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SUSITNA-WATANA HYDRO

Susitna-Watana Hydroelectric Project
(FERC No. 14241)

Wildlife Harvest Analysis Study
Study Plan Section 10.20

Final Study Plan

Alaska Energy Authority

SUSITNA-WATANA HYDRO

Clean, reliable energy for the next 100 years.

July 2013

10.20. Wildlife Harvest Analysis

On December 14, 2012, Alaska Energy Authority (AEA) filed with the Federal Energy Regulatory Commission (FERC or Commission) its Revised Study Plan (RSP), which included 58 individual study plans (AEA 2012). Section 10.20 of the RSP described the Wildlife Harvest Analysis Study. This office-based study focuses on characterizing past and current hunter effort and harvest levels in the region of the proposed Project by summarizing and analyzing data from the ADF&G harvest database for Alaska, which also includes some harvest data from subsistence users reported to USFWS. The study includes large mammals and furbearers, as well as small mammals and upland gamebirds. RSP 10.20 provided goals, objectives, and proposed methods for data collection regarding wildlife harvest.

On February 1, 2013, FERC staff issued its study plan determination (February 1 SPD) for 44 of the 58 studies, approving 31 studies as filed and 13 with modifications. RSP Section 10.20 was one of the 31 studies approved with no modifications. As such, in finalizing and issuing Final Study Plan Section 10.20, AEA has made no modifications to this study from its Revised Study Plan.

10.20.1. General Description of the Proposed Study

The wildlife harvest analysis study is an office-based study of Alaska Department of Fish and Game (ADF&G) and U.S. Fish and Wildlife (USFWS) harvest records for large mammals and furbearers, as well as for smaller mammals and upland gamebirds (if data are available). In this study, AEA will characterize past and current hunter effort and harvest levels in the region of the proposed Project by summarizing and analyzing data from the ADF&G harvest database for Alaska, which also includes some harvest data from subsistence users reported to USFWS.

Study Goal and Objectives

Construction and operation of the Project will alter human access to the region through construction of the access road and power transmission corridors, and through the creation of the reservoir. Much of Alaska Game Management Unit (GMU) 13, which encompasses the Project area, is readily accessible by road and provides hunting opportunities for many Alaskans. Creating access points to the Project site from the Denali Highway to the north or from the rail corridor to the west may result in increased motorized vehicle access for hunters and recreational users to portions of GMU 13 that are currently remote. The potential for increased human access and activity within GMU Subunits 13A and 13E without additional understanding of the implications for game populations has been identified as a resource management concern by ADF&G.

The goal of this study is to compile and analyze information on the distribution of big game, furbearers, and small game (including both small mammals and upland gamebirds, assuming data are available) and to understand patterns of hunting effort and harvest in the study area. These data will provide information on identification of past and current trends in hunter access modes, hunting locations, and harvest locations, and identify potential Project-induced changes that are likely to alter hunter access or harvest patterns. These findings will help predict the impacts of those changes on wildlife harvests. This study is a multi-year effort that began in 2012 (AEA 2012).

Specifically, this study has three primary objectives:

- Identify past and current harvest effort for large and small game including furbearers, harvest locations, access modes and routes.
- Compare current harvest locations of large and small game, including furbearers, with data on the seasonal distribution, abundance, and movements of harvested species, using the results of other, concurrent Project studies on big game and furbearers (Sections 10.5–10.11).
- Provide harvest data for use in the analyses to be conducted for the recreation and subsistence resource studies (Sections 12.5 and 14.5, respectively).

The information developed in this study will be used to help develop any necessary measures to address Project impacts on hunting opportunities, hunter distribution, and impacts to game species abundance.

10.20.2. Existing Information and Need for Additional Information

The wildlife data-gap analysis conducted for the Project (ABR 2011) identified the need for an updated drainage-specific compilation of subsistence, sport hunter, and trapper harvest data for big game and furbearers. Hunter access to this region has changed since the 1980s, but potential changes in patterns of harvest at this scale have not been evaluated or compared with distribution of harvested species. Compilation of historic data may be useful for identifying trends in human access and harvest locations over the past decades and will provide information that may inform ADF&G's management goals for big game and furbearers in the Project area.

