

Meeting Summary
Susitna-Watana Hydroelectric Project Licensing
Technical Workgroup Meetings
August 15-17, 2012
AEA Project Offices, First Floor Conference Room
411 W 4th Avenue, Anchorage, AK

ILP Formal Study Plan Meeting for Fisheries and Beluga Whale Resources, August 15, 2012, 8:30 am – 4:00 pm

Attendees:

| Organization | Name |
|--|----------------------------|
| AEA | Betsy McGregor |
| AEA | Wayne Dyok |
| USFWS | Mike Buntjer |
| USFWS | Betsy McCracken |
| USFWS | Jennifer Spegun (by phone) |
| USFWS | Bob Henszey (by phone) |
| ADNR | Kim Sager |
| ADNR OPMP | Marie Steele |
| NMFS | Eric Rothwell |
| NMFS | Mandi Migura (by phone) |
| NMFS | Kate Wynne |
| EPA | Jennifer Curtis (by phone) |
| ADF&G | Richard Yanusz |
| ADF&G | Joe Klein |
| ADF&G | Mark Burtch |
| ADF&G | Kim King |
| ADF&G | Bob Small |
| ADF&G | Stormy Haught |
| NMFS | Ed Meyer (by phone) |
| FERC | David Turner (by phone) |
| FERC | Matt Cutlip |
| LBG/FERC Contractor | Fred Winchell |
| Natural Heritage Institute/Hydropower Reform Coalition | Jan Konigsburg |
| Long View Associates | Steve Padula |
| Long View Associates | Cory Warnock |
| Van Ness Feldman | Matt Love |
| MWH | Kirby Gilbert (by phone) |
| HDR | James Brady |
| HDR | Michael Barclay (by phone) |
| R2 Resource Consultants | Dani Evenson |
| R2 Resource Consultants | MaryLouise Keefe |
| R2 Resource Consultants | Phil Hilgert |

| Organization | Name |
|-------------------------|-----------------------|
| Tetra Tech | Bill Fullerton |
| R2 Resource Consultants | Tim Nightingale |
| GW Scientific | Michael Lilly |
| Stillwater Sciences | Dirk Pedersen |
| Stillwater Sciences | Jay Stallman |
| LGL | Michael Link |
| ARRI | Jeff Davis |
| Alaska Ratepayers | Scott Crowther |
| R2 Resource Consultants | Alan Olson (by phone) |

Introduction

Steve Padula opened the meeting and explained that the intent of this meeting was to discuss the fisheries and beluga whale studies that have been proposed and to have substantive discussions related to any remaining misunderstandings or inconsistencies. Steve went through a few slides reminding everyone about the formal study planning process, current status, and associated deadlines. He noted that another set of TWG meetings is scheduled after the October 15 due date for filing comments on the Proposed Study Plan (PSP) to address any remaining issues. **Action Item.** Steve stated that the agenda, meeting minutes and all presentations given during the day would be made available on the AEA website. Introductions were held.

Jeff Davis (ARRI) requested clarification as to whether technical work groups had been set-up and if so, who the representatives were. Steve clarified that the members of this meeting were the TWG and depending on the outstanding technical issues, there was potential for smaller groups to meet at a later date. Jeff inquired as to how the smaller groups would be selected. Steve stated smaller discussions would be convened based on specific subject matter that would be identified in the agendas so that appropriate individuals could participate. Wayne Dyok (AEA) added that he wants to see an open and honest discussion to resolve issues and that it was AEA's desire to develop a good study plan to support development of a license application for FERC.

Jeff stated that the study plans were vague and inquired if additional detail would be added and whether another review period would take place. Steve stated that the Revised Study Plan (RSP) is due on November 14th after which, the stakeholders will have 15 days to review and make additional comments. FERC will then review the RSP and comments on the PSP/RSP and issue its study plan determination. Steve added that it was AEA's intent to continue to have collaborative discussions throughout the duration of the study period. Wayne added that the next three days of meetings are important to identify and hopefully resolve any outstanding issues.

Jeff asked whether there would be a QA/QC plan. Matt Cutlip (FERC) stated that there was another stakeholder comment period of two weeks in late November prior to the study plan determination being issued. David Turner (FERC) stated that it was important to use the next three days to identify any differences so that by October 15th, the number of issues remaining is

as minimal as possible. That is FERC's goal. Wayne reiterated AEA's desire to make this a collaborative process.

