



STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
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AUGUSTA ME 04333-0041



Via Electronic Filing

February 17, 2023

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

**Re: MDIFW Comments on the Final License Application for the Rumford Falls
Hydroelectric Project (FERC No. 2333)**

Dear Secretary Bose:

On September 29, 2022, Rumford Falls Hydro LLC (Licensee), a subsidiary of Brookfield Renewable (Brookfield), submitted their Final License Application (FLA) for the Rumford Falls Hydroelectric Project (FERC No. 2333). The Project is located on the Androscoggin River in the Town of Rumford, Oxford County, Maine. The Maine Department of Inland Fisheries and Wildlife (MDIFW) previously commented on the Pre-Application Document (PAD) and study requests, the Proposed Study Plan, the Revised Study Plan, and the Draft License Application (DLA). In addition, we have conducted numerous field visits and consultations with the Applicant associated with this Project, particularly for the Angler Creel Survey and the bypass reach studies.

Based on our statutory responsibility we have prepared the following comments on the FLA:

On Page B-15 of the FLA, the Licensee states, “Any PM&E measures, as they pertain to the ongoing Recreation Study and Angler Creel Survey, will be filed with the Commission as an addendum to this FLA.”

MDIFW response: As the FLA was filed before completion of both the Recreation and Angler Creel Studies, MDIFW submits the following comments on the FLA with the intent of being able to amend or add additional comments, as necessary, pending the completion of those ongoing evaluations and filing of the addendum.

Impoundment Water Levels

Current operations regarding water levels on Page B-10 state, “*The Rumford Falls Hydroelectric Project (Project) is operated in a run-of-river mode consistent with the Project’s existing Federal Energy Regulatory Commission (FERC or Commission)-issued license. Rumford Falls Hydro LLC (RFH or Licensee) maintains the Upper Dam and Middle Dam impoundments within 1 foot of full pond elevation (601.24 feet U.S. Geological Survey Datum [USGS] at the Upper Dam impoundment and elevation 502.74 feet USGS at the Middle Dam impoundment) and acts*

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to minimize the fluctuations of the reservoir surface elevation (i.e., maintain a discharge from the Project so that, at any point in time, flows immediately downstream from the Project tailraces approximate the sum of the inflows to the Project reservoirs)." Page D-4 reiterates the previous information as a proposed PM&E measure.

MDIFW response: Maintaining stable headpond water levels is important to minimize impacts on fish and other aquatic organisms. Consequently, MDIFW is supportive of the current and proposed operations in relation to water levels. The Licensee further indicates that they currently notify the resource agencies regarding any planned maintenance, repairs, or other scheduled activities that deviate from this operational scheme. This measure further minimizes potential impacts on aquatic resources by allowing resource agencies an opportunity to amend the activity if there are anticipated impacts (i.e., spawning activity) that could be mitigated, and it allows the resource agencies to address public inquiries/complaints. The above should be clearly stated as an operational requirement in the issuance of any new license.

Bypass Flows

Current operations regarding water levels on Page B-10 state, *"Pursuant to Article 402 of the Project's existing license, RFH releases a minimum flow of 1 cubic foot per second (cfs) from the Upper Dam and 21 cfs from the Middle Dam into the bypass reaches. The minimum flow at the Upper Dam is provided via leakage from the flashboards. At the Middle Dam, the 21 cfs minimum flow is provided via a 12-inch-diameter and a 18-inch-diameter pipe, both located near the center of the dam, which is combined with leakage from the flashboards and pressure release vertical drain holes."*

Page D-5 of the FLA proposes the following PM&E measures regarding minimum flows,

"• Minimum flows:

- o Continue to release a minimum flow of 1 cfs into the Upper Dam bypass reach.*
- o Provide a minimum flow, primarily via notched flashboards, into the Middle Dam bypass reach of 95 cfs from May 1st to October 31st and 54 cfs from November 1st to April 30th.*
- 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."*

MDIFW response: MDIFW requests that the new license requires agency notification and consultation pertaining to all flashboard maintenance, drawdowns, or other work at the Project that has the potential to impact the resource. Note that MDIFW is currently notified of these activities by the Licensee, which we appreciate.

There is limited aquatic habitat potential in the Upper Dam bypass; therefore, from the perspective of aquatic habitat only, MDIFW has no objections to the current and proposed minimum flow of 1 cfs. Aesthetics, however, are a separate issue, which we expect will be addressed by other State agencies, local entities, and non-governmental organizations.