ADF&G documents legal sport hunting and trapping in Alaska through the collection of harvest reports and sealing records of hides for certain furbearers. Harvest reports are required to be submitted by hunters for some big game species. Hunting effort and harvest success are summarized from harvest reports and sealing records by GMU, subunit, and, when possible, by smaller Uniform Coding Units (UCU) that are delineated based on watersheds at a sub-basin level. These data are compiled and stored by ADF&G in a statewide harvest database. In addition, a trapper questionnaire is issued annually to compile trappers' views of various wildlife species in their areas (Schumacher 2010) and some subsistence hunting activity is summarized based on household surveys. Information on harvest as a part of federal subsistence hunts on federal land is maintained by USFWS and will need to be obtained through a separate data sharing agreement.

This information from ADF&G is available to be summarized and analyzed to elucidate spatial and temporal patterns of hunting effort and harvest success. It also provides some information on access types, use of guides, and residency of hunters. These data can be compared with data on the distribution of game mammals and the analyses can be used to help predict the impact of the Project on hunting opportunities and hunter distribution, and impacts on game mammals. Subsistence surveys will be conducted by ADF&G to gather current information for communities near the Project area. Additional information on subsistence harvests will also be available from other studies.

The following issues identified in the Pre-Application Document (PAD) (AEA 2011) will be addressed in this study:

- W4: Potential impact of changes in predator and prey abundance and distribution related to increased human activities and habitat changes resulting from Project development.
- W5: Potential impacts to wildlife from changes in hunting, vehicular use, noise, and other disturbances due to increased human presence resulting from Project development.

10.20.3. Study Area

The study area (Figure 10.20-1) includes GMU Subunits 13A, 13B, 13E, 14B, 16A, and portions of 20A. These GMUs were selected because hunting and trapping activities in portions of each of these GMUs may be influenced directly or indirectly by Project construction and operations, including the reservoir inundation zone, associated facility sites, laydown/storage areas, and access road and power transmission corridors. The study area is based on GMUs conforming with the harvest data available (which is recorded by GMU) and because hunting and trapping in the region of the Project is managed by GMU.

10.20.4. Study Methods

In this study, AEA will use existing data, as well as new data to be collected during concurrent studies, to assess the spatial and temporal patterns and success of hunting and trapping efforts and to examine relationships between effort, harvest, and the distribution of wildlife, as indicated by telemetry studies and other surveys. Existing data from harvest reports will be compiled and reviewed to assess their adequacy to address Project-related changes in human access. These data will be shared with researchers conducting the recreation and subsistence resource studies (Sections 12.5 and 14.5). The methods used in this study will include the following tasks:

- Compilation and analysis of ADF&G harvest database records
- Review of ADF&G management reports
- Review of ADF&G trapper questionnaires
- Review of ADF&G small game outlook and harvest surveys
- Review of ADF&G and USFWS subsistence surveys and harvest reports
- Interviews with regional biologists
- Comparison of harvest patterns with development plans and the distribution of game mammals and birds

Initial efforts will focus on compilation and analysis of hunter effort and harvest success within harvest report units contained within the ADF&G harvest-record database. The spatial resolution, adequacy, and completeness of the harvest data record for detecting potential changes in use of wildlife resources in the Project area will be evaluated.

The study will build on results of the wildlife harvest data analysis begun in 2012 and will incorporate new harvest data as they become available, as well as the results of the ADF&G moose, caribou, and ptarmigan telemetry studies begun in 2012. Harvest patterns will be compared with seasonal distribution and movements revealed by the telemetry data on moose, caribou, and ptarmigan.

A relational database of harvest and effort data used in the analysis will be prepared. Naming conventions of files, data fields, and metadata descriptions will meet the Alaska Department of Natural Resources (ADNR) standards established for the Project. Harvest effort and success will be calculated at the highest spatial resolution possible given the quality of the data (GMUs,

Subunits, or UCUs) and compared with the best available estimates of game populations, hunting regulations, and access. Hunter effort and harvest success maps showing big game and furbearer species will be developed based on the relational database developed from the ADF&G harvest database. All map and spatial data products will be delivered in the two-dimensional Alaska Albers Conical Equal Area projection, and North American Datum of 1983 (NAD 83) horizontal datum, consistent with ADNR standards.

