

**Western Alaska Salmon Stock Identification Project
Joint Meeting of Advisory Panel and Technical Committee
21-22 September, 2011
Alaska State Library
344 West 3rd Ave., Suite 125
Anchorage, Alaska**

MINUTES

Chair: Eric Volk, Alaska Department of Fish and Game (ADFG)

Call to Order: 0830 Wednesday, September 21st

Attending: (Name and affiliation)

Eric Volk, ADFG
Robin Waples, NOAA Fisheries, (Technical Committee; TC)
Thomas Quinn, UW (TC)
Tim Baker, ADFG
Doug Eggers, ADFG
Chris Habicht, ADFG
Mark Witteveen, ADFG
Lisa Fox, ADFG
Matt Nemeth, ADFG
Charlie Lean, Norton Sound Economic Development Corporation
Katie Howard, ADFG
Scott Rayborn, LGL
Heather Leba, ADFG
Amy Anderson, ADFG
Tyler Dann, ADFG
Jim Jasper, ADFG
Milo Adkison, UAF-Fisheries (TC)
Chuck McCallum, Lake and Penn Borough
Bruce Barrett, Chignik Regional Aquaculture Association
Michael Link, Bristol Bay Native Association (BBNA)/BBSRI/LGL
Karen Gillis, Bering Sea Fishermen's Association (BSFA)
Art Nelson, BSFA
Andrew Munro, ADFG
Denby Lloyd, Aleutians East Borough (AEB)
Bill Templin, ADFG
Pat Martin, Concerned Area M Fishermen (CAMF)
Lisa Kangas, Tanana Chiefs Conference (TCC)
Nick DeCovich, ADFG
Casie Stockdale, Association of Village Council Presidents (AVCP)
Steve Brown, CAMF
Jill Klein, Yukon River Drainage Fisheries Association (YRDFA)

Jim Jasper, ADFG
Dick Jacobsen, Aleut Corporation (AC)
Jan Conitz, ADFG
Myron Naneng, AVCP
Skye Starkey, AVCP
BriAnna Bierma, ADFG

Missing: (Name and affiliation)

Bruce Weir, UW (TC)
Loretta Bullard, Kawerak Incorporated
Rose Fosdick, Kawerak Incorporated
Sam Cotten, AEB and AC

Final Agenda:

1. Welcome and introductions
 - a. New Advisory Panel representatives
2. Review and approval of agenda
3. Project updates
 - a. Web site
 - b. Timeline
 - c. Additional meetings or teleconferences
4. Public Comments (there will be at least one opportunity each day)
5. Estimation of reporting group escapements for sockeye
6. Choice of priors for MSA (Ref. Draft Technical Document 13)
7. Sockeye baseline (update)
8. Definition of Reporting Groups for chum salmon
9. SNP selection for chum salmon (update; Technical Documents 8 & 10)
10. Review and approval of draft sampling report
11. Review and approval of minutes from March 2011 meeting
12. Scheduling of next meeting

Notes:

1. Welcome and introductions

- a. New Advisory Panel representatives*

Eric Volk (EV) - Gave brief synopsis of timeline and asked if there are any additions or changes to the agenda. Specifically, welcomed Lisa Kangas (TCC), and Casie Stockdale (AVCP).

2. Review and approval of agenda

- EV - Noted two agenda topics that need to be decided upon by October 15th:
 - Chum baseline reporting groups
 - Priors

- EV – Also noted that Milo Adkison (MA) will only be here for the day, and three topics needed to be addressed while he is present:
 - Harvest/escapement
 - Priors
 - Chum baseline reporting groups

- Art Nelson (AN) and Karen Gillis (KG) noted that state employees, immediately after leaving state service, might have some conflict of interest and wanted to clarify if Denby Lloyd (DL) has any “insider information” on WASSIP.
 - EV – Gave DL a chance to speak to this issue.
 - DL– I feel it’s necessary to make everyone comfortable on this topic. I had supervisory role over WASSIP while working for the department, but was not involved with the details of WASSIP. At this point the AP is more familiar than me with WASSIP. Was there any insider info? Not that I can think of in regard to the WASSIP program. At this point I honestly feel at a disadvantage and have a lot to catch up on.

