Fishery Data Series No. 07-05

Salmon Age and Sex Composition and Mean Lengths for the Yukon River Area, 2004

by

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and

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March 2007

Alaska Department of Fish and Game **Divisions of Sport Fish and Commercial Fisheries**

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Weights and measures (metric)

centimeter	cm
deciliter	dL
gram	g
hectare	ha
kilogram	kg
kilometer	km
liter	L
meter	m
milliliter	mL
millimeter	mm

Weights and measures (English)

cubic feet per second	ft^3/s
foot	ft
gallon	gal
inch	in
mile	mi
nautical mile	nmi
ounce	oz
pound	lb
quart	qt
yard	yd

Time and temperature

day	d
degrees Celsius	°C
degrees Fahrenheit	°F
degrees kelvin	K
hour	h
minute	min
second	s

Physics and chemistry

all atomic symbols	
alternating current	AC
ampere	A
calorie	cal
direct current	DC
hertz	Hz
horsepower	hp
hydrogen ion activity (negative log of)	pH
parts per million	ppm
parts per thousand	ppt, ‰
volts	V
watts	W

General

Alaska Administrative Code	AAC
all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.
all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.
at	@
compass directions:	
east	E
north	N
south	S
west	W
copyright	©
corporate suffixes:	
Company	Co.
Corporation	Corp.
Incorporated	Inc.
Limited	Ltd.
District of Columbia	D.C.
et alii (and others)	et al.
et cetera (and so forth)	etc.
exempli gratia (for example)	e.g.
Federal Information Code	FIC
id est (that is)	i.e.
latitude or longitude	lat. or long.
monetary symbols (U.S.)	\$, ¢
months (tables and figures): first three letters	Jan,...,Dec
registered trademark	®
trademark	™
United States (adjective)	U.S.
United States of America (noun)	USA
U.S.C.	United States Code
U.S. state	use two-letter abbreviations (e.g., AK, WA)

Measures (fisheries)

fork length	FL
mideye-to-fork	MEF
mideye-to-tail-fork	METF
standard length	SL
total length	TL

Mathematics, statistics

all standard mathematical signs, symbols and abbreviations	
alternate hypothesis	H_A
base of natural logarithm	*e*
catch per unit effort	CPUE
coefficient of variation	CV
common test statistics	(F, t, χ^2, etc.)
confidence interval	CI
correlation coefficient (multiple)	R
correlation coefficient (simple)	r
covariance	cov
degree (angular)	°
degrees of freedom	df
expected value	*E*
greater than	>
greater than or equal to	≥
harvest per unit effort	HPUE
less than	<
less than or equal to	≤
logarithm (natural)	ln
logarithm (base 10)	log
logarithm (specify base)	$\log_{2,}$ etc.
minute (angular)	'
not significant	NS
null hypothesis	H_O
percent	%
probability	P
probability of a type I error (rejection of the null hypothesis when true)	α
probability of a type II error (acceptance of the null hypothesis when false)	β
second (angular)	"
standard deviation	SD
standard error	SE
variance	
population	Var
sample	var

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March 2007

This investigation was partially financed by the United States Fish and Wildlife Service Agreement No. 701814G3000, under the authority of the Fish and Wildlife Coordination Act, 16 USC 661 to 667 (d), and the Yukon River Salmon Act 16 USC 5724 and 5727.

The Division of Sport Fish Fishery Data Series was established in 1987 for the publication of technically oriented results for a single project or group of closely related projects. Since 2004, the Division of Commercial Fisheries has also used the Fishery Data Series. Fishery Data Series reports are intended for fishery and other technical professionals. Fishery Data Series reports are available through the Alaska State Library and on the Internet: http://www.sf.adfg.state.ak.us/statewide/divreports/html/intersearch.cfm This publication has undergone editorial and peer review.

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This document should be cited as:
Karpovich, S., L. DuBois. 2007. Salmon age and sex composition and mean lengths for the Yukon River Area, 2004. Alaska Department of Fish and Game, Fishery Data Series No. 07-05, Anchorage.

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ABSTRACT

Biological data were collected from Chinook *Oncorhynchus tshawytscha*, summer chum *O. keta*, fall chum *O. keta*, and coho salmon *O. kisutch* runs at 39 locations along the Yukon River drainage in 2004. Age, sex, and length (ASL) data were obtained from 13,287 Chinook, 8,186 summer chum, 2,278 fall chum, and 1,463 coho salmon from commercial and subsistence harvests; test fish, escapement, and research projects. Samples were collected from salmon caught in gillnets, fish wheels, beach seines, weir traps, and from carcass surveys. When available, escapement estimates from sonar and weir projects and commercial harvest numbers were separated into periods or temporal segments (strata) and characterized by the ASL data collected during the corresponding period or strata.

In 2004, Chinook salmon commercial harvests were primarily composed of age-1.4 fish (70.3% overall); 72.3% in large mesh gillnet harvests from Districts 1 and 2, and 43.0% in predominantly fish wheel harvests in Districts 5 and 6. Overall, Chinook salmon age-1.2 percentages were above average and age-1.5 percentages were below average from commercial and escapement projects. Summer chum salmon commercial harvests were primarily composed of age-0.4 fish, 57.5% in gillnet and fish wheel harvests from Districts 1, 2, and 6. Fall chum salmon commercial harvests in District 1, which occurred late in the run, were primarily composed of age-0.2 fish (56.4%). Fall chum salmon samples collected in all other projects (subsistence, test fish, and escapement) were primarily composed of age-0.3 fish (57.4%). In 2004, summer and fall chum salmon age-0.2 percentages were well above average compared with historical percentages.

Key Words: ASL, salmon, Yukon River, Chinook, *Oncorhynchus tshawytscha*, summer chum, fall chum, *O. keta*, coho, *O. kisutch*, age, sex, length, escapement, weir, test fish, subsistence, commercial.

INTRODUCTION

The Yukon River drainage encompasses coastal waters from Canal Point light, near Cape Stephens, southward to the Naskonat Peninsula (Bergstrom et. al. 2001) to the Yukon headwaters in Whitehorse, Canada (Figure 1). The Yukon River drainage supports major runs of Chinook salmon *Oncorhynchus tshawytscha*, summer chum salmon *O. keta*, fall chum salmon *O. keta*, and coho salmon *O. kisutch*. All 3 of these salmon species are harvested in commercial, subsistence, personal use, test, and sport fisheries in Alaska. Harvests also occur in the Canadian portion of the Yukon River drainage by commercial, subsistence, aboriginal, sport, and domestic fishers (JTC 2004). Pink *O. gorbuscha* and sockeye salmon *O. nerka* are also indigenous to the drainage, however neither species are harvested by fishers to any significant extent.

Historically, the first adult Chinook and summer chum salmon runs enter the mouth of the Yukon River to begin their upstream migration during late May. These runs are followed by fall chum salmon, which enter the Yukon River from mid-July through early September. Fall chum are genetically distinct from summer chum salmon (Crane et. al. 2001). Summer chum can be distinguished from their fall counterparts by their smaller size, lower oil content, and spawning locations. Summer chum spawn in the lower and middle portion of the drainage, whereas fall chum salmon spawn in the upper portion of the drainage. Coho salmon enter the Yukon River from late July through September.

Commercial fishing occurs throughout the mainstem Yukon River and in the lower 360 km of the Tanana River. For management purposes, the Alaskan portion is divided into 7 districts and 10 subdistricts (Figures 2 and 3). The Lower Yukon Area consists of the Coastal District and Districts 1, 2, and 3. Set and drift gillnets are the only legal gear in the Lower Yukon Area (ADF&G 2004). Commercial fishing in the Lower Yukon Area is typically restricted to 8-inch and larger mesh sizes or unrestricted mesh size. The Upper Yukon Area consists of Districts 4, 5, and 6. Set gillnets and fish wheels are the only legal gear type in the Upper Yukon Area, except for Subdistrict 4-A where drift gillnets are allowed (ADF&G 2004). The majority of the commercial Chinook salmon are harvested from Districts 1 and 2, with smaller harvests occurring in Districts 4, 5, and 6. In recent years, summer chum salmon have not been targeted by commercial fishers (Tracy Lingnau, Summer Season Area Manager, ADF&G, Anchorage; personal communication). Fall chum and coho salmon are typically commercially harvested in Districts 1, 2, 4, and 5. Canadian fishers harvest Chinook and fall chum salmon predominantly with gillnets and fish wheels, near Dawson, Yukon Territory (JTC 2004).

Subsistence fishing occurs throughout the drainage with most of the effort concentrated in the mainstem Yukon River. Alaska state law mandates that subsistence use of fish populations has priority over other uses (AS 16.05.258; ADF&G 2004). Chinook, summer chum, fall chum, and coho salmon are the principal salmon species utilized by subsistence fishers. The primary gear type used by subsistence salmon fishers in Districts 1, 2, and 3 were set and drift gillnets, and a mixture of gillnets and fish wheels were used in Districts 4, 5, and 6 (Brase and Hamner 2003). Unlike commercial fishing, there was no mesh size restriction in the Lower Yukon Area for subsistence gillnets (ADF&G 2004). Many fishers chose 8-inch or larger mesh sizes, known as ‘king nets’, early in the summer run to target larger Chinook salmon and changed to 6-inch or smaller mesh sizes, known as ‘chum nets’, later in the summer run to target smaller chum salmon.

Test fish projects provide assessments of run strength, timing, and age and sex composition. Test fish projects were operated in the mainstem Yukon River, therefore, the harvest was comprised of mixed stocks. Recent test fish projects operated during the Chinook and summer chum salmon season were Big Eddy and Middle Mouth set and drift gillnets (1979–2004) in District 1 near Emmonak; Pilot Station sonar (1963–2004) in District 2; Russian Mission Radiotelemetry Project (2000–2004) in District 3; and Sheep Rock and White Rock fish wheels (1982–2004) in Canada just upstream of the Alaska-Canada border (Figures 1 and 2). Test fish projects operated during the fall chum and coho salmon season were Big Eddy and Middle Mouth drift gillnet (1979–2004); Mountain Village drift gillnet (1995–2004) in District 2; and Kaltag drift gillnet (1991–2004) in Subdistrict 4-A (Figure 2).

Annual assessments of salmon spawning escapements were monitored in Yukon River tributaries by means of weirs, counting towers, sonar projects, and aerial surveys (Bergstrom et al. 2001). The ground based weir, tower, and sonar projects typically included a sampling program, whereby salmon were captured by a trap built into a weir, fishing a beach seine, or carcass sampling. Current weir projects operating in the Yukon River drainage are the East Fork Andreafsky River weir (1981–2004, operated as sonar and tower some years) near Saint Mary’s; Gisasa River weir (1994–2004) and Henshaw Creek weir (1999–2004) in tributaries of the Koyukuk River; and Tozitna River weir (2002–2004) downstream of the village of Tanana (Figures 2 and 3). The Chena River tower (1993–2004) and Salcha River tower (1993–2004) operated in tributaries of the Tanana River near Fairbanks and the Clear Creek weir (1995–2004, operated as a tower some years) operated in a tributary of the Koyukuk River near Hughes (Figure 3). The Anvik River sonar project (1979–2004) operated near Anvik. The Sheenjek River sonar (1981–2004), a tributary of the Porcupine River, operated downstream of Fort Yukon (Figures 2 and 3). Other projects operating in the Tanana River drainage were the Toklat River carcass survey (1994–2004, operated as sonar some years) in a tributary of the Kantishna River; Delta River escapement /tagging/carcass survey (1971–2004) near Delta Junction; and the Otter Creek carcass survey (2001–2004) near Nenana (Figure 3).

Yukon River Area salmon age, sex, and length (ASL) data have been collected since 1960. Data were historically recorded on handwritten forms, computerized mark–sense forms, and most recently, electronic data loggers. An Alaska Department of Fish and Game (ADF&G) project to incorporate all historic salmon ASL data into a centralized database is near completion.

Annual Yukon ASL data summaries have been reported in various formats. From 1962 through 1968, these data were reported in Annual Management Reports or Arctic Anadromous Fishery Investigation Reports. From 1969 through 1981, data were reported in Salmon Age, Sex, and Size Composition, an ADF&G special report series. From 1982 through 1988, data were published in the Technical Fisheries Report series (e.g., Buklis 1987). For the years 1989, 1992, and 1994, data were published in the Regional Information Report series (e.g., Menard 1996). For the years 1990, 1991, 1993, and 1995 through 2003, Yukon ASL data were reported as an unpublished memorandum (e.g., DuBois 2004).

The purpose of this report is to present the 2004 Yukon River Area salmon ASL summary data that was collected at various commercial, subsistence, test, escapement, and research projects throughout the drainage. Summary data are presented as sample percentages and by numbers of fish where possible. The ASL data and summaries provide the basis for a variety of analyses including pre-season run outlooks, assessment of the proportion of females and older-aged fish in escapements, and development of spawner-recruit models and biological escapement goals.

OBJECTIVES

1. Summarize age, sex, and length data from Chinook, summer chum, fall chum, and coho salmon collected by various organizations in the Yukon River drainage.
2. Compare selected age, sex, and length summaries from Chinook, summer chum, fall chum, and coho salmon collected by various organizations in the Yukon River drainage.

METHODS

Chinook, summer chum, fall chum, and coho salmon were sampled for ASL data from commercial and subsistence harvests, test fish, escapement, and research projects throughout the Yukon River drainage. Various state, federal, Canadian, and tribal agencies collected these data. ADF&G staff based in Anchorage processed, analyzed, and reported ASL summary information. Methods described are those procedures recommended by ADF&G and other organizations may have collected and recorded data using slightly different procedures.

SAMPLE DESIGN

A stratified systematic sampling design (Cochran 1977) was used to obtain samples for estimating age, sex, and length compositions from most projects. Strata were assigned as individual fishing periods for commercial harvest samples, time strata of variable length for escapement estimates (weir and sonar projects), run strength indices (such as quartiles for test fish projects), and number of fish sampled for subsistence and carcass samples. Strata were adjusted depending on the number and distribution of samples collected and an attempt was made to include sufficient sample sizes within each stratum to estimate the proportion of each major age class in the catch with $a = 0.05$ and $d = 0.1$ (Bromaghin 1993).

The proportion assigned by age and sex in each stratum were used to characterize the harvest by period in commercial samples and escapement estimates by stratum for sonar and weir projects.

The apportioned fish in each stratum are then summed by age and sex to estimate the composition of the population for the entire season. These procedures for estimating the age and sex compositions for stratified sampling designs were outlined by Cochran (1977):

$$Ctj = CtPtj, \tag{1}$$

$$C.j = \sum_{t=1}^{T} Ctj$$

where:

C_{tj} = estimated number of fish of age/sex class *j* in stratum *t*,

C_t = number of fish caught in stratum *t*,

P_{tj} = proportion of sample in stratum *t* of age/sex class *j*,

T = total number of strata, and

$C._j$ = estimated number of fish of age/sex class *j* for all strata *T*.

As observed from a given location, the ASL composition of a returning salmon population often changes over the course of the season (DuBois and Molyneaux 2000); therefore sample proportions were applied to harvest or escapement estimates only when adequate sample size, strata distribution, and numbers of fish by stratum were available. Commercial harvest samples and tributary escapement monitoring projects utilizing weir or sonar usually met these criteria. Subsistence, test fish, research, and carcass sampling projects usually failed to meet one or more of these criteria and were summarized by sample size only. Sample age and sex percentages were weighted by the respective harvest or escapement from all species in the commercial harvests, all species at the East Fork Andreafsky River, summer chum salmon in the Anvik River, summer chum salmon in Clear Creek, all species in the Gisasa River, all species in Henshaw Creek, and all species in the Tozitna River.

Similar to methods used to weight age and sex the average fish, length for the season is derived by weighting the average length in each stratum by the number of fish represented by that stratum. Average fish lengths were weighted for Chinook and summer chum salmon from the districts 5 and 6 commercial harvests, fall chum salmon from the District 1 commercial harvest, all species at the East Fork Andreafsky River, summer chum salmon in the Anvik River, summer chum salmon in Clear Creek, all species in the Gisasa River, all species in Henshaw Creek, and all species in the Tozitna River.

GENERAL SAMPLING PROCEDURES

Scales were removed from the preferred area of the fish for age determination and mounted on gum cards (INPFC 1963). The preferred area is located on the left side of the fish, 2 rows above the lateral line along a line from the posterior insertion of the dorsal fin to the anterior insertion of the anal fin. One scale was removed from each chum salmon and 3 scales were removed from each Chinook and coho salmon. Scale regeneration, or scale loss and rapid replacement, contributes to aging uncertainties primarily in the freshwater growth area. Chinook and coho salmon usually rear in freshwater for 1 year or longer, hence 3 scales were removed from these fish to minimize the chance of selecting a regenerated scale.

Sex was determined by examining internal reproductive organs or external characteristics such as kype development and presence of reproductive organs at the vent. Big Eddy and Middle Mouth test fish projects and carcass sampling surveys were the only projects where internal organs were examined; hence, these projects have accurate sex composition. Other test fish projects conducted by non-ADF&G staff were instructed to examine internal organs, however, this protocol was not adhered to in all projects. Internal organs were not examined from commercial and subsistence harvests and some non-ADF&G staffed test fisheries because cutting fish would decrease fish value to commercial buyers and subsistence fishers prefer to cut their fish immediately before processing. Lengths from fish sampled in Alaska were determined by measuring each fish from mideye to tail fork (METF) and were recorded to the nearest 5 mm increment. Lengths from fish sampled in Canada were measured from tip-of-snout to fork-of-tail. Field data were recorded in Rite-in-the-Rain books and transferred to mark–sense forms (ADF&G Adult Salmon Age-Length Form, Version 2.1) or entered into Excel files. During lower river commercial harvest, test, and subsistence sampling, age and length data were recorded directly into Juniper data loggers and loaded into an inseason database which streamlined analyses.

SAMPLE COLLECTION

Commercial Harvest Sampling

ADF&G's Division of Commercial Fisheries crews conducted commercial harvest sampling for Chinook, summer and fall chum, and coho salmon in Districts 1, 2, 5, and 6. Sample goals were up to 400 Chinook salmon, 160 summer and fall chum salmon, and 120 coho salmon per period. District 1 samples were collected from a fish processor in Emmonak and District 2 samples were from fish processors in Mountain Village and St. Mary's (Figure 2). Off-loading crews place each salmon in a species-specific tote or bin. When excess fish were not available, crews sampled all available fish until the sample goal was attained. When excess fish were available, sampling crews selected a tote of fish and sampled every fish in the tote. Sampling crews worked quickly to attain sampling goals in the short time between fish being delivered and processing.

Commercial harvests from Chinook and summer chum salmon in Districts 5 and 6 were sampled at a processing plant in North Pole near Fairbanks. Similar to lower river sampling, crews arrived before fish deliveries and worked quickly to achieve sample goals before processing began.

Subsistence Harvest Sampling

Collecting subsistence harvest samples is opportunistic and depends on timing, availability, participation, and logistics. Crews typically sample every fish available because finding fish for sampling consumes much of the time, specifically boat travel among fishing camps. Subsistence harvest sample design is, therefore, what Geiger et al. (1990) termed a "grab or haphazard sample" where we assume the population is nearly in random order and sample what fish we can get. Assuming consistent effort by samplers, more fish are sampled when more fish are available which tends to self-weigh the samples by gear, area, and time period collected.

Subsistence harvest of Chinook and summer chum salmon in District 1 was sampled by staff from the Division of Commercial Fisheries, US Fish and Wildlife Service (USFWS), and Emmonak Tribal Council. Crews sampled fish during weekly subsistence fishing openings in District 1, which were from 8 PM Monday to 8 AM Wednesday and from 8 PM Thursday to 8 AM Saturday. Typically, on Tuesdays and Fridays crews traveled by boat to subsistence fishing camps for sampling. In addition to sex and length data, mesh size was recorded as either chum or king gear as part of a USFWS inseason survey. If fish were already processed, scales were collected without corresponding sex and length data.

Tanana Chiefs Conference employed individuals from selected villages to sample subsistence harvests of Chinook and summer chum salmon. These samples were primarily from villages and fishing camps located in Districts 3 and 4 along the mainstem Yukon River: Holy Cross, Grayling, Nulato, Galena, Bishop Mountain, and Ruby. In addition, samples from the Koyukuk River village of Huslia were collected. When sex and length data were unavailable or not corresponding with age data, only age composition was summarized.

The City of Kaltag collected Chinook salmon samples from Subdistrict 4-A and crews collected Chinook and fall chum salmon samples from Ruby, Nulato, and Tanana.

Test Fish Sampling

Test fish crews sampled up to 30 Chinook, summer chum, and fall chum salmon daily; and up to 20 coho salmon daily. Big Eddy and Middle Mouth test fish projects sampled Chinook salmon from 7.5-inch and 8.5-inch mesh set gillnets, summer chum salmon from 5.5-inch set gillnets, and fall chum and coho salmon from 6.0-inch mesh drift gillnets. These lower river test fish were cut for accurate sex determination. Test fish crews in Mountain Village and Kaltag sampled fall chum and coho salmon from 5 ⅞-inch drift gillnets. Russian Mission and Russian Mission (Dogfish) test fish crews sampled Chinook salmon from 8.5-inch mesh drift gillnets and summer chum salmon from 4.25-inch and 4.5-inch mesh drift gillnets, sex was not recorded, therefore only age composition is available. Pilot Station sonar crew sampled Chinook salmon from a variable mesh drift gillnet, consisting of 2.75-inch, 4.0-inch, 5.0-inch 5.25-inch, 5.75-inch, 6.5-inch, 7.5-inch, and 8.5-inch mesh panels. Test fish crews sampled every fish harvested until their daily sample goal was reached. Fish wheels and drift gillnets (5.5-inch and 7.25-inch mesh) were operated just upstream of the Alaska-Canada border at the Sheep Rock and White Rock sites where Canada Department of Fisheries and Oceans sampled Chinook salmon.

Escapement Sampling

Escapement sampling was conducted by several organizations operating weirs, sonar projects, counting towers, and other ground-based surveys. Escapement sampling goals varied among projects, but were loosely defined as 160 Chinook, 160 summer or fall chum, and 120 coho salmon per event. An event may be weekly sampling goals, quartile-based goals, or a single postseason goal. Sample goals may only be achieved during periods of peak run passage at weir projects. Suggested sample goals, specific project objectives, fish abundance, historical fish passage, run timing, water levels, personnel, and budget are some of the issues considered by project leaders when assessing sample goals. For example, the Anvik River Chinook salmon carcass goal was 400 to provide for adequate samples to digitize 2 major age class groups.

Chinook and summer chum salmon were live sampled using a trap built into weirs at the East Fork Andreafsky, Gisasa, and Tozitna rivers; and Henshaw Creek. Summer chum salmon were live sampled using a weir trap in Clear Creek and a beach seine in the Anvik River. An example of weir sampling and operation is provided by Sundlov et al. (2003). Chinook salmon carcasses were sampled using ground based surveys in the Anvik, Chena, and Salcha rivers. Doxey et al. (2005) provides carcass sampling methods in the Chena and Salcha rivers.

Three fall chum salmon escapement projects, operating on the Delta, Sheenjek, and Toklat Rivers used vertebrae to determine ages. The fish collected in these projects were hand-picked carcasses or captured with a beach seine at or near the spawning grounds, where scales typically exhibit reabsorbtion; hence vertebrae are a more accurate aging structure than fish scales. Coho salmon were sampled from a weir trap on the East Fork Andreafsky River and from carcasses collected in Otter Creek.

Research Sampling

A mark–recapture study was conducted to determine the effects of *Ichthyophonus hoferi* on Chinook salmon. Commercial fisheries crews marked fish by attaching a numbered spaghetti-tag, and collected ASL data from these fish caught in a fish wheel on the mainstem Yukon River near the village of Tanana. These Chinook salmon were bound primarily for Tanana River tributaries. ADF&G crews collected ASL data from fish during the Chena River carcass survey; this was part of the recapture for the *Ichthyophonus* study.

AGE DETERMINATION

Age is determined from the annuli of scales or vertebrae samples. The scales, which are mounted on gum cards, are impressed in cellulose acetate using methods described by Clutter and Whitesel (1956). Scale impressions were magnified and examined in a Microfiche reader. Age was determined by counting the number of freshwater and marine annuli, the regions of the scale where the circuli, or rings, are tightly spaced representing slower growth rates associated with winter conditions (Mosher 1969). Ages were entered into Access, onto mark–sense forms, or into an Excel file, depending upon which format sex and length data were recorded. Ages were recorded using European notation, number of freshwater annuli separated by a decimal from number of marine annuli. Total age from the brood year is the sum of freshwater and marine annuli plus one to account for time spent in the gravel before hatching.

DATA PROCESSING AND ANALYSIS

Age, sex, and length data (ASL) collected from various projects were summarized by species, project, and gear type, depending upon the data recording method. Chinook and summer chum salmon ASL data from lower river commercial harvests (Districts 1 and 2), District 1 subsistence harvest, and Big Eddy and Middle Mouth test fisheries were summarized from an Access database. Students from the University of Alaska Anchorage created this database and wrote summary ASL programs. These programs summarized sample data only; applying sample data to harvest numbers was completed by ADF&G staff. Age and sex proportions were weighted by harvest, however average length was not. Most other projects used mark–sense forms for recording data. An Opscanner reads the mark–sense forms and creates an ASCII file. Summary programs were run which weighed the season total for age, sex, and average length by the harvest or escapement in each stratum from the processed mark sense forms. A third data processing method was used for data received in Excel format and summaries were based on sample sizes calculated using Excel functions; none of these summaries were weighted because these data did not meet the criteria for applying escapement or harvest estimates.

Selected age and sex comparisons were performed between current year projects with similar gear types, between current year values and average values, and between current year values and previous year values. Projects with different gear types were not compared because differences may be attributed to gear selectivity. The p-values associated with age and sex composition comparisons were calculated using one tailed *z*-tests (Zar 1996).

$$z = (p_1 - p_2)/\sqrt{(PQ(1/n_1 + 1/n_2))} \qquad (2)$$

where:

x = number of fish in age or sex class,

n = number sampled,

p = x/n,

$P = (x_1+x_2)/(n_1+n_2)$, and

Q = 1-P.

The p-values associated with comparisons between male and female average length at age were calculated using two tailed *t*-tests (Zar 1996).

$$t = |\ \bar{x}_1 - \bar{x}_2\ |/\sqrt{(s_1^2/n1) + s_2^2/n_2)} \qquad (3)$$

where:

$\bar{x}$ = mean,

s^2 = variance, and

n = number sampled.

The R^2 values associated with correlations between mean length by age and sex were calculated using the Regression equation (Zar 1996).

$$R^2 = 1 - SS_{exp}/SS_{obs} \qquad (4)$$

where:

SS_{exp} = the expected variance, and

SS_{obs} = the observed variance.

RESULTS

CHINOOK SALMON

A total of 13,287 Chinook salmon were sampled for ASL data from the Yukon River in 2004 (Table 1). Chinook salmon ASL summary tables for commercial, subsistence, test, escapement, and research sampling projects are presented in Tables 1–6 and Appendices A1–A33.

CHINOOK SALMON COMMERCIAL HARVEST AGE AND SEX COMPOSITION

ADF&G staff collected commercial harvest samples from 4,948 Chinook salmon in Districts 1, 2, 5, and 6 (Tables 1 and 2; Appendices A1–A3). The age and sex from these samples were applied to the harvests by ADF&G. All commercial periods in District 1 permitted unrestricted mesh size gillnets. Four commercial periods occurred in District 2; the first period was restricted to 8.0-inch mesh or larger, and the remaining 3 periods allowed unrestricted mesh gear. During June, the lower river commercial fishery was directed towards Chinook salmon because the summer chum salmon market was lacking; therefore, 8.0-inch or larger mesh gillnets were likely used during unrestricted periods. Gillnets and fish wheels were used in District 5, and fish wheels in District 6. The combined age composition of the Yukon River Chinook salmon commercial harvest in 2004 was estimated to be 0.2% age-2.4, 3.6% age-1.5, 70.3% age-1.4, 0.1% age-2.2, 19.4% age-1.3, and 6.4% age-1.2 fish; females represented 53.9% of the total (Table 2).

District 1 commercial Chinook salmon harvest and age distribution from large mesh gear from 1985 through 2004 are presented in Table 3. Historical age distribution was readily available and is therefore listed by age group, i.e. the 6-year old age group includes age-1.4 and age-2.3 fish. In 2004, the highest percentage of the harvest, 71.1%, was from 6-year-old fish. The number of fish sampled in 2004 (n=2,427) was largest sample size recorded.

Lower river harvests, Districts 1 and 2 combined, comprised 93.7% of the total Yukon River commercial harvest (Table 2). All 12 commercial fishing periods were sampled in Districts 1 and 2, with 8.4% of the commercial Chinook harvest was sampled in District 1 and 6.5% in District 2 (Table 2; Appendices A1 and A2). The percentage of females was similar in Districts 1 and 2, 54.1% and 56.5% respectively. Age-1.4 Chinook salmon dominated District 1 and 2 commercial harvests and ranged from 61.5% to 77.5% among periods (Appendices A1 and A2). The age and sex composition of Chinook salmon from the 8.0-inch and larger mesh gillnet commercial harvest in District 1 was 6.2% age-1.2, 18.5% age-1.3, 0.2% age-2.2, 71.1% age-1.4, 3.5% age-1.5, and 0.4% age-2.4 fish (Tables 1 and 2; Appendix A1).The age and sex composition of Chinook salmon from the 8.0-inch and larger mesh gillnet commercial harvest in District 2 was 3.7% age-1.2, 18.9% age-1.3, 73.5% age-1.4, and 3.9% age-1.5 fish (Tables 1 and 2; Appendix A2).

In District 5, where harvest samples were collected from fish wheels and gillnets, age-1.4 Chinook salmon were the highest percentage in the harvest (46.1%), followed by age-1.3 (36.6%), age-1.2 (18.1%), and age-1.5 (2.9%) fish, and females represented 37.1% of the harvest (Table 2; Appendix A3). Sampling occurred during 3 of 4 periods and 29.1% of the commercial Chinook harvest was sampled (Appendix A3).

In District 6, where harvest samples were collected solely from fish wheels, age-1.4 Chinook salmon were the highest percentage in the harvest (39.9%), followed by age-1.2 (31.1%), age-1.3 (27.4%), age-1.5 (1.5%), and age-1.1 (0.1%) fish (Table 2; Appendix A4). Fishing occurred during 7 and sampling occurred during 4 of 10 commercial fishing periods, and 23.7% of the commercial Chinook harvest was sampled (Table 2; Appendix A4).

Chinook Salmon Subsistence Harvest Age and Sex Composition

Subsistence harvest samples were collected from 1,608 Chinook salmon in Districts 1, 3, 4 and 5 by ADF&G, the city of Kaltag, and Tanana Chiefs Conference (TCC) (Table 1; Appendices A5-A16). Subsistence harvest estimates are not available, therefore, sample age and sex percentages by location and gear type are reported. Subsistence harvest samples were collected from 5.5-inch and 8.5-inch mesh gillnets in District 1, 8.5-inch mesh gillnets in District 3; 8.0-inch, 8.5-inch, and unknown mesh size gillnets in District 4 (Subdistricts 4-A, 4-B, and 4-C), and fish wheels in Subdistrict 5-B.

The majority of the subsistence harvest samples were from 8-inch and larger gillnets (n=808; Table 1). The age and sex composition from the combined 8.0-inch and 8.5-inch mesh gillnet subsistence harvest samples was 6.8% age-1.2, 19.3% age-1.3, 68.8% age-1.4, and 5.1% age-1.5 fish; females represented 52.3% of the sample (Table 1).

The age and sex composition of Chinook salmon samples collected from the District 1 subsistence 5.5-inch mesh gillnet harvest was 23.3% age-1.2, 42.0% age-1.3, 32.4% age-1.4, and 2.3% age-1.5 fish; females represented 28.2% of the sample (Table 1; Appendices A5 and A6).

The age and sex composition of Chinook salmon samples collected from the District 1 subsistence 8.5-inch mesh gillnet harvest was 5.2% age-1.2, 23.1% age-1.3, 68.5% age-1.4, and 3.1% age-1.5 fish; females represented 49.4% of the sample (Table 1; Appendices A7 and A8).

The age and sex composition of Chinook salmon samples collected from the District 3, (Holy Cross), subsistence 8.5-inch mesh gillnet harvest was 8.4% age-1.2, 15.3% age-1.3, 68.7% age-1.4, and 7.6% age-1.5 fish; females represented 51.9% of the sample (Table 1; Appendix A9).

The age and sex composition of Chinook salmon samples collected from the Subdistrict 4-A, (Kaltag) subsistence 8.5-inch mesh gillnet harvest was 7.2% age-1.2, 16.7% age-1.3, 70.1% age-1.4, and 5.9% age-1.5 fish; females represented 59.3% of the sample (Table 1; Appendix A10).

The age and sex composition of Chinook salmon samples collected from the Subdistrict 4-A (Nulato) subsistence 8.0-inch mesh gillnet harvest was 7.6% age-1.2, 19.4% age-1.3, 67.6% age-1.4, and 5.3% age-1.5 fish; females represented 48.2% of the sample (Table 1; Appendix A11).

The age composition of Chinook salmon samples collected from the Subdistrict 4-A (Grayling) subsistence gillnet harvest was 13.7% age-1.2, 23.1% age-1.3, 62.1% age-1.4, and 1.1% age-1.5 fish (Table 1; Appendix A12).

The age composition of Chinook salmon samples collected from the Subdistrict 4-B (Galena) subsistence gillnet harvest was 3.6% age-1.2, 19.3% age-1.3, 74.7% age-1.4, and 2.4% age-1.5 fish (Table 1; Appendix A13).

The age composition of Chinook salmon samples collected from the Subdistrict 4-B (Bishop Mountain) subsistence gillnet harvest was 5.2% age-1.2, 18.1% age-1.3, 73.5% age-1.4, and 3.2% age-1.5 fish (Table 1; Appendix A14).

The age composition of Chinook salmon samples collected from the Subdistrict 4-C (Ruby) subsistence gillnet harvest was 10.0% age-1.2, 40.0% age-1.3, and 50.0% age-1.4 fish(Table 1; Appendix A15).

The age and sex composition of Chinook salmon samples collected from the Subdistrict 5-B (Tanana) subsistence fish wheel harvest was 21.5% age-1.2, 56.2% age-1.3, 18.2% age-1.4, and 4.1% age-1.5 fish; females represented 19.8% of the sample (Table 1; Appendix A16).

CHINOOK SALMON TEST FISH PROJECTS AGE AND SEX COMPOSITION

Samples were collected at 5 test fish project sites from 3,911 Chinook salmon in the lower, middle and Canadian portions of the Yukon River (Table 1; Appendices A17–A24). Samples were stratified by test fish catch quartiles, when these projects were operated throughout the run, or by mesh size at Pilot Station.

Table 4 presents the combined Big Eddy and Middle Mouth Chinook salmon age distribution from 8.5-inch mesh gillnets from 1985 through 2004. Historical age distribution was readily available and is therefore listed by age group, i.e. the 6-year-old age group includes age-1.4 and age-2.3 fish. In 2004, the highest percentage of the catches, 74.5%, was from 6-year-old fish.

The age and sex composition of Chinook salmon samples collected from the Big Eddy 7.5-inch mesh set gillnet test fish project was 8.3% age-1.2, 19.4% 5-year old, 66.7% age-1.4, and 5.6% age-1.5 fish; and females represented 41.7% of the sample (Table 1; Appendix A17).

The age and sex composition of Chinook salmon samples collected from the Big Eddy 8.5-inch mesh set gillnet test fish project was 2.7% age-1.2, 14.2% age-1.3, 80.1% age-1.4, and 3.0% age-1.5 fish; and females represented 59.3% of the sample (Table 1; Appendix A18).

The age and sex composition of Chinook salmon samples collected from the Middle Mouth 8.5-inch mesh set gillnet test fish project was 0.2% age-1.1, 5.3% age-1.2, 21.2% age-1.3, 70.9% age-1.4, 2.3% age-1.5, and 0.2% age-2.4 fish; females represented 57.4% of the sample (Table 1; Appendix A19).

The age and sex composition of Chinook salmon samples collected from all meshes in the Pilot Station sonar 2.75-inch through 8.5-inch variable mesh drift gillnet test fish project was 0.5% age-1.1, 27.5% age-1.2, 30.3% age-1.3, 0.1% age-2.3, 39.5% age-1.4, 0.1% age-2.3, and 1.9% age-1.5 fish; females represented 35.2% of the total sample (Table 1; Appendix A20).

The age and sex composition of Chinook salmon samples collected from the Pilot Station sonar 2.75-inch mesh panel of the variable mesh drift gillnet test fish project was 7.1% age-1.1, 21.4% age-1.2, 35.7% age-1.3, and 35.7% age-1.4 fish; females represented 21.4% of the sample (Appendix A20).

The age and sex composition of Chinook salmon samples collected from the Pilot Station sonar 4.0-inch mesh panel of the variable mesh drift gillnet test fish project was 3.8% age-1.1, 30.8% age-1.2, 21.2% age-1.3, 42.3% age-1.4, and 1.9% age-1.5 fish; females represented 28.8% of the sample (Appendix A20).

The age and sex composition of Chinook salmon samples collected from the Pilot Station sonar 5.0-inch mesh panel of the variable mesh drift gillnet test fish project was 40.0% age-1.2, 20.0% age-1.3, and 40.0% age-1.4 fish; females represented 40.0% of the sample (Appendix A20).

The age and sex composition of Chinook salmon samples collected from the Pilot Station sonar 5.25-inch mesh panel of the variable mesh drift gillnet test fish project was 48.9% age-1.2, 27.5% age-1.3, 21.4% age-1.4, and 0.5% age-2.3 fish; females represented 20.3% of the sample (Appendix A20).

