

**Yukon River Salmon Age, Sex, and Length (ASL)  
Sampling Procedures for Scale Gum Cards and Mark-  
Sense Data Forms**

by

**James Bales**

and

**Larry DuBois**

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Alaska Department of Fish and Game

Division of Commercial Fisheries



## Symbols and Abbreviations

The following symbols and abbreviations, and others approved for the *Système International d'Unités* (SI), are used without definition in the following reports by the Divisions of Sport Fish and of Commercial Fisheries: Fishery Manuscripts, Fishery Data Series Reports, Fishery Management Reports, Special Publications and the Division of Commercial Fisheries Regional Reports. All others, including deviations from definitions listed below, are noted in the text at first mention, as well as in the titles or footnotes of tables, and in figure or figure captions.

<b>Weights and measures (metric)</b>		<b>General</b>		<b>Measures (fisheries)</b>	
centimeter	cm	Alaska Administrative Code	AAC	fork length	FL
deciliter	dL			mid-eye-to-fork	MEF
gram	g	all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.	mid-eye-to-tail-fork	METF
hectare	ha			standard length	SL
kilogram	kg			total length	TL
kilometer	km	all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.		
liter	L	at	@	<b>Mathematics, statistics</b> <i>all standard mathematical signs, symbols and abbreviations</i>	
meter	m	compass directions:		alternate hypothesis	H <sub>A</sub>
milliliter	mL	east	E	base of natural logarithm	<i>e</i>
millimeter	mm	north	N	catch per unit effort	CPUE
		south	S	coefficient of variation	CV
<b>Weights and measures (English)</b>		west	W	common test statistics	(F, t, $\chi^2$ , etc.)
cubic feet per second	ft <sup>3</sup> /s	copyright	©	confidence interval	CI
foot	ft	corporate suffixes:		correlation coefficient (multiple)	R
gallon	gal	Company	Co.	correlation coefficient (simple)	r
inch	in	Corporation	Corp.	covariance	cov
mile	mi	Incorporated	Inc.	degree (angular)	°
nautical mile	nmi	Limited	Ltd.	degrees of freedom	df
ounce	oz	District of Columbia	D.C.	expected value	<i>E</i>
pound	lb	et alii (and others)	et al.	greater than	>
quart	qt	et cetera (and so forth)	etc.	greater than or equal to	≥
yard	yd	exempli gratia (for example)	e.g.	harvest per unit effort	HPUE
		Federal Information Code	FIC	less than	<
<b>Time and temperature</b>		id est (that is)	i.e.	less than or equal to	≤
day	d	latitude or longitude	lat. or long.	logarithm (natural)	ln
degrees Celsius	°C	monetary symbols (U.S.)	\$, ¢	logarithm (base 10)	log
degrees Fahrenheit	°F	months (tables and figures): first three letters	Jan, ..., Dec	logarithm (specify base)	log <sub>2</sub> , etc.
degrees kelvin	K	registered trademark	®	minute (angular)	'
hour	h	trademark	™	not significant	NS
minute	min	United States (adjective)	U.S.	null hypothesis	H <sub>0</sub>
second	s	United States of America (noun)	USA	percent	%
		U.S.C.	United States Code	probability	P
<b>Physics and chemistry</b>		U.S. state	use two-letter abbreviations (e.g., AK, WA)	probability of a type I error (rejection of the null hypothesis when true)	$\alpha$
all atomic symbols				probability of a type II error (acceptance of the null hypothesis when false)	$\beta$
alternating current	AC			second (angular)	"
ampere	A			standard deviation	SD
calorie	cal			standard error	SE
direct current	DC			variance	
hertz	Hz			population	Var
horsepower	hp			sample	var
hydrogen ion activity (negative log of)	pH				
parts per million	ppm				
parts per thousand	ppt, ‰				
volts	V				
watts	W				

***REGIONAL INFORMANTION REPORT NO. 3A07-08***

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SAMPLING PROCEDURES FOR SCALE GUM CARDS  
AND MARK-SENSE DATA FORMS**

by  
James Bales and Larry DuBois  
Division of Commercial Fisheries, Anchorage

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

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

*James Bales and Larry DuBois,  
Alaska Department of Fish and Game, Division of Commercial Fisheries,  
333 Raspberry Road, Anchorage, AK 99518, USA*

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## ABSTRACT

Age, sex, and length (ASL) data are collected from thousands of Chinook *Oncorhynchus tshawytscha*, summer chum *O. keta*, fall chum *O. keta*, and coho salmon *O. kisutch* in the Yukon River drainage annually. ASL data are obtained from commercial and subsistence harvests, as well as test fisheries and escapement projects. This manual describes procedures recommended by the Alaska Department of Fish and Game, Division of Commercial Fisheries for sampling salmon in the Yukon River drainage. Project leaders and sampling crews will find this manual useful for collecting scales (age data) and completing mark sense forms.

Key words: ASL, salmon, Yukon River, Chinook, summer chum, fall chum, coho, age, sex, length, scale, gum card, mark sense form, *Oncorhynchus tshawytscha*, *O. keta*, *O. kisutch*.

## INTRODUCTION

This document provides general direction for sampling salmon for age, sex, and length data. Any project specific questions should be directed to the project leader.

With the recent declines in Yukon River salmon runs, management of these stocks is even more difficult. The collection of **quality** age (scale), sex, and length data is paramount. These data are essential to salmon resource management and are used for 1) forecasting run strength, 2) setting escapement goals, 3) examining the productivity of each system, 4) salmon growth analysis, 5) catch apportionment based on age composition and/or genetic stock analysis, 6) inseason run estimation, and 7) to gain a better understanding of the biology of each stock. To be useful, data collected must be neatly and accurately recorded on the mark sense forms and **scale samples neatly and correctly** mounted on gum cards. The procedures described in the following instructions are to be adhered to for all age, length and sex sampling of Yukon Area salmon.

### GENERAL INSTRUCTIONS

When handling commercial, subsistence, and test fish harvests, remember these fish are a food product of considerable value to the owners and as such should be treated carefully to avoid bruising or damaging skin or flesh, even if the owners aren't careful. **DO NOT LIFT FISH BY THE TAIL** without supporting the rest of the body to avoid popping the backbone. This breaks blood vessels along the spine and significantly lowers product quality. **Sex each fish** by carefully slitting the fish open to inspect the internal reproductive organs whenever possible or by examining external characteristics. Measure the length of the fish to the nearest **5 millimeters** as outlined in Figure 1.

### TAKING SCALE SAMPLES

1. When sampling Chinook and coho salmon take three (3) scales per fish. When sampling chum salmon take one (1) scale per fish.
2. Pluck the "preferred scale" from the fish using forceps. The preferred scale is located on the left side of the fish, two rows above the lateral line on the diagonal from the posterior insertion of the dorsal fin to the anterior insertion of the anal fin (Figure 1). If the preferred scale is missing, select a scale within the preferred area on either the left or right side of the fish. If no scales are present in the preferred area on either the left or right side and sufficient numbers of fish are available for sampling, disregard the fish. If the number of fish is limited and scales are absent in the preferred area on both sides, sample a scale as close to the preferred area as possible and darken the **8** under "Age Error Code" on the data form. This is

**VERY IMPORTANT** as non-preferred scales have different patterns than scales from the preferred area. See Figure 2 and 3 for examples of correct and incorrect scale mounting.

3. **Remove all slime, grit, and skin from the scale by moistening and rubbing between thumb and forefinger.** Moisten the **CLEAN** scale and mount it on the gummed card directly on top of the number “1” as shown in Figure 1. The easiest way to moisten a clean scale is to lick it (if the scales are not moistened properly they will fall off the cards after the first pressing or sooner). **IMPORTANT:** the side of the scale facing up on the gummed card should be the same as the side facing up when it was adhered to the fish. This outward facing side is referred to as the sculptured side of the scale, and the ridges on that side can be felt with a fingernail or forceps. There are no ridges on the other side of the scale and an inverted scale cannot be processed.
4. When sampling one (1) scale per fish, repeat steps 1 and 2 for up to 40 fish on each data form (Figure 4).
5. When taking three (3) scales/fish, sample the preferred scale and scale #2 and scale #3 as shown in Figure 5. Scale #2 is 1 inch to the left, and scale #3 is 1 inch to the right of the preferred scale. Both scales are two (2) rows above the lateral line. Mount all three scales from fish #1 over the numerals “1”, “11”, and “21” on the gummed card as shown in Figure 2. Continuing, mount the three scales from fish #2 over the numerals “2”, “12”, and “22”, and so on ...
6. Cover the completed gummed card with wax paper. Be sure the waxed side of the paper faces the gummed card. The latest batch of waxed papers is only waxed on ONE side. If the gummed card is very wet, it is best to let it dry as much as possible before covering loosely with the wax paper. Avoid squeezing the two layers together because the glue tends to ooze over and fills in the depressions on the sculpted side of the scale. If this happens, it is impossible to make a clear scale impression. If a card becomes too wet, the scales do not adhere and it is best to remount the card. **DO NOT** use slipsheets from between acetate cards in place of waxed papers because they are not waxed and will adhere strongly to even slightly moist gummed cards and the scales cannot be used.
7. When sampling under adverse conditions, i.e., rain, snow, live fish, etc., take extra care to keep the gummed card free of debris and fish slime.

## **SCALE GUM CARD FIELDS**

It is important to fill in all fields and use PENCIL only. Ink will transfer from scale gum cards to the pressing plates and to other pressed acetates requiring frequent cleaning of the plates.

### **SPECIES**

Record the entire name, e.g., Chinook, summer chum, fall chum, coho, sockeye, etc.

