

Addison County Riverwatch Collaborative Lemon Fair River - 2010 Water Quality Summary

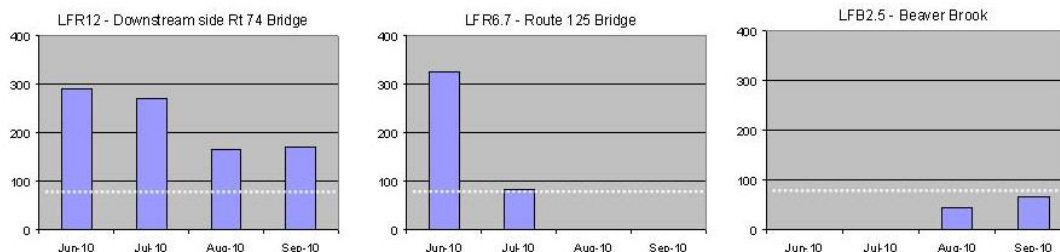
The Addison County Riverwatch Collaborative has been monitoring water quality in the Lemon Fair River since 2003. For years 2010 and 2011, the number of sampling locations in this watershed has been reduced to two sentinel stations, LFR12 and LFR6.7. Site LFR6.7 was inaccessible in August and September due to bridge construction, and a site on the upstream Beaver Brook tributary was substituted during those months (LFB2.5). During 2010, Lemon Fair sites were tested for phosphorus, nitrogen and turbidity on the first Wednesday in April and May (Spring sampling dates) and in June, July, August and September (Summer sampling dates). 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 gaging records for nearby rivers). Flows on the April and May dates were moderate, due to snow melt and spring rains.

Site	Location	Town
LFR6.7	Route 125 bridge.	Cornwall
LFR12	Downstream of Route 74 bridge	Shoreham
LFB2.5	Beaver Brook, trib up from Rt 125 bridge	Cornwall

E.coli concentrations in the Lemon Fair at the Route 74 bridge site (LFR12) were above the state standard of 77 MPN / 100 mL on all four Summer sampling dates: June 2, July 7, August 4, and September 1. E.coli levels at the downstream station at the Route 125 bridge (LFR6.7) also exceeded the standard on June 2 and July 7. At the substitute station on Beaver Brook (LFB2.5), E. coli concentrations were below the state standard on August 4 and September 1. Detected E.coli concentrations at LFR12 and LFR6.7 were consistent with historic monitoring results. The Beaver Brook site has not historically been tested by the ACRWC.

E.Coli

Vermont State Standard = 77 MPN / 100 mL



Turbidity levels in the Lemon Fair at the sampled stations ranged from 2.3 to 145 NTUs, with an average level of 56 NTUs for the six sample dates, including spring sampling dates, April 6 and May 4. Concentrations exceeded the Vermont state standard of 25 NTUs (for Class B warm-water fisheries) at LFR12 on all sample dates and at LFR6.7 on April 6 and June 2. Results for stations LFR12 and LFR6.7 were generally consistent with historic data.

Phosphorus was detected at moderate concentrations during the six Spring and Summer sampling dates. Concentrations ranged from 50 to 260 ug/L, with an average of 140 ug/L. The mean of the Summer, low-flow, sample results at each station exceeded the recently proposed instream phosphorus criteria of 44 ug/L for warm-water medium gradient (WWMG) wadeable stream ecotype in Class B waters. It should be noted that mean values for sites LFR6.7 and LFB2.5 were each developed on the basis of two sample dates only. VTDEC guidance (2009) suggests that Summer-time low-flow means should be developed on the basis of at least three samples collected on nonconsecutive days.

