

EXHIBIT E

GREEN LAKE PROJECT (P7189)

APPENDIX D – STUDY PLAN EVOLUTION

APPENDIX D – STUDY PLAN EVOLUTION

The reports in this Appendix are filed with the Federal Energy Regulatory Commission (FERC) and available on their website at:

<https://elibrary.ferc.gov/eLibrary/search under Docket Number P-7189-014>

This Appendix contains responses to the NOI and PAD, Scoping and the PSP, RSP and the USNMFS study dispute filings:

Responses to the NOI and PAD:

Page 3	20190430-5149 – MDIFW Fish Passage Concerns
Page 6	20190531-3022 – FERC TLP Request Declined
Page 10	20190531-3109 – FERC TLP Declined Errata Notice
Page 13	20190531-3146 – FERC Scoping Notice
Page 18	20190626-5053 – MDIFW Invasive Species Concerns
Page 21	20190627-0220 – MHPC PAD Response
Page 28	20190913-3000 – Scoping Document 2 for the Green Lake Project

PSP and Comments on the PSP

Page 61	20190913-5091 – GLWP PSP
Page 108	20191002-5037 – Maine Council of Trout Unlimited PSP Comments
Page 111	20191015-0018 – MHPC PSP Comments
Page 114	20191112-5104 – Dale Jellison PSP Comments
Page 116	20191120-5116 – MDEP PSP Comments
Page 125	20191125-0010 – Downeast Chapter Trout Unlimited PSP Comments
Page 127	20191205-3020 – FERC PSP Comments
Page 133	20191212-5057 – USNMFS PSP Comments
Page 136	20191213-5164 – MDIFW PSP Comments

RSP and Comments on the RSP

Page 140	20200113-5153 – GLWP RSP
Page 182	20200124-5130 – USNMFS RSP Comments
Page 184	20200205-3030 – FERC Study Plan Determination
Page 191	20200228-5352 – MDEP RSP Comments
Page 196	20200317-0017 – MHPC RSP comments

USNMFS Study Dispute:

Page 198	20200225-5160 – USNMFS Formal Study Dispute
Page 206	20200320-5152 – GWLP Response to USNMFS Dispute
Page 220	20200326-3047 – FERC Dispute Cancellation
Page 222	20200326-5048 – USNMFS Dispute Withdrawal



STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
284 STATE STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041



VIA ELECTRONIC FILING

April 30, 2019

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Subject: **Comments on Green Lake Water Power Company Filing of Notice of Intent and Pre-Application Document for the Green Lake Dam Project (FERC No. 7189)**

Dear Secretary Bose:

The Maine Department of Inland Fisheries and Wildlife (MDIFW) received a Notice of Intent and Pre-Application Document for the Green Lake Dam Project (FERC No. 7189). The Project is located on Green Lake and Reeds Brook in the City of Ellsworth, Hancock County, Maine. MDIFW is a cabinet level agency of the State of Maine, and under Maine State Law (12 MRSA, §10051) MDIFW's mandate is "...to preserve, protect, and enhance the inland fisheries and wildlife resources of the State; to encourage the wise use of these resources; to ensure coordinated planning for the future use and preservation of these resources; and to provide for effective management of these resources." Generally, MDIFW has concerns with potential impacts to resident wildlife and fishery resources, and public use of those resources, related to hydro project operations.

Our Agency is not requesting studies related to either wildlife or fisheries resources at this time.

Fish Passage Concerns

Currently, there is no upstream fish passage at the Green Lake Dam, and MDIFW has concerns regarding plans to incorporate upstream passage at this location in the future. We will file our concerns related to incorporating upstream fish passage and other management implications under a separate letter.

To help ensure that our Agency responds in a timely manner, all future general electronic correspondence should be sent to IFWEnvironmentalreview@maine.gov. Alternatively, though not preferred, mailings and notifications can be sent to:

Environmental Review Coordinator
Maine Department of Inland Fisheries and Wildlife
284 State Street, 41 SHS
Augusta, ME 04333-0041

If you have any specific questions, please feel free to contact me directly by phone at 207-287-5254 or by email at john.perry@maine.gov.

Letter to Ms. Kimberly D. Bose, Secretary
Comments RE: Comments on the Green Lake Water Power Company Filing of Notice of Intent and Pre-Application Document
for the Green Lake Dam Project (FERC No. 7189)
April 30, 2019

Best regards,

A handwritten signature in blue ink, appearing to read 'John Perry', with a stylized flourish at the end.

John Perry
Environmental Review Coordinator

Cc: Greg Burr, Susan Bard--MDIFW Region C
Francis Brautigam, Joe Overlock--MDIFW Augusta Headquarters
Gail Wippelhauser, Casey Clark--MDMR
Kathy Howatt--MDEP
Steven Shepard--USFWS
Sean McDermott--NMFS

Document Content(s)

MDIFW comments on PAD FINAL 4-30-2019.PDF.....1

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426
May 31, 2019

OFFICE OF ENERGY PROJECTS

Project No. 7189-014 – Maine
Green Lake Project
Green Lake Water Power Company

Ms. Caroline Kleinschmidt
Green Lake Water Power Company
120 Hatchery Way
Ellsworth, ME 04605

RE: Response to Request to Use the Traditional Licensing Process

Dear Ms. Kleinschmidt:

On April 1, 2019, Green Lake Water Power Company (Green Lake Power) filed a notice of intent, pre-application document (PAD), and request to use the Traditional Licensing Process (TLP) to prepare a subsequent license application for the existing Green Lake Project (project), located on Green Lake and Reeds Brook in Hancock County, Maine.

Pursuant to section 5.3 of the Commission's regulations, a potential license applicant requesting authorization to use the TLP must address the following considerations: (1) likelihood of timely license issuance; (2) complexity of the resource issues; (3) level of anticipated controversy; (4) relative cost of the TLP compared to the default Integrated Licensing Process (ILP); (5) the amount of available information and potential for significant disputes over studies; and (6) other factors believed by the applicant to be pertinent.¹

In support of its request to use the TLP, Green Lake Power states that timely license issuance is likely with the use of the TLP because: (1) Green Lake Power is not proposing to change existing project facilities or operation; and (2) the resource agencies that will be involved in the licensing process for the project have substantial knowledge of the river basin, are aware of the issues that are likely to be raised during licensing, and are aware of existing information needs at the project.

Green Lake Power states that: (1) the complexity of resource issues is low

¹ 18 C.F.R. § 5.3 (2018).

because the issues likely to be raised during licensing (including water quality; rare, threatened, and endangered species; and cultural resources) have been addressed at other projects that have undergone licensing in the Union River basin and are common to hydroelectric projects in the state of Maine; (2) the level of anticipated controversy is low because the cooperative relationship between Green Lake Power, the U.S. Fish and Wildlife Service (FWS), and the Green Lake Association has been generally positive and any significant controversy during the licensing process could most likely be overcome with the TLP; (3) baseline information already exists for environmental resources in the Union River basin; and (4) Green Lake Power will work with resource agencies and stakeholders on data collection efforts to address resource concerns.

Green Lake Power also references certain project-specific issues in its TLP request, including lake management and the need to provide water to the FWS's Green Lake National Fish Hatchery.²

Pursuant to section 5.3(d) of the Commission's regulations,³ notice of the TLP request was published in the *Ellsworth American* on March 28, 2019. On April 29, 2019, the National Marine Fisheries Service (NMFS) filed a motion opposing the use of the TLP based on the complexity of the resource issues at the project and the potential for significant disputes over studies. NMFS states that the resource issues are complex because: (1) the project, which lacks fish passage, is located within the range of the federally endangered Gulf of Maine distinct population segment of Atlantic salmon, and occurs within the designated critical habitat for Atlantic salmon; and (2) other diadromous fish species (including alewife, blueback herring, American shad, sea lamprey, and American eel) use the habitat within the Union River watershed for a portion of their life cycles. NMFS expects to submit study requests to inform the licensing process and states that the TLP is not well suited for working out complex resource studies, which could lead to inefficiencies and unresolved issues during the licensing process. Based on the amount of available information and potential for significant disputes over studies, NMFS does not expect the TLP to be adequate for the project.

Fish passage has been raised as an issue at the project in the past and is likely to be controversial. While NMFS references the lack of fish passage at the project, the Commission's April 5, 1984 license order required the installation of fish passage barriers to prevent out-migration of adult salmonids from Green Lake.⁴ In addition, the

² The project occupies approximately two acres of the Green Lake National Fish Hatchery.

³ 18 C.F.R. § 5.3(d) (2018).

⁴ See *Green Lake Water Power Company*, 27 FERC ¶ 62,023 (1986).

Project No. 7189-014

3

U.S. Department of Interior did not recommend fish passage when the project was originally licensed because of the possibility of alewife-borne diseases being introduced into Green Lake and contaminating water withdrawn for the Green Lake National Fish Hatchery.

According to information provided in the PAD, additional potentially complex/controversial resource issues at the project include: (1) the effects of the project on Arctic char in Green Lake, which includes 1 of the 14 remaining populations of Arctic char in the U.S.; (2) the effects of fluctuating water levels on smallmouth bass spawning from June 5 to July 5; (3) the potential impact to the residential fishery in Green Lake if an upstream fishway were to be constructed at the project, including the potential for largemouth bass to access Green Lake; (4) the effects of low water levels on the use of boats and docks, and the local economy in September; and (5) the effects of high water levels in the winter on the shoreline of Green Lake and loon nesting areas.⁵

In its Final Rule on the ILP,⁶ the Commission stated that the more likely it appears that an application will have relatively few issues, little controversy, can be expeditiously processed, and can be processed less expensively under the traditional process, the more likely the Commission is to approve a request to use the TLP.

Based on a review of the information contained in the TLP request, PAD, and letter responding to the TLP request, the proceeding will likely involve complex and controversial resource issues that could lead to significant study disputes and affect the timely issuance of a license. Therefore, Green Lake Power's request to use the TLP is denied, and Green Lake Power must use the ILP.

If you have any questions, please contact Dr. Nicholas Palso at (202) 502-8854 or nicholas.palso@ferc.gov.

Sincerely,



Vince Yearick
Director
Division of Hydropower Licensing

⁵ See Appendix F of the PAD.

⁶ See *Hydroelectric Licensing under the Federal Power Act*, Order No. 2002, 68 Fed. Reg. 51,070 (Aug. 25, 2003), FERC Stats. & Regs. ¶ 31,150, 104 FERC ¶ 61,109 at P 48 (2003).

Document Content(s)

P-7189-014_Response to TLP Request.PDF.....1

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Green Lake Water Power Company

Project No. 7189-014

ERRATA NOTICE

(May 31, 2019)

On May 31, 2019, the Commission issued a “*NOTICE OF INTENT TO FILE LICENSE APPLICATION, FILING OF PRE-APPLICATION DOCUMENT (PAD), COMMENCEMENT OF PRE-FILING PROCESS AND SCOPING; REQUEST FOR COMMENTS ON THE PAD AND SCOPING DOCUMENT, AND IDENTIFICATION OF ISSUES AND ASSOCIATED STUDY REQUESTS*” in the above-captioned proceeding.

This errata notice hereby revises the caption by including the phrase “DENYING USE OF THE TRADITIONAL LICENSING PROCESS,” such that the caption reads:

“NOTICE OF INTENT TO FILE LICENSE APPLICATION, FILING OF PRE-APPLICATION DOCUMENT (PAD), DENYING USE OF THE TRADITIONAL LICENSING PROCESS, COMMENCEMENT OF PRE-FILING PROCESS AND SCOPING; REQUEST FOR COMMENTS ON THE PAD AND SCOPING DOCUMENT, AND IDENTIFICATION OF ISSUES AND ASSOCIATED STUDY REQUESTS.”

This errata notice also revises paragraph a to read: “Notice of Intent to File License Application for a Subsequent Minor License and Request to Use the Traditional Licensing Process.”

This errata notice also revises paragraph k to notify participants that we are initiating informal consultation with NOAA Fisheries under section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act, such that paragraph k of the notice reads:

“With this notice, we are initiating informal consultation with: (a) the U.S. Fish and Wildlife Service and/or NOAA Fisheries under section 7 of the Endangered Species Act and the joint agency regulations thereunder at 50 CFR Part 402; (b) NOAA Fisheries under section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and implementing regulations at 50 CFR 600.920; and (c) the Maine State Historic Preservation Officer, as required by section 106 of the National Historic Preservation Act and the implementing regulations of the Advisory Council on Historic Preservation at 36 CFR 800.2.”

Project No. 7189-014

- 2 -

This errata notice also revises paragraph m to read:

“Green Lake Power filed with the Commission a Pre-Application Document (PAD; including a proposed process plan and schedule) and request to use the Traditional Licensing Process (TLP) on April 1, 2019. Green Lake Power provided public notice of its TLP request on March 28, 2019. In a letter dated May 31, 2019, the Director of the Division of Hydropower Licensing denied Green Lake Power’s request to use the TLP. Green Lake Power must use the Integrated Licensing Process to prepare a license application for the project.”

Kimberly D. Bose,
Secretary.

Document Content(s)

P-7189-014_Errata to SD1 Notice1.DOCX.....1

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Green Lake Water Power Company

Project No. 7189-014

NOTICE OF INTENT TO FILE LICENSE APPLICATION, FILING OF PRE-APPLICATION DOCUMENT (PAD), COMMENCEMENT OF PRE-FILING PROCESS AND SCOPING; REQUEST FOR COMMENTS ON THE PAD AND SCOPING DOCUMENT, AND IDENTIFICATION OF ISSUES AND ASSOCIATED STUDY REQUESTS

(May 31, 2019)

- a. Type of Filing: Notice of Intent to File License Application for a Subsequent Minor License and Commencing Pre-Filing Process
- b. Project No.: 7189-014
- c. Dated Filed: April 1, 2019
- d. Submitted By: Green Lake Water Power Company (Green Lake Power)
- e. Name of Project: Green Lake Project
- f. Location: On Green Lake and Reeds Brook near the City of Ellsworth, Hancock County, Maine. The project occupies approximately two acres of United States lands administered by the U.S. Fish and Wildlife Service's Green Lake National Fish Hatchery.
- g. Filed Pursuant to: 18 CFR Part 5 of the Commission's Regulations
- h. Potential Applicant Contact: Caroline Kleinschmidt, Green Lake Water Power Company, 120 Hatchery Way, Ellsworth, ME 04605; phone at (425) 553-6718, or email at caroline@greenlakewaterpower.com
- i. FERC Contact: Dr. Nicholas Palso at (202) 502-8854 or e-mail at nicholas.palso@ferc.gov.
- j. Cooperating agencies: Federal, state, local, and tribal agencies with jurisdiction and/or special expertise with respect to environmental issues that wish to cooperate in the preparation of the environmental document should follow the instructions for filing such requests described in item o below. Cooperating agencies should note the Commission's policy that agencies that cooperate in the preparation of the environmental document cannot also intervene. *See* 94 FERC ¶ 61,076 (2001).

Project No. 7189-014

2

k. With this notice, we are initiating informal consultation with: (a) the U.S. Fish and Wildlife Service and/or NOAA Fisheries under section 7 of the Endangered Species Act and the joint agency regulations thereunder at 50 CFR Part 402; and (b) the Maine State Historic Preservation Officer, as required by section 106 of the National Historic Preservation Act and the implementing regulations of the Advisory Council on Historic Preservation at 36 CFR 800.2.

l. With this notice, we are designating Green Lake Power as the Commission's non-federal representative for carrying out informal consultation, pursuant to section 7 of the Endangered Species Act, section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act, and section 106 of the National Historic Preservation Act.

m. Green Lake Power filed with the Commission a Pre-Application Document (PAD; including a proposed process plan and schedule), pursuant to 18 CFR 5.6 of the Commission's regulations.

n. A copy of the PAD is available for review at the Commission in the Public Reference Room or may be viewed on the Commission's website (<http://www.ferc.gov>), using the "eLibrary" link. Enter the docket number, excluding the last three digits in the docket number field to access the document. For assistance, contact FERC Online Support at FERCOnlineSupport@ferc.gov, (866) 208-3676 (toll free), or (202) 502-8659 (TTY). A copy is also available for inspection and reproduction at the address in paragraph h.

Register online at <http://www.ferc.gov/docs-filing/esubscription.asp> to be notified via e-mail of new filing and issuances related to this or other pending projects. For assistance, contact FERC Online Support.

o. With this notice, we are soliciting comments on the PAD and Commission staff's Scoping Document 1 (SD1), as well as study requests. All comments on the PAD and SD1, and study requests should be sent to the address above in paragraph h. In addition, all comments on the PAD and SD1, study requests, requests for cooperating agency status, and all communications to and from Commission staff related to the merits of the potential application must be filed with the Commission.

The Commission strongly encourages electronic filing. Please file all documents using the Commission's eFiling system at <http://www.ferc.gov/docs-filing/efiling.asp>. Commenters can submit brief comments up to 6,000 characters, without prior registration, using the eComment system at <http://www.ferc.gov/docs-filing/ecomment.asp>. You must include your name and contact information at the end of your comments. For assistance, please contact FERC Online Support at FERCOnlineSupport@ferc.gov. In lieu of electronic filing, please send a paper copy to:

Project No. 7189-014

3

Secretary, Federal Energy Regulatory Commission, 888 First Street, NE, Washington, DC 20426. The first page of any filing should include docket number P-7189-014.

All filings with the Commission must bear the appropriate heading: "Comments on Pre-Application Document," "Study Requests," "Comments on Scoping Document 1," "Request for Cooperating Agency Status," or "Communications to and from Commission Staff." Any individual or entity interested in submitting study requests, commenting on the PAD or SD1, and any agency requesting cooperating status must do so within 60 days of the date of this notice.

p. Although our current intent is to prepare an environmental assessment (EA), there is the possibility that an Environmental Impact Statement (EIS) will be required. The scoping process will satisfy the NEPA scoping requirements, irrespective of whether an EA or EIS is issued by the Commission.

Scoping Meetings

Commission staff will hold two scoping meetings in the vicinity of the project at the time and place noted below. The daytime meeting will focus on resource agency, Indian tribe, and non-governmental organization concerns, while the evening meeting is primarily for receiving input from the public. We invite all interested individuals, organizations, and agencies to attend one or both of the meetings, and to assist staff in identifying particular study needs, as well as the scope of environmental issues to be addressed in the environmental document. The times and locations of these meetings are as follows:

Daytime Scoping Meeting

Date: Thursday, June 27, 2019
Time: 10:00 a.m.
Location: Ellsworth City Hall, Council Chamber Room
1 City Hall Plaza, Ellsworth, ME 04605
Phone: (207) 667-2563

Evening Scoping Meeting

Date: Thursday, June 27, 2019
Time: 7:00 p.m.
Location: Ellsworth City Hall, Council Chamber Room
1 City Hall Plaza, Ellsworth, ME 04605
Phone: (207) 667-2563

SD1, which outlines the subject areas to be addressed in the environmental document, was mailed to the individuals and entities on the Commission's mailing list. Copies of SD1 will be available at the scoping meetings, or may be viewed on the web at

Project No. 7189-014

4

<http://www.ferc.gov>, using the “eLibrary” link. Follow the directions for accessing information in paragraph n. Based on all oral and written comments, a Scoping Document 2 (SD2) may be issued. SD2 may include a revised process plan and schedule, as well as a list of issues, identified through the scoping process.

Environmental Site Review

The licensee and Commission staff will conduct an environmental site review of the project on Wednesday, June 26, 2019, starting at 10:00 a.m. All participants should meet at the Green Lake Project powerhouse, located at 120 Hatchery Way, Ellsworth, ME 04605 (the powerhouse is on the right as you enter the Green Lake National Fish Hatchery). The site review will require a half-mile round-trip walk to see all of the project facilities.

If you plan to attend the environmental site review, please contact Caroline Kleinschmidt of Green Lake Power at (425) 553-6718, or via email at caroline@greenlakewaterpower.com on or before June 24, 2019, and indicate how many participants will be attending with you. For any questions concerning the environmental site visit please contact Caroline Kleinschmidt.

Meeting Objectives

At the scoping meetings, staff will: (1) initiate scoping of the issues; (2) review and discuss existing conditions and resource management objectives; (3) review and discuss existing information and identify preliminary information and study needs; (4) review and discuss the process plan and schedule for pre-filing activity that incorporates the time frames provided for in Part 5 of the Commission’s regulations and, to the extent possible, maximizes coordination of federal, state, and tribal permitting and certification processes; and (5) discuss the appropriateness of any federal or state agency or Indian tribe acting as a cooperating agency for development of an environmental document.

Meeting participants should come prepared to discuss their issues and/or concerns. Please review the PAD in preparation for the scoping meetings. Directions on how to obtain a copy of the PAD and SD1 are included in item n. of this document.

Meeting Procedures

The meetings will be recorded by a stenographer and will be placed in the public record of the project.

Kimberly D. Bose,
Secretary.

Document Content(s)

Scoping Notice 5-31-19.DOCX.....1

JANET T. MILLS
GOVERNORSTATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
284 STATE STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041JUDITH CAMUSO
COMMISSIONER**VIA ELECTRONIC FILING**

June 26, 2019

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426**Subject: Invasive Species Concerns for the Green Lake Dam Project (FERC No. 7189)**

Dear Secretary Bose:

In our letter dated April 30, 2019, the Maine Department of Inland Fisheries and Wildlife (MDIFW) filed comments on the Green Lake Water Power Company Notice of Intent and Pre-Application Document for the Green Lake Dam Project (FERC No. 7189). The Project is located on Green Lake and Reeds Brook in the City of Ellsworth, Hancock County, Maine. MDIFW is a cabinet level agency of the State of Maine, and under Maine State Law (12 MRSA, §10051) MDIFW's mandate is "...to preserve, protect, and enhance the inland fisheries and wildlife resources of the State; to encourage the wise use of these resources; to ensure coordinated planning for the future use and preservation of these resources; and to provide for effective management of these resources." Currently there are no upstream fish passage provisions at the Green Lake Dam, and in the previous filing MDIFW expressed concerns about the spread of invasive species into Green Lake should upstream passage be considered in the future.

Current Status

MDIFW actively manages Green Lake for both landlocked salmon and lake trout, and while lake trout do not spawn in the lake there is a large contribution of wild landlocked salmon from the tributaries. Additionally, there is also a popular smallmouth bass fishery in the lake. Should upstream passage be installed at Green Lake, MDIFW is concerned that the introduction of largemouth bass, which are present downstream in Graham Lake, may negatively impact these managed fisheries. Largemouth bass are an aggressive top predator that have negatively impacted fisheries in other Maine waters. Future threats from other species not yet present are also a concern. Green Lake also has an indigenous population of Arctic char and is currently only one of the fourteen waters in Maine which supports the species.

In addition to invasive fish concerns associated with fish passage, density dependent interactions between anadromous alewives and landlocked rainbow smelt remains an ongoing concern of our Agency and is a focus of an interagency interactions workgroup to coordinate research that will support restoration management goals. Smelt are an established fishery in Green Lake as well as the preferred forage species of landlocked salmon. To be clear, MDIFW continues to be

Letter to Ms. Kimberly D. Bose, Secretary

Comments RE: Invasive Species Concerns for the Green Lake Dam Project (FERC No. 7189)

June 26, 2019

supportive of the restoration of searun species to Maine waters within the historic ranges of these species; however, our Agency does have density dependent concerns regarding possible negative interactions between anadromous alewives and landlocked smelts that could decrease year-around smelt forage for managed game species in certain waterbodies, including Green Lake.

If you have any specific questions, please feel free to contact me directly by phone at 207-287-5254 or by email at john.perry@maine.gov.

Best regards,

A handwritten signature in blue ink, appearing to read 'John Perry', with a stylized flourish at the end.

John Perry

Environmental Review Coordinator

Cc: Greg Burr, Colin Shankland, Jacob Scoville--MDIFW Region C
Francis Brautigam, Joe Overlock--MDIFW Augusta Headquarters
Gail Wippelhauser, Casey Clark--MDMR
Kathy Howatt, MDEP
Antonio Bentivoglio, USFWS
Sean McDermott, Dan Tierney--NMFS

Document Content(s)

MDIFW comments 6-26-2019-2019.PDF.....1



JANET T. MILLS
GOVERNOR

MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE
04333

ORIGINAL

FILED
SECRETARY OF THE
CLARK F. MOHNEY
DIRECTOR

June 14, 2019

2019 JUN 26 P 1:29

REGULATORY COMMISSION

Secretary Kimberly D. Bose
Federal Energy Regulatory Commission
888 First Street NE, Room 1A
Washington DC 20426

Project: MHPC #0155-19 Green Lake Hydroelectric Project; FERC # 7189-014
New License Existing Dam
Town: Ellsworth, ME

Dear Secretary Bose:

In response to your recent request, I have reviewed the information received June 3, 2019 to continue consultation on the above referenced project in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended.

An architectural survey is recommended to identify and record information on all resources within the area of potential effect (APE) that are at least 50 years old. Survey must be completed according to our "Revised Above Ground Cultural Resource Survey Manual Project Review Specific." All surveys must be submitted electronically via our on-line CARMA database. See our website for more information: <https://www.maine.gov/mhpc/quick-links/forms-instructions>


A list of historic preservation consultants who are qualified to conduct architectural survey and have been trained in the use of the CARMA database may be found at the following page of our website: <https://www.maine.gov/mhpc/programs/survey/approved-consultants/carma-trained-consultants>

With regards to archaeological resources, The Green Lake impoundment margins must be subject to a Phase I archaeological survey including subsurface testing in appropriate locations to identify all archaeological sites around the impoundment margin that might erode over the term of the license. Phase II (site assessment) field work might also be necessary depending on the results from the Phase I survey. "Impoundment margin" is defined in SHPO letter dated February 8, 2019. Approximately 5% of the Green Lake impoundment margin has been subjected to professional archaeological survey. One prehistoric archaeological site is already known on the impoundment margin.

A list of qualified prehistoric archaeologists has been can be found on our website: http://www.maine.gov/mhpc/project_review/consultants/prehistoric_archaeology.shtml.

If you have any questions regarding archaeology, please contact Dr. Arthur Spiess of this office at Arthur.Spiess@maine.gov.

Please contact Megan M. Rideout of our staff at 287-2992 or megan.m.rideout@maine.gov if you have any questions regarding above ground resources.

Sincerely,

Kirk F. Mohney
State Historic Preservation Officer



MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE
04333

JANET T. MILLS
GOVERNOR

KIRK F. MOHNEY
DIRECTOR

February 8, 2019

Ms. Kayla Easler
Kleinschmidt
PO Box 650
Pittsfield, ME 04967

Project: MHPC #0155-19 Green Lake Hydroelectric Project; FERC 7189
Relicensing Project

Town: Ellsworth, ME

Dear Ms. Easler:

In response to your recent request, I have reviewed the information received February 5, 2019 to initiate consultation on the above referenced projects in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA).

In order to continue consultation, please define the area of potential effect (APE) for the Green Lake Hydroelectric Project (FERC.7189).

The APE for archaeological studies of hydro-power impoundments is all land around the margin of the impoundment that may be affected by erosion during the term of the future license. When the Project boundary is defined as an elevation, for example, the APE may extend above that elevation and laterally outside the Project boundary, if there is a potentially eroding land form that extends above the Project boundary elevation.

With regards to the architectural (above-ground) resources, the area of potential effects for the project should be defined in accordance with Section 106 and in consultation with MHPC. The Project APE is defined as the lands enclosed by the Project's boundary and the lands or properties outside of the Project's boundary where project construction and operation or project-related recreational development or other enhancements may cause changes in the character or use of historic properties, if any historic properties exist.

We look forward to continuing consultation with you on this project. Please do not hesitate to contact Megan M. Rideout, megan.m.rideout@maine.gov or 287-2992, if you have any questions regarding this matter.

Sincerely,

Kirk F. Mohney
State Historic Preservation Officer



JANET T. MILLS
GOVERNOR

MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE
04333

KIRK F. MOHNEY
DIRECTOR

**Prehistoric Archaeologists Approved List:
Review and Compliance Consulting/Contracting (Active)
LEVEL 2 (Phase I, II, III, date recovery, all phases of survey)
LEVEL 2**

Dr. Richard Will
TRC/Northeast Cultural Resources
71 Oak Street
Ellsworth, ME 04605
P-207-667-4055
rwill@trcsolutions.com

Karen Mack
TRC/Northeast Cultural Resources
71 Oak Street
Ellsworth, ME 04605
P-207-667-4055
kemack@trcsolutions.com

Dr. Stuart Eldridge
Power Engineers, Inc.
303 US Rte 1
Freeport, ME 04032
P-207-869-1261
Stuart.Eldridge@powereng.com

Mr. Jacob A. Freedman
SEARCH, INC.
P.O. Box 1080
Portsmouth, NH 03802
P-603-319-6939
Jacob@searchinc.com

Robert N. Bartone
Northeast Archaeology Research Center
382 Fairbanks Road
Farmington, ME 04938
P-207-860-4032
bartone@nearchaepology.com

Dr. Victoria Bunker
P.O. Box 16
New Durham, NH 03809-0016
P-603-776-4306
vbi@worldpath.net

Dr. Nathan Hamilton
Dept. of Geography & Anthropology
University of Southern Maine
Gorham, ME 04038
P-207-780-5324
casco@usm.maine.edu

David Putnam
47 Hilltop Road
Chapman, ME 04757
P-207-762-6078
putnamd@umpi.edu

Dr. Robert Goodby
Monadnock Archaeological Consulting
144 Greenwood Road
Dublin, NH 04333
P-603-563-81
rgoodby@monardarch.com

Dr. Dianna Doucette
Public Archaeology Laboratory
26 Main Street
Pawtucket, RI 02860
ddoucette@palinc.com

Dr. William R. Belcher
US Army CILHI
310 Worcester Ave, Bldg 45
Hickam AFB HI 96853-5530
wbelcher@msn.com

Dr. Daniel F. Cassidy, AECOM
791 Corporate Center Drive
Raleigh, NC 27607
P-919-854-6207
Daniel.cassidy@aecom.com

Dr. Gemma-Jayne Hudgell
Northeast Archaeology Research Center
382 Fairbanks Road
Farmington, ME 04938
P-207-860-4032
hudgell@nearchaepology.com

Gabriel Hrynck
UNB, Anthropology
PO Box 4400
Fredericton, NB Canada E3B 5A3
P-506-458-7405
Gabriel.hrynck@unb.ca

Dr. Chris Clement
SEARCH, Inc.
2 Dayton Drive
Hanover, NH 03755
P-803-360-0035
Chris.clement@searchinc.com

Mr. Jacob Tumelaire
Independent Archaeological Consulting
801 Islington St. Suite 31
Portsmouth, NH 03801-4257
jtumelaire@iac-llc.net

Nathan C. Scholl
Gray & Pape
60 Valley Street, Suite 103
Providence, RI 02857
P-401-273-9900
C-717-515-5349
nscholl@graypape.com

Dr. Arthur Spiess, Ex officio
Maine Historic Preservation Commission
55 Capitol Street
65 State House Station
Augusta, ME 04333
P-20-287-2789
Arthur.spiess@maine.gov
(Not available for contract work)

LEVEL 1 (Phase I and reconnaissance survey only)**LEVEL 1**

Dr. Christopher Donta
SWCA Environmental Consultants
15 Research Drive
Amherst, MA 01002
P-413-256-0202
Christopher.donta@swca.com

James A. Clark
P.O. Box 815
Belfast, ME 04915
P-207-930-0543
clarkja@gmail.com

Ora Elquist
Public Archaeology Laboratory
26 Main Street
Pawtucket, RI 02860
P-401-728-8780
oequist@palinc.com

Ms. Sarah Haugh
Tetra Tech
451 Presumpscot Street
Portland, ME 04103
P-207-358-2395
sarah.haugh@tetrattech.com

Mark Penney
The Louis Berger Group Inc.
20 Corporate Woods Blvd.
Albany, NY 12211-2370
P-518-432-9545
mpenney@louisberger.com

Mary Lynne Rainey
RGA Cultural Resource Consultants
1376 Kingstown Road
Wakefield, RI 02789
Marylynnne.rainey@vcrizon.net

Inactive, Retired, No longer doing fieldwork, no longer at address given

Mr. Brian Valimont
New England Archaeology Co. LLC
128R Main Street
Plaistow, NH 03865
Newarch1@comcast.net

Ms. Edna Feighner
5 Thomas Street, Apt. 3
Concord, NH 03301
P. 603-228-8091
Edna.Feighner@dcr.nh.gov

Dr. Bruce J. Bourque
Maine State Museum
83 State House Station
Augusta, ME 04333-0083
P-207-287-3909
bbourque@abacus.bates.edu

Edward Moore
TRC/Northeast Cultural Resources
71 Oak Street
Ellsworth, ME 04605
F-207-667-0485

Geraldine Baldwin
4 Dickson Lane
Bedford Corners, NY 10549
P-914-271-0897
GeraldineBaldwin@aol.com

Dr. Ellen Cowie
Northeast Archaeology Research Center
382 Fairbanks Road
Farmington, ME 04938
cowie@nearchaeology.com



JANET T. MILLS
GOVERNOR

MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE
04333

KIRK F. MOHNEY
DIRECTOR

Archaeological Survey Guidelines

Updated: June 10, 2002

This document is provided as background information to agencies, corporations, professional consultants or individuals needing contract archaeological services (also known as Cultural Resources Management archaeology) in Maine. These guidelines are based on state rules (94-089 Chapter 812).

Project Types

The vast majority of contract archaeology survey work falls into one of three categories.

Phase I surveys are designed to determine whether or not archaeological sites exist on a particular piece of land. Such work involves checking records of previous archaeology in the area, walking over the landscape to inspect land forms and look for surface exposures of soil and possible archaeological material, and the excavation of shovel test pits in areas of high probability.

Phase II surveys are designed to focus on one or more sites that are already known to exist, find site limits by digging test pits, and determine site content and preservation. Information from Phase II survey work is used by the Maine Historic Preservation Commission (MHPC) to determine site significance (eligibility for listing in the National Register of Historic Places). Phase III archaeological work, often called data recovery, is careful excavation of a significant archaeological site to recover the artifacts and information it contains in advance of construction or other disturbance.

Archaeological sites are further divided into two broad categories of culture, prehistoric (or Native American), and historic (or European-American). Different archaeological specialists are usually needed for prehistoric or historic sites because the nature of content and preservation and site locations are quite different.

Scope of Work

In responding to a project submission, the MHPC may issue a letter specifying which type of archaeological survey is needed (prehistoric, historic or both) and at what level (Phase I, II, or III). Often the response letter contains further information, such as the suspected presence of an historic site of a certain age, or a statement that only a portion of the project parcel in question is sensitive for prehistoric sites and only that portion needs archaeological survey.

Once the project applicant has one or more scopes of work (proposals) from appropriate archaeologists (see below), the applicant should submit their preferred proposal (without attached financial information or bid total) to the MHPC for approval. MHPC will not comment upon cost, but will comment on the appropriateness of the scale and scope of the work. An approval from MHPC of the scope of work is the applicant's guarantee that, if the field and laboratory work are done according to the scope, and appropriately described in writing, the results will be accepted by MHPC.

The final written report on the project must also be submitted to MHPC for review and comment.

Finding an Archaeologist

At the time that MHPC issues a letter requiring archaeological survey work, MHPC will also supply one (or more) lists of archaeologists (Levels 1 and/or 2, historic or prehistoric) appropriate to the type of work (Phase I, II, III, historic or prehistoric). Archaeologists on the Level 2 Approved Lists can do projects of any level, including Phase I archaeological survey projects. Level 1 archaeologists are restricted to doing Phase I surveys, and certain planning projects for municipal governments.

MHPC maintains lists of archaeologists interested in working in different geographic areas of Maine, and those who are qualified in different types of work. The archaeologists themselves indicate their availability (except for short-term absence) to MHPC on a periodic basis, so archaeologists on the list can be expected to respond to inquiries. The applicant should solicit proposals or bids for work from archaeologists whose names appear on the list supplied by MHPC.

These archaeologists' names are taken from lists of archaeologists approved for work in Maine by MHPC under a set of rules establishing minimal qualifications, such as previous supervisory experience in northern New England, and an appropriate graduate degree. However, the inclusion of an archaeologist on one of these lists should not be interpreted as an endorsement by the MHPC beyond these limited qualification criteria. Moreover, the MHPC cannot recommend the services of an individual archaeologist.

Project Final Report

Whatever the archaeological survey result, a final report on the project should be submitted by the applicant to the MHPC. The MHPC will review the report, and issue further guidance or issue a "clearance" letter for the project.

Document Content (s)

0201839B-66E2-5005-8110-C31FAFC91712.TIF1

FEDERAL ENERGY REGULATORY COMMISSION

Washington, DC 20426

September 13, 2019

OFFICE OF ENERGY PROJECTS

Project No. 7189-014 – Maine
Green Lake Project
Green Lake Water Power Company

Subject: Scoping Document 2 for the Green Lake Project

To the Parties Addressed:

The Federal Energy Regulatory Commission (Commission) is reviewing the Pre-Application Document, filed on April 1, 2019, by Green Lake Water Power Company (Green Lake Power) for relicensing the Green Lake Project No. 7189. The project is located on Green Lake and Reeds Brook in Hancock County, Maine. The project occupies approximately two acres of the U.S. Fish and Wildlife Service's Green Lake National Fish Hatchery.

Pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended, Commission staff intends to prepare an environmental assessment (EA), which will be used by the Commission to determine whether, and under what conditions, to issue a license for the project. To support and assist our environmental review, we are conducting scoping to ensure that all pertinent issues are identified and analyzed, and that the EA is thorough and balanced.

Our preliminary review of the environmental issues to be addressed in our EA was contained in Scoping Document 1 (SD1), which was issued on May 31, 2019. We requested comments on SD1 and held scoping meetings on June 27, 2019 to hear the views of all interested entities on the scope of issues to be included in the EA. We revised SD1 based on the oral comments we received at the scoping meetings, and written comments we received throughout the scoping process. The enclosed Scoping Document 2 (SD2) describes the proposed action and alternatives, the environmental analysis process we will follow to prepare the EA, and a revised list of issues to be addressed in the EA.

We appreciate the participation of government agencies, non-governmental organizations, Indian tribes, and the general public in the scoping process. ***Key changes from SD1 are identified in bold, italicized type.*** SD2 is being distributed to all entities on the Commission's mailing list for this project. SD2 can also be accessed online at: <http://www.ferc.gov/docs-filing/elibrary>.

Project No. 7189-014

2

The enclosed Scoping Document 2 (SD2) supersedes SD1. SD2 is issued for informational use by all interested entities; no response is required. If you have any questions about SD2, the scoping process, or how Commission staff will develop the EA for this project, please contact Dr. Nicholas Palso at (202) 502-8854 or nicholas.palso@ferc.gov. Additional information about the Commission's licensing process and the Green Lake Project may be obtained from our website, <http://www.ferc.gov>.

Enclosure: Scoping Document 2

SCOPING DOCUMENT 2

GREEN LAKE PROJECT

MAINE

FERC PROJECT NO. 7189-014



Federal Energy Regulatory Commission
Office of Energy Projects
Division of Hydropower Licensing
Washington, DC

September 2019

TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 SCOPING..... 3

2.1 PURPOSES OF SCOPING 3

2.2 COMMENTS, SCOPING MEETINGS, AND ENVIRONMENTAL SITE REVIEW 3

2.2.1 Issues Raised During Scoping 4

3.0 PROPOSED ACTION AND ALTERNATIVES..... 7

3.1 NO-ACTION ALTERNATIVE 7

3.1.1 Existing Project Facilities 8

3.1.2 Existing Project Operation..... 10

3.2 APPLICANT’S PROPOSAL 11

3.2.1 Proposed Project Facilities and Operation..... 11

3.2.2 Proposed Environmental Measures 11

3.3 DAM SAFETY..... 11

3.4 ALTERNATIVES TO THE PROPOSED ACTION..... 11

3.5 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY 11

3.5.1 Project Decommissioning..... 11

4.0 SCOPE OF CUMULATIVE EFFECTS AND SITE-SPECIFIC RESOURCE ISSUES 12

4.1 CUMULATIVE EFFECTS..... 12

4.1.1 Resources that could be Cumulatively Affected..... 12

4.1.2 Geographic Scope..... 12

4.1.3 Temporal Scope..... 13

4.2 RESOURCE ISSUES 13

4.2.1 Geology and Soils Resources.....13

4.2.2 Aquatic Resources 13

4.2.3 Terrestrial Resources..... 14

4.2.4 Threatened and Endangered Species..... 14

4.2.5 Recreation, Land Use, and Aesthetic Resources 14

4.2.6 Cultural Resources 14

4.2.7 Developmental Resources..... 14

5.0 PROPOSED STUDIES..... 15

6.0 EA PREPARATION 15

7.0 PROPOSED EA OUTLINE..... 15
8.0 COMPREHENSIVE PLANS..... 17
9.0 MAILING LIST..... 20

APPENDIX A—STUDY PLAN CRITERIA

APPENDIX B—PROCESS PLAN AND SCHEDULE

LIST OF FIGURES

- Figure 1. Location of the Green Lake Dam Project and other FERC-licensed hydroelectric projects in the Union River Basin (Source: Staff).. Error! Bookmark not defined.**
Figure 2. Aerial View of Project Facilities (Source: U.S. Department of Agriculture as modified by Staff).....Error! Bookmark not defined.

SCOPING DOCUMENT 2

Green Lake Project No. 7189-014

1.0 INTRODUCTION

The Federal Energy Regulatory Commission (Commission or FERC), under the authority of the Federal Power Act (FPA),¹ may issue licenses for terms ranging from 30 to 50 years for continued operation and maintenance of non-federal hydroelectric projects. On April 1, 2019, Green Lake Water Power Company (Green Lake Power) filed a notice of intent (NOI) stating that it intends to file an application for a subsequent license for the Green Lake Project (project).²

The Green Lake Project is located on Green Lake and Reeds Brook in Hancock County, Maine (Figure 1). The project has a total authorized capacity of 500 kilowatts (kW) and an average annual generation of 1,656.81 megawatt-hours (MWh) from 2014 to 2018. A detailed description of the project is provided in section 3.0 (Proposed Action and Alternatives). The project occupies approximately two acres of the U.S. Fish and Wildlife Service's (FWS) Green Lake National Fish Hatchery.

