FINAL ENVIRONMENTAL ASSESSMENT
FOR
HYDROPOWER LICENSE

Upper Gorham Hydroelectric Project
FERC Project No. 2311-067
New Hampshire

Federal Energy Regulatory Commission
Office of Energy Projects
Division of Hydropower Licensing
888 First Street, NE
Washington, D.C. 20426

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ACRONYMS AND ABBREVIATIONS

ADA	Americans with Disabilities Act of 1990
APE	area of potential effect
BA	Biological Assessment
CEQ	Council for Environmental Quality
CES	Customized Energy Solutions
cfs	cubic feet per second
Commerce	U.S. Department of Commerce
Commission or FERC	Federal Energy Regulatory Commission
CRMP	Cultural Resources Management Plan
CRP	Central Rivers Power, NH LLC
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DEA	draft Environmental Assessment
DO	dissolved oxygen
EFH	essential fish habitat
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEA	final Environmental Assessment
FPA	Federal Power Act
FWS	U.S. Fish and Wildlife Service
GSU	generator step-up transformer
HPMP	Historic Properties Management Plan
Interior	U.S. Department of Interior
IPaC	Information for Planning and Conservation
IPC Mill Site	International Paper Company Mill Site
MBI	Midwest Biodiversity Institute
MW	megawatt
MWh	megawatt-hour
National Register	National Register of Historic Places
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NHCP	New Hampshire Coastal Program
New Hampshire DES	New Hampshire Department of Environmental Services
NHPA	National Historic Preservation Act
NLEB	northern long-eared bat
NMFS	National Marine Fisheries Service
NPCC- New England	Northeast Power Coordinating Council's New England region
OPP	Office of Public Participation
SD1	Scoping Document 1
SD2	Scoping Document 2
SHPO	State Historic Preservation Office

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1.0 INTRODUCTION

1.1 APPLICATION

On August 1, 2022, Great Lakes Hydro America, LLC (GLH) filed an application for a new license for its 4.8-MW Upper Gorham Hydroelectric Project No. 2311 (Upper Gorham Project or project).[1] The project is located on the Androscoggin River in Coos County, New Hampshire (figure 1).

[1] A license for the project was issued on August 1, 1994, for a term of 30 years, with an expiration date of July 31, 2024. *See James River-New Hampshire Elec., Inc.*, 68 FERC ¶ 61,172 (1994).

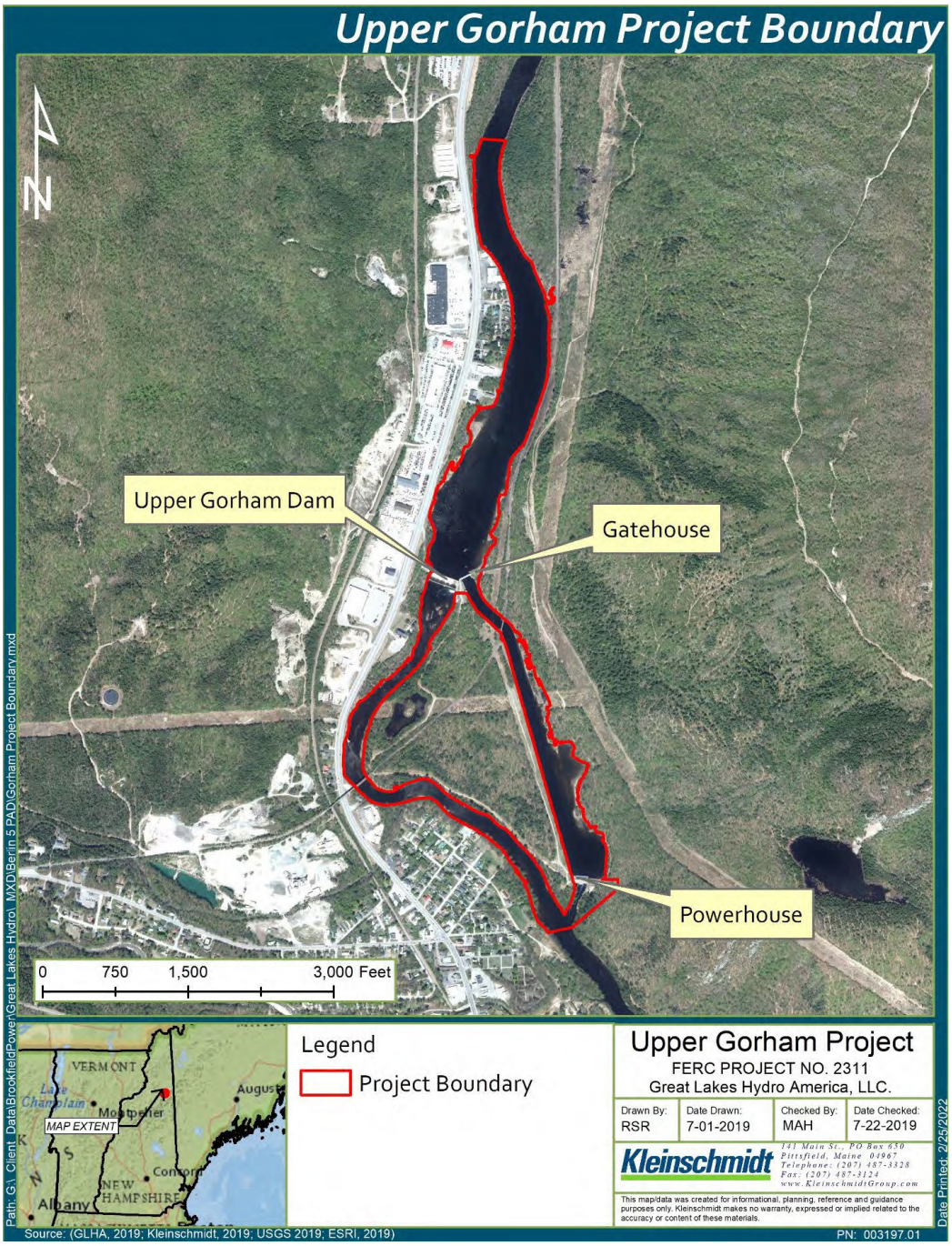

Figure 1. Location of the Gorham Project (source: application).

1.2 PURPOSE OF ACTION AND NEED FOR POWER

1.2.1 Purpose of Action

The purpose of the Upper Gorham Project is to provide a source of hydroelectric power. Therefore, under the provisions of the Federal Power Act (FPA), the Commission must decide

whether to issue a new license to GLH for the project and what conditions should be placed on any license issued. In deciding whether to issue a license for a hydroelectric project, the Commission must determine that the project would be best adapted to a comprehensive plan for improving or developing a waterway. In addition to the power and developmental purposes for which licenses are issued (such as flood control, irrigation, or water supply), the Commission must give equal consideration to the purposes of: (1) energy conservation; (2) the protection of, mitigation of damage to, and enhancement of fish and wildlife resources; (3) the protection of recreational opportunities; and (4) the preservation of other aspects of environmental quality. Issuing a new license for the Upper Gorham Project would allow GLH to continue to generate electricity at the project for the term of the new license, making electric power from a renewable resource available to its customers. We prepared this environmental assessment (EA) in compliance with the requirements of the National Environmental Policy Act of 1969 (NEPA),[2] the Council on Environmental Quality (CEQ) regulations for implementing NEPA[3], and the Commission's implementing regulations.[4]

In this EA, we assess the environmental and economic effects of: (1) continued project operation and maintenance as proposed by GLH (proposed action), (2) the proposed action with additional or modified measures (staff alternative), (3) the staff alternative with the addition of mandatory conditions, and (4) no action. The primary issues associated with relicensing the project are recreation and cultural resources.

1.2.2 Need for Power

The Upper Gorham Project has a generating capacity of 4.8 MW and generates approximately 27,421 megawatt-hours (MWh) per year.

To assess the need for power, we look at the needs in the operating region in which the project is located. The North American Electric Reliability Corporation (NERC) annually forecasts electrical supply and demand nationally and regionally for a 10-year period. The Upper Gorham Project is located within the Northeast Power Coordinating Council's New England region (NPCC-New England) of the NERC. According to NERC's 2023 Long-Term Reliability Assessment, the net internal demand for this region is projected to increase annually by about 1.32% from 2024 to 2033. The anticipated reserve margin (i.e., the primary metric used to evaluate the adequacy of projected generation resources to serve forecasted peak load) is expected to range from 9.2% in 2033 to 27.2% in 2025. The New England region is forecasted

[2] National Environmental Policy Act of 1969, amended (Pub. L. 91-190. 42 U.S.C. §§ 4321–4347, as amended by Pub. L. 94-52, July 3, 1975, Pub. L. 94-83, August 9, 1975, Pub. L. 97-258, §4(b), September 13, 1982, Pub. L. 118-5, June 3, 2023).

[3] 40 CFR Parts 1500-1508.

[4] 18 CFR Part 380.

to meet NPCC-New England's reference reserve margin from 2024 to 2033, which ranges from 10.0% in 2030 to 12.9% in 2024 (NERC, 2023).

Power from the Upper Gorham Project would continue to help meet the need for power in the NPCC-New England region. The project provides power that can displace generation from non-renewable sources and contributes to a diversified generation mix. Displacing the operation of non-renewable facilities may avoid some power plant emissions, thus creating an environmental benefit.

1.3 STATUTORY AND REGULATORY REQUIREMENTS

The licensing process for the Upper Gorham Project is subject to numerous requirements under the FPA and other applicable statutes. The major regulatory and statutory requirements are described in Appendix A.

1.4 PUBLIC REVIEW AND COMMENT

The Commission's regulations (18 Code of Federal Regulations [C.F.R.], (18 C.F.R. §§ 5.1-5.16) require that an applicant consult with appropriate resource agencies, tribes, and other entities before filing an application for a license. This consultation is the first step in complying with the Fish and Wildlife Coordination Act, Endangered Species Act (ESA), National Historic Preservation Act (NHPA), and other federal statutes. Pre-filing consultation must be complete and documented according to the Commission's regulations.

1.4.1 Scoping

Before preparing this EA, we conducted scoping for the Upper Gorham Project to determine what issues and alternatives should be addressed. We issued an initial scoping document (SD1) requesting written comments on September 18, 2019. It was noticed in the *Federal Register* on September 24, 2019[5] The following entities filed comments on SD1:

Commenting Entity	Date Filed
Appalachian Mountain Club	November 19, 2019
Katherine W. Stuart	November 20, 2019
New Hampshire Department of Environmental Services	November 22, 2019
Pamela Laflamme	November 22, 2019
National Park Service	November 25, 2019
Edith Tucker	November 27, 2019

A revised scoping document (SD2), addressing these comments was issued on January 2, 2020.

[5] 84 Fed. Reg. 50,030 (Sept. 24, 2019).

1.4.2 Interventions

On July 26, 2023, the Commission issued a notice accepting the license application and setting September 25, 2023, as the deadline for filing protests and motions to intervene. The following entities filed motions to intervene (none in opposition to the project):

Entity	Date Filed
City of Berlin	September 22, 2023
Town of Gorham	September 22, 2023

1.4.3 Comments on the Application

The July 26, 2023, notice also solicited comments, recommendations, terms and conditions, and prescriptions. The following entities filed comments, recommendations, and prescriptions:

Entity	Date Filed
U.S. Fish and Wildlife Service - New England Field Office	September 11, 2023
U.S. Department of the Interior – Office of Environmental Policy and Compliance[6]	September 20, 2023

1.4.4 Comments on the Draft Environmental Assessment

Commission staff issued its draft EA (DEA) for the relicensing of the Upper Gorham Hydroelectric Project on May 10, 2024.[7] Comments on the DEA were due by June 10, 2024.[8] The following entities filed comments on the DEA:

Commenting Entity	Date Filed
GLH	June 10, 2024
Town of Gorham	June 10, 2024

[6] Interior submitted the comments on behalf of the NPS.

[7] A notice was published in the *Federal Register* on May 17, 2024. 89 FR 43394.

[8] The notice established a 30-day period for filing comments. The Commission's Rules of Practice and Procedure provide that if a filing deadline falls on a Saturday, Sunday, holiday, or other day when the Commission is closed for business, the filing deadline does not end until the close of business on the next business day. 18 C.F.R. § 385.2007(a)(2). Because the 30-day filing deadline fell on a weekend (i.e., June 9, 2024), the filing deadline was extended until the close of business on Monday, June 10, 2024.

Appendix K summarizes the comments that were filed, includes our responses to those comments, and indicates where we made modifications to the EA.

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 NO-ACTION ALTERNATIVE

Under the no-action alternative, the project would continue to operate under the terms and conditions of the current license, and no new environmental protection, mitigation, or enhancement measures would be implemented. We use this alternative to establish baseline environmental conditions for comparison with other alternatives.

2.1.1 Existing Project Facilities

The Upper Gorham Hydroelectric Project consists of a dam, impoundment, power canal, powerhouse, generation equipment, transmission line, and appurtenant facilities. The 775-foot-long timber crib and earthen dam consists of four sections from west to east: (1) a western 133-foot-long, earthen dike with concrete core wall and a crest elevation of 820.0 feet[9]; (2) a 300-foot-long, 18-foot-high rock-filled timber crib spillway section with crest elevation of 807.3 feet and mounted with 5-foot-high flashboards; (3) a 122-foot-long headgate section that regulates flow into the power canal, topped with a 113-foot-long by 16-foot-wide gatehouse with a sill elevation of 795.0 feet; and (4) eastern 220-foot-long earthen dike with concrete core wall and a crest elevation of 820.0 feet. The headgate section contains ten 7.5-foot-wide stoplog gates, seven of which are operable. The gates are fitted with trashracks with 3 1/8-inch clear spacing.

The dam creates an impoundment that is 4,700 feet long and has surface area of approximately 45 acres at a normal full pond elevation of 812.3 feet. At full pond, the impoundment provides 370 acre-feet of gross storage.

From the impoundment, water flows through the headgate and enters a 3,350-foot-long, 100-foot-wide, 18-foot-deep excavated earthen power canal. On the west side of the power canal, there is a minimum flow release structure used to provide a minimum flow of either 400 cfs or 200 cfs into a bypass reach depending on the time of the year. At the downstream end of the power canal, flows enter to the 127-foot-long, 74-foot-wide, 26-foot-high brick and steel powerhouse containing four horizontal shaft Francis turbines and four generators. Each of the turbines has a minimum and maximum hydraulic capacity of 480 and 550 cfs respectively. The generators each have an installed capacity of 1.2 MW at a design head of 29 feet for a total installed capacity of 4.8 MW.

[9] All elevations in this document are based on the National Geodetic Vertical Datum of 1929 (NGVD29).

After passing through the turbine-generator units, flows discharge to a 370-foot-long tailrace at an elevation of 781.6 feet. The tailrace enters the Androscoggin River about 1 mile below the dam, creating a 1-mile-long, bypass reach. A 22-kV, 55-foot-long transmission line transmits power from the powerhouse to one three-phase 2,500-kVA transformers located on the transformer pad. The 46-foot-long, 20-foot-wide transformer pad is located adjacent to the powerhouse. The transformer pad serves as the point where the generated power connects to the local distribution system.

The project does not provide any Commission-required recreation facilities. However, in accordance with the requirements of its current license and a Comprehensive Recreation Management Plan[10] that was filed with the Commission on March 1, 1995,[11] GLH allows access to project lands for recreation.