### **CARD NO.**

**This is a VERY important field and must be correct and correspond to the sex and length data.** The cards are numbered consecutively for a project and gear type throughout the entire season starting with 001. This number **MUST** correspond to the sex and length data. When sampling chum salmon there will be one scale gum card for each age, sex, and length (ASL)

form. When sampling Chinook salmon, there may be up to **4 scale gum cards per ASL form**. If there are multiple scale gum cards for an ASL form please follow the instructions given for completing the ASL form. Each scale gum card that goes with a certain ASL form **MUST** be noted on that ASL form. Each scale gum card corresponds to a block of 10 fish on the ASL form; write in the corresponding scale gum card number in the small white space above those 10 fish on the ASL form (Figure 5).

### **LOCALITY**

Use the location indicated in the “Description” header of the data form. If the samples are from a project with different gear types note that in this field. An example: Big Eddy Test Fish - Chinook gear.

### **STATISTICAL CODE**

Transfer the appropriate digits from the data form. The first five spaces are for the statistical area code (District and Subdistrict), the next three spaces are the stream code (which is blank for all Yukon Area projects) and the last three spaces are the location code. See Tables 1 and 2 for some of the codes and Figures 6 through 11 for maps with statistical codes. Examples: Pilot Station Sonar Project: 334-23-000-081 or Anvik Carcass: 334-47-000-064.

### **SAMPLING DATE**

Record the date of the sample. Start a new card each day even if the scale gum card is not full.

### **GEAR**

Transfer the appropriate gear type and mesh size or capture method, e.g., carcass, weir, etc.

### **COLLECTOR(S)**

Record the last name(s) of person(s) sampling, starting with the sampler who is pulling scales.

### **REMARKS**

Record any pertinent information such as number of scales per fish, special sampling conditions, special locations, subsistence fishers name, etc.

## **RECORDING DATA ON MARK SENSE FORMS**

Use a “*Rite in the Rain*” or other type of notebook to record the data in the field and transfer that data to the mark sense forms (ADF&G Adult Salmon Age-Length Form, Version 2.1) in a clean dry environment. Complete the top field and each section of the left side of the mark sense form using a **soft No. 1 or 2 PENCIL** and **darken** the corresponding ovals as shown (Figures 4 and 5). Make every effort to darken the entire oval as the optical scanner that reads and records the data from the mark sense forms often miss partially filled ovals.

A completed mark sense data form (ASL form) and accompanying scale gum card for sampling one scale per fish, e.g., lower Yukon commercial chum salmon catches, are shown in Figure 4. A completed data form and accompanying scale gum cards for sampling three, e.g. more than one, scale per fish as required for Chinook and coho salmon is shown in Figure 5.

Errors in coding and handling the forms are consistently made. Final processing of the forms can be greatly enhanced by adhering to the following points:

1. It is paramount to keep the mark sense forms flat, dry, and clean. Fish gurry and water damaged forms will not feed into the scanner or will cause data to be misinterpreted by the optical scanning machine. In general, keep the forms neat and legible enough to have a stranger be able to make sense of them.
2. **Ovals must be completely filled and darkened** to be properly scanned by the OPSCAN (optical scanning) machine. A single quick line through an oval is not sufficient. A #2 or softer pencil with a **DULL** point is the best tool for proper marking.
3. Write the pertinent information in the header spaces along the left edge of the AWL data form **and** fill in the appropriate ovals to facilitate reading the forms and correcting errors. Also, complete the Description field at the top of the form.
4. Any erasures of stray marks should be as complete as possible. Ideally, Whiteout can be used to cover up stray marks and mistakes.
5. Additional data columns are available on the reverse of the AWL form for individual project use. However, the OPSCAN machine can read data coded on the reverse side only if programs are written specific to that data format. Project leaders wishing to use these data columns should process the data themselves or seek the aid of a programmer to set up the OPSCAN machine to read the forms.
6. If your project does not use mark-sense forms, be sure to work with the Yukon Area Stock Biologist to ensure the data being collected is in a usable format.

## **EXPLANATION OF EACH FIELD ON THE MARK SENSE FORM**

*It is paramount to keep the mark sense forms flat, dry, and clean.*

### **DESCRIPTION**

Example for catch sampling:                   LOCATION/SPECIES/FISHERY/GEAR/YEAR  
   Ruby/Chinook/Y-4 Commercial/Fish Wheel/2006

Example for escapement sampling:   LOCATION/SPECIES/CAPTURE METHOD/YEAR  
   E.F. Andrafsky River/Chum/Weir Trap/2006

### **CARD**

The ASL data forms and corresponding scale gum card(s) are numbered sequentially by date throughout the season starting with 001. A separate numbering sequence will be used for each species, gear type, district, and geographic location. Chum (and sockeye) samples will usually have only one (1) scale gum card per ASL data form as shown in Figure 4. Coho and Chinook samples will contain up to four scale gum cards per ASL data form as shown in Figure 5. Mark the appropriate digits for the first card and print the starting card number followed by a dash and the ending card number for that ASL form. Also, write the corresponding scale gum card number in the narrow white margin to the left of or above each block of ten (10) fish (Figure 5).

## **SPECIES**

Refer to the reverse side of the ASL form for the correct number (Table 3).

## **DAY/MONTH/YEAR**

Use appropriate digits for the date the fish are sampled.

## **DISTRICT**

District code for all samples collected in the Yukon Area is **334**.

## **SUBDISTRICT**

Subdistrict code for fishery samples are based on the district and subdistrict the fishery is located in. For example, Emmonak is **10**, Galena north bank is **42**, and Fairbanks is **63**. Escapement samples are coded by the District that the stream drains into followed by a **zero (0)**. For example, Andreafsky River is **20** and Delta River is **60**. NOTE: at present, all Canadian Yukon River escapements are considered to be **50**. See Figures 6 through 11 for maps showing statistical areas.

## **STREAM**

The three-digit stream code is left **BLANK** for all fisheries and escapements in the Yukon Area.

## **LOCATION**

The location code (Tables 1 and 2) is unique for each stream and fishery. If you have specific proposals for the addition of new codes or modifications of old ones, please contact the Yukon River Salmon Stock Biologist in Anchorage.

Project leaders collecting samples at different locations within an escapement stream may want to write the mileposts in the description header at the top of the form, or in their field notes. The present system does not allow you to create your own location codes.

## **PERIOD**

Enter the appropriate fishing period. Consult the project leader if you do not know the number for the current fishery opening. This is used for commercial fisheries only.

## **PROJECT**

Refer to the reverse side of the data form for the correct code (Table 3).

## **GEAR**

Refer to the reverse side of the ASL data form.

## **MESH**

Gillnet mesh sizes are commonly referred to in inches and fractions. On the ASL data form, mesh sizes should be coded as “**INCHES**” (top row) for the first digit and “**DECIMALS**” (bottom row) of an inch for the second digit. The fractional mesh sizes should be converted to decimal form: i.e.,

5-1/8 inch mesh (5.125) is **5.1**,

5-1/4 inch mesh (5.25) is **5.3**,

5-3/8 inch mesh (5.375) is **5.4**,  
5-1/2 inch mesh is **5.5**,  
5-5/8 inch mesh (5.625) is **5.6**,  
5-3/4 inch mesh (5.75) is **5.8**,  
5-7/8 inch mesh (5.875) is **5.9**,  
and 6 inch mesh is **6.0**.

### **TYPE OF LENGTH MEASUREMENT**

Use code **2** (mideye to tail fork) unless specifically instructed otherwise (Figure 1).

### **NUMBER OF SCALES/FISH**

Record the number of scales taken from each fish (e.g. three scales per Chinook and coho salmon and one scale per chum salmon).

### **NUMBER OF CARDS**

Mark the number of scale gum cards which will have corresponding data recorded on the form. Typically, one (1) card per ASL data form for chum salmon and four (4) cards per fully completed ASL data form for Chinook and coho salmon.

### **SEX**

Mark the sex for each fish sampled. M is for male and F is for female.

### **LENGTH**

Record the length by blackening the appropriate column on the data form. For fish under 999 mm fill in the 100's, 10's and 1's with the corresponding value. If the fish is over 999 mm use the column directly following the sex column to record the 1,000's place.

### **AGE GROUP**

Used by the individual aging the fish

### **ERROR CODE**

Mark an eight (8) in this field if the scale(s) was NOT taken from the preferred area. The individual aging the fish also uses this field.

## **COMMON AND REOCCURRING PROBLEMS**

1. Incomplete and incorrect written information on mark-sense data forms, including description and header columns.
2. Ovals not filled in on mark-sense forms or not corresponding correctly to written information.
3. Ovals filled in too lightly or incompletely, which causes the scanner to misread these data.
4. Torn, messy and wrinkled mark-sense forms.

5. Sequential numbered order of scale gum cards and mark-sense forms not followed throughout the season by sampling location and species. For example, scale gum cards and their corresponding mark-sense forms incorrectly numbered 001 at the start of each new sample day.
6. Incomplete and incorrect information on scale gum cards and not matching the corresponding mark-sense form.
7. More than one date's scales on a single scale gum card.
8. Mounting dirty and damaged scales.
9. Rain-soaked and damaged scale gum cards, frequently with the waxed paper inserts stuck to the scale gum card.
10. Scales incorrectly mounted, such as, inverted, illegible, missing and orientated incorrectly.
11. Using ink or felt pen to fill out gum cards or mark-sense forms, this causes the ink to smear when pressing; use pencil only.