The National Environmental Policy Act (NEPA) of 1969,³ the Commission's regulations, and other applicable laws require that we independently evaluate the environmental effects of relicensing the Green Lake Project as proposed, and also consider reasonable alternatives to the proposed action. At this time, we intend to prepare an environmental assessment (EA) that describes and evaluates the probable effects, including an assessment of the site-specific and cumulative effects, if any, of the proposed action and alternatives. Preparation of the EA will be supported by this scoping process to ensure identification and analysis of all pertinent issues.

Although our current intent is to prepare an EA, there is a possibility that an environmental impact statement (EIS) will be required. The scoping process will satisfy the NEPA scoping requirements, irrespective of whether the Commission issues an EA or an EIS.

¹ 16 U.S.C. § 791(a)-825(r) (2012).

² The original license for the project was issued with an effective date of April 1, 1984, for a term of 40 years, and expires on March 31, 2024. *Green Lake Water Power Company*, 27 FERC ¶ 62,023 (1984).

³ 42 U.S.C. §§ 4321-4370(f) (2012).

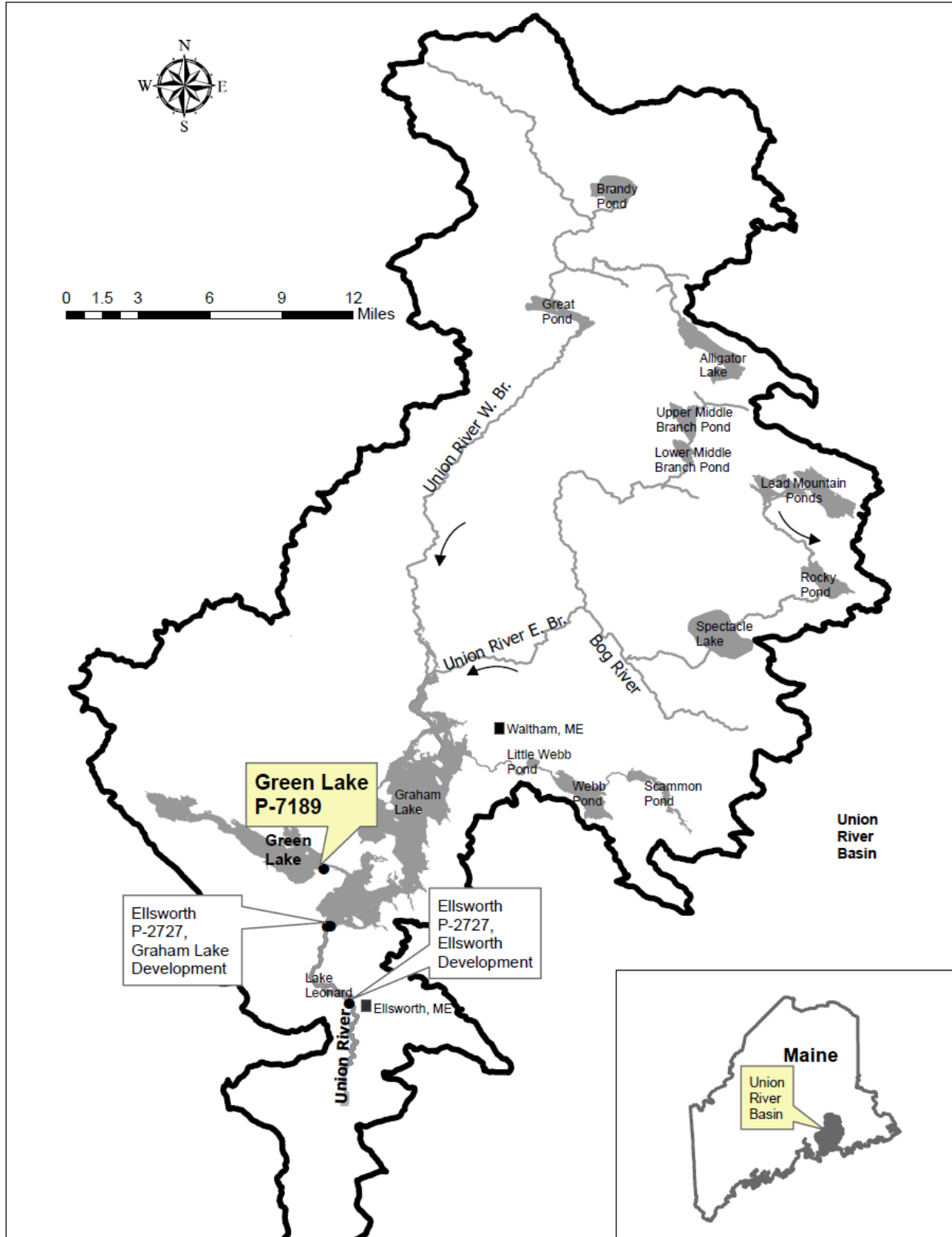


Figure 1. Location of the Green Lake Project and other FERC-licensed hydroelectric projects in the Union River Basin (Source: Staff).

2.0 SCOPING

This Scoping Document 2 (SD2) is intended to advise all participants as to the proposed scope of the EA. This document contains: (1) a description of the scoping process and schedule for the preparation of the license application; (2) a description of the proposed action and alternatives; (3) a preliminary identification of environmental issues and proposed studies; (4) a proposed EA outline; and (5) a preliminary list of comprehensive plans that are applicable to the project.

2.1 PURPOSES OF SCOPING

Scoping is the process used to identify issues, concerns, and opportunities for enhancement or mitigation associated with a proposed action. In general, scoping should be conducted during the early planning stages of a project. The purposes of the scoping process are as follows:

- invite participation of federal, state, and local resource agencies; Indian tribes; non-governmental organizations (NGOs); and the public to identify significant environmental and socioeconomic issues related to the proposed project;
- determine the resource issues, depth of analysis, and significance of issues to be addressed in the EA;
- identify how the project would or would not contribute to cumulative effects;
- identify reasonable alternatives to the proposed action that should be evaluated in the EA;
- solicit from participants available information on the resources at issue; and
- determine whether there are resource areas and/or potential issues that do not require detailed analysis during review of the project.

2.2 COMMENTS, SCOPING MEETINGS, AND ENVIRONMENTAL SITE REVIEW

Commission staff issued SD1 on May 31, 2019. On June 27, 2019 staff conducted scoping meetings in Ellsworth, Maine. Public notice of the meetings was published in the Federal Register. A court reporter recorded and transcribed both of the scoping meetings. On June 26, 2019, staff conducted an environmental site review of the project.

In addition to the oral comments received during the scoping meetings, written comments were received from the following agencies and entities:⁴

<u>Commenting Entity</u>	<u>Filing Date</u>
Maine Historic Preservation Commission	June 26, 2019
Maine Department of Inland Fisheries and Wildlife	June 26, 2019
Harry Moore	July 22, 2019
U.S. Department of the Interior – Fish and Wildlife Service	July 24, 2019
Edith Skinner	July 25, 2019
Steven Cooper	July 25, 2019
U.S. Department of Commerce – National Marine Fisheries Service	July 26, 2019
Dale Jellison	July 26, 2019
Dale Jellison	July 26, 2019
Fred Skinner	July 26, 2019
Dale Jellison	July 29, 2019
Linda Bryant	July 30, 2019
Maine Department of Environmental Protection	July 30, 2019
Guy Singh and Polly Mautner	July 30, 2019

All comments received are part of the Commission’s official record for the project. Information in the official file is available for inspection and reproduction at the Commission’s Public Reference Room, located at 888 First Street, NE, Room 2A, Washington, DC 20426, or by calling (202) 502-8371. Information also may be accessed through the Commission’s eLibrary system using the “Documents and Filings” link on the Commission’s webpage at <http://www.ferc.gov>. Call (202) 502-6652 for assistance.

2.2.1 Issues Raised During Scoping

The issues raised by participants in the scoping process are summarized and addressed below. The comments received at the scoping meetings are similar to the written comments submitted to the Commission. Note that the primary purpose of SD2 is to identify issues to be analyzed in the EA. The summaries below do not account for every oral and written comment made during the scoping process. We revised SD1 to

⁴ An additional comment from Meredith and Cooper Friend was filed on July 31, 2019, after the 60-day deadline.

address only those comments related directly to the scope of environmental issues. We do not address comments that are recommendations for license conditions, such as protection, mitigation, and enhancement (PM&E) measures, as these comments will be addressed in the EA or any license order that is issued for the project. We will request final terms, conditions, recommendations, and comments when we issue our Ready for Environmental Analysis notice, following the filing of the license application. Finally, we do not address comments or recommendations that are administrative in nature, such as requests for changes to the mailing lists. Those items will be addressed separately.

Key changes from SD1 are identified below in *bold, italic type*.

General Comments

Comment: The U.S. Department of Commerce – National Marine Fisheries Service (NMFS) states the project directly affects the federally endangered Gulf of Maine Distinct Population Segment of Atlantic salmon and its critical habitat. NMFS states that “project decommissioning with dam removal is the only alternative that would completely eliminate the threat to Atlantic salmon and their critical habitat posed by the Green Lake project.” Accordingly, NMFS recommends that the Commission consider project decommissioning with dam removal as an alternative to the proposed action in the NEPA analysis.

Response: Prior to conducting a detailed decommissioning analysis, the Commission waits until a licensee actually proposes to decommission a project, or a participant in a licensing proceeding demonstrates, with supporting evidence, that there are serious resource concerns that cannot be mitigated if the project is licensed.⁵ Here, the licensee has filed a notice of intent to relicense the project and NMFS has not offered any evidence that project effects could not be mitigated with license terms and conditions. Instead, NMFS recommends that the licensee conduct a study to further investigate the feasibility of a fish passage program for Atlantic salmon in the Green Lake watershed. Therefore, at this time, we do not consider project decommissioning to be a reasonable alternative to licensing the project with appropriate environmental enhancement measures. ***Based on NMFS’s comments, we revised section 3.5.1 (Project Decommissioning) to state, as a basis for excluding project decommissioning from detailed study in the EA, that the existing licensee has filed a notice of intent to seek a new license for the project and there is currently no evidence of a serious resource concern that cannot be mitigated with license terms and conditions.***

⁵ See, generally, Project Decommissioning at Relicensing; Policy Statement, FERC Stats. & Regs., Regulations Preambles (1991-1996), ¶ 31,011 (1994).

Fisheries Resources

Comment: The U.S. Department of the Interior – Fish and Wildlife Service (FWS) states that the Union River supports American eel, Atlantic salmon, and alewife, and that the cumulative effects analysis in the EA should include these species

Response: As stated in section 4.1.1 of SD1 (Resources that could be Cumulatively Affected), staff identified migratory fish (*i.e.*, alewife, American eel, American shad, Atlantic salmon, blueback herring, and sea lamprey) as resources that could be cumulatively affected by the proposed continued operation and maintenance of the Green Lake Project in combination with other dams in the Union River Basin. Staff have retained these species in section 4.1.1 of SD2, and staff will include these species in the cumulative effects analysis.

Comment: FWS states that the scoping document should include the effects of project-related water level fluctuations on spawning and rearing habitats of smallmouth bass and other spring-spawning resident fish species. In addition, Steven Cooper expresses concern about the effects of low water levels in Sucker Brook on landlocked salmon.

Response: Section 4.2.2 of SD1 (Aquatic Resources) states that the EA will analyze the effects of project operation on aquatic habitat and resident fish. These analyses will consider how the annual drawdown and other project-related water level fluctuations affect landlocked salmon in the fall as well as spring-spawning resident fish species. Therefore, no change to SD1 is needed.

Comment: Maine Division of Inland Fisheries and Wildlife and Dale Jellison commented that upstream fish passage could result in the introduction of largemouth bass into Green Lake from Graham Lake, which could affect the health of the existing fishery in Green Lake.

Response: Section 4.2.2 of SD1 states that the EA will analyze the effects of continued project operation on resident and migratory fish and other aquatic organisms in the impoundment, bypassed reach, and Reeds Brook, including the effects of project operation on fish passage. To the extent that fish passage measures are proposed or recommended during the license proceeding, the analysis in the EA would address the effects of the possible introduction of largemouth bass into Green Lake. Therefore, no change to SD1 is needed.

Terrestrial Resources

Comment: FWS states that the scoping document should include the effects of project-related water level fluctuations from late May through the middle of July on loon

nesting and chick survival. FWS states that the scoping document should include the effects of continued project operation on habitat use by bald and golden eagles.

Response: Section 4.2.3 of SD1 (Terrestrial Resources) states that the EA will analyze the effects of project operation on wildlife habitat and associated wildlife, including riparian, littoral, and wetland habitat. The analysis of the effects of project operation on wildlife will consider how project water levels affect loon nesting and chick survival. The analysis will also consider how project operation affects eagle nesting. Therefore, no change to SD1 is needed.

Recreation, Land Use, and Aesthetic Resources

Comment: Raymond Jenkins, Dale Jellison, Meredith Friend, and Cooper Friend state that the current drawdown schedule, which begins on Labor Day, adversely impacts the recreational use of the lake. Edith Skinner and Guy Singh and Polly Mautner state that the present drawdown beginning September 1 is rapid and puts docks and boats at risk of damage. Harry Moore, Steven Cooper, and Guy Singh and Polly Mautner state that low water levels in September restrict the use of the lake for boating and swimming. Harry Moore, Edith Skinner, and Fred Skinner commented that high water levels in winter can result in damage to shoreline property from ice on the lake.

Response: Green Lake Power draws down the project impoundment between Labor Day and October 15 each year. Green Lake Power then allows the impoundment to partially refill during the fall and early winter. Section 4.2.5 of SD1 (Recreation, Land Use, and Aesthetic Resources) states that the EA will analyze the effects of project operation on recreational use in the project area, including the adequacy of existing recreational access. The analysis of the effects of project operation on recreation will consider how project water levels affect recreation. Section 4.2.5 of SD1 also states that the EA will analyze the effects of project operation on land use and aesthetic resources. The analysis of the effects of project operation on land use and aesthetic resources will consider how project water levels affect shoreline property.

3.0 PROPOSED ACTION AND ALTERNATIVES

In accordance with NEPA, the environmental analysis will consider the following alternatives, at a minimum: (1) the no-action alternative, (2) the applicant's proposed action, and (3) alternatives to the proposed action.

3.1 NO-ACTION ALTERNATIVE

Under the no-action alternative, the Green Lake Project would continue to operate as required by the current project license (*i.e.*, there would be no change to the existing environment). No new environmental protection, mitigation, or enhancement (PM&E)

measures would be implemented. The no action alternative is used to establish baseline environmental conditions for comparison with other alternatives.

3.1.1 Existing Project Facilities

The Green Lake Project consists of: (1) a 273.2-foot-long, 7.5-foot-high dam that includes: (a) an 82-foot-long concrete-gravity section with an 80-foot-long overflow spillway with a crest elevation of 160.7 feet United States Geological Survey (USGS) datum; (b) a 12-foot-long, 15-foot-high concrete intake section with a 5-foot-wide, 5-foot-high headgate and an 8-foot-wide, 12-foot-high continuous trash rack having one-inch clear-bar spacing; (c) a 22.2 foot-long gated spillway section with two 6-foot-wide, 7-foot-high spillway gates at an elevation of 154.0 feet USGS datum; and (d) an approximately 157-foot-long dry-rock, concrete, timber, and sheet-steel section with a 35-foot-long auxillary spillway at an elevation of 162 feet USGS datum, and a 120-foot-long auxillary spillway that slopes from an elevation of 163 feet to 164 feet USGS datum; (2) a 2,989-acre impoundment at an elevation of 160.7 feet USGS datum; (3) a 1,740-foot-long concrete and wooden-stave penstock that includes: (a) a 70-foot-long, 54-inch-wide, 54-inch-high concrete section; (b) a 410-foot-long, 54-inch-diameter concrete section including a transition block with a valve pit and a 4-inch water supply valve; (c) a 260-foot-long, 48-inch-diameter concrete section; (d) an 8-foot-square concrete transition block; and (e) a 1000-foot-long, 48-inch-diameter wood stave section; (4) a 27-foot-long, 35-foot-wide concrete powerhouse containing two turbine-generator units with a total installed capacity of 425 kW; (5) two 50-foot-long, 5-foot-diameter powerhouse discharge pipes; (6) a 500-kilovolt-ampere step-up transformer, and a 650-foot-long, 12.45-kilovolt underground transmission line connecting the project generators to the regional grid; and (7) appurtenant facilities.

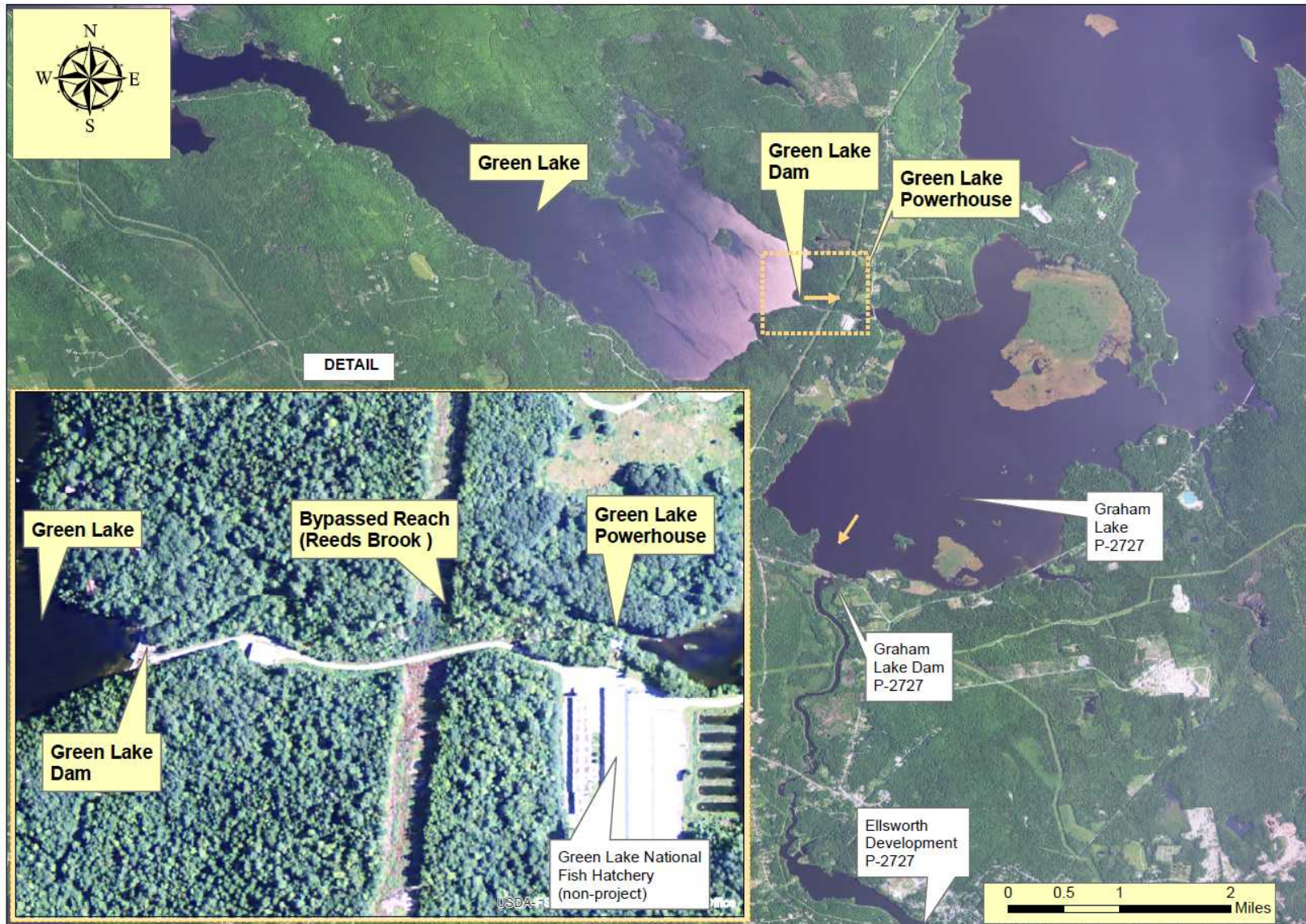


Figure 2. Aerial View of Project Facilities (Source: U.S. Department of Agriculture as modified by Staff).

3.1.2 Existing Project Operation

The current license requires Green Lake Power to: (1) maintain the elevation of Green Lake between 159.7 feet and 160.7 feet USGS datum between June 1 and September 1 of each year, and no lower than 157.5 feet USGS datum for the remainder of the year; (2) complete the fall drawdown of Green Lake by October 15 of each year; and (3) reduce the elevation of Green Lake during the spring drawdown to no lower than the elevation attained on the previous October 15 of each year. In addition, the current license requires Green Lake Power to provide flows of up to 30 cfs to the FWS's Green Lake National Fish Hatchery.

The project creates an approximately 1,900-foot-long bypassed reach of Reeds Brook. The current license requires Green Lake Power to release a year-round minimum flow of one cubic foot per second (cfs), or inflow to Green Lake, whichever is less, for the protection and enhancement of fish and wildlife resources downstream of the dam. Except for flows to the Green Lake National Fish Hatchery, flow releases from Green Lake that are less than or greater than the hydraulic capacity of the turbines (*i.e.*, 7 cfs and 90 cfs, respectively) are also released from the dam into the bypassed reach.

The annual energy production of the project from 2014 through 2018 averaged 1,656.81 MWh, and ranged from a low of 1,252 MWh in 2016 to a high of 2239.08 MWh in 2014.

The current license requires Green Lake Power to install screens at the project intake to minimize mortality due to entrainment and to prevent out-migration of adult salmonids from Green Lake. The existing screens have a two-inch mesh size and extend from the bottom of the intake to 2 feet above the crest of the spillway.

3.2 APPLICANT'S PROPOSAL

3.2.1 Proposed Project Facilities and Operation

Green Lake Power proposes to perform several upgrades to the existing project facilities and appurtenances, including: (1) replacing the 1,000-foot-long, 48-inch-diameter wooden-stave section of the penstock; (2) replacing a septic leaching field at the powerhouse; and (3) upgrading one of the project's two turbine-generator units and the project's step-up transformer.

Green Lake Power is not proposing any changes to project operation at this time.

3.2.2 Proposed Environmental Measures

Green Lake Power is not proposing any new PM&E measures for the Green Lake Project at this time.

3.3 DAM SAFETY

Dam safety constraints may exist and should be taken into consideration in the development of proposals and alternatives considered in the pending proceeding. For example, proposed modifications to the dam structure, such as fish passage facilities, could impact the integrity of the dam structure. As the proposal and alternatives are developed, the applicant must evaluate the effects and ensure that the project would meet the Commission's dam safety criteria found in Part 12 of the Commission's regulations and the engineering guidelines

(<http://www.ferc.gov/industries/hydropower/safety/guidelines/eng-guide.asp>).

3.4 ALTERNATIVES TO THE PROPOSED ACTION

Commission staff will consider and assess alternative recommendations for operational or facility modifications, as well as PM&E measures identified by staff, agencies, Indian tribes, NGOs, and the public.

3.5 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

At present, we propose to eliminate the following alternative from detailed study in the EA.

3.5.1 Project Decommissioning

Decommissioning of the project could be accomplished with or without dam removal. Either alternative would require denying the relicense application and surrender

or termination of the existing license with appropriate conditions. There would be significant costs involved with decommissioning the project and/or removing the project's facilities. The project provides a viable, safe, and clean renewable source of power to the region. With decommissioning, the project would no longer be authorized to generate power.

The existing licensee has filed a notice of intent to seek a new license for the project and there is currently no evidence of a serious resource concern that cannot be mitigated with license terms and conditions. Thus, we do not consider decommissioning to be a reasonable alternative to licensing the project with appropriate environmental measures.

4.0 SCOPE OF CUMULATIVE EFFECTS AND SITE-SPECIFIC RESOURCE ISSUES

4.1 CUMULATIVE EFFECTS

According to the Council on Environmental Quality's regulations for implementing NEPA (40 C.F.R. § 1508.7), a cumulative effect is the effect on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time, including hydropower and other land and water development activities.

4.1.1 Resources that could be Cumulatively Affected

Based on information in the PAD for the Green Lake Project, and preliminary staff analysis, we have identified migratory fish (*i.e.*, alewife, American eel, American shad, Atlantic salmon, blueback herring, and sea lamprey) and aquatic habitat as resources that could be cumulatively affected by the proposed continued operation and maintenance of the Green Lake Project in combination with other dams in the Union River Basin.

4.1.2 Geographic Scope

Our geographic scope of analysis for cumulatively affected resources is defined by the physical limits or boundaries of: (1) the proposed action's effect on the resources, and (2) contributing effects from other dams within the river basin. We have identified the geographic scope for migratory fish to include the Union River Basin from the upstream extent of the Green Lake Project to the Graham Lake Development of the Ellsworth Project No. 2727 (Ellsworth Project), and the Union River from the Ellsworth Project downstream to the Union River Bay. We have identified the geographic scope for aquatic habitat to include Reeds Brook from the upstream extent of the Green Lake Project to Graham Lake. We chose this geographic scope because the operation and

maintenance of the Green Lake Project, in combination with several other dams on the Union River,⁶ may affect migratory fish and aquatic habitat in the Union River Basin.

4.1.3 Temporal Scope

The temporal scope of our cumulative effects analysis in the EA will include a discussion of past, present, and reasonably foreseeable future actions and their effects on each resource that could be cumulatively affected. Based on the potential term of a new license, the temporal scope will look 30 to 50 years into the future, concentrating on the effect on the resources from reasonably foreseeable future actions. The historical discussion will, by necessity, be limited to the amount of available information for each resource. The quality and quantity of information, however, diminishes as we analyze resources further away in time from the present.

4.2 RESOURCE ISSUES

In this section, we present a preliminary list of environmental issues to be addressed in the EA. We identified these issues, which are listed by resource area, by reviewing the PAD and the Commission's record for the Green Lake Project. This list is not intended to be exhaustive or final, but contains the issues raised to date that could have substantial effects. After the scoping process is complete, we will review the list and determine the appropriate level of analysis needed to address each issue in the EA. Those issues identified by an asterisk (*) will be analyzed for both cumulative and site-specific effects.

4.2.1 Geology and Soils Resources

- Effects of proposed construction activities on geology and soils resources.

4.2.2 Aquatic Resources

- Effects of continued project operation on streamflow, water quality, and aquatic habitat* in the impoundment, bypassed reach, and Reeds Brook.
- Effects of continued project operation on resident and migratory* fish and other aquatic organisms in the impoundment, bypassed reach, and Reeds Brook, including the effects of project operation on fish passage.
- Effects of turbine entrainment on resident and migratory* fish.

⁶ U.S. Army Corps of Engineers, *National Inventory of Dams* (Oct. 2016), available at <http://nid.usace.army.mil>.

4.2.3 Terrestrial Resources

- Effects of continued project operation on riparian, littoral, and wetland habitat and associated wildlife.
- Effects of continued project operation, including maintenance activities (*e.g.*, vegetation management), on wildlife habitat and associated wildlife.
- Effects of continued project operation and maintenance on the introduction and persistence of non-native invasive plants within the project boundary.
- Effects of continued project operation and maintenance on Maine state-listed species.

4.2.4 Threatened and Endangered Species

- Effects of continued project operation and maintenance on the federally threatened northern long-eared bat and federally endangered Atlantic salmon.*

4.2.5 Recreation, Land Use, and Aesthetic Resources

- Effects of continued project operation on recreational use in the project area, including the adequacy of existing recreational access.
- Effects of continued project operation on land use in the project area.
- Effects of continued project operation on aesthetic resources in the project area.

4.2.6 Cultural Resources

- Effects of continued project operation and maintenance on historic resources, archeological resources, and traditional cultural properties that are included or may be eligible for inclusion in the National Register of Historic Places.
- Effects of continued project operation and maintenance on properties of traditional religious and cultural importance to an Indian tribe.

4.2.7 Developmental Resources

- Economics of the project and the effects of any recommended environmental measures on the project's economics.

5.0 PROPOSED STUDIES

Green Lake Power is not proposing any resource studies at this time.

6.0 EA PREPARATION

At this time, we anticipate preparing a single EA for the project. The EA will be sent to all persons and entities on the Commission's service and mailing lists for the Green Lake Project. The EA will include our recommendations for operating procedures, as well as PM&E measures that should be part of any license issued by the Commission. All recipients will then have 30 days to review the EA and file written comments with the Commission.

The major milestones, with pre-filing target dates are as follows:

<u>Major Milestone</u>	<u>Target Date</u>
Scoping Meetings	June 2019
License Application Filed	March 2022
Ready for Environmental Analysis Notice Issued	-
Deadline for Filing Comments, Recommendations, and-Agency Terms and Conditions/Prescriptions	-
EA Issued	-
Comments on EA Due	-
Deadline for Filing Modified Agency Recommendations	-
License Order Issued	-

A copy of the process plan and schedule, which has a complete list of pre-filing licensing milestones for the Green Lake Project, including those for developing the license application, is attached as Appendix A to this SD2.

7.0 PROPOSED EA OUTLINE

The preliminary outline for the Green Lake Project EA is as follows:

TABLE OF CONTENTS
 LIST OF FIGURES
 LIST OF TABLES
 ACRONYMS AND ABBREVIATIONS
 EXECUTIVE SUMMARY

1.0 INTRODUCTION
 1.1 Application
 1.2 Purpose of Action and Need for Power

- 1.3 Statutory and Regulatory Requirements
 - 1.3.1 Federal Power Act
 - 1.3.1.1 Section 18 Fishway Prescriptions
 - 1.3.1.2 Section 10(j) Recommendations
 - 1.3.2 Clean Water Act
 - 1.3.3 Endangered Species Act
 - 1.3.4 Coastal Zone Management Act
 - 1.3.5 National Historic Preservation Act
- 1.4 Public Review and Comment
 - 1.4.1 Scoping
 - 1.4.2 Interventions
 - 1.4.3 Comments on the Application
- 2.0 PROPOSED ACTION AND ALTERNATIVES
 - 2.1 No-action Alternative
 - 2.1.1 Existing Project Facilities
 - 2.1.2 Project Safety
 - 2.1.3 Existing Project Operation
 - 2.1.4 Existing Environmental Measures
 - 2.2 Applicant's Proposal
 - 2.2.1 Proposed Project Facilities
 - 2.2.2 Proposed Project Operation
 - 2.2.3 Proposed Environmental Measures
 - 2.2.4 Modifications to Applicant's Proposal—Mandatory Conditions
 - 2.3 Staff Alternative
 - 2.4 Staff Alternative with Mandatory Conditions
 - 2.5 Other Alternatives (as appropriate)
 - 2.6 Alternatives Considered but Eliminated from Detailed Study
 - 2.6.1 Project Decommissioning
- 3.0 ENVIRONMENTAL ANALYSIS
 - 3.1 General Description of the River Basin
 - 3.2 Scope of Cumulative Effects Analysis
 - 3.2.1 Geographic Scope
 - 3.2.2 Temporal Scope
 - 3.3 Proposed Action and Action Alternatives
 - 3.3.1 Aquatic Resources
 - 3.3.2 Terrestrial Resources
 - 3.3.3 Threatened and Endangered Species
 - 3.3.4 Recreation, Land Use, and Aesthetic Resources
 - 3.3.5 Cultural Resources
 - 3.4 No-action Alternative
- 4.0 DEVELOPMENTAL ANALYSIS
 - 4.1 Power and Economic Benefits of the Project

- 4.2 Comparison of Alternatives
- 4.3 Cost of Environmental Measures
- 5.0 CONCLUSIONS AND RECOMMENDATIONS
 - 5.1 Comparison of Alternatives
 - 5.2 Comprehensive Development and Recommended Alternative
 - 5.3 Unavoidable Adverse Effects
 - 5.4 Recommendations of Fish and Wildlife Agencies
 - 5.5 Consistency with Comprehensive Plans
- 6.0 FINDING OF NO SIGNIFICANT IMPACT (OR OF SIGNIFICANT IMPACT)
- 7.0 LITERATURE CITED
- 8.0 LIST OF PREPARERS

8.0 COMPREHENSIVE PLANS

Section 10(a)(2) of the FPA, 16 U.S.C. section 803(a)(2)(A), requires the Commission to consider the extent to which a project is consistent with federal and state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by a project. We have preliminarily identified and reviewed the plans listed below that may be relevant to the Green Lake Project, located in Maine. Agencies are requested to review this list and inform Commission staff of any changes. If there are other comprehensive plans that should be considered for this list that are not on file with the Commission, or if there are more recent versions of the plans already listed, they can be filed for consideration with the Commission according to 18 C.F.R. § 2.19. Please follow the instructions for filing a plan at <http://www.ferc.gov/industries/hydropower/gen-info/licensing/complan.pdf>.

The following is a list of comprehensive plans currently on file with the Commission that may be relevant to the Green Lake Project:

- Atlantic States Marine Fisheries Commission. 1999. Amendment 1 to the Interstate Fishery Management Plan for shad and river herring. (Report No. 35). April 1999.
- Atlantic States Marine Fisheries Commission. 2000. Interstate Fishery Management Plan for American eel (*Anguilla rostrata*). (Report No. 36). April 2000.
- Atlantic States Marine Fisheries Commission. 2000. Technical Addendum 1 to Amendment 1 of the Interstate Fishery Management Plan for shad and river herring. February 9, 2000.
- Atlantic States Marine Fisheries Commission. 2008. Amendment 2 to the Interstate Fishery Management Plan for American eel. Arlington, Virginia. October 2008.

Atlantic States Marine Fisheries Commission. 2009. Amendment 2 to the Interstate Fishery Management Plan for shad and river herring, Arlington, Virginia. May 2009.

Atlantic States Marine Fisheries Commission. 2010. Amendment 3 to the Interstate Fishery Management Plan for shad and river herring, Arlington, Virginia. February 2010.

Atlantic States Marine Fisheries Commission. 2013. Amendment 3 to the Interstate Fishery Management Plan for American eel. Arlington, Virginia. August 2013.

Atlantic States Marine Fisheries Commission. 2014. Amendment 4 to the Interstate Fishery Management Plan for American eel. Arlington, Virginia. October 2014.

Maine Atlantic Sea-Run Salmon Commission. 1984. Strategic plan for management of Atlantic salmon in the State of Maine. Augusta, Maine. July 1984.

Maine Department of Agriculture, Conservation, & Forestry. Maine State Comprehensive Outdoor Recreation Plan (SCORP): 2014-2019. Augusta, Maine.

Maine Department of Conservation. 1982. Maine rivers study-final report. Augusta, Maine. May 1982.

Maine State Planning Office. 1987. Maine comprehensive rivers management plan. Augusta, Maine. May 1987. Three volumes.

Maine State Planning Office. 1992. Maine comprehensive rivers management plan. Volume 4. Augusta, Maine. December 1992.

National Marine Fisheries Service. 1998. Final Amendment #11 to the Northeast Multi species Fishery Management Plan; Amendment #9 to the Atlantic sea scallop Fishery Management Plan; Amendment #1 to the monkfish Fishery Management Plan; Amendment #1 to the Atlantic salmon Fishery Management Plan; and Components of the Proposed Atlantic herring Fishery Management Plan for Essential Fish Habitat. Volume 1. October 7, 1998.

National Marine Fisheries Service. 2018. Recovery Plan for the Gulf of Maine Distinct Population Segment of Atlantic Salmon. Hadley, Massachusetts. January 2019.

National Park Service. The Nationwide Rivers Inventory. Department of the Interior,

Washington, D.C. 1993.

U.S. Fish and Wildlife Service. n.d. Fisheries USA: the recreational fisheries policy of the U.S. Fish and Wildlife Service. Washington, D.C.

U.S. Fish and Wildlife Service. Canadian Wildlife Service. 1986. North American waterfowl management plan. Department of the Interior. Environment Canada. May 1986.

U.S. Fish and Wildlife Service. 1989. Atlantic salmon restoration in New England: Final environmental impact statement 1989-2021. Department of the Interior, Newton Corner, Massachusetts. May 1989.

9.0 MAILING LIST

The list below is the Commission's official mailing list for the Green Lake Project No. 7189. If you want to receive future mailings for the Green Lake Project from the Commission and are not included in the list below, please send your request by email to FERCOnlineSupport@ferc.gov or by mail to: Kimberly D. Bose, Secretary, Federal Energy Regulatory Commission, 888 First Street, N.E., Room 1A, Washington, D.C. 20426. All written and emailed requests to be added to the Commission's mailing list must clearly identify the following on the first page: **Green Lake Project No. 7189-014**. You may use the same method if requesting removal from the mailing list below.

Register online at <https://www.ferc.gov/docs-filing/esubscription.asp> to be notified via email of new filings and issuances related to this or other pending projects. For assistance, please contact FERC Online Support at FERCOnlineSupport@ferc.gov or toll free at 1-866-208-3676, or for TTY, (202) 502-8659.

Official Mailing List for the Green Lake Project

John T Eddins Advisory Council on Historic Preservation 401 F Street N.W. Suite 308 Washington, DC 20001-2637	David Kleinschmidt Vice President Green Lake Water Power Company PO Box 1084 Ellsworth, ME 04605-1084
Robert S Kleinschmidt Kleinschmidt Associates PO Box 576 Pittsfield, ME 04967-0576	Thomas Mark Dewey & LeBoeuf, LLP 423 Atlantic Avenue Apt. 6A Brooklyn, NY 11217
Anne M Finlayson Kleinschmidt Associate PO Box 576 Pittsfield, ME 04967-0576	Brian Kavanah, Director Maine Bureau of Land and Water Quality Control Department of Environmental Protection State House Station 17 28 Tyson Drive Augusta, ME 04333-0001

<p>Kathy Davis Howatt Hydropower Coordinator Maine Department of Environmental Protection 17 State House Station 28 Tyson Drive Augusta, ME 04333-0017</p>	<p>Maine Department of Inland Fisheries and Wildlife Region C PO Box 220 Jonesboro, ME 04648</p>
<p>John Perry Environmental Coordinator Maine Department of Inland Fisheries and Wildlife 284 State Street 41 State House Station Augusta, ME 04333-0041</p>	<p>Gail Wippelhauser Marine Resources Scientist Maine Department of Marine Resources 21 State House Station Augusta, ME 04333</p>
<p>Celeste Ward Nixon Peabody LLP 5602 Pioneer Lane Bethesda, MARYLAND 20816</p>	<p>Elizabeth Whittle Partner Nixon Peabody LLP 401 Ninth Street, N.W Suite 900 Washington, DC 20004</p>
<p>Sean P McDermott NMFS Marine Habitat Resource Specialist Hydropower Coordinator 55 Great Republic Drive Gloucester, MA 01930-2237</p>	<p>Passamaquoddy Tribe Pleasant Point Reservation Tribal Building Office Route No. 190 Perry, ME 04667</p>
<p>Passamaquoddy Tribe Indian Township Reservation PO Box 301 Princeton, ME 04668</p>	<p>Stinson Leonard Street LLP 1775 Pennsylvania Avenue NW Suite 800 Washington, DC 20006</p>
<p>U.S. Army Corps of Engineers Divisional Office, Regulatory 696 Virginia Rd Concord, MA 01742-2718</p>	<p>Jay Clement U.S. Army Corps of Engineers 675 Western Avenue Manchester, ME 04351</p>
<p>Steve Shepard Maine Hydro Licensing Coordinator U.S. Fish and Wildlife Service 17 Godfrey Drive, Suite 2 Orono, ME 04473</p>	<p>Ralph Abele U.S. Environmental Protection Agency 5 Post Office Square, Suite 100 MailCode OEP06-02 Boston, MA 02109</p>

<p>U.S. Environmental Protection Agency Director Water Quality Control Branch (WQB) 5 Post Office Sq, Ste 100 BOSTON, MA 02109-3946</p>	<p>U.S. Fish & Wildlife Service Regional Director 300 Westgate Center Dr Northeast Regional Office Hadley, MA 01035-9587</p>
<p>Kevin Mendik, ESQ NPS Hydro Program Coordinator U.S. National Park Service 15 State Street 10th floor Boston, MA 02109</p>	<p>Andrew Tittler Attorney U.S. Department of Interior Office of the Solicitor, Northeast Region One Gateway Center, Suite 612 Newton, MA 02158</p>
<p>U.S. Fish and Wildlife Service Regional Director 300 Westgate Center Dr. Northeast Regional Office Hadley, MA 01035-9587</p>	<p>U.S. National Park Service North Atlantic Region 15 State St. Boston, MA 02109-3502</p>
<p>Atlantic Salmon Federation Atlantic Office P.O. Box 807 Calais, ME 04619-0807</p>	<p>Charles L. Kelly, Jr. Union Salmon Associaton 91 Hancock Street Ellsworth, NH 04605</p>
<p>Elsie Hemmings Union River Watershed Coalition 105 Eden Street Bar Harbor, ME 04609</p>	<p>Barb Watham Union Salmon Association RR1, Box 67 Ellsworth, ME 04605</p>
<p>Donald Soctomah Tribal Historic Preservation Officer Passamaquoddy Tribe Indian Township Reservation P.O. Box 343, Route 190 Perry, ME 04667</p>	<p>Kirk Francis, Chief Penobscot Indian Nation 12 Wabanaki Way Indian Island, ME 04468</p>
<p>Maine Department of Conservation Land Use Regulation Commission 22 State House Station 18 Elkins Lane Augusta, ME 04333</p>	<p>David A. Cole City Manager 1 City Hall Plaza Ellsworth, ME 04605</p>

<p>Downeast Salmon Federation 187 Main Street PO Box 201 Columbia Falls, ME 04623</p>	<p>Chris Sockalexis THPO Penobscot Indian Nation Cultural and Historic Preservation Program 12 Wabanaki Drive Indian Island, ME 04468</p>
<p>Jim Beyer Maine Department of Environmental Protection Bureau of Land and Water Quality 106 Hogan Road Bangor, ME 04401</p>	<p>Kirk F. Mohny Director Maine Historic Preservation Commission 55 Capitol Street 65 State House Station Augusta, ME 04333</p>
<p>Dr. Arthur Speiss Maine Historic Preservation Commission 65 State House Station 55 Capitol Street Augusta, ME 04333</p>	<p>Susan Bard Regional Fisheries Biologist 317 Whitneyville Road Jonesboro, ME 04648</p>
<p>Andrew D. Qua Senior Regulatory Coordinator Kleinschmidt Associates 141 Main St Pittsfield, ME 04967</p>	<p>Megan Rideout Maine Historic Preservation Commission Review & Compliance/CLG Coordinator 55 Capitol Street 65 State House Station Augusta, ME 04333</p>
<p>Bryan Sojkowski, P.E. U.S. Fish and Wildlife Service Hydraulic Engineer - Fish Passage Region 5, Fisheries 300 Westgate Center Drive Hadley, MA 01035-9589</p>	<p>Casey Clark Maine Department of Marine Resources #172 State House Station Augusta, ME 04333</p>
<p>Dan Tierney Protected Resources Division Maine Field Station 17 Godfrey Drive – Suite 1 Orono, ME 04473</p>	<p>Gregory Burr Regional Fisheries Biologist - Region C 317 Whitneyville Road Jonesboro, ME 04648</p>

Raymond L. Jenkins Jr PO Box 155 Ellsworth, ME 04605	Oliver Cox Hatchery Manager Green Lake National Fish Hatchery 1 Hatchery Way Ellsworth, ME 04605
Audrey Tunney Green Lake Association 35 Grant Street Ellsworth, ME 04605	David Megquier Green Lake Association 603 Nicolin Rd Ellsworth, ME 04605
Harry Moore Green Lake Association 54 Harmony Way Ellsworth, ME 04605	Hancock County Commissioners Office 50 State Street, Suite 7 Ellsworth, ME 04605

**APPENDIX A
GREEN LAKE PROJECT PROCESS PLAN AND SCHEDULE**

Shaded milestones are unnecessary if there are no study disputes. If the due date falls on a weekend or holiday, the due date is the following business day. Early filings or issuances will not result in changes to these deadlines. As appropriate, the process plan and schedule may be revised in the future.