2.1.2 Current Project Boundary

The current project boundary encloses approximately 94 acres of land (figure 1) and includes the project facilities listed above in section 2.1.1. The project does not occupy federal land.

2.1.3 Project Safety

The Upper Gorham Project has been operating under the current license issued in 1994. During this time, Commission staff has conducted operational inspections focusing on the continued safety of the structures, identification of unauthorized modifications, efficiency, safety of operations, compliance with the terms of the license, and proper maintenance. In addition, the project has been inspected and evaluated every 5 years by an independent consultant, and a consultant's safety report has been submitted for Commission review.

As part of the relicensing process, Commission staff will evaluate the continued adequacy of the proposed project facilities under a new license. Special articles will be included in any license issued, as appropriate. Commission staff would continue to inspect the project during the new license term to assure continued adherence to Commission-approved plans and specifications, special license articles relating to construction (if any), operation and maintenance, and accepted engineering practices and procedures.

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[10] The Comprehensive Recreation Management Plan can be accessed online https://elibrary.ferc.gov/eLibrary/filelist?accession_number=19950306-0360&optimized=false. The plan covers recreation facilities at the Sawmill Project (FERC No. 2422), Cross Power Project (No. 2326), Cascade Project (No. 2327), Shelburne Project (No. 2300), and the Upper Gorham Project.

[11] On February 13, 1997, the Commission approved the 1995 Comprehensive Recreation Management Plan.

2.1.4 Current Project Operation

The Upper Gorham project operates in a run-of-river mode by maintaining the impoundment water level at the normal full pond elevation of 812.3 feet such that, at any given point in time, all outflow from the project approximates all inflow to the project. Great Lake Hydro provides a minimum flow of 400 cfs or inflow, whichever is less, into the bypassed reach from March 1 through June 15 and 200 cfs or inflow, whichever is less, from June 16 to February 28 through a minimum flow structure of the west side of the power canal. The units and forebay gates 1-5 are monitored and controlled by the National System Control Center (NSCC) 24 hours per day, seven days a week. When inflows exceed the hydraulic capacity of the powerhouse, flow overtops the flashboards as the headpond rises above normal pool. When flow is anticipated to exceed 8,300 cfs the High-Water Mitigation Procedure is enacted. This procedure includes operational steps to prepare for and pull flashboards as needed to maintain pond level with an adequate safety buffer below the abutment elevations. The project has an average annual energy production value of approximately 27,421 MWh.

2.2 GLH'S PROPOSAL

2.2.1 Proposed Operation and Environmental Measures

GLH does not propose any new development or changes in project operation from its current license.

GLH proposes to:

- Continue to operate as a run-of-river facility by maintaining the impoundment level at the normal full pond level of 812.3 feet such that at any given point in time, all outflow from the project approximates all inflow to the project.
- Continue to provide a minimum flow of 400 cfs or inflow, whichever is less, from March 1 to June 15, and 200 cfs or inflow, whichever is less, the rest of the year to the bypassed reach.
- Develop and implement an Operations Compliance Monitoring Plan to ensure compliance with a new FERC license.
- Continue to provide public access to project reaches.
- Revise the 1995 Comprehensive Recreation Management Plan[12] to include: a one-time measure of adding gravel and/or smoothing to improve the footing on the bank at the hand carry boat access area owned and maintained by the Trinity Assembly of God and that provides access to the Upper Gorham impoundment, and replace the existing picnic tables, when appropriate.

[12] The plan covers recreation facilities at the Sawmill Project (FERC No. 2422), Cross Power Project (No. 2326), Cascade Project (No. 2327), Shelburne Project (No. 2300), and the Upper Gorham Project.

- Develop and implement a Historic Properties Management Plan (HPMP) for the continued protection of historic properties, in consultation with the New Hampshire State Historic Preservation Officer

2.3 STAFF ALTERNATIVE

Under the staff alternative, any new license would require GHL's proposed measures described above in sections 2.2.1, except for preparing a comprehensive recreation plan for all of GLH's projects on the Androscoggin River and the proposed improvements to the hand carry boat access area.

The staff alternative also includes the following measures:

- Avoid removing or trimming of trees ≥ 3 inches in diameter at breast height (dbh) from April 15 through October 31 to protect northern long-eared and tri-colored bats, unless the trees represent a public safety hazard.

2.4 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

Certain alternatives to GLH's proposal were considered but eliminated from further analysis because they are not reasonable in this case. These alternatives are discussed in Appendix B.

3.0 ENVIRONMENTAL ANALYSIS

This section includes a general description of the project's vicinity and our analysis of the proposed action and other recommended environmental measures. Tables and Figures that are referred to in this section can be found in Appendix C. Sections are organized by resource area, with historical and current conditions described first. The existing condition is the baseline against which the environmental effects of the proposed action and alternatives are compared, including an assessment of the effects of proposed mitigation, protection, and enhancement measures. Staff conclusions and recommended measures are discussed in Appendix F, *Comprehensive Development and Recommended Alternative*.[13]

3.1 GENERAL DESCRIPTION OF THE RIVER BASIN

The Androscoggin River begins in northwestern Maine at Umbagog Lake, crosses into northern New Hampshire, then re-enters Maine near Bethel, eventually joining the Kennebec River at Merrymeeting Bay in coastal Maine. The Androscoggin River drops 1000-feet from its headwaters to the Atlantic Ocean, with an average descent of 8-feet per mile. The watershed has

[13] Unless noted otherwise, the source of our information is the final license application filed on August 1, 2022, and supplemented on April 17, 2023, May 22, 2023, July 14, 2023, and October 23, 2023.

a total drainage area of 3,450-square-miles, with 720-square-miles of drainage in New Hampshire. Flows in the Androscoggin River are regulated by large predominately storage reservoirs upstream of Umbagog Lake: Kennebago, Mooselookmeguntic, Upper and Lower Richardson, and Aziscohos. There are eight hydroelectric projects including the Upper Gorham Project within an 11-mile-long reach of the river between Berlin and Shelburne, New Hampshire that are seeking new licenses concurrently. [14] The Androscoggin River Basin contains over 200 dams, most of which are on various tributaries to the mainstem.

3.2 SCOPE OF CUMULATIVE EFFECTS ANALYSIS

According to the Council on Environmental Quality's regulations for implementing the National Environmental Policy Act (40 C.F.R., § 1508.7), a cumulative effect is the impact on the environment which 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 time, including hydropower and other land and water development activities.

Based on our review of the license application and agency and public comments, we have not identified any resources that may be cumulatively affected by the proposed operation and maintenance of the Upper Gorham project. During scoping no entity identified any resources that would be cumulatively affected by licensing the Upper Gorham Project or any of the other 7 projects that are concurrently undergoing relicensing. This is because the projects are operated run-of-river, water quality is good and much improved over historic conditions, the projects are above anadromous fish barriers, and there are no other actions occurring in the basin that would affect these resources. Therefore, cumulative effects are not considered further in the EA.

3.3 PROPOSED ACTION AND ACTION ALTERNATIVES

In this section, we discuss the effects of the project alternatives on environmental resources. For each resource, we first describe the affected environment, which is the existing condition and baseline against which we measure effects. We then discuss and analyze the environmental effects of the project alternatives.

Only the resources that would be affected are addressed in this EA. We have not identified any substantive issues related to geology and soils, land use, or aesthetic resources associated with the proposed action, and therefore, these resources are not addressed in this EA. We also consider the effects of the project on environmental justice communities. We present

[14] Relicense applications on the upper Androscoggin River pending before the Commission include CRP's J. Brodie Smith (P-2287) and Gorham (P-2288) Hydroelectric Projects, and Great Lakes Hydro America LLC's Shelburne (P-2300), Upper Gorham (P-2311), Cross Power (P-2326), Cascade (P-2327), Sawmill (P-2422), and Riverside (P-2423) Hydroelectric Projects.

our recommendations in Appendix F, *Comprehensive Development and Recommended Alternative*.

3.3.1 Aquatic Resources

3.3.1.1 Affected Environment

Water Quantity

Five large water storage reservoirs (Rangeley, Aziscohos, Upper and Lower Richardson Lakes, Mooselookmeguntic, and Umbagog) in the Upper Androscoggin watershed are operated to maintain a target flow of 1,550 cfs at Berlin, NH, year-round. The system has a combined storage capacity of approximately 644,000 acre-feet. Flow regulation occurs at the Errol Hydroelectric Project (FERC No. 3133), which impounds Lake Umbagog, approximately 30 river miles upstream of the Androscoggin Projects area.

River flow data for the Androscoggin Projects was obtained from USGS gage #01054000 (Androscoggin River near Gorham, New Hampshire). The drainage area at the USGS gage is approximately 1,361 square miles. The data from the USGS gage are considered representative of the flows throughout the project area.

Annual and monthly river flows for the Androscoggin River at USGS gage #01054000 from January 1, 1991, to December 31, 2020, are provided in Table 1. Annual average, minimum, and maximum flows are estimated to be 2,805 cfs; 780 cfs; and 19,900 cfs, respectively. The maximum monthly average flow (4,751 cfs) is typically in April and the minimum monthly average flow is typically in September (1,840 cfs). The maximum recorded daily average flow (19,900 cfs) occurred on April 1, 1998, and the minimum daily average flow (780 cfs) occurred on September 4, 2015.

The Androscoggin River in the area of the project is used for hydroelectric power generation, recreation, wastewater assimilation, and aquatic and wildlife habitat. There are no current or proposed water withdrawals or consumptive uses of water at any of the Androscoggin Projects.

Water Quality

The Androscoggin River in the Upper Gorham Project area is classified by the state of New Hampshire as a Class B water. The designated uses of Class B surface waters in New Hampshire are aquatic life, fish consumption, potential drinking water supply, swimming and other recreation in and on the water, and wildlife. Class B waters are "considered acceptable for fishing, swimming and other recreational purposes, and, after adequate treatment, for use as water supplies" (NHDES 2020). Water quality criteria for Class B waters in New Hampshire are provided in Table 2.

<u>2020 Water Quality Study</u>

As a part of the re-licensing process, GLH completed a comprehensive water quality study throughout the 11-mile-long multi-project area during late June to October 2020. The goals of the study were to collect contemporary data to evaluate the spatial and temporal effects of operation of the Upper Gorham Project on water quality in the Androscoggin River and to assess compliance with New Hampshire water quality standards. The objectives of the study were to: (1) collect dissolved oxygen (DO), water temperature, pH, nutrients, chlorophyll-a, and Secchi disk data at the deepest spot in the project impoundment; and, (2) collect DO, water temperature, and pH in a riverine reach upstream of the impoundment, in the bypassed reach of the project (if applicable), in the tailrace of the project, and downstream of the tailrace and bypass reach confluence. The data for the Upper Gorham Project are presented in Table 3.

DO ranged from 6.1 mg/L to 11.0 mg/L; the DO percent saturation ranged from 69.7 percent to 108.1 percent; the daily average DO percent saturation ranged from 92.2 percent to 106.7 percent (Table 8). The DO concentration and the daily average DO percent saturation exceeded the Class B standards of an instantaneous minimum concentration of 5 mg/L and a daily average of at least 75% saturation throughout the study period.

The lowest water temperatures were observed on September 21 to 22 and October 3-8 (11ºC to 15ºC). At the sites that were installed in late June/early July[15], the maximum water temperature was observed on August 12 at the above impoundment (25.7ºC) and downstream confluence (24.8ºC) sites, and on August 18 in the bypass reach (25.7 ºC). The highest water temperature in the impoundment (21.9ºC) and tailrace (21.8ºC) occurred on September 10. Throughout the study period, the water temperature at Site 22 Downstream Confluence was lower than the other sites at the Upper Gorham Project. The water temperature was generally 0.1ºC to 2.0ºC lower with larger differences during high flow events. The cooler temperatures likely reflect inflow from the Moose River which enters the Androscoggin River approximately 350 feet upstream of the downstream confluence site.

pH was within the range of the standard of 6.5 to 8 throughout the monitoring period at the above impoundment, impoundment, and tailrace sites. In the bypass reach and downstream confluence, pH was within the standard for 99.7 percent and 97.9 percent of the study period, respectively. The times when pH was less than 6.5 in the bypass reach were short (15 minutes to 2.5 hours). At Site 22 Downstream Confluence, pH was below 6.5 on July 1-2, July 14-15, a half-hour on August 5, and September 30-October 1; these days all corresponded to or immediately followed rain event.

The water temperature, DO concentration, and DO percent saturation were uniform throughout the water column in the profiles collected between September 3 and October 8. The average temperature in the impoundment water column ranged from 13.4ºC on October 8 to 20.6ºC on September 10. The water temperature varied by 0.6ºC or less in each profile. The

[15] As shown in Table 3, five sites at the Upper Gorham project were monitored during the Water Quality Study. Data collectors for three of the five sites were installed in June or July. The data collectors at the remaining two sites were not installed until August due to project maintenance work.

average DO concentration ranged from 8.5 mg/L on September 10 to 10.5 mg/L on October 8 and varied by 0.3 mg/L or less in each profile. DO exceeded the Class B standard (5 mg/L) in each profile. The average DO percent saturation in the water column ranged from 93.8 percent on September 10 to 106.5 percent on October 1 and varied by 3.4 percent or less in each profile.

Fisheries Resources

Historically, the upper Androscoggin River near Berlin, New Hampshire, was heavily polluted due to point source discharges from municipal, paper mill, and textile effluents (Inglis et al. 2014, Yoder et al. 2006a, Boucher 1997). Pollution from point source discharges, dams, timber drives, land use practices, non-native fish species, and over-fishing all contributed to a decline in the quality of the fishery (AMC 2003, Boucher 1997). Improvements to water quality since the 1970s resulting from regulations, new municipal and industrial treatment facilities, and the establishment of more stringent water quality standards have allowed the reach of the river between Berlin and Shelburne (i.e., near the GLHA NH Projects) to improve as a recreational and ecological resource (Inglis et al. 2014). However, NHDES continues to recommend that fish from Berlin, New Hampshire, to the Maine border not be consumed because of elevated dioxin and mercury levels resulting from past industrial discharges (NHDES 2021).

The upper Androscoggin River supports approximately 30 species of fish, a quarter of which are non-native (AMC 2003). Angling for salmonids is bolstered by trout stocking and wild reproduction in the upper watershed and within tributaries. Cold water inflow from tributaries and regulated water releases from upper storage reservoirs enhances coldwater fisheries habitat in the main stem of the Androscoggin River. The Midwest Biodiversity Institute (MBI) sampled 51 sites in the Androscoggin River in 2003 to document the spatial distribution and relative abundance of fish in large, non-wadeable river systems of the northeastern United States (Yoder et al. 2006a). MBI electrofished nine 0.6-mile-long reaches within or near GLHA's six hydropower projects in the upper Androscoggin River (Figure 1), collecting 3,378 fish representing 18 species (Table 1). MBI's overall catch was dominated by common fish species from the northeastern United States, including fallfish (30.6 percent), smallmouth bass (26.3 percent), white sucker (14.9 percent), and longnose dace (10.7 percent); common shiner (6.4 percent) and spottail shiner (4.2 percent) were also relatively abundant.

