



WAYNE STATE
UNIVERSITY

SMART MANAGEMENT OF MICROPLASTIC POLLUTION IN THE GREAT LAKES

*How Community Leaders Perceive
the Risks of Microplastics Pollution*



Community Risk Perception Project Overview

This portion of the project enlisted focus groups made up of community leaders in two Michigan communities, one urban and one rural, to address two research questions: How do local communities perceive the risk of microplastic pollution, especially in their water systems? How can local communities be encouraged to adopt pro-environmental behaviors in response to microplastic pollution?

Focus group participants generally thought that other more pressing and well-known concerns were more important to their community than microplastics pollution. Participants suggested providing more information on the impacts of microplastics on human health and the environment, and the amounts in food and beverages, in order to inspire pro-environmental action on microplastics pollution. Challenges that participants thought needed to be addressed for microplastics pollution to become a priority included structural/institutional supports, social-cultural values, the tone and content of public discourse, and the impact of uncertainty on willingness to act. Participants believed in the value of intrinsic motivators, such as pride in the cleanup of a local river or park and the enhanced reputation of people and businesses that mitigate microplastics pollution. Participants also believed that extrinsic motivators, such as monetary incentives and increased charges for disposal will also be an essential part of microplastic pollution control.

Based on the focus group discussions, researchers suggest that communities consider having ongoing dialog on environmental pollutants to: (1) support understanding the risks associated with "new" pollutants early on; (2) normalize accurate and interactive discussion of the scientific process for understanding risks; (3) identify socio-cultural and institutional interactions that may exacerbate risks; and (4) address the potential impact of underlying political ideologies on risk communication, environmental pollution and public health.

Focus Group Study Design

METHOD

The focus group study was designed to capture community perceptions of microplastic pollution through a process of collective meaning-making through discussion, rather than through individual views, by researchers in the Communication department at Wayne State University. The programmatic intents of the discussions were to inform an outreach and engagement process planned by community partners, and to develop a leadership network that had the potential to address microplastic pollution in the region.

Five focus group discussions were conducted over a five month period (n=5). Participants consisted of a total of 28 community leaders located in two cities in Michigan: Williamston, a rural community near Michigan's capitol, Lansing (3 groups), and Pontiac, a mid-size urban community near Detroit (2 groups).

Each focus group lasted 90-120 minutes, followed by an optional 20-minute debriefing and informative session on microplastic pollution, presented by the Principal Investigator for the project.

PARTICIPANTS

Participants were recruited using the expertise of community contacts who suggested representatives with knowledge of their respective community. Members of local non-profit organizations, business groups, block clubs, government, school teachers, and others who were active and interested in their community or the topics of pollution, litter and urban revitalization attended.

While knowledge of microplastic pollution varied among the participants, ranging from extensive to minimal, all were known by the recruiters to have an interest in or knowledge of environmental concerns. The participant recruitment email stated, in part:

"We are inviting you to attend a focus group to discuss microplastics and their impacts on human health and the environment. You were suggested to us as a participant by someone in your community because you may be interested in environmental concerns. We hope you will consider attending one of these meetings of 10-15 people to share your opinions."

Focus Group Process Overview



Guided theoretically by interdisciplinary research on social-ecological resilience, the questions participants were asked were intended to provide insight on:

- How local communities perceive the risk of microplastic pollution, especially in their water systems
- How local communities can be encouraged to adopt pro-environmental behaviors in response to microplastic pollution

Questions asked during focus group discussions included:

- Please tell us about some of the key environmental issues facing your community.
- How is your community equipped to address these problems?
- What do you know about microplastic pollution?
- Do you see plastic pollution in your community? How urgent is this threat? Why?
- What are some ways we can address microplastic in your community?
- What are some likely barriers to addressing microplastic pollution?
- How can we dismantle these barriers?



Focus groups were iteratively analyzed using qualitative coding software, AtlasTi.

Transcripts were analyzed by three trained coders using the phronetic-iterative method to identify themes. This method was chosen for its practical focus on meaning-making. Coders paid attention to debate and contestation of themes during the discussions.