Responsible Party	Pre-Filing Milestone	Date	FERC Regulation
Green Lake Power	File NOI/PAD with FERC	4/1/19	5.5, 5.6
FERC	Tribal Consultation	5/1/19	5.7
FERC	Issue Notice of Commencement of Proceeding; Issue Scoping Document 1	5/31/19	5.8
FERC	Scoping Meetings and Project Site Visit	6/26/19-6/27/19	5.8(b)(3)(viii)
All stakeholders	PAD/SD1 Comments and Study Requests Due	7/30/19	5.9
FERC	Issue Scoping Document 2	9/13/19	5.10
Green Lake Power	File Proposed Study Plan (PSP)	9/13/19	5.11(a)
All stakeholders	Proposed Study Plan Meeting	10/10/19	5.11(e)
All stakeholders	Proposed Study Plan Comments Due	12/12/19	5.12
Green Lake Power	File Revised Study Plan	1/11/20	5.13(a)
All stakeholders	Revised Study Plan Comments Due	1/26/20	5.13(b)
FERC	Director's Study Plan Determination	2/10/20	5.13(c)
Mandatory Conditioning Agencies	Any Study Disputes Due	3/1/20	5.14(a)
Dispute Panel	Third Dispute Panel Member Selected	3/16/20	5.14(d)(3)

Responsible Party	Pre-Filing Milestone	Date	FERC Regulation
Dispute Panel	Dispute Resolution Panel Convenes	3/21/20	5.14(d)
Green Lake Power	Applicant Comments on Study Disputes Due	3/26/20	5.14(i)
Dispute Panel	Dispute Resolution Panel Technical Conference	3/31/20	5.14(j)
Dispute Panel	Dispute Resolution Panel Findings Issued	4/20/20	5.14(k)
FERC	Director's Study Dispute Determination	5/10/20	5.14(l)
Green Lake Power	First Study Season	2020	5.15(a)
Green Lake Power	Initial Study Report	2/9/21	5.15(c)(1)
All stakeholders	Initial Study Report Meeting	2/24/21	5.15(c)(2)
Green Lake Power	Initial Study Report Meeting Summary	3/11/21	5.15(c)(3)
All stakeholders	Any Disputes/Requests to Amend Study Plan Due	4/10/21	5.15(c)(4)
All stakeholders	Responses to Disputes/Amendment Requests Due	5/10/21	5.15(c)(5)
FERC	Director's Determination on Disputes/Amendments	6/9/21	5.15(c)(6)
Green Lake Power	Second Study Season	2021	5.15(a)
Green Lake Power	Updated Study Report due	2/9/22	5.15(f)
All stakeholders	Updated Study Report Meeting	2/24/22	5.15(f)
Green Lake Power	Updated Study Report Meeting Summary	3/11/22	5.15(f)
All stakeholders	Any Disputes/Requests to Amend Study Plan Due	4/10/22	5.15(f)
All stakeholders	Responses to Disputes/Amendment Requests Due	5/10/22	5.15(f)

Responsible Party	Pre-Filing Milestone	Date	FERC Regulation
FERC	Director's Determination on Disputes/Amendments	6/9/22	5.15(f)
Green Lake Power	File Preliminary Licensing Proposal	11/1/21	5.16(a)
All stakeholders	Preliminary Licensing Proposal Comments Due	1/30/22	5.16(e)
Green Lake Power	File Final License Application	3/31/22 ⁷	5.17
Green Lake Power	Issue Public Notice of License Application Filing	4/14/22	5.17(d)(2)

⁷ Pursuant to the Federal Power Act section 15 and 18 C.F.R. § 5.17, any application for a license for this project must be filed with the Commission at least 24 months prior to the expiration of the existing license. Because the current license expires on March 31, 2024, all applications for license for this project must be filed by March 31, 2022.

Document Content(s)

P-7189 Green Lake SD2 9-13-19 (1).DOCX.....1

Ms. Kimberly D. Bose, Secretary
September 13, 2019

VIA E-FILING

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N. E.
Washington, DC 20426

***RE: Green Lake Hydroelectric Project (FERC No. 7189)
Proposed Study Plan***

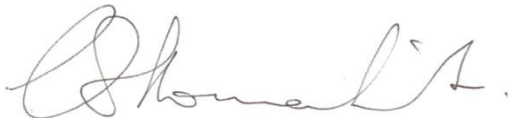
Dear Secretary Bose:

In accordance with 18 CFR § 5.11(a), the Licensee for the Green Lake Hydroelectric Project, Green Lake Water Power Co, (GLWP), herein files the Proposed Study Plan (PSP) for the relicensing of the Green Lake Hydroelectric Project (Project). The study plans are based on study requests submitted by the resource agencies in response to the Commission's June 2019 Scoping Document (SD1). The PSP also contains additional information requested by FERC.

The purpose of this filing is to provide FERC, the resource agencies, and interested parties with plans providing descriptions of the studies proposed by the Licensee.

Green Lake Water Power Co. has scheduled the Study Plan Meeting required by the ILP (18 CFR § 5.11e) on October 10th, 2019 at 10:00 a.m. at the Ellsworth City Hall in the Council Chambers.

Thank you for your review and comments. We appreciate your interest in the relicensing of the Project and look forward to working with you over the coming months in further developing the study plans. If there are any questions or comments regarding this filing, please contact me by email at caroline@greenlakewaterpower.com or by phone at (425) 553-6718



Sincerely,
Caroline Kleinschmidt
Relicensing Coordinator
Green Lake Water Power Co.

Enclosure
cc: Distribution List

Green Lake Project 7189 PSP Distribution List

September 13, 2019

Federal Energy Regulatory Commission

Kimberly D. Bose
Secretary
888 First Street, N.E.
Washington, DC 20426
via e-filing

Dr. Nicholas Palso
FERC Coordinator
202-502-8854
Nicholas.Palso@ferc.gov

Bill Connelly
Fisheries Lead
202-502-8587
William.Connelly@ferc.gov

John Spain
Regional Engineer
New York Regional Office
19 W 34th Street, Suite 400
New York, NY 10001-3006
212-273-5954
John.Spain@ferc.gov

Indian Tribes

Susan Young, A/THPO
Houlton Band of Maliseet Indians
Natural Resources Director
88 Bell Road
Littleton, ME 04730
207-532-4273 x202
Ogs1@maliseets.com

Jennifer Pictou, THPO
Aroostook Band of Micmacs
8 Northern Road
Presque Isle, ME 04769
207-764-1972
jpictou@micmac-nsn.gov

Chris Sockalexis THPO
Penobscot Indian Nation
Cultural and Historic Preservation Program
12 Wabanaki Drive
Indian Island, ME 04468
207.817.7471
chris.sockalexis@penobscotnation.org

Donald Soctomah, THPO
Passamaquoddy Tribe
Indian Township
P.O. Box 301
Princeton, ME 04668
207-796-5533
Soctomah@gmail.com

Marla Dana
Passamaquoddy Tribe
Pleasant Point
P.O. Box 343
Perry, ME 04667
marla@wabanaki.com

Green Lake Association

Audrey Tunney
35 Grant Street
Ellsworth, ME 04605
207-667-0291
aftunney@gmail.com

David Megquier
603 Nicolin Rd
Ellsworth, Me 04605
207-949-4116
megquier@maine.edu

Harry Moore
54 Harmony Way
Ellsworth, Me 04605
207-479-4363
hmoorembec@gmail.com

Jenkin's Beach

Raymond L. Jenkins Jr
PO Box 155
Ellsworth, ME 04605
207-266-1381
jobeach1@yahoo.com

Local Government

Ms. Michelle Beal
City Manager
1 City Hall Plaza
Ellsworth, ME 04605
(207) 669-6616
mbeal@cityofellsworthme.org

Green Lake Project 7189 PSP Distribution List

September 13, 2019

National Fish Hatchery

Oliver Cox
Hatchery Manager
1 Hatchery Way
Ellsworth, ME 04605
207-667-9531
oliver_cox@fws.gov

National Marine Fisheries Service

Dan Tierney
Protected Resources Division
Maine Field Station
17 Godfrey Drive – Suite 1
Orono, ME 04473
207-866-3755
dan.tierney@noaa.gov

Sean McDermott
Marine Habitat Resource Specialist
Hydropower Coordinator
55 Great Republic Drive
Gloucester, MA 01930
978-281-9113
sean.mcdermott@noaa.gov

U.S. Fish & Wildlife Service

Bryan Sojkowski, P.E.
Hydraulic Engineer - Fish Passage
Region 5, Fisheries
300 Westgate Center Drive
Hadley, MA 01035-9589
413-253-8645
bryan_sojkowski@fws.gov

Steve Shepard
Maine Hydro Licensing Coordinator
17 Godfrey Drive - Suite 2
Orono, ME 04473
207-866-3344
steven_shepard@fws.gov

Maine Dept of Environmental Protection

Kathy Howatt
Hydro Coordinator
17 State House Station
Ray Building - AMHI Complex
Augusta, ME 04333-0017
207-446-2642
kathy.howatt@maine.gov

Susan Bard
Regional Fisheries Biologist
317 Whitneyville Road
Jonesboro, ME 04648
207-434-5927
Susan.M.Bard@maine.gov

Maine Dept of Inland Fisheries & Wildlife

John Perry
248 State Street, 41 SHS
Augusta, ME 04333-0041
207-287-5254
john.perry@maine.gov

Gregory Burr
Regional Fisheries Biologist - Region C
317 Whitneyville Road
Jonesboro, ME 04648
207-434-5925
gregory.burr@maine.gov

Maine Dept of Marine Resources

Casey Clark
#172 State House Station
Augusta, ME 04333
207-624-6594
casey.clark@maine.gov

Maine Historic Preservation Commission

Kirk F. Mohney
State Historic Preservation Officer
55 Capitol Street
65 State House Station
Augusta, ME 04333
207-287-2132

Megan Rideout
Review & Compliance/CLG Coordinator
55 Capitol Street
65 State House Station
Augusta, ME 04333
207-287-2992
Megan.M.Rideout@maine.gov

Kleinschmidt Associates

Andrew D. Qua
Senior Regulatory Coordinator
Kleinschmidt Associates
141 Main St
Pittsfield, ME 04967
207-416-1246
Andy.Qua@KleinschmidtGroup.com

**GREEN LAKE WATER POWER CO.
PROPOSED STUDY PLAN
FOR THE GREEN LAKE HYDROELECTRIC PROJECT
(FERC NO. 7189)**



Prepared by:

**Green Lake Water Power Co.
120 Hatchery Way,
Ellsworth, ME 04605**

and

Kleinschmidt

**Pittsfield, Maine
www.KleinschmidtGroup.com**

September 2019

This page intentionally left blank.

**GREEN LAKE HYDROELECTRIC PROJECT
FERC NO. 7189
PROPOSED STUDY PLAN**

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1-1
2.0	COMMENTS ON THE PROPOSED STUDY PLAN.....	2-1
3.0	INITIAL STUDY PLAN MEETING AND ADDITIONAL MEETINGS.....	3-1
4.0	PROGRESS REPORTS, STUDY REPORTING, MEETINGS.....	4-1
5.0	REQUESTED STUDIES NOT ADOPTED.....	5-1
5.1	MHPC Surveys	5-1
5.2	Fish Passage Alternatives Study	5-4
6.0	ADDITIONAL INFORMATION REQUESTED	6-1
6.1	Fisheries Resources.....	6-1
6.2	Recreation and Land Management	6-2
7.0	INDIVIDUAL STUDY PLAN PROPOSALS	7-1
7.1	Water Quality -- Study #1	7-4
7.1.1	Goals and Objectives	7-5
7.1.2	Known Resource Management Goals.....	7-5
7.1.3	Background and Existing Information.....	7-5
7.1.4	Project Nexus	7-7
7.1.5	Methodology	7-7
7.1.6	Consistency with Generally Accepted Scientific Practice	7-10
7.1.7	Deliverables and Schedule	7-11
7.1.8	Cost and Level of Effort	7-11
7.1.9	References.....	7-11
7.2	Aquatic Habitat Cross-Section and In-stream Flow Study -- Study #2	7-12
7.2.1	Goals and Objectives	7-12
7.2.2	Known Resource Management Goals.....	7-12
7.2.3	Background and Existing Information.....	7-12
7.2.4	Project Nexus	7-13
7.2.5	Methodology Consistent with Accepted Practice	7-13
7.2.6	Deliverables and Schedule	7-14
7.2.7	Cost and Level of Effort	7-14
7.2.8	References.....	7-14
7.3	Aquatic Resources – Study #3	7-15
7.3.1	American Eel Surveys.....	7-15
7.3.2	Goals and Objectives	7-15
7.3.3	Known Resource Management Goals.....	7-15
7.3.4	Background and Existing Information.....	7-16
7.3.5	Project Nexus	7-16
7.3.6	Methodology	7-16

7.3.7	Consistency with Generally Accepted Scientific Practice	7-17
7.3.8	Deliverables and Schedule	7-18
7.3.9	Cost and Level of Effort	7-18
7.3.10	References	7-18

LIST OF TABLES

Table 4-1	Estimated Dates for Commencement and Completion of Field Work.	4-1
Table 7-1	Comparison of the Green Lake Project and the Ellsworth Project	7-1
Table 7-2	Green Lake Average Gross Income	7-1
Table 7-3	Detection limits for impoundment trophic sampling	7-8

LIST OF FIGURES

Figure 6-1	Former Tenting Area	6-5
Figure 6-2	Green Lake Nature Trails	6-6
Figure 6-3	Impoundment Access	6-8
Figure 6-4	Property boundary of the Green Lake National Fish Hatchery	6-9
Figure 7-1	Historic Secchi Disk Data	7-6

LIST OF PHOTOS

Photo 6-1	The boat ramp with extension – November 2018	6-3
Photo 6-2	Jenkin’s Beach	6-4

This page intentionally left blank.

GREEN LAKE WATER POWER CO.**GREEN LAKE HYDROELECTRIC PROJECT
FERC NO. 7189****PROPOSED STUDY PLAN****1.0 INTRODUCTION**

Green Lake Water Power Co. (Licensee) is in the process of relicensing the existing 500 Kilowatt (KW) Green Lake Hydroelectric Project (Project) with the Federal Energy Regulatory Commission (FERC). The Project (FERC P-7189) is located on Green Lake and Reeds Brook in Hancock County, Maine. The Licensee is not currently proposing any changes to the Project as part of the relicensing.

The Licensee is using FERC's Integrated Licensing Process (ILP) as established in regulations issued by FERC July 23, 2003 (Final Rule, Order No. 2002) and found at Title 18 CFR, Part 5. The Licensee filed a Pre-Application Document (PAD) and Notice of Intent (NOI) to seek a new license for the Project on March 31, 2019. The PAD provides a complete description of the Project, including its structures, operations, and potentially affected resources. Electronic copies of the PAD are available on FERC's website (www.ferc.gov).

The Licensee distributed the PAD and NOI simultaneously to Federal and state resource agencies, local governments, Native American tribes, members of the public, and others thought to be interested in the relicensing proceeding. Following the filing of the PAD, FERC prepared and issued Scoping Document 1 (SD1) on May 31, 2019. FERC also held agency and public scoping meetings on June 27, 2019 and a site visit on June 26, 2019. The FERC Process Plan and Schedule provided agencies and interested parties an opportunity to file comments on the PAD and the SD1 and request studies by July 30, 2019. The ILP and Process Plan requires the Licensee to file a Proposed Study Plan (PSP) within 45 days following the deadline for filing comments on the PAD *i.e.*, by September 13, 2019. This document contains Licensee's PSP to conduct studies to inform the relicensing process.

Section 7.0 of this PSP provides all of the individual studies proposed by the Licensee to gather additional information needed to adequately analyze the potential effects of the continued operation of the Project on project-related developmental and non-developmental resources. The following study plans are included in this PSP for implementation during the 2020 and 2021 field seasons, as appropriate:

1. Study #1 – Water Quality – Encompasses Data Requested from the Maine Department of Environmental Protection (MDEP) for Impoundment Trophic State, Impoundment Aquatic Habitat, Temperature and Dissolved Oxygen Studies and a Benthic Macroinvertebrate Survey; and from the United States National Marine Fisheries Service (US NMFS) for a Temperature and Dissolved Oxygen Study.

This study will:

- Collect temperature and dissolved oxygen (DO) samples one day per week for at least 10 weeks or measured hourly using data sondes placed at designated locations during summer low flow, high water temperature conditions (e.g. July and August). Continuous temperature loggers are to be installed at the project intake, in the bypass reach and downstream of the powerstation. DO measurements will be collected consistent with Maine Department of Environmental Protection protocols at the same monitoring sites. Both temperature and DO measurements will be collected in summer months (July and August) and be correlated with the operation of the project (i.e. generating, not generating).
- Determine if at least 75% of the littoral zone remains watered at all times using as the bottom of the littoral zone either a depth of twice the mean summer Secchi disk transparency as determined from the Trophic State data collected, or historic DEP data.
- Survey the benthic macroinvertebrate community in the downstream project area.

2. Study #2 – Water Quality – Encompasses Data Requested from MDEP for Aquatic Habitat Cross-Section Flow and from US NMFS In-stream Flow

- This study will measure width and depth at various flows in Reeds Brook to determine the flow at which at least 75% of the bank full cross-sectional area of the river is continuously watered. At least three cross-sections representative of the river will be measured. This study will also assess the relationship between project discharges, minimum flows and the quantity, quality and accessibility of various habitat types for diadromous species.

3. Study #3 - Aquatic Resources - Eel Passage Survey Requested by the United States Fish and Wildlife Service (US FWS)

- This study will gather data on eel abundance and behavior at the downstream face of the spillway and dam. Based on the results of this survey Facility Design and Siting for eel passage will be determined as needed.

Section 7.0 also provides information on the goals and objectives of each study; the relationship of the study plan to the issues identified in the PAD, SD1 and scoping process; known resource management goals; methodology; and scope, schedule and budget information as per the requirements of 18 CFR § 5.11. The purpose of this PSP is to provide FERC and the agencies with a plan providing descriptions of studies proposed by the Licensee with the intent that goals, methodology, scope, and schedule will be reviewed and refined if necessary based on the comments of agencies during the next several months and finalized in a Revised Study Plan that Licensee will file by January 11, 2020 for FERC approval.

2.0 COMMENTS ON THE PROPOSED STUDY PLAN

Comments on the Licensee's PSP (including any revised information or study requests) must be filed within 90 days of filing the PSP, by December 12, 2019. Comments must also include “an explanation of any study plan concerns and any accommodations reached with [the Licensee] regarding those concerns” (18 CFR § 5.12). Further, any proposed modifications to the Licensee’s PSP must address the criteria in 18 CFR § 5.9(b).

3.0 INITIAL STUDY PLAN MEETING AND ADDITIONAL MEETINGS

The Licensee plans to hold the initial Proposed Study Plan meeting required by the ILP (18 CFR § 5.11e) on October 10th, 2019 at 10:00 a.m. at the Ellsworth City Hall in the Council Chambers.

The purpose of the initial Proposed Study Plan meeting will be to clarify the intent and contents of the Licensee's PSP, share any initial information or study responses, and identify any outstanding issues with respect to the PSP. Additional meetings may be scheduled after the initial meeting, as necessary. The Licensee will notify the Federal and state agencies and interested parties as soon as additional meetings are scheduled.

4.0 PROGRESS REPORTS, STUDY REPORTING, MEETINGS

FERC's ILP regulations schedule the Initial Study Report for one year following FERC's study plan determination, which is anticipated to be February 9, 2021. We will provide a progress report after 6 months, in August 2020, and then we will file the study reports in February 2021. The study reports will be filed with FERC as one package at that time and the Project distribution list will be notified. We will have the reports package available on our website as well – www.GreenLakeWaterPower.com

As needed, the Licensee will file updated study reports within the time limits provided in 18 CFR § 5.15(f). The estimated start and completion dates for studies are provided in Table 4-1:

Table 4-1 Estimated Dates for Commencement and Completion of Field Work.

Resource	Study	Steps for Conducting the Study	Estimated Start Date	Estimated Completion Date
Water Quality				
Study 1	Impoundment Trophic State, Impoundment Aquatic Habitat, Downstream Temperature and Dissolved Oxygen and Benthic Macroinvertebrate Survey	Consultation with MDEP at Proposed Study meeting	October-19	October-19
		Data Collection	June-20	October-20
		Data Analysis	October-20	December-20
		Report Preparation	December-20	February-21
Study 2	Aquatic Habitat Cross-Section and In-stream Flow Study	Consultation with MDEP at Proposed Study meeting	October-19	October-19
		Data Collection	June-20	October-20
		Data Analysis	October-20	December-20
		Report Preparation	December-20	February-21

Resource	Study	Steps for Conducting the Study	Estimated Start Date	Estimated Completion Date
Aquatic Resources				
Study 3	Eel Passage Survey	Consultation with US FWS at Proposed Study meeting	October-19	October-19
		Data Collection	June-20	October-20
		Data Analysis	October-20	December-20
		Report Preparation	December-20	February-21
Cultural Resources				
		Consultation with MHPC at Proposed Study meeting	October-19	October-19

5.0 REQUESTED STUDIES NOT ADOPTED

As required by 18 CFR § 5.11(b)(4), if the Licensee does not adopt a requested study, an explanation of why the request was not adopted, with reference to the criteria set forth in § 5.9(b) must be included in the PSP.

5.1 MHPC Surveys

The Maine Historic Preservation Commission (MHPC) has requested the following three studies:

1. “An architectural survey is recommended to identify and record information on all resources within the area of potential effect (APE) that are at least 50 years old.”
2. “The Green Lake impoundment margins must be subject to a Phase I archaeological survey including subsurface testing in appropriate locations to identify all archaeological sites around the impoundment margin that might erode over the term of the license. “
3. “Phase II (site assessment) field work might also be necessary depending on the result from the Phase I survey.”

Referencing §5.9(b), very little of the required information has been included in the study requests. MHPC Study Request 2 did contain some of the §5.9(b)(4) information:

“Approximately 5% of the Green Lake impoundment margin has been subjected to professional archaeological survey. One prehistoric archaeological site is already known on the impoundment margin.”

In preparing this PSP, we found the following information:

From the Green Lake Water Power Project Application for a License for a Minor Power Project – dated April 1983:

(vii) Historic and Archaeological Resources

The MHPC has identified several prehistoric Indian archaeological sites along the western shore of Graham Lake near Reeds Brook. The sites contain scattered prehistoric stone tools deposited in mud beneath the water surface.

A letter from the MHPC, dated September 14, 1981, addressed to Mr. Frank Dunlap at Kleinschmidt and Dutting, regarding the Green Lake Hydroelectric Project, that states:

Dear Mr. Dunlap,

My staff archaeologist, Dr. Arthur Spiess, has carefully field checked the project area for the proposed Green Lake Hydroelectric Project. There are archaeological sites nearby, but they are outside the project impact area.

I find that this project will have no effect upon any structure or site of historic, architectural, or archaeological significance as defined by the National Historic Preservation Act of 1966.

Signed by Earle G. Shettleworth, Jr
State Historic Preservation Officer

An image of the letter is included below.

We intend to work with the MHPC to agree on the Area of Potential Effect and to determine the extent of studies needed in consideration of historic information and MHPC's prior conclusions in the original licensing process. We will include this information in our Revised Study Plan.



MAINE HISTORIC PRESERVATION COMMISSION
55 Capitol Street
Augusta, Maine 04333

Earle G. Shettleworth, Jr.
Director

REC'D SEP 15 1981
KLEINSCHMIDT & DUTTING

Telephone
207-289-21

September 14, 1981

Mr. Frank H. Dunlap
Kleinschmidt and Dutting
75 Main Street
P. O. Box 76
Pittsfield, Maine 04967

re: Green Lake Hydroelectric Project, FERC #4894

Dear Mr. Dunlap:

My staff archaeologist, Dr. Arthur Spiess, has carefully field checked the project area for the proposed Green Lake Hydroelectric Project. There are archaeological sites nearby, but they are outside the project impact area.

I find that this project will have no effect upon any structure or site of historic, architectural, or archaeological significance as defined by the National Historic Preservation Act of 1966.

If I can be of further assistance concerning this matter, please do not hesitate to let me know.

Sincerely,


Earle G. Shettleworth, Jr.
State Historic Preservation Officer

EGS/s1m

5.2 Fish Passage Alternatives Study

The NMFS has requested a Fish Passage Alternatives Study. The Licensee does not see that there is a basis for investing the significant time and money required for this while there are clearly opposing positions between the state and federal resource agencies regarding fisheries management goals and objectives.

In comments on the PAD, MDIFW's filing of June 26, 2019 states the agency actively manages Green Lake for native and indigenous species that would be heavily at risk of exposure to invasive species that are currently unable to migrate past the project. This is counter to NMFS stated restoration objectives for Atlantic salmon and alosine species to the watershed, including providing access to Green Lake.

Furthermore, in comments filed with the study request, NMFS states: "we note that project decommissioning with dam removal is the only alternative that would completely eliminate the threat to Atlantic salmon and their critical habitat posed by the Green Lake Project." GLWP notes the following:

- 1) Removal of the dam would jeopardize the water supply to the GLNFH. During the initial Project licensing process a minimum lake level restriction of 158.0 feet USGS was imposed until the penstock tap was complete because of insufficient flow capability into the GLNFH at levels lower than that. The sill elevation of the sluice gates at the dam is 154 feet USGS, providing a very rough estimate of the water level elevation of Green Lake after dam removal. With Green Lake at a level of 154 feet, the GLNFH water supply inflow head would be four feet lower than their stated requirement.
- 2) NOAA's *Endangered and Threatened Species: Determination of Endangered Status for the Gulf of Maine Distinct Population Segment of Atlantic Salmon* (Federal Register/ Vol. 74, No. 117/Friday, June 19, 2009, page 29344) states: "We (NMFS and USFWS) collectively referred to as the Services) have determined that naturally spawned and conservation hatchery populations of anadromous Atlantic salmon (*Salmo salar*) whose freshwater range occurs in the watersheds from the Androscoggin River northward along the Maine coast to the Dennys River, ... constitute a distinct population segment (DPS) ... the Gulf of Maine (GOM) DPS warrants listing as endangered under the Endangered Species Act (ESA)." The GLNFH contains hatchery populations of eight river specific strains of Atlantic salmon for its Atlantic salmon recovery efforts.
- 3) The NMFS has a goal of recovering a self-sustaining fish population of Atlantic salmon. They state that the removal of Green Lake Dam is the most beneficial outcome of the relicensing process towards that goal.
- 4) Because of the above, the NMFS appears to be advocating an action which GLWP believe is likely to jeopardize the continued existence of any endangered species or threatened species, and thus threatens to contravene Section 7 of the Endangered Species Act.

Therefore, we believe the NMFS Fish Passage Alternative Study has not been proven to be needed nor is it appropriate.

6.0 ADDITIONAL INFORMATION REQUESTED

In a letter submitted on 29th July 2019 in Schedule A, FERC requested additional information on the Project. The Licensee's responses to additional information requests are contained herein.

6.1 Fisheries Resources

1. Section 6.1.3 of the PAD states that landlocked salmon spawn in the tributaries of Green Lake, but provides no other information regarding when and where salmon spawn. In addition, section 6.1.3 of the PAD states that Arctic char are present in Green Lake, but provides no other information regarding Arctic char spawning behavior at the project. So that staff can better understand the potential effects of the annual impoundment drawdown on landlocked salmon and Arctic char, please identify to the extent possible: (1) the tributaries where landlocked salmon spawn, (2) the locations within those tributaries where salmon spawning occurs (e.g., near the mouth of the tributary or the approximate distance upstream of Green Lake), (3) the locations in Green Lake where Arctic char spawn, and (4) the approximate dates of the spawning period for the Green Lake population of each species.

Provided by: John Perry, MDIFW

Green Lake supports one of the four original 4 wild landlocked salmon strains in Maine. This spawning has historically occurred in these sections of the stream well before the dam was put in and the current lake levels have very little influence on spawning success.

(1) TRIBUTARIES WHERE LANDLOCKED SALMON SPAWN

Landlocked salmon spawn in the following tributaries to Green Lake: Mann Brook, Jellison Brook, Great Brook and Sucker Brook.

(2) THE LOCATIONS WITHIN THOSE TRIBUTARIES WHERE SALMON SPAWNING OCCURS

Landlocked salmon mainly spawn in the lower quadrants of each of those tributaries where the substrate is appropriate (no exact distances, just in the lower reaches of these tributaries). As stated earlier, we do not think that the project operations are impacting landlocked salmon spawning in the tributaries.

(3) THE LOCATIONS IN GREEN LAKE WHERE ARCTIC CHAR SPAWN

Regarding char: we do not know where char spawn in Green Lake. That said, staff are currently in the process of resurveying Green Lake for char, and we'll share whatever information we get from our surveys as soon as it is available.

(4) THE APPROXIMATE DATES OF THE SPAWNING PERIOD FOR THE GREEN LAKE POPULATION OF EACH SPECIES

The timing of salmon spawning happens between the last week in October and the middle of November.

We do not know when char spawn in Green Lake. In nearby Flood's Pond they generally spawn between October 20 and November 7, so we expect similar timing at Green Lake.

6.2 Recreation and Land Management

2. Section 5.7.1 of the PAD discusses the existing project recreation opportunities and use.

However, the PAD does not contain detailed information about the beach and boat launch site provided by the City of Ellsworth. To the extent possible, please provide information on any fees required to use this site and the amenities provided by the City of Ellsworth (e.g., restrooms, kiosks, parking areas, boat rentals, snack bar, etc.).

THE AMENITIES PROVIDED BY THE CITY OF ELLSWORTH

Provided by Audrey Tunney, GLA Chairman

“The city of Ellsworth provides a porta-potty and a roped off swimming area at the boat launch and public landing. There is a parking area provided. There are no fees to use the boat launch or swimming area. There are no boat rentals, kiosks or snack bars provided.”

3. Section 5.7.2.2 of the PAD discusses the beach and boat launch maintained by the City of Ellsworth. It states that improvements to the beach and boat launch to increase access to Green Lake are being implemented in 2019. To the extent possible, please provide details on the City of Ellsworth's planned improvements to the site. In addition, to the extent possible, please provide details about the access issues boaters experience during periods of low water and how the improvements are expected to provide better access.

THE CITY OF ELLSWORTH'S PLANNED IMPROVEMENTS TO THE SITE

Provided by Lisa Sekulich, City of Ellsworth Public Works Director:

“In late 2018 the city extended the concrete boat launch ramp approx. 25 ft to help with the accessibility in the fall when water levels drop dramatically. In 2019/2020 we hope to purchase additional float docks to coincide with the extended concrete launch, to further help with this problem.

“The 25 ft extension resulted in an additional approx. 2 ft of additional depth, this will not guarantee that the ramp is usable in the fall when you do a draw down, as different boats have different requirements. Since this is new we haven't seen exactly what it will mean in the fall yet.”

ACCESS ISSUES BOATERS EXPERIENCE DURING PERIODS OF LOW WATER

“The issue in the fall is that prior to installing the additional 25 ft of launch, sometime in the fall the entire or majority of the existing launch would be out of the water so that removing boats was next to impossible.”



Photo 6-1 The boat ramp with extension – November 2018

4. Section 5.7.1 describes the existing project recreation at Green Lake. It states that there are two private beaches at the north end of the impoundment, and a tenting area on the east side of the impoundment. To the extent possible, please provide information on who owns and maintains these recreation areas, and who has access to these facilities.;

Provided by: Audrey Tunney, GLA Chairman

“The two beaches at the north end of the lake are privately held and open to public use.

JENKIN’S BEACH:

The larger of the two is Jenkin’s Beach, owned by Raymond J. Jenkins. There is a fee to use the beach and a fee to launch boats. A small snack shack is available.



Photo 6-2 Jenkin’s Beach

MARSHMALLOW BEACH:

The other beach at the north end of the lake is currently owned by Gregory Barrows and Jeff Schlacter (sp?). They welcome public use of this small beach for swimming and picnicking. The beach has had several names over the years, the most current one being Marshmallow Beach.”

Provided by: Larry Gardner, CMA – City Assessor / 911 Addressing Officer

TENTING AREA:

“In Ellsworth, just a few years ago, at 77 Green Lake Camping Way, we did have a shorefront camper trailer RV park and tenting area, but that is no longer operational.

We do not know if it will ever be operational again. [M&M Truck Sales] purchased in 2016, via a foreclosure auction, and has not applied for a permit to make it operational.”

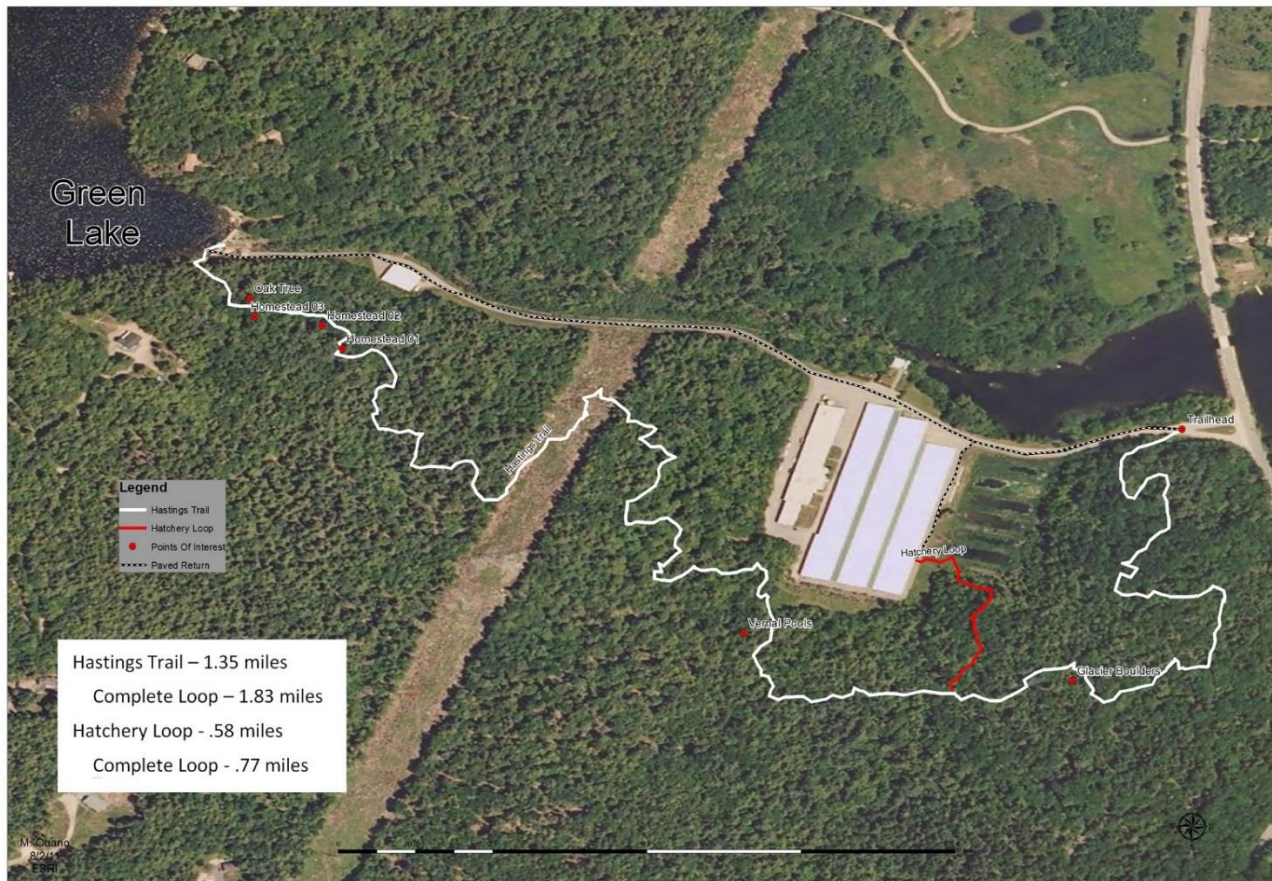


Figure 6-1 Former Tenting Area

5. Section 5.7.5 of the PAD discusses land use and management of project lands. It states that there is a footpath owned and maintained by the U.S. Fish and Wildlife Service as part of the Green Lake National Fish Hatchery. To the extent possible, please provide more information on the trail route, access points, and any access to the impoundment that is provided by the footpath. Please also provide any existing map illustrating the property boundary of the Green Lake National Fish Hatchery along the shoreline of Green Lake.

Provided by: Oliver Cox, USFWS GLNFH and the GLNFH website

Green Lake Nature Trails



This is the sign that greets visitors at the main gate.

Figure 6-2 Green Lake Nature Trails

TRAIL ROUTES

Most hikers will begin their hike at the Hastings Trail directly from the kiosk at the parking area before the gate. This well-built trail is blazed with green diamond markers and features a few bridges, excellent rock steps, and two informational signs. It passes by glacial erratics and cellar holes which are evidence of homesteads in the 1800s. The trail ends at Green Lake where users will find a bench and sign providing information about aquatic ecosystems.

From there, take the steps down to the paved road, which can be walked back to the parking area. Stop by the Visitor Viewing Area to learn more about the salmon stocking program and to see young salmon swimming in tanks.

For the shorter Hatchery Loop trail (red diamond markers), hikers may first hike down the road toward the Hatchery and then turn left immediately after the open-air ponds. After the ponds, look for a bee nesting box with a red diamond marker on it -- this is where the trail begins. At the intersection with the Hastings Trail, turn left to walk back to the gate and parking area. This hike is a nice way to see the hatchery grounds, learn about glacial erratics, and enjoy some quiet time in the forest.

ACCESS POINTS

The primary access point to the trails is at the kiosk in the parking area before the gate.

IMPOUNDMENT ACCESS

There is no access to the impoundment from the footpath.

This map shows the spur out to the lake (the blue line) where the bench is. Hikers can look out over the lake but the shore is steep ledge and there is no practical access to Green Lake from GLNFH land.



Figure 6-3 Impoundment Access



Figure 6-4 Property boundary of the Green Lake National Fish Hatchery

Source: City of Ellsworth, Maine, Web GIS Maps and Online Property Information
<http://www.mainstreetmaps.com/me/ellsworth/public.asp>. Base Map: Google Satellite

7.0 INDIVIDUAL STUDY PLAN PROPOSALS

Background:

We believe a bit of context could be useful in understanding the studies appropriate to the relicensing of the Green Lake Water Power Project (the Project). For a sense of scale, a comparison of the Green Lake Project with the Ellsworth Project (FERC P-2727) is contained in the following table:

Table 7-1 Comparison of the Green Lake Project and the Ellsworth Project

Category	Green Lake	Ellsworth	Ratio
Nameplate Capacity	0.425 mW	8.9 mW	4.7%
Drainage Area	45 sq mi	547 sq mi	8.2%
Average Annual Generation	1,657 MWh	30,511 MWh	5.4%
Reservoirs	2,989 acres	10,090 acres	29.6%
Drawdown	3.2 ft	10.8 ft (Graham Lake)	29.6%
Storage	10,000 acre-ft	125,000 acre-ft	14.0%

The Green Lake Project is a very small hydroelectric installation—tiny by utility standards. Its licensed capacity is 500 kW, with one 400 kW fixed operating point unit and one 25 kW fixed operating point unit. With one large unit and one very, very small one, there are essentially two flow states in the Project tailrace: 1) with the main unit on, 2) with the main unit off.

