

New Haven River - 2014 Water Quality Summary Addison County Riverwatch Collaborative

Site	Location	Town
NHR2	Muddy Branch confluence	New Haven
NHR9	South St. Bridge	Bristol
NHR11.5	Bartlett's Falls Pool	Bristol

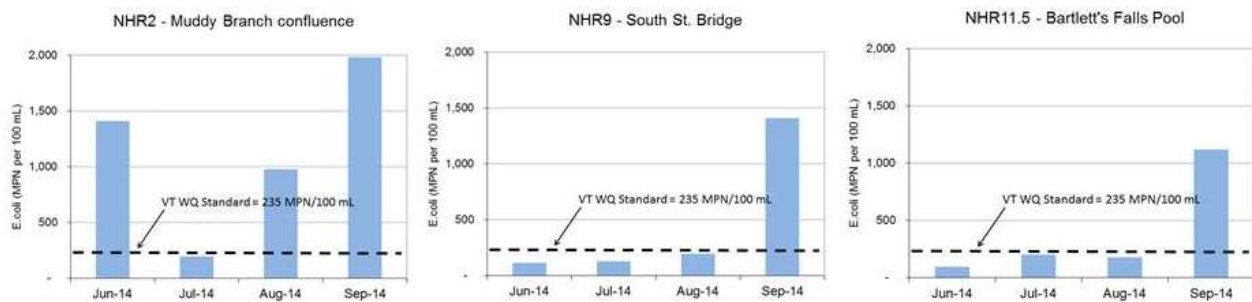
The Addison County Riverwatch Collaborative has been monitoring water quality in the New Haven River since 1993. In 2014, the number of sampling locations in this watershed has been limited to two sentinel stations, NHR2 and NHR9, and a third recreational site monitored only for pathogens (NHR11.5).

During 2014, sampling occurred on two spring dates (April 9 and May 7) and four summer dates (June 4, July 2, August 6, and September 3). The April event occurred just after ice out during a time of snow melt and represented high flow conditions on the river, based on records from the USGS gage on the New Haven River at Brooksville. The August event also captured high flows resulting from an overnight thunderstorm. The May and June events occurred during moderate flow conditions related to higher-than-normal rainfall in the spring months. The July and September events captured low to baseflow conditions. On an average annual basis, flows in 2014 were near normal in the Addison County watersheds monitored by the Collaborative. Samples were tested for phosphorus and turbidity; E.coli was tested only on the summer dates.

E.coli counts at popular recreational sites (South St. Bridge, NHR9; Bartlett's Falls, NHR11.5) were below the recently-modified state standard of 235 organisms/100 mL on all summer dates except September 3. In the lower watershed, the station near Nash Bridge in New Haven (NHR2) indicated E.coli counts elevated above the state standard in June, August and September. Low-flow conditions and warm temperatures likely contributed to elevated E. coli counts on September 3. Consistent with historic results, an increasing trend in E.coli levels is evident with distance downstream from station NHR11.5 to NHR2. Developed and agricultural land uses are more prevalent in the lower New Haven River watershed.

E.Coli

Vermont State Standard = 235 MPN / 100 mL



Turbidity levels on the New Haven River at the two sentinel stations ranged from 1.4 to 35 NTUs, with a mean level of 8.6 NTUs for the six sample dates. Results from 2014 are largely consistent with historic

trends. Based on past years' sampling results, turbidity can become elevated at times of increased flow – during a summer thunderstorm, or during spring runoff conditions – especially in the lower reaches of the river below the Bristol Flats. A slight increasing trend in turbidity with distance downstream is generally observed during all flow conditions. The Vermont state standard of 10 NTUs (for Class B cold-water fisheries) is applicable during low-flow conditions. The turbidity standard was slightly exceeded on one of the low-flow sampling dates (September 3) at station NHR2 (13.8 NTUs).

Phosphorus was detected at low to moderate concentrations on the New Haven River during the spring and summer sampling dates. Concentrations ranged from 9.1 to 214 ug/L, with an average of 58.5 ug/L. Results were consistent with historic trends, which indicate an increase in concentrations with distance downstream. At all stations, moderately high concentrations of Total Phosphorus have been detected in past years at times of high flow and runoff. In 2014, the mean concentration of Total Phosphorus for the two available low-flow summer sample dates (July 2, September 3) at each of the New Haven River sentinel sites exceeded the approved instream nutrient standard of 27 ug/L for the warm-water medium gradient (WWMG) wadeable stream ecotype in Class B waters.

2015: The Addison County Riverwatch Collaborative will continue to monitor for E.coli, phosphorus and turbidity at these sentinel sites in 2015. In response to feedback from the Town of Bristol, an additional recreational site at Sycamore Park (NHR6) will be monitored for E.coli during the summer months. This site is a popular swimming site and the town requested that it be monitored for public health. An increased number of parameters and additional monitoring sites will be evaluated when a more intensive monitoring focus rotates back to the New Haven River for a two-year period beginning in the year 2016.

