

MWPARC Travel Grant Award Recipient: Brenna Friday, Wayne State University

With funding from the MWPARC Travel Award grant, I was able to successfully complete my first field season studying green frog occurrence across southern Michigan. My work focuses broadly on understanding the interaction between green frog (*Lithobates clamitans*) and harmful algal bloom (HAB) species across spatial, temporal, and behavioral scales. This summer, I was able to dive into the spatial and temporal aspect of this cooccurrence by looking for green frogs in lakes and ponds that experienced historic or ongoing toxic algae blooms. I conducted my surveys in July and August to follow the peak of green frog breeding season as well as the onset of HAB season. I prioritized visiting lakes that had experienced either “elevated” toxic blooms (i.e. $\geq 10 \mu\text{g/L}$ of toxins as identified by previous surveys) or recurring blooms between 2015-2021. By partnering with the Michigan Office of Environment, Great Lakes, and Energy (EGLE), I was also able to keep up to date with reported HABs across the state and survey lakes with ongoing blooms. My methods for surveying each lake or pond combined auditory and visual surveys for frogs at multiple locations along the water body’s shoreline. When possible, I visited the areas of a lake or pond where previous EGLE surveys identified high levels of algae toxin during a previous or ongoing bloom. In total, I visited 18 lakes that experienced historic blooms, 2 lakes with ongoing blooms, and 1 lake with record of both historic and an ongoing bloom in the summer of 2021. I was able to identify green frogs at 10/18 historic sites, 1/2 ongoing bloom sites, and the single combination historic and ongoing bloom site. Visiting all 21 sites required upwards of 500 miles of driving that could not have been completed without funding from MWPARC.

Establishing that green frogs can occur in environments that experience toxic HABs has been foundational for the relevance of my research. My work here has provided relevancy to other pieces of my dissertation that will explore how developing amphibians are impacted by HAB toxins through toxicity assays and genetic analyses. To my knowledge, this project was the first of its kind to explore amphibian and harmful algae species interactions through field surveys of inland lakes and ponds. Amphibians have largely been left out of research examining how HAB toxins affect aquatic wildlife, but I hope that these preliminary findings will spur others to consider amphibians in the group of organisms that may be impacted by HABs. This work has opened my eyes to the value of partnerships between academic and public health institutions, and I hope to continue bridging the gap between these two branches of research through a career in the science policy field. I am grateful to MWPARC for supporting my research and look forward to continue to share my findings within this community.











