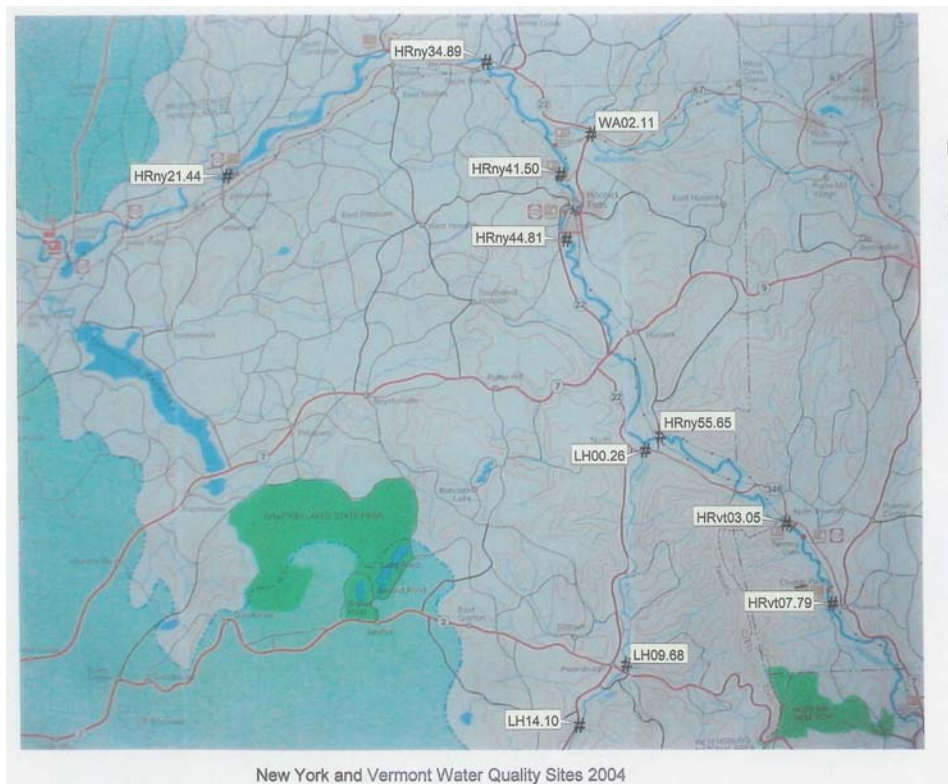


Conditions in New York and Vermont portions of the Hoosic River in 2004

The objective of the monitoring program for segments of the Hoosic River in New York and Vermont was to obtain general information as to the health of the river and tributaries. Water quality samples were collected at 11 locations, 7 on the main stem, 3 on the Little Hoosic, and 1 on the Walloomsac. The locations, and their site codes, are:



- HRny21.44 - Johnsonville
- HRny34.89 - Eagle Bridge
- WA02.11 - Walloomsac
- HRny41.50 - Downstream Hoosick Falls
- HRny44.81 - Upstream Hoosick Falls
- HRny55.65 - Hoosic upstream of Little Hoosic
- LH00.26 - Little Hoosic upstream of Hoosic
- LH09.68 - Downstream of Petersburg
- LH14.10 - Upstream of Petersburg
- HRvt03.05 - Tannery dam
- HRvt07.79 - Pownal

We collected water samples once each month from May through September. The samplers measured water temperature on site. Berkshire Enviro Laboratories analyzed the samples for *E. coli* bacteria and for total suspended solids (TSS) while HooRWA did the analyses for nitrate nitrogen, conductivity, and turbidity. We compared our results to the following standards.

E. coli – Vt. calls for 77 colonies/100mL or less. NY calls for less than 200 colonies/100 mL for fecal coliform, but has no specific standard for *E. coli*. *E. coli* is an indicator for health risks from contact recreation.

Nitrate nitrogen – natural levels are generally less than 1 mg/L. Vt. lists 5 mg/L as a maximum. Higher amounts might indicate non-point source pollution from septic systems or agricultural activities.

TSS – less than 20 mg/L generally considered clear. High levels can result from storm runoff from urban surfaces.

