

**NORTON SOUND AND KOTZEBUE SOUND MANAGEMENT AREA**

**SALMON CATCH AND ESCAPEMENT REPORT, 1994**

By

Tracy Lingnau

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Alaska Department of Fish and Game  
Commercial Fisheries Management and Development Division, AYK Region  
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## ABSTRACT

The 1994 commercial and subsistence harvest and escapement information for the five species of Pacific salmon *Oncorhynchus* found in the Norton Sound Management Area and the one species of *Oncorhynchus* found in the Kotzebue Sound Management Area in significant abundance are presented by age, sex, and length. The 1994 Norton Sound District commercial harvest totaled 1,108,184 salmon and was composed of 5,285 chinook (*O. tshawytscha*), 18,290 chum (*O. keta*), 80 sockeye (*O. nerka*), 982,389 pink (*O. gorbuscha*) and 102,140 coho (*O. kisutch*) salmon. The commercial harvest was 23% above the 1989-93 average for chinook salmon, 72% below for chum salmon, 63% above for coho salmon and well above the previous record for pink salmon. Sockeye salmon are only present in small numbers in this area. Because of poor weather, very few aerial escapement surveys were flown. Early surveys for chum salmon in northern Norton Sound indicated escapements ranged from below the escapement goal to having achieved the goals. No surveys were flown in southern Norton Sound because of poor weather, but other escapement indices showed that chum salmon escapements were adequate. Tributary escapement projects and comparable commercial catch statistics throughout Norton Sound indicated coho salmon escapements were above average. Age composition from the chinook salmon harvest in Subdistrict 6 was composed of two major age classes: age 1.3 (61.3%) and age 1.4 (36.3%) with smaller contributions from other age groups. Subdistrict 6 chum salmon age composition was 54.0% age 0.3 and 43.2% age 0.4. The coho salmon harvest in Subdistrict 6 was predominantly age 2.1 (72.1%). In the Kotzebue District, the commercial harvest totaled 153,452 chum salmon. An incidental catch of 4 chinook salmon and 149 Dolly Varden was also reported. Subsistence catches of these species plus whitefish, sheefish and northern pike also occur in the Kotzebue District. The chum salmon commercial harvest in 1994 was well below the 1979-93 average of 290,900 fish. No aerial escapement surveys were flown in the Kotzebue District because of poor weather conditions. Record catch rates early in the season and high catches at the Kobuk River test fishery indicate escapements were well above average in that system. Sonar enumeration on the Noatak River indicated that the escapement fell short of the goal. The age composition of the chum salmon harvest in the Kotzebue District commercial fishery was 3.3% age 0.2, 63.0% age 0.3, 30.8% age 0.4 and 2.9% age 0.5.

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

## INTRODUCTION

The Norton Sound, Port Clarence, and Kotzebue Sound commercial salmon management districts include all waters of Alaska from Canal Point Light, 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 Canal Point Light north to Cape Douglas (Figure 1) 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 terminal stocks. 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 2, 3). Subdistrict 2, 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 and Kotzebue Sound areas. In descending order of economic importance in 1994; they are coho salmon (*Oncorhynchus kisutch*), pink salmon (*O. gorbuscha*), chinook salmon (*O. tshawytscha*), chum salmon (*O. keta*) and sockeye salmon (*O. nerka*). In Norton Sound the returns of pink salmon are the largest of the five species, followed by coho, chum, chinook, and sockeye salmon. In some years the coho salmon return is greater than the chum salmon return. Concern for chum salmon escapements required a conservative management strategy for that species in 1994. Because of market demand, a directed pink salmon fishery occurred in 1994 in Norton Sound. In the Kotzebue Sound District, chum salmon are the predominant species.

Knowledge of the magnitude, distribution, timing, and age-sex-size composition of both the harvest and escapement by stock is fundamental to managing salmon fisheries and achieving full production. Age, sex, and size composition of selected harvests and escapements in the Norton and Kotzebue Sound areas have been estimated annually since 1962 and are presented in this report for 1994.

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 1993 have been summarized in the Norton Sound - Port Clarence - Kotzebue Sound Annual Management Report (Lean et al. 1995). In addition, the results from escapement assessment projects are analyzed and reported annually. For the 1994 season these included test fishery projects on the Unalakleet River (Fred Bue, ADF&G, personal communication) and Kobuk River (Lingnau, 1994c), counting tower projects on the Kwiniuk River (Fred Bue, ADF&G, personal communication) and on the Nome River (Fred Bue, ADF&G, personal communication) and a sonar project on the Noatak River (Todd LaFlamme, ADF&G, personal communication).

Age, sex, and size 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 (Lean et al. 1984; Bigler and Lean 1986; Hamner 1987, 1989a, 1989b; Buklis 1991a, 1991b; Lingnau 1994a, 1994b; Blaney and Lingnau 1995).

## 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 fisherman. These data were summarized by microcomputer in the Nome and Kotzebue offices during the fishing season.

Subsistence harvest surveys have not been conducted in the Norton Sound and Kotzebue Sound Areas in recent years. However, funds were dedicated in 1994 to conduct in-depth surveys for most villages in the Kotzebue, Port Clarence the Norton Sound Districts. Villages surveyed in the Norton Sound and Port Clarence Areas were Brevig Mission, Elim, Golovin, Koyuk, Shaktoolik, St. Michaels, Stebbins, Teller, Unalakleet, Wales and White Mountain. In the Kotzebue Area, villages of Ambler, Deering, Kiana, Kobuk, Kotzebue, Noatak, Noorvik and Shungnak. A subsistence permit is required to subsistence fish in the Nome Subdistrict, and catch limits are set by permit for each river and species. In the Kotzebue Area, household interviews were conducted except for Kotzebue where mailers were sent to households. The members of each household were asked how many salmon were caught for subsistence use. During these surveys it was assumed that fishermen could accurately recall their harvests, which may have occurred over several months.

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

Aerial surveys have been the primary method for monitoring salmon escapements to the Norton Sound and Kotzebue Sound drainages. They 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 should be conducted on approximately the same dates each year under similar survey conditions and for the same index areas. Comparing commercial catch statistics to previous years provides 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. Test fishery catch and catch per unit effort (CPUE) statistics are used as an index of relative abundance. Counting towers and

sonar projects provide a better estimate of escapement. Each of these projects provide data on migratory timing. In 1994 a counting tower on the Kwiniuk River in the Moses Point Subdistrict, on the Nome River in the Nome Subdistrict (Appendix Table C1, C2), and a test fishing project on the Unalakleet River in the Unalakleet Subdistrict were used to monitor escapements. A sonar escapement project on the Noatak River monitored escapements into that river and a test fishing project on the Kobuk River was implemented in 1993 near the village of Kiana. This project, with only two years of data, was not used as a management tool in 1994.

### *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 millimeter 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 interval estimation of age class composition. The ages of fish were categorized into three age classes for this purpose: age 4, age 5, and age 3 or age 6. Sample sizes were chosen such that the width of 95% confidence intervals (Goodman 1965; Bromaghin 1991) for the proportion of the harvest in each of the three age categories would not exceed 0.15 (Jeff Bromaghin, ADF&G, personal communication). A sample of approximately 250 fish per stratum satisfied this objective. However, sample sizes were increased to 280 fish per stratum to account for the expected number of unreadable scales.

## RESULTS

Sufficient commercial fishery samples were collected to estimate age and sex composition of the harvest for chinook, chum and coho salmon in Norton Sound Subdistrict 6 and for the chum harvest 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 were collected from tower projects on the Nome and Kwiniuk Rivers using beach seines. Genetic stock identification (GSI) and scale samples were collected from the Snake and Tubutulik Rivers. In the Kobuk River drainage in Kotzebue Sound, chum salmon escapement carcass samples were collected from the Salmon River for scales, and from the Selby Slough vicinity for scales and GSI samples. Comparisons of age, sex, and size composition in this report are non-statistical comparisons.

### *Norton Sound*

#### **Commercial and Subsistence Harvest**

The 1994 Norton Sound commercial harvest totaled 1,108,184 salmon and was composed of 5,285 chinook, 18,290 chum, 80 sockeye, 982,389 pink, and 102,140 coho salmon (Table 1; Appendix A). Subdistrict 6 accounted for 51.2% of the total commercial salmon harvest in 1994, followed by Subdistrict 5 (47.9%). With low expectations of chum salmon and low prices, effort normally drops. As expected, fishing effort was below the recent 10 year average.

In Norton Sound, chum salmon is normally the most important species economically, i.e., has the highest exvessel value. In 1994, however, with a strong return of coho salmon, an expanded market for pink salmon, and the special conservation efforts for chum salmon, coho and pink salmon accounted for 84% of the exvessel value. Coho salmon accounted for 9% of the catch and 46% of the value, while pink salmon contributed 89% of the harvest and 38% of the exvessel value. Two shore based operators purchased chinook, chum and coho salmon. A third buyer and joint venture partner to one of the shore based operators, operated a processing vessel with tenders purchasing pink salmon in Subdistricts 5 and 6. There were also several catcher/sellers marketing fresh salmon locally and to wholesale distributors.

The Norton Sound commercial fishing season typically begins between June 8 and June 20. Because of chum salmon conservation concerns, Subdistrict 1 did not open until August 1 for coho salmon. Subsistence and sport fishing was also curtailed by similar action in Subdistrict 1. Because of weak coho returns, subsistence fishing in the Nome subdistrict was closed on August 9. Poor weather prevented most fishermen from going out. Only one commercial

fisherman reported any sales of coho salmon. The Subdistrict 2 commercial harvest was to be limited to 10,000 chum salmon for conservation reasons. Aerial surveys on July 9 indicated escapements would be achieved. By that time, there was no interest in a chum salmon fishery. During the coho salmon run, good escapements and low effort allowed fishing time to be increased to 7 days per week and extended until September 7. Because of decreased chum salmon returns in past years, there was little expectation for a fishery directed at chum salmon in Subdistrict 3. The commercial season was delayed to assess the run. Escapements were achieved on July 7. However, because of buyer logistical problems, the fishery did not begin until July 25 and was directed towards coho salmon. As in Subdistrict 2, a lack of participants and a strong coho salmon return allowed fishing time to be extended to 7 days per week. This gave some flexibility to transport fish out for processing. Subdistrict 4 has had difficulties in the past attracting a buyer because of its remoteness and reputation for water marked fish. Commercial fishing was opened in Subdistrict 4 on August 1 to provide an opportunity for catcher/sellers to locate a market. At the end of the season, there were no reported sales.

Subdistricts 5 and 6 are managed similar to each other. Some periods differ in opening times to accommodate the buyers so they may coordinate operations with their tenders and flight schedules. Both subdistricts were opened on June 20 with restricted mesh size of 7-1/2 in (191 mm) to target chinook salmon. Favorable catch rates allowed second period. Test periods for pink salmon began on June 26 and 29. Gear restrictions intended to target pink salmon while reducing incidental catches of chum salmon were successful. A fourth period directed at chinook salmon was scheduled to harvest the strong return of that species. However, because of the amount of fishermen targeting pink salmon, there was little effort. With a strong return of pink salmon and low incidental catches of chum salmon, the fishing period that began on June 29 was extended until July 20. The fishing schedule was regulated to maximize quality and quantity. The departments test net showed a good return of chum salmon and chum salmon escapement was projected to be adequate in the Kwiniuk River so a directed chum period was scheduled. Again, because of the strong pink salmon return, there was no interest. The pink salmon fishery was extended until July 25 but with the run tailing off, the buyer ceased operations on July 23.

Although many of the 13,000 residents of the Norton Sound Area are dependent to some extent on the fish and game resources of the area, until this year, subsistence salmon catches generally have not been monitored since 1983 except in the Nome Subdistrict. Prior to 1983 the Department conducted annual household surveys in many of the villages. For the last 5 years in which thorough surveys were conducted, 1978-1982, the average annual subsistence catch in the Norton Sound area was 73,000 salmon for all species combined. Because not all households were contacted, this should be considered a minimum estimate. In the Nome Subdistrict, subsistence permits require that fishermen document their harvest by species. There were 141 subsistence permits issued in 1994 (Table 2). A total of 78 permit holders fished; they reported a harvest of 8,805 salmon composed of 22 chinook, 99 sockeye, 1,575 chum, 6,065 pink and 1,044 coho salmon (Table 2). Funds were dedicated to do a comprehensive subsistence survey in Norton Sound and Kotzebue Sound this year. The villages surveyed were listed in the methods section. Results of this study will be published in a separate report by the Subsistence

Division.

### **Escapement Abundance**

Subdistricts 5 and 6 support the largest chinook salmon returns in Norton Sound. Subdistricts 1, 2, and 3 have had increasing returns in recent years. Escapement surveys, and commercial and subsistence catches, indicated average numbers of chinook salmon in Subdistricts 4, 5 and 6. The Unalakleet River test fish project also indicated an average to slightly below average chinook salmon escapement.

Chum salmon escapement surveys were difficult to assess this year because of the large numbers of pink salmon and high water levels. Chum salmon escapement abundance in northern Norton Sound was thought to have achieved the desired levels for some systems (Table 3). Consideration of timing and conditions during the 1994 surveys and a tower project on the Kwiniuk River indicated escapement objectives were achieved. Chum salmon indicators for Subdistricts 4, 5 and 6 indicated escapements were made. Poor weather prevented most surveys. Test net catches for the Unalakleet River were above average and it was assumed that the chum salmon escapement in these subdistricts was adequate.

