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August 29, 2013

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

**Subject: Turners Falls Hydroelectric Project, FERC Project No. 1889
Northfield Mountain Pumped Storage Project, FERC Project No. 2485
Comments on Revised Study Plan**

Dear Secretary Bose:

Pursuant to the Federal Energy Regulatory Commission's (Commission or FERC) regulations 18 C.F.R. § 5.13(b), The Nature Conservancy (TNC) is providing comment on FirstLight Hydro Generating Company's (FirstLight) Revised Study Plan (RSP) for the relicensing of the Turners Falls Hydroelectric Project (FERC No. 1889) and the Northfield Mountain Pumped Storage Project (FERC No. 2485), filed on August 14, 2013. Unless specifically noted, all comments and page references in this letter refer to FirstLight's RSP document.

On July 15, 2013, TNC provided comments on FirstLight's Proposed Study Plan (PSP). Overall, we find that FirstLight has made considerable efforts to respond to and address all of our comments. In only a few instances have we found the need for additional clarification. The following comments address these needs for clarity, and are organized by the numbering and study titles given in the August 14, 2013 RSP.

3.3 Fish and Aquatic Resources

3.3.1 Conduct Instream Flow Habitat Assessments in the Bypass Reach and below Cabot Station

Methodology (18 CFR § 5.11(b)(1), (d)(5)-(6))

Task 9: Study Report

In the comments that we provided regarding FirstLight's PSP, we recommended the inclusion of spatial graphics that depict weighted usable area across cells and over a range of flow values for all sites for which 1D analysis is conducted. In addition, we provided an example graphic (Figure 1) that can be produced using the software PHABSIM for Windows v. 1.5.1, which is the

software that FirstLight proposes to use for this study (identified on page 3-105 of the RSP). On page 3-111, FirstLight states, “Spatial plan views of habitat suitability for a subset of species/life stages and flows will be displayed graphically. These will be identified in consultation with stakeholders to narrow the number of maps to be developed.” This statement appears to meet the recommendation we included in our comments to FirstLight, as mentioned above. However, in the “Matrix of Comments and Responses” of the RSP, FirstLight’s Response to our comment is recorded as, “...we have not seen any currently available technology that will spatially present dual-flow results from a one-dimensional model...” (p. 3-435), which is similar to statements made on pages 3-109 and 3-110. While we are uncertain if PHABSIM can be used to calculate persistent habitat, we are aware of its capability to create spatial plots that depict model results across cells, with distance from the headpin on the x-axis, distance upstream on the y-axis, and the value (e.g., of the combined suitability index) of each cell depicted by a color indicating the range in which the value falls (Figure 1). We assume that these are the “spatial plan views” mentioned on page 3-111; however, to avoid miscommunication, we include further details concerning these plots below. While PHABSIM may not directly calculate habitat persistence, providing multiple plots across a range of discharges would allow for a crude but adequate assessment of habitat persistence at a site. Also, it may be possible to evaluate habitat persistence by creating an additional plot that displays minimum values across a range of flows. We are uncertain if this can be accomplished with PHABSIM, or if use of additional software (e.g., Microsoft Excel, Adobe Illustrator) would be necessary to create such a plot.

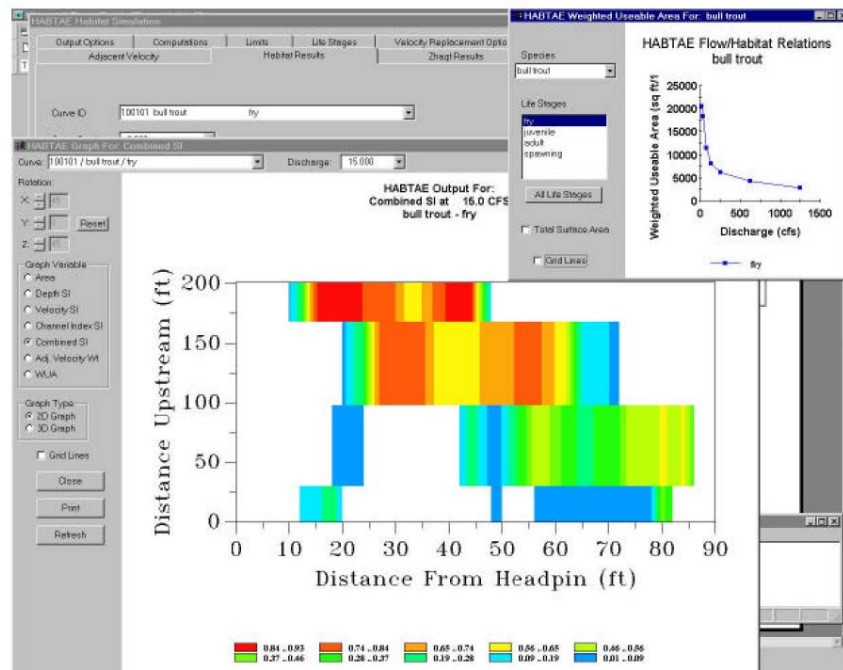


Figure 1: Example of “plan view” spatial graphic that may be created within the “HABTAE” program of the PHABSIM for Windows software.

