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: **November 20, 2019** Time: **9:00am** Place: **ADF&G Office, Bethel**

Time Called to Order: Chair: 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:
KRITFC:
ADF&G:

INTRODUCTIONS:

INVOCATION:

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

APPROVAL OF MINUTES: *Optional. ADF&G does not prepare official meeting minutes*

PEOPLE TO BE HEARD: *Non-Working Group Members*

CONTINUING BUSINESS:

- **2019 Preliminary Kuskokwim River Season Summary (ADF&G)**
- **2020 Alaska Board of Fisheries Proposal 280 – Proposed by the Organized Village of Kwethluk to allow the use of 6-inch setnets in times of Chinook Salmon conservation (ADF&G)**

WORKING GROUP BUSINESS:

- **Procedures regarding the submission of documents associated with KRSMWG (Name/Logo)**
- **Letter of Support for Smelt Spawning/ Migration in the Kuskokwim River (Dave Cannon)**
- **Letter of Support for Native Village of Napaimute: Fisheries Projects and CHR**
- **Letter of Support for ONC: Fisheries Projects and CHR**
- **Letter of Opposition for Donlin Gold Mine**
- **Donlin and Fishery Restrictions concerns**
- **Recommendation for 2020 Salmon Management to be under ADF&G, oversight by USFWS, only if numbers do not appear to be returning will USFWS resume management**
- **Letter of Support for ADF&G Fisheries Projects and Funding**

NEXT MEETING DATE:_____Time:_____Place:_____

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Informational Packet

Information Packets *ARE*:

- **Intended to help inform Working Group discussions.**
- **To be viewed and used in context with Working Group meetings only.**

Packets *ARE NOT*:

- **To be viewed as standalone documents.**
- **A final say on fisheries management decisions.**

Please use this information responsibly:
Packet information is an incomplete snapshot of an ongoing discussion and changing conditions. Packet information should not be reproduced for any purpose other than to describe Working Group meeting discussions.

Misuse of Packet information can contribute to misunderstandings that can **cause harm to salmon users** and potentially **damage salmon resources**.

Ask Questions: ADF&G staff will be happy to answer biology and management questions. Please call **1-855-933-2433** to reach ADF&G Kuskokwim Area staff.

Attend Meetings: Each Working Group meeting is announced at least 48 hours prior to time and date of meeting. In addition, each meeting is recorded. Recordings can be found here: **http://www.adfg.alaska.gov/index.cfm?adfg=commercialbyareakuskokwim.kswg**

Viewing the information packet while listening to meetings/recordings will provide a better understanding of the information presented in this packet.

Thank you,
Nick Smith and
Ben Gray
Working Group Coordinators

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF COMMERCIAL FISHERIES
NEWS RELEASE

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Date Issued: October 2, 2019
Time: 3:00 p.m.

2019 Preliminary Kuskokwim Area Salmon Season Summary

Kuskokwim Area Management

Kuskokwim River salmon fisheries were managed according to the Kuskokwim River Salmon Management Plan (5 AAC 07.365). The Kuskokwim Bay salmon fisheries were managed according to the District 4 and 5 Salmon Management Plan (5 AAC 07.367).

Kuskokwim River

Preseason Forecast

The 2019 Kuskokwim River Chinook salmon forecast was for a range of 115,000–150,000 fish. The drainage-wide Chinook salmon sustainable escapement goal (SEG) is 65,000–120,000 fish. A run of this magnitude was anticipated to support a limited subsistence harvest and still meet the drainage-wide escapement goal. It was the Department's intent to take a precautionary management approach during the early part of the 2019 season, with fishing periods based on inseason run assessment and input from the Kuskokwim River Salmon Management Working Group (Working Group).

Inseason Subsistence Management

Preseason management actions that were intended to achieve escapement goals included early season subsistence fishing closures, tributary closures, time and area restrictions, gillnet mesh size and length restrictions, and live release requirements. The Working Group voted to support these management actions.

An early season gillnet subsistence fishing closure (i.e., "front-end closure") was initiated on May 28, 2019 from the Yukon Delta National Wildlife Refuge (YDNWR) boundary at the mouth of the Kuskokwim River up to the Tuluksak River; June 1 from Tuluksak River up to the Yukon Delta Refuge Boundary at Aniak; June 6 from the Yukon Delta boundary at Aniak up to the Holitna River mouth, and upstream of Holitna River mouth beginning June 11. With the closure came additional restrictions including tributary closures and required live release of Chinook salmon. During the front-end closure there were two 12-hr set gillnet opportunities with 4-inch or less mesh

to allow subsistence fishers time to harvest non-salmon species. These openings occurred on June 1 and June 8.

Beginning June 1, the Federal Subsistence Board adopted a Special Action to close the Kuskokwim Chinook salmon fishery to non-Federally qualified users within the boundary of the YDNWR. The USFWS managed the subsistence Chinook salmon fishery within the YDNWR through July 1 at which time ADF&G resumed management of the entire Kuskokwim River. During the Special Action, USFWS offered 6-inch setnet opportunities running concurrently to the 4-inch opportunities offered by the Department on June 1 and June 8. Additionally, USFWS offered four, 12-hour gillnet fishing periods on June 12, 15, 19, and 22 with 6-inch or less mesh, 25 fathoms in length above the Johnson River mouth and 50 fathoms in length below the Johnson River mouth. These two setnet and four gillnet opportunities offered by USFWS resulted in an estimated harvest of 40,120 Chinook salmon, 13,400 sockeye salmon, and 7,170 chum salmon by Federally qualified users within the YDNWR, excluding the section between Akiak and Aniak (Decossas 2019).