Because of inclement weather during the coho migration, most aerial surveys were conducted under poor conditions. Peak coho salmon aerial surveys on some tributaries were not attempted because of unfavorable conditions. Overall, coho escapements appeared to be above average throughout Norton Sound. Commercial catches, test nets and escapement projects indicated coho escapements were near average.

Pink salmon escapements follow an odd/even year cycle with the even years several times the escapement level of the odd years. The 1994 run, as expected, was much larger than the odd year. Because of the large run and poor weather, aerial survey assessment was difficult. Using data from commercial catches, test fisheries and escapement projects, indicate escapements were quite large. Pink salmon escapement goals, have not been set for Norton Sound streams, due to lack of historical information.

### **Age, Sex, and Length Composition**

The chinook salmon commercial harvest in Subdistrict 6 was composed of 61.3% age-1.3 and 36.3% age-1.4 with smaller amounts of age-1.2 and age-1.5 fish. The sample was nearly 50% each male and female. A small sample from Subdistrict 5 was nearly identical. A sample of 32 chinook salmon from the Unalakleet River test fishery was 71.9% age 1.3, 18.8% age 1.4, and smaller amounts of ages 1.2 and 1.5, with 53.1% of the total being female. Mean lengths by age group for all samples collected ranged from 515 mm for age-1.2 females to 1,020 mm for an age-1.5 male, both from the Subdistrict 6 commercial fishery sample (Tables 4, 5, 6).

Subdistrict 6 chum salmon age composition was mostly age 0.3 (54.0%), followed by age 0.4 (43.2%). Females composed 49.9% of the total. A sample of 475 chum salmon from the Unalakleet River test fishery was 63.2% age 0.4 and 30.7% age 0.3, and 34.7% of the sample was female. Small samples from Norton Sound tributaries (Kwiniuk, Snake, Nome and Tubutulik Rivers) were all similar with age 0.3 dominating (63.6% to 75.7%) followed by age 0.4 (23.0% to 35.4%). Females were dominant in 3 of the 4 samples, with males dominant only in the Tubutulik River. Mean lengths by age group for all samples collected ranged from 502 mm for age-0.2 females from the Snake River to 625 mm for age-0.5 males from the Nome River (Tables 7, 8, 9). Samples through time from the Unalakleet River test fishery are found in Appendix Table B1.

Subdistrict 6 coho salmon samples were dominated by age-2.1 fish accounting for 72.1%, with 49.6% females. There were 183 coho salmon sampled from the Unalakleet River test fishery and the age composition was similar to the Subdistrict 6 catch: 78.7% age-2.1 salmon, followed by age-1.1 (17.5%). Mean lengths by age group for all samples collected ranged from 580 mm for age-3.1 females from the Unalakleet River test fishery to 603 mm for age-1.1 males from the District 6 commercial catch sample (Tables 10, 11).

### *Kotzebue Sound*

#### **Commercial and Subsistence Harvest**

Commercial harvest in the Kotzebue district for 1994 was 153,452 chum salmon, 4 chinook salmon and 149 Dolly Varden (Table 12). Four thousand of those chum salmon were caught by commercial fishermen but not sold. This commercial catch was at the upper end of the pre-season outlook of 75,000 to 150,000, but was 47% below the 15 year (1979-1993) average of 291,000. There were 109 permits that fished this year. This is the lowest number of participants since 1972. The low fishing effort is attributed largely to continuing construction job opportunities available in the region, lowest salmon prices since 1972 and reduced fishing time during the peak of the season.

The gill net gear is limited to a total length of 150 fathoms with fishermen operating no more than three shackles of gear. Most fishermen operated with one end on or near shore and with all three shackles connected. Most gear used in the district is 5-7/8 in stretch multi-filament gillnet.

The season began by emergency order on July 11. Normal bi-weekly periods continued until July 29. After period 6 when the catch exceeded what processors could handle, buyers met with department managers. Buyers explained that because of the excess salmon on the market, they were being held to purchasing a limited poundage for each period by processors. During the remainder of the season, openings were coordinated with buyers so that fish in excess of their

limitations would not be taken and could be shipped out for processing in a timely manner. Twenty-one periods were fished with a total of 263 hours. This was the second lowest number of hours fished since the fisheries inception under state management in 1962. Fishing periods varied from 3 hours to 36 hours in length.

One of the three buyers ceased operations on August 3 leaving an even more limited market. The second buyer's last day of purchasing fish was August 17. The remaining buyer purchased fish through August 24 before closing. Under a normal fishing schedule, two more commercial periods would have occurred. Because of a lack of commercial samples during periods without a buyer, the department contracted local fishermen to test fish for age composition.

Normally, subsistence harvest surveys are conducted in the villages of Noatak on the Noatak River, and Noorvik and Shungnak on the Kobuk River. As mentioned previously, funding was appropriated to complete a more intensive survey in the Kotzebue Area. The villages surveyed were listed in the methods section. Results of this study will be published in a separate report by the Division of Subsistence.

### **Sikusuilaq Springs Hatchery**

An expected, excess of chum salmon hatchery stock prompted local buyers to again explore the possibilities of a chum salmon roe harvest. The Northwest Arctic Borough developed and sent out bids to prospective buyers. All buyers declined to bid for the excess chum salmon. The first of two potential buyers said that his primary market did not want the eggs because of the excess chum salmon on the market, and the other possible buyer would have had only produced marginal profits. Therefore, no commercial harvest of excess salmon occurred at the hatchery.

### **Escapement Abundance**

Because of poor weather and flooding conditions, no aerial surveys were flown during the entire season (Table 14). A sonar project located on the Noatak River monitored escapements into that drainage. A test fishing project located near Kiana, monitored salmon run strength and timing into the Kobuk River. The test fish crews in Kiana also surveyed subsistence fishermen to monitor subsistence catches.

The Kobuk River test fish index was not used to manage the fishery because it was only in the second year of operation. When used with other indices, the chum salmon run into Kobuk River was judged to be quite strong. The test fish index was more than twice that of 1993, a year in which aerial surveys indicated escapements were just met. Another indication that the Kobuk stock was strong is that the comparable commercial catch rates for periods 3-6 were 1.5 to 2 times the average. However, a factor contributing to the high CPUE rates was that there were fewer fishermen this year. Age-4 fish were also strong early in the season. Tributary sampling

indicated larger quantities of chum salmon carcasses than in recent years. The chum salmon run into the Kobuk River was at least adequate.

This was the first year that the sonar equipment was operated on both banks of the Noatak River for the entire season. In past years only the right bank was monitored by sonar. Counts on the left bank were roughly 8-12 percent throughout the season. For the first time a specific sonar goal of 160,000 chum salmon for the wildstock total passage was established. The Noatak River sonar began operating on July 22. Within one week, comparable counts on the right bank were three times that of 1993 (Table 15, Figure 8). The sonar passage remained twice that of 1993 until mid-August. When expanded out, this passage rate would have indicated a total passage of 180,000 to 200,000 chum salmon. However, towards the end of August these counts slowed. The Noatak River sonar counted a strong pulse of fish at the end of the season during 1993. In previous years, subsistence catches also have indicated this pulse has occurred. During 1994 this pulse never occurred and counts remained relatively flat from the end of August until the sonar project ended on September 10. The chum salmon run into the Noatak River was an early run. Total passage estimate by sonar was 161,500 chum salmon. The Sikusuilag Hatchery estimated return was 45,000-50,000 chum salmon during sonar operations. This would put the wildstock escapement into the Noatak River at about 111,500-116,500 chum salmon.

### **Age, Sex, and Length Composition**

Sufficient commercial fishery catch samples were collected to stratify the season by fishing period (Appendix D.1). Normally a shift in age composition through the season occurs with age 0.4 decreasing and age 0.3 increasing as the season progresses. This occurred again this year. However, the shift in age composition occurred much earlier in 1994 than in previous years. This would indicate a weak 5-year-old group, reflecting last years weak 4-year-old's. Age-0.2 and age-0.5 fish typically contribute only a small percentage each year. The chum salmon commercial harvest for the season was composed of 3.3% age 0.2, 63.0% age 0.3, 30.8% age 0.4 and 2.9% age 0.5 (Table 14).

Sample sizes from the Kobuk River test fish and the Noatak River test fish projects were sufficient to stratify into time periods (Appendix Table D.2, D.3). Both stocks were dominated by age 0.3. The Noatak River samples indicated 68.5% were age 0.3 where the Kobuk was 58.0% age 0.3 (Table 15). Age 0.4 fish were 26.8% for the Noatak River and 36.6% for the Kobuk River. Both tributaries had smaller quantities of age 0.2 and 0.5 fish. Just over half (52.4%) the samples from the Noatak River were female, whereas 37% were female from the Kobuk River test fishery. These discrepancies may be attributed to the difference in mesh size sampling. The Kobuk River test fish project uses only 5-7/8 in mesh size, which parallels the commercial fishery. The Noatak River sonar project uses a range of mesh sizes from 2-3/4 in (70 mm) mesh to 6 in (152 mm) mesh size and uses the information for species apportionment.

Spawning ground samples were collected for chum salmon from the Salmon River and in the vicinity of Selby Slough in the Kobuk River drainage. Age composition ranged from 61.0% to 78.4% for age 0.3 and from 13.1% to 29.2% for age 0.4 (Table 16). Mean lengths by age group for all samples ranged from 506 mm for age-0.2 females from the Salmon River to 643 mm for age-0.5 males from the Noatak River test fishery (Tables 14, 15,16).

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Table 1. Norton Sound commercial salmon effort, catch and weight (pounds) by subdistrict, 1994.

Subdistrict	Number of Fishermen <sup>a</sup>	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	1	0	0	1	8	287	2,751	0	0	66	578	354	3,337
2	5	0	0	0	0	3,424	24,571	0	0	111	672	3,535	25,243
3	21	0	0	0	0	5,345	41,380	0	0	414	2,781	5,759	44,161
4	0												
5	39	885	16,530	8	52	22,065	165,213	502,231	1,090,661	5,411	35,499	530,600	1,307,955
6	71	4,400	81,962	71	465	71,019	536,981	480,158	1,094,405	12,288	83,010	567,936	1,796,823
District Totals	119	5,285	98,492	80	525	102,140	770,896	982,389	2,185,066	18,290	122,540	1,108,184	3,177,519

<sup>a</sup> Some fishermen fished more than one subdistrict.

Table 2. Estimates of subsistence harvests of chum salmon in Norton Sound Area villages, 1994.

Location	Permits Issued <sup>a</sup>	Permits Returned	Permits Fished	Chinook	Sockeye	Chum	Pink	Coho	Total
Marine Waters	57	54	37	20	64	1,442	1,369	578	3,473
Nome River	39	35	22	1	0	78	3,564	80	3,723
Snake River	1	1	0	0	0	0	0	0	0
Eldorado	12	10	4	0	1	44	132	152	329
Flambeau	4	3	1	0	0	0	0	76	76
Bonanza River	7	5	1	0	0	0	76	0	76
Saftey Sound	2	2	1	1	0	11	0	0	12
Solomon River	9	9	8	0	0	0	875	0	875
Sinuk River	1	1	0	0	0	0	0	0	0
Fish River	1	1	1	0	0	0	0	115	115
Niukluk River	2	2	1	0	0	0	0	43	43
Port Clarence	1	1	1	0	28	0	49	0	77
Kutitrin river	1	1	0						0
Pilgrim River	4	4	1	0	6	0	0	0	6
Totals <sup>c</sup>	141	129	78	22	99	1,575	6,065	1,044	8,805

<sup>a</sup> Permits issued by Alaska Department of Fish and Game, Division of Commercial Fisheries, in Nome.

<sup>b</sup> Includes the Kuzitrin and Pilgrim Rivers.

<sup>c</sup> Preliminary data.

Table 3. Salmon survey counts of Norton Sound streams and associated chum salmon escapement goals, 1994.

Stream Name	Chinook	Coho	Sockeye	Pink	Chum	
					Count	Goal
Salmon L.			4,970			
Glacial L.			1,230			
Sinuk R.	10	307 <sup>d</sup>		492,000	1,140 <sup>a</sup>	4,500
Snake R.		624 <sup>b</sup>		63,860	688 <sup>a</sup>	1,000
Nome R.	41	1,263 <sup>e</sup>		141,116 <sup>e</sup>	2,974 <sup>e</sup>	2,000 <sup>g</sup>
Flambeau R.	1			290	4,960	3,250
Eldorado R.	2	242 <sup>d</sup>		53,890	5,140 <sup>a</sup>	5,250
Bonanza R.				20 <sup>c</sup>		1,500
Solomon R.		184 <sup>d</sup>		53,600		550
Fish R.	55 <sup>c</sup>			910,000 <sup>c</sup>	16,500 <sup>a&amp;c</sup>	17,500
Boston C.	95 <sup>c</sup>			355,600 <sup>c</sup>	4,270 <sup>a&amp;c</sup>	2,500
Niukluk R.	7 <sup>c</sup>	274 <sup>d</sup>		1,294,100 <sup>c</sup>	16,470 <sup>a&amp;c</sup>	8,000
Ophir C.		197 <sup>d</sup>				
Kwiniuk R.	627 <sup>c</sup>	2,841 <sup>c&amp;e</sup>		2,303,112 <sup>e</sup>	33,010 <sup>c</sup>	19,500 <sup>f</sup>
Tubutulik R.						12,000
Inglutalik R.						8,500
Ungalik R.						2,500
Shaktoolik R.	No surveys due to poor conditions.					11,000
Unalakleet R.						
North R.						2,000
Old Woman R.						100

Note: A multitude of factors affect escapement estimates. The numbers above are strict values that are instantaneous counts which may not truly represent the strength of the return. Refer to text for an evaluation of the return.