Other species, such as rainbow trout, bullhead, and yellow perch were less common (i.e., less than or equal to 2 percent of the total catch). Smallmouth bass and white sucker were the most common species in riverine segments; smallmouth bass and fallfish were the most common species in the impounded segments (Yoder et al. 2006a). Rainbow trout and brown trout were present but not predominant. Species richness ranged from 5 to 12 in sampled reaches. Maine DIFW reports that burbot and chain pickerel also occur in the upper Androscoggin River (Brautigam and Pellerin 2014).

3.3.1.2 Environmental Effects

Run-of-River Operation, Impoundment Levels, and Minimum Flow

Flow fluctuations during the operation of hydropower projects can affect shoreline littoral and riverine habitat in impoundments and downstream reaches by exposing them to periodic dewatering, making them unsuitable for aquatic biota. Flow fluctuations can also increase erosion of project shorelines, particularly in a project's reservoir.

GLH proposes to continue operating the project as a run-of-river facility. Additionally, GLH proposes to continue to provide 400 cfs or inflow, whichever is less, from March 1 to June 15, and 200 cfs or inflow, whichever is less, the rest of the year to the bypassed reach of the Upper Gorham project.

Staff Analysis

Continuing to operate the project in run-of-river mode would continue to minimize fluctuations in the project impoundment and in the Androscoggin River downstream of the project. Maintaining stable impoundment levels would continue to protect shoreline habitat and fish and other aquatic organisms that rely on near-shore habitat in the impoundment for spawning, foraging, and cover. Minimizing flow fluctuations downstream of the project would also continue to protect aquatic habitat and minimize fish stranding potential.

The current minimum flows were established based on the results of a 1988 minimum instream flow study that showed that 200 cfs would provide the best conditions for a trout fishery and that spawning habitat for rainbow trout would be maximized at 400 cfs. There is no evidence of problems with existing aquatic biota and flows are sufficient to maintain aquatic habitat.

Continuing to provide 400 cfs or inflow, whichever is less, from March 1 to June 15, and 200 cfs or inflow, whichever is less, the rest of the year to the bypassed reach, would not result in any changes to the aquatic habitat or water quality in the bypassed reach. The amount of aquatic habitat in the bypassed reach would remain the same. Releasing 200 cfs to the bypassed reach from June 16 through April 30 annually would continue to provide highly suitable trout habitat. Releasing 400 cfs to the bypassed reach from March 1 through June 15 annually would continue to maximize trout spawning habitat during the reproductive season.

Operations Compliance Management Plan

GLH proposes to develop and implement an updated Operations Compliance Plan to confirm that the project is operated in compliance with a new FERC license. GLH did not provide any details as to the content of the plan.

Staff Analysis

It is essential that a licensee be able to demonstrate compliance with all operational requirements of a project. Compliance with the proposed run-of-river operation and proposed minimum flow releases could be achieved through the development and implementation of an operation compliance monitoring plan. This plan would detail how GLH plans to monitor compliance with the operational requirements of any license that may be issued. This plan

would also detail how GLH would notify both the Commission and resource agencies of any non-compliance events.

3.3.2 Terrestrial Resources

3.3.2.1 Affected Environment

The project is located alongside moderate density residential and commercial development of the town of Gorham on the west bank of the Androscoggin, and a largely undeveloped east bank. A small number of wetlands and riparian forest islands occur within the river along the bypassed reach. Riparian soils at the bottom of the small floodplain are sandy and well drained, while the surrounding hillsides are composed of mixed deciduous and evergreen forest, which remain largely undeveloped apart from logging roads.

Bald eagles have been observed nearby, and while no recent wildlife survey results are available for the project area, white-tailed deer, moose, and a variety of smaller mammals likely occur. Other avian and herpetofauna are also likely to be present near the river.

In 2020, a botanical survey was conducted within the project boundary which recorded 167 species, none of which were categorized as rare, threatened, or endangered. Seven invasive plant species were found during the survey at low to moderate densities. There is no evidence that terrestrial invasive species are currently affecting project operation or other environmental resources.

3.3.2.2 Environmental Effects

Flow fluctuations during operation of hydropower projects can affect wetland and riparian habitats by exposing them to periodic water level changes, decreasing the area of such habitat and its value to wildlife. The applicant proposes to continue to operate the project in a run-of-river mode with inflow approximating outflow. No recommended measures for terrestrial resources were made by licensing participants or are being proposed.

Staff Analysis

There is no evidence in the project record that the current operational mode adversely affects wildlife habitat. Operating the project in a run-of-river mode would minimize effects to riparian habitat both upstream and downstream of the project. Project operations involving small fluctuations to flow in the river downstream of the powerhouse are not expected to result in large-scale changes in the composition, structure, or function of existing riparian plant and animal communities. Therefore, continuing current operational procedures would maintain existing terrestrial habitat upstream and downstream of the project.

3.3.3 Threatened and Endangered Species

On April 10, 2024, staff used the U.S. Fish and Wildlife Service's (FWS's) Information for Planning and Consultation (IPaC) database to determine whether any federally listed species

could occur in the vicinity of the project.[16] According to the IPaC database, the threatened Canada lynx, the endangered northern long-eared bat (NLEB), the proposed endangered tri-colored bat, and the candidate monarch butterfly may occur within the project boundary or be affected by the project. Effects on threatened and endangered species are discussed in Appendix D, *Biological Assessment* (BA). In the BA, staff conclude that relicensing the project as proposed with the staff-recommended measure of tree-cutting and trimming restrictions from April 15 through October 31, may affect, but is not likely to adversely affect the NLEB. Similarly, we conclude that relicensing the Project with tree-cutting and trimming restrictions from April 15 through October 31 is not likely to jeopardize the continued existence of the tricolored bat and is not likely to adversely affect this species. We also conclude that the project will have no effect on the Canada lynx and the monarch butterfly.

3.3.4 Recreation Resources

3.3.4.1 Affected Environment

The project is located within the Androscoggin Valley in the Great North Woods region of New Hampshire. This region is known for its open wilderness, hiking trails, mountain peaks, and scenic views. The White Mountain National Forest and the Presidential Range of the White Mountains are south and west of the project. State parks within the White Mountain National Forest include Mount Washington State Park, Crawford Notch State Park, and Franconia Notch State Park. Over 100 miles of the Appalachian Trail pass through the White Mountains (ATC, 2024).

The Presidential Rail Trail is a popular 18-mile hike between the town of Gorham and the northern border of the White Mountains; opportunities for horseback riding, biking, snowmobiling, cross-country skiing, and scenic and wildlife viewing are also available along the trail (NHDNCR, 2024a). Popular destinations within approximately 30 miles of the project include the New Hampshire towns of Littleton, Bethlehem, Jefferson, Lancaster, Conway, and Gorham, as well as Bethel, Maine. Several state parks are located close to the project (Jericho Mountain State Park, Moose Brook State Park, Milan Hill State Park, Mt. Washington State Park, Umbagog Lake State Park, and the Nansen Wayside Park), which provide opportunities for camping, swimming, fishing, hiking, biking, picnicking, scenic viewing, boating, canoeing, kayaking, horseback riding, snowmobiling, and snowshoeing (NHDNCR 2024b, c, d).

Recreation Facilities and Use

There are no project recreation facilities that are maintained and operated by GLH. The bridge across the river leading to the powerhouse is part of the Mahoosuc Trail, maintained by the Appalachian Mountain Club, and joins the Appalachian Trail on the north side of the river. In 2012, the Commission authorized GLH to grant a recreational right-of-way (ROW) to Coos Cycling Club for the development and maintenance of a non-motorized bicycle trail on Power

[16] *See* FWS, IPaC, https://ecos.fws.gov/ipac/ (last visited February 22, 2024).

Island, named Power Island Loop Trail.[17] Recreationists currently have access to the trails on the island between Route 16 and the Upper Gorham Project power canal through agreements between GLH, the State of New Hampshire, and the Coos Cycling Club.

On March 31, 2015, GLH filed a Form 80 recreation report for the 2014 season which reported the annual total number of recreation days as 660.[18] The Recreation Use and Facility Assessment Study Report filed April 12, 2023 by GLH, includes the results of a comprehensive recreation use and assessment study at 14 public access sites along the Androscoggin River in the towns of Berlin, Gorham, and Shelburne, New Hampshire, between May 15 and September 15, 2022. Components of the study included a facility inventory, spot counts, user surveys, and consultation with agencies and stakeholders. The report included the following sites located close to the project boundary: Upper Gorham impoundment access and the Appalachian and Mahoosuc trails.[19]

Upper Gorham Impoundment Access

The Upper Gorham impoundment access area is located upstream of the Upper Gorham dam above the boat safety barrier, but the land is outside of the project boundary. The access area includes a gravel parking area with space for four vehicles on land owned and maintained by the New Hampshire Department of Transportation. The site also provides a picnic shelter, two picnic tables, dam safety signage, and hand carry access to the Androscoggin River.[20] These facilities are owned, operated, and maintained by the Trinity Assembly of God. The shoreline has a gentle slope with a short drop (1-2 feet) to the water surface.

Recreation opportunities at the Upper Gorham impoundment include hiking/walking, picnicking, kayaking, fishing, scenic viewing, dog walking, and swimming. According to the report, the Upper Gorham impoundment access was one of two least frequently visited sites with a median of three visits and a maximum of 30 visits in the past year. Crowdedness was rated as light or somewhat light and the site receives little to no use in the winter to early spring. The

[17] Letter order issued November 29, 2011.

[18] Recreation days are defined as each visit by a person to a development (as defined above) for recreational purposes during any portion of a 24-hour period.

[19] Only 9 total surveys were completed at the Upper Gorham site compared to 32 completed surveys along the Appalachian and Mahoosuc Trails.

[20] In 2023, improvements to the access near the pedestrian bridge along the Appalachian/Mahoosuc Trail were completed. More information is available online: https://www.northernforestcanoetrail.org/projects-enhance-access-to-androscoggin-river/

condition of the area and its amenities was rated as good or excellent,[21] and most respondents of the survey (78 percent) were satisfied.

Appalachian and Mahoosuc Trails

Current parking for the trails is located approximately half a mile downstream of the dam at the trestle bridge. Crossing the bridge gives recreationists access to cross Power Island towards Hogan Road and the Mahoosuc Trail which connects to the Appalachian Trail. These trails receive consistent use throughout the year. Recreation opportunities pursued on the trails included canoeing, bank fishing, camping, scenic viewing, photography, biking, snowshoeing, and berry picking. The trails are owned by both GLH and the State of New Hampshire. The footbridge is also owned by the State of New Hampshire, and the parking is owned by the Town of Gorham. Most respondents of the survey (91 percent) rated the trails' crowdedness as light, somewhat light, or moderate, with only 9 percent of respondents rating the crowdedness as somewhat heavy or heavy. Most respondents of the survey (97 percent) also rated the trails' condition as satisfactory, good, or excellent, and 84 percent of respondents were overall satisfied with the trails.

According to GLH, the Town of Gorham received funding to develop a park directly adjacent to the current parking area at the trestle bridge. The new park would include parking, picnic tables, restrooms, signs, and a boat launch. GLH stated that these enhancements more than address the recommendations provided by the survey respondents and explains why they are not proposing any additional enhancements for more parking or water access at the trails.

3.3.4.2 Environmental Effects

GLH proposes to revise the 1995 Comprehensive Recreation Management Plan[22] to include the following enhancements at the Upper Gorham impoundment access area owned and operated by the Trinity Assembly of God: (1) add gravel and/or smoothing to improve the footing on the bank at the hand carry boat access area that provides access to the Upper Gorham impoundment, and (2) replace the existing picnic tables, when appropriate. GLH considers these measures to be a one-time improvement, with subsequent maintenance being the responsibility of the Trinity Assembly of God.

No one recommended any recreation measures in response to the Commission's ready for environmental analysis notice.

Staff Analysis

[21] The mean and median condition ratings were calculated based on ratings of poor=1, fair=2, satisfactory=3, good=4, and excellent=5. GLH defined a good rating as no visible signs of deterioration or damage, functional and safe for its intended purpose.

[22] More information on the plan is provided in section 2.1.1, *Existing Project Facilities*.

The Upper Gorham access area provides the public access to the impoundment. It is lightly used, and the existing facilities are in good condition. The facilities being provided by the Trinity Assembly of God are meeting current demands and should continue to meet recreation needs in the future. Because the site provides adequate access, the site is not proposed to be a licensed project facility, and there is no reason to believe that the Trinity Assembly of God cannot adequately maintain the site during the term of any license issued for the project, there is no project-related benefit to the proposed improvements to the hand-carry boat access area.

3.3.5 Cultural Resources

3.3.5.1 Affected Environment

Section 106 of the National Historic Preservation Act (NHPA) requires that the Commission take into account the effects of its actions on historic properties and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking.[23] Historic properties are those that are listed or eligible for listing in the National Register of Historic Places (National Register). The regulations implementing section 106 of the NHPA also require that the Commission seek concurrence with the State Historic Preservation Office (SHPO) on any finding involving effects or no effects on historic properties, and consult with interested Native-American Tribes that attach religious or cultural significance to historic properties that may be affected by an undertaking. In this EA, we also use the term "cultural resources" for properties that have not been determined eligible for listing in the National Register. Cultural resources represent things, structures, places, or archaeological sites that can be either prehistoric or historic in origin. In most cases, cultural resources less than 50 years old are not considered historic.

On September 18, 2019, the Commission designated GLH as the non-federal representative for carrying out day-to-day consultation regarding the licensing efforts, pursuant to section 106 of the NHPA. However, the Commission remains largely responsible for all findings and determinations regarding the effects of the project on any historic property.

Area of Potential Effects (APE)

Pursuant to section 106 of the NHPA, the Commission must take into account whether any historic property could be affected by the issuance of a license within a project's area of potential effects (APE). The APE is determined in consultation with the SHPO and is defined as the geographic area or areas within which an undertaking may directly or indirectly cause alternation in the character or use of historic properties, if any such properties exist. The APE for this project includes all lands within the current project boundary, which encompasses project

[23] An 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." 36 C.F.R. § 800.16(y). Here, the undertaking is the potential issuance of a new license for the Upper Gorham Project.

structures, land necessary for project operations, and the impoundments to the normal water surface elevation. The New Hampshire SHPO concurred on the APE in a letter dated July 7, 2022.[24]

Previous Cultural Investigations

Archaeological assessments in the project area were conducted in 1987 and 1988. The 1987 Phase 0 archaeological survey area was divided into four sections: (1) the east side of the impoundment from the canal gatehouse to a point approximately 4500 feet north, (2) the west side of the impoundment from the dam to a point approximately 4500 north, (3) the west side of the Gorham canal, and (4) the east side of the canal. The report concluded that the area has limited prehistoric potential[25] and there are no known archaeological resources within the project boundary. The project dam, gatehouse, powerhouse, and machinery were previously determined eligible for National Register of Historic Places listing.

There are no Native American lands, known Native American TCPs or religious properties, or NRHP-eligible or -listed sites associated with Native American Nations within the project boundary or which would likely be affected by the relicensing.

3.2.5.2 Environmental Effects

GLH does not propose any new construction, ground disturbing activities, or changes to project operation or maintenance, except minor enhancements to improve the footing on the bank of the hand carry boat access area near the impoundment. GLH proposes to develop and implement a HPMP, in consultation with the New Hampshire SHPO, for the continued protection of existing and potential cultural resources.[26] GLH proposes to halt construction or development of project facilities if any previously unrecorded archaeological sites are discovered and consult with the New Hampshire SHPO to determine the significance of the sites and to develop a mitigation plan.

