Norton Sound, Port Clarence, and Kotzebue Sound commercial salmon management districts include all waters of Alaska from Point Romanof, south of Stebbins, to Point Hope, north of Kotzebue. The Port Clarence District has been closed to commercial salmon fishing since 1966. The Norton Sound District includes all waters of Alaska from Point Romanof to Cape Douglas (Figures 1, 2) and consists of six subdistricts: 1 (Nome), 2 (Golovin), 3 (Moses Point), 4 (Norton Bay), 5 (Shaktoolik), and 6 (Unalakleet). These subdistricts are intended to concentrate commercial harvests on stocks that spawn in the watersheds flowing into the respective subdistricts. The Kotzebue Sound District includes all waters of Alaska from Point Hope to Cape Prince of Wales, but commercial salmon fishing is restricted to Subdistricts 1 and 2, consisting of ocean waters north of the Baldwin Peninsula (Figures 3, 4). Subdistrict 2, the Noatak River mouth, normally remains closed unless the chum salmon return is substantially above average.

Five species of Pacific salmon are found in the Norton Sound area. In descending order of economic importance in 2001, they are coho salmon (*Oncorhynchus kisutch*), chum salmon (*O. keta),* chinook salmon (*O. tshawytscha*), pink salmon (*O. gorbuscha*), and sockeye salmon (*O. nerka*). In Norton Sound the returns of coho salmon during 2001 were the largest of the five species, followed by, chum, chinook, pink, and sockeye salmon. In the Kotzebue Sound District, chum salmon are the predominant species.

Knowledge of the magnitude, distribution, timing, and age, sex, and length (ASL) composition of both the harvest and escapement by stock is fundamental to managing salmon fisheries and achieving full production. ASL composition of samples from selected salmon harvests and escapements in the Norton Sound and Kotzebue Sound areas have been reported since 1962 and are presented in this report for 2001.

Fishery statistics for the Norton Sound and Kotzebue Sound areas are available from several additional sources. Commercial and subsistence harvest and spawning escapement data from 1961 to 2001 are summarized in the Norton Sound - Port Clarence - Kotzebue Sound Annual Management Report (Brennan et al. *In Prep*). In addition, the results from escapement assessment projects are analyzed and reported annually. For the 2001 season, these test fishery projects are included on the Unalakleet River (Kohler, 2002) and the Kobuk River (Kohler, 2002), counting tower projects on the Kwiniuk River (Kohler, 2001), Niukluk River (Jones 2002), North River (Kohler, 2002), Eldorado River (Kohler, 2002), and Snake River (Kohler, 2002), and a weir on the Nome River (Kohler, 2002).

ASL data for Norton Sound and Kotzebue Sound salmon from 1962 to 1982 are summarized in an unpublished report series entitled ADF&G Arctic-Yukon-Kuskokwim Region Age-Sex-Size Composition of Salmon. Beginning with the 1983 season, these data have been published in an annual report (Bigler and Lean 1984, 1986; Hamner 1987, 1989a, 1989b; Buklis 1991a, 1991b; Lingnau 1992, 1994a, 1994b; Blaney and Lingnau 1995; Lingnau 1995, 1996, 1997, 1998.

METHODS

Harvest and Escapement

Commercial catch data presented in this report were compiled from harvest receipts, i.e., *fish tickets*, which document each sale by a licensed fisher. These data were summarized by microcomputer in the Nome and Kotzebue offices during the fishing season.

Funds were dedicated beginning in 1994 to conduct in-depth subsistence harvest surveys for most villages in the Kotzebue, Port Clarence the Norton Sound Districts. These surveys were continued in 2001. Villages surveyed in the Norton Sound and Port Clarence Areas were Brevig Mission, Elim, Golovin, Koyuk, Shaktoolik, St. Michael, Stebbins, Teller, Unalakleet, and White Mountain. In the Kotzebue Area, the villages of Ambler, Kiana, Kobuk, Noatak, Noorvik and Shungnak were surveyed. In Kotzebue, postcards to be filled out and returned were sent to households to assess harvests of salmon. A subsistence permit is required to subsistence fish in the Nome Subdistrict, and catch limits are set by permit for each river and species. During community surveys the members of each household were asked how many salmon were caught for subsistence use. It was assumed that fishers could accurately recall their harvests, which may have occurred over a period of several months.

The Division of Subsistence has conducted other in-depth subsistence harvest interviews in the region. These studies include the city of Kotzebue in 1986 (Georgette and Loon 1993), the village of Unalakleet 1989-90 (Magdanz and Seitz 1993), Elim in 1992 and 1993 (Jim Magdanz, ADF&G, Nome, personal communication), the Nome Subdistrict from 1975 through 1991 (Magdanz 1992), and Brevig Mission, Golovin and Shishmaref in 1989 (Conger and Magdanz 1990).

Aerial surveys historically have been the primary method for monitoring salmon escapements to the Norton Sound and Kotzebue Sound drainages although a number of escapement projects are now operating in Norton Sound. Aerial surveys do not provide a total estimate of salmon spawning abundance. Aerial survey escapement counts are, at best, an index of relative abundance for the surveyed streams. To compare aerial surveys across years, surveys are attempted in approximately the same time frame each year for the same index areas. Weather conditions, pilots and surveyors are also variables in aerial survey counts. Comparing commercial catch statistics to previous years may provide an index of run strength and timing. Test fishing provides an index of escapement and species composition for turbid or large drainages that are difficult to monitor visually, but does not provide an estimate of total abundance. Test fishery catch and catch per unit effort (CPUE) statistics are used as an index of relative abundance. A test fishing project on the Unalakleet River in the Unalakleet Subdistrict was used to index escapement into that drainage. In the Kotzebue Sound area a test fishing project was conducted on the Kobuk River near the village of Kiana to index salmon escapements into the Kobuk River system. Lack of technical resources prevented operation of the sonar escapement project on the Noatak River in 2001. Limited test drift net fishing on the Noatak River was conducted to collect ASL information. Counting towers and weirs provide a better estimate of escapement. The following projects conducted during the 2001 season provided data on salmon escapement abundance and timing in Norton Sound: Nome River weir and Snake and

Eldorado River towers in Subdistrict 1, Niukluk River tower in Subdistrict 2, Kwiniuk River tower in Subdistrict 3, and the North River tower in Subdistrict 6.

Age, Sex, and Length Data Collection

Age was determined from scales removed from the left side of the fish in an area above the lateral line crossed by a diagonal from the posterior insertion of the dorsal fin to the anterior insertion of the anal fin. Scales were mounted on gum cards and impressions made in cellulose acetate. Ages were reported in European notation (the first digit refers to the freshwater age and does not include the year spent in the gravel; the second digit refers to the ocean age). Sex was determined by examining external characteristics, such as: snout, vent, body symmetry, extruded eggs, ovipositor or milt of live fish. The sex of dead fish was determined by examining the gonads, if necessary. Fish length to the nearest 0.5 cm was measured from mid-eye to fork-of-tail. In some cases sex and length data but no ageable scales were obtained from fish, and in other cases ageable scales were collected without corresponding sex or length data. Therefore, numbers of fish in a length-by-age summary table may differ from numbers of fish in a sex-by-age summary table for a given fishery or escapement sample.

Sample Size

Minimum sample size goals were established for temporal strata based upon simultaneous interval estimation of age class composition. Two methods of determining sample size goals, based on different methods of constructing simultaneous confidence intervals, have been employed. For most purposes, sample size goals were developed using the method of Thompson (1987). Sample size goals were established such that 95% simultaneous confidence intervals would be of width 0.2. This objective is satisfied with a sample size of 128 scales per strata, although the goal was increased to account for the expected number of unreadable scales in any particular instance. In the Kotzebue commercial fishery, where age composition is an important index of run strength, a sample size goal was developed using more stringent standards based on the method of Bromaghin (1993). The ages of chum salmon were categorized into four age classes; age 4, age 5, and age 3 or age 6. The sample size goal was chosen such that the width of 95% simultaneous confidence intervals (Goodman 1965) would not exceed 0.15. A sample of 249 fish per stratum satisfied this objective. The sample size goal was increased to 280 fish per stratum to account for the expected number of unreadable scales.

RESULTS

Commercial fishery samples were collected from chinook, chum and coho salmon in Norton Sound Subdistrict 6 (Figure 1). Sufficient commercial fishery samples were collected to estimate age and sex composition of the harvest for chum salmon in the Kotzebue District. Chinook, chum, and coho salmon were sampled from the Unalakleet River set gillnet test fishing catch. Because of the selectivity of the 5-7/8 in (149 mm) stretched-mesh gillnets used on the test net project, the samples are not an unbiased estimate of spawning escapement age, sex, and size composition. Chum salmon escapement samples were collected from projects on the Niukluk, Eldorado, Nome, Snake, and Kwiniuk Rivers using beach seines. In the Kotzebue District, chum salmon from drift test fishing catches were sampled on both the Kobuk and Noatak Rivers. Comparisons of age, sex, and size composition between samples in this report are non-statistical comparisons. Temporal distribution of some samples may be of concern. Some sample sizes are marginally adequate and may not have been collected proportionally to the catch or abundance.

Norton Sound

Commercial and Subsistence Harvest

The 2001 Norton Sound commercial harvest totaled 30,849 salmon and was composed of 19,492 coho, 11,100 chum, 213 chinook, and 44 sockeye salmon (Table 1). Subdistrict 6 accounted for 54% of the total commercial salmon harvest (in numbers of fish) in 2001, followed by Subdistrict 2 (23%), Subdistrict 5 (15%), and Subdistrict 3 (8%) (Appendix A1-A4).

Coho salmon accounted for 66% of the total fishery value followed by chum salmon (27%), and chinook salmon (7%). Only one buyer purchased fish during the 2001 season. Salmon were delivered to Unalakleet via tender and aircraft for processing. The salmon were headed and gutted, and shipped air freight to markets. A few fishers sold their catch locally and to wholesale distributors, as permitted under catcher/seller regulations. The average price paid was $1.00 per pound for chinook salmon, $0.25 per pound for coho salmon, $0.19 per pound for chum salmon and $0.37 per pound for sockeye salmon. The total exvessel value of the raw fish was $56,921, 70% below the recent 5-year average and 83% below the recent 10-year average (Table 2).

Although many of the residents of Norton Sound are dependent to some extent on the fish and game resources of the area, subsistence salmon catches generally were not monitored from 1983 through 1993, except in the Nome Subdistrict. Before 1983, the Department conducted annual household surveys in many villages. For 5 years in which these surveys were conducted, 1978-1982, the average annual subsistence harvest in the Norton Sound area was 73,000 salmon for all species combined. This number should be considered a minimum estimate because not all households were contacted. In the Nome Subdistrict (Figures 2 and 3), subsistence permits require fishers to document their harvest by species. In 2001, 110 Tier I subsistence permits were issued. A total of 89 permits were returned. The reported Tier I permit harvest of 817 salmon was composed of 5 chinook, 201 sockeye, 311 coho, 255 chum, and 45 pink salmon (Table 3, Georgette and Utermohle

2002). Of the nineteen Tier II subsistence permits issued all nineteen permits were returned. The reported Tier II permit harvest of 1,033 salmon was composed of 2 chinook, 60 sockeye, 262 coho, 641 chum, and 68 pink salmon (Table 4).

Funds have been dedicated to conduct comprehensive subsistence surveys in Norton Sound and Kotzebue Sound since 1994. The villages surveyed in 2001 are listed in the methods section.

Results of the survey for 2001 estimated 79,517 salmon were harvested for subsistence purposes in Norton Sound and Port Clarence (Table 5). This estimate includes the permit fishery in northern Norton Sound. The largest contribution to the harvest was pink salmon, followed by chum, coho, chinook, and sockeye salmon. The largest quantity of salmon was taken by the village of Unalakleet (23,636). Port Clarence villages harvested an estimated 7,970 salmon. Sockeye salmon were the most abundant followed by chum, coho, pink, and chinook salmon.

Escapement Abundance

Aerial survey escapement information is only an indication of run strength. The aerial survey methodology of enumerating salmon does not provide estimates of total escapement abundance because of the many diverse influences and conditions under which they are conducted. Aerial survey escapement results from Norton Sound for 2001 are found in Table 6. Poor survey conditions prohibited the completion of chinook salmon escapement surveys in most of Norton Sound. The Unalakleet test net catches, the Kwiniuk and Niukluk towers, commercial catch rates, and subsistence reports were the primary assessment tools for judging chinook salmon run strength. Almost all indicators suggested chinook salmon escapements were below average throughout Norton Sound. Chum salmon escapements were below average throughout most of the management area in 2001. Survey conditions were good in the Nome Subdistrict where chum salmon escapement goals were achieved in only four of the seven rivers with established goals. The 2001 coho salmon return to Norton Sound was below average and continued the pattern of below average escapements in the odd-numbered years. Subsistence restrictions were implemented in the Nome Subdistrict and reduced commercial fishing time occurred throughout the Norton Sound District.

Several new cooperative escapement projects were implemented in recent years. These projects are listed under METHODS, *Harvests and Escapements* and the counts for 2001 are presented in Appendix B. The projects with chum salmon escapement goals are the Kwiniuk River tower with a sustainable escapement goal (SEG) of 15,600-31,200, the Nome River weir SEG 1,600-3,200, the Snake River tower SEG 800-1,600, and the combined Eldorado/Flambeau Rivers SEG 5,200-10,400 (Table 6). The Kwiniuk River had tower counts of 16,598 chum salmon, 8,423 pink salmon, 258 chinook salmon, and 9,532 coho salmon. The Nome River weir enumerated 2,859 chum salmon, 3,138 pink salmon, 7 chinook salmon, 2,418 coho salmon, 55 sockeye salmon, and 529 Dolly Varden. Counts past the Niukluk River tower were 30,662 chum salmon, 41,625 pink salmon, 30 chinook salmon, 3,468 coho salmon, and 2,109 Dolly Varden. Snake River tower counts were 2,182 chum salmon, 1,295 pink salmon, 33 chinook salmon, and 1,335 coho salmon. The Eldorado River tower project counted 11,635 chum salmon, 488 pink salmon, 50 chinook salmon and 1,509 coho salmon. The North River tower, a tributary of the Unalakleet River, counted 6,515 chum

salmon, 24,737 pink salmon, 1,337 chinook salmon and 12,383 coho salmon. Projects were not funded to enumerate entire runs of some salmon species; therefore some species counts should be considered conservative estimates (Appendix B).

Age, Sex, and Length Composition

No chinook salmon commercial harvest sample was collected in Subdistrict 5 during 2001. In the commercial harvest sample in Subdistrict 6 the chinook salmon predominant age class 1.4 comprised 58% and age-1.2 32%. The sample was 52.6% male and 47.4% female (Table 7). A sample of 63 chinook salmon from the Unalakleet River test fishery was 37% age-1.2, 9% age-1.3, and 54.0% age-1.4, with 63.5% of the total being male (Table 8). Mean lengths by age group from the Unalakleet River test fish catch ranged from 510 mm for age-1.2 females to 863 mm for age-1.4 females.

The Subdistrict 6 chum salmon sample age composition was 36.0% age-0.3 and 59.6% age-0.4. Females accounted for 50.8% of the sample (Table 9). Age class 0.4 was the dominate returning age class to all river systems in 2001, followed by age-0.3. Minor age classes (<5%) are reported in tables 9-11. A sample of 260 chum salmon from the Unalakleet River test fishery was 21% age-0.3 and 74% age-0.4. The sex composition consisted of 68.1% males and 31.9% females (Table 10). The combined escapement sample from the Kwiniuk River above and below the tower was 9.3% age-0.3 and 86.1% age-0.4. The Niukluk River escapement sample was 15.7% age-0.3 and 82.3% age-0.4. The Nome River escapement sample was 13.8% age-0.3 and 84.1% age-0.4. The Snake River escapement sample was 41.8% age-0.3 and 56.4% age-0.4. The Eldorado River escapement sample was 94.4% age-0.4. Females comprised 54.0% at Kwiniuk River sample, 37.7% of the sample at Niukluk, 55.2% at the Nome River, 46.9% at the Snake River, and 41.7% at the Eldorado River. Mean lengths by age group for all samples collected ranged from 534 mm for age-0.2 males from the Kwiniuk River sample to 635 mm for age-0.5 males from the Nome River sample (Table 11).

