Appendix 14

Comments on MDMR Plan Amendment

a) BWPH Comments on MDMR Plan Amendment (March 26, 2021; filed with FERC 4/2/21)
b) Sappi Comments on MDMR Plan Amendment (March 31, 2021)

PretiFlaherty

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March 26, 2021

Amanda Ellis
Hearings and Regulations Officer, and
Special Licenses
Maine Department of Marine Resources
21 State House Station
Augusta, Maine 04333-0021

Re: Comments in Response to the Maine Department of Marine Resources' (MDMR) December 29, 2020 Notice of Agency Rule-Making Proposal for Chapter 60 Section 10, Kennebec River Fish Restoration Management Plan Diadromous Resources Amendment (the "2020 Amendment")

Dear Ms. Ellis:

On February 12, 2021, Brookfield Renewable (Brookfield), on behalf of its owned and operated Lower Kennebec projects, Lockwood, Hydro-Kennebec, Shawmut and Weston (the "Lower Kennebec Projects"), submitted preliminary comments on the above-captioned 2020 Amendment. Brookfield is now providing updated comments on the 2020 Amendment based on MDMR's March 12, 2021 response to Brookfield's January 19, 2021 request for public records. The attached comments replace the preliminary comments in their entirety.

In addition, Brookfield wishes to respond to certain patently erroneous statements made by MDMR at the February 16, 2021 City of Waterville City Council meeting and the March 15, 2021 MDMR hearing on the 2020 Amendments.

1. **The upstream fish passage proposals for Lockwood, Shawmut and Weston were rejected by the Federal Energy Regulatory Commission (FERC) and the federal resource agencies – the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS).**

   On July 13, 2020, FERC issued several letters regarding fish passage measures on the lower Kennebec River. Rather than rejecting Brookfield's fish passage proposals, these letters (a) granted an extension of time for the Lockwood and Weston Projects proposed upstream fish passage facilities to May 31, 2022,[1] and (b) stated that FERC would consider both the previously authorized upstream fish passage facility and the newly proposed downstream fish passage measures that were included in the final Species Protection Plan (SPP), filed December 31, 2019, as part of Brookfield White Pine Hydro's proposed action for

[1]These facilities are a requirement of the existing respective project licenses pursuant to the FERC's May 19, 2016 Order approving the Interim Species Protection Plan for the Lockwood Shawmut and Weston Projects. Final design plans, construction schedule and documentation of agency consultation on the conceptual, 30%, 60%, 90% and final design phases was filed with the FERC on March 10, 2021 for the Lockwood Project and on March 16, 2021 for the Weston Project.

relicensing of the Shawmut Project. An additional letter filed by FERC on December 2, 2020 extended the deadline to file a revised final SPP by May 31, 2022.[2] In sum, the resource agencies worked with Brookfield on its proposed upstream fish passage measures. FERC did not "reject" them.

2. **MDMR does not support the Lockwood, Shawmut and Weston fishways proposed by Brookfield because it believes they will be ineffective**.

The design of the Shawmut and Weston fish lifts was completed in full consultation with all of the fishery resource agencies, *including MDMR*, at all phases – from siting studies and computational flow modeling through conceptual, 30%, 60%, 90% and final design phases. As discussed above, the complete agency consultation record, including all correspondence, comments, and meetings held with all agencies, including MDMR, was filed with FERC for Lockwood on March 10, 2021; Shawmut on December 31, 2019; and Weston on March 16, 2021. For the Lockwood bypass reach fishway in particular, the shift in design from a flume extension at the existing lift to a second, independent volitional fishway in the bypass reach was in *direct response to MDMR's stated concerns* with the performance of the existing Lockwood lift and attraction of fish to the bypass reach. A letter was filed with the FERC on August 9, 2017, *with full agency concurrence* indicating Brookfield's intent to propose a fishway in the bypass reach.

3. **Brookfield has delayed the implementation of fish passage on the lower Kennebec River**.

As outlined below, Brookfield is not independently responsible for a delay in implementation of fish passage. Rather, implementation was delayed by Kennebec Coalition (the "Coalition") and by good faith measures proposed by or supported by MDMR.

- Brookfield filed Interim SPPs (ISPPs) on April 6, 2012 (for Hydro-Kennebec) and on February 31, 2013 (for the Lockwood, Shawmut and Weston Projects) that committed to the construction of four upstream fishways. The NMFS issued Biological Opinions (BiOps) on September 17, 2012 and July 22, 2013, respectively.

- A lawsuit was filed by the Coalition on July 9, 2015 seeking rejection of the BiOps and the Coalition also filed comments with FERC on September 26, 2015 objecting to the ISPPs and BiOps. Both of these actions delayed the FERC approval of the ISPPs and BiOps until 2016.

[2]None of the upstream fish passage facilities were included in the final SPP as these measures were previously authorized by the FERC in its May 19, 2016 Order. Instead, the final SPP proposed new downstream passage measures as well as monitoring and performance standards. While FERC's July 13, 2020 letter did not provide a due date for the revised final SPP, a subsequent letter issued December 2, 2020 clarified that the new due date for the revised final SPP would be May 31, 2022.

- The Hydro-Kennebec upstream fish passage facility was completed in 2017.
- The voluntary shift to a new, second bypass reach fishway at the Lockwood Project at the behest of the MDMR and fisheries agencies delayed the implementation of upstream fish passage at this Project.
- Brookfield completed the designs of Shawmut (December 31, 2019), Lockwood (March 10, 2021) and Weston (March 16, 2021) and is working to meet the May 31, 2022 deadline to complete construction of the upstream fish passage facilities at Lockwood and Weston.

4. **Fifty percent (50%) of outmigrating salmon die as a result of the lower Kennebec dams**.

   This is incorrect. Brookfield completed three years of downstream Atlantic salmon smolt studies at the four Projects. The three year average performance of the existing downstream fishways at the four Projects are between 94% and 98%, which results in an average cumulative whole station survival at the four lower Kennebec Projects of 83% – not 50%.

5. **The reason shad are not passing at the Lockwood Dam is because they cannot find the fishway**.

   Two years of shad study were conducted at the Lockwood Project in 2009 and 2015 with similar results. In 2015, immediately following tagging, the majority (71%) of the shad moved downstream and never approached the Lockwood Dam. For the remaining shad, residence time in the area immediately downstream of the powerhouse was limited to a short duration (mean = 1.4 hours) which is not consistent with searching behavior. Conversely, a limited percentage of these fish (approximately 11% in 2009 and 22% in 2015) were attracted to the bypass reach. The small number and short duration of fish in the tailrace, coupled with attraction to the bypass reach during these studies and during Atlantic salmon upstream studies conducted in 2016 and 2017, is the reason a bypass reach fishway has been designed for the Lockwood Project.

6. **The 2020 Kennebec River Amendment is just a guidance document for planning purposes, has no "force of law," and is not a mandate or edict**.

   The 2020 Amendment will influence FERC licensing decisions related to each of the dams and, in particular, could impact the continued operation of Shawmut in the near-term. As explained in a March 20, 2021 letter from Senators Brad Farrin and Scott Cyrway to MDMR Commissioner Keliher (March 20th Letter), attached, MDMR's consistent narrative that the 2020 Amendment is simply an update to a guidance document and will not result in dam removal overlooks the significance of the 2020 Amendment to FERC's licensing decisions. The March 20th Letter quotes the following emailed response from FERC staff:

> The Federal Power Act (FPA) requires the Commission, in its licensing decisions, to consider the extent to which a project is consistent with Federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project.

Clearly, the 2020 Amendment has a direct role in the FERC process and recommendations for dam removal will be closely considered.

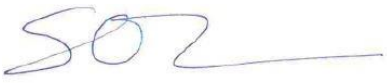
In addition to FERC's evaluation of the consistency of the Shawmut relicensing with the Amendment, the Amendment offers the State of Maine a unilateral path to condition the Section 401 Water Quality Certification (WQC) by the Maine Department of Environmental Protection (DEP) as part of the FERC relicensing process by potentially including fish passage standards based on the 2020 Amendment. MDMR has indicated its intent to use the Plan as "leverage" in the 401 process. In an email dated October 2, 2020, from Sean Ledwin, MDMR Director, Sea-Run Fisheries Division to Gail Wippelhauser, MDMR Resources Scientist and Casey Clark, MDMR Resource Management Coordinator, Mr. Ledwin states: "I think we should develop a performance standard for the Kennebec projects for alewives…If they don't meet the standard, we can have a lot of leverage as we condition the 401 and possibly if FERC accepts the standard." The 2020 Amendment could impact each of the four dams, and has immediate implications for Shawmut, which currently awaits a decision by DEP regarding a WQC application filed as part of the ongoing Shawmut FERC relicensing process.

7. **Private and public funds would be available to address infrastructure, recreation, shoreline property owners' issues.**

   MDMR cannot guaranty that any funds, let alone sufficient funds, will be available to address the pressing concerns raised by the many commenters at the March 15, 2021 hearing.

Finally, as stated in the attached comments, there are serious procedural deficiencies in MDMR's development of the 2020 Amendment. In our view, these flaws preclude adoption of the 2020 Amendment under Chapter 60.10 as a matter of law.

Very truly yours,



Sharon G. Newman

SGN/bh
Enclosure

State of Maine
130th Maine State Senate

Sen. Brad Farrin **Sen. Scott Cyrway**

March 20, 2021

Patrick Keliher, Commissioner
Maine Department of Marine Resources
Via email: Patrick.Kelliher@Maine.gov

Dear Commissioner:

We write to raise very serious and urgent concerns regarding the rulemaking process dealing with the Kennebec River Management Plan Diadromous Resources Amendment.

Specifically, both you and your staff have downplayed the importance of the final document that will result from this rule-making process.

In an e-mail to our staff, you wrote: "The final document will be ***nothing more than a guidance document*** and that is clear spelled out in §6171. Conservation and propagation of marine organisms. I think some believe that ***this automatically means the dams are to be removed. That is not the case*** as there is still a very lengthy FERC process that needs to play out" (emphasis added).

Your staff made similar assurances to members of the public who participated in the virtual hearing for public comments held on March 16.

As reported in the *Press Herald*: "Sean Ledwin, director of Sea-Run Fisheries and Habitat division of the Maine Department of Marine Resources, which researches, monitors and works to restore fish species, said ***the proposed river plan change is just a document and it is unclear what actually will happen at any particular point, including whether dams would be removed.*** He said, however, that his department would advocate for ways to offset any such impacts" (emphasis added).

According to page four of the plan amendment itself, however, "The MDMR will submit this document to the Federal Energy Regulatory Commission (FERC) as a Comprehensive Management Plan Amendment."

For clarification, we contacted the regional office of the Federal Energy Regulatory Commission (FERC) in New York, asking them to explain the importance of state comprehensive plans in their licensing decisions for hydroelectric power generating dams. The reply cast the subject of the rulemaking in a far more significant light than the comments made by you and your staff.

Here is a portion of their email reply: "The Federal Power Act (FPA) requires the Commission, in its licensing decisions, to consider the extent to which a project is consistent with Federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project."

FERC's reply also clarified that the plan being amended is listed as a State Comprehensive Plan for Maine in their records.

To summarize, Federal law requires that FERC base its licensing decisions, in part, on whether the license would be consistent with the state management plan. Since this plan will soon include a recommendation that at least two of the dams in question be removed, FERC may be hard-pressed to issue any license to continue operation of either dam.

Given this guidance from FERC, it is clear that the amendment you intend to make to the plan in question will have a ***very significant and federally mandated impact*** on FERC licensing decisions. Since FERC is at this moment considering an application for relicensing one of the dams in question—the Shawmut dam—the outcome of this rule-making could have an almost immediate and decidedly negative impact.

The Department has now solicited and collected public comments through a formal rule-making process. This process has no doubt been influenced by statements from the Department that diminish the importance of a very serious potential impact.

In light of this information, we ask that you halt the rule-making process immediately while you solicit input from FERC that clarifies the true impact of the plan amendment on the dams in question and share that clarity with the public once you have obtained it.

Sincerely,

Sen. Brad Farrin

Sen. Scott Cyrway

Brookfield
Renewable U.S.

February 12, 2021

Amanda Ellis
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Re: Comments in Response to the Maine Department of Marine Resources' (MDMR) December 29, 2020 Notice of Agency Rule-Making Proposal for Chapter 60 Section 10, *Kennebec River Fish Restoration Management Plan Diadromous Resources Amendment* (the "2020 Amendment")

Dear Ms. Ellis:

Brookfield Renewable (Brookfield), on behalf of its owned and operated Lower Kennebec projects, Lockwood, Hydro-Kennebec, Shawmut and Weston (the "Lower Kennebec Projects"),[1] herein submits comments in response to the above-captioned 2020 Amendment. The 2020 Amendment threatens great harm to the Lower Kennebec Projects and would have very significant impacts on the Maine cities and towns in which they operate, in addition to the employees, customers and suppliers who depend on and supply their services and goods to the Lower Kennebec Projects. Consequently, the 2020 Amendment deserves very thoughtful scrutiny.

Brookfield has been a significant contributor to the region over the course of its ownership and the Lower Kennebec Projects. Throughout the State of Maine, Brookfield and its affiliates own and operate a diverse portfolio that generates 622 megawatts (MW) of hydropower, 219 MW of wind, as well as a 20 MW battery storage installation — equivalent to powering more than a half-million homes annually with renewable energy. Brookfield employs 100 individuals in Maine and our power generation operations support 275 indirect jobs across the State. Each year, Brookfield invests millions of dollars in capital projects in Maine and plans to invest more than $300 million in its Maine facilities over the next 20 years. This includes a substantial portion to support fish passage and other environmental commitments, in line with our commitment and track record of running our operations with a significant focus on the protection of ecosystems and biodiversity. In placing a great emphasis on environmental and community stewardship, Brookfield strives to work collaboratively with stakeholders and support community and organizational causes within operational areas throughout Maine where the Lower Kennebec Projects are located, including in the City of Waterville and Towns of Winslow, Benton, Fairfield and Skowhegan. In addition, Brookfield is a significant taxpayer, paying in excess of $21 million in property

[1] The respective Project licensee entities, each a Brookfield affiliate, are Merimil Limited Partnership, Lockwood; (ii) Hydro-Kennebec LLC, Hydro-Kennebec; and (iii) Brookfield White Pine Hydro LLC, Weston and Shawmut.

taxes in Maine in 2020, including $2.1 million in annual taxes paid to the Lower Kennebec communities.

Regrettably, despite Brookfield's substantial commitments and contributions to Maine, including its commitments to improving fish passage on the Lower Kennebec, there has been a coordinated effort by senior state officials to remove the Lower Kennebec Projects by any means available, including through regulatory shortcuts and unsubstantiated rule changes as evidenced by the 2020 Amendment. It is no coincidence that the 2020 Amendment includes certain unrealistic performance standards, as well as MDMR commentary, targeted very clearly to force removal of the Lower Kennebec Projects. The 2020 Amendment appears to be an extension of this campaign, as recent efforts by senior state officials to persuade Brookfield to transfer ownership of the Lower Kennebec Projects have not been fruitful. The rushed 2020 Amendment appears to be another pressure tactic in this effort to force the removal of these important dams.

Much of the recent disagreements involving the Lower Kennebec Projects is motivated not by science or a balanced consideration of interests, but by political pressure from a relatively small but influential group of dam removal advocates who are frustrated that good-faith discussions between Brookfield, MDMR and other agencies and environmental organizations have not satisfied their desire for dam removal, similar to agreements like the Lower Penobscot River Multiparty Settlement Agreement ("Penobscot Agreement"). A similar outcome for the Lower Kennebec was prevented by the inability of involved parties to balance the desire for enhanced fish passage with the retention of hydropower production and the associated benefits the Penobscot Agreement achieved. Since those talks concluded, MDMR has drastically shifted its position regarding fisheries outcomes on the Kennebec River to a far more aggressive and adversarial one, championing dam removal as the only acceptable option, with little concern for other interests at play.

For example, from 2015 through 2019, MDMR was an active participant in the Shawmut Project relicensing and all design phases of the upstream fish passage facility. Not once over the period of these discussions did MDMR suggest that dam removal was the primary mechanism by which restoration of fish species could be accomplished. MDMR first took such a position in a letter submitted to the Federal Energy Regulatory Commission, dated March 19, 2020, providing comments on Brookfield's final Species Protection Plan for the Lower Kennebec Projects. Now MDMR proposes its 2020 Amendment.

The 2020 Amendment would substantially replace the *1993 Kennebec River Resource Management Plan: Balancing Hydropower Generation and Other Uses* (1993 Plan; State Planning Office, 07-105 Chapter 1) that "served as a comprehensive examination by the State of Maine of the various resources and beneficial uses of the Kennebec River from 1993 to 1998."[2] The development of the 1993 Plan by the State of Maine began in 1991 and was informed by numerous public meetings to obtain "considerable citizen and public agency input" and achieve a "comprehensive review of various competing beneficial uses."

[2] https://www.maine.gov/dmr/laws-regulations/documents/MAPA3_Chapter%2060%20Kennebec%20River_web.pdf

The 2020 Amendment is not an amendment, but a rushed repeal and replacement of the 1993 Plan, developed evidently over a matter of only weeks or months, without the appropriate customary careful stakeholder consultation underlying administrative due process that would lead to a socially optimal outcome. Unlike the 1993 Plan, the 2020 Amendment did not receive the benefit of "considerable citizen and public agency input," nor was there a "comprehensive review of various competing beneficial uses" of the Kennebec. Instead, the 2020 Amendment was prepared in haste by a single agency, with a single-minded predetermined purpose, without significant public input or an appropriate comment period duration, and without either adequate technical review or scientific support for the standards it sets forth.

The plan's recommendations, if implemented, would not only result in harm to the dam's operations, employees, customers and suppliers, but significant adverse economic and social impacts for the affected communities and other parties residing or operating along the lower Kennebec. Thoughtful and good faith solicitation of public input on, and execution of competent technical review of, the 2020 Amendment are therefore essential. A decommissioning of Brookfield's four hydroelectric facilities on the lower Kennebec River, as recommended in the 2020 Amendment, would remove 236,019 MWh of annual grid stable, renewable energy as the State aggressively pursues carbon reduction mandates; impact the recreational use and visual context of an over 30 mile reach of river; and affect neighboring residents and communities along that reach and beyond — all of which are beneficial uses discussed thoroughly in the 1993 Plan, but ignored in the 2020 Amendment. The recommendations of the 2020 Amendment, if carried out, would strike a serious economic blow to a pandemic-hobbled local and regional economy, eliminating local jobs and infrastructure and destroying a $2.1 million annual local tax base.

Brookfield's operations at the Lower Kennebec Projects are entirely compatible with the competing beneficial uses of the Kennebec River, as described in the 1993 Plan, and we have been strongly supportive of fish restoration efforts throughout the state. Brookfield works closely with MDMR staff to coordinate the successful operation of fishways at several of the Lower Kennebec Projects, including Lockwood, and has conducted extensive consultation with MDMR and the fisheries resource agencies to develop new, state-of-the-art fishway designs for all four Lower Kennebec Projects. In addition to the $15 million already invested for fishways at the Hydro Kennebec facility, Brookfield has committed to additional investments exceeding $32 million for construction and operation of new fish passage infrastructure at the Lockwood, Shawmut and Weston dams.

MDMR's mission is "to conserve and develop marine and estuarine resources; to conduct and sponsor scientific research . . .and to implement, administer, and enforce the laws and regulations necessary for these purposes."[3] Accordingly, MDMR's decisions must be based on the best available science, developed through careful deliberation and comprehensive administrative practice after input from all stakeholders, and conclusions must be objectively drawn. It is clear that the 2020 Amendment is a repeal and replacement of the 1993 Plan; however, by characterizing it as a mere "amendment," MDMR seeks to justify why it deferred solicitation of input from other stakeholders until *after* the document has

[3] Maine Title 12, Chapter 603 §6021

been drafted and conclusions prematurely drawn. There is no evidence of coordination or input from any other resource agency, any affected stakeholders or the general public. Without having received input from dam owners, industrial users, technical advisors, or any other interested parties, MDMR has released the 2020 Amendment without a full discussion and understanding of the consequences of dam removal, including the likely effect on energy prices and infrastructure, as well as the impact of permanent changes to water levels and flows, which would cost substantial sums to address. Maine's citizens, and all of the stakeholders potentially impacted by this plan, deserve a more evenhanded approach.

In light of the rushed nature of this process, Brookfield has made a public records request to obtain more information about the contents and development of the 2020 Amendment. The State of Maine has not yet responded as of the date of this submittal, and Brookfield may submit additional comments on the 2020 Amendment after the request has been fulfilled. Any further action on the 2020 Amendment without allowing time for sufficient review and analysis of the forthcoming response would be premature and inappropriate. Brookfield appreciates the opportunity to offer its comments on the 2020 Amendment as attached hereto, and strongly urges affected municipalities, companies, and residents — as well as those legislators who represent these concerns — to carefully consider the impacts the 2020 Amendment could have on individual interests and the bad precedent adoption of such a rushed and politically motivated plan would set.

Regards,

Thomas Uncher
Vice President

The Merimil Limited Partnership
Hydro-Kennebec LLC
Brookfield White Pine Hydro LLC

COMMENTS OF BROOKFIELD RENEWABLE

REGARDING THE MAINE DEPARTMENT OF MARINE RESOURCES CHAPTER 60 SECTION 10; 2020 KENNEBEC RIVER FISH RESTORATION MANAGEMENT PLAN DIADROMOUS RESOURCES AMENDMENT

Appendices

COMMENTS OF
BROOKFIELD RENEWABLE

REGARDING THE
MAINE DEPARTMENT OF MARINE RESOURCES
CHAPTER 60 SECTION 10;
2020 KENNEBEC RIVER FISH RESTORATION MANAGEMENT PLAN
DIADROMOUS RESOURCES AMENDMENT

I. Introduction

Brookfield Renewable – US owns and operates the following four hydroelectric Federal Energy Regulatory Commission ("FERC" or the "Commission") licensed projects located on the lower Kennebec River in Maine: (i) Lockwood, licensed to the Merimil Limited Partnership ("Merimil"); (ii) Hydro-Kennebec, licensed to Hydro-Kennebec LLC ("HKLLC"); (iii) Shawmut, licensed to Brookfield White Pine Hydro LLC ("BWPH"); and (iv) Weston, also licensed to BWPH (each of Merimil, HKLLC and BWPH, a "Licensee" or "Brookfield"). On behalf of the Lockwood, Hydro-Kennebec, Shawmut and Weston projects (the "Projects"), Brookfield hereby submits its comments on the Maine Department of Marine Resources' (MDMR) December 2020 Kennebec River Management Plan Diadromous Resources Amendment (the "2020 Amendment").

The 2020 Amendment is the basis for the proposed rulemaking (Chapter 60 Section 10; "Kennebec River Fish Restoration Management Plan") (the "Proposed Rulemaking") to "adopt Kennebec River Management Plan Diadromous Resources Amendment, which updates the 1993 Kennebec River Resource Management Plan (1993 Plan; State Planning Office, 07-105 Chapter 1) that served as a comprehensive examination by the State of Maine of the various resources and beneficial uses of the Kennebec River from 1993 to 1998" (the "1993 Plan").[1]

[1]The MDMR Notice of Agency Rulemaking Proposal can be found at: https://www.maine.gov/dmr/laws-regulations/documents/MAPA3_Chapter%2060%20Kennebec%20River_web.pdf (last checked February 6, 2021).

The 1993 Plan is a comprehensive plan pursuant to Section 10(a)(2)(A) of the Federal Power Act (FPA), 16 U.S.C. section 803 (a)(2)(A), which establishes that the FERC accords comprehensive plan status to any federal or state plan that: 1) is a comprehensive study of one or more of the beneficial uses of a waterway(s); 2) specifies the standards, data and methodology used; and 3) is filed with the Secretary of the Commission. The Commission must consider the extent to which a project is consistent with a comprehensive plan for waterways affected by a project during hydropower licensing decisions.[2]

The 1993 Plan "represents a comprehensive examination by the State of Maine of the various resources and beneficial uses of the Kennebec River."[3] In addition to serving as a comprehensive plan under the FPA, the stated purpose of the 1993 Plan is to "provide a basis for State agency comments, recommendations and permitting decisions" and "to provide a comprehensive review of various competing beneficial uses of the Kennebec so that individual license applications can be reviewed in light of basin-wide issues and policies."[4] The 1993 Plan indicates that "(t)o the extent that previous State publications have identified goals and objectives for Kennebec River resources, those goals and objectives either have been included within the Plan or have been balanced against other goals and objectives in developing the Plan's recommendations and conclusions"[5] and "has been developed with *considerable citizen and public agency input."*[6] (Emphasis added.) The 1993 Plan identifies hydropower generation, flows, water quality, fisheries, recreational and scenic resources and archaeology as "resources and beneficial uses."[7] Among the recommendations of the 1993 Plan are:

[2]FERC Order 481-A, Order on Rehearing, April 27, 1988.
[3]1993 Plan at 1.
[4]Id. at 2.
[5]Id. at 1.
[6]Id.
[7]Id. at 44 - 53.

- Removal of Edwards Dam in light of the available spawning habitat between Augusta (the site of Edwards Dam) and Waterville, noting however that this recommendation should not be interpreted "as an invitation to seek wholesale removal of the State's hydroelectric dams" and that "dams in the Kennebec River basin will continue to play a significant role in supplying a predictable quantity of energy at a predictable price to the State's energy consumers;"[8]
- The State should "identify … issues, procedures and standards relating to flow management" during the licensing process with a focus on augmentation of existing stream gaging and a recognition of ramping and flood control benefits;[9]
- The State should "continue to work with dam owners and landowners in the Kennebec basin to maintain access for fishing in all waters and to provide flows that maintain or enhance fishing opportunities;"[10] and
- The State should "work with hydropower generators in the basin to provide for safe portages around dams."[11]

The primary focus of the 1993 Plan is to examine the varied resources of the Kennebec River, including water quantity and quality, fisheries, recreation, aesthetics and cultural resources balanced with the preservation of hydroelectric energy in the basin.

In contrast, the 2020 Amendment establishes and accomplishes none of the benchmarks of the 1993 Plan which it is intended to augment. The 2020 Amendment was not developed by the State of Maine with "considerable citizen and public agency input" nor is it a "comprehensive review of various competing beneficial uses." Instead it is, as explained more fully below, a

[8]Id. at 49.
[9]Id. at 53.
[10]Id. at 159.
[11]Id. at 160.

narrowly focused, substandard, and procedurally flawed attempt to pass off an entirely re-written plan as a minor amendment. Further, the 2020 Amendment fails to fully recognize changes to the Kennebec River that have occurred since 1993, such as, evolved fish population recovery actions and the installation and operation of state-of-the-art fishways at several dams, including Lockwood and Hydro-Kennebec (through certain voluntary actions taken by Brookfield), Benton Falls and Burnham, reflecting continuous efforts of stakeholders to promote the objectives set forth in the 1993 Plan.

The 2020 Amendment has seemingly been authored to pursue a political goal, and in the process has relied on unsupported and selective data. Despite this, the Brief Summary section (included on the Notice of Agency Rule-making Proposal) states that the 2020 Amendment "updates" the 1993 Plan. Brookfield objects to the legal and administrative process under which the MDMR has attempted to adopt the 2020 Amendment – a wholesale replacement, and not simply an amendment of the 1993 Plan – with inadequate public participation. In addition to providing comment on the lack of appropriate legal and administrative process afforded the 2020 Amendment, Brookfield also encloses technical responses to the "standards, data and methodology" included in the 2020 Amendment.

In its January 22, 2021 letter to MDMR Commissioner Keliher, Brookfield made a request pursuant to the Maine Freedom of Access Act, 1 M.R.S. §§ 400, et seq. (FOAA) for all public records in the possession, custody, or control of MDMR related to , among other things, the existence of any records demonstrating the advice and consent of the Marine Resources Advisory Council and all model inputs, assumptions, runs and correspondence with the respective model developers for all of the models referenced in the 2020 Amendment (Atlantic salmon, shad, blueback herring, etc.). Brookfield received a response to this public records request via email on

March 12, 2021. Among other things, this email states that the "Marine Resources Advisory Council will review the plan *after* the public comment period." (Emphasis added.)

II. Legal/Administrative Process Issues

As expressed in the January 22, 2021 letter and further discussed below, Brookfield objects to MDMR's failure to comply with the required administrative process for development and adoption of management plans set forth in 12 M.R.S. § 407 and 12 M.R.S. § 6171(2-A). Pursuant to Section 407, MDMR does not have the unilateral authority to adopt or amend the 1993 Plan. This can only be accomplished through a multi-agency process led by the Maine Department of Agriculture, Conservation and Forestry ("DACF"). Because MDMR does not have the rulemaking authority to amend the 1993 Plan, the amendment is invalid.

Ignoring Section 407, MDMR's Proposed Rulemaking[12] cites only 12 M.R.S. § 6171(2-A) as the authority for revision of Ch. 60.10. However, the rulemaking does not even comply with Section 6171(2-A), which states, in relevant part, that a management plan should "(p)rovide the greatest overall benefit to the State, including biological, economic and social considerations," and may be adopted "only after prior notice and a public hearing and with the advice and consent of the Marine Resources Advisory Council." Further, 12 M.R.S. §6171(2-A)(C) provides that "a management plan *must* be developed with advice and input from the advisory council for the species for which the plan is developed, if such an advisory council exists." (Emphasis added.)

MDMR failed to coordinate and consult with the general public, concerned stakeholders, affected industries, adjacent communities, or other fisheries resource and state agencies on the 2020 Amendment, which squarely fits the definition of a proposed management plan,[13] rather than

[12]See FN 1, supra.

[13]12 M.R.S. § 6171(2-C)(A) provides: A management plan is a guidance document, which must seek to: (1) Establish management goals and a long-term vision for the relevant fishery; (2) Ensure the long-term viability of the resource

an amendment thereto. Further, MDMR has recently admitted that it did not consult the Marine Resources Advisory Council during development of the 2020 Amendment, and none of the available minutes of the Marine Resources Advisory Council[14] or the minutes of any other advisory councils[15] reflect any discussions with MDMR regarding the matter.

By failing to satisfy Sections 407 and 6171(2-A), MDMR also fails to meet the requirements of 12 M.R.S. § 6191, which requires that the Commissioner, in adopting or amending any rule, such as Ch. 60.10, "use the procedures required for rulemaking under the Maine Administrative Procedure Act" and proscribes, except in instances of emergency rulemaking, any rule that is "adopted or amended without the advice and consent of the advisory council." (Emphasis added.) Therefore, the 2020 Amendment fails to satisfy the requirements of Section 6191. Having failed to meet the requirements for review and approval of a management plan, MDMR has not met the statutory requirements for adoption of the 2020 Amendment. Therefore, until these defects are addressed and corrected, any rulemaking related to the 2020 Amendment is both premature and procedurally flawed.

A. The 2020 Amendment Does Not Satisfy the Requirements of 12 M.R.S. § 407

Pursuant to 12 M.R.S § 407, comprehensive river resource management plans are to be developed by the "Department of Agriculture, Conservation and Forestry, with assistance from the Department of Inland Fisheries and Wildlife, the Department of Marine Resources, the Department

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and the relevant fishery; (3) Provide for the rebuilding of any depleted fisheries; (4) Provide for future opportunities and access to the relevant fishery; (5) Provide the greatest overall benefit to the State, including biological, economic and social considerations; and (6) Preserve the legacy of the seafood industry in the State and its benefits to the people of the State. B. A management plan must include, to the degree possible: (1) Clearly articulated management goals and objectives; (2) A description of the biology of the relevant species; (3) A description of the relevant fishery; (4) Any available information regarding stock status; (5) Current management measures; (6) Any recommendations to achieve goals and objectives; (7) Findings of current research and future research needs; and (8) An ecosystem-based characterization of each species under consideration.

[14] https://www.maine.gov/dmr/about/councils/dmrac/minutes/index.html (last checked March 22, 2021).

[15] https://www.maine.gov/dmr/about/councils/index.html (last checked March 22, 2021).

of Environmental Protection, the Governor's Energy Office and other state agencies as needed."[16]

This is why the 1993 Plan was created under Section 407. Any amendment, update or rewrite of the 1993 Plan must also occur under Section 407 through the same multi-agency process led by DACF. This multi-agency process is sensible because MDMR does not have the policy or technical expertise to unilaterally create a comprehensive river resource management plan that recognizes the benefits of hydropower to the State of Maine. Because the 2020 Amendment exceeds MDMR's rulemaking authority it is invalid. This is all the more true because, apparently, the MDMR did not involve or seek input from any other agencies; rather, MDMR is the sole author of the 2020 Amendment. This is inconsistent with the provisions of Section 407 and is a deficiency that cannot be cured merely by characterizing the 2020 Amendment as an "update" when it is a wholesale re-write of the 1993 Plan.

Section 407 also provides that river resource management plans are to be developed subject to the Maine Administrative Procedures Act, Title 5 M.R.S., Chapter 35 (MAPA), discussed in further detail below.

B. The 2020 Amendment Does Not Consider Economic, Financial and Social Impacts as Required by MAPA

Pursuant to 5 M.R.S. § 8052(4) of MAPA, an "agency shall consider all relevant information available to it, including, but not limited to, economic, environmental, fiscal and social impact analyses and statements and arguments filed, before adopting any rule." Further, pursuant

[16] 12 M.R.S. § 407 provides: The Department of Agriculture, Conservation and Forestry, with assistance from the Department of Inland Fisheries and Wildlife, the Department of Marine Resources, the Department of Environmental Protection, the Governor's Energy Office and other state agencies as needed, shall develop, subject to the Maine Administrative Procedure Act, Title 5, chapter 375, a comprehensive river resource management plan for each watershed with a hydropower project licensed under the Federal Power Act or to be licensed under the Federal Power Act. These plans must provide a basis for state agency comments, recommendations and permitting decisions and at a minimum include, as applicable, minimum flows, impoundment level regimes, upstream and downstream fish passage, maintenance of aquatic habitat and habitat productivity, public access and recreational opportunities. These plans must update, complement and, *after public notice, comment and hearings in the watershed*, be adopted as components of the State's comprehensive rivers management plan. (Emphasis added.)

to 5 M.R.S. § 8057-A of MAPA, agencies such as MDMR are required to provide an "estimate of the fiscal impact of the rule"[17] and a "description of the economic impact" and "benefits of the rule," including non-monetary effects and a "description and examples of individuals, major interest groups and types of businesses that will be affected by the rule and how they will be affected" for "existing rules having an estimated fiscal impact greater than $1,000,000."[18]

MDMR did not draft the 2020 Amendment with any meaningful consideration of the economic, fiscal and social impacts of its recommendations, providing only a brief summary of the commercial value of a select few species for the entire State, unsupported by citation to any source material. There is no information pertinent to the fisheries resources of the Kennebec River and no analysis of the significant economic impacts on the public of such recommendations as dam removal and installation of auxiliary fishways. MDMR's rationale for failing to perform a fiscal impact analysis, is that the 2020 Amendment is "not legally enforceable and therefore will have no fiscal impact."[19] While conceding that the 2020 Amendment could have economic ramifications if incorporated in agency permitting decisions, MDMR airily dismisses these as being "too speculative to quantify."

It is, at best, disingenuous for MDMR to claim that the 2020 Amendment is not legally enforceable when the entire point of developing a management plan is to have it become enforceable through a future license. As stated in the 2020 Amendment, "MDMR will submit this document to … FERC as a Comprehensive Management Plan Amendment."[20] Clearly, MDMR intends that the 2020 Amendment be legally enforced by FERC as a state comprehensive plan pursuant to Section 10(a) of the FPA. Moreover, the 2020 Amendment can be enforced via

[17] 5 M.R.S. § 8057-A(1)(C).
[18] 5 M.R.S. § 8057-A(2).
[19] *See* FN1 at 5-6, Rulemaking Fact Sheet.
[20] 2020 Amendment at 2.

licensing decisions by the Maine Department of Environmental Protection (MDEP), including Water Quality Certifications pursuant to Section 401 of the Clean Water Act (WQC) and Maine Waterway Development and Conservation Act (MWDCA) licenses. According to an internal MDMR email dated October 20, 2020, Sean Ledwin, MDMR Director, Sea-Run Fisheries Division indicates an intention to condition future WQCs based on the 2020 Amendment. Consequently, MDMR should not have noticed the proposed Ch. 60.10 for public comment without having first evaluated the fiscal impact of the 2020 Amendment and, having failed to do so, cannot now proceed to adopt the rule change.

Had the MDMR sought input from stakeholders, agencies, industry and public, it would not have concluded that the ramifications are "too speculative to quantify." The goals of the 2020 Amendment, if adopted, have extreme and inordinate economic ramifications for Brookfield specifically that are not hard to define. The 2018 *Energy Enhancements and Lower Kennebec Fish Passage Improvements Study* ("Feasibility Study") referenced in the 2020 Amendment indicated that such impacts would exceed the $1,000,000 threshold prescribed in Section 8057-A(2). Not only has MDMR shrugged off the economic impacts on Brookfield that would result from the highly targeted goals of the 2020 Amendment, MDMR also has failed to consider more generally the broader economic ramifications such goals would have on the "individuals, major interest groups and types of businesses that will be affected by the rule,"[21] when enforced through a licensing decision, particularly if adopted by FERC as a comprehensive plan.

We also note that MDMR identifies proposed Ch. 60.10 as a "routine technical" rather than a "major substantive" rule. This distinction is important because, for rules authorized to be adopted by delegation of legislative authority that is enacted after January 1, 1996, major substantive rules

[21] 5 M.R.S. § 8057-A(2)(b).

require legislative review under the MAPA while routine technical rules do not. 5 M.R.S. §8071. Brookfield contends that Ch. 60.10 should qualify as a major substantive rule because of its obvious financial impact on hydropower project costs. The 2020 Amendment expands target species broadly; revises restoration goals; provides a rationale for decommissioning and removal of dams; and provides extremely stringent, unjustifiable and unreasonable performance standards for target species.

III. 2020 Amendment Review

A. Background

Since 1989, Brookfield and its predecessors Central Maine Power (CMP) and FPL Energy (FPLE) have addressed fish passage for diadromous fish species in close consultation and cooperation with the MDMR and other state and federal fishery agencies, and in accordance with the terms of the Kennebec Hydro Developers Agreement signed by MDMR in 1987 and amended in 1998 (KHDG Agreement).[22]

Among other things, the KHDG Agreement put in place a long-term plan for the installation and operation of fish passage facilities at the lower Kennebec hydroelectric projects, consistent with agency management and restoration plans, and established a cooperative and collaborative working relationship between the hydropower project owners/licensees and the fisheries management agencies – cooperation that, until very recently, has continued since the KHDG Agreement was first signed.

Under the KHDG Agreement, the timing for installation of new fish passage facilities at each site was tied to specific numbers of returning fish; these "trigger numbers" were established

[22] Agreement Between the State of Maine and Kennebec Hydro Developers Group, January 22, 1987, superseded by the Lower Kennebec River Comprehensive Hydropower Settlement Accord and Related Filings, May 26, 1998 (KHDG Agreement).

by the signatories based upon the best available information at the time. Once these trigger numbers were recorded, the licensee was then required to install the new facilities. Consistent with the terms of the KHDG Agreement, and as required by the March 4, 2005 FERC Order Issuing License for the Lockwood Project, a lift, trap, and truck facility was constructed and has been operated cooperatively with the MDMR since 2006. The Licensee operates the lift, trapping, and sorting aspect of the fish passage facility while the MDMR undertakes short and long-distance trucking of fish including alewives, blueback herring, American shad, and Atlantic salmon.[23]

On November 17, 2000 the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) listed the Gulf of Maine Distinct Population Segment (GOM DPS) Atlantic salmon as federally endangered under the Endangered Species Act (ESA), and later designated several major river basins in the state of Maine, including the Kennebec, critical habitat. Following these actions, the previous licensees for the Lockwood, Hydro-Kennebec, Shawmut and Weston Project voluntarily initiated a Habitat Conservation Plan (HCP) under Section 10 of the ESA.

