

UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION  
WASHINGTON, DC 20426

Project No. 4784-095 – Maine  
Pejepscot Hydroelectric Project  
Topsham Hydro Partners Limited  
Partnership

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

Dear Secretary Bose:

On August 1, 2018, the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) filed a Notice of Study Dispute to initiate the Federal Energy Regulatory Commission's (Commission or FERC) formal study dispute resolution process, pursuant to 18 CFR § 5.14, in the licensing proceeding for the Pejepscot Hydroelectric Project No. 4784-095 (Project). Topsham Hydro Partners Limited Partnership is the applicant for the Project.

In its Notice of Study Dispute, NMFS disputes the July 3, 2018 Study Plan Determination's treatment one of its study requests filed on December 28, 2017, and supplemented May 14, 2018. Specifically, the disputed study requests a study to quantify the ongoing project effects by non-native predators on the survival of native anadromous fish, including the endangered Atlantic salmon.

In its August 1, 2018 Notice of Study Dispute, NMFS staff designated Dan Kircheis as the Agency Dispute Resolution Panel member. On August 7, 2018, Commission staff designated Monte TerHaar to serve as the Commission staff Dispute Resolution Panel (Panel) chair. From an established list of potential third party panelists, Dan Kircheis and Monte TerHaar selected James Lynch and requested that he serve on the Panel. James Lynch agreed to serve and his statement certifying that he has no conflict of interest, which also summarizes his qualifications, was filed into the record on August 21, 2018. The Panel convened on August 21, 2018. None of the three panelists were involved in the Project licensing proceeding prior to serving on the panel.

On August 21, 2018 the Commission issued a Notice of Dispute Resolution

Panel Meeting and Technical Conference identifying the date and location for the Technical Conference. On August 29, 2018, the Panel filed a letter requesting that NMFS submit additional information relevant to the study dispute. NMFS provided the information to the Panel on September 7, 2018. The licensee filed comments on the dispute on August 24, 2018.

The Panel opened its Dispute Panel Meeting and Technical Conference at 10:00 a.m. EST on September 11, 2018, via teleconference. The conference call ended at 11:15 a.m. Twelve people participated in the conference call representing NMFS, the U.S. Fish and Wildlife Service, Brookfield Renewable and Topsham Hydro, and the three Panel members. The Panel reinforced that its scope was limited to the seven study criteria under Section 5.9(b) of the Integrated Licensing Process (ILP) regulations. The three panelists directed questions to NMFS and FERC. At the end of the discussion, time was provided for observers to comment. Topsham Hydro provided one comment. The Panel Chair reminded participants that at any time the parties may settle on the disputed study, in which case the panel would dissolve. The Panel requested that any additional information to be considered by the Panel be provided by September 13, 2018. The Panel would provide a report to the Director no later than September 20, 2018. Meeting notes are provided in Attachment B.

The Panel deliberated September 11 through 17. No new information was provided to the Panel for consideration by the disputing parties. After careful review of the record of information for this proceeding, and in consideration of the procedures set forth under 18 CFR § 5.14(k), we provide to the Director of the Commission's Office of Energy Projects, our findings and recommendations on the disputed study in Attachment A.

If you have any questions, please contact the Panel Chair, Monte TerHaar, at (202) 502-6035 or [monte.terhaar@ferc.gov](mailto:monte.terhaar@ferc.gov).

Sincerely,

Monte TerHaar, Panel Chair  
South Branch  
Division of Hydropower Licensing  
Washington, DC

Dan Kircheis, Panelist  
National Marine Fisheries Service  
Orono, Maine

James Lynch, Panelist  
Attorney  
KL Gates LLP  
Seattle, Washington

Enclosures: Attachments A and B

## **Attachment A**

### **Study Dispute Resolution Panel's Findings and Recommendations Pejepscot Hydroelectric Project No. 4784-095 September 18, 2018**

#### **Introduction**

The National Marine Fisheries Service (NMFS) filed a Notice of Study Dispute on August 1, 2018. NMFS disputes the Commission's July 3, 2018 Study Plan Determination's treatment one of its study requests filed on December 28, 2017, and supplemented May 14, 2018. Specifically, the disputed study requests a study to quantify the ongoing project effects by non-native predators on the survival of native anadromous fish, including the endangered Atlantic salmon.