No entity filed comments or recommendations regarding the effects of the project on cultural resources.

Staff Analysis

[24] A copy of the letter was filed with the Commission on October 11, 2022.

[25] The only location with prehistoric site potential was the large terrace at the north end of the survey area (Bolian, 1987).

[26] GLHA proposes to develop one HPMP that covers GLH projects to include (Upper Gorham (P-2311-067), Cross Power (P-2326-054), Cascade (P-2327-047), Sawmill (P-2422-058), Shelburne (P-2300-052), and Riverside (P-2423-031) Hydroelectric Projects.

Continued operation of the Upper Gorham Project would ensure that the project continues its historical function of generating electricity, which would be considered a beneficial effect. However, operating and maintaining the project throughout the term of any license could result in unanticipated adverse effects to the project dam, gatehouse, powerhouse, and machinery, including repairs and modifications that, while necessary for the continued safe and efficient operation, are not in keeping with the project's historic character.

GLH's proposed HPMP would contain measures to avoid, lessen, or mitigate for any adverse effects to historic properties during the term of any license, if issued. Developing and implementing a HPMP in consultation with the New Hampshire SHPO, would ensure that measures are in place to protect historic properties in the APE from adverse effects related to the proposed recreation facilities and project operation and maintenance. A HPMP would also ensure that any previously undiscovered archaeological resources within the APE are not adversely affected by the project during the term of any new license.

To meet the requirements of section 106 of the NHPA, the Commission intends to execute a Programmatic Agreement with the New Hampshire SHPO for the Upper Gorham Project to protect historic properties. The terms of the Programmatic Agreement would require GLH to develop and implement a HPMP to ensure that the proposed project does not adversely affect historic properties in the APE.

As explained in the recreation analysis, developing a single HPMP that covers all of GLH's projects on the Androscoggin River could make administering the license difficult if the GLH were to sell the project. The conditions of any future license for the Upper Gorham Project should not be encumbered by the requirements of other licensed projects.

3.3.6 Environmental Justice

In conducting NEPA review of proposed hydropower projects, the Commission follows Executive Order 12898 and Executive Order 14096, which direct federal agencies to identify, analyze, and address disproportionate and adverse human health or environmental effects of their actions on environmental justice communities.[27] Executive Order 14008 also directs agencies to develop programs, policies, and activities to address the disproportionate and adverse "human health, environmental, climate-related and other cumulative impacts on disadvantaged communities, as well as the accompanying economic challenges of such impacts."[28] Environmental justice is "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and

[27] Exec. Order No. 12,898, 59 Fed. Reg. 7629 (Feb. 11, 1994); Exec. Order No. 14,096, 88 Fed. Reg. 25251 (April 21, 2023).

[28] Exec. Order No. 14,008, 86 Fed. Reg. 7619, 7629 (Jan. 27, 2021).

enforcement of environmental laws, regulations, and policies."[29] The term "environmental justice community" includes disadvantaged communities that have been historically marginalized and overburdened by pollution.[30]

Commission staff used *Promising Practices for EJ Methodologies in NEPA Reviews* (*Promising Practices*) [31] which provides methodologies for conducting environmental justice analyses throughout the NEPA process for this project. Additionally, consistent with EPA recommendations, Commission staff used EPA's Environmental Justice Screening and Mapping Tool (EJScreen) as an initial screening tool to better understand locations that require further review or additional information regarding minority and/or low-income populations; potential environmental quality issues; environmental and demographic indicators; and other important factors.[32]

Consistent with *Promising Practices*, and Executive Orders 12898 and 14096, we reviewed the project to determine if its resulting impacts would be disproportionate and adverse on minority and low-income populations and also whether impacts would be significant.[33]

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[29] *See* EPA, EJ 2020 Glossary (Feb. 2024) https://www.epa.gov/system/files/documents/2024-02/ej-2020-glossary.pdf. Fair treatment means that no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental, and commercial operations or policies. *Id.* Meaningful involvement of potentially affected environmental justice community residents means: (1) people have an appropriate opportunity to participate in decisions about a proposed activity that may affect their environment and/or health; (2) the public's contributions can influence the regulatory agency's decision; (3) community concerns will be considered in the decision-making process; and (4) decision makers will seek out and facilitate the involvement of those potentially affected. *Id.*

[30] Environmental justice communities include, but may not be limited to minority populations, low-income populations, or indigenous peoples. *See* EPA, EJ 2020 Glossary (Feb. 2024), https://www.epa.gov/system/files/documents/2024-02/ej-2020-glossary.pdf.

[31] Federal Interagency Working Group on Environmental Justice & NEPA Committee, *Promising Practices for EJ Methodologies in NEPA Reviews* (Mar. 2016) (*Promising Practices*), https://www.epa.gov/sites/default/-files /2016-08/documents/nepa_promising_practices_document_2016.pdf.

[32] EPA, *Purposes and Uses of EJScreen* (Jan. 9, 2024), https://www.epa.gov/ejscreen/purposes-and-uses-ejscreen ("Screening tools should be used for a 'screening-level' look. Screening is a useful first step in understanding or highlighting locations that may be candidates for further review.").

[33] An agency may determine that impacts are disproportionate and adverse, but not significant within the meaning of NEPA and in other circumstances an agency may determine that an impact is *both* disproportionate and adverse and significant within the meaning of NEPA. *See Promising Practices* at 33.

Promising Practices provides that agencies can consider any of a number of conditions in this determination and the presence of any of these factors could indicate a potential disproportionate and adverse impact.[34] For this project, a disproportionate and adverse effect on an environmental justice community means the adverse effect is predominantly borne by such population. Relevant considerations include the location of project facilities and the project's human health and environmental impacts on identified environmental justice communities, including direct, indirect, and cumulative impacts.

3.3.6.1 Meaningful Engagement and Public Involvement

In addition to the information provided above, the Council on Environmental Quality's (CEQ) Environmental Justice Guidance Under the National Environmental Policy Act (CEQ, 1997) and *Promising Practices,* recommend that federal agencies provide opportunities for effective community participation in the NEPA decision-making process by: identifying potential effects and mitigation measures in consultation with affected communities; improving accessibility of public meetings, crucial documents, and notices; and using adaptive approaches to overcome potential barriers to effective participation. In addition, Executive Orders 13985 and 14096, strongly encourage independent agencies to "consult with members of communities that have been historically underrepresented in the Federal Government and underserved by, or subject to discrimination in, Federal policies and programs, [35] and "provide opportunities for the meaningful engagement of persons and communities with environmental justice concerns who are potentially affected by Federal activities." [36]

The opportunities for public involvement during the Commission's review process are described in section 1.4, *Public Review and Comment*.

All documents that form the administrative record for this proceeding, with the exclusion of privileged or critical energy infrastructure information, are available to the public electronically on FERC's website (https://elibrary.ferc.gov/eLibrary/search). We recognize that not everyone has internet access or is able to file electronic comments. Anyone may comment to FERC about the proceeding, either in writing or electronically. [37] All substantive environmental

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[34] There are various approaches for determining whether an impact will cause a disproportionate and adverse impact, and one recommended approach is to consider whether an impact would be "predominantly borne by minority populations or low-income populations." *See id.* at 44-46.

[35] Exec. Order No. 13985, 86 Fed. Reg. 7009, 7011 (Jan. 20. 2021).

[36] Exec. Order No. 14,096, 88, Fed. Reg. 252514 (Apr. 21, 2023).

[37] The Office of Public Participation (OPP) provides members of the public, including environmental justice communities, landowners, Tribal citizens, and consumer advocates, with assistance in FERC proceedings—including navigating Commission processes and activities relating to the Project. For assistance with interventions, comments, requests for rehearing, or other filings, and for information about any applicable deadlines for such filings, members of the

comments received prior to issuance of this EA have been addressed within this document. No entity provided comments or recommendations regarding the effects of the project on environmental justice communities in response to the Commission's notice that the application was ready for environmental analysis.

3.3.6.2 Identification of Environmental Justice Communities

According to CEQ's *Environmental Justice Guidance* and *Promising Practices*, minority populations are those groups that include: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. Following the recommendations set forth in *Promising Practices*, FERC uses the **50 percent** and the **meaningfully greater analysis** methods to identify minority populations. Using this methodology, minority populations are defined in this EA where either: (a) the aggregate minority population of the block groups in the affected area exceeds 50 percent; or (b) the aggregate minority population in the block group affected is 10 percent higher than the aggregate minority population percentage in the county. The guidance also directs low-income populations to be identified based on the annual statistical poverty thresholds from the U.S. Census Bureau. Using *Promising Practices'* **low-income threshold criteria** method, low-income populations are identified as block groups where the percent low-income population in the identified block group is equal to or greater than that of the county. Here, Commission staff selected Coos County, New Hampshire, in which the project action is located, as the comparable reference community to ensure that affected environmental justice communities are properly identified. A reference community may vary according to the characteristics of the particular project and the surrounding communities.

Table 7 identifies the minority populations (by race and ethnicity) and low-income populations within New Hampshire, the county affected by the relicense application (Coos County, New Hampshire), and U.S. census block groups[38] within the vicinity of the project site. For this project, staff chose a 1-mile radius around the project boundary (figure 2). Staff determined that a 1-mile radius is sufficient to encompass and address any potential impacts that may arise from the proposed action given the limited scope of the proposed relicensing, including the concentration of project-related effects within the project boundary. To ensure we are using the most recent available data, we used U.S. Census American Community Survey as the source for race and ethnicity data and poverty data at the census block group level.[39]

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public are encouraged to contact OPP directly at 202-502-6595 or OPP@ferc.gov for further information.

[38] Census block groups are statistical divisions of census tracts that generally contain between 600 and 3,000 people. U.S. Census Bureau. 2022. Glossary: Block Group. Available online at: https://www.census.gov/programs-surveys/geography/about/glossary.html#par_textimage_4. Accessed January 2024.

[39] U.S. Census Bureau, American Community Survey 2022 ACS 5-Year Estimates Detailed Tables, File# B17017, *Poverty Status in the Past 12 Months by Household Type by Age of Householder*, https://data.census.gov/cedsci/table?q=B17017; File #B03002 *Hispanic or Latino Origin By Race*, https://data.census.gov/cedsci/table?q=b03002.

Within the study area, staff identified one census block group in which the populations qualify as environmental justice community that met the threshold for both the low-income and minority population criteria.

3.3.6.3 Environmental Effects

The actions and PM&E measures proposed by GLH are described in section 2.2, *Applicant's Proposal*, and staff's recommended alternative is described in section 2.3, *Staff Alternative*.

No entity provided comments or recommendations regarding the effects of the project on environmental justice communities in response to the Commission's notice that the application was ready for environmental analysis.

Staff Analysis

Staff evaluated the effects of continued project operation on aquatic resources, terrestrial resources, threatened and endangered species, recreation, and cultural resources in sections 3.3.1 through 3.3.5 above. GLH proposes no changes to project operations that would adversely affect environmental resources, including water supply, water quality, recreation, or fisheries. As discussed in section 3.3.1.2, *Aquatic Resources, Environmental Effects*, operating the project in a run-of-river mode would continue to maintain stable impoundment levels and minimize effects on environmental resources and land along the shoreline of the impoundment and downstream of the project.

Although the identified environmental justice community is located within the project boundary, GLH does not propose any new construction, ground disturbing activities, or changes to project operation or maintenance. Therefore, continued project operation would not result in substantive changes in the visual setting of the project area where the environmental justice community resides. Based on the foregoing analysis, potential impacts to resources at the project would be less than significant.

We conclude that re-licensing the Upper Gorham Project would not adversely affect residents of the identified environmental justice community. In consideration of the limited scope of the proposed project, and the staff-recommended environmental protection and enhancement measures, the project would not result in a disproportionate and adverse impact on the environmental justice community present within the project area.

4.0 DEVELOPMENTAL ANALYSIS

In this section, we look at the project's use of the Androscoggin River for hydropower generation to see what effect various proposed or recommended environmental measures would have on the cost to operate and maintain the project and on the project's power generation. Under the Commission's approach to evaluating the economics of hydropower projects, as

articulated in *Mead Corporation*.,[40] the Commission compares the current cost to produce project power to an estimate of the cost to provide the same amount of energy and capacity[41] for the region using the most likely alternative source of power (cost of alternative power). In keeping with the policy described in *Mead Corporation.*, our economic analysis is based on current electric power cost conditions and does not anticipate or estimate changes in fuel costs that could occur during a project's license term.

For each of the licensing alternatives, our analysis includes an estimate of: (1) the annualized cost of providing the individual measures considered in the EA; (2) the cost of the most likely alternative source of project power; (3) the total annual project cost (i.e., for construction, operation, maintenance, and environmental measures); and (4) the difference between the cost of the current alternative source of project power and the total annual project cost. Power and developmental costs for the Upper Gorham Project can be found in Table 6. A comparison of alternatives can be found in Appendix E.

If the difference between the cost to produce an equivalent amount of power from an alternative source and the total annual project cost is positive, the project produces power at a cost less than the cost of producing power from the most likely least-cost source of alternative power. If the difference between the alternative source of power's annual cost and the total annual project cost is negative, the project costs more to produce power than the cost to produce an equivalent amount of power from the most likely least-cost source of alternative power. This estimate helps support an informed decision concerning what is in the public interest with respect to a proposed license. However, project economics is only one of many public interest factors the Commission considers in determining whether, and under what conditions, to issue a license.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 COMPREHENSIVE DEVELOPMENT AND RECOMMENDED ALTERNATIVE

Sections 4(e) and 10(a)(1) of the FPA require the Commission to give equal consideration to the power development purposes and to the purposes of energy conservation; the protection, mitigation of damage to, and enhancement of fish and wildlife; the protection of recreational opportunities; and the preservation of other aspects of environmental quality. Any license issued shall be such as in the Commission's judgment will be best adapted to a comprehensive plan for improving or developing a waterway or waterways for all beneficial public uses. This section contains the basis for, and a summary of, our recommendations for licensing the Upper Gorham Project. We weigh the costs and benefits of our recommended alternative against other proposed measures.

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[40] *See Mead Corp.*, 72 FERC ¶ 61,027 (1995). In most cases, electricity from hydropower would displace some form of fossil-fueled generation, in which fuel cost is the largest component of the cost of electricity production.

[41] We use the term "capacity benefit" to describe the benefit a project receives for providing capacity to the grid, which may be in the form of a dependable capacity credit or credit for monthly capacity provided.

Based on our independent review of agency and public comments filed on this project and our evaluation of the environmental and economic effects of the proposed action and its alternatives, we selected the staff alternative as the preferred alternative for the Upper Gorham Project. We recommend this alternative because: (1) issuing a new license for the project would allow GLH to operate the project as a beneficial and dependable source of electric energy; (2) generation from the Upper Gorham Project, with an installed electric capacity of 4.8-MW, comes from a renewable resource that does not contribute to atmospheric pollution; (3) the public benefits of this alternative would exceed those of the no-action alternative; and (4) the recommended measures would protect and enhance aquatic and cultural resources and threatened and endangered species at the project.

Below, we make recommendations as to which environmental measures proposed by GLH, or recommended by agencies or other entities, should be included in any license issued for the project. In addition to GLH's proposed environmental measures listed below, we recommend additional environmental measures be included in any new license issued for the project.

