



# Smart Management of Microplastic Pollution Newsletter



WAYNE STATE  
UNIVERSITY

A research project led by Wayne State University

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Welcome to our first ever Microplastic newsletter! This newsletter covers major project updates and accomplishments from March to August 2019. We are very excited to share this newsletter as well as spread awareness regarding the continued work of protecting our Great Lakes!



## EDUCATION & OUTREACH

On May 25th, 2019, the Donna Kashian laboratory shared information regarding the impacts of environmental hazards on freshwater ecosystems with Caesar Chavez High School students. While this was an elective program, 25 attendees participated in the day's events. The topics covered included microplastics, invasive species and ecology sampling methods.

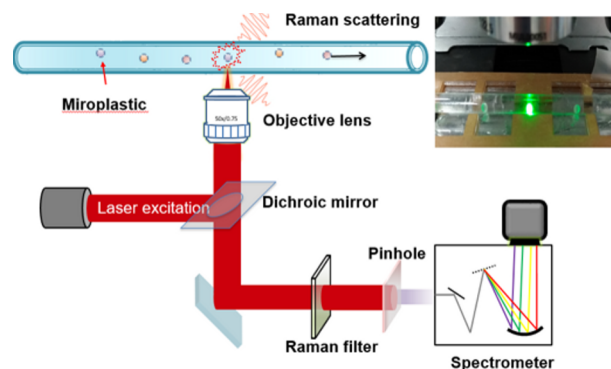
In Williamston, Michelle Beloskur of ICD spoke with 30 high school students who had previous knowledge of microplastics, including four who had participated in an independent research project on the subject with their instructor.

For outreach, the project has reached over 16,000 people and engaged nearly 3,000 people either in-person or through social media.



## RESEARCH

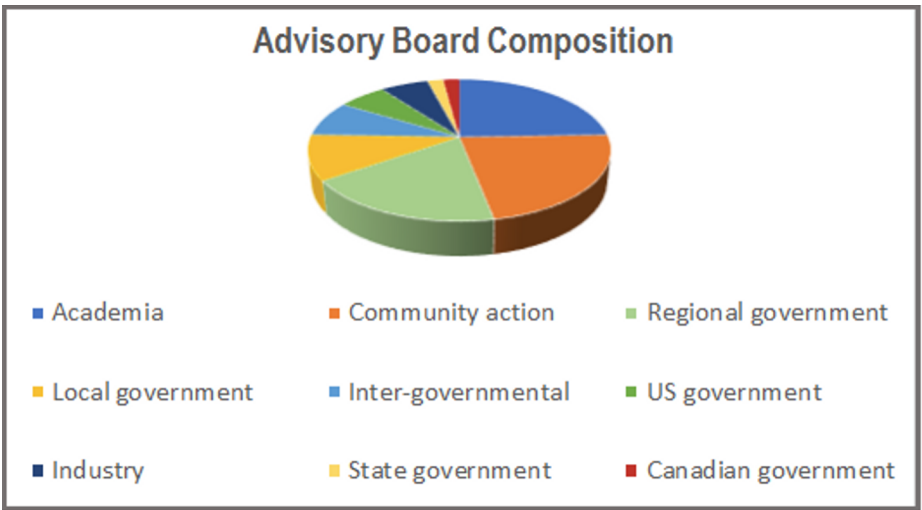
- Testing of 3-D printed parts, made possible by equipment refinements in Dr. Mark Cheng's lab, are being used to evaluate flow rates for a field-deployable Raman microplastics sensor
- A commercial polymer library has been purchased to help identify Raman signatures from 300 common pure polymers and their mixtures. Employed by Drs. Yongli Zhang, Mark Cheng, and Weisong Shi, the library along with new data obtained from more than 100 actual post-consumer and environmental plastic samples will help create classification models based upon machine learning algorithms.



- Dr. Rahul Mitra held focus group discussions in Williamston and Pontiac in July and September, 2019, in collaboration with our community partners Michelle Beloskur, Jonathan Weyhrauch, and Kathleen Sexton. For this first round of focus groups, discussions were held with community leaders and regional stakeholders to understand their perception of existing environmental risks (especially around plastics) and suggest key social, political, and economic tactics that can be successfully deployed to reduce microplastic pollution. Focus group attendees also participated in an interactive discussion with project leaders about our eventual goals to identify and help reduce microplastic pollution.

## 1ST ADVISORY BOARD MEETING RESULTS

Input from experts in technology, community engagement, facility operations and policy during and after our March meeting provided valuable context and suggestions for next steps: the most important issues for us to focus on are



microplastic sources, impacts on human health and the environment, and the associated data (baseline, fate and transport), as well as how to make people care and move them to action. Key advice included: create messages and interventions specific to wastewater, drinking water and surface water; consider our role in both source reduction and environmental clean-up; engage community and industry partners; solve complex analytic challenges in sensing and modeling and translate data into easy-to-relate terms.

## NETWORKING

Project team members have

participated in groups collaborating to solve the Great Lakes' most pressing problems, most recently: the review workshop for the Great Lakes Marine Debris Action Plan, the Great Lakes Protection Fund Impact Bootcamp, the New York University Sustainable Urban Subsurface Systems Workshop, and the Microplastics Session in the International Association in Great Lakes Research 2019 Conference . These activities connect us with other researchers and practitioners who are working to make a difference. Let us know if you can suggest other networking opportunities!

### Partnerships



### Investigators:

Yongli Zhang  
Carol Miller  
Mark Chen  
Weisong Shi  
Donna Kashian  
Rahul Mitra

### Team Members:

Michelle Beloskur  
Jonathon Weyhrauch  
Kathleen Sexton  
Chris Bobryk

### Project Manager:

Lara Treemore-Spears

### Project Funding



Great Lakes  
Protection Fund

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