



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

August 16, 2021

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

**RE: Comments on the Draft Environmental Assessment for the Shawmut Hydroelectric Project (FERC No. 2322-069)**

Dear Secretary Bose:

We have reviewed the draft environmental assessment (Draft EA) for the Shawmut Project (P-2322), issued July 1, 2021.

The Draft EA identified the FERC staff alternative as the preferred alternative for analysis under NEPA. By definition, the preferred alternative “is the alternative which the agency believes would fulfill its statutory mission and responsibilities, giving consideration to economic, environmental, technical and other factors” 46 Fed. Reg. 18026 (March 23, 1981). The staff alternative does not include several measures that are required by mandatory fishway prescriptions issued by the U.S. Fish and Wildlife Service (USFWS) and NOAA’s National Marine Fisheries Service. Therefore, as the staff alternative would not fulfill FERC’s statutory responsibilities, we do not see how this can be the preferred alternative. Further, while we recognize FERC’s acknowledgment in the draft EA that the prescriptions are mandatory and the terms are reflected in the “Staff Alternative with Mandatory Conditions,” the decision to not analyze the effects of that alternative means that the draft EA does not provide a clear description of how the licensee will be required to operate and maintain the project under the terms of a new license and does not present a clear analysis of the effects to our trust resources, including endangered Atlantic salmon because it analyzes an alternative that will not be implemented. As the staff alternative does not include the prescriptive measures, it isn’t feasible and its inclusion will only serve to confuse the public and add little value to the decision making process. The staff analysis can put forward an alternative (so long as it is not the preferred alternative) without our prescriptive terms and conditions for comparison; however, it is not clear to us how this approach informs the public and facilitates the decision making process. The preferred alternative must incorporate our prescriptive terms and conditions. For the FERC staff to exclude our mandatory prescription terms and conditions from the preferred alternative is contrary to existing law.

Because the mandatory conditions will be a part of any license issued by FERC, we strongly encourage you to revise the draft EA to analyze the effects of the “Staff Alternative with Mandatory Conditions” as that appears to be the action that FERC is proposing to take and



would be consistent with the NEPA definition of “preferred alternative.” In the final EA, we recommend FERC appropriately compare alternatives with equal weight and greater consideration for mandatory conditions. We have identified a number of deficiencies and issues with FERC’s DEA as detailed in the attachment (Attachment A). These include a failure to adequately consider the combined effects of the continued operation of Shawmut in the context of other dams in the river, dismissal of the recommendation to consider dam removal without adequate analysis of the benefits vs. costs of operation of Shawmut with the mandatory conditions, and insufficient analysis of the effects of the project on Atlantic salmon. If you have questions regarding our comments, please contact Matt Buhyoff (Matt.Buhyoff@noaa.gov).

Sincerely,



for  
Jennifer Anderson,  
Assistant Regional Administrator  
for Protected Resources

Attachment

cc: Matt Buhyoff, F/GAR 3  
Chris Boelke, F/GAR 4  
Julianne Rosset, USFWS  
Casey Clark, MDMR

## **National Marine Fisheries Service’s Comments on FERC’s Draft Environmental Assessment for the Shawmut Hydroelectric Project (FERC No. 2322)**

The following provides detailed comments on the draft environmental assessment (Draft EA) for the Shawmut Project (P-2322).

### **General Comments**

#### *NEPA*

On August 16, 2017, we recommended that the Commission analyze the impacts of the Shawmut Project by preparing an Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act (NEPA). Our recommendation was based on sufficient information indicating that the Shawmut Project affects important natural resources, had significant public interest, and that its relicensing constitutes a major federal action significantly affecting the quality of the human environment. It is still our position that this relicensing meets the requirements for preparation of an EIS. Despite the recommendation from us and others, the Commission instead analyzed the environmental effects of this project in an Environmental Assessment (EA). In doing so, the Commission implied that the relicensing of the Shawmut Project is not a major action that significantly affects the quality of the human environment, deprived stakeholders of a required public meeting to discuss its NEPA analysis, and thereby limited the accessibility for the public to provide input on the NEPA document.

