

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

## **Recreation Resources Study**

Prepared for

Alaska Energy Authority



**SUSITNA-WATANA HYDRO**

*Clean, reliable energy for the next 100 years.*

Prepared by

URS and McDowell Group Inc.

February 2013

## TABLE OF CONTENTS

1.	Introduction.....	1
2.	Study Objectives .....	1
	2.1. Recreation Objectives .....	1
	2.2. River Recreation Objectives .....	2
3.	Study Area .....	2
	3.1. Recreation Study Area .....	2
	3.2. River Study Area.....	3
4.	Methods.....	3
	4.1. Recreation Methods .....	3
	4.1.1. Inventory of Existing Information .....	4
	4.1.2. Agency/Stakeholder Coordination and Consultation.....	5
	4.1.3. Executive Interviews.....	5
	4.1.4. Site Visit.....	6
	4.1.5. Survey Sampling and Instrument Designs .....	6
	4.1.6. Deviations from Study Plan .....	6
	4.2. River Recreation Methods .....	7
	4.2.1. Deviations from Study Plan .....	7
	4.2.2. Study Methodology.....	7
5.	Results.....	8
	5.1. Recreation Results .....	8
	5.1.1. Inventory of Existing Information .....	8
	5.1.2. Agency/Stakeholder Coordination and Consultation.....	15
	5.1.3. Executive Interviews.....	15
	5.1.4. Site Visit.....	16
	5.1.5. Survey Sampling Plans and Instrument Design.....	17
	5.2. River Recreation Results.....	17
	5.2.1. Reach 1 – Upper River.....	17
	5.2.2. Reach 2 – Canyon Section .....	18
	5.2.3. Reach 3 – Lower River .....	18
	5.2.4. Tributaries.....	19
6.	Discussion and Conclusion.....	19
	6.1. Recreation .....	19
	6.2. River Recreation .....	20

6.2.1. Summer Recreation.....	20
6.2.2. Ice-Dependent Winter Recreation on Susitna River Corridor .....	20
7. References.....	22
8. Tables.....	25
9. Figures.....	26

## LIST OF TABLES

Table 6-1. River Recreation Activities in Susitna River Recreation Reaches.....	25
Table 6-2. Ice-Dependent Winter Recreation Activities in Susitna River Recreation Reaches ..	25

## LIST OF FIGURES

Figure 3-1. Recreation Resources study area.....	27
Figure 3-2. River Recreation Study Reaches.....	28
Figure 5-1. Recreation Opportunity Spectrum.....	29
Figure 5-2. Facilities .....	30
Figure 5-3. Fog Creek Trail SW (NOTE: trail identified by white arrow).....	31
Figure 5-4. The Jay Creek Trail in the lower portion of the drainage (NOTE: trail identified by white arrow) .....	31
Figure 5-5. Well-established trail traveling up a broad drainage located north of the Susitna River.....	32
Figure 5-6. Well-defined upland trail connecting two drainages (NOTE: trail identified by white arrow).....	32
Figure 5-7. The Susitna South Trail.....	33
Figure 5-8. Parking along Denali Highway by crossing of the Susitna River, hunting season September 2012 .....	34
Figure 5-9. Vehicles parked on AK Road Commission Air Strip #1 (Mile 81 Denali Hwy), hunting season September 2012.....	34
Figure 5-10. Aerial view of Devils Creek Rapid (July 27, 2012; flow approximately 22,000 cfs) .....	35
Figure 5-11. Typical island campsite in Reach 3.....	36
Figure 5-12. Commercial jetboat trip downstream of Devils Canyon.....	36
Figure 5-13. Commercial rafting trip on Susitna Reach 3 accessed via the train.....	37
Figure 5-14. Aerial view of Susitna-Chulitna confluence, July 2012.....	37
Figure 5-15. Portage Creek confluence with Susitna.....	38

## LIST OF APPENDICES

Appendix A: Map Book of Trails

## LIST OF ACRONYMS AND SCIENTIFIC LABELS

Abbreviation	Definition
4WD	Four-wheel drive
ADF&G	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
ADOT&PF	Alaska Department of Transportation and Public Facilities
AEA	Alaska Energy Authority
ARR	Alaska Railroad
ASRP	Alaska Residents Statistics Program
ATV	all-terrain vehicle
AVSP VI	Alaska Visitor Statistics Program VI
ATV	All-terrain vehicle
AW	American Whitewater
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
cfs	cubic feet per second
CIRI	Cook Inlet Region, Inc.
Cr	creek
FERC	Federal Energy Regulatory Commission
FSP	Final Study Plan
GAU	Generally Allowed Uses
GIS	Geographic Information System
GMU	Game Management Unit
GPS	global positioning system
ILP	Integrated Licensing Process
IOS	Incidence Observation Survey
MP	milepost
MatSu	Matanuska-Susitna Borough
NEPA	National Environmental Policy Act
NGO	Non-governmental organization
NPS	National Park Service
ORV	off-road vehicle

Abbreviation	Definition
Project	Susitna-Watana Hydroelectric Project
PSP	Proposed Study Plan
ROS	Recreational Opportunity Spectrum
ROW	right of way
RM	River mile(s) referencing those of the 1980s APA Project.
RSP	Revised Study Plan
SCORP	Statewide Comprehensive Outdoor Recreation Plan
TLAD	Tangle Archaeology District
TWG	Technical Workgroup
USFS	U.S. Department of Agriculture, Forest Service
USGS	U.S. Geological Survey

## SUMMARY

### Overview

The recreation studies involved two separate but related components: Recreation Resources Study and a Recreational River Flow Study. The purpose of these studies is to document baseline conditions and that will help the study team assess potential impacts on recreation resources from construction and operation of the proposed Susitna-Watana Hydroelectric Project (Project).

### Recreation Resources Study

The objectives for the 2012 Recreation Resources Study were to define the recreation study area, identify recreation opportunities and experiences, map facilities and access, identify user groups and activities (by both visitors to Alaska and Alaska residents), and develop field methods for documenting current recreation activities under baseline conditions and for predicting future trends in Recreation Use Study Area.

The specific goals of the 2012 study were to:

- identify and document recreation resources and facilities that support commercial and non-commercial recreation in the Project area;
- identify common access routes to the project area, such as trails, waterways, rail, and/or air travel;
- develop a understanding of the type and levels of current recreational uses; and
- complete a preliminary assessment of the analysis area related to potential effects of Project construction and operation on recreation resources to inform the development 2013-2014 Recreation Resources Study Plan (RSP).

### 2012 Accomplishments

- Relevant resource management plans from agencies with jurisdiction over recreation trails and facilities within the Recreation Facilities Study Area were compiled and reviewed.
- Meetings were held with agency representatives from the National Park Service (NPS) and Bureau of Land Management (BLM) prior to the site visit to gather preliminary information on trails access and facilities within the Recreation Facilities Study Area.
- Trails data was gathered for variety of sources, verified, and compiled to create an up to date and accurate trails database. A field map book was created using ArcGIS 10 to show known trails, cabins and recreation facilities along both the Denali Highway and the Susitna River.
- A recreational resources field reconnaissance was undertaken from July 25-28, 2012. During the reconnaissance site visit in July 2012, in-person, semi-structured interviews were conducted with lodge owners, tour guide operators and organization leads that may be affected by the Project.
- A draft intercept survey instrument was designed for recreational users in the Recreation Use Study Area.

- Efforts to develop a regional resident household mail survey for implementation in 2013 included the identification of survey content, as well as a target sample size and area.

## River Recreation Flow and Access Study

River-based activities, including boating and fishing, are largely dependent on river flow levels, ice formation, river access points, and seasonal resource availability conditions. The 2012 study work addressing river recreation was to help in the future study planning to identify and document flow-dependent recreational opportunities in the proposed Project area and help to identify relationships between river flow levels and river uses.

### Study Purpose

The primary objectives for the River Recreation Flow and Access study in 2012 were to define the river recreation study area, identify some river recreation opportunities, map basic river access locations, identify user groups, and develop field methods for documenting current river recreation activities under baseline conditions.

The Study included the following tasks:

- Review existing river recreation information sources
- Define river recreation study area and reach breaks
- Identify current river recreation uses
- Map known river access locations for each reach
- Map key river features
- Interview user groups, vendors, and incidental Project area contacts
- Develop river recreation survey instrument to identify future recreation trends and issues

### 2012 Accomplishments

- The preliminary assessment of river recreation opportunities that potentially exist in the project Study Area was completed through a desktop review of published guidebooks, river descriptions on national and Alaska paddling club websites and trip reports from river users.
- River recreation study area and reach breaks were defined.
- A field reconnaissance was undertaken to investigate the Susitna river corridor from the Parks Highway bridge upstream to the Denali Highway bridge crossing.

Informal interviews were conducted with local area commercial providers and non-commercial users to get a better understanding of user groups, watercraft, seasonality, instream flows and access.



## 1. INTRODUCTION

This report provides the results of the 2012 Recreation Resources Study, based on work outlined in the 2012 Recreation Resources Study plan (AEA 2012).

The Alaska Energy Authority (AEA) is preparing a License Application that will be submitted to the Federal Energy Regulatory Commission (FERC) for the Susitna-Watana Hydroelectric Project (Project) using the Integrated Licensing Process (ILP). The Project is located on the Susitna River, an approximately 300-mile-long river in Southcentral Alaska. The Project's dam site would be located at river mile (RM) 184.

This study provided data to inform the 2013–2014 licensing study program, Exhibit E of the License Application, and FERC's National Environmental Policy Act (NEPA) analysis for the Project license.

## 2. STUDY OBJECTIVES

### 2.1. Recreation Objectives

The objectives for the 2012 Recreation Resources Study were to define the recreation study area, identify recreation opportunities and experiences, map facilities and access, identify user groups and activities (by both visitors to Alaska and Alaska residents), and develop field methods for documenting current recreation activities under baseline conditions and for predicting future trends in the recreation study area.

The specific goals of the 2012 study were as follows:

- Identify and document recreation resources and facilities that support commercial and non-commercial recreation in the Project area;
- Identify common access routes to the Project area such as trails, waterways, rail, and/or air travel;
- Develop a clear understanding of the type and levels of current recreational uses; and
- Complete a preliminary assessment of the analysis area related to potential effects of Project construction and operation on recreation resources to inform the development of the 2013–2014 Recreation Resources Revised Study Plan (RSP).

To meet these goals, the following objectives of the 2012 study plan included:

- Secondary data collection to assess past and current recreation use, activity and demand;
- Review of existing land use management regimes within the study area;
- Conduct interviews with user groups, vendors, and incidental Project area contacts to preliminarily determine use patterns and inform the development of the Revised Study Plan (RSP) for 2013-2014;
- Initiate a recreation inventory and capacity of the study area;
- Initiate a study of the project area access, including trails and rights-of-way (ROW);
- Conduct geo-referenced mapping to document trails and access points;

- Conduct field reconnaissance to help identify the study areas for recreation analysis;
- Preliminarily assess current recreation uses, activity, and demand;
- Evaluate data collection methods to assist the planning of the formal study program, including preliminary survey design and sample planning; and
- Preliminarily identify literature or data that may inform the assessment of future recreation trends and issues

## 2.2. River Recreation Objectives

The primary objectives for the River Recreation Flow and Access Study in 2012 were to define the river recreation study area, identify river recreation opportunities, identify user groups, and determine appropriate field methods for documenting river recreation activities under baseline conditions and for predicting future trends in river recreation on the Susitna River.

