



# SUSITNA-WATANA HYDRO

## Meeting Notes Fisheries Technical Meeting 03/20/2014

- LOCATION:** Alaska Energy Authority – Board Room  
813 West Northern Lights Blvd.  
Anchorage, AK 99503
- TIME:** 8:30 a.m. – 3:30 p.m. – (AKST)
- SUBJECT:** Planning for Studies 9.5, 9.6, and 9.7
- Goal** To communicate and discuss potential modifications of the next year of study for 9.5 Fish Distribution and Abundance Upper River, 9.6 Fish Distribution and Abundance Middle and Lower River, and 9.7 Salmon Escapement and to report on 9.5 and 8.5 Winter Studies.
- ATTENDEES:** Kathryn Peltier McMillen, MaryLouise Keefe R2, Joe Klein ADF&G, Betsy McGregor AEA, Lori Verbrugge USFWS, Phil Hilgert R2, Bryan Nass LGL, Dara Glass CIRI
- ON PHONE:** Sharron Kramer CIRI fisheries consultant, Stormy Haught ADF&G, Kai Steimle R2, Alice Shelly R2, Jerry George R2, Hall Shepard CWA, Sarah O’Neil Trout Unlimited, Jack Erikson ADF&G, Domanique Glass Environ, Matt Cutlip FERC, Dudley Reiser R2, Peter Johnson LGL, Adam Weibright R2, Sue Walker NMFS (part of meeting), Betsy McCracken USFWS

The purpose of this meeting was to discuss potential modifications to the methods of the above mentioned studies with licensing participants. Through this collaboration, AEA hopes to include input from licensing participants into the final ISR section 7 (plans for completing the study). Comments and suggestions are welcomed by AEA and can be provided by contacting Betsy McGregor ([BMcGregor@aidea.org](mailto:BMcGregor@aidea.org)).

The following meeting notes are intended to capture any significant discussion/information in addition to the materials provided on the Project website (<http://www.susitna-watanahydro.org/>). The meeting agenda and materials are available under the “previous meetings” tab (link provided under the meetings tab) on the Project website.

### Study 9.5 FDAUP Presentation – MaryLouise Keefe, R2

AEA’s fish team reviewed FDAUP 2013 data with respect to potential modifications for the second year of study. They noted that on the mainstem there were only a few off-channel habitat sites sampled in 2013. At the time of fish sample site selection habitat delineation data was not available to determine all of the macrohabitats present and their individual lengths; but, that data is now available. Thus, R2 reviewed the mapping to determine the length of these off-channel habitat types in the Upper River and has proposed to use a GRTS approach to increase sampling of these habitats above and beyond what was conducted in 2013. A table with the proposed changes to mainstem transect sampling is presented in slide 9.

R2 staff also had conducted a review of literature on fish sampling sufficiency analyses and selected one method to apply to the 2013 FDA-UP tributary data. The selected method was that presented in a very recent publication addressing sampling sufficiency in multiple AK streams including the Susitna River basin (Kirsch et al 2014). Because of the timing of this publication, it was not available to be considered in the RSP or Implementation Plan. However,

R2 staff determined that this approach was well suited to evaluate FDAUP (Study 9.5) and FDAML (Study 9.6) data. A summary of the results of the fish sampling sufficiency analysis is presented in slide 9. The recommendation is to increase the length of sampling in all but one of the Upper River tributaries as is evident in the far right column of the table in slide 9. The "Sampling Considerations for Study 9.5 Fish Distribution and Abundance in the Upper Susitna River" technical memorandum (posted as material for this meeting) discusses R2's sampling sufficiency analysis and the proposed sampling changes in further detail.

- Some sites were not sampled in 2013 due to access restrictions.
- Slide 5 shows the results of reviewing the habitat video within each of the GRTS panel sites selected for sampling on the Oshetna and Black rivers. These tables identify habitat types that were not sampled in 2013 and would be incorporated in the next study year to increase sampling in rarer habitat types if the proposed modifications to the methods are implemented. Very fast water habitats, including cascade and chutes were not and will not be sampled due to the knowledge that they do not represent good fish habitat and are difficult to safely access.

