

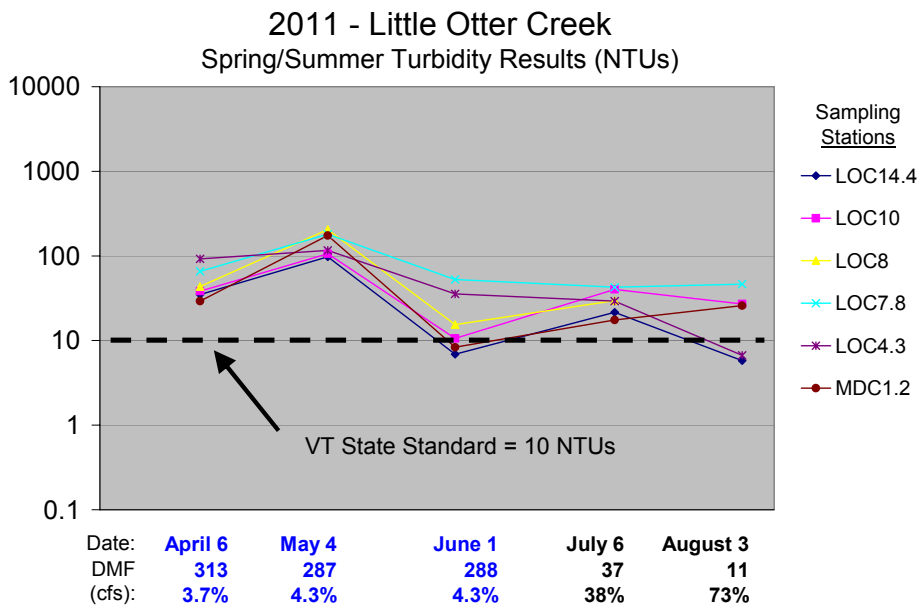
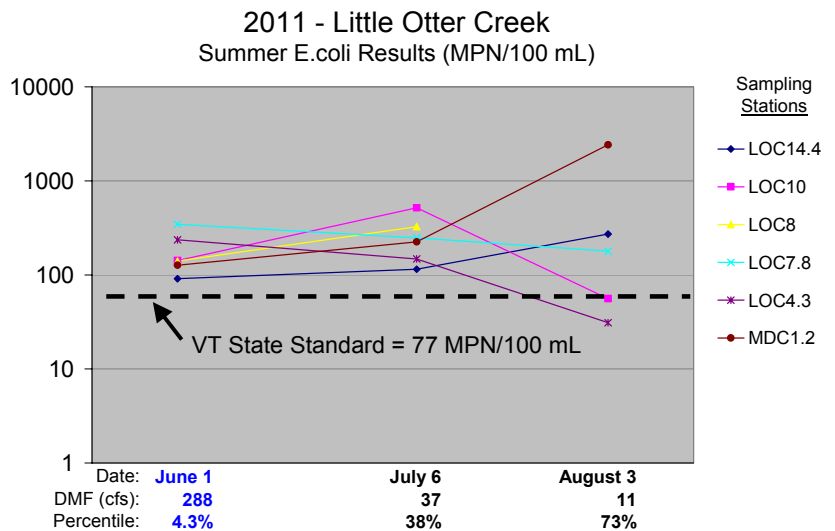
Addison County Riverwatch Collaborative
 Little Otter Creek - 2011 Water Quality Summary

2010 – 2011
 Focus Watershed

The Addison County Riverwatch Collaborative has been monitoring water quality in the Little Otter Creek since 1997. During 2011, six sites were tested for phosphorus, nitrogen and turbidity on the first Wednesday in April and May (Spring sampling dates) and in June, July, and August (Summer sampling dates). E.coli was tested only on the Summer dates. A scheduled September event was cancelled due to damages sustained at the LaRosa Analytical Laboratory during Tropical Storm Irene. Flow in the river during the July and August sample dates represented low to baseflow conditions (based on records for the USGS gage near the Route 7 crossing). Flows on the April, May and June dates were moderate to high, due to snow melt and spring rains.

Site	Location	Town
LOC14.4	Plank Rd.	New Haven
LOC10	Monkton Road	Ferrisburgh
LOC8	Wing Rd bridge	Ferrisburgh
LOC7.8	Middlebrook Rd (North)	Ferrisburgh
LOC4.3	Route 7 Bridge	Ferrisburgh
MDC1.2	Wing Rd./Middlebrook Rd. (South)	Ferrisburgh

E.coli counts in the Little Otter Creek stations were well above the state standard of 77 MPN / 100 mL on all three sample dates: June 1, July 6, & August 3, – except for stations LOC4.3 and LOC10 on August 3. Flows on the July and August sample dates were low, whereas flows were high during the June event following rains on May 27 and 28. E.coli concentrations detected at these stations during 2011 are relatively consistent with historic monitoring results. Mud Creek station (MDC1.2) has traditionally had elevated E.coli as it is located directly downstream of a dairy pasture where livestock have direct access to the stream.



