

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: 06/05/2019

Time: 10:00 a.m.

Place: Bethel

Time Called to Order:

Chair: TBD

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.*

USFWS/KRITFC UPDATE:

ADF&G MANAGEMENT ACTIONS UNDER CONSIDERATION:

PEOPLE TO BE HEARD:

CONTINUING BUSINESS:

- Subsistence Reports: Lowest River, ONC Inseason Subsistence Report, Lower River, Middle River, Upper River, Headwaters
- Overview of Kuskokwim River salmon run assessment:
 - a. Test Fisheries (Bethel and Aniak):
 - b. Sonar/Weirs/Aerial Surveys/Other:
 - c. Subsistence Division Project Update:
- Commercial Catch Report: N/A
- Processor Report: N/A
- Sport Fish Report:
- Intercept Fishery Report: *optional*
- Weather Forecast:
- Discussion of ADF&G Management considerations and discussion of possible alternatives (recommendations from the Working Group):
- Motion for Discussion and Action:

OLD BUSINESS:

- Donlin Gold project impact on smelt: *Dave Cannon*
- KRITFC escapement goal analysis: *Bill Bechtol/ Kevin Whitworth (KRITFC)*
- Update on procedure options for conducting off-season Working Group business: *ADF&G*

NEW BUSINESS:

- Working Group Coordinator position: *ADF&G*

COMMENTS FROM WORKING GROUP MEMBERS:

NEXT MEETING DATE: _____ Time: _____ Place: _____

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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=commercialbyarea_kuskokwim.kswg

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

Thank you.
Jennifer Peeks
Aaron Tiernan
Working Group Coordinators

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Orutsararmiut Native Council (ONC) Inseason Harvest Monitoring Weekly Report

June 5, 2019

Summary of Interview Activities

ONC conducted surveys with 13 fish camps on Sunday, June 2. These fish camp families are all from the community of Bethel and support 34 total households. Of the 13 fish camps surveyed, 8 reported to have begun fishing for the season. For general comments, one family expressed their dislike with the set net opportunities because it's not worth their time, and two fish camps reported catching "lots" of sheefish. Another fish camp reported the Chinook salmon as small right now.

We also asked fish camps, "Compared to last year, how have your harvest goals for Chinook salmon changed?"

One fish camp decreased their harvest goals for Chinook salmon, seven fish camps increased their harvest goals for Chinook salmon and five fish camps maintained the same harvest goals for Chinook salmon when compared to last year.

