



**Great River Hydro**

**John L. Ragonese**  
FERC License Manager  
Great River Hydro, LLC  
40 Pleasant St., Suite 202  
Portsmouth, NH 03801

**tel** 603.498.2851  
**em** jragonese@greatriverhydro.com

June 18, 2019

VIA ELECTRONIC FILING  
Kimberly D. Bose, Secretary  
Federal Energy Regulatory Commission  
888 First Street, N.E.  
Washington, DC 20426

**Re: Great River Hydro, LLC's June 4, 2019 Updated Study Results Meeting Summary  
Project Nos. 1892-026, 1855-045, and 1904-073**

Dear Secretary Bose:

Great River Hydro, LLC ("Great River Hydro") is the owner and licensee of the Wilder Hydroelectric Project (FERC No. 1892), the Bellows Falls Hydroelectric Project (FERC No. 1855), and the Vernon Hydroelectric Project (FERC No. 1904). The current licenses for these projects each expire on April 30, 2020. On October 31, 2012, the Integrated Licensing Process was initiated by filing with the Federal Energy Regulatory Commission ("FERC" or "Commission") a Notice of Intent to seek new licenses for each project, along with a separate Pre-Application Document for each project.

With this filing, Great River Hydro submits its June 4, 2019 Updated Study Results Meeting Summary, as required by 18 C.F.R. §5.15(c)(3) and the Commission's current Process Plan and Schedule (dated February 19, 2019). The meeting for ILP Study 9 (Instream Flow) Revised Final Study Report, filed on May 20, 2019, was held at Great River Hydro's Renewable Operations Center in Wilder, Vermont, with teleconference and call-in capability for participants who could not attend in person.

Kimberly D. Bose, Secretary

June 18, 2019

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The attached meeting summary includes points of discussion, the list of meeting attendees, and a copy of the presentation slides used during the meeting. According to the current Process Plan and Schedule, the comment period for this study will end on July 19, 2019.

If there are any questions regarding the information provided in this filing or the process, please contact John Ragonese at 603-498-2851 or by emailing [jragonese@greatriverhydro.com](mailto:jragonese@greatriverhydro.com).

Sincerely,



John L. Ragonese  
FERC License Manager

Attachment: June 4, 2019 Updated Study Results Meeting Summary

cc: Interested Parties List (distribution through email notification of availability and download from Great River Hydro's relicensing web site [www.greatriverhydro-relicensing.com](http://www.greatriverhydro-relicensing.com)).

UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION

**GREAT RIVER HYDRO, LLC**

**Wilder Hydroelectric Project (FERC Project No. 1892-026)**  
**Bellows Falls Hydroelectric Project (FERC Project No. 1855-045)**  
**Vernon Hydroelectric Project (FERC Project No. 1904-073)**

**June 4, 2019 Updated Study Results Meeting Summary**

**June 18, 2019**

**GREAT RIVER HYDRO, LLC**  
**UPDATED STUDY RESULTS MEETING**  
**JUNE 4, 2019**

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The Updated Study Results meeting for Study 9 – Instream Flow, Revised Final Study Report was held on June 4, 2019 at Great River Hydro’s Renewable Operations Center in Wilder, VT. Also presented was a summary of findings from a supplemental assessment of American Eel upstream passage at Vernon. Presentation slides were distributed at the meeting and are provided with these notes.

Meeting attendees in person or identified on the telephone:

<b>Name</b>	<b>Affiliation</b>
Betsy Simard	VTANR
Eric Davis	VTANR
Lael Will	VTFWD
Jeff Crocker	VTANR
Pete McHugh	VTFWD
Gregg Comstock	NHDES
Kathy Urffer	CRC
Jim McClammer	CRJC
John Ragonese	GRH
Jen Griffin	GRH
Erin O’Dea	GRH
Steve Eggers	TRPA Fish Biologists
Christian Gagne	Normandeau Associates
Rocco Ruggeri	GRH

John Ragonese opened the meeting with introductions and overview of the agenda. The primary purpose of the meeting was to review additions to the study report for ILP Study 9 - Instream Flow. The revised final study report reflects consultation with the Aquatics Working Group. The attached slide deck was presented at the meeting and emailed to meeting attendees.