On June 1, 2021, Brookfield submitted requests for license amendments at Shawmut, and at each of the three adjacent Brookfield dams on the Kennebec River. The amendment request for Shawmut is described as an “Interim Plan” for the Shawmut Project, which would “continue the protection measures outlined in the expired Interim Plan, plus additional supplemental measures and the terms and conditions contained in the expired Incidental Take Statement and BO, until such time as the Commission issues a decision to relicense the application.” The amendment request at the other three projects is to incorporate a Final Plan that “proposes actions the licensees would undertake for the remaining license terms of the Lockwood, Hydro-Kennebec and Weston Projects for the protection of ESA-listed Atlantic salmon, Atlantic sturgeon, and Shortnose sturgeon.” The information regarding proposed project operations of all four Brookfield Kennebec River dams contained in the amendment requests are highly interrelated with the Shawmut licensing proposal. Yet, analysis in the DEA largely ignores these proposed actions, other than to establish that “the Commission has no authority to require, through the Shawmut Project license, any passage performance standards or any changes in project operations or facilities that might be needed to meet such standards at the other three projects. Therefore, there is no basis for a license condition for the Shawmut Project that would require Brookfield to meet a cumulative upstream or downstream performance standard for all four lower Kennebec River Projects combined.” While we understand and acknowledge that any

potential license conditions resulting from this relicensing proceeding will only apply to the Shawmut Project, we note that the DEA's analysis is conspicuously silent on the reasonably foreseeable actions/effects of the adjacent Brookfield dams, as defined in the license amendment requests filed with the Commission on June 1, 2021. As such, we question any conclusions or staff recommendations resulting from isolating the NEPA analysis to only address the effects of the Shawmut relicensing, when Brookfield itself has clearly established in its filings to the Commission that it intends to operate all four of its Kennebec dams, including Shawmut, systematically.

### *Performance Standards*

In several instances you state or imply that our preliminary section 18 prescription specifies performance standards for fishway efficacy. To clarify, our preliminary prescription establishes our expectations for how we will evaluate the degree to which any fishway provides safe, timely, and effective passage of our trust species; the "standards" are intended to be interpreted as likely minimum thresholds for a fishway to be considered as providing safe, timely, and effective passage. As indicated in our preliminary prescription, we anticipate coordinating with the other resource agencies on the development of monitoring plans that will establish more permanent criteria for river herring and American shad. If information suitable to derive those standards are available, we will incorporate them in our modified prescription. We expect to evaluate whether operation of the Project in compliance with the licensee's proposed performance standards and the other proposed measures for Atlantic salmon is likely to jeopardize the continued existence of Atlantic salmon or result in the destruction or adverse modification of their critical habitat in our Biological Opinion. We request that you revise your EA to remove any phrasing or implication that the standards which we reference in our preliminary prescription are final prescriptive measures.

### **Section 3.3.1., page 39 and page 59**

FERC staff indicates that "Brookfield states that it chose its upstream performance standard for salmon because it was directed by NMFS to use performance standards that are comparable to those used for dams on the Penobscot River." We note that "performance standard" is used in this context to mean a standard for upstream or downstream survival and/or delay that the licensee is proposing to achieve through implementation of measures they propose to be included in the project's license.

We also note that this statement from Brookfield is a misinterpretation of the explicit guidance expressed by NMFS staff to Brookfield staff numerous times. Our intention (and Brookfield's) throughout our informal consultation period for this project, as well as coordination on Brookfield's proposed species protection plan (SPP) for its other three Kennebec River dams

adjacent to this project, was for Brookfield to develop a plan for improvements to Atlantic salmon passage at these four projects that would minimize the effects of the four dams on Atlantic salmon to the maximum extent practicable and result in a cumulative survival standard (i.e., “end of pipe”) (for downstream passage) and passage effectiveness standard (for upstream passage) that was *at least* as high as what was proposed by Black Bear Hydro Partners in their 2012 SPP on the Penobscot River. As there are three mainstem dams on the lower Penobscot versus four on the Kennebec, the per-dam passage efficiency and survival logically needs to be higher on the Kennebec to account for the additional dam. We also emphasized that as spawning habitat is distributed differently on the Kennebec (i.e., almost all spawning habitat is above all four dams on the Kennebec, whereas on the Penobscot, habitat is more evenly distributed between the different dams), that even standards equivalent to those on the Penobscot may be insufficient to ensure that Atlantic salmon are able to survive and recover in the Kennebec River.

