

# Kuskokwim River Salmon Management Working Group

1 (800) 315-6338 (MEET) Code: 58756# (KUSKO)

ADF&G Bethel toll free: 1 (855) 933-2433

## Meeting Agenda

Date: 4/20/2016

Time: 9:00am

Place: Alaska Department of Fish and Game offices,  
Bethel

Lunch will not be provided and the Group may choose to take a lunch break. The meeting will adjourn no later than 7pm.

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Time Called to Order:

Chair: Bev Hoffman

Time Adjourned:

### ROLL CALL TO ESTABLISH QUORUM:

Upriver Elder:

Downriver Elder:

Commercial Fisher:

Lower River Subsistence:

Middle River Subsistence:

Upper River Subsistence:

Headwaters Subsistence:

### QUORUM MET? Yes / No

Processor:

Member at Large:

Sport Fisher:

Western Interior RAC:

Y-K Delta RAC:

ADF&G:

### INTRODUCTIONS:

### INVOCATION:

**APPROVAL OF AGENDA:** *the agenda may be amended at this time.*

### PEOPLE TO BE HEARD:

### 2016 Fishery Management

A. ADF&G Fishery PROJECT UPDATES 2016 (Zach Liller, 30 minutes)

B. BOARD OF FISHERIES 2016 DECISIONS AND HOW THEY AFFECT MANAGEMENT IN 2016  
(Aaron Poetter, 45 minutes)

C. MANAGEMENT IN 2016 (Aaron Poetter/ Ray Born, 2 hours)

- FORECAST
- STATE MANAGEMENT OPTIONS
- FEDERAL MANAGEMENT OPTIONS

### WORKING GROUP HOUSE KEEPING

A. ELECTION OF CHAIRS

B. BY-LAWS

C. FORAKER GROUP DOCUMENTS AND SUGGESTIONS

### COMMENTS FROM WORKING GROUP MEMBERS:

NEXT MEETING DATE: \_\_\_\_\_ Time: \_\_\_\_\_ Place: \_\_\_\_\_

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Kuskokwim River Salmon Management Working Group

Salmon Assessment Overview

Bethel

4/20/16

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## Data Sharing

The Alaska Department of Fish and Game has worked very hard to ensure that all salmon assessment data are publicly available in a timely manner. For your convenience, ADF&G has developed an extensive webpage dedicated entirely to the Kuskokwim Management Area. This website has detailed information about salmon management and assessment. Information is updated regularly during the winter and daily during the salmon season. Please take the time to get familiar with this website before the salmon season starts. Visit the website often in season to stay informed about current management actions and salmon assessment efforts. <http://www.adfg.alaska.gov/index.cfm?adfg=commercialbyareakuskokwim.main>

1. Kuskokwim River Salmon Management Working Group – A substantial portion of the above-mentioned webpage has been dedicated to the Working Group. This section contains detailed information packets and supplemental documents, which are available prior to the start of every scheduled meeting. Immediately following each meeting, audio recordings of the entire discussion are posted online. In addition, detailed meeting summaries are available, generally within one week. This level of information is available online for each year since 2012.
2. Salmon – A substantial portion of the above mentioned website has been dedicated to keeping the public informed about all things salmon. This portion of the webpage has links to recent announcements, harvest statistics, management activities, assessment activities, and assessment data.
  - a. Announcements – this tab provides access to recent fishery news releases and announcements. The ADF&G news release system is the best place to get information about the management of the subsistence, commercial, and sport fisheries. The link at the bottom of the page provides an option to subscribe and have news releases emailed directly to you.
  - b. Harvest – this tab provides information about harvest statistics and trends.
  - c. Management – this tab provides full text documents of subsistence and commercial Fisheries regulations, Area Management Reports, and information about commercial fishing permits and licenses.
  - d. Research – this tab provides links for recent reports of Kuskokwim Area salmon assessment activities. In addition, there is a link to the ADF&G publications page.
  - e. Fish Counts – this tab provides complete access to Kuskokwim Area salmon assessment data. For your convenience, data are available in summarized and un-summarized formats. The graphs and tables can be customized to view any project, species, or year(s) of interest. During the 2016 season, daily information will be updated by 10 AM each morning.
3. Direct Contact – Anyone interested in discussing Kuskokwim River salmon assessment activities can contact Zachary Liller (Area Research Biologist, [zachary.liller@alaska.gov](mailto:zachary.liller@alaska.gov)) or Aaron Poetter (Area Management Biologist, [aaron.poetter@alaska.gov](mailto:aaron.poetter@alaska.gov)).

