Oral presentation

NUTRIENT ADDITION EFFECTS ON PHYTOPLANKTON GROWTH RATES IN KEUKA LAKE

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Our research center’s interests lie in how the Keuka Lake ecosystem functions, what drives the plankton systems and determining the lake’s susceptibility to change given certain watershed and lake disturbances, such as nutrient loading and exotic species invasions.

Throughout the Finger Lakes region, including Keuka Lake, a number of institutions and associations conduct long-term lake monitoring studies. Past and current studies monitoring the health of the lake have focused on taking samples throughout the lake and throughout year and collect various physical, chemical and biological information. These samples provide invaluable baseline information and help track changes in many of the facets of lake health. Each set of samples is essentially a “snapshot” of the current lake status. These snapshots can then be pieced together to show trends (both good and bad), as well as provide an important database from which to compare against other lake systems.

However, understanding how and why the lake system functions over time cannot always be accomplished by piecing together many snapshots. While this creates a “movie” documenting the lake changes, it does not necessarily explain the mechanisms driving the changes. If we know more about the internal dynamics (how the system works) we can better predict how the lake may change by disturbances, such as nutrient loading (both the types and the quantity) and exotic species introduction – the two primary threats to Keuka Lake water quality. Although this research will certainly use these “snapshots”, laboratory and on-lake experiments, as well as modeling studies are the foci in elucidating these mechanisms.

My talk will focus on our current and future research work on Keuka Lake with an emphasis on how our proposed experimental and modeling on the regulation and fate of autochthonous primary production (e.g., phytoplankton, macrophytes, etc.) will complement the existing monitoring work.