

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

**Recreation Resources Study  
Study Plan Section 12.5**

**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

URS Corporation

June 2014

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## EXECUTIVE SUMMARY

Recreation Resources Study 12.5	
Purpose	The Recreation Resource Study is designed to identify and document existing recreation resources and activities that may be affected by the construction and operation of the proposed Susitna-Watana Hydroelectric Project. The study includes the identification of the types and levels of current and future recreation uses through primary and secondary research methods. Data collection also supports the development of a future Recreation Management Plan for the Project.
Status	Data were collected in 2013 and will resume in 2015. Data analysis will continue in 2014 and continue in 2015.
Study Components	Major study components include: a review of existing management plans relevant to recreation resources; inventory of trails and right of ways; mapping of trails with a project nexus at a 1:24,000 scale; description of recreation use areas using a National Resource Recreation Setting (NRRS) analysis; and an inventory of facilities and dispersed recreation sites, which will be incorporated into a carrying capacity assessment. The study also includes the collection of recreation user data through secondary data review, executive interviews, and intercept, on-line, mail and telephone survey research to assess demand for consumptive and non-consumptive recreation uses.
2013 Variances	<p>State-issued registration (Tier I) and Tier II subsistence permits have been included in the analysis of hunting and trapping effort (RSP Section 12.5.4).</p> <p>Adjustments were made to intercept survey and observational tally locations (RSP Section 12.5.4).</p> <p>Regional household mail survey was phased in two mailings instead of one (RSP Section 12.5.4).</p>
Steps to Complete the Study	<p>In 2014 AEA plans to complete the collection and processing of recreation use and demand data collected through the secondary data sources, incidental observation survey, observation tallies, intercept survey, and the regional resident household mail surveys. In 2015, AEA plans to complete all remaining data collection and analysis for this study.</p> <p>Data collection will continue, as provided in the Study Plan, to complete remaining data needs for major study components including: regional recreation analysis, trails, recreation facilities, and dispersed recreation use areas and sites. This data, in combination with recreation demand and use data collected over the course of 2013, will support assessments of recreation</p>

	<p>use areas and carrying capacity that will be reported in the USR.</p> <p>In completing the study, AEA will implement two modifications study methods:</p> <p>(1) As described in the ISR Overview and depicted in Figure 7.1-11, AEA has added the Denali East Option road and transmission corridor to the study area. The proposed modification includes an expansion of the Recreation Effects Analysis Area by including a five mile buffer on proposed Denali East Option and on new trails identified 2013 that were found to have a nexus to the Project, notably the Butte Lake Trail and the Goose Lake Trail. This proposed modification also includes changes to the Recreation Effects Analysis Area.</p> <p>(2) The inclusion of State-issued registration (Tier I) and Tier II subsistence permits in the analysis of hunting effort, demand and use will be carried forward as a Study Plan modification during implementation of the balance of the study.</p>
<p>Highlighted Results and Achievements</p>	<p>Existing management plans have been reviewed and the majority of executive interviews have been conducted. Initial inventories of trails, facilities, dispersed recreation sites, and access points were conducted during the 2013 summer field season. Where high resolution aerial imagery was available, trails were mapped at a scale greater than 1:24,000. For the recreational use and demand assessment, secondary data have been reviewed; both phases of the regional household mail survey were mailed; mail survey nonresponse telephone surveys were conducted; and intercept recreational user surveys and observation tallies are now complete and analysis is underway.</p>

## 7. COMPLETING THE STUDY

### 7.1. Proposed Methodologies and Modifications

To complete this study, AEA will implement the methods in the Study Plan except as described in Sections 7.1.1 and 7.1.2. These activities include:

- *Regional Recreation Analysis:* As specified in Section 12.5.4 of the RSP, additional plans identified with pertinent information on recreation resources within the Recreation Use Study Area will be reviewed and included in the analysis already conducted.
- *Trails:* As specified in RSP Section 12.5.4, the study team will continue to collect baseline trail data. Ongoing executive interviews will be used to identify, update, and revise the current inventory of summer and winter trails within the Recreation Use Study Area. Summer or winter trails within the study area that were not previously identified will be assessed. Building on the 2013 mapping efforts, trails in the Project area will continue to be mapped at a scale of 1:24,000, with a national map accuracy standard of +/- 40 feet using the high resolution aerial imagery. Summer and winter trails with a Project nexus will be classified based on the National Trail Classification System.
- *Recreation Use Areas:* As specified in Section 12.5.4 of the RSP, the Recreation Opportunity Spectrum (ROS) framework will be used to describe recreation opportunity areas.
- *Recreation Supply, Demand, and Use:* AEA will continue to implement the variances described in Section 4.4.1 of this ISR in gathering wildlife harvest report data and subsistence permits from ADF&G, as well as BLM and ADNR utilization data on public campgrounds, trailheads, boat launches, and other facilities use and visitation data. The analysis of ADF&G annual sport fishing survey data will be updated in 2014 and 2015 to include angling effort data from prior years. As described in RSP Section 12.5.4, this data will be reviewed, analyzed, and incorporated into the Updated Study Report (USR).
- *Recreation Facilities and Carrying Capacity:* As specified in Section 12.5.4, AEA will continue to develop an inventory of developed and dispersed recreation sites, and estimate carrying capacity of the inventoried sites.
- *Survey Data Collection:* As specified in Section 12.5.4, AEA will continue to gather recreation user data through multiple methods, including literature reviews, secondary data compilation, intercept, online, mail and telephone surveys, and executive interviews.