Enclosure A includes the Pejepscot Hydroelectric Project Study Dispute Resolution Panel's (Panel) analysis of NMFS' Study Request request which was analyzed with respect to the study criteria defined in section 5.9(b) of the Commission's regulations.

Below we provide a brief description of project facilities and operations and background information as needed to provide context for the study request, our findings, and recommendation. We summarize the study dispute, offer our findings with respect to the study criteria, and provide our final recommendation. The Panel recommendation is based on review of the following information on file with the Commission for the Pejepscot Project:

- (1) FERC's Study Plan Determination filed July 3, 2018;
- (2) NMFS's Notice of Formal Study Dispute of Study Plan Determination filed August 1, 2018;
- (3) Licensee comments filed August 24, 2018;
- (4) Panel's request for information from the NMFS filed August 29, 2018; and
- (5) NMFS's additional information filed September 7, 2018.

## **Project Description and Background**

The Panel's understanding of project facilities and operation is based on information provided in the Pejepscot Project pre-application document filed August 31, 2017, and a letter from the licensee filed August 24, 2018.

The dam and an original powerhouse were constructed between 1896 and 1898. The project was issued a new license to operate the Pejepscot Project on September 16, 1982. The 1982 license authorized increasing the number of generating units at the project, which subsequently resulted in constructing a second powerhouse between 1987 and 1988.

The project is located on the Androscoggin River in the Village of Pejepscot Maine. The project consists of a dam, spillway, two powerhouses with intakes, and upstream and downstream fish passage facilities. The 560-foot-long, 47.5-foot high dam creates an impoundment approximately 3 miles long between the dam and confluence with the Little River. At normal pool elevation 67.5 feet the impoundment has a surface area of 225 acres. The spillway is equipped with five hydraulically operated bascule gates which are operated manually or automatically to provide a discharge up to 95,000 cfs. The dam and original powerhouse were constructed between 1896 and 1898. The current project includes the original powerhouse, and a newer powerhouse constructed between 1987 and 1988. The two powerhouses contain four generating units rated at 13.88 MW. Each powerhouse has a separate intake integral with the powerhouse. The intake of the original powerhouse consists of three separate gates protected by trashracks with 1.5-inch bar spacing. The newer powerhouse has one gate protected by a trashrack with variable bar spacing between 1.5 inches at the top and 2.5 inches at the bottom. The project discharges flows into a short tailrace that meets the Androscoggin River approximately 25 feet downstream of the powerhouse.

Upstream passage consists of a vertical lift elevator located at the base of the newer powerhouse. The elevator lifts migratory fish in a hopper about 30 feet vertically from the tailrace to the reservoir. Four attraction pumps in front of the entry gate to the hopper create attraction flows up to 160 cfs through the entry channel to attract fish to the hopper. The pumps can be sequenced to change the volume of attraction flow. Upstream passage is operated May through November as directed by Maine DMR. The hopper lifts fish about 5 times per day.

Downstream passage consists of two entry weirs located to the left and right of the intake to the newer powerhouse. An outlet pipe from each weir transports fish in water down to the tailrace below the dam. Attraction lights near the water surface guide fish to the entry weirs and outlet pipe. Downstream passage is generally

operated April 1 through December 31, as directed by Maine DMR. In 2017 additional downstream passage was provided by opening a section of the hinged spillway gate closest to the powerhouse to provide 500 cfs of spill flow at night during the month of May, which represents the peak period of smolt migration.

The Pejepscot Project is operated run-of-river by maintaining the reservoir elevation at 67.3 feet, or about 0.2 feet below the top of the spillway. The reservoir elevation is automatically controlled by passing flows through turbine-generator Unit 1 until its maximum flow capacity of 7,550 cfs is reached. Above 7,550 cfs the three smaller turbine-generator units in the older powerhouse are used to pass flows. The smaller units are mainly operated during high spring runoff or large storm events. When flows exceed the capacity of all four turbine-generator units, flows are passed through one or more of five spillway gates. The gates are opened when the reservoir level reaches 69 feet (1.5 feet above the spill gates), and begin to close when the reservoir reaches 68 feet.

