



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

MAY 14 2018

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

RE: Comments on Topsham Hydro Partners, L.P. Proposed Study Plan for the Pejepscot Hydroelectric Project (P-4784)

Dear Secretary Bose,

On October 30, 2017, you issued a Notice of Intent to file a 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 by Topsham Hydro Partners, L.P. (P-4784). On December 28, 2017, we submitted requests for twelve studies. On February 12, 2018, Topsham Hydro Partners submitted its Proposed Study Plan. As part of the Integrated Licensing Process, we have an opportunity to comment on the Proposed Study Plan.

Attached for filing, please find our comments on the Topsham Hydro Partners' Proposed Study Plan. If you have any questions or need additional information, please contact Matt Buhyoff (Matt.Buhyoff@noaa.gov) or 207-866-4238

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Boelke", written over a large, stylized, cursive signature.

Christopher Boelke
Acting Assistant Regional Administrator
for Protected Resources

cc: Buhyoff, F/GAR
Service List



National Marine Fisheries Service Comments on Topsham Hydro's Proposed Study Plan

May 14, 2018

1 BACKGROUND

On December 28, 2017, we submitted requests for twelve studies, pursuant to the regulations set forth in FERC's integrated licensing process (ILP) for the Pejepscot Hydroelectric Project (Pejepscot). On February 12, 2018, Topsham Hydro Partners (Topsham Hydro) submitted its Proposed Study Plan (PSP). The PSP partially adopted two of our twelve study requests. On March 22, 2018, we attended Topsham Hydro's PSP meeting in Lewiston, Maine. On April 27, 2018, we held a meeting in conjunction with Topsham Hydro to further clarify our information needs and discuss potential modifications to the PSP and our study requests based upon any enhanced understanding facilitated by focused discussions.

We are continuing to request four studies, as outlined in our December 28, 2017 filing. Also, we are modifying six study requests and no longer requesting two studies, based upon information gathered in review of Topsham Hydro's Proposed Study Plan, as well as the PSP meeting and the April 27, 2018 meeting with Topsham Hydro.

2 NMFS COMMENTS ON STUDIES NOT INCLUDED IN THE PROPOSED STUDY PLAN (PSP)

2.1 Study Request 7: Headpond Predation

Topsham Hydro is not proposing any study of predation on native anadromous fish. Topsham Hydro states that there is no nexus between Project operations and effects of predation by non-native predators on native anadromous fish in the Project impoundment, and claim that the study would not inform the development of license requirements as required by FERC's study plan criteria.

We disagree with Topsham Hydro's assessment of a lack of project nexus. As indicated in our December 28, 2017 request, operation of the Project, as currently proposed, will continue to impose lacustrine conditions in the headpond. Those lacustrine conditions have the potential to benefit non-native predators and slow migration of anadromous species, thereby impacting survival of those migratory species through the project area, which include highly endangered Atlantic salmon. We note that requesting information to assess continuing project effects is consistent with FERC policy, outlined in FERC's 2012 *Guide to Understanding and Applying the Integrated Licensing Process Criteria*. In fact, we note that on page 14 of Topsham Hydro's Proposed Study Plan, Topsham Hydro identifies a project nexus for a study (*Largemouth and Smallmouth Bass Spawning Habitat Survey*) that proposes to gather baseline information on habitat for largemouth and smallmouth bass – the same non-native predators for which we are requesting predation information.

We also disagree with Topsham Hydro's assessment that our requested study would not inform the development of license requirements. While we acknowledge that the management of non-native species is not necessarily within the purview of a potential license requirement, we note that the project does directly affect the survival of anadromous fish by way of the project's efficacy for safe, timely, and effective passage. As such, structures and/or operations that affect the efficacy of the project for safe, timely, and effective fish passage are absolutely within the

purview of FERC license requirements, and would represent a possible strategy for any mitigation or enhancement measures related to the Project's indirect effects on anadromous fish mortality in the project impoundment.

For these reasons, we continue to request a study of headpond predation.

