



DEPARTMENT ORDER

IN THE MATTER OF

GREEN LAKE WATER POWER COMPANY) MAINE WATER QUALITY PROGRAM
Hancock County) CLEAN WATER ACT
GREEN LAKE HYDROELECTRIC PROJECT)
PROJECT #L-020024-33-D-N (APPROVAL)) WATER QUALITY CERTIFICATION

Pursuant to the provisions of 38 M.R.S. §§ 464 *et seq.*, Section 401 of the Clean Water Act (CWA), 33 U.S.C. § 1341, and Department Rules 06-096 C.M.R. Chapters 579-581, the Department of Environmental Protection (Department) has considered the application of GREEN LAKE WATER POWER COMPANY (Applicant) with all supporting data, agency review comments, public review comments, and other related materials in the administrative record. Based on the record evidence and its professional judgment and expertise, the Department makes the following findings of fact, determinations, and conclusions:

1. APPLICATION SUMMARY

A. Application

On May 19, 2023, the Applicant applied to the Department for Water Quality Certification (WQC) pursuant to Section 401 of the CWA for the proposed relicensing and continued operation of the existing Green Lake Hydroelectric Project, P-7189 (Green Lake Project or Project), located on Green Lake and Reeds Brook in the City of Ellsworth and Towns of Dedham and Otis, Maine. The application was accepted for processing on June 12, 2023. The WQC application established a statutory one-year deadline of May 18, 2024, for the Department to complete its certification review and issue its decision.

B. History

The Project dam was built in the early 1900s by the Bangor Hydro-Electric Company for water storage purposes. It was originally a dry stone and timber structure. In the 1960s, a concrete gate structure was added, and sheet steel was added to the upstream face of the dam and on the deck to replace deteriorating hemlock planks. The Applicant acquired the dam in 1984. After acquiring the dam, the Applicant added a 17-foot intake structure to the southwest side of the dam. The intake is protected by 8-by-12-feet-wide trash racks, which have 1-inch clear spacing to prevent large debris from passing into the penstock. The structure contains a headgate with a 4.5-by-4.5-foot opening and manually operated gate lift. In the late 1980s, the section of the dam between the intake structure

and the southwest shore was improved to include a concrete spillway and a flume to safely channel the spillway flow into Reeds Brook.

C. Existing Project Features

The Project consists of a dam with an impoundment of approximately 3,312 acres. There is a 1,744-foot penstock to the powerhouse and appurtenant facilities. The Green Lake National Fish Hatchery (GLNFH or Hatchery) valve house is located approximately 50 feet downstream of the dam on the southwest side of Reeds Brook. The spillway and flume protect the GLNFH valve house and road from the possibility of inundation by high spillway flow during extreme weather events. From Route 180, a one-half-mile-long road maintained by the GLNFH provides access to the Hatchery facilities, hatchery water filtration building, pipeline valve pit, and the dam. The Hatchery water pipelines are underground and generally follow the centerline of the road.

1) *Project Dam:* The dam is a dry rock, concrete, timber, and sheet steel dam that is a maximum of 7.5 feet high, has a maximum width of 7 feet, and is 272.7 feet long. The dam is oriented in a northeast-southwest direction. A concrete gravity dam section approximately 83 feet long makes up the southwest end of the dam. Within this section is a 79.8-foot spillway channel with a crest elevation of 160.7 feet,¹ with fish screens that extend two feet above the crest.

Adjacent to the spillway is the intake structure, described above. Moving northeast along the dam, adjacent to the intake structure is the concrete gate structure. The gate structure is 20.2 feet long and contains two manually operated gates that measure 6.4 feet wide by 7.25 feet high and 6.3 feet wide by 7.25 feet high. The gate sill elevation is 154 feet, which corresponds to the 0.5-foot mark on the staff gauge located next to the gate structure. There is a concrete walkway and 18.2-feet-long-by-13.7-feet-high steel frame with an approximately 6-ton chain hoist for the gates and an approximately 2-ton chain hoist for the fish screens located over the gate section. The walkway is at an elevation of 162.5 feet and has a handrail on the downstream side (away from the gates).

The northeast end of the dam is a dry stone, timber, sheet steel, and concrete structure, totaling 157 feet in length. This section of the dam contains two auxiliary spillways: a 35.5-foot section adjacent to the gate structure built to an elevation of 161.5 feet and a 121.5-foot section that slopes from an elevation of 163 to 164 feet. The shorter section of the auxiliary spillway has a concrete walkway with a guardrail.

¹ All elevations referred to in this Certification are National Geodetic Vertical datum of 1929 (NGVD29).

2) *Project Impoundment:* The Project impounds Green Lake with a surface area of approximately 3,312 acres. During much of the year, the Project can maintain the water level within a range of 157.5 to 160.7 feet, yielding a maximum usable storage of about 10,136 acre-feet. Net volume from gate sill elevation to full pond (154 to 160.7 feet) is approximately 17,731-acre feet.

The Project manages the lake level on Green Lake using the main turbine and the manually operated gates at the dam. The level is managed to maintain recreation values, allow a dependable water supply for the Hatchery, and protect Arctic charr spawning habitat. Water is drawn from Green Lake to the Hatchery by means of two non-Project submerged pipes to supply the hatchery.

During the summer, recreational uses of the lake are given priority. The Project is allowed to maintain the lake level from 159.7 to 160.7 feet from June 1 through Labor Day weekend, yielding a maximum storage of about 3,312 acre-feet. In practice, to allow for anticipated dry weather during the late summer, along with the possibility of occasional heavy rain, less than half of this storage amount can be used for turbine operation.

3) *Penstock:* The 1,744-foot-long penstock is located along the shoulder of the hatchery road. Immediately below the intake structure, approximately 70 feet of 54-inch square (inside dimension) concrete penstock is located partially or completely beneath grade. The next section of penstock is 54-inch-diameter reinforced concrete pipe that is 410 feet long. Included in this section is an 8-foot-long-by-21-foot-wide transition block and valve pit, which create a transition to a 48-inch-diameter round reinforced concrete penstock. The transition block also contains a 24-inch penstock tap and valves to supply water to the Hatchery. The 48-inch round concrete penstock section is 264 feet long. A minimum of one foot of fill has been placed over this portion of penstock. An 8-foot square concrete transition block is at the end of the 48-inch concrete penstock. From the transition block, 1,000 feet of 48-inch-diameter wood stave penstock connect to the powerhouse. The wood stave penstock is supported approximately 10 inches above grade by timber cradles at 8-foot intervals. Penstock capacity at the powerhouse is approximately 115 cubic feet per second (cfs).

4) *Powerhouse:* The powerhouse is a reinforced concrete substructure, 27 feet by 35 feet in plan, and houses the turbines, generators, switchgear equipment, operator's quarters, and garage. The operator's quarters and garage are housed in a wood frame structure that rests on the concrete ceiling slab of the generator room. The concrete slab contains hatches that allow the turbines and generators

to be lifted into the garage. The ceiling area of the garage contains a monorail with a 6-ton-capacity chain hoist for lifting the units. This hoist can lift the heaviest individual component of the main turbine unit.

The powerhouse is located approximately 1,744 feet downstream of the dam, on the south side of Reeds Brook, adjacent to the GLNFH. The powerhouse is a three-story structure built into the existing slope. The site is graded so that only the operator's quarters (upper story) are visible from the south (Hatchery) side. A concrete pad outside the powerhouse supports the transformer. A paved driveway, 10 feet wide and approximately 75 feet long, provides access to the powerhouse. This driveway connects with the existing Hatchery road at the east end of the Hatchery parking lot.

The powerhouse contains two turbine-generator units, one with a rated capacity of 400 kilowatts (kW) and the second with a rated capacity of 25 kW. Together, they have a hydraulic capacity of approximately 97 cfs. The Project head of generation is approximately 50 feet. The 400 kW Allis-Chalmers tube turbine has a 28-inch runner with five blades, which is centered on an elevation of 101.9 feet. This turbine does not have different runner inlet and discharge diameters. The turbine runs at a speed of 726 rotations per minute when generating at normal capacity, with a generator efficiency of 95.3%. The turbine does not have a variable gate. The 25-kW centrifugal pump-as-turbine has an 11-inch runner. It has a 6-inch inlet and an 8-inch outlet.

D. Existing Project Operation

The Green Lake Dam is managed for power generation. Water management of Green Lake is designed to maintain recreation values, allow water supply for the GLNFH, protect Arctic charr spawning habitat, and maintain sufficient flow in Reeds Brook. The Green Lake Dam gates are manually operated. Water is drawn from Green Lake by the Hatchery by means of two submerged pipes (non-Project) to supply the Hatchery. Up to 30 cfs from Green Lake may be used on a priority basis by the Hatchery.

Brookfield Renewable Energy Group (Brookfield) owns and operates a water control dam at the outlet of Graham Lake, downstream of Green Lake, and a hydroelectric generating facility (FERC No. 2727) approximately four miles downstream of Graham Lake in the City of Ellsworth. The Green Lake Project does not operate as part of the Brookfield projects or benefit financially or otherwise from those projects. The Project does coordinate with Brookfield's River Control (as well as Ellsworth officials and other emergency personnel as appropriate) during heavy flood flows to make sure water

released from the Green Lake Dam will not cause problems for Brookfield or the City of Ellsworth.

The Applicant's stated goals in the operating schedule are to ensure maintenance of recreation values, allow water supply for the Hatchery, and protect Arctic charr spawning habitat in addition to power generation. The Applicant draws down the lake during the fall and winter from the spillway elevation of 160.7 feet to a minimum of 157.5 feet. The fall drawdown begins after Labor Day weekend and is completed by October 15 of each year. The lake is then allowed to partially refill during the fall and early winter. Depending on the extent that the lake is refilled, the lake is drawn down prior to spring runoff to protect against flooding. Winter drawdown varies annually, depending on the amount of runoff anticipated from snowpack. Throughout the winter the lake level is not drawn down below the level that existed on October 15 of the previous year.

The Applicant restores the lake level to between elevations 159.7 feet and 160.7 feet by June 1. Lake levels are maintained between elevations 159.7 feet and 160.7 feet for the period of June 1 through Labor Day of each year for recreational use of the lake and shorefront areas and to provide sufficient water pressure for the Hatchery to draw water from Green Lake.

The Applicant controls turbine operation manually. The larger turbine has a fixed operating point, so the Applicant operates it either at full discharge capacity of 90 cfs or turns it off. The smaller turbine with a fixed but much smaller flow (estimated at 7 cfs) can operate continuously as lake level and inflow allow. The Applicant maintains an instantaneous minimum flow of 1 cfs downstream into Reeds Brook.

E. Project Proposals

The Applicant does not propose any new power development structures or generating facilities for the Project.

F. Proposed Operation, Minimum Flow, and Impoundment Water Level

The Applicant proposes to continue operating the Green Lake Project with no changes except to the fall drawdown period. In 2022, the Maine Department of Inland Fisheries & Wildlife (MDIFW) informed the Applicant that Arctic charr spawn below a depth of six feet in Green Lake.² The current drawdown restrictions were designed to prevent dewatering historic Arctic charr spawning beds, but this new information demonstrates

² See MDIFW Comments on Draft License Application (DLA) from January 29, 2022.

that the current requirements are not necessary to protect Arctic charr spawning habitat in Green Lake.

The Applicant proposes to remove the requirements that the fall drawdown be completed by October 15 each year and that the winter and spring water levels cannot be drawn down below the October 15 level from the previous year. Removing the fall drawdown requirement gives the Applicant flexibility for weather conditions. The Applicant stated that this will also enable recreational use of Green Lake later into the fall and allow the Project to perform routine maintenance in the fall. Removing the winter/spring drawdown limitation based on the previous fall drawdown level will allow the Applicant to use the full drawdown range to minimize concerns of ice damage and spring flooding around the lake. Green Lake will not be drawn down below a level of 157.5 feet. This is discussed in Section 4(A) below.