3. Project updates

a. Web site – Bill Templin (BT)

The web site is the main source of communication with the public about WASSIP. It contains the Technical Documents, meeting minutes, AP and TC contact information, and the MOU:

<http://www.adfg.alaska.gov/index.cfm?adfg=wassip.main>

- Please review to make sure the information is correct.
- Documents tab has all Technical Documents. These are working documents, and are subject to change.
 - Technical Documents 1-12 have been posted.
- Meeting minutes will be posted shortly after approval by the AP.

b. Timeline - BT

- In order to have this project out for public review, WASSIP needs to be done by August/September of 2012.
- The Technical Document on harvest and escapement methods/data needs to be done by this December.
- Documents will be coming out pretty fast, and they’re going to get about a month turnaround time.
- The Sampling Report is out for review and should be on the website by October.
 - Steve Brown (SB) asked if there any way to get the document before June because some people will be out on a boat when these come out.
- Throughout the meeting, the issue of the timeline was raised. There were several comments made about how each additional statistical test will push back the timeline further, which would in turn shorten the time that the AP and TC has to review Technical Documents. It was stated that having the final report out in time for review in preparation for the December 2012 Board of Fisheries (BOF) meeting is imperative.

c. Additional meetings or teleconferences - EV

Need for a meeting in January was proposed – discussion of the specific date(s) was postponed until the end of the meeting.

4. Public Comments (there will be at least one opportunity each day) - EV

Public comment tabled until after lunch.

5. Estimation of reporting group escapements for sockeye

- Doug Eggers (DE) and Andrew Munro (AM) lead this discussion. The discussion started with the approach to harvest rates as defined in the MOU. They summarized escapements and harvests for sockeye and chum. Technical Documents (TD) for these will be produced for each species separately. DE discussed the estimates and CVs for harvest rates. The TD for sockeye salmon will be produced within the next three weeks, the TD for chum salmon estimates will be done later.
- Pat Martin (PM) – Started a discussion on how biases are treated
- DE - It took some work to come up with some estimates, and biases are not really dealt with.
 - The estimates are generally conservative: Towers are typically in the river for the majority of the season but, for small windows before and after they are in, runs have to be estimated.
 - CVs are consistently near 0.02 and biases are not considered for tower counts.
 - Peak aerial survey counts are highly conservative and have very large CVs. Some escapement counts have been compared to peak aerial survey counts and found aerial survey counts to be very conservative.
- Concern was raised about the tower counts, which are 10 minutes per hour. It was explained that it is a 10 minute count every hour, and there are some cases of observer biases. There have been studies that compare counts from escapement and towers; EV suggested doubling the CV from 0.02 to 0.04.
- Bias in escapement was also discussed. EV said that this bias is very low and if the numbers are off, they are biased low. This should be put in the text to document uncertainty.
- Black and Chignik Lake (early and late) run separation was questioned and it was explained that management assumes a transition from early to late run on July 4th. Bruce Barrett (BB) said that the escapement count is very precise because cameras are used, but before cameras it was found that weir counts were very biased low.
- A question was raised about whether escapement biases are fixed, or if there is a way that the biases can be variable when there are high or low counts.
- It was noted that it is important to make some assumptions about what are likely small errors, but it is also important to describe these assumptions in the document.
- Concerns were raised about correlations with fecundity estimates, size, and number of jacks and if this could potentially introduce errors into the CVs.

- It is decided that the group is just looking at point estimates for 2006-2009, so they don't really need to look at reproductive potential for the purposes of WASSIP.
- A point was made acknowledging that there is variability in fecundity, and it is important to document this variability and uncertainty. Citation of published work on the contribution of jacks and biased sex ratios on the reproductive potential of a stock should be noted so that when the document is completed, the readers aren't lulled into the false sense of security that these numbers are known as fact.
- Jacks are defined as a X.1 fish, not all males, and make up less than 1% of the total in Bristol Bay for sockeye.
- It is also noted that the jacks don't show up in the catch, they are too small for the gillnet fishery. So, the catch and escapement are not exactly the same fish and it would be good to define what fish are included in each of the terms.
- It was noted that Chignik is the area furthest east. Concerns were raised about how harvest of Chignik fish outside of WASSIP will be documented.
 - Kodiak management area fisheries at Cape Igvak will be included in the terminal harvest, but outside of Igvak area, on the west side of Kodiak we do not have those numbers. Something in the narrative should discuss the harvest uncertainty for the Chignik bound fish. Harvest rates will be the harvest rates within the WASSIP fisheries only, which by definition, will not include the harvest outside the WASSIP sampling area.