#### Summary of Upstream Passage Study Requirements

Topsham Hydro proposes to use radio telemetry to study upstream passage of migrating river herring and American shad. For Atlantic salmon, Topsham Hydro proposes to continue studies outlined in the Interim Species Protection Plan required by FERC in 2017. The plan includes video monitoring of Atlantic salmon using the fish lift, and radio tagging and tracking Atlantic salmon once 40 salmon are passed at Brunswick for two consecutive years. Due to low numbers of Atlantic salmon present, FERC's study plan determination requires a desktop analysis of potential effectiveness of the fish lift for passing Atlantic salmon.

#### Summary of Downstream Passage Study Requirements

Topsham Hydro proposes to conduct downstream migration studies for adult American shad and river herring, juvenile clupeids, and adult American eel. The study will provide information on route of passage and survival. Topsham Hydro also proposes a desktop entrainment and mortality study to determine the overall effectiveness of downstream fish passage. FERC's study plan determination requires the desktop entrainment and mortality study proposed by Topsham Hydro.

#### Study Requested by NMFS

Information provided in NMFS's September 7, 2018 filing provides the most complete summary of the study request and design of the study. NMFS requested a predation mortality study in the impoundment based on the premise that the impoundment has the potential to slow passage of anadromous fish through the

impoundment, making them more susceptible to predation by largemouth bass, smallmouth bass, and northern pike. Target anadromous species included Atlantic salmon, river herring, and American shad. NMFS indicated that the study would provide at least three categories of information: 1) the plausibility of predation via an evaluation of predatory species composition and abundance in the headpond; 2) project-related predation risk associated with the rate of movement of anadromous species through the impoundment; and 3) an estimate of the level of mortality associated with predation. NMFS indicated that there were a variety of study designs that could provide information relevant to the project effects on predation, and identified its preference for a collaborative effort between the requestor and licensee in developing the specific methodology. NMFS provided some guidance and detail for a suitable methodology in the form of two references which implemented predation mortality studies,<sup>1</sup> and an outline of the major components of a study. This outline included: 1) A survey of the fish community and relative abundance of predator species obtained through sampling during the spring, summer, and fall; 2) Evaluating downstream migration speed utilizing telemetry data; and 3) Quantifying predation events using three potential methods which included gut content analysis, use of acoustic tags with predation detection technology, and use of predation event recorders. Study cost was estimated at approximately \$30,000.

## **Discussion**

*Study Criterion 1.* Describe the goals and objectives of each study proposal and the information to be obtained.

All panelists believed the NMFS study request sufficiently met this criteria.

*Study Criterion 2.* If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied.

All panelists believed the NMFS study request sufficiently met this criteria.

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

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<sup>1</sup> U.S. Department of Interior Report 2012-1130, Assessing Native and Introduced Fish Predation on Migrating Juvenile Salmon in Priest Rapids and Wanapum Reservoirs, Columbia River, Washington, 2009-11.

Predation Study Report Don Pedro Project FERC No. 2299, prepared January 2013.

NMFS is a resource agency; therefore, this criterion is not applicable.

*Study Criterion 4.* Describe existing information concerning the subject of the study proposal and the need for additional information.

NMFS provided two study reports and included numerous references to studies describing the effect of delays in the passage of anadromous fish, and predation on anadromous species. The Panel found the information provided was sufficient to understand why the study was being requested, but lacked sufficient detail to clearly describe why existing information was not sufficient. One Panelist questioned why existing information on predation rates was not sufficient, with NMFS responding site-specific information was deemed necessary to identify project-related effects.

All panelists disagree on the need for site-specific information on predation rates at this time, and recommend that more exact site-specific information is not needed until the extent of delays through the reservoir are determined. The telemetry studies already approved for American shad and river herring, and when Atlantic salmon are present in sufficient numbers, should be helpful in determining whether delays through the reservoir do occur, the extent of those delays, and measures which may be taken to reduce delays. In addition, the need for exact information should be weighed in view that predation in the reservoir is one of many sources of mortality for anadromous fish which would need to be evaluated.

*Study 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 dam impounds water. NMFS claims the impoundment creates conditions more conducive to non-native predator fish and slows migration of anadromous fish, making them more susceptible to predation. This claim is based on a literature review and no site-specific information.