10.20.5. Consistency with Generally Accepted Scientific Practices

Harvest data will be analyzed according to commonly accepted statistical techniques. Spatial statistics will be conducted with commonly accepted techniques such as fixed-kernel density estimation with least-squares cross validation or plug-in bandwidth selection (Seaman and Powell 1996; Gitzen et al. 2006).

10.20.6. Schedule

This study is a multi-year effort that began in 2012 with data transfers from ADF&G and USFWS for dates from 2011 and earlier (AEA 2012). The schedule planned for 2013–2014 activities is depicted in Table 10.20-1. Transfer of 2012 harvest and subsistence data from ADF&G and USFWS is planned for July 2013 and 2014, depending on the availability of summarized data from their geodatabases (data transfer may occur somewhat later in the third quarter [3Q]). The data received from those agencies will be compiled into the Project-specific geodatabase for summary and analysis in the fourth quarter [4Q] each year, which will be used in the Initial Study Report to be completed by February 2014, and in the Updated Study Report to be completed by February 2015. Updates on the study progress will be provided during Technical Workgroup meetings which will be held quarterly in 2013 and 2014.

10.20.7. Relationship with Other Studies

As depicted in Figure 10.20-2, data inputs for the wildlife harvest analysis will be required annually from the harvest databases maintained by state (ADF&G) and federal (USFWS) agencies. Those data will be compiled into a Project-specific geodatabase of harvest data, organized by species, date, method, and location (reporting area), which will be used to prepare spatially-explicit summaries of harvests in various portions of the study area to as fine a level of spatial resolution as is supported by the data. The data outputs from these analyses will be provided to the Subsistence Resource Study (Section 14.5) and the Recreation Resource Study (Section 12.5) so that subsistence and sport harvests, respectively, can be evaluated and compared with other human uses of the Project area.

During the impact assessment that will be conducted for the FERC License Application in 2015, the results of the wildlife harvest analysis will be used both directly and indirectly (through the other studies mentioned in the preceding paragraph) in the assessment of impacts and in the identification of any appropriate protection, mitigation, and enhancement (PM&E) measures. Data on the recent and current distribution of harvest effort and harvest success in the study area will be used to assess potential Project impacts on hunting and trapping effort and harvest success. The assessment of impacts on hunting and trapping effort and harvest success will be coordinated with the Recreational Resources Study and the Subsistence Resources Study (Sections 12.5 and 14.5,. respectively) to assess how the expected changes in land use and access

in the Project area may affect patterns of hunting and trapping. The direct and indirect impacts of the Project on game animal populations will be assessed in other wildlife studies (Sections 10.5–10.11 and 10.17) by conducting geospatial analyses using information on the responses of the species to other development projects, as documented in the scientific literature. Those geospatial analyses will overlay the Project footprint and species-specific habitat alteration and disturbance buffers on the known locations of use by the species of interest, as determined from Project-specific survey data and the Evaluation of Wildlife Habitat Use (Section 10.19). Similarly, Geographic Information System (GIS) analyses of potential impacts on hunting and trapping effort and harvest success will be conducted for this study by overlaying the Project footprint and species-specific habitat alteration and disturbance buffers on the known locations of harvest data obtained in this study.

10.20.8. Level of Effort and Cost

This study will focus on analyzing existing harvest data and new data collected for other wildlife, subsistence, and recreational studies to maximize the information gained from these data. Thus, basic questions associated with human harvest of game animals in and near the Project area can be analyzed in a cost-effective manner. The estimated total cost of the study is less than $100,000 over both years.

10.20.9. Literature Cited

ABR. 2011. Wildlife data-gap analysis for the proposed Susitna–Watana Hydroelectric Project. Draft report, August 16, 2011. Report for the Alaska Energy Authority by ABR, Inc.—Environmental Research and Services, Fairbanks, Alaska. 114 pp.

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Gitzen, R. A., J. J. Millspaugh, and B. J. Kernohan. 2006. Bandwidth selection for fixed-kernel analysis of animal utilization distributions. *Journal of Wildlife Management* 70: 1334–1344.

