

Relicensing Study 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

Initial Study Report Summary

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

Prepared for:



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1.1 Study Summary

The purpose of this study is to evaluate access to tributary and backwaters to (1) identify potential barriers to, or constrictions of, fish access; (2) assess the adequacy of current minimum flow requirements for the areas downstream of Turners Falls Dam within the bypass reach relative to backwaters and tributary access; and (3) determine the need for enhancement or mitigation measures. FirstLight has proposed to assess the impacts of water level fluctuations due to project operations on aquatic habitat access through bathymetric mapping, habitat measurements [e.g., substrate depth, and velocity (where potential barriers are observed)], collection of water quality parameters (e.g., water temperature, dissolved oxygen, turbidity, and pH), river bed surveys, visual inspection, GIS/GPS mapping, and hydraulic/habitat modeling. The assessment will be performed during the spring, summer, and fall of 2014.

No consultation on this study was required.

1.2 Study Progress Summary

Task 1: Field Data Collection

Field data collection has been conducted in accordance with the Revised Study Plan (RSP) except as indicated in section 1.3 *Variations from Study Plan and Schedule*. The springtime survey was conducted on 5/21, 5/22, between 6/4 and 6/6, and on 6/10 and 6/11, 2014. The summertime survey was conducted on 8/5 and between 8/11 through 8/13, 2014. All field data were reviewed to assure quality and archived daily. Additional summertime surveys will be conducted in September 2014 and the fall survey is scheduled for the week of October 6, 2014.

Task 2: Evaluation of Fluctuation Range

The evaluation of the fluctuation will begin once the field data collection is complete in the fall of 2014.

Task 3: Data Analysis and Reporting

Data analysis has not yet begun and will commence upon completion of field data collection in the fall of 2014. The report is anticipated to be complete during the 1st quarter of 2015.

1.3 Variations from Study Plan and Schedule

The RSP states that surveys will be performed at each tributary to *delineate the perimeter of the inundated tributary confluence area with a sub-meter accuracy GPS. Aerial imagery may also be used to delineate tributary confluence areas*. During the spring survey the field crew found that delineation of the perimeter of the tributaries was hindered by extensive mud deposits, which made access to the perimeter difficult. Further, collection of sub-meter GPS data and mapping using aerial imagery was confounded by the dense canopy over the tributaries which reduced the accuracy and connectivity of the Trimble GPS and obscured the tributary in aerial photos. The study team met to discuss these challenges and it was decided that the upstream extent of the confluence would be delineated with sub-meter GPS and LiDAR data would be used to define the elevation at the upstream extent to calculate and map the perimeter using GIS. FirstLight acquired LiDAR data in July, 2014 that extends from Vernon Dam to Holyoke Dam in support of this analysis. The LiDAR data will be used in conjunction with field data to map the confluence perimeters.

1.4 Remaining Activities

- Perform final assessment in fall 2014.
- Compile and analyze data for Final report submission in the 1st quarter of 2015.