

# Chinook and Summer Chum Escapements into the Salcha River, 2009

## R&M# 12-09

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### 1. Introduction:

#### *Summary:*

The Salcha River 2009 Chinook salmon escapement estimate is 12,774. The chum salmon escapement estimate is 62,070, assuming the 2009 chum run mid-point was August 10, when tower counts were terminated. Salcha River tower counts began July 6 and ran uninterrupted through August 10 in 2010. The tower operation end date was a condition of the contract, owing the funding source is directed specifically at Chinook salmon run, the chum data is collected as a by-product. The first Chinook salmon was counted July 6, a couple days later than the historic average. This was expected as the Yukon Chinook run has been trending to arrive later in recent years, as well as all downstream Chinook run metrics in 2009 indicated a later than average first fish arrival date, a weak early portion and total run strength, and a later than average general run timing. The estimated Chinook salmon daily passage rate remained below 100 through July 8, increased to 100-500 through July 13, and was near 1,000 on July 15<sup>th</sup>, the recent (1999-2007) average 1<sup>st</sup> quartile passage point. Estimated daily passage of Chinook salmon bounced between 150 and 1,000 from July 16 through August 2, after which remained near or below 100 per day. The recent (1999-2008) Chinook salmon run mid-point (July 21) count was calculated to be 6,372 in 2009. The mean Chinook salmon run mid-point for the earliest Salcha river tower count years (1993-1998) was July 17.

Chinook salmon carcass surveys, covering the lower 65 miles of the Salcha river (the same carcass survey index area as prior years), were conducted July 24, July 29, August 3-4, 7, 11, and 19. Seemingly few Chinook had died by July 24, roughly 25-50% by August 4, and most all by August 19, based on carcasses noted and fish seen still spawning. Analyses of Chinook carcass age, sex and length data (N = 511) collected July 24 through August 19 (scales processed by ADFG) yielded a low portion of females (39%), normal portion of age-6 fish (47%), higher than average portion of age-4 fish (32%) and lower than average portion of age-5 fish (21%). The estimated Chinook salmon escapement to the Salcha River in 2009 was well above the BEG range (3,300 to 6,500). The 2009 Chinook escapement was above the 1993-2006 mean of 10,265, well above the lowest recorded 4,595 (1999) and roughly 60-70% the largest escapement estimates (1993, 2003, 2004).

Chum salmon carcasses were conducted September 7-8. Chum salmon age, sex and length data (N=180) were collected and subsequently provided to ADFG for analysis.

Age-4 chum (brood year 2005) were the dominate age class (55%) with age-5 chum comprising 31% of the vertebra examined. Usually these age classes are about equal. Chum salmon were found in most of the usual spawning areas in numbers seemingly average compared to prior years of the authors involvement (1999 -2009). Several side channels normally used for chum spawning were not occupied, likely due the lower than normal water levels caused by the lower than average rainfall in July and August 2009. The abundance of juvenile Chinook, brood year 2007, was seemingly normal early in the year June, but very low late in the summer. Chinook spawning reaches located during carcass surveys were noted via GPS and an estimate of Chinook seen in each were recorded. These data and other relevant information (i.e. flow volume, water temperature) will be addressed in the final report.

**2. Study Area:** Salcha River outside Fairbanks, Alaska

**2009 SALCHA RIVER**

**CHINOOK SALMON**

**CHUM SALMON**

Date	CHINOOK SALMON				CHUM SALMON			
	Daily N	# 20 min Counts	Expan d Daily	Expan d Cum	Daily N	# 20 min Counts	Expan d Daily	Expan d Cum
6-Jul	2	6	24	24	0	6	0	0
7-Jul	13	24	39	63	0	24	0	0
8-Jul	32	24	96	159	0	24	0	0
9-Jul	69	24	207	366	0	24	0	0
10-Jul	46	24	138	504	0	24	0	0
11-Jul	78	24	234	738	0	24	0	0
12-Jul	82	24	246	984	0	24	0	0
13-Jul	173	24	519	1503	0	24	0	0
14-Jul	306	24	918	2421	0	24	0	0
15-Jul	328	24	984	3405	39	24	117	117
16-Jul	58	24	174	3579	77	24	231	348
17-Jul	55	24	165	3744	110	24	330	678
18-Jul	269	24	807	4551	85	24	255	933
19-Jul	145	24	435	4986	396	24	1188	2121
20-Jul	284	24	852	5838	374	24	1122	3243
21-Jul	178	24	534	6372	103	24	309	3552
22-Jul	344	24	1032	7404	80	24	240	3792
23-Jul	220	24	660	8064	96	24	288	4080
24-Jul	180	24	540	8604	259	24	777	4857
25-Jul	137	24	411	9015	218	24	654	5511
26-Jul	317	24	951	9966	421	24	1263	6774
27-Jul	199	24	597	10563	400	24	1200	7974
28-Jul	196	24	588	11151	547	24	1641	9615
29-Jul	86	24	258	11409	612	24	1836	11451
30-Jul	54	24	162	11571	557	24	1671	13122
31-Jul	70	24	210	11781	594	24	1782	14904
1-Aug	87	24	261	12042	471	24	1413	16317
2-Aug	83	24	249	12291	322	24	966	17283
3-Aug	32	24	96	12387	606	24	1818	19101
4-Aug	38	24	114	12501	807	24	2421	21522
5-Aug	20	24	60	12561	889	24	2667	24189
6-Aug	11	24	33	12594	473	24	1419	25608
7-Aug	6	24	18	12612	349	24	1047	26655
8-Aug	37	24	111	12723	330	24	990	27645
9-Aug	10	24	30	12753	588	24	1764	29409
10-Aug	7	24	21	12774	542	24	1626	31035