Eric Rothwell (NMFS) noted that the ILP timeline is inconsistent with AEA's agreement to help bring on a consulting team to assist the agencies.

Presentations

- Steve went through a few slides reminding everyone about the formal study planning process, current status, and associated deadlines.

STUDY PLAN PRESENTATIONS AND DISCUSSIONS

Mary Lou Keefe (R2 Resource Consultants) stated that there were a number of collaborators on these studies and multiple people would be giving presentations. Time constraints on presentations and the relative order were also discussed.

Characterization of Aquatic Habitats with Potential to be Affected by the Project

Mary Lou Keefe gave the Characterization of Aquatic Habitats with Potential to be Affected by the Project presentation. Areas discussed included goals and objectives, study area, methods and expected results.

Eric Rothwell asked how sampling structure detail would be determined, (substrate, channel type, etc.). Mary Lou stated that multiple studies would be collecting this type of data. Eric asked where all of the data would be collected for habitat typing. Mary Lou stated that habitat typing was not one of the goals of this study but to the extent that supplemental habitat data could be used, it would be. Phil Hilgert (R2 Resource Consultants) elaborated that it was a matter of scale and that all of the habitat studies were linked.

Jeff Davis asked why the USFS methodology for the Tongass National Forest was selected for this study. Mary Lou stated that through a series of TWG meetings, AEA had decided on this methodology and that the protocol for this study is to look at riffles, runs and glides in tributaries. She continued that this method is accepted widely and was previously agreed to. Jeff asked if there was going to be a meeting in September to go over the methods. Phil stated that AEA planned an internal meeting to verify that all the studies were appropriately coordinated.

Jeff asked what level of classification would be used on the videography work. Mary Lou stated that there would be three different scales depending on the area of the river being analyzed. The upper river would be classified by looking at variables to include riffle, run or glide along with substrate and large wood debris. The lower river would include six or seven main habitat types and the middle river would be a hybrid of the upper and lower river. Jeff asked if a Tier III analysis would only be done on the tributaries. Mary Lou confirmed this and said some Tier III work may be done on the upper river as well.

Jeff added that details related to methods for channel typing, substrate, sinuosity, etc. needed to be more detailed. Mary Lou stated that some details are in the plans and that others are detailed in the referenced methods. Jeff inquired specifically about channel typing methodology and Mary Lou stated that finalizing this method would require further discussions with the geomorphology folks after their field visits this summer. Matt Cutlip asked when that detail would be provided. Mary Lou stated that that level of detail wouldn't be available until after the RSP. Wayne Dyok added that all questions related to detailed methods may not be able to be addressed during these three days of meetings. Jeff stated that time was running out relative to the ILP timeline and decisions and discussions need to happen. Eric Rothwell added that the objectives of the studies were good but the actual details of some stakeholder requests were not addressed in the plans.

Matt Cutlip stated that the level of detail being discussed was necessary for the RSP. Betsy McGregor (AEA) stated that the geomorphology crew wants to do its fieldwork at a low flow in September. Matt stated that that should be documented in the study plan and a schedule discussing when habitat types will be final should be included as well.

Betsy McCracken stated that she has concerns about the Tier III methodology and shared concerns regarding the lack of detail in the plans. She additionally wondered if some form of hierarchical mapping method would occur. Mary Lou stated that the mapping will be done at a reach level and that Bill Fullerton's (Tetra Tech) work and 1980's data will assist in determining meso-habitat characteristics in the tributaries. Mary Lou asked the group to bring forth any other suggested methods if they had them.

Joe Klein (ADFG) stated that additional detail was needed but that Tier III methodology was appropriate and that it had been used in SE Alaska before. Jeff Davis stated that the habitat types currently proposed don't exist in the Susitna tributaries. Wayne stated that alternative suggestions for methodology are encouraged. Mary Lou added that final habitat typing couldn't be detailed until reach breaks were established.

