Meeting Summary
Susitna-Watana Hydroelectric Project Licensing
Fish and Aquatics Resource Workgroup Meetings
June 12, 2012
AEA Project Offices, First Floor Conference Room
411 W 4th Avenue, Anchorage, AK

Stakeholder PAD Comments/Study Requests and Study Plan Development for Fish and Aquatic Resources, June 12, 2012, 9:00 am - 1:00 pm

Attendees:

Organization	Name
AEA	Betsy McGregor
AEA	Wayne Dyok
AEA	Brian Carey
USFWS	Mike Buntjer
USFWS	Betsy McCracken
USFWS	Danielle Thompson
USFWS	Brittany Williams
NMFS	Susan Walker (by phone)
NMFS	Eric Rothwell
BLM	Tim Sundlov (by phone)
BLM	Dave Mushovic
Coalition for Susitna River Dam Alternatives	Becky Long
EPA	Matthew LaCroix
EPA	Jennifer Curtis (by phone)
EPA	Lisa McLaughlin
ADF&G	Joe Klein
ADF&G	Ron Benkert
ADF&G	Jack Erickson
ADF&G	Stormy Haught
ADF&G	Kimberley Sager
FERC	David Turner (by phone)
Natural Heritage Institute/Hydropower Reform Coalition	Jan Konigsburg
Long View Associates	Steve Padula
Long View Associates	Bao Le
HDR	James Brady
HDR	Keri Lestyk
R2 Resource Consultants	Dudley Reiser
R2 Resource Consultants	MaryLouise Keefe
R2 Resource Consultants	Phil Hilgert
GW Scientific	Michael Lilly

Organization	Name
LGL	Michael Link
MSB Fish and Wildlife	Larry Engel
ARRI	Jeff Davis (by phone)
Susitna River Advisory Committee	Bruce Knowles
Alaska Ratepayers	Scott Crowther
Alaska Ratepayers	Frank Mielke

Introduction

Steve Padula (Long View Associates) acknowledged the receipt, by AEA, of stakeholder comments and study requests that were received by the FERC prior to the May 31st deadline. Steve briefly summarized the extent of comments noting receipt from non-governmental organizations (NGOs), Alaska Native Entities, citizen's groups, utilities and individual comments from the public. Wayne Dyok (AEA) stated that AEA had reviewed the comments and that many of them were consistent with the study requests developed by AEA. Steve Padula stated that the goal of this week's set of meetings was to seek clarification regarding any stakeholder comments that would require the development of new studies, additional study tasks or differing approaches to existing study methods. Discussions from meetings will inform the revision of study plans for the development of the Preliminary Study Plan (PSP) document due to the FERC on July 16th, 2012. Steve noted that the meetings would be led by program leads and organized by studies where stakeholder comments received met the above criteria.

Cook Inlet Beluga Whale Study - discussion

Keri Lestyk (HDR), the Beluga Whale Study lead, stated that after reviewing comments, the only additional stakeholder issue was to ensure that the study be a systematic survey and assessment of impacts for all marine mammals, not just beluga whales. Keri also noted that surveying marine mammal prey species was also included in the request and that as a result of the study plan development process, this additional component has now been included as part of the Lower Susitna River Fish and Aquatic studies.

For the Beluga Whale Study, Keri stated that two technologies will be implemented; remote cameras and still cameras. Still cameras will be used to assess beluga whale presence at the furthest upstream extent. The camera work will be supported by staff from the Alaska Sea Life Center, which successfully used this camera technology in the Little Susitna River last year. Wayne Dyok (AEA) stated that it is important to note that information collected must support an evaluation of potential Project effects. Keri agreed and stated that it will be critical that the results of the beluga whale study be integrated with the other pertinent lower river studies to provide a holistic picture of the resource and potential impacts of the proposed Project (e.g., habitat, prey species, whale distribution and relative abundance, etc.). Wayne asked participants if there were any additional comments regarding this study while acknowledging that NMFS' marine mammal lead was not present at the meeting. There were no additional comments,

however, Eric Rothwell (NMFS) encouraged participants to engage appropriate NMFS staff if there were any additional questions regarding the study.