5.1.1 Measures Proposed by GLH

Based on our environmental analysis of GLH's proposal, as discussed in section 3.0, *Environmental Analysis*, and the costs presented in section 4.0, *Developmental Analysis*, we conclude the following operation and environmental measures proposed by GLH would protect and enhance environmental resources and would be worth the cost. Therefore, we recommend including the following measures in any new license issued for the Upper Gorham Project:

- Continue to operate the project as a run-of-river facility by maintaining the impoundment level at the normal full pond level of 812.3 feet such that at any given point in time, all outflow from the project approximates all inflow to the project.
- Continue to provide 400 cfs or inflow, whichever is less, from March 1 to June 15, and 200 cfs or inflow, whichever is less, the rest of the year to the bypassed reach of the Upper Gorham Project.
- Develop and implement an updated Operations Compliance Plan to ensure compliance with a new FERC license.
- Develop and implement a Historic Properties Management Plan (HPMP) for the continued protection of historic properties, in consultation with the New Hampshire State Historic Preservation Officer

5.1.2 Additional Measures Recommended by Staff

In addition to GLH's proposed measures noted above, we recommend including the following additions or modifications.

- Avoid removing or trimming of trees ≥ 3 inches from April 15 through October 31 to protect northern long-eared and tri-colored bats, unless the trees represent a public safety hazard.

In Appendix F, we discuss the basis for recommending the additions or modifications to GLH's proposal.

5.2 UNAVOIDABLE ADVERSE EFFECTS

Continued project operation would continue to impede passage of fish species and result in some unavoidable injury or mortality to fish species migrating downstream. Impoundment fluctuations associated with project operation could affect near-shore aquatic habitat; however, GLH's proposal to continue to operate in a run-of-river mode with limited impoundment fluctuations would result in infrequent and minimal disturbances to aquatic and riparian habitat.

5.3 CONSISTENCY WITH COMPREHENSIVE PLANS

Section 10(a)(2)(A) of the FPA, 16 United States Code § 803(a)(2)(A), requires the Commission to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project. We reviewed 6 comprehensive plans that are applicable to the Upper Gorham Project, located in New Hampshire which can be found in Appendix H. No inconsistencies were found.

6.0 FINDING OF NO SIGNIFICANT IMPACT

If the Upper Gorham Project is relicensed with our recommended measures, the project would operate while providing enhancements and protective measures for aquatic, recreational, and cultural resources in the project area.

Based on our independent analysis, issuance of a new license for the Upper Gorham Project with additional staff-recommended measures, would not constitute a major federal action significantly affecting the quality of the human environment.

7.0 LITERATURE CITED

The literature cited is in Appendix I.

8.0 LIST OF PREPARERS

The list of preparers of this EA is in Appendix J.

APPENDIX A- STATUTORY AND REGULATORY REQUIREMENTS

Federal Power Act

Section 18 Fishway Prescription

Section 18 of the FPA, 16 U.S.C. § 811, states that the Commission is to require construction, operation, and maintenance by a licensee of such fishways as may be prescribed by the Secretaries of the U.S. Department of Commerce (Commerce) or the U.S. Department of the Interior (Interior). Interior, by letter filed with the Commission on September 11, 2023, requests that a reservation of authority to prescribe fishways under section 18 be included in any license issued for the project.

Section 10(j) Recommendations

Under section 10(j) of the FPA, 16 U.S.C. § 803(j), each hydroelectric license issued by the Commission must include conditions based on recommendations provided by federal and state fish and wildlife agencies for the protection, mitigation, or enhancement of fish and wildlife resources affected by the project. The Commission is required to include these conditions unless it determines that they are inconsistent with the purposes and requirements of the FPA or other applicable law. Before rejecting or modifying an agency recommendation, the Commission is required to attempt to resolve any such inconsistency with the agency, giving due weight to the recommendations, expertise, and statutory responsibilities of such agency. No agencies filed 10(j) recommendations for the Upper Gorham Project.

Clean Water Act

Under section 401(a)(1) of the Clean Water Act, 33 U.S.C. § 1341(a)(1), a license applicant must obtain either a water quality certification (certification) from the appropriate state pollution control agency verifying that any discharge from a project would comply with applicable provisions of the Clean Water Act, or a waiver of the certification by the appropriate state agency. The failure to act on a request for certification within a reasonable period of time, not to exceed one year, after receipt of the request constitutes a waiver.

On September 22, 2023, GLH applied to the New Hampshire Department of Environmental Services (New Hampshire DES) for certification for the Upper Gorham Project. New Hampshire DES received the application on the same day.[42] New Hampshire DES has not yet acted on the certification request. The certification is due by September 21, 2024.

Endangered Species Act

Section 7 of the Endangered Species Act (ESA), 16 U.S.C. § 1536, requires federal agencies to ensure that their actions are not likely to jeopardize the continued existence of any

[42] GLH filed a copy of the receipt of delivery of the application to New Hampshire DES on September 22, 2023.

endangered or threatened species or result in the destruction or adverse modification of the critical habitat of such species. According to the IPaC database, the federally endangered northern long-eared bat (NLEB; *Myotis septentrionalis*), the federally threatened Canada lynx (*Lynx canadensis*), the proposed endangered tri-colored bat (*Perimyotis subflavus*) and the candidate species monarch butterfly (*Danaus plexippus*) could occur in vicinity of the project.

Our analysis of project impacts on the NLEB, tri-colored bat, Canada lynx, and monarch butterfly is presented in Appendix D, *Biological Assessment*. Avoiding the removal of trees ≥ 3 inches from April 15 through October 31 would reduce the likelihood of harassing or harming NLEB and their newly born pups. We conclude that licensing the Project under the staff alternative, would have no effect on the Canada lynx, no effect on the monarch butterfly, and that relicensing the project with tree-cutting restrictions from April 15 through October 31 may affect, but is not likely to adversely affect the NLEB and is not likely to jeopardize the continued existence of the tricolored bat. No further action is required under the ESA after making a determination of no effect or not likely to jeopardize. We requested concurrence from FWS with our determination of not likely to adversely affect NLEB in a letter issued June 5, 2024. On August 26, 2024, FWS filed a letter concurring with our determination.

Coastal Zone Management Act

Under section 307(c)(3)(A) of the Coastal Zone Management Act (CZMA), 16 U.S.C. §1456(3)(A), the Commission cannot issue a license for a project within or affecting a state's coastal zone unless the state's coastal zone management agency concurs with the license applicant's certification of consistency with the state's CZMA program, or the agency's concurrence is conclusively presumed by its failure to act within 6 months of its receipt of the applicant's certification.

On January 18, 2022, GLH requested confirmation from the New Hampshire Coastal Program (NHCP) that the Upper Gorham Project is not included within the jurisdiction of the NHCP. NHCP confirmed that the project is outside the New Hampshire coastal zone and the relicensing of the Upper Gorham Project is not subject to CZMA Federal consistency review by the New Hampshire Coastal Program.[43]

National Historic Preservation Act

Section 106 of the National Historic Preservation Act (NHPA), 54 U.S.C. § 306108, requires that a federal agency "take into account" how its undertakings could affect historic properties. Historic properties are districts, sites, buildings, structures, traditional cultural properties, and objects significant in American history, architecture, engineering, and culture that are eligible for inclusion in the National Register of Historic Places (National Register). Commission staff designated GLH as its non-federal representative for the purposes of conducting section 106 consultation under the NHPA on September 18, 2019. Pursuant to section 106, and as the Commission's designated non-federal representative, GLH initiated

[43] NHCP's confirmation email is included in Appendix A of Exhibit E of the FLA.

consultation with the New Hampshire State Historic Preservation Office (SHPO) to assess potential adverse effects on historic properties within the project's area of potential effects (APE). The Upper Gorham Project APE includes lands enclosed within the current project boundary. The New Hampshire SHPO concurred on the APE in a letter dated July 7, 2022.[44]

There are no known archeological resources within the project boundary. The project dam, gatehouse, powerhouse, and machinery are the only known historic properties that exist at the Upper Gorham Project.

To meet the requirements of section 106, the Commission intends to execute a Programmatic Agreement (PA) with the New Hampshire SHPO for the protection of historic properties from the effects of operating and maintaining the Upper Gorham Project. There are no plans for modifying project facilities or operations that could affect historic properties. The terms of the PA would require GLH to address and treat all historic properties identified within the project's APE by implementing a Historic Properties Management Plan (HPMP). A draft PA was issued for review and comment on May 20, 2024. On June 4, 2024, the New Hampshire SHPO filed a letter to the record stating they reviewed the draft PA and did not have any comments. On July 15, 2024, the Advisory Council on Historic Preservation (ACHP) filed a letter stating that they have completed their review of the project and have determined that their participation in the consultation is not needed. To date, no other comments have been filed on the draft PA. A final PA will be issued following the issuance of the final EA.

[44] A copy of the letter was filed with the Commission on October 11, 2022.

APPENDIX B- ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

Issuing a Non-power License

A non-power license is a temporary license that the Commission would terminate when it determines that another governmental agency will assume regulatory authority and supervision over the lands and facilities covered by the non-power license. At this time, no agency has suggested a willingness or ability to take over the project. No party has sought a non-power license, and we have no basis for concluding that the Upper Gorham Project should no longer be used to produce power.

Federal Government Takeover

Federal takeover and operation of the Upper Gorham Project would require congressional approval. While that fact alone would not preclude further consideration of this alternative, there is currently no evidence to indicate that federal takeover should be recommended to Congress. No party has suggested that federal takeover would be appropriate, and no federal agency has expressed interest in operating the project.

Project Retirement

As the Commission has previously held, decommissioning is not a reasonable alternative to relicensing in most cases.[45] Decommissioning can be accomplished in different ways depending on the project, its environment, and the particular resource needs.[46] For these reasons, the Commission does not speculate about possible decommissioning measures at the time of relicensing, but rather waits until an applicant actually proposes to decommission a project, or a participant in a relicensing proceeding demonstrates that there are serious resource concerns that cannot be addressed with appropriate license measures and that make decommissioning a reasonable alternative.[47]

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[45] *See, e.g., Eagle Crest Energy Co*., 153 FERC ¶ 61,058, at P 67 (2015); *Public Utility District No. 1 of Pend Oreille County*, 112 FERC ¶ 61,055, at P 82 (2005); *Midwest Hydro, Inc*., 111 FERC ¶ 61,327, at PP 35-38 (2005).

[46] In the event that the Commission denies relicensing a project or a licensee decides to surrender an existing project, the Commission must approve a surrender "upon such conditions with respect to the disposition of such works as may be determined by the Commission." 18 C.F.R. § 6.2. This can include simply shutting down the power operations, removing all or parts of the project (including the dam), or restoring the site to its pre-project condition.

[47] *See generally Project Decommissioning at Relicensing*; Policy Statement, FERC Stats. & Regs., Regulations Preambles (1991-1996), ¶ 31,011 (1994); *see also City of Tacoma, Washington,* 110 FERC ¶ 61,140 (2005) (finding that unless and until the Commission has a

GLH does not propose decommissioning, nor does the record to date demonstrate there are serious resource concerns that cannot be mitigated if the project is relicensed; as such, there is no reason, at this time, to include decommissioning as a reasonable alternative to be evaluated and studied as part of staff's NEPA analysis.

specific decommissioning proposal, any further environmental analysis of the effects of project decommissioning would be both premature and speculative).

APPENDIX C- FIGURES AND TABLES

Table 1. Monthly minimum, maximum, and average flow, USGS Gage # 01054000 Androscoggin River near Gorham, New Hampshire (January 1, 1991, to December 31, 2020). (Source: license application).

Month	Minimum (cfs)	Maximum (cfs)	Average (cfs)
January	1,250	6,300	2,641
February	1,270	6,950	2,769
March	1,260	14,200	3,064
April	1,270	19,900	4,751
May	1,380	16,200	4,118
June	1,140	12,800	2,862
July	944	10,300	2,309
August	1,090	10,000	1,957
September	780	9,730	1,840
October	1,020	15,000	2,290
November	1,140	10,000	2,552
December	1,160	9,790	2,528
Annual	**780**	**19,900**	**2,805**

Table 2. Water Quality Criteria for Class B Waters in New Hampshire (source: application).

Parameter	Criteria
Dissolved Oxygen (DO)	Instantaneous minimum concentration of 5 mg/L. At least 75% saturation (daily average)[1]
Nutrients	Shall contain no phosphorus or nitrogen in such concentrations that would impair any existing or designated uses, unless naturally occurring
Total Phosphorous	For the protection of aquatic life: < 8 µg/L in oligotrophic waters ≤ 12 µg/L in mesotrophic waters ≤ 28 µg/L in eutrophic waters (median based on a least 5 independent samples collected between May 24 and September 15)
Chlorophyll-a	≤ 15 µg/L for protection of recreational uses in freshwater. For the protection of aquatic life: < 3 µg/L in oligotrophic waters ≤ 5 µg/L in mesotrophic waters ≤ 11 µg/L in eutrophic waters (median based on a least 5 independent samples collected between May 24 and September 15).
pH	6.5 to 8
Temperature	Any stream temperature increase associated

	with the discharge of treated sewage, waste or cooling water, water diversions, or releases shall not be such as to appreciably interfere with the uses assigned to this class

[1] Unless naturally occurring or subject to (a), above, surface waters within the top 25 percent of depth of thermally unstratified lakes, ponds, impoundments, and reservoirs or within the epilimnion shall contain a dissolved oxygen content of at least 75 percent saturation, based on a daily average and an instantaneous minimum dissolved oxygen content of at least 5 mg/l. Unless naturally occurring, the dissolved oxygen content below those depths shall be consistent with that necessary to maintain and protect existing and designated uses.

Table 3. DO (mg/L and percent saturation), daily average DO percent saturation, water temperature, and pH statistics at the Upper Gorham Project (source: application).

	Site 18 Upper Gorham Above Impoundment				
	DO (mg/L)	DO % saturation	Daily average DO % saturation	Water temperature (°C)	pH
Avg	8.9	100.0	100.0	20.1	7.0
Min	7.8	93.6	97.0	12.8	6.7
Max	10.6	105.5	103.3	25.7	7.2
	Site 19 Upper Gorham Impoundment[1]				
	DO (mg/L)	DO % saturation	Daily average DO % saturation	Water temperature (°C)	pH
Avg	9.4	100.1	100.1	17.1	7.0
Min	8.3	94.7	97.7	13.3	6.8
Max	10.7	107.4	102.4	21.9	7.2
	Site 20 Upper Gorham Bypassed Reach				
	DO (mg/L)	DO % saturation	Daily average DO % saturation	Water temperature (°C)	pH
Avg	8.9	100.9	100.9	20.6	6.8
Min	6.1	69.7	92.2	13.0	6.3
Max	10.4	107.1	106.7	25.9	7.1
	Site 21 Upper Gorham Tailrace[1]				
	DO (mg/L)	DO % saturation	Daily average DO % saturation	Water temperature (°C)	pH
Avg	9.2	99.7	99.7	17.2	7.0
Min	8.4	91.4	93.9	13.6	6.5
Max	10.5	107.2	105.8	21.8	7.4

	Site 22 Upper Gorham Downstream Confluence				
	DO (mg/L)	DO % saturation	Daily average DO % saturation	Water temperature (°C)	pH
Avg	9.1	100.2	100.2	19.2	6.7
Min	7.7	88.2	96.1	11.0	5.8
Max	11.0	108.6	103.6	24.8	6.9

[1] Data sondes were installed from August 28-October 8.

