



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Ecological Services
Maine Field Office
17 Godfrey Drive, Suite 2
Orono, Maine 04473
207/866-3344 Fax: 207/866-3351

January 3, 2017

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

SUBMITTED ELECTRONICALLY

RE: Comments on the Pre-Application Document and Submission of Study Requests for the Pejepscot Project, FERC No. 4784, Androscoggin, Cumberland, and Sagadahoc Counties, Maine

Dear Secretary Bose:

The U.S. Fish and Wildlife Service (Service) has reviewed the Federal Energy Regulatory Commission's (Commission or FERC) October 30, 2017 Notice of Intent to File License Application, Filing of Pre-Application Document (PAD), Commencement of Pre-Filing Process, and Scoping; Request for Comments on the PAD and Scoping Document, and Identification of Issues and Associated Study Requests for the Pejepscot Hydroelectric Project (Project, P-4784-095), located on the Androscoggin River in Sagadahoc, Cumberland, and Androscoggin Counties, Maine. The owner and operator of the Project is Topsham Hydro Partners Limited Partnership (Licensee).

The Project is located on the Androscoggin River in the village of Pejepscot and the Town of Topsham on the east shore and the Town of Brunswick and the Town of Durham on the west shore. The Pejepscot Project is the second barrier on the mainstem of the Androscoggin River. The first barrier, the Brunswick Project (P-2284), is located at the head-of-tide approximately 4.7 miles downstream of the Pejepscot Project. The third barrier, the Worumbo Project (P-3428), is located approximately 3.4 miles upstream of the Project. The current license for the Project was issued on September 1, 1982 and expires on August 31, 2022. The license for the Worumbo Project expires on November 30, 2025 while the license for the Brunswick Project expires on February 28, 2029.

The Project's dam is a 560-foot-long, 47.5-foot-high, rock- and gravel-filled, timber-crib overflow structure with a sheet-pile cutoff to bedrock along the upstream side. The crest is equipped with five, 96-foot-long by 3-foot-high, hydraulically operated, bascule gates separated by concrete piers. The Project has a spillway discharge capacity of 95,000 cfs.

The Project's impoundment extends approximately 3 miles upstream to the confluence of the Little River. At full pond elevation, the impoundment has a surface area of 225 acres. The drainage area of the project is 3,420 square miles. The Project is run-of-river.

The Project includes two powerhouses: an original powerhouse that was constructed in 1898, and a new powerhouse that was constructed from 1985 to 1987. The old powerhouse contains three horizontal Francis units with a combined output capacity of 1.588MW. These three units have 1.5-inch bar spacing on the trashracks. The new powerhouse contains a vertical-shaft, low speed, adjustable-blade propeller type (Kaplan) turbine rated at 12.3MW with a maximum flow of 7,500 cfs. This unit has 1.5-inch bar spacing at the top of the trashrack and 2.5-inch bar spacing at the bottom of the trashrack. The total authorized installed capacity is 13.88MW with a maximum hydraulic capacity of 7,550 cfs and a minimum flow of 1,710 cfs.

Fish Passage Facilities

The upstream fish passage facility is a vertical lift (elevator) that lifts migratory fish in a hopper that is 20 feet long and 7 feet wide. There are four attraction pumps under a grating that create an additional flow of 160cfs through fishway entrance. Once fish are lifted they are discharged into a 110 feet long channel. The lift is operated annually from April 15 to November 15 and is automatically lifted every two hours beginning at 8 a.m. for a total of five lifts per day.

The downstream fish passage facilities consist of two 4-foot-wide entry weirs. The weir flow connects to a pipe, one 30-inches and the other 24-inches diameter, that transports the water to the tailwater. The annual mean generation from 2008 to 2016 was 77,558 MWh.

The Service submits the following comments and recommendations under the authority of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. § 1531 *et seq.*), the Fish and Wildlife Coordination Act (48 Stat. 401, as amended, 16 U.S.C. § 661 *et seq.*), and the Federal Power Act (FPA) (16 U.S.C. § 791a, *et seq.*).

U.S. FISH AND WILDLIFE SERVICE GOALS AND OBJECTIVES

We seek to accomplish several fish and wildlife resource goals and objectives through the Pejepscot re-licensing process. The Service's general re-licensing goals are to:

1. Ensure that protection, mitigation, and enhancement measures are commensurate with the Project's effects and contribute to meeting state and federal fish and wildlife objectives;
2. Recover federally proposed and listed species and prevent the listing of additional species;
3. Conserve, protect, and enhance the habitats for fish, wildlife, and plants that continue to be affected by the Project;
4. Ensure that once the re-licensing process is complete, there is an adaptive management plan to incorporate new information and implement new management strategies over the

term of the license, bringing us closer to the desired level of protection for fish and wildlife resources.