Fish and Aquatic Resource Studies - discussion

MaryLou Keefe (R2 Resource Consultants), the Fish and Aquatic Resource Studies Program lead, stated that she had reviewed the pertinent stakeholder comments and had attempted to isolate a subset of comments that 1) were not already addressed in existing AEA study plans and 2) could impact the continued development of fish and aquatic resource study planning. She encouraged stakeholders to introduce additional comments, if any, that she may not have identified, as comments for each of the studies, are discussed.

River Productivity Study

MaryLou stated that with regard to the River Productivity Study, there were five comments that required additional discussion.

A comment was received to conduct a trophic analysis of primary and secondary productivity; MaryLou expressed some concerns about how valid a trophic analysis would be given the number of variables and associated uncertainty inherent to this analysis. As an alternative, MaryLou proposed that a feasibility assessment be conducted first to determine the appropriate next steps. Mike Buntjer (USFWS) stated that this was his requests which he worked with in collaboration with experts from his agency. He continued by stating that this may not be an issue of concern but did encourage some follow up with the USFWS to resolve any potential issues.

A comment was received to characterize coarse particulate organic matter in the upper, middle, and lower Susitna River. MaryLou stated that this was appropriate and would be included in the study plan.

A comment was received to estimate benthic macroinvertebrate colonization rates toward evaluating future changes to productivity. Mary Lou stated her concerns about the accuracy of the information that would be collected using artificial substrate samplers (the preferred sampling technology). Mike Buntjer (USFWS) agreed with MaryLou on the shortcomings of artificial substrate samplers toward providing representative results. Mike Buntjer stated that similar work was conducted during the 1980s and that the results of this work were unclear. Mike supports further evaluation of the 1980s work to determine the value of collecting this information and that such an exercise would be the appropriate first step to determining whether any additional work is needed.

A comment was received to quantify large wood and characterize its use by macroinvertebrates. Mike Buntjer stated that the intent of this request was to better understand the importance of large wood. MaryLou asked Mike if his interest was to sample macroinvertebrates on large wood. Mike stated that this was his interest. MaryLou thought that this issue was being

addressed within the Large Wood Study and believed that a stratified sampling design would be most appropriate to addressing this issue. Mike agreed with this assessment.

A comment was received to document the presence and locations of invasive macroinvertebrates and algae. MaryLou noted that all studies will document the presence of invasive species, if any are observed.

MaryLou and Mike agreed that a follow up discussion would be valuable to resolve any outstanding issues related to the River Productivity Study.

Fish Passage Study

MaryLou Keefe (R2 Resource Consultants) stated that these fish passage comments should be considered a new study request since AEA had not yet developed a study plan to address these issues. Wayne Dyok (AEA) stated that a study plan describing a feasibility level analysis would be appropriate but that within this plan, it would be critical to develop triggers for future evaluation and/or next steps that might be needed. Sue Walker (NMFS) asked that triggers be defined. Wayne defined triggers as the criteria for implementing additional steps as it relates to technological feasibility of passage structures in the context of a cost/benefit analysis. Wayne also stated that AEA will consider these types of criteria. Sue stated and Wayne agreed that the evaluation of fish passage feasibility should be conducted within the conceptual design phase of the Project engineering process. Sue also noted that she had additional fish passage engineering issues that she would like to discuss with the appropriate AEA staff and consultant leads outside of this meeting. MaryLou will follow up with Sue to identify a time for a conference call to follow up.

Betsy McCracken (USFWS) asked if AEA had considered alternatives to fish passage such as mitigation. Wayne stated that currently, no alternatives are being considered but that the fish passage feasibility assessment should be the first step before any alternatives can be identified. Dudley Reiser (R2) noted that although mitigation should be a consideration, it is too early to begin discussing this as there is not enough information at this point in time to properly inform the development of alternatives.