2.2 Study Request 9: Sediment Storage and Mobility

Topsham Hydro is not proposing any study of sediment storage and mobility. Topsham Hydro states that there is no nexus between project operations and effects on the sediment budget within the project area. Topsham Hydro supports this assertion by noting that the project operates run-of-river and does not appreciably fluctuate the impoundment elevation.

We disagree with Topsham Hydro's assessment of a lack of project nexus. While we acknowledge that information offered by Topsham Hydro regarding headpond fluctuations would seem to suggest that the project exerts relatively little influence on sediment recruitment into the project area, the Project's 48-foot-high dam undoubtedly has trapped and will continue to trap sediment and affect sediment mobility over the term of any new license – thereby establishing a nexus to project effects.

Topsham Hydro states that sediment transport at the Project is "...likely...in a state of equilibrium," and that the Project is "...likely to have little impact on sediment storage and transport." However, Topsham Hydro provides no data or existing information to support these statements, further highlighting the need for the information we requested.

Topsham Hydro indicates that the results of the study would do little to inform the development of license requirements. We disagree. Understanding the project's effect on sediment storage and mobility could lead to a number of potential protection, mitigation, or enhancement measures, including, but not limited to a sediment management plan.

As we stated in our December 28, 2017 study request, certain types of sediment/substrate are considered physical and biological features of critical habitat for endangered Atlantic salmon and important habitat elements for other aquatic species. Sediment dynamics are also crucial to proper fluvial geomorphological function and may even affect biologically relevant attributes such as water temperature. Existing information demonstrates that Maine coastal rivers are sediment limited, and therefore, it is reasonable to hypothesize that continuing project operations may exacerbate this condition. For these reasons, we continue to request a study of sediment storage and mobility.

2.3 Study Request 10: Large Woody Debris

Topsham Hydro is not proposing any study of project effects on large woody debris (LWD) in the project area. Topsham Hydro states that there is no nexus between project operations and effects on large woody debris and supports this assertion by noting that the project operates run-of-river and does not appreciably fluctuate the impoundment elevation. Topsham Hydro indicates that our requested study does not conform with FERC's baseline for conducting environmental analyses, given the length of time that the dam has been in place (since the late 1800s). Finally, Topsham Hydro notes that it is proposing to collect a "limited amount of

information” pertaining to LWD in association with its proposed *Largemouth and Smallmouth Bass Spawning Habitat Survey*.

First, we disagree with Topsham Hydro’s assessment of a lack of project nexus. While we acknowledge that information offered by Topsham Hydro regarding headpond fluctuations would seem to suggest that the project exerts relatively little influence on LWD recruitment into the project area, the Project’s 48-foot-high dam undoubtedly has trapped and will continue to trap LWD and affect LWD mobility over the term of any new license – thereby establishing a nexus to project effects. Furthermore, at the March 22, 2018 Study Plan Meeting, Topsham Hydro indicated that it currently disposes of a majority of LWD trapped at the dam. That Topsham Hydro actively manages LWD at the Pejepscot Project as part of its normal operations further establishes a nexus to the study of this project-affected resource.

Second, we disagree with Topsham Hydro’s implication that our study request represents a study of a pre-project condition and would not inform any potential license requirements. As indicated in our original study request, we are requesting information regarding the continuing effect of LWD entrapment. We note that requesting information to assess continuing project effects is consistent with FERC policy, outlined in FERC’s 2012 *Guide to Understanding and Applying the Integrated Licensing Process Criteria*. Understanding the project’s effect on LWD entrapment and mobility could lead to a number of potential protection, mitigation, or enhancement measures, including, but not limited to a LWD management plan.

Finally, we disagree with Topsham Hydro that its proposed *Largemouth and Smallmouth Bass Spawning Habitat Survey* would gather information suitable to provide information regarding the Project’s effects on LWD. The proposed bass study includes visual surveys, which at best would document the location of LWD associated with bass habitat in the project impoundment. It would not provide information regarding the volume, size, and type of wood trapped at the Project, nor would it identify management alternatives associated with that trapped LWD, as requested by our study.

