

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

**River Recreation Flow and Access Study
Study Plan Section 12.7**

2014 Study Implementation Report

Prepared for

Alaska Energy Authority



SUSITNA-WATANA HYDRO

Clean, reliable energy for the next 100 years.

Prepared by

AECOM/ERM

November 2015

TABLE OF CONTENTS

1. Introduction.....	1
2. Study Objectives	1
3. Study Area.....	2
4. Methods and Variances.....	2
4.1. River Recreation Internet Survey.....	2
4.1.1. Variances.....	3
5. Results.....	4
5.1. River Recreation Reach 1 (PRM 291.6–PRM 179.3).....	4
5.1.1. Reach 1 Susitna River Recreation Internet Survey Information.....	4
5.2. River Recreation Reach 2 (PRM 179.3–PRM 152.3).....	6
5.2.1. Reach 2 Susitna River Recreation Internet Survey Information.....	7
5.3. River Recreation Reach 3 (PRM 152.3–PRM 88.9).....	8
5.3.1. Reach 3 Susitna River Recreation Internet Survey Information.....	9
6. Discussion	10
7. Conclusion	11
7.1. Decision Points from Study Plan	11
7.2. Modifications to Study Plan.....	11
7.3. Steps to Complete the Study	12
7.4. Conclusion	12
8. Literature Cited	12
9. Tables.....	13
10. Figures	22

LIST OF TABLES

Table 4.1-1. Susitna River Recreation Internet Survey Distribution	13
Table 5.1-1 Susitna River Reach 1 Internet Survey Participant Information	15
Table 5.1-2 Susitna River Reach 1 Put in and Take out Information	16
Table 5.1-3 Susitna River Reach 1 Put in and Take out Information	16
Table 5.1-4 Susitna River Reach 1 Flow Preference Information	17
Table 5.1-5 Susitna River Reach 1 Comparison to other rivers statewide, regionally, and nationally ¹	17
Table 5.2-1 Susitna River Reach 2 Internet Survey Participant Information	17
Table 5.2-2 Susitna River Reach 2 Put in and Take out Information	18
Table 5.2-3 Susitna River Reach 2 Put in and Take out Information	18
Table 5.2-4 Susitna River Reach 2 Flow Preference Information	19
Table 5.2-5 Susitna River Reach 2 Comparison to other rivers statewide, regionally, and nationally ¹	19
Table 5.3-1 Susitna River Reach 3 Internet Survey Participant Information	19
Table 5.3-2 Susitna River Reach 3 Put in and Take out Information	20
Table 5.3-3 Susitna River Reach 3 Put in and Take out Information	20
Table 5.3-4 Susitna River Reach 3 Flow Preference Information	21
Table 5.3-5 Susitna River Reach 3 Comparison to other rivers statewide, regionally, and nationally ¹	21
Table 5.3-6 Comparison of the number of internet survey participant trips by Reach and type of travel during ice free periods in 2013 and 2014.	21

LIST OF FIGURES

Figure 3-1. River Recreation Study Area	23
Figure 5.1-1. Reach 1 Internet Survey Responses Regarding River Access Responses (n=55) ...	24
Figure 5.1-2. Primary Purposes of Recreation in Reach 1	24
Figure 5.1-3. Secondary Purposes of Recreation in Reach 1	25
Figure 5.1-4. Timing of Air, Motorized, and Non-motorized Trips in Reach 1 (1975-2013)	26
Figure 5.1-5. Timing of Air, Motorized, and Non-motorized Trips in Reach 1 (2013 and 2014) ¹ (See end of figures section)	26
Figure 5.1-6. Reach 1 Executive Interviewees Winter Activities (8 Interviewees)	27
Figure 5.2-1. Reach 2 Internet Survey Responses Regarding River Access Responses (n=47) ...	27

Figure 5.2-2. Reach 2 Primary Purposes of Recreation.....28

Figure 5.2-3. Reach 2 Secondary Purposes of Recreation.....28

Figure 5.2-4. Timing of Air, Motorized, and Non-motorized trips in Reach 2 (1975-2013)29

Figure 5.2-5. Timing of Air, Motorized, and Non-motorized Trips in Reach 2 (2013 and 2014)¹ (See end of figures section)29

Figure 5.2-6. Reach 2 Executive Interviewees Winter Activities (7 Interviewees).....30

Figure 5.3-1. Reach 3 Internet Survey Responses Regarding River Access Responses (n=146).....30

Figure 5.3-2. Reach 3 Primary Purposes of Recreation.....31

Figure 5.3-3. Reach 3 Secondary Purposes of Recreation.....31

Figure 5.3-4. Timing of Air, Motorized, and Non-motorized Trips in Reach 3 (1975-2015).....32

Figure 5.3-5. Timing of Air, Motorized, and Non-motorized Trips in Reach 3 (2013 and 2014)¹ (See end of figures section)32

Figure 5.3-6. Reach 3 Executive Interviewees Winter Activities (17 Interviewees).....33

APPENDICES

Appendix A: River Recreation and Access Internet Survey

Appendix B: River Recreation Executive Interview Questions

Appendix C: Winter River Recreation and Transportation Executive Interview Questions

LIST OF ACRONYMS, ABBREVIATIONS, AND DEFINITIONS

Abbreviation	Definition
AEA	Alaska Energy Authority
ATV	All-terrain vehicle
cfs	cubic feet per second
FERC	Federal Energy Regulatory Commission
ILP	Integrated Licensing Process
IP	Internet Protocol
ISR	Initial Study Report
NOLS	National Outdoor Leadership School
PRM	Project River Mile
Project	Susitna-Watana Hydroelectric Project
REI	Recreation Equipment Incorporated
RM	River Mile(s) referencing those of the 1980s Alaska Power Authority Project.
RSP	Revised Study Plan
SPD	study plan determination
USGS	United States Geological Survey

1. INTRODUCTION

The River Recreation Flow and Access Study, Section 12.7 of the Revised Study Plan (RSP) approved by the Federal Energy Regulatory Commission (FERC) for the Susitna-Watana Hydroelectric Project, FERC No. 14241 focused on conducting a recreation flow analysis on mainstem reaches of the Susitna River that considers the relationship between river flows and ice conditions, river recreation and transportation.

A summary of the development of this study, together with the Alaska Energy Authority's (AEA) implementation of it through the 2013 study season, appears in Part A, Section 1 of the Initial Study Report (ISR) filed with FERC in June 2014. As required under FERC's regulations for the Integrated Licensing Process (ILP), the ISR describes AEA's "overall progress in implementing the study plan and schedule and the data collected, including an explanation of any variance from the study plan and schedule." (18 CFR 5.15(c)(1)).

Since filing the ISR in June 2014, AEA has continued to implement the FERC-approved plan for the River Recreation Flow and Access Study. This included:

- Participated in ISR study report meetings in October 2014.
- Completion of the river recreation internet survey during the 2014 field season.
- On November 14, 2014 AEA held a follow-on ISR meeting for the River Recreation Flow and Access Study.

In furtherance of the next round of ISR meetings and FERC's Study Plan Determination (SPD) expected in 2016, this report describes AEA's overall progress in implementing the River Recreation Flow and Access Study during calendar year 2014. Rather than a comprehensive reporting of all field work, data collection, and data analysis since the beginning of AEA's study program, this report is intended to supplement and update the information presented in Part A of the ISR for the River Recreation Flow and Access Study through the end of calendar year 2014. It describes the methods and results of the 2014 effort, and includes a discussion of the results achieved.

2. STUDY OBJECTIVES

As set forth in the Study Plan (RSP Section 12.7.1, AEA 2012), the goals and objectives of the River Recreation Flow and Access Study were to contribute data to the Recreation Resource Study (12.5) concerning the relationship between river flows and river recreation opportunities and uses, by:

- Document river recreation use and experience for the respective river recreation and transportation opportunities on three mainstem Susitna River reaches.
- Describe the potential effects of altered river flows on existing and potential boating activity and other river recreational uses of the Susitna River.

- Understand river ice preferences for the respective river ice-dependent winter recreation and transportation on the Susitna River.
- Describe new boating or other flow-dependent recreational opportunities that may be created by Project construction and operation.

3. STUDY AREA

The study area for the River Recreation Flow and Access Study was set forth in RSP Section 12.7.3. During the 2012 recreation study, three distinct river recreation reaches were identified on the Susitna River, as shown in Figure 3-1, for gathering baseline river recreation information on the Susitna River. The three river recreation reach breaks comprising the study area were as follows: (a) River Recreation Reach 1, the section of river from the Susitna River bridge (RM 291/PRM 291.6) on the Denali Highway to Fog Creek (RM 177/PRM 179.3); (b) River Recreation Reach 2, Fog Creek to the confluence with Portage Creek (RM 149/PRM 152.3) downstream of Devils Canyon; and (c) River Recreation Reach 3, Portage Creek to the confluence with the George Parks Highway Bridge (also known as Sunshine) downstream of the confluence with the Talkeetna and Chulitna Rivers (RM 83/PRM 88.9). The three river recreation reach designations overlap other reach breaks delineated for other resource studies.

4. METHODS AND VARIANCES

This study was designed to document the range of flows for a variety of motorized and non-motorized watercraft using the Susitna River for recreation as well as for a transportation corridor. Likewise, the study was designed to document river ice-dependent recreation and transportation activities during the winter period. Recognized river ice variables include temporal and spatial extent for channel bridging, and longitudinal length for transportation. The methods and analysis used practices and survey techniques for recreational flow study design, as described in Whittaker et al. (1993) and Whittaker et al. (2005).

4.1. River Recreation Internet Survey

In conducting the river recreation Internet survey during the 2013 through 2014 field seasons, AEA followed the methodologies described in Section 12.7.4 of the RSP, with no variances. The River Recreation and Access Internet Survey was used to gather information on river recreation uses, location, frequency, seasonal patterns, primary trip purpose, secondary activities, access, campsites, and river recreation quality relative to trip flow evaluations (Appendix A). The survey was posted on the Internet (www.susitnariversurvey.com) from June 25, 2013 to December 31, 2014, and served as the primary means for gathering information from river users. The Internet survey helped expand the collection of responses geographically and temporally. The expansive study area, remote location, dispersed access points, and anticipated low number of annual user days were not appropriate for conducting an intercept survey. Furthermore, the electronic survey provided a means to attempt to capture both past and current recreation use.

Survey participation was solicited by advertising the river recreation survey electronically through a multitude of forums including, but not limited to, national and regional whitewater groups; forums for outdoor recreation including adventure races, fishing, hunting, motorized and non-motorized user groups, message boards, commercial outfitters and guides, and adventure schools; and transportation services to the study area (Table 4.1-1). Information advertising the Internet survey was distributed at key locations including outdoor retail shops, key convenience stores in the study area, restaurants, train station, and commercial transportation service locations for the study area. Postcards describing the Internet survey, including noting the URL to access the survey, were also distributed at key access points and staging areas. Hard copy surveys identical to the Internet survey were prepared for chance encounters during the 2013 season in the study area. For the Internet surveys, the platform allowed for identification of Internet Protocol (IP) addresses for entry; therefore, unique responses could be identified.

AEA posted the Internet survey link to a number of groups on the Alaska outdoor online forums to solicit additional Susitna River recreators to complete the survey. In response, an Internet survey announcement and link to the Internet survey were posted to additional online forums including the Alaska Outdoor Directory, Alaska Canoeing, Alaska Freshwater Kayaking, Alaska Rafting, Alaska Powerboating, Alaska Airboating, Alaska Float Hunting, Alaska Freshwater Fishing, Alaska Bushflying, Interior Alaska Airboat Association, and the Anchorage Paddling Club.

The electronic link for the Susitna River Recreation and Access Internet Survey was forwarded to national and regional paddling groups as well as to whitewater message boards in Alaska. Whitewater organizations at the national and regional level serve as a portal for disseminating information to the paddling community through websites, journal articles, and electronic communication. In addition, efforts were made to identify boaters known to have paddled Devils Canyon and notify them about the Internet survey. A fairly comprehensive list was assembled of paddlers who have attempted or completed runs on Devils Canyon dating back to the 1970s. Individuals on this list were directed to the Internet survey.

Data analysis and reporting includes summaries of the Internet survey data (Section 5). River recreation use information obtained through the electronic Internet survey and interviews was summarized for respective recreation opportunities including primary purpose, secondary activities, demographics of the respective recreational user groups, recreation flow conditions, seasonal use patterns, frequency of use, access points, campsites, trip length, comparisons with recreation opportunities on other Alaska rivers, and quality of experience. Likewise, information gathered through the River Recreation and Access Survey supplements the analysis of river recreation activities.

4.1.1. Variances

There were no variances in the implementation of the river recreation Internet survey. .

5. RESULTS

The cumulative 2013-2014 results of the river recreation Internet survey in Study Reaches 1, 2, and/or 3 are presented below. Flow information from four U.S. Geological Survey (USGS) gaging stations (Susitna R. at Sunshine River Mile (RM) 84; Susitna R. at Gold Creek RM 137; Susitna R. above Tsusena C Nr Chulitna, RM 182; Susitna R. Nr Denali, RM 291) was used to illustrate present and historic flows in the study reaches during recorded recreation events. Each study reach is discussed separately starting with Reach 1 and ending with Reach 3.

Data developed in support of this study are available for download at <http://gis.suhydro.org/reports/isr>.

5.1. River Recreation Reach 1 (PRM 291.6–PRM 179.3)

River Recreation Reach 1 is a 113-mile section of the Susitna River beginning at the Denali Highway Bridge and ending downstream at Fog Creek. Motor vehicles can only access Reach 1 at the Denali Highway Bridge and there is an established unimproved boat launch on the immediate east side of the Denali Highway Bridge. There is only 1,000 feet of elevation drop over the course of 112 river miles in Reach 1. This relatively gentle gradient provides numerous options for floatplane access throughout Reach 1.

Reach 1 from the confluence with the Tyone River to just downstream of V-Canyon drops 350 feet in elevation in just 22 miles. This is steeper than the other sections of Reach 1 upstream and downstream. Egress from River Reach 1 is challenging for river runners due to the remote location. Reach 1 terminates at Project River Mile (PRM) 179.3, approximately 15 miles upstream from the start of Devils Canyon at PRM 164.8.

Flows listed on the USGS National Water Information website for the period of record (May 30, 1957 to September 30, 2014) at USGS Gage No. 15291000 (Susitna R. Nr Denali) were reviewed for the ice-free months (assumed May through October). Data for this location were not available for the period between August 1, 1986 and May 22, 2012. Average recorded flows at the Susitna R. Nr. Denali gage were 5,227 cubic feet per second (cfs) and median recorded flows were 4,400 cfs. The highest recorded flow at this gage was 33,400 cfs in August 1971. There is a second gage in Reach 1, 109 miles downriver: USGS Gage No. 15291700 Susitna R. AB Tsusena C NR Chulitna, AK (Susitna R. AB Tsusena). Average recorded flows at the Susitna R. AB Tsusena gage during ice-free months over the period of record (October 1, 2011 to October 20, 2014) were 15,680 cfs and median recorded flows were 15,300 cfs. The highest recorded flow at this gage for this period was 72,800 cfs in June 2013.

5.1.1. Reach 1 Susitna River Recreation Internet Survey Information

Table 5.1-1 includes general information about the 55 Internet survey participants who recreated in Reach 1. Twenty-six of these participants provided recreation information that was not included in the June 2014 ISR. Participants' ages ranged from 8 to 83 with a median age of 42. Only 3 of the participants were female and 81% were Alaska residents. A variety of skill levels and craft types were recorded in Reach 1. Whitewater kayakers were the largest single group, with the majority of them utilizing Reach 1 to access Reach 2. Other groups identified by

specific watercraft type that frequently used Reach 1 were rafters, packrafters, airboaters, prop boaters, and jet boaters. Open and closed deck canoeists, catarafters, and boaters using other craft types were the least frequent users of Reach 1. Most Reach 1 survey participants identified themselves as having either advanced or expert skill levels in operating their craft, and used their respective craft more than 20 days per year. The majority of recreators had more than one person in their party, with a median party size of 3 and a range of 1 to 25.

Table 5.1-2 includes general information on put-in and take-out options for river recreators on Reach 1. The majority of participants (34) put-in at the Denali Highway Bridge and used a car or truck to access the put-in. However, a number of participants utilized float planes (8), wheeled planes (4), foot travel (3), snowmobile (1), motorized boat (1), and ATV (1) to access Reach 1. The Denali Highway Bridge was the most active put-in location followed in order of frequency of use by other unspecified locations, floating in from upstream of the Denali Highway, Reach 1 remote locations (unspecified), access by floating down tributaries (unspecified) into Reach 1, and floating down specific tributaries into Reach 1 including Tyone River, Maclaren River, Watana Creek and Jay Creek.

Take-out options for Reach 1 are limited due to the remote location at the terminus of the reach. The majority of participants (29) identified use of a car or truck, indicating two-way navigation back upstream to the Denali Highway Bridge, or, alternatively, floating downstream through Reach 2 and into Reach 3. A number of participants utilized other Reach 1 take-out methods including float planes (4), wheeled planes (5), foot travel (3), snowmobile (1), motorized boat (4), and ATV (1). The Denali Highway Bridge was the most active take-out location followed in order of frequency of use by other unspecified locations, floating through to Reach 2, Tyone River, Watana Creek, Reach 1 remote locations (unspecified), exit via tributary (unspecified), Maclaren River, Oshetna River, and Jay Creek.

