



SUSITNA-WATANA HYDRO

Meeting Notes

Instream Flow, Riparian Instream Flow and Groundwater Resources

Technical Workgroup Meeting

09/24/2013

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

TIME: 8:30 a.m. – 4:30 p.m. (AKDT)

SUBJECT: 2013 Q3 Update

Goal To provide an update on IFS Program (Fish and Aquatics, Riparian, and Groundwater) activities during Q3 2013 and activities planned for Q4 2013.

ATTENDEES: Kathryn Peltier McMillen, Joe Klein ADF&G, Sue Walker NMFS, MaryLouise Keefe R2, Dudley Reiser R2, Mathew LaCroix EPA, Steve Padula McMillen, Phil Brna USFWS, Chuck Sensiba VNF, Mike Gagner R2, Michael Lilly GW Scientific, Betsy McGregor AEA, Marie Steele DNR, Eric Rothwell NMFS, Wayne Dyok AEA, Marty Bozeman AEA, Ronald Danner DNR, Melissa Hill DNR, Ken Hogan FERC, Dara Glass CIRI.

ON PHONE: Becky Long CSDA, Whitney Wolf Talkeetna Community Council, Stormy Haught ADF&G, Henry Berg DNR, Kasey Clipperton Golder, Kevin Fetherston R2, Greg Auble USGS, Colin Kikuchi USGS, Chris Holmquist-Johnson USGS, Jan Konigsberg AK Hydro, Bob Henszey USFWS, Mike Buntjer USFWS, Jeff Davis ARRI, Jake Soll Natural Resources Defense Council, Ellen Wolf CSDA, Leanne Hansen USGS, Kim Sager DNR, Karen Loberg Nature Conservancy, Stuart Beck R2, Tara Moberg Nature Conservancy

This was the third 2013 quarterly instream flow, riparian instream flow and groundwater resources Technical Work Group (TWG) meeting. The quarterly TWG meetings are intended to provide status on study plan progress, communication and discussion regarding any study plan variances that may be required given actual field conditions, and planned next steps.

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.

RSP 8.5 Fish and Aquatics Instream Flow Presentation – Dudley Reiser

Dudley Reiser provided an overview of the progress regarding the Instream Flow Study for the third quarter of 2013. Slides 3-9 provide a schedule for the components of the Instream Flow Study. Each major component of the Instream Flow Study provided a summary of their Q3 activity in the following slides.

Focus Area Selection – Slides 10-21

- Slides 14-19 provide examples of bathymetric survey data points and products necessary for geomorphology models.
- AEA plans to compare the current bathymetry with 1980s data.
- Field crew used the habitat definitions in the RSP, but these definitions may be refined based on 2013 data.
- Variances to the study plan are described on slide 21.

Open Water Flow Routing Model - Stuart Beck, Slides 22-29

- The cross sections in slide 25 which will be used as model input for the hydraulic flow routing model will also be inputs to the geomorphology 1D model, ice model and water quality model.
- Version 1 of the models (slide 29) will compare the current data to 1980s data. 1984 was chosen because it is representative of average flows.
- Breaching flows will be determined in some of the Focus Areas.
- The ISR will present data and version 1 model runs, with some methods and data provided for version 2 of the model. There will also be discussion pertaining to the fall 2012 flood event and its effects on the area.

Focus Area Instream Flow Hydrology- Mike Gagner, Slides 30-39

- Focus Area work will provide additional flow data for the flow routing model.
- The pressure transducers mentioned in slide 32 will provide information regarding water input from tributaries.
- Several gages are being left over winter to record freeze up and breakup.
- Dudley Reiser discussed the biological cues evaluation and noted that three basins had been considered corresponding to the Doshka, Taku and Stikine. He noted that the Doshka River seems an unsuitable candidate due to the lack of a hydrologic record and its lack of glacial influence. The selection of the Taku and Stikine systems was made following discussions with the ADF&G. In response to comments, Dudley Reiser will look into the Copper River as an additional candidate system for evaluation.
- Phil Brna thought some information regarding flow and escapement relationships had been incorporated into a Shiraz type model that had been developed on another project for the Chuitna River for coho. Phil offered to provide that model for consideration.

HSC/HSI Data Collection – Mike Gagner, Slides 40-55

- The HSC efforts are intended to support the habitat modeling.
- Stranding and trapping data have been collected opportunistically but were considered a lower priority for the 2013 collection efforts.
- As requested by the agencies, site specific HSC curves will be developed for as many species as possible. However, for some species, it will likely be necessary to use a combination of field data as well as information provided from other studies and biological information to derive HSC curves.
- Any updates to the macrohabitat mapping may influence modifications to HSC sites. For example, some reaches may be shortened in side channel habitats. Any changes will be discussed with agencies.
- HSC data collection involved a combination of sampling methods including seining and electrofishing. Seining proved to be effective even in turbid water conditions.
- In areas too deep/fast for wading, other studies are utilizing boat electrofishing. To the extent applicable, this information will also be utilized by the HSC study. However, Dudley Reiser noted that most of the Project influence is anticipated to occur in the lateral habitats, which is where the HSC effort is focused.