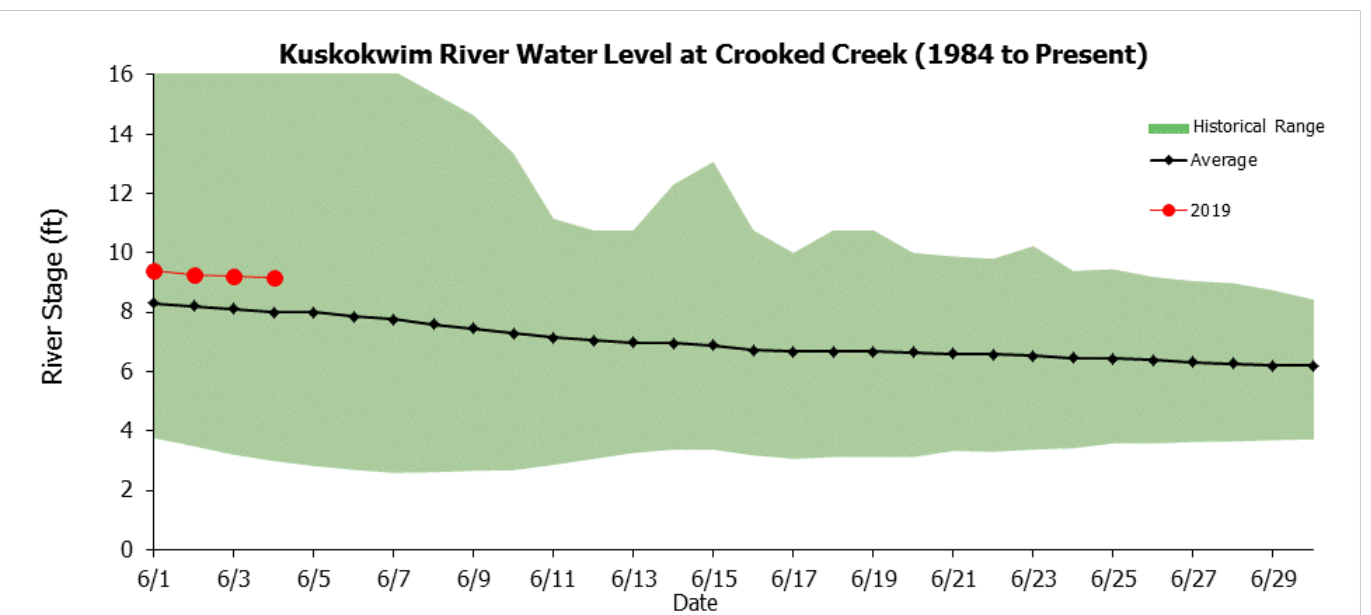
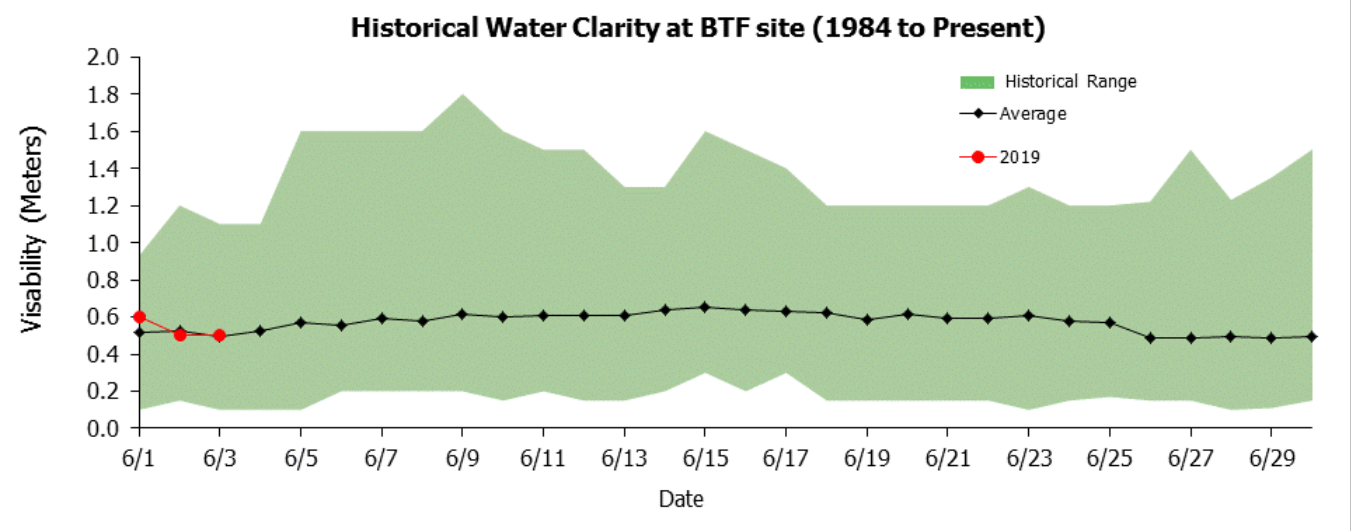
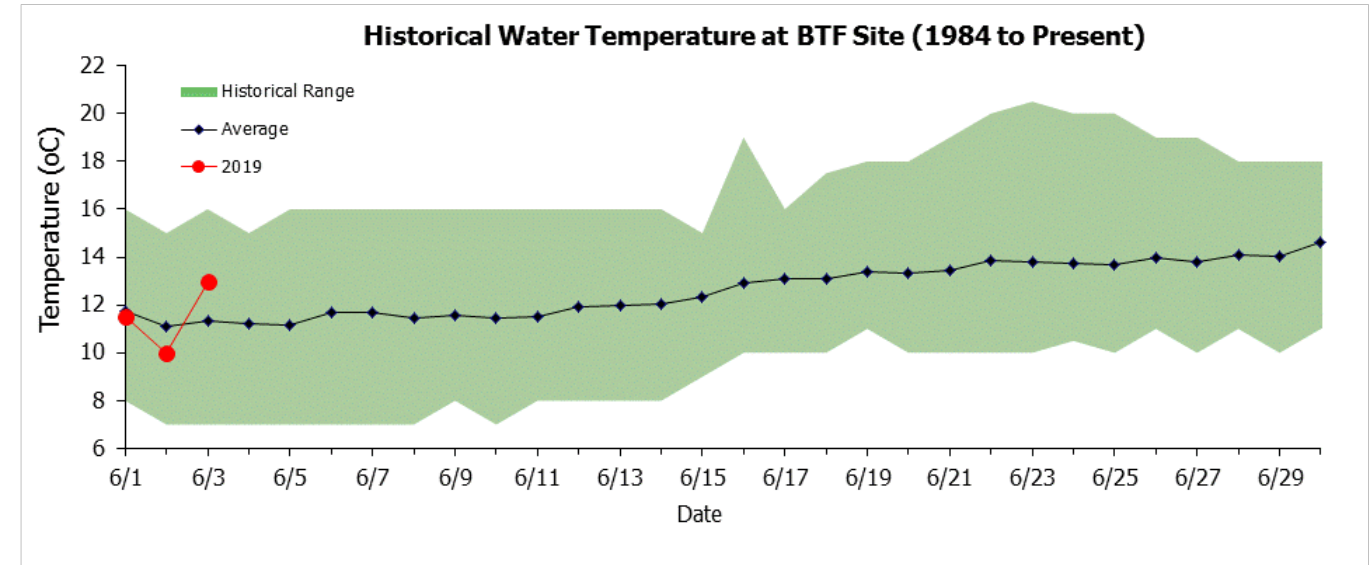
Chinook Salmon Age-Sex-Length (ASL) Sampling Program Recruitment