Mary Lou continued with the presentation noting that an additional habitat type had been identified. "Pocket waters" was added to the classification system for tributaries to the upper Susitna River. She stated that these were boulder gardens unique to this area. Eric Rothwell asked if this new habitat type was due primarily to the nature of the substrate. James Brady (HDR) and Mary Lou stated that this was correct. Joe Klein asked where this habitat type was primarily located. James used Kosina Creek as an example.

Fish Distribution and Abundance in Upper, Middle and Lower Susitna River

Mary Lou and James Brady gave the Fish Distribution and Abundance in Upper, Middle and Lower Susitna River presentation. Areas discussed included goals and objectives, study area, methods and expected results.

A question was asked regarding the specific life stages being evaluated as part of this study. Mary Lou stated that telemetry and tagging were going to be used to get movement data on multiple life stages.

Mike Buntjer (USFWS) asked how much accessible habitat was available in the tributaries. James displayed a slide showing the amount of accessible habitat in yellow. A question was asked as to whether the entire eighteen miles of Kosina Creek was evaluated during each survey. James confirmed this and stated that all of the fish were observed spawning in a 1 ½ mile stretch of the creek. Betsy McCracken asked where radio tagged fish had been found. Michael Link (LGL) stated that the table presented by James was consistent with their findings.

Eric Rothwell asked about estimates for the Chinook run in the Susitna in 2012 relative to a “normal” year. James stated that the 1980’s data indicated no fish in Kosina Creek. Mary Lou added that you can’t say with any certainty that higher counts will occur in the tributary during better Chinook years. Betsy McGregor pointed out that there were three impediments to passage in Devils Canyon and Devils Creek was downstream of the 3rd impediment.

Richard Yanusz stated that escapement goals for the Susitna were defined over a twenty year average and the 2012 run year was quite low. Michael Link stated that the run was about 25% to 50% of normal for the Susitna.

A general discussion related to James’s presentation was had relative to 60 mm juvenile salmonids, their relative age and if juveniles of this size were going to be tagged. James stated that they were not but site specific data related to their length and habitat utilization would be taken. It will be stratified sampling on the meso-habitat level.

Jeff Davis asked if fish sampling efficiency was low in certain habitat types. James stated that it was. Mary Lou then continued with the presentation.

Mike Buntjer inquired about the metrics that would be used to evaluate fish densities, sample size and design. He added that general methods were lacking and he was unclear as to what the actual sampling effort entailed. He stated that the winter timeframe is critical and little effort appears to be placed during this time. Mike stated that it appeared nothing was being done for the early life history of the fish (egg deposition to emergence). Mike stated that he didn’t see a way to get from the existing baseline to defining conditions during load following operations without this information.

Mary Lou stated that in general, she is hearing that the level of detail in the study plan isn’t meeting stakeholder expectations.

Mary Lou stated that certain winter components will be addressed within the instream flow study. Eric Rothwell stated that that was not discussed in the instream flow study plan. Mike Buntjer asked if movement from tributaries to sloughs would be addressed. Mary Lou stated that juvenile movement would be addressed via PIT tagging. Mike reiterated that 60 mm size fish and smaller were the most critical life stage to assess for load following operations and that no tag would work. Phil Hilgert stated that the instream flow study was looking at stranding and trapping and that the model would also document egg incubation. Eric stated his concern that the biological information needed to support that model isn’t going to be collected under the current plan.

Mary Lou stated that monitoring 30 mm-60 mm fish is challenging and requested suggestions from the stakeholders. Jeff Davis suggested sampling habitat multiple times. Mary Lou stated that seasonal sampling was currently in the plan. Mike Buntjer stated that seasonal sampling was not proposed in the winter. Mary Lou agreed that the stratification system needed to be made clearer.

Mike inquired as to why winter work was limited to open leads. Mary Lou stated that a decision was made based primarily on safety concerns. Mike stated that you can't compare data from this proposed approach with the 1980's work and added that the current winter work proposed won't give you the juvenile information you need. He suggested placing minnow traps below the ice. Jeff Davis agreed and stated that you can safely place minnow traps below the ice. Mary Lou restated that safety was a primary concern. Matt Cutlip stated that if a suggestion is made by the stakeholders that AEA chooses not to adopt, a justification must be given in the RSP.

