EMERGING SCIENCE FOR ENVIRONMENTAL HEALTH DECISIONS

AGENDA

Emerging Technologies to Advance Research and Decisions on the Environmental Health Effects of Microplastics

JANUARY 27-28, 2020

THE NATIONAL ACADEMIES OF SCIENCES, ENGINEERING, AND MEDICINE

ROOM 100, 500 5TH ST NW, WASHINGTON, DC 20001

THIS WORKSHOP WILL BE WEBCAST

MICROPLASTICS—pieces of plastic smaller than 5 millimeters in size—have been detected throughout the environment. These tiny pieces of plastic, which can come from larger plastic debris, cosmetics, and clothes, have been found in the air we breathe, the food we eat, and the water we drink. Despite the widespread prevalence of microplastics, little is known about the effects they may have on living things. What do we know about their impact on human health and the health of the environment?

This workshop will bring together the environmental science and health communities to explore how emerging technologies and research strategies could help address important environmental health questions about microplastics.

Participants will explore methods to detect and quantify microplastics in food and the environment, delve into research on the effects of microplastics on the health of humans and wildlife, and discuss ways to reduce microplastics in the environment. The workshop will end with a session on how these new approaches may be leveraged to inform public health and policy questions.

MONDAY, JANUARY 27, 8:30 AM–5:00 PM

8:00 *Registration*

8:30 Welcome and Opening Remarks

- **Keegan Sawyer**, National Academies of Sciences, Engineering, and Medicine
- **Emily Twigg**, National Academies of Sciences, Engineering, and Medicine
- **John Balbus**, National Institute of Environmental Health Sciences
- **Kevin Elliott**[§†], Michigan State University

8:55 **Key Note Address:** The state of knowledge on microplastics and their impact on environmental health—**Kara Lavender Law,** Sea Education Association

SESSION 1 UNDERSTANDING THE PREVALENCE OF MICROPLASTICS IN THE ENVIRONMENT

9:25 *Moderator:* **Mark Hahn**[§], Woods Hole Oceanographic Institution

9:30 Characterising microplastics in the context of risk assessment—**Bart Koelmans,** Wageningen University

(continued)

[§] Member of the workshop Organizing Committee for Emerging Technologies to Advance Research and Decisions on the Environmental Health Effects of Microplastics.

[†] Member of the Standing Committee on the Use of Emerging Science for Environmental Health Decisions.

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http://nas-sites.org/emergingscience

MONDAY, JANUARY 27 (CONTINUED)

9:55 Innovative technologies for polymer identification—**Jennifer M. Lynch**, National Institute of Standards and Technology and Hawaii Pacific University

10:20 *Break*

10:35 Filling the knowledge gaps to manage the challenges related to microplastics in the environment and food—**Elke Anklam,** Joint Research Centre of the European Commission

11:00 Panel Discussion

- **Elke Anklam,** Joint Research Centre of the European Commission
- **Kay Ho**, Environmental Protection Agency
- **Bart Koelmans,** Wageningen University
- **Kara Lavender Law,** Sea Education Association
- **Jennifer M. Lynch**, National Institute of Standards and Technology and Hawaii Pacific University
- **Amy V. Uhrin**, Marine Debris Program, National Oceanic and Atmospheric Administration

12:00 *Break for Lunch*

Session 2 Understanding the Effects of Microplastics on Human Health

1:15 *Moderator:* **Gina Solomon**[§†], University of California, San Francisco

1:20 Data Needs to Evaluate Human Exposures to Microplastics in Air & Water—**Greg Zarus**, Agency for Toxic Substances and Disease Registry

1:45 Towards Reducing uncertainty in the Human health risk assessment of Microplastics—**Thava Palanisami**, Global Innovative Centre for Advanced Nanomaterials, University of Newcastle

2:10 Microplastics in Seafood—**Garth Covernton,** Ph.D. Candidate, University of Victoria *(remote)*

2:35 Microplastics and Nanoplastics in Food and Agriculture—**Hongda Chen,** National Institute of Food and Agriculture, U.S. Department of Agriculture

