

**Vermont Department of Environmental Conservation**

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July 18, 2019

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

RE: Vernon-Bellows Falls-Wilder Projects (FERC Project Nos. P-1904, 1855, 1892)  
Comments on ILP Study 9 Revised Final Study Report (Instream Flow), and ILP  
Study 18 Supplement #3 (Upstream Eel Passage)

Dear Secretary Bose:

The Vermont Agency of Natural Resources (Agency) herein provides comments on the ILP Study 9 Revised Draft Final Study Report filed by Great River Hydro (GRH) for the Vernon (FERC No. 1904), Bellows Falls (FERC No. 1855), and Wilder (FERC No. 1892) hydroelectric projects on the Connecticut River. GRH filed draft final reports on May 20, 2019, which the Agency subsequently reviewed and considered in light of ongoing consultation, information needs, and the eventual goal of assessing GRH's operations proposal for compliance with the Vermont Water Quality Standards. This letter is intended to provide feedback on these reports, as well as identify potential areas for which additional information or clarification may be needed.

Beyond providing comments on reports, the Agency notes that GRH's May 20, 2019 filing of draft final reports marks an important milestone in the relicensing process. That is, nearly all the technical and scientific information needed to assess GRH's relicensing proposal for compliance with water quality, conservation, and recreation objectives is now available. Thus, GRH and stakeholders are now well positioned to collaborate on a process that will culminate in a final license application that includes operating conditions that adequately protect natural resources and meet Vermont Water Quality Standards. The Agency is ready to work with GRH in a collaborative process that moves relicensing forward, and utilizes the information from the study, however, how this will occur remains unknown..

**Comments on ILP Study 9: Instream Flow Study – Revised Final Report****General Comments:**

The Agency appreciates the collaborative approach that GRH has taken in consulting with stakeholders and sharing information during the preparation of a draft final report for Study 9. Due to the volume of information that the study created, this was an involved process by necessity; and one that allowed parties to better understand study results, as well as create opportunities to simplify a large and complex dataset so that it can more readily inform ongoing environmental assessments.

### **Specific Comments**

**Comment:** On pages 164-165 the report quotes Gore and Nestler (1988) who identify sensible bounds and limitations on the application of PHABSIM and specifically note the need to consider complementary population information when interpreting results. The Agency also hold this view and will be relying on several relicensing studies, as well as published literature, in making its final flow recommendations for the projects.

**Comment:** Regarding Tables 6.3.1-1, 6.3.1-2, 6.3.1-5, and 6.3.1-6, what is meant by the highlighted rows (e.g., Walleye fry on page 167)?

**Request:** Please revise the table caption to indicate what highlighted rows are meant to communicate, or if colored in error, revise the tables accordingly.

**Comment:** Section 6.3.2 ‘AWS and Dual Flow AWS’, page 181, the report suggests that the limited amount of fry habitat indicated by the Dual Flow analysis is ‘an artifact of modeling’ because ‘the implied immobility of fry...is unrealistic’ and ‘suitable habitat migrates laterally as flows increase’ (also illustrated in this section’s figures). While the Agency generally agrees that fry have some mobility, it also notes that they are also generally poor swimmers and thus susceptible to downstream displacement on the rising limb and stranding on the descending limb of generation flows, absent up- and down-ramping that is sufficiently slow. The figures included in this section suggest this may be a concern for the projects under current/proposed operations given that suitable habitats migrate laterally 50 or more feet between base and generation flows (e.g., Figure 6.3.2-1, White Sucker). As supported by existing literature, it is likely that the three projects impact fish via these mechanisms.

**Request:** The Agency recommends that GRH consider the temporal dynamics of fry habitat in the development of future operations/ramping proposals.

**Comment:** Regarding Figure 6.3.2-6, the Agency recommends updating Appendix A to include the final updated Sea Lamprey spawning HSC in both graphical and tabular form to ensure they have a final, documented home. This will improve the likelihood that ongoing and future assessments of hydraulic-habitat conditions for Sea Lamprey at the projects are informed by common habitat suitability assumptions.