Break: 10:03

Resume: 10:20

6. Choice of priors for MSA (Ref. Draft Technical Document 13) CH

- A presentation was made outlining what a prior is, how it is commonly derived, and the Department's initial recommendation for priors for WASSIP. The recommendation was to use sub-regional group uniform priors for the initial strata followed in by sequential priors for subsequent strata.
- Discussion on choice of priors:
 - EV read an email from Bruce Weir:
 - “1. In general, large amounts of data will overwhelm any prior, so the choice of "A1" prior may not have a substantial effect on the resulting posterior distribution of stock proportions. The sequential approach proposed here, using intra-annual strata, further reduces the final influence of the initial prior. [Should the first or final stratum of the previous year be used as a prior for the first stratum for a year? The report on line 85 says the first.]
 - “2. Among the flat priors, I agree that that sub-regional reporting group flat prior is preferable to the population flat prior.

“3. Among the informative priors, I agree that the subjective prior is preferable to the "biology-based" prior. I would need to see evidence that the equation given for F_{st} was meaningful in this context as it is highly dependent on simplifying assumptions. I would be interested to see the results of the Advisory Panel assigning a prior based on their collective expertise and I think that idea merits some discussion.”

- There was a discussion about the effect of the prior on the estimates. If little effect, then it really does not matter what prior is used. Prior has a larger effect for reporting groups that are not well delineated. Therefore prior choice will be more important for chum salmon than sockeye salmon. The magnitude of how meaningful these decisions on priors are discussed and a sensitivity analysis is suggested.
 - Jim Jasper (JJ) suggests doing one in a f_{ORCA} setting with a chum mixture.
 - There was a discussion about using external priors (biology-based and expert opinion) including migration timing (Bruce Barrett), allozyme data (PM), and geographic distance (Tom Quinn).
 - There was a discussion about using internal priors (information from related strata) including a hierarchical prior (Adkison) or either across-year or within-year means (Waples).
 - There was discussion about where the larger changes in stock composition were to occur: within intra-annual temporal strata among years or within years among intra-annual temporal strata (Witteveen). This information should be used in deciding how the sequential priors are developed.
 - There was a general agreement that an internal prior approach was the only practical approach, but the process for deriving these priors was not agreed upon.
- A second presentation was made by CH in the morning of September 22 outlining a new process for deriving priors based on comments from September 21. In this presentation, four steps were outlined:
 1. Within each fishery, determine if variation is smaller:
 - Within years across time strata
 - Across years within time strata
 2. Calculate composition estimate within these strata groups
 3. Use this estimate for the prior in the first strata
 4. Use sequential priors thereafter based on #1
 - Discussion on choice of priors:
 - A sensitivity analysis would be good to see, but either way we need a plan and informed priors will always be better than uniform priors.
 - Doing the hierarchical approach should be pursued, but outside of the WASSIP timeline.
 - Started to pursue doing a hierarchical prior using a supercomputer in Fairbanks, but it took more time away from WASSIP work than could be afforded.

- Noted that we are anticipating the results of the hierarchical approach after the WASSIP report is due.
- There is a hierarchy of hierarchical approaches. Variation within years might be more than variation between years, but you might be able to combine these variations weighted by the amount of variation. Not sure of the marginal benefits relative to the time required to do these computations.
- **A document outlining the proposed process will be provided for the TC for review.**
 - If the TC determines this approach is not acceptable, the TC and the Department will develop an alternative approach.
 - RW – What ADFG is proposing appears to be perfectly fine, but with only half the TC present, I cannot speak for the full TC.
 - The AP unanimously agreed that unless the TC determines that this approach is not acceptable, the Department will move forward with this approach.
 - The baseline needs to be analyzed before the prior distribution selection, the decision needs to be made before the October 15th deadline.

7. *Sockeye baseline (update)* Tyler Dann (TD)

- A brief overview of the methods and results were presented for the final sockeye salmon baseline.
- Discussion:
 - Discrepancy rate calculations were discussed.
 - One of the assumptions being made is that the fish in the mixture exist in the baseline. If it is not in the baseline, the fish will be assigned to one of the populations that is in the baseline. You might want to run the baseline with the “small or did not pool” collections that were removed from the baseline to see if it attracts any mixture fish.
 - It was noted that Asian sockeye are excluded from the baseline because they are not expected to contribute to the WASSIP fisheries.
 - East of WASSIP is defined as all areas east of Kilokak Rocks.