- <sup>a</sup> Species identification difficult where large numbers of pink salmon were observed.
- <sup>b</sup> Counts should be considered minimums due to counting conditions.
- <sup>c</sup> Early count.
- <sup>d</sup> Lant count, chum goal is for the tower count.
- <sup>e</sup> Preliminary expanded tower counts.
- <sup>f</sup> Chum goal for tower count.
- <sup>g</sup> Chum goal for aerial survey. A tower counting goal is not yet developed.

Table 4. Norton Sound Subdistrict 5 chinook salmon commercial catch sample age and sex composition, and mean length, 1994.

		Brood Year and (Age Group)				Total
		1990 (1.2)	1989 (1.3)	1988 (1.4)	1987 (1.5)	
Stratum Dates:		6/23–6/24				
Sampling Dates:		6/23				
Sample Size:		31				
Female	Percent of Sample	3.0	24.2	27.3	0.0	54.5
	Number in Catch	1	8	9	0	18
	Mean Length (mm) <sup>a</sup>	580.0	825.0	866.1		
	Standard Error	0.0	18.3	12.0		
Male	Percent of Sample	3.0	27.3	9.1	0.4	39.8
	Number in Catch	1	9	3	0	13
	Mean Length (mm) <sup>a</sup>	520.0	799.4	923.3	985.0	
	Standard Error	0.0	17.3	28.5	28.5	
Total	Percent of Sample	6.1	51.5	36.4	0.4	94.4
	Number in Catch	2	17	12	0	31
	Standard Error	1	3	3	0	

<sup>a</sup> Length was from mid-eye to fork-of-tail.

Table 5. Norton Sound Subdistrict 6 chinook salmon commercial catch age and sex composition, and mean length, 1994.

		Brood Year and (Age Group)					Total
		1990 (1.2)	1989 (1.3)	1988 (1.4)	(2.3)	1987 (1.5)	
Stratum Dates:	6/20-7/01						
Sampling Dates:	6/21-7/01						
Sample Size:	240						
Female	Percent of Sample	0.4	23.3	26.3	0.4	0.0	50.4
	Number in Catch	18	1,027	1,155	18	0	2,218
	Mean Length (mm) <sup>a</sup>	515.0	798.8	875.4	865.0		
	Standard Error	0.0	7.0	5.3	0.0		
Male	Percent of Sample	0.8	37.9	10.0	0.4	0.4	49.6
	Number in Catch	37	1,668	440	18	18	2,182
	Mean Length (mm) <sup>a</sup>	587.5	768.6	853.5	830.0	1,020.0	
	Standard Error	2.5	12.0	12.1	0.0	0.0	
Total	Percent of Sample	1.3	61.3	36.3	0.8	0.4	100.0
	Number in Catch	55	2,695	1,595	37	18	4,400
	Standard Error	32	139	137	26	18	

<sup>a</sup> Length was from mid-eye to fork-of-tail.

Table 6. Unalakleet River chinook salmon test fish age and sex composition, and mean length, 1994.

		Brood Year and (Age Group)				Total
		1990 (1.2)	1989 (1.3)	1988 (1.4)	1987 (1.5)	
Stratum Dates:		6/16-7/13				
Sampling Dates:		6/16-7/13				
Sample Size:		32				
Female	Percent of Sample	0.0	34.4	15.6	3.1	53.1
	Number in Catch	0	11	5	1	17
	Mean Length (mm) <sup>a</sup>		743.2	866.0	940.0	
	Standard Error		17.7	24.6	0.0	
Male	Percent of Sample	6.3	37.5	3.1	0.0	46.9
	Number in Catch	2	12	1	0	15
	Mean Length (mm) <sup>a</sup>	552.5	715.0	765.0		
	Standard Error	17.5	5.6	0.0		
Total	Percent of Sample	6.3	71.9	18.8	3.1	100.0
	Number in Catch	2	23	6	1	32
	Standard Error	1	3	2	1	

<sup>a</sup> Length was from mid-eye to fork-of-tail.

Table 7. Norton Sound Subdistrict 6 chum salmon commercial catch age and sex composition, and mean length, 1994.

		Brood Year and (Age Group)				Total
		1991 (0.2)	1990 (0.3)	1989 (0.4)	1988 (0.5)	
Stratum Dates:		6/20–9/07				
Sampling Dates:		7/26–8/05				
Sample Size:		437				
Female	Percent of Sample	0.0	26.8	22.4	0.7	49.9
	Number in Catch	0	3,290	2,756	84	6,130
	Mean Length (mm) <sup>a</sup>		557.1	564.4	555.0	
	Standard Error		2.1	2.4	13.2	
Male	Percent of Sample	0.2	27.2	20.8	1.8	50.1
	Number in Catch	28	3,346	2,559	225	6,158
	Mean Length (mm) <sup>a</sup>	570.0	571.1	583.6	601.3	
	Standard Error	0.0	2.6	3.3	17.1	
Total	Percent of Sample	0.2	54.0	43.2	2.5	100.0
	Number in Catch	28	6,636	5,314	309	12,288
	Standard Error	28	293	292	92	

<sup>a</sup> Length was from mid–eye to fork–of–tail.

Table 8. Unalakleet River chum salmon test fish catch age and sex composition, and mean length. 1994.

		Brood Year and (Age Group)				Total
		1991 (0.2)	1990 (0.3)	1989 (0.4)	1988 (0.5)	
Stratum Dates:		6/16–9/01				
Sampling Dates:		6/16–9/01				
Sample Size:		475				
Female	Percent of Sample	0.2	10.3	22.1	2.1	34.7
	Number in Catch	1	49	105	10	165
	Mean Length (mm) <sup>a</sup>	575.0	579.9	592.9	601.0	
	Standard Error	0.0	3.9	2.4	8.7	
Male	Percent of Sample	0.0	20.4	40.6	3.4	64.4
	Number in Catch	0	97	193	16	306
	Mean Length (mm) <sup>a</sup>		589.5	604.0	614.0	
	Standard Error		2.9	1.8	6.7	
Total	Percent of Sample	0.2	30.7	63.2	5.9	100.0
	Number in Catch	1	146	300	28	475
	Standard Error	1	10	11	5	
	Mean Length (mm) <sup>a</sup>	575.0	586.3	600.1	609.2	
	Standard Error	0.0	2.3	1.5	5.3	

<sup>a</sup> Length was from mid–eye to fork–of–tail.

Table 9. Norton Sound District chum salmon tributary escapement age and sex composition, and mean length, 1994.

		Brood Year and (Age Group)				
		1991 (0.2)	1990 (0.3)	1989 (0.4)	1988 (0.5)	Total
Stratum Dates: 7/25-8/10						
Sampling Dates: 7/25-8/10						
Sample Size: 75						
		Snake				
Female	Percent of Sample	1.4	54.1	9.5	0.0	64.9
	Number in Escapement	9	372	65	0	446
	Mean Length (mm) <sup>a</sup>	502.0	538.4	557.3		
	Standard Error	0.0	3.5	16.0		
Male	Percent of Sample	0.0	21.6	13.5	0.0	35.1
	Number in Escapement	0	149	93	0	242
	Mean Length (mm) <sup>a</sup>		575.9	589.5		
	Standard Error		6.5	7.8		
Total	Percent of Sample	1.4	75.7	23.0		100.0
	Number in Escapement	9	521	158		688
	Standard Error	9	34	34		
Stratum Dates: 7/26-8/05						
Sampling Dates: 7/26-8/05						
Sample Size: 99						
		Nome				
Female	Percent of Sample	0.0	35.4	16.2	1.0	52.5
	Number in Escapement	0	1,051	481	30	1,562
	Mean Length (mm) <sup>a</sup>		570.2	589.4	625.0	
	Standard Error		5.0	10.0	0.0	
Male	Percent of Sample	0.0	28.3	19.2	0.0	47.5
	Number in Escapement	0	841	571	0	1,412
	Mean Length (mm) <sup>a</sup>		576.7	598.1		
	Standard Error		5.7	12.0		
Total	Percent of Sample	0.0	63.6	35.4	1.0	100.0
	Number in Escapement	0	1,893	1,051	30	2,974
	Standard Error		145	144	30	

(continued)

Table 9. (Page 2 of 2)

		Brood Year and (Age Group)				
		1991 (0.2)	1990 (0.3)	1989 (0.4)	1988 (0.5)	Total
Stratum Dates:		7/09–7/14		Kwiniuk <sup>b</sup>		
Sampling Dates:		7/09–7/14				
Sample Size:		83				
Female	Percent of Sample	0.0	31.3	19.3	1.2	51.8
	Number in Escapement	0	10,340	6,363	398	17,102
	Mean Length (mm) <sup>a</sup>		553.9	569.3	583.0	
	Standard Error		4.9	4.6	0.0	
Male	Percent of Sample	0.0	33.7	13.3	1.2	48.2
	Number in Escapement	0	11,136	4,375	398	15,908
	Mean Length (mm) <sup>a</sup>		568.5	585.4	591.0	
	Standard Error		5.2	7.1	0.0	
Total	Percent of Sample	0.0	65.1	32.5	2.4	100.0
	Number in Escapement	0	21,476	10,738	795	33,010
	Standard Error		1,738	1,708	559	
Stratum Dates:		7/10–7/11		Tubutulik		
Sampling Dates:		7/10–7/11				
Sample Size:		98				
Female	Percent of Sample	0.0	27.2	13.0	1.1	41.3
	Number in Sample	0	27	13	1	40
	Mean Length (mm) <sup>a</sup>		548.9	549.8	589.0	
	Standard Error		2.6	8.6	0.0	
Male	Percent of Sample	0.0	41.3	16.3	1.1	58.7
	Number in Sample	0	40	16	1	58
	Mean Length (mm) <sup>a</sup>		573.8	591.5	560.0	
	Standard Error		4.0	9.3	0.0	
Total	Percent of Sample	0.0	68.5	29.3	2.2	100.0
	Number in Sample	0	67	29	2	98
	Standard Error		5	5	1	

<sup>a</sup> Length was from mid-eye to fork-of-tail.

<sup>b</sup> Does not include 13 salmon that were sampled but not sexed.

Table 10. Norton Sound Subdistrict 6 coho salmon commercial catch age and sex composition, and mean length, 1994.

		Brood Year and (Age Group)			Total
		1991 (1.1)	1990 (2.1)	1989 (3.1)	
Stratum Dates:	7/25–9/07				
Sampling Dates:	8/02–8/30				
Sample Size:	258				
Female	Percent of Sample	10.5	35.3	3.9	49.6
	Number in Catch	7,432	25,049	2,753	35,234
	Mean Length (mm) <sup>a</sup>	584.4	583.3	587.0	
	Standard Error	5.3	3.2	14.9	
Male	Percent of Sample	12.0	36.8	1.6	50.4
	Number in Catch	8,533	26,150	1,101	35,785
	Mean Length (mm) <sup>a</sup>	594.8	582.5	602.5	
	Standard Error	8.7	4.3	13.2	
Total	Percent of Sample	22.5	72.1	5.4	100.0
	Number in Catch	15,966	51,200	3,854	71,019
	Standard Error	1,849	1,987	1,004	

<sup>a</sup> Length was from mid-eye to fork-of-tail.

Table 11. Unalakleet River coho salmon test fish catch salmon age and sex composition, and mean length, 1994.

		Brood Year and (Age Group)			
		1991	1990	1989	Total
		(1.1)	(2.1)	(3.1)	
Stratum Dates:	7/11–9/07				
Sampling Dates:	7/11–9/07				
Sample Size:	183				
Female	Percent of Sample	7.7	29.5	2.2	39.3
	Number in Catch	14	54	4	72
	Mean Length (mm) <sup>a</sup>	590.4	592.1	580.0	
	Standard Error	5.8	4.6	17.7	
Male	Percent of Sample	9.8	49.2	1.6	60.7
	Number in Catch	18	90	3	111
	Mean Length (mm) <sup>a</sup>	602.2	593.3	586.7	
	Standard Error	7.2	3.4	17.4	
Total	Percent of Sample	17.5	78.7	3.8	100.0
	Number in Catch	32	144	7	183
	Standard Error	5	6	3	

<sup>a</sup> Length was from mid–eye to fork–of–tail.

Table 12. Kotzebue District commercial catch, weight and average weight of chum salmon, chinook salmon and Dolly Varden by period, 1994.

Period	Date	Hours Fished	Number of Fishermen	Chum			Chinook			Dolly Varden		
				Number	Pounds	Avg. Wt.	Number	Pounds	Avg. Wt.	Number	Pounds	Avg. Wt.
1	July 11-12	24	18	1,529	12,009	7.9						
2	July 14-15	24	33	3,677	28,730	7.8						
3	July 18-19	24	40	12,887	98,368	7.6	1	14	14.0			
4	July 21-22	24	66	17,111	137,438	8.0	1	18	18.0			
5	July 25-26	24	69	14,530	116,404	8.0	1	21	21.0			
6	<sup>a</sup> July 27-28	36	82	41,327	330,095	8.0	1	20	20.0			
7	August 1	6	38	2,957	23,231	7.9						
8	August 2	6	57	17,435	133,823	7.7						
9	August 4	3	51	7,110	55,828	7.9						
10	August 5	4	60	13,756	107,830	7.8						
11	August 9	3	25	1,644	12,153	7.4						
12	August 10	5	22	1,720	12,649	7.4						
13	August 12	3	35	5,303	40,095	7.6						
14	August 15	4	23	2,133	15,963	7.5						
15	August 16	4	21	2,826	20,580	7.3						
16	August 17	3	22	3,236	22,790	7.0						
17	August 18	4	18	1,758	12,209	6.9						
18	August 19	5	10	817	5,769	7.1						
19	August 22	9	10	682	4,828	7.1				79	416	5.3
20	August 23	9	5	473	3,310	7.0				8	56	7.0
21	August 24	12	7	541	3,892	7.2				62	295	4.8
Totals		236	109	153,452	1,197,994	7.8	4	73	18.3	149	767	5.1

<sup>a</sup> 4,000 fish and 31,500 lbs were added. These fish were commercially caught but not reported on fish tickets.