Beginning June 12, ADF&G opened Section 4 (from the refuge boundary at Aniak to the Holitna River mouth) and Section 5 (Holitna River mouth to headwaters) to subsistence fishing until further notice with 6-inch or less mesh, 25 fathom gill nets. These sections are located within state waters, thus not subject to the Federal Special Action (June 1–July 1).

In river abundance of chum and sockeye salmon began to outnumber Chinook salmon abundance in the lower Kuskokwim River on June 23. The Kuskokwim River Salmon Management Plan ((5 AAC 07.365) specifies that when chum and sockeye abundance exceeds Chinook salmon abundance, management focus shifts to chum and sockeye salmon. Furthermore, inseason assessment projects (Bethel Test Fish and Bethel Sonar) indicated that the Chinook salmon run was materializing above forecast. On June 26, ADF&G opened sections 1–3 of the Kuskokwim River (YDNWR boundary at the mouth of the Kuskokwim River upstream to the boundary at Aniak) to 6-inch or less mesh, 25 fathoms in length above the Johnson River mouth, with 50 fathom in length gillnets being allowed downstream of the Johnson River mouth. With the issuance of the June 26 Emergency Order, the entirety of the Kuskokwim River was open to state residents for subsistence fishing purposes.

Mainstem gear restrictions were rescinded on July 22 and tributary restrictions were rescinded August 31. The tributary restrictions were kept in place beyond the mainstem restrictions for the purpose of conservation while Chinook salmon were on their spawning grounds.

Postseason subsistence harvest surveys are presently being conducted. An assessment of subsistence salmon harvest in 2019 will not be available until after postseason harvest surveys have been completed, data have been analyzed, and preliminary harvest estimates are produced.

2019 Commercial Harvest Outlook and Harvest

	Chinook	Sockeye	Coho	Chum
2019 Outlook	0	5,000–20,000	80,000–140,000	100,000–150,000

District 1 Commercial Fishery

Due to the lack of a large-scale commercial buyer/processor, commercial fishing opportunities were limited to individuals registered with the Department as catcher/sellers who had secured their own markets. A total of 13 commercial openers (directed at sockeye, chum, and coho salmon) were provided in District 1 of the Kuskokwim River between July 22 and August 24. Due to the

small number of participants in these 13 openers, salmon harvest was well below the historical average and State of Alaska confidentiality requirements prohibits release of the harvest data.

Inseason Assessment Overview

During 2019, ADF&G utilized two assessment projects to inform inseason management decisions: The Bethel Test Fishery (BTF) and Bethel Sonar. BTF gave information about salmon species catch-per-unit-effort (CPUE) and run timing, and sonar gave passage estimates for salmon and other species.

Bethel Test Fishery

BTF operated May 25–31 (early season) and June 1–August 24 (regular season). An hour after each posted high tide, a series of drifts were conducted to determine daily CPUE of salmon species. The area fished has not changed since its conception in 1984. From the start of the early season till July 15, BTF used both 8" and 5 3/8" nets (each 50 fathoms in length) for assessment purposes. After July 15, only the 5 3/8" net was used as most of the Chinook had moved upriver and the primary focus of assessment shifted to sockeye, chum, and coho salmon.

Bethel Sonar

Bethel Sonar operated from June 1–July 26. The sonar provides timely information about the abundance of salmon and whitefish species as they migrate up the Kuskokwim River. The Bethel Sonar program also operates a test fishery and uses a series of six nets (8 1/2", 7 1/2", 6 1/2", 5 1/4", 4", and 2 3/4") for species apportionment. Based on numbers of individuals per fish species captured by the nets, the sonar program generates species-specific abundance estimates using species apportionment and sonar counts.

CPUE, Run Timing, and Passage Estimates

Chinook Salmon

BTF Chinook salmon cumulative CPUE was 850, which was larger than any CPUE between 2008–2018. It is estimated that the midpoint of the Chinook salmon run was June 21 (2 days earlier than average).

Bethel Sonar Chinook salmon passage was an estimated 162,672 fish (95% CI = 138,473–186,871 fish).

Sockeye Salmon

BTF sockeye salmon cumulative CPUE was 1,753, which was similar to the 2008–2018 average of 1,762. It is estimated that that the midpoint of the sockeye salmon run was July 9 (10 days later than average).

Bethel Sonar sockeye salmon passage was an estimated 924,579 fish (95% CI = 839,112–1,010,046).

Chum Salmon

BTF Chum salmon cumulative CPUE was 4,990, which was below the 2008–2018 average of 6,678. It is estimated that the midpoint of the chum salmon run was July 18 (13 days later than average).

Bethel Sonar chum salmon passage was an estimated 385,409 fish (95% CI = 320,026–450,792).

Coho Salmon

The coho salmon run was still progressing after BTF and Bethel Sonar ceased operations on August 24 and July 26, respectively. Therefore, cumulative CPUE and passage estimates are incomplete. Coho escapement at the weir projects (see below) is a better indicator of the 2019 run than BTF or Bethel Sonar. That in mind, as of August 24, the cumulative CPUE for coho salmon was 1,799, which is below the 2008–2018 average of 3,236.

