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

RM# 03-09

Project Proponent: Jeff Melegari. USFWS-Fairbanks Fish and Wildlife Field Office, 101 12th Avenue, Room 110, Fairbanks, Alaska, 99701. (907) 456-0550.

Project Partners: Bonnie Borba. ADF&G-Alaska Department of Fish and Game, Division of Commercial Fisheries, 1300 College Road, Fairbanks, Alaska, 99701, (907) 459-7260.

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 5-7, 2009 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 5-6 sex and length data, and vertebrae were collected from fall chum salmon at two sites on the spawning grounds (Figure 1). The GPS locations of the sites were: N67° 05.060′ W 147° 01.640′; N67° 02.543′ W 146° 51.449′. Samples were collected from 180 carcasses, 104 females and 76 males. After being boiled and cleaned samples were sent to ADF&G to be aged.

Ages were successfully determined from all of the samples. There were two primary age classes, 0.4 and 0.5, from brood years 2004 and 2003, respectively (Table 1). Age class 0.4 was predominant overall, accounting for 63% of the total samples, while age class 0.5 accounted for 26% of the total. Females were predominantly age class 0.4 (67%) followed by age 0.5 (22%) and 0.3 (10%). Males were predominantly age class 0.4 (57%), followed by age class 0.5 (30%) and age 0.3 (8%). Also included were age classes 0.6, and 0.7 accounting for 2%, and <1% of the total samples respectively. The sex ratio for the samples was 58% female. Females ranged from 470 to 620 mm METF and males ranged from 510 to 660 mm METF (Table 2). For length-at-age data, mean lengths of male fish were generally larger than females.

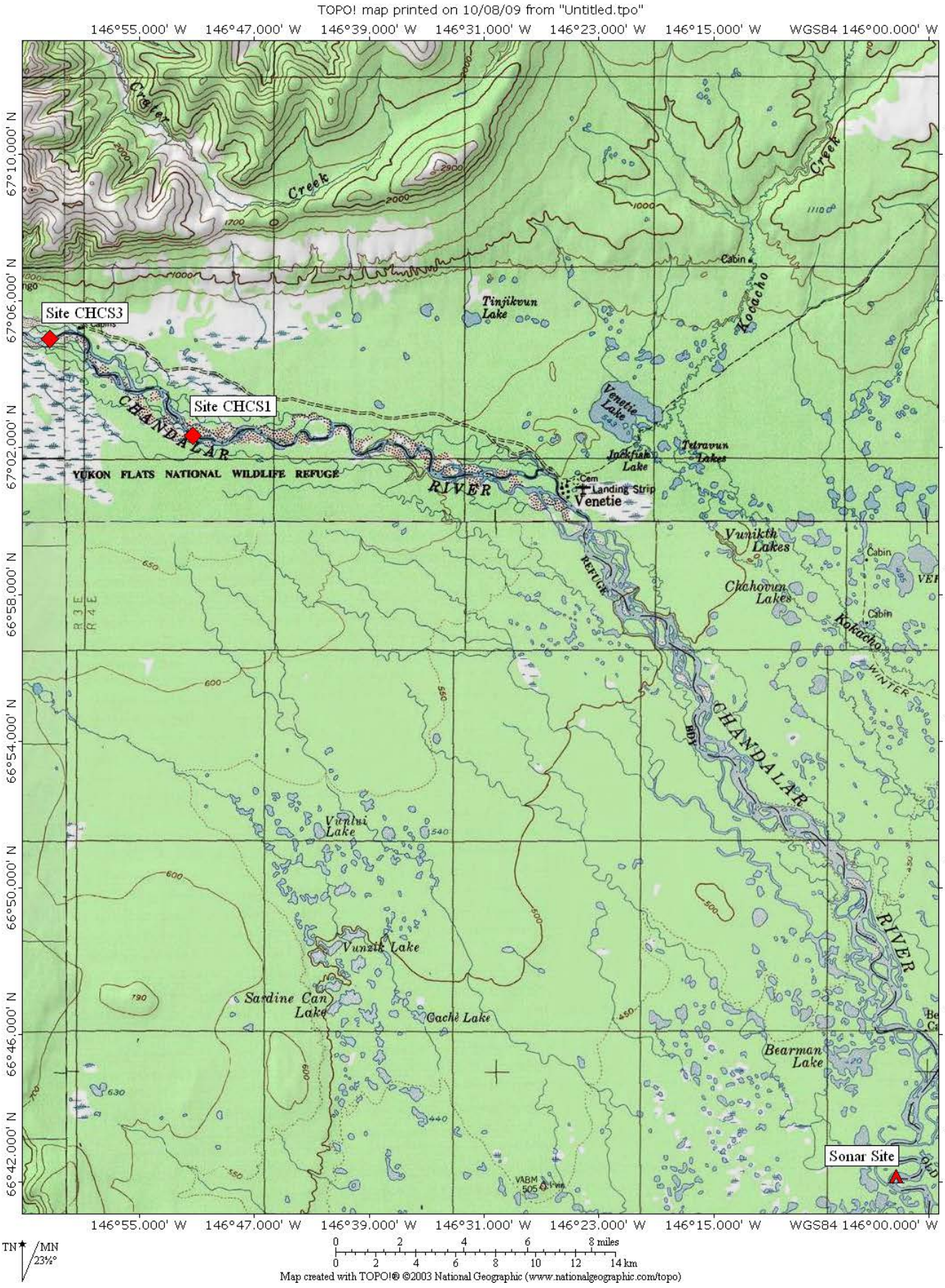

Figure 1. — Map showing sample locations and sonar site.

Table 1. — Age and sex of fall chum salmon carcasses sampled on the spawning grounds in the Chandalar River, Alaska, 2009. Ages determined from vertebrae.

		Brood year and age				
		2005	2004	2003	2002	2001
	Sample size	0.3	0.4	0.5	0.6	0.7
Female	104 (58%)	10 (10%)	70 (67%)	23 (22%)	1 (1%)	0 (0%)
Male	76 (42%)	6 (8%)	43 (57%)	23 (30%)	3 (4%)	1 (1%)
Total	180 (100%)	16 (9%)	113 (63%)	46 (26%)	4 (2%)	1 (<1%)

Table 2. — Length at age of female and male fall chum salmon carcasses sampled on Chandalar River spawning grounds, Alaska, 2008.

	Female					Male				
		Mid-eye to fork length (mm)					Mid-eye to fork length (mm)			
Age	N	Mean	SE	Median	Range	N	Mean	SE	Median	Range
0.3	10	553	8.8	555	505-590	6	575	14.1	585	510-610
0.4	70	557	2.9	558	500-600	43	584	4.3	580	540-650
0.5	23	565	6.6	570	470-620	23	615	4.8	620	560-660
0.6	1	590		590		3	607	16.7	590	590-640
0.7	0					1	660		660	
Total	104					76				