Two Panel members agree a sufficient nexus is established. The third Panel member does not disagree that there could possibly be a nexus; however there is insufficient information to make that determination. The telemetry studies already approved for anadromous species could be used to evaluate passage through the reservoir, determine whether significant delays actually occur in the 3-mile long reservoir, and inform measures to reduce delays through the reservoir. Until such information is available, it is premature to conclude there is a project-related impact.



While the panelists are divided on nexus, all Panel members agree that insufficient detail has been provided on study design to conclude the information would inform the development of license requirements. NMFS identified two operational modifications which could reduce predator abundance; direct predator removal, and springtime impoundment drawdowns to eradicate predator nests. NMFS identified structural changes at the dam to reduce delay at the dam. NMFS also identified funding for improvement projects, as a method to offset losses due to mortality.

The Panel acknowledges that all these measures were provided to demonstrate a range of possibilities for license requirements. Therefore, the Panel will not comment on the specific measures. However, no explanation as to how the level of predation could be used to inform any of these potential measures was provided. In the end, this study would provide a rate of predation mortality in the reservoir. How would this rate be applied? A more refined study design with explicit goals and objectives would be helpful in evaluating this criteria. The study design should incorporate a programmatic approach to evaluating predation mortality, recognizing that predation mortality occurs through the entire river basin and not just a single project reservoir.

*Study 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.

The Panel agrees that NMFS did not provide adequate detail regarding the proposed methodology to conclude that the study methodology met generally accepted practices. NMFS provided some citations to relevant literature, provided a general outline of the study, and some examples of methodologies used in other cases, but did not propose a specific methodology. NMFS provided no information to determine whether the example methodologies were feasible in this case. For example, one panelist suggested that acoustic tags with predation detection technology would not provide reliable results, and the cost of predation recorders would likely exceed the cost of the study proposed by NMFS. NMFS suggested that the details of the proposed NMFS study should be developed in a collaborative process. While the Panel supports a collaborative process, the initial study plan meeting for this project was held in March 2018 providing sufficient time to develop a detailed study proposal.

The study methodology is incomplete. There are no provisions for identifying the differential predator mortality between the riverine sections in the project area

and impoundment. Without this information a project-related effect cannot be determined.

*Study 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.

NMFS indicated the study would require three separate sampling events (1 each season) and time to process data and conduct a bioenergetics study. The study would require a biologist and technician. NMFS estimated the cost of the proposed study at \$15,000 to \$30,000, with \$20,280 attributed to labor and \$9,720 to incidental cost.

The Panel agree that any study to evaluate predation losses in a manner which provides useful information would likely far exceed the level of effort and cost estimated by NMFS. The Panel also agrees the scope of a useful study would need to be greatly expanded to achieve the stated goals of NMFS. For example, if you are to evaluate the project-related predator mortality, you would also need sampling in the riverine sections for comparison.

### **Recommendation**

Based on the discussion above, the Panel recommends no change in the Director's determination. While Panel members may be divided on several study criteria, all Panelists concur that the study is not adequately developed to meet Study Criteria 5 and 7.

## **Attachment B**

### **Meeting Notes for the Pejepscot Project No. 4784**

#### **Study Dispute Teleconference**

Date: September 11, 2018

Time: 10:00 a.m. to 11:15 a.m.

Attendees: Monte Terhaar, Federal Energy Regulatory Commission (FERC)  
Ryan Hansen, FERC  
Matt Cutlip, FERC  
Navreet Deo, FERC  
Jeanne Edwards, FERC  
Matt Buhyoff, National Oceanic and Atmospheric Admin. (NOAA)  
Dan Kircheis, NOAA  
Mark Capone, NOAA  
Sean McDermott, NOAA  
Antonio Bentivoglio, U.S. Fish and Wildlife Service (FWS)  
James M. Lynch, K&L Gates  
Randy Dorman, Brookfield Renewable  
Frank Dunlap, Brookfield Renewable  
Kirk Smith, Gomez & Sullivan Engineers  
Tim Sullivan, Gomez & Sullivan Engineers

Federal Energy Regulatory Commission (FERC or Commission) panel staff discussed, with the representatives from NOAA, FWS, Brookfield Renewable, K&L Gates, and Gomez & Sullivan Engineers, the applicability of the Commission's seven study criteria to the predation study of the reservoir in dispute for the Pejepscot Project (P-4784).