Table 13. Kotzebue District chum salmon aerial survey escapement estimates for primary index streams, 1980–1994. Indices listed in this table are the peak survey observed for each tributary during the given year.

Stream	Aerial Escapement Goal	1980	1981 <sup>a</sup>	1982 <sup>a</sup>	1983	1984	1985 <sup>a</sup>	1986 <sup>a</sup>	1987 <sup>a</sup>	1988 <sup>a</sup>	1989 <sup>b</sup>	1990 <sup>a</sup>	1991	1992 <sup>a</sup>	1993 <sup>a</sup>	1994 <sup>b</sup>
Kobuk Drainage	30,500	34,629	24,325	25,557	44,175	18,697	20,420	17,225	14,457	26,073		29,465	36,390	17,075	30,873	
Squirrel R.	11,500	13,536	9,854	7,690	6,115	5,473	6,160	4,982	2,708	4,848		5,500	4,606	2,765	4,463	
Salmon R.	7,000	8,456	4,709	1,871	1,677	1,471	2,884	1,971	3,333	6,208		6,335	5,845	1,345	13,880	
Tutuksuk R.	2,000	1,165	1,114	1,322	2,637	1,132	5,098	4,257	206	3,122		2,275	744	1,162	1,196	
Upper Kobuk	10,000	11,472	8,648	14,674	33,746	10,621	6,278	6,015	8,210	11,895		15,355	25,195	11,803	11,334	
Noatak Drainage	80,000	182,167	130,122	32,475	94,954	76,399	45,580	42,424	9,245	56,029		27,015	86,344	36,771	35,014	
Noatak R.	80,000	164,474	116,352	20,682	79,773	67,873	43,525	37,277	5,515	45,930		23,685	82,750	34,335	30,210	
Eli R.		10,277		189	3,044	5,027	855	4,308	2,780	8,639		3,000	2,940	1,710	4,795	
Kelly R. & Lake		7,416	13,770	11,604	12,137	3,499	1,200	839	950	1,460		330	654	726	9	
Inmachhuk R.					9,131	12,737										

<sup>a</sup> Poor or incomplete survey.

<sup>b</sup> No survey due to poor weather conditions.

Table 14. Kotzebue District chum salmon commercial catch age and sex composition, and mean length, 1994.

		Brood Year and (Age Group)				Total
		1991 (0.2)	1990 (0.3)	1989 (0.4)	1988 (0.5)	
Stratum Dates:		7/11–8/24				
Sampling Dates:		7/12–8/24				
Sample Size:		3,614				
Female	Percent of Sample	0.9	28.8	13.8	1.3	44.8
	Number in Catch	1,394	44,224	21,149	1,967	68,734
	Mean Length (mm) <sup>a</sup>	565.7	582.3	599.9	600.6	
	Standard Error	3.4	0.9	1.1	3.7	
Male	Percent of Sample	2.4	34.2	17.1	1.6	55.2
	Number in Catch	3,607	52,421	26,190	2,500	84,718
	Mean Length (mm) <sup>a</sup>	566.7	600.8	620.8	628.6	
	Standard Error	2.9	0.9	1.2	5.2	
Total	Percent of Sample	3.3	63.0	30.8	2.9	100.0
	Number in Catch	5,000	96,645	47,339	4,467	153,452
	Standard Error	453	1,233	1,179	429	

<sup>a</sup> Length was from mid-eye to fork-of-tail.

Table 15. Kobuk River and Noatak River chum salmon test fish catch age and sex composition, and mean length, 1994.

		Brood Year and (Age Group)				
		1991 (0.2)	1990 (0.3)	1989 (0.4)	1988 (0.5)	Total
Stratum Dates:		7/13–8/29				
Sampling Dates:		7/13–8/29				
Sample Size:		624				
Kobuk River Drift Test Fish						
Female	Percent of Sample	1.6	20.7	13.8	1.0	37.0
	Number in Catch	10	129	86	6	231
	Mean Length (mm) <sup>a</sup>	558.5	586.6	601.2	599.2	
	Standard Error (Length)	5.6	2.5	2.4	7.5	
Male	Percent of Sample	1.4	37.3	22.8	1.4	63.0
	Number in Catch	9	233	142	9	393
	Mean Length (mm) <sup>a</sup>	561.1	602.7	621.6	623.7	
	Standard Error (Length)	7	2.0	2.7	7.5	
Total	Percent of Sample	3.0	58.0	36.6	2.4	100.0
	Number in Catch	19	362	228	15	624
	Standard Error	4	12	12	4	
Noatak River Drift Test Fish						
Stratum Dates:		7/22–9/10				
Sampling Dates:		7/22–9/10				
Sample Size:		1,160				
Female	Percent of Sample	1.7	35.8	14.0	0.9	52.4
	Number in Catch	20	415	162	10	608
	Mean Length (mm) <sup>a</sup>	524.5	558.0	573.5	578.7	
	Standard Error (Length)	6.1	1.4	2.4	7.6	
Male	Percent of Sample	1.4	32.7	12.8	0.8	47.6
	Number in Catch	16	379	148	9	552
	Mean Length (mm) <sup>a</sup>	542.7	580.2	603.8	642.8	
	Standard Error (Length)	7.3	2.5	2.8	12.9	
Total	Percent of Sample	3.1	68.5	26.8	1.6	100.0
	Number in Catch	36	794	311	19	1,160
	Standard Error	6	16	15	4	

<sup>a</sup> Length was from mid-eye to fork-of-tail.

Table 16. Kotzebue District chum salmon tributary escapement age and sex composition, and mean length, 1994.

		Brood Year and (Age Group)				
		1991 (0.2)	1990 (0.3)	1989 (0.4)	1988 (0.5)	Total
Stratum Dates:		7/13–8/29				
Sampling Dates:		7/13–8/29				
Sample Size:		270				
		Salmon River				
Female	Percent of Sample	4.5	48.5	4.9	0.7	58.6
	Number in Catch	12	131	13	2	158
	Mean Length (mm) <sup>a</sup>	505.8	539.8	553.1	585.0	
	Standard Error	9.4	5.0	7.6	0.0	
Male	Percent of Sample	1.9	29.9	8.2	1.5	41.4
	Number in Catch	5	81	22	4	112
	Mean Length (mm) <sup>a</sup>	578.8	587.1	605.2	606.3	
	Standard Error	15.6	4.0	8.9	8.0	
Total	Percent of Sample	6.3	78.4	13.1	2.2	100.0
	Number in Catch	17	212	35	6	270
	Standard Error	1	3	2	1	
Stratum Dates:		7/22–9/10				
Sampling Dates:		7/22–9/10				
Sample Size:		275				
		Selby River Slough				
Female	Percent of Sample	5.5	37.6	17.5	0.0	60.6
	Number in Catch	15	104	48	0	167
	Mean Length (mm) <sup>a</sup>	519.0	543.5	575.9		
	Standard Error	9.1	3.4	9.9		
Male	Percent of Sample	3.3	23.4	11.7	1.1	39.4
	Number in Catch	9	64	32	3	108
	Mean Length (mm) <sup>a</sup>	551.7	584.3	608.4	618.3	
	Standard Error	8.9	4.0	6.9	22.4	
Total	Percent of Sample	8.8	61.0	29.2	1.1	100.0
	Number in Catch	24	168	80	3	275
	Standard Error	2	3	3	1	

<sup>a</sup> Length was from mid-eye to fork-of-tail.

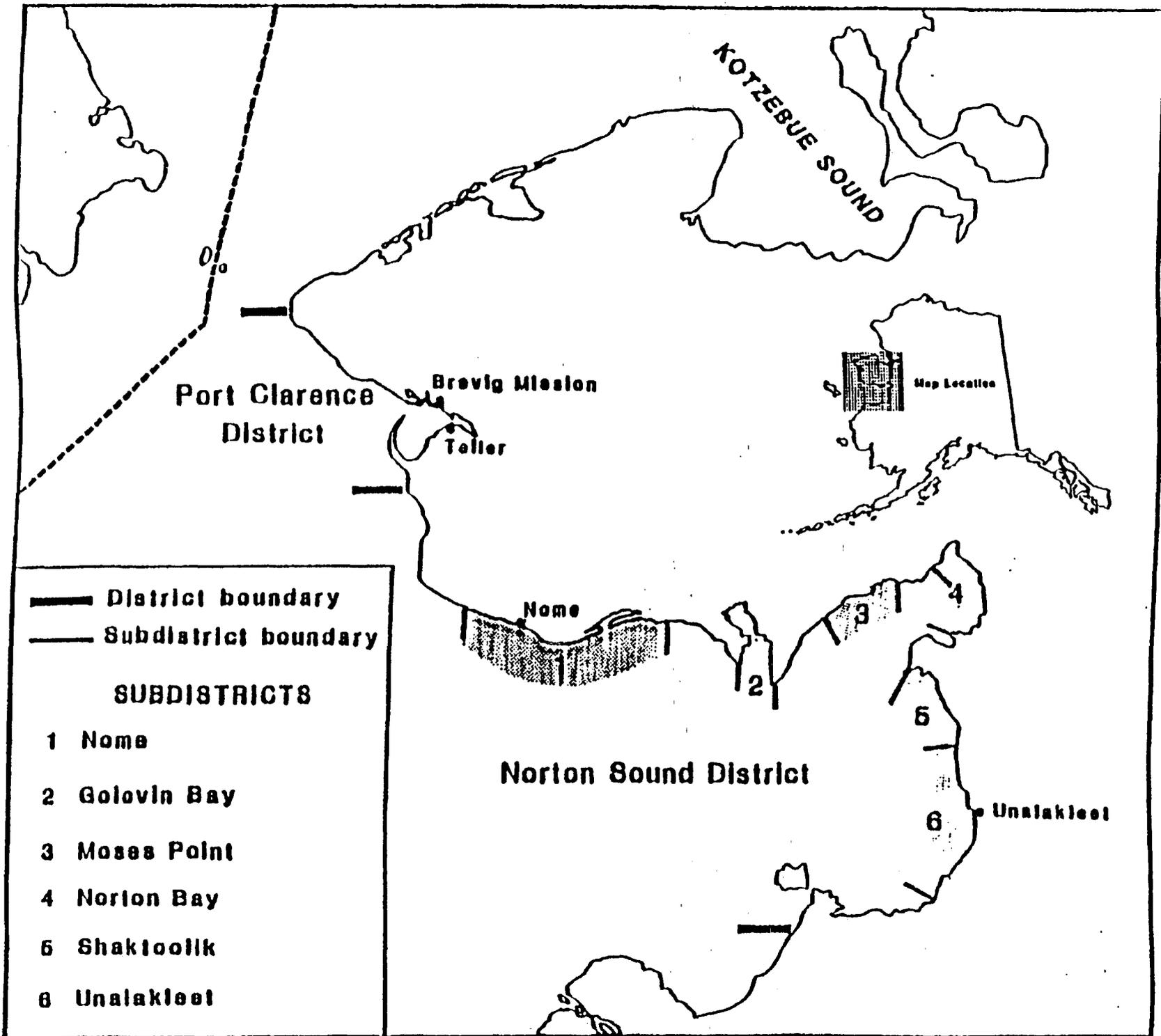
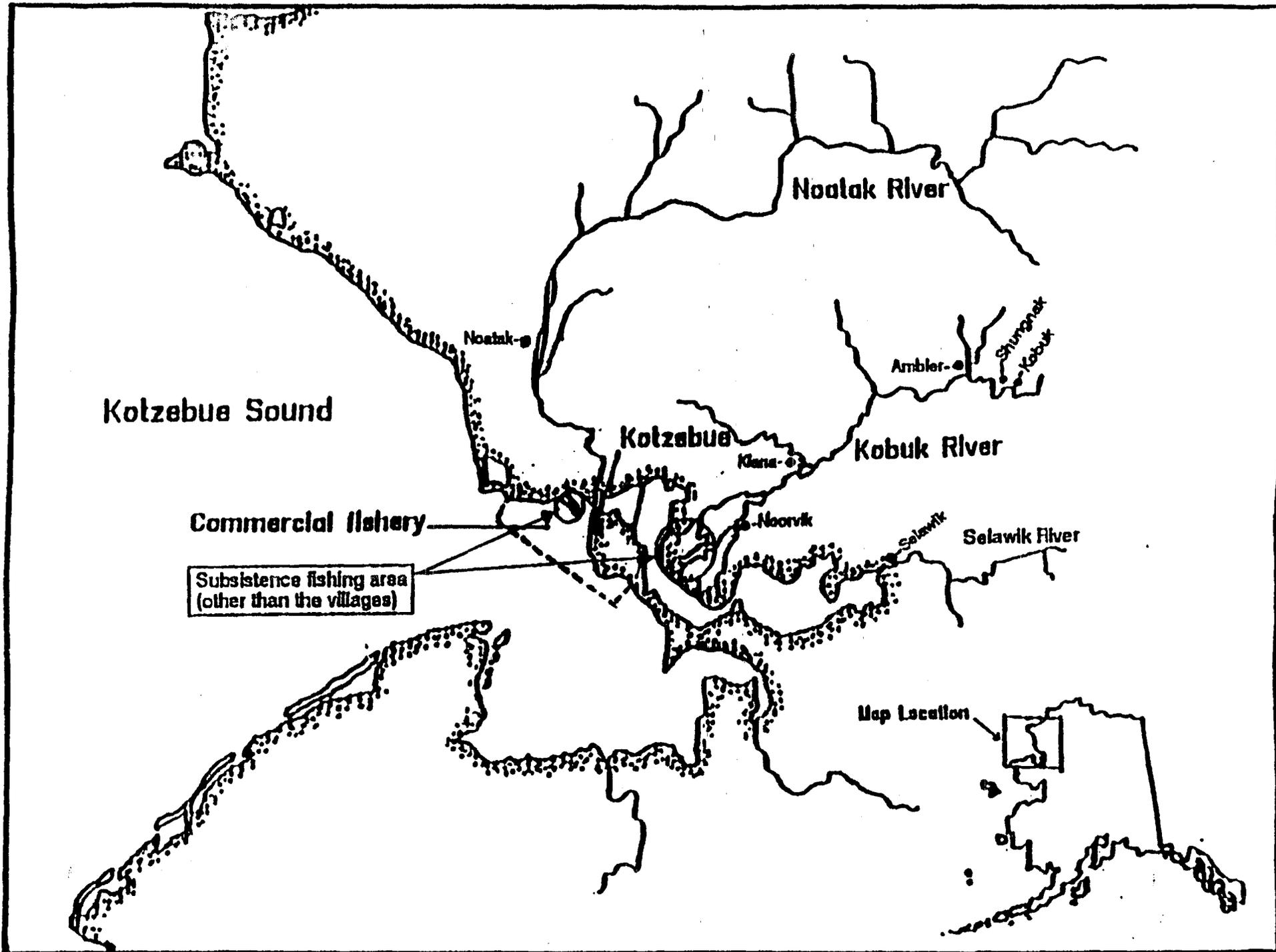