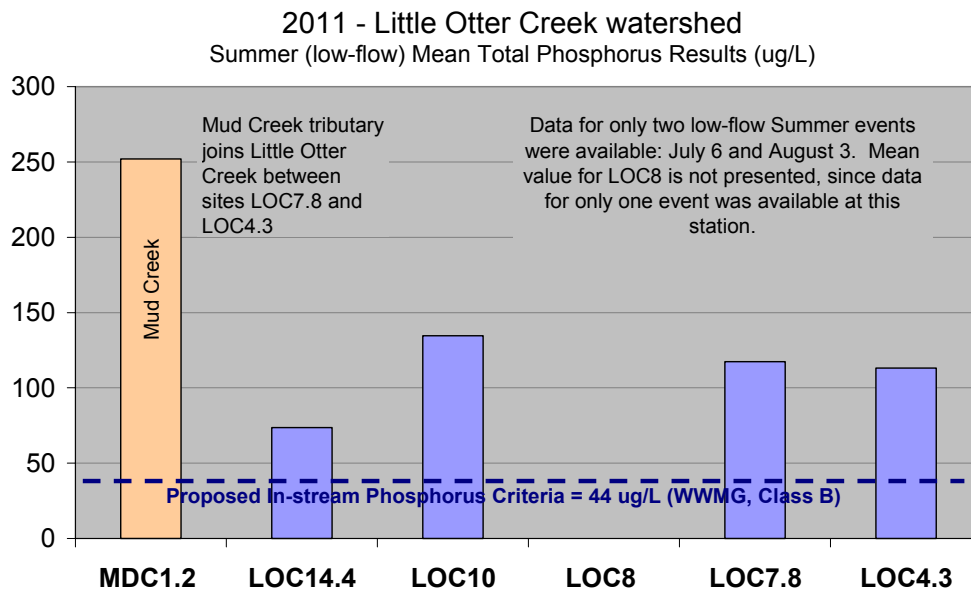
Turbidity levels in the Little Otter Creek at the six stations were moderate to high and often exceeded the Vermont standard of 10 NTUs (for Class B cold-water fisheries). Values ranged from 5.8 to 428 NTUs, with a mean level of 78 NTUs for the five sample dates, including the two spring sampling events on April 6 and May 4.

It is interesting to note that – for essentially the same flow condition (287 to 288 cfs) – turbidity values at all stations were significantly higher on May 4 than they were on June 1. This finding may be related to the greater prevalence of bare, unvegetated soils in the floodplains and along

banks of the river and contributing tributaries and ditches during the earlier May sampling event. The May 4 sampling event occurred during the rising limb of a streamflow hydrograph in response to a relatively minor

rain event that fell on grounds saturated from the April 27-28 storms. The June 1 sampling event took place on the falling limb of a storm hydrograph that peaked near a bankfull stage (on May 28) following heavy rains on May 27.

Phosphorus levels were detected at low to moderate concentrations during the five Spring and Summer sampling dates. Concentrations ranged from 32 to 382 ug/L, with an average of 152 ug/L for the May through August sample dates. Total Phosphorus concentrations detected in 2011 were generally consistent with historic data. Moderate to high concentrations of Total Phosphorus have been recorded in past years at times of high flow and runoff. Vermont recently proposed in-stream phosphorus criteria for aquatic life and aesthetics uses in wadeable streams (VTDEC, 2009). The mean concentration of Total Phosphorus for two, low-flow Summer sample dates exceeded the proposed criteria of 44 ug/L for the warm-water medium gradient (WWMG) wadeable stream ecotype in Class B waters.



Nitrogen concentrations in the Little Otter Creek were very low (ranging from 0.49 to 3.2 mg/L) and below the state standard for nitrogen as nitrate (5 mg/L). Vermont recently proposed in-stream nitrogen criteria for aquatic life and aesthetics uses in wadeable streams (VTDEC, 2009). The mean concentration of Total Nitrogen for the two available low-flow Summer sample dates exceeded the proposed criteria of 0.75 mg/L for the warm-water medium gradient (WWMG) wadeable stream ecotype in Class B waters.

