



2024 SUSTAINABILITY
SUMMIT



The Single-Use Plastics Law: Where are we now...and where are we headed?

Friday, May 3, 2024

10:00am – 11:10am | GS3

CEU SIGN IN



QR CODE INSTRUCTIONS:

1. Open the Camera app on your phone.
2. Hold your phone so that the QR code appears in view.
3. Tap the notification to open the link.
4. You **MUST** Sign in to receive CEU credits.

WIFI INFORMATION: 2 Open Networks

1. **sustainablenj**: Ballroom, GS3, Nonprofit Exhibit area
2. **Bell_Works_Conf_Center**: Bell Theatre & Conference

SUSTAINABILITY
SUMMIT



The Single-Use Plastics Law: Where are we now...and where are we headed?

Friday, May 3, 2024 | 10:00am – 11:10am | GS3

IG: [Sustainable_Jersey](#) | X: [@SJ_Program](#) and [@SJ_Schools](#) | FB: [@SustainableJersey](#) | LinkedIn: [sustainable-jersey](#)

Session Presenters & Agenda

Plastics Advisory Council Overview

Gary Sondermeyer

Vice President of Operations, Bayshore
Recycling

Plastics Waste Reduction

N.Dini Checko

Project Director, Association of New
Jersey Environmental Commissions

Plastics Pollution Prevention

Katie Greer

Environmental Specialist 3, NJDEP,
Division of Sustainable Waste
Management

Microplastics: An Emerging Global Pollutant

Beth Ravit

Co-Director, Rutgers Center for Urban
Sustainability (Retired) / Rutgers
University, Dept. of Environmental
Science (Retired)

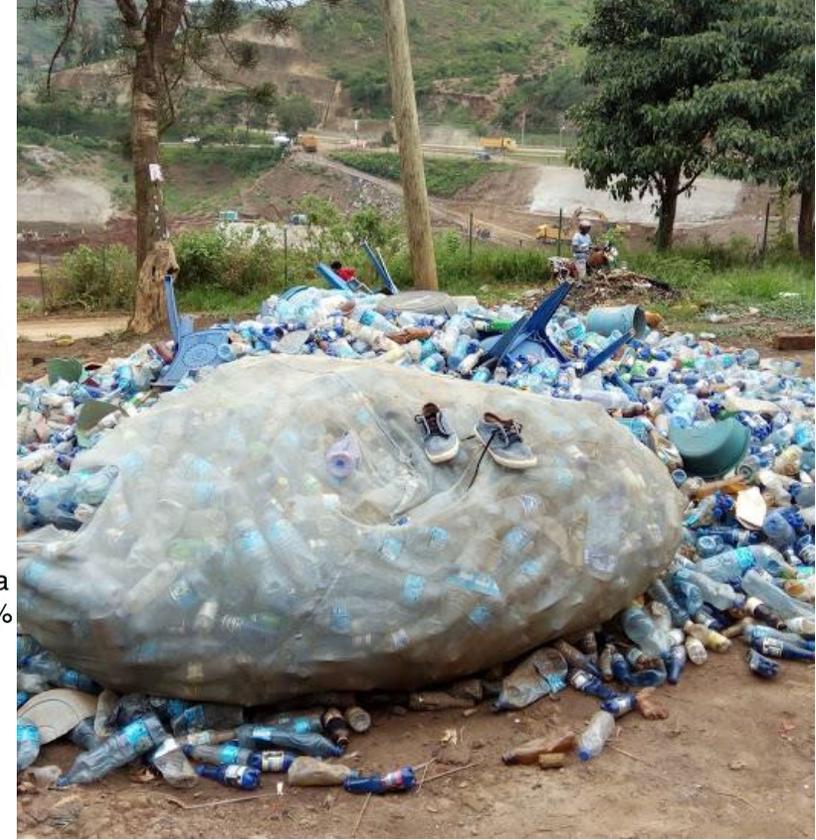
BAYSHORE

Your recycling solution.

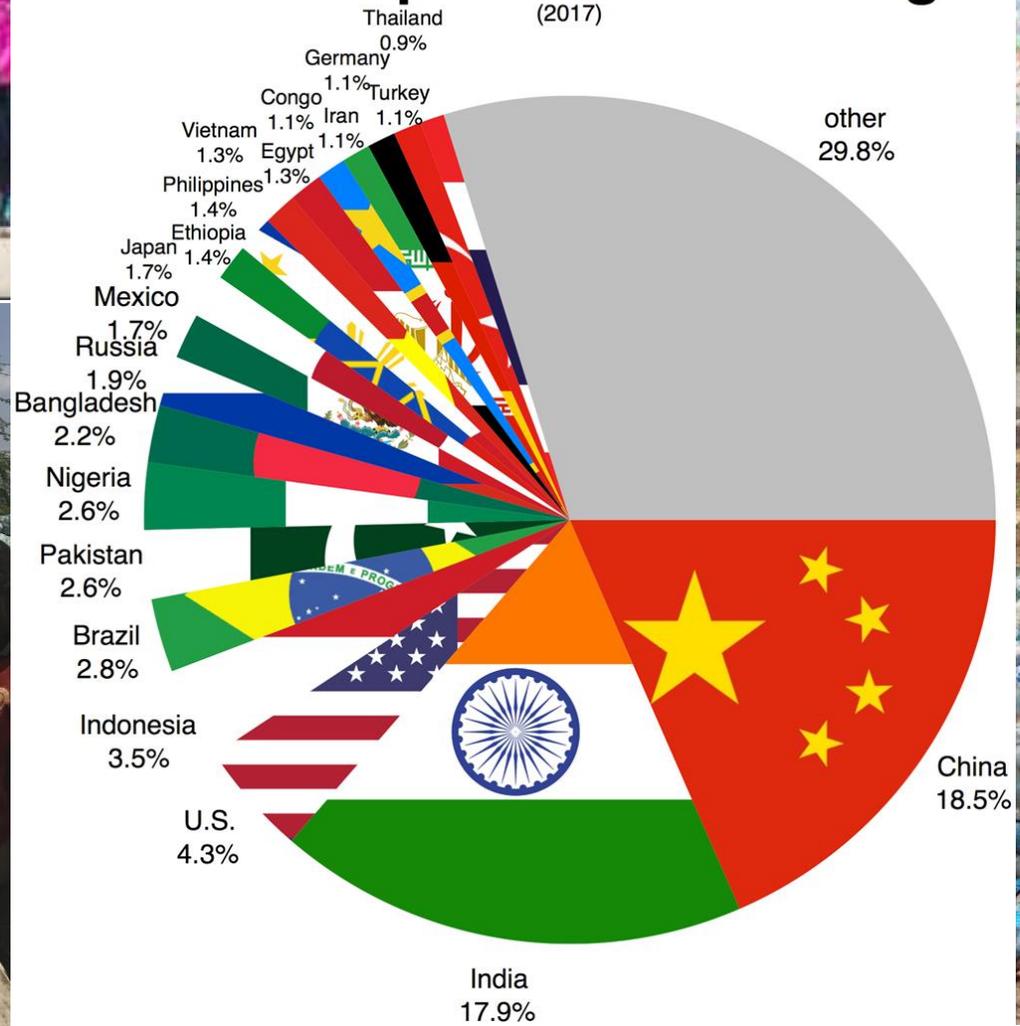


Sustainability Summit 2024
Plastics Advisory Council Overview
New Jersey Doing Its Part in the Global Crisis
Gary Sondermeyer, VP of Operations
Bayshore Family of Companies
May 3, 2024





World Population Percentages



Single-Use Plastic Legislation: Chapter 117

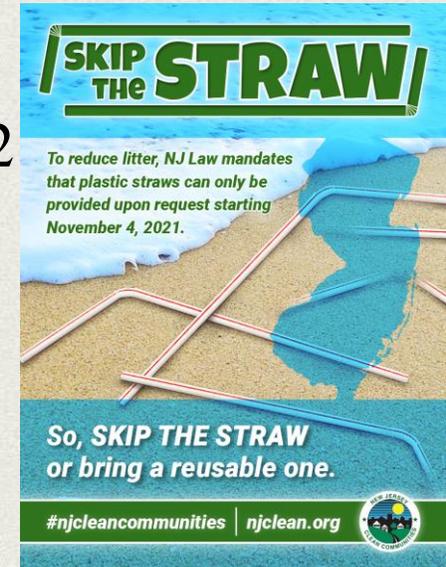
- Governor Murphy Signed the Single Use Plastics “Bag Ban” Legislation November 4, 2020 – Full Effective Date May 4, 2022

- **What the Law Did:**

- Bans Single-Use Plastic Carryout Bags in All Stores and Food Service Businesses
- Bans Single-Use Paper Carryout Bags in Larger Food Stores
- Bans Dispensing of Polystyrene Foam Food Service Products
- Bans Single-Use Straws (only upon request)