Thus far this season, there are 19 interested samplers from the Bethel community. The upcoming ASL community training will be held Saturday, June 8 at the ONC Multipurpose building. Folks are welcome to stop by anytime between 11AM-4PM to get trained and/or receive sampling supplies.

Fish Distribution

Thus far (May 25-June 2), we've delivered 6 Chinook salmon and 16 sheefish to Bethel area Elders, disabled and widows, serving a total of 24 qualified individuals. These fish were caught by the Alaska Department of Fish & Game Bethel Test Fishery.

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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!

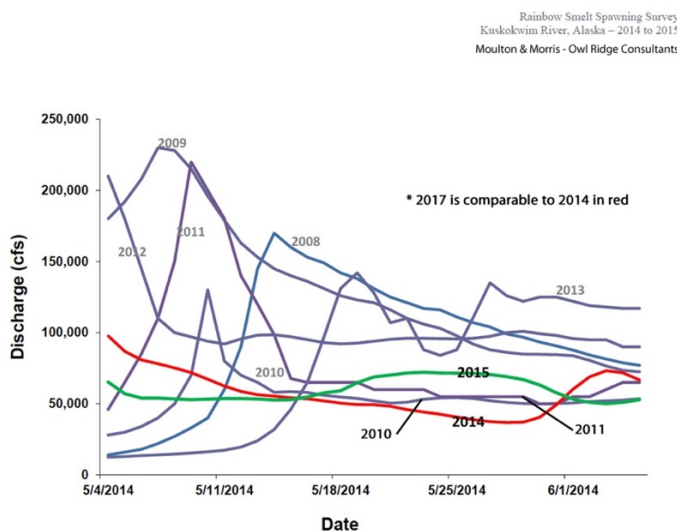
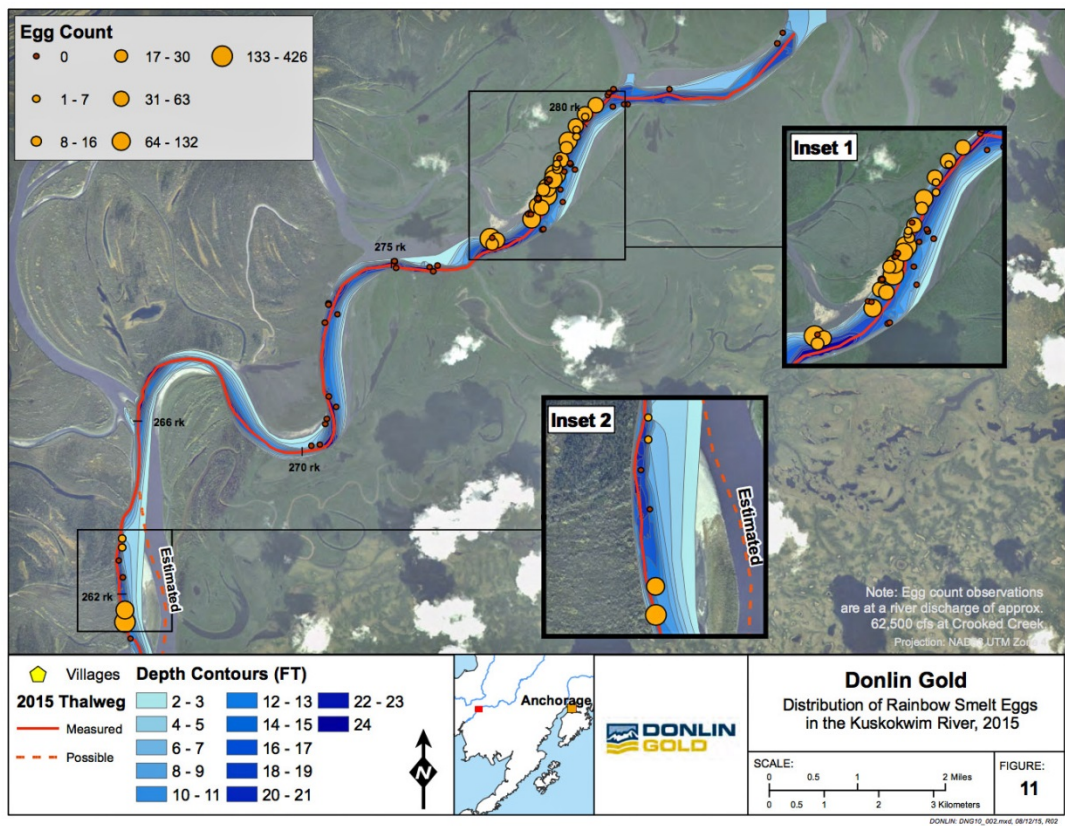
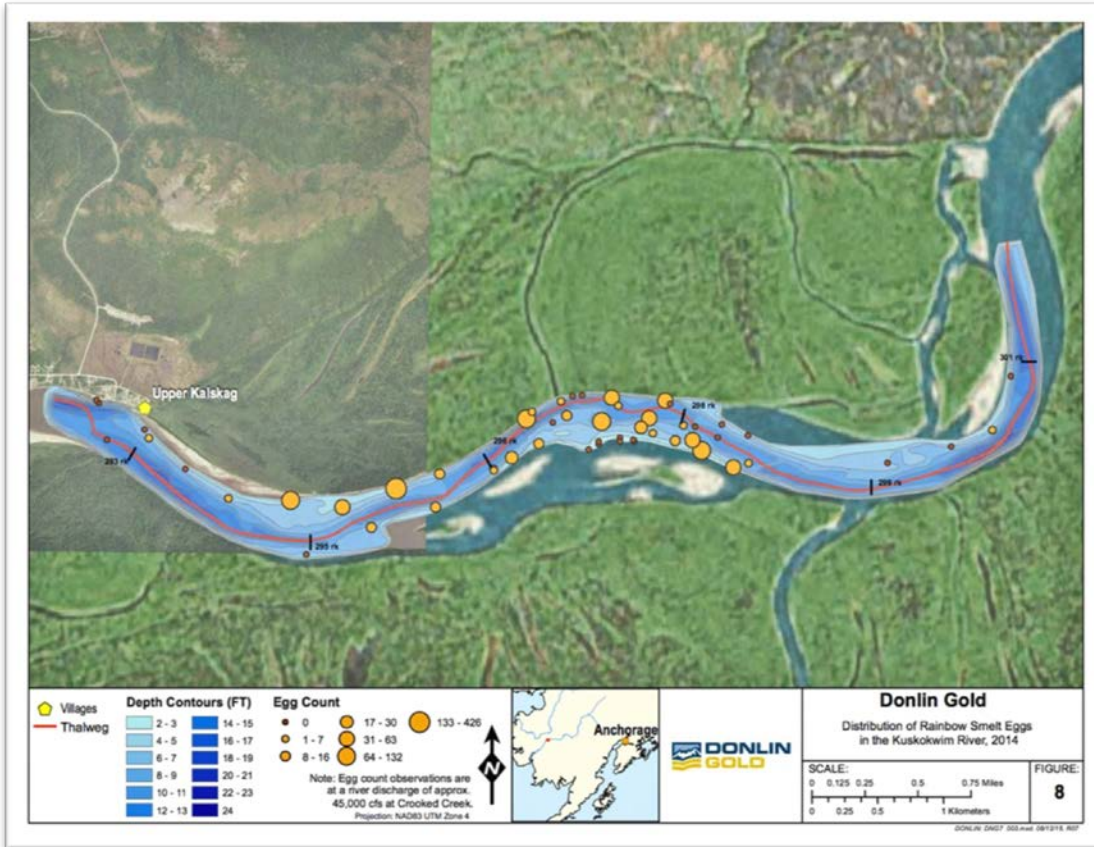