Age-2.1 dominated the subdistrict 6 coho commercial catch, accounting for 63.8%, with 54.8% being males (Table 12). There were 164 coho salmon sampled from the Unalakleet River test fishery with 82.3% being age-2.1 (Table13). Coho salmon escapement samples from the Kwiniuk, Nome, and Snake Rivers were 66.8%, 89.5%, and 78.2% age-2.1 respectively (Table 14). Mean lengths by age group for all samples collected ranged from 552 mm for age-1.1 females in the Snake River escapement sample to 638 mm for age-3.1 males from the Nome River sample.

Kotzebue Sound

Commercial Harvest

The commercial harvest in the Kotzebue District during 2001 consisted of 211,672 chum salmon, and 6 chinook salmon (Table 15). Dolly Varden were not purchased in 2001. Poor market

conditions and the buyer's limited capacity depressed the commercial chum harvest but it still made the lower limit of the preseason-projected harvest of 200,000-300,000 salmon. The 2001 harvest was 81% of the 22-year (1979-2000) average of 261,795. Only 66 permits were fished this year making it the fifth lowest participation level since 1967 (Table 16). The low fishing effort was attributed to low prices. Possibly fishermen found employment that provided a higher and more consistent income.

Two buyers purchased a total of 1,847,262 pounds of chum salmon (average weight 8.7 pounds) at $0.17 per pound and 64 pounds of chinook salmon (average weight 10.7 pounds) at an average price of $1.00 per pound. Ten chum salmon were retained for personal use. The total exvessel value was $322,650 to Kotzebue area fishermen with an average of $4,889 for each participating permit holder. The two buyers packed the fish in ice and flew them in the round to Anchorage or Unalakleet for processing.

Limited commercial harvest of miscellaneous finfish has been allowed since statehood, normally under the auspices of a permit, which delineates harvest levels, open areas, legal gear, etc. No commercial harvest of whitefish, pike, or burbot was reported during the 2001 commercial season. Sheefish are caught and sold primarily between mid-November and late March. Although some permit holders annually renew their permits, no fish tickets were turned in to the Department and the extent of the harvest and its value is unknown.

Subsistence Harvest

Results from the Division of Subsistence survey indicate an estimated subsistence harvest of 50,061 salmon in the Kotzebue Sound area in 2001, with 98.34% of the harvest being chum salmon (Table 17). Smaller quantities of the other four species of salmon were reportedly harvested. The city of Kotzebue had the largest estimated harvest of 17,756 salmon, with the village of Noatak taking the smallest quantity (2,442 salmon).

Escapement Abundance

Only one aerial survey was conducted in the Kotzebue District in 2001. The aerial survey was conducted on the upper Kobuk River above Kobuk village on 24 August. The count of 13,420 live chum salmon was made under good survey conditions. Observations indicated the escapement to be within the BEG range. Comparisons with past escapements and aerial survey goals are shown in Table 18. The only other indicator of escapement in the district was the test fishing project on the Kobuk River, which had the second highest index since the project began in 1993 (Table 19).

Age, Sex, and Length Composition

Age groups 0.3 and 0.4 typically dominate the commercial chum salmon catch, with smaller percentages of age-0.2 and age-0.5 fish. The chum salmon commercial harvest for the season was

composed of an estimated 45.7% age-0.3 and 49.9% age-0.4 (Table 20). Mean lengths from the commercial catch ranged from 633 mm for age-0.4 and 0.5 males to 565 mm for age-0.2 females. Sufficient samples were collected to stratify the season's age composition by fishing period (Appendix C).

The age composition from the Kobuk River chum salmon drift gillnet test fishing samples was 36.9% age-0.3 and 58.6% age-0.4 (Table21). Fifty-eight percent of the samples from the Kobuk River were female. Mean lengths from the drift test fish samples ranged from 575 mm for age-0.2 females to 629 mm for age-0.5 males from the Kobuk River sample. Sufficient test fishing catch samples from the Kobuk River were collected to stratify the season's age composition into three periods. The age composition from the Noatak River chum salmon drift gillnet test fishing samples was 4.7% age-0.2, 72.4% age-0.3, and 21.4% age-0.4 (Table 22). Samples from the Noatak River were 71.2% female.

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Table 1. Norton Sound commercial salmon effort, catch, and weight (pounds) by subdistrict, 2001.

Subdistrict	Number of Fishermen	Chinook		Sockeye		Coho		Pink		Chum		Total	
		No. Fish	Weight	No. Fish	Weight	No. Fish	Weight	No. Fish	Weight	No. Fish	Weight	No. Fish	Weight
1													
2	5	-	-	43	344	30	229	-	-	7,094	51,324	7,167	51,897
3	5	7	59	-	-	1,696	13,398	-	-	681	4,617	2,384	18,074
4	-	-	-	-	-	-	-	-	-	-	-	-	-
5	13	90	1,712	-	-	2,664	20,964	-	-	1,813	13,045	4,567	35,721
6	29	116	2,032	1	9	15,102	117,702	-	-	1,512	10,572	16,731	130,315
Total	79	213	3,803	44	353	19,492	152,293	-	-	11,100	79,558	30,849	236,007

Table 2. Dollar estimates of Norton Sound District commercial salmon fishery, 1961 - 2001.

Year	Gross Value of Catch to Fishermen	Wages Earned [b]	License and Tax Revenues to State (License Fees Only)
1961	[a]	[a]	$2,010
1962	$105,800	[a]	$16,341
1963	$104,000	[a]	$18,009
1964	$51,000	[a]	$11,305
1965	$21,483	[a]	$5,084
1966	$68,000	[a]	$4,680
1967	$44,038	$58,000.00	$3,500
1968	$63,700	[a]	$4,000
1969	$95,297	$72,145.00	[a]
1970	$99,019	$55,100.00	$5,595
1971	$101,000	$65,500.00	$5,730
1972	$102,225	$68,700.00	$7,000
1973	$308,740	$81,000.00	$15,400
1974	$437,127	$129,600.00	$20,028
1975	$413,255	$172,800.00	$28,230
1976	$285,283	[a]	$10,133
1977	$546,010	[a]	$11,386
1978	$907,330	[a]	$12,002
1979	$878,792	[a]	$11,780
1980	$572,125	[a]	$11,640
1981	$761,658	[a]	$11,940
1982	$1,069,723	[a]	$7,155
1983	$946,232	[a]	$10,700
1984	$738,064	[a]	$9,690
1985	$818,477	[a]	$5,820
1986	$546,452	[a]	$5,970
1987	$517,894	[a]	$5,940
1988	$760,641	[a]	$10,050
1989	$319,489	[a]	$10,300
1990	$474,064	[a]	$10,350
1991	$413,479	[a]	$10,250
1992	$463,616	[a]	$10,200
1993	$368,723	[a]	$8,835
1994	$863,060	[a]	$10,000
1995	$356,164	[a]	$5,250
1996	$292,264	[a]	$4,300
1997	$326,618	[a]	$5,100
1998	$351,410	[a]	$4,100
1999	$82,638	[a]	[a]
2000	$143,621	[a]	[a]
2001	$56,921	[a]	[a]

[a] Information not available.

[b] Includes wages paid to tender boat operators, processing plant employees in district.

[c] Includes only permit renewals and vessel license fees.

[d] The Alaska state legislature lowered all resident permit renewal fees and vessel license fees to poverty level fees for 1982.

[e] Includes only permit renewal fees.

[f] The Alaska state legislature raised resident permit renewal fee to $50.00 in 1988.

5-yr ave	$192,242
10-yr ave	$330,504

Table 3. Subsistence Teir I permit harvests of salmon in Norton Sound and Port Clarence, 2001.

Location	Permits Issued	Permits Returned	Permits Fished	Chinook	Sockeye	Coho	Pink	Chum	Total Salmon
Marine Waters	23	20	6	-	32	47	39	84	202
Nome River	23	19	3	-	-	2	-	-	2
Snake River	6	5	2	-	-	4	0	30	34
Eldorado River	13	11	7	-	-	-	6	129	135
Flambeau River	4	4	1	-	-	67	-	3	70
Bonanza River	4	3	-	-	-	-	-	-	0
	3	2	1	-	-	20	-	1	21
Solomon River	1	-	-	-	-	-	-	-	0
Penny River	-	-	-	-	-	-	-	-	0
Cripple Creek	-	-	-	-	-	-	-	-	0
Sinuk River	3	3	2	-	-	27	-	-	27
Feather River	-	-	-	-	-	-	-	-	0
Fish River	1	1	1	-	-	66	-	-	66
Niukluk River	9	7	6	2	-	58	-	2	62
Port Clarence	-	-	-	-	-	-	-	-	0
Kuzitrin River	1	1	1	-	4	-	-	6	10
Pilgrim River	19	13	7	3	165	20	-	-	188
Unknown River	0	-	-	-	-	-	-	-	0
Total	110	89	37	5	201	311	45	255	817

Table 4. Subsistence Teir II permit harvests of salmon in Norton Sound and Port Clarence, 2001.

Location	Permits Issued [a]	Permits Returned [a]	Permits Fished	Chinook	Sockeye	Coho	Pink	Chum	Total Salmon
Marine Waters	7	7	6	2	57	103	57	230	449
Nome River	0	-	-	-	-	-	-	-	0
Snake River	0	-	-	-	-	-	-	-	0
Eldorado River	5	5	5	-	-	19	1	232	252
Flambeau River	3	3	3	-	-	74	7	54	135
Bonanza River	0	-	-	-	-	-	-	-	0
Safety Sound	0	-	-	-	-	-	-	-	0
Solomon River	0	-	-	-	-	-	-	-	0
Penny River	0	-	-	-	-	-	-	-	0
Cripple Creek	0	-	-	-	-	-	-	-	0
Sinuk River	2	2	2	-	3	38	-	61	102
Feather River	0	-	-	-	-	-	-	-	0
Fish River	0	-	-	-	-	-	-	-	0
Niukluk River	0	-	-	-	-	-	-	-	0
Port Clarence	0	-	-	-	-	-	-	-	0
Kuzitrin River	0	-	1	-	-	-	-	-	0
Pilgrim River	0	-	7	-	-	-	-	-	0
Unknown River	2	2	2	-	-	28	3	64	95
Total	19	19	26	2	60	262	68	641	1,033

Table 5. Estimates of subsistence harvests of salmon from Norton Sound and Port Clarence Area villages, 2001.

Village	Chinook	Chum	Pink	Sockeye	Coho	Total Salmon
Nome	2	858	113	92	425	1,490
Golovin	65	1,206	168	68	199	1,706
Niukluk River Permits	2	2	-	-	124	128
White Mountain	21	2,083	1,497	4	557	4,162
Elim	427	898	1,390	70	1,352	4,137
Koyuk	460	4,445	5,203	14	276	10,398
	936	1,553	10,172	143	2,090	14,894
Unalakleet	2,810	2,918	11,279	359	6,270	23,636
Stebbins	570	3,999	202	-	2,759	7,530
St. Michael	283	2,248	229	17	491	3,268
Brevig Mission	41	1,041	468	2,040	1,070	4,660
Pilgrim R. Permits	3	6	-	169	20	198
Teller	40	863	715	1,483	209	3,310
Total	5,660	22,120	31,436	4,459	15,842	79,517

Table 6. Salmon survey counts of Norton Sound streams and associated salmon escapement goals, 2001.

Stream Name	Chinook	Chinook SEG Range	Chum	Chum SEG Range	Coho	Coho SEG Range	Sockeye	Sockeye SEG Range	Pink	Pink SEG
Salmon L.							#	Combined		
Grand Central R.							#[a]	4,000 - 8,000[d]		
Pilgrim R.	3				454		#			
Glacial L.[b]							#	800 - 1,600[d]		
Sinuk R.			3,746	4,000 - 6,200	750		#		115	
Cripple R.			149		163					
Penny R.			6		16					
Snake R.[b]	33		2,182	800 - 1,600[e]	1,335				1,295	
Nome R.[b]	7		2,859	1,600 - 3,200[e]	2,418		#	55	3,138	13,000
Flambeau R.			3,612	Combined	213				4	
Eldorado R.[b]	50		11,635	5,200 -10,400[e]	1,509		2		8	
Bonanza R.	1		1,084	2,300 - 3,400	1,269				488	
Solomon R.			280	1,100 - 1,600	297					
Fish R.	8[a]	Combined	3,220[a]	Combined	1,055[a]				1,744	
Boston Cr.	33[a]	100 - 250[d]	3,533[a]	23,200 - 46,400[d]	155[a]				1,038	
Niukluk R.[b]	30		30,662		3,468	Combined			41,625	8,400
Ophir Cr.					162	950 - 1,900[d]				
Kwiniuk R.[b]	258	300 - 550	16,598	15,600 - 31,200[f]	9,532	650-1,300[d]			8,423	12,500
Tubutulik R.	77[a]		863[a]	8,000 - 16,000[f]						
Inglutalik R.[c]										
Ungalik R.[c]										
Shaktoolik R.	341	400 - 800[d]	1,815							48,000
Unalakeet R.[c]		Combined		Combined						
Old Woman R.[c]		550 - 1,100[d]		2,400 - 4,800[d]						
North R.[b]	1,337	1,200 - 2,400	6,515		12,383	550-1,100[d]			24,737	8,500

Note: Counts are aerial survey observation except where footnoted. A multitude of factors affect escapement estimates. The aerial survey observations above are strict values which are instantaneous counts that alone do not fully represent the strength of the run.

[a] Counts should be considered minimums due to counting conditions or well after peak spawning date.

[b] Preliminary expanded tower counts, except for Nome River and Glacial Lake which are weir counts.

[c] No surveys were done either due to poor counting conditions or lack of aircraft or personnel.

[d] Aerial survey goal.

[e] The Board of Fisheries also established an OEG with the same range as the SEG.

[f] Biological escapement goal. The Board of Fisheries has established an OEG of 11,500 - 23,000 for the Kwiniuk River and 9,200 - 18,400 for the Tubutulik River.

Table 7. Norton Sound Subdistrict 6 chinook salmon commercial catch sample age and sex composition, and mean length, 2001

		Brood Year and (Age Group)						
		1997 (1.2)	1996 (1.3)	1995 (1.4)	1995 (2.3)	1994 (2.4)	1994 (1.5)	Total
Sampling Dates:	7/6-7/10							
Sample Size:	57							
Female	Percent of Sample	31.6%	3.5%	10.5%	1.8%			47.4%
	Number in Sample	18	2	6	1			27
	Mean length (mm) [a]	564	630	853	760			
Male	Percent of Sample	0.0%	0.0%	47.4%	0.0%		5.3%	52.6%
	Number in Sample	0	0	27	0		3	30
	Mean length (mm) [a]			890			867	
Totals	Percent of Sample	31.6%	3.5%	57.9%	1.8%		5.3%	100.0%
	Number in Sample	18	2	33	1		3	57

[a] Length was from mid-eye to fork of tail.

Table 8. Unalakleet River chinook salmon test fishing sample age and sex composition and, mean length, 2001

		Brood Year and (Age Group)						
		1997 (1.2)	1996 (1.3)	1995 (1.4)	1995 (2.3)	1994 (2.4)	1994 (1.5)	Total
Sampling Dates:	6/15-7/17							
Sample Size:	63							
Male	Percent of Sample	34.9%	7.9%	20.6%				63.5%
	Number in Catch	22	5	13				40
	Mean length (mm) [a]	577	700	842				
Female	Percent of Sample	1.6%	1.6%	33.3%				36.5%
	Number in Catch	1	1	21				23
	Mean length (mm) [a]	510	660	863				
Total	Percent of Sample	36.5%	9.5%	54.0%	0.0%	0.0%	0.0%	100.0%
	Number in Catch	23	6	34	0	0	0	63

[a] Length was from mid-eye to fork of tail.

