

Quashnet River Habitat Assessment and Surface Water Model, Mashpee, Massachusetts

Project Characteristics

- *Field data collection*
- *Hydraulic modeling*
- *River relocation assessment*
- *Fish habitat assessment*

Woods Hole Group worked with a team on a feasibility assessment for mitigation of impacts of the K-6 bog berm failure on the Quashnet River in Mashpee, MA for improved trout habitat. Woods Hole Group performed the

- Assessment of current conditions, including sediment, benthic communities, plant communities, fish habitat, and river channel characteristics.
- Development of a surface water model to describe surface water conditions under various scenarios (current conditions, plus three alternate flow rates and three alternate river location conditions).
- Assessment of management options, including re-routing the river away from the failed berm area, and likely effects on plant and fish communities.



A river model was generated and applied within HEC-RAS to determine how varying treatment pumping rates and modifying river channel cross-sections would impact fish habitat. Average channel velocity was evaluated to maintain clean channel bottoms from collecting organic material. Channel velocities were also evaluated against collected grain size information to evaluate potential scour issues.

This feasibility assessment suggests it would be possible to enhance habitat quality in conjunction with remediation of the failed berm in the K-6 bog area of the Quashnet River. A number of river relocation scenarios appear to be possible, and a variety of habitat enhancement techniques could be employed to improve fish and wildlife habitat. Results were used to design the river restoration project.