In Reach 1, 47% of survey participants indicated that current access to Reach 1 was sufficient in contrast to 20% opposed to additional access and 24% in favor of access improvements (Figure 5.1-1). Reach 1 participants were also content with current access conditions for river reaches 2 and 3 (33% and 40%, respectively). The remaining Reach 1 participants were split between favoring access improvements to Reaches 2 and 3 (22% and 18%, respectively), opposing additional access (20% and 18%, respectively), and no opinion (25% and 23%, respectively).

Participants were asked to list the primary and secondary purposes of their trip in Reach 1 and were given 12 purposes to choose from, including a write-in option for “other” primary and secondary trip purposes. Figure 5.1-2 illustrates the primary recreation purposes for aircraft, motorized craft, and non-motorized craft in Reach 1. Non-motorized craft participants listed wilderness and solitude (21%), followed by whitewater recreation (18%) as their primary trip purpose. Motorized craft participants listed hunting as their primary trip purpose (30%), followed by motorized recreation (19%). Similarly, aircraft participants listed hunting (40%) as their primary trip purpose, followed by photography (20%).

Figure 5.1-3 illustrates the secondary recreation purposes for aircraft, motorized craft, and non-motorized craft in Reach 1. The most common secondary trip purposes for non-motorized crafts were wildlife viewing (19%), and photography (19%) followed closely by camping (17%). The most common secondary trip purpose for motorized watercraft was camping (21%) and

wilderness/solitude (14%). Fishing (50%) was the most commonly reported secondary trip purpose for aircraft operators in Reach 1.

Participants were asked a series of questions about factors that influenced the timing of their trip and how they checked river flows prior to recreating in Reach 1 (Table 5.1-3). The majority of participants listed flows as a factor that influenced their decision to take a trip in Reach 1. In addition, the majority of participants checked the flows prior to their trip and used USGS gage information available on the Internet to do so. The majority of Reach 1 recreators used flow information from the Gold Creek gage in Reach 3 even though there are two existing stream gages in Reach 1 (Susitna R. at Nr. Denali and Susitna R. above Tsusena C.). The Gold Creek gage has the longest continuous flow data record of the three gages and is the gage reference point in river recreation guidebooks (Embick 1994 and Jettmar 2008) for suitable flow ranges.

Figure 5.1-4 illustrates the timing of air, motorized, and non-motorized trips in Reach 1 from 1975 to 2014 in comparison to recorded flows at the Gold Creek gage. The earliest Reach 1 trip recorded by a survey participant was a non-motorized trip in 1977. The majority of participants entered trip information for Reach 1 trips that occurred within the last 5 years. Figure 5.1-5 illustrates the timing of 2013 and 2014 air, motorized, and non-motorized trips in Reach 1 in comparison to recorded flows at the Gold Creek gage. Most Reach 1 participants felt that the flow experienced on their trip was about the same as their preferred flow, and that they were very likely to return to Reach 1 based on this preferred flow (Table 5.1-4). Only two participants had to cut their trip short because flows were too high in Reach 1; none reported that trip length was cut short because flows were too low.

When asked to compare Susitna River Reach 1 recreation opportunities with other river opportunities in Alaska, 40% rated it as above average, 40% average, 13% below average, and 7% did not know. Compared to other rivers in the Pacific Northwest and Canada, 36% rated it as above average, 18% average, 16% below average, and 29% did not know. Finally, in comparison to other rivers in the USA, 38% rated Reach 1 as above average, 11% average, 24% below average, and 27% did not know (Table 5.1-5).

5.2. River Recreation Reach 2 (PRM 179.3–PRM 152.3)

River Recreation Reach 2 is a 27-mile section of the Susitna River from Fog Creek to Portage Creek that includes Devils Canyon. Access to Reach 2 is limited. There is no motor vehicle access or recommended float/wheeled plane access within the Reach 2 river corridor, although it has been used historically by floatplanes for rescues of Devils Canyon boaters and for drop-offs. Floatplane operators indicated that they no longer land on the river in Reach 2 for safety reasons. Most motorized boats traveling upstream cannot make it beyond the lower portions of Devils Canyon just above Portage Creek. Floating into Reach 2 from Reach 1 is the primary means of non-motorized boat access to Reach 2. River recreators in this portion of the Susitna River typically exit the river in Reach 3 either floating to Talkeetna or boarding the train at Gold Creek. Reach 2 has been accessed from High Lake but no established trail exists. Likewise, whitewater boaters identified the lakes north of Stephan Lake as an access location from which kayakers drag their boats overland to the Susitna River. Access through private lands require permission and/or permits from landowners.

Flows listed on the USGS National Water Information website for the period of record (August 1, 1949 to October 22, 2014) at USGS Gage No. 15292000 Susitna R. at Gold Creek (Gold Creek gage) were reviewed for the ice-free months (assumed to be May through October). Data for this location were not available for the period between October 1, 1996 and May 24, 2001. Average recorded flows at Gold Creek gage were 18,559 cfs, and median recorded flows were 18,600 cfs. The historic maximum recorded daily flow at the Gold Creek gage was 86,800 cfs in June 2013. The Gold Creek gage is located in Reach 3 downstream of Devils Canyon, but some Reach 2 recreators reference the Gold Creek gage as the gage most often used to determine flow conditions in Reach 2. Hydraulic features and potential boat routes/portages through individual rapids in Devils Canyon can change considerably with changes in flow.

5.2.1. Reach 2 Susitna River Recreation Internet Survey Information

Table 5.2-1 includes general information about the 47 Internet survey participants who recreated in Reach 2. Twenty of these participants provided recreation information that was not included in the June 2014 ISR. Participants' ages ranged from 19 to 83 with a median age of 37. Only 6 of the participants were female and 42% of the Reach 2 participants were Alaska residents. Twenty-nine of the 44 recreators in Reach 2 responded that their skill level was expert. The majority of participants had more than one person in their party with a median party size of 4 and range of 1 to 35.

Table 5.2-2 includes general information on put-in and take-out options for river recreators on Reach 2. Seven used a motorized boat for the put-in, 3 hiked in, 1 used a snowmobile, 17 used a floatplane, 4 used a wheeled plane, and 15 participants chose N/A or a transportation mode not listed on the survey for Reach 2. Put-in locations for Reach 2 also varied. Nine participants floated in from Reach 1, and 11 put in at an undesignated remote location in Reach 2. Five individuals used Devil Creek, 9 used Fog Creek, and 1 used Log Creek as the put-in for Reach 2. An additional 10 participants listed "other" as the put-in location. The majority of Reach 2 recreators floated through to Reach 3 to take out.

Approximately 30% of Reach 2 survey participants indicated that current access to Reach 2 is sufficient, while 43% were opposed to additional access and 28% were in favor of access improvements (Figure 5.2-1). Reach 2 participants feel current river access conditions are sufficient in reaches 1 and 3 (38% and 36% respectively), while 36% and 32% of Reach 2 participants oppose access improvements in reaches 1 and 3. Some of the Reach 2 participants were in favor of improvements to river access in reaches 1 and 3 (26% and 23%, respectively) (Figure 5.2-1).

Participants were asked to list the primary and secondary purposes of their trip on Reach 2 and were given 12 purposes to choose from including write-in options for "other" primary and secondary trip purposes. Figure 5.2-2 illustrates the primary recreation purposes for aircraft, motorized craft, and non-motorized craft in Reach 2. Non-motorized craft participants listed whitewater recreation (33%) as their primary trip purpose, followed by wilderness and solitude (19%). Twenty percent of motorized craft participants reported motorized recreation, and fishing as their primary purposes, followed by wilderness/solitude (16%). The three aircraft participants for Reach 2 listed hunting and photography as the primary trip purpose.

Figure 5.2-3 illustrates the secondary recreation purposes for aircraft, motorized craft, and non-motorized craft in Reach 2. The most common non-motorized craft secondary trip purposes were camping (22%), photography (20%), wildlife viewing (20%), and wilderness and solitude (15%). The most common motorized craft secondary trip purposes were wildlife viewing (15%) and photography (15%). Secondary trip purposes for Reach 2 aircraft participants were split evenly between fishing (25%), wildlife viewing (25%), camping (25%), and transportation (25%).

Participants were asked a series of questions about factors that influenced the timing of their trip and how they checked river flows prior to recreating in Reach 2 (Table 5.2-3). The majority of participants listed flows as a factor that influenced their decision to take a trip in Reach 2. In addition, the majority of participants checked the flows prior to their trip and used USGS gage information available on the Internet to do so. For those Reach 2 recreators who did check the gage, the majority used flow information from the Gold Creek gage (RM 137) in Reach 2. Figure 5.2-4 illustrates the timing of air, motorized, and non-motorized trips in Reach 2 in comparison to recorded flows at the Gold Creek gage for the years 1975 through 2014. The earliest Reach 2 trip recorded by a survey participant was a non-motorized trip in 1977. Figure 5.2-5 illustrates the timing of 2013 and 2014 air, motorized, and non-motorized trips in Reach 2 in comparison to recorded flows at the Gold Creek gage. Most Reach 2 participants felt that the flow experienced on their trip was about the same as their preferred flow, and that they were very likely to return to Reach 2 based on this preferred flow (Table 5.2-4). One participant had to cut the trip short because flows were too high in Reach 2 and one participant reported that trip length was cut short because flows were too low.

When asked to compare Susitna River Reach 2 recreation opportunities with other river opportunities in Alaska, 59% rated it as above average, 24% average, 12% below average, and 6% did not know. Compared to other rivers in the Pacific Northwest and Canada, 65% rated it as above average, 12% average, and 24% below average. Finally, in comparison to other rivers in the USA, 65% rated Reach 2 as above average, 6% average, and 29% below average (Table 5.2-5).

5.3. River Recreation Reach 3 (PRM 152.3–PRM 88.9)

River Recreation Reach 3 is a 63-mile section of the Susitna River beginning at Portage Creek and terminating at the George Parks Highway Bridge over the Susitna River. Motor vehicles can access Reach 3 at established unimproved boat launches in the lower eleven miles of reach at the following locations; the George Parks Highway Bridge on river right, the terminus of Susitna River Road at PRM 99.2, and the southern terminus of D Street in Talkeetna. Motor vehicles can also access the Susitna River via an improved boat launch on the Talkeetna River northeast of the town of Talkeetna, about 3,000 feet upstream of the confluence of the Talkeetna and Susitna rivers. The Alaska Railroad's Hurricane Turn Whistle Stop Train offers access to upstream locations on Reach 3 for non-motorized boaters at Chase, Curry, Gold Creek, and other stops along the rail line.

Motorized and non-motorized boating is a common recreation and commercial activity on Reach 3. A number of companies from Talkeetna including Denali View Raft Adventures, Denali River Guides, Mahay's Riverboat Service, and Talkeetna River Guides advertise boating

and fishing tours in Reach 3. Only Mahay's runs a commercial motorized trip from Talkeetna, above Reach 3, into the lower portion of Devils Canyon. The Alaska Railroad, in concert with Denali View River Raft Adventures, advertises a flag stop rail and Susitna River float, with a train ride to Chase, and a gentle float back to Talkeetna with views of Mt. McKinley. Mahay's Riverboat Service advertises its Reach 3 commercial jet boat trips internationally and has as many as 25,000 customers annually (Steve Mahay, Owner of Mahay's Riverboat Service, Personal Communication, August 12, 2013).

There are two USGS gaging stations in Reach 3. Recorded flows for the Gold Creek gage are described in Section 5.2. Flows listed on the USGS National Water Information website were reviewed for the period of record (May 1, 1981 to October 17, 2014) at USGS Gage No. 15292780 Susitna R. at Sunshine, AK (Sunshine gage), during the ice-free months (assumed to be May through October). Data from this location were not available between July 1, 1986 and September 30, 2011. Average recorded flows at the Sunshine gage were 45,431 cfs and median recorded flows were 45,400 cfs. A high flow of 168,000 cfs was recorded in September 2012.

5.3.1. Reach 3 Susitna River Recreation Internet Survey Information

Table 5.3-1 includes general information about the 146 Internet survey participants who recreated in Reach 3. Eighty-three of these participants provided recreation information that was not included in the June 2014 ISR. Participant ages ranged from 17 to 82 with a median age of 45. Thirty-four participants were female and 112 were male. Ninety percent of the Reach 3 participants were Alaska residents. A variety of skill levels and craft types was recorded in Reach 3. Reach 3 participants included whitewater kayakers, jet boaters, prop boaters, rafters, catarafters, inflatable kayakers, canoers, and packrafters. Reach 3 survey participants reported a wide range of skill levels including novice (11%), intermediate (29%), advanced (37%), and expert (23%). The majority of Reach 3 participants had more than one person in their party with a median party size of 4 and a range of 1 to 47.

Table 5.3-2 includes general information on put-in and take-out options for river recreators on Reach 3. The largest single category (51%) of participants used a car or truck to access the put-in location in Talkeetna, followed by access via train (19%). Train put-in locations included Gold Creek and Curry. Other participant put-in locations included "remote Reach 3 locations," "float in from Reach 2," Chulitna River, George Parks Highway Bridge, Indian River, Portage Creek, Sherman, and "other". Similarly, at the take-out, the majority of participants used a car or truck to take out in Talkeetna (69%). Twenty-nine participants took out at the George Parks Highway Bridge, 10 downstream of the George Parks Highway Bridge, 79 at Talkeetna, 1 at Curry, 3 on the Chulitna River, 4 at Gold Creek, 7 at remote Reach 3 locations, 1 at Sherman, and 12 at "other" locations.

Survey responses for Reach 3 participants indicated 38% feel the current level of access to Reach 3 is sufficient, while 26% were in favor of improvements and 25% opposed additional access (Figure 5.3-1). Reach 3 participants indicated current river access conditions were sufficient for Reaches 1 and 2 (36% and 32%), while 27% of the respondents indicated they would oppose additional access to Reach 1 and 2. In contrast, 23% and 25% of Reach 3 participants were in favor of improvements to Reach 1 and 2, respectively (Figure 5.3-1).

Participants were asked to list the primary and secondary purposes of their trip in Reach 3 and were given 12 purposes to choose from including a write-in option for “other” primary and secondary trip purposes. Figure 5.3-2 illustrates the primary recreation purposes for aircraft, motorized craft, and non-motorized craft in Reach 3. Non-motorized craft participants listed non-motorized recreation (27%) as their primary trip purpose, followed by wilderness and solitude (20%). Twenty-one percent of motorized craft participants reported fishing as their primary trip purpose, followed by motorized recreation (17%). The four aircraft participants for Reach 3 listed hunting photography, and wildlife viewing as their primary trip purposes. Figure 5.3-3 illustrates the secondary recreation purposes for aircraft, motorized craft, and non-motorized craft in Reach 3. The most common non-motorized craft secondary trip purposes were wildlife viewing and camping. The most common motorized craft secondary trip purposes were motorized recreation, and wildlife viewing. Fishing, photography, and wilderness/solitude were the secondary trip purposes for the four Reach 3 aircraft participants.

Similar to Reach 1 and 2, participants were asked a series of questions about factors that influenced the timing of their trip and how they checked river flows prior to recreating in Reach 3 (Table 5.3-3). The majority of participants listed flows as a factor that influenced their decision to take a trip in Reach 3. In addition, the majority of participants checked the flows prior to their trip and used USGS gage information available on the Internet to do so. Also similar to recreators on Reaches 1 and 2, the majority of Reach 3 recreators used flow information from the Gold Creek gage. Figure 5.3-4 illustrates the timing of air, motorized, and non-motorized trips in Reach 3 from 1975 to 2015 in comparison to recorded flows at the Gold Creek gage. The earliest Reach 3 trip recorded by a survey participant was a non-motorized trip in 1979. Figure 5.3-5 illustrates the timing of 2013 and 2014 air, motorized, and non-motorized trips in Reach 3 in comparison to recorded flows at the Gold Creek gage. Most Reach 3 participants felt that the flow experienced on their trip was about the same as their preferred flow, and that they were very likely to return to Reach 3 based on this preferred flow (Table 5.3-4). Four participants had to cut their trips short because flows were too high in Reach 3 and three reported that trip length was cut short because flows were too low.

When asked to compare Susitna River Reach 3 recreation opportunities with other river opportunities in Alaska, 54% rated it as above average, 31% average, and 15% below average. Compared to other rivers in the Pacific Northwest and Canada, 54% rated it as above average, 23% average, 15% below average, and 8% did not know. Finally, in comparison to other rivers in the USA, 54% rated Reach 3 as above average, 15% average, 23% below average, and 8% did not know (Table 5.3-5).

6. DISCUSSION

As described in Section 12.7.4 of the RSP, River Recreation Flow and Access Study efforts to date have involved documenting river uses including transportation river uses. The Susitna River Recreation and Access Internet Survey was used to gather information on river recreation uses, location, frequency, seasonal patterns, primary trip purpose, secondary activities, access, campsites, and river recreation quality relative to trip flow evaluations for three distinct Susitna River Recreation reaches described in Section 12.7.3 of the RSP.

