

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

**Caribou Distribution, Abundance, Movements,
Productivity, and Survival
Study Plan Section 10.6**

**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

Alaska Department of Fish and Game

Palmer, Alaska

November 2015

TABLE OF CONTENTS

1. Introduction.....	1
2. Background	2
2.1. Purpose of Study	2
2.2. Study Components	2
3. Status, Highlighted Results, and Achievements.....	2
4. Summary of Study 10.6 Documents	3
5. New Study Documentation Supplementing the ISR.....	4
6. Variances	4
6.1. 2013 Study Season	4
6.2. 2014 – 2015 Study Season	5
7. Study Plan Modifications	5
7.1. Modifications Identified in ISR.....	5
7.2. Modifications Identified since the June 2014 ISR	5
8. Steps to Complete the Study	5

1. INTRODUCTION

Section 1 (Part A) of the June 2014 ISR for this Caribou Distribution, Abundance, Movements, Productivity, and Survival (Study Plan 10.6) 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 this Study 10.6 since the filing of the ISR in June 2014. As detailed below, AEA's recent activities for Study 10.6 have consisted of the following:

- On October 21, 2014, AEA held an ISR meeting for the Botanical and Wildlife studies.
- In 2014, the study team monitored all existing VHF-collared Nelchina caribou herd (NCH) and Delta caribou herd (DCH) animals monthly within the Project area via aerial radiotracking (telemetry) from small fixed-wing aircraft (Piper PA-18 "Super Cub") to provide general documentation of herd distribution and the extent of herd mixing in the Project vicinity.
- The study team recorded reproduction, survival status, group size, and any additional comments for located caribou.
- The study team conducted additional flights (every two weeks) during peak fall migration (August–October) and peak spring migration (May 1–20). The study team used telemetry flights twice a week during peak calving (May 25–30) to document parturition status by noting presence/absence of antlers, udders, and calves at heel.
- All telemetry flights covered the study area; additional Alaska Department of Fish & Game (ADF&G) management flights covered the NCH range to a greater extent.
- The study team deployed additional collars in April 2015.

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 10.6 in a manner that meets the objectives of the Commission-approved Study Plan.

2. BACKGROUND

2.1. Purpose of Study

The goal of this study is to obtain sufficient population information on caribou to evaluate Project-related effects on important seasonal ranges, such as calving areas, rutting areas, wintering areas, and migration/movement corridors.

The study objectives are established in RSP Section 10.6.1:

- Document seasonal use of and movement through the Project area by both females and males of the NCH and the DCH.
- Assess the relative importance of the Project area to both the NCH and DCH.
- Document productivity and survival of caribou using the Project area.
- Analyze data from historical caribou studies and synthesize with recent data for the NCH and DCH, as a continuation of the caribou task of the 2012 study (AEA 2012).

2.2. Study Components

The components of this study consist of the following:

- Deployment of Very High Frequency (VHF) radio collars on bulls and Argos satellite-linked GPS radio collars on bulls and cows from the NCH and DCH.
- Redeployment of radio collars available from mortality collar pickups and hunter harvested caribou.
- Monitoring of all existing VHF-collared NCH and DCH collars monthly within the Project area via aerial radiotracking with additional flights (every two weeks) during peak fall and spring migration and telemetry flights twice a week during peak calving.
- Collection of locational information from GPS-collared caribou via a satellite data link using the Argos Data Collection System on a regular basis.
- Data analysis and evaluation of the spatial distribution and movements of cows and bulls from each herd using a Geographic Information System (GIS).

3. STATUS, HIGHLIGHTED RESULTS, AND ACHIEVEMENTS

The following tasks were completed in 2013 and reported in Part A of the ISR for Study 10.6:

- Using small piston-powered helicopters (Robinson R-44) and chemical immobilization techniques, the study team deployed 30 Very High Frequency (VHF) radio collars on bulls and 60 Argos satellite-linked (GPS) radio collars on bulls and cows from the NCH and DCH. The study team deployed 70 percent of GPS collars on cows because the

female segment represents the reproductive portion of the herd and the leading edge of seasonal movements. Spring captures (April 27–28 and May 11, 2012) targeted caribou overwintering in the Project area, and fall captures (October 13–28, 2012) targeted migratory caribou. The study team re-deployed radio collars that were available from mortality collar pickups and hunter-harvested caribou on 22 bulls and 14 cows during additional captures in 2013.

