On Time Public Comment List
Alaska Board of Fisheries Work Session
October 9–10, 2013

On Time Public Comment List
Alaska Board of Fisheries Work Session
October 9–10, 2013

RECEIVED
SEP 11 2013
BOARDS

Native Village of Chuathbaluk
Chuathbaluk Traditional Council
#1 Teen Center Trail
Chuathbaluk, Alaska 99557-8999

Alaska Depart of Fish and Game
Alaska Board of Fisheries
1255 West Eighth Street
Po Box 115526
Juneau, AK 99811-5526

September 10, 2013

Subject: Letter of Support for **Agenda Change Request**

To Whom it May Concern;

The citizens of the Nation, Native Village of Chuathbaluk, would like to express our support for the **Agenda Change Request** submitted on August 27, 2013 by the Bering Sea Fishermen's Association. At this time it is extremely important for the State of Alaska and the United States Fish and Wildlife to understand and act upon the emergency dictated by the non-achievement of escapement goals for the 2012 and 2013 Kuskokwim River Chinook Fisheries. The Board of Fisheries implemented new escapement goals for 2013 in response to issues directly related to duress suffered during 2012 fishing season. These new established escapement goals were not met during the 2013 and both management and predictive modeling were drastically late in the recognition of the true nature of the run.

The Native Village of Chuathbaluk, along with other middle and low river fishers, voluntarily enacted restrictions and conservation efforts to preserve potential 2013 Chinook parent stock; however, these efforts in and of themselves did not significantly impact escapement numbers.

We are asking the State of Alaska, Board of Fisheries to recognize and act on the **Agenda Change Request** from Bering Sea Fishermen's Association immediately and schedule as the earliest date possible a regulatory meeting to thoroughly review and implement necessary regulatory changes needed to address this emergency situation. Due to the urgency of this crisis, it is important that these potentially drastic regulation changes occur well before the fishing season in order to allow all users of the Chinook to adjust their practices and act accordingly. I have attached a resolution the Tribal Council passed which clearly outlines our concerns and potential remedies to this crisis.

If you have any questions or concerns regarding our support for the **Agenda Change Request**, please feel free to contact us at (907) 467-4313 office, (907)467-2120 cell.

Respectfully,

Lisa Carmel Feyereisen
Chuathbaluk Tribal Administrator

Native Village of Chuathbaluk

Chuathbaluk Traditional Council
#1 Teen Center Trail
Chuathbaluk, Alaska 99557-8999

Resolution # 2013-24

A RESOLUTION OF THE NATIVE VILLAGE OF CHUATHBALUK, CHUATHBALUK TRADITIONAL COUNCIL, TO EMBRACE THE TRADITIONAL VALUES OF OUR ELDERS BY RESPECTING OUR RESOURCES AND ENACTING CONSERVATION PRACTICES THAT ENSURES EQUITABLE MANAGEMENT OF SAID RESOURCES

WHEREAS, The Chuathbaluk Traditional Council is an Alaska Native Village recognized as an Indian tribe pursuant to the previous Public Law 93-638; Indian Self Determination and Education Assistance Act (88 Stat. 2203, 25 U.S.C. 450 et seq), also pursuant to Public Law 95-608, Indian Child Welfare Act, 25 CFR 23.26; and

WHEREAS, the Chuathbaluk Traditional Council is the duly authorized governing body for the Native Village of Chuathbaluk; and

WHEREAS, the Chuathbaluk Traditional Council is the federally- recognized Tribal Government of the Native Village of Chuathbaluk; and

WHEREAS, the Chuathbaluk Traditional Council identifies that the low abundance and non-achievement of escapement goals for the Kuskokwim River Chinook Fisheries creates a long term sustainability crises; and

WHEREAS, the Chuathbaluk Traditional Council recognizes that the voluntary conservation efforts by various Middle and Upriver Kuskokwim Tribes as well as some Lower River Fishers, has not in and of itself been a successful tool towards meeting escapement objectives; and

WHEREAS, the Chuathbaluk Traditional recognizes that the management tools used for pre-season forecasting and in-season Chinook Salmon run assessment along with the regulations implemented during the 2012 and 2013 season, were inadequate to manage the fishery and failed to achieve the established escapement objectives; and

WHEREAS, the Chuathbaluk Traditional Council strongly believes in the teaching of our elders which specifically addresses the respect for the initial Chinook push as those fish who swim the farthest, the fastest, are the largest, and the strongest breeding stock and as such should be allowed to pass through unmolested; and

WHEREAS, the Federally Recognized Tribe, Native Village of Chuathbaluk were unable to meet their Chinook subsistence needs over the last few years; and

WHEREAS, the Federally Recognized Tribe, Native Village of Chuathbaluk has jurisdiction over its resources be them transient or residential; and

NOW THEREFORE BE IT RESOLVED, the Nation of the Native Village of Chuathbaluk requests that the State of Alaska and the Nation of the United States of America, US Federal Government, enact the significant restrictions including a of complete pre-season closure on the 2014 Chinook Salmon of the Kuskokwim River Basin, as an action until such time as it is highly probable that the established escapement goal is met; and

THEREFORE BE IT FURTHER RESOLVED, that the Nation of the Native Village of Chuathbaluk emphatically states if no action is taken by the State of Alaska or the US Federal Government regarding this subsistence crisis by January 2014, a **Special Action** will be submitted to the US Fish and Wildlife Office of Subsistence Management requesting: 1.) The subsistence fishery be limited to only Federally Qualified users of the Kuskokwim Region; 2.) When opened, that the net length at the choke points of Oscarville/Napaskiak and Joe Petes be limited significantly; 3.) A pre-season closure in effect until escapement is met; 4.) That if and when other regulations i.e., quotas, are placed on the Chinook Fisheries, an equitable distribution as it relates to Village SES factors and family average food security numbers are used as significant factors in the quota determination; and

THEREFORE BE IT FURTHER RESOLVED, the Nation of the Native Village of Chuathbaluk requests on-going Government to Government meetings with the US Fish and Wildlife need to continue until this crisis is resolved.

PASSED AND APPROVED BY A QUORUM OF THE CHUATHBALUK TRADITIONAL COUNCIL THIS DAY OF August 22, 2013 with:

5 **members voting yes,**
0 **members voting no,**
0 **members abstaining, and**
0 **members absent.**

ATTEST:

Robert Golley, Chuathbaluk Traditional Council Chairman

Robert Harrell

PC 2
1 of 5

September 16, 2013

To The Alaska Board of Fisheries:

The Native Village of Napaimute – located thirty miles upriver from Aniak and 177 miles upriver of Bethel in the middle Kuskokwim River – supports the Agenda Change Request submitted by the Bering Sea Fishermen's Association.

During the 2012/2013 Board cycle, the Board approved a new Kuskokwim Management Plan that states: *(a) The purpose of this management plan is to provide guidelines for management of the Kuskokwim River salmon fisheries that result in the sustained yield of salmon stocks large enough to meet escapement goals, amounts reasonably necessary for subsistence uses, and for nonsubsistence fisheries. The department shall use the best available data, including preseason and inseason run projections, test fishing indices, age and sex composition, harvest reports passage escapement estimates, and recognized uncertainty, to assess run abundance for the purpose of implementing this plan.*

(b) It is the intent of the Board of Fisheries that the Kuskokwim River salmon stocks shall be managed in a conservative manner consistent with the Policy of the Management of Sustainable Salmon Fisheries under 5 AAC 39.222 to meet escapement goals ad the subsistence priority.

(c) In the king salmon fishery,

(1) when the projected escapement of king salmon is below the drainagewide escapement goal range, the commissioner shall, by emergency order, close the commercial, sport, and subsistence king salmon fisheries.

Unfortunately, the escapement of king salmon was not realized and most likely substantially below the lower bound of the drainagewide goal of 65,000...possibly being only half of that. Although lower river subsistence fishers – where the hub city of Bethel with over 7,000 people is located - were happy with their catches, many fishers in the upper river sections did not meet their needs. There are two important caveats to keep in mind here - that there is one ANS determination for the entire river and that up to 85% of the subsistence harvest occurs in the lower river.

In the table below showing the disparity of subsistence harvest throughout the Kuskokwim drainage, the villages of Napaskiak, Bethel and Akiak are in the lower river – all others are middle and upper river villages. Although 2012 and 2013 data are not available, the numbers certainly track with the reduced escapement numbers.

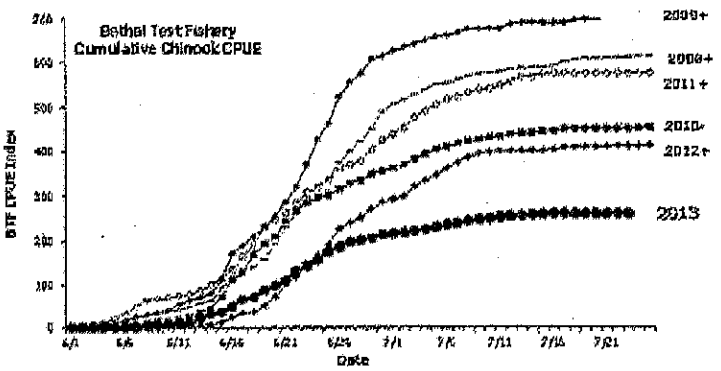
The percentage of the 10-year average king salmon harvest per village for select villages during the years 2009 through 2011. If the % is greater than 100, then that village harvested more than their 10-year average.

Village	2009	2010	2011
Napaskiak	118 %	91 %	70 %
Bethel	96 %	91 %	86 %
Akiak	86 %	97 %	66 %
Aniak	75 %	81 %	81 %
Chuathbaluk	110 %	68 %	50 %
Crooked Creek	85 %	35 %	58 %
Sleetmute	110 %	43 %	38 %

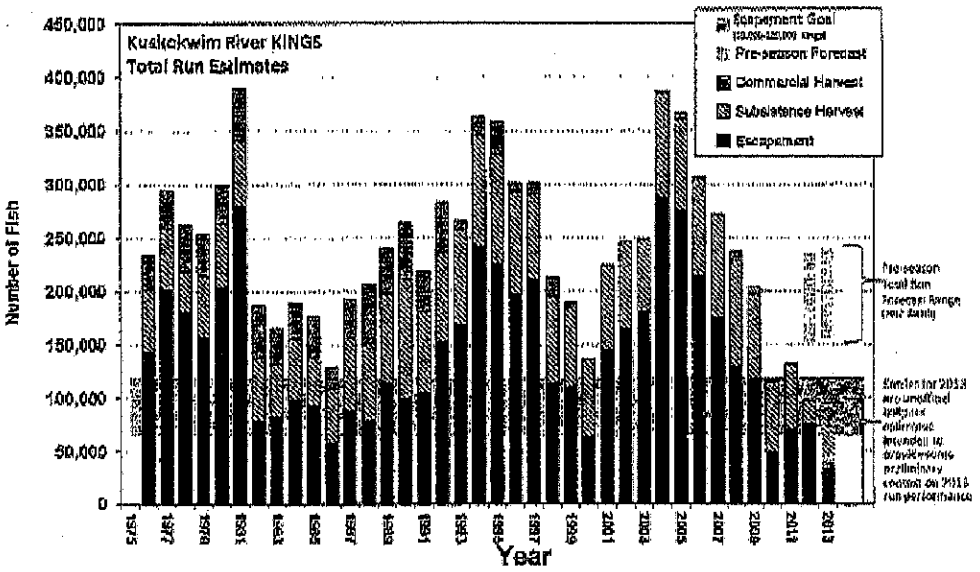
As the 2013 season progressed, the department and some members of the Kuskokwim Salmon Management Working Group took the success of the lower river fishes as an indication of relatively good abundance, but for much of the season upper river fishers expressed concern over how difficult it was to catch kings.

To some people, the Bethel Test Fishery results indicated a concern for run strength and resultant escapement levels relatively early on in the season. You can see from the graph below that the CPUE was much lower than in 2010, a year that up until then was the lowest escapement on record. However, throughout the majority of the 2013 fishing season, the department felt that the escapement goal would be met.

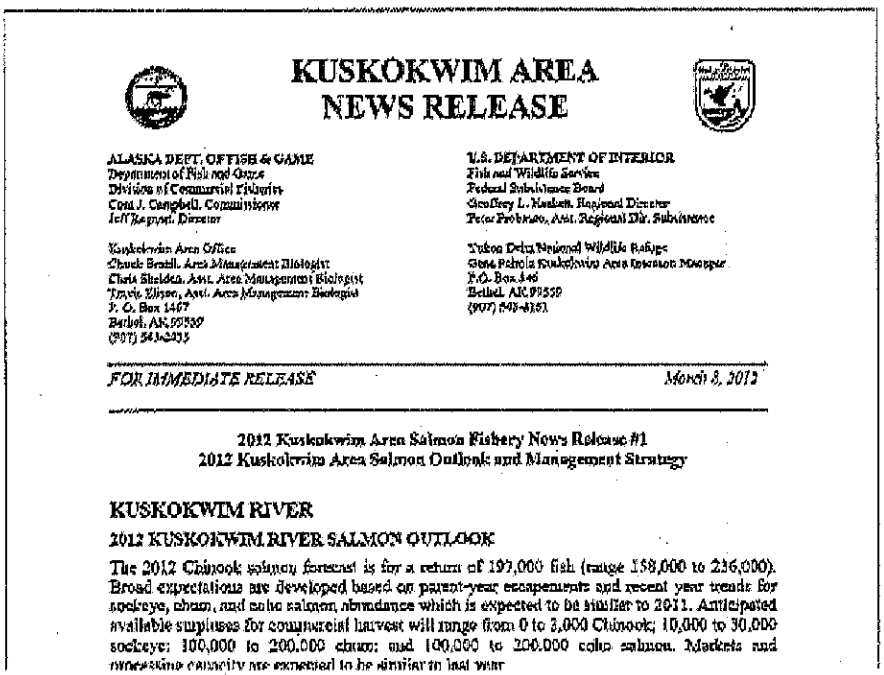
As noted below the graph, the only reason that escapement was made in 2012 was because subsistence restrictions were implemented for 35 days which significantly reduced harvest.



Looking at the graph below, you can see that 2013 was the second year in a row where the preseason forecast was grossly overestimated.



The following News Releases predicted total runs of kings near 200,000 for the years 2012 and 2013.



KUSKOKWIM AREA NEWS RELEASE

ALASKA DEPT. OF FISH & GAME
Department of Fish and Game
Division of Commercial Fisheries
Cora J. Campbell, Commissioner
Jeff Regnart, Director

Kuskokwim Area Office
Chuck Brazil, Area Management Biologist
Chris Shelden, Asst. Area Management Biologist
Travis Elster, Asst. Area Management Biologist
P. O. Box 1467
Bethel, AK 99559
(907) 543-2433

U.S. DEPARTMENT OF INTERIOR
Fish and Wildlife Service
Federal Subsistence Board
Geoffrey L. Haskett, Regional Director
Peter Probasco, Asst. Regional Dir. Subsistence

Yukon Delta National Wildlife Refuge
Gene Peltola Kuskokwim Area Interim Manager
P.O. Box 346
Bethel, AK 99559
(907) 543-3151

FOR IMMEDIATE RELEASE *March 8, 2012*

2012 Kuskokwim Area Salmon Fishery News Release #1
2012 Kuskokwim Area Salmon Outlook and Management Strategy

KUSKOKWIM RIVER

2012 KUSKOKWIM RIVER SALMON OUTLOOK

The 2012 Chinook salmon forecast is for a return of 197,000 fish (range 158,000 to 236,000). Broad expectations are developed based on parent-year escapements and recent year trends for sockeye, chum, and coho salmon abundance which is expected to be similar to 2011. Anticipated available surpluses for commercial harvest will range from 0 to 3,000 Chinook; 10,000 to 30,000 sockeye; 100,000 to 200,000 chum; and 100,000 to 200,000 coho salmon. Markets and processing capacity are expected to be similar to last year.

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

Cora Campbell, Commissioner
Jeff Regnart, Director

Contact:
Travis Elison, Area Management Biologist
Aaron Tiernan, Asst. Area Management Biologist

Kuskokwim Area Office
P.O. Box 1467
Bethel, AK 99559

Phone: (907) 543-2433
Toll Free: 855-933-2433
Fax: (907) 543-2021

Date Issued: May 30, 2013
Time: 8:00 a.m.

2013 Kuskokwim River Salmon Fishery News Release 3
2013 Kuskokwim River Commercial Salmon Outlook and Management Strategy

This is an announcement from the Alaska Department of Fish and Game at Bethel for commercial salmon fisherman in the Kuskokwim Area.

2013 KUSKOKWIM RIVER OUTLOOK

The 2013 Chinook salmon forecast is for a return between of 160,000 to 240,000 fish. Broad expectations are developed based on parent-year escapements and recent year trends for sockeye, chum, and coho salmon abundance, which are expected to be similar to 2012. Anticipated available surpluses for commercial harvest will range from 0 to 3,000 Chinook; 5,000 to 20,000

On the surface this letter of support might seem more like a concern over allocation of the king salmon resource…but that is not the case. As the Agenda Change Request states: *(6) Conservation and meeting escapement goals are the main objective of this ACR, to the extent that any in-river harvest may be allowed in the near future, achieving allocative neutrality (in a historical context, throughout the drainage) is a secondary objective.*

(7) In-season management by ADFG in 2012 and particularly in 2013 may have resulted in a reallocation of fish from upper river users to lower river users. That will be a matter for the Board to determine.

The reallocation of fish to downstream fishers resulted in very few kings passing through the middle and upper portions of the river…including the tributaries. Consequently, as is also noted in the ACR, not one of the individual monitoring project escapement goals were met, and all but one saw the lowest escapements on record.

The Sustainable Salmon Fisheries Policy states in section (5) *in the face of uncertainty, salmon stocks, fisheries, artificial propagation, and essential habitats shall be managed conservatively as follows: (A) a precautionary approach, involving the application of prudent foresight that takes into account the uncertainties in salmon fisheries…… (iv) that where the impact of resource use is uncertain, but likely presents a measurable risk to sustained yield, priority should be given to conserving the productive capacity of the resource;*

Given the uncertainties associated with the preseason forecasts and the inability to assess what the escapement will be, it is time to follow the Sustainable Fisheries Policy and take a conservative approach.

Thank you for considering the Agenda Change Request submitted by the Bering Sea Fishermen's Association.

Sincerely,

Dave Cannon
Environmental Director
Native Village of Napaimute
(907) 676-0012

PC 3
1 of 2

Petersburg Vessel Owners Association

PO Box 232
Petersburg, AK 99833
Phone & Fax: 907.772.9323
pvoa@gci.net • www.pvoaonline.org

September 20, 2013

Alaska Department of Fish and Game
Boards Support Section
P.O. Box 115526
Juneau, AK 99811-5526
Via Fax: (907) 465-6094

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RE: BOARD OF FISHERIES 2013 ACR PROPOSALS

Dear Chairman Johnstone and Board Members,

PVOA is a diverse group of over 100 commercial fishermen and businesses operating primarily in Southeast Alaska. Our members provide millions of meals to the public annually by participating in a variety of fisheries statewide including salmon, herring, halibut, cod, crab, black cod, shrimp, and dive fisheries. Many PVOA members are also active sport, personal use, and subsistence fishermen who depend on sustainable and conservative management of Alaska's fishing resources to ensure healthy fisheries for the future. We appreciate the opportunity to comment on 2013 Agenda Change Request (ACR) proposals that are being considered for the 2013-14 Board cycle.

ACR 1—SUPPORT. This is a PVOA ACR so, naturally, we support its passage.

ACR 5 – OPPOSE. Eliminate all other consumptive uses of the Sitka Sound herring stock in order to provide reasonable subsistence opportunity. . PVOA is opposed to this ACR because we believe that the proposers contention that a fishery conservation purpose or reason exists is not justified and therefore does not meet the criteria for Board of Fisheries consideration out of sequence.

The proposer's statement how ACR 5 meets the criteria for a fishery conservation purpose or reason contains factual errors. His assertion that the reason that the Sitka Sound herring fishery full quota was not take was due to the lack of herring is not correct. The reason the full quota was not taken was in fact due to extensive spawn occurring before the entire quota could be harvested. As stated in the April 3, 2013 ADF&G News Release, SITKA SOUND HERRING FISHERY UPDATE #10: "*Over the past several days, the presence of heavy spawn has resulted in the inability to identify an area with sufficient good quality roe herring to*

prosecute a competitive fishery." The lack of available processor capacity was the major influence and NOT the lack of herring that resulted in the inability to harvest the full quota.

The proposer's inclusion of the Department's precautionary 25% GHL reduction as an implicit criticism of the Department's inability "to accurately forecast the spawning biomass of herring in the Sitka Sound area..." is ill-founded and totally misdirected..." As stated in the December 12, 2012 ADF&G News Release:

> *"The age structured Analysis (ASA) model forecast of 74,694 tons accounts for changes in the Sitka herring biomass through 2012. Due to substantial decreases in herring biomass observed in Sitka and at several other spawning locations in Southeast Alaska between 2011 and 2012, and because there may be factors affecting the herring population that cannot be incorporated into the model yet, the Department has chosen to set a precautionary guideline harvest level for 2013. The 2013 GHL was calculated by reducing the ASA derived GHL by 25%, which approximates the harvest level that would be available if the survival between 2012 and 2013 is similar to a survival rate estimated by the ASA model for the period 1980-1998. This accounts for the possibility that survival rates have declined from higher survival rates estimated for the period 1999-2012."*

The Department should be commended, not vilified, for recognizing early in the biomass assessment process that there may be factors affecting the herring population that cannot yet be incorporated into the ASA model and that they took action to minimize any possible error in the 2013 GHL forecast.

Based on the miles of spawn occurring in Sitka Sound, at least over the past three years, the proposer's contention that a reasonable opportunity to engage in subsistence uses of herring in Sitka Sound was somehow prevented by the reduction in herring due to non-subsistence consumptive uses would seem to be significantly over stated. Over 60 miles of active herring spawn was mapped in 2013. This compares to approximately 56 miles in 2012 and 78 miles in 2011. Also, the traditional subsistence harvest waters delineated in 5AAC27.150(a)(4) were closed in 2013 and that area received 11.6 nm and 17.8 nm of spawn on April 29 and 30, respectively. And, all of it occurred after the final 2013 competitive fishery. It would appear that a reasonable opportunity has been available for the subsistence harvest of herring and herring roe so a conservation purpose or reason does not exist and **approval of ACR 5 is not warranted**.

Thank you for your time and attention to ACR proposals. If we can provide further information or answer any questions as you review the ACRs, please feel free to contact us.

Sincerely,

Brian Lynch

Brian Lynch
Executive Director

Cape Greig LLC

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September 17, 2013

Board Support Section
Alaska Department of Fish and Game
P.O. Box 115526
Juneau, Alaska 99811-5526

RE: ACR 10 – October 2013.

Position: Oppose

Dear Board

This testimony is in regards to the proposal ACR 10 – Remedy a navigational obstruction in Ugashik River set gillnet salmon fishery. (5 AAC 06.331) – It appears this proposal is an attempt to change the distances set net sites may operate from the shoreline in the Ugashik River district. This testimony is offered to establish a factual basis in terms of operating vessels in the area of concern.

We operated two fish buying tenders that are 50 – 75 feet in length in the river in 2013 to service fishermen operating set net sites in the Ugashik River and in the area of concern referenced in the proposal before the board.

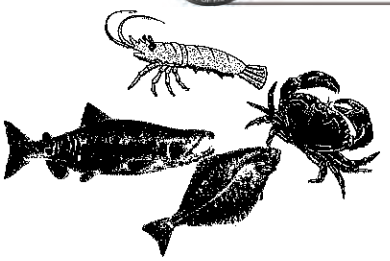
It is our opinion the current set net sites and distance from the nets were located from the shore line during the fishing periods do not create any navigational issues. Please feel free to contact us at any time for additional information or comments.

Sincerely yours,

John Sund
Vessel Manager

801 South Fidalgo Street, Seattle, WA 98108 Phone: (206) 768 8979 Fax: (206) 768- 8985

Southeast Alaska Fishermen's Alliance
9369 North Douglas Highway
Juneau, AK 99801
Phone: 907-586-6652 Email: seafa@gci.net
Fax: 907-523-1168 Website: http://www.seafa.org



September 22, 2013

Board of Fish
Alaska Dept of Fish and Game, Board Support
Karl Johnstone, Chair
PO Box 115526
Juneau, AK 99811

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SEP 23 2013
BOARDS

RE: Board of Fish Comments for work session on ACR

Below are our comments on Agenda Change request (ACR) proposals received for consideration during the work session.

ACR 1: Support
SEAFA members are also concerned with the advent of the observer program that this regulation will be taken out of context and therefore are discarding dead fish until they have sufficient targeted fish onboard. The intent of this regulation was to prevent targeting of rockfish to fill up a boat at the end of the trip. We believe that the language as written has the unintended consequence of preventing you from keeping the fish as it comes aboard and but working to make sure that the overall bycatch limit for the trip is not exceeded.

ACR 5: Oppose
SEAFA opposes ACR 5 to eliminate all other uses of the Sitka Sound herring stock (i.e., Sitka Sound sac roe herring fishery) as not meeting the criteria for an agenda change request. The bottom line intent of this proposal to eliminate the Sitka Sound sac roe herring fishery has been discussed at the last SE cycle and in previous ACR requests. This proposal is just a more straight forward request of what the intent has been all along. The justification in the proposal is that the Dept of Fish and Game failed to accurately forecast the spawning biomass of herring but we look at this in

the opposite way, that current management is conservative and works well because while they make a forecast actually manage according to what is happening in-season.

Thank you for your consideration of our comments on these proposals.

Sincerely,

Kathy Hansen
Executive Director

LAW OFFICE OF
BRUCE B. WEYHRAUCH, LLC
whyrock@gci.net
114 S. FRANKLIN ST.
SUITE 200
JUNEAU, ALASKA 99801
TELEPHONE: (907) 463-5566 FAX: (907) 463-5858

PC 6
1 of 6
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September 23, 2013

Mr. Karl Johnstone, Chairman
Alaska Board of Fisheries
Alaska Department of Fish and Game
P.O. Box 115526
1255 W. 8th Street
Juneau, AK 99811-5526

RE: Opposition to Agenda Change Request 10. Alaska Board of Fisheries Work Session, Agenda Change Requests – October 9-11, 2013
Our File: 543.731

Dear Mr. Chairman:

We represent Roland Briggs, Victoria Briggs, Lindsay Wolfson, Fred Magill, Ted Wolfson, and Tyler Zimmerman who are long-time, responsible set netters in the Ugashik River set gillnet salmon fishery. These fishermen and women will be negatively affected by the consideration and possible adopting of any measure related to Agenda Change Request Number 10, which the Board of Fisheries (Board) plans to consider at its October 2013 Work Session.

We ask the Board to reject consideration of ACR 10. At its most basic, ACR 10 it is an attempt to have the Board act contrary to the legal standards to deal with ACRs, is an allocative measure, and amounts to sour grapes by some individuals who are part of the ADF&G in-river test fishing crew who motor around on the Ugashik River, and some individuals who did like not like what the Board adopted in passing a regulation in 2012.

The regulation ACR 10 asks the Board to change is 5 AAC 06.331(m)(8) which deals with gillnet specifications and operations and provides:

> (m) In the Naknek-Kvichak, Egegik, Ugashik, and Togiak Districts, no part of a set gillnet may be more than 1,000 feet from the 18-foot high tide mark, except that ...
> (8) in the Ugashik District, in that portion of the east bank of the Ugashik River from a point at 57ø 30.74' N. lat., 157ø 24.10' W. long. to 57ø 32.27' N. lat., 157ø 24.36' W. long., no part of a set gillnet may be more than 600 feet from the 18-foot high tide mark, except that a set gillnet may extend to 1,000 feet from the 18-foot high tide mark if
>
> (A) notwithstanding the provisions of (i) of this section, the shoreward end of the set gillnet is at least 400 feet from the 18-foot high tide mark;
>
> (B) the anchoring devices for the set gillnet are not more than 100 feet from the set gillnet; and
>
> (C) the set gillnet is not attached to a running line connected to the beach.

The Board adopted this regulation during its regular cycle on Ugashik River setnet fisheries in December 2012 when it considered Proposal 18 (attached). After ADF&G and public input on Proposal 18, the Board adopted what was promulgated as 5 AAC 06.331(m)(8).

Among the concerns voiced by the Board when it adopted 5 AAC 06.331(m)(8) were that the Board did not want to restrict the fishing activities of set netters on the Ugashik River. At the time the Board adopted what has become 5 AAC 06.331(m)(8), it was acceptable policy for skiffs to motor back and forth on the river because these skiffs comprise almost all of the boat traffic on the Ugashik each day. The Board did not want to restrict fishing opportunities by rolling the set netters back to operating on a straight-line basis, 600 feet from shore. Thus, the Board modified the original Proposal 18 and adopted what is now 5 AAC 06.331(m)(8).

ACR 10 is an out-of-cycle effort, submitted by an anonymous "ADF&G staff" person, to return set net fishing operations on one portion of the Ugashik River to what was originally proposed in 2012, but rejected by the Board.

We respectfully ask the Board to reject ACR 10.

ACR 10 violates the law establishing Board policies related to ACRs. If the Board even considers ARC 10, we ask that the Board appoint a working group comprised of Ugashik River set gillnet salmon fishermen in the area affected by ACR 10, ADF&G staff, and enforcement, to consider the "ADF&G Staff's" concerns, and report back to the Board during the Board's regular cycle, when it next takes up Bristol Bay proposals. There is nothing pressing that requires the Board to untimely consider ACR 10 now.

ACR 10 does not comply with 5 AAC 39.999. 5 AAC 39.999 sets forth the Board's policy for changing the Board's agenda. This regulation establishes specific guidelines the Board must employ before it accepts an ACR, and provides that the Board will accept an agenda change request only for specific reasons.

> (a) The Board of Fisheries (board) will, in its discretion, change its schedule for consideration of a proposed regulatory change in response to an agenda change request, submitted on a form provided by the board, in accordance with the following guidelines:
> (1) the board will accept an agenda change request only
> (A) for a fishery conservation purpose or reason;
> (B) to correct an error in a regulation; or
> (C) to correct an effect on a fishery that was unforeseen when a regulation was adopted;
> (2) the board will not accept an agenda change request that is predominantly allocative in nature in the absence of new information that is found by the board to be compelling ... .

ACR 10 does not have a fishery conservation purpose or reason.

There is nothing in the verbiage of ACR 10 to suggest that it addresses any fishery conservation purpose or reason. If ADF&G staff does not like what the Board did in adopting 5 AAC 06.331(m)(8), it should work with set net fishermen in the area, and not repair first to the Board to make an out of cycle change in the law.

ACR 10 does not correct an error in a regulation.

There is no error in 5 AAC 06.331(m)(8) that the Board needs to address. Indeed, 5 AAC 06.331(m)(8) is exactly what the Board wanted to adopt.

ACR 10 does not correct an effect on a fishery that was unforeseen when the Board adopted 5 AAC 06.331(m)(8).

There is no need for the Board to correct an effect on Ugashik River set gillnet salmon fishermen that was unforeseen when the Board adopted 5 AAC 06.331(m)(8).

ACR 10 is predominantly allocative in nature without any new, compelling information justifying it

If ACR 10 is compelling, then every idea or ACR is compelling. The Board's time would be wasted and it would be in session all the time if it considers ACR 10. In addition, ACR 10 is predominantly allocative in nature because it would take salmon away from one group of set netters on one part of the Ugashik River, and allocate those salmon to others, such as down river set netters.

In summary, ACR 10 does not comply with the standards set forth in 5 AAC 39.999. The Board should not consider the ill-advised ACR 10.

Very Truly Yours,

Bruce B. Weyhrauch

Enclosure

PROPOSAL 18 - 5 AAC 06.331. Gillnet specifications and operations. Shorten the distance that a set gillnet can be set from the high-tide mark from 1,000 feet to 600 feet as follows:

Area description from 5 AAC 06.350(d)(1)

Those waters of the Ugashik River upstream of a line from 57°30.19'N lat, 157°39.37 W long to 57°29.83 N lat, 157°32.22 W long except that set gillnetters may be used to take salmon along that portion of the east bank of the Ugashik River from a point at 57°30.74'N lat, 157°24.10 W long to 57°32.27 N lat, 157°24.36 W long.

Change-

5 AAC 06.331 in 8 (this is an addition)

In the area described above, no part of a set gillnet may be more than 600 feet from the 18 foot high tide mark.

ISSUE: If setnet gear is allowed to extend 1000 feet from shore in the Ugashik Village setnet area, the gear will nearly touch shore to shore blocking the entire river. Drift boats home ported in the Ugashik Village area launch and haul out in the setnet area on the only gravel beach (nicknamed Sleepy Hollow). This beach is also used for repair work on setnet skiffs and drift boats. For the season of 2011, this access was restricted to very high tides for the drift boats and setnetters could not navigate to the tender on lower tides.

WHAT WILL HAPPEN IF NOTHING IS DONE? Safety is also an issue. The tender is anchored on the downriver side of this area and all setnet skiffs need to access the tender at all times. For the 2011 season, the setnet skiffs were running aground and drift boats only had limited access at high tides. In periods of bad weather, setnet skiffs loaded with salmon could roll over attempting to access the tender. Currents are extreme and there is a possibility of drowning or damage to the setnet skiffs.

WILL THE QUALITY OF THE RESOURCE HARVESTED OR PRODUCTS PRODUCED BE IMPROVED? The river in front Ugashik village is constricted and the 1000 feet currently allowed in the regulations is too much for the confined spaces in the river. The 1000 feet blocks the channel. 600 feet is an acceptable compromise.

WHO IS LIKELY TO BENEFIT? Setnetters, drift boats and the market will benefit from the solution.

WHO IS LIKELY TO SUFFER? No one, the area further than 600 feet can rarely be fished due to currents which can elevate even 300 pound lead lines.

OTHER SOLUTIONS CONSIDERED?

PROPOSED BY: Hattie Albecker, Lucy Brunetti, Lower Bristol Bay Advisory Committee, Ugashik Traditional Village Council (HQ-F12-118)

****

FINAL ACTION: Carries Fails Tabled No Action See Prop. #_____

ABSENT_____ ABSTAIN_____

2

LAW OFFICE OF
BRUCE B. WEYHRAUCH, LLC
whyrock@gci.net
114 S. FRANKLIN ST.
SUITE 200
JUNEAU, ALASKA 99801
TELEPHONE: (907) 463-5566 FAX: (907) 463-5858

RECEIVED
SEP 23 2013
BOARDS

September 23, 2013

Mr. Karl Johnstone, Chairman
Alaska Board of Fisheries
Alaska Department of Fish and Game
P.O. Box 115526
1255 W. 8th Street
Juneau, AK 99811-5526

RE: Agenda Change Requests 2 & 8 related to Alaska's Scallop Fishery
Alaska Board of Fisheries Work Session – October 9-11, 2013

Dear Chairman Johnstone:

We represent the Alaska Scallop Association and 6 scallop boats owners who operate in Alaska's state and federally managed scallop fisheries. We write to comment upon on Agenda Change Requests 2 and 8, which the Board of Fisheries ("Board") will consider at its Work Session in October 2013.

In sum, we ask the Board to schedule ACR 8 for a future meeting. We ask the Board to reject and not consider ACR 2 at all.

While there we have some concerns about specific provisions of ACR 8, ACR 8 appears to be an attempt by the Alaska Department of Fish and Game ("ADF&G") to deal with its conservation-based management of scallops in state waters in light of inaction by the Alaska Legislature related to the scallop fishery. As a precaution, it appears that ACR 8 may merit future consideration by the Board. On the other hand, ACR 2 is simply a blatant reallocation measure and is not conservation-based at all — indeed it would harm the scallop resource if adopted. ACR 2 also presents serious legal problems, violates the federal Scallop Fishery Management Plan ("FMP") from which the state of Alaska derives its authority to manage the scallop fishery in state waters, violates Alaska law, and is designed to harm past and existing participants in Alaska's scallop fishery.

II. THE BOARD SHOULD SCHEDULE ACR 8 FOR A FUTURE BOARD MEETING

We respectfully request that the Board consider scheduling ACR 8 for a future Board meeting.

ACR 8 should never have been brought before the Board. The only reason that ADF&G submitted ACR 8 to the Board is because the Alaska House of Representative's Special Committee on Fisheries failed to move Senate Bill 54 out of that committee. SB 54 would extend the termination date of the Commercial Fisheries Entry Commission's ("CFEC") authority to maintain a vessel-based limited entry fisheries system for the weathervane scallop to 2018.

Because SB 54 has not passed the Legislature, CFEC's authority to administer a vessel-based limited entry fisheries system for weathervane scallops will end on December 30, 2013. That means that this fishery will become "open-access." ACR 8 appears to be ADF&G's management response to that political situation, and a reasonably prudent, prophylactic move related to the management of the scallop fishery.

However, the Board should note that the weathervane scallop fishery opens on July 1, 2014. It is possible that the Legislature will pass SB 54 before the scallop fishery begins. Therefore, while we ask the Board to schedule the substance of ACR 8 for a future Board meeting, we believe that it would also be prudent for the Board to write a letter to the Governor and Speaker of the House asking the House to move SB 54 to the floor for a vote.[1] Those letters by the Board would be consistent with formal, long-time, and articulate support for CFEC's vessel-based limited entry fisheries system for the weathervane scallop by ADF&G and the North Pacific Fisheries Management Council ("Council").

Attached to this letter are statements by both ADF&G and the Council for adoption of the substance of SB 54. Both these agencies provide cogent statements in support of the state's continued prudent management of the scallop fishery by supporting passage of 54. As discussed below, both of these state and federal agencies provide reasons why ACR 2 manifests exactly the kind of problems that may occur without Alaska House passage of SB 54.

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[1] The Senate Resource Committee Substitute for SB 54 already passed the Alaska Senate on an 18-1 vote on March 18, 2013.

II. THE BOARD SHOULD REJECT ACR 2

There is no reason for the Board to consider ACR 2 or schedule it for a future Board meeting. Unlike the ADF&G-submitted ACR 8, ACR 2 is a measure aimed at reallocation of the scallop resource. ACR 2 would also, if scheduled and adopted, negatively affect the scallop resource. ACR 2 would harm the present and future harvesters of the scallop resource. ACR 2 also does not meet the relevant legal standard the Board must use to evaluate ACRs and it cannot be legally considered by the Board.

ACR 2 takes advantage of the SB 54 political situation by shoehorning in effort to get the Board to harm existing participants in the scallop fishery by excluding vessels greater than 80 feet. All six of the members of the Alaska Scallop Association who are permit holders have scallop vessels that are ninety-five feet or longer. These vessels are long-time participants who essentially created the scallop fishery, and who historically operated in a reasonable, conservation-based system. ACR 2 would effect a massive disruption in the development, conservation, and economics of the scallop fishery.

1. ACR 2 Does not Comply with 5 AAC 39.999

The Board should not consider or schedule ACR 2 because it does not comply with 5 AAC 39.999, which sets forth the Board's policy for changing the Board's agenda, and establishes specific guidelines the Board must comply with before it accepts ACR 2.[2] 5 AAC 39.999 provides that the Board

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[2] 5 AAC 39.999 reads in relevant part as follows:

(a) The Board of Fisheries (board) will, in its discretion, change its schedule for consideration of a proposed regulatory change in response to an agenda change request, submitted on a form provided by the board, in accordance with the following guidelines:

(1) the board will accept an agenda change request only

(A) for a fishery conservation purpose or reason;

(B) to correct an error in a regulation; or

(C) to correct an effect on a fishery that was unforeseen when a regulation was adopted;

(2) the board will not accept an agenda change request that is predominantly allocative in nature in the absence of new information that is found by the board to be compelling ... .

may accept an agenda change request only for specific reasons.

2. ACR 2 Does Not Have A Scallop Fishery Conservation Purpose Or Reason

Nothing in ACR 2 remotely suggests that ACR 2 has any fishery conservation purpose or reason. The amount of scallops available in state waters is very small. Currently open, there are only two places where scallop beds bleed into state waters, the Kodiak-Shelikof, and Yakutat areas. These two areas would probably be allocated only about 10 thousand to 20 thousand pounds for each area based on historical catches, plus another very small GHL in Area O with 5 thousand pounds. All totaled and spread out over areas that are roughly 1 thousand miles apart, that is not enough biomass for a new fishery, but represents significant impact to current participants if it is lost.

The result of ACR 2, if considered and adopted, would be to open entry to many new boats to the exclusion of most of the experienced boats, which have already borne a huge reduction in harvest quotas over the years (from 1.2 million pounds in 1994 to less than 400 thousand pounds in the two most recent years, most of which is caught in federal waters). These reductions kept the fishery sustainable, and resulted in a CFEC management scheme that operated efficiently. ACR 2 would toss all of that out the window. The flawed scheme suggested by ACR 2 would do the opposite of what the Board must do when managing a fishery — insuring the conservation and development of the fishery — by replacing the very boats that endured costs associated with quota reductions with new boats with no history in the scallop fishery.

ACR 2 is also misleading by statement and omission. For example, ACR 2 indicates the adoption of 7 management requirements, each of which can be addressed briefly. Point 1 of these "requirements" (80-foot vessel length limit), implies that vessels less then 80 feet long might use smaller dredges. That assertion is both pointless and misleading. It is misleading because it is a vessel's horsepower and thrust that dictate how big a dredge a vessel can tow, not a vessel's dimensions. It is pointless because a smaller dredge will have less contact on the bottom then a larger dredge. Smaller dredges will have to be in contact with the bottom longer to catch the same amount of scallops as a larger dredge (e.g., a six-foot wide dredge will typically need to be towed twice as much to catch the same as a 12-foot wide dredge).

Point 2 is misleading because a smaller 10-foot dredge will not change the amount of bycatch over a 15-foot dredge. ADF&G observer data since 1993 (paid for by existing or historically-operating scallop vessels) confirms this. A larger number of smaller dredges being towed incorrectly in the wrong areas by inexperienced skippers could result in a much higher bycatch.

Point 3 would exclude observer coverage on vessels with dredges six feet wide or less. The Board adopts management measures that affect the conservation of a fishery in a positive manner. This point 3 puts conservation in reverse and will decrease the data available for ADF&G's management. Those vessels without observer coverage would be immune to crab bycatch caps, making caps a meaningless management tool.

Point 4 present the Board with a red herring. Vessels Monitoring Systems (VMS) are already required by managers; existing scallopers use them. If the authors of ACR 2 has stories "replete of large vessels" entering areas illegally, why haven't there been prosecutions under the existing management measures that require the use of VMS and onboard observers?

Point 5 would require preseason registration. ACR 8 would do that, which the Board should consider in lieu of ACR 2.

Point 6 catch reporting is another red herring because catch reporting is not a problem with onboard observers. Onboard reporting, at whatever frequency ADF&G determines necessary, has been conducted since 1993.

Point 7 is nonsensical as fishing cannot occur in port. Moreover, even if this cryptic "point" means that a scallop vessel must return to port before moving to another area, then that would force boats into port instead of allowing them to continue on into federal waters or other open areas as traditionally done. That is a wasteful measure without a conservation or development basis.

3. ACR 2 Does Not Correct An Error In A Regulation

There is no error in any regulation that would allow the Board to accept ACR 2 at its October Work Session. The Board violates 5 AAC 39.999 if it considers ACR 2 on the basis that there is an error in a regulation that the ACR addresses.

4. ACR 2 Does Not Have A Scallop Fishery Conservation Purpose Or Reason

ACR 2 does not have a scallop fishery conservation purpose. On the contrary, ACR would negatively affect scallop conservation. The Board would violate 5 AAC 39.999 if schedules ACR 2 because it does not have a conservation purpose or reason.

5. The Board Cannot Accept ACR 2 Because It Is Predominantly Allocative Without Compelling New Information

Finally, ACR 2 disingenuously and coyly asserts that it is "not allocative at this time." ACR 2 primarily seeks to allocate scallops away from existing users and those who own and have used vessels greater than 80 feet. 5 AAC 39.999(a)(2) prohibits the Board from accepting ACR 2 because it is predominantly allocative in nature and is devoid of any compelling new information.

We ask the Board to schedule ACR 8 and reject ACR 2. Thank you for your service to the public.

Very Truly Yours,

Bruce B. Weyhrauch

Enclosures

C: Diana L. Stram, Ph.D., Scallop Plan Coordinator/Fishery Analyst
North Pacific Fishery Management Council (with enclosures)
Eric Olson, Chairman, North Pacific Fishery Management Council (with enclosures)
Governor Sean Parnell (with enclosures)

North Pacific Fishery Management C

Eric A. Olson, Chairman
Chris Oliver, Executive Director

Telephone (907) 271-2809

605 W. 4th Avenue, Suite 306
Anchorage, AK 99501-2252

Fax (907) 271-2817

Visit our website: http://www.alaskafisheries.noaa.gov/npfmc

February 25, 2013

Senator Cathy Giessel
Chair Senate Resources Committee
State Capitol Room 427
Juneau, AK 99801-1182

Sent by email: Senator.Cathy.Giessel@akleg.gov

Dear Senator Giessel;

The North Pacific Fishery Management Council (Council) supports the State of Alaska extending the current limited entry program for the Weathervane scallop fishery in state waters. The Council delegated authority to the State of Alaska to manage all aspects of the scallop fishery in federal waters off Alaska, except limited access, which remained a federal responsibility. The Fishery Management Plan for the Scallop Fishery off Alaska (FMP) established a license limitation program (LLP) in federal waters, effective January 16, 2001. The Alaska Legislature, as you know, also established a four-year vessel moratorium in 1997 that was first extended an additional three years until June 10, 2004, and then replaced with a vessel-based limited entry program that was scheduled to expire in 2008. At that time the legislature extended that expiration until the end of 2013. The Council is currently concerned that if this program is allowed to expire, the potential exists for an open-access fishery in State waters that is inconsistent with management measures to limit effort in federal waters. 1

Conservation concerns with crab bycatch and the overharvest of scallops in the early 1990s prompted the Council and the Alaska Board of Fisheries (BOF) to work cooperatively to reduce scallop fishing effort in the overcapitalized Weathervane scallop fishery. In several areas of the state, Kodiak and Yakutat for example, scallop beds are bisected by the 3-mile boundary line separating state from federal waters. In these areas, the majority (80% or more) of the scallop harvest is taken from the federal waters portion of the scallop beds. Guideline harvest ranges established by the Alaska Department of Fish and Game (ADF&G) are applied to the entire registration area, and are not apportioned to either state waters or federal waters. If the state waters portion of the fishery reverted to open access, additional vessels with unrestricted fishing capacity could target scallops in state waters. Disproportionate harvest of the scallop beds could lead to stock conservation concerns; including that portion of the stock in federal waters. Two additional concerns result from a bifurcated management regime. First, regulatory enforcement along the 3-mile line would be problematic. Second, Tanner and red king crab bycatch would likely increase as a result of increased fishing effort within a restricted portion of the scallop bed. Weathervane scallop stocks in Alaska are small. Concerns with overcapitalization, and the resulting stock conservation and crab bycatch concerns have largely been addressed through complementary federal and state limited entry/access programs. The Council encourages the Alaska Legislature to extend the Weathervane Scallop limited entry program in state waters to coordinate with the federal program implemented by this Council.

If you need any additional information relative to this issue, please feel free to contact the Council's Executive Director, Chris Oliver.

Thank you for considering these comments.

Sincerely,

Eric A. Olson, Chair
North Pacific Fishery Management Council

Cc: Ben Brown, Commissioner CFEC

ADF&G SCALLOP FISHERY MANAGEMENT IN THE ABSENCE OF THE STATE WATERS VESSEL-LIMITED-ENTRY PROGRAM

Prepared by ADF&G – May 3, 2007

The Alaska Department of Fish and Game (department) supported the vessel-based limited entry program for the state waters scallop fishery. The department supports extending this program for an additional 5 years as proposed in House Bill 16. If this limited entry system is not extended, the scallop fishery in state waters will revert to an open entry situation while the fishery in federal waters (outside three miles) will remain under the federal license limitation program (LLP).

If the scallop fishery was open entry in state waters, the department would need to decide how best to manage the fishery. This would depend on assessment of what the existing scallop fleet would likely do and whether new participants would be attracted into the state-waters fishery. How would these scenarios affect the existing management program?

Over the last five seasons, 2002-03 through 2006-07 seasons, 71% of the statewide weathervane scallop harvest has been taken from federal waters, and 29% from state waters. Just considering management areas with scallop beds that overlay the state/federal boundary (Yakutat, Prince William Sound, Shelikof District of Kodiak), over the last five seasons, 39% of the scallop harvest was taken in the state-waters portion of these registration areas. This breakdown is based on catch by statistical area as reported on fish tickets and it is not known how accurately it reflects actual scallop distribution between state and federal waters.

Under the federal LLP, vessels are allowed to fish in federal waters and by the state vessel-based limited entry program, to fish in state waters. Of the nine vessels under the federal LLP, six formed a fishing cooperative. All vessels fishing scallops in Alaska, except Cook Inlet, are required to have 100% onboard observer coverage. So long as this observer coverage is required, the risk of exceeding the overall scallop harvest level or crab bycatch limit in a registration area is small. Data collected by observers are key to successful inseason management.

The department establishes annual scallop guideline harvest ranges (GHR) and crab bycatch limits (CBL) by registration area. In some registration areas, harvest levels are apportioned by smaller geographical areas such as statistical areas or portions of statistical areas within the registration area. In most registration areas, the department does not presently have the ability to establish scallop GHRs or CBLs based on a proportion of the scallop or crab resource occurring in state waters, because video scallop stock assessment methods at present are only experimental and in the case of crabs, they are highly mobile and can easily move between state and federal waters. However, in the Prince William Sound and Cook Inlet Registration Areas a biennial scallop dredge survey is conducted.

Scallop GHRs are established annually for each registration area based on observer-collected data and in the case of the Prince William Sound and Cook Inlet Registration Areas, augmented by scallop dredge surveys. Observer-collected data is from an entire scallop bed. Vessels commonly fish across the three mile boundary making it difficult to distinguish what portion of data was from state waters and what portion was from federal waters. However, the Board of Fisheries could structure the fishery

for future years that would allow fishing in state waters or federal waters, but n
Observer-collected data would then clearly be from state or federal waters.

Enforcement issues with fishing over the line would be a concern. Adequate enforcement would be an additional cost to the State's Fish and Wildlife Protection Division. This would be complicated by two factors. First is the fact that some vessels would be allowed to fish in both state and federal waters, while other vessels would be allowed to fish only in state waters. Second is the fact that the line between state and federal jurisdiction is not a simple easily identified line, such as is normally used in state regulations. Vessel movements could be tracked if vessels were required to have a VMS system. However, regulations requiring VMS would have to be passed by the Alaska Board of Fisheries. In the past, the department has opposed VMS in state-waters fisheries due to costs and the state does not have access to the VMS data.

In the absence of a limited entry program in state waters, a conservation concern could arise because numerous vessels with unrestricted fishing capacity could target state waters. Therefore, disproportionate harvest or localized depletion could occur in the state-waters portion of registration areas unless the state established state-waters specific harvest levels, or did not open state waters.

The quantity of scallops allowed to be harvested from state waters would influence the number of new participants into the fishery. The department does not envision that the harvest levels established in state waters to be large enough to attract vessels from outside Alaska into this fishery as occurred during the last boom period of the early 1990s when there was open access in federal and state waters. There are, however, licensed scallop vessels that do not regularly participate in the fishery. Additionally, there may be other vessels in Alaska that fished for scallops before limited entry, that may attempt to participate in the fishery. The initial expense of gearing up for scallop dredging combined with the observer requirements and allowable harvest may limit interest in an open access state-waters fishery. Ultimately, vessel effort would likely depend on price, competition, available alternatives, and the proportion of the GHR that is assigned to state waters.

The biggest challenge facing the department will be having information to establish harvest levels for only state waters, if that is needed.

A likely scenario is that vessels that are currently licensed in the federal fishery would initially target state waters and harvest that quota. Once the state-waters portion of a scallop bed closed, vessels would then move to the federal waters where participation is limited.

To summarize, department staff would likely assess vessel effort in state waters before making a final determination on management strategy. The department would likely ask the Board of Fisheries for new regulations to help manage a state-waters fishery exclusive from the federal fishery. Although staff does not currently have the ability to establish state-waters harvest levels, if effort in state waters was minimal, harvest would be closely tracked to ensure localized depletion did not occur. Alternatively, if registration information indicated a large influx of effort, the state would likely not open the fishery in those areas.

STATE OF ALASKA

SARAH PALIN, GOVERNOR

P.O. BOX 115526
JUNEAU, AK 99811-5526
PHONE: (907) 465-4100
FAX: (907) 465-2332

DEPARTMENT OF FISH AND GAME

DIVISION OF COMMERCIAL FISHERIES

July 7, 2007

The Honorable Paul Seaton
Alaska House of Representatives
345 W. Sterling Hwy
Ste 102-B
Homer, AK 99603

Dear Representative Seaton:

During legislative discussions regarding House Bill (HB) 16, you requested the department review scallop management suggestions made by the public and provide you with comments about those suggestions. This letter provides those comments as well as the department's plans for management of scallops during 2007 and beyond, assuming HB 16 does not pass.

Federal waters are currently managed by the state under delegation from the federal government. The state has put substantial effort into developing a detailed management plan that provides for a sustainable fishery. Integrated management of both state and federal waters is the best way to assure conservation and management of scallop stocks and properly account for crab bycatch. Therefore, any changes to scallop management that affect federal waters should be developed in concert with federal officials in order to ensure that the state retains management of those waters.

Of the scallop beds that are open to commercial fishing, the three-mile boundary divides only those beds in the Shelikof District of the Kodiak Registration Area, the Yakutat Registration Area, and the Prince William Sound Registration Area. In these beds, tows may occur entirely in either state or federal waters, or in a mixture of state and federal waters, therefore it is difficult to assign harvest to state or federal waters. Other scallop beds open to commercial fishing (in Kamishak Bay, for example) occur entirely outside state waters. Extensive areas of state waters are closed to scallop fishing to protect crab and crab habitat. Many of these areas have been closed to scallop fishing for nearly 35 years.

Most of the suggestions sent to you would have to be considered by the Alaska Board of Fisheries (board) based on proposals submitted either by the Alaska Department of Fish and Game (department) or the public. Before listening to the broad public discussion that comes through the proposal process, the department cannot say for sure what its position on any given proposal would

be. We have, however, attempted to discuss our initial thoughts and some of the issues that would have to be resolved before these suggestions were implemented by the board.

DISCUSSION OF PUBLIC SUGGESTIONS

1. **Amend processing regulations to exempt shucking scallops.** This suggestion was likely the result of the Department of Environmental Conservation (Environmental Conservation) imposing public health regulations aboard one of the vessels. The department follows the processing definition contained in 5 AAC 39.975(29), which does not include shucking scallops. Under this regulation, processing means completion of cooking, canning, smoking, salting, drying, or freezing. This definition is meant to ensure accurate documentation of fish landings. Scallops are managed based on shucked-meat weight as reported on fish tickets. Environmental Conservation has a definition for processing seafood as it relates to sanitary inspections, and the Department of Revenue (Revenue) has a definition of processing as it relates to taxation. Both Environmental Conservation and Revenue consider shucking scallops as processing. You could contact Manuel Soares of Environmental Conservation at (907) 269-7640 or Tim Cottongim of Revenue at (907) 465-3695 regarding exempting scallop shucking from their processing regulations.

2. **Open access to scallop fishery.** This suggestion specifically referenced allowing access to the fishery for all vessels that hold small vessel crab permits. If HB 16 does not pass, the scallop fishery will be open to entry by any person who wishes to fish. No permit limitation system will exist. Under open access, any individual could obtain an appropriate scallop interim-use permit for the fishery and conduct a fishing operation, including those vessels that continue to be authorized under the federal limited access program. The Commercial Fisheries Entry Commission (CFEC) indicates that skippers using vessels 80' or less in overall length would need to obtain a W2BB interim-use permit, and skippers using vessels over 80' in overall length would need to obtain a W2AB interim-use permit, in order to participate in the scallop fishery. It is also important to understand that CFEC would have to issue a permit to any vessel that applied, regardless of size. While this may provide new opportunity for smaller vessels, it also provides opportunity for large and efficient vessels. To the extent that participation, effort, and efficiency would increase within state waters under open access, management and enforcement could become more difficult, time-consuming, and expensive. To the extent that the vessels operating in federal waters would be different from the vessels operating in state waters, more resources could be needed to try to enforce the state and federal boundary.

3. **Reduce gear size.** One suggestion was to allow only one 12-foot dredge or smaller in state waters. Some comments suggested that a 10-foot dredge was the minimum economically viable size and one participant said he needed a minimum of two 10-foot dredges. Currently, all vessels in statewide scallop fisheries except Cook Inlet are limited to two scallop dredges, each not more than 15 feet wide, with the exception of two vessels that are limited to a maximum of two 10-foot dredges in federal waters. In the Cook Inlet Registration Area, vessels are limited to one six-foot dredge. For those beds that occur in both state and federal waters, having different gear requirements inside and outside of state waters would increase the difficulty of enforcing gear requirements and would increase the cost of participation if vessel operators need to maintain different size dredges for fishing

inside and outside of state waters. The board would have to consider whether the fishery would be economically viable for some existing scallop vessels if gear size is substantially reduced.

4. **Trip limits.** Suggestions included a 1,000 pound trip limit per calendar day or twice per week on all trips for small vessel operations, a 1,000 pound possession limit for small scallop boats, and a 15,000 pound trip limit for boats with federal licenses. Setting different trip limits for different size boats (especially given the differential suggested) would constitute allocation within a fishery, which would require legislation to accomplish. The board would have to consider the economic effects of various sizes of trip limits and how they could be enforced. Issues with implementing trip limits as a management tool might include difficulty in distinguishing scallops caught outside three miles from scallops caught inside three miles, since trip limits could either be different or non-existent outside three miles. Enforcing a limit in state waters would likely require regulations preventing boats from fishing both inside and outside three miles during the same trip. This might be accomplished through different seasons or area registration requirements. The board would have to consider trip limits in the context of maintaining an economically viable fishery, which would include observer costs as well as other expenses such as crew, fuel, and food. Adding pounds to trip limits (as suggested in point seven below) to pay for observers would not change the overall revenue from the fishery since the total allowable harvest per bed is also limited.

5. **Require VMS** on all scallop vessels fishing in state waters. The state is currently not set up to utilize VMS data. Establishing VMS in state fisheries would require additional funding, especially if vessels are allowed to tow across the three mile boundary. It is not clear that data on vessel location could be correlated to catch inside or outside three miles, or be used to determine whether the vessel was fishing or not while in a given location. A vessel engaged in fishing would be indistinguishable from a vessel merely motoring along at fishing speed. It appears that direct observation by an airplane or an onboard observer would still be required in order to substantiate location of fishing.

6. **Require digital cameras.** Under this suggestion, video monitoring would replace observers. Video monitoring is an unproven technology to replace observers for the scallop fishery. It is not used in any federal groundfish fishery or state fishery in Alaska, but apparently is used in some groundfish and shellfish fisheries in Canada. In the scallop fishery, many tows contain thick mud and silt that obscures scallops, crabs, and other bycatch from view when the dredge contents are dumped on deck. Observers sort through the mud by hand or use the deck hose to remove the majority of mud before sampling. Because of this problem, it is unlikely that cameras would capture images of all crabs and other bycatch. Cameras would not be an effective substitute for the sampling carried out by scallop observers, whose primary purpose is to collect biological data including samples for determining scallop size and age and bycatch of crabs. Cameras may, however, provide useful data for those areas where observers are not currently required, such as Kamishak Bay. Assuming the cameras captured images of all crabs caught, the tapes would have to be subsampled and the numbers of crabs estimated. Research would need to be done to determine the accuracy of such methods. Maintenance, reliability, and cost of the cameras would also be issues the board would have to consider.

7. **Reduce observer coverage.** Suggestions ranged from requiring only 10 percent observer coverage funded by adding extra pounds to each trip limit up to requiring only 33% observer coverage. Under the Alaska Scallop Fishery Management Plan (5 AAC 38.076(e)(4)), the department currently requires full observer coverage for all scallop fisheries in the state, except in Cook Inlet. This coverage helps ensure guideline harvest levels and crab bycatch limits are not exceeded, and fishery based data is collected. Reducing this coverage to 10% would jeopardize management of the fishery and likely require more conservative management measures to help ensure scallop stocks remain viable. The department does not support reducing observer coverage until a proven substitute is developed.

8. **Stop training observers for regulatory compliance and have them deal solely with biology.** The primary purpose of observers is to collect biological information that includes data to enforce crab bycatch caps. Observers need to be aware of the fishery regulations and other requirements, such as crab bycatch limits in order to adequately do their job and to improve regulatory compliance. Sending observers out without training in this aspect of fishery management is not wise. Some of the public suggestions discussed above (such as trip limits, reduced gear size, and limiting where boats may fish during a single trip) actually increase the need for observers and the need for them to deal with enforcement and management issues.

Some of these suggestions, such as trip limits and gear size limitation, are highly allocative. The board may also receive other highly allocative proposals to slow the pace of the fishery, such as exclusive area registration or vessel size limits. The department would be neutral on the allocative aspects of such proposals, but could take a position or comment on any conservation or management issues associated with those proposals.

