

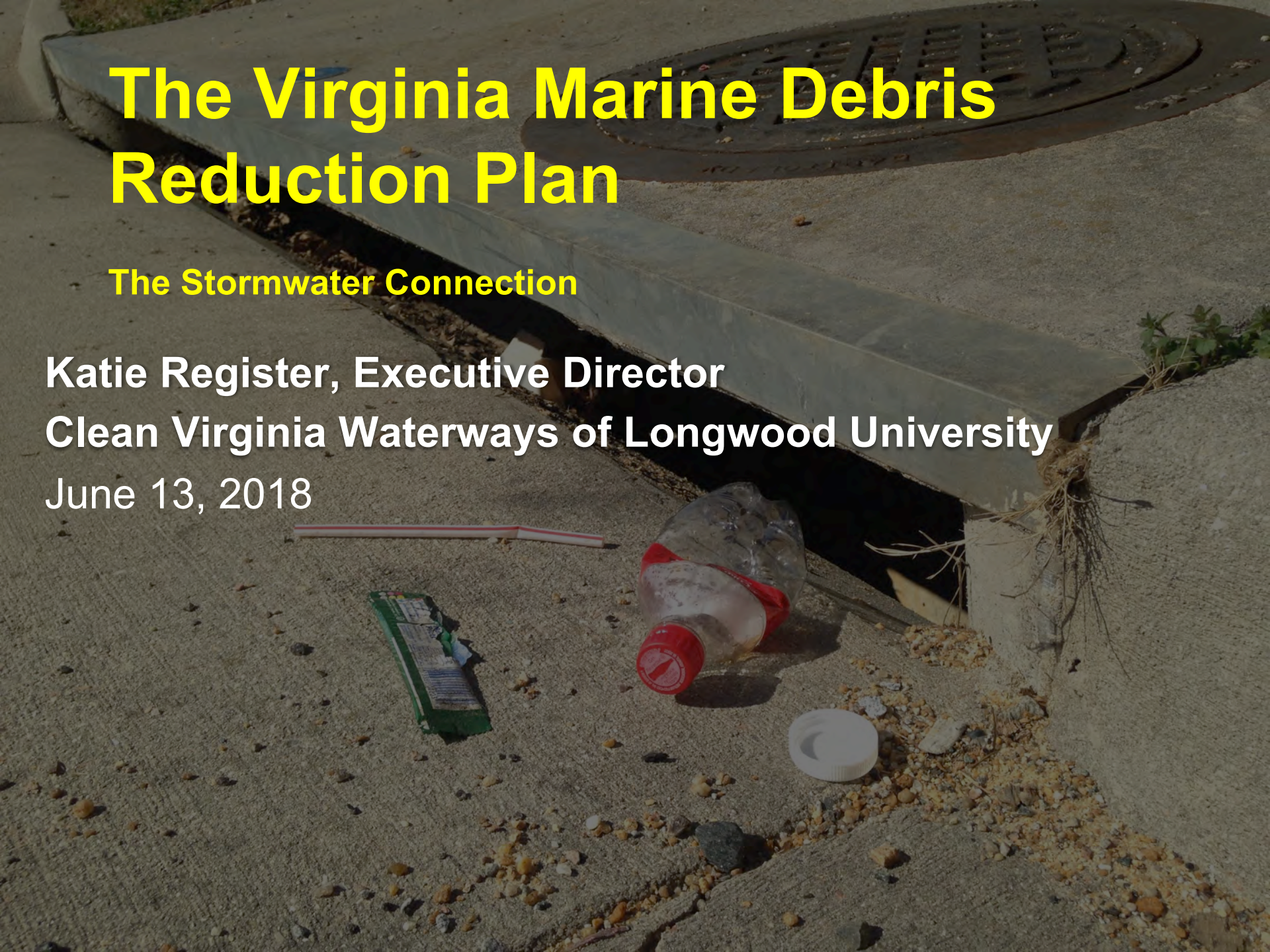
# The Virginia Marine Debris Reduction Plan

The Stormwater Connection

Katie Register, Executive Director

Clean Virginia Waterways of Longwood University

June 13, 2018



# Clean Virginia Waterways of Longwood University

- Rain Barrels
- Water Quality Monitoring
- Professional Development for Teachers
- International Coastal Cleanup
- Litter Prevention / Marine Debris Research



# Defining marine debris

Any persistent solid material that is **manufactured or processed** and directly or indirectly, intentionally or unintentionally, **disposed of or abandoned** into the marine environment or the Great Lakes.

--NOAA Marine Debris Program

# 20 years of Citizen Scientists' Marine Debris data: International Coastal Cleanup in VA



Photo: N. Sottansanti, Shenandoah River Outfitters

Top 20 Items recorded by volunteers  
International Coastal Cleanup in Virginia  
**1995-2014**

1. Cigarette Filters
2. Beverage Bottles (Plastic)
3. Bags
4. Cups, Plates, Forks, Knives, Spoons
5. Food Wrappers/Containers
6. Beverage Cans
7. Caps & Lids
8. Beverage Bottles (Glass)
9. Straws, Stirrers
10. Building Materials
11. Balloons
12. Rope
13. Clothing, Shoes
14. Fishing Line
15. Oil/Lube Bottles
16. Tires
17. Toys
18. Fishing Buoys, Pots & Traps
19. Cigarette Lighters
20. Six-Pack Holders

