

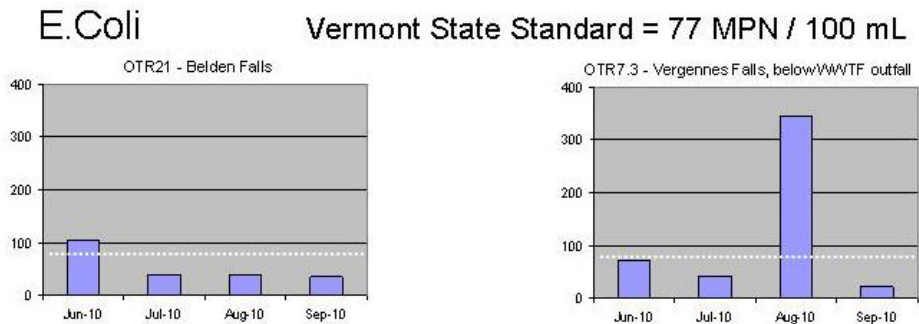
Addison County Riverwatch Collaborative Otter Creek - 2010 Water Quality Summary

The Addison County Riverwatch Collaborative has been monitoring water quality in the lower Otter Creek since 1992. For years 2010 through 2013, the number of sampling locations in this watershed has been reduced to two sentinel stations, OTR21 and OTR7.3. During 2010, these sites were tested for phosphorus and turbidity in the first week of April and May (Spring sampling dates) and June, July, August and September (Summer sampling dates).

Site	Location	Town
OTR21	Belden Falls	New Haven
OTR7.3	Vergennes Falls/below outfall	Vergennes

E.coli was tested only on the Summer dates. Flow in the river during Summer sampling was relatively low, representing baseflow to small storm conditions (based on records for the USGS gage on Otter Creek at Middlebury). Flows on the April and May dates were moderate, due to snow melt and spring rains.

E.coli concentrations in the Otter Creek at the Belden Falls site (OTR21) were well below the state standard of 77 MPN / 100 mL on three sample dates: July 7, August 4, and September 1. However, values for the June 2 sample exceeded the standard. E.coli counts at the downstream station at Vergennes Falls below the Vergennes wastewater treatment facility outfall (OTR7.3) were also below the state standard, except for the August 4 sample date when counts were 344 MPN/100 mL. These results suggest a significant source(s) of E.coli between the two sample stations on August 4. Approximately 1.12 inches of rain fell on August 2 – 4 as recorded at the Burlington Airport. Daily mean flows recorded in the Otter Creek (at Middlebury) do not suggest a significant increase in discharge on or in the days prior to August 4. Gauged tributaries including the New Haven River and Lewis Creek did show a modest rise in flows during those days. Tributaries joining the Otter Creek between station OTR21 and OTR7.3 include the New Haven River and the Lemon Fair River as well as various smaller streams draining agricultural and developed lands – including stormwater runoff from downtown Vergennes. Operational records for the Vergennes wastewater treatment facility during the August 2 – 4 rain event were not available to evaluate whether this facility may have contributed to E.coli in the Otter Creek on August 4. E.coli concentrations detected at these sentinel stations during 2010 are relatively consistent with historic monitoring results.



Turbidity levels in the Otter Creek at the two sentinel stations were generally low and below the Vermont state standard of 25 NTUs (for Class B warm-water fisheries), except for the August 4 sample at OTR7.3 where a value of 48 NTUs was reported. If the August sample from OTR7.3 is not included, values ranged from 1.1 to 5.7 NTUs, with a mean level of 3.0 NTUs for the six sample dates, including the two spring sampling dates on April 7 and May 4/5. Results are consistent with historic data, which indicate that median turbidity values are generally less than 10 NTUs. The August 4 increase in turbidity levels between sites OTR21 and OTR7.3 coincides with the increase in E.coli concentration.

Phosphorus levels were detected at relatively low concentrations during the six Spring and Summer sampling dates. Concentrations ranged from 23 to 123 ug/L, with an average of 43 ug/L. A somewhat elevated concentration of Total Phosphorus was detected at OTR7.3 on April 7 (123 ug/L) and on August 4 (80 ug/L). Moderate to high concentrations of Total Phosphorus have been recorded in past years at times of high flow and runoff. As discussed above, the August 4 sample date coincided with a Summer storm that resulted in approximately 1.14 inches of rain over a three-day period from August 2 – August 4 (as recorded at Burlington Airport), but which represented low-flow conditions in Otter Creek (daily mean flow of 366 cfs at Middlebury). This rain resulted in a very minor rise in daily mean flow in the Otter Creek (to 431 cfs) by August 6. The