SCALLOP MANAGEMENT DURING 2007 AND AFTER

The 2007/08 statewide scallop fishery opened on July 1. Department staff will track harvest and monitor the fishery in those scallop beds that occur in both state and federal waters. This season's reported state-waters statistical area harvest will be compared to prior years' reported state-waters statistical area harvest.

In those scallop beds that occur both in state and federal waters, department staff will be working with vessel operators to gather additional tow-location information this season to help analyze harvest from tows that cross the state/federal boundary to assess reported state-waters statistical area harvest data.

The department will be submitting an agenda change request to the board for their consideration in October 2007. If accepted, the agenda change request will allow the board to discuss the scallop fishery during the 2007/08 proposal cycle to address management measures for an open-access state-waters scallop fishery beginning January 2009 when the current limited entry program expires. Developing a state-waters scallop fishery independent from the state-managed federal waters scallop fishery is likely to result in additional state research and management program funding needs.

Depending upon the level of effort in a new open-access state-waters scallop fishery, the board may want to consider three options.

1. **Close state waters.** This option would be necessary if the level of effort in state waters was too great to permit inseason management, and there was a risk of scallop over harvest or exceeding crab bycatch caps. Implementation of suggestions such as numbers six, seven, or eight above that reduce, eliminate, or limit activities of onboard observers may make this option more likely.

2. **Status quo.** If vessel effort and harvest patterns are similar to existing patterns of harvest and effort, there may be no need to implement additional management measures.

3. **Stand alone state fishery.** This option would be necessary if effort in the state-waters portion of state/federal scallop beds was sufficient to increase the historic harvest proportion in state waters. The department would manage state-waters separately from the federal waters portion of the same bed. Separate biomass assessments, harvest targets, and crab bycatch limits would have to be established for state waters. It is likely that management and research costs will be higher under this option. While the department believes the current management system is adequately conservative to protect scallops, this new option introduces additional uncertainties that may require alteration of that system. Development of stock assessment technology is ongoing and only two out of nine scallop beds statewide are currently managed using biomass-based resource assessment. This program may need to be expanded. Under this option, vessels that are currently able to fish both state and federal waters of the same scallop bed should be required to harvest from one portion of the bed at a time for enforcement reasons. Management and enforcement measures that might be needed under this option include:

1. Full observer coverage for state waters. Rather than reducing or eliminating observer coverage, the department believes it will be necessary to continue requiring observers.
2. Daily catch reporting.
3. Vessel monitoring system (VMS) coverage. Although ADF&G has not previously supported VMS coverage in other state-waters fisheries, such a program may be effective at identifying problem areas that need additional enforcement attention.
4. Separate scallop quotas and crab bycatch limits for state waters.
5. Separate seasons, or separate registration, for state and federal waters. These are two methods to help ensure vessels do not fish both state and federal waters in the same trip.
6. Preseason registration to determine vessel effort.
7. Dredge size limitations.
8. Enforcement of the boundary between state and federal waters. This will likely be challenging because the boundary is not a straight line. Vessels will need to be aware of their exact location to avoid crossing the boundary when gear is in the water. Increased enforcement vessel presence may also be required.

The department is also concerned that if many vessels participate in the open access fishery there may be unnecessary habitat damage by vessels prospecting in state waters areas that have few scallops (for example, the state waters adjacent to the Kamishak Bay scallop bed in Cook Inlet). The department also anticipates there may be proposals to open scallop beds in state waters that are currently closed to scallop fishing for the purpose of protecting crab stocks and habitat. Such proposals would be quite controversial.

Hopefully, this answers some of the questions about the future of scallop management in the absence of HB 16. If you, or your staff, have additional questions, please feel free to contact me at 907-267-2324, or by e-mail.

Sincerely,

John Hilsinger
Director
Commercial Fisheries Division

North Pacific Fishery Management C

Eric A. Olson, Chairman
Chris Oliver, Executive Director

605 W. 4th Avenue, Suite 306
Anchorage, AK 99501-2252

Telephone (907) 271-2809

Fax (907) 271-2817

Visit our website: http://www.alaskafisheries.noaa.gov/npfmc

February 25, 2013

Senator Cathy Giessel
Chair Senate Resources Committee
State Capitol Room 427
Juneau, AK 99801-1182

Sent by email: Senator.Cathy.Giessel@akleg.gov

Dear Senator Giessel;

The North Pacific Fishery Management Council (Council) supports the State of Alaska extending the current limited entry program for the Weathervane scallop fishery in state waters. The Council delegated authority to the State of Alaska to manage all aspects of the scallop fishery in federal waters off Alaska, except limited access, which remained a federal responsibility. The Fishery Management Plan for the Scallop Fishery off Alaska (FMP) established a license limitation program (LLP) in federal waters, effective January 16, 2001. The Alaska Legislature, as you know, also established a four-year vessel moratorium in 1997 that was first extended an additional three years until June 10, 2004, and then replaced with a vessel-based limited entry program that was scheduled to expire in 2008. At that time the legislature extended that expiration until the end of 2013. The Council is currently concerned that if this program is allowed to expire, the potential exists for an open-access fishery in State waters that is inconsistent with management measures to limit effort in federal waters.

Conservation concerns with crab bycatch and the overharvest of scallops in the early 1990s prompted the Council and the Alaska Board of Fisheries (BOF) to work cooperatively to reduce scallop fishing effort in the overcapitalized Weathervane scallop fishery. In several areas of the state, Kodiak and Yakutat for example, scallop beds are bisected by the 3-mile boundary line separating state from federal waters. In these areas, the majority (80% or more) of the scallop harvest is taken from the federal waters portion of the scallop beds. Guideline harvest ranges established by the Alaska Department of Fish and Game (ADF&G) are applied to the entire registration area, and are not apportioned to either state waters or federal waters. If the state waters portion of the fishery reverted to open access, additional vessels with unrestricted fishing capacity could target scallops in state waters. Disproportionate harvest of the scallop beds could lead to stock conservation concerns; including that portion of the stock in federal waters. Two additional concerns result from a bifurcated management regime. First, regulatory enforcement along the 3-mile line would be problematic. Second, Tanner and red king crab bycatch would likely increase as a result of increased fishing effort within a restricted portion of the scallop bed. Weathervane scallop stocks in Alaska are small. Concerns with overcapitalization, and the resulting stock conservation and crab bycatch concerns have largely been addressed through complementary federal and state limited entry/access programs. The Council encourages the Alaska Legislature to extend the Weathervane Scallop limited entry program in state waters to coordinate with the federal program implemented by this Council.

If you need any additional information relative to this issue, please feel free to contact the Council's Executive Director, Chris Oliver.

Thank you for considering these comments.

Sincerely,

Eric A. Olson, Chair
North Pacific Fishery Management Council

Cc: Ben Brown, Commissioner CFEC

North Pacific Fishery Management C

Eric A. Olson, Chairman
Chris Oliver, Executive Director

Telephone (907) 271-2809

605 W. 4th Avenue, Suite 306
Anchorage, AK 99501-2252

Fax (907) 271-2817

Visit our website: http://www.fakr.noaa.gov/npfmc

February 27, 2008

House Fisheries Special Committee
Rep. Paul Seaton, Chairman
State Capitol, Room 102
Juneau, AK 99801-1182

Dear Representative Seaton;

This letter serves as a follow up to concerns expressed by the North Pacific Fishery Management Council (Council) in April of 2007. The Council supports the State of Alaska extending the current limited entry program for the Weathervane scallop fishery in state waters. The Council delegated authority to the State of Alaska to manage all aspects of the scallop fishery in federal waters off Alaska, except limited access, which remained a federal responsibility. The Fishery Management Plan for the Scallop Fishery off Alaska (FMP) established a license limitation program (LLP) in federal waters, effective January 16, 2001. The Alaska Legislature, as you know, also established a four-year vessel moratorium in 1997 that was later extended an additional three years until June 10, 2004. The moratorium was replaced with a vessel-based limited entry program that is scheduled to expire in 2008. Conservation concerns with crab bycatch and the overharvest of scallops in the early 1990s prompted the Council and the Alaska Board of Fisheries (BOF) to work cooperatively to reduce scallop fishing effort in the overcapitalized Weathervane scallop fishery.

In several areas of the state, Kodiak and Yakutat for example, scallop beds are bisected by the 3-mile boundary line separating state from federal waters. In these areas, the majority (80% or more) of the scallop harvest is taken from the federal waters portion of the scallop beds. Guideline harvest ranges established by the Alaska Department of Fish and Game (ADF&G) are applied to the entire registration area, and are not apportioned to either state waters or federal waters. If the state waters portion of the fishery reverted to open access, additional vessels with unrestricted fishing capacity could target scallops in state waters. Disproportionate harvest of the scallop beds could lead to stock conservation concerns; including that portion of the stock in federal waters. Two additional concerns result from a bifurcated management regime. First, regulatory enforcement along the 3-mile line would be problematic. Second, Tanner and red king crab bycatch would likely increase as a result of increased fishing effort within a restricted portion of the scallop bed.

Weathervane scallop stocks in Alaska are small. Concerns with overcapitalization, and the resulting stock conservation and crab bycatch concerns have largely been addressed through complementary federal and state limited entry/access programs. The Council encourages the Alaska Legislature to extend the Weathervane Scallop limited entry program in state waters to coordinate with the federal program implemented by this Council.

If you need any additional information relative to this issue, please feel free to contact the Council's Executive Director, Chris Oliver.

Thank you for considering these comments.

Sincerely,

Eric A. Olson, Chair
North Pacific Fishery Management Council

North Pacific Fishery Management C

Stephanie Madsen, Chair
Chris Oliver, Executive Director

Telephone (907) 271-2809
Diana Stram,

605 W. 4th Avenue, Suite 306
Anchorage, AK 99501-2252

Fax (907) 271-2817

Visit our website: http://www.fakr.noaa.gov/npfmc

April 3, 2007

House Fisheries Special Committee
Rep. Paul Seaton, Chairman
State Capitol, Room 102
Juneau, AK 99801-1182

Dear Representative Seaton;

The North Pacific Fishery Management Council (Council) supports the State of Alaska extending the current limited entry program for the Weathervane scallop fishery in state waters. The Council delegated authority to the State of Alaska to manage all aspects of the scallop fishery in federal waters off Alaska, except limited access, which remained a federal responsibility. The Fishery Management Plan for the Scallop Fishery off Alaska (FMP) established a license limitation program (LLP) in federal waters, effective January 16, 2001. The Alaska Legislature, as you know, also established a four-year vessel moratorium in 1997 that was later extended an additional three years until June 10, 2004. The moratorium was replaced with a vessel-based limited entry program that is scheduled to expire in 2008. Conservation concerns with crab bycatch and the overharvest of scallops in the early 1990s prompted the Council and the Alaska Board of Fisheries (BOF) to work cooperatively to reduce scallop fishing effort in the overcapitalized Weathervane scallop fishery.

In several areas of the state, Kodiak and Yakutat for example, scallop beds are bisected by the 3-mile boundary line separating state from federal waters. In these areas, the majority (80% or more) of the scallop harvest is taken from the federal waters portion of the scallop beds. Guideline harvest ranges established by the Alaska Department of Fish and Game (ADF&G) are applied to the entire registration area, and are not apportioned to either state waters or federal waters. If the state waters portion of the fishery reverted to open access, additional vessels with unrestricted fishing capacity could target scallops in state waters. Disproportionate harvest of the scallop beds could lead to stock conservation concerns; including that portion of the stock in federal waters. Two additional concerns result from a bifurcated management regime. First, regulatory enforcement along the 3-mile line would be problematic. Second, Tanner and red king crab bycatch would likely increase as a result of increased fishing effort within a restricted portion of the scallop bed.

Weathervane scallop stocks in Alaska are small. Concerns with overcapitalization, and the resulting stock conservation and crab bycatch concerns have largely been addressed through complementary federal and state limited entry/access programs. The Council encourages the Alaska Legislature to extend the Weathervane Scallop limited entry program in state waters to coordinate with the federal program implemented by this Council.

If you need any additional information relative to this issue, please feel free to contact the Council's Executive Director, Chris Oliver.

Thank you for considering these comments.

Sincerely,

Stephanie D. Madsen

Stephanie D. Madsen, Chair
North Pacific Fishery Management Council

Submitted By David Daum
Affiliation self
Phone 907-378-8848
Email david_daum@yahoo.com
Address 1540 Ivans Alley
Fairbanks, Alaska 99709

Alaska Board of Fisheries, Work Session, October 9-10, 2013 Girdwood

ACR3 – Remove dip net size restriction for the Yukon Area districts 1-3 commercial summer chum salmon fisheries.

I strongly OPPOSE this agenda change request (ACR).

As stated in policy:

the board will accept an agenda change request only

a. for a conservation purpose or reason;

b. to correct an error in a regulation; or

c. to correct an effect on a hunt that was unforeseen when a regulation was adopted.

This request meets none of these criteria. The request will result in more efficient gear that will not only catch more chum salmon, but will also catch substantially more Chinook salmon. Almost 1,000 chinook salmon were captured in the commercial dip-net chum fishery in the lower Yukon River in 2013, along with over 1 million pounds of chum salmon. All reported Chinook salmon were released alive, but there is no evidence that any of these fish successfully reached the spawning grounds. Only 30,000 Chinook salmon passed the main-stem Yukon River border into Canada, the lowest escapement on record. This request will increase the harvest of Chinook salmon, which is not acceptable and is a very serious conservation concern. If the Yukon River commercial fishery desires to harvest more chum salmon, the fishery needs to find geographic areas that exclude Chinook salmon, not keep developing more and more harvest methods that incidentally capture Chinook.

ACR4 – Establish monofilament purse seines as a new legal gear for the Yukon Area districts 1-3 commercial summer chum salmon fisheries.

I strongly OPPOSE this agenda change request (ACR).

As stated in policy:

the board will accept an agenda change request only

a. for a fishery conservation purpose or reason;

b. to correct an error in a regulation; or

c. to correct an effect on a fishery that was unforeseen when a regulation was adopted.

This request meets none of these criteria. The request will result in more efficient gear that will not only catch more chum salmon, but will also catch substantially more Chinook salmon and other fish species. Almost 1,000 Chinook salmon were incidentally captured in the newly established commercial dip-net chum fishery in the lower Yukon River in 2013, along with over 1 million pounds of chum salmon. All reported Chinook salmon were released alive, but there is no evidence that any of these fish successfully reached the spawning grounds. Only 30,000 Chinook salmon passed the main-stem Yukon River border into Canada, the lowest escapement on record. This request will increase the capture of Chinook salmon, which is a very serious conservation concern. The request states that fish mortality is near zero when released from purse seines. This statement is very misleading at best. Experimental gear types, including purse seines with seine-type material (not mono) are being studied in the Columbia River as a means to release non-targeted species. These studies are on-going, with interpretation of results confounded by many factors, including length of the drainage, mixture of stocks, and unknown fates of some tagged individuals (John North, Oregon Department of Fish and Wildlife, personal communication). If the Yukon River commercial fishery desires to harvest more chum salmon, the fishery needs to find fishing areas absent of Chinook salmon, not keep developing more and more harvest methods that incidentally capture more and more Chinook and other fish species.

Purse seines are illegal gear in freshwater system of Alaska for commercial purposes. This ban has been in effect since the beginning of the 1900's for good reason. Purse seining is very efficient at capturing fish; all fish. Allowing a new gear type in Alaskan freshwaters is only opening up a can of worms for management and enforcement. The request allows any web size not exceeding 3.5 inches, uses monofilament material, and allows the sale of all fish species captured (except Chinook salmon). Incidental harvest of Bering cisco, sheefish, broad and humpback whitefish would be allowed for commercial purposes. These species are very important subsistence resources throughout the drainage. There currently exists a 15,000 pound annual quota on Bering cisco commercially harvested in the drainage. Acceptable harvest limits of other whitefish species have not been determined to date. No population estimates are known for any of the whitefish species in the Yukon River drainage. In regulation, monofilament purse seine web is unlawful. Allowing monofilament material will ensure that all fish captured will likely be injured. This request will not only cause the mortality of additional Chinook salmon, but will also introduce new commercial fisheries with unknown consequences.

Thank you for your consideration,

David Daum

AVCP

Association of Village Council Presidents
Administration
Pouch 219, Bethel, AK 99559

Raymond Watson, Chairperson
Myron P. Naneng Sr., President
Phone: (907) 543-7300
Fax: (907) 543-3369

Akiachak
Akiak
Alakanuk
Andreafsky
Aniak
Atmautluak
Bethel
Bill Moore's Sl.
Chefornak
Chevak
Chuathbaluk
Chuloonawick
Crooked Creek
Eek
Emmonak
Georgetown
Goodnews Bay
Hamilton
Hooper Bay
Lower Kalskag
Upper Kalskag
Kasigluk
Kipnuk
Kongiganak
Kotlik
Kwethluk
Kwigillingok
Lime Village
Marshall
Mekoryuk
Mtn. Village
Napaimiut
Napakiak
Napaskiak
Newtok
Nightmute
Nunakauyak
Nunam Iqua
Nunapitchuk
Ohogamiut
Oscarville
Paimiut
Pilot Station
Pitka's Point
Platinum
Quinhagak
Red Devil
Russian Mission
Scammon Bay
Sleetmute
St. Mary's
Stony River
Tuluksak
Tuntutuliak
Tununak
Umkumiut

September 24, 2013

To The Alaska Board of Fisheries:

I am writing on behalf of the Association's of Village Council President's (AVCP) to support ACR #13 submitted by Bering Sea Fishermen's Association. AVCP is the recognized tribal non-profit Alaska Native regional corporation for fifty-six member indigenous villages within Western Alaska. AVCP fully supports its member villages in all aspects of their self-determination, health and well-being.

For the 2013 season, a new drainage-wide escapement goal of 65,000-120,000 Chinook salmon was established based on a Kuskokwim Chinook salmon run reconstruction. This new goal is much lower than the average escapement of about 150,000 Chinook salmon. Escapement goals for the tributaries—the George, Kogrukluk, and Kwethluk Rivers—were reduced to be in proportion with the new drainage-wide goal and the Tuluksak escapement goal was eliminated. A revised *Kuskokwim Salmon Management Plan* was also adopted for the 2013 season.

AVCP expressed concerns about the Departments plan before the Board of Fisheries meeting in 2013 at the 2012 Convention. A resolution was adopted at the Convention "Calling for a delay to changes to Kuskokwim Escapement Goals". Among the concerns were: lowered goals despite disastrously low runs, little time for independent analysis of the States data and model, not addressing maintaining genetic diversity throughout the drainage, weak stock protections, and a reduction of the abundance of fish passing Bethel which could affect fishing efforts upriver. The concerns outlined in the resolution remain and many of the concerns were actualized in 2013.

During 2013, the number of Chinook salmon which reached the spawning grounds could very well be the lowest return on record. At this time no tributary escapement goals were met nor is it likely that the drainage-wide escapement goal for the whole river was met. All but one of these tributaries had the lowest escapement on record. The number of Chinook salmon that reached tributary spawning grounds were, in some cases, by far the lowest recorded escapements on record. The Kogrukluk River, the largest Chinook salmon producer on the Kuskokwim, had a preliminary escapement estimate that was just 35% of the lower end of the established escapement goal. The Takotna River saw less than 100 Chinook salmon this year on the spawning grounds.

This is following multiple years of poor returns. Many of the tributaries on the Kuskokwim have already had multiple years, some up to five consecutive years, of poor Chinook salmon returns. The Tuluksak River has now seen seven consecutive years of drastically low returns and the escapement goal was discontinued in 2012. On September 13, 2012, the Acting U.S. Secretary of Commerce Rebecca Blank declared a commercial fisheries disaster for the Kuskokwim River Chinook salmon for 2011-2012 in response to extremely low returns. All this adds up to a very serious concern for the future of our Kuskokwim Chinook salmon.

The Village of Lower Kalskag, Native Village of Chuathbaluk, Native Village of Napaimute and Kuskokwim Native Association have responded with clear resolutions calling for action to address conservation and subsistence concerns. Akiak, Kwethluk, Tuluksak, and Akiachak have called tribal meetings to address Chinook salmon concerns in late September. The AVCP Annual Convention to be held October 8-10, 2013, will host a subsistence panel to continue discussions.

We need to revisit Kuskokwim salmon management to protect and sustain our resource for future generations and to ensure subsistence opportunity throughout the drainage. We are requesting the Alaska Board of Fisheries to support the ACR submitted by Bering Sea Fishermen's Association and schedule time for Kuskokwim conservation issues for the spring 2014.

Sincerely,
Association of Village Council Presidents
Raymond Watson, Chairman

Myron P. Naneng, Sr., President

Submitted By Dan Gillikin
Affiliation KNA
Phone 907-545-0564
Email dgillikin@knafish.org
Address POB 127
Aniak, Alaska 99557

Dear Board of Fisheries Members,

This letter is to express Kuskokwim Native Association's (KNA) support for the out of cycle ACR submitted by the Bering Sea Fisherman's Association to address critical conservation and allocation issues of Chinook salmon on the Kuskokwim River. KNA represents eleven middle and upper Kuskokwim River Tribes and has a long history of collaboration with the Department on fisheries management issues.

KNA believes that consideration of the ARC out of cycle is warranted because of the Departments decisions, adopted by the Board at the regular BOF meeting last January have resulted in a critical conservation concern and a reallocation of Chinook salmon for subsistence users along the Kuskokwim River.

Even after extensive collaborations with other stakeholders and the Department to develop what was thought to be a workable management plan, the record low return of Chinook in 2013 illustrated some obvious inadequacies of adopting a basinwide SEG of 65,000 – 120,000 Chinook, while retaining the drainage wide ANS of 64,500 – 83,000.

It is our hope that the Board will allow a reconsideration of those decisions in light of this new information and take steps to correct the situation. If there are any questions or concerns please feel free to contact me.

Dan Gillikin

Director of Fisheries

Kuskokwim Native Association

dgillikin@knafish.org

(907) 545-0564

Submitted By Megan Smith
Affiliation Fair Fishing 907

Attention: Board of Fish Comments

Alaska Department of Fish and Game

Board Support Section

PO Box 115526

Juneau, AK 99811

Dear Alaska Board of Fish Members,

Thank you for this chance to comment on the submitted 2013 Agenda Change Requests.

We would like to focus our concerns and comments on Agenda Change Request #6.

There are 3 very specific criteria that need to be met for the BOF to take up an Agenda Change Request. (5 AAC 39.999)

1. **For a fishery conservation purpose or reason**
2. **To correct an error in regulation**
3. **To correct an unforeseen effect of a regulation**

ACR #6 does not try to change an error or unforeseen effect in any regulations. The author states that this ACR is for a fishery conservation purpose or reason, however it lacks the specificity to deal with any particular issues in any specific fishery. Instead, it aims to introduce new fisheries in all areas of the state (each with their own set of unforeseen effects and errors) by using a broad- based "conservation" catchphrase.

The Kenai and Kasilof river systems support the largest dipnet fishery in the state of Alaska. ACR #6 would create additional pressure on river systems that are already fully allocated. Currently, the dipnet fishery is growing at an exponential rate and limited only by the population of the state of Alaska. Adding commercial fisherman on top of this geographically limited, densely populated fishery will have negative impacted on all user groups.

The state wide, knee jerk, blanket ACR #6 does not recognize specific fisheries, specific fishery needs and the diversity of users across the state of Alaska nor does it meet the criteria outlined for the Agenda Change Requests. We believe it is the responsible action of the Board of Fisheries not to take up ACR #6.

Thank you,

Todd and Megan Smith

Travis and Amber Every

Brian and Lisa Gabriel

Sarah and Jason Hudkins

Submitted By Steve Brown
Affiliation Concerned Area M Fishermen
Phone 907-235-2631
Email browburk@horizonsatellite.com
Address 35717 Walkabout Rd.
Homer, Alaska 99603

CONCERNED AREA M FISHERMEN

35717 Walkabout Road, Homer, Alaska 99603

(907) 235-2631

September 24, 2013

Alaska Department of Fish and Game

Boards Support Section-Headquarters Office

PO Box 115526

Juneau, AK 99811-5526

Re: ACR 11

Dear Mr. Chairman and members of the Board of Fisheries;

Concerned Area M Fishermen (CAMF) is submitting these comments regarding ACR 11, which is to be considered for adoption at your October work session. CAMF represents approximately 100 of the 150 salmon drift permit holders who are active in the Alaska Peninsula (Area M) salmon drift fishery.

CAMF feels the ACR does not meet the criteria the Board has established for consideration of agenda change requests, and therefore should not be approved for consideration during this regulatory cycle. Redefining the outer boundary lines of the fishing districts in the North Peninsula salmon fishery does not serve a fishery conservation purpose or reason, nor does it correct an error in regulation.

The petitioner states that adoption of the request would “correct an effect that was unforeseen when the regulation was adopted” by more clearly defining the outside boundary lines of the North Peninsula fishing districts, and that the current regulation is “haphazardly enforceable”. CAMF disagrees with both assertions. Specifically, we discussed clearer definition of the new boundary line with both the head of the Department and the head of enforcement at the meeting prior to adoption of the new regulation. They explicitly declined our request for better definition and subsequently answered in the negative as to any errors and omissions in the adopted language. Our understanding is that the intent of the policy is to place a high standard for out of cycle requests, similar to the Joint Board Policy requiring finding of an emergency. It seems appropriate that this high standard apply equally to all parties: stakeholders, managers, regulators, and enforcers.

Further, the Division of Fish and Wildlife has enforced the current regulation during the 2013 salmon season. Our understanding is that they found the fishery to be “pretty orderly”. The fact that at least two vessels were cited for boundary line violations this past summer proves the current regulation is enforceable. It would be interesting to know what they found for violations in Pilot Point for comparison.

The fact that the request is submitted by stakeholders in an area adjacent to, but not directly affected by the proposed action suggests the possibility that the primary motivation is allocation, whether or not the requestors are candid enough to say so. 5 AAC 39.999(a)(2) explicitly prohibits acceptance of requests of this nature.

CAMF does believe that discussion of refining the description of the outside boundary lines on the North Peninsula may have merit. However, it seems to us that the current regulation is enforceable, and this discussion would be more appropriate to have during the next regularly scheduled regulatory meeting for the Alaska Peninsula salmon fishery in 2016. Therefore, CAMF urges the Board not to adopt ACR 11 for this regulatory cycle.

Sincerely,

Steve Brown, President

Chignik Regional Aquaculture Association
PO Box 46
Chignik, AK 99564
or
2731 Meridian St., Suite B
Bellingham, WA 98225

September 25, 2013

Alaska Board of Fisheries
Boards Support Section
P.O. Box 115526
1255 W. 8th St.
Juneau, AK 99811-5526

Dear Chairman Karl Johnstone and other BOF Members:

Subject: BOF Housekeeping Action Needed to Anchor the Chignik August Sockeye Escapement and Subsistence Requirement.

The Chignik Regional Aquaculture Association (CRAA) mission includes ensuring that traditional subsistence resources and opportunities are protected and maintained for the people of Chignik Lake, Chignik Lagoon, Chignik, Ivanof Bay, and Perryville. CRAA has been approached by many within the Chignik area concerned that current management documents (e.g. 2013 Chignik escapement sockeye schedule) do not reflect an independent August goal of 75,000 sockeye salmon. After reviewing BOF and ADF&G records, we believe that this is likely an oversight but one that needs to be corrected. In accordance, we respectfully ask that the BOF reaffirm to the Department and the people of Chignik that the late Chignik sockeye run is to be managed to ensure that 75,000 sockeye salmon enter the Chignik River in August irrespective of the second run escapement during July.

In support of the above request your attention is called to the 2004 BOF action undertaken in response to a Chignik Lagoon Village Council emergency petition for adjusting the August escapement objective for subsistence. While the 2004 BOF denied the petition, finding that it did not constitute the need for an emergency action, the Board generated a Proposal A which passed unanimously to wit: *"Adopt an escapement objective of an additional 25,000 sockeye salmon in the Chignik River in August (to raise the total to 75,000 sockeye.)"*

The Department's 2005-2007 Chignik River sockeye escapement schedule (Table 1) reflected the 2004 BOF action with a definitive and independent August goal of 75,000 sockeye salmon. In 2007, the BOF reaffirmed that 25,000 additional sockeye salmon were required for local subsistence above the biological August goal of 50,000. It also confirmed a 25,000 sockeye escapement goal for September.

As previously claimed, we believe that an oversight has occurred between what the Board intended and the Department's published Chignik escapement schedule for the last 5-years

(2008-13; Table 2). As shown in Table 2, the 2008-13 schedule does not provide an independent 75,000 fish August goal. Also note in Table 2 that the cumulative upper late-run goal for July 31 is at 283,700 fish, a level in excess of the total season minimum late-run escapement goal of 250,000. This suggests that if a 250,000 or higher escapement was reached at the end of July there would be no need for any more Chignik River escapement in either August or September. Obviously, this is contrary to the BOF directive in 2004 and reaffirmed in 2007.

Respectfully, we ask the Board to formally confirm an independent August goal of 75,000 sockeye salmon into the Chignik River and maintain a 25,000 September escapement requirement for stock preservation and subsistence. Please note that there would have no impact on the two pre July 26th interception fisheries (Igvak or SEDM) and that it would better ensure that Chignik late-season subsistence opportunities are properly managed.

Sincerely,

Charles McCallum
Executive Director

Attachments (2)

cc ADF&G- Kodiak
CRAA Board & staff

Table 1. Chignik River sockeye salmon escapement objectives, 2005-2007.

	Escapement			Escapement	
Date	Lower	Upper	Date	Lower	Upper
June 2	500	1,000	August 3	4,500	10,500
June 4	2,000	3,000	August 6	8,250	21,750
June 6	5,000	7,000	August 9	15,000	30,000
June 8	10,000	14,000	August-12	22,500	37,500
June-10	20,000	25,000	August-15	30,000	45,000
June-12	30,000	40,000	August-18	37,500	52,500
June-14	50,000	70,000	August-21	45,000	60,000
June-16	75,000	110,000	August-24	58,250	66,750
June-18	125,000	160,000	August-27	64,500	70,500
June-20	175,000	220,000	August-31	75,000	75,000
June-22	225,000	275,000			
June-25	275,000	325,000	September 3	3,000	4,000
June-28	300,000	350,000	September 5	6,000	8,000
July 1	325,000	375,000	September 7	10,000	12,000
July 4	350,000	400,000 a	September 9	14,000	16,000
			September-11	18,000	20,000
July 6	5,000	10,000	September-13	22,000	23,000
July 8	15,000	20,000	September-15	25,000	25,000
July-10	30,000	40,000			
July-12	45,000	60,000	**Objectives through July 4**		
July-14	56,000	75,000		350,000	400,000
July-16	67,000	95,000			
July-19	86,000	115,000	**July 5 through Sept. 15 Objectives**		
July-21	101,000	135,000		250,000	300,000
July-23	120,000	160,000			
July-26	135,000	180,000			
July-29	146,000	195,000			
July-31	150,000	200,000			

a/ Through July 4 is historically the date on which the in-season escapement most closely approximated the early-run escapement as estimated by post-season scale pattern analysis (ADF&G 2005-07).

Table 2. Chignik River sockeye salmon interim escapement objectives, 2008-2013.

	Escapement			Escapement	
Date	Lower	Upper	Date	Lower	Upper
June 2	1,200	1,400	August 3	172,500	295,700
June 4	4,000	4,500	August 6	178,700	306,300
June 6	9,800	11,200	August 9	184,600	316,300
June 8	17,900	20,400	August-12	190,600	326,600
June-10	29,500	33,700	August-15	196,200	336,200
June-12	51,200	58,500	August-18	201,900	346,000
June-14	83,000	114,700	August-21	207,400	355,400
June-16	116,000	179,500	August-24	213,300	365,600
June-18	145,300	231,000	August-27	218,800	374,900
June-20	170,900	284,600	August-31	225,000	385,700
June-22	202,100	299,200			
June-25	248,900	312,200	September 3	228,000	391,100
June-28	282,900	323,300	September 5	231,000	393,000
July 1	323,600	337,600	September 7	235,000	395,000
July 4	350,000	400,000	September 9	239,000	396,800
			September-11	243,000	398,100
July 6	7,000	11,900	September-13	247,000	399,000
July 8	19,900	34,100	September-15	250,000	400,000
July-10	32,600	56,000			
July-12	44,400	76,100		Escapement Objectives	
July-14	58,900	101,000			
July-16	76,400	131,000	Through July 4:	350,000 - 400,000	
July-19	96,600	165,700			
July-23	122,200	209,500	July 5 - September 15:	250,000 - 400,000	
July-26	141,800	243,100			
July-29	158,200	271,100			
July-31	165,500	283,700			

Source: ADF&G 20013

43961 Kalifornsky Beach Road • Suite F • Soldotna, Alaska, 99669-8276
(907) 262-2492 • Fax: (907) 262-2898 • E Mail: kpfa@alaska.net

Attention:

Karl Johnstone

Chairman, Alaska Board of Fisheries

Board Support Section

Alaska Department of Fish and Game

P.O. Box 115526

Juneau, AK 99811-5526

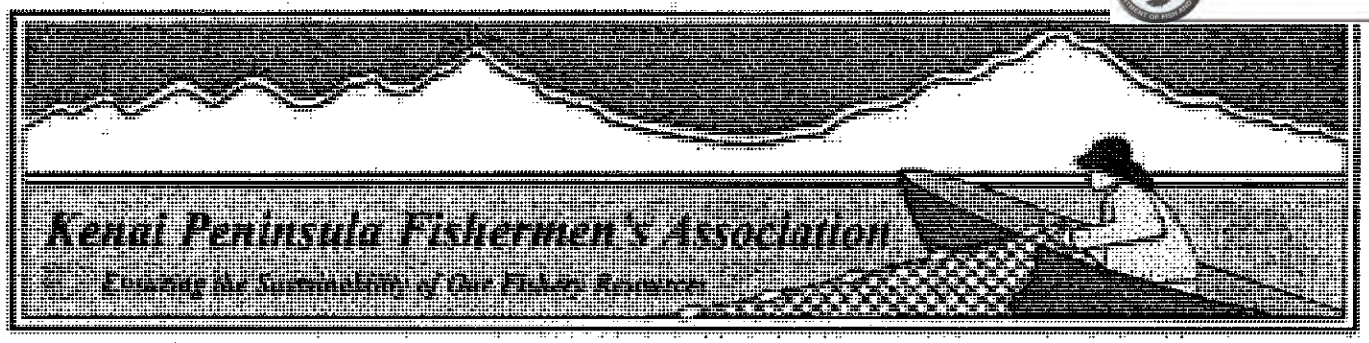
Mr. Chairman,

The Kenai Peninsula Fishermen's Association (KPFA) has been a commercial fishing advocacy group since 1954. Primarily comprised of setnet salmon limited entry permit holders. We also include other Cook Inlet (CI) gear types, crewmembers, fish processors, local businesses and general interest in our membership.

We would like to thank the board for the chance to comment on ACR #6 for 2013. 5 AAC 39.999 identifies 3 very specific criteria that must be met in order for the BOF to take up an Agenda Change Request:

1. **For a fishery conservation purpose or reason**
2. **To correct an error in regulation**
3. **To correct an unforeseen effect of a regulation**

The purported basis for ACR#6 is to address a "fishery conservation purpose or reason", however no specific conservation issue is provided. Instead a blanket generalized statement mentioning 5 or more regions is used to ask for a completely new gear type state-wide based on a single season of experimentation in an in-river fishery. Each one of these new fisheries, if created, would have their own unforeseen effects and errors. Conservation issues within fisheries should be addressed on an individual basis for specific fisheries within their respective BOF cycles. For these reasons, ACR #6 does not meet the criteria outlined for the board by 5 AAC 39.999.



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(907) 262-2492 • Fax: (907) 262-2898 • E Mail: kpfa@alaska.net

Furthermore, KPFA believes that BOF – instituted alternative commercial gear types remains legally questionable. Commercial permits and gear types are regulated by the Alaska Commercial Fisheries Entry Commission. Per Alaska statute, it is "to promote the conservation and the sustained yield management of Alaska's fishery resource and the economic health and stability of commercial fishing in Alaska by regulating and controlling entry of participants and vessels into the commercial fisheries in the public interest and without unjust discrimination."

KPFA believes that ACR #6 is an ill-conceived response to an unidentified problem. It likely would create more problems than it would solutions. We encourage this Board to adhere to both the letter and intent of Alaska's statutes, and vote no to taking up ACR#6.

Sincerely,

The KPFA Board of Directors

43961 Kalifornsky Beach Road • Suite F • Soldotna, Alaska 99669-8276
(907) 262-2492 • Fax: (907) 262-2898 • E Mail: kpfa@alaska.net

MATANUSKA-SUSITNA BOROUGH
FISH AND WILDIFE COMMISSION
350 East Dahlia Avenue • Palmer, AK 99645

September 25, 2013

Chairman Johnstone
Board of Fisheries
P.O. Box 115526
Juneau, AK 99811-5526

Dear Chairman Johnstone and Board of Fisheries Members:

In preparation for the upcoming Board work session in Girdwood starting Oct. 9, 2013, the Mat-Su Borough Fish and Wildlife Commission (Commission) asks Board members to consider and clarify how potential Salmon Stocks of Concern are identified, evaluated, and designated.

It is our understanding that the Board plans to have a Sustainable Salmon Fisheries Policy (SSFP) subcommittee. The Commission believes clarification of the Salmon Stock of Concern process would be an appropriate topic for the board and subcommittee to work toward during and after this work session. At the work session, as outlined by the SSFP, the board should be receiving and considering Upper Cook Inlet stock status reports from the Alaska Department of Fish and Game (ADF&G) that provide: (ii) identification of any salmon stocks, or populations within stocks, that present concern related to yield, management, or conservation. Below are some specific points on which the Commission seeks clarification:

1. Who is allowed to nominate potential Stocks of Concern? As mentioned in the SSFP, ADF&G is required to identify any stocks with yield, management, or conservation concern at regular board meetings, but is identification of such stocks exclusive to ADF&G, or may identification / nomination also come from the public? user groups? other government agencies? or even the Board itself?

2. Are Board proposal forms an appropriate means for the public, user groups, and other agencies to participate in the process of nominating potential Stocks of Concern for Board consideration? If not, is it the Board's intent to exclude the public from the process? These questions are specifically asked because ADF&G spokesperson(s) have stated that proposal forms are not an appropriate means for nominating potential Stocks of Concern, and specific reference to the public process is lacking in the SSFP. If regulatory proposal forms are not an appropriate means, what is an appropriate method for others (aside from ADF&G) to participate in the process?

3. The SSFP lists 3 levels of Stock of Concern designations in order of severity: yield, management, and conservation. By SSFP definition, a management concern is a chronic inability, despite use of specific management measures, to maintain escapements within the bounds of the SEG, BEG, OEG, or other

specified objectives for the fishery. Chronic inability means continui[illegible] anticipated inability to meet escapement thresholds over a four to five [illegible] the approximate generation time of most salmon species. Using the SFFP definitions how should ADF&G report on the status of a stock like Little Susitna River coho salmon which failed to reach the minimum spawning escapement levels four consecutive years (2009 - 2012), but then had an escapement within the goal range in 2013? Since the goal level was reached one year (2013), does this automatically exclude Little Susitna River coho salmon from consideration as Management Concern? If excluded as a Stock of Management Concern, should meeting all criteria over a 4 year period (2009 - 2012) automatically flag this stock for ADF&G and Board consideration as a Stock of Yield Concern (the next lower level of concern)?

4. How should ADF&G and the Board proceed with the Northern Management Area / Northern District king salmon stocks of Upper Cook Inlet? Six of these stocks have already been designated as Stocks of Management Concern, and several other stocks may be in consideration for the same designation. Like Little Susitna River coho salmon, many of these king salmon stocks achieved minimum spawning escapement goal thresholds in 2013, however, this was accomplished through severe fishery restrictions -- in many cases restrictions that allowed zero harvest / yield in several sport fisheries. Should ADF&G automatically exclude any king salmon stock that made an escapement goal in 2013 from its Board report on possible Stocks of Management Concern? Should all Northern Management Area king salmon stocks automatically be considered as Stocks of Yield Concern? Should the Northern Management Area king salmon be considered as a conglomerate for Stock of Yield Concern?

5. In both 2012 and 2013, ADF&G managed both the Northern District commercial set net fishery and all Northern Management Area king salmon sport fisheries, targeting wild fish through emergency regulations effective from mid-May through July 13. In 2012, emergency restrictions on set netting also continued later into July. Emergency Order management is especially disruptive to the sport fishers because of the difficulty it poses in preseason planning for all anglers, disruption of preseason bookings for guides and consequent negative impacts on the Mat-Su Valley tourism industry. Although there are several Northern wild king salmon regulation proposals submitted by individuals or groups, not one proposal was submitted by ADF&G. Does ADF&G intend to manage Northern Management Area and Northern District king salmon stocks in 2014 - 2016 based on regulations currently on the books or only using regulation proposals by others? If not, how can the public participate in a public regulation development process if the department that sets emergency regulations submits no proposals for public consideration during the regular BOF meeting cycle?

Mat-Su Fish and Wildlife Commission members look forward to your comments and conversations about these issues at the upcoming meetings, particularly given that the majority of current Stocks of Concern are in the Mat-Su and there may be more Mat-Su stocks to be considered for that status. Thank you for your consideration of this important issue.

Sincerely,

Bruce Knowles

T. Bruce Knowles, Chair
MSB Fish and Wildlife Commission

Submitted By Chris Carr
Affiliation
Phone 9078427191
Email gusuk1@hotmail.com
Address 1 gusuk rd
portage creek, Alaska 99576

Board members,i would like to urge you strongly to take up #12 and 14 ACR's,year round single hook for all of the Nushagak river.The original intent was for decreasing the mortality rate of kings from may-july.In the end the board put all species to be caught with single hook year round.This puts a burden on the locals who have for a very long time used other then a single hook for their subsistence harvesting,please refer to the Nushagak advisery commitee comments on this.thank you.Chris Carr

Submitted By Grant Fairbanks
Affiliation Holitna Salmon Watch
Phone 907 5434227
Email grantfbx@ak.net
Address box 370
bethel, Alaska 99559

As a resident of the Kuskokwim and the Holitna River for 40 years I am very concerned with the King salmon problem.The Department of Fish and Game needs to have all fishing for King salmon halted until the King salmon populations recover to a level to support subsistence and all other fishing.Nothing has worked to stop the decline of this population so a total closure for many years needs to be implemented

.On the Holitna River,the weir at the headwaters has seen King salmon passage go from 10 to 20 thousand kings a year to in the thousands.This year the number will probably be below 2000.This is the LARGEST king salmon spauning river in the Kuskokwim watershed.The village of Akiak and Kwethluk probably harvested this same number this year for subsistence but the Department of Fish and Game still allowed fishing for kings.The department needs to halt all fishing for kings by way of an emergency order and not allow king fishing of any type till the kings recover, if they ever do.

This problem has been around for many years and Fish and Game just changes their formula for lower excapement goals.The King salmon fishery should never have been opened this year but was and now we have the lowest King salmon numbers ever recorded.The board needs to act now.

Submitted By Karen S. McGahan
Affiliation

I do not understand the reasoning behind ACR #6, but I certainly do not believe it is conservation.

I oppose ACR #6. I do not believe it meets the criteria for the Board of Fish Agenda Change Requests.

It is not specific as to any conservation issue in any particular area of the state.

I request that the Board of Fish NOT take up Agenda Change Request #6.

BOARD MEETING: WORK SESSION: 9/25/2013
NAME: RAGNAR ALSTROM
AFFILIATION: YUKON DELTA FISHERIES DEVELOPMENT ASSOC.
CONTACT PHONE: 907- 644-0326
EMAIL: RAGNARAYDF@AOL.COM
ADDRESS: 1016 WEST SIXTH AVE, SUITE 301
CITY: ANCHORAGE, AK
ZIP: 99501

Submitted in support of ACR #4:

Allow purse seines as legal commercial fishing gear in Districts 1-3 for summer chum salmon in times of king conservation. Also, allow purse seine web to be constructed from monofilament.

TEST PURSE SEINE ACTIVITIES: LOWER YUKON RIVER 2013

by
YDFDA
In support of ACR #4

2013 Yukon River Test Purse Seine Information and Results

- YDFDA and ADF&G cooperatively conducted a purse seine test fishery, within District 1 of the Yukon Area.

- Major goal:
  - to evaluate the purse seine gear; and
  - to develop procedures that would facilitate the live release of Chinook salmon.

- 2 Beach seine types were modified to fish as purse seines:
  - monofilament web
  - seine web (18-count threat).

2013 Yukon River Test Purse Seine Information and Results

- Also used a purse seine (12-thread count seine web).
- A total of 553 chum salmon were captured in 67sets.
- The vast majority of chum salmon, 73%, were captured during the July 2-6 sampling period in 22 sets.
- Catches of chum salmon were directly related to the number of chum salmon in the river, as indicated by sonar counts attributed to chum salmon.

Two-boat purse seine set: deploying purse seine

Two-boat purse seine set: Closing the set.

Two-boat purse seine set: the lines are transferred to the seine boat and the pursing of the rings begins.

Dipping free swimming salmon out of the monofilament purse bag for retention or release

One-boat seine set: deploying the seine

The seine is set from onshore to offshore, similar to a drift gillnet

Moving toward the onshore cork line while attached to the offshore cork line is being deployed

Upon reaching the onshore cork line, the line is picked up and secured to the front of the boat.

Note the rope attached to the outside cork line being held in the boat

Closing the set by pulling the offshore cork line toward the boat.

Closing the set

Axel Pull method to purse the rings. Purse lines attached to the boat

Axel Pull Method:
The ends of the cork lines are attached to each other with a carabineer.

Axel Pull Method:
With the purse lines attached to the boat, the boat is motored in reverse, pulling the purse line and pursing the rings

Axel Pull method of pursing the rings

Rings are being pursed as the boat is motored away from the set

Purse rings are pursed; the boat is motored back to the set

Back at the set, the cork lines are detac
and each end is secured in the boat.

The offshore cork line end is secured ne stern of the port side of the boat, the onshore end is secured to the front starboard side of the boat.

Purse rings and leads are brought up by hand

Rings and leads are lifted into the boat by hand

…and pulled over to the starboard side of the boat to facilitate resetting of the seine.

The offshore corks and webbing are brought into the boat and stacked near the stern.

Free swimming salmon are dip netted out of the purse bag and either retained or released

Fish are either retained or released

Another one-boat set

Pulling the offshore corks to the boat.

Closing the set

Onshore cork line attached to starboard s
offshore cork line attached to port stern.

Purse line pulled in by hand, pursing rings.

Purse rings and leads are lifted into the boat.

Seine is finished fishing; fish are trapped in the purse bag

Free swimming salmon are dip netted out of the purse bag and either retained or released

Offshore corkline and webbing is brought into the boat and piled near the stern

CONCLUSIONS

1. Purse seine gear can be safely operated in the riverine environment of the Lower Yukon River;

2. Purse seine gear can be used to selectively harvest commercial quantities of chum salmon while allowing Chinook salmon to be released alive; and

3. Some small non-target fish, such as Bering cisco and small female pink salmon, were gilled in the 3.5 inch web. These fish were retained and used for subsistence.

RECOMMENDATIONS

Purse Seine Length

- At least 50 fathom in length;
- Max length unrestricted or set to 200 fathoms in regulation to allow experimentation by fishers;

Purse Seine Web

- Multi-strand monofilament and/or #12-thread count seine material;
- Maximum of 3.5 inch stretch mesh,
- 100 meshes deep; may want to set maximum in regulation to 150 meshes;

Purse Rings

- 2 x 5/16 inch stainless steel rings on 6-inch bridals;
- Spaced every 10 feet along the lead line

RECOMMENDATIONS

Purse Seine Lead Line:

75 or 85 pound lead line (a heavier lead line may be necessary with increased water velocity in the spring)

Purse Line:

½ inch sinking purse line;

Corks:

extra large corks spaced every 18 inches

Cork Line:

floating cork line

Seine design:

rectangular, without taper.

The End

Submitted By Richard McGahan, Sr.
Affiliation

I oppose ACR #6. I do not believe it meets the criteria for the Board of Fish Agenda Change Requests.

It is not specific as to any conservation issue in any particular area of the state.

I request that the Board of Fish NOT take up Agenda Change Request #6.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
1011 E. Tudor Road
Anchorage, Alaska 99503-6199

IN REPLY REFER TO:

FWS/OSM 13075.GP

SEP 25 2013

Mr. Karl Johnstone, Chair
Alaska Board of Fisheries
Alaska Department of Fish and Game
P.O. Box 115526
Juneau, Alaska 99811-5526

Dear Chairman Johnstone:

The Alaska Board of Fisheries will consider 14 Agenda Change Requests, among other issues, at its work session beginning October 9, 2013.

The U.S. Fish and Wildlife Service, Office of Subsistence Management (OSM), working with four other Federal agencies, has reviewed these requests and believes that adoption of any of these requests will not have any significant impacts on Federal subsistence users or fisheries.

We appreciate the opportunity to comment on these important regulatory matters and look forward to working with the Alaska Board of Fisheries and the Alaska Department of Fish and Game on these issues.

Sincerely,

Karen Hyer (acting ARD)

Eugene R. Peltola, Jr.
Assistant Regional Director, OSM

CC:
Cora Campbell, ADF&G
Tim Towarak, Chair FSB
Lisa Olson, ADF&G, Anchorage
Drew Crawford, ADF&G, Anchorage
Jennifer Yuhas, ADF&G, Anchorage
Interagency Staff Committee
Kristy Tibbles, ADF&G, Juneau
Kathleen M. O'Reilly-Doyle, DARD, OSM
Jeff Regnart, ADF&G, Anchorage
Hazel Nelson, ADF&G, Anchorage
Charles Swanton, ADF&G, Juneau
Administrative Record

TAKE PRIDE IN AMERICA

YUKON RIVER SUMMER CHUM SALMON ESCAPEMENT GOAL ANALYSIS AND RECOMMENDATIONS

Prepared for YDFDA
By
Gene J. Sandone

In support of ACR # 3 and # 4
Alaska Board of Fisheries Work Session,
October 9-11, 2013,
Girdwood, AK

OBJECTIVES

1. To provide support for the establishment of a Yukon River Summer Chum Salmon Biological Escapement Goal (BEG) Range; and

2. Provide information regarding the number of spawners at the theoretical replacement point, S_{eq}, where productivity or Return per Spawner (R/S) = 1.0

METHODS

- Brood Year Tables--Necessary Inputs:
  - Brood Year time period determination;
  - Annual Estimates of Total Run
    - Based on Pilot Station Sonar Passage Estimates plus estimated removals and escapements below the sonar site
  - Annual Age-class composition of the harvest and escapement.

Available Data

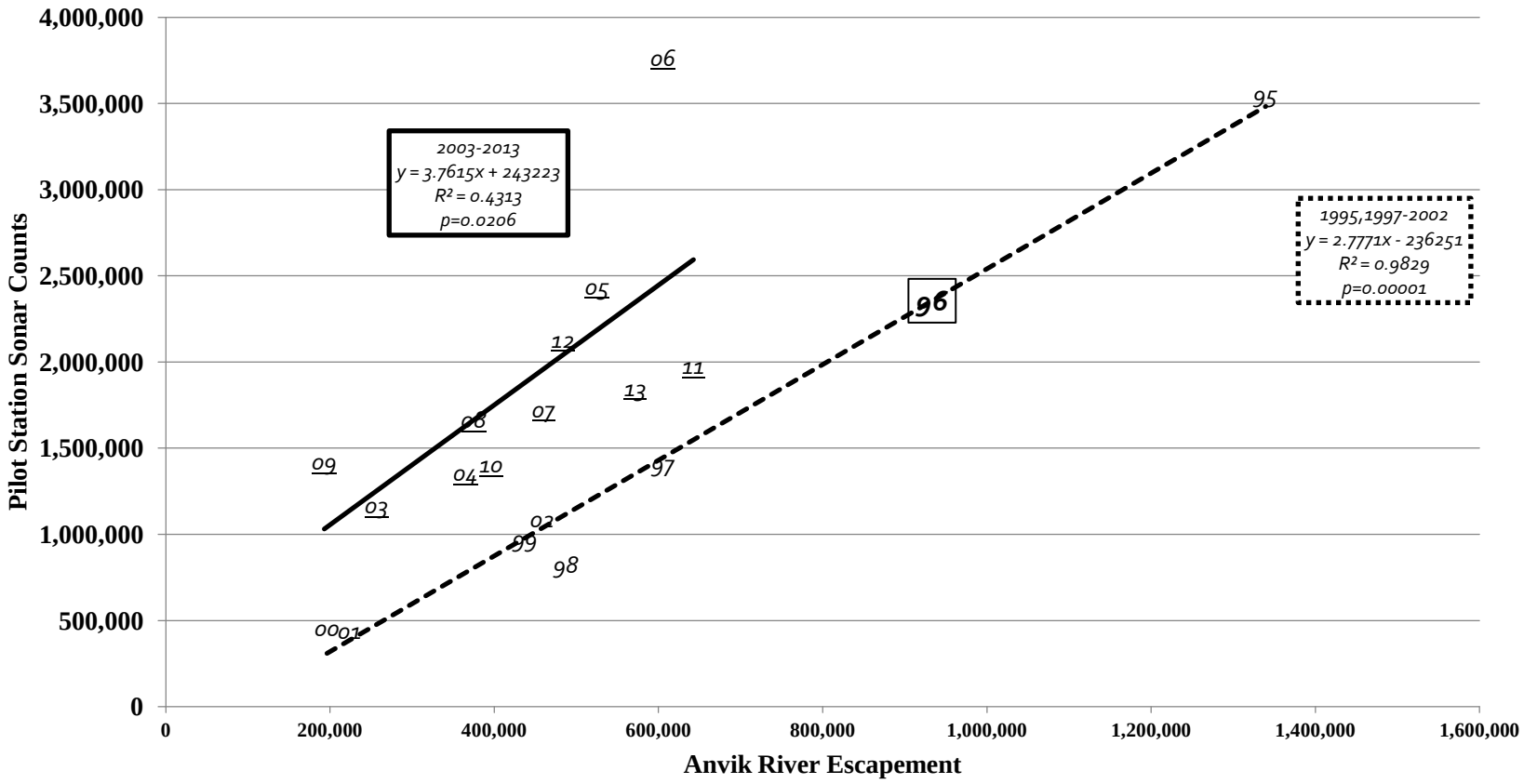
- Usable Mainstem Pilot Station Sonar passage estimates: 1995, 1997-2012;
- Anvik River Escapement Estimates: 1972-2012
- East Fork Andreafsky Escapement Estimates: 1981-1984 (sonar), 1985-1988 (Tower) 1994-2012 (weir)
- Commercial Harvest Data: 1972-2012;
- Subsistence Harvest Data: 1988-2012;
- Age-class composition databases: variable

Predicted Values for Missing Data

- Pilot Station Sonar Passage Estimates:
  - Highly significant linear relationship between Pilot Station passage data and Anvik River sonar counts for the years 1995, 1997-2002 ($p=0.00001$; $R^2 = 0.9829$)
  - Relationship changed after 1992.

Pilot Station vs. Anvik R. Sonar Counts

(numbers represent the observations for that year)

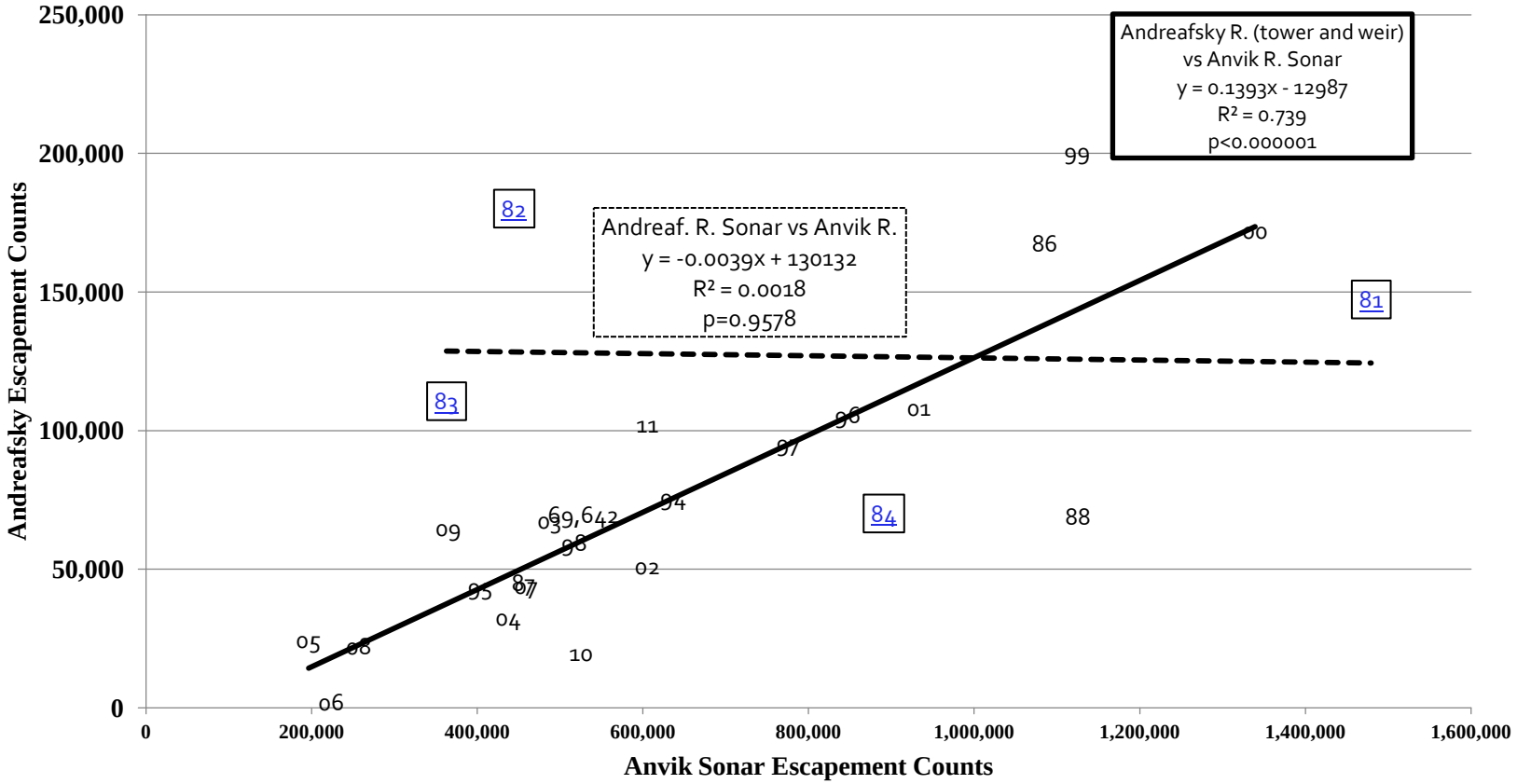


Predicted Values for Missing Data

- E.F. Andreafsky River Escapement:
  - Highly significant linear relationship between E.F. Andreafsky River tower and weir counts and Anvik River sonar counts ($p<0.00001$; $R^2= 0.7390$)

E.F. Andreafsky Escapement vs. Anvik River Sonar Counts

(numbers represent the observation for that year)



Predicted Values for Missing Data

- Using significant linear regression analysis relationships:
- Missing data for the Pilot Station sonar passage was predicted for years 1988-1994 and 1996; and
- Missing data for the E.F. Andreafsky River was predicted for years 1989-1993.

Total Run Data

- 1995-2007: based on data that are nearly entirely available (exception: 1996 Pilot Station sonar passage data);

- 1988-2007: based on available data and predicted values for missing data, including passage data from Pilot Station (1988-1994, and 1996) and E.F. Andreafsky River escapements (1989-1993).