Break: 12:07

Resume: 1:35

4. *Public comment (this agenda item was originally #4 and is was tabled until after the lunch break)*

- Charlie Lean (CL) – Discussed concerns about stock groupings. Does life history play a role? How were reporting group boundaries determined? Life history plays a large role in chum salmon. Streams around Nome are a week earlier on average and an alkaline environment. It seems that there are better ways to separate reporting groups than by management area: water chemistry in some areas, alkalinity, water temperature, accumulated temperature units.

8. *Definition of Reporting Groups for chum salmon* – Nick DeCovich (ND)

A presentation was made on the process and results for delineating reporting groups for chum salmon to be used for the WASSIP mixture analyses. Among the information used to delineate reporting groups were: AP-approved flow chart (from the March 17, 2011 meeting), genetic population structure, adequacy of the baseline, the expected number of fish in mixtures from each reporting group, and performance in proof tests. The presentation provided a detailed account of the rationale for decisions that yielded the final recommended reporting groups. Most significantly, the coastal western Alaska (CWAK) populations could not be subdivided into finer-scale reporting groups.

- Relaxing the 90% correct allocation criterion for proof tests (like in sockeye for Goodnews/Togiak) was discussed, but the proof tests for the four reporting groups within CWAK were far from this criterion.
- Bristol Bay streams were included in CWAK. Considered making an outer Bay and inner Bay reporting region, but there were pragmatic reasons for making reporting groups for fisheries management, and the proof tests still did not meet the 90% criterion.
- Including fish from Lower Bristol Bay in the Northern Peninsula group was discussed. Those streams do not have that many fish, even if those populations are more biologically similar; they are not likely to be caught in the fishery.
- Kotzebue fell out on its own pretty early, and whether some Norton Sound populations fit with Kotzebue better and should be broken out from the CWAK was discussed. Agiapuk River was placed into the Kotzebue group because of its similarity to other Kotzebue populations.
- The sampling in Kotzebue Sound is heavy on the Kobuk and light on the Noatak. Noatak fish make up 90% of the run. Noatak is later and could be separated later on if more samples are added to these collections.
- There was some discussion of the lack of separation among reporting groups. There are a couple of explanations for why you can't tell populations apart.
 - Biology. Too much straying among populations to allow for divergence or not enough time has elapsed since populations segregated to allow for adequate genetic drift.
 - Marker choice. Variation exists, but markers selected do not show variation. You could go back to some of the SNPs that were discarded and see if any of those have power to differentiate these pops more. You could see if there are allozyme or microsatellite data that might differentiate groups further. However, most (80%) of the selection weight for identifying markers was placed on differentiating among CWAK reporting groups. Through this project, we increased the number of markers from 45 to 96 SNPs. The most likely type of marker that would have any hope of distinguishing among the CWAK reporting groups are markers under selection (outlier loci).
- We briefly revisited the decision made at the last AP meeting to exclude Yukon River sockeye salmon from the baseline because 1) they represent very low

numbers and are unlikely to make up close to 5% of any mixture and 2) because they are likely to misallocate to the Kuskokwim River reporting group.

- We can't go back on the Yukon sockeye question because we already made that decision and need to move forward (EV).
- There are some stocks that we can tell apart but they are so small that they can be attractor stocks, so we try to cluster them with other like populations. We had a single collection of Andreafsky that stood out, and would lead to bias and error in the estimates. We decided to either keep it and pool it with Kuskokwim or Norton Sound, or ignore it because it doesn't represent a significant part of the fishery. The consensus at the time was to leave it out completely.
- The first iteration was to include the Yukon fish with the Norton Sound fish, but those fish are river-type sockeye. So by including it, it would have created a lot of errors in the allocations.
- Even within the Yukon, sockeye are not targeted. There are really low harvest rates across the board.
- We recognize that there is some possibility that sockeye are colonizing the Yukon River and is something to look into outside the scope of WASSIP.