Survey participation was solicited by advertising the river recreation survey electronically through a multitude of forums. Formal and informal interviews were conducted in 2013 to supplement the Internet survey data as well as gather additional information about user groups, trip purposes, use patterns, access, flows, and other recreation information and presented in the June 2014 ISR. Information on winter recreation activities and transportation on the ice-covered Susitna River was obtained through interviews with regional officials, winter recreation users, event organizers, event participants, and other knowledgeable area residents, and presented in the June 2014 ISR. River ice-dependent winter recreation and transportation information obtained through the interviews was summarized for respective recreation opportunities including primary purpose, secondary activities, ice thickness required, need for ice bridges versus longitudinal ice cover, seasonal use patterns, frequency of use, access points, and winter recreation quality on the Susitna.

All data from the internet survey has been obtained and results presented in this report. The study component is now complete.

7. CONCLUSION

7.1. Decision Points from Study Plan

Based on the data and analysis thus far, the study has concluded the Project would not affect river flows in a way that would impact how recreationists currently use the reach of the river downstream of the Parks Highway Bridge (PRM 88.9). The Study Plan (RSP Section 12.7.3) provides that if 2013 study results indicate that the Project may affect river flows in a way that recreationists currently use the reach of the river downstream of the Parks Highway Bridge (PRM 88.9), the study effort for the next study season may extend farther downstream. In 2013 and 2014, the study team collected information on river recreation use and experience and coordinated with the study teams for the Instream Flow Study (Study 8.6), Ice Processes in the Susitna River Study (Study 7.6), Geomorphology Study (Study 6.5), Recreation Resources Study (Study 12.5), and Aesthetics Resources Study (Study 12.6).

In 2013 and 2014, 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), Recreation Resources Study (Study 12.5), and Aesthetics Resources Study (Study 12.6). The first year results from Instream Flow Study (Study 8.5), Ice Processes in the Susitna River Study (Study 7.6), Geomorphology Study (Study 6.5), Recreation Resources Study (Study 12.5), and Aesthetics Resources Study (Study 12.6) do not indicate that the project would affect river flows in a way that recreationists currently use the reach of the river downstream of the Parks Highway Bridge (PRM 88.9) as described in the June 2014 ISR.

7.2. Modifications to Study Plan

None

7.3. Steps to Complete the Study

Two focus group discussions are pending: (1) whitewater boating, and (2) winter ice and snow travel in the river corridor for motorized and non-motorized users. Once completed, information obtained from the focus discussions will be summarized for flow preferences for whitewater boating and ice conditions needed for motorized and non-motorized travel.

7.4. Conclusion

From 2013 to 2014, AEA completed a recreation flow analysis on mainstem reaches of the Susitna River that considers the relationship between river flows and ice conditions, river recreation and transportation.. The field work, data collection, data analysis, and reporting for this River Recreation Flow and Access Study successfully meet the study objectives in the FERC-approved Study Plan. The results of this River Recreation Flow and Access Study are reported herein and earlier by AEA in the June 2014 ISR.

8. LITERATURE CITED

- AEA (Alaska Energy Authority). 2012. Revised Study Plan: Susitna-Watana Hydroelectric Project, FERC Project No. 14241. Prepared for the Federal Energy Regulatory Commission by the Alaska Energy Authority, Anchorage, AK. December 2012. Published online at: <http://www.susitna-watanahydro.org/study-plan>.
- Embick, Andrew. 1994. *Fast and Cold, a Guide to Alaska Whitewater*. Globe Pequot Press. 298p.
- Jettmar, Karen. 2008. *Alaska River Guide: Canoeing, Kayaking, and Rafting in the Last Frontier*. Menasha Ridge Press 328p.
- Whittaker, D., B. Shelby, W. Jackson, R. Beschta. 1993. *Instream flows for recreation: a handbook on concepts and research methods*. U.S. Dept. Interior National Park Service. 103pp.
- Whittaker, D., Shelby, B. and Gangemi, J. 2005. *Flows and recreation: A guide to studies for river professionals*, Portland, OR: Hydropower Reform Coalition and National Park Service Hydropower Recreation Assistance Program.

9. TABLES

Table 4.1-1. Susitna River Recreation Internet Survey Distribution

Organization	Electronic Solicitation	Personal Solicitation	Distribution of Postcards
Above Alaska Aviation	x	x	x
Alaska Department of Fish and Game; Glennallen	x		
Alaska Airmen's Association	x		
Alaska Backcountry Adventure Tours	x		
Alaska Bush Float Plane Service	x	x	x
Alaska Fish Bone Charters	x		
Alaska Flyfishers Association	x		
Alaska Mountaineering School	x		
Alaska Outdoor Council	x		
Alaska Raft and Kayak	x	x	x
Alaska Railroad	x	x	x
Alaska Tour and Travel	x		
Alaska Outdoor Recreation Forum	x		
Alaska Freshwater Kayaking Forum	x		
Alaska Rafting Forum	x		
Alaska Powerboating Forum	x		
Alaska Airboating Forum	x		
Alaska Float Hunting Forum	x		
Alaska Freshwater Fishing Forum	x		
Alaska Flyfishing Forum	x		
Alaska Bushflying Forum	x		
American Whitewater Association	x		
Anchorage Paddling Club	x		

Organization	Electronic Solicitation	Personal Solicitation	Distribution of Postcards
Black Bear ATV/Air-Boat Tours	x		
Bureau of Land Management, Glennallen; Heath Emmons & Denton Hamby	x		
Boy Scouts of America, Blair Lake Project	x		
Cross Country Alaska	x		
Dave Fish Alaska	x		
Denali Guides and Outfitters/Denali Trekking Co.	x		
Denali Outdoor Center	x	x	x
Denali Raft Adventures	x	x	x
Denali Southside River Guides	x	x	x
Denali View Raft Adventures	x	x	x
Deshka Landing	x	x	x
Fairbanks Paddlers	x		
High Lake Lodge	x		
Huskeytown Kennel	x		
Gracious House Lodge	x	x	x
Interior Alaska Airboat Association Inc.	x		
Just Fly Fish	x		
K2 Aviation	x	x	x
Lake Louise Lodge	x		
Maclaren River Lodge	x		
Mahay's Riverboat Service	x	x	x
Mckinley Flight Tours/Talkeetna Aero Services	x	x	x
National Outdoor Leadership School (NOLS), Alaska	x	x	
Nova River Guides	x	x	x
Paxson Alpine Tours	x		
Phantom Salmon Charters	x		
Recreation Equipment Incorporated (REI) Anchorage	x	x	x
River Wranglers	x		
Rust's Flying Service	x		
Sheldon Air Service	x		
Sportsmen for Fish and Wildlife	x		

Organization	Electronic Solicitation	Personal Solicitation	Distribution of Postcards
Sportsman's Warehouse Anchorage	x	x	x
Stephan Lake Lodge	x		
Talkeetna Adventure Company	x		
Talkeetna Air Taxi	x	x	x
Talkeetna Chamber of Commerce	x		
Talkeetna River Guides	x		
Talkeetna Sundog Kennel	x		
Talkeetna Travel and Reservations	x		
Talkeetna/Denali Visitor Center	x		
Talkeetna Roadhouse			x
Three Rivers Fly Shop	x	x	x
Tri Rivers Charter	x	x	x
University of Alaska Kayak Club	x		
Willow Air	x		

Table 5.1-1 Susitna River Reach 1 Internet Survey Participant Information

Age; Gender	Age: Mean (44), Median (42), Range (8-83); Gender: M(49) F (3)
Resident or Non-Resident	Non-Residents (10) Residents (42)
Type of Craft	Motorized (18), Non-Motorized (29), Airplane (5)
Specific Watercraft	Whitewater Kayak (10) Raft (8) Packraft (6) Closed deck canoe (1) Open canoe (1) Airboat (6) Prop Boat(6) Jetboat (6) Cataraft (1) Other (2)
Skill Level	Novice (4), Intermediate (13), Advanced (15), Expert (15)
Years Using the Craft	Mean (17), Median (15), Range (1-59)
How many days/year using this craft	<5 (3) 6-10 (4) 11-20 (11) >20 (34)
How many times have you recreated on this Reach	1 (11) 2-5 (16) 6-10 (9) >10 (16)
How many people were in your party	Mean (4), Median (3), Range (1-25)
Use of Commercial Outfitter or Rental	25%% Yes 75%% No

Table 5.1-2 Susitna River Reach 1 Put in and Take out Information

Access Type	Location Name	Total Number using Access Location	How did you access the Susitna River at this location?									
			Car/Truck	ATV	Motorized Boat	Non-motorized Boat	Snowmobile	Float Plane	Wheeled Plane	Hike	NA	
Put-in	Float in from upstream of Denali Hwy	7	5	0	0	0	0	0	0	1	1	0
	Denali Highway Bridge	24	24	0	0	0	0	0	0	0	0	0
	Access via tributary float	3	1	0	0	0	0	0	2	0	0	0
	Reach 1 remote location	6	0	0	0	0	0	0	3	2	1	0
	Jay Creek	1	0	1	0	0	0	0	0	0	0	0
	Maclaren River	2	0	0	0	0	0	0	2	0	0	0
	Tyone River	3	2	0	0	0	0	1	0	0	0	0
	Walana Creek	1	0	0	0	0	0	0	0	1	0	0
	Other	8	2	0	1	0	0	0	1	0	1	3
Take-out	Denali Highway Bridge	17	16	0	0	0	0	0	0	0	1	0
	Float through to Reach 2	6	2	0	1	0	0	0	1	0	0	2
	Exit Via Tributary	2	1	0	0	0	0	0	1	0	0	0
	Reach 1 remote location	3	0	0	0	0	0	0	0	2	1	0
	Jay Creek	1	0	1	0	0	0	0	0	0	0	0
	Maclaren River	2	1	0	1	0	0	0	0	0	0	0
	Osheha River	1	0	0	0	0	0	1	0	0	0	0
	Tyone River	5	3	0	1	0	0	0	0	1	0	0
	Walana Creek	3	0	0	0	0	0	0	1	1	0	1
	Other	15	6	0	1	0	0	0	1	1	1	5

Table 5.1-3 Susitna River Reach 1 Put in and Take out Information

Do they typically check flows for the trip; For this trip?	Typically (37 Yes; 22 No) This Trip (33 Yes;22 No)
How do they check flows for the trip	Internet Gage (21), Internet Gages for Adjacent Rivers (10), Observation (14), Local Knowledge (16), Weather Patterns (12) Other (3)
Gage (s) Used for Flow Information	Su. R. at Sunshine, RM 84 (7); Su. R. at Gold RM 137 (14); Su. R. above Tsusena C. RM 182 (8); Su. R. at Nr. Denali RM 291 (11);
Factors that influenced the decision to take the trip	Flow (24) Weather (19) Vacation time (16) Hunting/fishing season (29) Availability with friends/family (18) Other (10)

Table 5.1-4 Susitna River Reach 1 Flow Preference Information

Compared to the recent trip should the flows be lower, higher, or the same	Much lower (4) slightly lower (4) About the same (34) slightly higher (13) Much higher flow (0)
Likelihood of returning to the River Reach based on preferred flow	Very likely (45) Somewhat likely (7) Unlikely (3)
Did lack of water clarity contribute to hits, stops, drags and boat running aground	A lot (2) Somewhat (17) Not at all (36)
Trip length cut short because flows were too high or too low	Too high (2) Too Low (0) Not Applicable (53)

Table 5.1-5 Susitna River Reach 1 Comparison to other rivers statewide, regionally, and nationally¹

Compared to other rivers in:	Median	Mean	Below Average	Average	Above Average	Don't Know
Alaska	2	2.4	13%	40%	40%	7%
Pacific Northwest & Canada	3	2.8	16%	18%	36%	29%
USA	3	2.7	24%	11%	38%	27%

1. Rating Scale: 1-Below Average, 2-Average, 3-Above Average, 0-Don't know

Table 5.2-1 Susitna River Reach 2 Internet Survey Participant Information

Age; Gender	Age: Mean (42), Median (37), Range (19-83); Gender: M(41) F (6)
Resident or Non-Resident	Non-Residents (27) Residents (20)
Type of Craft	Motorized (9), Non-Motorized (35), Airplane (3)
Specific Watercraft	Raft (1) Cataraft (1) Whitewater Kayak (28) Packraft (2) Closed deck canoe (1) Jetboat (6) Airboat (1) Prop boat (2) Other (2)
Skill Level	Novice (3) Intermediate (5), Advanced (7), Expert (29)
Years Using the Craft	Mean (21), Median (20), Range (0-59)
How many days/year using this craft	>5 (2) 6-10 (1) 11-20 (5) <20 (39)
How many times have you recreated on this Reach	1 (15) 2-5 (15) 6-10 (6) >10 (11)
How many people were in your party	Mean (5), Median (4), Range (1-35)
Use of Commercial Outfitter or Rental	51% Yes 49% No

Table 5.2-2 Susitna River Reach 2 Put in and Take out Information

Access Type	Location Name	Total Number using Access Location	How did you access the Susitna River at this location?									
			Car/truck	ATV	Motorized Boat	Non-motorized Boat	Snowmobile	Float Plane	Wheeled Plane	Hike	Helicopter	NA
Put-in	Float in from Reach 1	9	0	0	1	0	0	1	0	1	0	6
	Reach 2 Remote location	11	0	0	0	0	0	8	1	1	0	1
	Devil Creek	5	0	0	0	0	1	4	0	0	0	0
	Fog Creek	9	0	0	1	0	0	3	1	1	0	3
	Log Creek	1	0	0	1	0	0	0	0	0	0	0
	Portage Creek	2	0	0	2	0	0	0	0	0	0	0
	Other	10	0	0	2	0	0	1	2	0	0	5
	Take-out	Float through to Reach 3	15	0	0	3	0	0	0	0	1	0
Reach 2 remote location		4	0	0	1	0	0	2	1	0	0	0
Devil Creek		2	0	0	0	0	0	1	0	0	0	1
Fog Creek		1	0	0	0	0	0	0	1	0	0	0
Log Creek		1	0	0	1	0	0	0	0	0	0	0
Portage Creek		6	0	0	1	0	0	1	0	1	1	2
Other		18	0	0	2	0	0	0	1	3	0	12

Table 5.2-3 Susitna River Reach 2 Put in and Take out Information

Do they typically check flows for the trip; For this trip?	Typically (37 Yes; 10 No) This Trip (38 Yes; 9 No)
How do they check flows for the trip	Internet Gage (24), Internet Gages for Adjacent Rivers (9), Observation (13), Local Knowledge (21), Weather Patterns (18) Other (5)
Gage (s) Used for Flow Information	Su. R. at Sunshine, RM 84 (3), Su. R. at Gold RM 137 (21); Su. R. above Tsusena C. RM 182 (4); Su. R. at Nr. Denali RM 291 (4);
Factors that influenced the decision to take the trip	Flow (34) Weather (27) Vacation time (17) Hunting/fishing season (11) Availability with friends/family (17) Other (7)

Table 5.2-4 Susitna River Reach 2 Flow Preference Information

Compared to the recent trip should the flows be lower, higher, or the same	Much lower (0) slightly lower (8) About the same (26) slightly higher (12) Much higher flow (1)
Likelihood of returning to the River Reach based on preferred flow	Very likely (35) Somewhat likely (7) Unlikely (5)
Did lack of water clarity contribute to hits, stops, drags and boat running aground	A lot (3) Somewhat (7) Not at all (37)
Trip length cut short because flows were too high or too low	Too high (1) Too Low (1) Not Applicable (45)

Table 5.2-5 Susitna River Reach 2 Comparison to other rivers statewide, regionally, and nationally¹

Compared to other rivers in:	Median	Mean	Below Average	Average	Above Average	Don't Know
Alaska	3	2.6	12%	24%	59%	6%
Pacific Northwest & Canada	3	2.4	24%	12%	65%	0%
USA	3	2.4	29%	6%	65%	0%

1. Rating Scale: 1-Below Average, 2-Average, 3-Above Average, 0-Don't know

Table 5.3-1 Susitna River Reach 3 Internet Survey Participant Information

Age; Gender	Age: Mean (46), Median (45), Range (17-82); Gender: M(112) F (34)
Resident or Non-Resident	Non-Residents (14) Residents (132)
Type of Craft	Motorized (61), Non-Motorized (81), Airplane (4)
Specific Watercraft	Whitewater Kayak (21) Packraft (14) Jetboat (50) Airboat (3) Prop Boat (8) Raft (25) Cataract (3) Inflatable Kayak (7) Open Canoe (7) Other (4)
Skill Level	Novice (15) Intermediate (41), Advanced (53), Expert (33)
Years Using the Craft	Mean (16), Median (15), Range (0-54)
How many days/year using this craft	<5 (14) 6-10 (15) 11-20 (37) >20 (80)
How many times have you recreated on this Reach	1 (20) 2-5 (56) 6-10 (17) >10 (53)
How many people were in your party	Mean (5), Median (4), Range (1-47)
Use of Commercial Outfitter or Rental	23% Yes 77% No