### 7.1.1. Decision Points from Study Plan

RSP Section 12.5.2 and 12.5.7 provided that if 2013 study results indicated that the Project may affect river flows in a way that recreationists currently use the reach of the river downstream of the Parks Highway Bridget (PRM 88.9), AEA would make a decision regarding extending the study effort farther downstream.

In 2013 AEA collected information on river recreation use and experience and coordinated with the study teams for the Instream Flow Study (Study 8.5), Ice Processes in the Susitna River Study (Study 7.6), Geomorphology Study (Study 6.5), River Recreation and Flow Study (Study 12.7), and Aesthetics Resources Study (Study 12.6). The first year results from these studies indicate that Project operations will only slightly influence river flows and river morphology, such that projected changes will be within the range of normal variation currently experienced by recreationists downstream of the Parks Highway Bridge (PRM 88.9) under existing, baseline conditions, and therefore will not adversely affect the overall experience or use patterns of recreationists in portions of the lower river outside the Recreation Use Study Area. In addition, study results indicate that factors other than flow levels are the predominant factor in determining recreationists' use pattern and experience in the lower river. These data, which are summarized below, support AEA's decision not to extend the longitudinal scope of the river recreation studies below the George Parks Highway Bridge.

Executive interviews with user groups and informal consultations with the operators of Susitna Landing (PRM 65.0) and Deshka Landing (PRM 47.5) have indicated low levels of recreation use between the Parks Highway Bridge (PRM 88.9) and Susitna Landing. While not a part of the Recreation Use Study Area, users and operators who referred to this portion of the river cited the lack of access, safety considerations, cost, and availability of fish and game resources as reasons for low levels of flow based recreation. Both users and operators indicated that the majority of flow based recreation occurred downriver of the Deshka and Susitna landings and in downriver tributaries. Initial results from the River Recreation and Flow Study (ISR Study 12.7, Section 5.3.1) on put-in and take-out options for river recreators also indicate that the majority of Reach 3 river recreators take out at Talkeetna and to a lesser extent the Parks Highway Bridge (PRM 88.9); only one Reach 3 river recreator reported taking out at Deska Landing (PRM 47.5). In addition, sampling of the Recreational User Intercept Survey at Susitna Landing (PRM 65.0) and Deshka Landing (PRM 47.5) intercept sites did not reveal any recreators accessing the Recreation Use Study Area during the 12 month survey period. Therefore, no intercept surveys were conducted at these access points. Log books provide by Susitna Landing managers; however, indicated that winter recreation users (primarily snowmachiners) were accessing the Susitna River to travel to Trapper Lake, Neil Lake, Lisa Lake, and Florine Lake. On January 31, 2013, the results of the Open Water HEC-RAS Flow Routing Model were filed with FERC. This report included in part, simulated flow releases from the Watana Dam to the Susitna River for a maximum load-following operational scenario (OS-1) using historical flows recorded during the calendar year 1984. OS-1 is based on the assumption that the entire load fluctuation of the Railbelt would be provided by the Susitna-Watana Project, and that all other sources of electrical power in the Railbelt would be running at base load. This assumed condition is conservative with respect to assessing downstream impacts of load-following and represents an extreme condition that would not occur for an entire year. The year 1984 was selected because USGS gaging records were available for the entire year for the Susitna, Chulitna, and Talkeetna Rivers, and

1984 is representative of average conditions on both an annual and monthly basis. OS-1 flow and stage hydrographs are illustrated for the entire year on the Susitna River at a number of locations including the end of River Reach 3 at the Parks Highway Bridge. This location is referred to in the January 2013 report as the Sunshine gage (USGS 15292780). The results of the January 31, 2013 report indicate that OS-1 changes in both stage and flow are minimal at the end of Reach 3.