Upon the purchase of the assets from the previous licensee, Brookfield transitioned from the Section 10 HCP process to a Section 7 process for the adoption of an Interim Species Protection Plan ("ISPP") that provided for an accelerated (i.e., implementation to be based on a schedule, rather than biological triggers) and imminent (i.e., process to begin upon authorization) construction of upstream fishways for all target migratory species, not predicated on biological targets.

Brookfield filed the Hydro-Kennebec ISPP on April 6, 2012 (supplemented on October 15, 2012) and the ISPP for the other lower Kennebec Projects on February 21, 2013 (supplemented on

[23] Id.

March 29, 2013 to include a Sturgeon Plan). Brookfield filed a request to extend the deadline of the Hydro-Kennebec ISPP to December 31, 2019, to align with the deadline for the other lower Kennebec Projects on December 23, 2016. NMFS issued its Biological Opinions ("BiOp") for the Hydro Kennebec Project on September 17, 2012 and May 25, 2017 (which extended the expiration of the Hydro-Kennebec ISPP) and for the Lockwood, Shawmut and Weston Projects on July 19, 2013.

The proposed actions of the ISPPs and the terms and conditions for the BiOps were incorporated into the respective Project licenses through FERC's orders amending license on February 28, 2013 (Hydro-Kennebec), May 19, 2016 (Lockwood, Shawmut and Weston), and March 14, 2018 (Hydro-Kennebec ISPP extension). The ISPPs, BiOps, and subsequent license amendments all authorized the installation of upstream volitional fish passage at the four lower Kennebec Projects, ongoing operation of the interim Lockwood fish lift and downstream passage facilities at the Projects, and Atlantic salmon effectiveness testing for upstream and downstream passage.

As further discussed below, the Hydro Kennebec upstream fishway has been constructed and is operated in consultation with the MDMR as a means to evacuate adult upstream migrating Atlantic salmon that may have traversed the Lockwood bypass spillway in times of high flows. The MDMR, NMFS, and other resources agencies have actively participated in the design efforts of the Shawmut upstream fishway from 2016 to 2020, including design studies and conceptual, 30%, 60%, 90% and final design phases. The Lockwood and Weston Project upstream fishways are currently in the 90% design phase, in full consultation with the agencies, including MDMR. State and federal permitting efforts are underway and final designs are anticipated to be filed with the FERC in February 2021.

B. Project and Fish Passage Descriptions

The Kennebec River basin has a total drainage area of approximately 5,890 square miles. The river originates at the outlet of Moosehead Lake in northwestern Maine and flows south for approximately 145 river miles, where it joins the Androscoggin River and four other smaller rivers to form Merrymeeting Bay, which drains into the Atlantic Ocean through the Lower Kennebec River, a long saltwater tidal channel. The Lower Kennebec River and Merrymeeting Bay are known collectively as the Kennebec Estuary. Tidal processes extend upstream as far as Augusta, which is considered head-of-tide. Major tributaries to the Kennebec include Cobbosseecontee Stream, Messalonskee Stream, Sebasticook River, Sandy River, Carrabassett River, and Dead River.

All four Projects are located on the lower Kennebec River mainstem between Skowhegan and Waterville, were developed in the early 20th century as part of Maine's long history of development of water resources for mechanical and electric power, have provided Maine residents with clean, reliable, renewable electric generation for nearly a century, and continue to play a significant role in allowing Maine to work toward its goal of reducing greenhouse gas emissions by 45 percent by 2030 and 80 percent by 2050[24] and increasing Maine's Renewable Portfolio Standard from 45 percent today to 80 percent by 2030, and a goal of 100 percent renewable energy by 2050.[25]

As described below, all four Projects either already have state-of-art fishways in place or are scheduled to have new facilities in operation in the near future. Unfortunately, the MDMR's own actions have introduced uncertainty into an implementation schedule that had established date-certain milestones for new fish passage.

[24] *See*, LD 1679 An Act To Promote Clean Energy Jobs and To Establish the Maine Climate Council.
[25] *See*, LD 1494 An Act to Reform Maine's Renewable Portfolio Standard.

1. The Lockwood Project

The 6.9 MW Lockwood Project is located at river mile 63 and is the first dam on the mainstem of the Kennebec River. Three major tributaries join the mainstem downstream of Lockwood: Cobbosseecontee Stream, Messalonskee Stream, and the Sebasticook River. The Lockwood Project includes an impoundment, a dam with a headworks section, and two spillway sections (separated by a small island), and two powerhouses.

The dam spans the Kennebec River along a site originally known as Ticonic Falls, which may have served as a natural impediment to some migratory fish, as outlined in the 1993 Plan, including rainbow smelt[26] and striped bass.[27] The Lockwood Project is operated as run-of-river, and a 50 cfs year-round minimum flow is provided in the east channel bypass reach in accordance with FERC license requirements. The Lockwood Project produces an average of 39,965,000 kWh of carbon-free, renewable electricity annually.

The Lockwood Project is equipped with both upstream and downstream fish passage facilities. Upstream passage for anadromous fish species is currently provided via a main channel fish lift, consisting of a tailrace entrance located immediately adjacent to the Project powerhouses, a hopper elevator system, sorting and holding tanks, and a downstream discharge that was commissioned in Spring 2006.

The Lockwood fish lift was planned, designed, and constructed in consultation with MDMR and other state and federal fishery agencies as part of the KHDG Agreement.[28] The Lockwood fish lift, completed in May 2006, is operated in cooperation with the MDMR, which

[26] Kennebec River Council (KRC). 1987. The fisheries resources of the Kennebec River: Discovering the Kennebec, a Kennebec River Council Report. Maine.
[27] Atkins, C. 1887. The river fisheries of Maine. In The fisheries and fisheries industries of the United States 1887. Volume 1, Section V, part XII. Government Printing Office, Washington, D.C.
[28] The Lockwood license was amended in September 1998 to incorporate the terms of the 1998 KHDG Agreement, which included the provision that "At the Lockwood facility, licensee shall install an interim trap, lift and transfer facility for American shad, river herring and Atlantic salmon at the powerhouse, to be operational by May 1, 2006."

undertakes the trucking of Atlantic salmon to spawning habitat in the Sandy River, trucking of shad to upstream locations in the mainstem of the Kennebec River, and the trucking of river herring both within and outside of the Kennebec River basin. As shown in Table 1 below, since 2009, the year that the MDMR began publishing trap counts, the Lockwood fish lift has moved over 1.8 million river herring, almost 1,800 American shad, and approximately 360 Atlantic salmon.

Table 1. Lockwood Fish Lift Counts[29][30]

YEAR	Atlantic Salmon	American Shad	River Herring
2009	33	0	45,934
2010	5	39	76,745
2011	64	17	37,846
2012	5	5	179,358
2013	8	0	103,241
2014	18	1	115,649
2015	31	26	88,728
2016	39	836	224,990
2017	40	213	289,188
2018	11	437	307,035
2019	56	44	240,594
2020[31]	51	180	143,529
Total All Years	**361**	**1798**	**1,852,837**

In addition, the Lockwood fish lift has been used extensively by the MDMR and the Maine Department of Inland Fisheries and Wildlife ("MDIFW") to assist with the management of invasive species. The Lockwood fish lift is also used to capture and move fish stocks to portions of the Kennebec basin that would not otherwise be accessible to the fish,[32] or to other river basins

[29] https://www.maine.gov/dmr/science-research/searun/programs/documents/trapcounts.pdf

[30] It is important to note that the numbers presented in Table 2 of the 2020 Amendment do not match those issued by the MDMR as part of the formal trap reporting for the state. In addition, the reported numbers appear to reflect fish trucked, rather than trapped at Lockwood, whereas MDMR's formal trap reporting in the table below appears closer to numbers trapped.

[31] Non-published trap count information provided by Brookfield; to be reported in the forthcoming annual KHDG Report.

[32] For example, Wesserunsett Lake does not have fish passage.

altogether (for example, approximately 30% of the river herring captured at the Lockwood lift from 2009 to 2020 were trucked to other rivers and ponds outside of the Kennebec River basin).

Lockwood is also equipped with an upstream eel ramp for the passage of American eel. A bypass reach vertical slot fishway for anadromous fish, to serve as the volitional passage required by FERC,[33] is currently in the 90% design phase and scheduled to be installed by May 2022.[34]

Downstream passage for anadromous fish species is provided through a bypass sluice gate located on the outboard side of the power canal. A floating guidance boom is used to direct fish to the gate. Additional downstream passage is provided via three submerged orifices cut into the flashboards along the east channel spillway. Downstream passage has been shown to be highly effective, given the estimated whole station survival rate for Atlantic salmon smolts of 98.6%.[35]

2. Hydro-Kennebec Project

The 15.4 MW Hydro-Kennebec Project is located at river mile 64 and is the second dam on the mainstem of the Kennebec River. No tributaries join the mainstem river between the Hydro Kennebec and Lockwood dams. The principal features of the Hydro-Kennebec Project include a dam, forebay, impoundment, and a powerhouse.

The dam spans a section of the Kennebec River in Fairfield originally known for a set of falls that dropped 34 feet that was the site of a number of dams and mills. The original falls were likely a natural impediment to some migratory fish species. The Hydro-Kennebec Project is operated as run-of-river in accordance with FERC license requirements and produces an average of 85,217,000 kWh of carbon-free, renewable electricity annually.

[33]FERC. May 19, 2016. Order Amending Licenses to Require Interim Species Protection Plan for Atlantic Salmon and Handling and Protection Plan for Shortnose and Atlantic Sturgeon.
[34]FERC. July 13, 2020. Order on Request for Extensions of Time to Install Fish Passage re Merimil Limited Partnership et al under P-2322 et al.
[35]Brookfield White Pine Hydro LLC (BWPH). January 31, 2019. Species Protection Plan and Draft Biological Assessment for the Lockwood Hydroelectric, et al. under P-2574, et al.

The Hydro-Kennebec Project is equipped with both upstream and downstream fish passage facilities. The upstream fish lift, commissioned in 2017 and planned, designed, and constructed in consultation with the MDMR and other state and federal fishery agencies, consists of a tailrace entrance located immediately downstream of the Project powerhouse, a hopper elevator system, exit flume, and upstream exit located adjacent to the Project's abandoned gatehouse.

However, since its commissioning, the fish lift has operated infrequently as most anadromous fish captured at Lockwood are moved to spawning habitat located elsewhere in the basin and the Hydro-Kennebec lift is used to move Atlantic salmon that may have traversed the Lockwood bypass spillway portion of the dam during high flow events. The specific frequency and timing of the operation of the Hydro-Kennebec lift is determined in consultation with the MDMR. The Hydro-Kennebec Project is also equipped with an upstream eel ramp for the passage of American eel.

Downstream passage for anadromous fish species is provided through a bypass sluice gate located adjacent to the powerhouse. A floating guidance boom is used to direct fish to the sluice gate. Downstream passage has been shown to be very effective, and the estimated whole station survival rate for Atlantic salmon smolts is 94.7%.[36]

3. Shawmut Project

The 8.7 MW Shawmut Project is located at river mile 70 and is the third hydroelectric project on the Kennebec River mainstem. No significant tributaries join the Kennebec mainstem between the Shawmut and Hydro-Kennebec projects. The Shawmut Project includes an impoundment, a dam with a headworks section, and a spillway section and two powerhouses.

[36]BWPH. January 31, 2019. Species Protection Plan and Draft Biological Assessment for the Lockwood Hydroelectric, et al. under P-2574, et al.

The dam spans the Kennebec River at the site of a falls where a former mill was located. The Shawmut Project is operated as run-of-river in accordance with FERC license requirements and produces an average of 59,478,000 kWh of carbon-free, renewable electricity annually.

The Shawmut Project is equipped with upstream passage for American eel and downstream fish passage facilities for anadromous species. A permanent upstream passage (fish lift) for anadromous fish species was previously required by FERC[37] and scheduled to be installed in 2020 and operational in 2021, but approval of the final fish lift design was postponed by FERC, and the fish lift design will now be considered as part of the FERC relicensing proceeding for the Project.[38] In the interim, upstream passage for anadromous fish species is provided via trap and truck from Lockwood.

Downstream passage for anadromous fish species is provided through a bypass sluice gate located between the two powerhouses, in combination with openings in the spillway flashboard sections. Downstream passage has shown to be effective, and the estimated whole station survival rate for Atlantic salmon smolts is 93.5%.[39] Additional passage measures implemented as part of the adaptive management provisions of the ISPP result in an anticipated performance of at least 95% effectiveness.

4. Weston Project

The 16.0 MW Weston Project is located at river mile 82 and is the fourth hydroelectric project on the Kennebec River mainstem. One smaller tributary, Wesserunsett Stream, joins the

[37]FERC. May 19, 2016. Order Amending Licenses to Require Interim Species Protection Plan for Atlantic Salmon and Handling and Protection Plan for Shortnose and Atlantic Sturgeon.
[38]FERC. July 23, 2020. Letter to NMFS, MDMR and USFWS re: Request for Extension of Time to file Comments, Recommendations and Preliminary Terms and Conditions.
[39]BWPH. January 31, 2019. Species Protection Plan and Draft Biological Assessment for the Lockwood Hydroelectric, et al. under P-2574, et al.

Kennebec mainstem between the Weston and Shawmut projects. The Weston Project includes two dam sections (separated by a small island), a powerhouse, and an impoundment.

The dams span a section of the Kennebec River originally known for a set of falls that dropped nearly 30 feet and were likely a natural impediment to some migratory fish species. Norridgewock Falls, a series of falls located at river mile 89 in the Weston impoundment (7 miles upstream of Weston Dam), was the natural barrier to passage of alewife and shad. The Weston Project is operated as run-of-river in accordance with FERC license requirements and produces an average of 95,620,000 kWh of carbon-free, renewable electricity annually.

The Weston Project is equipped with upstream passage for American eel and downstream fish passage facilities for anadromous species. Permanent upstream passage (fish lift) for anadromous fish species was approved by FERC[40] and is scheduled to be constructed in 2021 and operational in Spring 2022.[41] In the interim, upstream passage for anadromous fish species is provided via trap and truck from Lockwood.

Downstream passage for anadromous fish species is provided through a bypass sluice gate located adjacent to the powerhouse. Downstream passage at Weston has shown to be very effective, and the estimated whole station survival rate for Atlantic salmon smolts is 95.0%.[42]

C. Consultation History

Since acquiring the Projects in 2012, Brookfield has actively collaborated with and engaged in good faith consultation with the MDMR and the other state and federal fisheries agencies on all matters related to diadromous fisheries management, restoration, and passage in

[40]FERC. May 19, 2016. Order Amending Licenses to Require Interim Species Protection Plan for Atlantic Salmon and Handling and Protection Plan for Shortnose and Atlantic Sturgeon.
[41]FERC. July 13, 2020. Order on Request for Extensions of Time to Install Fish Passage re Merimil Limited Partnership et al under P-2322, et al.
[42]BWPH. January 31, 2019. Species Protection Plan and Draft Biological Assessment for the Lockwood Hydroelectric, et al. under P-2574, et al.

the Kennebec River basin, particularly on the lower Kennebec. Brookfield has not only adhered to the commitments laid out in the KHDG Agreement but has exceeded its requirements. Brookfield voluntarily accelerated the schedule for implementation of upstream fish passage facilities through its participation in the ISPP process. And Brookfield voluntarily extended certain provisions of the KHDG Agreement, including continued funding of the MDMR's participation in the operation of the Lockwood fish lift since 2018.

Yet in the 2020 Amendment, the MDMR completely reverses its position on fish passage at the lower Kennebec Project, despite being a signatory to the KHDG Agreement and active participant in Brookfield's fish protection and restoration initiatives since 2012, both as evidenced in the related consultation records.

1. Interim Species Protection Plans

Under Section 7 of the ESA, Brookfield voluntarily initiated consultation with the fisheries agencies, including the MDMR, on the development and implementation of ISPPs for the four lower Kennebec Projects[43] in order to address Atlantic and shortnose sturgeon and Atlantic salmon.[44] As a result of this voluntary action, the ISPPs established a new accelerated schedule for the installation of additional fish passage facilities at the Projects on the lower Kennebec, including new volitional passage at Lockwood, and new upstream fishways (fish lifts) at Hydro-Kennebec, Shawmut, and Weston.[45]

[43]Though not required by statute or regulation, Species Protection Plans and ISPPs have been endorsed by FERC as a means to satisfy ESA Section 7 consultation requirements during hydroelectric project relicensing and to create a federal action that triggers ESA Section 7 consultation requirements for projects outside of relicensing.
[44]Atlantic salmon became a federally listed endangered species in 2009 and a large portion of the Kennebec River was designated as "critical habitat" in 2012.
[45]Brookfield filed the Hydro-Kennebec ISPP on April 6, 2012 (supplemented on October 15, 2012) and filed the ISPP for the other lower Kennebec Projects on February 21, 2013 (supplemented on March 29, 2013 to include a Sturgeon Plan).

Since the ISPPs were approved by FERC[46] and adopted as provisions in the FERC licenses for the Projects, Brookfield continued to consult closely with all of the fisheries management agencies, including the MDMR, on all actions and initiatives undertaken at any of the four Projects that could potentially affect state and federal fisheries management, restoration plans, or fish passage; including most recently consultation on the development of a final Species Protection Plan (SPP) for the lower Kennebec, design efforts for the Lockwood, Shawmut and Weston fish passage facilities, and the ongoing FERC relicensing proceeding for the Shawmut Project.

Although the ISPPs were originally developed to focus primarily on the needs of listed Atlantic salmon, Atlantic sturgeon, and shortnose sturgeon, the ISPPs also fully considered the needs of other diadromous fish species including American shad, river herring (including both blueback herring and alewife), and American eel as well as resident and inland species. Moreover, MDMR has been part of the fisheries management agency group that has overseen the implementation of the ISPPs and which has worked with Brookfield to make adaptive management decisions under the ISPPs over time that have benefitted the lower Kennebec River fisheries.

2. Final Species Protection Plan

In anticipation of the expiration of the ISPPs for the four Projects, Brookfield actively engaged the MDMR, USFWS, NMFS, MDIFW and MDEP in consultation pursuant to Section 7 of the ESA in order to prepare a final SPP and Biological Assessment (BA). While the SPP was developed to establish protection, enhancement, and mitigation measures that a licensee would undertake for ESA-listed species specifically, Brookfield has been focused on measures that

[46]NMFS issued its September 17, 2012 (Hydro Kennebec); July 19, 2013 (Lockwood, Shawmut and Weston); and May 25, 2017 (Hydro Kennebec) Biological Opinions (BiOp), the terms and conditions for which were incorporated into the respective Project licenses through FERC's orders amending license on February 28, 2013 (Hydro-Kennebec), May 19, 2016 (Lockwood, Shawmut and Weston), and March 14, 2018 (Hydro-Kennebec ISPP extension).

address these species but that also benefit the target migratory species on the lower Kennebec, including shad and river herring.

As a cooperative partner in fish passage efforts, and as an agency focused on the restoration of diadromous species including Atlantic salmon, the MDMR was an active participant throughout the SPP discussions which began early in 2018 and continued through 2019. In total, ten meetings were held to discuss the lower Kennebec SPP including review of a draft SPP and draft BA provided to the agencies on May 24, 2019, and May 31, 2019, respectively. On June 24, 2019, the MDMR provided comments on the draft SPP that discuss performance standards and adaptive management. Nowhere in these comments does the MDMR suggest that dam removal is necessary to meet any restoration goals for diadromous species, including Atlantic salmon.

On December 31, 2019, Brookfield filed with the FERC the final SPP and BA. It was not until four months after the filing of the SPP with the FERC that the MDMR reversed its position and first stated in the record the perplexing and novel conclusion that "recovery of Atlantic salmon in the MMB SHRU (Merrymeeting Bay Salmon Habitat Recovery Unit) is not possible with (Brookfield's) four mainstem dams in place, and restoration of alosines to the remainder of their historic spawning habitat is questionable."[47,48] (Emphasis added.) This statement was made wholly out of context considering the April 2020 Letter was in response to computational flow modeling (CFD) undertaken by Brookfield for the design of the Lockwood bypass reach fishway *specifically at the request of the MDMR*.

[47]Letter dated April 15, 2020 from MDMR to Alden Labs providing comments on Alden's CFD analysis of the proposed fishway for the Lockwood Project ("April 2020 Letter").

[48]A letter from MDMR to FERC dated March 19, 2020, providing comments on the Shawmut Project relicensing provides, by attachment; a letter from MDMR to the MDEP, dated November 22, 2019 in which the MDMR provides an analysis of MDMR's salmon modeling under the scenario of four dam removals, recommending "the most prudent course for the licensee would be to propose significant improvements at each project and continue the multi-party discussions to achieve the best desired outcome for all parties."

More importantly, MDMR's change in position is inexplicable given that agency had actively participated in the collaborative efforts to develop an SPP. If the MDMR had shared its modeling and data about restoration goals for American shad and river herring during the SPP development meetings, those issues could have been raised and discussed with Brookfield and the other agencies.

3. Fish Passage Design

Brookfield actively engaged with the MDMR and other fisheries agencies on fishway design studies (including siting and CFD modeling) and on design phases for the upstream fish passage facilities at the Shawmut, Lockwood, and Weston projects. To that end, Brookfield submitted for state and federal agency review the conceptual, 30%, 60%, 90% and final design drawings for the Shawmut fish lift, and the conceptual, 30% and 60% design drawings for the Lockwood bypass fishway[49] and Weston fish lift[50] with each phase of design, and scheduled agency review meetings. The 90% design drawings for the Lockwood bypass fishway and Weston fish lift were distributed February 3, 2021 and February 4, 2021, respectively, and the design review meeting held February 9, 2021.

Brookfield submitted the Shawmut final fishway design materials to the MDEP as part of the Maine Waterway Development and Conservation Act ("MWDCA") and Condition Compliance permit applications as well as to the FERC, pursuant to the requirements of the 2016

[49]Design Consultations for the Lockwood Project: Conceptual Designs Memos – 2/7/2019 and 10/7/2019, Conceptual Designs Review Meetings – 4/12/2019 and 10/11/2019, CFD Study Results Submittal - 3/23/2020, CFD Study Results Agency Meeting - 3/27/2020, CFD Study Supplemental Results Submittal - 4/7/2020, 30% Design Submittal - 7/10/2020, Lockwood and Weston 30% Design Fish Passage Agency Meeting - 7/23/2020, 60% Design Submittal - 11/5/2020, 60% Design Review Meeting - 11/10/2020, Supplemental Information Submittal (CFD and Hydrology calcs) - 11/19/2020, 90% Design Submittal – 2/5/2021, 90% Design Review Meeting – 2/9/2020.

[50]Design Consultations for the Weston Project: Conceptual Design Submittals – 7/15/2019 and 2/24/2020, Conceptual Designs Review Meetings – 7/16/2019 and 3/27/2020, 30% Design Submittal - 6/23/2020, Lockwood and Weston 30% Design Fish Passage Agency Meeting - 7/23/2020, 60% Design Submittal - 10/23/2020, 60% Design Review Meeting - 11/10/2020, 90% Design Submittal – 2/5/2021, 90% Design Review Meeting – 2/9/2020.

Amendment. Both the FERC and MDEP filings include the full 476-page consultation record which documents the extensive correspondence with the MDMR.

Similarly, the full consultation records for the Lockwood[51] and Weston[52] designs will be filed with the FERC as part of the final design package and submitted to the MDEP. Both records will also show the MDMR's full participation in the development and approval of the proposed fish passage designs.

In summary, Brookfield has extensively consulted with the MDMR and the other state and federal fisheries resource agencies on fish passage measures at all of the lower Kennebec Projects as part of collaborative efforts to support and promote diadromous fish restoration in the lower Kennebec River. Such consultation has been ongoing since 1989 and most recently, 2018-2020, centered on a final SPP and fishway design development of Lockwood and Weston.

Brookfield, as well as the taxpayers of Maine, have and continue to spend significant funds on these efforts. For example, design and construction of the state-of-art Hydro-Kennebec fishway cost approximately $13.4 million, and studies, designs, and permitting for the Lockwood, Shawmut, and Weston Projects – as well as work on the SPP – have cost approximately $3.1 million. Those amounts do not reflect Brookfield's costs relating to internal resources such as labor and overhead that were devoted to those efforts, similarly also expended by and at the MDMR and other public agencies.

All of this consultation and planning was undertaken with the MDMR as an active participant. The 2020 Amendment represents a complete rejection of years of good faith negotiations, data sharing, collaborative design, and planning to support diadromous fish

[51]The Lockwood MWDCA permit was submitted to the MDEP on January 26, 2021.
[52]The Weston MWDCA permit is anticipated to be submitted to the MDEP by the end of February 2021.

management on the Kennebec River and disregard for the many millions of dollars of funds and man hours expended in reliance upon such dialogue.

D. General Comments

1. The 2020 Amendment Does Not Take a Cooperative or Balanced Approach to Fisheries Management and Was Developed in Isolation and Without Opportunity for Public Comment

Previously, as was the case for the 1993 Plan, fisheries management plans developed by the MDMR were prepared in close consultation and coordination with other state and federal fishery agencies, many of which share overlapping jurisdiction over the management of the various fish species covered in the 2020 Amendment. For example, while NMFS has management authority for listed Atlantic salmon, the MDIFW has management authority for freshwater species that could be affected by diadromous fish restoration efforts or management decisions.

There is no evidence that the MDMR consulted or coordinated with the other state and federal fisheries agencies. Nor does the 2020 Amendment discuss in any detail how this plan would work in concert with the KHDG agreement, other fishery management plans for the Kennebec River. Nor does the 2020 Amendment describe how its management objectives for the diadromous species are consistent with those that have been established by the other fisheries agencies.

Further, the 2020 Amendment has not been developed with input from municipal, commercial, industrial, or recreational users of the Kennebec River nor has there been any public outreach to the affected communities for which dam removal is recommended. Many existing users of the river could be impacted by the management measures prescribed in the 2020 Amendment.

In contrast, the 1993 Plan was developed using professional judgment and comprehensive watershed planning, with due consideration of "comments and opinions by all elements of the political process, including citizens, other state agencies, the State Legislature, resource users, and interested organizations."[53] By contrast, it is apparent that the MDMR has restricted public comment on the 2020 Amendment to limited and finite opportunities only after it had already been drafted, rather than coordinating with affected and interested parties during its development. As discussed in Section II above, MDMR must consult with these varying interests before adopting the 2020 Amendment.

Most importantly, the 2020 Amendment differs from the 1993 Plan in its stated purpose, goals, and objectives. The 1993 Plan was developed with a balanced look at all Kennebec River resources, including both developmental and non-developmental resources. As stated in the introduction to the 1993 Plan:

> *The Kennebec River Resource Management Plan represents a comprehensive examination by the State of Maine of the various resources and beneficial uses of the Kennebec River. The Plan discusses each of these resources and beneficial uses and, consistent with existing State policies, makes certain recommendations that reflect the State's determination of how those resources and beneficial uses should be balanced against one another in various circumstances….*
>
> *The Plan is intended to be used by FERC in its analysis of beneficial uses of the Kennebec River. To the extent that previous State publications have identified goals and objectives for Kennebec River resources, those goals and objectives either have been included within the Plan or have been balanced against other goals and*

[53] 1993 Plan at 1-2.

objectives in developing the Plan's recommendations and conclusions.[54] (Emphasis added).

These and other statements in the 1993 Plan make clear that the earlier plan was developed with significant consideration given to the other resource benefits and uses of the Kennebec River, as well as fisheries management objectives. A similar balanced approach is entirely missing from the 2020 Amendment.

2. The 2020 Amendment Was Developed Without Input from or Coordination with Relevant State and Federal Fishery Agencies

Several state and federal agencies and interstate commissions share authority to manage Kennebec River fisheries and diadromous fish stocks and evaluate and prescribe fish passage needs at federally licensed hydropower projects. The Marine Resources Advisory Council was established to give the MDMR Commissioner information and advice concerning the administration of the department, which presumably includes new rulemaking. Management, protection, and recovery of ESA listed Atlantic salmon, Atlantic sturgeon, and shortnose sturgeon is the responsibility of NMFS. Management of catadromous American eel is the responsibility of the USFWS. Management of inland and resident fish species in the Kennebec river, including the management of control of invasive freshwater species is the responsibility of the MDIFW.

All of these species are or could be affected by changes to the hydropower project fish passage facilities and/or dam removal as contemplated in the 2020 Amendment. As such, all of the agencies mentioned above should have been fully consulted in the development of the 2020 Amendment, and in the technical and modeling work that is the basis for many of the management

[54] 1993 Plan at 1.

conclusions and recommendations made in the Amendment. Yet the record shows that none of these agencies was consulted in any meaningful way by the MDMR.

ESA listed species, in particular, require consultation with USFWS and NMFS (the "Services"). Section 7 of the ESA requires a federal action agency – in this case, FERC - to consult with the appropriate Service if an action the federal agency is taking has the potential to affect a listed species or its designated critical habitat. In light of the ongoing Shawmut relicensing process and FERC consideration of a Species Protection Plan for all four of the Kennebec River projects involving ESA consultation, MDMR arguably should have consulted with NMFS and/or FERC on the 2020 Amendment, yet it appears that no such consultation occurred.

Section 18 of the FPA provides the Services with the authority to prescribe fish passage at FERC licensed hydropower Projects. Existing fishways at the lower Kennebec River projects have all been designed, constructed, operated, and monitored in conformance with Section 18 prescriptions made by USFWS and NMFS and tied to each of the license compliance requirement of each of the Project's FERC licenses. Typically, Section 18 prescriptions are made by the Services at the time of relicensing or license amendment and are the result of consultation among and between the Services, state fishery agencies and the FERC licensee, carried out over a period of years. Yet, although the 2020 Amendment has significant implications for compliance with existing Section 18 prescriptions, MDMR failed to engage USFWS or NMFS in any meaningful consultation regarding the 2020 Amendment.

Fisheries management in the United States, particularly management of catadromous species that utilize both freshwaters and marine waters over the course of their lifecycle, is joint effort among both federal and state agencies. No one state, and certainly no single state agency, has the sole authority to determine the management needs of a particular fish species or to adopt a

management plan for fish species that fall within the jurisdiction of multiple state and federal agencies, without consulting with those other agencies and developing the plan in a cooperative fashion.

3. The 2020 Amendment is Singularly Focused on Dam Removal

The goal of the 2020 Amendment should be restoration of anadromous fish species, not dam removal. But, because the 2020 Amendment apparently has been developed solely by one agency without the counsel of other fisheries resource agencies, and had not been made available for public input prior to being proposed via rulemaking, the 2020 Amendment appears to be a hasty undertaking of the MDMR designed to provide "after-the-fact" justification for a particular desired outcome: dam removal.

MDMR's insistence on this one particular measure is illogical and overlooks the successes that the MDMR, its sister fishery agencies, and hydropower dam owners have already made in restoring diadromous fish stocks to the Kennebec River basin with the dams in place. The cover page of the 2020 Amendment depicts a "Sandy River holding pool with Atlantic salmon trucked by MDMR above four hydroelectric dams." The Lockwood fish lift, designed in consultation with MDMR, is partly responsible for the overall restoration effort of salmon. Similarly, throughout the 2020 Amendment, the MDMR claims restoration of the alewife run in the Sebasticook River (a tributary to the Kennebec where fish have to negotiate up to four dams to reach spawning habitat), has been a "spectacular success." This success has come through effective use of stocking of fish taken from the Lockwood fish lift, and strongly demonstrates that with cooperation and collaboration fish restoration objectives can be met with dams in place. Yet the 2020 Amendment cherry picks study results and manipulates model run inputs in order to allow the MDMR to claim

that restoration of fish to the mainstem Kennebec cannot be achieved with Brookfield's four dams in place.

The 2020 Amendment gives no serious consideration of any alternative other than dam removal. Where the MDMR does turn to engineered fishways in the 2020 Amendment, the agency sets effectiveness standards unrealistically high in an apparent effort to force dam removals. In fact, some of the MDMR's effectiveness standards are so high that they might be unachievable *even with total dam removal.*[55]

As detailed below and in the attached technical appendices, the MDMR's selective reliance on only particular information and data throughout the 2020 Amendment, while disregarding other information that could suggest a different outcome, is at best poor science and at worst intentionally misleading. An effective State management plan – with far-reaching policy and management implications – should give due consideration to as wide a range of reasonable alternatives as possible, and not simply be used to justify a single, pre-determined outcome.

During the March 15, 2021 public hearing, Mr. Ledwin repeatedly stated that the 2020 Amendment should be considered merely a "guidance document." Brookfield does not agree with the description of the 2020 Amendment as a guidance document, as it provides no useful guidance on cooperative management of fish restoration and focuses almost exclusively on dam removal.

E. Technical Comments

Brookfield offers the following section by section comments on certain technical aspects of the 2020 Amendment. Where indicated, further detailed technical comments are provided in attached Appendices A through E.

[55]All four of the lower Kennebec projects are built on sites of natural elevation changes in the river bed, such as falls. Each of these areas would have likely represented some level of delay or hinderance to migrating fish and for some species these natural falls would have been barriers to passage.

In many cases, our review was hampered by the MDMR's failure to disclose key assumptions or provide documentation supporting its analysis. But in short, based simply on a review of the limited information that the MDMR did make available, Brookfield identified serious technical problems throughout the 2020 Amendment. These problems are so fundamental and so numerous as to call into question the MDMR's conclusions.

1. Section 1.1 - Purpose

Section 1.1 of the 2020 Amendment highlights the goals and strategies of the 1993 Plan on which the 2020 Amendment purports to build. Many of the 1993 Plan elements were not only completed, they were exceeded. For example, since 1993 additional dams were removed, additional fish passage was installed, and additional fisheries agreements and management plans were put in place.

Section 1.1 of the 2020 Amendment praises the restoration of the Sebasticook River as "spectacular." While the returns of river herring numbers to the Sebasticook is commendable, this tributary joins the mainstem Kennebec only 0.5 mile downstream from the Lockwood Dam. The MDMR fully acknowledges that effective passage on the Sebasticook at four non-power dams (Guilford Dam, Sebasticook Lake, and Plymouth Pond) and two hydroelectric dams (Benton Falls Project and Burnham Project) are key factors in this restoration success. Further, the MDMR, NOAA and USFWS along with NGOs are currently actively participating in building engineered fishways (designing and funding) on China Lake Outlet Stream, another tributary to the Kennebec in very close proximity to the Sebasticook River. It is richly ironic, then, for the MDMR to recognize the effectiveness of several dams with "engineered fishways" on the nearby Sebasticook and China Lake Outlet Stream while simultaneously asserting that restoration on the Kennebec mainstem is essentially impossible without multiple dam removals.

Since 2006, the Sebasticook has and continues to benefit from the transfer and stocking of an average of 14% of the total herring captured at the Lockwood fish lift from 2006 to 2020. If, as described by the MDMR, the Sebasticook River has a "spectacular" river herring run and the mainstem Kennebec River has "lagged" by comparison, it is unclear why the MDMR would continue to prioritize taking up to 28% of the Kennebec River annual returns to Lockwood and stocking them into the Sebasticook, a supposedly fully restored tributary enjoying is own run of river herring. Perhaps the success on the Sebasticook is owed, at least in part, to Lockwood's fish lift.

Brookfield is also troubled that the MDMR declares fish passage a success on the Sebasticook River based solely on a single metric: the total number of fish returning to the river. The MDMR feels perfectly comfortable declaring success on the Sebasticook River despite providing no information on the upstream efficiencies of river herring and shad passage at any of the dams in the Sebasticook watershed. The MDMR offers no analysis or discussion of residence time or delay, no discussion or information on downstream passage efficiencies, and no discussion of upstream or downstream passage efficiencies for eel. The MDMR established no requirements for the study of all life stages for all migratory species in both directions.

This is in stark contrast to the treatment of Brookfield's Projects in the 2020 Amendment, in which the MDMR lays out a vast suite of metrics that it claims are necessary for determining passage success on the Kennebec mainstem. The 2020 Amendment requires inordinate evaluations of life stages, species and directions with unreasonably high performance and timing standards and unjustifiable remediation measures, even though the MDMR managed to assess passage "effectiveness" on the Sebasticook without any of these evaluations in hand. Throughout the 2020

Amendment the MDMR appears intent on making new fish passage implementation as expensive and onerous as possible for Brookfield alone.

Finally, Section 1.1 indicates the MDMR's intent to submit the 2020 Amendment as a Comprehensive Management Plan to FERC. For the reasons provided in these comments, Brookfield objects that the 2020 Amendment be presented for acceptance by FERC as a comprehensive plan.

2. Section 1.2 - Scope

The MDMR indicates in Section 1.2 that the geographic scope of the 2020 Amendment are those areas indicated in Figure 1, which is a map purporting to show the historical range of diadromous species in the Kennebec River watershed. However, citations or references for the source of the map are missing and there is very little in the supporting text in Section 1.2 or elsewhere that confirm the accuracy of Figure 1. The Lockwood Dam is indicated as having no fish passage facilities, for example, which is wholly inaccurate. Figure 1 does not describe the blue circle markings or what they represent. And lakes, like China Lake, are described as "accessible" despite the fact that these lakes have dams without fish passage facilities on the tributary streams. Furthermore, Figure 1 lacks references to the source material(s) that support its accessibility conclusions.

In addition, Brookfield finds the MDMR's temporal scope of 40 to 50 years puzzling as significant changes to the watershed are anticipated in the next few years that are not clearly acknowledged or analyzed in this 2020 Amendment, including fish passage facility construction and improvements, effectiveness testing, etc. While the MDMR indicates the 2020 Amendment "will be updated or expanded upon in the future as appropriate," a temporal scope of 40 to 50 years

is entirely misguided considering the haste with which the 2020 Amendment was drafted and the fact that passage conditions on the lower Kennebec River will change in the immediate future.

3. Section 1.3 - MDMR Role

The MDMR is the lead state agency in the restoration and management of diadromous (anadromous and catadromous) species of fishes. The MDMR indicates in the 2020 Amendment that it is their "policy" to restore Maine's native diadromous fish to their historical habitat. Restoration of diadromous fish, however, is a shared regulatory and management responsibility among MDMR and other agencies, including but not limited to the USFWS, NMFS, and the Atlantic States Marine Fisheries Commission ("ASMFC"). In addition, other State agencies play a role in the protection of Kennebec River aquatic habitats and fisheries, which also play an important role in diadromous fish restoration efforts. The MDMR's 2020 Amendment should recognize and more thoroughly discuss the cooperative nature of fisheries management and diadromous fish restoration efforts in the Kennebec, and elsewhere in Maine.

4. Section 1.4 - Existing Comprehensive Plans

Section 1.4.2 of the 2020 Amendment references and outlines the goals and objectives of the outdated ASMFC 1985 Shad and River Herring Fishery Management Plan. That document does not reflect current shad management practices, nor does it provide any insight to current American shad fisheries (i.e., commercial shad fisheries have been closed). In 1985, Kennebec River American Shad management by the MDMR was based upon raising juvenile shad and stocking them throughout the lower Kennebec River Basin. Current ASMFC American shad

management recognizes the MDMR's *2020 Maine Sustainable Fisheries Management Plan for American Shad* ("2020 Shad Plan").[56]

The 2020 Shad Plan emphasizes natural reproduction in the 300.4 km of shad habitat that is available downstream of Lockwood, and the additional 107.2 km of historic habitat (MDMR 2020, Table 1) that will be available with the completion of fishways at the Lockwood, Shawmut and Weston Projects, and notes that, "The Kennebec and Saco rivers are the most productive recreational fishing spots for American shad."[57]

In its description of other existing comprehensive plans for the Kennebec River, the MDMR notes that the NMFS' 2009 listing rule[58] suggested "three major threats to Atlantic salmon" are dams, regulatory mechanisms predominantly associated with non-FERC dams, and low marine survival. MDMR reiterates the listing's remediation measures for dams including "passage improvements at dams" but emphasizes dam removal as a solution, and does not acknowledge the other two threats noted by NMFS, erroneously concluding that dam removal is the only solution. In fact, the greatest threat to species recovery is low marine survival (estimated by NMFS in the 2013 BiOp at 0.4%).[59] The failure to fully discuss the dominant role that marine survival plays on recovery efforts is a critical deficiency of the 2020 Amendment.

