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

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

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

Alaska Department of Fish and Game

Palmer, Alaska

June 2014

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EXECUTIVE SUMMARY

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Purpose	This 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 supplements ongoing ADF&G caribou research in the study area and surrounding region by increasing the sample size of radiocollared caribou from both the Nelchina caribou herd (NCH) and the Delta caribou herd (DCH). Telemetry and GPS locations from these radiocollared caribou are being used to document the seasonal use of and movement through the Project area by both females and males of the NCH and the DCH; document the extend of herd mixing between the NCH and the DCH; document productivity and survival of caribou using the Project area; and compare current movements and distributions in the Project area to historical data.
Status	Monitoring of the seasonal use of, and movements in, the Project area by both cows and bulls from the NCH and DCH is ongoing via the 223 currently active radio collars (168 VHF and 55 GPS). Calving surveys were conducted May-June 2013 and will be conducted again in 2014. Data collection, analysis, and comparison to historic data are underway and will continue through the completion of the study.
Study Components	The components of this study consist of the following: 1) 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. 2) Redeployment of radio collars available from mortality collar pickups and hunter harvested caribou. 3) 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. 4) Collection of locational information from GPS-collared caribou via a satellite data link using the Argos Data Collection System on a regular basis. 5) Data analysis and evaluation of the spatial distribution and movements of cows and bulls from each herd using a Geographic Information System (GIS).
2013 Variances	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

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	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. 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.
Plans to Complete the Study	VHF radio-collared NCH and DCH animals will continue to be monitored monthly within the study area via aerial radio-tracking with additional flights (every two weeks) occurring during peak fall and spring migration periods and 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 will continue on a regular schedule throughout the entire year in 2014. In spring 2014, the GPS/satellite collars deployed in April 2012 will be removed to retrieve the data stored in the collars for analysis (the collars must be retrieved to obtain all data). In October 2014, the GPS/satellite collars that were deployed in October 2012 will be removed and the collars removed in April 2014 will be redeployed (after having been refurbished). The Updated Study Report will be completed by February 2016 and will include analyses of all data obtained through July 2015.
Highlighted Results and Achievements	The study team deployed all initial VHF and GPS radio collars in 2012 with additional re-deployments in 2013. The study team obtained 2,854 locations for 272 individual caribou (199 VHF-collared caribou and 73 GPS-collared caribou) during 33 telemetry surveys from April 18, 2012, to October 22, 2013. The study team is continuing to monitor VHF collars via telemetry and GPS collars via Argos satellite uplink. The study team conducted telemetry flights once or twice weekly during May 7–July 1, 2013, to monitor the parturition status and calf survival of VHF- and GPS-collared cows. Of the 128 cows located, 84 (66 percent) were determined to be pregnant or were observed with a calf at heel. Forty-six percent (n = 39) of parturient cows lost their calves. Spring migration and peak calving were delayed during the unusually late spring in 2013 and very few collared cows were found on the traditional calving grounds in GMU Subunit 13A during the typical period of peak calving.

7. COMPLETING THE STUDY

7.1 Proposed Methodologies and Modifications

To complete this study, AEA will implement the methods in the Study Plan, with no modifications. These activities include the following:

- Monitor deployed VHF radio collars and remove, refurbish, and redeploy GPS collars (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).

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 2013 work.

7.1.2 Modifications to Study Plan

The variances implemented in 2013 will be carried forward in 2014. These variances include the designation of the Eastern Migratory Group and the Western Group, described in Section 4.1.1 of Part A of this ISR, as well as the increased frequency of telemetry flights to twice weekly during peak calving, as described in Part B of this ISR.

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 (USR) 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 in the 2014 study season. Specifically, the study team's 2014 efforts will include the following:

- VHF radio-collared NCH and DCH animals will continue to be monitored monthly within the study area via aerial radio-tracking with additional flights (every two weeks) during peak fall and spring migration periods and 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 will continue on a regular schedule throughout the entire year in 2014.

- In spring 2014, the GPS/satellite collars deployed in April 2012 will be removed to retrieve the data stored in the collars for analysis (the collars must be retrieved to obtain all data).
- In October 2014, the GPS/satellite collars that were deployed in October 2012 will be removed and the collars removed in April 2014 will be redeployed (after having been refurbished).

All data will be analyzed and reported in the USR.

7.3 Conclusion

Implementation of the Caribou Distribution, Abundance, Movements, Productivity, and Survival Study is planned for 2014, with no modification of the FERC-approved Study Plan. This study is interrelated with the Evaluation of Wildlife Habitat Use (Study 10.19). Because no modifications are needed for this study, AEA expects the study effort for 2014, combined with the work accomplished in 2012 and 2013, to achieve the approved study objectives. The results of this study will be reported in the USR.