



MASSWILDLIFE

## DIVISION OF FISHERIES & WILDLIFE

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January 26, 2021

Ms. Shannon Ames, Executive Director  
Low Impact Hydropower Institute  
34 Providence Street  
Portland, ME  
04103

RE: Deerfield River Hydroelectric Project  
FERC No. P-2323

Dear Ms. Ames:

The Department of Fish and Game (“DFG”) hereby submits the following comments on the Low Impact Hydropower Institute’s (“LIHI”) Pending Application for the proposed LIHI certification of the Deerfield River Hydroelectric Project located in Bennington and Windham Counties, Vermont, and Berkshire and Franklin Counties, Massachusetts.

DFG is submitting these comments to LIHI in order to fulfill the requirements of the Massachusetts Department of Energy Resources (“DOER”) Renewable Energy Portfolio Standard Regulations (225 CMR 14.00; “RPS I” and 225 CMR 15.00; “RPS II”). The RPS I and RPS II regulations were promulgated by DOER on January 1, 2009 and require that any hydroelectric project wishing to qualify as either a RPS I or RPS II generator first obtain LIHI certification. These regulations also require all relevant regulatory agencies to comment on the pending LIHI application.

The Department does not support Great River Hydro’s application for LIHI Re-Certification of the Deerfield River Project for the reasons outlined below.

### **PROJECT**

The project consists of eight developments: Somerset, Searsburg, Harriman, Sherman, Deerfield No. 5, Deerfield No. 4, Deerfield No. 3 and Deerfield No.2, having a total installed capacity of 86 megawatts.

The Project area encompasses about a 65-mile reach of the river, including reservoirs. Two other Hydroelectric developments not part of this project are also located within this area. They are Brookfield Renewable Power’s Bear Swamp Project and Fife Brook Dam located downstream of the Deerfield No. 5 development; and Consolidated Edison’s Gardner Falls Project located downstream of the Deerfield No. 3 development. Bear Swamp/Fife Brook (FERC No. 2669) are currently in the process of federal relicensing.

**Project Developments** - In Vermont, the Project facilities are located in the Towns of Somerset, Searsburg, Wilmington, Whitingham, and Readsboro. They consist of:

- Somerset Dam at River Mile (RM) 66, a reservoir with no generation.

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- Searsburg Dam at RM 60.3 and Searsburg Powerhouse at RM 56.8
- Harriman Dam at RM 48.5 and Harriman Powerhouse at RM 44.1

In Massachusetts, the Project facilities are located in the Towns of Monroe, Rowe, Florida, Charlemont, Buckland, Shelburne, and Conway. They consist of:

- Sherman Dam and Powerhouse at RM 42
- Deerfield No. 5 Dam at RM 41.2 and Deerfield No. 5 Powerhouse at RM 38.5
- Deerfield No. 4 Dam at RM 20 and Deerfield No. 4 Powerhouse at RM 18.5
- Deerfield No. 3 Dam at RM 17 and Deerfield No. 3 Powerhouse at RM 16.8
- Deerfield No. 2 Dam and Powerhouse at RM 13.2.

In 1994 an agreement on relicensing the various dams with the Federal Energy Regulatory Commission (FERC) and the Massachusetts and Vermont state authorities that regulate water quality led to comprehensive coordinated water release and power generation schedules to enable more recreational use of the river, with minimum water flow measures to mitigate the dam impact on riverine habitat.

