

January 19, 2024

FERC Project 2572-136

Debbie-Anne A. Reese
Acting Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426

Electronically Filed

Subject: Ripogenus Project, FERC No. 2572; Interim Plan for Aquatic Resource Protection during McKay Station Outages

Dear Secretary Reese:

Great Lakes Hydro America, LLC (GLHA), licensee for the Ripogenus Project (Project) located on the West Branch of the Penobscot River in Maine (West Branch), submits this letter in reply to Commission correspondence dated August 22, 2023, in which the Commission requests that GLHA propose interim protection measures for West Branch aquatic resources that would prevent or minimize adverse environmental effects at the Project. Specifically, the Commission requests that GLHA:

“consult with the FWS, Maine DIFW, Maine DEP, and Maine LURC to identify measures aimed at reducing the instances of fish and macroinvertebrate strandings downstream of McKay Station during down ramping events, such as unit outages, until the current relicensing process is concluded.”

The Commission further requested that GLHA submit the proposed interim protection measures (as agreed upon by the resource agencies) within 90 days (or by November 20, 2023¹), including a plan and schedule for implementing the measures.

Background

The issue of providing flows to the West Branch during outages of McKay Station is not new, and dates back to at least the early 1990's and the previous relicensing of the Project. On May 3, 1991, and following extensive consultation with resource agencies, Great Northern Nekoosa Corporation (“Great Northern”, licensee for the Project at the time) filed a *Plan for Providing Minimum Flow* (“1991 Plan”) to the Commission that detailed the proposed use of a braking system to provide a flow of approximately 400 cfs during outages at McKay Station. Prior to that, the Ripogenus Project FERC license (dated December 20, 1968) only required that a minimum flow of 200 cfs be provided below McKay Station to protect fishery resources.

¹ On November 20, 2023, GLHA submitted a 60-day time extension request to the Commission for filing the proposed interim protection measures.

As detailed in the 1991 Plan, the braking system was operated by automatically closing the wicket gates when a station trip occurred, which in turn slowed the turbines until the brakes (which were clamped to the turbine shaft discs) could bring them to a complete stop. Once the turbines stopped, the wicket gates automatically reopened to 8 – 9% gate, which allowed approximately 400 cfs to pass while the brakes held the turbines in a stationary position. Testing of the system, as detailed in the 1991 Plan, demonstrated that it took approximately 20 minutes for this system to release the full 400 cfs to the West Branch below McKay Station following a station outage.

The 1991 Plan described six station outages that occurred between 1988 and 1990 at the Ripogenus Project, which in large part prompted the development of the automated system for providing flows from McKay Station during an outage. Great Northern promoted this method of providing a 400 cfs outage flow to the West Branch as a significant improvement over historical practices, which for many years had involved dispatching a dam tender to open a gate at Ripogenus Dam, a process that typically took much longer than 20 minutes to restore flows to the river below McKay Station (especially if the dam tender was not in the immediate area). This was due to the time needed for the dam tender to drive to Ripogenus Dam, conduct the siren procedure (to warn any recreationists in the Upper Gorge), and then open a gate. Additionally, water travel time was entailed with this process, as flow releases from the dam must first pass through the ¾-mile long Upper Gorge before they reach McKay Station in order to benefit downstream aquatic resources.

Great Northern detailed the benefits of the braking system in the 1991 Plan, first and foremost pointing out that it was an automated system that was able to release flows directly into the West Branch at McKay Station, rather than manually from the upstream dam using a dam tender. In addition, the system greatly enhanced public safety (specifically for any recreationists that may be in the Upper Gorge downstream of Ripogenus Dam) and the protection of West Branch aquatic resources. Great Northern further stated in the 1991 Plan that its fisheries consultants supported the proposed system as a significant enhancement over existing conditions, with the consultants stating that it would not adversely affect the West Branch fishery if the system operated as described. The 1991 Plan also indicated that the Maine Department of Inland Fisheries and Wildlife (Maine DIFW) concurred with the assessment of Great Northern's fisheries consultants regarding the benefits of the automated flow release system to the West Branch fishery. The Commission approved this enhanced system for providing minimum flows and incorporated the 400 cfs minimum outage flow as a requirement in the 1996 FERC license.

As detailed in correspondence to the Commission dated December 30, 2016, GLHA implemented remedial measures in 2016 to improve the braking system after it malfunctioned during a May 13, 2016, outage at McKay Station. GLHA stated that a high-water level in the Ripogenus impoundment likely contributed to the malfunction due to the increased forces needed to brake and stop the units under the greater head. The remedial measures included the addition of a second braking system to increase the clamping forces on the turbine units, replacement of all air and oil piping to the units, and periodic cleaning and inspection of the brake pads and discs. In addition, GLHA stated that it would keep a sluice gate open at Ripogenus Dam until testing could be performed at a high impoundment level to demonstrate that the system would function properly during subsequent station outages.

On June 29, 2017, GLHA provided an update to the Commission after testing was performed at a high impoundment level. The testing demonstrated that the minimum flow braking system passed about 350 cfs at an impoundment level that was just under one foot below full pond. In order to ensure that the 400 cfs minimum flow would be passed during a station outage, GLHA stated that it would open the dam's log sluice when the impoundment level exceeded 930.8 feet (about 10.8 feet below full pond). The Commission accepted these modifications for providing the 400 cfs outage flow on September 18, 2017.