As we stated in our December 28, 2017 study request, LWD is biologically important, as it promotes habitat heterogeneity and provides an important energetic source for primary biological productivity and is also a physical and biological feature of critical habitat for endangered Atlantic salmon. Furthermore, existing information demonstrates that Maine coastal rivers are LWD limited, and therefore, it is reasonable to hypothesize that continuing project operations may exacerbate this condition. For these reasons, we continue to request a study of LWD.

2.4 Study Request 11: Indicators of Hydrologic Alteration (IHA)

Topsham Hydro is not proposing an Indicators of Hydrologic Alteration (IHA) study. Topsham Hydro states that there is no project nexus to the requested study, as the Project operates run-of-river. Topsham Hydro also indicates that the study’s intent is to examine pre-project conditions, and thereby is not consistent with FERC’s baseline for the study of project effects.

We appreciated the opportunity to discuss in detail Topsham Hydro’s operational capacity and limitations regarding flow at the March 22, 2018 meeting. As discussed below under *Study Request 6 Instream Flow Study*, we now have a more complete understanding of the limits of

flow control at the Pejepscot Project. However, in spite of the potential flow-setting limitations imposed by the run-of-river operation, where inflow = outflow, we note that the Project still has a broad capability to manipulate flows spatially across the river channel. In fact, the licensee currently adaptively manipulates flows in an attempt to maximize the survival of downstream migrating Atlantic salmon smolts. Results of the IHA will provide valuable information outside simple flow-setting applications. The evolutionary flow variables IHA provides information about, which are described in our study request, can be used to identify potential enhancements to project operations, including, but not limited to informing the timing and duration of flows directed towards attraction for upstream migration, or spill for downstream migration. For these reasons, we disagree with Topsham Hydro that the requested IHA study demonstrates no nexus to project effects and that the study would not inform the development of license requirements. We also disagree with Topsham Hydro that the conduct of an IHA study is contrary to FERC precedent regarding gathering information on pre-project conditions. While IHA utilizes pre-project conditions as an element of the overall analysis, the application of the information produced by the IHA is not confined to pre-project conditions. In fact, FERC has approved IHA studies as a tool for obtaining information on environmental flow variables at a number of FERC relicensing proceedings, including, but not limited to: Jackson (P-2157); McCloud-Pit (P-2106); Drum-Spaulding/Yuba-Bear (P-2310, P-2266); and Merced River (P-2179).

Finally, referring to a statement in our study request, Topsham Hydro notes that it is not responsible for the mitigation of the impacts of other hydroelectric projects. We acknowledge that current regulatory limitations prevent Topsham Hydro from any requirement to protect, mitigate, or enhance for the direct effects of other hydroelectric projects. However, we note our section 7 Endangered Species Act (ESA) consultation will evaluate the direct and indirect effects of the project, as well as the effects of other activities that are interrelated or interdependent with that action. Additionally, FERC evaluates cumulative impacts of hydropower projects in its National Environmental Policy Act analysis, and when needed, has employed the inclusion of either standard or special re-opener articles in each license to address the effects of cumulative effects of multiple hydropower projects in a river basin.

As described here and in our study request, project operations can manipulate flows within the river channel. Migratory fish rely on hydrologic cues to aid them in their migration, cues which an IHA study is designed to assess. We note that this requested study is a desktop study and that the IHA software, developed in part by the Nature Conservancy is free for use. Therefore, we estimate the level of effort and cost associated with the conduct of this study to be minor - approximately \$4,000-\$8,000. The level of effort and cost of the requested study is commensurate with a project the sized of the Pejepscot Project and the likely license term.

3 NMFS MODIFIED STUDY REQUESTS

3.1 Study 1: Anadromous Fish Upstream Passage Efficiency Study

We support the two passage effectiveness studies proposed by Topsham Hydro (*Evaluation of Spring Migration Season Fish Passage Effectiveness* and *Evaluation of Fall Migration Season Fish Passage Effectiveness*). Those studies, as proposed, will be sufficient to address our requested information needs outlined in our Study Request 1, regarding the effectiveness of upstream fish passage.