Table 4. Fisheries Assemblage Documented Within and Near the Upper Gorham Project 2003 (source: application)

Species	Sawmill Impoundment	Cross Power Impoundment	Cascade Impoundment	Downstream of Cascade Dam	Gorham Impoundment	Gorham Bypassed Reach	Downstream of Gorham Dam	Shelburne Impoundment	Total by Species	Relative Percent
Fallfish	22	16	8	200	314	149	279	44	1,032	30.54
Smallmouth bass	65	132	189	125	160	32	91	95	889	26.31
White sucker			4	89	102	214	88	7	504	14.92
Longnose dace				124		203	36		363	10.74
Common shiner	1		1	3	183	1	12	14	215	6.36
Spottail shiner					61	1	3	78	143	4.23
Yellow perch		3		4	1		38	23	69	2.04
Largemouth bass	12	11	14	4	3				44	1.30
Rainbow trout	1			1		21	11		34	1.01
Lake chub						22	2		24	0.71
Golden shiner	3				2			14	19	0.56
Brown bullhead					2			10	12	0.36
Rock bass	3	1	1		6				11	0.33
Blacknose dace						6	1		7	0.21
Brown trout	2		1	1			1		5	0.15
Longnose sucker				1		2	1		4	0.12
Creek chub				1		2			3	0.09
Landlocked salmon				1					1	0.03
Total catch	**109**	**163**	**218**	**554**	**834**	**653**	**563**	**285**	**3,379**	**100**
No. of Species	**8**	**5**	**7**	**12**	**10**	**11**	**12**	**8**	**18**	

Table 5. Cost of environmental measures considered in assessing the environmental effects of operating the Androscoggin Projects (Source: GLH, CRP, and staff).

Enhancement / Mitigation Measure	Entity	Capital Cost[a] (2024$)	Annual Cost[a] (2024$)	Levelized Annual Cost[b] (2024$)
Aquatic Resources				
1. Continue to operate the project as a run-of-river facility.	GLH Staff	$0	$0[c]	$0
2. Continue to provide 400 cfs or inflow, whichever is less, from March 1 to June 15, and 200 cfs or inflow, whichever is less, the rest of the year to the bypassed reach of the Upper Gorham Project.	GLH Staff	$0	$0[d]	$0
3. Develop and implement an updated Operations Compliance Plan.	GLH Staff	$5,000[c,e]	$2,500[c,e]	$2,944
Threatened and Endangered Species				
4. Avoid tree-trimming and the removal of trees ≥ 3 inches at breast height within the project boundary between April 15 and October 31 to protect northern long-eared	Staff	$0	$0	$0

Enhancement / Mitigation Measure	Entity	Capital Cost[a] (2024$)	Annual Cost[a] (2024$)	Levelized Annual Cost[b] (2024$)
and tricolored bats.				
Recreation Resources				
5. Add gravel and/or smoothing to improve the footing on the bank at the hand carry boat access area that provides access to the Upper Gorham impoundment, and replace the existing picnic tables, when appropriate.	GLH	$8,183	$2,045	$2,772
Cultural Resources				
6. Develop and implement a Historic Properties Management Plan.	GLH Staff	$2,557[g]	$1697[g]	$396

[a] Unless otherwise noted, all cost estimates are from GLH and escalated to 2024 dollars. Commission staff reviewed these costs and determined that they are reasonable estimates.

[b] All capital and annual costs are converted to equal costs over a 30-year period to give a uniform basis for comparison.

[c] Cost estimated by staff.

[d] Under current operation, GLH provides 400 cfs or inflow, whichever is less, from March 1 to June 15, and 200 cfs or inflow, whichever is less, to the bypassed reach of the Upper Gorham Project. This decreases electricity production by 2,524 MWh

per year under the No-Action Alternative. Using an energy cost of $71.42/MWh from Table 7 as a proxy for the value of lost generation, 2,524 MWh of lost generation results in an opportunity cost of $180,264/year.

[e] Cost included in O&M cost.

[f] The administrative costs to prepare a project-specific hand carry boat access improvement plan that includes GLH's proposed measures should be no different than revising the comprehensive plan. This plan would require GLH to add gravel and/or smoothing to improve the footing on the bank at the hand carry boat access area every 10 years for the life of the license.

[g] Costs provided by GLH of $15,000 to develop and $1,000 to implement GLH Historic Property Management Plans for six projects currently in relicensing. Staff divided these costs by six for each project.

Table 6. Minority and low-income populations within one mile of the project boundary (source: U.S. Census Bureau, as modified by staff).

Geographic Area	Total Population	White (%) [a]	African American/ Black (%) [a]	American Indian/ Alaska Native (%) [a]	Asian (%) [a]	Native HI & Other Pacific Islander (%) [a]	Some Other Race (%) [a]	Two or More Races (%)[a]	Hispanic Origin (any race) (%) [a]	Total Minority Population (%) [a]	Households in Poverty (%) [b]
NEW HAMPSHIRE	1,379,610	88.3%	1.3%	<0.1%	2.6%	<0.1%	0.3%	3.1%	4.3%	11.7%	7.7%
Coos County*	31,430	94.2%	1.8%	<0.1%	0.5%	<0.1%	0.1%	1.6%	1.9%	5.8%	12.0%
Census Tract 950900, Block Group 4	754	85.5%	0.0%	0.0%	7.6%	0.0%	0.0%	6.4%	0.5%	14.5%	12.8%
Census Tract 950900, Block Group 3	755	97.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.3%	2.4%	2.8%	0.0%
Census Tract 950900, Block Group 2	849	96.1%	0.0%	0.0%	1.1%	0.0%	0.0%	2.8%	0.0%	3.9%	4.9%
* Reference Community											

[a] Percent of Total Population (Table B03002 – Hispanic or Latino Origin by Race. 2022 ACS 5-Year Estimates Detailed Tables. U.S. Census Bureau, 2018-2022 American Community Survey 5-Year Estimates. Accessed December 11, 2023. https://data.census.gov/table?d=ACS+5-Year+Estimates+Detailed+Tables&tid=ACSDT5Y2022.B03002).

[b] Percent of Households (Table B17017 – Poverty Status in the Past 12 Months by Household Type and Age of Householder. 2022 ACS 5-Year Estimates Detailed Tables. U.S. Census Bureau, 2018-2022 American Community Survey 5-Year Estimates. Accessed December 11, 2023. https://data.census.gov/cedsci/table?d=ACS%205-Year%20Estimates%20Detailed%20Tables&tid=ACSDT5Y2022.B17017).

Gray shading denotes an Environmental Justice community.

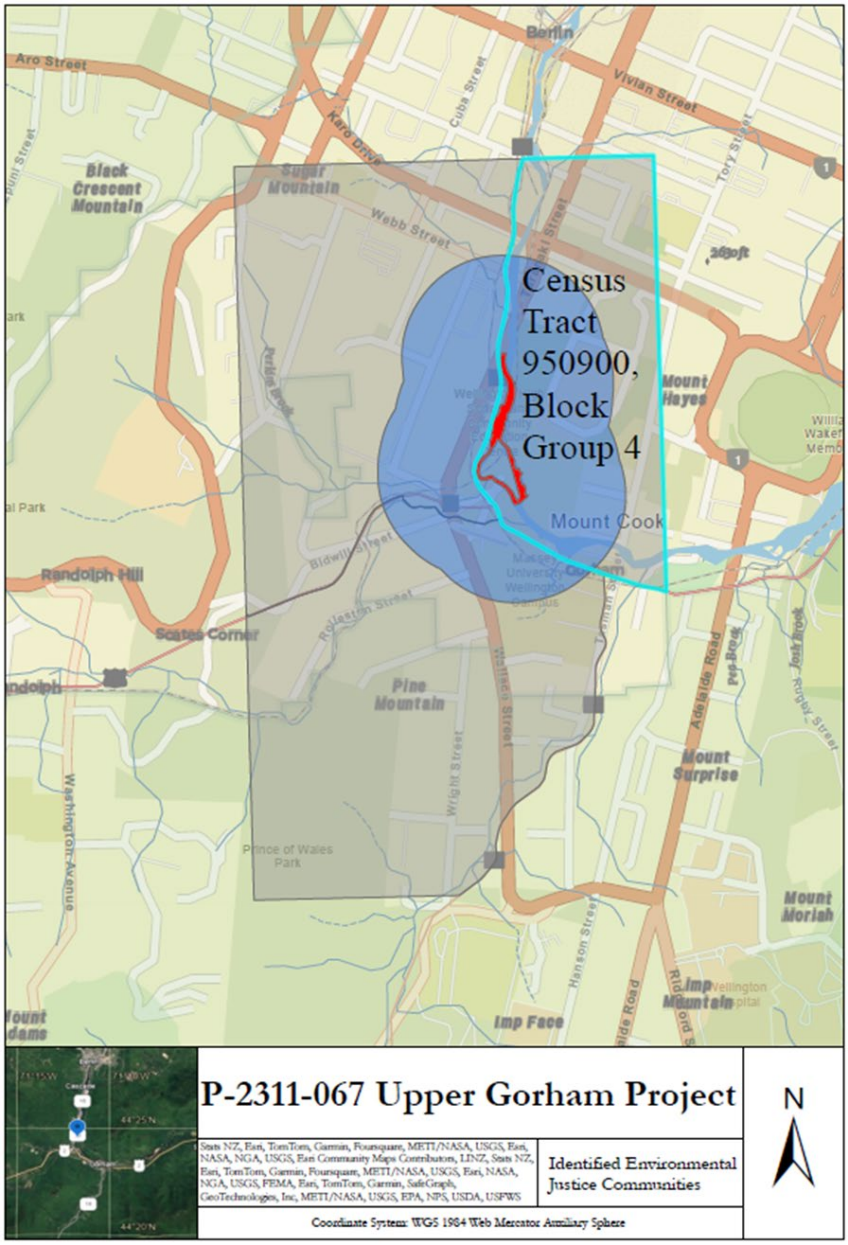

Figure 2. Identified Environmental Justice Community (Census 950900, Block Group 4) located within the one-mile radius of the project boundary (source: staff).

APPENDIX D- BIOLOGICAL ASSESSMENT

Affected Environment

The FWS Information for Planning and Consultation (IPaC) database indicates that the threatened Canada lynx (*Lynx canadensis*), the endangered northern long-eared bat (*Myotis septentrionalis*), the proposed endangered the tricolored bat (*Perimyotis subflavus*) and candidate monarch butterfly (*Danaus plexippus*) have the potential to occur within the project boundary.[48] There are no proposed or designated critical habitats in the project area.

Northern Long-eared Bat

The northern long-eared bat (NLEB) was listed by the FWS as threatened on May 4, 2015 (FWS, 2015). In January 2016, the FWS finalized the ESA section 4(d) rule for this species, which focuses on preventing effects on bats in hibernacula associated with the spread of white-nose syndrome[49] and effects of tree removal on roosting bats or maternity colonies (FWS, 2016a). As part of the 4(d) rule, take incidental to certain activities conducted in accordance with the following habitat conservation measures, as applicable, would not be prohibited: (1) occurs more than 0.25-mile from a known, occupied hibernacula; (2) avoids cutting or destroying known, occupied maternity roost trees during the pup season (June 1 – July 31);[50] and (3) avoids cutting or destroying any tree within a 150-foot radius of a known, occupied maternity tree during the pup season. On January 5, 2016, FWS developed an optional streamlined consultation framework that allows federal agencies to rely on a programmatic biological opinion on FWS's final 4(d) rule to fulfill section 7(a)(2) consultation requirements for northern long-eared bat (FWS, 2016b).

On November 30, 2022, FWS reclassified the NLEB from a threatened species to an endangered species, effective January 30, 2023.[51] FWS extended the effective date of the final reclassification by 60 days, from January 30, 2023, to March 31, 2023.[52] The final rule removes the 4(d) rule for this species, because 4(d) rules apply only to species listed as threatened species under the ESA. In March 2023, FWS released a new range-wide NLEB determination key

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[48] *See* Interior's list of threatened and endangered species, last accessed by staff using the IPaC database (https://ipac.ecosphere.fws.gov) on April 10, 2024.

[49] A hibernaculum is where a bat hibernates over the winter, such as in a cave. White-nose syndrome is a fungal infection that agitates hibernating bats, causing them to rouse prematurely and burn fat supplies. Mortality results from starvation or, in some cases, exposure.

[50] Pup season refers to the period when bats birth their young.

[51] 87 Fed. Reg. 73,488 (Nov. 30, 2022).

[52] 88 Fed. Reg. 4908-4910 (Jan. 26, 2023).

(Dkey), available through the IPaC website, to streamline the review of routine, predictable projects and receive automatic verification or concurrence for some actions (FWS, 2023b). This Dkey replaces the previous key that was based on the 4(d) rule biological opinion.

Traditional ranges for NLEB include most of the central and eastern U.S., as well as the southern and central provinces of Canada, coinciding with the greatest abundance of forested areas. NLEB, whose habitat includes large tracts of mature, upland forests, typically feeds on moths, flies, and other insects. These bats are flexible in selecting roost sites, choosing roost trees that provide cavities and crevices, and trees with a diameter of 3 inches or greater at breast height.[53] Human-made structures, such as buildings, barns, bridges, and bat houses can be considered potential summer habitat. However, trees found in highly developed urban areas (e.g., street trees, downtown areas) are unlikely to be suitable NLEB habitat (FWS, 2014). NLEB are generally active from April through October (FWS, 2015, FWS, 2016c), and hibernate over the winter season. Winter hibernation typically occurs in caves and areas around them, and hibernacula can also be used for fall-swarming[54] and spring-staging.[55]

The project is located within the white-nose syndrome buffer zone for NLEB,[56] but no critical habitat has been designated for the species. Although there is no documentation of NLEB use of habitat at or near the project, forests near the project boundary may provide suitable habitat for NLEB summer roosting and foraging activities.

Tricolored Bat

FWS proposed on September 14, 2022, to list the tricolored bat as endangered,[57] based upon the range-wide impacts of white-nose syndrome which have caused estimated declines of more than 90 percent in affected colonies. No critical habitat is being designated because current

[53] Diameter at breast height refers to the tree diameter as measured about 4 to 4.5 feet above the ground.

[54] Fall-swarming fills the time between summer and winter hibernation. The purpose of swarming behavior may include: introduction of juveniles to potential hibernacula; copulation; and gathering at stop-over sites on migratory pathways between summer and winter regions.

[55] Spring-staging is the time period between winter hibernation and migration to summer habitat. During this time, bats begin to gradually emerge from hibernation and exit the hibernacula to feed, but re-enter the same or alternative hibernacula to resume daily bouts of torpor (i.e., a state of mental or physical inactivity).

[56] The white-nose syndrome buffer zone encompasses counties within 150 miles of a U.S. county or Canadian district in which white-nose syndrome or the fungus that causes white-nose syndrome is known to have infected bat hibernacula.

[57] 87 Fed. Reg. 56,381 (Sep.14, 2022).

or threatened destruction, modification, or curtailment of the species' habitat or range is not having large range wide effects on the species.