## **TABLES AND FIGURES**

**Table 1.**—Location codes for the Yukon Area in numeric order.

District	Subdistrict	Stream	Location	Location
334	10	-	55	Alstrom Slough
334	10	-	56	Flat Island
334	14	-	57	Big Eddy
334	10	-	58	Alukanuk
334	15	-	59	Middle Mouth
334	10	-	60	North Mouth
334	20	-	61	St. Marys
334	21	-	62	Mountain Village
334	20	-	63	Andreafsky River, West Fork
334	44	-	64	Anvik River
334		-	65	Nulato River
334	63	-	66	Chena River
334	63	-	67	Salcha River
334	60	-	68	Goodpaster River
334	50	-	69	Dawson, Y.T., Canada
334		-	70	Whitehorse, Y.T., Canada
334	20	-	71	Andreafsky River, East Fork
334		-	72	Teslin, B.C., Canada
334	25	-	73	Marshall
334		-	74	Ingrihak
334		-	75	Ohogamiut
334		-	76	Russian Mission
334		-	77	Dogfish Village
334		-	78	Paimiut
334		-	79	Holy Cross
334	10	-	80	Emmonak
334	20	-	81	Pilot Station
334		-	82	Big Salmon River
334	44	-	83	Anvik Bluff
334	45	-	84	Grayling
334	46	-	85	Nulato
334	42	-	86	Galena
334	46	-	87	Kaltag
334	61	-	88	Manley
334	60	-	89	Delta River
334	60	-	90	Fairbanks
334	62	-	91	Nenana
334	52	-	92	Tanana
334	53	-	93	Rampart
334		-	94	Fort Yukon
334	43	-	95	Ruby
334	40	-	96	Stevens Village
334		-	97	Circle
334	55	-	98	Eagle
334	50	-	99	Fishing Branch River
334	54	-	100	Sheenjek River
334	52	-	101	Rampart Rapids
334	53	-	102	Haul Road Bridge
334		-	103	Barton Creek
334		-	123	Lower Yukon
334	11	-	150	Hooper Bay Tagging
334	30	-	151	Innoka River
334	10	-	199	Yukon Subdistrict 1
334	46	-	200	Kateel River
334	40	-	201	Gisasa River
334	61	-	202	Toklat River
334	40	-	203	Melozitna River
334	50	-	204	Porcupine River
334		-	205	Delta Clearwater River
334	40	-	206	Clear Creek Hatchery

-continued-

Table 1.–Page 2 of 2.

District	Subdistrict	Stream	Location	Location
334	40	-	207	Jim River
334	42	-	208	Koyukuk River
334	63	-	209	Chatanika, Bluff Cabin Slough
334	50	-	210	Chandalar River
334	40	-	211	Henshaw Creek
334	20	-	212	Chulitna River
334	40	-	213	Rodo River
334	52	-	214	Tozitna River
334	63	-	215	Tanana River (near Timber)
334	62	-	216	Nenana River (Otter Creek)
334	41	-	220	Stink Creek
334		-	221	Fish Village
334		-	222	Hughes
334		-	223	Huslia
334		-	224	Alakaket
334		-	225	Alatna
334		-	226	Kaltag River
334	40	-	227	Clear Creek
334	20	-	299	Yukon Subdistrict 2
334	50	-	300	Little Salmon River
334	50	-	301	Nisutlin River
334	50	-	302	Swift River
334	50	-	303	Michie Creek
334	50	-	304	Tatchun Creek
334	50	-	305	Ross River
334	50	-	306	Nordenskjold River
334	50	-	307	Yukon Crossing, Y.T., Canada
334	50	-	308	Takhini River
334		-	309	Koidern River
334	50	-	310	Wolf River
334	50	-	311	Morley Creek
334		-	312	Blind Creek
334	50	-	313	Pelly River
334	50	-	314	Bear Feed Creek
334		-	315	Klondike River
334	50	-	316	McQuesten River
334	50	-	320	Y.R.B.S. Tagging site
334	50	-	321	Ingersoll Islands, Y.T., Canada
334	50	-	322	Kluane River
334	50	-	323	Minto
334		-	324	Fort Selkirk, Y.T., Canada
334	50	-	325	Sheep Rock
334	50	-	326	Cassiar Creek
334	50	-	327	Cliff Creek
334	50	-	328	White Rock
334	50	-	329	Moose Rock
334	30	-	399	Yukon Subdistrict 3
334		-	456	Upper Yukon
334	46	-	461	Halfway Island
334	46	-	462	Ninemile Island
334	46	-	463	Last Chance
334	46	-	464	Bishop Rock
334	40	-	499	Yukon Subdistrict 4
334	50	-	502	Caribou Creek
334	50	-	503	Carmacks Fisheries Site
334	50	-	504	Stewart River
334	50	-	505	Bear River
334	50	-	506	Old Crow
334	50	-	599	Yukon Subdistrict 5
334	60	-	699	Yukon Subdistrict 6

**Table 2.**—Location codes for the Yukon Area in alphabetic order.

District	Subdistrict	Stream	Location	Location
334		-	224	Alakaket
334		-	225	Alatna
334	10	-	55	Alstrom Slough
334	10	-	58	Alukanuk
334	20	-	71	Andreafsky River, East Fork
334	20	-	63	Andreafsky River, West Fork
334	44	-	83	Anvik Bluff
334	44	-	64	Anvik River
334		-	103	Barton Creek
334	50	-	314	Bear Feed Creek
334	50	-	505	Bear River
334	14	-	57	Big Eddy
334		-	82	Big Salmon River
334	46	-	464	Bishop Rock
334		-	312	Blind Creek
334	50	-	502	Caribou Creek
334	50	-	503	Carmacks Fisheries Site
334	50	-	326	Cassiar Creek
334	50	-	210	Chandalar River
334	63	-	209	Chatanika, Bluff Cabin Slough
334	63	-	66	Chena River
334	20	-	212	Chulitna River
334		-	97	Circle
334	40	-	227	Clear Creek
334	40	-	206	Clear Creek Hatchery
334	50	-	327	Cliff Creek
334	50	-	69	Dawson, Y.T., Canada
334		-	205	Delta Clearwater River
334	60	-	89	Delta River
334		-	77	Dogfish Village
334	55	-	98	Eagle
334	10	-	80	Emmonak
334	60	-	90	Fairbanks
334		-	221	Fish Village
334	50	-	99	Fishing Branch River
334	10	-	56	Flat Island
334		-	324	Fort Selkirk, Y.T., Canada
334		-	94	Fort Yukon
334	42	-	86	Galena
334	40	-	201	Gisasa River
334	60	-	68	Goodpaster River
334	45	-	84	Grayling
334	46	-	461	Halfway Island
334	53	-	102	Haul Road Bridge
334	40	-	211	Henshaw Creek
334		-	79	Holy Cross
334	11	-	150	Hooper Bay Tagging
334		-	222	Hughes
334		-	223	Huslia
334	50	-	321	Ingersoll Islands, Y.T., Canada
334		-	74	Ingrihak
334	30	-	151	Innoka River
334	40	-	207	Jim River
334	46	-	87	Kaltag
334		-	226	Kaltag River
334	46	-	200	Kateel River
334		-	315	Klondike River
334	50	-	322	Kluane River
334		-	309	Koidern River
334	42	-	208	Koyukuk River

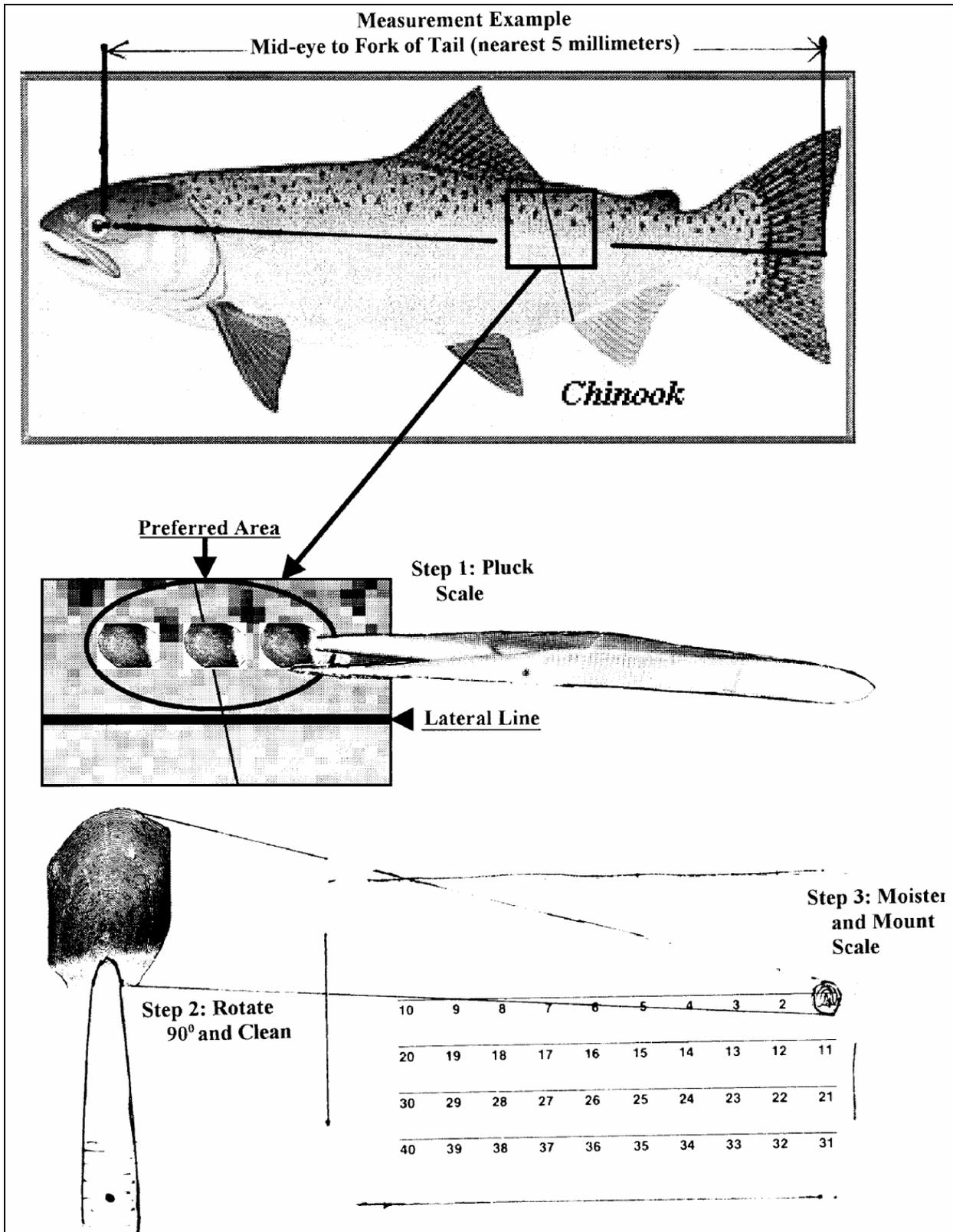
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Table 2.–Page 2 of 2.

