

November 14, 2014

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

**Subject: Wilder Hydroelectric Project, FERC Project No. 1892
Bellows Falls Hydroelectric Project, FERC Project No. 1855
Vernon Hydroelectric Project, FERC Project No. 1904
Comments on Initial Study Report**

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 TransCanada Hydro Northeast Inc.'s (TransCanada) Initial Study Report (ISP) for the relicensing of the Wilder (FERC No. 1982), Bellows Falls (FERC No. 1855), and Vernon (FERC No. 1904) Hydroelectric Projects, filed on September 15, 2014.

Because most of the studies as outlined in the FERC's Study Plan Determination are either in progress or have not yet been started, these comments focus exclusively on Study 24, the Dwarf Wedgemussel and Co-occurring Mussel Study. The Nature Conservancy has been an active participant in the aquatics working group, and has been engaged with TransCanada, U.S. Fish and Wildlife Service (USFWS), Connecticut River Watershed Council (CRWC), and other working group members in the ongoing consultation and discussion surrounding this study. Thus far, we believe TransCanada has made a reasonable effort to consider and address comments that we have provided. However, some outstanding issues with TransCanada's Revised Phase 2 Study Plan remain that we would like to address here.

The Nature Conservancy provided comments on the Proposed Phase 2 Study Plan (dated May 9, 2014 and provided May 12, 2014) via email on June 27, 2014. We appreciate that TransCanada incorporated several of our comments into the Revised Phase 2 Study Plan, dated July 14, 2014. TransCanada also responded to our comments in a Responsiveness Summary provided as an Appendix to the Revised Phase 2 Study Plan. However, the Study Plan and the Responsiveness Summary were made available on September 4, 2014, after data collection had started. We

regret that we were not able to discuss the Study Plan further before data collection started, as we had some remaining questions and comments regarding how TransCanada incorporated and responded to our questions. These additional questions and comments follow.

Use of Co-Occurring Mussel Species as Surrogates

In the Revised Phase 2 Study Plan for Study 24 (ISR Volume VI), TransCanada proposes to include co-occurring species in their assessment because of the low density of the federally-endangered dwarf wedgemussel (DWM), “with the intent to use co-occurring species as surrogates for dwarf wedgemussels and mussel habitat because dwarf wedgemussels can occupy all of the same water depths and habitat types as other species (p. 8).” We agree that collecting data on co-occurring mussel species will be very informative for understanding project effects on these species. However, the distribution and abundance of these co-occurring species, both locally and range-wide, preclude their use as surrogates for DWM. We cannot assume that these species share an identical habitat niche without empirical evidence supporting such a claim. Qualitative and anecdotal evidence is not a sufficient basis for such a major assumption, especially given the potential consequences on the long-term persistence of this species in the project-affected area. Unless proved otherwise, we must assume that habitat could be one of the limiting factors that have contributed to the endangered status of dwarf wedgemussel.

Habitat Suitability and Site Selection

TransCanada has also stated that survey sites and transects were selected based on known habitat suitability for DWM; e.g., “Six locations are proposed for the quantitative and qualitative surveys in 2014, including two locations with suitable habitat...” and “[Transects] will be placed within the depth range where mussels (especially dwarf wedgemussels) are more common...”¹ Based on these statements, we have some concerns that there are additional unstated assumptions with regard to DWM habitat, and that these assumptions could possibly inhibit the evaluation of potential project effects on DWM. Specifically, we are concerned that site and/or transect selection has occurred based on undefined habitat characteristics that could potentially bias habitat suitability results. That is, if sites and transect locations are selected using a set of undefined habitat parameters, then study results will simply be reporting habitat suitability as it has already been pre-determined. If there are empirical data that describe DWM habitat suitability that are being used to define survey locations, these data need to be made explicit and available.

Furthermore, in addition to stating that they already have some understanding of habitat suitability, TransCanada has stated that DWM is both a fluvial species² and a generalist³⁴. We

¹ Revised Phase 2 Study Plan for Study 24, Initial Study Report Volume VI, p. 4

² Phase 1 Report for Study 24, Initial Study Report Volume IV, p. ii

recognize that TransCanada has also agreed that DWM does not in fact exist everywhere (as the term “generalist” implies), and that there is research yet to be done to increase our understanding in this area⁴; however, we want to emphasize the potential issues with using the term “generalist” loosely, as it is contradictory to other statements and could be misleading. It is possible that these apparent contradictions are related to undefined assumptions (as indicated above). In general, the issue of habitat suitability – what is known, how it is influencing site selection, and how this will influence the data used to evaluate habitat suitability – needs to be clarified.

