

Relicensing Study 3.3.10

ASSESS OPERATIONAL IMPACTS ON EMERGENCE OF STATE-LISTED ODONATES IN THE CONNECTICUT RIVER

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

This study has two objectives: (1) synthesis of existing data, supplemented with field surveys, to characterize the assemblage structure and emergence/eclosure behavior of odonates in the project area, and (2) determine if project operations affect the emergence and eclosure success of state-listed odonates, and the potential implications for the odonate assemblage in affected areas, particularly state-listed species. This is a two-year study, with qualitative odonate surveys in 2014 and quantitative studies in 2015, followed by analysis and reporting.

In 2014, odonate larvae and exuviae were surveyed between the Turners Falls Dam and the Route 116 Bridge in Sunderland, and in the Turners Falls Impoundment (Impoundment) near Barton's Cove, to establish a qualitative baseline for the odonate assemblage in these areas. Preceding the fieldwork, a study plan and scientific collection permit application was submitted to the Massachusetts Natural Heritage and Endangered Species Program (NHESP), and NHESP issued the permit on May 15, 2014.

1.2 Study Progress Summary

Task 1: Review of Existing Information

Existing information (peer-reviewed articles, books, relevant case studies, unpublished reports, etc.) on the life history and ecology of target odonate species will be reviewed in the fall and winter of 2014-2015.

Task 2: Finalize Study Plan and Attain Collection Permit

The study plan for the 2014 fieldwork was completed in April 2014, a collection permit application was submitted to NHESP in early May 2014, and NHESP issued the permit on May 15, 2014.

Task 3: Qualitative Surveys for Larvae and Exuviae to Determine Species Presence

Fieldwork for this task was completed in May and June of 2014. All the survey sites that NHESP requested were surveyed. These included:

- In the Impoundment - Representative shoreline habitat in Barton's Cove, totaling approximately 200 meters.
- In the Turners Falls Bypass Reach - Representative shoreline habitat in Reach 3 [as defined in the Revised Study Plan (RSP) - Study No. 3.3.1] totaling approximately 200 meters.
- In the Connecticut River below Cabot Station - Representative habitats within two (2) reaches in the area between the Railroad Bridge and Third Island (Montague/Deerfield), totaling approximately 400 meters.
- In the Connecticut River below Cabot Station - Approximately 200 meters of shoreline near the Route 116 Bridge in Sunderland was surveyed to compare species composition here to areas farther upstream (i.e., the two sites between the Railroad Bridge and Third Island). This was added to assess whether more intensive quantitative surveys planned for 2015, especially studies of emergence behavior could be done in an area that was more accessible.

Task 4: Quantitative Surveys of Emergence/Enclosures Behavior

This work will be completed in 2015. FirstLight will use results of Tasks 1 and 3 to inform discussions of additional data collection, replication, stratification by habitat, and to finalize its emergence speed study

methods with stakeholders prior to data collection. FirstLight will convene a meeting with interested stakeholders to determine adequate number of survey transects and replicates for this effort.

Task 5: Water Fluctuation Impact Assessment

This work will be completed in 2015. The Federal Energy Regulatory Commission (FERC) in its February 21, 2014 Study Plan Determination Letter (SPDL) recommended that FirstLight deploy a water level logger (with the capability to record temperature) set to record data at 15-minute intervals, in each quantitative survey reach to accurately evaluate water levels, standardize field measurements, and describe temperature in relation to odonate emergence behavior. FirstLight has a permanent water level logger in the vicinity of Barton's Cove, which should provide information on impoundment water levels to support this task. Below the dam, in addition to the permanent United States Geological Survey (USGS) staff gauge on the Connecticut River at Montague City, FirstLight will install temporary water level/water temperature loggers in each reach (total of two loggers) for the duration of the quantitative surveys.

Task 6: Report

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

1.3 Variances from Study Plan and Schedule

To date, the only variance from the study plan and schedule was to include one additional survey site near the Route 116 Bridge in Sunderland. This was surveyed to compare species composition here to areas farther upstream (i.e., the two sites between the Railroad Bridge and Third Island). FirstLight added this site in order to assess whether more intensive quantitative surveys planned for 2015, especially studies of emergence behavior could be done in an area that was more accessible.

1.4 Remaining Activities

Odonate larvae and exuviae collected in 2014 will be identified, field data will be entered and analyzed, and a study plan for the 2015 fieldwork will be submitted for review. Review of existing information (relevant publications, case studies, etc.) will occur in fall and winter of 2014-2015. FirstLight will convene a meeting with interested stakeholders to finalize the quantitative survey methods and level of effort under Task 4.

Quantitative surveys will occur in 2015. A final report, which will include an assessment of effects of water fluctuations, will be prepared following the 2015 field season.