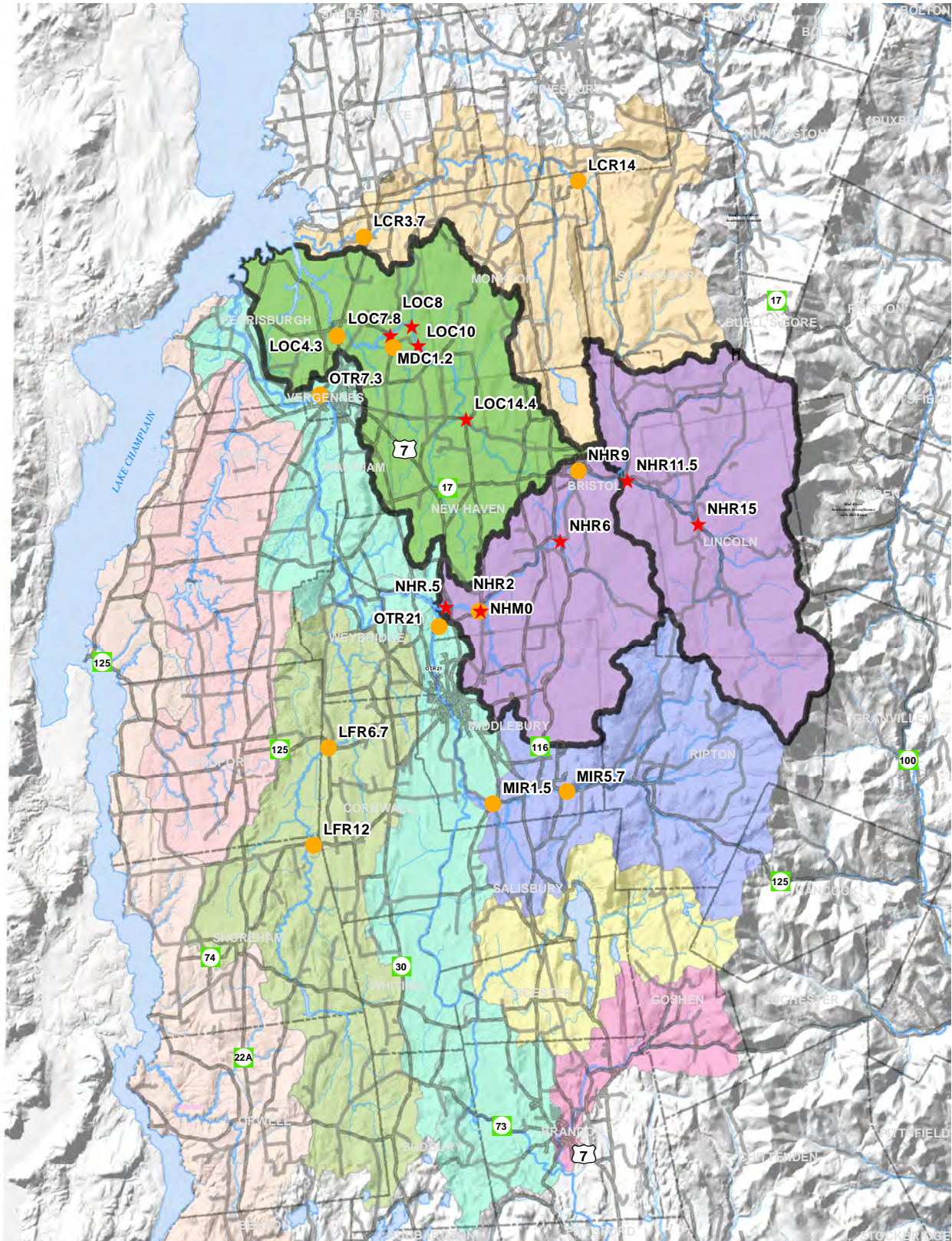
2012: For years 2010 and 2011, the Little Otter Creek watershed was the subject of focused monitoring, including a flow study to evaluate nutrient and sediment loading. Results have been reported separately. Water quality data were used to calculate coarse estimates of phosphorus loading on a subwatershed basis as a means of prioritizing restoration and conservation efforts within the watershed. Regional, state and federal partners (NRCS, Ducks Unlimited, VT Land Trust) are making use of this data with a focus on lands that drain to the creek north of Plank Road and east of Monkton Road. Conservation easements and Wetland Reserve Program projects are being implemented where landowners are willing. UVM Extension and VT Agency of Agriculture are also referencing ACRWC water quality data as they work with farmers in the watershed, including Large Farm and Medium Farm Operations, to implement improved agronomic practices such as livestock exclusion, cover cropping, increased buffers, and incorporation of manure.

In years 2012 through 2015, the Little Otter Creek watershed will rotate back to a reduced frequency of monitoring at two sentinel stations, LOC4.3 and MDC1.2.

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

Water Quality Monitoring Sites by Watershed, 2011



- ★ Rotation Basin Site 2011
- Sentinel Site
- Little Otter Creek
- New Haven River
- Lake Champlain direct
- Lewis Creek
- Little Otter Creek
- Otter Creek
- New Haven River
- Dead Creek
- Lemon Fair River
- 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.