G. Proposed Protection, Mitigation, and Enhancement Measures

The Applicant proposes to install permanent upstream and downstream passage for American eel in accordance with a Settlement Agreement with the U.S. Fish and Wildlife Service (USFWS). This is described in Section 4(B)(3) below.

2. JURISDICTION

The proposed continued operation of the Project qualifies as an “activity...which may result in [a] discharge into the navigable waters [of the United States]” under Section 401 of the CWA. 33 U.S.C. § 1341. Section 401 requires that any Applicant for a federal license or permit to conduct such an activity must obtain a certification that the discharge will comply with applicable State water quality standards. *Id.* State law authorizes the Department to issue a WQC pursuant to Section 401 of the CWA when the continued operation of the Project will maintain the standards of classification for the affected water bodies, including the State’s antidegradation policy. 38 M.R.S. § 464(4)(F)(3).

State WQC for the Project was last issued by the Department on July 13, 1983. Under a 1996 Executive Order of the Governor of the State of Maine, the Department is designated as the certifying agency for issuance of Section 401 WQC for all activities in the State not subject to Land Use Planning Commission permitting and review. Therefore, the Department is the certifying agency for the Project.³

The Project is licensed by the Federal Energy Regulatory Commission (FERC) as a hydropower project under the Federal Power Act (FERC Project No. 7189). The original

³ Executive Order No. 3 FY 96/97.

FERC license was issued on April 5, 1984, and expired on March 31, 2024. Green Lake Co. has filed an Application for New License with FERC to continue to operate the project for another 30-50 years. That application is currently pending before FERC.

3. APPLICABLE STATE WATER QUALITY STANDARDS

A. Classification

Green Lake, which is impounded by the Project, is classified as Class GPA. 38 M.R.S. § 465(A). The portion of the Union River Basin at issue, the outlet of Green Lake (Reeds Brook), is designated as Class B. 38 M.R.S. § 467(18)(B)(2).

B. Designated Uses

The Applicant must demonstrate that Green Lake and Reeds Brook meet the following designated uses:

- 1) The Class GPA waters of Green Lake must be of such quality that they are suitable for the designated uses of drinking water after disinfection, recreation in and on the water, fishing, agriculture, industrial process and cooling water supply, hydroelectric power generation, navigation, and as habitat for fish and other aquatic life. The habitat must be characterized as natural. 38 M.R.S. § 465-A(1)(A).
- 2) The Class B waters of Reeds Brook from the outlet of Green Lake must be of such quality that they are suitable for the designated uses of drinking water supply after treatment; fishing; agriculture; recreation in and on the water; industrial process and cooling water supply; hydroelectric power generation, except as prohibited under Title 12, section 403; navigation; and as habitat for fish and other aquatic life. The habitat must be characterized as unimpaired. 38 M.R.S. § 465(3)(A).

C. Numeric Standards

The Applicant must demonstrate that Green Lake and Reeds Brook meet the following numeric criteria:

- 1) The Class GPA waters of Green Lake must have a stable or decreasing trophic state, subject only to natural fluctuations, based on measures of the chlorophyll-*a* content, Secchi disk transparency, total phosphorus content, and

other appropriate criteria, and must be free of culturally induced algal blooms that impair their use and enjoyment. 38 M.R.S. § 465-A(1)(B).⁴

- 2) The dissolved oxygen (DO) content of the Class B waters of Reeds Brook may not be less than 7 parts per million (ppm)⁵ or 75% of saturation, whichever is higher, except for the period from October 1st to May 14th, in order to ensure spawning and egg incubation of indigenous fish species, the 7-day mean DO concentration may not be less than 9.5 ppm and the one-day minimum DO concentration may not be less than 8 ppm in identified fish spawning areas. 38 M.R.S. § 465(3)(B).⁶

D. Narrative Standards

The Applicant must demonstrate that Green Lake and Reeds Brook meet the following narrative criteria:

- 1) There may be no new direct discharge of pollutants into the Class GPA waters in Green Lake. 38 M.R.S. § 465-A(1)(C). In addition, the habitat of the Class GPA waters of Green Lake must be characterized as natural. 38 M.R.S. § 465-A(1)(A).
- 2) Discharges to the Class B waters of Reeds Brook may not cause adverse impact to aquatic life in that the receiving waters must be of sufficient quality to support all aquatic species indigenous to the receiving water without detrimental changes in the resident biological community. 38 M.R.S. § 465(3)(C). In addition, the habitat of Class B waters must be characterized as unimpaired. 38 M.R.S. § 465(3)(A).

E. Antidegradation

The Department may only approve WQC if the standards of classification of the water body and the requirements of the State's antidegradation policy are met. The Department

⁴ Numeric standards for GPA waters also include standards for the number of *Escherichia coli* (E-coli) bacteria. See 38 M.R.S. § 465-A(1)(B). However, the presence or operation of a dam generally does not implicate E-coli bacteria levels and, absent affirmative evidence to the contrary, E-coli standards are generally not applied in the context of a water quality certification with respect to a hydropower project's operations.

⁵ Parts per million, or ppm, is a measure of concentration and is equivalent to mg/L because a liter of water weighs approximately 1000 grams.

⁶ Numeric standards for Class B waters also include standards for the number of E-coli bacteria. See M.R.S. § 465(3)(B). However, the presence or operation of a dam generally does not implicate E-coli bacteria levels and, absent affirmative evidence to the contrary, E-coli standards are generally not applied in the context of a water quality certification with respect to a hydropower project's operations.

may approve WQC for a project affecting a water body in which the standards of classification are not met if the project does not cause or contribute to the failure of the water body to meet the standards of classification. 38 M.R.S. § 464(4)(F)(3).

F. Department Rules

Attainment of water quality standards is assessed through application of the following Department Rules:

- 1) 06-096 C.M.R. Chapter 579: Classification Attainment Evaluation Using Biological Criteria for Rivers and Streams.

Criteria to quantify aquatic life standards for Classes AA, A, B, and C waters are defined in this chapter. The benthic macroinvertebrate community is used as a surrogate to determine conformance with statutory aquatic life standards, related statutory definitions, and statutory provisions for the implementation of biological water quality criteria that are provided in Maine's standards for classification of fresh surface waters. Methods described in this chapter are used to make decisions about classification attainment.

- 2) 06-096 C.M.R. Chapter 581: Regulations Relating to Water Quality Evaluations.

These rules provide for the maintenance of stream and lake classifications without violations by computing capacity of the waters to break down waste and shows fish, wildlife, and organisms in the receiving water to migrate both up and downstream in an undisturbed section of river adjacent to the waste discharge outfall. In addition, a scale of 0-100 is established in order to measure the trophic state or degree of enrichment of lakes due to nutrient input.

4. DEPARTMENT ANALYSIS

- A. Trophic State of Impoundment (38 M.R.S. §§ 465-A(1)(A)-(B)); Fishing, Navigation, and Recreational Access and Use (38 M.R.S. § 465(3)(A))

For this standard, the Applicant must demonstrate that the project waters are suitable for the designated uses of recreation in and on the water, fishing, and navigation. It is the Department's longstanding position that a hydropower impoundment may be found suitable for recreation in and on the water if it has a stable or decreasing trophic state and is free of culturally induced algal blooms that impair its use and enjoyment.

A Class GPA water body, such Green Lake, shall be considered to have a stable or declining trophic state unless it exhibits (1) a perceivable and sustained increase in its trophic state as characterized by its Trophic State Index or other appropriate indices, or (2) the onset of algal blooms. 06-096 C.M.R. Ch. 581(6)(C). The trophic state is the ability of water to produce algae and other aquatic plants. The trophic state of a body of water is a function of its nutrient content and may be estimated using the Maine Trophic State Index (TSI), which includes measurements of chlorophyll, phosphorus, or Secchi disc transparency (SDT). 06-096 C.M.R. Ch. 581(6)(A). An algal bloom is defined as a planktonic growth of algae which causes SDT to be less than 2.0 meters. 06-096 C.M.R. Ch. 581 (6)(B).

1) Existing Facilities and Use

Landlocked salmon are native to Green Lake. There are also populations of Arctic charr and smallmouth bass. MDIFW has stocked lake trout in Green Lake since 1961 and landlocked salmon regularly since the 1930s.

The Project impounds Green Lake, which is in Hancock County. The Department finds that Green Lake has an area of approximately 3,312 acres. During much of the year, the Project can maintain the water level within a range of 157.5 to 160.7 feet, yielding a maximum usable storage of about 10,136 acre-feet. Net volume from gate sill elevation to full pond (154 to 160.7 feet) is approximately 17,731 acre-feet.

Under the current FERC license, the Applicant is required to (1) maintain the elevation of Green Lake between 159.7 feet and 160.7 feet from June 1 through Labor Day weekend each year, and between 157.5 feet and 160.7 feet for the remainder of the year; (2) complete the fall drawdown of Green Lake by October 15 of each year; (3) reduce the elevation of Green Lake during the spring drawdown to no lower than the elevation attained on the previous October 15 of each year; and (4) release a year-round minimum flow to Reeds Brook of one cubic foot per second (cfs), or inflow to Green Lake, whichever is less, for the protection and enhancement of fish and wildlife resources downstream of the dam. The Applicant must ensure that operation of the Project will not interfere with the ability of the GLNFH to draw up to 30 cfs of water from Green Lake at any time. The Applicant proposes to remove the fall drawdown restriction requiring a drawdown of Green Lake by October 15.

2) Water Quality Data

The Applicant sampled in Green Lake twice each month for five months from June 17, 2020, through October 19, 2020, with samples taken from locations called Station #1,

which was in the north end of the impoundment, and Station #2, which was in the south end of the impoundment. Sampling was conducted in accordance with the water sampling protocols in the *Department's Sampling Protocol for Hydropower Studies* (September 2019).

Each sampling event included SDT, temperature, and DO profiles, and total phosphorus, chlorophyll-a, color, pH, and total alkalinity. DO and temperature profiles were collected at one-meter intervals. Total phosphorus, chlorophyll-a, color, pH, and total alkalinity were sampled as epilimnetic cores when the water column was not stratified and up to a depth of one meter into the metalimnion when the lake was stratified.

Total Phosphorus is an indicator of nutrient enrichment and is measured in hydropower impoundments in conjunction with chlorophyll-a to assess the trophic state of the waters. Chlorophyll-a is a measure of algae in the water column and can be an indicator of eutrophication. At Station #1, total phosphorus ranged from 3 micrograms per liter ($\mu\text{g/L}$) to 17 $\mu\text{g/L}$, with an average concentration of 7.1 $\mu\text{g/L}$, and chlorophyll-a concentrations ranged from .002 milligrams per liter (mg/L) to .003 mg/L , with average concentrations of .002 mg/L . At Station #2, total phosphorus ranged from 4 $\mu\text{g/L}$ to 5 $\mu\text{g/L}$, with an average concentration of 4.4 $\mu\text{g/L}$, and chlorophyll-a concentrations measured in the impoundment ranged from .002 mg/L to .003 mg/L , with average concentrations of .002 mg/L .

At Station #1, SDT measurements ranged from 7.38 meters to 9.9 meters, with average measurement of 8.68 meters; calculated as twice the SDT measurements, the Department finds the littoral zone is, therefore, 17.36 meters at Station #1. At Station #2, SDT measurements ranged from 6.34 meters to 9.43 meters, with average measurement of 8.11 meters; calculated as twice the SDT measurements, the Department finds the littoral zone is, therefore, 16.22 meters at Station #2.

The pH of impoundment water at both stations ranged from 6.8 to 7.1; all values were within the recommended range of 6.0 to 8.5 for Maine waters. Alkalinity is an indicator of the water's capacity to neutralize acids, or to buffer against changes in pH.⁷ Alkalinity

⁷ pH is a scale of acidity from 0 to 14; pH means potential of hydrogen and is a measurement of the activity of free hydrogen and hydroxyl ions in a solution. More acidic solutions have a lower pH, and more alkaline solutions have a higher pH. Substances that are neutral usually have a pH of 7.

measured in the Green Lake impoundment ranged from 4 mg/L to 5 mg/L throughout the entire sampling period.

