

Susitna-Watana Hydroelectric Project Document

ARLIS Uniform Cover Page

Title: Aquatic resources study within the access alignment, construction area, and transmission alignment study		SuWa 133
Author(s) – Personal:		
Author(s) – Corporate: Alaska Energy Authority		
AEA-identified category, if specified: Aquatic and fish resources study requests		
AEA-identified series, if specified:		
Series (ARLIS-assigned report number): Susitna-Watana Hydroelectric Project document number 133		Existing numbers on document:
Published by: [Anchorage] : Susitna-Watana Hydroelectric Project, [2012]		Date published: 5/16/2012
Published for:		Date or date range of report:
Volume and/or Part numbers:		Final or Draft status, as indicated:
Document type:		Pagination: 5 p.
Related work(s):		Pages added/changed by ARLIS:
Notes:		

All reports in the Susitna-Watana Hydroelectric Project Document series include an ARLIS-produced cover page and an ARLIS-assigned number for uniformity and citability. All reports are posted online at <http://www.arlis.org/resources/susitna-watana/>



1.1. Aquatic Resources Study within the Access Alignment, Construction Area, and Transmission Alignment Study

1.2. Requester of Proposed Study

AEA anticipates resource agencies will request this study.

1.3. Responses to Study Request Criteria (18 CFR 5.9(b))

The following sections provide the necessary context and justification for the proposed study.

1.3.1. Describe the goals and objectives of each study proposal and the information to be obtained.

The goal of this study is to describe the baseline condition of the aquatic environment in the vicinity of the Project including access roads, transmission lines, airports, and construction areas. Specific study objectives include:

1. Characterize the aquatic habitats and fish assemblages at potential stream crossings within a 200-m buffer zone along proposed access road and transmission line alignments.
2. Describe aquatic habitats and species present within the construction area for the dam and related hydropower facilities.

1.3.2. If applicable, explain the relevant resource management goals of the agencies and/or Alaska Native entities with jurisdiction over the resource to be studied.

Aquatic resources including fish and their habitats are generally protected by a variety of state and federal mandates. In addition, various land management agencies, local jurisdictions, and non-governmental interest groups have specific goals related to their land management responsibilities or special interests. These goals are expressed in various statutes, plans, and directives:

- Alaska Statute 41.14.170 provides the authority for state regulations to protect the spawning, rearing, or migration of anadromous fish. Alaska Statute 41.14.840 regulates the construction of fishways and dams. State regulations relating to fish resources are generally administered by the Alaska Department of Fish and Game (ADF&G). ADF&G is responsible for the management, protection, maintenance, and improvement of Alaska's fish and game resources in the interest of the economy and general well-being of the state (AS 16.05.020). ADF&G monitors fish populations and manages subsistence, sport and commercial uses of fish through regulations set by the Board of Fisheries (AS 16.05.221). ADF&G's authority for protection of fish resources and habitat is further established through the Anadromous Fish Act (AS 16.05.871 – 901) and the Fishway Act (AS 16.05.841). In addition to the state statutes, the following resource management plans and directives provide guidance and direction for protection of fish resources and aquatic habitats on lands within or adjacent to the Project area:
- The Federal Subsistence Board, which comprises representatives of the US Fish and Wildlife Service, National Park Service, Bureau of Land Management, Bureau of Indian Affairs, and US Forest Service, oversees the Federal Subsistence Management Program (57 FR 22940; 36 CFR Parts 242.1–28; 50 CFR Parts 100.1–28), with

responsibility for managing subsistence resources on Federal public lands for rural residents.

- Magnuson-Stevens Fishery Conservation and Management Act (PL 104-267) provides federal protection for Essential Fish Habitat (EFH) defined as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” NOAA’s National Marine Fisheries Service (NOAA Fisheries) is responsible for designating EFH. In the case of anadromous fish streams (principally salmon), NOAA Fisheries has designated the water bodies identified in the Catalogue of waters important for spawning, rearing, or migration of anadromous fishes – Southcentral Region prepared by ADF&G (Johnson and Klein 2009) as the definition of EFH within freshwater habitats.
- Aquatic Resources Implementation Plan for Alaska’s Comprehensive Wildlife Conservation Strategy, September 2006. Prepared by ADF&G, Division of Sport Fish.
- Our Wealth Maintained: A Strategy for Conserving Alaska’s Diverse Wildlife and Fish Resources. Prepared by ADF&G, Juneau, Alaska. xviii+824 pp.

Management and land use plans relevant to Aquatic Resources Study Components:

- The role of state land use plans, generally administered by Alaska Department of Natural Resources (ADNR), was established by state statute (AS 38.04.005). The Susitna-Matanuska Area Plan (SMAP) and The Southeast Susitna Area Plan (SSAP) direct how ADNR will manage general state uplands and shorelands within the planning boundaries.
- The Susitna Basin Recreation Rivers Management Plan describes how ADNR will manage state land and water along six rivers including: the Little Susitna River, Deshka River, Talkeetna River, Lake Creek, Talachulitna River, and Alexander Creek. The plan documents how these six rivers will be managed over the long term including providing management intent for each river segment, new regulations for recreation and commercial use, and guidelines for leases and permits on state land.
The Susitna Flats Game Refuge Management Plan provides ADF&G guidance to manage the refuge to protect fish and wildlife populations, including salmon spawning and rearing habitats.

1.3.3. If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study.

Fisheries resources are owned by the State of Alaska, and the Project could potentially affect these public interest resources.

1.3.4. Describe existing information concerning the subject of the study proposal, and the need for additional information.

The Aquatic Resources Data Gap Analysis (ARDGA; AEA 2011a) and PAD (AEA 2011b) summarized existing information and identified data gaps for aquatic conditions and fish species. Studies from the 1980s were conducted on fish characterization and distribution in streams along the then-proposed access and transmission corridor. The access and transmission corridor(s) for the Susitna-Watana Hydroelectric Project, however, has not been finalized, though it may make use of some, or all, of the corridor proposed in the 1980s. Consequently, an updated characterization study is needed.

1.3.5. Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements.

Construction and operation of the Project could affect aquatic habitat where Project access roads, transmission lines, airports, and construction areas cross or encroach on rivers and streams. A baseline description of aquatic habitats and fish species associated with proposed access, transmission line, and construction and operation facilities is needed to provide a basis for impact assessment and assist in developing ~~any necessary plans for~~ protection, mitigation, and enhancement measures, ~~including (PM&Es). This information will also help to develop~~ resource management and monitoring plans.

Construction and operation of the Project facilities will require both temporary and permanent infrastructure including road, railroad, airstrip, transmission lines, and construction camps and staging areas (ADOT&PF 2011). The Project has three possible alternatives for road and transmission lines. One corridor, the Chulitna Corridor, can accommodate east-west running transmission lines and a road north of the Susitna River connecting to the Anchorage-Fairbanks Intertie and the Alaska Railroad near the Chulitna station. Another east-west configuration would follow a corridor south of the Susitna River running to Gold Creek station. A third corridor, the Denali Corridor, runs north, and would connect the dam site to the Denali Highway by road. If transmission lines are run north up the Denali Corridor they would need to also run west along the existing Denali Highway to connect to the Anchorage-Fairbanks Intertie. The main impacts to fish and aquatics are expected to be associated with road crossings at creeks. Creeks would be crossed using standard Alaska Department of Transportation and Public Facilities (ADOT&PF) bridge design, or using culverts as appropriate, and the construction is expected to be achieved using standard methods and local borrow pits/quarries within the corridor for fill and surfacing (AEA 2011).

1.3.6. Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge.

This study will take place in 2013 and 2014 and use a combination of office-based GIS evaluation and field data collection. Field data collection will be completed during the field season, typically June through August, using standard methods.

The most current and detailed Project infrastructure plans will be obtained for all alternatives to be evaluated. The locations of known aquatic habitats in the vicinity of Project infrastructure will be identified using the Project geodatabase. Data from the 2012 Synthesis of Existing Fish Population Data Study will be reviewed to identify any existing study data applicable to evaluating aquatic resources associated with access alignments, construction areas, and transmission alignments.