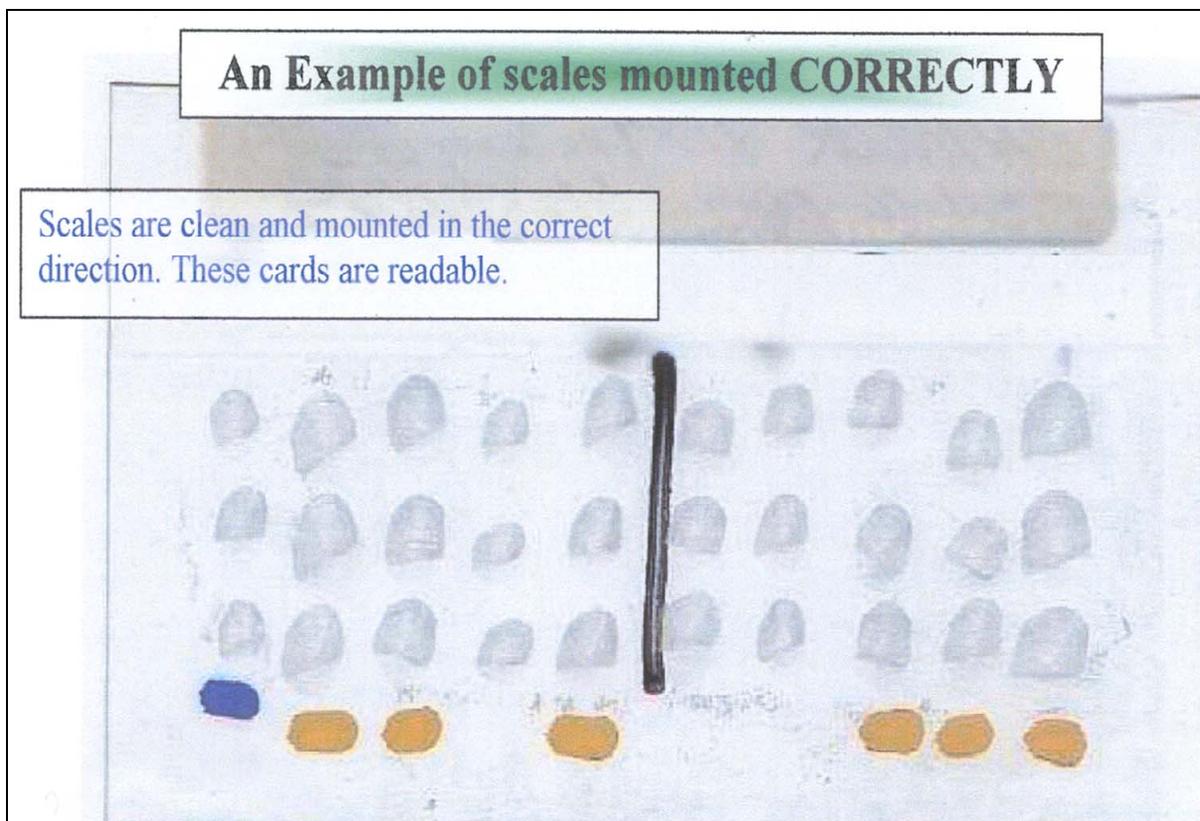
District	Subdistrict	Stream	Location	Location
334	46	-	463	Last Chance
334	50	-	300	Little Salmon River
334		-	123	Lower Yukon
334	61	-	88	Manley
334	25	-	73	Marshall
334	50	-	316	McQuesten River
334	40	-	203	Melozitna River
334	50	-	303	Michie Creek
334	15	-	59	Middle Mouth
334	50	-	323	Minto
334	50	-	329	Moose Rock
334	50	-	311	Morley Creek
334	21	-	62	Mountain Village
334	62	-	91	Nenana
334	62	-	216	Nenana River (Otter Creek)
334	46	-	462	Ninemile Island
334	50	-	301	Nisutlin River
334	50	-	306	Nordenskjold River
334	10	-	60	North Mouth
334	46	-	85	Nulato
334		-	65	Nulato River
334		-	75	Ohogamiut
334	50	-	506	Old Crow
334		-	78	Paimiut
334	50	-	313	Pelly River
334	20	-	81	Pilot Station
334	50	-	204	Porcupine River
334	53	-	93	Rampart
334	52	-	101	Rampart Rapids
334	40	-	213	Rodo River
334	50	-	305	Ross River
334	43	-	95	Ruby
334		-	76	Russian Mission
334	63	-	67	Salcha River
334	54	-	100	Sheenjek River
334	50	-	325	Sheep Rock
334	20	-	61	St. Marys
334	40	-	96	Stevens Village
334	50	-	504	Stewart River
334	41	-	220	Stink Creek
334	50	-	302	Swift River
334	50	-	308	Takhini River
334	52	-	92	Tanana
334	63	-	215	Tanana River (near Timber)
334	50	-	304	Tatchun Creek
334		-	72	Teslin, B.C., Canada
334	61	-	202	Toklat River
334	52	-	214	Tozitna River
334		-	456	Upper Yukon
334	50	-	328	White Rock
334		-	70	Whitehorse, Y.T., Canada
334	50	-	310	Wolf River
334	50	-	320	Y.R.B.S. Tagging site
334	50	-	307	Yukon Crossing, Y.T., Canada
334	10	-	199	Yukon Subdistrict 1
334	20	-	299	Yukon Subdistrict 2
334	30	-	399	Yukon Subdistrict 3
334	40	-	499	Yukon Subdistrict 4
334	50	-	599	Yukon Subdistrict 5
334	60	-	699	Yukon Subdistrict 6

**Table 3.**—Code guidelines for age, sex, and length (ASL) forms.

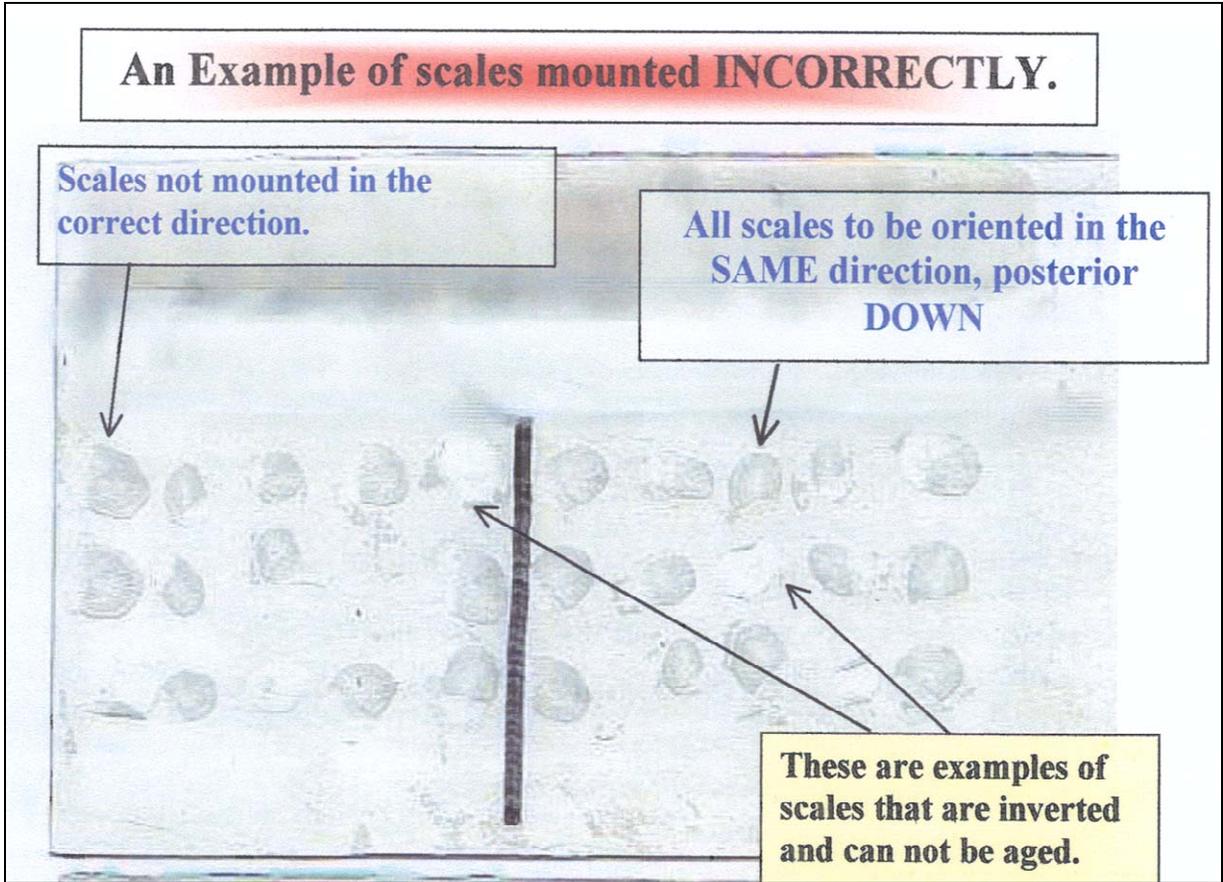
<b>Species</b>	<b>Project</b>
1-Chinook (king)	1-Commercial Catch
2-Sockeye (red)	2-Subsistence Catch
3-Coho (silver)	3-Escapement (tower, weir, sonar, etc.)
4-Pink (humpy)	4-Spawning Ground Escapement
5-Chum (dog)	5-Test Fishing
	6-Sport Fish, Marine
	7-Sport Fish, Freshwater
<b>Gear Type</b>	
0-Trap	9-Pots
1-Purse Seine	10-Sport Fish
2-Beach Seine	11-Herring Purse Seine
3-Drift Gillnet	12-Handpick
4-Set Gillnet	13-Dip Net
5-Troll	14-16-Unassigned
6-Long Line	17-Beam Trawl
7-Otter Trawl	18-Shovels
8-Fishwheel	20-99-Unassigned
<b>Length Type</b>	
1-Tip of snout to fork of tail	4-Mid-eye to hypural plate
2-Mid-eye to fork of tail	5-Post orbit to hypural plate
3-Post orbit to fork of tail	6-Unassigned