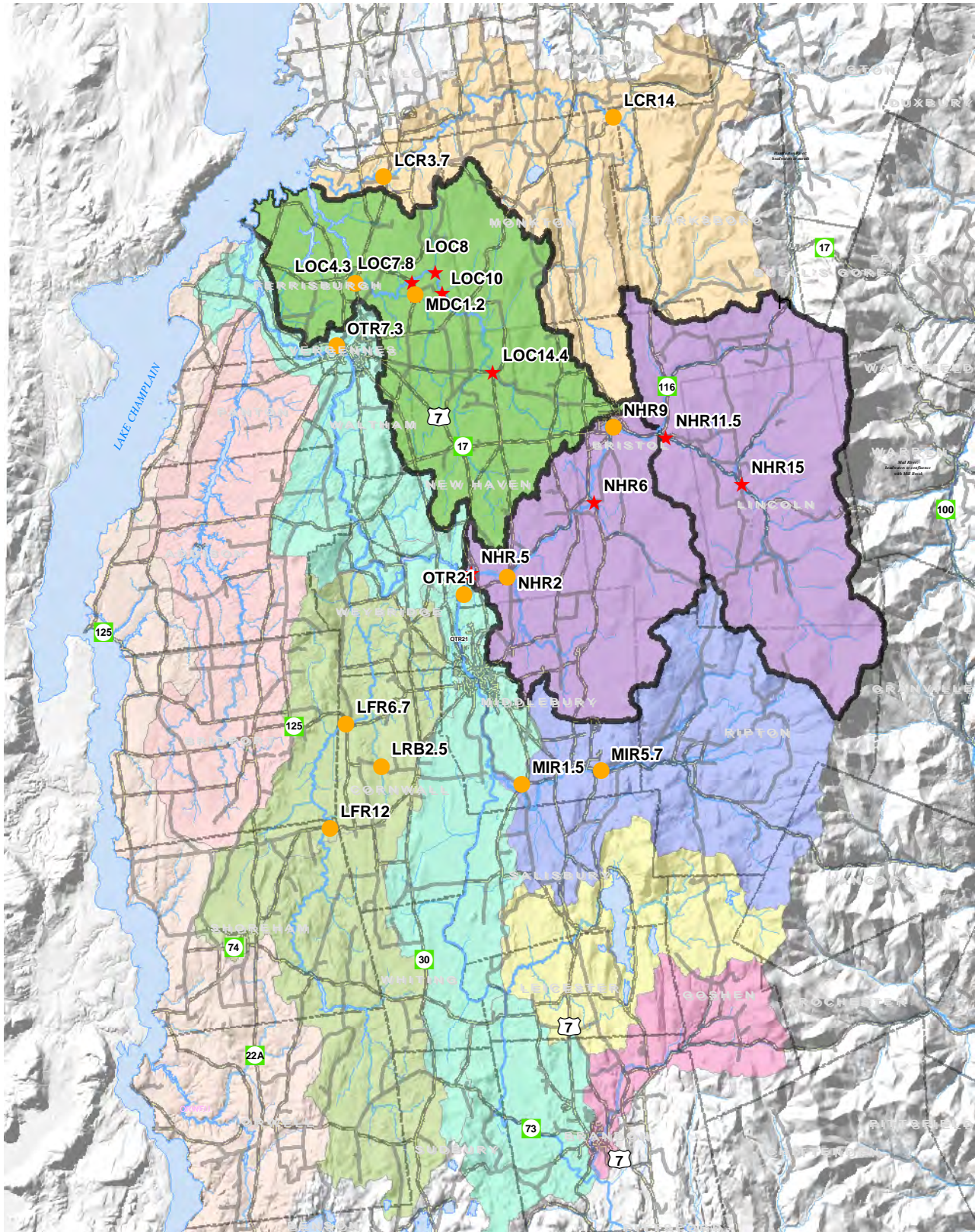
Nitrogen concentrations were generally very low (ranging from < 0.1 to 1.05 mg N / L) and well below the state standard for nitrogen as nitrate (5 mg/L). The mean of the Summer, low-flow, sample results at sites LFR12 and LFR6.7 exceeded the recently proposed instream nitrogen criteria of 0.75 mg/L for WWMG wadeable stream ecotype in Class B waters (the mean for LFR6.7 was developed from two samples only).

2011: The Addison County Riverwatch Collaborative will continue to monitor for E.coli, phosphorus and turbidity at the 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 Lemon Fair River for a two-year period beginning in the year 2012.

For more information, contact the Lemon Fair 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.

