

Initial Study Report Meeting

Study 9.9 Characterization and Mapping of Aquatic Habitats

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Prepared by

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Study 9.9 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)

Study 9.9 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 9.9 Components

- **Upper River Habitat Mapping**
(ISR Part A, Section 4.2; pg 12)
- **Middle River Habitat Mapping**
(ISR Part A, Section 4.3; pg 17)
- **Lower River Habitat Mapping**
(ISR Part A, Section 4.4; pg 21)

Study 9.9 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) to 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, this affected a small number of habitat units that were surveyed at flows higher than those under which the reference imagery was obtained (ISR Part A, Sections 4.2.4.3 and 4.3.3.3). Careful preplanning largely limited these habitats to those where habitat calls were least likely to be altered by variation in flow conditions. An assessment of any resulting discrepancies between remote mapped and ground-truthed habitat classifications will be presented in the Updated Study Report.

Study 9.9 Summary of Results in ISR (ISR Study 9.9, Part A – Section 5)

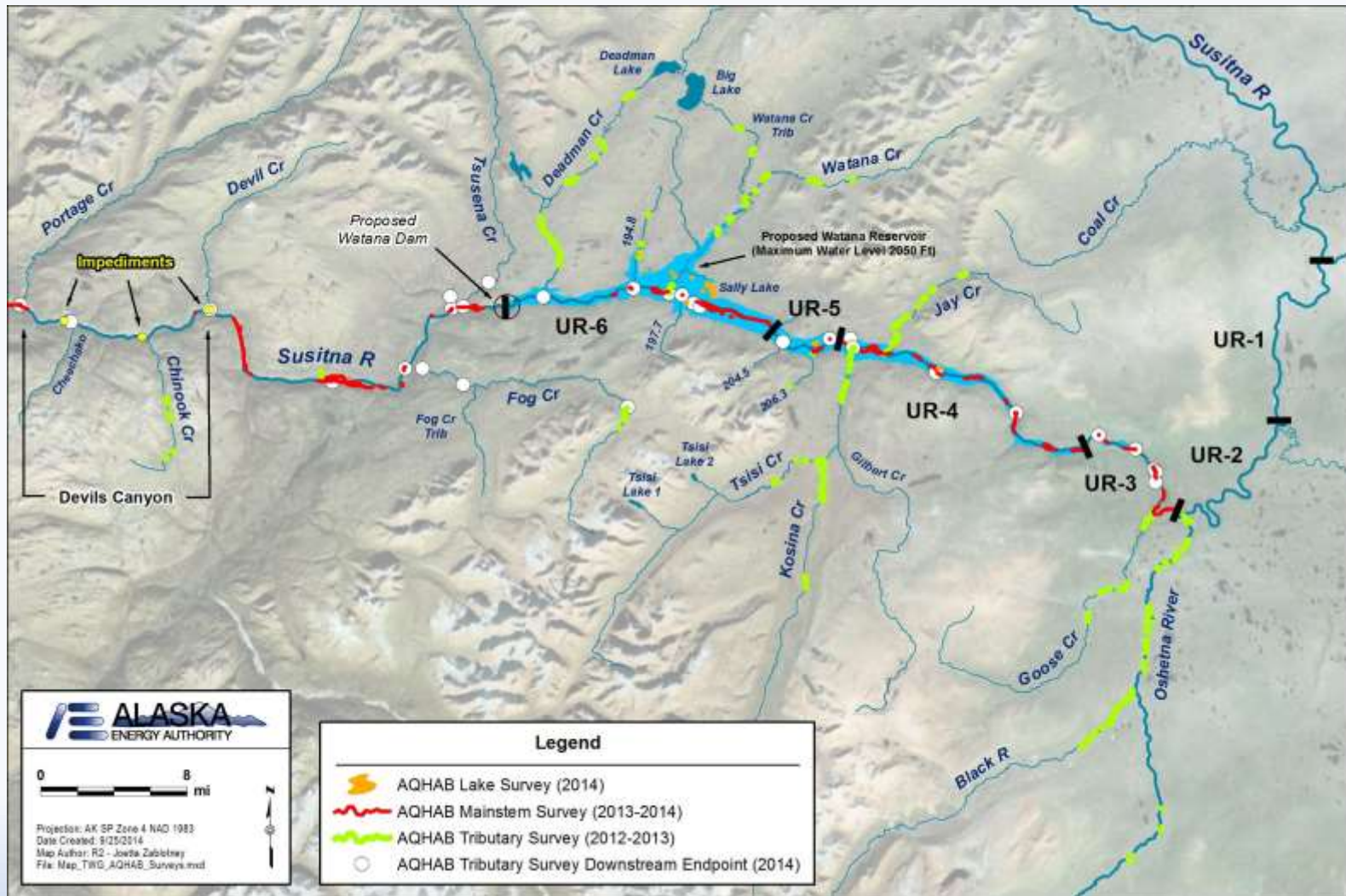
- The ISR presents a subset of summary data from 2013.
- Habitat frequency and characteristics will be presented in the USR .
- Data collection was not completed in 2013 and was continued in 2014.