Chlorophyll-a concentrations, total phosphorus, and SDT measurements indicate a low potential for algal blooms to develop. These results are indicative of relatively stable mesotrophic conditions and a stable trophic state.

3) Findings and Discussion

Based on the results of the sampling and information contained in the WQC application, the Department finds that the Project impoundment meets applicable Class GPA water quality standards, has a stable or decreasing trophic state, and is free of culturally induced algal blooms.

The Applicant proposes that the fall drawdown requirements be removed to enhance fall recreation opportunities and allow for better regulation of winter and spring water levels to reduce ice and flooding concerns for littoral property owners. The fall drawdown restrictions were initially in place for the protection of historic Arctic charr spawning beds, however, MDIFW informed the Applicant that Arctic charr spawn below a depth of six feet in Green Lake. Following consultation with MDIFW, the Department finds the Project meets the designated use of recreation in and on the water, fishing, and navigation with the removal of the fall drawdown restriction. The Department therefore determines that the Project operations meet the designated uses of recreation in and on the water, fishing, and navigation.

This is further supported by historical water quality data, which has been collected from sampling stations #1 and #2 since the mid-1970s, as well as from a third station since the early 1980s.⁸ Water quality data from all three stations indicate that the lake's trophic state hovers around the transition between mesotrophic and oligotrophic. Both chlorophyll-a and total phosphorus concentrations are low at all three stations. Very little DO depletion has been observed in the deepest area (station #1, northwest region). Some DO depletion is seen at the shallower stations, with the most depletion observed at the shallowest station (station #3). Given the size of the lake, and abundance of well oxygenated deep, colder water, it is unlikely that fish are significantly stressed by this depletion. Transparency records suggest that the water quality has been improving over the last 50 years.

No new direct discharges to Green Lake were identified by the Applicant, and the Department has received no reports of new discharges to Green Lake. Based on the

⁸ See Appendix – Green Lake Historical Monitoring Data.

information provided by the Applicant, the Department further finds and determines that the Project impoundment is free of culturally induced algal blooms that would impair its use or enjoyment. Therefore, in accordance with Chapter 581 and the exercise of the Department's professional expertise and judgment, the Department finds and determines that the trophic state of the Green Lake Project is stable or is declining and its impoundments are suitable for swimming and for the designated use of recreation in and on the water. The Department further finds that there are no new direct discharges of pollutants to Green Lake.

B. Aquatic Habitat (38 M.R.S. § 465-A(1)(A); § 465(3)(A))

For this standard, the Applicant must demonstrate that the Green Lake impoundment is suitable for the designated use of habitat for fish and other aquatic life and is characterized as natural. The Applicant must further demonstrate that Reeds Brook, a Class B tributary of the Union River, from the outlet of Green Lake, is suitable for the designated use of habitat for fish and other aquatic life and is characterized as unimpaired. The Applicant also must demonstrate that Reeds Brook is of sufficient quality to support indigenous aquatic species without detrimental changes in the resident biological community.

Additionally, since indigenous aquatic species to Green Lake and Reeds Brook include diadromous fish⁹, the Applicant must demonstrate that the Project waters provide for the safe, timely, and effective passage of diadromous fish, ensuring that the waters are of sufficient quality to support all indigenous aquatic species and that the discharge from the dam does not cause an adverse impact to indigenous diadromous fish.

1) Aquatic Habitat – Project Impoundment (38 M.R.S. § 465-A(1)(A))

Attainment of aquatic habitat standards can be demonstrated in a variety of ways, including through evaluation of the structure and function of the biotic community and measurement or submission of other data or evidence that demonstrates a sufficient maintenance of the impoundment's littoral zone.¹⁰ Absent other evidence, and based on

⁹ All of Maine's native diadromous species are found in the Union River Basin, but only river herring (alewife and blueback herring) and American eel are known to occur within the Green Lake Project boundaries. Green Lake and Reeds Brook are located within the Gulf of Maine distinct population segment of federally endangered Atlantic salmon and occur within the designated critical habitat of that species.

¹⁰ The "littoral zone" of lakes and lake-like waterbodies, including some riverine impoundments, is defined in limnology as the portion of a lake where light penetration allows plant growth on the bottom. The littoral zone extends from the shoreline to the maximum depth where plants on the bottom receive enough sunlight for photosynthesis. This depth, known as the euphotic zone, is commonly estimated as the depth that receives approximately 1% of incident light. (Cole, 1979.) While depth of the zone varies with many factors, it can be

its professional experience, expertise, and judgment, the Department generally presumes the presence and suitability of sufficient aquatic life and habitat, especially for small or young fish as well as other aquatic life that rely on that refuge and forage provided by nearshore aquatic vegetation, when at least 75% of an impounded area, called the littoral zone, as measured from full pond conditions, remains watered at all times. Stated another way, water levels that provide wetted conditions for approximately 75% of the littoral zone of an impounded area, as measured from full pond conditions, are generally presumed necessary to meet aquatic life and habitat standards. This rebuttable presumption, as developed through the exercise of the Department's professional experience, expertise, and judgment also is reflected in the Department's Hydropower Project Flow and Water Level Policy, dated February 4, 2002 (Water Level Policy). This rebuttable presumption is not a rule, but a guideline the Department applies on a case-by-case basis, informed by best professional judgment, and considering site-specific circumstances.

a. Existing Habitat and Resources

The Department finds that Green Lake has a surface area of 3,312 acres at the normal full pond elevation of 160.7 feet. Water management of Green Lake is designed to maintain recreation values, allow water supply for the GLNFH, protect Arctic charr spawning habitat, and maintain sufficient flow in Reeds Brook. The Green Lake Dam gates are manually operated. Water is drawn from Green Lake by means of two submerged pipes (non-project) to supply the Hatchery. Up to 30 cfs may be used on a priority basis by the Hatchery.

The Department finds that the Project operations provide a relatively stable head pond elevation while passing inflows. Such operations protect existing littoral habitats from changes related to water level fluctuations.

b. Studies

The Applicant found the average SDT measured in the impoundment was 27.5 feet; the littoral depth, calculated as twice the SDT measurement, therefore, is 55 feet. The maximum drawdown of the impoundment is 3.2 feet. The Applicant calculated that the littoral zone area dewatered by the maximum drawdown is 14.4%. Based on this information, the Project maintains at least 75% of the littoral zone of Green Lake.

estimated as a multiple of the Secchi disk transparency (SDT). Based on Tyler (1968), for more than 20 years the Department has delineated the littoral zone using a depth two times the SDT for purposes of determining attainment of Maine's Water Quality Standards.

c. Discussion and Findings

The Department finds that Project operations maintain relatively stable water levels with minimal impoundment fluctuation from full pond conditions, subject only to natural variations related to precipitation events. The Applicant demonstrated this by providing discharge and impoundment water level data. Therefore, the Project maintains 75% of the littoral zone in wetted conditions as measured from full pond, protecting habitat in the littoral zone. Except for fish passage, which is discussed separately below in Section 4(B)(3), based on the evidence provided by the Applicant, the Department, applying its professional judgment through application of its Water Level Policy, determines that the Green Lake impoundment meets the applicable aquatic life and habitat criteria.

2) Aquatic Habitat – Outlet Stream (38 M.R.S. § 465(3)(A))

For this standard, the Applicant must demonstrate that the Class B waters of Reeds Brook downstream of the outlet of Green Lake are of such quality that they are suitable for the designated use of habitat for fish and other aquatic life, and the habitat must be characterized as unimpaired. In addition, discharges to the Class B waters at the outlet of Green Lake may not cause adverse impacts to aquatic life and the receiving waters must be of sufficient quality to support all aquatic species indigenous to the receiving water without detrimental changes in the resident biological community.

To meet these Class B aquatic life standards, an Applicant must demonstrate two things. First, the Applicant must show that the benthic macroinvertebrate community attains aquatic life standards contained in the Department's Chapter 579 rule. The benthic macroinvertebrate community is an indicator of the general state of aquatic life for the purpose of demonstrating attainment of outlet stream aquatic life classification standards. Where there is documented evidence of conditions that could result in uncharacteristic findings, such as effects related to the discharge of nutrient rich water at a lake's outlet, the Department may account for those situations by determining the appropriate use for sample results with professional judgment decisions. 06-096 C.M.R. Ch. 579(3)(G).

Second, an Applicant must show that the flow of water in Reeds Brook is sufficient to support the designated use of habitat for fish and other aquatic life. The Department generally presumes, absent evidence to the contrary, that flow providing wetted conditions for at least 75% of the cross-sectional area of the affected river or stream, as measured from bankfull conditions, is needed to meet aquatic life and habitat standards. The Applicant can demonstrate attainment of these standards by providing evidence that 75% of the cross-section of the outlet stream is wetted at all times. This rebuttable presumption, as developed through the exercise of the Department's professional

experience, expertise, and judgment is also reflected in the Department's Water Level Policy.

As discussed below, for the Class B waters below Green Lake, the Department requested, and the Applicant provided, site-specific studies and survey information related to each of these two required demonstrations.

a. Existing Habitat and Resources

Reeds Brook flows from the Green Lake Dam to Graham Lake, a straight-line distance of approximately 1,800 feet. From just below the Green Lake Dam, Reeds Brook drops 45 feet and flows 2,000 feet before discharging into Graham Lake.

The substrate of Reeds Brook is mostly cobble, with some gravel and boulders. The Brook has an average slope of 2.3% and a sinuosity of 1.1. The minimum measured slope of a section of the Brook is less than 1% and the maximum slope of a section is 4.15%. The upper region of the Brook, before the Hatchery filter discharge enters, is relatively wide with a low slope. It is composed of about 60% riffle¹¹ and 40% pools. The lower region of Reeds Brook has a higher slope with about 69% riffle and 31% pools.

b. Studies

The Applicant conducted a Benthic Macroinvertebrate Study and an aquatic habitat survey in Reeds Brook to determine if the aquatic community meets Maine's water quality standards in the waters downstream of the Project tailrace.

The Applicant completed a Benthic Macroinvertebrate Study¹² between August 27 and September 24, 2020, to demonstrate whether current in-stream flow releases affect attainment of aquatic life criteria in Reeds Brook downstream of the Project dam. Benthic macroinvertebrate samplers were deployed in accordance with the Department's sampling protocol, and the Department analyzed resulting data using its linear discriminant model.

The study included three sample sites: one in the bypass reach and two in the tailrace. Linear discriminant model results indicate that the two tailrace sites did not meet Class B aquatic life criteria and only attained criteria for Class C. However, the Department

¹¹ Riffle is prevalent in moderate to high-gradient streams, which are mostly composed of coarse sediment particles or frequent coarse particulate aggregations along stream reaches.

¹² The field and laboratory procedures in this study were conducted using the Department's "Methods for Biological Sampling and Analysis of Maine's Inland Waters." (Davies and Tsomides, Revised 2014).

determined that it is not appropriate to use results for these sites in its evaluation of aquatic life because the macroinvertebrate community is likely influenced by the Hatchery discharge and periodic backwatering of Graham Lake.

Linear discriminant model results indicate that the site in the Reeds Brook bypass reach met Class B aquatic life criteria. Therefore, Reeds Brook downstream of the Green Lake Dam meets Class B aquatic life criteria.