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## **2015 Kuskokwim River Salmon Assessment Review**

### Chinook Salmon

Inseason run abundance of Kuskokwim River Chinook salmon is monitored using the Bethel Test Fishery. Run timing in 2015 was similar to average. Test fish data indicated the 2015 run past Bethel was below average, but likely large enough to meet escapement goals.

Estimates of Kuskokwim River Chinook salmon annual abundance and escapement are made at the end of the season using a statistical model (Figure 1 and Table 1). The 2015 total run was estimated to be 172,055 (95% CI: 129,115–229,276). Total run abundance in 2015 was the eighth smallest on record. However, the 2015 run was the largest since 2010 which was the first of 5 consecutive years of record low run sizes. The 2015 run was managed conservatively to ensure that drainage-wide escapement goals would be achieved. Total escapement was estimated to be 155,464 (95% CI: 112,524–212,685). The 2015 escapement was larger than 54% of all prior year escapements and was only slightly below the historical average. The 2015 escapement exceeded the upper bound (120,000) of the drainage-wide escapement goal by 35,000 fish. Results of the 2015 run reconstruction have been published. The final report has been emailed to the Working Group, and is publicly available through the ADF&G publication webpage.

In addition to the run reconstruction model, a mark–recapture study was conducted in 2015 to estimate the total abundance of Kuskokwim River Chinook salmon. Results of this study are currently being reviewed. However, preliminary mark–recapture estimates are similar to the lower bound of the reconstruction model estimate. Although the estimates of total run differ between the two methods, general conclusions about total run and escapement are consistent. In particular, both methods indicate the 2015 total run size was below average, the drainagewide escapement goals were met, and the 2015 run was larger than the 2014 run.

Direct observations from weirs and aerial surveys support the conclusions from the run reconstruction model (Table 2 and 3). A total of seven weirs and eight aerial surveys were used to monitor Chinook salmon escapement in 2015. A few tributaries had poor escapement. In particular, the aerial survey escapement goals were not achieved for the Holitna mainstem or Gagaryah Rivers, and the Holokuk River aerial survey count was well below average. However, escapement to most tributaries was improved compared to recent years. Escapement goals were achieved for the George and Kogruklu river weirs, and the upper bound of the Kwethluk River weir goal was exceeded. The Tatlawiksuk River weir observed the fourth largest escapement on record. Aerial survey escapement goals were achieved on Kisaralik and Salmon (Aniak) rivers. Record high escapements were observed throughout the headwaters upriver from McGrath. In particular, the aerial survey counts for the Salmon River of the Pitka Fork exceeded the upper bound of the escapement goal, and the escapement to Bear Creek was the highest on record.

Despite the relatively small run size in 2015, near average escapements were possible due to conservative management and sacrifices made by subsistence fisherman. Only eight Chinook salmon were harvested in Kuskokwim River commercial fisheries, most of which were retained for personal use. Preliminary subsistence harvest in 2015 was 16,111 Kuskokwim River Chinook salmon. The subsistence harvest was 44% larger in 2015 compared to 2014, but was the second lowest on record and well below the Amounts Necessary for Subsistence (ANS; 67,200–109,800).

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Age, sex, and length data were collected from all ground-based escapement and harvest monitoring projects. Age 4 and 5 year old Chinook salmon were the most common ages observed in 2015. It is very common for these young age classes to be mostly males. The 2015 run was 75% male. The relatively large occurrence of young male Chinook salmon may be an indicator of good returns of 5 and 6 year old fish in 2016, which would likely include more females.