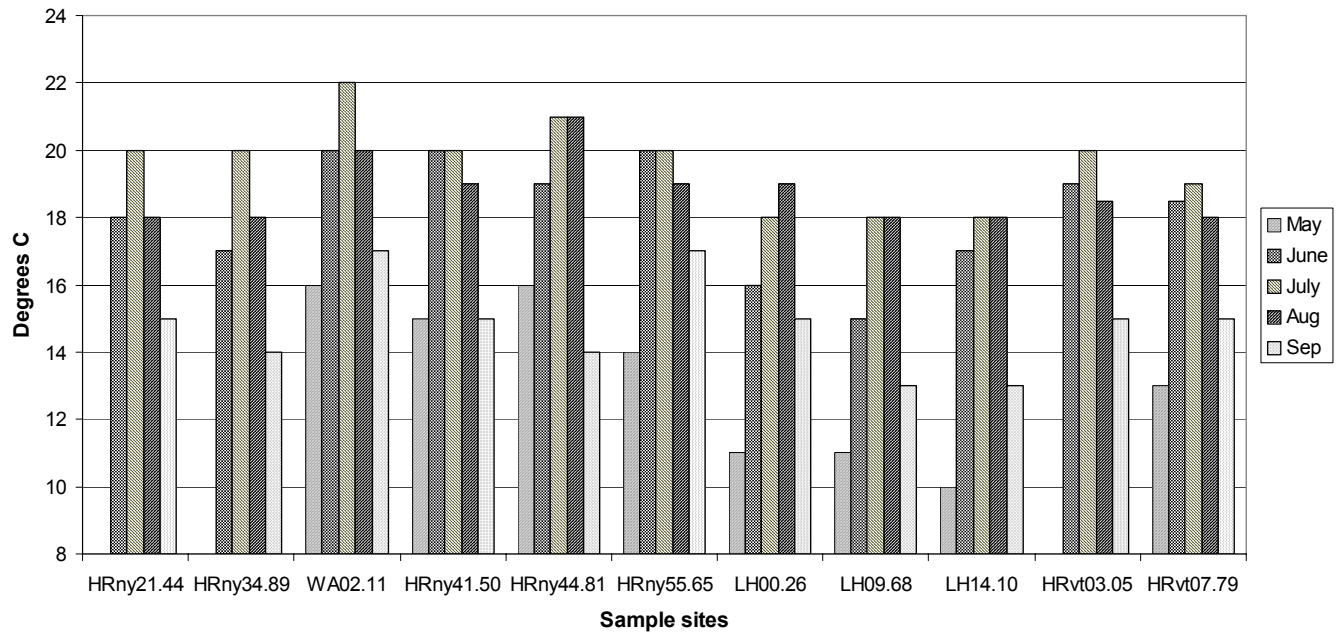
Turbidity – changes 10 nephelometric turbidity units (NTU) considered significant. High levels can result from runoff from construction or erosion.

Conductivity – levels between 150 and 500 microsiemens/cm generally support good fisheries. Reflects the levels of nutrients in the water, some good, too much not good.

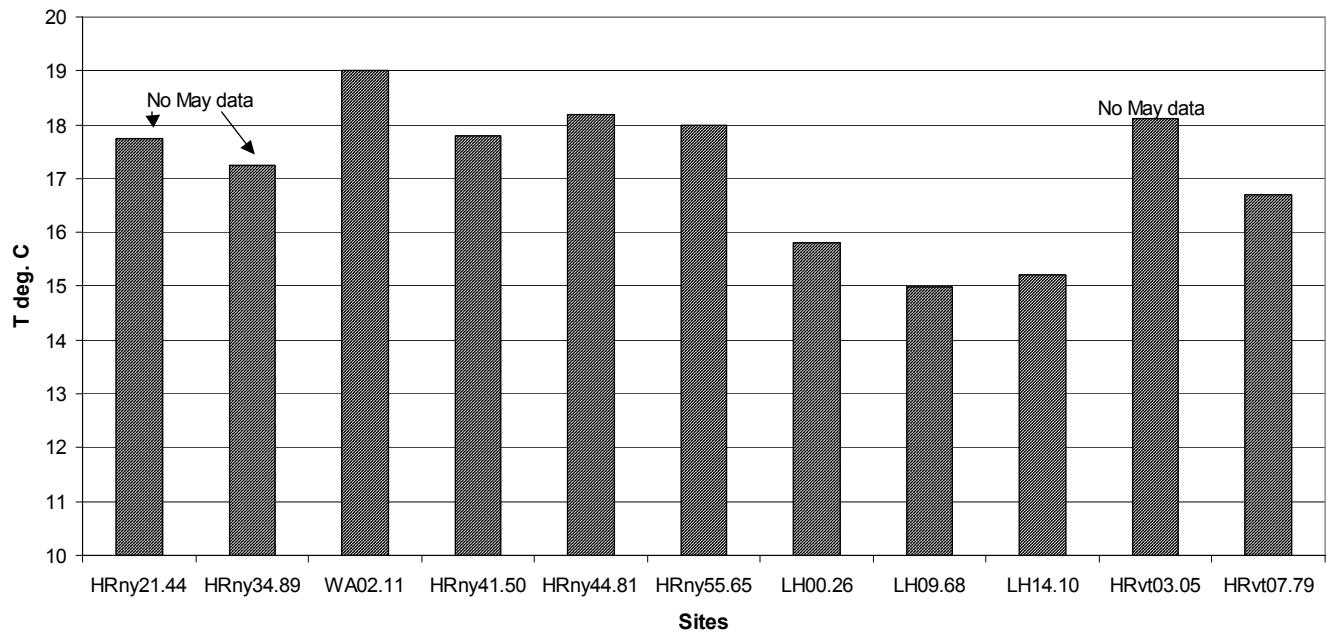
Stream temperature – a mean monthly temperature less than 68 degrees Fahrenheit (F) (20 degrees Centigrade (C))for a cold water fishery. Warmer temperatures may reduce available dissolved oxygen.

The grab samples for temperature can not be used to compare directly with a cold water fisheries standard, but do allow for comparisons of the locations. The segments of the Hoosic monitored are warm water fisheries in any case. On average, the Wallomsac was warmest while the three Little Hoosic locations the coolest.

