

July 18, 2024

***VIA ELECTRONIC SUBMITTAL TO DEP-Hydropower@maine.gov***

Laura Paye  
Hydropower Coordinator  
Maine Department of Environmental Protection  
17 State House Station  
Augusta, ME 04333-0017

**Subject: Rumford Falls Hydroelectric Project (FERC No. 2333)  
Comments on Draft Water Quality Certification (MDEP Application #L-024307-33-G-N)**

Dear Ms. Paye:

The Maine Department of Environmental Protection (MDEP) issued a Draft Water Quality Certification (WQC; MDEP Application #L-024307-33-G-N) for the Rumford Falls Hydroelectric Project (FERC No. 2333) (Project) on June 20, 2024. Rumford Falls Hydro LLC (RFH), a subsidiary of Brookfield Renewable, the Project applicant, is herein respectfully submitting comments on the Draft WQC for MDEP's consideration (Attachment A).

The Project, which consists of two discrete developments – the Upper Station Development and the Lower Station Development, is located on the Androscoggin River in the Towns of Rumford and Mexico, Oxford County, Maine. The Project's existing Federal Energy Regulatory Commission (FERC or Commission) license expires on September 30, 2024, and RFH is pursuing a new license for the Project. On August 22, 2023, RFH submitted the WQC application to MDEP pursuant to Section 401 of the Clean Water Act for the proposed relicensing and continued operation of the Project.

If there are any questions or comments regarding this submittal, please contact me by phone at (207) 755-5613 or at [luke.anderson@brookfieldrenewable.com](mailto:luke.anderson@brookfieldrenewable.com).

Sincerely,



Luke Anderson  
Senior Manager, Licensing  
Brookfield Renewable

Attachment A – Rumford Falls Hydro LLC's comments on the Draft Water Quality Certification for the Rumford Falls Hydroelectric Project (FERC Project No. 2333)

## 1. Clarifications

- Page 2, Draft WQC: “*The Lower Station Development consists of the Middle Dam, the Middle Canal headgate structure with a waste weir section, the Middle Canal, a gatehouse, two penstocks each with surge tanks, an impoundment, a short transmission line, and appurtenant facilities.*”
  - RFH Clarification: The powerhouse should be included in this sentence.
- Page 3, Draft WQC: “*The Lower Station development has 600-foot-long, 11.5 kV generator leads.*”
  - RFH Clarification: RFH's March 6, 2023, response to FERC Additional Information Requests on the Final License Application clarifies that the transmission lines at the Lower Station development are 1,820 feet long (not 600 feet). The response states the following “Electricity from the Lower Station is submitted to the GSU substation by 11.5 kV Lines 5 A and B, which run 1,820 feet parallel on the same tower.”
- Page 3, Draft WQC: “*The Middle Dam creates an impoundment with a surface area of about 21 acres at a normal full pond elevation of 502.44 feet.*”
  - RFH Clarification: full pond elevation of 502.44 feet should be changed to 502.74 feet, as correctly referenced elsewhere in the Draft WQC (i.e., pp. 4, 6, 13, 20, and 33).
- Page 6, Draft WQC: footnote 4 states “*The Final License Application is expressly incorporated into the WQC application*”.
  - RFH Clarification: RFH recommends that this sentence be revised as follows to include supplemental filings to the Final License Application (FLA), which are referenced in the WQC application and provided as part of the MDEP record. “The Final License Application is expressly incorporated into the WQC application, as supplemented by RFH filings with FERC on March 6, March 30, May 16, and June 9, 2023”.
- Pages 14, 33, and 34, Draft WQC: footnotes are referenced on these pages (i.e., footnotes 8, 30, and 31).
  - RFH Clarification: the footnotes are not included in the document.