The age and sex composition of Chinook salmon samples collected from the Pilot Station sonar 5.75-inch mesh panel of the variable mesh drift gillnet test fish project was 50.0% age-1.2, and 50.0% age-1.4 fish; females represented 0.0% of the sample (Appendix A20).

The age and sex composition of Chinook salmon samples collected from the Pilot Station sonar 6.5-inch mesh panel of the variable mesh drift gillnet test fish project was 0.8% age-1.1, 38.2% age-1.2, 33.9% age-1.3, 25.2% age-1.4, and 2.0% age-1.5 fish; females represented 28.3% of the sample (Appendix A20).

The age and sex composition of Chinook salmon samples collected from the Pilot Station sonar 7.5-inch mesh panel of the variable mesh drift gillnet test fish project was 12.9% age-1.2, 39.1% age-1.3, 45.5% age-1.4, and 2.6% age-1.5 fish; females represented 43.8% of the sample (Appendix A20).

The age and sex composition of Chinook salmon samples collected from the Pilot Station sonar 8.5-inch mesh panel of the variable mesh drift gillnet test fish project was 9.1% age-1.2, 20.4% age-1.3, 68.8% age-1.4, and 1.6% age-1.5 fish; females represented 51.6% of the sample (Appendix A20).

The age composition of Chinook salmon samples collected from the Russian Mission 8.5-inch mesh drift gillnet test fish project was 0.4% age-1.1, 7.8% age-1.2, 20.3% age-1.3, 66.4% age-1.4, and 5.1% age-1.5 fish (Table 1; Appendix A21).

The age composition of Chinook salmon samples collected from the Russian Mission (Dogfish) 8.5-inch mesh drift gillnet test fish project was 8.4% age-1.2, 17.3% age-1.3, 69.2% age-1.4, 4.4% age-1.5, 0.6% age-2.4, and 0.2% age-2.5 fish (Table 1; Appendix A22).

The age and sex composition of Chinook salmon samples collected from the Canada, Sheep Rock and White Rock, fish wheel test fish project was 24.9% age-1.2, 41.8% age-1.3, 30.6% age-1.4, 2.0% age-1.5, and 0.7% age-2.5 fish; females represented 23.8% of the total sample (Table 1; Appendix A23).

The age and sex composition of Chinook salmon samples collected from the Canada, Sheep Rock and White Rock 5.5-inch and 7.25-inch mesh gillnet test fish project was 29.7% age-1.2, 48.4% age-1.3, 20.3% age-1.4, and 1.6% age-1.5 fish; females representing 14.1% of the total sample (Table 1; Appendix A24).

CHINOOK SALMON ESCAPEMENT PROJECTS AGE AND SEX COMPOSITION

Samples were collected from 2,820 Chinook salmon at 7 escapement sampling locations in tributaries of the lower and middle Yukon River (Table 1; Appendices A25–A31). Carcass survey sampling was conducted near the end of the spawning run and may not be representative of the escapement. Chinook salmon carcass samples typically have higher percentages of older-aged and female fish compared with non-carcass samples. Age and sex composition from the weir trap samples collected at the East Fork Andreafsky River, Gisasa River, Henshaw Creek, and Tozitna River escapement monitoring projects were applied to the escapement estimates. These estimates are preliminary and individual project reports by the participating agencies should be referenced for final escapement, age, and sex estimates.

A historical summary of age and female percentages from long standing escapement projects is presented in Table 5. At the Anvik and Salcha rivers, samples were collected using carcass surveys. At the Chena River, samples were collected primarily from carcasses; however, some years include a mixture of samples from carcasses and electro-shocked fish. The East Fork Andreafsky River samples were collected from a weir trap since 1994, before that sample collection methods were not well documented.

The age and sex composition of Chinook salmon from the East Fork Andreafsky River weir escapement project was 39.9% age-1.2, 42.6% age-1.3, 17.1% age-1.4, and 0.4% age-1.5 fish; females represented 37.3% of the escapement (Table 1; Appendix A25).

The age and sex composition of Chinook salmon samples collected from the Anvik River carcass survey escapement project was 0.6% age-1.1, 32.2% age-1.2, 40.7% age-1.3, 25.6% age-1.4, and 0.9% age-1.5 fish; females represented 27.7% of the sample (Table 1; Appendix A26).

The age and sex composition of Chinook salmon samples collected from the Chena River carcass survey escapement project was 8.9% age-1.2, 17.7% age-1.3, 71.5% age-1.4, and 1.9% age-1.5 fish; females represented 66.5% of the sample (Table 1; Appendix A27).

The age and sex composition of Chinook salmon from the Gisasa River weir escapement project was 0.5% age-1.1, 41.2% age-1.2, 32.9% age-1.3, 25.2% age-1.4, and 0.2% age-1.5 fish; females represented 30.1% of the escapement (Table 1; Appendix A28).

The age and sex composition of Chinook salmon from the Henshaw Creek weir escapement project was 0.1% age-1.1, 45.7% age-1.2, 27.4% age-1.3, 26.0% age-1.4, and 0.8% age-1.5 fish; females represented 21.3% of the escapement (Table 1; Appendix A29).

The age and sex composition of Chinook salmon samples collected from the Salcha River carcass survey escapement project was 9.2% age-1.2, 8.3% age-1.3, 81.7% age-1.4, and 0.9% age-1.5 fish; females represented 62.9% of the sample (Table 1; Appendix A30).

The age and sex composition of Chinook salmon from the Tozitna River weir escapement project was 0.4% age-1.1, 38.6% age-1.2, 40.2% age-1.3, 19.9% age-1.4, and 0.9% age-1.5 fish; females represented 17.7% of the sample (Table 1; Appendix A31).

CHINOOK SALMON RESEARCH PROJECTS AGE AND SEX COMPOSITION

Samples were collected at 2 research project sites from 154 Chinook salmon. ADF&G conducted a carcass survey in the Chena River and collected samples from fish caught in a fish wheel on the mainstem Yukon River near the village of Tanana, where fish were marked for the *Ichthyophonus* mark–recapture study (Table 1; Appendices A32 and A33).

The age and sex composition of Chinook salmon samples collected from the Chena River carcass survey research project was 14.8% age-1.2, 16.0% age-1.3, 64.2% age-1.4, and 4.9% age-1.5 fish; females represented 56.8% of the sample (Table 1; Appendix A32).

The age and sex composition of Chinook salmon samples collected from the Tanana River fish wheel research project was 5.5% age-1.2, 31.5% age-1.3, 61.7% age-1.4, and 1.4% age-1.5 fish; females represented 63.0% of the sample (Table 1; Appendix A33).

CHINOOK SALMON MEAN LENGTH

The mean lengths of Chinook salmon, by sex and project, are summarized in Table 6. The average mean lengths by age and sex for all Alaskan projects combined were: 381 mm for age-1.1 males, 609 mm for age-1.2 males, 630 mm for age-1.2 females, 717 mm for age-1.3 males, 768 mm for age-1.3 females, 846 mm for age-1.4 males, 864 mm for age-1.4 females, 725 mm for age-2.3 males, 955 mm for age-1.5 males, 918 mm for age-1.5 females, 851 for age-2.4 males, and 889 mm for age-2.4 females. Mean lengths from Canadian projects were not included because a different length measurement type was used.

SUMMER CHUM SALMON

A total of 8,186 summer chum salmon were sampled for ASL data from the Yukon River area in 2004 (Table 7). Summer chum salmon ASL summary tables for commercial, subsistence, test, and escapement sampling projects are presented in Tables 7–11 and Appendices B1–B20.

SUMMER CHUM SALMON COMMERCIAL CATCH AGE AND SEX COMPOSITION

ADF&G collected commercial harvest samples from 1,983 summer chum salmon in Districts 1, 2, and 6 (Tables 7 and 8; Appendices B1–B3). All commercial periods in District 1 permitted unrestricted mesh size gillnets. Four commercial periods occurred in District 2; the first period was restricted to 8.0-inch mesh or larger, and the remaining 3 periods permitted unrestricted mesh. District 6 commercial harvests of summer chum salmon were from fish wheels. The combined age composition of the Yukon River summer chum salmon commercial harvest in 2004 was 2.4% age-0.2, 40.7% age-0.3, 56.7% age-0.4, and 0.3% age-0.5 fish; females represented 44.9% of the harvest (Table 8).

Lower river harvests, Districts 1 and 2 combined, comprised 75.2% of the total Yukon River commercial harvest (Table 8). All 12 commercial periods were sampled in Districts 1 and 2; 5.7% of the commercial summer chum harvest was sampled in District 1, and 9.5% was sampled in District 2 (Table 8; Appendices B1 and B2). The percentage of females was similar in Districts 1 and 2, 45.2% and 40.7%, respectively (Tables 7 and 8; Appendices B1 and B2).

The age and sex composition of summer chum salmon from the 8.0-inch and larger mesh gillnet commercial harvest in District 1 was 4.3% age-0.2, 42.5% age-0.3, 52.8% age-0.4, and 0.4% age-0.5 fish; females represented 45.2% of the harvest (Tables 7 and 8; Appendix B1).

The age and sex composition of summer chum salmon from the 8.0-inch and larger mesh gillnet commercial harvest in District 2 was 1.1% age-0.2, 36.8% age-0.3, 61.9% age-0.4, and 0.2% age-0.5 fish; females represented 34.2% of the harvest (Tables 7 and 8; Appendix B2).

In District 6, where harvest samples were collected from fish wheels, fishing occurred during 7 and sampling occurred during 4 of 10 9.3% of the commercial summer chum harvest was sampled (Table 8; Appendix B3).

The age and sex composition of summer chum salmon from the District 6 commercial fish wheel harvest was 0.2% age-0.2, 41.8% age-0.3, 57.9% age-0.4 and 0.1% age-0.5 fish; females represented 56.7% of the harvest (Tables 7 and 8; Appendix B3).

SUMMER CHUM SALMON SUBSISTENCE HARVEST AGE AND SEX COMPOSITION

Subsistence harvest samples were collected from 785 summer chum salmon in Districts 1, 3, and 4 by ADF&G and TCC (Table 7; Appendices B4–B11). Samples were collected from 5.5-inch and 8.5-inch mesh gillnets in District 1, 8.5-inch mesh gillnets in District 3, and unknown mesh size gillnets in District 4 and Huslia. Sex was not recorded for all fish sampled.

The age composition from the combined subsistence and commercial summer chum samples (n=2,768) from all gear types and locations was 1.7% age-0.2, 38.6% age-0.3, 59.1% age-0.4, and 0.5% age-0.5 fish (Table 9).

The age and sex composition of summer chum salmon samples collected from the District 1 subsistence 5.5-inch mesh gillnet harvest was 22.2% age-0.3, 76.0% age-0.4, 1.5% age-0.5, and 0.2% age-0.6 fish; females represented 42.4% of the sample (Table 7; Appendices B4 and B5).

The age and sex composition of summer chum salmon samples collected from the District 1 subsistence 8.5-inch mesh gillnet harvest was 32.3% age-0.3 and 67.7% age-0.4 fish; females represented 58.1% of the sample (Table 7; Appendix B6).

The age and sex composition of summer chum salmon samples collected from the District 3, Holy Cross, subsistence 8.5-inch mesh gillnet harvest was 38.5% age-0.3 and 61.5% age-0.4 fish; females represented 30.8% of the sample (Table 7; Appendix B7).

The age and sex composition of summer chum salmon samples collected from the, Huslia subsistence gillnet harvest was 0.9% age-0.2, 53.7% age-0.3, 42.6% age-0.4, and 2.8% age-0.5 fish; females represented 7.4% of the sample (Table 7; Appendix B8). The unusually low percentage of females suggests incorrect sex identification may have occurred.

The age composition of summer chum salmon samples collected from Subdistrict 4-A, Grayling, subsistence gillnet harvest was 2.2% age-0.2, 42.7% age-0.3, and 55.1% age-0.4 fish (Table 7; Appendix B9).

The age composition of summer chum salmon samples collected from Subdistrict 4-B, Bishop Mountain, subsistence gillnet harvest was 61.1% age-0.3, and 38.9% age-0.4 fish (Table 7; Appendix B10).

The age composition of summer chum salmon samples collected from Subdistrict 4-C, Ruby, subsistence gillnet harvest was 5.3% age-0.2, 31.6% age-0.3, and 63.2% age-0.4 fish (Table 7; Appendix B11).

SUMMER CHUM SALMON TEST FISH PROJECTS AGE AND SEX COMPOSITION

Samples were collected at 3 test fish project sites from 705 summer chum salmon in the Lower Yukon River. ADF&G staff fished 5.5-inch mesh set gillnets at the Big Eddy and Middle Mouth test fish sites, and 4.25-inch and 4.5-inch mesh drift gillnets were used at the Russian Mission test fish site (Table 7; Appendices B12–B14).

The age and sex composition of summer chum salmon samples collected from the combined Big Eddy and Middle Mouth 5.5-inch mesh set gillnet test fish projects was 3.1% age-0.2, 40.1% age-0.3, and 56.8% age-0.4 fish; females represented 66.6% of the sample (Table 10).

The age and sex composition of summer chum salmon samples collected from the Big Eddy 5.5-inch mesh set gillnet test fish project was 1.8% age-0.2, 41.1% age-0.3, and 57.1% age-0.4 fish; females represented 66.6% of the sample (Table 7; Appendix B12).

The age and sex composition of summer chum salmon samples collected from the Middle Mouth 5.5-inch mesh set gillnet test fish project was 5.1% age-0.2, 38.5% age-0.3, and 56.4% age-0.4 fish; females represented 65.1% of the sample (Table 7; Appendix B13).

The age composition of chum salmon samples collected from the Russian Mission 4.25-inch and 4.5-inch mesh drift gillnet test fish project was 6.0% age-0.2, 31.5% age-0.3, 62.0% age-0.4, and 0.5% age-0.5 fish (Table 7; Appendix B14).

SUMMER CHUM SALMON ESCAPEMENT PROJECTS AGE AND SEX COMPOSITION

Samples were collected at 6 escapement project sites from 4,713 summer chum salmon in tributaries of the lower and middle Yukon River (Table 7; Appendices B15–B20). Age and sex percentages from the samples were applied to the escapement estimates. These estimates are preliminary and individual project reports by the participating agencies should be referenced for final escapement age and sex estimates.

The age and sex composition of summer chum salmon from the East Ford Andreafsky River weir escapement project was 4.3% age-0.2, 72.5% age-0.3, and 23.1% age-0.4 fish; females represented 51.4% of the escapement (Table 7; Appendix B15).

The age and sex composition of summer chum salmon from the Anvik River sonar beach seine escapement project was 2.5% age-0.2, 40.9% age-0.3, 56.1% age-0.4, and 0.5% age-0.5 fish; females represented 53.3% of the escapement (Table 7; Appendix B16).

The age and sex composition of summer chum salmon from the Clear Creek weir escapement project was 2.1% age-0.2, 66.4% age-0.3, 31.2% age-0.4, and 0.3% age-0.5 fish; females represented 44.7% of the escapement (Table 7; Appendix B17).

The age and sex composition of summer chum salmon from the Gisasa River weir escapement project was 6.4% age-0.2, 73.8% age-0.3, and 19.7% age-0.4 fish; females represented 44.9% of the escapement (Table 7; Appendix B18).

The age and sex composition of summer chum salmon from the Henshaw Creek weir escapement project was 6.4% age-0.2, 86.9% age-0.3, and 6.7% age-0.4 fish; females represented 54.6% of the escapement (Table 7; Appendix B19).

The age and sex composition of summer chum salmon from the Tozitna River weir escapement project was 2.7% age-0.2, 62.6% age-0.3, 34.6% age-0.4, and 0.1% age-0.5 fish; females represented 46.5% of the escapement (Table 7; Appendix B20).

SUMMER CHUM SALMON MEAN LENGTH

The mean lengths of summer chum salmon by sex and project are summarized in Table 11. The average mean lengths from all projects combined were: 543 mm for age-0.2 males, 526 mm for age-0.2 females, 574 mm for age-0.3 males, 555 mm for age-0.3 females, 597 mm for age-0.4 males, 569 mm for age-0.4 females, 627 mm for age-0.5 males, 606 mm for age-0.5 females, and 575 for age-0.6 males (Table 11; Appendices B1–B20).

FALL CHUM SALMON

A total of 2,278 fall chum salmon were sampled for ASL data from the Yukon River in 2004 (Table 7). Fall chum salmon ASL summary tables for commercial, subsistence, test, and escapement sampling projects are presented in Tables 7, 8, and 11, and Appendices C1–C9.

FALL CHUM SALMON COMMERCIAL HARVEST AGE AND SEX COMPOSITION

ADF&G collected samples from 386 fall chum salmon in the District 1 commercial harvest (Tables 7 and 8; Appendix C1). All District 1 fall chum commercial fishing periods permitted unrestricted mesh sizes; because fall chum and coho salmon were the target species, 6.0-inch or smaller mesh gillnets were likely used.

The age and sex composition of fall chum salmon from the 6.0-inch and smaller mesh gillnet commercial harvest in District 1 was 56.4% age-0.2, 31.4% age-0.3, 11.9% age-0.4, and 0.3% age-0.5 fish; females represented 59.3% of the harvest (Tables 7 and 8; Appendix C1).

FALL CHUM SALMON SUBSISTENCE HARVEST AGE AND SEX COMPOSITION

ADF&G staff collected subsistence fish wheel harvest samples from 250 fall chum salmon in Subdistrict 5-B, Tanana and Rapids (Table 7; Appendix C2).

The age and sex composition of fall chum salmon samples from the Subdistrict 5-B subsistence fish wheel harvest, collected from Rampart Rapids and the village of Tanana, was 19.6% age-0.2, 55.2% age-0.3, and 25.2% age-0.4 fish, and females represented 49.6% of the sample (Table 7; Appendix C2).

Fall Chum Salmon Test Fish Projects Age and Sex Composition

Samples were collected from 4 test fish projects from 1,195 fall chum salmon in the lower and middle Yukon River. In the lower river, ADF&G staff sampled 6.0-inch mesh drift gillnet catches at the Big Eddy and Middle Mouth test fish project sites, and Asacarsarmiut Traditional Council samples 5 ⅞-inch mesh drift gillnet catches near Mountain Village. In the middle river, the City of Kaltag sampled 5 ⅞-inch mesh drift gillnet catches near Kaltag (Table 7; Appendices C3–C6).

The age and sex composition of fall chum salmon samples collected from the Big Eddy 6.0-inch mesh drift gillnet test fish project was 12.8% age-0.2, 52.7% age-0.3, and 34.6% age-0.4 fish; females represented 53.7% of the sample (Table 7; Appendix C3).

The age and sex composition of fall chum salmon samples collected from the Middle Mouth 6.0-inch mesh drift gillnet test fish project was 24.2% age-0.2, 47.4% age-0.3, 27.3% age-0.4, and 1.0% age-0.5 fish; females represented 66.0% of the sample (Table 7; Appendix C4).

The age and sex composition of fall chum salmon samples collected from the Mountain Village 5 ⅞-inch mesh drift gillnet test fish project was 20.3% age-0.2, 51.0% age-0.3, and 28.7% age-0.4 fish; females represented 57.1% of the sample (Table 7; Appendix C5).

The age and sex composition of fall chum salmon samples collected from the Kaltag 5 ⅞-inch mesh drift gillnet test fish project was 14.9% age-0.2, 57.7% age-0.3, and 27.4% age-0.4 fish; females represented 48.9% of the sample (Table 7; Appendix C6).

Fall Chum Salmon Escapement Projects Age and Sex Composition

Samples were collected at 3 escapement project sites from 447 fall chum salmon in tributaries of the middle Yukon River. ADF&G conducted carcass surveys in the Delta and Toklat rivers and sampled fish caught in a beach seine at the Sheenjek River sonar site (Table 7; Appendices C7–C9). Fall chum escapement projects collected vertebrae samples to determine age instead of scales, which are used in all other projects in the Yukon area.

The age and sex composition of fall chum salmon samples collected from the Delta River carcass survey escapement project was 19.5% age-0.2, 60.4% age-0.3, 19.5% age-0.4, and 0.6% age-0.5 fish; females represented 50.9% of the sample (Table 7; Appendix C7).

The age and sex composition of fall chum salmon samples collected from the Sheenjek River beach seine escapement project was 11.5% age-0.2, 61.5% age-0.3, 25.0% age-0.4, and 1.9% age-0.5 fish; females represented 38.5% of the sample (Table 7; Appendix C8).

The age and sex composition of fall chum salmon samples collected from the Toklat River carcass survey escapement project was 10.9% age-0.2, 72.4% age-0.3, 16.1% age-0.4, and 0.6% age-0.5 fish; females represented 35.6% of the sample (Table 7; Appendix C9).

Fall Chum Salmon Mean Length

The mean lengths of fall chum salmon, by sex and project, are summarized in Table 11. The average of the mean lengths for all projects combined were: 580 mm for age-0.2 males, 571 mm for age-0.2 females, 603 mm for age-0.3 males, 584 mm for age-0.3 females, 621 mm for age-0.4 males, 599 mm for age-0.4 females, 601 mm for age-0.5 males, and 592 mm for age-0.5 females (Table 11; Appendices C1-C9).

COHO SALMON

A total of 1,463 coho salmon were sampled for ASL data from the Yukon River area in 2004 (Table 12). Coho salmon ASL summary tables for commercial, test, and escapement sampling projects are presented in Tables 12 and 13 and Appendices D1–D7.

COHO SALMON COMMERCIAL HARVEST AGE AND SEX COMPOSITION

ADF&G staff collected ASL data from 273 coho salmon in the District 1 commercial gillnet harvest (Table 12; Appendix D1). All District 1 coho commercial fishing periods permitted unrestricted mesh sizes, because fall chum and coho were the target species, 6.0-inch or smaller mesh gillnets were likely used.

The age and sex composition of coho salmon from the 6.0-inch and smaller mesh gillnet commercial harvest in District 1 was 14.4% age-1.1 , 81.2% age-2.1 , and 4.4% age-3.1 fish; females represented 47.4% of the harvest (Table 12; Appendix D1).

COHO SALMON TEST FISH PROJECTS AGE AND SEX COMPOSITION

Samples were collected at 4 test fish project sites from 446 coho salmon in the lower and middle Yukon River. In the lower river, ADF&G used 6.0-inch mesh drift gillnets at the Big Eddy and Middle Mouth test fish project sites, the Asacarsarmiut Traditional Council used 5 ⅞-inch mesh drift gillnets near Mountain Village. In the middle river, the City of Kaltag used 5 ⅞-inch mesh drift gillnets near Kaltag (Table 12; Appendices D2–D5).

The age and sex composition of coho salmon samples collected from the Big Eddy 6.0-inch mesh drift gillnet test fish project was 6.9% age-1.1 , 89.7% age-2.1, and 3.4% age-3.1 fish; females represented 51.7% of the sample (Table 12; Appendix D2).

The age and sex composition of coho salmon samples collected from the Middle Mouth 6.0-inch mesh drift gillnet test fish project was 22.0% age-1.1 , 74.0% age-2.1, and 4.0% age-3.1 fish; females represented 35.0% of the sample (Table 12; Appendix D3).

The age and sex composition of coho salmon samples collected from the Mountain Village 5 ⅞-inch mesh drift gillnet test fish project was 11.7% age-1.1 , 84.4% age-2.1, and 3.9% age-3.1 fish; females represented 51.7% of the sample (Table 12; Appendix D4).

The age and sex composition of coho salmon samples collected from the Kaltag 5 ⅞-inch mesh drift gillnet test fish project was 32.1% age-1.1 , 67.0% age-2.1, and 0.9% age-3.1 fish; females represented 41.1% of the sample (Table 12; Appendix D5).

COHO SALMON ESCAPEMENT PROJECTS AGE AND SEX COMPOSITION

Samples were collected at 2 escapement project sites from 605 coho in tributaries of the lower and middle Yukon River. In the lower river, USFWS operated a weir in the East Fork Andreafsky River, and in the middle river, the Bering Sea Fisherman's Association (BSFA) conducted a carcass survey in Otter Creek, a tributary of the Nenana River (Table 12; Appendices D6-D7).

The age and sex composition of coho salmon from the East Fork Andreafsky River weir escapement project was 7.0% age-1.1, 91.7% age-2.1, and 1.3% age-3.1 fish; females represented 50.6% of the escapement (Table 12; Appendix D6).

The age and sex composition of coho salmon samples collected from the Otter Creek carcass survey escapement project was 24.6% age-1.1, and 75.4% age-2.1 fish; females represented 52.5% of the total sample (Table 12; Appendix D7).

COHO SALMON MEAN LENGTH

The mean lengths of coho salmon are summarized by sex and project in Table 13. The average mean lengths for all projects combined were: 587 mm for age-1.1 males, 532 mm for age-1.1 females, 574 mm for age-2.1 males, 574 mm for age-2.1 females, 668 mm for age-3.1 males, and 569 mm for age-3.1 females (Table 13; Appendices D1–D7).

DISCUSSION

CHINOOK SALMON COMMERCIAL HARVEST

The commercial harvest of Chinook salmon from all four districts fished in 2004, Districts 1 and 2 in the lower river and Districts 5 and 6 in the middle river, are shown in Table 2. The age and sex compositions were similar between the 2 lower river districts and between the 2 middle river districts, but the lower and middle river districts show significantly different percentages by age and sex. For example, comparing the combined middle river age and sex composition to those from the combined lower river, the middle river showed a 19.6% increase in age-1.2 fish ($p<0.01$), a 11.4% increase in age-1.3 fish ($p<0.01$), a 29.2% decrease in age-1.4 fish ($p<0.01$), and a 19.5% decrease in females ($p<0.01$). Lower river commercial harvests were from large-mesh gillnets and middle river commercial harvests were predominantly from fish wheels. Fish wheels select for smaller size fish than large-mesh gillnets, favoring younger fish including Chinook jacks, which are typically age-1.2 males and are defined as fish with a mideye to tail fork length less than 655 mm. This accounts for the higher percentages of young and male Chinook salmon sampled in Districts 5 and 6 compared to Districts 1 and 2 (Table 2; Appendices A1–A4).

The District 1 commercial harvest percentages by age group and females, using 8.0-inch or larger mesh gillnets, is shown from 1985 through 2004 in Table 3. The District 1 commercial harvest of Chinook salmon in 2004 was 29,038 fish, which is a 45% increase compared to the 5-year average (1998–2003) harvest. Comparing the 2004 percentages to the 5-year (1998–2003) averages, most age groups and female percentages were significantly different (z-tests, $p\leq0.01$ for each test). For example, the 2004 commercial harvest of Chinook salmon caught in 8.0-inch and larger mesh gillnets showed a 4.0% increase in 4-year-old fish, a 9.9% decrease in 5-year-old fish, a 9.4% increase in 6-year-old fish, a 3.6% decrease in 7-year-old fish, and a 3.9% increase in females when compared to the 5-year (1998–2003) average. This signifies a notable difference in 2004 compared to the recent 5-year average, but the percentages by age group and females varies substantially since 1985, so these differences may reflect natural fluctuations. The below average 4-year-old and above average 5-year-old percentages in the 2003 District 1 harvest predicted below average 5-year-old and above average 6-year-old percentages in the 2004 harvest. The 2004 percentage of 4-year-old (age-1.2) Chinook salmon, 6.2%, was the highest since 1990. The above average 4-year-old and 6-year-old percentages in 2004 predict above average 5-year-old and 7-year old percentages in the 2005 harvest, assuming similar mesh sizes are fished.

CHINOOK SALMON SUBSISTENCE HARVEST

The combined age and sex composition of the Yukon River Chinook salmon subsistence harvest samples from 8.0-inch and larger mesh gillnets were similar to the lower river commercial harvest. Considering subsistence samples collected in large mesh gillnets, age-1.4 Chinook salmon showed the highest percentages (67.6–70.1%), followed by age-1.3 (15.3–23.1%), age-1.2 (5.2–8.4%), and age-1.5 fish (3.1–7.6%), and females represented 48.2–59.3% of the total sample (Table 1; Appendices A7–A11).

The combined age and sex composition from the 5.5-inch mesh gillnet and fish wheel subsistence harvests were similar to the middle river commercial harvest which was predominantly from fish wheels. Considering subsistence samples collected in small mesh gillnets and fish wheels, age-1.3 Chinook salmon showed the highest percentages (42.0–56.2%), followed by age-1.4 (18.2–32.4%), age-1.2 (21.5–23.3%), and age-1.5 fish (2.3–4.1%), and females represented 19.8–28.2% of the total sample (Table 1; Appendices A6 and A16). Similar to the commercial harvest, the difference in age and sex composition from Chinook salmon subsistence harvests using different gear types can be attributed to gear selectivity bias between large-mesh gillnets and fish wheels.

CHINOOK SALMON TEST FISH PROJECTS

Age composition from test fish projects using large-mesh gillnets (≥7.5-inch, including 7.5-inch and 8.5-inch panels from the Pilot Station variable mesh gillnet) were similar, age-1.4 Chinook salmon showed the highest percentages (45.5–80.1%), followed by age-1.3 (14.2–39.1%), age-1.5 (1.6–5.6%), age-1.2 (2.7–8.9%), and age-1.1 (0–0.4%). The percentage of females from test fish projects using large-mesh gillnets, excluding Russian Mission and Dogfish where sexes were not recorded, ranged from 41.7% to 59.3% (Table 1; Appendices A17–A22).

Age composition from test fish projects using small mesh gillnets (≤7.25-inch, including 4.0-inch, 5.25-inch, and 6.5-inch panels from the Pilot Station variable mesh gillnet) and fish wheels were similar, age-1.3 Chinook salmon showed the highest percentages (45.5–80.1%), followed by age-1.4 (20.3–42.3%), age-1.2 (24.9–48.9%), age-1.5 (1.6–2.7%), and age-1.1 fish (0–3.8%) (Table 1; Appendices A20, A23, and A24). The percentage of females from test fish projects using small mesh gillnets and fish wheels, ranged from 14.1% to 35.2%.

The 2 lower river test fish projects, Big Eddy and Middle Mouth, 8.5-inch mesh set gillnet test fisheries have operated from 1985 to present, usually from the end of May through July 15. A historical summary of age and female percentages from these 2 projects combined is presented in Table 4. The 2004 percentages were compared to the 1999–2003 averages, and the 4-year-old and 7-year-old age groups were significantly different. The 2004 percentage showed a 3.3% increase in 4-year-old ($p<0.01$), and a 5.2% decrease in 7-year-old fish ($p<0.01$) compared with the 1999–2003 average (Table 4). The below average 4-year-old percentage at Big Eddy and Middle Mouth in 2003 predicted the slightly below average 5-year-old percentage in 2004. The above average 4-year-old (age-1.2) percentage at Big Eddy and Middle Mouth in 2004 agrees with the trends observed in the commercial harvest (Table 3). Again, this predicts an above average percentage of 5-year-old Chinook salmon in 2005.

CHINOOK SALMON ESCAPEMENT PROJECTS

Age compositions from 4 escapement projects using weir traps were similar; age-1.2 Chinook salmon showed the highest percentages (38.6–45.7%), followed by age-1.3 (27.4–42.6%), age-1.4 (17.1–26.0%), age-1.5 (0.2–0.9%), and age-1.1 (0–0.5%) fish; females represented from 17.7% to 37.3% of the escapements (Table 1; Appendices A25, A28, A29, and A31).

The Tozitna River weir reported the lowest percentage of female Chinook salmon, 17.7% (Table 1). This was significantly lower, 16.8% ($p<0.01$) than female percentages from all other escapement projects combined, and 11.2% ($p<0.01$) lower than all other weir escapement projects combined. The age-1.2 percentage from Tozitna River weir was not significantly different from all other weir escapement projects combined; therefore the lower female percentage from Tozitna cannot be attributed to an increased percentage of younger male Chinook salmon. In 2003, a low female percentage from Tozitna, 18.6%, was also observed (DuBois 2004); it appears this project may have an inherently lower percentage of females compared with other weir projects.

Chinook salmon age compositions from 3 escapement projects using carcass survey samples were dissimilar; Anvik River samples correspond to the 4 weir projects but Chena River and Salcha River carcass survey escapement projects differ markedly when compared to the other escapement projects. Age compositions for Chena River and Salcha River carcass projects have the highest age-1.4 percentage of Chinook salmon (71.5–81.7%), followed by age-1.3 (17.7–8.3%), age-1.2 (8.9–9.2%), and age-1.5 fish (0.9–1.9%); females represented 62.9% to 66.5% of the samples (Table 1; Appendices A27 and A30). Comparing Chena and Salcha rivers to other escapement projects, age-1.2, -1.3, and -1.4 fish and females were significantly different. Chena and Salcha rivers combined age compositions showed a 31.4% increase in age-1.2 ($p<0.01$), a 23.7% increase in age-1.3 ($p<0.01$), a 54.7% decrease in age-1.4 fish ($p<0.01$), and a 37.5% increase in females ($p<0.01$) (Table 1). Carcass sampling can be biased when water levels carry smaller and predominately younger male fish downstream out of the carcass survey area, and larger predominately older female fish are deposited in pools and eddies within the carcass survey area. The age and sex composition from all 3 carcass survey escapement projects for the past 20 years shows a high variability in sex and age composition (Table 5). Some variability can be attributed to a carcass sampling bias where specific river conditions (depth, velocity, visibility, excessive silting, etc.) select for carcasses from larger fish to be easier to locate than smaller fish.

Percentages of 4-year-old and 6-year-old Chinook salmon from East Fork Andreafsky River weir escapement project were significantly different when comparing the 2004 values to the 1999–2003 averages. The 2004 Chinook salmon from the East Fork Andreafsky River showed a 18.3% increase in 4-year-old fish($p<0.01$) and a 20.1% decrease in 6-year-old fish ($p<0.01$) compared to the 1999–2003 average (Table 5). The increase in 4-year-old fish agrees with lower river commercial and test fish samples, but the decrease in 6-year-old fish does not. Values similar to these have been observed in the past 20 years and may be natural fluctuations.

Percentages of 4-year-old, 6-year-old, and female Chinook salmon from the Anvik River carcass survey escapement project were significantly different when comparing the 2004 values to the 1999–2003 averages. The 2004 Chinook salmon sampled from the Anvik River carcass survey showed the highest percentage of 4-year-old fish in the past 20 years and the lowest female percentage since 1985. The 2004 percentages showed a 21.1% increase in 4-year-old fish ($p<0.01$), an 18.6% decrease in 6-year-old fish ($p<0.01$), and a 9.0% decrease in females ($p=0.01$) compared to the 1999–2003 average (Table 5). The increase in 4-year-old fish is similar to East Fork Andreafsky River fish and harvests from lower river commercial and test fish; the decrease in 6-year-old fish agrees with the values observed from the East Fork Andreafsky River, but does not agree with the lower river commercial and test fish trends. Again, values similar to these have been observed in the past 20 years and may be natural fluctuations.

Percentages of 4-year-old, 5-year-old, and 6-year-old Chinook salmon and females from the Chena River carcass survey escapement project were significantly different when comparing the 2004 values to the 1999–2003 averages. The 2004 Chinook salmon sampled from the Chena River carcass survey showed the highest percentage of 6-year-old fish since 1987 and the highest female percentage in the past 20 years. The 2004 sample percentages showed a 5.4% decrease in 4-year-old ($p=0.04$), a 16.4% decrease in 5-year-old ($p<0.01$), a 25.0% increase in 6-year-old ($p<0.01$), and a 23.6% increase in female Chinook salmon ($p<0.01$) compared to the 1999–2003 average (Table 5).

Percentages of 4-, 5-, 6-, and 7-year-old Chinook salmon and females from the Salcha River carcass survey escapement project were significantly different when comparing the 2004 values to the 1999–2003 averages. The 2004 Chinook salmon sampled from the Salcha River carcass survey showed the lowest percentage of 5-year-old fish and the highest percentages of 6-year-old fish and females in the past 20 years. The 2004 percentages showed a 7.8% decrease in 4-year-old ($p=0.01$), a 24.3% decrease in 5-year-old ($p<0.01$), a 36.9% increase in 6-year-old ($p<0.01$), a 4.5% decrease in 7-year-old ($p<0.01$), and a 20.2% increase in female Chinook salmon ($p<0.01$) compared to the 1999–2003 average (Table 5). These trends parallel those observed at the Chena River carcass survey, also a tributary of the Tanana River, and were opposite to trends observed at the 2 lower river escapement projects, East Fork Andreafsky and Anvik rivers. These values suggest 6-year-old fish and females predominated in tributaries of the Tanana, however, caution is advised when interpreting carcass sampling results and historical values vary greatly (Table 5).

CHINOOK SALMON RESEARCH PROJECTS

ADF&G staff conducting the *Ichthyophonus* Research Project collected samples from carcasses in the Chena River and from fish wheels near Tanana. The age and sex compositions from the Chena River carcass survey *Ichthyophonus* research project were similar to the Chena River carcass survey escapement project, and were collected during similar dates (Appendices A27 and A33).

Age and sex compositions from the Tanana River fish wheel research project were not similar to the Tanana subsistence fish wheel samples, which were collected during similar dates but from different locations (Appendices A16 and A32). The Tanana research samples were collected from a fish wheel located on the south bank and the Tanana subsistence samples were from the north bank; neither of these 2 sampling locations were located within the Tanana River, however, the Tanana research samples were from a location which targets fish bound for the Tanana River.

Tanana research sample percentages showed a 16.0% decrease in age-1.2, a 24.7% decrease in age-1.3 ($p<0.01$), a 43.5% increase in age-1.4 ($p<0.01$), and a 43.2% increase in female Chinook salmon ($p<0.01$) when compared to Tanana subsistence fish wheel samples. The increased percentages of age-1.4 fish and females from the Tanana research sample were consistent with trends observed from other Tanana River tributary locations, the Chena and Salcha rivers, and provide substantiation for the Tanana research fish wheel targeting Tanana River stocks.

