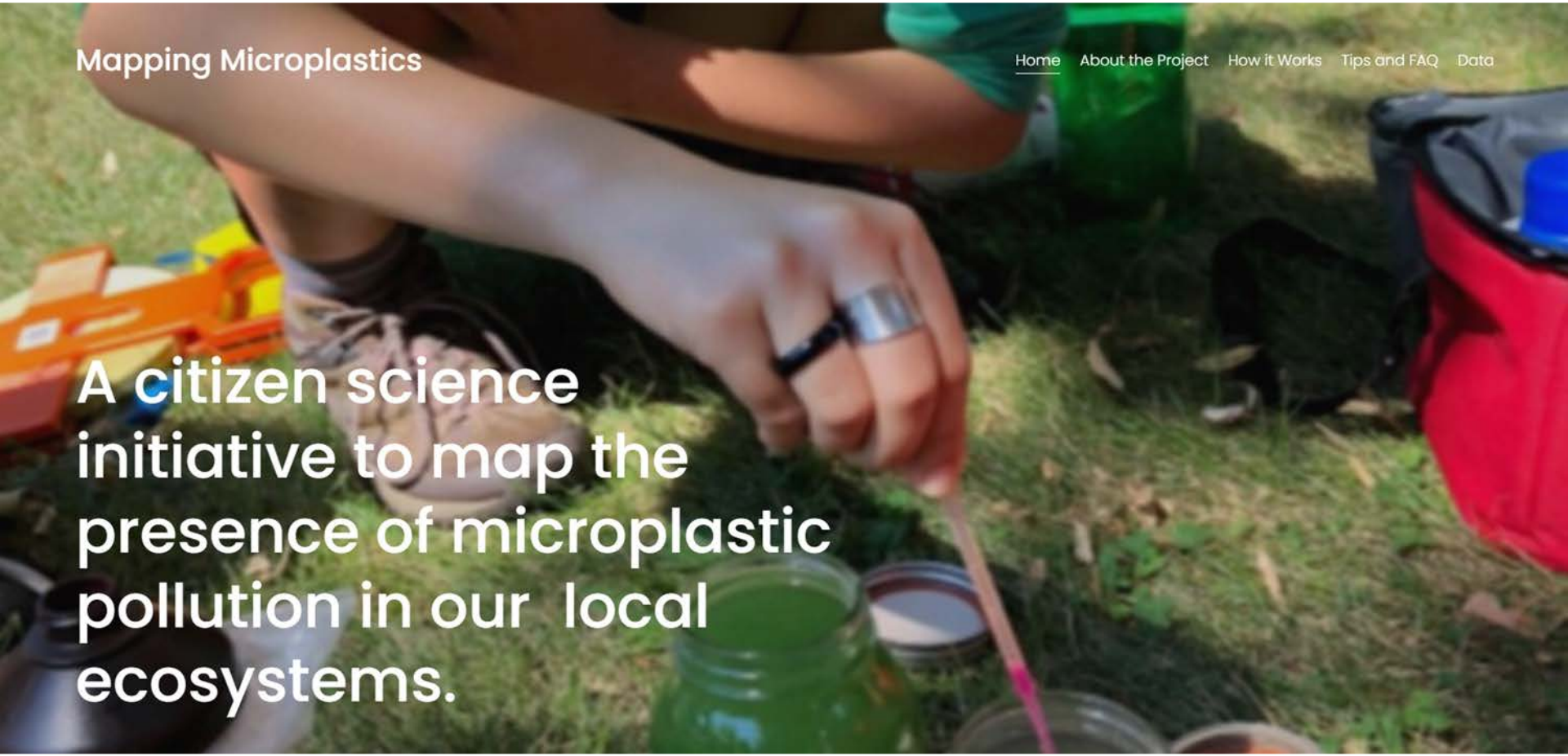
Mapping Microplastics
Home
About the Project
How it Works
Tips and FAQ
Data
A citizen science initiative to map the presence of microplastic pollution in our local ecosystems.

MAPPING MICROPLASTICS

Sarah Davis

- Baseline assessment across a wide geographic area
- Repeat testing collects information on seasonality/patterns
- Provides evidence to justify more precise/sophisticated testing

- Novel hands-on STEM activity
- Accessible to a wide audience
- Facilitates place-based learning about global plastics crisis
- Creates a pathway for local nature experiences

MAPPING MICROPLASTICS

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Evidence for using Nile Red staining to identify MP's in environmental samples:

Maes, T., Jessop, R., Wellner, N., Haupt, K., & Mayes, A. G. (2017). A rapid-screening approach to detect and quantify microplastics based on fluorescent tagging with Nile Red. Scientific Reports, 7(1), 1-10.

