

NORTON SOUND, PORT CLARENCE, AND KOTZEBUE SOUND  
MANAGEMENT AREA SALMON CATCH AND ESCAPEMENT REPORT, 2003



By

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## ABSTRACT

Commercial and subsistence harvests of salmon; and chinook, sockeye, chum, and pink salmon escapements are summarized for the Norton Sound, Port Clarence, and Kotzebue Sound districts for 2003. Commercial salmon harvests and exvessel values continue to be below historical averages, likely caused by poor market value of wild-stock salmon, lack of buyer interest, and declining returns in the area. Subsistence salmon harvests in Norton Sound District were poor because of below average chum and coho salmon returns to the area. Subsistence salmon harvests in Port Clarence District were good because of above average sockeye salmon returns, and subsistence salmon harvests in Kotzebue Sound District were average. In general, chinook salmon returns were below average, chum salmon returns were below average, coho salmon returns were well below average, sockeye salmon runs were above average, and pink salmon returns were above average.

**KEY WORDS:** Norton Sound District, Kotzebue Sound District, Port Clarence District, commercial harvest, subsistence harvest, chinook, chum, coho, pink, and sockeye salmon.

## INTRODUCTION

### *Area Description*

Norton Sound, Port Clarence (Figure 1), and Kotzebue Sound (Figure 2) commercial salmon management districts include all waters from Point Romanoff south of Stebbins, to Point Hope north of Kotzebue. Norton Sound District includes all waters from Point Romanoff 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. Port Clarence District includes all waters from Cape Douglas to Cape Prince of Wales. Kotzebue Sound District includes all waters from Cape Prince of Wales to Point Hope. In Kotzebue Sound District, commercial salmon fishing is limited to Subdistricts 1 and 2, consisting of waters north of the Baldwin Peninsula (Figure 3).

Coho salmon *Oncorhynchus kisutch*, chum salmon *O. keta*, chinook salmon *O. tshawytscha*, sockeye salmon *O. nerka*, and pink salmon *O. gorbuscha* are indigenous to Norton Sound, Port Clarence, and Kotzebue Sound areas. Chum, pink, and chinook salmon are found as far north as Barrow, although they are uncommon north of Kotzebue Sound drainages. The northernmost concentrations of chum salmon originate in Kotzebue Sound drainages. Large numbers of pink, chinook and coho salmon are typically not found north of Norton Sound. Small sockeye salmon populations are indigenous in a few southern Seward Peninsula drainages.

### *Commercial Fisheries*

Commercial catch data presented in this report are compiled from registered fish buyer tickets that document each sale by a licensed fisher.

#### **Norton Sound District**

Commercial salmon fishing in Norton Sound District first began in the Unalakleet and Shaktoolik Subdistricts in 1961. Since then, markets have been sporadic with some subdistricts unable to attract buyers for entire seasons. The most consistent markets have been the Unalakleet and Shaktoolik Subdistricts where some onshore processing typically occurs. Since 1961, total commercial salmon harvests for Norton Sound District have ranged from 2,300 fish in 2002 to just over 1,100,000 in 1994 (Appendix 1; Banducci et al. 2003). The historical average is 244,000 fish. Recently commercial salmon harvests in the district have been well below average. The most recent 5-year average is slightly above 183,000 fish, the most recent 10-year average is nearly 312,000 fish. Declines in the commercial salmon fishery have been most pronounced since the late 1990s. Since then, the commercial harvests in Norton Sound District have been some of the lowest on record. The number of permit holders participating in the Norton Sound commercial salmon fishery has also declined since the late 1990s (Appendix 2; Banducci et al. 2003). Since 1977, the number of permit holders participating in the Norton Sound District fishery has ranged from 12 in 2002 to 176 in 1978, averaging 122. The most recent 5-year average (1998 – 2002) is 57 permit holders; the

most recent 10-year average (1993 - 2002) is 85 permit holders. Similar to the commercial harvests, the numbers of permits participating in the Norton Sound District fishery since 1995 have been some of the lowest on record. The combination of the below average commercial harvest and poor market values have resulted in some of the lowest exvessel values for Norton Sound District (Appendix 3; Banducci et al. 2003). Exvessel values for Norton Sound District have ranged from less than \$3,000 in 2002 to just over \$1,000,000 in 1982, averaging \$380,000. The most recent 5-year average (1998 – 2002) is \$127,500, the most recent 10-year average (1993 - 2002) is \$284,000. Exvessel values since 1999 have been some of the lowest on record. Decline of the Norton Sound commercial salmon fisheries is likely attributable to the declining market value of salmon, declines in the number of permit holders and buyers participating in the fisheries, increased fuel prices, and depressed salmon runs in the area.

The commercial salmon fishing season typically opens by emergency order between June 8 and July 1, depending on run timing within each subdistrict. The season closes by regulation on August 31 in Subdistricts 1, 2, and 3, and on September 7 in Subdistricts 4, 5, and 6. Processors often terminate operations before regulatory closure dates. Up to two 48-hour fishing periods can occur each week, with exception of Moses Point Subdistrict, where two 24-hour fishing periods can be scheduled each week. No commercial salmon periods have opened in Nome Subdistrict since 1996 because of low fish runs.

Commercial fishing gear is restricted to set gillnets. A maximum aggregate length of 100 fathoms is allowed for each fisher. No mesh size or depth restrictions are enforced during normally scheduled periods. However, mesh size is often restricted in an attempt to harvest a specific species of salmon. Most gillnets fished are approximately 5 7/8 in (14.9 cm) stretched measure. In Unalakleet and Shaktoolik Subdistricts, 8 1/4 in (20.9 cm) stretched mesh gillnets are commonly used during the chinook salmon run in June through early July. During years when large pink salmon runs occur and a market opens, ADF&G provides fishing periods when only 4 1/2 in (11.3 cm) mesh nets or less may be used. These special small mesh periods are an attempt to target pink salmon without over harvesting larger sized salmon species.

### **Port Clarence District**

Commercial salmon fishing in this district has been prohibited since 1967. A few subsistence caught salmon are bartered each year in Teller and Nome. Relatively small runs in this area and the existence of a subsistence fishery prohibit reopening commercial salmon fishing.

### **Kotzebue Sound District**

The current Kotzebue Sound District commercial salmon fishery began in 1962 and became fully developed in the mid-1970s. This fishery has exhibited a gradually declining pattern of overall run strength with four-year cycles of stronger runs followed by weaker runs. In 1981, a chum salmon hatchery was established at Sikasuilaq Springs, a tributary of Noatak River. The hatchery was closed in 1995 because of lack of funding support. At peak production in 1992, the hatchery incubated 11,100,000 eggs. An estimated peak adult hatchery return of 90,000 chum salmon occurred in 1997, and the estimated contribution to the commercial fishery was approximately 50%.

Chum salmon constitute most of the commercial harvest with small numbers of Dolly Varden *Salvelinus malma* and chinook salmon harvested. Commercial chum salmon commercial harvests in the district have ranged from nearly 8,400 in 2002 to 677,200 fish in 1981, averaging 209,200 fish (Appendix 4; Banducci et al. 2003). The most recent 5-year average (1998 – 2002) is 115,000 fish, the most recent 10-year average (1993 - 2002) is 131,600. The number of permit holders participating in the Kotzebue District commercial fishery has ranged from 3 in 2002 to 267 in 1975, averaging 121 (Appendix 4; Banducci et al. 2003). The most recent 5-year average (1998 – 2002) is 48 permit holders, the most recent 10-year average is 68. Exvessel values for the district have ranged from \$4,500 in 1962 to over \$3,200,000 in 1981 (Appendix 4; Banducci et al. 2003), averaging \$645,000. The most recent 5-year average (1998 – 2002) is \$165,500, the most recent 10-year average (1993 - 2002) is \$185,500. Since 1995, poor market conditions have resulted in commercial harvests falling short of their potential, particularly in 1995 and 1996 when salmon abundances in the district were high.

Gear is limited to set nets with an aggregate of no more than 150 fathoms per fisher. Fishers generally operate with one end on or near shore and with all three shackles connected. Fishers also set in deeper channels in the mud flats further from shore. Most gear used in the district is 5-7/8 in 9 cm) or 6 in (15.2 cm) stretch mesh gillnet.

### ***Subsistence Fisheries***

In 1994 resources were directed towards conducting in-depth subsistence harvest surveys for most villages in Norton Sound, Port Clarence, and Kotzebue Sound Districts. 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. Kotzebue area, the villages of Ambler, Kiana, Kobuk, Noatak, Noorvik and Shungnak were surveyed. In Kotzebue, postcards were sent to households to assess harvests of salmon.

#### **Norton Sound District**

In the Norton Sound area, the Pilgrim River drainage in Port Clarence District, Nome Subdistrict, and Cape Woolley in Norton Sound District required permits for subsistence fishing. The Board of Fisheries designated Nome Subdistrict a Tier II chum salmon management area in 1999 (Brennan et al. 2001). In addition, the Board established “Closed Waters” areas that would protect chum salmon on the spawning grounds where no subsistence salmon fishing would be allowed at any time.

Since 1961 subsistence salmon harvests in Norton Sound District have ranged from just under 22,000 in 1974 to just over 134,000 fish in 1996, averaging 61,100 (Appendix 5; Banducci et al. 2003). The most recent 5-year average (1998 – 2002) is 82,776 fish.

#### **Port Clarence District**

A traditional subsistence salmon fishery has likely occurred within this district for centuries. Subsistence fishing has only been reported at Salmon Lake since the 1930s and monitored at the

upper Pilgrim River since 1962. Village subsistence surveys had been conducted annually by the Division of Commercial Fisheries (CF) up until 1983. ADF&G Subsistence Division, with help from CF, conducted a partial survey of Brevig Mission in 1989. In addition they have conducted full-scale household surveys since 1994. Since 1995, total subsistence salmon harvests in the district have ranged from 6,233 fish in 1999 to 15,600 in 1995 (Appendix 6; Banducci et al. 2003).

### **Kotzebue Sound District**

Chum salmon are the primary species targeted by subsistence fishers in the district. Subsistence chum salmon harvests in Kotzebue District since 1962 have ranged from 5,489 fish in 1989 to 102,881 in 1995, averaging 31,900 (Appendix 7; Banducci et al. 2003). Using historical harvest information for observing trends in subsistence harvests is difficult because the number of villages surveyed annually has not been consistent. In recent years when most villages have been surveyed, the highest estimated harvest was 102,881 chum salmon in 1995.

### ***Escapement Monitoring and Stock Status***

#### **Norton Sound District**

Escapement enumeration projects in Norton Sound District (Figure 4) and the agencies operating them are:

- Kwiniuk River counting tower: ADF&G and Norton Sound Economic Development Corporation (NSEDC),
- Niukluk River counting tower: ADF&G and NSEDC,
- Unalakleet River test fishery: ADF&G and NSEDC,
- Nome River weir: ADF&G and NSEDC,
- Snake River weir: Kawerak Inc., Bering Sea Fishermen's Association (BSFA), and NSEDC,
- Eldorado River weir: Kawerak Inc., BSFA, and NSEDC,
- Pilgrim River weir: Kawerak Inc., BSFA, and NSEDC,
- North River counting tower: Unalakleet IRA, BSFA, and NSEDC.

All projects except Unalakleet River test fishery and North River counting tower receive funding from the Norton Sound Research and Restoration Initiative (NSRRI). The Unalakleet River test net fishery (Jones *in review*) and the Kwiniuk River counting tower (Kohler 2003) projects have been in operation for many years. Long term data from these projects provide comparable and timely information used for inseason salmon management. Nome River weir operated as a counting tower from 1993 through 1995 before switching to a weir in 1996 (Kohler 2003). Niukluk River counting tower has been operated seasonally since 1995 (Kohler 2003). The Snake, Eldorado, and Pilgrim River weir projects were operated by Kawerak Inc. (Waitman and Dunmall 2003). The North River counting tower project is operated by Unalakleet IRA. Both NSEDC and BSFA provide essential project funding to both organizations, and NSRRI provides additional funding to enumerate and collect age, sex, and length (ASL) samples from chum and coho salmon. The

Department conducts numerous inseason aerial surveys for chinook, sockeye, chum, pink, and coho salmon over various drainages in Norton Sound District. Sustainable escapement goals (SEG) have been established for seven of nine individual streams in Nome Subdistrict based on historical average proportion of each stream's contribution to the composite Nome Subdistrict chum salmon escapement. An SEG is a level of escapement known to provide for sustained yields over a 5-to-10 year period, and is used in situations where a Biological Escapement Goal (BEG) cannot be estimated because stock specific catch estimates are absent or age composition data is insufficient to calculate return per sawner. BEGs have also been established for chum salmon stocks that return to Kwiniuk and Tubutulik rivers, and for Nome Subdistrict. At the January 2001 meeting, the Board of Fisheries (BOF) established Optimal Escapement Goals (OEG) for the Eldorado, Nome, Snake, Kwiniuk, and Tubutulik rivers in Norton Sound District. An OEG is a specific management objective for escapement that includes biological and allocative factors and may differ from a SEG or BEG.

**Chinook Salmon.** In Norton Sound District, only the eastern drainages have sizable runs of chinook salmon, the Unalakleet and Shaktoolik River drainages are the primary producers. The primary tools for assessing chinook salmon run strength are the Unalakleet River test net fishery, the North and Kwiniuk River counting towers, subsistence harvest reports, and aerial surveys of North and Kwiniuk Rivers. Chinook salmon counts at the North River tower have ranged from 1,500 to 2,200 fish since 1991, averaging 1,900 fish (Figure 5; Jones and Kent 2003). The escapement goal range for the tower is 1,200 to 2,400 fish (Fair 1999). Chinook salmon escapements have been within the escapement goal range four times since 1996. In 1997, chinook salmon escapement at the tower exceeded the upper bound of the escapement goal range by nearly 2,000 fish. Chinook salmon escapements at the Kwiniuk River counting tower have ranged from 116 to 1,600 fish since 1981, averaging 550 fish (Fig 6; Kohler 2003).

Aerial survey counts for North River have ranged from 1 to 3,000 fish, averaging 500 fish (Appendix 8; Banducci et al. 2003). The most recent 5-year average (1998 – 2002) is 275 fish. Aerial survey counts for the Kwiniuk River drainage have ranged from 2 to 972 fish, averaging 300 fish (Appendix 8; Banducci et al. 2003). The most recent 5-year average (1998 – 2002) is 320 fish.

#### **Chum Salmon.**

- **North River counting tower:** Escapements since 1996 have ranged from 1,500 to 9,800 fish, averaging just below 6,000 fish (Figure 5; Jones and Kent 2003).
- **Kwiniuk River counting tower:** Escapements since 1981 have ranged from 8,800 to 57,000 fish, averaging 25,100 fish (Figure 6; Kohler 2003). A BEG range of 11,500 to 23,000 has been established (Clark 2001). Chum salmon escapements have fallen within this range twice in the last five years. Escapement exceeded the upper bound of the range in 1998 and 2002.
- **Niukluk River counting tower:** Escapements since 1995 have ranged from 29,500 to 86,000 fish, averaging just fewer than 50,000 fish (Figure 7; Kohler 2003).
- **Nome River weir:** Escapements since 1993 have ranged from slightly above 1,000 to slightly above 5,000 fish, averaging 3,000 fish (Figure 8; Kohler 2003). A BEG range of 2,900 to 4,300 fish has been established (Kohler 2003). Chum salmon escapements at the weir have not fallen within this range in the last five years, falling just short of the lower

end of the bound in 2001 and above the upper end in 2000.

- **Eldorado River weir:** Escapements since 1995 have ranged from 4,200 to 14,300 fish, averaging 3,600 fish (Figure 9; Waitman and Dunmall 2003). The most recent 5-year average has been 10,300. A BEG range of 6,000 to 9,200 fish has been established (Kohler 2002a). In the last 5 years (except 1999), chum salmon escapement at the weir has exceeded the upper bound of the range.
- **Snake River weir:** Escapements since 1995 have ranged from 480 to 6,200 fish, averaging 4,000 fish (Figure 10; Waitman and Dunmall 2003). A BEG range of 1,600 to 2,500 fish has been established (Kohler 2002b). Escapement has fallen within this range twice in the last five years, and exceeded the upper bound in 1998 and 2002.
- **Pilgrim River weir:** Escapement data is limited to three years: 1997, 2000, and 2002 (Waitman and Dunmall 2003). In those years, escapements have ranged from 850 to 14,500 fish.

**Coho Salmon.** Typically, ground based escapement projects in Norton Sound District cease operations by mid August. Starting in 2001, operations of some projects were extended into September. As a result, most of the coho salmon escapement information previous to 2001 consists of incomplete counts. No ground-based coho salmon escapement goals have been established.

- **North River counting tower:** Escapement since 1996 has ranged from 1,200 to 12,300 fish, averaging 5,300 fish (Fig 5; Jones and Kent 2003). In 2001, operation of the tower was extended to mid-September.
- **Kwiniuk River counting tower:** 2001 and 2002, escapement counts were 9,500 and 6,500 fish, respectively (Figure 6; Kohler 2003).
- **Niukluk River counting tower:** Since 1995 escapement has ranged from 3,500 to 12,800 fish, averaging 6,800 fish (Figure 7; Kohler 2003).
- **Eldorado River weir:** In 2001 and 2002, escapements were 1,500 and 600 fish (Figure 9; Waitman and Dunmall 2003).
- **Snake River weir:** Since 1995 escapements have ranged from 90 to 1,600 fish, averaging 760 fish (Figure 10; Waitman and Dunmall 2003). In 2001 and 2002, escapements were 1,300 and 400 fish.
- **Pilgrim River weir:** The 246 coho salmon counted in 2002 is the most complete count on record (Waitman and Dunmall 2003). A total of 452 fish were counted in 1997 although operation of the tower ceased the third week in August.
- **Nome River weir:** Since 1993 escapements have ranged from 65 to 3,400 fish, averaging 1,400 fish (Figure 8 Kohler 2003). In 2001 and 2002, escapements were 2,418 and 3,418 fish.

**Pink Salmon.**

- **North River counting tower:** Odd numbered year escapements since 1997 have ranged from 24,700 to just under 128,000 fish (Jones and Kent 2003). A SEG of 8,500 has been established (Fair 1999). The escapement goal has been exceeded in all odd number years since 1997.
- **Kwiniuk River counting tower:** Odd-year escapements since 1981 have ranged from 600 to just under 252,000 fish, averaging 19,000 fish (Kohler 2003). A SEG of 12,500 fish has been established (Kohler 2003). Only in two odd numbered years since 1993 has the escapement goal been met.
- **Niukluk River counting tower:** Odd numbered year escapements since 1995 have ranged

from 10,500 to 41,600 fish, averaging 22,400 fish (Kohler 2003). A SEG of 8,400 fish has been established (Kohler 2003). Odd numbered year escapements since 1995 have exceeded that goal.

- **Eldorado River weir:** Since 1995, odd-year escapements have ranged from 500 to 4,200 fish, averaging 1,700 (Waitman and Dunmall 2003).
- **Snake River weir:** Since 1995, odd-year escapements have ranged from 116 to 6,700 fish, averaging 2,300 fish (Waitman and Dunmall 2003).
- **Nome River weir:** Odd-year escapements since 1993 have ranged from 2,000 to just under 14,000 fish, averaging 8,000 fish (Kohler 2003). A SEG of 13,000 fish has been established (Fair 1999). In odd-years since 1993, the escapement has been met twice.

**Sockeye Salmon.** Sockeye salmon are typically found in small numbers throughout Norton Sound District, although the Glacier and Salmon lake systems support larger populations. In recent years sockeye salmon escapements into Salmon Lake have been greater than 10,000 fish. A smaller stock of approximately 1,000 to 2,000 fish returns each year to spawn at Glacial Lake. These stocks are not commercially exploited because of their low abundance and their importance to local subsistence users.

#### **Port Clarence District**

Aerial surveys for sockeye salmon in the district are flown over Salmon Lake and Grand Central River. Since 1963, total (Salmon Lake and Grand Central River) counts have ranged from 154 to 33,500, averaging 3,800 (Appendix 9; Banducci et al. 2003). The most recent 5-year average (1998 – 2002) is 13,300 fish.

#### **Kotzebue Sound District**

A test fish project conducted in July in the Kobuk River, located approximately three kilometers downstream from the village of Kiana, is used to assess chum salmon run strength in the district. Aerial surveys conducted in August over the Kobuk and Noatak River drainages are used for postseason chum salmon escapement assessment (Appendix 10; Banducci et al. 2003).

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

Annual escapement age, sex, and length (ASL) composition information is used to develop stock-recruitment models, in turn providing information used for projecting future run sizes. For both escapement and harvest ASL data collection, fish were measured for fork-length (from mid-eye to fork-of-tail) to the nearest 0.5 cm. Escapement samples were sexed by examination of external characteristics. Harvest samples were sexed by making a small incision (approx. 1 in) anterior to the anus and then checking for the presence of eggs in the body cavity. For age determination, scales were removed from the left side of the fish, approximately two rows above the lateral line in an area crossed by a diagonal from the posterior insertion of the dorsal fin to the anterior insertion of the anal fin (INPFC 1963). Scales were arranged on gum cards in the

field and sent to the Nome office for processing. Impressions from the gum cards were made on cellulose acetate cards with a heated hydraulic press (Clutter and Whitesel 1956). Ages of the salmon were determined by examining the scale impressions (Mosher 1968), and ages were recorded in European notation (Koo 1962).

Reported historical ASL data should be considered preliminary until a more rigorous analysis of the data can be made. Finalized historical ASL information should be available for the 2004 report.

### **Norton Sound District**

**Chinook Salmon:** Preliminary ASL information is available from the Unalakleet River test fishery (Appendix 11) and Subdistrict 6 commercial harvest sampling (Appendix 12).

**Chum Salmon:** Preliminary ASL information is available from the Unalakleet River test fishery (Appendix 13), Subdistrict 6 commercial harvest (Appendix 14), Subdistrict 5 commercial harvest (Appendix 15), Kwiniuk River counting tower (Appendix 16), and the Nome River weir (Appendix 17).

**Coho, Sockeye, and Pink Salmon:** The ASL information collected for these species has not been analyzed and interpreted. This information will be presented in the 2004 publication.

### **Port Clarence and Kotzebue Sound Districts**

No ASL data for any salmon species is available for Port Clarence District at the time of this writing. Available ASL information for chum salmon in Kotzebue Sound District has not been analyzed and interpreted. This information will be presented in the 2004 publication.

## **2003 SEASON SUMMARY**

### ***Commercial Fisheries***

#### **Norton Sound District**

A total of 30 permits holders participated in the Norton Sound District commercial salmon fishery, 20 in Subdistrict 6, and 10 in Subdistrict 5 (Table 1). No other commercial salmon fisheries were prosecuted in the remaining Norton Sound subdistricts in 2003. The total number was 48 % below the most recent 5-year (1998 – 2002) average of 57 and 65 % below the most recent 10-year average (1993 – 2002) of 85 permit holders. Although the number of permits participating in 2003 did increase substantially over 2002, the number was the second lowest on record.

Subdistricts 5 and 6 share a common boundary and are managed concurrently. There were 11 commercial openings for a total of 486 hours (Tables 2 and 3). The commercial harvest in Subdistrict 5 was 2 chinook, 485 chum salmon and 4,031 coho, for a total of 4,518 fish. In

Subdistrict 6, 10 chinook, 16 sockeye, 3,075 chum salmon and 13,027 coho, were commercially harvested for a total of 16,128 fish. The total commercial salmon harvest for districts 5 and 6 were 12 chinook, 16 sockeye, 3,560 chum and 17,058 coho, salmon for a total of 20,646 fish. There was no reported commercial harvest of pink salmon. The chinook, coho, and chum salmon harvests were all below historical averages. The total harvest was 89 % below the most recent 5-year average (1998 – 2002) of 183,100 and 93 % below the most recent 10-year average (1993 – 2002) of 312,000.

The exvessel value of the Norton Sound commercial salmon fishery in 2003 was \$64,473 (Table 1), 49 % below the most recent 5-year value of \$127,500 and 77% the most recent value of \$284,400. Despite being well below historical averages, the exvessel value in 2003 was the highest since 2001. Coho salmon was the most valuable species, comprising over 95% of the total exvessel value.