Whitefish

Four species of whitefish were captured by the sonar test fishery nets. Smaller whitefish species (i.e., cisco, broad whitefish, and humpback whitefish) were rarely captured at BTF due to larger net sizes used at BTF versus the sonar test fishery. Some sheefish were captured by BTF, however, more were captured by the sonar test fishery.

Bethel Sonar cisco passage was an estimated 608,122 fish (95% CI = 516,873–699,371). Broad whitefish passage was an estimated 6,726 fish (95% CI = 1,539–11,913). Humpback whitefish passage was an estimated 697,627 fish (95% CI 632,090–763,164). Sheefish passage was an estimated 17,984 fish (95% CI = 11,445–24,523).

Salmon Escapement – Kuskokwim River Drainage

Chinook Salmon

The preliminary Kuskokwim River total run estimate is 233,204 Chinook salmon (95% CI = 191,580–283,872) and an estimated 181,641 Chinook salmon (95% CI = 140,017–232,309) escaped Kuskokwim River fisheries, greatly exceeding the drainagewide SEG of 65,000–120,000 fish. Preliminary data also suggests that all Chinook salmon weir escapement goals were met or exceeded within the Kuskokwim River drainage (Table 1). The established SEG range of 4,800–8,800 fish at Kogrukluk River weir was exceeded (10,298 fish), as was the SEG range of 1,800–3,300 at George River (3,617 fish). Preliminary counts at the Kwethluk River weir (6,959 fish) were within the escapement range of 4,100–7,500 fish. Six tributaries have aerial survey SEGs and all six tributaries either met or exceeded their respective SEG ranges (Table 2). All aerial surveys were flown under optimal or good survey conditions. For those tributaries without SEGs, Chinook salmon counts were well above their respective 10-year averages.

Sockeye Salmon

Overall, sockeye salmon escapement was above average throughout the drainage (Table 3). The preliminary Kogrukluk River weir escapement of 31,816 sockeye salmon exceeded the established SEG range of 4,400–17,000 fish. The Telaquana weir observed the second highest escapement of sockeye salmon since the project was established in 2010 with a count of 190,265 fish (Table 3).

Chum Salmon

Escapement projects showed an above average chum salmon run at the Kogrukluk, George, and Kwethluk River weirs. The preliminary escapement count of 70,577 fish at the Kogrukluk River weir exceeded the established SEG range of 15,000–49,000 fish (Table 4).

Coho Salmon

Coho salmon passage at the Kwethluk River weir was 23,982 fish, which exceeded the established lower bound SEG of >19,000 fish. At the Kogrukluk River weir, 14,861 coho salmon were counted, which met the SEG range of 13,000–28,000 fish (Table 5). Unlike other salmon species, 2019 coho escapement was below 10-year averages.

Kuskokwim Bay

District 4 (Quinhagak)

There were no commercial salmon fishing periods in District 4 during the 2019 season due to a lack of a buyer/processor.

Salmon Escapement – District 4

The Chinook salmon aerial survey SEG of 3,500–8,000 fish was achieved with an estimate of 7,212 fish. The sockeye salmon aerial survey SEG 14,000–34,000 fish was vastly exceeded with an estimate of 349,073 fish, which is the highest escapement estimate on record for this species/area (Table 6). The Kanektok River aerial survey had optimal viewing conditions.

District 5 (Goodnews Bay)

There were no commercial salmon fishing periods in District 5 during the 2019 season due to a lack of processing capacity.

Salmon Escapement – District 5

The Middle Fork Goodnews River weir operated from June 22 to July 31 during the 2019 season. Preliminary counts of Chinook (6,421 fish), sockeye (167,105 fish), and chum salmon (38,177 fish) greatly exceeded established SEG's developed for this system (i.e., 1,500–2,900 Chinook; 18,000–40,000 sockeye; >12,000 chum) (Table 7). Since operations ended July 31, the Middle Fork Goodnews River weir was not a good indicator of coho salmon escapement.

An aerial survey was flown on the North Fork Goodnews River on July 31. The Chinook salmon aerial SEG of 640–3,300 fish was achieved with a count 2,642 fish, while the sockeye salmon SEG of 9,600–18,000 was greatly exceeded with 162,930 fish counted, which is the largest escapement on record for sockeye salmon in District 5 (Table 7). The North Fork Goodnews River aerial survey had optimal viewing conditions.

Literature Cited:

Decossas, G. 2019. In-season Harvest and Effort Estimates for the 2019 Kuskokwim River Subsistence Salmon Fisheries During Block Openers. U.S. Department of Interior, Fish and Wildlife Service, Yukon Delta National Wildlife Refuge, Bethel, AK.

Table 1.–Chinook salmon spawning weir escapement, Kuskokwim River drainage, Kuskokwim Management Area 2009–2019.

	Chinook Salmon Escapement			
Year	Kwethluk	George	Kogrukluk	Salmon (Pitka)
2009	5,744	3,663	9,528	[a]
2010	1,668	1,498	5,812	[a]
2011	4,079	1,547	6,731	[a]
2012	[a]	2,201	[b]	[a]
2013	[a]	1,292	1,819	[a]
2014	3,187	2,993	3,732	[a]
2015	8,163	2,282	8,081	6,736
2016	7,619	1,633	7,056	6,326
2017	7,428	3,685	9,992	8,003
2018	[a]	3,306	5,770	5,317
2019 [c]	6,959	3,617	10,298	4,794
SEG	4,100–7,500	1,800–3,300	4,800–8,800	
Average 2009–2018	5,413	2,410	6,502	6,596

[a] Weir did not operate, or counts were incomplete.