The study included the following tasks:

- Review existing river recreation information sources
- Explore river recreation study area and delineate reach breaks
- Document river recreation users
- Map known river access locations for each reach
- Map key river features
- Undertake initial interviews with user groups, vendors, and incidental Project area contacts
- Develop a river recreation survey instrument to identify future recreation trends and issues

## 3. STUDY AREA

### 3.1. Recreation Study Area

An important part of the 2012 study effort was defining the areas of study for the Recreation Resources Study. Defining the geographic extent of these areas required consultation with agencies and analysis of existing recreation use data and patterns gathered through executive interviews and secondary review, as well as mapping. As a result of this analysis, three geographic areas were defined and used in the Recreation Resources Study (Figure 3-1). The study areas are summarized below.

**Recreation Effects Analysis Area:** The area encompasses the areas that would be directly affected by Project facilities, including the proposed access road and transmission line corridors, and other Project facility locations. This area includes the Susitna River, upstream from the proposed dam to the Denali Highway bridge and downstream to Sunshine, the proposed Project reservoir, and some nearby shore lands and trails surrounding the reservoir location.

**Recreation Use Study Area / Recreation Supply and Demand Analysis Area:** This area is encompassed by the following features:

- The Parks Highway corridor and areas east, from the Y at the Talkeetna Spur Road intersection to Cantwell (including Denali State Park);
- The Denali Highway corridor (including Brushkana and Tangle Lakes campgrounds) and areas south, from Cantwell east to Paxson;
- West from Paxson along a 2-mile buffer south of the Denali Highway to the Matanuska-Susitna Borough boundary;
- Areas west of the Matanuska-Susitna Borough boundary between the Denali and Glenn Highways (including Lake Louise area); and
- North from the Matanuska-Susitna Borough boundary (located south of Lake Louise), joining the Susitna River basin boundary, and then continuing from a line running north from Chickaloon, following the Chickaloon River to its headwaters at the Chickaloon Glacier, and from there, turning west from the Chickaloon Glacier to connect at the Y Junction on the Parks Highway.

**Recreation Facilities Study Area:** This area is defined by the western and northern boundaries of the Parks Highway and the Denali Highway, and the following eastern and southern boundaries:

- The Richardson Highway corridor and areas west, from Paxson to the Glenn Highway intersection;
- The Glenn Highway corridor and areas north, from Glennallen west to Chickaloon; and
- Joining the recreation use study area along the line running north from Chickaloon, following the Chickaloon River to its headwaters at the Chickaloon Glacier. From there, turning west from the Chickaloon Glacier to connect at the Y Junction on the Parks Highway.

### 3.2. River Study Area

For the reconnaissance effort and study planning purposes, the Susitna River was divided into three reaches based on field observations, desktop analysis of the physical setting, guidebook descriptions, and trip reports (Figure 3-2). The three study reaches are described as follows: Reach 1—Upper River (Denali Highway Bridge to Fog Creek); Reach 2—Devils Canyon Reach (Fog Creek to Portage Creek); and Reach 3—Lower River (Portage Creek to Parks Highway Bridge). These reach breaks occur at physical changes in the river gradient and corresponding changes in river run difficulty. These breaks, in turn, are suitable for different types of watercraft and attract different user groups, although some overlap is expected between reaches and user groups.

## 4. METHODS

### 4.1. Recreation Methods

The methodology for the 2012 Recreation Resources Study comprised:

- Regional Recreation Analysis – conducting a preliminary analysis of existing data on water and land-based recreation uses, access considerations, seasonality, and management framework in the study area.
- Recreation Supply, Demand, and Use – developing a preliminary baseline of developed and dispersed recreation uses, including types, levels, and access from existing data and relevant studies and recreation use survey results, as well as an executive interview candidate list and interview protocols.
- Recreation Facilities and Carrying Capacity – gathering of preliminary data and inventory of recreation facilities, applying carrying capacity guidelines and standards.
- Recreation Survey Data Collection Planning – developing survey methodologies, content, and implementation planning to gather data on recreation use within the study area.

#### **4.1.1. Inventory of Existing Information**

##### *4.1.1.1. Review of Management Plans*

Relevant resource management plans from agencies with jurisdiction over recreation trails and facilities within the recreation facilities study area were compiled and reviewed. These plans provided information about resource management goals and objectives, and helped identify existing data sources needed to conduct future recreational analyses of the Project. A preliminary inventory of existing recreation use data, access, and capacity data was completed for the Railbelt planning area, as defined in the Statewide Comprehensive Outdoor Recreation Plan (SCORP) 2009–2014 (Alaska Department of Natural Resources [ADNR] 2009). Secondary data from agencies, businesses, and other sources were also collected, including recreation survey studies. The primary purpose of this preliminary assessment was to identify what data were available, to identify contacts for data requests, and to make preliminary requests for data.

The following federal, state, and local regulatory and planning documents were identified and reviewed for relevant information relating to recreation use, access, and experience data, or areas identified for recreation activities:

#### **Federal Regulations and Plans**

- Bureau of Land Management – East Alaska Resource Management Plan. 2006.
- Denali National Park and Preserve Final South Denali Implementation Plan and Environmental Impact Statement. April 2006.

#### **State Plans**

- George Parks Highway Scenic Byway Master Interpretive Plan Draft. April 30, 2012. Susitna Watana Hydroelectric Project Pre-Application Document (FERC Project No. 14241) (AEA 2011)
- Alaska Recreational Trails Plan. October 2000.
- Alaska’s Outdoor Legacy. Statewide Comprehensive Recreation Plan (SCORP) 2009–2014. September 2009.
- Recreation and Tourism in South-Central Alaska: Patterns and Prospects. 2002.

- Cultural Resource Management Plan for the Denali Highway Lands, Central Alaska Draft. September 2005.
- Denali State Park Management Plan. 2006.
- Division of Parks & Outdoor Recreation. Ten-Year Strategic Plan 2007–2012. November 2006.
- George Parks Highway Scenic Byway Corridor Partnership Plan. November 2008.
- Feasibility Study for the South Denali Visitor Center. March 21, 2011.

## Local Plans

- Chase Comprehensive Plan. 1993.
- Matanuska-Susitna Borough Tourism Infrastructure Needs Study. June 2008.
- Matanuska-Susitna Borough, Alaska Economic Development Strategic Plan. April 22, 2010.
- Matanuska-Susitna Borough, Recreational Trails Plan. August 2008.
- Susitna Area Plan. June 1985.
- Susitna Matanuska Area Plan Public Review Draft. February 2010.
- Susitna Basin Recreation Rivers Management Plan. August 1991.
- Talkeetna Comprehensive Plan. Adopted January 1998.

### 4.1.1.2. GIS-based Trails Inventory

A field map book was created using ArcGIS 10 (Appendix A) to show known trails, cabins, and recreation facilities along both the Denali Highway and the Susitna River. Trail data included ADNR state trails, RS 2477 trails, Cook Inlet Region, Inc. (CIRI) 17(b) easements, and trails identified and digitized by URS during desktop surveys. Digitized trails were identified using aerial photographs (5-meter resolution or better), which were provided by AEA. These images were visually searched for linear features and distinct changes in coloration that indicated a potential trail. Trails found often originated from the Parks or Denali highways, Alaska Railroad, Susitna River, or from remote structures such as lodges and cabins. Once identified, a potential trail was followed and digitized until no longer visible using the aerial imagery. Given the imagery's resolution and the area's vegetation/canopy cover, trails identified are likely large all-terrain vehicle (ATV) trails rather than narrow-width foot trails. Locations of remote structures were also digitized during this exercise.

### 4.1.2. Agency/Stakeholder Coordination and Consultation

Meetings were held with agency representatives from the National Park Service (NPS) and Bureau of Land Management (BLM) prior to the site visit to gather preliminary information on trails access and facilities within the recreation facilities study area.

### 4.1.3. Executive Interviews

During the reconnaissance site visit in July 2012, in-person, semi-structured interviews were conducted with lodge owners, tour guide operators, and organization leads who may be affected by the Project. The purpose of these interviews was to inform interviewees of the Recreation Resources Study, acquire feedback on concepts for the intercept survey's sampling approach,

and gather preliminary information about how businesses, organizations, and individuals use the recreation use study area.

#### **4.1.4. Site Visit**

The recreational resources field reconnaissance was undertaken July 25–28, 2012, and focused on the following objectives:

- Reconnaissance and familiarization of Susitna River corridor and trail network by boat and air;
- Ground reconnaissance of recreation facilities, use areas, and trails along portions of the Parks and Denali highways;
- Identification of downstream recreation opportunities and access points; and
- Identification of intercept survey locales for the recreational demand assessment.

Results of this site visit were used to refine the 2013–2014 RSP methodologies and intercept survey locations.

#### **4.1.5. Survey Sampling and Instrument Designs**

Much of the 2012 effort was designed to collect practical information that will help design and implement a survey program for the formal study plans. Several survey methods have been considered during 2012 based on the initial recreation reconnaissance, including an Incident Observation Survey (IOS), recreation use intercept survey and observational tallies, and a regional residents household mail survey.

#### **4.1.6. Deviations from Study Plan**

##### *4.1.6.1. Executive Interview Research*

An executive interview protocol and an interview candidates list were developed in 2012; however, of the anticipated 30 to 40 telephone executive interviews expected to be held in 2012, only a few were conducted. Reasons to postpone executive interview research to 2013 included the following:

- Need for additional time for coordination with other study disciplines (such as socioeconomics, river recreation, aesthetics) to avoid duplication of research effort; and
- As part of the formal study planning process, agencies requested an opportunity to comment on the interview protocol and candidates list.

Executive Interviews will be conducted in 2013, as provided in the FERC-approved RSP.

##### *4.1.6.2. Field-based Trails Inventory*

Proposed methodology for trail inventory and classification consisted of ground-truthing a range of data sources to determine the location and type of trail within the recreation use study area (Appendix A). The goal of this analysis was to characterize both developed and undeveloped trails within the recreation use study area, and use this information to estimate the level of detail

and effort required for more complete mapping and inventory in 2013–2014. This effort was originally intended to focus primarily on trails stemming from the Denali Highway, with data collection occurring on-site using a matrix to gather detailed trail information.

Due to the size of the recreation use study area, and the amount of time budgeted for field investigations in 2012, it was not practical to collect information on more than a few trails during the site reconnaissance using the proposed classification methodology. Similar time constraints kept the reconnaissance team from visiting the Denali Highway from Alpine Creek Lodge to Paxson, also within the Recreation Use Study Area. As a result, a detailed trails inventory and classification were not conducted for the full lengths of the Parks and Denali highways.

## **4.2. River Recreation Methods**

### **4.2.1. Deviations from Study Plan**

The 2012 field reconnaissance was not able to investigate half of Reach 1 (Denali Highway Bridge to Jay Creek) due to helicopter mechanical issues and conflicts with helicopter availability. As a result, the recreation flow and access team was not able to observe the character of the river in this section or map potential river access points

### **4.2.2. Study Methodology**

The preliminary assessment of river recreation opportunities that potentially exist in the Project study area was completed through a desktop review of published guidebooks (Embick 1994; Jettmar 2008), river descriptions on national and Alaska paddling club websites, and trip reports from river users. The desktop exercise provided insights on river reaches within the overall study area, river access locations, the river run difficulty for respective reaches based on International Scale of Whitewater Difficulty (AW 2005), and the appropriate motorized and non-motorized watercraft types for respective river sections. Other plans reviewed for this analysis included the Matanuska-Susitna Borough Talkeetna Riverfront Park Land Use Plan and Economic Development Strategy (MSB 2004).