**Yellow= Food & Drink Items**

# Plastic Items

1995-2014

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# TOP 10 ITEMS COLLECTED



1. CIGARETTE BUTTS  
**1,863,838**



2. PLASTIC BEVERAGE  
BOTTLES  
**1,578,834**



3. PLASTIC BOTTLE CAPS  
**822,227**



4. FOOD WRAPPERS  
**762,353**



5. PLASTIC GROCERY BAGS  
**520,900**



6. PLASTIC LIDS  
**419,380**



7. STRAWS, STIRRERS  
**409,087**



8. GLASS BEVERAGE  
BOTTLES  
**390,468**



9. OTHER PLASTIC BAGS  
**368,655**



10. FOAM TAKE-AWAY  
CONTAINERS  
**365,584**

# Stormwater connection: 60 to 80% from land-based sources



Photo: Clean VA Waterways



Photo: Ocean Conservancy

Trash travels – The watershed connection



# Different sources = different solutions



Photo: Clean VA Waterways



Photo: Ocean Conservancy

# Trash travels – The airshed connection



# Building with polystyrene



# The Aftermath of Building with Polystyrene



# Wash it “Away”



# Sources: water-based

- Derelict fishing gear & vessels
- Disasters



Photo: Dot Field, VA DCR

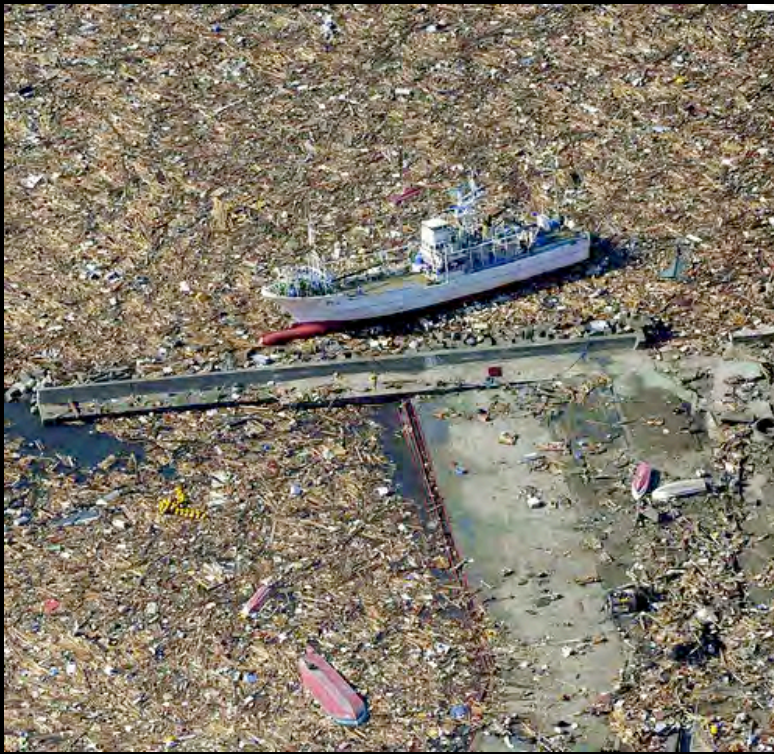


Photo: Katie Register, Clean VA Waterways

# Special concern: Plastic

## HOW LONG 'TIL IT'S GONE?

Estimated decomposition rates of common marine debris items



Paper Towels	2–4 Weeks	Waxed Milk Cartons	3 Months
Newspapers	6 Weeks	Newer Photodegradable Beverage Holders	Under 6 Months
Cotton Ropes	1–5 Months	Plywood	1–3 Years
Apple Cores	2 Months	Wool Socks	1–5 Years
Cardboard Boxes	2 Months		

**NOTE:** Estimated individual item timelines depend on product composition and environmental conditions.

Source: South Carolina Sea Grant Consortium, South Carolina Department of Health & Environmental Control (DEHC)—Ocean and Coastal Resource Management, Centers for Ocean Sciences Education Excellence (COSEE)—Southeast and NOAA 2008.