- **First-Year Scope of Work:**

- Evaluate the Implementation and Effectiveness of the Law



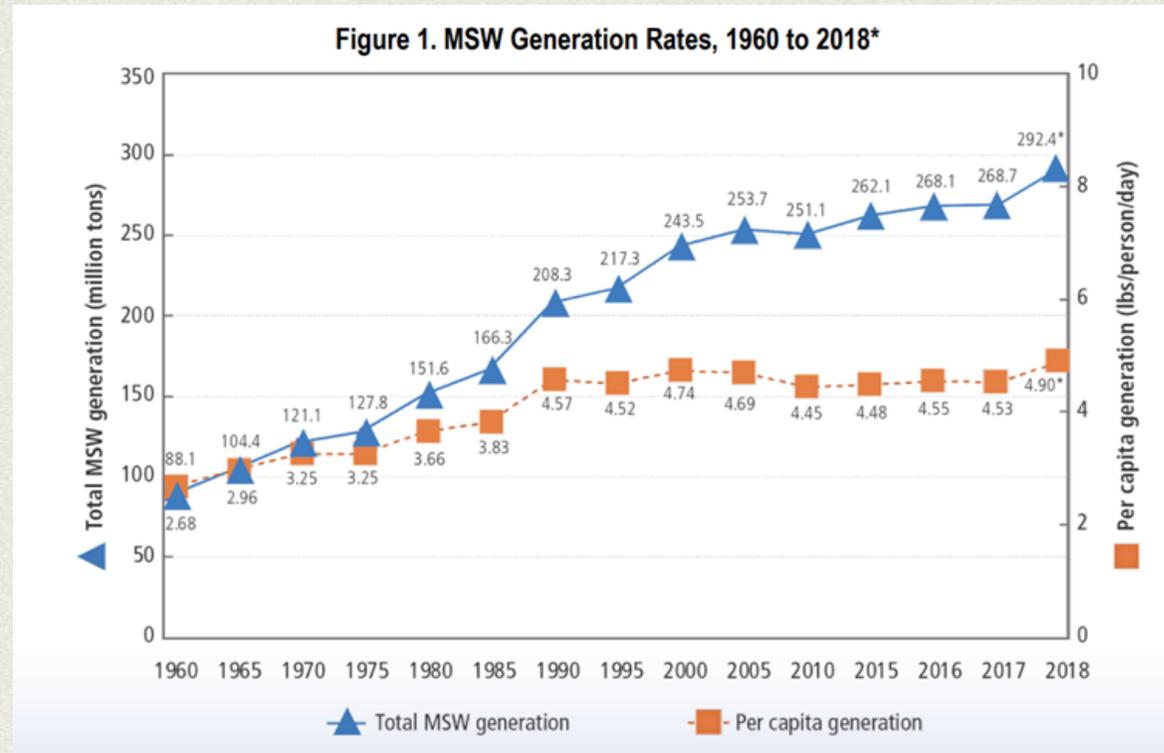
Five Themes of Year-One Findings



1. Implementation of Chapter 117 has been highly effective:

- An estimated 16.5 billion plastic bags were eliminated in the state from grocery stores alone. A decrease in litter also documented with 37% fewer single-use plastic bags, 39% fewer plastic straws, and 37% less foam waste found along the Jersey Shore.

2. Waste reduction must be our future focus:



Five Themes of Year-One Findings



3. Effective plastics recycling must be improved and made easier:

- According to 2018 USEPA national data, plastics make up approximately 12.2 % of the municipal waste stream. Overall recycling of plastics nationally is very low (4.5%) compared to other commodities like paper and paperboard (66.5%) and metals (12.6%).

4. We must reduce microplastics released to the environment:

- Micro Small-Scale Opportunities: Washing Machines
- Macro Large-Scale Opportunities: WWTP's

5. Additional legislation, now pending, will guide the future of waste reduction, recycling and sustainable materials management in New Jersey:

- Recycled Content, Product Packaging Stewardship Act S426 regarding Extended Producer Responsibility and “Truth in Labeling” are the focus.



Year 2 Report Focus Areas

- **Bottle Bill** Public Meeting: March 26 all-day panel discussion;
- Advanced or **Chemical Recycling** policy determination;
- Major focus on **waste reduction** – 4, 2-hour stakeholder sessions:
 - January 9, 2024 – Disposal free dining, take-out dining and zero waste events;
 - January 17, 2024 – Plastics waste reduction in schools;
 - February 8, 2024 – Plastics waste reduction in businesses;
 - February 21, 2024 – Plastics waste reduction in government facilities/municipalities;
- **Education Steering Committee** formed for ongoing Statewide outreach;
- **Uniform Statewide List** of Curbside Recyclables focus;
- **Straws** “Upon Request” dilemma;
- **Microplastics:** Washing Machines & WWTP Optimization Studies
- NJ Food Council **Reusable Bag Pilot Project:** Drop-Off Centers and QR Code
- **Legislation** focus
 - Product Packaging Stewardship or EPR;
 - Truth in Labeling in collaboration with ANJR;
 - Microplastics legislation (national and international);



Plastics Waste Reduction

May 3, 2024

Nandini Checko

*Association of New Jersey Environmental
Commissions*



nchecko@anjec.org

@anjecposts

@ANJEC



ANJEC Mission

To protect and restore New Jersey's natural resources and environmental health by providing leadership, education, and support for environmental commissions, green teams, municipal officials and others through education, training and policy.

Paterson Falls



The
Highlands

Port of
Newark





FIGURE 1
Emissions from the Plastic Lifecycle

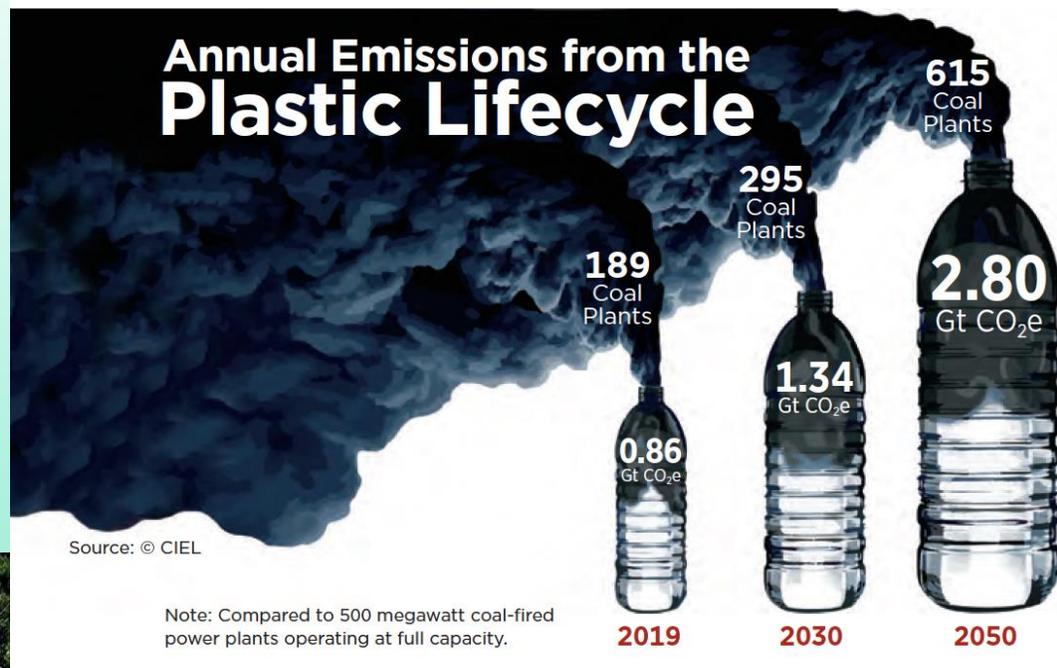


Photo credit: BeyondPlastics.org,
CIEL.org

Plastic Pollution Reduction Law 2nd Year Anniversary!!



Waste by the Numbers

- New Jerseyans dispose **3.7 pounds of solid waste and 2.2 pounds of recycling per person per day!**
- Nearly 1 trillion disposable food service products are used each year in the U.S.
- Nearly 9 million tons equals the total weight of all the disposables used
Roughly 20 billion pieces of litter are from disposable food-service packaging
- The use of disposables creates significant climate pollution, energy use, water



Plastic Bag Bans Work

- Comprehensive national study by Environment America, cited by the World Economic Forum, recognizes New Jersey's plastic bag ban [as the most effective of the 10 states in America with such bans.](#) - January 2024
- Year 1 – **5.5 BILLION** single use plastic bags and 110 Million single use paper bags removed from waste stream
- Year 2 – **Approx 11 BILLION** plastic bags and 220 Million paper bags
- Clean Ocean Action Beach Sweeps - First time since 2007, plastic bags were NOT included in Clean Action Ocean's 2022 Beach Sweep Dirty Dozen list
 - 37% - fewer plastic bags
 - 39% - fewer plastic straws
 - 37% - fewer Styrofoam

*** Litter data critical!



Waste Reduction

- ❑ It's not enough to recycle, we must reduce consumption and waste!
- ❑ Who's in your network? environmental commissions, green teams, schools?
- ❑ Use your town's clean communities funds to build hydration stations.
- ❑ Data is critical in helping to achieve our goals for a LitterFree NJ!



 **Litter Survey & Data Form**

DEAR CLEANUP VOLUNTEERS:
Thank you for your hard work, dedication and commitment to a litter free NJ. In addition to your cleanup efforts, NJCCC appreciates your time and attention in helping to quantify today's litter data. Numbers are the only valid form of data, so please **DO NOT** use words or check marks in the boxes next to each trash item.

