



MassWildlife

Commonwealth of Massachusetts

Division of Fisheries & Wildlife

Wayne F. MacCallum, *Director*

December 6, 2013

Honorable Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

COMMENTS

Northfield Mountain Pumped Storage Project No. 2485
Turners Falls Project No. 1889
November 25, 2013 Technical Meeting, Vermont Yankee Nuclear Power Plant
Decommissioning

Dear Secretary Bose,

The Massachusetts Division of Fisheries and Wildlife (Division) is the agency responsible for the protection and management of the fish and wildlife resources of the Commonwealth of Massachusetts. The Division is also responsible for the regulatory protection of imperiled species and their habitats as codified under the Massachusetts Endangered Species Act (M.G.L. c.131A). The Massachusetts Endangered Species Act (MESA) was enacted in December 1990. Implementing regulations (321 CMR 10.00) were promulgated in 1992 and recently revised and implemented as of November 2010. The MESA provides a framework for review of projects or activities that occur within mapped areas of the state, called *Priority Habitat*, and published in the Natural Heritage Atlas. As such, we monitor operations at hydroelectric projects within the Commonwealth, as well as comment on proposed hydroelectric facilities. The Division would like to offer the following comments to clarify verbal comments provided at the Technical Meeting held on November 25, 2013 at the Northfield Mountain Visitor's Center to discuss the potential effects of decommissioning the Vermont Yankee Nuclear Power Plant on proposed aquatic studies for the relicensing of the Turners Falls and Northfield Mountain Pumped Storage Projects.

Comments:

The Division issued previous written comments, including but not limited to comments submitted on July 15 in response to the June 28 filing of FirstLight Hydro Generating Company's "Updated Proposed Study Plan for the Turners Falls Hydroelectric Project (P-1889) and Northfield Mountain Pumped Storage Project (P-2485)" - regarding Study No. 3.3.1 (Conduct Instream Flow Habitat Assessments in the Bypass Reach and below Cabot Station) and 3.3.16 (Habitat Assessment, Surveys and Modeling of Suitable Habitat for State-listed Mussel Species in the CT River below Cabot Station), in particular - in which it has maintained that water temperature represents a particularly important factor determining habitat suitability and persistence for state-listed mussel species (see Order Issuing New License, December 27, 2011, Project No. 739-022, Claytor Hydroelectric Project). Temperature, and the rate of temperature

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change (if any) during project peaking operations, may affect physiological and behavioral facets of freshwater mussel life history. The Division issued similar comments on August 29, in response to the August 14 filing of FirstLight Hydro Generating Company's "Revised Proposed Study Plan for the Turners Falls Hydroelectric Project (P-1889) and Northfield Mountain Pumped Storage Project (P-2485)".

Growing evidence in primary literature sources support that temperature is a critical environmental parameter to the life history and distribution of freshwater mussels. Changes in temperature are known to affect gamete maturation (Galbraith & Vaughn 2009), time to metamorphosis and metamorphosis success of encysted glochidia (Watters & O'Dee 1999, Steingraeber et al. 2007), burrowing rates in adult and juvenile mussels (Watters et al. 2001, Block et al. 2013, Archambault et al. 2013), byssus production in juveniles (Archambault et al. 2013), display of mantle lures or glochidia release strategies for host fish infection (Gascho-Landis et al. 2012), and growth rates (Black et al. 2010). Acclimation temperatures, the temperature range that is typically experienced by mussels, are known to alter responses to changing temperatures in sub-lethal (Archambault et al. 2013, Gascho-Landis et al. 2012) and lethal endpoints (Pandolfo et al. 2010, Galbraith et al. 2012) at all mussel lifestages, further illustrating the importance of temperature fluctuations as a driving factor of mussel assemblages beyond ambient seasonal temperatures. Temperature preferences and tolerances of temperature change differ among mussel species (Spooner & Vaughn 2008, Galbraith et al. 2012), further highlighting the importance of understanding the role of altered river temperature regimes on habitat persistence of state-listed species in Massachusetts.

As a minor addition to fieldwork associated with Study No. 3.3.1, the Division recommended that FirstLight incorporate collection of point temperatures at all test flows within a representative subset of transects located within suitable mussel habitats. The Division also requested that temperature profiles be measured for the duration of a peaking operation in order to assess the rate and magnitude of temperature change occurring during a typical peaking cycle. Finally, the Division recommended that temperature data should be collected during seasons where peak operations will have the greatest effect on temperature change. We note that these requests were not incorporated into the Updated or Revised Proposed Study Plan (Study No. 3.3.16 or 3.3.1), and would like to restate the importance of these requests.

At the November 25, 2013 Technical Meeting regarding the decommissioning of the Vermont Yankee Nuclear Power Plant, representatives from the Division reaffirmed the importance of understanding water temperature relative to state- and federally-listed mussel species. The Division also provided evidence that water temperatures in state-listed mussel habitats in the Connecticut River will likely be affected by the decommissioning of the Vermont Yankee Nuclear Power Plant. Due to a lack of temperature monitoring data downstream of the Turners Falls Dam, it is not clear whether the decommissioning of the Vermont Yankee Nuclear Power Plant will have predictable effects on water temperatures within the Connecticut River. Therefore, in order to develop data-founded operational recommendations for the Turners Falls and Northfield Mountain Pumped Storage Projects during the re-licensing process, the Division recommended that collection of temperature data should either be delayed until after power plant decommissioning has occurred and temperature changes related to the decommissioning process have stabilized, or otherwise occur both before and after decommissioning. This will ensure the accuracy of temperature data as a necessary component of related efforts to measure and/or model long-term mussel habitat suitability and persistence.

The Division would like to clarify that temperature data need not be collected concurrent with data collected pursuant to Study No. 3.3.16 or 3.3.1 for the Turners Falls and Northfield Mountain Pumped Storage Projects, and that neither of these studies need be delayed in order to

accommodate collection of temperature data. At a minimum, water temperature data should be collected at select times or seasons within a small subset of suitable mussel habitats throughout a typical peaking operation, so as to assess the rate, magnitude and seasonality of temperature change occurring during a typical peaking cycle. This may, or may not, occur in conjunction with field work associated with Study No. 3.3.16 or 3.3.1. Indeed, deployment of digital temperature recording devices at representative transects may offer a viable alternative for obtaining this data without delaying field work associated with related projects. Additionally, the measurement of temperatures between 2014 (prior to decommissioning) and 2016 (after decommissioning) would provide a better understanding of both the current temperature regime as well as baseline temperatures following the decommissioning of the Vermont Yankee. The Division would be happy to provide additional information and looks forward to further consultation with FirstLight, FERC, and other resource agencies to refine a viable plan for collection of temperature data.

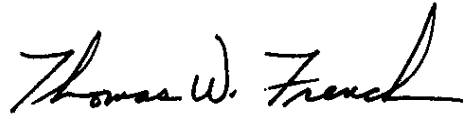
Thank you for this opportunity to comment.

Sincerely,



Caleb Slater, Ph.D.
Anadromous Fish Project Leader

Sincerely,



Thomas W. French, Ph.D.
Assistant Director for the Natural Heritage &
Endangered Species Program

References:

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