FIGURE 2: KUSKOKWIM RIVER DISCHARGE DURING MAY, 2008 TO 2015, SHOWING THE UNUSUAL POST-BREAKUP FLOW PATTERN IN 2014 AND 2015 (2014 DISCHARGE IN RED, 2015 IN GREEN).

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

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



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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*

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*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
Aniak

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Kuskokwim River Inter-Tribal Fish Commission

2019 Drainage-wide Escapement Target of 110,000 for Kuskokwim River Chinook Salmon

By Bill Bechtol and Kevin Whitworth

June 5, 2019

The drainage-wide escapement goal of 65,000–120,000 was first implemented by ADF&G in 2013 following development of drainage-wide run-reconstruction model. A recent revision to the run-reconstruction model for 1976–2017 reduced estimates of total annual returns by an average of 11% and reduced estimated escapements by an average of 17%. Of note, while 2012 and 2013 are still estimated to be the lowest returns in over four decades, the model revision reduced total returns estimates for 2012–2017 by an average of 24%. In addition, the 2017 and 2018 drainage-wide returns were still around 40% below the long-term average returns.

Targeting the upper portion of the drainage-wide escapement goal range for Kuskokwim River Chinook puts more “eggs in the gravel,” maintains escapement within the established ADF&G escapement goal, and promotes a faster recovery by allowing the population to take advantage of rebuilding when ecological conditions improve.

2016:

On April 20, 2016, the Kuskokwim River Salmon Management Working Group (WG) unanimously adopted a motion that “Regardless of who manages what part of the river, managers should manage for the top 15% of the established Chinook salmon escapement goals in 2016.” This would technically provide an escapement target of 111,750 Chinook. USFWS-KRITFC adopted a similar approach. However, calculations made at the time were based on 85% of the upper bound of the escapement goal range, not 85% of the actual range, and the result of 102,000 Chinook salmon was rounded to 100,000 as an escapement target to guide management of fisheries in federal waters.

2017:

USFWS-KRITFC adopted an escapement target of 75% of the ADF&G escapement goal range (106,250 rounded up 110,000 Chinook) to promote stock rebuilding, with a subsistence harvest target of 40,000. This target decision was shared with the WG without objection.

2018:

On December 6, 2017, the USFWS-KRITFC adopted an escapement target of 75% of the ADF&G escapement goal range (106,250 rounded up 110,000 Chinook) to promote stock rebuilding; ADF&G didn’t object because this is within the established range of 65,000–120,000. This target decision was shared with the WG without objection.

