

Chandalar River Fall Chum Age, Sex, Length Data Collection.

R&M# 03-10

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1. Introduction:

Summary:

Methods: Age, sex, and length data will be used to determine trends in the Chandalar River fall chum salmon populations, and for run reconstruction and forecasting. A helicopter was chartered to transport FWS technicians to the spawning grounds approximately 8 km above the village of Venetie during October 8-9, 2010 for data collection. A helicopter was used to survey the spawning area for concentrations of spawned out fish. Upon location of concentrations of spawned out fish, all fish at a particular site were sampled to reduce possible sampling bias. Fish were measured to the nearest 5 millimeters, mid-eye to the fork of the tail (METF). The sex of specimens was determined by external morphology or, if sex was not obvious from external characteristics, by dissection of the carcass and visual identification of reproductive organs. Vertebrae were collected, cleaned, and prepared, then provided to Alaska Department of Fish and Game (ADF&G) for aging.

Objectives:

To collect vertebrae for aging, sex, and length data from fall chum salmon in the Chandalar River.

2. Study Area: Fall chum salmon spawning grounds within the Chandalar River drainage upriver from the village of Venetie.

3. Results:

During October 8-9 sex and length data, and vertebrae were collected from fall chum salmon at three sites on the spawning grounds (Figure 1). The GPS locations of the sites were: N67° 03.862' W 146° 57.790' (site 1); N67° 02.591' W 146° 46.556' (site 2); N 67° 02.628' W 146° 52.094' (site 3). Samples were collected from 180 carcasses, 124 females, 53 males, and 3 undetermined. After being boiled and cleaned samples were sent to ADF&G to be aged.

Dates of operation: Some logistics and preparation began in early July. Sampling occurred on October 8-9, and cleaning of the vertebrae occurred over the following two weeks. Age data was received from ADF&G on February 23.

Problems/Issues: The initial attempt to begin collecting samples on October 7 was postponed for one day, due to weather conditions which prevented helicopter flight over the White Mountains, North of Fairbanks.

4. Discussion:

Ages were successfully determined from all of the samples. There were three primary age classes in the samples, 0.3, 0.2, and 0.4, from brood years 2006, 2007 and 2005, respectively (Table 1). Age class 0.3 was predominant overall, accounting for 58% of the total samples, age class 0.2 accounted for 21% of the total, and age class 0.4 accounted for 17% of the total. Female samples were predominantly age

class 0.3 (56%) followed by age class 0.2 then age class 0.4 (24% and 15% respectively). Male samples were also predominantly age 0.3 (62%) but the second most abundant was 0.4 then 0.2 (21% and 13% respectively). Also included were age classes 0.5 and one fish in age class 0.6 accounting for 3%, and <1% of the total samples respectively. The sex ratio of the samples was 70% female overall. Females ranged from 490 to 650 mm METF and males ranged from 530 to 720 mm METF (Table 2). For length-at-age measurements, mean lengths of male fish were generally larger than females.

TOPO! map printed on 06/27/11 from "Untitled.tpo"