Table 5.3-2 Susitna River Reach 3 Put in and Take out Information

Access Type	Location Name	Total Number using Access Location	How did you access the Susitna River at this location?										
			Car/truck	ATV	Motorized Boat	Non-motorized Boat	Snowmobile	Float Plane	Wheeled Plane	Hike	Train	NA	
Put-in	Reach 3 remote location	9	2	1	0	0	0	0	1	1	0	1	3
	Float in from Reach 2	9	0	0	0	0	0	0	0	1	1	0	7
	Curry	8	1	0	0	0	0	0	0	0	0	7	0
	Chulitna River	14	13	0	0	0	0	0	1	0	0	0	0
	George Parks Highway Bridge (aka Sunshine)	10	9	0	0	0	0	0	0	0	0	0	1
	Gold Creek	18	1	0	1	0	0	0	0	0	0	16	0
	Indian River	2	0	0	2	0	0	0	0	0	0	0	0
	Portage Creek	4	0	0	1	0	0	0	0	1	0	0	2
	Sherman	1	1	0	0	0	0	0	0	0	0	0	0
	Talkeetna	56	43	0	5	0	1	3	0	0	0	2	2
	Other	15	5	0	2	0	0	2	2	0	2	2	2
Take-out	Reach 3 remote location	7	2	1	0	0	0	0	1	0	0	0	3
	Curry	1	0	0	0	0	0	0	0	0	0	1	0
	Chulitna River	3	2	0	0	0	1	0	0	0	0	0	0
	Downstream George Parks Highway Bridge	10	7	0	1	0	0	0	0	0	0	0	2
	George Parks Highway Bridge (aka Sunshine)	29	27	0	0	0	0	0	0	0	0	0	2
	Gold Creek	4	0	0	1	0	0	0	0	0	0	3	0
	Sherman	1	1	0	0	0	0	0	0	0	0	0	0
	Talkeetna	79	58	1	5	0	0	1	0	4	1	9	9
	Other	12	4	0	2	0	0	0	2	0	1	3	3

Table 5.3-3 Susitna River Reach 3 Put in and Take out Information

Do they typically check flows for the trip; For this trip?	Typically (120 Yes; 26 No) This Trip (113 Yes; 33 No)
How do they check flows for the trip	Internet Gage (71), Internet Gages for Adjacent Rivers (24), Observation (53), Local Knowledge (63), Weather Patterns (40) Other (9)
Gage (s) Used for Flow Information	Su. R. at Sunshine RM 84 (31); Su. R. at Gold RM 137 (43); Su. R. above Tsusena C. RM 182 (8); Su. R. at Nr. Denali RM 291 (10);
Factors that influenced the decision to take the trip	Flow (73) Weather (66) Vacation time (43) Hunting/fishing season (44) Availability with friends/family (80) Other (23)

Table 5.3-4 Susitna River Reach 3 Flow Preference Information

Compared to the recent trip should the flows be lower, higher, or the same	Much lower (1) slightly lower (15) About the same (107) slightly higher (20) Much higher (3)
Likelihood of returning to the River Reach based on preferred flow	Very likely (102) Somewhat likely (39) Unlikely (5)
Did lack of water clarity contribute to hits, stops, drags and boat running aground	A lot (8) Somewhat (30) Not at all (108)
Trip length cut short because flows were too high or too low	Too high (4) Too Low (3) Not Applicable (139)

Table 5.3-5 Susitna River Reach 3 Comparison to other rivers statewide, regionally, and nationally¹

Compared to other rivers in:	Median	Mean	Below Average	Average	Above Average	Don't Know
Alaska	3	2.4	15%	31%	54%	0%
Pacific Northwest & Canada	3	2.5	15%	23%	54%	8%
USA	3	2.5	23%	15%	54%	8%

1. Rating Scale: 1-Below Average, 2-Average, 3-Above Average, 0-Don't know

Table 5.3-6 Comparison of the number of internet survey participant trips by Reach and type of travel during ice free periods in 2013 and 2014.

Reach	Type of Travel	2013	2014
Reach 1	Air	2	0
	Motorized	12	0
	Non-motorized	10	1
Reach 2	Air	1	0
	Motorized	7	0
	Non-motorized	10	0
Reach 3	Air	1	0
	Motorized	34	6
	Non-motorized	34	1

10. FIGURES

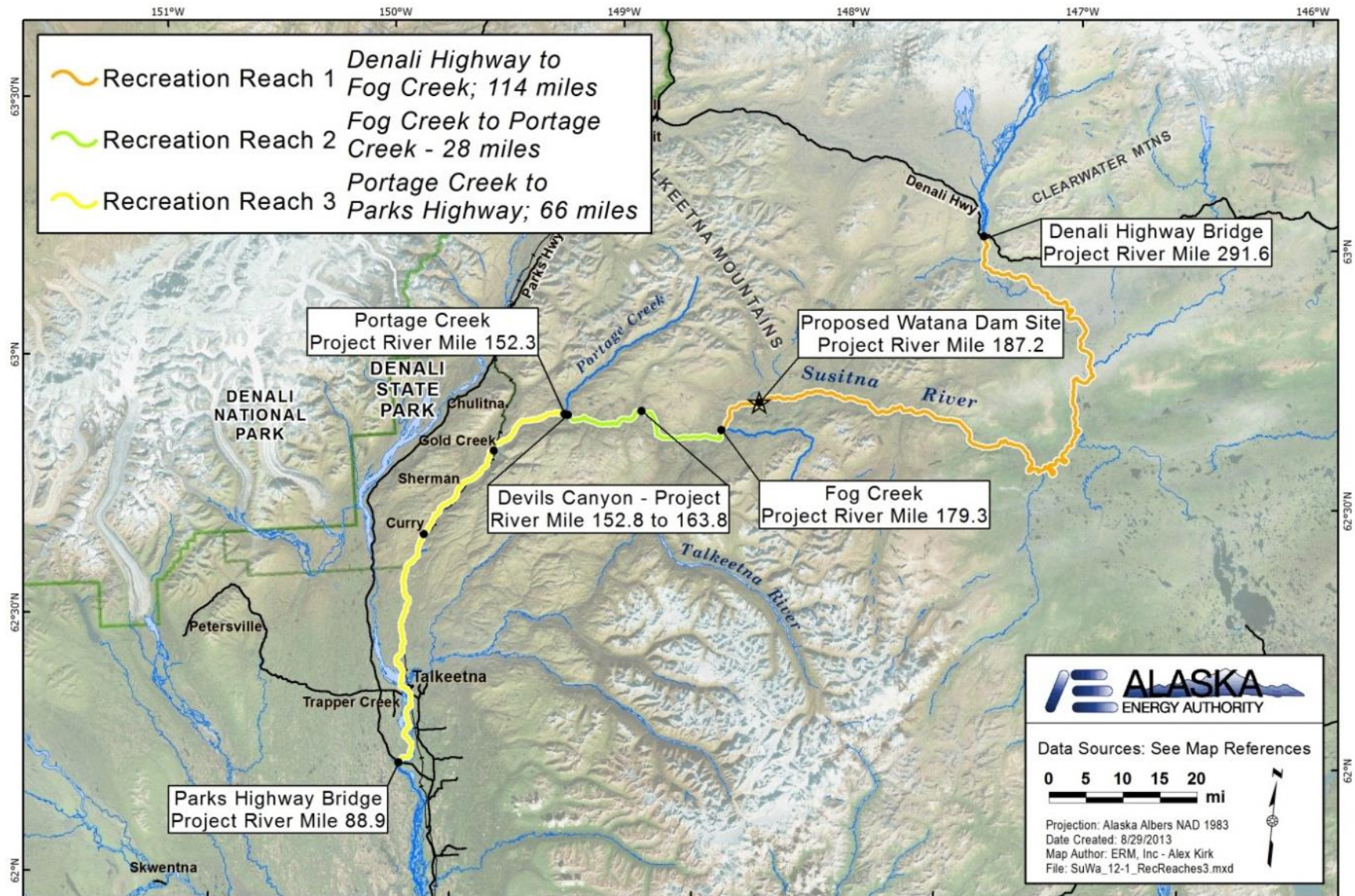


Figure 3-1. River Recreation Study Area

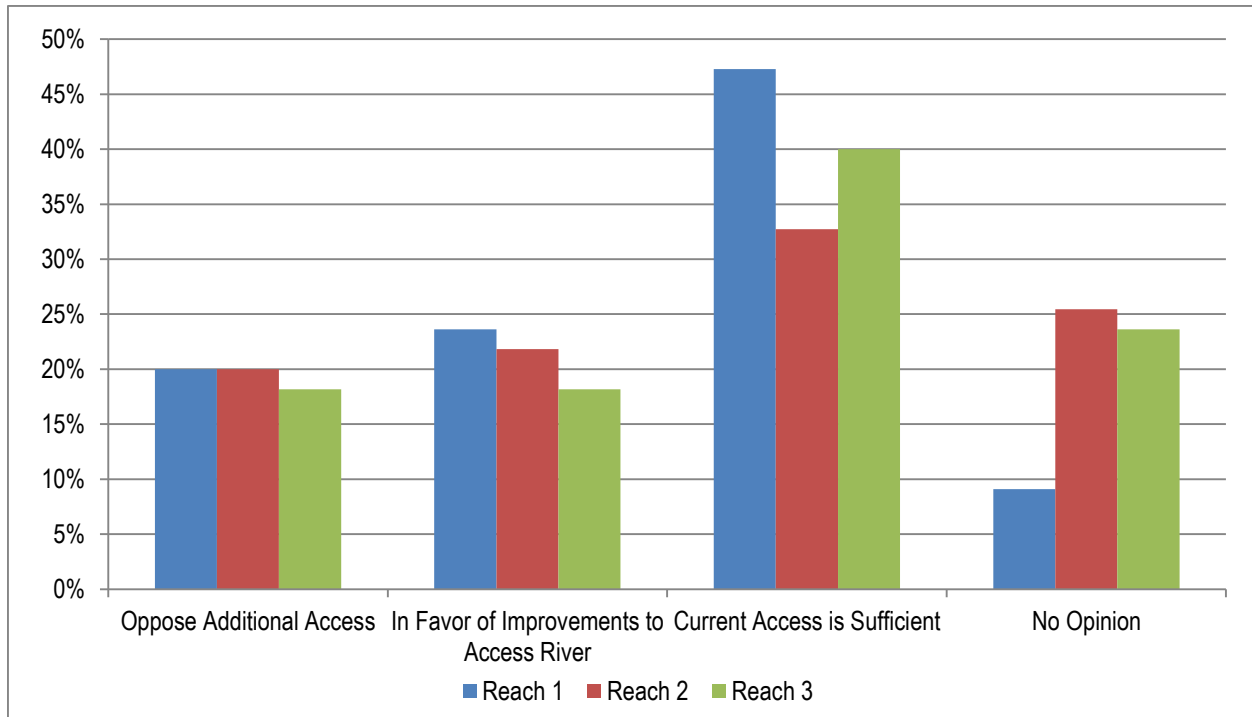


Figure 5.1-1. Reach 1 Internet Survey Responses Regarding River Access Responses (n=55)

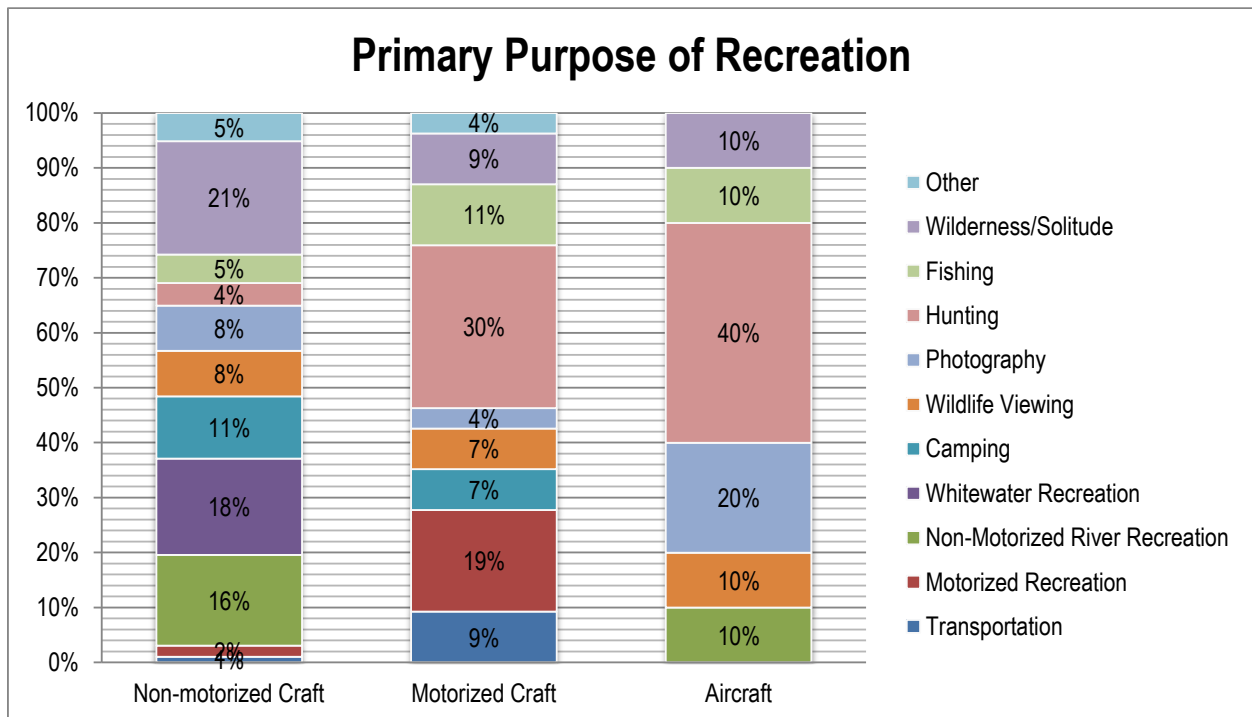


Figure 5.1-2. Primary Purposes of Recreation in Reach 1

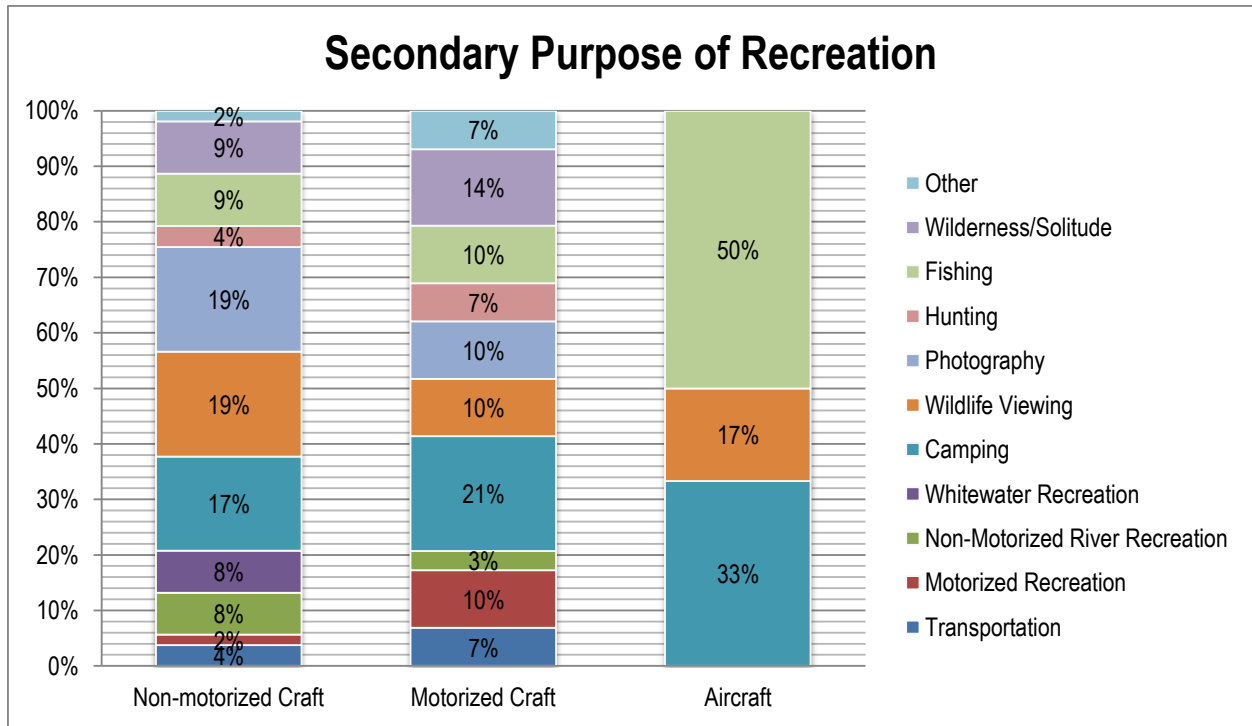


Figure 5.1-3. Secondary Purposes of Recreation in Reach 1

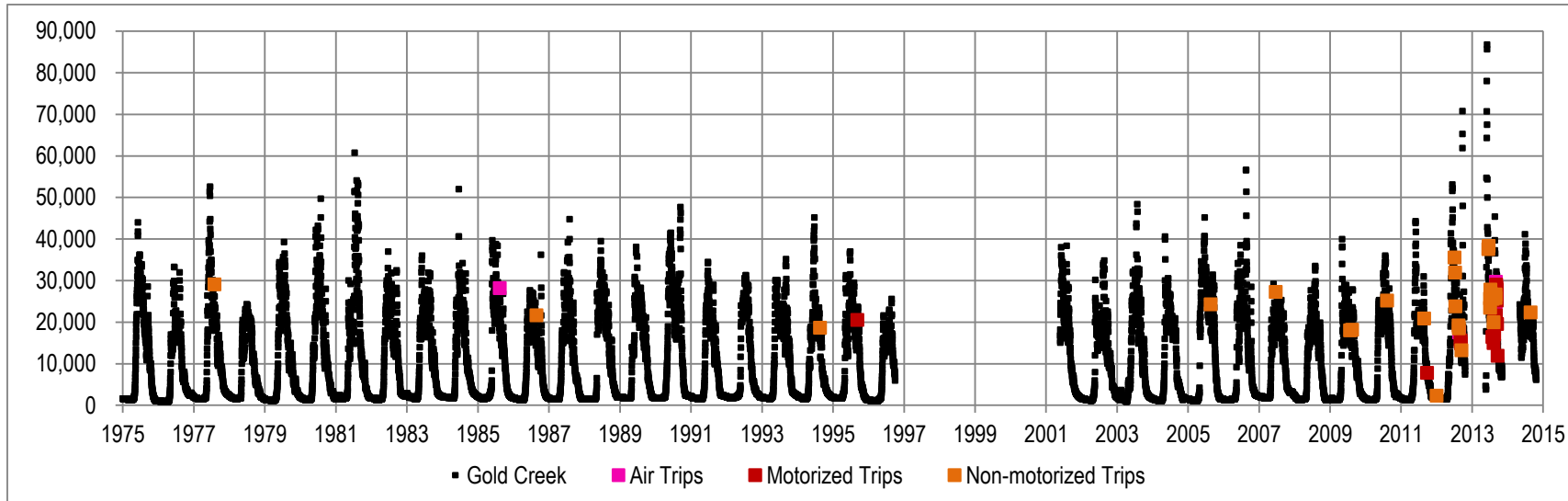


Figure 5.1-4. Timing of Air, Motorized, and Non-motorized Trips in Reach 1 (1975-2013)