Wayne Dyok confirmed that if an agreement on a certain issue isn't reached, it will be included in the RSP. He added that safety was a key issue on the mainstem but there was room to discuss other methods in the sloughs. Wayne acknowledged that additional detail and discussion were needed to address the winter work. Mike restated his concern regarding only sampling open leads. Mary Lou stated that she understood additional detail was needed.

Jan Konigsberg (NHI/HRC) asked what would be done if winter baseline information couldn't be acquired and whether that would be specified in the RSP. Mary Lou stated that sampling is limited and that fish presence tells you fish are there but lack of fish does not necessarily mean they are not present. Mike Buntjer reiterated the importance of evaluating egg deposition to emergence. Mary Lou stated that in June, it seemed the stakeholders were in agreement that dealing with that life stage as part of the instream flow study was acceptable and now it appears that isn't the case. Mike stated that the instream flow plan was not clear as to how the juvenile life state was being addressed. **Action Item.** Mary Lou suggested that the topic be revisited after the instream flow presentation tomorrow.

Joe Klein stated that detail related to methods for shocking, specifically the inclusion of block nets, needed to be added. Jeff Davis inquired about issues related to catch per unit effort, whether data collection was repeatable and measure of error. He also inquired about mesh size and types of nets to be used.

Mary Lou expressed some concern related to the time constraints of the meeting and whether all topics could be discussed today. Wayne Dyok added that AEA wanted to hear all of these comments and wants to work hard to address as many issues as possible by November 14.

Betsy McCracken asked whether the terrestrial study would evaluate the nutrients available to bears. Betsy McGregor confirmed this. Mike Buntjer asked why, if you were collecting food availability data, why you wouldn't collect food use data. Mary Lou stated that it was being addressed in the productivity study.

Salmon Escapement

Michael Link (LGL) gave the Salmon Escapement presentation. Areas discussed included goals and objectives, study area, methods and expected results.

Eric Rothwell clarified that the median year lines associated with a hydrology figure in Michael's presentation could have significant daily fluctuations. Michael concurred.

Betsy McCracken inquired about the types of tags used on non-salmonids. Michael stated that no non-salmonids were tagged.

Joe Klein asked if any netting was done as part of the 2012 work. Michael stated that it would be discussed later in the presentation.

Jan Konigsberg asked why there was variation in catch when comparing the right and left banks. Michael stated that analysis was ongoing and conclusions have not been reached yet.

An inquiry was made as to the flows in the Susitna when Chinook travelled upstream of Devils Canyon. Michael stated that 12 fish moved above the third impediment between the morning of the 17th and the 20th. Another group of 12 fish made it to the third impediment not long after but fell back and never passed. The 12 fish that got upstream moved quickly and spent time in various tributaries. Michael went on to say that he was unsure if the passage of the impediment was flow dependent or simply a "push through" mentality but the flows at the time of passage were only 1000 cfs above the record low median flow for that period. A question was asked if there was any mainstem channel spawning observed. Michael stated that none was documented.

Eric asked what the spawning time period was for the middle and upper river. Michael stated that it was almost over now but that there were still a few fish coming through that may spawn later.

Jan Konigsberg asked if any tissue samples had been collected. Michael stated they none were collected at the fish wheels. Some tissue samples were taken in the tributaries but sample collection is hindered by the scarcity of fish. Betsy McCracken asked how old the existing genetic data from the drainage was and where the fish were from. Michael stated that most of the data was from the last decade and a majority of the fish were from Indian and Portage creeks.

Betsy McGregor stated that ADF&G has specific sampling goals for tributaries and the AEA data would supplement that. Rich Yanusz stated that ADF&G had a grant to document the systems and that numbers were currently insufficient to have a suitable sample size in 6 or 7 tributaries. Sample size is currently acceptable in 8 tributaries.

Jeff Davis inquired if Coho numbers were being underestimated by not assessing certain areas. Michael stated that based on 1980's data, Curry was chosen as the best capture site. Jeff asked if receiver sites were evaluated for detection efficiency. Michael confirmed that they were. Jeff asked how far tags could be picked up. Michael stated approximately ½ mile upstream and

downstream of the receiver and all the way across the river width. Betsy McCracken asked whether assessments of areas downstream of Curry would be done as part of another study.

Mike Buntjer asked if habitat availability would be addressed. Phil Hilgert stated that it would be addressed in the instream flow model.