Table 9. Norton Sound Subdistrict 6 chum salmon commercial catch sample age and sex composition, and mean length, 2001.

		Brood Year and (Age Group)				
		1998 (0.2)	1997 (0.3)	1996 (0.4)	1995 (0.5)	Total
Sampling Dates:	7/6-8/7					
Sample Size:	356					
Male	Sample	0.3%	17.7%	28.7%	2.5%	49.2%
	Number	1	63	102	9	175
	Mean length (mm) [a]	555	598	615	636	
Female	Sample	0.3%	18.3%	30.9%	1.4%	50.8%
	Number	1	65	110	5	181
	Mean length (mm) [a]	570	587	597		
Totals	Sample	0.6%	36.0%	59.6%	3.9%	100.0%
	Number	2	128	212	14	356

[a] Length was from mid-eye to fork of tail.

Table 10. Unalakleet River chum salmon test fishing catch sample age and sex composition, and mean length, 2001.

		Brood Year and (Age Group)				
		1998 (0.2)	1997 (0.3)	1996 (0.4)	1995 (0.5)	Total
Sampling Dates:	6/16-9/7					
Sample Size:	260					
Male	Percent of Sample	1.5%	15.4%	48.8%	2.3%	68.1%
	Number	4	40	127	6	173
	Mean length (mm) [a]	555	604	636	634	
Female	Percent of Sample	0.0%	5.8%	25.4%	0.8%	31.9%
	Number		15	66	2	68
	Mean length (mm) [a]		596	612	612	
Totals	Percent of Sample	1.5%	21.2%	74.2%	3.1%	100.0%
	Number	19	106	129	6	260

[a] Length was from mid-eye to fork of tail.

Table 11. Norton Sound District chum salmon escapement sample age and sex composition, and mean length, 2001.

			Brood Year and (Age Group)				
			1998	1997	1996	1995	
			(0.2)	(0.3)	(0.4)	(0.5)	Total
Kwiniuk River							
	Sampling Dates:	6/27-7/19					
	Sample Size:	763					
	Male	Percent of Sample	1.6%	3.5%	40.4%	0.5%	46.0%
		Number	12	27	308	4	351
		Mean length (mm) [a]	534	579	623	621	
	Female	Percent of Sample	2.0%	5.8%	45.7%	0.5%	54.0%
		Number	15	44	349	4	412
		Mean length (mm) [a]	535	559	586	590	
	Total	Percent of Sample	3.5%	9.3%	86.1%	1.0%	100.0%
		Number	27	71	657	8	763
Niukluk River							
	Sampling Dates:	7/12-8/27					
	Sample Size:	695					
	Male	Percent of Sample	1.2%	11.2%	49.1%	0.9%	62.3%
		Number	8	78	341	6	433
		Mean length (mm) [a]	562	590	616	615	
	Female	Percent of Sample	0.0%	4.5%	33.2%	0.0%	37.7%
		Number	0	31	231	0	262
		Mean length (mm) [a]		564	583		
	Total	Percent of Sample	1.2%	15.7%	82.3%	0.9%	100.0%
		Number	8	109	572	6	695
Nome River							
	Sampling Dates:	7/6-8/22					
	Sample Size:	529					
	Male	Percent of Sample	0.6%	5.3%	38.6%	0.4%	44.8%
		Number	3	28	204	2	237
		Mean length (mm) [a]	556	598	628	635	
	Female	Percent of Sample	0.6%	8.5%	45.6%	0.6%	55.2%
		Number	3	45	241	3	292
		Mean length (mm) [a]	563	562	584	576	
	Total	Percent of Sample	1.1%	13.8%	84.1%	0.9%	100.0%
		Number	6	73	445	5	529

(continued)

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			Brood Year and (Age Group)				
			1998 (0.2)	1997 (0.3)	1996 (0.4)	1995 (0.5)	Total
Snake River							
	Sampling Dates:	8/6-8/21					
	Sample Size:	273					
	Male	Percent of Sample	1.1%	20.5%	31.1%	0.4%	53.1%
		Number	3	56	85	1	145
		Mean length (mm) [a]	566	579	619	595	
	Female	Percent of Sample	0.0%	21.2%	25.3%	0.4%	46.9%
		Number	0	58	69	1	128
		Mean length (mm) [a]		546	571	565	
	Total	Percent of Sample	1.1%	41.8%	56.4%	0.7%	100.0%
		Number	3	114	154	2	273
Eldorado River							
	Sampling Dates:	7/22-8/16					
	Sample Size:	587					
	Male	Percent of Sample	0.2%	2.0%	55.9%	0.2%	58.3%
		Number	1	12	328	1	342
		Mean length (mm) [b]					
	Female	Percent of Sample	0.2%	2.4%	38.5%	0.7%	41.7%
		Number	1	14	226	4	245
		Mean length (mm) [b]					
	Total	Percent of Sample	0.3%	4.4%	94.4%	0.9%	100.0%
		Number	2	26	554	5	587

[a] Length was from mid-eye to fork of tail.

[b] Lengths were not measured at Eldorado River.

Table 12. Norton Sound Subdistrict 6 coho salmon commercial catch sample age and sex composition, and mean length, 2001.

		Brood Year and (Age Group)			
		1,998 (1.1)	1997 (2.1)	1996 (3.1)	Total
Sampling Dates:	7/28-8/28				
Sample Size:	199				
Male	Percent of Sample	1.5%	39.2%	14.1%	54.8%
	Number	3	78	28	109
	Mean length (mm) [a]	597	580	594	
Female	Percent of Sample	2.5%	24.6%	18.1%	45.2%
	Number	5	49	36	90
	Mean length (mm) [a]	628	587	584	
Total	Percent of Sample	4.0%	63.8%	32.2%	100.0%
	Number	8	127	64	199

[a] Length was from mid-eye to fork-of-tail.

Table 13. Unalakleet River coho salmon test fishing catch sample age and sex composition, and mean length, 2001.

		Brood Year and (Age Group)			
		1998 (1.1)	1997 (2.1)	1996 (3.1)	Total
Sampling Dates:	7/20-9/07				
Sample Size:	164				
Male	Percent of Sample	2.4%	46.3%	4.9%	53.7%
	Number	4	76	8	88
	Mean length (mm) [a]	621	605	594	
Female	Percent of Sample	1.8%	36.0%	8.5%	46.3%
	Number	3	59	14	76
	Mean length (mm) [a]	612	603	612	
Total	Percent of Sample	4.3%	82.3%	13.4%	100.0%
	Number		135	22	164

[a] Length was from mid-eye to fork-of-tail.

Table 14. Norton Sound District coho salmon escapement sample age and sex composition, and mean length, 2001.

			Brood Year and (Age Group)			
			1998 (1.1)	1997 (2.1)	1996 (3.1)	Total
Kwiniuk River						
Sampling Dates:		7/30-9/9				
Sample Size:		211				
Male	Percent of Sample		12.3%	29.4%	4.3%	46.0%
	Number		26	62	9	97
	Mean length (mm) [a]		616	630	620	
Female	Percent of Sample		14.7%	37.4%	1.9%	54.0%
	Number		31	79	4	114
	Mean length (mm) [a]		614	615	610	
Total	Percent of Sample		27.0%	66.8%	6.2%	100.0%
	Number		57	141	13	211
Nome River						
Sampling Dates:		8/9-9/6				
Sample Size:		442				
Male	Percent of Sample		5.9%	45.2%	0.2%	51.3%
	Number		26	200	1	227
	Mean length (mm) [a]		576	587	638	
Female	Percent of Sample		4.0%	44.3%	0.4%	48.7%
	Number		18	196	2	215
	Mean length (mm) [a]		587	580	605	
Total	Percent of Sample		9.9%	89.5%	0.6%	100.0%
	Number		44	396	3	442
Snake River						
Sampling Dates:		9/7-9/11				
Sample Size:		110				
Male	Percent of Sample		1.8%	36.4%	8.2%	46.4%
	Number		2	40	9	51
	Mean length (mm) [a]		571	599	560	
Female	Percent of Sample		1.8%	41.8%	10.0%	53.6%
	Number		2	46	11	59
	Mean length (mm) [a]		552	593	580	
Total	Percent of Sample		3.6%	78.2%	18.2%	100.0%
	Number		4	86	20	110

[a] Length was from mid-eye to fork-of-tail.

Table 15. Kotzebue District Commercial catch, weight, and average weight of chum salmon, chinook salmon, and Dolly Varden by period, 2001.

Opening	Date	Hours Fished	Number of Fishermen	Catch Rate (chum)	Chum			Chinook			Dolly Varden		
					Number	Pounds	Avg. Wt.	Number	Pounds	Avg. Wt.	Number	Pounds	Avg. Wt.
1	7/10	12	5	33.5	2,009	16,563	8.2	0	0	0.0	0	0	0.0
2	7/11	12	8	31.8	3,049	26,292	8.6	0	0	0.0	0	0	0.0
3	7/12	12	14	25.6	4,298	37,339	8.7	0	0	0.0	0	0	0.0
4	7/13	12	12	38.4	5,526	50,418	9.1	1	8	8.0	0	0	0.0
5	7/16	12	13	15.1	2,354	21,026	8.9	0	0	0.0	0	0	0.0
6	7/17	12	8	8.0	769	6,551	8.5	0	0	0.0	0	0	0.0
7	7/18	12	18	23.4	5,054	45,021	8.9	0	0	0.0	0	0	0.0
8	7/19	12	19	16.0	3,645	32,109	8.8	0	0	0.0	0	0	0.0
9	7/20	12	25	48.2	14,472	132,566	9.2	0	0	0.0	0	0	0.0
10	7/23	12	39	40.1	18,761	168,679	9.0	0	0	0.0	0	0	0.0
11	7/24	12	28	42.7	14,334	126,830	8.8	1	7	7.0	0	0	0.0
12	7/25	8	26	39.6	8,234	73,514	8.9	0	0	0.0	0	0	0.0
13	7/26	12	33	30.4	12,027	106,956	8.9	0	0	0.0	0	0	0.0
14	7/27	12	25	14.2	4,270	38,284	9.0	0	0	0.0	0	0	0.0
15	7/30	8	25	35.3	7,060	60,581	8.6	0	0	0.0	0	0	0.0
16	7/31	12	40	31.4	15,065	132,901	8.8	2	21	10.5	0	0	0.0
17	8/1	8	34	32.9	8,942	82,639	9.2	0	0	0.0	0	0	0.0
18	8/2	6	22	44.3	5,841	49,527	8.5	0	0	0.0	0	0	0.0
19	8/3	12	35	24.1	10,142	90,661	8.9	1	4	4.0	0	0	0.0
20	8/7	12	30	36.8	13,240	113,978	8.6	0	0	0.0	0	0	0.0
21	8/8	12	32	20.8	7,992	68,466	8.6	0	0	0.0	0	0	0.0
22	8/9	12	37	33.8	15,003	126,041	8.4	0	0	0.0	0	0	0.0
23	8/10	12	32	29.3	11,251	93,718	8.3	0	0	0.0	0	0	0.0
24	8/14	12	23	14.8	4,083	32,711	8.0	0	0	0.0	0	0	0.0
25	8/15	12	20	17.0	4,068	32,488	8.0	0	0	0.0	0	0	0.0
26	8/16	12	4	24.6	1,179	9,091	7.7	1	24	24.0	0	0	0.0
27	8/17	12	11	8.2	1,078	8,570	7.9	0	0	0.0	0	0	0.0
28	8/20	12	11	23.0	3,040	24,708	8.1	0	0	0.0	0	0	0.0
29	8/21	12	2	11.8	282	2,183	7.7	0	0	0.0	0	0	0.0
30	8/22	12	10	10.5	1,263	10,061	8.0	0	0	0.0	0	0	0.0
31	8/23	12	6	20.2	1,456	11,771	8.1	0	0	0.0	0	0	0.0
32	8/24	12	7	22.4	1,885	15,118	8.0	0	0	0.0	0	0	0.0
Totals		366	66		211,672	1,847,361	8.7	6	64	10.7	0	0	0.0

The catch rate is the number of chum salmon per fisherman per hour

Table 16. Kotzebue District Chum Salmon Catch Statistics 1962-2000 and 2001.

Year	Total Catch	Total Days [a]	Boat Days [b]	Catch/Boat Day	Number Fishermen [c]	Season Catch per Fisherman
1962	129,948	21.0	793	164	84	1,547
1963	54,445	20.0	693	79	61	893
1964	76,449	27.0	560	137	52	1,470
1965	40,025	32.0	410	98	45	889
1966	30,764	35.0	548	56	44	699
1967	29,400	33.0	556	53	30	980
1968	30,212	34.0	858	35	59	512
1969	59,335	40.0	798	74	52	1,141
1970	159,664	32.0	1,368	117	82	1,947
1971	154,956	29.0	1,468	106	91	1,703
1972	169,664	35.0	2,095	81	104	1,631
1973	375,432	25.0	2,217	169	148	2,537
1974 [d]	627,912	32.0	3,769	167	185	3,394
1975 [e]	563,345	39.0	4,301	131	267	2,110
1976	159,796	16.0	2,236	71	220	726
1977	195,895	21.0	2,353	83	224	875
1978	111,494	23.0	2,738	41	208	536
1979	141,623	21.0	2,462	58	181	782
1980	367,284	27.0	2,559	144	176	2,087
1981	677,239	27.0	3,336	203	187	3,622
1982	417,790	23.5	3,115	134	199	2,099
1983	175,762	12.5	1,557	113	189	930
1984	320,206	19.5	2,432	132	181	1,769
1985	521,406	25.5	3,376	154	189	2,759
1986	261,436	15.5	2,049	128	187	1,398
1987	109,467	11.5	1,160	94	160	684
1988	352,915	21.5	2,761	128	193	1,829
1989	254,617	22.2	1,961	130	165	1,543
1990	163,263	11.5	1,760	93	153	1,067
1991	239,923	22.5	1,795	134	142	1,690
1992	289,184	17.0	1,513	191	149	1,941
1993 [f]	73,071	7.0	431	170	114	641
1994 [g]	153,452	9.8	426	360	109	1,408
1995	290,730	9.7	282	1,031	92	3,160
1996 [h]	82,110	6.0	76	1,080	55	1,493
1997	142,720	16.5	330	432	68	2,099
1998	55,907	13.0	187	300	45	1,242
1999	138,605	13.5	212	654	60	2,310
2000	159,802	14.0	283	565	64	2,497
Average	214,288	22.1	1,585	207	129	1,606
2001 [i]	211,672	15.3	307	689	66	3,207

a Day = 24 hours of open fishing time.

b Boat days standardized in 1983 for all prior years. Boat days = number of boats fishing times period length in hours divided by 24. Total boat days = total season boat hours divided by 24.

c During 1962-1966 and 1968-1971 figures represent the number of vessels licensed to fish in the Kotzebue District, not the number of fishermen.

d Includes 6,567 chum salmon frpm the Deering experimental fishery.

e Includes 10,704 chum salmon from the Deering experimental fishery.

f Includes 2,000 chum salmon from the Sikusuilaq springs Hatchery terminal fishery.

g Includes 4,000 chum salmon commercially caught but not sold on July 29.

h Includes 2,200 chum salmon commercially caught but not sold on July 29.

i Includes 10 chum salmon commercially caught but not sold on July 16.

Information Prior to 1997 From Regional Information Report no. 3A97-30

Table 17. Estimates of subsistence harvests of salmon in the Kotzebue Sound Area, 2001.