#### **Questions from the Participants**

James Lynch requested a summary of the need for the predation study, and what the results of the study will inform, from NOAA.

Matt Buhyoff responded that the proposed study would quantify non-native predators

on native anadromous fish species of concern in the project area, which is a critical habitat for American shad, river herring, including alewife and blueback herring, and Atlantic salmon. The nexus between the results of the study and continued project operation is whether project operations increase the risk of predation on anadromous fish.

Mr. Lynch asked whether the predator populations are managed by the state for recreational fisheries.

Mr. Buhyoff replied that NOAA does not manage for these fish species. The draft management document from Maine Inland Fisheries and Wildlife, which was developed with Maine's Department of Marine Resources, identified the species of fish in question. NOAA's finding is that the state is actively managing to promote and restore anadromous fisheries in the river reach. There is acknowledgement that some non-native fish are game species, but these species are not afforded the same protections or management objectives as native or historic fish species. The state has no management actions in this reach that are designed to promote or enhance the population of non-native predators.

Mr. Lynch requested clarification that in NOAA's view, the non-native species are not managed for recreational fisheries. Mr. Buhyoff restated that the presence of the non-native species is acknowledged but there are no management actions to enhance these species.

Monte Terhaar stated that page 5 of NOAA's September 7, 2018, that the study will provide at least three categories of information – the plausibility of predation, the rate of movement of anadromous prey species, and an estimate of mortality associated with predation. Mr. Terhaar asked Mr. Buhyoff if he agrees that a great deal of information confirming that predation is a major restriction to restoring any anadromous species already exists in the record. NOAA has provided at least two references that support that predation can make up 8-10% of anadromous fish loss. Therefore, do you think that there is already enough information in the record that states that predation is a problem?

Mr. Buhyoff replied that NOAA believes predation is a problem, but in order to form a study of predation, empirical evidence is needed to conclusively support the anecdotal information that we have indicating that small and largemouth bass, and

northern pike occupy this area; we have background information and literature searches that indicate that predation is probably significant problem; but NOAA is requesting a specific empirical test of that hypothesis through a study of predation.

Mr. Terhaar states that the second component of the proposed study, NOAA discusses project related predation risks associated with the rate of movement of anadromous prey species. It's my understanding that information will be covered by studies that have already been approved and include radio tagging.

Mr. Buhyoff replied that he was not positive that the design of the approved studies would identify the rate of movement through the impoundment, and felt was something that needs to be looked at through modifying an approved study. The telemetry study, as designed, will give information of the delay at the dam, more associated with downstream passage, which is one component of this study. But you need to be able to tie all the elements together. The approved studies will help.

Matt points out that those two elements are only two risks associated with predation that we can get at. Homogeneity of habitat created by the impoundment itself is a risk factor.

Mr. Terhaar clarified that in his opinion delay or blockage of fish movement at the dam is a separate issue than the study information that's being asked by NOAA; that fish are being delayed in the reservoir, itself making them more vulnerable to predation. A lot of the information provided is on the delay of the dam. In my opinion, that is a separate issue that will be addressed by fish passage studies approved for the project. My focus is on what's happening in the reservoir.

Mr. Buhyoff disagreed and stated that the delay or change in rate of movement creates a risk of predation that could be addressed by a license condition, requiring measures that would reduce said risk. Rate of predation and mortality estimate, defined as a significant project effect; the next step would be to look at project conditions that could help reduce risk. That second piece, the movement of fish in the reservoir would be valuable in defining the possible conditions necessary to protect against project effects.

Mr. Terhaar asked if the proposed study would estimate the level of mortality associated with predation, in terms of an estimated percentage reflecting the

reduction in the fish population.

Mr. Buhyoff confirmed that an estimate of mortality associated predation would be ideal and would narrow down the license conditions to consider by identifying a percentage mortality to compensate or mitigate for.

