

# Sediment Coring Group

Overseen by UW-Milwaukee

**Purpose:** To provide science educators with skills and hands-on experience in sampling, experimental methods, and concepts related to nutrient dynamics and how they have been influenced by invasive species in Lake Michigan.

**Background:** A number of major physical, chemical and biological changes have occurred in Lake Michigan over the past two decades. These include a decrease in plankton abundance, decreases in the abundance of some fish species, lower phosphorus concentrations, and increased water clarity. Recent research indicates that dreissenid mussels (zebra mussels and quagga mussels) have likely caused many of these changes, either directly or indirectly. But there are few direct measurements of important processes, such as the rate at which mussels consume plankton and recycle nutrients, including phosphorus and nitrogen, and the mechanisms by which mussels have altered nutrient cycles are still unclear.

## Research Questions:

- Have quagga mussels accelerated the rate at which carbon and phosphorus are removed from the water column and added to the sediment?
- How does phosphorus recycling from sediment without mussel compare with that from sediment with mussels?
- Do mussels have a greater impact in some parts of the lake than in others?
- Have mussels changed the distribution of dissolved oxygen in lake sediments? This is important to know, because this can affect the distribution of other organisms in the sediment, and it can also affect biogeochemical processes that influence nutrients like phosphorus.
- How does benthic respiration without mussel compare with benthic respiration when mussels are present?

Shipboard Science Workshop

Lake Guardian July 12-18, 2015