Figure 1. Norton Sound commercial salmon fishing subdistricts.



Sound commercial fishing district, villages and subsistence fishing areas

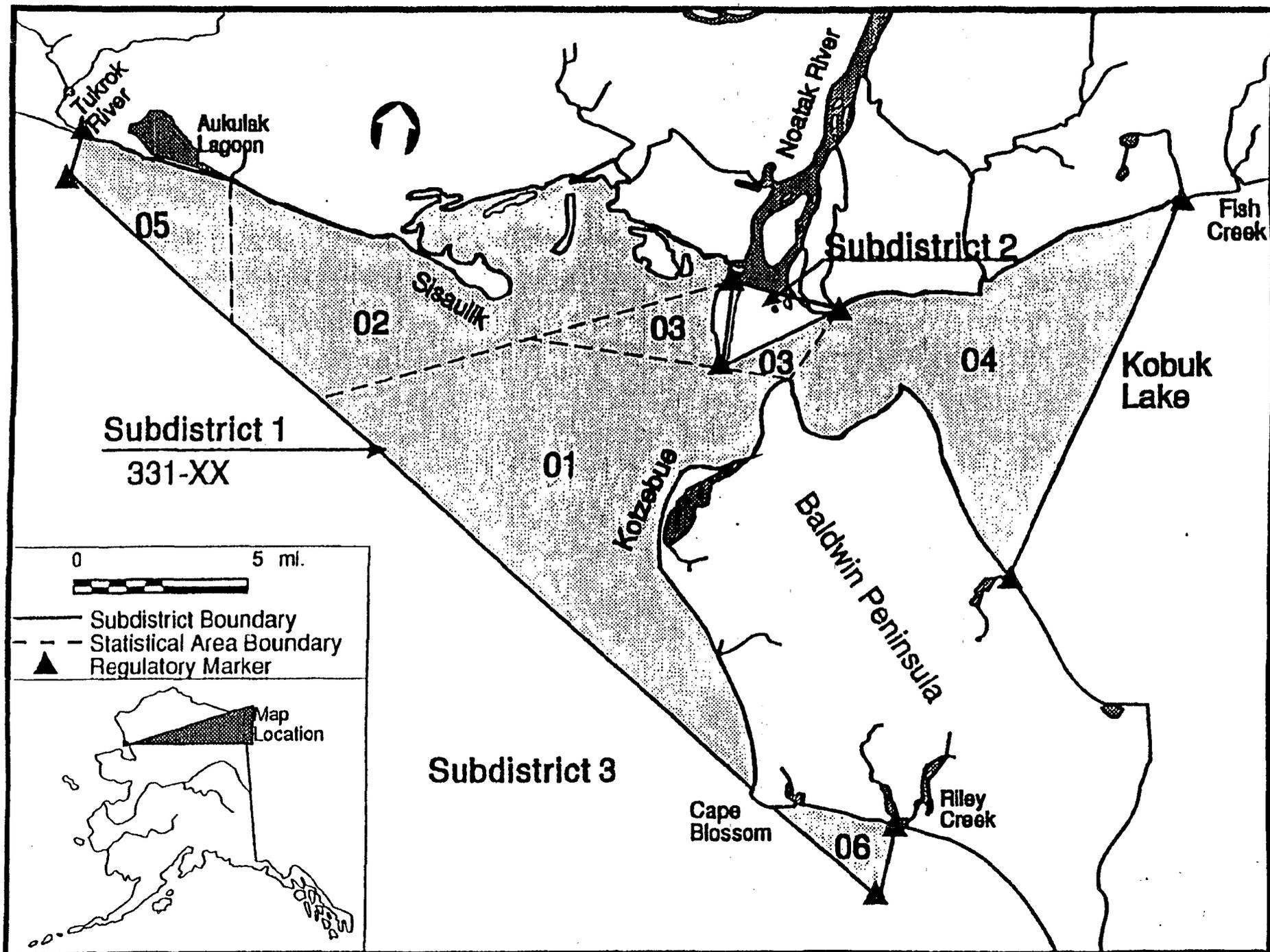


Figure 3. Kotzebue Sound commercial fishing subdistricts and statistical areas.

Appendix Table A.1. Norton Sound Subdistrict 1 commercial salmon catch and effort by period, 1994.

Period Number	Target Species	Period Dates	Hours Fished	Number of Fishermen <sup>a</sup>	Number of Salmon			
					Chinook	Sockeye	Chum	Coho
1	Coho	8/01–8/02	24	<i>No one fished</i>				
2	Coho	8/04–8/05	24	1	0	1	62	123
3	Coho	8/08–8/09	24	<i>No one fished</i>				
4	Coho	8/11–8/12	24	<i>No one fished</i>				
5	Coho	8/15–8/16	24	<i>No one fished</i>				
6	Coho	8/18–8/19	24	<i>No one fished</i>				
7	Coho	8/22–8/23	24	<i>No one fished</i>				
8	Coho	8/25–8/26	24	1	0	0	4	164
9	Coho	8/29–8/30	24	<i>No one fished</i>				
Season Total			48	1	0	1	66	287

<sup>a</sup> All salmon were sold as permitted under Catcher/Seller status.

Appendix Table A.2. Norton Sound Subdistrict 2 commercial salmon catch and effort by period, 1994.

Period Number	Target Species	Period Dates	Hours Fished	Number of Fishermen <sup>a</sup>	Number of Salmon			
					Chinook	Sockeye	Chum	Coho
1	Coho	8/01-8/03	48	<i>No one fished</i>				
2	Coho	8/04-8/06	48	4	0	0	54	806
3	Coho	8/08-8/10	48	5	0	0	22	548
4	Coho	8/11-8/12	30	4	0	0	8	353
5	Coho	8/13	24	<i>No one fished</i>				
6	Coho	8/14	24	4	0	0	1	314
7	Coho	8/15	24	3	0	0	0	92
8	Coho	8/16	24	1	0	0	0	11
9	Coho	8/17	24	1	0	0	0	73
10	Coho	8/18	24	<i>No one fished</i>				
11	Coho	8/19	24	<i>No one fished</i>				
12	Coho	8/20	24	<i>No one fished</i>				
13	Coho	8/21	24	1	0	0	1	35
14	Coho	8/22	24	3	0	0	1	143
15	Coho	8/23	24	4	0	0	6	206
16	Coho	8/24	24	5	0	0	12	350
17	Coho	8/25	24	3	0	0	1	99
18	Coho	8/26	24	1	0	0	1	27
19	Coho	8/27	24	2	0	0	0	67
20	Coho	8/28	24	2	0	0	4	95
21	Coho	8/29	24	2	0	0	0	129
22	Coho	8/30	24	1	0	0	0	36
23	Coho	8/31	24	1	0	0	0	28
24	Coho	9/01	24	1	0	0	0	12
25	Coho	9/02	24	<i>No one fished</i>				
26	Coho	9/03	24	<i>No one fished</i>				
27	Coho	9/04	24	<i>No one fished</i>				
28	Coho	9/05	24	<i>No one fished</i>				
29	Coho	9/06	24	<i>No one fished</i>				
30	Coho	9/07	18	<i>No one fished</i>				
Season Total			510	5	0	0	111	3,424

<sup>a</sup> All salmon were sold as permitted under Catcher/Seller status.

Appendix Table A.3. Norton Sound Subdistrict 3 commercial salmon catch and effort by period, 1994.

Period Number	Target Species	Period Dates	Hours Fished	Number of Fishermen	Number of Salmon			
					Chinook	Sockeye	Chum	Coho
1	Coho	7/25-7/26	24	7	0	0	85	104
2	Coho	7/28-7/29	24	6	0	0	25	190
3	Coho	8/01-8/03	48	8	0	0	13	410
4	Coho	8/04-8/06	48	14	0	0	25	894
5	Coho	8/08-8/10	48	5	0	0	0	223
6	Coho	8/11-8/12	30	<i>No one fished</i>				
7	Coho	8/13	24	<i>No one fished</i>				
8	Coho	8/14	24	1	0	0	0	31
9	Coho	8/15	24	2	0	0	4	133
10	Coho	8/16	24	<i>No one fished</i>				
11	Coho	8/17	24	<i>No one fished</i>				
12	Coho	8/18	24	<i>No one fished</i>				
13	Coho	8/19	24	<i>No one fished</i>				
14	Coho	8/20	24	<i>No one fished</i>				
15	Coho	8/21	24	4	0	0	4	157
16	Coho	8/22	24	7	0	0	19	476
17	Coho	8/23	24	8	0	0	23	621
18	Coho	8/24	24	5	0	0	7	173
19	Coho	8/25	24	8	0	0	32	246
20	Coho	8/26	24	6	0	0	11	163
21	Coho	8/27	24	7	0	0	7	124
22	Coho	8/28	24	7	0	0	24	196
23	Coho	8/29	24	5	0	0	23	279
24	Coho	8/30	24	5	0	0	5	96
25	Coho	8/31	24	6	0	0	7	133
26	Coho	9/01	24	8	0	0	10	128
27	Coho	9/02	24	5	0	0	6	45
28	Coho	9/03	24	6	0	0	15	70
29	Coho	9/04	24	9	0	0	15	133
30	Coho	9/05	24	8	0	0	17	140
31	Coho	9/06	24	7	0	0	26	134
32	Coho	9/07	18	4	0	0	11	46
Season Total			666	21	0	0	414	5,345

Appendix Table A.4. Norton Sound Subdistrict 5 commercial salmon catch and effort by period, 1994.

Period Number	Target Species	Period Dates	Hours Fished	Number of Fishermen	Number of Salmon				
					Chinook	Sockeye	Chum	Pink	Coho
1	Chinook	6/20-6/21	24	19	520	0	0	0	0
2	Chinook	6/23-6/24	24	18	291	0	50	0	0
3	Pink	6/26-6/27	18	17	28	0	181	27,566	0
4	Chinook	6/27-6/28	24	1	14	0	0	0	0
5	Pink	6/29	18	10	0	0	7	11,095	0
6	Pink	6/30	24	21	3	0	14	33,894	0
7	Chinook	6/30-7/01	24	<i>No one fished</i>				43,949	
8	Pink	7/01	24	22	18	0	37	45,880	0
9	Pink	7/02	24	21	1	0	28		0
10	Pink	7/03	24	<i>No one fished</i>				34,266	
11	Pink	7/04	24	25	2	0	48		0
12	Chinook	7/04-7/05	24	<i>No one fished</i>				34,511	
13	Pink	7/05	24	19	1	0	289		0
14	Pink	7/06	24	<i>No one fished</i>					
15	Pink	7/07	24	<i>No one fished</i>		0			
16	Chum	7/07-7/09	48	<i>No one fished</i>		0			
17	Pink	7/08	24	<i>No one fished</i>		0			
18	Pink	7/09	24	16	0	0	8	46,255	1
19	Pink	7/10	24	6	0	0	0	10,167	0
20	Pink	7/11	24	21	0	0	0	51,971	0
21	Pink	7/12	24	24	0	0	15	51,154	6
22	Pink	7/13	24	<i>No one fished</i>					
23	Pink	7/14	24	22	0	0	51	30,716	9
24	Pink	7/15	24	<i>No one fished</i>					
25	Pink	7/16	24	20	0	1	69	17,168	18
26	Pink	7/17	24	7	0	0	50	9,507	30
27	Pink	7/18	24	13	0	0	125	23,718	23
28	Pink	7/19	24	2	0	0	0	392	0
29	Pink	7/20	24	12	0	0	40	12,633	38
30	Pink	7/21	24	12	1	0	109	17,389	81
31	Pink	7/22	24	<i>No one fished</i>					
32	Pink	7/23	18	<i>No one fished</i>					
33	Coho	7/25-7/27	48	11	2	1	1,353	0	4,153
34	Coho	7/28-7/31	48	18	4	3	1,348	0	6,954
35	Coho	8/01-8/03	48	14	0	0	387	0	2,713
36	Coho	8/04-8/06	48	16	0	0	250	0	1,231
37	Coho	8/08-8/10	48	16	0	0	112	0	549
38	Coho	8/11-8/13	48	<i>No one fished</i>					
39	Coho	8/15-8/17	48	18	0	1	157	0	1,990
40	Coho	8/18-8/20	48	10	0	0	57	0	285
41	Coho	8/22-8/24	48	17	0	0	134	0	1,395
42	Coho	8/25-8/27	48	12	0	2	31	0	694
43	Coho	8/29-8/30	54	10	0	0	260	0	1,001
44	Coho	9/01	24	6	0	0	63	0	186
45	Coho	9/02	24	6	0	0	55	0	187
46	Coho	9/03	24	9	0	0	22	0	130
47	Coho	9/04	24	8	0	0	50	0	270
48	Coho	9/05	24	<i>No one fished</i>					
49	Coho	9/06	24	<i>No one fished</i>					
50	Coho	9/07	18	2	0	0	11	0	121
Season Total			1,092	39	885	8	5,411	502,231	22,065

Appendix Table A.5. Norton Sound Subdistrict 6 commercial salmon catch and effort by period, 1994.