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Regarding the Middle Dam bypass, the Licensee reports that flow from the 12- and 18-inch diameter pipes equates to approximately 21 cfs, and is combined with leakage from flashboards and vertical pressure release drain holes. Verbal communications regarding the recent Flow Study demonstrated this combined flow to be approximately 54 cfs, which is important as it largely forms the basis for the “new” proposed minimum flow scheme. By our interpretation, the FLA gives the impression that the Licensee is improving low flow conditions from November 31st-April 30th when operations are exactly as they had been under the previous license for this seasonal period. In addition, leakage from flashboards is likely to be inconsistent.

MDIFW is concerned that the current and proposed minimum flows for the Middle Dam bypass are extremely low and unacceptable given the drainage area, physical character, length, area, biota, and fisheries potential of the bypass reach, not to mention the aesthetic concerns raised by numerous parties. After having observed various flows in the bypass reach, it is MDIFW’s position that increased minimum flows provide improvements in fish habitat and better angling opportunities. A review of the August median flow or Aquatic Base Flow (ABF) for the site, a metric commonly used by resource agencies to assess minimum flow requirements, illustrates the large disparity with current and proposed operations. A brief analysis of USGS Flow Data by MDIFW indicates the mean ABF over the past 25 years for the river at this site equates to 1,990 CFS. Under the current proposal, the Licensee is proposing to allocate only 2.7% or 4.8% of the August median flow down the natural river channel, while sending the remainder through the artificial canal to generate power. In contrast, recent relicensing efforts at two projects on the Little Androscoggin River provided minimum flows at or slightly below ABF. Consequently, the proposed minimum flows are grossly inconsistent with recent minimum flow improvements on other hydro projects in Maine with much smaller drainage and bypass areas that were supported by State and Federal agencies, as well as FERC.

When conducting IFIM studies, MDIFW prefers to evaluate various flows from the current license minimum flow up to ABF, and at least one flow above ABF for evaluating an appropriate flow. Our objective is to find the inflection point where increases in habitat suitability become flat-lined, or the incremental gains become limited. This process allows FERC to make a balanced decision between resource/recreational needs and hydropower production. During our site visit, MDIFW staff misunderstood the Licensee’s basis for the maximum study flow of 265 cfs and only requested one additional flow (400 cfs). Unfortunately, the range of flows evaluated in the current flow study were well below ABF and make it difficult to recommend an appropriate minimum flow. Ideally, our recommendation would be for additional flows to be evaluated in 2023 before FERC commits to a minimum flow for the bypass reach. Based on the calculated ABF (1,990 cfs) and the flow values already studied (400 cfs), we recommend additional data and analyses for 800, 1600, and 3200 cfs.

Firstly, MDIFW will explore the existing submitted flow study as it forms the basis for the applicant’s proposed minimum flow. Several concerns regarding the flow study include:

- The binary HSI analyses as noted in our earlier comments. However, the Licensee did include 1-D Flow Modeling with variable suitability and Area-Weighted Suitability metrics at our request. In addition, only the later analysis included the highest 400 cfs

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flow. Further MDIFW comments on the Flow Study will indicate a preference for this methodology.

- HSI depth curve going to zero suitability at 6 feet may have some impact on the results and is not necessarily consistent with observations of adult trout behavior in large Maine river systems.
- It should also be recognized that the substantial habitat differences from the upper to lower areas within the bypass reach likely countered the combined suitability results, and a closer examination of Table 8 in the Flow Study confirms this effect. While this isn't being noted as a study flaw, it is important in that it was hoped better minimum flows would largely improve the habitat within the over widened and typically dewatered reaches of the lower bypass area.
- Lastly, it is unclear how evaluations of higher flows approaching ABF would have impacted the suitability results. Presumably, the pool reaches may have become runs with improved velocity metrics, and an examination of Figure 3 in the Study suggests metrics for both depth and velocity would have likely improved for transects in the lower bypass area.

