

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

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

**Part D: Supplemental Information to  
June 2014 Initial Study Report**

Prepared for

Alaska Energy Authority



**SUSITNA-WATANA HYDRO**

*Clean, reliable energy for the next 100 years.*

Prepared by

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## 1. INTRODUCTION

Section 1 (Part A) of the June 2014 ISR for Aquatic Furbearer Abundance and Habitat Use (Study Plan 10.11) details the development of this study from the Revised Study Plan (RSP) in 2012, through the end of the 2013 study season. Section 7 of the ISR (Part C), filed in June 2014, sets forth AEA's plan and schedule, at that time, for completing this study and meeting the objectives of the RSP.

As detailed in Section 2.2 of the ISR Part D Overview, various circumstances have required AEA to extend the original timeframe for completing the Commission-approved Study Plan. However, AEA has made meaningful progress with Study 10.11 since the filing of the ISR in June 2014. As detailed below, AEA's recent activities for Study 10.11 have consisted of the following:

- On October 21, 2014, AEA held an ISR meeting for the Botanical and Wildlife studies.
- In spring 2014 and 2015, the study team completed two spring surveys to assess overwinter survival of active beaver colonies and in fall 2014, completed a second round of aerial surveys of beaver lodges in the study area (RSP Section 10.11.4.1).
- In March, April, and December 2014, the study team completed three sets of aerial surveys of river otter and mink tracks (RSP Section 10.11.4.2).
- In 2014, the study team deployed hair snares to attempt to collect river otter hair samples for analysis of mercury content.
- In October 2015, the study team completed a 2014–2015 Implementation Report for Study 10.11.

The primary purpose of this Part D Supplemental Information to the ISR is to report on the implementation of the Study Plan from the filing of the ISR in June 2014 through the filing of this ISR Part D. In light of this additional implementation, this Part D also identifies AEA's plans for completing Study 10.11 in a manner that meets the objectives of the Commission-approved Study Plan.

## 2. BACKGROUND

### 2.1. Purpose of Study

The goal of the study is to collect baseline data on aquatic furbearers in the study area to enable assessment of potential Project-related impacts. This information will be used to develop appropriate mitigation measures.

The study objectives are established in RSP Section 10.11.1.

- Delineate the distribution and estimate the current population size of beavers.

- Describe the distribution and relative abundance of river otters, mink, and muskrats.
- Describe habitat associations of aquatic furbearers.
- 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).
- Collect hair samples from river otters and mink to characterize baseline tissue levels of mercury for the Mercury Assessment and Potential for Bioaccumulation Study.

## 2.2. Study Components

This study consists of the following components:

- Aerial surveys of beaver and muskrat.
- Aerial surveys of river otter and mink.

## 3. STATUS, HIGHLIGHTED RESULTS, AND ACHIEVEMENTS

The following tasks were completed in 2013 and reported in Part A of the ISR for Study 10.11:

- The study team flew an aerial survey to assess the distribution and abundance of beaver colonies in the beaver study area. Active beaver colonies were indicated by lodges with fresh food caches nearby (ISR Part A, Section 10.11.4.1).
- The study team collected observations of muskrat “pushups” (feeding structures consisting of small, seasonally temporary domes of vegetation debris and mud pushed up through holes or cracks in the ice cover of water bodies) recorded and mapped by researchers conducting aerial surveys for other Project studies (ISR Part A, Section 10.11.4.1).
- The study team collected observations of river otter and mink or river otter and mink tracks recorded and mapped by researchers conducting aerial surveys for other Project studies (ISR Part A, Section 10.11.4.2).
- The study team reviewed scientific literature to locate and synthesize information on the food habits and diets of river otters and mink in freshwater aquatic systems to support the pathways analysis being conducted for Study 5.7, Mercury Assessment and Potential for Bioaccumulation.

The study team has completed the following activities for Study 10.11 since the June 2014 filing of the ISR :

- The study team conducted two spring surveys to assess overwinter survival of active beaver colonies in spring 2014 and 2015 and completed a second round of aerial surveys of beaver lodges in the study area in fall 2014 (RSP Section 10.11.4.1).

- The study team conducted three sets of aerial surveys of river otter and mink tracks in March, April, and December 2014 (RSP Section 10.11.4.2).
- The study team deployed hair snares to attempt to collect hair samples from river otters for analysis of mercury content (Study 5.7).