Early Life History and Juvenile Fish Distribution and Abundance

MaryLou Keefe (R2 Resource Consultants) stated that many of the study comments were being addressed under different studies but that this confusion may have been the result of a past reorganization of study elements into different study plans. MaryLou noted the following comments that had been received that required further clarification as follows:

A comment was received to determine the timing of downstream movement of all anadromous salmon species and outmigration. MaryLou noted that this would be a very large task with various challenging components such as during ice conditions and for the fry life history stage. MaryLou stated that outmigration timing would be best captured through the use of technologies

such as migrant traps and that such traps may not work well to capture certain life history stages such as fry under ice. Mike Buntjer (USFWS) agrees and stated that when writing these requests, he tried to use existing information to develop his study objectives. Both MaryLou and Mike agreed that capturing sufficient information about downstream migration will be important.

MaryLou inquired whether Mike Buntjer had given any thought to sampling sites. Mike stated that he had not thought about the study at this level of detail but noted that Portage Creek was a selected site. MaryLou and Michael Link (LGL) believe this site would be effective for capturing and marking fish. Mike Buntjer also stated that trapping activities could be beneficial at different locations to examine reach scale outmigration metrics. MaryLou stated that there has been discussion about developing the concept of intensive study sites that would support the objectives of various resource studies and that this design would address Mike Buntjer's concerns. Mike stated that he is receptive to continuing discussions regarding study design details.

A comment was received to estimate juvenile salmon production. MaryLou asked Mike Buntjer (USFWS), if productivity, in this instance, was defined as CPUE or true total production and whether he thought that migrant traps could be used to address this. Mike stated that estimating true total productivity was not his intent but rather an index of abundance so that stakeholders can assess relative status both pre- and post-Project.

Sue Walker (NMFS) stated that having these comments provided in advance of the meeting would have been helpful to allow participants to prepare for discussions. Wayne Dyok stated that the objective of these discussions is to not force stakeholders to make decisions but to try and get clarification on the rationale used to develop specific requests. The feedback would be used to inform the PSP which is a preliminary step in the overall development of the study program. Betsy McCracken (USFWS) agreed with Sue Walker about having the questions in advanced.

A comment was received to evaluate salmon incubation in mainstem habitats with and without upwelling. MaryLou stated that her primary concern with this type of evaluation is the high level of uncertainty given the complexities around the drivers of hatching success. MaryLou referenced a study conducted in the Mid-Columbia River where results indicated that modifying alevin emergence timing using flow releases had high variability between individual redds. Mike Buntjer (USFWS) agreed that there would likely be a lot of natural variability but is most interested in the groundwater component (areas with and without). Dudley stated that given his past experience with this type of work, it would be difficult to control the large number of interactions between existing variables although it could be viable in a controlled area. Dudley presented another option which would be to monitor the parameters that drive incubation and emergence timing such as temperature and dissolved oxygen. He stated that there is a considerable amount of literature on how specific parameters affect emergence timing. Mike stated that he was receptive to pursuing this approach.

MaryLou asked the group for further clarification on the overall objective of the study request. Mike stated that his primary interest is emergence timing and success under pre- and post-Project conditions. To support this, Mike believes an overall characterization of natural mortality of various species of interest versus what the system would look like post-Project, would be useful. Wayne Dyok (AEA) noted that such information might also support the development of operational regimes to minimize impacts to emergence timing and success. MaryLou stated that to address this issue, integration of information from multiple study areas will be critical. Phil Hilgert (R2 Resource Consultants) noted that a topic of discussion tomorrow will be the integration of biological information and instream flow/operational scenarios. Such an integration will allow for the development of approaches such as tracking the fate of a redd through time (via flow releases/water level) to assess the probability of survival (assumptions included). Betsy McCracken (USFWS) asked how would this be done for multiple redds and multiple species. Phil stated that one way would be to identify an area using transects and 2D modeling to identify potential spawning habitat by species. Once areas were identified, one could then model the area's spawning, incubation, and emergence success through the entire spawning and incubation period under proposed operational scenarios. Betsy McCracken asked if this approach could also address the function of groundwater. MaryLou reiterated the importance of integration over many studies to acquire the appropriate information including the groundwater study. Michael Lilly (GW Scientific) stated that the groundwater study was never intended to be an independent study but rather its function is to provide critical information to other studies to better understand the processes and how they may impact potential resources. Michael Lilly noted that understanding the processes first toward informing next steps and solutions will be critical. Joe Klein (ADF&G) agreed and stated that marrying adequate physical data with fish distribution data would be a critical component to an integrated approach. Michael Lilly also noted the importance of knowing why fish may not be distributed in particular areas in order to better isolate the differences between presence and absence. Both Mike Buntjer and Sue Walker agreed. Mike Buntjer noted that there is some confusion around the conclusions that can be drawn from the 1980s studies given the incomplete reporting. Wayne Dyok (AEA) stated that R2 Resource Consultants is currently synthesizing the information collected from the 1980s studies and hopes to share this information, when available.

