Relicensing Study 3.3.15

ASSESSMENT OF ADULT SEA LAMPREY SPAWNING WITHIN THE TURNERS FALLS PROJECT AND NORTHFIELD MOUNTAIN PROJECT AREA

Initial Study Report Summary

Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

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1.1 Study Summary

The purpose of this study is to identify sea lamprey spawning sites and evaluate the effects of project-related water level and flow changes on spawning habitat, behavior, redd condition, and spawning success. In its February 21, 2014 Study Plan Determination Letter (SPDL), the Federal Energy Regulatory Commission (FERC) concluded that the study could be affected by the closure of Vermont Yankee and thus modified the study schedule.

1.2 Study Progress Summary

The study will be conducted in 2015 as described in the Revised Study Plan (RSP). Preliminary evaluations and range testing of proposed monitoring locations was conducted on July 15 and 16, 2014. The objective of the preliminary evaluations was to investigate the feasibility of using radio telemetry methods to monitor strategic locations as identified in the RSP. The evaluation included those proposed monitoring locations that span large distances (i.e. wide sections of the river) to ensure that the proposed monitoring regime is adequate to document tagged study fish as they migrate through the study area. The range testing was conducted using a Lotek SRX 400 receiver and 4-element yagi antenna and a test tag with the following parameters:

- Frequency 149.320
- Width - 12mm
- Length - 40mm
- Mass - 8g
- Apparent mass in water - 3.5g

The test tag was deployed using a fishing pole and float to set the depth of the tag at approximately 5 feet. Water quality data were collected at the time of the testing including temperature, dissolved oxygen (DO), pH and conductivity. Conductivity in particular affects the radio signal transmitted by the tag and will affect the range of the monitoring system. The conductivity of the Connecticut River was 139 µS/L at the time of testing (July 15) and 88 µS/L within the Deerfield confluence (July 16).

Range testing was conducted at the following location:

- Shearer Farms (RM 127.5),
- NMPS Intake (RM 127),
- NMPS Gill Bank (RM 126.5),
- Turners Falls Impoundment (RM 122),
- Station No. 1 Tailrace (RM 121),
- Rawson Island (RM 120.5),
- Cabot Station Tailrace (RM 120)
- Deerfield River Confluence (RM 119.5), and
- Montague Wastewater (RM 119.5)

The analysis of the range testing is ongoing but a preliminary review revealed that the monitoring stations as proposed in the RSP will be adequate to monitor shad movement through the study area with one exception. An additional monitoring station at the Shearer Farms location will be necessary to monitor the full width of the river. This location will be monitored with two Lotek SRX 400 receivers and yagi antennas.

Though the monitoring location proposed at the Red Cliffe Canoe Club (RM 86.5, upstream of Holyoke Dam) was not tested in the evaluation, given the width of the river at the location (~1200 ft), it is anticipated that an additional receiver station, one on each side of the river, will be required to monitor the full width of the river. This area will be monitored using two Lotek SRX 400 receivers and yagi antennas.

Radio noise information is being collected in 2014 at Cabot Station to help determine which frequencies are best suited for use in the study. The exact frequencies used in the study will be based on availability and the results of the noise testing, and in cooperation with the TransCanada studies. Data collection for this effort is ongoing and it is anticipated that analysis of the data will be completed prior to purchasing tags.

Reporting

A final report will be completed in March 2016 per FERC's SPDL.

1.3 Variances from Study Plan and Schedule

To date, there have been no variances.

1.4 Remaining Activities

- Conduct study and associated analysis in 2015.
- Final study report.