Secondly, MDIFW would like to address a few key statements in the FLA based on the Flow Study including:

Statement 1: Page 137 of the FLA states, *“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 macroinvertebrates.”*

Statement 2: Page 136 of the FLA states, *“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.”*

Page 168 of the FLA states, *“an increase in the minimum flow in the Middle Dam bypass reach would improve fish and macroinvertebrate habitat.”*

Statement 3: Page 136 of the FLA states, *“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 in Section 5.6). For example, gains in habitat are only 10 percent or less per 20 cfs increment at flows of 80 cfs to 160 cfs.”*

MDIFW Response: Statement 1 above sets an extremely low bar for salmonids, and “suitable” should not be the basis for evaluating the bypass habitat. Based on the HSI curves employed, a minimum suitability for rainbow and brown trout was defined as 0.25 and 0.1 cfs, respectively. In addition, both species were assigned a minimum depth suitability of 1 foot. While those minimum habitats requirements might be “suitable” or survivable, they are certainly not

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preferred and would not hold trout for any length of time, particularly given the lack of instream cover for the lower riffle areas. Larger trout would seek out much greater depths for holding, while they might briefly venture into shallow depths, as defined here, for foraging or travel needs.

MDIFW agrees with the statements noted in Statement 2 above: habitat suitability generally increases for all target species up to the maximum flows evaluated, and we would add that they continue on an upward trajectory. While several figures in the FLA (See Figure 5.6-4 in Section 5.6) illustrate this, we believe the best illustration is Figure 8 in the Study Report. What remains unclear is how would these suitability graphs change at flows in the vicinity of ABF.

Statement 3 above forms the basis for the proposed 95 cfs for the spring-fall period. However, MDIFW does not necessarily agree with the Licensee's conclusion. Based on the available data, the "inflection point" appears to be around 190 cfs for fish in Figure 4 of the Study Report for DFA Optimal Habitat. However, this data is certainly impacted by the concerns we noted earlier. It is MDIFW's position that the "inflection point" for Figure 5.6-5 in the FLA would be approximately of 200 cfs.

A close examination of the photos in the Study Report for each transect clearly illustrates how Transect 1 transforms from a relatively stagnant pool to more of a run under higher flows. Photos of Transects 3-5 clearly illustrate an abundance of dry or very shallow substrate across the overly wide channel, even at the highest flows of 275 cfs. Below are some photos taken by MDIFW staff, the wider field of view better illustrates the changes from the lowest (left column - 61 cfs) to the higher flows (right column - 265 cfs) and offers more perspective.



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Based on our site observations and experience with evaluating aquatic habitats, flows between 250-500 cfs appear to be appropriate to protect and enhance the habitat for fish and other aquatic organisms, remain reasonably wadeable, as well as improve aesthetics. It should be noted that flows in this range still only equate to a fraction (13-25%) of aquatic baseflow, and all excess flows would be available for hydropower production. Again, we believe additional flow evaluations might help to discover the best, most-balanced value.

Regarding the seasonal flow regime, the spring-fall minimum flow should be extended to December 1 due to MDIFW fall stocking programs and the river's year-round angling regulations. Winter flows could be reduced somewhat for fish as there is plenty of overwintering habitat available; however, flows should not be reduced to a point where they significantly impact aquatic invertebrate production due to habitat dessication or freezing.

Recreational Access

Page 110 of the FLA indicates FERC identified the following potential resource issues related to fish and aquatic resources for an environmental analysis: *"Effects of Project operation on recreational use in the Project area, including the adequacy of existing recreational access and facilities in meeting recreation needs."*

MDIFW Response: Currently, the Licensee is proposing no new or improved access opportunities for angling or boating in the FLA; however, the FLA seems to suggest that it may be considered, pending the completion of the recreational and angling studies. The only mention of expanded access opportunities states, *"In consultation with the Town of Rumford, build and maintain access and/or steps from behind the Rumford Public Library for river access."* This statement is in relation to limited whitewater boating release events and is unlikely to satisfy angling and other recreational use of the ledges without conflicting with library activities. The stairs would be a great addition, but a suitable parking area needs to be identified for anglers, boaters, and other recreational users of the ledges. Note that MDIFW staff have observed numerous use in the area, including a lot of swimming, sun bathing, dog walking, and people simply exploring and enjoying the lower ledges and falls.

MDIFW believes the area has more potential for angling and other recreational uses, and that additional access to the upper impoundment and the lower bypass reach should be fully explored

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as part of this relicensing process. MDIFW staff conversations with local anglers and people from the Town indicate that a fair amount of shore angling occurs in the canals and bypass areas. MDIFW believes there should be better access provisions for these areas, even it that includes improved accessibility measures such as stairways and/or safety railings. For example, the west shore above the lowermost tailrace provides an excellent angling opportunity, but current access provisions and low flows discourage angler use. In fact, after observing the site as part of this process, MDIFW has already modified its stocking program to provide more opportunity in these areas. Lastly, the distance between the upstream launch and the boater barrier is approximately 1.9 miles. As many users float the river with nonmotorized watercraft from launch to launch, a new carry-in launch should be explored in the area just upstream of the boater barrier. There is currently an informal parking area in this general location.

