REVIEW OF APPLICATION FOR CERTIFICATION BY THE LOW IMPACT HYDROPOWER INSTITUTE OF THE GLENS FALLS PROJECT

Prepared by Stephen Byrne
October 5, 2020

I. INTRODUCTION

This report summarizes the review findings of the application submitted by FH OPCP (Applicant or licensee) a subsidiary of Brookfield Renewable Energy Group to the Low Impact Hydropower Institute (LIHI) for certification of the Glens Falls Hydroelectric Project FERC (P-2385). Glens Falls Hydroelectric Project (Project) is a 12.7 MW run-of-river facility located on the Hudson River in Glens Falls, New York. On July 30, 2020 LIHI received a complete application package for certification of the Project. This current review was made using the new 2nd Edition LIHI Certification Handbook (Revision 2.04, April 1, 2020).

II. PROJECT'S GEOGRAPHIC LOCATION

The Project is located at river mile 202 on the Hudson River in Warren and Saratoga Counties, New York. The Glens Falls Dam is the 10th dam on the river upstream of the mouth. The Green Island Dam is the most downstream dam on the Hudson River, located at river mile 149 and marks the upstream extent of the Hudson River estuary. The South Glens Falls Project (FERC No. 5461) is adjacent to the Project and constructed on the south end of the dam. Several dams are located both upstream and downstream of the Project including numerous dams on the Hudson River mainstem (Figure 1). Glens Falls is the most downstream dam in a series of dams owned by Brookfield on the river. Brookfield does not own or operate the South Glens Falls Project.

