

New Haven River – 2019 Water Quality Summary  
Addison County River Watch Collaborative

Site	Location	Town
NHR2	Muddy Branch confluence	New Haven
NHR6	Sycamore Park	Bristol
NHR9	South St. Bridge	Bristol
NHR11.5	Bartlett's Falls Pool	Bristol

The Addison County River Watch Collaborative has been monitoring water quality in the New Haven River since 1993. For years 2018 through 2021, the number of sampling locations in this watershed has been reduced to two sentinel stations monitored for long-term trends (NHR2 and NHR9) and two popular recreational sites monitored only for *E.coli* and only in the summer months (NHR6 and NHR11.5).

During 2018, sampling occurred on two spring dates (April 10 and May 1) and four summer dates (June 5, July 10, August 7, and September 4). The year was characterized by above-normal precipitation, and the New Haven River experienced significant fall flooding. April, May, and June sampling events took place during high flow conditions resulting from snowmelt and spring rains, based on records from the USGS streamflow gaging station near Brooksville. The July event occurred during moderate-flow, baseflow conditions where the river stage was not changing appreciably, and groundwater levels were relatively high following spring rains. August and September events coincided with summer storms that maintained moderate flow conditions. None of our sampling dates coincided with flow levels at or below the Low Median Monthly (LMM) flow, and in fact the river only sank to these levels for a few days during 2019. While sampling dates did not correspond with floods, the river reached 2-year flood conditions following a mid-June storm. In mid-October, rains caused the river to swell to 10-year flood levels, and a Halloween storm caused water levels to rise yet higher on November 1<sup>st</sup>, this time achieving 50-year flood conditions.

Samples were tested for *E.coli* and total phosphorus. While turbidity testing in the original sampling plan, it was suspended due to a request from the LaRosa Volunteer Monitoring program to reduce analytical costs. *E.coli* was tested only on the summer dates and was the only tested parameter at recreational sites Sycamore Park and Bartlett's Falls.

**E.coli** counts at the recreational sites ranged from 17 to 866 organisms/ 100 mL. Vermont Department of Health guidance identifies a health-based standard for *E.coli* of 235 organisms/100 mL. *E. coli* counts at these sites were well above this health-based standard on August 7 at Sycamore Park and on both June 5 and August 7 at Bartlett's Falls Pool (Figure 1). Vermont Water Quality Criteria (October 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. The geometric mean of values from each site was above this geometric mean standard of 126 org/100 mL (217 organisms/100 mL at Sycamore Park and 179 organisms/100 mL at Bartlett's Falls Pool), although we have just three samples captured. Based on historic monitoring of this river, *E.coli* counts can become elevated during high flow conditions following heavy rains or snow melt, and they can also be associated with low-flow conditions and very warm temperatures often encountered in September. This year, the April 23<sup>rd</sup> collapse of a beaver dam may also have contributed to elevated *E. coli* concentrations. This occurred in a tributary to the New Haven River that meets the main stem just upstream of Bartlett's Falls Pool. While the event itself occurred well in advance of our sampling events, debris from the collapse could have been caught and

then remobilized throughout the spring high-water season and again in storm events like the one to occur just prior to our August sampling date.

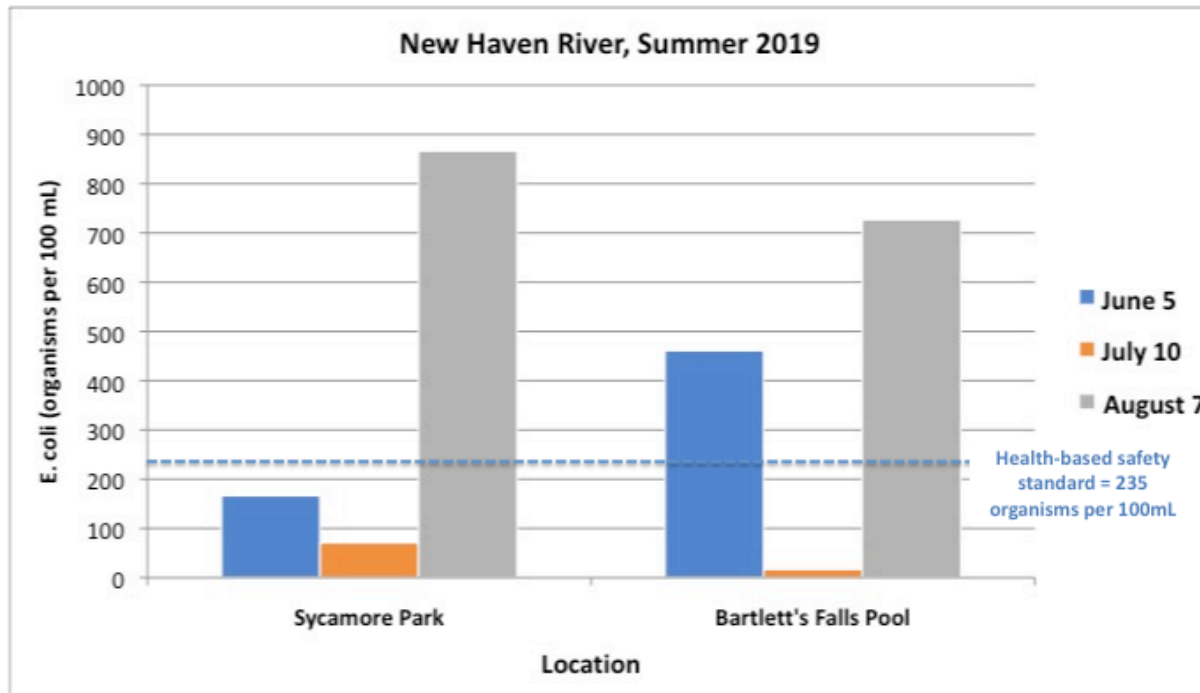


Figure 1. *E.coli* measured at recreation sites along the New Haven River main stem on four summer dates in 2019. While September samples were collected, they were not analyzed due to an error at the VAEL lab.