The following table gives an idea of what we are paid for the electricity we generate. It shows the Emera Short-Term Energy-Only Avoided Costs (what we get paid per KWh) for the last 5 years and that value multiplied by our average annual generation.

Table 7-2 Green Lake Average Gross Income

Year	Avg Rate (Cents/KWh)	Avg. Project Gross Income
2015	3.461	\$57,349
2016	3.591	\$59,503
2017	3.010	\$49,876
2018	4.222	\$69,959
2019	4.359	\$72,229
Average:	3.729	\$61,783

The income figures above are before taxes, employee payroll, insurance, equipment, supplies and maintenance and upgrade costs. The Project obviously does not make a large amount of money—though it does, with careful management, cover its expenses and make a profit.

However, the Project does have other benefits that add to the social and environmental “income” of the Project:

- 1) It helps the Green Lake National Fish Hatchery pursue its goals of restoring Atlantic salmon.
- 2) It produces clean, renewable energy.
- 3) It maintains and operates the Green Lake Dam, summer and winter, good weather and bad.
- 4) It manages the water level in Green Lake on a daily basis for a range of recreational, environmental and other interests, despite varying weather conditions.
- 5) It maintains a minimum flow in Reeds Brook that is much less subject to impact by unusually dry periods.

We believe the benefits of the Green Lake Project can outweigh the costs and effort involved in continuing its existence. The above information is important to consider in assessing an appropriate cost and level of effort for studies as well as the nexus between the Project operations and effects on the resources to be studied. GLWP notes that the majority of study requests do not identify specific costs but rather cite the cost would be similar to other relicensings in the state/region. The Project may have to go through the same relicensing process as a large project, but that does not mean it *is* a large project or that the scale of studies for a large project are necessary or appropriate.

We look forward to working with the resource agencies and all other interested parties to work out how information needed for the project to be relicensed can be acquired in a frugal and efficient manner, increasing the likelihood that the Project will succeed.

Potential GLNFH Effects on Studies:

The Green Lake National Fish Hatchery (GLNFH) has a discharge permit for effluent into Reeds Brook/Graham Lake. The latest permit is MEPDES Permit #ME0002623, dated August 3, 2015.

In this permit the GLNFH, Special Conditions C. *AUTHORIZED DISCHARGES* states the permittee is authorized to discharge from Outfalls #001A and #002A. Per 2. *PERMIT SUMMARY, d. Wastewater Treatment*, Outfall #001A is the discharge from the wastewater settling ponds into a Section of Reeds Brook directly influenced by Graham Lake. Per 2. *PERMIT SUMMARY, c. Source Description/Facility Operation*, Outfall #002A is filter

backwash water from the GLNFH intake water treatment facility which is discharged via a 14 inch pipe directly into Reeds Brook. This discharge pipe is approximately 480 feet downstream from the Green Lake dam.

In the permit section *SPECIAL CONDITIONS, H. PESTICIDES AND OTHER COMPOUNDS*, the following compounds were identified in the permittee's application as currently being in use, and the permittee is authorized to discharge them: salt, baking soda, Lysol no-rinse sanitizer, PVP iodine. Section *G. USE OF DRUGS FOR DISEASE CONTROL* notes that formalin and Tricaine-S (Fish anesthetic) are also in use by GLNFH and authorized for discharge, in addition to other drugs, as long as the drugs and their uses are approved by the FDA. This section also specifies what conditions must be met for other drugs to be used.

We are concerned that the discharge of disinfectants, drugs and other chemicals by the GLNFH could interfere with studies in Reeds Brook and conceivably the Project tailrace (such as a macroinvertebrate study). It would be unfortunate if an extremely rare or one-time discharge of a substance happened to occur upstream of a macroinvertebrate collector during a sampling period.

We believe there must be coordination between the Project, the GLNFH, Maine DEP and any other involved agencies to verify that studies measure normal conditions and not unusual outside influences such as hatchery discharge of disinfectants or drugs.

Study Requests:

The Licensee is proposing several studies to address resources for which insufficient information was previously available for the PAD or for which specific issues have been identified through agency comments. The individual study plans detailed below are proposed for the Green Lake Project relicensing and most will commence in the summer of 2020. The Licensee proposes that most studies, unless otherwise noted in individual plans, be completed in a single field season and that a second field season for individual studies may only be required after evaluation of the Initial Study Report.

7.1 Water Quality -- Study #1

Green Lake Classification:

Green Lake is an Oligotrophic Class GPA water body. The Green Lake Project impoundment is a water storage facility in character.

Definition: 5. Great ponds. "Great ponds" means any inland bodies of water which in a natural state have a surface area in excess of 10 acres and any inland bodies of water artificially formed or increased which have a surface area in excess of 30 acres.

1. Class GPA waters. Class GPA is the sole classification both of great ponds and of natural lakes and ponds less than 10 acres in size.

A. Class GPA waters must be of such quality that they are suitable for the designated uses of drinking water after disinfection, recreation in and on the water, fishing, agriculture, industrial process and cooling water supply, hydroelectric power generation, navigation and as habitat for fish and other aquatic life. The habitat must be characterized as natural. [2003, c. 227, §5 (AMD); 2003, c. 227, §9 (AFF); 2005, c. 561, §10 (AFF).]

B. Class GPA waters must be described by their trophic state based on measures of the chlorophyll "a" content, Secchi disk transparency, total phosphorus content and other appropriate criteria. Class GPA waters must have a stable or decreasing trophic state, subject only to natural fluctuations, and must be free of culturally induced algal blooms that impair their use and enjoyment. The number of *Escherichia coli* bacteria in these waters may not exceed a geometric mean of 29 CFU per 100 milliliters over a 90-day interval or 194 CFU per 100 milliliters in more than 10% of the samples in any 90-day interval. [2017, c. 319, §10 (AMD).]

Reeds Brook Classification:

Reeds Brook, partially fed by bypass dam leakage flow of 1-cfs from the Project is classified as Class B water to the confluence of Graham Lake.

Class B waters must be of such quality that they are suitable for the designated uses of drinking water after treatment; fishing; agriculture; recreation in and on the water; industrial process and

cooling water supply; hydroelectric power generation; navigation; and as habitat for fish and other aquatic life. The habitat must be characterized as unimpaired.

The dissolved oxygen content of Class B waters may not be less than 7 parts per million or 75% of saturation, whichever is higher, except that for the period from October 1st to May 14th, in order to ensure spawning and egg incubation of indigenous fish species, the 7-day mean dissolved oxygen concentration may not be less than 9.5 parts per million and the 1-day minimum dissolved oxygen concentration may not be less than 8.0 parts per million in identified fish spawning areas.

Discharges to Class B waters may not cause adverse impact to aquatic life in that the receiving waters must be of sufficient quality to support all aquatic species indigenous to the receiving water without detrimental changes in the resident biological community.

7.1.1 Goals and Objectives

The objectives of the suite of studies, including impoundment trophic state, impoundment aquatic habitat, temperature and dissolved oxygen, and benthic macroinvertebrate, are to collect contemporary water quality data in Green Lake and Reeds Brook upstream and downstream of the Green Lake dam to determine whether the Project waters meet MDEP's water quality standards and maintain the structure and function of the resident benthic macroinvertebrate community.

7.1.2 Known Resource Management Goals

The resource management goal is to ensure attainment of Maine Water Quality Standards pursuant to the provisions of the *Water Classification Program*, 38 M.R.S. Sections 464- 468 and to certify attainment of such, with any necessary conditions, under Section 401 of the Federal Water Pollution Control Act (a.k.a. Clean Water Act).

7.1.3 Background and Existing Information

Water Quality has been being monitored and recorded in Green Lake since the early 1970s (at least 1974). The Green Lake Association contributes to this. The information is available on the Lakes Of Maine web site (<https://www.lakesofmaine.org>). The downloadable Spreadsheet

describes Green Lake as having above average water quality and as Oligotrophic (as in low productivity).

We are compiling the specifics for the criteria required for Water Quality for a Class GPA lake and we will coordinate with the Maine DEP to determine any additional data gathering needed.

Currently we have data from the LakesOfMaine website that shows that the Secchi Disk Transparency has improved from an average in 1974 of 6.7 meters to an average in 2018 of 8.5 meters.

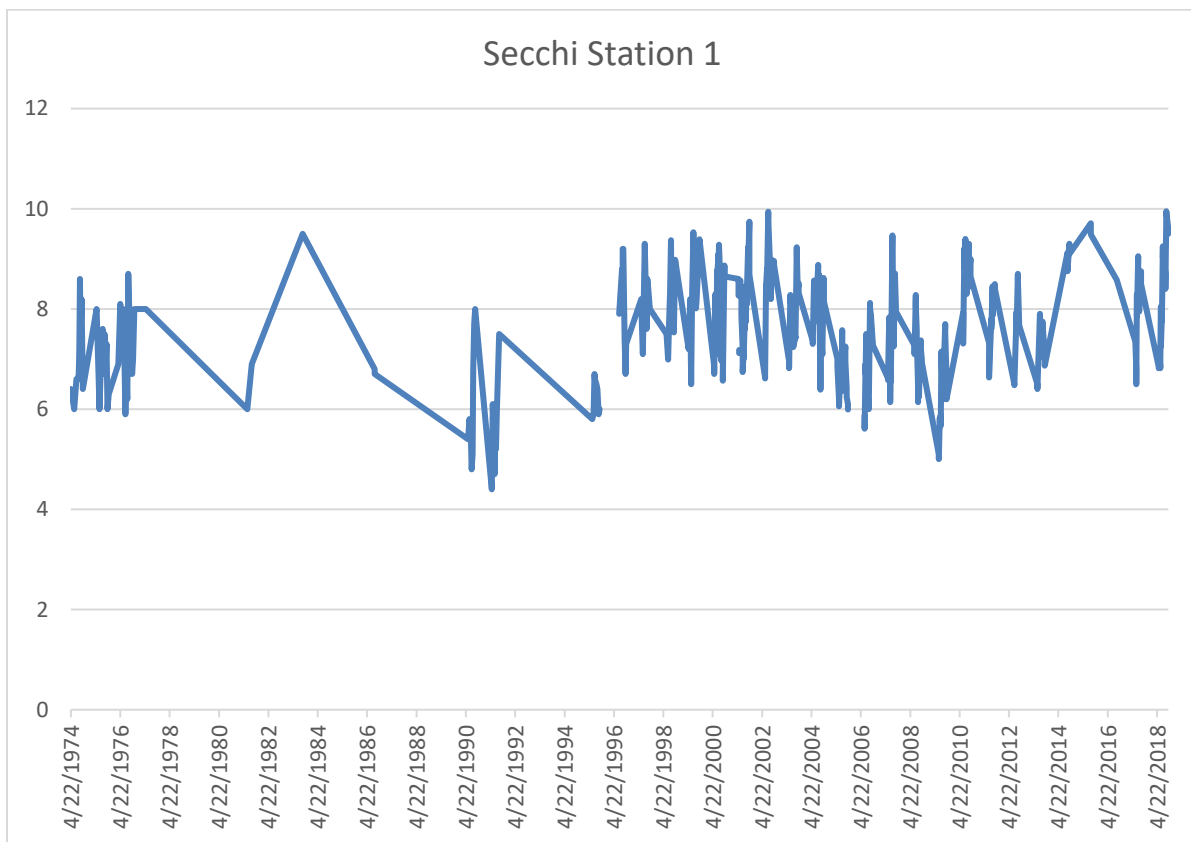


Figure 7-1 Historic Secchi Disk Data

Total Phosphorus on the surface in 1974 was 3.5 (g/L) and in 2012 it was 3.5 (g/L)

Average Chlorophyll-a in 1981 was 1.7 (g/L) and in 2016 it was 1.6 (g/L)

Dissolved Oxygen in September 1976 at 0 meters with a temperature of 17.8C was 9.2 ppm and at 20 meters with a temperature of 6.3 C was 9.3 ppm – in September 2018 at 0 meters with a temperature of 23.9C was 7.9 ppm and at 20 meters with a temperature of 5.8C was 10.3 ppm.

The data in the MaineLakes_Geography_Morphometry spreadsheet states “Also included is the Maine Department of Environmental Protection (MDEP) trophic state assessment for each surveyed lake.’ For Green Lake the data for the Water Quality Statement is “Above average”.

This data appears to show that we have a “stable or decreasing trophic state.”

7.1.4 Project Nexus

Data collected will identify trophic state and aquatic habitat of Project waters and will be used to evaluate effects on water temperature and DO concentrations in Reeds Brook downstream of the Green Lake dam and may identify stratification effects on the impounded water and habitat. Information will be used to evaluate whether the project meets Maine water quality parameters, which will inform the water quality certification process.

7.1.5 Methodology

7.1.5.1 Impoundment Trophic State Study

Lake trophic sampling will be conducted in accordance with the MDEP’s 2018 Sampling Protocol for Hydropower Studies (MDEP 2018). Sample parameters will include Secchi disk transparency, water temperature and DO profiles (1-meter intervals), and epilimnetic core samples of total phosphorus, chlorophyll-a, color, pH, and total alkalinity. GLWP will sample from the deepest, safely accessible spot in the impoundment upstream of the boat barrier twice per month for five consecutive months (June through October 2020). GLWP will install a buoy to mark the location for the remainder of the monitoring season. GLWP will consult with MDEP regarding the location of the lake trophic sample site.

Additional lake trophic and dissolved metal analyses will be collected during one of the late summer sampling events (typically in August, but dependent on weather conditions). The late summer sample parameters will include total phosphorus, nitrate, chlorophyll-a, color, dissolved organic carbon, pH, total alkalinity, total iron, total and dissolved aluminum, total calcium, total magnesium, total sodium, total potassium, specific conductance, chloride, and sulfate. The late season sample will be completed regardless of whether the impoundment stratifies; if the waterbody is thermally stratified (i.e., change in water temperature $T \geq 1^{\circ}\text{C}/\text{meter}$), samples will be collected (1) from an epilimnetic core, (2) at the top of the hypolimnion, and (3) at one meter above the sediment. Samples will be collected with an epilimnetic core or a Van Dorn sampler,

or equivalent. If the waterbody is not thermally stratified, only one sample from an integrated epilimnetic water core will be taken from the surface to two times the Secchi disk depth or within 1 meter of the bottom, whichever is less.

Water samples will be delivered on ice to the state of Maine's Health and Environmental Testing Laboratory (HETL) in Augusta (or other qualified lab) within 24 hours of sampling. Appropriate chain-of-custody and sample labeling techniques will be followed. HETL's laboratory detection limits differ slightly from the detection limits identified in MDEP's sampling protocol; however, MDEP has reviewed and approved the HETL detection limits in identical water quality studies at hydropower projects in Maine. Table 7-3 provides the lab detection limits required by the MDEP and the proposed HETL detection limits.

Table 7-3 Detection limits for impoundment trophic sampling

Parameter	MDEP Detection Limit	Proposed HETL Detection
Total phosphorus	0.001 MG/L	0.002 MG/L*
Nitrate	0.01 mg/l	0.05 mg/l*
Chlorophyll a	0.001 mg/l	0.001 mg/l
Color	1.0 SPU	5.0 SPU*
DOC	0.25 mg/l	1.0 mg/l*
pH	0.1 SU	0.1 SU
Total alkalinity	1.0 mg/l	1.0 mg/l
Total iron	0.1 mg/l	0.2 mg/l*
Total dissolved aluminum	0.01 mg/l	0.2 mg/l*
Total calcium	1.0 mg/l	1.0 mg/l
Total magnesium	0.1 mg/l	1.0 mg/l*
Total sodium	0.05 mg/l	1.0 mg/l*
Total potassium	0.05 mg/l	1.0 mg/l*
Specific conductance	1 ms/cm	2 ms/cm*
Chloride	1.0 mg/l	1.0 mg/l
Sulfate	0.5 mg/l	1.0 mg/l*

* Detection limit differs from MDEP sampling protocol.

Water temperature and DO will be measured with a handheld YSI ProODO meter (or similar). The calibration of the YSI ProODO meter will be checked in the field prior to each sampling event. According to the manufacturer's specifications, the accuracy of the YSI ProODO meter is ± 0.1 mg/L or $\pm 1\%$ of the reading, whichever is greater, for the DO concentration; $\pm 1\%$ air saturation or $\pm 1\%$ of the reading, whichever is greater, for DO percent saturation; and $\pm 0.2^\circ\text{C}$ for temperature.

7.1.5.2 Impoundment Aquatic Habitat Study

For lakes, ponds, and riverine impoundments, determination of attainment of the designated use ‘habitat for fish and other aquatic life’ will be determined as follows. Using a depth of twice the mean summer Secchi disk transparency, determined from the Trophic State Study or historic DEP data, as the bottom of the littoral zone, the volume and surface area dewatered by the drawdown will be calculated to determine if at least 75% of the littoral zone remains watered at all times. Alternatively, studies of fish and other aquatic life communities, including freshwater mussels, may be conducted to demonstrate that the project maintains ‘structure and function of the resident biological community’ even if a drawdown results in less than 75% of the littoral zone remaining watered at all times. Existing Secchi disk information (see section 7.1.3) suggests that it is unlikely that an analysis of the Impoundment Trophic State Study results will indicate less than 75% of the littoral zone remains watered at all times. The maximum drawdown of Green Lake is approximately one meter.

7.1.5.3 Downstream Temperature and Dissolved Oxygen

GLWP will monitor water temperature and DO downstream of the Project structures with one or more submersible Onset Hobo datasonde(s) (or similar) in accordance with MDEP’s 2018 Sampling Protocol for Hydropower Studies (MDEP 2018). The datasonde(s) will be installed at the location(s) determined through consultation with MDEP representative of the main flow. Each datasonde will be deployed from an anchored buoy and weighted cable system or attached to a vertical mounting post, will be encased in a flow-through PVC container, and will be equipped with a bio-fouling guard. The datasonde will be programmed to continuously measure water temperature and DO every hour during July and August to sample the low flow, high temperature period. The instrument will be calibrated at the beginning of the monitoring period and at periodic intervals, as needed, per the manufacturer’s specifications. The equipment will be checked, and the data will be downloaded every other week.

Prior to deploying each datasonde, GLWP will measure water temperature and DO at quarter points along brook/tailrace transect at the desired sampling location. If there is no violation of DO criteria and no significant (<0.4 mg/L) difference in concentration among the quarter points, the datasonde will be deployed at a location representative of the main flow. If there is more than

a 0.4 mg/L difference in the DO measurements, the datasonde will be placed in the location of the lowest concentration and the location of the main flow below the powerhouse.

GLWP will consult with MDEP regarding the sample location(s). If many sample locations are required, a one day per week sampling regime (per MDEP 2018) might be used.

7.1.5.4 Benthic Macroinvertebrate Study

GLWP will employ a qualified researcher to sample the benthic macroinvertebrate community in the Reeds Brook bypass and downstream of the confluence of the bypass and tailrace. The sampling will be conducted in accordance with the MDEP Methods for Biological Sampling and Analysis of Maine's Rivers and Streams (Davies and Tsomides 2014). Wading and/or snorkeling will be used as needed to rapidly bioassess the habitats to find suitable sample sites (hard eroded substrates in flowing water). The researcher will install rock-filled wire baskets/mesh bags for a period of $28 \pm$ four days during the late summer, low flow period (July 1 to September 30).

Laboratory methods will include sorting the entire sample for invertebrates and identification to genus or species as practicable. Data will be organized in order that it can be submitted to MDEP for input into the statistical model which uses linear discriminate functions to classify sampling sites according to the standards in the aquatic life use classification system. The Division of Environmental Assessment at MDEP uses a linear discriminant water quality model (LDM) and professional judgment to determine attainment of water quality class. The LDM results are percentages indicating the probability of a site attaining water quality Class A and AA (the biocriteria requirements are the same), B, or C. To attain a particular class, a site must have a 60% or greater score in the test for that class. The MDEP linear discriminant model is able to classify benthic macroinvertebrate communities to Class A aquatic life standards; a Class A determination will also indicate that Class AA standards are attained because the aquatic life criteria for both classes are the same.

7.1.6 Consistency with Generally Accepted Scientific Practice

This study employs generally accepted practices for evaluating water quality at hydroelectric projects. Sampling protocols are based on water quality parameter standard operating procedures (SOP's) developed by the MDEP's "Sampling Protocol for Hydropower Studies – June 2018"

and those detailed in the MDEP “Methods for Biological Sampling and Analysis of Maine’s Rivers and Streams” (Davies and Tsomides 2002).

7.1.7 Deliverables and Schedule

The data gathering will be conducted from June through October. A progress report will be filed in August 2020 and the data and results will be summarized in the Initial Study Report which will be filed with FERC in the Spring of 2021.

7.1.8 Cost and Level of Effort

The estimated cost to conduct this study is \$50,000.

7.1.9 References

Maine Revised Statutes. 2017. 38 MRSA §480-B. URL: [1987, c. 809, §2 (NEW) .]
<http://legislature.maine.gov/statutes/38/title38sec480-B.html>

www.LakesOfMaine.Org spreadsheet MaineLakes_Geography_Morphometry.xls

Maine Department of Environmental Protection (MEDEP). 2011. 2010 Integrated Water Quality Monitoring and Assessment Report. DEPLW-1187.

Maine Revised Statutes. 2017. 38 MRSA §465-A. URL:
<http://www.mainelegislature.org/legis/statutes/38/title38sec465-A.html>

Maine Revised Statutes. 2017. 38 MRSA §465. URL:
<http://www.mainelegislature.org/legis/statutes/38/title38sec465.html>

MDEP (2018) - Methods for Biological Sampling and Analysis of Maine’s Rivers and Streams, DEP LW0387- B2002.

www.maine.gov/dep/water/monitoring/biomonitoring/material.html

Davies, S. P. and L. Tsomides. 2014. Methods for Biological Sampling and Analysis of Maine’s Rivers and Streams. Maine Department of Environmental Protection, Bureau of Land and Water Quality/ DEP LW0387-C2014, Revised April 2014.

7.2 Aquatic Habitat Cross-Section and In-stream Flow Study -- Study #2

Two versions of this study were requested by the Maine DEP (aquatic habitat cross-section) and the NMFS (in-stream flow). GLWP proposes variation of these studies consistent with those conducted at other hydropower projects in Maine to characterize habitat and flow conditions in Reeds Brook.

This study requires releasing water from Green Lake via one of the gates at the dam. Per the current Project license, GLWP is not allowed to use or release water from the dam if the lake level is at or below the minimum level for the season in question. During a very dry summer, this could preclude performing this test during late summer.

7.2.1 Goals and Objectives

Assessment of aquatic habitat downstream of the Green Lake dam is required to determine whether current in-stream flow releases meet Maine habitat and aquatic life criteria. An aquatic habitat cross-section flow study measures depth, velocity, and wetted width along established transects at various discharges to determine flows where at least 75% of the stream cross-sectional area has enough water to provide sufficient habitat for fish and other aquatic organisms. Data will be evaluated to determine if the downstream waters provide sufficient quantity of water to maintain riverine aquatic habitat in the bypass and tailrace reaches.

7.2.2 Known Resource Management Goals

Maine DEP requested this study. Their resource management goal is to ensure attainment of Maine Water Quality Standards pursuant to the provisions of the *Water Classification Program*, 38 M.R.S.A. Sections 464-468 and to certify attainment of such, with any necessary conditions, under Section 401 of the Federal Water Pollution Control Act (a.k.a. Clean Water Act).

NMFS also requested this study. NMFS is a federal resource agency with a mandate to protect and conserve fisheries resources and associated habitat.

7.2.3 Background and Existing Information

Reeds Brook downstream of the Green Lake dam must meet Maine habitat and aquatic life criteria. Maine DEP file review indicates data is insufficient in the bypass and tailrace reaches of the Green Lake Hydroelectric Project to assess attainment of these criteria.

Insufficient data is included in the PAD to determine if the current Project license requirement of one cfs minimum flow in the bypass section of Reeds Brook is likely to jeopardize the continued existence of Atlantic salmon or result in the destruction or adverse modification of habitat of Atlantic salmon.

The tailrace of the Project is heavily influenced by the water level of Graham Lake. Since the level of Graham Lake is neither controlled nor heavily influenced by Project operation, it is an external influence in any tailwater flow studies. The Project operates only fixed operating point units, one with an approximate flow of 90 cfs and one with an estimated flow of 6 cfs.

7.2.4 Project Nexus

Data collected will be used to evaluate aquatic habitat in Reeds Brook downstream of the Green Lake dam. Information will be used to evaluate whether the project meets Maine habitat and aquatic life criteria and will inform the water quality certification process.

7.2.5 Methodology Consistent with Accepted Practice

GLWP will conduct this study as follows:

1. GLWP will consult with the Maine DEP and the NMFS to select transects in the bypass and tailrace area that are suitable for characterizing and measuring the different types and reaches of fish habitat and cross section, and to select the flow values to be used.
2. Each end of each transect will be marked by ribbons or stakes on the shore.
3. The distance along Reeds Brook that each transect represents will be measured.
4. Using the minimum flow conditions, each transect will be mapped as to bank full cross sectional area, water depth, velocity, wetted width, habitat types and length of each habitat type along the transect.
5. The flow will be increased to the next flow value to be used by opening a gate at the dam.
6. For each transect, measure water depth, velocity and wetted width.
7. Repeat steps 5 and 6 for any remaining flow values.

This procedure is designed to meet the requirements of the DEP Sampling Protocol for Hydropower Studies (June 2018) when combined with the Benthic Macroinvertebrate and to also collect fish habitat information requested by NMFS.

7.2.6 Deliverables and Schedule

The data gathering will be conducted from June through October. A progress report will be filed in August 2020 and the data and results will be summarized in the Initial Study Report which will be filed with FERC in the Spring of 2021.

7.2.7 Cost and Level of Effort

This study is estimated to cost \$15,000 to \$30,000 depending on the number of transects and flow values that are required by resource agencies.

7.2.8 References

- NMFS (2016). NOAA Fisheries Habitat Enterprise Strategic Plan: 2016-2020, <https://repository.library.noaa.gov/view/noaa/14994>: 30.
- URFCC (2015). Comprehensive Fishery Management Plan for the Union River Drainage 2015 - 2017. Union River Fisheries Coordinating Committee.
- USASAC (2019). "Annual report of the U.S. Atlantic Salmon Assessment Committee. Report No. 31 - 2018 Activities. Prepared for the U.S. Section to NASCO."
- USFWS and NMFS (2019). Recovery Plan for the Gulf of Maine Distinct Population Segment of Atlantic Salmon (*Salmo salar*): Final Plan for the 2009 ESA Listing, US Fish and Wildlife Service, National Marine Fisheries Service.
- USOFR (2009). 74 FR 29300. Endangered and threatened species; designation of critical habitat for Atlantic salmon (*Salmo salar*) Gulf of Maine Distinct Population Segment; Final Rule. Department of Commerce National Oceanic and Atmospheric Administration. Federal Register 74(117): 29300–29341. June 19, 2009.
- Wright, J., J. Sweka, A. Abbott and T. Trinko (2008). GIS-Based Atlantic Salmon Habitat Model. Appendix C in: NMFS (National Marine Fisheries Service). 2008. Biological valuation of Atlantic salmon habitat within the Gulf of Maine Distinct Population Segment. DRAFT. NOAA National Marine Fisheries Service, Northeast Regional Office, Gloucester, MA.
- MDEP (2018) - Methods for Biological Sampling and Analysis of Maine's Rivers and Streams, DEP LW0387- B2002. www.maine.gov/dep/water/monitoring/biomonitoring/material.html

7.3 Aquatic Resources – Study #3

7.3.1 American Eel Surveys

The USFWS requested that Green Lake conduct an upstream American eel passage study.

The PAD references American eel in various locations and notes that American eel currently inhabit waters upstream of the Project (e.g., Table 5-7). The PAD does not specifically note that the presence of American eel in waters upstream of the Project implies that juvenile American eel are able to ascend Reed Brook and climb wetted surfaces of the dam without aid of any engineered upstream fish passage facilities. Such opportunistic upstream passage behavior is common throughout the range of American eel. The USFWS states the above in documentation of such behavior at many dams, however, this climbing behavior does not provide an efficient means of passing over a dam.

7.3.2 Goals and Objectives

The goal of this study is to assess the need and potential location(s) for a dedicated American eel upstream passage facility at the Green Lake Project. The objectives of the study are to:

- conduct systematic nighttime surveys to identify eel presence/absence, abundance, distribution, and behavior at the Green Lake Project;
- identify areas where eel congregate or attempt to ascend wetted structures; and
- identify the need for and potential locations for an upstream eel passage system.

7.3.3 Known Resource Management Goals

While there is no specific management plan for American eel in the state of Maine, all Atlantic states must, when regulating commercial and recreational fishing activity, comply with the management goals and objectives set forth by the Atlantic States Marine Fisheries Commission (ASMFC), which include:

1. Protect and enhance the abundance of American eel in inland and territorial waters of the Atlantic States and jurisdictions and contribute to the viability of the American eel spawning population.
2. Provide for sustainable commercial, subsistence, and recreational fisheries by preventing overharvest of any eel life stage (ASMFC, 2012).

American eel were considered for listing under the Endangered Species Act (ESA) in 2007, but the USFWS determined that the listing was not warranted. The USFWS is currently completing a status review pursuant to a second listing petition submitted in 2010 by the Council for Endangered Species Act Reliability (USFWS, 2012).

7.3.4 Background and Existing Information

Currently, there is not an upstream passage facility for juvenile eel at the Green Lake Project dam. Nonetheless, American eel are believed to occur in the project area because they are able to climb rough wet surfaces, such as bedrock or concrete areas with sustained leakage. There is no site specific information on eel abundance, size distribution, or behavior at the Green Lake Project.

7.3.5 Project Nexus

The Green Lake Project structures are believed to block the upstream and downstream movement of American eel. Passage facilities designed for American eel may be needed to reestablish the connection between rearing and spawning habitats.

7.3.6 Methodology

Green Lake will conduct nighttime visual surveys to collect information about the abundance, behavior, and location of juvenile American eel at the Green Lake Project during their upstream migration. Based on experience at other hydroelectric projects in Maine, most juvenile upstream eel movement does not occur during daylight, but consistently occurs during dusk and evening hours, primarily between June 1 and August 31. As such, Green Lake will conduct twice weekly surveys beginning the week of June 1 – June 30 to detect the onset of upstream passage, and, if needed, one nighttime survey a week for six weeks during July 1 – August 31, depending on weather and spill conditions. If consistent patterns in eel behavior and migration are observed during the June 1 to June 30 monitoring effort, Green Lake will consult with the agencies to determine if continuation of weekly monitoring from July 1 to August 31 is necessary. Should the agencies and Green Lake agree once weekly monitoring needs to be continued but if only minor changes in eel behavior or relative abundance are noted during the July 1 – August 31 portion of the study, Green Lake may elect to conduct the monitoring every other week.

Prior to the start of monitoring, the field crew will perform a site visit to identify areas along the dam and other project structures where eel may congregate or attempt to ascend the dam, and to determine if these areas are safely accessible. Nighttime eel surveys will likely take place at the downstream face of the dam and spillway, and the waste gate section, assuming access to these areas is safe and viewing conditions are satisfactory.

Given the propensity for juvenile eel to move upstream during rain storms or under cloud cover, surveys will be timed to coincide with precipitation, if possible. Each survey will begin approximately one hour after sunset, and will last one to two hours depending on the number of eel observed. The surveys will be conducted by a two-person crew. The field crew will make visual observations using spotlights and binoculars by wading or traversing areas below the dam. If access or safety considerations are a factor, observations will be made from safely accessible sections of the dam or from other project structures. During each survey, the field crew will:

- Photograph and document each area where eel congregate and attempt to pass the Green Lake Project;
- Record the date, start time, end time, and survey conditions (i.e., weather and spill conditions);
- Approximate the number of eel per location;
- Make observations about eel behavior;
- Estimate the size range of observed eels; and
- Note the presence or absence of predators.

Based on the results of the 2020 surveys, and in consultation with the resource agencies, Green Lake may elect to perform additional monitoring in 2021.

7.3.7 Consistency with Generally Accepted Scientific Practice

This study employs accepted practices for evaluating upstream eel passage at hydroelectric projects.

7.3.8 Deliverables and Schedule

The site visit and nighttime field surveys will be conducted between June 1 and August 31, 2020. Data analysis will begin after completion of the study. A draft report summarizing the survey data and results will be provided to the stakeholders by approximately February 1, 2021.

7.3.9 Cost and Level of Effort

The level of effort for this study consists of 14 nighttime surveys, data analysis, and reporting, which is adequate to meet the goals and objectives of the study. The estimated cost to conduct the American eel upstream passage study is \$20,500.

7.3.10 References

Atlantic States Marine Fisheries Commission, 2012. American Eel Stock Assessment Overview (May 2012).
Maine Department of Marine Resources (MDMR). 2002. Draft Fishery Management Plan Cobbosseecontee Stream. Prepared by Gail S. Wippelhauser. December 2002.
USFWS. 2012. U.S. Fish and Wildlife Service Endangered Species Program. The American Eel.

Document Content(s)

PSP Letter to the Secretary.PDF.....1
Green Lake Project 7189 PSP Distribution List.PDF.....2
2019-09-13 Green Lake Proposed Study Plan.PDF.....4

October 1, 2019

Ms. Kimberly D. Bose
Secretary Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426



Via online submission to: <http://www/ferc.gov>

Subject: Comments of Maine Council of Trout Unlimited on Green Lake Waterpower Company Proposed Study Plan for the Green Lake Hydroelectric Project (FERC No. 7189)

Dear Secretary Bose:

On behalf of its chapters and their nearly 2,000 members, Maine Council of Trout Unlimited ("TU") submits these comments on the Green Lake Waterpower Company Proposed Study Plan ("PSP") for the Green Lake Hydroelectric Project (FERC Project 7189) dated September 13, 2019 ("Project"). We are submitting these comments prior to the October 10 PSP Meeting and should we not be able to attend, request that these comments be included with the record of that proceeding.

There are a number of factors that make the relicensing of the Green Lake Project particularly challenging. In our view, the presence of native char, landlocked salmon and Atlantic salmon make this project especially important with respect to protection and restoration of native fish species. Despite the complexities involved that include power generation and the presence of the Green Lake Salmon Hatchery, a fresh look must be taken for the project to be relicensed, or (as may be the case) a new license issued¹.

It is significant that this relicensing is using FERC's Integrated Licensing Process (ILP), which makes it very important that FERC determine that appropriate studies be undertaken as prescribed by the Federal Power Act² that requires FERC to give "equal consideration to the purposes of energy conservation, the protection, mitigation of damage to, and enhancement of, fish and wildlife (including related spawning grounds and habitat), the protection of recreational opportunities, and the preservation of other aspects of environmental quality."³

The National Marine Fisheries Service (NMFS) submitted comments on the Project Pre-application Document (PAD)⁴ and Scoping Document that included three FERC Study Requests:

- Study 1: Fish Passage Alternatives Study
- Study 2: In-stream Flow Study
- Study 3: Temperature and Dissolved Oxygen Study

¹ SCOPING DOCUMENT 2, GREEN LAKE PROJECT, MAINE, FERC PROJECT NO. 7189-014, Federal Energy Regulatory Commission, Office of Energy Projects, Division of Hydropower Licensing, Washington, DC, September 2. Page 5: "**...the existing licensee has filed a notice of intent to seek a new license for the project...**"

² 16 U.S.C. § 791 *et seq.*

³ *Id.* at §797(e)

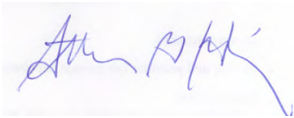
⁴ National Marine Fisheries Service letter of July 26, 2019, RE: Comments on Green Lake Water Power Company's Pre-Application Document for the Green Lake Hydroelectric Project (P-7189), FERC's Scoping Document, and ILP Study Requests

We see these studies as essential for NMFS to carry out its responsibilities, as their comments explain in detail. Green Lake Hydro's PSP did not include these studies. Maine Council of Trout Unlimited strongly believes that FERC will be unable to meet its statutory requirements if these studies are not included. The In-stream Flow Study and the Temperature and Dissolved Oxygen Study are absolutely required to evaluate feasible options for the Fish Passage Alternatives Study.

TU also notes and supports the comment of NMFS⁵ regarding dam removal as an option that were precipitated by FERC's SD1⁶ and reiterated in its DS2⁷: "... we note that project decommissioning with dam removal is the only alternative that would completely eliminate the threat to Atlantic salmon and their critical habitat posed by the Green Lake Project." Decommissioning and dam removal should be considered as part of the Fish Passage Alternatives Study. FERC rejected this and while using both bold and italics to highlight their position, cited neither law nor formal FERC policy as a basis for this determination.⁸ This determination cannot be made without the study that NMFS requested, and that for that study to be complete, must consider the option of dam removal.

Maine TU Council appreciates the opportunity to comment on this project so vital to restoration of native species habitat and looks forward to resolution of the proposed studies by the ILP process.

Respectfully,



Stephen G. Heinz
Maine TU Council FERC Coordinator

⁵ Id, para 5.

⁶ SCOPING DOCUMENT 1, GREEN LAKE PROJECT, MAINE, FERC PROJECT NO. 7189-014, Federal Energy Regulatory Commission, Office of Energy Projects, Division of Hydropower Licensing, Washington, DC, May 2019

⁷ SD2, GREEN LAKE PROJECT, MAINE, FERC PROJECT NO. 7189-014, Federal Energy Regulatory Commission, Office of Energy Projects, Division of Hydropower Licensing, Washington, DC, September 2019. Page 5

⁸ Id: "***Based on NMFS's comments, we revised section 3.5.1 (Project Decommissioning) to state, as a basis for excluding project decommissioning from detailed study in the EA, that the existing licensee has filed a notice of intent to seek a new license for the project and there is currently no evidence of a serious resource concern that cannot be mitigated with license terms and conditions.***"

Document Content(s)

Maine TU Council PSP Comments.PDF.....1



MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE
04333

JANET T. MILLS
GOVERNOR

KIRK F. MOHNEY
DIRECTOR

October 3, 2019

Secretary Kimberly D. Bose
Federal Energy Regulatory Commission
888 First Street NE, Room 1A
Washington DC 20426

2019 Oct 15
10:21 AM
KIRK F. MOHNEY

Project: MHPC# 0155-19 FERC 7189; Green Lake Hydroelectric Project
New License Existing Dam; Proposed Study Plan
Town: Ellsworth, ME

Dear Secretary Bose:

In response to Kleinschmidt's request, I have reviewed the information received September 16, 2019 to continue consultation on the above referenced project in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA).

Our office stands by our June 14, 2019 recommendations for architectural and archaeological surveys.

Please contact Megan Rideout at (207) 287-2992 or megan.m.rideout@maine.gov if we can be of further assistance in this matter.

Sincerely,

Kirk F. Mohney
State Historic Preservation Officer



JANET T. MILLS
GOVERNOR

MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE
04333

KIRK F. MOHNEY
DIRECTOR

June 14, 2019

Secretary Kimberly D. Bose
Federal Energy Regulatory Commission
888 First Street NE, Room 1A
Washington DC 20426

Project: MHPC #0155-19 Green Lake Hydroelectric Project; FERC # 7189-014
New License Existing Dam
Town: Ellsworth, ME

Dear Secretary Bose:

In response to your recent request, I have reviewed the information received June 3, 2019 to continue consultation on the above referenced project in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended.

An architectural survey is recommended to identify and record information on all resources within the area of potential effect (APE) that are at least 50 years old. Survey must be completed according to our "Revised Above Ground Cultural Resource Survey Manual Project Review Specific." All surveys must be submitted electronically via our on-line CARMA database. See our website for more information: <https://www.maine.gov/mhpc/quick-links/forms-instructions>

A list of historic preservation consultants who are qualified to conduct architectural survey and have been trained in the use of the CARMA database may be found at the following page of our website: <https://www.maine.gov/mhpc/programs/survey/approved-consultants/carma-trained-consultants>

With regards to archaeological resources, The Green Lake impoundment margins must be subject to a Phase I archaeological survey including subsurface testing in appropriate locations to identify all archaeological sites around the impoundment margin that might erode over the term of the license. Phase II (site assessment) field work might also be necessary depending on the results from the Phase I survey. "Impoundment margin" is defined in SHPO letter dated February 8, 2019. Approximately 5% of the Green Lake impoundment margin has been subjected to professional archaeological survey. One prehistoric archaeological site is already known on the impoundment margin.

A list of qualified prehistoric archaeologists has been can be found on our website: https://www.maine.gov/mhpc/project_review/consultants/prehistoric_archaeology.shtml.

If you have any questions regarding archaeology, please contact Dr. Arthur Spiess of this office at Arthur.Spiess@maine.gov.

Please contact Megan M. Rideout of our staff at 287-2992 or megan.m.rideout@maine.gov if you have any questions regarding above ground resources.

Sincerely,


Kirk F. Mohney
State Historic Preservation Officer

Document Content(s)

02042DA1-66E2-5005-8110-C31FAFC91712.TIF1

DALE L JELLISON, Dedham, ME.

Concerning the fish spawning and Green Lake water levels, should there be a requirement in the new license to require maintaining stable water levels after the Fall Drawdown (Labor Day through October 15)? The current situation, as of November 10th, 2019 is that the lake water level has risen from 157.7' to 160.0', just 0.7' below the summer recreational level of 160.7' and appears to be on the rise. This change raises two issues or questions. Does this increase, during the traditional salmon spawning season, create an unacceptable condition in the spawning beds knowing that the lake level can be drawn down, per current license conditions, to 157.7' at any time during the winter?

Secondly, the current level, if maintained throughout the winter months, will create the potential for significant ice damage to the shoreline property. Therefore, when should or can the water level be raised after the October 15th minimum to provide the most beneficial spawning production, and what water level should be maintained during the winter months?

