

**Fishery Data Series No. 94-17**

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**Compilation of Age, Weight, and Length Statistics for  
Rainbow Trout Samples Collected in Southwest  
Alaska, 1990-1993**

**by**

**Renate Riffe**

August 1994

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Alaska Department of Fish and Game

Division of Sport Fish



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COMPILATION OF AGE, WEIGHT, AND LENGTH STATISTICS  
FOR RAINBOW TROUT SAMPLES COLLECTED IN  
SOUTHWEST ALASKA, 1990-1993<sup>1</sup>

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Anchorage, Alaska

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## ABSTRACT

Mean length, mean weight, percentage by age class, sample, and standard error terms are presented by gear type for samples of rainbow trout *Oncorhynchus mykiss* collected from 1990 through 1993 from waters of Southwest Alaska. Forty-six data files contain 12,906 records. Age estimates, based on scale samples, were available for approximately 9,335 records. Data sets of 25 fish or greater were summarized in tabular form by age class, mean length, and mean weight.

KEY WORDS: Rainbow trout, *Oncorhynchus mykiss*, Bristol Bay, Alaska, age, length, weight.

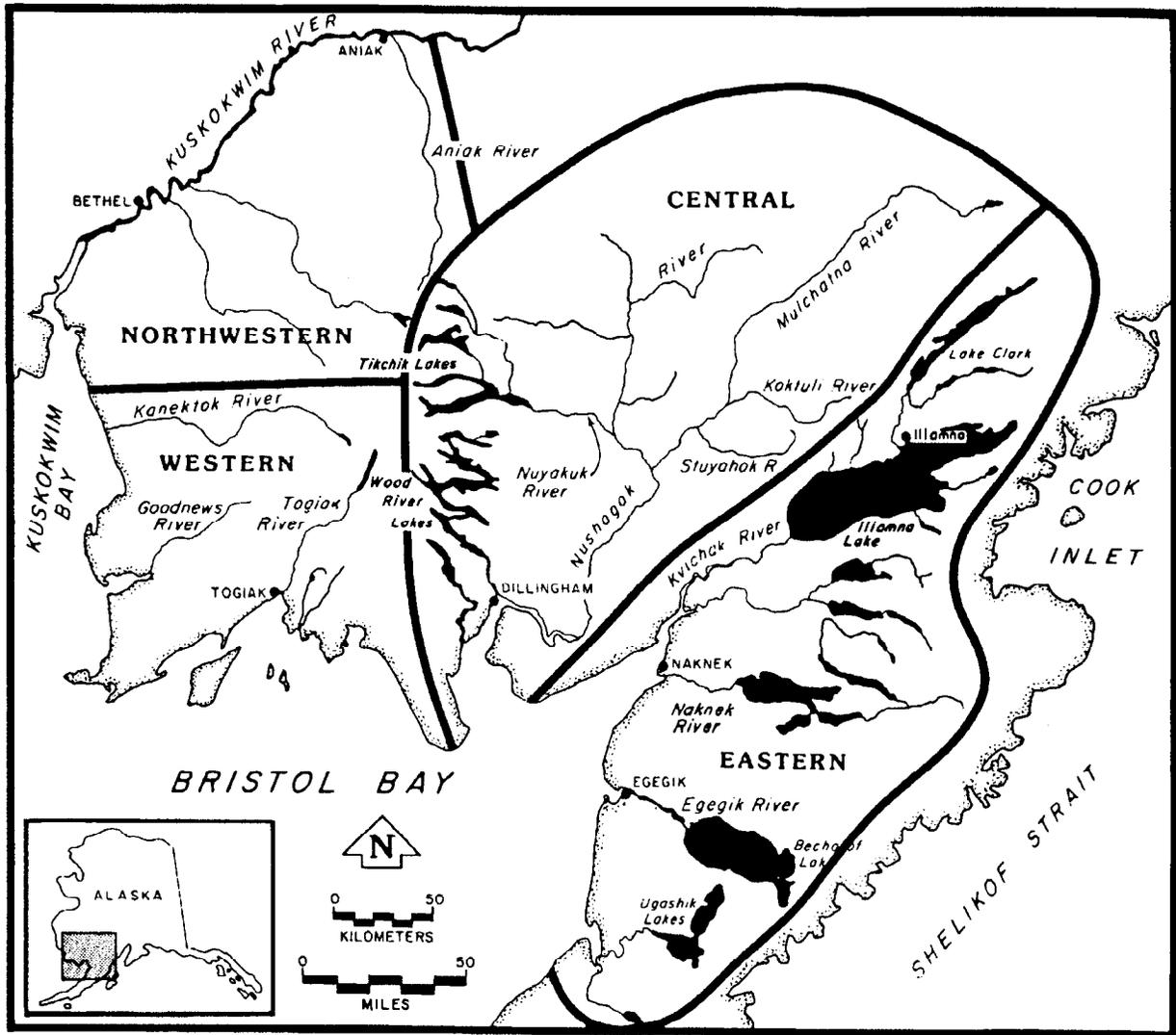


Figure 1. Southwestern Alaska sport fish management area, showing the eastern, central, western, and northwestern sections.

Specifically we:

- 1) compiled all available age and size data collected from rainbow stocks in Southwestern Alaska from 1990 through 1993; and
- 2) summarized in tabular format mean length, mean weight, and associated standard error statistics, by age class, for samples of greater than 25 fish by location, year of collection, and gear type.

#### METHODS

Tasks necessary to compile and summarize these data were grouped into five distinct phases: data accumulation and organization, data entry, data editing, age determination and verification, and sample summarization. The methods associated with each phase are explained below.

##### Data Accumulation and Organization

The groundwork for data accumulation was developed by Minard and Dunaway (1991). A major source of age and size data was the archive files of the Alaska Department of Fish and Game, Division of Sport Fish. Other governmental agencies (U.S. Fish and Wildlife Service and National Park Service) were solicited for contributions of age and size information collected from the waters of Southwest Alaska. Data from samples of individual fish were preferred to that of already summarized groupings. In total, almost 13,000 individual records were accumulated. Data sets were first grossly organized by drainage, then individual records within drainages were sorted by sampling location and year of collection. For the purpose of this project, a data set was defined as a collection of samples taken from the same general location within the same calendar year. Splitting data sets by sampling period or by sample size was not done in favor of larger, more general groupings consistent with a simple summary report.

##### Data Entry

Wherever possible, the data were entered on a standard age, weight, length form (version 1.1) used by the Division of Sport Fish (ADF&G 1991). The mark-sense forms were then read, and an electronic data file containing the information was synthesized. A detailed description of the standard mark-sense data file format can be found in Appendix A. Explanation of the coded information by field was published by Mills and Fidler (1981) for data collected prior to 1985, and from 1985 to present (ADF&G 1991). Sampling locations were coded using site codes described by ADF&G (1991) which are listed in Appendix B. Capture methods or gear type were similarly coded as described in ADF&G (1991); Appendix C is a listing of the gear codes in this data set.

Length information was entered in millimeters and weight recorded in grams. In the cases where length and weight had previously been recorded in inches and pounds, they were converted to metric units.

## Data Editing

Frequency reports, which tally data by field, were used to find coding errors, unreadable fields, and key punch errors (Heineman 1989a). Obvious errors were corrected and values which appeared out of limits were individually verified.

## Age Determination and Verification

Age was estimated from scale samples for each fish from which scales were available. An age for a scale was determined by counting the number of annuli as defined by regions of broken and compacted circuli (Laakso and Cope 1956; Beamish and McFarlane 1987). Acetate impressions from scales mounted on gummed cards were used for age determination. Personnel from different agencies aged the scales, using different equipment. Scale samples aged for the Alaska Department of Fish and Game were read using either a model 1200 Micro Design micro-fiche reader with a 17 mm lens (20X enlargement), or a Micron 760 microfiche reader with a 22 mm lens.

The use of different scale readers and equipment, as well as difficulties in aging rainbow trout scales introduces error into age estimation. Coggins (*In prep*) developed a training and testing protocol to reduce or at least quantify this error for ADF&G personnel. First the trainee studied the aging instructions and criteria as established in the operational plan for rainbow trout scale aging: Estimated Ages of Rainbow Trout Using Scales, (Coggins *In prep*). Once familiar with the aging criteria, the trainee read random selections from the 60 scale standard set developed for the above mentioned study. The standard age assigned to each scale of the set was based on a consensus of several highly experienced readers. While the standard age may not be the exact age of the fish, the goal is to get consistent age assessment from one reader to the next.

After practice, the trainee read all 60 of the standard scales three times. For each replicate reading, the scales were randomly shuffled to avoid memorization by order. If the age was the same for at least two of the three readings, that age was recorded as the modal age. The trainee's age estimates for each scale were compared between replicates for repeatability (precision), and the modal age was compared to the standard age for accuracy.

Two tests were used for determining repeatability. First, the probabilities of any two replicated estimates matching was estimated by (D. Bernard, ADF&G, Anchorage, personal communication):

$$p = \frac{\sum_{i=1}^n y_i}{3 n} \quad (1)$$

where:

p = the probability of any two replicate estimates by a reader matching;

$y_i$  = the number of successful matches in three replicates from the  $i$ th fish; and

$n$  = the number of fish in the study.

Division by three is included because there are three possible matching pairs in the three replicates used for each fish. To be acceptable, repeatability had to fall within the upper range observed (40 to 60 percent) during Coggins (*In prep*) study.

Second, the probability of equal age distribution was tested between the three replicates using a chi-squared statistic. The null hypothesis was: the three age frequency distributions were equal at  $\alpha = 0.05$ . Chi-squares were computed using the Student's Edition of Minitab.

As a rough test of the trainee's accuracy in aging, the mean modal age from the three replicates was compared to the mean standard age of the scales.

