



MassWildlife

Commonwealth of Massachusetts

Division of Fisheries & Wildlife

Wayne F. MacCallum, *Director*

January 28, 2010

Mr. Fred Ayer, Executive Director
Low Impact Hydropower Institute
34 Providence Street
Portland, ME
04103

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

Dear Mr. Ayer:

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 TransCanada’s application for LIHI 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.

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.

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.
- 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

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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.

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. The Deerfield River has been stocked with juvenile Atlantic salmon for 23 years (600,000 per year at current rates) as part of the multistate Connecticut River Atlantic Salmon Restoration Program.

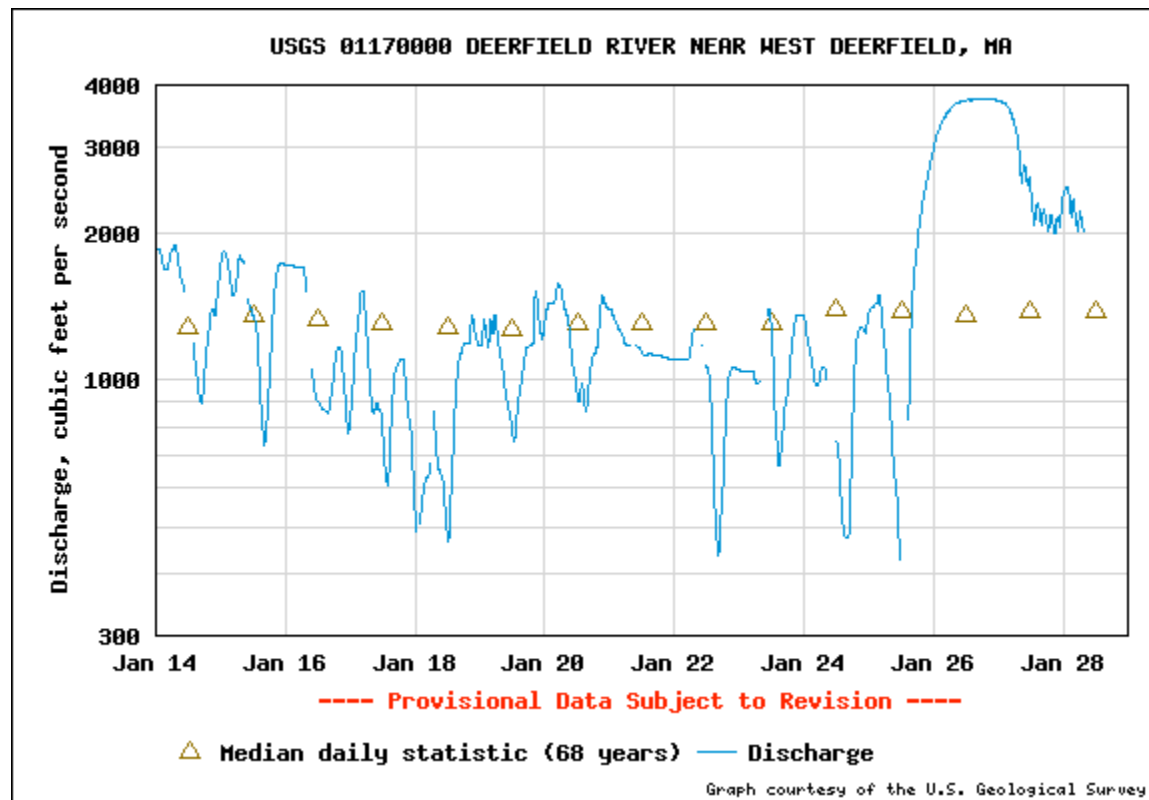
In Massachusetts, the entire Deerfield River corridor has been identified as "priority habitat" for rare species under the Massachusetts Endangered Species Act (MESA).

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 West Deerfield, 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 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 (from the LIHI application):

The Project is in compliance with *Mandatory Fish Passage Prescriptions* as specified in the FERC License for upstream and downstream passage of anadromous fish, specifically Atlantic salmon. Upstream fish passage requirements apply to Deerfield No. 2; downstream fish passage requirements apply to Deerfield No. 4, Deerfield No. 3 and Deerfield No. 2 developments.

Downstream Passage

In accordance with License Articles 408 and 411, downstream fish passage facilities were installed and have been operated and monitored at Deerfield No. 4, No. 3 and No. 2 since 1999. Since that time numerous alterations have been made to the fish passage structures and in operational strategies during spring passage season. FERC recently approved (02/24/09) the Company's Final Downstream Fish Passage Plan (the Plan). The Plan constitutes the Company's downstream passage compliance document, developed as a result of many years of agency consultation; monitoring and effectiveness studies; modification of existing passage structures; operating alternative passage devices; modifying flows; and ultimately proposing significant structural changes.

Structural changes have been, or are being, completed in accordance with the Plan's implementation schedule and in consultation with the Resource Agencies. At Deerfield No. 4, barrier netting was installed in 2009 at the forebay and monitored to lessen stranding of out-migrating smolts during the spring passage season. At Deerfield No. 3, agreement has been reached with the fishery agencies to install an angled bar rack system at the dam to prevent out-migrating smolts from passing the intakes to the forebay. The design and schedule for installation has been negotiated with the agencies and the project will be constructed and completed to meet 2011 spring passage requirements. At Deerfield No. 2, a larger sluice gate located next to the intakes is now the designated fish passage gate. In 2009, a guidance wall was installed downstream of the gate on the spillway ogee to provide greater depth and protection for smolts. Additional modifications were made to the bottom sill of the ogee, and an old sub-gate was covered to provide a smoother surface.

Upstream Passage

In accordance with License Articles 409, 410, 411 and 413, implementation of upstream fish passage requirements at Deerfield No. 2 was based on a trigger number of Atlantic salmon present in the reach downstream of Deerfield No. 2:

- Twelve adult Atlantic salmon present below the No. 2 dam for each of two consecutive years, as verified by an interim fish trapping system; or
- Four adult Atlantic salmon below the dam for each of two consecutive years as determined by the radio-tagging monitoring program required in Article 413.

Since 1998, Atlantic salmon have been annually captured, radio-tagged and released in the Connecticut River downstream of its confluence with the Deerfield River. The Company, in

conjunction with the Resource Agencies, annually conducts monitoring of fish movement in the Deerfield River and in the Connecticut River. Five adults reached Deerfield No. 2 in 2005, seven in 2006, and four in 2007. Although the trigger number had been met for two consecutive years by 2006, the Resource Agencies have not yet requested the Company to construct upstream passage facilities in accordance with License Article 409. Instead, agencies have chosen to have the Company continue the adult salmon radio-tagging monitoring program. This program provides crucial information about the distribution and movement

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 and significant improvements in anadromous fish passage and protection), 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.

COMMENTS

The Department does not support TransCanada'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 can not 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,

A handwritten signature in black ink, appearing to read "Caleb Slater". The signature is fluid and cursive, with a long horizontal stroke at the end.

Caleb Slater, Ph.D.
Anadromous Fish Project Leader