**Figure 1.**—Length measurement, preferred scale area, and scale mounting orientation.



**Figure 2.**—Acetate with properly mounted scales.



**Figure 3.**—Acetate with improperly mounted scales.

DESCRIPTION: District 1 / Commercial / Unrestricted / 2000      ADF&G ADULT SALMON AGE-LENGTH FORM VERSION 2.1

<p>CARD: <u>001</u></p> <p>SPECIES: <u>S</u></p> <p>DAY: <u>28</u></p> <p>MONTH: <u>6</u></p> <p>YEAR: <u>2000</u> (Leave Blank)</p> <p>DISTRICT: <u>334</u></p> <p>SUBDISTRICT: <u>10</u></p> <p>STREAM:</p> <p>LOCATION: <u>080</u></p> <p>PERIOD: <u>01</u></p> <p>PROJECT: <u>1</u></p> <p>GEAR: <u>03</u></p> <p>MESH: <u>8.5</u></p> <p>TYPE OF LENGTH MEASUREMENT: <u>2</u></p> <p>NUMBER SCALES/FISH: <u>1</u></p> <p># OF CARDS: <u>1</u></p>	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>#</th> <th>SEX</th> <th>100's</th> <th>LENGTH</th> <th>1's</th> <th>AGE GROUP</th> <th>AGE ERROR CODE</th> </tr> </thead> <tbody> <tr><td>1</td><td>F</td><td>01</td><td>0123456789</td><td>0123456789</td><td>01234</td><td>012345678</td></tr> <tr><td>2</td><td>M</td><td>10</td><td>10123456789</td><td>0123456789</td><td>01234</td><td>012345678</td></tr> <tr><td>3</td><td>M</td><td>10</td><td>10123456789</td><td>0123456789</td><td>01234</td><td>012345678</td></tr> <tr><td>4</td><td>F</td><td>10</td><td>10123456789</td><td>0123456789</td><td>01234</td><td>012345678</td></tr> <tr><td>5</td><td>M</td><td>10</td><td>10123456789</td><td>0123456789</td><td>01234</td><td>012345678</td></tr> <tr><td>6</td><td>M</td><td>10</td><td>10123456789</td><td>0123456789</td><td>01234</td><td>012345678</td></tr> <tr><td>7</td><td>M</td><td>10</td><td>10123456789</td><td>0123456789</td><td>01234</td><td>012345678</td></tr> <tr><td>8</td><td>F</td><td>10</td><td>10123456789</td><td>0123456789</td><td>01234</td><td>012345678</td></tr> <tr><td>9</td><td>F</td><td>10</td><td>10123456789</td><td>0123456789</td><td>01234</td><td>012345678</td></tr> <tr><td>10</td><td>F</td><td>10</td><td>10123456789</td><td>0123456789</td><td>01234</td><td>012345678</td></tr> <tr><td>11</td><td>F</td><td>10</td><td>10123456789</td><td>0123456789</td><td>01234</td><td>012345678</td></tr> <tr><td>12</td><td>F</td><td>10</td><td>10123456789</td><td>0123456789</td><td>01234</td><td>012345678</td></tr> <tr><td>13</td><td>M</td><td>10</td><td>10123456789</td><td>0123456789</td><td>01234</td><td>012345678</td></tr> <tr><td>14</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>15</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>16</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>17</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>18</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>19</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>20</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>21</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>22</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>23</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>24</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>25</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>26</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>27</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>28</td><td>M</td><td>F</td><td>10</td><td>10123456789</td><td>01234</td><td>012345678</td></tr> <tr><td>29</td><td>M</td><td>F</td><td>10</td><td>10123456789</td><td>01234</td><td>012345678</td></tr> <tr><td>30</td><td>M</td><td>F</td><td>10</td><td>10123456789</td><td>01234</td><td>012345678</td></tr> <tr><td>31</td><td>M</td><td>F</td><td>10</td><td>10123456789</td><td>01234</td><td>012345678</td></tr> <tr><td>32</td><td>M</td><td>F</td><td>10</td><td>10123456789</td><td>01234</td><td>012345678</td></tr> <tr><td>33</td><td>M</td><td>F</td><td>10</td><td>10123456789</td><td>01234</td><td>012345678</td></tr> <tr><td>34</td><td>M</td><td>F</td><td>10</td><td>10123456789</td><td>01234</td><td>012345678</td></tr> <tr><td>35</td><td>M</td><td>F</td><td>10</td><td>10123456789</td><td>01234</td><td>012345678</td></tr> <tr><td>36</td><td>M</td><td>F</td><td>10</td><td>10123456789</td><td>01234</td><td>012345678</td></tr> <tr><td>37</td><td>M</td><td>F</td><td>10</td><td>10123456789</td><td>01234</td><td>012345678</td></tr> <tr><td>38</td><td>M</td><td>F</td><td>10</td><td>10123456789</td><td>01234</td><td>012345678</td></tr> <tr><td>39</td><td>M</td><td>F</td><td>10</td><td>10123456789</td><td>01234</td><td>012345678</td></tr> <tr><td>40</td><td>M</td><td>F</td><td>10</td><td>10123456789</td><td>01234</td><td>012345678</td></tr> </tbody> </table> <table style="width: 100%; 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Code: <u>334-10--080</u></p> <p>Sampling Date: Mo. <u>6</u> Day <u>28</u> Year <u>2000</u></p> <p>Gear: <u>Unrestricted mesh</u></p> <p>Collector(s): <u>Stalona, Swenson, Bush</u></p> <p>Remarks: <u>1-scale per fish</u></p>	#	SEX	100's	LENGTH	1's	AGE GROUP	AGE ERROR CODE	1	F	01	0123456789	0123456789	01234	012345678	2	M	10	10123456789	0123456789	01234	012345678	3	M	10	10123456789	0123456789	01234	012345678	4	F	10	10123456789	0123456789	01234	012345678	5	M	10	10123456789	0123456789	01234	012345678	6	M	10	10123456789	0123456789	01234	012345678	7	M	10	10123456789	0123456789	01234	012345678	8	F	10	10123456789	0123456789	01234	012345678	9	F	10	10123456789	0123456789	01234	012345678	10	F	10	10123456789	0123456789	01234	012345678	11	F	10	10123456789	0123456789	01234	012345678	12	F	10	10123456789	0123456789	01234	012345678	13	M	10	10123456789	0123456789	01234	012345678	14							15							16							17							18							19							20							21							22							23							24							25							26							27							28	M	F	10	10123456789	01234	012345678	29	M	F	10	10123456789	01234	012345678	30	M	F	10	10123456789	01234	012345678	31	M	F	10	10123456789	01234	012345678	32	M	F	10	10123456789	01234	012345678	33	M	F	10	10123456789	01234	012345678	34	M	F	10	10123456789	01234	012345678	35	M	F	10	10123456789	01234	012345678	36	M	F	10	10123456789	01234	012345678	37	M	F	10	10123456789	01234	012345678	38	M	F	10	10123456789	01234	012345678	39	M	F	10	10123456789	01234	012345678	40	M	F	10	10123456789	01234	012345678	10	9	8	7	6	5	4	3	2	1	20	19	18	17	16	15	14	13	12	11	30	29	28	27	26	25	24	23	22	21	40	39	38	37	36	35	34	33	32	31
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Figure 4.—ASL data form when collecting one scale per fish.