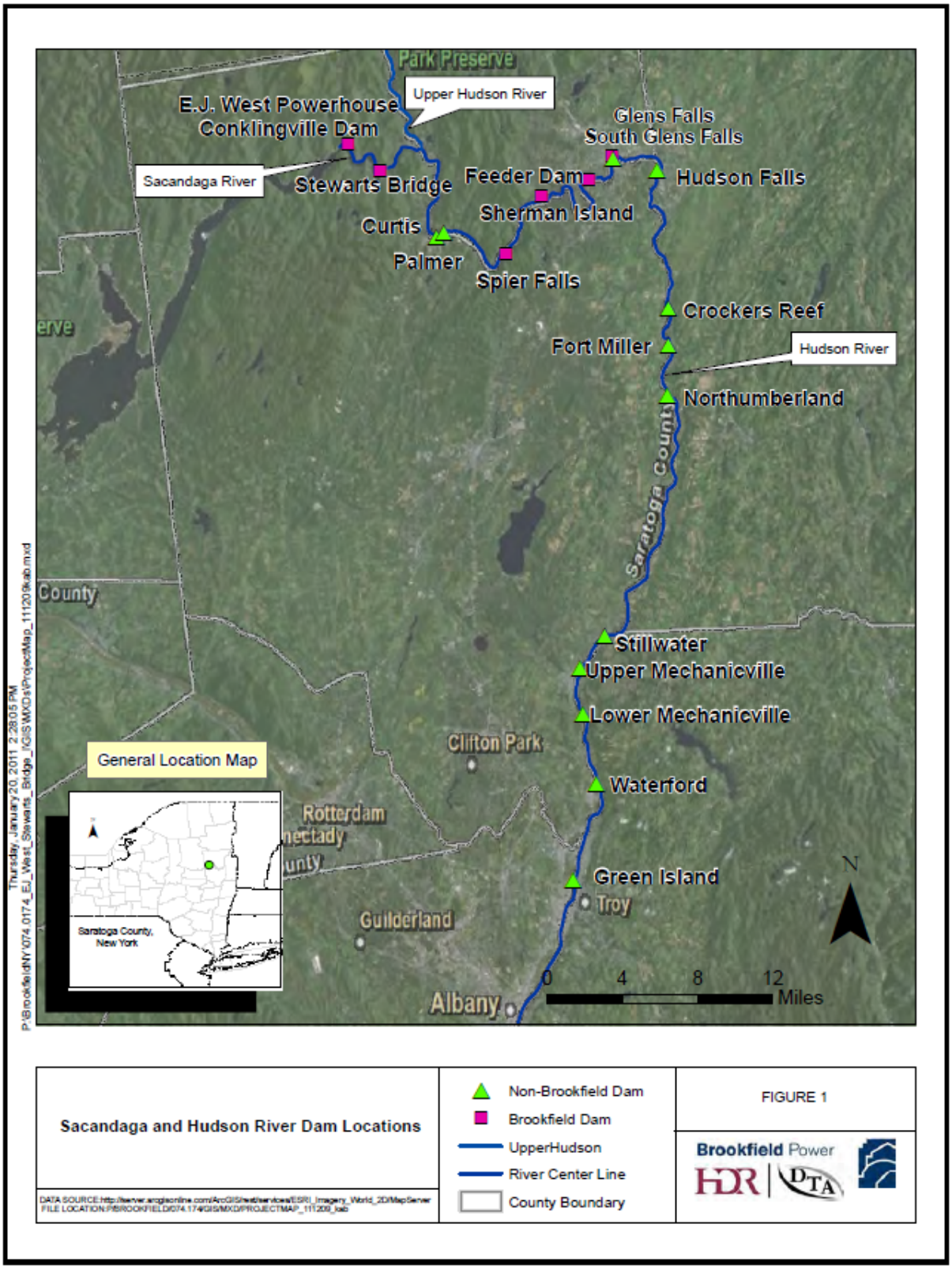

Figure 1 – Glens Falls Project Location

III. PROJECT AND IMMEDIATE SITE CHARACTERISTICS

The Glens Falls Project was originally constructed in 1906. Project works include a portion of seven, 7.5-foot tall by 57-foot long hydraulically operated steel crest gates anchored on a 5-foot high concrete base. The dam impounds a reservoir of 167 acres with a useable storage volume of 560 acre-feet. The watershed area at the Project is 2,817 square miles. Water is conveyed to the powerhouse and to a paper mill via a 550-foot long power canal. The powerhouse contains five horizonal Francis turbine generators with a combined capacity of 12.7 MW. A separate small dam and powerhouse located on the south side of the river is part of the unaffiliated South Glens Falls Project (No. 5461). Generally, both FERC licensees have agreed to equally share inflow to the reservoir (50 percent split) when flows are less than 8,400 cfs (see Figures 2 - 5)

Figure 2 – Glens Falls Hydroelectric Facility

Figure 3 – Glens Falls Spillway

Figure 4 – Glens Falls Bypassed Reach and Power Canal

Figure 5 – Glens Falls Power Canal and Intake

IV. ZONES OF EFFECTAND STANDARDS SELECTED

Three Zones of Effect (ZOE) were designated by the Applicant and were determined to be appropriate. Zone 1 includes the impoundment and power canal while Zone 2 is the bypassed reach that extends from the dam approximately 500 feet downstream to the powerhouse. Zone 3, the tail/race downstream reach, extends approximately 0.16 miles downstream (Figure 6). Table 1 shows the Standards selected for each criterion for the three ZOEs. Where applicable, reviewer recommendations for alternate standards are show in **red**.

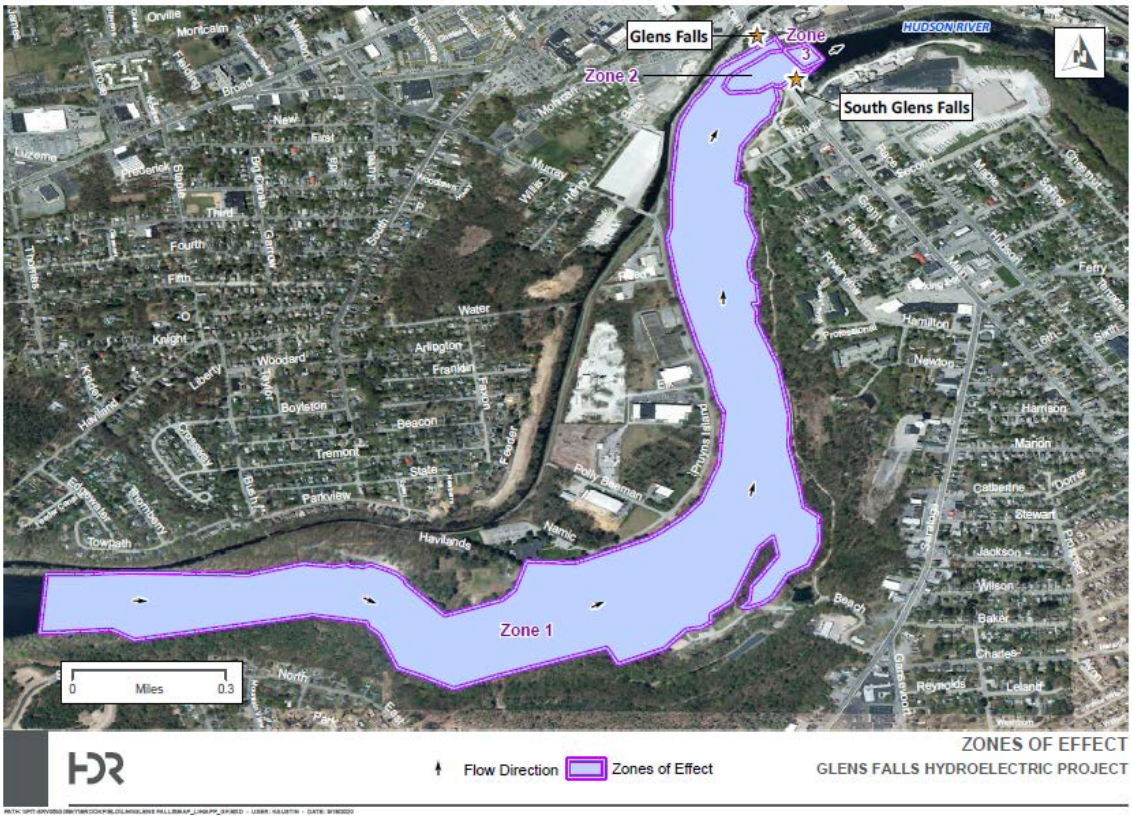

Figure 6 – Glens Falls Hydroelectric Project Zones of Effect.