## Chum Salmon

Inseason run abundance of Kuskokwim River chum salmon was monitored using the Bethel Test Fishery. The 2015 run timing was late. Total catch per unit effort (CPUE) was the 10<sup>th</sup> smallest since 1984.

The 2015 chum salmon run was managed conservatively. There were no directed chum salmon commercial opportunities in 2015, and only 507 chum salmon were harvested incidental to other species. The subsistence harvest of Kuskokwim River chum salmon was 39,786, which was below the ANS range (41,200–116,400).

Kuskokwim River chum salmon escapement was monitored using six weirs in 2015 (Table 4). Escapements were well below average at all projects, but within the range of historical escapements. Chum salmon escapements in 2015 were similar or larger than the escapements observed in 2014. The Kogrukluk River has the only established escapement goal for Kuskokwim River chum salmon. That goal was achieved in 2015 and annual escapement has been greater than the lower bound of the goal range every year since 2001. The upper bound of the goal range has been exceeded in six of the past 10 years.

## Sockeye Salmon

Inseason run abundance of Kuskokwim River sockeye salmon was monitored using the Bethel Test Fishery. The 2015 run timing was late. Total catch per unit effort (CPUE) was the 4<sup>th</sup> largest since 1984.

Limited harvest opportunity for sockeye salmon was provided in 2015, due to overlapping run timing with Chinook and chum salmon and the need to conserve those species. Only 130 sockeye salmon were harvested in Kuskokwim River commercial fisheries. The subsistence harvest of Kuskokwim River sockeye salmon was 37,426, which was within the ANS range (32,200–58,700).

Kuskokwim River sockeye salmon were monitored with four weirs in 2015 (Table 5). Escapement past the Kwethluk River and Telaquana Lake weirs were the highest on record. The escapement past the Salmon (Aniak) weir was similar to past years. The Kogrukluk River has the only established escapement goal for Kuskokwim River sockeye salmon. That goal was achieved in 2015 has been achieved or exceeded every year since 2003.

## Coho Salmon

Inseason run abundance of Kuskokwim River coho salmon was monitored using the Bethel Test Fishery and commercial harvest statistics. The 2015 run timing was one of the latest on record. The late run timing made interpretation of test fish CPUE difficult, and inseason projections indicated the run size was below average but large enough to achieve escapement goals.

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Estimates of Kuskokwim River coho salmon annual abundance and escapement are made at the end of the season using a statistical model (Table 6). Preliminary estimates have been made for the 2015 season, and the final report is currently under review. Preliminary results indicate the total coho salmon run size in 2015 was approximately 919,000 (95% CI: 664,000–1,204,000) and total escapement was 816,000 (95% CI: 561,000–1,101,000). Total run size was slightly below average (2000–2014) but drainage-wide escapement was above average due to conservative management and limited harvest.

Direct observations from four weirs support inseason assessment and the conclusions from the coho salmon run reconstruction model (Table 7). Run timing of coho salmon past each weir was among the latest on record. Water levels were below average during the beginning of the coho run which likely contributed to the late run timing and made interpreting inseason escapement counts difficult. Fish were observed by staff holding downriver from the weir for extended periods of time prior to moving upriver. Large numbers of fish moving upriver coincided with significant precipitation in late August at many of the weirs. Coho salmon escapement to the George River was the largest on record and escapement to the Tatlawiksuk River was the second largest on record. Escapement to the Kogruklu River was the fourth largest on record and the escapement goal was exceeded. Escapement past the Kwethluk River weir exceeded the escapement goal.

A total of 65,034 coho salmon were harvested in Kuskokwim River commercial fisheries. The subsistence harvest of Kuskokwim River coho salmon was 33,927, which was within the ANS range (27,400–57,600).

## **2016 Kuskokwim River Salmon Assessment Efforts**

The following assessment projects will operated during the 2016 field season.

