

# Modelling Plastics in the Oceans



What is happening? What can we do about it?

Advances in sensing and computer modelling let us track the dispersion of plastics through the environment more accurately than ever before.

Join our distinguished speakers for an MIT Plastics and the Environment Program workshop exploring a critical challenge to the health of Earth's oceans in the 21st century.

**November 6–8, 2019**  
**at the MIT Samberg Center**

50 Memorial Drive, 6th Floor  
Cambridge, Mass.

## Featuring Speakers From:

Woods Hole Oceanographic  
Institution

Massachusetts Institute of  
Technology

University of Oxford

Brown University

The Rozalia Project

University of Quebec Rimouski

University of Auckland

University of Alberta





# Workshop Agenda

Wednesday, November 6

9:00: Welcome and Opening Remarks

John Fernandez, MIT Environmental Solutions Initiative



9:30: Keynote Address with Kara Lavender Law  
Sea Education Association, Woods Hole Oceanographic Institution

11:00: Talk Session

Scott Gallager, WHOI: *Autonomous instrument measurements of microplastics*

Rachael Miller, Rozalia Project: *Observations of microplastics in the Hudson River*

Daniel Bourgault, Christiane Dufresne and Sandy Gregorio, U. Quebec Rimouski:

*Modelling and observational resources to examine plastic transport from the St. Lawrence River*



12:00: Lunch

1:30: Talk Session

Jake Gebbie, WHOI: *Why microplastics could constrain ocean circulation inverse models*

Carol Anne Clayson, WHOI: *Ocean turbulence, mixing, and vertical distribution of microplastics*

Samuel Levang, WHOI: *Dispersion of plastics in the global ocean*

Glenn Flierl, MIT: *Why do plastics in the surface ocean congregate in particular locales?*

3:30: Breakout Session: Future Research Directions for MIT/WHOI Collaboration

## Thursday, November 7

### 9:00: Talk Session

Colin Whittaker, U. Auckland: *Experimental investigation of surface wave transport*

Ton van den Bremer, U. Oxford: *Transport of floating marine debris by waves*

Michelle DiBenedetto, WHOI: *Ocean wave and particle-shape effects on microplastics transport*



### 11:00: Breakout Session: Collaboration Opportunities with Foundations, NGOs, Corporations and Governmental Organizations

### 12:00: Lunch

### 1:30: Talk Session

Tom Peacock, MIT: *Particle sedimentation and settling in deep sea mining*

Bruce Sutherland, U. Alberta: *Collective settling from fresh to salt water*

David Deepwell, U. Alberta: *Resuspension from shoaling internal solitary waves*



### 3:30: Breakout Session: Funding Opportunities for Future Work

## Friday, November 8

### 9:00: Talk Session

Pierre Lermusiaux, MIT: *Four-dimensional modelling of marine plastics: from PDEs to optimal cleanup*

Collin Ward, WHOI: *How long does plastic last in the environment?*

Baylor Fox Kemper, Brown University: *Submesoscale and Langmuir turbulent transport at the ocean surface of plastics, oil, and drifters*

### 10:30: Breakout Session: What Have We Learned and What Are the Next Steps?

The MIT Environmental Solutions Initiative will host a reception for all attendees at its offices at One Broadway, Suite 1201, on Wednesday, November 6 at 4:30 pm



# MIT Environmental Solutions Initiative Plastics and the Environment Program



Supporting research and programming in polymer engineering, environmental sensing, modelling, and public policy for a future free of plastic pollution.

For more information or to become a member, contact  
Chris Noble, [crn@mit.edu](mailto:crn@mit.edu).