Regardless, the difference in cumulative upstream and downstream passage through four dams with a standard of 95% versus 96%, and 96% and 97%, respectively, is approximately 3.5%. These differences can be significant when one is considering effects to a critically endangered species over a 30 to 50 year time horizon. For these reasons, we expect that the difference between Brookfield’s proposed standard and Maine Department of Marine Resources’ (Maine DMR) recommended standard would be even more significant. In the pending ESA Section 7 consultation we will carry out a thorough analysis of the proposed action, including Brookfield’s proposed “performance standards” to determine if the proposed action is likely to jeopardize the continued existence of Atlantic salmon or result in the destruction or adverse modification of designated critical habitat. One outcome of the pending ESA consultation on the effects of continued operation of the Shawmut project on endangered Atlantic salmon may be issuance of an Incidental Take Statement (ITS). That hypothetical ITS would contain an exemption from the ESA section 9 prohibitions on take for a certain amount or extent of take of various life stages of Atlantic salmon incidental to operations of the project. Those “limits” in the ITS have been referred to in some cases as “performance standards.” However, we note that this would not be a goal for project operations, but rather the minimal acceptable performance that would be in compliance with any hypothetical ITS. Any incidental take limits set in an ITS should not be confused with NMFS goals or objectives for upstream or downstream fish passage which would always be to get as close to 100% survival and 0% delay as possible.

### **Section 3.3.1., page 40-41**

In several instances in FERC staff’s analysis on the importance of the upstream passage standard for salmon, it is implied that the low number of returning salmon to the Kennebec (as compared to the Penobscot) somehow constrains the effect that a higher performance standard would have on survival and recovery of Atlantic salmon. It should be noted that the number of returning salmon to both the Kennebec and the Penobscot is largely influenced by the amount of stocking

from the USFWS recovery hatchery program that occurs in each river. Stocking is required, according to the recovery plan, largely because of the effects of dams in freshwater as well as poor marine survival and is essential at this stage of recovery to prevent extinction of the species. We fully expect that stocking in the Kennebec River will increase over the term of any new license. In 2020, Maine DMR stocked 89,000 smolts in the Kennebec River (a five-fold increase in outmigrating smolts when compared to your estimate of 18,420); an effort that is expected to continue for several years. We therefore anticipate that the average annual return of 44 returns could increase significantly during the period of a new license based solely on increased stocking. Arguably, if the Kennebec were being stocked at the same levels as the Penobscot, the difference between a 95%, 96%, and 99% standard on the number of returning adults would be more stark. To illustrate this point, we have adapted your calculation shown in Table 4 to indicate what the difference might be at levels of stocking analogous to the Penobscot (again, returns will be significantly influenced by stocking until the threats to the species (e.g., dams and marine survival) are addressed).

Species	Est Return	Baseline	Brookfield	NMFS minimum	Maine DMR
		79%	95%	96%	99%
Atlantic salmon	846	331	692	721	816

The difference between Maine DMR’s standard and the Brookfield standards in Table 4 (pg. 41 of your DEA) is 7 fish, which is more salmon than return to some of our GOM DPS salmon rivers in some years. As demonstrated in the revised table, if the Kennebec saw the same level of returns (again, note that this is largely stocking dependent) as the Penobscot (average return of 846) the *difference* between 95% and 99% (~124 salmon) would be larger than the average annual return to the *entirety* of two of the three recovery units. Therefore, these differences are not minor or insignificant, particularly given the status of this critically endangered species. As indicated, we will fully evaluate the proposed action, including Brookfield’s proposed “performance standards” in our Biological Opinion.