The Applicant conducted a Cross-Section Flow Study in December 2020 and January 2021 within the Reeds Brook bypass reach downstream of the Project dam to evaluate the sufficiency of in-stream flow releases from the Project dam. Wetted area and habitat characteristics were recorded for four different flows (2 cfs, 5.5 cfs, 11 cfs, and 22 cfs) at four transects in Reeds Brook to determine the flow at which at least 75% of the bankfull area is wetted at all times. The studies showed that even at the lowest flow of 2 cfs, at least 81.42% of the bankfull width is wetted at all times, which meets the aquatic habitat criteria.

c. Discussion and Findings

The Department finds that two of the sample sites submitted for the Benthic Macroinvertebrate Study did not meet Class B standards for aquatic life in Reeds Brook due to effects from the Hatchery and periodic backwatering from Graham Lake. The Department finds that the sample site from the Reeds Brook bypass reach met Class B standards for aquatic life. In some cases, when considering factors that may affect the assemblage of aquatic life downstream, such as a Hatchery discharge and periodic backwatering from an adjacent water body, the Department applies its best professional judgment in determining which sample sites are most representative. The Department therefore concluded that it was not appropriate to use results from the two sites impacted by the Hatchery and periodic backwatering of Graham Lake in its aquatic life evaluation. The study results of the site unaffected by the Hatchery and backwatering from Graham Lake met Class B aquatic life standards. Reeds Brook is a Class B water. The Applicant demonstrated through the Benthic Macroinvertebrate Study and the Department determined using its linear discriminant model that the benthic community downstream of the Project meets Class B aquatic life criteria.

The Department finds that flow data collected by the Applicant demonstrated the Project maintains at least 75% stream wetted width, which provides wetted conditions sufficient to meet aquatic habitat criteria in Reeds Brook. Except for fish passage, which is discussed separately below in Section 4(B)(3), based on the evidence provided by the Applicant, the Department, applying Chapter 579 and its professional judgment through

application of its Water Level Policy, determines that the area downstream of the Project dam meets the applicable aquatic life and habitat criteria.

The Department, therefore, determines that flows provided by current and proposed Project operations provide sufficient water quality and sufficient water quantity to support the Class B designated use of habitat for fish and other aquatic life downstream of the Project.

3) Aquatic Habitat – Fish Passage (38 M.R.S. § 465(3)(A), (C))

The Green Lake Project discharges water from Green Lake into Reeds Brook. By influencing the flow of the water, the dam and its discharge impacts the ability of fish to pass the section where the dam is located. By influencing fish passage, the dam and its discharge affect the resident biological community of Reeds Brook. As an aquatic ecosystem, Reeds Brook is home to and supports a variety of aquatic life. Diadromous¹³ fish are part of the historical and current biological community in Reeds Brook and, due to their migratory nature and life cycle needs, when naturally present at the Green Lake Dam must be able to pass the dam to spawn. Unless diadromous fish can pass the dam, Reeds Brook cannot support these species of fish.

For the Applicant to satisfy applicable State water quality standards, the Applicant must demonstrate that the water flowing through and over the Green Lake Dam, which discharges into Reeds Brook, supports indigenous species, and does not cause adverse impact to aquatic life. This requires showing that the discharge from the dam supports safe, timely, and effective upstream and downstream fish passage. Safe, timely, and effective fish passage is necessary to avoid detrimental changes in the resident biological community.

a. Existing Habitat and Resources

There are currently no fish passage structures in place to enable the passage of diadromous fish over the Green Lake Dam. All of Maine's native diadromous species are found in the Union River system, but only river herring (alewife and blueback herring) and American eel are known to occur within the Green Lake Project boundaries. Although passage of these species is greatly limited due to the barriers created by the Ellsworth Hydroelectric Project (FERC No. 2727) (the Ellsworth Dam and Graham Lake Dam), river herring and Atlantic salmon can currently access Reeds Brook, as they are trucked from the trap at the Ellsworth dam to a location upstream of the Graham Lake

¹³ Diadromous includes anadromous and catadromous fish species; meaning species of fish that migrate at some point in their life cycle between the ocean and fresh water.

Dam. Furthermore, it is expected that sea-run fish will be able to naturally pass through the Union River and reach Reeds Brook if fish passage becomes available at the Ellsworth and Graham Lake Dams.

Reeds Brook is located within the Gulf of Maine distinct population segment (GOM DPS) of federally endangered Atlantic salmon and occurs within the designated critical habitat of that species. USFWS's GLNFH, which raises juvenile Atlantic salmon for stocking throughout the range of the GOM DPS, occurs in the project area and relies on water drawn both from Green Lake and the project penstock to operate. The operation of this hatchery is essential to the continued survival and eventual recovery of endangered Atlantic salmon.

Though not diadromous, native landlocked salmon are present in Green Lake.¹⁴ Green Lake also contains a native population of Arctic charr. The current license requires the Applicant to install screens at the Project intake to protect fish from turbine entrainment and prevent out-migration of adult salmonids from Green Lake.

b. Studies

A series of American eel surveys were performed to determine if American eel were climbing the Green Lake Dam. No American eel were found during the surveys; however, American eel have previously been found in the penstock. These instances appear to be caused by a two-inch gap on one side of the intake trash racks.

c. Applicant's Proposal

The Applicant proposes to improve American eel passage at the Green Lake Dam. Its proposal is best reflected in the Settlement Agreement that the Applicant developed with USFWS, as opposed to in the Final License Application (FLA) and WQC application filed with the Department. The Applicant confirmed that the Settlement Agreement modifies what the Applicant had proposed in the FLA and WQC Application by correspondence dated January 2, 2024.¹⁵ Therefore, the Department reviewed the American eel passage measures contained in the Settlement Agreement.¹⁶

The Department has reviewed the Settlement Agreement and finds the most important components of the Applicant's proposal involve the following measures: 1) establishment of permanent upstream and downstream passage for American eel, 2) consultation with

¹⁴ Green Lake is one of only four lakes in Maine with an endemic landlocked salmon population.

¹⁵ In the form of an email, included in the administrative record.

¹⁶ See Appendix A.

the appropriate fisheries agencies (USFWS, the Maine Department of Marine Resources (MDMR), and MDIFW) in the establishment of passage for American eel, and 3) completion of a fish passage effectiveness study and monitoring study following the establishment of upstream passage for American eel, and completion of a downstream passage study if the Applicant does not follow USFWS recommendations.

d. Discussion and Findings – American eel

The data provided by the Applicant demonstrates that the Project does not currently provide for safe, timely, and effective fish passage for American eel.

The Applicant's proposal, which has been modified by the Settlement Agreement as indicated in the Applicant's correspondence from January 2, 2024, provides a framework to achieve safe, timely, and effective fish passage at the Project. Central to the Settlement Agreement is the implementation of permanent upstream and downstream passage for American eel, monitoring of outcomes, and further consultation with resource agencies. The goal of the Settlement Agreement is to implement and improve upstream and downstream passage of American eel at the Green Lake Project. However, adherence to this framework and the decisions made within this framework ultimately will determine whether safe, timely, and effective fish passage for American eel is achieved, and whether the Project is operated to support indigenous species in accordance with State water quality standards.

The Applicant's proposal for passage for American eel includes mitigation measures, so that in the event of a request for extension of time, the Applicant shall implement interim eel passage mitigation measures that are supported by substantial evidence during the period of extension as may be required by USFWS. These measures may include, but are not limited to, curtailment or cessation of generation, additional monitoring or studies, or interim eel passage measures, as necessary.

For downstream passage, the Applicant must design and implement a downstream eel bypass in accordance with USFWS requirements and in consultation with USFWS. This bypass can also be utilized to provide flow for upstream eel passage. A fish passage effectiveness study will not be required for downstream passage. The Applicant will also install trashracks in accordance with USFWS requirements to avoid eel entrainment in the penstock (or some other approved configuration) prior to the third downstream eel passage season.

For upstream passage, the Applicant will install an eel ramp located at the outfall of the downstream eel passage bypass discharge in Reeds Brook just below the concrete skirt

downstream of the waste gates. The upstream ramp will terminate in a bucket that will be inspected daily for eels that will be emptied into Green Lake. Beginning with the second eel passage season at the Ellsworth and Graham Lake dam sites, the Applicant shall conduct a 2-year upstream eel siting study to determine proper siting of permanent upstream eel passage facilities. Consultation with USFWS is required in determining optimal locations for installing such facilities.

To ensure that the State's interest with respect to achieving safe, timely, and effective fish passage consistent with State water quality standards is represented and that the Applicant has the full benefit of the fisheries expertise of the State with respect to American eel in the Union River Basin, the Applicant must submit the following plans to the Department for review and approval concurrent with USFWS submittal in accordance with the Settlement Agreement:

- Final design plans for trashracks;
- Final design plans for downstream American eel passage facilities;
- A draft eel siting study plan; and
- Final design plans for upstream American eel passage facilities.

Additionally, the Applicant must submit the Fishway Effectiveness Monitoring Study to the Department for review and approval at least six months prior to installing upstream American eel passage facilities if Condition 13 of the Settlement Agreement with USFWS is triggered.

If during consultation with MDMR and MDIFW throughout implementation of the Settlement Agreement either agency provides written comments to the Applicant with recommendations determined to be necessary to provide safe, timely, and effective passage for American eel, within 60 days of receipt of these comments the Applicant must provide a written response to the Department for review. The response must identify any points of agreement and explain the basis for any areas of disagreement.

e. Discussion and findings – Other diadromous species

All of Maine's native diadromous species are found in the Union River Basin. Reeds Brook is designated as critical habitat for the federally endangered Atlantic salmon. Although anadromous species are not currently able to migrate upstream past the Ellsworth and Graham Lake dams, Green Lake and Reeds Brook are understood to be historic habitat for Atlantic salmon, alewife, blueback herring, American shad, American eel, and sea lamprey, based on the lack of natural barriers downstream of Green Lake.¹⁷

¹⁷ 2015 Union River Fisheries Management Plan.

The Ellsworth Project (FERC No. 2727) is currently operating on an annual license,¹⁸ and there is a possibility that additional fish passage may occur downstream of the Green Lake Project in the future.

Considering the potential license term of 40 years, the Department concludes that the Green Lake Project would not provide safe, timely, and effective fish passage if the Ellsworth and Graham Lake dams downstream establish passage for river herring, American shad, Atlantic salmon, or sea lamprey, and if such passage results in anadromous species returning naturally to Reeds Brook. Therefore, if passage for one or more of these species is established at the Ellsworth and Graham Lake dams, immediately following that establishment, the Applicant must begin monitoring for the presence of these species in Reeds Brook in consultation with MDMR, MDIFW, and the Department. Further, the Applicant must provide annual monitoring reports to MDMR, MDIFW, and the Department describing the presence and numbers of anadromous fish in Reeds Brook.

The Applicant must install fish passage measures at the Project within one year after the following conditions have occurred:

- River herring, American shad, Atlantic salmon, or sea lamprey have naturally reached Reeds Brook in non-trivial numbers, as determined by the Department, for consecutive years;
- MDMR and MDIFW have agreed in writing to the appropriate fish passage measures that will allow for passage of anadromous species while preventing the introduction of Aquatic Invasive Species to Green Lake and protecting native landlocked salmon and Arctic charr populations; and
- USFWS has agreed in writing that the recommended fish passage measures will not harm the operations of the GLNFH.

Any planning to improve fish passage at the Green Lake Dam must be coordinated with MDIFW to prevent the spread of Aquatic Invasive Species and protect native populations of landlocked salmon and Arctic charr in Green Lake. Aquatic Invasive Species represent a threat to conserving Maine's unique assemblage of coldwater fish and can displace native species, reduce biodiversity, disrupt food webs, and degrade native

¹⁸ The Department issued a decision on March 19, 2020, denying certification for the Ellsworth Project. That decision was upheld on appeal by the Board of Environmental Protection (Board) in its decision dated June 3, 2021. On July 6, 2021, Black Bear Hydro, LLC (Black Bear), the operator of the Ellsworth Project, filed a Rule 80C appeal of the Board's decision and on November 20, 2023, the Superior Court denied Black Bear's appeal and affirmed the entire Board Order. Black Bear filed an appeal to the Maine Supreme Judicial Court on December 6, 2023 and that appeal is currently pending. In the interim, the Ellsworth Project continues to operate on an annual FERC license.

habitat. Invasive aquatic threats will need to be controlled in conjunction with any new fish passage measures at Green Lake. Consultation with MDMR and MDIFW on the establishment of fish passage at the Green Lake Dam will allow for analysis or further research on impacts to native landlocked salmon and Arctic charr populations.