2019:

On March 15, 2019, KRITFC-USFWS adopted an escapement target of 110,000, or approximately 75% of the ADF&G escapement goal range, to promote stock rebuilding.

Precautionary Principle – The principle strategy for addressing risk resulting from data limitations and model misspecification, uncertainty in fisheries management decisions, and

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natural variability in productivity is precautionary management. Both state and federal policy, supported by contemporary fishery science and well established practice, mandate that precautionary approaches be applied to management of salmon and marine fisheries.

The NOAA report “Technical Guidance on the Use of Precautionary Approaches to Implementing National Standard 1” summarizes the precautionary approach to be applied to all marine fisheries as follows (Restrepo et al. 1993) (emphasis added):

“The precautionary approach implements conservation measures even in the absence of scientific certainty that fish stocks are being overexploited. In a fisheries context, the precautionary approach is receiving considerable attention throughout the world primarily because the collapse of many fishery resources is perceived to be due to the inability to implement timely conservation measures without scientific proof of overfishing. Thus, the precautionary approach is essentially a reversal of the “burden of proof.””

Precautionary Escapement Target – The core of sustainable management is to ensure that enough salmon reach the spawning grounds to maintain stock productivity, under a range of potential environmental factors. The current drainage-wide escapement goal established by ADF&G in 2013 for Kuskokwim River Chinook salmon is expressed as a range of 65,000–120,000 salmon. However, this stock has just undergone several years of some of the lowest returns in the past 40 years and recovery has been slower than in previous declines. Under the revised run-reconstruction model, drainagewide escapements during the years 2010–2013 were all below the 65,000 lower bound of the escapement goal range. Given the recent period of low productivity, stock recovery will benefit from having escapement on the upper end of the goal, i.e., putting more eggs in the gravel. Low escapements place Chinook salmon population at higher risk of loss of diversity; greater diversity helps promote resilience in the population. Having returns at the upper end of the escapement goal range supports greater diversity among subpopulations, increasing population resilience. During rebuilding of the run, the proposed management approach is to target the upper 75% level of the established escapement goal range in an effort to promote stock rebuilding.

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Alaska Department of Fish and Game (ADF&G), Division of Commercial Fisheries

Position on the 2019 escapement and harvest objectives established by U.S. Fish and Wildlife Service and Kuskokwim River Intertribal Fish Commission for Kuskokwim River Chinook salmon

In consultation with the Kuskokwim River Inter-Tribal Fish Commission (KRITFC), the USFWS, Yukon Delta National Wildlife Refuge, Federal In-Season Manager has established a minimum escapement objective of 110,000 Kuskokwim River Chinook salmon and a harvest objective of 22,000 for the 2019 season.

A motion was made on May 17, 2019 for the Kuskokwim River Salmon Management Working Group (Working Group; a State of Alaska advisory body) by Co-Chair LaMont Albertson to support the escapement goal and harvest objective established by the Federal In-Season Manager and KRITFC. Working Group members deferred discussion of that motion until their June 5, 2019 meeting. They requested that USFWS and KRITFC explain how the escapement goal of 110,000 Kuskokwim River Chinook salmon was determined. In addition, ADF&G wanted to share its perspective on this motion.

Position of the Alaska Department of Fish and Game:

- ADF&G **Does Not Support** the fixed minimum escapement objective of 110,000 Kuskokwim River Chinook salmon.
- ADF&G **Does Not Support** the fixed harvest objective of 22,000 Kuskokwim River Chinook salmon.

Justification for the Alaska Department of Fish and Game's position:

Key points –

- ADF&G is required to manage Kuskokwim River salmon fisheries in accordance with escapement goals, management plans, regulations, and policies as established by the state through scientific and public processes.
- ADF&G has established an escapement goal range of 65,000–120,000 Kuskokwim River Chinook salmon based on the best available information, rigorous analyses, and through a formal public process.
- The ADF&G escapement goal incorporates principles of precautionary management, is designed to protect Kuskokwim River Chinook salmon, and is designed to protect and sustain subsistence harvest.
- ADF&G supports management of the fishery to achieve a drainagewide escapement within the range of 65,000–120,000 fish and maximize harvest opportunity for subsistence uses by incorporating uncertainty into the decision-making process.
- ADF&G supports providing preseason harvest outlooks for the purpose of management planning. Harvest outlooks should be presented as a range based on forecast uncertainty and consider the entire escapement goal range.
- ADF&G supports using a probability-based approach to inform inseason fishery management decisions.