A comment was received to evaluate diel behavior and fry stranding. MaryLou (R2 Resource Consultants) requested more input regarding the expected scale of this request. Mike Buntjer (USFWS) referenced the 1980s studies and noted the work provided little in the way of conclusions. Mike would like to know when fish are most active and whether they can avoid being stranded by fluctuating water elevation. MaryLou stated that the video/DIDSON component of the fish proposal might suffice in addressing this concern. Dudley Reiser (R2 Resource Consultants) added that this issue relates to the varial zone and could also be addressed, in part, via modeling. Dudley also noted that stranding is only one component and that trapping would also need to be considered. Joe Klein (ADF&G) added that a year-round timeframe for study/analysis is important due to other species such as burbot that spawn in the winter and may be susceptible. Wayne Dyok (AEA) stated that future Project operations are not yet defined and that this type of information will be important to informing how the Project may operate to protect aquatic resources.

Eric Rothwell (NMFS) asked whether the methods identified in the study plan were adequate for characterization of seasonal distribution and relative abundance in the winter months and whether other methods could be used. MaryLou stated that the methods identified in the study plan were not intended to be all inclusive. Various methods will be used including radio-telemetry (RT) and passive integrated transponder (PIT) tags. MaryLou noted that the first year of study would employ a broad array of methods and this would help to refine the effort in subsequent years. Tim Sundlov (BLM) asked if anybody was aware of the successful data collection using PIT tags during winter ice conditions. Mike Buntjer (USFWS) stated that some USFWS work on coho salmon in the Matanuska Valley may provide some insight. Joe Klein (ADF&G) stated the importance of being able to extrapolate any information that is collected to larger spatial scales in order for it to be meaningful. MaryLou noted that the current study plan identifies a stratified random sampling design from a robust habitat classification system to address this concern.

Adult and Juvenile Non-salmon Anadromous, Resident and Invasive Fish Studies

A comment was received to characterize the synchronized life history strategies of these species and their potential behavioral response to Project-induced flow changes. MaryLou Keefe (R2 Resource Consultants) stated that the study employs RT technology and wanted to confirm that this would be appropriate to address this request. Betsy McCracken (USFWS) believed that RT would be sufficient but expressed the need to coordinate this work with other studies such as instream flow. Betsy also noted that they are primarily interested in broad migration patterns.

A comment was received to characterize trophic interactions by conducting a seasonal evaluation of the diet of all species by age class. MaryLou Keefe (R2 Resource Consultants) asked the group to confirm whether trophic interactions meant diet analysis and why it was necessary to conduct an analysis for all species, all life stages, and all seasons. Betsy McCracken (USFWS) stated that having this suite of information prior to Project construction would be important for assessing how these interactions change after construction. MaryLou asked whether there was an interest for this information above and below the proposed dam site. Betsy McCracken confirmed that there was an interest for this information above and below the dam site. MaryLou agreed that trophic interactions will likely change with Project construction but asked how this baseline information would help to assess Project impacts. Betsy McCracken stated that little information exists for many of these species and that baseline would be needed to evaluate Project impacts. Jack Erickson (ADF&G) noted that there is significant temporal variation in stomach content and that large sample sizes would be necessary. MaryLou concurred and believed that to conduct a scientifically rigorous analysis given 20 species, 3 age classes, and 4 seasons would require that approximately 60,000 stomachs be collected which is not feasible. MaryLou stated that she is not opposed to conducting some gut analysis for the study but that she would need to better understand the objective of the task. Betsy McCracken noted that she could consult with her agency and provide more information. Betsy also stated that her interest is to understand persistence in the new environment. MaryLou replied that if