NY-Vt 2004 Temperature

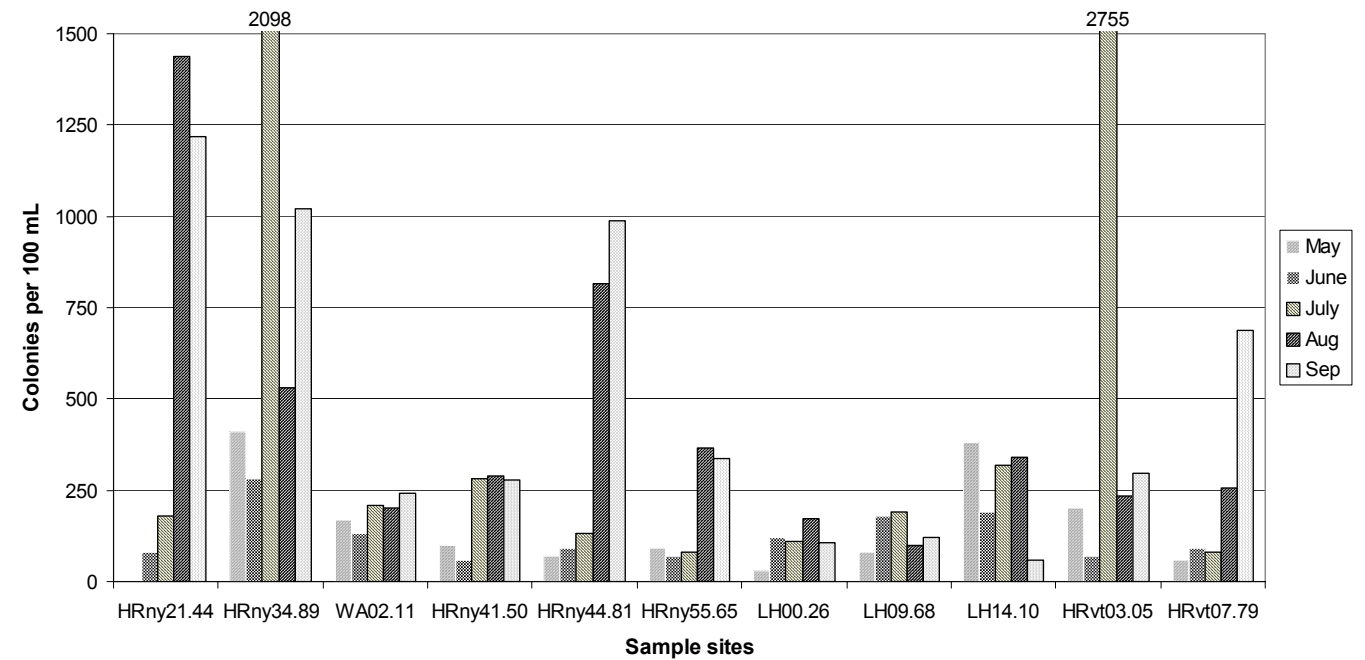


Average Stream Temperatures

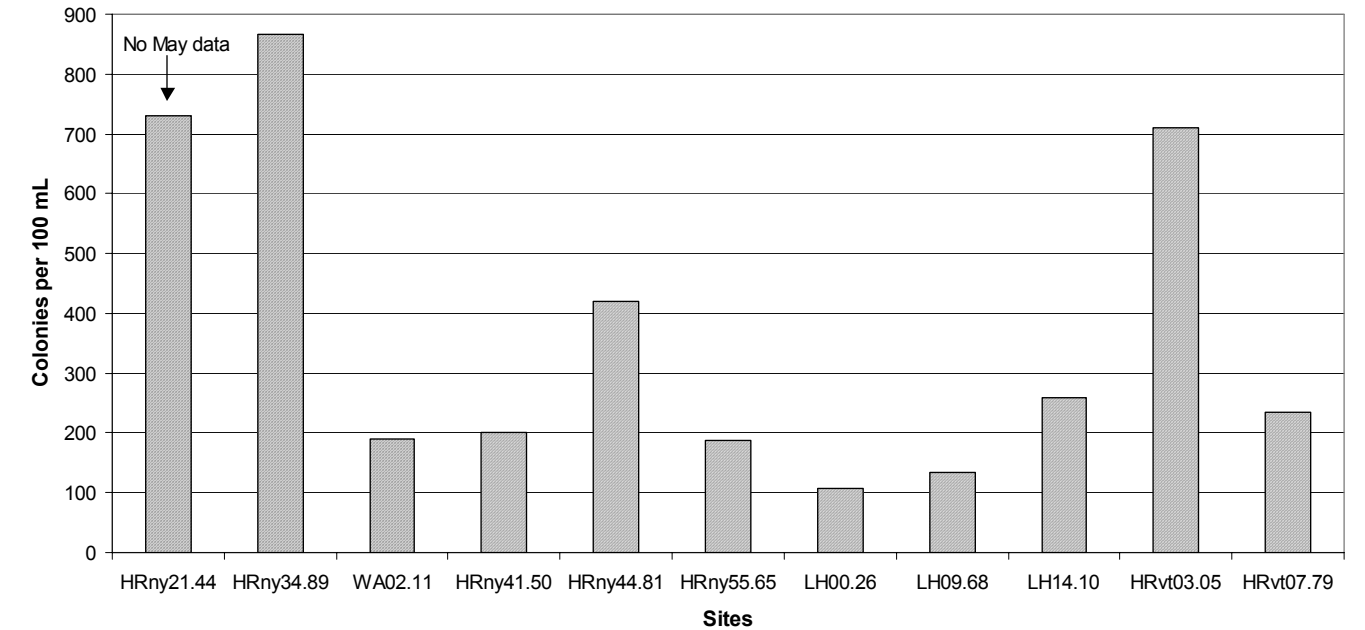


The *E.coli* levels were generally above the Vt. standard at all sites, and above the New York standards for fecal coliform, which includes *E coli*, for many of the samples. Of particular concern are the Johnsonville, Eagle Bridge and Tannery dam sites. It is also notable that the Little Hoosic site upstream of Petersburg was generally higher than the other Little Hoosic sites.