### **Kotzebue Sound District**

A limited commercial salmon season ended with the second lowest harvest and participation on record. The commercial harvest consisted of 25,423 chum salmon and 20 Dolly Varden (Table 4). No chinook salmon were commercially harvested. In addition, 340 chum salmon were kept for personal use and not sold. Twenty Dolly Varden were sold.

Four permit holders participated in the Kotzebue District fishery, well below the most recent 5-year average of 48. This was the second consecutive year of low participation in the fishery. The exvessel value of the fishery was \$26,377, most of the value from chum salmon (Table 4). The exvessel value is well below the most recent 5-year average value of \$165,500.

## ***Subsistence Fisheries***

### **Norton Sound District**

A total of 218 Tier I subsistence permits were issued in the Norton Sound area. Of those, 94 reported fishing and 166 were returned (Table 5). The reported Tier I permit harvest was 111 chinook, 1,389 sockeye, 143 coho, 191 pink, and 162 chum salmon for a total of 1,996 fish. A total of 38 Tier II subsistence permits were issued (Table 6). Of those, 29 reported fishing and 36 were returned. The reported Tier II permit harvest was 24 chinook, 60 sockeye, 216 coho, 469 pink and 548 chum salmon for a total of 1,317 fish.

Results from the subsistence survey estimate 83,782 salmon were harvested in Norton Sound District (Table 7). A total of 838 out of 940 households were contacted in Norton Sound District. The largest contribution to the Norton Sound District harvest was pink salmon (49,674), followed by coho salmon (14,105), chum salmon (13,913), chinook salmon (5,290), and sockeye salmon (801).

## **Port Clarence District**

An estimated 12,578 salmon were harvested in Port Clarence District for subsistence use (Table 7). This estimate includes the Tier I permit fishery in Pilgrim River. A total of 204 out of 242 households were contacted. Sockeye salmon made the largest contribution (4,436) in Port Clarence District, followed by pink (4,108), chum (2,425), coho (1,434), and chinook salmon (176).

## **Kotzebue Sound District**

Only the villages of Noorvik, Kiana, Ambler, Shungnak, and Kobuk were surveyed (Table 7). In those villages, an estimated 20,918 salmon were harvested for subsistence use. A comparison to previous years cannot be made because Kotzebue was not surveyed in 2003. Most of the harvest was chum salmon (19,201), followed by coho salmon (1,042), and pink salmon (583). Sockeye and chinook salmon contributed little to the overall harvest.

## ***Escapement Monitoring***

### **Norton Sound District**

***Chinook Salmon:*** Chinook salmon escapement at the North River counting tower was 1,452 fish in 2003 (Table 8), falling within the escapement goal range of 1,200 to 2,400 fish. Chinook salmon escapement past the tower was below the most recent 5-year average of 1,900 fish. At the Kwiniuk River counting tower chinook salmon escapement was 744 fish in 2003 (Table 8), exceeding their escapement goal of 300-550 fish. Escapement past the tower was above the most recent 5-year average of 500 fish.

In 2003 chinook salmon aerial escapement goals were not achieved in Shaktoolik River, or the combined goal for Unalakleet and Old Woman rivers (Table 8).

***Chum Salmon:*** Escapement at the North River counting tower was 9,859 fish in 2003 (Table 8), and above the historical average of 6,000 fish. Chum escapement at the Kwiniuk River counting tower was 12,123 fish (Table 8), falling within the escapement goal range of 11,500 to 23,000 fish. The total escapement count at the Niukluk River counting tower was 20,018 fish (Table 8), and below the previous 8-year average of 50,000 fish. A total of 1,958 chum salmon passed the Nome River weir (Table 8), falling below the lower bound of the escapement goal range of 2,900 to 4,300 fish. Escapement at the Eldorado River weir was 3,589 fish (Table 8), also falling below the lower bound of their escapement goal range. Escapement was well below the most recent 5-year escapement average of 10,300 fish. The total escapement count for chum salmon at the Snake River weir was 2,197 fish (Table 8), falling within their escapement goal range. Escapement was below the historical average 4,000 fish. Escapement at the Pilgrim River weir was 15,192 fish (Table 8).

Aerial surveys were flown on numerous streams within Norton Sound District in 2003 (Table 8). Chum salmon failed to achieve the escapement goal ranges for Fish River and Boston Creek combined, and for Unalakleet and Old Woman Rivers combined.

**Coho Salmon:** Escapement at the North River counting tower was 5,837 fish in 2003 (Table 8). Escapement at the Kwiniuk River counting tower was 5,490 (Table 8), 1,282 fish at the Niukluk River counting tower (Table 8), 115 at the Eldorado River weir (Table 8), 489 at the Snake River weir (Table 8), and 677 fish at the Pilgrim River weir (Table 8).

Aerial surveys were flown for numerous streams within Norton Sound District (Table 8). Coho salmon failed to achieve the escapement goal range for Niukluk River and Ophir Creek combined.

**Pink Salmon:** Escapement past the North River counting tower was 280,212 fish in 2003 (Table 8), exceeding their escapement goal of 8,500 fish. Escapement past the Kwiniuk River counting tower was 22,329 fish (Table 8), well above their escapement goal of 12,500 fish. The escapement past the Niukluk River counting tower was 75,111 fish (Table 8), and well above their escapement goal of 8,400 fish. Escapement at the Nome River weir was 11,402 (Table 8), short of their escapement goal of 13,000 fish. Escapements at the Eldorado and Snake River weirs were 173 and 2,829 fish, respectively (Table 8).

Aerial surveys for pink salmon were flown over numerous rivers within Norton Sound District (Table 8) Estimates were mostly average to above average.

### **Port Clarence District**

**Sockeye Salmon:** In 2003, the sockeye run was average for Glacial Lake, and well above average for Salmon Lake. Aerial surveys made of Glacial Lake estimated a peak of 865 sockeye salmon (Table 8), within the aerial survey escapement goal of 800 to 1,600 sockeye salmon. A weir operated by the U.S. Bureau of Land Management (BLM) at the outlet of Glacial Lake counted 2,004 sockeye salmon into Glacial Lake. Several aerial surveys made of Salmon Lake and Grand Central River estimated a peak of 19,275 and 1,015 sockeye salmon, respectively, which was above the combined escapement goal of 4,000-8,000 sockeye salmon. The estimate for Salmon Lake was the second highest on record. Pilgrim River weir passed 42,729 sockeye salmon during 2003, its first year of operation.

### **Kotzebue Sound District**

Chum salmon abundance in Kotzebue Sound in 2003 was estimated to be poor to below average based on low commercial harvest rates, subsistence catch reports, below average Kobuk River test fish indices, and aerial survey observations (Appendix 10).

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

### **Norton Sound District**

#### ***Chinook Salmon***

- **Unalakleet River Test Fishery:** A total of 23 chinook salmon were sampled for ASL determination (Table 9). Caution should be taken in interpreting this data because of its

small sample size. In addition, the test fishery's 5 7/8 in (14.9 cm) mesh gillnet may bias toward capture of smaller, younger age class males. Sampled fish were predominantly male (73.9 %). Most sampled fish were age 1.3, and average length of age 1.3 fish was 71.2 cm.

### ***Chum Salmon***

- **Unalakleet River Test Fishery:** A total of 396 fish were sampled for ASL determination (Table 10). Most sampled fish were male (81.1 %). Predominate age class was 0.3 (81.8 %). Average length of age 0.3 fish was 58.6 cm. Age 0.4 fish made up 15.2% of the fish sampled. Average length of age 0.4 fish was 61.6 cm. Caution should be taken in interpreting this data because the test fishery's 5 7/8 in (14.9 cm) mesh gillnet may bias toward the capture of larger, older age class fish.
- **Subdistrict 6 (Unalakleet) Commercial Harvest:** A total of 235 fish were sampled for ASL determination (Table 11). Most sampled fish were female (54.4 %). Predominate age class was age 0.3 fish (93.2 %). Average length of age 0.3 fish was 57.0 cm.
- **Kwiniuk River Counting Tower:** A total of 473 fish were sampled for ASL determination (Table 12). Most sampled fish were female (53.5 %). Predominate age class was age 0.4 (64.3 %). Average length of age 0.4 fish was 59.9 cm. Age 0.3 fish made up 34.2 % of the fish sampled. Average length of age 0.3 fish was 56.3 cm.
- **Nome River Weir:** A total of 158 fish were sampled for ASL determination (Table 13). Most sampled fish were males (54.4 %). Predominate age class was age 0.3 (82.9 %). Average length of age 0.3 fish was 57.4 cm. Age 0.4 fish made up 15.1 % of the sample. Average length of age 0.4 fish was 59.1 cm.
- **Niukluk River Counting Tower:** A total of 417 fish were sampled for ASL determination (Table 14). Most sampled fish were male (58.5 %). Predominate age class was age 0.3 (50.8 %). Average length of age 0.3 fish was 56.8 cm. Age 0.4 fish made up 47.7 % of the sample. Mean length of age 0.4 fish was 59.7 cm.
- **Snake River Weir:** A total of 172 fish were sample for ASL determination (Table 15). Most sampled fish were male (54.1 %). Predominate age class was age 0.3 (73.3 %). Average length of age 0.3 fish was 58.2 cm. Age 0.4 fish made up 22.1 % of the sample. Average length of age 0.4 fish was 62.0 cm.
- **Eldorado River Weir:** A total of 301 fish were sampled for ASL determination (Table 16). Most sampled fish were male (62.8 %). Predominant age class was age 0.3, composing 53.8 % of the fish sampled. Average length of age 0.3 fish was 57.6 cm. Age 0.4 fish contributed 45.5 % of the sample. Average length of age 0.4 fish was 63.7 cm.
- **Pilgrim River Weir:** A total of 235 fish were sampled for ASL determination (Table 17). Most sampled fish were male (54.5 %). Predominant age class was age 0.3 (50.6 %). Average length of age 0.3 fish was 56.7 cm. Age 0.4 fish made up 48.1 % of the sample. Average length of age 0.4 fish was 59.7 cm.
- **Pikmiktalik River:** A total of 337 fish were sampled for ASL determination (Table 18). Most sampled fish were female (51.0 %). The predominant age class was age 0.3 (82.8 %). Average length of age 0.3 fish was 57.2 cm. Age 0.4 fish made up 16.9 % of the sample. Mean length of age 0.4 fish was 59.0 cm.

### ***Coho Salmon***

- **Unalakleet River Test Fishery:** A total of 213 fish were sampled for ASL determination (Table 19). Most sampled fish were female (52.6 %). Predominate age class was age 2.1 fish

(78.4 %). Average length of age 2.1 fish was 60.1 cm. Age 1.1 fish made up 15.4 % of the sample. Average length of age 1.1 fish was 60.7 cm.

- **Subdistrict 6 (Unalakleet) Commercial Harvest:** A total of 687 fish were sampled for ASL determination (Table 20). Most sampled fish were female (55.8 %). Predominate age class was age 2.1 (79.0 %). Average length of age 2.1 fish was 59.4 cm. Age 1.1 fish made up 11.5 % of the sample. Average length of age 1.1 fish was 59.9 cm.
- **Kwiniuk River Counting Tower:** A total of 384 fish were sampled for ASL determination (Table 21). Females made up 50.3 % of the sampled fish. Age 1.1 fish made up 25.8 % of the sample. Mean length of age 1.1 fish was 59.0 cm.
- **Nome River Weir:** A total of 143 fish were sampled for ASL determination (Table 22). Most sampled fish were male (55.2 %). Predominate age class was age class was age 2.1 (79.0 %). Average length of age 2.1 fish was 59.4 cm. Age 1.1 fish made up 14.7 % of the sample. Average length of age 1.1 fish was 57.8 cm.
- **Snake River weir:** A total of 132 fish were sampled for ASL determination (Table 23). Females made up 50.8 % of the sample. Predominate age class was age 2.1 (82.6 %). Average length of age 2.1 fish was 58.7 cm.

#### **Kotzebue Sound District:**

##### ***Chum Salmon***

- **Kotzebue Sound District Commercial Harvest:** A total of 969 fish were sampled for ASL determination (Table 24). Females made up 51.1 % of the sampled fish. Predominate age class was age 0.3 (62.3 %). Average length of age 0.3 fish was 59.7 cm. Age 0.4 fish made up 28.3 % of the sample. Average length of age 0.4 was 62.6 cm.
- **Noatak River Test Fishery:** A total of 49 fish were sampled for ASL determination (Table 25). Caution should be used in interpreting this information because of the small sample size. Most of fish sampled were female (57.1 %). Predominate age class was age 0.3 (55.1 %). Average length of age 0.3 fish was 60.2 cm. Age 0.4 fish made up 40.8 % of the fish sampled. Average length of age 0.4 fish was 63.4 cm.
- **Kobuk River Test Fishery:** A total of 566 fish were sampled for ASL determination (Table 26). Most of the fish sampled were female (70.9 %). Predominate age class was age 0.3 (54.2 %). Average length of age 0.3 fish was 60.7 cm. Age 0.4 fish made up 30.3 % of the sample. Average length of age 0.4 fish was 62.8 cm.

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Table 1. Summary Norton Sound District commercial salmon harvest and exvessel value, 2003.

		Subdistrict						District Total
		1	2	3	4	5	6	
permits		0	0	0	0	10	20	30
chinook	catch	0	0	0	0	2	10	12
	lbs	0	0	0	0	24	104	128
	avg \$/lb	n/a	n/a	n/a	n/a	\$0.60	\$0.65	n/a
	value	\$0	\$0	\$0	\$0	\$14	\$73	\$87
sockeye	catch	0	0	0	0	0	16	16
	lbs	0	0	0	0	0	121	121
	avg \$/lb	n/a	n/a	n/a	n/a	n/a	\$0.45	n/a
	value	\$0	\$0	\$0	\$0	\$0	\$54	\$54
coho	catch	0	0	0	0	4,031	13,027	17,058
	lbs	0	0	0	0	33,995	105,780	139,775
	avg \$/lb	\$0	\$0	\$0	\$0	\$0.40	\$0.45	n/a
	value	\$0	\$0	\$0	\$0	\$13,720	\$47,324	\$61,044
pink	catch	0	0	0	0	0	0	0
	lbs	0	0	0	0	0	0	0
	avg \$/lb	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	value	\$0	\$0	\$0	\$0	\$0	\$0	\$0
chum	catch	0	0	0	0	485	3,075	3,560
	lbs	0	0	0	0	3,422	20,245	23,667
	avg \$/lb	n/a	n/a	n/a	n/a	\$0.11	\$0.14	n/a
	value	\$0	\$0	\$0	\$0	\$376	\$2,912	\$3,288
<b>Subdistrict</b>	<b>catch</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4,518</b>	<b>16,128</b>	<b>20,646</b>
<b>Totals</b>	<b>lbs</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>37,441</b>	<b>126,250</b>	<b>163,691</b>
	<b>value</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$14,111</b>	<b>\$50,362</b>	<b>\$64,473</b>

Table 2. Summary, by period, Norton Sound Subdistrict 5 commercial salmon fishery, 2003.

Period	Hours	Date	Fishers	Chinook			Chum			Coho		
				catch	lbs	avg lbs/fish	catch	lbs	avg lbs/fish	catch	lbs	avg lbs/fish
1	24	7/31-8/01	0	NO FISHING EFFORT								
2	48	8/04-8/06	0	NO FISHING EFFORT								
3	48	8/07-8/09	3	0	0	0.0	164	1,212	7.4	541	4,252	7.9
4	48	8/11-8/13	2	1	5	5.0	20	141	7.1	74	504	6.8
5	48	8/14-8/16	5	0	0	0.0	149	1,054	7.1	708	5,788	8.2
6	48	8/18-8/20	6	1	19	19.0	34	223	6.6	830	6,961	8.4
7	48	8/21-8/23	7	0	0	0.0	67	505	7.5	561	4,712	8.4
8	48	8/25-8/27	8	0	0	0.0	14	101	7.2	744	6,680	9.0
9	48	8/28-8/30	9	0	0	0.0	37	206	5.6	573	5,098	8.9
10	30	9/01-9/03	0	NO FISHING EFFORT								
11	48	9/04-9/06	0	NO FISHING EFFORT								
<b>Totals</b>				2	24		485	3,442		4,031	33,995	

Table 3. Summary, by period, Norton Sound Subdistrict 6 commercial salmon fishery, 2003.

Period	Hours	Dates	Permits	Chinook			Sockeye			Chum			Coho		
				catch	lbs	avg lbs/fish	catch	lbs	avg lbs/fish	catch	lbs	avg lbs/fish	catch	lbs	avg lbs/fish
1	24	7/31-8/01	3	0	0	0.0	1	7	7.0	212	1,388	6.5	395	2,466	6.2
2	48	8/04-8/06	17	2	14	7.0	1	5	5.0	743	4,772	6.4	2,431	18,683	7.7
3	48	8/07-8/09	0	2	14	7.0	0	0	0.0	492	5,348	10.9	1,694	13,117	7.7
4	48	8/11-8/13	10	0	0	0.0	4	35	8.8	363	2,407	6.6	1,004	7,943	7.9
5	48	8/14-8/16	11	0	0	0.0	1	8	8.0	591	3,583	6.1	1,765	13,738	7.8
6	48	8/18-8/20	12	1	16	16.0	1	8	8.0	314	2,255	7.2	1,512	12,353	8.2
7	48	8/21-8/23	12	1	13	13.0	1	7	7.0	136	906	6.7	1,081	8,985	8.3
8	48	8/25-8/27	9	0	0	0.0	2	15	7.5	51	367	7.2	570	5,040	8.8
9	48	8/28-8/30	8	3	42	14.0	4	29	7.3	97	643	6.6	1,064	8,971	8.4
10	30	9/01-9/03	8	1	5	5.0	1	7	7.0	46	309	6.7	674	6,121	9.1
11	48	9/04-9/06	9	0	0	0.0	0	0	0.0	33	208	6.3	837	7,723	9.2
<b>Totals</b>				10	104		16	121		3,075	20,245		13,027	105,780	

Table 4. Summary Kotzebue District commercial salmon harvest and exvessel value, 2003.

	Species			Total
	Chinook	Chum	Dolly Varden	
catch	0	25,423	20	25,443
lbs	0	218,181	160	218,341
avg \$/lb	n/a	\$0.12	\$0.50	n/a
value	\$0	\$26,297	\$80	\$26,377

Table 5. Summary of Tier I subsistence salmon fishery, Norton Sound, 2003.

	Number of Permits <sup>a</sup>			Number of Salmon Harvested					
	Issued	Returned	Fished	Chinook	Sockeye	Coho	Pink	Chum	Total
Bonanza River	1	1	1	0	0	1	0	0	1
Cripple Creek	0	0	0	0	0	0	0	0	0
Eldorado River	0	0	0	0	0	0	0	0	0
Flambeau River	0	0	0	0	0	0	0	0	0
Marine Waters	13	12	8	5	4	34	31	26	100
Nome River	3	3	3	0	0	11	1	8	20
Nome Subdistrict <sup>b</sup>	89	61	17	39	3	81	14	35	172
Penny River	0	0	0	0	0	0	0	0	0
Safety Sound	1	1	1	0	0	0	2	0	2
Sinuk River	0	0	0	0	0	0	0	0	0
Snake River	4	4	4	0	0	1	1	2	4
Solomon River	0	0	0	0	0	0	0	0	0
Pilgrim River <sup>c</sup>	97	77	53	67	1,362	10	66	69	1,574
Cape Woolley	10	7	7	0	20	5	76	22	123
<b>Total <sup>d</sup></b>	<b>218</b>	<b>166</b>	<b>94</b>	<b>111</b>	<b>1,389</b>	<b>143</b>	<b>191</b>	<b>162</b>	<b>1,996</b>

<sup>a</sup> Four different Tier I subsistence permits issued in 2003 for Nome area: 1- Nome Subdistrict permit for specified rivers and marine areas; 2- Niukluk permit for Fish & Niukluk Rivers; 3- Port Clarence permit for area rivers; 4- Cape Woolley permit for area waters.

<sup>b</sup> Specific river usage considered minimal estimate because most fishers did not indicate, and 24 of 114 permits were not returned.

<sup>c</sup> Four permits issued for the Pilgrim River were mistakenly used for outside areas; that data is not in this count.

<sup>d</sup> Three permits issued for the Nome Subdistrict were mistakenly used for outside areas; that data is not in this count.

Table 6. Summary of Tier II subsistence salmon harvest, Nome Subdistrict, 2003.

Nome Subdistrict	Number of Permits			Number of Salmon Harvested					TOTAL
	Issued	Returned	Fished	Chinook	Sockeye	Coho	Pink	Chum	
<b>Nome Subdistrict</b>	<b>38</b>	<b>36</b>	<b>29</b>	<b>24</b>	<b>60</b>	<b>216</b>	<b>469</b>	<b>548</b>	<b>1,317</b>
Indicated Area(s) <sup>a</sup>									
Bonanza River	2	2	2	0	0	15	32	20	67
Cripple Creek	0	0	0	0	0	0	0	0	0
Eldorado River	1	1	1	12	1	10	0	0	23
Flambeau River	0	0	0	0	0	0	0	0	0
Marine Waters	13	13	13	7	39	50	309	306	711
Nome Subdistrict <sup>b</sup>	17	17	11	16	20	127	121	202	486
Nome River	1	1	1	1	0	12	7	10	30
Penny River	0	0	0	0	0	0	0	0	0
Safety Sound <sup>c</sup>	1	1	0	0	0	0	0	0	0
Sinuk River	0	0	0	0	0	0	0	0	0
Snake River	0	0	0	0	0	0	0	0	0
Solomon River	0	0	0	0	0	0	0	0	0

<sup>a</sup> Seventeen of 34 returned Tier II 2003 permits indicated a specific area(s) fished.

<sup>b</sup> Harvest that was not specified by area(s) and is considered general Nome subdistrict.

<sup>c</sup> Indicated when issued as intended area to fish, however never fished.

Table 7. Subsistence Salmon Harvests, Northwest Alaska, 2003

	Total HH's	C
Cape Woolley Permits <sup>3</sup>	10	
<b>North Norton Sound</b>	<b>10</b>	
Nome Permits <sup>3</sup>	153	
<b>Subdistrict 1</b>	<b>153</b>	
Golovin	47	
Niukluk R. Permits <sup>3</sup>	8	

Table 7. Continued (Page 2 of 2)

	Species													
			Chinook		Chum		Pink		Sockeye		Coho		Total	
	Total HH's	HH's Contacted	Reported Harvest	Est. <sup>2</sup> Total										
Brevig Mission	74	66	80	92	1,206	1,382	2,579	2,955	1,731	1,983	958	1,098	6,554	7,510
Pilgrim R. Permits <sup>3</sup>	101	79	56	56	84	84	136	136	1,362	1,362	67	67	1,705	1,705
Teller	67	59	23	28	785	959	832	1,017	892	1,090	220	269	2,752	3,364
<b>PORT CLARENCE</b>	<b>242</b>	<b>204</b>	<b>159</b>	<b>176</b>	<b>2,075</b>	<b>2,425</b>	<b>3,547</b>	<b>4,108</b>	<b>3,985</b>	<b>4,436</b>	<b>1,245</b>	<b>1,434</b>	<b>11,011</b>	<b>12,578</b>
Ambler	67	62	9	9	1,641	1,719	61	64	1	1	45	48	1,757	1,841
Deering	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kiana <sup>4</sup>	95	90	14	15	1,864	3,010	77	80	0	0	65	68	2,020	3,173
Kobuk	34	23	1	2	969	1,453	12	18	0	0	0	0	982	1,473
Kotzebue <sup>5</sup>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Noatak	104	103	1	1	2,150	2,177	17	17	10	10	28	28	2,206	2,234
Noorvik	138	135	13	13	7,690	7,982	367	381	1	1	862	895	8,933	9,272
Shishmaref	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shungnak	50	33	0	0	2,103	2,860	9	23	30	41	2	3	2,144	2,926
Wales	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>KOTZEBUE SOUND<sup>5</sup></b>	<b>488</b>	<b>446</b>	<b>38</b>	<b>40</b>	<b>16,417</b>	<b>19,201</b>	<b>543</b>	<b>583</b>	<b>42</b>	<b>53</b>	<b>1,002</b>	<b>1,042</b>	<b>18,042</b>	<b>20,918</b>
<b>TOTALS</b>	<b>1,670</b>	<b>1,488</b>	<b>5,104</b>	<b>5,505</b>	<b>30,654</b>	<b>35,540</b>	<b>47,266</b>	<b>54,365</b>	<b>4,745</b>	<b>5,289</b>	<b>15,102</b>	<b>16,580</b>	<b>102,871</b>	<b>117,279</b>

<sup>1</sup> Includes salmon from subsistence fishing, rod and reel fishing (except in permit areas), removal from commercial catches, and test fisheries.