DATE: _____ NAME: _____ EMAIL: _____

CLEANUP SUMMARY

Cleanup Site Location: _____
Total # of Volunteers at this site: _____ Total Hours of Cleanup: _____
Total # of Trash Bags Filled: _____ Total Weight of Trash Collected: _____ lbs. or _____ cubic yards
Estimated Distance Cleaned: 1/4 1/2 3/4 1 2 3 4 5 Other: _____ miles

TRASH COLLECTED: Please only enter **NUMBERS** in the field next to each trash item

TOTAL #	MOST LITTERED ITEMS:	TOTAL #
_____	Balloons	_____
_____	Plastic Bags	_____
_____	Straws/Stirrers	_____
_____	Cigarette Butts	_____
_____	E-Cigarettes	_____
_____	Bottles	_____
_____	Cans	_____
_____	Nips/Mini Alcohol Bottles	_____
_____	Food Wrappers (candy, chips, etc.)	_____
_____	Bottle Caps (Plastic/Metal)	_____
_____	Lids (Plastic)	_____
_____	Take Out/Away Containers (Plastic)	_____
_____	Take Out/Away Containers (Foam)	_____
_____	Cups & Plates (Plastic/Foam)	_____
_____	Forks, Knives, Spoons	_____
_____	Fishing Gear (line, nets, traps)	_____
_____	Tires	_____

ITEMS OF LOCAL CONCERN:

MOST UNUSUAL ITEM(S) COLLECTED:

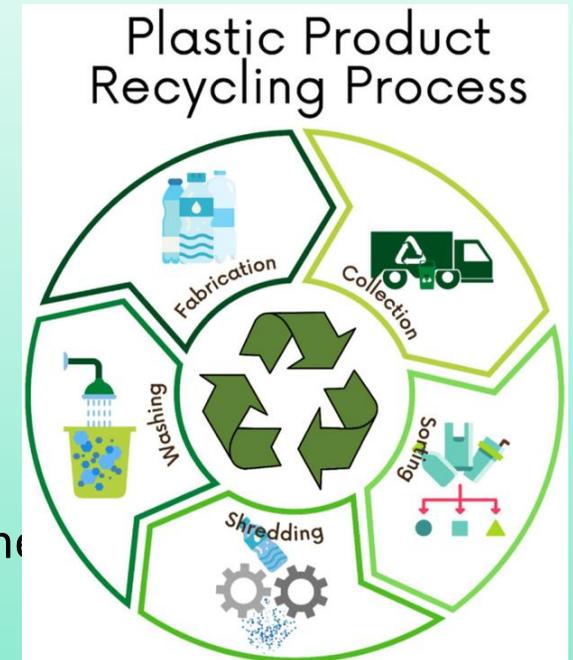
Email your survey to: njccc@njclean.org





Plastic Advisory Council: Focus on Reuse & Refill

- Major focus on **waste reduction** – 4, 2-hour stakeholder sessions held:
 - January 9, 2024 – Disposal free dining, take-out dining and zero waste events;
 - January 17, 2024 – Plastics waste reduction in schools;
 - February 8, 2024 – Plastics waste reduction in businesses;
 - February 21, 2024 – Plastics waste reduction in government facilities/municipalities
- 35 Local and National Experts Participated
- Excellent and Practical Feedback Received
- Both Short-Term & Long Term Recommendations Included in the PAC Report in June
- A “Straw Proposal” for a Governor’s Executive Order on Waste Reduction may be Included
- Focus Areas for Consideration:
 - Stop Purchasing Single-Use Plastic Beverages;
 - Stop Purchasing Single-Use Plastic Cups and Cutlery
 - Water Refill Stations at State Owned/Operated Venues
 - Green Procurement
 - Zero Waste Events



SKIP THE STUFF ORDINANCE

- WIN** - Business – Save \$ & labor costs
- WIN** – Customer – Save trash costs & clutter
- WIN** - Environment – Reduce waste
- WIN** – Municipality – Proposed for SJ points

Engage with business community and township council to get started. Join other towns such as Maplewood, Red Bank, Stone Harbor and Garwood.

*Model Ordinance available on <https://njnoplastics.org/resources>

* Beyond Plastics STS Toolkit <https://www.beyondplastics.org/campaign-toolkits/skip-the-stuff>



Zero Waste Events



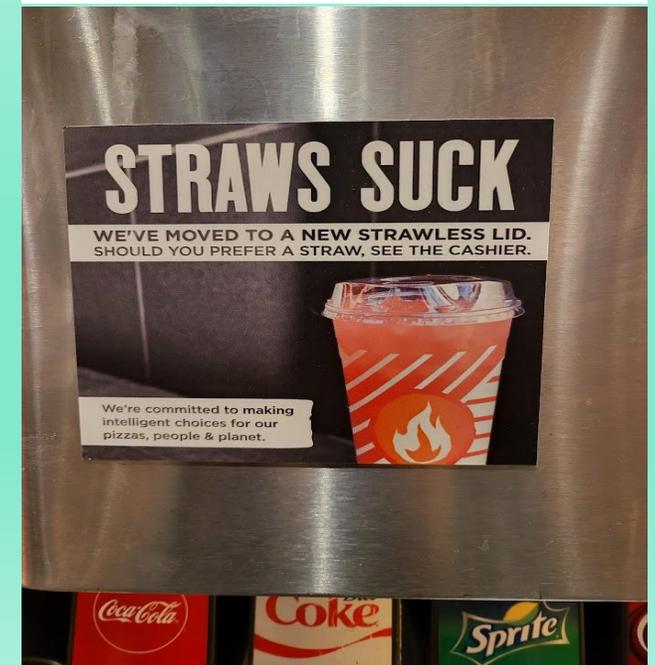
- Minimize waste Upstream
 - Don't sell single-use water bottles (check vendor contracts)
 - Encourage folks to bring reusables
 - Use deposit system for reusable cups
 - Engage with a food waste hauler
 - Have clearly designated recycling, trash, and food waste sorting bins
 - Train staff, volunteers and vendors

** Proposed for SJ points



What Can I Do?

- **Vote with your wallet** – Choose products, businesses, restaurants that are actively working on reducing plastic pollution
- **Say NO** to utensils when ordering takeout, Use reusables whenever possible
- **Educate** your family & friends – Plastic pollution is a public health crisis, climate change & environmental justice issue
- **Workplaces** – Search and engage in opportunities for waste reduction
- **Call NJDEP** about non-compliance – 1-877-WarnDEP
- The LAW is working! **Spread the message.**



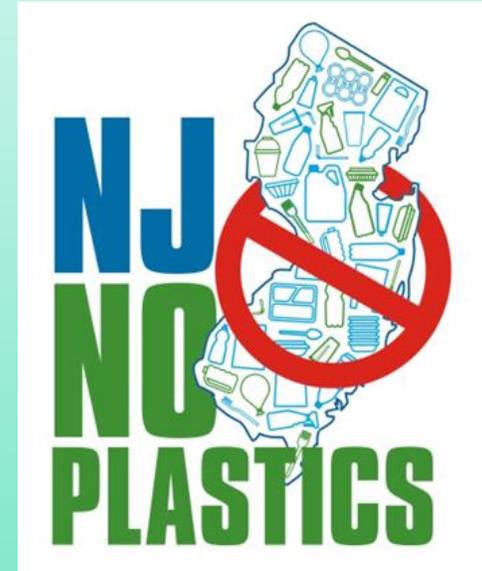
Thank You!

Questions? nchecko@anjec.org

Facebook: @anjecpage

Instagram: @anjecposts

Youtube: @anjecviews



<https://njnoplastics.org/resources>

<https://www.nj.gov/dep/get-past-plastic>

<https://litterfreenj.com>

Plastics Pollution Prevention

Katie Greer

NJ Department of Environmental Protection



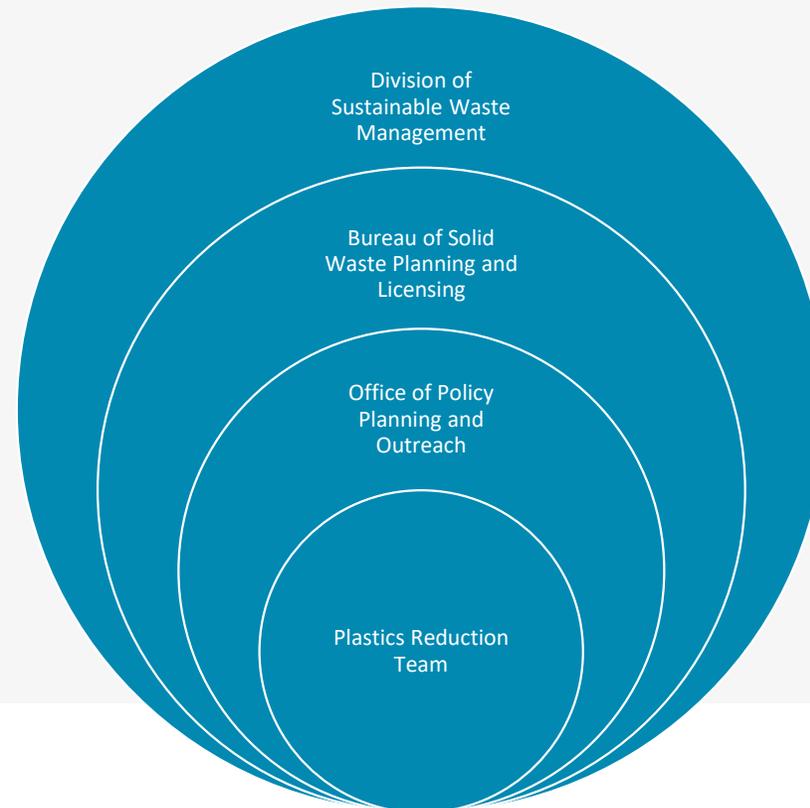
Division of Sustainable Waste Management

- Single-Use Paper and Plastics Bags and Polystyrene Foam Food Service Product Law aka “Get Past Plastic” (N.J.S.A. 13:1E-99.126 et seq.)
- Recycled Content (N.J.S.A. 13:1E-99.135-157)
- Food Waste and Food Waste-to-Energy Production Law (N.J.S.A. 13:1E-99.122 et seq.)

Plastics Reduction Team

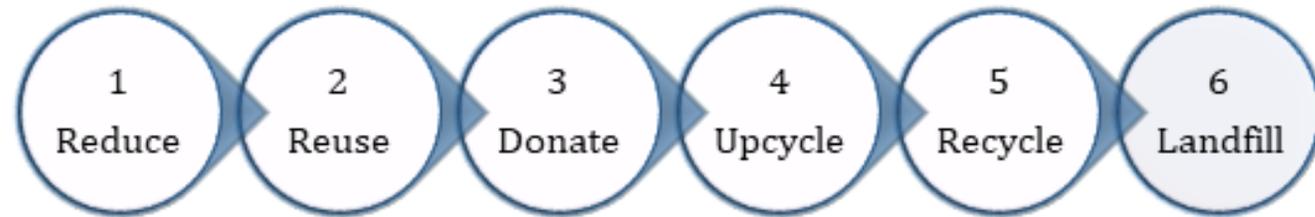
The Plastics Reduction Team's vision is to help New Jersey become a leader in plastic waste reduction to ensure a safe and healthy environment.