Period Number	Target Species	Period Dates	Hours Fished	Number of Fishermen	Number of Salmon				
					Chinook	Sockeye	Chum	Pink	Coho
1	Chinook	6/20-6/21	24	42	1,173	0	118	0	1
2	Chinook	6/23-6/24	24	47	1,323	1	200	0	0
3	Pink	6/26-6/27	18	32	154	0	155	60,526	0
4	Chinook	6/27-6/28	24	22	947	0	284	0	0
5	Pink	6/29	18	10	2	0	8	10,471	0
6	Pink	6/30	24	11	8	0	11	18,822	0
7	Chinook	6/30-7/01	24	40	446	0	256	85	0
8	Pink	7/01	24	4	0	0	0	3,922	0
9	Pink	7/02	24	17	0	0	48	25,869	0
10	Pink	7/03	24	No one fished					
11	Pink	7/04	24	22	1	0	7	34,838	0
12	Chinook	7/04-7/05	24	25	285	3	242	0	1
13	Pink	7/05	24	8	2	0	157	18,756	0
14	Pink	7/06	24	No one fished					
15	Pink	7/07	24	No one fished					
16	Chum	7/07-7/09	48	No one fished					
17	Pink	7/08	24	No one fished					
18	Pink	7/09	24	6	1	0	8	11,675	0
19	Pink	7/10	24	15	0	0	7	26,919	0
20	Pink	7/11	24	14	1	0	2	23,911	0
21	Pink	7/12	24	30	0	0	27	41,616	1
22	Pink	7/13	24	No one fished					
23	Pink	7/14	24	25	1	0	30	48,337	17
24	Pink	7/15	24	No one fished					
25	Pink	7/16	24	30	0	0	24	45,978	2
26	Pink	7/17	24	22	0	0	14	34,688	7
27	Pink	7/18	24	19	1	1	323	32,184	48
28	Pink	7/19	24	No one fished					
29	Pink	7/20	24	17	3	1	124	20,266	299
30	Pink	7/21	24	17	0	0	103	17,798	163
31	Pink	7/22	24	No one fished					
32	Pink	7/23	18	6	4	13	66	3,497	139
33	Coho	7/25-7/27	48	44	12	13	2,636	0	9,306
34	Coho	7/28-7/31	48	47	14	26	1,382	0	8,405
35	Coho	8/01-8/03	48	48	7	7	2,173	0	12,495
36	Coho	8/04-8/06	48	52	6	1	1,402	0	12,256
37	Coho	8/08-8/10	48	50	2	1	734	0	4,120
38	Coho	8/11-8/13	48	25	4	1	642	0	5,210
39	Coho	8/15-8/17	48	30	2	1	150	0	2,456
40	Coho	8/18-8/20	48	17	0	0	45	0	1,153
41	Coho	8/22-8/24	48	24	0	2	212	0	4,185
42	Coho	8/25-8/27	48	16	0	0	43	0	1,224
43	Coho	8/29-8/30	54	16	0	0	155	0	2,339
44	Coho	9/01	24	16	0	0	98	0	1,594
45	Coho	9/02	24	24	0	0	153	0	1,839
46	Coho	9/03	24	22	0	0	67	0	1,241
47	Coho	9/04	24	18	0	0	50	0	786
48	Coho	9/05	24	16	0	0	49	0	628
49	Coho	9/06	24	17	0	0	49	0	583
50	Coho	9/07	18	16	1	0	34	0	519
Season Total			1,230	71	4,400	71	12,288	480,158	71,019

Appendix Table B.1. Unalakleet River chum salmon test gillnet catch age and sex composition by time period, 1994.

		Brood Year and (Age Group)				
		1991 (0.2)	1990 (0.3)	1989 (0.4)	1988 (0.5)	Total
Stratum Dates:		6/16–6/18				
Sampling Dates:		6/16–6/18				
Sample Size:		57				
Female	Percent of Sample	1.8	1.8	31.6	1.8	36.8
	Number in Catch	1	1	18	1	21
Male	Percent of Sample	0.0	14.0	45.6	3.5	63.2
	Number in Catch	0	8	26	2	36
Total	Percent of Sample	1.8	15.8	77.2	5.3	100.0
	Number in Catch	1	9	44	3	57
	Standard Error	1	3	3	2	
Stratum Dates:		6/19–6/25				
Sampling Dates:		6/19–6/25				
Sample Size:		81				
Female	Percent of Sample	0.0	2.5	23.5	4.9	30.9
	Number in Catch	0	2	19	4	25
Male	Percent of Sample	0.0	12.3	54.3	2.5	69.1
	Number in Catch	0	10	44	2	56
Total	Percent of Sample	0.0	14.8	77.8	7.4	100.0
	Number in Catch	0	12	63	6	81
	Standard Error	0	3	4	2	
Stratum Dates:		6/26–7/02				
Sampling Dates:		6/26–7/02				
Sample Size:		112				
Female	Percent of Sample	0.0	13.4	30.4	3.6	47.3
	Number in Catch	0	15	34	4	53
Male	Percent of Sample	0.0	19.6	31.3	1.8	52.7
	Number in Catch	0	22	35	2	59
Total	Percent of Sample	0.0	33.0	61.6	5.4	100.0
	Number in Catch	0	37	69	6	112
	Standard Error	0	5	5	2	

(continued)

Appendix Table B.1. (Page 2 of 3)

		Brood Year and (Age Group)				
		1991 (0.2)	1990 (0.3)	1989 (0.4)	1988 (0.5)	Total
Stratum Dates:		7/03-7/09				
Sampling Dates:		7/03-7/09				
Sample Size:		91				
Female	Percent of Sample	0.0	9.2	17.2	0.0	26.4
	Number in Catch	0	8	16	0	24
Male	Percent of Sample	0.0	21.8	47.1	4.6	73.6
	Number in Catch	0	20	43	4	67
Total	Percent of Sample	0.0	31.0	64.4	4.6	100.0
	Number in Catch	0	28	59	4	91
	Standard Error	0	4	5	2	-
Stratum Dates:		7/10-7/16				
Sampling Dates:		7/10-7/16				
Sample Size:		52				
Female	Percent of Sample	0.0	15.4	15.4	1.9	32.7
	Number in Catch	0	8	8	1	17
Male	Percent of Sample	0.0	23.1	38.5	5.8	67.3
	Number in Catch	0	12	20	3	35
Total	Percent of Sample	0.0	38.5	53.8	7.7	100.0
	Number in Catch	0	20	28	4	52
	Standard Error	0	4	4	2	-
Stratum Dates:		7/17-7/30				
Sampling Dates:		7/17-7/30				
Sample Size:		35				
Female	Percent of Sample	0.0	17.1	20.0	0.0	37.1
	Number in Catch	0	6	7	0	13
Male	Percent of Sample	0.0	28.6	31.4	2.9	62.9
	Number in Catch	0	10	11	1	22
Total	Percent of Sample	0.0	45.7	51.4	2.9	100.0
	Number in Catch	0	16	18	1	35
	Standard Error	0	3	3	1	-

(continued)

Appendix Table B.1. (Page 3 of 3)

		Brood Year and (Age Group)				
		1991 (0.2)	1990 (0.3)	1989 (0.4)	1988 (0.5)	Total
Stratum Dates:		7/31-9/01				
Sampling Dates:		7/31-9/01				
Sample Size:		47				
Female	Percent of Sample	0.0	19.1	8.5	0.0	27.7
	Number in Catch	0	9	4	0	13
Male	Percent of Sample	0.0	34.0	34.0	4.3	72.3
	Number in Catch	0	16	16	2	34
Total	Percent of Sample	0.0	53.2	42.6	4.3	100.0
	Number in Catch	0	25	20	2	47
	Standard Error	0	3	3	1	
Stratum Dates:		6/16-9/01				
Sampling Dates:		6/16-9/01				
Sample Size:		475				
		Season Total (weighted)				
Female	Percent of Sample	0.2	10.4	22.3	2.1	35.0
	Number in Catch	1	49	106	10	166
Male	Percent of Sample	0.0	20.6	41.0	3.4	65.0
	Number in Catch	0	98	195	16	309
Total	Percent of Sample	0.2	31.0	63.3	5.5	100.0
	Number in Catch	1	147	301	26	475
	Standard Error	1	10	11	5	

Appendix Table C.1. Kwiniuk River tower expanded daily and cumulative counts of chinook, pink, chum and coho salmon, 1994.

Date	Chinook Salmon		Pink Salmon		Chum Salmon		Coho Salmon	
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
23-Jun	0	0	24	24	58	58		0
24-Jun	0	0	51	75	100	158		0
25-Jun	0	0	80	155	404	562		0
26-Jun	0	0	147	302	484	1,046		0
27-Jun	0	0	(16)	286	(28)	1,018		0
28-Jun	2	2	248	534	1,404	2,422		0
29-Jun	2	4	427	961	1,350	3,772		0
30-Jun	0	4	208	1,169	1,620	5,392		0
01-Jul	12	16	3,883	5,052	3,582	8,974		0
02-Jul	4	20	2,830	7,882	1,677	10,651		0
03-Jul	26	46	11,737	19,619	2,326	12,977		0
04-Jul	48	94	20,644	40,263	2,976	15,953		0
05-Jul	18	112	5,741	46,004	442	16,395		0
06-Jul	26	138	20,537	66,541	2,690	19,085		0
07-Jul	8	146	18,667	85,208	584	19,669		0
08-Jul	4	150	14,329	99,537	303	19,972		0
09-Jul	49	199	44,231	143,768	1,463	21,435		0
10-Jul	39	238	65,165	208,933	1,407	22,842		0
11-Jul	29	267	86,099	295,032	1,350	24,192		0
12-Jul	43	310	150,841	445,873	1,907	26,099		0
13-Jul	73	383	177,003	622,876	854	26,953		0
14-Jul	39	422	196,651	819,527	585	27,538		0
15-Jul	53	475	316,264	1,135,791	1,709	29,247		0
16-Jul	56	531	362,910	1,498,701	1,098	30,345		0
17-Jul	40	571	269,451	1,768,152	824	31,169		0
18-Jul	24	595	175,992	1,944,144	550	31,719		0
19-Jul	8	603	115,883	2,060,027	248	31,967		0
20-Jul	0	603	15,884	2,075,911	68	32,035		0
21-Jul	5	608	17,012	2,092,923	77	32,112		0
22-Jul	10	618	54,172	2,147,095	232	32,344		0
23-Jul	(6)	612	16,721	2,163,816	23	32,367		0
24-Jul	(2)	610	12,680	2,176,496	21	32,388		0
25-Jul	2	612	8,640	2,185,136	18	32,406	12	12
26-Jul	0	612	14,792	2,199,928	101	32,507	84	96
27-Jul	2	614	45,610	2,245,538	268	32,775	210	306
28-Jul	0	614	28,491	2,274,029	148	32,923	171	477
29-Jul	0	614	9,034	2,283,063	24	32,947	132	609
30-Jul	0	614	6,929	2,289,992	18	32,965	151	760
31-Jul	0	614	4,824	2,294,816	12	32,977	171	931
01-Aug	1	615	531	2,295,347	4	32,981	26	957
02-Aug	7	622	588	2,295,935	2	32,983	23	980
03-Aug	12	634	646	2,296,581	0	32,983	20	1,000
04-Aug	(12)	622	1,195	2,297,776	18	33,001	93	1,093
05-Aug	3	625	1,478	2,299,254	9	33,010	431	1,524
06-Aug	0	625	1,761	2,301,015	0	33,010	790	2,314
07-Aug	0	625	1,298	2,302,313	0	33,010	428	2,742
08-Aug	0	625	526	2,302,839	0	33,010	70	2,812
09-Aug	0	625	275	2,303,114	2	33,012	31	2,843

Appendix Table C.2. Nome River tower expanded daily and cumulative counts of chinook, chum, pink, and coho salmon, and Dolly Varden, 1994.

