

FINAL WILDLIFE and VEGETATION RESOURCES STUDY PLAN

Blue Lake Hydroelectric Project FERC No. 2230 Expansion

Prepared by:

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INTRODUCTION

This final study plan describes proposals for monitoring wildlife, vegetation and other terrestrial resources potentially-affected by expansion of the Blue Lake hydroelectric project near Sitka Alaska during 2008. The plan describes both field and office studies aimed at determining effects of proposed changes in Blue Lake Project dam height and installation of a third generating.

BACKGROUND

The City and Borough of Sitka Electric Department (City) recently received a new license for the Blue Lake hydroelectric Project (FERC No. 2230, "Project") from the Federal Energy Regulatory Commission (FERC). During the relicensing process, the City's ongoing energy forecasts indicated that, in order to assure continued delivery of low cost electrical power in the face of rising energy needs and fuel costs in Sitka, it must expand its hydroelectric generating base.

Among other alternatives, the City is examining 1) installing a third generating turbine near the existing Blue Lake Project powerhouse; and 2) raising the height of Project dam. Because the City's proposal for dam raising has the potential to inundate significant areas around Blue Lake, the proposed wildlife-vegetation studies in this draft plan emphasize work in the reservoir area but also describe proposed studies in and near Sawmill Creek.

EXISTING WILDLIFE and VEGETATION STUDIES and RESULTS

The City conducted extensive wildlife and vegetation surveys to support the Project relicensing. During relicensing, however, the City did not propose significant changes to the Project design or operation. As a result, wildlife and vegetation surveys for relicensing were primarily used to describe existing conditions, not to assess impacts. Also, the spatial limit of earlier studies was limited by the existing project boundary. Because that boundary will certainly change to include newly inundated areas, new wildlife studies will have to be conducted in much broader areas than those associated with relicensing only.

ELEMENTS OF PROPOSED 2008 WILDLIFE/VEGETATION STUDIES

To evaluate effects of dam raising and third turbine construction, the City proposes studies in four different areas:

- 1) literature review;
- 2) photo interpretive evaluation of vegetation within the area of potential effect;
- 3) ground truthing of vegetation types determined through aerial imagery;
- 4) Sawmill Creek and Blue Lake Field Surveys.

These elements are described in detail in the following sections. In some cases, methods and time frames for proposed studies are the same as those for earlier wildlife/vegetation studies done for Project relicensing. Differences between the two proposals relate to primarily to the geographic scope of the studies or surveys, to encompass areas affected by the proposed dam raise or third turbine and powerhouse construction.

Literature and Available Information Review

Researchers will conduct a literature review to help develop a complete list of wildlife species known or thought to use the project area. The City will assemble existing wildlife information in the Blue Lake and Sawmill Creek drainage pertaining to large and small mammals, fur-bearers, waterfowl (including harlequin ducks), shorebirds, bald eagles, and other raptors. Much of the information is part of the existing Blue Lake relicensing and amendment data bases.

In addition to written material, researchers will interview resource agency personnel from ADF&G, USFS, FWS, Sitka Tribe of Alaska (STA) members and others who might have personal knowledge of wildlife in the Project area.

Finally, researchers will establish communications protocols with resource agencies to receive all appropriate and available survey information which those agencies may have collected through resource inventories, aerial overflights, harvest records (particularly for mountain goats) and other agency-funded or otherwise enabled studies.

Photo interpretive Evaluation of Vegetation Within the post-expansion Area of Potential Effect (APE)

During relicensing, the City and its wildlife/vegetation studies contractor used existing aerial imagery and vegetation type analysis from the US Forest Service (USFS) to map vegetation immediately around Blue Lake and Sawmill Creek. The extent of this mapping was limited by the fact that there were no proposals which might affect areas beyond the existing Blue Lake high water mark.

To analyze Project expansion proposals, the City will use the same aerial data base plus information derived from a 2007 LIDAR survey of the potentially affected area to map a much larger area, particularly in along Blue Lake Creek. Vegetation typing will extend to a line approximately 200 feet around the maximum extent of Blue Lake reservoir at an elevation 425 feet higher than the existing high water mark. Within this area, the City and its contractor will determine acreages of all vegetation types established in the USFS data base.

After quantification of the vegetative types, the City and its contractor will evaluate these areas in terms of their potential as habitat for the various wildlife species known or thought to exist in the upper Blue Lake basin.

Ground Truthing of Vegetation Types Determined through Aerial Imagery

The City's wildlife/vegetation contractor, after initial evaluation of the aerial imagery and vegetation typing, will conduct field surveys to verify vegetation typing derived from the images. This will involve establishing GIS coordinates from the images and confirming the areas relative to GIS positions on the ground. Field surveys will then be used to confirm actual vegetation types within the areas located by GIS.

Sawmill Creek and Blue Lake Field Surveys (methods generally repeated from Bovee, 2005. Detailed methods and literature references in attached Excel file.)

Seasonal field surveys will be conducted to describe: 1) the current distribution and relative abundance of wildlife species and their spatial and temporal use patterns of terrestrial and aquatic habitats within riparian zones, including Blue Lake tributaries and their deltas, and 2) general vegetation and habitat type within the same area; and 3) activity and habitat association of wildlife observed.

Wildlife

Wildlife data will be obtained primarily through observations and captures, which will be done in four separate ways:

1. Foot surveys. Foot surveys will be used to observe wildlife and vegetation while walking within the survey area. **General foot surveys** will be done in association with fisheries surveys which will be conducted frequently and within viewing range of most of the Project's potentially-affected area. On a seasonal basis, however, researchers will conduct **dedicated foot surveys** in accessible areas of the Blue Lake shoreline and along selected tributary courses to assess wildlife presence in more detail. Foot surveys will be done primarily along Blue Lake Creek, but to a lesser extent in selected areas around Blue Lake.

Foot surveys will generally include implementation of various approved methods to document mammalian and bird species. Bird species of interest will include marbled murrelet, northern goshawk, water birds and forest birds.

The City's wildlife researcher has prepared a methods document, available for agency review, with specific proposals for observing or otherwise documenting the bird and mammal species.

2. Boat Surveys. Boat surveys will be used along the shoreline of Blue Lake, and, as with Blue Lake Creek foot surveys, will be supervised by a wildlife biologist and in part conducted by fisheries researchers on their routine trips to the lake area. As with foot surveys, dedicated wildlife boat surveys will be conducted seasonally to assess wildlife presence in more detail.

Checklist for Foot and Boat Survey Wildlife Observations. In both foot and boat surveys, researchers will note:

- Species or sign;
- Estimated age or life stage of fauna sighted;
- Movement patterns, if observed;
- Indications of re-sighting (was animal or bird sighted before, based on identifying marks?);
- Evidence of life-history activity, such as denning, kidding, nesting, feeding, rearing, etc.

Both foot and boat survey observations will be documented, to the extent possible, using Global Positioning System (GPS) equipment, and will be noted on Project area base maps to be produced by the City.

These surveys will also be a primary source of information on existence of threatened or endangered (T&E) species (See Endangered Species section, below). Any initial reports of T&E species will prompt discussions with FWS to determine if additional study effort is needed to adequately confirm sightings.

3. Small Mammal Trapping. A limited small mammal trapping effort will be used within the riparian zones of Blue Lake Creek and Blue Lake. Researchers will work with wildlife specialists from ADF&G, USFS and FWS to determine approved trapping types and techniques, trap placements and seasons when trapping will occur. A separate Methods document will be prepared for small mammal trapping specifying approved trap locations, equipment, techniques and timeframes.

4. Mountain Goat Tagging and Tracking.

The City intends to participate in a mountain goat tagging and tracking study in cooperation with Alaska Department of Fish and Game (ADF&G) and US Forest Service (USFS). Details of this effort will be developed during further consultation in the spring of 2008. A city wildlife researcher will conduct a pellet and hair survey of the proposed inundated area in the spring of 2008 to determine presence or absence of goat winter habitat. The city intends to participate with ADF&G in a Baranof Island goat survey by paying for the tagging of 2 goats in the Blue Lake basin.

Vegetation

Using aerial photos as a primary data source, the City will survey and document riparian vegetation community composition, including estimates of relative percent cover of dominant species (e.g. high volume spruce-hemlock, medium volume spruce-hemlock, low volume spruce-hemlock, sapling spruce-hemlock, muskeg, alder, grassland, recurrent slide zone). Aerial imagery will be ground-truthed in accessible areas.

To the extent possible using photos and ground observations, the City will also document important plant communities within shallow littoral zones (e.g. aquatic macrophytes) that are utilized by terrestrial and aquatic species, including furbearers and birds.

The City conducted aerial photography of the project area as part of a larger City-sponsored aerial imagery survey in 2003. Imagery and maps from this survey will serve as base data for both all environmental field surveys done for the Project relicensing and later monitoring surveys.

Study Area

All wildlife field surveys (those requiring researchers to observe flora or fauna in the field) will be conducted within a zone of potential wildlife impacts, defined during consultation as the area within which wildlife might be affected either by Project expansion and new operating regimes, or by human activity related to construction or long-term operations.

Particular emphasis will be placed on surveys in the potentially-inundated areas in the Blue Lake Creek (Blue Lake's major inlet tributary) basin. The study area in this zone will encompass all lands expected to be inundated and all surrounding areas to a distance of at least 200 feet from the inundation perimeter. Study area for goat tagging will be primarily in Blue Lake basin, although tagged goats may travel from this area into other basins.

Because of very dense vegetation and restricted movement along both the Blue Lake Creek band and the Blue Lake shoreline, Study Areas will be determined in the field based on accessibility and safety concerns. Generally, most wildlife in such areas travel near the stream or lake bank, assuring that surveys done by fisheries researchers will document most of the potentially-impacted species. Around Blue Lake, the study area will also include slopes above the reservoir which may be observed using binoculars or a spotting scope.

The area depicted using aerial imagery will extend to the rim of the Blue Lake basin as defined on topographic maps. More detailed vegetation typing and cover analysis will only be done in those areas potentially affected by Project expansion, construction or related human activity. These two area types will be determined during consultation.

Study Timeframe

Wildlife studies will begin in spring, 2008 and continue through late fall of the same year. Wildlife surveys will be done at various times depending on the technique, as described below (specific times will be confirmed with agency specialists, as possible):

Foot Surveys

Foot survey time periods will be limited by access to the areas within the overall Study Area. Generally, this will define a survey season between late April and late December, but snow pack and access conditions vary greatly among years. Wildlife foot surveys will be performed roughly once per two weeks during the accessible period.

Boat Surveys

As with foot surveys, access to Blue Lake will be the controlling factor in boat surveys. Access to Blue Lake by boat is generally possible from mid-April through mid-December. At least two boat surveys will be conducted each season.

Small Mammal Trapping

Trapping will occur about three times each year during the period when access is available, and small mammals are expected to be active. This will generally require a trapping effort in the spring, summer and fall, beginning in April and ending in December, each year.

ENDANGERED SPECIES

To assure early determinations of whether endangered species occur in the Project area, the City will consult during the early phases of wildlife and vegetation studies with USFS and FWS. As noted above, the initial and ongoing reviews of existing information will note all references to endangered species. In consultation with FWS and USFS, the City will formally request comment on endangered species occurrence in the Blue Lake Creek and Blue Lake Study Areas and in a larger geographic area to be determined during consultation. Annual survey reports will have sections on endangered species sightings, if any.

The objective of the endangered species activities will be to have completed all endangered species reviews and surveys prior to submission of the Draft Amendment Application for agency and public review.

REPORTING

A draft report documenting the 2008 wildlife and vegetation surveys will be distributed on or before January 1, 2009, with a 45-day review period.