[b] Historical run timing indicates that more than 40% of the run was missed; annual escapement was not determined.

[c] Preliminary numbers subject to change.

Table 2.–Chinook salmon spawning aerial survey index estimates, Kuskokwim River Drainage, Kuskokwim Management Area, 2009–2019.

	Kuskokwim River[a]											
	Lower	Middle						Upper				
Year	Kisaralik	Aniak	Kipchuk	Salmon (Aniak)	Holokuk	Oskawalik	Holitna	Gagarayah	Cheeneetnuk	Bear (Pitka)	Salmon (Pitka)	Upper Pitka Fork
2009	[b]	[b]	[b]	[b]	390	379	[b]	303	323	209	632	187
2010	235	[b]	[b]	[b]	108	[b]	587	62	[b]	75	135	67
2011	534	[b]	116	79	20	26	[b]	96	249	145	767	85
2012	610	[b]	193	49	9	51	[b]	178	229	[b]	670	[b]
2013	597	754	261	154	29	38	670	74	138	64	475	[b]
2014	622	3,201	1,220	497	80	200	1,785	359	340	[b]	1,865	[b]
2015	709	[b]	917	810	77	[b]	662	19	[b]	1,381	2,016	[b]
2016	622	718	898	[b]	100	47	1,157	135	217	580	1,578	[b]
2017	[b]	1,781	889	423	140	136	676	453	660	492	687	234
2018	584	1,534	1,123	441	162	[b]	980	438	565	550	1,399	471
2019	1,063	3,160	1,344	950	719	638	1,377	760	1,345	542	1,918	330
SEG	400 – 1,200	1,200 – 2,300		330 – 1,200				300 – 830	340 – 1,300		470 – 1,600	
Average 2009–2018	564	1,598	702	350	112	125	931	212	340	437	1,022	209

[a] Estimates are from aerial surveys conducted during peak spawning periods under 'good' or 'fair' survey conditions.

[b] Survey was either not flown or did not meet acceptable survey criteria.

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Table 3.–Sockeye salmon spawning weir escapement, Kuskokwim River drainage, Kuskokwim Management Area 2009–2019.

Year	Sockeye Salmon Escapement			
	Kwethluk	George	Kogrukluk	Telaquana
2009	4,230	54	22,826	[a]
2010	4,187	113	17,139	71,932
2011	2,031	43	7,974	35,102
2012	[a]	79	[b]	23,005
2013	[a]	150	7,808	28,050
2014	3,778	156	6,413	24,293
2015	8,998	159	6,411	95,516
2016	20,495	2,807	20,087	82,706
2017	29,939	912	27,315	145,287
2018	[a]	1,615	21,768	197,352
2019 [b]	30,306	3,973	31,816	190,265
SEG			4,400 – 17,000	
Average 2009–2018	10,523	609	15,305	78,138

[a] Weir did not operate, or counts were incomplete.

[b] Preliminary numbers subject to change.

Table 4.–Chum salmon spawning weir escapement, Kuskokwim River drainage, Kuskokwim Management Area 2009–2019.

Year		Chum Salmon Escapement		
		Kwethluk	George	Kogrukluk
2009		32,191	7,944	82,483
2010		19,222	26,275	69,258
2011		18,329	46,650	76,823
2012		[a]	33,310	[a]
2013		[a]	37,879	65,644
2014		17,941	17,148	30,763
2015		23,071	17,551	33,201
2016		22,914	20,834	45,329
2017		53,741	40,028	94,387
2018		[a]	48,277	54,211
2019	[b]	42,013	40,072	70,577
SEG				15,000 – 49,000
Average 2009–2018		26,773	29,590	61,344

[a] Project did not operate, or counts were incomplete.

[b] Preliminary numbers subject to change.

Table 5.–Coho salmon spawning weir escapement, Kuskokwim River drainage, Kuskokwim Management Area, 2009–2019.

Year	Coho Salmon Escapement		
	Kwethluk	George	Kogrukluk
2009	21,911	12,490	22,289
2010	[a]	12,639	14,689
2011	[a]	29,120	21,800
2012	20,895	14,478	13,421
2013	[a]	15,308	21,207
2014	43,945	35,771	52,975
2015	24,367	35,812	32,493
2016	28,852	[a]	[a]
2017	46,594	25,384	[a]
2018	[a]	8,999	8,174
2019 [b]	23,982	13,276	14,861
SEG	>19,000		13,000 – 28,000
Average 2009–2018	31,094	21,111	23,381

[a] Weir did not operate, or counts were incomplete.

[b] Preliminary numbers subject to change.

Table 6.– Salmon spawning aerial survey index estimates, Kanektok River, Kuskokwim Management Area, 2009–2019.

	Aerial Survey Escapement	
Year	Chinook	Sockeye
2009	[a]	[a]
2010	1,228	16,950
2011	[a]	[a]
2012	[a]	[a]
2013	2,346	64,802
2014	1,871	148,800
2015	4,919	39,970
2016	5,631	80,160
2017	[a]	[a]
2018	4,246	326,200
2019	7,212	349,073
SEG	3,500 – 8,000	14,000 – 34,000
Average 2009–2018	3,374	112,814

[a] Survey was either not flown or did not meet acceptable survey criteria.