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Tamminga, M., Hengstmann, E., & Fischer, E. K. (2017). Nile Red Staining as a Subsidiary Method for Microplastic Quantification: A Comparison of Three Solvents and Factors Influencing Application Reliability. SDRP JESES, 2.

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Citizen Science Procedures

COLLECT

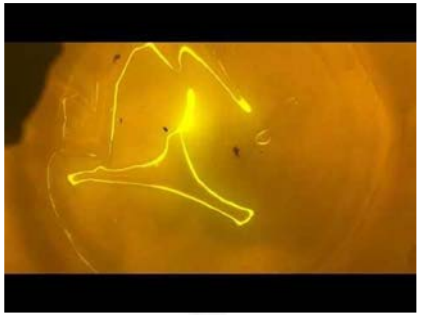
Participants use a glass jar to scoop a 500 mL sample of surface water from any local waterway.

FILTER

Participants filter the water sample using a coffee filter to remove solid debris. They photograph the sample under blue light/orange filter to document fluorescence prior to staining.

STAIN

Participants apply 1-3 mL of Nile Red stain directly onto the debris, and allow it to permeate for 45 minutes - 1 hour.



PHOTOGRAPH

Participants photograph the sample after staining under blue light/orange filter and record fluorescing microplastics greater than 1 mm.

