Susitna-Watana Hydroelectric Project Document
ARLIS Uniform Cover Page

Title: Moose distribution, abundance, movements, productivity, and survival, Study plan Section 10.5 : Initial study report -- Part C: Executive summary and Section 7	**SuWa 223**
Author(s) – Personal:	
Author(s) – Corporate: Alaska Department of Fish and Game	
AEA-identified category, if specified: Initial study report	
AEA-identified series, if specified:	
Series (ARLIS-assigned report number): Susitna-Watana Hydroelectric Project document number 223	**Existing numbers on document:**
Published by: [Anchorage : Alaska Energy Authority, 2014]	**Date published:** June 2014
Published for: Alaska Energy Authority	**Date or date range of report:**
Volume and/or Part numbers:	**Final or Draft status, as indicated:**
Document type:	**Pagination:** iii, 2 p.
Related work(s): The following parts of Section 10.5 appear in separate files: Part A ; Part B ; Part C.	**Pages added/changed by ARLIS:**
Notes:	

All reports in the Susitna-Watana Hydroelectric Project Document series include an ARLIS-produced cover page and an ARLIS-assigned number for uniformity and citability. All reports are posted online at http://www.arlis.org/resources/susitna-watana/

ARLIS
Alaska Resources Library & Information Services

SUSITNA-WATANA HYDRO

Susitna-Watana Hydroelectric Project
(FERC No. 14241)

Moose Distribution, Abundance, Movements, Productivity, and Survival
Study Plan Section 10.5

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

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Moose Distribution, Abundance, Movements, Productivity, and Survival (10.5)	
Purpose	The purpose of this study is to obtain sufficient population information and use of the study area to evaluate the potential effects of the Project on moose. Data from radio-collared moose bulls and cows will be used to evaluate movements, distribution, and productivity of moose in the Project area. Composition and population estimates will be obtained using the GeoSpatial Population Estimator (GSPE) survey and data from the aerial trend-count surveys in two count areas (CA 7 and CA 14), and the late-winter surveys in the reservoir inundation zone. The browse survey will be used to assess moose habitat in the study area.
Status	Monitoring of the distribution, productivity, and survival of moose in the study area is underway, through radio-tracking of the 55 VHF-collared (36 cows, 19 bulls) and 37 GPS-collared (24 cows, 13 bulls) moose currently alive in the study area. Evaluation of the moose population and composition in the study area is also ongoing; the surveys completed thus far include late-winter inundation-zone surveys in March 2012 and March 2013, a GSPE in November 2013, and aerial trend-count surveys in November 2013. Estimation of moose browse utilization in the study area is in progress via browse surveys, the first of which was conducted in March–April 2013.
Study Components	This study consists of the following components: 1) Document moose distribution, movements, productivity, and survival through the use of VHF and GPS radio-collars. 2) Population monitoring. 3) Moose browse and habitat assessment.
2013 Variances	The study plan was implemented with one variance in the browse survey methods (RSP Section 10.5.4.3). Randomly chosen cells on Cook Inlet Regional Working Group (CIRWG) lands were unavailable for sampling in 2013 because of the lack of a land-access agreement. However, the flexibility of the browse survey methods allowed the study team to work around those lands and still meet the study objectives.
Steps to Complete the Study	In 2014, the study team plans to complete data collection for radio-collared animals, as described in RSP Section 10.5.4.1. Goals for the number and sex of moose to have been collared for continued tracking have been achieved to date. Population monitoring, as described in RSP Section 10.5.4.2, including trend count surveys, 2012 and 2013 inundation-zone surveys and a 2013 GSPE were also completed. The late winter inundation-zone survey will be repeated in March 2015.

	In late winter 2015, the study team plans to finish the browse surveys as described in RSP Section 10.5.5. Broad-scale browse assessment for the entire study area, minus CIRWG lands, was completed in 2013. Finer scale browse assessment in the inundation zone, downstream areas, and transmission corridors will be completed in late winter 2015.
Highlighted Results and Achievements	Locations of radio-collared moose are being collected via regular telemetry flights and Argos data downloads. Late-winter surveys of moose in the proposed reservoir inundation zone were completed in March 2012 and 2013. Browse surveys, population surveys (GSPE and aerial trend-count surveys), and productivity (twinning) surveys also were conducted in 2013. Of the 60 radio-collared cows located, 31 had a single calf and 13 (30%) had twins. Of the 57 calves observed, 30 (53%) survived to July 1, 2013; 74 percent of the calf losses observed occurred in the first week of life.

7. COMPLETING THE STUDY

7.1 Proposed Methodologies and Modifications

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

- Continue monitoring moose distribution, movements, productivity, and survival (RSP Section 10.5.4.1);
- Population monitoring (RSP Section 10.5.4.2);
- Moose browse survey and habitat assessment (RSP Section 10.5.4.3).

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

AEA will forego monthly radio-tracking flights of VHF-collared moose in winter months (January, February, April and December). Because little movement occurs during this period, monitoring during this period is unnecessary to meet the study objectives of obtaining sufficient information of moose population and use of the study area, to evaluate the potential effects of the Project on moose.

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 plans to complete the data collection for radio-collared animals in 2014, as described in RSP Section 10.5.4.1. Goals for the number and sex of moose to have been collared for continued tracking have been achieved to date. Population monitoring as described in RSP Section 10.5.4.2, including trend-count surveys, 2012 and 2013 inundation zone surveys, and a 2013 GSPE were also completed. Trend-count surveys will be conducted again in November 2014, and the late winter inundation zone survey will be repeated in March 2015.

In 2015, AEA plans to complete all remaining data collection and analysis for this study. For instance, in late winter (March/April) 2015, the study team plans to finish the browse surveys as

described in RSP Section 10.5.5. Broad-scale browse assessment for the entire study area, except on CIRWG lands, was completed in late winter 2013. Finer-scale browse assessment in the inundation zone (including CIRWG lands), downstream areas, and transmission corridors will be completed in late winter 2015.

7.3 Conclusion

Implementation of the Moose Distribution, Abundance, Movements, Productivity, and Survival Study is planned for 2014 and 2015, with only one modification: foregoing monthly radio-tracking flights of VHF-collared moose in winter months, as there is little movement of moose during these periods. This study is interrelated with the Evaluation of Wildlife Habitat Use Study (Study 10.19). AEA expects the approved Study Plan objectives for both this study and Study 10.19 will be fully achieved with this slight modification, in combination with the 2013 efforts, as this modification will not affect data collection during critical periods of movement of moose. The results of this study will be reported in the USR.