- The study team monitored all existing VHF-collared NCH and DCH animals monthly within the Project area via aerial radio-tracking (telemetry) from small fixed-wing aircraft (Piper PA-18 “Super Cub”) to provide general documentation of herd distribution and the extent of herd mixing in the Project vicinity. The study team recorded reproduction, survival status, group size, and any additional comments for located caribou.
- The study team conducted additional flights (every two weeks) during peak fall migration (August–October) and peak spring migration (May 1–20). The study team used telemetry flights twice a week during peak calving (May 25–30) to document parturition status by noting presence/absence of antlers, udders, and calves at heel.
- Caribou locations are regularly obtained from deployed GPS collars via a satellite data link using the Argos Data Collection System and locations are provided to the study team on a monthly CD from Telonics, Inc. (Mesa, AZ). The full data set of all locations for each GPS collar will be downloaded after collar retrieval.

The study team has completed the following activities for Study 10.6 since the June 2014 filing of the ISR:

- Deployed collars on caribou in April 2015.
- Monitored all existing VHF-collared NCH and DCH animals monthly within the Project area via aerial radio-tracking (telemetry) from small fixed-wing aircraft.
- Conducted additional telemetry flights during peak fall migration and peak spring migration and during peak calving.

4. SUMMARY OF STUDY 10.6 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
10.6. Caribou Distribution, Abundance, Movements, Productivity, and Survival (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 caribou.	RSP for Study 10.6
FERC Study Plan Determination for Study 10.6	2/1/2013	This document presents FERC approval of Study 10.6, which approved AEA's Revised Study Plan with no recommended changes.	FERC SPD for Study 10.6
Big Game Movement and Habitat Use Study (2012 Technical Memorandum)	3/26/2013	This technical memorandum summarizes existing information on movement and habitat use of caribou.	Mar. 2013 TM for Study 10.6
Draft Initial Study Report for Study 10.6	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 10.6. This draft ISR was later republished as Part A of the final ISR.	Draft ISR for Study 10.6
Initial Study Report for Study 10.6	6/3/2014	This document is the Initial Study Report (Parts A, B and C) for Study 10.6. 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.	ISR Part A for Study 10.6 ISR Part B for Study 10.6 ISR Part C for Study 10.6
Initial Study Report Meetings, October 21, 2014 (Parts A and B)	11/15/2014	Transcripts and AEA's agenda and PowerPoint presentations for the ISR meeting concerning the Project wildlife studies filed by AEA.	Transcripts from ISR Meeting Materials from ISR Meeting

5. NEW STUDY DOCUMENTATION SUPPLEMENTING THE ISR

Because the work and data analysis for this study are ongoing as of the filing of this ISR Part D, AEA has not prepared an implementation report for this Study 10.6 at this time. Thus, no additional reports or documents are available to supplement the ISR for this Study 10.6.

6. VARIANCES

6.1. 2013 Study Season

The following variances are reported in the June 2014 ISR:

- Caribou collared during the course of the study were classified into two groups based on wintering strategies and capture locations (the Eastern Migratory Group and the Western Group). The study plan (RSP Section 10.6.4) proposed that two-thirds of the radio collars be deployed on NCH animals and one-third of the radio collars be deployed on DCH

animals. However, the herd designation for caribou collared within the study area is complicated by mixing of caribou from both the DCH and the NCH, and it has become evident that the study team will not be able to definitively assign herd designations when caribou are captured in the study area. So, caribou collared during the course of the study were instead classified into two groups based on wintering strategies and capture locations (the Eastern Migratory Group and the Western Group). These classifications were merely semantics used in the planning of collar distribution and are not intended to replace the NCH and DCH designations. Therefore, the study team is confident that these new name conventions will not interfere with their ability to meet the study objectives outlined in RSP Section 10.6.1.

- The frequency of telemetry flights was increased to twice weekly during the peak calving period to better track calf production and survival. Another variance implemented in 2013 was to increase the frequency of telemetry flights to twice weekly during the peak calving period to better track calf production and survival.

6.2. 2014 – 2015 Study Season

The variances implemented in 2013, detailed in Section 6.1 above, were carried forward in 2014. These variances include the designation of the Eastern Migratory Group and the Western Group, as well as increased frequency of telemetry flights during peak calving. Ongoing data collection on radio-collared animals will continue through October 2015.

7. STUDY PLAN MODIFICATIONS

7.1. Modifications Identified in ISR

As detailed in Section 7 of the ISR (Part C), AEA plans to carry forward the 2013 variances through study completion.

7.2. Modifications Identified since the June 2014 ISR

AEA plans no modifications of the methods for this study. The variances implemented in 2013 will be carried forward as modifications until study completion. As described in Section 6.1 above, these variances include the designation of the Eastern Migratory Group and the Western Group, as well as the increased frequency of telemetry flights to twice weekly during peak calving.

8. STEPS TO COMPLETE THE STUDY

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

- Continue monitoring all existing VHF-collared NCH and DCH animals through October 2015 within the Project area via aerial radiotracking (telemetry) from small fixed-wing aircraft (RSP Section 10.6.4).
- Data analysis and evaluation of the spatial distribution and movements of cows and bulls from each herd using a GIS (RSP Section 10.6.4).