Table 1. Standards Matrix for the Glens Falls Project.

	Zone:	**1: Impoundment**	**2: Bypassed Reach**	**2: Downstream Reach**
	River Mile Extent:	RM 202.6 to RM 200.7	RM 200.7 to RM 200.6	RM 200.6 to RM 200.4
Criterion		**Standard Selected**	**Standard Selected**	**Standard Selected**
A	**Ecological Flows**	2, **1**	2	2
B	**Water Quality**	2	2	2
C	**Upstream Fish Passage**	1	1	1
D	**Downstream Fish Passage**	2	2	1
E	**Shoreline and Watershed Protection**	1	1	1
F	**Threatened and Endangered Species**	3	3	3
G	**Cultural and Historic Resources**	2	2	2
H	**Recreational Resources**	2	2	2

V. REGULATORY AND COMPLIANCE STATUS

The Project was issued a license by FERC in 2001[1]. New York State Department of Environmental Conservation (NYSDEC) issued a Section 401 Water Quality Certification (WQC) for Glens Falls, subject to certain conditions, on May 5, 1995[2]. The license order notes that the licensee proposed to upgrade units 1, 2, and 5 resulting in an increase in total capacity from 12,100 kW to 12,700 kW. On November 14, 2017, FERC issued an amendment order to approve the name change of the Glens Falls licensee from Finch Hydro Holdings, LLC to HF OPOC LLC.

VI. PUBLIC COMMENT RECEIVED OR SOLICITED BY LIHI

The application was posted for public comment on August 3, 2020 and the notice was forwarded to agencies and stakeholders listed in the application. The deadline for submission of comments was October 2, 2020. No formal comments were submitted. Outreach to the Applicant and resource agencies is provided in Appendix A.

VII. DETAILED CRITERIA REVIEW

A. ECOLOGICAL FLOW REGIMES

Goal: The flow regimes in riverine reaches that are affected by the facility support habitat and other conditions suitable for healthy fish and wildlife resources.

Assessment of Criterion Passage: The Applicant selected Standard A-2, Agency Recommendation for all Zones. However as discussed below, this review finds that Standard A-1, Not Applicable/De Minimis Effect is more appropriate for Zone 1.

The Project operates in a run-of-river mode with a useable storage of approximately 80 acre-feet and uses inflow released from the upstream Feeder Dam (Appendix A). In addition to the run-of-river operations, license article 401 and WQC Condition 1, also require the licensee to maintain the impoundment within 6 inches of the normal water level of 269.1 feet National Geodetic Vertical Datum (NGVD). The South Glens Falls Project (FERC No. 5461) is adjacent to the Project and constructed on the south end of the dam. The licensee has a water sharing and monitoring agreement with the South Glens Falls Project such that the licensee's monitoring

[1] https://elibrary.ferc.gov/eLibrary/filedownload?fileid=8316846
[2] https://elibrary.ferc.gov/eLibrary/filedownload?fileid=10698840

system interfaces with the South Glens Falls Project, communicating inflow and water elevation data. Generally, both licensees have agreed to equally share inflow to the reservoir (50 percent split) when flows are less than 8,400 cfs.

Compliance with the required run-of-river operation, impoundment fluctuations, and minimum flow releases is monitored by the licensee's Project Operations Plan, required by license article 404 and WQC Condition 4. The licensee's Programmable Logic Controller (PLC) continuously monitors the headpond elevations and adjusts generation to maintain the water level and to limit fluctuations. The licensee maintains Milltronics hydro-acoustic sensors in the forebay to monitor the elevation of the power canal. A review of FERC's eLibrary database found that only two headpond deviations occurred since the Project was licensed and that neither deviation was considered a violation of the license according to FERC.

FERC concluded in its 2001 Environmental Assessment (EA) of the Project that at the maximum drawdown of 6 inches, about 2 acres of nearshore habitat would be exposed, but most centrarchid (sunfish) nest building would occur in water deeper than 6 inches and the run-of-river operation and 6 inch impoundment fluctuations would provide stable aquatic habitat and minimize disruptions to the fishery in the Project reservoir.