Fish passage facilities must be designed and implemented consistent with operations at USFWS's GLNFH. Operation of the GLNFH is essential to the continued survival and eventual recovery of endangered Atlantic salmon, and it is imperative that fish passage does not negatively impact the Hatchery.

Provided the Applicant complies with the requirements above and the conditions below, the Department concludes that fish passage at the Green Lake Dam will be safe, timely, and effective and sufficient to avoid detrimental changes in the resident biological community. The water flowing through and over the Green Lake Dam, which discharges into Reeds Brook, will support indigenous species and will not cause adverse impact to aquatic life.

C. Dissolved Oxygen (38 M.R.S. § 465(3)(B))

For this standard, the Applicant must demonstrate that the DO criteria for the Class B waters below Green Lake Dam, in Reeds Brook, are met. DO concentrations in these waters may not be less than 7 ppm or 75% of saturation, whichever is higher, except that from October 1st to May 14th annually, in order to ensure spawning and egg incubation of indigenous fish species, the 7-day mean DO concentration may not be less than 9.5 ppm and the one-day minimum DO concentration may not be less than 8 ppm in identified fish spawning areas.¹⁹

1) Existing Habitat and Resources

The Department finds that Green Lake has a surface area of 3,312 acres at normal full pond elevation of 160.7 feet. The Project is operated as a component of a water storage system for downstream energy generation. Brookfield owns and operates a water control dam at the outlet of Graham Lake, downstream of Green Lake, and a hydroelectric generating facility (FERC No. 2727) approximately four miles downstream of Graham Lake in the City of Ellsworth. In addition, water management of Green Lake is designed to maintain recreation values, allow water supply for the GLNFH, protect Arctic charr spawning habitat, and maintain sufficient flow in Reeds Brook. The Green Lake Dam gates are manually operated. Water is drawn from Green Lake by the GLNFH by means

¹⁹ The National Marine Fisheries Service (NMFS) reports that Green Lake is located within the Gulf of Maine distinct population segment and is critical habitat for the federally endangered Atlantic salmon.

of two submerged pipes (non-project) to supply the Hatchery. Up to 30 cfs may be used on a priority basis by the Hatchery.

2) Studies

The Applicant conducted a DO and Temperature Study in Reeds Brook downstream of the Project dam between July and October 2020 in accordance with the Department's Sampling Protocol for Hydropower Studies. Data were gathered downstream of the dam but upstream of the GLNFH filter backwash discharge; in the tailrace downstream of the powerhouse; in the confluence of the tailrace and the Reeds Brook bypass reach; and in the Reeds Brook bypass directly upstream of the confluence of the bypass and the tailrace. DO concentrations recorded during the study ranged from 7.59 mg/L to 9.14 mg/L and between 85.2% and 112% saturation.

3) Discussion and Findings

Analysis of the sampling results indicates that DO concentration met applicable Class B water quality standards in Reeds Brook both downstream of the Project dam and downstream of the powerhouse tailrace. Based on the results of DO and temperature monitoring, the Department concludes that the Applicant has provided sufficient information to demonstrate that the Project outlet stream meets applicable Class B DO numeric criteria.

D. Hydroelectric Power Generation (38 M.R.S. § 465(3)(A); § 465-A(1)(A))

For this standard, the Applicant must demonstrate that the Project waters are suitable for the designated use of hydroelectric power generation.

1) Existing Generation

The Department finds that the Project has a total authorized generating capacity of 500 kW and produces a gross average energy output of 1,657,759 kilowatt hours of electricity annually.

2) Energy Utilization

The Project is equipped with a 500-kilo volt-amps (kVA), 480 V/12.47 kW transformer and a 650-foot-long 12.47 kV transmission line.

3) Discussion and Findings

The Applicant proposes to continue generating power under the current operational mode during the term of a new Project license. The Applicant proposes no changes or additions to the existing turbine-generator units or other redevelopment activities. Based on the evidence on record, the Department determines that the Project operations meet the Class B and Class GPA designated use of hydroelectric power generation.

E. Drinking Water Supply (38 M.R.S. § 465(3)(A); § 465-A(1)(A))

Class GPA and Class B standards require that water be of sufficient quality to be used as drinking water after disinfection or treatment.

1) Discussion and Findings.

The Applicant did not submit information indicating that the Green Lake Project impoundment or Reeds Brook is used as a drinking water supply. However, water quality data collected for the trophic state study in the Project impoundment and DO data collected in Reeds Brook indicate that water quality meets State standards and there are no culturally induced algal blooms. Based on the evidence on record, the Department determines that the Project operations meet the Class B and Class GPA designated use of drinking water after disinfection or treatment.

F. Industrial Process and Cooling Water Supply (38 M.R.S. § 465(3)(A); § 465-A(1)(A))

Class GPA and Class B standards require that water be of sufficient quality to be used as industrial process and cooling water supply.

1) Discussion and Findings

The Applicant did not submit information indicating that there are any industrial process water uses in either the Green Lake Project impoundment or Reeds Brook downstream of the dam. However, water quality data indicates that the Green Lake impoundment and Reeds Brook downstream of the dam would be suitable as an industrial process water supply in addition to the Green Lake impoundment's present use as a cooling water supply. Based on the evidence on record, the Department determines that the Project operations meet the Class B and Class GPA designated use of industrial process and cooling water supply.

G. Antidegradation (38 M.R.S. § 464(4)(F))

For this standard, the Applicant must demonstrate that the Project waters maintain existing in-stream water uses occurring on or after November 28, 1975. The Department may approve a WQC pursuant to Section 401 of the CWA if the standards of classification of the water body and the State's antidegradation policy are met, or for a project affecting a water body in which the standards are not met if the Project does not cause or contribute to the failure of the water body to meet the standards of classification.

1) Discussion and Findings

The Department finds that the Project dam was built in the early 1900s by the Bangor Hydro-Electric Company for water storage purposes. It was originally a dry stone and timber structure. In the 1960s, a concrete gate structure was added, and sheet steel was added to the upstream face of the dam and on the deck to replace deteriorating hemlock planks. After acquiring the dam in 1984, the Applicant added a 17-foot intake structure to the southwest side of the dam. In the late 1980s, the section of the dam between the intake structure and the southwest shore was improved to include a concrete spillway and a flume to safely channel the spillway flow into Reeds Brook. While structures have been replaced and maintained over time, in-stream uses are generally the same on and after November 1975 and include hydropower generation, recreation in and on the water including fishing and navigation, and habitat for fish and other aquatic life. Based on the evidence on record, the Department determines that Project operations will meet the requirement of the antidegradation policy provided the Project is operated in accordance with the requirements and conditions of this WQC.

5. PUBLIC COMMENTS

On March 14, 2024, the Department issued a draft Order approving water quality certification (draft WQC) for the continued operation of the existing Green Lake Hydroelectric Project. The deadline for comments was 5:00 PM on April 12, 2024.

Comments on the draft WQC were received from the Applicant, MDIFW, MDMR, the National Oceanic and Atmospheric Administration (NOAA), the Town of Dedham, the Downeast Salmon Federation (DSF), Green Ellsworth, the Green Lake Association, and 139 members of the public, primarily littoral owners on Green Lake. Comments were reviewed and incorporated into the final Order, as appropriate. Comments pertinent to water quality standards are addressed below.

The Applicant requested that the fall drawdown requirements in the draft WQC be removed to enhance fall recreation opportunities and allow for better regulation of winter and spring water levels to reduce ice and flooding concerns for littoral property owners. Several public comments requested a similar alteration. The Applicant subsequently amended their WQC application, on which the fall drawdown requirements in the draft WQC were based. Following consultation with MDIFW, the comments and application amendments have been incorporated into the final Order, as appropriate.

The Applicant provided comments correcting language from application materials and clarifying the classification of Reeds Brook as a tributary of the Union River Basin. The Applicant requested that its response to MDMR's comments on the FLA be included in the record; however, its response was already included in the record.²⁰ MDMR's and the Applicant's comments have been incorporated into the final Order, as appropriate.

The Applicant commented that the USFWS Settlement Agreement should not be included in the final Order. The Department disagrees that inclusion of the Settlement Agreement in the final Order is not appropriate; however, the Settlement Agreement has been relocated to Appendix A. Conditions 3(A)-(E) of the final Order are consistent with the USFWS Settlement Agreement, requiring the Applicant to submit the same documents to the Department concurrently with submission to USFWS during the establishment of eel passage at the Green Lake Project. The responsibility for deciding whether the State's water quality standards are met, including as they pertain to fish passage, rests solely with the Department in its review of water quality certification applications. The Department, however, consults with and often relies on the expertise of resource agencies, such as MDMR and MDIFW, in evaluating the adequacy of fish passage. Conditions 3(A)-(E) requiring submittals to the Department during the establishment of eel passage at the Green Lake Project ensures that State interests in water quality and fish passage will be met.

The Applicant commented that Conditions 3(F)-(H) violate the Endangered Species Act, and that the draft WQC appeared to be "aimed at forcing the removal of the Green Lake dam." The Department disagrees. Conditions 3(F)-(H) are necessary because Reeds Brook is habitat for native diadromous fish species. The Department denied WQC for the Graham Lake and Ellsworth dams downstream of the Green Lake Dam,²¹ and following court proceedings, the Department expects fish passage to be proposed at these facilities, either by the installation of passage or by dam removal. The new license for the Green Lake Project will be for a period of 40 years, meaning the Project dam could

²⁰ Record materials are available on the State of Maine FTP site:
<https://www.maine.gov/dep/ftp/HYDRO/WaterQualityCertifications/green-lake/>

²¹ Department Order #L-13256-33-L-N issued March 19, 2020.

potentially be a barrier to fish passage for 40 years if fish passage or dam removal occurs at the Graham Lake and Ellsworth dams. Conditions 3(F)-(H) ensure that State agencies can evaluate the Green Lake Dam for fish passage during the license term. The Applicant requested in their comments that the Department forgo fish passage requirements until significant numbers of diadromous fish are present at the Green Lake Dam, and the Department has made this change by requiring that sea-run fish species must naturally reach Reeds Brooks in non-trivial numbers for consecutive years before fish passage is required. The Applicant's comments have been incorporated into the final Order, as appropriate.

Additionally, the Department notes that federal agencies reserved authority to prescribe fishways during the license term under Section 18 of the Federal Power Act.²² NOAA requested the addition of their Motion to Intervene and Reservation of Authority for the Green Lake Hydroelectric Project from May 22, 2023, into the administrative record for this WQC. The document has been analyzed and added to the record. NOAA anticipates a prescription for fishways may be needed in the future to adapt to changing conditions and requested that FERC include an appropriate reopener clause to exercise this authority in a new license. These comments have been incorporated into the final Order, as appropriate.

In response to MDIFW, Applicant, the Town of Dedham, Green Lake Association, and public comments on the concern that fish passage could introduce Aquatic Invasive Species into Green Lake, the Department has modified the language of Conditions 3(F)-(H). Specifically, MDIFW comments concerned native populations of landlocked salmon and Arctic charr and any negative impacts that could result from the introduction of diadromous fish species into Green Lake. These comments have been incorporated into the final Order, as appropriate.

MDMR requested that the Department amend the language of Condition 3(F) to clarify that fish passage at the Green Lake Project would be completed within six months of implementation of fish passage at the Ellsworth Project or dam removal, and that any fish passage facilities should be designed and implemented in consultation with USFWS to ensure consistency with operations at the GLNFH. MDMR's comments regarding the GLNFH have been incorporated into the final Order, and the timing of implementation of fish passage measures has been adjusted in the final Order.