Definition of Site and Transect Locations

In comments to TransCanada regarding their Proposed Phase 2 Study Plan for Study 24, TNC suggested that because DWM are so rare, and because they were found at only 31 locations in the systematic sampling protocol that was undertaken in 2011 and 2013, that TransCanada should collect habitat data at all 31 sites to maximize our understanding of this rare species. In response, TransCanada stated that the number of locations where DWM were found was “irrelevant”⁵. We are unsure what this statement means, as elsewhere TransCanada has asserted that DWM are rare and patchily distributed in the project-affected area⁶. It is not clear how TransCanada can determine a patchy distribution if the number of locations where DWM were found is irrelevant. To make the conclusion that DWM are rare and patchy, the proportion of sites where DWM were found would need to be relevant, as well as where these sites were located in the study area. We are concerned that TransCanada’s statements may be reflective of a survey protocol that is different from what we understood it to be. We understood that the DWM survey was based on a systematic sampling design. For a systematic survey, a study area is divided into equal portions (the “sites”), and each of these sites is sampled equally. However, TransCanada also has not clearly defined the specific spatial unit for the sites, so we are therefore unsure of the actual survey design. [TransCanada did state at one point that a “location” is “within ~400 meters”⁷; however, if this were the spatial unit of the systematic sampling design, TransCanada would have had to sample over 400 sites, and there has been no mention of randomization in site selection.]

Furthermore, TransCanada asserted that within the 34 miles of river where DWM were found, they “could be found at most locations if survey duration was long enough.”⁸ We also do not understand how this statement is consistent with the statement about DWM’s patchy distribution.

³ Transcript for the July 1, 2014 Aquatics Working Group Consultation Conference Call, p. 2, in the Consultation Record, Appendix A of the Initial Study Report Volume I

⁴ Initial Study Results Meeting Summary, p. 10

⁵ Attachment A, Responsiveness Summary, of the Revised Phase 2 Study Plan for Study 24, Initial Study Report Volume VI, p. A-3

⁶ Phase 1 Report for Study 24, Initial Study Report Volume IV, p. 40

⁷ Initial Study Results Meeting Summary, p. 10

A population cannot be both patchily distributed and found at most locations within an area. This apparent contradiction will need to be rectified for these data to be used to evaluate potential project effects on DWM.

TransCanada goes on to say in reference to the 31 sites where DWM were detected that “there is nothing particularly special about the sites, and habitat was quite homogeneous among them.”⁹ Given the previous discussion with regard to undefined habitat parameters and the potential for biased sampling, we believe this statement is unfounded. Furthermore, we assert that every location where a rare endangered species is located has some kind of informational value. In any rare species analysis, habitat data are limited, and it is therefore critical to include as much information as is available. TransCanada has recognized that DWM are not located everywhere and research remains to be done to increase our understanding in this area¹⁰; it follows that the grounds do not exist to make an independent judgment call on the informational value of a site. Understanding why DWM are located at these 31 sites, and none of the others, is extremely important for ensuring the long-term persistence of this federally-endangered species.

An additional reason to sample all 31 sites is to confirm a claim that TransCanada made in the Phase 1 Study Report, that DWM “appear to occur only in surveyed areas of the Connecticut River where water level fluctuations are minimal or non-existent.” If in fact DWM are limited to certain areas of the project-affected area because of project operations, as this statement suggests, all locations where DWM are present should be included in the habitat analysis to rule out other factors that may be characterizing DWM distribution.

In further defense of not collecting data at all 31 sites, TransCanada asserts that subsampling is a commonly-accepted practice. We agree with this statement; however, subsampling is generally restricted to application where particular data types are not limited, and effort needs to be reduced for the sake of practicality. Furthermore, 31 sites out of 210 total sites is already a significant subsample, especially given the rarity of this species and given that TransCanada has stated it will not conduct additional sampling at sites where DWM were undetected¹¹.