### **Study 9 – Instream Flow**

Steve Eggers reviewed the additional material provided in the report and summarized minor corrections and edits that were made.

No questions or comments were proffered.

### **Study 18 - American Eel Upstream Passage Assessment**

Christian Gagne presented results of the 2018 assessment conducted at the Vernon Project. This was the fourth year assessing upstream eel migration at Vernon.

There was a question about how eels could have been observed at the flood gates. These inverted gates are located along the spillway sill and are usually submerged but may not be, depending on tailrace elevation. Eels have been observed within

**GREAT RIVER HYDRO, LLC**  
**UPDATED STUDY RESULTS MEETING**  
**JUNE 4, 2019**

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the cubby of these gates in all years. They are not actively swimming upstream but appear to be staging or resting in the relative quiet of this area.

If more eels were observed in the fish ladder than along the spillway, are you missing them in the spillway? The purpose of the study was to identify congregation areas where eels may be trying to move upstream. Weekly surveys were scheduled around times when eels were likely to be moving, i.e., evening, rain, moon phase. Eels were observed along the spillway but not in large numbers.

There was a question about whether eels passed via a sluiceway that had been used during construction of the dam and became unplugged late in 2017. The flow would not have been within a swimmable velocity for upstream migrating eels.

Lael described Salmonsoft software, how it's used with cameras to quantify target species passing the counting window, and the difficulty using it to quantify eel passage. Eels moving upstream tend to swim along the floor of the counting window where they are easily missed by the camera/software. Eels detected moving in a downstream direction were generally in the middle of the water column where they were more easily detected by the camera/software.

### **Additional Discussion**

In December 2018, VANR, in consultation with and support from NHFG and USFWS, recommended GRH conduct a PIT tag study of eels migrating upstream through the Vernon ladder in 2019. GRH proposed a two-phase study that would evaluate eel passage from ladder start up to July 15 under normal ladder operations for shad passage (phase 1) and a modified flow, yet to be determined, after the shad passage season closes (phase 2). A brief description of the study plan was provided.

The ILP schedule as provided in FERC's February 19, 2019 Revised Process Plan and Schedule was reviewed.

# ILP Study 9 - Instream Flow Final Study Report Meeting



June 4, 2019

# Agenda

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- **Introductions**
- **Study 9 – Instream Flow, including data for Study 24 – Dwarf Wedgemussel and co-occurring mussels**
- **Study 18 – 2018 Supplemental study report for American Eel Upstream Passage at Vernon Dam**
- **Lunch - provided**

**FOR TELECONFERENCE OR DIAL-IN PARTICIPANTS,**

<https://global.gotomeeting.com/join/317014853>

You can also dial in using your phone.

United States: +1 (872) 240-3311

Access Code: 317-014-853



# Study 9 - Instream Flow Study Final Report

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**The body of the Study 9 Final Report remains unchanged with the following exceptions:**

- **Updated Sea Lamprey spawning 1D AWS and 2D WUA.**
- **Expanded Conclusion section.**

**Appendices to the Study 9 Final Report were updated for:**

- **Sea Lamprey spawning 1D AWS and 2D WUA (Appendix D and E), Time Series and Habitat Duration (Appendix G-J) and Dual Flow (Appendix K-N)**
- **AWS for DWM and Co-occurring mussel corrected for Wilder reach 3 and Wilder Combined (Appendix D).**