Per license article 402 and WQC Condition 3, the Applicant releases 5 cfs from the dam, through a pipe at the northern end of the dam, as measured in the bypassed reach immediately downstream of the dam for the protection and enhancement of water quality and aquatic resources. License article 403 required the licensee to file a plan for the construction of low-head diversion weirs in order to deflect and pool the minimum flow releases to create wetted pools for macroinvertebrate habitat. A series of 4 weirs were constructed into the berms immediately downstream of the dam and allow 1.25 cfs each to pass into the bypassed reach.

During the FERC licensing process, Finch, Pruyn & Company, Inc (FPC, and previous Project owner) conducted a series of demonstration flow releases from 5 to 60 cfs to provide a basis for assessing an appropriate minimum flow to the bypassed reach. The demonstration study concluded that usable habitat increased little with more flow because of the predominant bedrock substrate. The natural falls at the dam are 35 feet tall and the bypassed reach between the dam and powerhouse discharge is short, further limiting available habitat. During a subsequent demonstration flow assessment, FPC and representatives of the US. Fish and Wildlife Service (FWS) and the New York State Department of Environmental Conservation (NYSDEC) established temporary flow diversion structures to better distribute flows to the bypassed reach and reviewed their effectiveness. Diverting the flows created additional pools in the bypassed reach to enhance aquatic habitat and create a modest aesthetic enhancement to the falls by wetting a greater portion of the rock outcrop. These evaluations resulted in an agreement between FPC, the FWS, and the NYSDEC to release a minimum flow of 5 cfs to the bypassed

reach and install permanent minor flow diversion structures. According to the September 13, 2001 EA, the 5 cfs minimum flow enhances water quality by preventing water stagnation and provides sufficient flow to adequately protect the limited aquatic habitat in the bypassed reach.

Based on my review of the application, supporting documentation, and publicly available information, the Project is operated in a manner such that it does not affect fish and wildlife resources under its limited flow regime. As such, the Project satisfies the Ecological Flow Regimes criterion.

B. WATER QUALITY

Goal: Water Quality is protected in waterbodies directly affected by the facility, including downstream reaches, bypassed reaches, and impoundments above dams and diversions.

Assessment of Criterion Passage: The Applicant appropriately selected Standard B-2, Agency Recommendation for all Zones.

Section B of the WQC requires minimizing water quality impacts during Project maintenance and construction activities through provisions regarding erosion and sediment control, sediment analysis and disposal, dredging, cofferdams, maintenance flows, turbidity monitoring and notifications to NYSDEC.

The river in the vicinity is designated as Class B and Class C water[3]. Class B waters are suitable for fishing, public swimming and other contact recreation activities, but not for drinking water, while Class C waters support fisheries and are suitable for non-contact activities. The Hudson River in Zones 2 and 3 are designated as Class C and listed as impaired due to PCB contaminated sediment.

In general, the Hudson River is impaired due to historical discharge of toxic compounds. Zone 1 of the Project is listed as impaired in NYSDEC's 2016 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy due to mercury contaminated sediment.

Outreach was made to NYSDEC on August 4, 2020 to inquire about any potential for the presence and continued operation of the Glens Falls Project to cause or contribute to these water quality impairments (Appendix A). No response was received. Water quality standards associated with Class B and Class C waters are shown in Table 3 below. FH OPCO contacted NYSDEC on March 19, 2020 as part of the LIHI application for confirmation of the status of the WQC and conditions. NYSDEC confirmed on April 20, 2020 that as long as the FERC license

[3] Water within the first 0.25 miles upstream of the Dam is classified as Class C while water upstream of that point is classified as Class B according to the NYSDEC's Environmental Resource Mapper tool, available at: https://gisservices.dec.ny.gov/gis/erm/

is still valid and the conditions of the WQC are still being met, the WQC will remain valid.

Table 3. NYSDEC water quality standards for Class B and Class C Waterbodies.

Physical parameter	Standard
Water Temperature (ºC)	For non-trout stream, the water temperature at the surface of a stream shall not be raised to more than 90ºF at any point. For lakes, the water temperature at the surface shall not be raised more than 3ºF over the temperature that existed before the additional heat of artificial origin.
Dissolved Oxygen (mg/l)	For trout spawning waters the DO concentration shall not be less than 7.0 mg/L from other than natural conditions. For trout waters the minimum daily average shall not be less than 6.0 mg/L, and at no time shall the concentration be less than 5.0 mg/L. For non-trout waters, the minimum daily average shall not be less than 5.0 mg/L, and at no time shall the DO concentration be less than 4.0 mg/ L.
pH	Shall not be less than 6.5 nor more than 8.5.
Turbidity (NTU)	No increase that will cause a substantial visible contrast to natural conditions
Phosphorus and nitrogen	None in amounts that will result in growths of algae, weeds and slimes that will impair the waters for their best usages.
Fecal coliform	The monthly geometric mean, from a minimum of five examinations, shall not exceed 200.

