

## Susitna-Watana Hydroelectric Project Document ARLIS Uniform Cover Page

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

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

**Initial Study Report  
Part C: Executive Summary and Section 7**

Prepared for

Alaska Energy Authority



**SUSITNA-WATANA HYDRO**

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

Prepared by

ERM

June 2014

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## EXECUTIVE SUMMARY

River Recreation Flow and Access Study 12.7	
Purpose	The purpose of this study is to contribute data to the Recreation Resources Study (Study 12.5) concerning the relationship between river flows and river recreation opportunities.
Status	Baseline data collection and field studies for this study are largely complete. This study is substantially completed except for some additional analysis and interdisciplinary coordination, as well as focus group discussions recommended in FERC's February 1 Study Plan Determination.
Study Components	<ul style="list-style-type: none"> <li>• River recreation surveys</li> <li>• Executive interviews for river recreation and ice-dependent winter recreation</li> <li>• Focus group discussions</li> </ul>
2013 Variances	AEA did not convene focus group discussions in 2013 due to scheduling challenges relative to the winter season. AEA will meet Study Plan objectives by convening the focus groups in 2015.
Steps to Complete the Study	To complete the River Recreation and Access Study, AEA will continue to implement the methods in the study plan with no modifications. Remaining steps to complete the study include completion of the river recreation internet survey and executive interviews in 2014 and focus group discussions in 2015.
Highlighted Results and Achievements	Susitna River Recreation Study Reaches 1, 2, and 3 offer a range of river recreation opportunities, and attract different types of recreators. River recreators indicated that river flows were a factor in planning the timing for a trip on all three reaches. The range of preferred flows for respective watercraft was quite broad. Various ice-dependent winter recreation activities occur in all three study reaches, and ice condition preferences were similar across all three reaches. Survey responses suggest a much higher overall use in Reach 3 than in Reaches 1 and 2 combined during all seasons of the year. In particular, Reach 2 appears to be largely limited to recreational activities requiring expert skills.

## 7. COMPLETING THE STUDY

### 7.1. Proposed Methodologies and Modifications

To complete the River Recreation Flow and Access Study AEA will implement the methods in the Study Plan, with no modifications. These activities include:

- *River Recreation Survey*: As specified in RSP Section 12.7.4, the River Recreation and Access Internet Survey will continue in 2014. Survey participation will be 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, adventure schools and transportation services to the study area.
- *River Recreation Executive Interviews*: As described in RSP Section 12.7.4, interviews will be conducted 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.
- *River Ice Dependent Winter Recreation*: As described in RSP Section 12.7.4, information on winter recreation activities and transportation on the ice covered Susitna River will be obtained through coordination with the Transportation Resources Study (Study 15.7) study team and through interviews with regional officials, winter recreation users, event organizers, event participants, and other knowledgeable area residents.
- *Focus Group Discussions*: Two focus group discussions will be held: (1) whitewater boating, and (2) winter ice and snow travel in the river corridor for motorized and non-motorized users.

#### 7.1.1. Decision Points from Study Plan

RSP Section 12.7.3 provided that if 2013 study results indicated that the Project may affect river flows in a way that recreationists currently use the reach of the river downstream of the Parks Highway Bridget (PRM 88.9), AEA would make a decision regarding extending the study effort farther downstream.

In 2013 AEA collected information on river recreation use and experience and coordinated with the study teams for the Instream Flow Study (Study 8.5), Ice Processes in the Susitna River Study (Study 7.6), Geomorphology Study (Study 6.5), Recreation Resources Study (Study 12.5), and Aesthetics Resources Study (Study 12.6). The first year results from these studies indicate that Project operations will only slightly influence river flows and river morphology, such that projected changes will be within the range of normal variation currently experienced by recreationists downstream of the Parks Highway Bridge (PRM 88.9) under existing, baseline conditions, and therefore will not adversely affect the overall experience or use patterns of recreationists in the lower river. In addition, study results indicate that factors other than flow

levels are the predominant factor in determining recreationists' use pattern and experience in the lower river. These data, which are summarized below, support AEA's decision not to extend the longitudinal scope of the river recreation studies below the George Parks Highway Bridge.