# Study 9 - Instream Flow Study Final Report

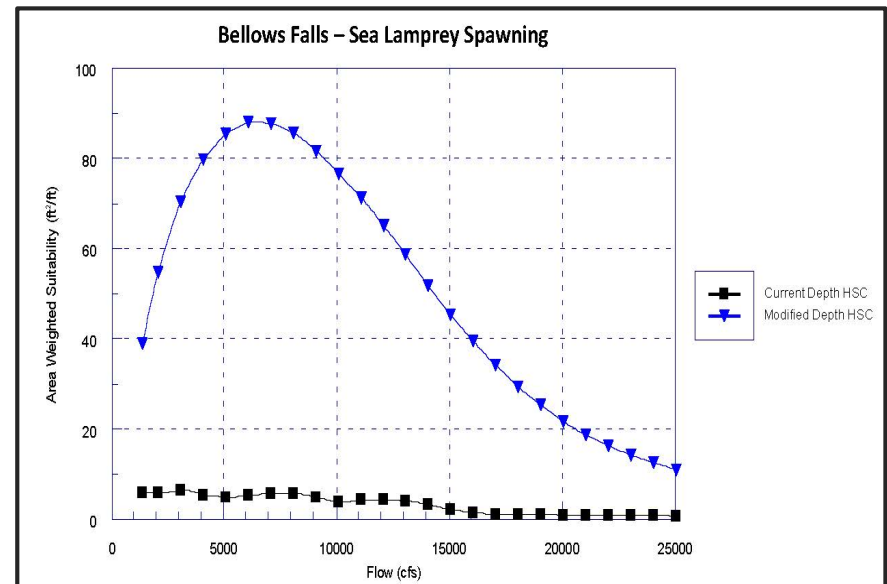
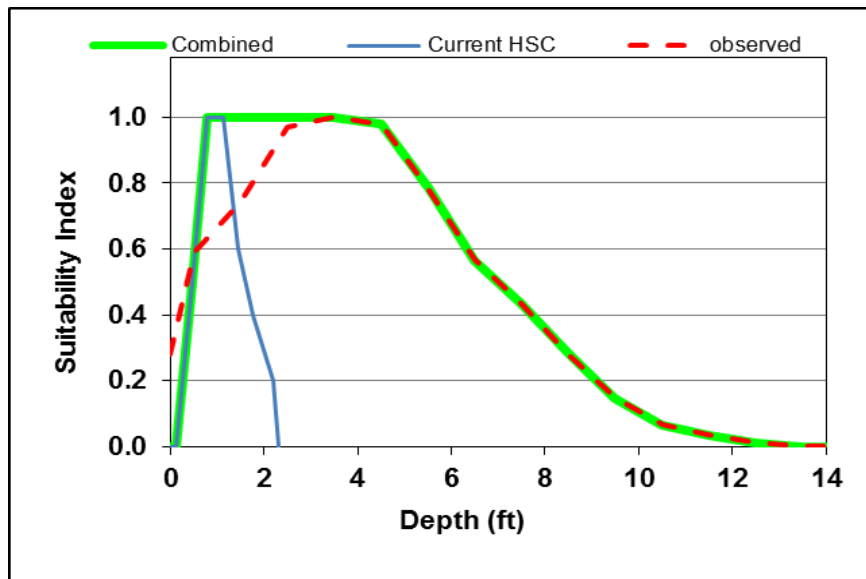
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- **Updated Sea Lamprey Spawning 1D AWS and 2D WUA.**
  - Suitability criteria were discussed in the 2017 report (Section 5.8) with proposed adjustment to depth criteria based on field observations by FirstLight and TransCanada. At the time of the report publication finalized HSC had not been agreed upon and all Sea Lamprey spawning results were based on the original depth criteria. All graphs depicting Sea Lamprey spawning have been revised in the 2019 Final Report to reflect the updated results.
  - Wording in Section 5.8 revised to indicate HSC were agreed upon by stakeholders.
  - All appendices updated with Sea Lamprey spawning results.