MDIFW hopes the Applicant seriously considers the above improvements in its new studies and addendum to the FLA, and we will wait to fully comment when the Recreational and Angler studies are completed.

Miscellaneous Items

MDIFW previously submitted written comments on the PAD and DLA to clarify our perspective or to provide corrections of erroneous information for the record. Most of those statements have continued into the FLA on Pages 162-164; therefore, we will reiterate the more significant issues, so they remain relevant for FERC consideration.

Pages 162 and 163 continue to downplay the habitat suitability of the bypass by citing a study conducted by C. T. Main in 1989, as well as USFWS and MDIFW comments from a Licensee report dated in 1991.

MDIFW Response: The 1989 C.T. Main study largely assessed the bypass reaches for spawning and rearing habitat potential over 30 years ago. While the physical habitat remains the same, fishery management has evolved and trout stocking programs, including put-and-take and put-grow-take stockings, have produced some excellent fisheries in many similar bypass/tailrace situations that lack notable spawning and rearing habitat for trout species. The key to creating these fisheries is to have adequate flow conditions and suitable angler access. In fact, this site has produced some quality trout in recent years. In 1989, MDIFW and USFWS agreed that the habitat assessment was adequate; however, it should be noted at that time the river was still heavily polluted which resulted in almost no recreational use or value, and that the agencies had largely “written off” the river. Times have changed in the past 30 years: the Androscoggin River is cleaner, recreational use has exploded, and the river is producing good trout fishing in certain areas and a very high-quality bass fishery, all of which were nearly unimaginable back in the 1980’s.

Page 110/162 of the FLA indicates FERC identified the following potential resource issues related to fish and aquatic resources for an environmental analysis: *“Effects of Project operation on fish impingement, entrainment, and survival in the Androscoggin River.”*

MDIFW response: MDIFW believes this item was never properly evaluated or vetted in this process. We made numerous attempts during the proposed study planning process to evaluate if

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Project operations were having an impact on trout survival via impingement, entrainment, or simply losses to downstream areas via the canal's attraction flow.

Page 164 of the FLA states, *"Whereas hydropower projects can have potential effects on fish impingement, entrainment, and population survival, diadromous fish do not occur, nor, have American eel (a catadromous species) been documented to occur in, or near, the Project given the number of natural and man-made barriers located downstream of the Project...In addition, Rumford Falls is also believed to be the upstream limit for American eel (MDMR and MDEP 2008; as cited in Moore and Reblin 2010)."*

MDIFW response: MDIFW likely has the most extensive datasets in the State regarding inland fisheries distributions, and we have made the Licensee aware in the PAD, the DLA, and via e-mail (see table below) that the above statements are incorrect and should be recognized and corrected. While we are pointing out this error due to our familiarity with the resources, we consider any other eel related comments or recommendations be made from other State and Federal Agencies with jurisdiction over diadromous fish species.

WATER*	TOWN	SPP	PRESENCE CONFIRMED (YR)
SAND P	NORWAY	EEL	1966
PENNESSEEWASSEE L	NORWAY	EEL	1953
MOOSE P	OTISFIELD	EEL	Reported Unconfirmed
SATURDAY P	OTISFIELD	EEL	Reported Unconfirmed
THOMPSON L	CASCO	EEL	1997
NORTH P	WOODSTOCK	EEL	Reported Unconfirmed
BRYANT P	WOODSTOCK	EEL	1974
TWITCHELL P	GREENWOOD	EEL	2009
INDIAN P	GREENWOOD	EEL	2010
HICKS P	GREENWOOD	EEL	1993
MOOSE P	WEST PARIS	EEL	2012
NORTH P	NORWAY	EEL	Reported Unconfirmed
ANASAGUNTICOOK L	HARTFORD	EEL	2013
BUNGANOCK P	HARTFORD	EEL	1958
SOUTH P	BUCKFIELD	EEL	Reported Unconfirmed
RANGE P (UPPER)	POLAND	EEL	1970
AUBURN L	AUBURN	EEL	1987
TAYLOR P	AUBURN	EEL	Reported Unconfirmed
TRIPP P	POLAND	EEL	1986
RANGE P (LOWER)	POLAND	EEL	1991
RANGE P (MIDDLE)	POLAND	EEL	1985
HOGAN P	OXFORD	EEL	Reported Unconfirmed
WHITNEY P	OXFORD	EEL	Reported Unconfirmed
ALLEN P	GREENE	EEL	1940
SABATTUS P (LITTLE)	GREENE	EEL	1961
BERRY P	GREENE	EEL	1961
NO NAME P	LEWISTON	EEL	Reported Unconfirmed
ROUND P	GREENWOOD	EEL	Reported Unconfirmed
MARSHALL P	OXFORD	EEL	2021
BEAR P	HARTFORD	EEL	1953
CRYSTAL P	TURNER	EEL	1954
WILSON P (LITTLE)	TURNER	EEL	1969