TransCanada also states that collecting quadrat data at each site will add to the unoccupied data set since DWM will not be detected in every quadrat. We think that this is a valid point; however, if this is one of the intentions of the study design, transects placed longitudinally in the

⁸ Attachment A, Responsiveness Summary, of the Revised Phase 2 Study Plan for Study 24, Initial Study Report Volume VI, p. A-3

⁹ Attachment A, Responsiveness Summary, of the Revised Phase 2 Study Plan for Study 24, Initial Study Report Volume VI, p. A-3

¹⁰ Initial Study Results Meeting Summary, p. 10

¹¹ Attachment A, Responsiveness Summary, of the Revised Phase 2 Study Plan for Study 24, Initial Study Report Volume VI, p. A-2

channel limits the breadth of data that could be used for this purpose. In large river systems with large macrohabitat units, habitat diversity is greater laterally across the channel (bank to bank) than it is longitudinally. Furthermore, DWM data collected in longitudinal transects are not as compatible with habitat data collected for the hydraulic and instream flow habitat models (Studies 4 and 9, respectively), as would be data collected in lateral transects.

Issues of Detection of Rare Species

We are also concerned with early reports that imply that even fewer DWM were detected per unit effort in 2014 compared to 2011 and 2013. This is either a reflection of a true population decline over a very short period, or it may be reflective of seasonal differences in detection rates. In earlier discussions, TransCanada has asserted that they are highly effective at detecting DWM if it is present at a site. However, it is not unusual for detection probabilities to change due to seasonal factors. Because TransCanada is not estimating detection probability of DWM, we suggest that sampling is repeated at a time of year when DWM detection has been demonstrated to be highest in order to increase DWM detection rates.

Analysis

The Revised Phase 2 Study Plan for Study 24 states that “mussel densities (mussels/m²) will be computed from both transect and quadrat data” (p. 8). However, it is not clear whether this means the data will be pooled, or that separate calculations will be made for transects and for quadrats. If pooled data are to be used, we suggest also providing the densities for each method.

This section of the Revised Phase Study Plan also states, “Total population size (with variance estimates) of each species will be computed from quadrat data...” (p. 8). This should state “relative abundance” instead of “total population size” because population size cannot be determined with these methods.

Further in this section, the Revised Phase 2 Study Plan states, “Logistic regression will be used to relate two response variables (species presence and species density) to key predictive habitat parameters” (p. 8). Logistic regression may be used with species presence because it is a binomial variable, but cannot be used to evaluate count data (density). Rather, Poisson regression should be used to relate count data to predictive habitat parameters, since count data do not have a normal distribution, a required assumption for linear regression.

Access to Study Results

TransCanada has stated that members of the aquatics working group will have access to the confidential version of the 2013 study report; however, TNC only received a link to the

TransCanada website, which provides access to the public version that omits the survey data (Appendix B).

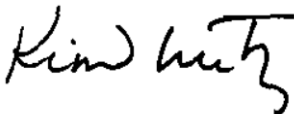
“Counter Proposal” Submitted by USFWS

In light of the concerns highlighted above, TNC finds that the proposal submitted by USFWS improves upon TransCanada’s Revised Phase 2 Study Plan for Study 24 in terms of the ability of the plan to meet the original goals of Study 24. Specifically:

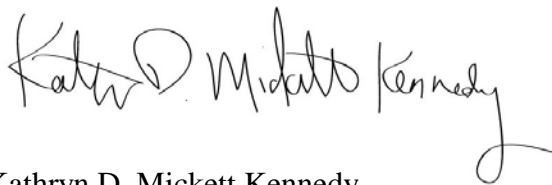
- The USFWS proposal to deliberately sample habitat across a range of DWM density classes will greatly improve the potential for defining habitat suitability criteria for this species (Goal 1, Objective 3 of Study 24). It will not be possible to evaluate habitat suitability of DWM and further evaluate project effects (Goal 2, Objective 5 of Study 24) if the only sites used for the analysis are low-density sites.
- The sampling design of the USFWS proposal is explicit and deliberate, and less subjectivity is required for selection of locations for sites and transects. A statistically-sound and repeatable study design used to determine density and habitat suitability for DWM (Goal 1, Objective 3 of Study 24) needs to be as explicit as possible with regard to how sites are selected and data is collected.
- In the USFWS proposal, transects are placed perpendicular to the current, which increases the range of habitat parameters that may be used to evaluate habitat suitability for DWM. An adequate range of habitat parameters across a range of DWM densities is critical for sound habitat suitability criteria that will be used to determine project effects on DWM and their habitat (Goal 1, Objective 3 and Goal 2, Objective 5 of Study 24).

Thank you for this opportunity to provide comment on TransCanada’s Initial Study Report. 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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