Executive interviews with user groups and informal consultations with the operators of Susitna Landing (PRM 65.0) and Deshka Landing (PRM 47.5) have indicated low levels of recreation use between the Parks Highway Bridge (PRM 88.9) and Susitna Landing. While not a part of the current Recreation Use Study Area, users and operators who referred to this portion of the river cited the lack of access, safety considerations, cost, and availability of fish and game resources as reasons for low levels of flow based recreation. Both users and operators indicated that the major of flow based recreation occurred downriver of the Deshka and Susitna landings and in downriver tributaries. Initial results from the River Recreation and Flow Study (ISR Study 12.7, Section 5.3.1) on put-in and take-out options for river recreators also indicate that the majority of Reach 3 river recreators take out at Talkeetna and to a lesser extent the Parks Highway Bridge (PRM 88.9); only one Reach 3 river recreator reported taking out at Deska Landing (PRM 47.5). In addition, sampling of the Recreational User Intercept Survey at Susitna Landing (PRM 65.0) and Deshka Landing (PRM 47.5) intercept sites did not reveal any recreators accessing the Recreation Use Study Area during the 12 month survey period. Therefore, no intercept surveys were conducted at these access points. Log books provided by Susitna Landing managers; however, indicated that winter recreation users (primarily snowmachiners) were accessing the Susitna River to travel to Trapper Lake, Neil Lake, Lisa Lake, and Florine Lake.

On January 31, 2013, the results of the Open Water HEC-RAS Flow Routing Model were filed with FERC. This report included in part, simulated flow releases from the Watana Dam to the Susitna River for a maximum load-following operational scenario (OS-1) using historical flows recorded during the calendar year 1984. OS-1 is based on the assumption that the entire load fluctuation of the Railbelt would be provided by the Susitna-Watana Project, and that all other sources of electrical power in the Railbelt would be running at base load. This assumed condition is conservative with respect to assessing downstream impacts of load-following and represents an extreme condition that would not occur for an entire year. The year 1984 was selected because USGS gaging records were available for the entire year for the Susitna, Chulitna, and Talkeetna Rivers, and 1984 is representative of average conditions on both an annual and monthly basis. OS-1 flow and stage hydrographs are illustrated for the entire year on the Susitna River at a number of locations including the end of River Reach 3 at the Parks Highway Bridge. This location is referred to in the January 2013 report as the Sunshine gage (USGS 15292780). The results of the January 31, 2013 report indicate that OS-1 changes in both stage and flow are minimal at the end of Reach 3.

The report concludes that modeled changes in stage in flow at the end of Reach 3 are exaggerated as the Susitna River is confined to an unusually narrow channel in the vicinity of the George Parks Highway Bridge. A wider and more typical channel location just downstream of Reach 3 at PRM 87.1 was also measured as part of the study. The river at this location is about twice as wide as the wetted channel at the USGS gage. A comparison of stage changes at the end of River Reach 3 and the wider transect at PRM 87.1 under pre-Project conditions and OS-1 resulted in 12 to 19 percent less stage change in response to flow fluctuations than observed at the more narrow location at the end of Reach 3. When taken into consideration, the results of the

January 31, 2013 Open Water HEC-RAS Flow Routing Model do not support increasing the longitudinal scope of the river recreation studies below the George Parks Highway Bridge.

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

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

### **7.1.2. Modifications to Study Plan**

No modifications to the Study Plan are needed to complete the study and meet Study Plan objectives.

## **7.2. Schedule**

In general, the schedule for completing the FERC-approved Study Plan is dependent upon several factors, including Project funding levels authorized by the Alaska State Legislature, availability of required data inputs from one individual study to another, unexpected weather delays, the short duration of the summer field season in Alaska, and other events outside the reasonable control of AEA. For these reasons, the Study Plan implementation schedule is subject to change, although at this time AEA expects to complete the FERC-approved Study Plan

through the filing of the Updated Study Report (USR) by February 1, 2016, in accordance with the ILP schedule issued by FERC on January 28, 2014.

With regard to this specific study, in 2014 AEA plans only to complete (1) the River Recreation and Access Internet Survey, and (2) the executive interviews. In 2015, AEA plans to complete all remaining analysis for this study, which will be reported in the USR.

### **7.3. Conclusion**

Implementation of the Recreation River Flow and Access Study is planned for 2014 and 2015, with no modification of the methods in the FERC-approved Study Plan. This study is interrelated with the Recreation Resources Study (Study 12.5) and Aesthetics Resources Study (Study 12.6). AEA expects the approved Study Plan objectives for both this study and Studies 12.5 and 12.6 will be achieved, as AEA proposes no modifications to the methods of this study. The results of this study will be reported in the USR.