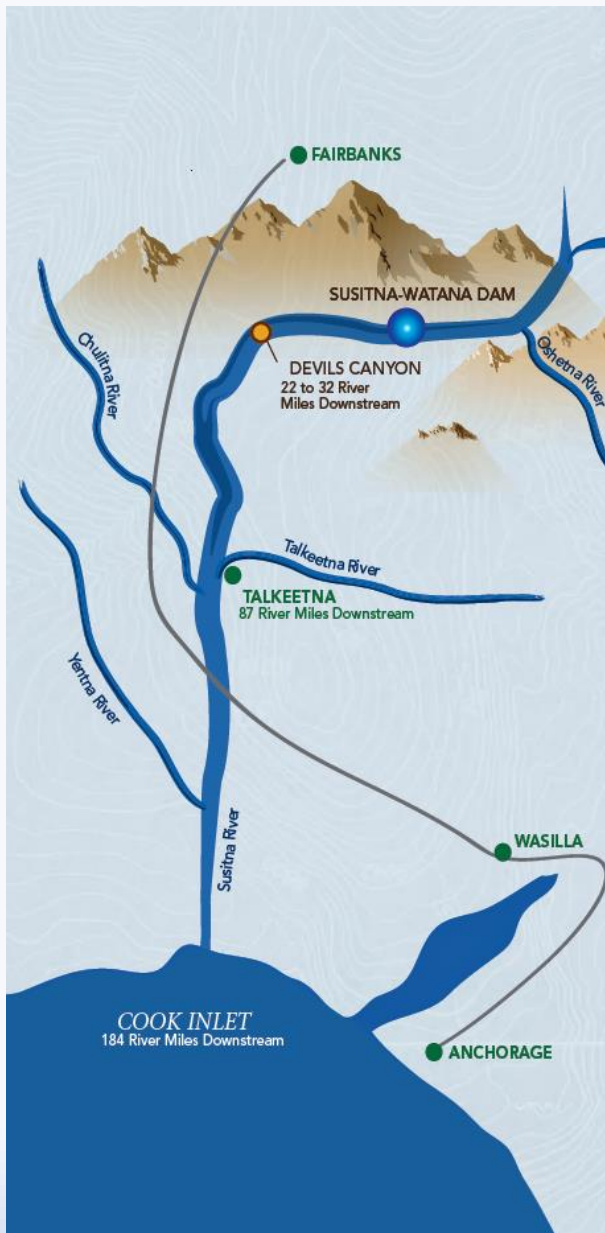


Initial Study Report Meeting

Study 9.9 Characterization and Mapping of Aquatic Habitats

March 22, 2016

Prepared by
R2 Resource Consultants, Inc.



Study 9.9 Status

- ISR Documents (ISR Part D Overview):
 - Initial Study Report (June 3, 2014)
 - 2013 and 2014 Aquatic Habitat Mapping Field Season Completion Progress Technical Memorandum (September 17, 2014)
 - Errata to Initial Study Report Part A - Appendix A, Remote Line Mapping, 2012 (November 14, 2014)
 - Study Completion Report (Nov 6, 2015)
- Data collection was conducted in 2013 and completed in 2014.
- The ISR presents a subset of summary data from 2013.
- Habitat frequency and characteristics are presented in the SCR .
- As reported in the SCR, the study plan has been completed.

Objectives

Upper River Habitats:

- Characterize and map Upper River tributary and lake habitats for the purpose of evaluating the potential loss or gain in available fluvial and lacustrine habitat that may result from dam construction and inundation by the reservoir
- Characterize and map Upper River tributary and lake habitats for the purposes of informing other studies including Fish Distribution and Abundance in the Upper Susitna River (Study 9.5) and River Productivity (Study 9.8)
- Characterize and map the Upper River mainstem (understood hereafter to encompass both main channel and off-channel habitats) upstream from the Watana Dam site to the confluence with the Oshetna River:
 - To provide baseline data for the purpose of evaluating the potential loss or gain in accessible available fluvial and lacustrine habitat that may result from dam construction and inundation by the reservoir
 - To inform other studies including Fish Distribution and Abundance in the Upper Susitna River (Study 9.5), River Productivity (Study 9.8), and Future Watana Reservoir Fish Community and Risk of Entrainment (Study 9.10)