A second test compared the standard age frequency distribution with the frequency distribution of the trainee's modal ages. A chi-squared statistic was used to test the null hypothesis: the standard age frequency distribution was equal to the modal age frequency distribution at  $\alpha = 0.05$ . Failure to reject the null hypothesis was required for the new reader to be considered acceptably accurate.

Modal ages were recorded as the actual age when reading rainbow trout scale samples. Each set of rainbow trout scales was read three times. A sample was not given an age if each replicate had a different age. Due to time constraints, it was not possible to read all scale samples in this manner. The sample sets with modal aging are noted in Appendix D.

#### Sample Summarization

Estimates of mean length and weight by age group and percentage by age groups were calculated using a crosstabulation program called BBX, developed by Alaska Department of Fish and Game staff specifically for this project (Heineman 1989b). The BBX program initially sorts the data set by gear type and generates summary statistics in tabular format for each gear type. BBX follows the procedures outlined by Sokal and Rohlf (1981, Boxes 4.2 and 7.1, pages 56 and 139) to obtain unweighted estimates of mean length and weight and the associated standard error estimates.

The arithmetic mean for length and weight in each age group was calculated as:

$$\bar{X} = \frac{\sum_{i=1}^{n_i} x_i}{n_i} \quad (2)$$

where:

$x_i$  = the length (or weight) of a fish in age group  $i$ , and

$n_i$  = the number of fish in age and sex group  $i$ .

The variance of the mean was calculated as:

$$V(x_i) = \sum_{i=1}^{n_i} x_i^2 - [(\sum_{i=1}^{n_i} x_i)^2 / n_i] / [n_i (n_i - 1)] \quad (3)$$

with the standard error expressed as simply:

$$SE = [V(x_i)]^{1/2}. \quad (4)$$

BBX also calculates percentage of fish in each age group. The estimated percentage was calculated as:

$$\hat{P}_i = (n_i / N) * 100 \quad (5)$$

where:

N = the total number of fish sampled.

The variance of the percentage was calculated as:

$$\hat{V}(p_i) = [(\hat{p}_i * (1 - \hat{p}_i)) / (N - 1)] * [100^2] \quad (6)$$

and the standard error as:

$$SE = [\hat{V}(p_i)]^{1/2}. \quad (7)$$

## RESULTS

Almost 13,000 records of rainbow trout age and size samples collected from 1990 through 1993 were summarized. A total of 9,335 of those samples were aged (Table 1). Detailed information including sampling location, dates of collection, number of records, and the number of aged records for each sample can be found in Appendix D. The greatest number of samples are from the eastern section of the management area where the 30 files contain 7,695 records of which 6,118 age estimates are available. Tables summarizing data from samples containing 25 or more records are shown in Tables 2 through 25. Samples from the central section are contained in seven files and account for 2,795 samples of which age estimates were made for 1,380 records. Tables 26 through 31 are summaries of the age and size information available for the central section. Samples from the western section are summarized in Tables 32 through 38, and account for 1,756 aged records from a total of 2,064 records. Only one set of samples was collected from rainbow trout stocks in the north-western section (Table 39): 82 records were collected from the Aniak River during 1993, of which 81 were aged.

## DISCUSSION

The length, weight, and age summaries contained in this document should in no way be considered a detailed analysis of the available data. Rather, they should be viewed as simple summaries which combine available information for a given location and year. This document and the attendant computerized data base is the starting point for further investigation. For those wishing to make a more detailed analysis of any given data set or combination of data sets, electronic copies of the entire rainbow trout data base are available.

Obvious deficiencies in the quantity of data for all but the most popular fisheries are apparent as a result of this work. The quantity of size and age information for rainbow trout stocks in the eastern section is by far the greatest and, with the exception of a few gaps, collection appears to have been spread evenly over the years. Maintenance level sampling, and sampling associated with population studies presently underway in the Iliamna drainage, will likely satisfy informational needs for the fisheries in the eastern sections. In the central, western, and northwestern sections of the management area, however, sample sizes are clearly deficient. For all but the most recent years, very little information is available. Future sampling efforts should emphasize stocks in these sections.

Age, when estimated from scale samples, is generally considered to be conservative when compared to age estimates made from other boney structures such as otoliths, fin rays, vertebrae, or operculum (Sharp and Bernard 1988, and Wagner 1990). Although all structures cost money to process, scale samples seem to provide the most consistent estimate of age for the cheapest price (Lafferty 1989). Although age estimates from scales are not absolute, neither are those from other structures collected from wild stocks in the absence of known-age fish for verification. For reasons of cost and the biological concerns involved in sacrificing the fish to collect bony structures other than scales, the department has settled on scale ages as the standard aging structure for rainbow trout.

Collecting and processing age and size data is expensive. To derive the greatest benefit from the information, resource agencies need to standardize sampling techniques, recording methods, and age estimation procedures. In addition, agencies need to better coordinate sampling efforts and share results. The coordination, standardization, and distribution would be facilitated if one agency served as the accumulation and dispersal point for age and size data collected by all the resource agencies working in Southwestern Alaska. With the completion of this project, and as the primary authority for rainbow trout management in Southwest Alaska, the Alaska Department of Fish and Game is the appropriate agency to assemble and distribute this information. Ideally, with the cooperation of other resource agencies, an updated summary of age and size data can be produced on regular intervals and updated data sets made available upon request.

Table 1. Available age and size information for rainbow trout sampled in Southwest Alaskan waters from 1990 through 1993. Each file contains data from a single year. Each record is an observation of a single fish.

Section	Drainage	System	Number of Files	Number of Records	Number of Aged Fish
Eastern	Egegik	Contact Ck	1	26	22
Eastern	Egegik	Gertrude Ck	3	452	377
Eastern	Egegik	King Salmon River	1	39	32
Eastern	Egegik	Mink Creek	3	278	234
Eastern	Egegik	Mossy Creek	3	131	115
Eastern	Egegik	Number 5 Creek	2	4	3
Eastern	Egegik	Otter Creek	1	10	6
Eastern	Egegik	Whale Mountain Creek	3	427	343
Eastern	Naknek	Naknek River	3	960	841
Eastern	Kvichak	Alagnak River	1	19	19
Eastern	Kvichak	Copper River	1	275	239
Eastern	Kvichak	Kvichak River	5	4,389	3,044
Eastern	Kvichak	Nonvianuk River	1	106	69
Eastern	Kvichak	Lower Talarik Creek	2	849	774
Eastern	Sub Total		30	7,965	6,118
Central	Nushagak	Mulchatna River	1	180	139
Central	Nushagak	Nushagak River	1	28	12
Central	Nushagak	Tikchik Lakes	1	20	12
Central	Wood River	Agulowak River	3	1,808	948
Central	Wood River	Agulukpak River	1	759	269
Central	Sub Total		7	2,795	1,380
Western	Togiak	Gechiak River	1	9	5
Western	Togiak	Negukthlik River	1	277	181
Western	Togiak	Pungokepuk River/Lake	1	132	111
Western	Kuskokwim Bay	Arolik River	3	475	381
Western	Kuskokwim Bay	Goodnews River	1	342	329
Western	Kuskokwim Bay	Kanektok River	1	829	749
Western	Sub Total		8	2,064	1,756
Northwestern	Kuskokwim	Aniak River	1	82	81
Northwestern	Sub Total		1	82	81
All Sections			46	12,906	9,335

Table 2. Mean lengths (mm) and weights (g) of rainbow trout, by age group from samples collected from Contact Creek (R2460B91), during 1991. Sampling period 5/12 to 9/9, hook and line.

	Age Group						TOTAL
	UNKNOWN	2	5	6	7	8	
<u>All Samples</u>							
Percent		4.5	36.4	22.7	22.7	13.6	100.0
SE		4.55	10.50	9.14	9.14	7.49	
Sample Size		1	8	5	5	3	22
Mean Length	507	147	384	471	450	506	437
SE	27.48		19.48	25.89	26.41	7.86	17.78
Sample Size	4	1	8	5	5	3	26
Mean Weight	1438	30	737	1210	1065	1133	1017
SE	98.16		100.67	199.15	174.57	516.87	97.93
Sample Size	4	1	8	5	5	3	26

Table 3. Mean lengths (mm) and weights (g) of rainbow trout, by age group from samples collected from Gertrude Creek (R2330B90), during 1990. Sampling period 5/25 to 9/18, hook and line.

	Age Group											TOTAL	
	UNKNOWN	0	1	2	3	4	5	6	7	8	9		10
<u>All Samples</u>													
Percent		1.1	1.1	0.5	3.2	10.8	15.6	24.7	25.8	13.4	2.2	1.6	100.0
SE		0.76	0.76	0.54	1.30	2.28	2.67	3.17	3.22	2.51	1.07	0.93	
Sample Size		2	2	1	6	20	29	46	48	25	4	3	186
Mean Length	489	54	88	143	350	344	415	451	482	515	542	638	444
SE	26.42	1.00	6.00		24.42	6.05	11.52	8.65	7.07	7.47	13.18	2.85	6.90
Sample Size	7	2	2	1	6	20	29	46	48	25	4	3	193
Mean Weight	1326	1	8	39	571	476	834	1060	1255	1539	1769	2300	1076
SE	198.29	0.00	2.00		122.55	27.02	65.71	56.75	52.79	68.91	272.41	177.36	37.69
Sample Size	6	2	2	1	6	20	29	46	48	25	4	3	192

Table 4. Mean lengths (mm) and weights (g) of rainbow trout, by age group from samples collected from Gertrude Creek (R2330B91), during 1991. Sampling period 5/12 to 9/14, hook and line.