### Test Fisheries – data available daily

- Bethel Test Fishery – ADF&G
- Aniak Test Fishery – ADF&G and Native Village of Napaimute

### Weirs – data available online by 10 AM each day

- Kwethluk River – USFWS
- Tuluksak River – USFWS
- Salmon (Aniak) River – ADF&G and Native Village of Napaimute
- George River – ADF&G
- Tatlawiksuk River – ADF&G
- Kogruklu River – ADF&G
- Telaquana River – ADF&G and National Park Service
- Salmon (Pitka Fork) River – ADF&G and MTNT

### Aerial Surveys (Chinook salmon) – data available beginning late July

### Mark–Recapture (Chinook salmon) – weekly updates available for:

- catch rates
- migration timing
- swim speed

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Age-Sex-Length Sampling (All species) – updates available upon request

- Escapement
- Subsistence harvest
- Commercial harvest

Inseason Subsistence Harvest surveys – weekly updates available for:

- Bethel and surrounding communities – ONC
- Middle river communities – ADF&G Division of Subsistence

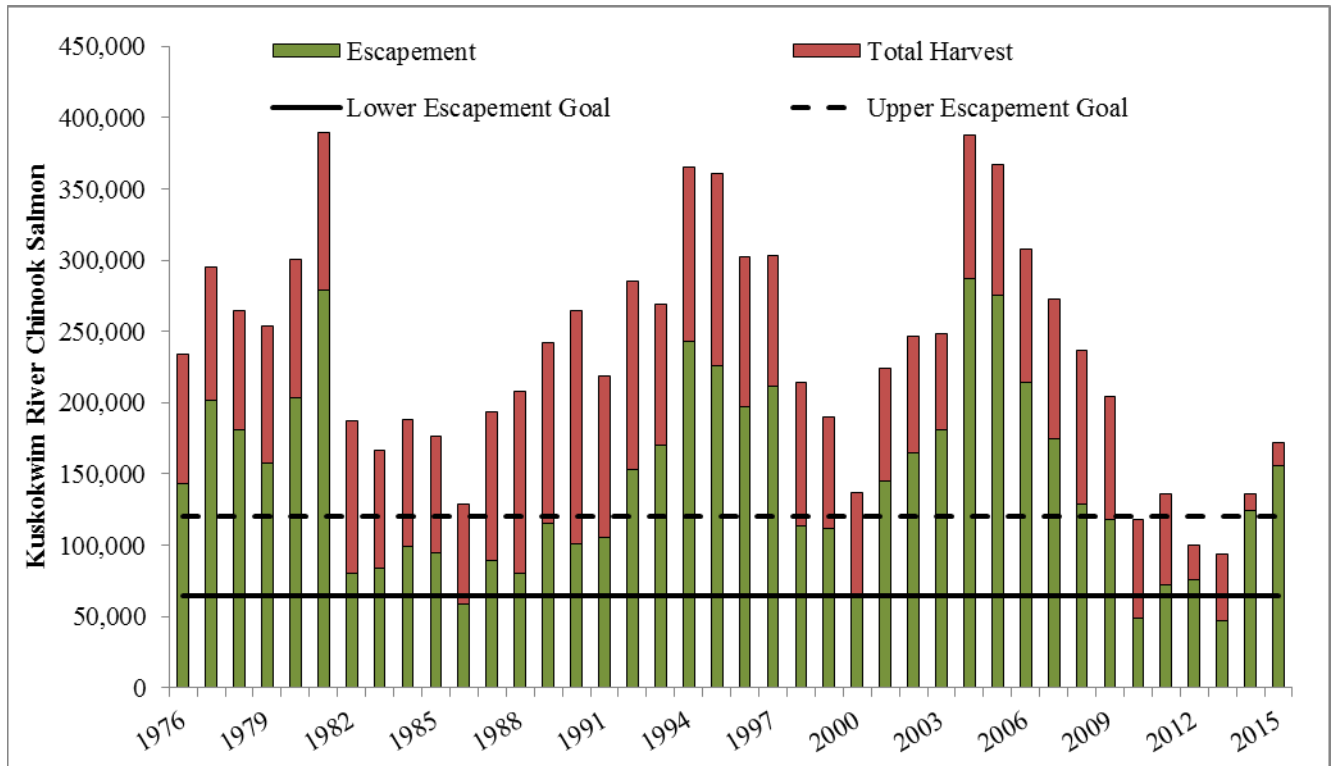
Sonar Feasibility – weekly project updates available

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Figure 1.– Estimates of drainagewide run and escapement of Kuskokwim River Chinook salmon from the run reconstruction model, 1976–2015.