DESCRIPTION: E. F. Andreatsky / Weir / Chinook / 2000

ADF&G ADULT SALMON AGE-LENGTH  
FORM VERSION 2.1

<p>CARD: <u>001-002</u></p> <p>SPECIES: <u>1</u></p> <p>DAY: <u>04</u></p> <p>MONTH: <u>07</u></p> <p>YEAR: <u>2000</u></p> <p>DISTRICT: <u>334</u></p> <p>SUBDISTRICT: <u>20</u></p> <p>STREAM:</p> <p>LOCATION: <u>071</u></p> <p>PERIOD:</p> <p>PROJECT: <u>3</u></p> <p>GEAR: <u>19</u></p> <p>MESH:</p> <p>TYPE OF LENGTH MEASUREMENT: <u>2</u></p> <p>NUMBER SCALES/FISH: <u>3</u></p> <p># OF CARDS: <u>2</u></p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>#</th> <th>SEX</th> <th>100's</th> <th>LENGTH</th> <th>1's</th> </tr> </thead> <tbody> <tr><td>1</td><td>F</td><td>01</td><td>0123456789</td><td>0123456789</td></tr> <tr><td>2</td><td>F</td><td>10</td><td>0123456789</td><td>0123456789</td></tr> <tr><td>3</td><td>F</td><td>01</td><td>0123456789</td><td>0123456789</td></tr> <tr><td>4</td><td>M</td><td>02</td><td>0123456789</td><td>0123456789</td></tr> <tr><td>5</td><td>F</td><td>10</td><td>0123456789</td><td>0123456789</td></tr> <tr><td>6</td><td>M</td><td>10</td><td>0123456789</td><td>0123456789</td></tr> <tr><td>7</td><td>M</td><td>10</td><td>0123456789</td><td>0123456789</td></tr> <tr><td>8</td><td>M</td><td>10</td><td>0123456789</td><td>0123456789</td></tr> <tr><td>9</td><td>M</td><td>10</td><td>0123456789</td><td>0123456789</td></tr> <tr><td>10</td><td>F</td><td>10</td><td>0123456789</td><td>0123456789</td></tr> <tr><td>11</td><td>F</td><td>10</td><td>0123456789</td><td>0123456789</td></tr> <tr><td>12</td><td>M</td><td>01</td><td>0123456789</td><td>0123456789</td></tr> <tr><td>13</td><td>F</td><td>10</td><td>0123456789</td><td>0123456789</td></tr> <tr><td>14</td><td>F</td><td>10</td><td>0123456789</td><td>0123456789</td></tr> <tr><td>15</td><td>M</td><td>10</td><td>0123456789</td><td>0123456789</td></tr> <tr><td>16</td><td>M</td><td>10</td><td>0123456789</td><td>0123456789</td></tr> <tr><td>17</td><td>M</td><td>10</td><td>0123456789</td><td>0123456789</td></tr> <tr><td>18</td><td>M</td><td>10</td><td>0123456789</td><td>0123456789</td></tr> <tr><td>19</td><td></td><td></td><td></td><td></td></tr> <tr><td>20</td><td></td><td></td><td></td><td></td></tr> <tr><td>21</td><td></td><td></td><td></td><td></td></tr> <tr><td>22</td><td></td><td></td><td></td><td></td></tr> <tr><td>23</td><td></td><td></td><td></td><td></td></tr> <tr><td>24</td><td></td><td></td><td></td><td></td></tr> <tr><td>25</td><td></td><td></td><td></td><td></td></tr> <tr><td>26</td><td></td><td></td><td></td><td></td></tr> <tr><td>27</td><td></td><td></td><td></td><td></td></tr> <tr><td>28</td><td></td><td></td><td></td><td></td></tr> <tr><td>29</td><td></td><td></td><td></td><td></td></tr> <tr><td>30</td><td>M</td><td>F</td><td>10</td><td>0123456789</td></tr> <tr><td>31</td><td></td><td></td><td></td><td></td></tr> <tr><td>32</td><td></td><td></td><td></td><td></td></tr> <tr><td>33</td><td></td><td></td><td></td><td></td></tr> <tr><td>34</td><td></td><td></td><td></td><td></td></tr> <tr><td>35</td><td></td><td></td><td></td><td></td></tr> <tr><td>36</td><td></td><td></td><td></td><td></td></tr> <tr><td>37</td><td></td><td></td><td></td><td></td></tr> <tr><td>38</td><td></td><td></td><td></td><td></td></tr> <tr><td>39</td><td></td><td></td><td></td><td></td></tr> <tr><td>40</td><td></td><td></td><td></td><td></td></tr> </tbody> </table>	#	SEX	100's	LENGTH	1's	1	F	01	0123456789	0123456789	2	F	10	0123456789	0123456789	3	F	01	0123456789	0123456789	4	M	02	0123456789	0123456789	5	F	10	0123456789	0123456789	6	M	10	0123456789	0123456789	7	M	10	0123456789	0123456789	8	M	10	0123456789	0123456789	9	M	10	0123456789	0123456789	10	F	10	0123456789	0123456789	11	F	10	0123456789	0123456789	12	M	01	0123456789	0123456789	13	F	10	0123456789	0123456789	14	F	10	0123456789	0123456789	15	M	10	0123456789	0123456789	16	M	10	0123456789	0123456789	17	M	10	0123456789	0123456789	18	M	10	0123456789	0123456789	19					20					21					22					23					24					25					26					27					28					29					30	M	F	10	0123456789	31					32					33					34					35					36					37					38					39					40					<p>AGE GROUP</p> <p>AGE ERROR CODE</p> <p>Species: <u>Chinook</u> Card No. <u>001</u></p> <p>Locality: <u>E. F. Andreatsky</u></p> <p>Stat. Code: <u>334-20-071</u></p> <p>Sampling Date: Mo. <u>7</u> Day <u>4</u> Year <u>00</u></p> <p>Gear: <u>Weir</u></p> <p>Collector(s): <u>Sandone, Clinton, Cruise</u></p> <p>Remarks: <u>3 scales per card</u></p>
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Figure 5.—ASL data form when collecting three scales per fish.

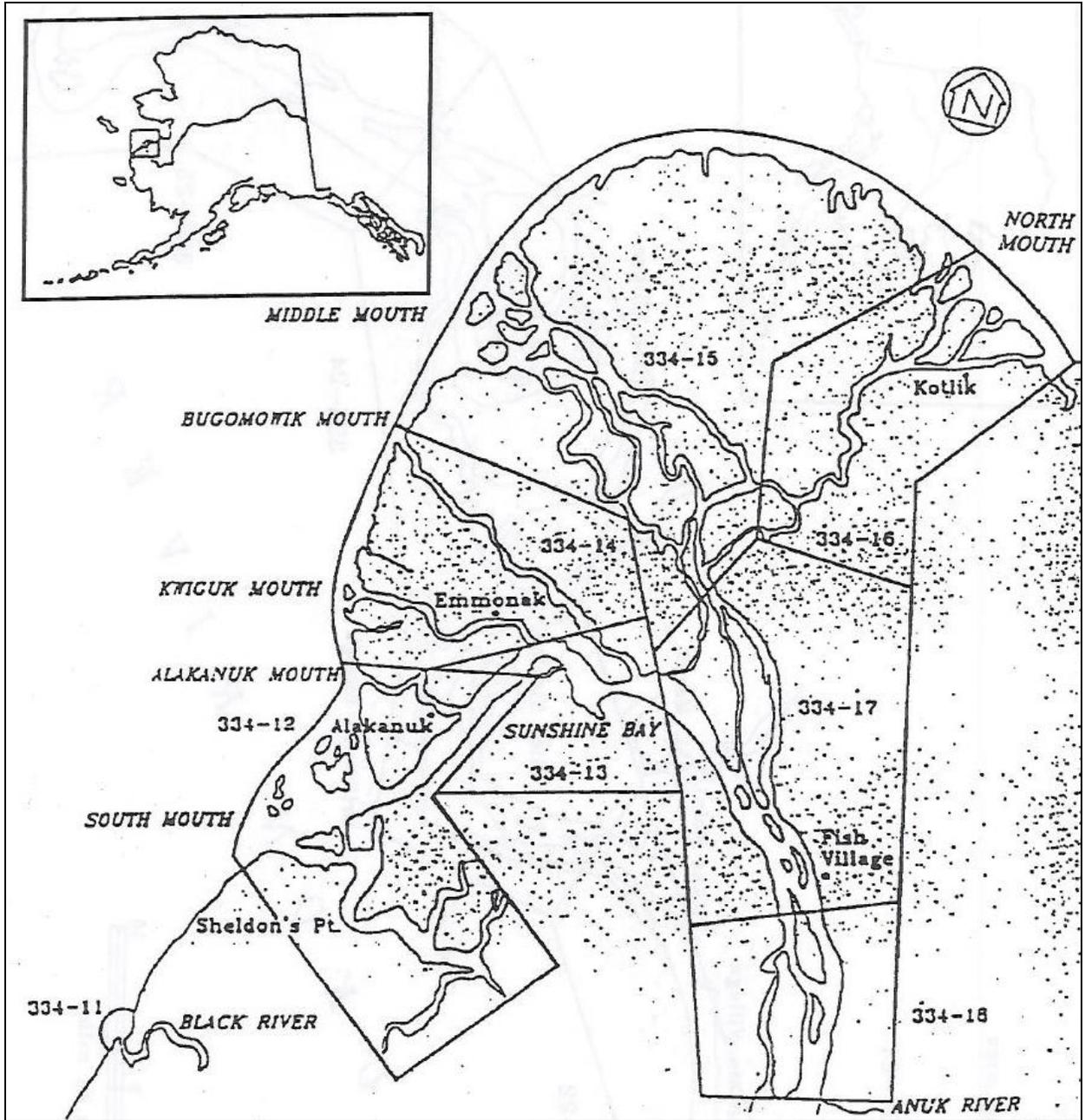


Figure 6.—District 1 showing statistical areas, Yukon Area.