	Age Group										
	UNKNOWN	1	3	4	5	6	7	8	9	11	TOTAL
<u>All Samples</u>											
Percent		0.6	14.5	17.9	24.6	17.9	15.6	6.1	2.2	0.6	100.0
SE		0.56	2.64	2.87	3.23	2.87	2.72	1.80	1.11	0.56	
Sample Size		1	26	32	44	32	28	11	4	1	179
Mean Length	450	98	296	354	398	449	488	505	509	512	413
SE	11.88		8.14	5.56	8.50	9.51	10.67	12.88	34.55		5.92
Sample Size	27	1	26	31	44	32	28	11	4	1	205
Mean Weight	1067	11	325	490	739	1000	1254	1473	1637	1425	857
SE	82.32		25.79	24.23	47.97	61.27	69.49	108.68	366.64		33.34
Sample Size	26	1	26	31	44	32	27	11	4	1	203

Table 5. Mean lengths (mm) and weights (g) of rainbow trout, by age group from samples collected from the King Salmon River (R1440b91), during 1991. Sampling period 5/12 to 6/29, hook and line.

	Age Group								TOTAL
	UNKNOWN	3	4	5	6	7	8	9	
<u>All Samples</u>									
Percent		3.1	9.4	9.4	28.1	34.4	12.5	3.1	100.0
SE		3.13	5.24	5.24	8.08	8.53	5.94	3.13	
Sample Size		1	3	3	9	11	4	1	32
Mean Length	449	298	330	452	482	467	511	605	461
SE	63.50		32.20	38.89	19.40	9.61	10.02		12.49
Sample Size	2	1	3	3	9	11	4	1	34
Mean Weight	1025	250	425	1042	1281	1091	1381	2100	1113
SE	375.00		108.97	264.71	149.93	56.74	93.19		76.49
Sample Size	2	1	3	3	9	11	4	1	34

## INTRODUCTION

### Study Area

The Southwestern sport fish management area is approximately 54,700 square miles, or roughly equivalent in size to the state of Washington. This management area includes all waters and drainages flowing into Bristol Bay from Cape Menshikof north to Kuskokwim Bay, and the Kuskokwim River and its tributaries from Aniak River downstream to Kuskokwim Bay (Figure 1). As one might expect in an area of this size, distinct differences in geology, climate, vegetation, and landscapes result in a variety of river, stream, and lake ecosystems. These physical differences result in different environmental conditions that affect fishery resources and ultimately stock composition. For these reasons, the Southwest management area is divided into four sections: the eastern, central, western, and northwestern (Figure 1).

Wild rainbow trout *Oncorhynchus mykiss* stocks of the area are world famous and cornerstone to a multimillion dollar per year recreational industry. Although no steelhead exist in the area, nonanadromous rainbow trout are found in abundance throughout the management area with the exception of Lake Clark and its tributaries, and the Ugashik drainage. No hatchery established or enhanced stocks of rainbow trout occur in Southwest Alaska. In February 1990, the Alaska Board of Fisheries adopted regulations implementing the Southwest Alaska Rainbow Trout Management Plan (the Plan). The Plan emphasizes conservative wild stock management, provides for a diversity of angling opportunities, and directs the Alaska Department of Fish and Game to preserve the historic size and age structure for rainbow trout stocks in Southwestern Alaska (ADF&G 1990).

Each year the department conducts projects and collects data to fulfill the conditions of the Plan. In addition the department accumulates Southwest Alaska rainbow trout data collected by other agencies. This report summarizes rainbow trout data collected from Southwest Alaskan waters by all agencies during the years 1990 through 1993, and supplements the work done by Minard and Dunaway (1991). Minard and Dunaway (1991) summarized rainbow trout data which had been collected in the area by all agencies from 1954 through 1989. Both reports bring together, in a standard format, the age and size data collected by a number of federal agencies as well as the state of Alaska. As greater demands are placed on the rainbow trout resources of the area, managers will need tools with which to evaluate current management strategies and assess stock status. Historical size and age information will provide the benchmarks from which comparisons can be made with present-day conditions.

Some of the data contained in this report have not been previously published. Of the data that have been reported, the larger contributions have come from Dunaway (1993), Minard et al. (1992), and Wagner (1990).

### Objectives

The objective of this report is to provide a compilation of age and size information collected from rainbow trout stocks in Southwestern Alaska from 1990 through 1993. The intent is to provide data in a convenient format for further detailed analysis.

Table 6. Mean lengths (mm) and weights (g) of rainbow trout, by age group from samples collected from Mink Creek (R2690B90), during 1990. Sampling period 6/15 to 9/19, hook and line.

	Age Group								TOTAL
	UNKNOWN	3	4	6	7	8	9	10	
<u>All Samples</u>									
Percent		3.8	11.5	15.4	34.6	15.4	15.4	3.8	100.0
SE		3.85	6.39	7.22	9.51	7.22	7.22	3.85	
Sample Size		1	3	4	9	4	4	1	26
Mean Length	508	313	327	388	475	501	514	462	450
SE			22.51	14.91	12.35	10.69	11.92		13.89
Sample Size	1	1	3	4	9	4	4	1	27
Mean Weight	1475	500	483	744	1231	1550	1450	1100	1132
SE			44.10	70.99	86.28	91.86	79.71		78.81
Sample Size	1	1	3	4	9	4	4	1	27

Table 7. Mean lengths (mm) and weights (g) of rainbow trout, by age group from samples collected from Mink Creek (R2690B91), during 1991. Sampling period 5/13 to 9/15, hook and line.

	Age Group										TOTAL	
	UNKNOWN	1	2	3	4	5	6	7	8	9		10
<u>All Samples</u>												
Percent		13.7	30.6	16.9	9.8	9.8	5.5	7.1	4.4	1.6	0.5	100.0
SE		2.55	3.42	2.78	2.21	2.21	1.68	1.90	1.52	0.94	0.55	
Sample Size		25	56	31	18	18	10	13	8	3	1	183
Mean Length	427	96	186	244	332	382	425	485	501	484	560	287
SE	29.16	4.35	4.79	5.57	9.41	12.15	14.03	18.52	16.06	25.74		9.84
Sample Size	19	25	56	31	18	18	10	13	8	3	1	202
Mean Weight	1058	12	87	178	414	671	895	1194	1328	1150	1650	448
SE	136.80	2.47	8.19	15.83	34.07	80.88	109.47	134.51	83.78	195.26		36.60
Sample Size	19	25	56	31	18	18	10	13	8	3	1	202

Table 8. Mean lengths (mm) and weights (g) of rainbow trout, by age group from samples collected from Mink Creek (R2690B92), during 1992. Sampling period 5/27 to 6/1, hook and line.

	Age Group							TOTAL
	UNKNOWN	3	4	5	6	7	8	
<u>All Samples</u>								
Percent		12.0	16.0	24.0	16.0	28.0	4.0	100.0
SE		6.63	7.48	8.72	7.48	9.17	4.00	
Sample Size		3	4	6	4	7	1	25
Mean Length	512	405	360	421	485	535	501	464
SE	19.47	66.54	16.15	17.88	12.26	18.24		14.25
Sample Size	5	3	4	6	4	7	1	30
Mean Weight	1460	767	494	867	1212	1532	1025	1112
SE	205.64	268.22	77.31	91.44	120.11	160.89		89.68
Sample Size	5	3	4	6	4	7	1	30

Table 9. Mean lengths (mm) and weights (g) of rainbow trout, by age group from samples collected from Mossy Creek (R2710B91) during 1991. Sampling period 5/14 to 9/16.

	Age Group									TOTAL
	UNKNOWN	4	5	6	7	8	9	10	11	
<u>All Samples</u>										
Percent		7.4	19.1	25.0	22.1	16.2	4.4	4.4	1.5	100.0
SE		3.19	4.80	5.29	5.07	4.50	2.51	2.51	1.47	
Sample Size		5	13	17	15	11	3	3	1	68
Mean Length	489	332	375	456	450	537	524	571	577	457
SE	17.75	22.05	7.60	7.97	9.06	11.16	19.16	24.50		8.36
Sample Size	9	5	13	17	15	11	3	3	1	77
Mean Weight	1381	460	612	1038	1008	1630	1592	2033	2225	1123
SE	157.72	74.41	33.69	49.87	73.26	98.73	84.57	311.35		57.39
Sample Size	9	5	13	17	15	11	3	3	1	77

Table 10. Mean lengths (mm) and weights (g) of rainbow trout, by age group from samples collected from Mossy Creek (R2710B92), during 1992. Sampling period 5/28 to 5/30, hook and line.

	Age Group							TOTAL
	3	4	5	6	7	8	9	
<u>All Samples</u>								
Sample Size	2	4	12	12	5	1	1	37
Percent	5.4	10.8	32.4	32.4	13.5	2.7	2.7	100.0
SE	3.77	5.18	7.80	7.80	5.70	2.70	2.70	
Mean Length	257	363	408	423	485	486	497	415
SE	12.00	25.78	12.80	10.01	29.01			10.90
Sample Size	2	4	12	12	5	1	1	37
Mean Weight	200	519	762	829	1355	1125	1375	834
SE	25.00	97.03	73.82	69.69	269.42			66.69
Sample Size	2	4	12	12	5	1	1	37

Table 11. Mean lengths (mm) and weights (g) of rainbow trout, by age group from samples collected from Whale Mountain Creek (R2720B91), during 1991. Sampling period 5/16 to 9/18, hook and line.