## **FISH AND WILDLIFE RESOURCES**

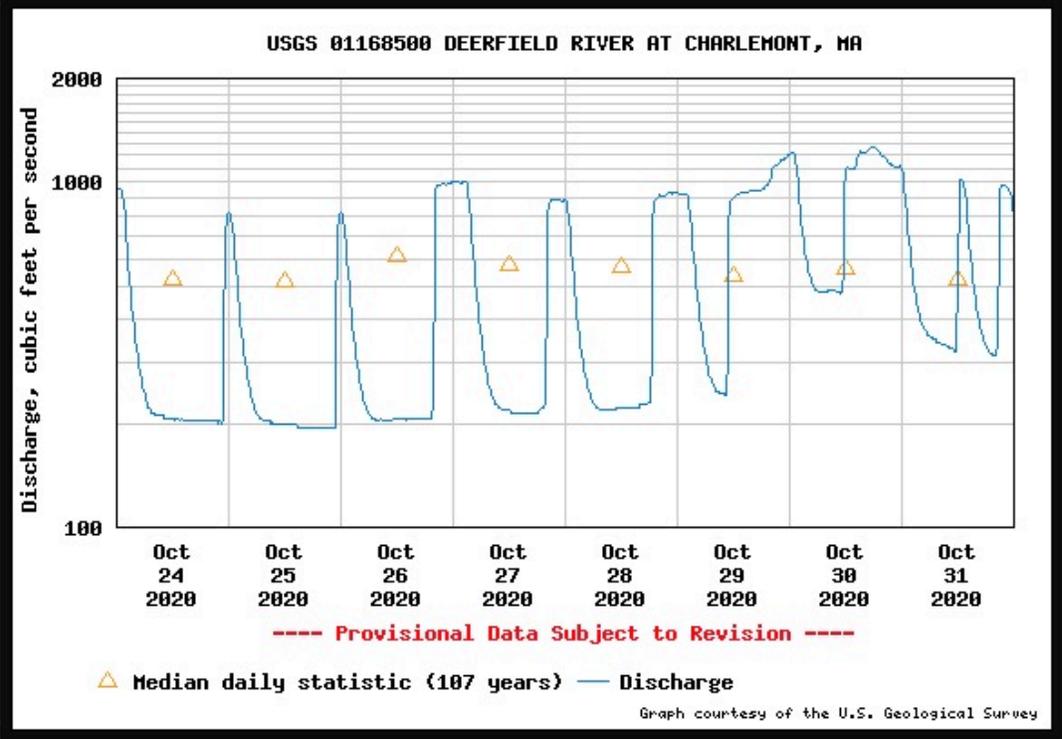
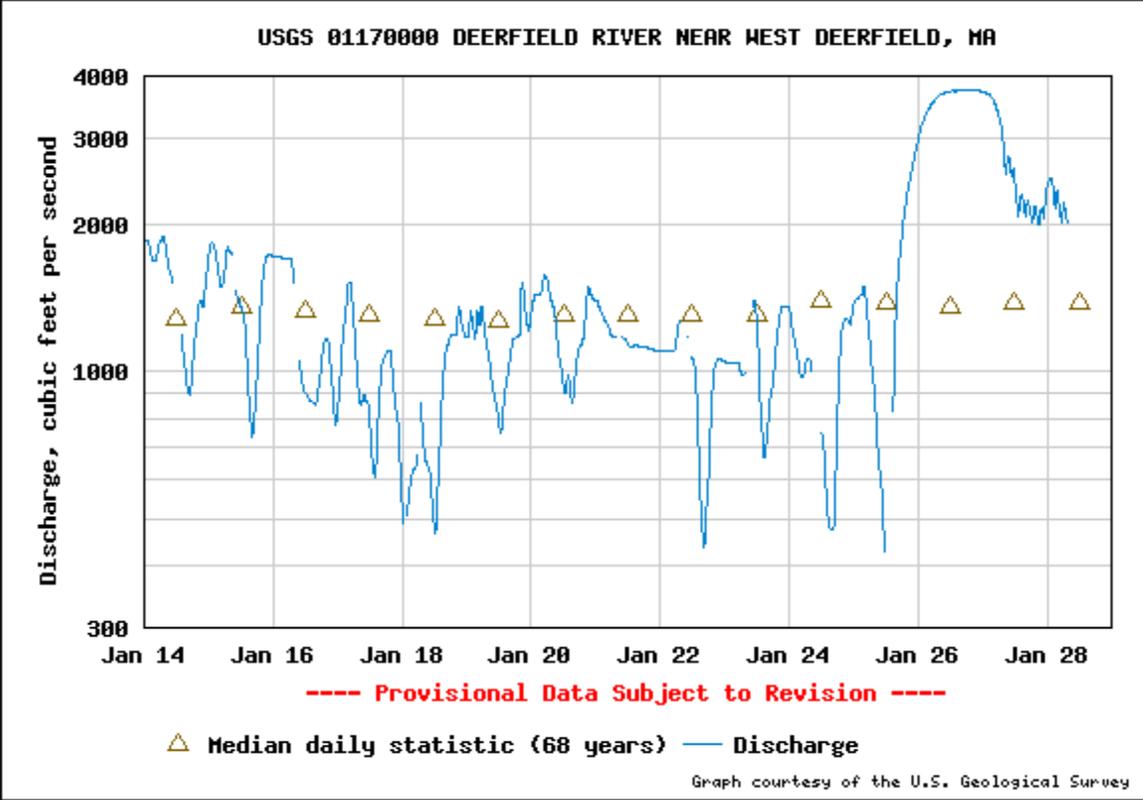
The Deerfield River System in MA includes over 100 recognized Cold Water Fishery Resource waters including many of the Deerfield's major tributaries such as the North, South, Cold, Bear, and Chickley Rivers. The Deerfield River supports a diverse fish community of both resident and migratory fish. In Massachusetts, the entire Deerfield River corridor has been identified as "priority habitat" for rare species under the Massachusetts Endangered Species Act (MESA). Additionally, the lower Deerfield is in the historic habitat range of American shad and the current and historic range of American eel and Sea Lamprey.