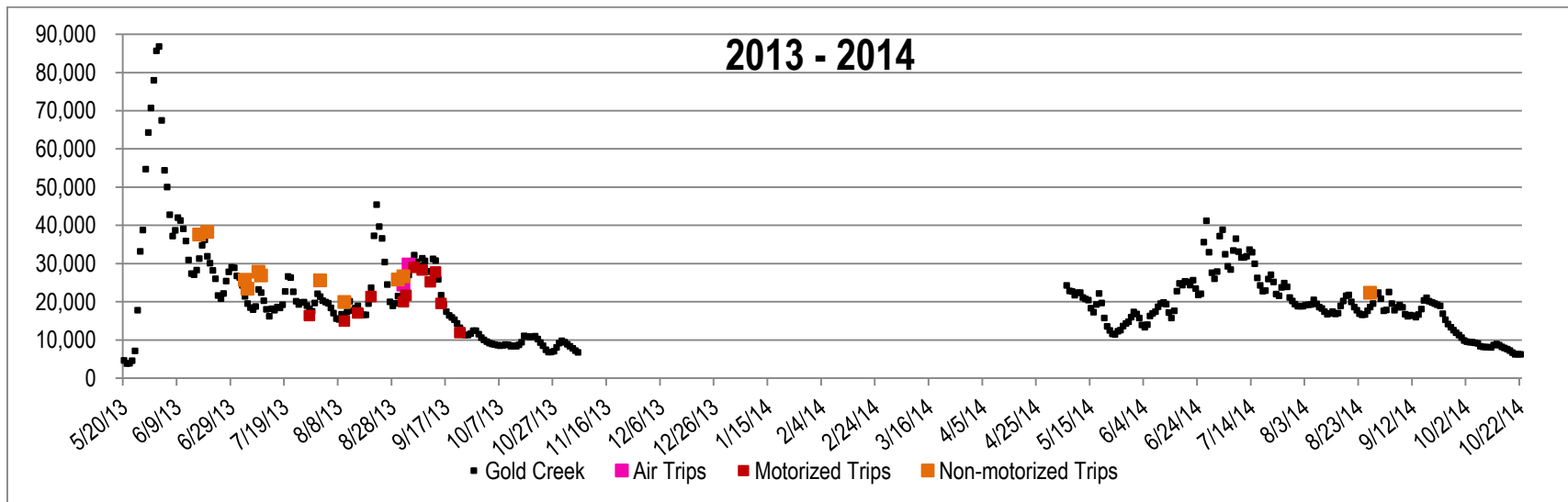


Figure 5.1-5. Timing of Air, Motorized, and Non-motorized Trips in Reach 1 (2013 and 2014)¹ (See end of figures section)

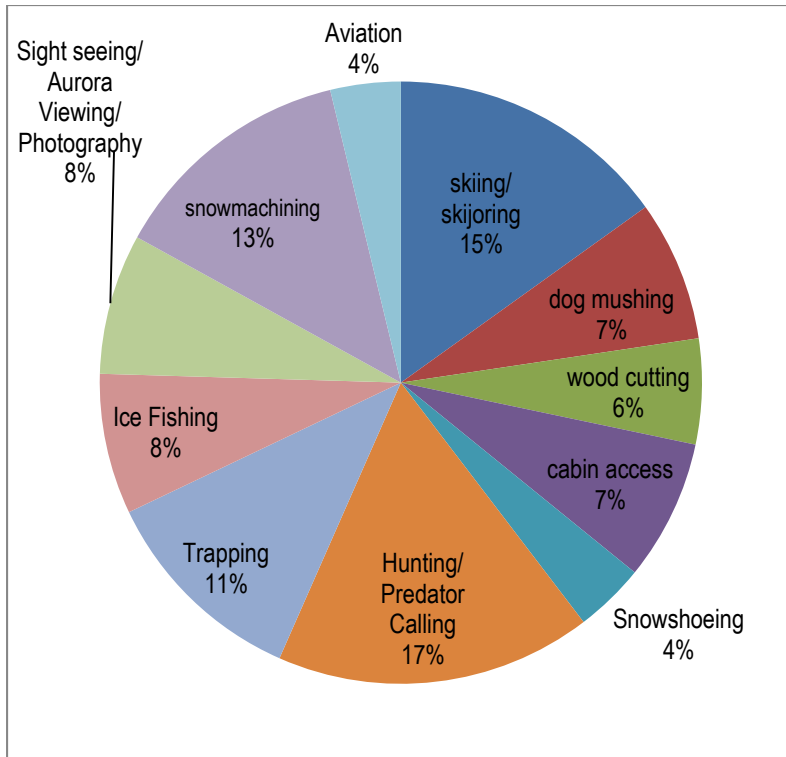


Figure 5.1-6. Reach 1 Executive Interviewees Winter Activities (8 Interviewees)

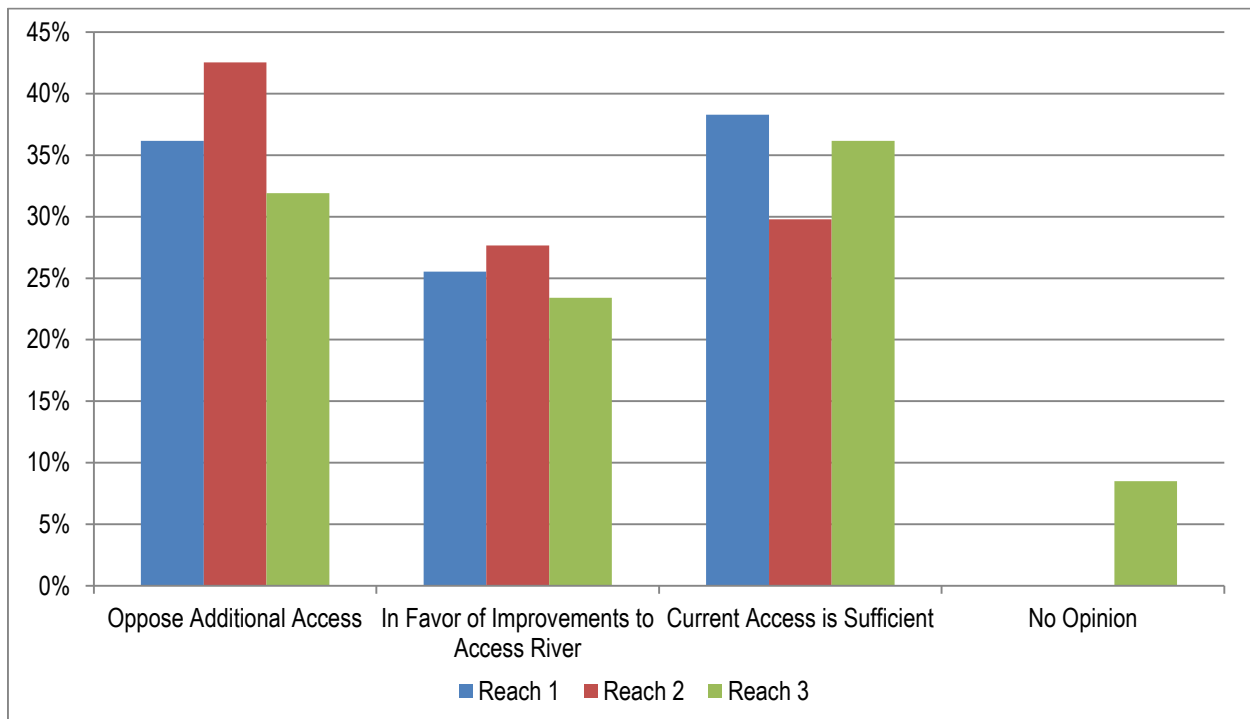


Figure 5.2-1. Reach 2 Internet Survey Responses Regarding River Access Responses (n=47)

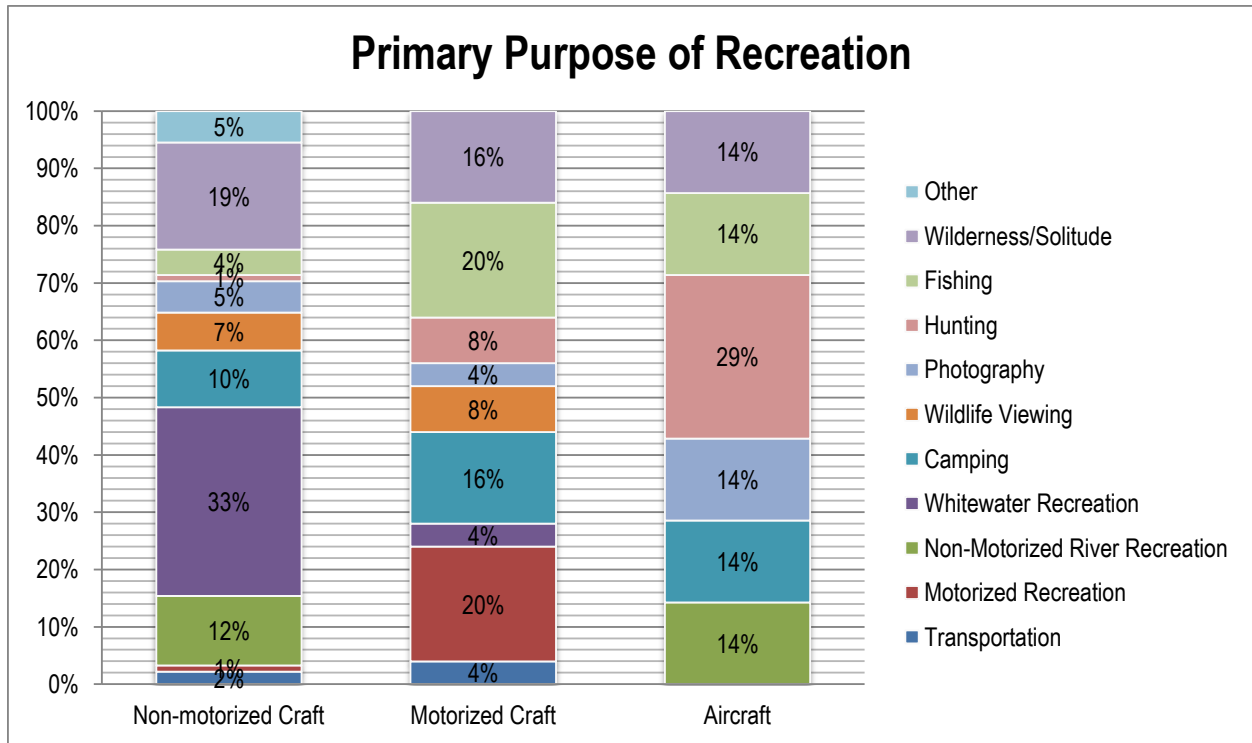


Figure 5.2-2. Reach 2 Primary Purposes of Recreation

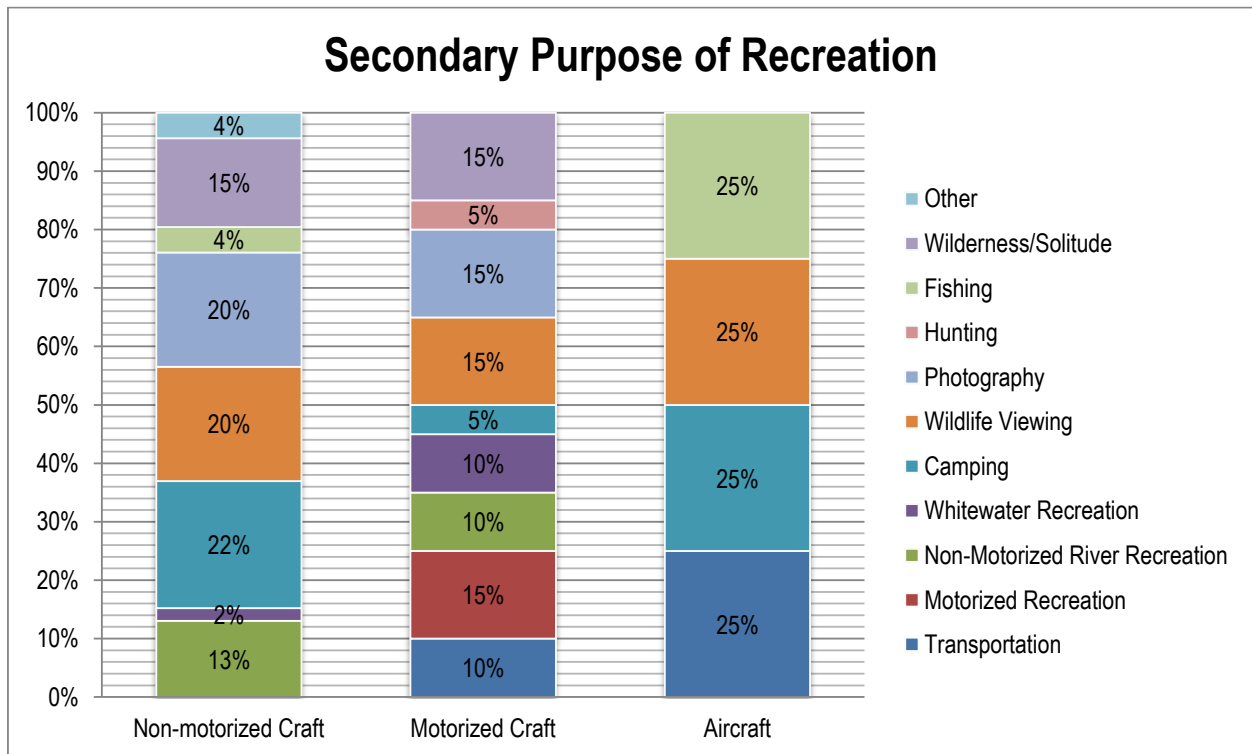


Figure 5.2-3. Reach 2 Secondary Purposes of Recreation

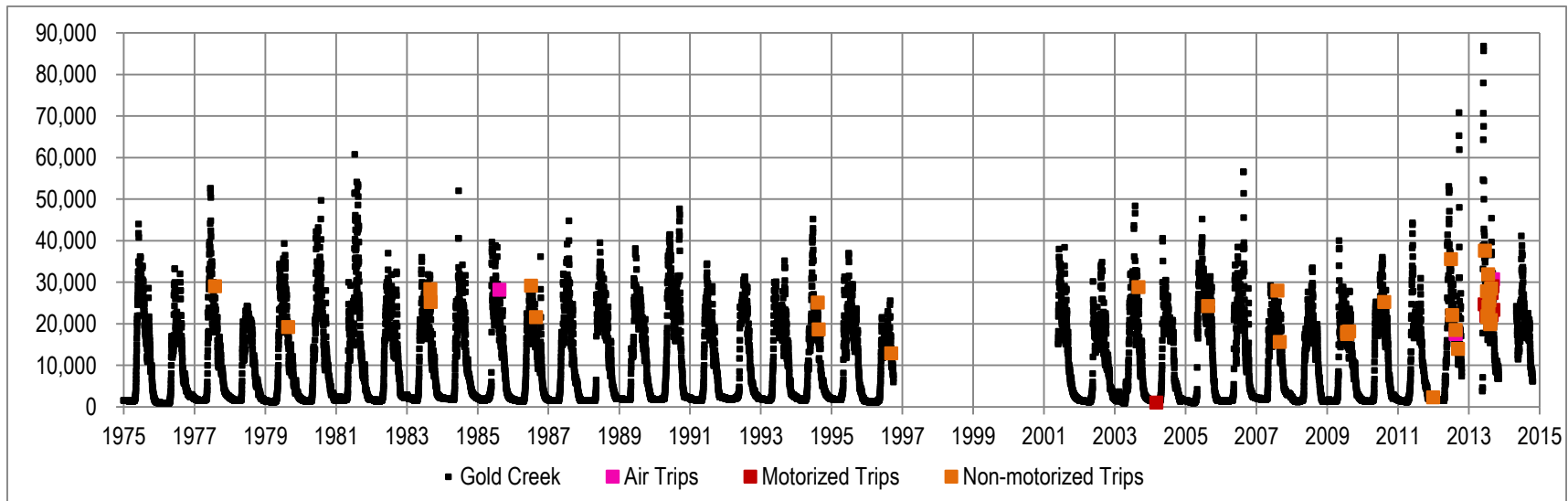


Figure 5.2-4. Timing of Air, Motorized, and Non-motorized trips in Reach 2 (1975-2013)