<sup>2</sup> Each community's reported harvests are expanded into harvest estimates by strata prior to summing into totals. However, if fewer than 30 or less than 50 percent (whichever is lower) of the households in a

<sup>3</sup> Alaska Department of Fish and Game, Division of Commercial Fisheries, permit returns, 2003. Reported harvest.

<sup>4</sup> Unalakleet estimated harvests include 26 chinook, 418 chum, 3,455 pink, 14 sockeye, and 242 coho from the ADF&G test net fishery in addition to the survey results; Kiana estimated harvests include 1,073

<sup>5</sup> The community of Kotzebue, though normally included, was not surveyed in 2003.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, household surveys, 2003.

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Table 8. Ground based escapement and aerial survey index counts, Norton Sound District, 2003.

Stream Name	Chinook				Chum			
	Weir/ Tower Count	Escapement Goal Range	Aerial Survey Count <sup>a</sup>	Escapement Goal Range	Weir/ Tower Count	Escapement Goal Range	Aerial Survey Count <sup>a</sup>	Escapement Goal Range
Salmon L.								
Grand Central R.								
Pilgrim R.	1,016		242		15,192		292	
Glacial L.					2			
Sinuk R.						4,000 - 6,200 <sup>b</sup>	677	
Cripple R.							46	
Penny R.							9	
Snake R.	50		4		2,197	1,600 - 2,500 <sup>c</sup>	440	
Nome R.	12		3		1,958	2,900 - 4,300 <sup>c</sup>	888	
Flambeau R.						4,100 - 6,300 <sup>b</sup>	647	
Eldorado R.	29		12		3,589	6,000 - 9,200 <sup>c</sup>	1,257	
Bonanza R.			5			2,300 - 3,400 <sup>b</sup>	140	
Solomon R.			1			1,100 - 1,600 <sup>b</sup>	73	
<b>Fish R.</b>			95	<b>Combined</b>			3,200	<b>Combined</b>
<b>Boston Cr.</b>			145	<b>100 - 250</b>			750	<b>23,200 - 46,400</b>
Niukluk R.	179		55		20,018		2,315	
Ophir Cr.								
Kwiniuk R.	744	300 - 550	63		12,123	11,500 - 23,000 <sup>d</sup>	4,567	
Tubutulik R.			50			9,200 - 18,400 <sup>b,d</sup>	1,352	
Inglutalik R.								
Pikmiktalik R.	345				7,707			
Shaktoolik R. <sup>e</sup>			15	400 - 800				
<b>Unalakeet R.</b>			168	<b>Combined</b>			657	<b>Combined</b>
<b>Old Woman R.</b>				<b>550 - 1,100</b>				<b>2,400 - 4,800</b>
North R.	1,452	1,200 - 2,400	131		9,859		222	

-Continued-

Table 8. Continued (Page 2 of 2)

Stream Name	Coho			Sockeye			Pink		
	Weir/ Tower Count	Aerial Survey Count <sup>a</sup>	Escapement Goal Range	Weir/ Tower Count	Aerial Survey Count <sup>a</sup>	Escapement Goal Range	Weir/ Tower Count	Escapement Goal Range	Aerial Survey Count <sup>a</sup>
<b>Salmon L.</b>					19,275	<b>Combined</b>			
<b>Grand Central R.</b>					1,015	<b>4,000 - 8,000</b>			
Pilgrim R.	677	127		42,729	4,336		14,100		195
Glacial L.				2,004	865	800 - 1,600			
Sinuk R.		190			300				9,885
Cripple R.		69							1,175
Penny R.		26							80
Snake R.	489	313		82	2		2,829		298
Nome R.	548	604		50			11,402	13,000	2,841
Flambeau R.		71							355
Eldorado R.	115	71					173		821
Bonanza R.		100							1,540
Solomon R.		105							157
Fish R.									1,014
Boston Cr.									701
<b>Niukluk R.</b>	1,282	146	<b>Combined</b>				75,111	8,400	272
<b>Ophir Cr.</b>		0	<b>950 - 1,900</b>						
Kwiniuk R.	5,490	760	650-1,300				22,329	12,500	390
Tubutulik R.		292							60
Inglutalik R.									
Pikmiktalik R.	87						13,165		
Shaktoolik R.								48,000 <sup>b</sup>	
Unalakeet R.									1,867
Old Woman R.									
North R.	5,837		550-1,100				280,212	8,500	11,010

<sup>a</sup> All aerial surveys are rated fair to good, unless otherwise noted.

<sup>b</sup> The goal listed is actual fish and not aerial counts. However, at this time there is no counting project on the river.

<sup>c</sup> The Board of Fisheries also established an OEG with the same range as the BEG.

<sup>d</sup> This represents the OEG in regulation. The BEG is 10,000-20,000 for the Kwiniuk River and 8,000-16,000 for the Tubutulik River.

<sup>e</sup> Poor survey conditions.

Table 9. Age, sex, and length of chinook salmon sampled from Unalakleet River test fishery, 2003

		Brood Year/Age Class						
		1999	1998	1997	1997	1996	1996	
		(1.2)	(1.3)	(1.4)	(2.3)	(2.4)	(1.5)	Total
<b>Sampling Dates:</b>	<b>6/2-7/28</b>							
<b>Sample Size:</b>	<b>23</b>							
<b>Males</b>	Number Sampled	1	14	0	2	0	0	17
	Average Length (cm)	57.9	70.0	0.0	74.0	0.0	0.0	69.8 <sup>A</sup>
<b>Females</b>	Number Sampled	0	3	2	0	1	0	6
	Average Length (cm)	0.0	76.7	84.5	0.0	88.0	0.0	81.2 <sup>A</sup>
<b>Total</b>	Number Sampled	1	17	2	2	1	0	23
	Average Length (cm)	57.0	71.2	84.5	74.0	88.0	0.0	72.7 <sup>A</sup>

<sup>A</sup> Weighted average.

Table 10. Age, sex, and length of chum salmon sampled from Unalakleet River test fishery, 2003.

		Brood Year/Age Class				Total		
		2000	1999	1998	1997			
		0.2	0.3	0.4	0.5			
<b>Sampling Dates:</b> 6/07-7/07								
<b>Sample Size:</b> 94								
<b>Male</b>	Number of Samples	1	50	31	3	85		
	Average Length (cm)	63.0	60.1	61.5	62.5	60.7	<sup>A</sup>	
<b>Female</b>	Number of Samples	0	3	6	0	9		
	Average Length (cm)	0	60.7	61.9	0	61.5	<sup>A</sup>	
<b>Sampling Dates:</b> 7/09-7/29								
<b>Sample Size:</b> 90								
<b>Male</b>	Number of Samples	0	64	9	3	76		
	Average Length (cm)	0	58.5	61.1	59.2	58.8	<sup>A</sup>	
<b>Female</b>	Number of Samples	0	11	2	1	14		
	Average Length (cm)	0	58.3	63.0	66.5	59.6	<sup>A</sup>	
<b>Sampling Dates:</b> 7/30-8/05								
<b>Sample Size:</b> 100								
<b>Male</b>	Number of Samples	0	73	4	3	80		
	Average Length (cm)	0	58.7	61.1	59.3	58.8	<sup>A</sup>	
<b>Female</b>	Number of Samples	0	18	2	0	20		
	Average Length (cm)	0	57.5	60.0	0	57.8	<sup>A</sup>	
<b>Sampling Dates:</b> 8/06-8/29								
<b>Sample Size:</b> 112								
<b>Male</b>	Number of Samples	0	76	4	0	80		
	Average Length (cm)	0	58.1	61.9	0	58.3	<sup>A</sup>	
<b>Female</b>	Number of Samples	1	29	2	0	32		
	Average Length (cm)	58.0	58.7	65.5	0	59.1	<sup>A</sup>	
<b>Sampling Dates:</b> 6/07-8/29								
<b>Sample Size:</b> 396								
		<b>Season Total</b>						
<b>Male</b>	Number of Samples	1	263	48	9	321		
	Average Length (cm)	63.0	<sup>A</sup> 58.7	<sup>A</sup> 61.4	<sup>A</sup> 60.3	<sup>A</sup> 59.2	<sup>A</sup>	
<b>Female</b>	Number of Samples	1	61	12	1	75		
	Average Length (cm)	58.0	<sup>A</sup> 58.4	<sup>A</sup> 62.4	<sup>A</sup> 66.5	<sup>A</sup> 59.1	<sup>A</sup>	

<sup>A</sup> Weighted average.

Table 11. Age, sex, and length of chum salmon sampled from Subdistrict 6 (Unalakleet) commercial harvest, 2003.

		Brood Year/Age Class				Total		
		2000	1999	1998	1997			
		0.2	0.3	0.4	0.5			
<b>Sampling Dates:</b> 8/05-8/12								
<b>Sample Size:</b> 123								
<b>Male</b>	Number of Samples	0	57	4	0	61		
	Average Length (cm)	0	58.1	58.9	0	58.2	<sup>A</sup>	
<b>Female</b>	Number of Samples	0	53	9	0	62		
	Average Length (cm)	0	56.8	59.7	0	57.2	<sup>A</sup>	
<b>Sampling Dates:</b> 8/15-8/29								
<b>Sample Size:</b> 112								
<b>Male</b>	Number of Samples	0	44	2	0	46		
	Average Length (cm)	0	57.6	65.2	0	57.9	<sup>A</sup>	
<b>Female</b>	Number of Samples	0	65	1	0	66		
	Average Length (cm)	0	55.9	56.5	0	55.9	<sup>A</sup>	
<b>Sampling Dates:</b> 8/05-8/29								
<b>Sample Size:</b> 235								
		<b>Season Total</b>						
<b>Male</b>	Number of Samples	0	101	6	0	107		
	Average Length (cm)	0	<sup>A</sup> 57.9	<sup>A</sup> 61.0	<sup>A</sup> 0	<sup>A</sup> 58.1	<sup>A</sup>	
<b>Female</b>	Number of Samples	0	118	10	0	128		
	Average Length (cm)	0	<sup>A</sup> 56.3	<sup>A</sup> 59.4	<sup>A</sup> 0	<sup>A</sup> 56.5	<sup>A</sup>	

<sup>A</sup> Weighted average.

Table 12. Age, sex, and length of chum salmon sampled at Kwiniuk River counting tower, 2003.

		Brood Year/Age Class				Total	
		2000	1999	1998	1997		
		0.2	0.3	0.4	0.5		
<b>Sampling Dates:</b> 6/25-7/02							
<b>Sample Size:</b> 118							
<b>Male</b>	Number of Samples	0	15	40	1	56	
	Average Length (cm)	0	59.4	61.8	58.5	61.1	<sup>A</sup>
<b>Female</b>	Number of Samples	0	14	48	0	62	
	Average Length (cm)	0	55.7	58.6	0	57.9	<sup>A</sup>
<b>Sampling Dates:</b> 7/04-7/07							
<b>Sample Size:</b> 112							
<b>Male</b>	Number of Samples	0	11	42	0	53	
	Average Length (cm)	0	57.4	61.5	0	60.7	<sup>A</sup>
<b>Female</b>	Number of Samples	1	19	39	0	59	
	Average Length (cm)	53.0	55.5	58.0	0	57.1	<sup>A</sup>
<b>Sampling Dates:</b> 7/09-7/14							
<b>Sample Size:</b> 111							
<b>Male</b>	Number of Samples	0	19	29	1	49	
	Average Length (cm)	0	58.7	62.6	66.5	61.2	<sup>A</sup>
<b>Female</b>	Number of Samples	0	23	39	0	62	
	Average Length (cm)	0	56.3	59.7	0	58.4	<sup>A</sup>
<b>Sampling Dates:</b> 7/15-7/24							
<b>Sample Size:</b> 132							
<b>Male</b>	Number of Samples	2	27	32	1	62	
	Average Length (cm)	54.5	56.3	61.1	65.0	58.9	<sup>A</sup>
<b>Female</b>	Number of Samples	1	34	35	0	70	
	Average Length (cm)	56.5	53.9	56.5	0	55.2	<sup>A</sup>
<b>Sampling Dates:</b> 6/25-7/24							
<b>Sample Size:</b> 473							
		Season Total					
<b>Male</b>	Number of Samples	2	72	143	3	220	
	Average Length (cm)	54.5	<sup>A</sup> 57.7	<sup>A</sup> 61.7	<sup>A</sup> 63.3	<sup>A</sup> 60.4	<sup>A</sup>
<b>Female</b>	Number of Samples	2	90	161	0	253	
	Average Length (cm)	54.8	<sup>A</sup> 55.1	<sup>A</sup> 58.3	<sup>A</sup> 0	<sup>A</sup> 57.1	<sup>A</sup>

<sup>A</sup> Weighted average.

Table 13. Age, sex, and length of chum salmon sampled at Nome River weir, 2003.

		Brood Year/Age Class				Total		
		2000	1999	1998	1997			
		0.2	0.3	0.4	0.5			
<b>Sampling Dates:</b> 7/07-7/17								
<b>Sample Size:</b> 64								
<b>Male</b>	Number of Samples	0	29	6	3	38		
	Average Length (cm)	0	59.1	58.1	59.0	58.9	<sup>A</sup>	
<b>Female</b>	Number of Samples	0	19	7	0	26		
	Average Length (cm)	0	57.3	57.4	0	57.3	<sup>A</sup>	
<b>Sampling Dates:</b> 7/19-7/25								
<b>Sample Size:</b> 35								
<b>Male</b>	Number of Samples	0	14	2	0	16		
	Average Length (cm)	0	56.4	64.0	0	57.4	<sup>A</sup>	
<b>Female</b>	Number of Samples	0	16	3	0	19		
	Average Length (cm)	0	56.2	59.2	0	56.7	<sup>A</sup>	
<b>Sampling Dates:</b> 7/26-8/23								
<b>Sample Size:</b> 59								
<b>Male</b>	Number of Samples	0	28	4	0	32		
	Average Length (cm)	0	59.1	61.6	0	59.4	<sup>A</sup>	
<b>Female</b>	Number of Samples	0	25	2	0	27		
	Average Length (cm)	0	55.4	58.0	0	55.6	<sup>A</sup>	
<b>Sampling Dates:</b> 7/07-8/23								
<b>Sample Size:</b> 158								
		<b>Season Total</b>						
<b>Male</b>	Number of Samples	0	71	12	3	86		
	Average Length (cm)	0	<sup>A</sup> 58.6	<sup>A</sup> 60.3	<sup>A</sup> 59.0	<sup>A</sup> 58.8	<sup>A</sup>	
<b>Female</b>	Number of Samples	0	60	12	0	72		
	Average Length (cm)	0	<sup>A</sup> 56.2	<sup>A</sup> 58.0	<sup>A</sup> 0.0	<sup>A</sup> 56.5	<sup>A</sup>	

<sup>A</sup> Weighted average.

Table 14. Age, sex, and length of chum salmon sampled at Niukluk River counting tower, 2003.

		Brood Year/Age Class					Total
		2000	1999	1998	1997	1996	
		0.2	0.3	0.4	0.5	0.6	
<b>Sampling Dates:</b> 7/05-7/12							
<b>Sample Size:</b> 111							
<b>Male</b>	Number of Samples	0	20	46	0	1	67
	Average Length (cm)	0	58.0	62.4	0	62.5	61.1 <sup>A</sup>
<b>Female</b>	Number of Samples	0	14	28	2	0	44
	Average Length (cm)	0	55.7	56.9	59.5	0	56.6 <sup>A</sup>
<b>Sampling Dates:</b> 7/13							
<b>Sample Size:</b> 195							
<b>Male</b>	Number of Samples	1	68	50	0	0	119
	Average Length (cm)	58.8	58.4	61.5	0	0	59.2 <sup>A</sup>
<b>Female</b>	Number of Samples	0	43	33	0	0	76
	Average Length (cm)	0	54.2	57.4	0	0	55.6 <sup>A</sup>
<b>Sampling Dates:</b> 7/22-8/01							
<b>Sample Size:</b> 111							
<b>Male</b>	Number of Samples	0	34	23	1	0	58
	Average Length (cm)	0	58.7	60.8	52.8	0	59.4 <sup>A</sup>
<b>Female</b>	Number of Samples	0	33	19	1	0	53
	Average Length (cm)	0	54.7	55.6	55.5	0	55.0 <sup>A</sup>
<b>Sampling Dates:</b> 7/05-8/01							
<b>Sample Size:</b> 417							
		<b>Season Total</b>					
<b>Male</b>	Number of Samples	1	122	119	1	1	244
	Average Length (cm)	58.8 <sup>A</sup>	58.4 <sup>A</sup>	61.7 <sup>A</sup>	52.8 <sup>A</sup>	62.5 <sup>A</sup>	59.8 <sup>A</sup>
<b>Female</b>	Number of Samples	0	90	80	3	0	173
	Average Length (cm)	0.0 <sup>A</sup>	54.6 <sup>A</sup>	56.8 <sup>A</sup>	58.2 <sup>A</sup>	0.0 <sup>A</sup>	55.7 <sup>A</sup>

<sup>A</sup> Weighted average.

Table 15. Age, sex, and length of chum salmon sampled at Snake River weir, 2003.

		Brood Year/Age Class				Total
		2000	1999	1998	1997	
		0.2	0.3	0.4	0.5	
<b>Sampling Dates:</b>	7/07-7/09					
<b>Sample Size:</b>	42					
<b>Male</b>	Number of Samples	0	15	11	1	27
	Average Length (cm)	0	61.1	65.1	66.1	62.9
<b>Female</b>	Number of Samples	0	7	3	5	15
	Average Length (cm)	0	58.5	57.9	61.4	59.3
<b>Sampling Dates:</b>	7/11-7/16					
<b>Sample Size:</b>	64					
<b>Male</b>	Number of Samples	0	29	9	0	38
	Average Length (cm)	0	61.1	64.5	0	61.9
<b>Female</b>	Number of Samples	0	16	9	1	26
	Average Length (cm)	0	57.7	58.1	61.7	58.0
<b>Sampling Dates:</b>	7/23-9/06					
<b>Sample Size:</b>	66					
<b>Male</b>	Number of Samples	0	26	1	1	28
	Average Length (cm)	0	57.4	71.2	76	58.6
<b>Female</b>	Number of Samples	0	33	5	0	38
	Average Length (cm)	0	55.2	58.6	0	55.6
<b>Sampling Dates:</b>	7/05-9/06	<b>Season Total</b>				
<b>Sample Size:</b>	172					
<b>Male</b>	Number of Samples	0	70	21	2	93
	Average Length (cm)	0 <sup>A</sup>	59.7 <sup>A</sup>	65.1 <sup>A</sup>	71.1 <sup>A</sup>	61.2
<b>Female</b>	Number of Samples	0	56	17	6	79
	Average Length (cm)	0 <sup>A</sup>	56.3 <sup>A</sup>	58.2 <sup>A</sup>	61.5 <sup>A</sup>	57.1

<sup>A</sup> Weighted average.

Table 16. Age, sex, and length of chum salmon sampled at Eldorado River weir, 2003.

		Brood Year/Age Class				Total		
		2000	1999	1998	1997			
		0.2	0.3	0.4	0.5			
<b>Sampling Dates:</b>	7/05-7/06							
<b>Sample Size:</b>	116							
<b>Male</b>	Number of Samples	0	38	37	1	76		
	Average Length (cm)	0	59.5	62.2	64.0	60.9	<sup>A</sup>	
<b>Female</b>	Number of Samples	0	14	25	1	40		
	Average Length (cm)	0	57.1	77.4	56.3	69.8	<sup>A</sup>	
<b>Sampling Dates:</b>	7/11							
<b>Sample Size:</b>	110							
<b>Male</b>	Number of Samples	0	32	41	0	73		
	Average Length (cm)	0	60.3	61.5	0	61.0	<sup>A</sup>	
<b>Female</b>	Number of Samples	0	20	17	0	37		
	Average Length (cm)	0	56.4	58.3	0	57.3	<sup>A</sup>	
<b>Sampling Dates:</b>	7/17-7/24							
<b>Sample Size:</b>	75							
<b>Male</b>	Number of Samples	0	29	11	0	40		
	Average Length (cm)	0	57.1	59.2	0	57.7	<sup>A</sup>	
<b>Female</b>	Number of Samples	0	29	6	0	35		
	Average Length (cm)	0	54.2	55.1	0	54.4	<sup>A</sup>	
<b>Sampling Dates:</b>	7/05-7/24	<b>Season Total</b>						
<b>Sample Size:</b>	301							
<b>Male</b>	Number of Samples	0	99	89	1	189		
	Average Length (cm)	0	<sup>A</sup> 59.1	<sup>A</sup> 61.5	<sup>A</sup> 64.0	<sup>A</sup> 60.2	<sup>A</sup>	
<b>Female</b>	Number of Samples	0	63	48	1	112		
	Average Length (cm)	0	<sup>A</sup> 55.5	<sup>A</sup> 67.8	<sup>A</sup> 56.3	<sup>A</sup> 60.8	<sup>A</sup>	

<sup>A</sup> Weighted average.

Table 17. Age, sex, and length of chum salmon sampled at Pilgrim River weir, 2003.

		Brood Year/Age Class				Total		
		2000	1999	1998	1997			
		0.2	0.3	0.4	0.5			
<b>Sampling Dates:</b> 7/3-7/17								
<b>Sample Size:</b> 78								
<b>Male</b>	Number of Samples	0	9	30	1	40		
	Average Length (cm)	0	59.3	63.6	59.0	62.5	<sup>A</sup>	
<b>Female</b>	Number of Samples	0	7	31	0	38		
	Average Length (cm)	0	56.1	57.7	0	57.4	<sup>A</sup>	
<b>Sampling Dates:</b> 7/18-8/02								
<b>Sample Size:</b> 83								
<b>Male</b>	Number of Samples	0	30	17	0	47		
	Average Length (cm)	0	60.5	63.2	0	61.5	<sup>A</sup>	
<b>Female</b>	Number of Samples	0	17	18	1	36		
	Average Length (cm)	0	53.3	55.4	51.5	54.3	<sup>A</sup>	
<b>Sampling Dates:</b> 8/6-8/29								
<b>Sample Size:</b> 74								
<b>Male</b>	Number of Samples	0	29	12	0	41		
	Average Length (cm)	0	58.6	64.5	0	60.3	<sup>A</sup>	
<b>Female</b>	Number of Samples	0	27	4	2	33		
	Average Length (cm)	0	52.1	52.1	55.5	52.3	<sup>A</sup>	
<b>Sampling Dates:</b> 7/3-8/29								
<b>Sample Size:</b> 235								
		<b>Season Total</b>						
<b>Male</b>	Number of Samples	0	68	60	1	128		
	Average Length (cm)	0	<sup>A</sup> 59.5	<sup>A</sup> 61.3	<sup>A</sup> 59.0	<sup>A</sup> 60.8	<sup>A</sup>	
<b>Female</b>	Number of Samples	0	51	53	3	107		
	Average Length (cm)	0	<sup>A</sup> 53.0	<sup>A</sup> 56.5	<sup>A</sup> 54.2	<sup>A</sup> 54.8	<sup>A</sup>	

<sup>A</sup> Weighted average.

Table 18. Age, sex, and length of chum salmon sampled from Pikmiktalik River, 2003.

