



SUSITNA-WATANA HYDRO

Meeting Notes Fisheries Technical Meeting 03/21/2014

LOCATION: Alaska Energy Authority – Board Room
813 West Northern Lights Blvd.
Anchorage, AK 99503

TIME: 8:30 a.m. – 12:30 p.m. (AKDT)

SUBJECT: Technical Team Meeting on Study 9.8 River Productivity

Goal Collaborate on topics identified in the Study Plan and discuss potential modifications of the next year of study for River Productivity (Study 9.8).

ATTENDEES: Joe Klein ADF&G, MaryLouise Keefe R2, Kathryn Peltier McMillen, Phil Hilgert R2, Justin Crowther AEA

ON PHONE: Kristin Rine UAF, Sara O’Neil Trout Unlimited, Tim Nightengale R2, Erik Schoen UAF, Leanne Hansen USGS, Sharon Kramer CIRI fisheries contractor, Chris Holmquist-Johnson USGS, Matt Cutlip FERC, Matt Love VNF, Greg Auble USGS, Betsy McGregor AEA

The purpose of this meeting was to collaborate with licensing participants on topics identified in the Study Plan and discuss potential modifications for the next year of study for River Productivity (Study 9.8). 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).

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.

River Productivity Presentation – Tim Nightengale R2

Tim Nightengale informed attendees that laboratory results for river productivity were not expected to be available until the end of April 2014.

River Productivity Collaboration Topics Remaining from Study Plan

Although the topics on slide 3 have been discussed in the past, AEA encourages input from licensing participants.

Stable Isotope sampling locations

- Slide 5 lists the four sampling stations and number of sites per station, with each site representing a different macrohabitat. All macrohabitat types present in each station were sampled.

- The UAF components of the River Productivity study are being conducted in 2014. Other study components will be conducted in 2015. The UAF components include stable isotope and drift sampling with AEA's contractor providing support services.

Fish marking for growth model

- For reasons discussed in slides 9-10, the 2013 study efforts focused on PIT tagging and did not conduct dye marking.
- Target species collected for this study (for fish gut analysis) that were too small for PIT tagging included coho salmon. Target species collected for FDA studies that were too small for PIT tagging included coho, chinook, and rainbow trout.
- Sharon Kramer suggested using different colored dyes for different locations and indicated she would think about this and get back to AEA with suggestions.
- Some PIT tagging data is presented in the draft ISR (Study 9.6, Section 5.2.2.2.).
- PIT tag results require extensive QA/QC efforts, which have recently been completed. Further analysis of the PIT tag results will begin shortly. UAF is most interested in recorded fish movements in and out of the habitat/site, as well as any growth rate information from recaptures, for use with the growth model.

River Productivity Plans for 2014 Sampling Efforts

Field collections to support isotope analysis and growth models (fish, drift, isotopes)

- Of the options proposed in slide 13, Joe Klein prefers adding Arctic grayling sampling at all stations (above and below Devils Canyon) rather than moving the two sites above Devils Canyon. Stormy Haught agrees with Joe's approach.
- MaryLouise Keefe confirmed that trophic modeling will not continue in 2015.

River Productivity Study Modifications for Future Year of Study

AEA intends on conducting the components mentioned on slides 14-20 in 2015.

Shoreline fluctuations

- Slide 15 - Due to the unpredictable and highly fluctuating hydrograph, a 30 day saturation period was not 100% feasible for the Hess samples in 2013. 24% of the Hess samples risked dewatering in 2013.
- Appendix C of the draft ISR (Study 9.8) has a detailed analysis of Hess samples at risk of being dewatered based on the USGS gage on the main channel.
- Slide 17 lists some proposed measures to avoid dewatering in the next study year.
- Stormy asked that, when the data is presented, AEA make clear which stations were potentially dewatered.
- Tim Nightengale said that his initial impression is that there are few macroinvertebrates in the main channel of the Susitna (regardless of dewatering).
- Although pressure transducer data was not available in time for the draft ISR, Tim Nightengale is looking into using that data for refining dewatering occurrence. However, the analysis of potential dewatering of samples (Appendix C of the draft ISR, Study 9.8) did make time adjustments related to the site distance from the USGS station at Gold Creek.
- Joe Klein suggested looking at meteorological data as well as the hydrograph to determine upcoming rain events.

Colonization sampling

- The four conditions targeted were:
 - Cold/Clear
 - Cold/Turbid
 - Warm/Clear
 - Warm/Turbid
- Slides 19-20 lists proposed actions necessary to avoid dewatering of Hester-Dendy sets.
- Depth is a limiting factor for the locations possible to deploy the staggered samples (illustrated on slide 20).
- Stormy Haught is not initially supportive of the floating units proposed on slide 19.

River Productivity HSC/HSI Development Presentation – Tim Nightengale R2

River Productivity IFS Modeling

HSC/HSI variables and approach

- A parameter being collected at every HSC/HSI site, which is not listed on slide 3, is temperature. There are temperature loggers at each site.
- Slide 4 – PAR = Photosynthetic active radiation
- 1% PAR is the minimum light needed at the water's bottom to promote algal periphyton growth.
- Slides 5-10 show preliminary model results at stages comparable to the seasons.
- Joe Klein asked if the rate of production could be calculated by the study (low/medium/high). Tim said that it would not because more in depth data is required. Data production potential (yes/no) and duration is being explored.
- Joe Klein asked if the HSC/HSI data will be related to the trophic model. Erik Schoen said that they will not be able to be directly linked since the invertebrate growth model needs drift invertebrate density rather than location of potential habitat. One should be able to correspond growth suitability curves with specific HSC parameters.
- Slide 12 consists of a figure showing the effects of different parameters on productivity. This study included rivers very close to a glacier and with smaller streams so its applicability to the Susitna may be limited. The dotted lines in the graphs indicate no ice.
- The dotted lines on slide 13 correspond with the taxon richness and abundance axis. The higher dotted lines represent groundwater influence and lower dotted lines represent no groundwater influence. The solid line indicates discharge.
- If comparing the Susitna taxa to the figure on slide 15, then the Susitna would likely fall in the middle of the graph.
- Primary production information is being collected through literature. Algae and water quality measurements are being taken in the field to apply to data collected in a literature review.
- Joe Klein asked if AEA will understand the environment in such a dynamic system. Is the sensitivity of the system captured in the data collected? Tim Nightengale has not seen any previous studies on Alaska glacier rivers to the extent that AEA is sampling and feels that the current sampling plan will capture the system's sensitivity as best possible.
- Analysis of 2013 data will begin within a few months.

General Discussion

- Sarah O'Neil requested a list indicating what studies will be conducted which years. Matt Love said that AEA is in the process of creating this list and it will be filed with FERC as will also be available on the Project website.

- The Proof of Concept meeting is scheduled for April 15-17, 2014. It will be looking at the physical processes and their relation to changes in fish habitat. For those who are unable to attend the meeting, there will be materials provided prior to the meeting and comments can be provided at any time to AEA. Meeting notes will be available after the meeting, and AEA is investigating the possibility of video recording the meeting. Chris Holmquist-Johnson said that USGS staff will be in training during this time and suggested rescheduling. However, these meeting dates were established during the fall of 2013 and the approach will be incorporated into the final ISR to be filed with FERC June 3, 2014.

Action Items	Responsibility
A list indicating what studies will be conducted which years.	AEA
Decisions Made	
Analyze fish diet for Arctic grayling at all FDA collection sites. Do not relocate the sites above Devils Canyon.	AEA

Draft