Eulachon Distribution and Abundance

Mary Lou gave the Eulachon Distribution and Abundance presentation. Areas discussed included goals and objectives, study area, methods and expected results.

Betsy McCracken asked if Didson work and target verification would be done at the same time. James Brady stated that acoustics would be supplemented with netting, electrofishing, etc. Density information will be collected. Wayne Dyok asked if Betsy was comfortable with the direction of the study. Betsy said she might provide some follow-up at a later date.

Cook Inlet Beluga Whale

Mary Lou gave the Cook Inlet Beluga Whale presentation. Areas discussed included goals and objectives, study area, methods and expected results. See the presentation on the AEA website.

Mandi Migura (NMFS) raised three issues that she felt hadn't been addressed:

1. Are there any plans for assessing beluga presence during the over-winter months? She presented passive acoustics as an option.
2. She stated that there was nothing currently in the study plan regarding use of the area by reproducing females or calves. She stated that it is difficult to distinguish life stages from the air and asked if any exploration had occurred into other potential methods.
3. She stated that the project has the potential to change habitat conditions at the river mouth/delta and that this could have direct impacts on the feeding potential for belugas.

Kate Wynne (NMFS) stated that any project related impacts should be addressed as they relate to belugas, not just the "significant impacts".

Mandi asked if the beluga whale and habitat data will be used to assess impacts to fish. And if so, it should be done in the opposite order. Betsy McGregor agreed that that portion of the plan was poorly worded and it was going to be in the opposite order. Betsy went on to explain that AEA's beluga expert was not present but that it was her understanding that May and June were selected as study months in an effort to focus on the calving period. Bob Small (ADF&G) stated that year-round monitoring should be considered and that telemetry data shows that belugas use the deltas in the winter. He stated that foraging behavior has been cited in data from work done in the past 10 years as well.

Bob asked for clarification of the objective related to the 2 days of monthly aerial surveys. He stated that you could get group size, distribution and presence/absence information from this data but no population size. He additionally inquired as to why emphasis was being placed on all of

critical habitat area 1. Mary Lou asked if since AEA was only doing 2 days of aerial surveys, should the survey area be narrowed down to just the mouth and delta to allow for more intensive survey. Kate stated that her first impression that a survey of all of critical area 1 was not needed but follow-up within her agency prior to a final recommendation would be needed.

Mandi stated that data suggests that calves are being produced in July as opposed to the May/June timeframe currently proposed. She went on to question the viability of aerial surveys for identifying calves. Bob suggested collecting supplemental observations opportunistically from other flights using the area.

Bob recommended looking into passive acoustic monitoring as a potential methodology option for the beluga work. He stated that ADF&G has successfully used it for the past 4 years. He stated that it can be set up to process data as it is collected and they can run 24/7. He stated that he would be willing to discuss this with AEA's beluga specialist if adding it to the study plan was an option. Michael Link stated that the primary issue with this approach in the Susitna Flats was the possibility of false negatives. Bob stated that this approach would at least give you some data in the winter but agreed it wouldn't be 100% successful. He acknowledged that the amount of time needed to post-process video and photo data is extensive and that this approach would be more efficient. Michael reiterated that it wouldn't be good to spend the time and money for inconclusive data. Bob stated that you would need to get the baseline data to determine actual feasibility.

Wayne Dyok asked if there were other alternatives for winter beside acoustics. Mandy stated human observation in the winter isn't reasonable due to safety issues and that acoustics was a better choice in the winter. Wayne asked if there were any suggestions on defining criteria for impacts. Mandy stated that a meeting with AEA's specialist would be helpful. Bob stated that the change in hydrology as a result of the project won't likely impact the whales directly, but it could impact their prey. He stated that the question is how and acknowledged that it may help and it may hurt. Wayne stated that more discussion was needed.

Mary Lou stated that the May and June surveys were focused on the primary months that eulachon would be in the river. Betsy McCracken stated that there should be additional surveys in August and September to focus on prey as well. Mandy stated that data from NMFS's survey events would not be a quick turn around and if it was needed quickly, AEA may want to consider an additional survey in August. She was not comfortable committing to an expedited analysis period from NMFS personnel without discussion with them.