## 2. Comments

### Minimum flow, Middle Dam Bypass Reach

RFH proposed the following minimum flows in the FLA for the Middle Dam bypass reach:

- “Provide a minimum flow, primarily via notched flashboards, into the Middle Dam bypass reach of 95 cfs from May 1<sup>st</sup> to October 31<sup>st</sup> and 54 cfs from November 1<sup>st</sup> to April 30<sup>th</sup>.
  - If flashboard maintenance or other work that requires the Middle Dam impoundment to be drawn down temporarily for short periods below dam crest, the minimum flow will be maintained during this period no lower than the existing minimum flow of 21 cfs.”

In the Draft WQC, MDEP stated that RFH's proposed minimum flows in the Middle Dam bypass reach of 95 cfs from May 1<sup>st</sup> to October 31<sup>st</sup> and 54 cfs from November 1<sup>st</sup> to April 30<sup>th</sup> will not meet Class C aquatic life standards and is insufficient to support the designated uses of recreation in and on the water and fishing. In the Draft WQC MDEP Condition 2A states:

“Except as temporarily modified by 1) approved maintenance activities, 2) extreme hydrological conditions (see footnote 30), 3) emergency electrical system conditions (see footnote 31), or 4) agreement between the Applicant, the Department and appropriate state and/or federal agencies, the Applicant must provide a year-round minimum flow of ... 200 cfs from the Middle Dam into the Middle Dam bypass reach.”

MDEP's supporting analysis for requiring a year-round minimum flow of 200 cfs in the Middle Dam bypass reach includes the following:

“2) Aquatic Habitat and Aquatic Life – Outlet Stream ...

Based on studies conducted by the Applicant, modeling shows that the rate of increase in suitable BMI habitat begins to level off at approximately 200 cfs. Studies also modeled suitable and optimal habitat increases for three species of fish present in the Middle Dam bypass reach, showing an inflection point at approximately 193 cfs. In addition, 200 cfs is a minimum flow that would support the designated uses of recreation in and on the water, and fishing.

The Department finds that the Applicant's proposed minimum flows of 95 cfs from May 1<sup>st</sup> to October 31<sup>st</sup> and 54 cfs from November 1<sup>st</sup> to April 30<sup>th</sup> will not meet Class C aquatic life standards and that a minimum flow of 200 cfs is necessary to meet the Class C aquatic life standards.” (p. 18)

“C. Fishing, Navigation, and Recreational Access and Use...

The Department finds that while the applicant has proposed to enhance angling access in the Middle Dam bypass reach by installing stairs behind the Rumford Public Library, the applicant has not proposed a sufficient minimum flow to support the designated uses of recreation in and on the water and fishing. MDIFW commented and the Department finds that increased minimum flows would provide improvements in recreation and fishing necessary to meet Class C standards for recreation in and on the water and fishing.

...As noted above, studies modeled suitable and optimal habitat increases for three species of fish present in the Middle Dam bypass reach, showing an inflection point at 193 cfs. In light of the Flow Study for Aquatic Habitat included in the USR and FLA, as well as comments from State natural resource agencies and NGOs on the FLA, the Department finds that a minimum flow of 200 cfs will satisfy the

designated uses of recreation in and on the water and fishing in the Middle Dam bypass reach.” (p. 27)

RFH's provides the following comments, each of which are discussed below:

- Justification for RFH's Proposed 95 cfs Minimum Flow - Analysis from the Aquatic Habitat Evaluation supports RFH's proposed minimum flow of 95 cfs in the Middle Dam bypass reach; and
- Justification for RFH's Proposed Lower Seasonal 54 cfs Minimum Flow During Winter and Early Spring - A lower seasonal minimum flow is warranted from November 1<sup>st</sup> to April 30<sup>th</sup>.