this was the primary objective, there different type of approach can be designed to better understand trophic dependencies.

A comment was received to quantify marine-derived nutrients input into the system by estimating biomass of anadromous lamprey, eulachon, and Bering cisco. MaryLou Keefe (R2 Resource Consultants) asked if biomass was defined as a simple abundance multiplied by mass calculation. Betsy McCracken (USFWS) stated that it was and that her primary interest was to get an idea of relative contribution of these species to the system. MaryLou stated that the wildlife component of the marine-derived nutrients question is challenging since predation does not necessarily constitute a loss of nutrients but a transfer from aquatic to terrestrial systems. Betsy McCracken stated that any biomass information and indice development would be more than is currently available. Betsy McGregor (AEA) reminded the group that the terrestrial study will evaluate aquatic inputs/relationships with bear. MaryLou believes that an evaluation at some level can be conducted to address this request.

A comment was received to determine the economic, social, recreation and aesthetic value of fish and habitat in the Susitna River. MaryLou Keefe (R2 Resource Consultants) stated that these issues will be addressed in other studies.

Adult Salmon Distribution, Abundance, Habitat Utilization, and Escapement

A comment was received to estimate salmon escapement by mainstem reaches and tributaries. MaryLou Keefe (R2 Resource Consultants) believed that this work was being conducted by ADF&G. Michael Link (LGL) noted that the 2012 Radio-telemetry work would not address this issue. MaryLou asked that Mike Buntjer (USFWS) clarify what was being proposed with this specific request. Mike stated that he would review his notes and provide feedback to MaryLou on this issue.

Additional Issues and Requests

A comment was received to address methylmercury in fish. MaryLou stated that this is a concern and it will be addressed. This issue is not in the fisheries program and is spread out over several programs including water quality, wildlife, and geology and soils.

A comment was received to evaluate the presence of sockeye in the Upper Susitna River. Betsy McGregor stated that all five species will be radio-tagged by ADF&G and that this information can be used to characterize presence in the upper basin. If sample sizes had to increase to address this issue, that could be done. Becky Long (Coalition for Susitna Dam Alternatives) noted that at a previous work group meeting, Mike Beethie had shared anecdotal accounts of species presence.

MaryLou stated that she had no more questions regarding comments received and asked if there were any other comments. Frank Mielke (Alaska Ratepayers) stated that invasive species information would be useful for developing future management objectives. Joe Klein (ADF&G)

wanted to clarify the purposes of the two types of sampling; by habitat and the intensive study sites. Joe expressed that the intensive sites are areas where the information will allow us to understand relationships at the represented scale whereas by habitat sampling would allow for information at a broader scale.

Larry Engel (MSB Fish and Wildlife) stated he is currently involved with an environmental analysis of military operations and impacts from aerial activity in the Susitna area. He stated his concerns about the potential impacts of aerial operations during critical times associated with this Project and wondered if AEA has been involved in this process. Becky Long stated that comments are due on July 9th. Wayne stated that AEA needs to work with Tom Crawford at ADNR and make them aware that this project exists and the specific concerns to ensure they are adequately reflected in the EIS process.

Brian Carey (AEA) reminded participants that the site visit has been moved the July 26-27th. He requested that those interested in participating RSVP by June 30th. He also asked that participants provide information about sites of interest and specific requirements from federal agency participants about paying for their own participation. Information can be provided to Brian via email at bcarey@aidea.org.