- Individual HSC and HSI observations associated with fish were georeferenced so that habitat classifications can be updated based on the 2013 data.
- The goal for each species at each life stage is 100 observations. Mike Gagner explained that this may not be met for all species/life stages. Discussion with the TWG will occur after the ISR release to discuss how to address any concerns regarding insufficient field data.
- Data for September (including spawning) is in but has not yet been processed and was not included in the presentation.
- Spawning activity was identified/documentated when fish were actively guarding or constructing redds. Only active redds were measured for HSC.
- Dudley Reiser noted that the collection of HSC related data has been coordinated with other studies so that sampling within Focus Areas was not coincident with other field work. This was done to eliminate/reduce any disturbance to the fish prior to sampling.
- Variances to this study are identified on slide 54.

Winter Study Efforts – Dudley Reiser, Slides 56-65

- Many lessons learned from 2012-13 winter studies will be applied to the 2013-14 winter efforts.
- Winter studies for 2013 will center around three Focus Areas, including FA104 (Whiskers Slough), FA128 (Slough 8a), and FA138 (Gold Creek). However, additional forays to habitats outside of those areas are anticipated but will depend on weather conditions.
- No variances occurred in the 2012-13 winter studies.

Lower River Studies – Kasey Clipperton, Slides 66-73

- Kasey Clipperton provided an overview of the Lower River IFS studies and highlighted the areas located at Trapper and Birch creeks and the mainstem river; Slides 68-71 show the boat movement during the field surveys.
- The Lower River IFS studies will result in development of 1D – habitat-flow relationships at selected locations. The studies will also provide data to help calibrate the open water flow routing model.
- No variances occurred in Q3.

RSP 8.6 Riparian Instream Flow Presentation– Kevin Fetherston

Kevin Fetherston provided a progress update for the Riparian Instream Flow Study. This study is integrated with the Groundwater (RSP 7.5) and the Riparian Vegetation (RSP 11.6) Studies. Progress update topics included:

- Data provided in the presentation is preliminary and not yet QC'd.
- Slide 6 provides a map showing the seed dispersal study site locations. Cottonwood and willow rely on peak flows for establishments. The Study characterizes timing of seed release relative to temperature.
- White spruce establishment and recruitment transects were 8 meters wide and up to 300 meters long. Soil substrate was documented as well as tree age characteristics.
- The graphs on slides 25-26 represent the current year germinants.
- The tree cores, as illustrated in slide 28, were taken approximately 30 cm above the root collar.
- Slides 31-33 show dendrology plot locations which were surveyed with RTK for optimum vertical and horizontal documentation.
- By dating the sediment strata (shown in slide 36), one may determine a sediment deposition rates.
- Most isotope samples have been collected, but it has not yet been determined as to final analytical techniques we will use.
- Collin Kikuchi, USGS, suggested using more than two tracers to determine the water source.
- Lab results for the isotope analysis will not be available in time for the ISR.
- Sap flow sensors will be removed in October 2013 and reinstalled March 2014.

- An agenda item for the upcoming study model integration meeting will include a half or full day discussion concerning surface water / groundwater modeling effort.
- There were no variances to the study plan in Q3 2013.

RSP 7.5 Groundwater Presentation – Michael Lilly

- Data included in this presentation are preliminary.
- The literature review has expanded to include other polar countries. These references will be included in the ISR.
- Of the 72 planned wells, 14 remain to be installed as of this meeting date.
- In slide 18, “two shallow wells (only)” indicates the location of two non-instrumented wells being used by the RIFS to take depth measurements.
- The depth to water in the wells is typically 3-5 feet deep but range from 1-15 feet. It is not necessary to seal and grout the wells since they are installed in sand and gravel sediments, but field crews are backfilling the opening.
- Hydrologic boundary conditions and inputs are determined by taking into account vegetation, terrain, measured water levels values, and water quality and temperature differences collected throughout the field study areas.
- Working with local residents, the groundwater study is able to utilize private wells (up to 50’ deep) throughout the year in the Gold Creek area.
- A water budget analysis will be applied to selected focus areas and will be upscaled for a more general understanding.

Study Integration Presentation – Dudley Reiser

Dudley led a discussion of how to approach the planned model integration meeting. AEA will have an internal meeting in October to prepare for the public meeting in November. A teleconference will be scheduled following the October meeting to inform the November attendees of any anticipated meeting materials and specific plans for the meeting. The following ideas were discussed in terms of options for conducting the meetings:

- Break up into model/resource-specific groups to discuss the models in detail. Have a representative of each model then present the specific group’s findings to the larger group.
- Create templates prior to the meeting to include input and output of each model, including metrics.
- Determine evaluation metrics prior to meeting and work from that to determine input needs.
- Choose one Focus Area to run a proof of concept demo and sensitivity analysis on prior to modeling all areas. It was recognized that this would likely involve “dummy” data since Susitna specific data are still undergoing QC reviews.
- Provide a list of some of the uncertainties associated with each model.
- Extend the modeling meeting to a third day.
- Conduct this as an open meeting. AEA was fine with this but encouraged non-modeling participants to either refrain from or minimize questions so that the limited time associated with the meeting can be utilized by the specialists.

Additional Discussion

- Sue Walker requested the Focus Areas be referred to consistently by name and PRM number. AEA concurred.
- Collin Kikuchi requested that he be included in discussions of groundwater and geotechnical information at the proposed dam site.
- AEA will establish a consistent policy on what meetings are public and how meetings are noticed.

Action Item**Responsibility**

Establish which meetings are broadly public and provide a consistent means of noticing meetings.	AEA
Evaluate the applicability of the Copper River as a candidate for the biological cues evaluation.	AEA
Provide AEA with the modified Shiraz model for coho salmon in the Chuitna River.	Phil Brna
Provide an updated agenda after the internal October modeling meeting to prepare attendees for the November modeling meeting.	AEA