# Study 9 - Instream Flow Study Final Report

## Sea Lamprey Spawning Revised Depth HSC and Results for Bellows Falls



# Study 9 - Instream Flow Study Final Report

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- **Expanded the Conclusion section.**
  - Summary tables and discussion of AWS and CR AWS by project.
  - Comparison and discussion of AWS and dual flow AWS for spring spawning and summer fry rearing by project.
  - Discussion of habitat duration results shared with the Aquatic Working Group.
    - ❖ BaseCase5 – Current Operations.
    - ❖ Scenario5A “Strawman” – included seasonally adjusted minimum flow and generation ramping rates.
  - Potential for species and life stage reduction.



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**Study 18**  
**American Eel Upstream Passage**  
**Assessment – Supplement #3**  
**Vernon Station 2018**



## Study 18

# American Eel Upstream Passage Assessment – Vernon Station 2018

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## Reporting

- GRH supplemented study 18 with continued surveys, June 7 through November 1, 2018
- Methodology consistent with 2017
- Report filed May 20, 2019

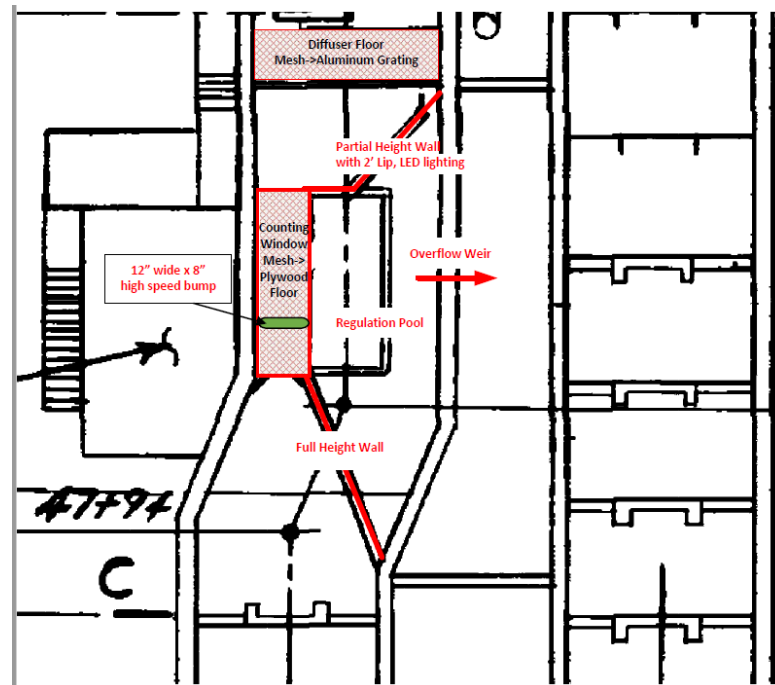


# Study 18

## American Eel Upstream Passage Assessment – Vernon Station 2018

### Fish Ladder Modifications

- Modifications made to improve accuracy of counting eels via the fish passage video monitoring system
- Modifications made to:
  - Entrances to Regulation Pool
  - Floor grates of counting window
  - Diffuser
  - Exit Weir
- No eel ramp trap installed in 2018