146°53.000' W 146°45.000' W 146°37.000' W 146°29.000' W 146°21.000' W 146°13.000' W WGS84 145°58.000' W

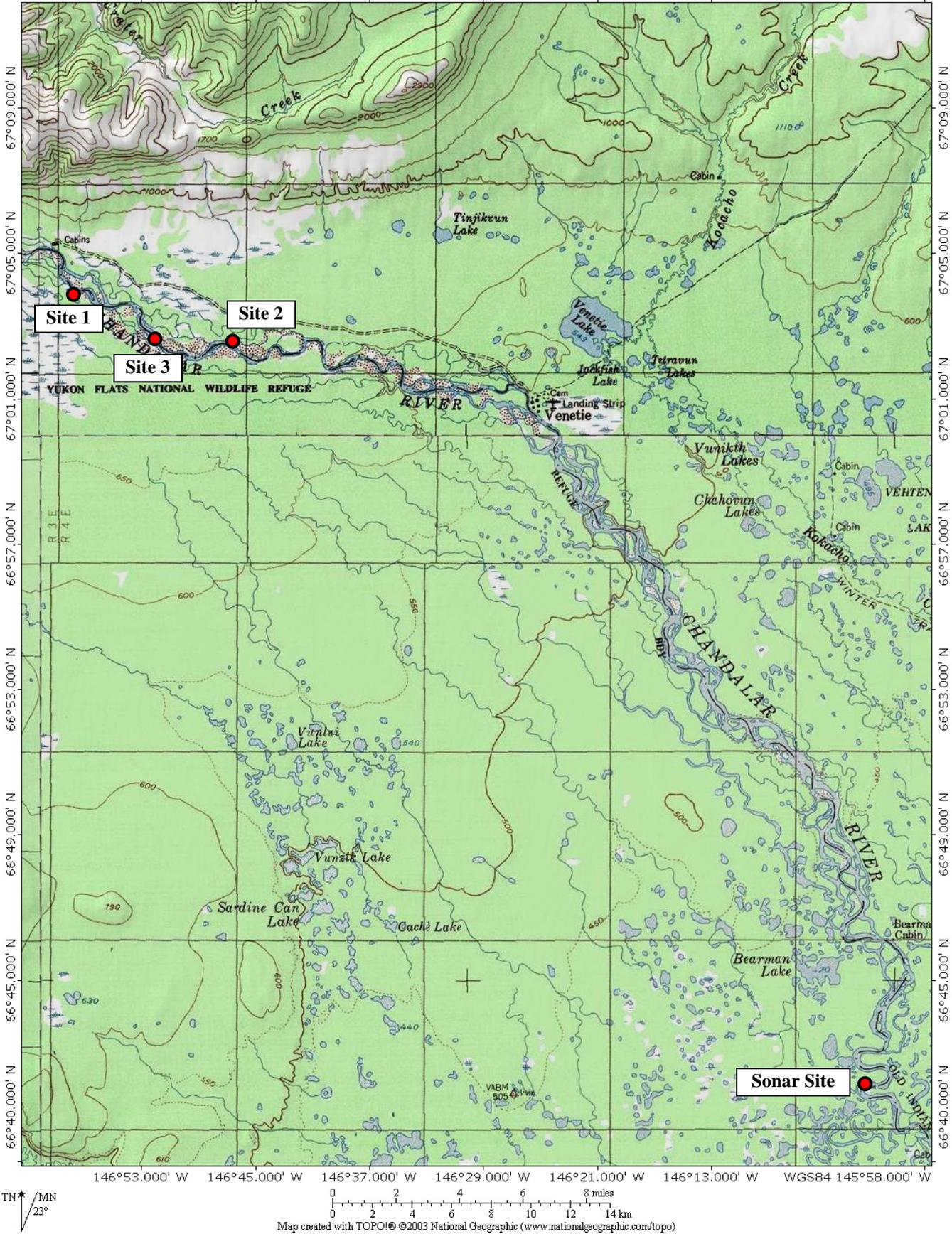


Figure 1. — Map showing sample locations and sonar site.

Table 1. — Age and sex of fall chum salmon carcasses sampled on the spawning grounds in the Chandalar River, Alaska, 2010. Ages determined from vertebrae.

	Sample size	Unknown age	Brood year and age				
			2007	2006	2005	2004	2003
			0.2	0.3	0.4	0.5	0.6
Female	124(70%)	0 (0%)	30 (24%)	70 (56%)	19 (15%)	4 (3%)	1 (1%)
Male	53(30%)	0 (0%)	7 (13%)	33 (62%)	11 (21%)	2 (4%)	0 (0%)
Total	177(100%)	0 (0%)	37 (21%)	103 (58%)	30 (17%)	6 (3%)	1 (<1%)

Table 2. — Length at age of female and male fall chum salmon carcasses sampled on Chandalar River spawning grounds, Alaska, 2010.

Age	Female					Male				
	N	Mid-eye to fork length (mm)				N	Mid-eye to fork length (mm)			
		Mean	SE	Median	Range		Mean	SE	Median	Range
0.2	30	545	4.6	543	490-610	7	599	6.6	600	575-630
0.3	70	558	3.2	560	500-650	33	605	7.7	610	530-720
0.4	19	568	8.2	570	500-630	11	586	12.1	580	540-670
0.5	4	585	11.9	585	560-610	2	595	15.0	595	580-610
0.6	1	630	–	630	–	0	–	–	–	–
Total	124					53				