Since the modified operational procedure for braking the units required that flow be released from the dam, and since the use of the braking system was undesirable due to the significant forces that must be overcome to stop the units, GLHA began working in 2017 to develop and test an alternative system for providing the 400 cfs minimum flow during an outage. This system, which involved spinning (rather than braking) of the units to pass flow, was successfully tested and found to provide higher outage flows (an estimated 479 cfs) versus the 350 cfs released using the modified braking system. Thus, and as a result of the successful testing that was performed on all three hydro units at McKay Station, the modified system to pass minimum flows at the Ripogenus Project by spinning (rather than braking) the units was implemented on February 9, 2018, and the log sluice gate was closed.

On February 16, 2018, GLHA provided an update to the Commission regarding this improved system for releasing minimum flows during outages of McKay Station. On February 26, 2018, the Commission acknowledged (via e-mail) the improvements that GLHA had made to the outage flow system and stated that the release of minimum flow by spinning (rather than braking) the units met the outage flow license requirement. Since then, minimum outage flows (calculated at around 500 cfs, depending on the Ripogenus impoundment water level) have been successfully provided during station trips via the automated method of spinning the units,² and the improved system has worked as designed and approved by the Commission. All subsequent station trips, which have been caused by outside forces such as lightning strikes, and therefore were out of GLHA's control, have triggered the automatic minimum flow. GLHA has reported each of these events to the resource agencies and in no case has been in violation of the Ripogenus license requirements.

Agency Consultation

The required agency consultation to identify measures aimed at reducing the instances of fish and macroinvertebrate strandings downstream of McKay Station during unit outages was initiated with a Teams call on October 4, 2023 between GLHA, the Maine Department of Environmental Protection (Maine DEP), the Maine Land Use Planning Commission (Maine LUPC, formerly the Maine Land Use Regulation Commission), and the United States Fish and Wildlife Service (USFWS). Maine DIFW was invited but was not able to participate. GLHA emphasized the following points during this call:

- Public safety must continue to be the foremost consideration for any protection measures for fish and macroinvertebrates that are identified.

² GLHA notes that the flow being passed through the units during an outage cannot be further increased due to the risk of the units going into a speed no load condition, which would damage the units.

- The 1991 Plan should be utilized as a basis for identifying protection measures, as it evaluated various options for providing outage flows and had the same basic purpose (i.e., how to protect West Branch aquatic resources during McKay Station outages) that the Commission is requesting of GLHA today.
- The current Commission and agency-approved approach of providing flows directly through the units at McKay Station during an outage has been in place for over 30 years; the initial implementation of this approach in 1991, coupled with the improvements made in 2018, have enhanced the licensee's ability to quickly release outage flows into the West Branch, and thus, they have presumably enhanced protection measures for fish and macroinvertebrates during station outages over pre-1991 conditions.
- Since the October 2022 fish stranding study (which simulated a station outage) demonstrated that fish and macroinvertebrate impacts still do occur when McKay Station trips offline, GLHA intends to continue its focus on reducing the frequency and durations of these station outages.

The resource agencies were in general agreement with these points, especially the need to prioritize public safety for any interim protection measures that are identified. They further suggested that GLHA consider a continuous flow release from Ripogenus Dam as an interim protection measure and a synchronized bypass valve at McKay Station as a potential long-term measure. GLHA expressed concern with a continuous flow release, noting that (1) the amount of flow necessary to protect fish and macroinvertebrates during an outage is unknown and unproven, (2) a continuous flow release could potentially attract recreationists into the hazardous Upper Gorge area downstream of Ripogenus Dam, and (3) the water release could result in lower Ripogenus impoundment water levels, thereby potentially impacting impoundment stakeholders. GLHA further noted that the synchronized bypass valve approach was considered and dismissed in the 1991 Plan.

On October 19, 2023, GLHA distributed a draft of this Interim Plan for agency review (see attached). Each of the agencies provided comments (attached), with the Maine DEP, Maine LUPC, and USFWS each recommending that GLHA provide a continuous minimum flow from Ripogenus Dam of 1,422 cfs as an interim protection measure for fish and macroinvertebrates until GLHA implements more permanent protection measures.

Maine DIFW noted in their letter that they are the agency responsible for the protection and management of the inland fisheries resources in the State of Maine, and they made several points, including (1) low flow events in the West Branch below McKay Station occur in most years due to both planned and unplanned occurrences, (2) the low flow events cause fish and macroinvertebrate mortalities, (3) despite the low flow events, landlocked catch rates on the West Branch are very good (compared to similar rivers in the region), and landlocked salmon recruitment in the river is robust, (4) GLHA has acted in good faith to improve the system that is in place for automatically releasing minimum flows when the station trips offline, and (5) releasing a continuous minimum flow of 600 cfs from Ripogenus Dam would make the Upper Gorge unfishable, would reduce angling opportunities in this stretch, and would likely exacerbate low water levels in the Ripogenus impoundment.

MDIFW recommended that GLHA's proposals be implemented as interim measures through the remainder of the relicensing process, but they also recommended that GLHA mitigate for salmonid and macroinvertebrate mortalities during this interim period through monetary penalties for each low flow occurrence. These penalties would be scaled to the severity/duration of each event and determined through consultation between GLHA and Maine DIFW. The monetary penalties would be placed in a mitigation fund for fisheries restoration and improvement projects in the region.