Dale Jellison
Board of Directors, Green Lake Association
803 Green Lake Rd
Dedham, Maine 04429
804-814-3718
dalejellison@yahoo.com

Document Content(s)

92587.TXT.....1



JANET T. MILLS
GOVERNOR

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION



GERALD D. REID
COMMISSIONER

November 20, 2019

Caroline Kleinschmidt
Green Lake Water Power Co.
120 Hatchery Way
Ellsworth, Maine 04605

**RE: Comments on the Proposed Study Plan for the Green Lake Hydroelectric Project
(FERC No. 7189)**

Mrs. Kleinschmidt:

The Maine Department of Environmental Protection (Department or MDEP) received and reviewed the Proposed Study Plan (PSP), submitted on September 13, 2019 by Kleinschmidt Associates on behalf of the Green Lake Water Power Company (Applicant), for the Green Lake Hydropower Project (GLHP, Project) (FERC No. 7189). Department staff attended the Study Plan meeting on October 10, 2019, and reviewed appropriate Project documents to prepare the following comments and recommendations.

As identified in Department comments on the Pre-Application Document for the Project, the proposed relicensing of the GLHP is subject to water quality certification provisions under Section 401 of the Federal Water Pollution Control Act (a.k.a. Clean Water Act). By Executive Order of the Governor of the State of Maine, the Department is the certifying agency for Projects located wholly or partially in organized towns and cities and, as such, has jurisdiction over the Project.

Comments on the Proposed Relicensing Study Plans

The Department appreciates the effort of the Applicant to prepare the PSP. Project study plans must be designed to evaluate the impact of project operations with respect to all of Maine's water quality standards, including designated uses and both narrative and numeric criteria. After review of the available documents, the Department has the following comments on the PSP:

Existing Data - Green Lake is determined to be a great pond (M.R.S §§ 480-B(5)) and, as such, is classified GPA (M.R.S 465(A)). The Lake Stewards of Maine Program¹, a program supported by Department staff and run by volunteers, provides baseline water quality data for lakes and ponds in Maine, including Green Lake. The Lake Stewards of Maine sampling Station 1 (44.66041, -68.53944)² and Station 2 (44.62745, -68.45341) are representative of the deepest locations in Green Lake. Water quality data from Station 2, which is closest the dam, spans 1976

¹ Lake Stewards of Maine was formally known as Volunteer Lake Monitoring Program.

² Coordinates for sampling station locations are provided in decimal degrees.

through 2015, however, a full suite of environmental variables (color, alkalinity, specific conductivity, total phosphorus, Secchi disk transparency, chlorophyll a, temperature and dissolved oxygen) was most recently measured in 1976, 1991, 1999 and 2015. Although this data includes some water quality parameters that are collected through the Impoundment Trophic State Study, the study requires that samples are collected twice each month for five consecutive months during the open water season (May through September). The water quality data reported in 2015 are derived from a single sampling event on 08/17/2015³. Therefore, the Lakes of Maine data for 2015 is deficient in sampling frequency and duration; additional sampling is required to demonstrate that the impoundment exhibits a steady or declining trophic state.

MEDEP Study Requests

Impoundment Trophic State Study - This study will allow the Department to determine if operation of the Project adversely affects water quality in Green Lake or if the lake continues to meet GPA criteria. The Department, after conducting a site visit and reviewing bathymetric maps of Green Lake, recommends collecting water quality data for this study from the established Lakes of Maine Green Lake Station 1 or Station 2 (see location coordinates under Existing Data section of this letter, above), because these sampling locations have been determined to be sited in the deepest areas of the lake. Station 1 is located at the deepest part of the north west end of the impoundment, while Station 2 is located at the deepest part of the south east end of the impoundment. The Trophic State Study initial data collection must occur twice monthly for five consecutive months during the open water season⁴. The Department also requires a late summer sampling event in addition to the open water season sampling. For guidance on water quality parameters and methods for sampling please reference MDEP's *Sampling Protocol for Hydropower Studies* (September 2019), attached to this document.

Impoundment Aquatic Habitat Study - The purpose of this study is to determine the effect of impoundment drawdowns on the littoral zone of the water body and the ability of the impoundment to support fish and other aquatic life. The GLHP is operated as a water storage facility, therefore, normal operations result in drawdowns of the impoundment that may impact the littoral zone of Green Lake. The study must be conducted following the "Habitat Study" protocol under "Lakes, Ponds and Impoundments" in the *DEP Sampling Protocol for Hydropower Studies* (September 2019).

Downstream Benthic Macroinvertebrate (BMI) Study - Assessment of the benthic macroinvertebrate community is required to determine whether current in-stream flow releases are affecting attainment of habitat and aquatic life criteria in Reeds Brook below the Green Lake dam. The BMI study will assess the current macroinvertebrate community structure and evaluate any impacts caused by project operations. The Department recommends the Applicant select three sampling locations for the study. The first should be located in the Reeds Brook bypass reach, the second should be located in the powerhouse tailrace and third should be at the confluence of the tailrace and the Reeds Brook bypass reach. There are several confounding factors that influence the BMI Study including; 1) two wastewater discharge points associated with the Green Lake National Fish Hatchery (GLNFH), one in the Reeds Brook bypass reach and

³ https://www.lakesofmaine.org/data/2018_Lake_Reports/4294_2.html

⁴ MDEP's *Sampling Protocol for Hydropower Studies* (September 2019)

one near the confluence of the powerhouse tailrace and the bypass reach; and 2) the backwatering of Reeds Brook and the powerhouse tailrace during spring months when the water level of Graham Lake is highest. Department staff are available to meet with the Applicant to discuss identified sample locations for this study, to minimize the effects of the wastewater discharges and downstream water level concerns, and to ensure that sample location selected by the Applicant can be approved by the Department prior to initiating the study. The applicant must conduct the benthic macroinvertebrate study following the MDEP's standard protocol in *Methods for Biological Sampling and Analysis of Maine's Rivers and Streams* (April 2014).

Downstream Temperature and Dissolved Oxygen (DO) Study - Temperature and DO must be monitored downstream of the Green Lake Dam to demonstrate whether the Project meets Maine's DO numeric criteria. The Applicant should select two sampling stations according to the "Rivers and Streams" section in the MDEP *Sampling Protocol for Hydropower Studies* (September 2019). One station should be located in the Reeds Brook bypass reach between the Green Lake Dam and the discharge pipe from the GLNFH and one should be located in the tailrace downstream of the Project powerhouse. Data must be collected in accordance with the Department's "Temperature and Dissolved Oxygen Study" protocol under "Rivers and Streams" in the MDEP *Sampling Protocol for Hydropower Studies* (September 2019).

Downstream Aquatic Habitat Cross-Section Flow Study - Assessment of aquatic habitat downstream of the Green Lake dam is required to determine whether current in-stream flow releases meet Maine habitat and aquatic life criteria. An aquatic habitat cross-sectional flow study will inform whether downstream flows in the bypass reach and in the tailrace provide sufficient riverine habitat for fish and other aquatic organisms. This study requires measuring width and depth at various flows to determine the flow at which at least 75% of the bank full cross-sectional area of the river or stream is continuously watered. The Applicant should select two sampling transects, one located in the Reeds Brook bypass reach between the Green Lake Dam and the discharge pipe from the GLNFH and the other should be located at the confluence of the Project powerhouse tailrace and the Reeds Brook bypass reach. The study must be conducted in accordance with the "Habitat and Aquatic Life Studies" protocol under "Rivers and Streams" in the MDEP *Sampling Protocol for Hydropower Studies* (September 2019). In addition to measurements of stream width and water depth required for this study, at each of these transects the Applicant should characterize the substrate of the stream, take photos to document these characteristics, and measure the slope of the stream. This supplemental information will assist the analysis of the bypass reach habitat.

The Department acknowledges that the confluence of the powerhouse tailrace and the Reeds Brook bypass reach is, in some seasons, at a water elevation equal to that of Graham Lake, and that the water level of Graham Lake may dictate the timing of some studies. Therefore, the Department recommends the Applicant consult with Black Bear Hydro LLC, the owner and operator of the Ellsworth Hydroelectric Project, in order to coordinate the timing of certain studies with the drawdown of Graham Lake in order to ensure the successful collection of downstream BMI, temperature, DO and aquatic habitat data.

In the Department's GLHP PAD Comment Letter sent to the Applicant on July 30, 2019, a copy of the *DEP sampling Protocol for Hydropower Studies* (December 2017) was attached to and

referenced throughout the comment letter. In September 2019, the Department updated its sampling protocol, which is attached to and referenced throughout this PSP comment letter.

Thank you for the opportunity to comment on the PSP for the GLHP. Please feel free to contact me at (207) 446-1619 or via email at Christopher.Sferra@maine.gov if you have any questions regarding these comments.

Sincerely,

A handwritten signature in cursive script, appearing to read "Chris O. Sferra".

Christopher O. Sferra
Hydropower Program, Project Manager
Maine Department of Environmental Protection

Attachment: *DEP sampling Protocol for Hydropower Studies* (September 2019)

Cc: Kimberly Bose (FERC), efile

DEP SAMPLING PROTOCOL FOR HYDROPOWER STUDIES September 2019

LAKES, PONDS, AND IMPOUNDMENTS

Trophic State Study

Sampling personnel must be certified annually for this sampling protocol by DEP's Division of Environmental Assessment Lakes Section.

Each basin shall be sampled at the deepest location twice each month for at least five consecutive months during one open water season as follows.

<u>Parameter</u>	<u>Sampling method</u>	<u>Detection limits</u>
Secchi disk transparency	water scope	0.1 meter
Temperature	profile ¹	0.1 C
Dissolved oxygen	profile ¹	0.1 mg/l
Total phosphorus	integrated core ²	0.001 mg/L
Chlorophyll a	integrated core ²	0.001mg/L (trichromatic)
Color	integrated core ²	1.0 SPU
pH	integrated core ²	0.1 SU
Total alkalinity	integrated core ²	1.0 mg/l

¹Profiles shall consist of temperature and dissolved oxygen measurements taken every meter up to 15 meters, every other meter to 25 meters, then every 5 meters thereafter.

²Integrated core samples should be obtained 1) in thermally stratified ($\Delta T \geq 1^\circ\text{C}/\text{m}$ at any depth below the top 3 m depth) waters from an epilimnetic core, unless there is a spike in dissolved oxygen concentration deeper, in which case the core depth should be extended to capture the dissolved oxygen spike, or 2) in non-thermally stratified waters, to twice the Secchi disk depth, 1 m from the bottom, or 10 m, whichever is less.

In addition, during late summer (mid to late August depending on latitude and weather conditions), water samples shall be collected and analyzed from up to three depths in the water column for the parameters below except Chlorophyll *a*. If the waterbody is thermally stratified samples will be collected from an epilimnetic core, at the top of the hypolimnion, and at one meter above the sediment. If the waterbody is not thermally stratified, only one integrated core sample is needed from the surface to two times the Secchi disk depth, to 1 m from the bottom, or 10 m, whichever is less.

<u>Parameter</u>	<u>Detection limit</u>
Total phosphorus	0.001 mg/l
Nitrate	0.01 mg/l
Chlorophyll a (uncorrected)	0.001 mg/l (trichromatic determination)
Color	1.0 SPU
DOC	0.25 mg/l
pH	0.1 SU

Total alkalinity	1.0 mg/l
Total iron	0.005 mg/l
Total & dissolved aluminum	0.010 mg/l
Total calcium	1.0 mg/l
Total magnesium	0.1 mg/l
Total sodium	0.05 mg/l
Total potassium	0.05 mg/l
Total silica	0.05 mg/l
Specific conductance	1 ms/cm
Chloride	1.0 mg/l
Sulfate	0.5 mg/l

Additional sampling may be required due to the hydraulic or physical characteristics of a given waterbody or to the presence of significant water quality problems.

Habitat Study

For lakes, ponds, and riverine impoundments, determination of attainment of the designated use 'habitat for fish and other aquatic life' will be determined as follows. Using a depth of twice the mean summer Secchi disk transparency, determined from the Trophic State Study or historic DEP data, as the bottom of the littoral zone, the volume and surface area dewatered by the drawdown will be calculated to determine if at least 75% of the littoral zone remains watered at all times. Alternatively, studies of fish and other aquatic life communities, including freshwater mussels, may be conducted to demonstrate that the project maintains 'structure and function of the resident biological community' despite a drawdown that results in less than 75% of the littoral zone remaining watered at all times.

Fishing (Mercury Contamination) Study

To ensure that the project does not contribute to the Statewide Fish Consumption Advisory due to mercury, projects with excessive drawdowns (generally >10 feet) may be required to analyze sport fish from the project waterbody and one or more reference waters for mercury. Contact DEP for specific requirements for each project.

RIVERS AND STREAMS

Temperature and Dissolved Oxygen Study

Applicability

This rivers and streams sampling protocol shall apply to tailwater areas that are not impoundments where existing data are insufficient to determine existing and future water quality.

Sampling Stations

Sampling shall occur in the tailwater downstream from the turbine/gate outlet or dam at a location representative of downstream flow as agreed by DEP on a case by case basis. Initially, measurements of temperature and dissolved oxygen should be made along a transect across the stream at the first, second and third quarter points across the width. If there is no violation of dissolved oxygen criteria and no significant (<0.4 mg/l) difference in concentrations among the quarter points, subsequent measurements may be made at the location shown to be representative of the main flow. Otherwise, measurements should be made at the location of the lowest concentration and the location of the main flow. Sampling should also occur in any bypassed segment of the river created by the project. Additional sampling stations may be required in the upstream or downstream areas where significant point or nonpoint sources exist or where slow moving or deep water occurs. The number and spacing of any additional stations will be determined by DEP on a case-by-case basis.

Parameters

Temperature and dissolved oxygen shall be sampled at mid-depth in rivers less than 2 m deep or in a profile of 1 meter increments of depth in rivers greater than 2 m deep. In rivers where it is already known that attainment of required statutory dissolved oxygen criteria is questionable, sampling for additional parameters (e.g. BOD, nitrogen, phosphorus) may be necessary.

Frequency and Timing

Sampling should be conducted during the summer low flow high temperature period, with the ideal conditions being the 7Q10 flow (the 7 day average low flow with a 10 year recurrence interval) combined with daily average water temperatures exceeding 24 °C. Measurements of temperature and dissolved oxygen shall be made every hour with a datasonde in remote unattended mode continuously during July and August, unless high flows well above seasonal median flows occur.

Alternatively, with concurrence by DEP, sampling could be undertaken one day per week for a minimum of ten weeks throughout the summer low flow, high temperature period. Each discrete grab sampling event for temperature and dissolved oxygen would consist of a minimum of two daily runs, the first of which should occur before 7 AM and the second of which should occur after 2 PM. Sampling results will not be considered complete unless a minimum of 5 sampling days meets the following conditions: The product of the water temperature (°C) and the flow duration (the percentage of the time a given flow is statistically exceeded) at the time of sampling exceeds

1500. For cycling hydropower projects, in addition to twice daily monitoring, continuous monitoring may be required at some locations for a duration equivalent to the period of one cycle of the storage and the release of flow.

For either method, a summer in which low flows and high temperatures are not experienced may result in additional sampling requirements for the next summer. Low flow conditions may occur naturally, as an unregulated river or may be artificially induced, as in the case of upstream flow regulation or flows downstream from a cycling or peaking power project or in the case of a bypassed segment which receives flow only by spillage, leakage or specific releases.

Available Data

The use of data already available is encouraged provided that adequate QA/QC procedures have been followed. Old data may not be acceptable for considerations of meeting minimum sampling requirements, but could still provide useful information. Acceptance/rejection of data will be determined on a case by case basis, but generally data more than 10 years old may be rejected.

Habitat and Aquatic Life Studies

For rivers and streams, determination of attainment of the designated use ‘habitat for fish and other aquatic life’ and “structure and function of the resident biological community” will be determined as follows. A Cross-Section Flow Study is required that measures width and depth at various flows to determine the flow at which at least 75% of the bank full cross-sectional area of the river or stream is continuously watered. At least three cross-sections representative of the river or stream must be measured. Alternately, a combination of ambient measurements in one cross-section, flow data from existing flow gages, and/or modelling may be approved by DEP.

In addition, to determine if the project ‘attains the aquatic life criteria, i.e. ‘maintains the structure and function of the resident biological community’, biological monitoring of the benthic macroinvertebrate community must be conducted following DEP’s standard protocol in Methods for Biological Sampling and Analysis of Maine’s Rivers and Streams, DEP LW0387-B2002.

A copy can be found at www.maine.gov/dep/water/monitoring/biomonitoring/material.html

Document Content(s)

MDEP Green Lake PSP Comments_11_20_19.PDF1

ORIGINAL

Robert Packie
Downeast Chapter Trout Unlimited
PO Box 117
Hulls Cove, Maine 04644

Ms. Kimberly D. Bose
Secretary Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

2019 NOV 25
FEDERAL ENERGY REGULATORY COMMISSION

November 8, 2019

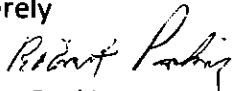
Secretary Bose,

The Downeast Chapter of Trout Unlimited wishes to express its agreement with the comments of the Maine State Council of TU regarding the Green Lake Waterpower Company proposed study plan for the Green Lake Hydroelectric project submitted by letter dated October 1, 2019 to the Federal Energy Regulatory Commission (FERC). #7189-014

In view of the fact that the Green Lake Project is within the boundaries of the Downeast Chapter of TU we are very concerned about the effects that the relicensing of the Green Lake Dam will have on the protection and restoration of native fish populations, especially cold water species such as native char and salmon. We feel it is of the utmost importance that the appropriate studies be undertaken to ensure effective measures for the protection of native fish populations and indeed the preservation of habitat and overall environmental quality. We feel it is of paramount importance that fish passageway issues surrounding this project be addressed and that recommendations for effective fish passageway based on the results of these studies be included in the relicensing or new licensing of this project.

It is our hope that through this process we will end with a project based on sound information and with reasonable solutions that address our concerns for native fish populations and environmental quality within the affected watershed.

Sincerely



Robert Packie,
President
Downeast TU

Document Content(s)

15412029.tif.....1

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426
December 5, 2019

OFFICE OF ENERGY PROJECTS

Project No. 7189-014 – Maine
Green Lake Project
Green Lake Water Power Company

VIA Electronic Mail

Caroline Kleinschmidt
Green Lake Water Power Company
caroline@greenlakewaterpower.com

Reference: Comments on Proposed Study Plan and Requests for Additional Information

Dear Ms. Kleinschmidt:

We have reviewed Green Lake Water Power Company's proposed study plan for the Green Lake Project No. 7189, filed on September 13, 2019. In addition to our verbal comments provided during the proposed study plan meeting on October 10, 2019, we are providing written comments pursuant to section 5.12 of the Commission's regulations (attached in Schedule A). Please note that your revised study plan is due to be filed with the Commission by January 11, 2020.

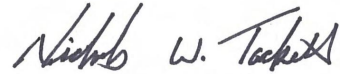
After reviewing the proposed study plan, Commission staff also has determined that additional information is needed (attached in Schedule B). Please file your responses to schedule B with your initial study report that is due on February 9, 2021.

Project No. 7189-014

2

If you have any questions, please contact Dr. Nicholas Palso at (202) 502-8854 or nicholas.palso@ferc.gov.

Sincerely,

A handwritten signature in black ink that reads "Nicholas W. Tackett". The signature is written in a cursive style with a large initial 'N' and 'T'.

Nicholas Tackett
New England Branch Chief
Division of Hydropower Licensing

Enclosures: Schedule A – Comments on Proposed Study Plan
Schedule B – Additional Information

Project No. 7189-014
Schedule A

COMMENTS ON PROPOSED STUDY PLAN

Water Quality Study

The water quality studied filed by Green Lake Water Power Company (Green Lake Power) in the proposed study plan (PSP) includes data collection on the impoundment trophic state, impoundment aquatic habitat, temperature, dissolved oxygen, and benthic macroinvertebrates. In section 7.1.5.1 of the PSP, Green Lake Power states that it will collect water temperature profiles from the deepest part of the impoundment twice per month from June through October.

Green Lake contains one of the 14 remaining arctic char populations in the contiguous U.S. The Maine Department of Inland Fisheries and Wildlife (Maine DIFW) lists arctic char as a species of special concern, and considers the Green Lake population to be at low abundance (Frost, 2001). Arctic char spawn in areas between 1.5 and 6 feet deep when the water temperature reaches 50 °F in the fall (Frost, 2001). The exact spawning period for arctic char in Green Lake is unknown. Maine DIFW states that arctic char spawning occurs between October 20 and November 7 in Flood's Pond, which is located approximately 6.5 miles north of Green Lake.¹

Green Lake Water Power Company (Green Lake Power) lowers the elevation of Green Lake on an annual basis by as much as 3.2 feet. Article 30 of the existing license requires Green Lake Power to complete the annual impoundment drawdown by October 15 to protect arctic char spawning in the impoundment and landlocked salmon spawning near the mouths of the impoundment tributaries.²

The timing of the drawdown in the fall season, along with impoundment fluctuations that occur after October 15, have the potential to affect arctic char reproduction in Green Lake. The proposed frequency and duration of the water temperature data collection in the proposed water quality study would not be sufficient to determine how water temperatures change in the fall, including when the water temperature in Green Lake reaches 50 °F.

¹ See section 6.1 of the PSP.

² *Green Lake Water Power Company*, 27 FERC ¶ 62,023 (1984).

Project No. 7189-014
Schedule A

2

Staff recommends modifying the proposed water quality study to include the deployment of continuous water temperature data logger(s) from the beginning of September until the end of November in the impoundment.³ Staff estimates that the cost of collecting additional water temperature data from September through November to be as much as approximately \$2,350, assuming two continuous data loggers are deployed. This data would inform the analysis of the effects of the project drawdown on arctic char and support the development of any license requirements related to the timing and extent of the impoundment drawdown.

LITERATURE CITED

Frost, F.O. 2001. Arctic char management plan. Department of Inland Fisheries and Wildlife, Division of Fisheries and Hatcheries. November 2001.

³ Green Lake Power should consult with Maine DIFW and the Maine Department of Environmental Protection about the location of the continuous water temperature logger(s).

Project No. 7189-014
Schedule B

ADDITIONAL INFORMATION

Terrestrial Resources

1. Section 5.7.1 of the PAD states that loons occur in the project area. However, the PAD does not describe the abundance, timing, activities, and general distribution of common loons within the project area. The Green Lake Association has indicated that they participate in the Maine Audubon's annual loon count on Green Lake. To assist staff with its environmental analysis of the proposed project, please provide the results from the loon counts on Green Lake. To the extent possible, the information should include annual totals of adults and chicks observed, the timing of nesting, and the locations of nests.

Recreation and Land Management

2. Private landowners expressed concern during scoping about the effects of lowering the lake level after Labor Day on recreation within the project boundary. To assist staff with its environmental analysis of the effects of the annual drawdown on recreation, please file daily impoundment levels for the project from September 1 through November 31 from 2015 through 2019.

3. During the proposed study plan meeting held on October 10, 2019, the Green Lake Association stated that it would work with landowners to collect data on private docks, in order to assist with an analysis of the effects of lowering the lake level on recreation. In order to assist Commission staff in its environmental analysis, please provide the information collected by the Green Lake Association on private docks, including, to the extent available: (1) the location of the dock on the impoundment (including any geo-referenced data); (2) the type of dock (*i.e.*, permanent, floating, lift-out docks); and (2) the elevation and/or depth of the dock, taken at its end. If possible, please also document the location/type of other shoreline private usage, such as beach areas.

Document Content(s)

P-7189-014_PSP comments.PDF.....1



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
55 Great Republic Drive
Gloucester, MA 01930-2276

December 12, 2019

Caroline Kleinschmidt
Green Lake Water Power Co.
120 Hatchery Way
Ellsworth, Maine 04605

**RE: Comments on the Proposed Study Plan for the Green Lake Hydroelectric Project
(FERC No. 7189)**

Dear Ms. Kleinschmidt:

On September 13, 2019, Green Lake Water Power Company (GLWPC) distributed its proposed study plan for the Green Lake Hydroelectric Project (P-7189) on Reeds Brook in Ellsworth, Maine. On October 10, 2019, GLWPC hosted a stakeholder meeting to discuss their Proposed Study Plan (PSP), which includes study plans for the bypassed reach minimum flows, water quality, and nighttime eel surveys. We support Maine Department of Environmental Protection's (MDEP) November 20, 2019, comments regarding the instream flow, dissolved oxygen, and temperature studies. It continues to be our position that these studies are necessary and appropriate and have no additional comments beyond those made by MDEP.

GLWPC indicates that they do not intend to adopt our passage alternatives study. However, you do not address the study plan criteria in the justification for not adopting our study request. Rather, you discuss the effects of dam removal on the survival and recovery of endangered Atlantic salmon, as well as the differing management objectives between us and the Maine Department of Inland Fisheries and Wildlife (MDIFW). Although we do not believe that these issues are relevant to the merits of our study request, we address them below to clear up any potential confusion over the intent of our request.

We requested a study that would assess the feasibility of a fish passage program for Atlantic salmon and alewives in the Green Lake watershed. We indicate in our request that "...this study will provide information regarding the effectiveness and practicability of the different fish passage options." While dam removal would eliminate the need for fish passage, the requested study does not suggest that the Green Lake Dam should be removed. In fact, our request to study fish passage alternatives is logically predicated on there being a dam to pass. Our intent is to determine the feasibility of various fish passage options at the Project, given flow and space limitations, as well as the presence of invasive fish species.

In your justification for not adopting this study request, you indicate that you do "...not see that there is a basis for investing the significant time and money required for this while there are clearly opposing positions between the state and federal resource agencies regarding fisheries



management goals and objectives.” It is not uncommon for there to be conflicting management objectives among the many government entities involved in a hydro relicensing. The mere existence of a potential conflict, however, does not invalidate our study request. We are cognizant of the MDIFW’s concerns regarding the spread of invasive largemouth bass in the Union River watershed, and we share those concerns. However, through the interagency coordination procedures required under the U.S. Endangered Species Act (ESA), we are required to work with FERC to analyze the effects of FERC’s action and, through the eventual issuance of a Biological Opinion and appropriate Incidental Take Statement, to require reasonable and prudent measures that will minimize the effect of any take of endangered Atlantic salmon. We encourage the GLWPC to incorporate measures for preventing largemouth bass passage into the feasibility analysis. Measures to prevent bass passage have been used successfully at other hydro projects in the State of Maine. Measures such as the construction of a trap, or the installation of a jump at a fishway entrance, might be sufficient to preclude bass passage, while allowing passage of Atlantic salmon.

Under FERC's ILP regulations, Study Criterion 2 requires a requesting agency to establish the connection between its study request and management goals and/or mandates established in law or regulation or that derive from agency policy. Section 18 of the FPA (16 U.S.C. 11) expressly grants us and the Department of Interior exclusive authority to prescribe fishways. Additionally, the presence of a species listed under the ESA requires us to fully analyze the effects of FERC’s proposed licensing action on that species and to recommend or require measures that will reduce the effect of any take through the ESA section 7 consultation process. The information we are requesting is necessary for us to evaluate the scope of any potential fishway prescription, as provided by our mandate under the FPA; as well as to fully analyze the effects of the action and inform minimization measures under the ESA. Therefore, our request is both reasonable and consistent with FERC's ILP regulations. However, we note that our information request is not an indication that any potential license conditions are inevitable. Rather, the information we request is necessary for us and FERC to adequately evaluate the necessity, feasibility, and potential scope of a potential license condition after review and in light of the entire record of available information and that information that will be acquired via studies.

We welcome the opportunity to discuss this study request further with GLWPC. If you have any questions or need additional information, please contact Dan Tierney via email (Dan.Tierney@noaa.gov) or 207-866-3755.

Sincerely,



Jennifer Anderson
Assistant Regional Administrator
for Protected Resources

cc: Dan Tierney, F/GAR3
Sean McDermott, F/GAR4
Antonio Bentivoglio, U.S. FWS
Casey Clark, MDMR

Document Content(s)

NMFS_GreenLake_PSPComments_signed_12Dec2019.PDF1



STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
284 STATE STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041



December 12, 2019

Caroline Kleinschmidt
Green Lake Water Power Company
120 Hatchery Way
Ellsworth, Maine 04605

**RE: Comments on the Proposed Study Plan for the Green Lake Hydroelectric Project
(FERC No. 7189)**

Dear Mrs. Kleinschmidt:

The Maine Department of Inland Fisheries and Wildlife (MDIFW) has reviewed Green Lake Water Power Company's (Applicant) Proposed Study Plan (PSP) for the Green Lake Hydropower Project (GLHP, Project) (FERC No. 7189). MDIFW staff also attended the Study Plan meeting on October 10, 2019.

Comments on Coldwater Fisheries Spawning

The current allowable drawdown at Green Lake is up to 3.2 feet annually. Per the existing Project license, the annual impoundment drawdown must be completed by October 15 to protect arctic char spawning in the impoundment. As the timing of this annual drawdown coincides with spawning times for Arctic char in nearby Flood's Pond (between October 20 and November 7), MDIFW supports this date for a subsequent License.

The majority of landlocked salmon spawning occurs upstream in the tributaries to Green Lake, and these areas are more productive than potential near-lake spawning habitat. MDIFW recommends a similar drawdown regime for the subsequent license which will continue to promote spawning by salmon in the tributaries.

Common Loons

Because of their body adaptations, common loons nest along the shoreline, making nests vulnerable to water level fluctuations. Changes >0.5 feet vertical increase and >1.0 feet vertical decrease during 30 days after each nest initiation commonly threaten nesting success (Fair 1979, 2006, Windels et al. 2013). Fluctuations at or above these levels during the common loon nesting season are known to cause nest failure due to nest inundation when water levels increase or nest stranding when water levels decrease.

According to the Pre-Application Document, lake levels remain relatively stable for recreational purposes (1-foot fluctuation) from June 1 through Labor Day weekend, with a maximum level of 160.7 and a minimum level of 159.7. However, our recommendation for the new License is that

Letter to Ms. Kimberly D. Bose, Secretary

Comments RE: Comments on the Proposed Study Plan for the Green Lake Hydroelectric Project (FERC No. 7189
December 12, 2019

the Applicant incorporate more stable water levels of 0.5 vertical feet up or 1 vertical foot during the loon nesting season of May 15 – July 31.

Alternatively, the Applicant may conduct a common loon productivity study to determine if current project operations are impacting common loon nesting success and overall productivity. The details and justification of the Study Request are as follows:

Common Loon Productivity Assessment

1. The goal of this study is to evaluate the common loon nesting success within the Project area and determine if current operations of the Project are affecting loon productivity by determining productivity of nesting common loons within the study area and assessing causes of nest failure to determine if these failures are influenced by Project operations.

2. Maine is home to 75% of the territorial pairs of loons in New England and New York, making it the stronghold for the northeast breeding population. Thus, despite the common loon's relatively stable and secure population within the state, Maine holds a high responsibility in the Northeastern United States for the species' continued conservation.

MDIFW is interested in better understanding what effects, if any, current Project operations have on common loon productivity. Current Project operations limit fluctuation of reservoir surface elevations to no more than one foot from June 1 through Labor Day for recreational purposes; however, many years of research at lakes in Maine have shown that a water level increase of 6 inches can negatively impact common loon nesting success from May 15 to July 31.

3. MDIFW is a cabinet level agency of the State of Maine. Under Maine State Law (12 MRSA, §10051), MDIFW's mandate is "...to preserve, protect, and enhance the inland fisheries and wildlife resources of the State; to encourage the wise use of these resources; to ensure coordinated planning for the future use and preservation of these resources; and to provide for effective management of these resources."

4. Water level changes as little as 0.5 vertical feet up or 1 vertical foot down occurring within a 30-day period can significantly impact the success of non-floating loon nests (Fair 1979, 2006, Windels et al. 2013). Due to their physical inability to walk about on land, common loons build their nests directly adjacent to the water's edge; however, the placement of nests immediate to the shore makes them extremely susceptible to fluctuations in water level. Nests may be inundated by increasing water levels or stranded by decreasing water levels; both situations enhance predation and affect hatching rates (Fair 1979). Water level management was shown to cause 60-70% of nest failure for loons on three lakes in Voyageur's National Park in Minnesota (Reiser 1988). Loons whose territories are characterized by fluctuating water levels may not hatch a sufficient number of young to sustain populations, resulting in an ecological trap (DeSorbo et al. 2007).

5. The potential effects of dam operations on the local loon population are outlined above. The study results will help determine if mitigation measures are necessary, and what specific measures may be needed, in order to prevent negative impacts to loon productivity within the Project area.

Letter to Ms. Kimberly D. Bose, Secretary

Comments RE: Comments on the Proposed Study Plan for the Green Lake Hydroelectric Project (FERC No. 7189
December 12, 2019

6. Standard survey methods developed by the Loon Preservation Committee in New Hampshire, the BioDiversity Research Institute, and adopted by the Northeast Loon Study Working Group include weekly surveys by boat beginning in mid- to late- May and continuing through July (Taylor and Evers 2009). Bi-weekly surveys are often needed to monitor chick survival. Nest searching may require walking portions of shoreline. Data collected during surveys, depending on the timing within the loon nesting cycle, should include: number of territorial pairs, delineation of territory boundaries defended by those pairs, number and location of nesting attempts, determining causes of nest failure, observations of clutch size and number of chicks hatched, and documenting chick survival.

7. Field work will be required to collect data on presence/absence of territorial loon pairs. If territorial pairs exist, then at least two additional years of field work will be needed to determine fledging rates and causes of nest failure. If fledging rates are lower than 0.48 chicks per territorial pair, which is needed to support a stable and sustaining population, then more stable water levels, or annual monitoring and possibly a raft management plan, may be necessary.

If you have any specific questions, please feel free to contact me directly by phone at 207-287-5254 or by email at john.perry@maine.gov.

Best regards,



John Perry
Environmental Review Coordinator

Cc: Greg Burr, Steve Dunham—MDIFW Region C
Danielle D'Auria—MDIFW Bangor Headquarters
Gail Wippelhauser, Casey Clark—MDMR
Kathy Howatt, Christopher Sferra—MDEP
Antonio Bentivoglio—USFWS
Dan Tierney—NMFS

Document Content(s)

MDIFW comments on PSP 12-12-2019.PDF1

Ms. Kimberly D. Bose, Secretary
January 11, 2020

VIA E-FILING

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N. E.
Washington, DC 20426

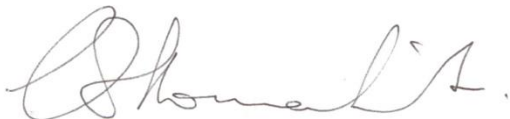
***RE: Green Lake Hydroelectric Project (FERC No. 7189)
Revised Study Plan***

Dear Secretary Bose:

In accordance with 18 CFR § 5.11(a), the Licensee for the Green Lake Hydroelectric Project, Green Lake Water Power Co. (GLWP), herein files the Revised Study Plan (RSP) for the relicensing of the Green Lake Hydroelectric Project (Project). The revised study plans are based on study requests submitted by FERC and the resource agencies, the outcome of the study plan meeting on October 10, 2019, the comment letters filed on the Proposed Study Plan by FERC and the agencies in accordance with 18 CFR § 5.12, and subsequent communications with stakeholders.

In accordance with 18 CFR § 5.13(b), interested parties have 15 days, i.e. until January 26, 2020 to file their written comments to FERC on the Revised Study Plan.

Thank you for your review and comments. We appreciate your interest in the relicensing of the Project and look forward to working with you over the coming months. If there are any questions or comments regarding this filing, please contact me by email at caroline@greenlakewaterpower.com or by phone at (425) 553-6718



Sincerely,
Caroline Kleinschmidt
Relicensing Coordinator
Green Lake Water Power Co.

Enclosure
cc: Distribution List

Green Lake Project 7189 RSP Distribution List

January 11, 2019

Federal Energy Regulatory Commission

Kimberly D. Bose
Secretary
888 First Street, N.E.
Washington, DC 20426
via e-filing

Dr. Nicholas Palso
FERC Coordinator
202-502-8854
Nicholas.Palso@ferc.gov

Bill Connelly
Fisheries Lead
202-502-8587
William.Connelly@ferc.gov

John Spain
Regional Engineer
New York Regional Office
19 W 34th Street, Suite 400
New York, NY 10001-3006
212-273-5954
John.Spain@ferc.gov

National Fish Hatchery

Oliver Cox
Hatchery Manager
1 Hatchery Way
Ellsworth, ME 04605
207-667-9531
oliver_cox@fws.gov

National Marine Fisheries Service

Dan Tierney
Protected Resources Division
Maine Field Station
17 Godfrey Drive – Suite 1
Orono, ME 04473
207-866-3755
dan.tierney@noaa.gov

Sean McDermott
Marine Habitat Resource Specialist
Hydropower Coordinator
55 Great Republic Drive
Gloucester, MA 01930
978-281-9113
sean.mcdermott@noaa.gov

Indian Tribes

Susan Young, A/THPO
Houlton Band of Maliseet Indians
Natural Resources Director
88 Bell Road
Littleton, ME 04730
207-532-4273 x202
Ogs1@maliseets.com

Jennifer Pictou, THPO
Aroostook Band of Micmacs
8 Northern Road
Presque Isle, ME 04769
207-764-1972
jpictou@micmac-nsn.gov

Chris Sockalexis THPO
Penobscot Indian Nation
Cultural and Historic Preservation Program
12 Wabanaki Drive
Indian Island, ME 04468
207.817.7471
chris.sockalexis@penobscotnation.org

Donald Soctomah, THPO
Passamaquoddy Tribe
Indian Township
P.O. Box 301
Princeton, ME 04668
207-796-5533
Soctomah@gmail.com

Local Government

David A. Cole
City Manager
1 City Hall Plaza
Ellsworth, ME 04605
Tel: 207-667-2563
dcole@ellsworthmaine.gov

Green Lake Project 7189 RSP Distribution List

January 11, 2019

U.S. Fish & Wildlife Service

Bryan Sojkowski, P.E.
Hydraulic Engineer - Fish Passage
Region 5, Fisheries
300 Westgate Center Drive
Hadley, MA 01035-9589
413-253-8645
bryan_sojkowski@fws.gov

Steve Shepard
Maine Hydro Licensing Coordinator
17 Godfrey Drive - Suite 2
Orono, ME 04473
207-866-3344
steven_shepard@fws.gov

Maine Dept of Environmental Protection

Kathy Howatt
Hydro Coordinator
17 State House Station
Ray Building - AMHI Complex
Augusta, ME 04333-0017
207-446-2642
kathy.howatt@maine.gov

Christopher Sferra
Environmental Specialist III, Hydropower Unit
Bureau of Land Resources
207-446-1619
Christopher.Sferra@maine.gov

Maine Dept of Inland Fisheries & Wildlife

John Perry
248 State Street, 41 SHS
Augusta, ME 04333-0041
207-287-5254
john.perry@maine.gov

Gregory Burr
Regional Fisheries Biologist - Region C
317 Whitneyville Road
Jonesboro, ME 04648
207-434-5925
gregory.burr@maine.gov

Maine Dept of Marine Resources

Casey Clark
#172 State House Station
Augusta, ME 04333
207-624-6594
casey.clark@maine.gov

Maine Historic Preservation Commission

Kirk F. Mohney
State Historic Preservation Officer
55 Capitol Street
65 State House Station
Augusta, ME 04333
207-287-2132

Megan Rideout
Review & Compliance/CLG Coordinator
55 Capitol Street
65 State House Station
Augusta, ME 04333
207-287-2992
Megan.M.Rideout@maine.gov

Green Lake Association

Audrey Tunney
35 Grant Street
Ellsworth, ME 04605
207-667-0291
aftunney@gmail.com

David Megquier
603 Nicolin Rd
Ellsworth, Me 04605
207-949-4116
megquier@maine.edu

Harry Moore
54 Harmony Way
Ellsworth, Me 04605
207-479-4363
hmoorembec@gmail.com

Jenkin's Beach

Raymond L. Jenkins Jr
PO Box 155
Ellsworth, ME 04605
207-266-1381
jobeach1@yahoo.com

Kleinschmidt Associates

Andrew D. Qua
Senior Regulatory Coordinator
Kleinschmidt Associates
141 Main St
Pittsfield, ME 04967
207-416-1246
Andy.Qua@KleinschmidtGroup.com

**GREEN LAKE WATER POWER CO.
REVISED STUDY PLAN
FOR THE GREEN LAKE HYDROELECTRIC PROJECT
(FERC NO. 7189)**



Prepared by:

**Green Lake Water Power Co.
120 Hatchery Way,
Ellsworth, ME 04605**

and

Kleinschmidt

**Pittsfield, Maine
www.KleinschmidtGroup.com**

January 2020

This page intentionally left blank.