NY-Vt 2004 *E. coli*

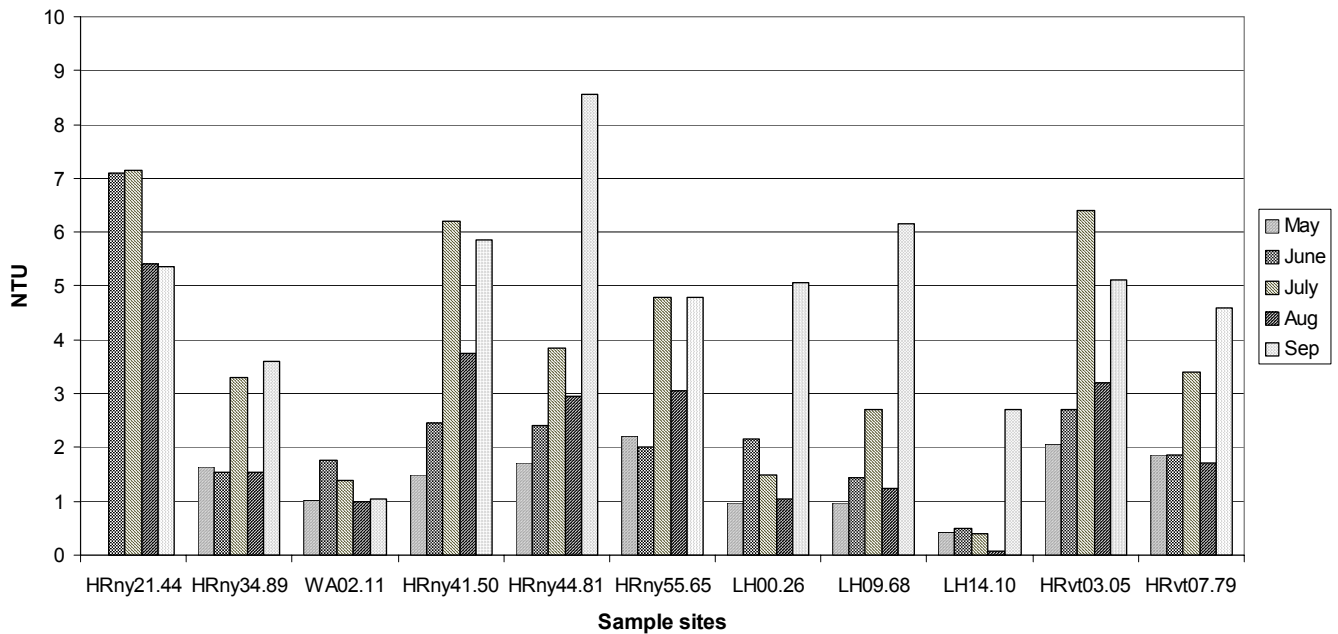


Average *E. coli* amounts

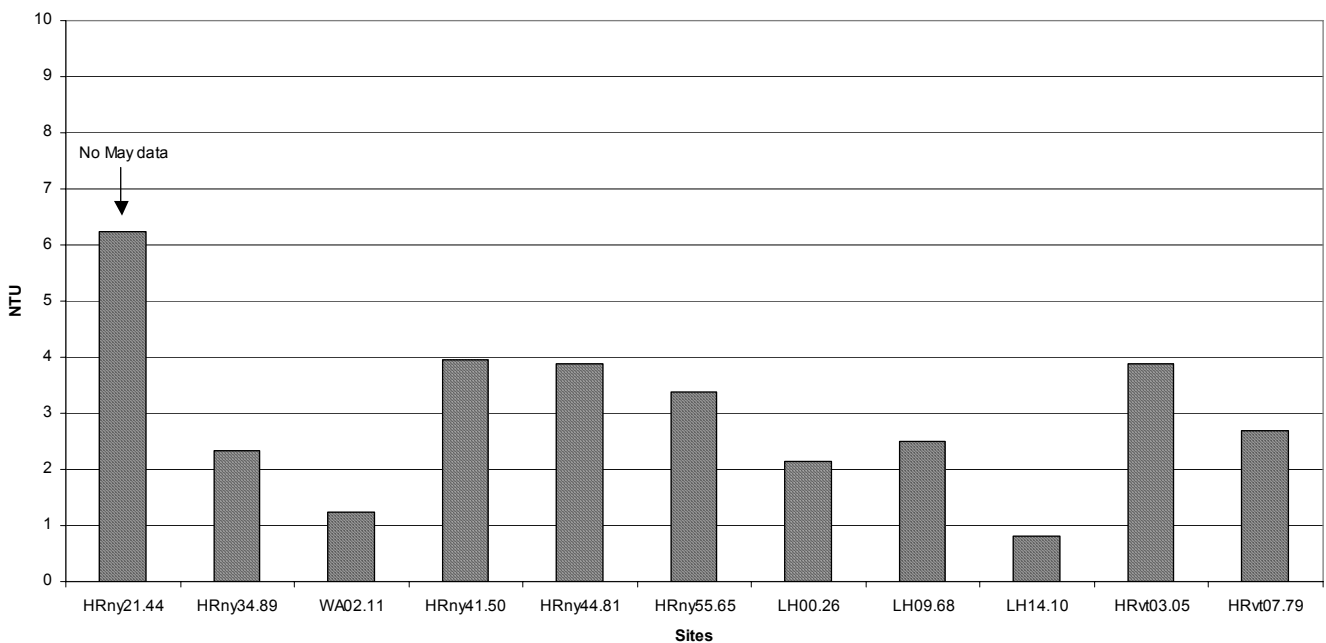


Turbidity levels were always below the standard or 10 NTU. The Johnsonville sites generally had the highest levels. Algae in the water will result in raised levels of turbidity, a possible cause of the higher levels at this location downstream of the impoundment. Overall, the levels in September were higher than the other months.