Image: Ocean Conservancy

# THE GREAT PACIFIC GARBAGE PATCH

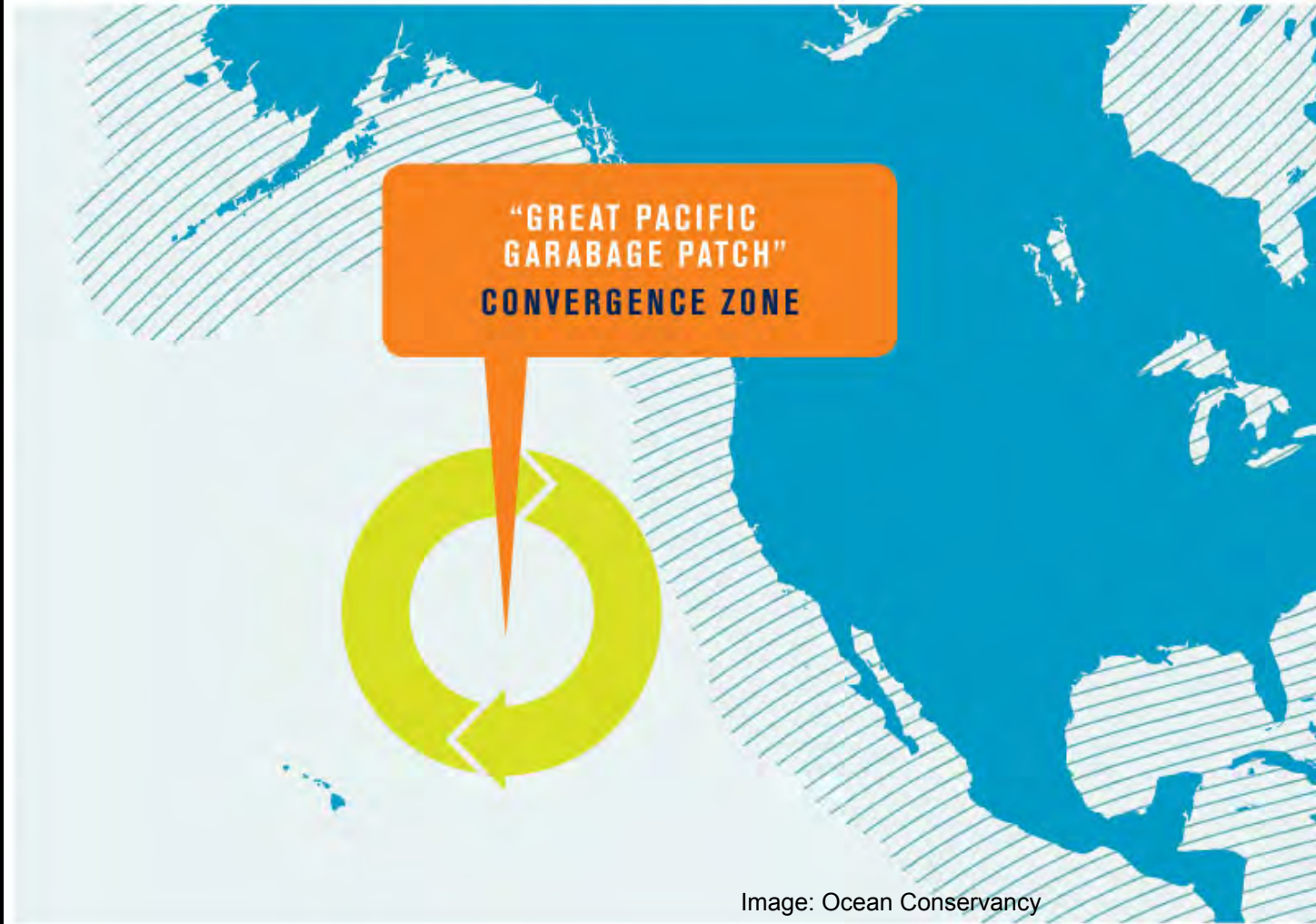


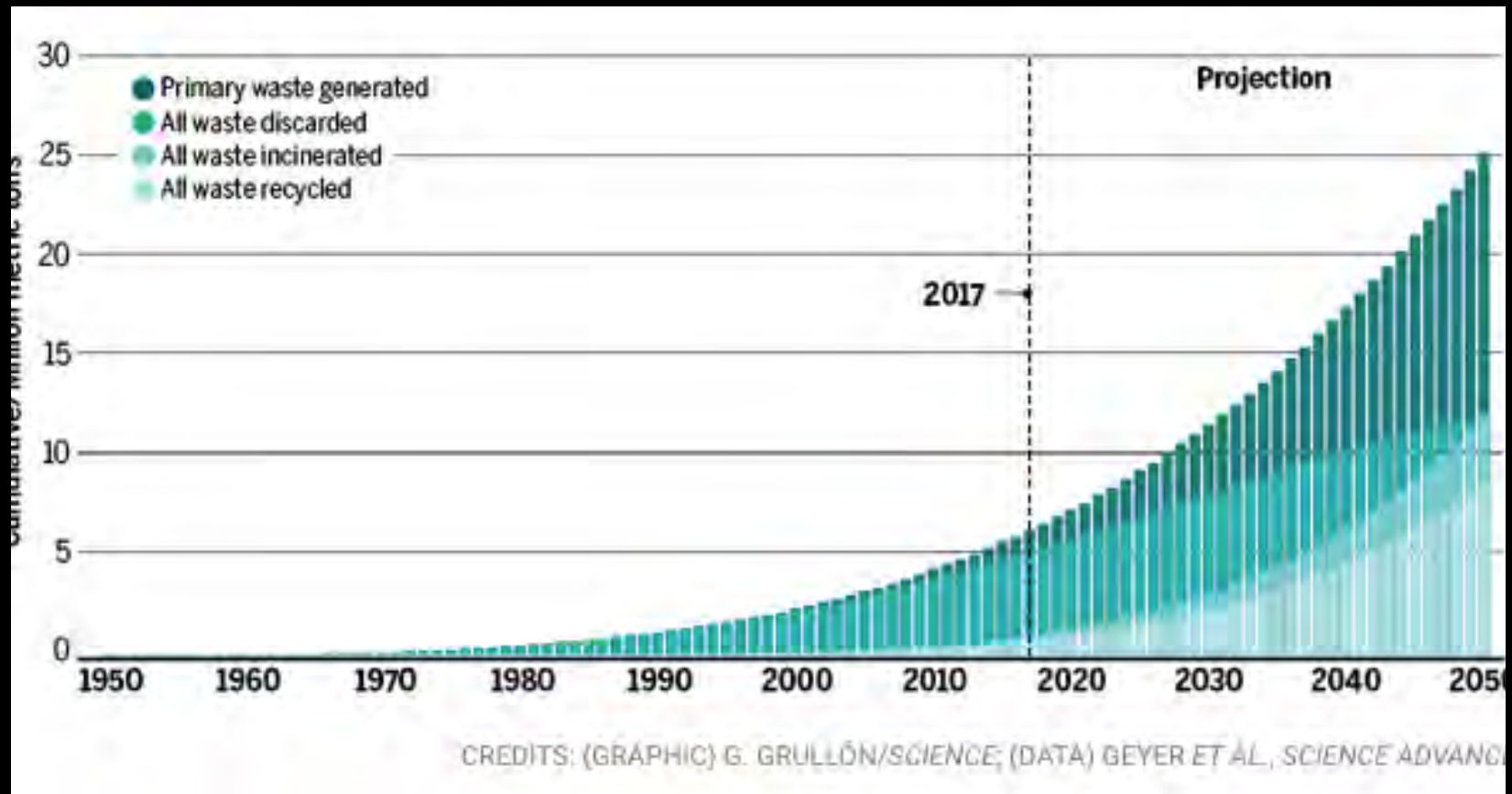
Image: Ocean Conservancy



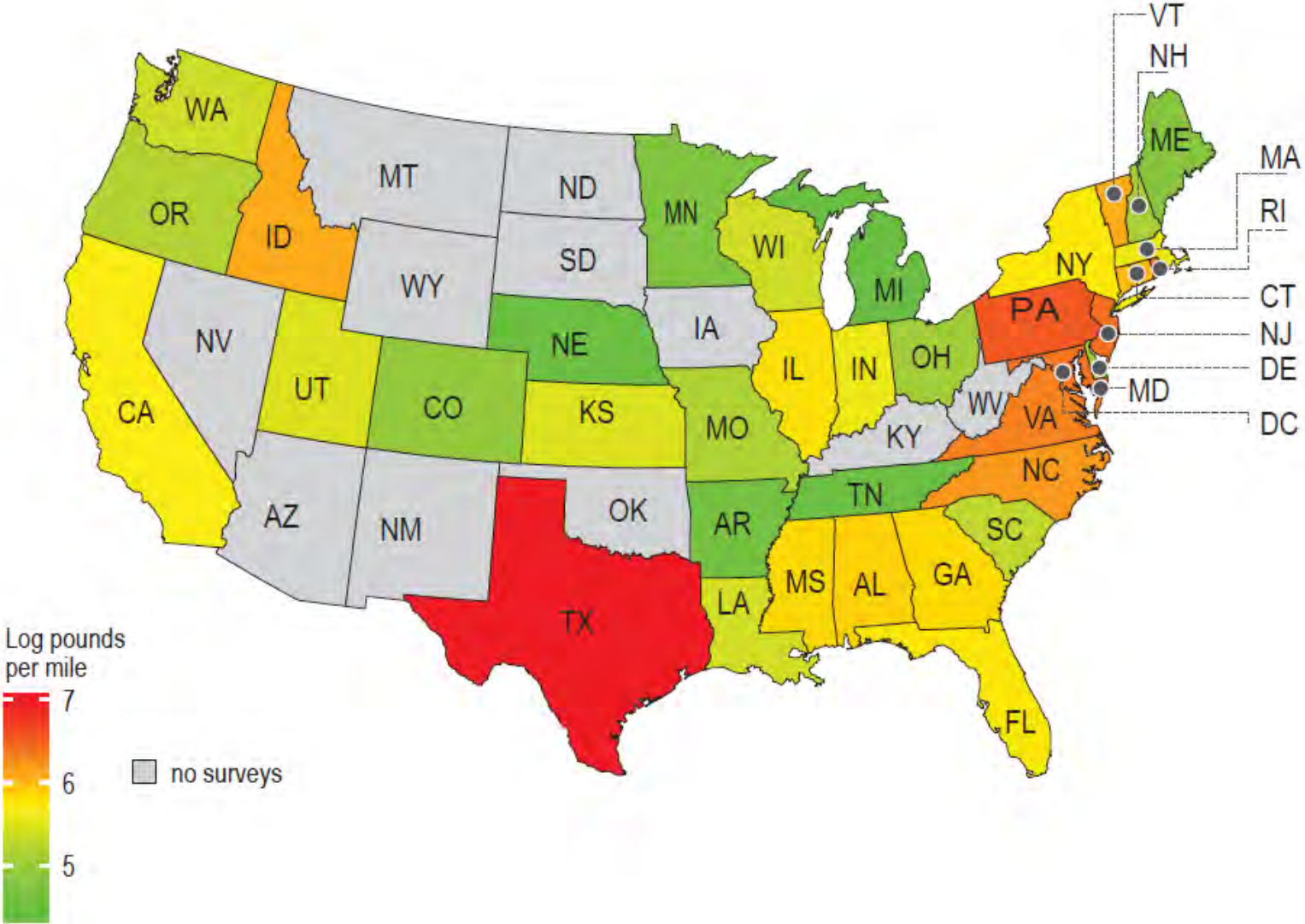
Ocean currents enable trash discarded in one country to land on the shores of another thousands of miles away.



# More plastic coming soon



# ICC data—pounds per mile



# Impacts of marine debris

- Ingestion
- Entanglement
- Ghost fishing
- Habitat destruction
- Economics
- Human health

# Most Harmful Marine Debris



# Marine Debris Impacts: Ingestion



# Marine Debris Impacts: Ingestion



Photos: VA Aquarium & Marine Science Center

# Marine Debris Impacts: Ingestion



Photo: Wildlife Center of Virginia



# Impacts – Entanglement & Ingestion



Photo: Pam Denmon, FWS



Photo: Pam Denmon, FWS



Photo: Ocean Conservancy



Photo: Virginia Aquarium &  
Marine Science Center

# Ghost Fishing



Map: Havens, Bilkovic, Stanhope &. Angstadt. VIMS

Derelict crab pots kill ~900,000 animals each year

Economic loss to the fishery: \$300,000 estimated.