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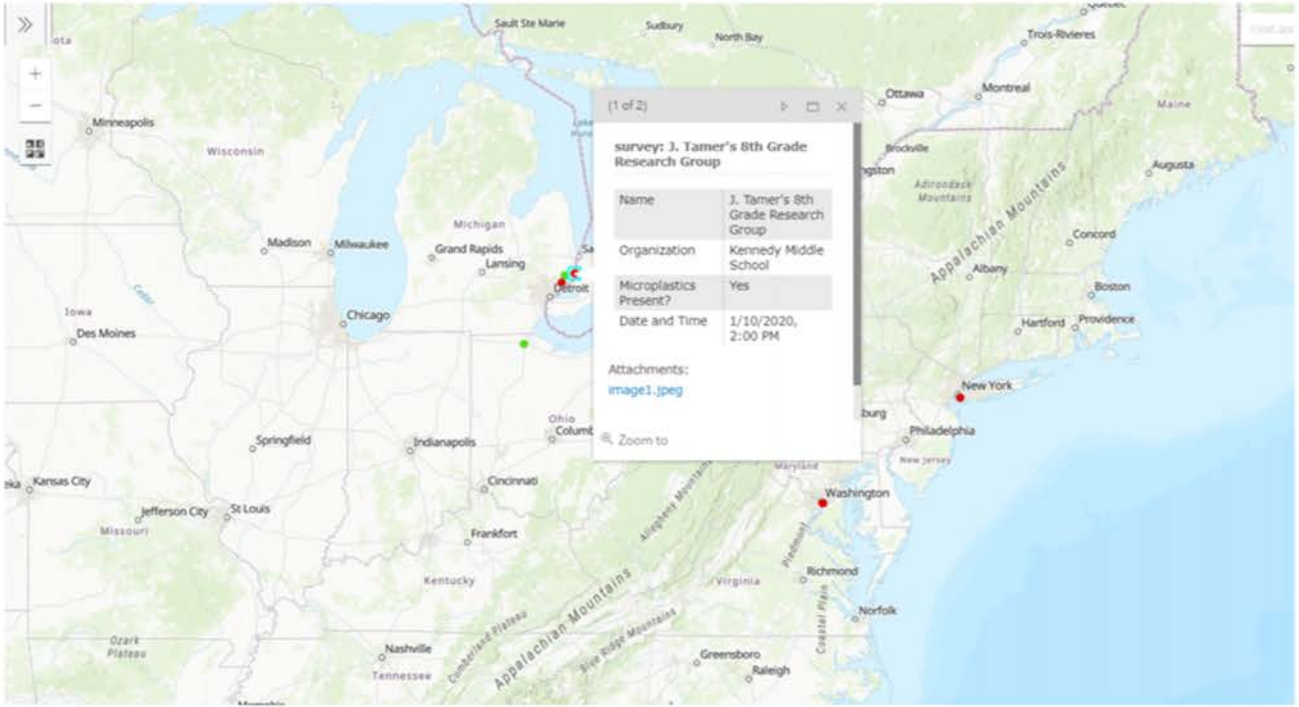
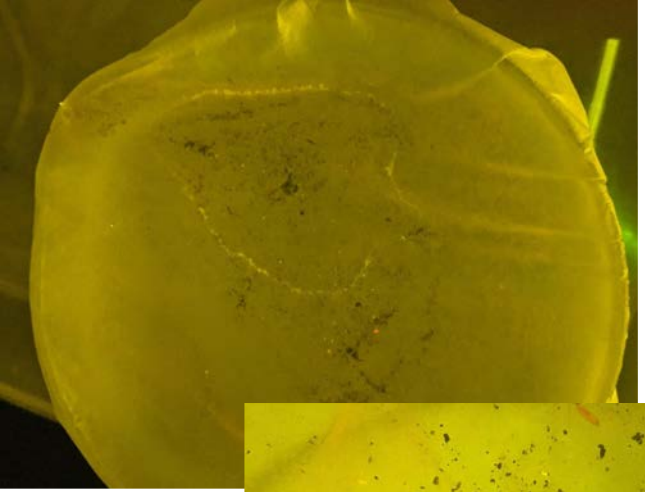
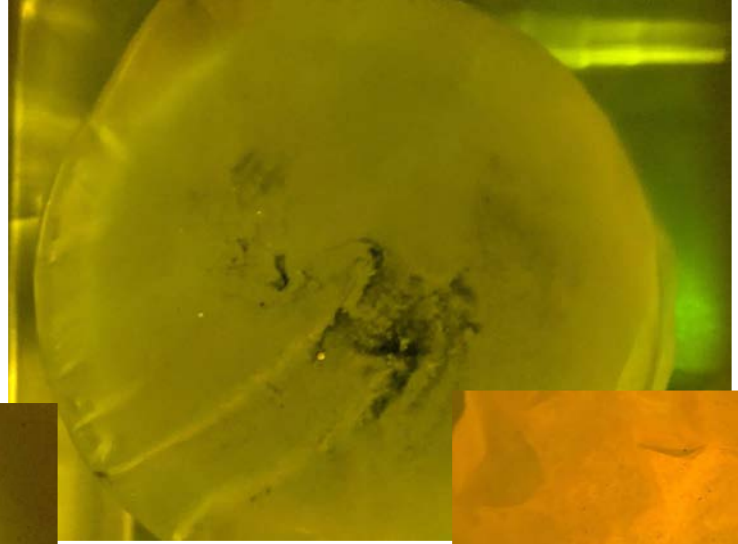
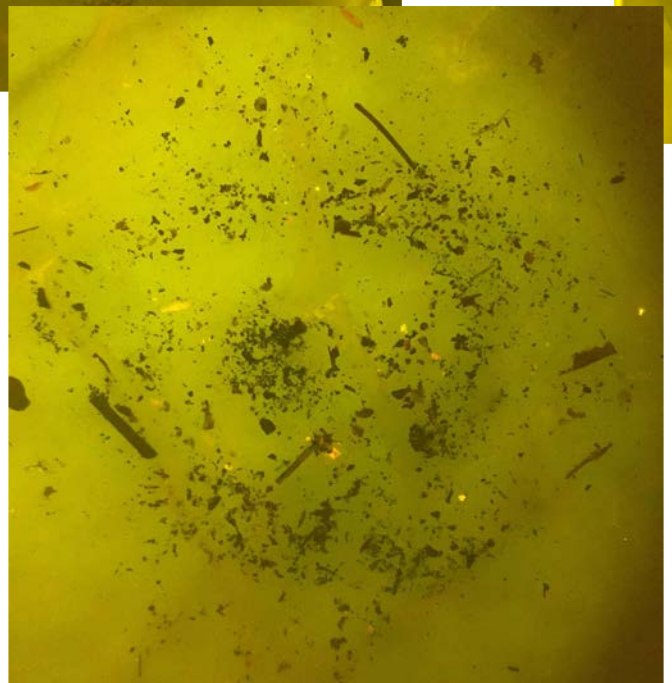
SHARE