Future Reservoir Fish Community and Risk of Entrainment

Mary Lou gave the Future Reservoir Fish Community and Risk of Entrainment presentation. Areas discussed included goals and objectives, study area, methods and expected results.

Wayne Dyok asked about the maximum elevation of the reservoir area displayed on the presented map. Betsy McGregor stated that it was at 2200 feet, which depicted the planned extent of the study area for resources adjacent to the proposed reservoir. Wayne stated that AEA was continuing to evaluate the proposed maximum water surface elevation for the reservoir and

that currently it was anticipated that the maximum elevation would be 2050 feet. Joe Klein asked if that would increase the drawdown. Wayne responded no and stated that AEA was still refining the plan.

Jeff Davis asked if anyone had looked at shelf ice and its potential impact on fish in the littoral zone. Mary Lou stated that it had not been brought up to date. Wayne stated that AEA reviewed Williston Reservoir in the 1980s and it wasn't an issue there. He asked if Jeff could cite some examples where shelf ice was an issue. **Action Item.** Jeff stated he would find some references.

Jeff asked if sediment deposition and settling rate downstream of the dam would be looked at. Wayne stated that it would be discussed on Friday and that it was considered in the 1980's.

Jeff asked if smolt movement through still water habitats would be looked at. Mary Lou stated that that would be part of the passage study.

Fish Passage Barriers in Middle/Upper Susitna River and Tributaries

Mary Lou gave the Fish Passage Barriers in Middle/Upper Susitna River and Tributaries presentation. Areas discussed included goals and objectives, study area, methods and expected results.

Jan Konigsberg asked if any assessment of barriers below Talkeetna would occur. Mary Lou stated there was no assessment planned because it is assumed that the project will not create any barriers and the instream flow study will identify additional need, if any. Jan stated that winter fluctuations may create barriers and inquired if any work was planned. Mary Lou stated that the hydrology has yet to be finalized and that if a need is apparent, the study plan will be amended.

Jeff Davis stated culverts should be evaluated and used the Twister Creek culvert as an example.

Jeff stated that these methods were working under the assumption that the bed elevations would remain stable. He asked if elevation fluctuation and bed profile changes would be addressed. Mary Lou stated that Bill Fullerton would address geomorphology issues on Friday.

Jeff stated that it appeared that all passage issues were focused on adult anadromous species and there was no discussion of rainbow trout passage in the spring or juvenile sockeye movement into side channels for rearing. Mary Lou stated that the intent of the passage work was not to be life stage specific.

Michael Barclay (HDR) stated that the study was designed to collect the necessary information to determine what effect a change in water surface elevation would have on depth and access. Once that data is collected, you can apply it to the selected species and life stages to determine level of impact. Jeff stated that he'd like to see all species included in the analysis. Additionally he stated analysis of delay of access to river mouths, increased predation and stranding should be looked at. Michael stated that some of this could be addressed by the instream flow study. Mary Lou confirmed this.

Jeff asked if a change in turbidity occurred as a result of the project, would there be an impact on out-migrating juveniles. Wayne stated that he is unsure if the water will be clear enough to facilitate additional predation and that the water quality discussion on Thursday should be helpful in answering this question.

Joe Klein stated that other life stages and timing should be included in the fish passage study. Michael Barclay stated that the timing issue will be addressed in the hydraulic modeling.

Genetics Baseline for Selected Fish Species

Michael Link gave the Genetics Baseline for Selected Fish Species presentation. Areas discussed included goals and objectives, study area, methods and expected results.

Mike Buntjer asked how many samples were needed to meet the study objectives. Michael stated that about 200 were needed from each basin. Mary Lou stated that the methods AEA is proposing will supplement the statewide database.

Mike Buntjer asked if out-migrant traps were an option in the upper river. Mary Lou confirmed that they were an option but the trapping locations haven't been determined. Additionally she stated that there likely won't be enough fish captured to determine the proportion that have come from the upper river. Jeff Davis asked if AEA would know the proportion of upper river fish that rear downstream of the impediments. Michael Link stated that information would not be able to be determined. Betsy McCracken stated that the extent of genetic differentiation is important to understand. Michael stated that he understood the concerns and some additional detail could be added to the study plan to refine the document.