Tricolored bats are known to occur in 39 states, including all of the central and eastern United States.[58]

Male and female tricolored bats converge at cave and mine entrances between mid-August and mid-October to swarm and mate. During the winter, tricolored bats hibernate in caves and mines, although in the southern U.S., where caves are sparse, tricolored bats often hibernate in road-associated culverts and sometimes tree cavities and abandoned water wells.

During the spring, summer, and fall (i.e., non-hibernating seasons), tricolored bats disperse and primarily roost among live and dead leaf clusters of live or recently dead deciduous hardwood trees (FWS, 2021b). Female tricolored bats exhibit high site fidelity, returning year after year to the same summer roosting locations. Female tricolored bats form maternity colonies and switch roost trees regularly (e.g., between 1.2 days and 7 days at roost trees in Indiana). Females typically give birth to two young between May and July. Limited reproductive potential severely limits the ability of bat populations to respond quickly to perturbations. Upland forests near the project boundary contain suitable habitat for tricolored bat summer roosting and foraging activities.

Canada Lynx

The Canada lynx was listed as a threatened species under the ESA on March 24, 2000, with its critical habitat and a boundary revision of a distinct population segment listed on October 14, 2014.[59] All critical habitat within New England is in northern Maine, none of which is near the project in New Hampshire. According to the species listing, only 2 reports of lynx occurred in New Hampshire in the 1990s. Lynx are adapted to undisturbed higher elevation boreal forest with deep snow where it preys on snowshoe hare, none of which exist near the project.

Monarch Butterfly

The monarch butterfly was listed as a candidate species under the ESA on December 17, 2020.[60] The monarch butterfly exclusively uses milkweed (*Asclepias* spp.) as its larval host plant. Adults drink nectar from milkweed and other species' flowers, while trees and shrubs are used for shade and roosting. Monarchs are not known to overwinter near the project area.

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[58] FWS. 2021. Species Status Assessment Report for the Tricolored Bat (Perimyotis subflavus), Version 1.1. December 2021. Hadley, MA., https://www.fws.gov/sites/default/files/documents/Tricolored_Bat_SSA.pdf.

[59] 79 Fed. Reg. 54,782 (Oct. 14, 2014).

[60] 85 Fed. Reg. 81,813 (Dec. 17, 2020).

Common milkweed is not commonly found at higher elevation areas within northern New Hampshire and monarch butterflies are unlikely to be attracted to the project area specifically.

Environmental Effects

The following discussion addresses environmental effects on threatened and endangered species that would result from relicensing the project under the Staff Alternative. This alternative includes relicensing the project with all staff recommended environmental measures and modifications to CRP's proposal as outlined in section 2.3 of this draft EA.

No entity has proposed any measures for the protection of Canada lynx or monarch butterfly. Staff are proposing a time of year restriction for tree trimming to protect bat species.

Our Analysis

Northern Long-eared Bat

The applicant is not proposing any large-scale land clearing, but maintenance activities along the transmission line right of way during the term of a new license would likely require periodic tree trimming and vegetation management. In the absence of protocol-level surveys indicating the NLEB is not present in the project area, we assume the species may be present and could be adversely affected by tree cutting and trimming during the bats' active summer period. Placing seasonal limits on planned tree-clearing and trimming activity for trees that are equal to or greater than 3 inches at breast height (dbh) would reduce the likelihood of harassing and harming NLEB and their newly born pups during their active season at the project. It is unknown whether there are or would be any live or dead trees greater than 3 inches dbh that have exfoliating bark, cracks, crevices and/or cavities that could be subject to removal or trimming during future maintenance activities. Regardless, given the small area where such activities may take place (less than 0.1 acres), the effect of the removing or trimming of any such trees would be minimal and would not significantly impair an essential behavior pattern such that it is likely to result in the death or injury of NLEB if it is conducted during the hibernation period.[61]

[61] Endangered and Threatened Wildlife and Plants: Endangered Species Status for northern Long-eared Bat Final Rule 87 Fed. Reg. 73,488 (Nov. 30, 2022). The following actions are unlikely to result in a violation of section 9, if these activities are carried out in accordance with existing regulations and permit requirements; this list is not comprehensive. (2) Insignificant amounts of suitable forested/wooded habitat removal provided it occurs during the hibernation period and the modification of habitat does not significantly impair an essential behavior pattern such that it is likely to result in the actual killing or injury of northern long-eared bats after hibernation.

The FWS states that inactive season dates for NLEB in summer habitat outside of swarming/staging areas in New Hampshire are November 1 to April 14.[62] Because no surveys for maternity roosts have been conducted in the 1.5-mile vicinity of the project, limiting non-hazardous removal and trimming of trees ≥ 3 inches to the period of November 1 through April 14 (inactive season) would protect the northern long-eared bat in a manner consistent with section 7 of the ESA. Trimming and removal should occur only between November 1 and April 14, unless the trees pose an imminent public safety hazard. Based on these conditions, we conclude that the project may affect, but is not likely to adversely NLEB.

Tricolored Bat

Project maintenance activities that may affect the tricolored bat are the same as those noted above for the NLEB. Project maintenance is not expected to require the removal of any trees that could affect the bat or its habitat but could require tree trimming that could remove leaf clusters that provide roosting habitat. Unless they represent a public or project safety hazard, limiting trimming and removal of trees ≥ 3 inches within the project boundary to the period of November 1 through April 14 to protect NLEB would also avoid cutting or destroying any potential maternity roost trees that may be occupied by tricolored bats during the tricolored bat pup season, which generally overlaps with that of NLEB. Therefore, we conclude that relicensing the project with tree-cutting restrictions from April 15 through October 31 is not likely to jeopardize the continued existence of the tricolored bat.

Canada Lynx

Canada lynx are not known, nor are they expected, to occur in the project area. There is little suitable habitat for the lynx near the project area and its main prey species, snowshoe hare, is also unlikely to occur there. Because Canada lynx are not expected to occur within the project area, even as a possible transient, we conclude the project will have no effect on the species.

Monarch Butterfly

Current maintenance activities at the project that could affect monarch butterflies include minor clearing and trimming of brush and other vegetation management, but there is no information to suggest that these activities would potentially remove or degrade monarch butterfly habitat. Therefore, any project effects to the monarch butterfly and its habitat would likely be minimal, and continued operation of the project will have no effect and is not likely to jeopardize the continued existence of the species.

[62] FWS. 2023. Available at: https://www.fws.gov/sites/default/files/documents/Inactive%20Season%20Dates%20for%20Areas%20Outside%20of%20Swarming%20and%20Staging%20Areas_0.pdf

APPENDIX E- POWER AND DEVELOPMENT BENEFITS OF THE PROJECT

Table 7 summarizes the assumptions and economic information used in the analysis. Most of this information is provided by the applicant in its license application. Some is developed by Commission staff, as noted below. Cost items common to all alternatives include taxes and insurance; estimated capital investment required to develop the project or major modifications for relicensing; licensing costs; normal operation and maintenance cost; and Commission fees. All costs are adjusted to current year dollars.

Table 7. Parameters for economic analysis of the project (Source: license application; staff).

Parameter	Value
Installed Capacity	4.8 MW
Average annual generation (under no action alternative)	27,421 MWh
Period of analysis	30 years
Federal income tax rate	Included in the O&M cost
Local Tax Rate	Included in the O&M cost
Property tax	$191,736
Insurance	Included in the O&M cost
Interest rate	8%
Net Investment	$39,869,956
Application cost	$105,143
Operation and maintenance[a]	$513,884/year
Estimated Commission annual charges[b]	$18,000
Cost of Alternative Power (2022)[c]	
1) Energy cost (2022)	$71.42/MWh
2) Dependable Capacity Cost (2022)	$179.08/kw-year

[a] GLH's value for the project's operation and maintenance cost includes insurance, interim replacements, and administrative and general expenses.

[b] The Commission collects an annual administration charge for all licensed projects which is based on the authorized installed capacity of the project.

[c] The alternative source of power cost is based on the current cost of providing the same amount of generation and capacity benefit from a natural gas-fired combined cycle plant, as reported by the most recent publication of The U.S. Energy Information Administration (EIA), Annual Energy Outlook. This analysis is based on The U.S. Energy Information Administration (EIA), Annual Energy Outlook 2023, for the Division 1, New England Region. The alternative source of power cost is reported in Table 8 and is a combination of the cost of energy and capacity benefit.

Table 8. Summary of the annual cost of alternative power and annual project cost for three alternatives for the Upper Gorham Project (Source: staff).

	No Action	Applicant's Proposal	Staff Alternative
Installed capacity	4.8 MW	4.8 MW	4.8 MW
Annual generation	27,421 MWh	27,421 MWh	27,421 MWh
Capacity benefit[a]	4.5	4.5	4.5
Current alternative source of power cost[b]	$2,764,268	$2,764,268	$2,764,268
Total annual project cost (2024)[c]	$4,293,226	$4,296,394	$4,293,622
Difference between the alternative source of power cost and total annual project cost [d]	($1,528,958)	($1,532,126)	($1,529,354)

[a] Staff estimated the capacity benefit based on the ratio of the mean annual flow available for generation for each of 12 months, and the hydraulic capacity of the project. This ratio is multiplied by the authorized installed capacity to determine the capacity benefit.
[b] The value of power for the Upper Gorham Project is based on the alternative source of power cost in the New England Region, as identified in table 8 above.
[c] Project costs include the cost of environmental measures listed in table 5 in Appendix C, and the costs identified in table 7. All project costs were adjusted to 2024 dollars.
[d] A number in parentheses denotes that the difference between the alternative source of power's cost and the total project cost is negative; thus, the project's cost to produce power is greater than the alternative source of power cost.

COMPARISON OF ALTERNATIVES

Table 8 summarizes the installed capacity, annual generation, capacity benefit, alternative source of power's cost, estimated total project cost, and difference between the alternative source of power's cost and total project cost for each of the alternatives considered in this EA: no-action, the applicant's proposal, and the staff alternative.

No-Action Alternative

Under the No Action alternative, the project has an installed capacity of 4.8 MW, a capacity benefit of 4.5 MW, and an average annual generation of 27,421 MWh. The alternative source of power's current cost to produce the same amount of energy and provide the same capacity benefit is $2,764,268. The total annual project cost is $4,293,226. Subtracting the total annual project cost from the alternative source of power's current cost, the project's cost to produce power and capacity is $1,528,958 more than that of the alternative source of power's cost.

Applicant's Proposal

Under the applicant's proposal, the project has an installed capacity of 4.8 MW, a capacity benefit of 4.5 MW, and an average annual generation of 27,421 MWh. The alternative source of power's current cost to produce the same amount of energy and provide the same capacity benefit is $2,764,268. The total annual project cost is $4,299,394. Subtracting the total annual project cost from the alternative source of power's current cost, the project's cost to produce power and capacity is $1,532,126 more than that of the alternative source of power's cost.

Staff Alternative

Under the staff-recommended alternative, the project has an installed capacity of 4.8 MW, a capacity benefit of 4.5 MW, and an average annual generation of 27,421 MWh. The alternative source of power's current cost to produce the same amount of energy and provide the same capacity benefit is $2,764,268. The total annual project cost is $4,293,622. Subtracting the total annual project cost from the alternative source of power's current cost, the project's cost to produce power and capacity is $1,529,354 more than that of the alternative source of power's cost.

Cost of Environmental Measures

Table 5 in Appendix C presents the cost of each of the environmental enhancement measures considered in our analysis for the Upper Gorham Project. All costs are in 2024 dollars. We convert all costs to equal annual (levelized) values over a 30-year period of analysis to give a uniform basis for comparing the benefits of a measure to its cost.

APPENDIX F- COMPREHENSIVE DEVELOPMENT

Additional Measures Recommended by Staff

Below, we discuss the basis for staff's recommended additions or modifications to GLH's proposal.

Time of Year Restrictions for Tree Removal

The NLEB may occur in the project area because project lands and adjacent areas support forests that may provide opportunities for summer roosting and foraging activities. Maintenance activities along the transmission line right of way during the term of a new license may require periodic tree cutting and other vegetation management. To protect NLEB, FWS recommends state-specific dates that suggest avoiding tree removal in New Hampshire between April 15 and October 31. Under FWS's recommendation, it states that the time-of-year restriction would not apply under public safety or other emergencies, and in those instances, the applicant should notify FWS within two business days of the unplanned safety/emergency action and provide details of the action and response.

NLEB are not known to use trees less than 3 inches in diameter at breast height; therefore, there would be little benefit to NLEB by prohibiting the removal of trees 3 inches in diameter or less. Avoiding any tree clearing or trimming between April 15 and October 31 would protect the NLEB.

The tri-colored bat may also occur in the project area and may use similar hardwood habitats for summer roosting. Prohibiting the removal of trees 3 inches or greater or the trimming of trees between April 15 and October 31 would also protect the tri-colored bat.

Accordingly, we recommend that the license include a license requirement that prohibits any clearing of trees equal to or greater than 3 inches in diameter at breast height between April 15 and October 31, unless required for public or project safety. If trees are removed during this time period, the licensee must notify FWS within two business days of the unplanned safety/emergency action and provide details of the action and response. The costs to prohibit tree removal between April 15 and October 31 should be negligeable or zero.

Measures Not Recommended by Staff

Hand Carry Boat Access Improvements

GLH proposes to revise the 1995 Comprehensive Recreation Management Plan to include implementation of the following enhancements at the Upper Gorham impoundment access area: (1) add gravel and/or smoothing to improve the footing on the bank at the hand carry boat access area that provides access to the Upper Gorham impoundment, and (2) replace the existing picnic tables, when appropriate. The Upper Gorham impoundment access area is not currently a licensed project facility, and the site and facilities (picnic shelter, two picnic tables, dam safety signage, and hand carry access) are owned and maintained by the Trinity Assembly

of God. GLH considers the proposed enhancement measures to be a one-time improvement, with subsequent maintenance being the responsibility of the Trinity Assembly of God.

The Upper Gorham access area is the only public recreation access on the impoundment, it is lightly used, and the existing facilities are in good condition. The facilities being provided by the Trinity Assembly of God are meeting current demands and should continue to meet recreation needs in the future. For this reason, there is no basis for recommending a license condition that GLH provide, as a general matter, a hand-carry boat access site along the project's reservoir. Regarding the currently non-project boating access site, because the site provides adequate access, is not proposed to be a licensed project facility, and should continue to be adequately maintained by its current owner, the Trinity Assembly of God, there is no project-related benefit for a license condition requiring the proposed improvements to the hand-carry boat access area. However, GLH would be free to make any improvements that the site owner permits to its site, provided that the improvements would not conflict with the terms of any license issued for the project.

APPENDIX G- DRAFT LICENSE CONDITIONS RECOMMENDED BY STAFF

Draft Article 001. *Project Modification Resulting from Environmental Requirements*. If environmental requirements under this license require modification that may affect the project works or operations, the licensee must consult with the Division of Dam Safety and Inspections – Regional Engineer. Consultation must allow sufficient review time for the Commission to ensure that the proposed work does not adversely affect the project works, dam safety, or project operation.

Draft Article 002. *Project Operation*. The licensee must operate the project as follows:

(1) operate the project in a run-of-river mode by maintaining the impoundment within 1 foot of the headwater elevation of 812.3 feet NGVD 29 such that, at any point in time, the sum of all outflows from the project approximates the sum of all inflows to the project;

(2) provide 400 cubic feet per second (cfs) or inflow, whichever is less, from March 1 to June 15, and 200 cfs or inflow, whichever is less, the rest of the year to the project's bypassed reach.