[56]The ASMFC has updated interstate shad management plans six times since 1985. MDMR shad management is currently subject to the *2010 Amendment 3 to the Interstate Fishery Management Plan for Shad and River Herring*. Most recently, the *2013 MDMR American Shad Habitat Plan* was submitted to the Atlantic States Marine Fisheries Commission as a requirement of Amendment 3 to the Interstate Management Plan for Shad and River Herring. It was approved on February 6, 2014. The MDMR (2013) assessment notes 407.6 km of shad habitat in the Kennebec watershed.

[57]Id.

[58]NMFS. June 19, 2009. Endangered and Threatened Species; Designation of Critical Habitat for Atlantic Salmon (Salmo salar) Gulf of Maine Distinct Population Segment.

[59]NMFS. July 19, 2013. Biological Opinion for the Lockwood, Shawmut, Weston, Brunswick and Lewiston Falls Projects.

As explained in Appendix A, MDMR's "deterministic model" is inappropriately used in the place of a stochastic model and selectively applies data to justify dam removal on the lower Kennebec River.

5. Section 1.5 – Background of Diadromous Fish in the Kennebec River Watershed

The 2020 Amendment does not explain that Merrymeeting Bay is prime habitat for sturgeon (both Atlantic and shortnose) and supports a large shortnose sturgeon population (estimated to be more than 10,000).[60] Merrymeeting Bay also provides significant amounts of habitat for other species and life stages including for striped bass (particularly for spawning), American eel rearing habitat, and habitat for rainbow smelt, among other diadromous species. The contribution of Merrymeeting Bay habitats to the overall restoration and management goals for diadromous fish species in the Kennebec River should not be overlooked or minimized.

The 2020 Amendment acknowledges that striped bass and rainbow smelt historically occupied only habitats below Ticonic Falls at the Lockwood Project. However, the Amendment inexplicably includes as a goal and objective to "improve existing habitat access, habitat quantity" for rainbow smelt and striped bass. At the same time, MDMR acknowledges that rainbow smelt may not have been able to traverse the head of tide at the former Edwards Dam site and "striped bass now have access to 100% of their historically accessible habitat in the Kennebec River." Hence, the goal of improving habitat access and quantity for these species already seems to have been achieved.

The 2020 Amendment states that the historic range of sea lamprey is unknown in the Kennebec River. Yet the MDMR recommends fish passage performance standards for a species

[60]NMFS. 1987. Status review of shortnose sturgeon (*Acipenser brevirostrum*); LeSueur 1818). And NMFS. 2010. Biological assessment of shortnose sturgeon *Acipenser brevirostrum*.

about which little or nothing is known about its current or historic population and range within the Kennebec. This is a significant and unsubstantiated change in the management of this species, especially considering that until recently, the MDMR previously sought to cull sea lamprey under the 1993 Plan as a species with the potential to adversely impact salmon populations. The 2020 Amendment fails to establish the necessity for dam removal in order to protect this species.

6. Section 2.3 - Status of Fish Passage at Hydropower Projects

This section of the 2020 Amendment omits much information on the status of upstream fish passage at the four lower Kennebec River Projects and ignores existing information available for downstream passage. Below, Brookfield provides current fish passage information relating to each of its Projects that must be considered in a plan designed to guide management decisions on the Kennebec River.

Lockwood Project

Extensive testing of the Lockwood Project downstream fish passage has shown that Lockwood has an average whole station survival of 98.6% for Atlantic salmon smolts.[61] With respect to American shad, the 2020 Amendment states that permanent swim-through upstream passage at Lockwood was to be operational two years after 8,000 American shad were captured at the interim facility at Lockwood. While 8,000 American shad have not been captured at the Lockwood fish lift, plans for the addition of swim-through passage at Lockwood have been addressed through Brookfield's proposal for, and FERC's approval of, volitional fish passage at the Lockwood Dam as part of the 2013 ISPP. The specific technology for volitional fish passage at Lockwood as well as the shift from conversion of the existing lift to a volitional fishway to a

[61]BWPH. December 31, 2019. Species Protection Plan and Draft Biological Assessment for the Lockwood Hydroelectric, et al. under P-2574, et al. and BWPH. February 1, 2019. Biological Assessment for the ISPP Extension for the Lockwood, Shawmut and Weston Projects.

second separate fishway in the bypass reach of the dam resulted from agency consultation efforts, particularly in response to the MDMR's concerns. Specifically, Brookfield has plans to construct a new vertical slot fishway at Lockwood in 2021 that will provide swim-through passage for all diadromous fish species and will be located at the head of the bypass reach, providing fish with a second, volitional, upstream fish passage route. Once constructed, the new fishway is expected to significantly increase upstream passage effectiveness at the Lockwood Project. Brookfield is in the 90% design phase for the new Lockwood fishway and will submit its final plans for the new Lockwood fishway to FERC in February 2021 and expects to construct the facility in 2021 to be operational by May 2022.[62]

Hydro-Kennebec Project

The Hydro-Kennebec Project downstream fish passage, as tested for Atlantic salmon smolts, has an average whole station survival of 94.7%.[63] With respect to upstream passage, the 2020 Amendment fails to acknowledge that the operation of the Hydro-Kennebec fish passage facility has been at the direction of and in full consultation with the MDMR. The MDMR advises on the duration and frequency of lift operation following camera observations of salmon at the fishway entrance as monitored by Brookfield, who then attempt to capture the salmon, and, if caught, turn them over to the MDMR to be trucked to the Sandy River.

Shawmut Project

The 2020 Amendment omits relevant information on Brookfield's proposal to construct and operate a new upstream fish lift at the Shawmut Project, while noting that Brookfield "is

[62]BWPH. December 31, 2019. Species Protection Plan and Draft Biological Assessment for the Lockwood Hydroelectric, et al. under P-2574, et al. and BWPH. February 1, 2019. Biological Assessment for the ISPP Extension for the Lockwood, Shawmut and Weston Projects.

[63]BWPH. December 31, 2019. Species Protection Plan and Draft Biological Assessment for the Lockwood Hydroelectric, et al. under P-2574, et al. and BWPH. February 1, 2019. Biological Assessment for the ISPP Extension for the Lockwood, Shawmut and Weston Projects.

required to provide an upstream fish passage to be operational by May 1, 2022 [sic]."[64] This requirement is a result of FERC's amendment of the Shawmut Project license in 2016 to incorporate the provisions of the 2013 ISPP.[65] In December 2019, Brookfield filed for FERC approval final plans for the Shawmut fish lift, developed in consultation with state and federal fishery agencies including the MDMR. Had the plans been approved by FERC as anticipated, the upstream fish lift would have been constructed at Shawmut in 2020, and would be operational in 2021, in accordance with the approved schedule. However, FERC postponed its approval of the construction plans following receipt of comments including those by the MDMR, which had changed its position from supporting the fish lift to questioning its need and design.

The 2020 Amendment excludes from consideration as "best available information" several studies of upstream and downstream passage and movement at the Shawmut Project that were conducted as part of fish passage design and relicensing. For example, the 2016 Alewife Telemetry Study, conducted in May–June 2016 evaluated adult river herring behavior downstream of the Shawmut Project to aid in the placement, entrance location, and design of the permanent upstream fishway. For the study, 150 adult alewives were captured, radio-tagged, and released approximately 3.4 miles downstream of the Shawmut Project and movements monitored. Of the 150 fish tagged and released, 79 percent moved upstream and were detected within the immediate tailrace; most frequently in the area downstream of the hinged flashboard spillway section of the dam.

Further, numerous Atlantic Salmon Smolt Radio-Telemetry Studies have been conducted in connection with the respective lower Kennebec River Project ISPPs (2012-2015). Average

[64]The 2020 Amendment incorrectly states the operational date is May 1, 2022. In accordance with the terms of the 2013 ISPP, as amended, the Shawmut upstream passage facility was to be operational by May 2021.
[65]Order Amending Licenses to Require Interim Species Protection Plan for Atlantic Salmon and Handling and Protection Plan for Shortnose and Atlantic Sturgeon, FERC. May 19, 2016.

whole station survival was estimated at 93.5%. As a result and consistent with the adaptive management intent of the ISPP, the Licensee, in consultation with the resource agencies, subsequently lowered four hinged flashboard sections during the smolt migration period to increase the total flow via the downstream fish bypass from 420 cfs to 560 cfs. NMFS, by letter dated May 22, 2017, stated that those measures were expected to result in survival rates within the 95% incidental take limit established for Shawmut.

Weston Project

With respect to the Weston Project, the 2020 Amendment simply states that Brookfield "is required to provide an upstream fish passage to be operational by May 1, 2022," but omits the critical fact that fish lift plans were developed in consultation with state and federal fishery agencies, including MDMR, are in the 90% design phase, and will be filed with FERC in February 2021.

Weston's existing downstream fish passage, as tested for Atlantic salmon smolts, has an average whole station survival of 95.0%.[66] By omitting, among other things, vital information about planned upstream fishways at Lockwood, Shawmut and Weston, the 2020 Amendment ignores important near-term changes to the lower Kennebec hydropower projects that will significantly enhance upstream passage conditions for all anadromous fish species. Finalizing a plan that is intended to guide management decisions for anadromous fish without fully acknowledging the benefits that these new fishways will bring to anadromous fish restoration efforts on the Kennebec River – fishways that were, in fact, developed *in* consultation with the MDMR – is disingenuous, and unworkable.

[66]BWPH. January 31, 2019. Species Protection Plan and Draft Biological Assessment for the Lockwood Hydroelectric, et al. under P-2574, et al. and BWPH. February 1, 2019. Biological Assessment for the ISPP Extension for the Lockwood, Shawmut and Weston Projects.

Successful fish passage can be accomplished without untenable performance standards or dam removal, as evidenced at the Benton Falls and Burnham projects on the Sebasticook River (a tributary to the Kennebec). The descriptions of these facilities are meager, and more importantly Brookfield notes that unlike the Kennebec mainstem dams, where fishways have undergone rigorous testing, the effectiveness of the upstream and downstream fish passage facilities at the dams on the Sebasticook River have never been studied or tested. The 2020 Amendment does not justify or even explain why effectiveness testing and performance standards for anadromous fish species is not required at these other facilities but is being imposed at Brookfield's fish passage facilities.

7. Section 2.4 - Fish Passage Testing and Performance Standards

Section 2.4 of the 2020 Amendment discusses the need for performance standards for five anadromous fish species: Atlantic salmon, American shad, blueback herring, alewife and sea lamprey. The MDMR claims that such standards are needed to support their requests (at relicensing) for hydropower project licensees to conduct fishway effectiveness testing. Brookfield does not agree. Testing or monitoring of fishway effectiveness does not require a performance standard against which to compare the study results.

Although Brookfield acknowledges that FERC has recently indicated that it will not require fish passage monitoring or effectiveness studies at certain hydropower projects,[67] in part because there are no fish passage performance standards in place at those projects, that is not the case for the lower Kennebec Projects. Since ISPPs were developed and approved for the four lower Kennebec River Projects in 2012-2013, Brookfield has conducted multiple years of effectiveness

[67]FERC. July 29, 2019. Final Environmental Assessment for Hydropower License for the Ellsworth Hydroelectric Project under P-2727. And FERC. February 6, 2019. Final Environmental Assessment for Hydropower License for the Barker's Mill Hydroelectric Project under P-2808.

testing on both upstream and downstream fishways at the Projects. While it is true that more testing has been conducted for the downstream passage facilities than for the upstream facilities, in the case of Atlantic salmon studies, this is in large part due to a lack of returning adult fish that can be used for testing and the fact that only two upstream fishways have been completed.

While it is also true that most of the passage effectiveness testing done to date is for Atlantic salmon, rather than on American shad, blueback herring or alewife, that is because there has been general consensus within the fisheries management agencies that downstream passage effectiveness and whole station survival for Atlantic salmon probably represents a "worst case" scenario for all of the anadromous species, because salmon smolts are larger than out-migrating juvenile shad and herring and the timing of migration and delays in outmigration for salmon smolts is more critical than for alosids, due to their biology.

Importantly, Brookfield has demonstrated its commitment to monitoring and testing of all its fish passage facilities (existing and proposed) on the lower Kennebec, reaffirmed in the 2019 SPP that, once finalized, will establish a long-term plan for continued testing and adaptive management actions to be undertaken at both upstream and downstream fish passage facilities at all four lower Kennebec Projects. Therefore, unnecessary performance standards appear intended solely as a means against which to compare monitoring and testing results. Testing fishway performance against an arbitrary standard based on improper modeling or on hypotheticals and inappropriate assumptions, fails to provide insight on how well a fishway is working and/or what improvements can be made.

Serving no other useful purpose, it appears that the unreasonable and unjustified performance standards in this 2020 Amendment are intended to justify requiring Brookfield to undertake additional, highly costly and impractical measures to continue to improve fish passage

that will inexorably result in dam removal. For example, the MDMR has indicated a need for Brookfield to build a *second* fishway in *any* year that the performance standard is not met for any life stage, a wholly illogical and unreasonable requirement that will cause significant economic and operational harm to the lower Kennebec Projects.

Brookfield contends that establishing sound restoration goals based on available habitat and biological factors, working to ensure the design of highly effective fishways, and conducting reasonable studies to test fishway effectiveness with an eye toward identifying possible enhancement or modification to improve fishway performance would be a more equitable, effective and collaborative way to use study results to affect positive change toward achieving a particular fisheries management or restoration outcome.

Section 2.4 also discusses the advantages of nature like fishways ("NLF") as means to provide more effective fish passage at dams. While NLFs can be effective fish passage options, the 2020 Amendment, in its discussion of the alleged success of the Howland bypass NLF fails to recognize that comprehensive passage efficiency testing has not been completed for any species at the Howland NLF. The MDMR is also fully aware that NLFs were considered in the Feasibility Study for the Lockwood, Shawmut and Weston Projects and were dismissed at each Project by both the agencies and Brookfield for various reasons including certain site-specific characteristics such as availability of space to accommodate the footprint of the NLF and topography.

For example, at Weston, an NLF was considered and dismissed because it would extend almost 500 feet into the head pond and, at Lockwood, an NLF was discussed and dismissed over concerns that the entrance would be too far downstream to be effective. The MDMR's participation in discussions regarding NLF concerns at each Project should have been reflected

and should have better informed its discussion since NLFs are not the only, nor even always the best, fish passage option.

Also, in Section 2.4 of the 2020 Amendment, the MDMR states that "the need to meet energy objectives" is the only justification for preserving the dams. The 2020 Amendment fails to address all the benefits of hydroelectric generation, which should be fully discussed and considered. Hydroelectric energy is valuable to the State of Maine, contributing to its renewable energy mix and reducing carbon emissions and reliance on fossil fuel energy sources, which contribute to climate change, a significant overarching risk to fish species in the state of Maine. Further, project impoundments provide recreation opportunities, municipal and industrial water supply, and create and maintain waterfront property. The Projects contribute to the local tax base and employ local residents.

8. Section 3.3 – Rainbow Smelt

The MDMR notes that rainbow smelt have occurred at Lockwood Dam, but "have not been examined to determine whether they are anadromous fish that have migrated upstream or a landlocked population."[68] This statement is not based in sound science and is wholly contradicted by the 1993 Plan, which identifies rainbow smelt as having "historically migrated to Ticonic Falls," a statement repeated in Section 1.5 of the 2020 Amendment itself.[69]

9. Section 3.5 – Atlantic Salmon (*Salmo salar*)

In Section 3.5, the MDMR discusses the status of Atlantic salmon in the Kennebec River and attempts to demonstrate the need for unrealistic and unreasonable fishway performance standards for upstream and downstream passage of salmon.

[68]2020 Amendment at 14.
[69]We also note that two citations in Section 3.3, Enterline et. al, 2012 and Enterline, et al., 2013 are missing from the References section.

NMFS Biological Criteria for Reclassification of the GOM DPS from endangered to threatened calls for a minimum of at least 1,500 returning adults of wild origin or hatchery stocked eggs, fry or parr with 2 of the 3 SHRUs having a minimum escapement of 500 naturally reared adults. For delisting, NMFS indicates a minimum escapement of 2,000 wild origin adults in each SHRU. While Brookfield does not object to the MDMR's goal of 2,000 wild origin adults the 2020 Amendment should recognize the step-wise goal outlined by NMFS for downlisting.

The MDMR bases performance standards on its evaluation of cumulative impacts of multiple dams on Atlantic salmon recovery. Much of the MDMR's discussion and conclusions regarding such effects on Atlantic salmon recovery efforts are based on a deterministic model that the MDMR developed. The following summarizes the key flaws in this model affecting the validity of its projections:[70]

- All of the MDMR's conclusions are based on invalid assumptions regarding smolt production from rearing habitat upstream of Weston.
- The model incorrectly calculates salmon smolt survival through each river reach, for all modeled scenarios.
- The model inappropriately adopts modeled smolt survival rates developed for the Penobscot River, and ignores recent empirical smolt mortality rate information for the freshwater and estuarine phases of outmigration in the Kennebec River.
- The model ignores the potential effects of climate change, water quality and pollution, sedimentation, non-hydro connectivity issues and the presence of competing or predatory non-native fish species.

[70] For further details, see Appendix A. Brookfield notes that its stated concerns with the MDMR's deterministic model were filed with the Commission on October 14, 2020, when the MDMR attempted to interject its flawed analysis into the Shawmut relicensing by including it its 10(a) recommendation for dam removal filed on August 28, 2020.

- The MDMR incorrectly claims that the "major assumption(s) of the model were generally consistent with NOAA Fisheries Dam Impact Models." This is incorrect (*see* Appendix A).[71]
- The MDMR did not use "best available data" by using proxy data from other reaches rather than similar contemporary data previously collected from the Kennebec River.
- The model uses an inordinately high marine survival rate that is unrealistically optimistic and unsupported. The MDMR incorrectly cited Baum (1983) as the source for 4% return rate, which is incorrect. Baum (1983) uses 4% for an equilibrium population model (i.e., smolts produced replace the spawning population) which provides no justification or source. The highest empirical survival rate in the pre-1980 studies (i.e., the release year(s) with the highest survival) was one lot with a 2.29% return rate (*see* Table 15 of Baum, 1983). Baum (1983) instead summarizes these tagging studies thusly "The annual survival to home waters has averaged 0.53%." (*see* Baum 1983 at p.50). This is consistent with NMFS estimated marine survival as reported in the 2013 BiOp at 0.4%.[72] Only by using the artificially high marine survival rate of 4% do any of the MDMR's modeled scenarios approach delisting criteria.

10. Section 3.5 – Climate Change and Atlantic Salmon

The 2020 Amendment's discussion on climate change and Atlantic salmon does not adequately address the climate change impacts to Atlantic salmon restoration efforts. Focusing almost exclusively on the effects of projected increases in river water temperature on salmon habitat in the Kennebec River, the 2020 Amendment entirely ignores other effects that could

[71] 2020 Amendment at 17.
[72] NMFS. July 19, 2013. Biological Opinion for the Lockwood, Shawmut, Weston, Brunswick and Lewiston Falls Projects.

impact salmon, such as changes in the aquatic community that benefits predators and competitors including non-native and/or invasive species such as smallmouth bass, largemouth bass, and northern pike, which are all now well established with expanding ranges within the Kennebec drainage.

Further, Section 3.5 does not discuss the effects of climate change on the distribution of Atlantic salmon throughout their range and in the Gulf of Maine, which is warming faster than any marine habitat in the world.[73] The 2020 Amendment does not discuss the potential impact that warming of Gulf waters have on marine survival and/or the shifting of Atlantic salmon habitats northward, and ignores important studies of Atlantic salmon distribution changes resulting from climate change and warming waters that are critically important to an impartial assessment of the potential for restoration of Atlantic salmon to the Kennebec River. Finally, Section 3.5 is silent on the topic of hydropower's contribution to reduction of carbon emission, which could slow the rate of climate change that is adversely impacting distributions and populations of the fish species for which the 2020 Amendment purports to enhance protections. Focusing solely on salmon, the 2020 Amendment fails to review the effects of climate change on shad, alewife and blueback herring, which also are documented as vulnerable to climate change.[74] In light of the rate of warming at the Gulf of Maine, any rewrite of the 1993 Plan also should include these species.

[73]Bricknell, I. R., et al. 2021. Resilience of cold water aquaculture: a review of likely scenarios as climate changes in the Gulf of Maine. Reviews in Aquaculture 13(1): 460-503; and https://climate.nasa.gov/news/2798/watery-heatwave-cooks-the-gulf-of-maine/

[74]Ellis, D., & Vokoun, J., *Earlier spring warming of coastal streams and implications for alewife migration timing*, North American Journal of Fisheries Management, 29, 1584–1589 (2009); Henderson, M. E., Mills, K. E., Thomas, A. C., Pershing, A. J., & Nye, J. A. *Effects of spring onset and summer duration on fish species distribution and biomass along the Northeast United States continental shelf,* Reviews in Fish Biology and Fisheries, 27(2), 411–424 (2017); Quinn, T. P., & Adams, D. J. *Environmental Changes Affecting the Migratory Timing of American Shad and Sockeye Salmon,* Ecology, 77(4), 1151–1162 (1996); Tommasi, D., Nye, J., & Stock, C., *Effect of environmental conditions on juvenile recruitment of alewife (Alosa pseudoharengus) and blueback herring (Alosa aestivalis) in fresh water: a coastwide perspective*, Canadian Journal of Fisheries and Aquatic Science, 72, 1037–1047 (2015).

11. Section 3.6 – American Shad (*Alosa sapidissima*)

In Section 3.6, the MDMR discusses American shad in the Kennebec River and provides a brief summary of the original goals (from the 1993 Plan) for shad restoration, and the considerable American shad stocking efforts that notably were undertaken and made possible by funding provided through the KHDG Agreement. Absent from this section is any acknowledgement that projections of shad recovery rates to achieve the restoration goals set forth in the 1993 Plan, which the 2020 Amendment builds upon, were based on anticipated stocking efforts that ceased in 2007.[75]

Also missing is a reasonable assessment of the current status of American shad in the Kennebec River downstream of the Lockwood Project. The 2020 Amendment is notably silent on the status of shad in the Kennebec River declaring instead that "(r)estoration of American shad above the Lockwood Project has not been successful." The MDMR has conducted no studies designed to measure the abundance of adult shad in the lower Kennebec River to determine if even the recovery goals of the 1993 Plan were successful.[76]

While American shad home to their natal rivers, they tend not to show strong fidelity to a particular river reach or tributary and the distance travelled upstream to spawn varies greatly by river, with a typical spawning range of 25 to 100 miles (Ticonic Bay is located below Ticonic Falls, the site of the Lockwood Dam at river mile 63). Shad prespawning movements are predicated on density dependence because they are broadcast spawners; reproducing by broadcasting eggs and sperm throughout the water column rather than in nests. To ensure egg

[75]Table 11 of the 2020 Amendment indicates that 7,849 adult shad were released into the Kennebec River between 1987 and 1997; 37,273,257 shad fry were released between 1993 and 2007 and 198,176 shad fingerlings were released between 1993 and 2001.

[76]As discussed in MDMR's 2014 American Shad Habitat Plan, the metric that MDMR uses to estimate anticipated returning adults is an index survey of beach seined juveniles, which provides densities which can be indicative of successful reproduction but is only useful to show trends.

fertilization, shad must be in close proximity to one another, resulting in the compulsion to concentrate in suitable habitat. As spawning habitat is saturated, spawners may begin to expend additional bioenergetics to pioneer additional habitat.

The 2020 Amendment presents no evidence demonstrating that the population of adult shad has yet fully utilized the habitat capacity of the Kennebec River below the Lockwood Project. Instead, the MDMR acknowledges that "(b)ecause of insufficient data for Maine's rivers, we used the most recent determination of minimum adult production/unit habitat development for the Connecticut River." This method produces recovery targets based solely on available habitat, which, as discussed above, is inappropriate as shad may not be currently motivated to ascend to these habitats.[77] In fact, a study of the MDMR's referenced shad recovery on the Connecticut River demonstrated that upstream passage for shad can be counter-productive. The study showed that improvements to existing fishways and new fishway construction on the Connecticut River resulted in "significant upriver relocation of the main spawning activity by shad" but failed to increase the total population size relative to the increase in total available spawning habitat. Several factors accounted for this including an increase in the length of the spawning migration, an increase in expended energy to reach spawning grounds, higher adult mortality and a dramatic reduction in repeat spawners and in the mean size and age of adult fish.[78]

Further, in the absence of any empirical data or assessment of the status of the shad population in the lower Kennebec, the 2020 Amendment implies that the limited numbers of shad utilizing the fish lift at Lockwood are evidence that only small numbers of shad are returning to

[77]The KHDG Agreement upstream passage schedule provided for shad passage trigger numbers entirely predicated on the idea that shad habitat saturation of downstream reaches would be appropriate considerations for the installation of fishways at the next upstream site.

[78]Leggett, William C; Savoy, Thomas F; and Tomichek, Christine A. 2004. The Impact of Enhancement Initiatives on the Structure and Dynamics of the Connecticut River Population of American Shad.

the river as a whole, and focuses on shad habitat located upstream of Lockwood and the other mainstem dams as indicative of a productive population. This conclusion is wholly unfounded given MDMR does not know the current status of the shad population using the Kennebec River below Lockwood. While in some rivers use of a fishway by shad may be critical to restoration of the species, in the Kennebec River basin, over 40 percent of the shad spawning habitat (1,013 hectares) is available to shad either unimpeded or through volitional fishways and is estimated to be able to support a spawning population of 205,544 shad. Of note, the approximately 20% of shad habitat considered available on the Sebasticook River is untested and not bound by any performance standards, unlike the mainstem Kennebec River.

If large numbers of shad are not returning to the Kennebec River, it is more likely a result of factors other than lack of access to spawning habitat. Consideration of such factors should be included in the 2020 Amendment along with some discussion about the consistent decline in American shad runs in rivers up and down the Atlantic coast; with most Atlantic coastal rivers at all-time lows due to predation and ocean fisheries by-catch issues.[79] The MDMR's amendment should take a more balanced approach to assess which, if any, American shad restoration efforts on the Kennebec are needed.

The 2020 Amendment should also consider the potential impediments that natural falls at the sites of today's hydropower project dams posed to many anadromous species, including American shad. While some shad may have been able to negotiate the 25 foot drop at Ticonic Falls (Lockwood Project site), the 34 foot drop at the fall in Fairfield (Hydro-Kennebec Project site) and the 30 foot falls in Skowhegan (Weston Project site), passage rates for shad at these falls

[79]Atlantic States Marine Fisheries Commission (ASMFC). August 4, 2020. American Shad Benchmark Stock Assessment and Peer Review Report.

were nowhere near the 90+% passage rates that the MDMR suggests are necessary to restore this species to the Kennebec River.

It is likely, in fact, that prior to dam construction, the majority of spawning habitat utilized by American shad in the Kennebec River was located below Waterville, Maine. A report by the USFWS states "the disappearance of shad from the rivers and streams of Maine was almost entirely a result of their exclusion from spawning areas by dam construction. The major exception to this was the lower Kennebec River where a shad fishery existed for many years following the closing of the river at Augusta in 1837. The eventual disappearance of shad below Augusta is believed to have been principally sawdust pollution, resulting first in wiping out the fishery just below Augusta and eventually extending to the Merrymeeting Bay area, the principal shad producing district of the river."[80] The 2020 Amendment should have recognized that long before there were dams, there were natural limitations to American shad access to the Kennebec River above Waterville and shad declines in the Kennebec River were not primarily a result of dams.

This is further supported by the 1993 Plan and the 1997 Final Environmental Impact Statement for the Kennebec River Basin,[81] which the MDMR cites in the 2020 Amendment as the data source for Table 3 which provides the "Amount of American shad, blueback herring and alewife spawning habitat (source 1997 FEIS) in the Kennebec River above Edwards Dam (removed in 1999) and estimated production of adults of each species".[82] What is notably absent from Table 3 is the historic spawning habitat below Edwards Dam. Instead, the MDMR references Table 3 to make the wholly incorrect statement that "(a)bout 60% of American shad and blueback

[80]USFWS. 1951. A Survey of Former Shad Streams in Maine. Special Scientific Report: Fisheries No. 66. October 11, 1951.
[81] FERC July 1997 Final Environmental Impact Statement for the Kennebec River Basin, Maine.
[82] 2020 Amendment at 46.

herring historic spawning habitat is above the Lockwood and Hydro Kennebec projects."[83] The 1993 Plan and the 1997 FEIS rightfully discuss that there is over 3,300 hectares of spawning habitat downstream of the former Edwards Dam site. Taken as a whole then, approximately 74% of the historic spawning habitat is either below Lockwood Dam or accessible in the Sebasticook River. Conversely, only 35% of the historical spawning habitat (including that in the Sandy River) is above the Lockwood Project.

The focus in Section 3.6 on the reasons for which shad use the Lockwood fish lift is irrelevant at this juncture. It is specifically in response to low use of the existing Kennebec fish lift by upstream migrating Atlantic salmon and shad that Brookfield, at the direction of and in coordination with the MDMR and the fisheries agencies, voluntarily committed to building a *second* fishway at the Lockwood Project in the bypass reach where both species are known to be attracted. The MDMR is aware that the intent of the vertical slot design is to pass shad upstream, since any fishway that would be designed to be most favorable to shad passage would accommodate passage of river herring and Atlantic salmon, as well. This discussion is absent from the 2020 Amendment.

Section 3.6 provides that a computer model was used to assess the effects of various upstream and downstream passage efficiencies on shad populations. Brookfield has reviewed the model that the MDMR applied to the Kennebec River (Stich 2020) and has significant concerns with how the model was applied and how the results were interpreted including, but not limited to:

- The appropriateness of the application of the model.

[83] Id. at 2.

- The usefulness of one-dimensional movement analysis and the assumption that upstream movement is forced regardless of spawning density downstream (*i.e.*, saturation of the spawning habitats requiring the least energy expenditure) and the disregard for batch spawning.
- The population structure, individual behavior and biological patterns of shad in the Connecticut River as a proxy for the Kennebec River.
- The assumption that shad make only one attempt at passage per day.

Detailed comments on the shad modeling utilized in the 2020 Amendment are provided in Appendix B.

12. Section 3.7 – Blueback Herring (*Alosa aestivalis*)

Section 3.7 of the 2020 Amendment observes that blueback herring were not included in the 1993 Plan. The MDMR quantifies the amount of blueback herring spawning and nursery habitat as being functionally equivalent to shad spawning habitat. The MDMR characterizes shad/blueback herring habitat as slow to moderate current in broad reaches of medium to large rivers and is calculated as wetted area from bank to bank. Shad are broadcast spawners and do not demonstrate much preference for spawning substrate through they do need adjacent fast-water with hard substrate. Blueback herring are characterized as spawning over hard substrates in rapid flowing rivers and streams and over organic material in slower-flowing rivers and streams. The approach is an over-generalization and assumes that the swimming capabilities of both species would be comparable in the event of encountering any natural in-river obstacles such as falls, cascades, etc. to reach habitat that is upstream of those locations.

Based on the MDMR's assumption, 59.6% of the blueback habitat is above Lockwood Dam, 21% is in the mainstem below Lockwood Dam, and approximately 20% is on the

Sebasticook River. Again, MDMR is mischaracterizing the information presented in its source data, omitting the historic spawning habitat accessible below Edwards Dam. With MDMR's assertion of functional equivalence, the actual amount of blueback habitat above Lockwood Dam is 35%; 66% is in the mainstem below Lockwood Dam and approximately 8% is in the Sebasticook River.

The MDMR has indicated that the majority of river herring captured at the Lockwood lift is blueback herring, as opposed to alewife. In spite of this, the MDMR routinely stocks an average of 1/3 of the run into Wesserunsett Lake, which due to blueback herring's preferred spawning mainstem habitat, drives blueback herring to leave the lake and move far downstream to spawn. This stocking practice, while generally declining since 2016, should be acknowledged by the MDMR as a detriment to spawning efficiencies of the species.

MDMR also applies an unpublished, non-peer reviewed computer model to assess the effects of various upstream and downstream passage efficiencies on blueback herring populations, with insufficient documentation regarding inputs used. Please see Appendix C for details regarding that model's application.

13. Section 3.8 – Alewife (*Alosa pseudoharengus*)

According to Section 3.8 of the 2020 Amendment, a goal of the 1993 Plan was to achieve an annual production of 6.0 million alewives above Augusta. However, that goal was predicated on the availability of access/stocking into "Phase II ponds,"[84] most of which have not been opened. The 2020 Amendment has a similar goal of restoring approximately 6 million alewives above

[84]Phase II for alewife restoration under the 1993 Plan included volitional passage on the mainstem of the Kennebec and Sebasticook Rivers and "The feasibility of truck stocking alewives as a substitute for fish passage facilities will be evaluated during Phase I. It may be decided to continue the truck stocking of alewives during Phase II. The introduction of alewives into the following lakes during Phase II is dependent on the outcome of a joint study by the DMR and IF&W: Great Moose Lake, Spectacle Pond, China Lake, Big Indian Pond, Little Indian Pond, Wassokeag Lake, Clearwater Pond, and Norcross Pond." 1993 Plan at 61. Other than Spectacle Pond, none of the Phase II ponds are identified as "accessible" in the 2020 Amendment.

Augusta, but requires the passage of over 600,000 alewives above Lockwood and 4.5 million at the Benton Falls Dam; but MDMR's plans for continued stocking into inaccessible ponds (such as Wesserunsett Lake) or the opening of additional Phase II ponds are unclear.

Section 3.8 identifies 20 lakes and ponds in this area as having spawning habitat, the vast majority of which are located within the Sebasticook River watershed – *not* the Kennebec River watershed. Between 2009 and 2019, the Sebasticook River passed an average of 2.7 million alewife annually and approached 6 million alewives in 2018. Compared to the Sebasticook drainage, there is relatively little alewife habitat above Lockwood Dam. The 2020 Amendment identifies only Wesserunsett Lake in the mainstem and four lakes and ponds on the Sandy River (Norcross Pond, Clearwater Pond, North Pond, and Parker Pond) as having alewife spawning habitat; however, only Wesserunsett Lake is currently open for alewife stocking under agreement with the MDIFW. The MDMR identifies a minimum number of spawners into historic Kennebec River habitats of 608,200 (based on 235/acre) but identifies the alewife production of Wesserunsett Lake as 561,309 (based on the newly proposed production of 400/acre, which has not been tested as an achievable maximum production estimate).

Given that the MDMR has not made any efforts to open the Sandy River Ponds to alewife,[85] the minimum number of spawners to historic habitats is inordinately high. Wesserunsett Lake has half of the available spawning habitat but is targeted for 92% of the total production goal. Further, the potential for additional habitat to be open in China Lake in the future as part of the China Lake Alewife Restoration Initiative is yet another missed opportunity on the part of the MDMR to discuss recovered and recovering alewife populations in its 2020 Amendment (to date, the partners

[85]For any newly proposed waters to be stocked with alewives, such as the remaining four ponds on the Sandy River, MDMR is required to conduct public outreach, with specific input from local municipalities and stakeholder groups, for at least one year prior to receiving a stocking permit from MDIFW. This effort has not even been initiated.

of the China Lake project have removed or provided passage at four of the six dams that blocked access to China Lake).

The original goals of the 1993 Plan were based on an assessment of available habitat and a unit production value of 235 adults/acre. However, in the 2020 Amendment, the MDMR advocates for increasing the unit production for alewife to 400 adults/acre. Brookfield questions the basis for increasing the unit production estimate so significantly, and questions whether the reanalysis has been peer reviewed, or otherwise reviewed by, among others, the Marine Advisory Council, Alewife Harvesters of Maine, and ASMFC. Commercial harvest permits for alewife are tied directly to sustainable management plans for that fishery, as approved by the ASMFC Management Board. The production and spawning escapement goal should be adjusted and then evaluated for compliance following the review process.

According to MDMR, the 235 fish/acre as an estimate of alewife production was derived as follows:

> "[C]ommercial yield of 100 pounds per surface acre of ponded habitat was assumed. This is well within the range of yields experienced in other watersheds. The 100 pounds/surface acre represents the commercial yield and not the total run. It is assumed that the commercial catch represents an 85% exploitation rate. The theoretical basis for this is that most alewife runs are subjected to six (6) days of fishing per week. Estimates for adult escapement on the Damariscotta River reveal an exploitation rate ranging from 85-97% for the years 1979-1982. Assuming a weight of .5 pounds per adult, the assumed commercial yield would be 200 adults/surface acre and when combined with a 15%

escapement rate, would result in a total production of 235 adults/acre. This factor was used to determine the alewife potential for the Kennebec River." [86]

As noted by the MDMR, the 15% escapement is an arbitrary number based on the harvesting activity of fishermen. It relies on the unrealistic assumption that the run is equally active each day (rather than pulsing) and is not a scientific analysis of what level of upstream passage escapement is necessary to sustain the population. Using Damariscotta Lake as a demonstration of applicability of this standard statewide is also inappropriate. Damariscotta Lake is relatively fertile and more mesotrophic than most inland Maine lakes; therefore, productivity would be expected to be higher by comparison. In addition, the Damariscotta fishery occurs right at head of tide, so fish have experienced no upstream migration bioenergetics loss or natural mortality. For fish spawning habitat further inland, such as on the Kennebec River (i.e. Wesserunsett Lake), the bioenergetic and natural mortality losses would be higher and thus the number and condition of migrating adults would be lower.

Brookfield is left wondering if the unit production goals suggested for the Kennebec in the 2020 Amendment based on 400 adults/acre represents a new MDMR standard that will be applied state-wide, and against which commercial alewife harvest permits for alewife which are tied directly to sustainable fisheries management plans for that fishery will be gauged. If so, this change in management practices and policy requires a full review as the implications for other river systems could be very significant.

If the MDMR's intent is to apply these new unit production values only to the Kennebec, Brookfield asks that the MDMR provide better explanation and further justification for this suggested change. Increasing unit production estimates for only the Kennebec River, in an effort

[86] 1993 Plan at 87.

to justify much larger restoration population goals for the river system, does not appear appropriate and establishes a higher bar for "successful" alewife restoration, even as the restoration to a portion of the Kennebec River basin (the Sebasticook River) has, in the MDMR's own words been "spectacular" and the goals of the 1993 Plan have been met.

Finally, Brookfield notes that the MDMR's highly touted successful restoration of alewife has occurred in the Sebasticook River – a multi-dam river system where, to reach a significant portion of their spawning habitat, alewife have to negotiate engineered fish passage facilities at four dams. The MDMR's plan suggests that it was the removal of the Fort Halifax dam on the lower Sebasticook that allowed the alewife restoration. This is simply not true. It was the installation of fishways at Benton Falls, Burnham and other dams in the Sebasticook watershed, in combination with an intensive stocking effort undertaken early on (before upstream fishways were constructed, and at a rate of only 6 fish per acre)[87] that restored alewife to the Sebasticook. In short, the alewife run on the Sebasticook, a tributary to the Kennebec River, is proof that anadromous fish populations can be successfully restored to multiple dam river systems where appropriate fish passage is provided, for example, as noted above, in China Lake MDMR is promoting engineered fishways to restore the alewife run.