The team researches circular economy strategies to support and mitigate New Jersey's transition past plastic to develop recommendations to the Division of Sustainable Waste Management.



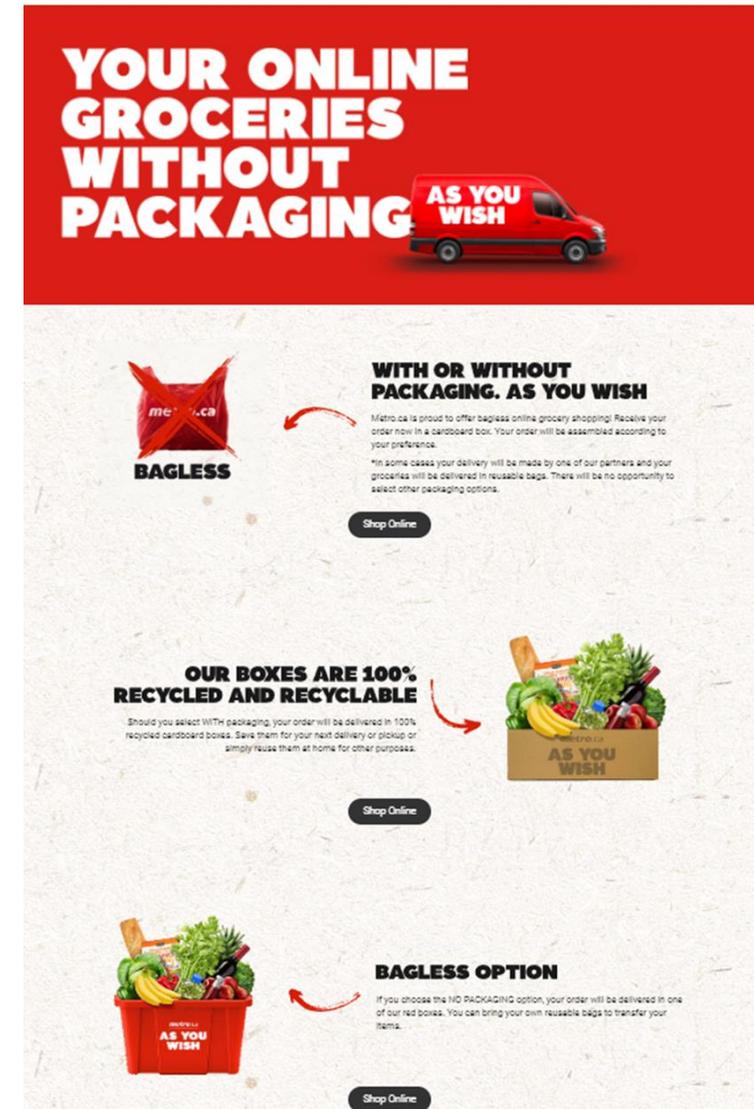
Reusable Bag Proliferation

- Get Past Plastics success – eliminates the use of 88 million single-use plastic bags every month¹
- Factors not aligned with reusability:
 - Grocery delivery and pickup services
 - Lack of bag return
- A multi-tiered approach is needed
 - Reduction
 - Redistribution
 - Stewardship



Reusable Bag Proliferation - Reduction

- Bagless delivery
 - Worldwide trend
 - N.J.A.C. 8:24, Sanitation in Retail Food Establishments and Food and Beverage Vending Machines
 - Customer request
- Consumer awareness
 - Sustainable Business Registry, <http://registry.njsbdc.com/>



YOUR ONLINE GROCERIES WITHOUT PACKAGING **AS YOU WISH**

BAGLESS

WITH OR WITHOUT PACKAGING. AS YOU WISH

Metro.ca is proud to offer bagless online grocery shopping! Receive your order now in a cardboard box. Your order will be assembled according to your preference.

*In some cases your delivery will be made by one of our partners and your groceries will be delivered in reusable bags. There will be no opportunity to select other packaging options.

OUR BOXES ARE 100% RECYCLED AND RECYCLABLE

Should you select With packaging, your order will be delivered in 100% recycled cardboard boxes. Save them for your next delivery or pickup, or simply reuse them at home for other purposes.

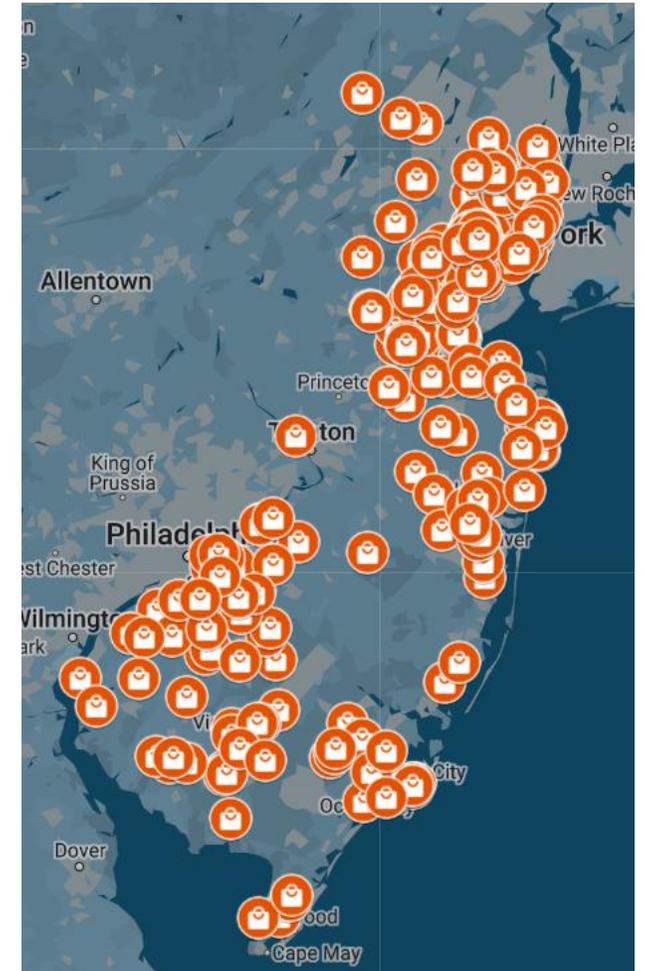
BAGLESS OPTION

If you choose the NO PACKAGING option, your order will be delivered in one of our red boxes. You can bring your own reusable bags to transfer your items.

Marketing promotion of delivery options for Metro Canada orders
(<https://www.metro.ca/en/online-grocery/bagless>)

Reusable Bag Proliferation - Redistribution

- Using bags to their full potential before disposal
 - UN Environment Programme: At least 10 to 20 times for non-woven polypropylene bags to reach advantage over single-use plastic bags²
- Donation to food banks
 - The New Jersey Food Council pilot
- Other consumer strategies:
 - Deposit and return programs facilitate continued use of reusable bags
 - Rental kiosks
 - California report: Higher quality bags are more likely to be reused than lower quality bags³



Reusable Bag Donation Sites
<https://dep.nj.gov/get-past-plastic>

2. United Nations Environment Programme. "Single-Use Plastic Bags and Their Alternatives." 2020. <https://www.lifecycleinitiative.org/wp-content/uploads/2021/03/SUPP-plastic-bags-meta-study-8.3.21.pdf>.

3. CalRecycle. "SB 270 Report to the Legislature. Feb. 25, 2019. Implementation Update and Policy Considerations for Management of Reusable Grocery Bags in California." February 19, 2019.

<https://www2.calrecycle.ca.gov/Publications/Details/1647>.

Reusable Bag Proliferation - Stewardship

- Options for Recycling
- Challenges for Recycling
- Product mislabeling



Reusable Bag Proliferation

A holistic view of the issue of reusable bag proliferation shows that there are many ways to tackle the issue from reducing distribution of unwanted bags, encouraging reuse, and designing bags for recyclability.

However, these strategies will require changes in practice from the paradigm of single-use.

Next for the Plastics Reduction Team



NJ's Statewide Solid Waste Management Plan (2006) focuses on increasing recycling tonnage



Recommends more policy and education for source reduction



Plastics Pollution Prevention Plan

- Supplement the Solid Waste Management Plan
 - Describe current effects of plastic pollution in New Jersey
 - Recommend ways New Jersey can reduce the use of plastics, encourage reuse, and facilitate plastic waste management
 - Develop an Education and Outreach Plan
- 

Like & follow us!



Thank you!

Katie Greer
Katie.Greer@dep.nj.gov
dep.nj.gov/get-past-plastic

Microplastics: An Emerging Global Pollutant



B. Ravit, K. Cooper, B. Buckley

NJ Sustainability Summit: *Litter Abatement & Microplastic Policies*

Holmdel, NJ

May 3, 2024

[Image Courtesy of mephistopheles666.com](https://www.mephistopheles666.com)

A lot of Plastic is Being Used & Discarded

“US plastics industry growth setting records, Society of Plastic Industry Inc. says” <http://www.plasticsnews.com/>

- U.S. ranks #2 in global plastic trade
- #6 largest U.S. manufacturing industry
- Shipped **\$548 Billion** (2022)
- **\$677.8 Billion** (2023 U.S. estimate)
- Global plastic production **almost doubled** since 2000
- Employs 1.59 Million people (U.S., 2022)
- Environmental concerns increasing demand for “biodegradable” plastics

