



Great Lakes Protection Fund

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Funded Project

Smart Management of Microplastic Pollution in the Great Lakes

Project No.	1151
Timeline	2018 – Active
Award Amount	\$929,000
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This project will empower a new set of regional leaders focused on reducing the amount of microplastics that enter the Great Lakes each year. The team will do this by working with municipal leaders and local groups to pilot a plastic reduction campaign and mitigation initiative in Williamston and Pontiac, MI. To support this campaign, the team will design and build a first-of-its-kind, portable optical sensor that they will use as a monitoring tool to evaluate the performance of the plastic reduction campaign.

The portable technology will integrate optical sensors with machine learning and edge computing to enable a low- cost, real-time quantification of plastic particles in water. Use of this technology will offer a dramatic improvement over the current monitoring techniques which are laborious and consist of manual counting of plastic particles under a microscope.

The optical sensor will test the effectiveness of two very different mitigation strategies: one strategy will seek to reduce plastic fibers coming off clothing in the wash; the second will seek to reduce large plastics entering the stormwater system by installing green infrastructure to capture trash during large rain events.

The team will engage users from around the region and develop a robust social marketing plan for pilot study results. By developing a microplastics mitigation toolbox (tested mitigation strategies supported by new sensor technology) this team is developing solutions that can be adopted by communities throughout the basin to reduce microplastics. New approaches are needed now, as most of the microplastics work being done in the region has been focused on trying to determine the extent of the problem or reducing litter, not large-scale solutions.