A final Teams meeting was held between GLHA and the resource agencies on January 17, 2024 to provide a final opportunity for comment on GLHA's interim plan to protect aquatic resources in the West Branch during McKay Station outages. Each of the agencies indicated that they had no change in position from their previous written comments.

After due consideration of the various proposals, GLHA has concluded that, even as an interim measure, a continuous 1,422 cfs minimum flow from the dam is an excessive and unreasonable measure to address station trips, which, while unfortunate, are relatively rare in occurrence and short in duration. Any flows passed at the dam cannot be utilized for energy generation and, as noted above, such a high flow in the Upper Gorge raises very real and serious public safety concerns.

While imperfect, the current minimum flow system, which was developed in consultation with the resource agencies, has worked as designed. GLHA believes that, in combination with the new measures outlined below, the existing minimum flow system will continue to provide adequate protection as an interim measure. Further, permanent mitigation and enhancement measures will be analyzed and proposed as part of the relicensing process for the Ripogenus Project.

Interim Plan for Reducing Fish and Macroinvertebrate Strandings

During the current interim period prior to issuance of a new license for the Ripogenus Project, GLHA proposes to (1) continue the current approach of automatically releasing flows directly through the units at McKay Station during an outage, (2) implement measures to improve system reliability, (3) continue its ongoing long-term maintenance and upgrade project for the Ripogenus transmission line, (4) retain an engineering consultant to update the 1991 Plan based on current technology, and (5) make monetary payments to Maine DIFW for any unplanned excursions that occur at the Ripogenus Project due to unit trips at McKay Station.

Automatic Unit Flow Releases during McKay Station Outages

When an outage occurs at McKay Station, each of the three units are programmed to automatically pass flows to the West Branch downstream of the Station. The sequence of events when an outage occurs are as follows:

- Each of the units receives a shutdown command via the Station's programmable logic controller (PLC).
- The wicket gates and inlet gate dow valves for each of the units close.
- Once the PLC receives confirmation that the valves have closed, the wicket gates automatically open to a 13% gate position and the dow valves reopen.

Together, these steps take just a few minutes to occur, and they result in an outage flow of approximately 500 cfs (160 cfs through both Unit 1 and Unit 2, and 190 cfs through Unit 3).

System Reliability

Reducing the overall number of system trips would greatly improve existing conditions by directly reducing the number of minimum flow events. GLHA intends to implement a relay coordination study, with the intent being to reconfigure system relays in order to improve transmission and generation protection. This will increase the stability and reliability of the system, thereby minimizing outages at McKay Station due to system trips at other interconnected facilities (which typically result from lightning strikes and local utility outages, either of which can “ripple through” GLHA’s generating stations on the upper Penobscot). GLHA proposes to reconfigure the system relays by March 31, 2024.

GLHA also intends to install a back-up PLC system at McKay Station (by September 30, 2024), which will also improve system reliability and reduce station outages by enabling PLC functions to continue should the primary PLC crash or malfunction.

Transmission Line Maintenance

Since 2008, GLHA has implemented a long-term plan for repairing and upgrading the Ripogenus Project transmission line. The primary purpose of this work is to minimize outages of McKay Station caused by transmission line failures. In general, the work is targeted and prioritized to specific support structures (poles and crossarms) based on periodic inspections aimed at identifying wood rot and structure damage (primarily from woodpeckers). GLHA intends to continue this long-term maintenance plan on an annual basis, which has been effective in reducing outages at McKay Station (i.e., no station outages have occurred due to transmission line failure since a cross arm failed on the Ripogenus Project transmission line in May of 2016).

Update of 1991 Plan for Providing Minimum Flow

The 1991 Plan was developed following several unplanned outages at McKay Station that caused flows to drop below the 200 cfs minimum flow that was in place at the time. Great Northern stated that their purposes for developing the 1991 Plan were to improve methods for providing the existing 200 cfs minimum flow and to lay out a means for releasing a higher flow (400 cfs) during unplanned outages for the term of a new FERC license.

The consultants retained by Great Northern evaluated three basic alternatives in the 1991 Plan for providing unplanned outage flows:

- Alternative 1 - automation of a gate at Ripogenus Dam (to reduce the delay caused by the time needed to dispatch a dam tender to manually open a gate).
- Alternative 2 – installation of a bypass pipe and valve, either at the end of the tunnel that provides flows to the station turbines, or off of the penstock for Unit #1.
- Alternative 3 - passing flow through the turbines by using existing Dow valves and wicket gates and by applying brakes to prevent turbine rotation.

Alternative 1 was eliminated, as Great Northern concluded that automated gate operation would create an unacceptable public safety risk, while Alternative 2 was ruled out due to the numerous mechanical and civil limitations, along with significant construction and operation issues. As indicated previously, Alternative 3 was found to be feasible, and it was implemented in 1991.

As indicated during the October 4, 2023, agency consultation meeting, GLHA proposes to reevaluate the 1991 Plan based on current technology to determine if the Alternative 3 approach (i.e., automatically passing flow through the units) remains the preferred option for providing flows to the West Branch during unplanned outages of McKay Station. The results of this updated alternatives analysis will be provided to the Commission as part of the Ripogenus Project's application for new license, together with GLHA's proposal for long-term protection of aquatic resources during unit outages.

