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PIXE Spectrometry for Sediment Characterization[1] KATHERINE DEBLASIO, Rensselaer Polytechnic Institute, DANIEL PESCH, Hope College, THE MACATAWA WATERSHED PROJECT TEAM — This project focuses on the non-point source sedimentation and hypereutrophication problems plaguing Lake Macatawa, Holland, MI. Excess nutrients, such as phosphates, attached to sediments, flow into the lake from the surrounding watershed increasing both the lake's turbidity and nutrient imbalance. The goal is to identify signatures representative of unique locations within the watershed to aid in the determination of sediment provenance and effectively allow for the modeling of this non-point source pollution as multiple point sources of the sediments and their adsorbed nutrients. This is accomplished by characterizing sediment with Particle Induced X-Ray Emission (PIXE) spectrometry. Eighteen different elemental concentrations in sediment samples are measured via PIXE. These concentrations are compared between sites and rain events to find trends in the changes of concentrations of the metals that will help characterize the sediment source.

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