Wayne stated that there may be the potential need for a plenary group to evaluate the process thus far. He thought that this could occur in August. Sue Walker supported this idea and requested that a detailed agenda be provided in advanced of the meeting. Sue also asked if this was the extent of agency interaction with AEA regarding finalizing study plans. Wayne noted that the filing of the PSP does not signify the end of input for comments to study plans. There are additional opportunities via the 90-day comment period and the Revised Study Plan.
A phone participant requested that members of her community be involved with the subsistence and traditional ecological knowledge assessments. Betsy McGregor stated that this work was being conducted by ADF&G and that they have hired local people to conduct these studies.

Mike Buntjer stated that there have been several requests for multiple years of study and that there was confusion as to AEA's position with regard to this request. Wayne asked if David Turner (FERC) could clarify on feedback that "studies must be completed" prior to filing a license application. David Turner stated that he views this as a study specific question. If multiple years above the current 2-year proposal, is needed, these should be done prior to filing the license application. Wayne stated that he expects that these studies can be conducted and filed by September of 2015.

Jan Konigsburg (NHI/HRC) asked if AEA plans to develop a comment table. Steve Padula notes that in the fall when the RSP is developed, AEA will be required to account for all comments and how they were addressed. David Turner noted that this requirement should be provided in the PSP as well. Steve clarified that completely new study requests/major issues will be clearly addressed in the PSP however, if adjustments are made to existing study plans such as minor changes, these will not be explicitly accounted for in an accompanying document but only within the study plans themselves given this would be a very lengthy exercise. Dave Turner agreed that

that the disposition of major issues will need to be clearly addressed in the PSP. Matt LaCroix (EPA) stated that a general status summary of comments would be useful for many who are not participating in all parts of the process. Wayne replied that AEA will consider this but to review and consolidate 2000 pages may not be feasible, certainly not by July 16th. Matt stated that this could be a valuable tool but is not necessarily asking for anything at this time.

Larry Engel asked where more information on ongoing Project activities can be found. Betsy McGregor noted that most Project information, when available, can be found on the Project website. Wayne noted that MSI Communications has been hired to better refine the AEA-public informational interface regarding Project activities. Next week – Access Corridor Alternatives Analysis should be available (conducted by ADOT). Joe Klein requested that the USGS studies and any FERC notices be included on the website. Mike Buntjer stated that regarding rock sandpiper overwintering at the mouth of the Susitna River may be an issue. Betsy McGregor replied that she has an action item to follow up on this potential issue

Action Items

- R2 Resource Consultants (MaryLou Keefe) shall include a characterization of particulate organic matter in the Upper, Middle, and Lower Susitna River as part of the River Productivity Study.
- R2 Resource Consultants (MaryLou Keefe) to schedule a meeting with the USFWS to discuss/resolve any outstanding issues related to the River Productivity Study.
- AEA will develop a Fish Passage Feasibility Study Plan for inclusion in the PSP.
- R2 Resource Consultants (MaryLou Keefe) will identify a time for a conference call with NMFS (Sue Walker) to discuss their additional fish passage feasibility concerns.
- USFWS (Betsy McCracken) will consult with others at her agency to provide additional information to R2 Resource Consultants on the scope of the trophic interactions comment noted in the Adult and Juvenile Non-salmon Anadromous, Resident and Invasive Fish Studies.
- For the Adult and Juvenile Non-salmon Anadromous, Resident and Invasive Fish Studies, R2 Resource Consultants (MaryLou Keefe) will add a study task to describe marine-derived nutrient inputs into the system.
- With regard to the comment in the Adult Salmon Distribution, Abundance, Habitat Utilization, and Escapement Study to estimate salmon escapement by mainstem reaches and tributaries, the USFWS (Mike Buntjer) will provide clarification to R2 Resource Consultants (MaryLou Keefe) regarding the intent of the request.
- AEA (Wayne Dyok) will follow up with ADNR regarding comments on the environmental analysis of military operations and impacts from aerial activity on the Susitna River area.
- AEA will post the USGS studies and any FERC notices to the website, when available.