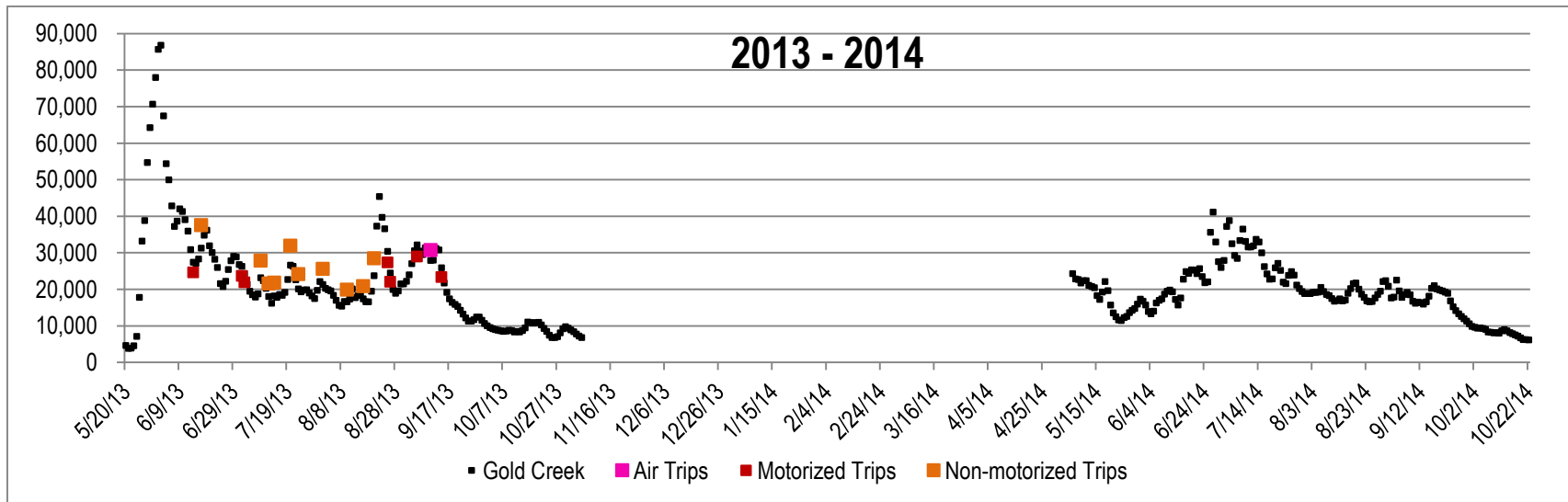


Figure 5.2-5. Timing of Air, Motorized, and Non-motorized Trips in Reach 2 (2013 and 2014)¹ (See end of figures section)

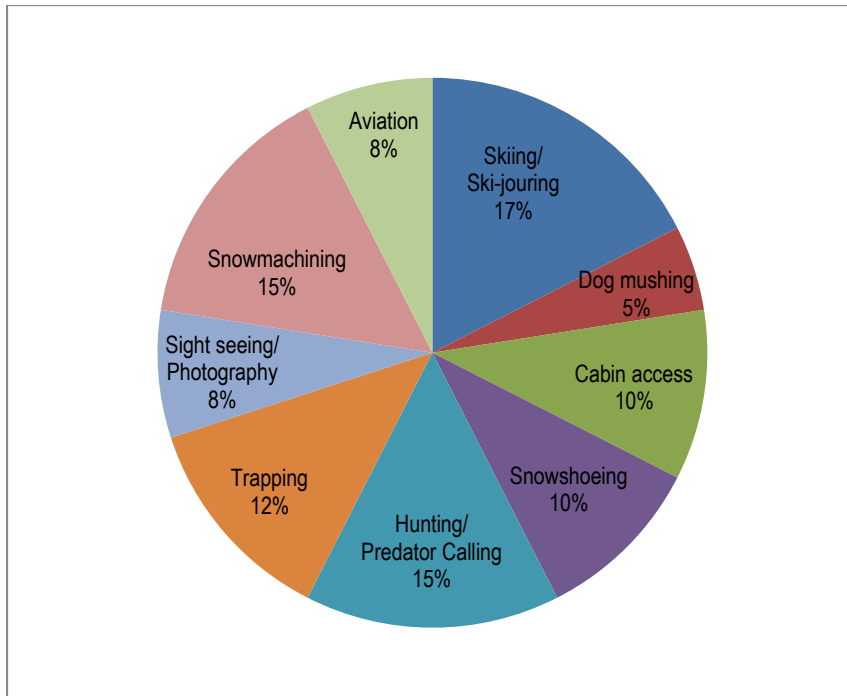


Figure 5.2-6. Reach 2 Executive Interviewees Winter Activities (7 Interviewees)

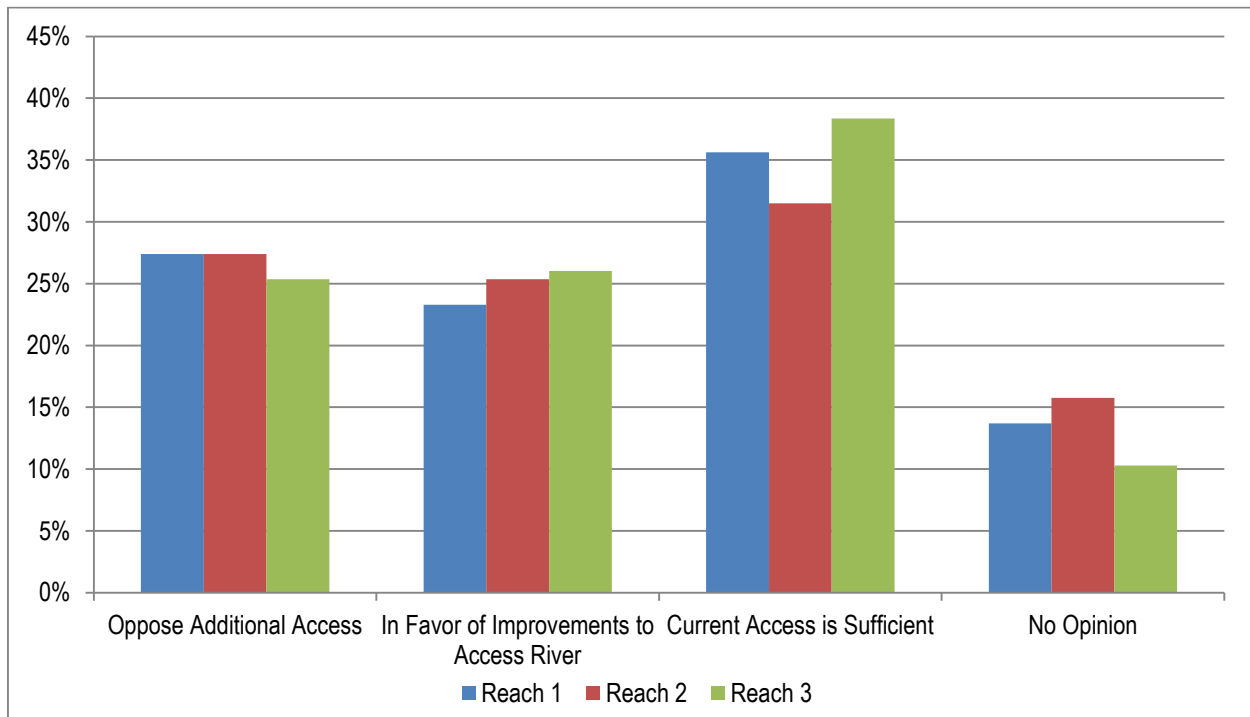


Figure 5.3-1. Reach 3 Internet Survey Responses Regarding River Access Responses (n=146)

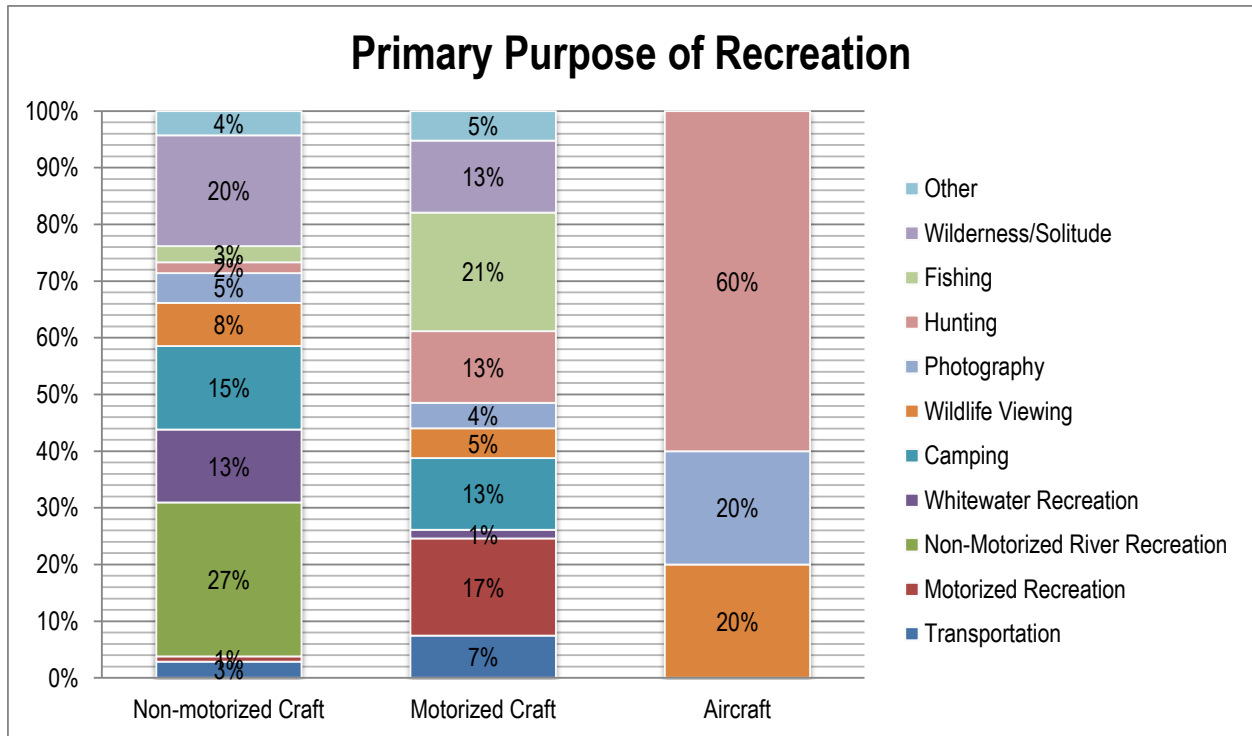


Figure 5.3-2. Reach 3 Primary Purposes of Recreation

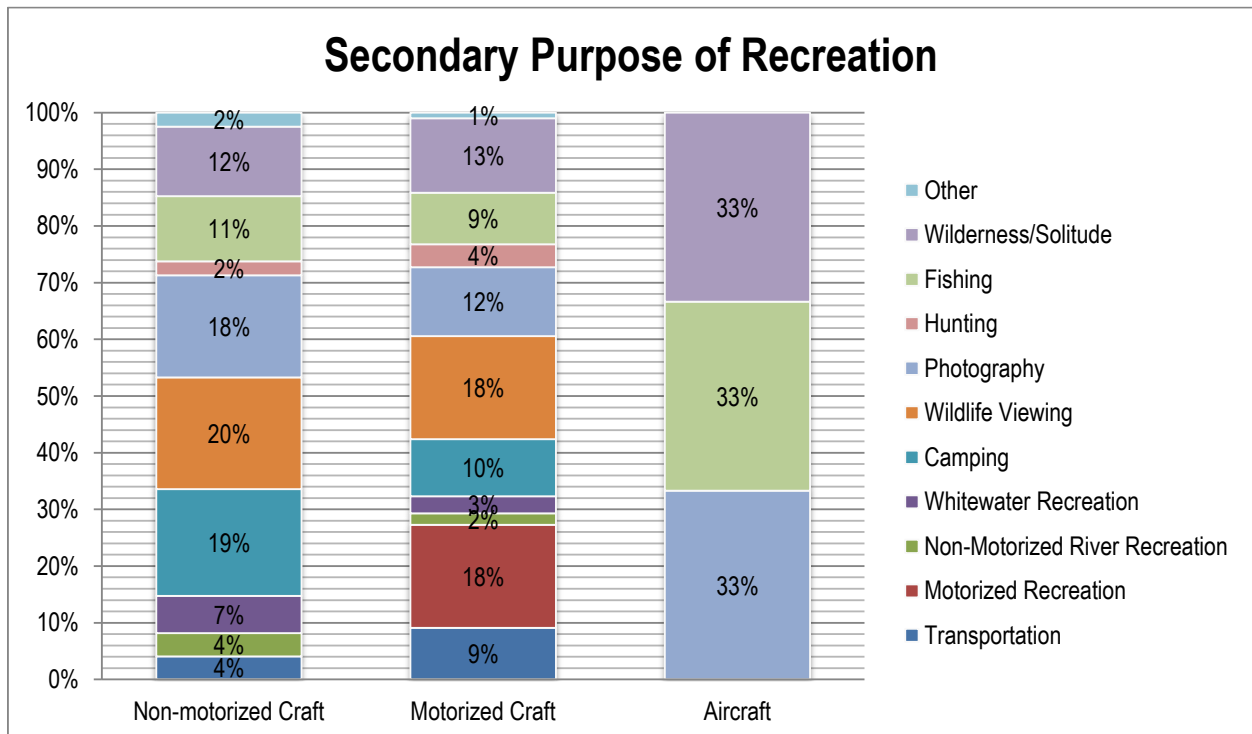


Figure 5.3-3. Reach 3 Secondary Purposes of Recreation

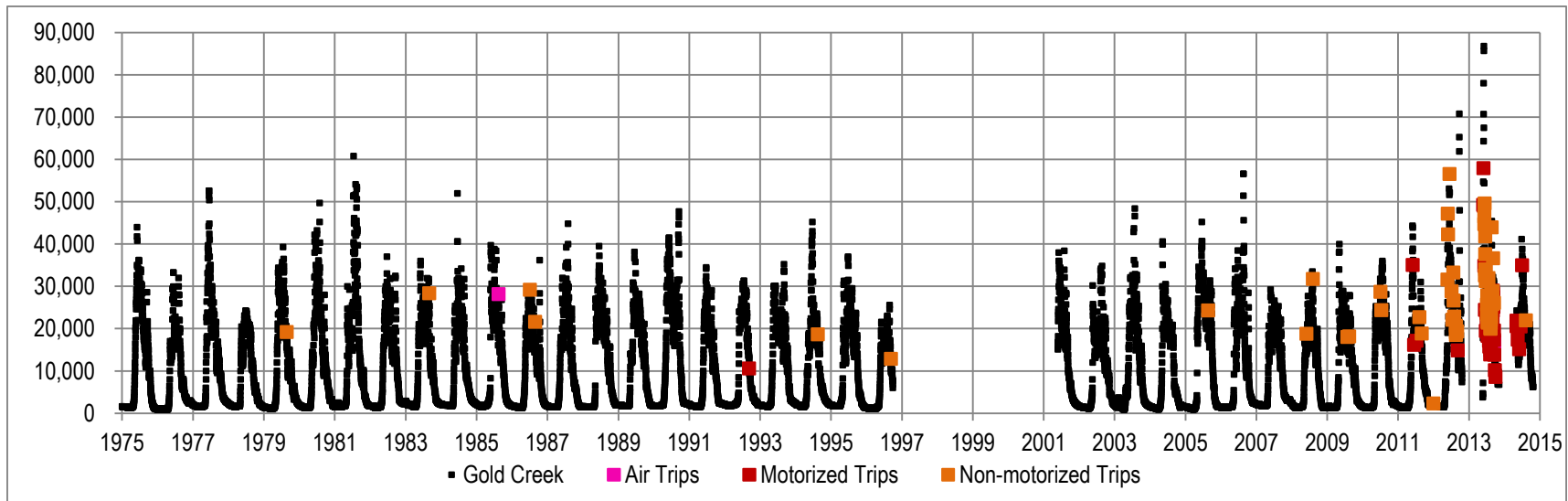


Figure 5.3-4. Timing of Air, Motorized, and Non-motorized Trips in Reach 3 (1975-2015)

