Chandalar River Fall Chum Age, Sex, Length Data Collection

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1. Introduction:

Summary:

The Chandalar River has one of the largest fall chum salmon populations in the upper Yukon drainage (Osborne & Melegari 2006; JTC 2006). Since 1994 sonar has been used to estimate fall chum salmon passage on the Chandalar River. Age, sex, and length (ASL) data have been intermittently collected throughout these years of operation. These data assist managers with assessing Chandalar River fall chum salmon runs, management decisions, and in formulating run predictions. Concentrations of spawning fall chum salmon are present in areas 8 km upstream of the village of Venetie, approximately 69 river km from the mouth of the Chandalar River (Figure 1). This section of the river is generally braided with many islands and multiple channels. The sonar site on the Chandalar River is approximately 21 river km from the mouth. The specific project objective is to collect sex and length data and vertebrae for aging from fall chum salmon in the Chandalar River.

2. Results:

During October 11-12, 2008 a helicopter was used to collect samples from spawned-out fall chum salmon from four sites on the Chandalar River. Fresh snowfall made locating spawned out carcasses difficult. Samples were collected from 181 carcasses, 102 females and 79 males. After being boiled and cleaned samples were sent to Alaska Department of Fish and Game to be aged. Ages were unable to be determined for three of the samples, two females and one male. There were two primary age classes, 0.4 and 0.3, from brood years 2003 and 2004, respectively (Table 1). Age class 0.4 was predominant, overall, accounting for 47% of the total samples, while age class 0.3 accounted for 41% of the total. Females were nearly evenly distributed between age classes 0.3 and 0.4, with age class 0.3 slightly predominant, while males were predominantly age class 0.4. Also included were age classes 0.5, 0.2, and 0.6 accounting for 7%, 3%, and 2% of the samples respectively. The sex ratio for the samples was 56% female. Females ranged from 500 to 630 mm METF and males ranged from 520 to 700 mm METF (Table 2). For length-at-age measurements, mean lengths of male fish were generally larger than females.

Table 1. — Age and sex of fall chum salmon carcasses sampled on the spawning grounds in the Chandalar River, Alaska, 2008. Ages determined from vertebrae, unknown age indicates numbers of fish that could not be aged from the vertebrae sampled and were not included in age calculations.

			Brood year and age				
		Unknown	2005	2004	2003	2002	2001
	Sample size	age	0.2	0.3	0.4	0.5	0.6
Female	102(56%)	2	4(2%)	45(25%)	41(23%)	7(4%)	3(2%)
Male	79(44%)	1	2(1%)	28(16%)	42(24%)	6(3%)	0(0%)
Total	181(100%)	3	6(3%)	73(41%)	83(47%)	13(7%)	3(2%)

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
0.2	4	543	19.3	545	500-580	2	540	10	540	530-550
0.3	45	552	3.3	550	510-610	28	575	5.9	570	520-640
0.4	41	578	4.0	580	530-630	42	608	4.3	605	560-700
0.5	7	560	11.1	560	520-610	6	595	4.3	595	580-610
0.6	3	593	8.8	590	580-610	0	–	–	–	–
Total	100					78				