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Table 1.– Published estimates of drainagewide run and escapement of Kuskokwim River Chinook salmon from the run reconstruction model, 1976–2015.

Year	Estimated	95% Confidence Bounds		Estimated	95% Confidence Bounds	
	Total Run	Lower	Upper	Escapem	Lower	Upper
1976	233,967	185,000	300,000	143,420	94,453	209,453
1977	295,559	230,000	385,000	201,852	136,293	291,293
1978	264,325	210,000	330,000	180,853	126,528	246,528
1979	253,970	190,000	350,000	157,668	93,698	253,698
1980	300,573	230,000	410,000	203,605	133,032	313,032
1981	389,791	300,000	515,000	279,392	189,601	404,601
1982	187,354	160,000	225,000	80,353	52,999	117,999
1983	166,333	135,000	210,000	84,188	52,855	127,855
1984	188,238	150,000	250,000	99,062	60,824	160,824
1985	176,292	140,000	235,000	94,365	58,073	153,073
1986	129,168	105,000	160,000	58,556	34,388	89,388
1987	193,465	155,000	270,000	89,222	50,757	165,757
1988	207,818	180,000	250,000	80,055	52,237	122,237
1989	241,857	205,000	295,000	115,704	78,847	168,847
1990	264,802	230,000	320,000	100,614	65,812	155,812
1991	218,705	185,000	270,000	105,589	71,884	156,884
1992	284,846	240,000	350,000	153,573	108,727	218,727
1993	269,305	220,000	340,000	169,816	120,511	240,511
1994	365,246	285,000	485,000	242,616	162,370	362,370
1995	360,513	295,000	450,000	225,595	160,082	315,082
1996	302,603	235,000	405,000	197,092	129,489	299,489
1997	303,189	240,000	395,000	211,247	148,058	303,058
1998	213,873	170,000	275,000	113,627	69,754	174,754
1999	189,939	150,000	240,000	112,082	72,143	162,143
2000	136,618	115,000	165,000	65,180	43,562	93,562
2001	223,707	180,000	280,000	145,232	101,525	201,525
2002	246,296	200,000	300,000	164,635	118,339	218,339
2003	248,789	205,000	295,000	180,687	136,898	226,898
2004	388,136	320,000	465,000	287,178	219,042	364,042
2005	366,601	305,000	435,000	275,598	213,997	343,997
2006	307,662	255,000	375,000	214,004	161,342	281,342
2007	273,060	230,000	320,000	174,943	131,883	221,883
2008	237,074	200,000	285,000	128,978	91,904	176,904
2009	204,747	170,000	250,000	118,478	83,731	163,731
2010	118,507	105,000	140,000	49,073	35,566	70,566
2011	133,059	110,000	160,000	72,097	49,037	99,037
2012	99,807	77,000	130,000	76,074	52,815	106,401
2013	94,166	82,000	108,000	47,315	35,149	61,149
2014	135,749	100,836	182,750	123,987	89,074	170,988
2015	172,055	129,115	229,276	155,464	112,524	212,685



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Table 2.– Annual escapement of Chinook salmon past Kuskokwim River weir projects, 1990–2015.