Mitigation Payments

As recommended by Maine DIFW, GLHA will make monetary payments to Maine DIFW (with the amounts determined through consultation between GLHA and Maine DIFW) for any unplanned excursions below 1,000 cfs³ that occur at the Ripogenus Project due to unit trips at McKay Station, up to a total of five excursions per year. These payments would be placed in a mitigation fund for fisheries restoration and improvement projects in the region, to be utilized at Maine DIFW's discretion after consultation with USFWS and Maine DEP.

Conclusion

As indicated in the Commission's August 22, 2023 letter, the referenced low flow events and associated allegations of noncompliance are not violations of the Ripogenus Project license. The automated system for providing flows from McKay Station during an outage functioned as designed during these events to ensure compliance with Project minimum flow requirements.

As directed by the August 22, 2023 letter, GLHA has consulted with resource agencies to identify and propose measures aimed at reducing the instances of fish and macroinvertebrate strandings downstream of McKay Station during unit outages, until the current relicensing process is concluded. Although GLHA and Maine DIFW are in agreement regarding these interim measures, GLHA could not reach consensus with the other agencies, specifically in regards to their recommendation that GLHA provide a continuous minimum flow from Ripogenus Dam as an interim protection measure. In addition to GLHA's primary public safety concern (i.e., that a continuous flow release could potentially attract recreationists into the hazardous Upper Gorge area), GLHA agrees with Maine DIFW that releasing the suggested continuous minimum flows from Ripogenus Dam would make the Upper Gorge unfishable, would reduce angling opportunities in this stretch, and would likely exacerbate low water levels in the Ripogenus impoundment. GLHA also notes that the current Ripogenus Project license requires a 100 cfs minimum flow from Ripogenus Dam during the months of July, August, and September, specifically to increase fishing opportunity in the Upper Gorge. As Maine DIFW notes, this license enhancement would be negated by higher and continuous minimum flows from Ripogenus Dam.

³ 1000 cfs is the lowest licensed minimum flow for the Project, other than the 400 cfs outage flow

As indicated above, GLHA intends to propose more permanent and long-term protection measures for aquatic resources through the ongoing Project relicensing process. However, in the meantime, GLHA believes that the protection measures proposed in this plan satisfy the Commission's request that GLHA identify temporary solutions aimed at reducing instances of fish and macroinvertebrate strandings downstream of McKay Station following unit outages during the current interim period until a new license is issued for the Project.

Please e-mail me at kevin.bernier@brookfieldrenewable.com or call me at (207) 951-5006 if you have any questions or need additional information.

Sincerely,

Kevin Bernier

Kevin Bernier
Senior Compliance Specialist

Cc: N. Stevens, C. Goodhart, D. Bates, D. Heidrich, S. Michaud, S. Farrington, R. Dill, M. Osborne, T. Mapletoft, R. Dorman, L. Macomber, P. McNelis, P. Wainwright, S. Hill, R. Smith, S. Nelson, K. Pocquette, S. Hofacker, C. Karam; GLHA
A. Burtner; FERC DHAC – Washington
T. Obrey, J. Perry; MDIFW
J. Rosset, B. Sojkowski, A. Cross; USFWS
L. Paye, R. Mohlar; MDEP
B. Way, B. Godsoe, B. Theriault; LUPC

GLHA File: GLHA/Licensing & Compliance/Ripogenus 2572/01 Brookfield Corres



JANET T. MILLS
GOVERNOR

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION



MELANIE LOYZIM
COMMISSIONER

November 15, 2023

Kevin Bernier
Senior Compliance Specialist
Great Lakes Hydro America
Kevin.Bernier@brookfieldrenewable.com

Via email

RE: Ripogenus Project No. 2572 – Department Comments on “Draft Interim Plan for Aquatic Resource Protection during McKay Station Outages”

Dear Mr. Bernier:

On August 22, 2023, the Federal Energy Regulatory Commission (FERC) Division of Hydropower Administration and Compliance directed Great Lakes Hydro America (GLHA), a subsidiary of Brookfield Renewable, to consult with the U.S. Fish and Wildlife Service (FWS), Maine Land Use Planning Commission (LUPC), Maine Department of Inland Fisheries and Wildlife (DIFW), and Maine Department of Environmental Protection (Department) to, “identify measures aimed at reducing the instances of fish and macroinvertebrate strandings downstream of McKay Station [the hydroelectric generating facility at the Ripogenus Project (Project)] during downramping events, such as unit outages, until the current relicensing process is concluded.”

On October 4, 2023, at the Department’s request, GLHA staff met with representatives from the LUPC, FWS, and the Department to discuss potential interim measures to reduce fish and macroinvertebrate strandings. In this meeting, Department staff informed GLHA that adequate minimum flows from Ripogenus Dam would be the only potential measure that will reduce fish and macroinvertebrate stranding caused by McKay Station outages. As noted in this meeting, the example measures FERC provided in the August 22, 2023 directive—additional staff presence, battery backup system, and automating a gate at Ripogenus Dam—would each result in a delay between a dewatering event and corrective action, and would, therefore, not reduce fish and macroinvertebrate stranding. In other words, even a delay in providing additional flows that is shorter than what is operationally feasible (in large part due to the need to check for recreation users in the upper gorge prior to releasing additional flows) would dewater the West Branch of the Penobscot River and would likely cause fish and macroinvertebrate stranding similar to the events that prompted FERC’s August 22, 2023 directive.