DSF and Green Ellsworth provided comments in support of Conditions 3(A)-(H). DSF and Green Ellsworth asked the Department to consider imposing an accelerated timeline to establish fish passage, particularly for river herring and Atlantic salmon, which are

²² 16 U.S.C. § 811.

already transported upstream of Graham Lake dam into Reeds Brook. Immediate establishment of fish passage has not been recommended by fisheries agencies at the Green Lake Dam. Conditions 3(A)-(H) reflect the considerations of all entities that have commented on the Green Lake Project draft WQC, while ensuring State water quality standards are maintained. These comments have been incorporated into the final Order, as appropriate.

6. DEPARTMENT CONCLUSIONS

BASED on the above Findings of Fact and the evidence contained in the application and supporting documents, and subject to the conditions listed below, the Department CONCLUDES that the continued operation of the GREEN LAKE HYDROELECTRIC PROJECT, as described above, will result in all waters affected by the project being suitable for all designated uses and meeting all other applicable water quality standards:

A. The Applicant provided sufficient evidence and the Department finds and determines that Green Lake is free of culturally induced algal blooms. Based on the evidence provided by the Applicant and in accordance with Chapter 581, the Department concludes that the Green Lake impoundment has a stable or declining trophic state and under the proposed operations would meet that trophic standard. 38 M.R.S. § 465-A(1)(B).

B. The Applicant provided sufficient evidence and the Department finds and determines that, as discussed in Section 4(B)(1) and (2), the Project meets the classification standards for aquatic habitat in the Project impoundment and in the outlet stream below the Project dam. The Department concludes that water discharged from the impoundment meets the classification standards for Class B waters. 38 M.R.S. § 465-A(1)(A); 38 M.R.S. § 465(3)(A).

C. The Applicant provided sufficient evidence and the Department finds and determines that, as discussed in Section 4(B)(3) above and provided the Applicant complies with Conditions 3(A)-(H) below, Project operations related to fish passage will meet the narrative classification standards related to the designated use of habitat for fish and other aquatic life. 38 M.R.S. §§ 465(3)(A), (C).

D. The Applicant provided sufficient evidence and the Department finds and determines that the Green Lake impoundment and waters downstream of the Project dam meet the remaining narrative classification standards for Class GPA and Class B waters and are determined to be of such quality that these waters are suitable for the designated uses of drinking water after treatment; recreation in and on the water; fishing; agriculture;

industrial process and cooling water supply; hydroelectric power generation; and navigation. 38 M.R.S. § 465-A(1)(A); 38 M.R.S. § 465(3)(A).

E. The Applicant provided sufficient evidence that DO concentrations in Reeds Brook below Green Lake Dam meet the applicable Class B DO standard. The Department concludes that the DO concentrations in Reeds Brook meet applicable numeric Class B DO standards. 38 M.R.S. § 465(3)(B).

F. The Applicant provided sufficient evidence and the Department finds and determines that existing in-stream uses which have actually occurred on or after November 28, 1975, and the level of water quality necessary to protect those uses are maintained. The Department concludes that the Project meets the State's antidegradation policy. 38 M.R.S. § 464(4)(F)(3).

7. DECISION AND ORDER

THEREFORE, the Department APPROVES the water quality certification of GREEN LAKE WATER POWER COMPANY and CERTIFIES pursuant to Section 401(a) of the Clean Water Act, 33 U.S.C. § 1341(a), that there is reasonable assurance that the continued operation of the GREEN LAKE HYDROELECTRIC PROJECT, as described above, will not violate applicable Class GPA and Class B water quality requirements, SUBJECT TO THE FOLLOWING CONDITIONS:

1) WATER LEVELS

A. Except as temporarily modified by 1) approved maintenance activities, 2) extreme hydrological conditions,²³ 3) emergency electrical system conditions,²⁴ or 4) agreement between the Applicant, the Department, and appropriate State and/or federal agencies, impoundment water levels must be maintained in accordance with the FERC license. This requires the Applicant to maintain the elevation of Green Lake between 159.7 feet and 160.7 feet from June 1 through Labor Day weekend each year, and between 157.5 feet and 160.7 feet for the remainder of the year.

²³ For the purpose of this Certification, extreme hydrological conditions means the occurrence of events beyond the Applicant's control such as, but not limited to, abnormal precipitation, extreme runoff, flood conditions, ice conditions, drought, or other hydrological conditions such that operational restrictions and requirements contained herein are impossible to achieve or are inconsistent with the safe operation of the Project.

²⁴ For the purpose of this Certification, emergency electrical system conditions means operating emergencies beyond the Applicant's control that require changes in flow regimes to eliminate such emergencies, which may in some circumstances include, but are not limited to, equipment failure or other temporary abnormal operating conditions, generating unit operations or third-party mandated interruptions under power supply emergencies, and orders from local, state, or federal law enforcement or public safety authorities.

- B. These conditions regarding water levels are necessary to ensure that the discharge from the Project will comply with water quality requirements, including those found at 38 M.R.S. § 465(3)(A) and as discussed above at Section 4(A) and (C). The water levels of the impoundment, which are determined by the discharge, affect, among other things, the water quality requirements of the designated uses of fishing; recreation in and on the water; navigation; and habitat for fish and other aquatic life.

2) MINIMUM FLOWS

- A. The Applicant must provide flow releases from the Green Lake Hydroelectric Project in accordance with the Applicant's proposal in the FLA. Except as temporarily modified by 1) approved maintenance activities, 2) extreme hydrological conditions (see footnote 21), 3) emergency electrical system conditions (see footnote 22), or 4) agreement between the Applicant, the Department, and appropriate State and/or federal agencies, the Applicant must provide a year-round minimum flow to Reeds Brook of one cubic foot per second (cfs), or inflow to Green Lake, whichever is less, for the protection and enhancement of fish and wildlife resources downstream of the dam. In addition, the current license requires the Applicant to provide flows of up to 30 cfs to the Green Lake National Fish Hatchery (GLNFH).
- B. These conditions regarding minimum flows are necessary to ensure that the discharge from the Project will comply with water quality requirements, including 38 M.R.S. § 465(3)(A) as discussed above at Section 4(A) and (C). The flow of the discharge from the Project affects, among other things, whether the receiving waters are of sufficient quality to support the designated uses of fishing; recreation in and on the water; navigation; and habitat for fish and other aquatic life.

3) FISH PASSAGE

- A. The Applicant must submit the final design plans for trashracks to the Department for review and approval.
- B. The Applicant must submit the final design plans for downstream American eel passage facilities to the Department for review and approval.
- C. The Applicant must submit a draft eel siting study plan at least four months prior to the start of the study to the Department for review and approval.

- D. The Applicant must submit the final design plans for upstream American eel passage facilities to the Department for review and approval.
- E. The Applicant must submit the Fishway Effectiveness Monitoring Study to the Department for review and approval at least six months prior to installing upstream American eel passage facilities if Condition 13 of the Settlement Agreement with USFWS (*see* Appendix A) is triggered.
- F. If fish passage is established at the Ellsworth and Graham Lake dams, the Applicant must begin monitoring for the presence of anadromous species in Reeds Brook in consultation with MDMR, MDIFW and the Department. The Applicant must provide annual monitoring reports to the Department, MDMR and MDIFW describing the presence and numbers of anadromous fish in Reeds Brook. Fish passage measures must be installed at the Project within one year after the following conditions have occurred:
 - i. River herring, American shad, Atlantic salmon, or sea lamprey have naturally reached Reeds Brook in non-trivial numbers, as determined by the Department, for consecutive years;
 - ii. MDMR and MDIFW have agreed in writing to the appropriate fish passage measures that will allow for passage of anadromous species while preventing the introduction of Aquatic Invasive Species to Green Lake and protecting native landlocked salmon and Arctic charr populations; and
 - iii. USFWS has agreed in writing that the recommended fish passage measures will not harm the operations of the GLNFH.
- G. As described more fully above in Section 4(B)(3)(d), and as required by Condition 3(A-F), this Certification requires the Applicant to consult with MDMR and MDIFW in several instances. During each required consultation, if MDMR or MDIFW provides written comments to the Applicant, then the Applicant must provide a written response to the Department for review within 60 days of receipt of the comments. The Applicant's response must identify any points of agreement and explain the basis for any areas of disagreement.
- H. These conditions regarding fish passage measures are necessary to ensure that the discharge from the Project will comply with water quality requirements, including 38 M.R.S. § 465(3)(A) as discussed above at Sections 4(B)-(D). The nature of the Project's discharge affects, among other things, whether the receiving waters are of sufficient quality to support the designated uses of fishing and habitat for fish and other aquatic life, including use of all Project waters.

4) WATER QUALITY

Upon any future determination by the Department that operation of the Green Lake Project, as approved by this Certification and as conditioned by FERC for the Project, may be causing or contributing to a decline in water quality or nonattainment of water quality standards, the Department reserves the right to, in its discretion and upon notice to the Applicant and opportunity for hearing in accordance with its regulations, reopen this Certification to consider requiring modifications to the Certification or additional conditions as may be deemed necessary by the Department to ensure that the Project does not cause or contribute to any decline in water quality or nonattainment of water quality standards.

5) STANDARD CONDITIONS

The Applicant must comply with all Standard Conditions attached to the Certification, with such compliance to be determined by the Department.

6) LIMITS OF APPROVAL

This approval is limited to and includes the proposals and plans contained in the application and supporting documents submitted and affirmed to the Department by the Applicant. Any variations from the plans and proposals contained in said documents are subject to the review and approval of the Department prior to implementation.

7) COMPLIANCE WITH ALL APPLICABLE LAWS

The Applicant must secure and appropriately comply with all applicable federal, State, and local licenses, permits, authorizations, conditions, agreements, and Orders required for the operation of the Project, in accordance with the terms and conditions of the Certification, as determined by the Department.

8) EFFECTIVE DATE

This Certification will be effective concurrent with the effective date of any new license issued by FERC for the Project.

9) SEVERABILITY

In the event any provision, or part thereof, of this Certification is declared to be unlawful by a reviewing court, the remainder of the Certification will remain in full force and

effect and will be construed and enforced in all respects as if such unlawful provision, or part thereof, had been omitted, unless otherwise ordered by the court.

DONE AND DATED AT AUGUSTA, MAINE, THIS 9th DAY OF MAY, 2024.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: 
For: Melanie Loyzim, Commissioner

PLEASE NOTE THE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES.

LP/L02002433DN /ATS91077

FILED
May 9th, 2024
State of Maine
Board of Environmental Protection

STANDARD CONDITIONS

1. Noncompliance. Should the project be found, at any time, not to be in compliance with any of the conditions of this approval, or should the permittee construct or operate this project in any way other than specified in the application or supporting documents, as modified by the conditions of this approval, then the terms of this approval will be considered to have been violated.
2. Inspection and Compliance. Authorized representatives of the Commissioner or the Attorney General must be granted access to the premises of the permittee at any reasonable time for the purpose of inspecting the operation of the project and assuring compliance with the conditions of this approval.
3. Assignment or Transfer of Approval. This approval will expire upon the assignment or transfer of the property covered by this approval unless written consent to transfer this approval is obtained from the Commissioner. To obtain approval of transfer, the permittee must notify the Commissioner 30 days prior to assignment or transfer of property which is subject to this approval. Pending Commissioner determination on the application for a transfer or assignment of ownership of this approval, the person(s) to whom such property is assigned or transferred must abide by all of the terms and conditions of this approval. To obtain the or Commissioner's approval of transfer, the proposed assignee or transferee must demonstrate the financial capacity and technical ability to (1) comply with all terms and conditions of this approval and (2) satisfy all other applicable statutory criteria.

A "transfer" is defined as the sale or lease of property which is the subject of this approval or the sale of 50 percent or more of the stock of or interest in a corporation or a change in a general partner of a partnership which owns the property subject to this approval.