**Salcha River carcass survey, Chinook salmon escapement project age and sex composition and mean length, 2009.**

Sample Dates Gear Location	Sample Size		Brood Year (Age)								Total		
			2005		2004		2003		No.	%	No.	%	
			(1.2)	(1.3)	(1.4)	(1.5)							
7/24, 29; 8/3, 4	275	Males	76	27.6	54	19.6	30	10.9	0	0	0	16	58.2
		Females	0	0.0	7	2.5	10	38.9	1	4	5	11	41.8
						13				0		27	
		Subtotal	76	27.6	61	22.2	7	49.8	1	4	5	100.0	
		Mean Length	Males	588		696		857		-			
Std. Error		4		6		14		-					
Mean Length	Females	-		766		865		890					
Std. Error		-		23		4		-					
8/7,11, 19	183	Males	69	37.7	34	18.6	16	8.7	0	0	9	11	65.0
		Females	0	0.0	3	1.6	61	33.3	0	0	64	18	35.0
										0		18	
		Subtotal	69	37.7	37	20.2	77	42.1	0	0	3	100.0	
		Mean Length	Males	578		697		863		-			
Std. Error		5		10		18		-					
Mean Length	Females	-		797		866		-					
Std. Error		-		18		7		-					
All Dates	458	Males	14		88	19.2	46	10.0	0	0	9	27	60.9
		Females	0	0.0	10	2.2	16	36.7	1	2	9	17	39.1
			14		21					0		45	
		Season Total	5	31.7	98	21.4	4	46.7	1	2	8	100.0	
		Mean Length	Males	583		696		859		-			
Std. Error		3		5		11		-					
Mean Length	Females	-		775		866		890					
Std. Error		-		17		3		-					

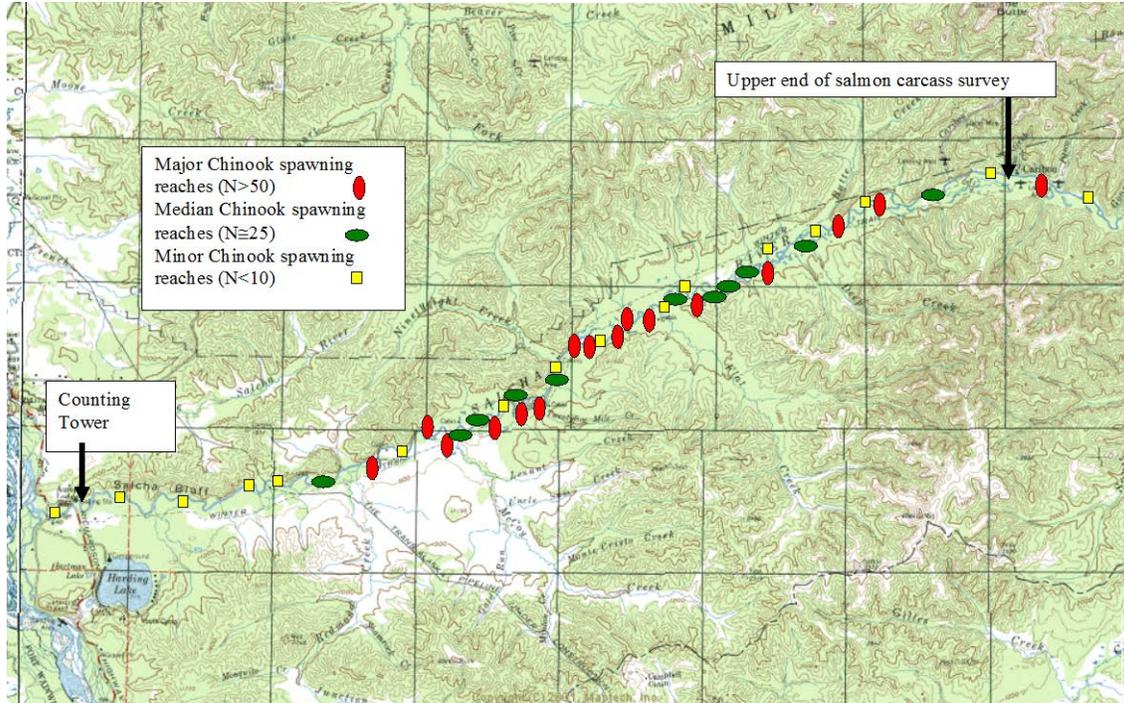


Figure 1. Salcha river counting tower location and carcass survey area ( 65 river miles) (USGS map ref:64144-A1-TF-250).