

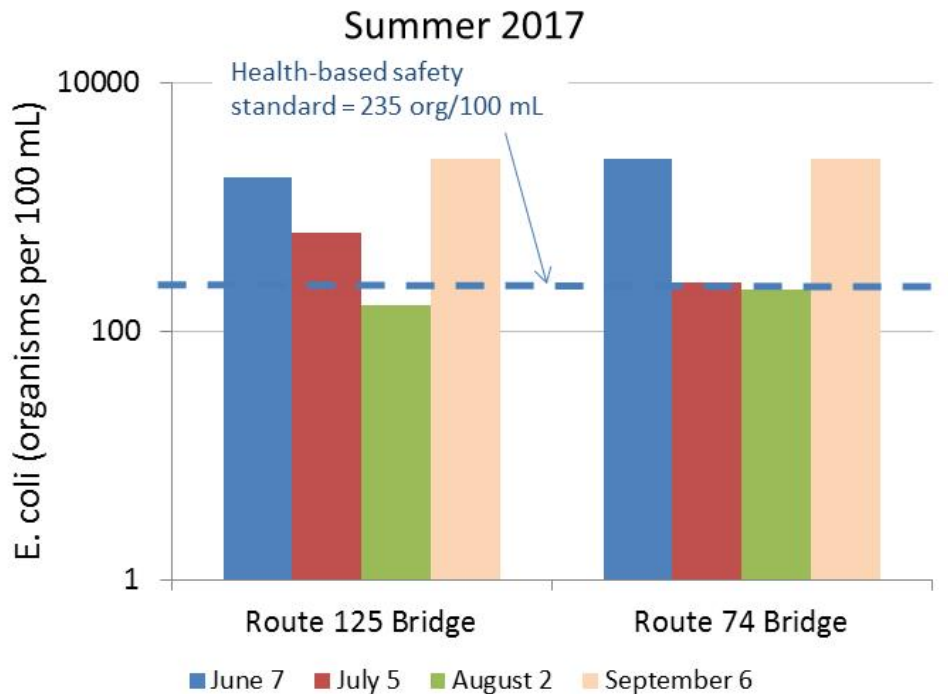
Lemon Fair River - 2017 Water Quality Summary
 Addison County River Watch Collaborative

Site	Location	Town
LFR6.7	Route 125 bridge.	Cornwall
LFR12	Downstream of Route 74 bridge	Shoreham

The Addison County River Watch Collaborative has been monitoring water quality in the Lemon Fair River since 2003. For years 2014 through 2017, the number of sampling locations in this watershed has been reduced to two sentinel stations monitored for long-term trends: LFR6.7 and LFR12.

During 2017, sampling occurred on two spring dates (April 5 and May 3) and four summer dates (June 7, July 5, August 2, and September 6). The year was characterized by a wetter-than-normal spring and early summer, followed by a drier-than-normal fall. April through July and September sampling events took place during high flows, either actively rising or declining from recent rainfall and runoff, based on streamflow gaging records for a similar, nearby river (Little Otter Creek). The August event occurred during low flows, representative of baseflow conditions (i.e., relatively stable flow stage, not significantly rising or falling in response to a rainfall event).

Samples from the Lemon Fair watershed were tested for *E.coli*, phosphorus (total and dissolved), total suspended solids, and turbidity; *E.coli* was tested only on the summer dates.



E.coli counts at the two Lemon Fair sentinel sites ranged from 163 to >2,420 organisms/100 mL. Vermont Water Quality Criteria (VWMD, 2016) state that *E.coli* is not to exceed a geometric mean of 126 organisms /100mL obtained over a representative period of 60 days, and no more than 10% of

samples should be above 235 organisms/100 mL. *E.coli* counts exceeded the state's health-based standard of 235 organisms/ 100 mL at both sites in June, July and September. The geometric mean of summer sampling results was 805 org/100mL at LFR6.7 and 747 org/100mL at LFR12; both values exceeded the state's geomean standard of 126 organisms/ 100 mL. Detected *E.coli* counts were largely consistent with historic monitoring results which indicate chronic exceedances of the water quality standard at these two sites.

Turbidity levels at the Lemon Fair stations ranged from 55 to 196 NTUs. The Vermont state standard of 25 NTUs (for Class B warm-water fisheries) is applicable during dry-weather, baseflow conditions which were relevant to only the August 2 event. Detected concentrations were above the standard at both sites on this date: 162 NTUs (at LFR6.7) and 145 NTUs (at LFR12).

Phosphorus was detected at moderate to high levels during the six spring and summer sampling dates of 2017. Concentrations ranged from 99 to 398 µg/L. The instream phosphorus criterion of 27 µg/L for warm-water medium gradient (WWMG) wadeable stream ecotypes in Class B waters is applicable at low median monthly flow during June through October. Flows in the Lemon Fair were at low levels during the August 2 sample date. Based on gaging records for nearby rivers of similar character (Little Otter Creek and Otter Creek), flows in Lemon Fair were likely near the low median monthly flow on this date. The reported Total Phosphorus results for August 2 exceeded the instream phosphorus criterion at each sentinel station: 231 and 205 µg/L at LFR6.7 and LFR12, respectively. It is possible that the Lemon Fair River would instead be classified as a Slow-Winder stream ecotype (not yet determined for the reaches sampled); there is no instream phosphorus criterion yet established for the Slow-Winder ecotype. Dissolved phosphorus (DP) was also tested at each site; DP as a percentage of Total Phosphorus ranged from 31 to 59% during the six sample dates.