Table 7.–Salmon spawning escapement estimates, Goodnews River Drainage, Kuskokwim Bay, 2009–2019.

	Middle Fork Goodnews R. Weir Escapement				North Fork Goodnews R. Aerial Escapement	
Year	Chinook	Sockeye	Coho	Chum	Chinook	Sockeye
2009	1,669	27,495	19,699	19,237	[a]	[a]
2010	2,176	36,574	26,287	24,789	[a]	[a]
2011	2,045	19,643	24,668	19,974	853	14,140
2012	524	29,531	11,371	9,065	378	16,710
2013	1,187	23,545	1,189	27,682	[a]	[a]
2014 [c]	750	41,473	7,594	11,518	630	[a]
2015 [c]	1,494	57,809	15,084	11,517	991	38,390
2016 [d]	3,767	170,574	[b]	41,815	1,120	90,060
2017 [d]	6,881	179,897	[b]	54,799	[a]	[a]
2018	[b]	[b]	[b]	[b]	[a]	[a]
2019 [d]	6,421	167,105	[e]	38,177	2,462	162,930
SEG	1,500 – 2,900	18,000– 40,000	>12,000	>12,000	640 – 3,300	5,500 – 19,500
Average 2009– 2018	2,272	63,042	17,948	25,994	1,021	38,360

[a] Survey was either not flown or did not meet acceptable survey criteria.

[b] Weir did not operate, or counts were incomplete.

[c] Weir operations ended Aug 31.

[d] Weir operation ended July 31.

[e] Weir removed before coho run materialized.

-end-

PROPOSAL 280

5 AAC 01.270. Lawful gear and gear specifications and operation; and 5 AAC 07.365 Kuskokwim River Salmon Management Plan.

Allow use of set gillnets with 6" mesh to harvest salmon other than king salmon and other non-salmon fish species on the Kuskokwim River for subsistence purposes during times of king salmon conservation, as follows:

5 AAC 01.270 (n)(1)(B). Lawful gear and gear specifications and operation.

(n) Notwithstanding (b) and (j) of this section, during times when the commissioner determines that it is necessary for the conservation of king salmon, the commissioner, by emergency order, may close the fishing season in any portion of the Kuskokwim Area and immediately reopen the season in that portion during which one or more of the following gear limitations may be implemented:

(1) for gillnets;

(B) a gillnet mesh size may not exceed **six** [FOUR] inches and the gillnet may only be operated as a set gillnet; [NO PART OF A SET GILLNET MAY BE MORE THAN 100 FEET FROM THE ORDINARY HIGH WATER MARK;]

5 AAC 07.365 (c)(2)(C) and (c)(3)(C)). Kuskokwim River Salmon Management Plan.

(c) In the king salmon fishery,

(2) when the projected escapement of king salmon is within the drainagewide escapement goal range, the commissioner shall open and close fishing periods, by emergency order, as follows:

(C) notwithstanding (c)(2)(A) of this section, before June 12 the commissioner shall open, by emergency order, at least one subsistence fishing period per week with **six-inch** [FOUR-INCH] or smaller mesh gillnets; the gillnet may only be operated as a set gillnet [AND NO PART OF THE SET GILLNET MAY BE MORE THAN 100 FEET FROM THE ORDINARY HIGH WATER MARK];

(3) when the projected escapement of king salmon exceeds the drainagewide escapement goal range,

(C) notwithstanding (c)(3)(A) of this section, before June 12 the commissioner shall open, by emergency order, at least one subsistence fishing period per week with **six-inch** [FOUR-INCH] or smaller mesh gillnets; the gillnet may only be operated as a set gillnet [AND NO PART OF THE SET GILLNET MAY BE MORE THAN 100 FEET FROM THE ORDINARY HIGH WATER MARK];

What is the issue you would like the board to address and why? Since 2010, the Kuskokwim River has experienced poor king salmon runs. Total run estimates for Kuskokwim River king salmon in 2012, 2013, and 2014 are the 3 lowest on record. From 2010 through 2013 most tributary escapement goals were not achieved and the Kuskokwim River drainagewide sustainable escapement goal established in 2013 was not achieved that year. Beginning in 2014, a very conservative management approach has been employed on the Kuskokwim River, which has led to most tributary escapement goals being achieved. In addition, drainagewide escapement levels have been near the upper end of the established escapement goal of 65,000–120,000 king salmon since 2015. The preliminary 2019 king salmon return was average, the total run was approximately 230,000, the spawning escapement was estimated to be 180,000, the drainagewide sustainable

escapement goal was exceeded, and all tributary goals were met or exceeded. Communications from Kuskokwim River residents indicate most subsistence needs for king salmon were met.

Up to 4-inch mesh gillnets not exceeding 60 ft in length have been allowed during times of king salmon conservation by emergency order as an opportunity for subsistence fishermen to harvest species of fish other than salmon (e.g., sheefish, whitefish, burbot, and northern pike). It was observed that subsistence fishermen were setting 4-inch mesh gillnets and targeting king salmon with this gear. This was a direct conflict with the intent of this fishing opportunity. In response, the board addressed this issue at their March 2015 meeting and adopted regulations to provide the department with the ability to specify that during times of conservation, 4-inch mesh gillnets could only be operated as set gillnets and no part of the gillnet may be more than 100 ft from the ordinary high-water mark.