Village	Chinook	Chum	Pink	Sockeye	Coho	Total Salmon
Ambler	NA	NA	NA	NA	NA	-
Kiana[1]	-	5,500	-	-	-	5,500
Kobuk	-	2,843	1	1	-	2,845
Kotzebue	5	17,713	25	13	-	17,756
Noatak	-	2,326	-	-	116	2,442
Noorvik	6	16,540	10	-	652	17,208
	-	4,310	-	-	-	4,310
Total	11	49,232	36	14	768	50,061
% by Species	0.02%	98.34%	0.07%	0.03%	1.53%	100.00%

[1] Includes 2,036 chum salmon from the ADF&G test net fishery

Table 18. Kotzebue District chum salmon aerial survey escapement indices and current goals for primary index streams,1962-2001.[a]

Year	Noatak River 000-128,000)	Eli River (Combined with Noatak)	Squirrel River (7,200-14,400)	Salmon River (3,200-6,400)	Tutuksuk River (1,200-2400)	Upper Kobuk Mainstem (8,000-16,000)
1962	168,000	9,080	5,384	12,936	10,841	9,224
1963	1,970 [b]	35 [b]	2,200	1,535	670	4,535
1964	89,798		8,009	9,353	2,685	7,985
1965	6,152 [b]		7,230	1,500 [b]		2,750
1966	101,640	120	1,350	3,957	1,383	1,474
1967	29,120 [b]		3,332	2,116	169	2,495
1968	39,394	5,502	6,746	3,367	823	2,370
1969	33,945	68	6,714	2,561	159	7,500 [c]
1970	138,145		4,418	3,000 [b]	2,000 [b]	13,908
1971	41,056		6,628	5,453	1,384	17,202
1972	64,315 [b]	3,286 [b]	32,126	2,073 [b]		18,155
1973	32,144		12,345	6,891		2,470 [b]
1974	129,640	22,249	32,523	29,190	8,312	28,120
1975	96,509	1,302	32,256	9,721	1,344 [b]	10,702
1976	44,574	1,205	7,229	1,161	758	2,522 [b]
1977	11,221 [b]	742 [b]	1,964 [b]			
1978	37,817	5,525	1,863	814 [b]	368 [b]	1,981 [b]
1979	15,721 [b]	1,794 [b]	1,500 [b]	674 [b]	382 [b]	2,008
1980	164,474	10,277	13,563	8,456	1,165	11,472
1981	116,352		9,854	4,709	1,114	8,648
1982	20,682 [b]	189 [b]	7,690	1,821 [c]	1,322	14,674
1983	79,773	3,044	5,115	1,677	2,637	33,746
1984	67,873	5,027	5,473	1,471	1,132	10,621
1985	45,525 [b]	855 [b]	6,160	2,884	5,089	6,278
1986	37,227 [b]	4,308 [b]	4,982	1,971	4,257	6,015
1987	5,515 [b]	2,780 [b]	2,708 [c]	3,333	206	8,210
1988	45,930 [b]	8,639 [b]	4,848 [b]	6,208	3,122	11,895 [b]
1989						
1990	23,345 [b]	3,000	5,500	6,335	2,275	15,355
1991	82,750	2,940	4,606	5,845	744	24,525
1992	34,335 [b]	701 [b]	2,765	1,345	1,162	11,803
1993	25,415 [b]	4,795	4,463	13,880	1,196	12,158
1994						
1995	159,260	7,860	10,605	13,988	3,901	35,725
1996	306,900	30,040	21,795	21,740	8,200	74,770
1997	[d]	[d]	4,779 [b]	1,181 [b]	164 [b]	8,513 [b]
1998	3,121 [b]	[d]	[d]	[d]	[d]	816 [b]
1999	59,225 [b]	24,860	13,513	28,220 [b]	2,906 [b]	25,360
2000*						
2001						13,420

[a] Typically, three aerial surveys are attempted yearly at different intervals for each tributary to assess escapements prior to the peak, at the peak and after the peak of the run. Indices listed in this table are the largest survey observed for each tributary during the given year.

[b] Poor survey conditions or incomplete, early or late survey.

[c] Survey by foot or boat.

[d] Unacceptable conditions.

* No surveys were conducted in 2000.

Table 19. Kobuk River chum salmon drift test fish mean daily and cumulative CPUE, 1993-2001.

	1993		1994		1995		1996		1997		1998		1999		2000		2001		CPUE
Date	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	1993-2000
05-Jul																	0	0	
06-Jul																	2.59	2.59	
07-Jul															1.28	1.28	2.44	5.03	0.16
08-Jul															0.83	2.11	0.83	5.86	0.26
09-Jul							12.77	12.77	5.85	5.85					0	2.11	10.72	16.58	2.59
10-Jul							15.00	27.77	0.00	5.85	5.22	5.22			2.5	4.61	8.39	24.97	5.43
11-Jul							98.38	126.15	5.31	11.16	0.85	6.07	0.00	0.00	3.44	8.05	20.07	45.04	18.93
12-Jul	11.18	11.18			0.00	0.00	45.54	171.69	7.19	18.35	0	6.07	0.00	0.00	3.45	11.50	12.63	57.67	27.35
13-Jul	14.22	25.40	0.00	0.00	0.93	0.93	74.29	245.98	a	18.35	15.89	21.96	0.00	0.00	2.54	14.04	17.32	74.99	40.83
14-Jul	20.57	45.97	2.68	2.68	2.80	3.73	a	245.98	6.25	24.60	7.53	29.49	0.00	0.00	8.57	22.61	45.57	120.56	46.88
15-Jul	35.08	81.05	2.58	5.26	2.77	6.50	83.75	329.73	3.65	28.25	14.07	43.56	0.00	0.00	0.87	23.48	38.86	159.42	64.73
16-Jul	13.19	94.24	11.35	16.61	a	6.50	71.35	401.08	14.28	42.53	17.33	60.89	0.00	0.00	3.38	26.86	32.80	192.22	81.09
17-Jul	17.27	111.51	a	16.61	0.00	6.50	55.49	456.57	15.17	57.70	5.07	65.96	4.26	4.26	12.77	39.63	48.77	240.99	94.84
18-Jul	a	111.51	7.16	23.77	1.81	8.31	89.86	546.43	16.12	73.82	9.02	74.98	8.48	12.74	3.58	43.21	36.98	277.97	111.85
19-Jul	10.71	122.22	12.40	36.17	9.89	18.20	54.74	601.17	17.98	91.80		74.98	5.89	18.63	19.51	62.72	67.08	345.05	128.24
20-Jul	2.76	124.98	3.65	39.82	16.30	34.50	63.70	664.87	a	91.80	18.66	93.64	5.11	23.74	14.57	77.29	26.05	371.10	143.83
21-Jul	3.20	128.18	7.30	47.12	38.54	73.04	52.12	716.99	18.53	110.33	11.87	105.51	23.75	47.49	27.69	104.98	29.51	400.61	166.71
22-Jul	5.52	133.70	3.56	50.68	21.18	94.22	50.97	767.96	13.28	123.61	0.00	105.51	11.91	59.40	41.00	145.98	108.97	509.58	185.13
23-Jul	27.15	160.85	16.49	67.17	50.58	144.80	91.36	859.32	10.79	134.40	29.58	135.09	6.09	65.49	16.29	162.27	50.79	560.37	216.17
24-Jul	9.06	169.91	a	67.17	28.46	173.26	91.89	951.21	22.86	157.26	27.33	162.42	24.95	90.44	14.62	176.89	58.96	619.33	243.57
25-Jul	a	169.91	14.38	81.55	40.16	213.42	76.80	1,028.01	21.57	178.83	24.68	187.10	28.73	119.17	22.98	199.87	80.59	699.92	272.23
26-Jul	15.22	185.13	47.65	129.20	35.15	248.57	55.68	1,083.69	14.66	193.49		187.10	39.72	158.89	40.28	240.15	94.06	793.98	303.28
27-Jul	8.06	193.19	40.66	169.86	63.94	312.51	29.79	1,113.48	18.46	211.95	23.91	211.01	80.39	239.28	41.52	281.67	95.06	889.04	341.62
28-Jul	16.36	209.55	57.83	227.69	62.49	375.00	49.06	1,162.54	30.53	242.48	51.91	262.92		239.28	62.34	344.01	58.24	947.28	382.93
29-Jul	0.93	210.48	33.62	261.31	46.11	421.11	70.13	1,232.67	28.13	270.61	34.16	297.08	55.00	294.28	96.00	440.01	54.33	1,001.61	428.44
30-Jul	0.92	211.40	69.21	330.52	57.86	478.97	35.29	1,267.96	22.33	292.94	24.59	321.67	49.66	343.94	88.89	528.90	35.36	1,036.97	472.04
31-Jul	12.58	223.98	a	330.52	29.89	508.86	82.27	1,350.23	32.57	325.51	15.69	337.36	160.53	504.47	85.87	614.77	38.63	1,075.60	524.46
01-Aug	a	223.98	82.16	412.68	72.91	581.77	167.7	1,517.90	41.41	366.92	25.44	362.80	145.02	649.49	101.16	715.93	61.50	1,137.10	603.93
02-Aug	6.74	230.72	65.12	477.80	48.71	630.48	62.02	1,579.92	22.41	389.33		362.80	41.67	691.16	64.37	780.30	16.55	1,153.65	642.81
03-Aug	54.49	285.21	71.79	549.59	48.40	678.88	48.7	1,628.62	35.21	424.54	26.67	389.47	33.19	724.35	44.32	824.62	44.21	1,197.86	688.16
04-Aug	44.23	329.44	108.98	658.57	53.00	731.88	65.93	1,694.55	26.67	451.21	42.35	431.82	74.23	798.58	77.14	901.76	30.71	1,228.57	749.73
05-Aug	89.30	418.74	59.74	718.31	49.95	781.83	60.33	1,754.88	24.47	475.68	8.57	440.39	108.04	906.62	75.67	977.43	43.64	1,272.21	809.24
06-Aug	18.60	437.34	102.56	820.87	a	781.83	80.47	1,835.35	42.25	517.93	6.00	446.39	82.79	989.41	38.92	1,016.35	30.00	1,302.21	855.68
07-Aug	20.52	457.86	a	820.87	46.39	828.22	90.99	1,926.34	36.00	553.93	5.11	451.50	82.73	1,072.14	37.50	1,053.85	26.31	1,328.52	895.59
08-Aug	a	457.86	62.75	883.62	44.02	872.24	146.9	2,073.28	45.07	599.00	16.40	467.90		1,072.14	93.37	1,147.22	34.40	1,362.92	946.66
09-Aug	1.84	459.70	96.86	980.48	68.22	940.46	106.1	2,179.39	55.14	654.14	17.20	485.10	55.58	1,127.72	81.50	1,228.72	23.01	1,385.93	1006.96
10-Aug	12.63	472.33	45.83	1,026.31	56.33	996.79	56.95	2,236.34	a	654.14	9.46	494.56	44.73	1,172.45	113.87	1,342.59	54.88	1,440.81	1049.44
11-Aug	18.11	490.44	57.02	1,083.33	37.95	1,034.74	a	2,236.34	43.45	697.59	10.29	504.85	58.13	1,230.58	50.57	1,393.16	73.64	1,514.45	1083.88
12-Aug	3.74	494.18	90.54	1,173.87	63.92	1,098.66	72.29	2,308.63	37.36	734.95	19.44	524.29	48.5	1,279.08	24.86	1,418.02	47.23	1,561.68	1128.96
13-Aug			11.36	1,185.23	a	1,098.66	114.6	2,423.26	45.93	780.88	10.21	534.50	78.37	1,357.45	14.57	1,432.59	13.04	1,574.72	1101.57
14-Aug			a	1,185.23	29.35	1,128.01	158.1	2,581.39	16.01	796.89	3.85	538.35			7.83	1,440.42		1,574.72	1190.24
15-Aug			5.13	1,190.36	25.26	1,153.27					0	538.35							

a Regular day off.

Table 20. Kotzebue District chum salmon commercial catch age and sex composition, and mean length, 2001.

		Brood Year and (Age Group)					
		1998 (0.2)	1997 (0.3)	1996 (0.4)	1995 (0.5)	1994 (0.6)	Total
Stratum Dates:	7/10-8/24						
Sample Size:	3,670						
Male	Percent of Sample	1.4%	19.3%	20.2%	1.0%	0.0%	41.9%
	Number in Catch	2,916	40,810	42,769	2,124	19	88,638
	Mean Length (mm) [a]	574	607	633	633	630	
Female	Percent of Sample	1.0%	26.4%	29.7%	1.0%	0.1%	58.1%
	Number in Catch	2092	55,882	62,787	2,097	177	94,060
	Mean Length (mm) [a]	565	585	608	622	588	
Total	Percent of Sample	2.4%	45.7%	49.9%	2.0%	0.1%	100%
	Number in Catch	5,008	96,692	105,556	4,221	196	211,672

[a] Length was from mid-eye to fork-of-tail.

Table 21. Kobuk River chum salmon drift test fish catch, age, and sex composition by time period and season total, 2001.

		Brood Year and (Age Group)				
		1998 (0.2)	1997 (0.3)	1996 (0.4)	1995 (0.5)	Total
Stratum Dates:	7/6-7/21					
Sampling Dates:	7/6-7/21					
Sample Size:	287					
Male	Percent of Catch	0.0%	10.5%	36.6%	2.8%	49.8%
	Number in Catch	0	30	105	8	143
	Avg. Length(mm)		598	619	622	
Female	Percent of Catch	0.0%	10.5%	38.0%	1.7%	50.2%
	Number in Catch	0	30	109	5	144
	Avg. Length(mm)		585	602	622	
Total	Percent of Catch	0.3%	20.9%	74.6%	4.5%	100.0%
	Number in Catch	0	60	214	13	287
Stratum Dates:	7/22-7/31					
Sampling Dates:	7/22-7/31					
Sample Size:	308					
Male	Percent of Catch	0.3%	16.2%	18.8%	1.0%	36.4%
	Number in Catch	1	50	58	3	112
	Avg. Length(mm)	560	600	629	620	
Female	Percent of Catch	0.6%	19.2%	43.5%	0.3%	63.6%
	Number in Catch	2	59	134	1	196
	Avg. Length(mm)	560	584	600	600	
Total	Percent of Catch	1.0%	35.4%	62.3%	1.3%	100.0%
	Number in Catch	0	149	83	0	308
Stratum Dates:	8/1-8/13					
Sampling Dates:	8/1-8/13					
Sample Size:	335					
Male	Percent of Catch	1.8%	21.8%	16.1%	0.9%	40.6%
	Number in Catch	6	73	54	3	136
	Avg. Length(mm)	587	614	616	657	
Female	Percent of Catch	2.7%	30.1%	25.4%	1.2%	59.4%
	Number in Catch	9	101	85	4	199
	Avg. Length(mm)	578	582	595	628	
Total	Percent of Catch	4.5%	51.9%	41.5%	2.1%	100.0%
	Number in Catch	15	174	139	7	335
Stratum Dates:	7/6-8/13					
Sampling Dates:	7/6-8/13		Season Total			
Sample Size:	930					
Male	Percent of Catch	0.8%	16.5%	23.3%	1.5%	42.0%
	Number in Catch	7	153	217	14	391
	Avg. Length(mm)	583	606	621	629	
Female	Percent of Catch	1.2%	20.4%	35.3%	1.1%	58.0%
	Number in Catch	11	190	328	10	539
	Avg. Length(mm)	575	583	599	622	
Total	Percent of Catch	1.9%	36.9%	58.6%	2.6%	100.0%
	Number in Catch	18	343	545	24	930

Table 22. Noatak River chum salmon drift test fish catch, length, age, and sex composition, 2001.