	Age Group										TOTAL
	UNKNOWN	3	4	5	6	7	8	9	10	11	
<u>All Samples</u>											
Percent		1.9	6.0	18.1	25.9	21.8	17.6	6.0	2.3	0.5	100.0
SE		0.92	1.62	2.62	2.99	2.81	2.60	1.62	1.03	0.46	
Sample Size		4	13	39	56	47	38	13	5	1	216
Mean Length	322	270	341	395	444	485	517	534	520	555	429
SE	31.23	8.20	17.95	7.58	7.03	8.59	7.93	13.98	20.75		8.02
Sample Size	51	4	13	39	56	47	38	13	4	1	266
Mean Weight	1305	269	565	784	1047	1326	1497	1704	1662	1850	1171
SE	92.31	21.35	83.04	45.37	45.66	60.43	56.85	145.08	132.48		31.64
Sample Size	34	4	13	39	56	47	37	13	4	1	248

Table 12. Mean lengths (mm) and weights (g) of rainbow trout, by age group from samples collected from Whale Mountain Creek (R2720B92), during 1992. Sampling period 5/30 to 6/4, hook and line.

	Age Group							TOTAL
	UNKNOWN	4	5	6	7	8	9	
<u>All Samples</u>								
Percent		6.3	18.8	28.6	30.4	12.5	3.6	100.0
Std Err		2.30	3.70	4.29	4.36	3.14	1.76	
Sample Size		7	21	32	34	14	4	112
Mean Length	546	374	443	484	512	516	527	489
Std Err	17.37	20.13	12.06	7.84	9.83	15.44	26.51	6.02
Sample Size	10	7	21	31	34	14	4	121
Mean Weight	1867	671	1002	1332	1560	1536	1787	1384
Std Err	169.44	117.69	73.11	63.39	77.92	94.44	191.89	44.76
Sample Size	10	7	21	31	34	14	4	121

Table 13. Mean lengths (mm) and weights (g) of rainbow trout, by age group from samples collected from the Naknek River (R0070BA1), during 1991. Sampling period 8/24 to 9/12, hook and line.

	Age Group							TOTAL
	UNKNOWN	3	4	5	6	7	8	
<u>All Samples</u>								
Percent		6.9	27.7	31.5	19.2	10.0	4.6	100.0
SE		2.23	3.94	4.09	3.47	2.64	1.85	
Sample Size		9	36	41	25	13	6	130
Mean Length	385	275	308	364	410	505	573	376
SE	16.27	8.01	7.26	4.26	12.21	15.18	37.32	6.99
Sample Size	27	9	36	41	25	13	6	157
Mean Weight	683	203	303	515	766	1488	2100	659
SE	100.50	27.15	30.49	22.88	79.41	150.23	317.28	44.50
Sample Size	27	9	36	41	25	13	6	157

Table 14. Mean lengths (mm) of rainbow trout, by age group from samples collected from the Naknek River (R0070BA3), during spring of 1993. Sampling period 4/7 to 5/13, hook and line.

	Age Group									TOTAL
	UNKNOWN	3	4	5	6	7	8	9	10	
<u>All Samples</u>										
Percent		2.8	7.9	25.2	42.7	14.6	4.7	1.4	0.8	100.0
SE		0.73	1.20	1.93	2.20	1.57	0.94	0.52	0.39	
Sample Size		14	40	128	217	74	24	7	4	508
Mean Length	580	301	341	529	591	621	599	653	697	559
SE	10.21	11.27	7.74	9.94	6.36	9.70	19.18	24.85	12.45	4.93
Sample Size	118	14	40	127	216	73	24	7	4	623

Table 15. Mean lengths (mm) and weights (g) of rainbow trout, by age group from samples collected from the Naknek River (R007BBC3), during fall of 1993. Sampling period 8/20 to 9/22, hook and line.

	Age Group									TOTAL	
	UNKNOWN	2	3	4	5	6	7	8	9		10
<u>All Samples</u>											
Percent		8.6	17.1	21.1	11.4	13.7	10.9	9.1	4.0	4.0	100.0
SE		2.12	2.86	3.10	2.41	2.61	2.36	2.18	1.49	1.49	
Sample Size		15	30	37	20	24	19	16	7	7	175
Mean Length	402	197	271	294	351	377	420	500	500	496	356
SE	19.76	6.24	6.46	5.81	9.18	8.08	17.03	19.80	12.76	19.48	7.28
Sample Size	27	15	30	37	20	24	19	16	7	7	202
Mean Weight	936	119	251	316	542	628	988	1677	1537	1483	691
SE	126.99	17.28	15.14	17.94	37.81	47.96	170.35	221.44	122.70	217.83	45.31
Sample Size	27	14	30	37	20	24	19	16	7	7	201

Table 16. Mean lengths (mm) and weights (g) of rainbow trout, by age group from samples collected from the Copper River (S0050BA0), during 1990. Sampling period 8/24 to 10/4, hook and line.

	Age Group									TOTAL
	UNKNOWN	2	3	4	5	6	7	8	9	
<b>All Samples</b>										
Percent		2.9	24.3	23.8	19.7	15.9	8.4	3.3	1.7	100.0
SE		1.09	2.78	2.76	2.58	2.37	1.79	1.17	0.83	
Sample Size		7	58	57	47	38	20	8	4	239
Mean Length	496	268	281	376	428	513	546	549	620	418
SE	14.16	12.67	7.88	8.02	8.51	10.54	10.75	15.67	39.16	6.91
Sample Size	36	7	58	57	47	38	20	8	4	275
Mean Weight	1942	465	402	910	1240	2100	2535	2556	3938	1372
SE	167.14	135.00	43.00	69.73	71.54	132.46	185.73	175.37	806.32	64.36
Sample Size	31	2	53	52	43	32	19	8	4	244

Table 17. Mean lengths (mm) of rainbow trout, by age group from samples collected from the Kvichak River (S0030BA0), during 1990. Sampling period 4/23 to 5/1, seine.

	Age Group											TOTAL
	UNKNOWN	3	4	5	6	7	8	9	10	11	12	
<b>All Samples</b>												
Percent		6.0	12.6	20.7	19.8	15.2	13.4	7.9	3.2	0.9	0.2	100.0
SE		0.74	1.04	1.26	1.24	1.12	1.06	0.84	0.55	0.29	0.14	
Sample Size		62	130	213	204	156	138	81	33	9	2	1028
Mean Length	429	267	365	423	468	545	598	616	619	630	719	470
SE	9.89	4.79	6.99	4.66	5.03	6.79	6.13	6.86	10.94	26.23	41.00	3.72
Sample Size	267	62	130	212	203	155	138	80	33	9	2	1291

Table 18. Mean lengths (mm) and weights (g) of rainbow trout, by age group from samples collected from the Kvichak River (S0030BB0) during 1990. Sampling period 8/16 to 9/20, hook and line.

	Age Group										
	UNKNOWN	2	3	4	5	6	7	8	9	10	TOTAL
<u>All Samples</u>											
Percent		3.9	14.7	24.5	22.2	16.3	9.3	6.2	2.3	0.5	100.0
SE		0.98	1.80	2.19	2.12	1.88	1.48	1.23	0.77	0.36	
Sample Size		15	57	95	86	63	36	24	9	2	387
Mean Length	464	265	291	341	415	474	530	598	640	660	414
SE	30.73	8.58	4.43	4.80	7.62	9.41	12.54	14.18	28.27	12.00	5.90
Sample Size	27	15	57	95	86	63	36	24	9	2	414
Mean Weight	2213	308	339	540	1026	1392	2001	2875	3883	4150	1311
SE	333.81	79.49	23.59	43.93	77.48	100.05	162.14	247.71	523.63	150.00	64.23
Sample Size	20	3	33	69	77	59	35	22	9	2	329

Table 19. Mean lengths (mm) and weights (g) of rainbow trout, by age group from samples collected from the Kvichak River (S0030BB1), during 1991. Sampling period 8/20 to 10/1, hook and line.

	Age Group										
	UNKNOWN	2	3	4	5	6	7	8	9	10	TOTAL
<u>All Samples</u>											
Percent		0.2	7.8	22.9	27.5	21.7	10.7	6.6	2.0	0.6	100.0
SE		0.20	1.19	1.86	1.98	1.82	1.37	1.10	0.61	0.34	
Sample Size		1	40	117	141	111	55	34	10	3	512
Mean Length	419	220	289	331	405	502	567	624	668	549	437
SE	23.44		4.68	3.88	5.23	6.76	7.37	13.89	27.15	149.90	5.22
Sample Size	18	1	40	117	141	111	55	34	10	3	530
Mean Weight	1072		348	480	881	1703	2456	3544	4155	3475	1349
SE	188.01		37.56	19.33	43.14	80.34	113.97	249.28	515.13	1814.93	53.26
Sample Size	18	0	38	114	139	111	55	33	10	3	521

Table 20. Mean lengths (mm) of rainbow trout, by age group from samples collected from the Kvichak River (S0030BA1), during 1991. Sampling period 4/22 to 4/23, seine.

	Age Group										TOTAL	
	UNKNOWN	4	5	6	7	8	9	10	11	12		
<u>All Samples</u>												
Percent		2.6	21.3	29.9	21.7	9.8	7.9	4.7	1.9	0.2		100.0
SE		0.77	1.98	2.22	2.00	1.44	1.31	1.02	0.66	0.23		
Sample Size		11	91	128	93	42	34	20	8	1		428
Mean Length	494	380	413	448	487	566	631	669	671	677		492
SE	3.68	12.75	6.10	5.90	7.22	11.96	12.20	16.16	37.68			2.98
Sample Size	848	11	91	128	90	42	34	20	8	1		1273

Table 21. Mean lengths (mm) of rainbow trout, by age group from samples collected from the Kvichak River (S0030BA3), during 1993. Sampling period 4/13 to 4/15, seine.

