

**Susitna-Watana Hydroelectric Project
(FERC No. 14241)**

**Aquatic Furbearer Abundance and Habitat Use
Study Plan Section 10.11**

**Initial Study Report
Part C: Executive Summary and Section 7**

Prepared for

Alaska Energy Authority



SUSITNA-WATANA HYDRO

Clean, reliable energy for the next 100 years.

Prepared by

ABR, Inc.—Environmental Research & Services

Fairbanks, Alaska

June 2014

TABLE OF CONTENTS

Executive Summary	ii
7. Completing the Study	1
7.1. Proposed Methodologies and Modifications.....	1
7.1.1. Decision Points from Study Plan	1
7.1.2. Modifications to Study Plan.....	1
7.2. Schedule	2
7.3. Conclusion	2
7.4. Figures.....	2

LIST OF FIGURES

Figure 7.1-1. Revised study area for aquatic furbearers, showing Denali East Corridor Option added in 2014.....	3
-----------------------------------------------------------------------------------------------------------------	---

EXECUTIVE SUMMARY

Aquatic Furbearer Abundance and Habitat Use Study, Section 10.11	
Purpose	<p>The goal of the Aquatic Furbearer Study is to collect baseline data on aquatic furbearers in the study area to enable assessment of potential Project-related impacts.</p> <p>Five specific objectives are established in the Study Plan:</p> <ol style="list-style-type: none"> 1) Delineate the distribution and estimate the current population size of beavers. 2) Describe the distribution and relative abundance of river otters, mink, and muskrats. 3) Describe habitat associations of aquatic furbearers.
Status	<p>The study is in progress. An aerial survey of beaver lodges and caches in the Project area and Middle Susitna River segment was conducted in October 2013. Other researchers conducting surveys for Waterbird Migration, Breeding, and Habitat Use Study (Study 10.15), Landbird and Shorebird Migration, Breeding, and Habitat Use Study (Study 10.16), and Surveys of Eagles and Other Raptors (Study 10.14) in May 2013 recorded incidental sightings of muskrats and muskrat pushups. The study team compiled observations of river otters and river otter and mink tracks recorded incidentally during surveys for other Project studies.</p>
Study Components	<p>This study consists of the following components:</p> <ol style="list-style-type: none"> 1) Aerial surveys of beaver and muskrat. 2) Aerial surveys of river otter and mink.
2013 Variances	<p>Aerial surveys for beaver were broadened to include areas outside the study area (see RSP Sections 10.11.3 and 10.11.4.1), to cover the entire riverine physiography area delineated for Riparian Vegetation Study Downstream of the Proposed Susitna-Watana Dam (Study 11.6), which provided more data than would have been collected otherwise.</p> <p>The planned survey of muskrat pushups (RSP Section 10.11.4.1) was not conducted because of the unusually late spring and persistent snow and ice cover in 2013; instead, researchers conducting surveys for the Waterbird Migration, Breeding, and Habitat Use Study (Study 10.15) and Surveys of Eagles and Other Raptors (Study 10.14) in May 2013 recorded the presence of muskrat pushups.</p> <p>Track surveys for river otters and mink were not conducted in February–early April 2013 (RSP Section 10.11.4.1) or in November/December 2013 due to the lack of a suitable weather window in relation to pilot and aircraft</p>

	<p>availability. Incidental observations of river otters and river otter tracks were compiled from surveys conducted for other Project studies, however, to help meet study objectives.</p>
<p>Steps to Complete the Study</p>	<p>To complete this study, AEA will (1) survey beaver colonies to assess the distribution and abundance of beavers; (2) survey active beaver colonies located in fall during the following spring to assess overwinter survival; (3) survey muskrat pushups in water bodies and wetlands throughout the Project area; and (4) survey river otter and mink tracks along streams courses and transects in winter.</p> <p>AEA will apply several modifications to the FERC-approved Study Plan in completing the study:</p> <ul style="list-style-type: none"> • As described in the ISR Overview, AEA has added the Denali East Option road and transmission corridor to the study area. • The 2013 variance of expanding the beaver survey area to include a broader area of the floodplain along the Middle Susitna River than was originally described in the Study Plan will be continued for the remainder of this study. • The objectives and methods in this study related to mercury analysis, including the literature review of food habits and diets of river otters and mink and the collection of hair samples, have been consolidated in the Mercury Assessment and Potential for Bioaccumulation Study (Study 5.7).
<p>Highlighted Results and Achievements</p>	<p>During the 2013 beaver survey, the study team observed 186 beaver lodges in the survey area and 37.1% were determined to be active based on the presence of a fresh food cache. The study team compiled 60 incidental observations of river otters and river otter tracks and 14 incidental observations of muskrats and muskrat pushups. A review of scientific literature on the food habits and diets of river otters and mink was undertaken to provide data inputs to the pathways analysis for the Mercury Assessment and Potential for Bioaccumulation Study (Study 5.7).</p>