Appendix A

Settlement Agreement for Modified Prescription for Fishways, GLWP and USFWS

Terms of the Modified Prescription for Fishways²⁵:

“2.0 MODIFIED PRESCRIPTION FOR FISHWAYS

The Department agrees to file a Modified Prescription as set forth in Section 1.9 above reflecting the following terms:

CONDITION 1: REVISION OF SECTION 18 FISHWAY PRESCRIPTION

The Secretary of the Department reserves the right, after notice and opportunity for comment, to require changes in the Project and its operation through revision of this Section 18 Fishway Prescription to protect and enhance fish passage at the Project. The Secretary also reserves the right to modify these conditions, if necessary, to respond to any significant changes that warrant a revision of this Prescription.

CONDITION 2: OPERATING PERIODS

Regarding the timing of seasonal eelway operations, eelways shall be maintained and operated throughout the fish passage season for American eel. The migratory season for eel has been studied for the major rivers of the Northeast (ASMFC, 2018, p. 9; Shepard, 2015; Eyler, Walsh, Smith, & Rockey, 2016). The season depends on geographic location, water temperature, river flow, and other habitat cues. Based on data from watersheds in these documents, approved eel passage protective measures shall be operational during the migration windows identified in Table 1. These dates may change after consultation between USFWS and Licensee based on new information, including siting or effectiveness studies, improved access at the lower dams, evaluation of new literature or collected data, and documented agency consultation.

Table 1. Summary of periods for which eel passage will be provided.

Species	Upstream Passage Season	Downstream Passage Season
American eel	June 1 – October 31	August 1 – October 31

CONDITION 3: AGENCY ACCESS AND INSPECTION

The Licensee shall provide USFWS personnel and other USFWS-designated representatives timely access to the eel passage facilities at the Project and to information on eel passage operations, and Project operations that may affect eel passage, upon written request from the USFWS. Such information shall be provided within 10 calendar days of the request, or upon a reasonable mutually agreed upon schedule.

²⁵ “Department” in the Settlement Agreement refers to the United States Department of the Interior. The USFWS is an agency within the United States Department of the Interior.

CONDITION 4: MAINTENANCE AND REPAIR OF FISHWAY

The Licensee shall operate and maintain the eelway in accordance with the Fishway Operation and Maintenance Plan (see Condition 5) to ensure the eelway will operate effectively during the migratory periods.

CONDITION 5: FISHWAY OPERATION AND MAINTENANCE PLAN

Within 2 years following the effective date of the license, the Licensee shall develop a Fishway Operation and Maintenance Plan (FOMP), in consultation with the USFWS and the Maine Departments of Marine Resources and Inland Fisheries and Wildlife, and approved by the USFWS, to document regular maintenance activities and emergency procedures. The Licensee shall keep the FOMP updated on an annual basis to reflect any changes in eelway operation and maintenance planned for the year. The FOMP shall include general schedules and procedures for:

- Eelway operation and maintenance, including the method and calculations for provision of any required flows;
- Inspection and monitoring of the eelway facilities, including regular observation of facilities and periodic trashrack inspections; and,
- Emergency and exception procedures.

If the USFWS requests a modification of the FOMP, after consultation between USFWS and the Licensee, the Licensee shall amend the FOMP within 30 days and send a copy of the revised FOMP to the USFWS, the Maine Department of Marine Resources, the Maine Department of Inland Fisheries and Wildlife, and the Commission.

If the Licensee desires modification of the FOMP, after consultation between USFWS and the Licensee, such modifications shall require the approval of the USFWS, in consultation with the Maine Departments of Marine Resources and Inland Fisheries and Wildlife, prior to implementation and prior to submitting the revised FOMP to the Commission for its approval.

Licensee shall contact the Hatchery Manager for all requests for approval contained in the prescription. Current contact information for USFWS and Licensee will be maintained in the FOMP.

CONDITION 6: FISHWAY OPERATION AND MAINTENANCE REPORT

The Licensee shall prepare a Fishway Operation and Maintenance Report (FOMR) and submit it to the USFWS and the Maine Departments of Marine Resources and Inland Fisheries and Wildlife by January 31 each year following the completion of eelway construction. The FOMR will cover the prior calendar year. The FOMR shall be in letter report format and will include a summary of the current state of the eelways (structures, flows, etc.), a yearly eelway operation and maintenance report (deviations, issues, timing of installation, etc.), and summary data on the flows (e.g., high and low flow events, periods of turbine operation, etc.) at the Project throughout upstream and downstream eelway operation periods.

Downstream Eel Passage

CONDITION 7: DESIGN PLANS

The Licensee shall develop and submit the draft and near-final design plans to the USFWS for review and approval and submit said plans to the Maine Departments of Marine Resources and Inland Fisheries and Wildlife for their comment, in accordance with Table 2 (Implementation Schedule). The Licensee may submit draft designs for USFWS review and approval at multiple stages if Licensee desires additional review.

The design of the eel passage structures shall strive to meet the minimum recommendations as outlined in USFWS 2019 as they apply to the site. Any deviation from the Service's current eel passage requirement must be approved during the design phase in consultation with the Service, including a fish passage engineer. Review of any design stage will be provided within 30 days, or some alternative schedule agreed to by the Licensee and the Service. Upon approval of a design by the Service that strives to meet the recommendations in USFWS 2019, a fish passage effectiveness study will not be required pursuant to Conditions 13 and 14 as they relate to downstream passage.

The Licensee shall submit final design plans, approved by the USFWS, to the Commission for its approval prior to the commencement of eelway construction activities. Once the eelway is installed, final as-built drawings that accurately reflect the eelway as constructed and the modified parts of the Project as a whole shall be filed with the USFWS and the Commission in an electronic form and per Commission specifications for such drawings.

CONDITION 8: DOWNSTREAM FISH EXCLUSION

Prior to the third downstream eel passage season following the effective date of the license (as in Table 2), the Licensee shall install trash racks per the USFWS-approved eel passage design to avoid eel entrainment in the penstock OR, subject to USFWS approval, the Licensee may have the option to test some other configuration and modify it as needed, as outlined in Condition 13 and Condition 14.

CONDITION 9: TRASHRACK INSPECTION

The Licensee shall regularly inspect the trash racks as specified in the FOMP.

CONDITION 10: DOWNSTREAM ROUTE OF PASSAGE

The Licensee will install a downstream eel passage bypass per the USFWS-approved eel passage design.

If the downstream conveyance flow is provided via a siphon, it can also be utilized to provide flow for upstream eel passage in Condition 12. Alternatively, if it is impractical to have the downstream passage in place and operational for the complete upstream passage season, a small, separate siphon could be used to implement the upstream passage flow.

For the downstream passage bypass to be effective and practical, it must be designed and implemented such that it can be cleaned of debris without removing and repositioning the trash racks. It must also be practical to remove eel passage structures when necessary to avoid damage from ice and extremely high flow situations.

Upstream Eel Passage

CONDITION 11: AMERICAN EEL SITING STUDY

Beginning the second eel passage season following establishment of American eel passage at the Ellsworth and Graham Lake dam sites, the Licensee shall conduct a 2-year upstream eel siting study, in order to determine proper siting of permanent upstream eel passage facilities. Based on results of that study, the Licensee shall, in consultation with the USFWS, determine optimal locations for installing such facilities.

The study shall be developed and performed in consultation with the USFWS. The Licensee shall provide USFWS with a draft eel siting study plan for review and approval at least 4 months prior to the start of the study in accordance with the scheduling provisions in the implementation schedule provided herein. If the USFWS requests a modification of the draft eel siting study plan within 30 days, the Licensee shall amend the plan within 30 days of the request and send a copy of the revised plan to the USFWS and the Commission for review and approval. Any modifications to the plan by the Licensee will require approval by the USFWS prior to implementation. If changes to the study require a substantial increase of study effort by the Licensee, Licensee may request an extension of the deadline in Table 2, which will not be unreasonably withheld. The Licensee shall include yearly interim study reports to the USFWS via the FOMR (Condition 6) following the conclusion of each study year. The results of the study shall be provided to the USFWS and the Maine Departments of Marine Resources and Inland Fisheries and Wildlife in the annual FOMR.

CONDITION 12: UPSTREAM AMERICAN EEL PASSAGE

Unless indicated otherwise, via the Upstream American Eel Siting Study, the Licensee will install an eel ramp located at the outfall of the downstream eel passage bypass discharge in Reeds Brook just below the concrete skirt downstream of the waste gates. The upstream ramp will terminate in a bucket that will be inspected daily by the Project operator. On any days the bucket contains eels, it will be emptied into Green Lake. This design assumes that leakage flow from holes in the cladding at the dam is addressed as well as leakage from the penstock near the powerhouse that is significant in comparison to the flow in Reeds Brook, to eliminate significant false attraction flows.

Upstream and Downstream Eel Passage Testing

CONDITION 13: FISH PASSAGE EFFECTIVENESS STUDY

Upon approval of a design by the Service that strives to meet the recommendations in USFWS 2019, Condition 13 will not apply to downstream passage. If Licensee decides not to

implement a Service approved downstream passage measure, per Condition 7 above, Licensee shall conduct effectiveness testing of the alternative configuration for downstream eel passage design if required as a condition of USFWS approval of the design.

Effectiveness testing of both upstream and downstream American eel passage is critical to evaluating the passage success, diagnosing problems, determining when eel passage modifications are needed, and what modifications are most likely to be effective. It is essential to ensuring the effectiveness of eelways over the term of the license, particularly in cases where the changing size of eel populations may also change eel passage efficiency or limit effectiveness.

The Licensee shall develop a 2-year Fishway Effectiveness Monitoring Plan (FEMP) in consultation with the USFWS and Maine Departments of Marine Resources and Inland Fisheries and Wildlife and requiring approval by the USFWS. The Licensee shall provide the USFWS with a draft FEMP for review and approval 4 months prior to the implementation dates for installing upstream eel passage measures in accordance with the scheduling provisions in Table 2 (Implementation Schedule). The FEMP will contain plans for ensuring (1) the effectiveness of the upstream eel and downstream eel passage measures required pursuant to Condition 8; and (2) that the minimum bypass flow of 1 cubic feet per second provides safe, timely, and effective downstream passage to migrating eels (i.e., does not strand eels). If the USFWS requests a modification of the FEMP, the Licensee shall amend the FEMP within 30 days of the request and send a copy of the revised FEMP to the USFWS. Any modifications to the FEMP by the Licensee will require approval by the USFWS prior to implementation. The Licensee shall include yearly interim study reports to the USFWS via the FOMR (Condition 6) following the conclusion of each study year.

The Licensee shall begin implementing the FEMP at the start of the first eel passage season after each eelway becomes operational and shall conduct quantitative eel passage effectiveness testing and evaluation for a minimum of 2 years. The results of the study shall be provided to the USFWS and the Maine Departments of Marine Resources and Inland Fisheries and Wildlife in the annual FOMR (Condition 6) and shall include methods, data analysis, results, an assessment of any factors or potential problems hindering passage effectiveness, and provide recommended modifications to achieve safe, timely, and effective passage. The Licensee shall also provide electronic copies of all data collected from studies to the USFWS.

CONDITION 14: MODIFICATIONS

Per Condition 7 above, upon approval of a design by the Service that strives to meet the recommendations in USFWS 2019, Condition 14 will not apply to downstream passage. However, per Condition 8, if the Licensee decides to implement some other configuration, the Licensee shall modify the downstream passage facilities to improve effectiveness if deemed necessary by the USFWS in response to a fish passage effectiveness study per Condition 13. Such modifications may include, but are not limited to, the attraction and conveyance flow velocities and volumes, the structures directing conveyance flows, the position of the trashracks and any necessary repairs, and plunge pool design.

