Meeting Notes
Instream Flow Study Technical Team (IFSTT)
May 17, 2013

LOCATION: **Alaska Energy Authority – Board Room**
813 W. Northern Lights Blvd.
Anchorage AK

TIME: **9:00 am to 2:00 pm (AKDT)**

SUBJECT: **IFS TECHNICAL TEAM MEETING #2**

GOAL: **Review Focus Area macrohabitat types; review and discuss target species and life stage priorities; review and discuss sampling approaches for collecting HSC and HSI data.**

ATTENDEES: **Betsy McGregor** AEA, **Jeff Davis** ARRI**, Leslie Jensen** ARRI, **Eric Rothwell** NMFS, **Bill Miller** MEC, **Kasey Clipperton** Golder, **Dana Schmidt** Golder, **Joe Klein** ADF&G, **Mike Buntjer** USFWS, **Dudley Reiser** R2, **Kathryn Peltier** McMillen, **Wayne Dyok** AEA

ON PHONE: **Mike Gagner** R2, **Phil Hilgert** R2, **Leanne Hansen** USGS, **Chris Holmquist-Johnson** USGS, **Greg Aubel** USGS, **Steve Padula** McMillen, **Laura Arendall** R2, **Alice Shelly** R2, **Jan Konigsberg** AK Hydro Reform, **Catherine Berg** USFWS, **Michael Barclay** HDR, **Stormy Haught** ADF&G, **Bill Fullerton** Tetra Tech

Today's meeting was scheduled to discuss study plan details of the Instream Flow Study. A previous meeting was held on 4/26/2013 and meeting notes are available on the Project website (www.susitna-watanahydro.org) today. It was confirmed that in the previous meeting, participants agreed to remove Focus Area (FA) 171 and add FA-113. This change will be documented in the May 31 Technical Memorandum. Today's meeting discussed the habitat classification delineation within the proposed Focus Areas and the HSC/HSI data collection details. Materials are available on the Project website under the meeting tab.

MAJOR TOPICS AND DISCUSSION POINTS

Today's meeting centered on two topics: 1) the habitat classification delineation within the proposed Focus Areas, and 2) the HSC/HSI data collection details proposed for 2013.

Habitat Classification Delineations within Focus Areas

A set of Focus Area maps consisting of FA-184, FA-173, FA-151, FA-144, FA-141, FA-138, FA-128, FA-115, FA-113, and FA-104 were provided to the state and federal agencies prior to the meeting. These maps depicted the habitat classification types within each FA as defined from results of aerial based habitat mapping completed in 2012. These materials are available on the Project website under the previous meeting tab under May 17, 2013. During the last IFSTT, the agencies expressed concerns that some habitat types had been mis-identified; e.g. a particular side channel should have been designated as side slough. The maps with habitat type delineations were provided to the agencies with the objective of having differences in habitat type designations for each FA identified prior to the implementation of field habitat mapping studies in 2013. During the last IFSTT it was noted that any necessary

modifications to the habitat type "calls" would be based on results of field studies completed in 2013 (see April 26, 2013 IFSTT notes).

- During the meeting, each of the FA maps was discussed and differences in habitat type "calls" noted. Several licensing participants expressed concerns with the application of the habitat classification system, especially in certain FAs.   Dudley Reiser explained that AEA is not intending to make major changes to habitat definitions, but is willing to consider modifying the classification of certain habitat units. Identifying areas of concern will help field crews collect ground-truthing data during summer 2013 that will form the basis for making any adjustments in the habitat types prior to proceeding with modeling activities that relate to expansion of results to unmeasured areas.

- The discussion of the habitat types included each of the FAs but centered around the following FAs for which specific differences were noted:

    Figure 7 – Slough 8A (FA-128)

    - Jeff Davis felt that the channel on the left bank (looking downstream) and at the upper end of the area should be classified as a side slough.

    - Jeff Davis noted that the habitat identified in the figure as a beaver complex does not have a beaver-related structure for quite a ways upstream. Michael Barclay agreed that another classification in that instance may be appropriate but indicated these are the types of potential changes that will be investigated during the 2013 field studies. He noted that the side slough or side channel question would also be investigated.

    - Eric Rothwell said that the habitat labeled as Slough 8A and classified as a side channel may be a side slough and backwater, or may be an upland slough. Dudley Reiser acknowledged this as a potential change but again indicated that this would be evaluated based on 2013 field studies.

    - Jeff Davis mentioned that some habitat classifications did not appear to be consistently applied between areas; the difference between split main channels and main channel/side channel was not obvious. In addition, the influence of flow conditions will affect habitat classifications; the reference flow condition needs more discussion.

