

MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION
Water quality certification application –
Shawmut Hydroelectric Project
DEP Application #L-19751-33-I-N

COMMENTS BY BROOKFIELD WHITE PINE HYDRO LLC (“BWPH”)
IN REPLY TO COMMENTS OF THE MAINE DEPARTMENT OF MARINE
RESOURCES

This filing responds to comments submitted by the Department of Marine Resources on January 3, 2022 regarding BWPH’s application for water quality certification of the Shawmut Hydroelectric Project.¹ These comments include the DMR’s demand for a nature-like fishway at Shawmut, and this demand should be rejected for four reasons:

1. There is no evidence that the nature-like fishway only recently proposed by the DMR would be effective in helping Atlantic salmon or other co-evolved species swim past the dam. To the contrary, there is evidence that a nature-like fishway will be counterproductive to fish passage at Shawmut compared with BWPH’s proposal for a fish lift, and will prevent compliance with fish passage requirements.
2. The DMR’s proposal will harm the Sappi Somerset mill, and risks shutting down the mill altogether.
3. The DMR and DEP can only require BWPH to install a nature-like fishway (or any other type of fishway) at Shawmut through the adjudicatory proceeding required by 12 M.R.S. §§ 6121 and 12760.
4. The DMR is a party to the 1998 Kennebec Hydro Developers Group Agreement and is contractually prohibited from efforts to impose fish passage requirements on BWPH through the water quality certification process.

Each of these points is explained in greater detail here, with supporting expert reports as appropriate.

- 1. The only available evidence shows that a nature-like fishway at Shawmut will be ineffective, and even counterproductive, to fish passage compared with BWPH’s fish lift proposal.**

The DMR’s only comments in this proceeding, to date, are a duplicate of the comments the agency provided to the Federal Energy Regulatory Commission (“FERC”) in December 2021. These comments call for a nature-like fishway at Shawmut.

¹ These comments were submitted to the DEP Hydropower Coordinator, then Ms. Kathy Howatt, via a January 3, 2022 e-mail from Mr. Sean Ledwin that attached the DMR’s comments to the Federal Energy Regulatory Commission dated December 22, 2021.

Although different than DMR’s previous proposals—one demanding fish passage at Shawmut that allows 99 percent of Atlantic salmon past the dam (a standard that would be unprecedented and impossible to satisfy) and another demanding two fishways at the dam (which would be uneconomic and lead to decommissioning of the hydroelectric facility and likely removal of the dam)—the DMR’s current proposal for a nature-like fishway in place of a fish lift is still problematic and should be rejected. There is no evidence that a nature-like fishway would be effective at Shawmut, and there is substantial evidence to the contrary.

The first problem with DMR’s proposal is that there is no evidence that a nature-like fishway will be as effective as the state-of-the art fish lift proposed by BWPH. Reports prepared by Kleinschmidt Associates (Exhibits A and B) and Alden Research Laboratory, Inc. (Exhibit C), two firms with expertise in fish passage design and effectiveness, both assess the DMR’s proposal for a nature-like fishway at Shawmut.² They independently explain that nature-like fishways are a relatively new technology, there are few studies measuring their effectiveness, and the data that does exist is inconclusive because the performance of nature-like fishways is highly variable depending on site-specific factors.³

In addition to being unsupported by any evidence, the DMR’s proposal is flawed because it is premised on the supposed success of the nature-like fishway at the Howland dam. *See* DMR comments to FERC on the EIS at 5 (Dec. 22, 2021) (“this type of fish passage approach was used at the Howland site on the Piscataquis River successfully”). The DMR’s consultant, for example, says that it has modeled the proposal for Shawmut on the Howland nature-like fishway due to “indications of effectiveness” of the Howland fishway. *See* Ex. A at 6.⁴

DMR’s position on its proposed nature-like fishway does not square with the available data for Howland, data that the DMR has had in its possession but elected not to share with the DEP, other resource agencies, or the public. The data was obtained from the DMR in April 2022 through a request under Maine’s Freedom of Access Act. The paper containing this data is attached as Exhibit D. It shows an average passage rate for Atlantic salmon of less than 60 percent, well below the 96 percent of Atlantic salmon

² These reports address the DMR’s proposal last summer for a nature-like fishway *and* a fish lift. Although the DMR’s current proposal in this proceeding mentions only a nature-like fishway, the details concerning that particular fishway remain the same.

³ Such factors include design parameters, hydraulic conditions, light/shadow, noise, and the magnitude and location of competing flows.

⁴ *See also* MDMR comments on the EIS for Lockwood, Shawmut, Hydro-Kennebec and Weston, Appendix B at 6 (filed in this proceeding on January 3, 2022) (“the Howland NLF project was noted for relevance to the Shawmut site, primarily for application of the general channel design philosophy as an analog for the schematic layouts”).