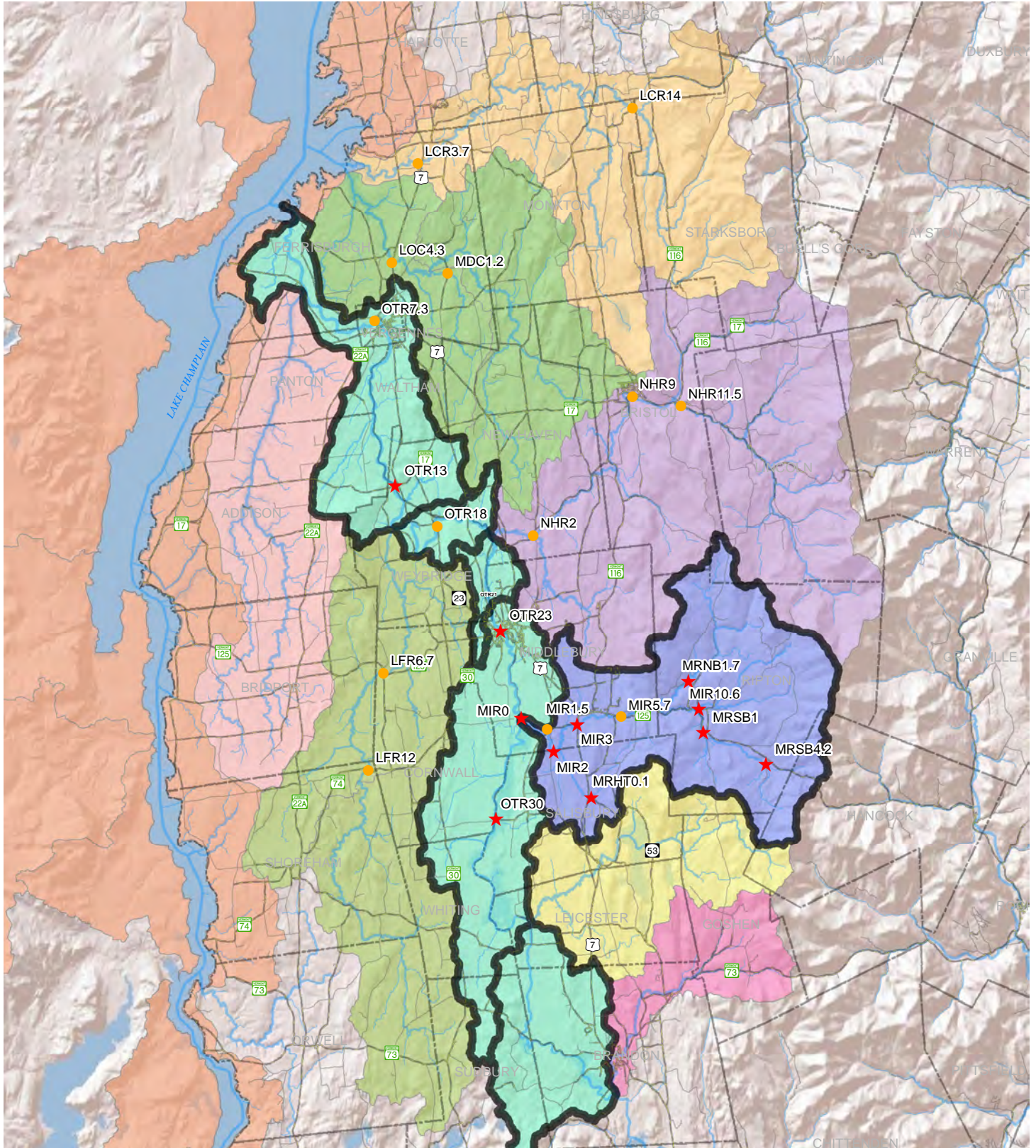
For more information, contact the New Haven River sampling coordinator:

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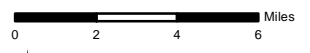
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or visit our web page at: www.acrpc.org/acrwc

Addison County River Watch Collaborative

Water Quality Monitoring Sites by Watershed, 2014



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|-------------------|--------------|-------------------------------|------------------------------|------------------------------|
| ★ Rotational Site | Roads | Rotational Basins 2014 | Orange Lake Champlain Direct | Pink Dead Creek |
| ● Sentinel Site | — Pavement | Black Otter Creek | Yellow Lewis Creek | Light Green Lemon Fair River |
| | — Gravel | Black Middlebury River | Green Little Otter Creek | Yellow-Green Leicester River |
| | | | Light Blue Otter Creek | Blue Middlebury River |
| | | | Purple New Haven River | Magenta Neshobe River |



The Addison County River Watch Collaborative is a citizen organization whose mission is to collect and assess the water quality of Vermont surface waters, and to facilitate water quality and stream corridor improvement measures on a watershed scale.