Mr. Lynch asked for an explanation of the study methodology. Based on cost estimated of the study; \$15,000-\$30,000, what is the level of effort intended, what results would be obtained from that effort, and how reliable the results would be.

Mr. Buhyoff stated that the cost estimate is a requirement of FERC, and the range provided is a rough estimate. NOAA believes the study is necessary at whatever level of cost required. In terms of effort, study planning process under the integrated licensing process is meant to be collaborative, and NOAA hopes to work with the licensee and others to develop a study design that provides a robust estimate of predation and reduces costs to the extent practicable. The method that we put forwards as a guidance is to estimate predation is the development of a bioenergetics model, which can be very intensive and would require sampling and a relative abundance estimate. The estimate would take approximate three sampling events totally 24 hours; spring migration; summer; and fall migration, including relative abundance estimates and sampling gut contents.

Mr. Lynch asked if a statistical approach has been developed, aside from sampling of fish.

Mr. Buhyoff responded that the study request targets several species and would require some sensitivity analysis to determine an ad hoc sample size. Given an estimate of 179,000 river herring that made it upstream of the project, NOAA does not anticipate a statistical problem given the fecundity of river herring. Turning to Atlantic salmon smolts, NOAA estimated through population probability analysis that salmon smolts in the reservoir is approximately 9,000-10,000 smolts in the in the project area, any given year. Smolt populations are supported by a fry stocking program upstream of the project. Population numbers in the reservoir are also from natural reproduction in the project area.

Additionally, there is a fry stocking program in Maine that provides Atlantic salmon juvenile smolts that could be used for a predation study. NOAA provided a reference

in the panel's response to the panel's questions regarding a study to estimate predation that used 216 salmon smolts. Although NOAA has not had the time to perform statistical sensitivity analysis yet, based on the studies in the literature and at least based on the high population of river herring alone, NOAA concludes that it is possible to develop a statistically sound study.

Mr. Lynch asked if the proposed study methods, including the bioenergetics model and two different tagging approaches, are independent of one another or if all three proposed methodologies would be carried out.

Mr. Buhyoff clarified three categories are independent methods of quantifying predation. Bioenergetics sampling tends to be more statistically rigorous and requires higher sample sizes, and also more effort post-sampling. There are new radio tags that can identify predation events, but he does not have personal experience with the equipment or knowledge of the costs associated.

Mr. Lynch replied that in his experience, radio tags are not readily available and can be very expensive. He expressed concern that they would not fit into the cost estimate provided for the study, and asked Mr. Buhyoff to clarify the number, cost, and availability of radio tags.

Mr. Buhyoff responded that it is not NOAA's job to ascertain the costs of a study ahead of time, and reiterated that NOAA needs for the information potentially resulting from the study. He added that the methods proposed were provided as examples of different types of study designs and possibilities that are well based in scientific literature and have been utilized in other studies.

Mr. Lynch referred to B7 of the September 7, 2018 filing and expressed his confusion with the estimates of cost and effort provided. Taking 19 C.F.R. 5.9 (d) into consideration, he asked NOAA to clarify why a site specific study is needed in lieu of general literature and existing studies on predation rates for the particular species in question and why is a site-specific study needed?

Mr. Buhyoff replied that predation is very site specific, which depends on multiple elements such as the relative abundance of predators at a site, the water temperature, etc. Information found in general literature cannot be used to estimate the site-specific impact, unless the information requested in the study is already available.

Mr. Lynch questioned why NOAA could not assume a high end estimate of predation, assuming worst case of high level predation, from existing studies in place of an actual study. Mr. Buhyoff answered that NOAA would like to use a high end estimate, NOAA would assume 12% mortality due to predation in the impoundment; however the licensee may argue against the validity of that assumption. Without the information to quantify site specificity, NOAA would not be able to counter the licensee's argument against the validity of a high end estimate.

Mr. Terhaar commented that predation studies are highly variable because they are based on site-specific data. In the case of Columbia River example provided by NOAA, baseline information was compared to samples collected in additional years. Results were variable as the project changed. There is concern that in order for this information to be useful, additional studies would be required, or would be on-going.

Mr. Buhyoff replied that additional years of data would enable better conclusions. Limited environmental studies, as are common in FERC projects, is based on information that is highly variable.