On page 41, FERC staff indicate that “...the average return for 2014-2020 represent about two percent of the restoration goal of 2,000 adult salmon. Based on these existing low run sizes compared to the restoration goals, the higher performance standards stipulated by NMFS and recommended by Maine DMR would provide minimal benefits to the Atlantic salmon population at this time.” FERC staff’s apparent conclusion is that there is no benefit to trying to eliminate or minimize the effects of hydroelectric dams, including Shawmut, given that such dams have already significantly reduced the number of returning adults. Again, this ignores two critical points. First, the number of salmon returning to the Kennebec (and all GOM DPS rivers) will

largely be driven by stocking effort until such time as the major threats have been addressed. Second, the primary threat in freshwater (as identified in the 2019 recovery plan) is the effect caused by dams, and hydroelectric dams in particular. Further, the critically small population size and the major impact of dam operations on this population call for ensuring that mortality and delay are minimized to the maximum extent practicable. We urge you to reconsider your approach to this analysis and recommendations in the final EA.

### **Section 3.3.1., page 39**

FERC staff incorrectly states that “This [upstream passage] performance standard was the same standard applied at six hydropower projects on the nearby Penobscot River.” We note that only three dams on the Penobscot River currently have upstream passage performance standards for Atlantic salmon (i.e., Milford, West Enfield, Mattaceunk). Further, whether one or more dams on the Penobscot River is operating to meet a particular upstream passage standard is irrelevant to the consideration of upstream survival and delay standards for the Shawmut project, given that each river differs in terms the distribution of suitable spawning and rearing habitat in the watershed and of the number of dams that salmon are forced to encounter to migrate to or from suitable habitat, as described in more detail above in our comments on section 3.3.1, page 39 and page 59.

### **Section 3.3.1., page 46**

FERC staff state that:

“Constructing additional fishways could improve passage effectiveness for any of the target species especially if fish are failing to find the fishway entrances and are being falsely attracted to or are congregating in other areas below the dam (e.g., spillways or powerhouse tailraces). While any of the types of modifications described by NMFS could theoretically improve passage for some of the species, the measures are too general to specifically evaluate their potential benefits at this time. Additionally, under NMFS’s prescription and Maine DMR’s recommendation, even if Brookfield is meeting performance standards for some species such as the federally listed Atlantic salmon, it might not for others, and therefore, could need to modify the fishways to attempt to improve passage. Any such modifications could affect the effectiveness of the fishways for passing federally listed Atlantic salmon, possibly even reducing passage effectiveness below performance standards in an attempt to improve passage conditions for other non-listed species.”

The implication of staff’s analysis seems to be that we shouldn’t seek to improve passage for other diadromous species, including shad, river herring, and lamprey in the off-chance that doing so would affect the passage of critically endangered salmon. FERC staff do not present any

evidence that this hypothetical is a valid concern, nor does it acknowledge that the recovery of co-evolved diadromous species provide important ecological functions and as such, are a physical and biological feature of critical habitat for Atlantic salmon. Atlantic salmon are proficient swimmers that are known to effectively pass numerous types of fishways. We are confident that any fishway designed specifically to pass alewife and shad will also pass Atlantic salmon, and believe that creating additional passage opportunities would only increase the proportion of salmon that pass the project. We anticipate that additional fishways could also reduce migratory delay. Furthermore, any design planning between the resource agencies regarding the construction of a new fishway would necessarily consider the full suite of diadromous fish, including Atlantic salmon. This unfounded assessment should be removed from the final EA.

### **Section 3.3.1., page 54**

We appreciate staff's analysis, as it may provide useful information on the effectiveness (or ineffectiveness) of different rack spacing that we expect we will consider further in our Biological Opinion. We note, however, that although FERC staff acknowledge the behavioral deterrent effect of 1-inch racks, they do not attempt to incorporate it into their analysis and ignore it entirely when recommending 1.5-inch racks. We are aware that 1-inch racks do not physically exclude salmon smolts; studies have been conducted that demonstrate that they may act as a behavioral deterrent. For instance, a recent study in Estonia documented fewer than 25% of acoustically tagged smolts passing through turbines with 1-inch racks, despite 80% of the river flow going through the powerhouse (Kargenberg et al., 2019). In another study, the installation of angled 1-inch racks at a project on the Boguet River in New York fully deterred 100% of radio tagged smolts from entering the project turbines (Nettles and Gloss, 1987). FERC staff did not present any information to indicate that their alternative (1.5-inch racks) would be as effective at deterring juvenile salmon as 1-inch racks. This analysis should be updated to consider behavioral deterrence in the final EA.