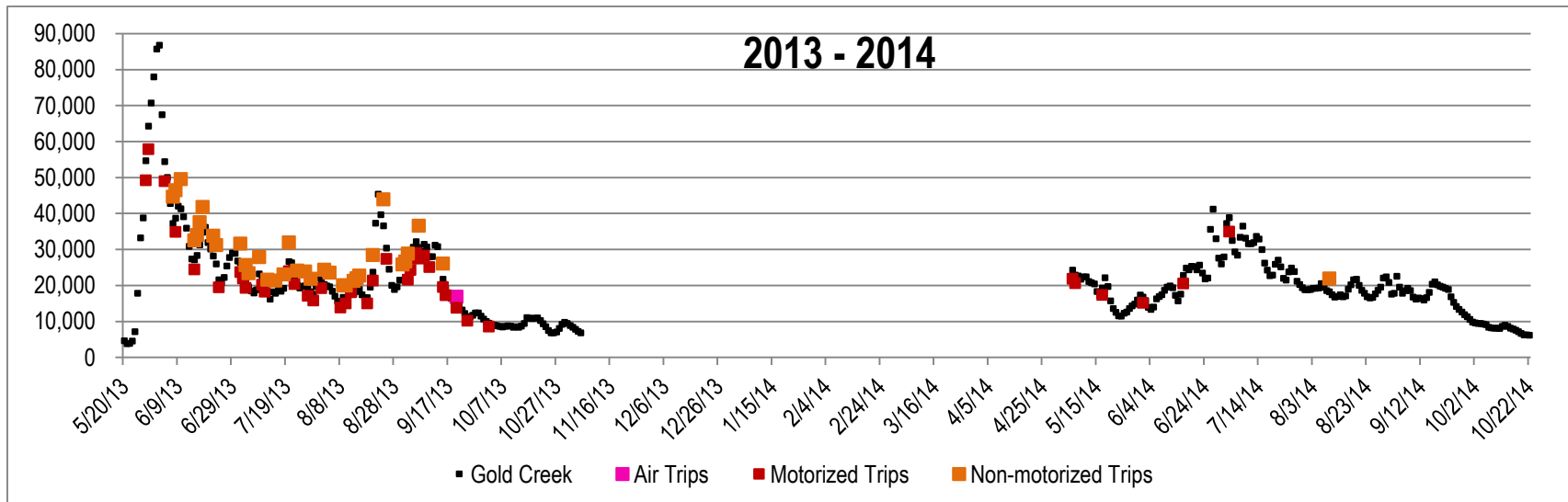


Figure 5.3-5. Timing of Air, Motorized, and Non-motorized Trips in Reach 3 (2013 and 2014) ¹ (See end of figures section)

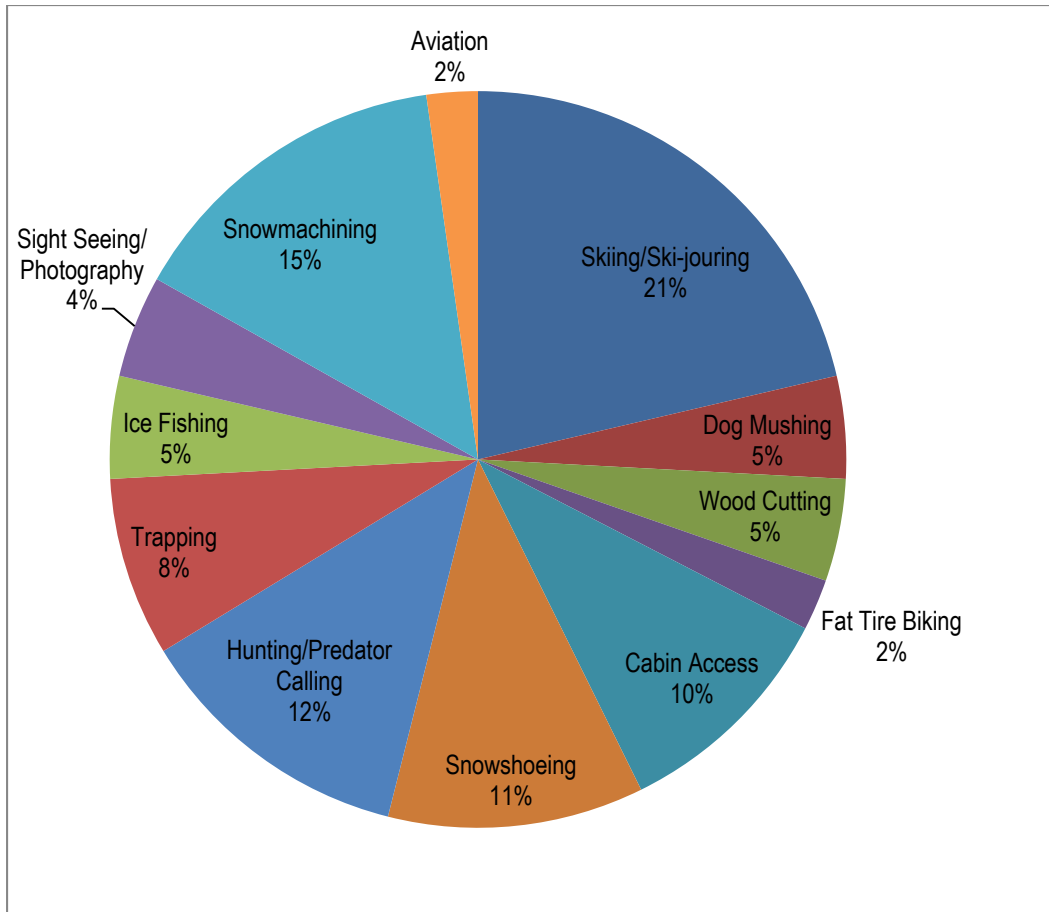


Figure 5.3-6. Reach 3 Executive Interviewees Winter Activities (17 Interviewees)

1. Excludes trips where flow data was not available due to river ice

APPENDIX A: RIVER RECREATION AND ACCESS INTERNET SURVEY

SUSITNA RIVER SURVEY



Welcome!

Please create a user name for this entry:

Note: the user name allows you to restart the survey from where you left off if you cannot complete it in one session. Multiple survey entries are allowed, but each requires a unique user name. Only one survey entry per river recreation trip will be allowed; one drawing entry per person.

Select today's date below:

Month	Day	Year
select ▼	select ▼	select ▼

SUSITNA RIVER SURVEY

Please read this introductory section before starting the survey.

This survey is part of a study collecting information on existing motorized and non-motorized river recreation for three river reaches on the Susitna River using a variety of watercraft. The survey gathers information on river recreation opportunities, use patterns, access and quality.

If you are using the Susitna River in one of these three reaches (see map below) for recreation or transportation purposes please complete this form. If you have completed multiple trips using different watercraft and/or river reaches please complete a new survey for each trip and reach. Your participation in this survey is important to the study's success. Please base responses on your direct experience from your trip rather than guidebooks.

Respondents completing a survey will be entered into a drawing for a \$250 gift certificate redeemable at Northwest River Supply or Cabela's.

Instruction: place mouse pointer over the map to enlarge.



Next

0%

100%



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

Is this the first time you have participated in the Susitna River survey?

- Yes
- No

Are you an Alaska resident?

- Yes
- No

What is your age?

Please specify your gender.

- Male
- Female

Next

0%

100%



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

What type of craft did you use on the river for this trip?

- Non-Motorized watercraft
- Motorized watercraft
- Aircraft

Next

0%

100%



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

What type of non-motorized watercraft did you use on the river for this trip?

- Raft
- Cataract
- Packraft
- Inflatable kayak
- Whitewater kayak
- Sea kayak
- Open canoe
- Closed-deck canoe
- Other (specify):

Next

0%

100%



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

What type of motorized watercraft did you use on the river for this trip?

- Jetboat
- Airboat
- Prop boat

How would you rate your skill level with this type of craft?

- Novice
- Intermediate
- Advanced
- Expert

Next

0%

100%



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

What type of aircraft did you use on the river for this trip?

- Aircraft (floats) on Susitna River
- Aircraft (wheeled) on Susitna gravel bar
- Helicopter on Susitna gravel bar

Next

0%

100%



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

How many years have you been operating/piloting this type of craft?

Years:

In general, how many days a year do you spend using this craft?

- <5 days
- 6-10 days
- 11-20 days
- >20 days

Next

0%

100%



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

When you do a river trip do you typically check flow conditions prior to going?

- Yes
- No

Did you know the flow conditions before heading out on your most recent Susitna River trip?

- Yes
- No

Next

0%

100%



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

How did you obtain Susitna River flow information for your most recent Susitna River trip? (Select all that apply)

- Internet gage for Susitna River
- Internet gage(s) for adjacent representative river(s)
- Observe the Susitna River firsthand
- Contact friends with local knowledge
- Rely on weather patterns to predict flows
- Other (specify):

Next

0%

100%



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

What gage did you use for flow information for your most recent Susitna River trip? (Select all that apply)

- Susitna R at Sunshine, River Mile - 84
- Susitna R at Gold Creek, River Mile - 137
- Susitna R above Tsusena C Nr Chulitna, River Mile - 182
- Susitna R Nr Denali, River Mile - 291

Instruction: place mouse pointer over the map to enlarge.



Next

0%

100%



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

Please provide the start and end date for this trip on the Susitna River.

	Month	Day	Year
Start Date:	select ▼	select ▼	select ▼
End Date:	select ▼	select ▼	select ▼

For your most recent trip to the Susitna River, please identify the factors that influenced your decision to take your trip on the dates listed above as opposed to another time period. (Select all that apply)

- Suitable river flow conditions
- Suitable weather conditions
- Scheduled vacation time in advance
- Hunting/fishing season
- Availability with family/friends

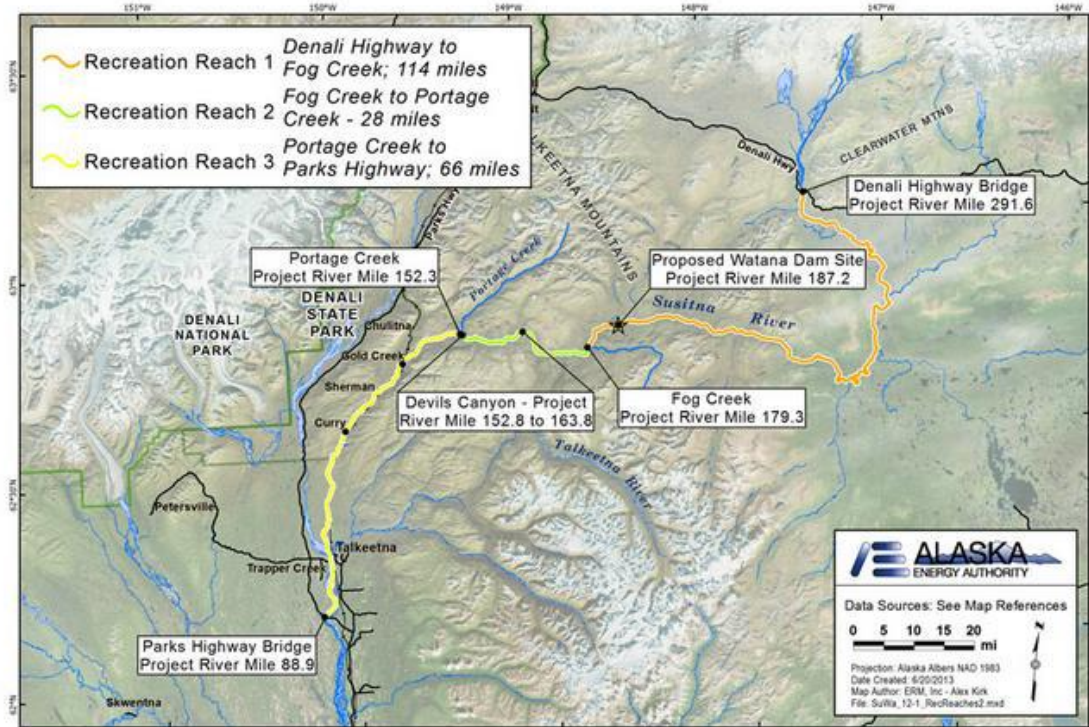
Other (specify):

Next



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY



For this trip, which river reach(es) did you recreate on? Include all reaches even those used for part of your trip. RM equals river mile. (Select all that apply)

- Reach 1 (Denali HWY Bridge to Fog Creek - RM 292 to 179)
- Reach 2 (Fog CK to Portage Ck including Devils Canyon - RM 179 to 153)
- Reach 3 (Portage CK to George Parks HWY - RM 153 to 89)

Including this most recent trip, how many times have you recreated on the Susitna River reach(s) selected above?

- 1 time
- 2 to 5 times
- 6 to 10 times
- More than 10 times

SUSITNA RIVER SURVEY

What were the primary and secondary purpose(s) of this trip on the Susitna River?

- Enter the number 1 in front of all the primary purposes
- Enter the number 2 in front of all the secondary purposes

You can enter more than one primary and secondary purpose.

<input type="checkbox"/>	Transportation
<input type="checkbox"/>	Motorized river recreation trip
<input type="checkbox"/>	Non-motorized river recreation trip
<input type="checkbox"/>	Whitewater recreation
<input type="checkbox"/>	Camping
<input type="checkbox"/>	Wildlife viewing
<input type="checkbox"/>	Photography
<input type="checkbox"/>	Hunting
<input type="checkbox"/>	Fishing
<input type="checkbox"/>	Wilderness/Solitude
<input type="checkbox"/>	Other Primary (specify): <input type="text"/>
<input type="checkbox"/>	Other Secondary (specify): <input type="text"/>

Next



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

On your most recent trip on the Susitna River, including yourself, how many people were in your party?

in Party:

In addition to your own, which, if any, of the following watercraft did your group have on this trip?

- | | |
|--|--|
| <input type="checkbox"/> None | <input type="checkbox"/> Open canoe |
| <input checked="" type="checkbox"/> Raft | <input type="checkbox"/> Closed-deck canoe |
| <input checked="" type="checkbox"/> Cataract | <input type="checkbox"/> Jetboat |
| <input checked="" type="checkbox"/> Packraft | <input type="checkbox"/> Airboat |
| <input checked="" type="checkbox"/> Inflatable kayak | <input type="checkbox"/> Prop boat |
| <input checked="" type="checkbox"/> Whitewater kayak | <input type="checkbox"/> Other (specify): <input type="text"/> |
| <input checked="" type="checkbox"/> Sea Kayak | |

[Next](#)



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

In addition to your own boat, please specify the number of other watercraft in your group for each type below

	# of Watercraft
Raft	<input type="text" value="1"/>
Cataraft	<input type="text" value="2"/>
Packraft	<input type="text" value="3"/>
Inflatable kayak	<input type="text"/>
Whitewater kayak	<input type="text"/>
Sea Kayak	<input type="text"/>

Next



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

In addition to your own boat, please specify the number of other watercraft in your group for each type below

	# of Watercraft
Raft	<input type="text" value="1"/>
Cataraft	<input type="text" value="2"/>
Packraft	<input type="text" value="3"/>
Inflatable kayak	<input type="text"/>
Whitewater kayak	<input type="text"/>
Sea Kayak	<input type="text"/>

Next

0%

100%



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

Did you hire a commercial outfitter as a guide or rent a boat for the river portion of this most recent trip on the Susitna River?

- Yes
- No

Did you use a commercial shuttle service to access the river at the put-in or the take-out?

Access	Yes	No
Put-in	<input type="radio"/>	<input type="radio"/>
Take-out	<input type="radio"/>	<input type="radio"/>

Next



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

Reach 1

In the table below, select the transportation type you used to reach and leave the river at the put-in and take-out (e.g. the transportation type from which you unloaded/loaded equipment at the river). Select the put-in and take-out location name from the dropdown list. If possible, estimate the river mile location using the numeric entry text box.
 (Note: place your mouse pointer over the Reach 1 text above, or the map below, to see detailed information and river miles.)

Put-In

Transportation Type	Location Name	Location RM
select ▼	select ▼	<input type="text"/>

Take-Out

Transportation Type	Location Name	Location RM
select ▼	select ▼	<input type="text"/>

Instruction: place mouse pointer over the map to enlarge.



Next



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

Reach 1

You previously selected "other" for a location, please enter a location or tributary name below.

Put-In location name or description:

Take-out location name or description:

Next

0%

100%



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

Reach 2

In the table below, select the transportation type you used to reach and leave the river at the put-in and take-out (e.g. the transportation type from which you unloaded/loaded equipment at the river). Select the put-in and take-out location name from the dropdown list. If possible, estimate the river mile location using the numeric entry text box.
 (Note: place your mouse pointer over the Reach 2 text above, or the map below, to see detailed information and river miles.)