#### 4. SUMMARY OF STUDY 10.11 DOCUMENTS

Since filing of the RSP in 2012, AEA and FERC have prepared several documents pertaining to this study. To aid review by FERC staff and licensing participants, each of these documents is listed below. Each of these documents is accessible on AEA's Project licensing website (<http://www.susitna-watanahydro.org/type/documents/>) by clicking on the entry in the "Link" column in the table. In addition, these documents are available on FERC's eLibrary system (<http://www.ferc.gov/docs-filing/elibrary.asp>), in Docket No. P-14241.

Title	Date	Description	Link
10.11. Aquatic Furbearer Abundance and Habitat Use (Revised Study Plan)	12/14/2012	This document presents the plan for this study, including goals, objectives, the study area, and proposed study methods for aquatic furbearers.	<a href="#">RSP for Study 10.11</a>
FERC Study Plan Determination for Study 10.11	2/1/2013	This document presents FERC approval of Study 10.11, which approved AEA's Revised Study Plan with no recommended changes.	<a href="#">FERC SPD for Study 10.11</a>
Draft Initial Study Report for Study 10.11	2/3/2014	This draft of the ISR summarized the study methods and variances during the 2013 study season, and presented preliminary data collected for Study 10.11. This draft ISR was later republished as Part A of the final ISR.	<a href="#">Draft ISR for Study 10.11</a>
Initial Study Report for Study 10.11	6/3/2014	This document is the Initial Study Report (Parts A, B and C) for Study 10.11. Part A republishes the Draft ISR. Part B identifies supplemental information and errata in Part A. Part C presents study modifications and plans for completing the study.	<a href="#">ISR Part A for Study 10.11</a> <a href="#">ISR Part B for Study 10.11</a> <a href="#">ISR Part C for Study 10.11</a>
Initial Study Report Meeting, October 21, 2014	11/15/2014	Transcripts and AEA's agenda and Powerpoint presentations for the ISR meeting concerning the Project wildlife studies filed by AEA.	<a href="#">Transcripts from ISR Meeting</a> <a href="#">Materials from ISR Meeting</a>
Aquatic Furbearer Abundance and Habitat Use Study (10.11) – 2014–2015 Study Implementation Report	11/4/2015	Study Implementation Report: a summary of field survey results in 2014 and 2015.	<a href="#">2014-2015 SIR for Study 10.11</a>

## 5. NEW STUDY DOCUMENTATION SUPPLEMENTING THE ISR

The following table identifies and describes additional reports and other documents that update, refine, or otherwise supplement certain sections of the ISR pertaining to this Study 10.11, during AEA's continued implementation of the Study Plan since the ISR was filed in June 2014.

ISR Reference	Description
Part A, Section 4	This Section is updated by the Study Implementation Report Section 4, describing 2014 and 2015 study plan implementation.
Part A, Section 5	This Section is supplemented by Study Implementation Report Section 5.

## 6. VARIANCES

### 6.1. 2013 Study Season

The following variances are reported in the June 2014 ISR for the beaver and muskrat surveys component of this study (ISR Part A, Section 4.1.1):

- The downstream beaver survey area in the Middle Susitna River Segment that was sampled in October 2013 was somewhat wider in the lower end than was proposed in RSP Section 10.11.3 (as depicted in RSP Figure 10.11-1). The reason for this expansion was that the survey area was aligned with the riverine physiography area that was delineated for Study 11.6, Riparian Vegetation Study Downstream of the Proposed Susitna–Watana Dam, after preparation of the Study Plan. As a result of using this refined survey area, more potential beaver habitat was covered than was originally included in the Study Plan, providing a greater volume of data to use in addressing the study objectives.
- The unusually late spring, persistent deep snow cover, and delayed melt of snow and ice in 2013 led the study team to postpone and then cancel the aerial survey of muskrat pushups, which had been planned for April (RSP Sections 10.11.4.1 and 10.11.6) for consistency with similar surveys conducted in late winter 1980 for the Alaska Power Authority's Susitna Hydroelectric Project (APA Project). The intent of RSP Section 10.11.4.1 was to conduct the muskrat survey before aerial surveys began for other wildlife studies. The same water bodies that would have been surveyed for this study were covered by researchers conducting aerial surveys for other Project studies (primarily spring migration surveys of waterbirds, but also nest occupancy surveys of raptor nests). Hence, the presence of muskrat pushups in 2013 was instead recorded during spring surveys of waterbirds and raptors, which were conducted in the appropriate time frame (spring melt) for identifying muskrat pushups. Several incidental sightings of muskrats also were provided by researchers conducting point-count surveys of landbirds and shorebirds. The incidental sightings in 2013 provided useful information on the distribution and relative abundance of muskrats in and near the study area, which, when combined with data to be collected on subsequent surveys in the next year of study, are expected to enable the study team to achieve the study objective for this species.