NY-Vt 2004 Turbidity

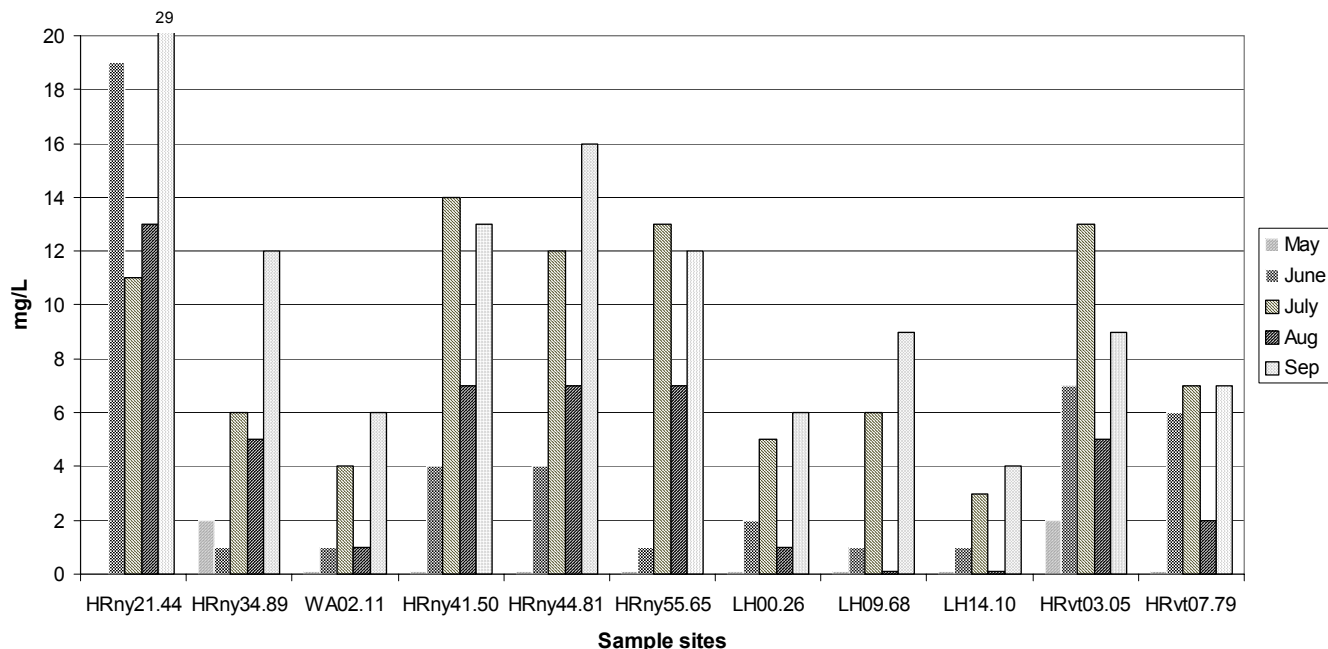


Average Turbidity

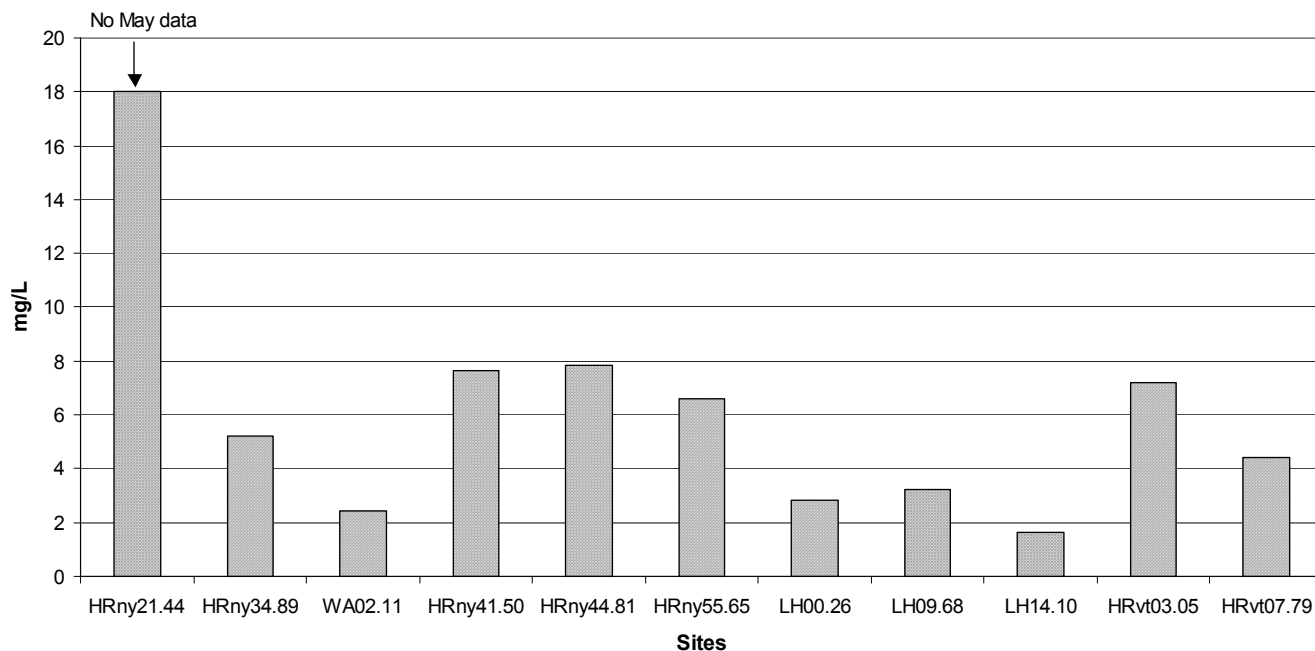


Although not identical to turbidity, total suspended solids are generally well correlated with turbidity, and that is indeed the case for these sites. The highest average value was recorded at Johnsonville, and in general, the average values for both TSS and turbidity follow similar patterns. The correlation between the two is not as strong when comparing the individual monthly values, but is still apparent.