A field reconnaissance was undertaken July 25–28, 2012. The reconnaissance effort investigated the river corridor from the Parks Highway Bridge upstream to the Denali Highway Bridge crossing. The reconnaissance was conducted using a combination of jetboat (Talkeetna confluence to bottom of Devils Canyon), helicopter (Talkeetna confluence to Jay Creek confluence), and vehicle (river access points on Denali Highway and Parks Highway). The section of the Susitna River from Jay Creek to the Denali Highway crossing was not included in the 2012 reconnaissance effort due to helicopter mechanical issues. The following tributaries were included in the aerial reconnaissance to determine potential for these corridors to serve as access routes to the Susitna River (land and water) as well as serving as river recreation opportunities in their own right: Fog Creek, Deadman Creek (bottom mile only), and Jay Creek. Staff experienced in motorized and non-motorized river recreation documented existing conditions, suitability for various watercraft types, and access points throughout each reach of the river corridor and tributaries.

Informal interviews were conducted with local area commercial providers (Steve Mahay, Mahay's Riverboat Service; Ben Stephenson, hunting guide operating out of Stephan Lake Lodge; Woody Stephens, Stephan Lake Lodge owner; John Madson, Stephan Lake Lodge

owner) and non-commercial users to get a better understanding of user groups, watercraft, seasonality, instream flows, and access. Local recreationists were interviewed informally to assess use patterns and interest in river recreation opportunities. In preparation for the planned 2013 executive interviews, contact information for commercial river rafting operators, jetboat operators, and flight services providing access to the Susitna was obtained. Names of boaters who have paddled Devils Canyon were obtained from local sources. The names of individuals involved in organizing and/or participating in adventure races crossing the study area were obtained.

Site investigations using jetboat and helicopter provided a first-hand view of river difficulty, flow-dependent recreation activities under existing instream flows, watercraft types on the Susitna River, safety, access, and river camps. Potential river camps from the bottom of Devils Canyon to Talkeetna were documented with digital photos with built-in global positioning system (GPS). The river difficulty using the International Scale of Whitewater Difficulty was classified for sections of the river visited. Access points for ingress and egress were observed for portions of the river.

## **5. RESULTS**

### **5.1. Recreation Results**

#### **5.1.1. Inventory of Existing Information**

##### *5.1.1.1. Land Management Within the Recreation Use Study Area*

The BLM Recreational Opportunity Spectrum (ROS) is a framework for classifying and defining different classes or types of outdoor recreation environments, activities, and experience opportunities (United States Department of Agriculture, Forest Service [USFS] 1979). The ROS inventory system includes eight land classifications: primitive, semi-primitive non-motorized, semi-primitive motorized, roaded natural, rural, and urban (BLM 2006). Each class is described by a “typical” setting based on factors such as size, naturalness, and the presence or absence of motorized vehicles and other sights and sounds of humans. Spatial data demonstrating the ROS classification were obtained. As shown in Figure 5-1, much of the BLM-managed lands within the recreation use study area are managed as primitive; however, semi-primitive non-motorized, semi-primitive motorized, remote developed lakeside, backcountry roaded, and special ROS classifications also exist (BLM 2006).

A portion of the Delta Wild and Scenic River intersects the recreation use study area, and is classified as Scenic (Figure 5-1). Recreationists access this portion of the river, which is in the far east side of the recreation use study area and outside the Susitna River watershed, from the boat launch at the Delta National Wild and Scenic River Wayside at milepost (MP) 21.5 of the Denali Highway. From there, they arrive at the Upper Tangle Lakes, which can be explored through a series of portages (BLM 2012a). This portion of the river provides for day canoe, kayak, and motorboat trips. All-terrain vehicle/off-road vehicle (ATV/ORV) trails also provide access to the river corridor (BLM 2006).

The East Alaska Resource Management Plan (BLM 2006) identifies two river segments within the recreation use study area that were deemed eligible for Wild and Scenic River designation:



(1) the Susitna River from the headwaters to the confluence of Kosina Creek; and (2) Brushkana Creek, from just south of the Denali Highway to the confluence with the Nenana River. With regard to the Susitna River segment, this river segment is accessible from the Denali Highway bridge, and boating occurs from the bridge downriver to the Maclaren River. It is also possible to continue down the Susitna River, past the Maclaren River, to the Tyone River, upriver on the Tyone and out through Lake Louise. The eligible portion of the Susitna River was tentatively classified as Scenic (AEA 2011a). With regard to the Brushkana Creek segment, this river segment is tentatively classified as Recreational. Grayling fishing is a major activity near the Denali Highway and within the Brushkana Creek Campground, which the river flows next to for a short section (BLM 2006).

#### 5.1.1.2. Recreation Facilities and Use Areas

Existing public recreational facilities were identified and mapped within the recreation facilities study area. Private lodges and cabin facilities located off the road network were also assessed given their proximity to the Project area (Figure 5-2). Public recreational facilities included improved access points, trailheads, campgrounds, memorials, and viewpoints. Within the recreation facilities Project area, several public facilities are found along the George Parks Highway, which is designated as both a National and Alaska State Scenic Byway between MP 132 and 248 (ADNR 2008). Each year, recreation facilities along this section of highway attract a variety of visitors, including both tourists and Alaska residents. In addition, the boundary of Denali State Park intersects with the Parks Highway at MP 132.3. Facilities within Denali State Park (along the Parks Highway) include a total of 118 campsites, picnic areas, the Alaska Veteran's Memorial Visitors Center, public use cabins, scenic pullouts, boat launch at Byers Lake, four trailheads, and 48 miles of interconnected trails (DPOR 2006).

Between Cantwell and Paxson along the 135-mile Denali Highway, there are two BLM-administered campgrounds and two waysides (Figure 5-2). Interpretative panels describing the landscape are also located at prominent overlooks (BLM 2012b). In addition to BLM facilities, there are four privately owned lodges located along the Denali Highway that offer various guided and unguided recreation opportunities. The Tangle Lakes Archaeological District (TLAD) intersecting the Denali Highway between MPs 16.2 and 38 is comprised of approximately 196,000 acres of mostly State-selected land containing important cultural and historical resources (BLM 2006). Within the TLAD, the use of motorized vehicles is limited to designated trails (BLM 2012c). BLM is responsible for the management of these trails; however, since the addition of the TLAD to the National Register of Historic Places in 1972, there has been an increase in both ATV/ORV use and trail impacts to archaeological sites in the area (BLM 2012b).

Public recreation facilities along the Richardson Highway include the Paxson Campground and Sourdough Campground (BLM 2006). BLM lands along this portion of the Richardson Highway are used by recreational users for hunting and fishing resources and ATV recreation opportunities. The privately owned Paxson Lodge is located at MP 185.5 of the Richardson Highway. They offer 19 private rooms, RV hook-ups, and an air strip. The lodge hosts various recreation events including sled dog races that use the facility as a starting/ending point, and the Arctic Man snow machine race.

A portion of the Glenn Highway National Scenic Byway, from Chickaloon (MP 70.6) to Eureka Summit (MP 129.5) is included in the recreation facilities study area. Several recreation

facilities exist along the Glenn Highway, including the Lake Louise State Recreation Area and Bonnie Lake Boat Launch/Day Use Area. Consultation with the BLM suggests that recreational users who access the recreation use study area from the Glenn Highway are limited to a small number of hunters and snow machine enthusiasts utilizing facilities in Lake Louise.

Private recreation facilities in the interior portion of the recreation facility study area include private lodges and cabins, which can be accessed only by float plane (AEA 2011b). Private cabins also exist on Clarence Lake, Portage Creek, Stephan Lake, High Lake, Big Lake, and Daneka Lake. While many of these lodges and cabins are known to be in good condition and operable, the status of others is currently unknown.

### 5.1.1.3. Recreation Trails

#### 5.1.1.3.1. Review of Existing Trail Information

#### ANCSA 17(b) Easements

Section 17(b) of the 1971 Alaska Native Claims Settlement Act (ANCSA) authorized the Secretary of the Interior to reserve public easements on lands conveyed to Alaska Native regional and village corporations under the Act. These 17(b) easements generally are reserved to provide public access across these private lands to public lands and waters. The route and uses allowed on a 17(b) easement are limited and set forth in the conveyance document for the particular easement. Hunting, fishing, or trapping on or from the easement are prohibited, unless a permit from the landowner is obtained. Several 17(b) easements are located within the recreation use study area (AEA 2011):

- 26a: Existing Stephan Lake west shore campsite, managed by BLM State Office
- 26: Existing trail, running west from 26a, managed for general public use by ADF&G
- 27a: Existing Stephan Lake east shore campsite, managed by ADF&G
- 28: Existing trail running southeast from 27a
- 46a: Existing Stephan Lake north shore campsite, managed by BLM State Office
- 46: Existing trail running north from 46a to 14, managed by BLM District Office and State of Alaska
- 22d: Existing Fog lakes campsite, managed by ADF&G
- 22a: Proposed trail, running south from 22d, sponsored by ADF&G
- 14: Existing Susitna River west (Talkeetna Mountains USGS Quadrangle D-4) campsite, managed by BLM District Office and State of Alaska
- 71: Existing Susitna River east (Talkeetna Mountains USGS Quadrangle D-4) campsite, managed by BLM District Office and ADF&G
- 72: Proposed trail running north from 71, sponsored by BLM District Office
- 48: Existing general public use trail from Gold Creek to lands south of Devil's Canyon
- 18: Existing general public use trail from Chulitna to lands north of Devil's Canyon, managed by the State of Alaska and ADF&G

#### RS 2477 Trails

From 1866 until its repeal in 1976, Revised Statute (RS) 2477 granted Alaska and the other states “the right of way for construction of highways over public lands, not reserved for public uses.” RS 2477 has been called a “self-executing” grant. Establishment of a RS 2477 trail did not require government approval, issuance of an identifying record such as a land patent, or public recording of title; rather, a RS 2477 right-of-way came into existence automatically when a highway was established across public lands.

The State of Alaska has formally identified six RS 2477 trails in the recreation use study area. Many of these were and still are used to access mining claims, fishing and hunting areas, or remote cabins from communities such as Chase, Curry, and Hurricane that exist along the rail corridor. RS 2477 public right-of-way trails identified by ADNR in the recreation use study area include (AEA 2011):

- Susitna River Trail (also referred to as the Gulkana/Denali Winter Trail, RS Trail 294): Access to this 125-mile long trail is from the Denali Highway where the highway crosses the Susitna River. The trail travels southeast, following the river to its junction with the Maclaren River. The trail continues up the Maclaren River and ultimately connects with trails originating from the Lake Louise area.
- Curry Landing Strip to Lookout Tower Trail (RS Trail 1509): This trail is accessed from the Curry Station along the Alaska Railroad right-of-way and travels west to the lookout tower. The trail is used to access views of the Alaska Range and Mt. McKinley.
- McWilliams/Gold Creek Trail (RS Trail 469): This trail is accessed from the railroad station and community of Gold Creek at Mile 263 of the Alaska Railroad. The trail heads east, following the base of the hills, climbs the plateau south of the Susitna River, and continues south-southeast toward mining claims on John Creek. The trail is approximately 36 miles long.
- Indian River-Portage Creek Trail (RS Trail 100): This trail is accessed from the Chulitna Station at Mile 274 of the Alaska Railroad. It heads eastward, crossing the Indian River, and continues east to cabins on Portage Creek. The trail is approximately eight miles long.
- Murder Lake North to Ridgeline Trail (RS Trail 80): This trail is accessed from Murder Lake and heads northwest to a ridge. Historically used for berry picking and hunting access, the trail is two miles long.
- Stephan Lake to Murder Lake Trail (RS Trail 61): This trail connects the south shore of Stephan Lake to Murder Lake. The trail is approximately one-half mile long and has been used for access between landowners on Stephan Lake and Murder Lake, and as a recreational trail to access fishing on Murder Lake.
- Stephan, Murder, and Daneka Lakes Connector Trail (RS Trail 377): This trail is accessed from the west end of Stephan Lake, and heads southwest to Murder Lake. It then continues southward, crossing Prairie Creek and terminating at Daneka Lake. It is used to access cabins for recreational fishing, hiking, and hunting.