CHINOOK SALMON MEAN LENGTH

Chinook salmon show a positive correlation between length and age (R^2=0.964 females, R^2=0.977 males). Age-1.3 and age-1.4 female Chinook salmon had significantly greater mean length than male Chinook salmon by age ($p <0.01$ and $p=0.01$), but, age-1.5 females had significantly lesser mean length than age-1.5 males ($p=0.01$) (Table 6).

SUMMER CHUM SALMON COMMERCIAL AND SUBSISTENCE HARVEST

The commercial harvest of summer chum salmon from all 3 districts sampled, Districts 1 and 2 in the lower river and District 6 in the middle river, is shown in Table 8. The age and sex compositions were compared from all 3 districts, even though the lower river commercial harvest was from large-mesh gillnets and the middle river harvest was from fish wheels. Chum salmon do not have a detectable jack component, or a large range of sizes, therefore different gear types do not effect age and sex compositions to the same degree occurring in Chinook salmon harvests.

The 2004 chum salmon age percentages from combined commercial and subsistence harvest samples are shown for 1985–2004 (Table 9). The 2004 age distribution had a record high age-0.2 percentage and the lowest age-0.5 percentage since 1989. Comparing the 2004 age distribution to the 1999–2003 averages, age-0.2, -0.3, -0.4, and -0.5 fish were significantly different. Summer chum salmon samples from combined commercial and subsistence harvests showed a 1.6% increase in age-0.2 ($p<0.01$), a 4.2% decrease in age-0.3 ($p=0.01$), 4.5% increase in age-0.4 ($p=0.01$), and a 2.0% decrease in age-0.5 fish ($p<0.01$) compared to the 1999–2003 average (Table 9). Again, note the percentage by age varies considerably over the past 20 years, therefore these differences may reflect natural fluctuations. The 2004 age distribution predicts an above average percentage for age-0.4 summer chum salmon returning in 2005.

SUMMER CHUM SALMON TEST FISH PROJECTS

The age and sex composition from 3 summer chum test fish projects were similar; age-0.4 fish dominated (57.1–62.0%), followed by age-0.3 (31.5–41.1%), age-0.2 (1.8–6.0%), and age-0.5 fish (0.0–0.5%), and females represented 65.1–66.6% of the samples (Table 7; Appendices B12–B14). The age distribution from these 3 summer chum salmon test fish projects correspond with trends observed in the commercial and subsistence harvests (Tables 7, 8, and 9).

The 2 lower river test fish projects, Big Eddy and Middle Mouth set or drift gillnet, have operated from 1985 to present, typically from the end of May through July 15. A historical summary of age and female percentages from the combined 5.5-inch mesh gillnet harvests from these 2 sites is presented in Table 10. The 2004 age distribution had the highest age-0.2 percentage and the lowest age-0.5 percentage observed in the past 20 years (Table 10).

Comparing the 2004 age distribution to the 1999–2003 average, age-0.2, -0.3, 0.4, and -0.5 fish were significantly different. The 2004 combined summer chum salmon samples from the Big Eddy and Middle Mouth 5.5-inch mesh set gillnets showed a 2.3% increase in age-0.2 ($p<0.01$), a 10.6% decrease in age-0.3 ($p<0.01$), a 9.7% increase in age-0.4 ($p<0.01$), and a 1.3% decrease in age-0.5 fish ($p<0.01$) compared to the 1999–2003 average (Table 10). Summer chum salmon age composition trends observed in the test fishery samples were similar to those in the commercial and subsistence samples.

SUMMER CHUM SALMON ESCAPEMENT PROJECTS

The age and sex composition from 6 summer chum escapement projects were similar, age-0.3 fish dominated all projects except Anvik River (40.9–86.9%), followed by age-0.4 (6.7–56.1%), age-0.2 (2.1–6.4%), and age-0.5 fish (0.0–0.5%), and females represented 44.7–54.6% of the samples (Table 7; Appendices B15–B20). Contrary to the escapement samples, age-0.4 summer chum salmon dominated the commercial, subsistence, and test fish samples. The change in dominant age was evident between tributary and mainstem sampling locations. Excluding locations with sample size $\leq$ 100 fish, age-0.4 fish dominated all mainstem sampling locations: commercial harvests in all 3 districts, subsistence harvests in District 1 and Subdistrict 4-A, and all 3 test fish project locations (Table 7). Age-0.3 fish dominated tributary sampling locations at 5 of 6 escapement projects (East Fork Andreafsky, Gisasa, and Tozitna rivers; Clear and Henshaw creeks), and the Huslia subsistence samples. The younger summer chum salmon age composition from lower river tributaries and tributaries of the Koyukuk River compared to mainstem harvest samples may reflect temporal or gear bias. Subsistence and commercial harvests target the front of the run where older-aged fish predominate. Commercial, subsistence, and test fish samples were caught in gillnets and fish wheels while escapement project samples were caught in weir traps or a beach seine (Table 7).

Historical age distribution from escapement projects showed similar trends as the commercial, subsistence, and test fish summer chum samples. In 2003, all 6 current escapement projects were in operation, plus 1 additional weir on the Nulato River. In 2003, age-0.3 summer chum salmon was the highest percentage (79.7%), followed by age-0.4 (17.6%), age-0.5 (1.8%), and age-0.2 fish (0.9%) (DuBois 2004). Comparing these values to the 2004 summer chum salmon escapement averages in Table 10, there was a large increase in age-0.2, a decrease in age-0.3, and an increase in age-0.4 fish.

SUMMER CHUM SALMON MEAN LENGTH

Summer chum salmon showed a positive correlation between length and age (R^2=0.975 females, R^2=0.997 males). Age-0.2, -0.3, and -0.4 male summer salmon had significantly greater mean length than female by age ($p<0.01$) (Table 11).

FALL CHUM SALMON COMMERCIAL AND SUBSISTENCE HARVEST

Fall chum are temporally and genetically distinct from summer chum salmon, therefore these 2 types of chum salmon are considered separately. In 2004, District 1 fall chum salmon commercial harvest samples, from 6.0-inch and smaller mesh gillnets, occurred late in the run, and subsistence fish wheel harvests were sampled in Subdistrict 5-B, hence the lack of similar gear types and temporal differences precludes in-season comparisons (Tables 7 and 8; Appendices C1 and C2).

Fall chum salmon age composition from 2003 and 2004 were compared. Commercial harvests of fall chum salmon in 2003 were sampled in District 1 from ≤6.0-inch mesh gillnets and in Subdistrict 5-B from fish wheels. In these 2003 commercial harvests, age-0.3 fall chum showed the highest percentages (76.7–93.5%), followed by age-0.4 (5.5–22.9%), age-0.5 (0.4–0.4%), and age-0.2 fish (0.0–0.6%) (DuBois 2004). Comparing 6.0-inch and smaller mesh gillnets from fall chum salmon commercial harvests, the 2004 age distribution showed a 55.8% increase in age-0.2 ($p<0.01$), a 62.1% decrease in age-0.3 ($p<0.01$), a 6.4% increase in age-0.4 ($p<0.01$) fish, and a 6.4% increase in females ($p=0.03$) compared to the 2003 percentages (Table 7; Appendix C1) (DuBois 2004).

In the 2003 Subdistrict 5-B fall chum subsistence fish wheel harvest samples, age-0.3 fall chum showed the highest percentage (77.5%), followed by age-0.4 (21.4%), and age-0.5 fish (1.1%) (DuBois 2004). Comparing the 2004 Subdistrict 5-B fall chum subsistence fish wheel harvest samples from 6.0-inch and smaller mesh gillnets were to the 2003 values, there was a highly significant increase in age-0.2 fish from 0.0% to 19.6% ($p<0.01$), and a 22.3% decrease in age-0.3 fish ($p<0.01$) (Table 7; Appendix C2) (DuBois 2004).

The high percentage of age-0.2 fish suggests a substantial shift toward younger age classes. Even though these values are statistically significant, the percentages of each age class most likely vary considerably over the years; so, as in Chinook and summer chum salmon, these differences may simply reflect natural fluctuations in run compositions. The high percentage of age-0.2 fall chum salmon in 2004 suggests a high percentage of age-0.3 fall chum salmon will return in 2005.

FALL CHUM SALMON TEST FISH PROJECTS

The age and sex composition from 4 fall chum salmon test fish projects were similar, age-0.3 fish dominated (47.4–57.7%), followed by age-4 (27.3–34.6%), age-0.2 (12.8–24.2%), and age-0.5 fish (0.0–1.0%), and females represented 48.9-66.0% of the samples (Table 7; Appendices C3–C6). The averages from the 4 fall chum salmon test fish projects correspond to trends in the commercial and subsistence harvests (Table 7; Appendices C1–C6). The most notable difference, again, was the substantially elevated percentages of age-0.2 fall chum salmon.

FALL CHUM SALMON ESCAPEMENT PROJECTS

The age and sex composition from 3 fall chum escapement projects were similar, age-0.3 fish dominated (60.4–72.4%), followed by age-0.4 (16.1–25.0%), age-0.2 (10.9–19.5%), and age-0.5 fish (0.6–1.9%), and females represented 35.6–50.9% of the samples (Table 7; Appendices C7–C9). The averages of the 3 fall chum test fish projects correspond to trends in the commercial, subsistence and test fish project harvests (Table 7; Appendices C1–C9). The most notable difference again, was the substantially elevated returns of age-0.2 fall chum salmon. The fall chum escapement projects were aged using vertebrae instead of scales; this aging method increases confidence in scale aging accuracy, considering the agreement between the 2 methods in the high percentages of age-0.2 fish.

FALL CHUM SALMON MEAN LENGTH

Fall chum salmon showed a positive correlation between length and age for age-0.2, age-0.3, and age-0.4 (R^2=0.996 females, R^2=0.991 males). Age-0.3 and age-0.4 male fall chum salmon were significantly longer than females by age ($p=0.01$ and $p=0.02$) (Table 11).

COHO SALMON COMMERCIAL, TEST FISH, AND ESCAPEMENT HARVESTS

The age and sex composition from coho salmon commercial, test fish, and escapement project samples were similar. From all samples, age-2.1 coho salmon were the highest percentage (67.0–91.7%), followed by age-1.1 (6.9–32.1%), and age-3.1 fish (0.0–4.4%), and females represented 35.0–52.5% of the samples (Table 13; Appendices D1–D7). These values were similar to the 2003 coho salmon commercial, test fish, and escapement project samples (DuBois 2004).

COHO SALMON MEAN LENGTH

A positive correlation between length and age was not observed in coho salmon. In 2004, male coho salmon showed a negative correlation between length and age (R^2=0.964) and females showed a weak positive correlation (R^2=0.654). The negative correlation for males was likely an artifact of low sample size (n≤7) and the high variance in mean length among age groups (Table 13). Male and female coho salmon mean lengths were not significantly different by age.

CONCLUSIONS

Age composition estimates were collected from 13,287 Chinook, 8,186 summer chum, 2,278 fall chum, and 1,463 coho salmon. Sample sizes, temporal distribution, and quality were good for most projects. Record numbers of Chinook salmon samples were collected from the District 1 commercial harvest and the District 4 subsistence harvest.

Overall, the age-1.2 component of Chinook salmon showed an increase in 2004 and the age-1.5 component showed a decrease compared with previous years. Selected projects had record high percentages of age-1.2 Chinook salmon. This suggests a higher percentage of age-1.3 Chinook salmon returning in 2005. Age-1.4 Chinook salmon dominated in commercial, subsistence, and test fish harvests using large mesh gear; and from carcass samples in Tanana River tributaries. Age-1.2 or age-1.3 Chinook salmon dominated samples from tributary weir projects and from Anvik River carcass samples.

Overall, the age-0.2 component of summer and fall chum salmon showed an increase and the age-0.5 component showed a decrease compared with previous years. Most projects had high percentages of age-0.2 summer chum salmon and record high percentages of age-0.2 fall chum salmon. This suggests a higher percentage of age-0.3 summer and fall chum salmon returning in 2005. Age-0.4 summer chum salmon dominated most commercial, subsistence, and test fish harvests. Age 0.3 summer chum salmon dominated most samples from tributary weir projects. Age-0.3 fall chum salmon dominated all projects except for the District 1 commercial harvest, where age-0.2 fish were the largest component.

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TABLES AND FIGURES

Table 1.–Yukon River Chinook salmon age and female percentages from commercial, subsistence, test fish, escapement, and research projects, 2004.

		Percent (%)										
		Age and (European Age Formula)										
Project Type	**Sample**	**3 yrs.**	**4 yrs.**	**5 yrs.**		**6 yrs.**		**7 yrs.**		**8 yrs.**		
Location and (gear)	**Size**	**(1.1)**	**(1.2)**	**(1.3)**	**(2.2)**	**(1.4)**	**(2.3)**	**(1.5)**	**(2.4)**	**(1.6)**	**(2.5)**	**Female**
Commercial												
District 1 (≥8.0" mesh gillnet)	2,427	0.0	6.2	18.5	0.2	71.1	0.0	3.5	0.4	0.0	0.0	54.1
District 2 (≥8.0" mesh gillnet)	1,584	0.0	3.7	18.9	0.0	73.5	0.0	3.9	0.0	0.0	0.0	56.5
Subdistricts 5-B, 5-C (gillnet and fish wheel)	450	0.0	18.1	32.9	0.0	46.1	0.0	2.9	0.0	0.0	0.0	37.1
District 6 (fish wheel)	487	0.1	31.1	27.4	0.0	39.9	0.0	1.5	0.0	0.0	0.0	34.1
Subsistence												
District 1 (5.5" mesh gillnet)	219	0.0	23.3	42.0	0.0	32.4	0.0	2.3	0.0	0.0	0.0	28.2[a]
District 1 (8.5" mesh gillnet)	286	0.0	5.2	23.1	0.0	68.5	0.0	3.1	0.0	0.0	0.0	49.4[b]
District 3, Holy Cross (8.5" mesh gillnet)	131	0.0	8.4	15.3	0.0	68.7	0.0	7.6	0.0	0.0	0.0	51.9
Subdistrict 4-A, Kaltag (8.5" mesh gillnet)	221	0.0	7.2	16.7	0.0	70.1	0.0	5.9	0.0	0.0	0.0	59.3
Subdistrict 4-A, Nulato (8.0" mesh gillnet)	170	0.0	7.6	19.4	0.0	67.6	0.0	5.3	0.0	0.0	0.0	48.2
Subdistrict 4-A, Grayling (gillnet)	182	0.0	13.7	23.1	0.0	62.1	0.0	1.1	0.0	0.0	0.0	*[c]
Subdistrict 4-B, Galena (gillnet)	83	0.0	3.6	19.3	0.0	74.7	0.0	2.4	0.0	0.0	0.0	*[c]
Subdistrict 4-B, Bishop Mountain (gillnet)	155	0.0	5.2	18.1	0.0	73.5	0.0	3.2	0.0	0.0	0.0	*[c]
Subdistrict 4-C, Ruby (gillnet)	40	0.0	10.0	40.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	*[c]
Subdistrict 5-B, Tanana (fish wheel)	121	0.0	21.5	56.2	0.0	18.2	0.0	4.1	0.0	0.0	0.0	19.8
Test Fish												
Big Eddy (7.5" mesh gillnet)	36	0.0	8.3	19.4	0.0	66.7	0.0	5.6	0.0	0.0	0.0	41.7
Big Eddy (8.5" mesh gillnet)	332	0.0	2.7	14.2	0.0	80.1	0.0	3.0	0.0	0.0	0.0	59.3
Middle Mouth (8.5" mesh gillnet)	533	0.2	5.3	21.2	0.0	70.9	0.0	2.3	0.2	0.0	0.0	57.4
Pilot Station (2.75 to 8.5" variable mesh gilln	928	0.5	27.5	30.3	0.1	39.5	0.1	1.9	0.0	0.0	0.0	35.2
Russian Mission (8.5" mesh gillnet)	256	0.4	7.8	20.3	0.0	66.4	0.0	5.1	0.0	0.0	0.0	*[c]
Russian Mission, Dogfish (8.5" mesh gillnet)	643	0.0	8.4	17.3	0.0	69.2	0.0	4.4	0.6	0.0	0.2	*[c]
Canada (fish wheel)	1,055	0.0	24.9	41.8	0.0	30.6	0.0	2.0	0.7	0.0	0.0	23.8
Canada (5.5" and 7.25" gillnet)	128	0.0	29.7	48.4	0.0	20.3	0.0	1.6	0.0	0.0	0.0	14.1
Escapement												
Andreafsky River, East Fork (weir trap)	508	0.0	39.9	42.6	0.0	17.1	0.0	0.4	0.0	0.0	0.0	37.3
Anvik River (carcass, hand-picked)	332	0.6	32.2	40.7	0.0	25.6	0.0	0.9	0.0	0.0	0.0	27.7
Chena River (carcass, hand-picked)	158	0.0	8.9[d]	17.7[d]	0.0	71.5[d]	0.0	1.9	0.0	0.0	0.0	66.5[d]
Gisasa River (weir trap)	540	0.5	41.2	32.9	0.0	25.2	0.0	0.2	0.0	0.0	0.0	30.1
Henshaw Creek (weir trap)	637	0.1	45.7	27.4	0.0	26.0	0.0	0.8	0.0	0.0	0.0	21.3
Salcha River (carcass, hand-picked)	229	0.0	9.2[d]	8.3[d]	0.0	81.7[d]	0.0	0.9	0.0	0.0	0.0	62.9[d]
Tozitna River (weir trap)	416	0.4	38.6	40.2	0.0	19.9	0.0	0.9	0.0	0.0	0.0	17.7[e]
Research												
Chena River (carcass, hand-picked)	81	0.0	14.8	16.0	0.0	64.2	0.0	4.9	0.0	0.0	0.0	56.8
Tanana (fish wheel)	73	0.0	5.5	31.5	0.0	60.3	1.4	1.4	0.0	0.0	0.0	63.0
Total Chinook	13,287											

[a] Sex was recorded for 117 of 219 aged fish.

[b] Sex was recorded for 247 of 286 aged fish.

[c] Sex was either not recorded or not recorded accurately.

[d] Chena and Salcha combined values were significantly different than other escapement projects.

[e] Tozitna percentage of females was significantly different than other escapement projects.

Table 2.–Yukon River Districts 1, 2, 5, and 6 Chinook salmon commercial harvest age and sex composition, 2004**.**

			Brood Year, Age, and (European Age Formula)																					
			2001 3 yrs.		**2000 4 yrs.**		**1999 5 yrs.**				**1998 6 yrs.**				**1997 7 yrs.**				**1996 8 yrs.**					
	Sample		**(1.1)**		**(1.2)**		**(1.3)**		**(2.2)**		**(1.4)**		**(2.3)**		**(1.5)**		**(2.4)**		**(1.6)**		**(2.5)**		**Total**	
District	**Size**		**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
1[a]	2,427	Males	4	0.0	1,712	5.9	3,749	12.9	49	0.2	7,395	25.5	0	0.0	347	1.2	75	0.3	0	0.0	0	0.0	13,331	45.9
		Females	0	0.0	99	0.3	1,628	5.6	0	0.0	13,236	45.6	0	0.0	679	2.3	41	0.1	0	0.0	0	0.0	15,682	54.1
		Subtotal	4	0.0	1,818	6.2	5,398	18.5	49	0.2	20,709	71.1	0	0.0	1,029	3.5	116	0.4	0	0.0	0	0.0	29,123	100.0
2[b]	1,584	Males	0	0.0	844	3.5	2,879	11.9	0	0.0	6,348	26.2	0	0.0	472	2.0	0	0.0	0	0.0	0	0.0	10,543	43.54
		Females	0	0.0	64	0.3	1,690	7.0	0	0.0	11,441	47.2	0	0.0	477	2.0	0	0.0	0	0.0	0	0.0	13,672	56.46
		Subtotal	0	0.0	907	3.7	4,569	18.9	0	0.0	17,790	73.5	0	0.0	949	3.9	0	0.0	0	0.0	0	0.0	24,234	100.0
5[c]	450	Males	0	0.0	277	17.9	442	28.5	0	0.0	233	15.0	0	0.0	22	1.4	0	0.0	0	0.0	0	0.0	973	62.9
		Females	0	0.0	2	0.2	67	4.4	0	0.0	480	31.1	0	0.0	23	1.5	0	0.0	0	0.0	0	0.0	573	37.1
		Subtotal	0	0.0	279	18.1	509	32.9	0	0.0	713	46.1	0	0.0	45	2.9	0	0.0	0	0.0	0	0.0	1,546	100.0
6[d]	487	Males	3	0.1	633	30.8	551	26.8	0	0.0	165	8.0	0	0.0	5	0.2	0	0.0	0	0.0	0	0.0	1,357	65.9
		Females	0	0.0	6	0.3	13	0.6	0	0.0	656	31.9	0	0.0	26	1.3	0	0.0	0	0.0	0	0.0	700	34.1
		Subtotal	3	0.1	639	31.1	564	27.4	0	0.0	821	39.9	0	0.0	31	1.5	0	0.0	0	0.0	0	0.0	2,057	100.0
All	4,948	Males	7	0.0	3,466	6.1	7,621	13.4	49	0.1	14,142	24.8	0	0.0	846	1.5	75	0.1	0	0.0	0	0.0	26,204	46.1
Districts		Females	0	0.0	170	0.3	3,398	6.0	0	0.0	25,813	45.3	0	0.0	1,205	2.1	41	0.1	0	0.0	0	0.0	30,627	53.9
		Total	7	0.0	3,643	6.4	11,039	19.4	49	0.1	40,033	70.3	0	0.0	2,055	3.6	116	0.2	0	0.0	0	0.0	56,960	100.0

[a] District 1 commercial fishing periods were unrestricted. 8.0-inch and larger mesh gillnets were likely used because it was a Chinook directed fishery.

[b] District 2 commercial fishing periods were either restricted to > 8.0-inch mesh gillnets or unrestricted. Larger mesh gillnets were likely used during the unrestricted periods because it was a Chinook directed fishery.

[c] Commercial fishing gear included gillnets and fish wheels.

[d] Commercial fishing gear was fish wheels.

Table 3.–Yukon River District 1 Chinook salmon age and female percentages from commercial harvests using 8.0-inch or larger mesh gillnets, 1985–2004.

		Percent (%)							Total
		Age and (European Age Formula)							
	Sample	3 yrs.	4 yrs.	5 yrs.	6 yrs.	7 yrs.	8 yrs.		
Year [a]	Size	(1.1)	(1.2)	(1.3, 2.2)	(1.4, 2.3)	(1.5, 2.4)	(1.6, 2.5)	Female	Catch
1985	576	0.0	1.4	6.6	80.3	11.4	0.4	57.8	75,944
1986	1,279	0.0	1.1	26.5	45.8	26.4	0.2	47.9	43,644
1987	1,436	0.0	1.2	5.6	79.9	12.9	0.6	55.3	62,148
1988	1,022	0.0	3.2	18.6	41.5	35.2	1.5	46.2	32,782
1989	982	0.0	0.8	27.0	59.0	11.8	1.3	48.6	32,180
1990	1,537	0.0	7.2	21.5	62.7	8.4	0.1	50.3	42,092
1991	1,532	0.0	1.3	39.4	50.0	9.0	0.2	47.0	52,074
1992	1,354	0.0	2.3	12.0	81.5	4.3	0.0	55.5	54,569
1993	1,673	0.0	4.5	21.2	64.9	9.5	0.0	49.2	47,084
1994	1,392	0.0	1.8	44.3	49.2	4.8	0.0	52.4	61,633
1995	1,884	0.0	3.0	11.3	81.4	4.3	0.1	50.1	74,827
1996	2,093	0.1	1.1	36.3	38.1	24.1	0.2	52.2	56,638
1997	1,881	0.0	4.0	10.9	83.3	1.8	0.0	47.2	63,062
1998	1,311	0.0	3.6	53.9	34.9	7.6	0.0	41.8	24,135
1999	1,857	0.0	2.1	14.8	81.4	1.7	0.0	43.6	37,145
2000	721	0.0	1.2	27.9	63.7	7.3	0.0	57.6	4,735
2001[b]	-	-	-	-	-	-	-	-	-
2002	1,133	0.0	3.8	20.2	63.1	13.0	0.0	54.9	11,081
2003	1,405	0.0	0.5	26.1	65.4	7.9	0.1	53.3	22,710
2004	2,427	0.0	6.2	18.7	71.1	3.9	0.0	54.1	29,038
Average [c] (1985-2003)	1,393	0.0	2.4	23.6	62.6	11.2	0.3	50.6	44,360
10-yr avg.[c] (1994-2003)	1,520	0.0	2.3	27.3	62.3	8.1	0.0	50.3	39,552
5-yr avg.[c] (1999-2003)	1,279	0.0	1.9	22.3	68.4	7.5	0.0	52.3	18,918

[a] 8.0-inch or larger mesh size commercial gillnet harvests include periods with both restricted and unrestricted mesh sizes. Prior to 2000, commercial fishing periods with restricted gillnet mesh size permitted ≤6.0-inch mesh, after 2000, restricted mesh gillnet periods permitted ≥8.0-inch mesh gillnets. Also, after 2000, the summer chum market declined and the fishery was directed towards Chinook salmon, therefore ≥8.0-inch mesh gillnets were likely used during unrestricted periods.

[b] No commercial fishing occurred in 2001.

[c] Averages were not weighted by number of fish sampled each year.

Table 4.–Yukon River Chinook salmon age and female percentages from the combined Big Eddy and Middle Mouth 8.5-inch mesh set gillnet test fish catches, 1985–2004.

			Percent (%)						
			Age and (European Age Formula)						
Year	**Sample Size**	**Number of Days**[a]	**3 yrs. (1.1)**	**4 yrs. (1.2)**	**5 yrs. (1.3, 2.2)**	**6 yrs. (1.4, 2.3)**	**7 yrs. (1.5, 2.4)**	**8 yrs. (1.6, 2.5)**	**Female**
1985	309	[b]	0.0	3.9	8.4	79.3	8.1	0.3	53.7
1986	533	[b]	0.3	0.9	22.7	52.9	23.1	0.2	46.3
1987	465	[b]	0.3	0.9	3.0	78.5	17.0	0.4	62.8
1988	262	30	0.0	2.3	15.3	43.9	37.8	0.8	56.1
1989	381	29	0.0	0.8	17.8	67.2	13.9	0.5	53.0
1990	227	23	0.0	3.5	11.0	76.7	8.8	0.0	56.4
1991	356	27	0.0	1.4	42.1	48.9	7.0	0.6	49.2
1992	359	19	0.0	1.1	10.6	82.7	5.0	0.6	56.5
1993	472	25	0.0	0.8	25.8	63.8	9.3	0.2	50.8
1994	653	41	0.2	1.4	41.3	51.8	5.5	0.0	47.3
1995	445	19	0.0	0.9	11.2	81.6	6.3	0.0	50.8
1996	355	13	0.0	1.1	61.4	21.4	16.3	0.0	53.0
1997	302	12	0.0	1.7	9.6	86.4	2.6	0.0	51.3
1998	928	39	0.0	1.3	43.4	45.3	9.9	0.1	50.2
1999	942	35	0.0	0.7	9.1	87.0	3.1	0.0	61.4
2000	950	42	0.2	0.7	19.2	71.1	9.1	0.0	53.4
2001	1,020	38	0.0	0.5	11.0	80.6	8.0	0.0	56.9
2002	1,050	45	0.0	2.5	20.5	64.9	12.1	0.0	52.2
2003	1,400	50	0.0	0.6	24.1	68.0	7.3	0.1	52.5
2004	865	49	0.1	4.3	18.5	74.5	2.7	0.0	58.2
Average [c] (1994, 1998-2003)	992	41	0.1	1.1	24.1	66.9	7.9	0.0	53.4
5-yr average [c] (1999-2003)	1,072	42	0.0	1.0	16.8	74.3	7.9	0.0	55.3

[a] The Big Eddy and Middle Mouth 8.5" set gillnet test fisheries were conducted from the end of May through July 15. Before 1998, these test fisheries were often discontinuous or were not conducted throughout the season.

[b] Data were not available.

[c] The averages only include years when samples were collected throughout the season and include samples with a 35 day season minimum. Averages were not weighted by number of fish sampled each year.

Table 5.–Yukon River Chinook salmon age and female percentages from selected escapement projects, 1985–2004.

		Percent (%)						
		Age and (European Age Formula)						
		3 yrs.	4 yrs.	5 yrs.	6 yrs.	7 yrs.	8 yrs.	
Project	Year	(1.1)	(1.2)	(1.3, 2.2)	(1.4, 2.3)	(1.5, 2.4)	(1.6, 2.5)	Females
Andreafsky River, East Fork	1985[a]	0.0	39.6	12.8	43.6	4.0	0.0	33.2
	1986[b]	0.0	2.2	69.8	21.8	6.2	0.0	23.3
	1987[b]	0.3	4.7	8.9	83.7	2.4	0.0	56.1
	1988[b]	0.2	27.8	29.5	26.8	15.6	0.0	38.7
	1989	0.0	5.3	71.8	21.2	1.7	0.0	13.6
	1990	0.6	31.8	28.7	37.9	0.9	0.0	41.6
	1991	0.0	10.3	56.9	30.5	2.3	0.0	33.9
	1992	0.0	23.1	48.1	25.0	3.8	0.0	21.2
	1993	0.4	16.9	38.7	41.8	2.3	0.0	29.9
	1994[c]	0.0	8.0	53.0	34.5	4.3	0.2	35.5
	1995[c]	0.0	35.0	15.7	47.5	1.7	0.0	43.7
	1996[c]	1.2	6.6	74.1	13.9	4.2	0.0	41.9
	1997[c]	0.0	52.7	15.6	31.7	0.0	0.0	36.8
	1998[c]	0.0	16.8	71.4	11.1	0.8	0.0	29.0
	1999[c]	0.3	34.5	32.2	32.5	0.6	0.0	28.6
	2000[c]	0.0	12.6	49.1	38.3	0.0	0.0	54.3
	2001[c]	0.0	14.5	18.5	64.5	2.4	0.0	63.7
	2002[c]	0.0	30.5	48.2	20.0	1.4	0.0	21.1
	2003[c]	0.5	16.0	51.9	30.7	0.8	0.0	46.2
	2004[c]	0.0	39.9	42.6	17.1	0.4	0.0	37.3
	Average [d] (1985-2003)	0.2	20.5	41.8	34.6	2.9	0.0	36.4
	5-yr avg.[d] (1999-2003)	0.2	21.6	40.0	37.2	1.0	0.0	42.8
Anvik River	1985[a]	0.0	30.3	39.4	30.3	0.0	0.0	24.2
	1986[a]	0.0	0.7	50.0	38.0	11.3	0.0	67.2
	1987[a]	0.0	9.5	13.1	73.9	3.7	0.0	58.7
	1988[a]	0.0	30.5	38.2	27.2	4.1	0.0	29.7
	1989[a]	0.3	4.2	49.1	43.5	2.9	0.0	40.7
	1990[a]	0.3	26.3	26.0	43.8	3.8	0.0	37.0
	1991[a]	0.0	10.3	55.0	31.7	2.9	0.0	41.0
	1992[a]	0.0	9.5	38.1	50.8	1.6	0.0	41.3
	1993[a]	0.0	13.8	38.5	45.6	2.1	0.0	42.1
	1994[a]	0.0	3.0	51.9	39.8	5.4	0.0	42.0
	1995[a]	0.0	9.5	38.1	50.8	1.6	0.0	41.3
	1996[a]	0.0	9.9	55.4	24.4	9.9	0.4	35.1
	1997[a]	0.0	25.0	30.6	44.1	0.3	0.0	36.8
	1998[a]	0.3	14.7	59.9	23.9	1.2	0.0	32.7
	1999[a]	0.0	9.3	42.5	48.1	0.0	0.0	37.9
	2000[a]	0.0	4.9	41.9	52.7	0.5	0.0	40.9
	2001[a]	0.0	11.1	30.1	53.0	5.7	0.0	38.3
	2002[a]	0.0	19.5	43.1	34.2	3.2	0.0	28.8
	2003[a]	0.2	8.9	54.7	33.2	3.0	0.0	37.6
	2004[a]	0.6	32.2	40.7	25.6	0.9	0.0	27.7
	Average [d] (1985-2003)	0.1	13.2	41.9	41.5	3.3	0.0	39.6
	5-yr avg.[d] (1999-2003)	0.0	10.7	42.5	44.2	2.5	0.0	36.7

-continued-

Table 5.–Page 2 of 2.

Project	Year	Percent (%) Age and (European Age Formula) 3 yrs. (1.1)	4 yrs. (1.2)	5 yrs. (1.3, 2.2)	6 yrs. (1.4, 2.3)	7 yrs. (1.5, 2.4)	8 yrs. (1.6, 2.5)	Females
Chena River	1985[e]	0.0	12.1	21.7	59.2	7.0	0.0	52.5
	1986[e]	0.1	9.3	51.2	29.9	9.3	0.1	25.4
	1987[e]	0.0	2.9	13.1	75.6	8.4	0.0	58.0
	1988[e]	0.6	10.5	17.5	46.4	24.6	0.4	60.9
	1989[e]	0.3	4.2	30.2	54.9	10.4	0.0	64.9
	1990[e]	0.0	23.8	25.7	46.7	3.8	0.0	46.2
	1991[e]	0.0	8.3	55.8	28.5	7.4	0.0	31.5
	1992[e]	1.9	40.7	16.4	40.5	0.4	0.0	37.7
	1993[b]	0.5	29.4	41.2	27.8	1.1	0.0	16.6
	1994[b]	0.0	2.9	43.6	51.2	2.3	0.0	45.1
	1995[b]	0.0	4.4	20.9	70.9	3.8	0.0	66.0
	1996[b]	2.1	6.2	44.2	23.5	23.9	0.0	44.0
	1997[b]	0.3	37.2	13.4	48.0	1.1	0.0	39.6
	1998[b]	0.0	4.4	72.4	18.4	4.8	0.0	41.2
	1999[b]	0.9	7.9	25.2	65.4	0.6	0.0	58.8
	2000[b]	0.0	20.1	35.6	35.6	8.7	0.0	34.9
	2001[b]	0.6	9.6	33.6	51.2	5.0	0.0	44.0
	2002[b]	0.1	29.0	29.8	38.5	2.7	0.0	31.7
	2003[b]	0.0	5.1	46.5	41.6	6.8	0.0	44.9
	2004[b]	0.0	8.9	17.7	71.5	1.9	0.0	66.5
	Average [d] (1985-2003)	0.4	14.1	33.6	44.9	7.0	0.0	44.4
	5-yr avg.[d] (1999-2003)	0.3	14.3	34.1	46.5	4.8	0.0	42.9
Salcha River	1985[e]	0.0	12.3	17.6	64.8	5.3	0.0	48.5
	1986[e]	0.2	11.8	43.7	29.5	14.8	0.0	35.8
	1987[e]	0.2	6.0	12.6	73.5	7.8	0.0	62.8
	1988[e]	0.4	20.3	22.5	42.1	14.7	0.0	39.6
	1989[e]	0.5	4.1	28.9	57.8	8.8	0.0	62.2
	1990[e]	0.2	17.6	24.9	48.9	8.3	0.0	48.9
	1991[e]	0.2	8.2	44.3	41.4	5.8	0.2	47.2
	1992[e]	1.2	30.8	28.6	38.2	1.1	0.0	34.4
	1993[b]	0.9	28.0	39.1	31.1	0.9	0.0	27.6
	1994[b]	0.6	2.7	39.1	52.9	4.8	0.0	44.5
	1995[b]	0.0	13.6	20.6	62.8	3.1	0.0	56.0
	1996[b]	2.7	6.2	38.4	28.6	24.1	0.0	50.8
	1997[b]	0.0	14.4	14.4	69.4	1.7	0.0	50.0
	1998[b]	2.4	4.9	72.4	17.9	2.4	0.0	30.0
	1999[b]	0.0	9.1	24.1	66.4	0.3	0.0	54.7
	2000[b]	0.0	22.0	48.8	24.4	4.9	0.0	43.9
	2001[b]	0.5	10.4	33.9	52.1	3.1	0.0	37.5
	2002[b]	0.0	36.2	13.8	38.7	11.3	0.0	34.8
	2003[b]	0.7	7.3	42.4	42.4	7.3	0.0	42.4
	2004[b]	0.0	9.2	8.3	81.7	0.9	0.0	62.9
	Average [d] (1985-2003)	0.6	14.0	32.1	46.5	6.9	0.0	44.8
	5-yr avg.[d] (1999-2003)	0.2	17.0	32.6	44.8	5.4	0.0	42.7

[a] Estimates were from sonar counts.

[b] Estimates were from tower counts.

[c] Estimates were from weir counts

[d] Averages were not weighted by number of fish sampled each year

[e] Estimates were from mark-recapture project.

Table 6.–Yukon River Chinook salmon mean lengths (mm) by project, gear, sex, and age, 2004.