Objectives for Aquatic Ecosystems

Our specific objectives for aquatic ecosystems, terrestrial resources and threatened and endangered species are to:

1. Protect, enhance, or restore diverse high quality aquatic and riparian habitats for plants, animals, food webs, and communities in the watershed and mitigate for loss or degradation of these habitats;
2. Maintain and/or restore aquatic habitat connectivity in the watershed to provide movement, migration, and dispersal corridors resident fish and other aquatic organisms and provide longitudinal connectivity for nutrient cycling processes;
3. Restore naturally reproducing stocks of migratory fish and resident fish, to historically accessible riverine and lake habitats;
4. Provide an instream flow regime that meets the spawning, incubation, rearing, and migration requirements of resident fish and amphibian species, throughout the Project area, and for diadromous fish in downstream waters of the Androscoggin River that may be affected by the Project's water management releases;
5. Meet or exceed Federal and State regulatory standards and objectives for water quality in the basin;
6. Minimize Project operation effects on water temperature and the potential negative effects to downstream fishery resources;

Objectives for Terrestrial Resources

7. Reduce the effect of the fluctuation zone on wildlife habitat and seek opportunities to enhance this habitat;

Objectives for Endangered, Threatened, Proposed and Sensitive Species

8. Reduce Project effects on state and federal threatened, endangered, proposed and sensitive species; and
9. Explore opportunities for potential protection, mitigation and enhancement measures for threatened, endangered, and proposed species.

Our comments and study requests are intended to facilitate the collection of information necessary to conduct effects analyses and to develop conservation measures, reasonable and prudent measures, prescriptions, and protection, mitigation, and enhancement measures pursuant

to the Service's authorities under the Endangered Species Act, the Fish and Wildlife Coordination Act and the Federal Power Act as identified above.

COMMENTS ON THE PRE-APPLICATION DOCUMENT

The Service appreciates the Licensees' effort to prepare the pre-application document which provides existing and relevant information intended to enable participants in the relicensing proceeding to identify issues and related information needs and to develop study requests. We provide the following specific comments to raise awareness of particular issues, and to facilitate future collaborative discussions with the Commission and the Licensee in the development of studies.

Section 4.2 Project Facilities

The Service requests that information about the following project facilities be provided:

1. Minimum hydraulic capacity of the Kaplan unit;
2. Minimum and maximum hydraulic capacity of each of the three Francis units;
3. Dimensions and percent cover of the 1.5-inch bar rack for the Francis units;

Section 4.3 Project Operations

The Service requests that information about the project operations be provided:

1. The percent of total station hydraulic capacity that is apportioned for the upstream fishway and how much is provided by the pumps;
2. The operating range of the upstream fishway in cfs and pond elevation;
3. The operational rules used to determine how much water and how many pumps are used for fishway attraction;
4. The most recent three years of minimum flows provided to the tailrace.

Section 6.2.3.1 Proposed Studies

The Licensee is proposing to conduct the following studies related to fish and aquatic resources. The Service concurs with the need for these studies and with the general methodology proposed by the Licensee. We look forward to consulting on the details of the study designs.

1. Tailwater Benthic Macroinvertebrate Study
2. Visual Eel Monitoring Surveys
3. Downstream Atlantic Salmon Smolt Survival Study

STUDY REQUESTS

We have attached study requests (see attachment) as required by 18 CFR § 5.9(b) using the guidance that the Commission has provided for requesting studies during this phase of the relicensing process.

We request the opportunity to review and provide comments on all draft study plans. In addition, the Service will play an important role in working with the Licensee to develop the studies to assess fish passage needs.

Thank you for the opportunity to comment during the early planning stages of this Project. If you have any questions regarding this response, please contact Antonio Bentivoglio by email at Antonio_Bentivoglio@fws.gov or by telephone at 207/866-3344 Extension 151 or at the above address.

Sincerely,

Anna Harris

Anna Harris
Project Leader
Maine Fish and Wildlife Complex
Maine Field Office

Attachment

cc: A. Tittler, DOI/SOL
C. McGhee, BIA
R. Abele, EPA
B. Towler, RO/EN
M Buyhoff, D. Dow NOAA
K. Howatt, MDEP
G. Wippelhauser and P. Christman, MDMR
F. Brautigam, J. Pellerin, MDIFW

ATTACHMENT – U.S. FISH & WILDLIFE SERVICE STUDY REQUESTS

1. Upstream and Downstream Fish Passage Effectiveness and Survival
2. White Sucker Passage and Migration Study

Study 1 – Upstream fish passage effectiveness and survival for American shad, alewife, and blueback herring and downstream fish passage effectiveness and survival for American shad, alewife, blueback herring and American eel.

Criterion (1) – Describe the goals and objectives of each study proposal and the information to be obtained.

The upstream fishway needs to be studied to ensure that attraction and passage occur in a safe, timely, and effective manner for the alosines (American shad, alewife, and blueback herring). The study should occur during the migration season (May 1-July 31) and for a variety of flows. Fish attraction and passage for flows in excess of the station capacity (7,550cs) should also be studied.

The downstream fish passage facilities need to be studied to ensure that attraction and passage occurs in a safe, timely, and effective manner for alosines (American shad, alewife, and blueback herring) and American eel. The study should occur during the downstream migration season (June 1- November 30). The study should be conducted under a range of conditions which should include low flow conditions, when no spill is occurring.

Criterion (2) – If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resources to be studied.