Year	Kwethluk River	Tuluksak River	George River	KogrukluK River	Tatlawiksuk River	Salmon River (Aniak)	Salmon River (Pitka)
1990				10,093			
1991		697		6,835			
1992	9,675	1,083		6,563			
1993		2,218		12,377			
1994		2,918					
1995				20,662			
1996			7,770	13,771			
1997			7,810	13,190			
1998			<sup>a</sup>			<sup>a</sup>	
1999			<sup>a</sup>	5,543	1,484		
2000	3,547		2,959	3,242	807		
2001	<sup>a</sup>	997	3,277	7,475	1,978		
2002	8,502	1,346	2,443	10,025	2,237		
2003	14,474	1,064	<sup>a</sup>	12,008	<sup>a</sup>		
2004	28,605	1,475	5,488	19,819	2,833		
2005		2,653	3,845	21,819	2,864		
2006	17,619	1,043	4,355	20,205	1,700	7,075	
2007	12,927	374	4,011		2,032	6,255	
2008	5,276	701	2,563	9,750	1,075	2,376	
2009	5,744	362	3,663	9,528	1,071	1,656	
2010	1,667	201	1,498	5,812	546		<sup>a</sup>
2011	4,079	284	1,547	6,731	992		<sup>a</sup>
2012	<sup>a</sup>	555	2,201	<sup>a</sup>	1,116		<sup>a</sup>
2013	845	193	1,292	1,819	495	625	
2014	3,187	320	2,993	3,732	1,904	1,757	
2015	8,162 <sup>b</sup>	709	2,282	8,081	2,104	2,404	6,736
	4,100–		1,800–	4,400–			
SEG:	7,500		3,300	17,000			

<sup>a</sup> Field operations were incomplete; greater than 40% of the run was missed based on historical run timing. Estimates were not made.

<sup>b</sup> Preliminary numbers, subject to change.

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Table 3.– Kuskokwim River Chinook salmon peak spawning aerial survey estimates, 1990–2015.

Year	Lower Kuskokwim River			Middle Kuskokwim River						Upper Kuskokwim River		
	Kwethluk Canyon C.	Kisaralik	Salmon (Aniak)	Aniak	Kipchuk	Holokuk	Oskawalik	Holitna	Gagarayah	Cheeneetnuk	Bear (Pitka)	Salmon (Pitka)
1990		631	1,255	537	596		113					
1991		217	1,564	885	583							
1992			2,284	670	335		91	2,022	328	1,050		2,536
1993			2,687	1,248	1,082	233	103	1,573	419	678		1,010
1994		1,243		1,520	1,218				807	1,206		1,010
1995		1,243	3,171	1,215	1,446		326	1,887	1,193	1,565		1,911
1996					985							
1997		439	2,187	855	980		1,470	2,093	364	345		
1998		457	1,930	443	425							
1999							98	741				
2000			714	182	238			301				362
2001					598	52		4,156	143		175	1,033
2002	1,795	1,727		1,615	1,236	513	295	733		730	211	
2003	2,661	654	3,514	1,493	1,242	1,096	844		1,093	810	176	
2004	6,801	5,157	5,362	1,868	2,177	539	293	4,051	670	918	206	1,138
2005	5,059	2,206		1,679	4,097	510	582	1,760			367	1,801
2006		4,734	5,639	1,618		705	386	1,866	531	1,015	347	862
2007		692	3,984	2,147	1,458				1,035		165	943
2008	487	1,074	3,222	1,061	589	418	213		177	290	245	1,033
2009						565	379		303	323	209	632
2010		235				229			62		75	135
2011				116	79	61	26		96	249	145	767
2012		588		193	49	36	51		178	229		670
2013	1,165	599	754	261	154		38	532	74	138	64	469
2014		622	3,201	1,220	497	80	200		359	340		1,865
2015		709		917	810	77		662	19		1,381	2,016
SEG		400– 1,200	1,200– 2,300		330– 1,200			970– 2,100	300– 830	340– 1,300		470– 1,600
10-yr avg.	2,237	1,344	3,360	1,037	989	326	234	1,386	313	369	202	918

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Table 4.– Annual escapement of chum salmon past Kuskokwim River weir projects, 1990–2015.