2018: A more intensive monitoring focus rotates back to the Lemon Fair for a two-year period beginning in the year 2018. The Addison County River Watch Collaborative will monitor for *E.coli*, phosphorus (total and dissolved), total nitrogen, and turbidity at 13 main stem and tributary sites, and total suspended solids on 7 main stem sites in 2018. New bracket monitoring stations will be established on the Beaver Branch, Bascom Brook and Perry Brook tributaries to further define sources of elevated nutrients and sediment detected along the main stem between established stations at Shacksboro Rd in Shoreham and Route 125 in Cornwall.

For more information, contact the Lemon Fair sampling coordinator:

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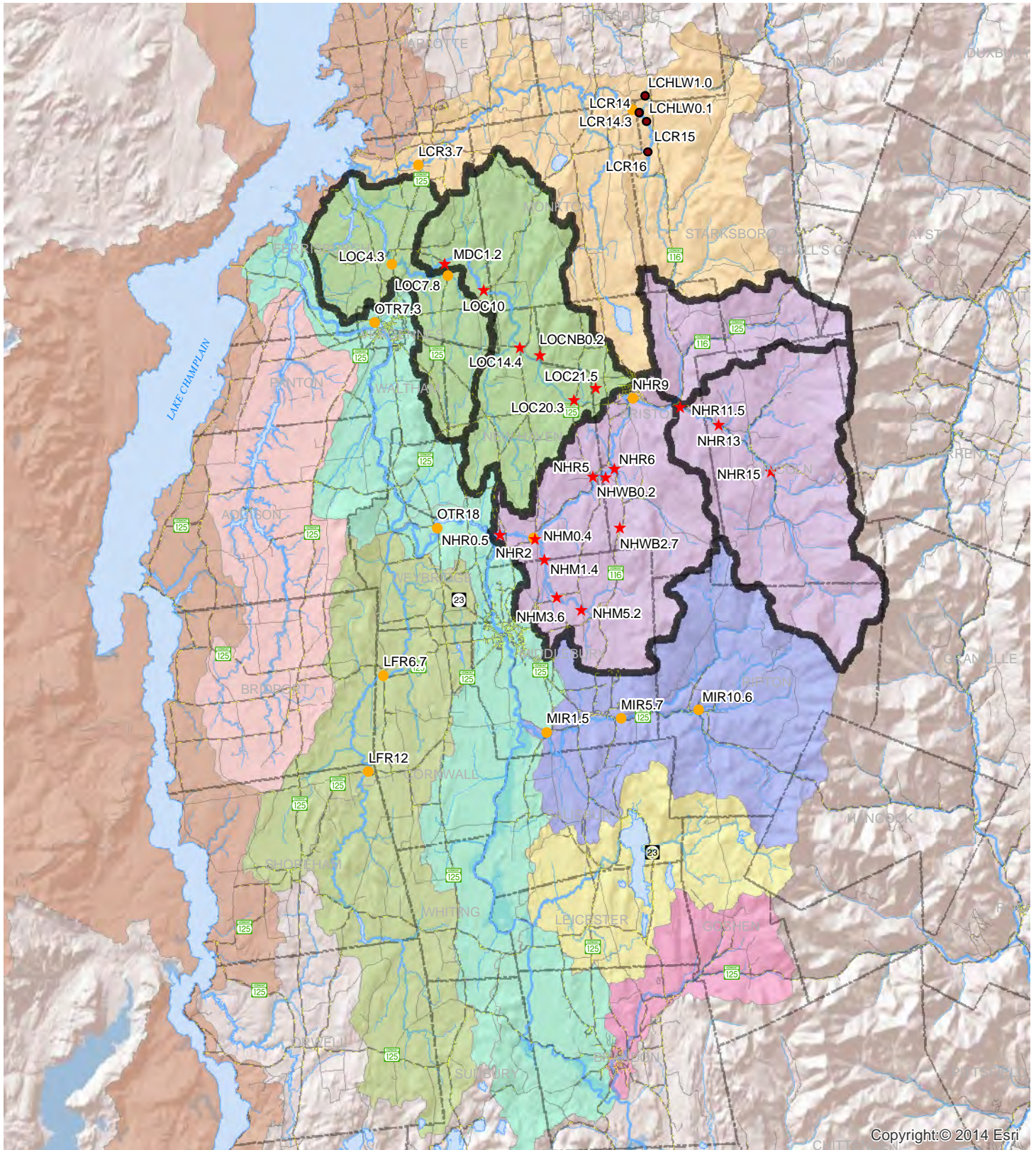
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or visit our web page at: www.acrpc.org/acrwc

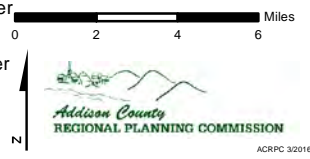
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Water Quality Monitoring Sites by Watershed, 2017



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|--|-------------------------------|--------------|-------------------------|--------------------|
| ★ Rotational Site | Rotational Basins 2017 | Roads | ■ Lake Champlain Direct | ■ Dead Creek |
| ● Sentinel Site | ■ Little Otter Creek | — Pavement | ■ Lewis Creek | ■ Lemon Fair River |
| ● Special Project Site (E.coli monitoring) | ■ New Haven River | — Gravel | ■ Little Otter Creek | ■ Leicester River |
| | | | ■ Otter Creek | ■ Middlebury River |
| | | | ■ New Haven River | ■ Neshobe River |



The Addison County River Watch Collaborative is a citizen organization that monitors and assesses the condition and use of our local rivers over the long term, raises public awareness of the values and functions of our watersheds, and cultivates partnerships that support water quality stewardship.