Can Wetland Plants (Lemnoideae) Be a Viable Source of Remediation to Prevent Harmful Algae Blooms in Western Lake Erie?

Hunckler, Julia

An algae bloom is when a body of water is covered with algae and the water is choked from oxygen, light is blocked, and photosynthesis is prevented. This is an effect from very serious water pollution. Excess nutrients in water causes rapid algae growth. Nutrients including phosphorus drain into bodies of water from runoff of fertilizers from farmlands. This oversupply of nutrients present in the watershed can cause eutrophication, a deadly process that depletes oxygen from the water. In the process of eutrophication, algae cells die and decompose. The decomposition lowers dissolved oxygen concentrations in the water; low dissolved oxygen stresses marine organisms. Lake Erie has dealt with many problems of algae blooms. Last year, Toledo had to issue a ban on drinking tap water for more than 430,000 residents “due to high levels of toxins harmful to humans resulting from a massive toxic algae bloom on western Lake Erie” (NRDC). Many common wetland plants help reduce this problem. Duckweed or Lemnoideae is a small flowering plant that can be used to recover nutrients from wastewaters. Duckweed was used to determine the rate of total phosphorus uptake. It was hypothesized that duckweed will have a quick rate of total phosphorus uptake due to its rapid growth and preference for high-nutrient conditions.

Awards Won: