

# **FINAL RECREATIONAL RESOURCES STUDY PLAN**

## **CASCADE CREEK HYDROELECTRIC PROJECT (FERC NO. 12495-002)**

### **CASCADE CREEK LLC**

**September, 2010**

### **BACKGROUND**

In February, 2008, Cascade Creek Limited Liability Corporation (CCLLC) received a Preliminary Permit for the Cascade Creek Hydroelectric Project (FERC No. 12495-002, “Project”) from the Federal Energy Regulatory Commission (FERC). The proposed Project would be located approximately 15 miles N.E. of Petersburg, Alaska, and has the potential to affect the existing Swan Lake, Falls Lake and Cascade Creek (Figure 1).

Generally, the Project would consist of an intake structure and an outlet control structure at Swan Lake, a power conduit consisting of a mostly unlined 12 foot diameter tunnel and steel penstock leading to a powerhouse located at tidewater on Thomas Bay. Installed capacity of the Project would be approximately 70 megawatts (MW). CCLLC proposes to operate the Project within Swan Lake’s normal, seasonal lake fluctuations - where outflow is equal to inflow – to avoid effects to the lake and shoreline. It expects final management prescriptions, based on further economic and environmental considerations, to be included in the Project’s FERC license application in consultation with the agencies. The Project is described in detail in Scoping Document 1 (SD1), issued for the Project by the FERC on May 21, 2009 and SD2 submitted to FERC and stakeholders in September 2010.

During Initial Consultation and Scoping, Project Stakeholders, including Alaska state and federal resource agencies, indicated concern for project effects on recreational resources within the project area and close proximity. As discussed in SD1 and SD2, construction and operation of the Project may influence recreation within the Cascade Creek/Swan Lake basin and near-shore areas of Thomas Bay, which are contained within the US Forest Service (USFS) Tongass National Forest. Construction activities such as blasting, barge traffic, vegetation clearing, and the use of heavy equipment for the installation of project facilities will create noise and landscape disturbance that may temporarily disrupt or diminish the recreational quality and aesthetic character of Thomas Bay. In addition, project construction and operation may affect recreational use of Swan Lake, Falls Lake, the Cascade Creek Trail, and the lowermost reach of Thomas Bay, including USFS recreation facilities.

The issues to be evaluated by this study, as outlined in the SD2, are:

- Effects of project construction and operation on the use of Swan Lake, the USFS Swan Lake Cabin, and Thomas Bay and the near-shore USFS Cascade Creek and Spurt Cove cabins; including associated recreational uses of sightseeing, hiking, boating, fishing, hunting, camping, and related activities.
- The need for any new recreation facilities and/or public access at the Project to meet current and future (over the term of any new license) recreation demand, including any barrier-free access needs.
- Visual effects of a new powerhouse, tailrace, and transmission transition sites.
- Effect of development of the project on visual amenities as seen from the Cascade Creek Trail and Swan Lake.
- Effects of construction noise (blasting, tunneling, hauling, truck idling) to residents and visitors.
- Visual effects of reduced water flow over Cascade Creek waterfalls.

This Revised Study Plan intends to respond to study requests made during the scoping process, as well as comments received from the agencies on the 1<sup>st</sup> and 2<sup>nd</sup> draft study plans.

## **GOALS AND OBJECTIVES**

This study plan is designed to address baseline data needs which will allow CCLLC and Stakeholders to evaluate potential project effects on recreational resources. The study plan will also assess the importance of visual resources to recreational users. This study plan serves to outline the goals and objectives necessary to identify current and potential recreational use, opportunities, and needs at the Project, as follows:

- 1) develop an inventory of existing and potential future recreational resources within the project area of potential effect including Swan Lake, Falls Lake, Cascade Creek, and Thomas Bay in the vicinity of the proposed Project;
- 2) evaluate existing and potential future recreation use of existing recreation resources within the areas potentially affected by the Project;
- 3) solicit information on the public's preferences and perception of recreational and visual resources in the project area; and;
- 4) evaluate the effects of project construction and operation on recreational uses and visual resources within the affected areas.

## **PROJECT NEXUS**

The construction and operation of the proposed Project may affect the current recreational setting and aesthetic character of the project area. Construction activities may have noise impacts to areas surrounding the project construction footprint. While CCLLC intends to develop a powerhouse design that incorporates both topographical and vegetative buffers, constructed facilities may affect the visual quality of Thomas Bay in the vicinity of the powerhouse. While within the natural flow parameters of the

watershed, there is a potential that project operation may affect flow in Cascade Creek and subsequently the visual characteristics of these water features.

## **STUDY AREA**

Areas within the study boundary will include potentially affected recreation areas within Swan Lake, Falls Lake, Cascade Creek and Thomas Bay. Also included are viewsheds that may be potentially affected during construction and upon completion of the Project. These areas include Swan Lake, the Cascade Creek Trail and falls, the southeast arm of Thomas Bay, and transition zones from subsea to above ground transmission lines.

## **STUDY SCOPE**

The study scope will include the following elements:

### **Goal 1: Identify Recreational Resources**

Recreational resources in the study area will be identified, inventoried and evaluated through a desktop analysis based on GIS-based and hard-copy resource maps; USFS, public agency and private service provider information; USFS, agency, and tourism websites; and other appropriate data sources. The study will also identify the recreation opportunities provided by these resources and how they vary seasonally. Given the remote nature of the study area, CCLLC proposes to focus on-site surveys to known points of access and temporary use.

Specific known recreation sites to be reviewed will include (Figure 1):

- Swan Lake Cabin
- Falls Lake Shelter
- Cascade Creek Trail
- Cascade Creek Cabin
- Spurt Cove Cabin

Recreation opportunities provided by Swan Lake, Falls Lake, Cascade Creek, and Thomas Bay will be identified using information from USFS and other agencies, guide and outfitter publications and interviews, and site observations of the study area, as necessary.

**Figure 1. US Forest Service Cabins in the Study Area**



CCLLC will also identify potential recreation facilities/access (such as installation of a new dock on Thomas Bay) and alternatives that the proposed Project may provide.

## **Goal 2: Evaluate Existing Public Use**

Recreational opportunities provided by the facilities identified above are likely to include but are not limited to:

- scenic touring via private or chartered boats and kayaks or air charter;
- hiking and climbing;
- hunting, fishing, trapping and shellfish gathering;
- camping and cabin use;
- boating, kayaking/canoeing, diving and other water-related activities;
- mountain biking;
- on- and off-road vehicle uses, where permitted; and
- skiing, snowboarding and other winter activities.

Recreational use will be categorized by activity and quantified on a monthly basis. User groups for which use will be estimated include guides/outfitter customers, cruise ship

passengers, air charter tour passengers, and non-commercial recreational users. The percentage of users who are residents of the Petersburg area and non-residents will be estimated from survey data.

Several data sources will be used to provide information on use of existing recreation facilities and areas in the project vicinity:

- USFS Data - data from 2006 - 2010 will be compiled for USFS facilities including the Swan Lake Cabin, Cascade Creek Cabin, Spurt Cove Cabin, and Falls Lake Shelter.
- Outfitter Surveys/Interviews - cruise-ship and charter boat tour companies, air charter tour companies, and outfitter/guide companies operating in proximity to the Project, including those utilizing view-sheds in the project area, will be surveyed by mail or interviewed by phone to ascertain the number of visitors on a monthly basis and the length and frequency of trips to the area. See Appendix B for a list of Outfitter Companies to be included in the mail surveys/phone interviews.
- Resident Boater/Float Plane Surveys – local residents with boats or float planes registered in Petersburg, Wrangell, and Kake will be sent a mail survey soliciting information on monthly use of project vicinity recreation areas and opinions and preferences.
- Trail-cam Counts – Trail counters will be set up in the vicinity of the Cascade Creek waterfall to record trail users.

Future recreation demand analysis will utilize demographic trends to estimate future recreation demand within the area of project effect (APE) annually in 10 year increments, over the course of the anticipated 50 year license. Survey data, with respect to opinions of future use in the post-construction environment will provide additional information to estimate the Project's potential effect on projected recreational use growth.

Specific information regarding the distribution, collection and analysis of survey and count data are discussed in greater detail in *Methodology* below.

### **Goal 3: Identify User Preferences and Opinions of Recreational and Visual Resources**

#### *Recreation*

As discussed above, two surveys (Outfitter Survey/Interview and Resident Boater/Float Plane Survey) will be administered to users and recreation providers to seek opinions and preferences with respect to existing recreation opportunities and potential future effects of project construction and operation on these opportunities. CCLLC will administer surveys to collect user characteristics (origin, gender, age, group size, etc.), primary recreation activity, recreation site(s) visited, length of stay, perceptions of crowdedness, recreation and visual qualities of the area, expenditures, opinions of constructed facilities

on the recreation experience, and other relevant information. A discussion of the survey question goals and methods are provided below in *Methodology*.

### *Aesthetics*

While CCLLC will include an analysis specific to visual effects in its licensing documents that employs guidelines and methodologies provided by the Tongass National Forest Plan, the correlation between scenic beauty and the recreational experiences offered by the Thomas Bay area make visual resources an important part of the recreational opportunities available in the project area. CCLLC will administer the two surveys discussed above to determine: the perceived scenic beauty of the APE; the proposed Project's effect on perceived scenic beauty; what role scenic beauty plays in the recreational experience at the project area; and potential mitigation strategies. A discussion of the survey question goals and methods are provided below in *Methodology*.

#### **Goal 4: Identify Potential Project Effects to Recreational Use and Aesthetics**

Through the various count methodologies (existing USFS data and trail cam counts) and the survey administration, the study will evaluate:

- Potential impacts to the recreational experience and to recreation use patterns due to light, noise, increased human use during construction, and visual disturbances.
- The anticipated impact of the construction phase of the Project as a deterrent to recreational use in the project area.
- The anticipated impact of the permanent presence of project facilities as a deterrent to recreational use in the project area.
- The anticipated impact of the construction phase of the Project on the visual characteristic of the project area.
- The anticipated impact of the permanent presence of project facilities on aesthetics in the project area.
- Potential impacts to other resources such as changes to wildlife and fish populations could affect the recreation experience.
- Analysis of existing, regional recreational expenditures to include a qualitative analysis of potential use affects.

Primarily, the potential project impact analysis will depend upon data from surveys, follow up interviews as needed, and available data from existing sources. This study will also analyze the project features, function and operations for compliance with the purpose and intent of each of the individual Forest Plan Land Use Designation (LUD's) that may apply to the project boundaries. Identified LUD's in the APE are: Semi-Remote Recreation, Old Growth Habitat, Modified Landscape, Scenic Viewshed and TUS (transportation and utility corridor).

CCLLC will then address identified effects in the final report for the recreation study. CCLLC will identify potential mitigation strategies to reduce project impacts on recreational users in consultation with Stakeholders. These strategies may include:

avoidance; detour; scale and timing minimization; protection, mitigation and enhancement measures to offset the loss of recreation opportunities; and alternative use opportunities for both the construction phase and the life of the Project.

## **STUDY METHODOLOGY**

### **Literature Review and Data Search**

To address the data needs for Goal 1 and Goal 2 of the study (recreation inventory and use), researchers will conduct a literature review and data search to develop a complete list of recreational resources within the general vicinity and project area and to collect existing information on recreational use of these resources. Primary sources will include, but not be limited to:

- USFS Tongass Forest Plan & Amendment
- USFS Petersburg District Ranger Station Records
- USGS maps and existing GIS data
- Tourism and recreational atlases, brochures, guidebooks, and websites
- Commercial recreation advertisements and websites
- Alaska Department of Fish and Game (ADFG) harvest records for fish & game in the project area.
- USFS Recreation Facility Master Plan
- USFS Tongass National Forest website.

As discussed above, Swan Lake Cabin, Spurt Cove Cabin, Falls Lake Shelter and Cascade Creek Cabin use estimates will be based on records and reservations kept through the USFS.

### **Surveys and Interviews**

To address the data needs for Goal 1 (recreation inventory), Goal 2 (recreation use), Goal 3 (user preferences and perceptions), and Goal 4 (project effects to recreation and aesthetics), researchers will conduct a series of surveys and, as necessary follow up telephone interviews with recreation providers and recreation users.

The USFS Petersburg Ranger District, ADFG, private cruise-ship, charter service companies, and tourism service providers may all provide use records and anecdotal information regarding existing use of the recreation areas in the project vicinity as well as expenditures, and preferences and opinions regarding existing facilities and the potential effects of project construction and operation on recreational use and aesthetics. In addition, residential users who boat or fish in the project area may provide information regarding use levels, recreation activity seasons, and opinions on the effects of project construction and operation on the recreation experience and visual quality of the project area. To that end, an Outfitter Survey/Interview and a Resident Boater/Float Plane Survey will be administered to determine:

- the location, timing, level and type of recreational uses taking place in the project vicinity;
- existing recreation facilities and opportunities in the vicinity of the Project;
- the potential project construction and operation impacts on recreational use;
- the visual resources in the project area as identified by users and opinions of project effects on these resources; and
- expenditures of recreational users in the project area.

#### *Outfitter Survey/Interview*

CCLLC will administer these surveys either as a mail survey or as a phone interview, depending upon the preference of the recreation service provider. The survey/interview will solicit information on:

- 1) number and duration of trips to the project area;
- 2) specific facilities or features targeted for commercial trips;
- 3) total number of people participating in trips to the project area by month;
- 4) revenue received from people participating in trips to the project area;
- 5) opinions on potential effects to recreational use of the project area by project construction and operations;
- 6) opinions on potential effects to the aesthetics of the project area by project construction and operations; and
- 7) company information such as location and years in business.

As the information solicited above would be considered proprietary, overall use estimates will not be broken down by outfitter. No information collected through these interviews will be published. Summary data will be reported with no identifying information.

The surveys/interviews will be administered in fall of 2010 to solicit information regarding the 2009 winter, 2010 spring, 2010 summer (peak recreation), and 2010 seasons.

#### *Resident Boater/Float Plane Survey*

These surveys will be administered as a mail survey. Specifically, CCLLC will obtain a mailing list of registered boats and float planes in the Petersburg, Wrangell and Kake areas and distribute the survey to these registered boaters and pilots. The survey will include a cover letter with instructions to complete the form and mail it back in the provided self-addressed, postage-paid envelope. . The surveys will solicit information on:

- 1) group size;
- 2) length of trip and length of stay in the project vicinity;
- 3) primary and secondary recreation activities;
- 4) location/area of trip;
- 5) scenic attributes and detriments;
- 6) quality of recreation areas/facilities;

- 7) expenditures; and
- 8) demographic information such as residence, age, and income.

Site specific impact questions will address:

- altered water flow in Cascade Creek,
- affects to Swan Lake and Falls Lake levels,
- potential new recreation facilities provided by proposed project alternatives such as the development of a new dock/ Thomas Bay access visual disturbances in viewsheds including Thomas Bay, Swan Lake, Falls Lake, Cascade Creek, Frederick Sound, and by project facilities and appurtenant features (power line transition zones)
- any alterations to current public access.

A photo-base of viewsheds will be compiled, and graphic renderings of proposed project facilities will be developed to present an accurate depiction of the visual setting pre-construction and post-construction for users to evaluate in the survey.

## **Field Monitoring**

### *Trail Cams*

To augment overnight use data provided by the USFS and to capture dispersed private use of the Cascade Creek trail, CCLLC is installing photographic trail use counters at the primary lower falls viewing area at the outlet of Cascade Creek and a second, approximately 1000ft past and upstream of the footbridge above the falls.

## **Post License Compliance Monitoring**

Section 8.11 of the FERC regulations require that Licensees prepare a Licensed Hydropower Development Recreation Report (Form 80) for each hydroelectric development every six years. The Form 80 is divided into two sections, referred to as Schedules 1 and 2, respectively. Schedule 1 includes basic Project and overall public use information, including an estimate of annual recreation days<sup>1</sup>, in terms of both annual total and peak weekend<sup>2</sup> average and for daytime and nighttime use. Schedule 2 requests an inventory of recreation resources for the Project, and an estimate of the percent capacity at which sites are currently used. The purpose of completing the Form 80 is to provide sufficient information for FERC regarding recreational facilities located at the Project, whether public needs are being accommodated by the facilities, and whether additional efforts should be made to meet future needs.

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<sup>1</sup> FERC defines recreation day as each visit by a person to a development (as defined above) for recreational purposes during any portion of a 24-hour period.

<sup>2</sup> FERC defines peak weekend use as weekend when recreational use is at its peak for the season (July 4 weekend and other holiday weekends). On these weekends, recreational use may exceed the capacity of the area to handle such use.

Once the Project is licensed and constructed, CCLLC will continue to review recreation use, opportunities, and needs under FERC's Form 80 Recreation Use Report requirements every six years. Concurrent with the filing of the Form 80, CCLLC will provide a Recreation Use Report detailing the methodology for use data collection and analysis; an inventory and condition summary of existing recreation sites within the project area; recreation use of existing facilities and an assessment of the capacity at which facilities are used; and a discussion of the Project's ability to meet current and projected future recreational demand. The information provided by this Report will be used to assist both CCLLC and agencies/stakeholders in developing future recommendations for recreation opportunities. To this end, CCLLC will continue to review recreation use and access needs as part of periodic reporting and will coordinate with appropriate agencies in the provision of future recreation sites or improvements, as necessary.

CCLLC intends to incorporate periodic (every five to six years) aerial counts at both Swan Lake and Thomas Bay from the northern end of Ruth Island to the southern terminus of the bay during the peak recreation season, Memorial Day to Labor Day weekend as part of a post filing recreation monitoring program. The aerial counts will be conducted on a total of 15 days over the study period: six weekdays, six weekend days, and one day each of the three holidays (Memorial Day, Independence Day, and Labor Day). Each waterbody will be divided into several segments on use count maps. The starting location (Swan Lake or Thomas Bay) and the direction for each count (travelling north or travelling south) will be randomly selected for each count.

Recreation activities that occur on the water for both waterbodies will be recorded on the count maps as close to the actual locations of the activities as possible. This information will then be transferred to an aerial count sheets and separated by activity. Any stationary boats will be designated as "fishing." All others boats will be recorded by their respective boat type/recreation category (Powerboat, Sailboat, Cruise Ship, Commercial Fishing Vessel, Canoe/Kayak, Personal Water Craft, Other).

The trail cam counters will be left in place through the 2011 recreation season to provide a check and validation of day use estimates calculated for 2009 – 2010.

### **Consistency with Generally Accepted Practices**

The trail counts, and mail surveys, and interviews will be carried out in accordance with the methodology outlined in *Angler Survey Methods and Their Applications in Fisheries Management* (Pollock et. al., 1994), *Mail and Internet Surveys: the Tailored Design Method* (Dillman, 2000) and *Survey Research Methods* (Fowler, 2000) and in consultation with the USFS and ADFG.

## **SCHEDULE**

Initial data collection for the recreation study began in May 2010. The full study plan will proceed as soon as the final study plan is approved by the agencies. CCLLC intends to administer Outfitter and Resident Boater/Float Plane surveys in early fall 2010. Trail cameras will be installed in early fall 2010.

**Literature Search.** Will continue throughout the study duration.

**Interviews and Surveys.** Outfitter Surveys/Interviews and Resident Boater/Float Plane Survey will begin as soon as the study plan is approved, with a target completion date of November 1, 2010.

**Field Monitoring.** Incidental field monitoring is currently part of all other studies occurring at the project now. Field monitoring of trail use with trails cams will begin as soon as the study plan is approved and continue through September, 2011, as a means of use estimate validation.

## **REPORTING**

A progress report discussing preliminary data will be distributed at the end of October 2010. This report will include initial observations, conclusions, and recommendations that will be incorporated into the NEPA licensing documents.

In addition to outlining the methods and results of the study, the final report will include a general discussion of resources present, timing and utilization, as they relate to other areas in Southeast Alaska, and to any previous data collected in project area. More intensive interpretation of these will be included in additional information reports to support NEPA documents and will provide recommendations to avoid impacts, enhance recreational use opportunities, or provide mitigation for project impacts as recreational study findings conclude. As appropriate, the final report may address proposed changes in project operation, or effects of mitigation proposals which arise during the licensing process.

Collected and analyzed data will be provided as an appendix to and included within the text of the license application. This information is anticipated to include an annual evaluation of commercial use from the results of the Outfitter Survey/Interview, an annual evaluation of boating use from the results of the Resident Boater/Float Plane Survey, and an annual evaluation of overnight use from the USFS.

## **MEETINGS**

An initial discussion occurred as part of a broader agency study plan meeting on August 12, 2010, to finalize study details and methodology. The objective of the discussion was

to finalize the study approach and make any revisions necessary to address the needs of the participating agencies. After the meeting, CCLLC provided draft meeting minutes for review, and, following finalization of the minutes incorporated revisions to the plan as directed at the meeting.

CCLLC subsequently met with FERC staff to discuss the applicability and acceptability of its proposed recreation study plan and FERC's timeline for receipt of information. This discussion resulted in subsequent revisions to the proposed plan as presented herein.

CCLLC will hold a meeting in late fall 2010 to review the progress report and initial study findings and to solicit any agency feedback for improving the methodology such as obtaining better return rates on surveys. After the meeting, CCLLC will provide draft meeting minutes for review, and, following finalization of the minutes, modify study implementation accordingly, as necessary.

Additional meetings will be held as necessary to update the study progress and review preliminary results.

### **RELEVANT RESOURCE MANAGEMENT GOALS**

The USFS and ADFG are both charged with the protection of recreation, aesthetics, fisheries and wildlife resources in the project area. To that end, the USFS Tongass Forest Plan & Amendment, USFS Recreation Facility Master Plan, the ADFG Recreational Boating and Angler Access Program, and other management plans will be consulted in the preparation of a Recreation Report for the proposed Project, as appropriate.