Schumacher, T. 2010. Trapper questionnaire: Statewide annual report, 1 July 2008–30 June 2009. Alaska Department of Fish and Game, Division of Wildlife Conservation, Juneau.

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10.20.10.Tables

Table 10.20-1. Schedule for implementation of the Wildlife Harvest Analysis.

Activity	2012				2013				2014				2015
	1 Q	2 Q	3 Q	4 Q	1 Q	2 Q	3 Q	4 Q	1 Q	2 Q	3 Q	4 Q	1 Q
Transfer of 2012 harvest data							——						
Analysis of 2012 harvest data and preparation of Initial Study Report, to be completed in February 2014								——	Δ				
Transfer of 2013 harvest data											——		
Analysis of 2013 harvest data and preparation of Updated Study Report, to be completed in February 2015												——	▲

Legend:

—— Planned Activity
Δ Initial Study Report
▲ Updated Study Report

10.20.11.Figures

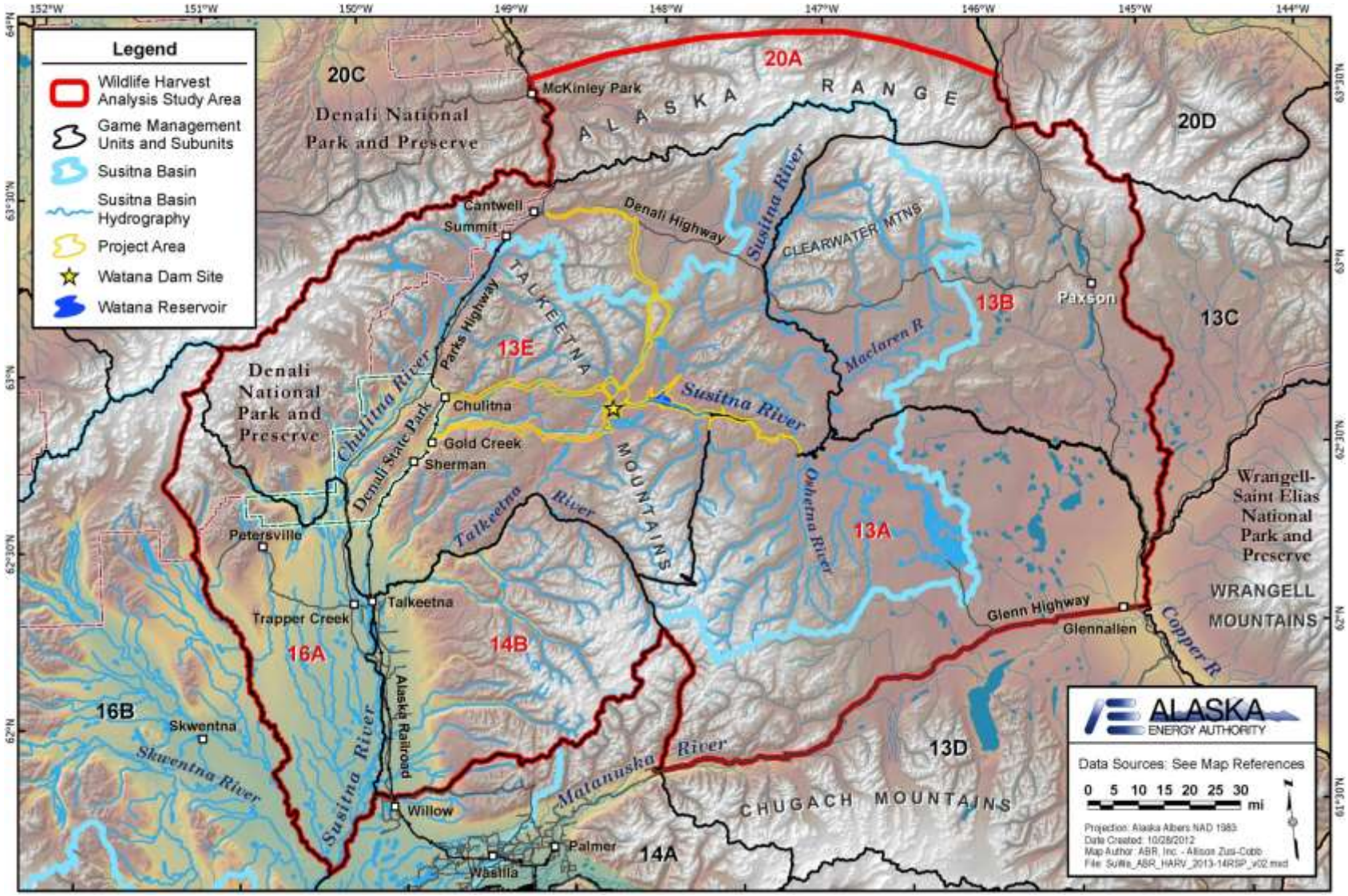

Figure 10.20-1. Study area for the Wildlife Harvest Analysis.

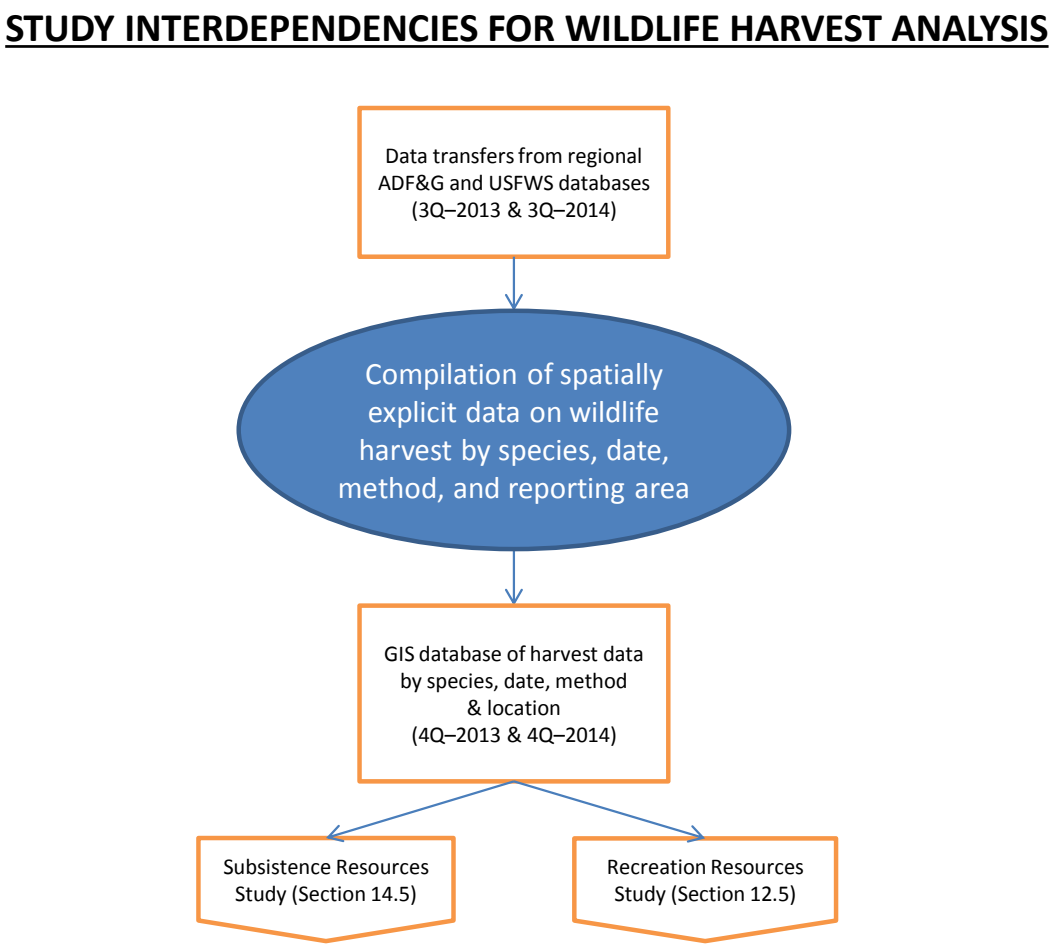

Figure 10.20-2. Study interdependencies for the Wildlife Harvest Analysis.