



United States Department of the Interior



FISH AND WILDLIFE SERVICE

New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5087
<http://www.fws.gov/newengland>

In Reply Refer To: FERC Nos. 1904-073, 1855-045, and 1892-026
TransCanada Hydro Northeast Inc.
Connecticut River
COMMENTS ON REVISED STUDY PLANS

August 29, 2013

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E., Room 1A
Washington, DC 20426

Dear Secretary Bose:

This responds to the Revised Study Plan (RSP) submitted by TransCanada Hydro Northeast Inc. (TC) on August 14, 2013 as part of the relicensing of the Vernon, Bellows Falls and Wilder projects, located on the Connecticut River in New Hampshire and Vermont. We have reviewed the RSP and offer the following comments.

GENERAL

In its RSP, TC has adopted, either fully or partially, the majority of recommendations provided in our July 15, 2013 Updated Study Plan (USP) comment letter. The U.S. Fish and Wildlife Service (Service) appreciates the incorporation of our proposed modifications to the study methodologies. Consequently, we are focusing comments on only those study plans where TC addressed our recommendations, due to the limited time frame for RSP review.

Study 4 Hydraulic Modeling Survey

Methods

In general, modeling river conditions (in HEC-RAS) beyond the range of calibrated flows will introduce uncertainty and should be avoided. TC notes that the HEC-RAS model will be calibrated to “wet, dry and normal conditions.” By convention, wet, dry and normal conditions refer to the mean annual flows ranked into the highest, lowest and middle quartiles, respectively. The Service is interested in modeling results that capture the range of flows during which fish are typically moving in the river; this may require a calibration range greater than those defined by “wet, dry and normal conditions.” The Service and other resource agencies typically define this

range as river flows equaled or exceeded 95 percent to 5 percent of the time during the fish passage season. We request that TC explicitly define the range of proposed calibration flows so that the Service can assess the applicability of the HEC-RAS model.

Deliverables

The Service requests all HEC-RAS files necessary to run the models and reproduce the results, including the geometry files, plan files, flow files, and project files.

Study 12 Tessellated Darter Survey

To address Service concerns over potential adverse effects to federally listed dwarf wedgemussels from the use of a benthic trawl to survey for tessellated darters, TC has revised the study methodology to one using snorkel/SCUBA visual surveys in reservoir sections within the study area. The Service believes that, with the inclusion of the revised survey methodology and a time-of-year restriction on the use of backpack shocking in wadeable waters, adverse effects are not likely to occur.

Study 16 Sea Lamprey Spawning Assessment

The Service had recommended that TC utilize data from studies 4 and 7 to locate potential areas of lamprey spawning habitat and monitor them to gather additional data in case few or none of the radio-tagged lamprey are found to spawn in project-affected waters. In response, TC has revised the study plan to state that all redds found within project-affected areas, whether located by radio telemetry or during studies 7, 9 and 13, will be enumerated and monitored (if feasible).

Study 7 is the Aquatic Habitat Mapping study, which took place this summer. Study 9 is the Instream Flow Study, which is scheduled to take place in 2014. However, there is no guarantee that field data for this study will be collected during the lamprey spawning period. Study 13, the Tributary and Backwater Area Fish Access and Habitats Study, will only sample selected tributary and backwater areas (i.e., those identified as presenting potential barriers to fish passage). Therefore, there is no assurance that any of those sites actually will have habitat suitable for lamprey spawning.

The Service does not believe that the revised study plan satisfies the study goal of determining whether project operations are affecting the success of lamprey spawning. It is possible that few or no radio-tagged lamprey will spawn within project-affected waters, and that no additional lamprey spawning observations will be made during studies 7, 9 and 13 (due to the aforementioned reasons). To maximize the chance of gathering the data necessary to fulfill the study goal, TC should supplement the radio telemetry study with additional habitat-based monitoring, as outlined in our July 15, 2013 USP letter.

Study 19 American Eel Downstream Passage Assessment

Survival/Injury Studies

The Service has repeatedly requested that spill survival be evaluated. However, in the RSP, TC has maintained its original proposal to only conduct such a directed spill survival study should results of the route selection study indicate a “significant preference” for spill routes, and if the telemetry data suggest poor survival through those routes.

In our July 15, 2013 comment letter on the USP, we explained the need for spill survival to be assessed not only in the context of how the project currently operates, but also to evaluate spill as a potential alternative passage route.

