Vegetation Study

Swan Lake Hydroelectric Project

(FERC Project No. 2911)

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Ketchikan, Alaska

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ACRONYMS AND ABBREVIATIONS

CFR	Code of Federal Regulations
FERC	Federal Energy Regulatory Commission
FSM	Forest Service Manual
GIS	geographic information system
ICD	Initial Consultation Document
km	kilometers
NRCS	Natural Resources Conservation Service
NEPA	National Environmental Policy Act
RTE	rare, threatened, and endangered
SEAPA	Southeast Alaska Power Agency
USDA	U.S. Department of Agriculture
USFS	USDA Forest Service

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1. INTRODUCTION

1.1. Project Description

The Southeast Alaska Power Agency (SEAPA) owns the Swan Lake Hydroelectric Project (Project, FERC No. 2911) on the northeast side of Carroll Inlet in Southeast Alaska (Figure 1). SEAPA is currently evaluating the engineering feasibility and value of increasing the reservoir's storage capacity through an increase in dam height. SEAPA is planning a 20-foot raise in full pool reservoir elevation; the top of dam would increase from an elevation of 344 feet to 358 feet and the new normal maximum reservoir elevation would be 350 feet, subject to final design and environmental review.

The Project's Federal Energy Regulatory Commission (FERC) license sets the Project's boundaries at the 350-foot elevation contour. An increase in dam height may require revision of these boundaries to allow for operation and maintenance of the Project and to accommodate other Project purposes such as recreation, shoreline control, or protection of environmental resources. The proposed changes to the facilities, the operation of the reservoir, and potential changes to Project boundaries will require amending the Project's FERC license, a process that includes evaluating the potential impacts to environmental resources from the proposed action.

An amendment to modify the Project license, as described above, would be considered by FERC to be a non-capacity amendment since the nameplate capacity of the Project will not change. However, it involves a modification of an existing dam that will result in a significant change in the normal maximum surface area or elevation of an existing impoundment. Therefore, pursuant to 18 CFR §4.38(a)(4)(v), three stage consultation is required. Three stage consultation is generally defined as follows:

> Stage 1 – Initiate consultation through the release of an Initial Consultation Document (ICD). Stage 1 ends when agencies have provided the applicant with a list of study requests. SEAPA is planning to file the ICD with FERC in the late fall or winter of 2012/2013. Copies of the ICD will also be sent to all agencies, Native Villages, and Indian tribes, and made available to the public.
>
> Stage 2 – Develop information (e.g., analysis of existing information, studies, etc.) to address the questions identified in Stage 1. Stage 2 ends when the applicant has filed the amendment request with FERC. SEAPA has elected to start collecting information prior to commencement of the formal amendment process in order to facilitate early discussion about the proposed action.
>
> Stage 3 – FERC conducts post-filing consultation with agencies, pursuant to the National Environmental Policy Act (NEPA). This stage concludes with issuance of an amended license.

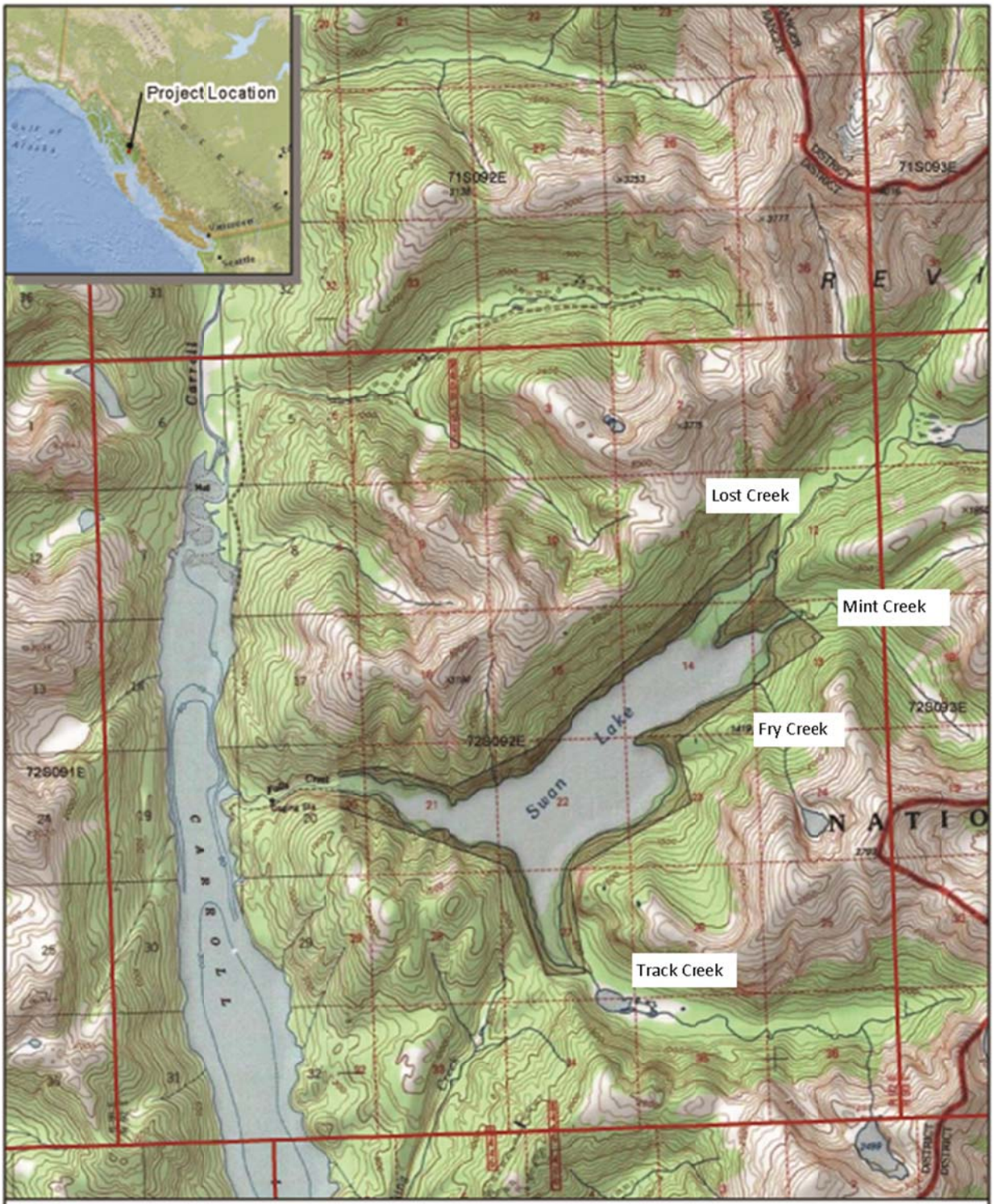

Figure 1. Project Vicinity

Swan Lake Hydroelectric Project (FERC No. 2911)
Study Area and Major Tributaries

This process, from the filing of the ICD to the issuance of the amended license, could take 3 years. It may be possible to skip or truncate certain steps, which SEAPA would like to explore with the agencies, provided sufficient information can be developed in advance to allow all parties to knowledgeably discuss the action and its implications.

Accordingly, SEAPA engaged Long View Associates and Tetra Tech to collect information during the 2012 field season and conduct studies to help evaluate these potential resource impacts and to determine the optimal path forward for developing information for an eventual license amendment.

1.2. Purposes of the 2012 Environmental Field Program

The purpose of the 2012 environmental field program is to collect baseline environmental information and to evaluate the potential for impacts to environmental resources resulting from the proposed 20-foot increase in pool elevation. Results of these studies will help inform discussions about the necessary range of environmental analysis to support the FERC amendment process. Broad areas of environmental question include potential impacts from the proposed action on (1) the fish and aquatic community and associated habitat, and (2) terrestrial vegetation and wildlife and features such as soils and cultural resources.

The 2012 terrestrial studies will collect baseline information between the existing full pool elevation and the proposed additional inundation of 20 feet of upland habitat. In addition to providing information needed to characterize potential project effects, the terrestrial resource inventories listed below will build on and update any previous data collection efforts to help agencies with jurisdiction and management responsibility over these resources meet their respective mandates. Specifically, the proposed terrestrial fieldwork consists of four main components that will inform agency decision-making and permitting:

a. Cultural (background research, inventory plan, and cultural resources site inventory)

b. Soils (evaluation of potential impacts to soil productivity, erosion potential, and mass movement)

c. Vegetation (sensitive and invasive plant surveys including wetland verification)

d. Wildlife (general wildlife and habitat surveys, including a bald eagle nest survey, as well as specific goshawk surveys, if required)

This document describes the Vegetation Study. Associated terrestrial studies include soils, wildlife, and cultural resources evaluations and are addressed in separate study plans.

1.3. Study Goals and Objectives

The goal of the Vegetation Study is to collect baseline data within and adjacent to the current FERC boundary to determine the presence of sensitive plants including rare, Forest Service sensitive-listed, and noxious/invasive species, and to document wetlands. Specific objectives of this study are as follows:

a. Conduct sensitive plant surveys within/adjacent to the current FERC boundary.

b. Include in the survey rare, threatened, and endangered (RTE) plants, Forest Service sensitive-listed, and noxious/invasive weeds.

c. Map the location, distribution, and extent of sensitive plant populations.

d. Document and map wetland areas.

2. BACKGROUND

Swan Lake lies in a steeply sided valley 35 kilometers (km) (about 22 miles) northeast of Ketchikan on Revillagigedo Island along the east side of Carroll Inlet near its head and is typical of the oligotrophic lake systems found throughout southeast Alaska (Hoopes 1978).

Limited information on vegetation is available from previous studies and the best available information is from Hoopes' (1978) investigation of biotic resources.

3. METHODS

The Project approach will include reviewing and summarizing rare, invasive, and sensitive plant survey data and research in the Project area. This will include a review of the 2009 Region 10 Species List (Table 1) as well as contact with the USDA Forest Service (USFS) and other agency resource specialists to obtain botanical information and to discuss details of known rare and invasive plant populations within or adjacent to the Project area. A review of geographic information system (GIS) data and aerial photographs to evaluate general habitat conditions will be used to finalize specific areas for surveys and a pre-field meeting should be held with USFS staff.

Sensitive plant surveys will be conducted in accordance with the 2008 Forest Plan (USDA Forest Service 2008) and the 2009 Region 10 Survey Protocols for Sensitive, Rare, and Invasive Plants. Surveys will be conducted in locations where the likelihood of occurrence is highest.

The Project area will be divided into areas of high, medium, and low probability habitat for sensitive species, and most of the survey effort will be focused on high probability areas. However, visits will also be made to some areas with medium and low probability habitat. Potential high probability habitat

areas include muskegs, pond shorelines, and saltwater shorelines. Medium probability habitats include riparian areas, forested wetlands, and areas of sparse forest. Low probability habitats include closed canopy forest.

Table 1. Alaska Region Sensitive Plants, February 2009

Common Name	Scientific Name	Occurrence	
		CNF	TNF
Vascular Plant			
Eschscholtz's little nightmare	*Aphragmus eschscholtzianus*	Y	S
Moosewort fern	*Botrychium tunux*	S	Y
Spatulate moonwort fern	*Botrychium spathulatum*	S	Y
Moonwort, no common name	*Botrychium yaaxudakeit*	S	Y
Edible thistle	*Cirsium edule* var. *macounii*		Y
Sessileleaf scurvygrass	*Cochlearia sessilifolia*	S	
Spotted lady's slipper	*Cypripedium guttatum*	Y	
Mountain lady's slipper	*Cypripedium montanum*	S	Y
Large yellow lady's slipper	*Cypripedium parviflorum* var. *pubescens*	S	Y
Calder's loveage	*Ligusticum calderi*	S	Y
Pale poppy	*Papaver alboroseum*	Y	S
Alaska rein orchid	*Piperia unalascensis*	S	Y
Lesser round-leaved orchid	*Platanthera orbiculata*		Y
Kruckeberg's swordfern	*Polystichum kruckebergii*		Y
Unalaska mist-maid	*Romanzoffia unalaschcensis*	Y	Y
Henderson's checkermallow	*Sidalcea hendersonii*		Y
Dune tansy	*Tanacetum bipinnatum* subsp. *huronense*	S	Y
Lichen			
Lichen, no common name	*Lobaria amplissima*	S	Y

Y=Known occurences CNF=Chugach National Forest
S=Suspected to occur TNF=Tongass National Forest

Surveys will be conducted according to a standard intuitive controlled meander technique, in which surveyors walk through or around a survey area, and then focus on specific habitats that correspond to the sensitive species most likely to occur in the area. Daily Sensitive Plant Survey Forms will be completed. These forms will include maps that show areas visited. Surveys will be comprehensive and floristic, meaning that all species that are observed will be identified and recorded on the survey forms. Surveys will be conducted by trained botanists able to identify the sensitive species and invasive plants potentially occurring in the Project area. In some cases, confirmation of species determinations will be done in the office from collected material.

In conjunction with the rare and invasive plant surveys, wetlands will also be recorded within the FERC boundary. This survey will serve to verify or improve upon existing wetlands mapping, but will not serve as a wetlands delineation for the purpose of Clean Water Act compliance.

4. SCHEDULE

The proposed schedule is as follows and will be refined as needed by the contractor in consultation with SEAPA.

July–August 2012	Conduct background research and conduct field work
September–October 2012	Develop report and review draft report
November 2012	Submit final report to SEAPA

5. REPORTING

A Botany Resource Report will be prepared and will summarize field data for rare and sensitive plants documented in the Project area. The report may also include a risk assessment for invasive plants conducted in accordance with *Forest Service Manual (FSM) 2080, R10 Tongass National Forest Supplement 2000-2007-1*. All field data and forms will be provided in electronic format using the USFS template.

A wetland report will be prepared and will summarize wetlands identified through pre-field and field activities.

SEAPA will produce a draft report, containing appendices with raw data by September 28, 2012, for review by agencies. A final report that addresses agency comments will be issued by November 16, 2012. The report will include SEAPA's recommendations for follow-up activities in 2013, if any, to address outstanding questions, or new questions that arise as a result of the study.

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