Age-class Composition Data

- Harvest
  - Lower Yukon Test Fish (LYTF) catch age data
    - Complete for all years
  - Weighted Harvest age data
    - Annual ASL sampling of harvests is variable and sporadic, except for District 1 commercial harvest ASL.
- Escapement
  - LYTF catch age data
    - Complete for all years;
  - Anvik River Escapement age data
    - Complete for all years

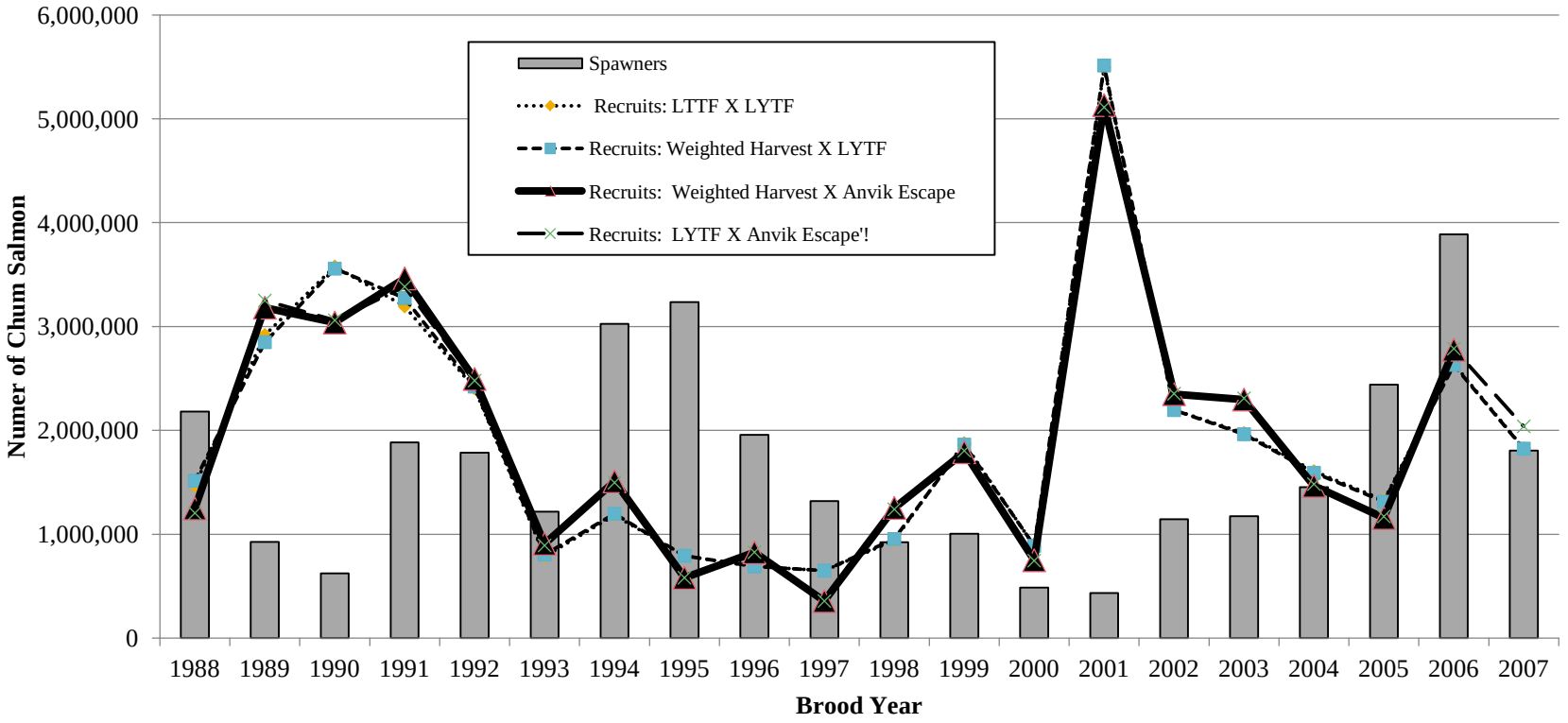
8 Models Based on Age Comp. of Ha and Escape. and Brood Year Period

- 1988-2007 (Harvest/Escapement Age Models)
  - LYTF/LYTF
  - LYTF/Anvik Escape
  - Weighted Harvest/Anvik
  - Weighted Harvest/LYTF
- 1995-2007 (Harvest/Escapement Age Models)
  - LYTF/LYTF
  - LYTF/Anvik Escape
  - Weighted Harvest/Anvik
  - Weighted Harvest/LYTF

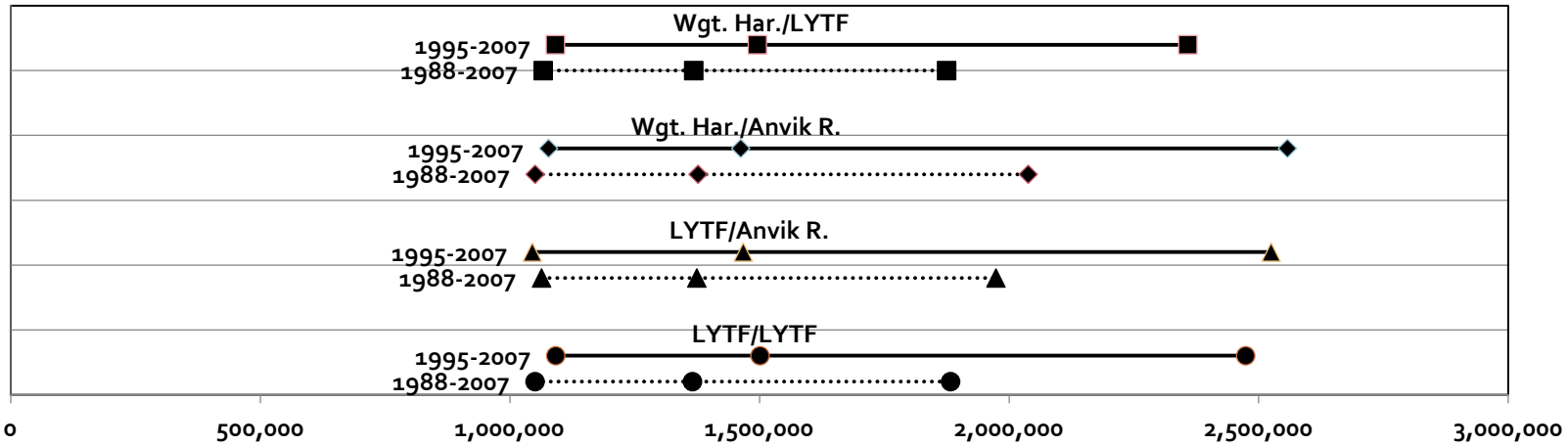
RESULTS

- Estimated number of recruits from spawners are almost identical for most brood years.
- Similar results for all models for all Spawner-Recruit Statistics.
- 80% Confidence Intervals larger for the 1995-2007 models because of the sample size difference.

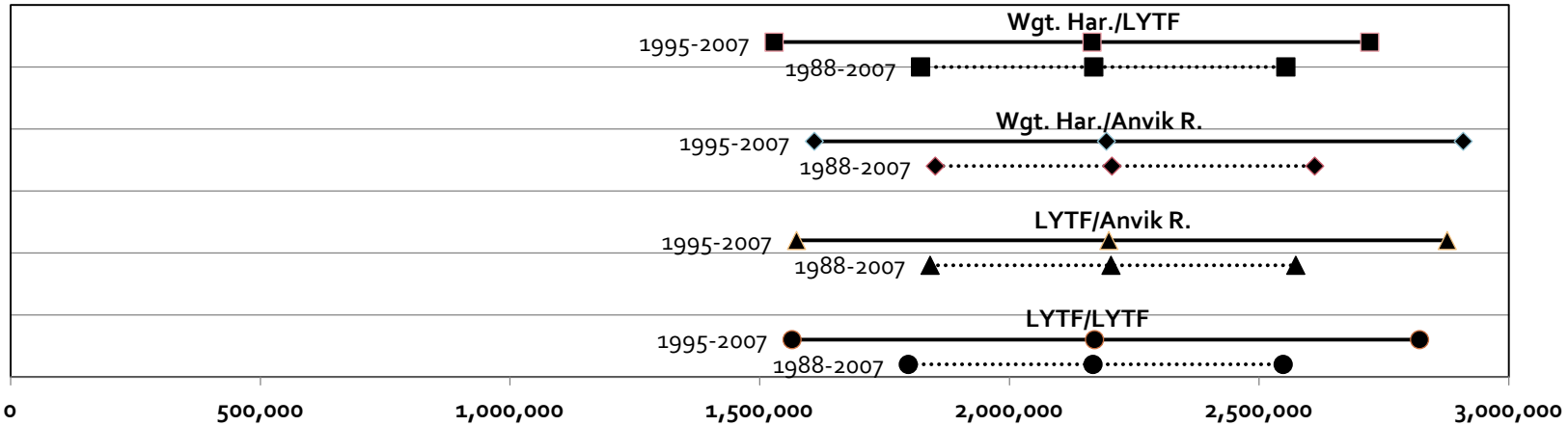
Estimated Spawners and Recruits by Age Model and Brood Year



Spawner-recruit Statistics, point estimate % CI Range, by Age Model and Brood Year Period.

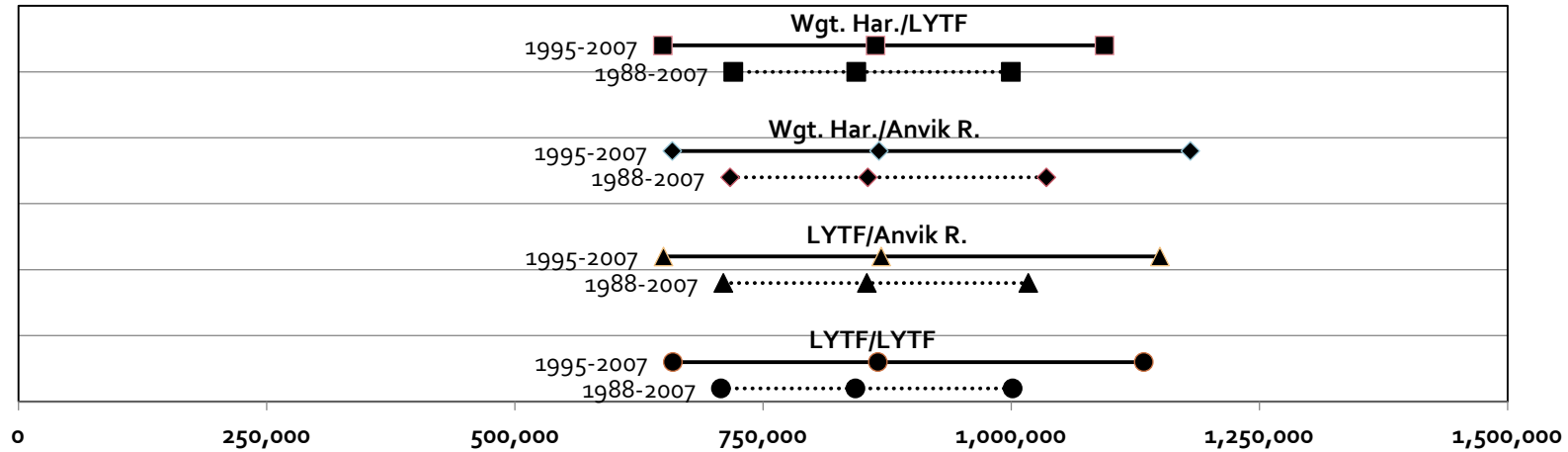


Smax(number of salmon)

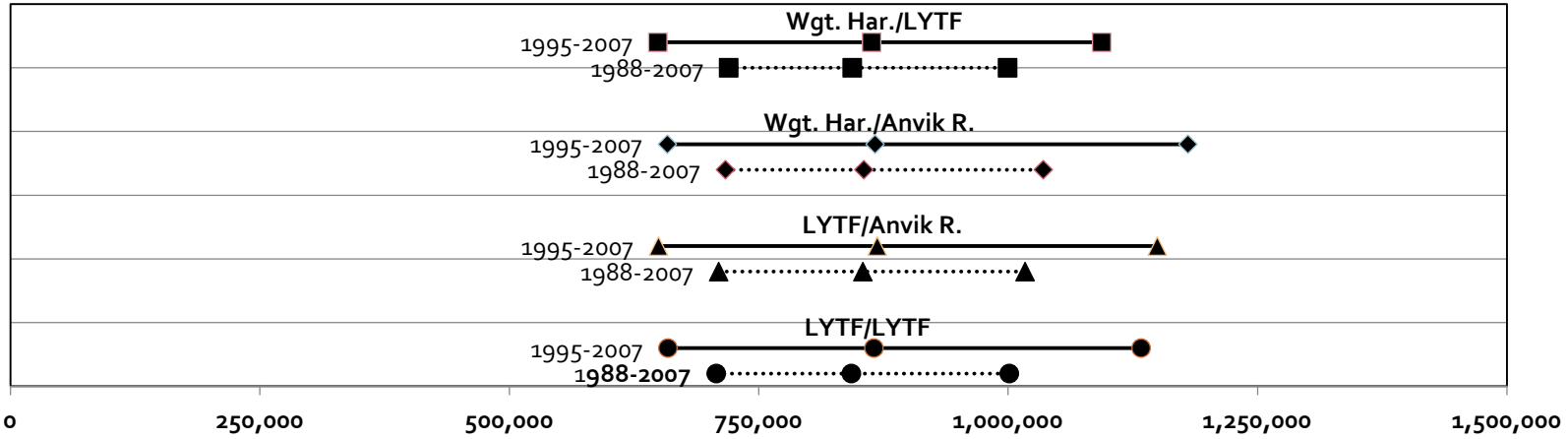


S_{eq} (number of salmon)

Spawner-recruit Statistics: point estimate[illegible]% CI Range, by Age Model and Brood Year Period.



S_{msy} (number of salmon)



MSY (number of salmon)

Preferred Model: Weighted Har./Anvik R. Escape.

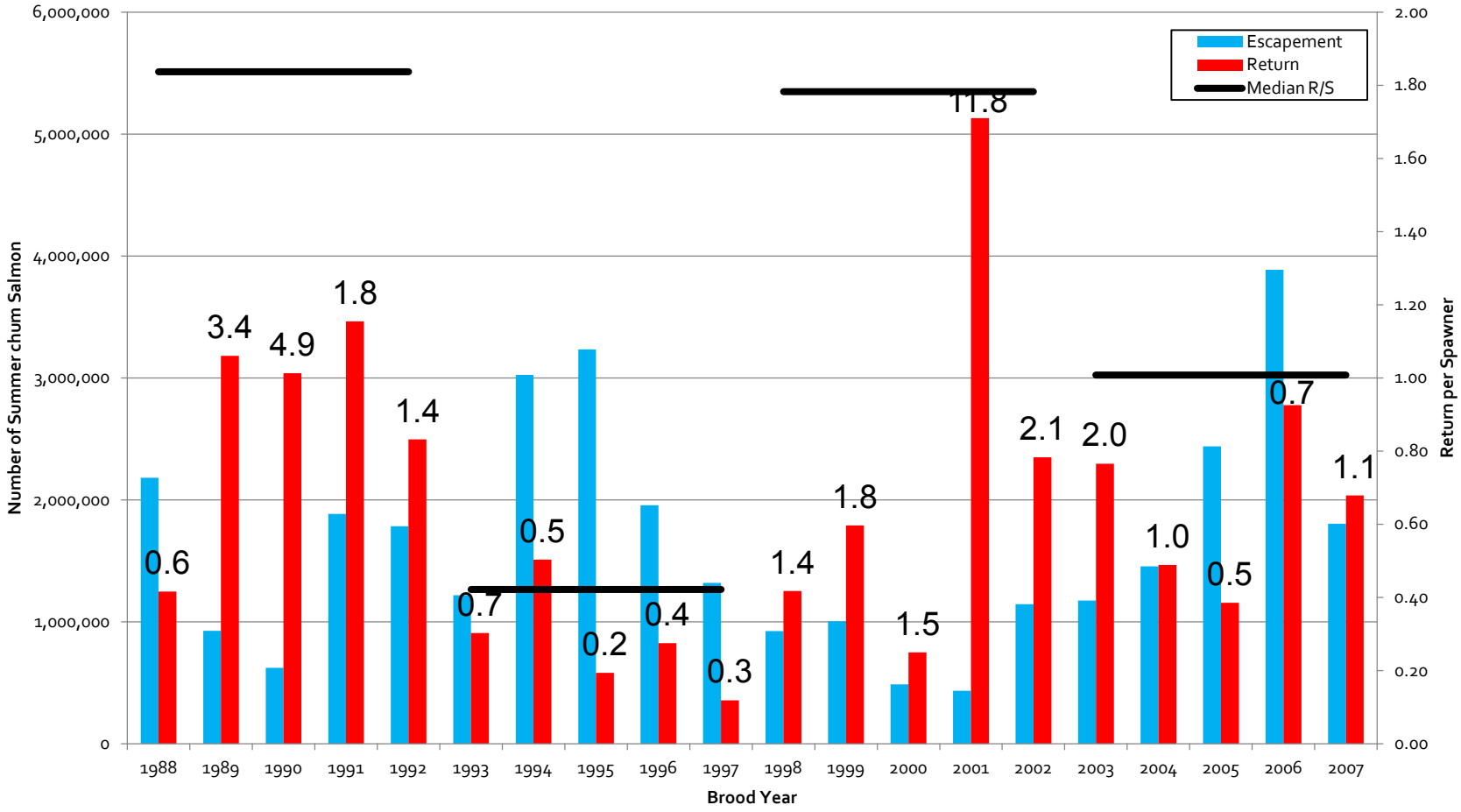
- Because spawner-recruit statistics are similar for all models, the remainder of the presentation will be limited to one age-class composition model for the two brood year periods

- Preferred Age-Class model base on logic:
  - Weighted Harvest/Anvik River Escapement

Escapement, Return, and R/S

Weighted Har./Anvik R. Escape. Model

(numbers above Return are R/S Estimates; horizontal lines indicate 5-year median value for R/S)



Weighted Har./Anvik R. Escape. Model

- Median R/S values
  - 1988-2007 = 1.24
  - 1995-2007 = 1.13

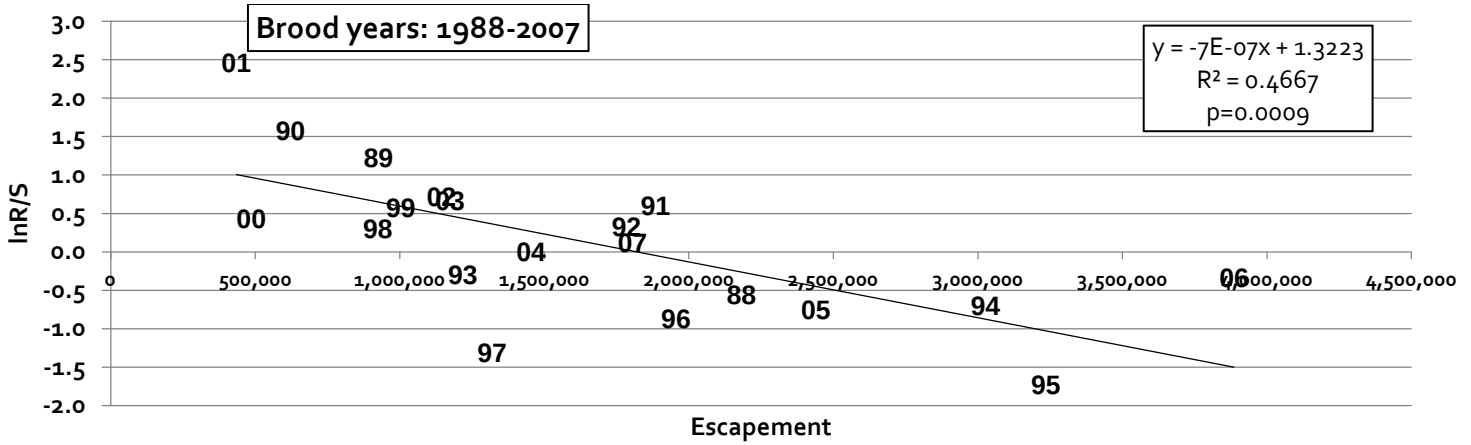
Weighted Har./Anvik R. Escape. Model

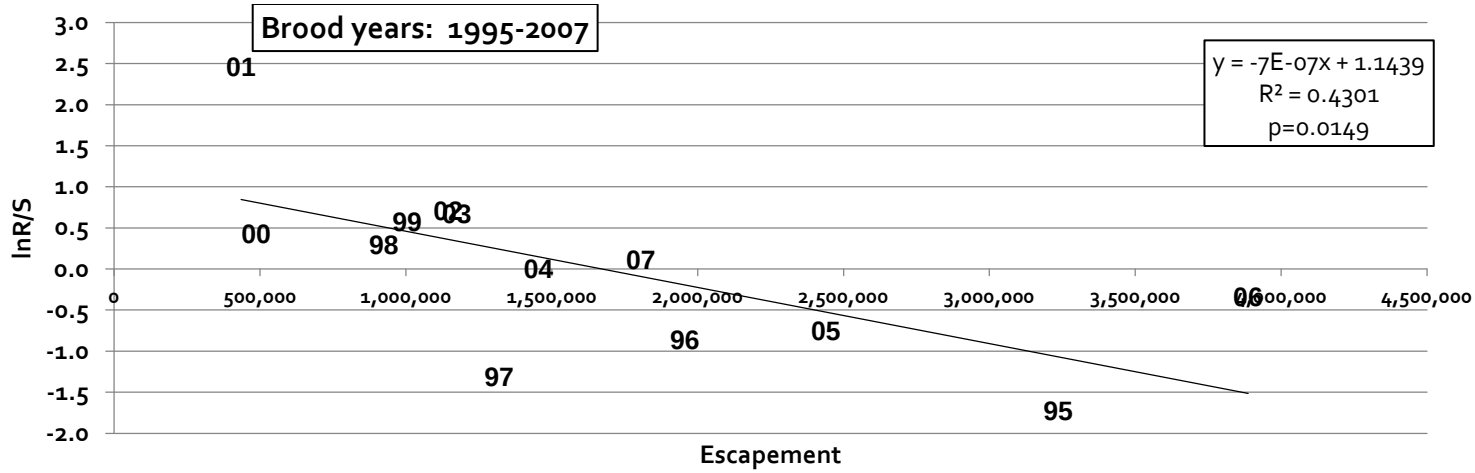
- Brood Years when R/S > 2.0
  - 1989, 1990,2001, 2002
  - Escape. Range = 434,723 – 926,897
  - Median escapement value = 774,487
- Brood Years when R/S < 1.0
  - 1988, 1993-1997,2005, 2006
  - Escape. Range =1,218,603 – 3,886,584
  - Median escapement value = 2,311,005

Ln(R/S) vs. Spawners

Weighted Har./Anvik R. Escape. Model

(numbers on graph represent the observations for the individual brood years





Ln(R/S) vs. Spawners

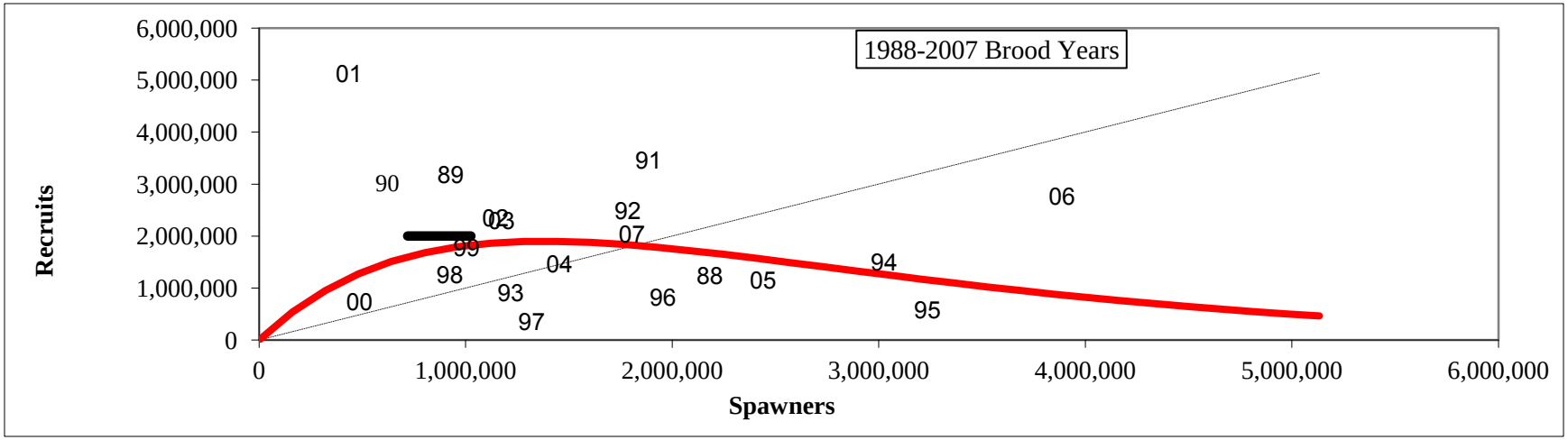
Weighted Har./Anvik R. Escape. Model

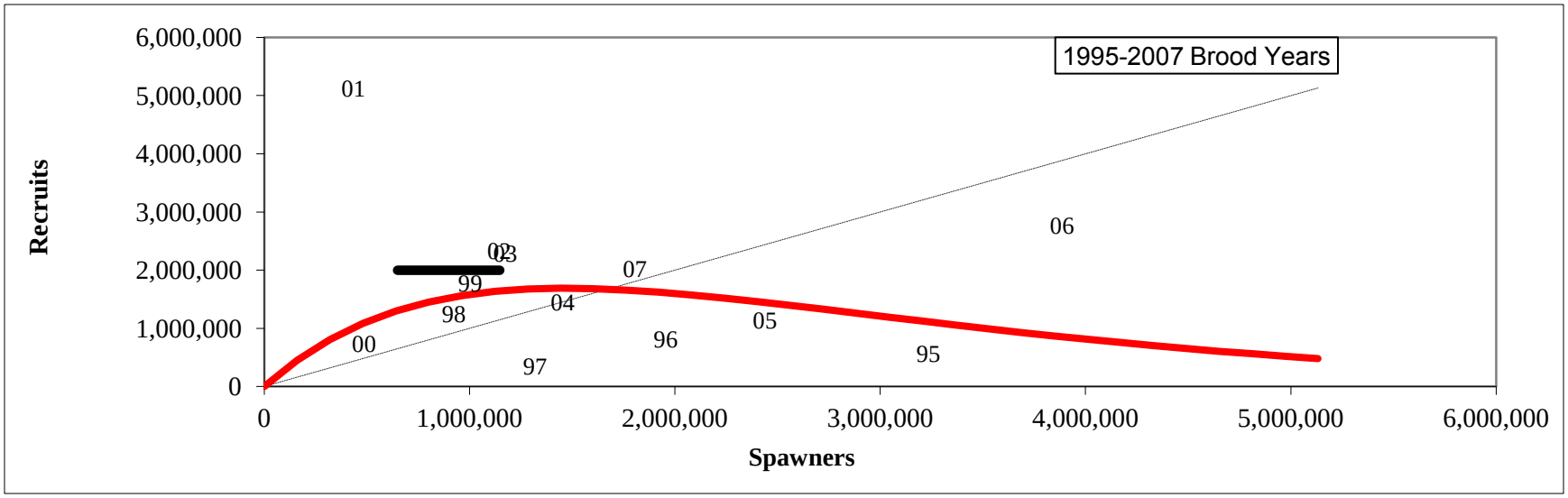
- Both models are significant;
  - 1988-2007: p=0.0009; R2 = 0.4667
  - 1995-2007: p=0.0149; R2 = 0.4301
- Note that the line fitted to the observations crosses the X-axis at a point less than 2.0M spawners. That point indicates the replacement point (R/S = 1.0) on these graphs.
- All escapement equal or greater than 2.0M did not replace themselves (R/S < 1.0)

Spawner-Recruit Graphs

Weighted Har./Anvik R. Escape. Model

(S_{MSY} 80% CI Range is indicated by the black horizontal line)





Spawner-Recruit Statistics
Point Est.: 80% CI Range
Weighted Har./Anvik R. Escape. Model

- MSY (Maximum Sustained Yield)
  - 1988-2007: 1.424M: 847K – 2.161M
  - 1995-2007: 1.281M: 528K – 2.292M

- S_{msy} (Spawners that produce MSY)
  - 1988-2007: 855K: 716K – 1.019M
  - 1995-2007: 866K: 644K – 1.110M

Spawner-Recruit Statistics
Point Est.: 80% CI Range
Weighted Har./Anvik R. Escape. Model

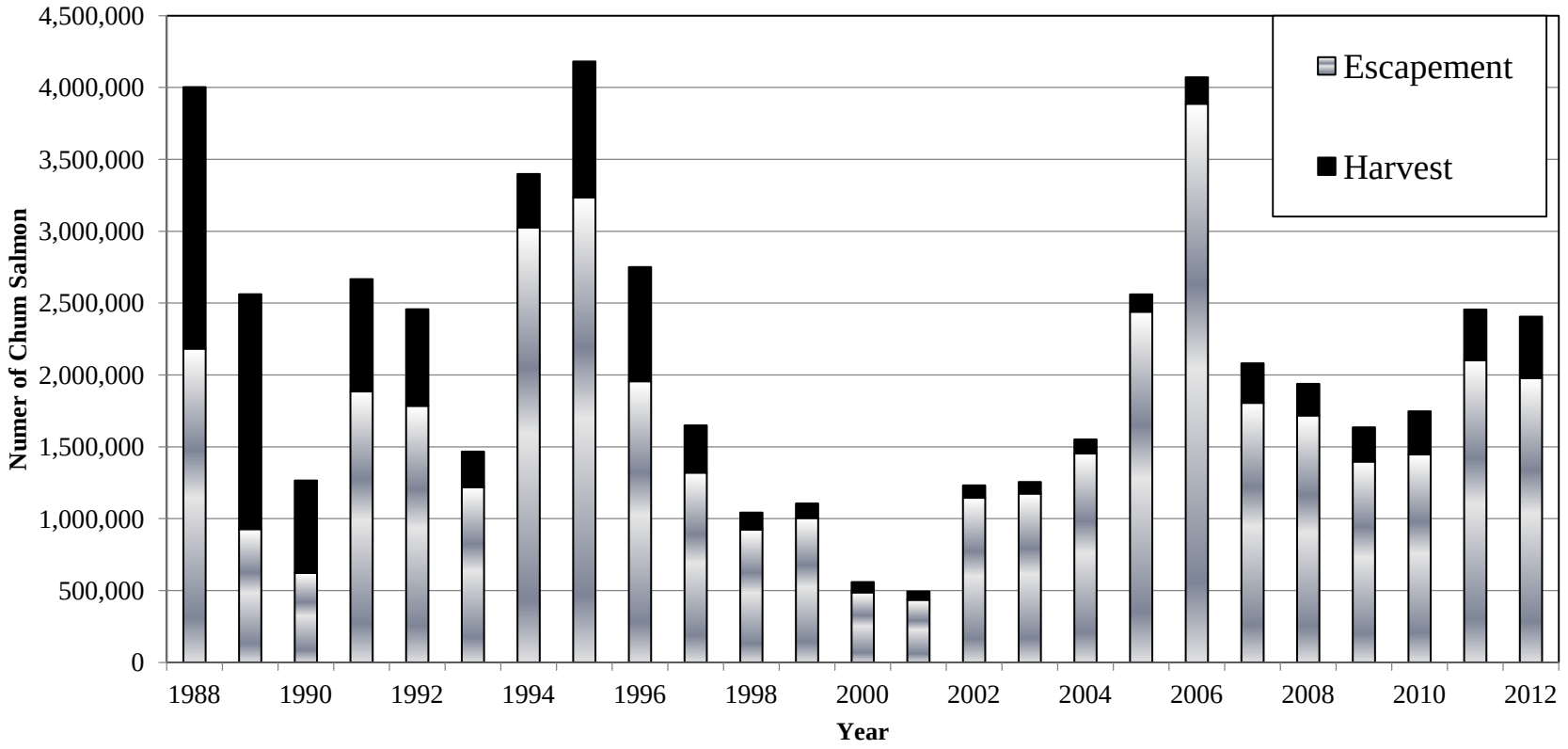
- S_{max} (Spawners that produce max recruits)
  - 1988-2007: 1.377M: 1,054K – 1.934M
  - 1995-2007: 1.462M: 1,019K – 2.478M

- S_{eq} (Spawners at the replacement point (R/S= 1.0)
  - 1988-2007: 2.205M: 1,849K – 2.569M
  - 1997-2007: 2.194M: 1,586K – 2.788M

CONCLUSIONS

- Small differences in number of recruits and spawner-recruit statistics for all models is most likely the result of:
  1. Similar age compositions for the three age-class databases used; and
  2. Most of the run is escapement
     - Median exploitation rate for the 1988-2012 is 11%
     - Exploitation rate exceeded 30% in only three years of the 25 years of record, 1988-1990.

Total Run Partitioned by Escapement and Harvest



RECOMMENDATIONS

1. Establish a BEG Range for Yukon River Summer Chum salmon of 700K to 1.0M

2. Limit escapements to less than 2.0M or the lower end of the S_{eq} range, 1,8M, as a precaution against overescapement and reduced future returns or run collapse, regardless of Chinook salmon run strength.

Bering Sea Fishermen's Association
1130 West 6th Avenue, Suite 110
Anchorage, Alaska 99501
(907) 279-6519 or (888) 927-2732
FAX (907) 258-6688

September 25, 2013

Karl Johnstone, Chair
Alaska Board of Fisheries
PO Box 115526
Juneau, AK 99811-5526

SENT VIA FAX to (907) 465-6094

Chairman Johnstone and Board Members,

We are writing to ask you to accept our Agenda Change Request (#13).

The Board of Fisheries established the Kuskokwim River Salmon Management Working Group (KRSMWG) in 1987 (87-117-FB) to work with the Department of Fish and Game on pre-season and inseason management strategies. Bering Sea Fishermen's Association has been involved with the Working Group for many years, and after listening to the inseason teleconferences this past summer and, in particular, their August 27, 2013 meeting, we felt it important to submit an Agenda Change Request for Chinook salmon conservation measures.

At the August 27 meeting of the KRSMWG, many members voiced their strong concerns that the escapement goals need to be met for the sake of future generations and stronger conservation measures will be needed. Others voiced their concerns that the inseason conservation measures taken in recent years, and in 2013, had failed to share the conservation burden fairly throughout the Kuskokwim River drainage and had possibly resulted in a reallocation of Chinook salmon.

The KRSMWG assembled a "laundry list" of possible management/conservation measures, and have asked for public comment on the options. We are attaching the summary from that meeting (Attachment A), as well as the meeting's information packet (Attachment B) that includes escapement information.). While some of these measures may be done by emergency order under the current management plans, other measures would certainly need regulatory change. Their goal was to create a suite of additional conservation tools and to the extent that allocation was discussed, it was to maintain the historic allocative balance along the river. Everyone was willing to share the burden, but it must be shared in a fair and equitable manner.

We apologize to the Board that our ACR does not have more specific recommendations at this time and we understand that it can be difficult to weigh the merits of an Agenda Change Request without a more

detailed request. However it is clear that our request satisfies ACR guideline (under 5 AA( ), (1)(A) for a fishery conservation purpose or reason.

If the Board accepts ACR #13, the KRSMWG and other stakeholders can work throughout this upcoming winter to develop specific recommendations to bring back to the Board. If the Board accepts ACR #13, we ask that you schedule it for consideration at your March 2014 meeting.

Respectfully,

Karen Gillis
Executive Director

Attachments(2)

ATTACHMENT A

Meeting summary of Kuskokwim River Salmon Management Working Group from August 27, 2013

KUSKOKWIM RIVER SALMON MANAGEMENT WORKIN

MEETING SUMMARY WITH REQUEST FOR COMMENT

August 27, 2013

The Kuskokwim River Salmon Management Working Group met on August 27, 2013 to discuss potential solutions to address the record low escapements observed in 2013 and the allocation issues described by middle and upper river communities. This document is a meeting summary with a request to comment on the draft mission statement for the Working Group as well as the management recommendations.

The following draft mission statement was proposed and discussed:

> ***The Mission of the Kuskokwim Salmon Working Group is to promote the sustainability of our salmon populations for the People of the entire Kuskokwim River from it's mouth to the headwaters. We recognize the importance of salmon to all user groups, including, in order of priority: Subsistence fishers, Commercial fishers, and Sports Fishers. We also recognize that the ultimate priority is the salmon themselves and that ensuring adequate escapement must take the highest priority above all user groups.***

Working Group members recommended presenting the draft mission statement to communities and tribes for further input (the Fish & Wildlife Service will help distribute it as they visit numerous villages in the coming months).

A resulting 20 recommendations were described as possible solutions to address the Chinook crisis and to better manage the Kuskokwim king salmon run. Positive and negative aspects of many of the recommendations were discussed. Working Group members pointed out that solutions would probably involve a combination of two or more of the recommendations and would require the involvement of all stakeholders (i.e., the agencies and the fishers). These recommendations followed by a brief summary of positive and negative aspects discussed are being made available to the public in a separate Excel file; the positives and negatives are limited to those discussed at the meeting and may not be complete. Public input on recommendations is being sought.

RECOMMENDATIONS

1. Starting the season closed to Chinook fishing and open when the data tells us that the abundance is adequate.
2. Starting the season on a fishing schedule.
3. Gear Restrictions a. Mesh Size b. Net length c. Depth d. Set Net Only e. Dip nets
4. Addressing Quality of Escapement
5. Voluntary Reductions
6. Attaining more than an advisory role
7. Limiting to Federally Qualified Users (rural residents)
8. Addressing Choke Points
9. Permits Systems
10. Permit System for Bethel only
11. Close king salmon fishing for 5 years.
12. Stop all commercial fishing on the Kuskokwim
13. Establishing quotas based on a percent of the number of fish present.
14. Schedules for the Lower River Only
15. Combine a fishing schedule with gear restrictions.
16. Tier II
17. Establish Amounts Necessary for Subsistence (ANS) for the Lower, Middle, and Upper River rather than one ANS for the whole river.
18. Adopt an Optimum Escapement Goal
19. Establish an Inriver Goal
20. Use of the Elders Fishery

Additional recommendations: The Working Group voted to submit a letter to the North Pacific Fisheries Management Council to describe the Chinook declines on the Kuskokwim and ask the Council to continue to reduce Chinook bycatch.

Additionally the Working Group is seeking a volunteer among Working Group members to testify the October meeting in Anchorage.

Please send comment or resolutions to the Working Group Co-Chairs by email or contact a Co-Chair. The most valuable part of your comments is the rational. Please provide an explanation for your position including details such as pros, cons and feasibility about each management strategy. You may use the format in the attached table to describe comment on the current recommendation or to add additional recommendations.

Sincerely,

Beverly Hoffman
KRSMWG co-chair
543-3239
bev@kuskofish.com

Lamont Albertson
KRSMWG co-chair
675-4380
trout@svic.net

Fritz Charles
KRSMWG co-chair

Mark Leary
KRSMWG co-chair
545-2877
napaimute@gci.net

Casie Stockdale
KRSMWG co-chair
543-7341
cstockdale@avcp.org

Note: This summary was reviewed by the Working Group Co-Chairs and was reviews by a Working Group member who reviewed the summary against an audio recording of the meeting.

ATTACHMENT B

August 27, 2013 Meeting packet for Kuskokwim River Salmon Management Working Group

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: **August 27, 2013** Time: **1:00 pm** Place: **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:
ADF&G:

INTRODUCTIONS:

INVOCATION:

APPROVAL OF AGENDA: *Chairs suggest tabling continuing business.*

APPROVAL OF MINUTES:

PEOPLE TO BE HEARD:

CONTINUING BUSINESS:

OLD BUSINESS:

Summary of Unalakleet Chinook Summit – Bev Hoffman

NEW BUSINESS:

1. Development of a KRSMWG Mission Statement – Mark Leary/Dave Cannon
2. Starting the season closed and then open
3. Windows schedules
4. Gear restrictions
   a. Mesh size
   b. Net length
   c. Use of set nets
   d. Dip nets
5. Addressing quality of escapement
6. Voluntary reductions
7. Attaining more than an advisory role
8. Limit to Federally Qualified Users of the Kuskokwim Region
9. Additional recommendations
10. Bycatch update and notes from YRDFA Bycatch Teleconference- Casie (if time allows)

COMMENTS FROM WORKING GROUP MEMBERS:

NEXT MEETING DATE:_____ Time:_____ Place:_____

Kuskokwim River Salmon Management Working Group

1 (800) 315-6338 (MEET) Code: 58756# (KUSKO)
ADF&G Bethel toll free: 1 (855) 933-2433

Information Packet

August 27, 2013

NEW BUSINESS:

From: mark leary [mailto:napaimute@gci.net]
Sent: Monday, August 26, 2013 9:44 AM
To: Shelden, Christopher A (DFG)
Cc: Dave Cannon; Beverly Hoffman; Casie Stockdale
Subject: draft mission statement

Hi Chris,

Here is our draft mission statement:

The Mission of the Kuskokwim Salmon Working Group is to promote the sustainability of our salmon populations for the People of the entire Kuskokwim River from it's mouth to the headwaters. We recognize the importance of salmon to all user groups, including, in order of priority: Subsistence fishers, Commercial fishers, and Sports Fishers. We also recognize that the ultimate priority is the salmon themselves and that ensuring adequate escapement must take the highest priority above all user groups.

Thanks.

Mark Leary
Director of Development & Operations
The Native Village of Napaimute
P.O. Box 1301
Bethel, AK. 99559
Ph: (907)543-2887 (Bethel), (907)222-5058 (Napaimute), (907)222-6084 (Napaimute Community Building)
Cell: (907)545-2877

Visit Napaimute on the web: www.napaimute.org

Village of Lower Kalskag
PO Box 27
Lower Kalskag, AK 99626
NEW Phone #: (907) 471-2300 Fax #: (907) 471-2378
Email: village_of_lower_ta@yahoo.com

Resolution 13-008

A RESOLUTION TO ENSURE THE LONG TERM SUSTAINABILITY OF CHINOOK SALMON STOCKS AND PROVIDE FOR A RESONABLE OPPORTUNITY TO MEET OUR MEMBERS SUBSISTENCE NEEDS WE REQUEST THAT THE ADF&G COMMERCIAL FISHERIES DIVISION AND THE USFWS INSEASON FEDERAL MANAGERS FOR FISHERIES ON THE KUSKOKWIM RIVER TAKE SIGNIFICANT CONSERVATION MEASURES PRIOR TO THE BEGINNING OF THE 2014 CHINOOK SALMON FISHING SEASON

WHEREAS, The trend of low abundance and non-achievement of escapement objectives on the Kuskokwim River for Chinook salmon brings to question the long term sustainability and health of the population; and

WHEREAS, The voluntary conservation efforts by subsistence fishermen have not been successful to the point of reducing harvest to meet escapement objectives; and

WHEREAS, The management tools used for pre-season forecasting and in-season run assessment along with the conservation actions taken in 2013 proved inadequate to manage the fishery and achieve the established escapement objectives; and

WHEREAS, The majority of subsistence users in the mid and upper Kuskokwim River were unable to meet their Chinook harvest needs despite exercising due diligence;

NOW THEREFORE BE IT RESOLVED THAT, The Village of Lower Kalskag request that Fisheries Managers on the Kuskokwim River enact significant restriction and or complete closures on the Chinook salmon subsistence fishery as a pre-season action until such a time that it is highly probable that established escapement objectives will be met, and

THEREFORE BE IT FURTHER RESOLVED THAT, Should no action be taken by Fisheries Managers with regards to this request that a special action request will be submitted to the US Fish and Wildlife Office of Subsistence Management requesting 1) the subsistence fishery be limited to only Federally Qualified Users of the Kuskokwim region, and 2) the pre-season actions requesting herein be immediately implemented.

BE IT FURTHER RESOLVED THAT, The Village of Lower Kalskag also request closing the two Kuskokwim River choke points downriver for the whole 2014 season, which are located at:

- Oscarville/Napaskiak
- Joe Pete's

CERTIFICATION

The foregoing resolution was passed and approved by a poll vote of the Village of Lower Kalskag Tribal Council, in which the vote 5 Yes, 0 No, 0 absent, and 0 abstaining; this 19th day of August, 2013.

Nastasia Levi – President

Anita Williams – Secretary

Native Village of Chuathbaluk

Chuathbaluk Traditional Council
#1 Teen Center Trail
Chuathbaluk, Alaska 99557-8999

Resolution # 2013-24

A RESOLUTION OF THE NATIVE VILLAGE OF CHUATHBALUK, CHUATHBALUK TRADITIONAL COUNCIL, TO EMBRACE THE TRADITIONAL VALUES OF OUR ELDERS BY RESPECTING OUR RESOURCES AND ENACTING CONSERVATION PRACTICES THAT ENSURES EQUITABLE MANAGEMENT OF SAID RESOURCES

WHEREAS, The Chuathbaluk Traditional Council is an Alaska Native Village recognized as an Indian tribe pursuant to the previous Public Law 93-638; Indian Self Determination and Education Assistance Act (88 Stat. 2203, 25 U.S.C. 450 et seq), also pursuant to Public Law 95-608, Indian Child Welfare Act, 25 CFR 23.26; and

WHEREAS, the Chuathbaluk Traditional Council is the duly authorized governing body for the Native Village of Chuathbaluk; and

WHEREAS, the Chuathbaluk Traditional Council is the federally- recognized Tribal Government of the Native Village of Chuathbaluk; and

WHEREAS, the Chuathbaluk Traditional Council identifies that the low abundance and non-achievement of escapement goals for the Kuskokwim River Chinook Fisheries creates a long term sustainability crises; and

WHEREAS, the Chuathbaluk Traditional Council recognizes that the voluntary conservation efforts by various Middle and Upriver Kuskokwim Tribes as well as some Lower River Fishers, has not in and of itself been a successful tool towards meeting escapement objectives; and

WHEREAS, the Chuathbaluk Traditional recognizes that the management tools used for pre-season forecasting and in-season Chinook Salmon run assessment along with the regulations implemented during the 2012 and 2013 season, were inadequate to manage the fishery and failed to achieve the established escapement objectives; and

WHEREAS, the Chuathbaluk Traditional Council strongly believes in the teaching of our elders which specifically addresses the respect for the initial Chinook push as those fish who swim the farthest, the fastest, are the largest, and the strongest breeding stock and as such should be allowed to pass through unmolested; and

WHEREAS, the Federally Recognized Tribe, Native Village of Chuathbaluk were unable to meet their Chinook subsistence needs over the last few years; and

WHEREAS, the Federally Recognized Tribe, Native Village of Chuathbaluk has jurisdiction over its resources be them transient or residential; and

NOW THEREFORE BE IT RESOLVED, the Nation of the Native Village of Chuathbaluk requests that the State of Alaska and the Nation of the United States of America, US Federal Government, enact the significant restrictions including a of complete pre-season closure on the 2014 Chinook Salmon of the Kuskokwim River Basin, as an action until such time as it is highly probable that the established escapement goal is met; and

THEREFORE BE IT FURTHER RESOLVED, that the Nation of the Native Village of Chuathbaluk emphatically states if no action is taken by the State of Alaska or the US Federal Government regarding this subsistence crisis by January 2014, a **Special Action** will be submitted to the US Fish and Wildlife Office of Subsistence Management requesting: 1.) The subsistence fishery be limited to only Federally Qualified users of the Kuskokwim Region; 2.) When opened, that the net length at the choke points of Oscarville/Napaskiak and Joe Petes be limited significantly; 3.) A pre-season closure in effect until escapement is met; 4.) That if and when other regulations i.e., quotas, are placed on the Chinook Fisheries, an equitable distribution as it relates to Village SES factors and family average food security numbers are used as significant factors in the quota determination; and

THEREFORE BE IT FURTHER RESOLVED, the Nation of the Native Village of Chuathbaluk requests on-going Government to Government meetings with the US Fish and Wildlife need to continue until this crisis is resolved.

PASSED AND APPROVED BY A QUORUM OF THE CHUATHBALUK TRADITIONAL COUNCIL THIS DAY OF August 22, 2013 with:

5 members voting yes,
0 members voting no,
0 members abstaining, and
0 members absent.

ATTEST:

Robert Golley, Chuathbaluk Traditional Council Chairman

Robert Harrell

Bethel Census Area Population Data: Communities of the Bethel Census Area—
population information contributed by Mark Leary

Population, 2012 estimate	17,746	731,449
Population, 2010 (April 1) estimates base	17,013	710,231
Population, percent change, April 1, 2010 to July 1, 2012	4.3%	3.0%
Population, 2010	17,013	710,231
Persons under 5 years, percent, 2012	11.0%	7.5%
Persons under 18 years, percent, 2012	36.2%	25.6%
Persons 65 years and over, percent, 2012	6.3%	8.5%
Female persons, percent, 2012	48.2%	47.9%

Part III. Population of Counties

POPULATION OF BOROUGHS AND CENSUS AREAS -- ALASKA: 1920-1990

Name	1990	1980	1970	1960	1950	1939	1929	1920
ALASKA	550,043	401,851	300,382	226,167	128,643	72,524	59,278	55,036
Aleutians East Borough	2,464	—	—	—	—	—	—	—
Aleutians West Census Area	9,478	7,768	8,057	6,011	—	—	—	—
Anchorage Borough	226,338	174,431	124,542	82,833	—	—	—	—
Angoon	—	—	503	—	—	—	—	—
Bethel Census Area	13,656	10,999	7,579	5,537	—	—	—	—
Bristol Bay Borough	1,410	1,094	1,147	--	—	—	—	—
Cordova-McCarthy	—	—	1,857	1,759	—	—	—	—
Dillingham Census Area	4,012	4,616	3,485	4,024	—	—	—	—
Fairbanks North Star Borough	77,720	53,983	45,864	43,412	—	—	—	—
Haines Borough	2,117	1,680	1,504	—	—	—	—	—
Juneau Borough	26,751	19,528	13,556	9,745	—	—	—	—
Kenai Peninsula Borough	40,802	25,282	14,250	6,097	—	—	—	—
Ketchikan Gateway Borough	13,828	11,316	10,041	10,070	—	—	—	—
Kodiak Island Borough	13,309	9,939	9,409	7,174	—	—	—	—
Kuskokwim	—	—	2,306	2,301	—	—	—	—
Lake and Peninsula Borough	1,668	—	—	—	—	—	—	—
Lynn Canal-Icy Straits	—	—	—	2,945	—	—	—	—
Matanuska-Susitna Borough	39,683	17,816	6,509	5,188	—	—	—	—
Nome Census Area	8,288	6,537	5,749	6,091	—	—	—	—
North Slope Borough	5,979	4,199	2,663	2,133	—	—	—	—
Northwest Arctic Borough	6,113	4,831	4,434	3,560	—	—	—	—
Outer Ketchikan	—	—	1,676	—	—	—	—	—
Prince of Wales-Outer Ketchikan Census Area	6,278	3,822	2,106	1,772	—	—	—	—
Seward	—	—	2,336	2,956	—	—	—	—
Sitka Borough	8,588	7,803	6,109	6,690	—	—	—	—
Skagway-Yakutat-Angoon Census Area	4,385	3,478	2,157	—	—	—	—	—
Southeast Fairbanks Census Area	5,913	5,676	4,179	—	—	—	—	—
Upper Yukon	—	—	1,684	1,619	—	—	—	—
Valdez-Cordova Census Area	9,952	8,348	3,098	2,844	—	—	—	—
Wade Hampton Census Area	5,791	4,665	3,917	3,128	—	—	—	—
Wrangell-Petersburg Census Area	7,042	6,167	4,913	4,181	—	—	—	—
Yukon-Koyukuk Census Area	8,478	7,873	4,752	4,097	—	—	—	—
First Judicial Division	—	—	—	—	28,203	25,241	19,304	17,402
Second Judicial Division	—	—	—	—	12,272	11,877	10,127	10,890
Third Judicial Division	—	—	—	—	59,518	19,312	16,309	16,231
Fourth Judicial Division	—	—	—	—	28,650	16,094	13,538	10,513
Northern District	—	—	—	—	—	—	—	—
Southern District	—	—	—	—	—	—	—	—

ALASKA NOTES

Alaska was purchased from Russia in 1867, with essentially its present boundaries. It was made a territory in 1912 and admitted as a State on January 3, 1959.

Census coverage of Alaska began in 1880. For the censuses of 1930 and 1940, Alaska actually was enumerated in the fall of the preceding year (1929, 1939).

County Notes:

Note 1: Alaska has no counties; the names, boundaries, and designations of the subdivisions reported in the census have evolved considerably over recent decades. In 1990 and 1980, most of the population of the State lived in entities designated as Boroughs; the remainder was reported by Census Areas (sometimes abbreviated C.A.). In 1970, the census was reported by Census Divisions, some of which corresponded to boroughs. In 1960, the census was reported by 24 Election Districts. The table in Part III lists areas that existed in 1990 with their 1990 names and designations. In both the table and the notes, areas listed without any designation had ceased to exist by 1990, when all areas were either Boroughs or Census Areas.

Note 2: For areas that existed in 1960, 1970, or 1980 but not in 1990, the notes specify the areas of which they became part. (Small portions may have come from or gone to other areas not specified.) No designations appear in the table for these extinguished areas; in 1980 they were Census Areas, in 1970 Census Divisions, and in 1960 Election Districts.

Note 3: Aleutians East Borough: formed from Aleutian Islands (now Aleutians West) Census Area (1987). 1980 pop. in 1990 area: 1,643.

Note 4: Aleutians West Census Area: in 1960-80, Aleutian Islands. 1980 pop. in 1990 area: 6,125.

Note 5: Dillingham Census Area: in 1960-70, Bristol Bay (Census Division). 1970 pop. in 1980 area: 3,872; 1980 pop. in 1990 area: 3,232.

Contributed by Casie Stockdale

Table 1. Chinook salmon mortality in BSAI groundfish fisheries (including pollock)

Year	Annual with CDQ	Annual without CDQ	Annual CDQ only	A season With CDQ	B season With CDQ	A season Without CDQ	B season Without CDQ	A season CDQ only	B season CDQ only
1991	na	48,880	na	na	na	46,392	2,488	na	na
1992	41,955	na	na	31,419	10,536	na	na	na	na
1993	46,014	na	na	24,688	21,326	na	na	na	na
1994	43,821	40,635	3,186	38,921	4,900	36,699	3,936	2,223	963
1995	23,436	21,430	2,006	18,939	4,497	18,284	3,146	655	1,351
1996	63,205	60,802	2,402	43,316	19,888	42,028	18,774	1,289	1,114
1997	50,530	48,050	2,481	16,401	34,129	14,905	33,144	1,496	985
1998	55,431	50,313	5,118	18,930	36,501	17,991	32,322	939	4,179
1999	14,599	12,937	1,662	8,794	5,805	8,205	4,732	589	1,073
2000	8,223	7,474	749	6,568	1,655	6,138	1,336	430	319
2001	40,547	37,986	2,561	24,871	15,676	23,093	14,893	1,778	783
2002	39,684	37,581	2,103	26,277	13,407	24,859	12,722	1,418	685
2003	53,571	50,858	2,713	40,044	13,527	38,249	12,609	1,795	918
2004	59,964	56,957	3,007	30,716	29,248	29,587	27,370	1,129	1,878
2005	74,266	72,226	2,040	33,633	40,632	32,334	39,891	1,299	741
2006	87,084	85,290	1,794	62,582	24,502	60,974	24,316	1,608	186
2007	129,568	123,903	5,666	77,119	52,450	74,003	49,900	3,116	2,550
2008	24,105	23,387	718	18,996	5,109	18,391	4,996	605	113
2009	13,796	13,293	503	11,010	2,786	10,596	2,697	414	89
2010	12,383	12,048	335	9,466	2,917	9,131	2,917	335	0
2011	26,672	25,908	764	7,652	19,020	7,222	18,686	430	334
2012	12,937	12,559	378	8,985	3,952	8,641	3,918	344	34
2013	9,737	9,257	480	9,183	554	8,711	546	472	8

Table 2. Chinook salmon mortality in BSAI pollock directed fisheries.

Year	Annual with CDQ	Annual without CDQ	Annual CDQ only	A season With CDQ	B season With CDQ	A season Without CDQ	B season Without CDQ	A season CDQ only	B season CDQ only
1991	na	40,906	na	na	na	38,791	2,114	na	na
1992	35,950	na	na	25,691	10,259	na	na	na	na
1993	38,516	na	na	17,264	21,252	na	na	na	na
1994	33,136	30,593	2,543	28,451	4,686	26,871	3,722	1,580	963
1995	14,984	12,978	2,006	10,579	4,405	9,924	3,053	655	1,351
1996	55,623	53,220	2,402	36,068	19,554	34,780	18,441	1,289	1,114
1997	44,909	42,437	2,472	10,935	33,973	9,449	32,989	1,487	985
1998	51,322	46,205	5,118	15,193	36,130	14,253	31,951	939	4,179
1999	11,978	10,381	1,597	6,352	5,627	5,768	4,614	584	1,013
2000	4,961	4,242	719	3,422	1,539	2,992	1,250	430	289
2001	33,444	30,937	2,507	18,484	14,961	16,711	14,227	1,773	734
2002	34,495	32,402	2,093	21,794	12,701	20,378	12,024	1,416	677
2003	45,586	43,021	2,565	32,609	12,977	30,916	12,105	1,693	872
2004	51,696	48,733	2,963	23,093	28,603	21,964	26,769	1,129	1,834
2005	67,362	65,445	1,916	27,331	40,030	26,032	39,413	1,299	617
2006	82,695	80,954	1,741	58,391	24,304	56,806	24,149	1,585	156
2007	121,770	116,128	5,642	69,420	52,350	66,307	49,821	3,113	2,529
2008	21,480	20,839	641	16,638	4,842	16,033	4,806	605	36
2009	12,369	11,922	447	9,711	2,658	9,353	2,569	358	89
2010	9,697	9,362	335	7,630	2,067	7,295	2,067	335	0
2011	25,499	24,735	764	7,137	18,362	6,707	18,028	430	334
2012	11,343	10,994	349	7,765	3,578	7,421	3,573	344	5
2013	8,788	8,308	480	8,234	554	7,762	546	472	8

Notes: Updated 8/8/13

Starting in 2011, the sampling method for salmon in BS pollock directed fisheries changed to census counts
Non-CDQ data for 1991-2002 from blend program database (bsahalx.dbf)
Non-CDQ data for 2003-2010 from Catch Accounting System database (akfish_v_gg_pscnq_estimate)
Non-CDQ data for 2011-2012 from Catch Accounting System database (akfish_v_gg_txn_primary_psc)
CDQ data for 1992-1997 from blend program database (bsahalx.dbf)
CDQ data for 1998 from blend program database (boatrate.dbf)
CDQ data for 1999-2007 from CDQ catch report database (akfish_v_cdq_catch_report_total_catch)
CDQ data for 2008-2010 from Catch Accounting System database (akfish_v_gg_pscnq_estimate_cdq)
CDQ data for 2011-2012 from Catch Accounting System database (akfish_v_gg_txn_primary_psc)
A season - January 1 to June 10
B season - June 11 to December 31
For specific pollock season dates by year see http://www.alaskafisheries.noaa.gov/sustainablefisheries/pickseas.pdf

Notes YRDFA Teleconference Bycatch Discussion 8/20/2013—*contributed by Casie Stockdale*

Information Provided by:

Diana Stram, Council Staff Plan Coordinator
Nicole Kimball, ADF&G Staff Commissioner's office, Voting member/Alternate for Cora Campbell, Commissioner of ADFG on the Council
Becca Robbins-Gisclair, Counsel Hobbs Straus Dean & Walker, YRDFA, Advisory Panel NPFMC

Jurisdiction and Management

The North Pacific Fishery Management Council is one of eight regional councils established by the Magnuson- Stevens Fishery Conservation and Management Act in 1976 to manage fisheries in the 200-mile Exclusive Economic Zone (EEZ). The Council primarily manages groundfish in the Gulf of Alaska, Bering Sea, and Aleutian Islands, targeting cod, pollock, flatfish, mackerel, sablefish, and rockfish species harvested by trawl, longline, jig, and pot gear.

The US EEZ extends from 3 miles to 200 miles.

The Council is the system's decision-making body. The Council has eleven voting members and four non-voting members. The State of Alaska Commissioner of ADF&G holds a seat on the Council and plays a key role. Bycatch reduction is a key issue for the Commissioner's office.

The NPFMC provides recommendations to the National Marine Fisheries Service (NMFS). NMFS provides the Council with research information, environmental modeling, stock assessment advice, analytical assistance, restricted access management, regulatory implementation, and in-season monitoring and management of the fisheries. NMFS also reviews and approves recommendations through the office of the Secretary of Commerce. Final decisions are approved by the Secretary of Commerce.

Bering Sea and Aleutian Island Bycatch Management since 2011

In Federal Law: Amendment 91 is an innovative approach to managing Chinook salmon bycatch in the BSAI pollock fishery that combines a limit on the amount of Chinook salmon that may be caught incidentally with incentive plan agreements and performance standard. There is an overall cap of 60,000 Chinook salmon if the pollock fishery is participating in approved incentive plans. There is also a performance standard of 47,591 Chinook salmon. They may exceed the performance standard of 47,591 in two out of any seven years (but only up to 60,000 Chinook salmon). If they exceed the performance standard in a third year out of any seven the cap drops to 47,591 permanently. The program was designed to minimize bycatch to the extent practicable in all years, and prevent bycatch from reaching the limit in most years, while providing the pollock fleet with the flexibility to harvest the total allowable catch. NMFS implemented this program for the 2011 BSAI pollock fishery.

Starting in 2011, the sampling method for salmon in BS pollock directed fisheries changed to census counts.

Chinook bycatch has been found to be generally age 4, 5, and 6 year old salmon. Because the bycatch is multiple ages, the impact of bycatch is felt over multiple years and not just one year. An Adult Equivalency is therefore calculated.

Recent genetic analyses estimate that about 73% of the BSAI Chinook bycatch is bound for Western Alaska (Norton Sound to Bristol Bay, including the middle and upper Yukon).

Current bycatch numbers in the BSAI ground fisheries

A Season (January 1 to June 10) catch in 2013 was 9,183. This is slightly higher than but similar to 2011 (7,652) and 2012 (8,985) and similar to 2010 (9,466). These were all relatively low A season catches.

B Season (June 11 to December 31) so far is 554.

Total BSAI bycatch in all ground fisheries as of August 8, 2013: 9,737.

Total BSA bycatch in the pollock fishery as of August 8 2013: 8,788 (90% of total bycatch all fisheries)

Have easily accessible historical numbers back to 1991. Catches prior to 2011 are considered very accurate but are more accurate since 2011. Since 2011 we have 100% and sometimes 200% observer coverage on all of the pollock fleet and the sampling method changed to census counts rather than sampling.