The following variances are reported in the June 2014 ISR for the river otter and mink surveys component of this study (ISR 10.11, Part A, Section 4.2.1):

- Aerial surveys of river otter and mink tracks were not conducted as planned in late winter 2013 (two or three surveys following fresh snowfall in February–early April; RSP Section 10.11.4.2) because of an unanticipated delay in contract approval and study initiation. The survey planned for early winter (November/December) 2013 was not conducted due to logistical difficulties encountered in trying to match a suitable weather window (within three days of fresh snowfall) with pilot and aircraft availability. Despite the lack of dedicated surveys in 2013, the study team was able to compile incidental observations of river otters, river otter tracks, and mink tracks in and near the study area recorded by researchers conducting surveys for the other Project studies described above (Section 4.2). The combination of these incidental data with the results of aquatic furbearer surveys to be conducted in the next study season will enable the study team to meet the study objectives.

The following variances are reported in the June 2014 ISR for the information for mercury assessment component of this study (ISR 10.11, Part A, Section 4.3.1):

- The Study Plan anticipated the possibility that hair samples from river otters and mink might not be obtained from trapper-harvested animals. In that event, the Study Plan proposed that hair-snag traps would be deployed in late winter during track surveys at locations in the stream survey area where river otter and mink sign was recorded. Because the track surveys were not conducted in 2013 (see Section 4.2.1 above), however, no hair-snag traps were deployed in 2013. The study team will meet Study Plan objectives by deploying hair-snag traps during future track surveys in the next study season.
- 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 under Study 5.7, Mercury Assessment and Potential for Bioaccumulation, as detailed in ISR 10.11 (Part C).

## 6.2. 2014–2015 Study Seasons

As noted in Section 4 of the Study Implementation Report for this study, the following variances occurred for the beaver and muskrat studies following the filing of the June 2014 ISR:

- The downstream beaver survey area in the Middle Susitna River Segment that was sampled in October 2014 was somewhat wider in the lower southern end than was proposed in RSP Section 10.11.3 (as depicted in RSP Figure 10.11-1). The reason for this expansion was that the survey area was aligned with the riverine physiography area that was delineated for Study 11.6, Riparian Vegetation Study Downstream of the Proposed Susitna-Watana Dam, after preparation of the Study Plan. As a result of using this refined survey area, more potential beaver habitat was covered than was originally included in the Study Plan, providing a greater volume of data to use in addressing the study objectives.

- Aerial surveys of muskrat pushups were not conducted in 2014 or 2015. Instead, additional observations of this species in 2014 were recorded incidentally during other wildlife surveys (primarily spring migration surveys of waterbirds for Study 10.15, but also nest occupancy surveys of raptor nests for Study 10.14).

Variances for the river otter and mink surveys, as implemented following the June 2014 ISR, were:

- As explained in Section 1.3 of the ISR Part D Overview, the study area changed when the Chulitna Corridor was eliminated from further consideration and the Denali East Option was added.

## **7. STUDY PLAN MODIFICATIONS**

### **7.1. Modifications Identified in ISR**

Section 7 of ISR 10.11 (Part C) details modifications for this study following the 2013 study season. These modifications are generally summarized as follows:

- As is explained in Section 1.3 of the ISR Part D Overview, AEA has added the Denali East Option access 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 under Study 5.7, Mercury Assessment and Potential for Bioaccumulation Study.

### **7.2. Modifications Identified since the June 2014 ISR**

As detailed in the Study Implementation Report, AEA plans a modification to the Study Plan to complete the study in a manner that meets Study Plan objectives. This modification is summarized as follows:

- Aerial surveys of muskrat pushups (as described in RSP Section 10.11.4.1) are planned for the Project area. Instead of conducting a second year of muskrat surveys in the future, however, AEA proposes to substitute the two seasons of incidental observations of muskrats obtained in 2013 and 2014 for one year of surveys, thereby making more data available to meet this study objective.



## **8. STEPS TO COMPLETE THE STUDY**

In light of the variances and modifications described above, the steps necessary for AEA to complete this study are summarized below. As necessary and appropriate, these steps have been updated from those appearing in Section 7 of ISR 10.11 (Part C):

- Survey muskrat pushups in water bodies and wetlands throughout the Project area during spring (RSP Section 10.11.4.1);
- Complete a second year of river otter and mink track surveys along stream courses and transects in winter (RSP Section 10.11.4.2).