Photo: VIMS

Learn more:

<http://www.vims.edu/features/research/derelict-blue-crab-traps.php>

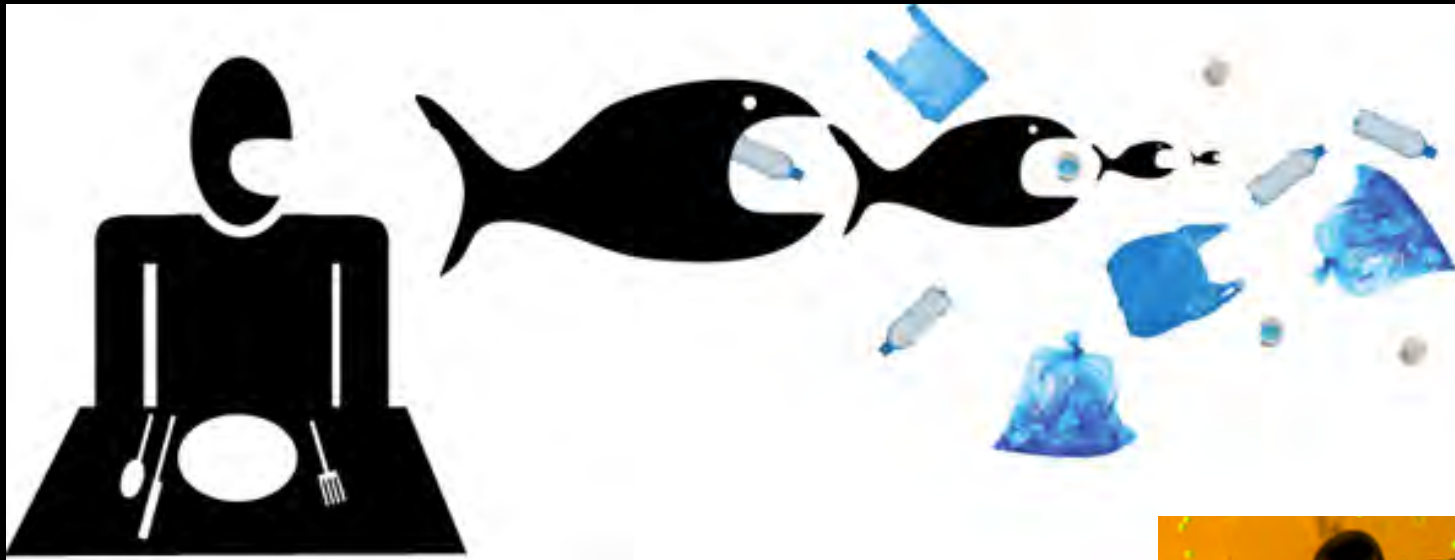
# Additional Impacts

- Habitat
- Economics



# Additional Impacts

- People's health & safety



# Virginia Marine Debris Reduction Plan

- A ten-year horizon
- Collaborative effort
- Based on what is feasible
  - politically, socially, and economically

October 2014

## Developing a Marine Debris Reduction Plan for Virginia

Written and prepared for the Coastal Zone Management Program by:

Katie Rehrig, Executive Director, Clean Virginia Waterways

Under the direction of:

Laura McKay, Manager, Virginia Coastal Zone Management Program

Stakeholder facilitation and research by:

Todd Jansell, Virginia Commonwealth University

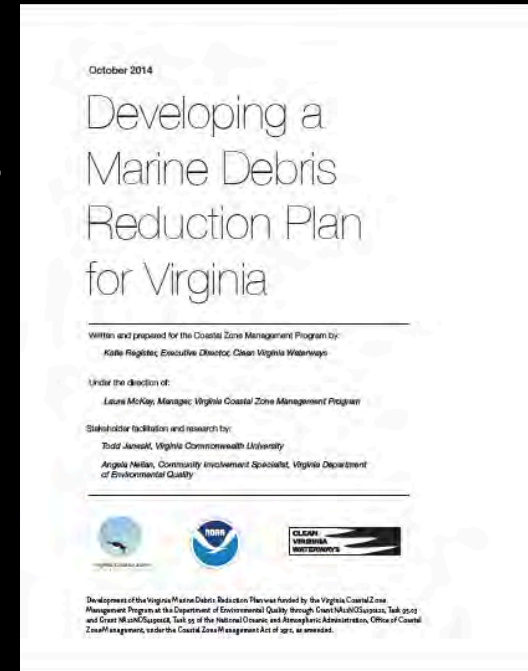
Angela Nadeau, Community Involvement Specialist, Virginia Department of Environmental Quality



Photo: Clean VA Waterways

# Focus: State level planning

- Not meant to be a list of local actions
- Adaptive management approach
- Demonstrate a reduction for a small subset of marine debris.