**Talkeetna Area** – There are approximately 20 miles of multi-use summer and winter trails around Talkeetna. These trails were constructed by the Talkeetna Chamber of Commerce and are maintained by the Denali Nordic Ski Club and other volunteer organizations. These trails have open shelters and foot bridges. In addition, there are numerous trails used for hiking, snowmachining, dog mushing, and hunting that extend into the Talkeetna Mountains, providing access to hunting areas and remote sites (MSB 2008).

**George Parks Highway and Denali State Park** – Denali State Park has a limited, but popular trail system with highway-accessible hiking opportunities. Hiking on Kesugi Ridge is very popular and use has been increasing steadily in recent years. Increased use is attributed to exposure in outdoor/travel magazines and the construction of the trail and trailhead at Ermine Hill (NPS 2006). Use of motorized vehicles is restricted to maintained roads and parking areas within Denali State Park; snow machines may be used in the park when snow depth is sufficient. Park land use designations and trail management also restrict the use of bicycles and pack animals on most trails within the state park (ADNR 2006).

**Denali Highway** – Nearly all the trails stemming from the Denali Highway are unmaintained. The BLM’s East Alaska Resource Management Plan specifically calls for an implementation-level plan in regard to travel management for BLM lands in the Chistochina-Cantwell area, which overlaps the recreation use study area (BLM 2006).

Implementation-level planning or a travel management plan would give consideration to rerouting of trails, maintenance of particular routes, establishment of non-motorized routes, and vehicle class restrictions. All ATV management considerations in implementation planning would be consistent with Section 811 of the Alaska National Interest Lands Conservation Act, which allows for “appropriate use for subsistence purposes of snowmobiles, motorboats, and other means of surface transportation traditionally employed for such purposes by local residents, subject to reasonable regulation.”

There are many undeveloped trails and areas associated with the Denali Highway. The BLM Glennallen Field Office actively manages and maintains five trails that fall within the TLAD as well as the recreation use study area (BLM 2012d). These designated trails begin at or near the Denali Highway and ATV use is limited from May 16 to October 16. Winter ATV use is unrestricted when adequate snowfall is present (BLM 2012c).

For state lands, the area is currently managed to limit off-road travel to existing trails with provisions allowed for off-trail travel if conditions of the State of Alaska Generally Allowed Uses (GAU) are met.

Figure 5-8 and 5-9 demonstrate vehicle parking pressure around trail access points on the Denali Highway.

#### 5.1.1.3.2. *GIS-based Trails Inventory*

Trail Geographic Information System (GIS) data were compiled from all known and available data sources including the trail dataset provided in the Project geodatabase, BLM, Matanuska-Susitna Borough, ADNR, CIRI, and trails digitized from imagery by URS. Matanuska-Susitna Borough Recreation Trails Plan Maps 10 and 11 for the Talkeetna area could not be obtained in GIS format. As a result, trail information from these maps was digitized from the plan’s PDF

maps. ADNR datasets included RS 2477s, ADNR State Parks SnowTRAC Grooming Pool, and trails digitized from U.S. Geological Survey (USGS) 63,360 quadrangle maps. All data were pulled into a single ArcGIS geodatabase feature class and evaluated trail by trail with imagery as a backdrop, where available. Where duplicate data existed, the higher quality option was retained and lower quality feature was removed. A BLM segment attributed as post-processed global positioning system (GPS) data was selected over digitized features from the ADNR's USGS 1:63360 quad map dataset.

#### 5.1.1.3.3. *Trails and Facilities Reconnaissance*

Although the time and resources available for field reconnaissance and ground-truthing were limited, observations of existing trails were recorded during the Project flyover. Trail types ranged from indiscrete two-track trails situated in the interior of the recreation use study area, to well-defined dirt trails located in closer proximity to the Denali Highway. The range in trail types is demonstrated in Figures 5-3 to 5-7. Figure 5-3 shows the South Fog Lake SW Trail and a nearby private cabin, located south of the Susitna River. Figure 5-4 shows the Jay Creek Trail in the lower portion of the drainage. The tracks are obscured by tall vegetation, and likely receive limited use. Figure 5-5 shows the Jay Creek Trail in the upland portion of the drainage. The trail is more apparent due to limited vegetation and exposed creek bed. Figure 5-6 shows a well-defined trail in the upland portion of the recreation use study area, providing an overland route between drainages. Figure 5-7 shows the well-established Susitna South Trail, located south of the Denali Highway.

#### 5.1.1.4. *Survey Data*

Survey data from the 1985 studies (Harza-Ebasco 1985) and other surveys such as the SCORP (ADNR 2009); Alaska Residents Statistics Program (ARSP) (Fix 2009); Benefits Based Management Study for the Dalton, Taylor and Denali Highways (Stegmann and Fix 2008); and the Alaska Visitor Statistic Program VI (AVSP VI) (McDowell 2012) were reviewed.

- SCORP (ADNR 2009) included a statewide telephone (600 households), mail (517 surveys), and online survey (2,338 surveys) to identify what Alaskans currently do for outdoor recreation and what opportunities are desired for the future.
- The ARSP Survey (Fix 2009) was a statewide mail survey that gathered information regarding Alaska residents' travel in Alaska, recreation activities in which they participate, use of facilities, visitation patterns, and factors contributing to the quality of life.
- Benefits Based Management Study for the Dalton, Taylor and Denali Highways (Stegmann and Fix 2008) was based on 220 surveys conducted on the Denali Highway during the summer of 2007. Surveys gathered information on visitor characteristics such as group size, information about areas the visitors intended to visit and in which activities they intended to participate, primary destination zones and primary activity, and important reasons or motivations for visitors' participation in the primary activity in the primary destination zone.
- The AVSP VI Survey (McDowell 2012) was a statewide survey research program commissioned by the Alaska Department of Commerce, Community and Economic

Development. The year-round survey program included 6,747 visitors to Alaska in the summer of 2011 and 1,361 visitors in fall/winter/spring of 2011–2012. These data will be utilized to describe year-round nonresident (non-Alaskan) experiences by visitors in three major communities in the MSB (Palmer, Wasilla, and Talkeetna), passengers on the Alaska Railroad, and cruise passengers (visiting McKinley Princess Lodge). A special data run of visitors to Talkeetna was completed, including data on the following:

- Lodging types
- Activities
- Length of stay
- Purpose of trip
- Previous travel to Alaska
- Modes of transportation used within the state
- Trip spending
- Communities visited (overall and overnight)
- Demographics (origin, age, income, party size)

#### 5.1.1.5. *Secondary Recreation Use and Demand Data*

For the more prominent recreation uses of and demand for the study area, existing secondary data and literature regarding recreation use, activity and demand were compiled and evaluated for applicability to the Project.

##### 5.1.1.5.1. *Sportfishing – Guided*

Publicly available data on guided sportfishing have been acquired and organized from the *ADF&G Fishery Data Series No. 12-27, Participation, Effort, and Harvest in Sport Fish Business/Guide Licensing and Logbook Programs, 2004-2011*. This publication includes guided sportfishing information for the number of businesses, number of trips, number of guides, total angler days, resident/nonresident status, and angler days by species. Data are not stream- or lake-specific due to the small number of businesses and confidentiality. Additional data and cross-tabs may be available via formal data request. Alaska Department of Fish and Game (ADF&G) data availability generally lag by a year. Data for 2012 will be available during 2013 and 2013 data will be available in 2014.

##### 5.1.1.5.2. *Sportfishing – Unguided*

Unguided sportfishing information for anglers, days fished, and harvest by species has been acquired and organized from the *ADF&G Fishery Data Series No. 11-45, Estimate of Participation, Catch and Harvest in Alaska Sport Fisheries, 2004-2011*. Area “M” data are reported as a whole and for some subgroups including the Susitna, Talkeetna, and Chulitna rivers and some area streams and lakes. Additional data and cross-tabs may be available via data request. Data for 2012 will be available during 2013 and 2013 data will be available in 2014.

#### 5.1.1.5.3. *Hunting – Guided and Unguided*

ADF&G can provide historic data for hunter effort and harvest at the Game Management Unit level (GMU13), subunits 13A, 13B, and 13E, and minor code level. This will allow for a high level of accuracy in identifying hunting demand in the recreation use study area. Data at the minor code level are confidential and would be reported only in aggregate. Historic effort and harvest data for those portions of 13A, 13B, and 13E within the recreation use study area for 2011 will be requested. A contact person has been identified at ADF&G, but data have not yet been requested. Confidentially agreements will need to be coordinated through AEA and signed with ADF&G.

#### 5.1.1.5.4. *Floating Recreation (raft, cataraft, packrafting, canoe, kayak) – Private*

The primary transportation source for recreational floaters on the lower Susitna River is via the Alaska Railroad's (ARR's) Hurricane train. The Hurricane Train provides 4 days/week service in the summer and 1 day/ week service in the winter. The train departs Talkeetna and turns around at Hurricane Gulch. This train provides whistle stop service and there are multiple locations between Talkeetna and Indian Creek with access for launching on the Susitna River.

A data request has been sent to the ARR. Preliminary data show that a total of about 1,400 people rode the Hurricane Train during the summers of 2011 and 2012. Hiking and Camping Trail and campground utilization data from BLM, ADNR, and MSB are publicly available. BLM provided historical use data for campgrounds, waysides, and estimated use for BLM facilities within the recreation use study area.

#### 5.1.1.5.5. *Recreational Mining*

Some utilization and descriptive data are available from BLM and ADNR on recreational mining activities in the study area.

#### 5.1.1.5.6. *Sightseeing and Wildlife Viewing*

Given the spectacular vistas, scenic turnouts, and wildlife viewing potential offered along the Denali Highway, Parks Highway, Alaska Railroad, regional flightseeing tours, and Susitna River tours, it is assumed that most (and perhaps all) travelers (including visitors and residents) will be engaged in sightseeing and wildlife viewing. BLM has made some estimates of traffic volumes on the Denali Highway.

### 5.1.2. **Agency/Stakeholder Coordination and Consultation**

Agencies contacted include NPS, BLM, ADNR, USFS, and ADF&G. Topics included important recreation and aesthetic resources, recreation survey development, available data resources, and information gathering for future field activities.

### 5.1.3. **Executive Interviews**

During the July reconnaissance trip, interviews were conducted with the following private sector recreation providers:

- Claude and Jennifer Bondy, Alpine Creek Lodge
- Alan and Susie Echols, Maclaren River Lodge
- Trisha Costello, Talkeetna Roadhouse
- Steve May, Mahay's River Boat Service
- John Schandelmeier Denali Highway Tours & Cabins/Crazy Dog Kennel

Summaries of these interviews conducted during the July reconnaissance trip were prepared and submitted as Susitna-Watana Hydroelectric Project meeting records.

As interviewee contact list was developed through existing and referred contacts, Internet searches, and interviews. As the Project proceeds, more contacts may be added. The executive interview candidates include sportfishing guides, hunting guides, commercial jetboat tour operators, commercial rafting operators, state and/or facility lessees (including campgrounds and boat launches), recreation organizations and clubs, Boy Scouts of America Great Alaska Council, commercial visitor accommodations providers, services and tour providers (such as dog sledding, biking tours, etc.), Alaska Native organizations and corporations, and governmental agencies..

#### **5.1.4. Site Visit**

A preliminary site investigation of river recreation opportunities downstream of the proposed dam site was conducted using a commercial jetboat from Talkeetna. The site investigation included travel up the Susitna River from Talkeetna to the western (lower) end of Devils Canyon and shore visits at the Curry townsite and Portage Creek, and at a recreated Dena'ina Indian camp. At multiple locations, photographs and GPS waypoints were taken. Observations of river-based recreation and access were made, including commercial and private boating, and potential access from the Alaska Railroad. No additional observations of upland recreation were made from the boat.