**GREEN LAKE HYDROELECTRIC PROJECT
FERC NO. 7189
REVISED STUDY PLAN**

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1-1
2.0	COMMENTS ON THE PROPOSED STUDY PLAN.....	2-1
2.1	Graham Lake Level Effects	2-3
3.0	PROGRESS REPORTS, STUDY REPORTING, MEETINGS.....	3-1
4.0	REQUESTED STUDIES NOT ADOPTED.....	4-1
4.1	Archaeological Surveys	4-1
4.2	Fish Passage Alternatives Study	4-3
4.2.1	References.....	4-4
5.0	ADDITIONAL INFORMATION REQUESTED	5-1
5.1	Terrestrial Resources	5-1
5.2	Recreation and Land Management	5-1
6.0	INDIVIDUAL STUDY PLAN PROPOSALS	6-1
6.1	Water Quality – Study #1	6-4
6.1.1	Goals and Objectives	6-5
6.1.2	Known Resource Management Goals.....	6-5
6.1.3	Background and Existing Information.....	6-5
6.1.4	Project Nexus	6-7
6.1.5	Methodology	6-7
6.1.6	Consistency with Generally Accepted Scientific Practice.....	6-11
6.1.7	Deliverables and Schedule.....	6-11
6.1.8	Cost and Level of Effort	6-11
6.1.9	References.....	6-11
6.2	Aquatic Habitat Cross-Section and In-stream Flow Study –Study #2.....	6-13
6.2.1	Goals and Objectives	6-13
6.2.2	Known Resource Management Goals.....	6-13
6.2.3	Background and Existing Information.....	6-13
6.2.4	Project Nexus	6-14
6.2.5	Methodology Consistent with Accepted Practice	6-14
6.2.6	Deliverables and Schedule.....	6-15
6.2.7	Cost and Level of Effort	6-15
6.2.8	References.....	6-15
6.3	American Eel Surveys – Study #3	6-16
6.3.1	Goals and Objectives	6-16
6.3.2	Known Resource Management Goals.....	6-16
6.3.3	Background and Existing Information.....	6-17
6.3.4	Project Nexus	6-17
6.3.5	Methodology.....	6-17

	6.3.6	Consistency with Generally Accepted Scientific Practice	6-18
	6.3.7	Deliverables and Schedule	6-19
	6.3.8	Cost and Level of Effort	6-19
	6.3.9	References	6-19
6.4		Erosion Reconnaissance Survey – Study #4	6-20
	6.4.1	Goals and Objectives	6-20
	6.4.2	Known Resource Management Goals	6-20
	6.4.3	Background and Existing Information	6-21
	6.4.4	Project Nexus	6-21
	6.4.5	Methodology	6-21
	6.4.6	Consistency with Generally Accepted Scientific Practice	6-21
	6.4.7	Deliverables and Schedule	6-21
	6.4.8	Cost and Level of Effort	6-22
	6.4.9	References	6-22

LIST OF TABLES

Table 2-1	Summary of PSP Comments	2-1
Table 3-1	Estimated Dates for Commencement and Completion of Field Work.	3-1
Table 6-1	Comparison of the Green Lake Project and the Ellsworth Project	6-1
Table 6-2	Green Lake Average Gross Income	6-1
Table 6-3	Detection limits for impoundment trophic sampling	6-8

LIST OF FIGURES

Figure 6-1	Historic Secchi Disk Data	6-6
------------	---------------------------------	-----

GREEN LAKE WATER POWER CO.**GREEN LAKE HYDROELECTRIC PROJECT
FERC NO. 7189****REVISED STUDY PLAN****1.0 INTRODUCTION**

Green Lake Water Power Co. (Licensee) is in the process of relicensing the existing 500 Kilowatt (KW) Green Lake Hydroelectric Project (Project) with the Federal Energy Regulatory Commission (FERC). The Project (FERC P-7189) is located on Green Lake and Reeds Brook in Hancock County, Maine. The Licensee is not currently proposing any changes to the Project as part of the relicensing.

The Licensee is using FERC's Integrated Licensing Process (ILP) as established in regulations issued by FERC July 23, 2003 (Final Rule, Order No. 2002) and found at Title 18 CFR, Part 5. The Licensee filed a Pre-Application Document (PAD) and Notice of Intent (NOI) to seek a new license for the Project on March 31, 2019. The PAD provides a complete description of the Project, including its structures, operations, and potentially affected resources.

The Licensee filed a Proposed Study Plan (PSP) on September 13, 2019 and held a Study Plan Meeting on October 10, 2019. Written comments on the PSP were provided by FERC, the Maine Department of Environmental Protection (MDEP), the Maine Department of Inland Fisheries and Wildlife (MDIFW), the National Marine Fisheries Service (NMFS), the Green Lake Association (GLA) and Trout Unlimited (TU). The Licensee has prepared this Revised Study Plan (RSP) per FERC's regulations at 18 CFR § 5.13. The purpose of this RSP is to provide FERC and the agencies with a plan providing descriptions of studies proposed by the Licensee to inform the relicensing process.

Section 6.0 of this RSP provides the individual studies proposed by the Licensee to gather additional information needed to analyze the potential effects of the continued operation of the Project on project-related resources. The following study plans are included in this RSP for implementation during the 2020 and 2021 field seasons, as appropriate:

1. Study #1 – Water Quality – Encompasses Data Requested from the Maine Department of Environmental Protection (MDEP), United States National Marine Fisheries Service (US NMFS), United States Fish and Wildlife Service (US FWS) and FERC to determine current impoundment and downstream water quality.

This study consists of the following activities (for full details, see section 6.1):

- Impoundment Trophic State Study 1-1:
 - Collect water quality data from the deepest part of the north west end and the deepest part of the south east end of Green Lake twice per month from May 2020 through September 2020.
 - Collect a more extensive set of data during a single late summer sampling event (mid to late August, as determined by weather conditions).
- Impoundment Habitat Study 1-2:
 - Determine the Secchi disk transparency from the Impoundment Trophic State data. Using two times the Secchi disk transparency depth as the bottom of the littoral zone, determine the volume and surface area dewatered by the impoundment drawdowns.
 - If more than 25% of the littoral zone is dewatered, a study of the impoundment fish and other aquatic live communities will be proposed (in consultation with MDEP) to be conducted during the summer of 2021. Existing Secchi disk transparency data and lake depth contours from Lakes of Maine suggest that considerably less than 25% of the Green Lake littoral zone is dewatered during impoundment drawdowns.
- Impoundment Temperature Study 1-3:
 - Collect continuous impoundment water temperature readings at two locations from the beginning of September until the end of November. This data is intended to inform an analysis of the effects of Project fall drawdown on arctic char.
- Downstream Benthic Macroinvertebrate (BMI) Study 1-4:
 - Select three specific sampling locations for the study and review with MDEP staff to verify the locations are acceptable (or to relocate them if necessary).
 - Perform sampling in the following three general locations:
 - Reeds Brook bypass reach
 - Powerhouse tailrace
 - Confluence of the tailrace and Reeds Brook
- Downstream Temperature and Dissolved Oxygen (DO) Study 1-5:
 - Collect water temperature and DO readings using datasondes at the following two locations:
 - In the Reeds Brook bypass reach below the dam and above the upper GLNFH discharge pipe
 - In the tailrace downstream of the powerhouse
 - The readings will be collected hourly during July and August.

2. **Study #2 – Aquatic Resources – Encompasses Data Requested from MDEP for Aquatic Habitat Cross-Section Flow and from US NMFS In-stream Flow**
 - This study will measure width and depth at various flows in Reeds Brook to determine the flow at which at least 75% of the bank full cross-sectional area of the river is continuously watered. At least three cross-sections representative of riverine habitat will be measured. This study will also assess the relationship between project discharges, minimum flows and the quantity, quality and accessibility of various habitat types for fish species.

3. **Study #3 – Aquatic Resources - Eel Passage Survey Requested by the United States Fish and Wildlife Service (US FWS)**
 - This study will gather data on eel abundance and behavior at the downstream face of the spillway and dam. This study will inform eel passage necessity and Facility Design and Siting decisions.

4. **Study #4 – Cultural Resources – Erosion Reconnaissance Survey**
 - This study will determine the Area of Potential Effect (APE) and identify architecture potentially of interest within that APE.

Section 6 of this document provides information on the goals and objectives of each study; the relationship of the study plan to the issues identified in the PAD, SD1 and scoping process; known resource management goals; methodology; and scope, schedule and budget information as per the requirements of 18 CFR § 5.11.

2.0 COMMENTS ON THE PROPOSED STUDY PLAN

Comments on the Licensee's PSP (including any revised information or study requests) were due December 12, 2019. As noted above, FERC, MDEP, MDIFW, NMFS, GLA and TU provided comments, which are summarized in Table 2-1.

Table 2-1 Summary of PSP Comments

Topic	Agency	Comments	Licensee Response
Water Quality	FERC	<p>FERC pointed out that the timing of the drawdown in the fall season, along with impoundment fluctuations that occur after October 15, have the potential to affect arctic char reproduction in Green Lake. The proposed frequency and duration of the water temperature data collection in the proposed water quality study would not be sufficient to determine how water temperatures change in the fall, including when the water temperature in Green Lake reaches 50 °F.</p> <p>FERC staff recommends modifying the proposed water quality study to include the deployment of continuous water temperature data logger(s) from the beginning of September until the end of November in the impoundment.</p>	Added to the Water Quality Study #1-3
Water Quality	MDEP	<p>The Lakes of Maine data for 2015 is deficient in sampling frequency and duration; additional sampling is required to demonstrate that the impoundment exhibits a steady or declining trophic state.</p> <p>MDEP recommends collecting water quality data from the Lake Stewards of Maine sampling Station 1 or Station 2 because these sampling locations have been determined to be sited in the deepest areas of the lake.</p> <p>MDEP notes that all appropriate studies must be conducted following the protocols in the MDEP <i>Sampling Protocol for Hydropower Studies</i> (September 2019) – Note this is an updated document.</p>	The Water Quality Study #1-1 has been updated to reflect these comments.
Water Quality	MDEP & MDIFW	<p>MDEP recommends three sampling locations for the BMI study. The first in the Reeds Brook bypass reach, the second in the powerhouse tailrace and third at the confluence of the tailrace and the Reeds Brook bypass reach. The selected locations should be approved by MDEP before the BMI study begins.</p> <p>MDIFW asked to be included in this decision.</p> <p>MDEP noted that there are several confounding factors that influence the BMI Study including; 1) two wastewater discharge points associated with the Green Lake National Fish Hatchery (GLNFH), one in the Reeds Brook bypass reach and one near the confluence</p>	The Water Quality Study #1-4 has been updated to reflect these comments.

Topic	Agency	Comments	Licensee Response
		<p>of the powerhouse tailrace and the bypass reach; and 2) the backwatering of Reeds Brook and the powerhouse tailrace during spring months when the water level of Graham Lake is highest.</p> <p>MDEP noted that the BMI study must follow MDEP's standard protocol in <i>Methods for Biological Sampling and Analysis of Maine's Rivers and Streams</i> (April 2014)</p> <p>For the DO Study MDEP states one station should be located in the Reeds Brook bypass reach between Green Lake Dam and the discharge pipe from the GLNFH and one should be located in the tailrace downstream of the Project powerhouse.</p> <p>For the Downstream Aquatic Habitat Cross-Section Flow Study MDEP requires two sampling transects, one located in the Reeds Brook bypass reach between the Green Lake Dam and the discharge pipe from the GLNFH and the other at the confluence of the Project powerhouse tailrace and the Reeds Brook bypass reach. In addition to the measurements of stream width and water depth required for this study, at each of these transects characterize the substrate of the stream, take photos to document these characteristics, and measure the slope of the stream.</p>	
Water Quality	MDEP	<p>MDEP acknowledges that the confluence of the powerhouse tailrace and the Reeds Brook bypass reach is, in some seasons, at a water elevation equal to that of Graham Lake, and that the water level of Graham Lake may dictate the timing of some studies. Therefore, the Department recommends the Applicant consult with Black Bear Hydro LLC, the owner and operator of the Ellsworth Hydroelectric Project, in order to coordinate the timing of certain studies with the drawdown of Graham Lake in order to ensure the successful collection of downstream BMI, temperature, DO and aquatic habitat data.</p>	<p>See discussion below on Graham Lake level effects.</p>
Water Quality	Trout Unlimited (at PSP meeting)	<p>On behalf of TU, Mark Whiting raised concerns that Reeds Brook is below thresholds for hard water based on his individual self survey findings of a low calcium number. Mark stated that Hancock County is the highest for acid rain and low air quality.</p>	<p>No nexus between these conditions and Project operations has been established. This information, however, could be pertinent to interpretation of Reeds Brook study results</p>
Eel Passage	MDIFW & USFWS (at PSP meeting)	<p>MDIFW and USFWS noted that the elvers start migrating in the spring so be sure to start the study early enough.</p>	<p>Noted in the Eel Passage Study #3 – changed start date to May</p>

Topic	Agency	Comments	Licensee Response
Fish Passage	NMFS & Trout Unlimited	NMFS restates the need for the Fish Passage Alternatives Study. Trout Unlimited Maine Council and Downeast Chapter support the need for the NMFS studies.	Response to this is in Studies Not Adopted - Section 5 The other two proposed studies were included in the studies proposed in the PSP and remain in this RSP.
Fish Spawning & Lake Level	MDIFW & GLA	The current allowable drawdown at Green Lake is up to 3.2 feet annually. Per the existing Project license, the annual impoundment drawdown must be completed by October 15 to protect arctic char spawning in the impoundment. As the timing of this annual drawdown coincides with spawning times for Arctic char in nearby Flood's Pond (between October 20 and November 7), MDIFW supports this date for a subsequent License. The majority of landlocked salmon spawning occurs upstream in the tributaries to Green Lake, and these areas are more productive than potential near-lake spawning habitat. MDIFW recommends a similar drawdown regime for the subsequent license which will continue to promote spawning by salmon in the tributaries. On behalf of the GLA, Dale Jellison raised concerns about the effects of the water level on the salmon during spawning season.	Water Quality Study #1 has been modified to gather impoundment water temperature data from September through November. The additional data from this will be used to inform decisions on the fall drawdown.
	GLA	On behalf of the GLA, Dale Jellison raised concerns about the effects of the water level on potential ice damage in the winter months	FERC has requested that we gather data on the height of docks around the lake.
Loons	MDIFW	MDIFW recommends, for the new License, that the Applicant incorporate more stable water levels of 0.5 vertical feet up or 1 vertical foot down during the loon nesting season of May 15 – July 31 or do a study suggested by MDIFW.	Licensee's current plan is to adopt the recommended water level restrictions for its license application.
Cultural Resources	MHPC	MHPC stands by their June 14, 2019 recommendations for architectural and archaeological surveys.	Response to this is in Studies Not Adopted - Section 5 as well as in Study #4 in Section 6

2.1 Graham Lake Level Effects

Graham Lake is not necessarily predictable nor controllable within a specific limited range during the summer. With Brookfield managing the Graham Lake level within a reduced range that tends toward higher levels in the summer (for recreational uses of Graham Lake), the level of Graham Lake is very likely to affect the Project tailwater level. This is an issue that needs to be considered when decisions are made about the siting of water sampling sites near the Project powerhouse.

3.0 PROGRESS REPORTS, STUDY REPORTING, MEETINGS

FERC's ILP regulations schedule the Initial Study Report for one year following FERC's study plan determination, which is anticipated to be February 9, 2021. We will provide a progress report after 6 months, in August 2020, and then we will file the study reports in February 2021. The study reports will be filed with FERC as one package at that time and the Project distribution list will be notified. We will have the reports package available on our website as well – www.GreenLakeWaterPower.com

As needed, the Licensee will file updated study reports within the time limits provided in 18 CFR § 5.15(f). The estimated start and completion dates for studies are provided in Table 3-1:

Table 3-1 Estimated Dates for Commencement and Completion of Field Work.

Resource	Study	Estimated Start Date	Estimated Completion Date
Water Quality			
Study 1	1-1 Impoundment Trophic State	June-20	November-20
	1-2 Impoundment Aquatic Habitat		
	1-3 Impoundment Temperature		
	1-4 Downstream Temperature and		
	1-5 Dissolved Oxygen and Benthic Macroinvertebrate Survey		
Aquatic Resources			
Study 2	Aquatic Habitat Cross-Section and In-stream Flow Study	June-20	October-20
Study 3	Eel Passage Survey	May-20	October-20
Cultural Resources			
Study 4	Erosion Reconnaissance Survey	June-20	October-20

4.0 REQUESTED STUDIES NOT ADOPTED

As required by 18 CFR § 5.11(b)(4), if the Licensee does not adopt a requested study, an explanation of why the request was not adopted, with reference to the criteria set forth in § 5.9(b) must be included in the PSP.

4.1 Archaeological Surveys

The Maine Historic Preservation Commission (MHPC) has requested a Phase I Archaeological survey including subsurface testing in appropriate locations to identify all archaeological sites around the impoundment margin that might erode over the term of the license.

One of the requirements for requesting a study is that it must contain the points described in CFR Title 18: §5.9(b) – MHPC has not provided this required data in anything but a cursory, non-informative way.

One of the most notable examples of this is § 5.9(b)(3) **“Describe existing information concerning the subject of the study proposal, and the need for additional information.”** MHPC appeared to intend to address this in their study request paragraph on archeological studies:

“With regards to archaeological resources, The Green Lake impoundment margins must be subject to a Phase I archaeological survey including subsurface testing in appropriate locations to identify all archaeological sites around the impoundment margin that might erode over the term of the license. Phase II (site assessment) field work might also be necessary depending on the results from the Phase I survey. ‘Impoundment margin’ is defined in SHPO letter dated February 8, 2019. Approximately 5% of the Green Lake impoundment margin has been subjected to professional archaeological survey. One prehistoric archaeological site is already known on the impoundment margin.”

No further information is provided. Most notably lacking is any recognition of the existence of a letter on archaeological aspects of the initial licensing process of the Project. A copy of the letter is attached below.

GLWP recognizes that the MHPC definition of significant architecture being anything over 50 year old leads to the possibility that architectural structures may be significant now that were not 40 years ago. However, we do not believe the same argument applies to archaeological sites, especially prehistoric ones, given that no changes are proposed to the maximum and minimum water levels. We have included a study to determine if there are any historic structures within the APE.



MAINE HISTORIC PRESERVATION COMMISSION
55 Capitol Street
Augusta, Maine 04333

Earle G. Shettleworth, Jr.
Director

REC'D SEP 15 1981
KLEINSCHMIDT & DUTTING

Telephone
207-289-21

September 14, 1981

Mr. Frank H. Dunlap
Kleinschmidt and Dutting
75 Main Street
P. O. Box 76
Pittsfield, Maine 04967

re: Green Lake Hydroelectric Project, FERC #4894

Dear Mr. Dunlap:

My staff archaeologist, Dr. Arthur Spiess, has carefully field checked the project area for the proposed Green Lake Hydroelectric Project. There are archaeological sites nearby, but they are outside the project impact area.

I find that this project will have no effect upon any structure or site of historic, architectural, or archaeological significance as defined by the National Historic Preservation Act of 1966.

If I can be of further assistance concerning this matter, please do not hesitate to let me know.

Sincerely,


Earle G. Shettleworth, Jr.
State Historic Preservation Officer

EGS/slm

4.2 Fish Passage Alternatives Study

The NMFS has requested a Fish Passage Alternatives Study. The Licensee does not see that there is a basis for investing a large amount of time and money in this study while there are clearly opposing positions between the state and federal resource agencies regarding fisheries management goals and objectives.

In comments on the PAD, MDIFW's filing of June 26, 2019 states the agency actively manages Green Lake for native and indigenous species that would be heavily at risk of exposure to invasive species that are currently unable to migrate past the project. This is counter to NMFS stated restoration objectives for Atlantic salmon and alosine species to the watershed, including providing access to Green Lake.

Furthermore, in comments filed with the study request, NMFS states: "we note that project decommissioning with dam removal is the only alternative that would completely eliminate the threat to Atlantic salmon and their critical habitat posed by the Green Lake Project." On this statement GLWP notes the following:

- 1) Removal of the dam would jeopardize the water supply to the GLNFH. During the initial Project licensing process a minimum lake level restriction of 158.0 feet USGS was imposed until the penstock tap was complete because of insufficient flow capability into the GLNFH at levels lower than that. The sill elevation of the sluice gates at the dam is 154 feet USGS, providing a very rough estimate of the water level elevation of Green Lake after dam removal. With Green Lake at a level of 154 feet, the GLNFH water supply inflow head would be four feet lower than their stated requirement.
- 2) NOAA's *Endangered and Threatened Species: Determination of Endangered Status for the Gulf of Maine Distinct Population Segment of Atlantic Salmon* (Federal Register/ Vol. 74, No. 117/Friday, June 19, 2009, page 29344) states: "We (NMFS and USFWS) collectively referred to as the Services) have determined that naturally spawned and conservation hatchery populations of anadromous Atlantic salmon (*Salmo salar*) whose freshwater range occurs in the watersheds from the Androscoggin River northward along the Maine coast to the Dennys River, ... constitute a distinct population segment (DPS) ... the Gulf of Maine (GOM) DPS warrants listing as endangered under the Endangered Species Act (ESA)." The GLNFH contains hatchery populations of eight river specific strains of Atlantic salmon for its Atlantic salmon recovery efforts. Therefore, the GLNFH conservation populations of Atlantic salmon constitute endangered fish populations per NOAA's own regulations.
- 3) The NMFS has a stated goal of recovering a self-sustaining fish population of Atlantic salmon. They state that the removal of Green Lake Dam is the most beneficial outcome of the relicensing process towards that goal.

However, NMFS appears to be advocating an action which GLWP believe is likely to jeopardize the continued existence of any endangered species or threatened species, and thus threatens to contravene Section 7 of the Endangered Species Act.

Further, GLWP notes the following:

- 1) The Green Lake Watershed makes up approximately 8% of the overall Union River Watershed. Per the Maine Department of Marine Resources (MDMR) the total number of Atlantic Salmon that have been captured at the Ellsworth Dam on the Union River (and that would potentially be transported upstream) is 7 from 2008 through 2019. This is an average of about 0.6 fish per year.
Assuming waterflow is proportional to drainage area, and salmon swim upstream in proportion to water flow, this would amount to a total average of less than one fish migrating up Reeds Brook in 20 years. With essentially no Atlantic Salmon present in Reeds Brook, it is questionable whether the project has or will have an effect on Atlantic Salmon.
- 2) The NMFS Fish Passage Alternatives Study request 'Existing Information' section states that "The existing blockage to upstream and downstream passage was established in the previous licensing action." This is not accurate. Fish screens are part of the current gate structure that was constructed in the 1960s. GLWP does not know whether fish screens were in use at the Green Lake Dam before the 1960s or not, but it is clear that fish passage blockage at the dam was a pre-project condition.
- 3) The estimated cost of the study is \$50,000. The study is stated to not require any fieldwork and to not produce any detailed designs. It is the opinion of GLWP that this level of expenditure is neither consistent with the size nor impact of the project (as described in item 1 above). The proposals and justification for the fish passage study by NMFS appear to be based on the assumption that if fish passage issues render the Project non-viable the dam would be removed and Atlantic salmon would receive the maximum benefit. GLWP believe this is an invalid assumption for the following reasons:
 - a. Dam removal would cause severe problems for the water supply of the GLNFH.
 - b. The dam is not on federal land, and it pre-dates the original Project licensing by more than 100 years. Restoring the project lands to their pre-project state would remove neither the dam nor the fish passage blockage.
 - c. There are other benefits to the area, its inhabitants and the GLNFH from the dam and its responsible operation.
- 4) GLWP does not believe the expense and effort of a fish passage study at the Project would lead to an effective benefit for Atlantic salmon restoration. This study is not warranted for this Project.

4.2.1 References

MDMR Fish Counts – Updated November 29, 2019

<https://www.maine.gov/dmr/science-research/searun/programs/trapcounts.html>

5.0 ADDITIONAL INFORMATION REQUESTED

In a letter submitted on December 5, 2019, in Schedule B, FERC requested additional information on the Project. The Licensee will coordinate with the Green Lake Association and gather the data requested. The responses to schedule B will be filed with the initial study report that is due on February 9, 2021.

5.1 Terrestrial Resources

Section 5.7.1 of the PAD states that loons occur in the project area. However, the PAD does not describe the abundance, timing, activities, and general distribution of common loons within the project area. The Green Lake Association has indicated that they participate in the Maine Audubon's annual loon count on Green Lake. To assist staff with its environmental analysis of the proposed project, please provide the results from the loon counts on Green Lake. To the extent possible, the information should include annual totals of adults and chicks observed, the timing of nesting, and the locations of nests.

5.2 Recreation and Land Management

2. Private landowners expressed concern during scoping about the effects of lowering the lake level after Labor Day on recreation within the project boundary. To assist staff with its environmental analysis of the effects of the annual drawdown on recreation, please file daily impoundment levels for the project from September 1 through November 31 from 2015 through 2019.

3. During the proposed study plan meeting held on October 10, 2019, the Green Lake Association stated that it would work with landowners to collect data on private docks, in order to assist with an analysis of the effects of lowering the lake level on recreation. In order to assist Commission staff in its environmental analysis, please provide the information collected by the Green Lake Association on private docks, including, to the extent available: (1) the location of the dock on the impoundment (including any georeferenced data); (2) the type of dock (i.e., permanent, floating, lift-out docks); and (2) the elevation and/or depth of the dock, taken at its end. If possible, please also document the location/type of other shoreline private usage, such as beach areas.

6.0 INDIVIDUAL STUDY PLAN PROPOSALS

Background:

GLWP believes additional watershed-level context could be useful in understanding the studies appropriate to the relicensing of the Green Lake Water Power Project (the Project). For a sense of scale, a comparison of the Green Lake Project with the Ellsworth Project (FERC P-2727) is contained in the following table:

Table 6-1 Comparison of the Green Lake Project and the Ellsworth Project

Category	Green Lake	Ellsworth	Ratio
Nameplate Capacity	0.425 MW	8.9 MW	4.7%
Drainage Area	45 sq mi	547 sq mi	8.2%
Average Annual Generation	1,657 MWh	30,511 MWh	5.4%
Reservoirs	2,989 acres	10,090 acres	29.6%
Drawdown	3.2 ft	10.8 ft (Graham Lake)	29.6%
Storage	10,000 acre-ft	125,000 acre-ft	14.0%

The Green Lake Project is a very small hydroelectric installation—tiny by utility standards. Its licensed capacity is 500 kW, with one 400 kW fixed operating point unit and one 25 kW fixed operating point unit. With one “large” unit and one very small unit, there are essentially two flow states in the Project tailrace: 1) with the main unit on, 2) with the main unit off.

The following table summarizes the value of electricity generated by the Project. It shows the Emera Short-Term Energy-Only Avoided Costs (value per KWh) for the last 5 years and that value multiplied by average annual generation.

Table 6-2 Green Lake Average Gross Income

Year	Avg Rate (Cents/KWh)	Avg. Project Gross Income
2015	3.461	\$57,349
2016	3.591	\$59,503
2017	3.010	\$49,876
2018	4.222	\$69,959
2019	4.359	\$72,229
Average:	3.729	\$61,783

The income figures above are before taxes, employee payroll, insurance, equipment, supplies and maintenance and upgrade costs.

The Project does not generate significant value—though it does, with careful management, balance annual operation and maintenance costs. In addition, the Project provides other benefits that add to the social and environmental value of the Project:

- 1) It helps the Green Lake National Fish Hatchery pursue its goals of restoring Atlantic salmon.
- 2) It produces clean, renewable energy.
- 3) It maintains and operates the Green Lake Dam, summer and winter, good weather and bad.
- 4) It manages the water level in Green Lake on a daily basis for a range of recreational, environmental and other interests, despite varying weather conditions.
- 5) It maintains a minimum flow in Reeds Brook that is much less subject to impact by unusually dry periods.

We believe the benefits of the Green Lake Project can outweigh the costs and effort involved in continuing its existence. The above information is important to consider in assessing an appropriate cost and level of effort for studies as well as the nexus between the Project operations and effects on the resources to be studied. GLWP notes that the majority of study requests do not identify specific costs but rather cite the cost would be similar to other relicensings in the state/region. The Project must follow the same relicensing process as a large project, but that does not mean it *is* a large project or that the scale of studies necessary for a large project are necessary or appropriate.

GLWP looks forward to working with the resource agencies and all other interested parties to work out how information needed for the project to be relicensed can be acquired in a frugal and efficient manner, increasing the likelihood that the Project can continue to be sustainable.

Potential GLNFH Effects on Studies:

The Green Lake National Fish Hatchery (GLNFH) has a discharge permit for effluent into Reeds Brook/Graham Lake. The latest permit is MEPDES Permit #ME0002623, dated August 3, 2015.

In this permit the GLNFH, Special Conditions C. *AUTHORIZED DISCHARGES* states the permittee is authorized to discharge from Outfalls #001A and #002A. Per 2. *PERMIT SUMMARY, d. Wastewater Treatment*, Outfall #001A is the discharge from the wastewater settling ponds into a Section of Reeds Brook directly influenced by Graham Lake. Per 2.

PERMIT SUMMARY, c. Source Description/Facility Operation, Outfall #002A is filter backwash water from the GLNFH intake water treatment facility which is discharged via a 14 inch pipe directly into Reeds Brook. This discharge pipe is approximately 480 feet downstream from the Green Lake dam.

In the permit section *SPECIAL CONDITIONS, H. PESTICIDES AND OTHER COMPOUNDS*, the following compounds were identified in the permittee's application as currently being in use, and the permittee is authorized to discharge them: salt, baking soda, Lysol no-rinse sanitizer, PVP iodine. Section *G. USE OF DRUGS FOR DISEASE CONTROL* notes that formalin and Tricaine-S (Fish anesthetic) are also in use by GLNFH and authorized for discharge, in addition to other drugs, as long as the drugs and their uses are approved by the FDA. This section also specifies what conditions must be met for other drugs to be used.

GLWP is concerned that the discharge of disinfectants, drugs and other chemicals by the GLNFH could interfere with studies in Reeds Brook and conceivably the Project tailrace (such as a macroinvertebrate study). It would be unfortunate if an extremely rare or one-time discharge of a substance happened to occur upstream of a macroinvertebrate collector during a sampling period.

GLWP believes there must be coordination between the Project, the GLNFH, Maine DEP and any other involved agencies to verify that studies measure normal conditions and not unusual outside influences such as hatchery discharge of disinfectants or drugs.

Study Requests:

The Licensee is proposing several studies to address resources for which insufficient information was previously available for the PAD or for which specific issues have been identified through agency comments. The individual study plans detailed below are proposed for the Green Lake Project relicensing and most will commence in the summer of 2020. The Licensee proposes that most studies, unless otherwise noted in individual plans, be completed in a single field season and that a second field season for individual studies may only be required after evaluation of the Initial Study Report.

6.1 Water Quality – Study #1

Green Lake Classification:

Green Lake is an Oligotrophic Class GPA water body. The Green Lake Project impoundment is a water storage facility in character.

Definition: 5. Great ponds. "Great ponds" means any inland bodies of water which in a natural state have a surface area in excess of 10 acres and any inland bodies of water artificially formed or increased which have a surface area in excess of 30 acres.

1. Class GPA waters. Class GPA is the sole classification both of great ponds and of natural lakes and ponds less than 10 acres in size.

A. Class GPA waters must be of such quality that they are suitable for the designated uses of drinking water after disinfection, recreation in and on the water, fishing, agriculture, industrial process and cooling water supply, hydroelectric power generation, navigation and as habitat for fish and other aquatic life. The habitat must be characterized as natural. [2003, c. 227, §5 (AMD); 2003, c. 227, §9 (AFF); 2005, c. 561, §10 (AFF).]

B. Class GPA waters must be described by their trophic state based on measures of the chlorophyll "a" content, Secchi disk transparency, total phosphorus content and other appropriate criteria. Class GPA waters must have a stable or decreasing trophic state, subject only to natural fluctuations, and must be free of culturally induced algal blooms that impair their use and enjoyment. The number of Escherichia coli bacteria in these waters may not exceed a geometric mean of 29 CFU per 100 milliliters over a 90-day interval or 194 CFU per 100 milliliters in more than 10% of the samples in any 90-day interval. [2017, c. 319, §10 (AMD).]

Reeds Brook Classification:

Reeds Brook, partially fed by bypass dam leakage flow of 1-cfs from the Project is classified as Class B water to the confluence of Graham Lake.

Class B waters must be of such quality that they are suitable for the designated uses of drinking water after treatment; fishing; agriculture; recreation in and on the water; industrial process and

cooling water supply; hydroelectric power generation; navigation; and as habitat for fish and other aquatic life. The habitat must be characterized as unimpaired.

The dissolved oxygen content of Class B waters may not be less than 7 parts per million or 75% of saturation, whichever is higher, except that for the period from October 1st to May 14th, in order to ensure spawning and egg incubation of indigenous fish species, the 7-day mean dissolved oxygen concentration may not be less than 9.5 parts per million and the 1-day minimum dissolved oxygen concentration may not be less than 8.0 parts per million in identified fish spawning areas.

Discharges to Class B waters may not cause adverse impact to aquatic life in that the receiving waters must be of sufficient quality to support all aquatic species indigenous to the receiving water without detrimental changes in the resident biological community.

6.1.1 Goals and Objectives

The objectives of the suite of studies, including impoundment trophic state, impoundment aquatic habitat, temperature and dissolved oxygen, and benthic macroinvertebrate, are to collect contemporary water quality data in Green Lake and Reeds Brook upstream and downstream of the Green Lake dam to determine whether the Project waters meet MDEP's water quality standards and maintain the structure and function of the resident benthic macroinvertebrate community.

6.1.2 Known Resource Management Goals

The resource management goal is to ensure attainment of Maine Water Quality Standards pursuant to the provisions of the *Water Classification Program*, 38 M.R.S. Sections 464- 468 and to certify attainment of such, with any necessary conditions, under Section 401 of the Federal Water Pollution Control Act (a.k.a. Clean Water Act).

6.1.3 Background and Existing Information

Water Quality has been being monitored and recorded in Green Lake since the early 1970s (at least 1974). The Green Lake Association contributes to this. The information is available on the Lakes Of Maine web site (<https://www.lakesofmaine.org>). The downloadable Spreadsheet

describes Green Lake as having above average water quality and as Oligotrophic (as in low productivity).

Currently GLWP has data from the LakesOfMaine website that shows that the Secchi Disk Transparency has improved from an average in 1974 of 6.7 meters to an average in 2018 of 8.5 meters.

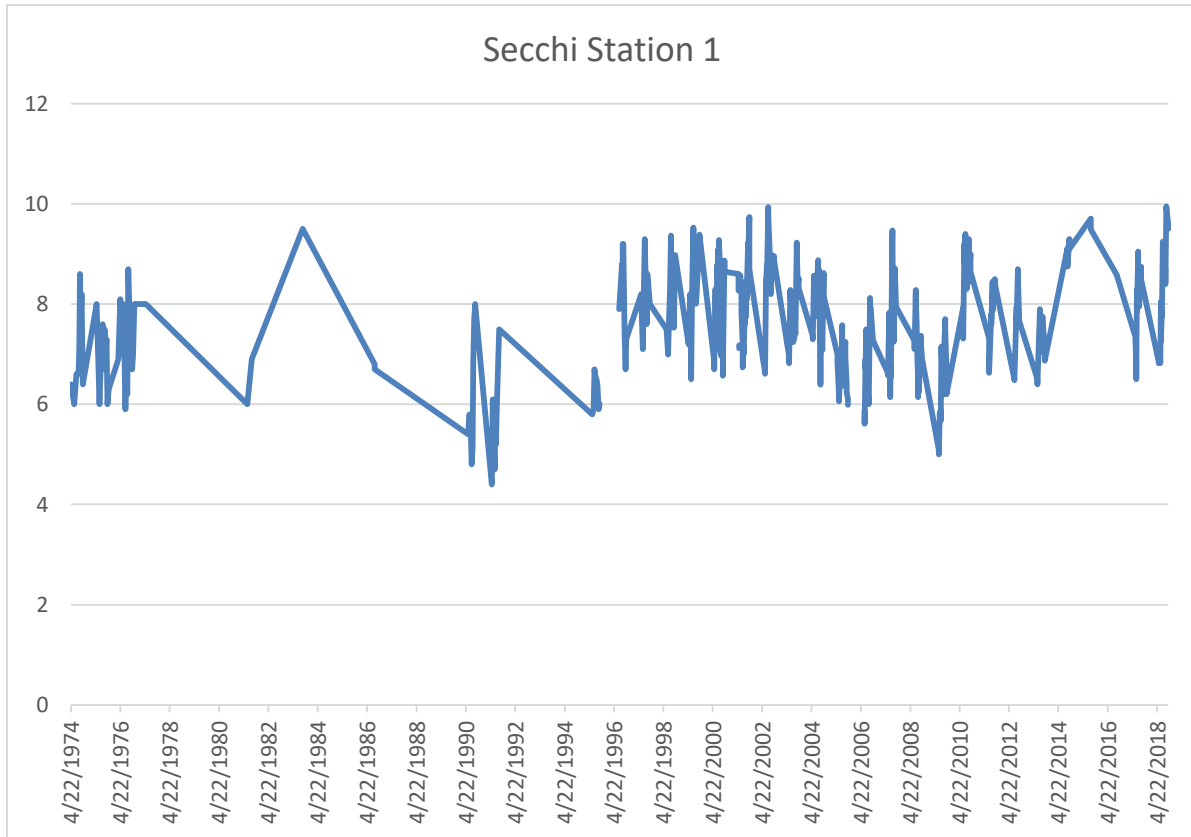


Figure 6-1 Historic Secchi Disk Data

Total Phosphorus on the surface in 1974 was 3.5 (g/L) and in 2012 it was 3.5 (g/L).

Average Chlorophyll-a in 1981 was 1.7 (g/L) and in 2016 it was 1.6 (g/L).

Dissolved Oxygen in September 1976 at 0 meters with a temperature of 17.8C was 9.2 ppm and at 20 meters with a temperature of 6.3 C was 9.3 ppm – in September 2018 at 0 meters with a temperature of 23.9C was 7.9 ppm and at 20 meters with a temperature of 5.8C was 10.3 ppm.

The data in the MaineLakes_Geography_Morphometry spreadsheet states “Also included is the Maine Department of Environmental Protection (MDEP) trophic state assessment for each surveyed lake.’ For Green Lake the data for the Water Quality Statement is “Above average”.

This data appears to show that Green Lake has a “stable or decreasing trophic state.”

MDEP has noted that the timing of the historic data collection is not sufficient to meet MDEP requirements.

6.1.4 Project Nexus

Data collected will identify trophic state and aquatic habitat of Project waters and will be used to evaluate effects on water temperature and DO concentrations in Reeds Brook downstream of the Green Lake dam and may identify stratification effects on the impounded water and habitat. Information will be used to evaluate whether the project meets Maine water quality parameters, which will inform the water quality certification process.

6.1.5 Methodology

Water quality studies will be conducted as specified in MDEP’s *Sampling Protocol for Hydropower Studies* (September 2019) and MDEP “Methods for Biological Sampling and Analysis of Maine’s Rivers and Streams” (Davies and Tsomides 2002). The studies will be conducted roughly as described below, but where there are differences, MDEP’s documents that are current and publicly available as of the date of this RSP (January 11, 2020) will prevail.

6.1.5.1 Impoundment Trophic State Study – 1-1

Sample parameters will include Secchi disk transparency, water temperature and DO profiles (1-meter intervals), and epilimnetic core samples of total phosphorus, chlorophyll-a, color, pH, and total alkalinity. GLWP will sample from the established Lakes of Maine Green Lake Station 1 and Station 2 locations. These sampling locations have been determined to be sited in the deepest areas of the northwest and southeast basins of the lake. Samples will be captured twice per month for five consecutive months (June through October 2020).

Additional lake trophic and dissolved metal analyses will be collected during one of the late summer sampling events (typically in August, but dependent on weather conditions). The late

summer sample parameters will include total phosphorus, nitrate, chlorophyll-a, color, dissolved organic carbon, pH, total alkalinity, total iron, total and dissolved aluminum, total calcium, total magnesium, total sodium, total potassium, specific conductance, chloride, and sulfate. The late season sample will be completed regardless of whether the impoundment stratifies; if the waterbody is thermally stratified (i.e., change in water temperature $T \geq 1^{\circ}\text{C}/\text{meter}$), samples will be collected (1) from an epilimnetic core, (2) at the top of the hypolimnion, and (3) at one meter above the sediment. Samples will be collected with an epilimnetic core or a Van Dorn sampler, or equivalent. If the waterbody is not thermally stratified, only one sample from an integrated epilimnetic water core will be taken from the surface to two times the Secchi disk depth or within 1 meter of the bottom, whichever is less.

Water samples will be delivered on ice to the state of Maine's Health and Environmental Testing Laboratory (HETL) in Augusta (or other qualified lab) within 24 hours of sampling. Appropriate chain-of-custody and sample labeling techniques will be followed. HETL's laboratory detection limits differ slightly from the detection limits identified in MDEP's sampling protocol; however, MDEP has reviewed and approved the HETL detection limits in identical water quality studies at hydropower projects in Maine. Table 6-3 provides the lab detection limits required by the MDEP and the proposed HETL detection limits.

Table 6-3 Detection limits for impoundment trophic sampling

Parameter	MDEP Detection Limit	Proposed HETL Detection
Total phosphorus	0.001 mg/L	0.002 mg/L*
Nitrate	0.01 mg/l	0.05 mg/l*
Chlorophyll a	0.001 mg/l	0.001 mg/l
Color	1.0 SPU	5.0 SPU*
DOC	0.25 mg/l	1.0 mg/l*
pH	0.1 SU	0.1 SU
Total alkalinity	1.0 mg/l	1.0 mg/l
Total iron	0.1 mg/l	0.2 mg/l*
Total dissolved aluminum	0.01 mg/l	0.2 mg/l*
Total calcium	1.0 mg/l	1.0 mg/l
Total magnesium	0.1 mg/l	1.0 mg/l*
Total sodium	0.05 mg/l	1.0 mg/l*
Total potassium	0.05 mg/l	1.0 mg/l*
Specific conductance	1 ms/cm	2 ms/cm*
Chloride	1.0 mg/l	1.0 mg/l
Sulfate	0.5 mg/l	1.0 mg/l*

* Detection limit differs from MDEP sampling protocol.

Water temperature and DO will be measured with a handheld YSI ProSolo ODO meter (or similar). The calibration of the YSI ProSolo ODO meter will be checked in the field prior to each sampling event. According to the manufacturer's specifications, the accuracy of the YSI ProSolo ODO meter is ± 0.1 mg/L or $\pm 1\%$ of the reading, whichever is greater, for the DO concentration range of 0-20 mg/L; $\pm 1\%$ air saturation or $\pm 1\%$ of the reading, whichever is greater, for DO percent saturation; and $\pm 0.2^\circ\text{C}$ for temperature.