On the Pacific coast, increased spillage is used at a number of projects to pass downstream-migrating Pacific salmon smolts (Ferguson *et al.* 2005). Given the height of the TC dams, spillway passage for downstream migrating eels may provide higher survival than through turbines. On the Columbia River system, spillway survival was often found to be higher than turbine or bypass system survival when spill passage conditions were optimal (Ferguson *et al.* 2005). Likewise, survival probabilities for juvenile salmon were found to be higher for a surface weir and spill bays than through turbines for juvenile Chinook salmon at Little Goose Dam on the Snake River (Beeman *et al.* 2010). The benefits of spillway passage may include reductions in delays at the forebay and tailrace and reduced predation. However, passage via spillways can result in injury to migrants where inadequate plunge pool depths exist below spillways. The Biological Opinion recently issued for the Penobscot River¹ includes a draft report from Alden Research Laboratory, Inc. (Amaral *et al.* 2012) that provides a comprehensive review of spillway mortality studies. Based on data in the Alden report, two general conclusions can be made: (1) few, if any, studies have been conducted using silver phase eels; and (2) spillway survival can vary substantially among sites and even within a given site (minimum survival of 76.2 percent up to 100 percent for tests conducted on the Columbia River system with juvenile salmonids). This information underscores the need for directed spillway mortality studies at TC’s projects.

Study 22 Downstream Migration of Juvenile American Shad – Vernon

Methods

In response to our request to add hydroacoustics as a monitoring method to help determine timing, duration and magnitude of wild fish outmigration(s), and relate the migration to operational/environmental conditions, TC now proposes to install a single beam hydroacoustic transducer in the Vernon forebay near the downstream fish pipe.

¹ National Marine Fisheries Service. 2012. Endangered Species Act Biological Opinion for the Construction of new powerhouses at the Orono (2710) and Stillwater (2712) Projects; Fish passage improvements at the Orono, Stillwater and Milford (2534) Projects; and Species Protection Plan for the Orono, Stillwater, Milford, West Enfield (2600) and Medway (2666) Projects. F/NER/2012/01568. 954 pages, including appendices.

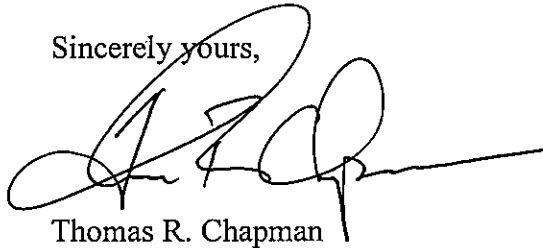
Kimberly D. Bose, Secretary
August 29, 2013

4

The Service believes the way to gain the most comprehensive understanding of the juvenile shad outmigration and its relationship to project operations and environmental conditions is to have transducers at all possible passage routes (i.e., intake, fish bypasses, spillway gates). A single transducer near the fish pipe may provide sufficient insight into the timing, duration and relative abundance of the run, assuming that passage through the fish pipe is indicative of passage through other potential routes. However, a single transducer directed towards the fish pipe will not allow for an assessment of delay at the project. In order to determine if outmigrants are delaying in the forebay area, TC needs to install an array of transducers sufficient to get full coverage on either side of the upstream end of the louver. As currently proposed, juvenile shad could enter the forebay area and be there for an unknown period of time before proceeding through the fish pipe (or other passage routes). The additional coverage in the upper forebay (or upstream of the forebay) is needed to assess rate of movement through the forebay area and relate this movement to project operations.

Thank you for the opportunity to comment on the revised study plans. If you have any questions regarding these comments, please contact John Warner of this office at 603-223-2541.

Sincerely yours,

A handwritten signature in black ink, appearing to read 'T. Chapman', with a long horizontal line extending to the right.

Thomas R. Chapman
Supervisor
New England Field Office

Kimberly D. Bose, Secretary
August 29, 2013

5

cc: John Rangone
TransCanada
Concord Hydro Office
4 Park Street, Suite 402
Concord, NH 03301
CRC, Ken Sprankle
NMFS, Bill McDavitt
NMFS, Jess Pruden
VFWD, Lael Will – Springfield
VFWD, Rod Wentworth – Montpelier
VANR, Jeff Crocker
NHDES, Owen David
NHFGD, Gabe Gries - Keene
TU, Don Pugh
CRWC, David Deen
TNC, Katie Kennedy
Reading File
ES: JWarner:8-29-13:(603)223-2541

REFERENCES

- Amaral, S., C. Fay, G. Hecker and N. Perkins. 2012. Atlantic salmon survival estimates at mainstem hydroelectric projects on the Penobscot River: DRAFT Phase 3 Final Report. Prepared for the National Marine Fisheries Service by Alden Research Laboratory, Inc. Holden, Massachusetts. 555 pp.
- Beeman, J.W., A.C. Braatz, H.C. Hansel, S.D. Fielding, P.V. Haner, G.S. Hansen, D.J. Shurtleff, J.M. Sprando and D.W. Rondorf. 2010. Approach, passage, and survival of juvenile salmonids at Little Goose Dam, Washington: Post-construction evaluation of a temporary spillway weir, 2009: U.S. Geological Survey Open-File Report 2010-1224. 100 pp.
- Ferguson, J.S., G.M. Matthews, R.L. McComas, R.F. Absolon, D.A. Brege, M.H. Gessel and L.G. Gilbreath. 2005. Passage of adult and juvenile salmonids through federal Columbia River power system dams. NOAA Technical Memorandum NMFS-NWFSC-64. Seattle, Washington.

Document Content(s)

1855-1892-1904-RevisedStudyPlanComments.PDF.....1-6