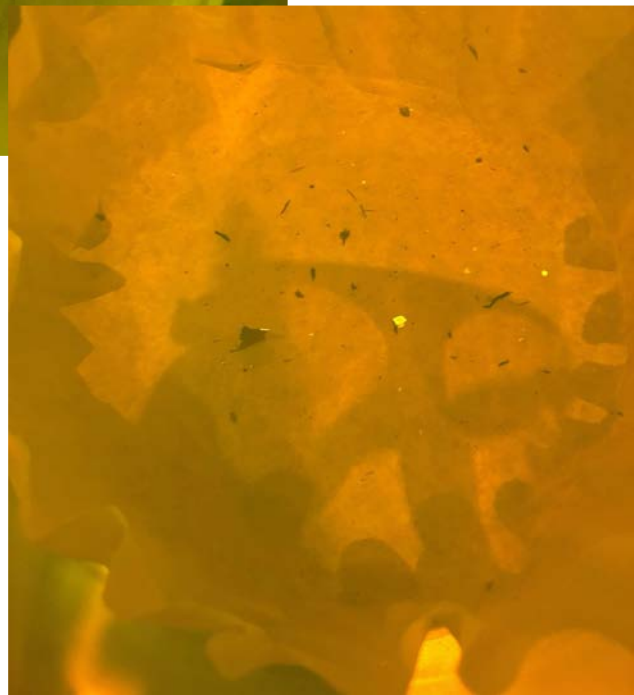
Participants upload their data to the project website, where it is reviewed and added to an interactive GIS map of results.











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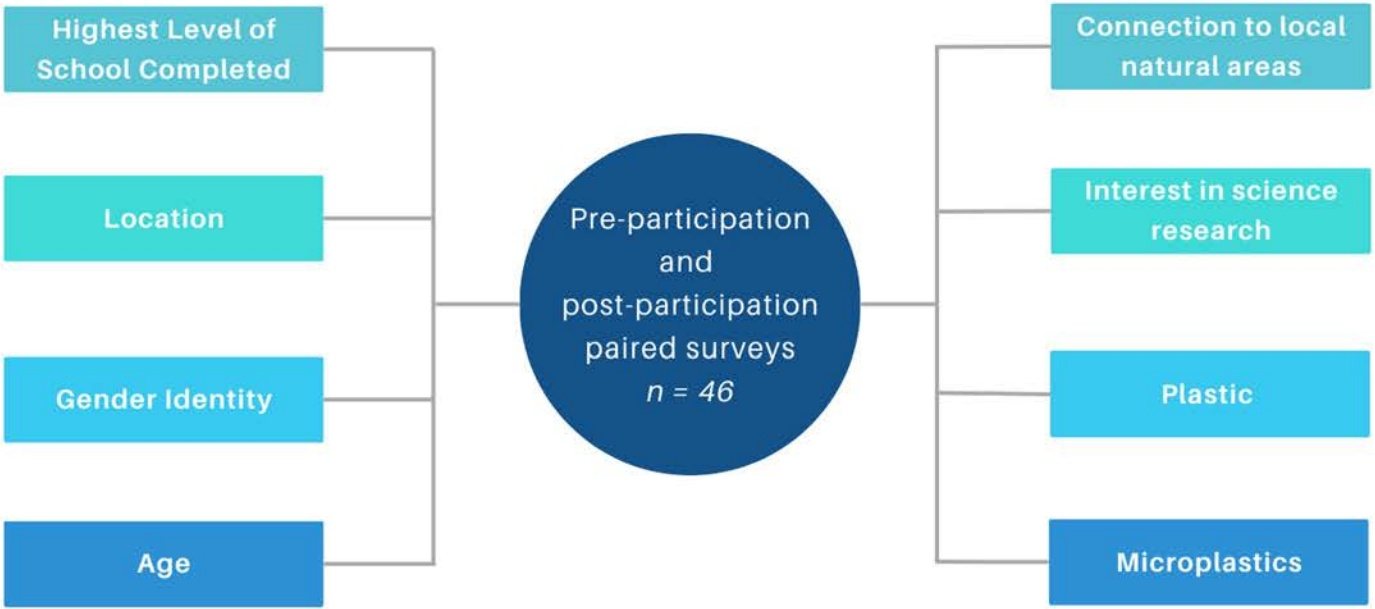