		Brood Year and (Age Group)				
		1998 (0.2)	1997 (0.3)	1996 (0.4)	1995 (0.5)	Total
Sample Dates:	7/6-8/7					
Sample Size:	257					
Percent of Sample		1.6%	21.8%	5.1%	0.4%	28.8%
Number		4	56	13	1	74
		567	600	627	655	
Percent of Sample		3.1%	50.6%	16.3%	1.2%	71.2%
Number		8	130	42	3	183
Mean length (mm) [a]		570	587	597		
Percent of Sample		4.7%	72.4%	21.4%	1.6%	100.0%
Number		12	186	55	4	257

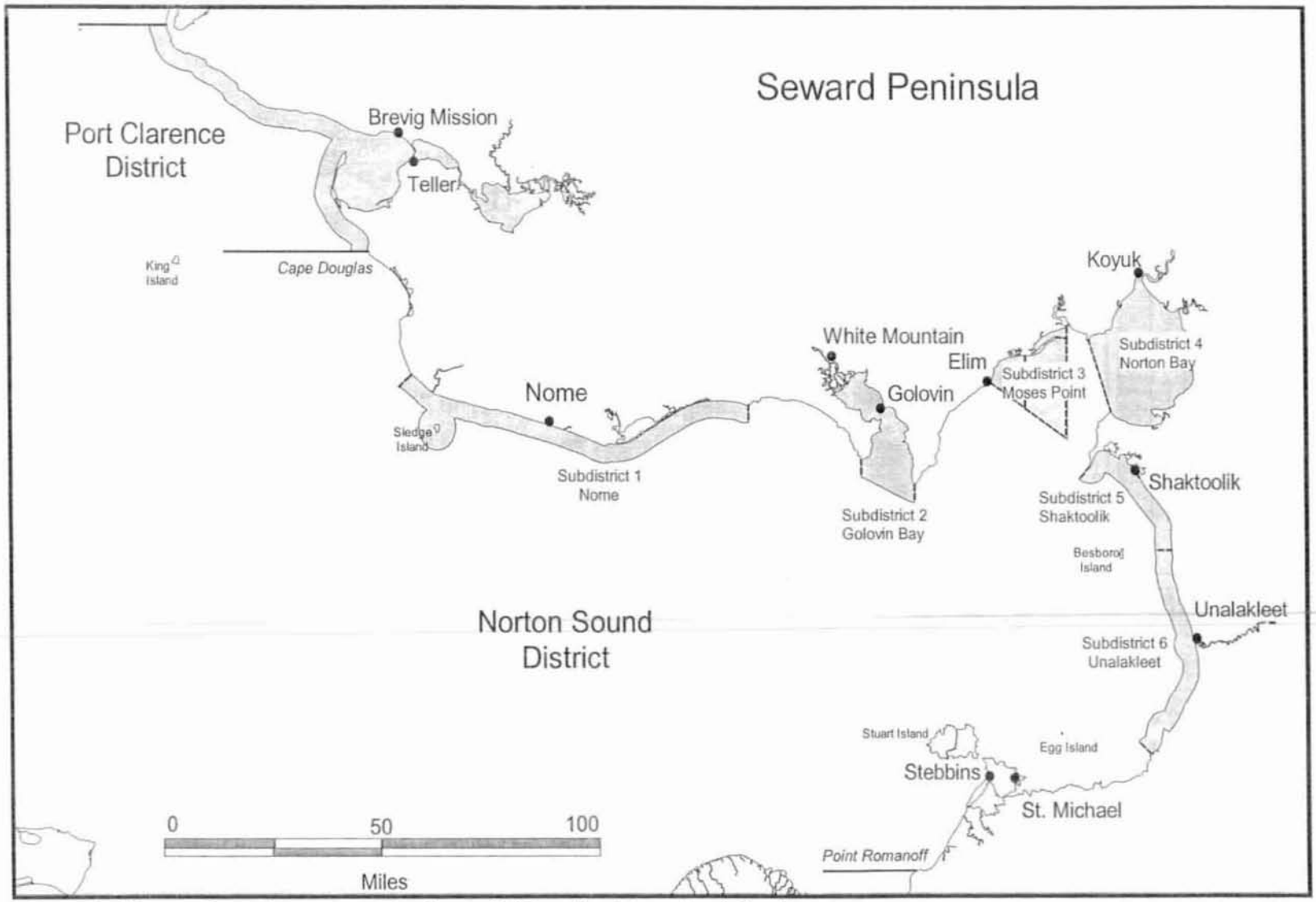

Figure 1. Norton Sound commercial salmon fishing districts and subdistricts.

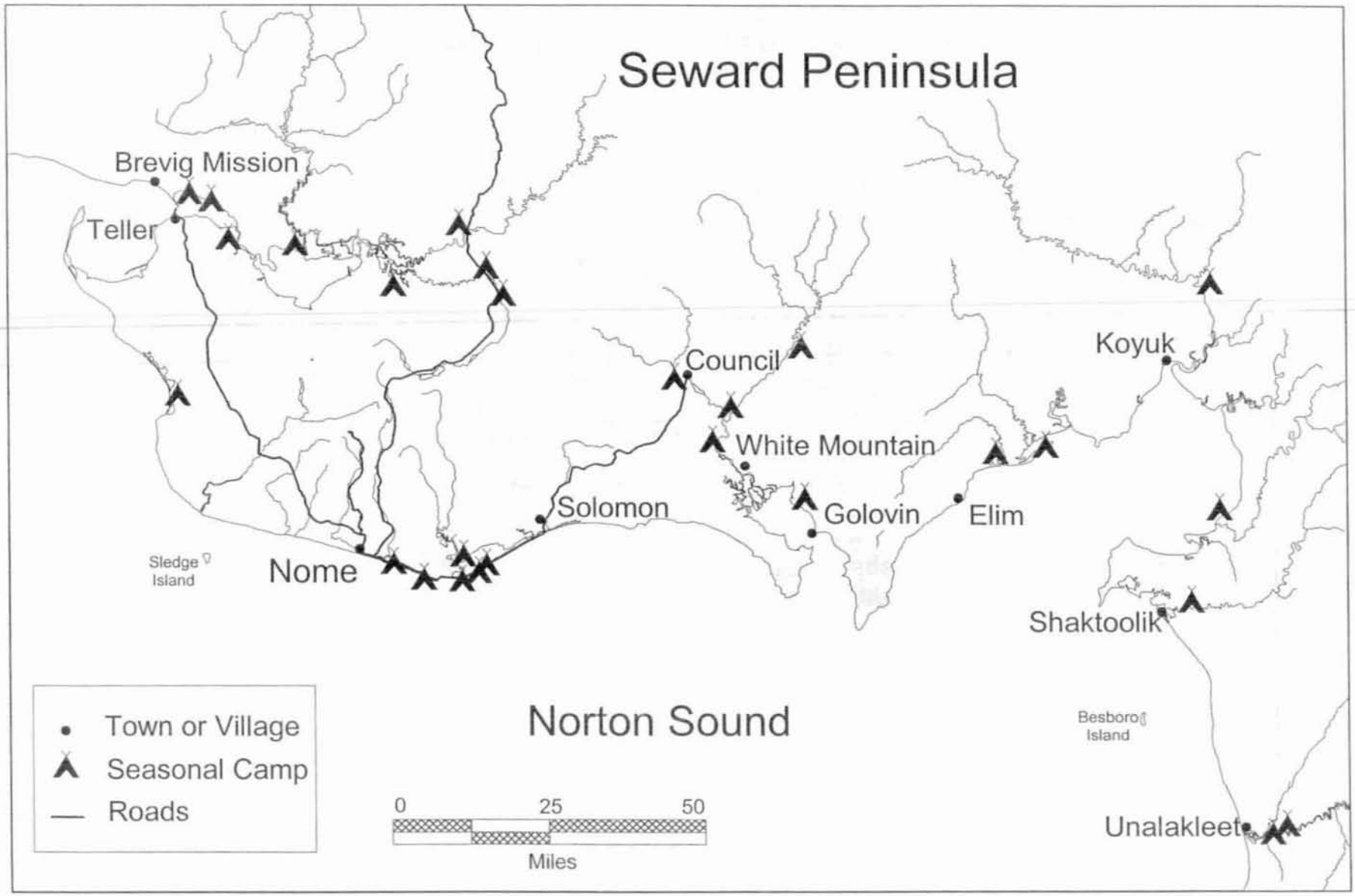

Figure 2. Northern Norton Sound subsistence salmon fishing sites.

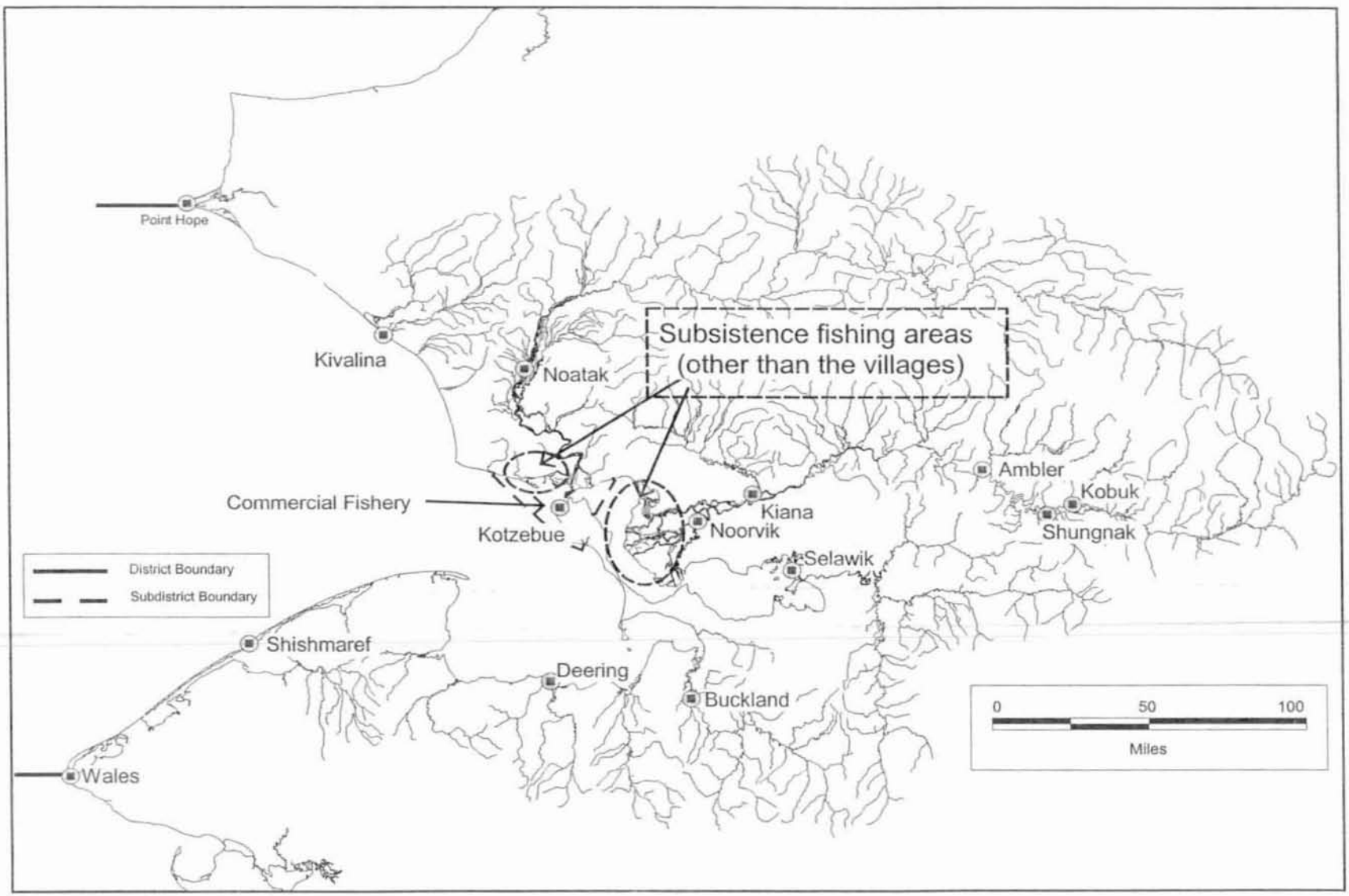

Figure 3. Kotzebue Sound commercial fishing district, villages, and subsistence fishing areas.

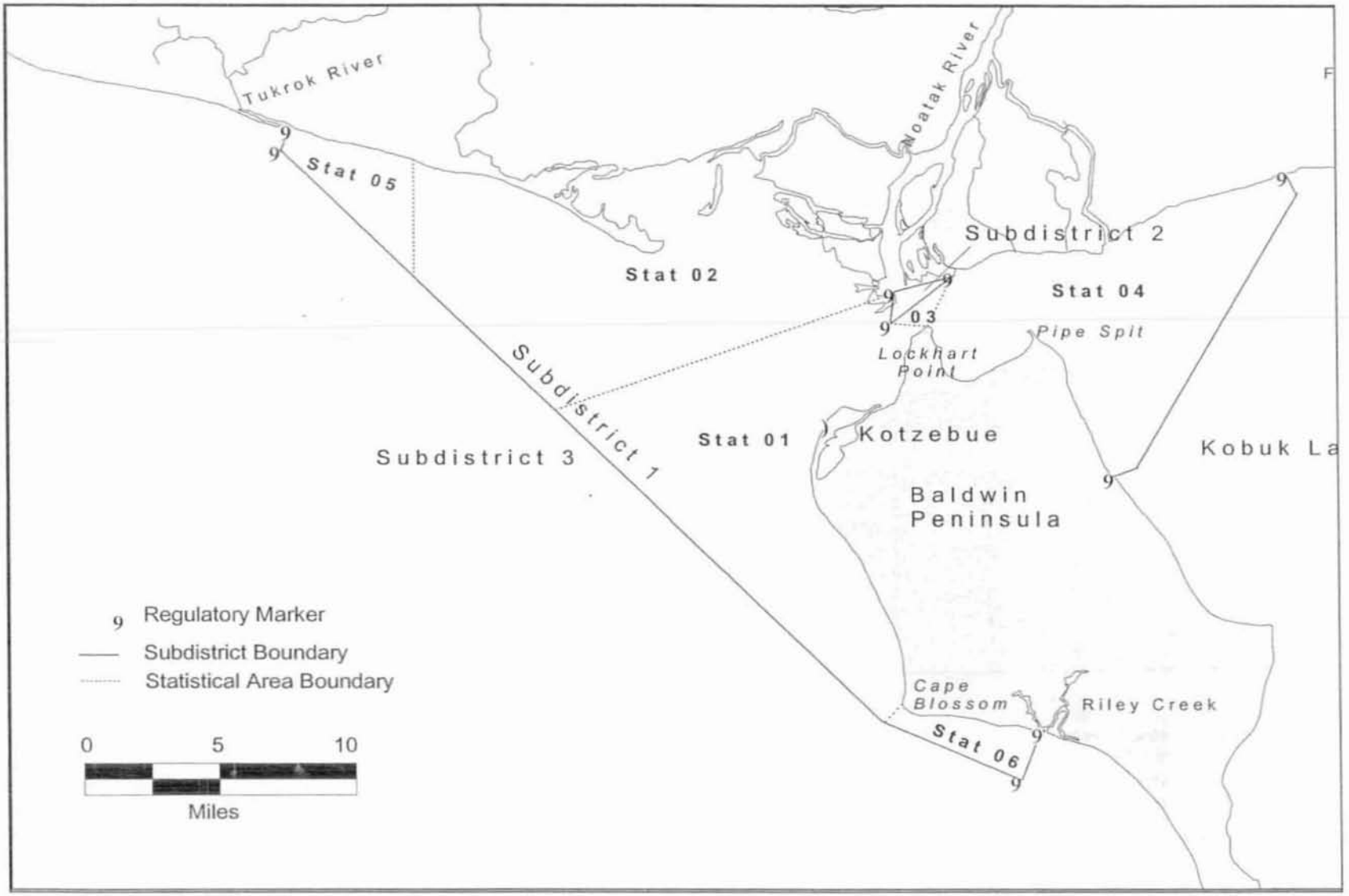

Figure 4. Kotzebue Sound commercial fishing subdistricts and statistical areas.