Date	Chinook Salmon		Chum Salmon		Pink Salmon		Coho Salmon		Dolly Varden	
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
24-Jun	0	0		0	(4)	(4)	0	0	0	0
25-Jun	0	0		0	(1)	(5)	0	0	0	0
26-Jun	0	0		0	10	5	0	0	(5)	(5)
27-Jun	0	0		0	0	5	0	0	(10)	(15)
28-Jun	0	0		0	4	9	0	0	0	(15)
29-Jun	0	0		0	2	11	0	0	(2)	(17)
30-Jun	0	0		0	0	11	0	0	4	(13)
01-Jul	0	0		0	16	27	0	0	2	(11)
02-Jul	0	0		0	(6)	21	0	0	0	(11)
03-Jul	0	0	3	3	4	25	0	0	8	(3)
04-Jul	2	2	40	43	126	151	0	0	22	19
05-Jul	0	2	47	90	43	194	0	0	32	51
06-Jul	2	4	59	149	18	212	0	0	8	59
07-Jul	0	4	12	161	16	228	0	0	0	59
08-Jul	(2)	2	48	209	182	410	0	0	14	73
09-Jul	2	4	81	290	1,018	1,428	0	0	34	107
10-Jul	1	5	146	436	1,879	3,307	0	0	40	147
11-Jul	4	9	256	692	8,424	11,731	0	0	12	159
12-Jul	2	11	139	831	5,835	17,566	0	0	(2)	157
13-Jul	4	15	226	1,057	15,679	33,245	0	0	0	157
14-Jul	4	19	407	1,464	27,085	60,330	0	0	0	157
15-Jul	0	19	207	1,671	(2,775)	57,555	0	0	0	157
16-Jul	0	19	71	1,742	(1,128)	56,427	0	0	0	157
17-Jul	0	19	32	1,774	(381)	56,046	0	0	0	157
18-Jul	0	19	66	1,840	(260)	55,786	0	0	0	157
19-Jul	0	19	288	2,128	(1,384)	54,402	0	0	4	161
20-Jul	0	19	5	2,133	66	54,468	0	0	0	161
21-Jul	0	19	(15)	2,118	108	54,576	0	0	0	161
22-Jul	2	21	108	2,226	12,823	67,399	0	0	0	161
23-Jul	7	28	56	2,282	7,313	74,712	5	5	3	164
24-Jul	9	37	69	2,351	10,422	85,134	10	15	6	170
25-Jul	0	37	134	2,485	20,864	105,998	2	17	0	170
26-Jul	2	39	128	2,613	13,125	119,123	79	96	0	170
27-Jul	2	41	140	2,753	10,958	130,081	82	178	0	170
28-Jul	0	41	22	2,775	2,306	132,387	14	192	0	170
29-Jul	0	41	4	2,779	1,701	134,088	16	208	0	170
30-Jul	0	41	25	2,804	1,362	135,450	35	243	0	170
31-Jul	0	41	14	2,818	610	136,060	43	286	0	170
01-Aug	0	41	1	2,819	349	136,409	33	319	0	170
02-Aug	0	41	1	2,820	142	136,551	5	324	0	170
03-Aug	0	41	8	2,828	532	137,083	33	357	0	170
04-Aug	0	41	6	2,834	709	137,792	46	403	0	170
05-Aug	0	41	6	2,840	548	138,340	18	421	0	170
06-Aug	0	41	2	2,842	612	138,952	45	466	0	170
07-Aug	0	41	3	2,845	544	139,496	54	520	0	170
08-Aug	0	41	6	2,851	808	140,304	88	608	0	170
09-Aug	0	41	31	2,882	586	140,890	142	750	0	170
10-Aug	0	41	28	2,910	498	141,388	124	874	0	170
11-Aug	0	41	25	2,935	416	141,804	106	980	0	170
12-Aug	0	41	11	2,946	323	142,127	108	1,088	0	170
13-Aug	0	41	8	2,954	241	142,368	87	1,175	0	170
14-Aug	0	41	9	2,963	158	142,526	65	1,240	0	170
15-Aug	0	41	6	2,969	78	142,604	43	1,283	0	170

Appendix Table D.1. Kotzebue District chum salmon commercial catch age and sex composition by fishing period, with season summaries of the commercial season, commercial test samples and all samples combined, 1994.

		Brood Year and (Age Group)				Total
		1991 (0.2)	1990 (0.3)	1989 (0.4)	1988 (0.5)	
Stratum Dates: 7/11-7/12		Period 1				
Sampling Dates: 7/12						
Sample Size: 268						
Female	Percent of Sample	0.0	13.8	23.5	1.5	38.8
	Number in Catch	0	211	359	23	593
Male	Percent of Sample	0.7	28.0	31.0	1.5	61.2
	Number in Catch	11	428	474	23	936
Total	Percent of Sample	0.7	41.8	54.5	3.0	100.0
	Number in Catch	11	639	833	46	1,529
	Standard Error	8	46	47	16	
Stratum Dates: 7/14-7/15		Period 2				
Sampling Dates: 7/15						
Sample Size: 267						
Female	Percent of Sample	0.0	16.1	19.9	2.6	38.6
	Number in Catch	0	592	730	96	1,418
Male	Percent of Sample	0.0	25.8	30.3	5.2	61.4
	Number in Catch	0	950	1,115	193	2,259
Total	Percent of Sample	0.0	41.9	50.2	7.9	100.0
	Number in Catch	0	1,542	1,845	289	3,677
	Standard Error	0	111	113	61	
Stratum Dates: 7/18-7/19		Period 3				
Sampling Dates: 7/19						
Sample Size: 268						
Female	Percent of Sample	0.0	19.4	17.9	3.4	40.7
	Number in Catch	0	2,500	2,308	433	5,241
Male	Percent of Sample	0.7	32.1	22.4	4.1	59.3
	Number in Catch	96	4,135	2,885	529	7,646
Total	Percent of Sample	0.7	51.5	40.3	7.5	100.0
	Number in Catch	96	6,636	5,193	962	12,887
	Standard Error	68	394	387	207	

(continued)

Appendix Table D.1. (Page 2 of 9)

		Brood Year and (Age Group)				Total
		1991 (0.2)	1990 (0.3)	1989 (0.4)	1988 (0.5)	
Stratum Dates:		7/21 – 7/22		Period 4		
Sampling Dates:		7/22				
Sample Size:		275				
Female	Percent of Sample	1.1	22.9	16.7	2.5	43.3
	Number in Catch	187	3,920	2,862	436	7,404
Male	Percent of Sample	0.0	36.0	18.2	2.5	56.7
	Number in Catch	0	6,160	3,111	436	9,707
Total	Percent of Sample	1.1	58.9	34.9	5.1	100.0
	Number in Catch	187	10,080	5,973	871	17,111
	Standard Error	107	509	493	227	
Stratum Dates:		7/25 – 7/26		Period 5		
Sampling Dates:		7/26				
Sample Size:		256				
Female	Percent of Sample	0.0	28.1	18.0	3.1	49.2
	Number in Catch	0	4,087	2,611	454	7,151
Male	Percent of Sample	1.6	29.3	18.8	1.2	50.8
	Number in Catch	227	4,257	2,724	170	7,379
Total	Percent of Sample	1.6	57.4	36.7	4.3	100.0
	Number in Catch	227	8,343	5,335	624	14,530
	Standard Error	113	450	439	185	
Stratum Dates:		7/28 – 7/29		Period 6		
Sampling Dates:		7/29				
Sample Size:		253				
Female	Percent of Sample	0.0	20.6	15.4	1.2	37.2
	Number in Catch	0	8,494	6,371	490	15,355
Male	Percent of Sample	2.4	41.9	17.0	1.6	62.8
	Number in Catch	980	17,315	7,024	653	25,972
Total	Percent of Sample	2.4	62.5	32.4	2.8	100.0
	Number in Catch	980	25,809	13,395	1,143	41,327
	Standard Error	396	1,261	1,218	427	

(continued)

Appendix Table D.1. (Page 3 of 9)

		Brood Year and (Age Group)				Total
		1991 (0.2)	1990 (0.3)	1989 (0.4)	1988 (0.5)	
Stratum Dates:		8/1/94		Period 7		
Sampling Dates:		8/1/94				
Sample Size:		117				
Female	Percent of Sample	0.9	28.2	17.9	0.9	47.9
	Number in Catch	25	834	531	25	1,415
Male	Percent of Sample	0.9	29.9	19.7	1.7	52.1
	Number in Catch	25	885	581	51	1,542
Total	Percent of Sample	1.7	58.1	37.6	2.6	100.0
	Number in Catch	51	1,719	1,112	76	2,957
	Standard Error	36	135	133	43	
Stratum Dates:		8/02		Period 8		
Sampling Dates:		8/02				
Sample Size:		117				
Female	Percent of Sample	1.7	29.1	10.3	0.9	41.9
	Number in Catch	298	5,067	1,788	149	7,302
Male	Percent of Sample	1.7	43.6	10.3	2.6	58.1
	Number in Catch	298	7,600	1,788	447	10,133
Total	Percent of Sample	3.4	72.6	20.5	3.4	100.0
	Number in Catch	596	12,666	3,576	596	17,435
	Standard Error	294	722	654	294	
Stratum Dates:		8/04		Period 9		
Sampling Dates:		8/04				
Sample Size:		149				
Female	Percent of Sample	0.7	28.9	8.1	0.7	38.3
	Number in Catch	48	2,052	573	48	2,720
Male	Percent of Sample	3.4	47.7	10.1	0.7	61.7
	Number in Catch	239	3,388	716	48	4,390
Total	Percent of Sample	4.0	76.5	18.1	1.3	100.0
	Number in Catch	286	5,440	1,288	95	7,110
	Standard Error	115	248	225	67	

(continued)

Appendix Table D.1. (Page 4 of 9)

		Brood Year and (Age Group)				Total
		1991 (0.2)	1990 (0.3)	1989 (0.4)	1988 (0.5)	
Stratum Dates:		8/05		Period 10		
Sampling Dates:		8/05				
Sample Size:		154				
Female	Percent of Sample	0.0	32.5	13.0	0.0	45.5
	Number in Catch	0	4,466	1,786	0	6,253
Male	Percent of Sample	1.9	38.3	13.6	0.6	54.5
	Number in Catch	268	5,270	1,876	89	7,503
Total	Percent of Sample	1.9	70.8	26.6	0.6	100.0
	Number in Catch	268	9,736	3,662	89	13,756
	Standard Error	154	506	492	89	
Stratum Dates:		8/09		Period 11		
Sampling Dates:		8/09				
Sample Size:		115				
Female	Percent of Sample	0.9	24.3	7.8	0.0	33.0
	Number in Catch	14	400	129	0	543
Male	Percent of Sample	1.7	49.6	13.9	1.7	67.0
	Number in Catch	29	815	229	29	1,101
Total	Percent of Sample	2.6	73.9	21.7	1.7	100.0
	Number in Catch	43	1,215	357	29	1,644
	Standard Error	25	68	64	20	
Stratum Dates:		8/10		Period 12		
Sampling Dates:		8/10				
Sample Size:		147				
Female	Percent of Sample	2.0	36.1	7.5	0.7	46.3
	Number in Catch	35	620	129	12	796
Male	Percent of Sample	2.0	40.1	10.9	0.7	53.7
	Number in Catch	35	690	187	12	924
Total	Percent of Sample	4.1	76.2	18.4	1.4	100.0
	Number in Catch	70	1,310	316	23	1,720
	Standard Error	28	61	55	16	

(continued)

Appendix Table D.1. (Page 5 of 9)

		Brood Year and (Age Group)				Total
		1991 (0.2)	1990 (0.3)	1989 (0.4)	1988 (0.5)	
Stratum Dates:		8/12		Period 13		
Sampling Dates:		8/12				
Sample Size:		158				
Female	Percent of Sample	0.6	36.7	10.8	0.6	48.7
	Number in Catch	34	1,947	571	34	2,584
Male	Percent of Sample	3.2	35.4	10.8	1.9	51.3
	Number in Catch	168	1,880	571	101	2,719
Total	Percent of Sample	3.8	72.2	21.5	2.5	100.0
	Number in Catch	201	3,826	1,141	134	5,303
	Standard Error	81	190	174	66	
Stratum Dates:		8/15		Period 14		
Sampling Dates:		8/15				
Sample Size:		118				
Female	Percent of Sample	2.5	41.5	8.5	0.0	52.5
	Number in Catch	54	886	181	0	1,121
Male	Percent of Sample	5.9	32.2	8.5	0.8	47.5
	Number in Catch	127	687	181	18	1,012
Total	Percent of Sample	8.5	73.7	16.9	0.8	100.0
	Number in Catch	181	1,573	362	18	2,133
	Standard Error	55	87	74	18	
Stratum Dates:		8/16		Period 15		
Sampling Dates:		8/16				
Sample Size:		155				
Female	Percent of Sample	3.2	46.5	5.8	0.0	55.5
	Number in Catch	91	1,313	164	0	1,568
Male	Percent of Sample	1.9	32.9	9.7	0.0	44.5
	Number in Catch	55	930	273	0	1,258
Total	Percent of Sample	5.2	79.4	15.5	0.0	100.0
	Number in Catch	146	2,243	438	0	2,826
	Standard Error	50	92	82	0	

(continued)

Appendix Table D.1. (Page 6 of 9)