**Justification for RFH's Proposed 95 cfs Minimum Flow:** RFH calls attention to its analysis in the FLA, which RFH believes supports the 95 cfs minimum flow proposed:

“The Flow Study for Aquatic Habitat Evaluation study looked specifically at the relationship between the Middle Dam bypass reach flows and the quantity of suitable habitat for several species of fish, as well as macroinvertebrates. Both the qualitative Demonstration Flow Analysis (DFA) and the quantitative one-dimensional (1-D) modeling results showed that the amount of suitable habitat continues to increase up to the maximum measured or modeled flows (DFA included flows up to 265 cfs; 1-D modeling included flows from 20 cfs to 400 cfs in 20 cfs increments) for most target species (See Figure 5.6-4 ...). However, the rate of increase in habitat with increase in flow declines as flows exceed 100 cfs to 150 cfs (See Figure 5.6-5 ...). For example, gains in habitat are only 10 percent or less per 20 cfs increment at flows of 80 cfs to 160 cfs. This trend is not only seen for the target fish species, but for BMI as well, which were also shown by the BMI study to fulfill Class A standards under existing flow conditions. Even lower gains in physical habitat as measured by cross-sectional areas (ft<sup>2</sup>) or wetted perimeter (ft) are evident, with changes less than 5 percent per 20 cfs flow increment for all flows over 80 cfs (RFH 2022).

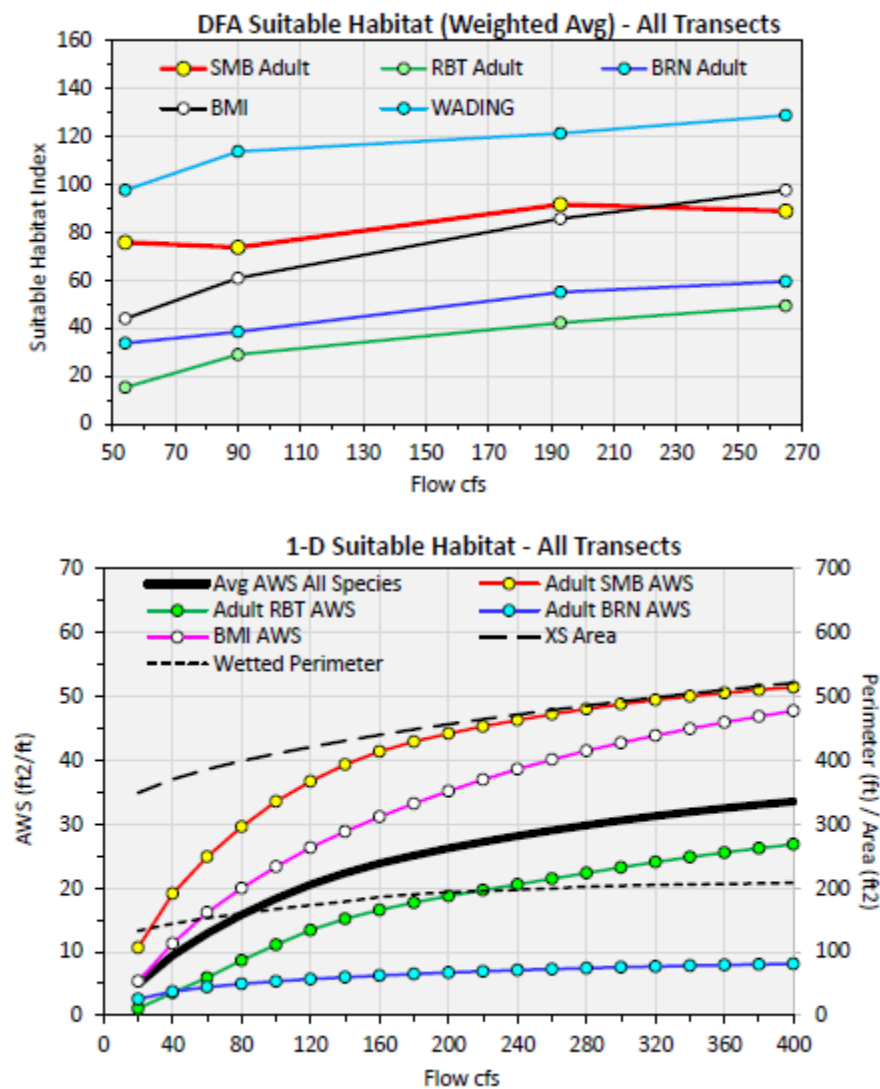
Reach connectivity was assessed visually during the habitat mapping component of the Flow Study for Aquatic Habitat Evaluation during which the existing minimum flows in the Middle Dam bypass reach were observed to pass from one adjacent habitat map unit (HMU) to the next. When considered as an index of connectivity, the modeled mean and maximum water depths at habitat transects throughout the Middle Dam bypass reach provided thalweg depth conditions of two feet or greater under all conditions down to the measured minimum leakage flow of approximately 54 cfs, which indicated connectivity throughout this reach (RFH 2022).