The Parks Highway was driven from Talkeetna to Cantwell as well as to the junction with the Denali Highway. GPS waypoints and photographs were taken along the route to document most campgrounds (formal and informal), viewpoints, boat launches, and trailheads between Talkeetna and Cantwell.

GPS waypoints and photographs were taken along the Denali Highway between MPs 132 and 120 at trailheads and access points. Major access points and facilities along the remainder of the Denali Highway between MP 120 and the Alpine Creek Lodge (MP 68) were noted. At Alpine Creek Lodge, members of the team boarded an R44 helicopter for a flyover of the Project inundation zone, upper Susitna River, Jay Creek, Kosina Creek, Deadman's Creek, and Watana Creek drainages. A short layover occurred at Stephan Lake Lodge before the team returned to Alpine Creek Lodge. While at Stephan Lake Lodge, recreators visiting the lodge for a fishing trip and remote lodge experience were observed.

One member of the study team continued east on the Denali Highway from Alpine Creek Lodge to Paxson, south on the Richardson Highway, and west on the Glenn Highway, noting possible intercept points for the recreation use intercept survey, as well as informal visits with lodge and



tour operators along the way. The rest of the study team traveled west on the Denali Highway to the Parks Highway and then south to Anchorage.

### **5.1.5. Survey Sampling Plans and Instrument Design**

Meetings were held with agency representatives from NPS and BLM prior to the July site visit to learn about other survey techniques, examples of survey instruments, and data availability regarding the recreation use study area. Dr. Peter Fix at the University of Alaska, Fairbanks, was consulted about the methodology used in the *Alaska Residents Statistic Program*, and the *Benefits Based Management Study*, as well as BLM, ADF&G, Alaska Department of Transportation and Public Facilities (ADOT&PF), and ADNR representatives. Incidental Observation Survey

The IOS was e-mailed to all study team leads for staff working in the recreation use study area. Because members of the biological team staff were stationed within the Study Area for long periods of time, during the 2012 study season, specific follow-up requests were made to R2 Resource Consultants, LGL Research, and HDR. IOSs were completed and submitted by R2 Resource Consultants and McDowell Group. A copy of the IOS is included in the 2013–2014 Recreation Resource RSP (AEA, 2012).

## **5.2. River Recreation Results**

### **5.2.1. Reach 1 – Upper River**

This study reach extends from the Denali Highway Bridge to Fog Creek. The reach is approximately 114 miles in length. Suitable watercraft are most likely non-motorized, such as kayaks, canoes, packrafts, rafts, and catarafts. The broad and shallow nature of this reach observed at the Denali Highway Bridge presents safety issues for motorized craft. Motorized watercraft such as jet and airboats in this reach are likely used only by individuals skilled on shallow glacial rivers with high turbidity.

Road access is limited to the undeveloped put-in directly upstream of the Denali Highway Bridge on river left (RM 290). This undeveloped put-in is suitable for non-motorized craft that can be carried to the river and is not designed to accommodate launching of trailered motorized craft. Other river launch points accessible by vehicle may exist downstream using the four-wheel drive (4WD) road along Jay Creek as well as potential access points on the Maclaren River. The latter two locations are word-of-mouth access points that require further investigation. A cabin and ATV/off-road vehicle (ORV) road was observed at the mouth of Jay Creek but does not appear to connect with the road observed in the upper portions of Jay Creek. Jay Creek Canyon is too narrow to accommodate an ATV/ORV trail or road. There is potentially an ATV/ORV trail from the ridgeline to the confluence of Jay Creek. Alternatively, cabin owners may be accessing this location using aircraft landing on gravel bars or on the river using floatplanes. Most users likely access this reach of the river using fixed wing aircraft or helicopter.

Most river users will need to exit the Susitna River before Watana Canyon unless they possess proper whitewater skills to negotiate Class IV water. Boaters limited to Class I–II skills would not be capable of safely navigating the rapids in Watana or Devils Canyon farther downstream.

The primary river recreational users of Reach 1 are not yet determined. Hunters, both guided and private, may use the Susitna River as a corridor to access hunting areas, relying on motorized watercraft for two-way access to a single point or non-motorized watercraft combined with aircraft support for egress. Some hunters may use aircraft to access areas on the river corridor utilizing gravel bars or the river. Anglers likely use this reach in a similar fashion. Day use of the river by motorized craft for other purposes such as sightseeing, wildlife viewing, and berry picking is uncertain at this time. Recreation cabins in the area of Reach 1 may be accessed via the river corridor as well.

The reach offers river runners a Class I–II multi-day wilderness float. The cost of an air taxi to exit upstream of Devils Canyon may be a factor limiting use in Reach 1. Embick (1994) and Jettmar (2008) specifically describe this portion of the river and the Denali Highway Bridge as one of the access points for boaters interested in running the Class V Devils Canyon. Embick (1994) provides excerpts from early trip reports describing this trip. Both authors also describe an overland route to the Talkeetna River allowing boaters to bypass Devils Canyon by hiking out in the vicinity of Fog Creek to Stephan Lake and down Prairie Creek to the Talkeetna River.

### **5.2.2. Reach 2 – Canyon Section**

Reach 2 starts at the confluence with Fog Creek (RM 177) to the confluence with Portage Creek (RM 149) downstream of Devils Canyon. The reach is approximately 28 miles in length. Devils Canyon (Figure 5-10) is listed as part of the triple crown of Alaskan whitewater experiences including the Grand Canyon of the Stikine and Turnback Canyon on the Alsek, all of which are ranked as Class V whitewater runs.

Access to this reach requires floating down the 114 miles of Reach 1 described above or using aircraft landing at any number of locations in the river corridor or tributary lakes. Aerial access points for boaters focusing specifically on Devils Canyon have not yet been determined. Embick (1994) describes a potential access route from Stephan Lake using a float plane.

Portage Creek is considered the downstream boundary for Devils Canyon where the river gradient decreases substantially and the river difficulty changes to Class II. Whitewater boaters can paddle the remaining 66 miles to Talkeetna, coordinate a jetboat pick-up, or catch the train at Gold Creek. The 56 miles of Class II to Talkeetna presents a lengthy paddle in a whitewater boat not designed for flatwater conditions prevalent in Reach 3. Commercial jetboat operators run daily trips in the summer season to the downstream mouth of Devils Canyon.

### **5.2.3. Reach 3 – Lower River**

Reach 3 extends from Portage Creek (RM 149) to the Parks Highway Bridge (RM 83), also known as Sunshine. This reach is approximately 66 miles in length. This is Class I–II water accessible via jetboat and airboat. Reach 3 offers the recreating public multiple options to access a remote Alaska river at a reasonable price. Non-motorized users can access this reach via a jetboat shuttle, train to Gold Creek, or aircraft, although the latter is less likely as a shuttle due to overall costs. Motorized watercraft can access Reach 3 from multiple locations on the Parks Highway and the boat launch in Talkeetna.

Reach 3 is used for single and multi-day trips by both motorized watercraft and non-motorized watercraft. Camping is available on islands and tributary deltas, particularly on the upper half of Reach 3 (Figure 5-11). Fishing opportunities exist primarily on tributaries rather than in the

mainstem due to turbidity of the glacially-fed Susitna River. Fish species include sockeye, coho, pink, Chinook, grayling, Dolly Varden, and rainbow trout. Hunters use watercraft to travel on this reach to access big game hunting areas. Reach 3 offers hunting opportunities, river camping, and reduced hunting pressure.

The reach is used commercially for jetboat tours to the mouth of Devils Canyon (Figure 5-12). Local rafting companies use the reach for day trips using the train to shuttle customers upstream and float back to Talkeetna (Figure 5-13). The reach offers scenic views of Mt. McKinley and surrounding mountains.

For non-motorized boaters, Talkeetna lacks a suitable river access point to take-out on the Susitna from upstream reaches. The current river access is located upstream on the Talkeetna River making it suitable as a put-in only for non-motorized watercraft traveling downstream to the Susitna. Motorized watercraft are capable of two-way travel, allowing them to use the river launch on the Talkeetna River as a combined put-in and take-out.

Talkeetna is located at the confluence of the Chulitna, Susitna, and Talkeetna Rivers. During the July 2012 reconnaissance, the river channel directed flows away from the town of Talkeetna, requiring non-motorized craft to negotiate across the current to reach the gravel bar near town (Figure 5-14). Non-motorized watercraft can continue downstream to the take-out where the Parks Highway crosses the Susitna at Sunshine. The September 2012 floods altered the current river channel and may change the access for non-motorized craft to the river in Reach 3.

#### **5.2.4. Tributaries**

Multiple tributaries ranging from Class I to V flow into all three study reaches of the Susitna River. Most of the tributaries are clearwater streams providing anglers with fishing opportunities for anadromous fish (tributaries downstream of Devils Canyon) and resident salmonids on tributaries upstream of Devils Canyon (Figure 5-15). Some users may utilize the tributaries for multi-day whitewater trips; however, access would be limited to aircraft shuttle or overland travel.

## **6. DISCUSSION AND CONCLUSION**

### **6.1. Recreation**

The 2012 Recreation Resources Study effort included available data review and field reconnaissance that provided information to adequately plan for the 2014 study, including technical aspects of the study, identification of appropriate study areas, survey instrument development, and the logistical aspects of field survey implementation. A key result of the 2012 work was the establishment of interdisciplinary coordination to assist in identifying recreational activities within the study area. This activity, along with consideration of potential Project facilities locations and operational characteristics of the proposed Project, helped identify existing and potential future recreational uses to address potential effects of the proposed Project on recreation resources.

## 6.2. River Recreation

### 6.2.1. Summer Recreation

The river recreational activities documented in 2012 are based on field reconnaissance and interviews. Recreation activities in Reaches 1 and 3 are typical for Alaska rivers. The 28-mile section of Reach 2 is essentially a single activity portion of the Susitna River. Reach 2 is unique due to the limited access and whitewater difficulty. Common to all reaches is the remote character of the area, which lends a wilderness component to the activities. Table 6-1 summarizes the river recreation activities and qualities documented in 2012 for the three river reaches.

Floating is an activity common to all reaches. The degree of difficulty varies by reach and, with the exception of Reach 2, provides access for other personal use and commercial recreational activities (e.g., hunting, fishing, hiking, sightseeing).

Motorized boating occurs in Reaches 1 and 3, with the majority of the activity in Reach 3. In Reach 1, motorized boating likely is limited to experienced operators with the skills necessary to navigate braided, shallow, and turbid channels. Motorized boating is a common commercial and recreational activity in Reach 3 and provides access for other recreational activities. The commercial jetboat operators use their larger boats to tour the bottom rapids of Devils Canyon in Reach 2 entering from downstream. This activity is uncommon for non-commercial operators.

Aviation activities occur in all three reaches within the study area for both access and as a stand-alone recreational activity. Different aircraft types (floats vs. wheels/skis, helicopters) are dependent on seasonal flow conditions to utilize primitive airstrips on river gravel bars or pools. Helicopters are less dependent on flow conditions given their ability to land and take-off in small landing zones. Aviation opportunities in Reach 2 are limited to discrete gravel bars and sections of the river in the upper portion of the reach.

Future use may see packrafts using tributaries with more frequency. The current trend is for users to link cross-country travel between mountain ranges using a combination of mainstem and tributary river systems.

Susitna tributaries offer river recreation opportunities, enabling individuals to fly-in to headwater lakes (alternatively overland hike), float down a tributary to the mainstem, use the mainstem to connect to another tributary or trail, and then hike out to the Parks Highway or vice-versa. Information obtained via informal interviews indicates that adventure schools in the area, such as the National Outdoor Leadership School, are currently using this model for some of their trips.

