

Great River Hydro
ILP Study 9 Instream Flow Consultation Meeting
GRH Wilder VT conference room
Friday, June 8, 2018, 9:30 - 1:30

Meeting Notes

A consultation meeting was held June 8, 2018 at Great River Hydro's Renewable Operations Center in Wilder, VT to discuss additional information requests regarding instream flow effects.

Meeting attendees in person or identified on the telephone:

Name	Affiliation
Lael Will	VTFWD
Pete McHugh	VTFWD
Jeff Crocker	VT ANR
Eric Davis	VT ANR
Gregg Comstock	NHDES (via phone/WebEx)
Melissa Grader	FWS (via phone/WebEx)
Ken Sprankle	FWS (via phone/WebEx)
Katie Kennedy	TNC (via phone/WebEx)
Kathy Urffer	CRC
Tom Sullivan	Gomez & Sullivan
Mark Wamser	Gomez & Sullivan
John Ragonese	GRH
Jen Griffin	GRH
Edwin Nason	GRH
Steve Leach	Normandeau Associates
Semiu Lawal	Hatch (via phone/WebEx)
Bob Nasdor	American Rivers

Introduction

John Ragonese opened the meeting.

Vernon Eel Passage Monitoring

Jennifer Griffin provided a summary of GRH's efforts to modify the Vernon fishway to improve upstream American Eel passage and counting via the viewing window and the SalmonSoft monitoring system. Improvements included plywood overlays on the fish trap and regulating pool grating walls to encourage movement through the viewing field and prevent fallback; a mesh overlay on the floor grating; and deterrent lighting upstream of the fish trap / regulating pool grating to deter fallback. It was noted that eels (~12 in. long) were observed to be trapped under the mesh overlay. In response GRH, with VTFWD concurrence, attempted to drain the fish ladder in order to remove the mesh overlay. However, migrating American Shad remained in the ladder as it was dewatered so the effort was abandoned and the fish ladder was re-watered. The mesh was then partially removed with a pole-mounted cutting blade. Remainders of the mesh were then found to be triggering the SalmonSoft motion sensing.

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John Ragonese stated that moving forward the intent was to use data collected this year (2018) with improved counting as a baseline. In addition, GRH intends to make observations with an underwater camera. If problem areas are observed or counts do not seem to be improved they will reassess. He also noted that they expect valuable information and do not think that this year should be disregarded as a baseline.

John Ragonese reiterated that GRH does not want to run the fish ladder continuously through October due to attraction water use and introduction of variables. For example, fish ladder operation invokes unit operation priorities that can't be maintained through that period. However, perhaps it is ok to de-prioritize Units 9 and 10 for eel passage. GRH proposed to shut down the fish ladder when eel counts fell to ≤ 5 eels per day for 5 days. The point is to determine if the ladder passes eels, not to institute it as the eel passage method at this time.

Lael Will proposed to cease attraction flows once the trigger of $\leq 5/\text{day}$ for 5 days, but not to terminate fish ladder operation, noting that this would target any later season episodes of eel passage as have been observed at other sites.

John Ragonese noted that GRH prefers not to cease attraction flows since it introduces another variable, but propose to eliminate unit priority after shad passage season.

Mellissa Grader asked to verify that GRH will shut down the fish ladder after the shad season to fix problems associated with eel passage modifications, then re-water and observe eels until the trigger is met, then cease attraction flow and continue running the ladder through October.

John Ragonese clarified that whether to shut down would be determined based on conditions observed with the underwater camera and results of SalmonSoft, also the question remained whether the attraction flow would be ceased.

Instream Flows

John Ragonese noted that at the previous meeting agencies requested additional model output with base-case and Steady-State flows, which was provided. GRH requested that stakeholders review the results for discussion regarding resource / habitat needs and how that might be converted to operations. Ultimately, defining operational scenarios. The intent here is to develop action items before the next meeting, scheduled for July 3.

Base-case = current operations calibrated to historic data. Steady-State = steady water surface elevation at each dam or discharge matching inflow at the dam. Flow through the system starts with inflow at the node in the upper end of Wilder impoundment and adds tributary flow moving downstream. Noting that tributary flows, etc. are back-calculated so not perfect, but very close. There are some negative value cells that are an artifact of model balance, not model calibration.

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John Ragonese displayed output demonstrating that steady state increases WSE fluctuations upstream of the dam with greatest fluctuation at upstream extent.

Semiu Lawal noted that inflows upstream of Wilder are simulated outflow of the Base-Case. Variations in output are minor.

Pete McHugh noted that the output demonstrates some of what the agencies wanted to see – the magnitude of effects for bookending a dual flow assessment. He asked: from GRH perspective what non-economic problems do you see – upstream inundation etc.?