7. COMPLETING THE STUDY

7.1. Proposed Methodologies and Modifications

To complete this study, AEA will implement the methods in the Study Plan, except as described below in Sections 7.1.1 and 7.1.2. These activities include the following:

- Survey beaver colonies to assess the distribution and abundance of beavers (RSP Section 10.11.4.1);
- Survey active beaver colonies located in fall during the following spring to assess overwinter survival (RSP Section 10.11.4.1);
- Survey muskrat pushups in water bodies and wetlands throughout the Project area (RSP Section 10.11.4.1);
- Survey river otter and mink tracks along streams courses and transects in winter (RSP Section 10.11.4.2).

7.1.1. Decision Points from Study Plan

There were no decision points in the FERC-approved Study Plan to be evaluated for this study following the completion of the 2013 work.

7.1.2. Modifications to Study Plan

As described in the ISR Overview and depicted in Figure 1, AEA has added the Denali East Option road and transmission corridor to the study area. With regard to this study, the modified study area showing the Denali East Option is depicted in Figure 7.1-1.

As described in Section 4.1.1 of this ISR, the beaver survey area was expanded to include a broader area of the floodplain along the Middle Susitna River than was originally described in the Study Plan (RSP Section 10.11.3). That expansion was done to align the downstream beaver survey area with the riverine physiography area delineated for Study 11.6, Riparian Vegetation Study Downstream of the Proposed Watana Dam. That variance will be continued for the remainder of this study.

RSP Sections 10.11.1 and 10.11.4.3 provide objectives and methods for the study team to review available information on food habits and diets of piscivorous furbearers (river otter and mink) as background for the Mercury Assessment and Potential for Bioaccumulation Study (Study 5.7), and to obtain hair samples from river otter and mink for laboratory analysis of mercury levels, including collection of hairs from trapper-harvested animals. After further consideration of all mercury studies for the proposed Project, AEA has removed these objectives and methods related to mercury analysis of river otter and mink (RSP Sections 10.11.1 and 10.11.4.3) and consolidated this work under the Mercury Assessment and Potential for Bioaccumulation Study (Study 5.7). Please see ISR Study 5.7.

7.2. Schedule

In general, the schedule for completing the FERC-approved Study Plan is dependent upon several factors, including Project funding levels authorized by the Alaska State Legislature, availability of required data inputs from one individual study to another, unexpected weather delays, the short duration of the summer field season in Alaska and other events outside the reasonable control of AEA. For these reasons, the Study Plan implementation schedule is subject to change, although at this time AEA expects to complete the FERC-approved Study Plan through the filing of the Updated Study Report by February 1, 2016, in accordance with the ILP schedule issued by FERC on January 28, 2014.

With regard to this specific study, AEA expects to complete all remaining data collection during both the 2014 and 2015 study seasons

The schedule for 2014 includes the following activities:

- Survey river otter and mink tracks in the Project area and along streams and transects in the stream survey area in late winter and early winter (pending suitable conditions);
- Survey beaver colonies (classified as active in October 2013) in spring 2014 to assess overwinter survival (this survey was conducted on May 2);
- Survey beaver colonies in the Project area and the downstream survey area in late September/early October to quantify the proportions of active and inactive colonies.

In 2015, AEA plans to complete all remaining data collection and analysis for this study, which will be reported in the USR.

7.3. Conclusion

Implementation of the Aquatic Furbearer Abundance and Habitat Use Study is planned for 2014 and 2015. The study team expects that the combination of study results from 2013 (including the variances described in Section 4 of this ISR), the results from 2014 and 2015 (including the modifications described in Section 7.1.2 above), and integration with other studies will achieve the approved Study Plan objectives. This study is interrelated with the Mercury Assessment and Potential for Bioaccumulation Study (Study 5.7), Riparian Instream Flow Study (Study 8.6), and Evaluation of Wildlife Habitat Use Study (Study 10.19). AEA expects the approved Study Plan objectives for both this study and Studies 5.7, 8.6, and 10.19 will be achieved with the modifications to this study, as these modifications will ensure consistency in methods and are expected to result in improved data collection. The results of this study will be reported in the USR.

