

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

**Instream Flow Study: Fish, Aquatics, and Riparian  
Study Plan Section 8 Introduction**

**Final Study Plan**

Alaska Energy Authority



July 2013

## 8. INSTREAM FLOW STUDY: FISH, AQUATICS, AND RIPARIAN

### 8.1 Introduction

Project construction and operation will affect Susitna River flows downstream of the dam; the degree of these effects will ultimately depend on final Project design and operating characteristics. The Project will be operated in a load-following mode. Project operations will cause seasonal, daily, and hourly changes in Susitna River flows compared to existing conditions. The potential alteration in flows will influence downstream resources/processes, including fish and aquatic biota and their habitats, channel form and function including sediment transport, water quality, groundwater/surface water interactions, ice dynamics, and riparian and wildlife communities (AEA 2011).

The potential operational flow-induced effects of the Project will need to be carefully evaluated as part of the licensing process. This Final Study Plan (FSP) describes the Susitna-Watana Instream Flow Study (IFS) that will be conducted to characterize and evaluate these effects. The plan includes a statement of objectives, a description of the technical framework that is at the foundation of the IFS, the general methods that will be applied, and the study nexus to the Project. This plan will be subject to revision and refinements as part of the Technical Workgroup (TWG) review and comment process identified as part of the Integrated Licensing Process (ILP). Pursuant to the standards, schedule, and process described below, these details will be developed in consultation with the TWG as part of the continuing study planning process and during study implementation.

The FSP has benefitted from formal written comments submitted to the Federal Energy Regulatory Commission (FERC) from Proposed Study Plan (PSP) filing (July 16, 2012) through submittal of Interim Draft RSPs (October 31, 2012), formal comment letters filed with FERC between November 1 and 14, 2012 (see Section 8.4), comment letters on the Revised Study Plan (RSP) filed with FERC December 2012, and the FERC Study Plan Determination. In addition, comments and suggestions were provided during the study plan development at eight agency and licensing participant TWG meetings that were conducted to describe various elements of the proposed studies. These meetings were conducted in 2012 on January 1, March 2, April 5, June 13, August 16, September 14, October 2, and October 24 and included specific discussions on study area selection, methods and models, and linkages with other resource studies. Detailed notes were recorded during each of these meetings that highlighted action items and/or technical issues and comments that were considered in the RSP. A one-and-one-half-day field reconnaissance was also conducted with the agencies on October 3–4, 2012, to visit three of the proposed study areas (termed Focus Areas (Focus Areas)—see Section 8.5.4.2.1.2) and discuss sampling methodologies. These agency interactions, coupled with direct communications via e-mail and telephone, and FERC study plan requests have all contributed to refinements in the individual study plans. Even so, as noted above and depicted in the IFS schedule (see Section 8.5.6), refinements will continue to be made to the plan as more information from this and other interdependently-linked studies is collected and evaluated.

## 8.2 Nexus Between Project Construction / Existence / Operations and Effects on Resources to be Studied

As described above, the operational strategy of the Project could result in a variety of flow responses to the river below Watana Dam. These may include seasonal, daily, and hourly changes in river stage that would vary longitudinally along the river. Having a clear understanding of Project effects on instream flow and riparian habitats and biological resources present within the Susitna River corridor will be critical to environmental analysis of the Project.

## 8.3 Resource Management Goals and Objectives

Several natural resources agencies have jurisdiction over aquatic species and their habitats in the Project area. These agencies will be using, in part, the results of the IFS and other fish and aquatic studies to satisfy their respective mandates. The federal and state agencies and Alaska Native entities mentioned below have identified their resource management goals, or provided comments in the context of FERC licensing related to instream flow and riparian resource issues.

### 8.3.1 National Marine Fisheries Service

The following text is an excerpt of the May 31, 2012, National Marine Fisheries Service (NMFS) letter and Instream Flow Study Request:

*NMFS has authority to request water quality and other natural resource studies related to the project pursuant to the: Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), National Environmental Policy Act (NEPA) of 1969 (83 Stat. 852; 42 U.S.C. §4321 et seq.), Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. §1531 et seq.), Bald and Golden Eagle Protection Act (BGEPA) (54 Stat. 250, as amended, 16 U.S.C. §668a-d), Migratory Bird Treaty Act (MBTA) (40 Stat. 755, as amended; 16 U.S.C. §703 et seq.), Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. §661 et seq.), and Federal Power Act (16 U.S.C. § 91 et seq.).*

*Under Section 18 of the FPA, NMFS and the USFWS have authority to issue mandatory fishway prescriptions for safe, timely, and effective fish passage. Under Section 10(j) of the FPA, NMFS and USFWS are authorized to recommend license conditions necessary to adequately and equitably protect, mitigate damages to, and enhance, fish and wildlife (including related spawning grounds and habitat) affected by the development, operation, and management of hydropower projects. Section 10(a)(1) of the FPA requires FERC to condition hydropower licenses to best improve or develop a waterway or waterways for the adequate protection, mitigation, and enhancement of fish and wildlife (including related spawning grounds and habitat) based on NMFS and Service recommendations and plans for affected waterways. Therefore, one of the resource management goals of NMFS is to inform development of fishway prescriptions for this project pursuant to Section 18 of the FPA.*

*A number of Federal regulations address the need to protect and preserve fish and wildlife resources and their habitats, including preventing the “take” of certain species (or groups of species). The following is a list of some of the most important of these*

regulations which are applicable or may be applicable to the proposed license applications:

- Federal Power Act
  - *FERC is required to give equal consideration to “protection, mitigation of damage to, and enhancement of, fish and wildlife (including spawning grounds and habitat).”*
- Magnuson-Stevens Fishery Conservation Act
  - *Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established a new requirement to describe and identify EFH in each fishery management plan. The EFH provisions of the MSA (§305(b)) require federal agencies to consult with NMFS on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH*
- Fish and Wildlife Coordination Act
  - *Requires equal consideration and coordination of wildlife conservation with other water resources development programs.*
- National Environmental Policy Act
  - *Requires evaluation of project alternatives, cumulative effects.*
- Endangered Species Act
  - *Section 7(a)(2) requires Federal agencies to ensure that their activities are not likely to jeopardize the continued existence of listed species or adversely modify designated critical habitat.*
- Anadromous Fish Conservation Act

### 8.3.2 U.S. Fish and Wildlife Service

The following text is an excerpt of the May 31, 2012, U.S. Fish and Wildlife Service (USFWS) Instream Flow Study Request:

*The U.S. Fish and Wildlife Service (USFWS), U.S. Department of Interior, has authority to request fish and wildlife resources studies related to this project pursuant to:*

*The National Environmental Policy Act (NEPA) of 1969 (83 Stat. 852; 42 U.S.C. 4321 et seq.), the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), the Bald and Golden Eagle Protection Act (BGEPA) (54 Stat. 250, as amended, 16 U.S.C. 668a-d), the Migratory Bird Treaty Act (MBTA) (40 Stat. 755, as amended; 16 U.S.C. 703 et seq.), the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), and the Federal Power Act (16 U.S.C. § 791 et seq.).*

*Under Section 18 of the Federal Power Act (FPA), the National Marine Fisheries Service (NMFS), U.S. Department of Commerce and the USFWS have authority to issue mandatory fishway prescriptions for safe, timely, and effective fish passage. Under*

*Section 10(j) of the FPA, NMFS and USFWS are authorized to recommend license conditions necessary to adequately and equitably protect, mitigate damages to, and enhance, fish and wildlife (including related spawning grounds and habitat) affected by the development, operation, and management of hydropower projects. Section 10(a)(1) of the FPA requires FERC to condition hydropower licenses to best improve or develop a waterway or waterways for the adequate protection, mitigation, and enhancement of fish and wildlife (including related spawning grounds and habitat) based on NMFS and USFWS recommendations and plans for affected waterways.*

*Consistent with our mission and with the legal authorities described above, our resource goal in this matter is to conserve existing fish and wildlife resources and their habitats in the Susitna River basin. With regard to fish passage, we will recommend scientifically-based and coordinated studies, collaborate with others, and ensure development of the best information possible to inform potential development of fishway prescriptions for this project pursuant to Section 18 of the Federal Power Act.*

### **8.3.3 Alaska Department of Fish and Game**

The following text is an excerpt of the May 30, 2012, ADF&G letter and Instream Flow Study Request:

*The Fish and Game Act requires the Alaska Department of Fish and Game to, among other responsibilities, "...manage, protect, maintain, improve, and extend the fish, game and aquatic plant resources of the state in the interest of the economy and general well-being of the state" (AS 16.05.020).*

### **8.3.4 Alaska Native Entities**

#### **8.3.4.1 Chickaloon Village Traditional Council**

The Chickaloon Native Village provided comments on Project licensing activities in a May 31, 2012, letter to the FERC. Chickaloon Native Village is a federally recognized Alaska Native tribe. Chickaloon Village is an Ahtna Athabascan Indian Tribe governed by the nine-member Chickaloon Village Traditional Council. The Chickaloon Village Traditional Council strives to increase traditional Ahtna Dene' practices for the betterment of all residents in the area. Preserving and restoring the region's natural resources is one way of supporting Ahtna culture and the regional ecosystem.

## **8.4 Summary of Consultation with Agencies, Alaska Native Entities, and Other Licensing Participants Regarding Revised Study Plan Development**

Input regarding the issues to be addressed in the IFS has been provided by the TWG during workgroup meetings commencing in late 2011. During 2012, workgroup meetings were held in January, March, April, June, August, September, and October, during which resource issues were identified and discussed and objectives of the instream flow studies were defined. A one-and-one-half day field reconnaissance was also conducted in October 2012 with agency representatives to tour three of the proposed Focus Areas and discuss riparian, groundwater, and

fish habitat sampling and modeling. In addition, agency interactions via e-mail and telephone contributed to refinements in the IFS. Various agencies and other parties (USFWS, NMFS, ADF&G, etc.) provided written comments specific to this study that have been considered and will be addressed as part of this plan. Summary tables of comments and responses from formal comment letters filed with FERC through November 14, 2012 were provided in RSP Appendix 1 filed December 14, 2012. Copies of the formal FERC-filed comment letters were included in RSP Appendix 2. In addition, a single comprehensive summary table of comments and responses from consultation, dated from PSP filing (July 16, 2012) through release of Interim Draft RSPs, was provided in RSP Appendix 3. Copies of relevant informal consultation documentation were included in RSP Appendix 4, grouped by resource area.

Consultation subsequent to the filing of the Revised Study Plan (RSP) is described within each Final Study Plan (FSP).