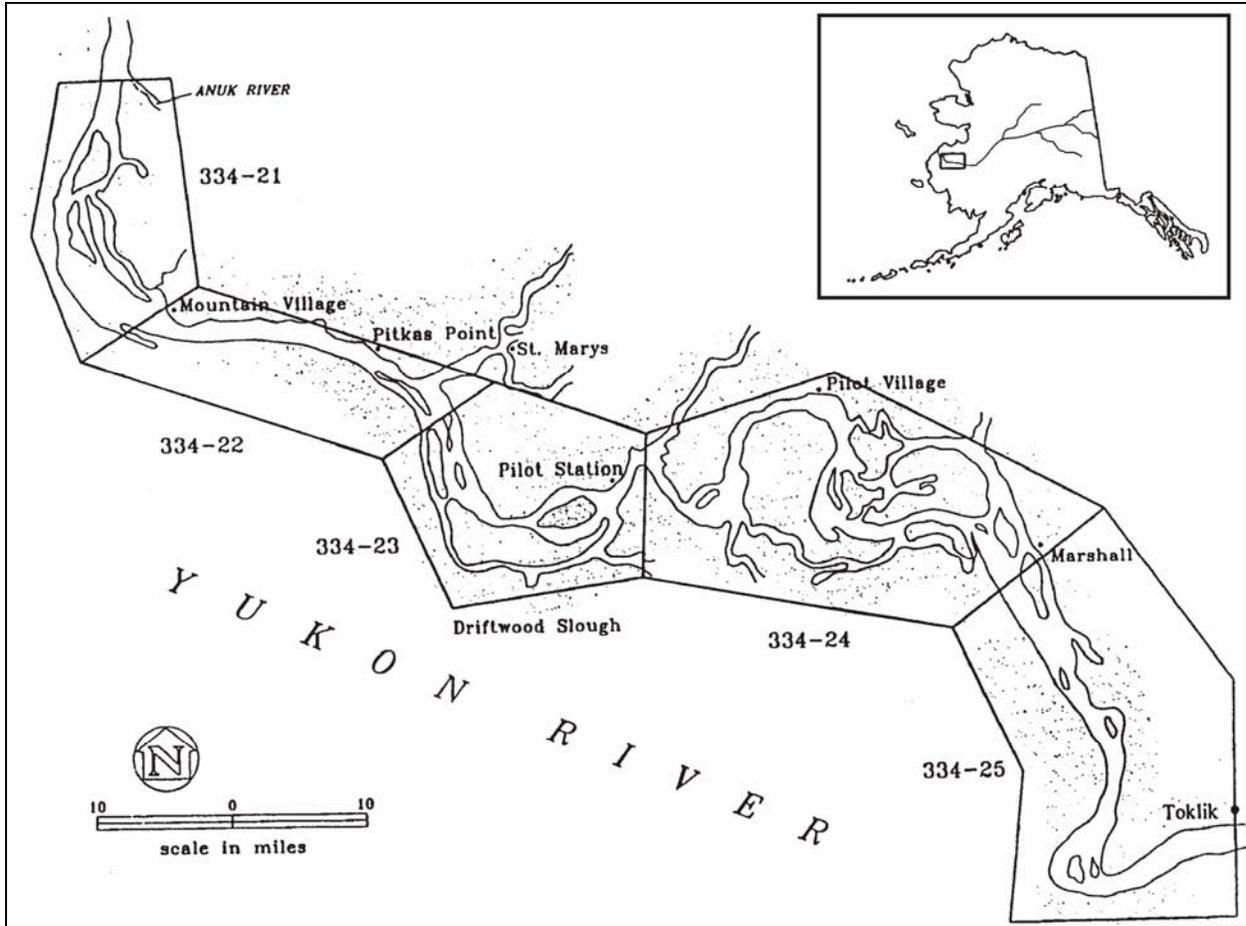
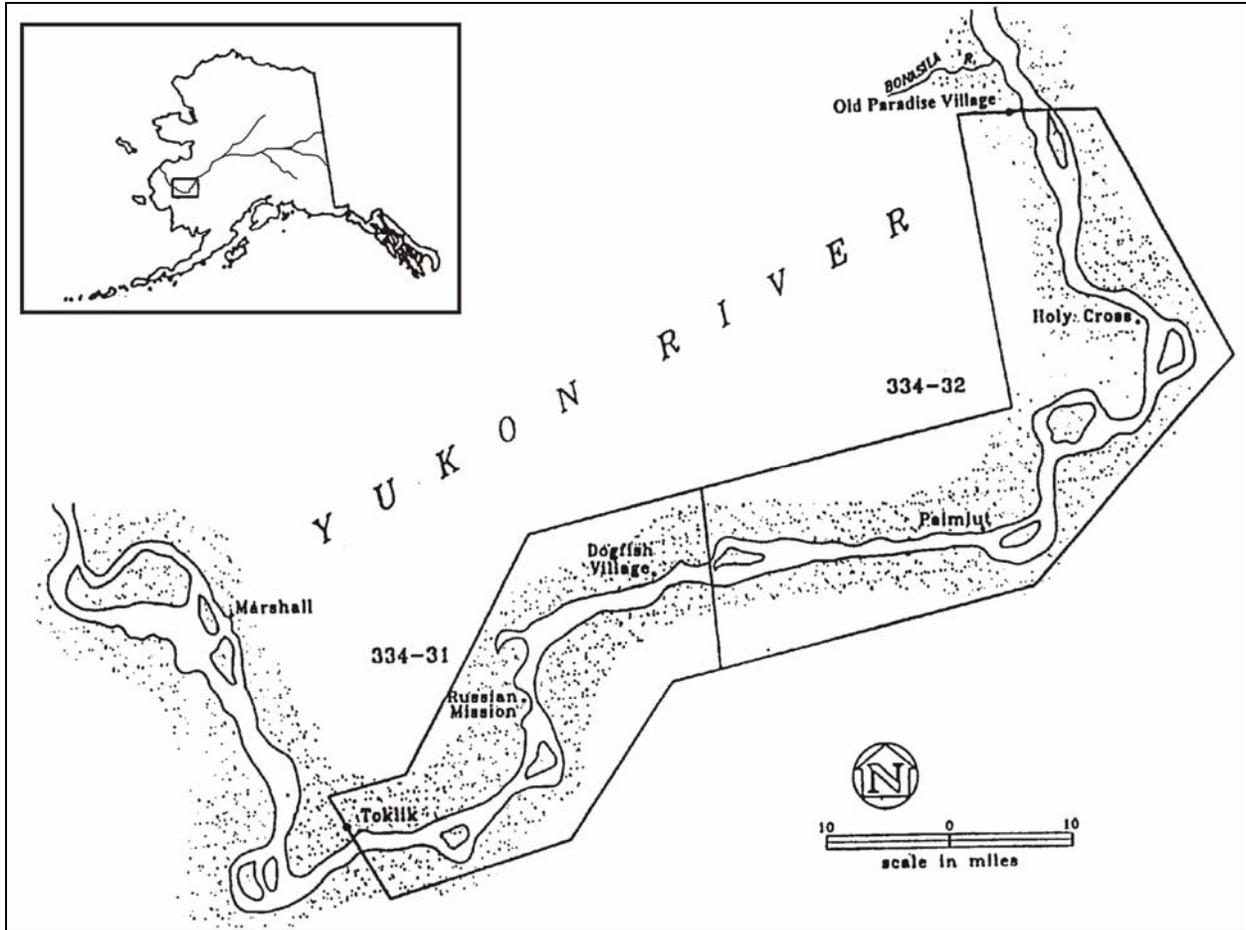


Figure 7.—District 2 showing statistical areas, Yukon Area.