### **Section 3.3.1., page 59**

FERC staff state that "...neither NMFS nor Maine DMR demonstrated how the higher survival standards would benefit the downstream migrating Atlantic salmon smolt population."

As we indicated, as part of our section 7 consultation, we will fully analyze the effects of operating the project consistent with Brookfield's proposed passage standards in our Biological Opinion. However, given staff's analysis, it is necessary to emphasize the following points. Atlantic salmon are an ESA-listed species; Section 9 of the Endangered Species Act prohibits the take of ESA listed species. Section 7(a)(2) of the Endangered Species Act requires that federal agencies ensure that any actions they authorize, fund or carry out are not likely to jeopardize the



continued existence of any listed species or destroy or adversely modify any designated critical habitat. Furthermore, section 7(a)(1) of the ESA directs federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. The ESA dictates that federal action agencies (such as FERC) should not just minimize project effects, but should proactively seek opportunities to contribute to the recovery of listed species. We see very little evidence in this analysis that FERC staff acknowledges the responsibilities of the Commission under section 7(a)(1). To be clear, while the operation of the project in any configuration is likely to result in the loss of juvenile and adult Atlantic salmon, by ignoring or minimizing our mandatory fishway prescription and Maine DMR's recommendations-- and the associated reduction in impacts to salmon, FERC staff's recommended alternative amounts to the harming, harassing, and killing of significantly more Atlantic salmon on an annual basis for the next 30 to 50 years. Plainly, the most obvious benefit of a higher survival standard is that fewer federally protected salmon would be killed as a result of operations of a federally licensed project. We strongly recommend you reconsider your position on this issue in the final EA.

Ensuring that more Atlantic salmon smolts enter the ocean is the surest method we have for overcoming the significant challenge of high marine mortality. We elaborate on this in the 2019 Recovery Plan and in our recently released 2021-2025 Species in the Spotlight Priority Action Plan ([Species in the Spotlight: Priority Actions 2021-2025, Atlantic Salmon](#))<sup>1</sup>. Marine survival fluctuates considerably, and, given our current understanding, except where it is influenced by the latent effects of dam passage, is very difficult to change. In order to overcome this challenge, we must maximize the quantity and quality of smolts that survive to enter the marine environment. Improving upstream and downstream passage to minimize mortality and delay to the maximum extent practicable should be a high priority for Brookfield and for FERC. As indicated, we look forward to continuing to work with you throughout our anticipated formal consultation under section 7 of the ESA.

### **Section 3.3.1., Page 59**

FERC staff state: "Based on a natural freshwater mortality rate of 0.33% of smolts per kilometer (Stevens et al., 2019), the population potentially surviving below Lockwood Dam using a 96, 97, and 99 percent survival standard would be 13,187 smolts, 13,745 smolts, and 14,914 smolts, respectively. When accounting for estimates of estuarine mortality (1.15% per kilometer) based on Stevens et. al. (2019) and marine survival of smolts (0.4%) based on NMFS (2013), the number of adult salmon returning to Lockwood Dam under a 96, 97, and 99% downstream smolt survival standard would be 24, 25, and 27 adults, respectively. Thus, the incremental gains in survival rates of 1 and 3 percentage points that would accrue through NMFS's prescribed and Maine DMR's recommended performance standards, respectively, would be negligible."