7.4. Figures

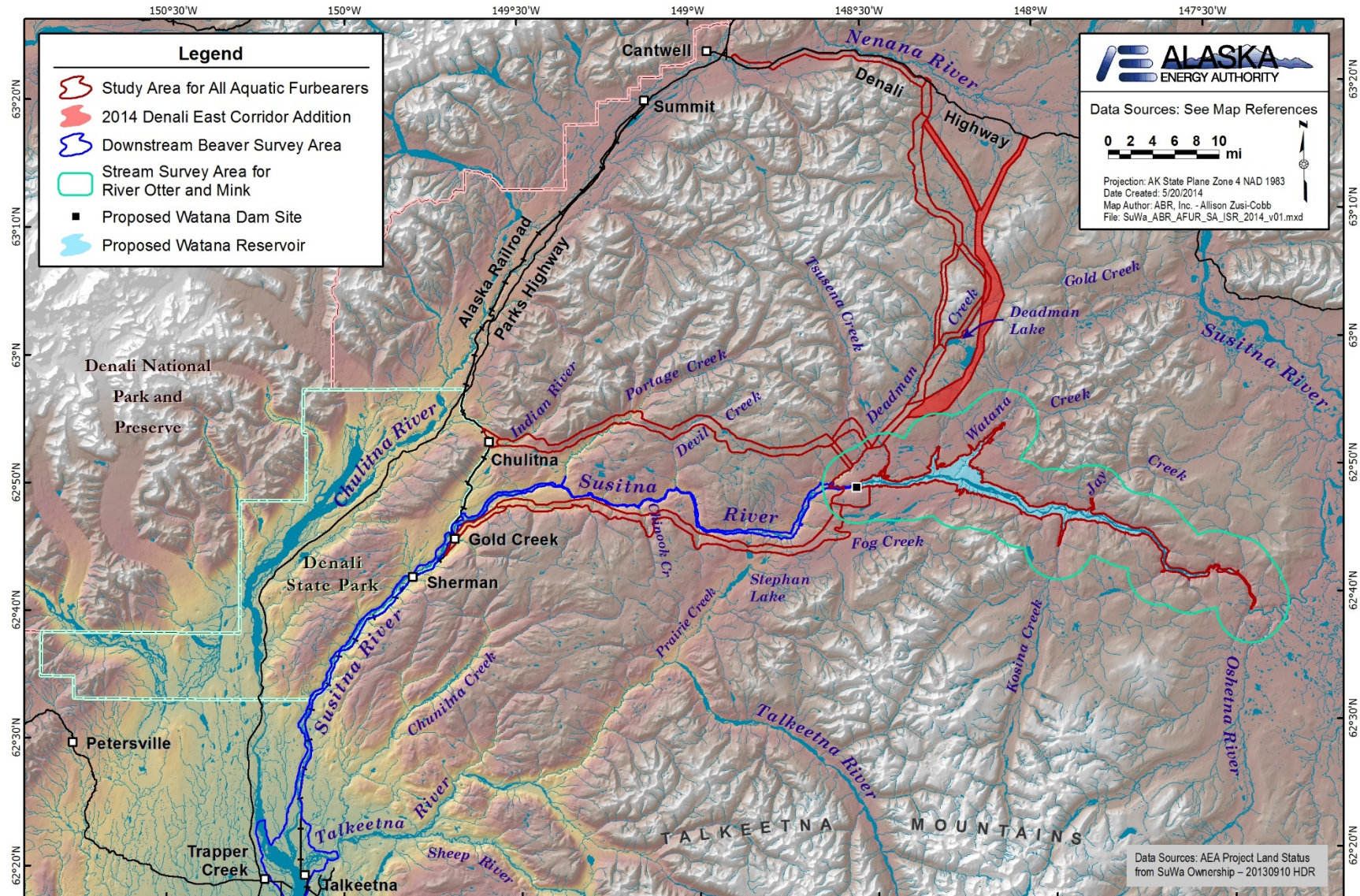


Figure 7.1-1. Revised study area for aquatic furbearers, showing Denali East Corridor Option added in 2014.