

WHAT'S IN OUR WATER AND WHY DOES IT MATTER?

# microplastics in our bodies

Thursday, July 14 | 6:30 PM

**The Plant** 1400 W 46th St, Chicago, IL 60609

Join us from **6:30-8 PM** for the panel, followed by Chicago Green Drinks at [Whiner Beer Company](#) (on-site).

PANELISTS



**Iyana Simba**  
City Programs Director  
Illinois Environment Council



**John Scott**  
Senior Analytical Chemist  
Illinois Sustainable Technology Center



**Andrea Densham**  
Senior Director of Government  
Affairs and Conservation Policy  
Shedd Aquarium



MODERATOR

**Kimberly Neely  
du Bucllet**  
Commissioner  
Metropolitan Water  
Reclamation District

PRESENTED BY



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**CPR** | COALITION *for*  
PLASTIC  
REDUCTION

Chicago





Debris Boat



Floating plastics being removed in primary tanks



Skimmer Boat



Macro Plastics Removed from Wastewater via Coarse Screens

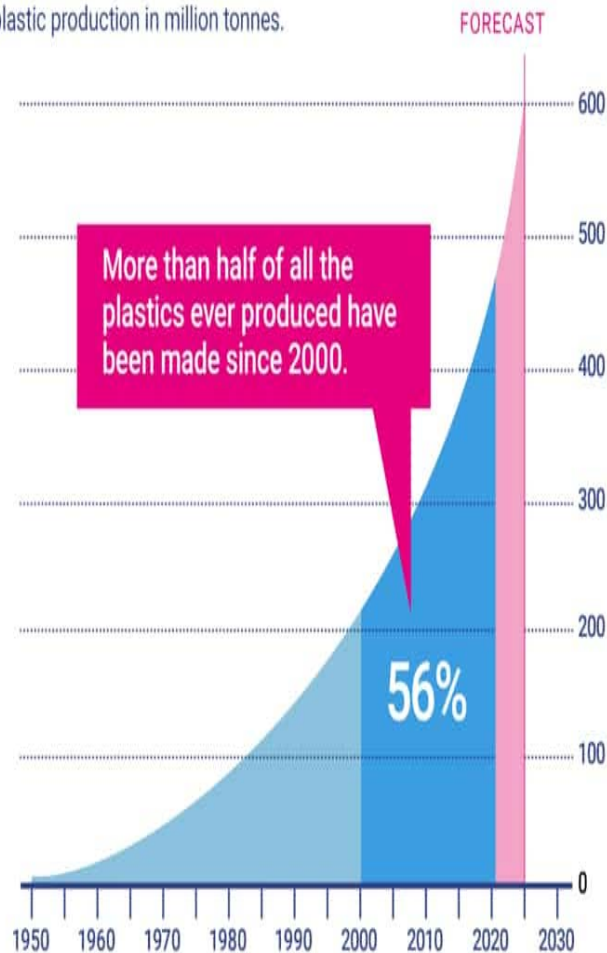




# Living in the Age of Plastics

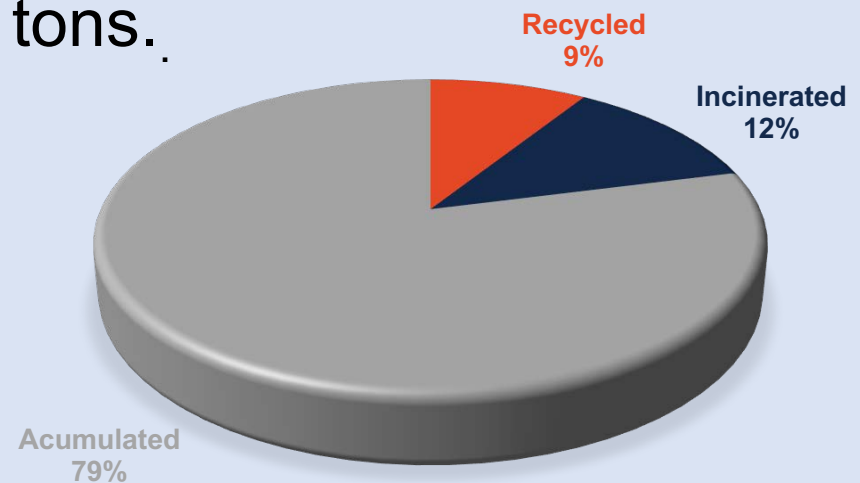
## PRODUCTION OF PLASTIC

Global annual plastic production in million tonnes.



SOURCE: PLASTIC ATLAS 2019 | © PLASTIC SOUP FOUNDATION

- Estimated that 8.3 billion metric tons of plastic produced to date.  
~ 40,000 Willis Towers in Mass
- Cumulative plastic waste generated is 6.3 billion metric tons.



