New Hampshire
Fish and Game Department

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Glenn Normandeau
Executive Director

April 20, 2018

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E., Room 1A
Washington, DC 20426

RE: Comments on Updated Study Reports for Study #18 American Eel Upstream Passage and Study #21 American Shad Telemetry for FERC projects for Vernon (P-1904), Bellow Falls (P-1855) and Wilder dams (P-1892) located on the Connecticut River in New Hampshire and Vermont.

Dear Secretary Bose:

The NH Fish and Game Department (NHFGD) submits the following comments after review of the Updated Study report #18 for American Eel Upstream Passage and Study Report #21 on American Shad Telemetry, submitted by Great River Hydro, LLC for the Vernon hydroelectric facility located on the Connecticut River in NH and VT.

Below are the Department's comments:

Study 18: American Eel Upstream Passage

The results of Study #18 provide more evidence that the fishway may be the most effective means of upstream eel passage at the Vernon Dam. The NHFGD supports the proposed effort to modify the fishway to improve eel passage and the reliability of count data. Although the majority of eels observed in the study were associated with the fishway, it is still not clear whether the fishway is effectively passing eels of all sizes during normal operating conditions.

Evaluating the effectiveness of fishway modifications intended to improve eel passage in the fishway will likely require a mark/recapture study. If the fish ladder proves to be a velocity barrier for certain size classes of eels, and the issue cannot be solved by modifying the fishway under normal operating conditions, then GRH should consider alternative means of passage for

the range of eel sizes that are impeded by the fishway. This may involve relocating a temporary eel trap to one of the other locations where eels have been observed along the dam.

In addition, after the fishway has been shut down for the season, GRH proposes to continue the operation of a temporary eel trap at the base of the fishway. This effort has been met with limited success. GRH should consider monitoring the fishway at a variety of flows to determine whether there is an optimal flow for attracting and passing eels through the fishway. Experimenting with fishway flows may provide more insight into the appropriate balance between attraction flow and passage conditions within the ladder. Experiments with fishway modifications and flows may prove more effective than the temporary eel ramp, which can only provide a limited amount of attraction flow.

Study 21: American Shad Telemetry

Study 21 provided much greater detail on the routes that adult shad took as they passed downstream of the Vernon Dam under a variety of flow conditions. Although it was clear from the study that shad favored the downstream fish bypass (34% of known passage routes), it was not clear how varying flow conditions may influence passage routes. Fish were recorded using a variety of routes, including turbine routes, at both low and high flow conditions.

On 4/14/18 Normandeau Associates provided, upon request from NHFGD, additional telemetry detection data from receivers placed downstream of the Vernon Dam. Study 21 was not intended to be a mortality study, so one must be cautious when interpreting the cause of missing tags. Tags can fail, be spit up, or mortality can occur that is not related to the project. There are, however, some general observations that can be made from detections at the downstream receivers. Of the 47 tagged fish that were determined to have passed downstream of the dam, 36 were detected at the furthest downstream receiver (Stebbins Island MS-01). Although we cannot be sure whether all of these fish survived, it is interesting to note that there were fish represented from all possible passage routes among the 36 fish detected at MS-01.

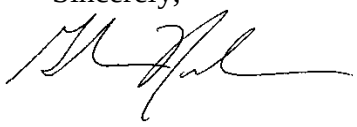
Eleven of the 47 fish that were determined to pass downstream of the Vernon Dam were not detected at the furthest downstream receiver. It cannot be determined why these tags disappeared, but again, among these 11 individuals there were fish represented from multiple passage routes (East Fish Pipe – 2; Fish Ladder – 1; Sluice 2; East Spillway – 1; Units 1-4 – 1; Units 5-8 – 2; Units 9-10 – 2). The potential issue is that even if half of these missing tags were project related mortalities, the mortality rate would be 15%.

Vernon is the third dam on the Connecticut River. A 15% mortality rate at each of three dams would add up to a cumulative mortality rate of 45%, which is unacceptable. Since there is no way to determine actual mortality from this study, and it is clear that fish use multiple routes to pass downstream of the dam, an inflatable tag mortality study should be conducted to assess mortality rates for each route of passage. Mortality rates combined with an analysis of probable route selection under varying flow conditions could be used to estimate an annual total project mortality rate. This rate could be compared to an agreed upon target for total project mortality. Targets for total project mortality should be set based on the Connecticut River Shad population model which is currently under development.

We also support any comments received relative to this project and the many submitted Reports to date, including but not limited to, all Vermont Natural Resource agencies, the US Fish and Wildlife Service (USFWS), the NH Department of Environmental Services (NHDES) and the Connecticut River Watershed Council, Inc. (CRWC).

Thank you for this opportunity to comment on this very important relicensing project. If you have any questions or comments regarding these recommendations or comments, please do not hesitate to contact either Fisheries Biologist, Matt Carpenter at 603-271-2501 or Carol Henderson, Environmental Review Coordinator at 603-271-3511.

Sincerely,



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Executive Director

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