Jeff Davis asked if only Chinook were being evaluated. Michael Link confirmed this and stated that there was no plan to evaluate any other species. He stated that samples from other species would be collected but not analyzed. There is no baseline to work with for other species and a large amount of gene flow occurs with sockeye. He stated there is very little site fidelity.

Mary Lou asked Jeff Davis to clarify an earlier statement related to fish rearing outside of the middle reach. Jeff stated that he was referring to juveniles that moved downstream, out of the middle reach and into tributaries to rear. Mary Lou asked Jeff why that couldn't be addressed using fish habitat availability information. Phil Hilgert stated that data is still being compiled from the 1980's and that sockeye were rearing in upland sloughs.

Michael Link made two clarifications to the flow chart he showed during the Salmon Escapement presentation:

1. There was a large increase in flow in mid-June.
2. When the fish passed the 3rd impediment in Devils Canyon, they were within 1000 cfs of the all-time low flow for that period.

Jeff Davis asked how that low flow related to movement of fish into other tributaries. Michael stated that there was no obvious relationship.

Aquatic Resources Access/Transmission Alignment/Construction Area

Mary Lou gave the Aquatic Resources Access/Transmission Alignment/Construction Area presentation. Areas discussed included goals and objectives, study area, methods and expected results.

Eric Rothwell asked if there was any text discussing passage design at stream crossings. Mary Lou stated that the standards were referred to in the study plan. Matt Cutlip stated that it was not uncommon to discuss potential for evaluation of building crossings on fish. Mary Lou stated that the state has criteria for passage at stream crossings and those are discussed in the plan. Stormy Haught (ADF&G) stated that a fish habitat permit would be needed for each crossing. Eric stated that NMFS has passage standards that must be met as well. Mary Lou stated that if passage is needed, from a state perspective, it was her understanding that a bridge should be used wherever possible. Stormy stated that wasn't necessarily true. It is the preferred alternative but not always the case. Mary Lou stated that the intent of the study is to identify areas where impacts may result from stream crossings. Betsy McGregor elaborated by stating that this study is the first step toward determining where the stream crossings will be and that there are currently three road options that must be narrowed down to one.

Fish Harvest In and Downstream of Project Area

Mary Lou gave the Fish Harvest in and Downstream of Project Area presentation. Areas discussed included goals and objectives, study area, methods and expected results.

Jeff Davis asked if the study took into account the ability to navigate the river during the spring Chinook fishery. Mary Lou stated that the recreation study addresses that issue.

Fred Winchell (LBG) indicated that the potential for the project to impact the fishery is listed in the plan. Fred stated that it would be useful to put together a table of how the studies are related and how they work together to address the overall impacts. Mary Lou stated that that was a good point but the intent of this study wasn't to address changes to the fishery. Catch statistics from ADF&G would be used. Dani Evenson (R2 Resource Consultants) confirmed this and stated substantive harvest records and commercial data would also be used.

Joe Klein stated that effects of emergency closures should be included in the analysis. **Action Item.** Dani stated that it will be added. Betsy McGregor stated that this data was being collected to feed into the recreation and subsistence studies.

Jeff Davis asked if the ADF&G studies are to a scale so that they can be accurately utilized. Dani stated that they were for broad-scale regions. Jeff Davis stated that new surveys could be done. Dani stated that sometimes the state doesn't like duplication of their effort.

River Productivity

Tim Nightingale gave the River Productivity presentation. Areas discussed included goals and objectives, study area, methods and expected results.

Mike Buntjer inquired about the rationale for not having surrogate sites. Mary Lou stated that they couldn't find a comparable system and a literature review would allow a broader search.

Jeff Davis disagreed and stated that the Kenai may be comparable but he doubted it. He stated that there aren't other rivers like the Susitna so a literature search likely wouldn't work. Mary Lou stated that rivers outside Alaska may be relevant for a literature search. Jeff Davis asked how that would be more comparable than the Talkeetna or the Chulitna rivers. Tim stated that using the Talkeetna and Chulitna rivers as references was still an option. Joe Klein stated that a literature review wouldn't work and that a stream-based approach was needed.