**Phosphorus** levels at New Haven River sentinel stations ranged from 6 to 54  $\mu\text{g/L}$ . The instream phosphorus criterion of 27  $\mu\text{g/L}$  for warm-water medium gradient wadeable stream ecotypes in Class B waters is applicable at LMM flow during the months of June through October. None of our sampling events took place when flows in the river were below the LMM, which disables comparison to this standard.

**2020:** The Addison County River Watch Collaborative will continue to monitor for total phosphorus at two sentinel stations, NHR2 and NHR9, and for *E.coli* at the two recreational sites, NHR11.5 and NHR6, on the New Haven River in 2020. Look for regular postings of *E.coli* results at kiosks located at Sycamore Park and Eagle Park, and on *Front Porch Forum*.

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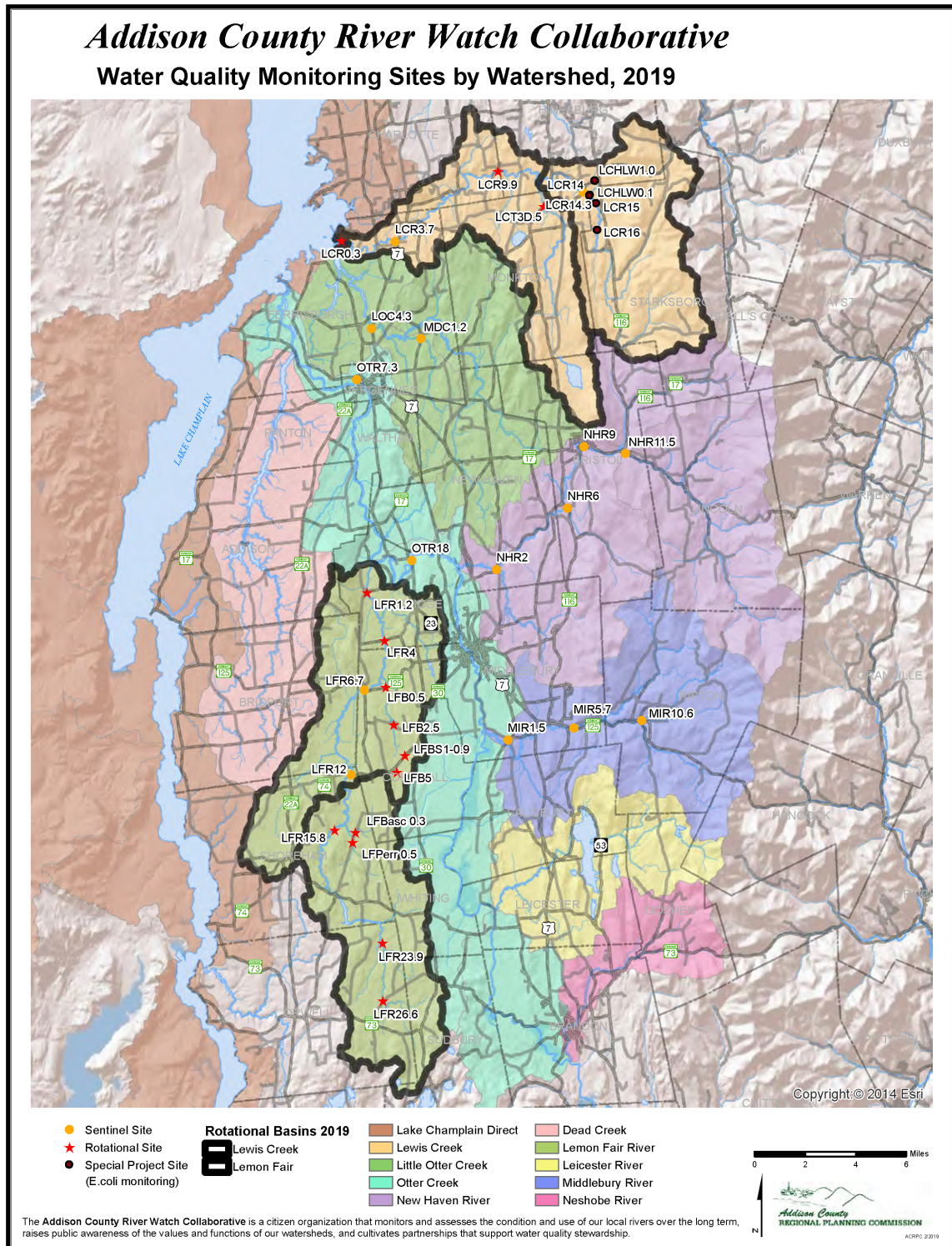


Figure 1. Location of ACRWC monitoring stations for 2018 and 2019.