3:00 *Break*

3:15 Adverse Effects of Microplastics in Aquatic Ecosystems are Questionable—**Allen Burton**, University of Michigan

3:40 Panel Discussion

- **Allen Burton**, University of Michigan
- **Hongda Chen,** National Institute of Food and Agriculture, U.S. Department of Agriculture
- **Garth Covernton,** Ph.D. Candidate, University of Victoria *(remote)*
- **Thava Palanisami**, Global Innovative Centre for Advanced Nanomaterials, University of Newcastle
- **Nigel Walker**, Division of the National Toxicology Program, National Institute of Environmental Health Sciences
- **Greg Zarus**, Agency for Toxic Substances and Disease Registry

4:40 Day 1 Closing Remarks—**Mark Hahn**[§], Woods Hole Oceanographic Institution

5:00 *Adjourn*

TUESDAY, JANUARY 28, 8:30 AM–12:30 PM

8:30 Welcome—**Gina Solomon**[§†], University of California, San Francisco

Session 3 Reducing Microplastics in the Environment

8:35 *Moderator:* **Anil Patri**[§], Food and Drug Administration

8:40 No Plastic in Nature: Preventing secondary sources of microplastic in the environment—**Rebecca Traldi**, World Wildlife Fund

8:50 The role of biodegradation in reducing microplastics in the environment—**Kathleen McDonough**[§], Procter & Gamble

9:15 Removal of microplastics from wastewater—**Steve Carr**, Sanitation Districts of Los Angeles County

9:40 Chemical Upcycling of Polymers to Revolutionize the Lifecycle of Plastics—**Bruce Garrett**, Office of Basic Energy Sciences, Department of Energy

10:05 *Break*

(continued)

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10:20 Panel Discussion

- **Steve Carr**, Sanitation Districts of Los Angeles County
- **Bruce Garrett**, Office of Basic Energy Sciences, Department of Energy
- **Kathleen McDonough**§, Procter & Gamble
- **Rebecca Traldi**, World Wildlife Fund

Session 4 Leveraging New Approaches to Inform Public Health and Policy Decisions

11:05 *Moderator:* **Kevin Elliott**§†, Michigan State University

11:10 Microplastics: Law and Policy Landscape—**Mary Ellen Ternes**, Earth & Water Law, LLC

11:20 Panel Discussion

- **Elke Anklam,** Joint Research Centre of the European Commission
- **Brett Howard**, American Chemistry Council
- **Mary Ellen Ternes**, Earth & Water Law, LLC
- **Suzanne van Drunick**, Environmental Protection Agency
- **Kimberly Warner**, Oceana

12:15 Closing Remarks—**Kathleen McDonough**§, Procter & Gamble

12:30 ***Adjourn Workshop****

* The Use of Emerging Science for Environmental Health Decisions Business Meeting is from 1:15–4:00pm. This meeting is open to committee members, government liaisons, and workshop participants.

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† Member of the Standing Committee on the Use of Emerging Science for Environmental Health Decisions.

Workshop Organizing Committee

This workshop was organized by the following experts: **Kevin Elliott**†, Michigan State University; **Mark Hahn**, Woods Hole Oceanographic Institution; **Kathleen McDonough**, Procter & Gamble; **Anil Patri**, Food and Drug Administration; **Gina Solomon**†, Public Health Institute and University of California, San Francisco

For more information and to subscribe for updates, please visit http://nas-sites.org/emergingscience

Emerging Science workshops are free and open to the public.

About the Use of Emerging Science for Environmental Health Decisions

The National Academies' Standing Committee on the Use of Emerging Science for Environmental Health Decisions (ESEHD) examines and discusses issues on the use of new science, tools, and research methodologies for environmental health decisions. The ESEHD committee is organized under the auspices of Board on Life Sciences and the Board on Environmental Studies and Toxicology of the National Academies of Sciences, Engineering, and Medicine, and sponsored by the National Institute of Environmental Health Sciences.