Put-In

Transportation Type	Location Name	Location RM
select ▼	select ▼	<input style="width: 50px;" type="text"/>

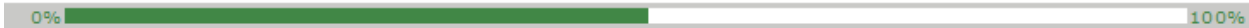
Take-Out

Transportation Type	Location Name	Location RM
select ▼	select ▼ select Float through to Reach 3 Exit via tributary Reach 2 remote location Devil Creek Fog Creek Log Creek Portage Creek Other	<input style="width: 50px;" type="text"/>

Instruction: place mouse pointer over the map to enlarge.



Next



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

Reach 2

You previously selected "other" for a location, please enter a location or tributary name below.

Put-In location name or description:

Take-out location name or description:

Next

0%

100%



SUSITNA RIVER SURVEY

Reach 3

In the table below, select the transportation type you used to reach and leave the river at the put-in and take-out (e.g. the transportation type from which you unloaded/loaded equipment at the river). Select the put-in and take-out location name from the dropdown list. If possible, estimate the river mile location using the numeric entry text box.
(Note: place your mouse pointer over the Reach 3 text above, or the map below, to see detailed information and river miles.)

Put-In

Transportation Type	Location Name	Location RM
select	select	

Take-Out

Transportation Type	Location Name	Location RM
select	select	

Instruction: place mouse pointer over the map to enlarge.



Next



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

Reach 3

You previously selected "other" for a location, please enter a location or tributary name below.

Put-In location name or description:

Take-out location name or description:

Next

0%

100%



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

Instruction: place mouse pointer over the map to enlarge.



Which of the following most closely reflects your opinion concerning Susitna River access?
Please respond for each river reach.

	Oppose Additional Access	In Favor of Improvements to Access River	Current Access is Sufficient	No Opinion
Reach 1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reach 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reach 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Note: hover mouse pointer over the Reach to get a more detailed description

Next



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

If you were to plan a return trip to this river reach would you be very likely, somewhat likely or unlikely to do a trip if the river flow was similar to this most recent trip?

- Very Likely
- Somewhat Likely
- Unlikely

Next

0%

100%



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

For your recent trip on the Susitna, please rate the flow for each attribute that applies to your recreation activity.
 Consider your trip purpose, watercraft and skill level for each of the trip attributes.

River flow level for this recent trip was...?

Trip Attribute	Totally Unacceptable	Unacceptable	Neither Too Low or Too High	Acceptable	Totally Acceptable
Multi-Day River Trip	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Number of portages	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
River Safety	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Speed of travel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
River Camping	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bank fishing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Float fishing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall rating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Next



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

For your recent trip on the Susitna, please rate the flow for each attribute that applies to your recreation activity.
 Consider your trip purpose, watercraft and skill level for each of the trip attributes.

River flow level for this recent trip was...?

Trip Attribute	Totally Unacceptable	Unacceptable	Neither Too Low or Too High	Acceptable	Totally Acceptable
River transportation corridor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Motorized navigation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Multi-Day River Trip	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
River Safety	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
River Camping	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bank fishing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Float fishing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall rating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Next



If you experience any difficulties please [email](#) our help desk.

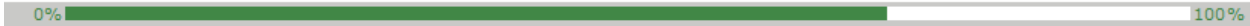
SUSITNA RIVER SURVEY

For your recent trip on the Susitna, please rate the flow for each attribute that applies to your recreation activity.
 Consider your trip purpose, watercraft and skill level for each of the trip attributes.

River flow level for this recent trip was...?

Trip Attribute	Totally Unacceptable	Unacceptable	Neither Too Low or Too High	Acceptable	Totally Acceptable
Multi-Day River Trip	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Whitewater boating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technical boating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Powerful hydraulics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Whitewater play areas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Number of portages	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
River Safety	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Speed of travel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
River Camping	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall rating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Next



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

Compared to your recent trip, would you prefer a flow that was lower, higher or about the same as the flow you experienced?

- Much lower flow
- Slightly lower flow
- About the same flow
- Slightly higher flow
- Much higher flow

For the preferred flow you just listed in the previous question, are you very likely, somewhat likely or unlikely to return to boat the preferred flow?

- Very likely
- Somewhat likely
- Unlikely

Next

0%

100%



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

Please answer the questions below. Your best guess for hits, stops, boat drags and portages is fine.

I had to abandon trip due to boat running aground:	<input type="checkbox"/>
Number of times I hit rocks and other obstacles (but did not stop):	<input type="text"/>
Number of times I was stopped after hitting rocks or other obstacles (but did not have to get out of my boat to continue upstream or downstream):	<input type="text"/>
Number of times I had to get out to drag or pull my boat off rocks or other obstacles:	<input type="text"/>
Number of times I had to portage or line around unnavigable sections, log jams, or other obstacles:	<input type="text"/>

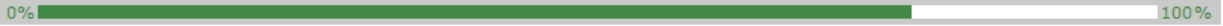
Yes

select

Yes

No

Next



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

Did lack of water clarity contribute a lot, somewhat or not at all to the hits, stops, drags and boat running aground?

- A lot
- Somewhat
- Not at all

Was your trip length (upstream or downstream) cut short because flows were too high or too low?

- Too high
- Too low
- Not applicable

Next

0%

100%



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

Reach 1 river recreation opportunities on the Susitna River are above average, average or below average compared to...?

	Below Average	Average	Above Average	Don't Know
Other rivers in Alaska	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other rivers in the Pacific Northwest and Canada	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other rivers in the U.S.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Next



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

Reach 2 river recreation opportunities on the Susitna River are above average, average or below average compared to...?

	Below Average	Average	Above Average	Don't Know
Other rivers in Alaska	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other rivers in the Pacific Northwest and Canada	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other rivers in the U.S.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Next



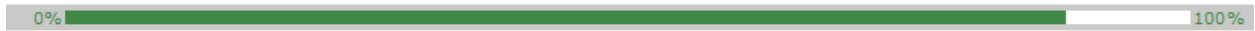
If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

Reach 3 river recreation opportunities on the Susitna River are above average, average or below average compared to...?

	Below Average	Average	Above Average	Don't Know
Other rivers in Alaska	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other rivers in the Pacific Northwest and Canada	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other rivers in the U.S.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Next



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

As part of this study, we are interviewing recreational users to gain additional information about recreation opportunities on the Susitna. Would you like to participate in an interview?

- Yes
- No

Next

0%

100%



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

Please provide contact information for a phone interview.

First Name:

Phone Number: () -

Do you have other comments you would like to make about river recreation on the Susitna River?

Next

0%

100%



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

Do you have other comments you would like to make about river recreation on the Susitna River?

Next

0%

100%



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

Gift Certificate Drawing


As a respondent completing this survey you will be entered into a drawing for a \$250 gift certificate redeemable at Northwest River Supply or Cabela's. Please enter your contact information below. This information will be used solely for contacting the drawing winner.

First Name: Last Name:

Email Address:

Phone Number: () -

Next

0%  100%



If you experience any difficulties please [email](#) our help desk.

SUSITNA RIVER SURVEY

Thank you for your participation!

Please encourage fellow boaters to participate in this study. If you have friends that recreate on the Susitna, please refer them to this webpage. The more responses we get the more useful our results will be. In addition to surveys, at least one focus group discussion on flow preferences for whitewater boating and one on winter ice and snow travel in the river corridor for motorized and non-motorized users will be completed.

This survey is part of the environmental studies being conducted as part of the proposed Susitna-Watana Hydroelectric Project. The Alaska Energy Authority is studying the feasibility of building the Susitna-Watana Hydroelectric Project. The proposed Susitna-Watana Hydroelectric Project would be located on the Susitna River roughly 90-river miles north of Talkeetna and approximately 34 miles upstream of the Devils Canyon rapids. As currently envisioned, the Project would include a roughly 750-foot tall dam with a 42.5-mile long, 1-2-miles wide (average) reservoir. The Susitna-Watana Hydroelectric Project includes a single dam, located below Watana Creek. Preliminary studies have indicated the surface powerhouse should have three generating units with an installed capacity of 600 Megawatts of renewable energy. The powerhouse, dam, and related facilities would be linked by a transmission line (or lines) connecting to the Railbelt Intertie.

Click [here](#) to forward this survey link to individuals recreating on the Susitna River.

Click [here](#) to be visit Sustitna Watana Project Description webpage.

If you would like to simply exit the survey, please browse to another webpage or close your browser window. Your survey has been submitted.

0%

100%



If you experience any difficulties please [email](#) our help desk.

APPENDIX B: RIVER RECREATION EXECUTIVE INTERVIEW QUESTIONS

Susitna-Watana Hydroelectric Project River Recreation and Access 2013 Executive Interview Protocol (DRAFT)

(revised DRAFT 10/10/2012)

Introduction:

Hi I'm _____ with OASIS ERM, a consulting firm located in Anchorage.

We are working for the Alaska Energy Authority on the Susitna-Watana Hydroelectric Project studying river recreation resources in the Susitna River area. We are contacting agencies, commercial providers, organizations, and individual users to get a better sense of river recreation use patterns on the Susitna River. We would like to conduct an interview with you. Is now a good time or can I schedule a time that is more convenient?

Before we start I would like to read you a brief description of the project.

This survey is part of a study to determine river recreation use patterns, access and flow preferences for three river reaches on the Susitna River. The Alaska Energy Authority is studying the feasibility of building the Susitna-Watana Hydroelectric Project. The proposed Project would be located on the Susitna River roughly 86 river miles upstream from Talkeetna and approximately 34 miles upstream of the Devils Canyon rapids. As currently envisioned, the project would include a roughly 750-foot tall dam located below Watana Creek and would result in a 23,546 acre, 42.5-mile long reservoir. Project construction and operation will alter river flows in the Susitna downstream. The dam and reservoir could alter downstream navigation and access. When completed, the project would produce nearly 50 percent of the Railbelt's electrical demand, or an annual average of 2,800,000 Megawatt Hours (MWh) of renewable energy generation.

This survey is designed to collect information on existing motorized and non-motorized river recreation opportunities using a variety of watercraft. The river has been divided into three distinct reaches: Reach 1, Denali Highway bridge to Fog Creek (RM 290 to 177); Reach 2, Fog Creek to Portage including Devils Canyon (RM 177 to 149); and Reach 3, Portage Creek to the George Parks Highway Bridge (RM 149 to 86).

- 1) First of all, can you please describe your business/organization/agency or individual?
 - a) Areas of operation/activity relative to the three river recreation reaches
 - b) Years in business/doing activity
 - c) Services/tours provided
 - d) Client/membership base – Anchorage? Fairbanks? Non-residents? Local area residents?
 - e) Other information

- 2) Do you or your [organization/ business/agency] have any [knowledge/or use] of river recreation activities on the three river recreation reaches on the Susitna River?

Can you please provide me with some background on the following?

- a) Types of river recreation use by river reach/location
 - b) Type of watercraft
 - c) Time of year the river is used
 - d) Frequency of use
 - e) Level of use (ex. heavy, light, etc.) –[look for hard numbers]
 - f) Any other information?
- 3) For your river recreation trips on the Susitna River what is the...?
- a) Primary trip purpose
 - b) Secondary activities associated with trip
 - c) Type of watercraft
 - d) Trip length (days and miles)
 - e) Time of year the river is used
 - f) Frequency of use
 - g) For commercial providers--Client / membership base – Anchorage? Fairbanks? Non-residents? Local area residents?
 - h) Any other information?
- 4) Please describe the flow levels when you participate or observe river use for:
- a) Transportation
 - b) Recreation
 - c) Whitewater
- 5) Relative to river flows, what flow related factors most influence your decision to initiate a trip on the Susitna River? Please elaborate for each factor that applies and identify high and low flow levels that trigger you to initiate vs. cancel a trip.
- a) river safety
 - b) speed of travel
 - c) navigation
 - d) access to river camps
 - e) portages (lack thereof or access to river-level portages around difficult rapids)
 - f) whitewater opportunities: challenging rapids, powerful hydraulics, play spots
 - g) access for fixed wing aircraft on floats or wheels (specify)
 - h) Other
- 6) How do you estimate the flow levels in the River?
- a) Internet
 - b) Direct observation
 - c) Communication with other river users
 - d) Other
 - e) Do not check flow levels

- 7) How and where do you access the river?
 - a) Access locations for respective river reaches
 - b) Modes of transportation to access each location
 - c) Approximate cost for each mode of transportation to the river

- 8) Are you noticing any trends in recreational use of the area?
 - a) Seasonal Changes?
 - b) Is use and interest growing?
 - c) Lessening?
 - d) About the same?
 - e) Is the mix of recreational use changing?

- 9) What types of new infrastructure might help improve river access?
Would you prefer river access not be improved? [If yes] Why?

- 10) Are there any other issues regarding river recreation use or access that we should be aware of?

- 11) Would you consider this area a unique setting for river recreation use in Alaska? Why or why not?

APPENDIX C: WINTER RIVER RECREATION AND TRANSPORTATION EXECUTIVE INTERVIEW QUESTIONS

Winter Recreation & Transportation Exec. Interview Template

Day, Month xx, 2013

TIME

Name and Contact Number:	Organization or Agency:	Date of Interview:5//2013 Time of Interview (start):Time of Interview (end):
Primary Use Season: Summer <input type="checkbox"/> Winter <input type="checkbox"/> Main Month of Use:	Type of Use: Recreation <input type="checkbox"/> Utilitarian <input type="checkbox"/> Transportation <input type="checkbox"/>	Main Winter Activities: Snow machining <input type="checkbox"/> Skiing <input type="checkbox"/> Dog mushing/skijoring <input type="checkbox"/> Hunting/Trapping <input type="checkbox"/> Cabin-access <input type="checkbox"/> Other <input type="checkbox"/>
Commercial <input type="checkbox"/> Non-Commercial <input type="checkbox"/>	Interviewee Expertise Aesthetics <input type="checkbox"/> Soundscape <input type="checkbox"/> River Recreation/Flow <input type="checkbox"/> General Recreation <input type="checkbox"/>	River Reach for Winter Use: RR1 <input type="checkbox"/> RR2 <input type="checkbox"/> RR3 <input type="checkbox"/> Main locations of Use (see map grid):

1. First of all, do you use the river in the capacity as a commercial operator, organization, event, agency, or as a non-commercial user? Indicate all that apply.

2. For [commercial operator, organization, event, agency] please describe your [business/organization/ event/agency]
- a) Areas of operation:
 - b) Years in operation:
 - c) Services/tours provided:
 - d) Membership
 - e) Event type and dates
 - f) Other information

3. Do you or your [business/organization/event/agency/individual] have any [knowledge/or use] of the three winter recreation reaches on the Susitna River?

4. Can you please provide me with some background on this?
- a) Type of activity
 - 1. Snow machining
 - 2. Skiing—ungroomed vs groomed surface/marked trail
 - 3. Dog mushing
 - 4. Trapping
 - 5. Snowshoeing.

6. Aviation
7. Walking or other (Recreational cabin access and re-supply)
8. Other?

b) Time of winter—specific months and level of use (ex. heavy, light, etc.) [look for hard numbers].

c) Client / membership base—

1. Local area resident?
2. Anchorage?
3. Fairbanks?
4. Non-resident?

5. Please describe the timing of winter recreation activities and your preferences for winter recreation and travel for each river reach where you have experience along the river corridor:

a) Do you consider your activities to be transportation, winter recreation or both?

Transportation

b) What areas of the Susitna River corridor do you use for winter transportation?

c) Why do you use the river corridor in winter for transportation?

d) From a transportation perspective, do you use the river ice to cross the river from one side to the other or travel longitudinally up and down the river corridor?

e) What type of ice conditions do you require to safely travel the river during the winter?

f) What is the earliest and the latest month to safely travel the river during the winter?

g) In what month is your highest frequency of winter transportation activity on the river corridor.

Recreation (follow up questions if not answered above)

h) What recreation activities are you pursuing during the winter on or near the Susitna?

i) What areas of the Susitna River corridor do you use for these winter recreation activities?

j) For these recreation activities, do you recreate on the river corridor specifically or do you cross the river to pursue your desired recreation activity?

k) What is the earliest month you typically engage in these recreation activities on the river corridor?

l) What is the latest month for these winter recreation activities on the river corridor?

m) In what month is your highest period of winter recreation activity?

Winter Recreation Events

n) Are there any special events during the winter that are dependent on safe ice conditions? If so, what month of the winter does this event(s) occur?

- o. What type of ice conditions do you require for safe recreation during the winter?

Winter Recreation Events

- a. Are there any special events during the winter that are dependent on safe ice conditions? If so, what month of the winter does this event(s) occur?
- b. Do you participate in any of these events? Please name.

6. Are you noticing any trends in recreational use of the area? a) Seasonal Changes during the winter (month to month)? b) Is use and interest growing for winter recreation?
c) Lessening?
d) About the same?
e) Is the mix of recreational use changing?

7. What types of provisions might help improve winter access to the river? (i.e. informational signs, postings, public access points, developed facilities).

8. Would you prefer access not be improved? [If yes] Why?

9. Are there any other issues regarding winter recreation use on the river corridor or access that we should be aware of?

10. Would you consider this area a unique setting for winter recreation use in Alaska? Why or why not?

11. What other areas with winter recreation opportunities similar to the Susitna do you use for recreational outings?

12. Are there any specific people that you think it would be important for us to include in our interview research?