John Ragonese responded that he would not comment on this run as to whether or not it is economic; that was not the purpose for the run. The run was produced in response to the agencies request for the run to demonstrate discharge volumetrically - what flow there is to work with. Pete confirmed that information was provided. John noted that the result was as expected, Steady-State improved some locations in terms of stable WSE, but further upstream there was negligible improvement and in some cases were made worse (more variable). John demonstrated and discussed output for each Project, but noting that there is no output for downstream of Vernon because there are too many variables since FirstLight is not run-of-river, however results give an idea of discharge – the amplitude of WSE fluctuations is reduced in Steady-State compared with Base-Case.

Eric Davis noted that they are looking for comparative points in dual flow analysis using reality as a guide. They haven't yet inserted this into their instream flow analysis, but now have what they need. Intend to assess water availability and how that informs potential operational scenarios.

John Ragonese asked whether it made more sense to develop the habitat needs and then assess whether there was enough water in the system to provide those.

Pete McHugh responded that they have looked from that perspective; they need a baseline to compare – example what is the habitat availability in the Base-Case and what is the habitat availability in dual flows analysis – wanted these numbers to calibrate their assessment.

John Ragonese asked, what is the next step? How are you considering habitat studies? Do you have an instinctual response?

Eric Davis responded that instream flow is one study among many that inform flow parameters. They need to consider other studies [resource needs] in their analysis.

Peter McHugh noted that they have been considering how all [resource needs] converge in an internal document. VT is mandated to meet water quality standards.

John Ragonese noted that GRH was trying to be responsive and helpful to get to the next step. He questioned whether they were looking at resources from perspective of most critical species then working down to less critical – where habitat doesn't appear limited regardless of flows.

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Jeff Crocker responded that it is complex because different agencies have different prioritization criteria.

Melissa Grader asked if GRH was facilitating because there is additional information needed to finish the study 9 report, or searching for a win-win solution. John Ragonese, answered that yes, they are seeking a win-win. Example, where are the commonalities (in terms of operational scenario) in terms of resource needs – seems easier than a strictly numerical analysis. GRH prefers to analyze this in the context of this study, eventually hoping to address any proposed operational changes in a revised application, so would like to facilitate getting stakeholders where they need to be to recommend a proposal that will, for example, meet state WQ standards, provide habitat, etc. GRH doesn't have goals, per se, but balancing power generation and non-power uses of water is ideal. Need to maintain operational flexibility.

Katie Kennedy asked, how would GRH measure flexibility?

John Ragonese replied that Steady-State doesn't allow for capacity, for these projects GRH needs capacity flexibility. ISO New England requires energy producers to declare available capacity to establish grid resiliency. ISO audits producers to verify the claimed capacity and issues fines if the producer cannot demonstrate compliance.

Katie Kennedy asked, if we request specific scenarios to model based on resource objectives, is that what you want? John replied yes. Katie noted that the July meeting date is too soon. John noted that GRH would like to keep with that date – need to have an objective.

Melissa Grader noted that they are open to considering GRH's energy production needs, ISO requirements, etc. ...general flexibility terms, but need guidance.

General discussion of time-scales of modeling and reserve market, capacity, ISO audits, emergency dispatch, etc.

Break for Lunch

Peter McHugh noted that defining a minimum flow for the Bellows Falls Bypass Reach might be the easiest next step. John Ragonese responded that while bypass reach minimum flows are straightforward issue for agencies, they are not necessarily for GRH. We should be able to address this at the next meeting.

John Ragonese asked that the agencies characterize their [model] recommendations with the understanding that results have to be considered with all other issues.

Kathy Urffer asked, if the stakeholders come up with resource-based flow scenarios will GRH run them?

John Ragonese responded, GRH will entertain them unless implausible.

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Mark Wamser asked if GRH studies are completed.

John Ragonese responded that Studies 9 (Instream Flow) and 24 (Dwarf Wedgemussel) are not complete, and the Traditional Cultural Properties section of Study 33 needs to be wrapped up, but all other studies are complete. Ongoing upstream eel monitoring is ancillary, studies are in collective interest. FERC has not yet issued acceptance of the shad study [Study 21] and erosion study [Study 9].

Kathy Urffer asked why Study 24 was not done.

John Ragonese responded that habitat suitability curves were provided, and we're including those in the project operation assessment and flow evaluations.

Action Items

- GRH will draft a brief (paragraph) proposal for operation of the Vernon fish ladder for upstream eel passage after American Shad passage season.
- Agencies to discuss Bellows Falls Bypass Reach flows prior to next meeting.
- Agencies to consider / provide operational scenario request(s) for modeling before next meeting.