**Figure 8.**—District 3 showing statistical areas, Yukon Area.

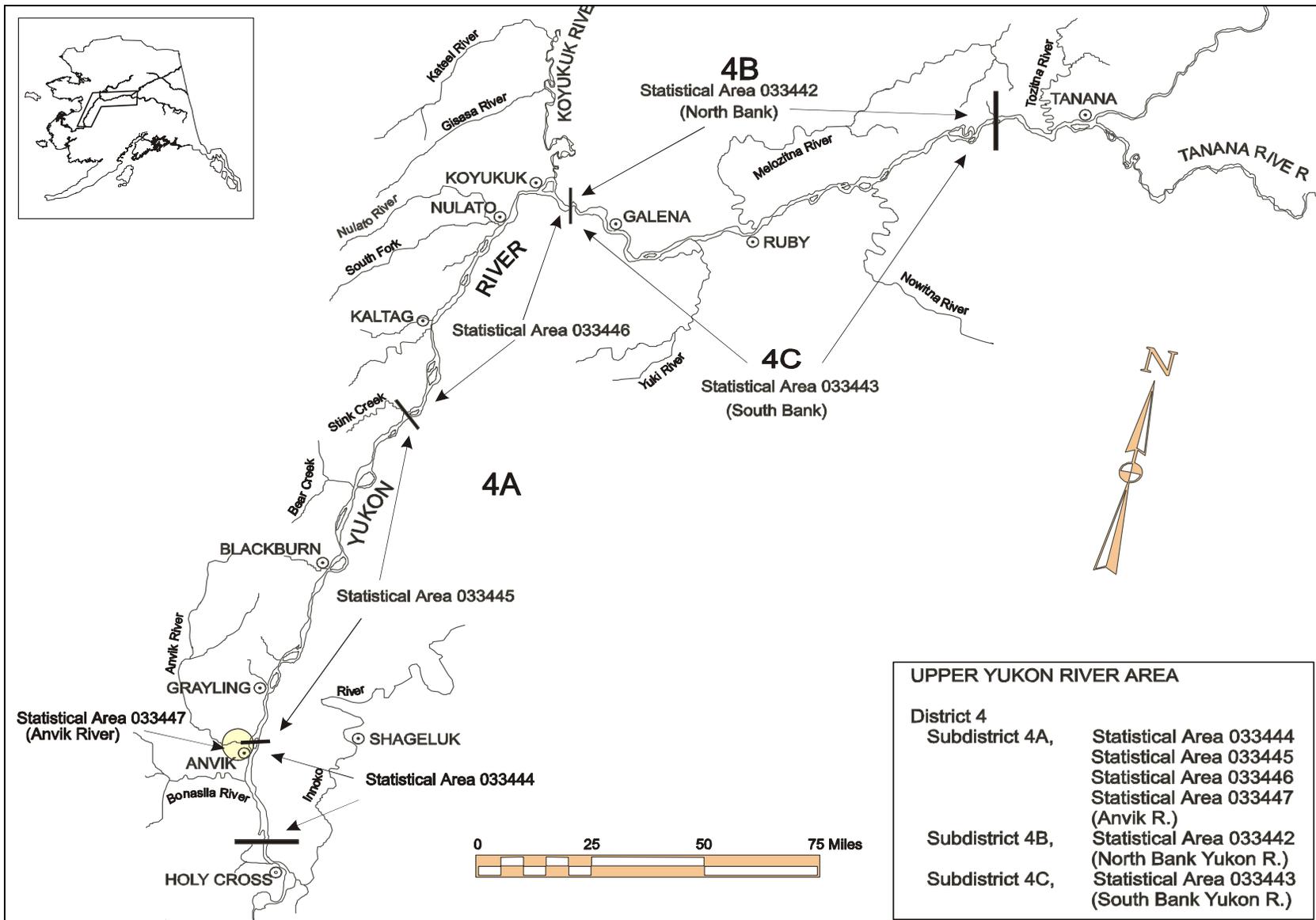


Figure 9.—District 4 showing statistical areas, Yukon Area.

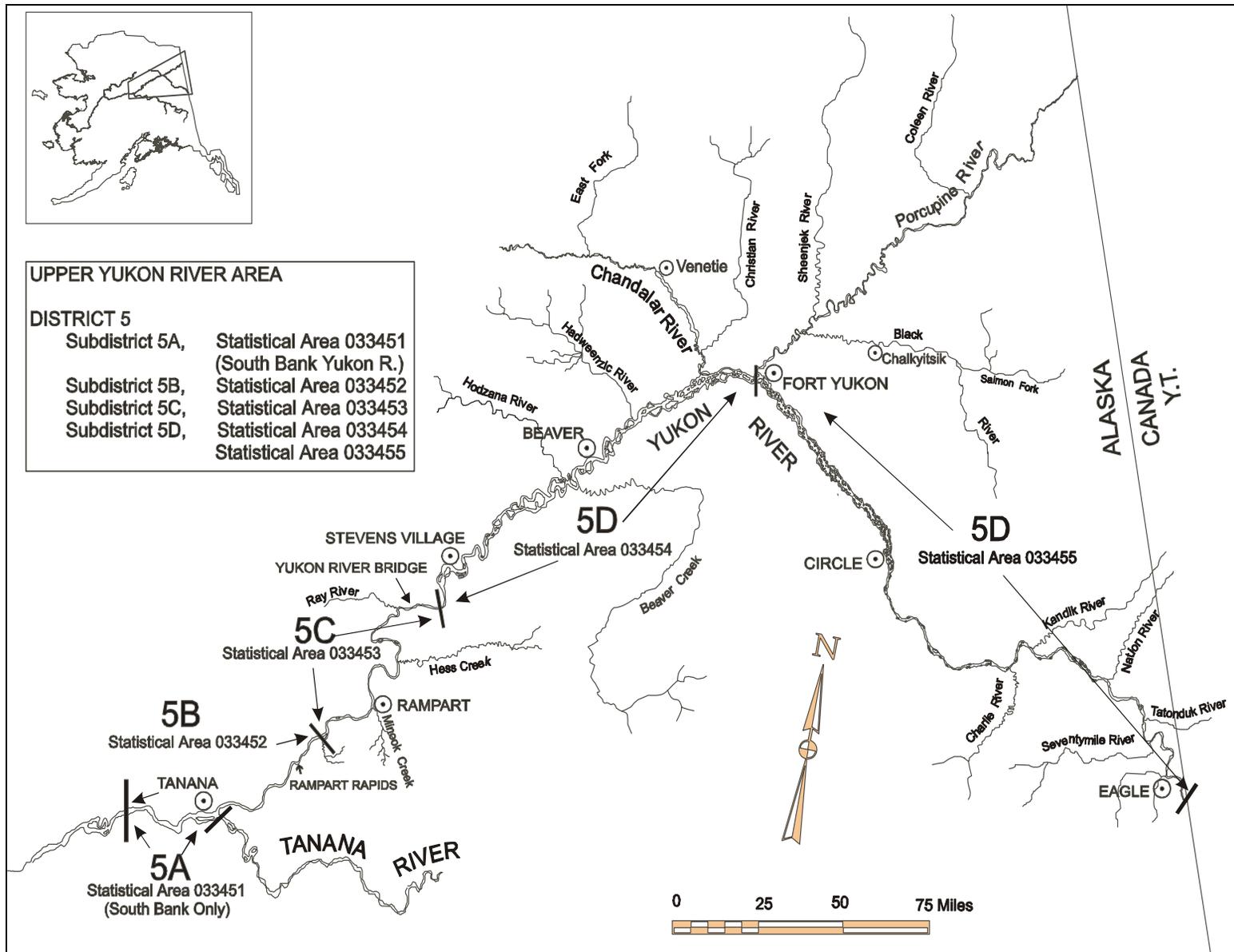


Figure 10.—District 5 showing statistical areas, Yukon Area.

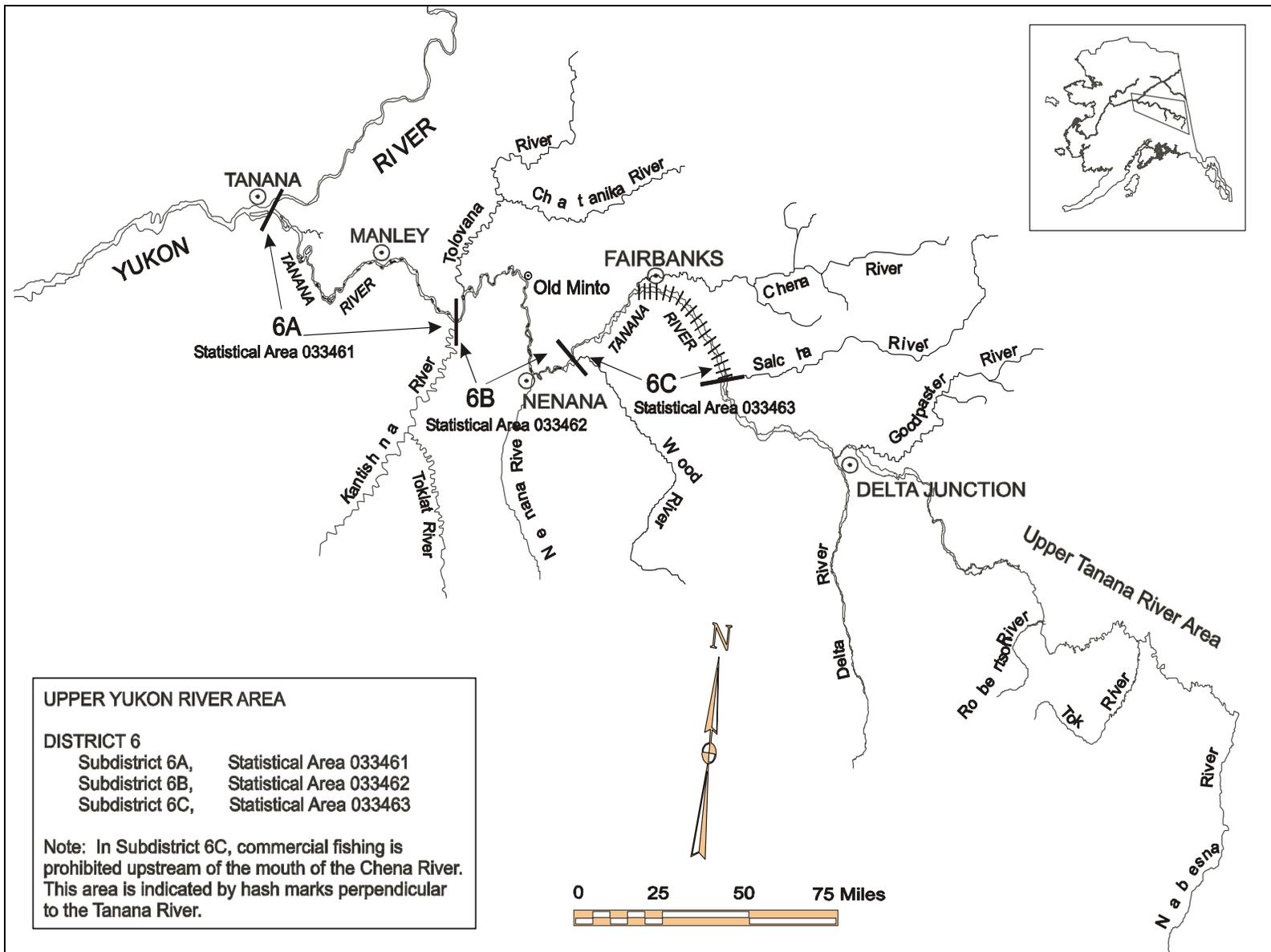


Figure 11.—District 6 showing statistical areas, Yukon Area.