			Brood Year, Age, and (European Age Formula)							
			2001	2000	1999		1998		1997	
	Project	Project Type	3 yrs	4 yrs	5 yrs		6 yrs		7 yrs	
Sex	Location	and (Gear)[a]	(1.1)	(1.2)	(1.3)	(2.2)	(1.4)	(2.3)	(1.5)	(2.4)
Male	District 1	Com (≥8.0" GN)	405	621	757	655	884	-	983	851
	District 2	Com (≥8.0" GN)	-	613	749	-	870	-	947	-
	District 5[b]	Com (FW, GN)	-	610	710	-	868	-	1000	-
	District 6[b]	Com (FW, GN)	375	608	703	-	830	-	930	-
	District 1	Sub (5.5" GN)	-	607	653	-	839	-	1015	-
	District 1	Sub (8.5" GN)	-	548	716	-	848	-	886	-
	District 3	Sub (8.5" GN)	-	628	742	-	837	-	902	-
	Subdistrict 4-A	Sub (8.5" GN)	-	614	733	-	881	-	957	-
	Subdistrict 4-A	Sub (8.0" GN)	-	618	714	-	853	-	1030	-
	District 5	Sub (FW)	-	624	708	-	858	725	-	-
	Big Eddy	TF (7.5" GN)	-	648	718	-	801	-	-	-
	Big Eddy	TF (8.5" GN)	-	603	778	-	865	-	1006	-
	Middle Mouth	TF (8.5" GN)	400	613	752	-	862	-	912	-
	Pilot Station	TF (7.5" GN)	-	603	724	-	843	-	913	-
	Pilot Station	TF (8.5" GN)	-	612	734	-	860	-	920	-
	Canada	TF (FW)	-	630	748	-	901	-	1085	1050
	Canada	TF (5.5", 7.25" GN)	-	633	759	-	882	-	1010	-
	Andreafsky, E.F.[b]	Esc (WR)	-	586	694	-	805	-	-	-
	Anvik	Esc (CR)	360	611	698	-	846	-	-	-
	Chena	Esc (CR)	-	620	726	-	849	-	-	-
	Gisasa[b]	Esc (WR)	394	606	700	-	812	-	-	-
	Henshaw[b]	Esc (WR)	375	580	688	-	824	-	-	-
	Salcha	Esc (CR)	-	625	735	-	884	-	-	-
	Tozitna[b]	Esc (WR)	360	591	686	-	801	-	-	-
	Chena	Rsch (CR)	-	606	693	-	815	-	975	-
	Tanana	Rsch (FW)	-	624	708	-	858	725	-	-
		Male Average [c]	381	609	717	655	846	725	955	851
Female	District 1	Com (≥8.0" GN)	-	670	784	-	879	-	935	873
	District 2	Com (≥8.0" GN)	-	643	773	-	875	-	924	-
	District 5[b]	Com (FW, GN)	-	590	755	-	866	-	905	-
	District 6[b]	Com (FW, GN)	-	690	757	-	869	-	900	-
	District 1	Sub (5.5" GN)	-	-	790	-	878	-	925	-
	District 1	Sub (8.5" GN)	-	-	810	-	872	-	977	-
	District 3	Sub (8.5" GN)	-	-	724	-	861	-	907	-
	Subdistrict 4-A	Sub (8.5" GN)	-	-	760	-	879	-	906	-
	Subdistrict 4-A	Sub (8.0" GN)	-	630	724	-	879	-	935	-
	District 5	Sub (FW)	-	-	749	-	855	-	901	-
	Big Eddy	TF (7.5" GN)	-	-	-	-	865	-	950	-
	Big Eddy	TF (8.5" GN)	-	-	823	-	877	-	902	-
	Middle Mouth	TF (8.5" GN)	-	-	782	-	870	-	938	905
	Pilot Station	TF (7.5" GN)	-	619	727	-	837	-	949	-
	Pilot Station	TF (8.5" GN)	-	635	750	-	848	-	898	-
	Canada	TF (FW)	-	660	800	-	911	-	974	898
	Canada	TF (5.5", 7.25" GN)	-	-	803	-	871	-	1040	-
	Andreafsky, E.F.[b]	Esc (WR)	-	574	715	-	843	-	889	-
	Anvik	Esc (CR)	-	-	805	-	826	-	915	-
	Chena	Esc (CR)	-	-	806	-	871	-	916	-
	Gisasa[b]	Esc (WR)	-	609	725	-	870	-	936	-
	Henshaw[b]	Esc (WR)	-	639	708	-	842	-	865	-
	Salcha	Esc (CR)	-	-	866	-	882	-	935	-
	Tozitna[b]	Esc (WR)	-	-	771	-	845	-	880	-
	Chena	Rsch (CR)	-	-	819	-	882	-	943	-
	Tanana	Rsch (FW)	-	-	749	-	855	-	901	-
		Female Average [c]	-	630	768	-	864	-	918	889

[a] Com is commercial, Sub is subsistence, TF is test fish, Esc is escapement, GN is gillnet preceded by mesh size, FW is fish wheel, WR is weir, SN is seine net, CR is carcass, and Rsch is research.

[b] Averages were not weighted by number of fish sampled from each project. Projects in Canada were not included in the average calculation because lengths in Alaska were measured from mid-eye to fork of tail and lengths in Canada were measured from tip of snout to fork of tail.

[c] Male and female overall averages were not weighted by number of fish sampled from each project. Projects in Canada were not included in these averages because lengths in Alaska were measured from mid-eye to fork of tail and lengths in Canada were measured from tip of snout to fork of tail.

Table 7.–Yukon River chum salmon age and female percentages from commercial, subsistence, test fish, and escapement projects, 2004.

Project Type Location and (gear)	Sample Size	Percent (%) Age 0.2	0.3	0.4	0.5	0.6	Female
Commercial - Summer Chum							
District 1 (≥ 8.0" gillnet)	818	4.3	42.5	52.8	0.4	0.0	45.2
District 2 (≥ 8.0" gillnet)	551	1.1	36.8	61.9	0.2	0.0	40.7
District 6 (fish wheel)	614	0.2	41.8	57.9	0.1	0.0	53.4
Commercial - Fall Chum							
District 1 (≤ 6.0" gillnet)	386	56.4	31.4	11.9	0.3	0.0	59.3
Subsistence - Summer Chum							
District 1 (5.5" gillnet)	405	0.0	22.2	76.0	1.5	0.2	42.4[a]
District 1 (8.5" gillnet)	31	0.0	32.3	67.7	0.0	0.0	58.1
District 3, Holy Cross (8.5" gillnet)	26	0.0	38.5	61.5	0.0	0.0	30.8
Husila (gillnet)	108	0.9	53.7	42.6	2.8	0.0	7.4[b]
Subdistrict 4-A, Grayling (gillnet)	178	2.2	42.7	55.1	0.0	0.0	*[c]
Subdistrict 4-B, Bishop Mt. (gillnet)	18	0.0	61.1	38.9	0.0	0.0	*[c]
Subdistrict 4-C, Ruby (gillnet)	19	5.3	31.6	63.2	0.0	0.0	*[c]
Subsistence - Fall Chum							
Subdistrict 5-B (fish wheel)	250	19.6	55.2	25.2	0.0	0.0	49.6
Test Fish - Summer Chum							
Big Eddy (5.5" set gillnet)	326	1.8	41.1	57.1	0.0	0.0	66.6
Middle Mouth (5.5" set gillnet)	195	5.1	38.5	56.4	0.0	0.0	65.1
Russian Mission (4.25", 4.5" drift gillnet)	184	6.0	31.5	62.0	0.5	0.0	*[c]
Test Fish Summer Chum Average [d]		4.3	37.0	58.5	0.2	0.0	65.9
Test Fish - Fall Chum							
Big Eddy (6.0" mesh drift gillnet)	188	12.8	52.7	34.6	0.0	0.0	53.7
Middle Mouth (6.0" drift gillnet)	194	24.2	47.4	27.3	1.0	0.0	66.0
Mountain Village (5 ⅞" drift gillnet)	310	20.3	51.0	28.7	0.0	0.0	57.1
Kaltag (5 ⅞" drift gillnet)	503	14.9	57.7	27.4	0.0	0.0	48.9
Test Fish Fall Chum Average [d]		18.1	52.2	29.5	0.3	0.0	56.4
Escapement - Summer Chum							
Andreafsky River, East Fork (weir trap)[e]	703	4.3	72.5	23.1	0.0	0.0	51.4
Anvik River (beach seine)	558	2.5	40.9	56.1	0.5	0.0	53.3
Clear Creek (weir trap)	943	2.1	66.4	31.2	0.3	0.0	44.7
Gisasa River (weir trap)	724	6.4	73.8	19.7	0.0	0.0	44.9
Henshaw Creek (weir trap)	772	6.4	86.9	6.7	0.0	0.0	54.6
Tozitna River (weir trap)	1,013	2.7	62.6	34.6	0.1	0.0	46.5
		4.1	67.2	28.6	0.2	0.0	49.2
Escapement - Fall Chum							
Delta River (carcass, hand picked)[f]	169	19.5	60.4	19.5	0.6	0.0	50.9
Sheenjek River (beach seine)[f]	104	11.5	61.5	25.0	1.9	0.0	38.5
Toklat River (carcass, hand picked)[f]	174	10.9	72.4	16.1	0.6	0.0	35.6
Escapement Fall Chum Average [d]		14.0	64.8	20.2	1.0	0.0	41.7
Total Summer Chum	8,186						
Total Fall Chum	2,278						

[a] Sex was recorded for 262 of 405 aged fish.
[b] Sex ratio is suspicious and incorrect sexing may have occurred.
[c] Sex was not recorded.
[d] Averages were calculated for groups only if the gear type is comparable and were not weighted by number of fish sampled in each project.
[e] East Fork Andreafsky River weir was in operation from 6/23 to 9/19, all chum salmon were classified as summer for reporting purposes.
[f] Ages were obtained from vertebrae.

Table 8.–Yukon River Districts 1, 2, and 6 summer chum salmon and District 1 fall chum salmon commercial harvest age and sex composition, 2004.

Season			Brood Year, Age, and (European Age Formula)										Total	
	Sample		2001 3 yrs (0.2)		2000 4 yrs (0.3)		1999 5 yrs (0.4)		1998 6 yrs (0.5)		1997 7 yrs (0.6)			
District	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Summer Chum Salmon														
District 1[a]	818	Males	244	2.3	3,070	21.3	4,806	30.8	52	0.4	0	0.0	8,173	54.8
		Females	308	2.0	2,852	21.3	2,965	22.0	0	0.0	0	0.0	6,124	45.2
		Subtotal	552	4.3	5,922	42.5	7,771	52.8	52	0.4	0	0.0	14,297	100.0
District 2[b]	551	Males	29	0.4	1,161	19.8	2,255	39.0	9	0.2	0	0.0	3,454	59.3
		Females	40	0.7	1,017	17.1	1,271	22.9	0	0.0	0	0.0	2,328	40.7
		Subtotal	69	1.1	2,178	36.8	3,525	61.9	9	0.2	0	0.0	5,782	100.0
District 6[c]	614	Males	0	0.0	1,289	19.5	1,789	27.1	3	0.0	0	0.0	3,081	46.6
		Females	14	0.2	1,474	22.3	2,035	30.8	6	0.1	0	0.0	3,529	53.4
		Subtotal	14	0.2	2,763	41.8	3,824	57.9	9	0.1	0	0.0	6,610	100.0
Districts 1, 2, 6	1,983	Males	273	1.0	5,520	20.7	8,850	33.2	64	0.2	0	0.0	14,708	55.1
Combined		Females	362	1.4	5,343	20.0	6,271	23.5	6	0.0	0	0.0	11,981	44.9
		Total	635	2.4	10,863	40.7	15,120	56.7	70	0.3	0	0.0	26,689	100.0
Fall Chum Salmon														
District 1[d]	386	Males	141	21.4	91	13.8	34	5.2	1	0.1	0	0.0	268	40.7
		Females	231	35.0	116	17.6	44	6.7	1	0.2	0	0.0	392	59.3
		Total	372	56.4	207	31.4	79	11.9	2	0.3	0	0.0	660	100.0

[a] All Commercial fishing periods in District 1 summer season allowed unrestricted mesh sizes. 8.0-inch or larger mesh size gillnets were likely used because it was a Chinook salmon directed fishery,.

[b] Commercial fishing gear during the first period in District 2 was restricted to 8.0-inch and larger mesh gillnets, all other summer commercial fishing periods in District 2 allowed unrestricted mesh sizes. 8.0-inch or larger mesh gillnets were likely used during the District 2 fishery.

[c] Commercial fishing gear was fish wheels.

[d] All District 1 fall chum commercial fishing periods were restricted to ≤ 6-inch mesh size gillnets.

Table 9.–Yukon River summer chum salmon age percentages from combined commercial and subsistence samples, 1985–2004.

Year	Sample Size [a]	Percent (%)				
		Age				
		0.2	0.3	0.4	0.5	0.6
1985	2,472	1.4	68.6	29.2	0.8	0.0
1986	3,473	0.1	29.1	69.8	1.0	0.0
1987	2,184	0.4	60.8	31.8	6.9	0.0
1988	5,112	0.0	70.1	29.1	0.8	0.0
1989	3,778	0.4	38.7	60.5	0.4	0.0
1990	3,155	0.4	38.3	58.9	2.4	0.0
1991	5,015	1.3	48.0	49.8	0.9	0.0
1992	4,303	0.2	31.0	65.0	3.8	0.0
1993	2,011	0.4	47.5	47.7	4.5	0.0
1994	3,820	0.1	51.3	46.6	2.0	0.0
1995	4,740	0.6	51.9	45.3	2.1	0.0
1996	3,863	0.4	46.2	48.8	4.5	0.1
1998	1,147	0.3	62.8	34.2	2.7	0.0
1999	1,627	0.2	40.7	58.2	0.9	0.0
2000	442	0.0	44.2	53.4	2.4	0.0
2001[b]	586	0.0	15.4	81.9	2.7	0.0
2002	1,103	0.1	52.9	44.4	2.6	0.0
2003	1,187	0.2	61.0	35.0	3.8	0.0
2004	2,768	1.7	38.6	59.1	0.5	0.0
Average [c] (1985-2003)	2,779	0.4	47.7	49.4	2.5	0.0
10-yr avg.[c] (1994-2003)	2,057	0.2	47.4	49.8	2.6	0.0
5-yr avg.[c] (1999-2003)	989	0.1	42.8	54.6	2.5	0.0

[a] Samples were from fish wheels and gillnets with various mesh sizes.
[b] No commercial fishing occurred in 2001, samples were from subsistence harvests.
[c] Averages were not weighted by number of fish sampled each year.

Table 10.–Yukon River summer chum salmon age and female percentages from the combined Big Eddy and Middle Mouth 5.5-inch mesh set gillnet test fish catches, 1985–2004.

			Percent (%)					
	Sample	Number	Age					
Year	Size	of Days[a]	0.2	0.3	0.4	0.5	0.6	Females
1985	954	15	0.0	62.4	37.1	0.5	0.0	51.6
1986	1,125	[b]	0.1	26.2	73.2	0.4	0.0	55.1
1987	0	[b]	-	-	-	-	-	-
1988	804	[b]	0.1	50.5	48.4	1.0	0.0	59.5
1989	1,074	29	0.0	39.9	59.5	0.6	0.0	62.2
1990	1,328	42	0.8	46.1	50.1	3.1	0.0	66.0
1991	1,495	41	0.0	45.4	53.6	0.9	0.0	55.2
1992	1,089	32	0.0	22.0	71.8	6.2	0.0	61.4
1993	1,757	46	0.1	38.2	57.4	4.4	0.0	50.4
1994	2,385	49	0.0	35.6	61.9	2.6	0.0	62.5
1995	1,839	38	0.5	40.2	53.2	6.1	0.0	56.2
1996	1,936	47	0.1	42.3	52.4	5.2	0.0	63.7
1997	1,947	46	0.0	24.1	71.5	4.4	0.0	61.0
1998	1,649	47	0.0	62.5	33.5	4.0	0.0	52.5
1999	1,227	33	1.1	48.1	47.4	3.4	0.0	50.0
2000	950	42	0.2	52.5	45.8	1.5	0.0	63.8
2001	724	37	0.0	25.0	73.8	1.2	0.0	64.6
2002	792	47	0.5	57.3	40.4	1.8	0.0	63.3
2003	822	49	0.4	78.7	18.7	2.2	0.0	54.4
2004	521	51	3.1	40.1	56.8	0.0	0.0	66.0
Average [b] (1990-1991, 1993-1998, 2000-2003)	1,469	44	0.2	45.7	51.0	3.1	0.0	59.5
5-yr average [b] (1999-2003)	903	42	0.4	52.3	45.2	2.0	0.0	59.2

[a] Big Eddy and Middle Mouth 5.5" set gillnet test fish projects were conducted from the end of May through July 15, prior to 1990 these projects were often discontinuous within the season or were not conducted throughout the season.

[b] Years used for average only include years when samples were collected throughout the season and include samples with a 35 day season minimum. Average was not weighted by number of fish sampled each year.

Table 11.–Yukon River summer and fall chum salmon mean lengths (mm) by project, gear, sex and age, 2004.

Sex and Season	Project Location	Project Type and (Gear)[a]	Brood Year, Age, and (European Age Formula) 2001 3 yrs (0.2)	2000 4 yrs (0.3)	1999 5 yrs (0.4)	1998 6 yrs (0.5)	1997 7 yrs (0.6)
Male Summer Chum							
	District 1	Com (≥8.0" mesh GN)	555	585	614	628	-
	District 2	Com (FW)	553	594	618	710	-
	District 6[b]	Com (FW)	-	598	610	705	-
	District 1	Sub (≥8.0" mesh GN)	-	592	590	-	-
	District 1	Sub (5.5" mesh GN)	-	582	604	-	575
	District 3	Sub (8.5" mesh GN)	-	541	591	-	-
	District 4	Sub (GN mesh size not recorded)	540	555	567	575	-
	Big Eddy	TF (5.5" mesh GN)	541	569	581	-	-
	Middle Mouth	TF (5.5" mesh GN)	555	576	591	-	-
	Andreafsky, E.F.[b]	Esc (WR)	536	563	584	-	-
	Anvik[b]	Esc (SN)	540	575	598	598	-
	Clear[b]	Esc (WR)	544	555	583	586	-
	Gisasa[b]	Esc (WR)	556	587	617	-	-
	Henshaw[b]	Esc (WR)	545	563	607	-	-
	Tozitna[b]	Esc (WR)	513	568	595	635	-
		Male Summer Chum Average [c]	543	574	597	627	575
Female Summer Chum							
	District 1	Com (≥8.0" mesh GN)	544	563	580	-	-
	District 2	Com (≥8.0" mesh GN)	536	565	591	-	
	District 6[b]	Com (FW)	540	579	589	625	-
	District 1	Sub (≥8.0" mesh GN)	-	559	575	-	-
	District 1	Sub (5.5" mesh GN)	-	564	580	573	-
	District 3	Sub (8.5" mesh GN)	-	570	592	-	-
	District 4	Sub (GN mesh size not recorded)	-	548	523	630	-
	Big Eddy	TF (5.5" mesh GN)	525	562	576	-	-
	Middle Mouth	TF (5.5" mesh GN)	533	556	573	-	-
	Andreafsky, E.F.[b]	Esc (WR)	509	528	541	610	-
	Anvik[b]	Esc (SN)	511	552	561	-	-
	Clear[b]	Esc (WR)	504	530	553	590	-
	Gisasa[b]	Esc (WR)	541	558	574	-	-
	Henshaw[b]	Esc (WR)	514	541	557	-	-
	Tozitna[b]	Esc (WR)	515	549	573	565	-
		Female Summer Chum Average [c]	526	555	569	606	-
Male Fall Chum							
	District 1[b]	Com (≤6.0" mesh GN)	583	605	618	605	-
	District 5	Sub (FW)	583	617	643	-	-
	Big Eddy	TF (6.0" mesh GN)	579	601	618	-	-
	Middle Mouth	TF (6.0" mesh GN)	569	598	609	610	-
	Mt. Village	TF (5 ⅞" mesh GN)	604	614	608	-	-
	Kaltag	TF (5 ⅞" mesh GN)	575	601	638	-	-
	Delta[d]	Esc (CR)	565	595	610	-	-
	Sheenjek[d]	Esc (CR)	602	621	648	645	-
	Toklat[d]	Esc (CR)	558	579	593	545	-
		Male Fall Chum Average [c]	580	603	621	601	-
Female Fall Chum							
	District 1[b]	Com (≤6.0" mesh GN)	575	587	608	625	-
	District 5	Sub (FW)	564	582	602	-	-
	Big Eddy	TF (6.0" mesh GN)	580	594	607	-	-
	Middle Mouth	TF (6.0" mesh GN)	570	576	595	600	-
	Mt. Village	TF (5 ⅞" mesh GN)	619	605	604	-	-
	Kaltag	TF (5 ⅞" mesh GN)	567	593	604	-	-
	Delta[d]	Esc (CR)	547	563	576	550	-
	Sheenjek[d]	Esc (CR)	571	597	619	-	-
	Toklat[d]	Esc (CR)	543	555	580	-	-
		Female Fall Chum Average [c]	571	584	599	592	-

[a] Com is commercial, Sub is subsistence, TF is test fish, Esc is escapement, GN is gillnet preceded by mesh size, FW is fish wheel, WR is weir, SN is seine net, and CR is carcass.

[b] Average fish length for the project was derived by weighting the average length in each stratum by the number of fish represented by that stratum. All other average lengths were simple averages from the sampled fish.

[c] Male and female overall averages were not weighted by number of fish sampled from each project.

[d] Ages were obtained from vertebrae.

Table 12.–Yukon River coho salmon age and female percentages from commercial, test fish, and escapement projects, 2004.

		Percent (%)			
		Brood Year, Age, and (European Age Formula)			
		2001	2000	1999	
Project Type	**Sample**	**3 yrs**	**4 yrs**	**5 yrs**	
Location (gear)	**Size**	**(1.1)**	**(2.1)**	**(3.1)**	**Female**
Commercial					
District 1 (≤6.0" mesh gillnet)	273	14.4	81.2	4.4	47.4
Test Fish					
Big Eddy (6.0" mesh drift gillnet)	29	6.9	89.7	3.4	51.7
Middle Mouth (6.0" mesh drift gillnet)	100	22.0	74.0	4.0	35.0
Mountain Village (5 ⅞" mesh drift gillnet)	205	11.7	84.4	3.9	51.7
Kaltag (5 ⅞" mesh drift gillnet)	112	32.1	67.0	0.9	41.1
Test Fish Average [ab]		21.9	75.1	2.9	42.6
Escapement					
Andreafsky River, East Fork (weir trap)	544	7.0	91.7	1.3	50.6
Otter Creek (carcass samples)	61	24.6	75.4	0.0	52.5
Escapement Average [a]		15.8	83.6	0.7	51.6
Total Samples	1,463				

[a] Averages were not weighted by number of fish sampled in each project.
[b] Big Eddy was not included in the test fish average because of small sample size.

Table 13.–Yukon River coho salmon mean lengths (mm) by project, sex, gear, and age, 2004.

			Brood Year, Age, and (European Age Formula)		
			2001	**2000**	**1999**
	Project	**Project Type**	**3 yrs**	**4 yrs**	**5 yrs**
Sex	**Location**	**and (Gear)[a]**	**(1.1)**	**(2.1)**	**(3.1)**
Male	District 1[b]	Com (≤6.0" GN)	574	584	584
	Big Eddy	TF (6.0" GN)	600	573	-
	Middle Mouth	TF (6.0" GN)	564	565	535
	Mountain Village	TF (5 ⅞" GN)	626	595	533
	Kaltag	TF (5 ⅞" GN)	572	555	620
	Andreafsky, E.F.[b]	Esc (WR)	520	526	475
	Otter Creek	Esc (CR)	579	532	-
		Male Average (All GN) [c]	587	574	568
Female	District 1[b]	Com (≤6.0" GN)	558	564	555
	Big Eddy	TF (6.0" GN)	405	585	550
	Middle Mouth	TF (6.0" GN)	569	570	590
	Mountain Village	TF (5 ⅞" GN)	572	596	581
	Kaltag	TF (5 ⅞" GN)	556	554	-
	Andreafsky, E.F.[b]	Esc (WR)	515	531	581
	Otter Creek	Esc (CR)	573	572	-
		Female Average (All GN) [c]	532	574	569

[a] Com is commercial, TF is test fish, Esc is escapement, GN is gillnet preceded by mesh size, WR is weir, and CR is carcass.
[b] Average was calculated using comparable gillnet samples only and not weighted by number of fish sampled in each project.
[c] Male and female overall averages were from comparable gillnet samples only and not weighted by number of fish sampled in each project.

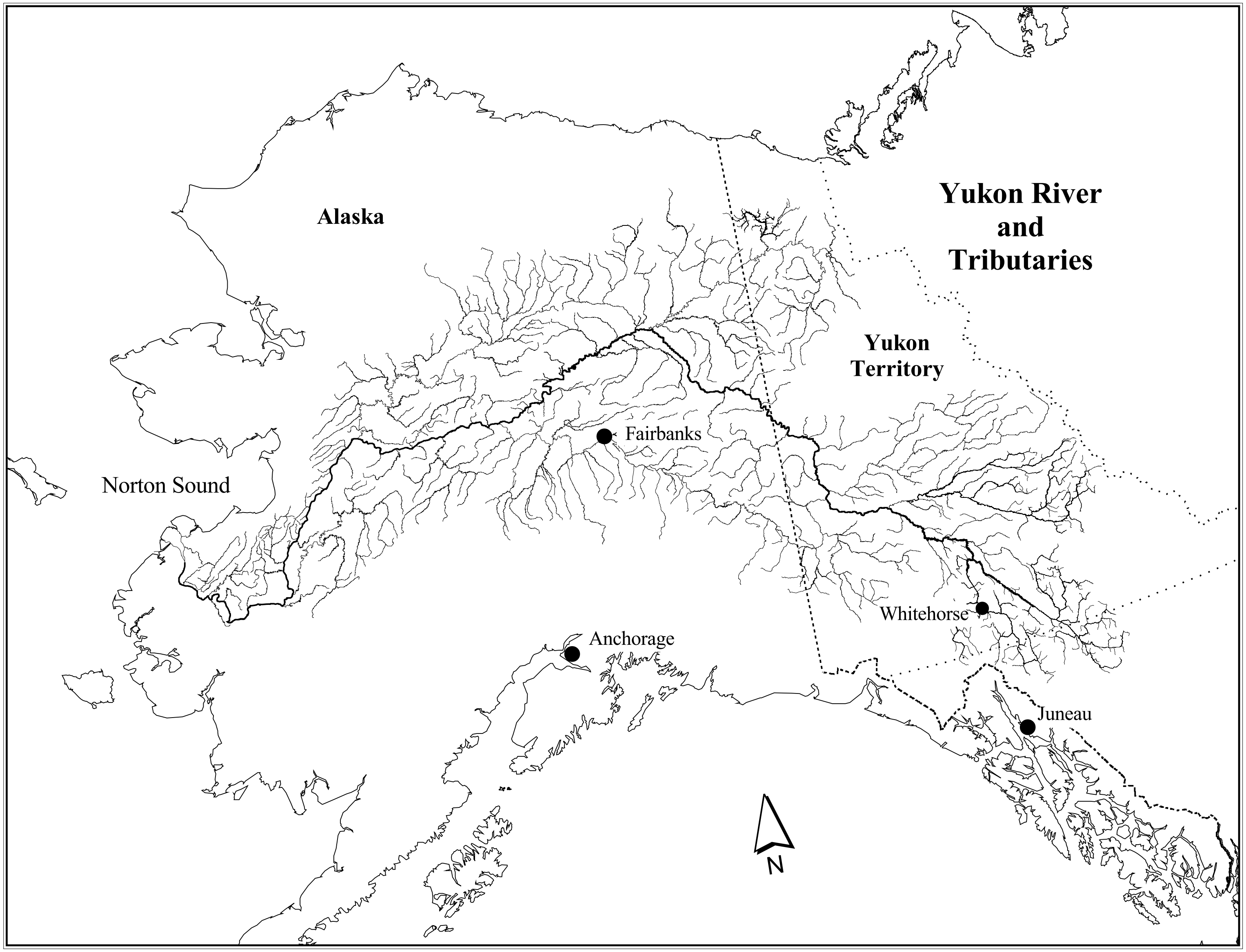
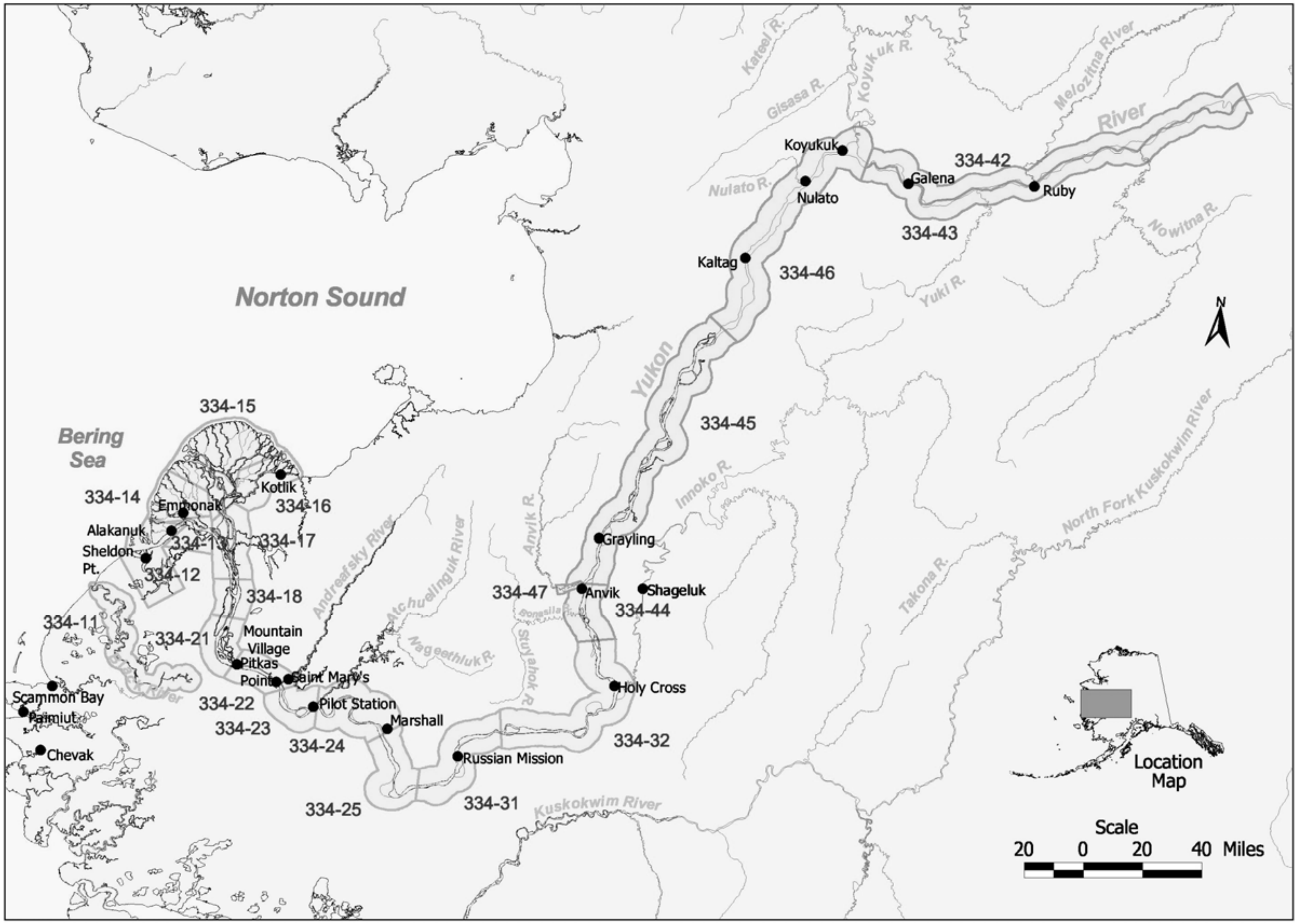
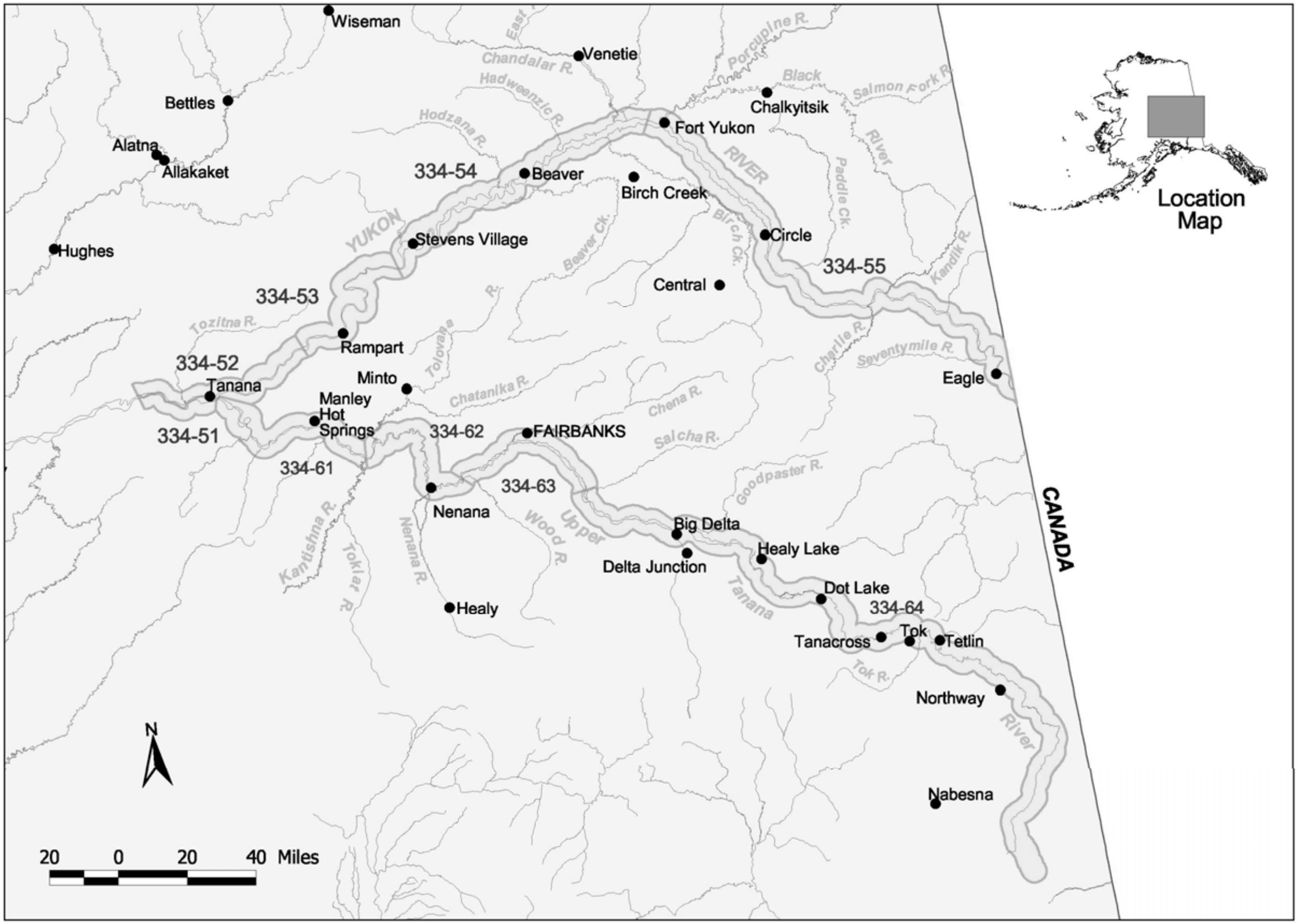


Figure 1.–Map of the Yukon River drainage in Alaska and Canada.



Note: District 1 consists of 334-11 through 334-18, District 2 is 334-21 through 334-25, District 3 is 334-31 and 334-32, Subdistrict 4-A is 334-44 through 334-47, Subdistrict 4-B (north bank) is 334-42 north bank, Subdistrict 4-C (south bank) is 334-43.

Figure 2.–Lower Yukon Area Stat Codes.



Note: District 5 is composed of 334-51 south bank (Subdistrict 5-A), 334-52 (Subdistrict 5-B), 334-53 (Subdistrict 5-C), and 334-54 and 334-55 (Subdistrict 5-D). District 6 is composed of 334-61 (Subdistrict 6-A), 334-62 (Subdistrict 6-B), and 334-63 (Subdistrict 6-C).

Figure 3.–Upper Yukon Area stat codes.

APPENDIX A. CHINOOK SALMON TABLES

Appendix A1.–Yukon River, District 1, Chinook salmon commercial gillnet harvest age and sex composition and mean length (mm), 2004.