## **IMPACTS AND MITIGATION**

### **Flows**

#### **Run-of-river Operation**

The Deerfield River Project is not Run-of-River. It operates on a daily peaking cycle with releases that are both scheduled (for whitewater boating) and unscheduled- in response to the power market and demand. Below is the recent hydrograph from the USGS gage at Charlemont, MA. The saw-tooth pattern of daily releases is evident. This very unnatural flow pattern continues year-round.



### Bypass Flows

The Deerfield River Project has several long bypass reaches.

The Number 5 development has two tunnels, two concrete conduits, and three canals which total 14,941 feet in length. There is also a small diversion structure on Dunbar Brook (a recognized cold water fishery resource). Water is directed from Dunbar Brook into one of the tunnels (therefore Dunbar brook is no longer connected to the Deerfield River). These structures result in **2.7 miles** of the Deerfield River being bypassed by all but the minimum flow of 73 cfs or inflow to a minimum of 57 cfs and scheduled whitewater releases (of up to 1,000 cfs) during the summer months.

The Number 4 development has a 1,514 foot long concrete and brick lined tunnel from the intake structure at the impoundment to the powerhouse forebay. This structure results in a 1.5 mile long bypass reach. The bypass reach receives the lesser of 100 cfs or inflow from Oct. 1 to May 31, and the lesser of 125 cfs or inflow from June 1 to Sep. 30.

### Migratory Fish

No upstream or downstream passage or protection measures for American eel are in place (or required by the project's FERC license). American eels are present in the watershed and such measures may well be warranted.

### Settlement Agreement (statement below is from the LIHI application):

The Deerfield River Project was one of the first FERC Projects to be relicensed under a comprehensive Settlement Agreement approach executed in 1994. A five-year cooperative consultation process involving state and federal resource agencies, various non-governmental organizations (NGOs) and the licensee (at that time New England Power Company) resulted in settlement by the parties. The process of reaching this agreement included examination of the power and non-power tradeoffs and effects of a wide variety of operational scenarios. This negotiation process, after careful consideration of alternatives, resulted in a balancing of power and non-power interests associated with the Project through the Settlement Agreement. The FERC License conditions for the Project consist of the operational and environmental measures defined by the Settlement Agreement. The Settlement Agreement demonstrated the ability of diverse interests to come together in good faith to balance environmental quality, recreation, fishing, energy production, land preservation and other purposes. The agreement ensures that the Deerfield River will be managed over the License term to improve resource protection while recognizing the value of hydropower as a renewable energy resource.

The settlement agreement represents the best deal that the resource agencies were able to negotiate in the FERC arena in 1994 (i.e. major changes to project operations like going run-of-river were not on the table). The settlement agreement has resulted in better environmental conditions (specifically improved minimum flows), but current project operations do not meet the DFG's criteria for "Low Impact". Specifically, project operations allow daily peaking flows and the project includes almost 5 miles of bypassed reaches.

Studies conducted as part of the Bear Swamp/Fife Brook FERC relicensing have demonstrated significant impact to trout spawning habitat as a result of hydro peaking activities. This daily peaking is the result of

the Deerfield River Project releases and is passed through the Bear Swamp/Fife Brook development. In fall 2017, the Deerfield River Watershed Chapter of Trout Unlimited (DRWTU) performed a trout spawning study along the Deerfield River and its tributaries in an effort to determine impacts of the daily peaking releases. DRWTU found evidence of Brown Trout spawning activity from Zoar Gap upriver to the Fife Brook Dam. They observed 101 redds among 4 reaches in the Deerfield above Route 2, with the highest density of redds in the uppermost reach closest to Fife Brook. The study found that dewatering frequently occurred in redds when the river flows returned to minimum after the daily peaks. Trout eggs in the Deerfield River have an increased risk of mortality from freezing and desiccation in both dewatered and reduced water velocity conditions that exist at spawning sites at minimum flow. These study results clearly show the impacts hydropeaking can have on trout spawning success and natural reproduction in this important resource area.

After the Deerfield River Project Received LIHI certification over our objection in 2012, DOER required TransCanada (then project owner) to establish a \$100,000 environmental mitigation fund. Thus, demonstrating that the project and its then (and current) operations are not "Low Impact". We are not interested in continuing with mitigation and do not support the LIHI recertification.

#### **COMMENTS**

The Department does not support Great River Hydro's application for LIHI Certification of the Deerfield River Project. This project, with its large headwater storage reservoirs, long bypass reaches, and daily peaking operations has dramatically changed the nature of the Deerfield River and cannot be described as "Low Impact". However, there may be opportunities for incremental power production improvements which also result in environmental improvements under DOER's Renewable Energy Portfolio Standard Regulations.

Thank you for this opportunity to comment.

Sincerely,

Steven Mattocks  
MassWildlife Aquatic Connectivity Biologist