Source- Geyer, Roland, Jenna R. Jambeck, and Kara Lavender Law. "Production, use, and fate of all plastics ever made." *Science advances* 3, no. 7 (2017): e1700782.

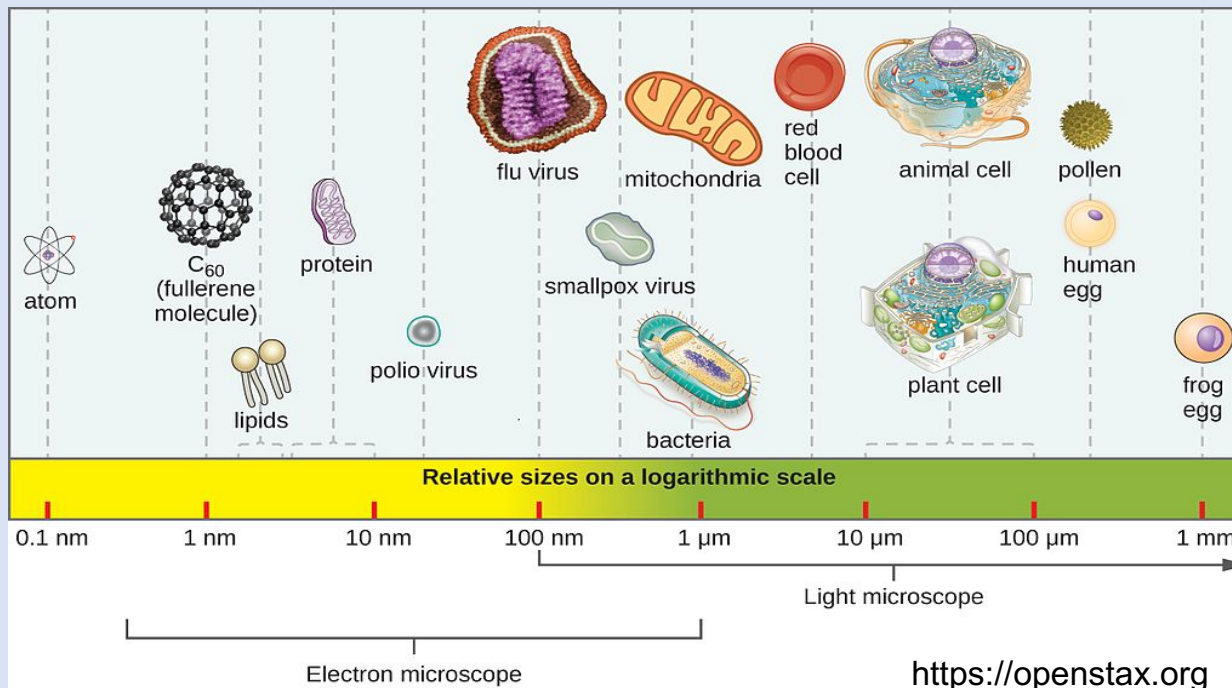
# Microplastics - Definitions

Macroplastic: Greater than 5 millimeter (mm)

Microplastic: Material less than 5 mm in diameter and greater than 0.001 mm

Nanoplastic: Material less than 1 micron (0.001 mm)

Composition is variable and often very complex.



## Primary microplastics

Intentionally made

- Microbeads
- Nurdles
- Abrasives



## Secondary microplastics

Breakdown of macroplastics

- Wear & abrasion
- Ultraviolet radiation
- Biodegradation





# Where are we Finding Microplastics ?

- Surface water
  - Sediments and soil
  - Air and dust
  - Food and beverages
  - Cosmetics
  - Wastewater
  - Wildlife
  - Karst groundwater
- 
- And everywhere else we look