	Age Group											TOTAL	
	UNKNOWN	3	4	5	6	7	8	9	10	11	12		13
<u>All Samples</u>													
Percent		0.3	6.3	22.5	34.8	20.2	9.1	3.3	1.9	1.0	0.4	0.1	100.0
SE		0.20	0.93	1.59	1.81	1.53	1.09	0.68	0.52	0.38	0.25	0.14	
Sample Size		2	44	156	241	140	63	23	13	7	3	1	693
Mean Length	512	398	394	440	482	542	580	618	618	705	713	763	501
SE	6.37	22.00	6.84	4.87	4.88	7.15	9.58	17.92	18.94	32.13	27.15		3.20
Sample Size	178	2	44	156	241	140	63	23	13	7	3	1	871

Table 22. Mean lengths (mm) of rainbow trout, by age group from samples collected from the Nonvianuk River (S1280BA1) during 1990. Sampling period 6/9 to 7/14, hook and line.

	Age Group						TOTAL
	UNKNOWN	3	4	5	6	7	
<u>All Samples</u>							
Percent		8.7	33.3	39.1	14.5	4.3	100.0
SE		3.42	5.72	5.92	4.27	2.47	
Sample Size		6	23	27	10	3	69
Mean Length	409	285	312	361	419	512	373
SE	15.03	2.58	7.56	8.05	14.38	4.41	7.68
Sample Size	37	6	23	27	10	3	106

Table 23. Mean lengths (mm) of rainbow trout by age group from samples collected from Lower Talarik Creek (S0040BA0) during 1990. Sampling dates 9/16 to 9/20, seine.

	Age Group							TOTAL
	UNKNOWN	3	4	5	6	7	8	
<u>ALL SAMPLES</u>								
Percent		8.0	36.0	12.0	28.0	8.0	8.0	100.0
SE		5.54	9.80	6.63	9.17	5.54	5.54	
Sample Size		2	9	3	7	2	2	25
Mean Length	535	267	289	330	522	607	700	432
SE	78.37	0.00	10.72	34.68	31.41	67.50	6.00	29.67
Sample Size	4	2	9	3	7	2	2	29

Table 24. Mean lengths (mm) of rainbow trout, by age group from samples collected from Lower Talarik Creek (S0040BA0) during 1990. Sample dates 9/1 to 9/20, hook and line.

	Age Group										
	UNKNOWN	2	3	4	5	6	7	8	9	10	TOTAL
<b>All Samples</b>											
Percent		1.1	13.7	24.3	11.6	15.5	15.8	13.4	3.5	1.1	100.0
SE		0.61	2.05	2.55	1.90	2.15	2.17	2.02	1.10	0.61	
Sample Size		3	39	69	33	44	45	38	10	3	284
Mean Length	507	238	281	327	428	592	631	667	701	718	486
SE	25.38	22.42	5.31	6.52	16.27	11.30	10.54	9.53	23.50	9.53	9.38
Sample Size	39	3	38	69	33	44	45	36	10	3	320

Table 25. Mean lengths (mm) and weights (g) of rainbow trout, by age group from samples collected from Lower Talarik Creek (S0040BA1) during 1991. Sampling period 8/29 to 9/26, hook and line.

	Age Group										
	UNKNOWN	3	4	5	6	7	8	9	10	TOTAL	
<b>All Samples</b>											
Percent		2.8	20.4	26.6	21.2	17.0	7.5	2.8	1.7	100.0	
SE		0.76	1.87	2.05	1.90	1.74	1.22	0.76	0.60		
Sample Size		13	95	124	99	79	35	13	8	466	
Mean Length	487	278	307	377	499	583	656	666	722	458	
SE	23.21	3.60	3.40	5.89	8.25	7.90	8.52	33.73	11.27	6.30	
Sample Size	34	13	95	124	99	79	35	13	8	500	
Mean Weight	1838	296	408	804	1749	2748	3806	4154	5471	1647	
SE	259.32	29.12	33.21	53.32	89.50	103.74	170.98	436.42	147.14	65.08	
Sample Size	29	13	93	123	98	78	35	13	7	489	

Table 26. Mean lengths (mm) and weights (g) of rainbow trout, by age group from samples collected from the Mulchatna River (T0070BA0), during 1990. Sampling period 7/2 to 7/26, hook and line.

	Age Group								TOTAL
	UNKNOWN	3	4	5	6	7	8	9	
<u>All Samples</u>									
Percent		2.2	22.3	33.1	24.5	15.1	2.2	0.7	100.0
SE		1.24	3.54	4.01	3.66	3.05	1.24	0.72	
Sample Size		3	31	46	34	21	3	1	139
Mean Length	408	276	302	356	397	412	465	517	374
SE	13.15	19.43	11.53	6.78	10.07	12.44	23.36		5.66
Sample Size	41	3	31	46	34	21	3	1	180
Mean Weight	1100		762	722	1108	1250	1500		1004
SE	155.84		96.56	44.96	127.58	270.03			67.11
Sample Size	7	0	4	9	13	4	1	0	38

Table 27. Mean lengths (mm) of rainbow trout, by age group from samples collected from the Nushagak River (T0030BA1), during 1990. Sampling period 6/28 to 8/30, hook and line.

	Age Group								TOTAL
	UNKNOWN	4	5	6	7	8	9	10	
<u>All Samples</u>									
Percent		8.3	8.3	16.7	25.0	25.0	8.3	8.3	100.0
SE		8.33	8.33	11.24	13.06	13.06	8.33	8.33	
Sample Size		1	1	2	3	3	1	1	12
Mean Length	502	270	400	438	452	520	580	480	484
SE	13.67			2.50	19.22	26.46			13.12
Sample Size	16	1	1	2	3	3	1	1	28

Table 28. Mean lengths (mm) of rainbow trout, by age group from samples collected from Agulowak River (T1110BA1) during 1990. Sampling period 6/13 to 8/27, hook and line.

	Age Group							TOTAL
	UNKNOWN	2	3	4	5	6	7	
<u>All Samples</u>								
Percent		0.6	14.1	45.8	24.9	13.0	1.7	100.0
SE		0.56	2.63	3.76	3.26	2.53	0.97	
Sample Size		1	25	81	44	23	3	177
Mean Length	385	260	289	332	383	405	422	360
SE	6.51		8.23	4.32	5.50	3.80	7.02	3.55
Sample Size	74	1	25	81	43	23	3	250

Table 29. Mean lengths (mm) of rainbow trout, by age group from samples collected from the Agulowak River sport harvest (T1110BB2) during 1991. Sampling period 7/21 to 9/21, hook and line.

	Age Group							TOTAL
	UNKNOWN	3	4	5	6	7	8	
<u>All Samples</u>								
Percent		5.4	19.6	48.9	20.7	4.3	1.1	100.0
SE		2.38	4.16	5.24	4.24	2.14	1.09	
Sample Size		5	18	45	19	4	1	92
Mean Length	416	250	296	376	449	486	515	387
SE	10.77	11.12	8.20	6.82	7.06	2.35		6.47
Sample Size	38	5	18	45	19	4	1	130

Table 30. Mean lengths (mm) and weights (g) of rainbow trout, by age group from samples collected from Agulowak River (T111ABA2), during 1992. Sampling period 9/5 to 9/21, hook and line.

	Age Group									TOTAL
	UNKNOWN	2	3	4	5	6	7	8	9	
<b>All Samples</b>										
Percent		0.1	4.0	20.9	40.0	21.8	11.3	1.8	0.1	100.0
SE		0.15	0.75	1.56	1.88	1.58	1.22	0.51	0.15	
Sample Size		1	27	142	272	148	77	12	1	680
Mean Length	387	190	245	296	373	424	458	482	512	381
SE	2.43		4.48	2.06	2.17	1.95	2.50	5.78		1.77
Sample Size	750	1	27	142	270	147	77	12	1	1427
Mean Weight	892	250	207	335	631	888	1125	1296		705
SE	26.24		11.03	6.78	11.48	16.08	25.22	78.58		12.29
Sample Size	112	1	20	122	228	116	57	11	0	667

Table 31. Mean lengths (mm) and weights (g) of rainbow trout, by age group from samples collected from Agulukpak River (T128ABA2), during 1992. Sampling period 9/18 to 10/1, hook and line.

	Age Group									TOTAL
	UNKNOWN	2	3	4	5	6	7	8	9	
<b>All Samples</b>										
Percent		0.7	4.8	13.8	38.7	20.8	15.6	4.1	1.5	100.0
SE		0.52	1.31	2.10	2.97	2.48	2.22	1.21	0.74	
Sample Size		2	13	37	104	56	42	11	4	269
Mean Length	437	213	242	296	377	435	469	502	521	421
SE	2.87	23.50	6.39	4.90	4.45	3.87	3.23	3.90	18.46	2.62
Sample Size	486	2	13	37	103	56	42	11	4	754
Mean Weight	1209	140	232	383	682	983	1160	1352	1360	916
SE	28.28		15.07	16.68	21.61	24.04	30.43	39.89	81.55	20.04
Sample Size	95	1	9	34	99	56	42	11	4	351

Table 32. Mean lengths (mm) and weights (g) of rainbow trout, by age group from samples collected from the Negukthlik River (T1520BA1), during 1991. Sampling period 5/23 to 8/24, hook and line

	Age Group									TOTAL
	UNKNOWN	3	4	5	6	7	8	9	10	
<b>All Samples</b>										
Percent		8.3	32.0	24.9	11.0	11.0	5.5	6.1	1.1	100.0
SE		2.05	3.48	3.22	2.34	2.34	1.70	1.78	0.78	
Sample Size		15	58	45	20	20	10	11	2	181
Mean Length	455	244	296	356	461	524	572	645	694	413
SE	13.64	13.10	4.58	8.42	12.91	12.97	18.13	8.27	4.00	8.03
Sample Size	92	15	58	45	20	20	10	11	2	273
Mean Weight	1452	248	343	612	1385	1861	2231	3434	3425	1157
SE	107.86	36.43	18.34	44.42	128.09	139.93	212.29	133.75	325.00	61.94
Sample Size	93	15	58	45	20	20	9	11	2	273

Table 33. Mean lengths (mm) and weights (g) of rainbow trout, by age group from samples collected from Pungokepuk River (T1320BA3), during 1993. Sampling period 5/17 to 7/15, hook and line.