The impoundment fluctuation limitations and minimum flow releases required by the License Order and WQC along with the run-of-river operations and FERC-approved Project Operations Plan minimize the potential for Project operations to impact water quality in all Zones. Per the requirements of WQC Condition 7 and License Article 404, the Applicant filed an Erosion and Sediment Control Plan as a component of its Recreation Plan in May 2002 to ensure water quality would be protected during construction of the required recreation facilities. FERC approved the Recreation Plan in its entirety on July 23, 2002.

A review of the FERC eLibrary indicated that no issues related to water quality have occurred at the Project. Given Project operations, it is likely that the Project does not impact water quality and the Project is not the cause or a contributor to the existing impairments.

Based on my review of the application, supporting documentation, and publicly available information, the Project does not appear to impact water quality in the river nor contribute to the listed impairments and therefore satisfies the Water Quality criterion.

C. UPSTREAM FISH PASSAGE

Goal: The facility allows for the safe, timely, and effective upstream passage of migratory fish. This criterion is intended to ensure that migratory species can successfully complete their life cycles and maintain healthy populations in areas affected by the facility.

Assessment of Criterion Passage: The Applicant appropriately selected Standard C-1, Not Applicable/De Minimis Effect for all Zones.

The Applicant appropriately selected Standard C-1 for the Impoundment Zone since once above a dam there are no Project-related barriers to further upstream passage.

The Project waters support a mix of warmwater and coldwater fish species. According to FERC's 2001 Final EA for the Project a total of 30 species were collected in the Project area during surveys in 1985 and 1993. The three most abundant species collecting from both surveys were rock bass, spottail shiner, and fallfish. A 1993-1994 entrainment study at the Feeder Dam (LIHI #164), which discharges into the Glens Falls impoundment documented crappie, northern pike, rainbow trout, brook trout, rainbow smelt, channel catfish, blacknose dace, and northern hogsucker.

There are no anadromous fish species in the Project area and no downstream dams have upstream passage facilities at this time. According to the Settlement Agreement for other projects in the vicinity[4] only two American eel were collected from the next upstream Feeder Dam Project (LIHI #164) impoundment in 1984. The EA stated that the American eel may be able to migrate this far north via the Champlain Feeder Canal, but it did not seem to occur since it was infrequently collected in the Project area.

No mandatory prescriptions (Section 18 or similar) or recommendations for upstream fish passage were required for the Project at the time of licensing. Natural barriers to upstream passage include Hudson Falls and Glens Falls.

Based on my review of the application, supporting documentation, and publicly available information, the Project satisfies the Upstream Fish Passage criterion.

D. DOWNSTREAM FISH PASSAGE AND PROTECTION

Goal: The facility allows for the safe, timely, and effective downstream passage of migratory fish. For riverine (resident) fish, the facility minimizes loss of fish from reservoirs and upstream river reaches affected by Facility operations. All migratory species are able to successfully complete

[4] https://elibrary.ferc.gov/eLibrary/filedownload?fileid=8052866

their life cycles and to maintain healthy populations in the areas affected by the Facility.

Assessment of Criterion Passage: The Applicant appropriately selected Standard D-2, Agency Recommendation for the Impoundment Zone and Bypassed Reach Zone and Standard D-1, Not Applicable/De Minimis Effect for the Downstream Reach Zone.

As noted previously in Criterion C - Upstream Fish Passage, the only migratory species that may be present is the catadromous American eel.

As discussed in the 2001 Final EA, an entrainment study was not conducted at Glens Falls but an entrainment study was conducted immediately (2 miles) upstream at the Feeder Dam Project to estimate fish entrainment and turbine mortality at the Glens Falls Project. An estimated total of 38,746 fish representing 29 species were entrained at the Glens Falls Project during the 1-year study period (Acres, 1995a). Entrainment rates ranged from 1.01 to 1.29 fish/unit/hour. Centrarchids comprised about 62 percent of all the entrained fish, with rock bass (17 percent), redbreast sunfish (17 percent), and pumpkinseed (10 percent) being the most frequently entrained species. The four major sport fish species in the Project area were entrained at relatively low rates: large- and smallmouth bass, northern pike and chain pickerel comprised 2.83 percent, 2.26 percent, 0.25 percent, and 0.49 percent, respectively, of the entrained fish. Other entrained sport fish included rainbow trout (0.42 percent), brown trout (0.38 percent), brook trout (0.04 percent), walleye (0.37 percent), white and black crappie (0.57 percent), yellow perch (6.69 percent), and ictalurids (bullheads and catfish, 13.08 percent).

FERC concluded in the EA that they had no evidence to support a claim that fish entrainment was having an appreciable adverse impact on the fishery, and therefore requiring the installation of 1-inch trash racks, as recommended by FWS during the relicensing process was not necessary at that time. Nevertheless, the Applicant proposed to investigate the feasibility of replacing the trashrack. FERC also noted that most larger fish would be excluded by a 1-inch clear-spaced trashrack, and smaller fish may avoid the turbulence created by the narrower spacing of the trashrack. Smaller fish have low rates of turbine mortality at most sites where this was studied, and their entrainment would be less likely to result in mortality. Article 405 required the licensee to file a plan providing details to replace the existing 1 5/8-inch trashracks with new 1-inch clear-spaced trashracks and to install a downstream fish passage pipe. On August 7, 2002 FERC issued an Order Modifying and Approving Trashrack Replacement and Downstream Fish Bypass. There are no agency provisions for downstream fish passage monitoring.

