

**Relicensing Study 3.3.14**

**AQUATIC HABITAT MAPPING  
OF TURNERS FALLS  
IMPOUNDMENT**

**Initial Study Report Summary**

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

*Prepared for:*



*Prepared by:*



**SEPTEMBER 2014**

## 1.1 Study Summary

Study 3.3.14 is a habitat field study to delineate aquatic littoral and demersal habitat in terms of substrate and cover in the Turners Falls Impoundment (Impoundment). The purpose of the study is to map the distribution and abundance of aquatic habitat, evaluate the types of habitats that occur, and identify any potential effects of operations on the habitat. The quantified spatial data generated by this survey will help provide a framework for the upcoming data analysis efforts relative to operations and impoundment modeling.

No consultation was recommended by the Federal Energy Regulatory Commission (FERC) in its February 21, 2014 Study Plan Determination Letter. FERC concluded that the study would not be affected by the closure of Vermont Yankee and thus did not modify the study schedule.

## 1.2 Study Progress Summary

### Task 1: Field Survey

Field surveys were initiated during the week of August 25, 2014 to conduct the delineation phase of field efforts. Subsequent to that effort, a desktop analysis will be conducted to identify transect locations to be surveyed during the microhabitat quantified data collection phase, anticipated to occur in early September 2014.

### Task 1a: Delineation

Delineation of habitat within the approximately 20-mile-long Impoundment was conducted by boat traveling through the littoral zone parallel to shore, during a period of relatively stable Impoundment levels so that observations of depth relative to substrate and cover were observed under consistent conditions, to the extent practical. The prevailing water elevation at the beginning of the survey was documented by bench-marked survey. Staff gages were established throughout the study area so that changes in water elevation during the survey could be accounted for. The field crew recorded habitat attributes and geo-referenced each boundary where a pronounced change in substrate and/or depth occurred.

### Task 1b: Microhabitat

Delineation results will be used to aid in selection of transect locations to be surveyed in the field.

Transect data will be gathered within representative littoral habitats with distribution and number of transects dictated by the variability detected during the delineation phase. Verticals will be located along each transect. Elevations for top of bank, normal high water, upper elevation of Impoundment (if different than normal high water), normal Impoundment elevation, toe of bank, and low Impoundment elevation will be recorded at the verticals. The upper, normal and lower Impoundment elevations will be determined in concert with Study No. 3.1.2 *Northfield Mountain/Turners Falls Operation Impacts on Existing Erosion and Potential Bank Instability*.

Additional verticals will be established at intervals where micro-changes in slope, substrate embeddedness, or cover are encountered. Elevations will be surveyed in NGVD 1929 datum (also the project datum) so that data can be integrated with other project operation data for analysis. The locations of all transects will be geo-referenced and transect headpins will be blazed.

### Task 2: Analysis and Report

Geospatial mesohabitat data will be transferred to a GIS format and used to develop both visual maps depicting distribution and tabular information quantifying the abundance and distribution of habitat features in the study area. A summary report will be developed that will include survey methods, GIS maps showing the mesohabitat spatial distribution in the impoundment, and a discussion of observations. The report will provide a narrative discussion of habitat use by fish and aquatic macroinvertebrates native to the study area. It is anticipated that data gathered during Study No. 3.3.17 Assess the Impacts of Project Operations of the Turners Falls Project and Northfield Mountain Project on Tributary and Backwater Area Access and Habitat will also be used to develop the habitat map and discussion for this summary report. The final report will be completed in the 2nd quarter of 2015.

### **1.3 Variances from Study Plan and Schedule**

To date, there have been no variances.

### **1.4 Remaining Activities**

- Microhabitat mapping will be conducted in September 2014.
- Data quality control review in the 4th quarter of 2014.
- Prepare and file study report by the 2nd quarter of 2015.