Objectives

Middle River Habitats:

- Characterize and map the Middle River mainstem from the Chulitna River confluence to the proposed Watana Dam site, including tributaries within the zone of hydrologic influence (ZHI) and the Focus Areas:
 - To provide baseline data for the purpose of evaluating the potential loss or gain in accessible available fluvial habitat that may result from flow regulation below the proposed Watana Dam
 - To inform other studies including Fish Distribution and Abundance in the Middle and Lower Susitna River (Study 9.6), River Productivity (Study 9.8), and Instream Flow (Study 8.5)

Lower River Habitats:

- Characterize and map the Lower River mainstem from the upper extent of tidal influence upstream to the Three Rivers Confluence:
 - To provide baseline data for the purpose of evaluating the potential loss or gain in available fluvial habitat that may result from flow regulation below the proposed Watana Dam
 - To inform other studies including Fish Distribution and Abundance in the Middle and Lower Susitna River (Study 9.6), River Productivity (Study 9.8), and Instream Flow (Study 8.5)

Study Components

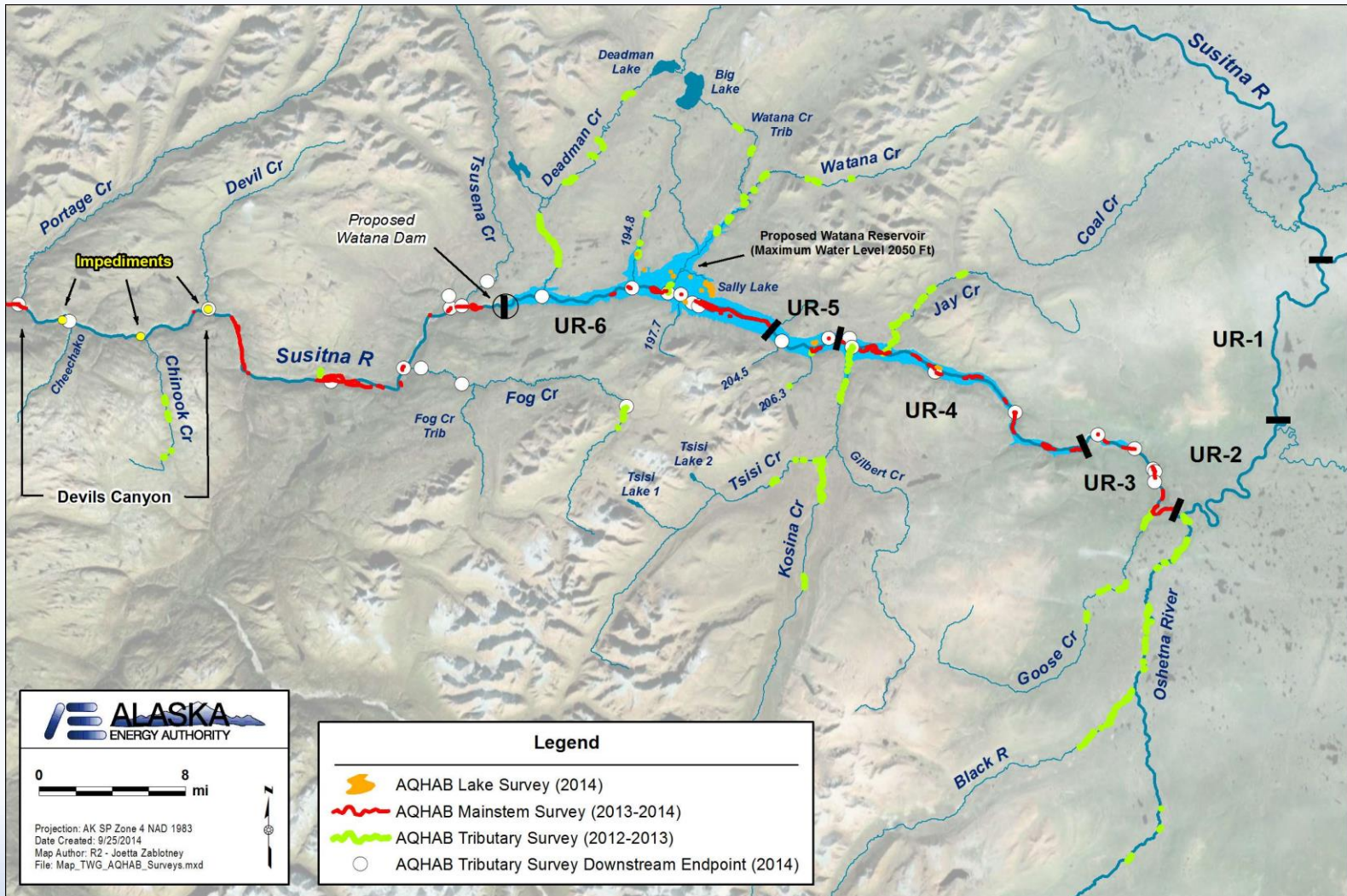
- Remote line mapping consisted of data from aerial imagery supplemented with information from videography to generate a geospatial database.
- Ground truthing surveys were conducted in a subset of mesohabitat and macrohabitat segments outside of Focus Areas in 2013 and 2014.
- All Focus Areas were ground-surveyed to the level of mesohabitat to provide detailed information for the Instream Flow Study (Study 8.5).
- Mesohabitat characterization in a random subset of habitat units using a modified USFS stream survey protocol (USFS 2001).