Break: 3:11

Resume: 3:36

- A discussion was initiated to get a consensus to move forward with the chum salmon reporting groups as presented by ND:
 - Some AP members said they might need a little more time to make the decision to move forward.
 - It was noted that we did not get much more resolution in the chum reporting groups than we had before WASSIP.
 - A discussion ensued about the 90% correct allocation in the 100% proof test criterion. To drop the standards, we would have to be pretty important and for a specific reason. The CWAK reporting groups are not very close to meeting the criterion, so it would be a major deviation.
- Whether or not these reporting groups meet the needs of the group was discussed.
 - It does not meet the needs of the all the WASSIP AP members.
 - It does a good job generally but not specifically.
 - It's the best we have.
 - This is a valid, rigorous approach. Rephrased: WASSIP AP would have liked to see better results, but endorse it as good as it can be, and have further goals in the future.
- What happens if we do not come to a consensus:
 - That would be up to the group to decide. If we fail to meet consensus, then we are going to have to determine what we will do to get the chum salmon done. EV will strenuously try not to walk away from chum salmon analyses.

- Walking away from chum salmon analyses is the nuclear option, but we would like to take the day to discuss it.
- Prior to stepping away, it is suggested that folks who have concerns about the reporting groups offer up an alternative.

9. SNP selection for chum salmon (update; Technical Documents 8 & 10) (ND)

A brief overview of the methods and results were presented for the selection of SNPs for chum salmon. The presentation included the rationale for the selection process, the populations used, the laboratory and statistical methods and the ranked final list of 96 markers selected.

Meeting Adjourned: 4:40

Call to order: 0836, Thursday, September 22nd

Welcome and introductions.

Amy Anderson, ADFG
BriAnna Bierma, ADFG

New items on the agenda

- CH lead a discussion on a different approach to defining priors – this discussion is summarized in section 8. "Definition of Reporting Groups for chum salmon."
- Discussion on the chum salmon reporting groups continued.
 - All are disappointed that there was not better definition for the AYK reporting regions. Some AP members said that documents show that this was the goal that started WASSIP.
 - Discussion ensued on working with the large stock groups that meet the 90% rule, and then doing analyses that use a more relaxed rule with some of the smaller stock groups.
 - Hoping to ratchet down to some subdivisions within CWAK, something that could couch our statement not just being from western Alaska, but from some tighter locale. That was the intent of this exercise. We're right where we were before WASSIP.
 - Separating the Lower Yukon from Norton Sound is promising, but it doesn't meet the 90% criteria. It is just below that, but the real problem is that the Kuskokwim is mixed right in the middle of it all. Coastal Yukon misallocates to the Kuskokwim and the Kuskokwim misallocates to Coastal Yukon and Norton Sound.
 - This shows that if we did subdivide these collections, an acceptable level of accurate allocation will not be reached.
 - Bristol Bay has an affinity to the North Peninsula, it is only when they are grouped together that you get a high enough correct allocation.

- Compromise by doing some estimates at a lower level of confidence was discussed.
 - What we want has no bearing on the natural world. CWAK populations are very closely related and our wish does not influence that.
 - The default standard of statistical significance is 95%, we started out at wanting a 95%, this AP and TC changed that goal to 99%. 50% accuracy is the same as flipping a coin. A standard at 90% gives you a 1 in 10 chance of getting a false positive significant result. Going below what we have decided is scientifically credible is not good.
 - The common standard is 0.05, some people use lower or higher. RW pointed out that the choice of a critical value is based on your risk level of making type I and II errors. The consequences might not be balanced. You have to consider the most appropriate level depending on the consequences. Characterize these risks to determine of what level we are all comfortable with and when forming your reporting groups, determine if this 90% level appropriate to use.
 - In some places the threshold has been lowered below 90%
 - Used in determining the difference between Goodnews and Togiak. It was decided that there would be only a little misallocation would gain the ability to distinguish management areas genetically.
 - In some scale pattern analyses, 60-65% was sufficient for correct allocations. The difference is allocation. The 90% standard is something that has been in place from the genetics lab. The genetics lab has a lot of experience with how this level of confidence translates to accuracy and precision of estimates. Deviation from this criterion, means moving into less explored areas.
 - When we move to smaller reporting groups the risk of misallocation increases.

- Michael Link (ML) started a discussion about using known mixtures to explore the consequences of using a reduced criterion.
 - Run known mixtures composed of multiple stocks to see how these reporting groups work in more realistic mixtures.
 - Illustrate the degree of bias by using known mixtures. Run these and find an acceptable/unacceptable level of bias, then we can make decisions based on the data.
 - Say we have an estimate of what the biases are, how do we adjust our mixture estimates?
 - Be cautious, it would have to be a situation where the bias is not influenced by the underlying stock composition, which you don't know, so you can't really do that. Only if you can find a fairly predictable bias could you maybe apply the bias towards the estimates.

