

Assessment of the Water Quality in the North Branch, West Branch, and Main Stem of the Susquehanna River, Summer 2010

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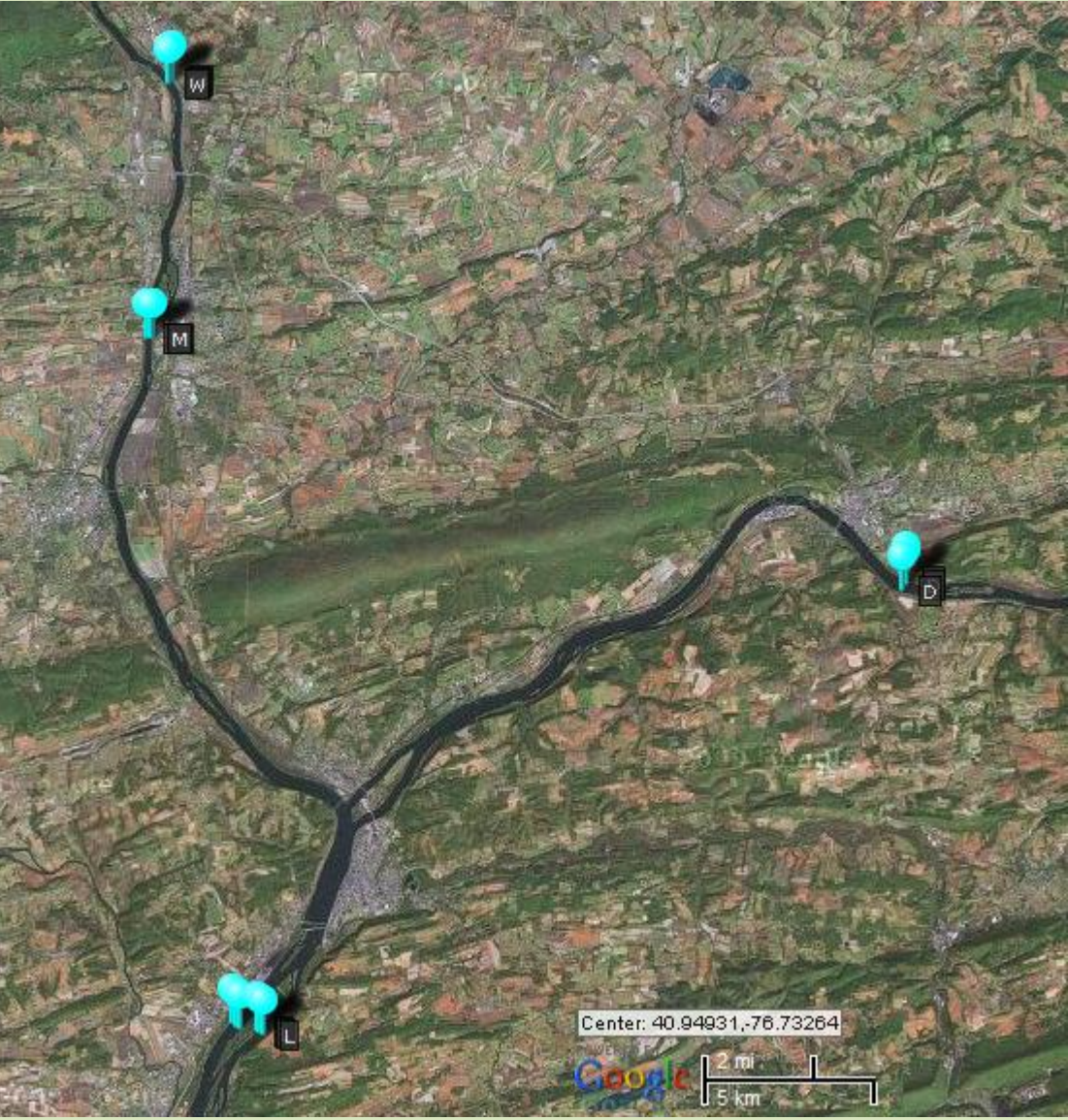
Abstract

Water samples retrieved from four transects along the branches and main stem of the Susquehanna River were studied. The samples were then compared to a baseline study carried out the previous summer. An onsite assessment of pH, turbidity, temperature, dissolved oxygen, conductivity, alkalinity, and acidity was conducted for each sampling site. Samples were chilled and acidified on site and analyzed for metals by atomic absorption or anions by ion chromatography in the lab. It is hoped that periodic monitoring of the chemistry of the Susquehanna will enable us to see change overtime such as might be a byproduct of Marcellus Shale gas production. This endeavor was part of a larger study of the biology and chemistry of the Susquehanna sponsored by the Susquehanna River Heartland Coalition for Environmental Studies.

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Methods



Transportation to the sample sites was achieved by boat and kayak. Samples were collected utilizing 4L Nalgene bottles that had been previously acid washed and thoroughly rinsed with DI water. Once on shore, as yet unfiltered water was used for turbidity analysis and triplicate subsamples were acidified for total metals analysis (AA). The remaining water was filtered (GFF 0.70 μm effective pore size). Filtered water was used for onsite triplicate analyses for alkalinity (HACH 8203) and acidity (HACH 8201). In addition, triplicate subsamples were acidified for dissolved metal analysis (AA) and triplicate non-acidified subsamples for analysis of anions (IC). The filtered (not acidified) samples were frozen upon return to the lab. The rest of the samples were kept at 4 °C as per standard methods.

Discussion

- 1) No lead or strontium was found in any samples.
- 2) Sulfate levels were significantly higher in the West Branch samples when compared to those from the previous summer.
- 3) Danville water samples were highest in acidity, alkalinity, and conductivity.
- 4) Manganese was higher at the eastern most station downstream from Shamokin Creek and much higher in unfiltered samples compared to filtered.
- 5) Samples from the West Branch have the lowest dissolved load of all samples.