Tim stated that there are a number of glacially fed rivers in Europe that would provide good review material. Joe asked if some Alaska rivers may be assessed in addition to any literature review. Tim stated that this was correct. Joe asked if an appropriate system was found in Alaska, would the licensing period permit its analysis. Joe stated that he needed to put a bit of thought into the current proposed process and potential alternatives. Mike Buntjer concurred with this approach.

Jeff Davis stated that primary productivity should increase due to the project. He asked why AEA was conducting this study by looking at periphyton. He suggested looking at primary productivity, ecosystem production, dissolved oxygen in sloughs, etc. Mary Lou asked Jeff to clarify if he thought AEA shouldn't look at periphyton. Jeff stated no, but the other variables should be looked at as well. Mary Lou asked when Jeff thought these variables should be assessed. **Action Item.** Jeff stated that they should be looked at throughout the growing season and asked if anyone else had brought this issue up and noted that there were references to this methodology from Idaho that he could provide. Eric Rothwell and Mike Buntjer stated that no one else had raised this issue.

Mary Lou acknowledged that if they modified the methods in accordance with Jeff's suggestions it would be a significant departure from what is currently being proposed. **Action Item.** She suggested a smaller group meet to discuss further details. Joe Klein agreed with this approach and requested that Jeff get everyone the references that he was referencing. Jeff stated that the primary reference was from Snyder and the work was done on the Kootenai River.

Jeff asked how deep water would be sampled. Mary Lou stated that only wadable sections were being assessed since the margins are the areas that will be most impacted by the project. Michael Lilly (GW Scientific) stated that supporting fish data will assist in documenting areas for sampling macroinvertebrates. Phil Hilgert added that bathymetry and the flow routing model results will be available in December and they will know what to look for prior to heading out into the field.

Jeff stated that the margins may or may not be more productive than deeper areas. Joe Klein concurred that sampling of deeper areas should occur. Phil stated he has looked at similar situations in Washington State and the margins that stay wetted tend to be the most productive.

Fish Passage Feasibility at Watana Dam

Mary Lou gave the Fish Passage Feasibility at Watana Dam presentation. Areas discussed included goals and objectives, study area, methods and expected results.

Wayne Dyok stated that AEA has not decided at this time that fish passage will be needed and that the results of the studies will drive this decision. Wayne asked for Ed Meyer's (NMFS) thoughts on the proposed study plan. Ed stated that the study plan seemed to cover everything that was typically needed but that a bit more evaluation was needed. Wayne noted that Ed would be participating in a site reconnaissance in September and that passage related efforts will incorporate the results of other studies. Wayne stated that AEA is looking at the passage evaluation effort as an iterative approach.

Steve Padula recapped the discussion from the meeting and stated that a series of small group meetings would be planned once the next two days of meetings had taken place.

Mary Lou stated that AEA heard the feedback that the study plans are lacking detail in some areas. She acknowledged that they aren't to the point where field study could occur and they won't be there entirely by November due to how integrated some of the studies are. She stated, for example, that Bill Fullerton's work on habitat mapping will be completed in September and is the first step in the habitat evaluation process.

Mary Lou stated that prior to the RSP, AEA will develop and incorporate a schedule/flow chart showing how the integrated process will take place. **Action Item.** Wayne stated that the stakeholders will see this in September. Mary Lou stated that in addition, AEA will define in the RSP the process that will be used to get to the necessary detail. Betsy McGregor added that wherever possible the additional detail requested will be included in the RSP.

Eric Rothwell asked if the ILP schedule can be extended to work through some of the issues. Wayne stated that AEA needed to think about that and the preference would be to get things done within the current timelines. Wayne stated that AEA was committed to a collaborative process throughout and opportunities for input will be ongoing.

Marie Steel (ADNR OPMP) asked for an explanation of the process for dealing with ongoing issues. Matt Cutlip stated that if additional details are not expected to be worked out until after the RSP, a schedule must be presented in the study plans to deal with these issues. He also requested periodic reporting. Steve stated that the TWG would continue to exist past the RSP and that AEA would keep the TWG up to date on progress of the study program and engage the TWG in reviewing study reports. It will be an interactive and collaborative process throughout. Wayne added that he believes there is value in having the stakeholders in the field periodically to keep them involved.

Steve previewed the next two days of meetings prior to adjourning.