Collectively, these results suggest that habitat conditions under current bypass flows, or under conditions of moderately increased flows, provide suitable water quality conditions and an abundance of suitable physical habitat for a healthy and

functioning ecosystem for both fish and BMI as well as adequate connectivity for their downstream movement (RFH 2022).

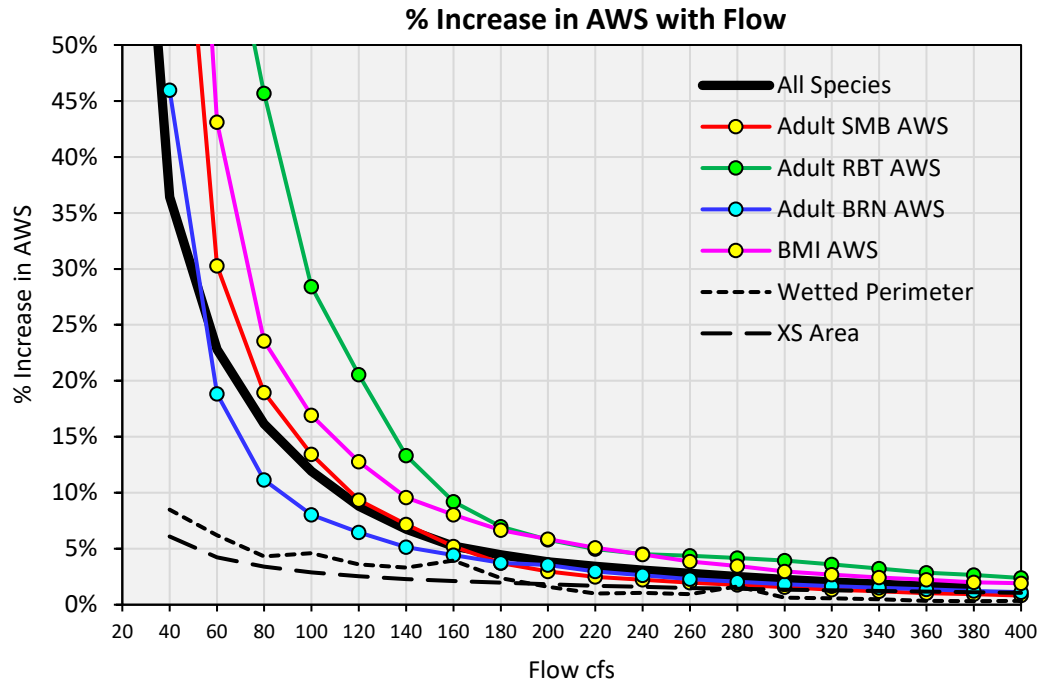
... (Figure 5.6-4) shows that wading suitability increases rapidly from 54 to 90 cfs, but minimal increase in wading habitat occurs at higher flows. The gain in wading habitat from 90 cfs to 265 cfs is only 12 percent, despite almost a three-fold increase in flow."