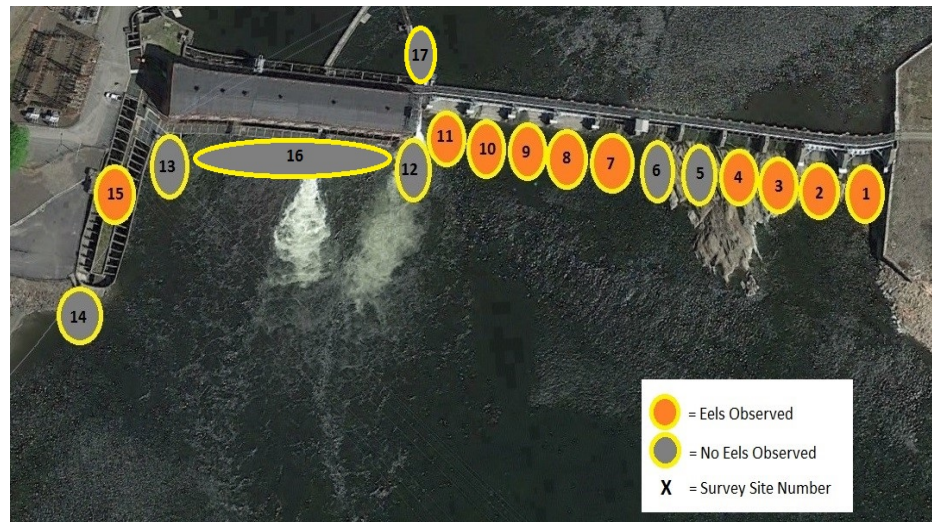


# Study 18

## American Eel Upstream Passage Assessment – Vernon Station 2018

### Visual Surveys

- 221 eels were observed in 2018 during weekly surveys over 22 weeks
  - 80 eels were observed in 2015 over 25 weeks, 70 eels observed in 2016 over 13 weeks and 148 eels observed in 2017 over 23 weeks
- Majority (62%) of all eel observations occurred between June 13 and July 18
  - Majority (71%) of 2017 eel observations occurred between June 14 and July 19

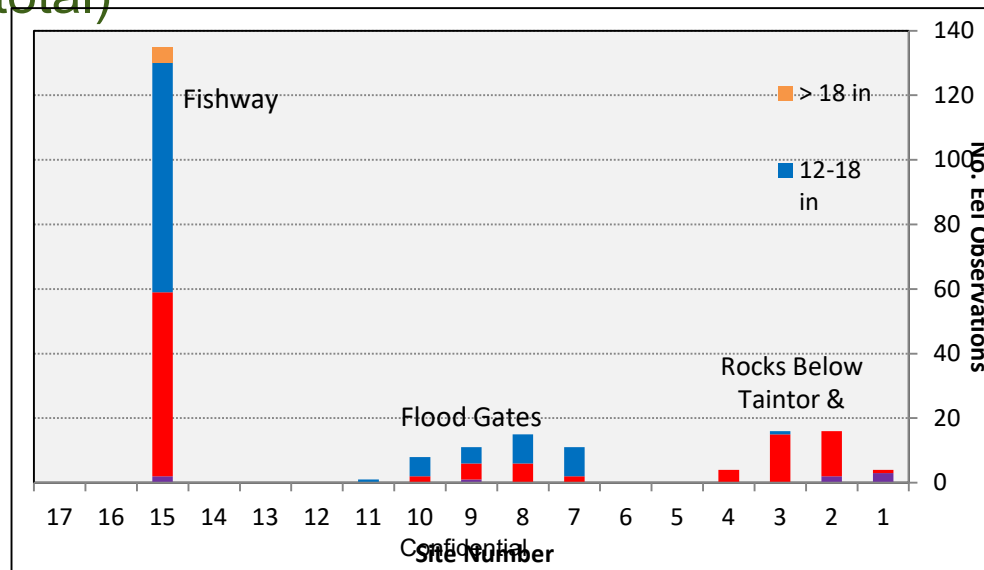


# Study 18

## American Eel Upstream Passage Assessment

### Visual Surveys

- The fishway (site 15) had the most frequent positive observations (61% of total observed) followed by the submerged flood gates at Sites 7-11 and the bedrock outcrop below Sites 1-4 (21% and 18% of total observed)
- Eels with an estimated length of 6-12 inches comprised the majority of observations (48% of total), followed by eels in the 12-18 inch length group (46% of total)



# Study 18

## American Eel Upstream Passage Assessment

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### Study Conclusions

- No large aggregations of eels staging in pools or attempting to ascend wetted structures of the dam were observed
- Eels observed in the rock outcrop most closely represented migratory behavior since they had ascended wetted surfaces to arrive from the tailwater elevation
- Eels observed at the floodgates appeared to exhibit resting/hiding behavior, not necessarily migratory behavior
- At most, 27 eels were observed in any one survey period at any one site
- Negative net eel count of 6,251 was estimated using the Vernon fishway as part of VANR's Vernon fish passage monitoring