The downstream bypass facility consists of an overflow weir within the existing sluice bay, that gradually transitions into a 24-inch diameter half circle pipe. A year-round flow of 25 cfs is released through the downstream bypass chute. The licensee consulted with FWS and NYSDEC

regarding its trashrack replacements and downstream fish bypass chute and incorporated FWS' initial comments into the final plan. NYSDEC did not have comments regarding the plan.

The Bypassed Reach zone only provides marginal quality habitat for fish and downstream movement in the bypassed reach may be impeded by the naturally large bedrock that make up Glens Falls. FERC concluded in its 2001 EA that the 5-cfs minimum flow releases required by License Article 402 and WQC Condition 3 and the construction of low-head diversion weirs required by article 403 would provide sufficient flow to adequately protect the limited aquatic habitat in the bypassed reach and would enhance the suitability of one of the three bypassed reach pools for fish and benthic invertebrate habitat. Additionally, it would also serve as a protective measure for fish that may pass over the crest of the dam.

The Applicant appropriately selected Standard D-1 for the Downstream Reach Zone because once in this zone there are no Project-related barriers to further downstream movement.

Based on my review of the application, supporting documentation, and publicly available information, the Project satisfies the Downstream Fish Passage and Protection criterion.

E. SHORELINE AND WATERSHED PROTECTION

Goal*:* The Facility has demonstrated that enough action has been taken to protect, mitigate and enhance the condition of soils, vegetation and ecosystem functions on shoreline and watershed lands associated with the facility.

Assessment of Criterion Passage: The Applicant appropriately selected Standard E-1, Not Applicable/De Minimis Effect for all Zones.

The FERC Project boundary covers 50 acres of land and 170 acres of water. The 2001 EA stated that the shoreline of the Glens Falls impoundment is steep and densely forested with mature hardwoods and shrub species. The primary canopy species within the Project area include red oak and sugar maple. Trembling aspen and red maple, early successional species, are also common. Dominant midstory and groundcover species include hazel, willow, alder, brambles, elderberry, twinflower, bracken fern, aster, goldenrod, Pennsylvania sedge, and yarrow. There are no critical habitats of lands of significant ecological value within the Project area.

FERC's final EA notes that the Project mostly lies within industrial zones that extend approximately 1 mile upstream and downstream of the dam. Downstream of the dam, a paper mill, wood lot, and steam plant form a highly dense industrial area along the north shore. A Portland cement concrete factory and the municipal wastewater treatment plant occupy adjacent parcels just beyond the complex. Across the river, an industrial zone, including a rail yard, extends east about 0.8 mile from the South Glens Falls Project. Further downstream the land is

zoned residential. Brush cover and forest provide a buffer between these industrial and residential zones and the riverbank. Upstream of the dam, Pruyn's Island, which also is zoned for heavy manufacturing, extends about 1 mile along the north shore between the river and the Champlain Feeder Canal that extends from the Feeder Dam about seven miles to Fort Edward. Across the river, brush cover and forest provide a shoreline buffer between commercial and residential zones and the riverbank.

Some use around the Project is recreational (see Section VII.H below) and includes hiking, fishing, picnicking, and kayaking.

The Project does not have, nor is required to have, a specific shoreline or watershed management plan. However as mentioned previously for Criterion A – Ecological Flow, the Project operates in a run-of-river mode with a useable storage of approximately 80 acre-feet and uses inflow released from the upstream Feeder Dam. In addition to the run-of-river operations, the licensee is also required to maintain the impoundment within 6 inches of the normal water level of 269.1 feet NGVD and release a minimum flow of 5 cfs from the dam, through a pipe at the northern end of the dam to the protection and enhancement of water quality and aquatic resources.

A review of the FERC eLibrary indicated that no issues related to shoreline and watershed protection have occurred during the FERC licensing period.

Based on my review of the application, supporting documentation, and publicly available information, the Project is operated a manner that has a de minimis effect on the watershed. Therefore, the Project satisfies the Shoreline and Watershed Protection criterion.

F. THREATENED AND ENDANGERED SPECIES PROTECTION

Goal: The facility does not negatively impact federal or state listed species.

Assessment of Criterion Passage: The Applicant appropriately selected Standard F-3, Recovery Planning and Action, for all Zones.

Neither the WQC, nor the 2001 FERC license order contained requirements related to federal or state-listed threatened or endangered species. The final EA noted that via a letter dated February 22, 1999, FWS indicated that no known state or federal threatened or endangered species or species of concern occur within the Project area.