However, we note that Topsham Hydro is not proposing to include any analysis of adult Atlantic salmon passage, as we requested. Topsham Hydro states that it "...feels that the measures contained in the SPP are more than adequate to inform the development of license requirements related to this issue."

The potential license term for this project will be 30-50 years, and therefore, our consultation will consider effects of the action over that term. The 30-50 year term is considerably lengthier than the other actions we previously considered for this project. As such, our information needs to evaluate the project effects to salmon and the ecosystem they depend on over that term are necessarily different. While we appreciate Topsham Hydro's collaboration on the development of the Project's existing Species Protection Plan (SPP), we would like to clarify that while the information and analysis developed under the existing SPP will certainly help to inform the next SPP, we do not concur with the assessment here that our information needs with regard to the project's impacts on salmon have been fulfilled. Topsham Hydro correctly indicates that they were not able to conduct upstream passage efficiency studies for Atlantic salmon, as required under the interim SPP (2012 -2016), due to insufficient adult returns to the Androscoggin River; and that the focus of their studies has therefore been on downstream survival of salmon smolts. As continued low returns are expected over the remaining 5 years of the current SPP, we do not expect that it will provide any information at all regarding upstream passage efficiency for Atlantic salmon at the Pejepscot Project. As such, we still request a subjective expert analysis regarding the effectiveness of the Project for upstream adult Atlantic salmon passage.

3.2 Study 2: Downstream Fish Passage Effectiveness and Survival: Behavior, Entrainment and Impingement at the Intake

As stated above, we support the telemetry elements of the two passage effectiveness studies proposed by Topsham Hydro (*Evaluation of Spring Migration Season Fish Passage Effectiveness* and *Evaluation of Fall Migration Season Fish Passage Effectiveness*). Those studies, as proposed, will be sufficient to address our requested information needs outlined in our Study Request 2, regarding the effectiveness of downstream passage.

However, Topsham Hydro is proposing to conduct a desktop entrainment, impingement, and turbine survival study, as opposed to an empirical test, which we requested. Topsham Hydro states that such desktop studies 1) have been commonly used as part of FERC relicensings; 2) will provide "reasonable" estimates of entrainment, impingement and turbine survival; and 3) will be less costly, while providing similar results as our requested empirical evaluation. We disagree with Topsham Hydro that its proposed desktop evaluation is likely to render an estimate of the project-related entrainment effects that is suitable and representative of existing real-world effects. Specifically, we note that: 1) Topsham Hydro's proposed methodology will not provide information regarding the type or source of mortality associated with its project's effects; 2) it is known that the efficacy of turbines for safe passage may change over time, thus potentially biasing the results of any desktop evaluation; and 3) the Pejepscot Project's four turbine units (three Francis and one Kaplan) do not operate with equal consistency (i.e. some units operate more frequently than others; some units may not operate at all during the study period), therefore, the study as proposed would be unlikely to gather the information necessary to fully evaluate the efficacy of all possible passage routes at the project. For these reasons, we continue to request a direct empirical evaluation of turbine entrainment.

We estimate that the cost of an empirical turbine survival evaluation would be \$50,000 - \$100,000. The level of effort and cost of the requested study is commensurate with a project the sized of the Pejepscot Project and the likely license term. As we indicate above, no alternatives can accurately provide this necessary information.

3.3 Study Requests 4, 5, 12: Downstream Passage Alternatives, Computational Fluid Dynamics Study, and Project Acoustic Effects