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- ADF&G supports using the analysis tool (p-star model) developed by USFWS analysts in consultation with ADF&G and others. This interactive model is a documented, scientifically defensible, and transparent method to estimate the probability of achieving the ADF&G escapement goal given alternative harvest scenarios.
- The scientific rationale and supporting analysis for the USFWS and KRITFC 2019 management objectives are lacking, and they do not fully address the concerns expressed by subsistence users to meet escapement goals while also maximizing harvest opportunity.
- Setting the escapement objective to a minimum of 110,000 fish unnecessarily restricts subsistence opportunity.
- Setting the escapement objective to a minimum of 110,000 fish does not guarantee larger runs or more harvest in the future.
- A harvest objective of 22,000 implies a guarantee of harvest by subsistence fisherman, which may not be appropriate under some possible run size scenarios.

Additional information related to ADF&G's position –

- **Escapement-based management:** ADF&G's policy is to manage salmon fisheries to achieve escapements within ranges that can sustain harvest. ADF&G escapement goals are based on the best available information and presented as a range. Escapement goal ranges are harvest management tools. All escapements within the range are expected to promote similar run sizes and harvest opportunities in the future. Within a specific year, however, there is a clear trade-off between escapement and harvest. ADF&G managers must attempt to achieve the escapement goal while at the same time providing subsistence users an opportunity to meet harvest needs. This balance is hardest when run sizes are low and fishing restrictions are needed to achieve escapement goals. Conservative management during years of low abundance is appropriate to ensure escapement goals are met. Conservative management may result in escapements near the upper end or in excess of a goal range, due to assessment and management uncertainty. However, ADF&G disagrees with management strategies that specifically target escapements near the upper end of the escapement goal range by reducing subsistence harvest opportunity when additional surplus is available for harvest. There is no scientific or social justification for such strategies.

The precautionary approach is built into the ADF&G management process. Escapement is identified as the highest priority management objective. ADF&G escapement goals and management plans are used in combination to promote responsible and sustainable harvest opportunity. Methods used to establish ADF&G escapement goals are conservative by design. Managing for high escapements, even in years of low run abundance, are not needed to protect the population and unnecessarily restrict subsistence fishing opportunity.

- **Kuskokwim River Chinook salmon escapement goal:** ADF&G has established an escapement goal range of 65,000–120,000 Kuskokwim River Chinook salmon based on the best available information and through a formal public process. The ADF&G escapement goal range was established in 2013. It is the first drainagewide goal range established for this stock, and it is the only scientifically based escapement goal that has been proposed to date. The data and analyses

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used to develop the ADF&G goal have been extensively reviewed and are consistent with best practices. The escapement goal was most recently reviewed, in some capacity, by ADF&G, USFWS, and an independent review panel funded by AYKSSI. USFWS concluded that the ADF&G escapement goal analysis was “among the most sophisticated approaches that can be used to determine an appropriate escapement goal...”. During the run reconstruction model review process, the AYKSSI review panel developed escapement goals for the purpose of data exploration and not recommendation; however, their results were similar to ADF&G’s and confirmed the spawner-recruit model selected by ADF&G is conservative. ADF&G concluded that the escapement goal range of 65,000–120,000 is appropriate but the stock was less productive than originally thought. This means that achieving escapements within the ADF&G goal range has the highest potential to promote large runs of Kuskokwim River Chinook salmon and provide for subsistence harvest in future years, but the fish available for harvest in the future may not be enough to support a full subsistence harvest and allow for other uses in all years. ADF&G and others analysis clearly indicates that maintaining escapements near the upper end of the escapement goal is expected to be detrimental to future harvest.