The Kuskokwim Subsistence Salmon Panel was established by the board in October 2014 to seek public input on how to ensure an equitable distribution of subsistence salmon resources throughout the Kuskokwim River drainage and potential tools for equitable distribution in times of low abundance. The panel met in Bethel in January and August of 2015 to discuss and develop options for consideration by the board. Subsequently, in January 2016, the board met in Fairbanks to consider proposals concerning the Arctic-Yukon-Kuskokwim areas. An early season king salmon subsistence fishing closure, like the approach taken in 2014 and 2015, was suggested and agreed to by a group of Kuskokwim River residents who were in attendance. The board passed language that would annually suspend directed subsistence fishing for king salmon in the Kuskokwim River until after June 11. The intent of this closure was to distribute fish throughout the drainage for equitable harvest opportunity. Consequently, the closure also conserves fish for escapement purposes. In 2017, the board provided the department with additional guidance by directing the department to provide at least 1 subsistence fishing opportunity per week with 4-inch or less mesh set gillnets during the closure. This allows subsistence fishermen the opportunity to harvest species other than salmon during the regulated early season closure.

Six-inch mesh set gillnets would allow an additional gear type to implement for subsistence fisheries when king salmon abundance is forecast to provide harvestable surplus, but inseason run strength is unknown. Set gillnets with 6-inch or smaller mesh could be used to provide harvest opportunity for salmon (other than king salmon) early in the season when conservation measures are necessary to protect king salmon and run abundance is uncertain. This gear type would harvest king salmon at an intermediate rate between 4-inch mesh set gillnets and directed king salmon gear.

PROPOSED BY: Organized Village of Kwethluk (Formerly ACR 9)

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Kuskokwim River Salmon Management Working Group Members,

If the Donlin mine were to proceed, I believe that the high potential for impacts to the Kuskokwim River smelt population resulting from the operation of the immense tug & barge combinations is an issue that all concerned with our fisheries should be aware of.

The Environmental Impact Statement conducted by the Corps of Engineers determined the following: *During the 2015 rainbow smelt spawning survey, spawning occurred as shallow as 8.7 feet along a relatively confined channel segment. The propeller scour of passing tug traffic in such locations could have resulted in detectable incidents of injury* ***or mortality to incubating fish eggs or population-level effects depending on the tug's horsepower rating and engine speed****.* ***Because of the relatively shallow depth across this particular channel segment, it is unlikely that impacts to incubating rainbow smelt eggs could have been avoided by altering the line of travel of barge traffic****.*

The Kuskokwim has never seen the amount of traffic nor the continued use of such powerful tugs (2,000 h.p.) if the mine proceeds as planned.

That's why I'm bringing this issue before the Working Group. As a fish biologist and past member of the Working Group, I don't believe that the mitigation measures offered up by Donlin are sufficient to ensure that the smelt won't be impacted over the life of the mine…although they claim otherwise.

This is one of many such claims that appeared in a past issue of the *Delta Discovery*: *Both Calista and TKC take very seriously their responsibility to* ***ensure*** *that development of the Donlin Gold project is carried out in a thoughtful manner that safeguards Shareholders' way of life and protects all resources, including salmon and rainbow smelt.*

Although we are currently experiencing a normal runoff, five of the previous nine years have been exceedingly low during the smelt run; that's a bright red flag and a real cause for concern!