Our December 28, 2017 letter included requests for a 1) *Downstream Passage alternatives study*; 2) *Acoustic Effects Study*, and 3) *Computational Fluid Dynamics Study (CFD)* in conjunction with our requested *Study 1: Anadromous Fish Upstream Passage Efficiency Study* and *Study 2: Downstream Fish Passage Effectiveness and Survival: Behavior, Entrainment and Impingement at the Intake.* On February 12, 2018, Topsham Hydro proposed two studies of fish passage effectiveness: *Evaluation of Spring Migration Season Fish Passage Effectiveness* and *Evaluation of Fall Migration Season Fish Passage Effectiveness*. At the March 22, 2018 Study Plan Meeting, we agreed with Topsham Hydro that the three studies we requested above were intended to gather information on potential protection, mitigation and enhancement measures and thus, their necessity and specific methodology would most appropriately be evaluated upon the conclusion of its proposed passage effectiveness studies¹. At both the March 22, 2018 meeting and our April 27, 2018 meeting with Topsham Hydro, we clarified that our three requested studies should be included in the Final Study Plan as an element of a phased study approach in conjunction with the two proposed passage effectiveness studies. As such, we request a requirement for Topsham Hydro consult with resource agencies upon the conclusion of its proposed passage effectiveness studies regarding the need for the downstream passage alternatives study, the acoustic effects study, and the CFD study in the second study season.

3.4 Study 8: Stranding

We requested a study of potential stranding areas related to project effects. Topsham Hydro's February 12, 2018 Proposed Study Plan did not include any proposal to study stranding. However, in our April 27, 2018 meeting, Topsham Hydro proposed to conduct a reconnaissance level stranding evaluation of stranding through a combination of photo-documentation and on-site flow demonstration in consultation with us. We believe that this method will effectively identify stranding-prone areas and associated project operational scenarios, consistent with the intent of our original study request. As such, we are no longer requesting an evaluation of stranding using surface or hydraulic modeling methods.

4 NMFS STUDIES NO LONGER REQUESTED

4.1 Study Request 3: Downstream Fish Passage Effectiveness Study for Atlantic salmon Smolts

We requested an additional study year of downstream fish passage effectiveness for Atlantic salmon smolts². Page 39 of Topsham Hydro's Pre-Application Document (PAD) states: "At this

¹ As indicated in section 3.1 and 3.2 of this document, with some exceptions, we support these proposed studies in lieu of our study requests #1 and #2

² Topsham Hydro is conducting a study of downstream smolt passage effectiveness in 2018 independent of the relicensing proceeding, as required by its Species Protection Plan.

time, Topsham Hydro is not proposing to construct new facilities or to alter Project operations as part of the relicensing.” As such, our study request was intended to gather information on the action, as currently proposed in the PAD, to ensure a robust estimate of the effectiveness of the facility for the downstream passage of endangered Atlantic salmon smolts – information that would be sufficient to inform consultation under section 7 of the ESA for the term of the license. At both the PSP meeting and our April 27, 2018 meeting, Topsham Hydro signaled its intent to 1) conduct a follow-up study of downstream fish passage effectiveness for Atlantic salmon smolts, if the current study is unable to demonstrate passage efficiency sufficient to meet or exceed the 92% survival standard dictated by the Project’s existing SPP; and 2) consult with us to develop a new SPP during relicensing that would presumably include a new survival standard as well as provisions to study the passage effectiveness of any facility or operational modifications proposed in the license application and in light of any new survival standard. Given that Topsham Hydro intends to express these commitments in the Revised Study Plan, which indicate Topsham Hydro’s expectation that the relicensing process will likely result in facility modifications and/or project operations, we are no longer requesting an additional study season of downstream smolt passage effectiveness at this time.

4.2 Study Request 6: Instream Flow Study

We requested a study of instream flow downstream of the Project dam. Our requested study was based upon review of the PAD, which indicated that current project license established a minimum instream flow requirement of 1,710 cfs. The PAD further indicated that the flow requirement was based upon the Aquatic Base Flow Policy developed by the U.S. Fish and Wildlife Service. Upon review of Topsham Hydro’s comments included in their Proposed Study Plan, as well as information gathered during discussions at the March 22, 2018 PSP meeting, we now understand that the Pejepscot Project does not demonstrate the capability to control the volume of flow downstream of the project to any appreciable degree, regardless of the minimum flow requirement imposed by the current license. As such, we are no longer requesting a study of instream flow.

Document Content(s)

NMFS PSP comments_Pejepscot.PDF.....1-8