		Brood Year/Age Class			Total	
		1999	1998	1997		
		0.3	0.4	0.5		
<b>Sampling Dates:</b> 6/27-7/06						
<b>Sample Size:</b> 105						
<b>Male</b>	Number of Samples	36	14	0	50	
	Average Length (cm)	59.2	60.7	0	59.6	<sup>A</sup>
<b>Female</b>	Number of Samples	42	13	0	55	
	Average Length (cm)	55.8	57.5	0	56.2	<sup>A</sup>
<b>Sampling Dates:</b> 7/07-7/16						
<b>Sample Size:</b> 117						
<b>Male</b>	Number of Samples	47	9	0	56	
	Average Length (cm)	59.6	60.3	0	59.7	<sup>A</sup>
<b>Female</b>	Number of Samples	49	12	0	61	
	Average Length (cm)	55.6	57.7	0	56.0	<sup>A</sup>
<b>Sampling Dates:</b> 7/17-8/04						
<b>Sample Size:</b> 115						
<b>Male</b>	Number of Samples	52	6	1	59	
	Average Length (cm)	58.2	61.5	61.0	58.6	<sup>A</sup>
<b>Female</b>	Number of Samples	53	3	0	56	
	Average Length (cm)	55.9	55.7	0	55.9	<sup>A</sup>
<b>Sampling Dates:</b> 6/27-8/04						
<b>Sample Size:</b> 337						
<b>Male</b>	Number of Samples	135	29	1	165	
	Average Length (cm)	59.0	<sup>A</sup> 60.7	<sup>A</sup> 61.0	59.3	<sup>A</sup>
<b>Female</b>	Number of Samples	144	28	0	172	
	Average Length (cm)	55.8	<sup>A</sup> 57.4	<sup>A</sup> 0.0	56.0	<sup>A</sup>

<sup>A</sup> Weighted average.

Table 19. Age, sex, and length of coho salmon sampled from Unalakleet River test fishery, 2003.

		Brood Year/Age Class				
		2000	1999	1998		
		1.1	2.1	3.1	Total	
<b>Sampling Dates:</b>	7/28-8/16					
<b>Sample Size:</b>	68					
<b>Male</b>	Number of Samples	4	31	3	38	
	Average Length (cm)	57.7	59.2	58.8	59.0	<sup>A</sup>
<b>Female</b>	Number of Samples	2	24	4	30	
	Average Length (cm)	59.0	60.2	60.0	60.1	<sup>A</sup>
<b>Sampling Dates:</b>	8/18-8/25					
<b>Sample Size:</b>	71					
<b>Male</b>	Number of Samples	10	23	1	34	
	Average Length (cm)	60.8	59.2	51.5	59.4	<sup>A</sup>
<b>Female</b>	Number of Samples	6	28	3	37	
	Average Length (cm)	61.0	60.0	57.7	60.0	<sup>A</sup>
<b>Sampling Dates:</b>	8/26-9/07					
<b>Sample Size:</b>	74					
<b>Male</b>	Number of Samples	3	24	2	29	
	Average Length (cm)	61.3	60.8	59.5	60.8	<sup>A</sup>
<b>Female</b>	Number of Samples	8	37	0	45	
	Average Length (cm)	62.1	61.2	0	61.4	<sup>A</sup>
<b>Sampling Dates:</b>	7/28-9/07					
<b>Sample Size:</b>	213					
<b>Male</b>	Number of Samples	17	78	6	101	
	Average Length (cm)	60.2	<sup>A</sup> 59.7	<sup>A</sup> 57.8	<sup>A</sup> 59.7	<sup>A</sup>
<b>Female</b>	Number of Samples	16	89	7	112	
	Average Length (cm)	61.3	<sup>A</sup> 60.6	<sup>A</sup> 59.0	<sup>A</sup> 60.6	<sup>A</sup>

<sup>A</sup> Weighted average.

Table 20. Age, sex, and length of coho salmon sampled from Subdistrict 6 commercial harvest, 2003.

		Brood Year/Age Class			Total	
		2000	1999	1998		
		1.1	2.1	3.1		
<b>Sampling Dates:</b> 8/01-8/08						
<b>Sample Size:</b> 176						
<b>Male</b>	Number of Samples	4	69	11	84	
	Average Length (cm)	59.2	58.6	59.3	58.7	<sup>A</sup>
<b>Female</b>	Number of Samples	4	76	12	92	
	Average Length (cm)	58.6	58.1	59.2	58.3	<sup>A</sup>
<b>Sampling Dates:</b> 8/12-8/19						
<b>Sample Size:</b> 182						
<b>Male</b>	Number of Samples	9	53	8	70	
	Average Length (cm)	57.4	59.0	58.7	58.8	<sup>A</sup>
<b>Female</b>	Number of Samples	8	94	10	112	
	Average Length (cm)	58.3	58.1	57.7	58.1	<sup>A</sup>
<b>Sampling Dates:</b> 8/20-8/29						
<b>Sample Size:</b> 201						
<b>Male</b>	Number of Samples	15	69	5	89	
	Average Length (cm)	59.3	61.4	60.7	61.0	<sup>A</sup>
<b>Female</b>	Number of Samples	15	84	13	112	
	Average Length (cm)	61.5	60.3	60.1	60.4	<sup>A</sup>
<b>Sampling Dates:</b> 9/03-9/05						
<b>Sample Size:</b> 128						
<b>Male</b>	Number of Samples	11	47	3	61	
	Average Length (cm)	60.4	61.4	60.2	61.2	<sup>A</sup>
<b>Female</b>	Number of Samples	13	51	3	67	
	Average Length (cm)	61.8	59.8	63.0	60.3	<sup>A</sup>
<b>Sampling Dates:</b> 8/01-9/05						
<b>Sample Size:</b> 687						
		<b>Season Total</b>				
<b>Male</b>	Number of Samples	39	238	27	304	
	Average Length (cm)	59.2	<sup>A</sup> 60.1	<sup>A</sup> 59.5	<sup>A</sup> 59.9	<sup>A</sup>
<b>Female</b>	Number of Samples	40	305	38	383	
	Average Length (cm)	60.7	<sup>A</sup> 59.0	<sup>A</sup> 59.4	<sup>A</sup> 59.2	<sup>A</sup>

<sup>A</sup> Weighted average.

Table 21. Age, sex, and length of coho salmon sampled at Kwiniuk River counting tower, 2003.

		Brood Year/Age Class				
		2000	1999	1998	Total	
<b>Sampling Dates:</b> 7/21-8/14		1.1	2.1	3.1		
<b>Sample Size:</b> 126						
<b>Male</b>	Number of Samples	18	46	10	74	
	Average Length (cm)	60.0	58.4	59.5	58.9	<sup>A</sup>
<b>Female</b>	Number of Samples	8	31	13	52	
	Average Length (cm)	58.3	59.8	59.1	59.4	<sup>A</sup>
<b>Sampling Dates:</b> 8/16-8/28						
<b>Sample Size:</b> 140						
<b>Male</b>	Number of Samples	22	45	4	71	
	Average Length (cm)	56.7	59.4	57.9	58.5	<sup>A</sup>
<b>Female</b>	Number of Samples	13	45	11	69	
	Average Length (cm)	60.2	60.8	60.4	60.6	<sup>A</sup>
<b>Sampling Dates:</b> 8/29-9/08						
<b>Sample Size:</b> 118						
<b>Male</b>	Number of Samples	16	27	3	46	
	Average Length (cm)	58.1	60.1	56.7	59.2	<sup>A</sup>
<b>Female</b>	Number of Samples	22	49	1	72	
	Average Length (cm)	60.9	61.1	49.0	60.9	<sup>A</sup>
<b>Sampling Dates:</b> 7/21-9/08		<b>Season Total</b>				
<b>Sample Size:</b> 384						
<b>Male</b>	Number of Samples	56	118	17	191	
	Average Length (cm)	58.2	<sup>B</sup> 59.2	<sup>A</sup> 58.6	58.8	<sup>A</sup>
<b>Female</b>	Number of Samples	43	125	25	193	
	Average Length (cm)	60.2	<sup>A</sup> 60.7	<sup>A</sup> 59.3	60.4	<sup>A</sup>

<sup>A</sup> Weighted average.

Table 22. Age, sex, and length of coho salmon sampled at Nome River weir, 2003.

		Brood Year/Age Class			Total
		2000	1999	1998	
		1.1	2.1	3.1	
<b>Sampling Dates:</b>	8/04-9/07				
<b>Sample Size:</b>	143				
<b>Male</b>	Number of Samples	14	63	2	79
	Average Length (cm)	58.1	60.5	62.2	60.1 <sup>A</sup>
<b>Female</b>	Number of Samples	7	50	7	64
	Average Length (cm)	57.2	58.0	58.5	58.0 <sup>A</sup>

<sup>A</sup> Weighted average.

Table 23. Age, sex, and length of coho salmon sampled at Snake River weir, 2003.

		Brood Year/Age Class				
		2000	1999	1998	Total	
<b>Sampling Dates:</b> 8/04-8/18		1.1	2.1	3.1		
<b>Sample Size:</b> 29						
<b>Male</b>	Number of Samples	0	12	2	14	
	Average Length (cm)	0	59.5	58.9	59.4	<sup>A</sup>
<b>Female</b>	Number of Samples	0	13	2	15	
	Average Length (cm)	0	59.1	55.5	58.6	<sup>A</sup>
<b>Sampling Dates:</b> 8/23-8/26						
<b>Sample Size:</b> 64						
<b>Male</b>	Number of Samples	3	23	3	30	
	Average Length (cm)	58.5	58.6	63.1	57.1	<sup>A</sup>
<b>Female</b>	Number of Samples	3	29	2	34	
	Average Length (cm)	54.3	57.9	52.7	57.3	<sup>A</sup>
<b>Sampling Dates:</b> 8/28-9/07						
<b>Sample Size:</b> 39						
<b>Male</b>	Number of Samples	2	15	1	21	
	Average Length (cm)	57.0	58.9	56.9	50.2	<sup>A</sup>
<b>Female</b>	Number of Samples	1	17	3	18	
	Average Length (cm)	54.8	59.2	62.1	69.6	<sup>A</sup>
<b>Sampling Dates:</b> 8/04-9/07		<b>Season Total</b>				
<b>Sample Size:</b> 132						
<b>Male</b>	Number of Samples	5	50	6	65	
	Average Length (cm)	57.9	<sup>A</sup> 58.9	<sup>A</sup> 60.7	55.4	<sup>A</sup>
<b>Female</b>	Number of Samples	4	59	7	67	
	Average Length (cm)	54.4	<sup>A</sup> 58.5	<sup>A</sup> 57.5	60.9	<sup>A</sup>

<sup>A</sup> Weighted average.

Table 24. Age, sex, and length of chum salmon sampled from Kotzebue District commercial fishery, 2003.

		Brood Year/Age Class						Total
		2000	1999	1998	1997	1996	1997	
		0.2	0.3	0.4	0.5	0.6	0.7	
<b>Sampling Dates:</b>	<b>7/22-7/25</b>							
<b>Sample Size:</b>	<b>268</b>							
<b>Male</b>	Number of Samples	1	51	59	29	6	1	147
	Average Length (cm)	58.5	61.3	63.6	65.0	66.0	61.0	63.1 <sup>A</sup>
<b>Female</b>	Number of Samples	0	31	61	25	3	1	121
	Average Length (cm)	0	60.2	61.9	63.4	60.7	69.5	61.8 <sup>A</sup>
<b>Sampling Dates:</b>	<b>7/29-7/31</b>							
<b>Sample Size:</b>	<b>193</b>							
<b>Male</b>	Number of Samples	0	53	30	2	0	0	85
	Average Length (cm)	0	61.7	65.3	65.4	0	0	63.1 <sup>A</sup>
<b>Female</b>	Number of Samples	1	59	41	7	0	0	108
	Average Length (cm)	55.5	59.1	61.9	64.3	0	0	60.5 <sup>A</sup>
<b>Sampling Dates:</b>	<b>8/12</b>							
<b>Sample Size:</b>	<b>194</b>							
<b>Male</b>	Number of Samples	2	86	20	1	0	0	109
	Average Length (cm)	55.5	61.6	64.1	61.5	0	0	61.9 <sup>A</sup>
<b>Female</b>	Number of Samples	0	59	23	3	0	0	85
	Average Length (cm)	0	59.3	61.8	63.5	0	0	60.1 <sup>A</sup>
<b>Sampling Dates:</b>	<b>8/18-8/19</b>							
<b>Sample Size:</b>	<b>314</b>							
<b>Male</b>	Number of Samples	2	113	17	1	0	0	133
	Average Length (cm)	55.5	59.1	62.7	65.0	0	0	59.6 <sup>A</sup>
<b>Female</b>	Number of Samples	0	152	23	6	0	0	181
	Average Length (cm)	0	58.0	59.4	62.0	0	0	58.3 <sup>A</sup>
<b>Sampling Dates:</b>	<b>7/22-8/19</b>							
<b>Sample Size:</b>	<b>969</b>							
		<b>Season Total</b>						
<b>Male</b>	Number of Samples	5	303	126	33	6	1	467
	Average Length (cm)	56.1 <sup>A</sup>	60.6 <sup>A</sup>	64.0 <sup>A</sup>	64.9 <sup>A</sup>	66.0 <sup>A</sup>	61.0 <sup>A</sup>	62.8 <sup>A</sup>
<b>Female</b>	Number of Samples	1	301	148	41	3	1	491
	Average Length (cm)	55.5 <sup>A</sup>	58.7 <sup>A</sup>	61.5 <sup>A</sup>	63.4 <sup>A</sup>	60.7 <sup>A</sup>	69.5 <sup>A</sup>	60.4 <sup>A</sup>

<sup>A</sup> Weighted average.

Table 25. Age, sex, and length of chum salmon sampled from Noatak River test fishery, 2003.

		Brood Year/Age Class					
		2000	1999	1998	1997	1996	Total
		0.2	0.3	0.4	0.5	0.6	
<b>Sampling Dates:</b>	<b>8/1</b>						
<b>Sample Size:</b>	<b>22</b>						
<b>Male</b>	Number of Samples	0	9	4	1	0	14
	Average Length (cm)	0	59.9	67.1	63.5	0	62.2 <sup>A</sup>
<b>Female</b>	Number of Samples	0	0	7	1	0	8
	Average Length (cm)	0	0.0	63.6	63.5	0	63.6 <sup>A</sup>
<b>Sampling Dates:</b>	<b>8/18</b>						
<b>Sample Size:</b>	<b>27</b>						
<b>Male</b>	Number of Samples	0	4	3	0	0	7
	Average Length (cm)	0	63.4	65.6	0.0	0	64.3 <sup>A</sup>
<b>Female</b>	Number of Samples	0	14	6	0	0	20
	Average Length (cm)	0	59.4	59.7	0.0	0	59.5 <sup>A</sup>
<b>Sampling Dates:</b>	<b>8/1-8/18</b>						
<b>Sample Size:</b>	<b>49</b>						
		<b>Season Total</b>					
<b>Male</b>	Number of Samples	0	13	7	1	0	21
	Average Length (cm)	0	<sup>A</sup> 61.0	<sup>A</sup> 66.5	<sup>A</sup> 63.5	<sup>A</sup> 0	<sup>A</sup> 62.9
<b>Female</b>	Number of Samples	0	14	13	1	0	28
	Average Length (cm)	0	<sup>A</sup> 59.4	<sup>A</sup> 61.8	<sup>A</sup> 63.5	<sup>A</sup> 0	<sup>A</sup> 60.7

<sup>A</sup> Weighted average.

Table 26. Age, sex, and length of chum salmon sampled from Kobuk River test fishery, 2003.

		Brood Year/Age Class				
		2000	1999	1998	1997	Total
		0.2	0.3	0.4	0.5	
<b>Sampling Dates:</b> 7/09-7/25						
<b>Sample Size:</b> 122						
<b>Male</b>	Number of Samples	1	12	16	13	42
	Average Length (cm)	65.0	62.6	66.3	68.0	65.7 <sup>A</sup>
<b>Female</b>	Number of Samples	0.0	21	40	19	81
	Average Length (cm)	0	60.0	62.4	64	61.4 <sup>A</sup>
<b>Sampling Dates:</b> 7/26-8/01						
<b>Sample Size:</b> 157						
<b>Male</b>	Number of Samples	1	17	15	7	40
	Average Length (cm)	57	63.7	64.5	68.5	64.7 <sup>A</sup>
<b>Female</b>	Number of Samples	3	52	44	18	117
	Average Length (cm)	58.3	59.9	61.3	62.3	60.8 <sup>A</sup>
<b>Sampling Dates:</b> 8/02-8/07						
<b>Sample Size:</b> 140						
<b>Male</b>	Number of Samples	0	29	8	4	41
	Average Length (cm)	0	63.6	64.9	66.7	64.2 <sup>A</sup>
<b>Female</b>	Number of Samples	1	65	23	10	99
	Average Length (cm)	56.0	59.8	61.5	61.8	60.4 <sup>A</sup>
<b>Sampling Dates:</b> 8/08-8/13						
<b>Sample Size:</b> 147						
<b>Male</b>	Number of Samples	1	30	10	1	42
	Average Length (cm)	54.5	64	66.5	68.5	64.5 <sup>A</sup>
<b>Female</b>	Number of Samples	2	81	16	6	105
	Average Length (cm)	58.0	59.3	61.9	60.7	59.8 <sup>A</sup>
<b>Sampling Dates:</b> 7/09-8/13						
<b>Sample Size:</b> 566						
		<b>Season Total</b>				
<b>Male</b>	Number of Samples	3	88	49	25	165
	Average Length (cm)	58.8 <sup>A</sup>	63.6 <sup>A</sup>	65.6 <sup>A</sup>	68.0 <sup>A</sup>	64.8 <sup>A</sup>
<b>Female</b>	Number of Samples	6	219	123	53	401
	Average Length (cm)	57.8 <sup>A</sup>	59.7 <sup>A</sup>	61.8 <sup>A</sup>	62.6 <sup>A</sup>	60.7 <sup>A</sup>

<sup>A</sup> Weighted average.

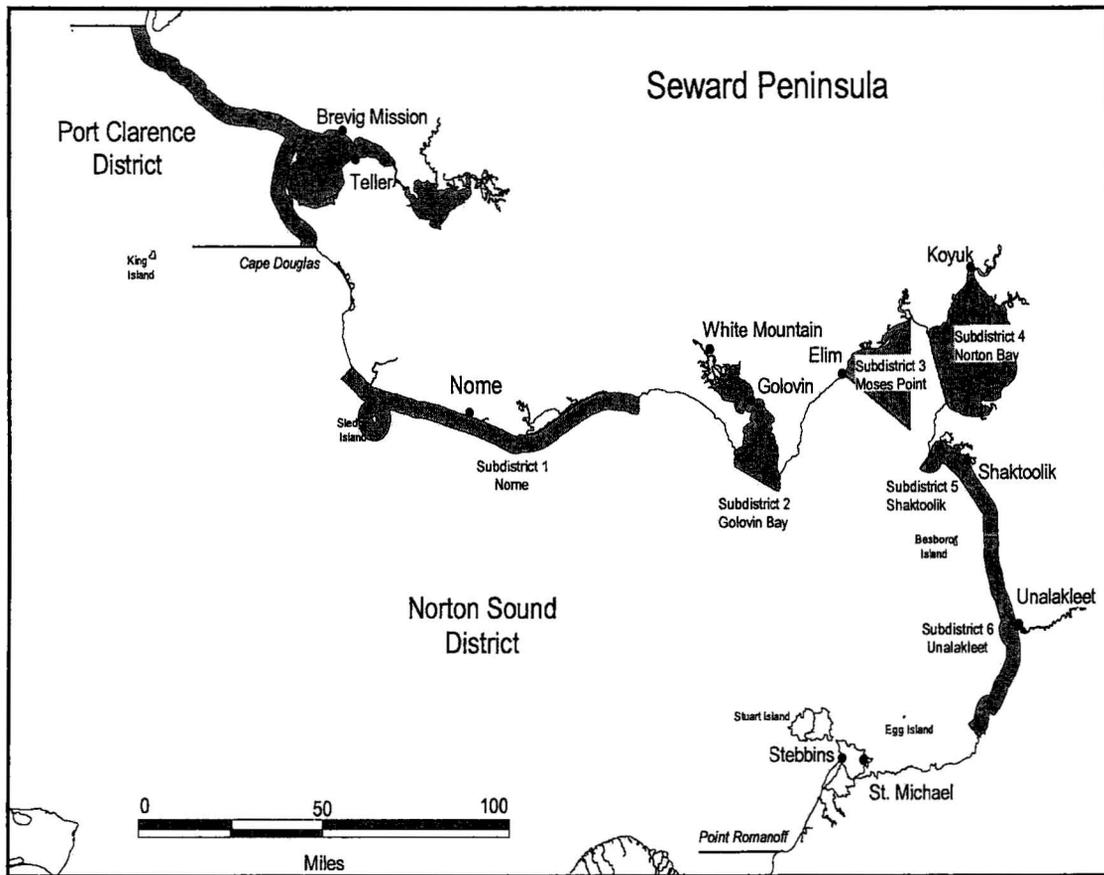


Figure 1. The Norton Sound and Port Clarence commercial salmon fishing districts and subdistricts.

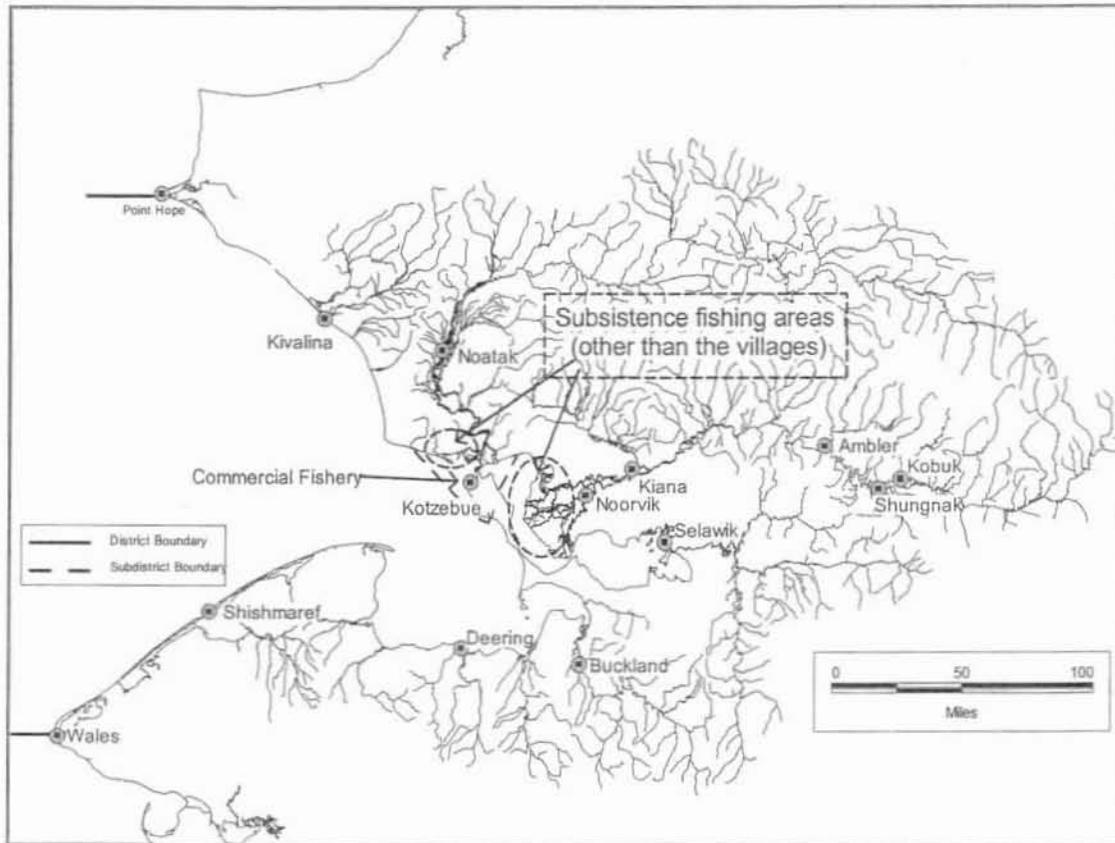


Figure 2. Kotzebue Sound commercial fishing district.