Mr. Lynch asked what information from the proposed telemetry study in combination with the literature cited, would be missed with the studies the licensee is proposing?

Mr. Buhyoff replied that a telemetry study would provide background mortality; including all sources of mortality without prejudice. NOAA's proposed study includes a method to determine the source of mortality, including project effects, predation notwithstanding.

Mr. Lynch asked about the level of communication between NOAA and the licensee; specifically, if the type of tags used in the telemetry study could be adjusted to include predation.

Mr. Buhyoff replied that NOAA proposed the study on predation was not initially proposed nor included in study deliberations. Further, NOAA stated that although the licensee proposed a telemetry study, the predation portion of the study was not included, nor was there a conversation on how the telemetry study could dove-tail into the predation study.



Mr. Lynch asked Mr. Buhyoff that in the event the study results do show a level of predation, what conditions would be necessary to mitigate the effect?

Mr. Buhyoff asked Mr. Lynch to refer to NOAA's recent filing which details the three categories of information the agency is hoping to gather from study. Based on the study results, potential conditions may include: 1) direct removal of the predatory species; 2) catch & kill events; 3) reservoir drawdowns to destroy predatory fish nests; and 4) modifications to project structures and operations to reduce the risk of predation, including (i) insulated weirs, (ii) partitioned flow to prioritize downstream bypasses, (iii) reduction of delays in the movement of fish at the dam, (iv) speeding up passage, (v) construction of additional downstream passes, (vi) floating surface collection facilities, and (vii) providing additional spill by shutting down the project generating units.

Mr. Lynch asked if, aside from predator removal, there are operational changes that could address predator species. Mr. Buhyoff replied that there are operational changes that can address predator species. He clarified that the purpose of PM&E measures is to mitigate for project effects on resources that cannot be protected from project effects.

Mr. Lynch asked Mr. Buhyoff to clarify how the study would inform license requirements, and provide specific conditions that FERC could impose to affect predator populations.

Mr. Buhyoff stated that the licensee could directly remove the predator populations through electrofishing operations, catch and kill events, and performing reservoir drawdowns in the spring when predator species nest.

Mr. Lynch asked which species would be affected by reservoir drawdowns, which species would remain unaffected, and which species would be affected by electrofishing.

Mr. Buhyoff replied that large and small mouth bass would be affected by drawdowns, while northern pike would not. Electrofishing would be effective on all predator species.

Dan Kercheis asked FERC to expand on the basis for rejection of the study request. Mr. TerHaar responded that regardless of FERC's rationale for rejecting the study,

the panel would develop their own, independent rationale which could differ from FERC. Ryan Hansen responded the study request was rejected for several reasons, including it was unclear how the data would be used to develop license conditions.

Mr. Kercheis stated that the probability of attaining reasonable sample sizes of juvenile salmon is low. Project operations are run-of-river and therefore the operator has little to no operational flexibility to control predation. Further, the state's management plan called attention to recreational fishery for bass in the reach.

Ryan Hansen agreed and added that the results of the approved telemetry study would provide information on delays in fish movement, one of the factors contributing to the additional risk of predation.

Mr. Kercheis asked Mr. Hansen whether NMFS' suggestion to utilize the hatchery program to supplement the salmon population needed to attain reasonable estimates for the study would address FERC's concerns.

Mr. Hansen responded that it may. He added that at the time of the study determination, information on the hatchery program was not available. FERC was of the understanding that very few natural, or wild, fish were passing upstream of the project. To utilize smolts from an outside source for the predation study would constitute a new study design, independent of the study design originally evaluated, and therefore he cannot comment on whether it would satisfy FERC's study criteria.

Mr. Kercheis requested clarification on FERC's dismissal of the study with respect to the fish species identified in the original study requested by NOAA.

Mr. Hansen replied that the original study objective did not explicitly state which species would be included in the study. It was FERC's understanding that the study would focus on Atlantic salmon, and data would be collected for this species.

Mr. Kercheis asked FERC to clarify the nexus between the study proposal and license requirements. Must the study proposal demonstrate with certainty that the results would be used to develop or inform license requirements?