In its March 19, 2020 letter to the Applicant, FWS stated that the endangered Indiana bat may in fact occur at the Project but there is no critical habitat in the Project boundary. Recovery actions

identified in FWS' Indiana Bat Draft Recovery Plan[5] include hibernacula and maternity colony related recovery actions. No Indiana bat hibernacula, which typically include caves and mines, are known to exist in the immediate vicinity of Glens Falls Project. Transient individuals, presumably in association with summer habitat, may however exist in the Project area. FH OPCO states in their LIHI application that the operations of the Glens Falls Project are consistent with this draft recovery plan.

In its April 7, 2020 letter to FH OPCO, NYSDEC stated that the peregrine falcon (state endangered) has been documented nesting within 0.5 miles of the Glens Falls Project. According to the NYSDEC's Natural Heritage Program's Peregrine Falcone Guide[6] the species' recovery program has been successful, and the population has been growing steadily. Human disturbances known to affect the species include rock climbing and hiking near nest sites, which generally do not occur at the Project. Any bridge maintenance of the Cooper's Cave Bridge that crosses the bypassed reach that includes Cooper's Cave which is mostly flooded except during low flow, would be conducted by the New York State Department of Transportation in a manner that limits impacts to the species.

A review of the Project's record on the FERC eLibrary indicated that no issues related to threatened and endangered species have occurred.

Based on my review of the application, supporting documentation, and publicly available information, I find that the Project satisfies the Threatened and Endangered Species criterion.

G. CULTURAL AND HISTORIC RESOURCE PROTECTION

Goal: The facility does not unnecessarily impact cultural or historic resources that are associated with the Facility's lands and waters, including resources important to local indigenous populations, such as Native Americans.

Assessment of Criterion Passage: The Applicant appropriately selected Standard G-2, Approved Plan for all Zones.

FERC's 2014 Environmental and Public Use Inspection Report[7] noted the following regarding cultural and historic resources in the Project area: *"Throughout the 19th century, mills for lumber, grain, and limestone operations were established on both banks of the Hudson River to harness the raw waterpower of the Hudson River. In the early 20th century, Finch, Pruyn and Company, Inc., a group of local businessmen, consolidated and converted the various mills for*

[5] https://www.fws.gov/midwest/Endangered/mammals/inba/pdf/inba_fnldrftrecpln_apr07.pdf
[6] https://guides.nynhp.org/peregrine-falcon/
[7] 20140102-3000

its papermaking operations and, subsequently, for the generation of electricity. The New York State Historic Preservation Officer (SHPO) determined in 1993 that the Finch, Pruyn Hydroelectric Complex was eligible for inclusion in the National Register of Historic Places. In addition, the Glens Falls Feeder Canal for the Champlain Barge Canal, adjacent to the complex, and the Glens Falls Dam are eligible for, or listed in, the National Register. Of literary significance, James Fenimore Cooper's The Last of the Mohicans, features Cooper's Cave, located on an island below Glens Falls Dam, as a setting in the novel. New York SHPO determined on January 23, 1993, that Cooper's Cave is eligible for listing in the National Register as a historic property."

On May 16, 2001 FH OPCO and the Commission executed a Programmatic Agreement (PA) with the New York State Historic Preservation Officer (SHPO) that is designed to avoid, mitigate, or lessen any affects that may occur during the term of the license. In fulfilling its obligation to implement the PA, FH OPCO agreed to ensure the Glens Falls Feeder Canal reasonable protection as a historic property. Article 407 of the FERC License required FH OPCO to file a Historical Properties Management Plan (HPMP) to provide measures to be taken for undiscovered historic or archaeological resources prior to and during any ground-disturbing activities. FH OPCO filed the HPMP on November 21, 2002 for Commission approval. FERC subsequently approved the HPMP on March 6, 2018. The licensee files an annual monitoring report on activities undertaken that may be subject to the HPMP. The annual historic properties monitoring report for 2019 was filed on January 2, 2020.

The HPMP describes historic and cultural resources eligible for the National Register of Historic Places (NRHP) and includes the Project itself; the Finch, Pruyn and Company Office Building, the Feeder Canal, and the remains of the 1913 Glen Falls dam. The HPMP requires the licensee to consult with the New York SHPO regarding recreational access and headgate reconstruction. The licensee must also consult with the New York SHPO regarding any change in the mode of operation, expansion of capacity, alteration of Project facilities, or initiation of other ground-breaking activities. The New York SHPO was consulted during development of the Recreation Plan and the Erosion and Sediment Control Plan developed for the Recreation Plan is also compatible with the HPMP.

Based on a review of the FERC eLibrary, there does not appear to be any concern over Project operation and maintenance on cultural or historic resources. Therefore, the Project satisfies the Cultural and Historic Resource Protection criterion.

