

Lewis Creek - 2014 Water Quality Summary Addison County Riverwatch Collaborative

Site	Location	Town
LCR3.7	Old Route 7 Bridge	Ferrisburgh
LCR14	Tyler Bridge	Monkton

The Addison County Riverwatch Collaborative has been monitoring water quality in the Lewis Creek since 1992. For years 2014 through 2017, the number of sampling locations in this watershed has been reduced to two sentinel stations, LCR3.7 and LCR14.

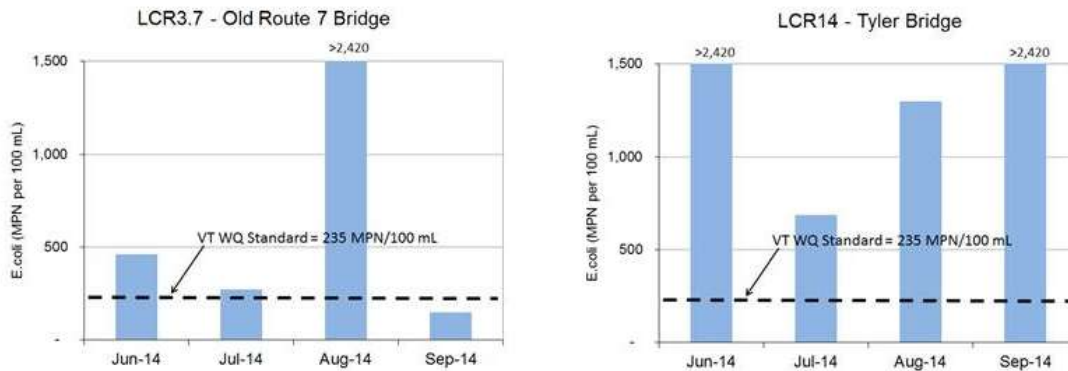
During 2014, sampling occurred on two spring dates (April 9 and May 7) and four summer dates (June 4, July 2, August 6, and September 3). The April event occurred just after ice out during a time of snow melt and represented high flow conditions on the river, based on streamflow gaging records from the USGS streamflow gage located at the Route 7 crossing. 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 from the Lewis Creek watershed were tested for E.coli, total phosphorus, and turbidity; E.coli was tested only on the summer dates.

E.coli counts in the Lewis Creek at the two sentinel stations exceeded the recently modified state standard of 235 organisms/100 mL on a majority of the sample dates. Detected E.coli counts at these sites in the 2014 season were largely consistent with historic results. Station LCR14 is located downstream of a dairy pasture where livestock have direct access to the stream. This station is also located downstream of the confluence with Hollow Brook which flows through wetlands populated by beavers.

E.Coli

Vermont State Standard = 235 MPN / 100 mL



Turbidity levels in the Lewis Creek at the sampled stations ranged from 3.0 to 223 NTUs, with a mean level of 48 NTUs for the six sample dates. Highest turbidity concentrations were observed during high-flow events on April 9 (178 NTUs) and August 6 (223 NTUs) at station LCR3.7 near the Route 7 bridge. Based on past years' sampling results, turbidity can be elevated at times of increased flow – during a summer thunderstorm, or during spring runoff conditions – especially in the lower reaches of the river. An 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 exceeded on one low-flow sampling date (September 3) at station LCR3.7 (15.4 NTUs).

Phosphorus was detected at low to moderate concentrations during the six Spring and Summer sampling dates, ranging from 21.9 to 448 ug/L, with an average of 129 ug/L. Highest phosphorus concentrations were associated with the April 9 and August 6 high-flow events at both stations, LCR3.7 and LCR14. The mean concentration of Total Phosphorus for the two available low-flow summer sample dates (July and September) at LCR3.7 (39.2 ug/L) and LCR14 (32.4 ug/L) each exceeded the approved instream nutrient standard of 27 ug/L for the warm-water medium gradient (WWMG) wadeable stream ecotype in Class B waters. Historic results for both sentinel and rotational sites have shown an increasing trend in phosphorus concentration with distance downstream.

2015: The Addison County Riverwatch Collaborative will continue to monitor for E.coli, total phosphorus, and turbidity at these two sentinel sites in 2015. An increased number of parameters and additional monitoring sites will be evaluated when a more intensive monitoring focus rotates back to the Lewis Creek for a two-year period beginning in the year 2018.