			Brood Year, Age and, (European Age Formula)																							
			2001		2000		1999				1998				1997				1996							
			3 yrs.		4 yrs.		5 yrs.				6 yrs.				7 yrs.				8 yrs.							
Sample	Sample		(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total	
Dates [a,b]	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/18	396	Males	0	0.0	86	2.8	290	9.3	8	0.3	893	28.8	0	0.0	71	2.3	8	0.3	0	0.0	0	0.0	1,355	43.7
Period 1		Females	0	0.0	0	0.0	196	6.3	0	0.0	1,512	48.7	0	0.0	39	1.3	0	0.0	0	0.0	0	0.0	1,747	56.3
		Subtotal	0	0.0	86	2.8	486	15.7	8	0.3	2,405	77.5	0	0.0	110	3.5	8	0.3	0	0.0	0	0.0	3,102	100.0
6/21	399	Males	0	0.0	499	6.3	1,178	14.8	40	0.5	2,276	28.6	0	0.0	80	1.0	40	0.5	0	0.0	0	0.0	4,113	51.6
Period 2		Females	0	0.0	20	0.3	280	3.5	0	0.0	3,235	40.6	0	0.0	280	3.5	40	0.5	0	0.0	0	0.0	3,854	48.4
		Subtotal	0	0.0	519	6.5	1,458	18.3	40	0.5	5,511	69.2	0	0.0	359	4.5	80	1.0	0	0.0	0	0.0	7,967	100.0
6/25	398	Males	0	0.0	536	5.3	1,276	12.6	0	0.0	2,832	27.9	0	0.0	77	0.8	26	0.3	0	0.0	0	0.0	4,745	46.7
Period 3		Females	0	0.0	77	0.8	638	6.3	0	0.0	4,515	44.5	0	0.0	179	1.8	0	0.0	0	0.0	0	0.0	5,408	53.3
		Subtotal	0	0.0	612	6.0	1,913	18.8	0	0.0	7,347	72.4	0	0.0	255	2.5	26	0.3	0	0.0	0	0.0	10,153	100.0
6/29	399	Males	0	0.0	178	6.5	294	10.8	0	0.0	506	18.5	0	0.0	34	1.3	0	0.0	0	0.0	0	0.0	1,011	37.1
Period 4		Females	0	0.0	0	0.0	198	7.3	0	0.0	1,462	53.6	0	0.0	55	2.0	0	0.0	0	0.0	0	0.0	1,715	62.9
		Subtotal	0	0.0	178	6.5	492	18.0	0	0.0	1,968	72.2	0	0.0	89	3.3	0	0.0	0	0.0	0	0.0	2,726	100.0
7/1	395	Males	4	0.3	144	8.9	185	11.4	0	0.0	263	16.2	0	0.0	21	1.3	0	0.0	0	0.0	0	0.0	617	38.0
Period 5		Females	0	0.0	0	0.0	107	6.6	0	0.0	859	52.9	0	0.0	41	2.5	0	0.0	0	0.0	0	0.0	1,007	62.0
		Subtotal	4	0.3	144	8.9	292	18.0	0	0.0	1,122	69.1	0	0.0	62	3.8	0	0.0	0	0.0	0	0.0	1,624	100.0
7/3	199	Males	0	0.0	92	6.0	254	16.6	0	0.0	277	18.1	0	0.0	31	2.0	0	0.0	0	0.0	0	0.0	654	42.7
Period 6		Females	0	0.0	0	0.0	85	5.5	0	0.0	753	49.2	0	0.0	38	2.5	0	0.0	0	0.0	0	0.0	876	57.3
		Subtotal	0	0.0	92	6.0	338	22.1	0	0.0	1,030	67.3	0	0.0	69	4.5	0	0.0	0	0.0	0	0.0	1,530	100.0
7/6	187	Males	0	0.0	121	11.8	154	15.0	0	0.0	143	13.9	0	0.0	22	2.1	0	0.0	0	0.0	0	0.0	441	42.8
Period 7		Females	0	0.0	0	0.0	66	6.4	0	0.0	490	47.6	0	0.0	33	3.2	0	0.0	0	0.0	0	0.0	589	57.2
		Subtotal	0	0.0	121	11.8	220	21.4	0	0.0	633	61.5	0	0.0	55	5.3	0	0.0	0	0.0	0	0.0	1,030	100.0
7/10	54	Males	0	0.0	20	7.4	40	14.8	0	0.0	50	18.5	0	0.0	5	1.9	0	0.0	0	0.0	0	0.0	115	42.6
Period 8		Females	0	0.0	0	0.0	25	9.3	0	0.0	130	48.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	154	57.4
		Subtotal	0	0.0	20	7.4	65	24.1	0	0.0	179	66.7	0	0.0	5	1.9	0	0.0	0	0.0	0	0.0	269	100.0
Other[c]	0[d]	Males	0	0.0	43	5.9	93	12.9	1	0.2	184	25.5	0	0.0	9	1.2	2	0.3	0	0.0	0	0.0	332	45.9
		Females	0	0.0	2	0.3	41	5.6	0	0.0	329	45.6	0	0.0	17	2.3	1	0.1	0	0.0	0	0.0	390	54.1
		Subtotal	0	0.0	45	6.2	134	18.5	1	0.2	513	71.1	0	0.0	26	3.5	3	0.4	0	0.0	0	0.0	722	100.0
Total	2,427	Males	4	0.0	1,712	5.9	3,749	12.9	49	0.2	7,395	25.5	0	0.0	347	1.2	75	0.3	0	0.0	0	0.0	13,331	45.9
All Periods[e]		Females	0	0.0	99	0.3	1,628	5.6	0	0.0	13,236	45.6	0	0.0	679	2.3	41	0.1	0	0.0	0	0.0	15,682	54.1
		Total	4	0.0	1,818	6.2	5,398	18.5	49	0.2	20,709	71.1	0	0.0	1,029	3.5	116	0.4	0	0.0	0	0.0	29,123	100.0
Mean Length[f]		Males	405		621		757		655		884		-		983		851		-		-			
Std. Error			-		3		3		36		3		-		9		17		-		-			
Mean Length		Females	-		670		784		-		879		-		936		873		-		-			
Std. Error			-		19		4		-		1		-		7		28		-		-			

[a] All District 1 Chinook commercial fishing periods permitted unrestricted mesh sizes, because it was a Chinook directed fishery, 8.0-inch mesh and larger was likely used.
[b] The number of fish in each stratum age and sex category are derived from the sample percentages; discrepancies in sums are attributed to rounding errors.
[c] Other includes all Alaska Department of Fish and Game test fish sold; these fish were not recorded as part of the harvest for any period.
[d] Test fish sold during the commercial fishery were not sampled, therefore, the age composition was calculated using percentages from the season total.
[e] The number of fish in the total are the strata sums; total percentages are derived from the sums.
[f] Mean lengths are averages from the sampled fish and not weighted by commercial harvest in each stratum.

Appendix A2.–Yukon River, District 2, Chinook salmon commercial gillnet harvest age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)																					
			2001		2000		1999				1998				1997				1996					
			3 yrs.		4 yrs.		5 yrs.				6 yrs.				7 yrs.				8 yrs.					
Sample	Sample		(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total	
Dates [a]	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/15 [b]	395	Males	0	0.0	294	3.3	904	10.1	0	0.0	2,328	26.1	0	0.0	203	2.3	0	0.0	0	0.0	0	0.0	3,729	41.8
Period 1		Females	0	0.0	45	0.5	655	7.3	0	0.0	4,339	48.6	0	0.0	158	1.8	0	0.0	0	0.0	0	0.0	5,198	58.2
		Subtotal	0	0.0	339	3.8	1,559	17.5	0	0.0	6,667	74.7	0	0.0	362	4.1	0	0.0	0	0.0	0	0.0	8,927	100.0
6/20 [c]	395	Males	0	0.0	92	2.3	521	12.9	0	0.0	1,176	29.1	0	0.0	72	1.8	0	0.0	0	0.0	0	0.0	1,861	46.1
Period 2		Females	0	0.0	0	0.0	164	4.1	0	0.0	1,932	47.8	0	0.0	82	2.0	0	0.0	0	0.0	0	0.0	2,177	53.9
		Subtotal	0	0.0	92	2.3	685	17.0	0	0.0	3,108	77.0	0	0.0	153	3.8	0	0.0	0	0.0	0	0.0	4,038	100.0
6/24 [c]	395	Males	0	0.0	239	3.3	846	11.6	0	0.0	2,023	27.8	0	0.0	147	2.0	0	0.0	0	0.0	0	0.0	3,255	44.8
Period 3		Females	0	0.0	18	0.3	552	7.6	0	0.0	3,291	45.3	0	0.0	147	2.0	0	0.0	0	0.0	0	0.0	4,008	55.2
		Subtotal	0	0.0	257	3.5	1,397	19.2	0	0.0	5,314	73.2	0	0.0	294	4.1	0	0.0	0	0.0	0	0.0	7,263	100.0
6/27 [c]	399	Males	0	0.0	217	5.5	602	15.3	0	0.0	809	20.6	0	0.0	49	1.3	0	0.0	0	0.0	0	0.0	1,677	42.6
Period 4		Females	0	0.0	0	0.0	316	8.0	0	0.0	1,855	47.1	0	0.0	89	2.3	0	0.0	0	0.0	0	0.0	2,259	57.4
		Subtotal	0	0.0	217	5.5	917	23.3	0	0.0	2,663	67.7	0	0.0	138	3.5	0	0.0	0	0.0	0	0.0	3,936	100.0
Other[d]	0[e]	Males	0	0.0	2	3.5	6	11.9	0	0.0	13	26.2	0	0.0	1	2.0	0	0.0	0	0.0	0	0.0	22	43.5
		Females	0	0.0	0	0.3	4	7.0	0	0.0	24	47.2	0	0.0	1	2.0	0	0.0	0	0.0	0	0.0	29	56.5
		Subtotal	0	0.0	2	3.7	10	18.9	0	0.0	37	73.5	0	0.0	2	3.9	0	0.0	0	0.0	0	0.0	70	100.0
Total	1,584	Males	0	0.0	844	3.5	2,879	11.9	0	0.0	6,348	26.2	0	0.0	472	2.0	0	0.0	0	0.0	0	0.0	10,543	43.5
All Periods[f]		Females	0	0.0	64	0.3	1,690	7.0	0	0.0	11,441	47.2	0	0.0	477	2.0	0	0.0	0	0.0	0	0.0	13,672	56.5
		Total	0	0.0	907	3.7	4,569	18.9	0	0.0	17,790	73.5	0	0.0	949	3.9	0	0.0	0	0.0	0	0.0	24,234	100.0
Mean Length[g]		Males	-		613		749		-		870		-		947		-		-		-			
Std. Error			-		6		4		-		3		-		14		-		-		-			
Mean Length		Females	-		643		773		-		875		-		924		-		-		-			
Std. Error			-		12		5		-		2		-		9		-		-		-			

[a] The number of fish in each stratum age and sex category are derived from the sample percentages; discrepancies in sums are attributed to rounding errors.

[b] Mesh size was restricted to 8.0 inch and larger.

[c] Mesh size was unrestricted, because it was a Chinook directed fishery, 8.0” mesh and larger was most likely used.

[d] Other includes all Alaska Department of Fish and Game test fish sold; these fish were not recorded as part of the harvest for any period.

[e] Test fish sold during the commercial fishery were not sampled; therefore, the age composition was calculated using the percentages from the season total.

[f] The number of fish in the total are the strata sums; total percentages are derived from the sums.

[g] Mean lengths are averages from the sampled fish and not weighted by commercial harvest in each stratum.

Appendix A3.–Yukon River, District 5 (Subdistricts 5-B and 5-C), Chinook salmon commercial harvest age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)																					
			2001		2000		1999				1998				1997				1996					
			3 yrs.		4 yrs.		5 yrs.				6 yrs.				7 yrs.				8 yrs.					
Sample	Sample		(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total	
Dates [ab]	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
7/3	152	Males	0	0.0	57	16.4	87	25.0	0	0.0	71	20.4	0	0.0	2	0.6	0	0.0	0	0.0	0	0.0	218	62.5
Period 1		Females	0	0.0	3	0.7	18	5.3	0	0.0	103	29.6	0	0.0	7	2.0	0	0.0	0	0.0	0	0.0	130	37.5
		Subtotal	0	0.0	60	17.1	105	30.3	0	0.0	174	50.0	0	0.0	9	2.6	0	0.0	0	0.0	0	0.0	348	100.0
7/4	149	Males	0	0.0	152	22.8	237	35.6	0	0.0	76	11.4	0	0.0	9	1.4	0	0.0	0	0.0	0	0.0	473	71.1
Period 2		Females	0	0.0	0	0.0	13	2.0	0	0.0	169	25.5	0	0.0	9	1.3	0	0.0	0	0.0	0	0.0	192	28.9
		Subtotal	0	0.0	152	22.8	250	37.6	0	0.0	245	36.9	0	0.0	18	2.7	0	0.0	0	0.0	0	0.0	665	100.0
7/7	149	Males	0	0.0	68	12.8	118	22.2	0	0.0	86	16.1	0	0.0	11	2.0	0	0.0	0	0.0	0	0.0	283	53.0
Periods 3, 4 [c]		Females	0	0.0	0	0.0	36	6.7	0	0.0	207	38.9	0	0.0	7	1.4	0	0.0	0	0.0	0	0.0	250	47.0
		Subtotal	0	0.0	68	12.8	154	28.9	0	0.0	293	55.0	0	0.0	18	3.4	0	0.0	0	0.0	0	0.0	533	100.0
Total	450	Males	0	0.0	277	17.9	442	28.5	0	0.0	233	15.0	0	0.0	22	1.4	0	0.0	0	0.0	0	0.0	973	62.9
All Periods[d]		Females	0	0.0	2	0.2	67	4.4	0	0.0	480	31.1	0	0.0	23	1.5	0	0.0	0	0.0	0	0.0	573	37.1
		Total	0	0.0	279	18.1	509	32.9	0	0.0	713	46.1	0	0.0	45	2.9	0	0.0	0	0.0	0	0.0	1,546	100.0
Mean Length[e]		Males	-		610		710		-		868		-		1000		-		-		-			
Std. Error			-		5		5		-		10		-		19		-		-		-			
Mean Length		Females	-		590		755		-		866		-		905		-		-		-			
Std. Error			-		-		12		-		5		-		14		-		-		-			

[a] Samples were collected from mixed gear including gillnets and fish wheels.

[b] The number of fish in each stratum age and sex category are derived from the sample percentages; discrepancies in sums are attributed to rounding errors.

[c] Period 4 was combined with period 3 because 19 fish were harvested in period 4 and no sampling occurred.

[d] The number of fish in the total are the strata sums; total percentages are derived from the sums.

[e] Mean lengths were weighted by commercial harvest in each stratum.

Appendix A4.–Yukon River, District 6, Chinook salmon commercial harvest age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)																					
			2001 3 yrs.		2000 4 yrs.		1999 5 yrs.				1998 6 yrs.				1997 7 yrs.				1996 8 yrs.					
Sample	Sample		(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total	
Dates [ab]	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
7/11	156	Males	0	0.0	265	37.8	224	32.1	0	0.0	31	4.5	0	0.0	5	0.7	0	0.0	0	0.0	0	0.0	525	75.0
Period 2 [c]		Females	0	0.0	0	0.0	0	0.0	0	0.0	171	24.3	0	0.0	4	0.6	0	0.0	0	0.0	0	0.0	175	25.0
		Subtotal	0	0.0	265	37.8	224	32.1	0	0.0	202	28.8	0	0.0	9	1.3	0	0.0	0	0.0	0	0.0	700	100.0
7/14	152	Males	0	0.0	220	26.3	248	29.6	0	0.0	72	8.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	539	64.5
Period 3		Females	0	0.0	6	0.7	5	0.7	0	0.0	269	32.2	0	0.0	17	2.0	0	0.0	0	0.0	0	0.0	297	35.5
		Subtotal	0	0.0	226	27.0	253	30.3	0	0.0	341	40.8	0	0.0	17	2.0	0	0.0	0	0.0	0	0.0	836	100.0
7/18	151	Males	3	0.7	113	28.5	66	16.5	0	0.0	44	11.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	226	57.0
Period 4		Females	0	0.0	0	0.0	8	2.0	0	0.0	158	39.7	0	0.0	5	1.3	0	0.0	0	0.0	0	0.0	171	43.0
		Subtotal	3	0.7	113	28.5	74	18.5	0	0.0	202	51.0	0	0.0	5	1.3	0	0.0	0	0.0	0	0.0	397	100.0
7/21	28	Males	0	0.0	35	28.6	13	10.7	0	0.0	18	14.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	66	53.6
Periods 5, 6, 10 [d]		Females	0	0.0	0	0.0	0	0.0	0	0.0	57	46.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	58	46.4
		Subtotal	0	0.0	35	28.6	13	10.7	0	0.0	75	60.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	124	100.0
Total	487	Males	3	0.1	633	30.8	551	26.8	0	0.0	165	8.0	0	0.0	5	0.2	0	0.0	0	0.0	0	0.0	1,357	65.9
All Periods[e]		Females	0	0.0	6	0.3	13	0.6	0	0.0	656	31.9	0	0.0	26	1.3	0	0.0	0	0.0	0	0.0	700	34.1
		Total	3	0.1	639	31.1	564	27.4	0	0.0	821	39.9	0	0.0	31	1.5	0	0.0	0	0.0	0	0.0	2,057	100.0
Mean Length[f]		Males	375		608		703		-		830		-		930		-		-		-			
Std. Error			-		4		5		-		12		-		-		-		-		-			
Mean Length		Females	-		690		757		-		869		-		900		-		-		-			
Std. Error			-		-		36		-		4		-		19		-		-		-			

[a] Samples were collected from fish wheels.
[b] The number of fish in each stratum age and sex category are derived from the sample percentages; discrepancies in sums are attributed to rounding errors.
[c] No fishing or sampling occurred during period 1.
[d] No fishing occurred during periods 7 and 8, and no sampling occurred during periods 6-10, periods 5, 6 and 10 were combined because only 15 Chinook salmon were delivered during period 6, and 2 during period 10.
[e] The number of fish in the total are the strata sums; total percentages are derived from the sums.
[f] Mean lengths were weighted by commercial harvest in each stratum.

Appendix A5.–Yukon River, District 1, Chinook salmon subsistence 5.5-inch mesh gillnet harvest age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)																					
			2001		2000		1999				1998				1997				1996					
			3 yrs.		4 yrs.		5 yrs.				6 yrs.				7 yrs.				8 yrs.					
Sample	Sample		(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total	
Dates	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/4-5	39	Males	0	0.0	8	20.5	10	25.6	0	0.0	1	2.6	0	0.0	1	2.6	0	0.0	0	0.0	0	0.0	20	51.3
		Females	0	0.0	0	0.0	2	5.1	0	0.0	16	41.0	0	0.0	1	2.6	0	0.0	0	0.0	0	0.0	19	48.7
		Subtotal	0	0.0	8	20.5	12	30.8	0	0.0	17	43.6	0	0.0	2	5.1	0	0.0	0	0.0	0	0.0	39	100.0
6/8-9, 11	78	Males	0	0.0	20	25.6	38	48.7	0	0.0	6	7.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	64	82.1
		Females	0	0.0	0	0.0	2	2.6	0	0.0	12	15.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	14	17.9
		Subtotal	0	0.0	20	25.6	40	51.3	0	0.0	18	23.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	78	100.0
Season Total	117	Males	0	0.0	28	23.9	48	41.0	0	0.0	7	6.0	0	0.0	1	0.9	0	0.0	0	0.0	0	0.0	84	71.8
		Females	0	0.0	0	0.0	4	3.4	0	0.0	28	23.9	0	0.0	1	0.9	0	0.0	0	0.0	0	0.0	33	28.2
		Total	0	0.0	28	23.9	52	44.4	0	0.0	35	29.9	0	0.0	2	1.7	0	0.0	0	0.0	0	0.0	117	100.0
Mean Length		Males	-		607		653		-		839		-		1015		-		-		-			
Std. Error			-		6		8		-		19		-		-		-		-		-			
Mean Length		Females	-		-		790		-		878		-		925		-		-		-			
Std. Error			-		-		41		-		9		-		-		-		-		-			

Appendix A6.–Yukon River, District 1, Chinook salmon subsistence 5.5-inch mesh gillnet harvest age composition, 2004.

		Brood Year, Age, and (European Age Formula)																					
		2001		2000		1999				1998				1997				1996					
		3 yrs.		4 yrs.		5 yrs.				6 yrs.				7 yrs.				8 yrs.					
Sample	Sample	(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total	
Dates [a]	Size	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/4-5	53	0	0.0	11	20.8	19	35.8	0	0.0	21	39.6	0	0.0	2	3.8	0	0.0	0	0.0	0	0.0	53	100.0
6/8-9, 11	166	0	0.0	40	24.1	73	44.0	0	0.0	50	30.1	0	0.0	3	1.8	0	0.0	0	0.0	0	0.0	166	100.0
Season Total	219	0	0.0	51	23.3	92	42.0	0	0.0	71	32.4	0	0.0	5	2.3	0	0.0	0	0.0	0	0.0	219	100.0

[a] Combines all sexed (Appendix A5) and all unsexed Chinook salmon sampled from the 5.5-inch mesh gillnet subsistence harvest.

Appendix A7.–Yukon River, District 1, Chinook salmon subsistence 8.5-inch mesh gillnet harvest age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)																					
			2001		2000		1999				1998				1997				1996					
			3 yrs.		4 yrs.		5 yrs.				6 yrs.				7 yrs.				8 yrs.					
Sample	Sample		(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total	
Dates	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/4, 8	30	Males	0	0.0	1	3.3	4	13.3	0	0.0	8	26.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	13	43.3
		Females	0	0.0	0	0.0	1	3.3	0	0.0	16	53.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	17	56.7
		Subtotal	0	0.0	1	3.3	5	16.7	0	0.0	24	80.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	30	100.0
6/9	135	Males	0	0.0	3	2.2	24	17.8	0	0.0	41	30.4	0	0.0	4	3.0	0	0.0	0	0.0	0	0.0	72	53.3
		Females	0	0.0	0	0.0	6	4.4	0	0.0	56	41.5	0	0.0	1	0.7	0	0.0	0	0.0	0	0.0	63	46.7
		Subtotal	0	0.0	3	2.2	30	22.2	0	0.0	97	71.9	0	0.0	5	3.7	0	0.0	0	0.0	0	0.0	135	100.0
6/11-12	40	Males	0	0.0	7	17.5	11	27.5	0	0.0	4	10.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	22	55.0
		Females	0	0.0	0	0.0	2	5.0	0	0.0	15	37.5	0	0.0	1	2.5	0	0.0	0	0.0	0	0.0	18	45.0
		Subtotal	0	0.0	7	17.5	13	32.5	0	0.0	19	47.5	0	0.0	1	2.5	0	0.0	0	0.0	0	0.0	40	100.0
6/16-17, 22, 27	42	Males	0	0.0	4	9.5	4	9.5	0	0.0	10	23.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	18	42.9
		Females	0	0.0	0	0.0	5	11.9	0	0.0	18	42.9	0	0.0	1	2.4	0	0.0	0	0.0	0	0.0	24	57.1
		Subtotal	0	0.0	4	9.5	9	21.4	0	0.0	28	66.7	0	0.0	1	2.4	0	0.0	0	0.0	0	0.0	42	100.0
Season Total	247	Males	0	0.0	15	6.1	43	17.4	0	0.0	63	25.5	0	0.0	4	1.6	0	0.0	0	0.0	0	0.0	125	50.6
		Females	0	0.0	0	0.0	14	5.7	0	0.0	105	42.5	0	0.0	3	1.2	0	0.0	0	0.0	0	0.0	122	49.4
		Total	0	0.0	15	6.1	57	23.1	0	0.0	168	68.0	0	0.0	7	2.8	0	0.0	0	0.0	0	0.0	247	100.0
Mean Length		Males	-		587		716		-		848		-		886		-		-		-			
Std. Error			-		10		10		-		9		-		15		-		-		-			
Mean Length		Females	-		-		810		-		872		-		977		-		-		-			
Std. Error			-		-		15		-		5		-		54		-		-		-			

Appendix A8.–Yukon River, District 1, Chinook salmon subsistence 8.5-inch mesh gillnet harvest age composition, 2004.

		Brood Year, Age, and (European Age Formula)																					
		2001 3 yrs.		2000 4 yrs.		1999 5 yrs.				1998 6 yrs.				1997 7 yrs.				1996 8 yrs.					
Sample	Sample	(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total	
Dates [a]	Size	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/4, 8	49	0	0.0	1	2.0	10	20.4	0	0.0	38	77.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	49	100.0
6/9	136	0	0.0	3	2.2	30	22.1	0	0.0	98	72.1	0	0.0	5	3.7	0	0.0	0	0.0	0	0.0	136	100.0
6/11-12	59	0	0.0	7	11.9	17	28.8	0	0.0	32	54.2	0	0.0	3	5.1	0	0.0	0	0.0	0	0.0	59	100.0
6/16, 22, 27	42	0	0.0	4	9.5	9	21.4	0	0.0	28	66.7	0	0.0	1	2.4	0	0.0	0	0.0	0	0.0	42	100.0
Season Total	286	0	0.0	15	5.2	66	23.1	0	0.0	196	68.5	0	0.0	9	3.1	0	0.0	0	0.0	0	0.0	286	100.0

[a] Combines unsexed Chinook salmon sampled from the 8.5-inch mesh gillnet subsistence harvest with the sexed samples (from Appendix A7).

Appendix A9.–Yukon River, District 3 (Holy Cross), Chinook salmon subsistence 8.5-inch mesh gillnet harvest age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)																					
			2001		2000		1999				1998				1997				1996					
			3 yrs.		4 yrs.		5 yrs.				6 yrs.				7 yrs.				8 yrs.					
Sample	Sample		(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total	
Dates [a]	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/1, 9	36	Males	0	0.0	4	11.1	8	22.2	0	0.0	11	30.6	0	0.0	1	2.8	0	0.0	0	0.0	0	0.0	24	66.7
		Females	0	0.0	0	0.0	3	8.4	0	0.0	9	25.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	12	33.3
		Total	0	0.0	4	11.1	11	30.6	0	0.0	20	55.6	0	0.0	1	2.8	0	0.0	0	0.0	0	0.0	36	100.0
6/16, 19, 30	95	Males	0	0.0	7	7.4	8	8.4	0	0.0	23	24.2	0	0.0	1	1.1	0	0.0	0	0.0	0	0.0	39	41.1
		Females	0	0.0	0	0.0	1	1.1	0	0.0	47	49.5	0	0.0	8	8.4	0	0.0	0	0.0	0	0.0	56	58.9
		Total	0	0.0	7	7.4	9	9.5	0	0.0	70	73.7	0	0.0	9	9.5	0	0.0	0	0.0	0	0.0	95	100.0
Season Total	131	Males	0	0.0	11	8.4	16	12.2	0	0.0	34	26.0	0	0.0	2	1.5	0	0.0	0	0.0	0	0.0	63	48.1
		Females	0	0.0	0	0.0	4	3.1	0	0.0	56	42.7	0	0.0	8	6.1	0	0.0	0	0.0	0	0.0	68	51.9
		Total	0	0.0	11	8.4	20	15.3	0	0.0	90	68.7	0	0.0	10	7.6	0	0.0	0	0.0	0	0.0	131	100.0
Mean Length		Males	-		628		742		-		837		-		902		-		-		-			
Std. Error			-		24		14		-		12		-		-		-		-		-			
Mean Length		Females	-		-		724		-		861		-		907		-		-		-			
Std. Error			-		-		43		-		12		-		22		-		-		-			

[a] Tanana Chiefs Conference contracted with 2 fishers in the village of Holy Cross to collect subsistence harvested Chinook salmon samples. Sample dates were stratified by fisher who collected the samples.

Appendix A10.–Yukon River, Subdistrict 4-A (Kaltag), Chinook salmon subsistence 8.5-inch mesh gillnet harvest age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)																					
			2001		2000		1999				1998				1997				1996					
			3 yrs.		4 yrs.		5 yrs.				6 yrs.				7 yrs.				8 yrs.					
Sample	Sample		(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total	
Dates [a]	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/19, 21-24	75	Males	0	0.0	10	13.3	13	17.3	0	0.0	16	21.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	39	52.0
		Females	0	0.0	0	0.0	3	4.0	0	0.0	28	37.4	0	0.0	5	6.7	0	0.0	0	0.0	0	0.0	36	48.0
		Subtotal	0	0.0	10	13.3	16	21.3	0	0.0	44	58.7	0	0.0	5	6.7	0	0.0	0	0.0	0	0.0	75	100.0
6/28 - 7/1	74	Males	0	0.0	3	4.1	7	9.5	0	0.0	17	23.0	0	0.0	1	1.4	0	0.0	0	0.0	0	0.0	28	37.8
		Females	0	0.0	0	0.0	4	5.4	0	0.0	38	51.3	0	0.0	4	5.4	0	0.0	0	0.0	0	0.0	46	62.2
		Subtotal	0	0.0	3	4.1	11	14.9	0	0.0	55	74.3	0	0.0	5	6.8	0	0.0	0	0.0	0	0.0	74	100.0
7/2, 3, 7-9	72	Males	0	0.0	3	4.2	6	8.3	0	0.0	12	16.7	0	0.0	2	2.8	0	0.0	0	0.0	0	0.0	23	31.9
		Females	0	0.0	0	0.0	4	5.6	0	0.0	44	61.1	0	0.0	1	1.4	0	0.0	0	0.0	0	0.0	49	68.1
		Subtotal	0	0.0	3	4.2	10	13.9	0	0.0	56	77.8	0	0.0	3	4.2	0	0.0	0	0.0	0	0.0	72	100.0
Season Total	221	Males	0	0.0	16	7.2	26	11.7	0	0.0	45	20.3	0	0.0	3	1.4	0	0.0	0	0.0	0	0.0	90	40.7
		Females	0	0.0	0	0.0	11	5	0	0.0	110	49.8	0	0.0	10	4.5	0	0.0	0	0.0	0	0.0	131	59.3
		Total	0	0.0	16	7.2	37	16.7	0	0.0	155	70.1	0	0.0	13	5.9	0	0.0	0	0.0	0	0.0	221	100.0
Mean Length		Males	-		614		733		-		881		-		957		-		-		-			
Std. Error			-		10		15		-		11		-		3		-		-		-			
Mean Length		Females	-		-		760		-		879		-		906		-		-		-			
Std. Error			-		-		18		-		4		-		17		-		-		-			

[a] Samples were collected by technicians employed by the City of Kaltag.

Appendix A11.–Yukon River, Subdistrict 4-A (Nulato), Chinook salmon subsistence 8.0-inch mesh gillnet harvest age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)																					
			2001		2000		1999				1998				1997				1996					
			3 yrs.		4 yrs.		5 yrs.				6 yrs.				7 yrs.				8 yrs.					
Sample	Sample		(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total	
Dates	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/18, 22, 25;	72 [a]	Males	0	0.0	0	0.0	5	7.0	0	0.0	34	47.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	39	54.2
7/2		Females	0	0.0	2	2.8	8	11.1	0	0.0	20	27.8	0	0.0	3	4.2	0	0.0	0	0.0	0	0.0	33	45.8
		Subtotal	0	0.0	2	2.8	13	18.1	0	0.0	54	75.0	0	0.0	3	4.2	0	0.0	0	0.0	0	0.0	72	100.0
7/2, 3, 5	98 [b]	Males	0	0.0	11	11.2	19	19.4	0	0.0	18	18.3	0	0.0	1	1.0	0	0.0	0	0.0	0	0.0	49	50.0
		Females	0	0.0	0	0.0	1	1.0	0	0.0	43	43.9	0	0.0	5	5.1	0	0.0	0	0.0	0	0.0	49	50.0
		Subtotal	0	0.0	11	11.2	20	20.4	0	0.0	61	62.2	0	0.0	6	6.1	0	0.0	0	0.0	0	0.0	98	100.0
Season Total	170	Males	0	0.0	11	6.5	24	14.1	0	0.0	52	30.6	0	0.0	1	0.6	0	0.0	0	0.0	0	0.0	88	51.8
		Females	0	0.0	2	1.2	9	5.3	0	0.0	63	37.1	0	0.0	8	4.7	0	0.0	0	0.0	0	0.0	82	48.2
		Total	0	0.0	13	7.6	33	19.4	0	0.0	115	67.6	0	0.0	9	5.3	0	0.0	0	0.0	0	0.0	170	100.0
Mean Length		Males	-		618		714		-		853		-		1030		-		-		-			
Std. Error			-		9		17		-		7		-		-		-		-		-			
Mean Length		Females	-		630		724		-		879		-		935		-		-		-			
Std. Error			-		10		21		-		7		-		17		-		-		-			

[a] Tanana Chiefs Conference contracted with 1 fisher in the village of Nulato to collect these Chinook salmon samples.

[b] Alaska Department of Fish and Game Commercial Fisheries Division staff collected these samples from Nulato.

Appendix A12.–Yukon River, Subdistrict 4-A (Grayling), Chinook salmon subsistence gillnet harvest age composition, 2004.

		Brood Year, Age, and (European Age Formula)																					
		2001		2000		1999				1998				1997				1996					
		3 yrs.		4 yrs.		5 yrs.				6 yrs.				7 yrs.				8 yrs.					
Sample	Sample	(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total	
Dates [a]	Size	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
June	182	0	0.0	25	13.7	42	23.1	0	0.0	113	62.1	0	0.0	2	1.1	0	0.0	0	0.0	0	0.0	182	100.0

[a] Tanana Chiefs Conference contracted with 1 fisher in the village of Grayling to collect subsistence harvested Chinook salmon samples. Length, sex, and date information were not available.

Appendix A13.–Yukon River, Subdistrict 4-B (Galena), Chinook salmon subsistence gillnet harvest age composition, 2004.

		Brood Year, Age, and (European Age Formula)																					
		2001		2000		1999				1998				1997				1996					
		3 yrs.		4 yrs.		5 yrs.				6 yrs.				7 yrs.				8 yrs.					
Sample	Sample	(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total	
Dates [a]	Size	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/29 - 7/9	83	0	0.0	3	3.6	16	19.3	0	0.0	62	74.7	0	0.0	2	2.4	0	0.0	0	0.0	0	0.0	83	100.0

[a] Tanana Chiefs Conference contracted with 1 fisher in the village of Galena to collect subsistence harvested Chinook salmon samples. Length and sex information were not available.

Appendix A14.–Yukon River, Subdistrict 4-B (Bishop Mountain), Chinook salmon subsistence gillnet harvest age composition, 2004.

		Brood Year, Age, and (European Age Formula)																					
		2001		2000		1999				1998				1997				1996					
		3 yrs.		4 yrs.		5 yrs.				6 yrs.				7 yrs.				8 yrs.					
Sample	Sample	(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total	
Dates [a]	Size	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/17, 21-22	155	0	0.0	8	5.2	28	18.1	0	0.0	114	73.5	0	0.0	5	3.2	0	0.0	0	0.0	0	0.0	155	100.0

[a] Tanana Chiefs Conference contracted with subsistence fishers at Bishop Mountain to collect subsistence harvested Chinook salmon samples. Length and sex information were not available.

Appendix A15.–Yukon River, Subdistrict 4-C (Ruby), Chinook salmon subsistence gillnet harvest age composition, 2004.

		Brood Year, Age, and (European Age Formula)																							
		2001		2000		1999				1998				1997				1996							
		3 yrs.		4 yrs.		5 yrs.				6 yrs.				7 yrs.				8 yrs.							
Sample	Sample	(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total			
Dates [a]	Size	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
na	40	0	0.0	4	10.0	16	40.0	0	0.0	20	50.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	40	100.0		

[a] Tanana Chiefs Conference contracted with residents of Ruby to collect subsistence harvested Chinook salmon samples. Length, sex, and date information were not available.

Appendix A16.–Yukon River, Subdistrict 5-B (Tanana), Chinook salmon subsistence fish wheel harvest age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)																					
			2001		2000		1999				1998				1997				1996					
			3 yrs.		4 yrs.		5 yrs.				6 yrs.				7 yrs.				8 yrs.					
Sample	Sample		(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total	
Dates [a]	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/30	121	Males	0	0.0	26	21.5	61	50.4	0	0.0	9	7.4	0	0.0	1	0.8	0	0.0	0	0.0	0	0.0	97	80.2
Season Total		Females	0	0.0	0	0.0	7	5.8	0	0.0	13	10.8	0	0.0	4	3.3	0	0.0	0	0.0	0	0.0	24	19.8
		Total	0	0.0	26	21.5	68	56.2	0	0.0	22	18.2	0	0.0	5	4.1	0	0.0	0	0.0	0	0.0	121	100.0
Mean Length		Males	-		598		696		-		854		-		970		-		-		-			
Std. Error			-		7		6		-		30		-		-		-		-		-			
Mean Length		Females	-		-		755		-		882		-		903		-		-		-			
Std. Error			-		-		19		-		14		-		27		-		-		-			

[a] Alaska Department of Fish and Game Commercial Fisheries Division staff collected these samples from a subsistence fish wheel located along the north bank of the Yukon River near the village of Tanana.

Appendix A17.–Yukon River, Big Eddy, Chinook salmon 7.5-inch mesh set gillnet test fish project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)																									
			2001		2000		1999				1998				1997				1996					
			3 yrs.		4 yrs.		5 yrs.				6 yrs.				7 yrs.				8 yrs.					
Sample	Sample		(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total	
Dates[a]	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/14 - 23	36	Males	0	0.0	3	8.3	7	19.4	0	0.0	11	30.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	21	58.3
Season Total		Females	0	0.0	0	0.0	0	0.0	0	0.0	13	36.1	0	0.0	2	5.6	0	0.0	0	0.0	0	0.0	15	41.7
		Total	0	0.0	3	8.3	7	19.4	0	0.0	24	66.7	0	0.0	2	5.6	0	0.0	0	0.0	0	0.0	36	100.0
Mean Length		Males	-		648		718		-		801		-		-		-		-		-			
Std. Error			-		32		12		-		20		-		-		-		-		-			
Mean Length		Females	-		-		-		-		865		-		900		-		-		-			
Std. Error			-		-		-		-		12		-		-		-		-		-			

[a] The Big Eddy summer season test fish project operated from May 27 to July 15 with 8.5-inch mesh set gillnets. The 7.5-inch mesh set gillnet was fished from June 14 to June 23 which approximates the third quartile based on the 8.5-inch nets.