    Figure 6 – Gold Creek (FA-138)

    - Jeff Davis said that a beaver complex is present in the habitat labeled as Slough 11 at the downstream end. Also, a vegetated berm is present at the upstream end of this habitat, making this an upland slough and beaver complex.

    - Jeff Davis asked why river right on the upstream portion of the image was not classified. Michael Barclay indicated he will look into this and see if additional habitats need to be classified.

    Figure 5 – Indian River (FA-141)

    - Jeff Davis felt there is a dominant flow through the middle of what is currently classified as braided channels. He indicated the middle channel should be classified as main channel and the other braided channel habitats should be side channels.

- Greg Aubel asked whether the Focus Area modeling efforts will be affected by the habitat classifications. Bill Miller responded that the models are designed to predict hydraulic changes independent of how the habitats are classified. The classifications become important when scaling or extrapolating model results to the non-modeled areas. Chris Holmquist- Johnson asked whether channel change will be incorporated; Bill Fullerton responded that the 1D models will evaluate existing conditions and changes at Years 25 and 50. This is the topic for the May 22, 2013 geomorphology discussion.

- The agencies agreed that they would provide AEA with a written summary of specific concerns related to the habitat types on or before May 22, 2013.

Fish and Aquatics Instream Flow 2013 HSC Data Collection

- Mike Gagner summarized proposals regarding HSC target species and data collection methods via a set of 22 slides (available on the Project website). The objective of the discussion was to reach agreement on open-water field procedures to be employed during summer field surveys. Main points of discussion included:

  - Slide 3 lists the HSC target species, which reflected assumptions regarding commercial, cultural and recreational interest. The distribution of species among river segments was based on 1980s data.

  - Jeff Davis said that Mike Weimer (sp?) identified Bering cisco in the Middle River reach. Jeff will provide a reference to AEA. Dana Schmidt identified Bering cisco immediately downstream of the Parks Hwy Bridge during the 1980s. Crew did not collect eggs as they are broadcast spawners.

  - Slide 4 presents prioritization of species as it pertains to data collection. Questions in the right margin of the slide identified topics open for discussion. HSC data for some high priority lifestages will be difficult to collect (such as Chinook spawning); while other lifestages, such as coho juveniles may be easy to collect. One question posed to the agencies related to sampling strategy: if crews collect a lot of coho juvenile data, do they continue collecting coho data or do they adjust their sampling strategy?

  - The study will receive fish location information from fish distribution studies that will aid in targeting certain areas/macrohabitats.

  - Mike Gagner confirmed that the goal of >100 measurements is per species per life stage of utilization observations and does not include unoccupied observations.

  - Joe Klein suggested focusing on mesohabitats as well as macrohabitats when selecting sites. Mike Gagner explained that because the mesohabitats are unable to be mapped prior to field work, it is not possible to predetermine mesohabitat sites until in the field.

  - Data from repeated sampling over time at the same site will determine a "non-occurrence" status for a species. This will help address whether the absence is due to the timing of the observation or due to the habitat. Jeff Davis asked how data will be analyzed if sampling suggests habitat areas of no occurrence but species/life stage periodicity data suggests they wouldn't be present. Mike Gagner said that the data will have to be segregated; data analysis will be discussed in more detail later this year. The objective of today's discussion was to confirm the details of data collection.

  - Joe Klein suggested "lumping" some life stages for species to make data collection more efficient. Mike Gagner agreed to consider this approach as he continues his planning for the field efforts.

  - Since the presentation was titled "2013 HSC Data Collection", several participants asked about what is planned for winter HSC/HSI? Mike noted that open leads will be sampled and underwater videography will be employed to capture HSC for the rearing life stage (winter). The incubation stage habitat will be characterized as part of the effective spawning habitat analysis. Hazardous conditions during ice break up may affect data collection during emergence. Mike added that his objective during the meeting was to primarily discuss open-water HSC criteria; winter HSC will be covered under winter studies.

  - Eric Rothwell voiced concern that data gaps will be filled with data from historic studies that generally assume that depth, velocity, substrate and cover are the driving factors. Mike Gagner and Dudley Reiser explained that when evaluating habitat suitability relationships, factors other than the common depth, velocity, substrate and cover will be included. A variety of parameters will be collected to identify the driving factors associated with habitat suitability. Identifying processes

associated with other factors, such as groundwater and water quality will help evaluate the potential transferability of 1980s data.

- Electrofishing permits have been obtained for this year's field activity.