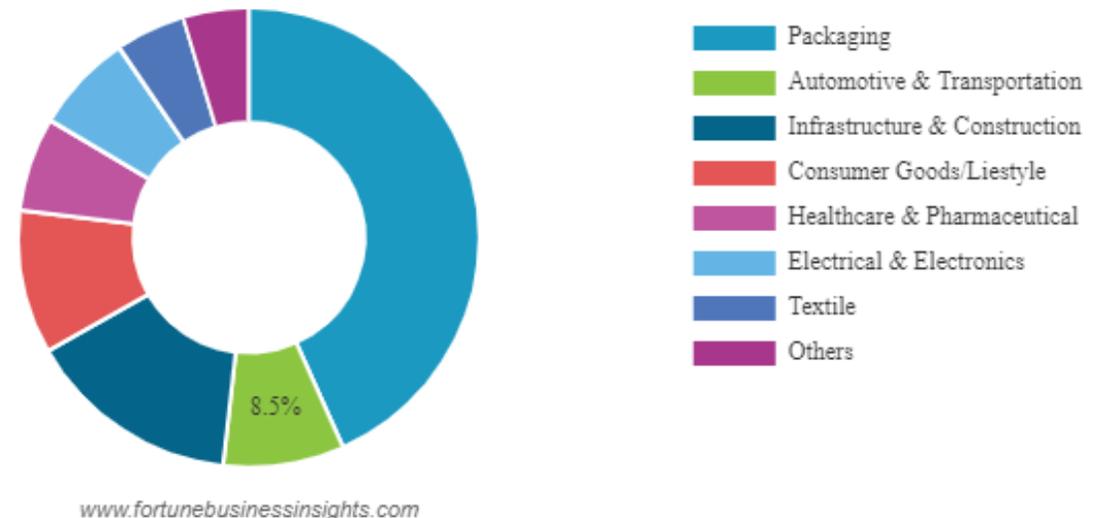


Photo courtesy of Chem Info

“U.S. Plastics Industry Well-Positioned for Continued Growth” PLASTICS’ 2017 Size & Impact Report

- 54% (by mass) of anthropogenic waste (40% for packaging)
- 85% of U.S. polymer feedstock comes from natural gas
- 16,000 manufacturing facilities in 50 States
- 30,000 different polymers registered – EU

Global Plastics Market Share, By End-Use Industry, 2022



RESISTENT to DECOMPOSITION



Jambeck et al., *Science* 2015



Plastic waste inputs from land into the ocean in 2010

The 192 countries with a coast bordering Atlantic, Pacific, and Indian oceans, Mediterranean and Black seas produced a total of 2.5 billion metric tons of solid waste. Of that, 275 million metric tons was plastic, and an estimated 8 million metric tons of mismanaged plastic waste entered the ocean in 2010.

*Plastics Europe, "Plastics—the Facts 2013" (2010 data)

**Cózar et al., 2014; Eriksen et al., 2014

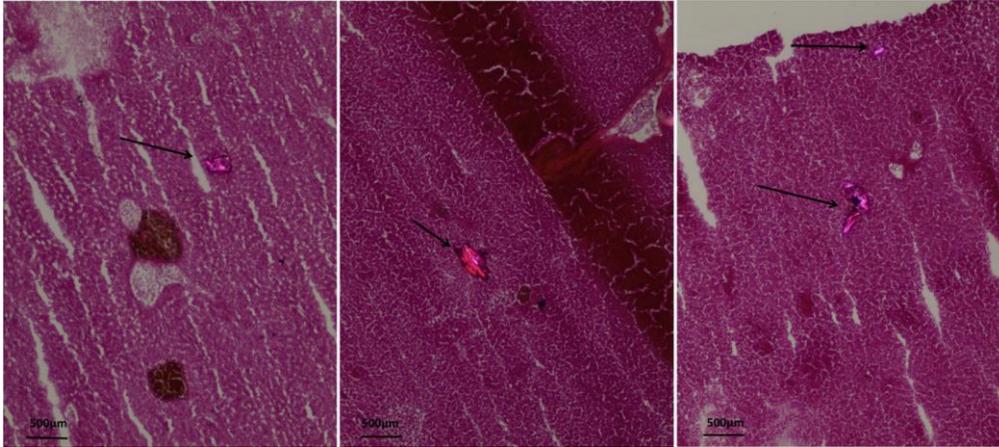


Photo Avio et al. 2015. Marine Environmental Research – Mullet liver



Photo Cole et al. 2015. Environmental Science & Technology - Crustacean

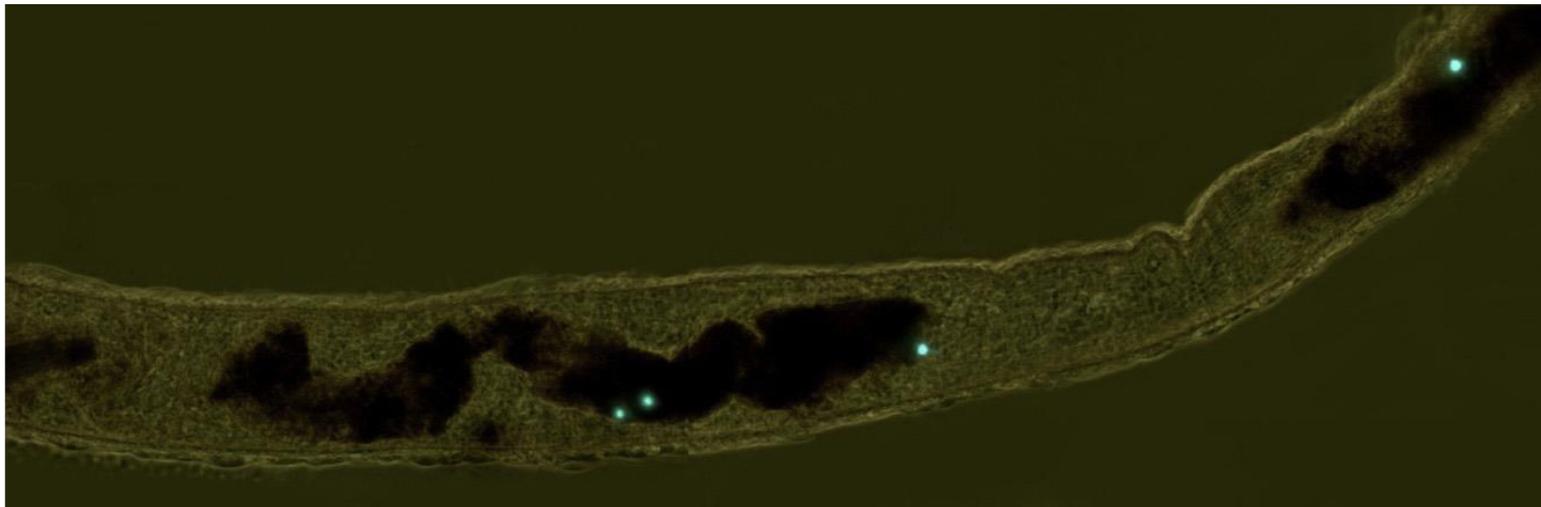
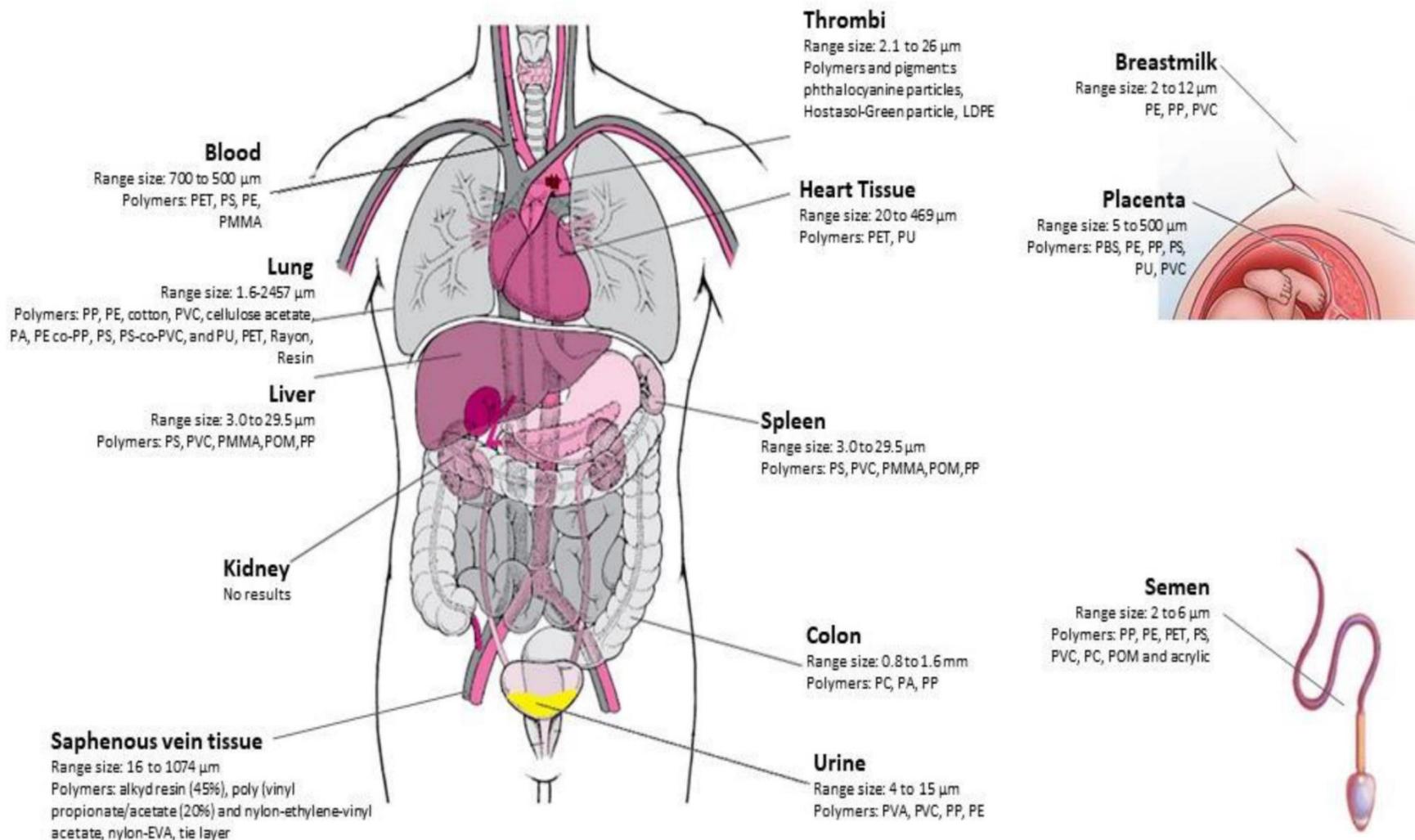


Photo Setälä et al. 2014. Environmental Pollution – Shrimp digestive tract

Micro- & Nano- Plastics: Dangerous to Humans?