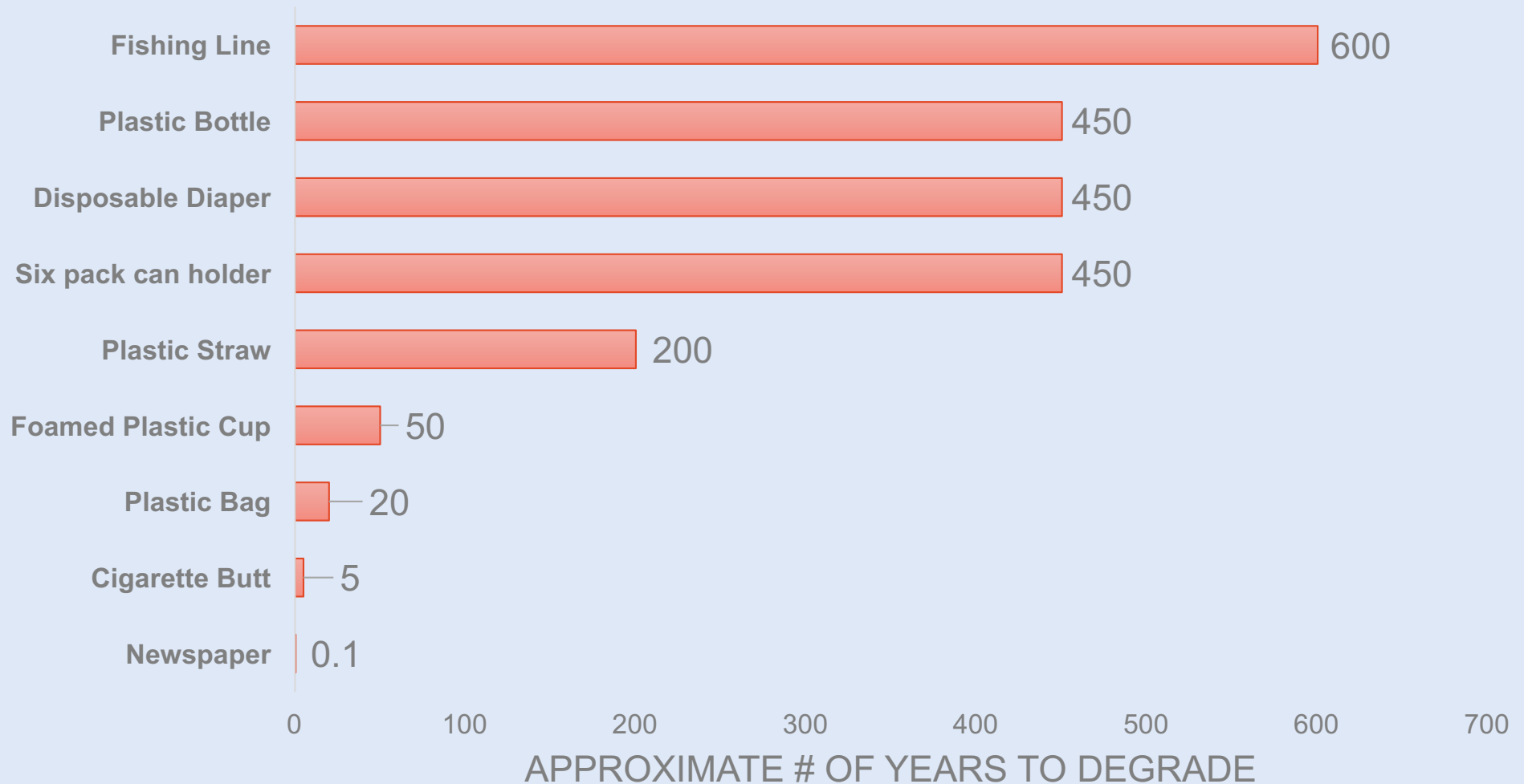
Our team first to discover microplastics in karst groundwater