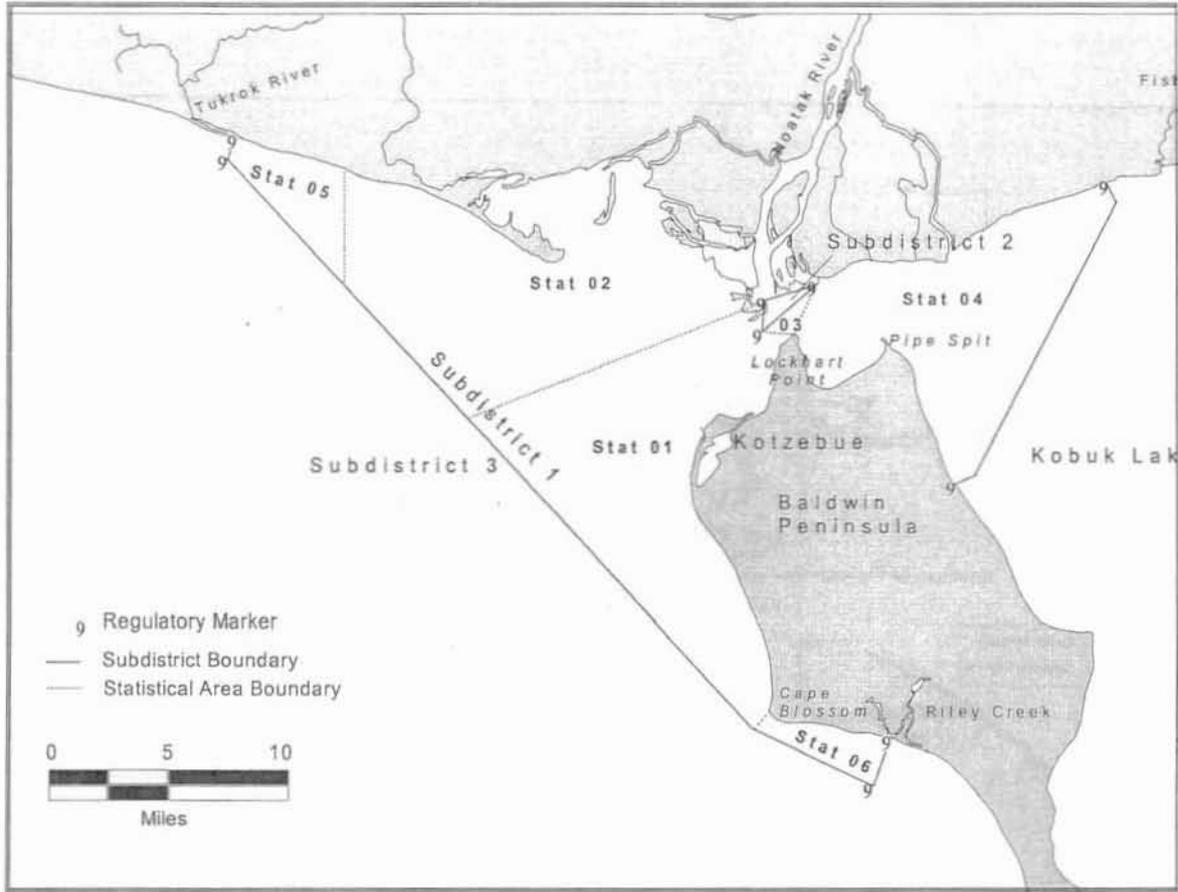


Figure 3. Kotzebue Sound commercial fishing district and subdistricts.

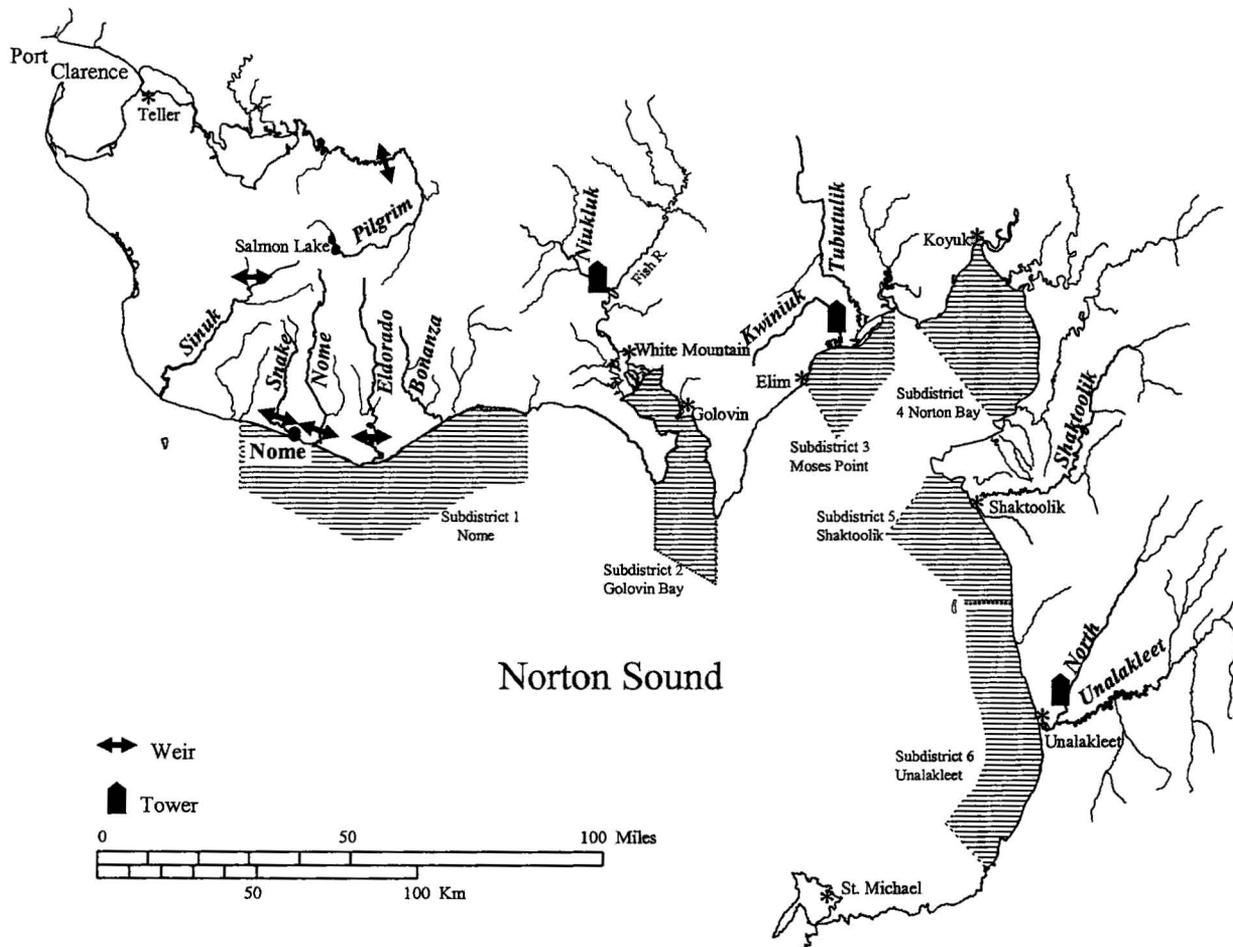


Figure 4. Location of ground based escapement projects in Norton Sound District.

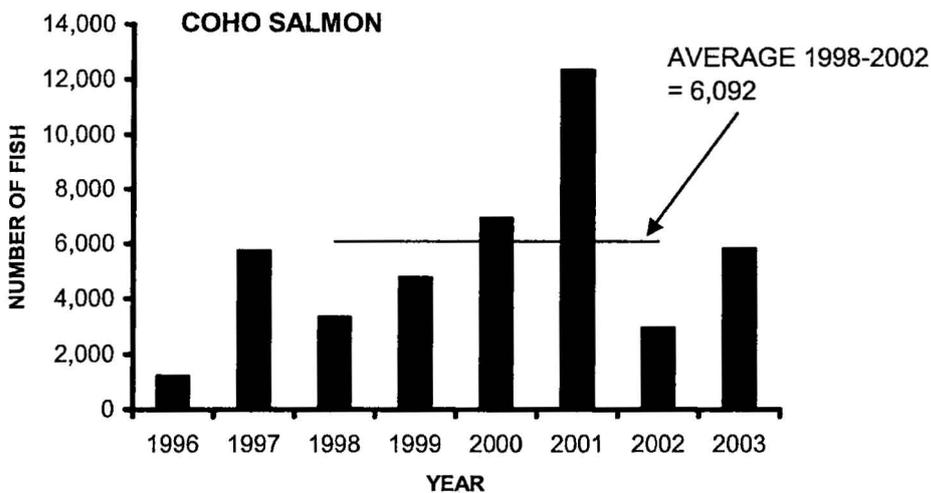
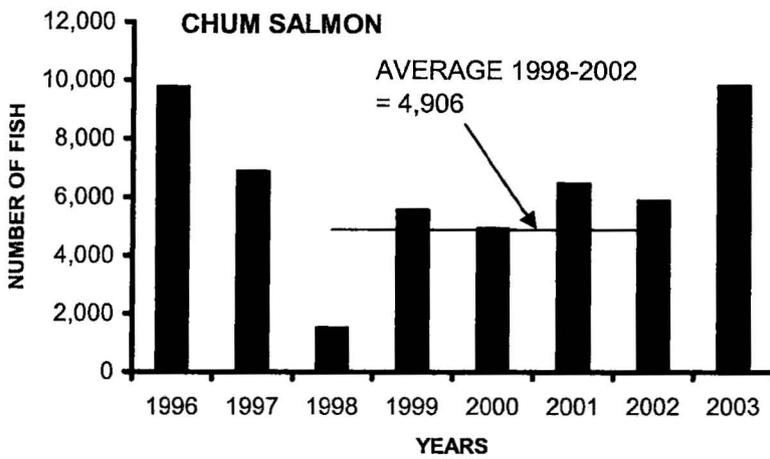
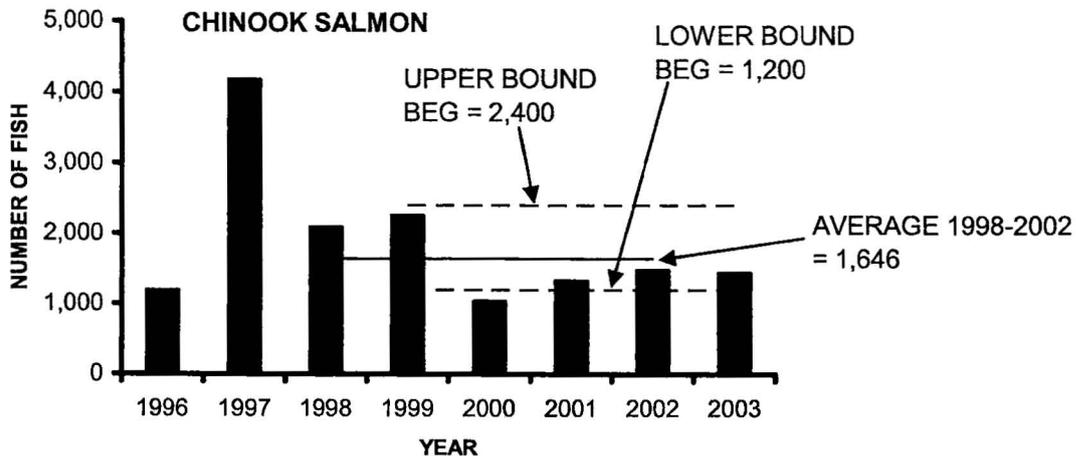


Figure 5. Chinook (top), chum (middle), and coho (bottom) salmon escapements, North River counting tower, 1996-2003. Solid lines indicate most recent (1998-2002) 5-year averages. Dashed lines in chinook salmon graph indicate upper and lower bounds of established BEG.

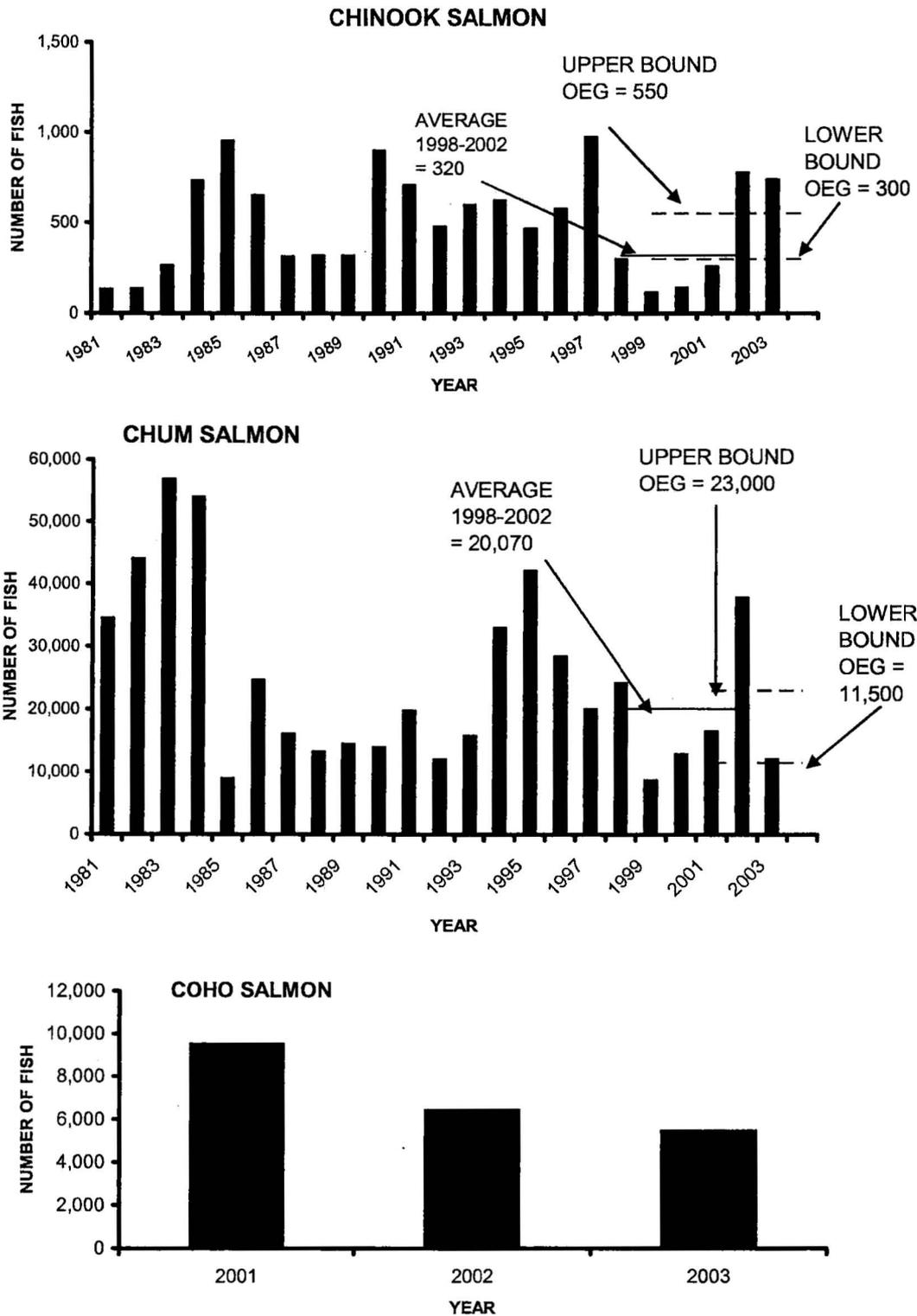


Figure 6. Chinook (top) and chum (middle) salmon escapements, Kwiniuk River counting tower, 1981-2003. Coho salmon (bottom) escapement, 2001-2003. Solid lines in the chinook and chum graphs indicate most recent (1998-2002) 5-year averages. Dashed lines in the chinook and chum salmon graphs indicate upper and lower bound of established OEG.

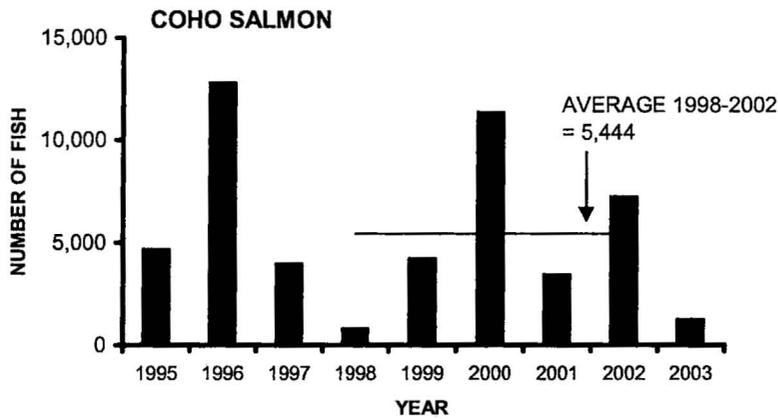
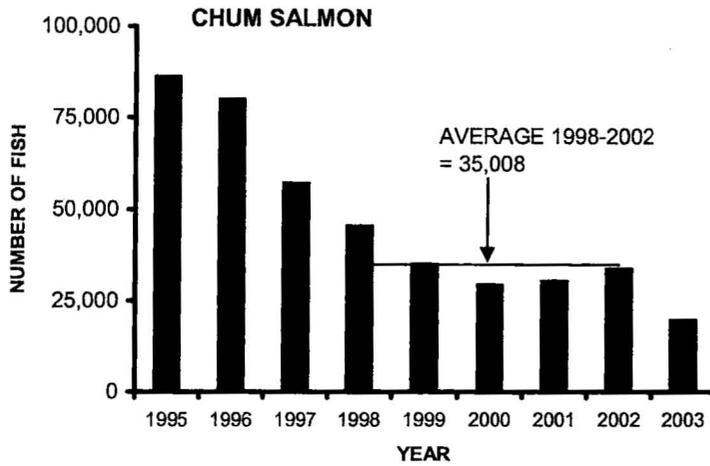
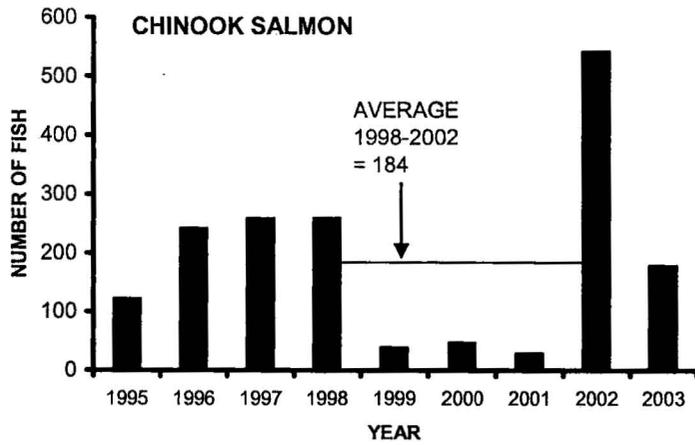


Figure 7. Chinook (top), chum (middle), and coho (bottom) salmon escapements, Niukluk River counting tower, 1995-2003. Solid lines indicate most recent (1998-2002) 5-year averages.

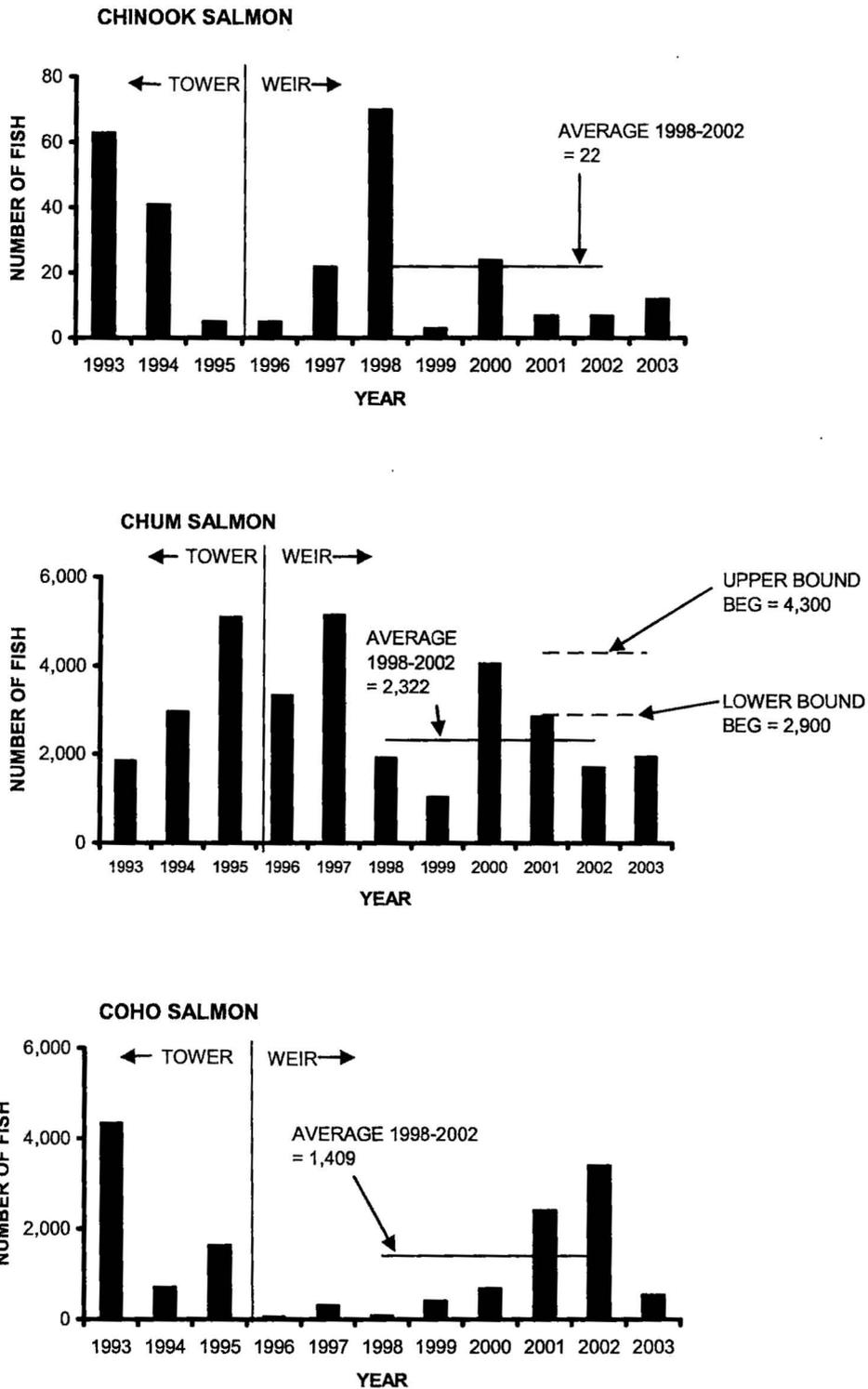


Figure 8. Chinook (top), chum (middle), and coho (bottom) salmon escapements, Nome River escapement project, 1993 – 2003. Solid lines indicate most recent (1998-2002) 5-year averages. Dashed lines in chum salmon graph indicate upper and lower bounds of established BEG. Note the project operated as a counting tower prior to 1996, and as a weir from 1996 to present.