The report concludes that modeled changes in stage in flow at the end of Reach 3 are exaggerated as the Susitna River is confined to an unusually narrow channel in the vicinity of the George Parks Highway Bridge. A wider and more typical channel location just downstream of Reach 3 at PRM 87.1 was also measured as part of the study. The river at this location is about twice as wide as the wetted channel at the USGS gage. A comparison of stage changes at the end of River Reach 3 and the wider transect at PRM 87.1 under pre-Project conditions and OS-1 resulted in 12 to 19 percent less stage change in response to flow fluctuations than observed at the more narrow location at the end of Reach 3. When taken into consideration, the results of the January 31, 2013 Open Water HEC-RAS Flow Routing Model do not support increasing the longitudinal scope of the river recreation studies below the George Parks Highway Bridge.

In April of 2014 AEA reviewed the preliminary results of the Version 2 HEC-RAS Open-water Flow Routing Model to determine if the results and potential impacts to river recreation downstream of the Parks Highway Bridge were different than the results of the January 31, 2013 Open Water HEC-RAS Flow Routing Model. The Version 2 HEC-RAS Open-water Flow Routing Model includes simulated flow releases from the Watana Dam to the Susitna River during a representative dry year (1976) and a representative wet year (1981). The results of Version 2 HEC-RAS Open-water Flow Routing Model support the determination made based on the results January 31, 2013 Open Water HEC-RAS Flow Routing Model indicating that even during representative dry and wet years the Project will not alter flows in a way that will impact recreators using the reach of the river downstream of the Parks Highway Bridge. The results of the Version 2 HEC-RAS Open-water Flow Routing Model are provided in Section 7 of the Instream Flow Study ISR (ISR Study 8.5).

Ice Processes (Study 7.6) utilized the Lower River HEC-RAS modeling for estimates of what the “normal” range of stage would be at the beginning of and following the establishment of an ice cover at Sunshine (PRM 80 to 86.3) in the vicinity of the Parks Highway Bridge. At Sunshine, at the beginning of freeze-up, the discharge ranges from 5,000 to 28,000 cfs with corresponding representative stage (within the Sunshine modeled reach) of 243.8 to 250.2 ft., respectively. Following the establishment of an ice cover in this reach, the discharge ranges from 3,000 to 8,000 cfs with a corresponding stage of 246.2 to 249.1 ft., respectively. Increases in discharge to 10,000 and 12,000 cfs result in stages (with an ice cover) of 249.8 to 250.4 ft., respectively. The modeling indicates that even if proposed operational scenarios increase the discharge (during freeze-up and throughout the winter), the resulting stages would only be increased by a maximum of about 1 ft. over the naturally occurring stage range just prior to freeze-up. During freeze-up 2013, the Sunshine gage recorded an increase in stage of approximately 5 ft. with the progression of the ice cover through the gage location. These results do not indicate that the Project will affect winter recreators using the reach of the Susitna River downstream of the Parks Highway Bridge (PRM 88.9). The complete first year results of the Ice Processes Study are provided in the Ice Processes ISR (ISR Study 7.6).

### 7.1.2. Modifications to Study Plan

AEA will implement two modifications when implementing the Study Plan in 2014 and 2015:

(1) As described in the ISR Overview and depicted in Figure 7.1-1, AEA has added the Denali East Option road and transmission corridor to the study area. With regard to this study, the modified study area showing the Denali East Option is depicted on Figure 7.1-1. The proposed modification includes an expansion of the Recreation Effects Analysis Area by including a five mile buffer on proposed Denali East Option and on new trails identified 2013 that were found to have a nexus to the Project, notably the Butte Lake Trail and the Goose Lake Trail. The extent of proposed changes to the Recreation Effects Analysis Area is shown in Figure 7.1-2.

(2) As outlined in Section 4 of this ISR, the inclusion of State-issued registration (Tier I) and Tier II subsistence permits in the analysis of hunting effort, demand and use will be carried forward as a Study Plan modification during implementation of the balance of the study. Implementing this modification will meet Study Plan objectives by capturing the recreational value of hunting activities by hunters from populated, urban areas.

## 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 USR by February 1, 2016, in accordance with the ILP schedule issued by FERC on January 28, 2014.

With regard to this specific study, in 2014 AEA plans to complete the collection and processing of recreation use and demand data collected through the secondary data sources, incidental observation survey, observation tallies, intercept survey, and the regional resident household mail surveys. In 2015, AEA plans to complete all remaining data collection and analysis for this study.

