

Middlebury River - 2013 Water Quality Summary
Addison County Riverwatch Collaborative

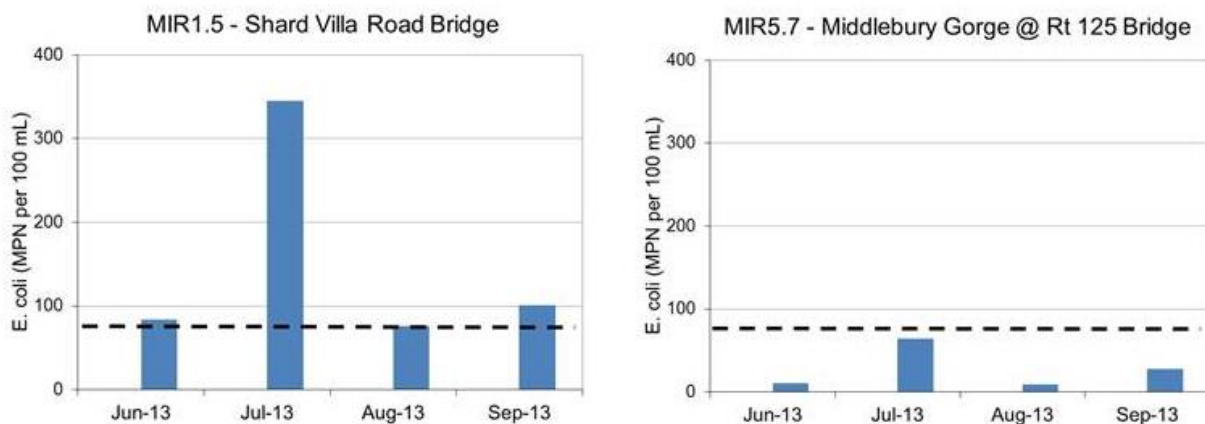
Site	Location	Town
MIR1.5	Shard Villa Rd. Bridge	Middlebury
MIR5.7	Midd. Gorge @ Rte 125 Bridge	Middlebury

The Addison County Riverwatch Collaborative has been monitoring water quality in the Middlebury River since 1993. For years 2010 through 2013, the number of sampling locations in this watershed has been reduced to two sentinel stations, MIR1.5 and MIR5.7. During 2013, sampling occurred on two spring dates (April 3 and May 1) and four summer dates (June 5, July 10, August 7, and September 4). The spring and early summer dates represented moderate flow conditions on the river, based on records from area USGS streamflow gages. August and September sample dates captured baseflow conditions, while the July 10 event captured moderate to high flows following a storm event on July 3-4 and higher-than-normal May and June rainfall. On an average annual basis, flows in 2013 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 the Middlebury Gorge, a popular swimming hole near the Route 125 bridge (MIR5.7), were well below the federal health-based standard of 235 MPN/100 mL on all four summer sample dates. Results were also below the state water-quality standard of 77 organisms/100 mL. E.coli counts at the downstream station at Shard Villa Road bridge (MIR1.5) were at or above the state standard on all four summer sampling dates, and the July sample exceeded the federal health-based standard. These results are generally consistent with historic summer sampling results, which have shown an increase in E.coli levels in the Middlebury River downstream of the Route 7 bridge.

E.Coli

Vermont State Standard = 77 MPN / 100 mL



Turbidity levels in the Middlebury River were low and below the Vermont state standard of 10 NTUs (for Class B cold-water fisheries). Values ranged from 0.2 to 7.8 NTUs, with an average level of 2.4 NTUs for all six sample dates. Based on past years' sampling results, Turbidity can increase well above the state standard at times of high flow – during a summer thunderstorm, or during Spring runoff conditions – particularly in the lower section of the river below the Route 7 bridge.

Phosphorus levels were detected at relatively low concentrations during the six spring and summer sampling dates. Concentrations ranged from 6.8 to 50.1 ug/L, with an average of 17.4 ug/L. Total Phosphorus concentrations detected in 2013 were generally consistent with historic data. Vermont recently proposed in-stream phosphorus criteria for aquatic life and aesthetics uses in wadeable streams (VTDEC, 2009). The mean concentration of Total Phosphorus for the two available low-flow summer sample dates at each site did not exceed the proposed criterion of 44 ug/L for the warm-water medium gradient (WWMG) wadeable stream ecotype in Class B waters.

2014: An increased number of parameters and additional monitoring sites will be evaluated when a more intensive monitoring focus rotates back to the Middlebury River for a two-year period beginning in the year 2014. Additional stations will be added in the headwaters located in Ripton to capture baseline water quality conditions in the South, Middle and North Branches of the Middlebury River. Some of these stations will be co-located with VT Agency of Natural Resources bio-monitoring stations. A greater density of sampling stations will be established downstream of the East Middlebury village to produce an updated assessment of water quality conditions in this lower part of the watershed which is more intensively developed and farmed.