Project Partners

- Illinois State Water Survey
- Loyola University Chicago

# *The Problem of Persistence*

## Estimate Time to Degrade Common Materials

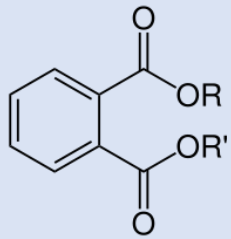


Sources: NOAA/WOODS HOLE SEA Grant & <http://environment.about.com/>

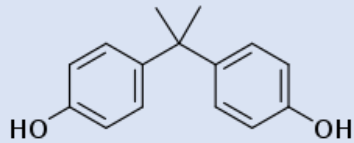


# *It's More Than Just Plastic*

## Chemical Additives



Phthalates

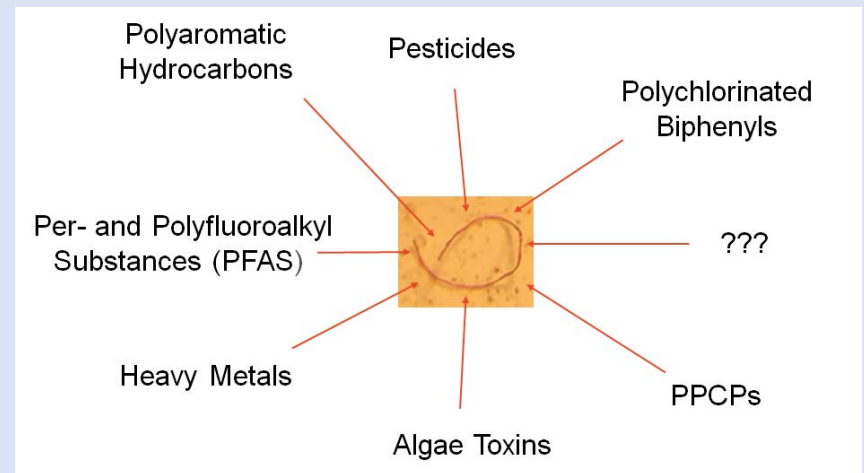


Bisphenol A

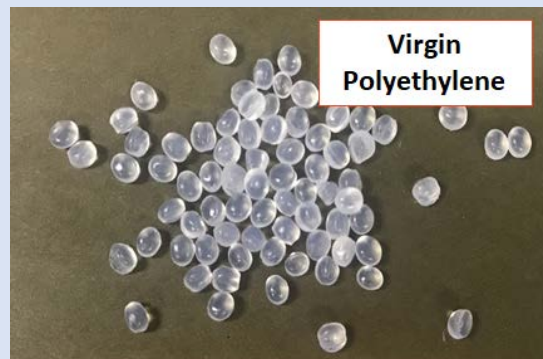


Lead = 1.4%

## Plastics Sorb Environmental Pollutants



## Plastics Sorb Biological Materials

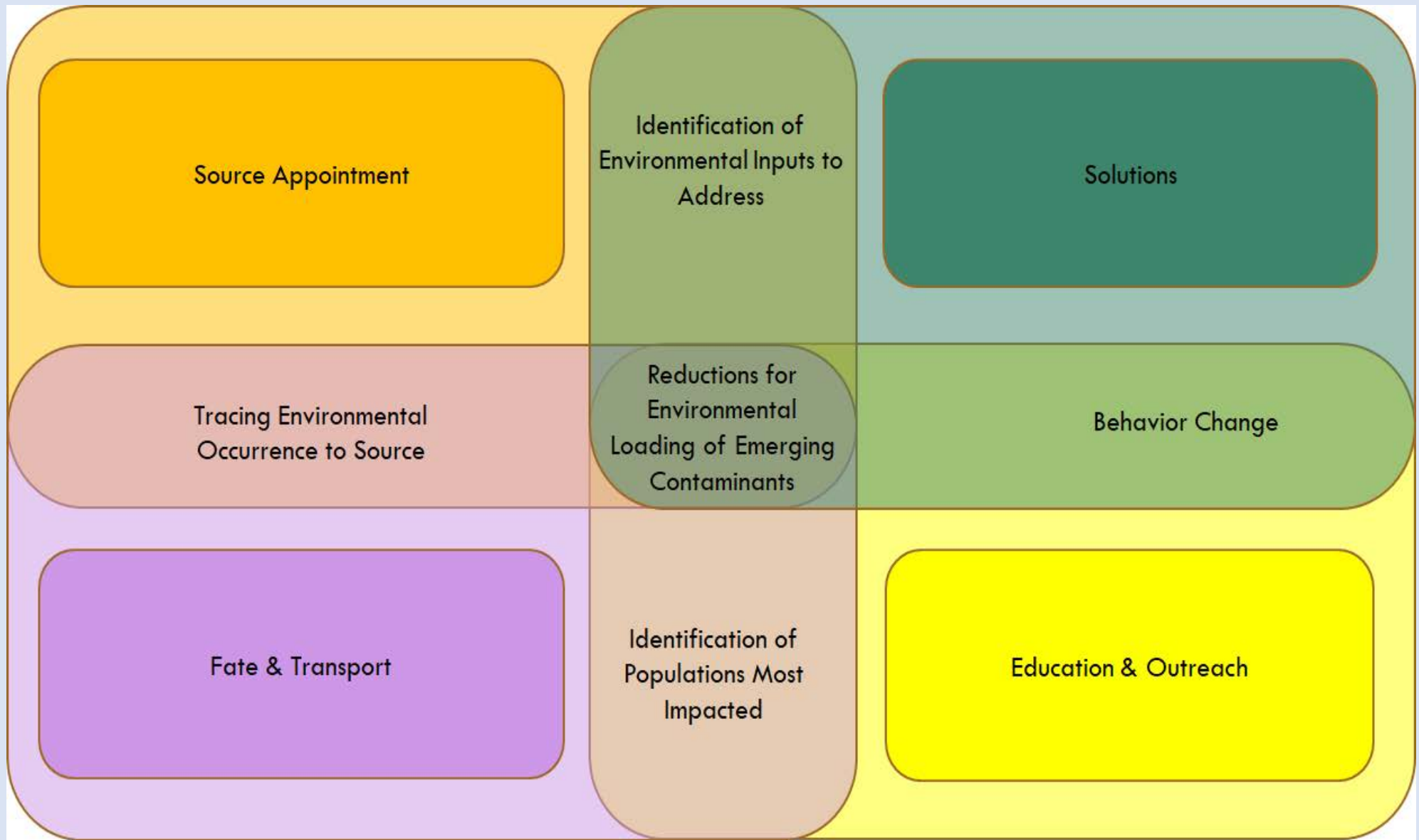


# *Pollution Prevention*





# Addressing the Issue, an Interdisciplinary Approach



# Source, Fate, and Transport of Microplastics