Given that there is no volitional fish passage on Wesserunsett Stream or at any of the ponds on tributary streams to the Sandy River at whatever point they become available for alewife stocking, it is not clear why volitional passage for alewife, coupled with unsupported high-performance standards for the four lower mainstem Kennebec River dams, would even be necessary on the Kennebec. The MDMR will need to continue to trap and truck alewives into Wesserunsett Lake, and presumably the lakes of the Sandy River, until such time as volitional

[87]MDMR. 2008. Strategic Plan for the Restoration of Diadromous Fishes to the Penobscot River 2008.

passage is installed, which may never happen. In fact, if the MDMR's recommended outcome of dam removal on the lower Kennebec were realized, the MDMR would have no means to get Kennebec River alewife into the spawning habitats of the basin.

Brookfield has reviewed the model that the MDMR applied to the Kennebec River (Barber et. al., 2018) and has significant concerns with the model including, but not limited to: environmental parameters are constant within *and* between years; inputs (life history, behavioral, and biological characteristics) are not representative of the natural system (i.e., the Kennebec River); and that the quality of spawning habitat in the Kennebec River does not vary spatially. Please see our related discussion in Appendix D.

14. Section 3.9 – Sea Lamprey (*Petromyzon marinus*)

Section 3.9 of the 2020 Amendment proposes a material new goal for sea lamprey to restore access to historic spawning and nursery habitat even though the 1993 Plan did not consider restoration of sea lamprey to the Kennebec River at all. Thus, as with some of the other changes discussed herein, the 2020 Amendment is considering restoration of another entirely new species to the Kennebec River, a significant fisheries management change for which the public must be afforded an opportunity to review and comment and other relevant agencies must be consulted. This is particularly true for a fish such as sea lamprey which for decades has been purposely excluded from reaching upstream river segments and/or purposely killed when caught in fishways because of concerns about the fishes' potential adverse impacts to other fish and fish populations.

Brookfield understands that in recent years, the ecological benefits of sea lamprey have become better understood and appreciated, but such a dramatic shift in management of this species requires careful planning and consideration, and public education. The MDMR should not rush through with the adoption of a new Kennebec River management plan that for the first time seeks

to restore sea lamprey to the Kennebec River without more thoughtful consideration, solid scientific evidence and justification, and an opportunity for the public to review and comment.

Section 3.9 also states that the MDMR's goal is to restore sea lamprey to historic habitat above Lockwood dam. However, in Section 1.5 of the 2020 Amendment the MDMR states the historic upstream limit of sea lamprey in the Kennebec is "not known" but notes that American eels are currently found above the Williams Project dam (above Solon) and that sea lamprey "generally occupy large river and tributary habitats with extents similar to Atlantic salmon."

There is little additional evidence or data put forth in Section 3.9 to support a scientifically based delineation of the historic lamprey habitat. The single piece of evidence that the MDMR uses to justify its determination of the extent of sea lamprey habitat in the Kennebec River is a single radio-tagged fish on the Pleasant River (a tributary of the Penobscot). On the basis of this single fish, the MDMR makes the sweeping statement that "two dam removals, installation of a fish lift that is operated day and night, and installation of a nature-like fishway…has had positive impacts on lamprey migratory range."

It is preposterous that the MDMR would attempt to draw any conclusions about sea lamprey's historic or current migratory range in the Kennebec River basin based on a single fish tracked in the Pleasant River, or to rely upon such questionable data to justify fish passage standards or recommendations for dam removal. Even more egregious is that the evidence provided by this single fish is not reported in a published report or peer reviewed paper but is referenced as "MDMR unpublished data." Using a single datapoint to draw such far-reaching inferences regarding the extent of sea lamprey habitat and/or the effects of dams or fishways, or fishway operations on the ability of sea lamprey to reach upstream habitats in the Pleasant River or any river, is indefensible. Even worse is that the MDMR uses its conclusions drawn from this

single fish as a predictor of the historic range of sea lamprey in the Kennebec, which in turn is used to suggest performance standards for sea lamprey passage at the lower Kennebec dams. Please see Appendix E.

15. Section 3.10 – American Eel (*Anguilla rostrata*)

As with sea lamprey, the 1993 Plan did not include American eel; its inclusion in the 2020 Amendment, consistent with Brookfield's positions for the other previously excluded species, warrants appropriate administrative process, including close consultation with appropriate administrative agencies and opportunity for public comment before conclusions are drawn.

16. Section 4.0 – Energy Potential

Section 4.0 begins with the statement that the State of Maine supports domestic hydropower as an important component of energy in the State and a renewable source of energy critical to meeting climate goals. In 2019, 80% of Maine's electric generation came from renewable resources and hydroelectric power provided the largest share at 31%.[88] Hydropower has always been and continues to be an important source of renewable, carbon-free electric generation for Maine. Nonetheless, the 2020 Amendment directly targets dams producing 280,280 MWh of hydropower generation annually, unfairly minimizes the value of the lower Kennebec hydropower generation, and entirely fails to recognize the adverse impact that climate change is having on diadromous fish stocks, or the important role that hydropower projects can play in helping to address climate change.

The 2020 Amendment attempts to downplay the contribution of the four lower Kennebec Projects by presenting the combined installed capacity of the Project as a percentage of total authorized installed capacity of the state of Maine. Installed capacity is not always indicative of,

[88]https://www.eia.gov/state/data.php?sid=ME.

and sometimes can be used to overstate a project's contribution of annual generation. For example, the Bar Mills Project has 4 MW of authorized installed capacity but has been inoperable since 2017 and has not generated any energy for the State's use. The Weston Project and Hydro-Kennebec Projects, by contrast have, respectively, the 14th and 13th largest authorized installed capacity in Maine. In part in response to generation goals reflected in the 1993 Plan, Hydro-Kennebec increased generation to 1,633 kW by implementing certain equipment upgrades, and Shawmut increased its generation by installing a rubber dam.

Section 4.0 states that a Feasibility Study commissioned by Brookfield[89] indicated that "removal of these dams is feasible and reasonably practical." This is incorrect.

Brookfield was initially approached in 2016 by a group of agencies, NGOs and others who wished to facilitate an agreement on the Kennebec River similar to the Penobscot River Restoration Project – an unprecedented collaborative agreement between a hydroelectric dam owner, federal, state, and local agencies, tribal governments, and NGOs resulting in the removal of two dams, the installation of fish passage at other facilities and the maintenance of hydropower production. Brookfield, the MDMR, and fisheries resource agencies and others met several times in 2017 to discuss the possible framework for such an agreement and *collectively* agreed in 2018 to develop and conduct an *independent* feasibility assessment to explore a range of fish passage options at the Lockwood, Hydro Kennebec, Shawmut and Weston Projects, including but not limited to dam removal with replaced generation and the options currently proposed in the ISPPs for the Projects. The stated purpose of the Feasibility Study was to evaluate "enhanced fish passage options on the lower Kennebec River while *maintaining renewable hydro energy*." (Emphasis added).

[89]Energy Enhancements and Lower Kennebec Fish Passage Improvements Study, May 20, 2019.

Fish passage improvements were considered in the context of anticipated efficiencies; delay in implementation due to construction schedules; obstructions and constraints; the potential for soil contamination, cultural and recreational impacts; and potential impacts to existing infrastructure. Simultaneously, a range of energy enhancements that could be pursued to offset *lost generation at the Lockwood, Shawmut, or Weston dams due to fish passage improvements including dam removal* was explored.

Achieving the goals of the Feasibility Study to replace hydro generation that might be lost through lower Kennebec dam removals would require significant capital investment ranging in amounts up to well over $100 million per Project, in addition to the regulatory, engineering and construction costs and burdens associated with the dam removals themselves. Nowhere in the entirety of the Feasibility Study do the authors state that dam removal is "feasible and reasonably practical."

17. Section 5.0 – Economic Value of the Resource

Section 5.0 of the 2020 Amendment purports to discuss economic value of the resource and salmon habitat, but instead focuses on the Kennebec Projects' supposed effects on salmon habitat. This section reiterates conclusions by Fay (2006) that dams are the most significant contributing factor to the loss of Atlantic salmon habitat throughout its range and are the greatest impediment to self-sustaining populations in Maine. Brookfield disagreed with that conclusion in 2006 and disagrees with it now. Numerous studies and papers published more recently make it clear that climate change and its effects on marine temperatures and aquatic communities are now the greatest threat to Atlantic salmon.

Two recent BiOps issued by NMFS for hydropower projects in Maine[90] provide a thorough review of climate change studies and potential impacts on Atlantic salmon populations in the northeastern United States. The studies consistently concluded that climate change will likely negatively impact Atlantic salmon by reducing the productivity of the GOM DPS as a result of warming temperatures which affects the critical freshwater and marine habitats of the species. Several of the studies referenced by NMFS hypothesized that the area occupied by Atlantic salmon will shift northward due to climate related impacts, possibly resulting in extinction of salmon at the southern end of its range (i.e., the Gulf of Maine DPS). This is already apparent in the Bay of Fundy, where numerous salmon populations are nearly extinct despite the lack of dams on their natal rivers and, "… evidence suggests that recovery is currently primarily limited by low marine survival."[91] Presumably, this widespread loss of salmon populations in the marine environment is related to climate change and ocean warming.[92]

Climate prediction models reviewed and referenced by NMFS in the 2013 and 2017 BiOps, concluded that the US annual average temperature will raise by another 3.0-5.0 ^{o}C by the year 2100.[93] And Maine's climate has and will continue to shift. Average annual temperature has increased 3.2 °F in the last 124 years, the Northeast is warming faster than any other region in the U.S., and average annual sea surface temperature of the Gulf of Maine has increased 2.9 °F since

[90]NMFS. February 27, 2020. Biological Opinion for the Ellsworth Project. And NMFS. August 6, 2020. Biological Opinion for the Mattaceunk Project.
[91]https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/action-plans/atlantic-salmon-inner-bay-fundy-2019.html (accessed 22Jan2021).
[92]NMFS. 2019. Recovery Plan for the Gulf of Maine Distinct Population Segment of Atlantic Salmon (Salmo salar).
[93]National Assessment Synthesis Team (NAST). 2008. Climate Change Impacts on the United States: The Potential Consequences of Climate Variability and Change, US Global Change Research Program, Washington DC, as cited in NMFS. July 19, 2013. Biological Opinion for the Lockwood, Shawmut, Weston, Brunswick and Lewiston Falls Projects. And as cited in NMFS. May 25, 2017. Biological Opinion for the Hydro-Kennebec Project.

1895 and is expected to continue warming at an above average rate.[94] A study conducted in the United Kingdom, referenced by NMFS in the 2013 and 2017 BiOps, found that over the past 20 years, those populations of Atlantic salmon have been significantly impacted and are declining primarily due to climate change.[95] More recently, NMFS cites Hare et. al. (2016)[96] which concluded that "the consequences of climate change on Atlantic salmon in the Northeast U.S. Shelf Ecosystem is very likely to be negative (>95% certainty in expert scores) due to the consequences of warming on freshwater and marine habitats and the potential to affect the phenology of Atlantic salmon migration."

Brookfield disagrees the MDMR's conclusions with respect to the monetary value of salmon habitat that is "blocked" by hydroelectric Project dams. First, habitat value should not be estimated by applying the per habitat unit credit cost established for the Atlantic Salmon Restoration and Conservation Program (ASRCP). The credit cost of $4,850 per habitat unit (100 m^2) is very high, particularly when considering that each habitat unit is expected to produce 2-3 smolts. That equates to a per smolt value of between $1,617-$2,425. This is excessive, especially when compared to the significantly lower cost of a hatchery reared Atlantic salmon smolt. Brookfield also disagrees with the habitat units that the MDMR claims are blocked by each of the Kennebec River dams, as shown in Table 12 of the 2020 Amendment.

[94]Fernandez, I., S. Birkel, C. Schmitt, J. Simonson, B. Lyon, A. Pershing, E. Stancioff, G. Jacobson, and P. Mayewski. 2020. Maine's Climate Future 2020 Update. Orono, ME: University of Maine. climatechange.umaine.edu/climate-matters/maines-climate-future/.

[95]Clews, E., I. Durance, I.P. Vaughan and S.J. Ormerod. 2010. Juvenile salmonid populations in a temperate river system track synoptic trends in climate. Global Change Biology 16:3271-3283 as cited in NMFS. August 6, 2020. Biological Opinion for the Mattaceunk Project.

[96]Hare, J. A., W. E. Morrison, M. W. Nelson, M. M. Stachura, E. J. Teeters, R. B. Griffis, M. A. Alexander, J. D. Scott, L. Alade, R. J. Bell, A. S. Chute, K. L. Curti, T. H. Curtis, D. Kircheis, J. F. Kocik, S. M. Lucey, C. T. McCandless, L. M. Milke, D. E. Richardson, E. Robbillard, H. J. Walsh, M. C. McManus, K. E. Marancik, and C. A. Griswold. 2016. A vulnerability assessment of fish and invertebrates to climate change on the Northeast U.S. Continental Shelf. PLoS ONE 11:e0146756 as cited in NMFS. August 6, 2020. Biological Opinion for the Mattaceunk Project.

These numbers are misleading in that they are cumulative. For example, the MDMR's Table 12 shows that 93,369 units of salmon rearing habitat are blocked by Lockwood dam. This is not true. The number reported in Table 12 is the total number of units of habitat that lie above Lockwood in the river basin, not the subset that is blocked by Lockwood dam alone. If Lockwood dam were removed, not all of the habitat that lies above Lockwood in the basin would be accessible, only the portion of habitat that lies between Lockwood and the next upstream barrier (i.e., Hydro-Kennebec dam). NMFS has utilized the Maine Stream Viewer site (the site specified for use in calculating habitat units for the ASRPC program) to make its own estimates of the spawning and rearing habitat below each of the lower Kennebec dams (D. Tierney, NMFS, Pers Comm., 2019), as shown in Table 2. In addition, Brookfield estimates an additional approximate 63,717 habitat units from Madison to the Forks, including the Carrabassett River, which is outside the critical habitat identified in the Kennebec River basin and therefore, should not be included in restoration planning. Surveyed spawning and rearing habitat estimated by Brookfield using the Maine Stream Viewer is also presented in Table 2 by reach (and would be considered a subset of modeled habitat).

Table 2. Salmon Spawning and Rearing Habitat by Reach in the Lower Kennebec[97]

Reach	Modeled Rearing Habitat Units (100 m^2)	Surveyed Spawning Habitat (100 m^2)	Surveyed Rearing Habitat (100 m^2)
Below Lockwood	3,131	261	472
Lockwood - HK	2,081	NA	NA
HK-Shawmut	3,513	NA	NA
Shawmut-Weston	16,576	NA	NA
Above Weston to Madison*	46,833	2,145	22,389
Madison to Forks**	63,717	N/A	N/A

* Including Sandy River

[97] https://webapps2.cgis-solutions.com/MaineStreamViewer/.

** Including Carrabassett River

Further, the MDMR provides, without citation, several purported statistics regarding the recreational and commercial fisheries in the state. Such information is not specific to the Kennebec River and warrants appropriate supporting documentation.

18. Section 6.0 - Restoration Goals and Objectives

Section 6 of the 2020 Amendment lays out the MDMR's stated goals and objectives for each of the fish species covered in the Plan, with which Brookfield does not object. However, Brookfield wishes to clarify that the information presented in the 1993 Plan, and not otherwise refuted in the 2020 Amendment, suggests that shortnose sturgeon, Atlantic sturgeon, striped bass, and rainbow smelt were historically limited to the Kennebec River below Lockwood Dam. As such, the stated goal of improving "existing habitat access, habitat quantity and habitat quality" should have no bearing on the assets owned by Brookfield on the lower Kennebec River.

Brookfield believes that the MDMR's stated goals for American shad are overly optimistic given the overall decline in the fishery up and down the Atlantic coast. Establishing unrealistic goals in the face of the obvious fact that the species are in decline for reasons other than hydropower dams, is bad public policy and sets the MDMR and the State up for failure. Further, the MDMR's goals are based solely on an optimistic occupation of all available potential habitats. The MDMR presents no baseline assessment of shad populations in the unimpounded reaches of the lower Kennebec River, which may be suffering declines in spite of unencumbered access. And because shad fidelity to specific river reaches or tributaries is unsubstantiated, the use of a fishway may be largely driven by other factors and is highly variable (as demonstrated by the annual shad passage numbers reported in the 2020 Amendment); passage numbers then are not necessarily

indicative of performance. For example, over 800 shad were passed at Lockwood in 2016 and over 400 in 2018.

MDMR has not provided enough information in the 2020 Amendment to support the basis for the current status of the blueback herring run in the Kennebec River, or the overall status of the fishery coast-wide. Rather, the MDMR has simply based its blueback herring goals on estimates of available spawning habitat.

The MDMR's goals for alewife restoration are inconsistent with MDMR's actions relating to alewife. That is, alewives are taken out of the Kennebec mainstem at Lockwood dam, and stocked into other portions of the river basin (like the Sebasticook River) or into other river systems. Given MDMR's active removal of alewife from the Kennebec River, it appears that alewife restoration goals are unnecessary, and should be adjusted downward, accordingly.

Brookfield objects to the MDMR's definition of "historically available habitat" for sea lamprey, as discussed above. Also, as previously discussed, Brookfield believes that the MDMR's sudden change in policy with respect to upstream passage for sea lamprey needs to be thoroughly vetted by other fishery agencies and the public and, if it is to be retained, needs to be better explained and supported within the 2020 Amendment.

19. Section 6.2 – Actions, Standards, Justifications to Meet Goals

Section 6.2 of the 2020 Amendment lists all the actions that Brookfield *alone* is required to take and all the fish passage performance standards that Brookfield *alone* has to meet in order to achieve the unrealistic and generally unsupported restoration goals covered in the 2020 Amendment, even though marine survival is likely the *primary* factor that will ultimately determine the fate of the restoration efforts. As discussed elsewhere in these comments, the presence of dams does not preclude successful restoration of anadromous stocks (e.g., Alewife

restoration in the Sebasticook River) and the absence of dams does not guarantee successful restoration (e.g., Atlantic salmon in the unimpounded rivers in the Downeast SHRU such as the Dennys and Narraguagus). Many other factors beyond dams determine recovery success, and the most important contributors—marine survival and the interrelated factors affecting marine survival (temperature rise, changing currents, etc.)—are completely disregarded in the 2020 Amendment.

Brookfield objects to and disagrees with most of the required actions and proposed performance standards, which were derived from flawed modeling, as detailed in the Appendices, and suffer from the material flaws in data, analysis and conclusions, and administrative process, as detailed herein. The MDMR also fails to provide adequate support for the timing aspect of the recommended performance standards and provides no full discussion of the influence of delay on each of the species. Brookfield also questions the MDMR's jurisdiction in enforcing and applying the performance standards, particularly for Atlantic salmon, in light of NMFS's jurisdiction over the federally endangered species under the ESA.

Brookfield also objects to the MDMR's recommendation that all fish passage facilities adhere to USFWS "design criteria." USFWS design recommendations are guidelines, not criteria. Further, the MDMR's 2020 Amendment states "many fishways fail to perform as intended, including fishways developed and operated utilizing USFWS Fish Passage Design Criteria" so the recommendation of strict adherence to these guidelines is narrow, unnecessarily restrictive, and potentially counter-productive. Strict adherence to the USFWS design guidelines does not allow for site specific adjustments and the necessary flexibility to accommodate agency and engineering concerns. Brookfield has and will continue to develop conceptual, 30%, 60%, 90% and final designs in full consultation with the fisheries agencies, including the MDMR and USFWS.

Brookfield also objects to the MDMR's position that all life stages of all species must be studied, especially for species for which no management objectives exist, such as sea lamprey. Brookfield objects strenuously to the MDMR's position that a failure to meet the performance standard *in any year* for any life stage or species would necessitate the immediate construction of a new upstream fishway to be operated concurrently with the existing fishway. First, recent information regarding the appropriateness of a standard that enforces attainment in three consecutive years has been shown to be statistically unachievable.[98] Second, the notion that any singular study result should trigger such a dramatic response does not take into account all of the variation experienced in a single study year, flaws in study methods and execution, or simple adaptive management measures that would improve the performance of the existing fishway.

Moreover, Brookfield objects because it is clear that the MDMR has established unsupported restoration run size goals in order to justify the need for untenable performance standards for upstream and downstream fish passage for most species for the purpose of compelling dam removal. As pointed out throughout these comments, such an approach is antithetical to the approach the MDMR has taken in the past when developing river basin fisheries management plans. There is no balance in the 2020 Amendment and very little recognition of the other values that the State of Maine and its citizens might place on Kennebec River resources, including hydroelectric generation resources.

While Brookfield is fully committed to the installation of volitional fish passage at its four lowermost Kennebec River Projects, Brookfield is troubled by the MDMR's continued emphasis on "volitional" fish passage, when in fact most of the anadromous fish restoration successes in the State, including the "spectacular" alewife restoration on the Sebasticook River, have been achieved

[98]Molina-Mactezuma, Alejandro and Zydlewski, Jospeph. 2019. An interactive decision-making tool for evaluating biological and statistical standards of migrating fish survival past hydroelectric dams.

through a combination of volitional fish passage and a vigorous trap and truck program to stock fish into habitats that are otherwise inaccessible. Done properly, trap and truck has been demonstrated to be a very safe and effective way to achieve nearly 100% safe, timely and effective passage for most species, including Atlantic salmon, and is single-handedly the mechanism by which alewife restoration in the Kennebec basin (Sebasticook River) and beyond is being supported.

Finally, with respect to dam removal, the 2020 Amendment concludes by stating that dam removal on the Kennebec would eliminate direct project impacts and reduce cumulative impacts on diadromous species. In addition to the other flaws described herein, a critical point missing from the 2020 Amendment on the topic of dam removal is any assessment of how much of an impediment to fish passage would be left if the dams were removed and the natural falls that occur at most of the dam sites were restored. It is reasonable to assume that not all of the fish of these diadromous species would be able to ascend the Ticonic Falls, Fairfield falls, or the falls at Weston and other species, such as alewife, would continue to be precluded from their valuable spawning habitats. Even salmon would not be expected to ascend the river and pass these falls at the 99% effectiveness rate that the MDMR would unrealistically require of the upstream fishways at Brookfield's Kennebec Projects. Other species such as American shad and blueback herring would likely fare less well but would content themselves with the large amounts of spawning habitat found downstream of the falls. In effect, there is no guarantee that the fish passage outcome would be any better or the MDMR's restoration goals would ever be met if particular dams were removed.

IV. Conclusion

Since 1989, the hydropower project owners on the Kennebec River have worked cooperatively with the State of Maine to restore diadromous fish stocks to the river. Dams have been removed. Numerous fishways, costing tens of millions of dollars have been installed and are operating annually. Construction dates for fishways at other dams have been voluntarily accelerated.

The fish lift at Lockwood has been operated successfully since 2006 and has provided the MDMR hundreds of thousands of river herring for stocking in the Sebasticook River and elsewhere in Maine and New England. Atlantic salmon captured in the Lockwood fish lift have been safely transported via truck to premier spawning habitat in the basin (Sandy River) and given their very best opportunity to successfully reproduce.

Scientific studies costing millions of dollars have been conducted to understand and improve downstream passage for Atlantic salmon and other species at each of the dams, and improvements made to these facilities have resulted in downstream passage effectiveness of nearly 95% or greater at each of the dams, with more improvements identified for the future.

More fishways are being constructed, and with the continued cooperation of the state and federal agencies, new state-of-the-art upstream fishways will be operational at Lockwood, Shawmut and Weston in the next few years. Once those fishways are operational, more studies are planned and will be conducted to understand and evaluate fish passage effectiveness and to identify improvements that can be made at all of the fishways, as needed.

Throughout the years, funding has been provided to the MDMR for fishway operation and other restoration and management initiatives. Together the hydropower project owners and the State have invested much in finding a way to restore diadromous fish to the Kennebec River, while

also recognizing and supporting the continued value that hydropower generation brings to the State of Maine.

In developing the proposed 2020 Amendment, the MDMR has ignored the statutorily required administrative process, and failed to appropriately vet supporting data, or use the best available science. MDMR's poorly supported efforts to establish unrealistic restoration goals force an artificial choice between unachievable fish passage performance standards and dam removal as the only means to accomplish these restoration goals.

This is both incorrect and short-sighted. It ignores the hard work and investment in collaboration that Brookfield and the agencies have undertaken since Brookfield acquired the Project assets in 2012. Given the observed, well-documented and rapidly increasing changes that are occurring in atmospheric and ocean water temperatures, it is likely that restoration of certain diadromous fish stocks (particularly Atlantic salmon) to their historic rivers will be increasingly challenged, with dams bearing a disproportionate burden for potentially quixotic restoration efforts.

As called for in the MDMR's 2020 Amendment, removing existing hydroelectric facilities will only hasten the rate at which these long-term and irreversible climate change impacts to fish stocks and species distributions occur. This is unnecessary, given Brookfield's long-standing commitments to working with the MDMR and fisheries agencies on constructing and operating state-of-the-art fish passage facilities on the lower Kennebec River. Brookfield provides the comments on the 2020 Amendment herein but generally objects to any adoption of this poorly conceived and unsupported, re-write of a FERC-accepted comprehensive plan.

Appendix A

Detailed Comments on Atlantic Salmon Modeling

Section 3.5 of the Maine Department of Marine Resources' (MDMR) proposed 2020 amendment (2020 Amendment) to the 1993 Kennebec River Resource Management Plan (1993 Plan) describes fishway performance standards for Atlantic Salmon (*Salmo salar*). In order to generate these standards, MDMR states that it "developed a deterministic model utilizing the best available data, current research, and knowledge of the watershed. The model was used to develop survival goals for upstream and downstream passage at each hydropower facility." Based on MDMR's modeling, the agency concludes that "smolt mortality needed to be 1% or less at each of the six dams and upstream efficiency needed to be 99% or better." Either standard is extraordinarily, if not suspiciously, high.

A detailed review of publicly available information regarding MDMR's model reveals significant technical flaws as well as potential biases in the underlying assumptions. Each of these problems build on each other to arrive at MDMR's incredibly high and unrealistic effectiveness standards. Based on our review, Brookfield fundamentally disagrees that MDMR's Atlantic salmon life history model is an accurate depiction of potential Atlantic salmon restoration outcomes for the Kennebec River. And as such, should not be relied upon in its current form to develop any management plan recommendations.

Our profound technical concerns about MDMR's use of this model, include, but are not limited to, the following points:

- The assumptions of forecasted production and survival for all life stages are not well supported or fail to reflect best available empirical data as described below.
- With no inclusion/consideration of variability of model inputs, the model does not provide for a realistic range of potential outcomes within each of the listed scenarios.
- According to MDMR's model output provided in Table 9 of the 2020 Amendment, only in projected scenarios with an extraordinarily high smolt-to-adult marine survival rate of 4% do the projected annual wild adult salmon returns approach the delisting criteria in the Recovery Plan.
- At a 4% marine survival rate, it is likely that most all of Maine's salmon rivers would once again be experiencing healthy annual salmon runs.
- MDMR's model demonstrates low marine survival, rather than dam passage, is far and away the most significant factor affecting the number of adult Atlantic salmon returning to the Gulf of Maine DPS annually.

Specific comments on the salmon model follow.

i. *Applicability of the Model*

MDMR inappropriately employs a deterministic population model to predict Atlantic salmon restoration outcomes for the Kennebec River and then uses the resulting information to justify its extremely high recommendations for passage standards at the four mainstem Kennebec Dams. MDMR asserts that its model contains a solution for the restoration of Atlantic salmon to the Kennebec River: either dam removal or unprecedented passage efficiency requirements at the four mainstem dams.

MDMR's model results could only be even remotely accurate through a substantial increase of survival of Atlantic salmon while at ocean. Only then could any semblance of restoration be achieved.

Because deterministic models do not account for annual/environmental variation, professional modelers caution that deterministic models should be limited to assessing general trends in a given population, and to inform management decisions by testing sensitivities within life histories. But because variation in the life histories is averaged, deterministic *models are not predictive* (Ford 1999; Barber 2018). MDMR's use of a deterministic model in the 2020 Amendment violates this very basic rule.

MDMR opines that its proposed dam passage standards are necessary to avoid "jeopardy" to the species. "Jeopardy" is a specific term defined under the federal Endangered Species Act administered for Atlantic salmon in the state of Maine by NMFS. For listed species, the relevant federal agencies – in this case, NFMS – are responsible for analyzing the impacts of a proposed action, to determine the risk of jeopardy as a result of the action(s), and to determine whether an action(s) presents adverse modification of critical habitat.

NFMS, in its jeopardy analysis for Gulf of Maine Distinct Population Segment (GOM DPS) of Atlantic salmon, uses a stochastic impact analysis models, rather than a deterministic population model and has recently developed rigorously peer reviewed stochastic Atlantic salmon life history models in support of relicensing of projects such as Mattaceunk (FERC 2520) and Ellsworth (FERC 2727) and likewise will do so in its review of the Shawmut relicensing application.

Given all this, Brookfield believes that MDMR is far exceeding both its authority and technical expertise by misusing the simplistic life history model to analyze jeopardy and to develop and propose passage efficiency requirements.

ii. *General Model Assumptions*

MDMR claims that their desktop analysis relied on the best available data, current research, and knowledge of the watershed. This is not the case. Major assumptions made during development of the MDMR Kennebec River model do not appear to consider recent and available empirical mortality rate information for the freshwater and estuarine phases of outmigration. In addition, the MDMR model relies on the incorporation of an unreasonably inflated survival rate in the marine environment and the assumption of maximum smolt production across all rearing habitat units.

a. Freshwater Mortality

During development of its Kennebec River model, MDMR utilized a natural riverine "freshwater" mortality rate of 0.0033/km which it adopted from Stevens et al. (2019) which, in turn, relied heavily upon the Stich et al. (2015) smolt model assumptions. Stevens et al. (2019) acknowledges that this freshwater mortality rate is likely an underestimate. Empirical estimates of a freshwater mortality rate from the Penobscot River (Kleinschmidt Associates 2015; Normandeau Associates 2016-2018) range from 0.0069 – 0.0146/km with an average of 0.0104/km.

Specific to the Kennebec River, empirical estimates of smolt mortality in the freshwater riverine reach immediately downstream of Lockwood was 0.0060 in 2014 and 0.0146 in 2015 (Normandeau 2018; Appendix D). Stich et al. (2015) estimated a smolt mortality of ~ 0.01/km.

This underestimate of natural (freshwater) river smolt mortality significantly inflates the number of smolts reaching the estuary in all MDMR scenarios.

b. Natural Smolt Mortality in the Estuary

The MDMR Kennebec River model incorporated a natural estuary smolt mortality of 12.8% (0.0034/km) also based on Stevens et al. (2019) which again relied heavily upon the Stich et al. (2015) smolt model assumptions. However, since Stich et al. (2015) did not estimate a rate of natural mortality in the estuary under a "no dams passed" scenario, Stevens et al. (2019) incorporated a 12.8% natural estuary mortality rate based on a several of years NMFS unpublished studies of smolt passage in the Penobscot River estuary (J. Stevens, personal communication).

It is entirely unclear why MDMR used Penobscot River data as a surrogate in the model and did not use similar contemporary data recently collected from the Kennebec River. During spring 2014 and 2015 NMFS conducted two years of smolt acoustic tagging studies in the lower Kennebec River. During these studies, NMFS biologists collected wild smolts from the Sandy River, which were tagged with acoustical transmitters then released them downstream of Lockwood Dam (Goulette, et. al, 2017). Downstream movement was monitored to outer Merrymeeting Bay using MDMR's array of acoustic receivers. The two-year average smolt mortality through the estuary (i.e., Augusta to the "Chops") was approximately 48.6%, or 0.011/km. This underestimate of smolt mortality occurring in the estuary significantly inflates the number of smolts reaching the outer estuary for MDMR model scenarios when smolts do not pass dams (*i.e.*, dams removed).

In the draft two-year summary report, NMFS indicated that the results from the 2014 and 2015 smolt passage studies through the lower Kennebec River and estuary are consistent with similar studies conducted on other Maine rivers:

"We summarized survival (Table 1) [from Sidney to the outer estuary (beyond The Chops)] and array efficiencies calculated in MARK. To account for surgical effects and delayed mortality, our assessment of survival starts at the Sidney site (river km 86.8). This may be revised in final models as we evaluate post-surgical dynamics. Our estimates of cumulative survival from the Sidney site to the outer Mill Cover array were higher for 2014 – 0.37 (95% CL 0.27-0.47) than 2015 – 0.32 (95% CL 0.23 - 0.42). Survival rates at each site, as measured by the PERT distribution are described in Table 1a and 1b. *These estimates should be considered preliminary* [emphasis added]. However, these reported survival rates are similar to those reported for naturally-reared smolts in the Narraguagus and Penobscot Rivers with hatchery smolt success seemingly a bit higher (Holbrook et al. 2011, Kocik et al. 2009)."

c. Whole River Smolt Survival

The MDMR model incorrectly calculates smolt survival through each of the specific river reaches resulting in a significant underestimate of whole river smolt survival to "The Chops" in every scenario reported. As a result, estimates of adult salmon returns are significantly underestimated as well.

d. Delayed Mortality

MDMR's model, as well as Stich et al. (2015) and Stevens et al. (2019), assigns 6% additional delayed mortality in the estuary for each dam passed by out-migrating smolts throughout all modeled scenarios, regardless of fish passage measures incorporated at dams and the Licensee's demonstration of meeting passage and timing standards.

Allowing this unsupported assumption of delayed smolt mortality "in perpetuity" in the MDMR model, regardless if performance and timing standards are met is subjective and biased,

and results in pointedly inflated smolt mortality through the estuary and obviously impacts all modeled estimates for returning adult Atlantic salmon.

e. Marine Survival

MDMR uses a marine survival rate of 4% in their Kennebec River model. This survival rate is very high and is extremely optimistic with little support. Baum (1983) uses 4% for an equilibrium population model (i.e. smolts produced replace the spawning population) but provides no justification or source. The highest empirical survival rate found in pre-1980 studies (i.e. the release year(s) with the highest survival) was one lot with a 2.29% return rate (see Table 15 of Baum, 1983). Baum (1983) instead summarizes these tagging studies thusly "The annual survival to homewaters has averaged 0.53%." (*see* Baum 1983 at p.50). This is consistent with NMFS estimated marine survival as reported in the 2013 BiOp at 0.4% (NMFS, 2013). It is important to note that only under this artificially high marine survival condition do any of MDMR's modeled scenarios approach delisting criteria.

In contrast, for the Mattaceunk Project relicensing, NMFS in its dam impacts model "Quantifying the Effects of Dams on Atlantic Salmon in the Penobscot River Watershed, with a focus on Weldon Dam" incorporated three times the contemporary rate of marine survival (0.6%), using a marine survival of 1.8% as an optimistic rate of return. No strong rationale is provided as to why MDMR chose to use such a high rate of return in its model or why the "high" marine survival rate is more than two times that being used by NMFS scientists elsewhere in the GOM DPS.

Brookfield notes here that only under this extraordinarily "high" marine survival condition do any of MDMR's modeled scenarios approach the delisting criteria. In addition to incorporation of the "high" marine survival rate, modeled scenarios approaching the delisting criteria also rely

on the underestimates of freshwater and estuary survival highlighted in points (iii) and (iv) above. This overestimate of the "high" marine survival significantly inflates the number of adult Atlantic salmon returns to the Kennebec River in all dam scenarios incorporating this 4% marine survival level. By doing so, MDMR has manufactured a hypothetical condition under which a delisting may occur.

f. Smolt Production

All of MDMR's Kennebec River model scenarios assume a maximum level of smolt production from 100% of the units of rearing habitat upstream of Weston Dam. This high level of consistent smolt production would most likely only occur under pristine habitat conditions, and only by ignoring the additional potential effects of climate change, water quality and pollution, sedimentation, non-hydro watershed connectivity issues and the presence of competing or predatory native and non-native fish species.

g. Spawning and Rearing Habitat

MDMRs model arbitrarily ignores 100% of the spawning and rearing habitat that exists in the Kennebec River watershed downstream of Weston Dam. In fact, a rough calculation of modeled Atlantic salmon rearing habitat developed by USFWS for the Kennebec watershed (Wright et al 2008) during SPP consultation suggested that upwards of 30% of the salmon rearing habitat in the drainage is downstream of Weston Dam. MDMR's model assumes any returning adult Atlantic salmon that does not pass all four mainstem dams as not able to spawn and therefore a mortality, when in fact those salmon have access to spawning and rearing habitat in the lower river. MDMR's model intentionally ignores the potential benefits of natural reproduction of Atlantic salmon anywhere but in the headwaters of the watershed.

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Appendix B

Detailed Comments on American Shad Modeling

Section 3.6 of the Maine Department of Marine Resources' (MDMR) proposed 2020 amendment (2020 Amendment) to the 1993 Kennebec River Resource Management Plan (1993 Plan) lays out fishway performance standards for American shad (*Alosa sapidissima*) based on a stochastic, life-history based, simulation model[99] developed by Dr. Daniel S. Stich (Stich 2020). This model is evidently similar in concept to a model previously developed for Penobscot River shad (Stich et al 2019). The MDMR notes that "Dr. Stich ran 48 scenarios to explore the effects of downstream passage survival (1.00, 0.95, and 0.90) in combination with varying upstream passage efficiency (0.70-1.00) and time-to-pass (1, 3, 7, and 20 days per dams) on American shad distribution and abundance in the Kennebec River."

Brookfield acknowledges the utility and usefulness of the Stich et al. (2019) model with regard to understanding the impacts of several passage scenarios on a simulated population of American shad. That said, the MDMR has used results from this apparently unreviewed Kennebec River version of the model to recommend specific outcomes that range up to and include dam removal. Given the costly and far-ranging impact of these recommendations, Brookfield would like to address questions regarding the appropriateness of the application of the Stich model by the MDMR, as well as the specific parameters assigned/utilized by the MDMR during the model evaluation process.

[99]Although MDMR lists the model as a reference to the 2020 Amendment, there is no indication that the model has been subjected to peer-review.

i. *Applicability of the Model*

First, the model described in Stich et al. (2019) is undoubtedly very comprehensive and well parameterized. Despite this, the Stich model still has serious limitations in its applicability that are rooted in the inherent assumptions behind the model and the overall model type. The dam passage performance model for American shad presented in Stich *et al.* (2019) is an individual based model (IBM) with a one-dimensional movement analysis incorporated.

The model focuses on the mean modeled population projections as indicators of the necessity of specific suites of passage performance criteria to achieve plan targets. That approach is misapplied because it undermines the inherent stochasticity of the model and considers the result as deterministic. The model incorporates environmental stochasticity and inter-annual variability by drawing from parameterized distributions for many input variables. It is appropriate to use the model as a tool to assess the relative population trends, but not to consider the output as deterministic.

In a simplified sense, the model utilizes several pre-defined parameters of importance such as the starting total number of age-1 individuals in the population, marine survival, and temperatures of initial and terminal spawning dates, in addition to several derived parameters based on arrival date in the estuary and several biological characteristics such as growth and fecundity parameters which are interpolated from data obtained in the Connecticut River, not the Kennebec River.

ii. *Evaluating Model Fitness*

The greatest limitation of using an IBM-type model for projecting fish populations may be the inability to assess the fitness of the model to observed data such as count data. This is a critical

step in the review of a model prior to its use to make management decisions because it will reveal whether the model is capable of accurately representing the species in question.

Assessing a model's fit to an observed data set gives the model developer and managers an opportunity to evaluate their model performance in comparison with what is being observed in the river system in question. Some model types lend themselves to an analysis of retrospective 'peels,' which will indicate whether a model tends to over-predict, under-predict, or if the model can be considered accurate within an acceptable margin of error. This stepwise process allows for step-specific assessments of model fit and for adjustments to be made post-hoc to improve model performance, explanatory capability, and increase the accuracy or reliability of model outputs.