	Age Group									TOTAL
	UNKNOWN	2	3	4	5	6	7	8	9	
<b>All Samples</b>										
Percent		0.9	0.9	14.4	26.1	27.9	22.5	6.3	0.9	100.0
SE		0.90	0.90	3.35	4.19	4.28	3.98	2.32	0.90	
Sample Size		1	1	16	29	31	25	7	1	111
Mean Length	519	167	320	383	446	476	550	563	695	481
SE	17.43			15.16	12.78	10.14	18.23	28.29		8.36
Sample Size	20	1	1	16	29	31	25	7	1	131
Mean Weight	1489		500	692	1056	1277	1967	1936	3600	1353
SE	194.93			74.71	88.55	106.29	155.07	281.73		67.81
Sample Size	14	0	1	16	29	30	23	7	1	121

Table 34. Mean lengths (mm) and weights (g) of rainbow trout, by age group from samples collected from the Arolik River (V0880BA1), during 1991. Sampling period from 8/1 to 8/4, hook and line.

	Age Group							TOTAL
	UNKNOWN	3	4	5	6	7	8	
<u>All Samples</u>								
Percent		8.3	43.3	16.7	20.0	10.0	1.7	100.0
SE		3.60	6.45	4.85	5.21	3.91	1.67	
Sample Size		5	26	10	12	6	1	60
Mean Length	451	380	383	445	477	533	589	436
SE	18.67	24.08	9.21	14.52	21.69	18.02		8.78
Sample Size	22	5	26	10	12	6	1	82
Mean Weight	1141	720	637	1005	1209	1692	2000	995
SE	130.67	159.37	60.74	91.42	197.92	138.09		62.02
Sample Size	21	5	26	10	11	6	1	80

Table 35. Mean lengths (mm) and weights (g) of rainbow trout, by age group from samples collected from the Arolik River (V0880BB2), during 1992. Sampling period 6/25 to 7/14, hook and line.

	Age Group							TOTAL	
	UNKNOWN	2	3	4	5	6	7		8
<u>All Samples</u>									
Percent		1.1	9.5	35.4	33.3	15.9	4.2	0.5	100.0
SE		0.75	2.14	3.49	3.44	2.67	1.47	0.53	
Sample Size		2	18	67	63	30	8	1	189
Mean Length	493	246	347	420	480	533	576	584	463
SE	11.39	4.00	8.59	4.55	6.02	7.88	23.27		5.03
Sample Size	38	2	18	67	63	30	8	1	227
Mean Weight	1533	300	602	1031	1433	1836	2169	1950	1332
SE	106.50	0.00	37.07	38.85	52.93	83.95	276.41		39.07
Sample Size	36	2	18	67	61	29	8	1	222

Table 36. Mean lengths (mm) and weights (g) of rainbow trout, by age group from samples collected from the Arolik River (V0880BA3), during 1993. Sampling period 6/19 to 7/19, hook and line.

	Age Group									TOTAL
	UNKNOWN	3	4	5	6	7	8	9	10	
<b>All Samples</b>										
Percent		0.8	9.1	20.5	37.1	18.2	9.8	3.8	0.8	100.0
SE		0.76	2.51	3.52	4.22	3.37	2.60	1.67	0.76	
Sample Size		1	12	27	49	24	13	5	1	132
Mean Length	511	291	380	437	481	522	551	560	575	485
SE	11.82		18.32	5.23	4.92	9.20	12.49	37.77		5.25
Sample Size	31	1	12	27	49	24	13	5	1	163
Mean Weight	1758	350	792	1094	1459	1787	2108	2304	2150	1527
SE	84.69		117.23	53.77	43.82	107.67	157.18	487.92		45.65
Sample Size	30	1	12	27	48	23	13	5	1	160

Table 37. Mean lengths (mm) and weights (g) of rainbow trout, by age group from samples collected from the Goodnews River (V0040BC3), during 1993. Sampling period 6/23 to 9/15, hook and line.

	Age Group									TOTAL	
	UNKNOWN	1	2	3	4	5	6	7	8		9
<b>All Samples</b>											
Percent		0.3	2.4	14.6	18.5	28.0	20.7	10.9	3.3	1.2	100.0
SE		0.30	0.85	1.95	2.15	2.48	2.24	1.72	0.99	0.61	
Sample Size		1	8	48	61	92	68	36	11	4	329
Mean Length	445	226	292	344	397	455	472	500	526	540	436
SE	17.97		6.14	4.27	6.38	4.49	5.67	6.29	7.92	32.29	3.86
Sample Size	11	1	8	48	61	92	68	36	11	4	340
Mean Weight	1154	500	316	526	771	1132	1252	1494	1639	1895	1048
SE	113.17		27.52	27.53	40.34	36.12	46.38	59.45	117.81	445.37	26.13
Sample Size	10	1	8	48	61	90	68	36	11	4	337

Table 38. Mean lengths (mm) and weights (g) of rainbow trout, by age group from samples collected from the Kanektok River (V0030BA3), during 1993. Sampling period 6/20 to 9/13, hook and line.

	Age Group										
	UNKNOWN	2	3	4	5	6	7	8	9	10	TOTAL
<u>All Samples</u>											
Percent		0.4	11.1	11.6	23.6	24.2	19.8	7.6	1.3	0.4	100.0
SE		0.23	1.15	1.17	1.55	1.57	1.46	0.97	0.42	0.23	
Sample Size		3	83	87	177	181	148	57	10	3	749
Mean Length	487	210	284	365	427	463	489	511	507	524	434
SE	6.86	25.11	3.11	5.89	2.69	2.52	2.93	3.95	8.74	13.32	2.75
Sample Size	32	3	83	87	177	181	148	57	10	3	781
Mean Weight	1290	133	281	599	905	1125	1338	1479	1412	1633	1002
SE	51.24	71.20	8.75	26.48	19.62	18.81	25.03	35.82	49.76	142.40	15.64
Sample Size	34	3	83	87	177	181	147	57	10	3	782

Table 39. Mean lengths (mm) of rainbow trout, by age group from samples collected from the Aniak River (V0050BA3), during 1993. Sampling period 7/30 to 8/6, hook and line.

	Age Group								TOTAL
	UNKNOWN	3	4	5	6	7	8	9	
<u>All Samples</u>									
Percent		2.5	8.6	28.4	28.4	14.8	8.6	8.6	100.0
SE		1.73	3.14	5.04	5.04	3.97	3.14	3.14	
Sample Size		2	7	23	23	12	7	7	81
Mean Length	337	231	286	326	334	345	372	385	334
SE		5.50	7.65	3.95	3.47	4.87	10.30	4.06	3.75
Sample Size	1	2	7	23	23	12	7	7	82

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## LITERATURE CITED

- ADF&G (Alaska Department of Fish and Game). 1990. Southwest Alaska Rainbow Trout Management Plan. Division of Sport Fish, Anchorage.
- \_\_\_\_\_. 1991. Instructions for using sport fish creel survey and biological mark-sense forms, 1990. Division of Sport Fish, Research and Technical Services. Anchorage.
- Beamish, R. J. and G. E. McFarlane. 1987. Current trends in age determination methodology. Pages 15-42 in *Age and growth of fish*. Iowa State University Press, Ames, Iowa.
- Coggins, L. *In prep.* Estimated ages of rainbow trout using scales. Alaska Department of Fish and Game. Fishery Data Series. Anchorage.
- Dunaway, D. O. 1993. Status of rainbow trout stocks in the Agulowak and Agulukpak Rivers of Alaska during 1992. Alaska Department of Fish and Game. Fishery Data Series No. 93-41. Anchorage.
- Heineman, G. M. 1989a. Instructions for using sport fish mark-sense diskettes 1989. Alaska Department of Fish and Game, Division of Sport Fish, Research and Technical Services. Anchorage.
- \_\_\_\_\_. 1989b. BBX crosstabulation system for Bristol Bay historic rainbow trout data. Interdepartmental instruction manual. Alaska Department of Fish and Game, Research and Technical Services, Anchorage.
- Laakso, M. and O. B. Cope. 1956. Age determination in Yellowstone cutthroat trout by the scale method. *Journal of Wildlife Management*, Vol. 20, No. 2.
- Lafferty, R. 1989. Population dynamics of rainbow trout, Kenai River, Alaska. Master's thesis, University of Alaska, Fairbanks.
- Mills, M. and G. Fidler. 1981. Sport fish biological data processing system (B.D.P.) user's guide. Alaska Department of Fish and Game interdivision informational guide. Division of Sport Fish. Anchorage.
- Minard, R. E., M. Alexandersdottir, and S. Sonnichsen. 1992. Estimation of abundance, seasonal distribution, and size and age composition of rainbow trout in the Kvichak River, Alaska, 1986 to 1991. Alaska Department of Fish and Game. Fishery Data Series No. 92-51. Anchorage.

LITERATURE CITED (Continued)

- Minard, R. E. and D. O. Dunaway. 1991. Compilation of age, weight, and length statistics for rainbow trout samples collected in Southwest Alaska. Alaska Department of Fish and Game. Fishery Data Series No. 91-62. Anchorage.
- Sharp, D. and D. R. Bernard. 1988. Precision estimated ages of lake trout from five calcified structures. North American Journal of Fisheries Management 8(3):367-372.
- Sokal, R. R., and F. J. Rohlf. 1981. Biometry. W. H. Freeman and Company, New York, New York.
- Wagner, T. A. 1990. Southwestern Alaska rainbow trout investigations, Kanektok River, Togiak National Wildlife Refuge, Alaska. U. S. Fish and Wildlife Service. Alaska Fisheries Technical Report No. 10. King Salmon, Alaska.