Variances

- **Physical access limitations and safety concerns restricted the scope of random sampling** (RSP Sections 9.9.5.3.2 and 9.9.5.4) of some habitat units (ISR Part A, Sections 4.2.4.1 and 4.3.3.1).
- **Special habitat features were expanded from the Study Plan** (SPD B-210) to include backwaters, beaver complexes and clearwater plumes (ISR Part A, Sections 4.2.4.2 and 4.3.3.2).
- **Ground survey flow conditions were more variable than anticipated** (RSP Section 9.9.5.3.2) due to unexpected late summer high flows in 2013; a small number of habitat units were surveyed at flows higher than reference imagery (ISR Part A, Sections 4.2.4.3 and 4.3.3.3). Differences between remote and field habitat characterizations were infrequent despite variable flows (SCR Sections 5.1.3 and 5.2.3).

Summary of Results

(SCR November 2015)



Summary of Results – Upper River

(SCR November 2015)

- Frequency analysis of mesohabitats by tributary geomorphic reach from videography (SCR Section 5.1.1.1)
- Summary of habitat characteristics in Upper River tributaries (SCR Section 5.1.1.2)
- Summary of habitat characteristics in Upper River mainstem habitats (SCR Section 5.1.2.2)
- 2 of 52 macrohabitat classifications in the Upper River remote line mapping were changed based on ground surveys (SCR Section 5.1.3)
- Summary of lake habitats within Inundation Zone (SCR Section 5.1.4)
- Updated map book of Upper River Habitats (SCR Appendix A)

Summary of Results – Middle River

(SCR November 2015)

- Summary of habitat characteristics in Middle River tributaries (SCR Section 5.2.1.2)
- Summary of habitat characteristics in the Middle River mainstem (SCR Section 5.2.2.2)
- 6 of 192 macrohabitat classifications in the Middle River were changed based on ground surveys (SCR Section 5.2.3)
- Updated map book of Middle River Habitats (SCR Appendix A)

AEA's Proposed Modifications to the Study Plan

(ISR Part D – Section 7)

As detailed in the SCR for this study, AEA plans no modifications of the methods for this study, as this study is now complete.

Note that the special habitat features were expanded from the Study Plan (SPD B-210) to include backwaters, beaver complexes and clearwater plumes as in 2013 (ISR Sections 4.2.4.2 and 4.3.3.2).

- This change is in response to a FERC recommendation (April 1 SPD) that these habitats receive “special consideration.”
- Implementation of this change is largely procedural – by identifying these habitats as special, in addition to their common mesohabitat (Level 4) status, they can be more logically grouped and highlighted for analyses.
- This modification was implemented in 2014 and is reported as a continued variance in the Study Completion Report (SCR).

Steps to Complete Study (ISR Part D – Section 8)

The field work, data collection, data analysis, and reporting for this study successfully met all study objectives in the FERC-approved Study Plan. AEA has completed this study.



Licensing Participants Proposed Modifications to Study 9.9?

- Agencies
- CIRWG members and Ahtna
- Public