Appendix Table A.1. Commercial salmon set gillnet catches from Golovin Bay, Subdistrict 2, Norton Sound, 2001.

				Period Catch and Catch Per Unit Effort							Cumulative Catch and Catch Per Unit Effort						
Period	Hrs. Fished	Date	# FM	Chinook	Chinook CPUE	Chum	Chum CPUE	Pinks	Pink CPUE	Coho	Coho CPUE	Chinook	Chinook CPUE	Chum	Chum CPUE	Pinks	Pink CPUE	Coho	Coho CPUE
1	48	7/1-7/3	3			1,223	8.49			0	0.00			1,223	8.49			0	
2	48	7/5-7/7	4			2,316	12.06			0	0.00			3,539	10.53			0	
3	48	7/9-7/11	4			2,346	12.22			5	0.03			5,885	11.15			5	0.03
4	48	7/12-7/14	3			1,209	8.40			0	0.00			7,094	10.56			5	0.01
5	48	8/13-8/15	1			0	0.00			25	0.52			7,094	9.85			30	0.08
6	48	8/20-8/22	0		NO FISHING EFFORT									7,094				30	
Total	288					7,094				30									

Total number of permits fished = 5

Appendix Table A.2. Commercial salmon set gillnet catches from Moses Point, Subdistrict 3, Norton Sound, 2001.

			Period Catch and Catch Per Unit Effort								Cumulative Catch and Catch Per Unit Effort						
Period	Hrs. Fished	Date	# FM	Chinook	Chinook CPUE	Chum	Chum CPUE	Pinks	Pink CPUE	Coho	Coho CPUE	Chinook	Chinook CPUE	Chum	Chum CPUE	Pinks	Pink CPUE	Coho	Coho CPUE
1	24	7/9-7/10	3	3	0.04	470	6.53			4	0.06	3	0.04	470	6.53			4	0.06
2	24	7/12-7/13	3	4	0.06	208	2.89			1	0.01	7	0.05	678	4.71			5	0.03
3	24	8/16-8/17	0	NO FISHING EFFORT															
4	24	8/21-8/22	2	0	0.00	3	0.06			961	20.02	7	0.04	681	3.55			966	5.03
5	48	8/23-8/25	4	0	0.00	0	0.00			730	3.80	7	0.02	681	1.77			1,696	4.42
Total	144			7		681				1,696									

Total number of permits fished = 5

Appendix Table A.3. Commercial salmon set gillnet catches from Shaktoolik, Subdistrict 5, Norton Sound, 2001.

				Period Catch and Catch Per Unit Effort								Cumulative Catch and Catch Per Unit Effort							
Period	Hrs. Fished	Date	# FM	Chinook	Chinook CPUE	Chum	Chum CPUE	Pinks	Pink CPUE	Coho	Coho CPUE	Chinook	Chinook CPUE	Chum	Chum CPUE	Pinks	Pink CPUE	Coho	Coho CPUE
1	24	7/5-7/6	9	65	0.30	1,121	5.19			0	0.00	65	0.30	1,121	5.19			0	
2	24	7/9-7/10	9	19	0.09	481	2.23			0	0.00	84	0.19	1,602	3.71			0	
3	24	7/27-7/28	1	0	0.00	39	1.63			12	0.50	84	0.18	1,641	3.60			12	0.50
4	24	7/30-7/31	6	1	0.01	77	0.53			157	1.09	85	0.14	1,718	2.86			169	1.01
5	24	8/2-8/3	8	1	0.01	69	0.36			251	1.31	86	0.11	1,787	2.26			420	1.17
6	48	8/6-8/8	2	0	0.00	0	0.00			238	2.48	86	0.10	1,787	2.01			658	1.44
7	24	8/9-8/10	0	NO FISHING EFFORT															
8	48	8/13-8/15	5	0	0.00	1	0.00			274	1.14	86	0.08	1,788	1.59			932	1.34
9	48	8/16-8/18	6	4	0.01	17	0.06			1,138	3.95	90	0.06	1,805	1.27			2,070	2.10
10	48	8/20-8/22	4	0	0.00	6	0.03			212	1.10	90	0.06	1,811	1.13			2,282	1.94
11	48	8/23-8/25	2	0	0.00	2	0.02			202	2.10	90	0.05	1,813	1.06			2,484	1.95
12	24	8/27-8/28	2	0	0.00	0	0.00			180	3.75	90	0.05	1,813	1.03			2,664	2.02
Total	408			90		1,813				2,664									

Total number of permits fished = 13

Appendix Table A.4. Commercial salmon set gillnet catches from Unalakleet, Subdistrict 6, Norton Sound, 2001.

				Period Catch and Catch Per Unit Effort								Cumulative Catch and Catch Per Unit Effort							
Period	Hrs. Fished	Date	# FM	Chinook	Chinook CPUE	Chum	Chum CPUE	Pinks	Pink CPUE	Coho	Coho CPUE	Chinook	Chinook CPUE	Chum	Chum CPUE	Pinks	Pink CPUE	Coho	Coho CPUE
1	24	7/5-7/6	13	80	0.26	368	1.18			0		80	0.26	368	1.18			0	
2	24	7/9-7/10	12	24	0.08	273	0.95			0		104	0.17	641	1.07			0	
3	24	7/27-7/28	12	2	0.01	267	0.93			532	1.85	106	0.12	908	1.02			532	1.85
4	24	7/30-7/31	10	1	0.00	80	0.33			302	1.26	107	0.09	988	0.88			834	1.58
5	24	8/2-8/3	9	0	0.00	82	0.38			487	2.25	107	0.08	1,070	0.80			1,321	1.78
6	48	8/6-8/8	10	3	0.01	147	0.31			3,410	7.10	110	0.06	1,217	0.67			4,731	3.87
7	24	8/9-8/10	13	0	0.00	110	0.35			2,746	8.80	110	0.05	1,327	0.62			7,477	4.87
8	48	8/13-8/15	15	1	0.00	48	0.07			2,539	3.53	111	0.04	1,375	0.48			10,016	4.44
9	48	8/16-8/18	17	1	0.00	43	0.05			1,952	2.39	112	0.03	1,418	0.39			11,968	3.90
10	48	8/20-8/22	17	2	0.00	55	0.07			1,497	1.83	114	0.03	1,473	0.33			13,465	3.46
11	48	8/23-8/25	15	2	0.00	24	0.03			1,122	1.56	116	0.02	1,497	0.29			14,587	3.17
12	24	8/27-8/28	13	0	0.00	15	0.05			515	1.65	116	0.02	1,512	0.27			15,102	3.07
Total	408			116		1,512				15,102									

Total number of permits fished = 29

Appendix Table B.1. Expanded daily and cumulative migration of all salmonid species past the Kwiniuk River counting tower, Norton Sound, 2001.

Date	Daily chum salmon	Cumulative chum salmon	Daily pink salmon	Cumulative pink salmon	Daily chinook salmon	Cumulative chinook salmon	Daily coho salmon	Cumulative coho salmon	Daily Dolly Varden	Cumulative Dolly Varden
27-Jun	0	0	0	0	0	0	0	0	0	0
28-Jun	348	348	0	0	18	18	0	0	0	0
29-Jun	2,358	2,706	0	0	12	30	0	0	0	0
30-Jun	96	2,802	0	0	0	30	0	0	0	0
1-Jul	189	2,991	0	0	0	30	0	0	12	12
2-Jul	1,632	4,623	0	0	3	33	0	0	30	42
3-Jul	3,240	7,863	24	24	12	45	0	0	6	48
4-Jul	1,625	9,488	12	36	6	51	0	0	3	51
5-Jul	9	9,497	0	36	0	51	0	0	0	51
6-Jul	315	9,812	0	36	-3	48	0	0	3	54
7-Jul	594	10,406	0	36	6	54	0	0	0	54
8-Jul	753	11,159	0	36	6	60	0	0	0	54
9-Jul	741	11,900	300	336	0	60	0	0	0	54
10-Jul	438	12,338	60	396	-6	54	0	0	9	63
11-Jul	138	12,476	27	423	3	57	3	3	-174	-111
12-Jul	171	12,647	17	440	0	57	0	3	-4	-115
13-Jul	246	12,893	9	449	15	72	3	6	9	-106
14-Jul	897	13,790	81	530	21	93	0	6	0	-106
15-Jul	1,095	14,885	6	536	60	153	3	9	3	-103
16-Jul	408	15,293	96	632	18	171	0	9	6	-97
17-Jul	279	15,572	150	782	21	192	0	9	3	-94
18-Jul	105	15,677	57	839	15	207	0	9	-852	-946
19-Jul	255	15,932	384	1,223	21	228	0	9	3	-943
20-Jul	81	16,013	381	1,604	0	228	0	9	3	-940
21-Jul	105	16,118	1,128	2,732	6	234	12	21	0	-940
22-Jul	105	16,223	1,080	3,812	3	237	9	30	0	-940
23-Jul	15	16,238	687	4,499	0	237	36	66	3	-937
24-Jul	24	16,262	408	4,907	-3	234	18	84	0	-937
25-Jul	18	16,280	162	5,069	6	240	18	102	0	-937
26-Jul	18	16,298	132	5,201	6	246	0	102	-18	-955
27-Jul	75	16,373	231	5,432	6	252	9	111	3	-952
28-Jul	21	16,394	321	5,753	3	255	6	117	6	-946
29-Jul	18	16,412	564	6,317	0	255	27	144	15	-931
30-Jul	27	16,439	444	6,761	3	258	9	153	15	-916
31-Jul	12	16,451	180	6,941	0	258	9	162	9	-907
1-Aug	30	16,481	333	7,274	0	258	18	180	6	-901
2-Aug	3	16,484	90	7,364	0	258	3	183	12	-889
3-Aug	12	16,496	141	7,505	0	258	21	204	0	-889
4-Aug	15	16,511	90	7,595	0	258	0	204	-3	-892
5-Aug	3	16,514	138	7,733	0	258	0	204	3	-889
6-Aug	39	16,553	165	7,898	0	258	57	261	15	-874
7-Aug	6	16,559	42	7,940	0	258	36	297	5	-869
8-Aug	0	16,559	39	7,979	0	258	24	321	10	-859
9-Aug	-3	16,556	52	8,031	0	258	72	393	5	-854
10-Aug	3	16,559	32	8,063	0	258	153	546	10	-844
11-Aug	6	16,565	25	8,088	0	258	144	690	0	-844
12-Aug	3	16,568	84	8,172	0	258	177	867	0	-844
13-Aug	0	16,568	105	8,277	0	258	698	1,565	0	-844
14-Aug	0	16,568	77	8,354	0	258	398	1,963	0	-844
15-Aug	3	16,571	21	8,375	0	258	351	2,314	6	-838
16-Aug	0	16,571	3	8,378	0	258	258	2,572	3	-835
17-Aug	0	16,571	6	8,384	0	258	264	2,836	3	-832
18-Aug	6	16,577	-3	8,381	0	258	405	3,241	9	-823
19-Aug	0	16,577	0	8,381	0	258	96	3,337	0	-823
20-Aug	3	16,580	6	8,387	0	258	270	3,607	0	-823
21-Aug	0	16,580	6	8,393	0	258	279	3,886	12	-811
22-Aug	12	16,592	3	8,396	0	258	150	4,036	15	-796
23-Aug	0	16,592	0	8,396	0	258	321	4,357	-72	-868
24-Aug	0	16,592	12	8,408	0	258	330	4,687	12	-856
25-Aug	0	16,592	3	8,411	0	258	330	5,017	-39	-895
26-Aug	0	16,592	0	8,411	0	258	465	5,482	-9	-904
27-Aug	3	16,595	6	8,417	0	258	654	6,136	-48	-952
28-Aug	0	16,595	3	8,420	0	258	198	6,334	-147	-1,099
29-Aug	0	16,595	0	8,420	0	258	741	7,075	-36	-1,135
30-Aug	0	16,595	0	8,420	0	258	441	7,516	-9	-1,144
31-Aug	3	16,598	0	8,420	0	258	417	7,933	-144	-1,288
1-Sep	0	16,598	0	8,420	0	258	168	8,101	0	-1,288
2-Sep	0	16,598	0	8,420	0	258	87	8,188	0	-1,288
3-Sep	0	16,598	0	8,420	0	258	93	8,281	6	-1,282
4-Sep	0	16,598	0	8,420	0	258	219	8,500	3	-1,279
5-Sep	0	16,598	0	8,420	0	258	231	8,731	-81	-1,360
6-Sep	0	16,598	0	8,420	0	258	60	8,791	0	-1,360
7-Sep	0	16,598	0	8,420	0	258	120	8,911	-3	-1,363
8-Sep	0	16,598	0	8,420	0	258	72	8,983	-27	-1,390
9-Sep	0	16,598	0	8,420	0	258	384	9,367	-63	-1,453
10-Sep	0	16,598	0	8,420	0	258	27	9,394	-81	-1,534
11-Sep	0	16,598	0	8,420	0	258	9	9,403	-57	-1,591
12-Sep	0	16,598	3	8,423	0	258	36	9,439	0	-1,591
13-Sep	0	16,598	0	8,423	0	258	24	9,463	0	-1,591
14-Sep	0	16,598	0	8,423	0	258	9	9,472	0	-1,591
15-Sep	0	16,598	0	8,423	0	258	60	9,532	0	-1,591
Total	16,598		8,423		258		9,532		-1,591	

Appendix Table B.2. Daily passage of all salmonid species at the Nome River weir, Norton Sound, 2001.