Aquatic habitats and fish assemblages within a 200-m buffer zone along proposed alignments, at each identified potential stream crossing, and around construction areas will be characterized in the field. Helicopter supported reconnaissance of the proposed development areas will be used to identify any previously unmapped aquatic habitats; these additional locations will be documented using GPS and photographs.

Each site identified through the GIS mapping and reconnaissance surveys will be visited. Continuous fish and habitat surveys will be conducted for a stream length equal to approximately 40 times the channel width at a potential impact site. If no fish are observed during initial site visits, a second site visit will take place to confirm fish presence or absence. Additionally, if no fish are observed during the first sampling season, additional surveys will be scheduled at different times in the second year of the study. Field sampling will cover as many stream crossings as flow conditions allow in 2013 including any sites not sampled in 2012; repeat sampling will occur as necessary. Habitat surveys will be conducted using a modified US Forest Service (USFS) Aquatic Habitat Survey Protocol (2001). Modifications will include typing habitat units by the Project-specific habitat classification system developed by the Fish and Aquatics Technical Working Group and may include collecting a suite of habitat parameters that are tailored specifically to varied habitats within the Project Area. Fish surveys will be conducted using a variety of methods including: snorkeling, electrofishing, seining, and minnow trapping as appropriate based on water depth, flow and visibility. The following data will be collected at each site.

- Habitat will be typed, characterized by collecting data on a suite of parameters that includes at a minimum: wetted width, average depth, substrate composition, gradient, and riparian vegetation.
- Stream velocity data will be collected in wadable streams using a digital current meter.
- Fish species composition and relative abundance will be determined using methods as appropriate for flow, depth, visibility, and conductivity conditions of each waterbody. Data will be collected in a manner that supports the calculation of catch-per-unit-effort.
- Data will be collected on ambient water quality parameters including temperature, pH, dissolved oxygen, and conductivity (YSI meter method).
- Representative photographs will be taken at each location.

Following field work, all data will be input into the Project geodatabase and a technical report will be prepared.

The following schedule shows proposed deadlines for major work products.

- Proposed Study Plan filed with FERC – July 16, 2012.
- Revised Study Plan filed with FERC – November 14, 2012.
- Summary of Results – September 30, 2013 and September 30, 2014
- ArcGIS spatial products – December 1, 2013 and December 1, 2014.
- Initial Study Report filed with FERC – December 13, 2013.
- Updated Study Report filed with FERC - December 15, 2014.

All map and spatial data products will be delivered in the two-dimensional Alaska Albers Conical Equal Area projection, and North American Datum of 1983 (NAD 83) horizontal datum consistent with ADNR standards. Naming conventions of files and data fields, spatial resolution, and metadata descriptions must meet the ADNR standards established for the Susitna-Watana Hydroelectric Project.

1.3.7. Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

The schedule, staffing, and costs will be detailed as the 2013–2014 Study Plan develops. Total estimated costs for this two-year study are \$300,000.

1.3.8. Literature Cited

Alaska Department of Transportation and Public Facilities. 2011. Watana Transportation Access Study, Project 82002.

AEA (Alaska Energy Authority). 2011a. Aquatic Resources Gap Analysis. Prepared by HDR, Inc., Anchorage. 107 pp.

AEA. 2011b. Pre-application Document: Susitna-Watana Hydroelectric Project FERC Project No. 14241. December 2011. Prepared for the Federal Energy Regulatory Commission, Washington, DC.

Johnson, J. and K. Klein. 2009. Catalogue of waters important for spawning, rearing, or migration of anadromous fishes – Southcentral Region, Effective June 1, 2009. Alaska Department of Fish and Game Special Publication No. 09-03, Anchorage.

USFS. 2001. US Forest Service - US Department of Agriculture. Aquatic Habitat Management Handbook, Chapter 20 – Fish and Aquatic Stream Habitat Survey.