Adventure races occur in the Project study area. Racers participating in these events typically rely on packrafts to cross the mainstem Susitna or navigate a portion of the river or tributaries. Additional information is needed to better understand the frequency of adventure races in this area and typical routes from point to point. A list of adventure racers and event organizers has been compiled for further information gathering and interviews.

### 6.2.2. Ice-Dependent Winter Recreation on Susitna River Corridor

The River Ice-Dependent Winter Recreation Study was added to the River Recreation Flow and Access Study in the fall of 2012. As such, no field reconnaissance work was conducted in 2012.

Information has been collected through desktop review and research by staff with direct knowledge of winter recreation activities on the Susitna River. Recreational activities during the winter are dependent on ice conditions, weather, and user skill levels. The study implementation and analysis will be coordinated with science teams investigating hydrology, ice processes, and fluvial geomorphology. The study area will use the same three reach breaks used for the River Recreation Flow and Access Study.

Ice-dependent winter recreational opportunities are limited to Reaches 1 and 3. There are no documented winter recreation activities in Reach 2. Snow machine use is the most common winter recreational activity in Reaches 1 and 3, and provides access for other personal use and some commercial recreational activities (i.e., hunting, trapping, and recreational cabin access) (Table 6-2). Reach 3 is utilized to access recreational cabins along the river corridor and associated drainages.

Like snow machine use, aviation is a common winter recreational activity in Reaches 1 and 3, and provides access for personal use and some commercial recreational activities (i.e., hunting, trapping, and recreational cabin access). Aircraft are utilized to access recreational cabins along the river corridor and associated drainages.

Nordic skiing is a popular activity in Reach 3, and the Talkeetna Nordic Ski Club sponsors the Oosik Classic each spring, which utilizes the river for portions of the race trail. The river also provides training opportunities for a variety of skiing organizations. Spring skiing “on the crust” is also popular during March and April.

## 7. REFERENCES

- ADF&G (Alaska Department of Fish & Game) . 2004-2011. Fishery Data Series No. 12-27, Participation, Effort, and Harvest in Sport Fish Business/Guide Licensing and Logbook Programs.
- . 2004-2011b. Fishery Data Series No. 11-45, Estimate of Participation, Catch and Harvest in Alaska Sport Fisheries.
- ADNR (Alaska Department of Natural Resources). 1985. Susitna Area Plan. June 1985.
- . 2000. Alaska Recreational Trails Plan. October 2000.
- . 2006. Denali State Park Management Plan. Alaska Department of Natural Resources Division of Parks and Outdoor Recreation, Anchorage, AK.
- . 2006. Ten-Year Strategic Plan 2007-2012. Alaska Department of Natural Resources Division of Parks and Outdoor Recreation, Anchorage, AK. November 2006.
- . 2009. Alaska's Outdoor Legacy. Statewide Comprehensive Recreation Plan (SCORP) 2009-2014. Alaska Department of Natural Resources, Division of Parks and Outdoor Recreation. Anchorage, AK. September 2009.
- . 2010. Susitna Matanuska Area Plan Public Review Draft. Alaska Department of Natural Resources, Division of Mining, Land and Water Resource Assessment & Development. Anchorage, AK. February 2010.
- AEA (Alaska Energy Authority). 2011a. Susitna-Watana Hydroelectric Project, Socioeconomic, Recreation, Air Quality and Transportation Data Gap Analysis. Prepared by HDR, Inc., Anchorage.
- . 2011b. Pre-application Document: Susitna-Watana Hydroelectric Project FERC Project No. 14241. Prepared for the Federal Energy Regulatory Commission, Washington, DC.
- . 2012. Revised Study Plan: Susitna-Watana Hydroelectric Project FERC Project No. 14241. Prepared for the Federal Energy Regulatory Commission, Washington, DC.
- AW (American Whitewater). 2005. Safety Code of American Whitewater; Chapter VI, International Scale of River Difficulty.  
[http://www.americanwhitewater.org/content/Wiki/safety:start#vi.\\_international\\_scale\\_of\\_river\\_difficulty](http://www.americanwhitewater.org/content/Wiki/safety:start#vi._international_scale_of_river_difficulty)BLM (Bureau of Land Management). 2006. East Alaska Resource Management Plan. U.S. Department of the Interior, Bureau of Land Management. Glennallen Field Office.
- BLM. 2012a. Delta National Wild and Scenic River. Published online at [http://www.blm.gov/pgdata/etc/medialib/blm/ak/aktest/brochures.Par.14667.File.dat/delta\\_river\\_brochure06.pdf](http://www.blm.gov/pgdata/etc/medialib/blm/ak/aktest/brochures.Par.14667.File.dat/delta_river_brochure06.pdf)
- . 2012b. Denali Highway Points of Interest. Published online at [http://www.blm.gov/ak/st/en/fo/gdo/denali\\_highway\\_points.html](http://www.blm.gov/ak/st/en/fo/gdo/denali_highway_points.html)
- . 2012c. Tangle Lakes Archaeological District Information Guide and Trails Map. Published online at

- [http://www.blm.gov/pgdata/etc/medialib/blm/ak/gdo/pdf\\_files.Par.12713.File.dat/05TLA\\_D\\_trails\\_brochure.pdf](http://www.blm.gov/pgdata/etc/medialib/blm/ak/gdo/pdf_files.Par.12713.File.dat/05TLA_D_trails_brochure.pdf)
- . 2012d. Denali Highway Trails. Published online at [http://www.blm.gov/ak/st/en/fo/gdo/trails/denali\\_trails.html](http://www.blm.gov/ak/st/en/fo/gdo/trails/denali_trails.html)
- Chase Citizen's Planning Advisory Committee. 1993. Chase Comprehensive Plan.
- Embick, A. 1994. *Fast and cold, a guide to Alaska whitewater*. Valdez Alpine Books, Valdez, Alaska.
- DPOR (Alaska Division of Parks and Outdoor Recreation). 2006. Denali State Park Management Plan. Alaska Department of Natural Resources, Juneau.
- Fix, Peter J. 2009. Alaska Residents Statistics Program Final Report. School of Natural Resources and Agricultural Sciences, Department of Resources Management, University of Alaska Fairbanks.
- Harza-Ebasco (Harza-Ebasco Susitna Joint Venture). 1985. Pre-Application Document Appendix 4.9-3, Aesthetic Value and Visual Absorption Capability Ratings.
- Jettmar, K. 2008. *The Alaska river guide: canoeing, kayaking, and rafting in the last frontier*. Menasha Ridge Press. 3rd edition.
- MSB (Matanuska-Susitna Borough). 2004. Matanuska-Susitna Borough Talkeetna Riverfront Park Land Use Plan and Economic Development Strategy.
- MSB (Matanuska-Susitna Borough). Matanuska-Susitna Borough Recreational Trails Plan. Adopted March 2000, Updated August 2008. Matanuska-Susitna Borough Planning and Land Use Department, Palmer.
- McDowell Group. 2012. Alaska Visitor Statistics Program. Alaska Department of Commerce, Community, and Economic Development.
- NPS (National Park Service). 2006. Final South Denali Implementation Plan and Environmental Impact Statement. U.S. Department of the Interior, Denali National Park and Preserve, Denali Park, Alaska.
- Stegmann, Jennifer A. and Peter J. Fix. 2008. Benefits-Based Management Study for the Dalton, Taylor and Denali Highways. Department of Resource Management, University of Alaska Fairbanks, August 2008
- USFS (USDA Forest Service). 1979. The Recreation Opportunity Spectrum: A Framework for Planning, Management, and Research. U.S. Department of Agriculture, Forest Service.

## 7.1. Map References

- BLM. REC\_BLM\_EligableRiverSeg.shp, River segments eligible for wild and scenic designation, East Alaska Resource Management Plan
- BLM, REC\_BLM\_wsrp.shp, BLM SDMS
- BLM, REC\_BLM\_ROS.shp: Resource Oppourtinty Spectrum, East Alaska Resource Management Plan

ERM, Inc. 2012. REC\_Reaches: Generated from NHD data, split at pre-determined SuWa River miles.

ERM, Inc. 2012. REC\_Points\_of\_Interest: Conglomerate of select town locations, state highway/NHD river intersection, Dam site.

URS Alaska, 2012. REC\_FACILITIES\_2012\_12\_05

URS Alaska, 2012. REC\_StudyArea\_EffectsAnalysis: Five mile buffer around the Susitna River from Sunshine to the Denali Highway, all trails accessing project area, and the proposed project facilities.

URS Alaska, 2012. URS\_Intercept\_PTS: Location of in-person intercepts to gather recreation use data.

URS Portland, 2012. REC\_StudyArea\_Facilities: Study area for existing public recreation facilities and carrying capacity.

URS Portland. 2012. REC\_StudyArea\_Use: Study area for both Recreation Use Studies and the Recreation Supply and Demand Studies.



## 9. TABLES

**Table 6-1. River Recreation Activities in Susitna River Recreation Reaches**

Reach	Begin	End	Length (miles)	Watercraft/Aircraft	River Recreation Activities
River Reach 1	Denali Highway RM 291	Fog Cr RM 177	114	Jetboat Airboat Raft/Cataraft/Packraft Canoe Kayak Aircraft (wheels, floats, helicopter)	Single day (motorized) Multi-day (motorized/non-motorized) Camping Hunting Fishing Sightseeing/wildlife viewing Birding Adventure racing Recreation cabin access Aviation
River Reach 2	Fog Cr RM 177	Portage Cr RM 149	28	Raft Kayak Aircraft (wheels, floats, helicopter)	Multi-day (non-motorized) Class IV and V+ whitewater boating
River Reach 3	Portage Cr RM 149	Sunshine RM 83	66	Raft/Cataraft/Packraft Kayak Canoe Jetboat Airboat Aircraft (wheels, floats, and helicopters)	Single day (motorized) Multi-day (motorized/non-motorized) Camping Hunting Fishing Sightseeing/wildlife viewing Birding Adventure racing Recreation cabin access Aviation

**Table 6-2. Ice-Dependent Winter Recreation Activities in Susitna River Recreation Reaches**

Reach	Begin	End	Length (miles)	Mode of Transportation	Winter Recreation Activities
River Reach 1	Denali Highway RM 291	Fog Cr RM 177	114	Snow machine Nordic skis Snowshoes Dog sled Aircraft (skis, wheels, and helicopter)	Single day (motorized/non-motorized) Multi-day (motorized/non-motorized) Trapping Camping Hunting Nordic Skiing Sightseeing/wildlife viewing Adventure/Nordic Ski Racing Recreation Cabin Access Aviation
River Reach 2	Fog Cr RM 177	Portage Cr RM 149	28	No known access	No known activities in the canyon
River Reach 3	Portage Cr RM 149	Sunshine RM 83	66	Snow machine Nordic skis Snowshoes Dog sled Aircraft (wheels, skis, and helicopters)	Single day (motorized/non-motorized) Multi-day (motorized/non-motorized) Trapping Camping Hunting Nordic skiing Sightseeing/wildlife viewing Adventure/Nordic ski racing Recreation cabin access Aviation