- Not trying to suggest that bias is applied to the mixtures, just to use known mixtures to find further separation within the CWAK.
- A discussion ensued regarding the most appropriate reporting group for the Upper Kuskokwim populations.
 - Department's proposed placing the Upper Kuskokwim River and Upper Yukon River populations into the same reporting group.
 - The upper Kuskokwim River populations account for small numbers of fish relative to the lower Kuskokwim River populations, and would be unlikely to show up in fisheries at more than 5% - therefore they should be included with a larger reporting group.
 - Upper Yukon River populations can stand on their own as a reporting group.
 - It does not help any of the AP members to group the upper Kuskokwim and upper Yukon populations into the same reporting group.
 - **A decision has been made to add Upper Kuskokwim to the CWAK reporting group and maintain Upper Yukon as its own reporting group.**

Break: 10:24

Resume: 11:00

Discussion continues on known mixture tests.

- There's nothing wrong with the 100% proof tests, but to round out the picture, some known mixture tests would be good. Could make some known mixtures and you might find some interesting results, within the time limits of what is feasible to do.
- Revisiting the baseline with some new collections, so that would be a good time to do these tests. Analysis time will be the same.
- These tests will be used to inform our decisions on reporting groups.
- These tests can be done but first the reporting groups are needed. The baseline is not expected to change with the new collections.
- Use the 90% correct criterion from 100% proof tests to select reporting groups and then use the known mixture tests to inform changes or understanding of those reporting groups.
 - It is proposed to throw out the reporting group division if the known mixture is within one-third of the CV of the harvest.
 - The CVs are highest in smaller and poorly assessed collections.
- These reporting groups are being used to estimate harvest rates, and error rates in harvest are high. Escapement error rates are high. It would be silly to argue about such small error rates in the genetics compared to the large error rates in population estimates.

Public comment –

- Myron Naneng, AVCP, spoke to the group about the people of western Alaska and how WASSIP will impact them. *See Appendix A.*

Break for lunch: 11:56

Resume: 1:20

Discussion continues on known mixture tests.

- PM, DL, CH, and ML worked on the table to represent a few selected fisheries keeping in mind that the workload and timeline was going to limit the number of analyses. There was a discussion about what prior was used for these tests (flat or informative), but no recommendation was made.
- The Upper Kuskokwim does not contribute much to any WASSIP fishery so fish from these populations will be excluded from test mixtures.
- Metrics were discussed to determine whether a known mixture allocates adequately, but no resolution was made. Among the metrics discussed were:
 - Take the positive difference between the known mixtures and the estimates and if it is off by more than a certain percent.
 - Root mean square error.
 - Apply this to fishery harvest and use that as a determining factor.
 - Use a CV for a stock that is present at 20% or greater, the relative mean error that is less than 20%.
 - Relative performance of the bias to the known mixture of 0.90.
 - Set relative and absolute deviation criteria.
 - 10% for the absolute and 25% for the relative deviation?
 - Relative mean square error for the larger collections.
 - Used for the JTC for the Yukon treaty group (<20% CV for estimates larger than 20%.
 - That puts a heavier bar on the bigger groups, and keeps you out of the weeds on the smaller groups.
 - However, some AP members were focused on the smaller groups.
 - Correct allocation is 90% for the whole estimate, correct allocation for the individual group at 80%.
 - Characterize the small population as a binomial.
- If we can get as good of an estimate with the divided CWAK as we do with the combined CWAK, why not use the CWAK divided?
- Pick a small population that some people have a valid concern about and limit the study by that. That's the canary in the coal mine situation. We don't have any problem about big populations; it's just the small populations that we are focusing on.
- **EV – Any room to move forward with the reporting groups as is (not the full monty, CWAK divided), and then inform the reporting groups with these known mixture test results? There was no consensus on this approach.**
- CH – Suggested doing the simulations. Coming up with criteria before looking at results is a little daunting. It is likely that the results will lead to the same conclusion, regardless of the criterion.

- The AP chose one hypothetical mixture (S. Peninsula June (B)) for the Department to start simulations.

Break: 2:45

Resume: 3:15

Discussion continues on known mixture tests.