Unfortunately, this is not possible for an individual based model because it must run out the amount of time specified in the simulation and because it is based only on a few initial pieces of data, rather than continuously collected data. As a result, there is no quantifiable metric by which to decide whether the simulated data from the Stich model is representative of the observed data collected by MDMR and Brookfield biologists each year.

Based on the Brookfield's review of documents provided by MDMR on March 12, 2021 in response to a Maine Freedom of Access Act (FOAA) request (the "FOAA Documents"), it is clear the MDMR has failed to describe any model-fitting process used to assess the accuracy or reliability of this model.

iii. *General Model Assumptions*

Within the selection of model type and parameter assignments, there are several assumptions, including:

- Inputs to the IBM are representative and reflective of that which is occurring in the natural system (i.e. Kennebec River);

- Outputs of the IBM are representative and reflective of that which is occurring in the natural system (i.e. Kennebec River);
- There are no significant differences in population structure, individual behavior, or biological parameters between shad in the Connecticut River and shad in the Kennebec River; and
- Fish make only one attempt at passage per day.
- Fish move upstream regardless of saturation of the downstream spawning habitat and the energetics of continued migration.
- The model currently includes an unrealistic single, common downstream passage effectiveness/survival input value for both adult and juvenile shad. It should include separate effectiveness/survival input values for each life stage.

Any model is only as good as its key assumptions, and even a cursory review of the Kennebec River American shad model developed and used by the MDMR raises considerable doubts about many of the assumptions used by the MDMR. The parameters used to build the model are not based on actual data or a peer-reviewed source. Email correspondence included in the FOAA Documents indicates that the input parameters were derived solely through communications between Dr. Stitch and MDMR biologists.

Crucial parameters not backed by sufficient informative data (i.e. using the same passage efficiency values for all dams in a model run, using the same mortality value for juveniles and adults, etc.) and to which the model is highly sensitive (as stated by Dr. Stitch) introduce major sources of error and variability. The FOAA Documents do not address these key sources of uncertainty.

a. Marine Survival

Additionally, following the assumption that the model input parameters and output results are representative of shad in the Kennebec River, it is explicitly stated by Stich (2019) that the shad passage model outputs are highly sensitive to changes in the parameter estimate for marine survival, which is based on an age-invariant rate of 0.62 (62%)for each annual period from young of year up until age-9 (maximum age in model; ASMFC 2007).

Although a range of values were considered, Stich explicitly states *"*our ability to make more precise predictions would be improved by better information." This raises the question of the appropriateness of assuming not only a constant mortality across age classes, but also the validity of assuming that this rate of survival has remained unchanged over the past 14 years.

Lacking information, the Stich model incorporates a fixed rate of at-sea mortality within a given model run. Most fish species exhibit a type III survivorship pattern where mortality losses are generally associated with the earlier portion of life. Whereas assumption of a constant marine survival rate for older shad may be appropriate, the assumption of a single representative rate for first year fish with repeat spawners may not be appropriate.

Although the Stitch model accounts for simulated variability in this parameter, it is still informed by a single value which may be outdated and misrepresentative of the various age classes present in the population at any given moment.

b. Assumed Similarity of Connecticut River Population Data

Stich (2019) also states explicitly that "model outputs were sensitive to changes in growth of American shad in this study. This indicates that system-specific data would be preferable to using growth information from the Connecticut River population." This statement inherently casts

doubt on the usefulness of the current Kennebec River model, as the incorporation of Connecticut River shad data may be likely to exhibit significant differences in key biological parameters that would have a large influence on model outputs. MDMR has provided no evidence that these differences were explored or considered, furthering the question of whether or not this model is appropriate to forecast Kennebec River shad populations.

c. Assumed Passage Attempts per Day

Furthermore, a critical assumption that is not explored in the Stitch et. al. (2019) publication is that fish make only one attempt at passage per day. This is evidenced in the upstream passage model description when Stitch et al. (2019) states that "each fish was allowed one attempt per day to pass a dam."

Despite the various parameters that were highlighted in the model's sensitivity analysis as having a large influence over the output, this critical assumption is not tested and it does not appear that any variability in passage attempts has been incorporated into the models constructed by MDMR.

This unquestioned assumption is a potentially fatal flaw: diadromous species approaching a dam, as has been well documented, can make several attempts at passage per day; this occurrence is well-studied and highly documented. The MDMR has not discussed or supported their upholding of this assumption with any literature or observational evidence to indicate how this assumption may impact model results or impact the various *time-to-pass* parameters explored by the MDMR.

iv. Lack of Detailed Documentation

As noted above, it is worth addressing these questions regarding the appropriateness of the MDMR's use of this model as a means of making projections about shad populations to assess the

proposed passage criteria in this amendment. In the 2020 Amendment the MDMR claims that 48 scenarios were analyzed, under which three values of downstream passage survival were used with a combination of four values of delay and a range of passage efficiency values.

However, this model building process is not described in any detail that would indicate the results of each of these 48 scenarios, no tables were provided stating the assumed starting values needed to run these model scenarios, the number of iterations within each scenario is not described, and, most importantly, there is no discussion of which specific scenario(s), and with what parameter values, rendered the proposed passage criteria in this amendment. And as described further in Section vii., what limited information can be gleaned from the FOAA Documents suggests that many of the 48 scenarios do not actually support the MDMR's proposed standards.

v. *Lack of Peer Review Input*

As described by MDMR, the shad passage model used to inform the passage standards provided in Section 6.2 of the 2020 Amendment comes from the *'Shadia'* package in the statistical program R published by Dr. Stich. On the provided website and in the subsequent links it is stated: "These models are in various stages of completion *but are provided for transparency in their development and application* [emphasis added]."

Specific to the Kennebec River shad model, "This model has undergone preliminary review with fishery and habitat managers at Maine Department of Marine Resources and the National Oceanic and Atmospheric Administration Habitat Division." It is unclear from either the website or content provided by the MDMR as to what constituted the preliminary review has consisted of or whether or not the issues described above have been considered.

vi. *Flawed Model Construction*

Brookfield's review of correspondence between Dr. Stitch and MDMR biologists raises serious concerns regarding disagreement in parameter values. The correspondence appears to document an unabashed data mining effort intended to construct a model that would support a pre-determined and desired outcome (*i.e.* dam removal rather than fish passage). Examples include the following:

- On 7/30/2020 Sean Ledwin wrote to Dr. Stitch: "I think it might be appropriate to use the minimum of 203 adults per hectare above the Weston Dam as the management goal (Weston to Abernaki and Madison to Farmington on Sandy) and work back to see what performance standard would be required by project to meet that escapement at Weston (number of hectares of shad habitat X 203 above Weston), while obviously including that many or more fish between Lockwood and Weston per hectare. Not sure if counting the lower Sandy as 'tributary' habitat at 111 per hectare is appropriate. The repeat spawner rates of 15% for that same reach could also be applied.
- On 7/30/2020 Dr. Stitch wrote to Sean Ledwin and Gail Wippelhauser: "I am probably most comfortable using the habitat estimates that we looked at today for the model. These ones have some history, and are basically identical to the ones from the ongoing GIS study except for the estuary. These estimates top us out at a little over 1 million shad and 3 million bluebacks in the Kennebec with no dams and we bottom out around 200 K shad with no access to habitat upstream of Lockwood or Benton. Those numbers seem to make intuitive sense based on what Sean mentioned today and what Gail and I have talked about so far."

- On 7/30/2020 Dr. Stitch wrote "I know we can't 'know' the population size, but it might be obvious to the two of you if we are off by an order of magnitude."
- On 7/31/2020 Dr. Wippelhauser wrote: "There is some spawning that occurs just downstream of the Edwards Dam site, in the Merrymeeting Bay tributaries, and probably in places between these two. In the interest of time, I think maybe we can ignore that production for now. What do you think?"
- On 11/21/2020 Sean Ledwin wrote: "I think the timing goal would be something like 48 hrs (upon approaching within 1km or something like that) per project so fish that did not pass within 48 hrs say at one or more projects would not be counted towards the distribution goal of 200 per ha in the Abenaki/lower Sandy, even if they eventually reached that habitat in a less timely way."
- On 12/10/2020 Michael Brown wrote: "the Shad and RH management Board has requested that the states come up with a way to address the 2020 Shad Assessment finding or continued coastal decline and address other sources of mortality since there is very little fishing going on now. It looks like the Hudson, Delaware and Connecticut rivers are starting to blink out and the Assessment determined that these river population were no longer sustainable."
- On 12/12/2020 Dr. Stitch wrote: "I have been running a bunch of models since we last talked to look at differences between daily and seasonal passage rates with varying upstream passage (same at all dams). I also ran these with a few different downstream survival rates (adult and juv combined for now, also same at all dams)."

Taken together, this correspondence indicates a "best guess" approach to model building that is not based on any measured or peer-reviewed life-history or parameter values from the Kennebec system. Additionally, neglecting pieces of information such as production below Lockwood seems unjustified, as these data would contribute to the number of fish returning. Failure to include these data do not allow for an understanding of how inclusion may alter model outputs.

Neglecting fish that do not reach spawning areas after 48 hours also seems unjustified as there is no evidence to suggest those fish would not be contributing to the population nor is there any stated justification as to why it would be necessary to exclude them. The quote about seeking additional sources of mortality is not resolved in the provided correspondence and it would be very beneficial to learn where that pursuit landed and how it may change model performance/output. Finally, it seems naïve to assume that in any one scenario the passage at all dams can only be identical.

vii. *Disparity between Actual Model Results and Plan Recommendations*

Included in the FOAA Documents is a Word document written by Dr. Stitch (9 2020-12-12 kennebec_shad_20201212.docx) describing the 48 runs of his Shad model. Based on a close review of this document, it is unclear how Dr. Stitch's model results actually informed the MDMR's new performance standards, which were supposedly developed based on Dr. Stitch's results.

The MDMR's management goals for shad appear to actually be achieved in most of Dr. Stitch's scenarios, including those involving 7 days and 70% upstream passage efficiency so long as downstream passage mortality is greater than 90%. However, this result is not reflected in the

new passage standard presented in the MDMR's management plan, bringing to question how that standard was actually developed given the actual model results.

Further, it seems suspicious that all models would converge and reach a maximum in the proximity of year 12 of the simulation. One would expect lower passage efficiency/increased mortality scenarios to reach a maximum theoretical limit slower than scenarios with 100% passage.

Finally, outputs indicating 100% downstream survival would result in the fewest numbers of returning spawners are confusing.

viii. Conclusions

While Stich et al. 2019 remains a useful tool to evaluate potential population impacts, MDMR relies on an unreviewed, and largely undocumented Kennebec River American shad model to develop recommendations that would have significant cost and social implications. Brookfield's review of the model results as depicted in the 2020 Amendment raises significant questions regarding the applicability of the model, fundamental assumptions loaded into the model, and as such any conclusions that the MDMR has drawn from limited use of the model.

ix. References

Atlantic States Marine Fisheries Commission (ASMFC). 2007. American shad stock assessment report for peer review (Supplement) . Vol. II. Stock Assessment Report, ASMFC, Arlington, VA.

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Stich, D.D. Undated. Overview of the Kennebec River model (https://shadia-ui.github.io/about_kennebec.html). Retrieved January 24, 2021.

Appendix C

Detailed Comments on Blueback Herring Modeling

Section 3.7 of the Maine Department of Marine Resources' (MDMR) proposed 2020 amendment (2020 Amendment) to the 1993 Kennebec River Resource Management Plan (1993 Plan) lays out fishway performance standards for blueback herring (*Alosa aestivalis*). As with the American shad standards (Appendix B), MDMR based the proposed standard on an unpublished stochastic, life-history based, simulation model developed by Dr. Daniel S. Stich (Stich unpublished). This model is evidently similar in concept to a model previously developed for Penobscot River shad (Stich et al. 2019) and which has been presumably modified to be representative for Kennebec River blueback herring.

Many of Brookfield's comments and concerns regarding the Kennebec River blueback herring model echo our comments and concerns regarding the similar Kennebec River American shad model (Appendix B). Brookfield acknowledges the utility and usefulness of the original Stich et al. (2019) model with regard to understanding the impacts of several passage scenarios on a simulated population of American shad.

That said, MDMR has used results from this unpublished and unreviewed model to recommend specific outcomes that range up to and include dam removal. Given the costly and far-ranging impact of these recommendations, Brookfield questions the applicability of using this model to develop blueback herring passage standards without adequate peer and public review and comment. Brookfield is also concerned about the near-total lack of disclosure of documented inputs or assumptions used in developing the model runs.

i. *Applicability of the Model*

According to the description provided by the author (Stich, unpublished) the current Kennebec River blueback herring model incorporates some species-specific data from the Hudson River and assumes the majority of movement data for the species are the same as that for American shad.

While Brookfield understands the adoption of surrogate data for this less studied species, it does raise questions with regards to the predictive abilities of the model and the legitimacy and accuracy of the associated performance standards that are being put forth by MDMR for blueback herring specific to the Kennebec River.

Although the model described in Stich et al. (2019) is comprehensive and well parameterized, it was originally built and described exclusively for shad passage. Stich et al. (2019) states "Differences between species in addition to site-specific considerations further complicate this problem and preclude a one-size-fits-all solution of fish passage."

ii. *General Model Assumptions*

Further on Stich et al. (2019) notes that the model can be readily extended to other species given alterations to input data, such as biological parameters, path information, etc. However, MDMR has failed to present these parameters, how they are different from the shad model, and what evidence supports the use of said parameters.

Similar to details provided by MDMR in the 2020 Amendment for American shad, model details in the plan for blueback herring are limited to a single line describing a set of model scenarios. No supporting documentation associated with model inputs or the 48 outputs used to develop the proposed passage standard for blueback herring are provided.

iii. Conclusions

Assuming MDMR relied solely on this model output and given the lack of species and watershed specific input data, Brookfield feels the development of the blueback herring passage standard provided in the Kennebec River Management Plan is premature.

Similar to that previously described for American shad, the Stich model has limitations in its applicability which are rooted in the inherent assumptions behind the model and the overall model type. These potential impacts are previously described for the American shad model in Section (Appendix B) and are consistent with the concerns associated with the blueback herring model.

iv. References

Stich, D.S., T.F. Sheehan, and J.D. Zydlewski. 2019. A dam passage performance standard model for American shad. Canadian Journal of Fisheries and Aquatic Sciences 76: 762-779.

Stich, D.D. Undated. Overview of the Kennebec River model (https://shadia-ui.github.io/about_kennebec.html). Retrieved January 24, 2021.

Stich, D.S. Unpublished. Kennebec Blueback Herring model.

Appendix D

Detailed Comments on Alewife Habitat and Production Estimates

Section 3.8 of the Maine Department of Marine Resources' (MDMR) proposed 2020 amendment (2020 Amendment) to the 1993 Kennebec River Resource Management Plan (1993 Plan) lays out a series of measures to support restoration of alewife (*Alosa pseudoharengus*). MDMR claims that "In order to achieve a minimum number of spawners (608,200 adult alewife) to historic habitat in the Kennebec River, upstream passage of adults would need to be at least 90% effective at each of the four dams and downstream passage of adults and juveniles at each of the four dams would need to be at least 95% effective." MDMR explains that these passage standards were developed through alewife habitat and production estimate modeling.

Brookfield agrees that effective passage in both directions is vital to restore and maintain self-sustaining populations of migratory fish. However, a review of MDMR's explanation of how its new effectiveness standards were derived raises serious questions about MDMR's methodologies, documentation, and conclusions. MDMR appears to have inappropriately used a deterministic model, failed to adequately document and disclose its core assumptions, and then failed to discuss any reasonable alternatives to achieving its management goals.

i. *Applicability of the Model*

A deterministic population model produces results that are entirely driven by the parameters that are programed into its calculations. Changing key assumptions in the inputs directly changes the output. While useful for many purposes, deterministic population models have several well-known and well-documented limitations.

For the 2020 Amendment, MDMR inappropriately adapted an existing, deterministic alewife population model to develop and propose the passage standards for the four mainstem Kennebec River dams. MDMR claims these standards are critical for restoring an annual alewife run of 608,200 adult spawners upstream of Lockwood Dam. The basic structure and inputs of the original model have been described in Barber et al. (2018); the same information and the R code is annotated at the model web site[100].

MDMR failed to heed the warnings and instructions explicitly stated by the model developers: that users of this model should *"*not make detailed predictions about the exact number of alewife that will return in a given time frame.*"* (Barber et al. 2018).

Barber et al. (2018), explains that deterministic models such as this one address general trends in a population and can help inform management decisions by testing sensitivities within life histories, but because variation in the spawning run is averaged, these models are not predictive.

As a result, this model is intended for the sole purpose of comparing different management strategies and understanding their general impacts, but is **unable to forecast accurate, well-informed projections** of alewife abundance or population size. Barber et al. stresses that key assumptions of the model which can greatly impact model output must be kept in mind when interpreting the results of the model. Among these key assumptions are the following:

- Environmental parameters are constant within *and* between years;
- Inputs values (life history, behavioral, and biological characteristics) are representative of that which is occurring in the natural system (i.e. the Kennebec River); and

[100]The model is available at https://umainezlab.shinyapps.io/alewifepopmodel/

- Quality of spawning habitat in the Kennebec River does not vary spatially.

It is well known and well documented in literature that annual runs of river herring species are heavily influenced by highly variable environmental parameters such as water temperature and flow conditions. These parameters exhibit substantial temporal variance within years and inter-annually such as high/low snowfall years causing high/low spring flow conditions in addition to acute changes in flow or temperature caused by storm events or abrupt climactic changes.

This type of environmental variability can delay, hasten, or temporarily impede river herring runs. Understanding that the timing of river herring runs can be late or early and subject to multiple peaks is a key driver of why models which make the assumption of environmental constants are unable to produce accurate and reliable projections of abundance or population size. Failure to account for environmental variance both within and between years introduces a tremendous amount of uncertainty into model outputs.

ii. *General Model Assumptions*

As discussed above and as explicitly identified by model developers, the use of population-averaged input values is strongly discouraged in population modeling due to the uncertainty introduced by the failure to account for population variance, outlying values, etc.

Uncertainty has been introduced to these model outputs through the use of fixed environmental constants, population averaged input values, and through assumptions disregarding spatial variability (i.e. that St Croix alewife populations are biologically and behaviorally similar to Kennebec River populations in addition to assuming all habitat is of equal production quality).

MDMR has failed to provide any written or circumstantial evidence to justify the upholding of these assumptions when making management decisions regarding alewife in the Kennebec River system. These are all assumptions which form the cornerstone of the model developers'

warnings as to why this model is not intended and, more importantly, unable to make accurate, well-informed projections of abundance or population size. Brookfield acknowledges the importance of this model as a tool for *comparing* management scenarios to understand general impacts and resulting trends but questions its appropriation as a population projection and management decision tool by MDMR.

iii. *Failure to Document Modeling Efforts*

Ignoring the inappropriateness of this model to project alewife population estimates and the violated assumptions discussed, MDMR proceeded to use the model to develop upstream and downstream passage standards without providing the information necessary to support those specific requirements.

As can be seen in Figure 3 from the 2020 Amendment, MDMR's model lacks measurements of uncertainty around the estimate lines. It displays no confidence limits, no error bars, etc. on the forecasts generated from the population model to allow readers to see where the estimated populations sit relative to the Maine and ASMFC escapement goals. Lines presented in Figure 3 from the 2020 Amendment provide only the mean estimates of alewife spawner abundances for a series of upstream and downstream passage effectiveness rates relative to fixed values of mean Maine and minimum ASMFC escapement goals for the species. Failure to provide a measurement of error around those abundance estimates prevents the reader from understanding the magnitude of variation around those values.

Without referencing any form of uncertainty around the estimates, it is not possible to understand the margin of error behind these outputs, consequently bringing to question the reliability of the estimate. Presenting a single line with no variance is misleading and makes it look as though targets are either always achieved or never achieved, which is not realistic.

iv. *Failure to Consider Alternatives*

It would be naïve to assume the proposed passage standards are the only viable way to achieve a return of adult alewives upstream of Lockwood Dam in excess of 600,000 fish given the success of adults observed returning in the adjacent Sebasticook River. Since 2006, alewife passage in the Sebasticook has regularly numbered 2-5 million individuals. At present, alewife returns to the Sebasticook must navigate the fish lift facility at Benton Falls (only designed to pass 600,000 alewives annually), the Burnham fish lift (design details not provided by MDMR in the 2020 Amendment) and the fish ladder at Sebasticook Lake. In addition to those obstructions there are several other fishways located at lake dam outlets within the drainage.

To Brookfield's knowledge, these unexpectedly abundant returns to the Sebasticook River have occurred in the absence of comprehensive/rigorous passage efficiency studies at the three sites, application of passage standards at the three sites (such as the unrealistically demanding standards being required in the MDMR 2020 Amendment for the 4 mainstem dams owned by Brookfield subsidiary companies), and despite the seemingly under-designed fish lift at Benton Falls Dam.

v. *Existing Passage and Stocking Conditions in the Kennebec River Basin*

MDMR undertakes the trucking of migratory species from the Lockwood lift, including the trucking of river herring both within and outside of the Kennebec River basin. As shown in the table and figure below, approximately an average of 30% of the river herring captured at the Lockwood lift from 2009 to 2020 annually were trucked to other rivers and ponds outside of the Kennebec River basin. The MDMR's goals for river herring restoration on the Kennebec are perplexing given MDMR's current management practices of relocating river herring out of the Kennebec.

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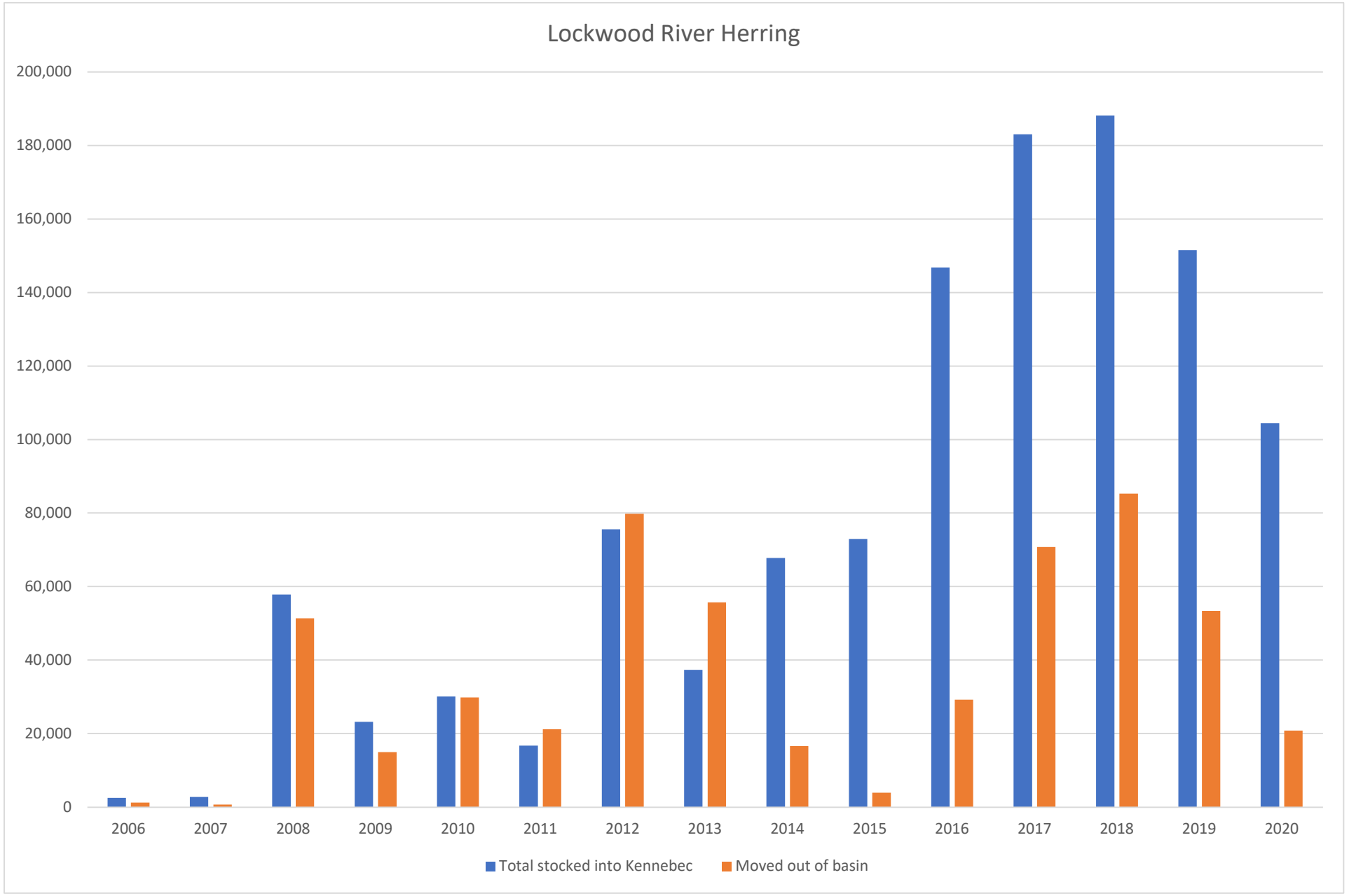
Year	Captured at Lockwood	Trucked to Sebasticook Drainage	Trucked to Wesserunsett Lake	Trucked to Shawmut Headpond	Trucked to Hydro Kennebec Headpond	Percentage of Wesserunsett Stocking Rate Limit (6 fish/acre)	Percentage of Wesserunsett Capacity Stocked (235 fish/acre)	Total stocked into Kennebec	Total stocked into the basin (Kennebec & Sebasticook)	Moved out of basin	Percentage stocked out of basin
2006	4,094	359	2,503	0	0	29%	0.74%	2,503	2,862	1,232	30%
2007	3,448	0	2,762	0	0	32%	0.81%	2,762	2,762	686	20%
2008	131,201	22,074	9,855	47,944	0	114%	2.90%	57,799	79,873	51,328	39%
2009	45,969	7,870	10,207	12,947	0	118%	3.00%	23,154	31,024	14,945	33%
2010	76,745	16,807	10,045	9,000	11,040	116%	2.96%	30,085	46,892	29,853	39%
2011	37,847		4,618	8,078	4,000	53%	1.36%	16,696	16,696	21,151	56%
2012	179,358	24,000	12,962	51,380	11,250	149%	3.81%	75,592	99,592	79,766	44%
2013	103,242	10,213	16,340	16,475	4,500	188%	4.81%	37,315	47,528	55,714	54%
2014	115,667	31,361	14,622	35,865	17,250	169%	4.30%	67,737	99,098	16,569	14%
2015	91,850	15,000	15,320	42,300	15,301	177%	4.51%	72,921	87,921	3,929	4%
2016	224,990	48,950	17,251	73,200	56,352	199%	5.08%	146,803	195,753	29,237	13%
2017	289,188	35,350	13,372	74,250	95,444	154%	3.94%	183,066	218,416	70,772	24%
2018	307,035	33,585	9,436	80,698	98,049	109%	2.78%	188,183	221,768	85,267	28%
2019	240,594	35,750	11,183	58,105	82,193	129%	3.29%	151,481	187,231	53,363	22%
2020	143,259	18,000	14,929	22,115	67,390	172%	4.39%	104,434	122,434	20,825	15%


Lockwood River Herring
200,000
180,000
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
Total stocked into Kennebec
Moved out of basin

Appendix E

Detailed Comments on Sea Lamprey Habitats and Kennebec River Populations

The 1993 Kennebec River Resource Management Plan (1993 Plan) was developed by the Maine State Planning Office pursuant to 12 MRSA § 407 following substantial public comment and legislative review. The Maine Department of Marine Resources' (MDMR) proposed 2020 amendment (2020 Amendment) to the 1993 Plan includes a new goal of restoring sea lamprey (*Petromyzon marinus*) to "historic spawning and nursery habitat."

While restoring sea lamprey on the Kennebec River may indeed prove be a worthwhile goal, as discussed below this represents a direct reversal of the 1993 Plan, a change significant enough to warrant consultation with other relevant agencies and public comment and consideration. The 2020 Amendment does not provide a substantial argument for the public good that would be achieved by this reversal. While sea lamprey are an ecologically important species they are also not considered under threat in Maine. Further, the 2020 Amendment completely fails to establish the necessity for dam removal in order to protect this species.

i. *Background*

Sea lamprey are widely distributed in marine and freshwater habitats of the North Atlantic. They typically reside in freshwater as ammocetes (the larval stage) for up to 6-8 years (Almeida and Quintella 2014, NatureServe 2013). The range of sea lamprey in the northwest Atlantic extends from Labrador to Florida, including landlocked populations in Lake Champlain and the Great Lakes. Sea lamprey in the northeast Atlantic are a separate population that are found in Norway, Iceland, and the Barents Sea south to northern Africa, including the western Mediterranean Sea.

Sea lamprey are categorized as a species of least concern by the International Union for Conservation of Nature in view of the large extent of occurrence, large number of subpopulations, large population size, relatively stable population, and lack of major threats (NatureServe 2013). The U.S. Fish and Wildlife Service (USFWS) has never received a petition under the Endangered Species Act regarding sea lamprey.[101]

Sea lamprey gained access to inland waters of North America via canals and locks and became established as freshwater populations. Specifically, the Champlain Canal connected the south end of Lake Champlain to the Hudson River in 1823, while the Erie and Welland canals gave sea lamprey access to Lake Erie in 1825 and subsequently to the entire Great Lakes watershed. Sea lamprey decimated lake trout (*Salvelinus namaycush*) and other recreational and commercial species in these large lakes (Lennox et al 2020, Dodge et al. 1993).

Early efforts to control lamprey in the Great Lakes failed, but lampricides, lamprey attractants, and lamprey barriers have been used with some success for decades to reduce lamprey abundance and eliminate ammocetes (juvenile lamprey) from selected tributaries of the Great Lakes (Lennox et al. 2020, McLaughlin et al. 2006), and Lake Champlain (Nashett et al. 1999).

Sea lamprey is an anadromous species that is an exception to the normal anadromous life history pattern of homing to a natal river (Lennox et al. 2020, Waldman et al. 2008). Lamprey also differ from other anadromous fishes in that its adult phase is parasitic, a feeding strategy that makes homing problematic for mature lamprey since they are likely to become widely dispersed in marine habitats through transport while attached to the diverse hosts they parasitize. Genetic testing of lamprey collected in 11 rivers from the Delaware River to the Gulf of St. Lawrence

[101]USFWS Environmental Conservation Online System (ECOS), accessed 20Jan2021.

found no significant differences in gene frequencies, demonstrating regional panmixia of sea lamprey in the northwest Atlantic (Waldman et al. 2008).

Thus, lamprey originating from individual rivers contribute nothing unique to the population. Rather, each river contributes to the abundance of the regional sea lamprey population in accordance with the number of juvenile sea lamprey that successfully leave the river, survive in the ocean, return to a river/stream, and spawn. Where they spawn, the size and locations of rivers and stream, is also irrelevant; only the proximity of some suitable spawning and nursery habitats is important. That is, the adults need spawning habitat (gravel/pebble substrates) and emergent larvae must find nursery habitat (silt/sand backwaters) immediately downstream, but spawning and survival of any population are not dependent on access to particular rivers or lakes.

ii. *Sea Lampreys in Maine and Current Management*

In Maine, sea lamprey are commonly caught in the spring in fishways in the major rivers, although they are not regularly counted and reported in fish passage reports. Sea lamprey are known to move upstream via fish lifts, vertical slot fishways, various traps, and some Ice Harbor fishways. However, fishways that do not provide suitable surfaces (i.e., irregular or porous) for the mouth to adhere do not pass lamprey effectively. The USFWS reports that the Holyoke fish lift on the Connecticut River has passed an average of 32,507 sea lamprey annually since records began in 1975.

As noted above, the 2020 Amendment proposes a new goal of sea lamprey restoration. This is not a minor policy adjustment, but instead a significant change from the 1993 Plan. Not only was lamprey restoration *not* a goal of the 1993 Plan, the 1993 Plan specifically exempts lamprey from the migratory fish passage goals: "With respect to the Kennebec River, it is the State's goal to restore all anadromous fish *except for lamprey eels* [emphasis added] to their

historical range." The 1993 Plan categorizes sea lamprey along with common carp as "pest species" that should not be allowed to move any further upstream than possible and specifically, not beyond the Lockwood and Fort Halifax dams (1993 Plan, Appendix G).

iii. Conclusions

The 2020 Amendment repeatedly states that sea lamprey can no longer access "native" or "historic" spawning habitat in the Kennebec River. But these assertions are entirely unsupported. Lacking any studies of lamprey passage in Maine, the 2020 Amendment simply states that fishways do not work and dam removal is needed to restore a "Kennebec" sea lamprey population.

However, the sea lamprey population is not dependent on reproduction in the Kennebec watershed, nor spawning in any single river, or any given year. Regional panmixia of sea lamprey in the northwest Atlantic Ocean means that spawning anywhere supports the population. Indeed, no legal protection has ever been requested for this species and no management has ever been implemented in Maine. The species is widely distributed and stable not only in Maine, but throughout the range (Maitland et al. 2015, NatureServe 2013).

The changes between the 1993 and the 2020 Amendment with regards to sea lamprey management seem irreconcilable and so great as to be far beyond the scope of a simple plan amendment. Quietly editing an old plan to completely reverse a management objective does not seem appropriate under the circumstances, particularly if the public opinion of Maine residents might be opposed to the presence of a non-threatened parasitic species in waters where prized game fish are present. Instead, a new plan – subject to due public comment and legislative review – should be developed to reflect new management priorities.

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STATE OF MAINE
KENNEBEC, ss.

SUPERIOR COURT
CIVIL ACTION
DOCKET NO. _____

Brookfield Power US Holding America Co.; The Merimil Limited Partnership; Hydro Kennebec LLC; and Brookfield White Pine Hydro LLC,

Plaintiffs,

v.

Maine Department of Marine Resources; and Patrick Keliher, in his official capacity as Commissioner of Maine Department of Marine Resources,

Defendants.

COMPLAINT
(Preliminary Injunction Requested)

Plaintiffs (collectively "Brookfield") complain against the Maine Department of Marine Resources and Patrick Keliher, in his official capacity as the Commissioner of the Department of Marine Resources (collectively "DMR"), as follows:

1. The DMR is currently in the process, through rulemaking, of amending the Kennebec River Resource Management Plan. As part of this process, DMR is changing the plan in ways that could require the demolition and removal of four of Brookfield's hydropower dams on the Kennebec River.

2. The DMR does not have statutory authority to amend the Kennebec River Resource Management Plan. Instead, 12 M.R.S. § 407 gives this authority to the Maine Department of Agriculture, Conservation, and Forestry. The DMR's efforts to unilaterally change Maine's policy with respect to hydropower on the Kennebec River should be declared illegal.

3. The Court should also issue an injunction preventing DMR from finalizing its amendment to the Kennebec River Resource Management Plan. If DMR is permitted to finalize this amendment and file it with the Federal Energy Regulatory Commission ("FERC"), even though the plan is being illegally promulgated, Brookfield will be irreparably harmed in its current effort to relicense one of its dams on the Kennebec River. At a minimum, if the Court does not enjoin DMR from finalizing the rule, it should order that DMR not file the amended plan with FERC until this litigation has been resolved.

PARTIES AND JURISDICTION

4. Plaintiff Brookfield Power US Holding America Co. is a Delaware corporation that, through its subsidiaries, owns interests in and operates renewable energy projects, including hydroelectric dams and wind projects, throughout Maine. These include the Lockwood dam, the Hydro-Kennebec dam, the Shawmut dam, and the Weston dam, all of which are located on the lower Kennebec River. Combined, these four hydroelectric projects generate more than 250 million kw/h of carbon-free, renewable energy annually for the State of Maine.

5. Plaintiff The Merimil Limited Partnership is a Delaware limited partnership and holds the license to the Lockwood project. Brookfield Power US Holding America Co. holds an equity interest in, and through its subsidiaries operates and manages, The Merimil Limited Partnership.

6. Plaintiff Hydro Kennebec LLC is a Delaware limited liability company and holds the license to the Hydro-Kennebec project. Brookfield Power US Holding America Co. holds an equity interest in, and through its subsidiaries operates and manages, Hydro Kennebec LLC.

7. Plaintiff Brookfield White Pine Hydro LLC is a Delaware limited liability company and holds the license to the Shawmut project and the Weston project. Brookfield Power US Holding America Co. holds an equity interest in, and through its subsidiaries operates and manages, Brookfield White Pine Hydro LLC.

8. Defendant Maine Department of Marine Resources is the administrative department within the State of Maine that has promulgated, through formal rulemaking, the rules that Brookfield is challenging in this lawsuit. The DMR is the lead state agency in the restoration and management of diadromous species of fish. The DMR's stated policy is to restore Maine's native diadromous fish to their historical habitat.

9. Defendant Patrick Keliher is the Commissioner of the DMR. He and the DMR are collectively referred to as the "DMR" in this Complaint.

10. This Court has jurisdiction to hear this dispute under 5 M.R.S. § 8058(1), which provides that "[j]udicial review of an agency rule . . . may be had by any person who is aggrieved in an action for declaratory judgment in the Superior Court."

BACKGROUND

11. Hydropower has been an important piece of Maine's landscape for well over a century.

12. Since 1983, with the passage of LD 1296, *An Act to Promote the Wise Use and Management of Maine's Outstanding River Resources* (1983), a key part of Maine's official policy with respect to its rivers and streams has been to promote hydropower production in the state.

13. The Legislature has repeatedly acknowledged the importance of hydropower, declaring that "the well-being of the citizens of this State depends on

striking a carefully considered and well-reasoned balance among the competing uses of the state's rivers and streams." 12 M.R.S. § 402 (1983). The Legislature has made clear that among the goals in striking this balance are to "[i]ncrease the hydroelectric power available to replace foreign oil in the State" and to "[s]treamline procedures to facilitate hydropower development under reasonable environmental, technical and public safety constraints." *Id.*

14. The Legislature elsewhere has acknowledged that Maine's "rivers and streams afford the state's people with major opportunities . . . for economic expansion through the development of hydropower. . . ." 12 M.R.S. § 401(3).

15. The Legislature has also declared that "the surface waters of the State constitute a valuable indigenous and renewable energy resource; and that hydropower development utilizing these waters is unique in its benefits and impacts to the natural environment, and makes a significant contribution to the general welfare of the citizens of the State," because, among other reasons, "[h]ydropower is the state's only economically feasible, large-scale energy resource which does not rely on combustion of a fuel, thereby avoiding air pollution," and it "can be developed at many sites with minimal environmental impacts, especially at sites with existing dams . . . ." 38 M.R.S. § 631(1)(C).

16. In 1989, in an effort to promote and manage the state's hydropower resources, the Legislature passed a law requiring Maine to create comprehensive river resource management plans that account for, among other things, the State's need for renewable energy in the form of hydropower. *See* 12 M.R.S. § 407.

17. Section 407, in its current form, reads:

§ 407. Comprehensive river resource management plans

> The Department of Agriculture, Conservation and Forestry, with assistance from the Department of Inland Fisheries and Wildlife, the Department of Marine Resources, the Department of Environmental Protection, the Governor's Energy Office and other state agencies as needed, shall develop, subject to the Maine Administrative Procedure Act ... a comprehensive river resource management plan for each watershed with a hydropower project licensed under the Federal Power Act or to be licensed under the Federal Power Act. These plans must provide a basis for state agency comments, recommendations and permitting decisions and at a minimum include, as applicable, minimum flows, impoundment level regimes, upstream and downstream fish passage, maintenance of aquatic habitat and habitat productivity, public access and recreational opportunities. These plans must update, complement and, after public notice, comment and hearings in the watershed, be adopted as components of the State's comprehensive rivers management plan.

18. As originally enacted, Section 407 placed the now-disbanded State Planning Office in charge of the interagency process that is required to develop a comprehensive river resource management plan. *See* L.D. 1621 (114th Legis. 1989). The statute has since been amended to give the Department of Agriculture, Conservation and Forestry the lead role. *See* L.D. 1903 (125th Legis. 2012).