Appendix A18.–Yukon River, Big Eddy, Chinook salmon 8.5-inch mesh set gillnet test fish project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)																					
			2001		2000		1999				1998				1997				1996					
			3 yrs.		4 yrs.		5 yrs.				6 yrs.				7 yrs.				8 yrs.					
Sample	Sample		(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total	
Dates[a]	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
5/28 - 6/12	149	Males	0	0.0	2	1.3	14	9.4	0	0.0	41	27.5	0	0.0	2	1.3	0	0.0	0	0.0	0	0.0	59	39.6
Quartile 1		Females	0	0.0	0	0.0	2	1.3	0	0.0	84	56.4	0	0.0	4	2.7	0	0.0	0	0.0	0	0.0	90	60.4
		Subtotal	0	0.0	2	1.3	16	10.7	0	0.0	125	83.9	0	0.0	6	4.0	0	0.0	0	0.0	0	0.0	149	100.0
6/13 - 6/17	88	Males	0	0.0	0	0.0	8	9.1	0	0.0	24	27.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	32	36.4
Quartile 2		Females	0	0.0	0	0.0	3	3.4	0	0.0	52	59.1	0	0.0	1	1.1	0	0.0	0	0.0	0	0.0	56	63.6
		Subtotal	0	0.0	0	0.0	11	12.5	0	0.0	76	86.4	0	0.0	1	1.1	0	0.0	0	0.0	0	0.0	88	100.0
6/18 - 6/24	47	Males	0	0.0	2	4.3	5	10.6	0	0.0	14	29.8	0	0.0	2	4.3	0	0.0	0	0.0	0	0.0	23	48.9
Quartile 3		Females	0	0.0	0	0.0	0	0.0	0	0.0	23	48.9	0	0.0	1	2.1	0	0.0	0	0.0	0	0.0	24	51.1
		Subtotal	0	0.0	2	4.3	5	10.6	0	0.0	37	78.7	0	0.0	3	6.4	0	0.0	0	0.0	0	0.0	47	100.0
6/25 - 7/15	48	Males	0	0.0	5	10.4	11	22.9	0	0.0	5	10.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	21	43.8
Quartile 4		Females	0	0.0	0	0.0	4	8.3	0	0.0	23	47.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	27	56.3
		Subtotal	0	0.0	5	10.4	15	31.3	0	0.0	28	58.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	48	100.0
Season Total	332	Males	0	0.0	9	2.7	38	11.4	0	0.0	84	25.3	0	0.0	4	1.2	0	0.0	0	0.0	0	0.0	135	40.7
		Females	0	0.0	0	0.0	9	2.7	0	0.0	182	54.8	0	0.0	6	1.8	0	0.0	0	0.0	0	0.0	197	59.3
		Total	0	0.0	9	2.7	47	14.2	0	0.0	266	80.1	0	0.0	10	3.0	0	0.0	0	0.0	0	0.0	332	100.0
Mean Length		Males	-		603		778		-		865		-		1006		-		-		-			
Std. Error			-		18		7		-		6		-		24		-		-		-			
Mean Length		Females	-		-		823		-		877		-		902		-		-		-			
Std. Error			-		-		15		-		3		-		19		-		-		-			

[a] Sample dates were stratified by quartiles based on combined Big Eddy and Middle Mouth 8.5-inch mesh set gillnet catch totals.

Appendix A19.–Yukon River, Middle Mouth, Chinook salmon 8.5-inch mesh set gillnet test fish project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)																					
			2001		2000		1999				1998				1997				1996					
			3 yrs.		4 yrs.		5 yrs.				6 yrs.				7 yrs.				8 yrs.					
Sample	Sample		(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total	
Dates[a]	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
5/28 - 6/12	154	Males	0	0.0	7	4.5	18	11.7	0	0.0	43	27.9	0	0.0	2	1.3	0	0.0	0	0.0	0	0.0	70	45.5
Quartile 1		Females	0	0.0	0	0.0	7	4.5	0	0.0	72	46.8	0	0.0	4	2.6	1	0.6	0	0.0	0	0.0	84	54.5
		Subtotal	0	0.0	7	4.5	25	16.2	0	0.0	115	74.7	0	0.0	6	3.9	1	0.6	0	0.0	0	0.0	154	100.0
6/13 - 6/17	115	Males	0	0.0	5	4.3	24	20.9	0	0.0	17	14.8	0	0.0	1	0.9	0	0.0	0	0.0	0	0.0	47	40.9
Quartile 2		Females	0	0.0	0	0.0	1	0.9	0	0.0	66	57.4	0	0.0	1	0.9	0	0.0	0	0.0	0	0.0	68	59.1
		Subtotal	0	0.0	5	4.3	25	21.7	0	0.0	83	72.2	0	0.0	2	1.7	0	0.0	0	0.0	0	0.0	115	100.0
6/18 - 6/24	124	Males	0	0.0	7	5.6	12	9.7	0	0.0	33	26.6	0	0.0	2	1.6	0	0.0	0	0.0	0	0.0	54	43.5
Quartile 3		Females	0	0.0	0	0.0	7	5.6	0	0.0	63	50.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	70	56.5
		Subtotal	0	0.0	7	5.6	19	15.3	0	0.0	96	77.4	0	0.0	2	1.6	0	0.0	0	0.0	0	0.0	124	100.0
6/25 - 7/15	140	Males	1	0.7	9	6.4	26	18.6	0	0.0	19	13.6	0	0.0	1	0.7	0	0.0	0	0.0	0	0.0	56	40.0
Quartile 4		Females	0	0.0	0	0.0	18	12.9	0	0.0	65	46.4	0	0.0	1	0.7	0	0.0	0	0.0	0	0.0	84	60.0
		Subtotal	1	0.7	9	6.4	44	31.4	0	0.0	84	60.0	0	0.0	2	1.4	0	0.0	0	0.0	0	0.0	140	100.0
Season Total	533	Males	1	0.2	28	5.3	80	15.0	0	0.0	112	21.0	0	0.0	6	1.1	0	0.0	0	0.0	0	0.0	227	42.6
		Females	0	0.0	0	0.0	33	6.2	0	0.0	266	49.9	0	0.0	6	1.1	1	0.2	0	0.0	0	0.0	306	57.4
		Total	1	0.2	28	5.3	113	21.2	0	0.0	378	70.9	0	0.0	12	2.3	1	0.2	0	0.0	0	0.0	533	100.0
Mean Length		Males	400		613		752		-		862		-		912		-		-		-			
Std. Error			-		8		6		-		5		-		7		-		-		-			
Mean Length		Females	-		-		782		-		870		-		938		905		-		-			
Std. Error			-		-		9		-		2		-		17		-		-		-			

[a] Sample dates were stratified by quartiles based on combined Big Eddy and Middle Mouth 8.5-inch mesh set gillnet catch totals.

Appendix A20.–Yukon River, Pilot Station sonar, Chinook salmon variable mesh drift gillnet test fish project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)																					
			2001		2000		1999				1998				1997				1996					
Sample			3 yrs.		4 yrs.		5 yrs.				6 yrs.				7 yrs.				8 yrs.					
Dates	Sample		(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total[a]	
(Mesh Size)	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/12 - 6/22	14	Males	1	7.1	3	21.4	4	28.6	1	7.1	2	14.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	11	78.6
(2.75")		Females	0	0.0	0	0.0	0	0.0	0	0.0	3	21.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	21.4
		Subtotal	1	7.1	3	21.4	4	28.6	1	7.1	5	35.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	14	100.0
Mean Length		Males	-		605		708		-		810		-		-		-		-		-			
Std. Error			-		8		19		-		35		-		-		-		-		-			
Mean Length		Females	-		-		-		-		828		-		-		-		-		-			
Std. Error			-		-		-		-		59		-		-		-		-		-			
6/3 - 7/25	52	Males	2	3.8	15	28.8	8	15.4	0	0.0	12	23.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	37	71.2
(4.0")		Females	0	0.0	1	1.9	3	5.8	0	0.0	10	19.2	0	0.0	1	1.9	0	0.0	0	0.0	0	0.0	15	28.8
		Subtotal	2	3.8	16	30.8	11	21.2	0	0.0	22	42.3	0	0.0	1	1.9	0	0.0	0	0.0	0	0.0	52	100.0
Mean Length		Males	365		576		724		-		875		-		-		-		-		-			
Std. Error			11		11		9		-		11		-		-		-		-		-			
Mean Length		Females	-		675		732		-		856		-		890		-		-		-			
Std. Error			-		-		25		-		23		-		-		-		-		-			
7/24 - 7/29	5	Males	0	0.0	1	20.0	1	20.0	0	0.0	1	20.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	60.0
(5.0")		Females	0	0.0	1	20.0	0	0.0	0	0.0	1	20.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	40.0
		Subtotal	0	0.0	2	40.0	1	20.0	0	0.0	2	40.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5	100.0
Mean Length		Males	-		575		810		-		910		-		-		-		-		-			
Std. Error			-		-		-		-		-		-		-		-		-		-			
Mean Length		Females	-		600		-		-		785		-		-		-		-		-			
Std. Error			-		-		-		-		-		-		-		-		-		-			
5/31 - 7/18	182	Males	0	0.0	85	46.7	41	22.5	0	0.0	17	9.3	1	0.5	1	0.5	0	0.0	0	0.0	0	0.0	145	79.7
(5.25")		Females	0	0.0	4	2.2	9	4.9	0	0.0	22	12.1	0	0.0	2	1.1	0	0.0	0	0.0	0	0.0	37	20.3
		Subtotal	0	0.0	89	48.9	50	27.5	0	0.0	39	21.4	1	0.5	3	1.6	0	0.0	0	0.0	0	0.0	182	100.0
Mean Length		Males	-		583		704		-		822		620		930		-		-		-			
Std. Error			-		5		10		-		19		-		-		-		-		-			
Mean Length		Females	-		608		736		-		848		-		960		-		-		-			
Std. Error			-		5		14		-		10		-		21		-		-		-			
7/19 - 8/1	2	Males	0	0.0	1	50.0	0	0.0	0	0.0	1	50.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	100.0
(5.75")		Females	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
		Subtotal	0	0.0	1	50.0	0	0.0	0	0.0	1	50.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	100.0
Mean Length		Males	-		525		-		-		795		-		-		-		-		-			
Std. Error			-		-		-		-		-		-		-		-		-		-			

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			Brood Year, Age, and (European Age Formula)																					
			2001		**2000**		**1999**				**1998**				**1997**				**1996**					
Sample			**3 yrs.**		**4 yrs.**		**5 yrs.**				**6 yrs.**				**7 yrs.**				**8 yrs.**					
Dates	**Sample**		**(1.1)**		**(1.2)**		**(1.3)**		**(2.2)**		**(1.4)**		**(2.3)**		**(1.5)**		**(2.4)**		**(1.6)**		**(2.5)**		**Total[a]**	
(Mesh Size)	**Size**		**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
5/29 - 8/1	254	Males	0	0.0	87	34.3	56	22.0	0	0.0	36	14.2	0	0.0	3	1.2	0	0.0	0	0.0	0	0.0	182	71.7
(6.50")		Females	2	0.8	10	3.9	30	11.8	0	0.0	28	11.0	0	0.0	2	0.8	0	0.0	0	0.0	0	0.0	72	28.3
		Subtotal	2	0.8	97	38.2	86	33.9	0	0.0	64	25.2	0	0.0	5	2.0	0	0.0	0	0.0	0	0.0	254	100.0
Mean Length		Males	-		613		700		-		859		-		943		-		-		-			
Std. Error			-		5		7		-		9		-		63		-		-		-			
Mean Length		Females	383		604		707		-		823		-		968		-		-		-			
Std. Error			12		8		12		-		9		-		5		-		-		-			
5/31 - 8/4	233	Males	0	0.0	22	9.4	58	24.9	0	0.0	49	21.0	0	0.0	2	0.9	0	0.0	0	0.0	0	0.0	131	56.2
(7.50")		Females	0	0.0	8	3.4	33	14.2	0	0.0	57	24.5	0	0.0	4	1.7	0	0.0	0	0.0	0	0.0	102	43.8
		Subtotal	0	0.0	30	12.9	91	39.1	0	0.0	106	45.5	0	0.0	6	2.6	0	0.0	0	0.0	0	0.0	233	100.0
Mean Length		Males	-		603		724		-		843		-		913		-		-		-			
Std. Error			-		7		6		-		9		-		9		-		-		-			
Mean Length		Females	-		619		727		-		837		-		949		-		-		-			
Std. Error			-		11		6		-		7		-		12		-		-		-			
5/29 - 7/17	186	Males	0	0.0	16	8.6	23	12.4	0	0.0	50	26.9	0	0.0	1	0.5	0	0.0	0	0.0	0	0.0	90	48.4
(8.50")		Females	0	0.0	1	0.5	15	8.1	0	0.0	78	41.9	0	0.0	2	1.1	0	0.0	0	0.0	0	0.0	96	51.6
		Subtotal	0	0.0	17	9.1	38	20.4	0	0.0	128	68.8	0	0.0	3	1.6	0	0.0	0	0.0	0	0.0	186	100.0
Mean Length		Males	-		612		734		-		860		-		920		-		-		-			
Std. Error			-		11		9		-		9		-		-		-		-		-			
Mean Length		Females	-		635		750		-		848		-		898		-		-		-			
Std. Error			-		-		9		-		7		-		2		-		-		-			
Season Total[a]	928	Males	3	0.3	230	24.8	191	20.6	1	0.1	168	18.1	1	0.1	7	0.8	0	0.0	0	0.0	0	0.0	601	64.8
All Mesh Sizes		Females	2	0.2	25	2.7	90	9.7	0	0.0	199	21.4	0	0.0	11	1.2	0	0.0	0	0.0	0	0.0	327	35.2
Combined		Total	5	0.5	255	27.5	281	30.3	1	0.1	367	39.5	1	0.1	18	1.9	0	0.0	0	0.0	0	0.0	928	100.0
Mean Length		Males	370		598		714		600		851		620		929		-		-		-			
Std. Error			8		3		4		-		5		-		28		-		-		-			
Mean Length		Females	383		613		725		-		841		-		940		-		-		-			
Std. Error			12		6		5		-		4		-		10		-		-		-			

[a] The season total percentages by age group were based on sample size and does not indicate the age composition of the run passage by Pilot Station sonar.

Appendix A21.–Yukon River, Russian Mission, Chinook salmon 8.5-inch mesh drift gillnet test fish project age composition and mean length (mm), 2004.

		Brood Year, Age, and (European Age Formula)																					
		2001		2000		1999				1998				1997				1996					
		3 yrs.		4 yrs.		5 yrs.				6 yrs.				7 yrs.				8 yrs.					
Sample	Sample	(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total	
Dates[a]	Size	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/4 - 6/14 Quartile 1	136	0	0.0	5	3.7	17	12.5	0	0.0	107	78.7	0	0.0	7	5.1	0	0.0	0	0.0	0	0.0	136	100.0
6/15 - 6/20 Quartile 2	50	0	0.0	5	10.0	19	38.0	0	0.0	23	46.0	0	0.0	3	6.0	0	0.0	0	0.0	0	0.0	50	100.0
6/21 - 6/28 Quartile 3	32	0	0.0	2	6.3	7	21.9	0	0.0	21	65.6	0	0.0	2	6.3	0	0.0	0	0.0	0	0.0	32	100.0
6/29 - 7/13 Quartile 4	38	1	2.6	8	21.1	9	23.7	0	0.0	19	50.0	0	0.0	1	2.6	0	0.0	0	0.0	0	0.0	38	100.0
Season Total	256	1	0.4	20	7.8	52	20.3	0	0.0	170	66.4	0	0.0	13	5.1	0	0.0	0	0.0	0	0.0	256	100.0
Mean Length		395		613		733		-		882		-		966		-		-		-			
Std. Error		-		6		8		-		4		-		16		-		-		-			

[a] Sample dates were stratified by quartiles based on the combined Russian Mission and Russian Mission (Dogfish) test fish catches. Samples were collected as part of a telemetry project and to decrease handling stress, sex was not recorded.

Appendix A22.–Yukon River, Russian Mission-Dogfish, Chinook salmon 8.5-inch mesh drift gillnet test fish project age composition and mean length (mm), 2004.

		Brood Year, Age, and (European Age Formula)																					
		2001		2000		1999				1998				1997				1996					
		3 yrs.		4 yrs.		5 yrs.				6 yrs.				7 yrs.				8 yrs.					
Sample	Sample	(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total	
Dates[a]	Size	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/4 - 6/14 Quartile 1	123	0	0.0	3	2.4	16	13.0	0	0.0	94	76.4	0	0.0	8	6.5	1	0.8	0	0.0	1	0.8	123	100.0
6/15 - 6/20 Quartile 2	167	0	0.0	9	5.4	29	17.4	0	0.0	123	73.7	0	0.0	5	3.0	1	0.6	0	0.0	0	0.0	167	100.0
6/21 - 6/28 Quartile 3	176	0	0.0	20	11.4	30	17.0	0	0.0	119	67.6	0	0.0	7	4.0	0	0.0	0	0.0	0	0.0	176	100.0
6/29 - 7/13 Quartile 4	177	0	0.0	22	12.4	36	20.3	0	0.0	109	61.6	0	0.0	8	4.5	2	1.1	0	0.0	0	0.0	177	100.0
Season Total	643	0	0.0	54	8.4	111	17.3	0	0.0	445	69.2	0	0.0	28	4.4	4	0.6	0	0.0	1	0.2	643	100.0
Mean Length		-		603		721		-		871		-		941		865		-		1000			
Std. Error		-		6		6		-		2		-		11		28		-		-			

[a] Sample dates were stratified by quartiles based on the combined Russian Mission and Russian Mission (Dogfish) test fish catches. Samples were collected as part of a telemetry project and to decrease handling stress, sex was not recorded.

Appendix A23.–Yukon River, Canada, Sheep Rock and White Rock, Chinook salmon fish wheel test fish project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)																					
			2001		2000		1999				1998				1997				1996					
			3 yrs.		4 yrs.		5 yrs.				6 yrs.				7 yrs.				8yrs.					
Sample	Sample		(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total	
Dates[a]	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/28 - 7/10	249	Males	0	0.0	31	12.4	131	52.6	0	0.0	34	13.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	196	78.7
Quartile 1		Females	0	0.0	1	0.4	5	2.0	0	0.0	43	17.3	0	0.0	4	1.6	0	0.0	0	0.0	0	0.0	53	21.3
		Subtotal	0	0.0	32	12.9	136	54.6	0	0.0	77	30.9	0	0.0	4	1.6	0	0.0	0	0.0	0	0.0	249	100.0
7/11 - 7/17	297	Males	0	0.0	62	20.9	136	45.8	0	0.0	25	8.4	0	0.0	1	0.3	3	1.0	0	0.0	0	0.0	227	76.4
Quartile 2		Females	0	0.0	0	0.0	5	1.7	0	0.0	57	19.2	0	0.0	4	1.3	4	1.3	0	0.0	0	0.0	70	23.6
		Subtotal	0	0.0	62	20.9	141	47.5	0	0.0	82	27.6	0	0.0	5	1.7	7	2.4	0	0.0	0	0.0	297	100.0
7/18 - 7/25	287	Males	0	0.0	90	31.4	93	32.4	0	0.0	30	10.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	213	74.2
Quartile 3		Females	0	0.0	0	0.0	8	2.8	0	0.0	60	20.9	0	0.0	6	2.1	0	0.0	0	0.0	0	0.0	74	25.8
		Subtotal	0	0.0	90	31.4	101	35.2	0	0.0	90	31.4	0	0.0	6	2.1	0	0.0	0	0.0	0	0.0	287	100.0
7/26 - 8/3	222	Males	0	0.0	79	35.6	61	27.5	0	0.0	27	12.2	0	0.0	1	0.5	0	0.0	0	0.0	0	0.0	168	75.7
Quartile 4		Females	0	0.0	0	0.0	2	0.9	0	0.0	47	21.2	0	0.0	5	2.3	0	0.0	0	0.0	0	0.0	54	24.3
		Subtotal	0	0.0	79	35.6	63	28.4	0	0.0	74	33.3	0	0.0	6	2.7	0	0.0	0	0.0	0	0.0	222	100.0
Season Total	1,055	Males	0	0.0	262	24.8	421	39.9	0	0.0	116	11.0	0	0.0	2	0.2	3	0.3	0	0.0	0	0.0	804	76.2
		Females	0	0.0	1	0.1	20	1.9	0	0.0	207	19.6	0	0.0	19	1.8	4	0.4	0	0.0	0	0.0	251	23.8
		Total	0	0.0	263	24.9	441	41.8	0	0.0	323	30.6	0	0.0	21	2.0	7	0.7	0	0.0	0	0.0	1,055	100.0
Mean Length [b]		Males	-		630		748		-		901		-		1085		1050		-		-			
Std. Error			-		3		3		-		8		-		11		29		-		-			
Mean Length		Females	-		660		800		-		911		-		974		898		-		-			
Std. Error			-		-		10		-		4		-		16		23		-		-			

[a] Passage data were unavailable, therefore, quartiles were based on number sampled. Samples were collected by the Canadian Department of Fisheries and Oceans (DFO).

[b] Lengths were measured from tip of snout to fork of tail.

Appendix A24.–Yukon River, Canada, Sheep Rock and White Rock, Chinook salmon 5.5-inch and 7.25-inch mesh gillnet test fish project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)																					
			2001		2000		1999				1998				1997				1996					
			3 yrs.		4 yrs.		5 yrs.				6 yrs.				7 yrs.				8 yrs.					
Sample	Sample		(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total	
Dates[a]	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
7/9 - 7/17	54	Males	0	0.0	14	25.9	31	57.4	0	0.0	4	7.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	49	90.7
		Females	0	0.0	0	0.0	2	3.7	0	0.0	3	5.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5	9.3
		Subtotal	0	0.0	14	25.9	33	61.1	0	0.0	7	13.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	54	100.0
7/18 - 8/2	74	Males	0	0.0	24	32.4	27	36.5	0	0.0	9	12.2	0	0.0	1	1.4	0	0.0	0	0.0	0	0.0	61	82.4
		Females	0	0.0	0	0.0	2	2.7	0	0.0	10	13.5	0	0.0	1	1.4	0	0.0	0	0.0	0	0.0	13	17.6
		Subtotal	0	0.0	24	32.4	29	39.2	0	0.0	19	25.7	0	0.0	2	2.7	0	0.0	0	0.0	0	0.0	74	100.0
Season Total	128	Males	0	0.0	38	29.7	58	45.3	0	0.0	13	10.2	0	0.0	1	0.8	0	0.0	0	0.0	0	0.0	110	85.9
		Females	0	0.0	0	0.0	4	3.1	0	0.0	13	10.2	0	0.0	1	0.8	0	0.0	0	0.0	0	0.0	18	14.1
		Total	0	0.0	38	29.7	62	48.4	0	0.0	26	20.3	0	0.0	2	1.6	0	0.0	0	0.0	0	0.0	128	100.0
Mean Length [b]		Males	-		633		759		-		882		-		1010		-		-		-			
Std. Error			-		8		7		-		23		-		-		-		-		-			
Mean Length		Females	-		-		803		-		871		-		1040		-		-		-			
Std. Error			-		-		20		-		15		-		-		-		-		-			

[a] Passage data were unavailable, therefore, sample dates were stratified based on quartiles from the combined Sheep Rock and White Rock test fish wheel catches (Appendix A23). Samples were collected by the Canadian Department of Fisheries and Oceans (DFO).

[b] Lengths were measured from tip of snout to fork of tail.

Appendix A25.–Andreafsky River (East Fork) weir, Chinook salmon escapement project age and sex composition and mean length (mm), 2004.

Sample Dates[a,b] (Strata Dates)	Sample Size		Brood Year, Age, and (European Age Formula) 2001 3 yrs. (1.1) No.	%	2000 4 yrs. (1.2) No.	%	1999 5 yrs. (1.3) No.	%	(2.2) No.	%	1998 6 yrs. (1.4) No.	%	(2.3) No.	%	1997 7 yrs. (1.5) No.	%	(2.4) No.	%	1996 8 yrs. (1.6) No.	%	(2.5) No.	%	Total No.	%
6/27 - 7/1	68	Males	0	0.0	386	17.6	614	28.0	0	0.0	97	4.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1,097	50.0
(6/23 - 7/2)		Females	0	0.0	581	26.5[c]	290	13.2	0	0.0	226	10.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1,097	50.0
		Subtotal	0	0.0	968	44.1	904	41.2	0	0.0	323	14.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2,194	100.0
7/3 - 7/6	179	Males	0	0.0	1,080	30.7	1,277	36.3	0	0.0	18	0.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2,375	67.5
(7/3 - 7/8)		Females	0	0.0	394	11.2[c]	296	8.4	0	0.0	433	12.3	0	0.0	21	0.6	0	0.0	0	0.0	0	0.0	1,144	32.5
		Subtotal	0	0.0	1,474	41.9	1,573	44.7	0	0.0	450	12.8	0	0.0	21	0.6	0	0.0	0	0.0	0	0.0	3,519	100.0
7/11 - 7/15	105	Males	0	0.0	464	29.5	555	35.3	0	0.0	46	2.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1,064	67.7
(7/9 - 7/15)		Females	0	0.0	0	0.0	149	9.5	0	0.0	358	22.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	508	32.3
		Subtotal	0	0.0	464	29.5	704	44.8	0	0.0	404	25.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1,572	100.0
7/16 - 7/24	80	Males	0	0.0	88	27.5	72	22.5	0	0.0	20	6.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	180	56.3
(7/16 - 7/24)		Females	0	0.0	4	1.3	20	6.3	0	0.0	108	33.7	0	0.0	8	2.5	0	0.0	0	0.0	0	0.0	140	43.7
		Subtotal	0	0.0	92	28.8	92	28.8	0	0.0	128	40.0	0	0.0	8	2.5	0	0.0	0	0.0	0	0.0	320	100.0
7/25 - 8/12,	76	Males	0	0.0	159	52.6	76	25.0	0	0.0	4	1.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	239	78.9
8/17 - 8/22		Females	0	0.0	0	0.0	20	6.6	0	0.0	44	14.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	64	21.1
(7/25 - 8/31) [d]		Subtotal	0	0.0	159	52.6	96	31.6	0	0.0	48	15.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	303	100.0
Season Total[e]	508	Males	0	0.0	2,178	27.5	2,594	32.8	0	0.0	184	2.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4,956	62.7
		Females	0	0.0	980	12.4	775	9.8	0	0.0	1,169	14.8	0	0.0	29	0.4	0	0.0	0	0.0	0	0.0	2,953	37.3
		Total	0	0.0	3,157	39.9	3,369	42.6	0	0.0	1,353	17.1	0	0.0	29	0.4	0	0.0	0	0.0	0	0.0	7,908	100.0
Mean Length[f]		Males	-		586		694		-		805		-		-		-		-		-			
Std. Error			-		4		5		-		21		-		-		-		-		-			
Mean Length		Females	-		574		715		-		843		-		889		-		-		-			
Std. Error			-		7		9		-		5		-		20		-		-		-			

[a] Samples were collected by the US Fish and Wildlife Service (USFWS).
[b] The number of fish in each stratum age and sex category are derived from the sample percentages; discrepancies in sums are attributed to rounding errors.
[c] Atypically high percentage of 4-year old females in first two strata may indicate incorrect sex identification.
[d] No escapement counts were obtained and fish passage numbers were estimated from 8/13-8/16 due to high water conditions.
[e] The number of fish in the total are the strata sums; total percentages are derived from the sums.
[f] Mean lengths were weighted by escapement estimates in each stratum.

Appendix A26.–Anvik River carcass survey, Chinook salmon escapement project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)																									
			2001 3 yrs.		2000 4 yrs.		1999 5 yrs.				1998 6 yrs.				1997 7 yrs.				1996 8 yrs.									
Sample	Sample		(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total					
Dates[a]	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%				
7/21 - 8/9	332	Males	2	0.6	106	31.9	116	35.0	0	0.0	16	4.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	240	72.3				
Season Total		Females	0	0.0	1	0.3	19	5.7	0	0.0	69	20.8	0	0.0	3	0.9	0	0.0	0	0.0	0	0.0	92	27.7				
		Total	2	0.6	107	32.2	135	40.7	0	0.0	85	25.6	0	0.0	3	0.9	0	0.0	0	0.0	0	0.0	332	100.0				
Mean Length		Males	360		611		698		-		846		-		-		-		-		-							
Std. Error			-		4		6		-		20		-		-		-		-		-							
Mean Length		Females	-		-		805		-		826		-		915		-		-		-							
Std. Error			-		-		11		-		6		-		43		-		-		-							

[a] The numbers of fish in each age group were based on sample size and do not indicate the Anvik River run passage composition.

Appendix A27.–Chena River carcass survey, Chinook salmon project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)																					
			2001 3 yrs.		2000 4 yrs.		1999 5 yrs.				1998 6 yrs.				1997 7 yrs.				1996 8 yrs.					
Sample	Sample		(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total	
Dates[a]	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
8/4 - 8/9	158	Males	0	0.0	14	8.9	20	12.7	0	0.0	19	12.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	53	33.5
Season Total		Females	0	0.0	0	0.0	8	5.1	0	0.0	94	59.5	0	0.0	3	1.9	0	0.0	0	0.0	0	0.0	105	66.5
		Total	0	0.0	14	8.9	28	17.7	0	0.0	113	71.5	0	0.0	3	1.9	0	0.0	0	0.0	0	0.0	158	100.0
Mean Length		Males	-		620		726		-		849		-		-		-		-		-			
Std. Error			-		12		14		-		20		-		-		-		-		-			
Mean Length		Females	-		-		806		-		871		-		916		-		-		-			
Std. Error			-		-		11		-		4		-		21		-		-		-			

[a] Samples were collected by the Alaska Department of Fish and Game Sport Fish Division. The numbers of fish in each age group were based on sample size and do not indicate the Chena River run passage composition.

Appendix A28.–Gisasa River weir, Chinook salmon escapement project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)																					
			2001		2000		1999				1998				1997				1996					
Sample			3 yrs.		4 yrs.		5 yrs.				6 yrs.				7 yrs.				8 yrs.					
Dates[ab]	Sample		(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total	
(Strata Dates)	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/29 - 7/5	116	Males	0	0.0	63	37.0	36	21.6	0	0.0	3	1.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	103	60.3
(6/26 - 7/5)		Females	0	0.0	9	5.2	15	8.6	0	0.0	42	25.0	0	0.0	1	0.9	0	0.0	0	0.0	0	0.0	67	39.7
		Subtotal	0	0.0	72	42.2	51	30.2	0	0.0	45	26.7	0	0.0	1	0.9	0	0.0	0	0.0	0	0.0	170	100.0
7/6 - 7/9	112	Males	0	0.0	228	43.7	139	26.8	0	0.0	28	5.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	395	75.9
(7/6 - 7/10)		Females	0	0.0	14	2.7	33	6.2	0	0.0	79	15.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	126	24.1
		Subtotal	0	0.0	242	46.4	172	33.0	0	0.0	107	20.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	521	100.0
7/12 - 7/18	155	Males	6	0.6	347	39.4	251	28.4	0	0.0	17	1.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	621	70.3
(7/11 - 7/18)		Females	0	0.0	6	0.6	57	6.4	0	0.0	199	22.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	262	29.7
		Subtotal	6	0.6	353	40.0	308	34.8	0	0.0	216	24.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	883	100.0
7/20 - 8/1	157	Males	4	1.9	64	31.8	47	23.6	0	0.0	6	3.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	121	60.5
(7/19 - 8/1)		Females	0	0.0	0	0	5	2.5	0	0.0	73	36.3	0	0.0	1	0.6	0	0.0	0	0.0	0	0.0	79	39.5
		Subtotal	4	1.9	64	31.8	52	26.1	0	0.0	79	39.5	0	0.0	1	0.6	0	0.0	0	0.0	0	0.0	200	100.0
Season Total[c]	540	Males	10	0.5	702	39.6	474	26.7	0	0.0	54	3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1,240	69.9
		Females	0	0.0	29	1.6	109	6.2	0	0.0	394	22.2	0	0.0	3	0.2	0	0.0	0	0.0	0	0.0	534	30.1
		Total	10	0.5	731	41.2	583	32.9	0	0.0	448	25.2	0	0.0	3	0.2	0	0.0	0	0.0	0	0.0	1,774	100.0
Mean Length[d]		Males	394		606		700		-		812		-		-		-		-		-			
Std. Error			30		3		6		-		29		-		-		-		-		-			
Mean Length		Females	-		609		725		-		870		-		936		-		-		-			
Std. Error			-		21		15		-		6		-		-		-		-		-			

[a] Samples were collected by the US Fish and Wildlife Service (USFWS).

[b] The number of fish in each stratum age and sex category are derived from the sample percentages; discrepancies in sums are attributed to rounding errors.

[c] The number of fish in the total are the strata sums; total percentages are derived from the sums.

[d] Mean lengths were weighted by escapement estimates in each stratum.

Appendix A29.–Henshaw Creek weir, Chinook salmon escapement project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)																					
			2001 3 yrs.		2000 4 yrs.		1999 5 yrs.				1998 6 yrs.				1997 7 yrs.				1996 8 yrs.					
Sample Dates[ab]	Sample		(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total	
(Strata Dates)	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/29 - 7/7	114	Males	0	0.0	45	32.5	40	28.9	0	0.0	6	4.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	90	65.8
(6/29 - 7/7)		Females	0	0.0	8	6.1	13	9.7	0	0.0	24	17.5	0	0.0	1	0.9	0	0.0	0	0.0	0	0.0	47	34.2
		Subtotal	0	0.0	53	38.6	53	38.6	0	0.0	30	21.9	0	0.0	1	0.9	0	0.0	0	0.0	0	0.0	137	100.0
7/8 - 7/10	184	Males	0	0.0	119	48.9	50	20.6	0	0.0	16	6.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	185	76.1
(7/8 - 7/10)		Females	0	0.0	1	0.6	12	4.9	0	0.0	43	18.0	0	0.0	1	0.5	0	0.0	0	0.0	0	0.0	58	23.9
		Subtotal	0	0.0	120	49.5	62	25.5	0	0.0	59	24.5	0	0.0	1	0.5	0	0.0	0	0.0	0	0.0	243	100.0
7/11 - 7/13	152	Males	0	0.0	113	35.5	87	27.6	0	0.0	54	17.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	254	80.3
(7/11 - 7/13)		Females	0	0.0	6	2.0	0	0.0	0	0.0	56	17.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	62	19.7
		Subtotal	0	0.0	119	37.5	87	27.6	0	0.0	110	34.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	316	100.0
7/14 - 7/16	95	Males	0	0.0	157	48.4	89	27.4	0	0.0	31	9.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	276	85.3
(7/14 - 7/17)		Females	0	0.0	0	0.0	0	0.0	0	0.0	41	12.6	0	0.0	7	2.1	0	0.0	0	0.0	0	0.0	48	14.7
		Subtotal	0	0.0	157	48.4	89	27.4	0	0.0	72	22.1	0	0.0	7	2.1	0	0.0	0	0.0	0	0.0	324	100.0
7/19 - 8/6	92	Males	2	1.1	118	52.2	45	19.6	0	0.0	10	4.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	175	77.2
(7/18 - 8/6)		Females	0	0.0	3	1.1	7	3.2	0	0.0	42	18.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	52	22.8
		Subtotal	2	1.1	121	53.3	52	22.8	0	0.0	52	22.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	227	100.0
Season Total[c]	637	Males	2	0.1	551	44.2	310	24.9	0	0.0	118	9.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	981	78.7
		Females	0	0.0	18	1.5	31	2.5	0	0.0	207	16.6	0	0.0	10	0.8	0	0.0	0	0.0	0	0.0	266	21.3
		Total	2	0.1	569	45.7	341	27.4	0	0.0	325	26.0	0	0.0	10	0.8	0	0.0	0	0.0	0	0.0	1,247	100.0
Mean Length[d]		Males	375		580		688		-		824		-		-		-		-		-			
Std. Error			-		3		5		-		8		-		-		-		-		-			
Mean Length		Females	-		639		708		-		842		-		865		-		-		-			
Std. Error			-		8		11		-		4		-		70		-		-		-			

[a] Samples were collected by the US Fish and Wildlife Service (USFWS).
[b] The number of fish in each stratum age and sex category are derived from the sample percentages; discrepancies in sums are attributed to rounding errors.
[c] The number of fish in the total are the strata sums; total percentages are derived from the sums.
[d] Mean lengths were weighted by escapement estimates in each stratum.

Appendix A30.–Salcha River carcass survey, Chinook salmon escapement project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)																					
			2001		2000		1999				1998				1997				1996					
			3 yrs.		4 yrs.		5 yrs.				6 yrs.				7 yrs.				8 yrs.					
Sample	Sample		(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total[c]	
Dates[a]	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
7/21 - 8/8	229	Males	0	0.0	21	9.2	15	6.6	0	0.0	49	21.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	85	37.1
Season Total		Females	0	0.0	0	0.0	4	1.7	0	0.0	138	60.3	0	0.0	2	0.9	0	0.0	0	0.0	0	0.0	144	62.9
		Total	0	0.0	21	9.2	19	8.3	0	0.0	187	81.7	0	0.0	2	0.9	0	0.0	0	0.0	0	0.0	229	100.0
Mean Length		Males	-		625		735		-		884		-		-		-		-		-			
Std. Error			-		6		10		-		10		-		-		-		-		-			
Mean Length		Females	-		-		866		-		882		-		935		-		-		-			
Std. Error			-		-		30		-		3		-		65		-		-		-			

[a] Samples were collected by the Bering Sea Fisherman's Association (BSFA).The numbers of fish in each age group were based on sample size and do not indicate the Salcha River run passage composition.