#### **Study 9.6 FDAML Presentation – Jerry George, R2**

- Slide 3 lists the sampling methods used in 2013. Three methods were chosen at each site.
- After evaluating the data on slides 4-5, AEA proposes eliminating hoop and minnow traps in future efforts. The results from these methods were similar to fyke and snorkeling from a total number of species perspective and in addition the CPUE data from fyke nets and snorkeling were greater than hoop and minnow traps.
- Stormy asked if AEA looked into species-specificity of methods when making this proposal. MaryLouise said yes, and that they looked to see if they would have lost a species at any location by dropping a particular method. There was further discussion about minnow traps having value in certain habitats. MaryLouise also said that AEA ran some tests comparing multiple short sets versus overnight sets of minnow traps and the data indicated that depending on the set the catch was potentially biased. For example in sites with Dolly Varden presence, Dolly Varden would move in first and other species, such as coho salmon, would not appear in the catch until after the Dolly Varden were removed from the habitat. These data suggest that overnight minnow trap sets did not provide data that is essential to reach study objectives. .
- Stormy asked what method would be preferred in still water, backwater, and beaver ponds if hoop nets and minnow traps were not an option. Jerry George said that fyke nets and seining would be deployed.

#### **Study 9.7 Salmon Escapement Presentation - Bryan Nass, LGL and Jack Erickson, ADF&G**

Prior to moving on to the Escapement presentation, Matt Cutlip asked if studies will be implemented in 2014. Betsy McGregor said that the Escapement Study will be implemented and some limited FDAUP sampling may occur. Much depends on access and available funding; CIRWG land access negotiations are ongoing and the Project budget will not be known until the end of the legislative session (late April 2014). Matt Cutlip requested that AEA provide a list of what studies will be implemented in 2014, indicating what will continue from 2013 and what will be modified.

Bryan Nass and Jack Erickson presented information on modifications for Study 9.7 Salmon Escapement. Overall, these proposed modifications are the same as was implemented in 2013.

##### **LOWER RIVER**

- Sonar data is currently being analyzed. The draft ISR data will be updated with the sonar data by means of an attachment or appendix to the final ISR. AEA suspects that this data will not change the fish numbers, rather refine the precision (error bars).
- Slides 5-7 list the proposed study activities for 2014. Slides 6-7 indicate the proposed modifications to the FERC-approved Study Plan.

- 600 coho salmon will be tagged on the mainstem Susitna and mark recapture sites operated on the Deshka and Montana Creeks.
- 200 pink salmon will be tagged to better understand distribution.
- Aerial surveys will continue to be conducted every 2 weeks throughout the study season.
- If ADF&G can allocate funds beyond that provided by AEA to fund the FERC-approved Study Plan, additional radio tagging of Chinook may be included in 2014.

#### MIDDLE AND UPPER RIVER

- Slides 9-13 list the proposed actions regarding Curry activities; slides 10-13 list those that are proposed modifications to the FERC-approved study plan.
- The sonar referenced in slide 12 would be implemented in order to record the fish bypassing the fishwheel. Due to low turbidity and low velocity at the end of the 2013 run, many fish were able to swim towards deeper waters; bypassing the fishwheel. Sonar could detect these fish.
- The first bullet in slide 13 explains a proposed modification to switch from fishwheels to seining in September. This was conducted in 2013 for the Lower River and proved successful.
- The weir mentioned in slide 15 would use video to identify the fish rather than visual surveys.
- Although movement patterns may imply spawning fish, spawning in the mainstem Susitna has yet to be observed. Turbid water sonar (slides 19-21) did not observe spawning in 2013. AEA proposes to increase telemetry efforts. When spawning is suspected by the telemetry crew, they can identify locations to the turbid water surveyors.
- Lori Verbrugge requested further discussions on this study once the Services' contractors were selected. Betsy McGregor indicated AEA's willingness for further discussions, but indicated that they would need to occur soon as field preparation for this study is underway.

#### **Study 9.5 and Study 9.6 - Rotary Screw Trap Presentation – MaryLouise Keefe, R2**

- Local topography inhibits the Kosina Creek rotary screw trap to be moved within the creek, and it is not efficient where it is currently located (indicated in the data of slide 3). This is why AEA proposes moving the trap to the mainstem location indicated in slide 4 (near the proposed dam site) and replacing the trap in Kosina Creek with fyke nets and minnow traps.
- Stormy Haught agrees with AEA's proposal.
- Matt Cutlip asked AEA to justify their trap relocation proposal including estimating effort and costs for moving the trap from Kosina Creek to near the proposed dam site versus adding another screw trap near the dam site while maintaining the Kosina site as well.
- MaryLouise explained that the objective of the rotary screw traps is to understand migration timing for each species. For Kosina, the fyke nets and minnow traps may achieve this objective better than a rotary screw trap.
- The table on slide 5 shows the success of other mainstem Susitna rotary screw traps.
- Slide 6 - The Susitna River at Curry Station rotary screw trap may be moved within the upper portion of the Middle River; possibly by Portage (access dependent) to improve catch in the next year of study. The Montana rotary screw trap is currently placed far upstream of Project influence. This trap may be moved to the mainstem Susitna by the mouth of Montana Creek to obtain information of fish moving in the mainstem as well as downstream from Montana Creek.