BWPH expects to move upstream under its proposed fish lift for Shawmut. *See* Ex. C at 9 & Ex. D at 81.

The lackluster performance of the Howland fishway is obviously highly relevant to the DMR's proposal for a nature-like fishway at Shawmut, and DMR should have promptly disclosed this data to the DEP and BWPH. The shared goal of all parties should be effective fish passage using the best information available. Regardless, contrary to the DMR's claims to the DEP and FERC, "early indications of the effectiveness of the Howland bypass channel" have not been "positive" and there is no basis for using the "general design philosophy" of Howland "as an analog for the Shawmut site," as recommended by DMR. *See* Ex. A at 5. Quite the opposite, the data from Howland undermines the DMR's proposal for a nature-like fishway at Shawmut and lends support to BWPH's proposed fish lift.

Moreover, there are several reasons to expect that a nature-like fishway at Shawmut would be even less-effective than the one at Howland. Nature-like fishways are site specific, and the Shawmut site is not well suited for a nature-like fishway. With the surrounding terrain and property lines, there are limited options for locating a nature-like fishway at the dam and, according to numerous siting and modeling studies, none of these options are good. *See* Ex. A at 8-16 & Ex. C at 11-12. This is because, no matter the location, the competing attraction flows of the dam's largest powerhouse will divert a meaningful proportion of fish away from the entrance to the nature-like fishway. Ex. A at 18 & Ex. C at 11.⁵ Further, the DMR's proposed fishway at Shawmut will be unprecedented in length because of the height of the dam and surrounding terrain, and will suffer from excessive water velocities and a lack of resting pools, meaning many fish that do manage to find the fishway will be unable to make it up and past the dam. *See* Ex. A at 17.

The fish passage proposed by BWPH, consisting of the fish lift and a fish bypass that will help channel fish to the lift, can also be adjusted over time to improve and optimize its performance. The DMR's nature-like fishway, in contrast, cannot be realistically adjusted after installation. If fewer than 60 percent of Atlantic salmon were able to make it up and past the nature-like fishway, consistent with the performance of the Howland nature-like fishway, for example, there would be very little BWPH could do about this after the fact. This is another obvious downside of the DMR's proposal.

Unlike DMR's late and unvetted recommendation, BWPH's proposal for a fish lift was developed through a years-long multi-agency process that included DMR and is designed to allow 96 percent of Atlantic salmon upstream past Shawmut. BWPH expects to spend at least \$15 million on this state-of-the art technology.⁶ Scrapping the Shawmut proposed fish lift in favor of DMR's nature-like fishway is likely to result in

⁵ Unlike the DMR's proposed nature-like fishway, BWPH's contemplated fish lift will be located to take advantage of all powerhouse attractions, using them to draw fish to the lift. *See* Ex. C at 2.

⁶ This cost estimate is based on bids received from qualified contractors in 2020.

fewer fish swimming past Shawmut, a result that is unacceptable to BWPH and federal regulators and should be unacceptable to the State of Maine.

2. The DMR's proposal is still likely to result in the closure of the Sappi Somerset Mill.

The DMR's previous demand for two fishways at Shawmut would render the project uneconomic, leading to the decommissioning of the hydroelectric plant and probable dam removal. A nature-like fishway *and* a fish lift at Shawmut would cost an estimated \$35 million⁷ to install. This dramatic up-front cost is compounded by the fact a nature-like fishway (in tandem with a lift or, as discussed below, standing alone) would also divert more than 50 percent of the water away from the dam's generating stations, cutting revenues by more than half, and costing an additional \$40 million to \$60 million (depending on water levels and electricity prices) over the 40-year term of the project license. A total price tag of up to \$95 million could not be reasonably recouped over the span of a 40-year license. The highly likely result would be the decommissioning of the hydroelectric facility, followed by likely dam removal.⁸ Removal or decommissioning of Shawmut would have catastrophic results for the Sappi Somerset Mill and the local economy.

⁷ The Kleinschmidt report estimates a cost of \$14 to \$16.2 million for the nature-like fishway, not including additional costs associated with design, permitting, owners administration, effectiveness testing, contaminated site remediation, or site access. See Ex. B at 2. However, many necessary infrastructure modifications are not known, or their costs estimable, at this time, given that DMR's nature-like fishway design is only conceptual and presents significant siting challenges for which no easy solutions are readily available. Some of these problems may be unsolvable given the extreme site constraints. For example, DMR's proposed layout for the nature-like fishway would cut off necessary vehicular and equipment access to portions of the project site containing important infrastructure, including the gatehouse and portions of the dam itself. These structures must be accessed for safe project operation and critical dam maintenance. Assuming feasible solutions to these challenges could be identified, costs for these items are not included in Kleinschmidt's estimate but could easily reach \$5 million or more, bringing the total cost for the nature-like fishway to \$19 to \$21 million or even higher. Add to this the expected \$15 million cost of the fish lift, and the total combined cost equals at least \$34 to \$36 million.