Appendix A31.–Tozitna River weir, Chinook salmon escapement project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)																					
			2001		2000		1999				1998				1997				1996					
Sample			3 yrs.		4 yrs.		5 yrs.				6 yrs.				7 yrs.				8 yrs.					
Dates[ab]	Sample		(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total	
(Strata Dates)	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/24 - 7/8	94	Males	4	1.1	127	35.1	165	45.8	0	0.0	12	3.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	308	85.1
(6/24 - 7/8)		Females	0	0.0	0	0.0	8	2.1	0	0.0	46	12.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	54	14.9
		Subtotal	4	1.1	127	35.1	173	47.9	0	0.0	58	16.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	362	100.0
7/10 - 7/14	110	Males	0	0.0	164	35.5	181	39.1	0	0.0	42	9.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	387	83.6
(7/9 - 7/14)		Females	0	0.0	0	0.0	8	1.8	0	0.0	67	14.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	76	16.4
		Subtotal	0	0.0	164	35.5	189	40.9	0	0.0	109	23.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	463	100.0
7/15 - 7/18	104	Males	0	0.0	253	42.3	207	34.6	0	0.0	11	1.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	472	78.8
(7/15 - 7/18)		Females	0	0.0	0	0.0	12	1.9	0	0.0	98	16.4	0	0.0	17	2.9	0	0.0	0	0.0	0	0.0	127	21.2
		Subtotal	0	0.0	253	42.3	219	36.5	0	0.0	109	18.3	0	0.0	17	2.9	0	0.0	0	0.0	0	0.0	599	100.0
7/19 - 8/8	108	Males	4	0.9	169	39.8	153	36.1	0	0.0	28	6.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	354	83.3
(7/19 - 8/13)		Females	0	0.0	0	0.0	8	1.9	0	0.0	63	14.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	71	16.7
		Subtotal	4	0.9	169	39.8	161	38.0	0	0.0	91	21.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	425	100.0
Season Total[c]	416	Males	8	0.4	714	38.6	707	38.3	0	0.0	93	5.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1,522	82.3
		Females	0	0.0	0	0.0	36	1.9	0	0.0	274	14.9	0	0.0	17	0.9	0	0.0	0	0.0	0	0.0	327	17.7
		Total	8	0.4	714	38.6	743	40.2	0	0.0	367	19.9	0	0.0	17	0.9	0	0.0	0	0.0	0	0.0	1,849	100.0
Mean Length[d]		Males	360		591		686		-		801		-		-		-		-		-			
Std. Error			-		3		4		-		12		-		-		-		-		-			
Mean Length		Females	-		-		771		-		845		-		880		-		-		-			
Std. Error			-		-		10		-		5		-		21		-		-		-			

[a] Samples were collected by the Bureau of Land Management (BLM).

[b] The number of fish in each stratum age and sex category are derived from the sample percentages; discrepancies in sums are attributed to rounding errors.

[c] The number of fish in the total are the strata sums; total percentages are derived from the sums.

[d] Mean lengths were weighted by escapement estimates in each stratum.

Appendix A32.–Tanana River fish wheel, Chinook salmon research project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)																					
			2001		2000		1999				1998				1997				1996					
			3 yrs.		4 yrs.		5 yrs.				6 yrs.				7 yrs.				8 yrs.					
Sample	Sample		(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total	
Dates[a]	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
7/3 - 7/9	73	M	0	0.0	4	5.5	17	23.3	0	0.0	5	6.9	1	1.4	0	0.0	0	0.0	0	0.0	0	0.0	27	37.0
Season Total		F	0	0.0	0	0.0	6	8.2	0	0.0	39	53.4	0	0.0	1	1.4	0	0.0	0	0.0	0	0.0	46	63.0
		Total	0	0.0	4	5.5	23	31.5	0	0.0	44	60.3	1	1.4	1	1.4	0	0.0	0	0.0	0	0.0	73	100.0
Mean Length		Males	-		624		708		-		858		725		-		-		-		-			
Std. Error			-		11		13		-		45		-		-		-		-		-			
Mean Length		Females	-		-		749		-		855		-		901		-		-		-			
Std. Error			-		-		14		-		9		-		-		-		-		-			

[a] Samples were collected as part of an *Ichthyophonus* study conducted by the Alaska Department of Fish and Game, Commercial Fisheries Division. These samples were collected from a fish wheel along the south bank of the Yukon River mainstem, near the village of Tanana, at a location which targets fish bound for the Tanana River.

Appendix A33.–Chena River carcass survey, Chinook salmon research project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)																					
			2001		2000		1999				1998				1997				1996					
			3 yrs.		4 yrs.		5 yrs.				6 yrs.				7 yrs.				8 yrs.					
Sample	Sample		(1.1)		(1.2)		(1.3)		(2.2)		(1.4)		(2.3)		(1.5)		(2.4)		(1.6)		(2.5)		Total	
Dates[a]	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
7/23 - 8/6	81	Males	0	0.0	12	14.8	8	9.9	0	0.0	13	16.1	0	0.0	2	2.5	0	0.0	0	0.0	0	0.0	35	43.2
Season Total		Females	0	0.0	0	0.0	5	6.1	0	0.0	39	48.1	0	0.0	2	2.4	0	0.0	0	0.0	0	0.0	46	56.8
		Total	0	0.0	12	14.8	13	16.0	0	0.0	52	64.2	0	0.0	4	4.9	0	0.0	0	0.0	0	0.0	81	100.0
Mean Length		Males	-		606		693		-		815		-		975		-		-		-			
Std. Error			-		9		23		-		24		-		75		-		-		-			
Mean Length		Females	-		-		819		-		882		-		943		-		-		-			
Std. Error			-		-		17		-		6		-		23		-		-		-			

[a] Samples were collected as part of an *Ichthyophonus* study conducted by the Alaska Department of Fish and Game, Commercial Fisheries Division.

APPENDIX B. SUMMER CHUM SALMON TABLES

Appendix B1.–Yukon River, District 1, summer chum salmon commercial gillnet harvest age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)											
			2001		2000		1999		1998		1997			
			3 yrs.		4 yrs.		5 yrs.		6 yrs.		7 yrs.			
Sample	Sample		(0.2)		(0.3)		(0.4)		(0.5)		(0.6)		Total	
Dates [a,b]	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/17	17	Males	47	5.9	189	23.5	378	47.1	0	0.0	0	0.0	614	76.5
Period 1		Females	0	0.0	142	17.6	47	5.9	0	0.0	0	0.0	189	23.5
		Subtotal	47	5.9	331	41.2	425	52.9	0	0.0	0	0.0	803	100.0
6/21	158	Males	0	0.0	280	13.3	574	27.2	0	0.0	0	0.0	854	40.5
Period 2		Females	40	1.9	507	24.1	708	33.5	0	0.0	0	0.0	1,255	59.5
		Subtotal	40	1.9	787	37.3	1,282	60.8	0	0.0	0	0.0	2,109	100.0
6/24	159	Males	34	0.6	1,215	22.6	2,193	40.9	34	0.6	0	0.0	3,476	64.8
Period 3		Females	34	0.6	810	15.1	1,046	19.5	0	0.0	0	0.0	1,890	35.2
		Subtotal	68	1.3	2,025	37.7	3,239	60.4	34	0.6	0	0.0	5,366	100.0
6/28	151	Males	36	2.6	312	23.2	366	27.2	9	0.7	0	0.0	723	53.6
Period 4		Females	9	0.7	330	24.5	285	21.2	0	0.0	0	0.0	624	46.4
		Subtotal	45	3.3	642	47.7	651	48.3	9	0.7	0	0.0	1,347	100.0
6/30	154	Males	35	2.6	331	24.7	383	28.6	9	0.6	0	0.0	758	56.5
Period 5		Females	35	2.6	218	16.2	331	24.7	0	0.0	0	0.0	583	43.5
		Subtotal	70	5.2	549	40.9	714	53.2	9	0.6	0	0.0	1,341	100.0
7/2	75	Males	66	8.0	209	25.3	231	28.0	0	0.0	0	0.0	505	61.3
Period 6		Females	11	1.3	220	26.7	88	10.7	0	0.0	0	0.0	319	38.7
		Subtotal	77	9.3	428	52.0	319	38.7	0	0.0	0	0.0	824	100.0
7/5	73	Males	0	0.0	471	21.9	559	26.0	0	0.0	0	0.0	1,030	47.9
Period 7		Females	177	8.2	530	24.7	412	19.2	0	0.0	0	0.0	1,119	52.1
		Subtotal	177	8.2	1,001	46.6	971	45.2	0	0.0	0	0.0	2,149	100.0
7/9	31	Males	24	9.7	41	16.1	90	35.5	0	0.0	0	0.0	155	61.3
Period 8		Females	0	0.0	73	29.0	24	9.7	0	0.0	0	0.0	98	38.7
		Subtotal	24	9.7	114	45.2	114	45.2	0	0.0	0	0.0	253	100.0
Other[c]	0[d]	Males	2	2.3	22	21.3	32	30.8	0	0.4	0	0.0	58	54.8
		Females	2	2.0	22	21.3	23	22.0	0	0.0	0	0.0	47	45.2
		Subtotal	4	4.3	45	42.5	55	52.8	0	0.4	0	0.0	105	100.0
Total	818	Males	244	2.3	3,070	21.3	4,806	30.8	52	0.4	0	0.0	8,173	54.8
All Periods[e]		Females	308	2.0	2,852	21.3	2,965	22.0	0	0.0	0	0.0	6,124	45.2
		Total	552	4.3	5,922	42.5	7,771	52.8	52	0.4	0	0.0	14,297	100.0
Mean Length[f]		Males	555		585		614		628		-			
Std. Error			6		2		2		8		-			
Mean Length		Females	544		563		580		-		-			
Std. Error			6		2		2		-		-			

[a] All District 1 Chinook commercial fishing periods permitted unrestricted mesh sizes, because it was a Chinook directed fishery, 8.0-inch mesh and larger was likely used.
[b] The number of fish in each stratum age and sex category are derived from the sample percentages; discrepancies in sums are attributed to rounding errors.
[c] Other includes all Alaska Department of Fish and Game test fish sold; these fish were not recorded as part of the harvest for any period.
[d] Test fish sold during the commercial fishery were not sampled, therefore, the age composition was calculated using percentages from the season total.
[e] The number of fish in the total are the strata sums; total percentages are derived from the sums.
[f] Mean lengths are averages from the sampled fish and not weighted by commercial harvest in each stratum.

Appendix B2.–Yukon River, District 2, summer chum salmon commercial gillnet harvest age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)											
			2001 3 yrs. (0.2)		2000 4 yrs. (0.3)		1999 5 yrs. (0.4)		1998 6 yrs. (0.5)		1997 7 yrs. (0.6)		Total	
Sample Dates[a]	Sample Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/15	159	Males	0	0.0	300	20.8	611	42.1	9	0.6	0	0.0	920	63.5
Period 1[b]		Females	0	0.0	210	14.5	319	22.0	0	0.0	0	0.0	529	36.5
		Subtotal	0	0.0	510	35.2	930	64.2	9	0.6	0	0.0	1,449	100.0
6/20	76	Males	0	0.0	65	17.1	131	34.2	0	0.0	0	0.0	196	51.3
Period 2[c]		Females	5	1.3	55	14.5	126	32.9	0	0.0	0	0.0	186	48.7
		Subtotal	5	1.3	121	31.6	256	67.1	0	0.0	0	0.0	382	100.0
6/23	159	Males	0	0.0	310	18.9	660	40.3	0	0.0	0	0.0	970	59.1
Period 3[c]		Females	20	1.3	310	18.9	340	20.8	0	0.0	0	0.0	670	40.9
		Subtotal	20	1.3	620	37.7	1,000	61.0	0	0.0	0	0.0	1,640	100.0
6/27	157	Males	29	1.3	486	21.0	853	36.9	0	0.0	0	0.0	1,368	59.2
Period 4[c]		Females	15	0.6	442	19.1	486	21.0	0	0.0	0	0.0	943	40.8
		Subtotal	44	1.9	927	40.1	1,339	58.0	0	0.0	0	0.0	2,311	100.0
Total	551	Males	29	0.4	1,161	19.8	2,255	39.0	9	0.2	0	0.0	3,454	59.3
All Periods[d]		Females	40	0.7	1,017	17.1	1,271	22.9	0	0.0	0	0.0	2,328	40.7
		Total	69	1.1	2,178	36.8	3,525	61.9	9	0.2	0	0.0	5,782	100.0
Mean Length[e]		Males	553		594		618		710		-			
Std. Error			28		3		2		-		-			
Mean Length		Females	536		565		591		-		-			
Std. Error			6		3		3		-		-			

[a] The number of fish in each stratum age and sex category are derived from the sample percentages; discrepancies in sums are attributed to rounding errors.

[b] Mesh size was restricted to 8.0 inch and larger.

[c] Mesh size was unrestricted, because it was a Chinook directed fishery, 8.0" mesh and larger was most likely used.

[d] The number of fish in the total are the strata sums; total percentages are derived from the sums.

[e] Mean lengths are averages from the sampled fish and not weighted by commercial harvest in each stratum.

Appendix B3.–Yukon River, District 6, summer chum salmon commercial fish wheel harvest age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)											
			2001		2000		1999		1998		1997			
Sample	Sample		(0.2)		(0.3)		(0.4)		(0.5)		(0.6)		Total	
Dates[a,b]	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
7/11	155	Males	0	0.0	90	20.0	116	25.8	3	0.6	0	0.0	209	46.5
Period 2[c]		Females	0	0.0	142	31.6	93	20.7	6	1.3	0	0.0	241	53.5
		Subtotal	0	0.0	232	51.6	209	46.5	9	1.9	0	0.0	450	100.0
7/14	150	Males	0	0.0	160	20.0	257	32.0	0	0.0	0	0.0	417	52.0
Period 3		Females	0	0.0	192	24.0	192	24.0	0	0.0	0	0.0	384	48.0
		Subtotal	0	0.0	352	44.0	449	56.0	0	0.0	0	0.0	801	100.0
7/18	155	Males	0	0.0	252	11.6	630	29.0	0	0.0	0	0.0	883	40.6
Period 4		Females	14	0.6	561	25.8	715	32.9	0	0.0	0	0.0	1,289	59.4
		Subtotal	14	0.6	813	37.4	1,345	61.9	0	0.0	0	0.0	2,172	100.0
7/21	154	Males	0	0.0	309	24.7	309	24.7	0	0.0	0	0.0	617	49.4
Period 5		Females	0	0.0	227	18.2	405	32.4	0	0.0	0	0.0	632	50.6
		Subtotal	0	0.0	536	42.9	713	57.1	0	0.0	0	0.0	1,249	100.0
7/25	0[e]	Males	0	0.0	428	24.7	428	24.7	0	0.0	0	0.0	856	49.4
Period 6[d]		Females	0	0.0	315	18.2	561	32.4	0	0.0	0	0.0	877	50.6
		Subtotal	0	0.0	743	42.9	990	57.1	0	0.0	0	0.0	1,733	100.0
8/8	0[e]	Males	0	0.0	51	24.7	51	24.7	0	0.0	0	0.0	101	49.4
Period 10[d]		Females	0	0.0	37	18.2	66	32.4	0	0.0	0	0.0	104	50.6
		Subtotal	0	0.0	88	42.9	117	57.1	0	0.0	0	0.0	205	100.0
Total	614	Males	0	0.0	1,289	19.5	1,789	27.1	3	0.0	0	0.0	3,081	46.6
All Periods[f]		Females	14	0.2	1,474	22.3	2,035	30.8	6	0.1	0	0.0	3,529	53.4
		Total	14	0.2	2,763	41.8	3,824	57.9	9	0.1	0	0.0	6,610	100.0
Mean Length[g]		Males	-		598		610		705		-			
Std. Error			-		3		2		24		-			
Mean Length		Females	540		579		589		625		-			
Std. Error			-		3		2		25		-			

[a] Samples were collected from fish wheels.

[b] The number of fish in each stratum age and sex category are derived from the sample percentages; discrepancies in sums are attributed to rounding errors.

[c] No fishing or sampling occurred during period 1.

[d] No fishing occurred during periods 7-9 and no sampling occurred during periods 6-10.

[e] The numbers of fish for each age class in periods 6 and 10 were calculated using the percentages from period 5.

[f] The number of fish in the total are the strata sums; total percentages are derived from the sums.

[g] Mean lengths were weighted by commercial harvest in each stratum.

Appendix B4.–Yukon River, District 1, summer chum salmon subsistence 5.5-inch mesh gillnet harvest age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)											
			3 yrs. 2001 (0.2)		4 yrs. 2000 (0.3)		5 yrs. 1999 (0.4)		6 yrs. 1998 (0.5)		7 yrs. 1997 (0.6)		Total	
Sample Dates	Sample Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/4	38	Males	0	0.0	1	2.6	18	47.4	0	0.0	0	0.0	19	50.0
		Females	0	0.0	1	2.6	17	44.7	1	2.6	0	0.0	19	50.0
		Subtotal	0	0.0	2	5.3	35	92.1	1	2.6	0	0.0	38	100.0
6/8-9	122	Males	0	0.0	15	12.3	73	59.8	0	0.0	1	0.8	89	73.0
		Females	0	0.0	4	3.3	29	23.8	0	0.0	0	0.0	33	27.0
		Subtotal	0	0.0	19	15.6	102	83.6	0	0.0	1	0.8	122	100.0
6/11	102	Males	0	0.0	17	16.7	26	25.5	0	0.0	0	0.0	43	42.2
		Females	0	0.0	19	18.6	39	38.2	1	1.0	0	0.0	59	57.8
		Subtotal	0	0.0	36	35.3	65	63.7	1	1.0	0	0.0	102	100.0
Season Total	262	Males	0	0.0	33	12.6	117	44.7	0	0.0	1	0.4	151	57.6
		Females	0	0.0	24	9.2	85	32.4	2	0.8	0	0.0	111	42.4
		Total	0	0.0	57	21.8	202	77.1	2	0.8	1	0.4	262	100.0
Mean Length		Males	-		582		604		-		575			
Std. Error			-		3		2		-		-			
Mean Length		Females	-		564		580		573		-			
Std. Error			-		5		2		13		-			

Appendix B5.–Yukon River, District 1, summer chum salmon subsistence 5.5-inch mesh gillnet harvest age composition, 2004.

		Brood Year, Age, and (European Age Formula)											
		3 yrs. 2001 (0.2)		4 yrs. 2000 (0.3)		5 yrs. 1999 (0.4)		6 yrs. 1998 (0.5)		7 yrs. 1997 (0.6)		Total	
Sample Dates [a]	Sample Size	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/4	45	0	0.0	5	11.1	39	86.7	1	2.2	0	0.0	45	100.0
6/8-9	202	0	0.0	33	16.3	165	81.7	3	1.5	1	0.5	202	100.0
6/11	158	0	0.0	52	32.9	104	65.8	2	1.3	0	0.0	158	100.0
Season Total	405	0	0.0	90	22.2	308	76.0	6	1.5	1	0.2	405	100.0

[a] Combines all sexed (Appendix B4) and all unsexed summer chum salmon sampled from the 5.5-inch mesh gillnet subsistence harvest.

Appendix B6.–Yukon River, District 1, summer chum salmon subsistence 8.5-inch mesh gillnet harvest age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)											
			3 yrs. 2001 (0.2)		4 yrs. 2000 (0.3)		5 yrs. 1999 (0.4)		6 yrs. 1998 (0.5)		7 yrs. 1997 (0.6)		Total	
Sample Date	Sample Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/11	31	Males	0	0.0	3	9.7	10	32.3	0	0.0	0	0.0	13	41.9
Season Total		Females	0	0.0	7	22.6	11	35.5	0	0.0	0	0.0	18	58.1
		Subtotal	0	0.0	10	32.3	21	67.7	0	0.0	0	0.0	31	100.0
Mean Length		Males	-		592		590		-		-			
Std. Error			-		7		5		-		-			
Mean Length		Females	-		559		575		-		-			
Std. Error			-		9		5		-		-			

Appendix B7.–Yukon River, District 3 (Holy Cross), summer chum salmon subsistence 8.5-inch mesh gillnet harvest age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)											
			2001 3 yrs. (0.2)		2000 4 yrs. (0.3)		1999 5 yrs. (0.4)		1998 6 yrs. (0.5)		1997 7 yrs. (0.6)		Total	
Sample Dates [a]	Sample Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/1, 9	26	Males	0	0.0	8	30.8	10	38.4	0	0.0	0	0.0	18	69.2
Season Total		Females	0	0.0	2	7.7	6	23.1	0	0.0	0	0.0	8	30.8
		Total	0	0.0	10	38.5	16	61.5	0	0.0	0	0.0	26	100.0
Mean Length		Males	-		541		591		-		-			
Std. Error			-		9		13		-		-			
Mean Length		Females	-		570		592		-		-			
Std. Error			-		-		9		-		-			

[a] Tanana Chiefs Conference contracted with a fisher in the village of Holy Cross to collect subsistence harvested summer chum salmon samples.

Appendix B8.–Yukon River, Huslia, summer chum salmon subsistence gillnet harvest age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)											
			2001		2000		1999		1998		1997			
			3 yrs.		4 yrs.		5 yrs.		6 yrs.		7 yrs.			
Sample	Sample		(0.2)		(0.3)		(0.4)		(0.5)		(0.6)		Total	
Dates [a]	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/23 -	108	Males	1	0.9	54	50.0	43	39.8	2	1.9	0	0.0	100	92.6
end of season		Females	0	0.0	4	3.7	3	2.8	1	0.9	0	0.0	8	7.4[b]
		Total	1	0.9	58	53.7	46	42.6	3	2.8	0	0.0	108	100.0
Mean Length		Males	540		555		567		575		-			
Std. Error			-		5		7		35		-			
Mean Length		Females	-		548		523		630		-			
Std. Error			-		13		34		-		-			

[a] Tanana Chiefs Conference contracted with residents in the village of Huslia to collect subsistence harvested summer chum salmon samples. Sample dates after 6/23, the first day, were not recorded.

[b] Atypically low percentage of females may indicate incorrect sex determination.

Appendix B9.–Yukon River, Subdistrict 4-A (Grayling), summer chum salmon subsistence gillnet harvest age composition, 2004.

		Brood Year, Age, and (European Age Formula)											
		2001		2000		1999		1998		1997			
		3 yrs.		4 yrs.		5 yrs.		6 yrs.		7 yrs.			
Sample	Sample	(0.2)		(0.3)		(0.4)		(0.5)		(0.6)		Total	
Dates [a]	Size	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
na	178	4	2.2	76	42.7	98	55.1	0	0.0	0	0.0	178	100.0

[a] Tanana Chiefs Conference contracted with 1 fisher in the village of Grayling to collect subsistence harvested summer chum salmon samples. Length, sex, and date information were not available.

Appendix B10.–Yukon River, Subdistrict 4-B (Bishop Mountain), summer chum salmon subsistence gillnet harvest age composition, 2004.

		Brood Year, Age, and (European Age Formula)											
		2001		2000		1999		1998		1997			
		3 yrs.		4 yrs.		5 yrs.		6 yrs.		7 yrs.			
Sample	Sample	(0.2)		(0.3)		(0.4)		(0.5)		(0.6)		Total	
Dates [a]	Size	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/17	18	0	0.0	11	61.1	7	38.9	0	0.0	0	0.0	18	100.0

[a] Tanana Chiefs Conference contracted with subsistence fishers at Bishop Mountain to collect subsistence harvested summer chum salmon samples. Length and sex information were not available.

Appendix B11.–Yukon River, Subdistrict 4-C (Ruby), summer chum salmon subsistence gillnet harvest age composition, 2004.

		Brood Year, Age, and (European Age Formula)											
		2001		2000		1999		1998		1997			
		3 yrs.		4 yrs.		5 yrs.		6 yrs.		7 yrs.			
Sample	Sample	(0.2)		(0.3)		(0.4)		(0.5)		(0.6)		Total	
Dates [a]	Size	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
na	19	1	5.3	6	31.6	12	63.2	0	0.0	0	0.0	19	100.0

[a] Tanana Chiefs Conference contracted with residents of Ruby to collect subsistence harvested Chinook salmon samples. Length, sex, and date information were not available.

Appendix B12.–Yukon River, Big Eddy, summer chum salmon 5.5-inch mesh set gillnet test fish project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)											
			3 yrs.		4 yrs.		5 yrs.		6 yrs.		7 yrs.			
			2001		2000		1999		1998		1997			
Sample	Sample		(0.2)		(0.3)		(0.4)		(0.5)		(0.6)		Total	
Dates[a]	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
5/27 - 6/13	159	Males	1	0.6	12	7.5	36	22.6	0	0.0	0	0.0	49	30.8
Quartile 1		Females	0	0.0	33	20.8	77	48.4	0	0.0	0	0.0	110	69.2
		Subtotal	1	0.6	45	28.3	113	71.1	0	0.0	0	0.0	159	100.0
6/14 - 6/24	104	Males	0	0.0	22	21.2	12	11.5	0	0.0	0	0.0	34	32.7
Quartile 2		Females	0	0.0	30	28.8	40	38.5	0	0.0	0	0.0	70	67.3
		Subtotal	0	0.0	52	50.0	52	50.0	0	0.0	0	0.0	104	100.0
6/25 - 7/5	40	Males	2	5.0	13	32.5	3	7.5	0	0.0	0	0.0	18	45.0
Quartile 3		Females	0	0.0	15	37.5	7	17.5	0	0.0	0	0.0	22	55.0
		Subtotal	2	5.0	28	70.0	10	25.0	0	0.0	0	0.0	40	100.0
7/6 - 7/14	23	Males	1	4.3	1	4.3	6	26.1	0	0.0	0	0.0	8	34.8
Quartile 4		Females	2	8.7	8	34.8	5	21.7	0	0.0	0	0.0	15	65.2
		Subtotal	3	13.0	9	39.1	11	47.8	0	0.0	0	0.0	23	100.0
Season Total	326	Males	4	1.2	48	14.7	57	17.5	0	0.0	0	0.0	109	33.4
		Females	2	0.6	86	26.4	129	39.6	0	0.0	0	0.0	217	66.6
		Total	6	1.8	134	41.1	186	57.1	0	0.0	0	0.0	326	100.0
Mean Length		Males	541		569		581		-		-			
Std. Error			16		4		11		-		-			
Mean Length		Females	525		562		576		-		-			
Std. Error			5		2		2		-		-			

[a] Sample dates were stratified by quartiles based on combined Big Eddy and Middle Mouth 5.5-inch mesh set gillnet catch totals.

Appendix B13.–Yukon River, Middle Mouth, summer chum salmon 5.5-inch mesh set gillnet test fish project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)											
			3 yrs. 2001 (0.2)		4 yrs. 2000 (0.3)		5 yrs. 1999 (0.4)		6 yrs. 1998 (0.5)		7 yrs. 1997 (0.6)		Total	
Sample Dates[a]	Sample Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/2 - 6/13	33	Males	0	0.0	6	18.2	8	24.2	0	0.0	0	0.0	14	42.4
Quartile 1		Females	0	0.0	4	12.1	15	45.5	0	0.0	0	0.0	19	57.6
		Subtotal	0	0.0	10	30.3	23	69.7	0	0.0	0	0.0	33	100.0
6/14 - 6/24	69	Males	4	5.8	7	10.1	13	18.8	0	0.0	0	0.0	24	34.8
Quartile 2		Females	1	1.4	13	18.8	31	44.9	0	0.0	0	0.0	45	65.2
		Subtotal	5	7.2	20	29.0	44	63.8	0	0.0	0	0.0	69	100.0
6/25 - 7/4	58	Males	1	1.7	9	15.5	10	17.2	0	0.0	0	0.0	20	34.5
Quartile 3		Females	1	1.7	17	29.3	20	34.5	0	0.0	0	0.0	38	65.5
		Subtotal	2	3.4	26	44.8	30	51.7	0	0.0	0	0.0	58	100.0
7/7 - 7/10	35	Males	2	5.7	7	20.0	1	2.9	0	0.0	0	0.0	10	28.6
Quartile 4		Females	1	2.9	12	34.3	12	34.3	0	0.0	0	0.0	25	71.4
		Subtotal	3	8.6	19	54.3	13	37.1	0	0.0	0	0.0	35	100.0
Season Total	195	Males	7	3.6	29	14.9	32	16.4	0	0.0	0	0.0	68	34.9
		Females	3	1.5	46	23.6	78	40.0	0	0.0	0	0.0	127	65.1
		Total	10	5.1	75	38.5	110	56.4	0	0.0	0	0.0	195	100.0
Mean Length		Males	551		576		591		-		-			
Std. Error			6		4		4		-		-			
Mean Length		Females	533		556		573		-		-			
Std. Error			9		3		2		-		-			

[a] Sample dates were stratified by quartiles based on combined Big Eddy and Middle Mouth 5.5-inch mesh set gillnet catch totals.

Appendix B14.–Yukon River, Russian Mission, summer chum salmon 4.25-inch and 4.5-inch mesh drift gillnet test fish project age composition and mean length (mm), 2004.

		Brood Year, Age, and (European Age Formula)											
		3 yrs. 2001 (0.2)		4 yrs. 2000 (0.3)		5 yrs. 1999 (0.4)		6 yrs. 1998 (0.5)		7 yrs. 1997 (0.6)		Total	
Sample Dates[a]	Sample Size	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/8 - 6/22	57	1	1.8	8	14.0	48	84.2	0	0.0	0	0.0	57	100.0
6/23 - 6/30	55	1	1.8	19	34.5	35	63.6	0	0.0	0	0.0	55	100.0
7/1 - 7/18	72	9	12.5	31	43.1	31	43.1	1	1.4	0	0.0	72	100.0
Season Total	184	11	6.0	58	31.5	114	62.0	1	0.5	0	0.0	184	100.0
Mean Length		531		563		592		555		-			
Std. Error		8		3		3		-		-			

[a] Samples were collected as part of a telemetry project and sex was not identified.

Appendix B15.–Andreafsky River (east fork) weir, summer chum salmon escapement project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)											
			2001		2000		1999		1998		1997			
Sample			3 yrs.		4 yrs.		5 yrs.		6 yrs.		7 yrs.			
Dates[a,b]	Sample		(0.2)		(0.3)		(0.4)		(0.5)		(0.6)		Total	
(Strata Dates)	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/27-28	144	Males	412	1.4	10,293	34.7	3,911	13.2	0	0.0	0	0.0	14,616	49.3
(6/23 - 6/30)		Females	206	0.7	11,733	39.6	3,088	10.4	0	0.0	0	0.0	15,027	50.7
		Subtotal	618	2.1	22,026	74.3	6,999	23.6	0	0.0	0	0.0	29,643	100.0
7/4, 11	196	Males	389	1.6	8,946	35.2	3,112	12.2	0	0.0	0	0.0	12,447	49.0
(7/1 - 7/11)		Females	389	1.5	9,335	36.7	3,241	12.8	0	0.0	0	0.0	12,965	51.0
		Subtotal	778	3.1	18,281	71.9	6,353	25.0	0	0.0	0	0.0	25,412	100.0
7/12-13, 18	147	Males	391	6.8	1,876	32.7	391	6.8	0	0.0	0	0.0	2,658	46.3
(7/12 - 7/18)		Females	586	10.2	2,149	37.4	352	6.1	0	0.0	0	0.0	3,087	53.7
		Subtotal	977	17.0	4,025	70.1	743	12.9	0	0.0	0	0.0	5,745	100.0
7/19 - 7/31	92	Males	46	3.2	352	25.0	107	7.6	0	0.0	0	0.0	505	35.9
(7/19 - 7/31)		Females	138	9.8	505	35.9	245	17.4	15	1.1	0	0.0	903	64.1
		Subtotal	184	13.0	857	60.9	352	25.0	15	1.1	0	0.0	1,408	100.0
8/1 - 8/12,	124	Males	70	10.5	221	33.1	48	7.3	0	0.0	0	0.0	339	50.8
8/17 - 9/3		Females	92	13.7	199	29.8	38	5.6	0	0.0	0	0.0	329	49.2
(8/1 - 9/19) [c]		Subtotal	162	24.2	420	62.9	86	12.9	0	0.0	0	0.0	668	100.0
Season Total[d]	703	Males	1,308	2.1	21,687	34.5	7,569	12.0	0	0.0	0	0.0	30,564	48.6
		Females	1,410	2.2	23,923	38.0	6,964	11.1	15	0.0	0	0.0	32,312	51.4
		Total	2,718	4.3	45,610	72.5	14,533	23.1	15	0.0	0	0.0	62,876	100.0
Mean Length[e]		Males	536		563		584		-		-			
Std. Error			8		3		4		-		-			
Mean Length		Females	509		528		541		610		-			
Std. Error			4		2		3		-		-			

[a] Samples were collected by the US Fish and Wildlife Service (USFWS).

[b] The number of fish in each stratum age and sex category are derived from the sample percentages; discrepancies in sums are attributed to rounding errors.

[c] High water conditions prevented counts from 8/13-8/16; escapement passage was estimated for these days.

[d] The number of fish in the total are the strata sums; total percentages are derived from the sums.

[e] Mean lengths were weighted by escapement estimates in each stratum.

Appendix B16.–Anvik River sonar, summer chum salmon escapement project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)											
			2001		2000		1999		1998		1997			
Sample			3 yrs.		4 yrs.		5 yrs.		6 yrs.		7 yrs.			
Dates[a,b]	Sample		(0.2)		(0.3)		(0.4)		(0.5)		(0.6)		Total	
(Strata Dates)	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/26, 28, 30	189	Males	0	0.0	16,154	13.8	47,840	40.7	1,243	1.1	0	0.0	65,236	55.6
(6/22 - 7/1)		Females	1,243	1.1	14,911	12.7	36,035	30.7	0	0.0	0	0.0	52,189	44.4
		Subtotal	1,243	1.1	31,065	26.5	83,875	71.4	1,243	1.1	0	0.0	117,425	100.0
7/3 - 7/5	102	Males	0	0.0	23,267	20.6	25,483	22.6	0	0.0	0	0.0	48,750	43.1
(7/2 -7/7)		Females	0	0.0	26,591	23.5	37,671	33.3	0	0.0	0	0.0	64,262	56.9
		Subtotal	0	0.0	49,858	44.1	63,154	55.9	0	0.0	0	0.0	113,012	100.0
7/9	147	Males	2,680	3.4	18,762	23.8	18,762	23.8	0	0.0	0	0.0	40,205	51.0
(7/8 - 7/12)		Females	1,072	1.4	20,907	26.5	16,618	21.1	0	0.0	0	0.0	38,597	49.0
		Subtotal	3,752	4.8	39,669	50.3	35,380	44.9	0	0.0	0	0.0	78,802	100.0
7/15, 18	120	Males	1,877	3.3	6,570	11.7	7,509	13.3	469	0.8	0	0.0	16,426	29.2
(7/13 - 7/26)		Females	2,347	4.2	22,527	40.0	15,018	26.7	0	0.0	0	0.0	39,891	70.8
		Subtotal	4,224	7.5	29,097	51.7	22,527	40.0	469	0.8	0	0.0	56,317	100.0
Season Total[c]	558	Males	4,558	1.2	64,753	17.7	99,594	27.3	1,712	0.5	0	0.0	170,617	46.7
		Females	4,661	1.3	84,936	23.2	105,342	28.8	0	0.0	0	0.0	194,939	53.3
		Total	9,219	2.5	149,689	40.9	204,936	56.1	1,712	0.5	0	0.0	365,556	100.0
Mean Length[d]		Males	540		575		598		598		-			
Std. Error			8		3		3		15		-			
Mean Length		Females	511		552		561		-		-			
Std. Error			6		2		2		-		-			

[a] Samples were collected with a beach seine.

[b] The number of fish in each stratum age and sex category are derived from the sample percentages; discrepancies in sums are attributed to rounding errors.

[c] The number of fish in the total are the strata sums; total percentages are derived from the sums.

[d] Mean lengths were weighted by escapement estimates in each stratum.

Appendix B17.–Clear Creek weir summer chum salmon escapement project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)											
			2001		2000		1999		1998		1997			
Sample			3 yrs.		4 yrs.		5 yrs.		6 yrs.		7 yrs.			
Dates[a,b]	Sample		(0.2)		(0.3)		(0.4)		(0.5)		(0.6)		Total	
(Strata Dates)	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/22 - 6/30	214	Males	6	0.5	273	22.0	377	30.3	6	0.5	0	0.0	662	53.3
(6/21 - 6/30)		Females	6	0.4	174	14.0	395	31.8	6	0.4	0	0.0	580	46.7
		Subtotal	12	0.9	447	36.0	772	62.1	12	0.9	0	0.0	1,242	100.0
7/1 - 7/4	106	Males	0	0.0	1,000	37.7	750	28.3	0	0.0	0	0.0	1,750	66.0
(7/1 - 7/4)		Females	25	0.9	500	18.9	375	14.2	0	0.0	0	0.0	900	34.0
		Subtotal	25	0.9	1,500	56.6	1125	42.5	0	0.0	0	0.0	2,650	100.0
7/5 - 7/8	96	Males	0	0.0	1,243	33.3	660	17.7	0	0.0	0	0.0	1,903	51.0
(7/5 - 7/8)		Females	39	1.0	1,204	32.3	583	15.6	0	0.0	0	0.0	1,826	49.0
		Subtotal	39	1.0	2,447	65.6	1,243	33.3	0	0.0	0	0.0	3,729	100.0
7/9 - 7/11	86	Males	52	2.3	597	26.7	311	14.0	26	1.2	0	0.0	985	44.2
(7/9 - 7/11)		Females	0	0.0	985	44.2	259	11.6	0	0.0	0	0.0	1,245	55.8
		Subtotal	52	2.3	1,582	70.9	570	25.6	26	1.2	0	0.0	2,230	100.0
7/12 - 7/15	98	Males	0	0.0	1,379	42.8	361	11.2	0	0.0	0	0.0	1,740	54.1
(7/12 - 7/15)		Females	66	2.0	1,083	33.7	328	10.2	0	0.0	0	0.0	1,477	45.9
		Subtotal	66	2.0	2,462	76.5	689	21.4	0	0.0	0	0.0	3,217	100.0
7/16 - 7/20	127	Males	23	1.6	749	52.0	227	15.7	0	0.0	0	0.0	998	69.3
(7/16 - 7/20)		Females	34	2.3	318	22.0	91	6.3	0	0.0	0	0.0	443	30.7
		Subtotal	57	3.9	1,067	74.0	318	22.0	0	0.0	0	0.0	1,441	100.0
7/21 - 7/31	216	Males	37	3.2	491	42.6	123	10.7	0	0.0	0	0.0	651	56.5
(7/21 - 7/31)		Females	48	4.2	400	34.7	53	4.6	0	0.0	0	0.0	501	43.5
		Subtotal	85	7.4	891	77.3	176	15.3	0	0.0	0	0.0	1,152	100.0
Season Total[c]	943	Males	118	0.7	5,730	36.6	2809	17.9	32	0.2	0	0.0	8,689	55.5
		Females	217	1.4	4,665	29.8	2084	13.3	6	0.0	0	0.0	6,972	44.5
		Subtotal	335	2.1	10,395	66.4	4893	31.2	38	0.2	0	0.0	15,661	100.0
Mean Length[d]		Males	544		555		583		586		-			
Std. Error			10		1		2		-		-			
Mean Length		Females	504		530		553		590		-			
Std. Error			9		2		2		-		-			

[a] Samples were collected by the Bureau of Land Management (BLM).
[b] The number of fish in each stratum age and sex category are derived from the sample percentages; discrepancies in sums are attributed to rounding errors.
[c] The number of fish in the total are the strata sums; total percentages are derived from the sums.
[d] Mean lengths were weighted by escapement estimates in each stratum.