19. At no time has Section 407 authorized the DMR to unilaterally develop or amend the State's comprehensive river resource management plans.

20. Since its inception, Section 407 has required an interagency process to create a comprehensive river resources management plan because no single agency has the expertise to balance the various public interests in Maine's rivers and streams, including hydropower, fish passage, and recreation.

THE 1993 KENNEBEC RIVER RESOURCE MANAGEMENT PLAN

21. In response to the Legislature's mandate in 12 M.R.S. § 407, the Maine State Planning Office created the Kennebec River Resource Management Plan in 1993 ("the 1993 Plan"). *See* Maine State Planning Office, "Kennebec River Resource

Management Plan: Balancing Hydropower Generation and Other Uses" (February 1993) (the "1993 Plan").[1] The Basis Statement of the 1993 Plan explicitly says that it was created in response to the requirements of Section 407. *See* 01-000 C.M.R. ch. 1 (1993), App. G.

22. The 1993 Plan was created through an intensive interagency process, as required by Section 407. The 1993 Plan makes clear that it emerged out of a process that "entailed establishment of consensus among several professional analysts, scientists and policy development specialists for any one of the many complex issues addressed by the Plan." *Id.* The role of the State Planning Office in the development of the 1993 Plan "was to make the final judgment regarding the nature of the consensus derived." *Id.*

23. The Introduction to the 1993 Plan emphasizes that, "[c]onsistent with State policy and the provisions of the Maine Administrative Procedure Act, this plan is intended to combine professional judgments by the State Planning Office, the state agency charged with comprehensive watershed planning, with comments and opinions by all elements of the political process, including citizens, other state agencies, the State Legislature, resource users, and interested organizations." 01-000 C.M.R. ch. 1 (1993). The 1993 Plan carefully considered the benefits hydropower delivers to the State, noting, for example, that "[o]ne of the most important historical uses of the Kennebec River has been the generation of electricity through hydropower facilities." *Id.*

24. The DMR was part of the interagency process behind the 1993 Plan. Specifically, the DMR lent its expertise in the conservation of marine organisms and fish

[1] The 1993 Plan is codified at 01-000 C.M.R. ch. 1 (1993). Citations are to the Code of Maine Rules, but the Plan is also available online as a searchable PDF. *See* https://digitalmaine.com/spo_docs/78/.

passage to the 1993 Plan, while other agencies provided expertise on the benefits and potential of hydropower, as required by 12 M.R.S. § 407.

25. The lengthy, interagency process behind the 1993 Plan culminated in the conclusion that "the dams in the Kennebec River basin will continue to play a significant role in supplying a predictable quantity of energy at a predictable price to the State's energy consumers." *Id.*

26. The 1993 Plan supported the continued operation of the four hydropower projects on the lower Kennebec River that are operated by Brookfield today.

DMR'S EFFORTS TO AMEND THE 1993 PLAN

27. The state's official policy with respect to hydropower has not changed since 1993, but behind the scenes certain corners of Maine's government—in particular, DMR—have recently taken steps aimed at forcing the removal of Brookfield's dams on the lower Kennebec River. These actions are contrary to the official policy of the State, as stated in the 1993 Plan, which supports the continued operation of those facilities.

28. Under the Federal Power Act, Maine does not have the authority to decommission or require the removal of Brookfield's hydropower dams. This can only be done by FERC. But the State can make recommendations to FERC through a state comprehensive plan, developed under 12 M.R.S. § 407.

29. After leaving the 1993 Plan untouched for nearly three decades, DMR is now engaged in a wholesale rewriting of the 1993 Plan. Contrary to the legislative mandate to promote hydropower, DMR is in the process of illegally changing the 1993 Plan to force the removal of Brookfield's dams on the lower Kennebec River.

30. DMR's efforts to rewrite the 1993 Plan are timed to coincide with the expiration this year of the FERC license for Brookfield's Shawmut dam. FERC is

currently in the process of considering whether to relicense the Shawmut dam for continued operations as a hydropower facility.

31. DMR's efforts to rewrite the 1993 Plan also coincide with, and are driven by, an ongoing effort by Governor Mills to convince Brookfield to sell its hydropower projects on the lower Kennebec to a third-party environmental group, so that group can demolish and remove the projects.

32. DMR's rewriting of the 1993 Plan, undertaken following failed efforts to convince Brookfield to sell its projects, is intended to influence FERC to decommission or order the removal of Brookfield's Shawmut dam, and then the three other dams Brookfield operates on the Kennebec River as they come up for renewal in the coming years. These efforts are contrary to Maine's official policy to promote hydropower, are motivated by a misplaced opposition to Brookfield's continued operation of hydropower facilities on the Kennebec River, and are beyond DMR's rulemaking authority.

Failure to Comply with 12 M.R.S. § 407

33. DMR has no authority to rewrite the 1993 Plan because Section 407 gives this authority to the Department of Agriculture, Conservation and Forestry.

34. DMR explains that its Kennebec River Management Plan Diadromous Resources Amendment ("Plan Amendment") "updates the 1993 Kennebec River Resource Management Plan" (Plan Amendment 1.1). DMR intends to "submit this document to the Federal Energy Regulatory Commission (FERC) as a Comprehensive Management Plan Amendment." *Id.*

35. As explained *supra*, the 1993 Plan was created under Section 407. The Rulemaking Fact Sheet, filed with the Secretary of State, is explicit that Section 407 is the statutory authority for that plan.

36. Unlike the 1993 Plan, which followed the process required by Section 407, the State has not followed the required process for the Plan Amendment. Instead of having the Department of Agriculture, Conservation and Forestry take the lead, with assistance from other agencies including DMR, as Section 407 directs, DMR has simply gone ahead and promulgated the Plan Amendment on its own. DMR's efforts are illegal and therefore invalid.

37. If the State wishes to amend the 1993 Plan, it must once again adhere to the interagency process Section 407 requires. The statute does not authorize DMR to change a comprehensive river resource management plan on its own initiative.

38. DMR does not cite Section 407 as the basis for its rulemaking authority, but instead cites 12 M.R.S. § 6171(2-A). Section 6171 is in the part of Title 12 that is specific to "marine resources," defined as "all renewable marine organisms and the entire ecology and habitat supporting those organisms." 12 M.R.S. § 6001(27). Section 6171 provides:

> The commissioner [of DMR] may adopt a management plan or other policy on the conservation or regulation of marine organisms only after prior notice and public hearing and with the advice and consent of the Marine Resources Advisory Council under section 6024.

Section 6171(2-A) lists six objectives that a "management plan" must seek to accomplish, none of which are concerned with the states' need for hydropower. Five of the six objectives are concerned exclusively with fisheries or the seafood industry; just one of the six encompasses any non-fish related considerations. *See* 12 M.R.S. § 6171(2-A)(A)(5) ("Provide the greatest overall benefit to the State, including biological, economic and social considerations . . . .").

39. Section 407, by contrast, appears in the part of Title 12 governing "Forests, Parks, Lakes and Rivers"; it does not focus narrowly on marine resources, but instead requires "a comprehensive river resource management plan for each watershed with a hydropower project licensed under the Federal Power Act . . . ."

40. As prescribed by Section 407, the 1993 Plan "is the result of an objective analysis of relevant data; policy recommendations regarding the most beneficial balancing of resources and uses of the Kennebec River Basin are based on the best professional judgment of natural resource specialists from several State agencies as coordinated by SPO." 01-000 C.M.R. ch. 1 (1993), App. G. The 1993 Plan "represents a comprehensive examination of the various resources and beneficial uses of the Kennebec River," and "makes certain recommendations that reflect the State's determination of how those resources and beneficial uses should be balanced against one another in various circumstances." *Id.*

41. A key consideration in crafting the 1993 Plan was the importance of hydropower. *See* 01-000 C.M.R. ch. 1 (1993) ("One of the most important historical uses of the Kennebec River has been the generation of electricity through hydropower facilities. Today, hydropower continues to be a critical use of the river as the flow generates power which is highly reliable, renewable and generally non-polluting.").

42. The Plan Amendment would make major changes to the 1993 Plan, changes that go well beyond DMR's expertise in marine species. As summarized by DMR:

> this amendment expands the target species to include all of Maine's native diadromous fish; updates descriptions of the physical, biological, and ecological conditions in the watershed; revises goals, objectives, and actions for restoration in the Kennebec River; provides a rational[e] for

> the decommissioning and removal of dams; and provides performance standards for target species when available.

(Plan Amendment 1.1.)

43. The Plan Amendment declares that "the State believes the best approach to meet our management goals for the Kennebec River is to decommission and remove some or all of the dams in the Lower Kennebec." (Plan Amendment 4.0.)

44. Specifically, "[a]s a state agency responsible for managing diadromous fish and their habitat, MDMR recommends that the Shawmut Project and the Lockwood Project be decommissioned, and the dams removed. MDMR also recommends that the Hydro-Kennebec and Weston projects be considered for decommissioning and removal pending further investigation of fish passage performance at Hydro-Kennebec and further technical assessments and community outreach at the Weston project." (Plan Amendment at 34, Supporting Narrative.)

45. Focusing exclusively on marine resources, "MDMR finds that the cumulative impacts of the four lowermost hydropower projects in the mainstem Kennebec River, will result in significant adverse impacts on the recovery of endangered Atlantic salmon and on the restoration of alewife, blueback herring, American shad, sea lamprey, and American eel to their historic habitat in the Kennebec River." *Id.*

46. It is unsurprising that DMR based the Plan Amendment on what it perceived to be the needs of marine resources, as that is the interest DMR exists to protect. In the interagency process Section 407 prescribes, the process which created the 1993 Plan, other interests would have been taken into consideration and weighed in the balance with the interests of marine resources, including the legislative mandate to increase hydropower production in Maine's rivers.

47. DMR's singular focus on the well-being of diadromous fish populations is inconsistent with the state's broader policy goals, including the promotion of hydropower to reduce Maine's carbon footprint. It is, for example, at odds with the Governor's support of the New England Clean Energy Corridor, which will import hydropower into the state and, in the Governor's words, "substantially reduce our carbon footprint."[2]

48. DMR's singular focus on the well-being of diadromous fish populations has also drawn the ire of the Legislature. Maine Senate President Troy Jackson has informed DMR that he opposes the Plan Amendment because "removal of the dams without engagement of the Legislature has looming implications, including potential job loss, that should not be determined by the department alone," and because "these facilities...provide meaningful clean energy production that can assist Maine in meeting carbon reduction and climate goals, including those advanced by the Legislature." He concludes that "[e]specially given the current economic challenges facing Maine, I wholeheartedly believe that the Legislature deserves a formal role in the process of this decision-making." It makes sense that Maine's Senate President is opposed to the Plan Amendment, given that it was created by DMR without following the procedure the Legislature prescribed in Section 407 and the long-standing legislative mandate to encourage the production of hydropower in Maine.

[2] Lori Valigra, *Here Are Details of the Deal that Won Janet Mills' Support for $1 Billion CMP Project*, (Feb. 21, 2019), https://wgme.com/news/local/here-are-details-of-the-deal-that-won-janet-mills-support-for-1-billion-cmp-project.

Failure to Comply with 12 M.R.S. § 6171(2-A), § 6191(2)(C), and the APA

49. Even if the State were not required to adhere to the requirements of Section 407, the rulemaking conducted by DMR would not even meet the requirements of the statute it attempts to proceed under, 12 M.R.S. § 6171(2-A).

50. Section 6171(2-A) requires that a management plan "[p]rovide the greatest overall benefit to the State, including biological, economic and social considerations," and that a plan may be adopted "only after prior notice and a public hearing and with the advice and consent of the Marine Resources Advisory Council."

51. Under 12 M.R.S. § 6191(2)(C), "[a] rule may not be adopted or amended without the advice and consent of the [Marine Resources Advisory Council] . . . ."

52. DMR has not obtained the advice and consent of the Marine Resources Advisory Council in connection with the Plan Amendment.

53. Under 12 M.R.S. § 6191(1), "[i]n adopting or amending any rule, the commissioner shall use the procedures required for rulemaking under the Maine Administrative Procedure Act . . . ."

54. The Administrative Procedure Act ("APA") requires that an "agency shall consider all relevant information available to it, including, but not limited to, economic, environmental, fiscal and social impact analyses and statements and arguments filed, before adopting any rule." 5 M.R.S. § 8052(4).

55. The APA also requires agencies to provide "[a]n estimate of the fiscal impact of the rule," 5 M.R.S. § 8057-A(1)(C), and a "description of the economic impact of the rule," § 8057-A(2)(A), "including effects that cannot be quantified in monetary terms," *id.*, and a "description and examples of individuals, major interest groups and

types of businesses that will be affected by the rule and how they will be affected." § 8057-A(2)(B).

56. DMR failed to provide an estimate of the fiscal impact of the Plan Amendment, and did not give meaningful consideration to its economic, fiscal, or social impacts. DMR's explanation for not performing a fiscal impact analysis is that the Plan Amendment is "not legally enforceable and therefore will have no fiscal impact." (Rulemaking Fact Sheet.) The agency does acknowledge that "[i]f the goals set forth in the Amendment are adopted by agencies in permitting decisions then there could be some economic ramifications." *Id.* It then dismisses these "economic ramifications" as "too speculative to quantify." *Id.*

57. DMR violated the APA by noticing the Plan Amendment for public comment without having first estimated its fiscal impact.

58. If DMR had estimated the fiscal impact of the Plan Amendment as required by the APA it would not have concluded that its economic ramifications are too speculative to quantify, as the unmistakable objective of the Plan Amendment is to cause hydroelectric generation assets owned by Brookfield to be decommissioned, an event that would have a specific and substantial economic impact that would not be hard to estimate. This impact would include dramatically changing the landscape of towns up and down the Kennebec River, destabilizing property values, reducing property tax revenues, increasing property tax rates and interfering with the operations of any number of river-based businesses.

59. DMR also failed to estimate the more general economic ramifications the Plan Amendment would have on affected individuals, major interest groups, businesses,

and surrounding towns if it is adopted or acted on by FERC or the Maine Department of Environmental Protection (the "DEP").

60. DMR should not be permitted to avoid the requirements of the APA by claiming that the Plan Amendment will have no fiscal impact because it is not legally enforceable, where the entire point of adopting the Plan Amendment is to have its recommendations incorporated into future hydroelectric licenses (or license denials) and Water Quality Certifications issued by FERC and DEP, respectively.

SUBMISSION OF THE PLAN AMENDMENT TO FERC

61. The Plan Amendment expressly provides that "MDMR will submit this document to . . . FERC as a Comprehensive Management Plan Amendment," and that in DMR's view the Plan Amendment "provides a rationale for the decommissioning and removal of dams . . . ." (Plan Amendment 1.1.)

62. Under Federal law, in deciding whether to issue a license, FERC "will consider the extent to which the project is consistent with a comprehensive plan (where one exists) for improving, developing, or conserving a waterway or waterways affected by the project that is prepared by— . . . the State in which the facility is . . . located," 16 U.S.C. § 803(a)(2)(A), if that plan "[i]s filed with the Secretary of the Commission," as DMR indicates it will do once the Plan Amendment becomes final. 18 C.F.R. § 2.19.

63. Once DMR files the Plan Amendment with FERC, FERC will be required to consider the consistency of relicensing Brookfield's Shawmut dam with the Plan Amendment.

64. Because the Plan Amendment, by its own description, "provides a rationale for the decommissioning and removal of dams" on the Kennebec River (Plan Amendment 1.1), Brookfield is concerned that the filing of the Plan Amendment will

cause FERC to deny the relicensing application for the Shawmut dam or to impose conditions that are materially more onerous than they otherwise would be, perhaps so onerous as to make Brookfield's continued operation of the dam impractical.

USE OF THE PLAN AMENDMENT BY MAINE DEP

65. The Plan Amendment will also be used to make licensing decisions by the DEP, including decisions on Water Quality Certifications pursuant to Section 401 of the Clean Water Act and Maine Waterway Development and Conservation Act licenses.

66. Brookfield's application for Water Quality Certification for the Shawmut dam is currently pending before the DEP. If the Plan Amendment is finalized in its current form, it is expected that the DEP will either deny the application for Water Quality Certification outright or issue a Water Quality Certification with onerous conditions that make operating the Shawmut dam impractical or impossible. Under the first scenario, FERC could not issue a license for the Shawmut dam, which would result in its decommissioning. 33 U.S.C. § 1341(a)(1). Under the second scenario, FERC would be required to incorporate the DEP Water Quality Certification conditions in Shawmut's FERC license. *Id.* § 1341(d).

67. The Plan Amendment is intended to give DMR leverage over Brookfield by, at a minimum, resulting in the placement of onerous conditions on Brookfield's hydropower projects, both through the DEP Water Quality Certification and through FERC licensing. This is clear from an e-mail that the Director of the DMR Sea-Run Fisheries Division sent to other DMR staff on October 2, 2020, that encouraged the inclusion of onerous performance standards in the Plan Amendment, because "if [Brookfield and other dam owners] don't meet the standard, we can have a lot of leverage as we condition the 401 and possibly if FERC accepts the standard."

68. Public comment on rulemaking closed on March 27, 2021, and it is unclear when DMR will attempt to finalize the Plan Amendment. DMR is expected to promptly submit the Plan Amendment to FERC and the DEP once it is finalized. This should not be allowed to occur.

COUNT I
DECLARATORY JUDGMENT
(5 M.R.S. § 8058 & 14 M.R.S. § 5951)

69. Plaintiffs incorporate by reference in this Count the allegations made in the preceding paragraphs.

70. Under 5 M.R.S. § 8058(1), "[j]udicial review of an agency rule . . . may be had by any person who is aggrieved in an action for declaratory judgment in the Superior Court conducted pursuant to Title 14, section 5951, *et seq.* . . . Insofar as the court finds that a rule exceeds the rule-making authority of the agency, or is void under section 8057, subsection 1 or 2, it shall declare the rule invalid."

71. Under 14 M.R.S. § 5953, this Court has the "power to declare rights, status and other legal relations whether or not further relief is or could be claimed, and "[s]uch declarations shall have the force and effect of a final judgment or decree."

72. Brookfield is aggrieved by the DMR's efforts to promulgate the Plan Amendment because the Plan Amendment recommends decommissioning Brookfield's dams in the lower Kennebec River and is calculated to achieve this result through licensing processes underway at FERC and the Maine DEP.

73. The Plan Amendment is unlawful because it was not promulgated pursuant to a multi-agency process led by the Department of Agriculture, Conservation and Forestry, with assistance from the Department of Inland Fisheries and Wildlife, the Department of Marine Resources, the Department of Environmental Protection, the

Governor's Energy Office and other state agencies as needed, as 12 M.R.S. § 407 requires.

74. In the alternative, the Plan Amendment is invalid because the process it has emerged from does not comply with the requirements of 12 M.R.S. § 6171(2-A), § 6191(2)(C), and the APA, as described above.

75. Plaintiffs are therefore entitled to a declaratory judgment that the Plan Amendment is not a valid exercise of DMR's rulemaking authority and is therefore of no legal force or effect.

76. Plaintiffs are also entitled to a declaratory judgment that DMR has committed substantial procedural errors of such central relevance to the Plan Amendment that there is a substantial likelihood that the Plan Amendment would have been significantly changed if these errors had not occurred, and that the Plan Amendment is therefore invalid.

77. Plaintiffs are also entitled to a declaratory judgment that DMR's substantive review and promulgation of the Plan Amendment was arbitrary, capricious, and an abuse of DMR's discretion in that DMR failed to abide by the legislative mandate to give due weight to the importance of hydropower as a matter of state policy.

RELIEF REQUESTED

WHEREFORE, Plaintiffs request that this Court enter judgment:

A. Declaring that the Kennebec River Management Plan Diadromous Resources Amendment is not a valid exercise of DMR's rulemaking authority and is therefore of no legal force or effect;

B. Declaring that DMR has committed substantial procedural errors of such central relevance to the Kennebec River Management Plan Diadromous

Resources Amendment that there is a substantial likelihood that the Plan Amendment would have been significantly changed if these errors had not occurred, and that the Plan Amendment is therefore invalid;

C. Declaring that DMR's substantive review and promulgation of the Kennebec River Management Plan Diadromous Resources Amendment was arbitrary, capricious, and an abuse of DMR's discretion in that DMR failed to abide by the legislative mandate to give due weight to the importance of hydropower as a matter of state policy, and that the Plan Amendment is therefore invalid;

D. Preliminarily and permanently enjoining the Department of Marine Resources from finalizing the Kennebec River Management Plan Diadromous Resources Amendment until this litigation has been concluded on the grounds that DMR has no authority to promulgate the Plan Amendment;

E. In the alternative, preliminarily and permanently enjoining the Department of Marine Resources from filing the Kennebec River Management Plan Diadromous Resources Amendment with the Federal Energy Regulatory Commission until this litigation has been concluded; and

F. Granting such other and further relief as the Court deems just and proper.

March 30, 2021

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STATE OF MAINE
KENNEBEC, ss.

SUPERIOR COURT
CIVIL ACTION
DOCKET NO. _____

Brookfield Power US Holding America Co.; The Merimil Limited Partnership; Hydro Kennebec LLC; and Brookfield White Pine Hydro LLC,

Plaintiffs,

v.

Maine Department of Marine Resources; and Patrick Keliher, in his official capacity as Commissioner of Maine Department of Marine Resources,

Defendants.

MOTION FOR EXPEDITED CASE MANAGEMENT CONFERENCE AND INCORPORATED MEMORANDUM OF LAW

Plaintiffs (collectively, "Brookfield") move for an expedited case management conference pursuant to M.R. Civ. P. 16(a) (authorizing the Court to issue a specialized scheduling order and to establish deadlines, schedules, and other orders for the efficient preparation of the case for trial) and this Court's inherent authority to manage its docket and secure the just, speedy, and inexpensive determination of any action. Expedited treatment is warranted here because Brookfield has filed a motion for a preliminary injunction to prevent the Maine Department of Marine Resources and Commissioner Keliher (collectively, "DMR"), from illegally promulgating a rule (the "Plan Amendment") that attempts to amend the 1993 Kennebec River Resource Management Plan (the "1993 Plan"). DMR does not have statutory authority to do this under 12 M.R.S. § 407. As soon as DMR finalizes its unlawful rule it is expected to take further steps that will cause Brookfield irreparable harm.

ARGUMENT

To ensure that Brookfield is not harmed by DMR's illegal efforts to unilaterally amend the 1993 Plan, specialized case management is required. The 1993 Plan was developed through a comprehensive, interagency process that appropriately balanced the Legislature's stated goals of promoting hydropower with other public interests in Maine's rivers, such as fish passage and recreation. The 1993 Plan has been accepted by the Federal Energy Regulatory Commission ("FERC") as a comprehensive plan to be considered in determining whether to issue licenses for hydroelectric projects. *See* 16 U.S.C. § 803(a)(2)(A); 18 C.F.R. § 2.19.[1] Now DMR intends to submit the Plan Amendment to FERC "as a Comprehensive Management Plan Amendment," even though DMR does not have authority to amend the 1993 Plan. (Plan Amendment 1.1.)

DMR is using the Plan Amendment to "provide[ ] a rationale for the decommissioning and removal of the dams" on the Kennebec River, including Brookfield's four hydropower projects on the lower Kennebec. (Plan Amendment 1.1.) DMR's effort to rewrite the 1993 Plan and call for the removal of the dams on the Kennebec River is timed to coincide with Brookfield's application to renew the FERC license for one of its Kennebec River dams, the Shawmut hydropower project. (Affidavit of Thomas Uncher, ¶ 8.) If DMR submits the illegally promulgated Plan Amendment to FERC, FERC will need to determine whether it is consistent with Brookfield's application to relicense the Shawmut dam. This will, as explained in Brookfield's Motion for a Preliminary Injunction, cause Brookfield irreparable harm.

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[1] Federal Energy Regulatory Commission Office of Energy Projects, *List of Comprehensive Plans* (July 2020), https://www.ferc.gov/sites/default/files/2020-07/ListofComprehensivePlans.pdf.

DMR has already issued its notice of proposed rulemaking, and the comment deadline of March 27, 2021 has passed.[2] DMR could finalize the Plan Amendment and file it with FERC any day now, even though it has no statutory authority to do so. Brookfield cannot know when DMR will take this next step and is therefore seeking emergency relief from the Court to enjoin DMR from finalizing the Plan Amendment or filing it with FERC until this litigation has concluded.

Brookfield requests a conference of the Court and the parties as soon as possible to ensure that all parties can be heard and the Court can consider and rule on Brookfield's motion before DMR finalizes the Plan Amendment. If DMR can represent to the Court that it will not finalize the Plan Amendment before the parties have the opportunity to brief, and the Court has the opportunity to decide, Brookfield's Motion for a Preliminary Injunction in the normal course, then Brookfield has no objection to a standard briefing schedule consistent with the Maine Rules of Civil Procedure. But if DMR intends to promptly finalize the Plan Amendment, then Brookfield requests expedited briefing as outlined in the proposed order enclosed with this motion.

CONCLUSION

Brookfield respectfully requests that the Court schedule a case management conference as soon as its schedule permits or order expedited briefing of Brookfield's Motion for Preliminary Injunction.

March 30, 2021

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[2] Notice of Public Hearing-Agency Rule-making Proposal, https://www.maine.gov/dmr/laws-regulations/documents/Chapter60rescheduledHearingnotice.pdf

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IMPORTANT NOTICE

PURSUANT TO RULE 7(c) OF THE MAINE RULES OF CIVIL PROCEDURE, YOU MUST FILE ANY OPPOSITION TO THIS MOTION WITHIN **21 DAYS** AFTER THE DATE OF THE FILING OF THIS MOTION UNLESS ANOTHER TIME IS SET BY THE COURT. FAILURE TO FILE A TIMELY OPPOSITION WILL BE DEEMED A WAIVER OF ALL OBJECTIONS TO THIS MOTION, WHICH MAY BE GRANTED WITHOUT FURTHER NOTICE OR HEARING.

STATE OF MAINE
KENNEBEC, ss.

SUPERIOR COURT
CIVIL ACTION
DOCKET NO. _____

Brookfield Power US Holding America Co.; The Merimil Limited Partnership; Hydro Kennebec LLC; and Brookfield White Pine Hydro LLC,

Plaintiffs,

v.

Maine Department of Marine Resources; and Patrick Keliher, in his official capacity as Commissioner of Maine Department of Marine Resources,

Defendants.

ORDER ON MOTION FOR EXPEDITED CASE MANAGEMENT CONFERENCE

It is hereby ORDERED that the Motion for Expedited Case Management Conference is GRANTED. The clerk is directed to schedule a case management conference with the parties as soon as the Court's schedule permits. If a case management conference cannot be scheduled within three business days, then Defendants are ordered to respond to Plaintiffs' Motion for a Preliminary Injunction no later than April 5, 2021, with Plaintiffs to file a reply no later than April 7, 2021.

Dated:_____

_____
Justice, Superior Court

STATE OF MAINE

DISTRICT / SUPERIOR COURT
Location: KENNEBEC
Docket No. _____

Brookfield Power US Holding America Co., et al.
Plaintiff

v.

Maine Department of Marine Resources, et al.
Defendant

NOTICE REGARDING ELECTRONIC SERVICE

NOTICE TO PARTIES: All parties who are represented by an attorney are subject to the requirements of Electronic Service under Rule 5 of the Maine Rules of Civil Procedure.

OPT IN: *If you do not have an attorney*, papers that must be served on you by other parties in this case will be sent to you through the regular mail to your address of record. But **you have a choice** to request that all papers required to be served on you by other parties in this case be sent instead electronically to your designated email address; and you may also agree to serve by email all papers you are required to serve on other parties in this case.

Please note: any electronic service that you opt into applies only to papers served on you by other parties, and / or to papers you are required to serve on other parties. It *does not apply to notices, orders, or other papers generated by the court, or to any papers you must file with the court*. You must file all court papers in paper form by mail or in person, and all Court papers will continue to be sent to you by regular mail.

If you choose not to opt in, you do not need to do anything. If you would like to receive and/or serve papers on other parties electronically, you must meet the requirements set forth below. Check the appropriate box(es) and mail (or scan and email) the signed form to all other parties in the case. Do not file this form with the Court.

☐ **Electronic Receipt**: I choose to OPT IN to receive by email documents from other parties in this case. I have reviewed and meet all of the following electronic receipt requirements:

- I have a trusted email account and I have daily access to this account;
- I understand that **I will receive time-sensitive documents** through this email address including documents that may require me to take action in this case;
- This email account has available electronic storage of at least 1 gigabyte;
- This email account accepts emails with attachments of up to 10 megabytes; and
- I will be able to maintain this email account throughout this case.

☐ **Electronic Delivery**: I choose to OPT IN to deliver documents to other parties by email in this case. I have reviewed and meet all of the following electronic delivery requirements:

- I meet all of the requirements for electronic receipt listed above;
- I have the ability to scan and create .pdf files of documents I am required to serve on other parties.

Dated: _____

_____
Self-Represented Party (Signature)

_____
(Print name)

_____
(Print email address)

STATE OF MAINE
KENNEBEC, ss.

SUPERIOR COURT
CIVIL ACTION
DOCKET NO. _____

Brookfield Power US Holding America Co.; The Merimil Limited Partnership; Hydro Kennebec LLC; and Brookfield White Pine Hydro LLC,

Plaintiffs,

v.

Maine Department of Marine Resources; and Patrick Keliher, in his official capacity as Commissioner of Maine Department of Marine Resources,

Defendants.

MOTION FOR PRELIMINARY INJUNCTION

Plaintiffs (collectively "Brookfield") move for a preliminary injunction to prevent the Department of Marine Resources ("DMR") and Commissioner Keliher from finalizing the amendment to the Kennebec River Resource Management Plan that is currently in rulemaking. Brookfield is moving for an injunction now, before the rule is enacted, because DMR does not have statutory authority to amend the Kennebec River Resource Management Plan, and Brookfield will be irreparably harmed if the amendment takes effect and is filed with the Federal Energy Regulatory Commission ("FERC").

BACKGROUND

For more than 40 years, increased production of hydropower has been one of Maine's key policy goals with respect to its rivers and streams. The Legislature has declared, for example, that "[h]ydropower is the state's only economically feasible, large-scale energy resource which does not rely on combustion of a fuel, thereby

avoiding air pollution," and that it "can be developed at many sites with minimal environmental impacts, especially at sites with existing dams . . . ." 38 M.R.S. § 631(1)(C).

Brookfield operates renewable energy projects in Maine that reduce the State's reliance on fossil fuels, including four hydroelectric projects on the lower Kennebec River—the Lockwood dam, the Hydro-Kennebec dam, the Shawmut dam, and the Weston dam. (Affidavit of Thomas Uncher, attached as Exhibit C, ¶ 3.) Combined, these four hydroelectric projects generate more than 250 million kw/h of carbon-free, renewable energy annually for the State of Maine. *Id.* ¶ 4. For years the State has supported and encouraged these projects because they help reduce Maine's carbon footprint and combat climate change. But now DMR , in a formal rulemaking process that is very near completion, is calling for their demolition and removal.

DMR's attempt to remove Brookfield's hydropower projects on the lower Kennebec by rulemaking is unlawful, because it ignores state law requiring a process very different than the one DMR has conducted. In 1988, to promote and manage the State's hydropower resources, the Legislature enacted 12 M.R.S. § 407, requiring the now-defunct State Planning Office to lead a multi-agency effort to develop comprehensive river resource management plans for each watershed in Maine with a federally-licensed hydropower project.[1] Section 407 requires an interagency process because no single agency has the expertise to balance the different public interests in Maine's rivers and streams, including hydropower, fish passage, and recreation. The plans created under Section 407 are important both as official statements of State policy

[1] Section 407 has since been amended to require the Department of Agriculture, Conservation and Forestry to lead the process to develop comprehensive river resource management plans.

and as documents that will guide other agencies, including the Maine Department of Environmental Protection and FERC, when permitting hydropower projects. *See* 12 M.R.S. § 407.

In response to the Legislature's mandate in Section 407, in 1993 the State developed the Kennebec River Resource Management Plan (the "1993 Plan," attached as Exhibit A). The 1993 Plan was, as required by Section 407, the product of an extensive interagency process that was "intended to combine professional judgments by the State Planning Office, the state agency charged with comprehensive watershed planning, with comments and opinions by all elements of the political process, including citizens, other state agencies, the State Legislature, resource users, and interested organizations." (Ex. A at 212.) The 1993 Plan gave due weight to the importance of hydropower as one of several competing uses of the Kennebec River. *See id.* at 253 (noting that "[o]ne of the most important historical uses of the Kennebec River has been the generation of electricity through hydropower facilities"). At the end of the extensive interagency process required by Section 407, the 1993 Plan emerged, supporting the continued operation of the four hydropower projects on the lower Kennebec that Brookfield runs today.

After leaving the 1993 Plan untouched for nearly three decades, DMR is now attempting, on its own, a wholesale rewrite that, contrary to the conclusions of the original interagency process, is calling for the demolition and removal of Brookfield's hydropower projects. Specifically, DMR has explained that its Kennebec River Management Plan Diadromous Resources Amendment ("Plan Amendment") "updates the 1993 Kennebec River Resource Management Plan." (Plan Amendment, attached as

Exhibit B, at 1.) The Plan Amendment would make major changes that go well beyond DMR's expertise in marine species. As summarized by DMR:

> this amendment expands the target species to include all of Maine's native diadromous fish; updates descriptions of the physical, biological, and ecological conditions in the watershed; revises goals, objectives, and actions for restoration in the Kennebec River; *provides a rational*[e] *for the decommissioning and removal of dams*; and provides performance standards for target species when available.

Id. at 3 (emphasis added).

DMR's unilateral move to amend the 1993 Plan is timed to coincide with Brookfield's pending application to relicense its Shawmut project before the FERC. Hydropower projects are licensed by FERC, but state agencies have significant input into the FERC licensing process, and DMR is obviously expecting that the Plan Amendment will cause FERC to decommission rather than relicense the Shawmut dam, and then decommission Brookfield's other hydropower projects on the Kennebec as they come up for relicensing in the coming years. Lest there be any doubt, the Plan Amendment expressly declares that DMR intends to "submit this document to the Federal Energy Regulatory Commission (FERC) as a Comprehensive Management Plan Amendment." *Id.* at 11.

DMR is trying to amend the 1993 Plan by rulemaking under the Maine Administrative Procedures Act. Public comment has closed, and DMR could issue a final rule in the form of the Plan Amendment any day now. DMR should not be permitted to do so because it does not have statutory authority to amend the 1993 Plan. As explained below, under 12 M.R.S. § 407 only the Department of Agriculture, Conservation and Forestry may amend the 1993 Plan. Because DMR is acting far outside of its rulemaking authority, further action by DMR on the Plan Amendment should be enjoined.

ARGUMENT

A party seeking a preliminary injunction must demonstrate that (1) it will suffer irreparable injury if the injunction is not granted; (2) such injury outweighs any harm injunctive relief would inflict on the other party; (3) it has a likelihood of success on the merits; and (4) the public interest will not be adversely affected. *Bangor Historic Track, Inc. v. Dep't of Agric., Food & Rural Res.*, 2003 ME 140, ¶ 9, 837 A.2d 129. These criteria "are not to be applied woodenly or in isolation from each other; rather, the court of equity should weigh all of these factors together in determining whether injunctive relief is proper in the specific circumstances of each case." *Dep't of Env't Prot. v. Emerson*, 563 A.2d 762, 768 (Me. 1989). The purpose of granting preliminary injunctive relief is to "preserve the status quo until trial . . . ." *Saga Communications of New England, Inc. v. Voornas*, 2000 ME 156, ¶ 13, 756 A.2d 954 (quotation marks omitted).

A. Brookfield is likely to succeed on the merits.

Brookfield is likely to succeed on the merits of its claim because the Department of Marine Resources does not have authority to amend the 1993 Plan and has therefore exceeded its rulemaking authority by purporting to do so. "If the rule exceeds the rule-making authority of the agency, it is invalid." *Conservation L. Found., Inc. v. Dep't of Env't Prot.*, 2003 ME 62, ¶ 21, 823 A.2d 551; 5 M.R.S. § 8058 ("Judicial review of an agency rule . . . may be had by any person who is aggrieved in an action for declaratory judgment . . . ."). Whether an agency has exceeded its statutory authority "is an issue of statutory interpretation." *Id.* ¶ 23.

DMR is attempting to issue the Plan Amendment under 12 M.R.S. § 6171(2-A), which gives the agency authority to "adopt a management plan or other policy on the conservation or regulation of marine organisms." Section 6171 is in the part of Title 12

specific to "marine resources," defined as "all renewable marine organisms and the entire ecology and habitat supporting those organisms." 12 M.R.S. § 6001(27). Section 6171 empowers DMR to "adopt a management plan or other policy on the conservation or regulation of marine organisms . . . ." Section 6171(2-A) lists six objectives that DMR's "management plan" must seek to accomplish, none of which are concerned with the states' need for hydropower. Five of the six objectives are concerned exclusively with fisheries or the seafood industry; just one of the six encompasses any non-fish related considerations. *See* 12 M.R.S. § 6171(2-A)(A)(5) ("Provide the greatest overall benefit to the State, including biological, economic and social considerations . . . .").

The scope of the Plan Amendment extends far beyond the conservation and regulation of fish. DMR acknowledges this, writing that the Plan Amendment "updates the 1993 Kennebec River Resource Management Plan." (Ex. B at 1.) DMR cannot update the 1993 Plan under 12 M.R.S. § 6171(2-A) because that statute is limited to the regulation of marine organisms. The 1993 Plan was created under a different statute, 12 M.R.S § 407, which does not give DMR the authority to amend or rewrite the 1993 Plan.

It is evident that the 1993 Plan was created under 12 M.R.S. § 407 from the text of the document itself (*see* Ex. A at 7-8) and from DMR's Rulemaking Fact Sheet, filed with the Secretary of State, which cites Section 407 as the statutory authority. *Id.* at 2. Section 407 unambiguously gives the Department of Agriculture, Conservation and Forestry–not DMR–sole authority to create management plans for each watershed in Maine with a hydropower project regulated by the Federal Government:

> **§407. Comprehensive river resource management plans**
> The Department of Agriculture, Conservation and Forestry, with assistance from the Department of Inland Fisheries and Wildlife, the Department of Marine Resources, the Department of Environmental Protection, the Governor's Energy

> Office and other state agencies as needed, shall develop, subject to the Maine Administrative Procedure Act, Title 5, chapter 375, a comprehensive river resource management plan for each watershed with a hydropower project licensed under the Federal Power Act or to be licensed under the Federal Power Act. These plans must provide a basis for state agency comments, recommendations and permitting decisions and at a minimum include, as applicable, minimum flows, impoundment level regimes, upstream and downstream fish passage, maintenance of aquatic habitat and habitat productivity, public access and recreational opportunities. These plans must update, complement and, after public notice, comment and hearings in the watershed, be adopted as components of the State's comprehensive rivers management plan.

Because the 1993 Plan was crafted and issued under Section 407, as required by the Legislature, any effort to further "develop" that plan, through an amendment or wholesale rewrite, must also comply with Section 407. DMR has a specific, defined role in this process, which is to provide "assistance" to the Department of Agriculture, Conservation and Forestry. *See id.* There is no plausible reading of Section 407 that would allow DMR to take the lead in rewriting the 1993 Plan on its own initiative. *See Harrington v. State,* 2014 ME 88, ¶ 5, 96 A.3d 696 ("If the statutory language is clear and unambiguous, we construe the statute in accordance with its plain meaning in the context of the whole statutory scheme").