⁸ If the project were decommissioned because it is uneconomic to operate, FERC would still need to decide the Shawmut dam's future. The most likely outcome, for a host of reasons including public safety and fish passage obligations, would be FERC ordering the removal of Shawmut. But FERC could also require a nature-like fishway be installed at Shawmut even as the project is decommissioned. This would still prove fatal for Sappi because, as explained in this filing, a nature-like fishway alone at Shawmut would rob Sappi of the water it needs to continue operations *and*, if decommissioned, the water levels in the impoundment above Shawmut would further recede, further frustrating Sappi's operations.

The DMR seems to have abandoned its proposal for a nature-like fishway *and* a fish lift,⁹ but its current proposal for a standalone nature-like fishway is also likely to result in decommissioning, dam removal, and the closure of the Sappi Somerset Mill. There are several reasons for this.

First, a standalone nature-like fishway will still be unreasonably expensive. Its ultimate cost remains unclear because the DMR's proposal (in the words of the agency's consultant) has not yet "advanced" to "final design."¹⁰ What is clear, however, based on the incomplete information provided by the DMR to date, is that a nature-like fishway at Shawmut would likely cost at least \$19 to \$21 million up front (including the fishway itself and the bridges that would be needed to cross the fishway (*see* Ex. B at 1-2 & note 7 above)) and, even without the second fishway, would still divert more than 50 percent of the water away from the dam's generating stations. The result would be an additional \$1.1 million to \$1.5 million annually in lost revenues, or up to \$60 million over the term of the project license. Put simply, even as the lone fishway on site, a nature-like fishway would be exceedingly expensive and cut project revenues by at least half. And if, consistent with the evidence from Howland, the nature-like fishway underperforms and does not meet the passage standards proposed by BWPH and outlined in the federal agencies' mandatory fish passage prescriptions, it will undermine BWPH's ability to meet its fish passage requirements, increasing the likelihood of decommissioning and dam removal.

There is a second reason, identified by Sappi, that a nature-like fishway is likely to harm the Sappi Somerset Mill. As explained by Sappi's engineer, TRC Environmental Corporation, "[a]s river flow drops below the [nature-like fishway] capacity...the head pond level would drop and risk falling below acceptable water levels for reliable operation of the Somerset mill intake."¹¹ In other words, the nature-like fishway would rob Sappi of the water it needs for its operations even if the dam stays in place and the project continues operating.

If, as it says, the DMR is truly "committed to developing fish passage recommendations that ensure that the Sappi Somerset Mill is not negatively

⁹ An order requiring a fish lift and a nature-like fishway at Shawmut would not only create insurmountable financial barriers, but also significant operational issues that would decrease the overall effectiveness of fish passage at the site. With two fishways, the attraction flows created by the nature-like fishway would compete with the attraction flows drawing fish to the lift. The fish drawn to the nature-like fishway (and away from the lift) would then have difficulty scaling the nature-like fishway due to the inherent problems with such a fishway at Shawmut (as discussed above and in the attached expert reports), reducing overall fish passage performance.

¹⁰ "MDMR comments on the EIS for Lockwood, Shawmut, Hydro-Kennebec and Weston, Appendix B at 2 (filed in this proceeding on January 3, 2022).

¹¹ This report was included in Sappi's recent comments to the National Marine Fisheries Services on April 27, 2022. Sappi copied DEP on these comments and thus they are part of the record in this proceeding. The report is also appended here as Exhibit E.

impacted”,¹² then the DMR should abandon its proposal for a nature-like fishway at Shawmut.

3. The Departments of Marine Resources and Environmental Protection cannot design or require a nature-like fishway at Shawmut without an adjudicatory proceeding.

The DMR has presented DEP with a half-finished and unvetted design of a nature-like fishway. The DMR, and its consultants, prepared this design without any public process or input, apparently in response to the public outcry over the agency’s prior proposal for a 99 percent fish passage standard for Shawmut, a standard that would have been impossible to meet. DMR’s late effort to unilaterally design a fishway at Shawmut is contrary to state law. 12 M.R.S. §§ 6121 and 12760 provide that only DMR and the Department of Inland Fisheries and Wildlife are authorized to design fishways and these agencies cannot independently design a fishway without a public adjudicatory proceeding. The participation of the dam owner and members of the public, the introduction of evidence, expert testimony, and the opportunity for cross-examination are all part of the process that must be used for state agencies to independently design or require installation of a fishway. *Id.* & 5 M.R.S. §§ 9051 – 9064.

