Harmful algal bloom research at Stone Lab: Monitoring blooms and determining drivers of toxin production

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This presentation will highlight several ongoing research projects at Stone Lab (Ohio State University and Ohio Sea Grant) aimed at monitoring blooms in Lake Erie and determining drivers of bloom formation and toxin production. Many data buoys have been deployed in the western basin to detect cyanobacteria, which are supposed to give water treatment plant operators an early warming of blooms. However, buoys record data from the surface while water treatment plants draw in bottom water and one project is aimed at determining the accuracy of buoys at monitoring blooms and if other environmental factors such as wind aid the water plant operators’ interpretation of buoy data. Several charter boat captains collect water samples for Stone Lab each week and data is returned to the captains the following week. This allows the captains to answer questions like “How bad is the bloom this year?” Another monitoring project is investigating the central basin cyanobacterial blooms that occur in early July. The sampling has indicated the blooms are dominated by the nitrogen-fixing cyanobacterium *Dolichospermum* (formally *Anabaena*) and we trying to understand why the bloom occurs in relatively nutrient-poor water. On the toxin production side, Stone Lab is investigating the role of different forms of nitrogen, phosphorus, light level, and their interactions in driving bloom growth and toxin production of *Microcystis* blooms in the western basin and *Planktothrix* blooms in Sandusky Bay. Results indicate that microcystin production is limited by the availability of nitrogen.