## 7.3. Conclusion

The 2013 Recreation Resource Study has made significant progress towards achieving Study Plan objectives. Ongoing recreational inventories have, and will continue to, document existing trails, facilities, and dispersed recreation sites that currently support commercial and non-commercial recreation in the Project area. When completed, these baseline recreation inventory data will allow the study team to describe recreation opportunity areas through the NRRS analysis and to assess carrying capacity for the Recreation Facilities Study Area. In total, the recreation resources data collected in 2013, in combination with upcoming data collection efforts, will provide the information needed to evaluate the potential impacts of Project construction and operation on recreation resources, needs, and uses in the Project area.



Survey response rates indicate the survey instruments have worked well, and response rate goals have been met. The variances in the study discussed in Section 4 of this ISR refine data collection methods to ensure that the information gathered is the most representative of use in the Recreation Use Study Area. Executive interviews were conducted to provide qualitative and quantitative information on recreation use in the Recreation Use Study Area. These datasets, in combination with upcoming efforts, will make the evaluation of current and future recreational uses possible and enable the study to determine potential impacts to recreation within the Project area.

All of the information gathered during 2013 and in the upcoming study period will be analyzed as provided in the Study Plan and reported in the USR.

## **7.4. Figures**

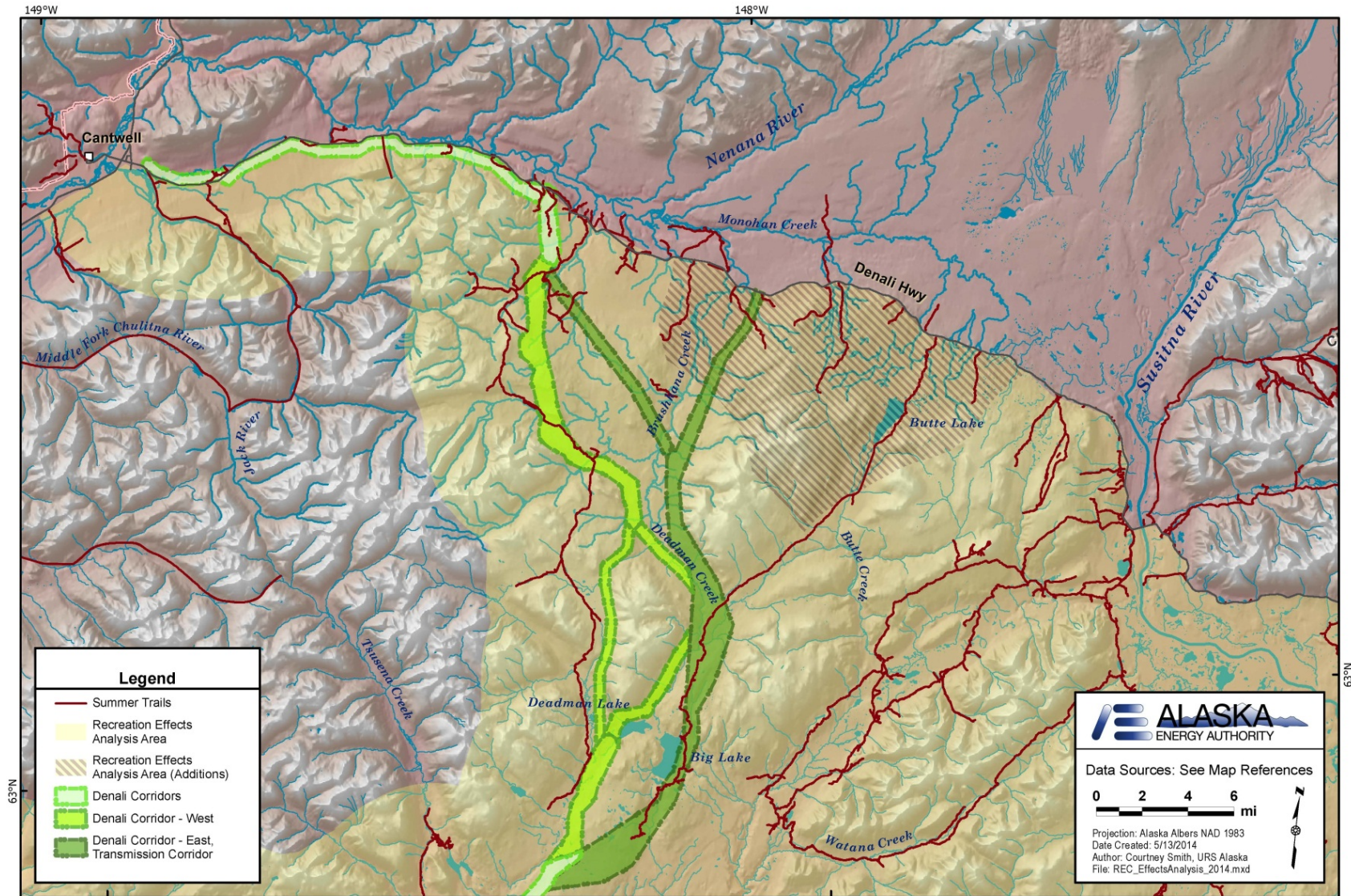


Figure 7.1- 1. Revised Recreation Effects Analysis Area - Denali East Option



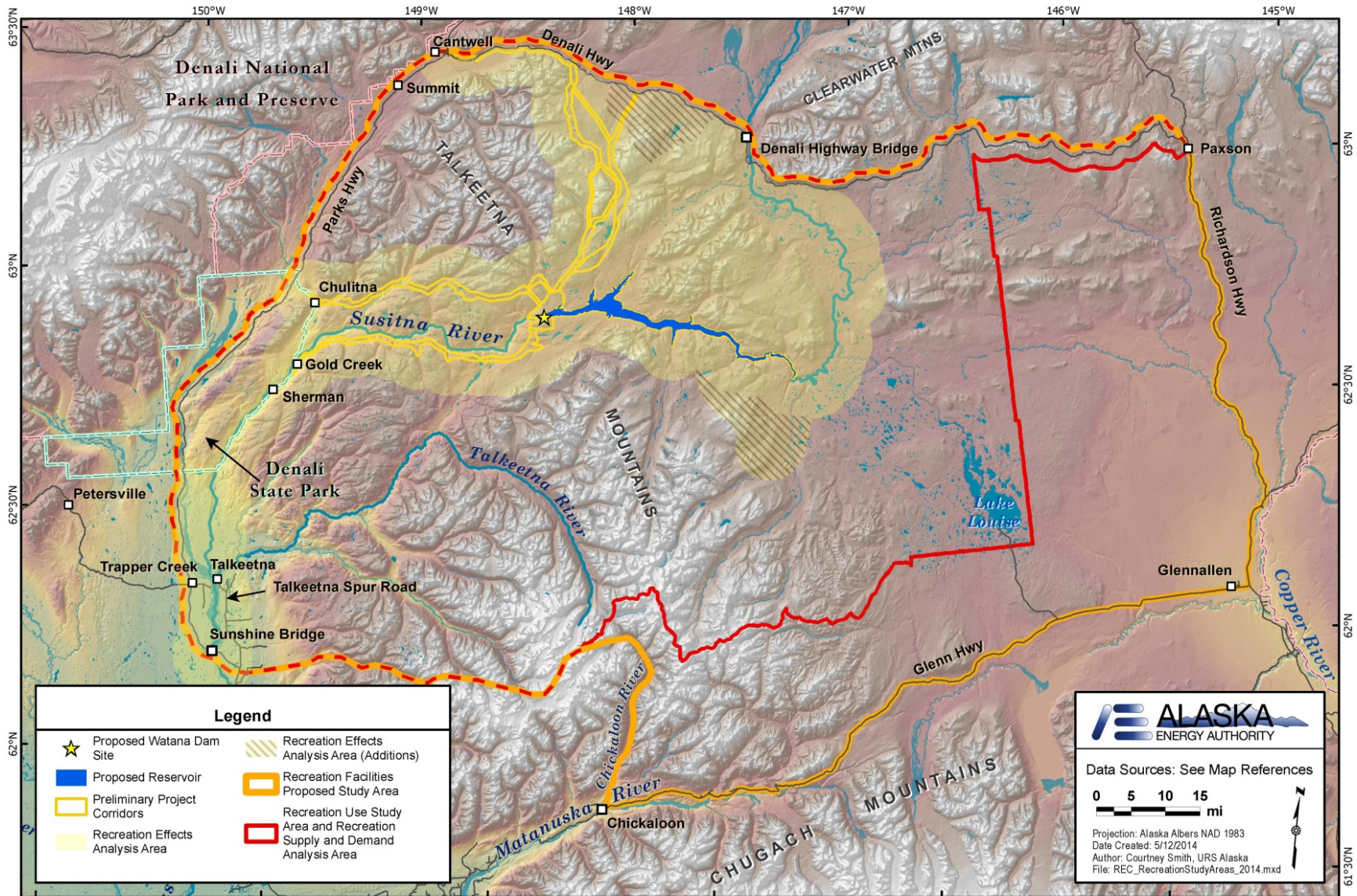


Figure 7.1- 2. Revised Recreation Resources Study Areas