In the absence of agreement between the agencies and the dam owner, a public adjudicatory process involving expert analysis and cross-examination makes sense when designing or requiring a fishway. This is especially true for the relatively new technology of a nature-like fishway that can have significant impacts on other stakeholders. Consider, for example, the comments from Sappi detailing the reasons that the DMR’s proposal would have potentially devastating impacts to mill operations, workers, and surrounding communities. Consider also the attached reports indicating that the nature-like fishway is not likely to improve fish passage at Shawmut. All of these factors should be considered when the state designs or requires a fishway.

Fishways are complicated and, to be effective, their design must be tailored to the dam and the surrounding terrain and hydraulics. This is particularly true for nature-like fishways, which are only effective if the water velocities resulting from the slope and length are just right, resting pools are sufficiently spaced, and the fishway is in just the right spot relative to the water spilling over and through the dam. If the downstream entrance to the nature-like fishway is too far downstream, as is the case with DMR’s proposal for Shawmut, for example, fish will be attracted past the fishway toward the water passing over the dam or through the powerhouses, diminishing the effectiveness of the passage.

Ultimately, it will be BWPH, not the DMR or DEP, that must deal with the consequences of a poorly designed fishway. If DMR scrambles to propose a preliminary

¹² E-mail from Ledwin to Howatt, “Shawmut Hydroelectric WQC – Agency Review Request” (Jan. 3, 2022).

concept for a nature-like fishway at the last minute, as it has done here, and this fishway cannot meet the passage requirements likely to be incorporated into Shawmut's FERC license, it will fall on BWPH to remedy the problem. This is one reason BWPH has spent four years carefully designing a fish lift for Shawmut in consultation with multiple state and federal agencies and fish passage engineering experts through a process that, it's worth noting, the DMR actively participated in. This process considered many options, and even considered and rejected a nature-like fishway, before settling on the fish lift that BWPH has proposed to FERC and described in its application to the DEP. The DMR was closely involved in the design of BWPH's proposed fish lift and never, right up until late 2019 when BWPH filed the fish lift design plans with FERC, objected to the technology and proposed location. If the DMR wants to design an altogether different fishway now, it must at least follow the process required by state law, something it cannot do unilaterally.

4. The DMR is contractually prohibited from proposing fishway designs for Shawmut to the DEP for inclusion in water quality certification.

The DMR, along with BWPH (as a successor-in-interest), has long been a party to the Kennebec Hydro Developers Group (KHDG) Agreement, a contract that spells out the process for fish passage design at the four dams on the lower Kennebec River, including Shawmut. The contract is attached as Exhibit F. The KHDG Agreement establishes the process and timing for design and installation of fish passage at these dams. It specifically requires DMR, along with the other "resource agencies", and BWPH to "attempt to reach consensus on the need, timing and design of permanent upstream fish passage facilities" at each of these dams. Ex. F, § IV(A). If there is no consensus (which is obviously the case here between DMR and BWPH) then the dispute "will be handled through the FERC process." *Id.*

Put simply, the KHDG Agreement makes FERC the arbiter of any disputes over fish passage between DMR and BWPH. FERC is already in the process of deciding "the need, timing and design" of fish passage at Shawmut, a process that includes participation by BWPH, the federal resources agencies, and DMR, along with many others. Ultimately FERC will incorporate the fish passage design that emerges from this process into the Shawmut license.

DMR has actively participated in the FERC process, consistent with the KHDG Agreement, but based on its prior statements, it appears unlikely that FERC will adopt DMR's extreme (and still-evolving) proposals for fish passage at Shawmut. In its draft Environmental Assessment released last year, for example, FERC staff rejected the DMR's proposal that BWPH be required to pass 99 percent of Atlantic salmon past Shawmut,¹³ a performance standard that is quite likely impossible to achieve. Unable to get what it wants at FERC per the KHDG Agreement, the DMR is now turning to DEP to impose its proposals outside the FERC process through the water quality certification.

¹³ See Draft Environmental Assessment for Hydropower License, Shawmut Hydroelectric Project, P-2322-069 at 131 (July 2021).

This is a clear breach of its obligations under the KHDG Agreement and would be grounds to invalidate any DEP order that incorporated DMR's fish passage proposals.

Conclusion

The Department of Marine Resources' incomplete proposal for a nature-like fishway at Shawmut has no role in water quality certification and should be disregarded by the DEP.

June 1, 2022

Randy Dorman

A handwritten signature in blue ink, appearing to read "Randy Dorman", with a horizontal line extending from the end of the signature.

Manager, Licensing
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