The precautionary approach was specifically incorporated into the Kuskokwim River Chinook salmon drainagewide escapement goal. ADF&G escapement goals for Kuskokwim River Chinook salmon are set at levels well above critical population abundance thresholds and properly incorporate data uncertainty. The Ricker spawner-recruit model used by ADF&G has been shown through independent review to result in a more conservative escapement goal compared to alternative models. In addition, the goal range was set higher than the range that would theoretically maximize future harvest and instead is more likely to maximize future run sizes. The lower bound of the goal was set at a level that was known (through prior observation) to be sustainable and return run sizes capable of supporting full unrestricted subsistence harvest. All escapements within the goal range have statistically similar expectations of producing future run sizes.

- **Kuskokwim River Chinook salmon conservation:** Kuskokwim River Chinook salmon runs have been below average since 2010, However, the run sizes in recent years (i.e., 2015–2018) are well above levels that would indicate the population is at risk. Furthermore, tributary escapement goals in recent years have generally been met, and the drainagewide goal has been met annually since 2014. Escapements in the lower half (65,000–92,5000 fish) of the goal range do not put the population at risk of extirpation. Stated another way, there is currently no conservation concern for the Kuskokwim River Chinook salmon population.

We are concerned that fundamental misunderstandings of ADF&G’s escapement goals and the history of escapement goal performance has led to an overly conservative management regime that unnecessarily restricts subsistence fishing opportunity. Currently, because there are enough fish to meet escapement goals, ADF&G’s primary concern regarding Kuskokwim River Chinook salmon is to provide as much subsistence harvest opportunity as possible, while ensuring the escapement goals will be met. Management strategies that target the upper end of ADF&G escapement goal range (especially in years of low run abundance) are inconsistent with ADF&G policy, ignore repeated requests by subsistence fishers for more opportunity; and may be

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detrimental to future harvest. Rigorous analysis conducted by ADF&G and others provide no support for the notion that targeting the upper end of the goal range will lead to faster stock rebuilding or that this tactic is better for some other biological reason. The most effective way to promote long-term healthy fisheries is to 1) consistently achieve varied escapements throughout the range of 65,000–120,000; 2) harvest fish of different ages, sizes, sexes, and genetics in proportion to their abundance; and 3) maximize annual harvest opportunity for subsistence uses.

Escapement goals are a spawning investment strategy for the future, and they take time. Recent year spawning investments will not be realized until years 2020–2022 when all major age classes (age 4, 5, and 6) will return from consecutive years when the drainagewide escapement goal was met. While there are no guarantees that recent spawning investments will return large runs, the expectations are high. For example, productivity (measured in recruits per spawner) from the 2011–2013 escapements are above average compared to the entire historical dataset and consistent with model projections. Given the uncertainty in survival of eggs in the gravel to adult fish, fishery managers should not ask subsistence users to unnecessarily sacrifice fishing opportunity to achieve high escapement levels in the hopes that environmental conditions change for the better.

- **USFWS and KRITFC escapement goal, 110,000 Kuskokwim River Chinook salmon:** ADF&G is unclear how the minimum escapement objective of 110,000 was determined, and the scientific justification provided by USFWS and KRITFC is unsubstantiated. Analysis by ADF&G and others demonstrate that consistent escapements near the upper end of the ADF&G escapement goal range could be detrimental to subsistence users over the long-term. In the short-term (2019), fishing opportunity will be unnecessarily reduced if escapements near the upper end of the goal range are specifically targeted. ADF&G does agree that tributary escapement goals are more likely to be achieved when drainagewide escapements are higher, but that tactic may not be optimal if more directed management actions can be taken to reduce harvest of less productive or less abundant stock components. To our knowledge, formal analyses that describe the influence of the Kuskokwim River drainagewide escapement goal on fish returning to individual tributaries are limited, currently unpublished, and have not been peer reviewed. ADF&G cautions using preliminary results of these studies to modify escapement goals. Nevertheless, escapements above the lower bound of the ADF&G escapement goal could help achieve some tributary escapement goals and provide protections to the less productive stock components. For those reasons, ADF&G supports a probability-based management approach that reasonably assures escapements will exceed 65,000 combined with time and area closures directed at protecting specific stock components as needed.