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<sup>1</sup> <https://www.fisheries.noaa.gov/resource/document/species-spotlight-priority-actions-2021-2025-atlantic-salmon>

Stevens et al. (2019) (cited in staff's analysis) indicates that the latent mortality effects associated with passage at multiple dams significantly affects mortality rates through the estuary. Based on Stich et al. (2015), Stevens et al. (2019) assumed that 87.2% of smolts would survive estuarine migration in an unimpounded system, as compared to 56.2% in a four dam system (like the lower Kennebec), and 34.1% in an eight dam system. Although not explicitly stated, FERC staff have appropriately accounted for latent mortality by calculating the per-kilometer mortality rate for a four dam system from the total 38-km estuary survival estimate presented by Stevens et al. (2019) (i.e., 1.5% per km). However, staff's analysis treats the Brookfield hydro dams as if they are immutable features of the river, rather than temporary features that comprise one of the primary threats to the recovery of a critically endangered species. Using the information from Stevens et al. (2019), we can similarly estimate that estuarine mortality would only be 0.4% per km if the dams weren't present. In other words, the presence of the dams leads to an estuarine mortality rate that is almost four times higher than what we would expect if there weren't any dams in the river. Traditional thinking on salmon recovery would attribute this mortality to poor marine survival that cannot be easily altered; yet the relatively recent work conducted by Stich et al. (2015), Stevens et al. (2019), and others make it apparent that survival in the estuary is actually a latent effect of the species' freshwater experience, and can conceptually be reduced through modifications or removal of the dams whereby there would be a decrease in physiological stress, injury, and migratory delay. This highly significant direct and cumulative effect is glossed over in staff's analysis, and is not addressed in any of the discussions regarding performance standards. The analysis in the final EA should be modified to adequately incorporate the best available information about estuarine survival and the effects of dam passage.

It needs to be emphasized that the downstream performance standards proposed by Brookfield and as discussed by FERC in the DEA, are a measure of direct mortality only; that is, the immediate mortality documented in fish as they pass the project. Other sources of dam-related mortality, particularly in juvenile salmon, are well documented throughout the literature and have been observed at numerous projects in the GOM DPS (Blackwell & Juanes, 1998; Budy et al., 2002; Haeseker et al., 2012; ISAB, 2007; Schaller & Petrosky, 2007; Stich, Kinnison, et al., 2015; Stich, Zydlewski, et al., 2015; Venditti et al., 2000). The total mortality associated with passage through a dammed system can be represented by a conceptual equation: mortality in the impoundment + direct mortality + indirect mortality that occurs in the river + latent mortality in the estuary and marine environment = total dam-related mortality. We will consider these other sources of mortality in detail in our Biological Opinion. Any analysis that only considers direct survival (i.e., the performance or survival standard), although relevant, is an oversimplification, and will significantly underestimate the total mortality associated with the project. For instance, if 10 to 20% of all smolts die due to the combination of dam-related effects in the impoundment, in the river downstream of the dam, and in the estuary, it matters significantly less whether the

*direct* survival is 96%, 97%, or 99%. This is not to say that direct passage mortality should be ignored or that a higher standard is not better. However, *only* considering and analyzing direct mortality will lead to erroneous conclusions that underestimate the total effect of the dam.

FERC staff's conclusion that the difference is "negligible" is not supported, ignores additional sources of dam-related mortality, and disregards the species status as critically endangered. FERC has a responsibility under section 7(a)(1) of the ESA to use its authorities to conserve threatened and endangered species; the dismissive treatment of Atlantic salmon in the DEA is wholly contrary to that obligation. The consideration of endangered Atlantic salmon in this analysis unfortunately indicates that little progress has been made to address the inadequacy of regulatory mechanisms related to dams, a primary threat to Atlantic salmon identified in the ESA listing and the 2019 Recovery Plan. It is our view that staff's dismissive analysis and subsequent recommendations as they relate to Atlantic salmon are real impediments to the recovery of the species, as they create and perpetuate uninformed narratives concerning the status and recovery of this iconic Maine fish. We urge you to reconsider these analyses in the final EA.