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On October 19, 2023, GLHA provided a draft of their plan to address McKay Station outages (draft plan). Department staff have reviewed the draft plan. Contrary to both FERC's specific direction and comments provided to GLHA at the October 4, 2023 meeting with agencies, the draft plan lacks any tangible new measures to address fish and macroinvertebrate stranding. Instead, it primarily appears to be a justification for why the current situation is acceptable and why GLHA proposes no immediate changes or interim measures.

Additionally, GLHA rules out additional minimum flows in its draft plan, speculating that providing additional flows from Ripogenus Dam could create a safety hazard by attracting additional recreation use to the upper gorge (bypassed reach). Department staff disagree that additional minimum flows would cause an unacceptable safety hazard for two reasons: 1) providing consistent minimum flows would actually be safer than providing flows on an emergency basis because the primary safety risk in the bypassed reach is associated with sudden increases in flows causing rising waters, and 2) as the 1991 "Plan for Providing Minimum Flow"¹ provided by GLHA notes, some safety risk below Ripogenus Dam is acceptable due to historical use patterns in the area and the existing safety measures in place (e.g. signage and sirens).

Department staff note that determining the minimum flows from Ripogenus Dam that are necessary to reduce fish and macroinvertebrate stranding is challenging due to a lack of information on project operations. There is currently no gage in the vicinity, and GLHA has not yet provided detailed information on how it operates the Project during the ongoing FERC relicensing process.² As FERC suggests in its August 22, 2023 directive, project operations have changed since the paper mill closed. When the mill was open, the previous licensee operated the Project to provide a steady supply of power for papermaking activities, thus providing a steady flow of water from McKay Station. Since the mill closed, the Project has been operated in a less consistent manner as GLHA sells energy on the open market, and this change has resulted in less consistent flows from McKay Station regardless of whether an outage occurs. Department staff interpret FERC's August 22, 2023 directive to address not only unplanned outages, but also any "downramping event" such as daily pulsing or peaking operations and whitewater boating flow releases.

The only information currently available to the Department that could inform potential minimum flow requirements indicates two things: 1) that stranding occurs when flows are reduced to 500 cubic feet per second (cfs) (as documented by the Fish Stranding Study conducted in 2022), and 2) that currently GLHA is required to release a seasonal minimum flow of 1,422 cfs to prevent fish and macroinvertebrate stranding. It is possible that minimum flows somewhere in the range of 500-1422 cfs would reduce fish and macroinvertebrate stranding, and Department staff recommend that GLHA modify currently planned relicensing studies or conduct an additional study, if necessary, to determine which minimum flows or range of flows are necessary.

¹ GLHA provided a "Plan for Providing Minimum Flow" written in 1991 by Great Northern Paper (previous licensee) that discusses options for providing flows during McKay Station outages. Department staff have reviewed this report and find that it generally lacks sufficient detail to guide decision-making today but note here that the report does not provide any evidence to support GLHA's assertion that additional minimum flows would create an unacceptable safety hazard in the bypassed reach.

² Department staff notes that GLHA is required to conduct a USGS Gage Feasibility Study and an Operations Model Study as part of the relicensing process.

Unless additional information is provided that demonstrates the adequacy of lower minimum flows, the Department recommends that GLHA provide a flow from Ripogenus Dam of 1,422 cfs as an interim measure until GLHA implements permanent measures.

Department staff appreciate GLHA's willingness to meet and discuss this matter and stand ready to continue to devote staff resources to working collaboratively with GLHA, FERC, and other agencies to address effects on fish and macroinvertebrates in order to ensure that the Project can attain State water quality standards related to aquatic life and habitat.

If you have any questions about this matter, please contact me at kyle.olcott@maine.gov or (207) 641-9012.

Sincerely,

A handwritten signature in blue ink, appearing to read "Kyle Olcott".

Kyle Olcott
Hydropower Coordinator
Maine Department of Environmental Protection

From: [Godsoe, Benjamin](#)
To: [Olcott, Kyle](#); [Bernier, Kevin](#); [Paye, Laura](#); [Mohlar, Robert C](#); [Way, Bryan C](#); [Theriault, Billie J](#); [Obrey, Tim](#); [Rosset, Julianne](#); [Sojkowski, Bryan](#); [Cross, Amanda S](#); [Wood, Robert](#)
Cc: [Dorman, Randy](#); [Michaud, Steve](#); [Stevens, Nate](#); [Goodhart, Cameron](#); [Bates, David S](#); [Heidrich, David](#); [Farrington, Stephen](#); [Dill, Richard](#); [Osborne, Michael](#); [Mapletoft, Thomas](#); [Macomber, Lance](#); [McNelis, Patrick](#); [Wainwright, Paul](#); [Hill, Shane](#); [Smith, Russell](#); [Nelson, Scott](#); [Pocquette, Kayla](#); [Hofacker, Stephen](#); [Karam, Chris](#)
Subject: RE: Draft interim plan for aquatic resource protection during McKay Station outages, Ripogenus Project, FERC No. 2572
Date: Thursday, November 16, 2023 9:16:19 AM

Hi Kevin,

The Land Use Planning Commission staff concurs with the Department of Environmental Protection's comments on the draft interim plan.