- Three options: 1) when CWAK is split it's either good, 2) 90% or more, it's medium 80%, or 3) it's less than 80%. If it's medium, then meet again. If it's less than 80% then kick it out and go to the combined CWAK.
 - It will probably be okay with CWAK, it is probably not going to work with CWAK divided, but if it's somewhere in between then meet again.
- A discussion ensued on the representativeness of the hypothetical fishery mixtures.
 - Simulations are trying to capture the variation of these fisheries.
 - Are they truly representative? No. The best information we have is from 1994, 95, 96. Things have changed since then, but this is the only real data that exists.
 - Not satisfied with the lack of something that looks like a Kuskokwim fishery, some intermediate values for the mid-range or larger contributions for these smaller targeted fisheries.
 - Modifications to hypothetical mixtures were incorporated in table.
- **EV – I'm going to suggest some names from this group to serve as an ad hoc committee: AN, DL, PM, ML, and DE?**
 - Is anyone opposed to both PM and DL on the ad hoc committee? (no)
 - Anyone opposed to ML and AN serving on the ad hoc committee? (no)
 - Lisa Kangas and Casie Stockdale, are you comfortable working through AN? (yes)
 - ML elected as chairman by the AP. ML can send any results to EV and he can disseminate this information to the group.
 - The drop dead date for the completion for the ad hoc committee's work is October 15th.
 - The results from this subcommittee will be presented to the AP and TC.
 - A recommendation on whether the CWAK reporting group should be further subdivided may be provided by the ad hoc committee.
- **EV – Action item; follow up and distribute the contact information for everyone on the subcommittee.**

10. Review and approval of draft sampling report

- It is noted that the Y1 issue has been resolved and that Loretta was involved with the changes for Y1.
- Is everyone okay with the way we couched selected fisheries?
 - PM - I think so, but would like to look at it again.
 - EV - Tried to maintain the language, but define the meaning.

- Everyone agrees that they are comfortable with the sampling report. If there are substantial changes based on PM's review, they will be cleared with the AP before incorporation.

11. Review and approval of minutes from March 2011 meeting

- Minutes are approved by AN.
- PM started a dialogue about how to present these results to the board of fisheries.
 - How are we going to characterize this process?
 - How do we introduce the product of WASSIP?
 - WASSIP might double the stock ID ever done in the history of Alaska.
 - The technical aspect is, these discussions are based on assumptions, normal distributions, assumptions of fishery representations and sampling. We need to communicate these assumptions.
 - We need to define the confidence in our assumptions, defend the assumptions.
- EV suggests that PM takes on the job of outlining these topics for the next meeting and PM suggests that Chuck McCallum (CM) does it. CM says he'll do it with PM's help.

12. Scheduling of next meeting

- It was decided that an additional meeting should be held on January 17-18th to discuss the two Technical Documents for harvest and escapement, which will be out for review or back by that time. Also have to discuss the simulation results. If the simulations result in issues that need to be resolved in a face-to-face meeting, we may need to schedule another meeting before March.
- It was also decided that the results from JJ's prior sensitivity analysis will be sent to the AP and TC.

Meeting Adjourned: 4:32

Appendix A.

“My name is Myron Naneng Senior. I’m the president of the Association of Village Council Presidents, which represents 56 villages on the Yukon-Kuskokwim Delta, an area that has been really impacted by the discussions that you are having today. The reason why you are all here is because back in ‘93, ‘97, and 2001 we had fishery disasters on the Yukon-Kuskokwim Delta. It was because of that situation that the group was asked to do stock identification studies of fish that are bound for the Western Alaska rivers and tributaries. That is why you are all here today, and I appreciate the work that you are doing.

“Over the years, I have attended many Board of Fish meetings. One time a Board of Fish member told us “the only time that you’re ever going to get attention to the fisheries that you have or the fishery stocks in your river system, is when you have consecutive disasters occurring in those rivers, stocks of concern in your river system. Thanks to Senator Stevens, when he was alive, he realized that we really need to address the fishery issues of concerns along the whole migratory route, not just let the people in the river systems, bear the burden of conservation. This is what the effort is that you’re working at today, because our people in the Y-K Delta have felt that we’ve never had a fair shake, a fair hearing through the current Board of Fish system that exists today. A lot of people can make comments that Board of Fishery members are bought by big money fisheries. Maybe that’s true. That the people that are appointing the Board of Fish members are the ones that are bought by big money fisheries. Maybe that’s true.