H. RECREATIONAL RESOURCES

Goal: The facility accommodates recreation activities on lands and waters controlled by the facility and provides recreational access to its associated lands and waters without fee or charge.

Assessment of Criterion Passage: The Applicant appropriately selected Standard H-2, Agency Recommendations in all Zones.

The City of Glens Falls is located 4 miles south of the Adirondack State Park boundary where year-round recreational opportunities including flatwater boating, canoeing, whitewater rafting, hiking, skiing, fishing, camping, golfing, and other outdoor activities are available. Article 408 required the licensee to file a recreation plan to provide recreational access for fishing and boating, access for canoe portage, parking for five cars, and recreation signs at the licensee's picnic and overlook area. On July 23, 2002 FERC issued an Order Approving the Recreation Plan, which had been submitted to FERC on May 21, 2002.

The impoundment canoe portage area consists of the portage take-out, a parking area, ramp, and walkway. The Bypass Reach zone includes a picnic and overlook area that provides views of the Glens Falls. The downstream canoe portage area consists of the portage put-in, access road, parking area, cinder walkway, and ramp. On March 3, 2008, FH OPCO filed revised as-built exhibit R drawings of the completed facilities, that FERC subsequently approved on March 14, 2008.

FH OPCO also permits free public access to the shoreline of the development across Project lands where Project facilities, hazardous areas and existing leases, easements, and private ownership do not preclude access. The 2014 FERC environmental inspection noted that the licensee's recreational facilities appear to be adequate for the degree of usage for the area and that the most recent Public Safety Plan appears to be adequate for providing public safety. The licensee provides fences, locked gates, guardrails, life rings, surveillance cameras, and warning signs to protect the public from the hazards of Project operations. A review of the FERC eLibrary indicated that no issues related to recreation have occurred during the FERC licensing period.

Based on my review of the application, supporting documentation, and publicly available information, the Project satisfies the Recreational Resources criterion.

VIII. GENERAL CONCLUSIONS AND REVIEWER RECOMMENDATION

Based on my review, I believe that the Project meets the requirements of Low Impact Certification and recommend it be certified for a five-year period with no conditions.

APPENDIX A –CORRESPONDENCE

APPLICANT CORRESPONDENCE

From: Maguire, Danny
To: mfischer@lowimpacthydro.org
Cc: Faulds, Sean; Mascarenhas, Sandeep
Subject: RE: Glens Falls - LIHI Intake Review
Date: Thursday, July 2, 2020 3:44:16 PM
Attachments: 2385-F7 1020.pdf
GFL Acres re. Diversion Weirs Plans 5.14.04.pdf

Maryalice,

Please explain why the application states 560 acre-ft of useable storage if the impoundment fluctuation is limited to 6 inches and the project operates in run of river mode. What is the useable storage in the 6-inch range?
I'm not sure where the 560 acre-ft came from. The license states: "167-acre impoundment with a normal minimum and maximum elevation of 268.6 and 269.1 feet National Geodetic Vertical Datum (NGVD), respectively, and a gross and usable storage capacity of 1,083 acre-feet" That number must include all the water impoundment by the dam, not just what is inside the operating limits. For purposes of this application, I would think 80 acre-feet would be an reasonable estimate (167 acres x 0.5 ft rounded down to nearest 10). Will that work? I can do more research if needed.

Please provide a copy of the 12/21/2002 plan to "construct a low head diversion weir to redirect the minimum flow to enhance aquatic habitat" which is a CEII document on the FERC elibrary. LIHI will ensure that it remains confidential.
I don't have the actual CEII submission to FERC since it was prior to our ownership. I might be able to locate it in our off-site archives, or request it from FERC if it is necessary to have. Attached is a drawing of the weirs and a subsequent plan from the consultant at the time.

Please provide, if available, records related to the demonstrations of bypass flows conducted in 1994 (see 2002 license, Appendix A, WQC condition 3).
Since it was prior to our ownership, I don't have this readily available. I can search our off-site archives or request it from FERC if it is necessary to have.

Let me know if you need anything further.

I hope you have a great 4th!

Thanks,
Danny

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION CORRESPONDENCE

From: Byrne, Stephen
Sent: Tuesday, August 4, 2020 2:36 PM
To: dep.r5@dec.ny.gov
Subject: FW: Pending Applications: Certification of Sherman Island and Glens Falls Projects, NY

Hello,

Based on my review of the Glens Falls LIHI Application and the NYSDEC 2016 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy, it is my understanding that the Hudson River immediately upstream of the Glens Falls Dam is currently listed as Impaired due to mercury contaminated sediment while the river downstream of the dam is listed as impaired due to PCB contaminated sediment. To the best of your knowledge, does the existence and operation of the Glens Falls Hydroelectric Project cause or contribute to these impairments upstream or downstream of the Project?

Thank you and please let me know if any additional information is needed.

Steve

Stephen Byrne
Fisheries Biologist

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