Thanks,

Ben Godsoe

Ben Godsoe

Planning Manager

Land Use Planning Commission

22 State House Station, Augusta, Maine 04333-0022

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From: [Rosset, Julianne](#)
To: [Godsoe, Benjamin](#); [Olcott, Kyle](#); [Bernier, Kevin](#); [Paye, Laura](#); [Mohlar, Robert C](#); [Way, Bryan C](#); [Theriault, Billie J](#); [Obrey, Tim](#); [Sojowski, Bryan](#); [Cross, Amanda S](#); [Wood, Robert](#)
Cc: [Dorman, Randy](#); [Michaud, Steve](#); [Stevens, Nate](#); [Goodhart, Cameron](#); [Bates, David S](#); [Heidrich, David](#); [Farrington, Stephen](#); [Dill, Richard](#); [Osborne, Michael](#); [Mapletoft, Thomas](#); [Macomber, Lance](#); [McNelis, Patrick](#); [Wainwright, Paul](#); [Hill, Shane](#); [Smith, Russell](#); [Nelson, Scott](#); [Pocquette, Kayla](#); [Hofacker, Stephen](#); [Karam, Chris](#)
Subject: Re: [EXTERNAL] RE: Draft interim plan for aquatic resource protection during McKay Station outages, Ripogenus Project, FERC No. 2572
Date: Thursday, November 16, 2023 11:07:55 AM

Hi Kevin,

The United States Fish and Wildlife Service also concurs with the Department of Environmental Protection's comments, provided via their November 15, 2023 email.

Please let me know if you have any questions or would like to discuss further.

Kind regards,
Julianne

Julianne Rosset (she/her)

Hydropower Coordinator | Maine Field Office

United States Fish and Wildlife Service

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Via Electronic Filing

November 17, 2023

Kevin Bernier
Senior Compliance Specialist
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**Re: MDIFW Comments on Interim Measures for the Ripogenus Hydroelectric Project
(FERC No. 2572)**

Dear Mr. Bernier:

August 22, 2023, FERC requested that Great Lakes Hydro America, LLC (GLHA) consult with the US Fish and Wildlife Service (USFWS), the Maine Department of Inland Fisheries and Wildlife (MDIFW), the Maine Department of Environmental Protection (MDEP), and the Maine Land Use Planning Commission to identify interim measures aimed at reducing the instances of fish and macroinvertebrate strandings in the West Branch of the Penobscot River downstream of McKay Station (Ripogenus Hydroelectric Project, FERC No. 2572) during downramping events until the current relicensing process is concluded. FERC issued the order after complaints from the public about fish stranding during low flow events that occurred recently on the river. FERC determined these events were not the fault of GHLA but noted that stranding did occur and resulted in fish mortalities. The interim measures would be implemented until a new license is issued sometime in 2026. MDIFW staff met with GHLA staff via Teams on November 2, 2023, to discuss options identified by both GHLA and MDIFW. MDIFW is the agency responsible for the protection and management of the inland fisheries resources in the State of Maine, and we have been actively involved in all stages of the current relicensing of the Ripogenus Project.

MDIFW has reviewed the flow data provided to the stakeholders in May 2023 to determine the frequency and duration of low flow events below Ripogenus Dam. We determined that flows less than the minimum flow occur in most years. While some events were planned and consultation occurred ahead of time (i.e., due to drought), many were unplanned and occurred from lightning strikes and other acts of nature. We estimate that flows less than 500 cfs occurred in 17 of 23 (74%) years since 2000. There were multiple events in some years, for a total of 40 events of flows 500 cfs or less during this period. Presumably, the flows never dropped below 500 cfs after 2018 when GHLA improved the automatic release procedure at McKay Station. We would anticipate a range of mortalities of fish, primarily young landlocked salmon, when these events occurred, especially prior to 2018, based on results of the Stranding Study, with some areas of the river impacted to a greater degree, while other areas impacted to a lesser degree.

MDIFW staff were on-site during the Stranding Study conducted on the West Branch of the Penobscot River on October 5, 2022. They were stationed at the Holbrook Side Channel study site, which was one of the most severely impacted areas during the Study. The Stranding Study showed a spectrum of impacts in the river that occurred when the flow decreases from the normal daily flow (~2,000 cfs) to the ~500 cfs that is automatically released when McKay Station trips offline. There were mortalities at the Holbrook site due to its shallow topography and quality rearing habitat for young landlocked salmon. The salmon mortalities observed were young-of-the-year salmon and parr. Yet, just upstream and downstream, and directly across the river from this site, there were minimal impacts on salmon because the river is deeper and the shoreline much steeper. Most of the river, including the thalweg, remained wetted in this area. The Stranding Study report details the range of impacts at all the Study sites.

MDIFW monitors the landlocked salmon and brook trout fishery in the West Branch of the Penobscot River using voluntary record books and, more recently, survey boxes placed at angler access points along the river. MDIFW utilizes angler survey boxes on many rivers throughout the State, including nearby at the East Outlet of the Kennebec River and the Moose River. Both rivers are similar to the West Branch in terms of clientele and type of fishery. The data were presented in comments already filed by MDIFW and are present again below. The results show that catch rates for salmon in the West Branch are very good compared to other similar rivers in the region. Fish catch and size evaluations show that recruitment in the West Branch of the Penobscot is robust. This implies that the low flow events which have occurred once or a few times in most years, while an impact, are not catastrophic for the salmon population in the West Branch of the Penobscot River.