Russian and Japan EEZ

No current information is available. The US is working to get better information on bycatch in the Russian pollock fishery. We may expect more information in the future as Russia is seeking Marine Stewardship Council certification.

Upcoming:

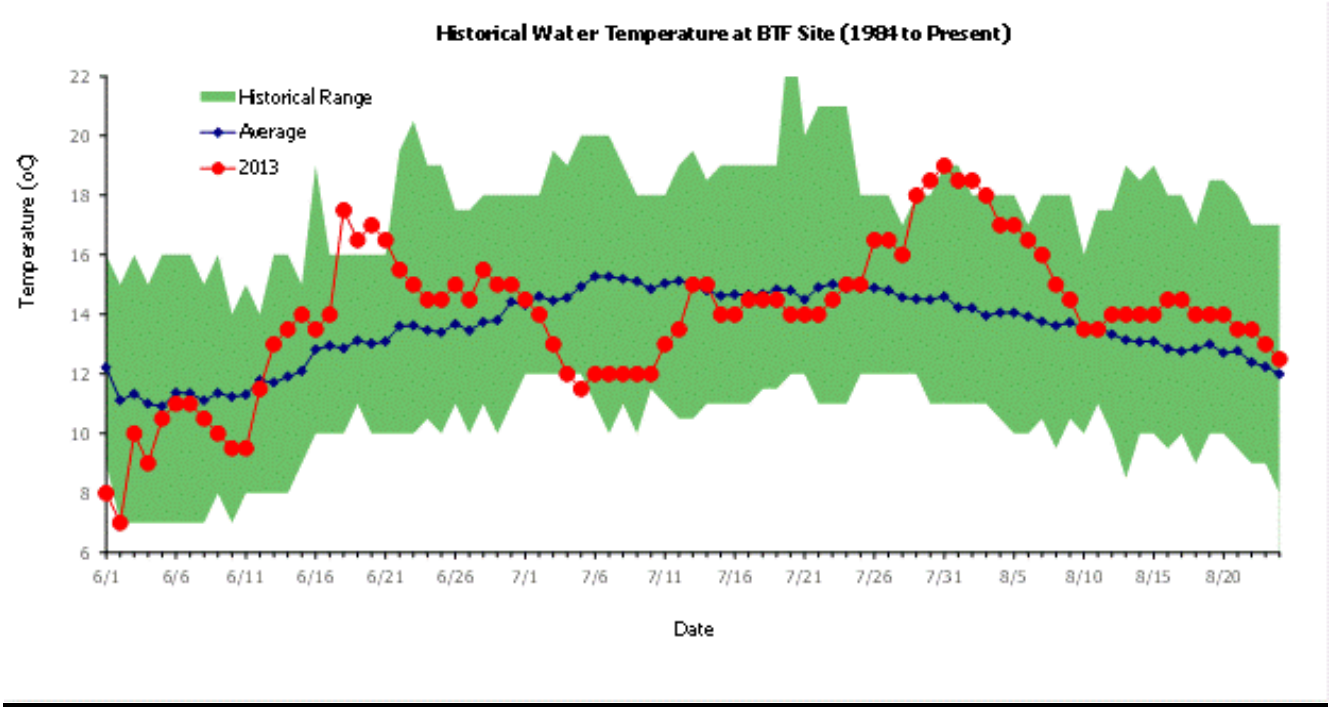
BSAI Chinook Bycatch Report to be published 2nd Week in September.

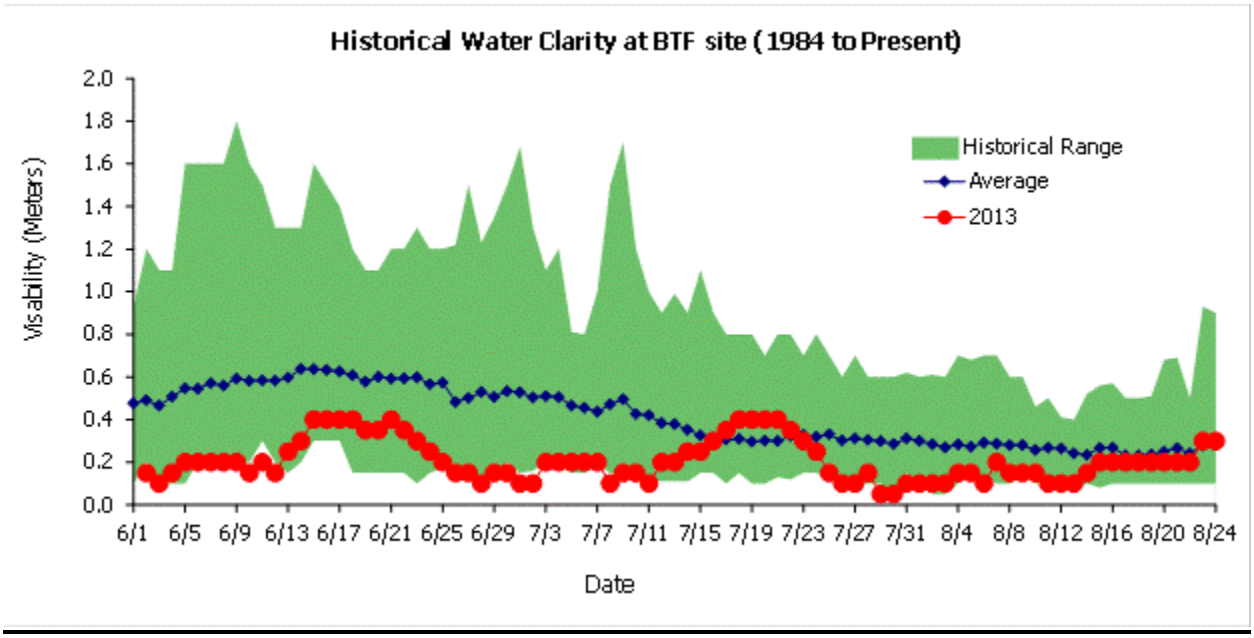
Next NPFMC meeting Sept 30-Oct. 8 Anchorage Hilton. Included on the agenda are: Industry IPA report for BSAI chum salmon, BSAI Chinook Salmon Report Review, Salmon Donation Program.

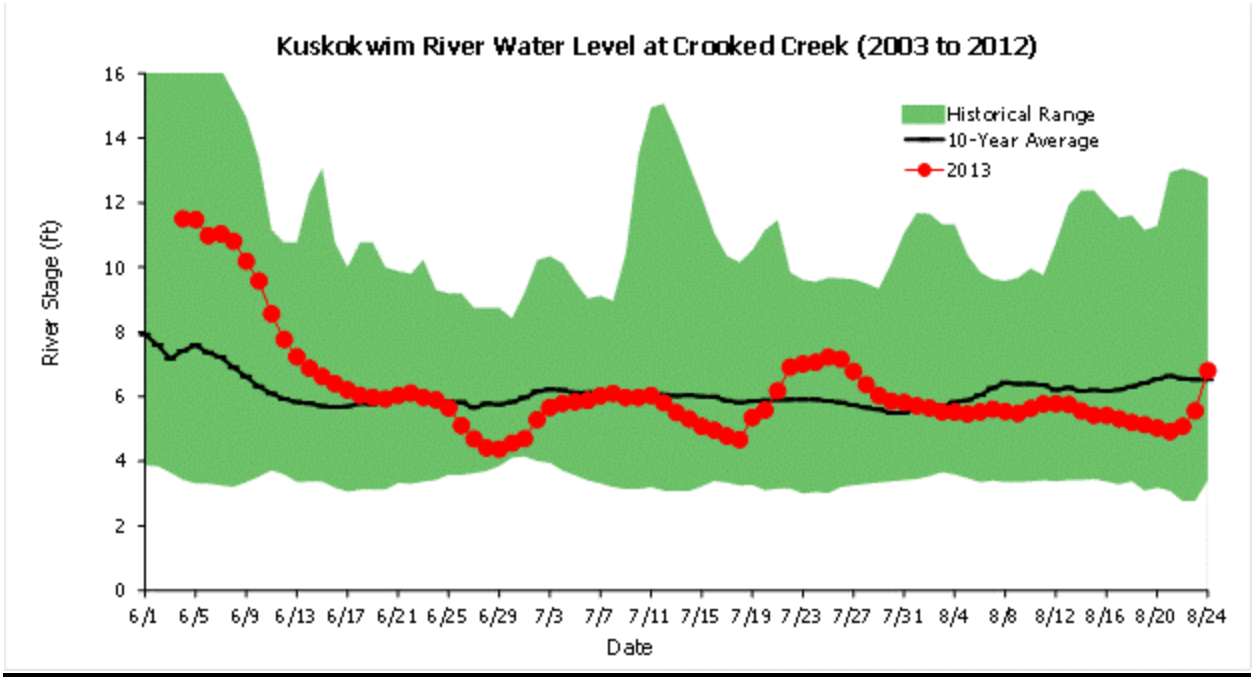
Written comment deadline for next meeting: September 24, 2013

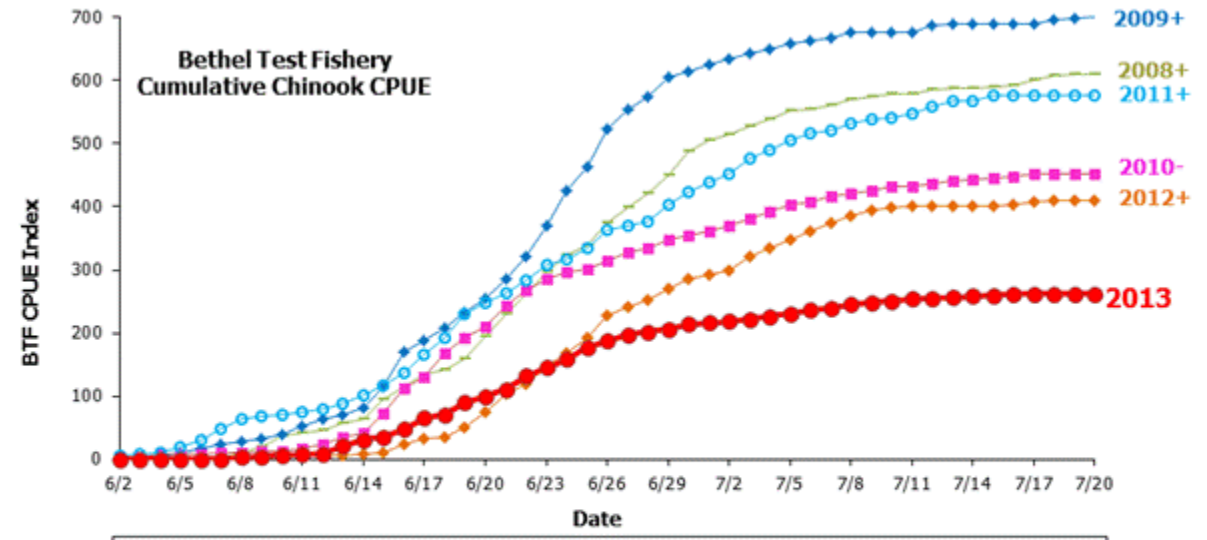
Send comments to:
Email: npfmc.comments@noaa.gov (PDF attachments accepted)
Fax: 907-271-2817
Address: 605 W. 4th Avenue, Suite 306, Anchorage, AK 99501

OVERVIEW OF KUSKOKWIM RIVER SALMON RUN ASSSSMENT PROJECTS



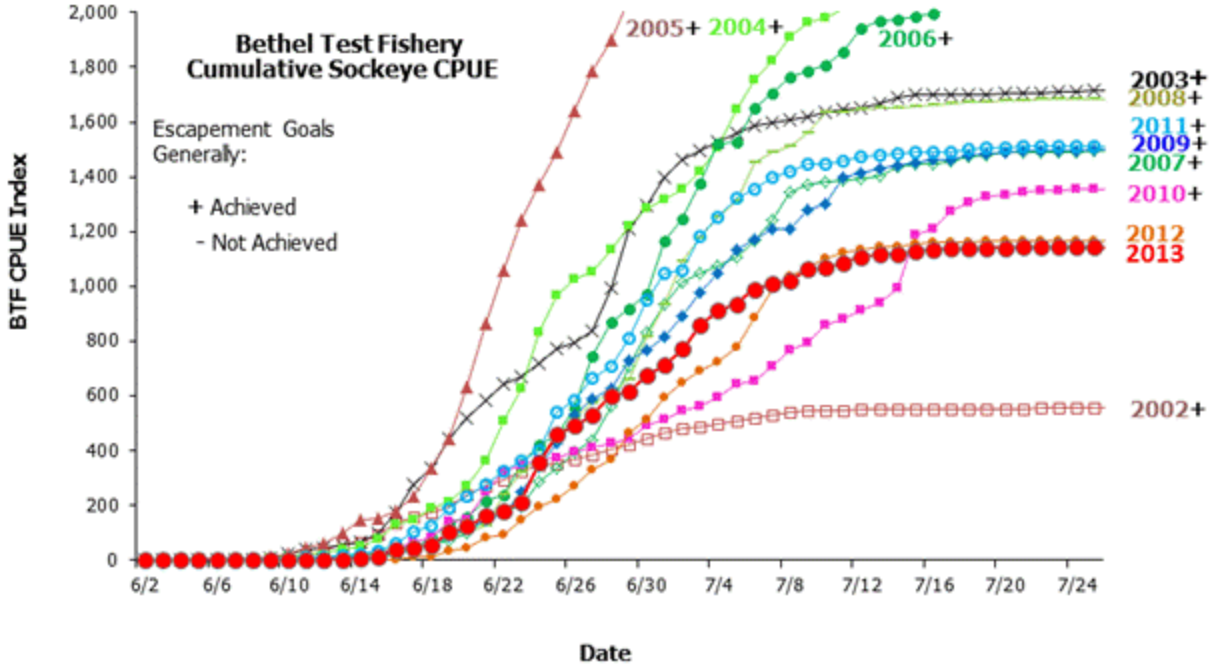


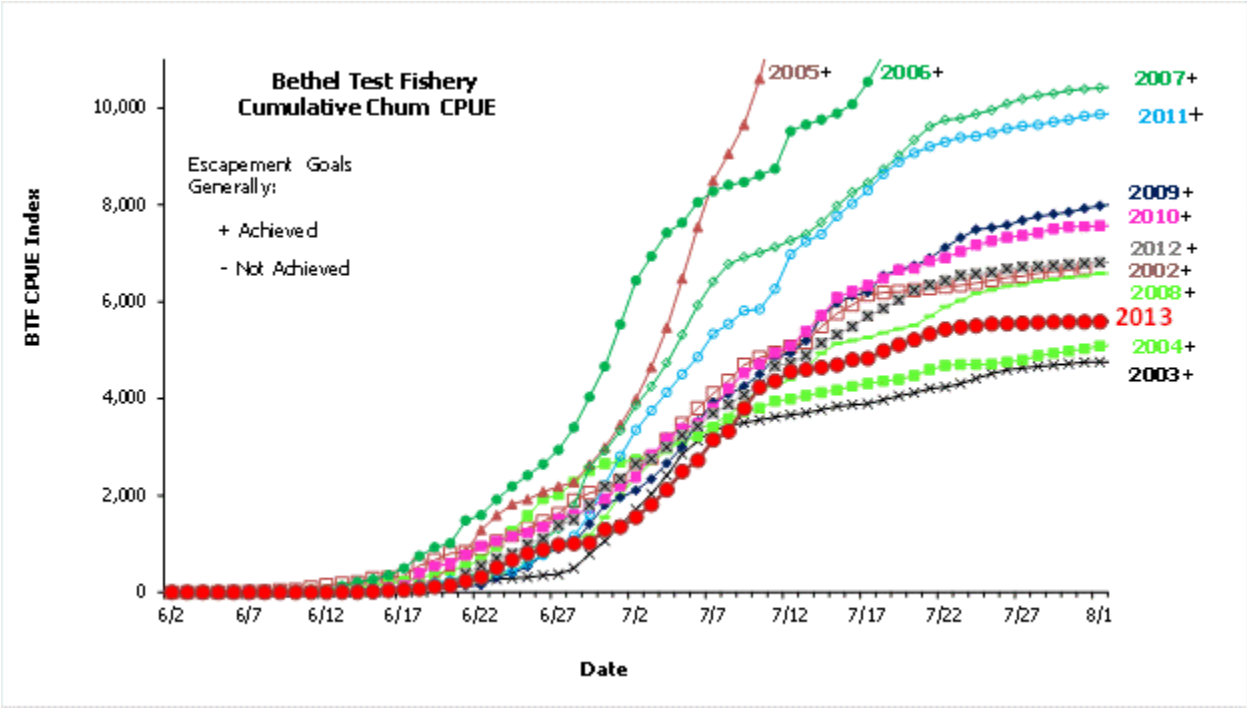




Resutling escapement realtive to New Kuskokwim River SEG (65,000 - 120,000)

2008 - Acheived (+) no restrictions
2009 - Acheived (+) no restrictions
2010 - Not Acheived (-) late tributary restrictions
2011 - Acheived (+) 15 days restrictions, minor reduction to subsistence harvest
2012 - Acheived (+) 35 days restrictions, significant reduction to subsistance harvest


Bethel Test Fishery
Cumulative Sockeye CPUE
Escapement Goals
Generally:
+ Achieved
- Not Achieved
BTF CPUE Index
Date
2005+
2004+
2006+
2003+
2008+
2011+
2009+
2007+
2010+
2012
2013
2002+
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
6/2
6/6
6/10
6/14
6/18
6/22
6/26
6/30
7/4
7/8
7/12
7/16
7/20
7/24


Bethel Test Fishery
Cumulative Chum CPUE
Escapement Goals
Generally:
+ Achieved
- Not Achieved
BTF CPUE Index
Date
2005+
2006+
2007+
2011+
2009+
2010+
2012+
2002+
2008+
2013
2004+
2003+
10,000
8,000
6,000
4,000
2,000
0
6/2
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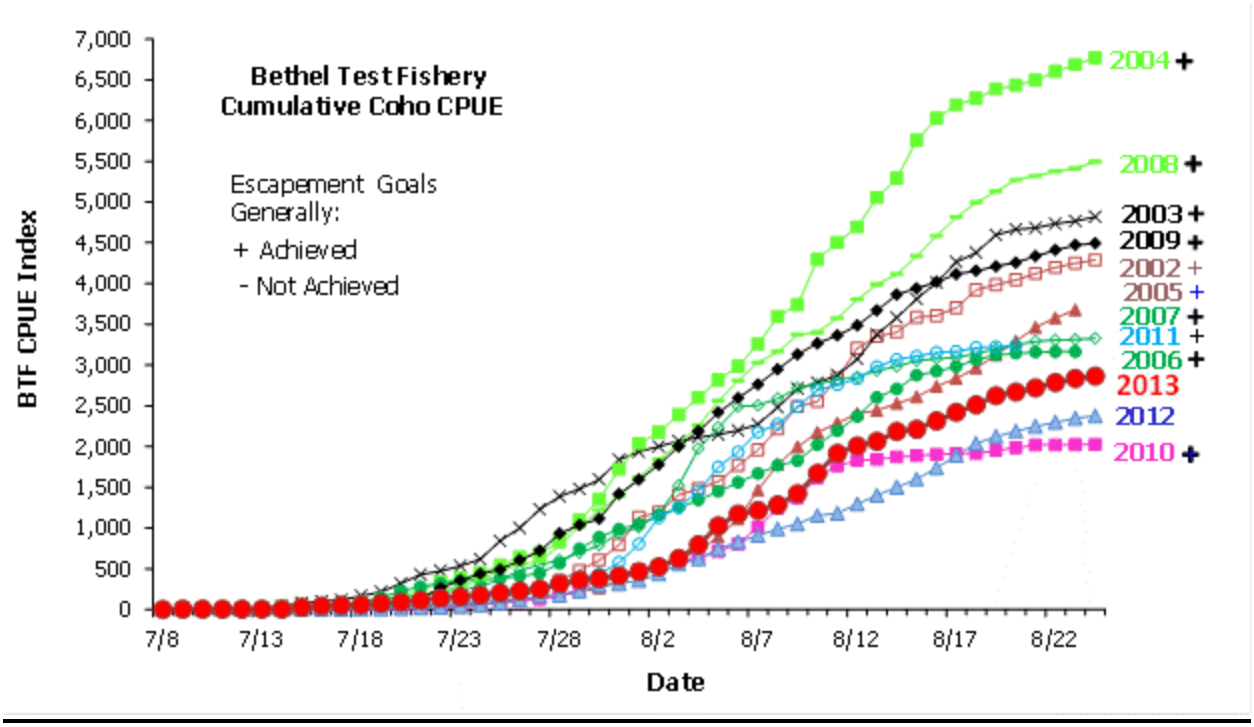
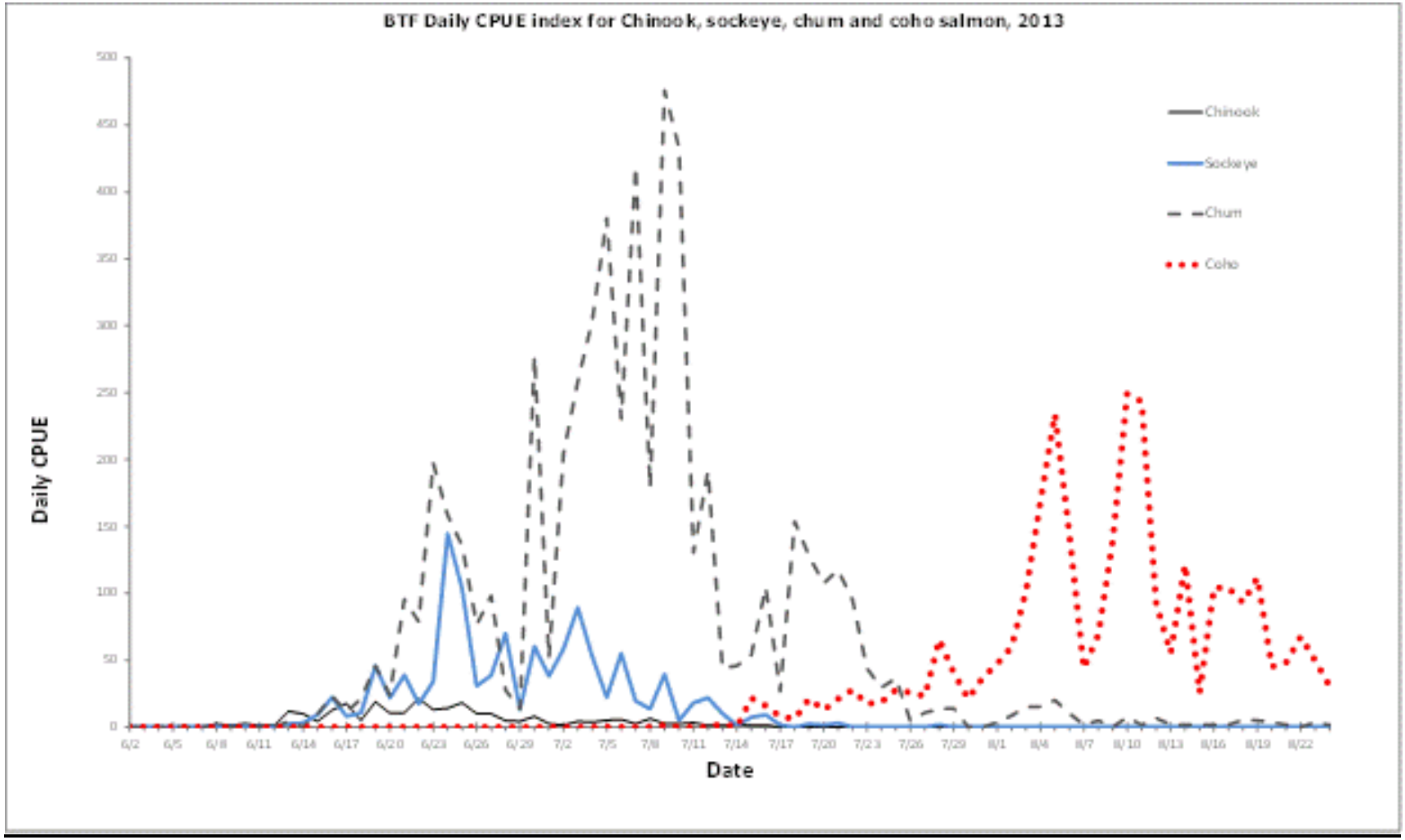
7/7
7/12
7/17
7/22
7/27
8/1


Bethel Test Fishery
Cumulative Coho CPUE
Escapement Goals
Generally:
+ Achieved
- Not Achieved
BTF CPUE Index
7,000
6,500
6,000
5,500
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
7/8
7/13
7/18
7/23
7/28
8/2
8/7
8/12
8/17
8/22
Date
2004 +
2008 +
2003 +
2009 +
2002 +
2005 +
2007 +
2011 +
2006 +
2013
2012
2010 +


BTF Daily CPUE index for Chinook, sockeye, chum and coho salmon, 2013
Daily CPUE
Date
Chinook
Sockeye
Chum
Coho
0
50
100
150
200
250
300
350
400
450
500
6/2
6/5
6/8
6/11
6/14
6/17
6/20
6/23
6/26
6/29
7/2
7/5
7/8
7/11
7/14
7/17
7/20
7/23
7/26
7/29
8/1
8/4
8/7
8/10
8/13
8/16
8/19
8/22

ESCAPEMENT MONITORING

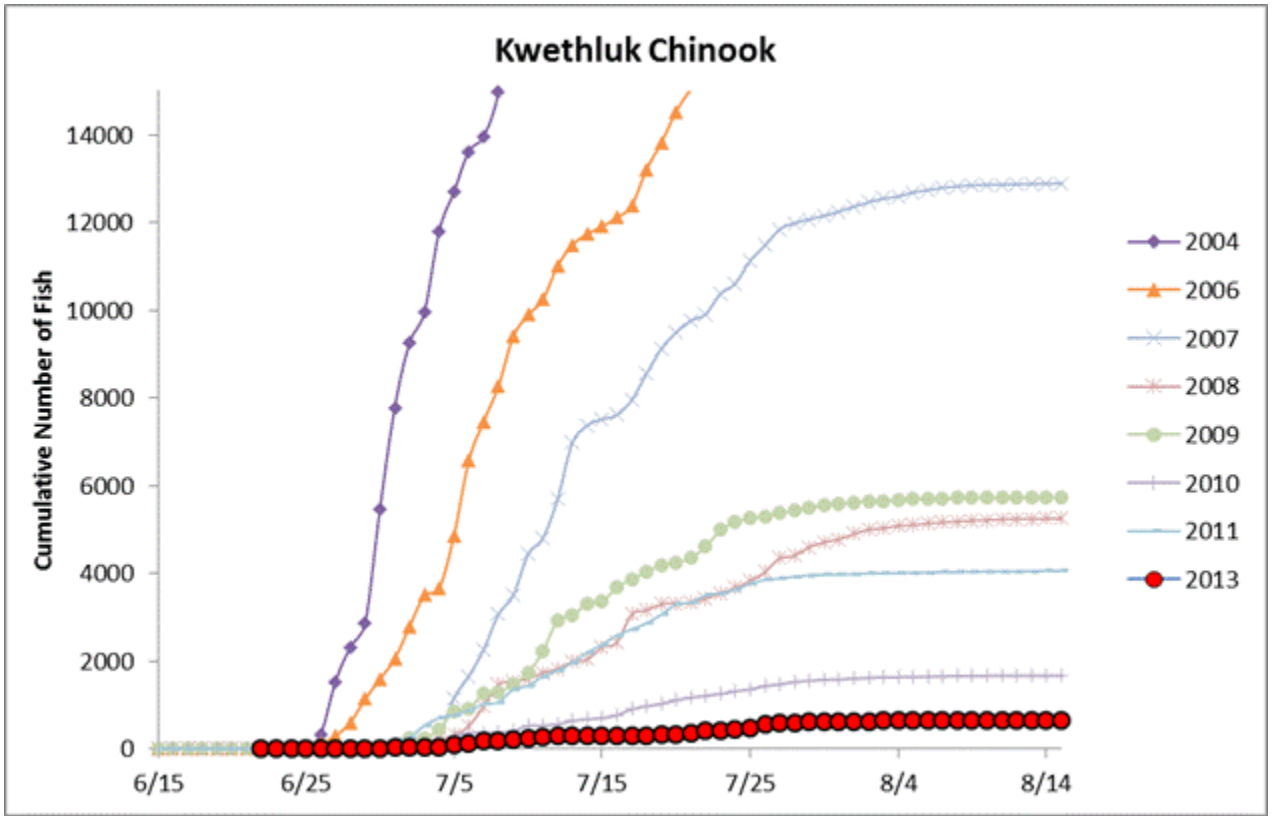
Chinook Escapement (2004 – 2013)

Preliminary (no estimates)

Kwethluk River weir operated from June 21st – August 16th. Partial days reported by USFWS were August 9th and 16th. No estimates have been made at this time for partial days of operation.

Kwethluk River weir season totals										
Escapement Goal Range: 4,100 to 7,500						= years when escapement goal achieved or exceeded				
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Season Total	28,605	n.a.	17,619	12,927	5,276	5,744	1,668	4,079	n.a.	652*

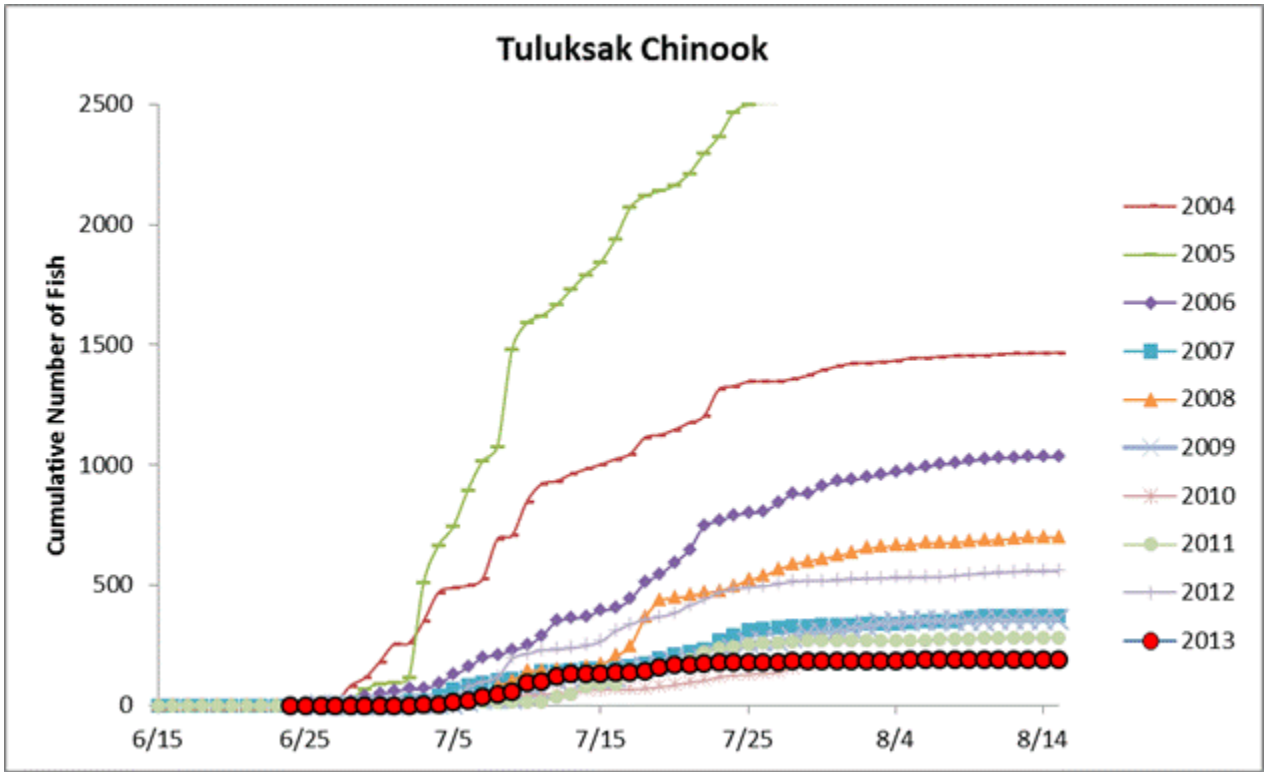
*The 2013 season total is NOT the final escapement number. Estimates will be made at the end of the field season.



Tuluksak River weir began operations on June 24th and has not reported any operational difficulties to date.

Tuluksak River weir season totals										
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Season Total	1,475	2,653	1,043	374	701	362	201	284	560	193*

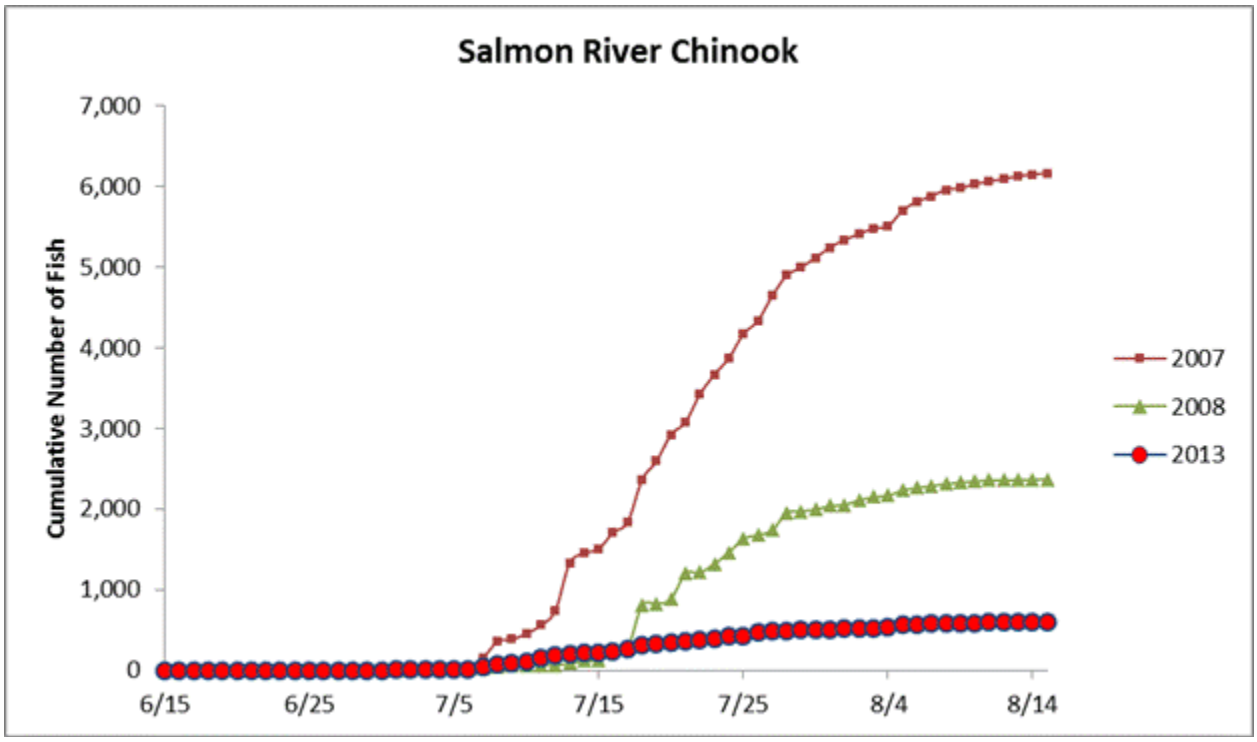
*The 2013 season total is NOT the final escapement number. Estimates will be made at the end of the field season.



Salmon River weir began operations on June 14th. Partial day counts occurred on July 6th, 14th, and August 7th. No estimates have been made but will likely be minimal.

Salmon River weir season totals						
	2006	2007	2008	2009	2012	2013
Season Total	*6,731*	6,220	2,376	*1,548*	n.a.	596*

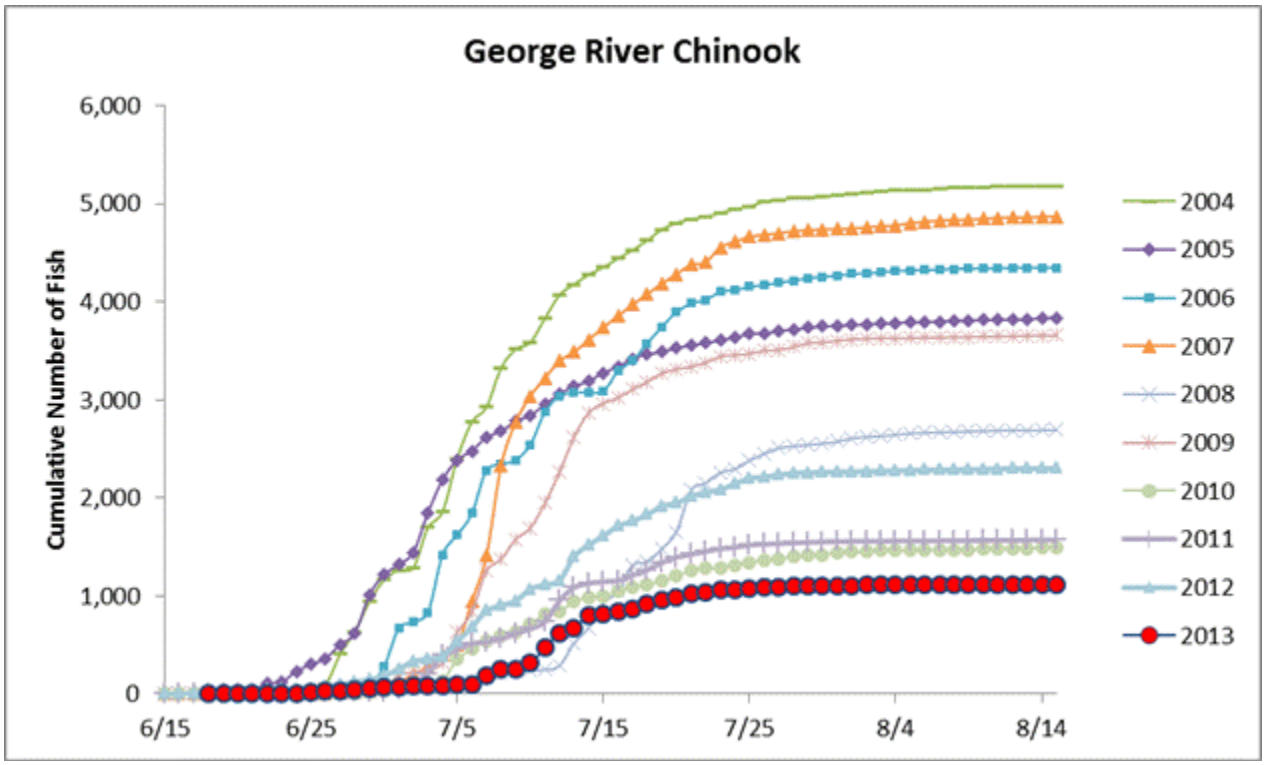
Note: 2006 and 2009 did not cover the entire Chinook run and season totals are considered incomplete.
*The 2013 season total is NOT the final escapement number. Estimates will be made at the end of the field season.



George River weir began operations on June 18th. Partial day counts include June 18th and July 7th – 11th. No estimates have been made but will likely be minimal.

George River weir season totals										
Escapement Goal Range: 1,800 to 3,300						= years when escapement goal achieved or exceeded				
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Season Total	5,206	3,845	4,355	4,883	2,698	3,663	1,500	1,571	2,302	1,121*

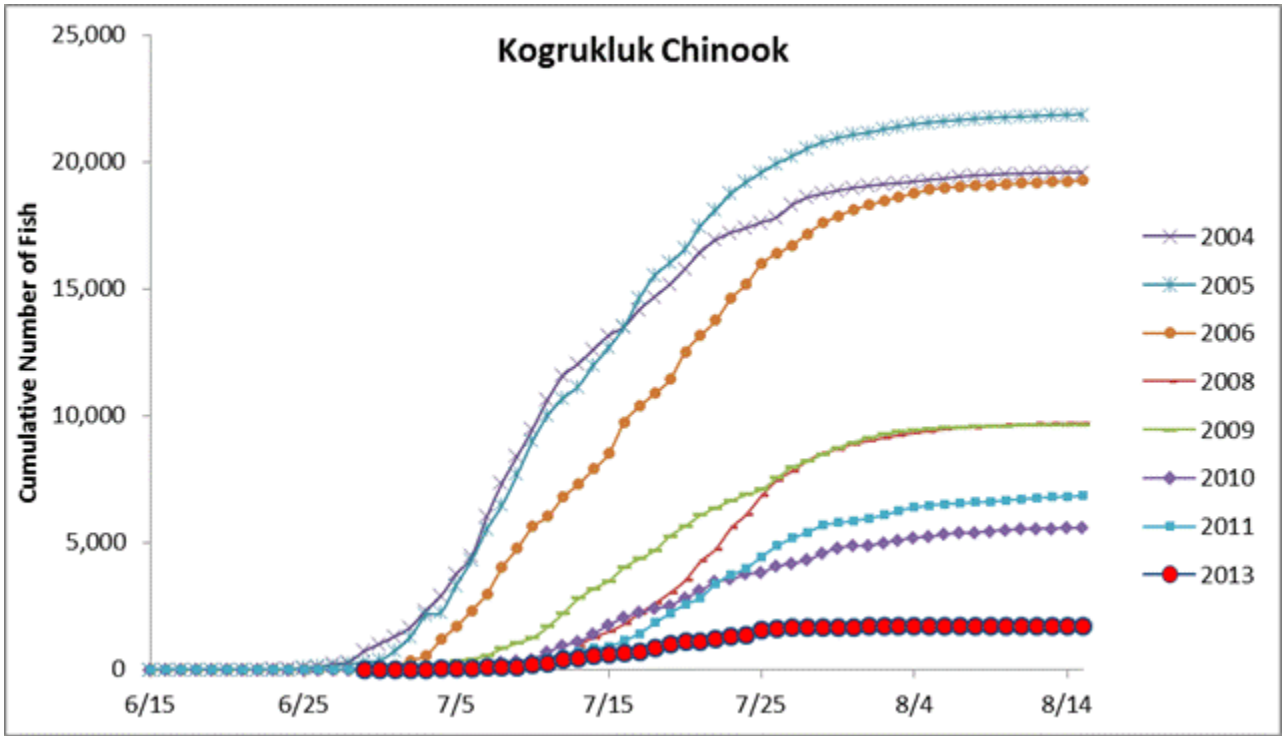
*The 2013 season total is NOT the final escapement number. Estimates will be made at the end of the field season.



Kogrukluk River weir began operations on June 28th. Partial day counts occurred on June 28th, July 7th and 9th, and August 4th, 6th, and 21st. Full days of inoperability included July 8th and August 7th – 20th. No estimates have been made at this time but will likely be minimal.

Kogrukluk River weir season totals										
Escapement Goal Range: 4,800 to 8,800						= years when escapement goal achieved or exceeded				
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Season Total	19,651	21,999	19,414	n.a.	9,730	9,701	5,693	6,890	n.a.	1,701*

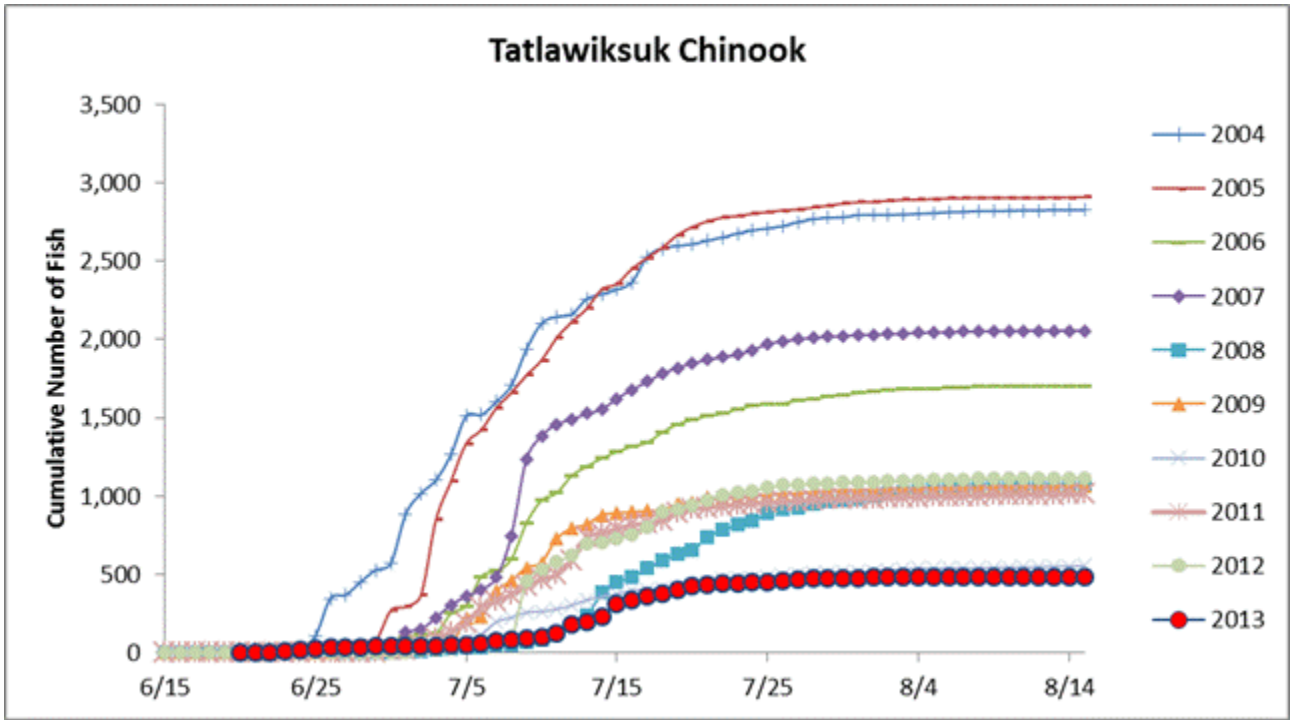
*The 2013 season total is NOT the final escapement number. Estimates will be made at the end of the field season.



Tatlawiksuk River weir began operations on June 19th. June 19th was a partial day count.

Tatlawiksuk River weir season totals										
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Season Total	2,833	2,918	1,700	2,061	1,071	1,071	569	1,014	1,116	485*

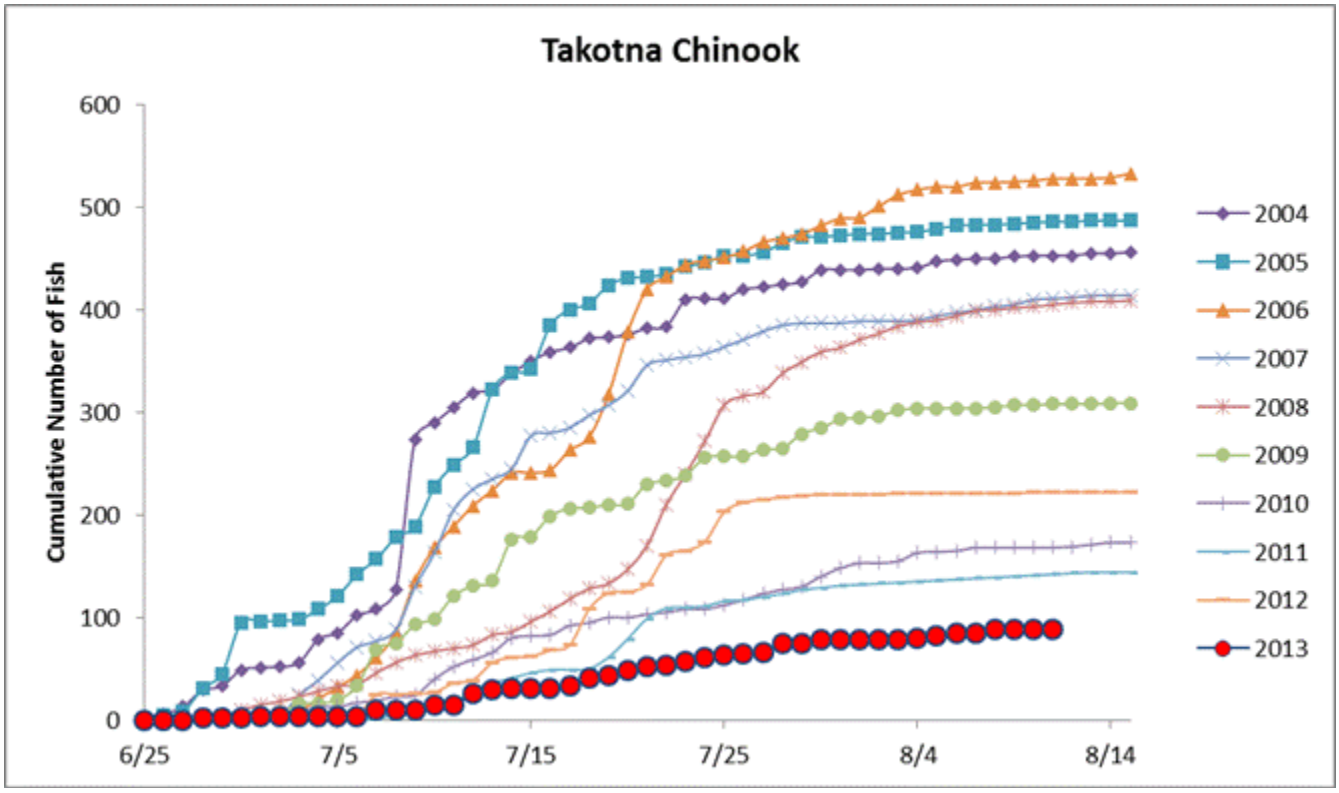
*The 2013 season total is NOT the final escapement number. Estimates will be made at the end of the field season.



Takotna River weir began operations on June 24th. A partial day count occurred on July 14th.

Takotna River weir season totals										
Date	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Season Total	461	499	541	418	413	311	178	148	228	92*

*The 2013 season total is NOT the final escapement number. Estimates will be made at the end of the field season.



Coho Salmon

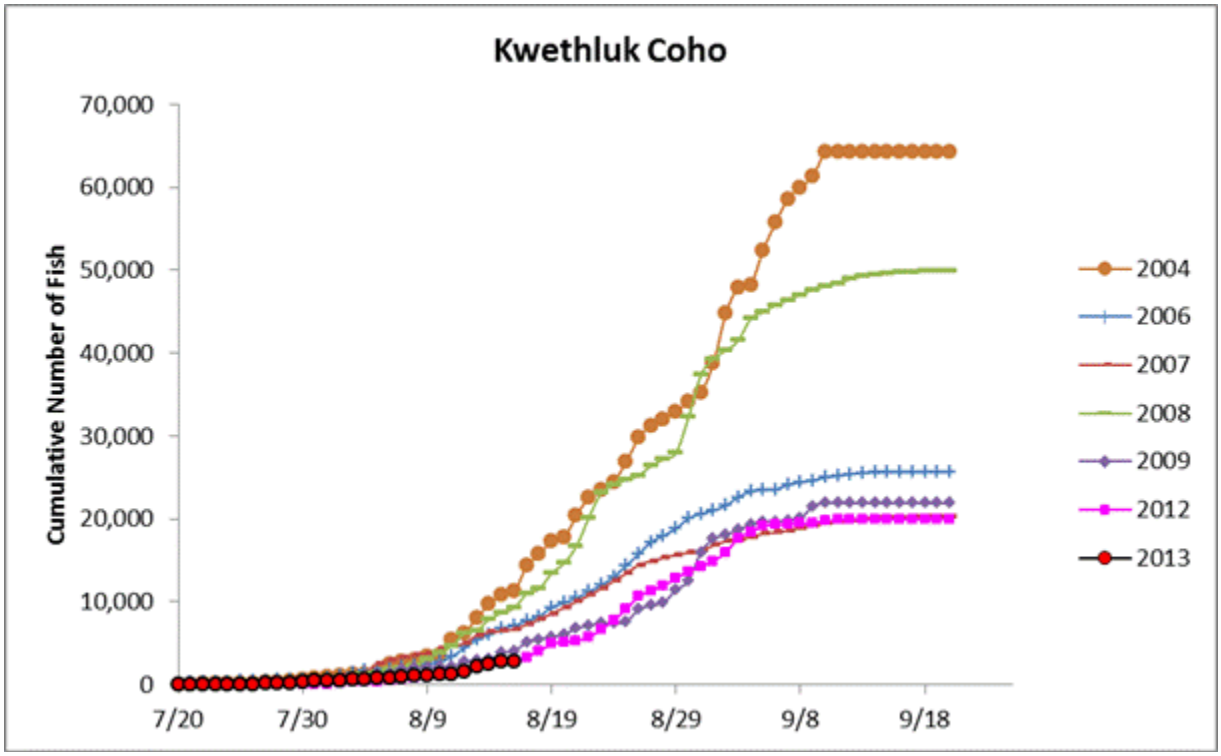
Kwethluk River weir historical cumulative daily passage of coho salmon

Escapement Goal: ≥19,000 = years when escapement goal was achieved or exceeded

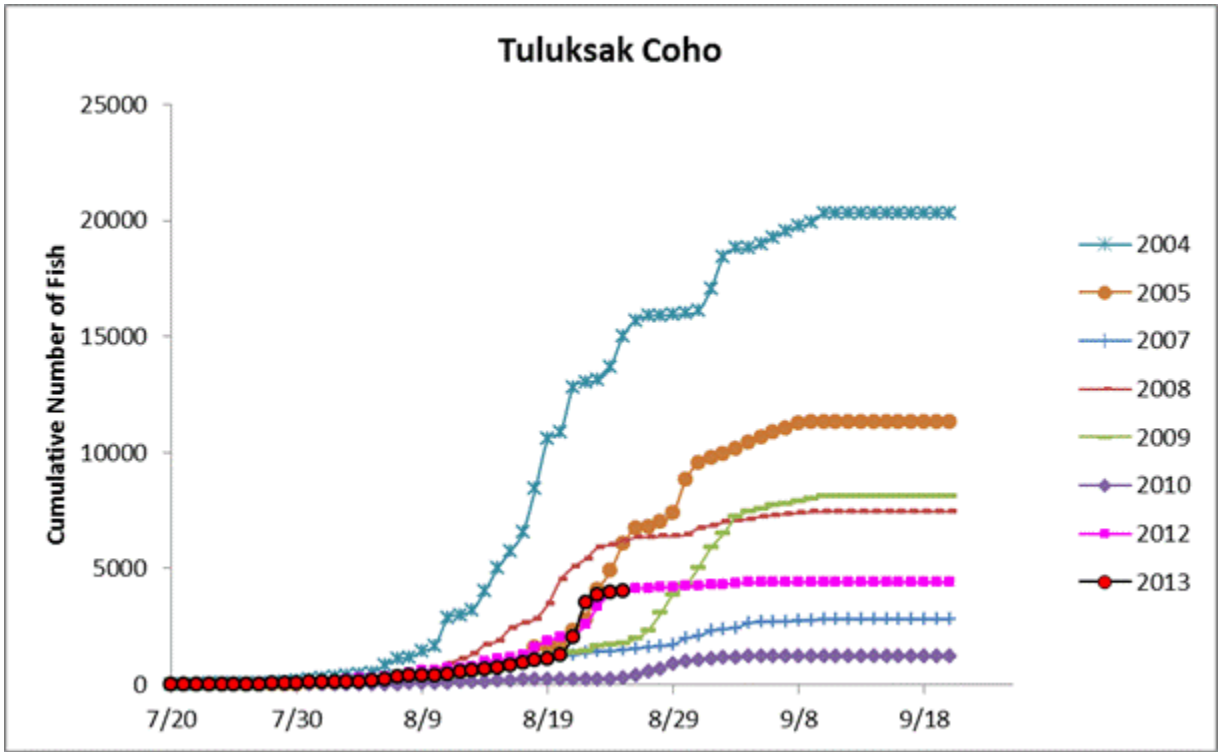
Cumulative Daily Passage

Date	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
8/16	11,221		7,133	6,679	9,266	4,082			2,888	***2,861***
8/17	14,315		7,712	7,276	11,003	5,133			3,339	
8/18	15,758		8,266	7,870	11,544	5,462			4,038	
8/19	17,257		9,330	8,585	13,440	5,745			4,929	
8/20	17,776		9,870	9,293	14,657	6,071			5,149	
8/21	20,374		10,461	10,023	16,727	6,814			5,330	
8/22	22,642		11,228	10,765	20,173	7,136			5,679	
8/23	23,443		12,009	11,612	23,132	7,414			6,716	
8/24	24,484		13,017	12,514	24,075	7,437			7,727	
8/25	26,870		14,372	13,433	24,735	7,588			9,163	
Season Total	64,216	n.a.	25,664	20,256	49,972	21,911	n.a	n.a.	19,960	

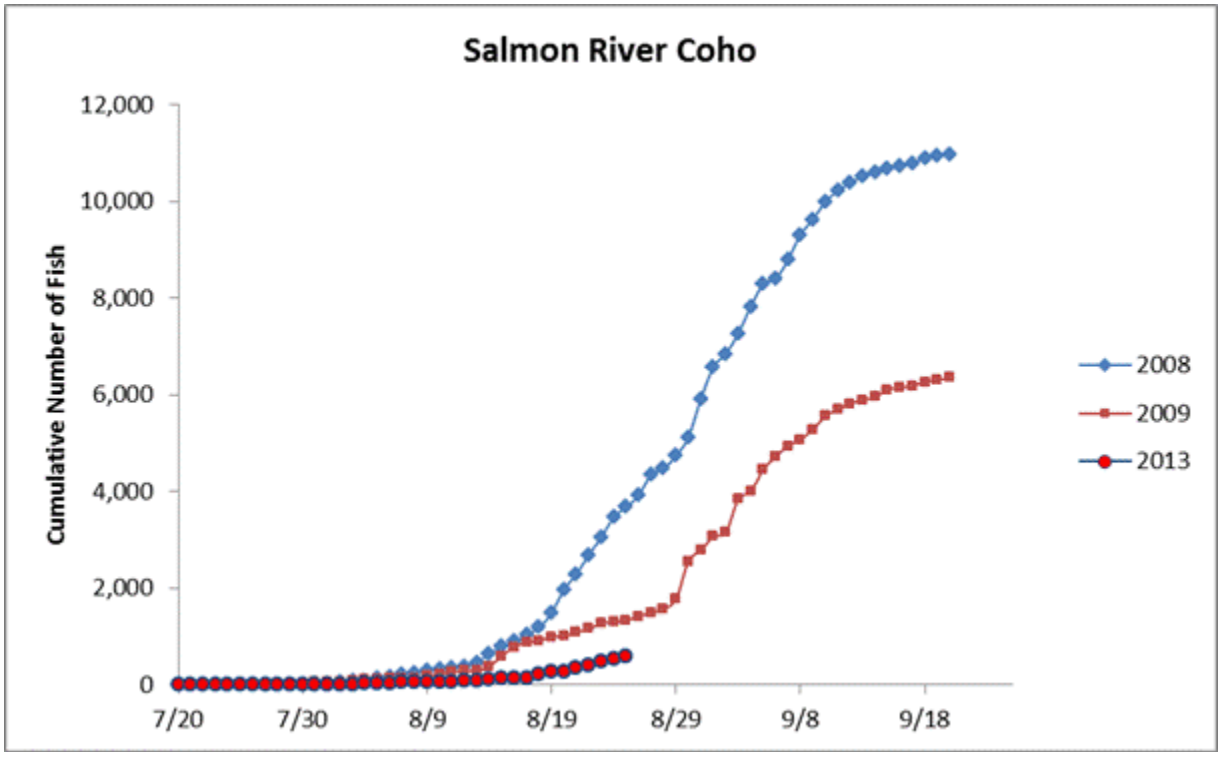
***August 16th was the last day of operations at Kwethluk for the 2013 field season and was a partial day of counts. August 9th was also a partial day due to submerged boat panels.**



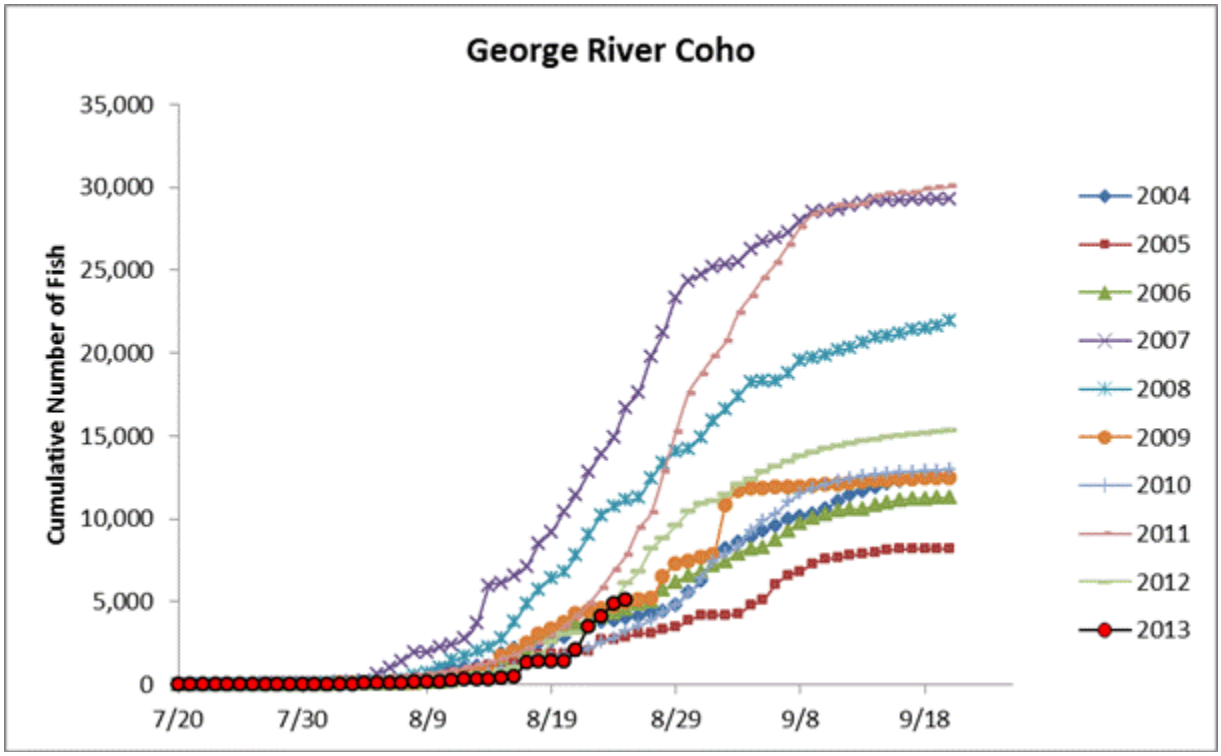
Tuluksak River weir historical cumulative daily passage of coho salmon										
	Cumulative Daily Passage									
Date	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
8/19	10,589	1,667	*1,470*	1,142	3,466	1,086	203		1,900	1,134
8/20	10,855	1,687	*1,543*	1,216	4,510	1,232	203		2,033	1,299
8/21	12,813	2,321	*1,833*	1,267	5,058	1,369	203		2,119	2,059
8/22	13,040	2,824	*2,124*	1,364	5,413	1,415	203		2,577	3,534
8/23	13,114	4,075	*2,349*	1,415	5,921	1,647	213		3,381	3,873
8/24	13,707	4,915	*2,510*	1,437	6,021	1,695	232		3,919	3,964
8/25	15,036	6,081	*2,908*	1,496	6,205	1,767	299		4,056	4,028
Season Total	20,336	11,324	6,111	2,807	7,457	8,137	1,216	n.a.	4,407	



Salmon River weir historical cumulative daily passage of coho salmon						
	Cumulative Daily Passage					
Date	**2006**	**2007**	**2008**	**2009**	**2012**	**2013**
8/19			1,483	988		260
8/20			1,973	1,005		281
8/21			2,287	1,087		342
8/22			2,691	1,157		406
8/23			3,048	1,263		468
8/24			3,468	1,303		527
8/25			3,675	1,330		578
Season Total	n.a.	n.a.	11,022	6,391	n.a.	