		Brood Year and (Age Group)				Total
		1991 (0.2)	1990 (0.3)	1989 (0.4)	1988 (0.5)	
Stratum Dates:		8/17	Period 16			
Sampling Dates:		8/17				
Sample Size:		156				
Female	Percent of Sample	2.6	38.5	5.8	1.3	48.1
	Number in Catch	83	1,245	187	41	1,556
Male	Percent of Sample	3.8	31.4	16.7	0.0	51.9
	Number in Catch	124	1,016	539	0	1,680
Total	Percent of Sample	6.4	69.9	22.4	1.3	100.0
	Number in Catch	207	2,261	726	41	3,236
	Standard Error	64	119	108	29	
Stratum Dates:		08/18	Period 17			
Sampling Dates:		08/18				
Sample Size:		154				
Female	Percent of Sample	1.9	40.9	8.4	0.0	51.3
	Number in Catch	34	719	148	0	902
Male	Percent of Sample	3.9	37.7	7.1	0.0	48.7
	Number in Catch	68	662	126	0	856
Total	Percent of Sample	5.8	78.6	15.6	0.0	100.0
	Number in Catch	103	1,381	274	0	1,758
	Standard Error	33	58	52	0	
Stratum Dates:		8/19	Period 18			
Sampling Dates:		8/19				
Sample Size:		118				
Female	Percent of Sample	0.0	40.7	11.9	1.7	54.2
	Number in Catch	0	332	97	14	443
Male	Percent of Sample	6.8	33.1	5.9	0.0	45.8
	Number in Catch	55	270	48	0	374
Total	Percent of Sample	6.8	73.7	17.8	1.7	100.0
	Number in Catch	55	602	145	14	817
	Standard Error	19	33	29	10	

(continued)

Appendix Table D.1. (Page 7 of 9)

		Brood Year and (Age Group)				
		1991	1990	1989	1988	Total
		(0.2)	(0.3)	(0.4)	(0.5)	
Stratum Dates:		8/22	Period 19			
Sampling Dates:		8/22				
Sample Size:		150				
Female	Percent of Sample	1.3	24.0	15.3	0.0	40.7
	Number in Catch	9	164	105	0	277
Male	Percent of Sample	6.7	24.0	28.0	0.7	59.3
	Number in Catch	45	164	191	5	405
Total	Percent of Sample	8.0	48.0	43.3	0.7	100.0
	Number in Catch	55	327	296	5	682
	Standard Error	15	28	28	5	
Stratum Dates:		8/23	Period 20			
Sampling Dates:		8/23				
Sample Size:		97				
Female	Percent of Sample	0.0	35.1	12.4	1.0	48.5
	Number in Catch	0	166	59	5	229
Male	Percent of Sample	3.1	38.1	8.2	2.1	51.5
	Number in Catch	15	180	39	10	244
Total	Percent of Sample	3.1	73.2	20.6	3.1	100.0
	Number in Catch	15	346	98	15	473
	Standard Error	8	21	20	8	
Stratum Dates:		8/24	Period 21			
Sampling Dates:		8/24				
Sample Size:		117				
Female	Percent of Sample	0.9	35.9	12.0	0.0	48.7
	Number in Catch	5	194	65	0	264
Male	Percent of Sample	6.0	28.2	16.2	0.9	51.3
	Number in Catch	32	153	88	5	277
Total	Percent of Sample	6.8	64.1	28.2	0.9	100.0
	Number in Catch	37	347	153	5	541
	Standard Error	13	24	23	5	

(continued)

Appendix Table D.1. (Page 8 of 9)

		Brood Year and (Age Group)				Total
		1991 (0.2)	1990 (0.3)	1989 (0.4)	1988 (0.5)	
Stratum Dates:		Commercial Test, Period 22				
Sampling Dates:		8/25				
Sample Size:		27				
Female	Percent of Sample	7.4	40.7	7.4	0.0	55.6
	Number in Catch	2	11	2	0	15
Male	Percent of Sample	0.0	33.3	11.1	0.0	44.4
	Number in Catch	0	9	3	0	12
Total	Percent of Sample	7.4	74.1	18.5	0.0	100.0
	Number in Catch	2	20	5	0	27
	Standard Error	1	2	2	0	
Stratum Dates:		Commercial Test, Period 23				
Sampling Dates:		8/31				
Sample Size:		108				
Female	Percent of Sample	1.9	42.6	12.0	0.0	56.5
	Number in Catch	2	46	13	0	61
Male	Percent of Sample	2.8	28.7	12.0	0.0	43.5
	Number in Catch	3	31	13	0	47
Total	Percent of Sample	4.6	71.3	24.1	0.0	100.0
	Number in Catch	5	77	26	0	108
	Standard Error	2	5	4	0	
Stratum Dates:		Periods 1–21 (weighted)				
Sampling Dates:		8/31				
Sample Size:		3,609				
Female	Percent of Sample	0.6	26.2	14.2	1.5	42.4
	Number in Catch	917	40,208	21,752	2,259	65,136
Male	Percent of Sample	1.9	37.7	16.1	1.8	57.6
	Number in Catch	2,898	57,834	24,767	2,816	88,316
Total	Percent of Sample	2.5	63.9	30.3	3.3	100.0
	Number in Catch	3,815	98,043	46,518	5,076	153,452
	Standard Error	398	1,227	1,174	457	

(continued)

Appendix Table D.1. (Page 9 of 9)

		Brood Year and (Age Group)				Total
		1991 (0.2)	1990 (0.3)	1989 (0.4)	1988 (0.5)	
Stratum Dates:		8/31				
Sampling Dates:		8/31				
Sample Size:		135				
		Combined Commercial Test Periods				
Female	Percent of Sample	3.0	42.2	11.1	0.0	56.3
	Number in Catch	4	57	15	0	76
Male	Percent of Sample	2.2	29.6	11.9	0.0	43.7
	Number in Catch	3	40	16	0	59
Total	Percent of Sample	5.2	71.9	23.0	0.0	100.0
	Number in Catch	7	97	31	0	135
	Standard Error	3	5	5	0	
Stratum Dates:		8/31				
Sampling Dates:		8/31				
Sample Size:		3,744				
		All Samples Combined				
Female	Percent of Sample	0.6	26.2	14.2	1.5	42.5
	Number in Catch	22	982	531	55	1,590
Male	Percent of Sample	1.9	37.7	16.1	1.8	57.5
	Number in Catch	71	1,411	604	69	2,154
Total	Percent of Sample	2.5	63.9	30.3	3.3	100.0
	Number in Catch	93	2,392	1,135	124	3,744
	Standard Error	10	29	28	11	

<sup>a</sup> Added to this total were 4,000 chum salmon. These fish were commercially caught but not reported on fish tickets.

Appendix Table D.2. Kobuk River chum salmon drift test fish catch age and sex composition by time period, 1994.

		Brood Year and (Age Group)				
		1991 (0.2)	1990 (0.3)	1989 (0.4)	1988 (0.5)	Total
Stratum Dates:		7/14-7/23				
Sampling Dates:		7/14-7/23				
Sample Size:		63				
Female	Percent of Sample	0.0	4.8	23.8	1.6	30.2
	Number in Catch	0	3	15	1	19
Male	Percent of Sample	0.0	28.6	41.3	0.0	69.8
	Number in Catch	0	18	26	0	44
Total	Percent of Sample	0.0	33.3	65.1	1.6	100.0
	Number in Catch	0	21	41	1	63
	Standard Error	0	4	4	1	
Stratum Dates:		7/24-7/31				
Sampling Dates:		7/24-7/31				
Sample Size:		160				
Female	Percent of Sample	1.9	21.3	16.3	3.1	42.5
	Number in Catch	3	34	26	5	68
Male	Percent of Sample	0.0	31.9	22.5	3.1	57.5
	Number in Catch	0	51	36	5	92
Total	Percent of Sample	1.9	53.1	38.8	6.3	100.0
	Number in Catch	3	85	62	10	160
	Standard Error	2	6	6	3	
Stratum Dates:		8/01-8/06				
Sampling Dates:		8/01-8/06				
Sample Size:		214				
Female	Percent of Sample	0.0	14.5	7.9	0.0	22.4
	Number in Catch	0	31	17	0	48
Male	Percent of Sample	1.4	48.1	26.6	1.4	77.6
	Number in Catch	3	103	57	3	166
Total	Percent of Sample	1.4	62.6	34.6	1.4	100.0
	Number in Catch	3	134	74	3	214
	Standard Error	2	7	7	2	

(continued)

Appendix Table D.3. (Page 2 of 2)

		Brood Year and (Age Group)				Total
		1991 (0.2)	1990 (0.3)	1989 (0.4)	1988 (0.5)	
Stratum Dates:		8/21–8/27				
Sampling Dates:		8/21–8/27				
Sample Size:		236				
Female	Percent of Sample	3.4	40.0	11.9	0.9	56.2
	Number in Catch	995	11,696	3,484	249	16,424
Male	Percent of Sample	2.1	32.8	8.5	0.4	43.8
	Number in Catch	622	9,581	2,489	124	12,816
Total	Percent of Sample	5.5	72.8	20.4	1.3	100.0
	Number in Catch	1,618	21,277	5,972	373	29,240
	Standard Error	436	849	769	214	
Stratum Dates:		8/28–9/06				
Sampling Dates:		8/28–9/06				
Sample Size:		116				
Female	Percent of Sample	2.6	46.1	11.3	0.0	60.0
	Number in Catch	335	5,918	1,452	0	7,705
Male	Percent of Sample	0.9	29.6	9.6	0.0	40.0
	Number in Catch	112	3,796	1,228	0	5,136
Total	Percent of Sample	3.5	75.7	20.9	0.0	100.0
	Number in Catch	447	9,714	2,680	0	12,841
	Standard Error	219	514	487	0	
Stratum Dates:		7/28–9/06				
Sampling Dates:		7/28–9/06				
Sample Size:		1,160				
		Season Total (weighted)				
Female	Percent of Sample	1.7	35.2	14.2	0.9	52.0
	Number in Catch	2,676	56,912	22,987	1,451	84,026
Male	Percent of Sample	1.4	32.7	13.1	0.8	48.0
	Number in Catch	2,191	52,755	21,189	1,327	77,462
Total	Percent of Sample	3.0	67.9	27.4	1.7	100.0
	Number in Catch	4,866	109,667	44,176	2,779	161,488
	Standard Error	811	2,214	2,115	617	

Appendix Table D.3. Noatak River chum salmon drift test fish catch age and sex composition by time period, 1994.

		Brood Year and (Age Group)				Total
		1991 (0.2)	1990 (0.3)	1989 (0.4)	1988 (0.5)	
Stratum Dates:		7/28-8/06				
Sampling Dates:		7/28-8/06				
Sample Size:		353				
Female	Percent of Sample	1.1	27.8	16.1	1.7	46.7
	Number in Catch	621	15,217	8,851	932	25,620
Male	Percent of Sample	0.6	33.1	17.8	1.7	53.3
	Number in Catch	311	18,167	9,782	932	29,192
Total	Percent of Sample	1.7	60.9	34.0	3.4	100.0
	Number in Catch	932	33,384	18,633	1,863	54,812
	Standard Error	378	1,426	1,384	529	
Stratum Dates:		8/07-8/13				
Sampling Dates:		8/07-8/13				
Sample Size:		257				
Female	Percent of Sample	0.8	36.3	11.7	0.8	49.6
	Number in Catch	271	12,600	4,065	271	17,207
Male	Percent of Sample	1.6	36.3	11.7	0.8	50.4
	Number in Catch	542	12,600	4,065	271	17,477
Total	Percent of Sample	2.3	72.7	23.4	1.6	100.0
	Number in Catch	813	25,200	8,129	542	34,684
	Standard Error	328	966	918	269	
Stratum Dates:		8/14-8/20				
Sampling Dates:		8/14-8/20				
Sample Size:		198				
Female	Percent of Sample	1.5	38.4	17.2	0.0	57.1
	Number in Catch	453	11,481	5,136	0	17,070
Male	Percent of Sample	2.0	28.8	12.1	0.0	42.9
	Number in Catch	604	8,611	3,626	0	12,841
Total	Percent of Sample	3.5	67.2	29.3	0.0	100.0
	Number in Catch	1,057	20,092	8,762	0	29,911
	Standard Error	394	1,001	970	0	

(continued)

Appendix Table D.2. (Page 2 of 2)

		Brood Year and (Age Group)				
		1991 (0.2)	1990 (0.3)	1989 (0.4)	1988 (0.5)	Total
Stratum Dates:		8/07-8/13				
Sampling Dates:		8/07-8/13				
Sample Size:		158				
Female	Percent of Sample	3.8	32.9	16.5	0.0	53.2
	Number in Catch	6	52	26	0	84
Male	Percent of Sample	2.5	31.6	12.0	0.6	46.8
	Number in Catch	4	50	19	1	74
Total	Percent of Sample	6.3	64.6	28.5	0.6	100.0
	Number in Catch	10	102	45	1	158
	Standard Error	3	6	6	1	
Stratum Dates:		8/14-8/28				
Sampling Dates:		8/14-8/28				
Sample Size:		29				
Female	Percent of Sample	3.4	31.0	6.9	0.0	41.4
	Number in Catch	1	9	2	0	12
Male	Percent of Sample	6.9	37.9	13.8	0.0	58.6
	Number in Catch	2	11	4	0	17
Total	Percent of Sample	10.3	69.0	20.7	0.0	100.0
	Number in Catch	3	20	6	0	29
	Standard Error	2	3	2	0	
Stratum Dates:		7/14-8/28	Season Total (weighted)			
Sampling Dates:		7/14-8/28				
Sample Size:		624				
Female	Percent of Sample	1.6	20.7	13.8	1.0	37.0
	Number in Catch	10	129	86	6	231
Male	Percent of Sample	1.4	37.3	22.8	1.4	63.0
	Number in Catch	9	233	142	9	393
Total	Percent of Sample	3.0	58.0	36.5	2.4	100.0
	Number in Catch	19	362	228	15	624
	Standard Error	4	12	12	4	

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