**Figure 5.6-4. Suitable Habitat and Discharge for Target Species in the Middle Dam Bypass Reach. Upper Figure Shows Habitat Based on the DFA Analysis, Lower Figure Based on the 1-D Analysis (RFH 2022)**



Note: SMB=smallmouth bass, RBT=rainbow trout, BRN=brown trout, BMI=benthic macroinvertebrates. Lower figure also shows changes in cross-sectional area and wetted perimeter with flow.

**Figure 5.6-5. Percent Increase in Suitable Habitat (AWS) per 20 cfs Increment in Flow for Target Species in the Middle Dam Bypass Reach (RFH 2022)**



Note: SMB=smallmouth bass, RBT=rainbow trout, BRN=brown trout, BMI=benthic macroinvertebrates. Also shown is percent change in cross-sectional area and wetted perimeter with flow.

**Justification for RFH's Proposed Lower Seasonal 54 cfs Minimum Flow During Winter and Early Spring:** RFH calls attention to its analysis in the FLA, justifying a lower seasonal minimum flow:

"The lower proposed flow release of 54 cfs during the winter and early spring periods are biologically justified by the target species' natural responses to cold water temperatures, and because the trout fishery is hatchery-dependent and spring spawning by stocked trout is unlikely to occur in the Middle Dam bypass reach. The dominant game fish in the bypass reach, adult resident trout and bass, are all known to prefer deeper and slower water habitats under winter conditions with low water temperatures (Munther 1970, Cunjak and Power 1986, Dare et al. 2002). Fish inhabiting the upstream pool above the cascade will have an abundance of deep/slow habitat at virtually all bypass flows, and the lower section of the bypass with its shallow/swift boulder and cobble habitat are not expected to provide suitable overwintering habitat for adult trout or bass, especially during winter spill events or periods of ice formation. Instead, those fish would be expected to move downstream into the deeper and slower pool habitats adjacent to the powerhouse or downstream of the Swift River confluence."

As noted above, thalweg depth conditions at habitat transects throughout the Middle Dam bypass reach of two feet or greater occurs under all conditions down to the measured minimum leakage flow of approximately 54 cfs, which indicated connectivity throughout this reach (RFH 2022).

In addition, in its Draft Environmental Assessment for the Project, FERC (2024) supported the minimum flows for the Middle Dam bypass reach proposed by RFH:

“We find that RFH’s proposed flows would provide a substantial enhancement of aquatic habitat at a reasonable cost. ...Therefore, we recommend RFH provide a minimum flow of 95 cfs from May 1 to October 31 and 54 cfs from November 1 to April 30.” (p. F-11)

### **Closing**

In summary, RFH’s proposed minimum flows for the Middle Dam bypass reach represent a substantial enhancement and are appropriate, as reflected by RFH’s analysis in its license application and FERC’s analysis in its Draft Environmental Assessment. RFH respectfully requests further consideration of RFH’s proposed minimum flows.

## **Literature Cited**

- Cunjak, R.A., and G. Power. 1986. Winter habitat utilization by stream resident brook trout (*Salvelinus fontinalis*) and brown trout (*Salmo trutta*). *Canadian Journal of Fisheries and Aquatic Sciences* 43:1970-1981.
- Dare, M.R., W.A. Hubert, and K.G. Gerow. 2002. Changes in habitat availability and habitat use and movements by two trout species in response to declining discharge in a regulated river during winter. *North American Journal of Fisheries Management* 22:917-928.
- Federal Energy Regulatory Commission (FERC). 2024. Draft Environmental Assessment, Rumford Falls Hydroelectric Project, FERC Project No. 2333-094. February 2024.
- Munther, G.L. 1970. Movement and distribution of smallmouth bass in the Middle Snake River. *Transactions of the American Fisheries Society* 99: 44-53.
- Rumford Falls Hydro (RFH). 2022. Updated Study Report. Rumford Falls Hydroelectric Project. FERC No. 2333. Filed on August 5, 2022.