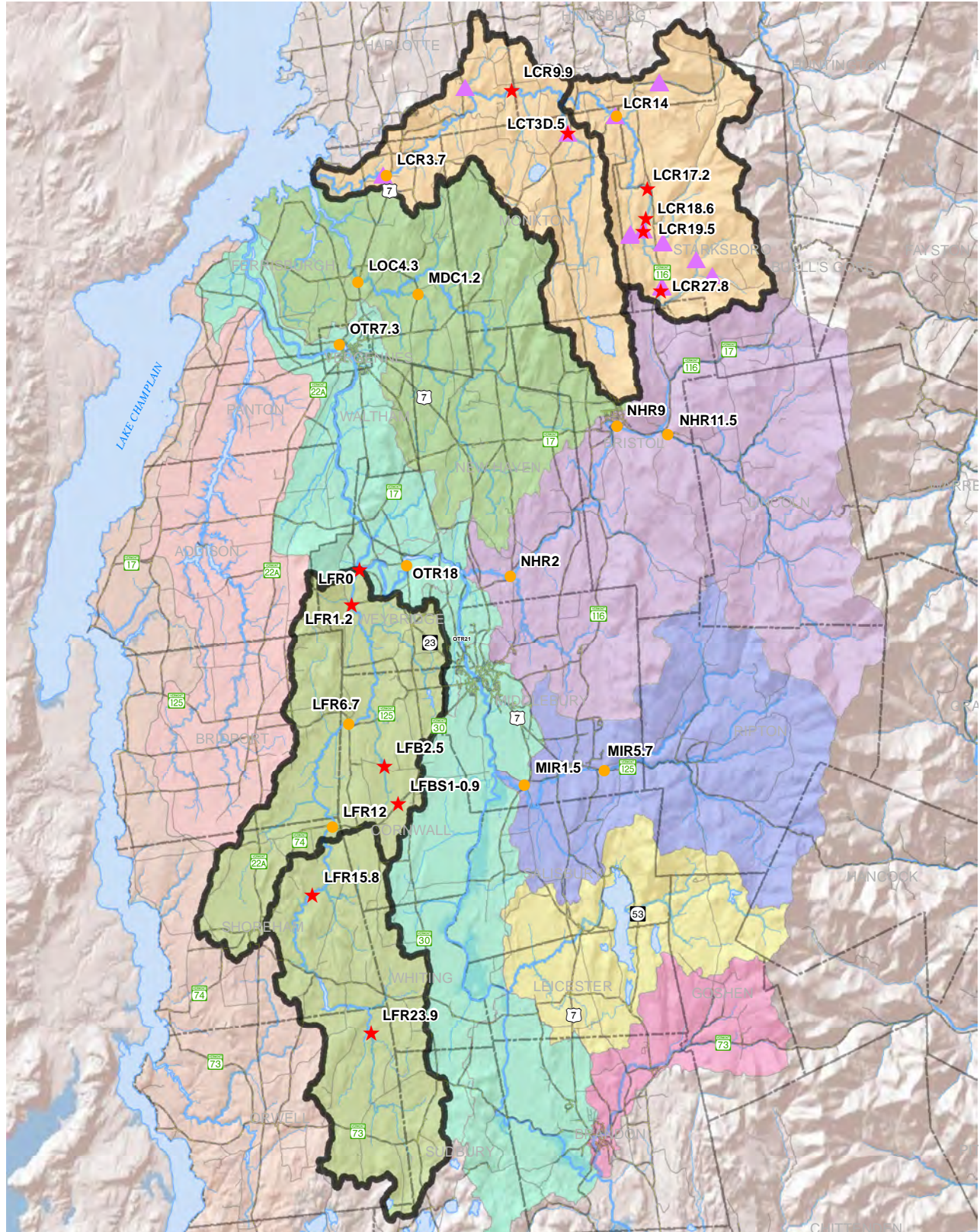
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or visit our web page at: www.acrpc.org/acrwc

Addison County Riverwatch Collaborative

Water Quality Monitoring Sites by Watershed, 2013



ACRWC 2013 Sampling Sites

- ★ Rotational Basin Site 2013
- Sentinel Site
- ▲ Biomonitoring Study Site

Rotational Basins 2013

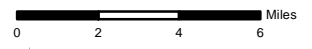
- ◻ Lemon Fair River
- ◻ Lewis Creek

- ◻ Lake Champlain direct
- ◻ Lewis Creek
- ◻ Little Otter Creek
- ◻ Otter Creek
- ◻ New Haven River

- ◻ Dead Creek
- ◻ Lemon Fair River
- ◻ Leicester River
- ◻ Middlebury River
- ◻ Neshobe River

Roads

- Pavement
- Gravel



The Addison County Riverwatch 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.