- It was agreed by attendees that 100m sampling sites may not capture the variability within a macrohabitat unit. If a water quality parameter exhibits a gradient and some values are affecting fish distribution, then it will be important to sample to identify those potential influences. Breaking up the 100m site into multiple shorter sites for lateral habitats was proposed. Mike Gagner will modify the approach and AEA will provide revised sampling schematics to the meeting participants on or before May 22, 2013.

- When establishing individual sample sites, they will be selected systematically, not randomly.

- Slide 11 shows water quality transect locations. Additional points will be sampled in lateral habitats as needed by other studies. Leanne Hansen noted that the spatial scale of the water quality and groundwater studies must be complementary to scale of the HSC studies and fish habitat modeling. Having the various river process oriented studies working at the same scale will be an important coordination task.

- In clear water, where possible, snorkel surveys will be conducted in an upstream direction identifying fish species, life stage and habitat parameters. The field crew would then travel downstream documenting habitat parameters in the unoccupied locations.

- Although not listed in the slides, turbidity and dissolved oxygen data will be collected and considered as potential factors influencing habitat use.

Stranding and Trapping

Phil Hilgert summarized planned stranding and trapping data collection efforts via a series of slides. Surveys will be conducted opportunistically after natural stage reductions. Slides 23-29 of the presentation, available on the Project website, cover this topic.

- Because the Project does not yet exist, the effects of Project-induced flow fluctuations cannot be directly studied in the Susitna River. Stranding and trapping criteria developed in Washington State (Mark Hunter's report) will be used as fall-back criteria for the Susitna study. In addition, data and analyses developed from the Skagit and White rivers in Washington State will be used. The Skagit and White are glacier-fed, salmon rivers exposed to the effects of hourly load-following operations; however, they are not exposed to the severe ice processes found in the Susitna River.

- While stranding is considered mortality, fish trapping mortality may depend on factors such as duration, pool depth, frequency, and fish sensitivity. Having some site-specific data may increase confidence in applying Washington-based criteria. Winter conditions are assumed to increase mortality rates but present difficult sampling conditions.

- A survey crew will plan on sampling for only about 2 days after a downramping event. Daily flow fluctuations are common during the spring and summer and subsequent rising flows will inundate previously dewatered areas. Predation over a 2-day sampling period is not a major concern. During previous studies Phil marked stranded fry carcasses to estimate predation. Phil believes that piscivorous species are not keyed into immediately looking for stranded fish since it does not commonly occur in a natural system.

- Timing of fry emergence is a key factor in terms of susceptibility to stranding and fish distribution and abundance and HSC data collection crews will be specifically looking for newly emerged fry. Winter and night times have been observed as times of higher stranding/trapping rates due to low mobility.

- Dana Schmidt commented that in Golder's studies of other river systems, stranding/trapping has not been observed as the primary cause for mortality in controlled rivers.

Other Topics

- Bill Fullerton was asked if models would be able to determine changes in habitats in regards to their classification. He answered that the Focus Areas modeling is designed to show Project effects on the connectivity between main channel and lateral habitats. 1D modeling is designed to predict reach level responses of the main channel to aggradation and degradation. 2D modeling will have the bed adjusted to represent these changes.

- Jeff Davis requested that water quality be taken in more lateral habitat locations. These areas are more sensitive to changes in flow and may be more crucial for fish. Jeff Davis feels that it is important to be able to model these areas.

- AEA will provide a summary of which study is collecting what variables, where and in which season.

- The first HSC field crew orientation is tentatively scheduled to occur the week of June 17th.

- A teleconference with the licensing participants to discuss licensing participant comments regarding HSC data collection is tentatively scheduled for June 11th for approximately 2 hours.

Action Item	Date	Responsibility
Michael Barclay will note suggested revisions to the classification of specific habitat units as discussed at today's meeting and as may be provided by licensing participants prior to the start of field work.	Prior to field work	Michael Barclay
Provide a reference to Mike Weimer's (sp?) identification of Bering cisco in the Middle River reach.	ASAP	Jeff Davis
Propose updated HSC sample site distributions.	5/22/13	Mike Gagner
Create a summary of which study is collecting what parameters at which locations during which season. For instance, add sites for WQ, Groundwater, River Productivity and Fish Distribution (as best possible) on the 4 HSC Focus Areas.	5/22/13	AEA
Provide habitat classification edits to the Focus Areas.	5/22/13	Licensing participants
Schedule a teleconference with licensing participants on June 11 to discuss licensing participant comments regarding HSC data collection.	TBD	AEA