There are good policy reasons why the Legislature requires management plans for rivers with hydropower projects to be created through the interagency process established by Section 407. No single agency has the mandate or expertise necessary to give due weight to each of the different policy priorities surrounding Maine's rivers and hydropower facilities. The 1993 Plan, "a comprehensive examination by the State of Maine of the various resources and beneficial uses of the Kennebec River" (Ex. A at 211), is the product of a delicate balance that can only be achieved through an interagency process. This comprehensive examination "combine[d] professional judgments by the

State Planning Office . . . with comments and opinions by all elements of the political process, including citizens, other state agencies, the State Legislature, resource users, and interested organizations." *Id.* at 212. In addition to considering the well-being of diadromous fish populations, the 1993 Plan focuses on the many resources and beneficial uses of the Kennebec River, including hydropower generation, water levels and flow regimes, water quality, recreational and scenic resources, and archaeology. *See id.* at 207-08. After weighing all of these factors, the 1993 Plan supported the continued operation of most of the hydropower facilities on the Kennebec, including the four operated by Brookfield today.

Instead of reconvening the interagency process that produced the 1993 Plan as Section 407 requires, DMR has written the Plan Amendment by itself. In doing so, DMR's stated goal has been "to restore Maine's native diadromous fish to their historical habitat" (Ex. B at 2), and this narrow, agency-specific objective is reflected in the substance of the Plan Amendment. The focus of the Plan Amendment on "diadromous fish populations, aquatic resources and the ecosystems on which they depend," and "their intrinsic, ecological, economic, recreational, scientific, and educational values for use by the public," ignores the benefits of hydropower altogether. *Id.* at 39. This near-exclusive orientation toward fish restoration stands in sharp contrast to the 1993 Plan's careful balancing of the many beneficial uses of the Kennebec River. It is no surprise, then, that the Plan Amendment concludes by calling for "the decommissioning and removal of dams" on the Kennebec River. *Id.* at 3.

The Plan Amendment's privileging of fish restoration over all other issues and objectives defies the Legislature's directive that river management plans must strike a "carefully considered and well-reasoned balance among the competing uses of the

state's rivers and streams," including the need to "[i]ncrease the hydroelectric power available to replace foreign oil in the State" and to "[s]treamline procedures to facilitate hydropower development under reasoned environmental, technical and public safety constraints." 12 M.R.S. § 402 (declaring the State's official policy for Maine's rivers). *See also Conservation L. Found. Inc.*, 2003 ME 62, ¶ 23, 823 A.2d 551 ("[a] particular statute is not reviewed in isolation but in the context of the statutory and regulatory scheme"). DMR does not have the expertise to strike this careful and well-reasoned balance—which is why Section 407 requires an interagency process. With no expertise in energy policy, DMR failed to account for the importance of hydropower as a local energy source that reduces Maine's carbon footprint. It therefore ignored not just the procedural requirements of Section 407, but also the Legislature's directive to prioritize hydropower in Maine. *See, e.g.*, 12 M.R.S. § 402; 38 M.R.S. § 631 ("[H]ydropower development utilizing [Maine's] waters is unique in its benefits and impacts to the natural environment, and makes a significant contribution to the general welfare of the citizens of the State.").

DMR does not have unilateral authority to change the 1993 Plan; that requires an interagency process led by the Department of Agriculture, Conservation and Forestry. *See* 12 M.R.S. § 407. DMR's decision that Brookfield's dams on the Kennebec should be demolished and removed fails to give due weight to the importance of hydropower in Maine, which (as just explained) is not surprising given that DMR's mandate is to promote the well-being of marine species, not energy production or the reduction of greenhouse gas emissions. Because DMR exceeded its statutory authority and ignored the Legislature's repeated mandate to prioritize hydropower in Maine, the Plan

Amendment will be invalid as a matter of law. *See* 5 M.R.S. § 8058. Brookfield is therefore likely to prevail on the merits of its claims.

B. Brookfield will be irreparably harmed absent a preliminary injunction.

Brookfield will be irreparably harmed if DMR is permitted to finalize the Plan Amendment, which it had no authority to develop in the first place, and file it with FERC. Because DMR has exceeded its rulemaking authority as a matter of law, the irreparable harm to Brookfield if this illegal Plan Amendment were filed with FERC should be more than enough to justify a preliminary injunction. *See Emerson*, 563 A.2d at 768 (stating that "greater certainty of victory should result in a less stringent requirement of proof of irreparable injury").

DMR's efforts to rewrite the 1993 Plan are timed to coincide with the expiration this year of the FERC license that permits Brookfield to operate the Shawmut dam. FERC is currently in the process of deciding whether to relicense the Shawmut dam for continued operations as a hydropower facility. (*See* FERC Docket No. 2322-060 ME.) DMR acknowledges that the Plan Amendment is intended to influence FERC to decommission or order the removal of the Shawmut dam—the Plan Amendment expressly provides that "MDMR will submit this document to . . . FERC as a Comprehensive Management Plan Amendment," and that in DMR's view the Plan Amendment "provides a rationale for the decommissioning and removal of dams . . . ." (Ex. B at 3.)

Under federal law, in deciding whether to issue a license FERC "will consider the extent to which the project is consistent with a comprehensive plan (where one exists) for improving, developing, or conserving a waterway or waterways affected by the

project that is prepared by— . . . the State in which the facility is . . . located," 16 U.S.C. 803(a)(2)(A), if that plan "[i]s filed with the Secretary of the Commission," 18 C.F.R. § 2.19, as DMR indicates it will do once the Plan Amendment becomes final. Once DMR files the Plan Amendment, FERC will be required to take notice that it is squarely at odds with Brookfield's application to relicense the Shawmut project. This could have irreversible adverse consequences for Brookfield—most obviously the denial of its relicensing application, the outcome the Plan Amendment invites FERC to land on. The harm the submission of the Plan Amendment to FERC inflicts on Brookfield will be irreparable because FERC is in no position to adjudicate the procedural issues with the Plan Amendment under Maine law.

Even before FERC decides whether and on what conditions to renew the Shawmut license, Brookfield will be irreparably harmed by having the unlawful Plan Amendment introduced into the FERC proceeding. Once DMR files the Plan Amendment with FERC, it will factor into the decision on the Shawmut license, *see* 16 U.S.C. 803(a)(2)(A)—but because FERC is obviously not in a position to decide whether the Plan Amendment is valid under Maine law, Brookfield will have no way of stopping FERC from considering it in the licensing decision and will be forced to argue the merits of the illegally adopted Plan before FERC. Brookfield should not be put in the position of being forced to challenge before FERC the validity of a purported state comprehensive plan that is in fact invalid under state law. That is why, if the Court does not enjoin DMR from finalizing the Plan Amendment while this litigation is pending, it should, at a minimum, order that DMR not file the Plan Amendment with FERC, thereby preventing the most immediate and direct irreparable injury the Plan Amendment is expected to cause. Given that DMR's intention to file the Plan Amendment with FERC is clear,

Brookfield has filed this action now to avoid having to seek even more urgent relief from the Court in the near future.

The Plan Amendment will also impact Brookfield's related application for Water Quality Certification for the Shawmut dam that is now pending before the DEP. If the Plan Amendment is finalized in its current form, it is expected that the DEP will use it either to deny the application for Water Quality Certification outright or to attach onerous conditions to the certification that make operating the Shawmut dam impractical or impossible. The upshot would be that FERC would either decline to issue a license, or it would be forced to impose the conditions included in the Water Quality Certification that could not realistically be met by Brookfield.

"[P]roof of irreparable injury is a prerequisite to the granting of injunctive relief." *Town of Charleston v. Sch. Admin. Dist. No. 68*, 2002 ME 95, ¶ 6, 798 A.2d 1102 (quotation marks omitted). "Irreparable injury is defined as injury for which there is no adequate remedy at law." *Id.* (quotation marks omitted). Because the Plan Amendment, by its own description, "provides a rationale for the decommissioning and removal of dams" on the Kennebec River (Ex. B at 3), if the Plan Amendment is finalized and then filed with FERC, and is used by the DEP in its Water Quality Certification process, the probable result will be that FERC either denies Brookfield's relicensing application or renews the license with conditions that are materially more onerous than they otherwise would be, perhaps so onerous as to force Brookfield to shut down the facility. Either way, the harm to Brookfield would be irreparable: even if the company ends up prevailing on its claim that the Plan Amendment is unlawful, it would have no recourse at that point for the wrongful denial of its license or inclusion of excessively burdensome conditions. Nor should Brookfield be required to participate in a relicensing proceeding

before FERC under the shadow of an unlawful state comprehensive plan, a situation that would cause the company an injury for which there is no adequate remedy.

If FERC denies Brookfield's application to renew the Shawmut license, Brookfield could appeal that decision to the First Circuit or the D.C. Circuit, *see* 16 U.S.C. § 825l(b), but that would not be an adequate remedy, because the appellate court "review[s] the Commission's licensing decisions . . . under a deferential standard and will set aside FERC's orders only if they are arbitrary and capricious." *Duncan's Point Lot Owners Ass'n Inc. v. F.E.R.C.*, 522 F.3d 371, 375 (D.C. Cir. 2008) ("We will uphold FERC's factual findings if they are supported by substantial evidence.") (quotation marks omitted); *see also United States Dep't of the Interior v. Fed. Energy Regul. Comm'n*, 876 F.3d 360, 364 (1st Cir. 2015) ("[W]e will only reverse [a FERC] order if it is arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.") (quotation marks omitted). Because FERC's licensing proceedings are complex and its decisions are based on multiple factors, even if this Court were later to rule that the Plan Amendment was unlawful, Brookfield would be hard pressed to unwind the FERC proceeding and demonstrate on appeal that FERC's consideration of the Plan Amendment, or DEP's use of the Plan Amendment in its Water Quality Certification, made the licensing decision arbitrary and capricious. The harm caused by the Plan Amendment would therefore be irreparable. Because Brookfield would not have an adequate remedy if FERC denied its license application based on a state rule that this Court later held to be invalid, the irreparable harm requirement for a preliminary injunction is met.

C. The balance of harms favors a preliminary injunction over permitting an unlawful rulemaking to continue.

In contrast to the irreparable injury Brookfield seeks to avoid, DMR would not sustain significant harm if this Court puts its illegitimate rulemaking on hold or enjoins DMR from filing its Plan Amendment with FERC. That is because DMR has no legitimate interest in acting beyond the scope of its legal authority or in disseminating the product of its unlawful proceeding to other agencies. If Brookfield does not ultimately prevail on the merits of its claim, DMR can then finalize its rule, with the injury to DMR limited to the delay required to first determine whether it is acting within its authority. That is not an unreasonable burden to impose on DMR, especially given the fact that the 1993 Plan has been in place for nearly 30 years. Having made the decision simply to ignore the statute that appears to govern what it is doing (Section 407) and instead, without any explanation, to conduct a rulemaking under a statute that does not (Section 6171), DMR is in no position to complain if the Court orders it to stand down until what should have been addressed as a threshold question is resolved.

D. The public interest requires DMR to follow Maine law.

The public interest also weighs in favor of injunctive relief. Climate change threatens (among other things) the future of the natural resources DMR is charged with protecting, and Maine law recognizes that hydroelectric generation is one of the keys to transitioning away from fossil fuels. *See, e.g.,* 12 M.R.S. § 402; 38 M.R.S. § 631. It would not advance the public interest to let DMR finalize its Plan Amendment and file it with FERC, or for DEP to use the DMR rule to make its Water Quality Certification decision—despite the fundamental procedural error DMR has made—given that the probable result would be the loss of a major source of renewable energy generation in Maine.

Instead, this Court should rule on the merits of Brookfield's argument that Section 407 controls *before* FERC or DEP make any decisions based on a purported amendment to the 1993 Plan that in fact has no legal force. Because the Plan Amendment would have major impacts on the communities where Brookfield operates its hydroelectric generation assets, impacts which Section 407 requires to be carefully considered, and Brookfield's operations on the Kennebec River are in fact compatible with the other beneficial uses that DMR is concerned about, the public interest lies in ensuring that the law has been followed before steps are taken that cannot be undone.

E. Security should not be required.

The Court should not require security in this case because the DMR will not incur any monetary damages if it is not permitted to finalize and disseminate a rule it had no authority to develop in the first place. *See University of Maine Sys. V. East*, 1994 Me. Super. LEXIS 85, *15 (Me. Super. Ct. Mar. 9, 1994) (good cause for waiving requirement of security where defendant unlikely to incur damages); M.R. Civ. P. 65(c) ("for good cause shown and recited in the order, the court may waive the giving of security").

CONCLUSION

Because DMR's rulemaking process is unlawful, the Court should enjoin the agency from finalizing the Plan Amendment, or, at a minimum, enjoin DMR from filing the Plan Amendment with FERC.

March 30, 2021

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STATE OF MAINE
KENNEBEC, ss.

SUPERIOR COURT
CIVIL ACTION
DOCKET NO. _____

Brookfield Power US Holding America Co.; The Merimil Limited Partnership; Hydro Kennebec LLC; and Brookfield White Pine Hydro LLC,

Plaintiffs,

v.

Maine Department of Marine Resources; and Patrick Keliher, in his official capacity as Commissioner of Maine Department of Marine Resources,

Defendants.

ORDER GRANTING PRELIMINARY INJUNCTION

The Motion for a Preliminary Injunction filed by Plaintiffs (collectively, "Brookfield") is GRANTED for the following reasons:

The Court finds that Brookfield is likely to prevail on the merits of its claim. "If the rule exceeds the rule-making authority of the agency, it is invalid." *Conservation L. Found., Inc. v. Dep't of Env't Prot.*, 2003 ME 62, ¶ 21, 823 A.2d 551; 5 M.R.S. § 8058 ("Judicial review of an agency rule . . . may be had by any person who is aggrieved in an action for declaratory judgment . . . ."). Brookfield has demonstrated that the Maine Department of Marine Resources ("DMR") does not have statutory authority to amend the 1993 Kennebec River Resource Management Plan and has therefore exceeded its rulemaking authority by purporting to do so. Changes to a comprehensive river resources management plan must be made under 12 M.R.S. § 407, and DMR has not complied with Section 407's requirements.

The Court finds that Brookfield will be irreparably harmed if an injunction is not issued because DMR's proposed rule (the "Plan Amendment") will be filed with the Federal Energy Regulatory Commission ("FERC") as a comprehensive plan and will harm Brookfield's pending effort to relicense its Shawmut dam. If the Plan Amendment is finalized and then filed with FERC, the probable result will be that FERC will rely on an invalid rule to deny Brookfield's relicensing application. Even before FERC decides whether and on what conditions to renew the Shawmut license, Brookfield will be irreparably harmed by having the unlawful Plan Amendment introduced into the FERC proceeding. The Plan Amendment will also cause irreparable harm by impacting Brookfield's application for Water Quality Certification for the Shawmut dam that is now pending before the Maine Department of Environmental Protection.

The Court also finds that Brookfield's injuries in the absence of an injunction outweigh any harm to DMR if a preliminary injunction is granted, and that an injunction is supported by the public interest in preventing the unwarranted loss of a major source of renewable energy generation in Maine.

DMR is hereby enjoined from finalizing its proposed amendment to the 1993 Kennebec River Resource Management Plan pending the outcome of this litigation.

SO ORDERED.

Dated:_____

_____
Justice, Superior Court

STATE OF MAINE
KENNEBEC, ss.

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Plaintiffs,

v.

Maine Department of Marine Resources; and Patrick Keliher, in his official capacity as Commissioner of Maine Department of Marine Resources,

Defendants.

MOTION FOR PRELIMINARY INJUNCTION

Plaintiffs (collectively "Brookfield") move for a preliminary injunction to prevent the Department of Marine Resources ("DMR") and Commissioner Keliher from finalizing the amendment to the Kennebec River Resource Management Plan that is currently in rulemaking. Brookfield is moving for an injunction now, before the rule is enacted, because DMR does not have statutory authority to amend the Kennebec River Resource Management Plan, and Brookfield will be irreparably harmed if the amendment takes effect and is filed with the Federal Energy Regulatory Commission ("FERC").

BACKGROUND

For more than 40 years, increased production of hydropower has been one of Maine's key policy goals with respect to its rivers and streams. The Legislature has declared, for example, that "[h]ydropower is the state's only economically feasible, large-scale energy resource which does not rely on combustion of a fuel, thereby

avoiding air pollution," and that it "can be developed at many sites with minimal environmental impacts, especially at sites with existing dams . . . ." 38 M.R.S. § 631(1)(C).

Brookfield operates renewable energy projects in Maine that reduce the State's reliance on fossil fuels, including four hydroelectric projects on the lower Kennebec River—the Lockwood dam, the Hydro-Kennebec dam, the Shawmut dam, and the Weston dam. (Affidavit of Thomas Uncher, attached as Exhibit C, ¶ 3.) Combined, these four hydroelectric projects generate more than 250 million kw/h of carbon-free, renewable energy annually for the State of Maine. *Id.* ¶ 4. For years the State has supported and encouraged these projects because they help reduce Maine's carbon footprint and combat climate change. But now DMR , in a formal rulemaking process that is very near completion, is calling for their demolition and removal.

DMR's attempt to remove Brookfield's hydropower projects on the lower Kennebec by rulemaking is unlawful, because it ignores state law requiring a process very different than the one DMR has conducted. In 1988, to promote and manage the State's hydropower resources, the Legislature enacted 12 M.R.S. § 407, requiring the now-defunct State Planning Office to lead a multi-agency effort to develop comprehensive river resource management plans for each watershed in Maine with a federally-licensed hydropower project.[1] Section 407 requires an interagency process because no single agency has the expertise to balance the different public interests in Maine's rivers and streams, including hydropower, fish passage, and recreation. The plans created under Section 407 are important both as official statements of State policy

[1] Section 407 has since been amended to require the Department of Agriculture, Conservation and Forestry to lead the process to develop comprehensive river resource management plans.

and as documents that will guide other agencies, including the Maine Department of Environmental Protection and FERC, when permitting hydropower projects. *See* 12 M.R.S. § 407.

In response to the Legislature's mandate in Section 407, in 1993 the State developed the Kennebec River Resource Management Plan (the "1993 Plan," attached as Exhibit A). The 1993 Plan was, as required by Section 407, the product of an extensive interagency process that was "intended to combine professional judgments by the State Planning Office, the state agency charged with comprehensive watershed planning, with comments and opinions by all elements of the political process, including citizens, other state agencies, the State Legislature, resource users, and interested organizations." (Ex. A at 212.) The 1993 Plan gave due weight to the importance of hydropower as one of several competing uses of the Kennebec River. *See id.* at 253 (noting that "[o]ne of the most important historical uses of the Kennebec River has been the generation of electricity through hydropower facilities"). At the end of the extensive interagency process required by Section 407, the 1993 Plan emerged, supporting the continued operation of the four hydropower projects on the lower Kennebec that Brookfield runs today.

After leaving the 1993 Plan untouched for nearly three decades, DMR is now attempting, on its own, a wholesale rewrite that, contrary to the conclusions of the original interagency process, is calling for the demolition and removal of Brookfield's hydropower projects. Specifically, DMR has explained that its Kennebec River Management Plan Diadromous Resources Amendment ("Plan Amendment") "updates the 1993 Kennebec River Resource Management Plan." (Plan Amendment, attached as

Exhibit B, at 1.) The Plan Amendment would make major changes that go well beyond DMR's expertise in marine species. As summarized by DMR:

> this amendment expands the target species to include all of Maine's native diadromous fish; updates descriptions of the physical, biological, and ecological conditions in the watershed; revises goals, objectives, and actions for restoration in the Kennebec River; *provides a rational*[e] *for the decommissioning and removal of dams*; and provides performance standards for target species when available.

Id. at 3 (emphasis added).

DMR's unilateral move to amend the 1993 Plan is timed to coincide with Brookfield's pending application to relicense its Shawmut project before the FERC. Hydropower projects are licensed by FERC, but state agencies have significant input into the FERC licensing process, and DMR is obviously expecting that the Plan Amendment will cause FERC to decommission rather than relicense the Shawmut dam, and then decommission Brookfield's other hydropower projects on the Kennebec as they come up for relicensing in the coming years. Lest there be any doubt, the Plan Amendment expressly declares that DMR intends to "submit this document to the Federal Energy Regulatory Commission (FERC) as a Comprehensive Management Plan Amendment." *Id.* at 11.

DMR is trying to amend the 1993 Plan by rulemaking under the Maine Administrative Procedures Act. Public comment has closed, and DMR could issue a final rule in the form of the Plan Amendment any day now. DMR should not be permitted to do so because it does not have statutory authority to amend the 1993 Plan. As explained below, under 12 M.R.S. § 407 only the Department of Agriculture, Conservation and Forestry may amend the 1993 Plan. Because DMR is acting far outside of its rulemaking authority, further action by DMR on the Plan Amendment should be enjoined.

ARGUMENT

A party seeking a preliminary injunction must demonstrate that (1) it will suffer irreparable injury if the injunction is not granted; (2) such injury outweighs any harm injunctive relief would inflict on the other party; (3) it has a likelihood of success on the merits; and (4) the public interest will not be adversely affected. *Bangor Historic Track, Inc. v. Dep't of Agric., Food & Rural Res.*, 2003 ME 140, ¶ 9, 837 A.2d 129. These criteria "are not to be applied woodenly or in isolation from each other; rather, the court of equity should weigh all of these factors together in determining whether injunctive relief is proper in the specific circumstances of each case." *Dep't of Env't Prot. v. Emerson*, 563 A.2d 762, 768 (Me. 1989). The purpose of granting preliminary injunctive relief is to "preserve the status quo until trial . . . ." *Saga Communications of New England, Inc. v. Voornas*, 2000 ME 156, ¶ 13, 756 A.2d 954 (quotation marks omitted).

A. Brookfield is likely to succeed on the merits.

Brookfield is likely to succeed on the merits of its claim because the Department of Marine Resources does not have authority to amend the 1993 Plan and has therefore exceeded its rulemaking authority by purporting to do so. "If the rule exceeds the rule-making authority of the agency, it is invalid." *Conservation L. Found., Inc. v. Dep't of Env't Prot.*, 2003 ME 62, ¶ 21, 823 A.2d 551; 5 M.R.S. § 8058 ("Judicial review of an agency rule . . . may be had by any person who is aggrieved in an action for declaratory judgment . . . ."). Whether an agency has exceeded its statutory authority "is an issue of statutory interpretation." *Id.* ¶ 23.

DMR is attempting to issue the Plan Amendment under 12 M.R.S. § 6171(2-A), which gives the agency authority to "adopt a management plan or other policy on the conservation or regulation of marine organisms." Section 6171 is in the part of Title 12

specific to "marine resources," defined as "all renewable marine organisms and the entire ecology and habitat supporting those organisms." 12 M.R.S. § 6001(27). Section 6171 empowers DMR to "adopt a management plan or other policy on the conservation or regulation of marine organisms . . . ." Section 6171(2-A) lists six objectives that DMR's "management plan" must seek to accomplish, none of which are concerned with the states' need for hydropower. Five of the six objectives are concerned exclusively with fisheries or the seafood industry; just one of the six encompasses any non-fish related considerations. *See* 12 M.R.S. § 6171(2-A)(A)(5) ("Provide the greatest overall benefit to the State, including biological, economic and social considerations . . . .").

The scope of the Plan Amendment extends far beyond the conservation and regulation of fish. DMR acknowledges this, writing that the Plan Amendment "updates the 1993 Kennebec River Resource Management Plan." (Ex. B at 1.) DMR cannot update the 1993 Plan under 12 M.R.S. § 6171(2-A) because that statute is limited to the regulation of marine organisms. The 1993 Plan was created under a different statute, 12 M.R.S § 407, which does not give DMR the authority to amend or rewrite the 1993 Plan.

It is evident that the 1993 Plan was created under 12 M.R.S. § 407 from the text of the document itself (*see* Ex. A at 7-8) and from DMR's Rulemaking Fact Sheet, filed with the Secretary of State, which cites Section 407 as the statutory authority. *Id.* at 2. Section 407 unambiguously gives the Department of Agriculture, Conservation and Forestry–not DMR–sole authority to create management plans for each watershed in Maine with a hydropower project regulated by the Federal Government:

> **§407. Comprehensive river resource management plans**
> The Department of Agriculture, Conservation and Forestry, with assistance from the Department of Inland Fisheries and Wildlife, the Department of Marine Resources, the Department of Environmental Protection, the Governor's Energy

> Office and other state agencies as needed, shall develop, subject to the Maine Administrative Procedure Act, Title 5, chapter 375, a comprehensive river resource management plan for each watershed with a hydropower project licensed under the Federal Power Act or to be licensed under the Federal Power Act. These plans must provide a basis for state agency comments, recommendations and permitting decisions and at a minimum include, as applicable, minimum flows, impoundment level regimes, upstream and downstream fish passage, maintenance of aquatic habitat and habitat productivity, public access and recreational opportunities. These plans must update, complement and, after public notice, comment and hearings in the watershed, be adopted as components of the State's comprehensive rivers management plan.

Because the 1993 Plan was crafted and issued under Section 407, as required by the Legislature, any effort to further "develop" that plan, through an amendment or wholesale rewrite, must also comply with Section 407. DMR has a specific, defined role in this process, which is to provide "assistance" to the Department of Agriculture, Conservation and Forestry. *See id.* There is no plausible reading of Section 407 that would allow DMR to take the lead in rewriting the 1993 Plan on its own initiative. *See Harrington v. State,* 2014 ME 88, ¶ 5, 96 A.3d 696 ("If the statutory language is clear and unambiguous, we construe the statute in accordance with its plain meaning in the context of the whole statutory scheme").

There are good policy reasons why the Legislature requires management plans for rivers with hydropower projects to be created through the interagency process established by Section 407. No single agency has the mandate or expertise necessary to give due weight to each of the different policy priorities surrounding Maine's rivers and hydropower facilities. The 1993 Plan, "a comprehensive examination by the State of Maine of the various resources and beneficial uses of the Kennebec River" (Ex. A at 211), is the product of a delicate balance that can only be achieved through an interagency process. This comprehensive examination "combine[d] professional judgments by the

State Planning Office . . . with comments and opinions by all elements of the political process, including citizens, other state agencies, the State Legislature, resource users, and interested organizations." *Id.* at 212. In addition to considering the well-being of diadromous fish populations, the 1993 Plan focuses on the many resources and beneficial uses of the Kennebec River, including hydropower generation, water levels and flow regimes, water quality, recreational and scenic resources, and archaeology. *See id.* at 207-08. After weighing all of these factors, the 1993 Plan supported the continued operation of most of the hydropower facilities on the Kennebec, including the four operated by Brookfield today.

Instead of reconvening the interagency process that produced the 1993 Plan as Section 407 requires, DMR has written the Plan Amendment by itself. In doing so, DMR's stated goal has been "to restore Maine's native diadromous fish to their historical habitat" (Ex. B at 2), and this narrow, agency-specific objective is reflected in the substance of the Plan Amendment. The focus of the Plan Amendment on "diadromous fish populations, aquatic resources and the ecosystems on which they depend," and "their intrinsic, ecological, economic, recreational, scientific, and educational values for use by the public," ignores the benefits of hydropower altogether. *Id.* at 39. This near-exclusive orientation toward fish restoration stands in sharp contrast to the 1993 Plan's careful balancing of the many beneficial uses of the Kennebec River. It is no surprise, then, that the Plan Amendment concludes by calling for "the decommissioning and removal of dams" on the Kennebec River. *Id.* at 3.

The Plan Amendment's privileging of fish restoration over all other issues and objectives defies the Legislature's directive that river management plans must strike a "carefully considered and well-reasoned balance among the competing uses of the

state's rivers and streams," including the need to "[i]ncrease the hydroelectric power available to replace foreign oil in the State" and to "[s]treamline procedures to facilitate hydropower development under reasoned environmental, technical and public safety constraints." 12 M.R.S. § 402 (declaring the State's official policy for Maine's rivers). *See also Conservation L. Found. Inc.*, 2003 ME 62, ¶ 23, 823 A.2d 551 ("[a] particular statute is not reviewed in isolation but in the context of the statutory and regulatory scheme"). DMR does not have the expertise to strike this careful and well-reasoned balance—which is why Section 407 requires an interagency process. With no expertise in energy policy, DMR failed to account for the importance of hydropower as a local energy source that reduces Maine's carbon footprint. It therefore ignored not just the procedural requirements of Section 407, but also the Legislature's directive to prioritize hydropower in Maine. *See, e.g.*, 12 M.R.S. § 402; 38 M.R.S. § 631 ("[H]ydropower development utilizing [Maine's] waters is unique in its benefits and impacts to the natural environment, and makes a significant contribution to the general welfare of the citizens of the State.").

DMR does not have unilateral authority to change the 1993 Plan; that requires an interagency process led by the Department of Agriculture, Conservation and Forestry. *See* 12 M.R.S. § 407. DMR's decision that Brookfield's dams on the Kennebec should be demolished and removed fails to give due weight to the importance of hydropower in Maine, which (as just explained) is not surprising given that DMR's mandate is to promote the well-being of marine species, not energy production or the reduction of greenhouse gas emissions. Because DMR exceeded its statutory authority and ignored the Legislature's repeated mandate to prioritize hydropower in Maine, the Plan

Amendment will be invalid as a matter of law. *See* 5 M.R.S. § 8058. Brookfield is therefore likely to prevail on the merits of its claims.

B. Brookfield will be irreparably harmed absent a preliminary injunction.

Brookfield will be irreparably harmed if DMR is permitted to finalize the Plan Amendment, which it had no authority to develop in the first place, and file it with FERC. Because DMR has exceeded its rulemaking authority as a matter of law, the irreparable harm to Brookfield if this illegal Plan Amendment were filed with FERC should be more than enough to justify a preliminary injunction. *See Emerson*, 563 A.2d at 768 (stating that "greater certainty of victory should result in a less stringent requirement of proof of irreparable injury").

DMR's efforts to rewrite the 1993 Plan are timed to coincide with the expiration this year of the FERC license that permits Brookfield to operate the Shawmut dam. FERC is currently in the process of deciding whether to relicense the Shawmut dam for continued operations as a hydropower facility. (*See* FERC Docket No. 2322-060 ME.) DMR acknowledges that the Plan Amendment is intended to influence FERC to decommission or order the removal of the Shawmut dam—the Plan Amendment expressly provides that "MDMR will submit this document to . . . FERC as a Comprehensive Management Plan Amendment," and that in DMR's view the Plan Amendment "provides a rationale for the decommissioning and removal of dams . . . ." (Ex. B at 3.)

Under federal law, in deciding whether to issue a license FERC "will consider the extent to which the project is consistent with a comprehensive plan (where one exists) for improving, developing, or conserving a waterway or waterways affected by the

project that is prepared by— . . . the State in which the facility is . . . located," 16 U.S.C. 803(a)(2)(A), if that plan "[i]s filed with the Secretary of the Commission," 18 C.F.R. § 2.19, as DMR indicates it will do once the Plan Amendment becomes final. Once DMR files the Plan Amendment, FERC will be required to take notice that it is squarely at odds with Brookfield's application to relicense the Shawmut project. This could have irreversible adverse consequences for Brookfield—most obviously the denial of its relicensing application, the outcome the Plan Amendment invites FERC to land on. The harm the submission of the Plan Amendment to FERC inflicts on Brookfield will be irreparable because FERC is in no position to adjudicate the procedural issues with the Plan Amendment under Maine law.

Even before FERC decides whether and on what conditions to renew the Shawmut license, Brookfield will be irreparably harmed by having the unlawful Plan Amendment introduced into the FERC proceeding. Once DMR files the Plan Amendment with FERC, it will factor into the decision on the Shawmut license, *see* 16 U.S.C. 803(a)(2)(A)—but because FERC is obviously not in a position to decide whether the Plan Amendment is valid under Maine law, Brookfield will have no way of stopping FERC from considering it in the licensing decision and will be forced to argue the merits of the illegally adopted Plan before FERC. Brookfield should not be put in the position of being forced to challenge before FERC the validity of a purported state comprehensive plan that is in fact invalid under state law. That is why, if the Court does not enjoin DMR from finalizing the Plan Amendment while this litigation is pending, it should, at a minimum, order that DMR not file the Plan Amendment with FERC, thereby preventing the most immediate and direct irreparable injury the Plan Amendment is expected to cause. Given that DMR's intention to file the Plan Amendment with FERC is clear,

Brookfield has filed this action now to avoid having to seek even more urgent relief from the Court in the near future.

The Plan Amendment will also impact Brookfield's related application for Water Quality Certification for the Shawmut dam that is now pending before the DEP. If the Plan Amendment is finalized in its current form, it is expected that the DEP will use it either to deny the application for Water Quality Certification outright or to attach onerous conditions to the certification that make operating the Shawmut dam impractical or impossible. The upshot would be that FERC would either decline to issue a license, or it would be forced to impose the conditions included in the Water Quality Certification that could not realistically be met by Brookfield.

"[P]roof of irreparable injury is a prerequisite to the granting of injunctive relief." *Town of Charleston v. Sch. Admin. Dist. No. 68*, 2002 ME 95, ¶ 6, 798 A.2d 1102 (quotation marks omitted). "Irreparable injury is defined as injury for which there is no adequate remedy at law." *Id.* (quotation marks omitted). Because the Plan Amendment, by its own description, "provides a rationale for the decommissioning and removal of dams" on the Kennebec River (Ex. B at 3), if the Plan Amendment is finalized and then filed with FERC, and is used by the DEP in its Water Quality Certification process, the probable result will be that FERC either denies Brookfield's relicensing application or renews the license with conditions that are materially more onerous than they otherwise would be, perhaps so onerous as to force Brookfield to shut down the facility. Either way, the harm to Brookfield would be irreparable: even if the company ends up prevailing on its claim that the Plan Amendment is unlawful, it would have no recourse at that point for the wrongful denial of its license or inclusion of excessively burdensome conditions. Nor should Brookfield be required to participate in a relicensing proceeding

before FERC under the shadow of an unlawful state comprehensive plan, a situation that would cause the company an injury for which there is no adequate remedy.

If FERC denies Brookfield's application to renew the Shawmut license, Brookfield could appeal that decision to the First Circuit or the D.C. Circuit, *see* 16 U.S.C. § 825l(b), but that would not be an adequate remedy, because the appellate court "review[s] the Commission's licensing decisions . . . under a deferential standard and will set aside FERC's orders only if they are arbitrary and capricious." *Duncan's Point Lot Owners Ass'n Inc. v. F.E.R.C.*, 522 F.3d 371, 375 (D.C. Cir. 2008) ("We will uphold FERC's factual findings if they are supported by substantial evidence.") (quotation marks omitted); *see also United States Dep't of the Interior v. Fed. Energy Regul. Comm'n*, 876 F.3d 360, 364 (1st Cir. 2015) ("[W]e will only reverse [a FERC] order if it is arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.") (quotation marks omitted). Because FERC's licensing proceedings are complex and its decisions are based on multiple factors, even if this Court were later to rule that the Plan Amendment was unlawful, Brookfield would be hard pressed to unwind the FERC proceeding and demonstrate on appeal that FERC's consideration of the Plan Amendment, or DEP's use of the Plan Amendment in its Water Quality Certification, made the licensing decision arbitrary and capricious. The harm caused by the Plan Amendment would therefore be irreparable. Because Brookfield would not have an adequate remedy if FERC denied its license application based on a state rule that this Court later held to be invalid, the irreparable harm requirement for a preliminary injunction is met.

C. The balance of harms favors a preliminary injunction over permitting an unlawful rulemaking to continue.

In contrast to the irreparable injury Brookfield seeks to avoid, DMR would not sustain significant harm if this Court puts its illegitimate rulemaking on hold or enjoins DMR from filing its Plan Amendment with FERC. That is because DMR has no legitimate interest in acting beyond the scope of its legal authority or in disseminating the product of its unlawful proceeding to other agencies. If Brookfield does not ultimately prevail on the merits of its claim, DMR can then finalize its rule, with the injury to DMR limited to the delay required to first determine whether it is acting within its authority. That is not an unreasonable burden to impose on DMR, especially given the fact that the 1993 Plan has been in place for nearly 30 years. Having made the decision simply to ignore the statute that appears to govern what it is doing (Section 407) and instead, without any explanation, to conduct a rulemaking under a statute that does not (Section 6171), DMR is in no position to complain if the Court orders it to stand down until what should have been addressed as a threshold question is resolved.

D. The public interest requires DMR to follow Maine law.

The public interest also weighs in favor of injunctive relief. Climate change threatens (among other things) the future of the natural resources DMR is charged with protecting, and Maine law recognizes that hydroelectric generation is one of the keys to transitioning away from fossil fuels. *See, e.g.,* 12 M.R.S. § 402; 38 M.R.S. § 631. It would not advance the public interest to let DMR finalize its Plan Amendment and file it with FERC, or for DEP to use the DMR rule to make its Water Quality Certification decision—despite the fundamental procedural error DMR has made—given that the probable result would be the loss of a major source of renewable energy generation in Maine.

Instead, this Court should rule on the merits of Brookfield's argument that Section 407 controls *before* FERC or DEP make any decisions based on a purported amendment to the 1993 Plan that in fact has no legal force. Because the Plan Amendment would have major impacts on the communities where Brookfield operates its hydroelectric generation assets, impacts which Section 407 requires to be carefully considered, and Brookfield's operations on the Kennebec River are in fact compatible with the other beneficial uses that DMR is concerned about, the public interest lies in ensuring that the law has been followed before steps are taken that cannot be undone.

E. Security should not be required.

The Court should not require security in this case because the DMR will not incur any monetary damages if it is not permitted to finalize and disseminate a rule it had no authority to develop in the first place. *See University of Maine Sys. V. East*, 1994 Me. Super. LEXIS 85, *15 (Me. Super. Ct. Mar. 9, 1994) (good cause for waiving requirement of security where defendant unlikely to incur damages); M.R. Civ. P. 65(c) ("for good cause shown and recited in the order, the court may waive the giving of security").

CONCLUSION

Because DMR's rulemaking process is unlawful, the Court should enjoin the agency from finalizing the Plan Amendment, or, at a minimum, enjoin DMR from filing the Plan Amendment with FERC.

March 30, 2021

Matthew S. Warner

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April 2, 2021

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

Subject: **Kennebec River Resource Management Plan**
Shawmut (FERC No. P-2322)
Hydro-Kennebec (FERC No. 2611)
Weston (FERC No. 2325)
Lockwood (FERC No. 2574)

Dear Secretary Bose:

On behalf of the following four hydroelectric projects located on the lower Kennebec River in Maine, all of which are licensed by the Commission: (i) Lockwood, licensed to The Merimil Limited Partnership ("Merimil"); (ii) Hydro-Kennebec, licensed to Hydro-Kennebec LLC ("HKLLC"); (iii) Shawmut, licensed to Brookfield White Pine Hydro LLC ("BWPH"); and (iv) Weston, also licensed to BWPH (each of Merimil, HKLLC and BWPH, a "Licensee"), Brookfield herein files important informational material into the record for each of the aforementioned projects.[1]

In February 1993 the Maine State Planning Office submitted to the Commission the *Kennebec River Resource Management Plan: Balancing Hydropower Generation and Other Uses* ("1993 Kennebec Plan") as a comprehensive management plan under Section 10(a)(2)(A) of the Federal Power Act (FPA), 16 U.S.C. section 803 (a)(2)(A). This document was the cumulation of an intensive interagency process that "entailed establishment of consensus among several professional analysts, scientists and policy development specialists for any one of the many complex issues addressed by the Plan." The Kennebec Plan was subsequently accepted and remains on the Commission's current *List of Comprehensive Plans* (July 2020).

On January 31, 2020, BWPH filed an Application for New License for Major Project – Existing Dam ("FLA") for the Shawmut Hydroelectric Project (FERC No. 2322). On August 28, 2020, the Maine Department of Marine Resources ("MDMR") filed comments and preliminary terms and conditions under Sections 10(a) and 10(j) of the Federal Power Act. In these comments, the MDMR noted that it was "in the process of developing an amendment to the 1993 Kennebec Management Plan to submit to FERC as a comprehensive plan that will include dam decommissioning and removal." BWPH filed a detailed response to the MDMR's comments on October 14, 2020.