# Home Rule vs. Dillon Rule

- Virginia is a “Dillon Rule State” meaning there is little local government authority
- Home Rule States give more authority to local governments



# Goals

## VA Marine Debris Reduction Plan

1. Leadership
2. Prevention
3. Interception
4. Innovation
5. Removal and Clean up



# Strategies

1. Changing behaviors
2. Fostering collaboration
3. Increasing knowledge
4. Securing adequate funding
5. Improving regulations

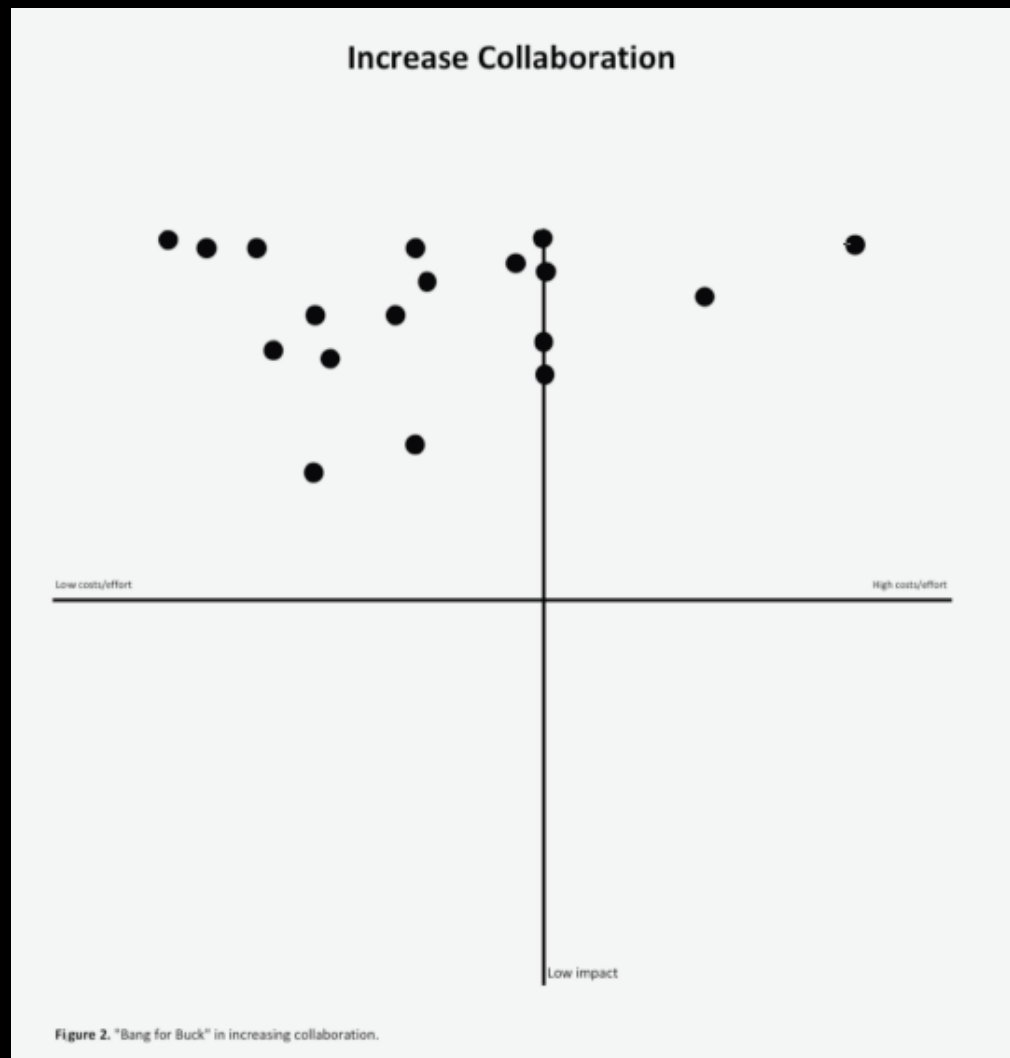
# Not in the Virginia state-level plan:

- Extended Producer Responsibility
- Deposit bill for bottles
- Buy-back or take-back programs

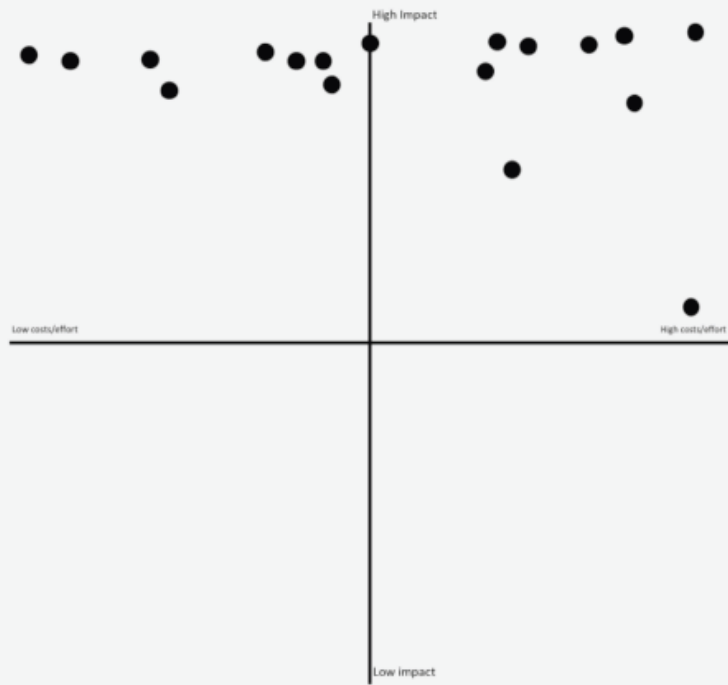
# Stormwater & the VMDRP

- **Communication:** Facilitate cross-departmental communication to support effective litter and marine debris education and management
- **Partnerships:** Facilitate expansion of inter-jurisdictional programs and public-private partnerships
- Best practices for intercepting litter
- Determine resource needs
- Identify revenue streams