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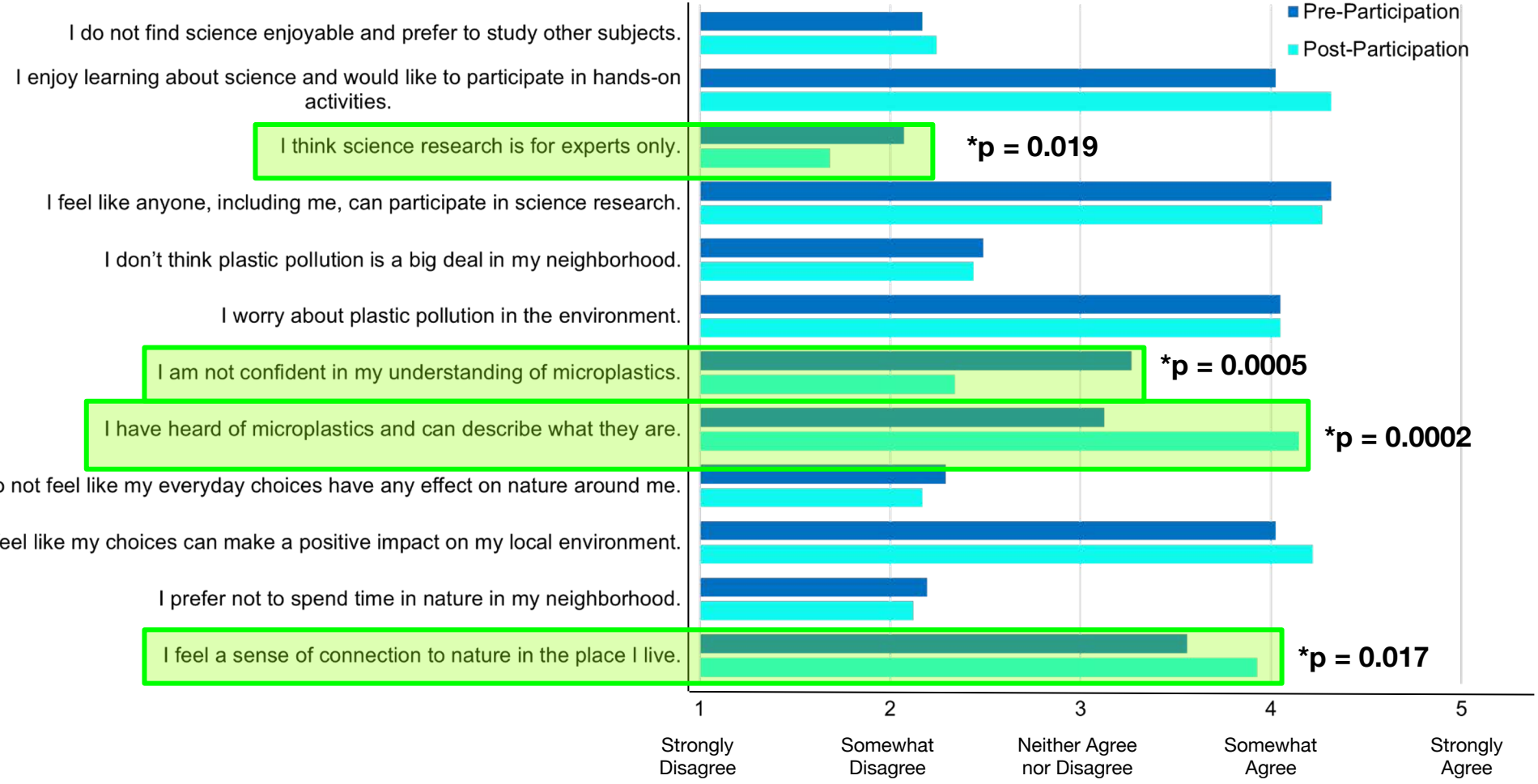
HAWK TANK

Project *Dragonfly*
Inquiry | Community | Voice


Pre-Participation
Post-Participation
I do not find science enjoyable and prefer to study other subjects.
I enjoy learning about science and would like to participate in hands-on activities.
I think science research is for experts only.
*p = 0.019
I feel like anyone, including me, can participate in science research.
I don't think plastic pollution is a big deal in my neighborhood.
I worry about plastic pollution in the environment.
I am not confident in my understanding of microplastics.
*p = 0.0005
I have heard of microplastics and can describe what they are.
*p = 0.0002
o not feel like my everyday choices have any effect on nature around me.
eel like my choices can make a positive impact on my local environment.
I prefer not to spend time in nature in my neighborhood.
I feel a sense of connection to nature in the place I live.
*p = 0.017
1
2
3
4
5
Strongly Disagree
Somewhat Disagree
Neither Agree nor Disagree
Somewhat Agree
Strongly Agree

WWW.MAPPINGMICROPLASTICS.ORG
SARAHDAVIS@URI.EDU

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Dr. Kevin Matteson (Miami University)
Dr. Charlie Mazel (Nightsea)
Dr. Coleen Suckling (URI)
Dr. Andy Davies (URI)

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