The Service's authorities are the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. § 1531 *et seq.*), the Fish and Wildlife Coordination Act (48 Stat. 401, as amended, 16 U.S.C. § 661 *et seq.*), and the Federal Power Act (FPA) (16 U.S.C. § 791a, *et seq.*).

Criterion (3) – If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study.

Not applicable.

Criterion (4) – Describe existing information concerning the subject of the study proposal and the need for additional information.

Studies on alosines occurred in 1991 and 1992 during non-spill or very limited spill conditions using floy tags on alewife. These studies were very limited in species and flow conditions and the requested studies will expand on this limited existing data. No studies on downstream eel passage timing, delay, and survival have been conducted and therefore are needed.

Criterion (5) – Explain any nexus between Project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements.

Results of the upstream study will provide information regarding alosine upstream fish passage attraction, effectiveness, and timing. The results will be used to determine whether the existing facilities provide safe, timely, and effective upstream passage for alosines.

The results of the downstream study will also provide information regarding alosine and eel downstream passage effectiveness, turbine entrainment, and survival to determine if the existing facilities are adequate and under what flow conditions. If downstream survival is not adequate then this study should identify which aspects of overall downstream passage are inadequate so that improvements can be made.

Criterion (6) – Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge.

Methods to conduct downstream bypass studies are well established and have been used successfully in other Commission licensing proceedings. These include: hydroacoustic monitoring, radio telemetry, PIT-tag technology and split-beam hydroacoustics, or observations using camera systems. Adult study fish caught and tagged at the Brunswick fishway and released into the Brunswick impoundment (immediately below Pejepscot) will provide information for this study. Alosines that pass the Project and survive will eventually migrate downstream, providing information for the downstream migration study.

Juvenile alewife caught at the outlet of Sabbatus Pond can be fitted with nano tags and released into the Project headpond. Tagged adult American eel, which may have to be obtained from outside the Androscoggin River watershed, will provide detailed information regarding the effectiveness of the downstream passage facility.

Criterion (7) – Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

This study will require multiple years and an extended field season in order to assess the existing facilities for the species and life stages concerned. These factors will make the study expensive. However, the existing facilities have never been rigorously tested for the species and life stages addressed here.

Study 2 – White Sucker Passage Study

Criterion (1) – Describe the goals and objectives of each study proposal and the information to be obtained.

The goal of this study is to gain important migration, passage, and spawning information on the most abundant native species (by biomass) in the Kennebec River. Based on electrofishing studies in 2003 Yoder et al., (2009)¹ found the white sucker (*Catostomus commersonii*) to have the most biomass and to be the second most abundant native species (behind alosines) within reaches near the project.

This study will investigate migration timing, passage, and determine spawning locations for the white sucker.

Criterion (2) – If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resources to be studied.

The Service's authorities are the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. § 1531 *et seq.*), the Fish and Wildlife Coordination Act (48 Stat. 401, as amended, 16 U.S.C. § 661 *et seq.*), and the Federal Power Act (FPA) (16 U.S.C. § 791a, *et seq.*).

Criterion (3) – If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study.

Not applicable.

Criterion (4) – Describe existing information concerning the subject of the study proposal and the need for additional information.

There is very little information available for the white sucker. In Ontario, Canada, white suckers spawn at low temperatures 8-16°C and very early in the season (April) (Corbett and Powles, 1986)². They spawn before the alosines which generally spawn between 12-19°C, in May and June. The current starting date to open upstream fishways is April 15 but the white sucker likely migrates in March and April. This may prevent white suckers from migrating to spawning grounds. Basic information on the timing of white sucker migration and whether they use the Project's lift are required. White suckers can

¹ Yoder, C. R. Thoma, L. Hersha, E. Rankin, and B. Kulik. 2009. Maine Rivers Fish Assemblage Assessment: Development of an index of biotic integrity for non-wadeable rivers. MDI Technical Report. 60pages.

² Corbett, B., and P. Powles. 1986. Spawning and larva drift of sympatric walleyes and white suckers in an Ontario stream. Trans. Am. Fish. Soc. 115:41-46.

maintain small home ranges (2.4 river kilometers(km)) in the summer and winter but can migrate longer distances (up to 40km) to small stream to spawn (Doherty et al., 2010)³.

Criterion (5) – Explain any nexus between Project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements.

The Project's fishway start date (April 15) directly affects the upstream migration of white suckers. No data are available regarding whether white suckers use the existing lift. This study will help determine if the fishway needs to be operated earlier in the season and whether the fishway effectively passes white suckers.

Criterion (6) – Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge.

Methods to conduct upstream studies are well established and have been used successfully in other Commission licensing proceedings. This is generally conducted using radio telemetry. Adult study fish can be electrofished near the Project and implanted with radiotags.

Criterion (7) – Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

This work will require two field seasons to collect the data and write the report. The methods and equipment are standard and the cost should be small.

³ Doherty, C., R. Curry, and K. Munkittrick. Spatial and temporal movements of white sucker: Implications for use as a sentinel species. Trans. Am. Fish. Soc. 139:1818-1827.