Appendix B18.–Gisasa weir summer chum salmon escapement project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)											
			2001		2000		1999		1998		1997			
Sample			3 yrs.		4 yrs.		5 yrs.		6 yrs.		7 yrs.			
Dates[a,b]	Sample		(0.2)		(0.3)		(0.4)		(0.5)		(0.6)		Total	
(Strata Dates)	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/28, 30	83	Males	98	1.2	2,641	32.5	1,761	21.7	0	0.0	0	0.0	4,499	55.4
(6/24 - 7/1)		Females	98	1.2	2,152	26.5	1,369	16.9	0	0.0	0	0.0	3,619	44.6
		Subtotal	196	2.4	4,793	59.0	3,130	38.6	0	0.0	0	0.0	8,118	100.0
7/2, 4, 5, 7	131	Males	387	4.6	3,613	42.8	1,484	17.6	0	0.0	0	0.0	5,484	64.9
(7/2 - 7/8)		Females	258	3.0	2,387	28.2	323	3.8	0	0.0	0	0.0	2,968	35.1
		Subtotal	645	7.6	6,000	71.0	1,807	21.4	0	0.0	0	0.0	8,452	100.0
7/9, 11-12	113	Males	380	4.4	3,645	42.5	911	10.6	0	0.0	0	0.0	4,937	57.5
(7/9 - 7/13)		Females	152	1.8	3,190	37.1	304	3.6	0	0.0	0	0.0	3,645	42.5
		Subtotal	532	6.2	6,835	79.6	1,215	14.2	0	0.0	0	0.0	8,582	100.0
7/14, 16, 18-19	137	Males	165	2.2	3,298	43.8	495	6.6	0	0.0	0	0.0	3,958	52.6
(7/14 - 7/19)		Females	385	5.1	3,079	40.9	110	1.4	0	0.0	0	0.0	3,574	47.4
		Subtotal	550	7.3	6,377	84.7	605	8.0	0	0.0	0	0.0	7,532	100.0
7/21 - 8/1	260	Males	139	2.7	1,491	28.9	338	6.5	0	0.0	0	0.0	1,967	38.1
(7/20 - 8/1)		Females	378	7.3	2,444	47.3	377	7.3	0	0.0	0	0.0	3,200	61.9
		Subtotal	517	1.0	3,935	76.2	715	13.8	0	0.0	0	0.0	5,167	100.0
Season Total[c]	724	Males	1,169	3.1	14,688	38.8	4,989	13.2	0	0.0	0	0.0	20,845	55.1
		Females	1,270	3.3	13,252	35.0	2,483	6.5	0	0.0	0	0.0	17,005	44.9
		Total	2,439	6.4	27,940	73.8	7,472	19.7	0	0.0	0	0.0	37,851	100.0
Mean Length[d]		Males	556		587		617		-		-			
Std. Error			8		2		4		-		-			
Mean Length		Females	541		558		574		-		-			
Std. Error			4		2		5		-		-			

[a] Samples were collected by the US Fish and Wildlife Service (USFWS).

[b] The number of fish in each stratum age and sex category are derived from the sample percentages; discrepancies in sums are attributed to rounding errors.

[c] The number of fish in the total are the strata sums; total percentages are derived from the sums.

[d] Mean lengths were weighted by escapement estimates in each stratum.

Appendix B19.–Henshaw Creek weir summer chum salmon escapement project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)											
			2001		2000		1999		1998		1997			
Sample			3 yrs.		4 yrs.		5 yrs.		6 yrs.		7 yrs.			
Dates[a,b]	Sample		(0.2)		(0.3)		(0.4)		(0.5)		(0.6)		Total	
(Strata Dates)	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/23 - 7/9	227	Males	506	3.5	5,942	41.4	948	6.6	0	0.0	0	0.0	7,396	51.5
(6/21 - 7/9)		Females	632	4.4	5,310	37.0	1,012	7.1	0	0.0	0	0.0	6,954	48.5
		Subtotal	1,138	7.9	11,252	78.4	1,960	13.7	0	0.0	0	0.0	14,350	100.0
7/10, 12, 14	78	Males	0	0.0	5,753	42.3	872	6.4	0	0.0	0	0.0	6,625	48.7
(7/10 - 7/14)		Females	0	0.0	6,799	50.0	174	1.3	0	0.0	0	0.0	6,973	51.3
		Subtotal	0	0.0	12,552	92.3	1,046	7.7	0	0.0	0	0.0	13,598	100.0
7/16, 18	70	Males	637	2.8	8,285	37.1	637	2.8	0	0.0	0	0.0	9,559	42.9
(7/15 - 7/18)		Females	956	4.3	10,834	48.6	956	4.3	0	0.0	0	0.0	12,746	57.1
		Subtotal	1,593	7.1	19,119	85.7	1,593	7.1	0	0.0	0	0.0	22,305	100.0
7/19, 21, 23	109	Males	781	3.7	8,781	41.3	0	0.0	0	0.0	0	0.0	9,561	45.0
(7/19 - 7/23)		Females	585	2.7	10,341	48.6	780	3.7	0	0.0	0	0.0	11,707	55.0
		Subtotal	1,366	6.4	19,122	89.9	780	3.7	0	0.0	0	0.0	21,268	100.0
7/25-26, 28	108	Males	389	4.6	2,955	35.2	155	1.9	0	0.0	0	0.0	3,499	41.7
(7/24 - 7/28)		Females	466	5.6	4,354	51.8	78	0.9	0	0.0	0	0.0	4,898	58.3
		Subtotal	855	10.2	7,309	87.0	233	2.8	0	0.0	0	0.0	8,397	100.0
7/30; 8/1, 4, 6	180	Males	73	1.1	2,368	36.1	182	2.8	0	0.0	0	0.0	2,624	40.0
(7/29 - 8/6)		Females	510	7.8	3,389	51.7	37	0.5	0	0.0	0	0.0	3,935	60.0
		Subtotal	583	8.9	5,757	87.8	219	3.3	0	0.0	0	0.0	6,559	100.0
Season Total[c]	772	Males	2,385	2.8	34,084	39.4	2,795	3.2	0	0.0	0	0.0	39,263	45.4
		Females	3,150	3.6	41,027	47.5	3,036	3.5	0	0.0	0	0.0	47,214	54.6
		Total	5,535	6.4	75,111	86.9	5,831	6.7	0	0.0	0	0.0	86,477	100.0
Mean Length[d]		Males	545		563		607		-		-			
Std. Error			5		2		9		-		-			
Mean Length		Females	514		541		557		-		-			
Std. Error			5		2		10		-		-			

[a] Samples were collected by the US Fish and Wildlife Service (USFWS).

[b] The number of fish in each stratum age and sex category are derived from the sample percentages; discrepancies in sums are attributed to rounding errors.

[c] The number of fish in the total are the strata sums; total percentages are derived from the sums.

[d] Mean lengths were weighted by escapement estimates in each stratum.

Appendix B20.–Tozitna River weir summer chum salmon escapement project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)											
			2001		2000		1999		1998		1997			
Sample			3 yrs.		4 yrs.		5 yrs.		6 yrs.		7 yrs.			
Dates[a,b]	Sample		(0.2)		(0.3)		(0.4)		(0.5)		(0.6)		Total	
(Strata Dates)	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
6/22 - 7/14	397	Males	17	0.5	916	28.2	1,130	34.8	8	0.3	0	0.0	2,071	63.7
(6/22 - 7/14)		Females	8	0.3	704	21.7	458	14.1	8	0.2	0	0.0	1,178	36.3
		Subtotal	25	0.8	1,620	49.9	1,588	48.9	16	0.5	0	0.0	3,249	100.0
7/15 - 7/18	92	Males	0	0.0	1,155	29.4	898	22.8	0	0.0	0	0.0	2,053	52.2
(7/15 - 7/18)		Females	43	1.1	1,539	39.1	299	7.6	0	0.0	0	0.0	1,881	47.8
		Subtotal	43	1.1	2,694	68.5	1,197	30.4	0	0.0	0	0.0	3,934	100.0
7/19 - 7/22	121	Males	71	1.7	1,265	29.8	843	19.8	0	0.0	0	0.0	2,178	51.2
(7/19 - 7/22)		Females	70	1.6	1,194	28.1	808	19.0	0	0.0	0	0.0	2,073	48.8
		Subtotal	141	3.3	2,459	57.9	1,651	38.8	0	0.0	0	0.0	4,251	100.0
7/23 - 7/28	131	Males	60	1.5	1,223	31.3	984	25.2	0	0.0	0	0.0	2,267	58.0
(7/23 - 7/28)		Females	89	2.3	1,104	28.2	448	11.4	0	0.0	0	0.0	1,641	42.0
		Subtotal	149	3.8	2,327	59.5	1,432	36.6	0	0.0	0	0.0	3,908	100.0
7/29 - 8/1, 8/3	128	Males	34	0.8	1,389	32.0	813	18.8	0	0.0	0	0.0	2,236	51.6
(7/29 - 8/3)		Females	102	2.3	1,525	35.2	475	10.9	0	0.0	0	0.0	2,101	48.4
		Subtotal	136	3.1	2,914	67.2	1,288	29.7	0	0.0	0	0.0	4,337	100.0
8/4 - 8/10	144	Males	23	0.7	989	30.5	494	15.3	0	0.0	0	0.0	1,506	46.5
(8/4 - 8/10)		Females	112	3.5	1,348	41.7	270	8.3	0	0.0	0	0.0	1,730	53.5
		Subtotal	135	4.2	2,337	72.2	764	23.6	0	0.0	0	0.0	3,236	100.0
Season Total[c]	1,013	Males	202	0.9	6,937	30.3	5,163	22.5	8	0.1	0	0.0	12,258	53.5
		Females	425	1.8	7,415	32.3	2,757	12.1	8	0.0	0	0.0	10,657	46.5
		Total	627	2.7	14,352	62.6	7,920	34.6	16	0.1	0	0.0	22,915	100.0
Mean Length[d]		Males	513		568		595		635		-			
Std. Error			18		2		2		-		-			
Mean Length		Females	515		549		573		565		-			
Std. Error			9		1		3		-		-			

[a] Samples were collected by the Bureau of Land Management (BLM).

[b] The number of fish in each stratum age and sex category are derived from the sample percentages; discrepancies in sums are attributed to rounding errors.

[c] The number of fish in the total are the strata sums; total percentages are derived from the sums.

[d] Mean lengths were weighted by escapement estimates in each stratum.

APPENDIX C. FALL CHUM SALMON TABLES

Appendix C1.–Yukon River, District 1, fall chum salmon commercial gillnet harvest age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)											
			2001		2000		1999		1998		1997			
			3 yrs.		4 yrs.		5 yrs.		6 yrs.		7 yrs.			
Sample	Sample		(0.2)		(0.3)		(0.4)		(0.5)		(0.6)		Total	
Dates [a,b]	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
9/1	0[c]	Males	7	22.3	4	13.5	2	5.4	0	0.0	0	0.0	13	41.2
Period 1		Females	11	35.1	6	17.6	2	6.1	0	0.0	0	0.0	19	58.8
		Subtotal	18	57.4	10	31.1	4	11.5	0	0.0	0	0.0	32	100.0
9/3	148	Males	83	22.3	50	13.5	20	5.4	0	0.0	0	0.0	154	41.2
Period 2		Females	131	35.1	66	17.6	23	6.1	0	0.0	0	0.0	219	58.8
		Subtotal	214	57.4	116	31.1	43	11.5	0	0.0	0	0.0	373	100.0
9/5	149[d]	Males	32	23.5	19	14.1	10	7.4	1	0.7	0	0.0	63	45.6
Period 3		Females	48	34.9	17	12.1	10	7.4	0	0.0	0	0.0	74	54.4
		Subtotal	80	58.4	36	26.2	20	14.8	1	0.7	0	0.0	137	100.0
9/7, 9[e]	89	Males	16	15.7	15	14.6	2	2.2	0	0.0	0	0.0	32	32.6
Periods 4, 5		Females	34	34.9	23	23.6	8	7.9	1	1.1	0	0.0	67	67.4
		Subtotal	50	50.6	38	38.2	10	10.1	1	1.1	0	0.0	99	100.0
9/11	0[f]	Males	3	15.7	3	14.6	0	2.2	0	0.0	0	0.0	6	32.6
Period 6		Females	7	34.9	4	23.6	2	7.9	0	1.1	0	0.0	13	67.4
		Subtotal	10	50.6	7	38.2	2	10.1	0	1.1	0	0.0	19	100.0
Total	386	Males	141	21.4	91	13.8	34	5.2	1	0.1	0	0.0	268	40.7
All Periods[g]		Females	231	35.0	116	17.6	44	6.7	1	0.2	0	0.0	392	59.3
		Total	372	56.4	207	31.4	79	11.9	2	0.3	0	0.0	660	100.0
Mean Length[h]		Males	583		605		618		605		-			
Std. Error			3		5		7		-		-			
Mean Length		Females	575		587		608		625		-			
Std. Error			2		4		7		-		-			

[a] All District 1 fall chum commercial fishing periods were restricted to 6.0" or smaller mesh gillnets.

[b] The number of fish in each stratum age and sex category are derived from the sample percentages; discrepancies in sums are attributed to rounding errors.

[c] No sampling occurred during period 1, therefore the number of fish in each age group were calculated using the percentages from period 2.

[d] The number of fish sampled during period 3 exceeds the harvest count by 12 fish, this discrepancy is likely due to species misidentification by the processors.

[e] Only 6 fall chum were sampled and 8 harvested during period 5, so periods 4 and 5 were combined.

[f] No sampling occurred during period 6, therefore the number of fish in each age group were calculated using the percentages from periods 4 and 5 combined.

[g] The number of fish in the total are the strata sums; total percentages are derived from the sums.

[h] Mean lengths were weighted by commercial harvest in each stratum.

Appendix C2.–Yukon River, Subdistrict 5-B, fall chum salmon subsistence fish wheel harvest age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)											
			2001		2000		1999		1998		1997			
			3 yrs.		4 yrs.		5 yrs.		6 yrs.		7 yrs.			
Sample	Sample		(0.2)		(0.3)		(0.4)		(0.5)		(0.6)		Total	
Dates	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
8/21	96	Males	3	3.1	32	33.3	24	25.0	0	0.0	0	0.0	59	61.5
		Females	4	4.2	19	19.8	14	14.6	0	0.0	0	0.0	37	38.5
		Subtotal	7	7.3	51	53.1	38	39.6	0	0.0	0	0.0	96	100.0
9/11	154	Males	20	13.0	34	22.1	13	8.4	0	0.0	0	0.0	67	43.5
		Females	22	14.3	53	34.4	12	7.8	0	0.0	0	0.0	87	56.5
		Subtotal	42	27.3	87	56.5	25	16.2	0	0.0	0	0.0	154	100.0
Season Total	250	Males	23	9.2	66	26.4	37	14.8	0	0.0	0	0.0	126	50.4
		Females	26	10.4	72	28.8	26	10.4	0	0.0	0	0.0	124	49.6
		Subtotal	49	19.6	138	55.2	63	25.2	0	0.0	0	0.0	250	100.0
Mean Length		Males	583		617		643		-		-			
Std. Error			5		4		5		-		-			
Mean Length		Females	564		582		602		-		-			
Std. Error			6		4		5		-		-			

Appendix C3.–Yukon River, Big Eddy, fall chum salmon 6.0-inch mesh drift gillnet test fish project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)											
			3 yrs. 2001 (0.2)		4 yrs. 2000 (0.3)		5 yrs. 1999 (0.4)		6 yrs. 1998 (0.5)		7 yrs. 1997 (0.6)		Total	
Sample Dates[a]	Sample Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
7/19-26, 31	42	Males	1	2.4	12	28.6	10	23.8	0	0.0	0	0.0	23	54.8
Quartile 1		Females	2	4.8	7	16.7	10	23.8	0	0.0	0	0.0	19	45.2
		Subtotal	3	7.1	19	45.2	20	47.6	0	0.0	0	0.0	42	100.0
8/1-2	57	Males	1	1.8	16	28.1	12	21.1	0	0.0	0	0.0	29	50.9
Quartile 2		Females	1	1.8	15	26.3	12	21.1	0	0.0	0	0.0	28	49.1
		Subtotal	2	3.5	31	54.4	24	42.1	0	0.0	0	0.0	57	100.0
8/8-9, 13	77	Males	6	7.8	18	23.4	9	11.7	0	0.0	0	0.0	33	42.9
Quartile 3		Females	5	6.5	28	36.4	11	14.3	0	0.0	0	0.0	44	57.1
		Subtotal	11	14.3	46	59.7	20	26.0	0	0.0	0	0.0	77	100.0
8/14, 20, 24, 26	12	Males	1	8.3	0	0.0	1	8.3	0	0.0	0	0.0	2	16.7
Quartile 4		Females	7	58.3	3	25.0	0	0.0	0	0.0	0	0.0	10	83.3
		Subtotal	8	66.7	3	25.0	1	8.3	0	0.0	0	0.0	12	100.0
Season Total	188	Males	9	4.8	46	24.5	32	17.0	0	0.0	0	0.0	87	46.3
		Females	15	8.0	53	28.2	33	17.6	0	0.0	0	0.0	101	53.7
		Total	24	12.8	99	52.7	65	34.6	0	0.0	0	0.0	188	100.0
Mean Length		Males	579		601		618		-		-			
Std. Error			9		4		4		-		-			
Mean Length		Females	580		594		607		-		-			
Std. Error			5		3		6		-		-			

[a] Sample dates were stratified by quartiles based on combined Big Eddy and Middle Mouth 6.0-inch mesh drift gillnet catch totals.

Appendix C4.–Yukon River, Middle Mouth, fall chum salmon 6.0-inch mesh drift gillnet test fish project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)											
			3 yrs. 2001 (0.2)		4 yrs. 2000 (0.3)		5 yrs. 1999 (0.4)		6 yrs. 1998 (0.5)		7 yrs. 1997 (0.6)		Total	
Sample Dates[a]	Sample Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
7/19-21, 26	28	Males	1	3.6	6	21.4	4	14.3	0	0.0	0	0.0	11	39.3
Quartile 1		Females	1	3.6	8	28.6	8	28.6	0	0.0	0	0.0	17	60.7
		Subtotal	2	7.1	14	50.0	12	42.9	0	0.0	0	0.0	28	100.0
8/1-2	49	Males	2	4.1	7	14.3	6	12.2	0	0.0	0	0.0	15	30.6
Quartile 2		Females	3	6.1	20	40.8	11	22.4	0	0.0	0	0.0	34	69.4
		Subtotal	5	10.2	27	55.1	17	34.7	0	0.0	0	0.0	49	100.0
8/3-5, 8-11	40	Males	4	10.0	6	15.0	6	15.0	1	2.5	0	0.0	17	42.5
Quartile 3		Females	2	5	14	35.0	7	17.5	0	0.0	0	0.0	23	57.5
		Subtotal	6	15.0	20	50.0	13	32.5	1	2.5	0	0.0	40	100.0
8/14-15, 17-18,	77	Males	7	9.1	11	14.3	5	6.5	0	0.0	0	0.0	23	29.9
Quartile 4		Females	27	35.1	20	26.0	6	7.8	1	1.3	0	0.0	54	70.1
		Subtotal	34	44.2	31	40.3	11	14.3	1	1.3	0	0.0	77	100.0
Season Total	194	Males	14	7.2	30	15.5	21	10.8	1	0.5	0	0.0	66	34.0
		Females	33	17.0	62	32.0	32	16.5	1	0.5	0	0.0	128	66.0
		Total	47	24.2	92	47.4	53	27.3	2	1.0	0	0.0	194	100.0
Mean Length		Males	569		598		609		610		-			
Std. Error			6		5		5		-		-			
Mean Length		Females	570		576		595		600		-			
Std. Error			3		3		5		-		-			

[a] Sample dates were stratified by quartiles based on combined Big Eddy and Middle Mouth 6.0-inch mesh drift gillnet catch totals.

Appendix C5.–Yukon River, Mountain Village, fall chum salmon 5 ⅞-inch mesh drift gillnet test fish project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)											
			2001		2000		1999		1998		1997			
			3 yrs.		4 yrs.		5 yrs.		6 yrs.		7 yrs.			
Sample	Sample		(0.2)		(0.3)		(0.4)		(0.5)		(0.6)		Total	
Dates[a]	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
7/17-18, 20-24,	107	Males	8	7.5	21	19.6	29	27.1	0	0.0	0	0.0	58	54.2
26-28; 8/1-8		Females	2	1.8	25	23.4	22	20.6	0	0.0	0	0.0	49	45.8
		Subtotal	10	9.3	46	43.0	51	47.7	0	0.0	0	0.0	107	100.0
8/9-19, 21-22	120	Males	10	8.4	28	23.3	9	7.5	0	0.0	0	0.0	47	39.2
		Females	10	8.3	43	35.9	20	16.7	0	0.0	0	0.0	73	60.8
		Subtotal	20	16.7	71	59.2	29	24.2	0	0.0	0	0.0	120	100.0
8/25-26, 28-29;	83	Males	9	10.9	16	19.3	3	3.6	0	0.0	0	0.0	28	33.7
9/1-4, 8		Females	24	28.9	25	30.1	6	7.2	0	0.0	0	0.0	55	66.3
		Subtotal	33	39.8	41	49.4	9	10.8	0	0.0	0	0.0	83	100.0
Season Total	310	Males	27	8.7	65	21.0	41	13.2	0	0.0	0	0.0	133	42.9
		Females	36	11.6	93	30.0	48	15.5	0	0.0	0	0.0	177	57.1
		Total	63	20.3	158	51.0	89	28.7	0	0.0	0	0.0	310	100.0
Mean Length		Males	604		614		608		-		-			
Std. Error			5		3		5		-		-			
Mean Length		Females	619		605		604		-		-			
Std. Error			4		3		4		-		-			

[a] Samples were collected by the Ascarsarmiut Traditional Council.

Appendix C6.–Yukon River, Kaltag, fall chum salmon 5 ⅞-inch mesh drift gillnet test fish project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)											
			2001		2000		1999		1998		1997			
			3 yrs.		4 yrs.		5 yrs.		6 yrs.		7 yrs.			
Sample	**Sample**		(0.2)		(0.3)		(0.4)		(0.5)		(0.6)		**Total**	
Dates[a]	**Size**		**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
7/25 - 8/5	101	Males	5	5.0	37	36.6	26	25.7	0	0.0	0	0.0	68	67.3
		Females	0	0.0	20	19.8	13	12.9	0	0.0	0	0.0	33	32.7
		Subtotal	5	5.0	57	56.4	39	38.6	0	0.0	0	0.0	101	100.0
8/6-9, 11-15	120	Males	2	1.7	30	25.0	13	10.8	0	0.0	0	0.0	45	37.5
		Females	2	1.6	44	36.7	29	24.2	0	0.0	0	0.0	75	62.5
		Subtotal	4	3.3	74	61.7	42	35.0	0	0.0	0	0.0	120	100.0
8/16-20, 22-23	102	Males	7	6.9	32	31.4	17	16.7	0	0.0	0	0.0	56	54.9
		Females	5	4.9	32	31.3	9	8.8	0	0.0	0	0.0	46	45.1
		Subtotal	12	11.8	64	62.7	26	25.5	0	0.0	0	0.0	102	100.0
8/24 - 9/2	96	Males	11	11.5	30	31.3	11	11.5	0	0.0	0	0.0	52	54.2
		Females	11	11.4	25	26.0	8	8.3	0	0.0	0	0.0	44	45.8
		Subtotal	22	22.9	55	57.3	19	19.8	0	0.0	0	0.0	96	100.0
9/3-12, 14, 16	84	Males	14	16.7	16	19.0	6	7.2	0	0.0	0	0.0	36	42.9
		Females	18	21.4	24	28.6	6	7.1	0	0.0	0	0.0	48	57.1
		Subtotal	32	38.1	40	47.6	12	14.3	0	0.0	0	0.0	84	100.0
Season Total	503	Males	39	7.7	145	28.9	73	14.5	0	0.0	0	0.0	257	51.1
		Females	36	7.2	145	28.8	65	12.9	0	0.0	0	0.0	246	48.9
		Total	75	14.9	290	57.7	138	27.4	0	0.0	0	0.0	503	100.0
Mean Length		Males	575		601		638		-		-			
Std. Error			3		2		4		-		-			
Mean Length		Females	567		593		604		-		-			
Std. Error			3		2		3		-		-			

[a] Samples were collected by City of Kaltag technicians.

Appendix C7.–Delta River carcass survey, fall chum salmon escapement project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula) [a]											
			2001		2000		1999		1998		1997			
			3 yrs.		4 yrs.		5 yrs.		6 yrs.		7 yrs.			
Sample	Sample		(0.2)		(0.3)		(0.4)		(0.5)		(0.6)		Total	
Dates	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
11/24, 30	169	Males	15	8.9	55	32.5	13	7.7	0	0.0	0	0.0	83	49.1
Season Total		Females	18	10.7	47	27.8	20	11.8	1	0.6	0	0.0	86	50.9
		Total	33	19.5	102	60.4	33	19.5	1	0.6	0	0.0	169	100.0
Mean Length		Males	565		595		610		-		-			
Std. Error			7		4		8		-		-			
Mean Length		Females	547		563		576		550		-			
Std. Error			6		4		5		-		-			

[a] Ages were obtained using vertebrae.

Appendix C8.–Sheenjek River beach seine, fall chum salmon escapement project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula) [a]											
			2001		2000		1999		1998		1997			
			3 yrs.		4 yrs.		5 yrs.		6 yrs.		7 yrs.			
Sample	Sample		(0.2)		(0.3)		(0.4)		(0.5)		(0.6)		Total	
Dates	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
9/5, 10-11, 13,	104	Males	5	4.8	38	36.5	19	18.3	2	1.9	0	0.0	64	61.5
19-20, 23		Females	7	6.7	26	25.0	7	6.7	0	0.0	0	0.0	40	38.5
Season Total		Total	12	11.5	64	61.5	26	25.0	2	1.9	0	0.0	104	100.0
Mean Length		Males	602		621		648		645		-			
Std. Error			11		4		6		-		-			
Mean Length		Females	571		597		619		-		-			
Std. Error			8		4		12		-		-			

[a] Ages were obtained using vertebrae.

Appendix C9.–Toklat River carcass survey, fall chum salmon escapement project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula) [a]											
			2001		2000		1999		1998		1997			
			3 yrs.		4 yrs.		5 yrs.		6 yrs.		7 yrs.			
Sample	Sample		(0.2)		(0.3)		(0.4)		(0.5)		(0.6)		Total	
Dates	Size		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
10/25	174	Males	13	7.5	81	46.6	17	9.8	1	0.6	0	0.0	112	64.4
Season Total		Females	6	3.4	45	25.9	11	6.3	0	0.0	0	0.0	62	35.6
		Total	19	10.9	126	72.4	28	16.1	1	0.6	0	0.0	174	100.0
Mean Length		Males	558		579		593		545		-			
Std. Error			7		3		5		-		-			
Mean Length		Females	543		555		580		-		-			
Std. Error			10		3		10		-		-			

[a] Ages were obtained using vertebrae.

APPENDIX D. COHO SALMON TABLES

Appendix D1.–Yukon River, District 1, coho salmon commercial gillnet harvest age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)							
			2001		2000		1999			
			3 yrs.		4 yrs.		5 yrs.			
Sample	Sample		(1.1)		(2.1)		(3.1)		Total	
Dates [a,b]	Size		No.	%	No.	%	No.	%	No.	%
9/1	0[c]	Males	20	7.6	124	47.6	2	0.9	147	56.2
Period 1		Females	20	7.6	87	33.4	8	2.9	114	43.8
		Subtotal	40	15.2	211	81.0	10	3.8	261	100.0
9/3	105	Males	56	7.6	349	47.6	7	0.9	411	56.2
Period 2		Females	56	7.6	244	33.4	21	2.9	321	43.8
		Subtotal	112	15.2	593	81.0	28	3.8	732	100.0
9/5	105	Males	17	3.8	176	39.1	8	1.9	201	44.8
Period 3		Females	30	6.7	205	45.7	13	2.9	248	55.2
		Subtotal	47	10.5	381	84.8	21	4.8	449	100.0
9/7, 9, 11	63	Males	14	9.5	57	39.7	4	3.2	75	52.4
Periods 4, 5, 6[d]		Females	15	11.1	43	31.7	8	4.7	66	47.6
		Subtotal	29	20.6	100	71.4	12	7.9	141	100.0
Total	273	Males	107	6.8	706	44.6	21	1.3	834	52.7
All Periods[e]		Females	120	7.6	579	36.6	50	3.1	749	47.3
		Subtotal	227	14.4	1,286	81.2	71	4.5	1,583	100.0
Mean Length[f]		Males	574		584		584			
Std. Error			8		3		3			
Mean Length		Females	558		564		555			
Std. Error			8		3		6			

[a] All District 1 coho commercial fishing periods were restricted to 6.0” or smaller mesh gillnets.

[b] The number of fish in each stratum age and sex category are derived from the sample percentages; discrepancies in sums are attributed to rounding errors.

[c] No sampling occurred during period 1, therefore, the number of fish in each age group were calculated using the percentages from period 2.

[d] Due to small sample sizes (41 in period 4, 22 in period 5 and, 0 in period 6) and low numbers of fish delivered to the processors (67 in period 4, 51 in period 5, and 23 in period 6); periods 4, 5, and 6 were combined.

[e] The number of fish in the total are the strata sums; total percentages are derived from the sums.

[f] Mean lengths were weighted by commercial harvest in each stratum.

Appendix D2.–Yukon River, Big Eddy, coho salmon 6.0-inch mesh drift gillnet test fish project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)							
			2001		2000		1999			
			3 yrs.		4 yrs.		5 yrs.			
Sample	Sample		(1.1)		(2.1)		(3.1)		Total	
Dates	Size		No.	%	No.	%	No.	%	No.	%
7/26; 8/1-2, 8, 13	29	Males	1	3.4	13	44.8	0	0.0	14	48.3
8/20, 26-27		Females	1	3.4	13	44.8	1	3.4	15	51.7
Season Total		Total	2	6.9	26	89.7	1	3.4	29	100.0
Mean Length		Males	600		573		-			
Std. Error			-		8		-			
Mean Length		Females	405		585		550			
Std. Error			-		5		-			

Appendix D3.–Yukon River, Middle Mouth, coho salmon 6.0-inch mesh drift gillnet test fish project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)							
			2001		2000		1999			
			3 yrs.		4 yrs.		5 yrs.			
Sample	Sample		(1.1)		(2.1)		(3.1)		Total	
Dates	Size		No.	%	No.	%	No.	%	No.	%
8/2-3, 5, 9-12,	100	Males	14	14.0	49	49.0	2	2.0	65	65.0
14-15, 17-18		Females	8	8.0	25	25.0	2	2.0	35	35.0
20-21, 27		Total	22	22.0	74	74.0	4	4.0	100	100.0
Mean Length		Males	564		565		535			
Std. Error			6		4		0			
Mean Length		Females	569		570		590			
Std. Error			7		5		30			

Appendix D4.–Yukon River, Mountain Village, coho salmon 5 ⅞-inch mesh drift gillnet test fish project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)							
			2001		2000		1999			
			3 yrs.		4 yrs.		5 yrs.			
Sample	Sample		(1.1)		(2.1)		(3.1)		Total	
Dates[a]	Size		No.	%	No.	%	No.	%	No.	%
7/29; 8/3-13, 8/15-22	102	Males	6	5.9	40	39.2	4	3.9	50	49.0
		Females	4	3.9	46	45.1	2	2.0	52	51.0
		Subtotal	10	9.8	86	84.3	6	5.9	102	100.0
8/23-26, 29, 30; 9/1, 3-4, 6, 8	103	Males	9	8.7	40	38.9	0	0.0	49	47.6
		Females	5	4.9	47	45.6	2	1.9	54	52.4
		Subtotal	14	13.6	87	84.5	2	1.9	103	100.0
Season Total	205	Males	15	7.3	80	39.0	4	2.0	99	48.3
		Females	9	4.4	93	45.4	4	1.9	106	51.7
		Total	24	11.7	173	84.4	8	3.9	205	100.0
Mean Length		Males	626		595		533			
Std. Error			5		6		21			
Mean Length		Females	572		596		581			
Std. Error			27		4		30			

[a] Samples were collected by Ascarsarmiut Traditional Council technicians.

Appendix D5.–Yukon River, Kaltag, coho salmon 5 ⅞-inch mesh drift gillnet test fish project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)							
			2001		2000		1999			
			3 yrs.		4 yrs.		5 yrs.			
	Sample		(1.1)		(2.1)		(3.1)		Total	
Sample Dates [a]	Size		No.	%	No.	%	No.	%	No.	%
8/16 - 9/18 Season Total	112	Males	21	18.7	44	39.3	1	0.9	66	58.9
		Females	15	13.4	31	27.7	0	0.0	46	41.1
		Total	36	32.1	75	67.0	1	0.9	112	100.0
Mean Length		Males	572		555		620			
Std. Error			7		6		-			
Mean Length		Females	556		554		-			
Std. Error			5		5		-			

[a] Samples were collected by City of Kaltag technicians.

Appendix D6.–Andreafsky River (east fork) weir, coho salmon escapement project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)							
			2001		2000		1999			
Sample			3 yrs.		4 yrs.		5 yrs.			
Dates[a,b]	Sample		(1.1)		(2.1)		(3.1)		Total	
(Strata Dates)	Size		No.	%	No.	%	No.	%	No.	%
8/5 - 8/24	194	Males	61	3.1	925	47.4	10	0.5	996	51.0
(7/19 - 8/24)[c]		Females	40	2.1	915	46.9	0	0.0	955	49.0
		Subtotal	101	5.2	1,840	94.3	10	0.5	1,951	100.0
8/25 - 9/2	129	Males	44	1.6	1,599	56.6	0	0.0	1,642	58.1
(8/25 - 9/2)		Females	87	3.1	1,051	37.2	44	1.6	1,183	41.9
		Subtotal	131	4.7	2,650	93.8	44	1.6	2,825	100.0
9/3, 5-8	90	Males	92	2.2	1,982	47.8	46	1.1	2,121	51.1
(9/3 - 9/8)		Females	415	10	1,568	37.8	46	1.1	2,028	48.9
		Subtotal	507	12.2	3,550	85.6	92	2.2	4,149	100.0
9/9 - 9/18	131	Males	81	3.8	696	32.8	16	0.8	793	37.4
(9/9 - 9/19)		Females	97	4.6	1,213	57.3	16	0.7	1,326	62.6
		Subtotal	178	8.4	1,909	90.1	32	1.5	2,119	100.0
Season Total[d]	544	Males	277	2.5	5,202	47.1	72	0.6	5,551	50.3
		Females	640	5.8	4,747	43.0	106	1.0	5,493	49.7
		Total	917	8.3	9,949	90.1	178	1.6	11,044	100.0
Mean Length[e]		Males	520		526		475			
Std. Error			9		3		18			
Mean Length		Females	515		531		581			
Std. Error			9		2		3			

[a] Samples were collected by the US Fish and Wildlife Service (USFWS).

[b] The number of fish in each stratum age and sex category are derived from the sample percentages; discrepancies in sums are attributed to rounding errors.

[c] High water conditions prevented counts from 8/13-8/16; escapement passage was estimated for these days.

[d] The number of fish in the total are the strata sums; total percentages are derived from the sums.

[e] Mean lengths were weighted by escapement estimates in each stratum.

Appendix D7.–Otter Creek (Nenana River) carcass survey, coho salmon escapement project age and sex composition and mean length (mm), 2004.

			Brood Year, Age, and (European Age Formula)							
			2001		2000		1999			
			3 yrs.		4 yrs.		5 yrs.			
	Sample		(1.1)		(2.1)		(3.1)		Total	
Sample Dates [a]	Size		No.	%	No.	%	No.	%	No.	%
9/18	61	Males	5	8.2	24	39.3	0	0.0	29	47.5
Season Total		Females	10	16.4	22	36.1	0	0.0	32	52.5
		Total	15	24.6	46	75.4	0	0.0	61	100.0
Mean Length		Males	579		532		-			
Std. Error			14		10		-			
Mean Length		Females	573		572		-			
Std. Error			12		6		-			

[a] Samples were collected by the Bering Sea Fisherman's Association (BSFA).