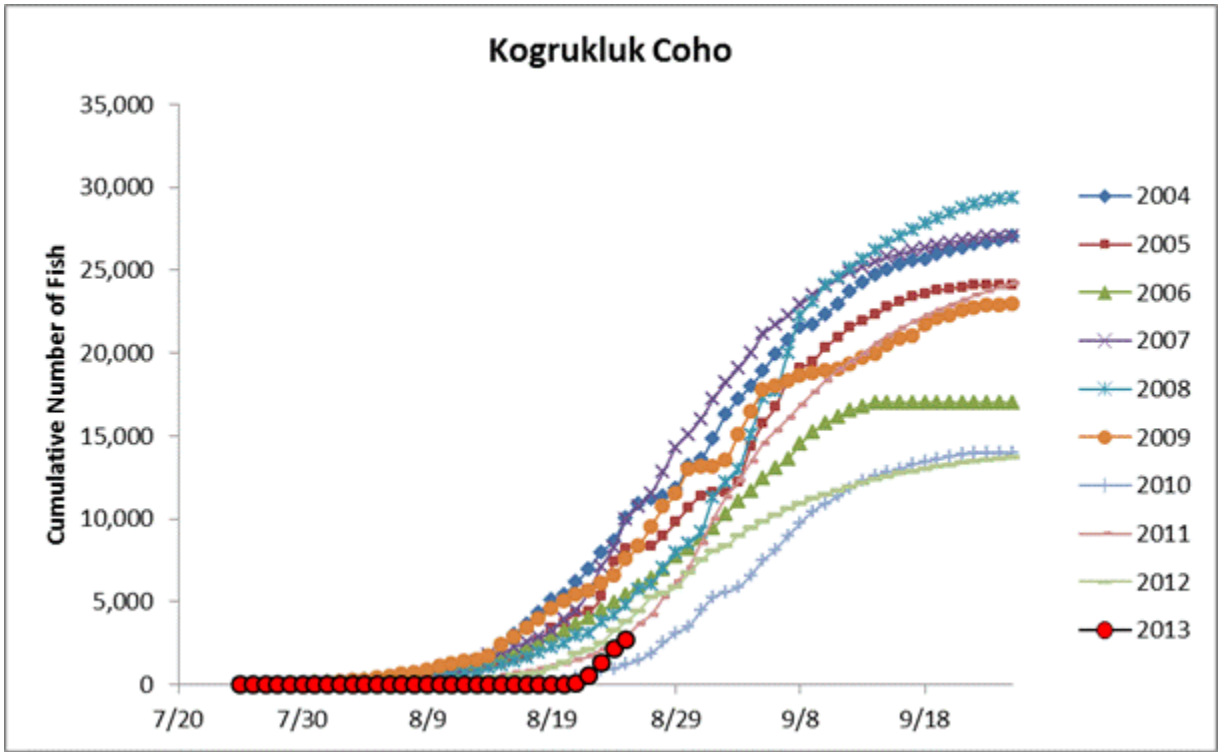


George River weir historical cumulative daily passage of coho salmon										
	Cumulative Daily Passage									
Date	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
8/19	2,599	1,855	3,155	9,196	6,385	3,343	1,600	2,966	2,552	1,389
8/20	2,898	1,880	3,404	10,437	6,792	3,729	1,791	3,501	3,054	1,396
8/21	3,387	1,956	3,648	11,472	7,821	4,253	1,945	4,138	3,125	2,123
8/22	3,555	1,983	3,887	12,803	9,022	4,376	2,186	4,895	3,306	3,515
8/23	3,756	2,691	4,121	13,921	10,194	4,600	2,565	5,796	4,031	4,106
8/24	3,903	2,737	4,350	14,911	10,724	4,749	2,802	6,868	5,018	4,877
8/25	4,052	2,892	4,574	16,713	11,107	4,933	3,257	7,800	6,089	5,130
Season Total	12,499	8,200	11,294	29,317	21,931	12,464	12,961	30,028	15,272	



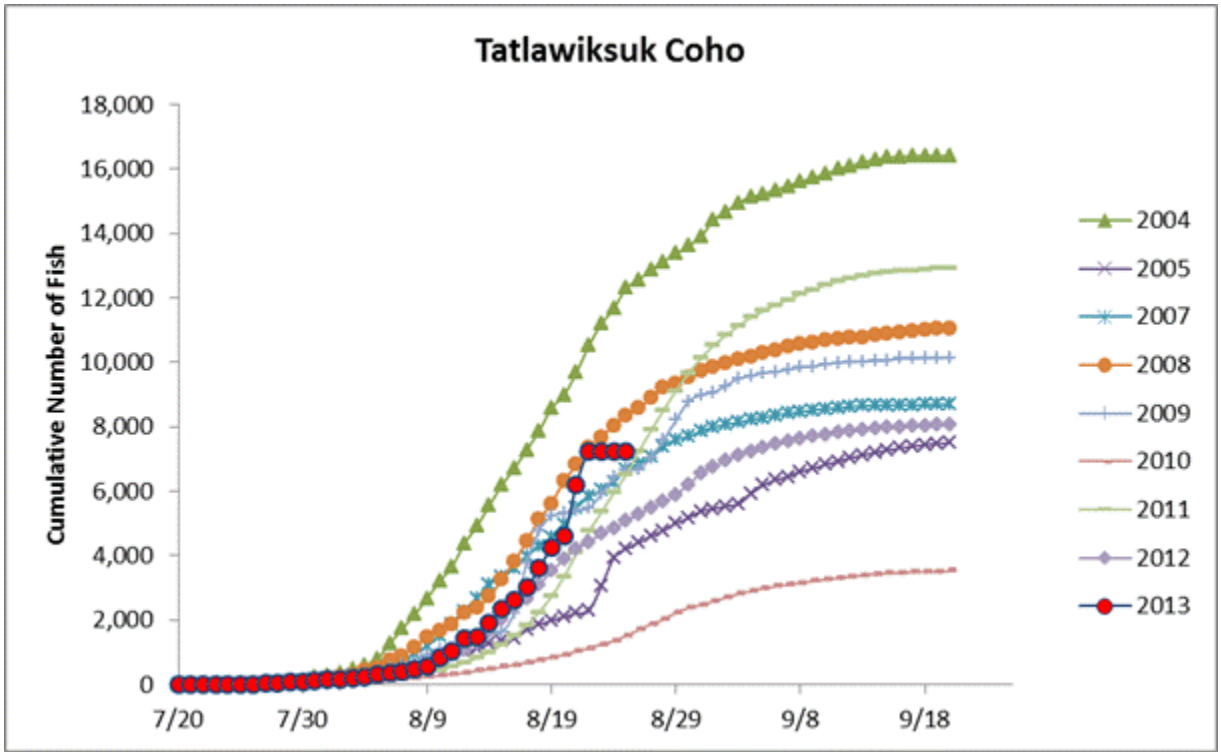
Kogrukluk River weir historical cumulative daily passage of coho salmon										
Escapement Goal Range: 13,000 to 28,000							= years when escapement goal achieved or exceeded			
Cumulative Daily Passage										
Date	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
8/19	5,082	3,376	*2,913*	3,221	2,257	4,533	*173*	1,109	1,010	40
8/20	5,451	3,710	*3,265*	3,936	2,503	5,047	*266*	*1,282*	1,355	40
8/21	6,159	4,356	*3,642*	4,489	2,964	5,385	*460*	*1,483*	1,832	54
8/22	6,998	4,379	*4,043*	5,641	3,101	5,641	*668*	*1,712*	2,061	564
8/23	7,997	5,326	*4,469*	7,109	3,776	6,097	*831*	2,107	2,503	1,327
8/24	8,686	7,396	*4,919*	8,246	4,212	6,539	*972*	2,383	3,240	2,171
8/25	10,077	8,230	*5,394*	9,944	4,827	7,564	*1,215*	2,868	3,817	2,725
Season Total	27,042	24,115	17,011	27,034	29,661	22,981	13,970	24,174	13,697	

***Kogrukluk River weir was out of operation August 6th – 21st. No estimates have been made at this time. Based on average run timing, approximately 13% of the coho run was not counted.**

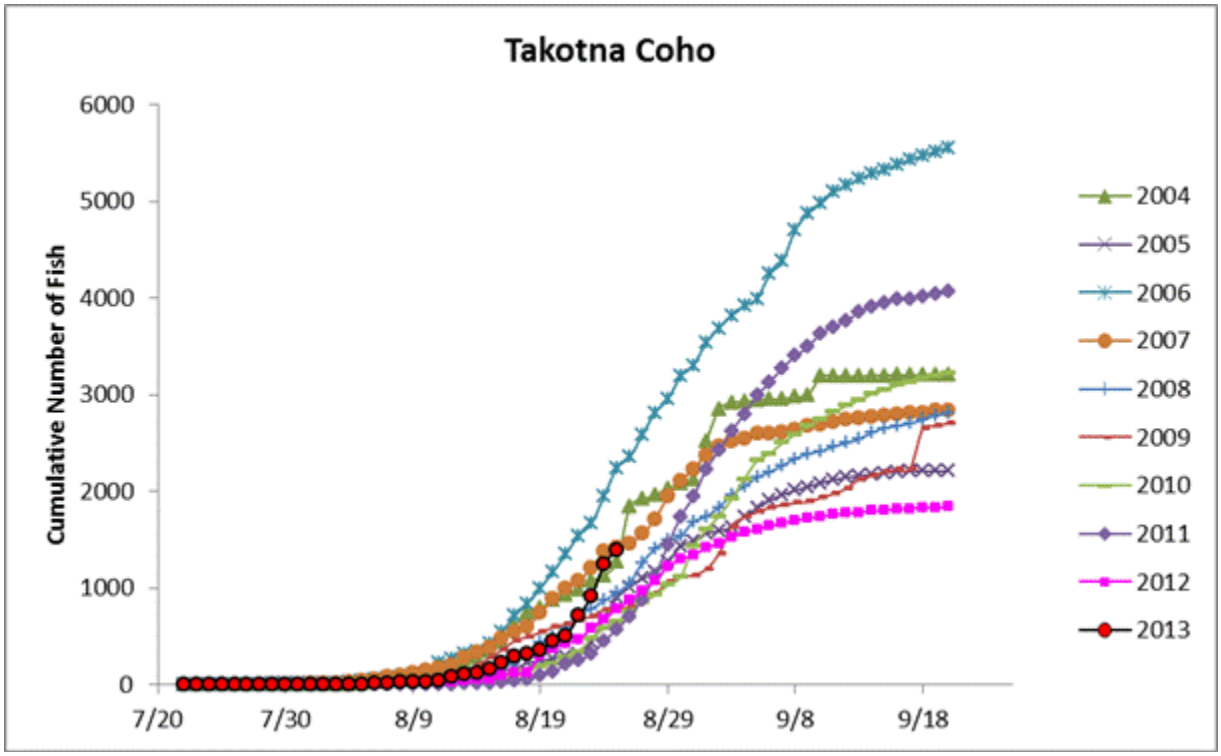


Tatlawiksuk River weir historical cumulative daily passage of coho salmon										
	Cumulative Daily Passage									
Date	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
8/19	8,586	1,986		4,566	5,621	5,231	*844*	*2,745*	3,523	4,267
8/20	8,981	2,104		4,990	6,318	5,308	*934*	3,349	3,899	4,614
8/21	9,689	2,215		5,490	6,820	5,410	*1,030*	4,079	4,223	6,210
8/22	10,514	2,295		5,833	7,335	5,486	*1,133*	4,755	4,429	7,251
8/23	11,193	3,052		6,034	7,684	5,911	1,252	5,350	4,683	7,251
8/24	11,666	3,933		6,292	8,037	6,421	1,352	5,959	4,842	7,251
8/25	12,304	4,210		6,669	8,340	6,665	1,526	6,528	5,082	7,251
Season Total	16,410	7,496	n.a.	8,686	11,065	10,148	3,521	12,927	8,070	

***Tatlawiksuk River weir has been out of operation since August 23rd due to high water. No estimates have been made for the 23rd – 25th at this time.**



Takotna River weir historical cumulative daily passage of coho salmon										
	Cumulative Daily Passage									
Date	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
8/19	796	247	*998*	747	434	539	188	93	303	357
8/20	870	272	*1,168*	883	492	593	220	134	366	446
8/21	927	298	*1,350*	998	587	625	275	207	427	502
8/22	988	325	*1,543*	1,071	734	670	335	251	469	711
8/23	1,076	436	1,668	1,206	786	708	484	320	582	914
8/24	1,133	694	1,951	1,373	870	775	579	450	675	1,241
8/25	1,270	898	2,241	1,420	952	794	652	575	783	1,397
Season Total	3,201	2,209	5,556	2,836	2,807	2,704	3,217	4,062	1,838	



Historical Catch Statistics

District 1 Commercial Openings for 2013

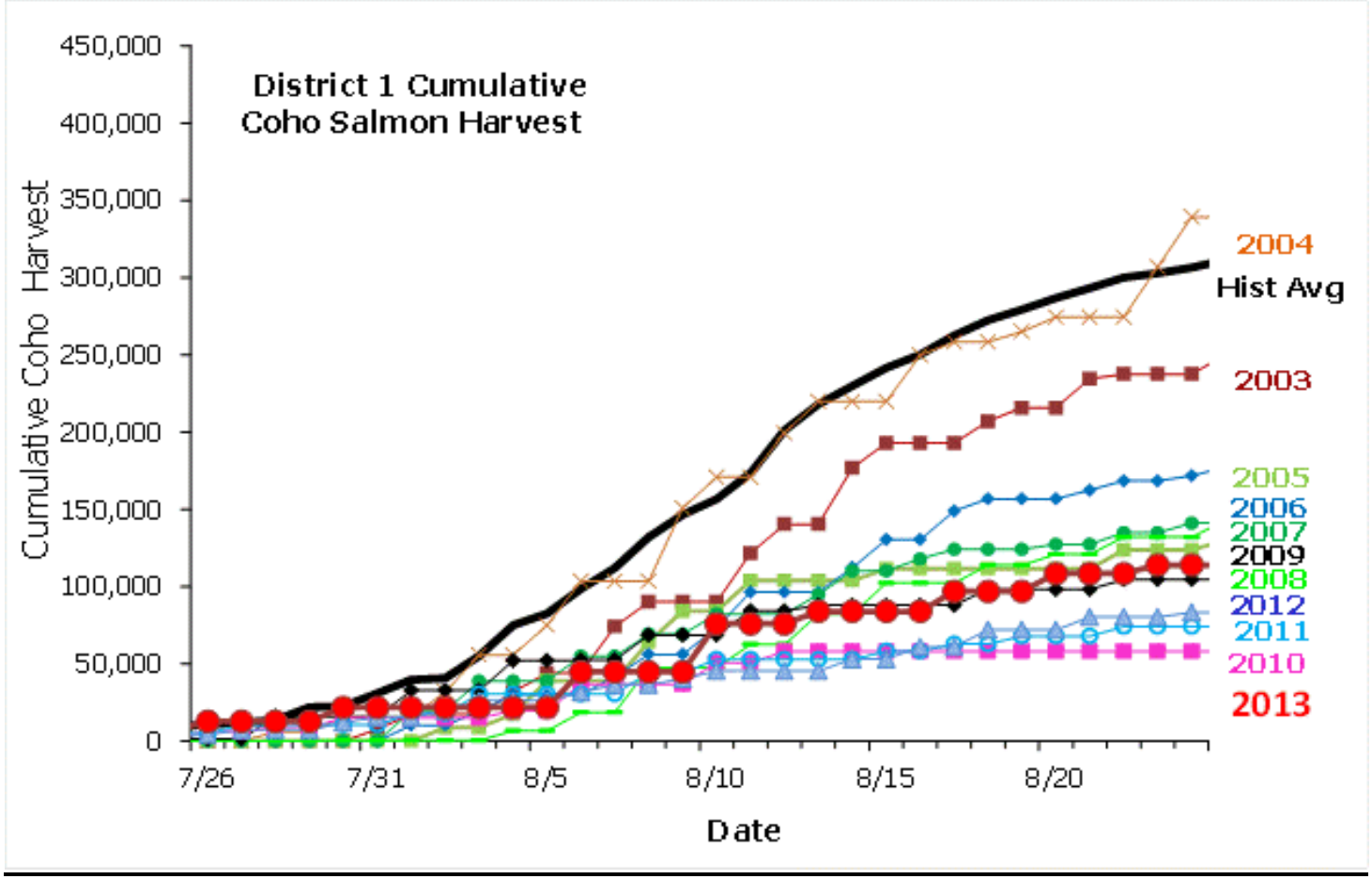
				Chinook		Sockeye		Chum		Coho	
Date	Subdistrict	Permits	Hours	Catch	CPUE	Catch	CPUE	Catch	CPUE	Catch	CPUE
7/16/2013	1-B	189	6 [b]	133 [a]	0.12	373	0.33	24,823	21.89	1,894	1.67
7/19/2013	1-B	221	4 [b]	6 [a]	0.01	78	0.09	15,413	17.44	2,097	2.37
7/23/2013	1-B	218	4 [b]	12 [a]	0.01	47	0.05	5,771	6.62	2,960	3.39
7/26/2013	1-B	171	4 [b]	1 [a]	0.00	45	0.07	3,121	4.56	5,785	8.46
7/30/2013	1-B	137	4 [b]	3 [a]	0.01	35	0.06	1,712	3.12	8,968	16.36
8/6/2013	1-B	273	4 [b]	2 [a]	0.00	20	0.02	706	0.65	23,195	21.24
8/10/2013	1-B	297	6	4 [a]	0.00	168	0.09	474	0.27	30,972	17.38
8/13/2013	1-B	247	4 [b]	1	0.00	2	0.00	79	0.08	8,077	8.18
8/17/2013	1-B	226	4 [b]	0	0.00	0	0.00	49	0.05	12,924	14.30
8/20/2013	1-B	235	6	1	0.00	0	0.00	67	0.05	11,633	8.25
8/23/2013	1-B	186	6	0	0.00	0	0.00	16	0.01	5,454	4.89
Total			52	163		768		52,231		113,959	

Footnotes

[a] All Chinook harvested during the commercial opening were not sold but kept as personal use.

[b] Does not include 2-hour extension in Lower Section of 1-B.

[c] In-season data is preliminary, subject to change.


District 1 Cumulative
Coho Salmon Harvest
Cumulative Coho Harvest
450,000
400,000
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
7/26
7/31
8/5
8/10
8/15
8/20
Date
2004
Hist Avg
2003
2005
2006
2007
2009
2008
2012
2011
2010
2013

Kuskokwim River Salmon Management Working Group

P.O. Box 1467 • Bethel, AK 99559 • 907-543-2433 • 907-543-2021 fax

September 18, 2013

To the Alaska Board of Fisheries:

The Kuskokwim River Salmon Management Working Group (Working Group) was formed in 1988 by the Alaska Board of Fisheries (87-117-FB) to provide stakeholders an active role in salmon management and works to sustain our salmon resources. The Working Group Co-Chairs are writing to describe the Kuskokwim Chinook salmon declining trend over time and severe conservation concern, which we feel warrents the Board revisting Kuskokwim issues.

In 2010 the Kuskokwim River experienced the lowest estimated total run and lowest spawning escapement of king salmon on record to date. Late subsistence restrictions were imposed to protect tributaries of concern. In 2011, the Kuskokwim River experienced the second lowest estimated total run and spawning escapement of king salmon. The Kwethluk and Tuluksak rivers did not meet king salmon sustainable escapement goals for the fourth and fifth consecutive years, respectively. The George River did not meet its escapement goal in 2011, nor had the escapement goal been met in three of the previous four years. Only one tributary (of four with weir based escapement goals), achieved the escapement goal in 2011. Pre-season actions were taken on those tributaries experiencing chronic low returns. In-season, a late three-day subsistence closure to protect tributaries was followed by a Federal Management Action which closed subsistence salmon fishing within the Federal Conservation Unit for an additional three days.

In 2012, the Kuskokwim River experience a new lowest return on record with an preliminary estimated return of Chinook. Escapement objectives were generally achieved but at significant impact to subsistence harvest. The subsistence harvest of Chinook were the lowest on record of about 20,000 (about 1/4 of the average subsistence harvest). In 2012 there were 35 days of restrictions including 12 continuous days of closure, and a significant reduction of subsistence harvest. On September 13, 2012, the Acting U.S. Secretary of Commerce Rebecca Blank declared a commercial fisheries disaster for the Kuskokwim River Chinook salmon for 2011-2012 in response to extremely low returns. For the 2013, a new drainage-wide escapement goal of 65,000-120,000 Chinook was established based on a Kuskokwim Chinook salmon run reconstruction. This new goal is much lower than the average escapement of about 150,000 Chinook. Escapement goals for the tributaries—the George, Kogrukluk, and Kwethuk Rivers—were reduced to be in proportion with new drainage wide goal and the Tuluksak escapement goal was eliminated.

In 2013, Chinook escapement could very well be by far the lowest Chinook escapement on record. The Bethel Test Fishery was by far the lowest on record. Not a single weir based tributary escapement goal was met for Chinook salmon nor is it likely that the drainage-wide escapement goal will have been met. The drainagewide escaepement could be as low as half of the lower end of the escapement goal. Furthermore, all but one tributary had the lowest escapement on record. The Kogrukluk River, the largest Chinook producer on the Kuskokwim, had a preliminary escapement estimate that was 35%

of the lower end of the escapement goal range. The Takona River saw less than 100 Chinook salmon this year on the spawning grounds. Pre-season tributary restrictions were implemented similar to 2011 and 2012 and late subsistence gear restrictions were imposed. The Working Group called an Emergency meeting to impose restrictions and a post-season meeting to develop solutions to the king salmon crisis.

The Working Group met on August 27 to address the record low escapements observed in 2013 and to discuss all of our potential conservation tools. A summary of the August 27th Working Group meeting with management options is attached. Many of the management options suggested may require additional regulatory measures. Several middle river tribes have signed formal resolutions calling for conservation measures and were discussed at the August 27th meeting. Additional resolutions have been signed since the Working Group meeting and additional tribal meetings have been called for in late September. Resolutions from the Village of Lower Kalskag, Native Village of Chuathbaluk, Native Village of Napaimute and Kuskokwim Native Association are calling for a federal take over by the U.S. Fish and Wildlife Service if no action is taken by fisheries manager before the 2014 season.

The Working Group will continue discussions of management options with stakeholders throughout the winter. Given the level of conservation concern from tribes and stakeholder groups, which has reached the point of calling for Federal Special Action, the Working Group Co-Chairs are requesting the the Alaska Board of Fisheries support the ACR submitted by Bering Sea Fisherman's Association and schedule time for Kuskokwim conservation issues for the spring 2014. This will allow time to develop better conservation tools for the 2014 season and preventing another disasterous Chinook escapement to sustain our salmon resources for future generations.

Sincerely,

Beverly Hoffman
KRSMWG co-chair
543-3239
bev@kuskofish.com

Lamont Albertson
KRSMWG co-chair
675-4380
trout@svic.net

Fritz Charles
KRSMWG co-chair
545-1259

Mark Leary
KRSMWG co-chair
545-2877
napaimute@gci.net

Casie Stockdale
KRSMWG co-chair
543-7341
cstockdale@avcp.org

KUSKOKWIM RIVER SALMON MANAGEMENT WORKING GROUP

MEETING SUMMARY WITH REQUEST FOR COMMENT

August 27, 2013

The Kuskokwim River Salmon Management Working Group met on August 27, 2013 to discuss potential solutions to address the record low escapements observed in 2013 and the allocation issues described by middle and upper river communities. This document is a meeting summary with a request to comment on the draft mission statement for the Working Group as well as the management recommendations.

The following draft mission statement was proposed and discussed:

> ***The Mission of the Kuskokwim Salmon Working Group is to promote the sustainability of our salmon populations for the People of the entire Kuskokwim River from it's mouth to the headwaters. We recognize the importance of salmon to all user groups, including, in order of priority: Subsistence fishers, Commercial fishers, and Sports Fishers. We also recognize that the ultimate priority is the salmon themselves and that ensuring adequate escapement must take the highest priority above all user groups.***

Working Group members recommended presenting the draft mission statement to communities and tribes for further input (the Fish & Wildlife Service will help distribute it as they visit numerous villages in the coming months).

A resulting 20 recommendations were described as possible solutions to address the Chinook crisis and to better manage the Kuskokwim king salmon run. Positive and negative aspects of many of the recommendations were discussed. Working Group members pointed out that solutions would probably involve a combination of two or more of the recommendations and would require the involvement of all stakeholders (i.e., the agencies and the fishers). These recommendations followed by a brief summary of positive and negative aspects discussed are being made available to the public in a separate Excel file; the positives and negatives are limited to those discussed at the meeting and may not be complete. Public input on recommendations is being sought.

RECOMMENDATIONS

1. Starting the season closed to Chinook fishing and open when the data tells us that the abundance is adequate.
2. Starting the season on a fishing schedule.
3. Gear Restrictions a. Mesh Size b. Net length c. Depth d. Set Net Only e. Dip nets
4. Addressing Quality of Escapement
5. Voluntary Reductions
6. Attaining more than an advisory role
7. Limiting to Federally Qualified Users (rural residents)
8. Addressing Choke Points
9. Permits Systems
10. Permit System for Bethel only
11. Close king salmon fishing for 5 years.
12. Stop all commercial fishing on the Kuskokwim
13. Establishing quotas based on a percent of the number of fish present.
14. Schedules for the Lower River Only
15. Combine a fishing schedule with gear restrictions.
16. Tier II
17. Establish Amounts Necessary for Subsistence (ANS) for the Lower, Middle, and Upper River rather than one ANS for the whole river.
18. Adopt an Optimum Escapement Goal
19. Establish an Inriver Goal
20. Use of the Elders Fishery

Additional recommendations: The Working Group voted to submit a letter to the North Pacific Fisheries Management Council to describe the Chinook declines on the Kuskokwim and ask the Council to continue to reduce Chinook bycatch.

Additionally the Working Group is seeking a volunteer among Working Group members to testify before the NPFMC at the October meeting in Anchorage.

Please send comment or resolutions to the Working Group Co-Chairs by email or contact a Co-Chair. The most valuable part of your comments is the rational. Please provide an explanation for your position including details such as pros, cons and feasibility about each management strategy. You may use the format in the attached table to describe comment on the current recommendation or to add additional recommendations.

Sincerely,

Beverly Hoffman
KRSMWG co-chair
543-3239
bev@kuskofish.com

Lamont Albertson
KRSMWG co-chair
675-4380
trout@svic.net

Fritz Charles
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Mark Leary
KRSMWG co-chair
545-2877
napaimute@gci.net

Casie Stockdale
KRSMWG co-chair
543-7341
cstockdale@avcp.org

Note: This summary was reviewed by the Working Group Co-Chairs and was reviews by a Working Group member who reviewed the summary against an audio recording of the meeting.

Recommendation	Pro	Con	Discussions
1. Starting the season closed and then open when the data tells us that the abundance is adequate to meet escapement.	• Lessens the risk of taking action too late to meet escapement • Better chance of meeting minimum escapement • Protects early fish bound for headwaters • Errs on the side of conservation for the kings	• Has the potential to lessen the Bethel Test Fish too's ability to project escapement (the current model assumes average subsistence harvest) • May limit opportunity on sheefish • Risks missed opportunity • May miss early drying weather	Mixed feelings. Called for in resolution from the Lower Kalskag and Chuathbaluk. The Working Group will seek further public input.
2. Starting the season on a fishing schedule.	• Allows for more equitable harvest along the river • People like schedules but don't like short notice • Can take into account densities of fish and how difficult it is to fish in that area	• Past windows schedule didn't reduce harvest • Increases the number of people on the river at the same time (combat fishing) • Takes a lot of work and planning to develop fair and equitable schedule that works along the river.	Some support. A suggestion was to combine a schedule with gear restrictions to be effective.
3.Gear Restrictions			
a. Mesh Size	• 6" mesh harvests Chinook across the spectrum of size classes – addresses quality of escapement concerns • Effective conservation measure for Chinook when chum and sockeye are present	• Not an effective conservation measure in the beginning of season when there's primarily Chinook present because 6" harvests more kings • Not everyone has a 6" mesh	Some Support.
b. Net length	• Shorter nets would let some fish go by (allow to make it up river) while providing opportunity • Easier for people to adjust net length		Some Support.
c. Depth	• May let some fish and large fish to make it up river while providing opportunity	• There are some very deep areas on the river (ex. mouth) that would make it very difficult to fish • Hardship for those who don't have that size net	
d. Set Net Only	• Allows mid river fish to pass and make it up river while providing opportunity • Allows for harvest of mixed species • Traditional method of fishing	• Not all areas have set net sites especially near Bethel with large population	Some support. Recommend taking to communities to determine where set nets are not a gear option.
e. Dip nets	• Selective and give the option to release kings alive • Can control the number harvested • Maybe allow for commercial harvest on other species while live releasing kings	• Unsure if possible in strong tidally influenced areas • A lot of work and not efficient	More discussion needed.
4. Addressing Quality of Escapement Definition: Refers to a decline in the size, age, and/or sex ratio which translates into a decline in productivity. In other words, larger female have more eggs leading to more fish. Update from ADFG: There is a paper coming out from ADFG that describes a decline in the size of Chinook salmon statewide. The last few years on the Kuskokwim we have seen more age 4 fish and fewer age 5 fish.			Options for addressing? • Mesh size restrictions • Use of fish wheels with liv boxes to release females
5. Voluntary Reductions	• Self imposed • People can adjust to weather and harvesting how much you can handle in a day	• Despite outreach efforts by the Working Group, it hasn't resulting in decreased harvest • What if there's just not enough fish to go around	Some support. Many felt th didn't work included in form resolutions submitted by mi river tribes.
6. Attaining more than an advisory role	• People may be more accepting of regulations • Worked in to other Co-management systems		Some support. No formal motion. Suggestions to appe to State and Federal

Recommendation	Pro	Con	Discussions
7. Limiting to Federally Qualified Users (rural residents)	• Means will be no commercial fishing until lifted • Intended to limit the number of people fishing; hence the number of kings harvested	• Savings are likely minimal • Explained by Federal Inseason Manager limiting fishing to rural residents does not stop non-rural residents from taking fish home that was caught by relatives or other rural residents. i.e. no savings. • Means there will be no commercial fishing • Federal managers do not have the staff or capacity to manage • The Working Group is an advisor to the State not the Federal Government	Recommended by formal resolution by the Village of Lower Kalskag and the Native Village of Chuathbaluk.
8. Addressing Choke Points			Formal recommendation was to work with the tribal councils in Bethel, Oscarville, Napaskiak and surrounding area to address the choke points in the Oscarville/Napaskiak area and the Joe Pete's drift.
9. Permits Systems	• Limit the number of fishers • Limits the number of fish harvested • More control and ability to manage		
10. Permit System for Bethel only			
11.5 year closure for kings	• Moratoriums worked for geese and moose.		
12. Stop all commercial fishing on the Kuskokwim			
13. Establishing quotas based on a percent of fish present.			
14. Schedule Lower River Only			
15. Combine a fishing schedule with gear restrictions.			
16. Tier II			
17. Establish Amounts Necessary for Subsistence for Lower, Middle, Upper River	•Addresses middle and upriver allocation concerns	• Does not address the problem in season - is only a report card after the season	
18. Adopt an Optimum Escapement Goal (OEG)	•Allow more kings to pass Bethel (above the ADFG adopted drainagewide goal)	• That additional fish are not available for subsistence but are allocated to escapement	
19. Establish an Inriver Goal	•May address allocation issue by allowing more kings past Bethel that's above what's need for escapement to ensure adequate subsistence harvest in middle/upper communities	• Difficulty managing for that • Difficulty in determining that number	
20.Use of the Elders Fishery			

FAX TRANSMITTAL SHEET

TO: Board Support
FAX: 907-465-6094

Date: September 25, 2013

From: Casie Stockdale

Re: Public Comment regarding ACR#13

Number of pages: 6 including cover

The following are a collection of resolutions shared to date. I am submitting them as comment in reference to ACR#13.

Village of Lower Kalskag
PO Box 27
Lower Kalskag, AK 99626
NEW Phone #: (907) 471-2300 Fax #: (907) 471-2378
Email: village_of_lower_ta@yahoo.com

Resolution 13-008

A RESOLUTION TO ENSURE THE LONG TERM SUSTAINABILITY OF CHINOOK SALMON STOCKS AND PROVIDE FOR A RESONABLE OPPORTUNITY TO MEET OUR MEMBERS SUBSISTENCE NEEDS WE REQUEST THAT THE ADF&G COMMERCIAL FISHERIES DIVISION AND THE USFWS INSEASON FEDERAL MANAGERS FOR FISHERIES ON THE KUSKOKWIM RIVER TAKE SIGNIFICANT CONSERVATION MEASURES PRIOR TO THE BEGINNING OF THE 2014 CHINOOK SALMON FISHING SEASON

WHEREAS, The trend of low abundance and non-achievement of escapement objectives on the Kuskokwim River for Chinook salmon brings to question the long term sustainability and health of the population; and

WHEREAS, The voluntary conservation efforts by subsistence fishermen have not been successful to the point of reducing harvest to meet escapement objectives; and

WHEREAS, The management tools used for pre-season forecasting and in-season run assessment along with the conservation actions taken in 2013 proved inadequate to manage the fishery and achieve the established escapement objectives; and

WHEREAS, The majority of subsistence users in the mid and upper Kuskokwim River were unable to meet their Chinook harvest needs despite exercising due diligence;

NOW THEREFORE BE IT RESOLVED THAT, The Village of Lower Kalskag request that Fisheries Managers on the Kuskokwim River enact significant restriction and or complete closures on the Chinook salmon subsistence fishery as a pre-season action until such a time that it is highly probable that established escapement objectives will be met, and

THEREFORE BE IT FURTHER RESOLVED THAT, Should no action be taken by Fisheries Managers with regards to this request that a special action request will be submitted to the US Fish and Wildlife Office of Subsistence Management requesting 1) the subsistence fishery be limited to only Federally Qualified Users of the Kuskokwim region, and 2) the pre-season actions requesting herein be immediately implemented.

BE IT FURTHER RESOLVED THAT, The Village of Lower Kalskag also request closing the two Kuskokwim River choke points downriver for the whole 2014 season, which are located at:

- Oscarville/Napaskiak
- Joe Pete's

CERTIFICATION

The foregoing resolution was passed and approved by a poll vote of the Village of Lower Kalskag Tribal Council, in which the vote 5 Yes, 0 No, 0 absent, and 0 abstaining; this 19th day of August, 2013.

Nastasia Levi – President

Anita Williams – Secretary

P.O. Box 1501
Bethel, AK. 99559
Ph (907)543-2887(Bet.)/(907)222-5058 or 222-4014(Nap.)
(907) 545-2577 (Cell)
Email napalmute@gci.net
Website www.napalmute.org

Resolution 13-06

A RESOLUTION FROM THE NATIVE VILLAGE OF NAPAIMUTE IN SUPPORT OF KUSKOKWIM NATIVE ASSOCIATION (KNA) RESOLUTION 001-2013 REQUESTING THAT THE ALASKA DEPARTMENT OF FISH AND GAME COMMERCIAL FISHERIES DIVISION AND THE UNITED STATES FISH AND WILDLIFE IN SEASON MANAGERS TAKE SIGNIFICANT CONSERVATION MEASURES PRIOR TO THE BEGINNING OF THE 2014 KING (CHINOOK) SALMON FISHING SEASON TO ENSURE THE LONG TERM SUSTAINABILITY OF KING (CHINOOK) SALMON STOCKS ON THE KUSKOKWIM RIVER AND TO PROVIDE FOR A REASONABLE OPPORTUNITY TO MEET THE AMOUNT NEEDED FOR SUBSISTENCE IN THE MIDDLE AND UPPER KUSKOKWIM

WHEREAS: The trend of low abundance and non-achievement of escapement objectives on the Kuskokwim River for King salmon brings into question the long term sustainability and health of the population; and

WHEREAS: The voluntary conservation efforts by subsistence fishers have not been successful to the point of reducing harvest to meet escapement objectives; and

WHEREAS: The management tools used for pre-season forecasting and in-season run assessment along with conservation actions taken in 2013 proved inadequate to manage the fishery and achieve the established escapement objectives; and

WHEREAS: The majority of subsistence fishers in the Middle and Upper Kuskokwim River were unable to meet their King salmon harvest needs despite exercising due diligence;

NOW THEREFORE BE IT RESOLVED: That the Native Village of Napaimute supports KNA's request that fisheries managers, both State and Federal, on the Kuskokwim River enact significant conservation measures such as complete/partial closures, gear restrictions, etc. as a pre-season action in 2014 until such a time that it becomes highly probable that established escapement goals will be met; and

BE IT FURTHER RESOLVED: That should no action be taken by the fisheries managers with regards to this request a special action request will be submitted to the U.S. Fish and Wildlife Office of Subsistence Management requesting: 1) the subsistence fishery be limited to only Federally Qualified Users of the Kuskokwim Region and 2) the pre-season actions aforementioned be immediately implemented.

CERTIFICATION:

The foregoing resolution was passed at a duly convened meeting of the Napaimute Traditional Council on August 16, 2013 by a vote of 4 in favor, 0 opposed, and 0 abstaining.

Aaron Wellington 9/3/2013 — President — Date

[signature] 8/29/2013 — Secretary — Date

Kuskokwim Native Association
Resolution NO. 001-2013

A JOINT RESOLUTION FROM THE KUSKOKWIM NATIVE ASSOCIATION AND THE UNDERSIGNED ORGANIZATIONS. TO ENSURE THE LONG TERM SUSTAINABILITY OF CHINOOK SALMON STOCKS AND PROVIDE FOR A REASONABLE OPPORTUNITY TO MEET OUR MEMBERS SUBSISTANCE NEEDS WE REQUEST THAT THE ADF&G COMMERICAL FISHERIES DIVISION AND THE USFWS INSEASON FEDERAL MANAGERS FOR FISHERIES ON THE KUSKOKWIM RIVER TAKE SIGNIFICANT CONSERVATION MEASURES PRIOR TO THE BEGINNING OF THE 2014 CHINOOK SALMON FISHING SEASON.

WHEREAS: The trend of low abundance and non-achievement of escapement objectives on the Kuskokwim River for Chinook salmon brings to question the long term sustainability and health of the population; and

WHEREAS: The voluntary conservation efforts by subsistence fishermen have not been successful to the point of reducing harvest to meet escapement objectives; and

WHEREAS: The management tools used for pre-season forecasting and in-season run assessment along with the conservation actions taken in 2013 proved inadequate to manage the fishery and achieve the established escapement objectives; and

WHEREAS: The majority of subsistence users in the mid and upper Kuskokwim River were unable to meet their Chinook harvest needs despite exercising due diligence;

NOW THERFORE IT BE RESOLVED: That the Kuskokwim Native Association along with the Villages and organizations referred to in this resolution request that Fisheries Managers on the Kuskokwim River enact significant restriction and or complete closures on the Chinook salmon subsistence fishery as a preseason action until such a time that it is highly probable that established escapement objectives will be met; and

THEREFORE BE IT FURTHER RESOLVED: That should no action be taken by Fisheries Managers with regards to this request that a special action request will be submitted to the US Fish and Wildlife Office of Subsistence Management requesting 1) the subsistence fishery be limited to only Federally Qualified Users of the Kuskokwim region, and 2) the pre-season actions requesting herein be immediately implemented.

This will certify the foregoing resolution was approved by the undersigned organizations on the following dates:

Kuskokwim Native Assoc. Organization [signature] Chairman Marie [signature] Secretary 9-11-13 Date

_____ Organization _____ Chairman _____ Secretary _____ Date

_____ Organization _____ Chairman _____ Secretary _____ Date

Native Village of Chuathbaluk
Chuathbaluk Traditional Council
#1 Teen Center Trail
Chuathbaluk, Alaska 99557-8999

Resolution # 2013-24

A RESOLUTION OF THE NATIVE VILLAGE OF CHUATHBALUK, CHUATHBALUK TRADITIONAL COUNCIL, TO EMBRACE THE TRADITIONAL VALUES OF OUR ELDERS BY RESPECTING OUR RESOURCES AND ENACTING CONSERVATION PRACTICES THAT ENSURES EQUITABLE MANAGEMENT OF SAID RESOURCES

WHEREAS, The Chuathbaluk Traditional Council is an Alaska Native Village recognized as an Indian tribe pursuant to the previous Public Law 93-638; Indian Self Determination and Education Assistance Act (88 Stat. 2203, 25 U.S.C. 450 et seq), also pursuant to Public Law 95-608, Indian Child Welfare Act, 25 CFR 23.26; and

WHEREAS, the Chuathbaluk Traditional Council is the duly authorized governing body for the Native Village of Chuathbaluk; and

WHEREAS, the Chuathbaluk Traditional Council is the federally- recognized Tribal Government of the Native Village of Chuathbaluk; and

WHEREAS, the Chuathbaluk Traditional Council identifies that the low abundance and non-achievement of escapement goals for the Kuskokwim River Chinook Fisheries creates a long term sustainability crises; and

WHEREAS, the Chuathbaluk Traditional Council recognizes that the voluntary conservation efforts by various Middle and Upriver Kuskokwim Tribes as well as some Lower River Fishers, has not in and of itself been a successful tool towards meeting escapement objectives; and

WHEREAS, the Chuathbaluk Traditional recognizes that the management tools used for pre-season forecasting and in-season Chinook Salmon run assessment along with the regulations implemented during the 2012 and 2013 season, were inadequate to manage the fishery and failed to achieve the established escapement objectives; and

WHEREAS, the Chuathbaluk Traditional Council strongly believes in the teaching of our elders which specifically addresses the respect for the initial Chinook push as those fish who swim the farthest, the fastest, are the largest, and the strongest breeding stock and as such should be allowed to pass through unmolested; and

WHEREAS, the Federally Recognized Tribe, Native Village of Chuathbaluk were unable to meet their Chinook subsistence needs over the last few years; and

WHEREAS, the Federally Recognized Tribe, Native Village of Chuathbaluk has jurisdiction over its resources be them transient or residential; and

NOW THEREFORE BE IT RESOLVED, the Nation of the Native Village of Chuathbaluk requests that the State of Alaska and the Nation of the United States of America, US Federal Government, enact the significant restrictions including a of complete pre-season closure on the 2014 Chinook Salmon of the Kuskokwim River Basin, as an action until such time as it is highly probable that the established escapement goal is met; and

THEREFORE BE IT FURTHER RESOLVED, that the Nation of the Native Village of Chuathbaluk emphatically states if no action is taken by the State of Alaska or the US Federal Government regarding this subsistence crisis by January 2014, a **Special Action** will be submitted to the US Fish and Wildlife Office of Subsistence Management requesting: 1.) The subsistence fishery be limited to only Federally Qualified users of the Kuskokwim Region; 2.) When opened, that the net length at the choke points of Oscarville/Napaskiak and Joe Petes be limited significantly; 3.) A pre-season closure in effect until escapement is met; 4.) That if and when other regulations i.e., quotas, are placed on the Chinook Fisheries, an equitable distribution as it relates to Village SES factors and family average food security numbers are used as significant factors in the quota determination; and

THEREFORE BE IT FURTHER RESOLVED, the Nation of the Native Village of Chuathbaluk requests on-going Government to Government meetings with the US Fish and Wildlife need to continue until this crisis is resolved.

PASSED AND APPROVED BY A QUORUM OF THE CHUATHBALUK TRADITIONAL COUNCIL THIS DAY OF August 22, 2013 with:

5 **members voting yes,**
0 **members voting no,**
0 **members abstaining, and**
0 **members absent.**

ATTEST:

Robert Golley, Chuathbaluk Traditional Council Chairman

Robert Harroll

Chignik Lagoon Village Council
P.O. Box 9
Chignik Lagoon, AK 99565
(907)840-2281
Fax 840-2217

September 25, 2013

Alaska Board of Fisheries
Boards Support Section
P.O. Box 115526
1255 W. 8th St.
Juneau, AK 99811-5526

Subject: Comment Letter for the October 9 - 10 Board of Fisheries work session regarding the Review of Chignik's Second Run (Chignik Lake) Escapement Goal

Dear Chairman Karl Johnstone and other BOF Members:

We request that the Board of Fisheries respectfully request that the department include in their review of Chignik escapement goals consideration of local concerns about the health of the second (Chignik Lake) run.

The first and second runs used to be of more equal strength and at some points in the past the second run was the more valuable and dependable of the two but it now seems that the second run is consistently weak and appears to be getting progressively weaker still. We would like to see management changed so as to more nearly balance the strength of the two runs in the future. As it is there is an appearance that the first run is being favored over the second run.

Many things have been changing over the years so that it is unclear to what extent the weakness of the second run as compared to the first run over time has been caused by nature, in-season management practices, the wrong escapement goal, changes in fishing patterns, or some combination of these. An analysis of the nature aspect of these factors would be beneficial to consider especially since the predator usage of salmon is at its peak during mid to end of the season. Subsistence usage should be equally considered during that time period.

We do know that changes at Black Lake have caused juvenile salmon to cease over wintering in Black Lake and to consistently drop down to rear in Chignik Lake causing increased competition between Black Lake and Chignik Lake sockeye.

We do know that past concerns that the department has had about over grazing in the fresh water reering habitat lead the department to target the lower end of the escapement goals.

We do know that because the Black Lake and Chignik Lake runs overlap during significant time periods that the methodology for separating the runs is important and the accuracy of the method used has changed significantly over time.

In summary, we are very concerned about the weakness of our second run here in Chignik and we would like to see the department explain how they are going to manage the run so that in the future our second run has a good chance of recovering its historical strength.

Sincerely,

Clemens Grunert, Jr., President, CLVC

Michael B. Rearden
1284 Lake Shore Drive
Homer, Alaska 99603
September 22, 2013

Alaska Department of Fish and Game
Boards Support Section
P.O. Box 115526
Juneau, Alaska 99811-5526

Dear Sirs:

I have been associated with YK Delta fisheries for over 40 years. I have fished commercially and for subsistence. I was the federal (FWS) in-season manager of the subsistence fishery on the Kuskokwim River for several years. I have a keen interest in the conservation and management of fisheries on the YK Delta.

I encourage you to accept the Agenda Change Request (ACR) you recently received to consider Kuskokwim salmon management out of your normal schedule.

I understand your time is very limited, and that you receive requests from many entities. Please be assured this ACR is not about allocation, politics, nor anyone's specific demands for more of the resource. It is about conservation of a very important and unique Alaskan salmon run.

There were significant problems with the management of the king salmon fishery on the Kuskokwim in 2013. Managers (both federal and state) allowed liberal subsistence harvest. As a result, we have the lowest escapement of king salmon on record in most of the Kuskokwim tributaries. This is particularly troubling considering that managers across the remainder of Alaska managed king salmon very conservatively in light of several years of poor run performance.

In addition there is growing evidence that low spawner returns in recent years are producing low recruitment. This may be a significant change in Kuskokwim king salmon production dynamics, and certainly suggests a more conservative management approach should be taken.

If this approach to management of Kuskokwim king salmon continues, significant, long-term degradation of this fishery may occur. I'm urging you to schedule time to insure that conservative safeguards are established prior to next season.

Sincerely,

Michael B. Rearden

Cordova District Fishermen United
PO Box 939 | 509 First Street | Cordova, AK 99574
phone: (907) 424 3447 | fax. (907) 424 3430
web: www.cdfu.org | email: cdfu@ak.net

September 24, 2013

Chairman Karl Johnstone
Alaska Board of Fisheries
Board Support Section PO Box 115526
Juneau, AK 99811

RE: ACR 6 Establish a statewide regulation to allow use of dip net gear in place of commercial gillnet and seine gear for salmon stock conservation purposes.

Dear Chairman Johnstone and Board of Fisheries Members,

Cordova District Fishermen United (CDFU), as one of the longest standing fishermen's organizations in the State, represents over 500 fishers and their families in the Copper River. As always, we appreciate the opportunity to submit comment for consideration by Board Members.

CDFU *opposes* the statewide application of substitute gear as proposed in ACR 6.

We believe the suggested use of dip net gear does not practically apply in the open-ocean Copper River commercial fishery district, is not necessary for conservation purposes in our region and ultimately would not meet the goals as intended by the author with statewide application.

With the uncertainty of Chinook returns to systems around the state, we can appreciate the author's intent, however this one size fits all approach may not be the most practical for statewide implementation.

Thank you,

Alexis Cooper, Executive Director
Cordova District Fishermen United

Cordova District Fishermen United
PO Box 939 | 509 First Street | Cordova, AK 99574
phone: (907) 424 3447 | fax. (907) 424 3430
web: www.cdfu.org | email: cdfu@ak.net

March 14, 2013

Chairman Karl Johnstone
Alaska Board of Fisheries
Board Support Section PO Box 115526
Juneau, AK 99811

RE: Criteria for Board Generated Proposals

Dear Chairman Johnstone and Board of Fisheries Members,

Cordova District Fishermen United (CDFU) thanks the Board for soliciting public comment on the criteria for Board generated proposals. CDFU supports the development of criteria for Board generated proposals and suggests that the board consider and take input on said criteria for a full board cycle before adopting final policy.

Regarding the draft criteria, CDFU recommends striking "allocation concerns" from the list of examples of "in the public's best interest. We believe that allocated proposals are always inherently in one group's best interest at the expense of another group's best interest, and should not be generated by the board or taken up out of cycle in the absence of new information found by the board to be compelling.

Additionally, CDFU recommends the adoption of a policy that Board generated proposals shall not be generated from an Agenda Change Request proposal that has been denied or has not been acted upon. It seems logical that if a proposal fails to meet the criteria for an Agenda Change Request, it simply should not be taken up out of cycle.

CDFU, as one of the longest standing fishermen's organizations in the State, represents over 800 fishers and their families in the Prince William Sound region. As always, we appreciate the opportunity to comment and look forward participating in the further development of the criteria for Board Generated Proposals.

Sincerely,

Curt Herschleb Vice President,
Cordova District Fishermen United

Cooperative
Yukon Delta Fisheries Developmental Association (YDFDA)
and ADF&G

District 1 Purse Seine Test Fishery

Prepared for

Yukon Delta Fisheries Development Association

by

Gene J. Sandone[1]

September 2013

[1] Gene J. Sandone is a Senior Research Biologist with G.Sandone Consulting, LLC, Wasilla Alaska

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ABSTRACT

During the 2013 summer and fall fishing seasons, Yukon Delta Fisheries Development Association (YDFDA) and Alaska Department of Fish and Game (ADF&G) cooperatively conducted a test fishery, using purse seine type gear within District 1 of the Yukon Area. The major goal of the testing was to evaluate the purse seine gear and to develop procedures that would facilitate the live release of Chinook salmon. YDFDA operated the purse seine gear under general conditions stipulated by ADF&G regarding gear type and time of operation. Beach seines with web of monofilament and seine webbing (18-count threat) were modified to fish as purse seines by either attaching carabineers to the lead line or attaching purse rings, with and without bridals, to the lead line by carabineers or zip ties. Additionally, a purse seine, with 12-count threat web, was also used in this test fishery. A total of 553 chum salmon were captured in 67 sets. The vast majority of these fish, 73%, were captured during the lone sampling period during the summer season, July 2-6, in 22 sets. Catches of chum salmon were directly related to the number of chum salmon in the river, as indicated by sonar counts attributed to chum salmon. Dropping river water levels dramatically increased the number of snags encountered during the fall season, post July 15, sampling period. We concluded that: 1. chum salmon can be harvested in commercial quantities using purse seine gear in District 1 of the Lower Yukon Area; 2. Chinook salmon captured in the purse seine could be released alive into the river by documenting that nearly all chum salmon and larger non-target fish species captured could easily be released without harm; and 3. small non-target fish species, such as Bering cisco and small female pink salmon, were prone to be gilled and could not be released alive back into the river. We suspect that these gilled fish could be used for subsistence purposes or sold to Kwik'pak fisheries. If the Alaska Board of Fisheries passes a regulation to allow purse seines to commercially harvest summer chum salmon in 2014, a documentary video will be constructed to inform fishers of the procedures already established that would facilitate the live release of Chinook salmon.

INTRODUCTION

Chinook and Summer Chum Salmon Stock Status and Management

The Yukon Area includes all waters of Alaska within the Yukon River drainage and coastal waters from Point Romanof, northeast of Kotlik, to the Naskonat Peninsula. For management purposes, the Yukon Area is divided into 7 districts and 10 subdistricts (Figure 1). The Yukon River Chinook salmon *Oncorhynchus tshawytscha* run precipitously declined in 1998, increased through the mid 2000s, and then declined again to very low levels starting in 2008. From the beginning of the decline, 1998, through 2007, restrictions were imposed on the Yukon Area directed-Chinook salmon commercial fisheries to bolster the number of Chinook salmon crossing the border into Canada and also arriving on the spawning grounds in Alaskan spawning tributary streams. Starting in 2008, the very low Chinook salmon run necessitated the suspension of the long-standing directed Chinook salmon fishery. The Yukon Area directed Chinook salmon fishery has not been allowed since. Additionally, because of the run timing overlap with Chinook salmon (Figure 2), the directed summer chum salmon gillnet fishery, which has been restricted to gillnets with a maximum stretch mesh size of 6 inches, has been severely curtailed to avoid incidental harvest of Chinook salmon. Further, the sale of incidentally-harvested Chinook salmon was prohibited in 2009, and 2011through 2013 to reduce the harvest of Chinook salmon by deterring commercial fishers from targeting the more valuable Chinook salmon during commercial fishing periods. Although these restrictions have bolstered the number of Chinook salmon entering Canada, border passage commitments to Canada have only been achieved in 2 of the last seven years (2007-2013), 2009 and 2011 JTC 2013; 2013 Eric Newland, ADF&G/CF, Anchorage, personal communication).

The Yukon River Chinook salmon runs have declined to a point that during 2013 ADF&G requested that subsistence fishers reduce their normal subsistence harvest by 75% (Newland and Estensen 2013). During the 2013 season, severe subsistence restrictions were employed throughout the drainage to bolster king salmon escapements and to attempt to meet the agreed upon the minimum escapement of 42,500 king salmon in Canada plus the Canadian share of the TAC (Eric Newland, ADF&G/CF, Anchorage, personal communication). Even with these unprecedented restrictions on subsistence fishing, preliminary data indicates that only 2 escapements goals were achieved within the Alaskan portion of the drainage. However, king salmon escapements to all spawning tributaries within the drainage were substantially below average. Additionally, the preliminary Chinook salmon passage into Canada was 30,725 salmon, the worst since the Eagle sonar monitoring project was initiated in 2005. When compared to the long-term border U.S/Canada JTC passage and escapement database, the preliminary 2013 border passage is only a few fish larger than the worst estimated border passage on record, 30,699, that occurred in 2000 (JTC 2013).

In contrast, recent Yukon River summer chum salmon *O. keta* runs have been above average in run size. Additionally, there has been a renewed market interest in summer chum salmon with relatively high prices paid to the commercial fishers. During the past few years, millions of commercially-harvestable summer chum salmon have passed through the Lower Yukon Area with relatively very few being harvested because of the concern for the very poor runs of Chinook salmon. This foregone harvest has been substantial in recent years, totaling more than 1.0M fish in both 2011 and 2012. Despite new commercial fishing regulations passed by the Alaska Board of Fisheries (BOF), which allowed the use of dipnets, beach seines and shallower and smaller mesh size gillnets (5.5 stretch measure, 30 meshes deep), preliminary estimates indicate that at least 1.6M commercially-available summer chum were passed onto the spawning grounds. This foregone harvest translates into a possible loss to the fishermen of approximately $4.3M in 2013 (Table 1) and $18.0M during the past three years. The preliminary value of the 2013 Lower Yukon Area summer season salmon harvest was approximately $1.7 M (Table 1) and approximately $4.2M for the past 3-years. In contrast, the annual value of the commercial harvests for the 10-year period (1988-1997) before the initial decline of the Chinook salmon in 1998, when king salmon were commercially harvested and sold, ranged from a low of $3.6M in 1996 to $10.6M in 1992. The 5-year average values for this time period was $6.6M (1988-1992) and $4.8M (1993-1997) (Figure 3). The most recent 5-year (2009-2013) average value of this fishery is $1.0M (Figure 3). Further, the 2013 estimated spawning escapement of over 2.6M fish (Table 1) may have negative implications to the summer chum salmon runs four and five years hence (Sandone unpublished).

Summer Season Harvest and Management Strategies

During the summer season, the Chinook salmon and summer chum salmon runs overlap. Usually, the Chinook salmon run is earlier than the summer chum salmon run but the degree of overlap between the two runs is variable from year to year. Based on the mid-50% of the run, defined by the first and third quartile day, the degree of overlap varied from nearly complete overlap in 1998, 1999, 2010, 2012, and 2013 to minimal overlap in 2003 (Figure 2).

Although the 2012 incidental harvest of Chinook salmon in the directed District 1 and 2 commercial summer chum salmon fishery was not sold; was relatively small in numbers; and mainly consists of young and small male salmon, the incidental harvest from the small gillnet commercial fishery is unacceptable. Of the 2,421 Chinook salmon incidentally-harvested in 2012 (ADF&G 2012), samples taken by ADF&G indicated that 76% were age-5 salmon or younger and 70% were male (JTC 2012). The 2011 incidental Chinook salmon harvest was composed of slightly younger fish, 79% were age-5 or younger, and a slightly higher percentage of male salmon, 82% (ADF&G 2011). To minimize both the incidental harvest of Chinook salmon and Canadian-origin Chinook salmon, a basic management strategy

was developed in 2010 to allow directed, commercial summer chum salmon fishery openings with gillnets of 6 inch stretch mesh or smaller, only after the third quartile day of the Chinook salmon run had passed through the fishery area (Steve Hayes, ADF&G/CF, Anchorage, personal communication). This management strategy was employed in 2010, resulting in very few summer chum salmon being commercially harvested because of coincidental run timing of the Chinook and summer chum salmon (Figure 2). A more surgical management approach was developed in 2011 with summer chum salmon-directed fisheries occurring when and where the Chinook salmon passage was minimal in the different mouths of the Yukon River. In 2011 and in 2012, most of the Chinook salmon migrated through the North and Middle Mouths of the Yukon during the latter half of the Chinook salmon run, allowing some commercial fishing for summer chum salmon to occur in the South Mouth (Figure 4). However, the periods occurred late in the season, were of short duration, and resulted in far fewer fish harvested than would have occurred in a district-wide commercial fishery. District 2 fishermen were disenfranchised during this period because Chinook salmon were present in relatively good numbers within District 2 during that time.