In the User Manual for the PHABSIM for Windows software (Waddle 2012; available: http://www.fort.usgs.gov/Products/Publications/pub_abstract.asp?PubId=15000), examples of spatially-depicted results may be found on pages 170 and 171 (for 3-dimensional charts, note the selected button under “Graph Type” on the left hand side of the screen capture), page 273 (for a standard 2-dimensional chart; the chart shown in Figure 1), and pages 274 and 275 (for charts using results that include the value of adjacent cells). All of these charts can be created using the “HABTAE” program of the PHABSIM software. In the PHABSIM user manual, the 2-dimensional charts are also referred to as “plan view plots.” Instructions on creating these plots can be found on page 112 of the PHABSIM user manual. In brief, within the /Models/HABTAE window, under the “Habitat Results” tab, “The Graph button in this tab displays a plan view plot of the suitability for the study site... A Print button is supplied so color copies of the plots can be produced for inclusion in reports” (p. 112 of the PHABSIM user manual). We recommend the inclusion of these “plan view plots” within the study report. Because creating plots for every species and every life stage under multiple discharge scenarios may be unnecessary and excessive, the decision concerning which plots to include in the study report should be determined in consult with agencies and other stakeholders, as suggested by FirstLight on page 3-111.

3.3.11 Fish Assemblage Assessment

Methodology (18 CFR § 5.11(b)(1), (d)(5)-(6))

We are pleased with the changes that FirstLight has made to the Fish Assemblage Assessment study, as they have added more detail and clarification to the study plan. Overall, the study design appears to be sound and rigorous. However, there are a few details that remain unclear; we request that the final study plan include greater clarity, especially with regard to the description of sampling locations. For example, the difference between “strata” and “sub-strata” is not clear, and in some cases the terms seem to be used interchangeably. These terms should be clearly defined. If the strata are based on general river morphology, the specific strata should be identified. If the strata and sub-strata have not yet been determined, then it should be clearly stated that these will be determined in consult with stakeholders. In addition, FirstLight states that there will be at least 18 stations sampled during each sampling “event.” We assume that these events are the two sampling seasons that will occur in early summer and again in the fall, but this is also unclear. Furthermore, the spatial extent of a “station” has not been defined. The stations will be randomly selected, but it is unclear how this will be done. Are the stations random points, or are they linear segments? If the stations are linear segments, what is their spatial extent? Lastly, it is unclear how the stations will be sampled. On page 3-248, FirstLight states that “selected locations within each station” will be sampled by various sampling gear types. How many selected locations will be at each station? How will these locations be

selected? On page 3-248, FirstLight states, “Multiple methods of fish capture will be used in each stratum...” Will multiple or a single gear type be used at each station? We recognize that this will be dependent on the spatial scale of a “station;” therefore, we request additional clarity with regard to this term, as well as to the additional terms mentioned above.

Regardless of the definitions of each term, we strongly recommend some kind of replication at each of the 18 sampling stations, whether this means the use of multiple gear types at each station or multiple samples of the same gear type. If multiple gear types, we recommend at least three different methods/gears be used at each station. If multiple samples of the same gear type, we advise that replication is more important than the size of an individual sample. For example, if three 500-meter samples are not possible practically or fiscally, then it is better sampling design to take three 100-meter samples than one 500-meter sample. This will allow for statistical inference at each of the 18 stations, and therefore a more robust sampling design. This may be FirstLight’s intent, but if so, the sampling methodology requires further clarification.

Thank you for this opportunity to provide comment on FirstLight’s Revised Study Plan. If you have any questions regarding the preceding comments, please contact Katie Kennedy at the Nature Conservancy’s Connecticut River Program office (413-586-2349 or kkennedy@tnc.org).

Sincerely,



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Literature Cited

Waddle, T.J., ed. 2012. PHABSIM for Windows user’s manual and exercises:
U.S. Geological Survey Open-File Report 2001-340. 288 pp.

Document Content(s)

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