Newest Research – MNPs in Human Tissues



Federal & NJ Personal Care Microbead Bans (2015)

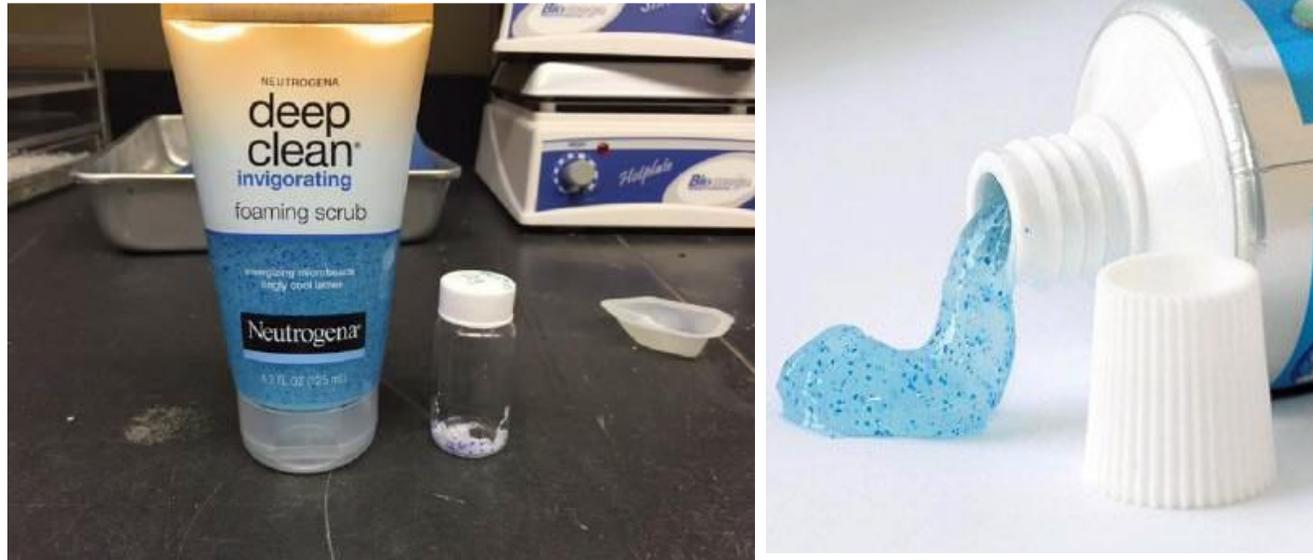
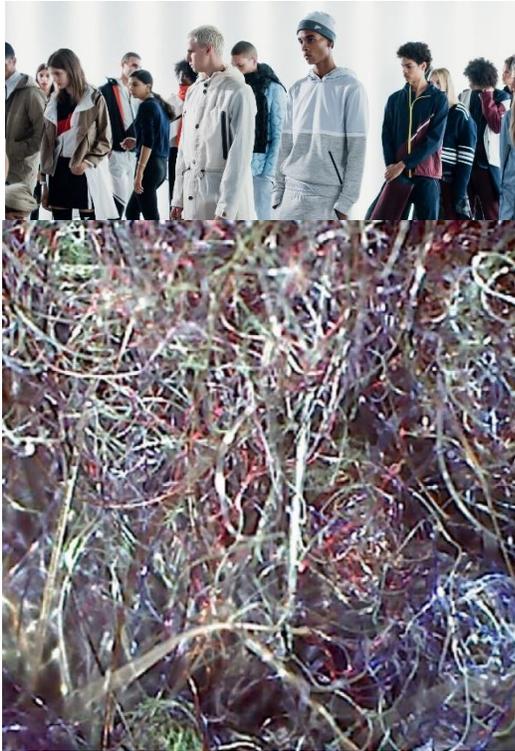


Photo Courtesy of UNEP's Global Programme of Action

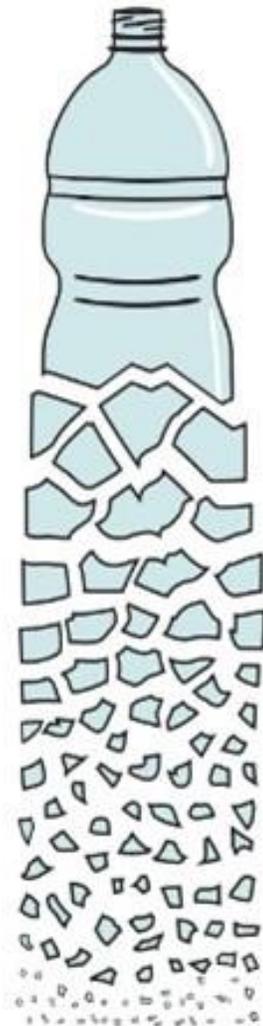
As many as **8 trillion microbeads day**¹ (Rochman et al., 2015)

Soap, shampoo, deodorant, toothpaste, wrinkle creams, moisturizers, shaving cream, sunscreen, facial masks, makeup (e.g. lipstick or eye shadow), and children's bubble bath

Macro-Plastic Degradation



Synthetic fabrics shed 10^6 fibers per washing⁻¹ (Browne et al)