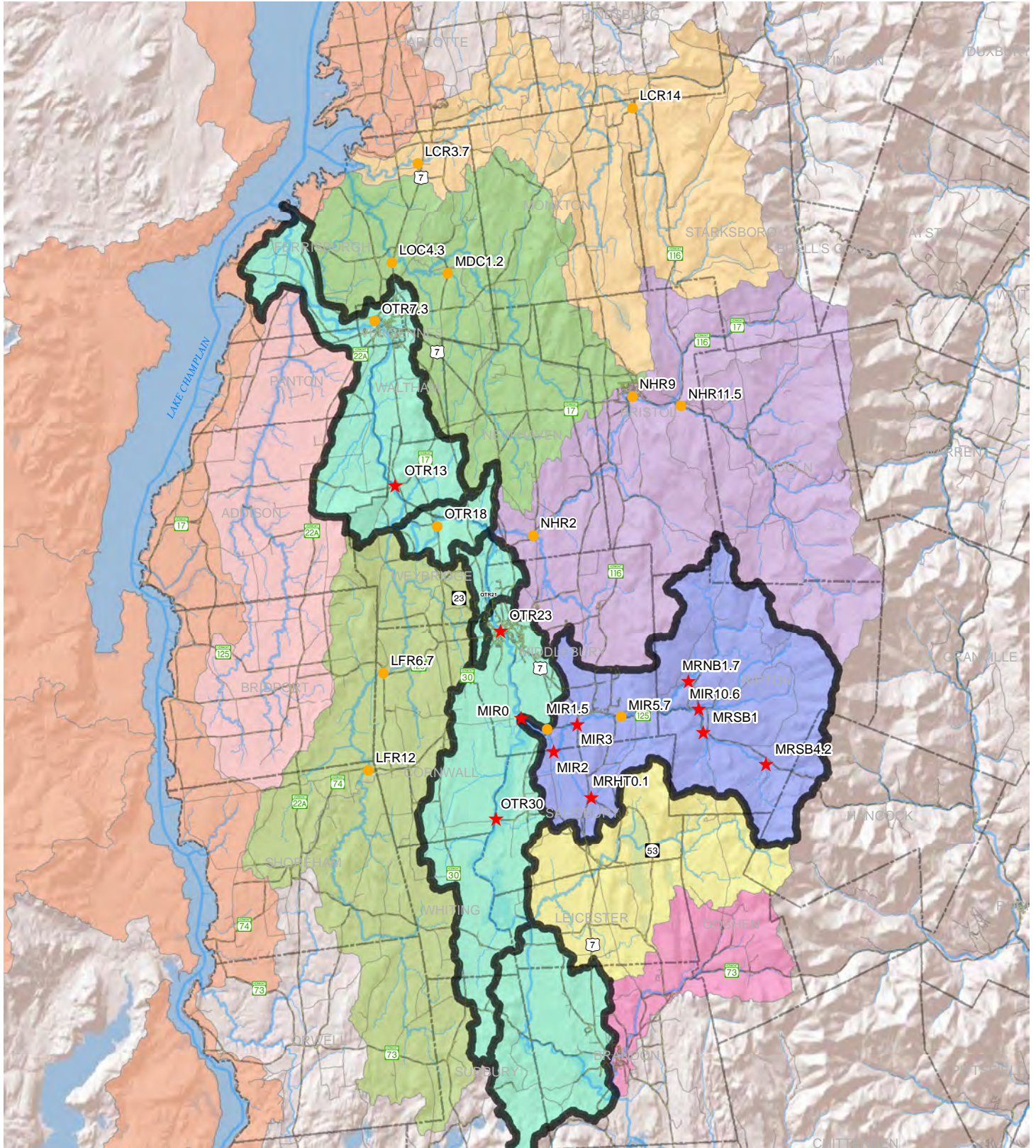
For more information, contact the Lewis Creek sampling coordinator:

Louis DuPont, 453-5538, ldupont@gmavt.net

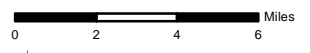
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Addison County River Watch Collaborative

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.