Year	Kwethluk River	Tuluksak River	George River	Kogrukluk River	Tatlawiksuk River	Salmon River (Aniak)
1990				26,556		
1991		7,675		23,093		
1992	30,595	11,183		42,569		
1993		13,804		30,163		
1994		15,723		<sup>a</sup>		
1995				32,967		
1996			24,214	48,238		
1997			5,906	7,975		
1998			<sup>a</sup>	<sup>a</sup>		<sup>a</sup>
1999			8,684	14,134	9,739	
2000	11,691		3,507	11,416	7,076	
2001	<sup>a</sup>	19,310	11,287	31,587	23,863	
2002	35,854	9,958	6,534	52,973	24,539	
2003	41,812	11,725	33,648	23,779	<sup>a</sup>	
2004	38,646	11,796	15,012	24,405	21,245	
2005	<sup>a</sup>	35,696	14,834	194,887	55,599	
2006	47,491	25,652	42,318	188,003	32,776	42,825
2007	54,913	17,286	61,531	52,961	83,484	25,340
2008	20,030	12,550	29,396	44,744	30,129	9,459
2009	32,191	13,671	7,944	82,483	19,975	9,392
2010	19,222	13,042	26,275	69,258	37,737	
2011	18,329	10,011	46,650	76,823	88,202	
2012	<sup>a</sup>	16,981	33,310	<sup>a</sup>	44,569	
2013	22,381 <sup>a</sup>	12,911	37,879	65,664	32,249	7,723
2014	17,941	8,726	17,148	30,763	12,455	2,890
2015	23,039 <sup>b</sup>	6,337	17,551	33,201	10,379	5,657

15,000–

Escapement Goal:

49,000

<sup>a</sup> Field operations were incomplete; greater than 40% of the run was missed based on historical run timing. Estimates were not made.

<sup>b</sup> Preliminary numbers, subject to change.

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Table 5.– Annual escapement of sockeye salmon past Kuskokwim River weir projects, 1990–2015.

Year	Kwethluk River	Kogrukluk River	Telaquana River	Salmon River (Aniak)
1990		8,383		
1991		15,542		
1992	1,316	7,833		
1993		27,973		
1994		<sup>a</sup>		
1995		11,145		
1996		15,176		
1997		13,144		
1998		6,036		
1999		5,893		
2000	1,049	2,895		
2001	<sup>a</sup>	7,177		
2002	272	4,084		
2003	2,928	9,302		
2004	3,490	6,895		
2005	<sup>a</sup>	37,787		
2006	6,733	61,382		7,086
2007	5,148	17,211		2,189
2008	2,451	19,675		1,181
2009	4,230	22,826		1,366
2010	4,188	17,139	71,932	
2011	2,031	7,974	35,102	
2012	<sup>a</sup>	<sup>a</sup>	23,005	924
2013	746	7,808	28,050	966
2014	3,778	6,413	24,293	894
2015	8,975 <sup>b</sup>	6,411	95,516	1,669

Escapement Goal: 4,400–17,000

<sup>a</sup> Field operations were incomplete; greater than 40% of the run was missed based on historical run timing. Estimates were not made.

<sup>b</sup> Preliminary numbers, subject to change.

# Kuskokwim River Salmon Management Working Group

**1 (800) 315-6338 (MEET) Code: 58756# (KUSKO)**

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Table 6.– Published estimates of drainagewide run and escapement of Kuskokwim River coho salmon from the run reconstruction model, 2000–2012 and preliminary estimates for years 2013–2015.