PLASTIC WASTE

PLASTIC
BREAKDOWN

MACROPLASTICS
>5mm



MICROPLASTICS
5mm-0.1 μ m



NANOPLASTICS
<0.1 μ m

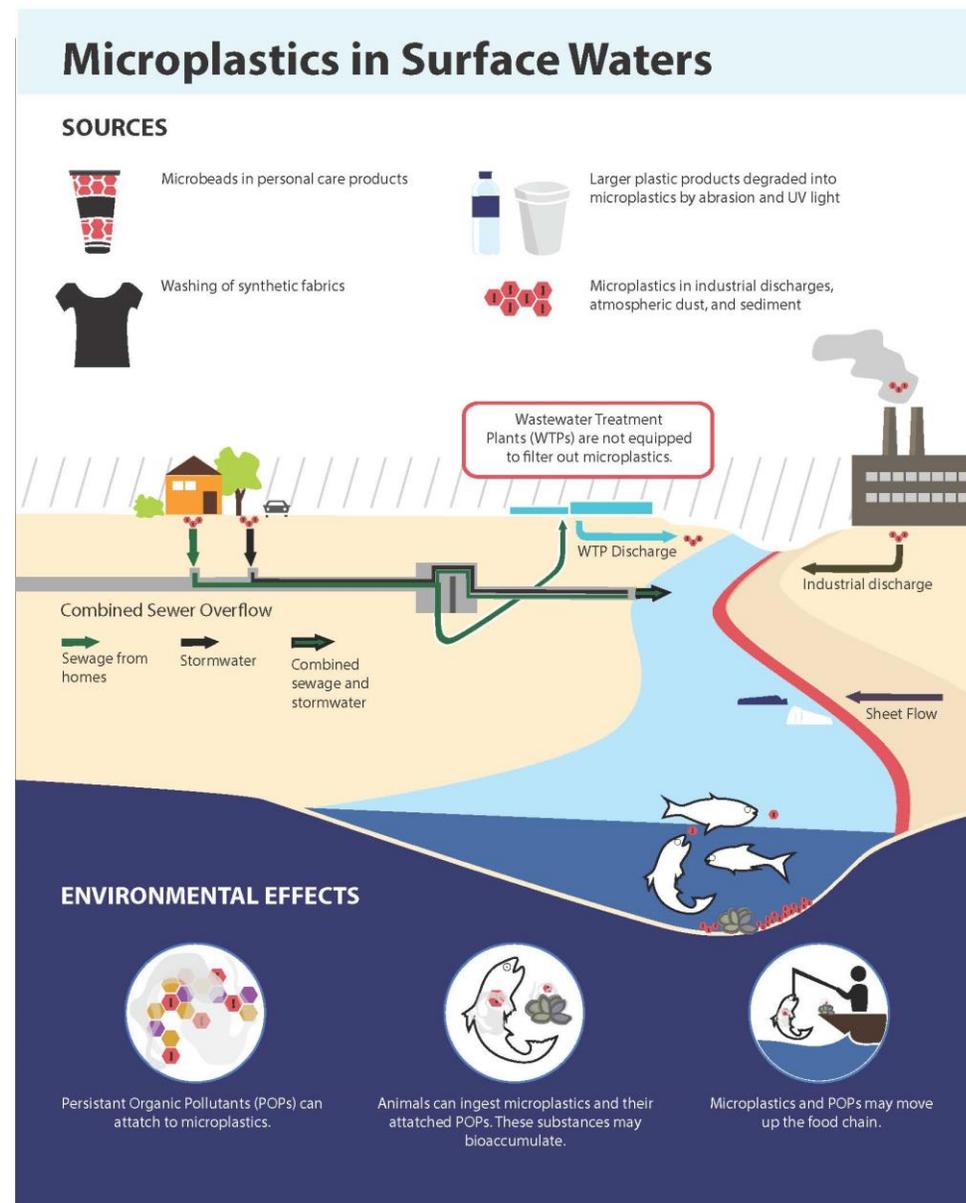


Shutterstock/EleniyaChe

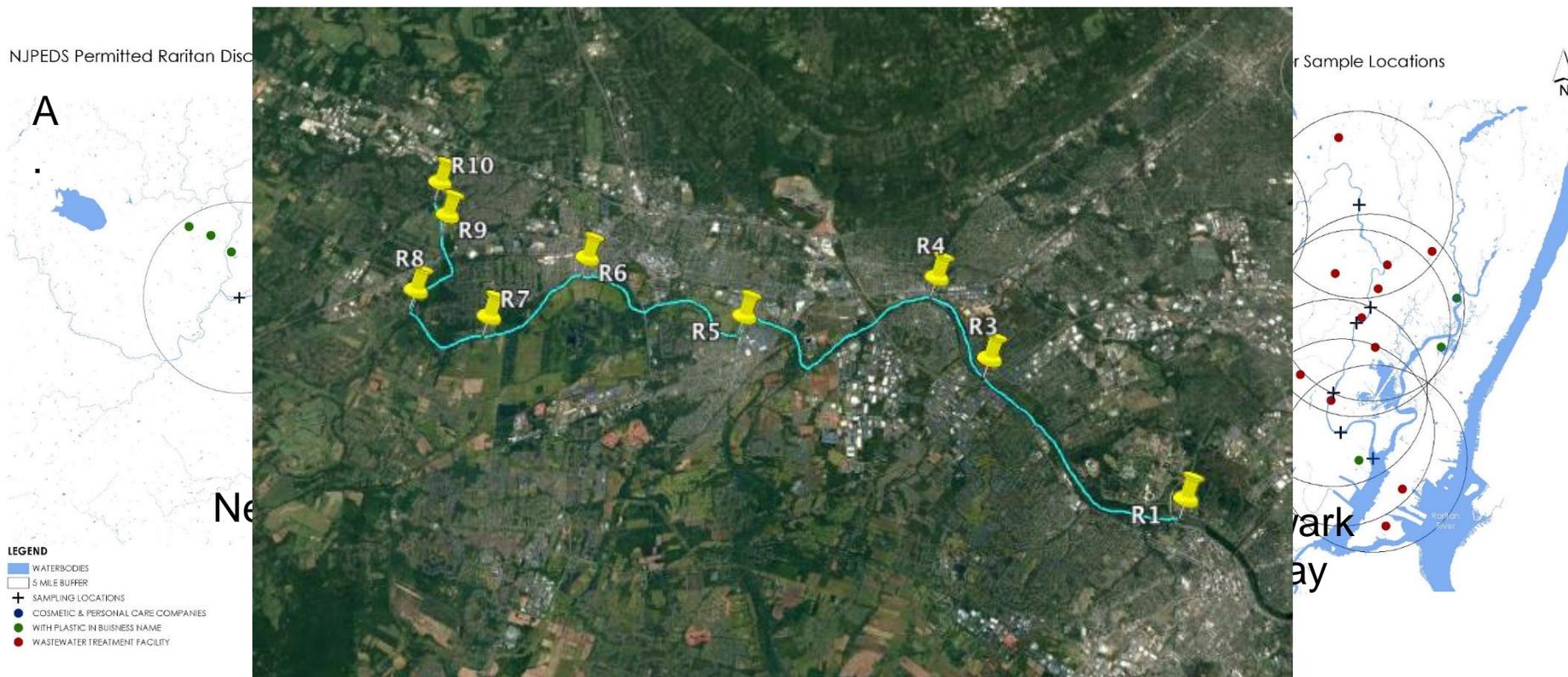
Sources, transport, and potential bioaccumulation

Research Hypothesis:

Freshwater microplastic density would increase downstream adjacent to Newark and Raritan Bays

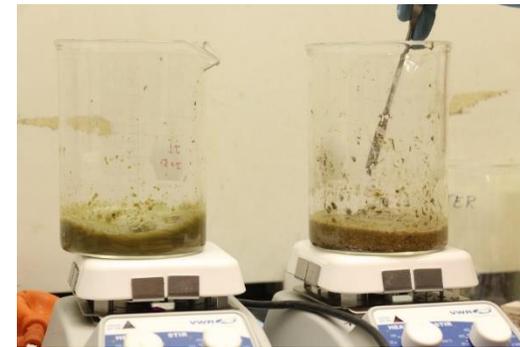


Study Areas: Freshwater to Tidal Transects



a) Raritan and b) Passaic River Watershed sampling sites identified by black +. Facilities within 5 mi. radius of the sampling site that have NJPEDs discharge permits (2016) identified by blue (personal care companies), green (companies with “plastic” in their name, and red (wastewater treatment plant) dots.