#### **Study 9.6 FDA Winter Studies Presentation – Jerry George, R2**

A pilot study was conducted in the winter of 2012-2013 to determine efforts for the winter of 2013-2014. A technical memorandum detailing these efforts and results was provided in the FDAML Draft ISR Study 9.6 as Appendix C, filed with FERC on February 3, 2014.

- Because of weather, a January field trip was not possible. The three 2014 winter trips will occur Feb-April (slide 9).
- Field efforts include approximately 4 days at each of the 3 Focus Area and between 35 and 40 sites for each event.
- Trot lines are still being used in the mainstem Susitna in the winter, because it is the only method that has caught burbot in winter. Baiting techniques were changed, and there have not been any mortalities or major injuries this winter.
- Depth, velocity, estimated wetted width, and substrate are documented at each sampling site. The HSC crew is taking discharge measurements at all ARIS sonar locations.
- ARIS is not being used at FA-128 (Slough 8A) because it is too shallow. At locations where ARIS is applied, the habitat width is approximately 7-8 meters wide and the ARIS can detect the entire width.
- ARIS sonar is not a good tool for identifying species (other than sculpin). Underwater video is being used at sonar sites to collect species composition.
- The winter studies methods described are being implemented. If a licensing participant has suggestions or comments and would like those to be considered during the 2014 field season, prompt communication (through Betsy McGregor) is necessary.
- Joe Klein asked if radio-tagged fish locations are being sampled in addition to planned sites. Jerry George said that they are coordinating with the PIT tag crew, but many radio-tagged fish are located in the mainstem or by open leads where sampling is too dangerous during winter.

#### **Study 8.5 IFS Winter Studies – Adam Weibright, R2**

- Water quality measurements are being taken by continuous data loggers as well as spot measurements.
- VHG – Vertical Hydraulic Gradient (collected by the tool in the bottom photo of slide 5).
- The VHG was difficult to use in the winter because of the water freezing. It worked well in the summer.
- The maps on slides 6-8 will be updated with 2014 sites. These are the maps that were used for planning purposes and some may have moved depending on site-specific conditions.
- Slide 10 is obsolete.
- The data on slide 11 show the possible integration of upwelling.
- In 2014 dissolved oxygen (DO) probes were calibrated by using handheld devices for instantaneous measurements.
- Asterisks on slide 16 indicate measurements take at observed seepage.
- Slide 17 shows results from the 2012-2013 pilot study.
- Sue Walker said that she does not believe there are enough samples to determine that the fish have a preference for night activity. Adam suggested that when looking at this preliminary data with data recently collected during this winter and combining data across methods, he is confident that a pattern will be evident when data is analyzed. Phil Hilgert added that literature supports a night preference for fish activity. The reason for this has not been concluded, although studies have attempted to identify the reason for over a decade.

- Sue Walker asked if downwelling is being measured. Adam said that it is being inferred by temperature changes. Phil Hilgert said that the 2013-2014 field efforts are using the VHG measurements and working with the groundwater study to confirm upwelling and downwelling. Dudley Reiser added that TIR imaging data will be considered as well. The Proof of Concept meeting in April will discuss the integration of these studies.
- Sue Walker said that studies being conducted by NMFS and ARRI are seeing that stage changes in off-channel habitats are being related to ice blocking. Adam is seeing this as well.
- In addition to the efforts detailed in slide 19, Dudley explained that water quality samples are being collected at the well locations and longitudinally upstream and downstream of the wells for the same parameters as those in the open water study season.
- Sharon Kramer asked if gastric lavage is being conducted on fish captured in the winter studies. MaryLouise Keefe said that UAF is collecting stomach content in the open water study season.

Action Items	Responsibility
Matt Cutlip requested that AEA provide a list of studies that will be implemented in 2014, indicating what will continue from 2013 and what will be modified.	AEA
The Final ISR for Study 9.7 will include updated sonar data.	AEA