Year	Estimated Total Run	95% Confidence Bounds		Estimated Escapement	95% Confidence Bounds	
		Lower	Upper		Lower	Upper
2000	875,447	639,612	1,127,362	567,210	331,375	819,125
2001	742,976	638,353	852,148	515,962	411,339	625,134
2002	631,145	534,541	739,341	500,566	403,962	608,762
2003	2,699,102	2,335,550	3,095,705	2,375,943	2,012,391	2,772,546
2004	1,679,812	1,474,121	1,916,357	1,191,700	986,009	1,428,245
2005	819,739	491,844	1,167,710	639,004	311,109	986,975
2006	694,283	456,243	932,323	464,617	226,577	702,657
2007	777,552	544,286	1,018,752	597,110	363,844	838,310
2008	1,130,279	950,357	1,324,042	931,753	751,831	1,125,516
2009	723,807	604,158	861,183	583,283	463,634	720,659
2010	499,951	171,412	834,612	407,065	78,526	741,726
2011	1,170,785	802,824	1,591,312	1,064,277	696,316	1,484,804
2012	559,219	335,531	787,471	443,296	219,608	671,548
2013	747,646	405,865	1,113,840	604,162	262,381	970,356
2014	1,435,689	1,154,411	1,763,846	1,264,159	982,881	1,592,316
2015	919,421	664,235	1,204,629	816,266	561,080	1,101,474

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Table 7.— Annual escapement of coho salmon past Kuskokwim River weir projects, 1990–2015.

Year	Kwethluk River	Tuluksak River	George River	Kogrukluk River	Tatlawiksuk River	Salmon River (Aniak)
1990				3,446		
1991		4,651		7,206		
1992	45,605	7,501			a	
1993		8,328			a	
1994		7,952		28,110		
1995					a	
1996			a	50,003		
1997			9,392	11,883		
1998			a	22,987		a
1999			8,914	10,908	3,621	
2000	25,610	a	11,269	33,063		a
2001	20,725	23,768	16,724	19,983		a
2002	23,298	11,487	6,759	14,515	11,156	
2003	107,789	41,071	32,873	74,915		a
2004	64,216	20,336	12,499	26,078	16,446	
2005	a	11,324	8,294	25,407	7,076	
2006	25,667	6,111	12,705	16,268		a
2007	19,473	2,807	28,398	26,423	8,500	a
2008	48,049	7,457	21,931	29,237	11,022	10,974
2009	21,911	8,137	12,490	22,289	10,148	6,351
2010	a	1,525	12,639	14,689	3,773	a
2011	a	a	29,120	21,800	14,184	a
2012	20,895	4,407	14,478	13,421	8,015	a
2013		6,490	15,308	21,207	12,764	2,797
2014	43,945	13,797	35,771	52,975	19,814	8,254
2015	22,443 b	6,611	35,812	32,457	17,701	a
Escapement				13,000–		
Goal:	>19,000			28,000		

# 2016 Kuskokwim River Chinook Salmon Management Framework

Ray Born  
Acting Refuge Manager  
Yukon Delta National Wildlife Refuge

# 2016 Management Objective

- Regulate Kuskokwim River Chinook Salmon harvest during 2016 sufficiently to allow adequate escapement to the spawning grounds.
  - Federal In-season Manager (Born) recommends an escapement objective of 100,000 fish.
    - Near upper end of escapement goal range.
    - Precautionary due to:
      - Poor runs since 2010.
      - Failure to meet drainage wide escapement in 2 of last 6 years.
      - Failure to meet escapement goals on the Kwethluk River for multiple years.
      - Failure to meet all weir escapement goals simultaneously since 2010 (except in 2015).



# 2016 Management Objective

- Regulate Kuskokwim River Chinook Salmon harvest during 2016 sufficiently to allow adequate escapement to the spawning grounds.
  - Preseason forecast is 125k-219k.
  - Recommend management based on an anticipated run smaller than the midpoint of 172k.
    - Recognizes possibility that run forecast is overly optimistic based on 2015 estimated run from Mark-Recapture study of 124k.
  - For instance, could manage with an anticipated run of 140k
    - A 100k escapement objective implies a 40k harvest objective.

# 2016 Management Objective

- Example:
  - Manage total harvest not to exceed 40,000
  - Chinook Salmon Harvest Opportunities:
    - Bycatch in early season subsistence 4-inch set net whitefish fishery
    - Bycatch in directed 6-inch subsistence driftnet chum/sockeye fishery
    - USFWS/KRITFC Permit Fishery
    - "Other" opportunities like non-salmon tributaries

# Questions??

Ray Born  
Acting Refuge Manager  
Yukon Delta National Wildlife Refuge