Sample Collection & Extraction



Micro-plastic to Nano-plastic Size Fragments



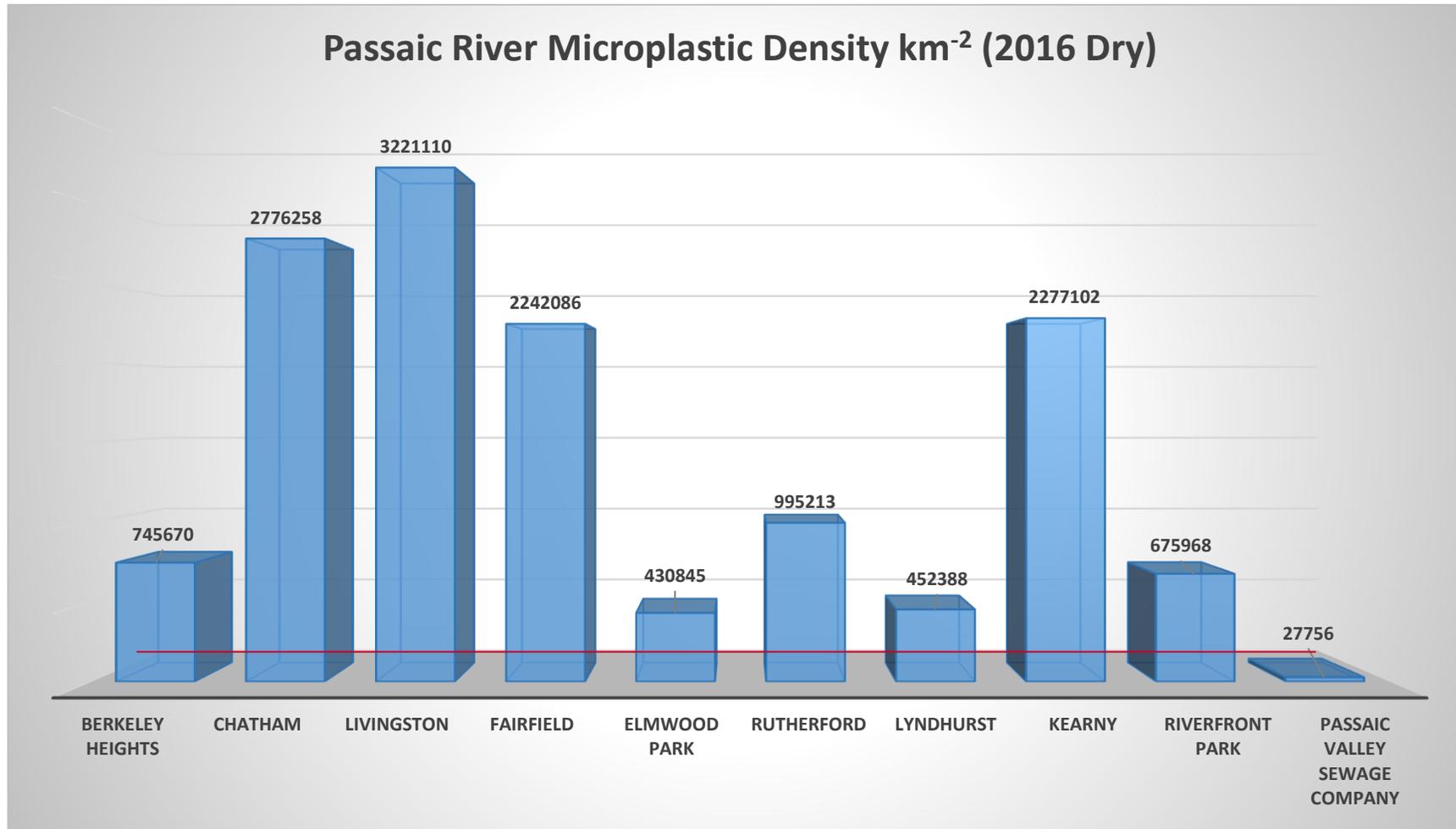
Keyport Harbor



Passaic River

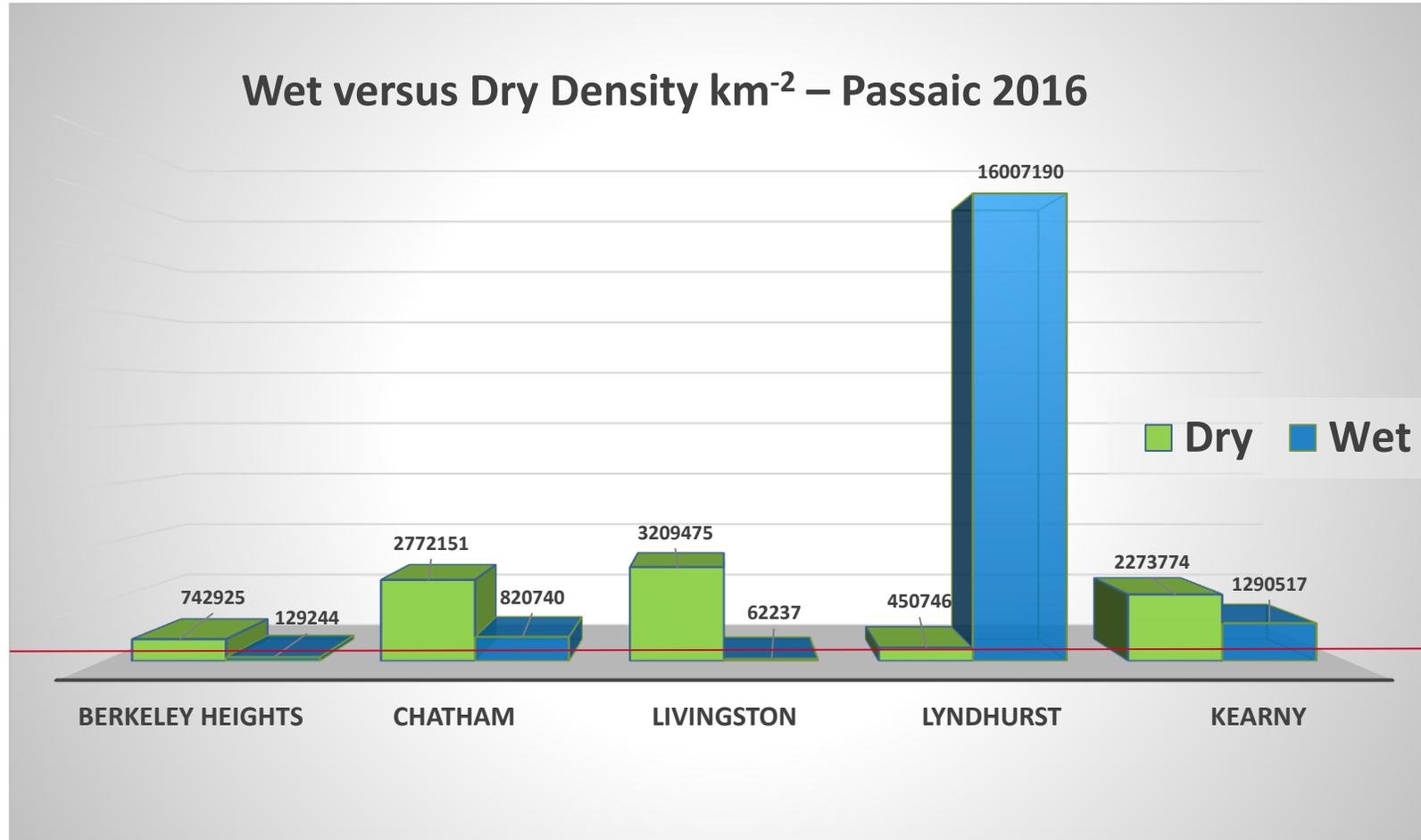


Raritan River



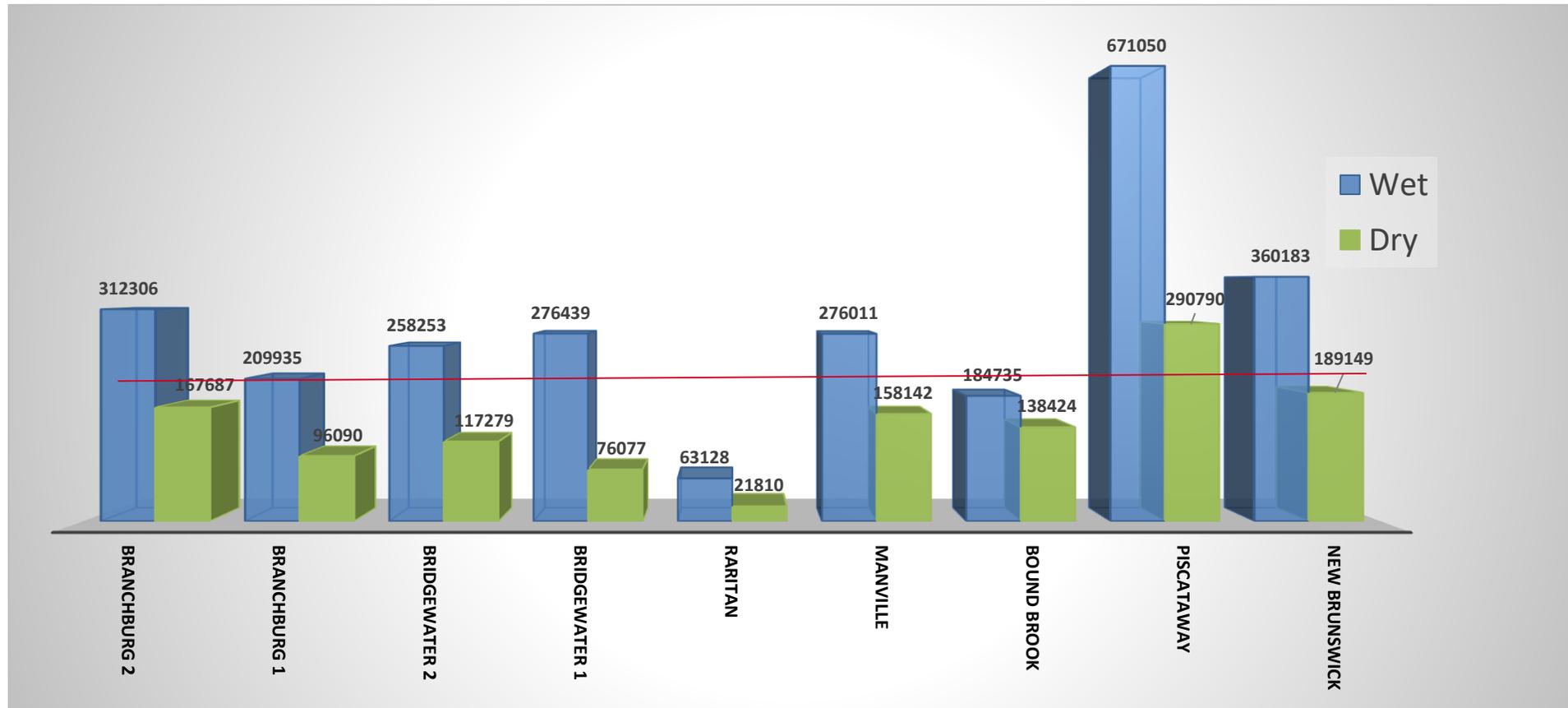
Upstream \longrightarrow Downstream

Wet versus Dry Density km^{-2} – Passaic 2016



Upstream \longrightarrow Downstream

Raritan River (2017) Wet vs. Dry Density km^{-2}



Upstream \longrightarrow Downstream

Environmental Effects???

Plastic Polymer Analyses: NOAA Lab

POP Analysis: Buckley Lab – Rutgers Environmental & Occupational Health Sciences Institute (EOHHSI)



Tentatively Identified Compounds (TICs)

USE TYPE	# OF COMPOUNDS	% TOTAL
COSMETIC ADDITIVE	6	3%
FRAGRANCE	6	3%
INDUSTRIAL (1 PLASTICIZER)	12	7%
PHARMACEUTICAL/BIOMEDICAL	13	7%
FOOD ADDITIVE	20	11%
FLAVOR & FRAGRANCE	27	15%
LABORATORY/RESEARCH CHEMICAL	63	35%
NATURAL COMPOUND	73	41%

Funding Provided by:
NJ Water Resources Research
Institute
USEPA Urban Waters
Rutgers Raritan River Consortium
NIH
NY-NJ Baykeeper

Questions?

Beth Ravit
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848-932-5752
www.cues.Rutgers.edu

References

Ravit et al. 2017. *Microplastics in urban New Jersey freshwaters: Distribution, chemical identification, and biological affects*. AIMS Environmental Science 4(6):809-826.



SUSTAINABILITY SUMMIT



Thank You

Session slides will be available on sustainablejersey.com by 5/10.

UPCOMING EVENTS AND OPPORTUNITIES

EARNING YOUR DIGITAL SCHOOLS STAR: TIPS FOR SUCCESS WEBINAR

This webinar offers an overview of the Digital Schools program, insights and examples of ways to improve digital school action submissions and earn points to attain Digital Schools Star recognition. The informational webinar will be held on **Wednesday, May 8, 2024, 3:30pm-4:30pm.**

Register: bit.ly/4dhdj91

2024 MUNICIPAL CERTIFICATION CYCLE

The next deadline to apply for certification is **Friday, May 10, 2024.** The final application deadline is **Wednesday, July 31, 2024.** View the full cycle timeline on the 2024 Certification Cycle page.

Learn More: bit.ly/SJ2024CertCycle

NJBPU'S COMMUNITY ENERGY PLANNING GRANTS

The New Jersey Board of Public Utilities is offering a new round of Community Energy Plan Grants for all New Jersey municipalities.

Application Deadline: **Friday, May 24, 2024**

Learn More: bit.ly/3WcmAt7

TRI-COUNTY SUSTAINABILITY GENERAL MEETINGS

This Sustainable Jersey Regional Hub will host virtual meetings on a variety of sustainability topics throughout the year. The next meeting is **Tuesday, May 28, 2024, 7:00pm-8:00pm.**

Learn More: bit.ly/Tri-CountySustainability

2024 SUSTAINABLE COMMUNITIES GRANT PROGRAM

Atlantic City Electric is contributing \$35,000 to support municipal environmental stewardship and resiliency projects within its service territory. Join us for an informational webinar on **Monday, May 13 from 1:00pm-2:00pm** to learn more about the program and how to use the online application portal.

Application Deadline: **Thursday, June 27, 2024**

Learn More: bit.ly/SustainableCommunitiesGrantProgram

2024 SCHOOL CERTIFICATION CYCLE

The final deadline to apply for certification and Digital Schools Star Recognition is **Thursday, June 13, 2024.** View the full cycle timeline on the 2024 Certification Cycle page.

Learn More: bit.ly/SJS2024CertCycle

HOW TO ADOPT OR UPDATE A COMPLETE AND GREEN STREETS POLICY WEBINAR

Save the date! Join a one-hour walkthrough on how to create your own model municipal Complete and Green Streets Policy, brought to you by the Voorhees Transportation Center at Rutgers University, Sustainable Jersey, the New Jersey Department of Transportation, and the North Jersey Transportation Planning Authority, on **Tuesday, September 17, 2024, 12:00pm-1:00pm.** Registration information coming soon. Follow-up Open House Q&A for attendees to be held virtually on **Wednesday, October 30, 2024 from 3:00pm-5:00pm.**

PROGRAM UNDERWRITERS



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WIFI INFORMATION: 2 Open Networks

1. **sustainablenj**: Ballroom, GS3, Nonprofit Exhibit area
2. **Bell_Works_Conf_Center**: Bell Theatre & Conference