Reporting of Planned Deviations

Run-of-river operation, impoundment level, and minimum flow requirements of this article may be temporarily modified for short periods, of up to 3 weeks, after mutual agreement among the licensee and the U.S. Fish and Wildlife Service and the New Hampshire Department of Environmental Services (collectively, resource agencies). After concurrence from the resource agencies, the licensee must file a report with the Secretary of the Commission as soon as possible, but no later than 14 days after the onset of the planned deviation. Each report must include: (1) the reasons for the deviation and how project operations were modified, (2) the duration and magnitude of the deviation, (3) any observed or reported environmental effects and how potential effects were evaluated, and (4) documentation of consultation with the resource agencies. For planned deviations exceeding 3 weeks, the licensee must file an application for a temporary amendment of the operational requirements and receive Commission approval prior to implementation.

Reporting of Unplanned Deviations

Run-of-river operation, impoundment level, and minimum flow requirements may be temporarily modified if required by operating emergencies beyond the control of the licensee (i.e., unplanned deviations). For any unplanned deviation from run-of-river operation or impoundment level and minimum flow requirements that lasts longer than 3 hours or results in visible environmental effects such as a fish kill, the licensee must notify the resource agencies within 24 hours and the Commission within 14 days, and file a report with the Commission as soon as possible, but no later than 30 days after each such incident. The report must include: (1) the cause of the deviation, (2) the duration and magnitude of the deviation, (3) any pertinent

operational and/or monitoring data, (4) a timeline of the incident and the licensee's response, (5) any comments or correspondence received from the resource agencies, or confirmation that no comments were received from the resource agencies, (6) documentation of any observed or reported environmental effects and how potential effects were evaluated, and (7) a description of measures implemented to prevent similar deviations in the future.

For unplanned deviations from run-of-river operation or impoundment level and minimum flow requirements lasting 3 hours or less that do not result in visible environmental effects, the licensee must file an annual report, by March 1, describing each incident that occurred during the prior January 1 through December 31 time period. The report must include for each 3 hours or less deviation: (1) the cause of the deviation, (2) the duration and magnitude of the deviation, (3) any pertinent operational and/or monitoring data, (4) a timeline of the incident and the licensee's response to each deviation, (5) any comments or correspondence received from the resource agencies, or confirmation that no comments were received from the resource agencies, and (6) a description of measures implemented to prevent similar deviations in the future.

Draft Article 003. *Operation Compliance Monitoring Plan*. Within six months of license issuance, the licensee must file, for Commission approval, an Operation Compliance Monitoring Plan. The Operation Compliance Monitoring Plan must include, at a minimum, the following:

(1) a detailed description of how the licensee will monitor and document compliance with the operational requirements of Draft Article 002;

(2) a description of each gage or other measuring device that will be used to monitor compliance with Draft Article 002, including gage or measuring device location;

(3) a description of the procedures for maintaining and calibrating all monitoring equipment;

(4) standard operating procedures to be implemented outside of normal operating conditions, including during: (a) scheduled facility shutdowns and maintenance; and (b) emergency conditions such as unscheduled facility shutdowns and maintenance; and

(5) an implementation schedule.

The licensee must prepare the plan after consultation with the U.S. Fish and Wildlife Service and New Hampshire Department of Environmental Services (collectively, resource agencies). The licensee must include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the resource agencies, and specific descriptions of how the resource agencies' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the resource agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. The licensee must not begin implementing the plan until the Commission notifies the licensee that the plan is approved. Upon Commission approval the licensee must implement the plan, including any changes required by the Commission.

Draft Article 004. *Reservation of Authority to Prescribe Fishways*. Authority is reserved to the Commission to require the licensee to construct, operate, and maintain fishways as may be prescribed by the Secretary of the Interior pursuant to section 18 of the Federal Power Act.

Draft Article 005. *Northern Long-Eared Bat and Tricolored Bat Protection.* The licensee must not remove trees on project lands equal to or greater than 3 inches diameter at breast height or conduct tree-trimming from April 15 to October 31 to protect northern long-eared bats and tricolored bats. Tree removal during this period is not prohibited to ensure public or project safety (e.g., removing dead fall trees). If trees are removed during this period on an emergency basis, the licensee must notify the U.S. Fish and Wildlife Service within two business days of the unplanned safety/emergency action and provide details of the action and response.

Draft Article 006. *Programmatic Agreement and Historic Properties Management Plan.* The licensee must implement the "Programmatic Agreement Between the Federal Energy Regulatory Commission and the New Hampshire State Historic Preservation Officer (New Hampshire SHPO) for Managing Historic Properties that May be Affected by Issuance of a License to Great Lakes Hydro America, LLC (GLH) for the Continued Operation of the Upper Gorham Project in Coos County, New Hampshire FERC No. P-2311-067," executed on (*date*), and including, but not limited to, the historic properties management plan (HPMP) for the project. Pursuant to the requirements of this programmatic agreement, the licensee must file, for Commission approval, a HPMP within one year of issuance of this order. When filing the HPMP for Commission approval, the licensee must include any documentation of consultation with the New Hampshire SHPO during the development of the HPMP.

The Commission reserves the authority to require changes to the HPMP at any time during the term of the license. If the programmatic agreement is terminated prior to the Commission approval of HPMP, the licensee must obtain approval from the Commission and the New Hampshire SHPO before engaging in any ground-disturbing activities or taking any other action that may affect any historic properties within the project's area of potential effects.

Draft Article 007. *Use and Occupancy*. (a) In accordance with the provisions of this article, the licensee must have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain types of use and occupancy, without prior Commission approval. The licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the licensee must also have continuing responsibility to supervise and control the use and occupancies for which it grants permission, and to monitor the use of, and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed, under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed by the licensee for protection and enhancement of the

project's scenic, recreational, or other environmental values, or if a covenant of a conveyance made under the authority of this article is violated, the licensee must take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, canceling the permission to use and occupy the project lands and waters and requiring the removal of any non-complying structures and facilities.

(b) The type of use and occupancy of project lands and waters for which the licensee may grant permission without prior Commission approval are: (1) landscape plantings; (2) non-commercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 water craft at a time and where said facility is intended to serve single-family type dwellings; (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline; and (4) food plots and other wildlife enhancement. To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the licensee must require multiple use and occupancy of facilities for access to project lands or waters. The licensee must also ensure that, to the satisfaction of the Commission's authorized representative, the use and occupancies for which it grants permission are maintained in good repair and comply with applicable state and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the licensee must: (1) inspect the site of the proposed construction, (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site, and (3) determine that the proposed construction is needed and would not change the basic contour of the impoundment shoreline. To implement this paragraph (b), the licensee may, among other things, establish a program for issuing permits for the specified types of use and occupancy of project lands and waters, which may be subject to the payment of a reasonable fee to cover the licensee's costs of administering the permit program. The Commission reserves the right to require the licensee to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures.

(c) The licensee may convey easements or rights-of-way across, or leases of project lands for: (1) replacement, expansion, realignment, or maintenance of bridges or roads where all necessary state and federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into project waters; (4) minor access roads; (5) telephone, gas, and electric utility distribution lines; (6) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kilovolts or less); and (8) water intake or pumping facilities that do not extract more than one million gallons per day from a project impoundment. No later than January 31 of each year, the licensee must file with the Commission a copy of a report briefly describing for each conveyance made under this paragraph (c) during the prior calendar year, the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed. No report filing is required if no conveyances were made under paragraph (c) during the previous calendar year.

(d) The licensee may convey fee title to, easements or rights-of-way across, or leases of project lands for: (1) construction of new bridges or roads for which all necessary state and federal approvals have been obtained; (2) sewer or effluent lines that discharge into project

waters, for which all necessary federal and state water quality certification or permits have been obtained; (3) other pipelines that cross project lands or waters but do not discharge into project waters; (4) non-project overhead electric transmission lines that require erection of support structures within the project boundary, for which all necessary federal and state approvals have been obtained; (5) private or public marinas that can accommodate no more than 10 water craft at a time and are located at least one-half mile (measured over project waters) from any other private or public marina; (6) recreational development consistent with an approved report on recreational resources of an Exhibit E; and (7) other uses, if: (i) the amount of land conveyed for a particular use is five acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from project waters at normal surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d)(7) in any calendar year. At least 60 days before conveying any interest in project lands under this paragraph (d), the licensee must file a letter with the Commission, stating its intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked Exhibit G map may be used), the nature of the proposed use, the identity of any federal or state agency official consulted, and any federal or state approvals required for the proposed use. Unless the Commission's authorized representative, within 45 days from the filing date, requires the licensee to file an application for prior approval, the licensee may convey the intended interest at the end of that period.

(e) The following additional conditions apply to any intended conveyance under paragraph (c) or (d) of this article:

(1) Before conveying the interest, the licensee must consult with federal and state fish and wildlife or recreation agencies, as appropriate, and the State Historic Preservation Officer.

(2) Before conveying the interest, the licensee must determine that the proposed use of the lands to be conveyed is not inconsistent with any approved report on recreational resources of an Exhibit E; or, if the project does not have an approved report on recreational resources, that the lands to be conveyed do not have recreational value.

(3) The instrument of conveyance must include the following covenants running with the land: (i) the use of the lands conveyed must not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; (ii) the grantee must take all reasonable precautions to ensure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project; and (iii) the grantee must not unduly restrict public access to project lands and waters.

(4) The Commission reserves the right to require the licensee to take reasonable remedial action to correct any violation of the terms and conditions of this article, for the protection and enhancement of the project's scenic, recreational, and other environmental values.

(f) The conveyance of an interest in project lands under this article does not in itself change the project boundaries. The project boundaries may be changed to exclude land conveyed under this article only upon approval of revised Exhibit G drawings (project boundary maps) reflecting exclusion of that land. Lands conveyed under this article will be excluded from

the project only upon a determination that the lands are not necessary for project purposes, such as operation and maintenance, flowage, recreation, public access, protection of environmental resources, and shoreline control, including shoreline aesthetic values. Absent extraordinary circumstances, proposals to exclude lands conveyed under this article from the project must be consolidated for consideration when revised Exhibit G drawings would be filed for approval for other purposes.

(g) The authority granted to the licensee under this article must not apply to any part of the public lands and reservations of the United States included within the project boundary.

APPENDIX H- COMPREHENSIVE PLANS

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APPENDIX J- LIST OF PREPARERS

Federal Energy Regulatory Commission

Jeff Ackley – Terrestrial Resources, Threatened and Endangered Species (Wildlife Biologist; M.S./Ph.D. Biology)

Ryan Hansen − Project Coordinator, Aquatic Resources (Environmental Biologist; M.S., Environmental Science and Public Policy; and B.S., Biology).

Lauren Townson – Recreation and Cultural Resources, Environmental Justice (Outdoor Recreation Planner; Ph.D. Parks, Recreation, and Tourism Management)

Maryam Zavareh – Geologic and Soil Resources, Developmental Analysis (Civil and Environmental Engineer; Ph.D. Civil and Environmental Engineering)

APPENDIX K- STAFF RESPONSE TO COMMENTS ON DRAFT ENVIRONMENTAL ASSESSMENT

Commission staff issued its draft environmental assessment (DEA) for the relicensing of the Upper Gorham Hydroelectric Project on May 10, 2024. Staff requested comments on the DEA to be filed by June 10, 2024. The following entities filed comments pertaining to the DEA.

Commenting Entity	**Date Filed**
GLH	June 10, 2024
Town of Gorham	June 10, 2024

Below, we summarize the comments that pertain to our analysis; respond to those comments; and indicate, where appropriate, how we modified the EA. The comments are grouped by topic for convenience. We do not summarize and respond to comments that request legal determinations, only express general opinions either for or against the proposed project or the staff alternative, or simply reiterate a stakeholder's position or recommendation.

Comment: The Town of Gorham notes that the Upper Gorham Project's transmission line terminates at the local electrical distribution facility, but states that the DEA is unclear about where the Upper Gorham Project facilities end and the local distribution system begins.

Response: Section 2.1.1 discusses the transmission line numbers, length, voltage, and interconnections to the distribution system. We modified section 2.1.1 to more clearly explain the interconnection point.

Section 4.70 of the Commission's regulations defines the project transmission line as a transmission line that transmits power from a licensed water power project to the point of junction with the distribution system or with the interconnected primary transmission system. The Upper Gorham Project transmission line ends at the transformer pad where it gets connected to the local distribution system.

Comment: The Town of Gorham asks that GLH identify those lands over which they have flowage easements and the extent to which those easements remain necessary for anticipated operations.

Response: Standard Article 5 of the current license requires the licensee to acquire and retain title in fee to, or the right to use in perpetuity, project property sufficient to accomplish all project purposes (*e.g.*, flowage easements). The Upper Gorham project operates in a run-of-river mode by maintaining the impoundment level within 1 foot of the headwater elevation of 812.3 feet such that at any given point time, all outflows from the project approximate all inflows. Commission staff reviewed the proposed project boundary in GLH's Exhibit G drawing included with the license application and note that it encloses all project facilities (reservoir, powerhouse, and penstock), and that the project boundary at the reservoir does not extend past the contour

elevation of 812.3 feet consistent with the current operation limits. Therefore, Commission staff makes no recommendation for revisions to the proposed project boundary. The extent to which GLH holds easements beyond the project boundary is a legal matter beyond the scope of the EA.

Comment: The Town of Gorham states that the Emergency Action Plan (EAP) for the project, or in the alternative the Operations Compliance Monitoring Plan, needs to include certain provisions to address flooding events at the project and potential adverse effects, such as the intrusion of fresh water into the Town of Gorham's sewage treatment system, which would result in raw sewage entering the Androscoggin River. The recommended provisions include monitoring snowpack in the upper basin and area weather stations, and stationing operations personnel close to the project during anticipated flood events to respond quickly to needed operational changes to prevent flooding and overtopping of the dam,

Response: Flood events like those described by the Town of Gorham are addressed through the project's EAP rather than the Operations Compliance Monitoring Plan. The purpose of an operations compliance monitoring plan is to document the procedures a licensee will implement in order to ensure that they comply with the operational requirements of the license. Generally, its purpose is not to direct flood control procedures.

Section 12.20 (a) of the Commission's regulations requires every licensee to develop and file an EAP with the Commission's Regional Engineer unless granted a written exemption in accordance with Section 12.21 (a) of the regulations. An EAP is a formal document that identifies potential emergency conditions at a dam and specifies preplanned actions to be followed to minimize property damage and loss of life. The project's current EAP (April 2023) describes actions that the licensee will take to moderate or alleviate a problem at the dam, as well as what actions the licensee, in coordination with emergency management authorities, should take to respond to incidents or emergencies related to the dam. It presents procedures and information to assist the licensee in issuing early warning and notification messages to responsible downstream emergency management authorities. The EAP also contains inundation maps to assist the licensee and emergency management authorities by identifying critical infrastructure and population-at-risk sites that may require protective measures, warning and evacuation planning. The EAP clearly defines the responsibilities of all those involved in managing the incident and how those responsibilities should be coordinated including in the event of a flood that affects the Town of Gorham's sewage treatment system. EAPs are periodically updated and reviewed by Commission staff throughout the term of the license to ensure the continued protection of the public and critical infrastructure.