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SABATTUS P	GREENE	EEL	1998
LOON P	SABATTUS	EEL	1953
SUTHERLAND P	SABATTUS	EEL	1959
LONG P	LIVERMORE	EEL	1954
ROUND P	LIVERMORE	EEL	1954
PLEASANT P	TURNER	EEL	1940
POCASSET L	WAYNE	EEL	1940
ANDROSCOGGIN L	WAYNE	EEL	Reported Unconfirmed
BLACK P	VIENNA	EEL	1961
FLYING P	VIENNA	EEL	1960
WHITTIER P	VIENNA	EEL	1961
PARKER P	MOUNT VERNON	EEL	2003
CAESAR P	BOWDOIN	EEL	Reported Unconfirmed
HOPKINS P	MOUNT VERNON	EEL	1953
BURGESS P	FAYETTE	EEL	1958
TILTON P	FAYETTE	EEL	1940
HALES P	FAYETTE	EEL	1960
LOVEJOY P	FAYETTE	EEL	1940
TAYLOR P	MOUNT VERNON	EEL	1958
SCHOOLHOUSE P	LIVERMORE FALLS	EEL	1958
MOOSE HILL P	LIVERMORE FALLS	EEL	1957
MINNEHONK L	MOUNT VERNON	EEL	1990
ECHO L	MOUNT VERNON	EEL	1991
STURTEVANT P	MAGALLOWAY PLT	EEL	2014
C POND	C SURPLUS	EEL	1998
RICHARDSON P (UP E)	ADAMSTOWN TWP	EEL	1996
RICHARDSON P (LO E)	ADAMSTOWN TWP	EEL	1974
RANGELEY L	RANGELEY	EEL	1939
WEBB L	WELD	EEL	1940
LINCOLN P	PARKERTOWN TWP	EEL	1955
JOES P	RUMFORD	EEL	2001
*Notes: All listed waters are lakes or ponds in the Androscoggin River drainage. Waters in orange are located above Lewiston Falls; waters in red are located above Rumford Falls.			

Page 168 of the FLA states, “Additionally, the existing recreational trout fishery on the upper Androscoggin River is dependent upon annual stocking of hatchery Rainbow and Brown Trout, which are not indigenous to Maine or this portion of the Androscoggin River.”

MDIFW response: It is unclear to MDIFW how the above statement has any relevant basis in the FLA regarding the Environmental Analysis. These species are utilized to provide the best possible recreational opportunity for trout in a system that can no longer sustain native salmonids due to changes in fish composition and summertime water temperature limitations. Wild salmonids (i.e., brook trout) are common in tributaries and likely utilize the mainstem on a seasonal basis. In addition, the Department spends a considerable amount of effort to propagate, stock, manage and optimize these fisheries for recreational anglers and their value should not be discounted.

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Page 168 of the FLA states, “*Continued Project operations are not expected to adversely affect trout that are stocked upstream and downstream of the Project because they are managed as a put-and-take fishery, ...*”

MDIFW response:

The above statement is incorrect: brown and rainbow trout are managed with some expectation of holdover potential and should be described as a “put-grow-and-take” fishery. We have evidence of holdover trout of both species above and below the project.

Lastly, we noted that the flow values in the Study Report for the transect pictures did not correspond with the flows in the text and charts.

Thank you for your consideration. 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,



John Perry
Environmental Review Coordinator

Cc: Francis Brautigam, Joe Overlock—MDIFW Fisheries Division, Augusta Headquarters
James Pellerin, Nicholas Kalejs—MDIFW Fisheries Division, Region A
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