# Bang vs. Bucks



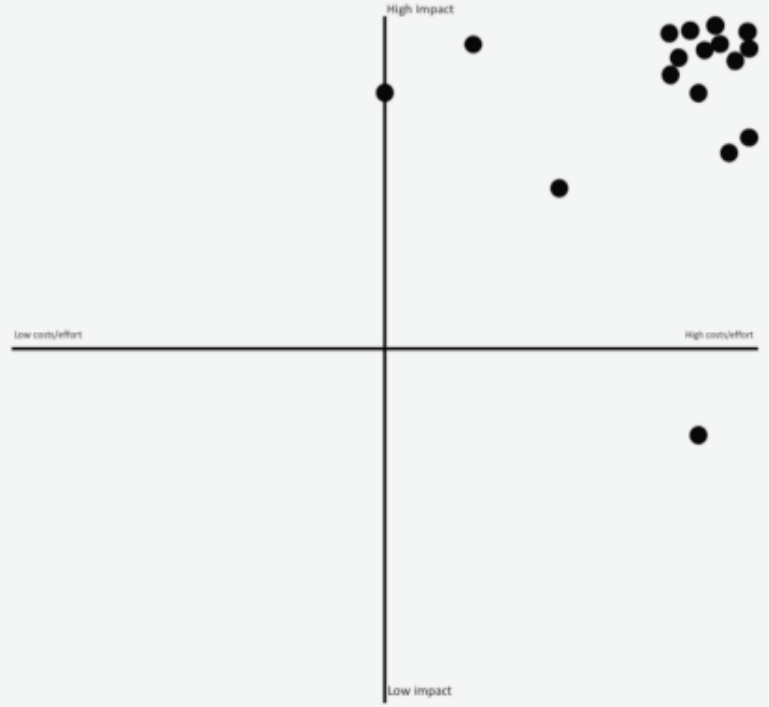
## Reduce Plastic Bags



## Reduce Balloon Releases



# Improve Stormwater Management



# Today's Goals

Case studies

Interception

Source reduction

Preventing litter through  
behavior change  
policy, laws,  
innovation

Discussions

Next Steps

# Thank You!

The logo for Clean Virginia Waterways features the text "CLEAN VIRGINIA WATERWAYS" in a bold, sans-serif font, stacked vertically on the left side of a dark blue rectangular background. To the right of the text is a stylized white graphic consisting of three horizontal, curved lines that resemble a bird in flight or a stylized wave.

**CLEAN  
VIRGINIA  
WATERWAYS**

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[www.longwood.edu/cleanva](http://www.longwood.edu/cleanva)



- American Express is an enormous global corporation with wide reach and influence:  
*American Express will evolve its operations to embody Parley's AIR (Avoid, Intercept, Redesign) philosophy through a corporate pledge to limit single-use plastics, intercept plastic waste and redesign existing materials and plastic products. American Express will:*
- *Pursue a strategy to reduce the use of virgin plastic in Card products.*
- *Phase out single-use plastic straws and coffee stirrers for all its major offices and Centurion airport lounges globally within 30 days.*
- *Phase out single-use plastic for Centurion airport lounges by the end of the year.*
- *Set a comprehensive waste reduction strategy to reduce single-use plastic and increase recycling rates in its operations globally by the end of the year.*
- *Pursue zero waste certification for its New York City headquarters by 2025.*
- *Enable American Express colleagues to be a part of the solution by engaging in annual company-run coastal and river clean-ups.*
- If they stick to this pledge, their efforts could transcend corporate green-washing and potentially have great influence within their industry.

# Examples

1. Changing behaviors
2. Fostering collaboration
3. Increasing knowledge
4. **Securing adequate funding**
5. Improving regulations