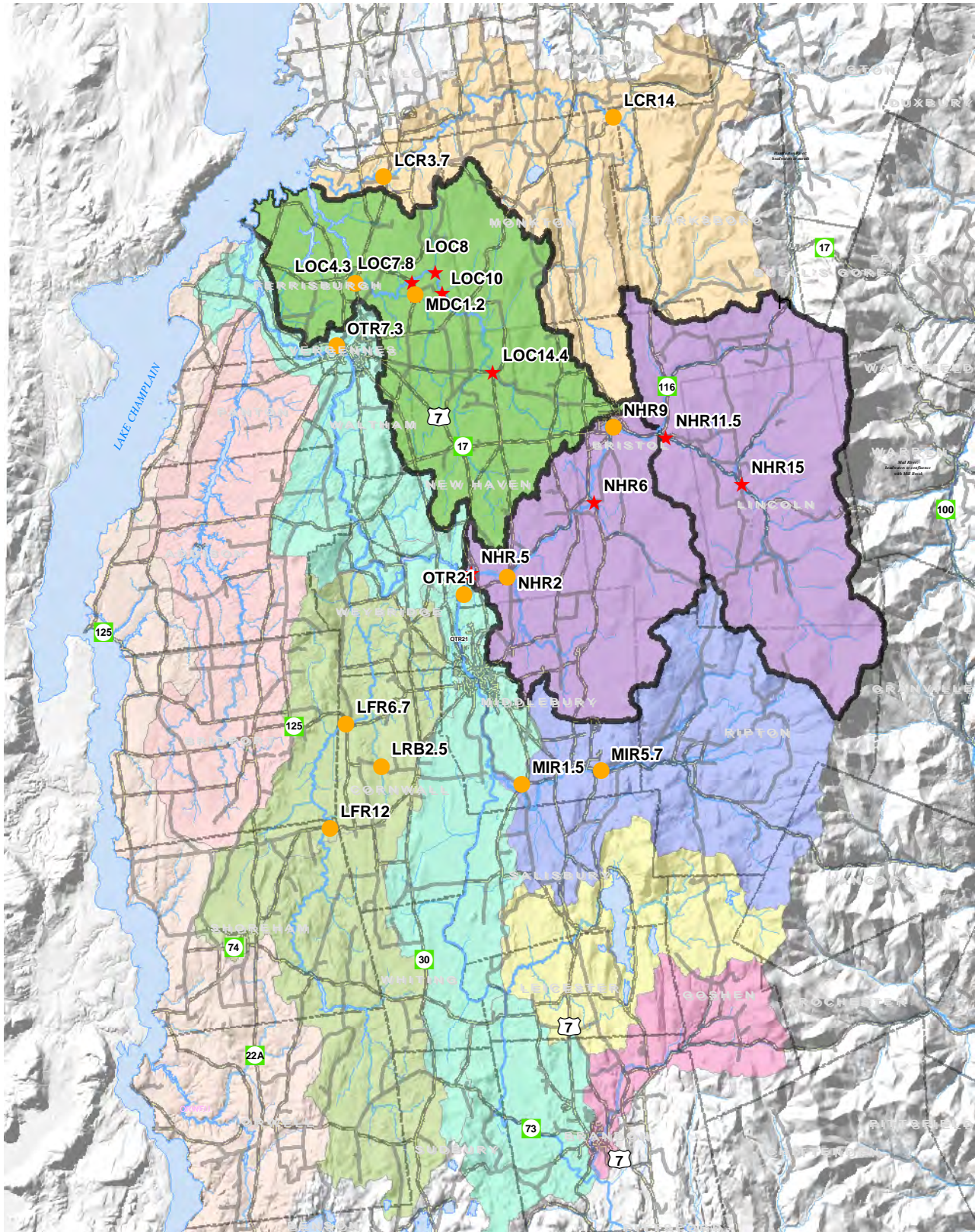
April 7 sample event, however, coincided with moderately high flows in the Otter Creek (daily mean flow of 3,760 cfs at Middlebury) associated with snow melt and recent spring rains (0.42 inch on April 6-7 recorded at Burlington Airport).

2011: The Addison County Riverwatch Collaborative will continue to monitor for E.coli, phosphorus and turbidity at these two sentinel sites in 2011. An increased number of parameters and additional monitoring sites will be evaluated when a more intensive monitoring focus rotates back to the Otter Creek for a two-year period beginning in the year 2014.

For more information, contact the Otter Creek sampling coordinator:
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Addison County Riverwatch Collaborative

Water Quality Monitoring Sites by Watershed, 2010



- ★ Rotation Basin Site 2010
- Sentinel Site
- Little Otter Creek
- New Haven River
- Lake Champlain direct
- Lewis Creek
- Lemon Fair River
- Little Otter Creek
- Otter Creek
- New Haven River
- Dead Creek
- 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.