6.1.5.2 Impoundment Aquatic Habitat Study – 1-2

For lakes, ponds, and riverine impoundments, determination of attainment of the designated use 'habitat for fish and other aquatic life' will be determined as follows. Using a depth of twice the mean summer Secchi disk transparency, determined from the Trophic State Study or historic DEP data, as the bottom of the littoral zone, the volume and surface area dewatered by the drawdown will be calculated to determine if at least 75% of the littoral zone remains watered at all times. Alternatively, studies of fish and other aquatic life communities, including freshwater mussels, may be conducted to demonstrate that the project maintains 'structure and function of the resident biological community' even if a drawdown results in less than 75% of the littoral zone remaining watered at all times. Existing Secchi disk information (see section 7.1.3) suggests that it is unlikely that an analysis of the Impoundment Trophic State Study results will indicate less than 75% of the littoral zone remains watered at all times. The maximum drawdown of Green Lake is approximately one meter.

6.1.5.3 Impoundment Temperature Study – 1-3

Temperature loggers will be installed at two locations in the impoundment from September until the end of November. The temperature data will be logged hourly during this period. The locations and depths for the temperature loggers will be determined in consultation with Maine DIFW and Maine DEP. The data collected will be used to inform an analysis of the effects of project drawdown on arctic char.

6.1.5.4 Downstream Benthic Macroinvertebrate Study – 1-4

GLWP will employ a qualified researcher to sample the benthic macroinvertebrate community in the Reeds Brook bypass, powerhouse tailrace and the confluence of the tailrace and Reeds Brook. MDEP staff will verify that the locations are acceptable. The sampling will be conducted

in accordance with the MDEP Methods for Biological Sampling and Analysis of Maine's Rivers and Streams (Davies and Tsomides 2014). Wading and/or snorkeling will be used as needed to rapidly bioassess the habitats to find suitable sample sites (hard eroded substrates in flowing water). The researcher will install rock-filled wire baskets/mesh bags for a period of $28 \pm$ four days during the late summer, low flow period (July 1 to September 30).

Laboratory methods will include sorting the entire sample for invertebrates and identification to genus or species as practicable. Data will be organized in order that it can be submitted to MDEP for input into the statistical model which uses linear discriminate functions to classify sampling sites according to the standards in the aquatic life use classification system. The Division of Environmental Assessment at MDEP uses a linear discriminant water quality model (LDM) and professional judgment to determine attainment of water quality class. The LDM results are percentages indicating the probability of a site attaining water quality Class A and AA (the biocriteria requirements are the same), B, or C. To attain a particular class, a site must have a 60% or greater score in the test for that class. The MDEP linear discriminant model is able to classify benthic macroinvertebrate communities to Class A aquatic life standards; a Class A determination will also indicate that Class AA standards are attained because the aquatic life criteria for both classes are the same.

6.1.5.5 Downstream Temperature and Dissolved Oxygen Study – 1-5

GLWP will monitor water temperature and DO downstream of the Project structures with submersible Onset Hobo datasonde(s) (or similar) in accordance with MDEP's *Sampling Protocol for Hydropower Studies* (September 2019). The datasonde(s) will be installed in two locations (1) in the Reeds Brook bypass reach below the dam and above the upper GLNFH discharge pipe and (2) in the tailrace downstream of the powerhouse (with MDEP review and approval). Each datasonde will be deployed from an anchored buoy and weighted cable system or attached to a vertical mounting post, will be encased in a flow-through PVC container, and will be equipped with a bio-fouling guard. The datasonde will be programmed to continuously measure water temperature and DO every hour during July and August to sample the low flow, high temperature period. The instrument will be calibrated at the beginning of the monitoring period and at periodic intervals, as needed, per the manufacturer's specifications. The equipment will be checked, and the data will be downloaded every other week.

Data will be collected in accordance with MDEP’s “Temperature and Dissolved Oxygen Study” protocol under “Rivers and Streams” in the MDEP *Sampling Protocol for Hydropower Studies* (September 2019)

All downstream study activities will be coordinated with Black Bear Hydro when practical and necessary to allow the collection of data when Graham Lake is low enough to ensure valid data can be collected. As noted in section 2, the level of Graham Lake is sometimes neither predictable nor controllable within specific ranges. The approval of sampling locations by MDEP will be taken as a certification that these locations are known to be suitable to acquire the data they need despite lake level variations that occur due to natural events.

6.1.6 Consistency with Generally Accepted Scientific Practice

This study employs generally accepted practices for evaluating water quality at hydroelectric projects. Sampling protocols are based on water quality parameter standard operating procedures (SOP’s) developed by the MDEP’s *Sampling Protocol for Hydropower Studies* (September 2019) and those detailed in the MDEP “Methods for Biological Sampling and Analysis of Maine’s Rivers and Streams” (Davies and Tsomides 2014).

6.1.7 Deliverables and Schedule

The data gathering will be conducted from June through October. A progress report will be filed in August 2020 and the data and results will be summarized in the Initial Study Report which will be filed with FERC in the Spring of 2021.

6.1.8 Cost and Level of Effort

The estimated cost to conduct this study is \$50,000.

6.1.9 References

Maine Revised Statutes. 2017. 38 MRSA §480-B. URL: [1987, c. 809, §2 (NEW) .]
<http://legislature.maine.gov/statutes/38/title38sec480-B.html>

[www.LakesOfMaine.Org spreadsheet MaineLakes_Geography_Morphometry.xls](#)

Maine Department of Environmental Protection (MEDEP). 2011. 2010 Integrated Water Quality Monitoring and Assessment Report. DEPLW-1187.

Maine Revised Statutes. 2017. 38 MRSA §465-A. URL:
<http://www.mainelegislature.org/legis/statutes/38/title38sec465-A.html>

Maine Revised Statutes. 2017. 38 MRSA §465. URL:
<http://www.mainelegislature.org/legis/statutes/38/title38sec465.html>

MDEP – Methods for Biological Sampling and Analysis of Maine’s Rivers and Streams, DEP
LW0387- B2002. www.maine.gov/dep/water/monitoring/biomonitoring/material.html

Davies, S. P. and L. Tsomides. 2014. Methods for Biological Sampling and Analysis of Maine’s
Rivers and Streams. Maine Department of Environmental Protection, Bureau of Land and
Water Quality/ DEP LW0387-C2014, Revised April 2014.

6.2 Aquatic Habitat Cross-Section and In-stream Flow Study –Study #2

Two versions of this study were requested by the Maine DEP (aquatic habitat cross-section) and the NMFS (in-stream flow). GLWP proposes variation of these studies consistent with those conducted at other hydropower projects in Maine to characterize habitat and flow conditions in Reeds Brook.

This study requires releasing water from Green Lake via one of the gates at the dam. Per the current Project license, GLWP is not allowed to use or release water from the dam if the lake level is at or below the minimum level for the season in question. During a very dry summer, this could preclude performing this test during late summer.

6.2.1 Goals and Objectives

Assessment of aquatic habitat downstream of the Green Lake dam is required to determine whether current in-stream flow releases meet Maine habitat and aquatic life criteria. An aquatic habitat cross-section flow study measures depth, velocity, and wetted width along established transects at various discharges to determine flows where at least 75% of the stream cross-sectional area has enough water to provide sufficient habitat for fish and other aquatic organisms. Data will be evaluated to determine if the downstream waters provide sufficient quantity of water to maintain riverine aquatic habitat in the bypass and tailrace reaches.

6.2.2 Known Resource Management Goals

Maine DEP requested this study. Their resource management goal is to ensure attainment of Maine Water Quality Standards pursuant to the provisions of the *Water Classification Program*, 38 M.R.S.A. Sections 464-468 and to certify attainment of such, with any necessary conditions, under Section 401 of the Federal Water Pollution Control Act (a.k.a. Clean Water Act).

NMFS also requested this study. NMFS is a federal resource agency with a mandate to protect and conserve fisheries resources and associated habitat.

6.2.3 Background and Existing Information

Reeds Brook downstream of the Green Lake dam must meet Maine habitat and aquatic life criteria. Maine DEP file review indicates data is insufficient in the bypass and tailrace reaches of the Green Lake Hydroelectric Project to assess attainment of these criteria.

Insufficient data is included in the PAD to determine if the current Project license requirement of one cfs minimum flow in the bypass section of Reeds Brook is likely to jeopardize the continued existence of Atlantic salmon or result in the destruction or adverse modification of habitat of Atlantic salmon.

The tailrace of the Project is heavily influenced by the water level of Graham Lake. Since the level of Graham Lake is neither controlled nor heavily influenced by Project operation, it is an external influence in any tailwater flow studies. The Project operates only fixed operating point units, one with an approximate flow of 90 cfs and one with an estimated flow of 6 cfs.

6.2.4 Project Nexus

Data collected will be used to evaluate aquatic habitat in Reeds Brook downstream of the Green Lake dam. Information will be used to evaluate whether the project meets Maine habitat and aquatic life criteria and will inform the water quality certification process.

6.2.5 Methodology Consistent with Accepted Practice

GLWP will conduct this study as follows:

1. GLWP will consult with the Maine DEP and the NMFS to select transects in the bypass and tailrace area that are suitable for characterizing and measuring the different types and reaches of fish habitat and cross section, and to select the flow values to be used.
2. Each end of each transect will be marked by ribbons or stakes on the shore.
3. The distance along Reeds Brook that each transect represents will be measured.
4. Using the minimum flow conditions, each transect will be mapped as to bank full cross sectional area, water depth, velocity, wetted width, habitat types and length of each habitat type along the transect. Stream characteristics will be photographed and the slope of the stream measured and recorded.
5. The flow will be increased to the next flow value to be used by opening a gate at the dam.
6. For each transect, measure water depth, velocity and wetted width.
7. Repeat steps 5 and 6 for any remaining flow values.

This procedure is designed to meet the requirements of the MDEP *Sampling Protocol for Hydropower Studies* (September 2019) when combined with the Benthic Macroinvertebrate and to also collect fish habitat information requested by NMFS.

6.2.6 Deliverables and Schedule

The data gathering will be conducted from June through October. A progress report will be filed in August 2020 and the data and results will be summarized in the Initial Study Report which will be filed with FERC in the Spring of 2021.

6.2.7 Cost and Level of Effort

This study is estimated to cost \$15,000 to \$30,000 depending on the number of transects and flow values that are required by resource agencies.

6.2.8 References

- NMFS (2016). NOAA Fisheries Habitat Enterprise Strategic Plan: 2016-2020, <https://repository.library.noaa.gov/view/noaa/14994>: 30.
- URFCC (2015). Comprehensive Fishery Management Plan for the Union River Drainage 2015 - 2017. Union River Fisheries Coordinating Committee.
- USASAC (2019). "Annual report of the U.S. Atlantic Salmon Assessment Committee. Report No. 31 - 2018 Activities. Prepared for the U.S. Section to NASCO."
- USFWS and NMFS (2019). Recovery Plan for the Gulf of Maine Distinct Population Segment of Atlantic Salmon (*Salmo salar*): Final Plan for the 2009 ESA Listing, US Fish and Wildlife Service, National Marine Fisheries Service.
- USOFR (2009). 74 FR 29300. Endangered and threatened species; designation of critical habitat for Atlantic salmon (*Salmo salar*) Gulf of Maine Distinct Population Segment; Final Rule. Department of Commerce National Oceanic and Atmospheric Administration. Federal Register 74(117): 29300–29341. June 19, 2009.
- Wright, J., J. Sweka, A. Abbott and T. Trinko (2008). GIS-Based Atlantic Salmon Habitat Model. Appendix C in: NMFS (National Marine Fisheries Service). 2008. Biological valuation of Atlantic salmon habitat within the Gulf of Maine Distinct Population Segment. DRAFT. NOAA National Marine Fisheries Service, Northeast Regional Office, Gloucester, MA.
- Davies, S. P. and L. Tsomides. 2014. Methods for Biological Sampling and Analysis of Maine's Rivers and Streams. Maine Department of Environmental Protection, Bureau of Land and Water Quality/ DEP LW0387-C2014, Revised April 2014.

6.3 American Eel Surveys – Study #3

The USFWS requested that Green Lake conduct an upstream American eel passage study.

The PAD references American eel in various locations and notes that American eel currently inhabit waters upstream of the Project (e.g., Table 5-7). The PAD does not specifically note that the presence of American eel in waters upstream of the Project implies that juvenile American eel are able to ascend Reed Brook and climb wetted surfaces of the dam without aid of any engineered upstream fish passage facilities. Such opportunistic upstream passage behavior is common throughout the range of American eel. The USFWS states the above in documentation of such behavior at many dams, however, this climbing behavior does not provide an efficient means of passing over a dam.

6.3.1 Goals and Objectives

The goal of this study is to assess the need and potential location(s) for a dedicated American eel upstream passage facility at the Green Lake Project. The objectives of the study are to:

- conduct systematic nighttime surveys to identify eel presence/absence, abundance, distribution, and behavior at the Green Lake Project;
- identify areas where eel congregate or attempt to ascend wetted structures; and
- identify the need for and potential locations for an upstream eel passage system.

6.3.2 Known Resource Management Goals

While there is no specific management plan for American eel in the state of Maine, all Atlantic states must, when regulating commercial and recreational fishing activity, comply with the management goals and objectives set forth by the Atlantic States Marine Fisheries Commission (ASMFC), which include:

1. Protect and enhance the abundance of American eel in inland and territorial waters of the Atlantic States and jurisdictions and contribute to the viability of the American eel spawning population.
2. Provide for sustainable commercial, subsistence, and recreational fisheries by preventing overharvest of any eel life stage (ASMFC, 2012).

American eel were considered for listing under the Endangered Species Act (ESA) in 2007, but the USFWS determined that the listing was not warranted. The USFWS is currently completing a status review pursuant to a second listing petition submitted in 2010 by the Council for Endangered Species Act Reliability (USFWS, 2012).

6.3.3 Background and Existing Information

Currently, there is not an upstream passage facility for juvenile eel at the Green Lake Project dam. Nonetheless, American eel are believed to occur in the project area because they are able to climb rough wet surfaces, such as bedrock or concrete areas with sustained leakage. There is no site specific information on eel abundance, size distribution, or behavior at the Green Lake Project.

6.3.4 Project Nexus

The Green Lake Project structures are believed by agencies to block the upstream and downstream movement of American eel. Passage facilities designed for American eel may be needed to reestablish the connection between rearing and spawning habitats.

6.3.5 Methodology

GLWP will conduct nighttime visual surveys to collect information about the abundance, behavior, and location of juvenile American eel at the Green Lake Project during their upstream migration. Based on experience at other hydroelectric projects in Maine, most juvenile upstream eel movement does not occur during daylight, but consistently occurs during dusk and evening hours, primarily between June 1 and August 31. GLWP will conduct observation surveys at night periodically throughout the expected primary migration season from May through July, depending on safe access (e.g., limited spill conditions), and efforts will focus on the peak migration time of June. If consistent patterns in eel behavior and migration are observed during the June 1 to June 30 monitoring effort, GLWP will consult with the agencies to determine if continuation of weekly monitoring from July 1 to August 31 is necessary. Should the agencies and GLWP agree once weekly monitoring needs to be continued but if only minor changes in eel behavior or relative abundance are noted during the July 1 – August 31 portion of the study, GLWP may elect to conduct the monitoring every other week.

Prior to the start of monitoring, GLWP will perform a site visit to identify areas along the dam and other project structures where eel may congregate or attempt to ascend the dam, and to determine if these areas are safely accessible. Nighttime eel surveys will likely take place at the downstream face of the dam and spillway, and the waste gate section, assuming access to these areas is safe and viewing conditions are satisfactory. This will be coordinated with USFWS.

Given the propensity for juvenile eel to move upstream during rain storms or under cloud cover, surveys will be timed to coincide with precipitation, if possible. Each survey will begin approximately one hour after sunset, and will last one to two hours depending on the number of eel observed. The surveys will be conducted by a two-person crew. The field crew will make visual observations using spotlights and binoculars by wading or traversing areas below the dam. If access or safety considerations are a factor, observations will be made from safely accessible sections of the dam or from other project structures. During each survey, the field crew will:

- Photograph and document each area where eel congregate and attempt to pass the Green Lake Project;
- Record the date, start time, end time, and survey conditions (i.e., weather and spill conditions);
- Approximate the number of eel per location;
- Make observations about eel behavior;
- Estimate the size range of observed eels; and
- Note the presence or absence of predators.

Based on the results of the 2020 surveys, and in consultation with the resource agencies, GLWP may elect to perform additional monitoring in 2021.

6.3.6 Consistency with Generally Accepted Scientific Practice

This study employs accepted practices for evaluating upstream eel passage at hydroelectric projects.

6.3.7 Deliverables and Schedule

The site visit and nighttime field surveys will be conducted between May 1 and August 31, 2020. Data analysis will begin after completion of the study. A draft report summarizing the survey data and results will be provided to the stakeholders by approximately February 1, 2021.

6.3.8 Cost and Level of Effort

The level of effort for this study consists of 14 nighttime surveys, data analysis, and reporting, which is adequate to meet the goals and objectives of the study. The estimated cost to conduct the American eel upstream passage study is \$20,500.

6.3.9 References

Atlantic States Marine Fisheries Commission, 2012. American Eel Stock Assessment Overview (May 2012).

Maine Department of Marine Resources (MDMR). 2002. Draft Fishery Management Plan Cobbosseecontee Stream. Prepared by Gail S. Wippelhauser. December 2002.

USFWS. 2012. U.S. Fish and Wildlife Service Endangered Species Program. The American Eel.

6.4 Erosion Reconnaissance Survey – Study #4

MHPC states “The Project Area of Potential Effects is defined as the lands enclosed by the Project’s boundary and the lands or properties outside of the Project’s boundary where project construction and operation or project-related recreational development or other enhancements may cause changes in the character or use of historic properties, if any historic properties exist.”

The Project Boundary is defined as the boundary line defined in the Project license issued by FERC that surrounds those areas needed for operation of the Project. In the case of the Green Lake Hydroelectric Project, the project boundary encompasses the impoundment up to 6.1 miles upstream at an elevation of 161 feet USGS. The project boundary also includes the bypass reach and encloses the dam, penstock, and the powerhouse.

The Project Impoundment is defined as the water body whose surface elevation is controlled by the project dam at Green Lake.

This survey will provide information to establish the Project APE for the Green Lake Project. Given the APE, GLWP will then utilize a MHPC approved historian to identify potentially affected structures of historical significance.

6.4.1 Goals and Objectives

The objective of this study is to conduct an erosion reconnaissance survey around Green Lake and from there to establish the APE and then to identify structures of potential architectural significance within the APE. The historic resource survey will be accomplished with a literature review and architectural resource survey.

6.4.2 Known Resource Management Goals

Per Section 106 (36 CFR 800), the Maine State Historic Preservation Officer (SHPO) represents the interests of the State of Maine and its citizens, and advises and assists FERC in determining the significance of cultural resources within the APE. The SHPO administers cultural resource management reviews under Section 106 of the National Historic Preservation Act, which involves providing technical guidance and professional advice on the potential impact of licensed projects, such as the Green Lake Project, on the state’s cultural resources.

6.4.3 Background and Existing Information

There is no data to suggest that there are any structures of historical significance within the Green Lake Project Area of Potential Effect. We have no intention of making any significant changes to the management and operation of the lake or downstream flows at the Project.

6.4.4 Project Nexus

MHPC have not provided any data on the nexus as no modifications to existing project facilities are proposed.

6.4.5 Methodology

To Define the Area of Potential Effect (APE):

GLWP will inspect the lake edge by eye and by map contour to determine erosion potential. Locations where erosion is visible or likely will be noted on a map of the area, will be photographed and become the perimeter of the proposed Area of Potential Effect.

To Identify Architecture Of Interest:

Background research will be conducted on the history and development of the Project area and its surroundings. Published histories and previous architectural and historical studies of Hancock county will be consulted, as well as historic maps and atlases of the county. At the MHPC in Augusta, survey forms for all previously surveyed resources will be reviewed as well as cultural resource management reports for previous surveys conducted in the Project APE. This will be done to identify and record information on all historically significant resources within the Area of Potential Effect (APE) that are at least 50 years old.

6.4.6 Consistency with Generally Accepted Scientific Practice

This study employs generally accepted surveying practices.

6.4.7 Deliverables and Schedule

It is anticipated that the work would be completed in 2020 and the results included in the Initial Study Report (ISR).

6.4.8 Cost and Level of Effort

The estimated cost for the proposed historic architectural survey is \$10,000. The Licensee believes that the proposed level of effort is adequate to determine the Area of Potential Effect and obtain information on historic architectural resources within the Project APE.

6.4.9 References

54 U.S. Code § 306108. Effect of undertaking on historic property – this replaced Section 106 of the National Historic Preservation Act of 1966 (NHPA) in 2014

§ 800.16 Definitions.

(d) Area of potential effects means the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.

(y) Undertaking means a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license or approval.

Document Content(s)

Green Lake Project 7189 RSP Letter to the Secretary.PDF.....1
Green Lake Project 7189 RSP Distribution List.PDF.....2
2020-01-11 Green Lake Revised Study Plan.PDF.....4



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
55 Great Republic Drive
Gloucester, MA 01930-2276

JAN 24 2020

Caroline Kleinschmidt
Green Lake Water Power Co.
120 Hatchery Way
Ellsworth, Maine 04605

RE: Comments on the Revised Study Plan for the Green Lake Hydroelectric Project
(FERC No. 7189)

Dear Ms. Kleinschmidt:

On January 13, 2020, Green Lake Water Power Company (GLWPC) filed its revised study plan for the Green Lake Hydroelectric Project (P-7189) on Reeds Brook in Ellsworth, Maine. Despite our comments filed on December 12, 2019, the revised study plan indicates that GLWPC does not intend to adopt the passage alternatives study that we requested on July 26, 2019. We continue to disagree with GLWPC's decision and stand by our study request.

If you have any questions or need additional information, please contact Dan Tierney via email (Dan.Tierney@noaa.gov) or 207-866-3755.

Sincerely,

A handwritten signature in black ink that reads "Julie Crocker for".

Jennifer Anderson
Assistant Regional Administrator
for Protected Resources

File Code: FERC – Green Lake relicensing



Document Content(s)

Green Lake Hydro RSP Comment_24Jan2020.PDF.....1

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426
February 5, 2019

OFFICE OF ENERGY PROJECTS

Project No. 7189-014 – Maine
Green Lake Project
Green Lake Water Power Company

Via Electronic Mail

Ms. Caroline Kleinschmidt
Green Lake Water Power Company
120 Hatchery Way
Ellsworth, ME 04605

Reference: Study Plan Determination for the Green Lake Project

Dear Ms. Kleinschmidt:

Pursuant to 18 C.F.R. § 5.13(c) of the Commission's regulations, this letter contains the study plan determination for the Green Lake Project No. 7189. The project is located on Green Lake and Reeds Brook in Hancock County, Maine. The determination is based on the study criteria set forth in section 5.9(b) of the Commission's regulations, applicable law, Commission policy and practice, and the record of information.

Background

On September 13, 2019, Green Lake Water Power Company (Green Lake Power) filed its proposed study plan (PSP) for studies on water quality, aquatic habitat, and fish passage in support of its intent to relicense the project.

Green Lake Power held a study plan meeting on October 10, 2019, to discuss the PSP. Comments on the PSP were filed by Commission staff, the National Marine Fisheries Service (NMFS), the Maine Department of Environmental Protection (Maine DEP), the Maine Division of Inland Fisheries and Wildlife (Maine DIFW), the Maine Historic Preservation Commission, and the Maine Council and Downeast Chapter of Trout Unlimited.

Green Lake Power filed a revised study plan (RSP) on January 13, 2020, which included the three studies filed in the PSP and an additional study on cultural resources. Comments on the RSP were filed by NMFS.

Study Plan Determination

Project No. 7189-014

2

Of the four studies proposed by Green Lake Power, all are approved as filed (see Appendix A). The additional study requested by NMFS is not required (see Appendix B). Commission staff reviewed all comments and considered all study plan criteria in section 5.9 of the Commission's regulations. However, only the specific study criteria particularly relevant to the determination are referenced in Appendix B.

Studies for which no issues were raised in comments on the RSP are not discussed in this determination. Unless otherwise indicated, all components of the approved studies must be completed as described in Green Lake Power's RSP. Pursuant to section 5.15(c)(1) of the Commission's regulations, the initial study report for all studies in the approved study plan must be filed by February 9, 2021.

Nothing in this study plan determination is intended, in any way, to limit any agency's proper exercise of its independent statutory authority to require additional studies. Green Lake Power may choose to conduct any study not specifically required herein that it feels would add pertinent information to the record of this proceeding.

If you have any questions, please contact Dr. Nicholas Palso at (202) 502-8854.

Sincerely,



for

Terry L. Turpin

Director

Office of Energy Projects

Enclosures: Appendix A – Summary of Determinations on Proposed and Requested Studies
Appendix B – Staff Recommendation on Requested Study

APPENDIX A**SUMMARY OF DETERMINATIONS ON PROPOSED AND REQUESTED STUDIES**

Study	Recommending Entity	Approved	Not Required
1. Water Quality Study	Green Lake Power	X	
2. Aquatic Habitat Cross-Section and In-stream Flow Study	Green Lake Power	X	
3. American Eel Surveys	Green Lake Power	X	
4. Erosion Reconnaissance Survey	Green Lake Power	X	
5. Fish Passage Alternatives Study	NMFS		X

APPENDIX B

STAFF RECOMMENDATION ON REQUESTED STUDY

The following discussion includes staff's recommendation on a request for an additional study. We base our recommendation on the study criteria outlined in the Commission's regulations [18 C.F.R. § 5.9(b)(1)-(7)].

Fish Passage Alternatives Study

Study Request

The National Marine Fisheries Service (NMFS) requests that Green Lake Power conduct a fish passage alternatives study to assess the feasibility of providing fish passage at the Green Lake Project for alewives and the federally endangered Atlantic salmon.¹ The objectives of the study are to identify upstream and downstream fish passage alternatives for the project and estimate the capital, operational, and maintenance cost of each alternative.

NMFS states that the lack of fish passage at the project is not consistent with NMFS's restoration goals for alewives and salmon. NMFS states that an analysis of fish passage options at the project is needed to evaluate the feasibility of various fish passage measures at the project, including the effectiveness and practicability of different fish passage options.

Comments on the Study

In the revised study plan, Green Lake Power states that NMFS has not justified the cost and effort associated with a fish passage alternatives study. Green Lake Power notes that NMFS and the Maine Division of Inland Fisheries and Wildlife (Maine DIFW) have opposing views on fish passage at the project,² and questions whether the Green Lake

¹ The designated critical habitat for the Gulf of Maine Distinct Population Segment of Atlantic salmon includes Reeds Brook, Green Lake, and the tributaries of Green Lake. *See* 74 Fed. Reg. 29300 (June 19, 2009). In addition, NMFS states that Green Lake is also historical habitat for alewives and has the potential to contribute 700,000 fish to the Union River alewife population.

² In a June 26, 2019 letter, Maine DIFW expressed concerns regarding the installation of upstream fish passage facilities at the Green Lake Project. Maine DIFW stated that installing upstream passage facilities at the project could allow non-native largemouth bass to enter Green Lake from downstream, which could negatively affect

Project No. 7189-014

B-2

Project adversely affects Atlantic salmon. Green Lake Power states that only seven salmon were captured at the downstream FERC-licensed Ellsworth Project No. 2727 between 2008 and 2019. Given the low return rate of salmon in the Union River Basin, and the small watershed area of Green Lake, Green Lake states that essentially no Atlantic salmon would be expected to be present downstream of the project dam in Reeds Brook. Green Lake Power states that the NMFS-estimated cost of \$50,000 to conduct the study is not consistent with the size or the impact of the project on migrating fish, and that the study would not lead to an effective benefit for Atlantic salmon restoration.

Discussion and Staff Recommendation

Although Atlantic salmon and alewives currently cannot access habitat upstream of the project dam under existing conditions, there is debate about whether fish passage should be provided at the project, due to the limited current effect of the existing project on Atlantic salmon, and the potential adverse effect of providing fish passage on existing fish populations in Green Lake.

Given NMFS's role in protecting Atlantic salmon and alewife, and its experience with fish passage facilities in Maine, it is unclear why NMFS needs Green Lake Power to conduct a study on the effectiveness and practicability of different fish passage options. NMFS has not referenced any site-specific data that needs to be collected at the project or any limitations to evaluating fish passage alternatives. Existing information about upstream and downstream fish passage alternatives is available from studies conducted at other FERC-licensed projects, such as the Ellsworth (FERC No. 2727), Weston (FERC No. 2325), Hydro-Kennebec (FERC No. 2611), and Lockwood (FERC No. 2574) projects. In addition, the U.S. Fish and Wildlife Service (2019) provides recommendations for designing fish passage facilities to provide effective passage for alewives and Atlantic salmon. The existing information on fish passage alternatives in New England should be sufficient for Commission staff to evaluate the general cost and potential effects of any proposed, recommended, or prescribed fish passage facilities at the Green Lake Project [section 5.9(b)(4)]. Accordingly, the level of effort and cost associated with the NMFS's requested study is unwarranted (section 5.9(b)(7)).

Based on the availability of existing information about fish passage alternatives (section 5.9(b)(4)) and the cost of the study (section 5.9(b)(7)), we do not recommend that Green Lake Power conduct a fish passages alternatives study at this time.

smallmouth bass, Arctic char, and landlocked salmon populations in Green Lake. Maine DIFW indicated that providing upstream passage for alewives could also negatively affect the rainbow smelt population in Green Lake, which is an important prey species for landlocked salmon.

Project No. 7189-014

B-3

LITERATURE CITED

U.S. Fish and Wildlife Service. 2019. Fish Passage Engineering Design Criteria. USFWS, Northeast Region R5, Hadley, Massachusetts.

Document Content(s)

2020-02-05_P-7189-014_Green Lake SPD_revised (002).PDF.....1



JANET T. MILLS
GOVERNOR

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION



GERALD D. REID
COMMISSIONER

February 28, 2019

Caroline Kleinschmidt
Green Lake Water Power Co.
120 Hatchery Way
Ellsworth, Maine 04605

**RE: Comments on the Revised Study Plan for the Green Lake Hydroelectric Project
(FERC No. 7189)**

Dear Ms. Kleinschmidt:

The Maine Department of Environmental Protection (Department or MDEP) received and reviewed the Revised Study Plan (PSP), submitted on January 13, 2019 by Kleinschmidt Associates on behalf of the Green Lake Water Power Company (Applicant), for the Green Lake Hydropower Project (GLHP, Project) (FERC No. 7189). Department staff attended the Study Plan meeting on October 10, 2019, and reviewed appropriate Project documents to prepare the following comments and recommendations.

As identified in Department comments on the Pre-Application Document for the Project, the proposed relicensing of the GLHP is subject to water quality certification provisions under Section 401 of the Federal Water Pollution Control Act (a.k.a. Clean Water Act). By Executive Order of the Governor of the State of Maine, the Department is the certifying agency for Projects located wholly or partially in organized towns and cities and, as such, has jurisdiction over the Project.

Comments on the Revised Study Plans

The Department appreciates the effort of the Applicant to prepare the Revised Study Plan (RSP). Project study plans must be designed to evaluate the impact of project operations with respect to all of Maine's water quality standards, including designated uses and both narrative and numeric criteria. After review of the available documents, the Department has the following comments on the RSP:

General Comments

In **Section 6.1.5 Methodology** of the RSP the Applicant states that water quality studies will be conducted in accordance with MDEP's Methods in Biological Sampling and Analysis of Maine's Rivers and Streams (Davies and Tsomides 2002). This is the incorrect protocol for water quality studies and is an outdated protocol for the Benthic Macroinvertebrate study which should not be referenced for the current work that the Applicant must complete. Further, in **Section 6.1.6**

AUGUSTA
17 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0017
(207) 287-7688 FAX: (207) 287-7826

BANGOR
106 HOGAN ROAD, SUITE 6
BANGOR, MAINE 04401
(207) 941-4570 FAX: (207) 941-4584

PORTLAND
312 CANCO ROAD
PORTLAND, MAINE 04103
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE
1235 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, MAINE 04769
(207) 764-0477 FAX: (207) 760-3143

Consistency with Generally Accepted Scientific Practice, the Applicant states that all sampling protocols are based on water quality parameter standard operating procedures (SOP's) developed by the MDEP's *Sampling Protocol for Hydropower Studies* (September 2019) and *Methods for Biological Sampling and Analysis of Maine's Rivers and Streams* (April 2014). The Department agrees that studies should be conducted according to these updated protocols and agrees with the sampling methodologies proposed by the Applicant in this section.

The Department agrees with and acknowledges the Applicant's proposal to consult with Black Bear Hydro, LLC when practical and necessary concerning the level of Graham Lake to ensure that valid data can be collected for studies downstream of the Green Lake Dam.

Comments on Study Requests and Proposed Studies

Impoundment Trophic State Study

The purpose of the trophic state study is to determine, based on Chlorophyll-a content, Secchi disk transparency, total phosphorus content and water quality parameters, if the Project impoundment has a steady or decreasing trophic state subject only to natural fluctuations, and is free of algal blooms that impair the impoundment use or enjoyment. Conducting this study will allow the Department to determine if operation of the Project adversely affects water quality in Green Lake and if the impoundment continues to meet GPA classification standards. The Department agrees with the Applicants proposed methodologies for this study.

Impoundment Aquatic Habitat Study

The purpose of this study is to determine the effect of impoundment drawdowns on the littoral zone of the water body and the ability of the impoundment to support fish and other aquatic life. Green Lake is operated as a water storage facility with a drawdown of approximately 1 meter or 3.3 feet. The Applicant must demonstrate that 75% of the impoundment littoral zone remains wetted at all times, including under drawdown conditions where the elevation of the impoundment will decrease. The Department agrees with the Applicant's proposal to use twice the mean Secchi disk transparency data determined from the newly sampled Trophic State Study to calculate impacts to the littoral zone of Green Lake. Using data collected during the Trophic State Study will provide continuity between the trophic state and aquatic habitat studies. Bathymetric data is also needed to assess the littoral area; data for the Green Lake impoundment is available and can be provided by the Department. The Applicant should conduct the study and measurements of the littoral zone depth under typical impoundment drawdown levels.

Downstream Benthic Macroinvertebrate (BMI) Study

The purpose of this study is to demonstrate whether current in-stream flow releases affect attainment of aquatic life and habitat criteria in the waters downstream of the Green Lake Dam. The BMI study will evaluate the current macroinvertebrate community structure and assess any impacts caused by project operations on waters downstream of the Project. The Department agrees with the Applicant's proposed methodologies for the BMI study and with the three sampling locations; one in the Reeds Brook bypass reach, the second in the powerhouse tailrace and third at the confluence of the tailrace and the Reeds Brook bypass reach.

Downstream Temperature and Dissolved Oxygen Study

Temperature and dissolved oxygen (DO) must be monitored downstream of the Green Lake Dam to demonstrate whether the Project meets Maine's DO numeric criteria. The Department requests some modifications to the methodologies proposed by the Applicant, in order to ensure that data collected is sufficient to assess impacts of Project operations to DO concentrations. As discussed previously in the Departments comments on the PSP, there are two confounding effects which may obscure the true temperature and DO concentrations in waters downstream of the GLHP, one being the water level of Graham Lake and the second being two discharge points from the Green Lake National Fish Hatchery. The Applicant proposed two DO sampling locations (Figure 1):

DO 1) The Reeds Brook bypass reach below the dam but upstream of the Green Lake National Fish Hatchery filter backwash discharge.

DO 2) The tailrace downstream of the powerhouse.

In addition to the two proposed monitoring locations, the Department requests two additional DO sampling locations (Figure 1):

DO 3) In the confluence of the tailrace and the Reeds Brook bypass.

DO 4) The Reeds Brook bypass reach directly upstream of the confluence of the bypass and the tailrace.

Figure 1. Temperature and DO sampling locations for waters downstream of the GLHP.



Implementing these four sampling locations will allow the Department to better isolate project impacts to temperature and DO from outside influences (backwatering of Graham Lake, fish hatchery discharges) to these environmental variables.

The Applicant states in Section 6.1.5.5 that water temperature and DO will be monitored using submersible Onset Hobo datasonde(s) (or similar) in accordance with MDEP's *Sampling Protocol for Hydropower Studies* (September 2019). The protocol also provides a second methodology, where the sampling could be undertaken one day per week for a minimum of ten weeks throughout the summer low flow, high temperature period. Each discrete grab sampling

event for temperature and dissolved oxygen would consist of a minimum of two daily runs, the first of which should occur before 7 AM and the second of which should occur after 2 PM. The Department acknowledges that the deployment, retrieval and ability for the Applicant to read out data from sondes in these sampling locations may be impeded by the water level in Graham Lake. Therefore, the Department recommends implementing the discrete grab methodology at the four sample locations outlined in this section.

Downstream Cross-Sectional Flow Study

Assessment of aquatic habitat downstream of the Green Lake Dam is required to determine whether current in-stream flow releases meet Maine habitat and aquatic life criteria. An aquatic habitat cross-sectional flow study will inform whether downstream flows in the bypass reach and, in the tailrace, provide sufficient riverine habitat for fish and other aquatic organisms. This study requires measuring width and depth at various flows to determine the flow at which at least 75% of the bank full cross-sectional area of the river or stream is continuously watered. Based on similar data to be collected and analogous methodologies, the Department agrees with the Applicant's proposal to combine the cross-sectional flow study with the National Marine Fisheries Service's in-stream flow study.

In MDEP's November 20, 2019, PSP comment letter, the Department outlined data to be collected in the cross-sectional flow study, including characterizing the substrate of the stream at each transect. The Department agrees with the Applicant's proposal to collect data on habitat types and the length of each habitat type along the transect in **Section 6.2.5 Methodology Consistent with Accepted Practice** but requires that this study include identifying the stream bed substrate type. This language and data collection should be incorporated into the cross-sectional flow study.

Thank you for the opportunity to comment on the RSP for the GLHP. Please feel free to contact me at (207) 446-1619 or via email at Christopher.Sferra@maine.gov if you have any questions regarding these comments.

Sincerely,



Christopher O. Sferra
Hydropower Program, Project Manager
Maine Department of Environmental Protection

Cc: Kimberly Bose (FERC), efile

Document Content(s)

2020_02_28_MDEP_GreenLake_RSP_comments.PDF.....1

ORIGINAL



MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE
04333

JANET T. MILLS
GOVERNOR

KIRK F. MOHNEY
DIRECTOR

March 9, 2020

REGULATORY COMMISSION

2020 MAR 17 A 9:35

FILED
OFFICE OF THE
SECRETARY OF THE

Secretary Kimberly D. Bose
Federal Energy Regulatory Commission
888 First Street NE, Room 1A
Washington DC 20426

Project: MHPC# 0155-19 FERC 7189; Green Lake Hydroelectric Project
New License Existing Dam; Proposed Study Plan
Town: Ellsworth, ME

Dear Secretary Bose:

I am writing in response to the FERC's "Study Plan Determination for the Green Lake Project" which was received in our office on February 18, 2020.

In my opinion, the FERC's determination does not adequately address potential adverse effects to archaeological sites around the impoundment margin. We have previously commented that a Phase I and possibly subsequent archaeological studies are necessary to determine site presence/absence, effect on sites from erosion, and possible National Register eligibility.

The proposed erosion reconnaissance study without an accompanying archaeological survey does not meet standard practice or Maine SHPO policy for cultural resources surveys associated with hydroelectric impoundments in Maine, an approach that has been in place in Maine and agreed to by FERC on hydroelectric projects for more than 30 years.

Assertion by the applicant that archaeological survey of the impoundment is complete based on a 1981 SHPO letter is incorrect, as we have previously pointed out. The 1981 "no properties" letter was specific to the initial licensing of the outlet dam, and specific to those proposed modifications. At that time the SHPO office was neither asked to comment on effects around the entire impoundment, nor did we do so.

Our office stands by our June 14, 2019 recommendations for architectural and archaeological surveys (see attachment).

Please contact Megan Rideout at (207) 287-2992 or megan.m.rideout@maine.gov if we can be of further assistance in this matter.

Sincerely,

Kirk F. Mohney
State Historic Preservation Officer

Document Content(s)

15485629.tif.....1



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
55 Great Republic Drive
Gloucester, MA 01930-2276

FEB 25 2020

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

RE: Notice of Formal Study Dispute of FERC's Study Plan Determination for the Green Lake Hydroelectric Project (P-7189) and comments on FERC's Study Plan Determination

Dear Secretary Bose:

Pursuant to 18 C.F.R. § 5.14(a), the National Marine Fisheries Service (NMFS) hereby files this Notice of Dispute of the Federal Energy Regulatory Commission's (FERC) study plan determination (SPD) issued on February 5, 2020, for the Green Lake Hydroelectric Project (FERC No. 7189) located on Reeds Brook in Hancock County and the City of Ellsworth, Maine.

With this Notice, we identify the following Study Request under dispute:

- 1) Fish Passage Alternatives Study.

We provide the following index to this filing:

Enclosure A – Study Dispute Notice and NMFS' Response to the Commission's Study Plan Determination.

If you have any questions or need additional information, please contact Dan Tierney (Dan.Tierney@noaa.gov or 207-866-3755).

Sincerely,

A handwritten signature in black ink, appearing to read "Jennifer Anderson".

Jennifer Anderson
Assistant Regional Administrator
for Protected Resources

cc: Service List



Enclosure A

**UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION**

Green Lake Hydroelectric Project**7189**

NOTICE OF STUDY DISPUTE

The National Marine Fisheries Service (NMFS) is a bureau of the National Oceanic and Atmospheric Administration (NOAA) and exercises the authority of the Secretary of Commerce to prescribe fishways for inclusion in hydropower licensing orders, pursuant to Federal Power Act § 18. This Notice of Study Dispute is filed with respect to a request for information or study filed by NMFS, and the request pertains directly to the exercise of NMFS fishway prescriptive authorities under section 18 of the Federal Power Act.