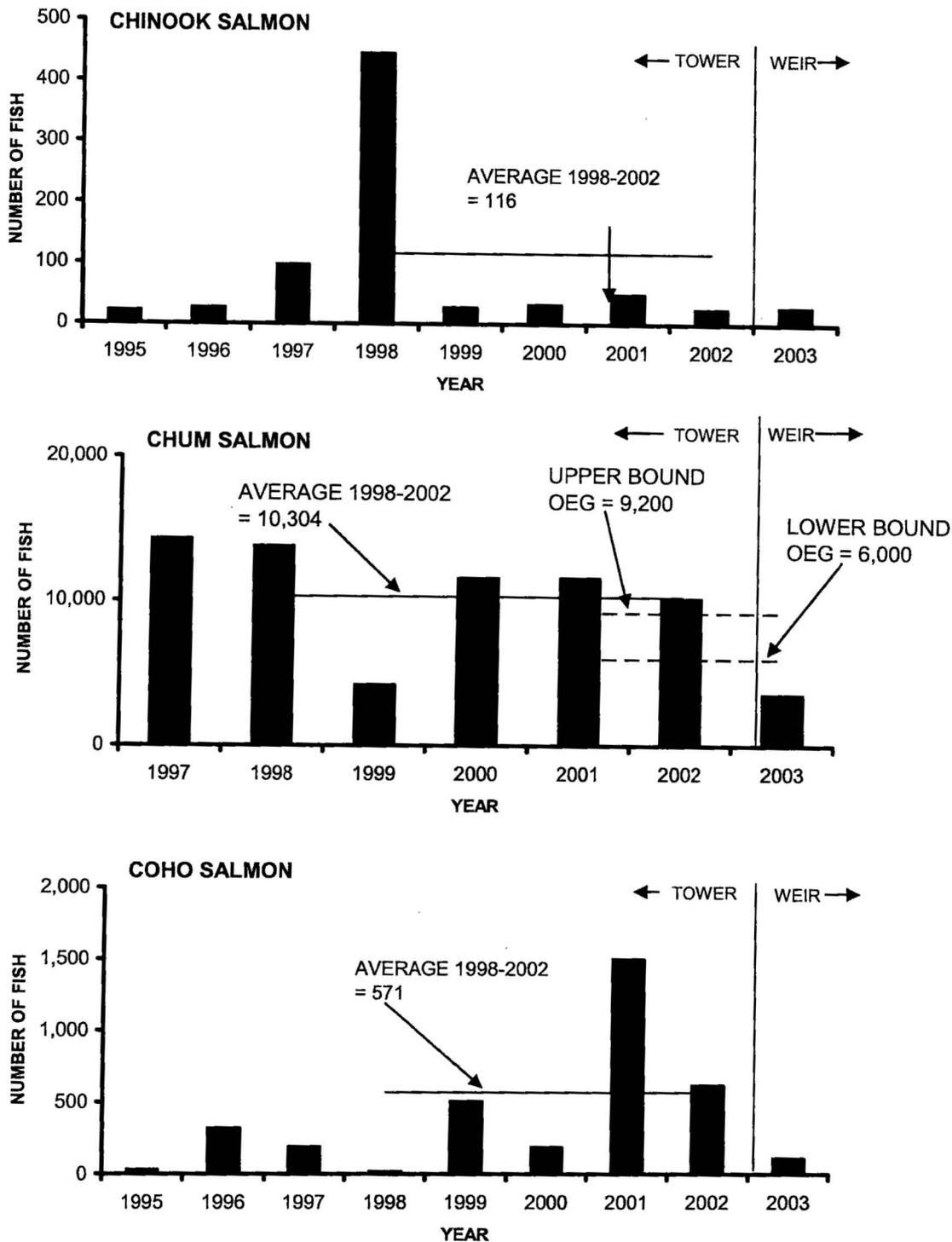


Figure 9. Chinook (top), chum (middle), and coho (bottom) escapements, Eldorado River escapement project, 1995-2003. Solid lines indicate most recent (1998-2002) 5-year averages. Dashed lines in the chum salmon graph indicate upper and lower bounds of the established OEG. Note the project operated as a tower prior to 2002. The project switched to a weir during the 2002 operating season.

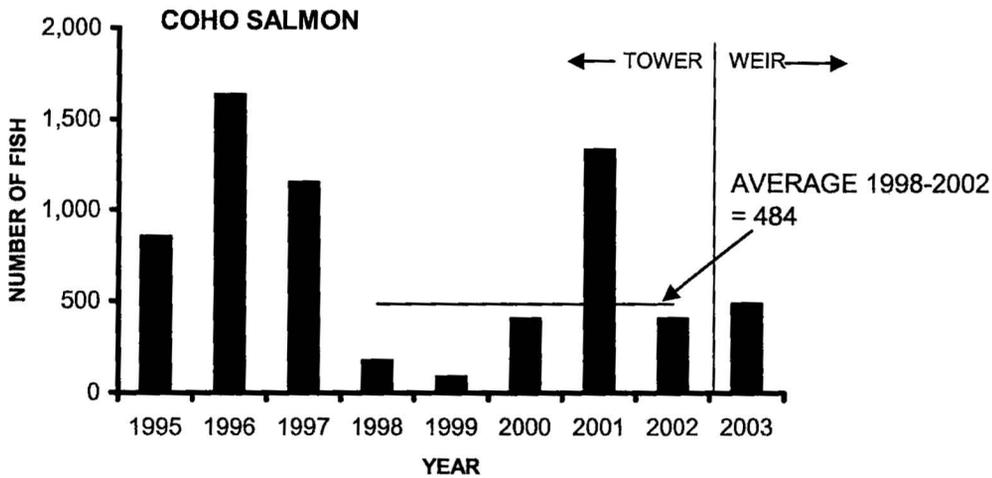
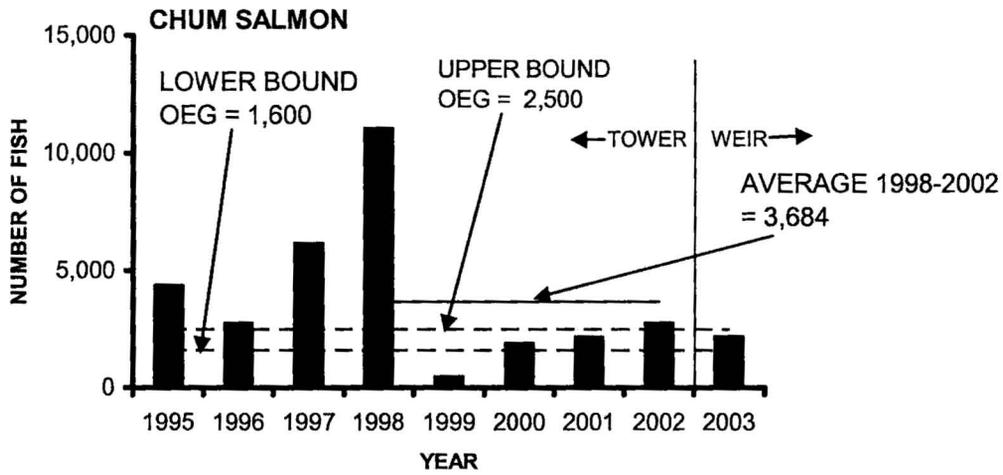


Figure 10. Chum (top) and coho (bottom) salmon escapements, Snake River escapement project, 1995-2003. Solid lines indicate most recent (1998-2002) 5-year averages. Dashed lines in chum salmon graph indicate upper and lower bounds of established OEG. Note project operated as tower until mid operating season 2002 and has operated as a weir since then.

Appendix 1. Commercial salmon catch by species, Norton Sound District, 1961-2003.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1961	5,300	35	13,807	34,327	48,332	101,801
1962	7,286	18	9,156	33,187	182,784	232,431
1963	6,613	71	16,765	55,625	154,789	233,863
1964	2,018	126	98	13,567	148,862	164,671
1965	1,449	30	2,030	220	36,795	40,524
1966	1,553	14	5,755	12,778	80,245	100,345
1967	1,804	-	2,379	28,879	41,756	74,818
1968	1,045	-	6,885	71,179	45,300	124,409
1969	2,392	-	6,836	86,949	82,795	178,972
1970	1,853	-	4,423	64,908	107,034	178,218
1971	2,593	-	3,127	4,895	131,362	141,977
1972	2,938	-	454	45,182	100,920	149,494
1973	1,918	-	9,282	46,499	119,098	176,797
1974	2,951	-	2,092	148,519	162,267	315,829
1975	2,393	2	4,593	32,388	212,485	251,861
1976	2,243	11	6,934	87,916	95,956	193,060
1977	4,500	5	3,690	48,675	200,455	257,325
1978	9,819	12	7,335	325,503	189,279	531,948
1979	10,706	57	31,438	167,411	140,789	350,401
1980	6,311	40	29,842	227,352	180,792	444,337
1981	7,929	56	31,562	232,479	169,708	441,734
1982	5,892	10	91,690	230,281	183,335	511,208
1983	10,308	27	49,735	76,913	319,437	456,420
1984	8,455	6	67,875	119,381	146,442	342,159
1985	19,491	166	21,968	3,647	134,928	180,200
1986	6,395	233	35,600	41,260	146,912	230,400
1987	7,080	207	24,279	2,260	102,457	136,283
1988	4,096	1,252	37,214	74,604	107,966	225,132
1989	5,707	265	44,091	123	42,625	92,811
1990	8,895	434	56,712	501	65,123	131,665
1991	6,068	203	63,647	0	86,871	156,789
1992	4,541	296	105,418	6,284	83,394	199,933
1993	8,972	279	43,283	157,574	53,562	263,670
1994	5,285	80	102,140	982,389	18,290	1,108,184
1995	8,860	128	47,862	81,644	42,898	181,392
1996	4,984	1	68,206	487,441	10,609	571,241
1997	12,573	161	32,284	20	34,103	79,141
1998	7,429	7	29,623	588,013	16,324	641,396
1999	2,508	0	12,662	0	7,881	23,051
2000	752	14	44,409	166,548	6,150	217,873
2001	213	44	19,492	0	11,100	30,849
2002	5	1	1,759	0	600	2,365
2003	12	16	17,058	0	3,560	20,646
<b>5-Yr Avg (1998-2002)</b>	<b>2,181</b>	<b>13</b>	<b>21,589</b>	<b>150,912</b>	<b>8,411</b>	<b>183,107</b>
<b>10-Yr Avg (1993-2002)</b>	<b>5,158</b>	<b>72</b>	<b>40,172</b>	<b>246,363</b>	<b>20,152</b>	<b>311,916</b>

Appendix 2. The number of permit holders participating in the Norton Sound District commercial salmon fishery, 1970-2003.

YEAR	SUBDISTRICT						District <sup>a</sup>
	1	2	3	4	5	6	Totals
1970	6	33	21	0	12	45	<sup>b</sup>
1971	7	22	45	6	19	72	<sup>b</sup>
1972	20	20	48	32	20	71	<sup>b</sup>
1973	21	34	57	30	27	94	<sup>b</sup>
1974	25	25	60	8	23	53	<sup>b</sup>
1975	24	42	67	42	39	61	<sup>b</sup>
1976	21	22	54	27	37	60	<sup>b</sup>
1977	14	25	52	24	30	45	164
1978	16	24	44	26	26	51	176
1979	15	21	41	22	29	63	175
1980	14	17	26	13	26	66	159
1981	15	19	33	10	26	73	167
1982	18	17	28	10	32	68	164
1983	19	21	39	15	34	72	170
1984	8	22	25	8	24	74	141
1985	9	21	34	12	21	64	155
1986	13	24	34	9	30	73	163
1987	10	21	34	12	39	65	164
1988	5	21	36	13	21	69	152
1989	2	0	13	0	26	73	110
1990	0	15	23	0	28	73	128
1991	0	16	24	0	25	75	126
1992	2	1	21	9	25	71	110
1993	1	8	26	15	37	66	153
1994	1	5	21	0	39	71	119
1995	2	7	12	0	26	58	105
1996	1	4	12	0	20	54	86
1997	0	11	21	9	19	57	102
1998	0	16	23	0	28	52	82
1999	0	0	0	0	15	45	60
2000	0	12	13	0	26	49	79
2001	0	5	5	0	13	29	51
2002	0	0	0	0	7	5	12
2003	0	0	0	0	10	20	30
<b>5-YR AVG (1998-2002)</b>	<b>0</b>	<b>7</b>	<b>8</b>	<b>0</b>	<b>18</b>	<b>36</b>	<b>57</b>

<sup>a</sup> District total is the number of fishers that actually fished in Norton Sound; some fishers may have fished more than one subdistrict.

<sup>b</sup> Data not available.

Appendix 3. Exvessel value of the Norton Sound District commercial salmon fishery, 1961 - 2003.

Year	Gross Value of Catch to Fishers	Wages Earned(\$) <sup>a</sup>	License and Tax Revenues to State-License Fees Only (\$)
1961	b	b	2,010
1962	\$105,800	b	16,341
1963	\$104,000	b	18,009
1964	\$51,000	b	11,305
1965	\$21,483	b	5,084
1966	\$68,000	b	4,680
1967	\$44,038	58,000	3,500
1968	\$63,700	b	4,000
1969	\$95,297	72,145	b
1970	\$99,019	55,100	5,595
1971	\$101,000	65,500	5,730
1972	\$102,225	68,700	7,000
1973	\$308,740	81,000	15,400
1974	\$437,127	129,600	20,028
1975	\$413,255	172,800	28,230
1976	\$285,283	b	10,133
1977	\$546,010	b	11,386
1978	\$907,330	b	12,002
1979	\$878,792	b	11,780
1980	\$572,125	b	11,640 <sup>c</sup>
1981	\$761,658	b	11,940
1982	\$1,069,723	b	7,155 <sup>c,d</sup>
1983	\$946,232	b	10,700 <sup>c</sup>
1984	\$738,064	b	9,690 <sup>c</sup>
1985	\$818,477	b	5,820 <sup>c</sup>
1986	\$546,452	b	5,970 <sup>c</sup>
1987	\$517,894	b	5,940 <sup>c</sup>
1988	\$760,641	b	10,050 <sup>c</sup>
1989	\$319,489	b	10,300 <sup>c</sup>
1990	\$474,064	b	10,350 <sup>c</sup>
1991	\$413,479	b	10,250 <sup>c</sup>
1992	\$463,616	b	10,200 <sup>c</sup>
1993	\$368,723	b	8,835 <sup>c</sup>
1994	\$863,060	b	10,000 <sup>c</sup>
1995	\$356,164	b	5,250 <sup>c</sup>
1996	\$292,264	b	4,300 <sup>c</sup>
1997	\$326,618	b	5,100 <sup>c</sup>
1998	\$351,410	b	4,100 <sup>c</sup>
1999	\$82,638	b	b
2000	\$143,621	b	b
2001	\$56,921	b	b
2002	\$2,941	b	b
2003	\$64,473	b	b
<b>5-year average 1998-2002</b>	<b>\$127,506</b>	b	b

<sup>a</sup> Includes wages paid to tender boat operators, processing plant employees in district.

<sup>b</sup> Information not available.

<sup>c</sup> Includes only permit renewals and vessel license fees.

<sup>d</sup> The Alaska state legislature lowered resident permit renewal and vessel license fees to poverty level fees for 1982.

<sup>e</sup> Includes only permit renewal fees.

Appendix 4. Kotzebue District chum salmon catch and dollar value 1962-2003.

Year	Total Catch	Number Permit Holders <sup>a</sup>	Season Catch per Permit Holder	Gross Value of Catch to Permit Holder <sup>b</sup>
1962	129,948	84	1,547	\$4,500
1963	54,445	61	893	\$9,140
1964	76,449	52	1,470	\$34,660
1965	40,025	45	889	\$18,000
1966	30,764	44	699	\$25,000
1967	29,400	30	980	\$28,700
1968	30,212	59	512	\$46,000
1969	59,335	52	1,141	\$71,000
1970	159,664	82	1,947	\$186,000
1971	154,956	91	1,703	\$200,000
1972	169,664	104	1,631	\$260,000
1973	375,432	148	2,537	\$925,000
1974	627,912	185	3,394	\$1,822,784
1975	563,345	267	2,110	\$1,365,648
1976	159,796	220	726	\$580,375
1977	195,895	224	875	\$1,033,950
1978	111,494	208	536	\$575,260
1979	141,623	181	782	\$990,263
1980	367,284	176	2,087	\$1,446,633
1981	677,239	187	3,622	\$3,246,793
1982	417,790	199	2,099	\$1,961,518
1983	175,762	189	930	\$420,736
1984	320,206	181	1,769	\$1,148,884
1985	521,406	189	2,759	\$2,137,368
1986	261,436	187	1,398	\$931,241
1987	109,467	160	684	\$515,000
1988	352,915	193	1,829	\$2,581,333
1989	254,617	165	1,543	\$613,823
1990	163,263	153	1,067	\$438,044
1991	239,923	142	1,690	\$437,948
1992	289,184	149	1,941	\$533,731
1993 <sup>c</sup>	73,071	114	641	\$235,061
1994 <sup>d</sup>	153,452	109	1,408	\$233,512
1995	290,730	92	3,160	\$316,031
1996 <sup>e</sup>	82,110	55	1,493	\$56,310
1997	142,720	68	2,099	\$187,978
1998	55,907	45	1,242	\$70,587
1999	138,605	60	2,310	\$179,781
2000	159,802	64	2,497	\$246,786
2001 <sup>f</sup>	211,672	66	3,207	\$322,650
2002	8,390	3	2,797	\$7,572
2003	25,423	4	6,356	\$26,377
Average	209,203	124	1,674	\$645,015

<sup>a</sup> During 1962-1966 and 1968-1971 figures represent the number of vessels licensed to fish in the Kotzebue District, not the number of fishermen.

<sup>b</sup> Some estimates between 1962 and 1981 include only chum value which in figures represent over 99% of the total value. Figures after 1981 represent the chum value as well as incidental species such as Dolly Varden, whitefish and other salmon.

<sup>c</sup> Includes 2,000 chum salmon and \$3,648 from the Sikusuilaq springs Hatchery terminal fishery.

<sup>d</sup> Includes 4,000 chum salmon commercially caught but not sold on July 29.

<sup>e</sup> Includes 2,200 chum salmon commercially caught but not sold on July 29.

<sup>f</sup> Includes 10 chum salmon commercially caught but not sold on July 16.

Appendix 5. Subsistence salmon harvests by species, Norton Sound District, 1961-2003.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1961	-	-	-	-	-	-
1962	-	-	-	-	-	-
1963	5	-	118	16,607	17,635	34,365
1964	565	-	2,567	9,225	12,486	24,843
1965	574	-	4,812	19,131	30,772	55,289
1966	269	-	2,210	14,335	21,873	38,687
1967	817	-	1,222	17,516	22,724	42,279
1968	237	-	2,391	36,912	11,661	51,201
1969	436	-	2,191	18,562	15,615	36,804
1970	561	-	4,675	26,127	22,763	54,126
1971	1,026	197	4,097	10,863	21,618	37,801
1972	804	93	2,319	14,158	13,873	31,247
1973	392	-	520	14,770	7,185	22,867
1974	420	-	1,064	16,426	3,958	21,868
1975	186	11	192	15,803	8,113	24,305
1976	203	-	1,004	18,048	7,718	26,973
1977	846	-	2,530	14,296	26,607	44,279
1978	1,211	-	2,981	35,281	12,257	51,730
1979	747	-	8,487	25,247	11,975	46,456
1980	1,397	-	8,625	63,778	19,622	93,422
1981	2,021	38	13,416	28,741	32,866	77,082 <sup>a</sup>
1982	1,011	8	14,612	54,249	18,580	88,460 <sup>a</sup>
1983	-	-	-	-	-	- <sup>b</sup>
1984	-	-	-	-	-	- <sup>b</sup>
1985	-	-	-	-	-	- <sup>b</sup>
1986	-	-	-	-	-	- <sup>b</sup>
1987	-	-	-	-	-	- <sup>b</sup>
1988	-	-	-	-	-	- <sup>b</sup>
1989	-	-	-	-	-	- <sup>b</sup>
1990	-	-	-	-	-	- <sup>b</sup>
1991	-	-	-	-	-	- <sup>b</sup>
1992	-	-	-	-	-	- <sup>b</sup>
1993	-	-	-	-	-	- <sup>b</sup>
1994	7,374	1,161	22,124	71,066	25,020	126,745
1995	7,766	1,222	23,015	38,594	43,014	113,611
1996	7,255	1,182	26,304	64,724	34,585	134,050
1997	8,998	1,892	16,476	27,200	26,803	81,370
1998	8,295	1,214	19,007	51,933	20,032	100,480
1999	6,144	1,177	14,342	20,017	19,398	61,078
2000	4,149	682	17,062	38,308	17,283	77,485
2001	5,576	767	14,543	30,253	20,210	71,349
2002	5,469	763	15,086	64,354	17,817	103,489
2003	5,290	801	14,105	49,674	13,913	83,782
<b>5-year avg.</b>	<b>5,927</b>	<b>921</b>	<b>16,008</b>	<b>40,973</b>	<b>18,948</b>	<b>82,776</b>
<b>avg. all yrs</b>	<b>2,578</b>	<b>743</b>	<b>8,551</b>	<b>30,225</b>	<b>19,450</b>	<b>61,163</b>

a These figures also include subsistence estimates data from Stebbins and St. Michael.

b Subsistence surveys not conducted.

Appendix 6. Subsistence salmon harvests, Port Clarence District, 1963 - 2003.

Year	Number of Fishing Families Interviewed	Chinook	Sockeye	Coho	Pink	Chum	Total	
1963	19	9	4,866	25	1,061	1,279	7,240	
1964	22	17	1,475	227	371	1,049	3,139	
1965	29	36	1,804	639	1,854	1,602	5,935	
1966	26	10	1,000	896	859	2,875	5,640	
1967	19	12	2,068	232	767	1,073	4,152	
1968	24	40	688	133	1,906	904	3,671	
1969	13	2	180	27	548	932	1,689	
1970	18	4	588	1,071	1,308	4,231	7,202	
1971	22	31	850	959	1,171	3,769	6,780	
1972	8	4	68	388	75	2,806	3,341	
1973	4	22	46	280	424	1,562	2,334	
1974	13	-	28	62	14	2,663	2,767	
1975	17	-	244	5	743	1,589	2,581	
1976	15	7	291	20	436	6,026	6,780	
1977	<sup>a</sup> 13	-	-	-	-	-	5,910	
1978	26	1	392	-	7,783	705	8,881	
1979	26	-	320	35	741	1,658	2,754	
1980	22	7	3,195	5	3,170	1,715	8,092	
1981	10	8	255	110	765	5,845	6,983	
1982	27	23	405	100	4,345	684	5,557	
1983	<sup>b</sup> 3	17	261	-	615	299	1,192	
1984 - 1988	<sup>c</sup>							
1989	<sup>d</sup> 15	28	535	472	395	410	1,840	
1990 - 1993	<sup>e</sup>							
1994	<sup>e</sup> 127	181	1,979	1,692	3,849	2,042	9,743	
1995	<sup>e</sup> 122	76	4,481	1,739	3,293	6,011	15,600	
1996	<sup>e</sup> 117	195	4,558	2,079	2,587	1,264	10,684	
1997	<sup>e</sup> 126	158	3,177	829	755	2,099	7,019	
1998	<sup>e</sup> 138	287	1,665	1,759	7,812	2,621	14,144	
1999	<sup>e</sup> 155	89	2,392	1,030	786	1,936	6,233	
2000	<sup>e</sup> 134	72	2,851	935	1,387	1,275	6,521	
2001	<sup>e</sup> 160	84	3,692	1,299	1,183	1,910	8,167	
2002	<sup>e</sup> 159	133	3,732	2,194	3,394	2,699	12,152	
2003	<sup>e</sup>	204	176	4,436	1,434	4,108	2,425	12,578

<sup>a</sup> Species composition estimated at 75% chum, 10% pink, 10% sockeye and 5% chinook and coho combined.

<sup>b</sup> Data collected from returned catch calendars. Due to low return of calendars and absence of household surveys, the resultant catches are incomplete and not comparable to past years.

<sup>c</sup> Surveys not conducted.

<sup>d</sup> Survey conducted by Subsistence Division and contacted 15 of 43 households in Brevig Mission.

<sup>e</sup> Harvest estimate from Div. of Subsistence survey.

Appendix 7. Kotzebue Sound District subsistence chum salmon catches by village, 1962-2003.