**Comment:** Section 6.3.3 ‘Time Series’, page 196-225. Because essentially no information is provided on (a) the hydrologic and operational details of the ‘strawman’ scenario or (b) the sequencing and chronology of different habitat offerings (i.e., time series vs. duration curves), it is not clear what the habitat time series/habitat duration curve results mean relative to current operations/relicensing proposal. Additionally, the comment by GRH that ‘Lacking any specific alternative proposals from the Aquatics Working Group...’ does not reflect the discussions had between the Aquatic Working Group and GRH during the consultation process (e.g., the August 7, 2018 consultation meeting, at which GRH indicated a willingness to advance a new operations proposal).

**Request:** Please clarify what the operational conditions underlying the ‘strawman’ proposal analyzed in the report, including base and generation flows, ramping rates, impoundment levels, etc. (e.g., operations model inputs). Additionally, please clarify if this proposal is what GRH intends to advance as its formal relicensing proposal.

**Comment:** Section 6.3.4 ‘Species and Life Stage Reduction’, the Agency has independently explored opportunities to reduce the number of species/life stages represented in the data and agrees to the

recommended groupings. However, it should be noted that these ‘multi-species’ curves should be appropriately weighted/considered in subsequent analyses that might otherwise view such results as representing ‘one species’.

**Comment:** Section 6.3.5 ‘Conclusion’, the Agency concurs with the view that Study 9 should not be used in isolation to determine whether a proposed operating regime satisfies the State’s water quality (and habitat) objectives. Rather, Study 9, along with ‘the results of 18 other aquatic and riparian habitat and flow related studies’ will be used in making this determination. Additionally, as noted above in relation to the findings presented in Section 6.3.2 ‘AWS and Dual Flow AWS’ for the draft final report, there will also be value in using existing study results in new/different ways (e.g., evaluating ramping proposals in light of hydraulic-habitat modeling results).

### **Comments on ILP Study 18 Supplement #3: Upstream Eel Passage Assessment**

#### **General Comments:**

The goal of the Study 18 Supplement was to conduct systematic surveys of eel presence at the Vernon dam in order to identify eel concentrations. As with previous surveys conducted 2015-2017, the fish ladder had the greatest number of observations relative to other sites, and eels were observed in the ladder through mid-October.

Additionally, GRH made several modifications to the ladder with the goal of improving the accuracy of eel counts made via the fish passage video monitoring system, as well as upstream passage success for eels.

The Vermont Fish and Wildlife Department (Department) counted eels (as well as other diadromous species) utilizing video monitoring and SalmonSoft software from 5/14/2018-10/15/2018. Counts are made in a directional fashion (either upstream or downstream) with a net daily count. Similar to GRH’s observations, “eels usually appeared traveling upstream at the bottom of the water column and “falling back” or traveling downstream mid water column”, the Department also observed that the number of eels being counted in a downstream direction (-) exceeded the number counted in an upstream (+) direction, resulting in a -6,251 net total upstream passage for the season. Of note is that relative to previous years, more movement was detected at the viewing windows (both directions), suggesting GRH’s modifications were partially successful. However, the issue of fallback and the ability to detect eels via SalmonSoft remains unresolved.

Since GRH has agreed to implement a PIT tag study for the 2019 fish passage season, more information on passage rates and areas of fallback will become available. However, moving forward GRH should investigate and consider alternative means for counting eels, as SalmonSoft was not designed for eel enumeration and the resulting data increasingly appear to be unreliable. For example, a video counting system at the fishway exit may shed light on actual numbers of eels passing Vernon, but other observation points or technologies may improve accuracy as well.

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Thank you for consideration of our comments.

Yours truly,

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

Jeff Crocker  
Supervising River Ecologist

c:      John Ragonese, Great River Hydro  
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