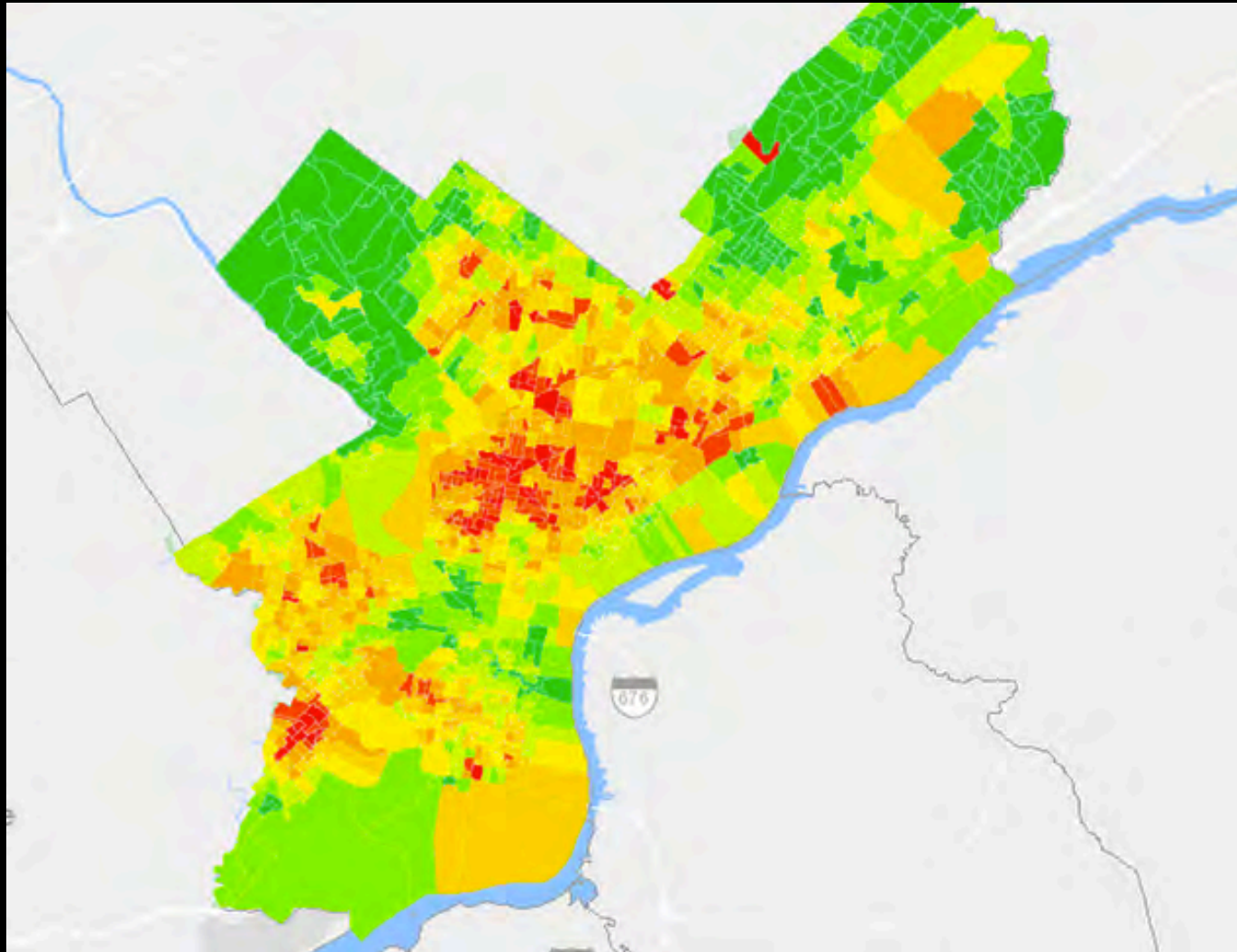
# The annual litter tax

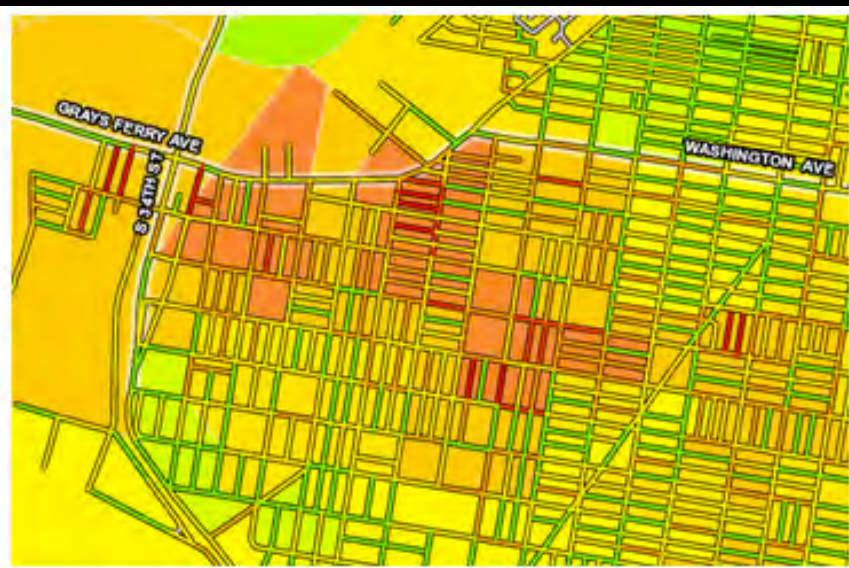
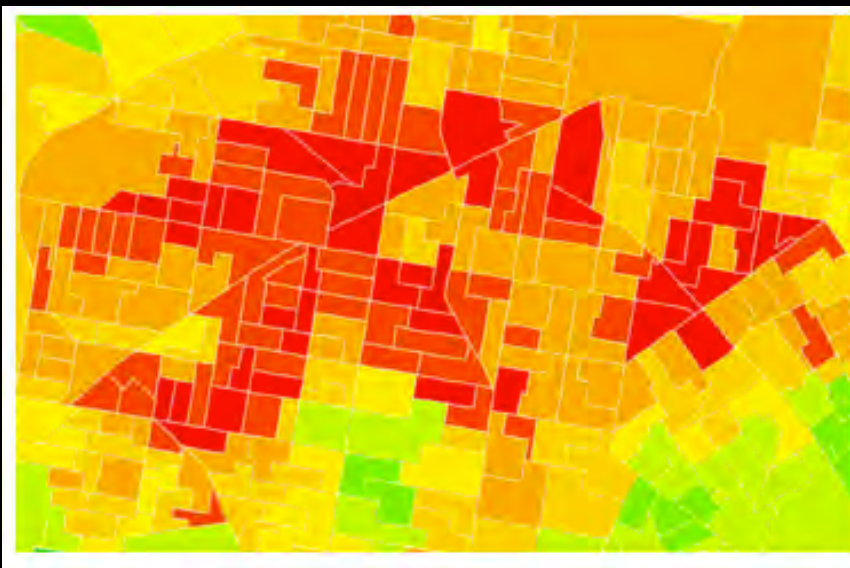
- **\$10/year** if you sell groceries.
- An **addition \$15** is paid if you sell soft drinks & beer.
- **Generates ~ \$2 million** annually
  - Distributed to local recycling and litter prevention programs.

# The annual litter tax

- This tax has not increased since it was first passed in 1976 – 40 years.
- If it had kept up with inflation, the annual tax revenue would be **nearly \$8 million.**

<https://cleanphl.org>





# Say no to balloon releases