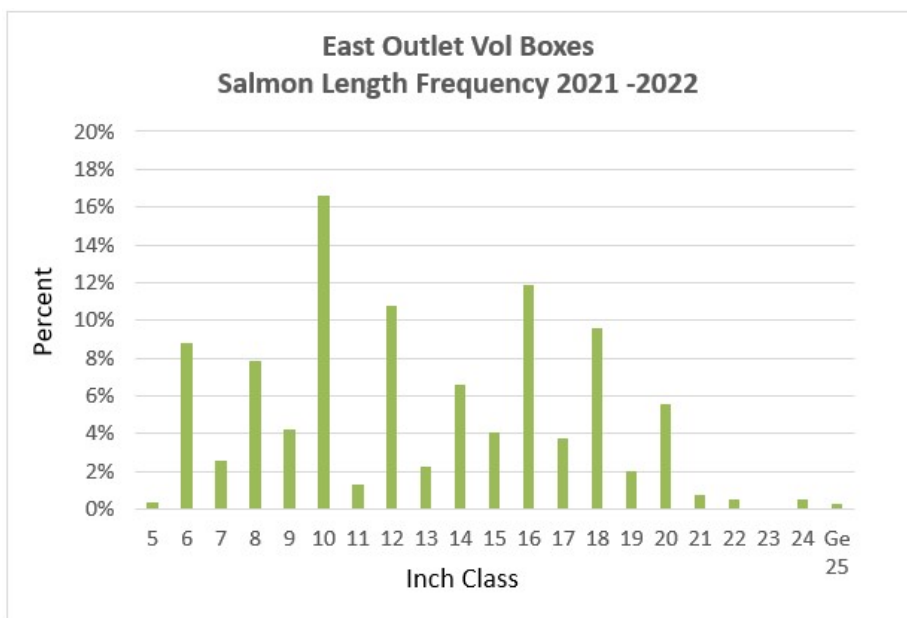
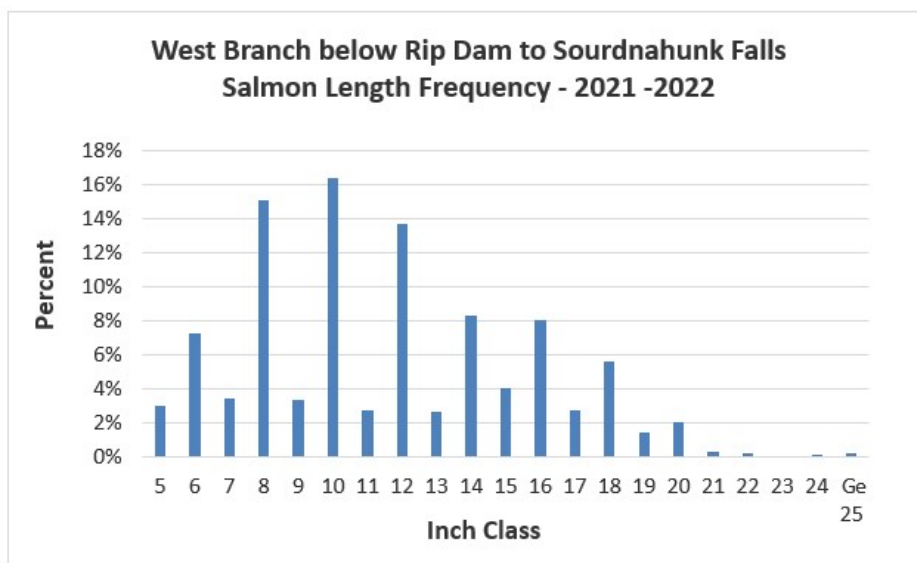
Data Summary from West Branch of Penobscot angler boxes

	2021	2022
Parties	356	216
Anglers	612	358
Total Hours	1545	762
Salmon Kept	1	0
Salmon Released	863	748
Brook Trout Kept	4	1
Brook Trout Released	178	75
All Salmon/hr.	0.76	0.99
All Brook Trout/hr.	0.15	0.13

For comparison, below are the catch rates for landlocked salmon and brook trout in 2021 and 2022 from the nearby Moose River and East Outlet of the Kennebec River, both which have similar fisheries and similar clientele:

	<u>Moose River</u>	<u>East Outlet</u>
All Salmon/hr.	0.37	0.49
All Brook Trout/hr.	0.14	0.22

Below is the length frequency from angler caught fish reported in the voluntary boxes in the West Branch in 2021 and 2022. It is typical of a river system with all life stages of salmon present:



It is MDIFW's position that low flow events should be avoided when possible, and we believe that GLHA has acted in good faith by improving the system in 2018 so that 500 cfs is automatically released when the system trips off-line. However, these low flow events do cause fish and invertebrate mortalities.

During our November 2 consultation with GLHA we discussed several options. Firstly, MDIFW concurs that any automated flow releases through Ripogenus Dam should be avoided due to public safety concerns. The gorge area is very difficult to access, and any unscheduled releases could trap anglers when flows increase.

