

## A Snapshot of Water Quality in the Susquehanna in Summer 2010 Influence of Byers Island, Shamokin Creek, and the Shamokin Dam Power Plant on Local Susquehanna River Water

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## Abstract

During the 2009 Susquehanna River quality study, elevated concentrations of heavy metals (copper, lead, manganese) were measured between Byers Island, a restricted access island splitting the river near Shamokin Dam, and the easternmost river shore. We decided that one of the summer 2010 projects would be to attempt to identify the sources of these metals by a more complete sampling of the river and inflows nearest the island. The river was sampled in transects above the inflatable dam, across the river near the top of Byers Island, across the river near the lower quadrant of the island, and across the river near the base of the island. We also took soil cores from the island at sites adjacent to the river transects. Lastly, samples were collected in Shamokin Creek above the confluence with the river. Results of the analyses in 2010 were not consistent with those of the prior study. Whether the discrepancy is due to differing water levels, sources or both remains to be determined. This project was part of a larger study funded by the Susquehanna River Heartland Coalition for Environmental Studies involving biological and chemical assessments of the Susquehanna River.

The trends

## Sampling

Triplicate samples were obtained via kayak in gallon jugs (acid washed and DI rinsed until clear of chloride ion (IC)) along several transects near Byers Island in the middle Susquehanna River. Upon reaching shore, samples were filtered (GFF 0.7  $\mu$ m effective pore size) and placed in a variety of bottles and treatments dependant on the group to be analyzed: a) metals were acidified and placed on ice then refrigerated in the lab; b) anion samples were placed on ice and frozen until analysis. Samples for nutrients were not filtered, kept on ice in the field and frozen in the lab for later analysis.

In situ measurements: • Eureka Manta sonde

- dissolved oxygen

- temperature

- pH

- Turbidity Hach
- turbidimeter
- Method 8203
- Acidity Hach Method 8201



Field setup, Shady Nook boat launch parking lot







64.4 64.4 58.3

23.3 20.4 54.1







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>Drs. Hallen, Rier, and Venn are all members of the Bloomsburg University Institute For Environmental Analysis