Mr. Hansen responded that aside from direct removal of the predatory species, the original study proposal did not identify what type of license requirements would be

informed from the study alone. FERC was not inclined to consider the operational or structural measures proposed because any issues associated with delay of movement would be properly addressed by the telemetry study. The only blatantly obvious license requirement that would result from the proposed study, at the time, was direct removal of predatory species. Unless the study would result in a suite of requirements, we did not see the need for it.

Mr. Kercheis proceeded to discuss the discrepancies in the state's fisheries management plan. The 2017 draft fisheries plan contradicts the use of the lower river reach for recreational large and small mouth bass fisheries. Mr. Kercheis asked Mr. Buhyoff to address this discrepancy.

Mr. Buhyoff stated that the management plan itself addresses the fact that conflicting management goals exist among the state agencies managing the river. It is his understanding that the state is managing the river as a corridor for anadromous fish. The state is not actively promoting or enhancing the non-native game fish population. The state acknowledges that non-native game fish population exists and is popular among out-of-state visitors.

Mr. Hansen added that the draft management plan is confusing due to the conflicting goals of the two agencies involved. For the river reach in question, Inland FWS mentioned that it will maintain, and where possible, enhance the popular bass fisheries, which suggests to FERC that it is a valuable fishery that may justify enhancement. This may or may not be detrimental to anadromous fish.

Mr. TerHaar stated that in reviewing the study dispute, it is obvious that the crux of the issue is whether the study will inform license conditions or fishery management conditions. To a lesser degree, the Panel is concerned whether the study proposal establishes an appropriate nexus. The actual study design and anticipated study results can be refined if the study criteria is met and the nexus is established. The panel is looking for cooperative efforts between the licensee and the agency to demonstrate the scope and costs of the study. In terms of the nexus, the Panel has looked for other examples of predation studies and has not found any cases that are directly applicable. The Don Pedro study comes close, but as a pumped storage project, the operations differ significantly from the Pejepscot Project. The Pejepscot Project is operated as a run-of-river project, and as a result, does not directly influence flows in the reach. The reservoir is created by the dam, which serves

multiple purposes aside from hydropower production. If the hydropower element of the project was removed, the Panel is not convinced that the predation issue would disappear. Therefore, what is the study nexus?

Mr. Buhyoff replied that the original study request addressed the issue of the nexus and he had no further thoughts to add on the issue. Mr. Buhyoff stated his belief that the nexus had been established in this case, and in other FERC projects addressing this issue. He expressed his doubt that a run of river project would have a different influence on flows in the reach, and as a result on predation, than a pumped storage project.

Mr. Terhaar asked Mr. Buhyoff to provide an example of another FERC project where a nexus between project effects and predation was established. Mr. Buhyoff responded that the Don Pedro case is an example. He added that predation is not an uncommon issue at FERC projects, and that FERC frequently requires conditions to address predation.

Mr. Lynch asked Mr. Buhyoff if the study would be completed in one season. Mr. Buhyoff replied that based on his review of similar studies, and the information that would need to be gathered, the study could be conducted in one season. He would prefer to consult with the licensee and other agencies to develop the final study design, however.

### **Closing Comments**

Mr. Terhaar called for any additional or closing comments from the participants.

Randy Dorman expressed Brookfield Renewable's desire to work with the study requesters (NOAA) and commitment to a cooperative and collaborative study process. Mr. Dorman explained that Brookfield Renewable is concerned with the lack of a detailed methodology for the proposed study, and the difficult in evaluating the study against FERC's study criteria. He commented on the references made by NOAA to the Don Pedro study and expressed concern over the lack of similarities between the project characteristics and operations. He stated that study results from Don Pedro are largely inconclusive and the study does not serve as a strong model for the Pejepscot Project. Mr. Dorman expressed his willingness to work with the resource agencies if an appropriate methodology is proposed. He added that the suggested license measures address passage time and delays in the rate of movement

of fish species rather than predation, which are already covered by the approved telemetry studies.

Mr. TerHaar closed the teleconference by reminding participants that the licensee and NOAA have the option of settling on the study dispute before the panel issues their determination. In the event that the licensee and agency are able to reach a settlement, the panel would dissolve and a decision would not be issued. Mr. TerHaar asked the participants to file any written comments for the panel to consider by the end of the day Thursday.

Document Content(s)

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