NY-Vt 2004 Total Suspended Solids

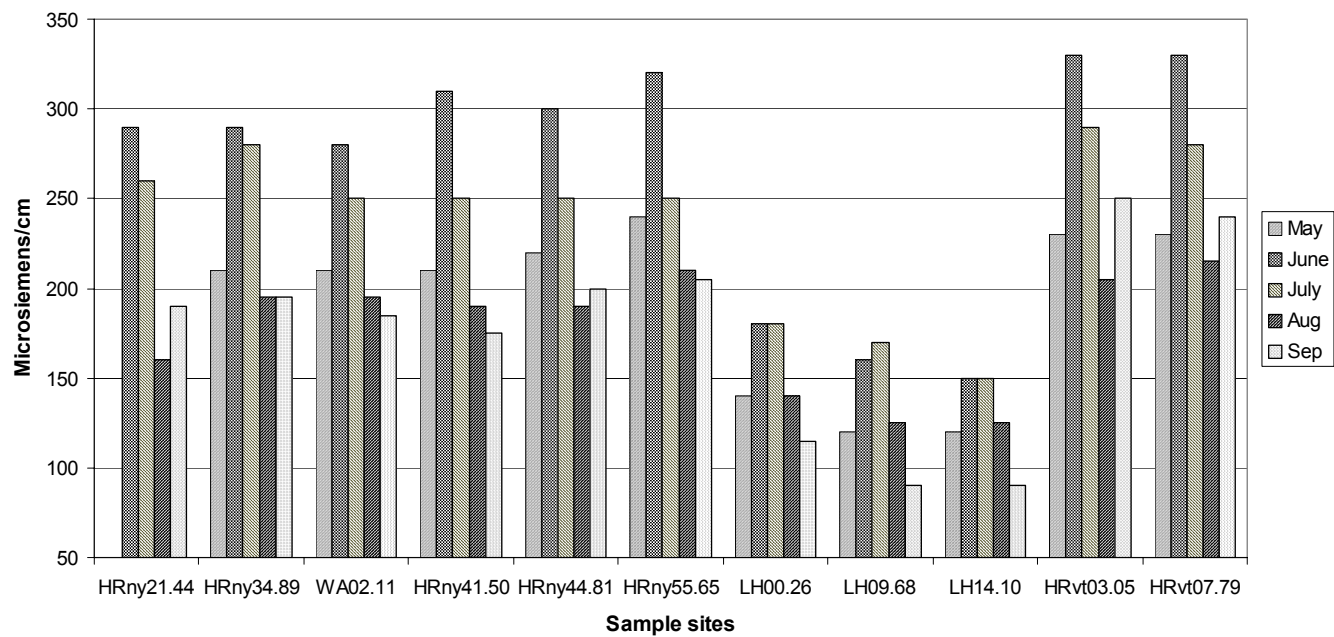


Average Total Suspended Solids

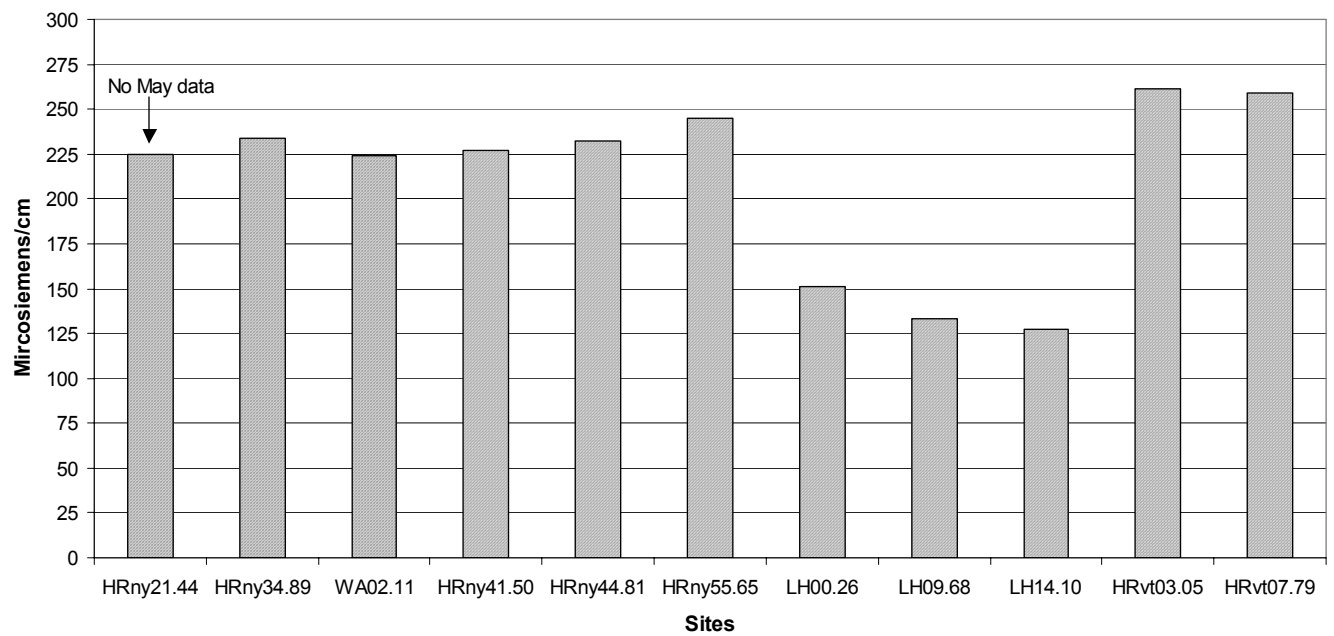


The values for conductivity were all below the maximum value of 500 microsiemens, but a few of the values for the Little Hoosic were slightly below the 150 lower threshold.