Although most of the commercial fishing occurred late in the run during these years, thousands of king salmon were still incidentally harvested with gillnets. This level of king salmon harvest was deemed unacceptable because of poor king salmon escapements, restrictions on subsistence fisheries, and the failure to meet the commitment to Canada. Additionally, since most of the run had passed through the Lower Yukon Area before commercial fishing commenced, summer chum salmon harvests were very small in relation to the available surplus and run sizes. Accordingly, in addition to the direct monetary loss to the fishermen, fish buyers and processors found it very difficult to maintain markets for summer chum salmon because of the uncertainty surrounding the fishery timing and harvests.

Selective Harvest Gear Regulations and Implementation

During the regulatory scheduled Arctic-Yukon-Kuskokwim (AYK) Alaska BOF meeting in January 2013, the BOF adopted new commercial fishing regulations for the Yukon River drainage designed to allow commercial fishing for summer chum salmon regardless of the size of the Chinook salmon run. These new regulations were employed to allow for the selective commercial harvest of summer chum salmon, even during times when subsistence fishing closures were implemented to protect Chinook salmon. These new regulations gave ADF&G the authority to allow commercial fishing for chum salmon with dip nets and beach seines with the stipulation that all Chinook salmon be returned to the river alive. Unlike gillnets, the use of dipnets and beach seines allow the live release of king salmon when king conservation measures are necessary.

These new gear options were specifically intended to allow for additional summer chum directed commercial fishing opportunity while allowing for the release of incidentally caught Chinook salmon. Harvest results indicate that dipnets accounted for 34% of the harvest in District 1, 70% in District 2 and 50% for District 1 and 2 combined (Table 2). High water during the summer season effectively precluded the use of beach seines in 2013. Additionally, 928 king salmon were caught and released with dipnet gear type. Subsequent fishing with the new gillnet gear, 5.5 inch mesh, 30 meshes deep gillnets, accounted for 36% of the District 1 harvest, while only catching 88 Chinook salmon (Table 2). This gear was not used in the District 2 fishery. Finally, near the end of the summer chum run, the traditional maximum 6-inch mesh, 50 mesh deep gillnet was allowed for 5 periods each in District 1 and 2. This traditional gear type accounted for 31% and 30% of the District 1 and 2 summer chum salmon harvests, respectively. Chinook salmon incidental harvest in this gear type totaled 301 salmon. The total incidental Chinook salmon totaled 381 salmon. In previous years, the incidental Chinook salmon numbered in the thousands of fish.

Beach seines were employed by only a very few fishers on very few occasions because of the lack of beach sites caused by the high water in the Lower Yukon Area during the spring and early summer of

2013. Dipnets and beach seines were allowed 12 hours a day for 15 and 17 consecutive days in District 1 and 2, respectively. With the addition of gillnet gear, consecutive commercial fishing days were extended to 23 days in District 1 and 18 days in District 2. However, the associated commercial exploitation rate was dismal. Although the target drainage-wide commercial exploitation rate was over 65%, the actual drainage-wide exploitation rate was only 15% (Table 1). While District 1 and District 2 harvested about 29% of their allocation, which translates into a commercial exploitation rate of 12%, the upper river harvested only about 14% of their allocation with an associated commercial exploitation rate of approximately 3% (Table 1). Although the exploitation rate using these new gear types was dismal, their use prevented a complete failure of the commercial summer chum salmon fishery. Note that the harvest of summer chum salmon with the new gear types, dipnets, beach seines, and the 5.5-inch/30mesh deep gillnets, accounted for 70% of the total combined District 1 and 2 harvests.

In addition to the obvious positive effects an increased fishing time and associated harvest have on the people of the area and the stocks of interest, other positive factors may have included the return of fishers and fishers' family to fish camp because of the daily commercial fishing activity (Jack Schultheis, General Manager Kwik'pak Fisheries, Emmonak, AK, personal communication), less social problems and less complaints from the area to government agencies (Billy Charles, Emmonak commercial and subsistence fisherman, Emmonak, AK., personal communications).

The fishing power of the Lower Yukon Area fleet, which consists of approximately 700 commercial permit holders, in conjunction with the very large capacity of the lone processor, are adequate to harvest and process the entire surplus of commercially-available Yukon River summer chum salmon. Although gillnets can efficiently take this large harvestable surplus, it is not being taken because king salmon are incidentally taken in the gillnet fishery. Despite nearly continuous fishing with dipnets, beach seines, and gillnets during the 2013 summer season, only a small portion of the total harvestable surplus was taken. Therefore, we are continuing our efforts to test other selective gear types and develop and propose new regulations that will aid in the harvest of substantial quantities of summer chum while not affecting the king salmon population.

Development of New Selective Harvest Gear

In a region heavily affected by declining Chinook salmon runs and limited opportunities for income, other than commercial fishing, new gear and fishing methods that would target summer chum salmon while minimizing negative impacts on Chinook salmon are essential. Therefore, we tested the use of purse seines in the Lower Yukon Area as a viable alternative to gillnets to selectively harvest summer chum salmon without negatively affecting the Chinook salmon run. Purse seines allow the selective harvest of salmon by encircling them with a net while leaving them free-swimming in the purse bag. Fish can be identified and released by type or species with a minimum amount of handling. We believe that dipnets will continue to be used, but the poor efficiency of that gear type will continue to only take a small portion of the harvestable surplus. Beach seines, in some years when the water is low, may provide additional opportunity for commercial fishers to harvest a larger portion of the harvestable surplus. But the river is usually high for most of the summer season, and by regulation, the beach seine must be set from and to the beach. The scarcity of beaches during the summer season precludes their use in most years.

We believe that the first hurdle in gaining acceptance of new selective fishing gear types for commercial use in the Lower Yukon area is to conduct a test fishery, where the salmon catch by purse seine is documented at suitable locations within District 1. We suspect that possible large catches of summer chum salmon can be made with the proper purse seine gear. We also believe that most non-target fish species can be released without harm.

Selective Fishing

Other countries and states have already established that selective fishing is the only way to avoid complete shutdown of some fisheries. Selective fishing is defined as the ability to avoid known, non-target species and stocks or, if encountered, to release them alive and unharmed. There are two complementary elements to selective fishing: avoidance and release. Harvest management techniques to avoid non-target species or stocks are mainly carried out by establishing when and where harvesting is permitted and implementing time and area restrictions. Fishing selectively also requires modifications to existing gear and fishing methods, or the introduction of alternative fishing gear and technology. (Fisheries and Oceans Canada 1999; WDFW 2013a). Because of the coincidental run timing of the Yukon River Chinook and summer chum salmon runs, we believe that there are few to no additional options available to avoid the Chinook salmon while attempting to harvest summer chum salmon. Therefore, we are convinced that we need to develop fish capture methods that will harvest large numbers of summer chum salmon that will also allow the live release of the non-target Chinook salmon.

Research into selective fisheries started in Canada in 1998 (Fisheries and Oceans Canada 1999). Similar to the concern over the chronically poor Chinook salmon runs in the Yukon River, Canada's concerns over critical coho salmon stocks in Canada's Pacific fisheries threatened to shut down the Pacific salmon fisheries in 1998 (Fisheries and Oceans Canada, 2001a). In response, managers in Fisheries and Oceans Canada's Pacific Region developed a strategy to harvest available abundances of large, healthy stocks of salmon of all species while ensuring conservation of smaller, threatened stocks. They stated that the answer, not just for salmon, but groundfish, invertebrates, seabirds, marine mammals, and all other species at risk of over-exploitation, is the widespread adoption of selective fishing techniques (Fisheries and Oceans Canada 2001a). In 2001, Canada developed a policy for selective fishing in Canada's Pacific fisheries (Fisheries and Oceans Canada 2001a). The intent of Canada's selective fishing program is to develop fishing gear and methods first through scientific experimentation, moving to demonstration-level fisheries, then on to implementing new techniques as part of regular fisheries (Fisheries and Oceans Canada 2002).

The Washington Department of Fish and Wildlife started testing selective fishing methods with tangle nets and box traps in 2000 (Fisheries and Oceans Canada 2001b). In 2009, WDFW initiated a commercial selective gear implementation project in the lower Columbia River testing a purse seine, beach seine and trap net with the goal of harvesting hatchery salmon while releasing the wild salmon, many of which are endangered species (WDFW 2009). This program was expanded in 2010 to include five purse seines, six beach seines and two trap nets (WDFW 2013b). The research effort involved the catch and release of the fish. Results indicate that fewer than 25 out of the 25,000 fish captured suffered direct mortality, about one-tenth of a percent of the catch (Josh Hollowats, Washington Department of Fish and Wildlife, Fishery Biologist, personal communication; The Columbia Basin Fish and Wildlife Bulletin 2010). They concluded that both purse and beach seines proved to be effective capture methods, with purse seines being the most effective of the two gear types (The Columbia Basin Fish and Wildlife Bulletin 2010). They also noted that the fish captured were in excellent condition, regardless of gear type, with no immediate mortalities being observed. The Bonneville Power Administration developed a video entitled: ***The Friendliest Catch: Coleville Confederated Tribes' Selective Salmon Harvest,*** (http://www.youtube.com/watch?v=Ir8QiLqPhjY) which documents the harvest of hatchery salmon while live releasing the wild fish (Bonneville Power Administration 2010).

Recently, Washington's representatives to the Columbia River reform workgroup stated that they support the using pilot beach seine and purse seine fisheries during fall 2013 in the commercial fishery (The Columbian 2012). In a related decision, The Washington Fish and Wildlife Commission unanimously adopted a policy that establishes a new management framework for salmon fisheries on the lower

Columbia River. The changes are based on recommendations made by representatives from the Washington commission and its Oregon counterpart and comments received during the extensive public review. The Oregon Fish and Wildlife Commission approved a similar management framework for Columbia River fisheries in December 2012. The policies adopted by both states include plans to phase out the use of gillnets by 2017 in non-tribal fisheries on the Columbia below Bonneville Dam (WDFW 2013b).

The situation on the Columbia River appears very much like the situation facing summer season gillnet fishers on the Yukon River and other fisheries within the state of Alaska. The fishery will either be shut down or capture methods aimed at selectively harvesting the target species while allowing for the live release of the non-target species must be developed, demonstrated, and employed. Unfortunately, the idea of testing purse seines as a selective fishing gear type in the Lower Yukon River was not considered by YDFDA until nearly all of the Chinook salmon had migrated out of the Lower River in early July. Therefore, the dual objective to determine if a purse seine could be used within the Yukon River to selectively harvest summer chum salmon while live-releasing Chinook salmon unharmed could only be partially evaluated. After it was determined that chum salmon could be caught with purse seine gear, the major goal of the testing changed to evaluation of the gear and the development of procedures that would facilitate the live release of Chinook salmon.

The specific objectives of the test purse seine fishery were to:

1) Evaluate the effectiveness of purse seine gear with regard to catching chum salmon;
2) Determine if fish caught in the purse seine could be released alive;
3) Learn how to use the gear effectively through repetitive use; and
4) Determine if the gear needs to be modified and if possible, modify accordingly.

METHODS

Overview

Three different purse seines were tested in the Yukon River during the periods: July 2 - 6; July 17 - 21; and August 7 - 9. Two purse seines were modified beach seines and one was a specifically designed purse seine to be used in the lower Yukon River. The web of one of the modified beach seines consisted of monofilament; the other consisted of heavy, 18-thread count, seine web. The later modified beach seine was cut from a net that was originally 75 fathoms in length. The web of the riverine-designed purse seine consisted of lighter 12-thread count seine webbing. All gear was 50-fathoms long and consisted of 3.5-inch mesh web. Both modified beach seines were 100 meshes deep; the purse seine was 150 meshes deep. The lead lines of the modified beach seines were heavy, 140/100; the lead line of the purse seine was lighter, 110/100. In a subsequent attempt to shallow the purse seine from 150 meshes to 100 meshes because of dropping water levels during the fall sampling periods, an error was made in re-hanging the web onto the lead line that caused the purse seine to be inoperable. Therefore, the purse seine was only used for the period July 17-21.

Purse rings and the method of attachment for the modified beach seines varied. Initially, 4.5 inch carabineers or snap rings were attached directly to the lead lines of the modified beach seines to act as purse rings. Later, 6-inch diameter neutral buoyant plastic purse rings attached to an 18-inch bridal were secured to the modified beach seines with the 4.5 inch carabineers. Later in the season, these bridals were attached to the lead line with zip ties. In an effort to reduce the wrapping of the web in the rings and lead

line, the distance between the lead line and the purse rings was eliminated and the 6-inch diameter plastic rings were attached directly to the lead line, without the bridal, with zip ties. Finally, 2-inch stainless steel rings with 12-inch bridals were attached to the seine web beach seine with zip ties. In another attempt to reduce the seine web being wrapped in the rings and lead lines, the distance between the purse rings and the lead line was also reduce. The 12-inch bridal was folded and then attached to the lead line with zip ties, effectively reducing the distance between the lead line and the ring to 6 inches. The purse seine was equipped with 2 inch by 5/16 inch stainless steel rings attached to a 12-inch bridal. The bridal was professionally tied onto the lead line.

Yellow polypropylene rope, a floating purse line, and a sinking purse line were used as a purse line for the modified beach seines. A sinking purse line was used for the purse seine. Because of the scarcity of salmon during most periods, all sets were drifted from 10 to 20 minutes before the set was closed.

Two sites within Statistical Area 334-13 of District 1 were used in this test fishery. One site was located along the south bank of the river, just upriver from Sunshine Bay (Figure 4). The other site was located along the south side of a prominent sand bar, near the boundary of Statistical Area 334-12 and 334-13 (Figure 4)

Purse Seine Gear and Fishing Methods by Sampling Period

July 2-6

During the time period, all sets were conducted with the modified beach seine with monofilament webbing at a site along the south bank of the river, immediately upriver from Sunshine Bay (Figure 4). The beach seine was effectively used as a purse seine by attaching 4.5 inch snap rings or carabineers to the lead line at approximately 6-foot intervals. An approximate 330-foot polypropylene rope was threaded through each carabineer to act as the purse line. All sets were conducted with three boats. Two boats were used in the setting of the seine; one boat surveyed the operations as a safety precaution.

On July 6 YDFDA received notification, via email, from ADF&G to cease test purse seining activities with seines made with monofilament web. ADF&G also relayed that since there were very few Chinook salmon in the lower river they felt it was no longer necessary to test the gear to see if Chinook salmon could be released because few if any Chinook salmon would be captured. ADF&G stated that, …*since the original objectives of the test fishery have either already been evaluated or are no longer relevant (at this point in the run), the test fishing operations with monofilament should not proceed further.* ADF&G refused to allow test purse seining activities with the monofilament web purse seine because purse seine web made from monofilament was prohibited by regulation (*5 AAC 39.170.*). However, ADF&G indicated that they may be willing to allow test fishing activities continue with purse seines constructed with seine webbing.

July 17, 19-21

In mid July, YDFDA requested and received permission from ADF&G to commence test fishing with purse seines with web constructed from seine material during the fall season to further evaluate the purse seine gear and to develop procedures that would allow the capture and retention of chum salmon while allowing the live release of non-target salmon species. Test fishing was conducted with two boats since we did not believe that there was a safety issue in using a purse seine in the river. Most sets were made at the original sampling site immediately upriver from Sunshine Bay (Figure 4). However, in an effort to make sets on the north bank (right bank) of the river, a site within Statistical Area 334-13, near the boundary of Statistical Area 334-12 on the south side of a prominent sandbar was also used (Figure 4).

On July 17, YDFDA commenced test fishing exclusively with a purse seine within District 1 with the purse seine specifically constructed for the riverine environment. Purse rings were 2-inch by 5/16-inch stainless steel ring attached to a 12-inch bridal. These rings and bridals were tied onto the lead line at 10-foot intervals. The purse seine web was constructed of 12-thread count seine web, having a stretch mesh of 3.5-inch that was 150 meshes deep. Test purse seining was not conducted on July 18 because of a scheduled commercial fishery which we didn't want to interfere with. Testing resumed on July 18 and continued through July 21.

August 6-8

Alaska Board of Fisheries member, Mr. John Jensen, visited Emmonak on August 5-7, specifically to observe the test purse seine activities, the commercial fishery, and the fish processing facilities. Additionally, Mr. Jensen expressed interests in observing the testing of the purse seine with web constructed from monofilament. Because of his interest in this specific purse seine, ADF&G allowed the testing of this purse seine on August 6 and 7.

Because of the error made in re-hanging the web on the purse seine, only the modified beach seines were fished during this period. Initially, 6-inch neutral buoyant plastic purse rings with 18-inch bridals were attached to each modified beach seine with 4.5-inch carabineers. On August 7, we replaced the carabineers with zip ties as a method of securing the bridals to the lead line. On August 8, the 6-inch rings were attached directly to the lead line of the modified beach seine with seine web with zip ties. Later that day, the 6-inch plastic rings were removed and the 2-inch stainless steel purse rings with 12-inch bridals were attached to the lead line. In an attempt to reduce the distance between the lead line and the purse ring, the bridal was folded so that the effective distance was reduced by half.

During this period, most of the sets were made on the north bank site near in Statistical Area 334-13 near the boundary of Statistical Area 334-12 (Figure 4).

RESULTS

Objective 1: Evaluate the effectiveness of purse seine gear with regard to catching chum salmon

A total of 73 sets were made with the purse seines and modified beach seines during the three sampling periods. A total of 553 chum salmon were captured during 67 of the sets where data were obtained. Catches for daily test purse seine efforts ranged from 126 on July 3 in 4 sets to 1 chum salmon caught on August 7 in 7 sets (Table 3). Generally, the number of chum salmon caught in purse seine sets in District 1 was dependent on the number of chum salmon in the river ($p=0.01005$). Relatively high numbers of fish in the river during the end of the summer season, (July 2-6), as indicated by the associated sonar counts attributed to summer chum salmon, along with very low numbers of fall chum salmon in the river during the fall season sampling periods (July 17, 19-21 and August 6-9), are reflected in the purse seine catches (Figure 5). The vast majority, 73%, of the total chum salmon catch were taken during the July 2-6 period. The two sampling periods during the fall season, July 17, 19-21 and August accounted for 19% and 8% of the total chum salmon catch, respectively.

July 2-6

During the July 6-this period, 22 purse seine sets were made. The catch included 405 summer chum salmon, 2 Chinook salmon, 42 Bering cisco *Coregonus laurettae*, 3 pink salmon *O. gorbuscha*, 1 burbot *Lota lota* , and 1 northern pike *Esox lucius* (Table 3). Most of the Bering cisco and about half of the pink salmon were gilled in the web of the seine. These gilled fish were retained for subsistence use because they were not expected to live. One Chinook salmon was misidentified as a chum salmon because of its small size and was not immediately attended to. It was also wrapped in the folds of the webbing near the rings and leads. If immediately identified correctly, this fish would have been attended to immediately and probably could have been released alive. This Chinook salmon was captured during the first set with the modified purse seine when we had little knowledge of procedures that would result in live release of non-target fish. All other fish, including the chum salmon and the lone Chinook salmon, were free swimming in the bag of the purse. Although some fish momentarily got their fins and their operculum caught in the web of the net, we believe it did not have a significant negative effect on the viability of the fish. The chum salmon were retained for sale while the northern pike and burbot were released alive. The Bering cisco and pink salmon were given to residents for subsistence use.

July 17, 19-21

During the July 17, 19-21 period, 21 purse seine sets were made. The catch included 104 fall chum salmon, 12 Bering cisco, 8 pink salmon, 2 burbot, 1 long nose sucker *Catostomus catostomus* and 1 humpback whitefish *Coregonus pidschian*. While most of the Bering cisco were gilled, only 2 pink salmon were gilled. All other fish were free swimming in the purse bag. The gilled fish were retained for subsistence use. The fall chums were retained for sale; all non-target fish that were not gilled were released alive.

August 6-8

Catch information for August 6 was lost. Therefore, catch data from this day were not included in the totals for this period. Subjective assessment of the catch from this day was that the catch was small and would not substantially affect the results from this period.

During the period August 6-8, a total of 30 purse seine sets were made. Of this total, catch data were available for the 23 sets that were conducted during the period August 7-9. Total catch during these days included: 44 chum salmon; 3 Bering cisco; 1 coho salmon *O. kisutch* ; and 1 Arctic char *Salvelinus alpinus*. A total of 37 fall chum and 1 coho salmon 2 Being cisco and 1 Arctic char were released alive. Seven chum salmon were sold; 1 gilled Bering cisco was taken for subsistence purposes.

Objective 2: Determine if fish caught in the purse seine could be released alive

The major objective in the development of new gear for the harvest of the abundant summer chum salmon within the Lower Yukon Area is to be able to release the Chinook salmon alive. In the numerous sets made this year in the test fishery, only a few fish could not be released alive. These fish were either small non-salmon fish that were gilled, such as Bering cisco, or small female pink salmon or a very small number of salmon that were wrapped in the webbing near the bottom of the purse seine when the purse rings and leads were brought aboard the boat. However, most of the salmon wrapped in the webbing that could not be untangled and release in a timely manner were caught in the first few sets when procedures were being developed. After repetitive sets, procedures were developed that would tend to ensure that the web did not get tangled with the lead and rings, allowing nearly all captured salmon to be released alive. The incidence of fish trapped near the bottom of the net decreased dramatically as we continued to test the gear. Indeed, during the final days of testing, nearly all salmon caught in the purse seine were released alive. Those that were not released alive were sold even though they could have been released alive. Even with the monofilament-web purse seine, which was tested during the July 2-6 period and then again

on August 6 and 7 for demonstration purposes, nearly all salmon were observed free swimming in the purse bag and could be released alive. Other fish as well, including northern pike, burbot, Bering cisco, and Arctic char were observed free swimming in the bag of the purse seine and were released alive. The lone Chinook salmon that was killed, was misidentified as a chum salmon because of its small size, and secondarily was caught within the folds of the bottom of the purse seine webbing in the first set of the test fishery. Subsequent development of procedures mainly alleviated the tangling of web and fish at the bottom of the net in the lead line and purse rings. Additionally, the addition of a dip net to capture the fish as the purse bag was reduced, eliminated handling the fish by hand. Fish were easily transferred to the dip net and released over the corks. Further, even a few salmon even escaped over the corks by themselves. Based on these observations, we strongly suspect that fishers would be able to live release all Chinook salmon incidentally caught in the purse seine.

Objective 3: Learn how to use the gear effectively through repetitive use

Meeting this objective took numerous sets to develop procedures that would catch as many salmon as possible but also allow the live release of the not-target salmon. The repetitive use of the various purse seines aided in the development of procedures that would ultimately ensure minimal or no harm to non-target fish species, particularly Chinook salmon, while ensuring the harvest of the abundant summer chum salmon. Smaller fish, such as Bering cisco and to a lesser extent, small, female pink salmon were prone to be gilled in the mesh. These smaller fish were not released but retained because they did not have a good chance for survival if released.

July 2- 6

During this period, all sets were made in one location, within Stat Area 334-13, located on the south bank of the Yukon River, just upriver from Sunshine Bay (Figure 4). This was done to familiarize the crew with the operation of the purse seine, develop procedures in a consistent and methodically manner and to reduce the probability of snagging on debris on the bottom of the river. Additionally, only the monofilament web modified beach seine was used during this period (Table 3).

During the first day of operations, the net was set from the onshore boat or auxiliary boat, while the other boat or the seine boat, motored in reverse and pulled the seine out of the seine boat. The net was set similarly to setting a drift gillnet perpendicular to shore. After the net was strung out, a bridal that was attached to the cork and lead line of each end of the net was attached to the front of each boat. The boats then motored slowly downstream in reverse until the decision was made to close the set. The shape of the net usually took on a horseshoe configuration, with the onshore boat farther upriver. When it became apparent the fish were hitting the net from the bobbing of the corks, we closed the net. When closing the net, the boats, still moving in reverse, were directed toward each other. Generally, the seine boat, or offshore boat, moved toward the auxiliary, or onshore, boat. The bridal attached to the auxiliary boat was transferred to the seine boat and the process of pursing the rings and leads into the seine boat were initiated. After each end of the cork line was secured in the boat, the rings were pursed by hand by two or more crew members pulling in the purse line on each side of the net. Both ends of the purse line were brought in on the port side of the boat. After the rings were pursed, the rings and leads were pulled into the boat by hand over the port side of the boat. After the rings and leads were pulled into the boat, both ends of the net from cork line to lead line were also brought into the boat and secured. The outboard was kept running in reverse so that the corks did not crowd the boat or get caught in the propeller. As the purse seine bag was being reduced by the collection of the corks and web in the boat, the fish were captured by hand and were either brought into the boat or released. After the entire net was in the boat, it was transferred into the auxiliary boat and then back to the seine boat with the corks and leads separated to facilitate resetting the seine.

Procedures were modified and improved during subsequent days during this period. Procedures regarding setting, drifting, and closing the purse seine basically remained unchanged. However, a new method in pursing the net was employed with some success but also had some disadvantages. After the net was closed, the ends of the cork lines were secured together with a carabineer. Both ends of the purse line were secured to the front of the boat and the boat was motored in reverse away from the set. As the boat was moved backwards under power in reverse, the rings were pursed together, closing the bottom of the net. We termed this method of pursing the rings as the Axel Pull method, after the inventor. After the rings were pursed, we motored toward the set, stripping the ends of the purse line into the boat as we advanced. Upon reaching the set, the carabineer securing the end corks was removed; each end of the net were secured in the boat, with one end tied to the port side near the stern of the boat and the bunt end of the seine tied to the starboard side of the boat near the front of the boat. The rings and leads were brought into the boat by hand over the port side and then pulled further over to the starboard side of the boat. We ensured that each side of the net from cork line to lead line, along with some associated web, was brought into the boat. At this point, the net ceased to fish and all of the fish in the seine were trapped. The purse line was pulled through the rings and coiled near the stern of the boat on the starboard side. This facilitated the resetting of the net without restacking the net.

Although alleviating much of the arduous work that was involved in pursing the rings by hand, using this boat-assisted method of pursing the rings, however, resulted in the seine web getting tangled in the lead line and the rings. We suspected that the tangle was caused by the carabineers being too close to the lead line and the net being dragged on the bottom when the purse line was closed. After a few more attempts, we temporarily abandoned this method to purse the rings and reverted to the arduous process of pursing the rings and lifting the rings and leads into the boat by hand.

Another improvement was developed in association with reducing the bag of the purse seine. Instead of bringing in both ends of the seine into the boat simultaneously, only the cork line, and associated web, that was attached to the stern of the boat was brought into the boat. In this procedure, to avoid fish getting tangled in the web, the web was brought into the boat first, with the corks following. The web near the bunt end was the last web that was brought into the boat, followed by the corks. The fish were dipped out of the purse bag as the bag was reduced. As the corks and associated web were being brought into the boat, the corks were stacked along the port side of the boat and as far back toward the stern as possible. Stacking the corks in this manner on the port stern side of the boat with the leads and rings stacked on the starboard front side of the boat facilitated the resetting of the purse seine.

During this time, the river was relatively high and snags did not substantially hamper test fishing activities. Out of the 22 sets made during this period, only 3 sets were hampered by snags (Table 3). Indeed, the crew thought that the 100 mesh deep net was probably too shallow, allowing many fish to escape under the leads.

July 17, 19-21

During this period, only the purse seine (12-threat count web) was tested (Table 3). Test purse seine sets were conducted at two locations within Statistical Area 334-13 within District 1. In addition to the original site upriver from Sunshine Bay, an additional site was added to the testing locations. This site was located on the south side of a sandbar near the boundary line between Statistical Areas 334-12 and 334-13 (Figure 4). This site was also used by ADF&G as a index site for the Lower Yukon gillnet test fishery (Mick Leach, ADF&G/CF, Emmonak, AK, personal communication). .

During this period, we tested a different approach to pursing the rings. We developed a modified Axel Pull using the auxiliary boat to purse the rings by pulling the purse line over the seine boat. Recall with the original Axel pull, we attached the end corks together with a carabineer, and then attached the purse

lines to the front of the work boat and motored backward. When the rings were cinched together, we motored back toward the net, stripping in the purse line as we approached the net. With this modification we attach the corks to the seine boat, brought the purse line over the gunnels of the seine boat and then attach each end of the purse line to the auxiliary boat. The auxiliary boat was then motored backward away from the seine boat. This action pursed the rings together. A guide for the purse line to move through was set up in the seine boat by using two pieces of aluminum pipe that were attached to the gunnels of the seine boat. When the rings were pursed, the crew in the seine boat signaled to the auxiliary boat driver to stop pulling and to move toward the seine boat. The purse lines are collected in the auxiliary boat as that boat motored toward the seine boat. The purse lines are then transferred to the seine boat. The crew in the seine boat lifts the rings and the leads into the boat, trapping the fish. After several sets, we suspected that the leads and rings were coming off the bottom as the auxiliary boat motored away from the seine boat, pulling the purse line. We observed that the seine was also being pulled downriver because the auxiliary boat also pulled the seine boat which was attached to the seine by the cork line. Accordingly, we suspended this method of pursing the rings.

We also attempted to maintain the pursed seine in the current on one side of the seine boat by using the auxiliary boat. The auxiliary boat was attached to the seine boat by a line and was maneuvered to keep the seine boat upstream of the purse seine bag. This allowed the seine to be downstream of the seine boat and facilitated bringing in the seine into the boat and picking the fish out of the seine. However, we discovered that motoring the seine boat backwards in a tight circle also provides the same or similar advantage.

The stage of the Yukon River was much lower than the previous sampling period, with many obvious and not so obvious sandbars. After a few sets, it became apparent that the net depth was too deep for the river conditions during this period. However, to continue test fishing and developing procedures we used this seine because no other seine was available for use. As stated above, ADF&G prohibited the use of the monofilament web modified purse seine and the modified beach seine with 18-thread count seine webbing had not yet been cut down to 50 fathoms from its original 75 fathom length. We strongly suspected that the 75 fathom beach seine was too heavy to safely use out of the 20-foot to 22-foot boats that were employed in this test fishery. Because we did not have an alternative, we continued to use the purse seine for testing.

Out of the 21 purse seine sets during this period, over half, 11, were substantially and negatively affected by catching snags on the bottom (Table 3). Nearly all the snags were brought up with the lead line and purse rings.

August 6-9

During this period, sets were made in both previously described test locations (Figure 4) with both types of modified beach seines (Table 3).

During this period major improvement were made to the one-boat operation methodology and the attachment of the rings to the lead lines. Recall that during the one-boat operation previously described, we motored the boat, in reverse, toward the onshore end of the purse line while the off shore end of the seine was attached to the front of the boat. With this method, the onshore end of the net was free floating in the current. The improved procedure involved setting the seine from onshore to offshore, in an upstream direction, but nearly perpendicular to shore. After the seine was set, an approximate 55 fathom line was attached to the offshore cork line and was deployed from the boat as the boat moves forward toward the onshore cork line. As the boat arrived at the onshore float line, the end float line was picked up from the water and the cork line was tied to the port side of the boat. The boat was slowly motored in reverse downstream and parallel to shore. The length of rope attached to the off shore float line was

gathered in as it became slack. The net maintained the horse pattern as it floated and pulled downriver by the boat. The purse seine was closed by simply pulling the line attached to the offshore cork line towards the boat. At this point, the boat could have easily been moved toward the offshore portion of the net, but we found that it was not necessary. A single crewmember can pull the line attached to the offshore portion of the net towards the boat quite easily. While the line was being pulled toward the boat, the onshore end of the cork line was tied to front of the boat on the starboard side. When the offshore cork line reached the boat, it was tied to the rear port side of the boat. The boat remained facing upstream and the net, which was upstream of the boat, floated along with the current. At this point the rings were pursed and, along with the lead line, brought into the boat to terminate fishing.

Also during this period, we experimented with both types of rings, 6-inch plastic and 2.5 inch stainless steel, both types of purse lines, floating and sinking, and various lengths of bridals that attach the rings to the lead lines. We found that the combination of a sinking purse line, a very short or no bridal, and the 2.5 inch stainless steel rings resulted in the web not being wrapped in the rings and lead line.

Because of the decreasing depth of the Yukon River, operation of the purse seine continued to be hampered by snags. Out of the 16 purse seine sets conducted on August 8 and 9, 14 were negatively affected by snags.

CONCLUSIONS, DISCUSSION AND RECOMMENDATIONS

Conclusions:

The results of this study support the following major conclusions:

1. Purse seine gear can be safely operated in the riverine environment of the Lower Yukon Area;
2. Purse seine gear can be used to selectively harvest chum salmon while allowing Chinook salmon to be released alive based on the ability to release captured chum salmon and other large resident fish species; and.
3. Small non-target fish, such as Bering cisco and small female pink salmon, were prone to be gilled in the 3.5 inch web. A proportion of these captured species could not be released back to the river alive. .

Discussion:

Selective harvest techniques have been and are continually being tested and employed in numerous on fisheries in Canada, Washington, and Oregon. While many commercial fishing regulations in Alaska have been designed to primarily harvest one species of fish and avoid other species by regulating mesh size, net length, net depth, in conjunction with fishing time, area, etc, there are several that mandate the live release of the non-target fish species in times of non-target species conservation, or when escapements are not anticipated to be met for the non-target species, or when a quota has been reached. One particular regulation allows a purse seine fishery for sockeye salmon in the Inner Karluk, Outer Karluk, Inner Ayakulik, and Outer Ayakulik Sections to occur but requires that all Chinook salmon, 28 inches or greater in length, taken incidentally in the commercial salmon fishery be returned to the water unharmed (5 AAC 18.395 (i)). Additionally, in the SE Alaska troll fishery, a person may not have king salmon on board a salmon troll vessel from which the person is fishing for other salmon species (5 AAC 29.100(j)). Although not stated, this regulation implies the live release of Chinook salmon if caught. In addition to

the selective commercial fishing regulations passed by the BOF during the last AYK BOF meeting that require the immediate live release of Chinook salmon in Lower Yukon Area commercial dipnet and beach seine fisheries (5 AAC 05.362 (k), additional selective fishing regulations that require the live release of the non-target salmon species in Upper Yukon Area Districts have also been previously passed by the BOF. These regulations were also designed to harvest the target salmon species while allowing the live release of the non-target salmon species in times of non-target species conservation. Specifically, the BOF passed commercial fishing regulations that required the conservation of Chinook salmon while allowing the commercial harvest of the abundant summer chum salmon in: (1) the Anvik River with hand beach seines and hand purse (5 AAC 05.368); and (2) in District 4A and District 6 with modified and attended fish wheels (5 AAC 05.362(j)). In addition to the commercial fishing regulations, the BOF also passed Yukon Area subsistence fishing regulations for the conservation of chum and Chinook salmon by requiring fish wheels to be equipped either live boxes or be closely attended to ensure live release of the non-target salmon species that needed to be conserved (5 AAC 01.220(m),(n). There is also a subsistence fishing regulation that allows the use of dipnets in the Upper Yukon Area for the harvest of the target salmon species that also requires the live release of the non-target salmon species that requires conservation (5 AAC 01.220 (m),(n).

It appears that the state of Alaska, particularly the Yukon Area fisheries may be moving toward species-specific harvests using the release element of selective fishing because of the very low run sizes of the non-target species that need to be conserved that are co-migrating with the target species. Because of the poor runs of Chinook salmon that are currently occurring throughout the state, selective fishing with release of the non-target Chinook salmon may be the solution in some cases rather than shutting down the fisheries. Using a purse seine in the Lower Yukon River commercial fisheries is a unique concept and, in conjunction with other selective fishery measures, may rejuvenate this fishery and the social aspects that revolve around family fishing and fish camps.

Some small non-target fish species, such as Bering cisco and small female pink salmon are prone to being gilled in the 3.5 inch web. In a commercial fishery, these gilled fish could be sold or taken home for subsistence purposes. Kwik'pak fisheries have stated that they would buy all pink salmon and Bering cisco gilled in purse seines (Jack Schultheis, Kwik'pak Fisheries, Emmonak, AK, personal communication). We suggest that the Bering cisco captured and sold in this fishery be subtracted from the fall season commercial quota for this fish species. Another option is to reduce the size of the web mesh. However, this would tend to add weight to the purse seine. Successful operation of a purse seine by small boats in a riverine environment is contingent on the purse seine being light and maneuverable in the current. Adding additional weight to the purse seine could possibly preclude a one-boat operation.

YDFDA submitted and Agenda Change Request to allow purse seine gear as legal gear for commercial fisheries in the Lower Yukon Area in times of Chinook salmon conservation in August 2013. Based on the limited sets that YDFDA made during the abbreviated test purse seine season, we firmly believe that that commercial fishers can catch commercial quantities of summer chum salmon when the fish are present in high numbers in the river and that non-target Chinook salmon could be released with little if any impact to the fish. Building on the successful application of dipnets to the Lower Yukon summer chum salmon fisheries, we believe that purse seines can take the place and likely improve upon the harvests that the beach seines would have taken if water levels were lower during the spring and summer. We further believe that commercial fishers will exceed harvest expectations that may be assumed based on the limited number of sets during the July 2-6 period. As with the dipnet fishery, we believe that harvest expectations will be underestimated mainly because of the ingenuity and problem-solving abilities of the commercial fishers of the area.

Recommendations:

Based upon experiences with the purse seine and the modified purse seine in this past season's test fishery, we recommend that purse seines in the Lower River be at least 50 fathoms in length with a maximum length of 200 fathoms so that fishers could experiment with different size purse seines. We also recommend that a maximum mesh size of 3.5 inches be established. There is an obvioius trade off of mesh size and towing ability because the smaller the mesh size the heavier the net. Since we believe that most fishers would rather fish the purse seine with one boat, the weight of the net is extremely important. Mesh constructed of monofilament would be easier to tow and to manipulate in the current. However, there is a current regulation that prohibits monofilament web in purse seines *5 AAC 39.170***.** Included in the ACR is to allow monofilament web for purse seines used on the Yukon River for reasons of weight and being able to manipulate the seine in the river current. The specific recommendations for Yukon River purse seines are:

1. Length-- At least 50 fathom in length; max length unrestricted or set to 200 fathoms in regulation to allow experimentation by fishers;
2. Web-- Multifilament monofilament or #12 thread seine material;
    a. Maximum of 3.5 inch stretch mesh,
    b. 100 meshes deep; may want to set maximum in regulation to 150 meshes;
3. Rings-- 2 x 5/16 inch stainless steel rings on 6 inch bridals
    a. spaced every 10 feet along the lead line
4. Lead Line-- 75 or 85 pound lead line (a heavier lead line may be necessary with increased water velocity in the spring)
5. Purse Line: ½ inch sinking purse line;
6. Corks: extra large corks spaced every 18 inches (the corks on the beach seine and the purse seine purchased this year are too small and allowed fish to escape over the float line)
7. Cork Line: floating cork line
8. Seine design: a totally rectangular web design. (the webbing on the purse seine YDFDA purchased this year was tapered toward the end of the float line. A totally rectangular web design to minimize the part of the net that would be open to escaping fish when pulling in the rings and lead lines.

Additionally, if the BOF passes a regulation to allow purse seine use in the commercial summer chum salmon fishery in 2014, a training video will be constructed from the various videos taken this year of the test fishery. YDFDA will encourage any commercial fisher to view the video so that they will have some knowledge of the operation of the purse seine that would facilitate live release of non-target fish species.

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Table 1. Preliminary Yukon Area Summer chum salmon run synopsis, 2013.

PRELIMINARY YUKON AREA SUMMER CHUM SALMON RUN SYNOPSIS, 2013		
	Numbers	Proportion
Est. Total Summer Chum Salmon Run	3,200,886	1.000
Targeted Drainage Escapement	1,000,000	0.312
Estimated Subsistence Harvest	115,000	0.036
Targeted Commercial Harvest	2,085,886	0.652
Est. Drainage-wide Escapement	2,600,307	0.812
District 1 and 2 Com. Allocation	1,324,538	0.414
Actual District 1, and 2 Harvest	379,143	0.118
Value of the District 1 & 2 Fishery	$1,721,524	
District 1 and 2 Foregone Com Harvest	945,395	0.295
Foregone revenue to Dist 1 & 2 Fishers	$4,292,626	
Other District Com. Harvests	106,436	0.033
Total Area Foregone Com Harvest	1,600,307	0.500

Table 2. Commercial summer chum salmon harvest summary by gear and District, 2013.

	Chinook salmon		Summer Chum Salmon				
Gear type	Caught and Released	Caught but not sold	Number	Percent	Pounds	Average Weight	Percent Chinook
DISTRICT 1							
BS/DN	300	0	69,967	34%	422,886	6.0	0.4%
GN 5.5	0	88	74,452	36%	447,287	6.0	0.1%
GN 6.0	0	57	63,452	31%	406,858	6.4	0.1%
Sub Total	300	145	207,871	100%	1,277,031	6.1	0.2%
DISTRICT 2							
BS/DN	628	0	119,241	70%	693,176	5.8	0.5%
GN 5.5	0	0	0	0%	0	0.0	0.0%
GN 6.0	0	244	52,031	30%	325,158	6.2	0.5%
Sub Total	628	244	171,272	100%	1,018,334	5.9	0.5%
LOWER YUKON AREA SUBTOTAL							
BS/DN	928	0	189,208	50%	1,116,062	5.9	0.5%
GN 5.5	0	88	74,452	20%	447,287	6.0	0.1%
GN 6.0	0	301	115,483	30%	732,016	6.3	0.3%
Total	928	389	379,143	100%	2,295,365	6.1	0.3%
DISTRICT 4							
FW	99	0	84,592	84%	390,259	4.6	0.1%
FW/GN	1	0	15,907	16%	77,459	4.9	0.0%
Sub Total	100	0	100,499	100%	467,718	4.7	0.1%
DISTRICT 6							
FW	97	0	5,937	100%	36,650	6.0	1.6%
Sub Total	97	0	5,937	100%	36,650	6.0	1.6%
UPPER YUKON AREA SUBTOTAL							
FW	196	0	90,529	85.1%	426,909	4.7	0.2%
FW/GN	1	0	15,907	14.9%	77,459	4.9	0.0%
Total	197	0	106,436	100.0%	504,368	4.7	0.2%
YUKON AREA GRAND TOTAL							
LOWER YUKON	928	389	379,143	78.1%	2,295,365	6.1	0.2%
UPPER YUKON	197	0	106,436	21.9%	504,368	4.7	0.2%
Grand Total	1,125	389	485,579	100.0%	2,799,733	5.8	0.2%

Table 3. Test purse seine information and catch by day, July 2-6, July 17, 19-21, and August 6-8, 2013.

							Total Catch			
Date	Number of sets	net type	web type	net depth (meshes)	purse rings	# of sets hampered by snags	Chum Salmon	Bering Cisco	other fish species	Comments
2-Jul-13	4	50 fathom modified beach seine	monofilament	100	4.5 in. carabineers snapped onto lead line; ~6 ft interval	0	76	3	2 Chinook salmon	2 Chinook salmon caught on the first set; 1 easily released; 1 small Chinook salmon misidentified and killed; leads and rings pulled into the boat by hand;
3-Jul-13	4	50 fathom modified beach seine	monofilament	100	4.5 in. carabineers snapped onto lead line; ~6 ft interval	0	126	11	2 pink salmon	pulled leads and rings into the boat by hand; ADF&G observed the test fish activities; fish removed from the purse seine by dip net
4-Jul-13	3	50 fathom modified beach seine	monofilament	100	4.5 in. carabineers snapped onto lead line; ~6 ft interval	0	55	8	1 northern pike	1 set too far from shore caught 0 fish; pulled leads and rings into the boat by hand;
5-Jul-13	6	50 fathom modified beach seine	monofilament	100	4.5 in. carabineers snapped onto lead line; ~6 ft interval	1	88	6	1 burbot	1 set had lead line over cork line resulting in no fish caught; used the boat to purse the rings on last two sets (Axel Pull);
6-Jul-13	5	50 fathom modified beach seine	monofilament	100	4.5 in. carabineers snapped onto lead line; 6 ft interval	2	60	14	1 pink salmon	successfully employed a one-boat operation; used the Axel Pull method to purse rings; ADF&G suspends purse seine test fishing operations with monofilament webbing
subtotal	22					3	405	42		

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Table 3. (page 2 of 3).

Date	Number of sets	net type	web type	net depth (meshes)	purse rings	# of sets hampered by snags	Chum Salmon	Bering Cisco	other fish species	Comments
17-Jul-13	5	50 fathom purse seine	12-thread count seine material	150	2 in. stainless steel on 12 inch bridal every 10 feet	4	25	4	1 burbot; 1 pink salmon; 1 humpback whitefish	Resumed test fishing activities with net in compliance with ADF&G stipulation. Axel Pull method abandoned after first 3 sets because the web was folded and tangled in the rings and lead line; last two sets rings and leads were brought in by hand.
19-Jul-13	5	50 fathom purse seine	12-thread count seine material	150	2 in. stainless steel on 12 inch bridal; 10 ft interval	1	1	0		good set; appears to be no fish in river; no incidentals; pulled in rings and leads by hand
20-Jul-13	5	50 fathom purse seine	12-thread count seine material	150	2 in. stainless steel on 12 inch bridal; 10 ft interval	2	56	1	1 pink salmon; 1 long nose sucker	on two sets used the auxiliary boat to cinch rings together by bringing the purse line over the seine boat and securing the corks onto the seine boat; seemed to work very well at cinching up the leads.
21-Jul-13	6	50 fathom purse seine	12-thread count seine material	150	2 in. stainless steel on 12 inch bridal; 10 ft interval	4	22	7	7 pink salmon; 1 burbot	after the first 2 sets, abandoned using two boats to cinch rings because leads appeared to be coming off the bottom;
subtotal	21					11	104	12		

-continued-

Table 3. (page 3 of 3).

							Total Catch			
Date	Number of sets	net type	web type	net depth (meshes)	purse rings	# of sets hampered by snags	Chum Salmon	Bering Cisco	other fish species	Comments
6-Aug-13	3	50 fathom purse seine	12-thread count seine material	100	6 inch plastic rings on a 18 inch bridal attached to lead line by 4.5 inch carabineers	NA	NA	NA	NA	test fishing activities observed by BOF member John Jensen and numerous (5) ADF&G staff; 2-boat operation
6-Aug-13	3	50 fathom modified beach seine	monofilament	100	6-inch plastic rings on a 18-inch bridal attached to lead line by 4.5-inch carabineers	NA	NA	NA	NA	test fishing activities observed by BOF member John Jensen and numerous (5) ADF&G staff; 2 boat operation
6-Aug-13	1	50 fathom modified beach seine	monofilament	100	6-inch plastic rings on a 18-inch bridal attached to lead line by 4.5-inch carabineers	NA	NA	NA	NA	test fishing activities observed by BOF member John Jensen and numerous (5) ADF&G staff; 1 boat operation
7-Aug-13	3	50 fathom modified beach seine	monofilament	100	6-inch plastic rings on a 18-inch bridal attached to lead line by zip ties	NA	1	1	1 arctic char	one-boat sets; Axel Pull to cinch rings and lead lines; replaced carabineers with zip ties to attached rings and bridals to lead line
7-Aug-13	3	50 fathom modified beach seine	18-thread count seine material	100	6-inch plastic rings on a 18-inch bridal attached to lead line by zip ties	NA	0	0		one-boat sets; Axel Pull to cinch rings and lead lines
7-Aug-13	1	50 fathom modified beach seine	18-thread count seine material	100	6-inch plastic rings on a 18-inch bridal attached to lead line by zip ties	NA	0	0		two-boat sets; Axel Pull to cinch rings and lead lines;
8-Aug-13	9	50 fathom modified beach seine	18-thread count seine material	100	6-inch plastic rings on a 18-inch bridal attached to lead line by zip ties	8	40	1		Use the Axel Pull and hand method of pursing rings equally; Axel Pull method resulted in web getting tangled in rings and lead lines; ADF&G obverse the test fishing operations
9-Aug-13	3	50 fathom modified beach seine	18-thread count seine material	100	6-inch plastic rings attached directly to lead line with zip ties	3	2			one-boat operation; ADF&G observed the test fishing activities; Axel Pull to cinch rings; web tangled in lead line and rings
9-Aug-13	4	50 fathom modified beach seine	18-thread count seine material	100	2 in. stainless steel rings 6 inches below lead line	3	1	1	1 coho salmon	one-boat operation; ADF&G observed the test fishing activities; Axel Pull to cinch rings; web less tangled in lead line and rings
subtotal	30					14	44	3		
Total	73					28	553	57		

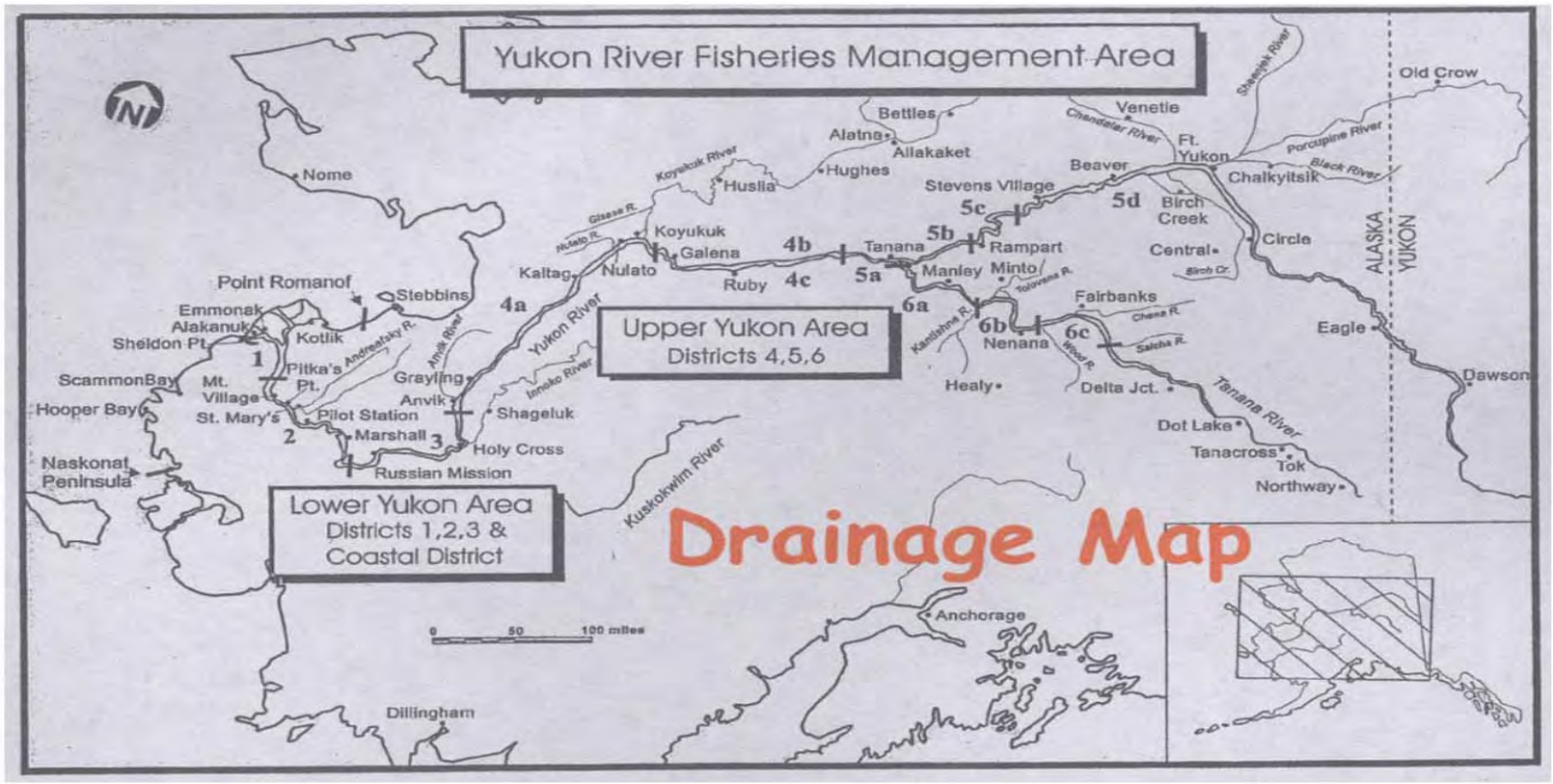

Figure 1. Map of the Yukon River drainage in Alaska showing management units.

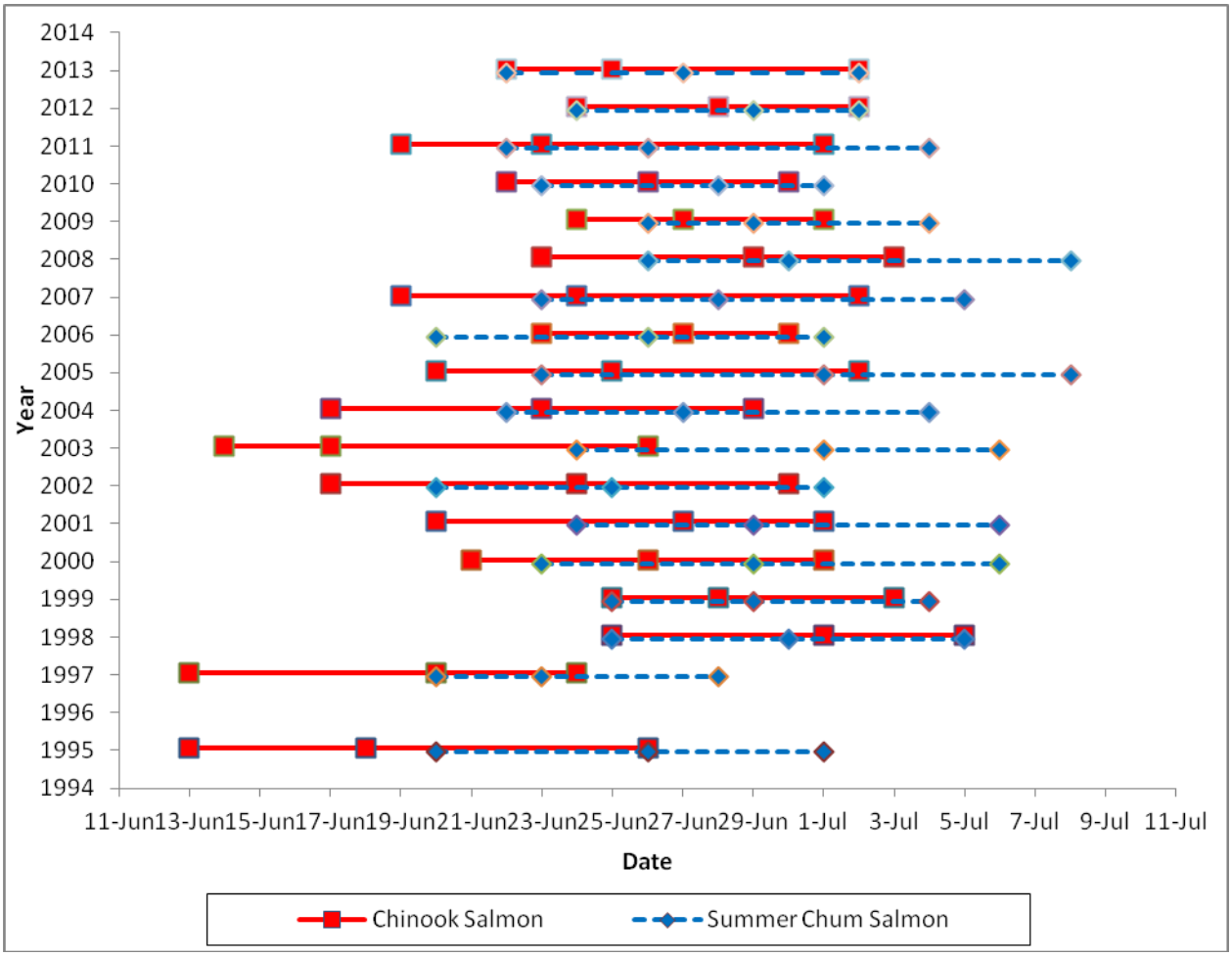

Figure 2. Annual run timing comparisons of Yukon River Chinook and summer chum salmon, as indicated by the mid-50% of each annual salmon run. Markers indicate quartile days. Based on Pilot Station sonar counts attributed to Chinook and summer chum salmon, 1995, 1997-2013.

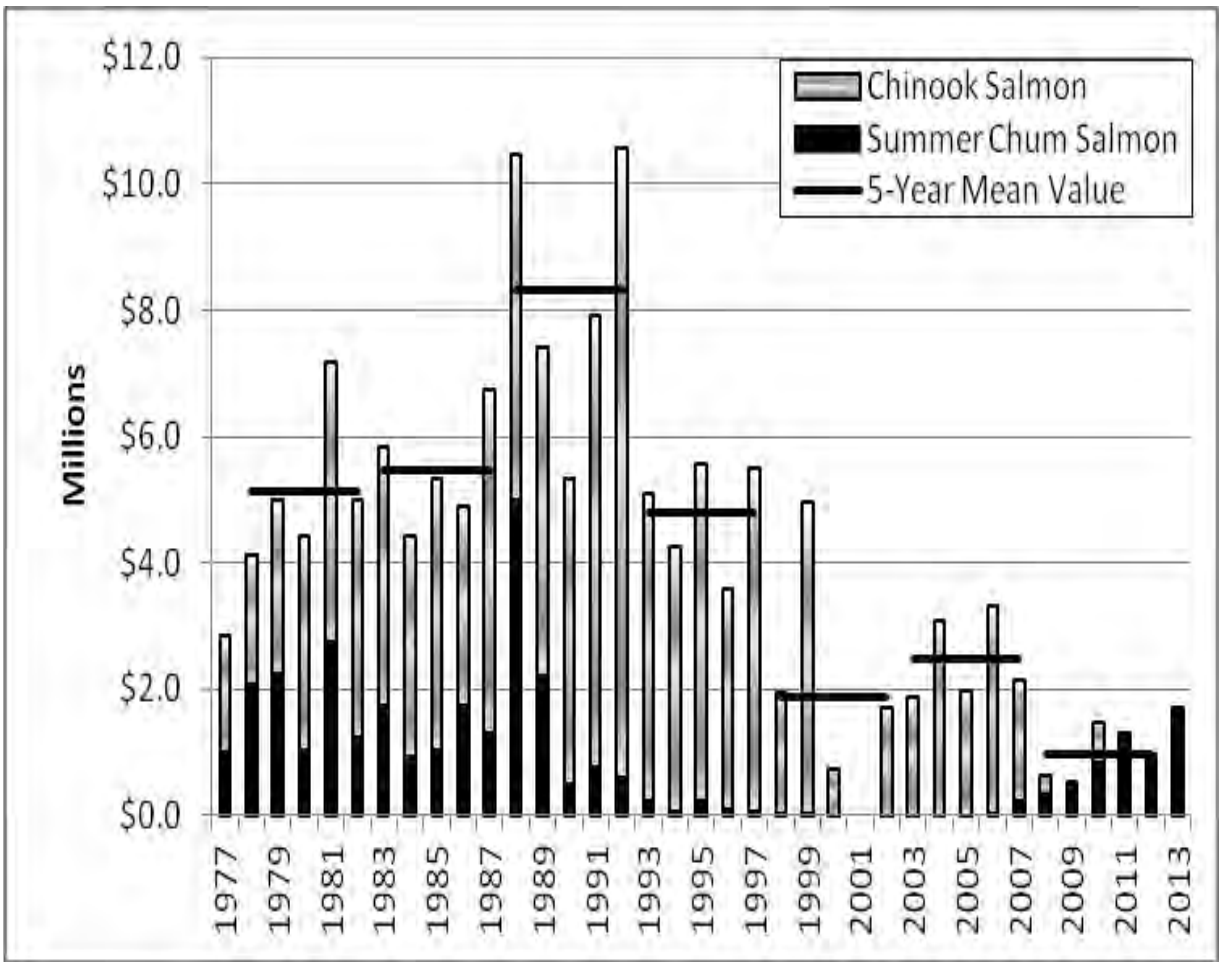

Figure 3. Value of the Lower Yukon Area summer season fishery by species and year, 1977-2013.