“Ultimately the work that we’ve tried to do, that was assigned to the Western Alaska Sustainable Salmon Initiative was also to do stock identification. Talk about bias. When the whole river system is closed, and no fishing occurs, both for subsistence and commercial fisheries, the whole families in the villages suffer. The kids are not learning their cultural activities. The men, who are providers in the villages, are not being able to teach and train their kids of what sustains them through the winters. That’s a big impact. Why is there a lot of suicide? Because some of these things that have traditionally occurred have gotten down to the point you can’t go fishing because there’s not enough salmon returning to those river systems. The responsibility of a young man, who wants to learn, who wants to be responsible, is being affected by the regulatory and decisions made by people who may have never lived there in the area or in a village for that matter. We talk about maybe the stocks of salmon are too small to be distinct, Mekoryuk, Nunivak Island. People from Nunivak still return to Nunivak Island to go fishing for those salmon. Some of them live in Bethel. Some of them live here in Anchorage but they still return to Nunivak to fish for their families, because they grew up with that. It’s their way of living, it’s their culture.

“If you’re not from the state of Alaska, you do not understand the hardship that our people are having in the villages. Fuel prices, nine bucks a gallon. Gallon of milk, five bucks a gallon. People are trying to raise their families. At one time the Yukon fishery used to be at least a million dollar industry. What is it today? Maybe they made over forty-thousand dollars a summer for the whole fisheries of the whole Yukon. This past summer, some of the areas of the Yukon River were closed. Why? Because they had a stock of concern and that’s for Chinook salmon. People from the north mouth had to go down to the south mouth to go subsistence fishing. At nine dollars per gallon of gasoline

and you travel thirty miles, that's an expensive trip. We're dealing with the lives of the people in the village. The people are saying that this is only a fish, you're dealing with a culture, a livelihood of a people. I appreciate the work that you're doing, and I think that it's really important that for ten years on the Yukon River, we have had ten years of windows, Denby knows about this, he's the former commissioner of Fish and Game, ten years of windows to help build king salmon. What has happened? It has further declined. '93, '97, and 2001. What did our people involve from, when they weren't commercial fishing? We requested disaster relief money for those years. And it finally got down to the point where Senator Stevens said we can't continue to do this. We need stock identification of those salmon returning to the river systems. I spoke to another group this morning from a fishery industry group, the decisions that are going to be made here in this room are going to impact them in the future. I think that we have always been impacted, since statehood, because of the way and the process of decision making has been made with the rules and regulations.

"I've attended many Board of Fish meetings, like I stated before. We've raised this issue of stocks of concern, burden of conservation, but it all seems to have fallen to deaf ears. So I hope that the work that you do here, will make those people that are making these decisions make better decisions for the benefit of people that live in Western Alaska, for the people that live in the river systems because it seems like for every stock of concern that comes up, the people that live in the river systems end up being the ones that bear the burden of conservation. I live on the Kuskokwim River, I've lived on the coast, I'm originally from Hooper Bay. I fished commercially on the Yukon River and I've seen the impacts of reductions of fishing opportunity for our people. This summer we had federal takeover of fisheries on the Kuskokwim River. It's the second or third time in the history of the state of Alaska that the feds have taken over. Is it because the state of Alaska is responsible? No, they never seem to agree to it, but the concerns are regarding the conservation of the species that they're talking about. So it brings to question, to many of the people that live in the villages, who is more responsible for the wellbeing of these fishery stocks that we're concerned about? Is it the feds or the state? And then the state of Alaska says, we're the best fisheries managers in the whole United States. But when this thing happens and the feds are taking over, what message does it send? So, I just want to thank you guys for the work that you're doing.

"Keep in mind that whatever decisions come up, I hope it changes the way that the Board of Fish makes its decision, I hope that whatever is worked out within this group makes the people that make decisions realize that you are playing with lives of people in the villages. We're no different than people that live in the cities. We're citizens. We should be treated equal, instead of unjustly like many of the people in the villages are treated. With that I'd like to say thank you for the opportunity Eric, and I hope that whatever you guys come up with will be for the long term benefit of the salmon stocks, but ultimately for the people that live in the river systems. They seem to more often be left out in many of the decisions made for the benefit of big industry. Thank you for giving me the opportunity to make some comments."