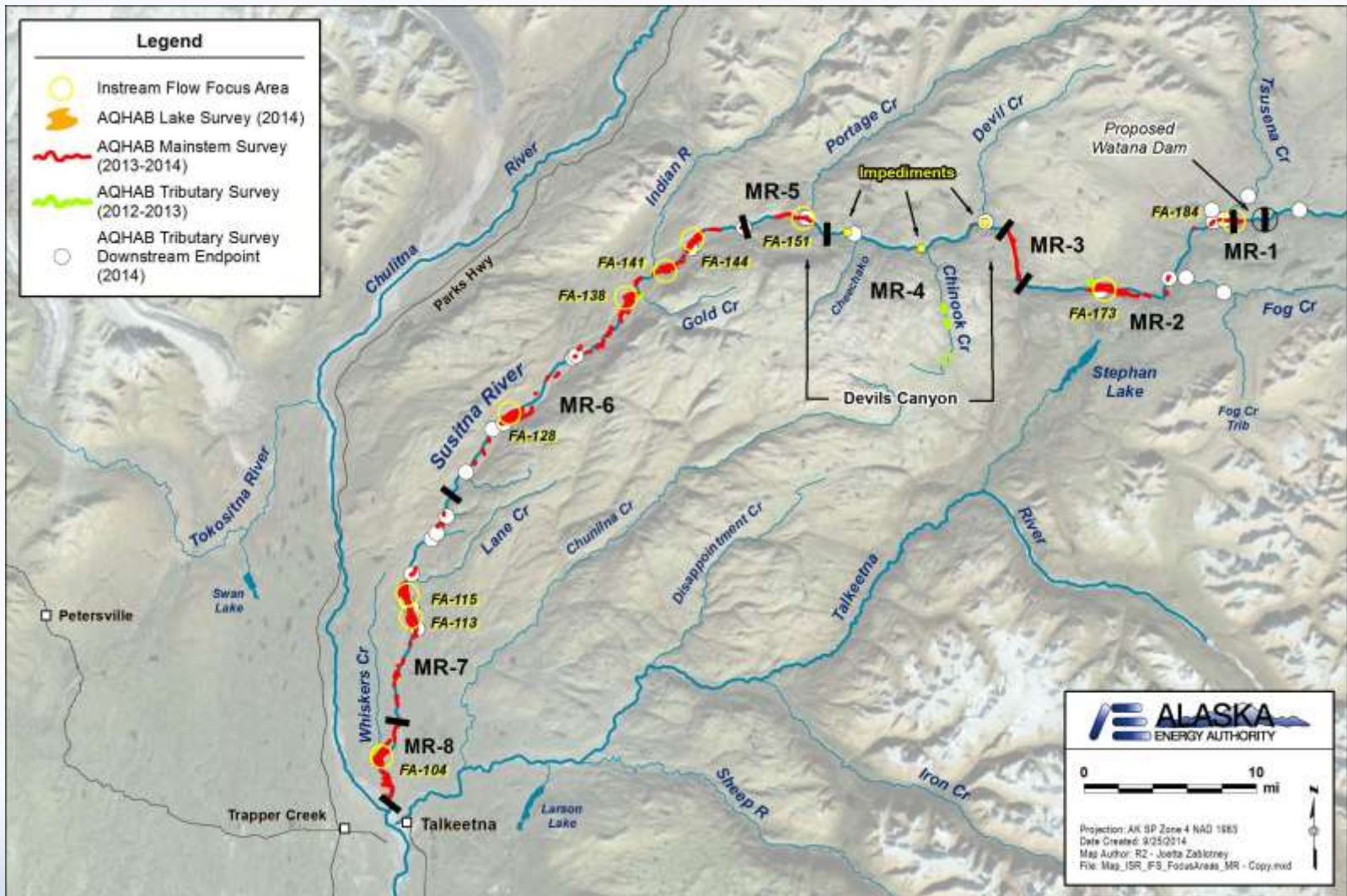
Study 9.9 Summary of Results since ISR (September 2014 TM)

- Tributary and mainstem targeted surveys completed in the Upper River (UR).
- Targeted surveys completed in 12 UR lakes within inundation zone surveyed (depth profiles, other limnology).
- Tributary and mainstem targeted surveys completed in the Middle River (MR).
- Complete ground-truthing concluded for Focus Areas in the MR.

Study 9.9 Summary of Results since ISR (September 2014 TM)



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Study 9.9 Summary of Results since ISR (September 2014 TM)

- Interim assessment (2013 groundtruthing vs remote line mapping) identified 23 out of 175 habitat units where field calls differed from remote macrohabitat.
- Only 4 of these were judged valid and these were due to more favorable flows during some field surveys.
- Remaining 19 variations were explained by higher field flows, spatial inaccuracies, overlapping surveys or documentation of new features.

AEA Proposed Modifications to Study 9.9 in ISR (ISR Study 9.9, Part C – Section 7.1.2)

The special habitat features will be 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 to be presented in the USR.
- This modification will allow AEA to more specifically meet the objective of providing special consideration to these habitats of particular interest.

Steps to Complete Study 9.9 (ISR Study 9.9, Part C – Section 7.1)

- Update and complete ground-truthing by combining 2013 and 2014 field data and comparing to remote mapping GIS
- Characterize macro- and mesohabitats using measured habitat metrics from tributary and mainstem surveys
- Characterize lake habitats from limnological data collected 2014
- Produce final photographic base maps for all mapped locations



Licensing Participants Proposed Modifications to Study 9.9?

- Agencies
- CIRWG members and Ahtna
- Public