NY-Vt 2004 Conductivity

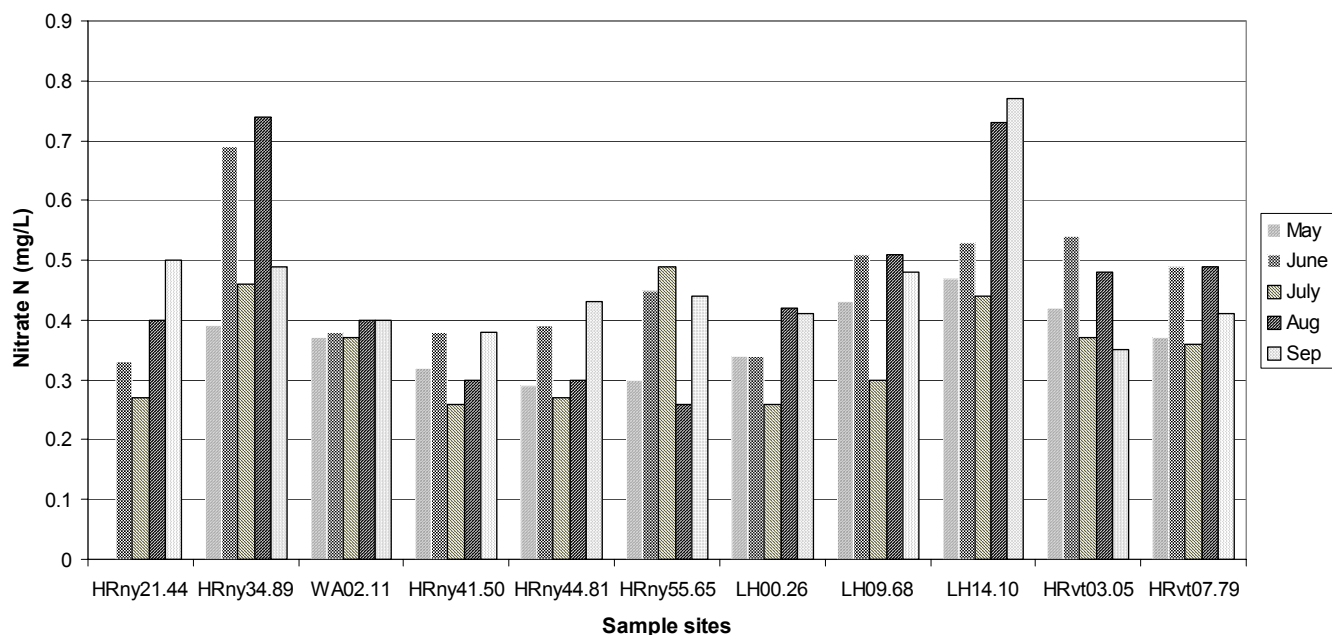


Average Conductivity

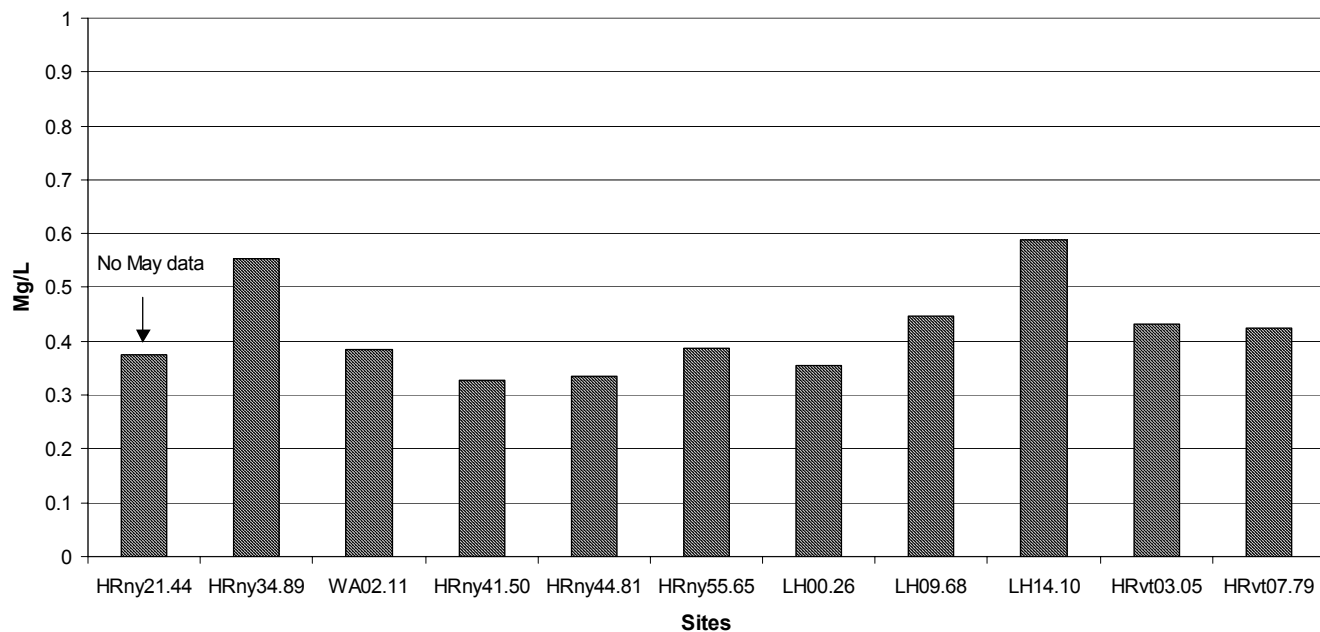


The nitrate nitrogen levels were well below any level of concern. The values at the Eagle Bridge site on the Hoosic and the site upstream of Petersburg on the Little Hoosic were generally higher than those at the other sites.

NY-Vt 2004 Nitrogen



Average Nitrate Nitrogen



Overall, the bacteria levels were above, or well above, desirable levels for primary contact recreation such as swimming and wading. More detailed assessments of bacteria levels within the vicinity of the Johnsonville impoundment, the Eagle Bridge area and the Tannery dam would be useful. The other water quality parameters were below or within the appropriate limits, with a few minor exceptions. Although the nitrate nitrogen levels on the Little Hoosic were well within acceptable limits, they did increase in late summer at the most upstream site, which suggests that activities within this portion of the watershed could be of concern.

We plan to continue to gather information on conditions within the New York and Vermont portions of the Hoosic watershed. These sections of the Hoosic watershed will be included in the overall assessment project currently in progress. The objective of that project is to identify segments of the rivers that are most important for us to monitor. In addition to the assessment project, we plan to monitor stream temperatures in the Walloomsac and Little Hoosic, and to assess the benthic macroinvertebrate communities in both of these tributaries so as to gain a better understanding of their overall health.

Many thanks to the following folks without whom this project would not have been possible. Alex, Bill, Bob, Gary, Irv, Joel, Mike, Shawn, and Vic.

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Report prepared May 31, 2005 by Dick Schlesinger