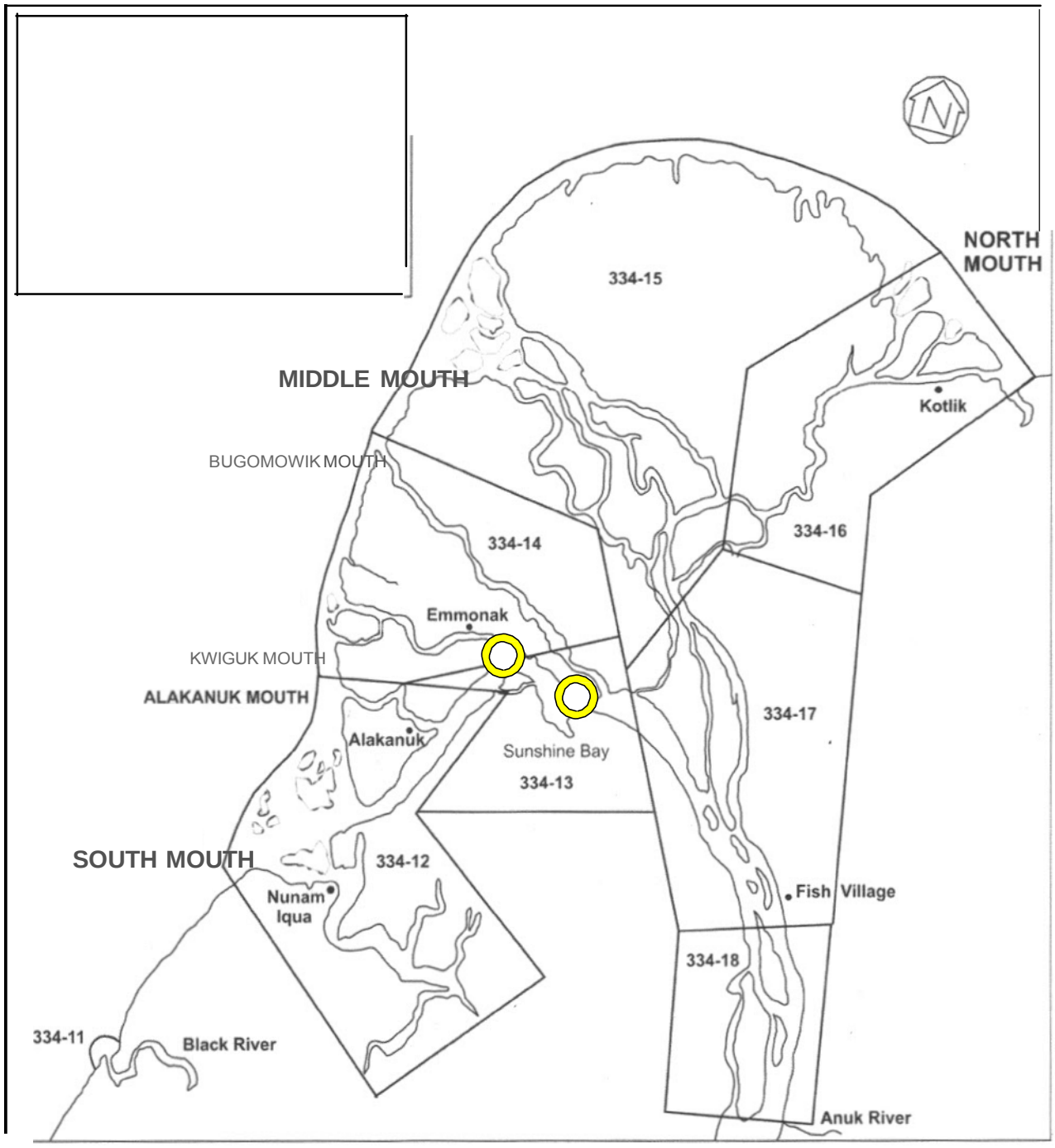

Figure 4. District l showing statistical areas and sampling sites, Yukon Area, 2013.

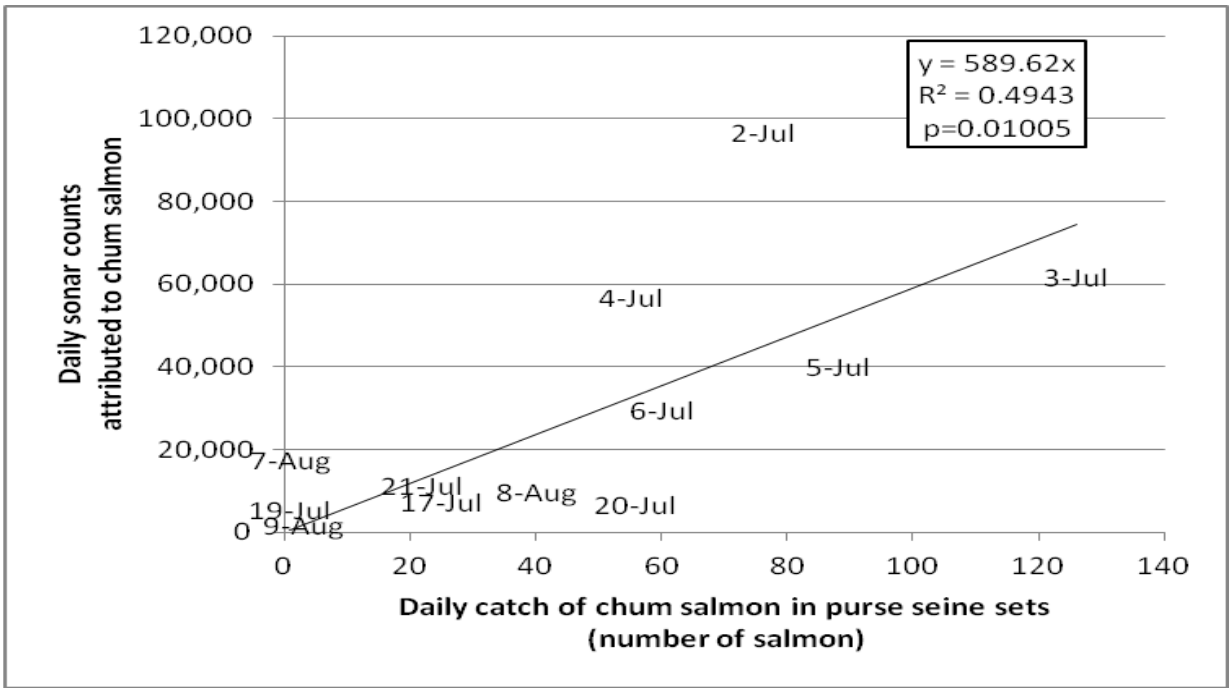

Figure 5. Relationship between daily purse seine catches in District 1 and sonar counts attributed to chum salmon 3 days later at Pilot Station.

Yukon River Summer Chum Salmon Escapement Goal Analysis

By

Gene J. Sandone[1]
For
Yukon Delta Fisheries Development Association

September, 2013

[1]Gene J. Sandone
G.Sandone Consulting, LLC
4950 W. Clayton Ave.
Wasilla, AK 99623

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ABSTRACT

The purpose this research was to: 1. recommend a Biological Escapement Goal (BEG) for the Yukon River summer chum salmon *Oncorhynchus keta* stock; and 2. identify the replacement point where return per spawner (R/S) equals 1.0. Escapements and total run estimates were based on actual (1995, 1997-2007) or predicted (1988-1994, 1996) mainstem Yukon Sonar counts attributed to summer chum salmon. Four estimates of total return (harvest and escapement) were constructed based on 3 age-class composition databases. Each model was also analyzed based on two brood year time periods, 1995-2007 and 1988-2007. Brood year time periods were based on the observed and observed and predicted summer chum salmon passage, respectively. Therefore, a total of 8 individual age-class-brood year models were analyzed. Results from all models were very similar because 1. the age-class compositions of the various databases employed were similar; and 2. nearly all the summer chum salmon run in most years passed onto the spawning grounds. The preferred model used the return from the weighted harvest age-class and the Anvik River escapement age-class compositions for the harvest and escapement, respectively, for the 1988-2007 brood year period. Based on results from this analysis, I recommend that the Yukon River Summer Chum Salmon BEG be established at 700,000 – 1,000,000 summer chum salmon. This range approximates the 80% confidence interval around the point S_{msy} of approximately 855,000 salmon. The 80% confidence interval for the escapement at the replacement point, S_{eq}, is approximately 1.8M to 2.6M, with a point estimate of 2.2M salmon. However, no observed escapements of 2.0M or greater have replaced themselves. Progeny from large escapements have resulted in below average runs or run failures. Therefore, as a precaution, I recommend that, regardless of management strategies to protect Chinook salmon *O. tshawytscha*, summer chum salmon escapement not be allowed to exceed 2.0M salmon or the lower end of the 80% confidence interval of S_{eq},1.8M salmon.

INTRODUCTON

Summer Chum Salmon Fishery Management

The Yukon River is the largest river in Alaska and the fifth largest drainage in North America. The river originates in British Columbia, Canada, within 30 miles of the Gulf of Alaska, and flows over 2,300 miles to its terminus at the Bering Sea. It drains an area of approximately 330,000 square miles and approximately 222,000 square miles of the state (Figure 1; Estensen et al. 2012).

The chum salmon *Oncorhynchus keta* return is made up of 2 genetically distinct runs, an early summer chum salmon run and a later fall chum salmon run. Summer chum salmon are characterized by: earlier run timing (early June to mid-July at the river mouth); rapid maturation in freshwater; and smaller body size (average 6 to 7 pounds). Summer chum salmon spawn primarily in run-off streams in the lower 700 miles of the drainage and in the Tanana River drainage (Estensen et al. 2012). Summer chum runs are normally larger in size than the fall chum runs, ranging up to over 4.0M salmon (Table 1)

The Yukon River summer chum salmon run is managed according to the guidelines described in the *Yukon River Summer Chum Salmon Management Plan* (5 AAC 05.362). The intent of this plan is to conservatively manage harvests in order to provide for escapement needs and subsistence use priority before other consumptive uses such as commercial, sport, and personal use fishing. Since 2001, this

management plan allows for varying levels of harvest opportunity depending on the run size projection. If project run is size is 700,000 to 1,000,000 summer chum salmon and a district, subdistrict, or tributary is projected to meet its escapement goals, then a directed commercial fishery may be opened in the immediate area. When the run size is projected to be greater than 900,000 fish based on Pilot Station sonar project, a directed summer chum salmon commercial fishing may be opened to harvest the available surplus. When the projected commercial harvest range is 0–400,000 summer chum salmon, a specific percentage of harvest determined by the BOF should be allocated by district or subdistrict based on the low end of the established guideline harvest ranges. In 2010, the BOF modified the management plan to allow a commercial harvest up to 50,000 fish if the run size is between 900,000 and 1,000,000 fish, distributed by district or subdistrict in proportion to the guideline harvest levels.

Since 1998, below average runs and poor commercial market conditions resulted in limited exploitation of summer and fall chum salmon. In 2007, both the strength of the run and renewed market interest allowed for summer chum salmon directed commercial opportunity. While limited commercial fishing has occurred, redevelopment of this fishery has been severely hindered by management strategies taken to reduce incidental harvest of co-migrating Chinook salmon *O tshawytscha*. (Estensen et al. 2012) Since 2008, despite the strength of summer chum salmon runs, directed commercial fishing for summer chum has been severely curtailed because of the efforts to conserve Chinook salmon.

The fishing power of the Lower Yukon Area fleet, which consists of approximately 700 commercial permit holders, in conjunction with the very large capacity of the processors, are adequate to harvest and process the entire surplus of commercially-available Yukon River summer chum salmon. Although gillnets can efficiently take this large harvestable surplus, it is not being taken because Chinook salmon are incidentally taken in the gillnet fishery. In response to the conundrum of how to harvest the abundant summer chum salmon while still conserving Chinook salmon, the Alaska Board of Fisheries (BOF), in January 2013, adopted new commercial fishing regulations for the Yukon River drainage designed to allow commercial fishing for summer chum salmon regardless of the Chinook salmon run size. These new regulations were employed to allow for the commercial harvest of summer chum salmon even during times when subsistence fishing closures were implemented to protect Chinook salmon. These new regulations gave ADF&G the authority to allow commercial fishing for chum salmon with dip nets and beach seines. Unlike gillnets, the use of dipnets and beach seines allow the live release of Chinook salmon when Chinook salmon conservation measures are necessary.

These new gear options were specifically intended to allow for additional summer chum directed commercial fishing opportunity while allowing for the release of incidentally caught Chinook salmon. Harvest results from the 2013 summer season fishery, indicate that these gear types, primarily dip nets, accounted for 34% of the harvest in District 1, 70% in District 2 and 50% for District 1 and 2 combined. Additionally, 928 Chinook salmon were caught and released with dipnet gear type. Subsequent fishing with the new gillnet gear, 5.5 inch mesh, 30 meshes deep gillnets, accounted for 36% of the District 1 harvest. This gear was not used in the District 2 fishery. Surprisingly, only 88 Chinook salmon were harvested incidentally with this new gillnet gear in District 1. Finally, near the end of the summer chum run, the traditional 6 inch mesh, 50 mesh gillnet was allowed for 5 periods each District 1 and 2. This traditional gear type accounted for 31% and 30% of the District 1 and 2 summer chum salmon harvests, respectively. Chinook salmon incidental harvest in this gear type totaled 301 salmon.

Although recent summer chum runs have been very large in numbers of fish, exceeding 3.2M salmon in 2013, the commercial harvest has been exceedingly small. Of the nearly 2.1M summer chum salmon available for commercial harvest in 2013, only approximately 486,000 were harvested commercially. Additionally, although the target drainage-wide commercial exploitation rate was over 65%, the actual

drainage-wide exploitation rate was only 15%. While District 1 and District 2 harvested about 29% of their allocation, which translates into a commercial exploitation rate of 12%, the upper river harvested only about 14% of their allocation with an associated commercial exploitation rate of approximately 3%.

During the past few years, millions of commercially-harvestable summer chum salmon have passed through the Lower Yukon Area with very few being harvested because of the concern for the Chinook salmon escapement. This foregone harvest has been substantial in recent years, more than 1.0M fish in both 2011 and 2012. Despite new commercial fishing gear allowed in 2013 by the BOF, including the use of dipnets, beach seines and shallower and smaller mesh size gillnets (5.5 stretch measure, 30 meshes deep), preliminary estimates indicate that at least 1.6M commercially available summer chum were passed onto the spawning grounds. Allowing this level of escapement may be detrimental to future runs.

The *Yukon River Summer Chum Salmon Management Plan* (5 AAC 05.362) directly provides for a minimum summer chum salmon spawning escapement of approximately 600,000 when runs are less than 950,000 and indirectly, approximately 850,000 when runs are in excess of 950,000. However, there are a limited amount of actual data that supports these escapement levels. To date, there has not been a Yukon River summer chum salmon escapement goal analysis conducted to establish a scientifically-defensible escapement goal or an equally important upper limit, or replacement point estimate, so that the stock can be managed effectively. In times of Chinook salmon conservation it is equally important not to exceed the summer chum salmon spawning escapement that will result in jeopardizing future summer chum salmon runs. Large drainage-wide escapements in 1994-1996 probably played a significant role in the collapse of the runs in 2000 and 2001. Likewise, large escapements in 2005-2007 also probably played some role in the mediocre runs that returned to the river in 2009 and 2010. Because of the large escapements during the past three years, 2011-2013, we are very concerned that future summer chum runs from these brood years will be low. YDFDA and Kwik'pak fisheries have invested heavily in the summer chum salmon fishery and market development over the past few years. Because of this, the Lower Yukon summer chum salmon fishery provides a glimmer of hope to the local residents in an otherwise very financially depressed area. It would be unconscionable for future summer chum salmon runs to fail because of overescapement.

The purpose of this report is to provide support for a scientifically-defensible drainage-wide escapement goal for Yukon River summer chum salmon stock, with additional emphasis on the number of summer chum salmon that may cause a severe loss of production because of overescapement.

Yukon Sonar Passage Estimates

Annual Yukon Sonar counts attributed to summer chum salmon are the basis for the development of the BEG for Yukon River summer chum salmon. Unlike Yukon River fall chum salmon, where a post-season reconstructed run can be determined from tributary escapements, U.S./Canada border passage estimates and commercial, subsistence and personal use harvests, a similar reconstructed run for summer chum salmon cannot be determined because of the lack of estimated escapements from all spawning tributaries. Therefore, the most accurate estimates of total run for Yukon River drainage summer chum salmon are based on the sonar passage estimate plus harvest removals and escapements below the sonar site.

Sonar passage estimates attributed to the various species of salmon and other migrating fish are considered most accurate and comparable for the years 1995 and 1997-2013 (Carroll and McIntosh 2008). Although sonar counts attributed to summer chum salmon are available for 1993 and 1994 (Bergstrom et al. 1987), changes in methodology and equipment used at the sonar site since 1995 have caused ADF&G to question the accuracy of those prior estimates along with the comparability to the more recent passage

estimates (Carroll and McIntosh 2008). Sonar passage estimates are unavailable for 1996; the sonar was operated only for training purposes that year (Bergstrom et al. 1997). Age, sex, size information for chum salmon passing Pilot Station is unavailable for all years.
In 1993, ADF&G used sonar equipment that allowed greater ensonification with less signal loss. However, an attempt to identify direction of travel, so that assumed downstream migrants could be subtracted from the total target count, may have resulted in a undercounting of sonar targets. In 1995, ADF&G discontinued this practice and implemented an aiming strategy designed to consistently maximize fish detection (Carroll and McIntosh 20008). This and other changes in counting methodology caused ADF&G to state that data collected since 1995 are not directly comparable to data collected prior to 1995 (Carroll and McIntosh 2008). Therefore, Yukon sonar counts prior to 1995 were not used in this analysis. In 2006, ADF&G revised all mainstem sonar estimates based on improvements to the species apportionment methodology (Carroll and McIntosh 2008). Current passage estimates are presented in U.S./Canada JTC reports (JTC 2013).

METHODS

Predicted Values for Missing Data

Calculation of summer chum salmon total run for several years could not be determined because of missing data for Yukon sonar passage and also East Fork Andreafsky River escapement. Because reliable total harvest and escapement from major producing tributaries are available for Yukon River summer chum salmon from 1988 to the present, I explored the possibility of estimating the missing data cells for mainstem sonar passage data for summer chum salmon for not only the missing 1996 year but also for the years 1988-1994, as well, using linear regression techniques. I also explored the estimating missing data cell data for summer chum salmon escapements to the East Fork Andreafsky for the period 1989-1993, using linear regression techniques. Having acceptable substituted estimates for these data cells would provide 20 years of brood year data and provide a more complete database for the spawner-recruit analysis.

Yukon Sonar Passage Estimates
The most accurate and comparable estimates of summer chum salmon passing the mainstem Yukon Sonar project are available for years 1995, 1997-2012 (JTC 2013). In 1996, Yukon sonar was operated for training purposes and no passage data were generated (Bergstrom et al. 1987). In order to calculate return data for the brood years 1995-2007, complete total run estimates are needed for every year from 1995-2007. Without run and escapement information for 1996, return data would be missing return ages mainly for broods 2000 and 2001, but also for 1999 and 2002 and possibly 2003. This is because summer chum salmon return mainly as age-0.3 and age-0.4 fish, with minor contributions as age-0.2, age 0.5, and, and, rarely, as 0.6 fish. Therefore, just as Clark and Sandone (2001) and others (Sandone 1994a, 1994b, 1996, Huttunen and Bergstrom 1999) looked to the relationship between mainstem Yukon and Anvik River sonar passage estimates to provide a reasonable estimate for harvests of Anvik River-destined salmon below the Anvik River,wealso explored the relationship between the mainstem Yukon and Anvik

River sonar with respect to summer chum salmon passage to estimate the summer chum salmon passage at Pilot Station for 1996 and also for the period 1988-1994. Missing data were generated based on the predicted values from this relationship.

Escapements Estimates Below Pilot Station Sonar

Summer chum salmon escapement estimates to the East Fork of the Andreafsky River are necessary for all years in order to estimate the total escapement of summer chum salmon below the sonar site so that complete total run estimates can be determined. Although there are a few streams that summer chum salmon are known to spawn in below the sonar site, the major spawning tributary below the sonar site is the Andreafsky River. Summer chum salmon land-based escapements are available for the East Fork Andreafsky for the years 1981-1984 (sonar), 1986-1988 (tower) and from 1994-2013 (weir) (JTC 2013; Fred Bue, USFWS, Fairbanks, personal communication). Similar to generating substitute values for missing data cells for Yukon Sonar passage estimates of summer chum, I explored the relationship between The East Fork Andreafsky River escapement counts and the Anvik River sonar estimates with respect to summer chum salmon. Missing data were generated based on the predicted values from this relationship.

Total Yukon Drainage Summer Chum Salmon Run Estimates

Total run estimates were calculated by simply adding the harvests, test fish sales and known escapements (JTC 2013) below the sonar site at Pilot Station (RM 126; Figure 1) to the sonar counts attributed to summer chum salmon passing the sonar site. Missing annual Pilot Station sonar count data and East Fork Andreafsky River escapement data, which are necessary to complete the calculations of total run, were estimated based on linear regression techniques. Total run estimates were calculated for the years 1988-2012.

Commercial and Subsistence Harvests

Commercial harvests of summer chum salmon are reported on fish tickets and recorded for each delivery by each commercial permit holder. Therefore commercial harvests are a census of all fish sold under commercial regulations. Commercial harvests of summer chum salmon are available at least back to and including 1970 (JTC 2013). Commercial harvests below the sonar project site at Pilot Station include harvests taken in District 1 and District 2 (Figure 1) Statistical Areas: 334.21, 334-22, and 334-23. Commercial harvests by stat area for all districts and subdistricts can be found in Estensen et al. 2012; Eric Newland, ADF&G/CF, Yukon Area Summer Season Management Biologist, Anchorage, personal communication).

Since 1961, ADF&G has collected information on subsistence salmon harvests and use in the Yukon Area (Vania 2002). However, since 1988, survey methods and corresponding harvest estimates are more comparable than for previous years (Golembeski and Bergstrom 1999). Although the estimates prior to 1988 possibly represent trends in harvests, the actual harvest estimates may not be as accurate as those from 1988 through the present. Yukon Area subsistence harvest data are published annually (for example: Jallen et al. 2012a) but are also summarized by species and community in the Appendices for the current year and the previous 10 years in each annual report. Summer chum salmon subsistence harvests used in this report were taken from summaries contained in Borba and Hamner (2000), Jallen et al. (2012a, 2012b). Final subsistence harvests estimates are not yet available for 2012. Preliminary estimates for 2012 have been provided by ADF&G (Deena Jallen, ADF&G/CF, Fairbanks, personal communication).

Because subsistence harvest data are not comparable prior to 1988 to the more recent estimates, total run estimates were calculated and used in this analysis from 1988 to the present.

Estimated subsistence harvests below the sonar site include all District 1 villages and Mountain Village, Pitkas Point, St. Mary's, and Pilot Station in District 2 (Figure 1). The District 2 village of Marshall is located above the Pilot Station sonar site (Figure 1).

Yukon River Drainage Escapement

Drainage-wide escapement was calculated by subtracting the estimated total harvest, including test fish sales, from the total run estimate.

Age Class Composition

Age class composition of the total drainage summer chum salmon escapements and harvests are lacking and collections have been variable from year to year. Therefore, different ages, sex, length (ASL) data sets from 1988 through 2012 were used as surrogates for the annual escapement, as well as, the annual combined harvest to calculate brood year return. These data sets formed the basis of the different models used in the spawner-recruit analysis. ASL Data sets used to describe the escapement were Lower Yukon Test Fisheries (LYTF) (Schumann and DuBois 2011; Larry Dubois, ADF&G/CF, Anchorage, personal communication) and the Anvik River Escapement (Chapell 2001; Moore and Lingnau 2002; Lingnau 2002; Dunbar 2003; Dunbar and Pfisterer 2007; McEwen 2006a, 2006b, 2007, 2009, 2010a, 2010b, 20112012, 2013; AYK Data Management System (AYKDMS)) age-class compositions . ASL data sets used to describe the harvest were: the LYTF and the weighted harvest age-class compositions.(Estensen et al. 2012; Larry Dubois, ADF&G/CF, Anchorage, personal communication).

Total Brood Year Return

Total brood year return was calculated for 4 different age-class composition-based models. Two ASL datasets were selected to represent the age-class composition of the harvest, LYTF and the weighted harvest ASL databases; two were also selected to represent the escapement, LYTF and the Anvik River escapement databases (Appendices A1-A3). Combinations of age-class composition data sets for escapement and harvest for each model are as follows:

Harvest	Escapement
LYTF	LYTF
LYTF	Anvik River
Weighted Harvest	Anvik River
Weighted Harvest	LYTF

The summer chum salmon ASL associated with LYTF was chosen to represent the age-class composition of the harvest, as well as, the escapement in the models above because it could possibly represent the total unexploited run as it enters into the mouth of the Yukon River. However, the LYTF uses one gillnet type, 5.5 inch stretch mesh, to capture fish. Because of the size selectivity of gillnets in general, the ASL data are probably bias and may not accurately represent the age class composition of the unexploited run.

The weighted harvest age-class composition probably best represents the combined drainage-wide commercial and subsistence harvest. However, even though it is a weighted average of all harvests sampled, many commercial and subsistence harvest were not sampled over the period 1988-2012 and

were, therefore, not represented in this weighted average. However, since most of the commercial and subsistence harvests are taken in Districts 1 and 2 of the Lower Yukon Area (Figure 1), the bias associated with this data set may be small.

The age class composition of the Anvik River was chosen in to represent the Yukon River drainage escapement because: 1. The Anvik River is the largest single tributary producer of summer chum salmon in the Yukon River drainage; 2. the Anvik River summer chum salmon ASL database is the longest running database for summer chum salmon escapement in the Yukon River drainage; and 3. preliminary assessment indicates that the age-class composition of other tributary escapements, as well as harvests, were all fairly similar, especially among years (AYKDMBS).

Two brood year tables, based on time period, were constructed for each of the four above models. This brood year time periods consisted of years when mainstem sonar counts were considered accurate and comparable, 1995, 1997-2012, and when Pilot Station sonar passage data were predicted, 1988-1994. Therefore, the two brood year model category included the years 1995-2007 and 1998-2007. Although the 1996 sonar passage was predicted, I am confident that the predicted passage value represents the actual sonar passage fairly well.

The preferred age-class composition model for the calculation of the return (harvest and escapement) was constructed from the weighted harvest and the Anvik River escapement age class composition databases for the harvest and escapement, respectively. Results from the other age-class composition models may provide interesting comparisons among the spawner-recruit analysis statistics, especially, the estimated number of spawners that produce maximum sustained yield (S_{msy}), estimated maximum sustained yield, (MSY), and the estimated number of spawners that result in a 1:1 spawner/recruit ratio, or replacement point (S_{eq}).

Median values and averages are used to describe central tendencies of the data where appropriate, such as, return per spawner, spawners, recruits, etc. In graphs, median values are used to describe the central tendency of the data.

Biological Escapement Goal Analysis

BEG analysis was conducted using a spreadsheet developed by ADF&G that employed boot strapping techniques to estimate the summary statistics of the spawner-recruit analyses estimates and confidence intervals (Steve Fleishman, ADF&G/SF Anchorage, personal communication).

RESULTS

Predicted Values for Missing Data

Yukon Sonar Passage Estimates

In the past, prior to 2003, biologists noted that summer chum salmon escapement to the Anvik River was approximately half of the Yukon sonar counts attributed to summer chum salmon (Clark and Sandone 2001; Sandone 1994a, 1994b, 1996; Huttunen and Bergstrom 1999). Recently, however, starting in 2003, the Anvik River sonar counts of summer chum salmon escapement have accounted for far less than half of the sonar counts. The mean proportional contribution of Anvik River escapement counts to the Pilot

Station counts was 0.458 for the years 1995, 1997-2002 and 0.240 for the period 2003-2013 (Figure 2). These proportional means are significantly different from each other ($p<0.0001$).

Using all the available Yukon and Anvik River sonar passage data, the estimated summer chum salmon passage, based on linear regression techniques, is 2,821,251 salmon. Although this linear relationship, using all data from 1995, 1997-2013, was highly significant ($p=0.0006$; Figure 3), the R^2 value of 0.5354 was only fair. A possibly more accurate estimate of the 1996 Yukon Sonar counts could be determined by using the time period, 1995, 1997-2002, which was prior to the decline in the proportional contribution of Anvik River counts to the Yukon sonar counts, and also includes the year when sonar counts were unavailable, 1996. Therefore, I explored the relationship between the Yukon Sonar counts and the Anvik River counts for the years 1995, 1997-2002 (Figure 4). This relationship was highly significant ($p<0.0001$), with an associated R^2 value of 0.9829, which was much better than the all years' model R^2 value of 0.5466 (Figure 3). The predicted summer chum salmon passage at Pilot Station sonar for 1996 using this relationship was 2,355,440. Therefore, I used the 1995, 1997-2002 model to estimate the 1996 Yukon Sonar count. Additionally, since is some subjective evidence that the relationship between Yukon sonar counts and Anvik River counts prior to 1995 did not dramatically deviated from the 1995-2002 period, this relationship was also used to estimate the Yukon Sonar counts for the 7-year period from 1988-1994.

Escapements Estimates Below Pilot Station Sonar

In order to estimate the escapement to the Andreafsky River for the missing 5 years, 1989-1993, I explored the linear regression relationships between the various methods used to estimate the escapement to the Andreafsky River and the sonar based Anvik River escapement counts (Figure 5). Because the relationship was highly significant between the East Fork Andreafsky River tower and weir counts and the Anvik River sonar counts of summer chum salmon escapement for corresponding years, I used this relationship to estimate the escapement to the East Fork of the Andreafsky River for the years 1989-1993. Interestingly, the relationship between the East Fork Andreafsky River and Anvik escapement estimates for the period 1981-1984 was not significant (Figure 5). During this time, sonar was used to estimate the summer chum salmon escapement to the East Fork Andreafsky and may have poorly performed because of the mixed salmon species that migrate coincidentally up the river.

Total escapement to the Andreafsky River was calculated by simply multiplying the East Fork estimates by 2 to account for escapement in the West Fork Andreafsky River. This was assumed to represent the entire escapement of summer chum salmon below the Pilot Station sonar site.

Spawner-Recruit Analysis: Basic Data Needs

Total Run Estimates

Yukon River summer chum salmon total run estimates ranged from 493,190 in 2001 to 4,180,809 in 1995, and averaged 2,088,451 salmon during the period 1988-2012 (Table 1; Figure 6). Associated total harvests ranged from 58,467 in 2001 to 1,820,130 in 1988 (Figure 6) and averaged 439,567 for the same period. Associated exploitation rates ranged from 5% in 1996 to 64% in 1989 and averaged 19% for the same period. Drainage-wide escapements ranged from 493,190 in 2001 to 4,180,809 in 2006 and averaged 2,088,451 for the period 1988-2012 (Table 1; Figure 6). The associated median value was 1,635,307 summer chum salmon (Table 6).

Total Brood Year Return
Brood year tables were constructed for each of the four age-class composition models described above based on the estimated annual harvest and escapement distributed by age class and then summed by returns from each brood by age (Tables 2-5). The escapement and the return for each of the aforementioned age-class composition model were the inputs into the individual spawner recruit analysis.

Although different age class compositions were employed to distribute the number of spawners and the number taken in the various harvests, the results for the return (Figure 7) and associated return per spawner was very similar (Table 6). It appears that the median drainage-wide escapements and brood year returns were slightly higher during the period 1988-1994. While median escapements were 464,700 higher during the 1988-1994 period, median brood year returns were also higher for all models during the 1988-1994 period. This difference varied based on the age-class composition model and time period. The difference in the median number of returns for a given model during the 1988-1994 time period, ranged from 797,129 for the LYTF/LYTF model to 1,029,165 weighed harvest/Anvik River escapement model (Table 6). Associated with the differences in the median number of spawners and escapement are the differences in the median return per spawner. It appears that the 1988-1994 period was slightly more productive that the latter period. However, again, the difference is small and may not be significant and may also be somewhat influence by the inclusion of the estimated mainstem sonar passage for years 1988-1994.
It is interesting to note that the median return per spawner for all periods and for all models range from 1.02 R/S during the 1995-2007 period for the LYTF/LYTF model to 1.40 R/S for the 1988-1994 period for the weighted harvest/Anvik River escapement model. For the combined period, 1988-2007, the range was from 1.06 R/S to 1.24 R/S (Table 6). This is a relatively small range, but regardless of the differences, all estimated median return per spawner estimates were very low. Based on the median R/S estimates and range of exploitation rates (Table 1), this low return per spawner probably reflects the under utilization of the stock (Figure 6) rather poor production. It appears that the Anvik River escapements have a higher proportion of younger-aged fish than the age-class compositions of the LYTF and the weighed harvest (Figure 8; Appendix A1-A3). This difference may also be one of the reasons that there are small difference in productivity and brood year return size by model type.

Biological Escapement Goal Analysis

Summary: All models
All spawner-recruit summary statistics are very similar for all four models for both time periods (Figure 9; Table 7). The point estimate of spawners that produce MSY varies very little. The difference in the range of calculated MSY point estimates is 25,982 fish. Similarly, the difference in the range of calculated point estimate for S_{eq}, 39,961 fish and MSY, 227,142 are also relatively small. The small differences in the different models and the different time periods indicate that all these models are similar (Table 7; Figure 9). Further, the numbers of recruits for each brood year are also extremely similar (Figure 7). For all practical purposes, these models are basically the same with very similar results. Therefore, instead of presenting each model's spawner-recruit summary statics, tables, and graphs, I am limiting my presentation to the previously described preferred model. In that model the distribution of the estimated harvest and escapement, by age class for each year, is determined from the weighted harvest and the escapement is determined from the Anvik River escapement age-class compositions, respectively. This model will be referred to as the weighted harvest/Anvik River escapement model henceforth in this document.

Weighted Harvest/Anvik River Escapement Model (Brood Years: 1988-2007 and 1995-2007)
***Spawners and Recruits*:** Number of spawners and recruits for the weighted harvest/Anvik River escapement models for the 1988-2007 brood years are presented in Table 4. Figure 10 graphically

displayed these data along with the 5-year median values for the associated R/S values. For brood years 1988-2007, the estimated R/S point estimates range from 0.18 in 1995 to 11.81 for the 2001. Note both of these values are within the 1995-2007 brood year period. The overall R/S estimated median value for the brood years 1988-2007 is 1.24; for the 1995-2007 brood years it is 1.13 (Table 4). Overall, annual estimated R/S values are relatively low, less than 2.0 R/S, and are variable among years and 5-year time period (Figure 10). The annual estimated R/S values have exceeded 2.0 in only 4 years, 1989, 1990, 2001 and 2002. During these years estimated escapements ranged from a low of 434,723 in 2001 to 926,897 in 1989; the associated median estimated escapement value was 774,487 summer chum salmon. Conversely, point estimates of R/S have been less than 1.0 in 8 years, 1988, 1993-1997, 2005 and 2006. Estimated escapements for these years ranged from a low of 1,218,603 in 1993 to a high of 3,886,584 in 2006 (Table 4); the associated median value for these estimated escapements was 2,311,005. These later escapements did not replace themselves.

Spawner-Recruit Statistics: Spawner-recruit summary statistics indicate that all point estimates are very similar in both brood year time period models (Table 8). However, the 80% confidence intervals (CI) are wider for the 1995-2007 brood year model than the 1988-2007 brood year model (Table 8). This is probably because of the difference in the number of observations between the two brood year periods, 20 for the 1988-2007 brood year period and 13 for the 1995-2007 brood year period (Table 8).

In both models, the relationship between ln(R/S) vs. Spawners is highly significant (Figure 11). Note that on Figure 11, the line that is fitted to the observations crosses the x-axis at an escapement level of less than 2.0M. This indicates that, based on the observations from both sets of models, the replacement point may be below 2.0M spawners. Note also that there are no observed estimated escapements greater than 2.0M that are above the x-axis line. Additionally, the spawner-recruit analysis (Figure 12) also indicates that all escapements over 2.0M summer chum salmon have failed to replace themselves. However, results from statistical bootstrapping techniques indicate that the result with the highest frequency of S_{eq} occurs at approximately 2.15M spawners for the 1988-2007 brood year model and approximately 1.97M spawners for the 1995-2007 brood year model (Figure 13).

For both models, estimates of MSY are in excess of 1.0M salmon, 1.4M for the 1988-2007 brood year model and 1.3M for the 1995-2007 brood year model (Table 8). Results from statistical bootstrapping techniques indicate that the number of spawners estimated to attain the sustained yield of 90% of the estimated MSY 90% of the time is between approximately 665,000 and 900,000 spawners for brood years 1988-2007 and between approximately 768,000 and 878,000 spawners for brood years 1995-2007 (Figure 14). Note that the probably to attain sustained yield of 90% of MSY 90% of the time precipitously declines as the number of spawners increase and decrease from those levels cited above. Note also that there is no or very little yield as number of spawners approach 2.0M salmon (Figure 14).

Both brood year spawner-recruit analyses indicate that the S_{msy} is approximately 900,000 salmon, 855,375 for the 1988-2007 model and 866,625 for the 1995-2007 model (Table 8). The 80% confidence interval for the point estimate of S_{msy} is 716,337 to 1,018,937 spawners for the 1988-2007 brood year model and 644,217 to 1,109,910 for the 1995-2007 brood year model (Table 8; Figure 12). Using the point estimate for both these estimates, MSY and S_{msy}, the calculated return per spawner is about 1.6 R/S. The estimated point estimate for the escapement that produces the maximum number of recruits, S_{max}, is 1.4M for the 1988-2007 brood year model and 1.5M for the 1995-2007 model (Table 8; Figure 12). Both models indicate that the replacement point, or S_{eq}, is approximately 2.2M salmon for both models (Table 8; Figure 12).

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

It appears that neither the age class composition nor the brood years used in these analyses substantially alters the point estimate or the 80% confidence interval range of S_{max}, S_{eq}, S_{MSY} or MSY. Therefore, I believe that it is logically acceptable to focus on the preferred model that uses the weighted harvests and Anvik River escapement age-class compositions to describe the age-class composition of the harvest and drainage-wide escapement age-class composition for the calculation of the brood year return. The small differences in the spawner-recruit statistics is probably a direct result of 1: similarity among the age-class compositions of all databases; and 2. the fact that most of the run is escapement. Note that estimated median exploitation rate for this stock of salmon is approximately 11% for the period 1988-2013 and has exceeded 30% in only 3 years, 1988-1990 (Table 1).

The difference in the 80% CI around the point estimates of the spawner-recruit statistics is a direct result of the number of observations for each brood year model (Figure 9), 13 for the 1995-2007 brood year model and 20 for the 1988-2007 brood year model. The 1988-2007 brood year model employs estimates of Yukon Sonar summer chum salmon passage for 1988-1994 based on the Anvik River escapement relationship with the mainstem Yukon Sonar project for years 1995, 1997-2002. I believe that it is acceptable to employ the very good relationship between these two sonar operations, based on observed passage estimates, to estimate the Yukon Sonar passage estimates for the years 1988-1994, 1996, when mainstem Yukon Sonar counts were unavailable.

Note that Anvik River BEG analyses, both past and present, assume that 50% of the salmon harvested below the mouth of the Anvik River are Anvik River-origin salmon for those years when Yukon Sonar passage estimates were unavailable, back to 1972 (Sandone 1994a, 1994b; 1996; Hutten and Bergstrom 1999; ADF&G 2004). Note also that ADF&G considers the Anvik River escapement goal a BEG, which according to the *Policy for Management of Sustainable Salmon Fisheries* (Sustainable Salmon Policy: 5AAC39.222) means:

> *…the escapement that provides the greatest potential for maximum sustained yield; BEG will be the primary management objective for the escapement unless an optimal escapement or inriver run goal has been adopted; BEG will be developed from the best available biological information, and should be scientifically defensible on the basis of available biological information; BEG will be determined by the department and will be expressed as a range based on factors such as salmon stock productivity and data uncertainty; the department will seek to maintain evenly distributed salmon escapements within the bounds of a BEF.*

Therefore, we can assume that the Anvik River summer chum salmon BEG was *developed from the best available biological information,* and is *scientifically defensible.* Accordingly, if the assumption regarding the Anvik River-origin composition below the Anvik River is the best available biological information and is scientifically defensible for the Anvik River summer chum salmon BEG, then expanding the mainstem Sonar Project data for the years 1988-1994 and 1996, which is probably an improvement on the 50% assumption, should also be considered the best available biological information and also scientifically defensible. Accordingly, the Yukon River summer chum salmon BEG should be established based on the expanded brood year model, 1998-2007. Therefore, I recommend that a BEG range for Yukon River summer chum salmon be established as 700,000 to 1,000,000 summer chum salmon. Please note that this recommendation is not substantially different from the recommendation that would have been made if the 1995-2007 brood year model was selected as preferred: 650,000 to 1,100,000 summer chum salmon.

The point estimate for Seq, based on statistical bootstrapping techniques, is approximately 2.2M salmon with an approximate 80% range of 1.8M to 2.6M. However, examination of Figure 11, which portrays the relationship between ln(R/S) vs. Spawners, and Figure 12, the spawner-recruit relationship, indicates that the point estimate of S_{eq} is less than 2.0M. Note also that all observed escapements that were at least 2.0M salmon did not replace themselves or had an R/S of less than 1.0. This apparent discrepancy is because estimates for S_{eq} contain a correction factor for lognormal errors while the graphs do not (Steve Fleishman, ADF&G/SF, Anchorage, AK, personal communication). However, it may be prudent and precautionary not to allow escapements to exceed 2.0M salmon, or the lower end of the S_{eq} range, 1.8M salmon, regardless of the concern for Chinook salmon. Exceeding this escapement level will most likely result in reduced production, possibly jeopardizing future returns and the fisheries that depend on those runs. The failure of the summer chum run, in conjunction with the current poor runs of Chinook salmon, will result in the complete failure of the summer season Yukon Area fisheries. The failure of these fisheries would have severe negative impacts to the villages of the Yukon River drainage, particularly the Lower Yukon villages in District 1 and 2. The people who live in these villages almost exclusively depend on the money generated from this fishery to live and maintain their subsistence lifestyle.

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TABLES

Table 1. Total run estimates, total harvest, and total escapement estimates for Yukon River summer chum salmon, 1988-20

Year	Total Andreafsky Escapement		Subsistence Harvest Below Sonar Site	Commercial Harvest Below Sonar Site	Test Fish Sales Below Sonar Site	Total Harvest Below Sonar Site	Yukon Sonar Counts		Total Run	Total Yukon River total Harvest	Yukon River Drainage Escapement	Exploit. Rate
1988	137,874		52,925	919,034	3,587	975,546	2,889,222	[a]	4,002,642	1,820,130	2,182,512	0.45
1989	152,557	[b]	88,619	783,412	4,338	876,369	1,532,494	[a]	2,561,420	1,634,523	926,897	0.64
1990	87,626	[b]	63,162	227,042	2,938	293,142	884,657	[a]	1,265,426	643,348	622,078	0.51
1991	211,249	[b]	46,451	288,597	2,076	337,124	2,118,088	[a]	2,666,461	781,613	1,884,848	0.29
1992	191,168	[b]	55,894	290,205	1,918	348,017	1,917,732	[a]	2,456,917	672,349	1,784,568	0.27
1993	119,296	[b]	57,538	87,259	1,869	146,666	1,200,640	[a]	1,466,602	247,999	1,218,603	0.17
1994	401,962		52,764	53,181	3,212	109,157	2,887,112	[a]	3,398,231	372,207	3,026,024	0.11
1995	344,296		57,586	216,409	6,073	280,068	3,556,445		4,180,809	945,164	3,235,645	0.23
1996	216,900		51,284	119,704	7,309	178,297	2,355,440	[a]	2,750,637	794,896	1,955,741	0.29
1997	102,278		52,711	75,652	2,590	130,953	1,415,641		1,648,872	329,004	1,319,868	0.20
1998	135,440		51,875	25,409	3,019	80,303	826,385		1,042,128	118,326	923,802	0.11
1999	65,174		43,094	22,665	836	66,595	973,708		1,105,477	101,509	1,003,968	0.09
2000	49,570		46,198	6,155	648	53,001	456,271		558,842	72,358	486,484	0.13
2001	4,268		47,472	0	0	47,472	441,450		493,190	58,467	434,723	0.12
2002	88,388		45,177	9,291	218	54,686	1,088,463		1,231,537	86,614	1,144,923	0.07
2003	44,922		35,682	5,805	119	41,606	1,168,518		1,255,046	80,894	1,174,152	0.06
2004	129,766		44,786	18,506	217	63,509	1,357,826		1,551,101	96,733	1,454,368	0.06
2005	40,254		48,789	31,591	134	80,514	2,439,616		2,560,384	120,887	2,439,497	0.05
2006	204,520		58,144	40,744	456	99,344	3,767,044		4,070,908	184,324	3,886,584	0.05
2007	139,284		44,646	170,039	10	214,695	1,726,885		2,080,864	275,445	1,805,419	0.13
2008	114,518		44,035	113,583	80	157,698	1,665,667		1,937,883	220,169	1,717,714	0.11
2009	17,540		42,915	153,206	0	196,121	1,421,646		1,635,307	238,496	1,396,811	0.15
2010	145,678		46,355	149,345	0	195,700	1,405,533		1,746,911	300,338	1,446,573	0.17
2011	200,946		49,472	227,013	0	276,485	1,977,808		2,455,239	353,826	2,101,413	0.14
2012	113,360		62,033	196,198	3,070	261,301	2,030,871		2,405,532	427,227	1,978,305	0.18
min	4,268		35,682	0	0	41,606	441,450		493,190	58,467	434,723	0.05
max	401,962		88,619	919,034	7,309	975,546	3,767,044		4,180,809	1,820,130	3,886,584	0.64
mean	139,395		51,149	168,077	1,735	220,961	1,728,095		2,088,451	439,567	1,648,884	0.19
median	113,360		46,198	31,591	134	80,514	1,405,533		1,635,307	120,887	1,446,573	0.11

[a] Estimated value based on the linear relationship between the Pilot Station sonar counts and the Anvik River sonar counts of summer chum salmon for years, 1995, 1997-2002.

[b] Estimated value based on the linear relationship between the Anvik River sonar counts of summer chum salmon and the Andreafsky River escapement counts of summer chum salmon for years, 1986-1993 and 1994-2012.

Table 2. Brood year table for the model that includes the LYTF age class composition for the harvest and escapement, 1988-2007.

		Age (numbers)							Age (proportion)				
Brood year	Spawners	0.2	0.3	0.4	0.5	0.6	Return	R/S	0.2	0.3	0.4	0.5	0.6
1988	2,182,512	0	540,522	841,830	88,354	0	1,470,706	0.67	0.00	0.37	0.57	0.06	0.00
1989	926,897	0	560,242	2,103,505	255,029	0	2,918,776	3.15	0.00	0.19	0.72	0.09	0.00
1990	622,078	1,467	1,209,770	2,224,190	143,033	0	3,578,460	5.75	0.00	0.34	0.62	0.04	0.00
1991	1,884,848	0	1,680,685	1,441,334	72,550	0	3,194,570	1.69	0.00	0.53	0.45	0.02	0.00
1992	1,784,568	20,904	1,163,520	1,178,943	41,685	0	2,405,052	1.35	0.01	0.48	0.49	0.02	0.00
1993	1,218,603	2,751	397,378	349,113	37,586	0	786,828	0.65	0.00	0.51	0.44	0.05	0.00
1994	3,026,024	0	651,330	523,996	8,383	0	1,183,709	0.39	0.00	0.55	0.44	0.01	0.00
1995	3,235,645	0	531,734	255,950	5,918	0	793,602	0.25	0.00	0.67	0.32	0.01	0.00
1996	1,955,741	12,160	293,392	363,974	22,168	0	691,694	0.35	0.02	0.42	0.53	0.03	0.00
1997	1,319,868	1,118	123,298	497,541	27,611	0	649,567	0.49	0.00	0.19	0.77	0.04	0.00
1998	923,802	0	705,671	234,694	0	0	940,364	1.02	0.00	0.75	0.25	0.00	0.00
1999	1,003,968	6,158	987,721	881,025	2,560	0	1,877,465	1.87	0.00	0.53	0.47	0.00	0.00
2000	486,484	5,020	621,992	253,478	4,071	0	884,561	1.82	0.01	0.70	0.29	0.00	0.00
2001	434,723	48,084	2,299,225	2,939,196	206,006	0	5,492,510	12.63	0.01	0.42	0.54	0.04	0.00
2002	1,144,923	2,560	1,111,358	984,249	98,832	2,794	2,199,793	1.92	0.00	0.51	0.45	0.04	0.00
2003	1,174,152	12,213	892,691	1,040,643	29,436	0	1,974,982	1.68	0.01	0.45	0.53	0.01	0.00
2004	1,454,368	0	798,408	783,312	26,204	0	1,607,924	1.11	0.00	0.50	0.49	0.02	0.00
2005	2,439,497	0	798,030	520,579	9,867	0	1,328,476	0.54	0.00	0.60	0.39	0.01	0.00
2006	3,886,584	19,624	1,130,251	1,361,646	129,740	0	2,641,261	0.68	0.01	0.43	0.52	0.05	0.00
2007	1,805,419	69,876	1,082,081	622,752	52,561 [a]	0 [a]	1,827,270	1.01	0.04	0.59	0.34	0.03	0.00
Average													
1988-1994	1,663,647	3,589	886,207	1,237,559	92,374	0	2,219,729	1.95	0.00	0.42	0.53	0.04	0.00
1995-2007	1,635,783	13,601	875,065	826,080	47,306	215	1,762,267	1.95	0.01	0.52	0.45	0.02	0.00
1988-2007	1,645,535	10,097	878,965	970,098	63,080	140	1,922,378	1.95	0.01	0.49	0.48	0.03	0.00
Median													
1988-1994	1,784,568	0	651,330	1,178,943	72,550	0	2,405,052	1.35	0.00	0.48	0.49	0.04	0.00
1995-2007	1,319,868	5,020	798,408	622,752	26,204	0	1,607,924	1.02	0.00	0.51	0.47	0.02	0.00
1988-2007	1,387,118	2,013	798,219	812,571	33,511	0	1,717,597	1.06	0.00	0.50	0.48	0.03	0.00

[a] Estimated value based on the average proportional contribution of that age class to the total return.

Table 3. Brood year table for the model that includes the LYTF age-class composition for the harvest and the Anvik age class composition for escapement, 1988-2007.

		Age (numbers)							Age (proportion)				
Brood year	Spawners	0.2	0.3	0.4	0.5	0.6	Return	R/S	0.2	0.3	0.4	0.5	0.6
1988	2,182,512	0	620,827	537,179	45,990	0	1,203,996	0.55	0.00	0.52	0.45	0.04	0.00
1989	926,897	5,354	884,391	2,160,999	200,023	0	3,250,767	3.51	0.00	0.27	0.66	0.06	0.00
1990	622,078	7,560	1,191,614	1,784,143	76,538	0	3,059,854	4.92	0.00	0.39	0.58	0.03	0.00
1991	1,884,848	0	2,104,555	1,243,804	35,594	0	3,383,953	1.80	0.00	0.62	0.37	0.01	0.00
1992	1,784,568	92,088	1,419,722	950,606	16,742	0	2,479,159	1.39	0.04	0.57	0.38	0.01	0.00
1993	1,218,603	10,574	656,072	208,695	16,490	0	891,831	0.73	0.01	0.74	0.23	0.02	0.00
1994	3,026,024	6,599	816,691	663,100	10,329	0	1,496,718	0.49	0.00	0.55	0.44	0.01	0.00
1995	3,235,645	0	424,771	146,977	9,396	0	581,144	0.18	0.00	0.73	0.25	0.02	0.00
1996	1,955,741	1,117	397,013	407,881	21,023	0	827,034	0.42	0.00	0.48	0.49	0.03	0.00
1997	1,319,868	4,523	75,478	259,397	17,044	0	356,442	0.27	0.01	0.21	0.73	0.05	0.00
1998	923,802	869	928,931	302,794	7,273	0	1,239,867	1.34	0.00	0.75	0.24	0.01	0.00
1999	1,003,968	22,357	917,272	851,936	12,430	0	1,803,995	1.80	0.01	0.51	0.47	0.01	0.00
2000	486,484	17,936	640,898	86,370	184	0	745,388	1.53	0.02	0.86	0.12	0.00	0.00
2001	434,723	49,537	2,461,342	2,414,507	186,146	0	5,111,532	11.76	0.01	0.48	0.47	0.04	0.00
2002	1,144,923	121	1,604,954	664,690	83,373	0	2,353,137	2.06	0.00	0.68	0.28	0.04	0.00
2003	1,174,152	51,079	1,210,444	987,394	60,165	0	2,309,082	1.97	0.02	0.52	0.43	0.03	0.00
2004	1,454,368	19,860	839,633	618,488	4,505	0	1,482,486	1.02	0.01	0.57	0.42	0.00	0.00
2005	2,439,497	27,483	919,552	208,120	16,132	0	1,171,287	0.48	0.02	0.79	0.18	0.01	0.00
2006	3,886,584	36,385	1,416,673	1,240,630	93,195	0	2,786,883	0.72	0.01	0.51	0.45	0.03	0.00
2007	1,805,419	117,613	1,189,835	699,884	31,459 [a]	0 [a]	2,038,791	1.13	0.06	0.58	0.34	0.02	0.00
Average													
1988-1994	1,663,647	17,454	1,099,124	1,078,361	57,387	0	2,252,325	1.91	0.01	0.52	0.45	0.02	0.00
1995-2007	1,635,783	26,837	1,002,061	683,775	41,717	0	1,754,390	1.90	0.01	0.59	0.37	0.02	0.00
1988-2007	1,645,535	23,553	1,036,033	821,880	47,202	0	1,928,667	1.90	0.01	0.57	0.40	0.02	0.00
Median													
1988-1994	1,784,568	6,599	884,391	950,606	35,594	0	2,479,159	1.39	0.00	0.55	0.44	0.02	0.00
1995-2007	1,319,868	19,860	919,552	618,488	17,044	0	1,482,486	1.13	0.01	0.57	0.42	0.02	0.00
1988-2007	1,387,118	9,067	918,412	663,895	19,033	0	1,650,357	1.24	0.01	0.56	0.42	0.02	0.00

[a] Estimated value based on the average proportional contribution of that age class to the total return.

Table 4. Brood year table for the model that includes the weighted harvest age-class composition for the harvest and the Anvik River escapement age class composition for the escapement, 1988-2007.

		Age (numbers)							Age (proportion)				
Brood year	Spawners	0.2	0.3	0.4	0.5	0.6	Return	R/S	0.2	0.3	0.4	0.5	0.6
1988	2,182,512	10,161	681,339	513,123	43,756	0	1,248,379	0.57	0.01	0.55	0.41	0.04	0.00
1989	926,897	6,698	907,455	2,104,051	162,217	795	3,181,216	3.43	0.00	0.29	0.66	0.05	0.00
1990	622,078	8,304	1,250,050	1,709,475	70,974	0	3,038,802	4.88	0.00	0.41	0.56	0.02	0.00
1991	1,884,848	372	2,215,139	1,215,188	32,962	0	3,463,661	1.84	0.00	0.64	0.35	0.01	0.00
1992	1,784,568	93,033	1,450,723	936,459	15,204	0	2,495,419	1.40	0.04	0.58	0.38	0.01	0.00
1993	1,218,603	12,958	672,193	209,523	13,952	0	908,627	0.75	0.01	0.74	0.23	0.02	0.00
1994	3,026,024	7,257	817,046	674,063	10,980	0	1,509,346	0.50	0.00	0.54	0.45	0.01	0.00
1995	3,235,645	355	417,259	152,476	10,273	0	580,363	0.18	0.00	0.72	0.26	0.02	0.00
1996	1,955,741	203	391,007	412,617	21,716	0	825,543	0.42	0.00	0.47	0.50	0.03	0.00
1997	1,319,868	4,378	69,865	262,862	19,390	72	356,566	0.27	0.01	0.20	0.74	0.05	0.00
1998	923,802	869	925,120	319,378	8,233	0	1,253,599	1.36	0.00	0.74	0.25	0.01	0.00
1999	1,003,968	22,011	898,424	855,423	14,092	0	1,789,949	1.78	0.01	0.50	0.48	0.01	0.00
2000	486,484	17,855	638,113	92,720	369	275	749,332	1.54	0.02	0.85	0.12	0.00	0.00
2001	434,723	47,804	2,453,350	2,430,912	199,918	440	5,132,424	11.81	0.01	0.48	0.47	0.04	0.00
2002	1,144,923	223	1,588,918	673,504	85,574	429	2,348,648	2.05	0.00	0.68	0.29	0.04	0.00
2003	1,174,152	50,710	1,187,307	998,182	60,833	0	2,297,032	1.96	0.02	0.52	0.43	0.03	0.00
2004	1,454,368	19,860	825,982	617,439	2,973	0	1,466,254	1.01	0.01	0.56	0.42	0.00	0.00
2005	2,439,497	27,704	920,006	190,940	17,737	0	1,156,386	0.47	0.02	0.80	0.17	0.02	0.00
2006	3,886,584	36,600	1,429,948	1,223,292	86,765	0	2,776,605	0.71	0.01	0.51	0.44	0.03	0.00
2007	1,805,419	123,049	1,205,349	675,358	31,780 [a]	164 [a]	2,035,701	1.13	0.06	0.59	0.33	0.02	0.00
Average													
1988-1994	1,663,647	19,826	1,141,992	1,051,697	50,006	114	2,263,636	1.91	0.01	0.53	0.43	0.02	0.00
1995-2007	1,635,783	27,048	996,204	685,008	43,050	106	1,751,416	1.90	0.01	0.59	0.38	0.02	0.00
1988-2007	1,645,535	24,520	1,047,230	813,349	45,485	109	1,930,693	1.90	0.01	0.57	0.40	0.02	0.00
Median													
1988-1994	1,784,568	8,304	907,455	936,459	32,962	0	2,495,419	1.40	0.00	0.55	0.41	0.02	0.00
1995-2007	1,319,868	19,860	920,006	617,439	19,390	0	1,466,254	1.13	0.01	0.56	0.42	0.02	0.00
1988-2007	1,387,118	11,560	913,730	673,783	20,553	0	1,649,647	1.24	0.01	0.55	0.42	0.02	0.00

[a] Estimated value based on the average proportional contribution of that age class to the total return.

Table 5. Brood year table for the model that includes the weighted harvest age-class composition for the harvest and the LYTF age class composition for the escapement, 1988-2007.

		Age (numbers)							Age (proportion)				
Brood year	Spawners	0.2	0.3	0.4	0.5	0.6	Return	R/S	0.2	0.3	0.4	0.5	0.6
1988	2,182,512	10,161	601,033	817,774	86,121	0	1,515,089	0.69	0.01	0.40	0.54	0.06	0.00
1989	926,897	1,345	583,306	2,046,557	217,223	795	2,849,225	3.07	0.00	0.20	0.72	0.08	0.00
1990	622,078	2,211	1,268,207	2,149,522	137,469	0	3,557,408	5.72	0.00	0.36	0.60	0.04	0.00
1991	1,884,848	372	1,791,269	1,412,718	69,918	0	3,274,278	1.74	0.00	0.55	0.43	0.02	0.00
1992	1,784,568	21,849	1,194,521	1,164,796	40,147	0	2,421,313	1.36	0.01	0.49	0.48	0.02	0.00
1993	1,218,603	5,135	413,499	349,941	35,048	0	803,624	0.66	0.01	0.51	0.44	0.04	0.00
1994	3,026,024	658	651,685	534,959	9,034	0	1,196,336	0.40	0.00	0.54	0.45	0.01	0.00
1995	3,235,645	355	524,223	261,449	6,795	0	792,822	0.25	0.00	0.66	0.33	0.01	0.00
1996	1,955,741	11,247	287,386	368,710	22,861	0	690,204	0.35	0.02	0.42	0.53	0.03	0.00
1997	1,319,868	973	117,685	501,006	29,957	72	649,692	0.49	0.00	0.18	0.77	0.05	0.00
1998	923,802	0	701,860	251,277	960	0	954,096	1.03	0.00	0.74	0.26	0.00	0.00
1999	1,003,968	5,811	968,873	884,512	4,222	0	1,863,418	1.86	0.00	0.52	0.47	0.00	0.00
2000	486,484	4,939	619,207	259,828	4,255	275	888,504	1.83	0.01	0.70	0.29	0.00	0.00
2001	434,723	46,351	2,291,233	2,955,600	219,778	440	5,513,402	12.68	0.01	0.42	0.54	0.04	0.00
2002	1,144,923	2,662	1,095,322	993,063	101,034	3,223	2,195,303	1.92	0.00	0.50	0.45	0.05	0.00
2003	1,174,152	11,844	869,553	1,051,431	30,103	0	1,962,932	1.67	0.01	0.44	0.54	0.02	0.00
2004	1,454,368	0	784,757	782,263	24,672	0	1,591,692	1.09	0.00	0.49	0.49	0.02	0.00
2005	2,439,497	220	798,483	503,400	11,472	0	1,313,575	0.54	0.00	0.61	0.38	0.01	0.00
2006	3,886,584	19,838	1,143,526	1,344,309	123,310	0	2,630,983	0.68	0.01	0.43	0.51	0.05	0.00
2007	1,805,419	75,313	1,097,596	598,226	52,882 [a]	164 [a]	1,824,180	1.01	0.04	0.60	0.33	0.03	0.00
Average													
1988-1994	1,663,647	5,962	929,074	1,210,895	84,994	114	2,231,039	1.95	0.00	0.44	0.52	0.04	0.00
1995-2007	1,635,783	13,812	869,208	827,313	48,639	321	1,759,293	1.95	0.01	0.52	0.45	0.02	0.00
1988-2007	1,645,535	11,064	890,161	961,567	61,363	248	1,924,404	1.95	0.01	0.49	0.48	0.03	0.00
Median													
1988-1994	1,784,568	2,211	651,685	1,164,796	69,918	0	2,421,313	1.36	0.00	0.49	0.48	0.04	0.00
1995-2007	1,319,868	4,939	798,483	598,226	24,672	0	1,591,692	1.03	0.00	0.50	0.47	0.02	0.00
1988-2007	1,387,118	3,801	791,620	800,018	32,576	0	1,707,936	1.06	0.00	0.50	0.48	0.03	0.00

[a] Estimated value based on the average proportional contribution of that age class to the total return.