This community-based participatory research approach and the inclusion of community member checks bolstered the validity of qualitative findings.



Focus Group Findings

In this study, the main challenges to pro-environmental actions such as recycling and litter prevention, as perceived by community leaders are:

- Structural and institutional arrangements. Participants had concerns about the frequency and type of community garbage and recycling pickup, the lack of convenient or close-by recycling options, and the lack of clear information about what to recycle.
- Social-cultural values and discourses. Participants thought that overall their community does not see the need to recycle, and that the community views plastics pollution as a “faraway” problem. The desire, demand for and reliance on consumption of goods and products was another perceived driver of plastic pollution. Community suspicion about the lack of government capability and intention to solve the problem was also a perceived barrier to action (“government is the problem”).
- Uncertainty. Participants expressed concern about the unknown impact of microplastics on human health and the scientific process for understanding those impacts. The potentially less important and “faraway” impact of microplastics compared to other immediate and more pressing environmental and health problems was perceived as causing a similar barrier to interest and action. Finally, mitigation measures such as laundry bags -- which trap microfibers instead of releasing them to wastewater systems -- and green stormwater infrastructure -- which traps plastic litter instead of discharging it with stormwater to rivers and lakes where it can be broken into microplastics -- require elaboration on how to use these practices and greater certainty about their benefits.

Insights from Focus Groups on What Communities Can Do

Community leaders in this study suggested community-based incentives, both monetary -- such as tax credits for local business recycling and expanded container deposit/return systems -- and reputation-based. Examples of the latter included practices and promotions for enhancing the reputation of local businesses who participate in the effort to mitigate microplastics pollution. Corrective incentives, such as mandatory homeowner recycling charges, were also discussed.

Individual and government action were both perceived as playing a role in microplastic pollution prevention. Communities can focus on local symbols and places such as a river or park to build pride in protective efforts and to foster environmental stewardship. Public media campaigns can represent microplastics as a clear and present danger through motivational messaging and analogies (imagine eating a credit card for lunch).

Communities see the potential interest and power of local personal networks for implementing microplastic pollution control. Examples of these networks include: science teachers in local schools, local business owners, members of the Chamber of Commerce, extension services of local universities, rotary and other community clubs, water recreation clubs, urban planners/developers, and local festivals/developments.

Researcher Recommendations

Some communities may find to be useful the following guiding principles and conclusions, based on the insights shared by the 28 community leaders who participated in focus groups in 2019 and the research team's prior experience with community risk perception and socio-ecological resilience:

- Consider actively engaging in community "meaning-making" as early as possible when it comes to "new" and "emergent" environmental pollutants. Two-way discussions are beneficial even before pollutants are well-known and their risks are fully understood. At the early stage of understanding a new pollutant, misperceptions of risk can be compounded with misinformation about the pollutant itself. It is more difficult to change misperceptions later than to discuss uncertainties up front. In this way, researchers, policymakers and community members can be early partners in every new environmental health threat.
- Consider innovative ways to conduct and present accurate science in interactive ways together with community members. Community-based participatory research puts community interests first in the development of research questions and the adaptation of study approaches to serve community needs.
- Recognize that risk perceptions are shaped both by complex sociocultural dynamics and discourse, and seemingly mundane and arbitrary institutional arrangements such as contracts, laws, infrastructure limitations and staffing issues. When these factors can be "unpacked" and made transparent to all, communication and collaboration toward solutions can often increase.
- Community risk communication occurs in the context of ideology-laden discourse, bias and mistrust (for example, consider the assumptions inherent in political opposition to "big government"). It is essential to plan for this context when designing risk communication, rather than assuming an apolitical context.

Project Contact

Dr. Yongli Wager

Wayne State University

Civil and Environmental Engineering

5050 Anthony Wayne Drive

Detroit, Michigan 48202

313-577-9962

microplastics@wayne.edu

<https://microplastics.wayne.edu>

Partnerships



Project Funding



Great Lakes
Protection Fund