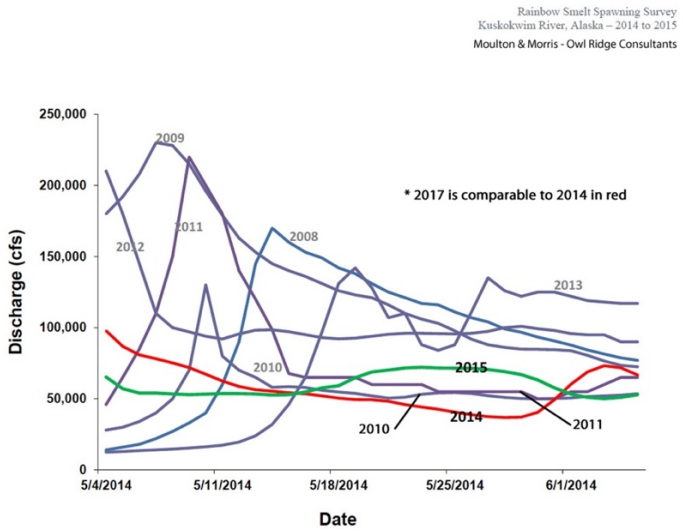
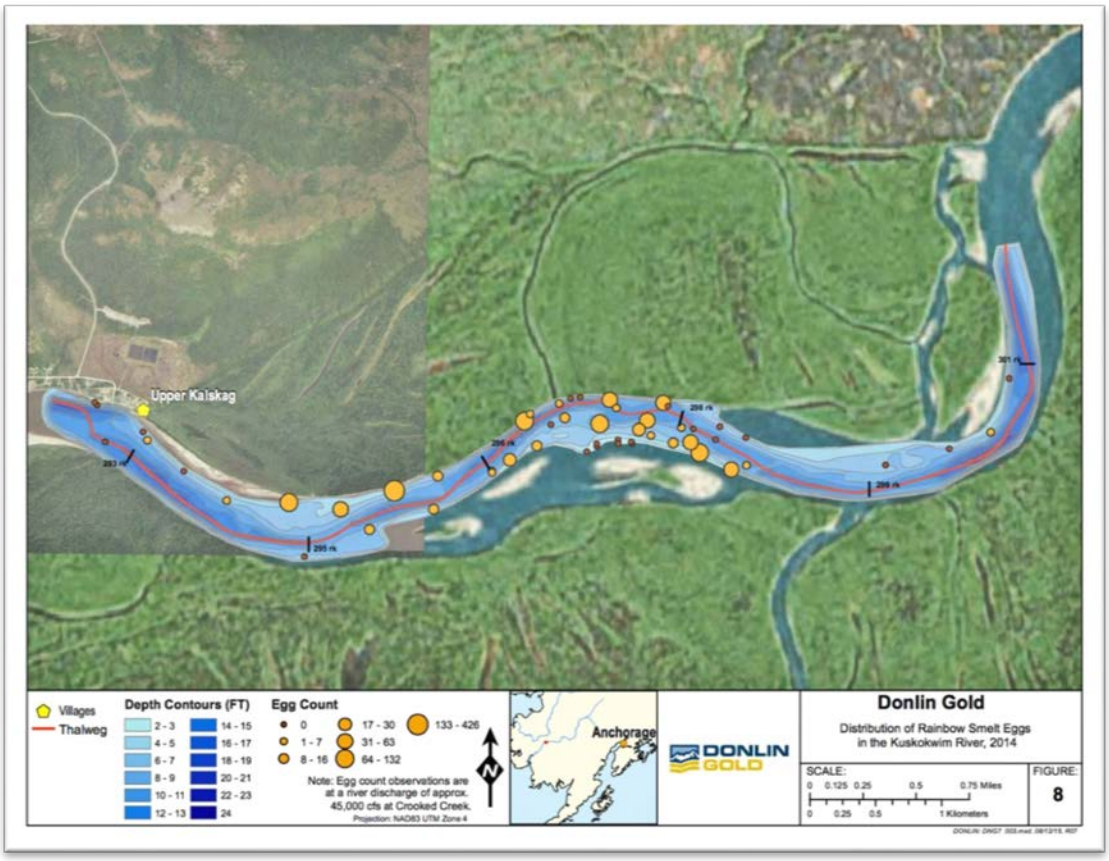
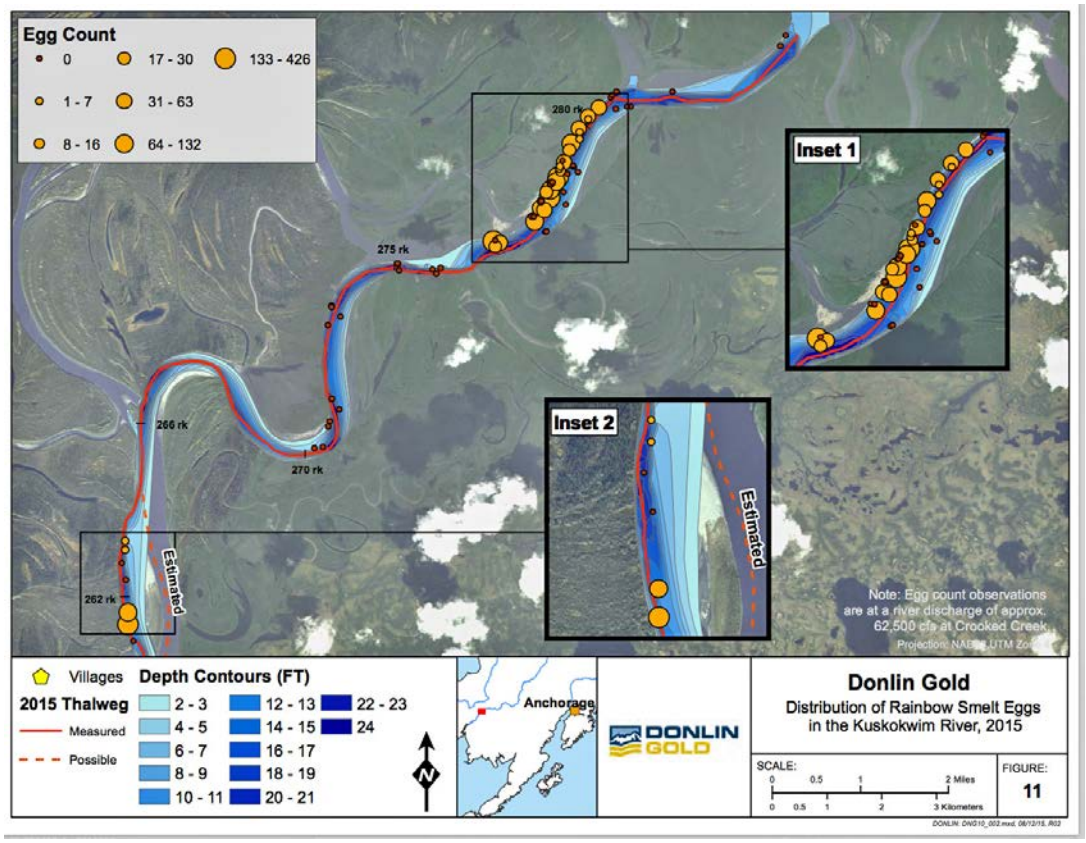


FIGURE 2: KUSKOKWIM RIVER DISCHARGE DURING MAY, 2008 TO 2015, SHOWING THE UNUSUAL POST-BREAKUP FLOW PATTERN IN 2014 AND 2015 (2014 DISCHARGE IN RED, 2015 IN GREEN).

Note the low water years of 2010, 2011, 2014, 2015, & 2017 from mid-May through early June

These maps show where the smelt spawned in 2014 & 2015 in relation to the deepest part of the channel





Why the concern? Consider the confidence interval you're working with on last year's king salmon run after extensive data collection from numerous projects (e.g., sonar, weirs, test fisheries, & harvest surveys). The total run size estimate was 132,312 kings, but there was a confidence interval of plus or minus 30,000 for a total interval spread of 60,000.

The Corps of Engineers accepted Donlin's monitoring plan which states: *Donlin Gold would develop and implement a rainbow smelt monitoring program to establish additional baseline data for a better understanding of the species' occurrence and the character, use, and distribution of spawning habitat along the Kuskokwim River. Survey methodology would likely include documenting sex ratio and age structure of the population and if possible, fecundity of females. Initially, surveys would be conducted annually to document the age structure of the rainbow smelt population and further document spawning patterns. Once an adequate baseline is established, regular sampling would be used to monitor for changes to existing patterns. The frequency of surveys over the long-term would depend on previous results and whether the data indicate a potential shift.*

If rainbow smelt population changes are observed over a defined time period, additional work would need to be undertaken to investigate the reason for those changes. ***If observed changes were attributed to project-related activities****, Donlin Gold would implement an assessment of measures available to address or mitigate those activities.*

Given the size of the Kuskokwim River, natural variation in species populations and natural variation in environmental conditions, I don't believe it's possible to accurately estimate, characterize, or measure the smelt's abundance. Add natural variation in the Bering Sea and the influences of climate change, those make understanding population fluctuations that much more difficult.

Donlin's monitoring plan doesn't even include a population or abundance estimate, which if it did, would have a very large confidence interval. As a result, definitively attributing an impact from a "project related activity" would be next to impossible. Furthermore, the time that it would take to attribute such an impact, plus the additional work to undertake further investigations, could result in a population level impact that may be irreversible since barging would continue throughout the life of the project.

I base my statements not only on my experience as a biologist, but the experience of others. Dr. Peter Moyle has studied the delta smelt of San Francisco Bay for over fifty years. When asked about the adequacy of Donlin's monitoring methods, here's how he responded: "*The delta and longfin smelts are both in trouble in the Sacramento-San Joaquin River are declining (the Delta smelt on the verge of extinction), for a variety of reasons. The delta smelt is one of the best studied fish in the estuary, with annual trawling data going back 60 years****, but pinning down the cause of decline is still difficult and the subject of numerous court battles****.*

One of the problems of course is high natural variability in the populations, especially for fish with a one or two-year life cycle. But if the effects of a major activity like barging are to be detected, the pre-effect sampling program should be long enough so natural variability can be separated from impacts of the activity."

Similarly, Dr. Daniel Schindler - a researcher from the University of Washington - had this to say: *"As you know, detecting population trends in species like smelt is notoriously difficult! Data I've seen from*

other places show a lot of natural year-to-year variability that makes it difficult to detect any real trend in abundance until you have many years of data to look at. To detect a trend in the population, you would want a lot of reference sites as well, to show that the site with the impact departed from the variation observed at other sites. Further, could you really demonstrate that a change in population status could be attributable to a specific activity? I doubt it in a statistical sense. So, while I agree with you that there are lots of reasons to believe that this barging would be a risk to smelt embryos based on first principles of biology, ***I can guarantee that it will be very difficult to statistically detect an effect over the short term, even if there was a huge impact****. So, precaution is warranted!*"

And that brings me back to Donlin's promise to "ensure" that no impacts will occur to our smelt. The only way to accomplish that is to cease project associated barging during the period when adult smelt are spawning, the eggs are developing on the river bottom, and the young have migrated out, which can be three weeks or more.

It's not my intention to shut down any existing barging. For as far as we know, the smelt run has sustained itself with the current level of barge traffic. The concern arises with the increased use that comes with supporting such a large mine - roughly 50 cargo barges & 19 fuel barges annually the first few years during construction, and then increasing to 64 and 58, respectively, while the mine is in operation.

It's my recommendation that the Kuskokwim Salmon Management Working Group, or anyone else for that matter concerned with the future of Kuskokwim fishes, consider a resolution stating 1) that the monitoring plan proposed by Donlin Gold for the smelt over the life of the mine is inadequate to ensure that no harm occurs to our unique population, and 2) that barging should cease during the time that the adult smelt are spawning, the eggs are developing, and the newly hatched have migrated out to Kuskokwim Bay.

Developmental pressures are mounting on Alaska's aquatic resources. If people of the region don't stand up for the fishes we rely so heavily on, I'm afraid that many populations will go the way of not only the smelt of other regions (e.g., the delta smelt of San Francisco Bay), but other fishes as well.

Sincerely,

Dave Cannon
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