**Section 3.3.1., pg. 60 (similar statement in Section 5.1.3., pg. 122)**

FERC staff state:

"Our analysis of downstream passage survival through the various passage routes at the project suggests that the only passage routes that have smolt survival rates that exceed 97% are spill through the forebay Tainter and sluice gates (97.4 % survival), and the spillway log sluice, inflatable bladder spillway sections, and the new fish lift spillway when it is operating (100% survival). Therefore, shutting down some or all units and spilling additional flows through these routes during the April 1 to June 15 smolt passage season could be the only feasible alternative to achieve the higher performance standards prescribed by NMFS or recommended by Maine DMR. There is no information available to predict the survival rates and determine the benefits of the other possible alternative measures identified by NMFS."

We disagree with staff's conclusion. The desktop model that Brookfield developed (pg. 52), which evaluates their proposal to install a 10-foot boom in front of units 7 and 8, concludes that the boom *alone* will increase the average survival to 96.0-96.3% (i.e., only 1% less than the 97% preliminary standard that we included in our prescription as an indication of what may minimally constitute safe, timely, and effective downstream passage). Brookfield's model does not account for the behavioral effect of installing 1-inch (or 1.5-inch) racks in front of all the turbines, prioritizing turbine operation or, if necessary, installing a 20-foot boom in front of unit 7 or 8. In particular, the installation of racks should reduce mortality at the project by at least the 1% needed to meet a 97% standard. Staff acknowledged the potential deterrent effect of the 1-inch

racks but did not incorporate it into its analysis. However, as indicated, we expect to evaluate the sufficiency of the performance standards and the proposed measures for Atlantic salmon in our Biological Opinion.

### **Section 3.3.1., Pg. 72**

In its analysis of our recommendation under section 10(j) to stock fish in order get sufficient adults back to the Kennebec River to conduct an upstream passage study, FERC staff state:

“These data suggest that there should be sufficient numbers of returning adult salmon to test the effectiveness of the fishway (using up to 20 adult fish as Brookfield proposes) immediately after it is constructed and put into operation. Therefore, there is no need for Brookfield to stock additional smolts for the purpose of assisting the effectiveness evaluations.”

Naturally-reared adult salmon that return to the Kennebec contribute to the survival and recovery of the GOM DPS. These fish are a public resource, having been raised in the USFWS conservation hatchery, and stocked into the Sandy River by Maine DMR. Given the critical importance of naturally reared returning adults to our recovery program, the importance of ensuring these adults safely access spawning habitats, and the dire consequences of passage failure in this system, we would not anticipate naturally reared salmon to be passed at the Lockwood Project until the new fishways have been demonstrated to be adequately effective. For these reasons, FERC’s alternative recommendation of utilizing naturally-reared salmon returning to the Kennebec River for purposes of carrying out an upstream passage study is unacceptable. Our 10(j) recommendation supports the USFWS in concluding that it is the responsibility of the licensee to procure all resources necessary to demonstrate effective passage, including, in this case, study fish. This was the intention behind our 10(j) recommendation that Brookfield develop a plan for the stocking of marked smolts upstream of the Shawmut Project. The production of these smolts for study/monitoring purposes should be facilitated and funded by Brookfield, rather than by the taxpayers, and they should not be taken from the limited allocation provided by USFWS’ conservation hatchery program.

### **Section 5.1.2., Pg. 110**

FERC staff state:

“To improve attraction to the new fish lift entrance during the upstream anadromous passage season (May 1-October 31), Brookfield proposes to prioritize operation of Units 1 through 6 in the 1912 Powerhouse such that Unit 1 is first on and last off, followed consecutively by Units 2 through 6. NMFS’s fishway prescription also requires Brookfield to prioritize operation of the 1912 Powerhouse; however, NMFS characterizes unit prioritization as a “downstream passage

measure” and does not specify the time period during the fish passage season when this measure would be required. Therefore, we assume that NMFS’s intent is for Brookfield to implement this measure throughout the entire April 1 to December 31 downstream fish passage season.”

We concur with your recommendation regarding when this unit prioritization should be implemented. We will clarify this point in our modified prescription.

### **Section 3.3.3.2, Pg. 118**

In regard to the upstream passage standard for Atlantic salmon, FERC staff indicate:

“The incremental gains in passage of 1 to 6 additional Atlantic salmon, on average, per year that could occur under NMFS’s prescribed and Maine DMR’s recommended performance standards, respectively, would provide minimal benefits to the population as a whole...For these reasons, we do not recommend a license condition requiring a 96% or 99% performance standard for upstream Atlantic salmon passage. We recommend instead that the upstream passage facility be required to achieve a 95% effectiveness for which it was designed.”