APPENDIX A

Appendix A. File format for Division of Sport Fish standard age, weight, and length form version 1.1.

Name of Field	Width	Start Column	End Column	Comma Column
survey area	3	1	3	4
site	3	5	7	8
unused	3	9	11	12
sublocation line 1	3	13	15	16
sublocation line 2	3	17	19	20
date	6	21	26	27
week of year (computed)	2	28	29	30
weekend/weekday (computed)	1	31	31	32
project number	6	33	38	39
page number	3	40	42	43
species	3	44	46	47
type of length measurement	2	48	49	50
type of weight measurement	2	51	52	53
type of fishery	2	54	55	56
gear code	2	57	58	59
mesh size inches	1	60	60	61
mesh size eighths	1	62	62	63
variable 1 row 1	3	64	66	67
variable 1 row 2	3	68	70	71
variable 2 row 1	3	72	74	75
variable 2 row 2	3	76	78	79
variable 3 row 1	3	80	82	83
variable 3 row 2	3	84	86	87
variable 4 row 1	3	88	90	91
variable 4 row 2	3	92	94	95
age structure type	2	96	97	98
type of tag	2	99	100	101
litho-code	8	102	109	110
line number	2	111	112	113
sex	1	114	114	115
maturity index	2	116	117	118
length	4	119	122	123
weight	4	124	127	128
age	2	129	130	131
age error	1	132	132	133
fate	1	134	134	135
recapture	1	136	136	137
finclip adipose	2	138	139	140
finclip caudal	2	141	142	143
finclip dorsal	2	144	145	146

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Name of Field	Width	Start Column	End Column	Comma Column
finclip anal	2	147	148	149
finclip left ventral	2	150	151	152
finclip right ventral	2	153	154	155
finclip left pectoral	2	156	157	158
finclip right pectoral	2	159	160	161
tag color white	2	162	163	164
tag color black	2	165	166	167
tag color red	2	168	169	170
tag color yellow	2	171	172	173
tag color blue	2	174	175	176
tag color clear	2	177	178	179
tag number	6	180	185	

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APPENDIX B

Appendix B. Division of Sport Fish location names and site codes for waters in Southwestern Alaska.

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Survey Area		Site	Name
Letter	Number		
R	18	010	BROOKS RIVER
R	18	013	BROOKS LAKE
R	18	220	C CREEK
R	18	226	E CREEK
R	18	012	EGEGIK RIVER
R	18	224	F CREEK
R	18	239	FEATHERLY CREEK
R	18	233	GERTRUDE CREEK
R	18	235	GRASSY CREEK (into Ugashik River)
R	18	137	GROSVENOR
R	18	232	HARDSCRABBLE CREEK
R	18	244	IDAVAIN CREEK
R	18	178	IDAVAIN LAKE
R	18	231	KATMAI RIVER
R	18	143	KING SALMON CREEK (Naknek River)
R	18	194	KING SALMON RIVER (Ugashik Bay)
R	18	144	KING SALMON RIVER (Egegik Bay)
R	18	185	LK GROSVENOR LK COLVILLE COMPLEX
R	18	201	LOWER UGASHIK LAKE
R	18	146	MARGOT CREEK
R	18	269	MINK CREEK
R	18	271	MOSSY CREEK
R	18	193	MOTHER GOOSE LAKE
R	18	009	NAKNEK LAKE OTHER
R	18	008	NAKNEK LAKE (BAY OF ISLANDS)
R	18	007	NAKNEK RIVER & TRIBUTARIES
R	18	209	NUMBER 5 CREEK
R	18	270	OTTER CREEK
R	18	155	PAULS CREEK
R	18	156	PIKE CREEK
R	18	210	UGASHIK CREEK
R	18	202	UGASHIK LAKE NARROWS
R	18	203	UGASHIK RIVER
R	18	011	UGASHIK SYSTEM
R	18	272	WHALE MOUNTAIN CREEK
S	19	008	ALAGNAK (BRANCH) RIVER
S	19	138	ALEXEY CREEK
S	19	137	ALEXEY LAKE
S	19	141	BATTLE RIVER

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Appendix B. (Page 2 of 5).

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<u>Survey Area</u>		Site	Name
Letter	Number		
S	19	167	BEAR CREEK (into Newhalen River)
S	19	168	BELINDA CREEK
S	19	008	BRANCH (ALAGNAK) RIVER
S	19	144	CHAR LAKE
S	19	171	CHEKOK CREEK
S	19	158	CHEKOK POINT
S	19	173	CHULITNA RIVER
S	19	005	COPPER RIVER
S	19	119	DREAM CREEK
S	19	142	EMERALD LAKE
S	19	146	FUNNEL CREEK
S	19	170	GIBRALTER RIVER
S	19	006	GIBRALTER SYSTEM
S	19	003	IGIUCIG
S	19	125	ILIAMNA LAKE
S	19	120	ILIAMNA RIVER
S	19	159	INTRICATE BAY
S	19	160	KOKHONAK BAY
S	19	136	KOKHONAK LAKE
S	19	140	KOKHONAK RIVER
S	19	145	KASKANAK CREEK
S	19	150	KIJIK LAKE
S	19	149	KIJIK RIVER
S	19	154	KOKSETNA RIVER
S	19	122	KUKAKLEK LAKE
S	19	177	KULIK LAKE
S	19	123	KULIK RIVER
S	19	003	KVICHAK RIVER
S	19	009	LAKE CLARK AREA
S	19	125	LAKE ILIAMNA
S	19	148	LONG LAKE
S	19	004	LOWER TALARIK CREEK
S	19	164	MIDDLE TALARIK CREEK
S	19	134	MORAINA CREEK
S	19	007	NEWHALEN RIVER
S	19	169	NICK G CREEK
S	19	127	NONVIANUK LAKE
S	19	128	NONVIANUK RIVER
S	19	161	NORTHEAST BAY
S	19	174	OLE CREEK
S	19	175	PECK'S CREEK

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Survey Area		Site	Name
Letter	Number		
S	19	153	PEDRO BAY CREEK
S	19	130	PIKE LAKES
S	19	143	PILE RIVER
S	19	131	PORTAGE LAKE
S	19	162	ROADHOUSE BAY
S	19	163	ROADHOUSE CREEK
S	19	152	SIXMILE LAKE
S	19	156	TANALIAN RIVER
S	19	155	TAZIMINA LAKES
S	19	133	TAZIMINA RIVER
S	19	172	TLIKAKILA RIVER
S	19	165	TOMKOK CREEK
S	19	166	TOMMY CREEK
S	19	151	TURQUOISE LAKE (Dirk's Lake)
S	19	139	UPPER TALARIK CREEK
S	19	157	ZACKER CREEK
T	20	111	AGULOWAK RIVER
T	20	112	ALEKNAGIK LAKE
T	20	165	ALLEN RIVER
T	20	113	AMANKA LAKE
T	20	128	AGULUKPAK RIVER
T	20	004	BEVERLY LAKE
T	20	005	CHAEKUKTULI LAKE
T	20	005	CHICKUMINUK RIVER
T	20	160	CHILCHITNA RIVER
T	20	008	CHILIKADROTNA RIVER
T	20	130	FISH TRAP LAKE
T	20	140	GECHIAK RIVER
T	20	141	GECHIAK LAKE
T	20	135	GRANT RIVER
T	20	174	HALF CABIN LAKE
T	20	157	HEART LAKE
T	20	148	HIGH LAKE
T	20	161	ICE CREEK
T	20	114	IGUSHIK RIVER
T	20	144	KEMUK RIVER
T	20	129	KING SALMON RIVER (into Nushagak River)
T	20	115	KOKTULI RIVER
T	20	126	KOKWOK RIVER
T	20	004	KULIK LAKE

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<u>Survey Area</u>		Site	Name
Letter	Number		
T	20	116	KULUKAK RIVER
T	20	136	LITTLE TOGIAK CREEK (into Lake Nerka)
T	20	138	LYNX CREEK
T	20	168	LYNX LAKE
T	20	154	MATOGAK RIVER
T	20	173	MUKLUNG RIVER
T	20	007	MULCHATNA RIVER
T	20	142	NAYORURUM RIVER
T	20	152	NEGUKTHLIK RIVER
T	20	004	NERKA LAKE
T	20	005	NISHLIK LAKE
T	20	156	NO LAKE CREEK
T	20	003	NUSHAGAK RIVER SYSTEM
T	20	005	NUYAKUK RIVER
T	20	175	NUYAKUK LAKE
T	20	146	ONGIVINUCK LAKE
T	20	131	ONGIVINUCK RIVER
T	20	150	ONGOKE RIVER
T	20	133	PEACE RIVER
T	20	164	PORTAGE CREEK (Nushagak River)
T	20	132	PUNGOKEPUK CREEK
T	20	139	PUNGOKEPUK LAKE
T	20	137	RAINBOW BASIN (also Tsun Creek)
T	20	171	SILVER SALMON CREEK (Wood River)
T	20	163	SNIPE LAKE
T	20	169	STOVALL CREEK
T	20	120	STUYAHOK RIVER
T	20	162	TIKCHIK NARROWS
T	20	170	TIKCHIK RIVER
T	20	177	TIKCHIK LAKE
T	20	005	TIKCHIK-NUYAKUK LAKE SYSTEM
T	20	158	TOGIAK LAKE
T	20	006	TOGIAK RIVER SYSTEM
T	20	149	TRAIL CREEK
T	20	137	TSUN CREEK (also Rainbow Basin)
T	20	121	TURQUOISE LAKE
T	20	125	TUTNA LAKE
T	20	122	TWIN LAKES
T	20	151	UALIK LAKE
T	20	124	UNGALIKTHLUK RIVER
T	20	005	UPNUK LAKE

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<u>Survey Area</u>		Site	Name
Letter	Number		
T	20	159	UPPER TOGIAK LAKE
T	20	134	WIND RIVER
T	20	004	WOOD RIVER LAKES SYSTEM
V	22	050	ANIAK LAKE
V	22	005	ANIAK RIVER
V	22	149	AROLIK LAKE
V	22	088	AROLIK RIVER
V	22	115	EEK RIVER
V	22	092	GOODNEWS LAKE
V	22	004	GOODNEWS RIVER
V	22	242	GOODNEWS RIVER (Southfork)
V	22	129	KAGATI LAKE
V	22	003	KANEKTOK RIVER
V	22	126	KISARALIK LAKE
V	22	043	KISARALIK RIVER
V	22	236	KLAK LAKE
V	22	019	KWETHLUK RIVER
V	22	235	MIDDLE FORK GOODNEWS RIVER
V	22	242	SOUTHFORK GOODNEWS RIVER

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APPENDIX C

Appendix C. Division of Sport Fish gear codes.