Upon review of the Director's Study Plan Determination for the Green Lake Hydroelectric Project, we find that one of our requests (Fish Passage Alternatives Study) may not have been adequately evaluated by the Commission staff and thus, we would appreciate the clarity that could be afforded by this study dispute process.

Agency Panelist

The Integrated Licensing Process (ILP) regulations require that a notice of study dispute identify and provide contact information for the panel member designated by the disputing agency. At this time, we identify Mr. Bjorn Lake as the agency panelist.

Mr. Lake has had no direct involvement with this project's ILP proceeding. Mr. Lake's contact information is:

Bjorn Lake, PhD, PE
Fish Passage Engineer, Office of Habitat Conservation
National Marine Fisheries Service, NOAA
15 Carlson Lane
Falmouth, MA 02540
508-495-4747 (o)
207-266-6062 (c)

Satisfaction of Study Criteria

The ILP regulations require that the notice of study dispute explain how the agency's study request satisfies the criteria set forth in § 5.9(b). We filed our original study request on July 26, 2019, and additional information and clarifications in our comments on Green Lake Water Power

Company's proposed study plan on December 12, 2019. Additionally, we include comments on FERC's SPD with regard to the disputed study below. Complete information regarding how our study request satisfies the § 5.9(b) criteria is found in those documents, however, we summarize it here:

1. Goals and Objectives

The goal of the study is to assess the feasibility of the installation and operation of fish passage for Atlantic salmon and alewives in the Green Lake watershed. The objectives of the study are to identify upstream and downstream fish passage alternatives for the Green Lake Project and to estimate the capital, operational, and maintenance costs of each alternative in consideration of the unique, site-specific constraints that may be at issue for this project.

2. Resource Management Goals

NMFS is a federal resource agency with a mandate to protect and conserve fisheries resources and associated habitat. Resource management goals and plans are codified in our regulatory statutes and outlined in the Recovery Plan for Atlantic salmon (USFWS and NMFS 2019), a comprehensive plan approved by FERC. The Recovery Plan indicates that the lack of fish passage at dams is the primary threat to Atlantic salmon in freshwater. The Recovery Plan establishes a habitat connectivity target of 30,000 habitat units for each Salmon Habitat Recovery Unit (SHRU). The Green Lake Project is within the Downeast SHRU. We rely on the best available data to support conservation recommendations and management decisions. Data sought in this study are not readily available. This study is an appropriate request for the pre-application period, in that it would help inform the appropriateness of, and potential scope of, any fishway prescription, as provided by section 18 of the Federal Power Act.

3. Public Interest

The requestor, NMFS, is a federal resource agency.

4. Existing Information

Information in the Pre-Application Document (PAD) is not sufficient to evaluate whether or not fish passage measures are practical and, if they are, what improvements would be necessary to provide for safe, timely, and effective upstream and downstream passage for Atlantic salmon and/or alewives at the Green Lake Project. Results of this study will provide information regarding the effectiveness and practicability of the different fish passage options, which will inform the consultation process for developing fish passage and protection measures.

The previous licensing action prohibited upstream and downstream passage. The lack of passage is not consistent with our recovery goals for Atlantic salmon or our restoration goals for alewives and available information is not sufficient to determine how best to address this lack of passage. Therefore, an alternatives analysis of passage options at the project and the subsequent impact on alewives and Atlantic salmon is needed to evaluate the practicability and feasibility of various fish passage measures at the project.

5. Nexus to Project Operations and Effects

The project is located within critical habitat for Atlantic salmon and is historical habitat for alewives. Atlantic salmon and alewives are anadromous species that depend on migrating into freshwater habitats to complete their life cycles. Currently, the project prevents upstream and downstream passage of fish in Reed Brook. The study will inform decisions regarding the minimization of impacts to these species and whether modifications to project operations or components are needed. Data derived from this study will facilitate evaluation of various fish passage alternatives, inform the Commission's licensing process, and contribute to the development of an administrative record in support of protection and enhancement opportunities, including, but not limited to compliance with Section 18 of the Federal Power Act and the recovery goals for Atlantic salmon under the ESA.

6. Methodology Consistent with Accepted Practice

An assessment of the practicability of alternatives for upstream fish passage at the Green Lake Project should consider options for the construction of volitional fish passage facilities, including various fish ladder and lift designs and locations. Additionally, alternatives for effective downstream passage should be developed. At a minimum, each alternative should describe the ability to provide passage for anadromous Atlantic salmon and alewife.

Detailed design specifications are not necessary at this time; instead, the requested study should evaluate the feasibility of up- and downstream fish passage. Assuming it is feasible, the study should include descriptions of each upstream and downstream passage alternative, including the potential physical and environmental benefits and concerns associated with each design. In addition, each alternative should include estimates of the associated capital, operational (including lost power production), and maintenance costs. These methods have been used successfully in other hydroelectric project license proceedings.

7. Level of Effort/Cost, and Why Alternative Studies Will Not Suffice

Cost and effort would depend on the number of alternatives included in the analysis and the amount of existing information, such as previously developed fish passage designs, that is available. This study would not require any fieldwork, but would require a desktop evaluation of alternatives by a qualified engineer. We anticipate that GLWC could complete this study in single study season, and that it would cost approximately \$50,000.

NMFS Comments on FERC's February 5, 2020, Fish Passage Alternatives Determination

The Commission did not adopt our request for a fish passage alternatives study for Atlantic salmon and alewives. Following is our response to the concerns identified by FERC staff and the basis for our dispute of FERC's determination.

FERC Notes that: *“Given NMFS's role in protecting Atlantic salmon and alewife, and its experience with fish passage facilities in Maine, it is unclear why NMFS needs Green Lake Power to conduct a study on the effectiveness and practicability of different fish passage options.*

NMFS has not referenced any site-specific data that needs to be collected at the project or any limitations to evaluating fish passage alternatives.”

NMFS Response:

A study on the effectiveness and, more importantly, practicability of different options is necessary due to a series of unique and site-specific considerations including: potential space limitation; potential water limitation; and, location of penstocks supplying water to the Green Lake National Fish Hatchery. These site-specific considerations make it impractical to rely on best professional judgment and existing scientific literature alone to determine both the appropriateness and reasonable design of a fishway at the project

We disagree with FERC that we have not referenced any site-specific information relevant to the evaluation of passage feasibility. In our July 26, 2019, comments on the preliminary application document (PAD), we indicated that the limited flow available in the system, as well as multiple water needs (i.e., generation, bypass reach minimum flow, hatchery needs), made it difficult to understand how much water was available for both upstream and downstream fish passage. Further, we specified that, “flow information is needed in order to ascertain whether or not there is adequate flow available to allow for fish passage measures, which conceivably could be required under a new license.” In our December 12, 2019, comments on the preliminary study proposal, in response to concerns over passage of invasive largemouth bass, we encouraged the licensee “to incorporate measures for preventing largemouth bass passage into the feasibility analysis.” Therefore, we believe that we have clearly stated on the record what we believe the “limitation to evaluating fish passage alternatives” are.

In brief, we need an alternatives analysis to understand the appropriateness of exercising our mandatory conditioning authority, and if appropriate, what type of fishways can effectively pass the target species and, if possible, block non-target species, given the flow and space limitations at the project. It is important for stakeholders to understand how different upstream and downstream fishway alternatives (or the lack of passage) would affect the operation of the Green Lake National Fish Hatchery, the generation of power at the Green Lake hydro project, and the potential for restoring salmon and alewife populations in the watershed. Lacking sufficient information about the various alternatives, we would have to rely on the transferability of general information from other projects with vastly different characteristics to inform our regulatory obligations under Section 18 of the Federal Power Act and Section 7 of the Endangered Species Act. This could lead to requirements in a potential new license that do not adequately account for the site-specific characteristics of the system in question. For instance, the U.S. FWS fish passage guidance that is mentioned in your determination recommends that a hydro project release 5% of station hydraulic capacity, or 25 cubic feet per second (cfs) (whichever is larger) for downstream attraction flow (U.S. FWS 2017). Similarly, U.S. FWS recommends that attraction flow for an upstream fishway pass 5% of station hydraulic capacity, or 50 cfs (whichever is larger). This raises questions regarding how passage could be implemented at this project, among them:

- Is there sufficient flow (a minimum of 75 cfs) at this project to provide fish passage throughout the fish passage season per the U.S. FWS passage guidelines? The PAD estimates that the monthly average flow in Reed Brook between June and October ranges between 27 and 74 cfs.

- If we were to require that the fishway be designed to the U.S. FWS specifications, how would that affect the operation of the project and the hatchery?
- Is it possible to pass target species with the available flow without following the U.S. FWS guidelines and, if so, what would the expected loss in passage efficiency be?

Similarly, we know that options have been implemented at other projects to prevent the spread of invasive species, such as largemouth bass. One method that has been used extensively is a fish trap that allows for the trapping and removal of invasive fish before they move upstream. We do not have information regarding whether there is sufficient space at Green Lake Dam, or regarding how much it would cost to operate and staff such a facility. Alternatively, some fishways in the state of Maine have jumps installed at the entrance or within the fishway, to prevent invasive bass (that are not good leapers) from passing. There are significant concerns, however, regarding how and to what extent such a remedy would affect the efficiency of the fishway for the target species. Therefore, if we were to prescribe either of these alternatives without an understanding of the site specific limitations, it is possible that the fishway would not be practicable to construct and/or operate, or that it would not be effective at passing salmon and river herring.

FERC notes that: *“Existing information about upstream and downstream fish passage alternatives is available from studies conducted at other FERC-licensed projects, such as the Ellsworth (FERC No. 2727), Weston (FERC No. 2325), Hydro-Kennebec (FERC No. 2611), and Lockwood (FERC No. 2574) projects.”*

NMFS Response: FERC suggests that information available from other dams could inform the feasibility of fish passage at Green Lake. However, FERC does not provide information on how we and other stakeholders might use information from these dams, which are not at all comparable to the Green Lake dam, to inform the feasibility of fish passage at this site. Ellsworth, Weston, Hydro-Kennebec, and Lockwood are all mainstem dams on large rivers. Reed Brook is a small tributary with an annual median flow of under of 100 cfs. The fishways that currently are in place, or proposed, at these dams pass many times more water than currently flows in Reed Brook. For example, the fish lift at the Hydro Kennebec Project passes an attraction flow of 250 to 400 cfs, which by itself is 2.5 to 4 times the median annual flow in Reed Brook. Additionally, none of these projects are obligated to provide flow (up to 30 cfs) to an Atlantic salmon hatchery, as is required in the existing license for the Green Lake Project (a requirement we anticipate being retained in any new license).

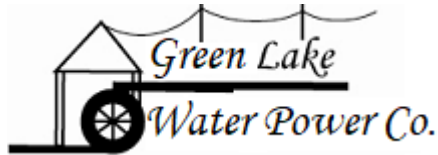
It should be noted that although fish passage technology has been available for some time, this has not precluded FERC from requiring fish passage alternatives studies to be conducted at other projects in the region during relicensing. Among these were the Ellsworth Hydroelectric Project (P-2727; FERC Accession # 20141230-3032) just downstream of the Green Lake Project on the Union River; the Canaan Hydroelectric Project (P-7528; FERC Accession # 20050401-5144) on the Connecticut River; and the Kelly’s Falls Project (P-3025) on the Piscataquog River in New Hampshire, where FERC staff approved a downstream fish passage feasibility study earlier this month (February 6, 2020; FERC Accession # 20200206-3058).

FERC Concludes that: “*Accordingly, the level of effort and cost associated with the NMFS’s requested study is unwarranted (section 5.9(b)(7)).*”

NMFS Response: The cost estimate of \$50,000 was a rough estimate; and we believe that it is very possible the study objectives could be accomplished with even less cost and effort. However, given that the FERC is considering authorizing this project to operate for another 30 to 50 years, we believe that \$50,000 is both reasonable and commensurate with the potential effects that this project has and could continue to have on designated critical habitat for endangered Atlantic salmon. The study will provide information that is critical to adequately inform the exercise of our authorities under Section 18 of the Federal Power Act and Section 7 of the Endangered Species Act.

Document Content(s)

Green Lake Hydro Project Study Dispute_Final Letter.PDF1



120 Hatchery Way, Ellsworth, ME 04605

March 20, 2020

VIA E-FILING

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N. E.
Washington, DC 20426

***RE: Green Lake Hydroelectric Project (FERC No. 7189-014)
Comments and Information Regarding NMFS Study Dispute***

Dear Secretary Bose:

In response to the 'Notice of Formal Dispute of FERC's Study Plan Determination for the Green Lake Hydroelectric Project (P-7189) and comments on FERC's Study Plan Determination', as filed by National Marine Fisheries Service (NMFS) on February 25, 2020, please find attached our comments and information.

If you have any questions or need additional information, please contact me by email at caroline@greenlakewaterpower.com or by phone at (425) 553-6718

A handwritten signature in cursive script, appearing to read "Caroline Kleinschmidt".

Sincerely,
Caroline Kleinschmidt
Relicensing Coordinator
Green Lake Water Power Co.

Enclosure: Comments and Information Regarding NMFS Study Dispute.
cc: Distribution List

Green Lake Hydroelectric Project (FERC No. 7189-014) Comments and Information Regarding NMFS Study Dispute

March 20, 2020

- **Synopsis:**

Green Lake Water Power Co. (GLWP) supports the restoration and protection of Atlantic salmon and alewives to Maine waters through reasonable and practical fisheries management measures. GLWP is also a producer of clean, renewable energy, helps the Green Lake National Fish Hatchery (GLNFH) accomplish its mission, and manages Green Lake and Reeds Brook in an environmentally responsible manner. GLWP understands the National Marine Fisheries Service (NMFS) objective to evaluate whether fish passage at the Green Lake dam should be a part of the relicensing of the Project. However, GLWP concurs with the Federal Energy Regulatory Commission's (FERC) conclusion that the various pieces of information needed by the FERC and appropriate to this project are either already available in documents filed with the FERC or to be filed containing the results of the Director's approved relicensing studies.

GLWP does not believe the Fish Passages Alternatives Study for Atlantic salmon and alewives proposed by NMFS is warranted. The key reasons are the following:

- 1) The study appears to be oriented around an overarching agenda of NMFS to remove and regulate dams, rather than to understand and address what is actually needed to restore Atlantic salmon to the Gulf of Maine.
- 2) The available natural flows in the Green Lake watershed are insufficient during the fish passage season to support effective fish passage regardless of the presence and operation of Green Lake dam.
- 3) There is little if any chance that the lack of Atlantic salmon fish passage at the Green Lake Dam will affect any significant number or population of fish over the life of the new license.
- 4) There are questions regarding the long term and immediate benefits to and effects on the lake of installing fish passage. Management of the Green Lake fisheries is under the jurisdiction of Maine Department of Inland Fisheries and Wildlife (MDIFW), which has concerns about allowing migratory fish passage, alewife in particular, into Green Lake with the potential of introducing invasive species and other unintended effects on indigenous fish.
- 5) NMFS does not appear to have a realistic understanding of the size, details and scope of the Project during their activities so far in the relicensing process. They appear not to have fully read or understood the Pre-application Document (PAD) and other documents filed with the FERC as part of this relicensing.

Information on each of the above listed areas is contained in a section below. More detailed information is available in the appendices and references.

1. NMFS Agenda

NMFS, in the Executive Summary of its recovery plan for GOM Atlantic salmon (USFWS/NMFS 2018), summarizes the understood threats to species restoration. The two most significant threats are stated to be dams and inadequacy of regulatory mechanisms related to dams. Such factors as commercial fisheries, disease and predation are stated to be “secondary stressors.”

Later in the document the precipitous decline in Atlantic salmon return rates in the 1980s is mentioned briefly on page 14. Some of the changes made to address this (such as fish hatcheries taking on a role of maintaining the needed genetic diversity of Atlantic salmon) are touched on, followed by a lengthy section on the removal of dams.

It is clear that any dam changes the environment in its vicinity—that is inherent in its design and purpose. There are dams in this country that have outlived their usefulness and have social and environmental costs that outweigh any benefit they may provide. Removing these dams can yield great benefits to us all. Other dams result in a net contribution to those around them.

By concentrating on dams and their regulation as the major reason for the decline of Atlantic salmon, NMFS could be intentionally or accidentally covering up the fact that the very real present danger to Atlantic salmon is the low return rates. While dams likely played a significant role in the original decline in Atlantic salmon populations, times have changed. The environment now, in which efforts are underway to recover Atlantic salmon, is quite different (on many levels) than it was in the past when Atlantic salmon populations started to decline. Trying to fix the current problem today by singling out and concentrating on one of yesterday’s causes is not a scientific approach.

NMFS, in its document *National Marine Fisheries Service Comments and Study Requests* dated July 26, 2019 (NMFS Study Requests) states the following: “we note that project decommissioning with dam removal is the only alternative that would completely eliminate the threat to Atlantic salmon and their critical habitat posed by the Green Lake Project.” This was reaffirmed in their comments to the Proposed Study Plan on December 12, 2019 (NMFS PSP Comments), despite it being pointed out in section 5.2 of the Project’s Proposed Study Plan of September 2019 (PSP) that removing the dam would seriously threaten the existence of the GLNFH, and could be a contravention of the Endangered Species Act.

In the NMFS Proposed Study Plan comments document of December 12, 2019, Jennifer Anderson, states “While dam removal would eliminate the need for fish passage, the requested study does not suggest that the Green Lake Dam should be removed.” This statement, however, does not address the prior statement by NMFS nor its current position on dam removal. The assertion that “project decommissioning with dam removal is the only alternative that would completely eliminate the threat to Atlantic salmon and their critical habitat pose by the Green Lake Project” was not made within a study request, it was included in the comments on the PAD (NMFS Study Requests). This description is included here as an illustration of a potential motivation for expensive and onerous measures by NMFS that are not strictly based on their charter.

The NMFS document of December 12, 2019 goes on to mention and discuss “the take of endangered Atlantic salmon.” It could be argued that any take of Atlantic salmon would be

predicated on two things: 1) the presence of fish passage that exposes fish to danger, and 2) the actual presence of fish. With a predicted fish frequency of one Atlantic salmon in 21 years at the Green Lake Dam, the presence of Atlantic salmon at the dam is a supposition at this point. With one of two conservation populations of the GOM DPS of Atlantic salmon dependent on Green Lake and its dam, GLWP suggests that removing any risks or uncertainties related to the GLNFH are more important than collecting extra data about fish passage at the dam.

It is somewhat telling that the Final Recovery Plan for Atlantic salmon (USFWS/NMFS 2018) indicates on page 50 that there are no expenses expected toward installing fishways at FERC licensed dams in the Downeast Coastal SHRU in the 2019-2023 timeframe. The Project waters are part of the Downeast Coastal SHRU, and a requirement to invest \$50,000 for a study on fish passage alternatives at the Project is contrary to this Recovery Plan statement. Parts of the project (facilities and operations) are aimed directly at increasing the reliability and effectiveness of the GLNFH's water supply from Green Lake. One can question why the NMFS has suddenly chosen this fight on a minor dam, about which the information required for the FERC to evaluate fish passage is already available, and which already has a demonstrable value toward the recovery of Atlantic salmon.

2. Available Flows

The naturally available flows at the Green Lake dam and in the Green Lake watershed do not support effective fish passage designs.

Even without fish passage flow, the Project typically experiences a net deficit of water during the summer which disallows generation during the summer. Several recent summers have had water deficits sufficient to drop the level of the lake below the targeted minimum summer lake level despite the Project ceasing generation with the lake level near the middle of the summer range and only allowing the required minimum flow of 1 cfs past the dam into Reeds Brook

See Appendix B for additional streamflow and water level data.

3. Fish Returns

The Green Lake Watershed makes up approximately 8% of the overall Union River Watershed. Per the Maine Department of Marine Resources (MDMR) the total number of Atlantic salmon that have been captured at the Ellsworth Dam on the Union River (and that would potentially be transported upstream) is 7 from 2008 through 2019 (PAD, RSP). This is an average of about 0.6 fish per year.

Although not necessarily a fisheries management method to assess potential migration run sizes, assuming waterflow is proportional to drainage area, and salmon swim upstream in proportion to water flow, this would equate to a total average of less than one fish migrating up Reeds Brook in 20 years. With essentially no Atlantic salmon present in Reeds Brook, it is questionable whether the project has or will have an effect on Atlantic salmon.

4. Green Lake Fisheries Management

Fish passage is a proven mechanism to overcome a barrier to anadromous fish migration. Implementing fish passage requires confidence that the fishway will solve more problems than it creates in terms of fishery management objectives, abundance, and good health.

An early step in this process is to determine whether fish passage is desirable. At Green Lake there are State fisheries management agency concerns as to the desirability of fish passage. It would be logical to address questions on the resulting benefits to the existing and potential future migratory fish access to the lake prior to engaging in extensive activity regarding how to implement migratory fish passage.

MDIFW has expressed concerns on FERC's administrative record about the effects of implementing fish passage because of the potential for invasive species gaining access to Green Lake through upstream fish passage, density dependent interactions between migratory and non-migratory species, and other unintended effects on the indigenous fish in the lake.

Appendix C contains the Letter to the Secretary Bose on June 26, 2019 from MDIFW regarding these concerns.

5. Project Specifics

NMFS has not demonstrated a realistic understanding of the size, details and scope of the Project during their activities so far in the relicensing process. They appear not to have fully read or understood the PAD and other documents filed with the FERC as part of this relicensing (see Appendix D below for some examples in their Project communication).

NMFS states that "it is very possible that the study objectives could be accomplished with even less cost and effort" than the \$50,000 they estimate for the study (without providing the basis for such a presumption). \$50,000 is close to the annual gross income of the Project (PAD section 7.0), annual profit is much less. NMFS is pushing this study despite the fact that the information needed by the FERC to evaluate the feasibility and necessity of fish passage at the Green Lake dam is already available and that other studies have been requested that will provide data that is needed and not yet available about Green Lake and Reeds Brook.

NMFS' estimate for the cost of fish passage at a dam in the Downeast Coastal region is \$250,000 (USFWS/NMFS 2018... page 49). Either NMFS understands the Project conditions and realizes that this level of expense would likely make the Project non-viable, or they view all hydro-projects alike and have a "one size fits all" standard that is applied to all hydropower relicensing. Either way, they appear determined to follow a course that places organizational "necessities" above the existing facts (e.g., acknowledgement of limited migratory run size) and needs of the fish they are charged to protect.

APPENDIX A – STAGE VS. VOLUME**Green Lake**

Elevation, USGS	Gage at Dam	Lake Area, Acres	Storage, Acre - Ft	Acre – Ft, Incremental
157.5	4.0	2907	0	0
157.7	4.2	2920	583	583
158.7	5.2	2986	3536	2953
159.7	6.2	3052	6555	3019
160.7	7.2	3118	9640	3085
161.7	8.2	3184	12791	3151
162.7	9.2	3250	16008	3217
163.7	10.2	3316	19290	3282

The reference point for the above table is the lowest Winter Minimum: 157.5 USGS, or 4.0 on the gage.

For reference purposes (gage values):

Summer Minimum: 6.2

Winter Minimum: 4.0 or the level on 15-Oct, whichever is higher

Maximum Year Round: 7.2

Spillway Elevation: 7.2

Source: GLWP

APPENDIX B: INPUT FLOW DURATION SUMMARY

Green Lake Input flow duration summary table.

<u>Month</u>	<u>Mean/Average Daily Flow</u> <u>(cfs)</u>	<u>Median Daily Flow</u> <u>(cfs)</u>	<u>Minimum Daily Flow</u> <u>(cfs)</u>	<u>Maximum Daily Flow</u> <u>(cfs)</u>
<u>January</u>	<u>104</u>	<u>77</u>	<u>9</u>	<u>892</u>
<u>February</u>	<u>84</u>	<u>55</u>	<u>13</u>	<u>862</u>
<u>March</u>	<u>154</u>	<u>110</u>	<u>18</u>	<u>1003</u>
<u>April</u>	<u>252</u>	<u>204</u>	<u>44</u>	<u>1471</u>
<u>May</u>	<u>126</u>	<u>97</u>	<u>15</u>	<u>883</u>
<u>June</u>	<u>74</u>	<u>43</u>	<u>13</u>	<u>704</u>
<u>July</u>	<u>36</u>	<u>19</u>	<u>4</u>	<u>730</u>
<u>August</u>	<u>27</u>	<u>13</u>	<u>3</u>	<u>467</u>
<u>September</u>	<u>27</u>	<u>11</u>	<u>3</u>	<u>809</u>
<u>October</u>	<u>70</u>	<u>30</u>	<u>3</u>	<u>1357</u>
<u>November</u>	<u>125</u>	<u>96</u>	<u>7</u>	<u>1153</u>
<u>December</u>	<u>154</u>	<u>107</u>	<u>9</u>	<u>2358</u>
<u>Annual</u>	<u>102</u>	<u>61</u>	<u>3</u>	<u>2358</u>

Source: GLWP PAD

Additional flow duration values calculated from the flow duration curves for May-October.

<u>Month</u>	<u>Mean/Average</u> <u>flow</u> <u>(cfs)</u>	<u>Median</u> <u>flow</u> <u>(cfs)</u>	<u>Min.</u> <u>flow</u> <u>(cfs)</u>	<u>5%</u> <u>Flow</u> <u>(cfs)</u>	<u>95%</u> <u>Flow</u> <u>(cfs)</u>	<u>Mean</u> <u>Exceed</u> <u>%</u> <u>(cfs)</u>	<u>GLNFH</u> <u>Flow</u> <u>Average</u> <u>(cfs)</u>	<u>Mean</u> <u>Avail.</u> <u>(cfs)</u>	<u>95%</u> <u>Avail.</u> <u>(cfs)</u>	<u>Min</u> <u>Monthly</u> <u>Average</u> <u>(cfs)</u>	<u>Max</u> <u>Monthly</u> <u>Average</u> <u>(cfs)</u>
<u>May</u>	<u>126</u>	<u>97</u>	<u>15</u>	<u>328</u>	<u>36</u>	<u>34</u>	<u>8</u>	<u>118</u>	<u>28</u>	<u>42</u>	<u>294</u>
<u>Jun</u>	<u>74</u>	<u>43</u>	<u>13</u>	<u>247</u>	<u>18</u>	<u>29</u>	<u>8</u>	<u>66</u>	<u>10</u>	<u>26</u>	<u>225</u>
<u>Jul</u>	<u>36</u>	<u>19</u>	<u>4</u>	<u>119</u>	<u>9</u>	<u>24</u>	<u>9</u>	<u>27</u>	<u>0</u>	<u>12</u>	<u>125</u>
<u>Aug</u>	<u>27</u>	<u>13</u>	<u>3</u>	<u>100</u>	<u>4</u>	<u>26</u>	<u>12</u>	<u>15</u>	<u>-8</u>	<u>3</u>	<u>106</u>
<u>Sep</u>	<u>27</u>	<u>11</u>	<u>3</u>	<u>96</u>	<u>4</u>	<u>21</u>	<u>16</u>	<u>11</u>	<u>-12</u>	<u>4</u>	<u>153</u>
<u>Oct</u>	<u>70</u>	<u>30</u>	<u>3</u>	<u>289</u>	<u>4</u>	<u>28</u>	<u>17</u>	<u>53</u>	<u>-13</u>	<u>6</u>	<u>275</u>

Source: GLWP and Kleinschmidt Group

Mean, Median and Min flow are from the PAD table above.

5% Flow and 95% Flow are the high and low bounds specified for proper operation of fish passage per the USFWS Fish Passage Engineering Design Criteria (USFWS 2017).

Mean Exceed % is the percentage of time that the mean flow is exceeded.

GLNFH Flow Average is the average monthly historical flow discharged from GLNFH waste treatment lagoons. The amount taken from Green Lake would be slightly higher because of the filter backwash water discharged into Reeds Brook from the hatchery treatment plant.

Mean Avail. is the average flow into Green Lake after accounting for water used by the GLNFH.

95% Avail. is the net amount of water flow into Green Lake that is exceeded 95% of the time after accounting for water used by the GLNFH.

Min and Max Monthly Average are the minimum/maximum monthly averages of daily flow values for each month during the flow data period of 1998 through 2018. For example, during 1998-2018 there was at least one May when the average of the daily flow values was as low as 42 cfs and at least one with an average as high as 294 cfs. For comparison, from the upper table, it is seen that there was at least one day with a flow value as low as 15 cfs and at least one with a value as high as 884 cfs.

From the tables, it can be seen that using mean drainage area flow rates during the May-October period could create a misleading idea of the flow available to the Project from Green Lake:

- 1) Mean flow into the lake does not account for the water used by the GLNFH.
- 2) The mean flow is at the 21-34% exceed level. Thus, 66 to 79 percent of the time the mean flow is not available.
- 3) The median flow is less than half of the mean flow during the low flow months of July through October, and by definition the median flow is available only half the time.
- 4) There is much more potential for unusually large amounts of flow into the lake to affect average flows than unusually small ones. If the typical flow into the lake during a month is 25 cfs then the lowest inflow value of zero is 25 below the typical value. The maximum flow is not similarly bounded—it could be 800 cfs. The 800 cfs, while potentially raising the mean flow considerably for the month, would flow from the lake over a few days and not provide an increased flow potential over an extended period.
- 5) The Min and Max Monthly Averages in the right two columns of the second table suggest that the high and low flow values that make up the flow duration curves are not evenly distributed. The low flow days are more likely to be grouped in time with other low flow days and high flow days are more likely to be grouped in time with other high flow days, resulting in a large difference between the lowest and highest flow instances of a given month across the years. This further suggests that some of the inherent assumptions about storage being effective to allow sustained mean flows are likely to be impractical.
- 6) Averaging is used in several places in the derivation of flow duration curves. “mean flow” can refer to any of the following:
 - a. The flow averaged across the hours of a day
 - b. The flow averaged across the days of a month
 - c. The flow averaged across all days in a specific month across a set of years
 - d. The flow averaged across the days in a year
 - e. Etc.

One must be careful to understand what is being averaged when using a mean flow.

The USFWS Fish Passage Engineering Design Criteria document (USFWS 2017) specifies a minimum downstream attraction flow of 25 cfs (page 9-2), a minimum upstream attraction flow of 50 cfs (page 6-3) and that the operating range for fish passage is bounded by the 95% and 5% exceeded flow values.

Using a typical downstream period of May-June and an upstream period of May-October, results in a requirement for at least 75 cfs during May-June and 50cfs July-October for successful fish passage. None of these months have 95% flows that satisfy these requirements. Only two months, May and October even have mean flows that meet the minimum flow requirements. October has a mean flow that barely meets the 50 cfs requirement, and that mean flow is actually only available 28% of the time in October. These values do not include such factors as evaporation and leakage past the dam so they actually paint a slightly optimistic view of the available flow

Under the current licensing terms, the Project has severely limited storage available in the lake, during the summer, to smooth out precipitation peaks and troughs. The Project is restricted to managing within a one foot range of lake elevation. With the threat of large storms and dry spells, the effective range that can be used for storage of water that is then used by the project (for minimum flows or, rarely during the summer, generation) is 3-6 inches. This amounts to a useful storage amount of about 750-1500 acre-feet (Appendix A), or a flow value of 12-24 cfs across a month. We have recently experience several summers when the lake level has dropped below our allowed minimum despite shutting the turbine down with the lake near the middle of the range and only allowing our required minimum flows past the dam.

APPENDIX C - MDIFW'S LETTER TO SECRETARY BOSE JUNE 26, 2019:

“Subject: Invasive Species Concerns for the Green Lake Dam Project (FERC No. 7189)

“Dear Secretary Bose:

“In our letter dated April 30, 2019, the Maine Department of Inland Fisheries and Wildlife (MDIFW) filed comments on the Green Lake Water Power Company Notice of Intent and Pre-Application Document for the Green Lake Dam Project (FERC No. 7189). The Project is located on Green Lake and Reeds Brook in the City of Ellsworth, Hancock County, Maine. MDIFW is a cabinet level agency of the State of Maine, and under Maine State Law (12 MRSA, §10051) MDIFW’s mandate is “...to preserve, protect, and enhance the inland fisheries and wildlife resources of the State; to encourage the wise use of these resources; to ensure coordinated planning for the future use and preservation of these resources; and to provide for effective management of these resources.” Currently there are no upstream fish passage provisions at the Green Lake Dam, and in the previous filing MDIFW expressed concerns about the spread of invasive species into Green Lake should upstream passage be considered in the future.

Current Status

“MDIFW actively manages Green Lake for both landlocked salmon and lake trout, and while lake trout do not spawn in the lake there is a large contribution of wild landlocked salmon from the tributaries. Additionally, there is also a popular smallmouth bass fishery in the lake. Should upstream passage be installed at Green Lake, MDIFW is concerned that the introduction of largemouth bass, which are present downstream in Graham Lake, may negatively impact these managed fisheries. Largemouth bass are an aggressive top predator that have negatively impacted fisheries in other Maine waters. Future threats from other species not yet present are also a concern. Green Lake also has an indigenous population of Arctic char and is currently only one of the fourteen waters in Maine which supports the species.

“In addition to invasive fish concerns associated with fish passage, density dependent interactions between anadromous alewives and landlocked rainbow smelt remains an ongoing concern of our Agency and is a focus of an interagency interactions workgroup to coordinate research that will support restoration management goals. Smelt are an established fishery in Green Lake as well as the preferred forage species of landlocked salmon. To be clear, MDIFW continues to be supportive of the restoration of searun species to Maine waters within the historic ranges of these species; however, our Agency does have density dependent concerns regarding possible negative interactions between anadromous alewives and landlocked smelts that could decrease year-around smelt forage for managed game species in certain waterbodies, including Green Lake. ”

John Perry
Environmental Review Coordinator

The link to this document on FERC Online is:

<https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=15282546>

APPENDIX D: EXAMPLES OF NMFS LACK OF KNOWLEDGE OF THE PROJECT.

Problems with the Notice of Formal Study Dispute of FERC's Study Plan Determination for the Green Lake Hydroelectric Project (P-7189-014) and comments on FERC's Study Plan Determination, signed by Jennifer Anderson, Assistant Regional Administrator for Protected Resources:

- 1) The Resource Management Goals that are stated to require the Fish Passage Alternatives Study (FPAS) are stated to be outlined in the Recovery Plan for Atlantic salmon (USFWS and NMFS 2019). This document does not exist, at least as a publicly distributed document. For our purposes here, it is assumed that the similarly named document dated 2018 is the intended reference.
- 2) It is stated that the FPAS is required to "identify upstream and downstream fish passage alternatives for the Green Lake Project and to estimate the capital, operational, and maintenance costs of each alternative in consideration of the unique, site-specific constraints that may be at issue for this project" and further "Information in the Pre-Application Document (PAD) is not sufficient to evaluate whether or not fish passage measures are practical and, if they are, what improvements would be necessary..." However the Notice of Dispute states "This study would not require any field work, but would require a desktop evaluation of alternatives by a qualified engineer." The information available to such an engineer, without new field work, is the information in the PAD, other Project documents filed with FERC, and NMFS and USFWS documents on fish passage and Atlantic salmon restoration. This already available information includes flow curves, site information, as-built project drawings, power production, financial information for the Project, and fish passage technical requirements. It appears that NMFS is stating that they need the already available information collected, analyzed and summarized for use by NMFS staff. FERC staff appear to recognize the existence of the available data and to understand it.
- 3) NMFS states: "Currently, the project prevents upstream and downstream passage of fish in Reed Brook." Reed Brook is located in Kingfield, ME, about 100 miles west of Ellsworth. The Project is located on Reeds Brook. Also, technically, the FPAS is requested to provide information on fish passage past the Green Lake dam. Fish passage within Reeds Brook itself is the subject of another study, one that is included in the Projects study plans.
- 4) NMFS points out "We disagree with FERC that we have not referenced any site-specific information relevant to the evaluation of passage feasibility... we indicated that the limited flow available in the system, as well as multiple water needs (...) make it difficult to understand how much water was available for both upstream and downstream fish passage. Further, we specified that, 'flow information is needed in order to ascertain whether or not there is adequate flow available to allow for fish passage measures...' Refer to the Flow Issues section and Appendix B above. The basic information used for this section of the document was gotten from the PAD.
- 5) The following NMFS statements in the NMFS Dispute document argue that data from other local dams is applicable to the Green Lake dam:
 - a. "These methods have been used successfully in other hydroelectric project license proceedings."
 - b. "Similarly, we know that options have been implemented at other projects to prevent the spread of invasive species,"
 - c. "Alternatively, some fishways in the state of Maine have jumps installed at the entrance..."

The following NMFS statements argue the opposite:

- d. “we would have to rely on the transferability of general information from other projects with vastly different characteristics to inform our regulatory obligations...”
- e. “These site-specific considerations make it impractical to rely on best professional judgement and existing scientific literature alone to determine both the appropriateness and reasonable design of a fishway at the project.”
- f. “FERC suggests that information available from other dams could inform the feasibility of fish passage at Green Lake. However, FERC does not provide information on how we and other stakeholders might use information from these dams...”

It appears that NMFS’ view of existing information or projects varies greatly depending on how it aligns with their objectives. What is done on other projects provides proof for them that the Green Lake Project must do something NMFS wants. If other project information would indicate that Green Lake should not do something NMFS wants, then that information can’t be used because of “site specific” differences between projects.

REFERENCES:

(USFWS/NMFS 2018) U.S. Fish and Wildlife Service and NMFS, 2018. *Recovery plan for the Gulf of Maine Distinct Population Segment of Atlantic salmon (Salmo salar)*. 74 pp.

(NMFS Study Requests) *National Marine Fisheries Service Comments and Study Requests* dated July 26, 2019

(NMFS PSP Comments) *Comments of the Proposed Study Plan for the Green Lake Hydroelectrical Project /FERC No. 7189 – December 12, 2019 – FERC 20191212-5057(33908466)*

(NMFS Dispute) *Notice of Formal Dispute of FERC's Study Plan Determination for the Green Lake Hydroelectric Project (P-7189) and comments on FERC's Study Plan Determination – FERC 20200225-5160(33993973)*

(USFWS 2017) *Fish Passage Engineering Design Criteria – [Fish Passage Engineering Design Criteria](#)*

(PAD) *Green Lake Project 7189 PAD Volume I Public*

(PSP) *2019-09-13 Green Lake Proposed Study Plan*

(RSP) *2020-01-11 Green Lake Revised Study Plan*

Document Content (s)

20200320-Dispute-Letter-to-the-Secretary.PDF.....1

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Green Lake Water Power Company

Project No. 7189-014

NOTICE OF CANCELLATION OF DISPUTE RESOLUTION PANEL MEETING
AND TECHNICAL CONFERENCE

(March 26, 2020)

The technical conference scheduled to occur via teleconference on Monday, March 30, 2020, regarding the dispute resolution panel for the Green Lake Hydroelectric Project (project) is **cancelled**. On March 26, 2020, the National Marine Fisheries Service filed a letter withdrawing its study dispute that was filed on February 25, 2020. The technical conference is therefore being cancelled due to the withdrawal of the study dispute. The three-person dispute resolution panel formed pursuant to 18 CFR 5.14(d) on March 9, 2020, by Commission staff, in response to the filing of a notice of study dispute is hereby disbanded.

Nathaniel J. Davis, Sr.,
Deputy Secretary.

Document Content(s)

Notice_P-7189_for_issuance.DOCX.....1



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
55 Great Republic Drive
Gloucester, MA 01930

March 26, 2020

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

RE: Notice of Formal Study Dispute of FERC's Study Plan Determination for the Green Lake Hydroelectric Project (P-7189) and comments on FERC's Study Plan Determination

Dear Secretary Bose:

On February 25, 2020, the National Marine Fisheries Service (NMFS) filed a Notice of Dispute, pursuant to 18 C.F.R. § 5.14(a), of the Federal Energy Regulatory Commission's (FERC) study plan determination (SPD) issued on February 5, 2020, for the Green Lake Hydroelectric Project (FERC No. 7189) located on Reeds Brook in Hancock County and the City of Ellsworth, Maine. We identified the Fish Passage Alternatives Study as being the study request under dispute. Specifically, we needed information regarding the expected flow that would be available for fish passage between May and October.¹ On March 20, 2020, in response to our February 25, 2020, filing, Green Lake Water Power Company (GLWPC) filed an analysis that addresses the amount of flow available in Reeds Brook during the identified fish passage season (May to October). This analysis provides the information we were looking to obtain from the requested desktop analysis. Therefore, we have determined that this information is adequate for our needs, and should be sufficient to achieve the objectives identified in our initial study request "...to assess the feasibility of the installation and operation of fish passage" and to identify "the unique, site-specific constraints that may be at issue for this project." Therefore, as GLWPC has now provided the information that we requested, there is no need to conduct a dispute meeting with the Commission. As such, we withdraw our request for study dispute resolution.

In spite of this resolution of our dispute, we wish to reiterate our concerns with FERC's study plan determination as detailed in our February 25, 2020, letter. We continue to believe that our request adhered to the study plan criteria, and that the onus to provide information needed to inform our recommendations and prescriptions is on the licensee. FERC has required that similar studies be conducted at other projects in the region, including at the Ellsworth Project downstream of Green Lake. Despite these concerns, because GLWPC has complied with our request for this basic information, dispute resolution is no longer necessary.

We appreciate the time and work of the Study Dispute Panel that has been put forward to date. If

¹ We first requested this information in our comments on the Preliminary Application Document (PAD) on July 26, 2019. GLWPC did not provide the requested information in their September 13, 2019 preliminary study plan, their January 13, 2020 revised study plan, or in any other filing of which we are aware.



you have any questions or need additional information, please contact Dan Tierney (Dan.Tierney@noaa.gov or 207-866-3755).

Sincerely,

A handwritten signature in cursive script that reads "Jennifer Anderson".

Jennifer Anderson
Assistant Regional Administrator
for Protected Resources

cc: Service List

File Code: FERC Green Lake Hydro (P-7189) Relicensing

Document Content(s)

Study Dispute Withdrawal 03262020_Signed.PDF.....1