We discussed the possibility of a constant release from Ripogenus Dam to buffer against low flow events. Releasing 600 cfs through the dam at all times would achieve this, since McKay Station will automatically release 500 cfs during a station trip, bringing the total flow to the license requirement of 1,100 cfs minimum flow. However, there are drawbacks to this option. For example, one of the key issues identified so far in the relicensing process is the need to retain more water in the impoundment and releasing an extra 600 cfs at all times would likely exacerbate the issue of low water in the lake. FERC would likely have to further mandate that the excess flow be subtracted from the normal operating flow. This would be very cumbersome and likely difficult to enforce. This type of flow management could also lead to unintended consequences by overly restricting GHLA's ability to manage the water. MDIFW also believes that 600 cfs through Ripogenus Dam would make this stretch unfishable and we would lose angling opportunities due to excessive flows.

GHLA has proposed to complete a relay coordination study to improve the system's reliability and reduce outages at McKay Station due to events at other connected facilities. Although this is not new, GHLA will continue with their successful efforts to minimize transmission line issues. Based on MDIFW's long-term angler surveys, MDIFW does not believe the low events of 500 cfs *compromise* the salmonid or invertebrate populations in the West Branch; however, each event does cause mortalities which should be mitigated. MDIFW recommends moving forward with GHLA's proposals through the remainder of this relicensing process, but we recommend a monetary penalty for each future event that is scaled to the severity/duration of the event. This penalty would be placed in a mitigation fund for fisheries restoration and improvement projects in the region, to be utilized at MDIFW's discretion after consultation with USFWS and MDEP. GHLA and MDIFW would negotiate the amount for each event and present it to FERC for approval. We believe this option would provide incentive to GHLA to minimize low flow events while keeping interim measures in proportion to the biological impacts.

We appreciate GLHA's ongoing commitment to work through these important issues. Please feel free to contact my office if you have any questions regarding this information, or if I can be of any further assistance.

Best regards,

A handwritten signature in blue ink, appearing to read 'John Perry', with a stylized flourish at the end.

John Perry
Environmental Review Coordinator

Cc: Francis Brautigam, Joe Overlock—MDIFW Fisheries Division, Augusta Headquarters
Tim Obrey, Jeff Bagley—MDIFW Fisheries Division, Region E
Kevin Dunham, Kevin Gallant—MDIFW Fisheries Division, Region F
Kyle Olcott, MDEP
Julianne Rosset, USFWS

From: [Bernier, Kevin](#)
To: [Olcott, Kyle](#); [Paye, Laura](#); [Mohlar, Robert C](#); [Godsoe, Benjamin](#); [Way, Bryan C](#); [Theriault, Billie J](#); [Perry, John](#); [Obrey, Tim](#); [Rosset, Julianne](#); [Sojkowski, Bryan](#); [Cross, Amanda S](#)
Cc: [Dorman, Randy](#); [Michaud, Steve](#); [Stevens, Nate](#); [Goodhart, Cameron](#); [Bates, David S](#); [Heidrich, David](#); [Farrington, Stephen](#); [Dill, Richard](#); [Osborne, Michael](#); [Mapletoft, Thomas](#); [Macomber, Lance](#); [McNelis, Patrick](#); [Wainwright, Paul](#); [Hill, Shane](#); [Smith, Russell](#); [Nelson, Scott](#); [Pocquette, Kayla](#); [Hofacker, Stephen](#); [Karam, Chris](#)
Subject: Draft interim plan for aquatic resource protection during McKay Station outages, Ripogenus Project, FERC No. 2572
Date: Thursday, October 19, 2023 7:28:00 PM
Attachments: [20230822 FERC reply to allegations of Ripogenus flow deviations and fish strandings.PDF](#)
[1991_05_03 Plan to FERC for providing minimum flow.pdf](#)
[image001.gif](#)
[20231019 Ripogenus interim plan for outage flows.pdf](#)

Please find attached for your review Great Lakes Hydro America, LLC's (GLHA's) draft response to FERC correspondence dated August 22, 2023 (attached), in which FERC requests that GLHA *"consult with the FWS, Maine DIFW, Maine DEP, and Maine LURC to identify measures aimed at reducing the instances of fish and macroinvertebrate strandings downstream of McKay Station during downramping events, such as unit outages, until the current relicensing process is concluded."* McKay Station is part of the Ripogenus Project (FERC No. 2572), which is licensed to GLHA and has a FERC license that is scheduled to expire in October 2026. A *"Plan for Providing Minimum Flow"*, which is referenced in GLHA's draft response and was filed with FERC by Great Northern Nekoosa Corporation in 1991, is also attached.

Since FERC further requests that GLHA submit its proposed interim protection measures within 90 days (or by November 20, 2023), please provide any comments to me **by November 19, 2023**.

Thank you, and feel free to contact me with any questions.

Kevin Bernier
Senior Compliance Specialist

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-----Original Appointment-----

From: Olcott, Kyle <Kyle.Olcott@maine.gov>

Sent: Friday, September 29, 2023 12:44 PM

To: Olcott, Kyle

Cc: Bernier, Kevin; Dorman, Randy; Michaud, Steve; Stevens, Nate; Paye, Laura; Mohlar, Robert C; Garland, Wendy; Godsoe, Benjamin; Way, Bryan C; Theriault, Billie J; Perry, John; Obrey, Tim; Rosset, Julianne; Sojkowski, Bryan

Subject: Ripogenus interim measures

When: Wednesday, October 4, 2023 10:00 AM-11:00 AM (UTC-05:00) Eastern Time (US & Canada).

Where: Microsoft Teams Meeting

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