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GEAR CODE	MEANING
01	Gill Net
02	Electroshocking
03	Seine
04	Weir Trap
05	Minnow Trap
06	Fyke Net
07	Other Traps
08	Dip Net
09	Hook and Line
10	Trot Line
11	Fish Wheel
12	Spear
13	Shovel
14	Chemical Treatment
15	Explosives
16	Beach or Stream Dead
17	Weir Screen Dead
18	Subsistence Gill Net
19	Subsistence Seine
20	Longline
25	Hoop Net
30	Tow Net
99	All Other Methods

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APPENDIX D

Appendix D. Summary of available rainbow trout data files from the eastern, central, western, and northwestern sections of the Southwest Alaska sport fish management area.

System	Year	Filename	Gear	Number of Aged Records	Number of Records	Sampling Period		Comments (V = variable columns 1-4; R = row 1 or 2 in V1-4)
						start	end	
<u>EASTERN SECTION</u>								
EGEGIK RIVER DRAINAGE								
Contact Creek	91	R2460B91	09	22	26	5-12-91	9-9-91	USFWS FRO King Salmon
Gertrude Creek	90	R2330B90	09	186	196	5-25-90	9-18-90	USFWS FRO King Salmon
	91	R2330B91	09	179	239	5-12-91	9-14-91	USFWS FRO King Salmon
	92	R2330B92	09	12	17	5-27-92	5-31-92	USFWS FRO King Salmon
system subtotal				377	452			
King Salmon R.	91	R1440B91	09	32	39	5-12-91	6-29-91	USFWS FRO King Salmon
Mink Creek	90	R2690B90	09	26	27	6-15-90	9-19-90	USFWS FRO King Salmon
	91	R2690B91	09	183	220	5-13-91	9-15-91	USFWS FRO King Salmon
	92	R2690B92	09	25	31	5-27-92	6-1-92	USFWS FRO King Salmon
system subtotal				234	278			
Mossy Creek	90	R2710B90	09	10	10	6-17-90	6-18-90	USFWS FRO King Salmon
	91	R2710B91	09	68	83	5-14-91	9-16-91	USFWS FRO King Salmon
	92	R2710B92	09	37	38	5-28-92	5-30-92	USFWS FRO King Salmon
system subtotal				115	131			
Otter Creek	91	R2700B91	09	6	10	6-20-91	9-15-91	USFWS FRO King Salmon
Number 5 Creek	90	R2090B90	09	1	1	6-16-90		USFWS FRO King Salmon
	91	R2090B91	09	2	3	8-24-91	9-16-91	USFWS FRO King Salmon
system subtotal				3	4			
Whale Mountain Creek	90	R2720B90	09	15	16	6-18-90	6-19-90	USFWS FRO King Salmon
	91	R2720B91	09	216	285	5-16-91	9-18-91	USFWS FRO King Salmon
	92	R2720B92	09	112	126	5-30-92	6-4-92	USFWS FRO King Salmon
system subtotal				343	427			
Total Egegik drainage samples:				1,132	1,367			

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Appendix D. (Page 2 of 4).

System	Year	Filename	Gear	Number of Aged Records	Number of Records	Sampling Period		Comments (V = variable columns 1-4; R = row 1 or 2 in V1-4)
						start	end	
<b>NAKNEK RIVER DRAINAGE</b>								
Naknek	91	R0070BA1	09	130	157	8-24-91	9-12-91	
River	93	R0070BA3	09	508	626	4-7-93	5-13-93	Modal Age
			16	1	1	4-17-93		Modal Age
			99	0	1	5-6-93		
	93	R007BBC3	09	202	175	8-20-93	9-22-93	Modal Age
system subtotal				841	960			
Total Naknek drainage samples:				841	960			
<b>KVICHAK RIVER DRAINAGE</b>								
Alagnak (Branch) River	93	S0080BA3	09	19	19	7-23-93	8-4-93	Modal Age
Copper River	90	S0050BA0	09	239	275	8-24-90	10-4-90	
Kvichak River	90	S0030BA0	03	1,024	1,291	4-23-90	5-1-90	Modal Age
	90	S0030BB0	09	387	414	8-16-90	9-2-90	
	91	S0030BA1	03	428	1,283	4-22-91	5-2-91	
	91	S0030BB1	09	512	530	8-20-91	10-1-91	
	93	S0030BA3	03	693	871	4-13-93	4-15-93	Modal Age
system subtotal				3,044	4,389			
Nonvianuk River	90	S1280BA1	09	69	106	6-9-90	7-14-90	
Lower Talarik Creek	90	S0040BA0	03	24	29	9-16-90	9-20-90	
			09	284	320	9-1-90	9-20-90	
	91	S0040BA1	09	466	500	8-29-91	9-26-91	
system subtotal				774	849			
Total Kvichak drainage samples:				4,145	5,638			
<b>EASTERN SECTION TOTALS</b>				<b>6,118</b>	<b>7,965</b>			

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Appendix D. (Page 3 of 4).

System	Year	Filename	Gear	Number of Aged Records	Number of Records	Sampling Period start end	Comments (V = variable columns 1-4; R = row 1 or 2 in V1-4)
<u>CENTRAL SECTION</u>							
NUSHAGAK RIVER DRAINAGE							
Mulchatna River	90	T0070BA0	09	139	180	7-2-90 7-26-90	
Nushagak	90	T0030BA1	09	12	28	6-28-90 8-30-90	
Tikchik Lakes	90	T0050BA1	09	12	20	8-20-67 9-12-67	
Total Nushagak River Drainage samples:				163	228		
WOOD RIVER DRAINAGE							
Agulowak River	90	T1110BA1	09	176	251	6-13-90 8-27-90	
	91	T1110BB2	09	92	130	7-21-91 9-21-91	
	92	T111ABA2	09	680	1,433	9-5-92 10-6-92	
system subtotal				948	1,814		
Agulukpak River	92	T128ABA2	09	269	759	9-18-92 10-1-92	
Total Wood River Drainage samples:				1,217	2,573		
CENTRAL SECTION TOTALS:				1,380	2,801		
<u>WESTERN SECTION</u>							
TOGIAK RIVER DRAINAGE							
Gechiak River (USF&WS Tog. Ref.)	93	T1400BA3	09	5	9	5-20-93	Modal Age
Negukthlik River (USF&WS Tog. Ref.)	90	T1520BA1	09	181	277	5-23-90 8-24-90	
Pungokepuk River (USFWS Tog. Ref.)	93	T1320BA3	09	111	132	5-17-93 7-15-93	Modal Age
Total Togiak River Drainage samples:				297	418		

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Appendix D. (Page 4 of 4).

System	Year	Filename	Gear	Number of Aged Records	Number of Records	Sampling Period start end		Comments (V = variable columns 1-4; R = row 1 or 2 in V1-4)
<b>SOUTHERN KUSKOKWIM BAY DRAINAGES</b>								
Arolik River	91	V0880BA1	09	60	82	8-1-91	8-4-91	
(USF&WS Tog.)	92	V0880BB2	09	189	230	6-25-92	7-14-92	
	93	V0880BA3	09	132	163	6-19-93	7-19-93	Modal Age
system subtotal				381	475			
Goodnews River	93	V0040BC3	09	329	342	6-23-93	9-15-93	
(USF&WS FRO King Salmon)								
Kanektok River	93	V0030BA3	09	749	829	6-20-93	9-13-93	
(USF&WS FRO King Salmon)								
(USFWS Togiak Refuge)	93	V0030BG3	09	2	2	7-1-92		
Total Southern Kuskokwim Bay				1,461	1,648			
Drainage samples:								
WESTERN SECTION TOTALS:				1,758	2,066			
<b><u>NORTHWESTERN SECTION</u></b>								
<b>KUSKOKWIM RIVER DRAINAGE</b>								
Aniak River	93	V0050BA3	09	81	82	7-30-93	8-6-93	Modal Age
Kwethluk River	91	V0190B91	09	6	6	7-25-91	7-30-91	
USFWS FRO Kenai			01	2	3	6-29-91	7-30-91	
	92	V0190B92	04	1	1	7-15-92		
			09	1	2	6-10-92		V1R1 otolith age
			16	6	6	6-18-92	8-29-92	V1R1 otolith age
system subtotal				17	18			
NORTHWESTERN SECTION TOTALS:				98	100			
TOTALS - ALL SECTIONS:				9,354	12,932			