[1] Through its subsidiaries, Brookfield Power US Holding America Co., owns interests in and operates each Licensee.

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On November 13, 2020 Brookfield sent a letter to MDMR Commissioner Patrick C. Keliher, reminding him that any amendment of the 1993 management plan would be subject to the Maine Administrative Procedure Act, and, therefore, subject to public notice, comment and hearings in the watershed. On December 29, 2020 the MDMR quietly published a Notice of Agency Rule-Making Proposal for Chapter 60 Section 10, Kennebec River Fish Restoration Management Plan Diadromous Resources Amendment (the "2020 Amendment"). The MDMR's Notice called for a brief, 30-day comment period and included no provisions for public hearing.

Following objections from Brookfield and other stakeholders, the MDMR subsequently amended the Notice. A public hearing was convened on March 15, 2021, and the deadline for comments was extended to March 26, 2021.

Despite these after-the-fact changes, Brookfield maintains that the MDMR rulemaking process remains fundamentally inadequate and that MDMR lacks the authority to unilaterally amend the 1993 Kennebec Plan. While MDMR communicated with a few environmental non-governmental organizations as it developed the 2020 Amendment, MDMR failed to consult with any other federal—including the National Marine Fisheries Service—or state agency, hydropower owner, affected municipality, or Maine legislator as required under Maine law.

In addition to these procedural defects, Brookfield's careful review of the 2020 Amendment has identified technical errors and deficiencies so significant as to call into question any decision that might be made based on MDMR's analysis. Notably, the 2020 Amendment wholly fails to address economic impacts of decommissioning on affected communities. (See, for example, Sappi North America, Inc.'s March 29, 2021 comments filed into the Commission's docket for Shawmut). And the 2020 Amendment does not adequately consider alternatives to the MDMR's pre-determined conclusion: project decommissioning and dam removal.

Brookfield's extensive comments on the 2020 Amendment as submitted to MDMR are appended to this filing as Attachment A. In short, Brookfield views the MDMR's flawed rulemaking as an attempt to manipulate the Commission's relicensing of the Shawmut Project. In an email dated October 2, 2020, from Sean Ledwin, MDMR Director, Sea-Run Fisheries Division to Gail Wippelhauser, MDMR Resources Scientist and Casey Clark, MDMR Resource Management Coordinator, Mr. Ledwin states: "I think we should develop a performance standard for the Kennebec projects for alewives…If they don't meet the standard, we can have a lot of leverage as we condition the 401 and possibly if FERC accepts the standard."

Our conclusion is further informed by the understanding that this is at least the second attempt by the MDMR to submit to the Commission a deficient document under the guise of a comprehensive plan to influence the outcome of a relicensing process. See for example, the Commission's October 26, 2017 response to Commissioner Keliher's submission of draft "comprehensive plans" for the Lower Barker Hydroelectric Project (FERC No. 2808).

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Brookfield's understands that the MDMR fully intends to proceed with adopting the 2020 Amendment despite the numerous deficiencies identified by the commenting parties in connection with the MDMR's failure to follow the appropriate rulemaking process and with the 2020 Amendment itself. Given this, on March 30, 2021 Brookfield filed a complaint with the Kennebec County Superior Court to challenge MDMR's efforts to unilaterally change Maine's policy with respect to hydropower on the Kennebec River and requested a preliminary injunction to prevent the MDMR from filing such a procedurally and technically defective document with the Commission for consideration as a comprehensive plan. Brookfield's complaint and motion for preliminary injunction are enclosed as Attachments B and C.

Brookfield provides the attached materials to help inform Commission staff as they review future anticipated filings from the MDMR in the Shawmut relicensing and other Kennebec River project dockets. Should you have any questions regarding this filing, please contact me at (207) 755-5605 or by email at randy.dorman@brookfieldrenewable.com.

Sincerely,

Randall Dorman
Licensing Manager
Brookfield Renewable

Attachments

Attachment A – March 26, 2021 *Comments in Response to the Maine Department of Marine Resources' (MDMR) December 29, 2020 Notice of Agency Rule-Making Proposal for Chapter 60 Section 10, Kennebec River Fish Restoration Management Plan Diadromous Resources Amendment*
Attachment B – March 30, 2021 *Complaint*
Attachment C – March 30, 2021 *Motion for Preliminary Injunction*

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Document Content(s)

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March 29, 2021

The Honorable Kimberly Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Room 1A, East
Washington, DC 20426

Re: Shawmut Hydroelectric Project, P-2322-069
Comments on License Application

Dear Secretary Bose:

Please accept these comments on behalf of Sappi North America, Inc. ("Sappi") in the above-captioned docket. As you may know, the Maine Department of Marine Resources (MDMR) is considering whether to amend its 1993 Kennebec River Resource Management Plan (the Kennebec Management Plan) to, among other changes, include a recommendation that removal of the Shawmut Dam is necessary to provide adequate fish passage. The purpose of this comment letter is to inform the Commission of the potentially devastating impact removal of the Shawmut Dam would have on Sappi's Somerset Mill in Skowhegan, Maine, and to ask that the Commission reject any such recommendation.

As background, I enclose copies of the testimony I and Sappi's Environmental Manager provided to MDMR at its March 15, 2021 hearing on the proposed amendment to the Kennebec Management Plan, as well as the March 11, 2021 letter report from TRC Environmental Corporation (TRC) summarizing TRC's conceptual study of potential alterations to the Sappi Somerset Mill that would be required if the Kennebec River levels were to drop as a result of the removal of the Shawmut Dam. As explained in more detail in the enclosed testimony, removal of the Shawmut Dam would have potentially devastating economic effects on Sappi's Somerset Mill, its employees, and its suppliers.

In addition to the points outlined in the attached testimony, we also note that a similar project was undertaken on the Penobscot River at ND Paper when the Great Works Dam was removed as part of the Penobscot River Restoration Project. In 2020 ND Paper applied to Maine Department of Environmental Protection (MDEP) for a permit to modify the mill's water intake structure. In the project description ND Paper stated as follows: "Since the installation of the new water intake the applicant has experienced significant issues with sediment, debris, and ice blocking the intake and negatively impacting mill operations." Withdrawing millions of gallons of water every day from a free-flowing river that may be only three or four feet deep presents significant technological and engineering issues, and

may not be possible, notwithstanding TRC's attached report addressing cost considerations. We are investigating this issue, but if in fact it is not possible, the result could be closure of Sappi's Somerset mill and loss of the thousands of associated jobs.

For the reasons outlined in the attached testimony, we strongly urge the Commission to reject dam removal as an option, in recognition of the significant adverse economic burdens such removal would have on other Kennebec River landowners, users, and businesses.

By copy of this letter to the MDEP, we are asking MDEP, in connection with its consideration of Brookfield's application for water quality certification, to conclude that the adverse impacts of removal of Shawmut Dam would greatly outweigh any potential benefit to fish habitat, and that requiring Brookfield to construct effective fish passage facilities would ensure compliance with state water quality standards, to the extent such water quality standards can be interpreted to require fish passage at the Shawmut Dam.

Thank you for your consideration of these comments.

Sincerely,

Matthew D Manahan

Enclosures
cc: FERC Service List (certificate of service attached)
Matt Cutlip, matt.cutlip@ferc.gov
Kathy Howatt, Maine DEP

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated at Portland, Maine this day: March 29, 2021

Matthew D. Manahan
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Counsel for Sappi North America, Inc.

Testimony of Sappi North America, Inc.
Regarding Legal Issues Presented by the
Proposed Amendments to DMR Chapter 60.10
Kennebec River Fish Restoration Management Plan

Presented by Matt Manahan
at the Department of Marine Resources
Hearing on March 15, 2021

Good afternoon, I'm Matt Manahan, legal counsel for Sappi North America's Somerset Mill in Skowhegan. I'm pleased to have the opportunity to speak to you this afternoon on behalf of Sappi regarding certain legal issues presented by the proposal to adopt the December 2020 Kennebec River Management Plan Diadromous Resources Amendment, which would amend the 1993 Kennebec River Resource Management Plan. As I'll explain, Sappi has significant legal concerns with the language in the proposed amendment that advocates for removal of the Shawmut Dam, and we believe DMR should slow down this process and take a much closer look at the potential costs of that course of action.

Our primary concern is the "Supporting Narrative" language on page 34, which states that "MDMR recommends that the Shawmut Project and the Lockwood Project be decommissioned, and the dams removed." This recommendation is extreme and unnecessary, and will have significant economic impacts that have not been fully considered. As Jim Brooks has testified, removal of the Shawmut Dam would have devastating economic effects, and would significantly increase the cost of doing business. We believe DMR needs to fully consider these costs, as well as other costs of dam removal, before proceeding any further with this rulemaking.

The Maine APA requires DMR to consider all relevant information, including economic, fiscal, and social impact analyses and arguments, before adopting any rule. And DMR's own statutes relating to adoption of management plans require that such plans must seek to provide the greatest overall benefit to the State, including economic and social considerations. The adverse consequences to Sappi's Somerset mill are just those kinds of important considerations, and DMR has not yet considered them.

The lack of complete analysis to support this proposed amendment is demonstrated by DMR's Rulemaking Fact Sheet, which asserts that the Kennebec River Management Plan Diadromous Resources Amendment will have no fiscal impact. That's just plain wrong. The proposed amendment could well result in removal of the Shawmut Dam – which is its stated intent – and that would have significant adverse economic impacts. It's not sufficient to assert that this is only a recommendation or guidance document, because as a river management plan it will have real legal consequences in future regulatory proceedings, and those consequences need to be considered now.

It also is troubling that DMR is classifying the proposed amendment as routine technical rather than major substantive, requiring legislative approval. There can be no doubt that the proposed amendment doesn't just establish standards of practice or procedure before DMR, but in fact would require the exercise of significant agency discretion or interpretation in drafting, and would reasonably be expected to result in a significant increase in the cost of doing business, as I have discussed. It also would result in

a significant reduction in property values along the Kennebec River. That makes it a major substantive rule, by definition. Therefore, DMR should re-categorize the proposed amendment as a major substantive rule.

In summary, we urge DMR not to adopt the proposed amendment, and to delete the recommendation to decommission and remove the Shawmut Dam. On behalf of Sappi, I thank you for the opportunity to present these comments to you.

Testimony of Sappi North America, Inc.
Regarding Economic Impact Issues Presented by the
Proposed Amendments to DMR Chapter 60.10
Kennebec River Fish Restoration Management Plan

Presented by James Brooks
at the Department of Marine Resources
Hearing on March 15, 2021

Good afternoon, I'm James Brooks, Environmental Manager at Sappi North America's Somerset Mill in Skowhegan. I'm pleased to have the opportunity to speak to you this afternoon on behalf of Sappi regarding the proposal to adopt the December 2020 Kennebec River Management Plan Diadromous Resources Amendment, which would amend the 1993 Kennebec River Resource Management Plan. As I'll explain, Sappi has significant concerns with the language in the proposed amendment that advocates for removal of the Shawmut Dam, and we believe DMR should slow down this process and take a much closer look at the potential costs of that course of action.

First, let me briefly describe Sappi's Somerset mill for those of you who may not be familiar with it. The Sappi Somerset Mill is located on 2,500 acres along the banks of the Kennebec River. Originally built in 1976 to supply pulp, it is now home to three world class paper machines. It is an integrated pulp and paper making operation where we manufacture coated free sheet papers, packaging and specialty papers, and bleached Kraft pulp. The mill is capable of producing 1,700 tons of pulp and 2,800 tons of paper products per day, and receives over 200 truckloads of wood products per day. The mill directly employs roughly 735 people from many of the surrounding communities, contributing millions of dollars to the local economy. In addition, for every job at Somerset we estimate that there are eight jobs that we support both locally and around the state. Sustainability remains Sappi's priority and is critical to our strategy. At the Somerset Mill, we strive to challenge industry standards and ourselves to create innovative methods to better our environment. Just recently the Sappi Somerset Mill was named a recipient of the Leadership in Sustainability – Water Award from the American Forest & Paper Association as part of its *Better Practices, Better Planet 2020* Sustainability Awards program.

I'll turn now to the proposed amendment and, more specifically, the "Supporting Narrative" on page 34, which states that "MDMR recommends that the Shawmut Project and the Lockwood Project be decommissioned, and the dams removed." This recommendation is extreme and unnecessary, and will have significant economic impacts that have not been fully considered. Most important for Sappi, removal of the Shawmut Dam would have devastating economic effects, and would significantly increase the cost of doing business. The Kennebec River is the only water source for the mill, and we use an average of 28 million gallons per day for processing, cooling, and fire protection at the facility.

To get a clearer idea of the impacts on our Somerset mill, we engaged TRC Consulting to analyze the water intake structure and wastewater discharge outfall and diffuser with the removal of the Shawmut Dam. Although TRC did not have much time to complete this review, given the fast track of this rulemaking process, TRC has concluded that removal of the Shawmut Dam would lower the

impoundment by 15-20 feet, so that the water level would be well below Sappi's water intake structure and would require significant modifications to the mill's water intake system and wastewater discharge outfall and diffuser. TRC estimates that it would cost in excess of $50 million to remediate these impacts. In addition to these costs, such remediation likely would take two or more years to design, permit, and construct, and therefore may result in significant downtime at the facility. We will submit the TRC report with our written comments before the close of the comment period on March 27.

Thus, dam removal would have a devastating impact on the company, its employees, and suppliers. In addition, lowering of the impoundment's water levels will significantly reduce property values along the Kennebec River in those locations and negatively impact other recreational uses of the impoundment by landowners and others, such as boating interests. We ask that you also take those additional impacts into consideration before moving ahead with this proposed amendment.

Sappi believes these economic impacts greatly outweigh any potential environmental or economic benefit that might be achieved by removal of the Shawmut Dam, which benefits we believe can be achieved through installation of fish passage facilities, without causing the economic harm that would be caused by dam removal. A good example of this is the Milford Fish Lift on the Penobscot River which passes thousands of salmon, alewife, and shad each year based on DMR's own trap count.

In summary, we urge DMR not to adopt the proposed amendment, and to delete the recommendation to decommission and remove the Shawmut Dam, for the reasons I have discussed. We strongly urge you to work with Brookfield to find a compromise solution for fish passage that will satisfy the needs and goals of both Brookfield and DMR without imposing significant adverse economic burdens on other Kennebec River landowners, users, and businesses, such as Sappi.

On behalf of Sappi, I thank you for the opportunity to present these comments to you and am happy to answer any questions that you may have.

TRC

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March 11, 2021

Mr. James Brooks
Environmental Manager
Sappi Somerset Mill
1329 Waterville Road
Skowhegan, ME 04976

Sent Via Email: james.brooks@sappi.com

Subject: Kennebec River Study at Sappi Somerset Mill
TRC Project No. 429681

Dear Jim:

TRC Environmental Corporation (TRC) is pleased to submit this conceptual study of potential alterations to the Sappi Somerset Mill in Skowhegan that would be required if the Kennebec River levels were to drop as a result of the removal of the Shawmut hydropower dam. We have listed potential modifications required to address impacts to the mill's water intake system, outfall diffuser, and foam tank system, and associated conceptual costs for design, permitting, and construction.

If you have any questions regarding this information, please do not hesitate to contact me at 207-313-3675 or mbergeron@trccompanies.com.

Sincerely,

Mark Bergeron, P.E.
Environmental Operations Leader - Maine

Attachments:
Attachment 1: Site Location Map
Attachment 2: Environmental Permitting Matrix

cc: Ray Topazio, TRC

Introduction

Sappi retained TRC to provide high-level, conceptual cost estimates for mill infrastructure improvements that would be required if the Kennebec River levels were lowered as a result of the removal of the downstream Shawmut hydropower dam. In consultation with Sappi, TRC has determined that significant alterations to the mill's water intake system and wastewater discharge outfall and diffuser would be required, as described below.

TRC had very limited time to review site information and prepare these recommended modifications to the intake/discharge systems, so they should be considered conceptual in nature, and subject to change pending full design, permitting, and construction considerations. Additional surveys, data, and engineering design are required to further refine these costs. However, these cost estimates are instructional as to the order of magnitude of potential modifications that would be required to maintain the operations of the Somerset mill. The recommended modifications herein would only to maintain the existing operations at the mill and would not increase capacity or otherwise upgrade the system in any way.

See Attachment 1 for a site location map of the mill and associated facilities.

Potential Infrastructure Modifications

1. MDMR dam removal recommendations

   i. The Maine Department of Marine Resources (MDMR) released a recent report entitled "Kennebec River Management Plan, Diadromous Resources Amendment", dated December 2020. In that report, MDMR recommends that the Shawmut dam and Lockwood dam be decommissioned and removed and that the Hydro-Kennebec and the Weston projects also be considered for decommissioning and removal as MDMR's preferred method to provide upstream fish passage.

   ii. The Shawmut dam is downstream of the Sappi Somerset Mill and removal of that dam is estimated to drop the Kennebec River levels in front of the mill by approximately 15 to 20 feet.

2. Existing mill operations

   i. The Somerset mill currently draws an average of 28 million gallons per day (mgd) of water from the Kennebec River as part of its pulp and paper making operations. The Kennebec River is the mill's only water supply.

   ii. There is an existing pump house on the west bank of the Kennebec River with four vertical turbine pumps that draws river water from a submerged vault that feeds a 36-inch diameter intake water supply line that supplies the mill. The current normal river elevation is approximately 112 feet and the bottom of the existing pump house is at an elevation of 102 feet. The riverbed elevation is approximately 90 feet at this location.

   iii. The mill is licensed to discharge up to 46.5 mgd of wastewater and process water to the impounded Kennebec River upstream of the Shawmut dam. There is an existing buried 40-inch diameter outfall pipe from the mill extending to the middle of the Kennebec River. There are

approximately 69 vertical diffuser pipes protruding up from the top of 40-inch diameter outfall pipe to disperse flow to the river. The current outfall pipe and vertical diffusers are approximately 21 feet below the normal high-water elevation of 112 feet.

iv. The mill cannot operate without intake water to supply its operations, and it must regularly discharge wastewater and process water to the Kennebec River.

3. Potential Impacts to Water Intake and Outfall Systems

i. If the Kennebec River water levels in this area were to drop 15 to 20 feet, the existing pump house vault would be above the new normal water level of the river and would be non-functional. If the mill could not obtain water to supply its operations, the mill would have to shut down.

ii. Upon dam removal, the normal pool water surface elevation of the river near the outfall pipe is expected to be approximately elevation 88 feet. The top of the diffuser pipes varies from approximately elevation 87 feet to 90 feet. Therefore, the lower water levels would result in the diffuser pipes being just above or just below the river's surface, which is unsafe and insufficient for proper discharge of the mill's process waters.

iii. A drop in Kennebec River levels of 15 to 20 feet will require structural modifications to the mill's water intake and water discharge outfall systems because the intake and outfall pipes would be located above the new river level. The proposed changes to the intake and outfall pipes are described below.

4. Potential Modifications to Pump House and Water Intake System

a. Because the mill cannot operate without intake water to supply its operations, and because it must regularly discharge wastewater and process water to the Kennebec River, any proposed modifications to the intake and outfall systems must be constructed before the Kennebec River water levels are lowered. Because of the downtime involved with modifying the existing pump house, financially and operationally it would make more sense to build a new pump house downstream of the existing one. Simply extending a new intake pipe into the river would not be an option because there would be insufficient depth of water in the river following dam removal. Similarly, the existing pump house vault would need to be replaced with a different water intake system (described in Option 2 below) due to the lower water levels.

b. Cofferdams will be needed in the river for construction of the new water intake system options listed below. The water intake system modifications will need to be constructed prior to dam removal to avoid interruption of the mill's operations. It is assumed the cofferdam will consist of braced sheet piling. Because the available geotechnical information is limited, it is assumed bedrock is at a relatively shallow depth and will require the sheet piles to be pinned to the bedrock. If bedrock depths are very deep, the sheet piling lengths will be longer, and the cofferdam cost estimates may be on the low side. Upon installation of the sheet piles the interior of the cofferdam will be dredged, sealed, and dewatered to facilitate construction.

c. TRC has identified two options for modifications to the water intake system, more fully described below:

Option 1 – In-River Basin

i. Construct a new pump house adjacent to the downstream side of the existing pump house.

ii. Construct a new water intake piping system into the middle of the river that would generally include:

   a) Install a new coffer dam around the proposed in-river basin.

   b) Due to the expected low water level of approximately 4 feet at operating conditions and distance from the existing riverbank (too low for in-stream water withdrawal), install an engineered in-river basin consisting of approximately 16,000 linear feet of perforated pipe below a bed of engineered fill. The assumed footprint of this basin in the river would be 500 feet by 500 feet, to provide a sufficient volume of water to supply the mill.

iii. Connect the new pump house piping to the existing water intake line approximately 200 feet west of the Kennebec River.

iv. Demolish the old pump house once the new pump house is operational and remove the cofferdam from the river.

Option 2 - Vertical Well Caissons

i. Construct a new water intake piping system that would generally include:

   a) Due to the expected low water level of approximately 4 feet at operating conditions and distance from the existing riverbank (too low for in-stream water withdrawal), construct vertical well shafts to serve as the water intake system. These vertical wells would minimize environmental impacts and could simplify operation and maintenance activities.

   b) Central shaft “caissons” 8 to 10-feet in diameter would be excavated 60 to 80 feet deep on the existing riverbank at five to six locations. These five to six new wells would contain the necessary pump equipment and controls so that a new pump house would not be needed.

   c) Lateral pipes would be micro-tunneled horizontally out below the riverbed through the radial collector to install perforated pipe below the surface of the riverbed.

   d) During pumping, water would be induced to flow through the riverbed into the perforated piping laterals to the vertical shafts. Riverbank filtration is the process where water can be induced to infiltrate into local groundwater aquifers from a surface water source where favorable hydrogeologic conditions exist near rivers and streams.

ii. Connect the five to six new wells’ discharge pipes to the existing water intake line.

iii. Demolish the old pump house once the new wells are operational and remove the cofferdam from the river.

5. Potential modifications to the mill's outfall pipe, diffuser, and foam tank (Note: The conceptual design presented here for the outfall pipe, diffuser, and foam tank is the same for both water intake options discussed above.)

    a. The following modifications to the outfall pipe system would be required to allow continued operation of the mill:

        i. Installation of a cofferdam to allow for installation of a new outfall pipe. The new outfall pipe would be constructed prior to dam removal to avoid interruption of the mill's operations. The current normal river elevation is approximately 112 feet and the riverbed elevation is expected to be about elevation 88 feet at the proposed outfall pipe. It is expected the cofferdam will consist of braced sheet piling. Because the available geotechnical information is limited, it is assumed bedrock is at a relatively shallow depth and will require the sheet piles to be pinned to the bedrock. If bedrock depths are very deep, the sheet piling lengths will be longer, and the cofferdam cost estimates may be on the low side. Upon installation of the sheet piles, the interior of the cofferdam will be dredged, sealed, and dewatered to facilitate construction of the proposed outfall pipe.

        ii. Construction of a new outfall pipe near the existing outfall pipe, with a new diffuser system consisting of an outfall pipe with vertical diffuser pipes. The new outfall pipe would need to be installed at a lower elevation to accommodate the lower river levels. The new vertical diffusers would be surrounded with large riprap that would protect the pipes and facilitate diffusion of the mill's process water. Cleanouts would be incorporated along the length and at the end of the outfall pipe for maintenance.

        iii. Removal of the existing outfall pipe once the new outfall pipe is operational, and removal of the cofferdam from the river.

    b. Further, there is a 'foam tank' at the southeast corner of the mill site that helps to prevent foam from discharging into the Kennebec River. Since the outfall pipe will need to be lowered, the foam tank likely will need to be replaced to assure proper operation of the discharge process.

    c. Consequently, the following conceptual modifications to the foam tank would be required to allow continued operation of the mill:

        i. Construct a new foam tank near the existing foam tank. The new foam tank is assumed to be a new vault with a weir protruding from the ceiling to capture floating foam.

        ii. Install 1,400 feet of new 42-inch diameter outfall pipe from the new foam tank to the river. This new outfall pipe will be installed parallel to the existing pipe, and approximately 700 feet of the pipe will be directionally drilled under the Pan Am railroad tracks and the Route 201 roadway to avoid interruptions in railroad and vehicular traffic, respectively.

        iii. Connect the new foam tank to the existing discharge pipe.

        iv. Demolish the existing foam tank once the new tank is operational.

6. Potential environmental permits needed

There are a number of federal, state, and local environmental permits and approvals that would be needed for the pump house, outfall piping, and foam tank alterations described above. Since no agencies or permitting authorities have been contacted regarding this proposal, these approvals should be considered the preliminary list and subject to change, and other approvals may also be required. Further, permitting requirements by these authorities having jurisdiction may alter the conceptual design modifications presented here, which could lead to additional cost impacts.

TRC has assembled a conceptual environmental permitting matrix describing the assumed level of permitting required for the proposed project alterations. See the Attachment 2 for the environmental permitting matrix. A brief summary of the permits is described below.

i. Federal permits: TRC assumes that a new Pre-Construction Notice (PCN) permit from the US Army Corps of Engineers (ACOE) will be required for river and wetland impacts. The PCN will trigger consultation with the US Fish and Wildlife Service for possible effects on endangered species, and consultation with the Maine Historic Preservation Commission for impacts to cultural resources.

ii. State permits: The following new or amended permits are assumed to be required from state agencies:

   i. The Somerset mill has an existing Site Location of Development (Site Law) permit (#L-902-20-A-X, last updated September 26, 2019 #L-902-20-Z-M) from the Maine Department of Environmental Protection (MDEP). TRC assumes a major amendment of the Site Law permit will be required for the proposed alterations.

   ii. For impacts to the Kennebec River and wetlands, TRC assumes a new Tier 2 Natural Resources Protection Act permit will be required from MDEP. TRC has included an estimated In-Lieu Fee payment for potential mitigation costs for temporary and permanent river bottom impacts. This final mitigation costs will be determined by the MDEP and ACOE.

   iii. The Somerset Mill has an existing MDEP Maine Pollutant Discharge Elimination System (MEPDES) permit (#W000385-5N-L-R, last dated December 2, 2015) for wastewater discharges that will need to be amended based on the new river characteristics.

   iv. For the new outfall pipe installed under the Maine Department of Transportation (MDOT) Route 201 right-of-way, a Utility Location Permit will be required, along with a Private Facility Exception License.

iii. Local permits: Two sets of town approvals will be needed since the pump house is located in the Town of Skowhegan, and the outfall pipe and foam tank are in the Town of Fairfield. Both towns are anticipated to require Site Plan approval from their respective Planning Boards. Also, since work would occur in or near the floodplain and shoreland zone of the Kennebec River, additional approvals will be required to demonstrate compliance with those ordinances for both towns.

iv. Estimated Environmental Permitting Costs: TRC has estimated potential costs to obtain the necessary environmental permits and approvals listed above. The estimated permitting costs listed in Tables 1 and 2 also include the following survey and data gathering needed for the design and permitting of these project alterations:

i. Topographic and bathymetric survey

ii. Wetlands and natural resources surveys

iii. Cultural and archaeological surveys

iv. High Intensity Soil Survey

v. Groundwater impact study

vi. Tribal consultation

The environmental permitting costs are estimated to be the same for both design options listed above. However, the two conceptual water intake design options have significantly different environmental footprints in the Kennebec River. Option 1 with the in-river basin is estimated to impact approximately 6.4 acres of the bottom of the Kennebec River, while Option 2 with the vertical well caissons is estimated to impact approximately 0.88 acre of river bottom. The estimated environmental mitigation costs are assumed to utilize the In-Lieu Fee compensation fees administered by the MDEP and the ACOE.

Assumptions

Given the high level, conceptual nature of this analysis, TRC notes the following important assumptions:

1. This analysis was conducted as a desktop review of information provided by Sappi and other publicly available data. No site surveys or site visits have been conducted. The conceptual design and cost estimates provided herein are based on TRC's professional judgment based on the information provided within the allotted time constraints.

2. All the conceptual design, construction, and permitting costs are non-binding and subject to change based on further surveys, information gathering, full design and engineering, permitting agency coordination, and construction cost estimation.

3. The conceptual alterations to the pump house, water intake system, outfall pipe and diffusers, and foam tank have not been fully vetted through a full design and engineering process and are subject to change.

4. Conceptual cost estimates have been assumed based on common site conditions and construction practices. If differing site conditions are discovered later during design, these conceptual cost estimates will change.

5. If the Shawmut dam is removed, the area in the vicinity of the mill will change from an impoundment to a free-flowing riverine system. TRC assumes that this change in river condition

will not negatively impact the mill from being able to discharge existing flows at the same rates as current conditions, and the mill will still be able to meet state and federal water quality requirements with just a new outfall pipe system. Additional examination of this topic is needed to determine if any additional costs may be needed to meet state and federal water quality requirements. This analysis was beyond the scope of this report.

6. All costs included were calculated in 2021 dollars with no markups for inflation.

7. TRC assumes that the existing main electrical power feed to the project location is sufficient and no changes are needed for the proposed alterations.

8. The wastewater outfall pipe is assumed to remain a gravity feed system.

9. TRC assumes that the existing outfall pipe is not located in the Town of Clinton, so no local approvals will be needed from the Town of Clinton.

10. Due to the expected low operating water depth of approximately 4 feet, surface water only intake methods in the river will become unsuitable. The two below riverbed options listed above were considered to eliminate sucking air into the pumps and to reduce silt accumulation.

11. TRC concluded that extending a public water supply line to the site as an alternate to a river water intake is not a feasible option. The daily water use requirements of the mill are much greater than the nearby water districts in Fairfield and Skowhegan, so modifying those infrastructure systems would be cost prohibitive.

12. The dam removal would be completed in a phased approach by 'notching' the dam structure such that the rate of lowering the water level will not create rapid drawdown or unstable conditions of the riverbank, or cause excessive settlement of nearby structure, utilities, or other infrastructure.

Conclusion

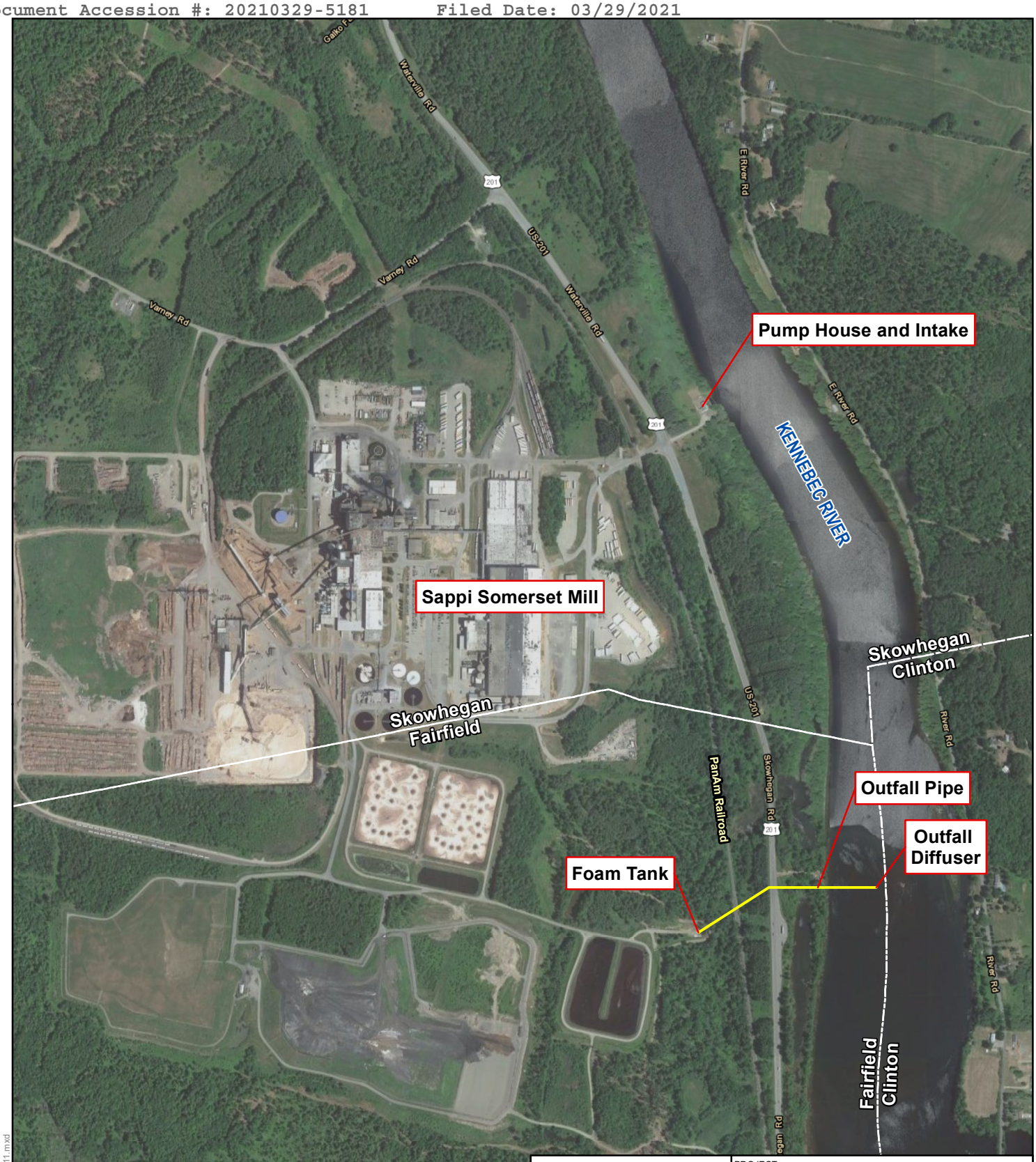
Removal of the Shawmut dam would have significant impacts to the mill's water intake and outfall system and substantial, costly modifications to those systems would be required. As noted in Table 1 below, a new pump house and water intake system, and a new foam tank with outfall pipe and diffuser system, likely would cost in the range of $52 to $55 million.

Table 1: Conceptual Costs for Option 1 – In-River Basin for Water Intake			
	Design/Engineering	**Construction**	**Total**
Water Intake Cofferdam	$2,000,000	$13,400,000	$15,400,000
Pump House and Intake System	$206,000	$19,400,000	$19,606,000
Outfall Cofferdam and Diffuser	$1,600,000	$10,800,000	$12,400,000*
Outfall Pipe and Foam Tank	$110,000	$1,200,000	$1,310,000*
Environmental Permitting Costs			$750,000
Environmental Mitigation Costs			$2,800,000
Estimated Option 1 Total Cost			**$52,266,000**

Table 2: Conceptual Costs for Option 2 – Vertical Well Caissons for Water Intake			
	Design/Engineering	**Construction**	**Total**
Water Intake Cofferdam	$325,000	$2,200,000	$2,525,000
Pump House and Intake System	$206,000	$37,700,000	$37,906,000
Outfall Cofferdam and Diffuser	$1,600,000	$10,800,000	$12,400,000*
Outfall Pipe and Foam Tank	$110,000	$1,200,000	$1,310,000*
Environmental Permitting Costs			$750,000
Environmental Mitigation Costs			$384,000
Estimated Option 2 Total Cost			**$55,275,000**

* The outfall modifications are the same in both Options 1 and 2.

Attachment 1: Site Location Map



PROJECT:
SAPPI SOMERSET MILL
Skowhegan, Maine

TITLE:
SITE LOCATION MAP

DRAWN BY:	M. STEVENSON	PROJ. NO.:	429681
CHECKED BY:	R. JORDAN		
APPROVED BY:	M. BERGERON		**FIGURE 1**
DATE:	February 2021		

TRC
14 Gabriel Drive
Augusta, ME 04330

Path: S:\1-PROJECTS\SAPPI\SappiLocationFigure_8x11.mxd

Attachment 2: Environmental Permitting Matrix

Conceptual Environmental Permitting Matrix for Sappi Somerset Mill, Skowhegan, Maine

Agency	Permit/Approval	Reason For Requirement	Comments
FEDERAL			
US Army Corps of Engineers (USACE)	Section 404 Maine General Permit	Construction of intake and outfall facilities that involve dredge or fill to Waters of the US.	Pre-Construction Notice (PCN) permit thresholds are: • <1 acre temporary or permanent impacts, fill, excavation, and/or secondary impacts • Temporary and/or permanent fill or excavation in Submerged Aquatic Vegetation <1,000 square feet (SF) • Permanent fill or excavation in other Special Aquatic Sites <4,300 SF
US Fish and Wildlife Service (USFWS)	Consultation under Section 7 of Endangered Species Act (ESA)	Any federal action will trigger requirement for endangered species consultation.	Preliminary screening of the Project through USFWS's Information, Planning and Conservation System (IPAC). Evaluates if the Project is likely to jeopardize the continued existence of a listed species or adversely modify its designated critical habitat.
USFWS	Migratory Bird Treaty Act (MBTA) Consultation	Any federal action will trigger consultation.	MBTA prohibits harm, possession, or take of migratory bird species, nests, and eggs. Review under MBTA conducted concurrently with Section 7 ESA consultation.
USFWS	Bald and Golden Eagle Protection Act (BGEPA)	Any federal action will trigger consultation.	BGEPA prohibits harm, possession, or take of Bald or Golden Eagles. Review under MBTA conducted concurrently with Section 7 ESA consultation.
Maine Historic Preservation Commission (MHPC)	Consultation under Section 106 of the National Historic Preservation Act	The USACE is required to evaluate the impact of projects requiring federal permits on cultural resources.	Consultation is initiated by the applicant and completed during the USACE permitting process.
STATE			
Maine Department of Environmental Protection (MDEP)	Site Location of Development Act (Site Law)	The Somerset Mill has an existing Site Law license (#L-902-20-A-X, last updated 9/26?19, #L-902-20-Z-M)	Includes review of over 20 variables including stormwater management, cultural resources, wildlife, erosion controls, water quality, and groundwater resources. Public notice and public informational meeting are required.
MDEP	NRPA Chapter 310	Impacts to protected natural resources, like rivers and wetlands	Tier 2 permit limits: 15,000 SF to 1-acre of non-wetlands of special significance impact; Tier 3 permit limits: >1-acre impact. Multiple resource impacts are referred to as an "Individual Permit."
MDEP	Maine Pollutant Discharge Elimination System (MEPDES) and Maine Waste Discharge License (WDL)	The Somerset Mill has an existing MEPDES license (#ME0021521) and an existing WDL (#W000385-5N-L-R)	These permits regulate the authorized discharge of process and waste waters to the Kennebec River.
Maine Department of Transportation (MDOT)	Utility Location Permit	For constructing utilities under the MDOT Route 201 Right-of-Way	Would also need a Private Facility Exception License approval from MDOT.
MUNICIPALITY - Skowhegan			
Shoreland Zone	Planning Board (PB)	Impacts within 250-foot Shoreland Zone	Town Shoreland Zoning standards need to be met along the Kennebec River.
Zoning/Land Use Ordinance	PB	Major Development Site Plan Review	Review of development standards and zoning criteria such as water quality, flooding, and erosion control.
Flood Hazard Development Permit	PB	Impacts in the Flood Plain	Will need to show proposed improvements are in compliance with the Floodplain Management Ordinance
Building Permit	Code Enforcement Officer (CEO)	Needed for general construction	Usually obtained by contractor
MUNICIPALITY – Fairfield			
Shoreland Zone	Planning Board (PB)	Impacts within 250-foot Shoreland Zone	Town Shoreland Zoning standards need to be met along the Kennebec River.
Zoning/Land Use Ordinance	PB	Major Development Site Plan Review	Review of development standards and zoning criteria such as water quality, flooding, and erosion control.
Flood Hazard Development Permit	PB	Impacts in the Flood Plain	Will need to show proposed improvements are in compliance with the Floodplain Management Ordinance
Building Permit	CEO	Needed for general construction	Usually obtained by contractor

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