Table 6. Brood year table summary statistics for all age-class composition models and for all time periods, Yukon River su salmon, brood years 1988-1994, 1995-2007 and 1988-2007.

	Brood Year Table Summary by Model					
Harvest Age Composition	LYTF			LYTF		
Escapement Age Composition	LYTF			Anvik River Escape.		
Brood Year Period	1988-1994	1995-2007	1988-2007	1988-1994	1995-2007	1988-2007
Median Escapements	1,784,568	1,319,868	1,645,535	1,784,568	1,319,868	1,645,535
Median Return	2,405,052	1,607,924	1,717,597	2,479,159	1,482,486	1,650,357
Minimum R/S	0.39	0.25	0.25	0.49	0.18	0.18
Maximum R/S	5.75	12.63	12.63	4.92	11.76	11.76
Median R/S	1.35	1.02	1.06	1.39	1.13	1.24
Median Prop ≤ age-0.3	0.48	0.51	0.50	0.55	0.58	0.57
Median Prop ≥ age-0.4	0.53	0.49	0.50	0.46	0.43	0.44

	Brood Year Table Summary by Model					
Harvest Age Composition	Weighted Harvest			Weighted Harvest		
Escapement Age Composition	Anvik River Escape.			LYTF		
Brood Year Period	1988-1994	1995-2007	1988-2007	1988-1994	1995-2007	1988-2007
Median Escapements	1,784,568	1,319,868	1,645,535	1,784,568	1,319,868	1,645,535
Median Return	2,495,419	1,466,254	1,649,647	2,421,313	1,591,692	1,707,936
Minimum R/S	0.50	0.18	0.18	0.40	0.25	0.25
Maximum R/S	4.88	11.81	11.81	5.72	12.68	12.68
Median R/S	1.40	1.13	1.24	1.36	1.03	1.06
Median Prop ≤ age-0.3	0.55	0.58	0.57	0.49	0.50	0.50
Median Prop ≥ age-0.4	0.43	0.44	0.43	0.50	0.49	0.50

Table 7. Spawner-recruit summary point estimate statistics for the various age-class composition models for brood years, 1 1995-2007, Yukon River summer chum salmon.

	Spawner-Recruit Analyses Statistics							
Harvest Age Composition	LYTF		LYTF		Weighted Harvest		LYTF	
Escapement Age Composition	LYTF		Anvik River		Anvik River		Anvik River	
Model Years	1988-2007	1995-2007	1988-2007	1995-2007	1988-2007	1995-2007	1988-2007	1995-2007
lnalpha^	1.3482	1.1602	1.3480	1.1623	1.3223	1.1439	1.3226	1.1420
beta^	7.3E-07	6.7E-07	7.3E-07	6.7E-07	7.3E-07	6.8E-07	7.3E-07	6.8E-07
sigma^	0.6907	0.7558	0.6885	0.7553	0.7472	0.8443	0.7489	0.8443
lnalpha.p	1.5867	1.4458	1.5850	1.4476	1.6015	1.5003	1.6030	1.4984
S.max^	1,365,807	1,501,066	1,368,271	1,495,739	1,376,954	1,462,427	1,374,435	1,467,550
S.eq^	2,167,190	2,170,281	2,168,751	2,165,204	2,205,165	2,194,114	2,203,272	2,199,047
S.msy^	842,880	865,491	843,748	863,200	855,375	866,625	854,401	868,862
U.msy^	0.62	0.58	0.62	0.58	0.62	0.59	0.62	0.59
MSY^	1,379,740	1,198,794	1,378,403	1,198,162	1,424,355	1,281,469	1,425,303	1,281,911
Contrast	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9

Table 8. Spawner-recruit summary point estimate and 80% confidence interval statistics for the age-class composition models tha weighted harvest age-class to represent the total harvest and Anvik River escapement age class composition to represent the total escapement to calculate total return for brood years 1988-2007 (left) and 1995-2007 (left), Yukon River summer chum salmon.

	Brood Years	**Harvest Age comp**	**Escape Age comp**
Model	**1988-2007**	**Weighted Harvest**	**Anvik R. Escape.**
	L80	Point	U80
lnalpha^	0.9297	1.3223	1.7410
beta^	5.17E-07	7.26E-07	9.49E-07
sigma^	0.5490	0.7472	0.8609
lnalpha.p	1.1756	1.6015	2.0125
S.max^	1,054,081	1,376,954	1,933,536
S.eq^	1,849,060	2,205,165	2,569,156
S.msy^	716,337	855,375	1,018,937
U.msy^	0.4911	0.6212	0.7227
MSY^	846,562	1,424,355	2,160,790
Contrast	8.94		
Years	20		

	Brood Years	**Harvest Age comp**	**Escape Age comp**
Model	**1995-2007**	**Weighted Harvest**	**Anvik R. Escape.**
	L80	Point	U80
lnalpha^	0.6446	1.1439	1.6937
beta^	4.03E-07	6.84E-07	9.81E-07
sigma^	0.5161	0.8443	0.9603
lnalpha.p	0.9066	1.5003	2.0489
S.max^	1,019,369	1,462,427	2,478,469
S.eq^	1,586,059	2,194,114	2,787,970
S.msy^	644,217	866,625	1,109,910
U.msy^	0.3958	0.5926	0.7306
MSY^	527,795	1,281,469	2,292,410
Contrast	8.94		
Years	13		

FIGURES

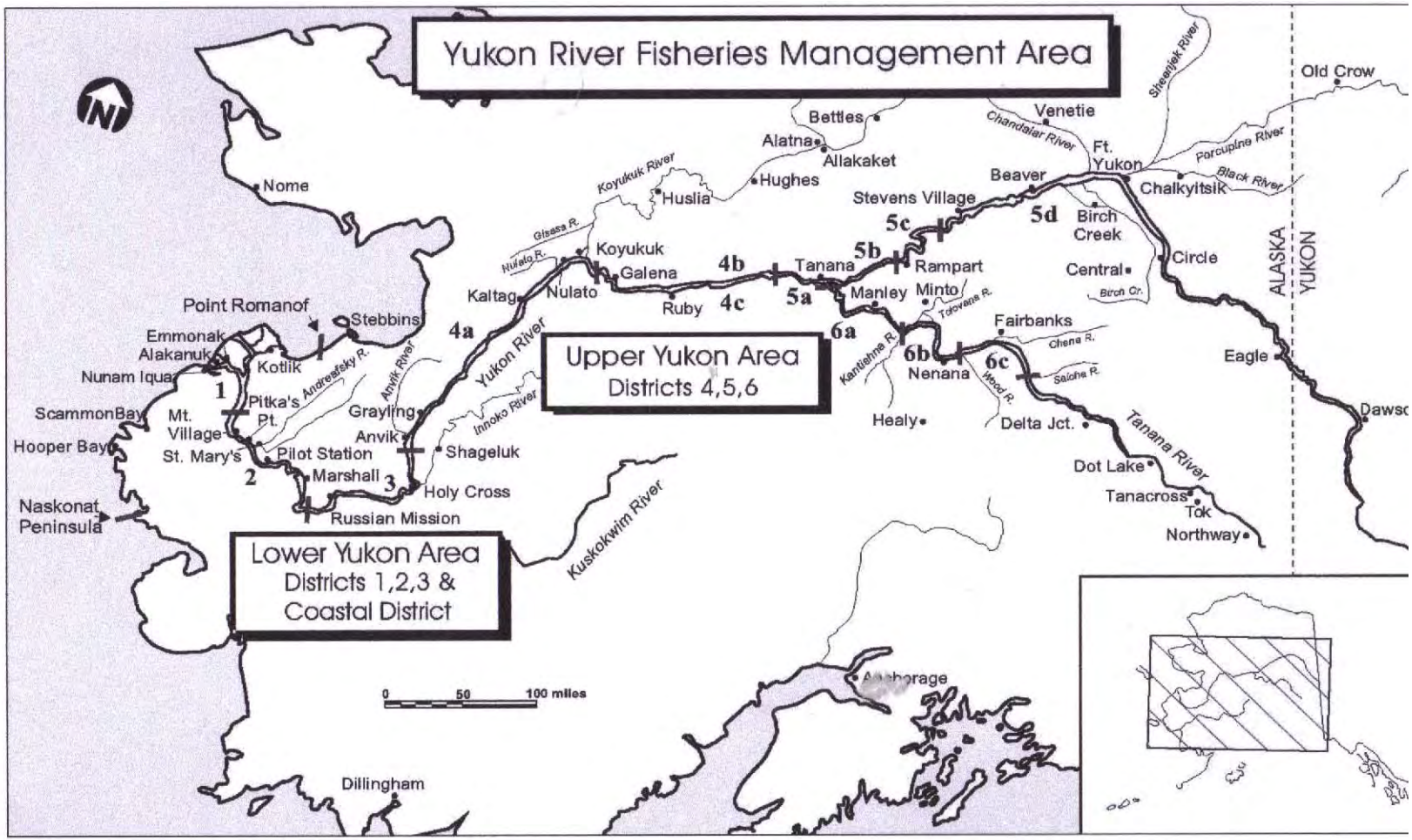

Figure 1.–Yukon Area communities and fishing districts.

Figure 1. Map of the Yukon River drainage in Alaska showing management units.

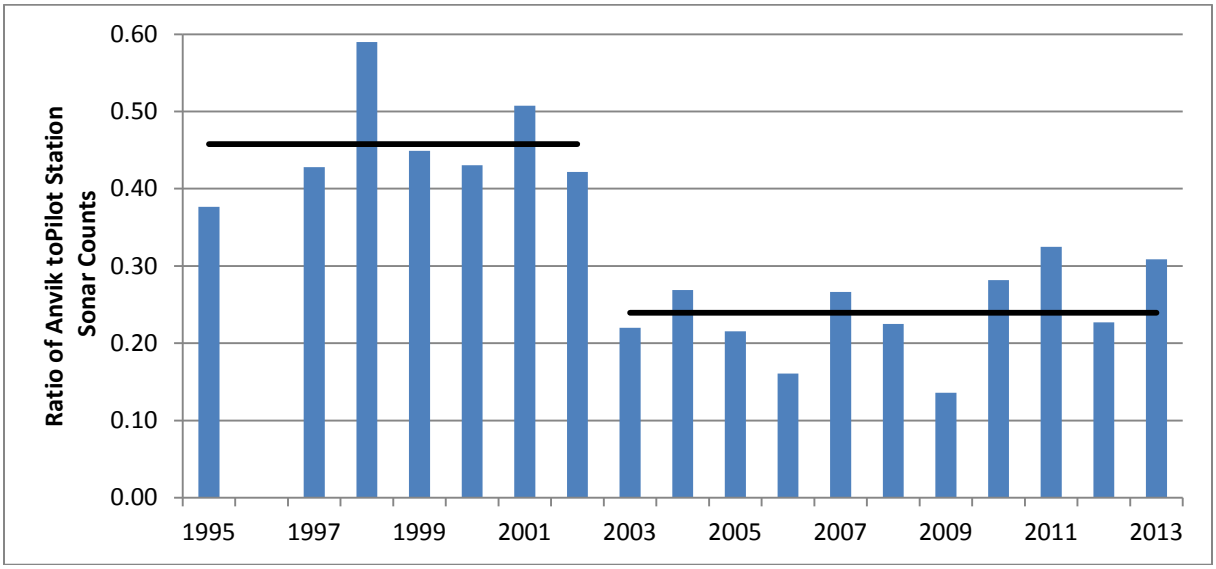

Figure 2. Proportional contribution of the Anvik River summer counts to Pilot Station sonar counts, Yukon River summer chum salmon, 1995, 1997-2013. Solid lines represent the mean proportional contribution for the years indicated.

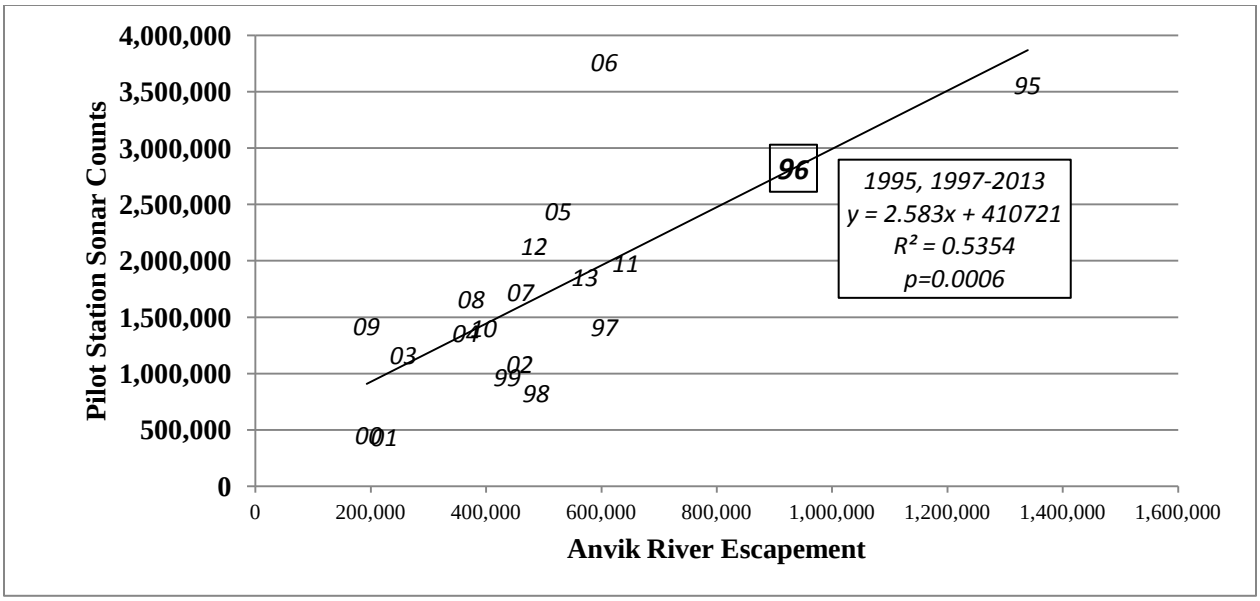

Figure 3. Linear relationship between Yukon Sonar and Anvik River sonar counts of summer chum salmon for the periods 1995, 1997-2013. The boxed 96 represents the predicted value for the 1996 Pilot Station sonar counts of summer chum salmon.

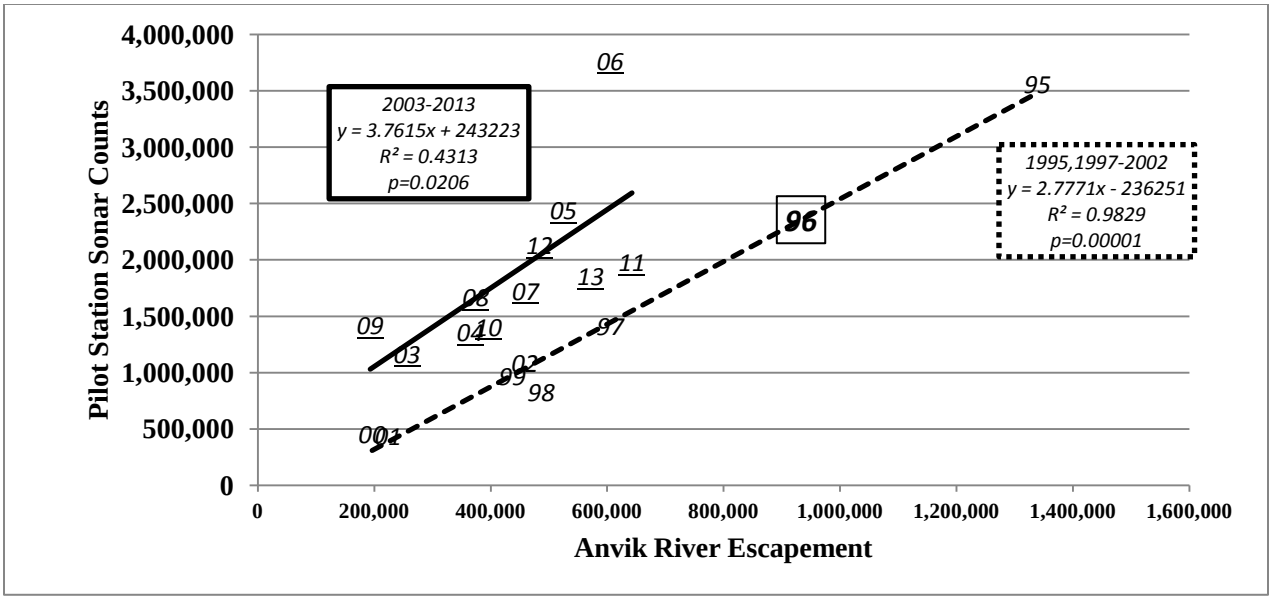

Figure 4. Linear relationship between Yukon Sonar and Anvik River sonar counts of summer chum salmon for the periods 1995, 1997-2002; and 2003-2013 (underlined numbers). The boxed 96 represents the predicted value for the 1996 Pilot Station sonar summer chum salmon passage.

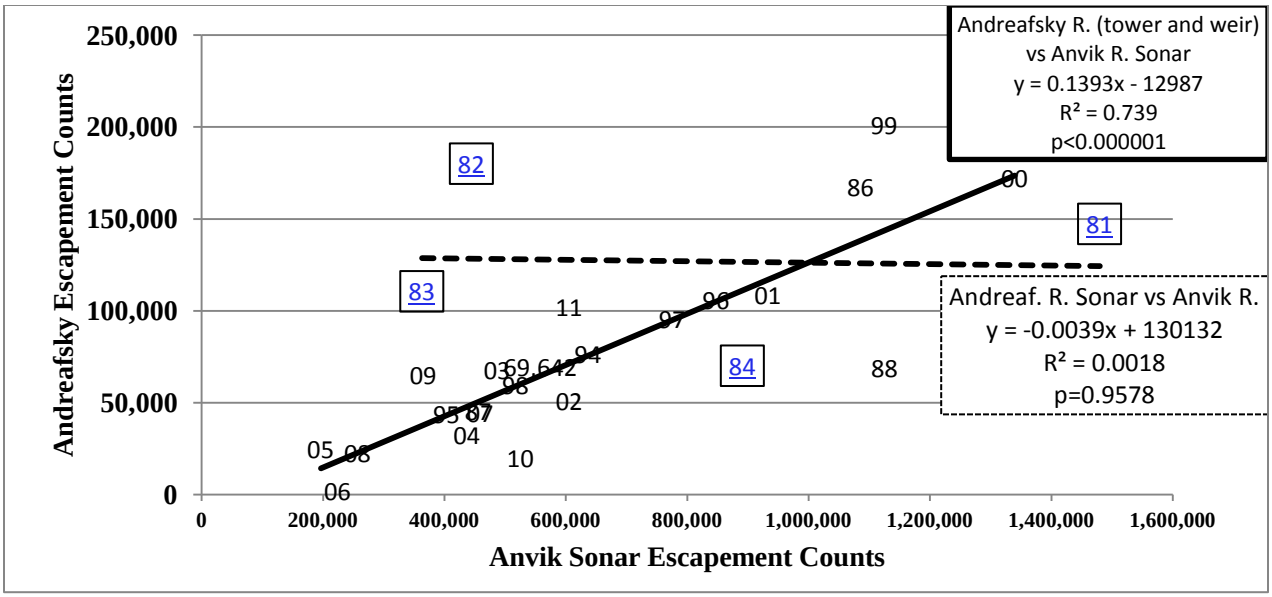

Figure 5. Linear relationship between Andreafsky River tower (1986-1988) and weir (1994-2012) counts versus Anvik River sonar counts, summer chum salmon escapement. The boxed numbers represent the years when escapement was estimated by sonar in the Andreafsky River, 1981-1984.

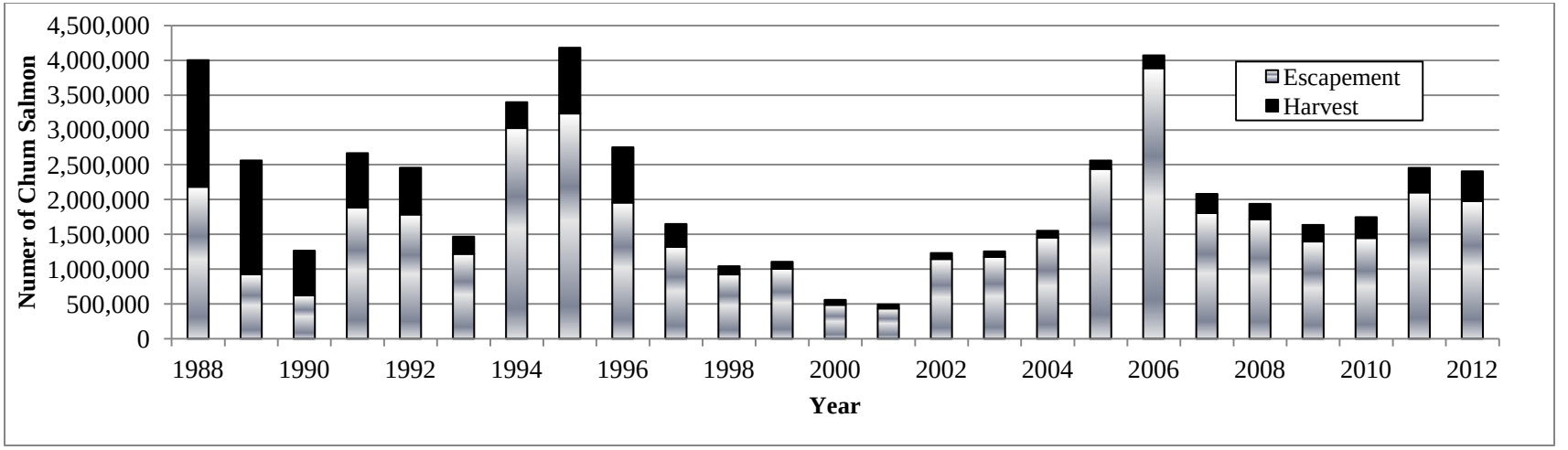

Figure 6. Total Yukon River summer chum salmon run size, portioned by total harvest and escapement, 1988-2012.

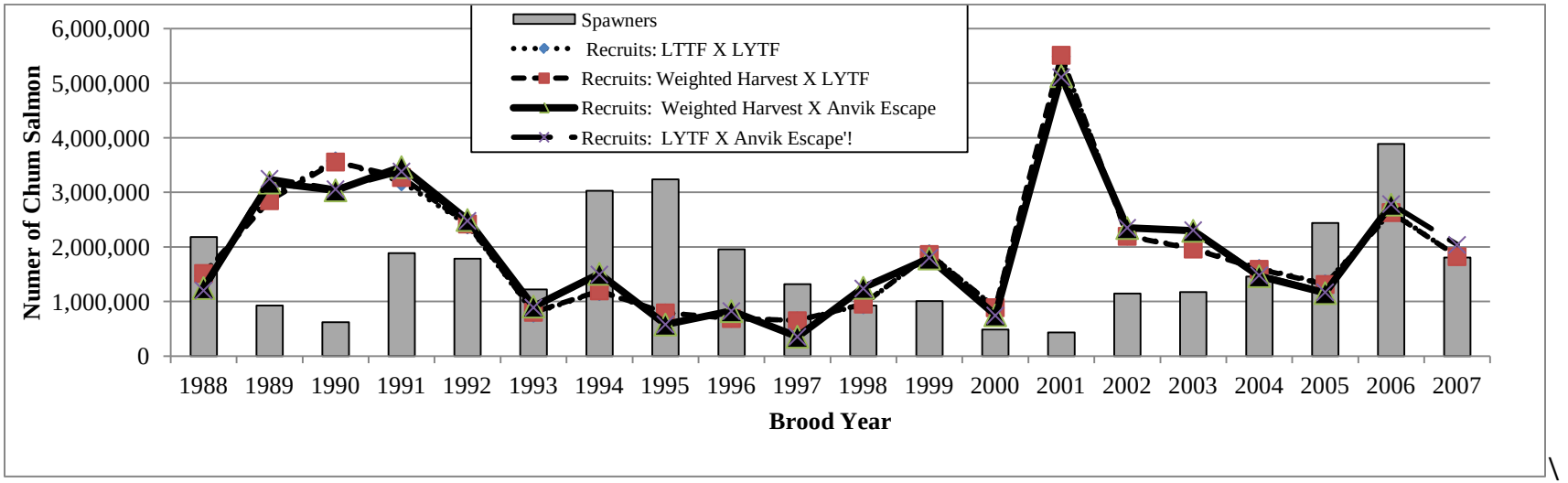

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Figure 7. Total return by brood year for the 4 age-class composition models. Yukon River summer chum salmon, brood years 1988-2007.

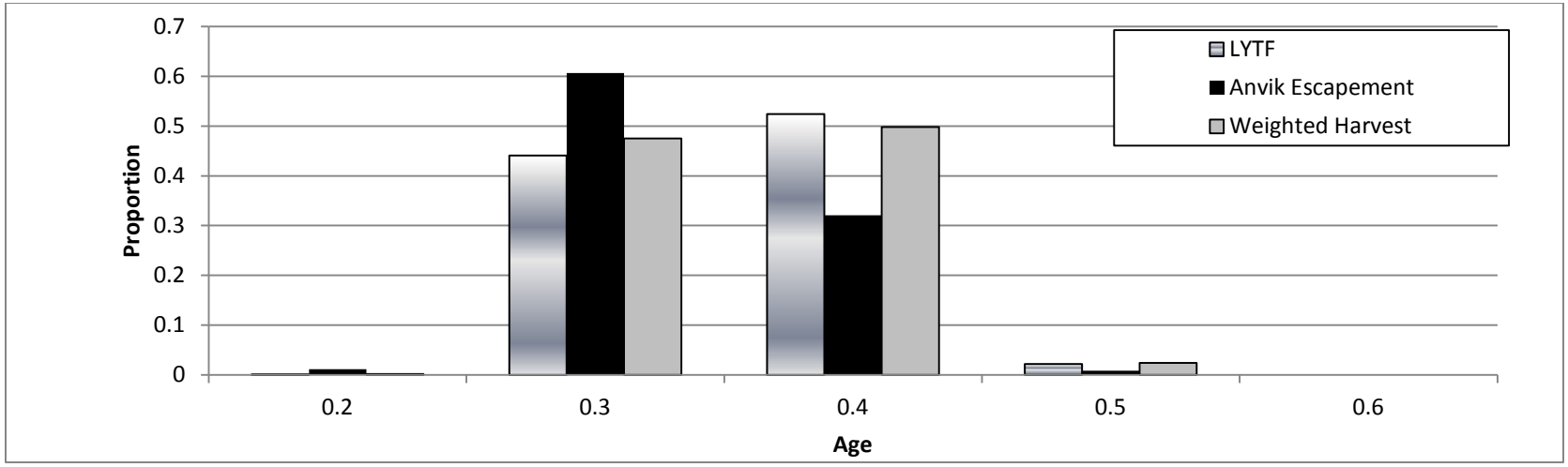
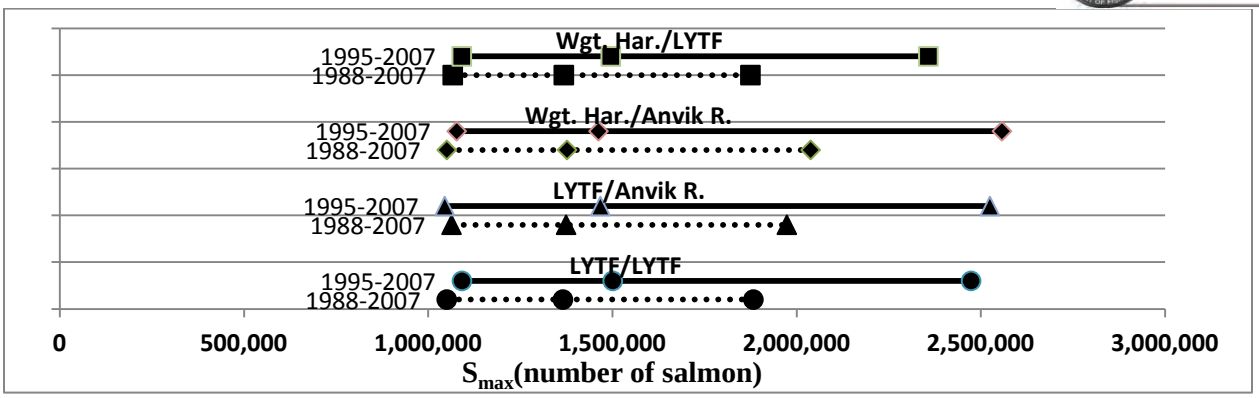
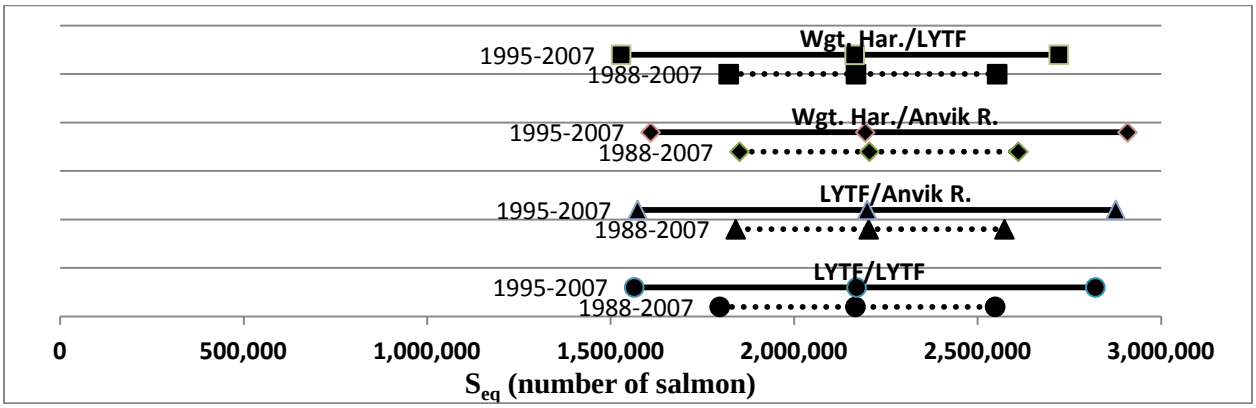
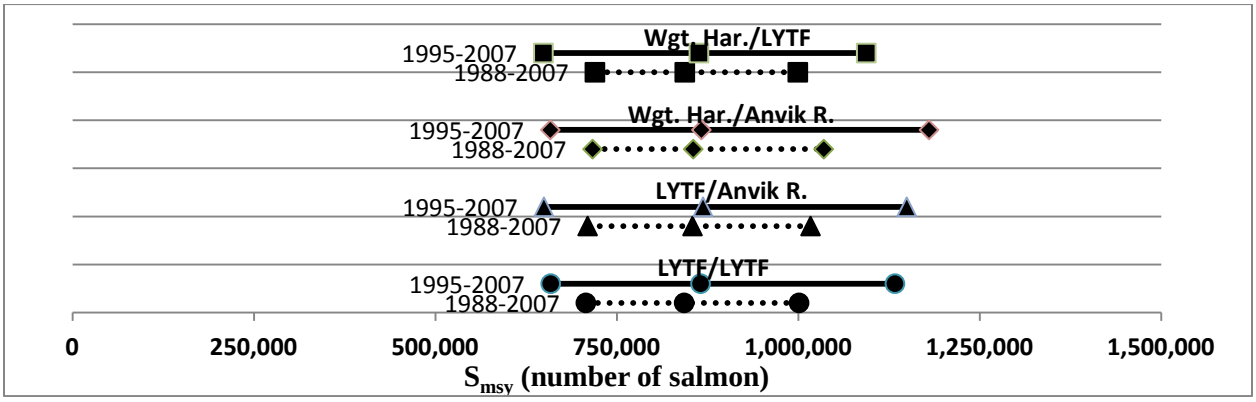


Figure 8. Median proportion values for the age-class composition of the databases used in the various models to estimate total brood year return, Yukon River summer chum salmon, 1988-2012.







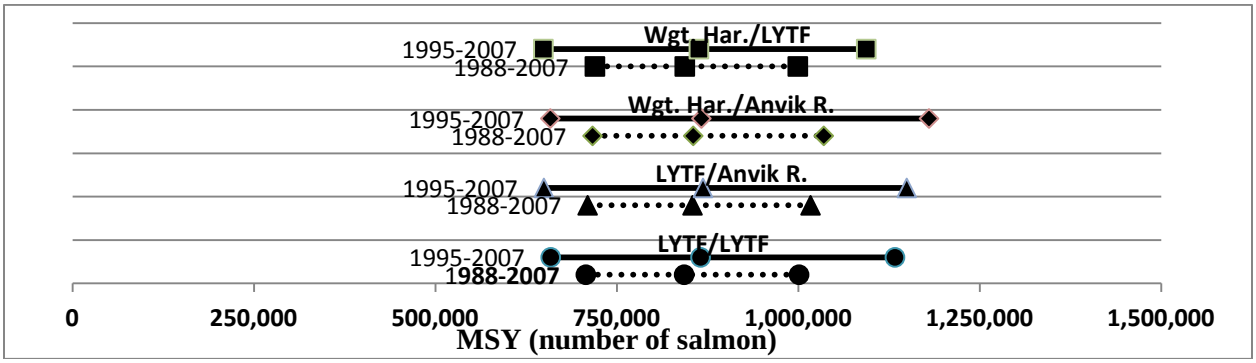


Figure 9. Comparisons of spawner-recruit statistics point estimates and associated 80% CI ranges for S_{max}, S_{eq}, S_{msy}, and MSY, calculated from the various age-class composition models for both brood year periods, Yukon River summer chum salmon brood years 1988-2007.

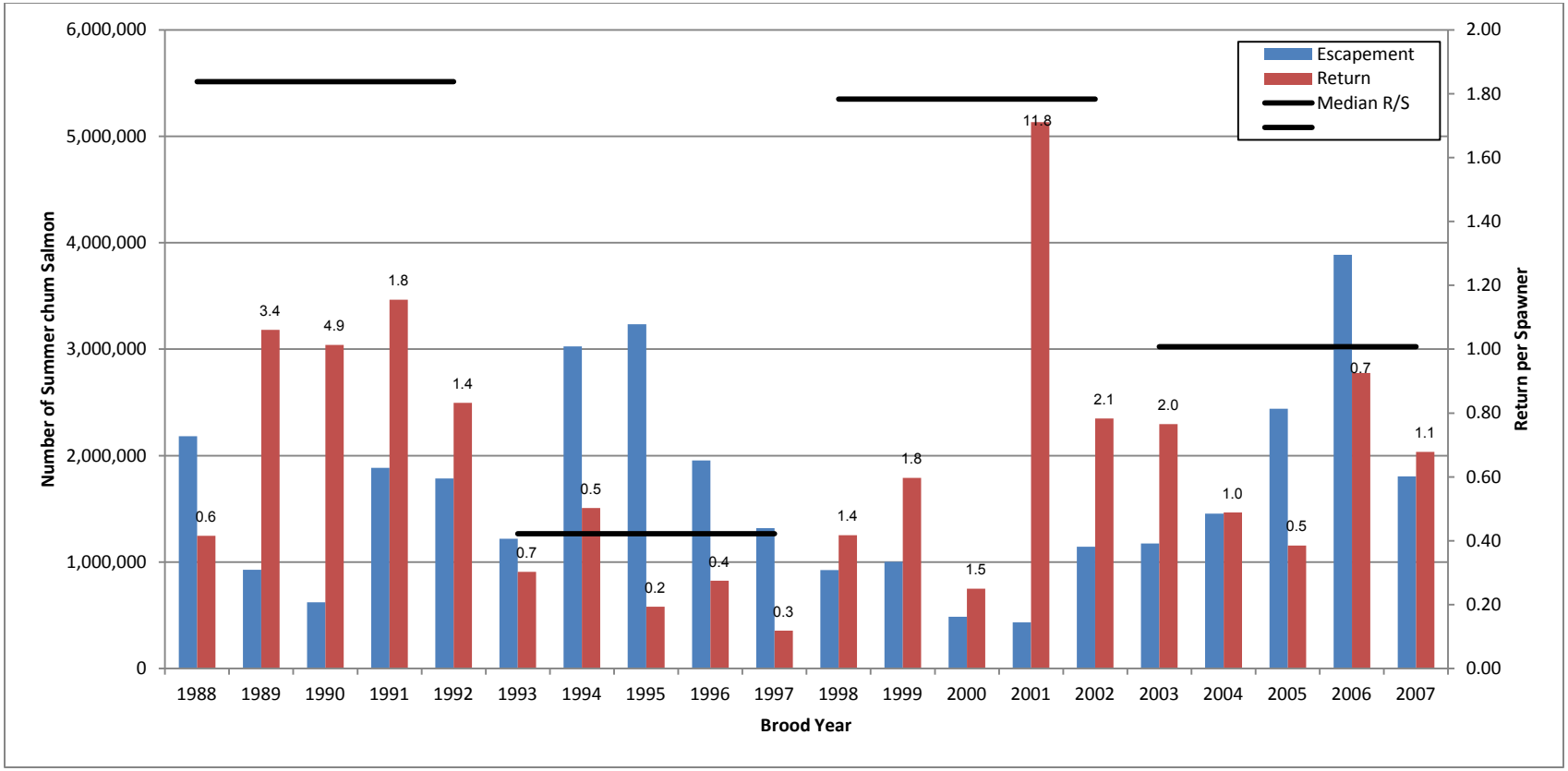
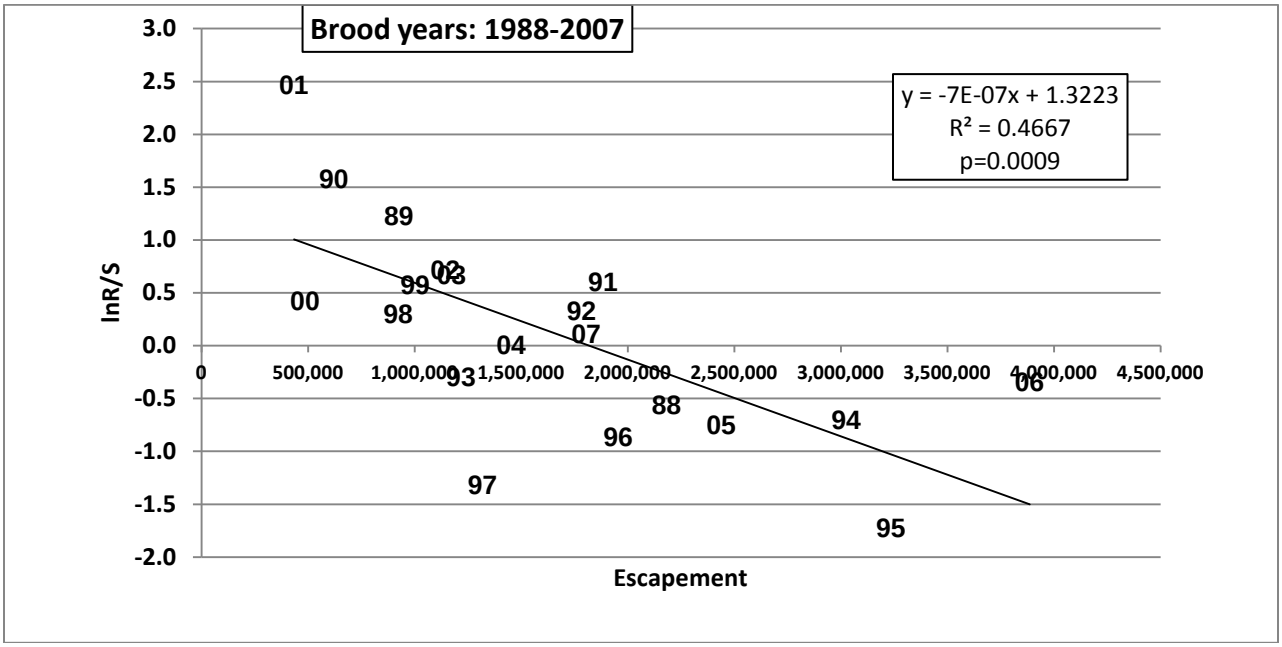


Figure 10. Yukon River summer chum salmon estimated escapement, return, return per spawner (numbers above return), and 5-year median return per spawner (solid lines) for the weighted harvest/Anvik River escapement age-class composition model, by brood year, brood year 1988-2007. Note: median return per spawner value for the 3-year brood year period, 1995-1997 is 0.3.



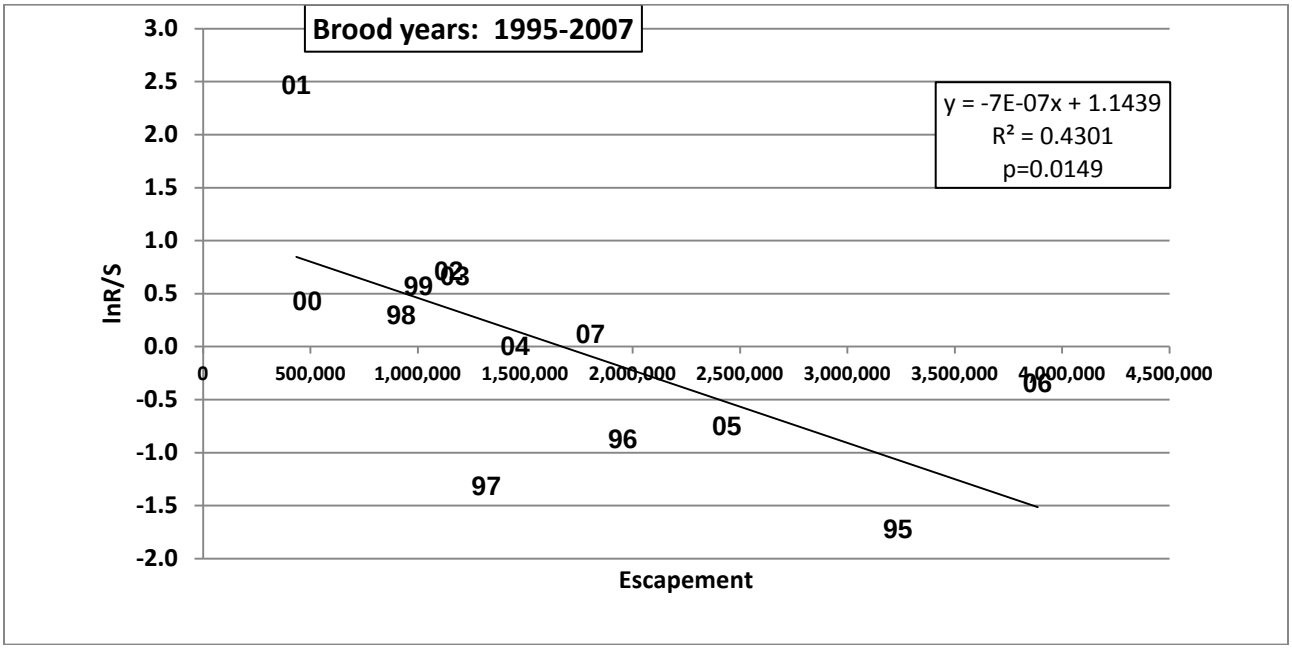


Figure 11. Relationship between ln(R/S) and escapement (spawners) for the weighted harvest/Anvik River escapement model for brood years 1988-2007 (above) and brood years 1995-2007 (below), Yukon River summer chum salmon. Note: numbers on the graph indicate the brood year.

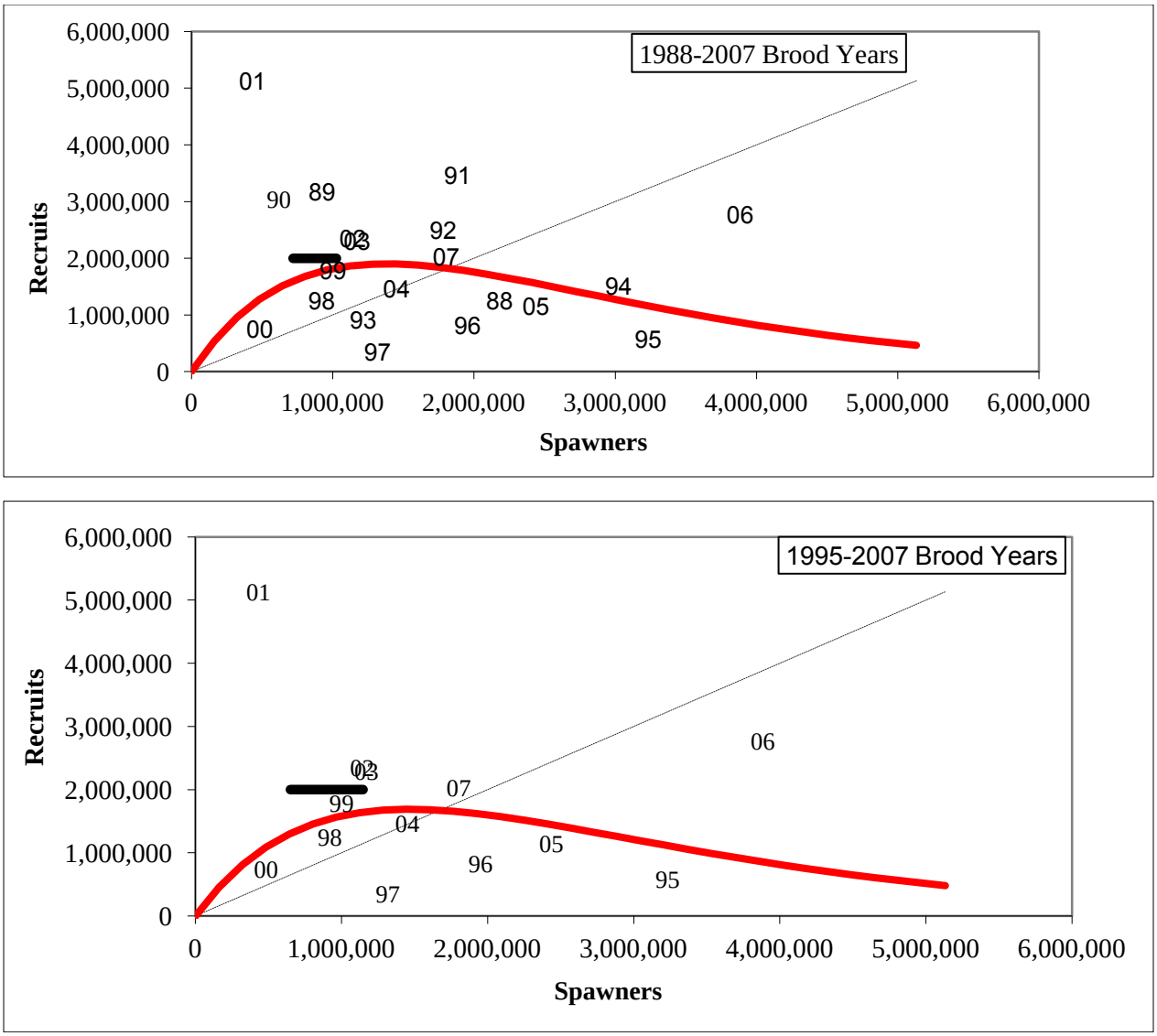


Figure 12. Spawner-recruit relationship for the weighted harvest/Anvik River escapement model for the brood years 1988-2007 (above) and 1995-2007 (below), Yukon River summer chum salmon. Numbers on the graph indicate brood years; diagonal line represents the replacement point or an R/S of 1.0; horizontal line above spawner-recruit line indicates the 80% CI S_{msy} range.

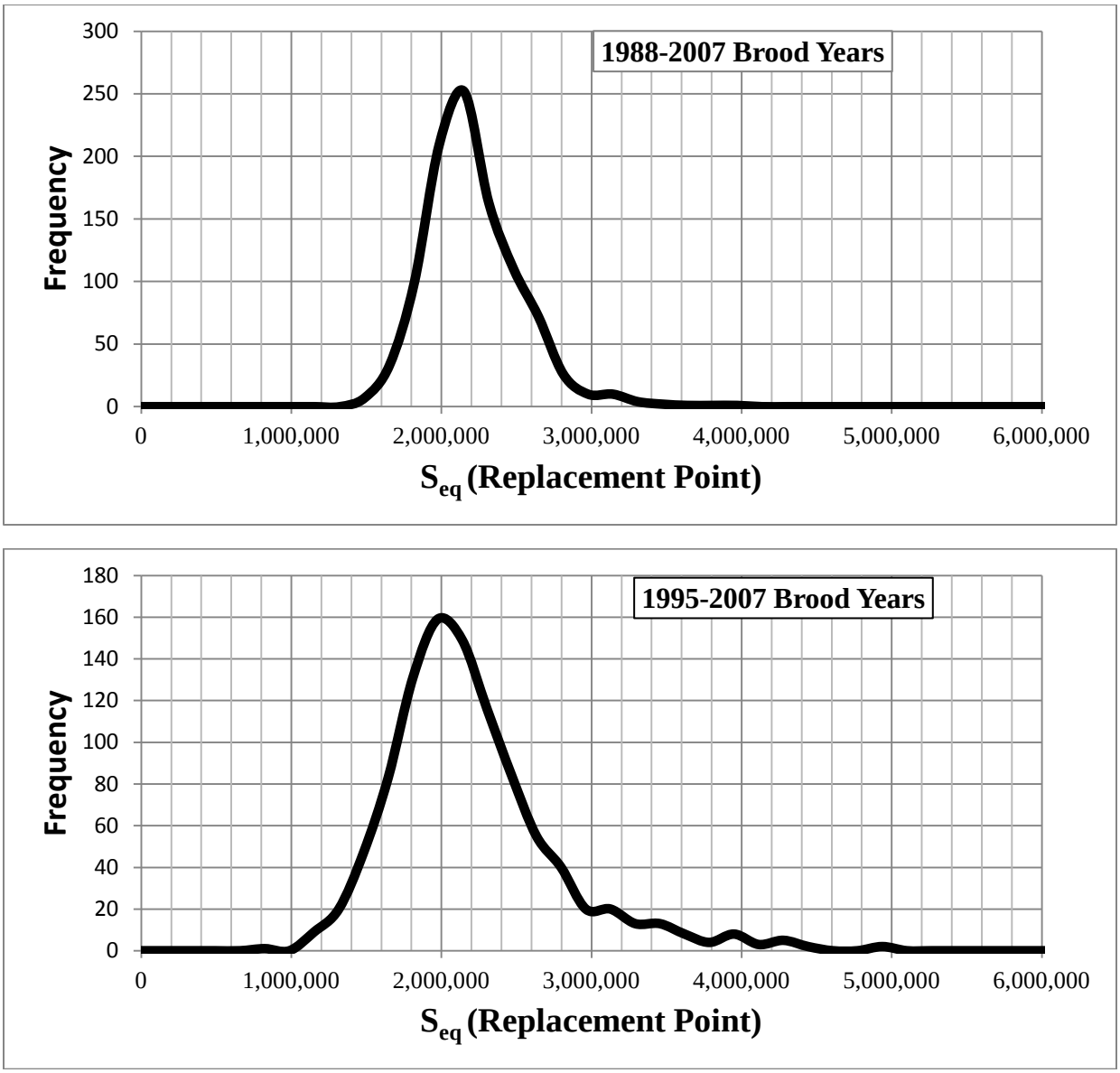


Figure 13. Frequency of the estimates of the number of spawners that occur at the replacement point, $S_{eq,}$ through bootstrapping techniques for the weighted harvest/Anvik River escapement model for brood years 1988-2007 (above) and 1997-2007 below. Yukon River summer chum salmon.

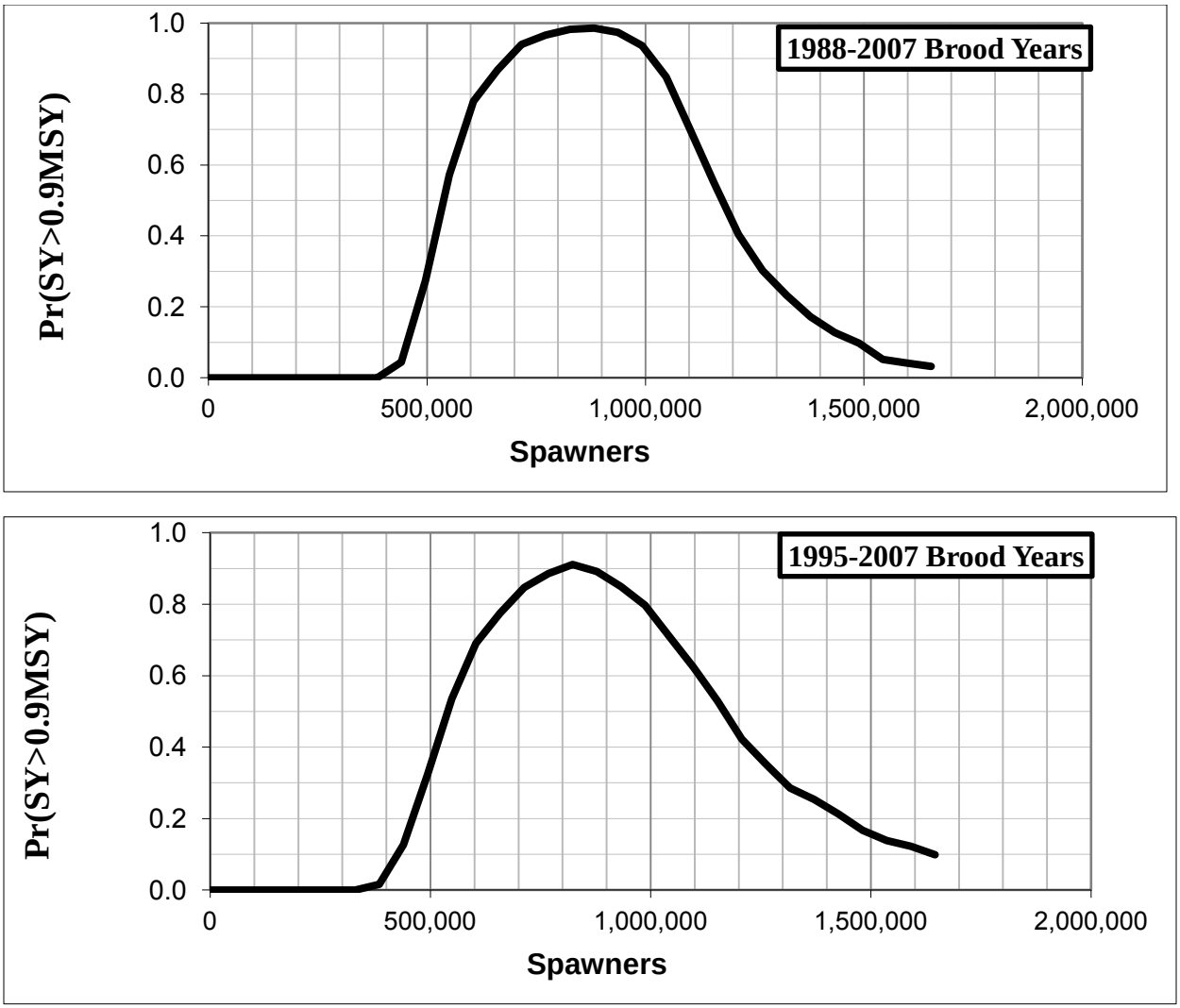


Figure 14. Relative yield probability profile for the weighted harvest/Anvik River escapement model for brood years 1988-2007 (above) and 1995-2007 (below), Yukon River summer chum salmon.

APPENDIX A.

Age-class Composition Databases

Appendix A 1. Yukon River summer chum salmon age composition from the combined Big Eddy and Middle Mouth 5.5-inch mesh gillnet test fisheries, 1988-2012 (data from 1988-2010 taken from Schumann and DuBois 2011).

		Age					
Year		0.2	0.3	0.4	0.5	0.6	Total
1988		0.1	50.5	48.4	1.0	0.0	100.0
1989		0.0	39.9	59.5	0.6	0.0	100.0
1990		0.8	46.1	50.1	3.1	0.0	100.1
1991		0.0	45.4	53.6	0.9	0.0	99.9
1992		0.0	22.0	71.8	6.2	0.0	100.0
1993		0.1	38.2	57.4	4.4	0.0	100.1
1994		0.0	35.6	61.9	2.6	0.0	100.1
1995		0.5	40.2	53.2	6.1	0.0	100.0
1996		0.1	42.3	52.4	5.2	0.0	100.0
1997		0.0	24.1	71.5	4.4	0.0	100.0
1998		0.0	62.5	33.5	4.0	0.0	100.0
1999		1.1	48.1	47.4	3.4	0.0	100.0
2000		0.2	52.5	45.8	1.5	0.0	100.0
2001		0.0	25.0	73.8	1.2	0.0	100.0
2002		0.5	57.3	40.4	1.8	0.0	100.0
2003		0.4	78.7	18.7	2.2	0.0	100.0
2004		3.1	40.1	56.8	0	0.0	100.0
2005		0.1	89.8	9.9	0.1	0.0	99.9
2006		0.3	27.3	72.2	0.1	0.0	99.9
2007		0.0	42.9	47.3	9.9	0.0	100.1
2008		0.0	41.2	53.7	5.1	0.0	100.0
2009		1.2	48.8	47.9	1.8	0.2	99.9
2010		4.0	64.7	29.8	1.5	0.0	100.0
2011	[a]	0.1	44.1	55.5	0.4	0.0	100.0
2012	[a]	0.0	68.7	25.9	5.4	0.0	100.0

[a] Calculated from data in the AYKDMS.

Appendix A 2. Weighted Yukon River summer chum salmon age-class composition of sampled commercial and subsistence harvests, 1988-2012. (Data from 1988-2010 taken from Estensen, et al. 2012)

	Age					
Year	0	0.3	0.4	0.5	0.6	Total
1988	0.0	70.1	29.1	0.8	0.0	100.0
1989	0.4	38.7	60.5	0.4	0.0	100.0
1990	0.4	38.3	58.9	2.4	0.0	100.0
1991	1.3	48.0	49.8	0.9	0.0	100.0
1992	0.2	31.0	65.0	3.8	0.0	100.0
1993	0.4	47.5	47.7	4.5	0.0	100.0
1994	0.1	51.3	46.6	2.0	0.0	100.0
1995	0.6	51.9	45.3	2.1	0.0	99.9
1996	0.4	46.2	48.8	4.5	0.1	100.0
1997	0.2	29.0	67.2	3.6	0.0	100.0
1998	0.3	62.8	34.2	2.7	0.0	100.0
1999	0.2	40.7	58.2	0.9	0.0	100.0
2000	0.0	44.2	53.4	2.4	0.0	100.0
2001	0.0	15.4	81.9	2.7	0.0	100.0
2002	0.1	52.9	44.4	2.6	0.0	100.0
2003	0.3	55.4	39.2	5.1	0.0	100.0
2004	1.3	37.2	60.4	1.0	0.1	100.0
2005	0.2	83.2	15.2	1.5	0.0	100.0
2006	0.1	18.6	81.1	0.2	0.0	100.0
2007	0.0	34.5	50.5	14.9	0.1	99.9
2008	0.1	35.0	58.6	6.1	0.2	99.8
2009	1.3	49.0	47.5	2.1	0.2	100.0
2010 [a]	5.8	69.1	24.1	1.0	0.0	100.0
2011 [b]	0.1	48.5	50.6	0.9	0.0	100.0
2012 [b]	0.5	75.5	20.1	3.9	0.0	100.0

[a] Larry Dubois, ADF&G/CF, Anchorage personal communication.

[b] Calculated from data contained in the AYKDMS.

Appendix A 3. Anvik River summer chum salmon escapement age-class composition, 1988-2012. (taken from various authors cited in the methods section)

	Age					
Year	0.2	0.3	0.4	0.5	0.6	Total
1988	5.8	77.4	16.0	0.8	0.0	100.0
1989	1.2	37.9	60.7	0.1	0.0	99.9
1990	3.1	65.1	30.1	1.6	0.0	99.9
1991	0.0	44.2	55.6	0.2	0.0	100.0
1992	0.3	26.5	69.0	4.2	0.0	100.0
1993	0.6	64.8	32.4	2.2	0.0	100.0
1994	0.0	35.0	63.8	1.2	0.0	100.0
1995	2.7	53.3	39.6	4.4	0.0	100.0
1996	0.5	55.4	42.3	1.8	0.0	100.0
1997	0.5	43.7	54.2	1.6	0.0	100.0
1998	0.0	80.4	18.3	1.3	0.0	100.0
1999	0.0	37.4	61.3	1.3	0.0	100.0
2000	0.9	73.8	23.4	1.9	0.0	100.0
2001	0.2	14.0	83.9	2.0	0.0	100.1
2002	1.9	76.8	19.6	1.7	0.0	100.0
2003	1.5	72.7	24.5	1.3	0.0	100.0
2004	3.2	41.4	54.8	0.5	0.0	99.9
2005	0.0	96.4	3.0	0.5	0.0	100.0
2006	1.3	40.0	58.7	0.0	0.0	100.0
2007	1.1	60.5	29.6	8.8	0.0	100.0
2008	1.6	43.6	50.6	4.2	0.0	100.0
2009	2.4	57.5	36.1	4.0	0.0	100.0
2010	7.3	84.5	8.2	0.0	0.0	100.0
2011	0.4	49.2	49.7	0.7	0.0	100.0
2012 [a]	0.7	66.0	29.8	3.5	0.0	100.0

[a] Calculated value from data contained in the AYKDMS.