Date	Daily chum salmon	Cumulative chum salmon	Daily pink salmon	Cumulative pink salmon	Daily chinook salmon	Cumulative chinook salmon	Daily coho salmon	Cumulative coho salmon	Daily Dolly Varden	Cumulative Dolly Varden	Daily Sockeye Salmon	Cumulative Sockeye Salmon
8-Jul	0	0	0	0	0	0	0	0	0	0	0	0
9-Jul	0	0	0	0	0	0	0	0	0	0	0	0
10-Jul	32	32	0	0	0	0	0	0	0	0	0	0
11-Jul	131	163	0	0	0	0	0	0	0	0	0	0
12-Jul	120	283	0	0	0	0	0	0	0	0	0	0
13-Jul	3	286	0	0	0	0	0	0	0	0	0	0
14-Jul	408	694	6	6	0	0	0	0	7	7	0	0
15-Jul	314	1,008	10	16	1	1	0	0	0	7	2	2
16-Jul	77	1,085	0	16	0	1	0	0	0	7	0	2
17-Jul	45	1,130	0	16	0	1	0	0	7	14	0	2
18-Jul	71	1,201	4	20	0	1	0	0	6	20	1	3
19-Jul	75	1,276	3	23	0	1	1	1	4	24	1	4
20-Jul	131	1,407	15	38	1	2	0	1	20	44	3	7
21-Jul	68	1,475	35	73	0	2	0	1	10	54	1	8
22-Jul	156	1,631	122	195	0	2	1	2	10	64	7	15
23-Jul	33	1,664	38	233	0	2	0	2	4	68	0	15
24-Jul	0	1,664	13	246	0	2	0	2	0	68	0	15
25-Jul	16	1,680	34	280	0	2	0	2	0	68	1	16
26-Jul	2	1,682	10	290	0	2	0	2	0	68	1	17
27-Jul	3	1,685	1	291	0	2	2	4	0	68	0	17
28-Jul	36	1,721	25	316	0	2	1	5	0	68	0	17
29-Jul	180	1,901	146	462	1	3	1	6	11	79	5	22
30-Jul	4	1,905	2	464	0	3	0	6	0	79	0	22
31-Jul	20	1,925	45	509	0	3	0	6	2	81	0	22
1-Aug	11	1,936	30	539	0	3	0	6	1	82	0	22
2-Aug	7	1,943	24	563	0	3	0	6	1	83	0	22
3-Aug	59	2,002	133	696	0	3	0	6	0	83	0	22
4-Aug	378	2,380	1,141	1,837	2	5	3	9	4	87	14	36
5-Aug	0	2,380	64	1,901	0	5	0	9	0	87	0	36
6-Aug	2	2,382	59	1,960	0	5	0	9	0	87	0	36
7-Aug	2	2,384	23	1,983	0	5	0	9	0	87	0	36
8-Aug	28	2,412	220	2,203	0	5	0	9	4	91	0	36
9-Aug	47	2,459	213	2,416	0	5	1	10	5	96	3	39
10-Aug	99	2,558	200	2,616	0	5	9	19	15	111	1	40
11-Aug	0	2,558	44	2,660	0	5	0	19	0	111	0	40
12-Aug	8	2,566	30	2,690	0	5	1	20	2	113	0	40
13-Aug	100	2,666	242	2,932	1	6	97	117	8	121	4	44
14-Aug	14	2,680	17	2,949	0	6	29	146	2	123	0	44
15-Aug	9	2,689	14	2,963	0	6	21	167	8	131	0	44
16-Aug	4	2,693	6	2,969	0	6	2	169	1	132	1	45
17-Aug	7	2,700	7	2,976	0	6	12	181	5	137	0	45
18-Aug	13	2,713	19	2,995	0	6	7	188	4	141	1	46
19-Aug	9	2,722	10	3,005	0	6	63	251	6	147	1	47
20-Aug	0	2,722	3	3,008	0	6	0	251	2	149	0	47
21-Aug	0	2,722	3	3,011	0	6	0	251	8	157	0	47
22-Aug	1	2,723	0	3,011	0	6	0	251	2	159	0	47
23-Aug	40	2,763	60	3,071	0	6	706	957	148	307	2	49
24-Aug	17	2,780	0	3,071	0	6	126	1,083	23	330	0	49
25-Aug	2	2,782	8	3,079	0	6	84	1,167	10	340	0	49
26-Aug	7	2,789	2	3,081	0	6	9	1,176	33	373	0	49
27-Aug	12	2,801	7	3,088	0	6	48	1,224	24	397	2	51
28-Aug	5	2,806	1	3,089	0	6	120	1,344	22	419	0	51
29-Aug	10	2,816	7	3,096	0	6	434	1,778	1	420	0	51
30-Aug	2	2,818	4	3,100	0	6	6	1,784	4	424	0	51
31-Aug	1	2,819	0	3,100	0	6	15	1,799	0	424	0	51
1-Sep	5	2,824	4	3,104	1	7	18	1,817	7	431	0	51
2-Sep	6	2,830	4	3,108	0	7	33	1,850	8	439	0	51
3-Sep	1	2,831	0	3,108	0	7	0	1,850	1	440	0	51
4-Sep	14	2,845	6	3,114	0	7	374	2,224	60	500	1	52
5-Sep	0	2,845	1	3,115	0	7	0	2,224	0	500	0	52
6-Sep	2	2,847	5	3,120	0	7	39	2,263	11	511	0	52
7-Sep	2	2,849	2	3,122	0	7	77	2,340	7	518	1	53
8-Sep	0	2,849	0	3,122	0	7	0	2,340	0	518	0	53
9-Sep	0	2,849	0	3,122	0	7	0	2,340	0	518	0	53
10-Sep	8	2,857	12	3,134	0	7	69	2,409	9	527	1	54
11-Sep	2	2,859	4	3,138	0	7	9	2,418	2	529	1	55
Total	2,859		3,138		7		2,418		529		55	

[1] Only the fish trap was open on September 5, 8 and 9 to collect scale samples so passage numbers do not indicate abundance.

Appendix Table B.3. Expanded daily and cumulative migration of all salmonid species past the Niukluk River counting tower, Norton Sound, 2001.

Date	Daily chum salmon	Cumulative chum salmon	Daily pink salmon	Cumulative pink salmon	Daily chinook salmon	Cumulative chinook salmon	Daily coho salmon	Cumulative coho salmon	Daily Dolly Varden	Cumulative Dolly Varden	Daily sockeye salmon	Cumulative sockeye salmon
10-Jul	1,059	1,059	3	3	0	0	0	0	45	45	0	0
11-Jul	966	2,025	30	33	3	3	0	0	30	75	0	0
12-Jul	3,423	5,448	165	198	6	9	0	0	36	111	0	0
13-Jul	1,053	6,501	78	276	0	9	0	0	21	132	0	0
14-Jul	3,093	9,594	141	417	9	18	0	0	42	174	6	6
15-Jul	3,054	12,648	318	735	6	24	0	0	15	189	0	6
16-Jul	1,131	13,779	147	882	-3	21	0	0	3	192	3	9
17-Jul	972	14,751	188	1,070	-1	20	0	0	33	225	0	9
18-Jul	2,000	16,751	615	1,685	-2	18	2	2	39	264	3	12
19-Jul	2,604	19,355	1,140	2,825	0	18	3	5	39	303	0	12
20-Jul	1,473	20,828	513	3,338	0	18	0	5	36	339	0	12
21-Jul	1,470	22,298	1,326	4,664	0	18	3	8	51	390	0	12
22-Jul	822	23,120	846	5,510	0	18	0	8	36	426	0	12
23-Jul	1,152	24,272	1,632	7,142	0	18	0	8	51	477	3	15
24-Jul	579	24,851	2,343	9,485	0	18	0	8	15	492	0	15
25-Jul	462	25,313	1,992	11,477	6	24	3	11	36	528	3	18
26-Jul	714	26,027	1,641	13,118	0	24	0	11	21	549	0	18
27-Jul	150	26,177	273	13,391	0	24	3	14	24	573	0	18
28-Jul	744	26,921	1,938	15,329	0	24	9	23	48	621	0	18
29-Jul	450	27,371	2,265	17,594	6	30	6	29	57	678	0	18
30-Jul	159	27,530	1,557	19,151	0	30	18	47	57	735	0	18
31-Jul	579	28,109	2,316	21,467	0	30	12	59	63	798	3	21
1-Aug	408	28,517	1,730	23,196	0	30	14	73	104	902	0	21
2-Aug	177	28,694	2,106	25,302	0	30	27	100	57	959	3	24
3-Aug	219	28,913	1,515	26,817	0	30	27	127	51	1,010	3	27
4-Aug	354	29,267	1,857	28,674	0	30	27	154	48	1,058	3	30
5-Aug	510	29,777	2,445	31,119	0	30	12	166	96	1,154	0	30
6-Aug	309	30,086	1,725	32,844	0	30	24	190	30	1,184	6	36
7-Aug	159	30,245	1,749	34,593	0	30	93	283	75	1,259	0	36
8-Aug	36	30,281	960	35,553	0	30	51	334	42	1,301	6	42
9-Aug	93	30,374	1,281	36,834	0	30	138	472	30	1,331	0	42
10-Aug	69	30,443	1,368	38,202	0	30	69	541	81	1,412	3	45
11-Aug	18	30,461	720	38,922	0	30	159	700	57	1,469	0	45
12-Aug	30	30,491	243	39,165	0	30	114	814	48	1,517	0	45
13-Aug	14	30,504	213	39,378	0	30	204	1,018	21	1,538	0	45
14-Aug	5	30,509	69	39,447	0	30	86	1,104	8	1,545	0	45
15-Aug	6	30,515	423	39,870	0	30	24	1,128	78	1,623	0	45
16-Aug	33	30,548	426	40,296	0	30	54	1,182	18	1,641	0	45
17-Aug	30	30,578	447	40,743	0	30	81	1,263	60	1,701	0	45
18-Aug	12	30,590	339	41,082	0	30	114	1,377	9	1,710	0	45
19-Aug	9	30,599	213	41,295	0	30	69	1,446	24	1,734	0	45
20-Aug	0	30,599	162	41,457	0	30	135	1,581	48	1,782	0	45
21-Aug	18	30,617	81	41,538	0	30	183	1,764	15	1,797	0	45
22-Aug	9	30,626	39	41,577	0	30	66	1,830	18	1,815	0	45
23-Aug	12	30,638	18	41,595	0	30	72	1,902	6	1,821	0	45
24-Aug	6	30,644	3	41,598	0	30	66	1,968	30	1,851	0	45
25-Aug	6	30,650	6	41,604	0	30	141	2,109	36	1,887	0	45
26-Aug	9	30,659	15	41,619	0	30	285	2,394	6	1,893	0	45
27-Aug	3	30,662	3	41,622	0	30	180	2,574	18	1,911	0	45
28-Aug	0	30,662	0	41,622	0	30	270	2,844	15	1,926	0	45
29-Aug	0	30,662	0	41,622	0	30	162	3,006	12	1,938	0	45
30-Aug	0	30,662	3	41,625	0	30	195	3,201	-3	1,935	0	45
31-Aug	0	30,662	0	41,625	0	30	84	3,285	3	1,938	0	45
1-Sep	0	30,662	0	41,625	0	30	57	3,342	0	1,938	0	45
2-Sep	0	30,662	0	41,625	0	30	18	3,360	-6	1,932	0	45
3-Sep	0	30,662	0	41,625	0	30	15	3,375	63	1,995	0	45
4-Sep	0	30,662	0	41,625	0	30	27	3,402	42	2,037	0	45
5-Sep	0	30,662	0	41,625	0	30	33	3,435	45	2,082	0	45
6-Sep	0	30,662	0	41,625	0	30	15	3,450	12	2,094	0	45
7-Sep	0	30,662	0	41,625	0	30	12	3,462	3	2,097	0	45
8-Sep	0	30,662	0	41,625	0	30	6	3,468	12	2,109	0	45
Total	30,662		41,625		30		3,468		2,109		45	

Appendix Table B.4. Expanded daily and cumulative migration of all salmon past the Snake River counting tower, Norton Sound, 2001.

Date	Daily Chum	Cumulative Chum	Daily Pink	Cumulative Pink	Daily King	Cumulative King	Daily Coho	Cumulative Coho
8-Jul	2	2	0	0	0	0	0	0
9-Jul	44	46	0	0	0	0	0	0
10-Jul	2	48	0	0	2	2	0	0
11-Jul	22	70	0	0	0	2	0	0
12-Jul	75	145	0	0	0	2	0	0
13-Jul	67	212	1	1	0	2	0	0
14-Jul	141	353	4	5	0	2	2	2
15-Jul	212	565	4	9	2	4	0	2
16-Jul	273	838	0	9	0	4	0	2
17-Jul	91	929	4	13	0	4	0	2
18-Jul	57	986	0	13	0	4	0	2
19-Jul	78	1,064	4	17	0	4	0	2
20-Jul	111	1,175	1	18	0	4	0	2
21-Jul	102	1,277	2	20	0	4	0	2
22-Jul	98	1,375	4	24	0	4	0	2
23-Jul	96	1,471	26	50	-2	2	0	2
24-Jul	2	1,473	2	52	0	2	2	4
25-Jul	73	1,546	10	62	2	4	0	4
26-Jul	24	1,570	34	96	0	4	0	4
27-Jul	39	1,609	42	138	0	4	0	4
28-Jul	40	1,649	47	185	0	4	0	4
29-Jul	48	1,697	62	247	0	4	0	4
30-Jul	86	1,783	105	352	0	4	8	12
31-Jul	10	1,793	60	412	0	4	-2	10
1-Aug	92	1,885	120	532	2	6	6	16
2-Aug	2	1,887	2	534	0	6	0	16
3-Aug	45	1,932	165	699	0	6	10	26
4-Aug	28	1,960	131	830	0	6	6	32
5-Aug	8	1,968	38	868	0	6	2	34
6-Aug	43	2,011	76	944	0	6	23	57
7-Aug	83	2,094	40	984	0	6	4	61
8-Aug	37	2,131	24	1,008	2	8	80	141
9-Aug	20	2,151	38	1,046	0	8	40	181
10-Aug	10	2,161	20	1,066	1	9	27	208
11-Aug	7	2,168	16	1,082	1	10	28	236
12-Aug	0	2,168	4	1,086	2	12	11	247
13-Aug	0	2,168	4	1,090	0	12	10	257
14-Aug	-1	2,167	10	1,100	0	12	11	268
15-Aug	-1	2,166	15	1,115	0	12	11	279
16-Aug	-4	2,162	-4	1,111	0	12	14	293
17-Aug	1	2,163	20	1,131	2	14	19	312
18-Aug	1	2,164	37	1,168	3	17	39	351
19-Aug	4	2,168	30	1,198	4	21	43	394
20-Aug	12	2,180	8	1,206	2	23	50	444
21-Aug	0	2,180	13	1,219	0	23	68	512
22-Aug	-2	2,178	-2	1,217	2	25	51	563
23-Aug	0	2,178	8	1,225	2	27	66	629
24-Aug	0	2,178	8	1,233	1	28	62	691
25-Aug	0	2,178	-2	1,231	1	29	67	758
26-Aug	2	2,180	-2	1,229	0	29	52	810
27-Aug	2	2,182	6	1,235	2	31	96	906
28-Aug	0	2,182	32	1,267	0	31	100	1,006
29-Aug	0	2,182	7	1,274	0	31	59	1,065
30-Aug	0	2,182	19	1,293	2	33	166	1,231
31-Aug	0	2,182	1	1,294	0	33	78	1,309
1-Sep	0	2,182	1	1,295	0	33	22	1,331
2-Sep	0	2,182	0	1,295	0	33	4	1,335
3-Sep	0	2,182	0	1,295	0	33	0	1,335
4-Sep	0	2,182	0	1,295	0	33	0	1,335
5-Sep	0	2,182	0	1,295	0	33	0	1,335
Total	2,182		1,295		33		1,335	

Appendix Table B.5. Expanded daily and cumulative migration of all salmon past the Eldorado River counting tower, Norton Sound, 2001.