## 10. FIGURES

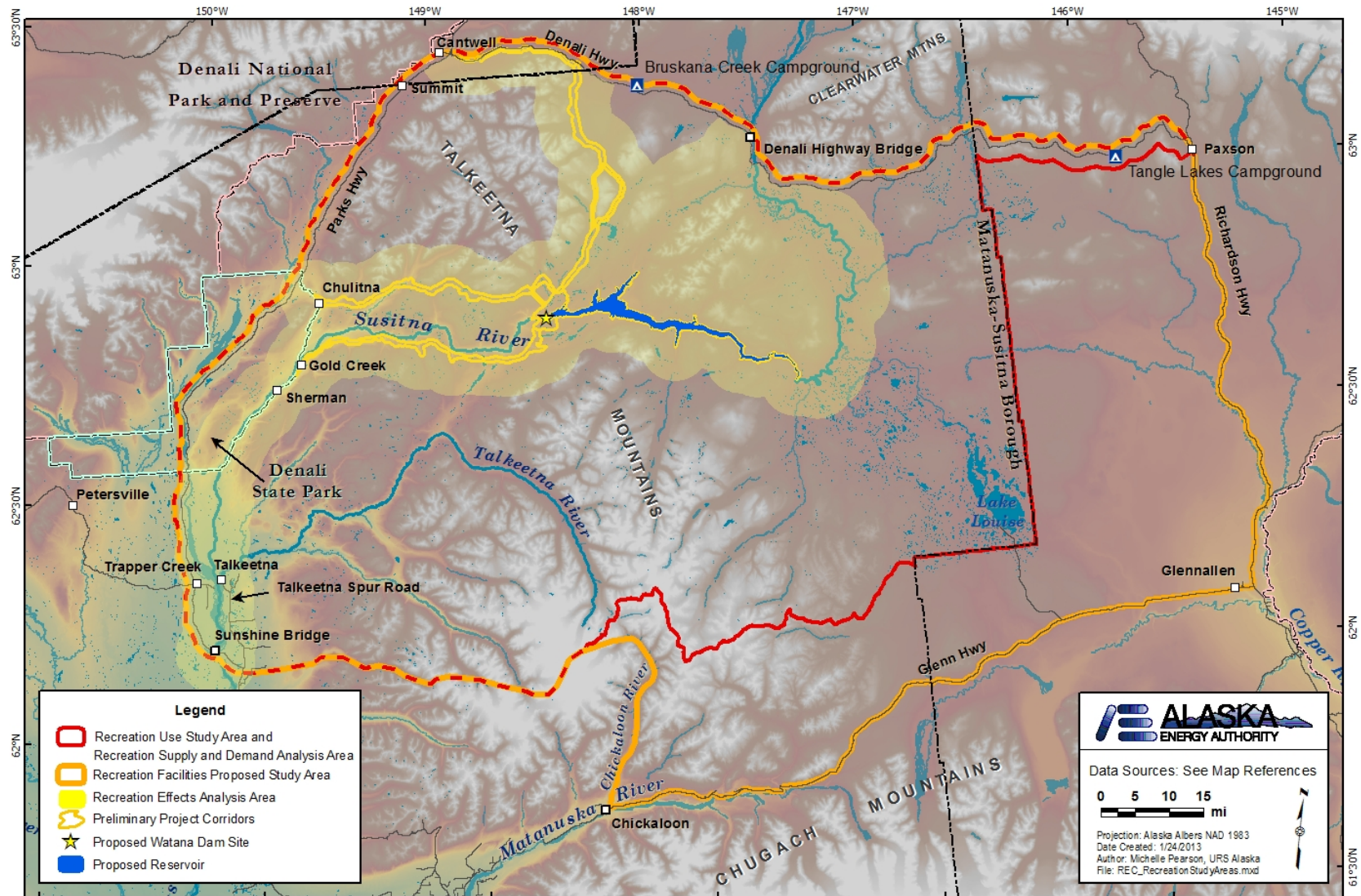


Figure 3-1. Recreation Resources study area

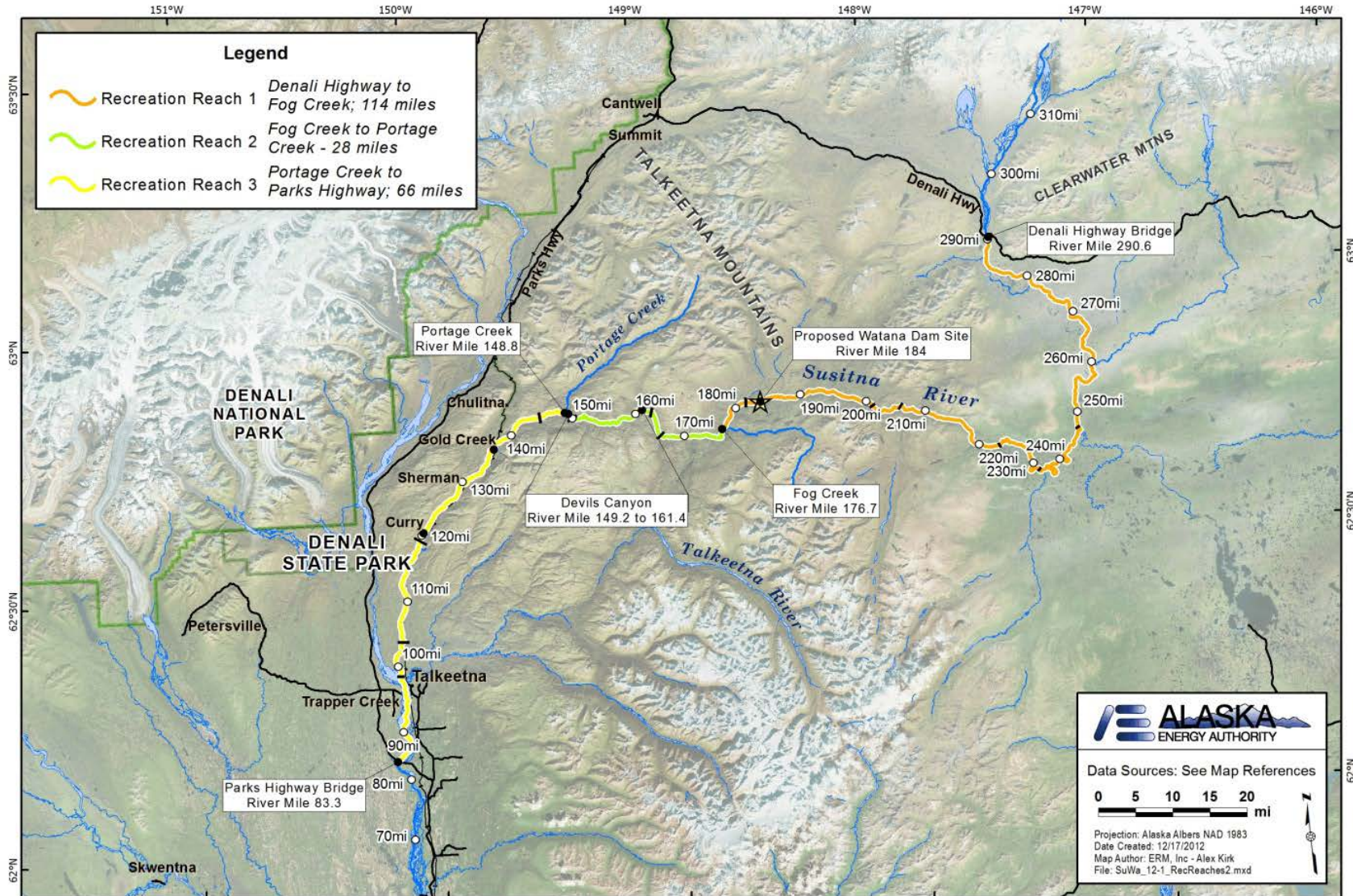


Figure 3-2. River Recreation Study Reaches

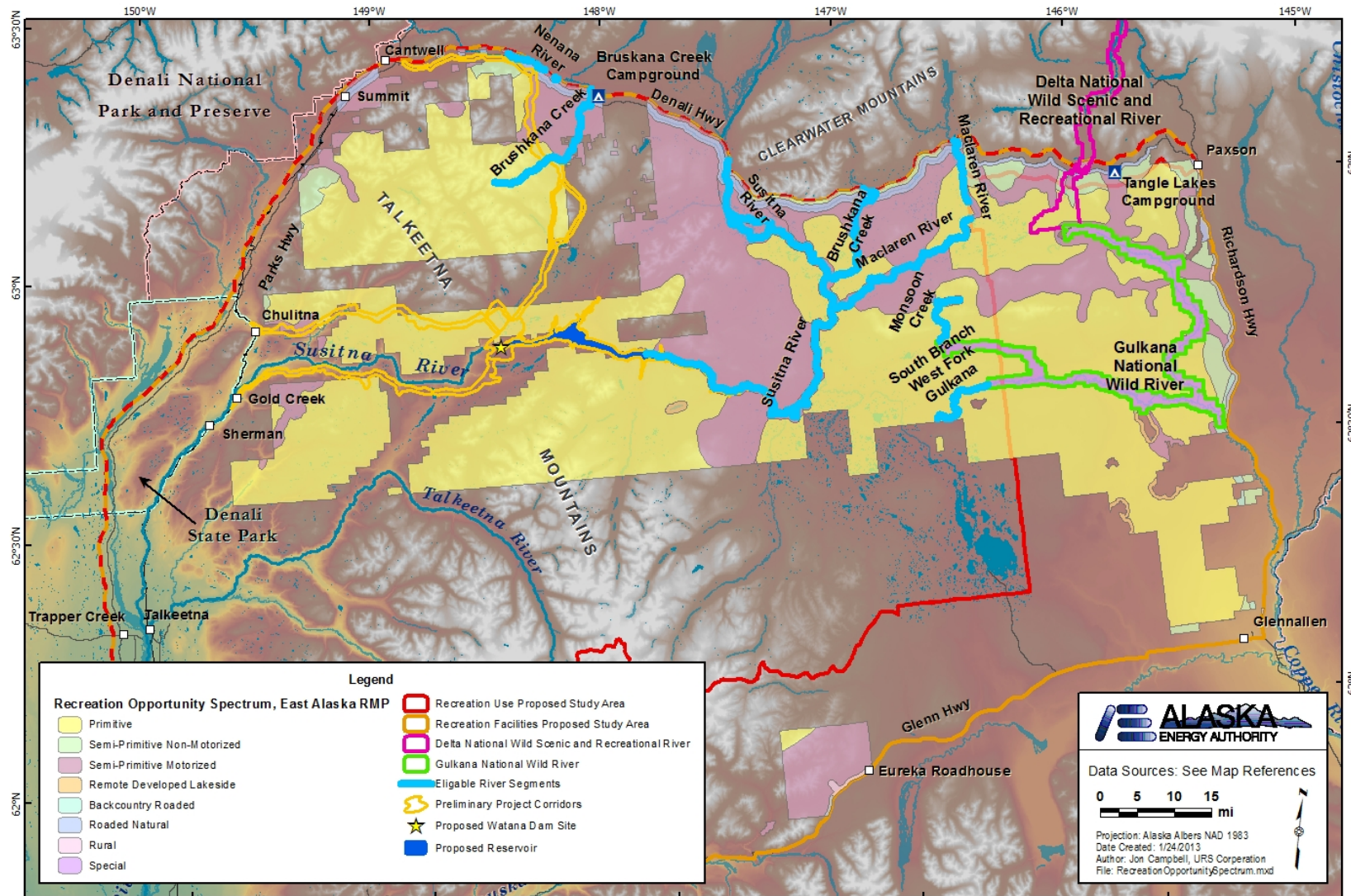


Figure 5-1. Recreation Opportunity Spectrum

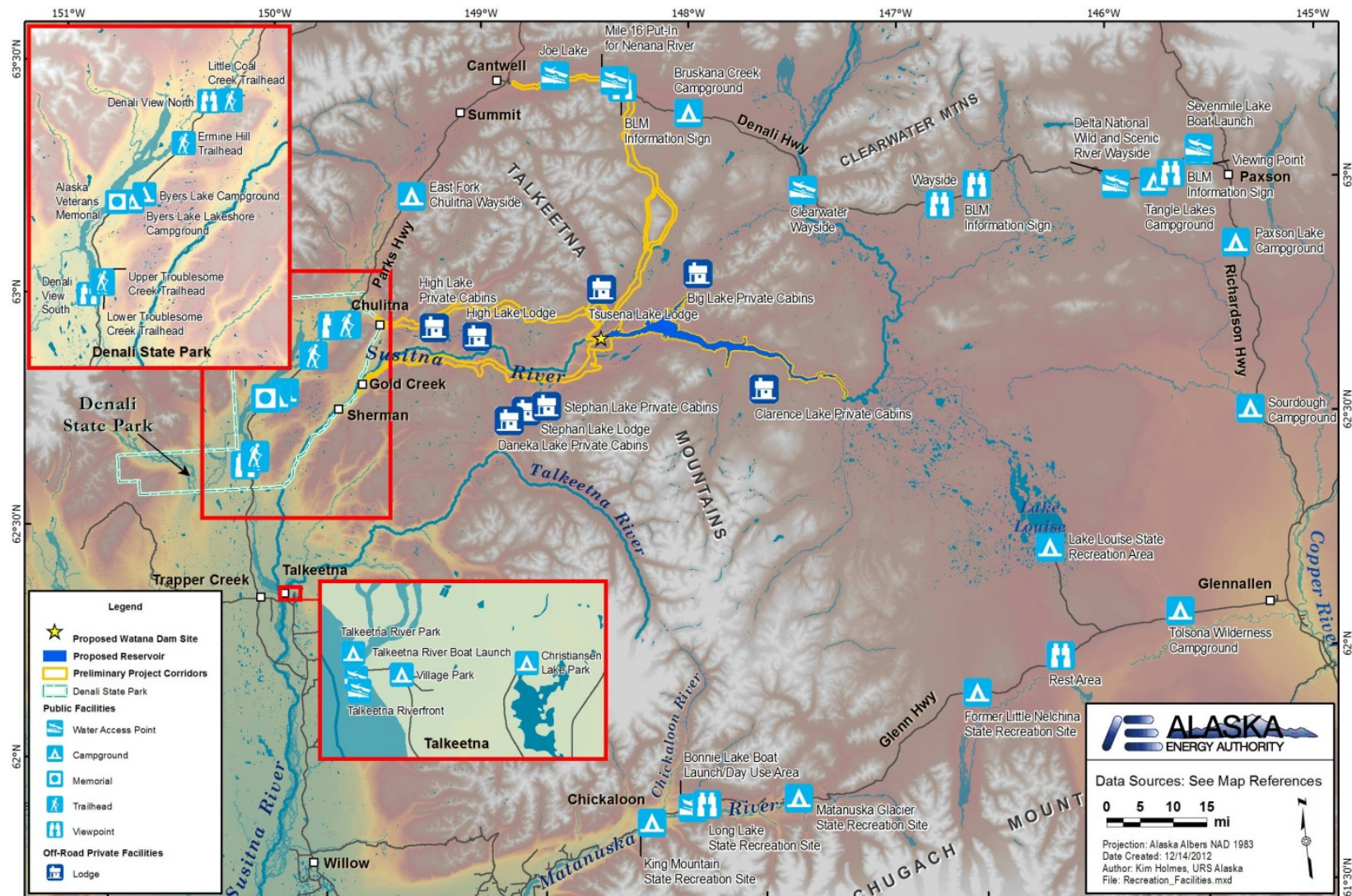


Figure 5-2. Facilities

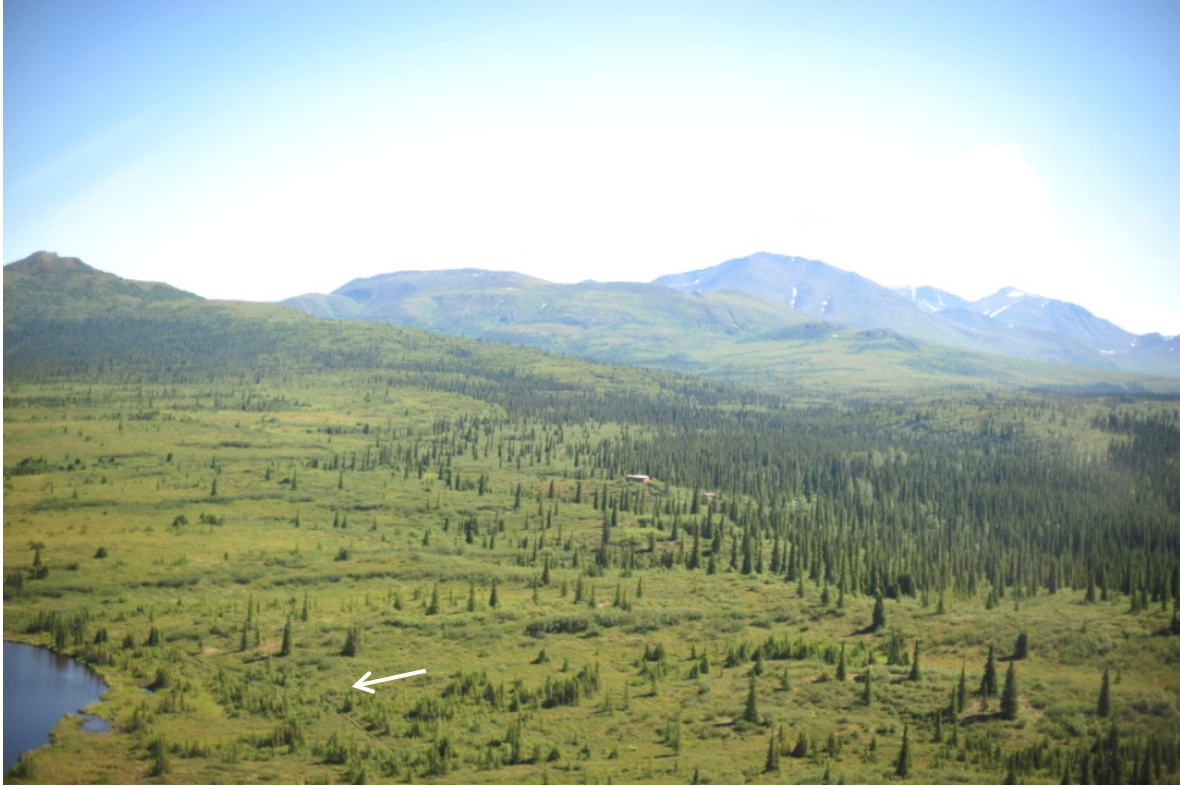


Figure 5-3. Fog Creek Trail SW (NOTE: trail identified by white arrow)



Figure 5-4. The Jay Creek Trail in the lower portion of the drainage (NOTE: trail identified by white arrow)

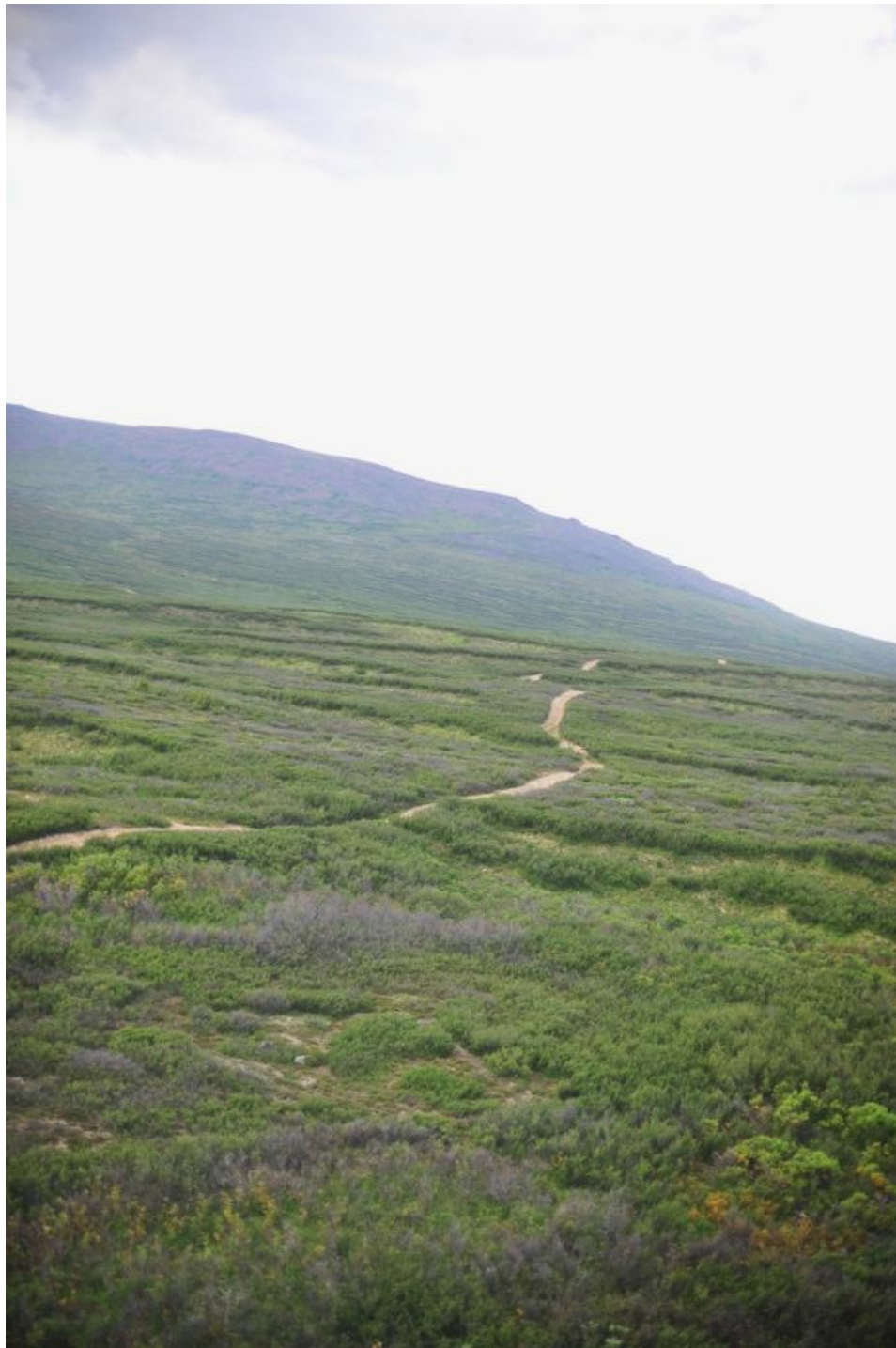


**Figure 5-5. Well-established trail traveling up a broad drainage located north of the Susitna River**



**Figure 5-6. Well-defined upland trail connecting two drainages (NOTE: trail identified by white arrow)**





**Figure 5-7. The Susitna South Trail**



**Figure 5-8. Parking along Denali Highway by crossing of the Susitna River, hunting season September 2012**



**Figure 5-9. Vehicles parked on AK Road Commission Air Strip #1 (Mile 81 Denali Hwy), hunting season September 2012**



Figure 5-10. Aerial view of Devils Creek Rapid (July 27, 2012; flow approximately 22,000 cfs)



**Figure 5-11. Typical island campsite in Reach 3**



**Figure 5-12. Commercial jetboat trip downstream of Devils Canyon**



**Figure 5-13. Commercial rafting trip on Susitna Reach 3 accessed via the train**



**Figure 5-14. Aerial view of Susitna-Chulitna confluence, July 2012**



**Figure 5-15. Portage Creek confluence with Susitna**

## Appendices

Appendix A: Map Book of Trails