Year	Village				Kobuk River Villages		Village						District Total	
	Noorvik	Kiana	Ambler	Shungnak	Kobuk	Noatak Village	Kotzebue	Deering	Kivalina	Buckland	Candle	Shishmaref		
1962	15,934	3,139	0	0	2,321	21,394	48,890	0	0	0	0	0	0	70,284
1963	4,304	1,973	755	1,240	200	8,472	16,762	5,835	0	0	0	0	0	31,069
1964	2,167	783	2,142	3,134	1,020	9,246	12,763	7,753	0	0	0	0	0	29,762
1965	5,596	1,598	1,340	2,160	877	11,571	5,671	8,058	5,200	0	0	0	0	30,500
1966	3,141	433	912	899	625	6,010	19,700	3,640	6,238	0	0	0	0	35,588
1967	2,350	1,489	679	1,500	175	6,193	26,512	4,032	3,098	0	162	11	100	40,108
1968	2,424	2,488	457	1,600	1,030	7,999	5,490	4,324	2,838	0	37	89	37	20,814
1969	1,301	2,458	3,525	2,550	1,655	11,489	14,458	1,768	1,897	0	-	200	-	29,812
1970	6,077	3,457	2,899	3,450	600	16,483	4,120	6,814	1,242	0	344	113	-	29,116
1971	7,144	5,177	2,299	2,653	1,931	19,204	9,919	1,737	763	0	155	50	131	31,959
1972	1,744	1,435	1,469	2,665	2,119	9,432	741	1,151	369	0	59	113	29	11,894
1973	2,312	4,470	1,529	4,406	1,917	14,634	216	1,172	1,098	0	1,722	50	100	18,992
1974	6,809	2,726	1,651	6,243	2,251	19,680	4,330	0	1,880	0	639	15	200	26,744
1975	4,620	4,320	3,390	9,060	1,755	23,145	1,515	0	1,175	0	1,540	0	230	27,605
1976	1,555	1,579	2,000	4,213	562	9,909	4,448	0	1,358	0	0	0	0	15,715
1977	891	766	385	1,760	325	4,127	2,125	0	3,500	0	0	0	0	9,752
1978	2,034	1,493	2,224	4,766	852	11,369	1,495	0	0	0	0	50	0	12,914
1979	2,155	1,225	2,400	2,947	651	9,378	2,227	0	2,000	0	1,000	0	0	14,605
1980	2,229	2,551	660	2,704	350	8,494	2,135	0	0	0	0	0	0	10,629
1981	3,488	1,439	782	2,800	950	9,459	5,465	2,387	295	110	50	0	0	17,766
1982	7,433	4,918	2,506	4,191	600	19,648	5,479	4,099	807	210	0	0	0	30,243
1983	277	223	1,062	3,556	368	5,486	4,035	347	219	200	0	0	0	10,287
1984	0	0	2,990	4,241	0	7,231	6,049	88	1,940	200	0	0	0	15,508
1985	7,015	3,494	3,487	3,115	300	17,411	0	13,494	573	0	0	0	0	31,478
1986	8,418	0	0	4,483	0	12,901	1,246	36,311	0	0	0	0	0	50,458
1987	5,092	0	0	1,975	0	7,067	2,921	0	0	0	0	0	0	9,988
1988	7,500	0	0	6,223	0	13,723	0	0	0	0	0	0	0	13,723
1989	0	0	0	3,894	0	3,894	1,595	0	0	0	0	0	0	5,489
1990	4,353	0	0	0	0	4,353	3,915	0	0	0	0	0	0	8,268
1991	6,855	0	0	4,248	0	11,103	3,637	0	0	0	0	0	0	14,740
1992	8,370	0	0	3,890	0	12,260	2,043	0	0	0	0	0	0	14,303

Continued

Appendix 7. Continued (Page 2 of 2)

Year	Village					Kobuk River Villages	Noatak Village	Village					District Total	
	Noorvik	Kiana	Ambler	Shungnak	Kobuk			Kotzebue	Deering	Kivalina	Buckland	Candle		Shishmaref
1993	8,430			3,730		12,160	3,270							15,430
1994	8,157	1,891	2,860	7,982	5,722	26,612	6,126		3,488					36,226
1995	15,485	5,985	8,558	5,880	2,959	38,867	6,359	50,708					6,947	102,881
1996	13,611	5,935	9,062	8,649	1,819	39,076	10,091	50,573						99,740
1997	14,323	3,064	2,713	5,513	629	26,242	5,309	26,355						57,906
1998	9,845	3,414	2,432	4,676	1,031	21,398	2,614	24,968						48,980
1999	17,843	3,788	590	3,868	1,869	27,958	1,616	64,768						94,342
2000	10,391	2,876	5,009	2,944	318	21,538	7,293	37,144						65,975
2001	16,540	5,500		4,310	2,843	29,193	2,326	17,713						49,232
2002	13,943						2,937							16,880
2003	7,982	3,010	1,719	2,860	1,453	17,024	2,177							19,201

<sup>a</sup> No household survey, information is from return of mail questionnaires.

<sup>b</sup> Not surveyed.

<sup>c</sup> Does not include 310 chum salmon taken in Selawik.

<sup>d</sup> Household surveys were conducted in Noatak, Kivalina, and Shungnak only. Other harvest information is from limited return of mail-in calendars.

<sup>e</sup> Household surveys were conducted in Noatak, Kivalina, Ambler, and Deering. Other harvest information is from limited return of mail-in questionnaires.

<sup>f</sup> The Kotzebue Sound communities of Ambler, Kiana, Kobuk, Kotzebue, and Shungnak, though normally included, were not surveyed in 2002.

<sup>g</sup> The community of Kotzebue, though normally included, was not surveyed in 2003.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, household surveys, 2003.

Appendix 8. Comparative salmon escapement indices of Norton Sound streams, 1961-2003.

Year <sup>a</sup>	Sinuk River					Nome River					Flambeau River				
	Chinook	Chum	Pink	Pink & Chum <sup>b</sup>	Coho	Chinook	Chum	Pink	Pink & Chum <sup>b</sup>	Coho	Chinook	Chum	Pink	Pink & Chum <sup>b</sup>	Coho
1961															
1962															
1963						-	126	3719	-	-	-	400	80	-	-
1964															
1965						-	294	-	-	-					
1966															
1967															
1968															
1969															
1970															
1971						-	75	7,765	-	-					
1972						-	710	14,960	-	-					
1973						6	1,760	14,940	-	-					
1974		463	7766	-	-	-	854	17,832	-	-					
1975	-	4,662	5,390	-	-	1	2,161	3,405	-	-	-	190	-	-	-
1976	-										-	197	1505	-	-
1977	-	5,207	1,302	-	-	5	3,046	1,726	-	-	-	375	1,994	-	-
1978	-	8,756	22,435	-	-	2	5,242	34,900	-	-	-	1,275	10	-	-
1979			100								-	7,110	-	-	-
1980	3	2,022	199,000	-	1,002	5	7,745	171,350	-	1,145	-	283	291	-	-
1981	-	5,579	350	-	-	15	1,195	12,565	-	-	-	-	-	29,190	-
1982	-	638	148,800	-	-		700	327,570	-	-	-	12,031	2,710	-	-
1983	48	2,150	10,770	-	96	2	198	9,170	-	365	1	5,097	25,001	-	-
1984	7 <sup>h</sup>	493 <sup>h</sup>	284,400 <sup>h</sup>	-	192	1	2,084 <sup>h</sup>	178,870	-	839	2	1,195	200	-	-
1985	4	1,910	8,860	-	33	7	1,967	2,250	-	242	1	3,150 <sup>h</sup>	20,200 <sup>h</sup>	-	-
1986	4	1,960	28,690	-	-	2	1,150	13,580	-	-	-	3,215	260	-	-
1987	5	4,540	30	-	230	3	1,646	1,400 <sup>h</sup>	-	419	2	3,075	300	-	-
1988	3	2,070	4,652 <sup>i</sup>	-	563	3	973	2,490 <sup>i</sup>	-	1,108 <sup>h</sup>	0	115	0	-	-
1989	-	1,025	31,310	-	75	2	72	1,365	-	375	3	765	10	-	-
1990	-	95	29,040	-	161	-	541	13,085	-	377	-	-	-	-	-
1991	3	5,420	14,680	-	701	11	3,520	4,690	-	611	2	1,607	570	-	-
1992	1	470	292,400	-	422	3	813	255,700	-	691	-	606	180	-	-
1993	7	1,570	5,120	-	104	8	1,520	8,941	-	276	4	1,590	-	-	-
1994	10	1,140	492,000	-	307	2	350	265,450	-	631	1	4,960	290	-	-
1995	-	3,110	1,250	-	290	-	1,865	182	-	517	-	7,205	350	-	68
1996	5	1,815	74,100	-	367	1	799	34,520	-	723	-	5,390	-	-	-
1997	-	2,975	1,200	-	57	4	956	65	-	544	-	905	-	-	96
1998	-	630	372,850	-	322	3	335	179,680	-	515	-	2,828	7180	-	-
1999	-	1,697	180	-	217	-	375	345	-	620	-	55	-	-	42
2000	-	10	12,608	-	912	-	658	6,380	-	1,032	-	819	640	-	11
2001	-	3,746	115 <sup>h</sup>	-	750	-	946 <sup>h</sup>	790 <sup>h</sup>	-	1,307 <sup>h</sup>	-	3,612	4	-	213
2002	-	1,682	28,487	-	1,290 <sup>h</sup>	-	127 <sup>h</sup>	295 <sup>h</sup>	-	1,796	-	1,876	1102	-	186
2003	-	677	9,885	-	190	3	888	2,841	-	604	-	647	355	-	71

<sup>a</sup> Represents "high count" for season.

<sup>b</sup> Surveyor unable to distinguish between the two species.

<sup>c</sup> Poor survey conditions or partial survey, poor counting tower conditions.

<sup>d</sup> Total counts obtained from counting tower.

<sup>e</sup> Combined tower and aerial survey counts below the tower.

<sup>f</sup> Aerial survey; not tower count.

<sup>g</sup> Helicopter survey.

<sup>h</sup> Boat survey.

<sup>i</sup> Foot survey.

<sup>j</sup> Includes counts from Casadepaga and Ophir Creeks.

<sup>k</sup> Includes counts from Ophir Creek.

<sup>l</sup> Numerous pink salmon made enumerating of chum salmon difficult; pink count may include some chum.

Continued

Appendix 8. Continued (Page 2 of 4)

Year	Eldorado River					Fish River					Boston Creek				
	Chinook	Chum	Pink	Pink & Chum <sup>b</sup>	Coho	Chinook	Chum	Pink	Pink & Chum <sup>b</sup>	Coho	Chinook	Chum	Pink	Pink & Chum <sup>b</sup>	Coho
1961						1	-	-	14,100	-					
1962						48	-	-	28,918	-					
1963	-	400	2,000	-	-	21	-	-	25,728	-	67	1,669	-	-	-
1964						-	18,670	10,935	14,550	-	10	3,315	-	-	-
1965															
1966						7	-	-	17,955	-	153	761	-	-	-
1967						-	-	-	13,610	-					
1968						10	-	-	164,000	-	7	2,500	2,500	-	-
1969						-	2,080	124,000	-	-	100	7,000	16,000	-	-
1970						33	76,550	198,000	-	-	246	8,200	12,900	-	-
1971						1	13,185	1,670	-	-	42	7,045	80	-	-
1972						-	3,616	13,050	-	-	57	4,252	3,950	-	-
1973						31	6,887	15,564	-	-	153	3,014	3,213	-	-
1974	13	2,143	6,185	-	-	3	10,945	15,690	-	-	231	2,426	749	-	-
1975						26	20,114	15,840	-	-	147	1,885	2,556	-	-
1976	-	328	1,340	-	-	1	8,390	15,850	8,550	-					
1977	-	1,835	125	-	-	9	9,664	2,430	-	-	76	1,325	385	-	-
1978	-	10,125	12,800	-	-	29	26,797	140,600	-	-	136	2,655	74,221	-	-
1979	-	326	652	-	-	11	6,893	9,132	-	-	58	882	271	-	-
1980	6	9,900	55,520	-	56	-	19,100	33,500	-	-	16	2,450	1,510	-	-
1981	-	15,605	495	-	-	90	24,095	450	-	-	-	1,985	-	-	-
1982	2	1,095	163,300	-	-	-	-	-	241,700	-	10	1,730	22,020	-	-
1983	11	994	270	-	100	87	20,037	300	-	-	154	704	-	-	-
1984	14 <sup>i</sup>	4,362 <sup>h</sup>	1,924,935 <sup>h</sup>	-	261	42	-	-	293,245	-	35	-	-	47,850	-
1985	8	6,090	150	-	67	303	21,080	7,365	-	-	243	3,450	-	-	-
1986	9	3,490	18,200	-	-	200	25,190	140	-	-	2	220	0	-	-
1987	6	3,860	130	-	108	193	7,886	0	-	-	583	3,640	0	-	-
1988	17	2,645	1,045	-	78	36	1,240	29,950 <sup>l</sup>	-	-	163	1,015	7,400 <sup>l</sup>	-	-
1989	-	350	1,550	-	87	-	-	-	-	-	-	-	-	-	-
1990	17	884	2,050	-	44	-	-	-	-	-	112	1,455	8,440	-	-
1991	76	5,755	1,590	-	98	58	10,470	51,190	-	-	152	2,560	3,210	-	-
1992	2	4,887	6,615	-	113	4	390	1,387,000	-	-	68	1,540	50,850	-	-
1993	38	2,895	120	-	111	48	12,695	13,440	-	-	227	4,563	1,930	-	-
1994	-	5,140	53,890	-	242	55	16,500	910,000	-	-	95	4,270	355,600	-	-
1995	4	9,025	50	-	247	40	13,433	780	-	1,829	78	4,221	-	-	230
1996	21	20,710	40,100	-	254	189	5,840 <sup>l</sup>	684,780	-	-	-	3,505 <sup>l</sup>	35,980	-	-
1997	40	5,967	10	-	37	110	19,515	800	-	465	452	4,545	-	-	-
1998	-	3,000	123,950	-	71	96	28,010	663,050	-	-	255	1,570	175,330	-	-
1999	2	1,741	6	-	45	-	50	20	-	821	-	-	-	-	319
2000	2	3383	16,080	-	24	-	-	-	-	805	-	-	-	-	414
2001	2	4,450	8	-	232	8	3,220	1,744	-	1,055	33	3,533	1,038	-	155
2002	8	139	58,700	-	463	-	-	-	-	-	-	-	-	-	-
2003	12	1,257	821	-	71	95	3,200	1,014	-	-	145	750	701	-	-

<sup>a</sup> Represents "high count" for season.

<sup>b</sup> Surveyor unable to distinguish between the two species.

<sup>c</sup> Poor survey conditions or partial survey, poor counting tower conditions.

<sup>d</sup> Total counts obtained from counting tower.

<sup>e</sup> Combined tower and aerial survey counts below the tower.

<sup>f</sup> Aerial survey; not tower count.

<sup>g</sup> Helicopter survey.

<sup>h</sup> Boat survey.

<sup>i</sup> Foot survey.

<sup>j</sup> Includes counts from Casadepaga and Ophir Creeks.

<sup>k</sup> Includes counts from Ophir Creek.

<sup>l</sup> Numerous pink salmon made enumerating of chum salmon difficult; pink count may include some chum.

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Appendix 8. Continued (Page 3 of 4)

Year	Eldorado River					Fish River					Boston Creek				
	Chinook	Chum	Pink	Pink & Chum <sup>b</sup>	Coho	Chinook	Chum	Pink	Pink & Chum <sup>b</sup>	Coho	Chinook	Chum	Pink	Pink & Chum <sup>b</sup>	Coho
1961						1	-	-	14,100	-					
1962						48	-	-	28,918	-					
1963	-	400	2,000	-	-	21	-	-	25,728	-	67	1,669	-	-	-
1964						-	18,670	10,935	14,550	-	10	3,315	-	-	-
1965															
1966						7	-	-	17,955	-	153	761	-	-	-
1967						-	-	-	13,610	-					
1968						10	-	-	164,000	-	7	2,500	2,500	-	-
1969						-	2,080	124,000	-	-	100	7,000	16,000	-	-
1970						33	76,550	198,000	-	-	246	8,200	12,900	-	-
1971						1	13,185	1,670	-	-	42	7,045	80	-	-
1972						-	3,616	13,050	-	-	57	4,252	3,950	-	-
1973						31	6,887	15,564	-	-	153	3,014	3,213	-	-
1974	13	2,143	6,185	-	-	3	10,945	15,690	-	-	231	2,426	749	-	-
1975						26	20,114	15,840	-	-	147	1,885	2,556	-	-
1976	-	328	1,340	-	-	1	8,390	15,850	8,550	-					
1977	-	1,835	125	-	-	9	9,664	2,430	-	-	76	1,325	385	-	-
1978	-	10,125	12,800	-	-	29	26,797	140,600	-	-	136	2,655	74,221	-	-
1979	-	326	652	-	-	11	6,893	9,132	-	-	58	882	271	-	-
1980	6	9,900	55,520	-	56	-	19,100	33,500	-	-	16	2,450	1,510	-	-
1981	-	15,605	495	-	-	90	24,095	450	-	-	-	1,985	-	-	-
1982	2	1,095	163,300	-	-	-	-	-	241,700	-	10	1,730	22,020	-	-
1983	11	994	270	-	100	87	20,037	300	-	-	154	704	-	-	-
1984	14 <sup>1</sup>	4,362 <sup>#1</sup>	1,924,935 <sup>#1</sup>	-	261	42	-	-	293,245	-	35	-	-	47,850	-
1985	8	6,090	150	-	67	303	21,080	7,365	-	-	243	3,450	-	-	-
1986	9	3,490	18,200	-	-	200	25,190	140	-	-	2	220	0	-	-
1987	6	3,860	130	-	108	193	7,886	0	-	-	583	3,640	0	-	-
1988	17	2,645	1,045	-	78	36	1,240	29,950 <sup>1</sup>	-	-	163	1,015	7,400 <sup>1</sup>	-	-
1989	-	350	1,550	-	87	-	-	-	-	-	-	-	-	-	-
1990	17	884	2,050	-	44	-	-	-	-	-	112	1,455	8,440	-	-
1991	76	5,755	1,590	-	98	58	10,470	51,190	-	-	152	2,560	3,210	-	-
1992	2	4,887	6,615	-	113	4	390	1,387,000	-	-	68	1,540	50,850	-	-
1993	38	2,895	120	-	111	48	12,695	13,440	-	-	227	4,563	1,930	-	-
1994	-	5,140	53,890	-	242	55	16,500	910,000	-	-	95	4,270	355,600	-	-
1995	4	9,025	50	-	247	40	13,433	780	-	1,829	78	4,221	-	-	230
1996	21	20,710	40,100	-	254	189	5,840 <sup>1</sup>	684,780	-	-	-	3,505 <sup>1</sup>	35,980	-	-
1997	40	5,967	10	-	37	110	19,515	800	-	465	452	4,545	-	-	-
1998	-	3,000	123,950	-	71	96	28,010	663,050	-	-	255	1,570	175,330	-	-
1999	2	1,741	6	-	45	-	50	20	-	821	-	-	-	-	319
2000	2	3383	16,080	-	24	-	-	-	-	805	-	-	-	-	414
2001	2	4,450	8	-	232	8	3,220	1,744	-	1,055	33	3,533	1,038	-	155
2002	8	139	58,700	-	463	-	-	-	-	-	-	-	-	-	-
2003	12	1,257	821	-	71	95	3,200	1,014	-	-	145	750	701	-	-

<sup>a</sup> Represents "high count" for season.

<sup>b</sup> Surveyor unable to distinguish between the two species.

<sup>c</sup> Poor survey conditions or partial survey, poor counting tower conditions.

<sup>d</sup> Total counts obtained from counting tower.

<sup>e</sup> Combined tower and aerial survey counts below the tower.

<sup>f</sup> Aerial survey; not tower count.

<sup>g</sup> Helicopter survey.

<sup>h</sup> Boat survey.

<sup>i</sup> Foot survey.

<sup>j</sup> Includes counts from Casadepaga and Ophir Creeks.

<sup>k</sup> Includes counts from Ophir Creek.

<sup>l</sup> Numerous pink salmon made enumerating of chum salmon difficult; pink count may include some chum.

Continued

Appendix 8. Continued (Page 4 of 4)

North River					
Year	Chinook	Chum	Pink	Pink & Chum <sup>b</sup>	Coho
1961					
1962	162	-	-	16,087	-
1963 <sup>c</sup>	287	-	-	73,274	-
1964	23	-	-	5,981	-
1965					
1966	153	-	-	16,600	-
1967					
1968					
1969					
1970 <sup>e</sup>	1	20,655	12,400	-	-
1971 <sup>e</sup>	256	-	-	1,047	-
1972 <sup>d</sup>	561	2,332	54,934	-	-
1973 <sup>d</sup>	298	4,332	26,542	-	-
1974 <sup>d</sup>	196	826	143,789	-	-
1975 <sup>e</sup>	60	5,237	17,885	-	-
1976 <sup>e</sup>	66	1,963	10,606	-	-
1977	1,275	8,139	4,565	-	-
1978	321	9,349	21,813	-	-
1979	735	1,130	9,500	-	-
1980	61	2,300	127,900	-	204
1981	68	405	575	-	263
1982	8	599	168,902	-	4,145
1983	347	4,135	4,980	-	-
1984 <sup>d</sup>	2,844	2,915	458,387	-	152 <sup>f</sup>
1985 <sup>d</sup>	1,426	4,567	4,360	-	2,045
1986 <sup>d</sup>	1,613	3,738	236,487	-	-
1987	445	392	0	-	680
1988	202	30	112,770 <sup>1</sup>	-	240
1989 <sup>e</sup>	-	-	-	-	-
1990	255	1,345	25,685	-	-
1991	656	2,435	119,140	-	2,510
1992	329	-	631,140	-	398
1993	900	445	13,570	-	1,397
1994	No survey due to poor conditions				
1995	622	1,370	18,300	-	690 <sup>g</sup>
1996	106	270 <sup>1</sup>	125,500	-	917
1997	1,605	9,045	17,870	-	-
1998	591	50	153,150	-	233
1999	18	1,480	3,790	-	533
2000					
2001	367	330	-	-	-
2002	122	217	45,950	-	800
2003	131	222	11,010	-	-

<sup>a</sup> Represents "high count" for season.

<sup>b</sup> Surveyor unable to distinguish between the two species.

<sup>c</sup> Poor survey conditions or partial survey, poor counting tower conditions.

<sup>d</sup> Total counts obtained from counting tower.

<sup>e</sup> Combined tower and aerial survey counts below the tower.

<sup>f</sup> Aerial survey; not tower count.

<sup>g</sup> Helicopter survey.

<sup>h</sup> Boat survey.

<sup>i</sup> Foot survey.

<sup>j</sup> Includes counts from Casadepaga and Ophir Creeks.

<sup>k</sup> Includes counts from Ophir Creek.

<sup>1</sup> Numerous pink salmon made enumerating of chum salmon difficult; pink count may include some chum.

Appendix 9. Comparative sockeye salmon aerial survey indices, Port Clarence District, 1963-2003.

Year	Salmon	Grand Central	Total
	Lake	River	
1963	866	620	1,486
1964 <sup>a</sup>	76	590	666
1965	250	160	410
1966	1,120	370	1,490
1967	129	280	409
1968 <sup>a</sup>	830	645	1,475
1969	24	171	195
1970 <sup>b</sup>	-	-	-
1971	538	512	1,050
1972 <sup>a</sup>	680	300 <sup>c</sup>	980
1973	1,747	607	2,354
1974	820	-	820
1975	537	123	660
1976	132	22	154
1977	317	235	552
1978	822	280	1,102
1979	1,250	261	1,511
1980 <sup>a</sup>	512	175	687
1983	970	-	970
1984	445	30	475
1985	730	250	980
1986	2,125	160	2,285
1987	4,040	530	4,570
1988	1,195	6	1,201
1989	3,055	525	3,580
1990	2,834	926	3,760
1991	3,790	1,570	5,360
1992	1,500	<sup>b</sup>	1,500
1993	2,885	216	3,092
1994	3,740	1,230	4,970
1995	5,433	628 <sup>a</sup>	6,061
1996	6,610	770	7,380
1997	8,760	1,520	10,280
1998	5,210	1,977	7,187
1999	31,720	1,780	33,500
2000	12,772	<sup>b</sup>	12,772
2001	9,400	155	9,555
2002	3,520	71	3,591
2003	19,275	1,015	20,290

<sup>a</sup> Poor survey.      <sup>c</sup> Boat survey.

