



## **Merrimack River Water Quality Monitoring, Analyzing, Protecting and Promoting (MAPP) Project 2008 Executive Summary**

The MAPP Project is a volunteer water quality monitoring program started in 2007 to collect baseline water quality information in the 50-mile mainstem of the Merrimack River in Massachusetts. During 2008, 35 members of the Merrimack Valley community volunteered with the Merrimack River Watershed Council (MRWC) to collect monthly data at 31 sites along the length of the river. Volunteer teams monitored seven or eight sites in one of four river sections, traveling from one site to another via motorboat. The four river sections are: 1) the estuary in Newburyport to the Haverhill/Groveland town line, 2) Groveland to the Essex Dam in Lawrence, 3) the Essex Dam to the Pawtucket Dam in Lowell, and 4) the Pawtucket Dam to the Massachusetts/New Hampshire state border. Fifty monitoring trips occurred on a total of 43 days throughout the spring, summer and fall of 2008, with bacteria samples collected on 23 of these trips.

Physical water quality data collected includes water temperature, pH, dissolved oxygen, conductivity, total dissolved solids, salinity and Secchi depth. Physical water quality parameters met Massachusetts state standards, with a few exceptions. One notable exception is low pH readings on several days, primarily in section 4.

Bacteria samples were collected once per month and analyzed at the Region 1 EPA laboratory. In comparison to the sample data MRWC collected in 2007, the dry weather results of our monthly bacteria sampling in 2008 show a slight decrease in water quality in the Merrimack, down from 98 percent swimmable in 2007 to 95 percent swimmable in 2008. During wet weather, on the other hand, water quality of our Merrimack River samples improved relative to 2007, with an increase from 63 percent to 74 percent safe for swimming and from 79 percent to 94 percent safe for fishing and boating. Evaluation of Merrimack River water quality based on criteria used by other Massachusetts watershed associations would indicate lower water quality, however.

A few of our 2008 successes and 2009 plans include:

- *Powwow River monitoring* – With analysis assistance from EPA, MRWC and a volunteer collected *E. coli* data on the Powwow River and its tributaries in Amesbury center and downstream. One site contained bacteria concentrations of 198,630 cfu/100 ml and has been targeted with enforcement action by the Massachusetts Department of Environmental Protection.





- *Station 26.9* – High bacteria and conductivity/TDS/salinity results have been noted at station 26.9 near the Greater Lawrence Sanitary District (GLSD) waste water treatment plant outfall. Given reduced GLSD combined sewer overflow activity over the past couple of years, MRWC will examine the area surrounding the station, including the Shawsheen River, for other potential sources.
- *Hotspot monitoring around Stony Brook* – The increase in bacteria levels between Stony Brook and the Rourke Bridge on two occasions in 2008 suggests that non-point or illicit connections are a factor in this area, or in Stony Brook itself. MRWC will collect additional bacteria samples to attempt to pinpoint the source.

The first two years of the MAPP Project were intended as the start-up phase of a long-term Merrimack River monitoring program. Future plans include continuing baseline monitoring and sampling in Massachusetts, expanding baseline monitoring into southern New Hampshire and collecting an extended set of water quality parameters, including nutrients and metals, in both states.

For more information, the complete 2008 MAPP Annual Report can be found on our website at <http://www.merrimack.org/publications/watershedreports.html> or contact Tracie Sales, Water Resources Manager at [tsales@merrimack.org](mailto:tsales@merrimack.org) or 978-275-0120 x13.