Date	Chum	Cumulative Chum	Pink	Cumulative Pink	Chinook	Cumulative Chinook	Coho	Cumulative Coho
8-Jul	542	542	10	10	0	0	0	0
9-Jul	1,082	1,624	0	10	0	0	0	0
10-Jul	876	2,500	0	10	4	4	0	0
11-Jul	1,627	4,127	0	10	0	4	0	0
12-Jul	572	4,699	0	10	0	4	0	0
13-Jul	799	5,498	0	10	0	4	0	0
14-Jul	706	6,204	0	10	0	4	0	0
15-Jul	674	6,878	0	10	0	4	0	0
16-Jul	902	7,780	0	10	0	4	0	0
17-Jul	585	8,365	0	10	4	8	0	0
18-Jul	565	8,930	0	10	8	16	0	0
19-Jul	507	9,437	0	10	14	30	0	0
20-Jul	206	9,643	0	10	5	35	0	0
21-Jul	299	9,942	10	20	2	37	0	0
22-Jul	267	10,209	10	30	2	39	0	0
23-Jul	194	10,403	8	38	0	39	0	0
24-Jul	51	10,454	10	48	0	39	0	0
25-Jul	107	10,561	16	64	0	39	0	0
26-Jul	120	10,681	10	74	0	39	0	0
27-Jul	69	10,750	6	80	0	39	0	0
28-Jul	91	10,841	10	90	0	39	0	0
29-Jul	57	10,898	12	102	0	39	0	0
30-Jul	79	10,977	11	113	0	39	0	0
31-Jul	53	11,030	23	136	2	41	2	2
1-Aug	48	11,078	18	154	0	41	2	4
2-Aug	70	11,148	18	172	0	41	4	8
3-Aug	57	11,205	23	195	1	42	0	8
4-Aug	37	11,242	12	207	1	43	0	8
5-Aug	15	11,257	11	218	2	45	0	8
6-Aug	14	11,271	10	228	0	45	0	8
7-Aug	24	11,295	17	245	0	45	0	8
8-Aug	48	11,343	37	282	0	45	10	18
9-Aug	48	11,391	20	302	0	45	6	24
10-Aug	10	11,401	14	316	0	45	3	27
11-Aug	15	11,416	3	319	0	45	0	27
12-Aug	47	11,463	49	368	0	45	12	39
13-Aug	30	11,493	30	398	2	47	9	48
14-Aug	28	11,521	34	432	1	48	24	72
15-Aug	14	11,535	0	432	0	48	16	88
16-Aug	16	11,551	14	446	0	48	24	112
17-Aug	16	11,567	0	446	0	48	26	138
18-Aug	12	11,579	0	446	0	48	21	159
19-Aug	0	11,579	0	446	0	48	14	173
20-Aug	8	11,587	6	452	0	48	14	187
21-Aug	12	11,599	4	456	0	48	16	203
22-Aug	0	11,599	4	460	0	48	4	207
23-Aug	4	11,603	0	460	0	48	4	211
24-Aug	3	11,606	0	460	0	48	10	221
25-Aug	3	11,609	0	460	0	48	10	231
26-Aug	3	11,612	0	460	0	48	10	241
27-Aug	3	11,615	0	460	0	48	11	252
28-Aug	2	11,617	2	462	0	48	12	264
29-Aug	0	11,617	0	462	0	48	138	402
30-Aug	0	11,617	0	462	0	48	89	491
31-Aug	0	11,617	2	464	0	48	56	547
1-Sep	0	11,617	16	480	0	48	185	732
2-Sep	0	11,617	0	480	0	48	42	774
3-Sep	4	11,621	0	480	0	48	78	852
4-Sep	8	11,629	4	484	0	48	227	1,079
5-Sep	4	11,633	2	486	0	48	157	1,236
6-Sep	0	11,633	0	486	0	48	62	1,298
7-Sep	0	11,633	0	486	0	48	45	1,343
8-Sep	0	11,633	0	486	0	48	43	1,386
9-Sep	0	11,633	0	486	2	50	36	1,422
10-Sep	0	11,633	0	486	0	50	42	1,464
11-Sep	0	11,633	0	486	0	50	14	1,478
12-Sep	0	11,633	0	486	0	50	17	1,495
13-Sep	2	11,635	2	488	0	50	14	1,509
Total	11,635		488		50		1,509	

Appendix Table B.6. Expanded daily and cumulative migration of all salmon past the North River counting tower, Norton Sound, 2001.

Date	Daily Chum	Cumulative Chum	Daily Pink	Cumulative pink	Daily chinook	Cumulative Chinook	Daily Coho	Cumulative Coho
5-Jul	2	2	6	6	10	10	0	0
6-Jul	175	177	78	84	65	75	0	0
7-Jul	333	510	341	425	99	174	0	0
8-Jul	198	708	238	663	106	280	0	0
9-Jul	255	963	234	897	100	380	0	0
10-Jul	203	1,166	125	1,022	24	404	0	0
11-Jul	316	1,482	112	1,134	42	446	0	0
12-Jul	399	1,881	131	1,265	60	506	0	0
13-Jul	424	2,305	259	1,524	97	603	0	0
14-Jul	132	2,437	156	1,680	72	675	0	0
15-Jul	79	2,516	150	1,830	36	711	0	0
16-Jul	305	2,821	482	2,312	131	842	0	0
17-Jul	215	3,036	363	2,675	92	934	0	0
18-Jul	215	3,251	363	3,038	92	1,026	0	0
19-Jul	215	3,466	363	3,401	92	1,118	0	0
20-Jul	145	3,611	235	3,636	53	1,171	0	0
21-Jul	62	3,673	221	3,857	29	1,200	0	0
22-Jul	53	3,726	261	4,118	11	1,211	0	0
23-Jul	68	3,794	209	4,327	0	1,211	0	0
24-Jul	89	3,883	1,981	6,308	22	1,233	41	41
25-Jul	48	3,931	1,445	7,753	14	1,247	41	82
26-Jul	110	4,041	1,594	9,347	10	1,257	122	204
27-Jul	78	4,119	566	9,913	8	1,265	150	354
28-Jul	272	4,391	1,739	11,652	15	1,280	376	730
29-Jul	156	4,547	1,494	13,146	23	1,303	338	1,068
30-Jul	124	4,671	1,421	14,567	27	1,330	320	1,388
31-Jul	64	4,735	949	15,516	7	1,337	86	1,474
1-Aug	60	4,795	1,505	17,021	0	1,337	109	1,583
2-Aug	68	4,863	825	17,846	0	1,337	131	1,714
3-Aug	82	4,945	1,680	19,526	0	1,337	244	1,958
4-Aug	48	4,993	508	20,034	0	1,337	150	2,108
5-Aug	37	5,030	619	20,653	0	1,337	243	2,351
6-Aug	67	5,097	583	21,236	0	1,337	261	2,612
7-Aug	60	5,157	741	21,977	0	1,337	207	2,819
8-Aug	104	5,261	575	22,552	0	1,337	243	3,062
9-Aug	373	5,634	699	23,251	0	1,337	2,107	5,169
10-Aug	202	5,836	417	23,668	0	1,337	1,236	6,405
11-Aug	202	6,038	417	24,085	0	1,337	1,236	7,641
12-Aug	69	6,107	266	24,351	0	1,337	565	8,206
13-Aug	32	6,139	75	24,426	0	1,337	403	8,609
14-Aug	42	6,181	61	24,487	0	1,337	374	8,983
15-Aug	34	6,215	54	24,541	0	1,337	311	9,294
16-Aug	34	6,249	53	24,594	0	1,337	308	9,602
17-Aug	34	6,283	53	24,647	0	1,337	308	9,910
18-Aug	31	6,314	48	24,695	0	1,337	218	10,128
19-Aug	32	6,346	28	24,723	0	1,337	145	10,273
20-Aug	20	6,366	4	24,727	0	1,337	167	10,440
21-Aug	46	6,412	6	24,733	0	1,337	338	10,778
22-Aug	12	6,424	4	24,737	0	1,337	107	10,885
23-Aug	4	6,428	0	24,737	0	1,337	143	11,028
24-Aug	2	6,430	0	24,737	0	1,337	161	11,189
25-Aug	6	6,436	0	24,737	0	1,337	102	11,291
26-Aug	18	6,454	0	24,737	0	1,337	172	11,463
27-Aug	4	6,458	0	24,737	0	1,337	92	11,555
28-Aug	5	6,463	0	24,737	0	1,337	147	11,702
29-Aug	1	6,464	0	24,737	0	1,337	45	11,747
30-Aug	1	6,465	0	24,737	0	1,337	37	11,784
31-Aug	1	6,466	0	24,737	0	1,337	49	11,833
1-Sep	2	6,468	0	24,737	0	1,337	58	11,891
2-Sep	7	6,475	0	24,737	0	1,337	83	11,974
3-Sep	8	6,483	0	24,737	0	1,337	87	12,061
4-Sep	8	6,491	0	24,737	0	1,337	59	12,120
5-Sep	4	6,495	0	24,737	0	1,337	34	12,154
6-Sep	4	6,499	0	24,737	0	1,337	34	12,188
7-Sep	4	6,503	0	24,737	0	1,337	34	12,222
8-Sep	4	6,507	0	24,737	0	1,337	34	12,256
9-Sep	4	6,511	0	24,737	0	1,337	34	12,290
10-Sep	4	6,515	0	24,737	0	1,337	25	12,315
11-Sep	0	6,515	0	24,737	0	1,337	10	12,325
12-Sep	0	6,515	0	24,737	0	1,337	12	12,337
13-Sep	0	6,515	0	24,737	0	1,337	18	12,355
14-Sep	0	6,515	0	24,737	0	1,337	20	12,375
15-Sep	0	6,515	0	24,737	0	1,337	8	12,383
Total	6,515		24,737		1,337		12,383	

Appendix Table C. 1. Kotzebue District chum salmon commercial catch, age, and sex composition by fishing period, and season total, 2001.

			Brood Year and (Age Group)											
			1998.0		1997.0		1996		1995		1994		Total	
			0.2		0.3		0.4		0.5		0.6			
			N	%	N	%	N	%	N	%	N	%	N	%
Sampling Dates:	7/10-7/11						Period 1							
Stratum Dates:	7/10-7/11													
Sample Size:	269	Male	0	0.0%	733	14.5%	1,260	24.9%	94	1.9%	19	0.4%	2,106	41.6%
Catch:	5,058	Female	19	0.4%	771	15.2%	2,087	41.3%	75	1.5%	0	0.0%	2,952	58.4%
		Subtotal	19	0.4%	1,504	29.7%	3,347	66.2%	169	3.3%	19	0.4%	5,058	100.0%
Sampling Dates:	07/12-07/13						Period 2							
Stratum Dates:	07/12-07/13													
Sample Size:	272	Male	0	0.0%	1,878	19.1%	2,600	26.5%	217	2.2%	0	0.0%	4,695	47.8%
Catch:	9,824	Female	0	0.0%	1,625	16.5%	3,323	33.8%	181	1.8%	0	0.0%	5,129	52.2%
		Subtotal	0	0.0%	3,503	35.7%	5,923	60.3%	397	4.0%	0	0.0%	9,824	100.0%
Sampling Dates:	7/16-7/17						Period 3							
Stratum Dates:	7/16-7/18													
Sample Size:	262	Male	31	0.4%	1,186	14.5%	2,278	27.9%	62	0.8%	0	0.0%	3,558	43.5%
Catch:	8,177	Female	0	0.0%	1,124	13.7%	3,183	38.9%	312	3.8%	0	0.0%	4,619	56.5%
		Subtotal	31	0.4%	2,310	28.2%	5,462	66.8%	375	4.6%	0	0.0%	8,177	100.0%
Sampling Dates:	7/19-7/20						Period 4							
Stratum Dates:	7/19-7/20													
Sample Size:	250	Male	0	0.0%	2,319	12.8%	5,363	29.6%	362	2.0%	0	0.0%	8,044	44.4%
Catch:	18,117	Female	0	0.0%	1,594	8.8%	8,406	46.4%	72	0.4%	0	0.0%	10,073	55.6%
		Subtotal	0	0.0%	3,913	21.6%	13,769	76.0%	435	2.4%	0	0.0%	18,117	100.0%
Sampling Dates:	7/24-7/25						Period 5							
Stratum Dates:	7/23-7/25													
Sample Size:	261	Male	317	0.8%	6,017	14.6%	11,876	28.7%	633	1.5%	0	0.0%	18,843	45.6%
Catch:	41,329	Female	0	0.0%	6,967	16.9%	14,885	36.0%	475	1.1%	158	0.4%	22,486	54.4%
		Subtotal	317	0.8%	12,985	31.4%	26,761	64.8%	1,108	2.7%	158	0.4%	41,329	100.0%
Sampling Dates:	7/26-7/27						Period 6							
Stratum Dates:	7/26-7/27													
Sample Size:	263	Male	186	1.1%	2,974	18.3%	3,470	21.3%	186	1.1%	0	0.0%	6,816	41.8%
Catch:	16,297	Female	62	0.4%	3,718	22.8%	5,391	33.1%	310	1.9%	0	0.0%	9,481	58.2%
		Subtotal	248	0.0%	6,692	0.0%	8,861	54.4%	496	3.0%	0	0.0%	16,297	100.0%
Sampling Dates:	7/30-7/31						Period 7							
Stratum Dates:	7/30-7/31													
Sample Size:	258	Male	86	0.4%	4,202	19.0%	5,060	22.9%	0	0.0%	0	0.0%	9,347	42.2%
Catch:	22,125	Female	0	0.0%	4,802	21.7%	7,804	35.3%	172	0.8%	0	0.0%	12,778	57.8%
		Subtotal	86	0.4%	9,004	40.7%	12,863	58.1%	172	0.8%	0	0.0%	22,125	100.0%
Sampling Dates:	8/1-8/2						Period 8							
Stratum Dates:	8/1- 8/3													
Sample Size:	286	Male	872	3.5%	7,756	31.1%	3,747	15.0%	87	0.3%	0	0.0%	12,463	50.0%
Catch:	24,925	Female	436	1.7%	7,582	30.4%	4,270	17.1%	174	0.7%	0	0.0%	12,463	50.0%
		Subtotal	1307	5.2%	15,338	61.5%	8,018	32.2%	261	1.0%	0	0.0%	24,925	100.0%
Sampling Dates:	8/7-8/8						Period 9							
Stratum Dates:	8/7-8/8													
Sample Size:	264	Male	483	2.3%	4,343	20.5%	2,091	9.8%	241	1.1%	0	0.0%	7,158	33.7%
Catch:	21,232	Female	322	1.5%	8,927	42.0%	4,666	22.0%	161	0.8%	0	0.0%	14,074	66.3%
		Subtotal	804	3.8%	13,270	62.5%	6,756	31.8%	402	1.9%	0	0.0%	21,232	100.0%
Sampling Dates:	8/9-8/10						Period 10							
Stratum Dates:	8/9-8/10													
Sample Size:	267	Male	492	1.9%	5,998	22.8%	3,540	13.5%	197	0.7%	0	0.0%	10,226	39.0%
Catch:	26,254	Female	492	1.9%	10,128	38.6%	5,310	20.2%	98	0.4%	0	0.0%	16,028	61.0%
		Subtotal	983	3.7%	16,126	61.4%	8,850	33.7%	295	1.1%	0	0.0%	26,254	100.0%
Sampling Dates:	8/14-8/15						Period 11							
Stratum Dates:	8/14-8/15													
Sample Size:	247	Male	198	2.4%	1,254	15.4%	594	7.3%	0	0.0%	0	0.0%	2,046	25.1%
Catch:	8,151	Female	429	5.3%	3,960	48.6%	1,716	21.1%	0	0.0%	0	0.0%	6,105	74.9%
		Subtotal	627	7.7%	5,214	64.0%	2,310	28.3%	0	0.0%	0	0.0%	8,151	100.0%
Sampling Dates:	8/16-8/17						Period 12							
Stratum Dates:	8/16-8/17													
Sample Size:	258	Male	52	2.3%	437	19.4%	175	7.8%	0	0.0%	0	0.0%	665	29.5%
Catch:	2,257	Female	35	1.6%	1,207	53.5%	332	14.7%	17	0.8%	0	0.0%	1,592	70.5%
		Subtotal	87	3.9%	1,645	72.9%	507	22.5%	17	0.8%	0	0.0%	2,257	100.0%
Sampling Dates:	8/21-8/22						Period 13							
Stratum Dates:	8/20-8/22													
Sample Size:	249	Male	74	1.6%	939	20.5%	424	9.2%	18	0.40%	0	0.0%	1,455	31.7%
Catch:	4,585	Female	184	4.0%	1,970	43.0%	921	20.1%	37	0.80%	18	0.4%	3,130	68.3%
		Subtotal	258	5.60%	2,909	63.5%	1,344	29.3%	55	1.20%	18	0.4%	4,585	100.0%
Sampling Dates:	8/23-8/24						Period 14							
Stratum Dates:	8/23-8/24													
Sample Size:	264	Male	127	3.8%	772	23.1%	291	8.7%	25	0.80%	0	0.0%	1,215	36.4%
Catch:	3,341	Female	114	3.4%	1,506	45.1%	494	14.8%	13	0.40%	0	0.0%	2,126	63.6%
		Subtotal	240	7.2%	2,278	68.2%	785	23.5%	38	1.10%	0	0.0%	3,341	100.0%
Sampling Dates:	7/10-8/24						Sesan Total							
Stratum Dates:	7/11-8/24													
Sample Size:	3,670	Male	2,916	1.4%	40,810	19.3%	42,769	20.2%	2,124	1.00%	19	0.0%	88,837	41.9%
Catch:	211,672	Female	2,092	1.0%	55,882	26.4%	62,787	29.7%	2,097	1.00%	177	0.1%	123,035	58.1%
		Total	5,008	2.4%	96,692	45.7%	105,556	49.9%	4,221	2.00%	196	0.1%	211,872	100.0%