<sup>b</sup> No survey made.   <sup>d</sup> Early count

Appendix 10. Chum salmon aerial survey counts for Kotzebue Sound District, 1962-2003 .

Stream <sup>a,h</sup>	1962	1963	1964	1965	1966	1967	1968	1969	1970
<b>Noatak Drainage</b>									
Noatak River below Kelly River	168,000 <sup>d</sup>	1,970 <sup>bj</sup>	89,798	6,152 <sup>bj</sup>	101,640	29,120 <sup>b</sup>	39,394	33,945	
Eli River	9,080 <sup>d</sup>	35			120		5,502 <sup>f</sup>	68 <sup>f</sup>	138,145
Kelly River & Lake	1,818 <sup>d</sup>	600		3,155	570	225	375	150	
<b>Noatak River System Total</b>	<b>178,898</b>	<b>2,605</b>	<b>89,798</b>	<b>9,307</b>	<b>102,330</b>	<b>29,345</b>	<b>45,271</b>	<b>34,163</b>	
<b>Kobuk Drainage</b>									
Kobuk to Pah River		400		1,750	266		530		
Pah River to just below Selby River		1,530		500			50		1,753
Selby River mouth & Slough		1,045		500	630	1,625	70		20
Selby R. mouth to Beaver C.		1,095				75	170		4,820
Beaver Creek mouth					460	795	1,550		2,385
Above Beaver Creek		465			118				4,930
Upper Kobuk River Total	9,224 <sup>d</sup>	4,535	7,985 <sup>g</sup>	2,750	1,474	2,495	2,370	7,500 <sup>c</sup>	13,908
Squirrel River	5,834 <sup>d</sup>	2,200	8,009	7,230	1,350	3,332	6,746	6,714	
Salmon River	12,936 <sup>d</sup>	1,535	9,353	1,500 <sup>b</sup>	3,957	2,116	3,367	2,561	4,418
Tutuksuk River	10,841 <sup>d</sup>	670	2,685		1,383	169	823 <sup>b</sup>	159	3,000 <sup>b</sup>
<b>Kobuk River System Total</b>	<b>38,835<sup>c</sup></b>	<b>8,940</b>	<b>28,032</b>	<b>11,480</b>	<b>8,164</b>	<b>8,112<sup>c</sup></b>	<b>13,306</b>	<b>16,934</b>	<b>2,000<sup>b</sup></b>

Continued

Appendix 10. Continued (Page 2 of 5)

Stream <sup>a,h</sup>	1971	1972 <sup>b</sup>	1973 <sup>b</sup>	1974	1975	1976	1977 <sup>b</sup>	1978	1979
<b>Noatak Drainage</b>									
Noatak River below Kelly River	41,056	64,315	32,144	129,640	96,509	44,574	11,221	37,817	15,721 <sup>b</sup>
Eli River		3,286		22,249	1,302	1,205	742	5,525	1,794
Kelly River & Lake			2,590 <sup>f</sup>	1,381 <sup>f</sup>	3,937	217 <sup>b</sup>	290 <sup>b</sup>	168 <sup>b</sup>	3,200 <sup>b</sup>
<b>Noatak River System Total</b>	<b>41,056</b>	<b>64,315<sup>b</sup></b>	<b>34,734</b>	<b>153,270</b>	<b>101,748</b>	<b>45,996</b>	<b>12,253<sup>b</sup></b>	<b>43,510</b>	<b>20,715</b>
<b>Kobuk Drainage</b>									
Kobuk to Pah River	4,953			2,255	1,873	485		269	75
Pah River to just below Selby River	2,039	1,865		4,710	3,968	2,037		1,448	183
Selby River mouth & slough	3,490	7,400		7,380				211	1,110
Selby R. mouth to Beaver C.	4,720	3,170	920	13,775 <sup>e</sup>	4,861 <sup>e</sup>			53	640
Beaver Creek mouth	2,000	3,000	850						
Above Beaver Creek		2,720	700						
<b>Upper Kobuk River Total</b>	<b>17,202</b>	<b>18,155</b>	<b>2,470<sup>b</sup></b>	<b>28,120</b>	<b>10,702</b>	<b>2,522<sup>b</sup></b>		<b>1,981<sup>b</sup></b>	<b>2,008</b>
Squirrel River	6,628	32,126	12,345	32,523	32,256	7,229	1,964 <sup>b</sup>	1,863 <sup>b</sup>	1,500 <sup>b</sup>
Salmon River	5,453	2,073 <sup>b</sup>	6,891	29,190	9,721	1,161		814 <sup>b</sup>	674 <sup>b</sup>
Tutuksuk River	1,384 <sup>f</sup>			8,312	1,344 <sup>b</sup>	758		368 <sup>b</sup>	382 <sup>b</sup>
<b>Kobuk River System Total</b>	<b>30,667</b>	<b>52,354</b>	<b>21,706</b>	<b>98,145</b>	<b>54,023</b>	<b>11,670</b>	<b>1,964</b>	<b>5,026</b>	<b>4,564</b>

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Appendix 10. Continued (Page 3 of 5)

Stream <sup>a,h</sup>	1980	1981 <sup>b</sup>	1982 <sup>b</sup>	1983	1984	1985 <sup>b</sup>	1986 <sup>b</sup>	1987 <sup>b</sup>	1988 <sup>b</sup>
<b>Noatak Drainage</b>									
Noatak River below Kelly River	164,474	116,352	20,682	79,773	67,873	45,525	37,227	5,515 <sup>bj</sup>	45,930 <sup>bj</sup>
Eli River	10,277		189	3,044	5,027	855	4,308	2,780	8,639
Kelly River & Lake	7,416	13,770	11,604	12,137	3,499	1,200	839	950	1,460
<b>Noatak River System Total</b>	<b>182,167</b>	<b>130,122</b>	<b>32,475</b>	<b>94,954</b>	<b>76,399</b>	<b>47,580</b>	<b>42,374</b>	<b>9,245</b>	<b>56,029</b>
<b>Kobuk Drainage</b>									
Kobuk to Pah River	1,694	18	2,643 <sup>b</sup>	2,147	402	2,048 <sup>i</sup>	531		
Pah River to just below Selby River	2,069	309	598 <sup>b</sup>	2,433	257	241 <sup>i</sup>	511	2,250	1,135 <sup>b</sup>
Selby River mouth & slough		8,321 <sup>de</sup>	2,454	11,683		711 <sup>i</sup>	673	1,470	820 <sup>b</sup>
Selby R. mouth to Beaver C.	6,925 <sup>d</sup>		7,268	13,011	5,910	3,278 <sup>i</sup>	3,282	1,350	6,890 <sup>b</sup>
Beaver Creek mouth	784		1,711	3,059					
Above Beaver Creek				1,413	4,052		1,018	3,140	3,050 <sup>b</sup>
<b>Upper Kobuk River Total</b>	<b>11,472</b>	<b>8,648</b>	<b>14,674</b>	<b>33,746</b>	<b>10,621</b>	<b>6,278</b>	<b>6,015</b>	<b>8,210</b>	<b>11,895<sup>b</sup></b>
Squirrel River	13,563	9,854	7,690	5,115	5,473	6,160	4,982	2,708 <sup>e</sup>	4,848 <sup>b</sup>
Salmon River	8,456	4,709	1,821 <sup>c</sup>	1,677	1,471	2,884	1,971	3,333	6,208
Tutuksuk River	1,165	1,114	1,322	2,637	1,132	5,098	4,257	206	3,122
<b>Kobuk River System Total</b>	<b>34,656</b>	<b>24,325</b>	<b>25,507</b>	<b>43,175</b>	<b>18,697</b>	<b>20,420</b>	<b>17,225</b>	<b>14,457</b>	<b>26,073</b>

Continued

Appendix Table 10. Continued (Page 4 of 5)

Stream <sup>a,h</sup>	1989 <sup>j</sup>	1990 <sup>b</sup>	1991	1992 <sup>b</sup>	1993	1994 <sup>j</sup>	1995	1996	1997
<b>Noatak Drainage</b>									
Noatak River below Kelly River		23,345 <sup>b</sup>	82,750	34,335	25,415		147,260	306,900	<sup>j</sup>
Eli River		3,000	2,940	701	4,795		7,860	30,040	<sup>j</sup>
Kelly River & Lake		325 <sup>i</sup>	654	726	9		8,384	1,427	2,792
<b>Noatak River System Total</b>		<b>26,670</b>	<b>86,344</b>	<b>35,762</b>	<b>30,219</b>		<b>163,504</b>	<b>338,367</b>	
<b>Kobuk Drainage</b>									
Kobuk to Pah River		4,610	9,840	1,030	3,896		12,190	20,700	2,248 <sup>b</sup>
Pah River to just below Selby River		305	2,780	3,820	1,535		4,537	4,600	404 <sup>b</sup>
Selby River mouth & slough		420	1,040	1,500	1,800		1,250	4,100	662 <sup>b</sup>
Selby River		7,505	1,460	868	824		3364	14,950	853 <sup>b</sup>
Selby R. mouth to Beaver C.			5,250	3,845	929		10,898	15,480	2,582 <sup>b</sup>
Beaver Creek mouth		2,515							914 <sup>b</sup>
Above Beaver Creek			4,155	740	3,174		3,486	14,940	850 <sup>b</sup>
Upper Kobuk River Total		15,355	24,525	11,803	12,158		35,725	74,770	8,513 <sup>b</sup>
Squirrel River		5,500	4,606	2,765	4,463		10,605	10,740	4,779 <sup>b</sup>
Salmon River		6,335	5,845	1,345	13,880		13,988	23,790	1,181 <sup>b</sup>
Tutuksuk River		2,275	744	1,162	1,196		3,901	21,805	163 <sup>b</sup>
<b>Kobuk River System Total</b>		<b>29,465</b>	<b>35,720</b>	<b>17,075</b>	<b>31,697</b>		<b>64,219</b>	<b>131,105</b>	

Continued

Appendix 10. Continued (Page 5 of 5)

Stream <sup>a,h</sup>	1998	1999	2000 <sup>k</sup>	2001	2002	2003	Goals
<b>Noatak Drainage</b>							
Noatak River below Kelly River	<sup>b</sup>				700	34,575	
Eli River	<sup>b</sup>						
Kelly River & Lake	2,631				1,116	1,566	
<b>Noatak River System Total</b>	<sup>b</sup>	84,085				36,141	84,000
<b>Kobuk Drainage</b>							
Kobuk to Pah River	<sup>b</sup>			2,790		5,501	
Pah River to just below Selby River	<sup>b</sup>			1,380	857	828	
Selby River mouth & slough	<sup>b</sup>			1,780	2,100	1,110	
Selby River	730					427	
Selby R. mouth to Beaver C.	<sup>b</sup>			7,470		1,274	
Beaver Creek mouth	<sup>b</sup>						
Above Beaver Creek	<sup>b</sup>				490	2,462	
<b>Upper Kobuk River Total</b>	<sup>b</sup>	27,340		13,420	3,447	11,602	10,000
Squirrel River	<sup>b</sup>	13,513					11,500
Salmon River	<sup>b</sup>	4,989					7,000
Tutuksuk River	<sup>b</sup>	2,906					2,000
<b>Kobuk River System Total</b>		48,748		13,420	3,447	11,602	30,500

<sup>a</sup> 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.

<sup>b</sup> Poor survey conditions or incomplete, early or late survey.

<sup>c</sup> Survey by foot or boat.

<sup>d</sup> These fish are unidentified salmon, mostly chums.

<sup>e</sup> This figure includes fish observed from just above Selby Slough to the mouth of the Reed River.

<sup>f</sup> Unresolvable discrepancies in historical data put this figure in question.

<sup>g</sup> Unclear where these fish were observed.

<sup>h</sup> The figures in this table have been corrected and supercede figures in previous reports.

<sup>i</sup> Surveyed well before peak of migration.

<sup>j</sup> Unacceptable survey conditions.

<sup>k</sup> No surveys flown in 2000.

Appendix 11. Preliminary historical age and sex composition of chinook salmon sampled from the Unalakleet River test fishery.

Year	Dates	No. of Samples	Males (%)	Females (%)	Age Class (%)							
					1.1	1.2	1.3	1.4	1.5	1.6	2.3	2.4
1980	6/19-7/1	137	55	45	0	7	29	55	9	0	0	0
1982	5/22-6/23	5	40	60	0	0	0	0	100	0	0	0
1984	6/24-7/26	111	59	41	0	4	54	38	<1	0	<1	3
1985	7/2-7/17	16	38	62	0	16	25	49	10	0	0	0
1986	6/19-7/14	47	49	51	0	2	38	32	28	0	0	0
1987	6/20-7/17	36	58	42	0	17	22	58	3	0	0	0
1989	6/20-8/1	14	93	7	0	36	57	7	0	0	0	0
1990	6/15-8/27	40	58	42	0	28	40	17	5	0	5	5
1991	6/10-8/30	32	28	72	0	47	19	25	6	0	3	0
1992	6/27-8/31	24	58	42	0	71	21	8	0	0	0	0
1993	6/8-7/13	83	69	31	0	53	27	20	0	0	0	0
1994	6/16-7/13	32	47	53	0	6	72	19	3	0	0	0
1995	6/5-7/11	75	71	29	0	44	13	41	2	0	0	0
1996	6/6-7/6	117	40	60	<1	9	79	12	<1	0	0	0
1997	6/12-7/18	111	49	51	0	35	12	52	1	0	0	0
1998	6/10-7/27	72	33	67	0	0	22	70	8	0	0	0
2000	6/13-7/14	44	61	39	0	5	48	34	7	0	4	2
2001	6/16-7/17	63	63	37	0	36	10	54	0	0	0	0
2002	6/3-7/13	41	93	7	0	19	68	7	3	0	0	3
2003	6/2-7/28	23	74	26	0	4	74	9	0	0	9	4

Appendix 12. Preliminary historical age and sex composition of chinook salmon sampled from the Norton Sound District, Subdistrict 6 commercial fishery .

Year	Dates	No. of Samples	Males (%)	Females (%)	Age Class (%)										
					1.1	1.2	1.3	1.4	1.5	1.6	2.1	2.2	2.3	2.4	2.5
1981	6/4-9/12	58	78	22	2	24	33	33	2	0		2	3	0	0
1982	27-Jun	2	50	50	0	50	0	50	0	0		0	0	0	0
1983	5/31-8/26	37	76	24	0	35	22	32	3	0		8	0	0	0
1984	6/26-7/20	446	49	51	<1	6	31	56	3	0	<1	0	<1	1	0
1985	6/28-7/6	442	51	49	0	1	8	69	21	1	0	0	0	0	0
1986	6/24-7/1	468	50	50	0	2	19	50	29	0	0	0	<1	<1	0
1987	6/26-7/28	161	43	57	0	4	12	71	13	0	0	0	0	0	0
1988	6/21-7/27	298	54	46	0	8	30	57	5	0	0	0	0	0	0
1989	6/19-6/24	138	58	42	0	13	38	45	4	0	0	0	0	0	0
1990	6/15-6/19	140	56	44	0	9	29	58	1	0	0	1	2	0	0
1991	6/18-6/25	160	53	47	0	27	34	37	1	0	0	0	0	<1	<1
1992	7/7-7/15	28	50	50	0	46	32	18	0	0	0	0	0	4	0
1993	6/15-6/22	139	60	40	0	27	27	41	3	0	0	0	1	1	0
1994	6/21-7/1	240	50	50	0	1	61	36	<1	0	0	0	<1	0	0
1995	6/13-6/30	230	52	48	1	14	13	70	1	0	1	0	0	0	0
1996	6/15-6/21	127	61	39	3	3	46	41	6	0	0	0	<1	<1	0
1997	6/17-6/24	149	53	47	0	31	14	54	<1	0	0	0	0	<1	0
1998	6/19-6/26	136	62	38	0	0	27	51	7	0	0	0	7	7	0
2000	6/23-6/27	100	66	34	0	0	48	39	6	0	0	0	1	5	1
2001	7/6-7/10	57	47	53	0	32	4	58	5	0	0	0	1	0	0

Appendix 13. Preliminary historical age and sex composition of chum salmon sampled from Unalakleet River test fishery.

Year	Dates	No. of Samples	Males (%)	Females (%)	Age Class (%)				
					0.2	0.3	0.4	0.5	0.6
1963	7/11-8/2	180	41	59	11	81	8	0	0
1975	6/25-8/5	253	47	53	5	81	15	0	0
1976	6/23-7/14	156	41	59	>1	17	76	7	0
1977	6/22-7/9	280	53	47	3	77	19	1	0
1978	6/20-7/20	414	45	55	>1	63	35	2	0
1980	6/21-7/21	265	53	47	2	89	9	0	0
1981	6/23	21	57	43	0	52	48	0	0
1982	6/16-9/22	374	55	45	2	65	30	3	0
1983	6/10-7/29	331	46	54	1	57	41	1	0
1984	6/22-9/13	656	57	43	1	61	35	3	0
1985	6/23-9/7	840	60	40	1	34	63	2	0
1986	6/8-8/20	760	63	37	1	46	51	2	0
1987	6/16-9/7	602	65	35	1	50	44	5	0
1988	6/7-9/9	474	59	41	1	59	38	2	0
1989	6/12-9/1	727	61	39	>1	48	51	1	0
1990	6/14-9/12	321	43	57	2	42	54	2	0
1991	6/11-9/16	736	51	49	>1	71	29	>1	0
1992	6/23-9/8	562	60	40	0	10	85	5	0
1993	6/8-9/2	324	66	34	0	37	49	14	>1
1994	6/16-9/1	471	65	35	>1	31	63	6	0
1995	6/5-8/30	500	67	33	0	25	64	1	0
1996	6/5-7/29	532	62	38	>1	20	51	28	1
1997	6/15-7/30	570	62	38	1	26	67	5	1
1998	6/10-8/4	183	73	27	2	59	33	6	0
1999	6/27-8/23	340	65	35	0	58	41	1	0
2000	6/3-8/29	496	62	38	>1	29	68	3	0
2001	6/16-9/7	260	68	32	7	41	50	2	0
2002	6/7-8/27	756	70	30	1	49	44	6	0
2003	6/7-8/29	396	81	19	>1	82	15	3	0

Appendix 14. Preliminary historical age and sex composition of chum salmon sampled from the Norton Sound District, Subdistrict 6 commercial fishery .

Year	Dates	No. of Samples	Males (%)	Females (%)	Age Class (%)					
					0.1	0.2	0.3	0.4	0.5	0.6
1977	N/A	17	N/A	N/A	0	12	76	12	0	0
1978	N/A	199	N/A	N/A	0	2	70	28	0	0
1981	6/19-9/8	640	43	57	0	1	39	60	0	0
1983	6/10-9/21	672	38	62	0	1	60	39	> 1	0
1984	7/7-7/28	1321	49	51	0	1	71	25	3	0
1985	6/28-7/31	1259	51	49	0	0	44	54	2	0
1986	7/5-8/1	1352	53	47	0	> 1	46	51	3	0
1987	7/7-8/19	603	50	50	0	1	45	51	3	0
1988	6/28-8/6	1506	54	46	0	1	60	37	2	0
1989	7/4-8/5	446	53	47	0	0	56	44	>1	0
1990	6/27-7/27	455	43	57	>1	2	48	48	2	0
1991	6/28-8/2	463	52	48	0	0	66	33	1	0
1992	7/3-7/28	429	49	51	0	> 1	11	85	4	0
1993	6/30-8/9	441	50	50	0	> 1	36	53	1	0
1994	7/26-8/5	437	50	50	0	1	54	43	2	0
1995	7/4-8/2	220	53	47	0	>1	31	58	11	0
1996	7/3-7/31	152	76	24	0	0	24	56	17	3
1997	7/1-8/1	502	58	42	0	1	31	63	5	0
1998	7/28-8/5	186	48	52	0	1	67	31	1	0
1999	7/9-7/16	288	38	62	0	1	64	34	1	0
2000	7/25-8/9	286	38	62	0	>1	50	49	> 1	0
2001	7/6-8/7	356	49	51	0	> 1	36	59	4	0
2002	7/26-8/21	189	45	55	0	5	65	28	2	0
2003	8/5-8/29	235	45	55	0	0	93	7	0	0

Appendix 15. Preliminary historical age and sex composition of chum salmon sampled from Norton Sound District, Subdistrict 5 commercial fishery.

Year	Dates	No. of Samples	Males (%)	Females (%)	Age Class (%)				
					0.2	0.3	0.4	0.5	0.6
1978	N/A	66	N/A	N/A	0	59	41	0	0
1983	6/19-7/6	93	73	27	0	58	41	1	0
1986	7/4	138	64	36	1	47	49	3	0
1989	7/5	159	63	37	0	52	43	5	0
1991	6/28	56	57	43	0	38	59	3	0
1996	6/25	115	43	57	0	45	48	7	0
2002	N/A	120	57	43	4	65	28	3	0

Appendix 16. Preliminary historical age and sex composition of the chum salmon escapement sampled at Kwiniuk River tower.

Year	Dates	No. of Samples	Males (%)	Females (%)	Age Class (%)				
					0.2	0.3	0.4	0.5	0.6
1976	6/26-7/16	351	50	50	7	41	52	< 1	0
1977	6/25-7/27	577	55	45	11	76	13	< 1	0
1980	6/20-7/18	526	51	49	4	86	10	> 1	0
1983	6/27-7/20	566	50	50	> 1	61	38	1	0
1985	7/6-7/25	137	37	63	0	82	18	> 1	0
1993	7/3-7/14	68	84	16	0	38	59	3	0
1994	7/9-7/14	83	53	47	0	65	33	2	0
1995	6/30-7/25	341	52	48	< 1	56	40	4	0
1996	7/3-7/13	66	61	39	0	46	49	5	0
1997	7/4-7/24	866	41	59	5	50	44	1	> 1
1998	7/8-7/24	494	52	48	1	79	19	1	0
1999	7/7-7/23	248	52	48	> 1	47	52	1	0
2000	6/28-7/27	307	43	57	0	87	13	> 1	0
2001	6/30-8/14	763	50	50	3	7	89	1	0
2002	7/4-9/3	484	43	57	> 1	92	7	1	0
2003	6/25-7/24	473	46	54	1	34	64	1	0

Appendix 17. Preliminary historical age and sex composition of the chum salmon escapement sampled at Nome River weir.

Year	Dates	No. of Samples	Males (%)	Females (%)	Age Class (%)				
					0.2	0.3	0.4	0.5	0.6
1978	N/A	158	N/A	N/A	1	48	51	0	0
1980	18-Jul	43	28	72	7	93	0	0	0
1994	7/26-8/5	99	47	53	0	64	35	1	0
1997	7/25-7/31	346	47	53	1	36	61	2	0
2001	7/16-8/22	529	45	55	1	14	84	1	0
2002	7/4-8/22	440	46	54	1	64	30	5	0
2003	7/7-8/23	158	54	46	0	83	15	2	0

Appendix 18. Preliminary historical age and sex composition of the chum salmon escapement sampled at Niukluk River tower.

Year	Dates	No. Sampled	Percent by sex		Age Class (%)					
			M	F	0.1	0.2	0.3	0.4	0.5	0.6
1978	n/a	56	n/a	n/a	0	0	54	46	0	0
1979	7/13-7/22	30	83	17	0	17	70	13	0	0
1995	7/6-8/10	771	58	42	0	<1	52	42	6	0
1996	7/2-9/10	367	55	45	0	<1	33	53	13	<1
1997	7/6-8/29	1038	50	50	0	2	57	39	1	1
1999	7/19-8/29	351	48	52	0	1	68	31	0	0
2000	7/9-8/28	153	49	51	0	5	78	16	1	0
2001	7/2-7/30	658	61	39	0	1	15	83	1	0
2003	7/5-8/1	417	59	41	0	<1	51	48	1	<1