We reiterate the comments we made on this topic above. We also reemphasize that basing any determination on the number of returning fish, when that number is influenced largely by stocking effort (and will be until the primary threats to the species, including dams, have been addressed), is meaningless. As an example, in 2020, Maine DMR initiated a new multi-year smolt stocking program in the Kennebec River by stocking an additional 89,000 smolts in the Kennebec below Lockwood (USASAC 2021). This constitutes a five-fold increase in the number of smolts leaving the river (as compared to the 18,420 you have estimated in your analysis), which we would expect to lead to a significant increase in the number of returning adults. Therefore, the total returns in your analysis underestimates what we expect to occur at the project in future years. Further, as noted above, the effect of increasing survival of upstream migrating fish increases significantly with an increasingly larger population; the staff analysis using current adult return numbers results significantly undervalues the impact of different survival standards on the population.

As noted above, the term “performance standard” has been used with different meanings in different contexts. We do not consider a licensee’s performance standard for Atlantic salmon to be equivalent to intended design performance of the fishway. Fishways are designed to accommodate population targets and pass fish in a safe, timely, and effective manner. In our view, the licensee’s proposed performance standard is their established fish passage goal for that species. The standard we have preliminarily identified in our prescription was a preliminary estimate of the minimum criteria we would consider as safe, timely, and effective passage. Despite what a fish lift is *designed* to do, we know that fish lifts *can* pass more than 95% of

Atlantic salmon. On page 41 of your DEA, you indicate that passage at the Milford Dam on the Penobscot River was 95.5% and 100% in 2014 and 2015, respectively, with a pooled passage rate of approximately 99% ( $71/72=0.986$ ). In that analysis, you imply that Milford and Shawmut are similar projects and that the passage rates should therefore be similar. Therefore, based on your own analysis, it seems reasonable to expect that Brookfield can operate the Shawmut project to pass 96%, or even 99%, of motivated Atlantic salmon.

### **Section 5.3, Pg. 138**

FERC staff did not adopt our recommendation under section 10(j) for a large woody debris management plan that would include provisions for: (1) passing (e.g., sluicing) large woody debris downstream of the project, (2) storing beneficial woody debris and disposing of unused debris, and (3) procedures for transporting stored woody debris to habitat enhancement sites throughout the Kennebec River Basin. Staff instead recommend that Brookfield continue to pass all large woody debris that accumulates at the project downstream of the dam. While we continue to assert that our recommendation would represent a beneficial mitigation of project effects, we acknowledge that, at this time, we do not have any specific information regarding the location of potential restoration sites and their relationship to the project. Therefore, we have no basis to dispute FERC staff's recommendation.

### **Appendix F, Pg. 188-189**

FERC staff include the alternative of decommissioning with dam removal with dam removal in the appendix titled "*Alternatives Considered but Eliminated from Detailed Analysis.*" Staff conclude that because "protection, mitigation, and enhancement measures can be fashioned to support the recovery of diadromous fish in the basin and still provide for the generation of power, decommissioning is not a reasonable alternative to relicensing. As indicated above, we have concerns about staff's analysis that supports its conclusion that protection, mitigation, and enhancement measures can be fashioned to support the recovery of diadromous fish in the lower Kennebec River. We note that staff estimate that licensing the project with staff recommended and mandatory conditions would render the project uneconomical, given that the project's cost to produce power would be over \$1.4 million greater annually than the cost of the alternative source of power. In the Final EA, we recommend that staff reexamine its recommendation to relicense the project, particularly with respect to balancing the economic viability of the licensed project with a more robust analysis of the project's direct and cumulative effects on endangered Atlantic salmon and its critical habitat, as well as the effects on other diadromous species-- all ecologically and economically important public resources. We continue to support our recommendation for decommissioning and removal of the Shawmut Project under section 10(a) of the Federal Power Act.

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