CONDITION 15: EXCEPTIONS

The Licensee may curtail or suspend eel passage and exclusion measures upon mutual agreement between the Licensee and USFWS. In the event of any operating emergency beyond the control of the Licensee, the Licensee may curtail or suspend eel exclusion and/or passage measures for the time period necessary to rectify such an emergency. The Licensee shall notify the USFWS, and the Maine Departments of Marine Resources and Inland Fisheries and Wildlife as soon as practical with as much detail as possible, or as much detail as is known by the Licensee, no later than 5 business days after any such operating emergency.

CONDITION 16: APPROVAL OF EXTENSIONS

The Licensee shall obtain written approval from the USFWS for any extensions of time to comply with the provisions included in the USFWS's Prescription. Such approval will not be unreasonably withheld. Review of an extension request will be provided within 30 days, or some alternative schedule agreed to by the Licensee and the Service. Such requests should be submitted no later than 90 days prior to the applicable deadline.

CONDITION 17: MITIGATION MEASURES

In the event of a request for extension of time pursuant to Condition 16, the Licensee shall implement interim eel passage mitigation measures that are supported by substantial evidence during the period of extension as may be required by USFWS. These measures may include, but are not limited to, curtailment or cessation of generation, additional monitoring or studies, or interim eel passage measures, as necessary. Any extensions of time or exceptions not approved by the USFWS, or lapsed out without required interim measures for mitigation, should be considered license violations by the Commission, in accordance with Section 31 of the FPA, for compliance, enforcement, and assessment of civil penalties.

IMPLEMENTATION SCHEDULE

The Licensee shall design and install the eelway structures and implement any other measures in compliance with the schedule in Table 2, below. Requests to deviate from the implementation schedule and deadlines outlined below should be provided to USFWS for review and approval. Review of an extension request will be provided within 30 days, or some alternative schedule agreed to by the Licensee and the Service. Such requests should be submitted no later than 90 days prior to the applicable deadline.

Table 2. Implementation schedule of eel passage structures and measures

<u>Structure/Measure</u>	<u>Action</u>	<u>Implementation Deadline</u>
Trash Racks	Design	At least 6 months prior to Installation
	Installation	Prior to the third downstream eel passage season following the effective date of the license

Downstream Eel Passage Facilities	Design	Draft and near-final design plans should be submitted to USFWS for approval
	Installation and operation	Prior to the third downstream eel passage season following the effective date of the license
American Eel Siting Study	Submit plan to USFWS for review and approval	At least 6 months prior to the start of the study and no earlier than the installation and approval of the downstream passage by USFWS, whichever is later.
	Implementation of study	Beginning the second eel passage season following establishment of eel passage at the Ellsworth and Graham Lake dam sites and no earlier than the installation and approval of the downstream passage by USFWS, whichever is later.
Upstream Eel Passage Facilities	Design	Draft and near-final design plans should be submitted to USFWS for approval
	Installation and operation	Within 2 years following the completion of the American eel siting study
Fishway Effectiveness Monitoring Study (only if Condition 13 is triggered)	Submit plan to USFWS for review and approval	At least 6 months prior to installing upstream eel passage measures
	Implementation of study	Beginning the first eel passage season after an eelway is operational following the effective date of the license
Fishway Operation and Maintenance Plan	File with Commission	Within 2 years following the effective date of the license
Fishway Operation and Maintenance Report	File with Commission	By January 31 each year following the operation of one or both eelways”



DEP INFORMATION SHEET

Appealing a Department Licensing Decision

Dated: August 2021

Contact: (207) 314-1458

SUMMARY

This document provides information regarding a person's rights and obligations in filing an administrative or judicial appeal of a licensing decision made by the Department of Environmental Protection's (DEP) Commissioner.

Except as provided below, there are two methods available to an aggrieved person seeking to appeal a licensing decision made by the DEP Commissioner: (1) an administrative process before the Board of Environmental Protection (Board); or (2) a judicial process before Maine's Superior Court. An aggrieved person seeking review of a licensing decision over which the Board had original jurisdiction may seek judicial review in Maine's Superior Court.

A judicial appeal of final action by the Commissioner or the Board regarding an application for an expedited wind energy development ([35-A M.R.S. § 3451\(4\)](#)) or a general permit for an offshore wind energy demonstration project ([38 M.R.S. § 480-HH\(1\)](#)) or a general permit for a tidal energy demonstration project ([38 M.R.S. § 636-A](#)) must be taken to the Supreme Judicial Court sitting as the Law Court.

I. ADMINISTRATIVE APPEALS TO THE BOARD

LEGAL REFERENCES

A person filing an appeal with the Board should review Organization and Powers, [38 M.R.S. §§ 341-D\(4\)](#) and [346](#); the Maine Administrative Procedure Act, 5 M.R.S. § [11001](#); and the DEP's [Rule Concerning the Processing of Applications and Other Administrative Matters \(Chapter 2\)](#), 06-096 C.M.R. ch. 2.

DEADLINE TO SUBMIT AN APPEAL TO THE BOARD

Not more than 30 days following the filing of a license decision by the Commissioner with the Board, an aggrieved person may appeal to the Board for review of the Commissioner's decision. The filing of an appeal with the Board, in care of the Board Clerk, is complete when the Board receives the submission by the close of business on the due date (5:00 p.m. on the 30th calendar day from which the Commissioner's decision was filed with the Board, as determined by the received time stamp on the document or electronic mail). Appeals filed after 5:00 p.m. on the 30th calendar day from which the Commissioner's decision was filed with the Board will be dismissed as untimely, absent a showing of good cause.

HOW TO SUBMIT AN APPEAL TO THE BOARD

An appeal to the Board may be submitted via postal mail or electronic mail and must contain all signatures and required appeal contents. An electronic filing must contain the scanned original signature of the appellant(s). The appeal documents must be sent to the following address.

Chair, Board of Environmental Protection
c/o Board Clerk
17 State House Station
Augusta, ME 04333-0017
ruth.a.burke@maine.gov

The DEP may also request the submittal of the original signed paper appeal documents when the appeal is filed electronically. The risk of material not being received in a timely manner is on the sender, regardless of the method used.

At the time an appeal is filed with the Board, the appellant must send a copy of the appeal to: (1) the Commissioner of the DEP (Maine Department of Environmental Protection, 17 State House Station, Augusta, Maine 04333-0017); (2) the licensee; and if a hearing was held on the application, (3) any intervenors in that hearing proceeding. **Please contact the DEP at 207-287-7688 with questions or for contact information regarding a specific licensing decision.**

REQUIRED APPEAL CONTENTS

A complete appeal must contain the following information at the time the appeal is submitted.

1. *Aggrieved status.* The appeal must explain how the appellant has standing to bring the appeal. This requires an explanation of how the appellant may suffer a particularized injury as a result of the Commissioner's decision.
2. *The findings, conclusions, or conditions objected to or believed to be in error.* The appeal must identify the specific findings of fact, conclusions of law, license conditions, or other aspects of the written license decision or of the license review process that the appellant objects to or believes to be in error.
3. *The basis of the objections or challenge.* For the objections identified in Item #2, the appeal must state why the appellant believes that the license decision is incorrect and should be modified or reversed. If possible, the appeal should cite specific evidence in the record or specific licensing criteria that the appellant believes were not properly considered or fully addressed.
4. *The remedy sought.* This can range from reversal of the Commissioner's decision on the license to changes in specific license conditions.
5. *All the matters to be contested.* The Board will limit its consideration to those matters specifically raised in the written notice of appeal.
6. *Request for hearing.* If the appellant wishes the Board to hold a public hearing on the appeal, a request for hearing must be filed as part of the notice of appeal, and it must include an offer of proof regarding the testimony and other evidence that would be presented at the hearing. The offer of proof must consist of a statement of the substance of the evidence, its relevance to the issues on appeal, and whether any witnesses would testify. The Board will hear the arguments in favor of and in opposition to a hearing on the appeal and the presentations on the merits of an appeal at a regularly scheduled meeting. If the Board decides to hold a public hearing on an appeal, that hearing will then be scheduled for a later date.
7. *New or additional evidence to be offered.* If an appellant wants to provide evidence not previously provided to DEP staff during the DEP's review of the application, the request and the proposed supplemental evidence must be submitted with the appeal. The Board may allow new or additional evidence to be considered in an appeal only under limited circumstances. The proposed supplemental evidence must be relevant and material, and (a) the person seeking to add information to the record must show due diligence in bringing the evidence to the DEP's attention at the earliest possible time in the licensing process; or (b) the evidence itself must be newly discovered and therefore unable to have been presented earlier in the process. Requirements for supplemental evidence are set forth in [Chapter 2 § 24](#).

OTHER CONSIDERATIONS IN APPEALING A DECISION TO THE BOARD

1. *Be familiar with all relevant material in the DEP record.* A license application file is public information, subject to any applicable statutory exceptions, and is made accessible by the DEP. Upon request, the DEP will make application materials available to review and photocopy during normal working hours. There may be a charge for copies or copying services.

2. *Be familiar with the regulations and laws under which the application was processed, and the procedural rules governing the appeal.* DEP staff will provide this information upon request and answer general questions regarding the appeal process.
3. *The filing of an appeal does not operate as a stay to any decision.* If a license has been granted and it has been appealed, the license normally remains in effect pending the processing of the appeal. Unless a stay of the decision is requested and granted, a licensee may proceed with a project pending the outcome of an appeal, but the licensee runs the risk of the decision being reversed or modified as a result of the appeal.

WHAT TO EXPECT ONCE YOU FILE A TIMELY APPEAL WITH THE BOARD

The Board will acknowledge receipt of an appeal, and it will provide the name of the DEP project manager assigned to the specific appeal. The notice of appeal, any materials admitted by the Board as supplementary evidence, any materials admitted in response to the appeal, relevant excerpts from the DEP's administrative record for the application, and the DEP staff's recommendation, in the form of a proposed Board Order, will be provided to Board members. The appellant, the licensee, and parties of record are notified in advance of the date set for the Board's consideration of an appeal or request for a hearing. The appellant and the licensee will have an opportunity to address the Board at the Board meeting. The Board will decide whether to hold a hearing on appeal when one is requested before deciding the merits of the appeal. The Board's decision on appeal may be to affirm all or part, affirm with conditions, order a hearing to be held as expeditiously as possible, reverse all or part of the decision of the Commissioner, or remand the matter to the Commissioner for further proceedings. The Board will notify the appellant, the licensee, and parties of record of its decision on appeal.

II. JUDICIAL APPEALS

Maine law generally allows aggrieved persons to appeal final Commissioner or Board licensing decisions to Maine's Superior Court (see [38 M.R.S. § 346\(1\)](#); 06-096 C.M.R. ch. 2; [5 M.R.S. § 11001](#); and M.R. Civ. P. 80C). A party's appeal must be filed with the Superior Court within 30 days of receipt of notice of the Board's or the Commissioner's decision. For any other person, an appeal must be filed within 40 days of the date the decision was rendered. An appeal to court of a license decision regarding an expedited wind energy development, a general permit for an offshore wind energy demonstration project, or a general permit for a tidal energy demonstration project may only be taken directly to the Maine Supreme Judicial Court. See 38 M.R.S. § 346(4).

Maine's Administrative Procedure Act, DEP statutes governing a particular matter, and the Maine Rules of Civil Procedure must be consulted for the substantive and procedural details applicable to judicial appeals.

ADDITIONAL INFORMATION

If you have questions or need additional information on the appeal process, for administrative appeals contact the Board Clerk at 207-287-2811 or the Board Executive Analyst at 207-314-1458 bill.hinkel@maine.gov, or for judicial appeals contact the court clerk's office in which the appeal will be filed.

Note: This information sheet, in conjunction with a review of the statutory and regulatory provisions referred to herein, is provided to help a person to understand their rights and obligations in filing an administrative or judicial appeal. The DEP provides this information sheet for general guidance only; it is not intended for use as a legal reference. Maine law governs an appellant's rights.
