



# Marine Debris Reduction

## Virginia Coastal Partners Workshop November 17, 2016

Katie Register



Steve Raabe



# 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

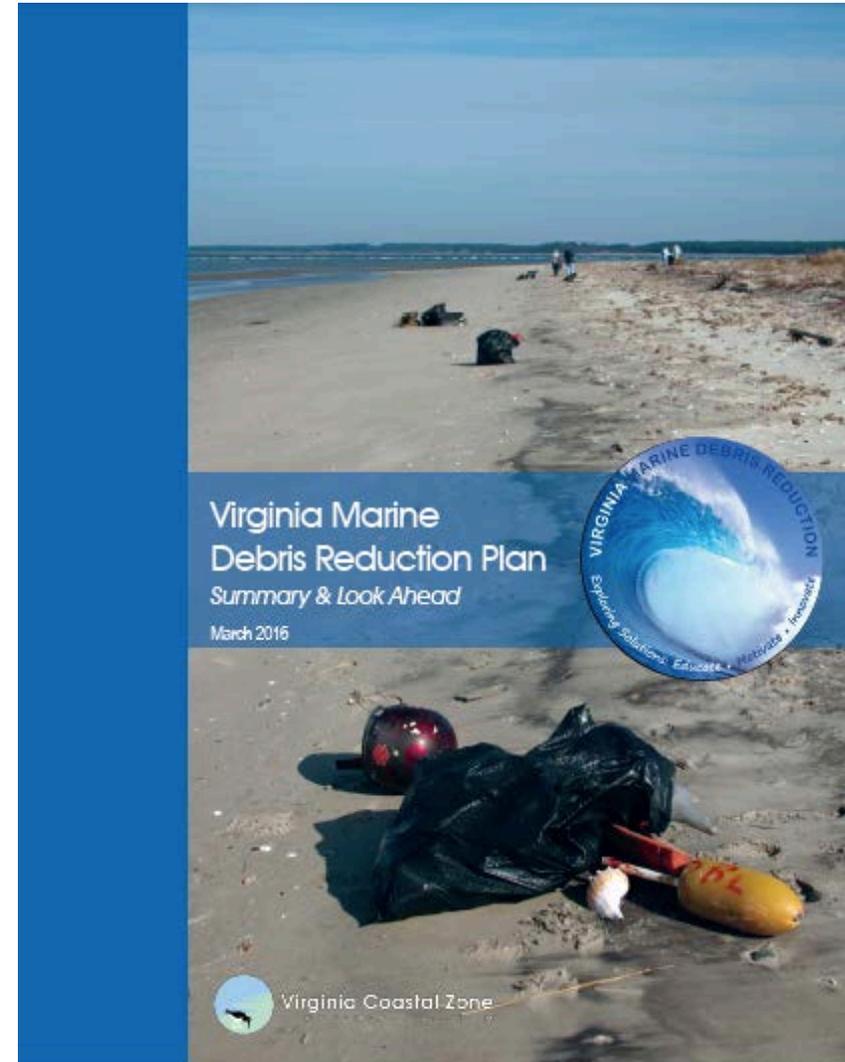


# Virginia Marine Debris

- Many working on marine debris issues
- VA CZM Program: commitment to marine debris prevention
  - 1st Marine Debris Summit (2013)
  - VA Marine Debris Reduction Plan (2014)
  - 2<sup>nd</sup> Marine Debris Summit (2016)
    - Deep Dives
    - Emerging Issues

# Virginia Marine Debris Reduction Plan

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





# Virginia Marine Debris Reduction Plan Update

Charts a course to reduce marine debris from land-based and water-based sources for ecological, social and economic benefits - through:

leadership

prevention

interception

innovation

removal

# The 2<sup>nd</sup> VA Marine Debris Summit

- National leaders in marine debris
- Scientists sharing impacts of marine debris on ecosystems and human health
- Social scientists developing ways to influence behavior change



# The 2<sup>nd</sup> VA Marine Debris Summit

- “Leave on” personal care products, not covered by the 2015 microbead act
- Body glitter for personal adornment.
- Nanoplastics (less than 100 mm in size)
- Fibers from synthetic clothing
- Microplastics in sewage sludge.
- Polystyrene in building materials.
- Wider variety of events utilizing balloon releases
- Single-use packaging including K-cups



# The 2<sup>nd</sup> VA Marine Debris Summit

- **Multi-state partnerships**
- **Single-use consumer items**
- **Microplastics: what is next?**
- **Engaging a wider audience**
- **Derelict fishing gear and abandoned and derelict vessels: building capacity for**
- **Building capacity and funding**
- **Social marketing**
- **Cigarette litter prevention**

# Update on Research & Projects

# Monitoring Marine Debris in VA's Coastal Zone



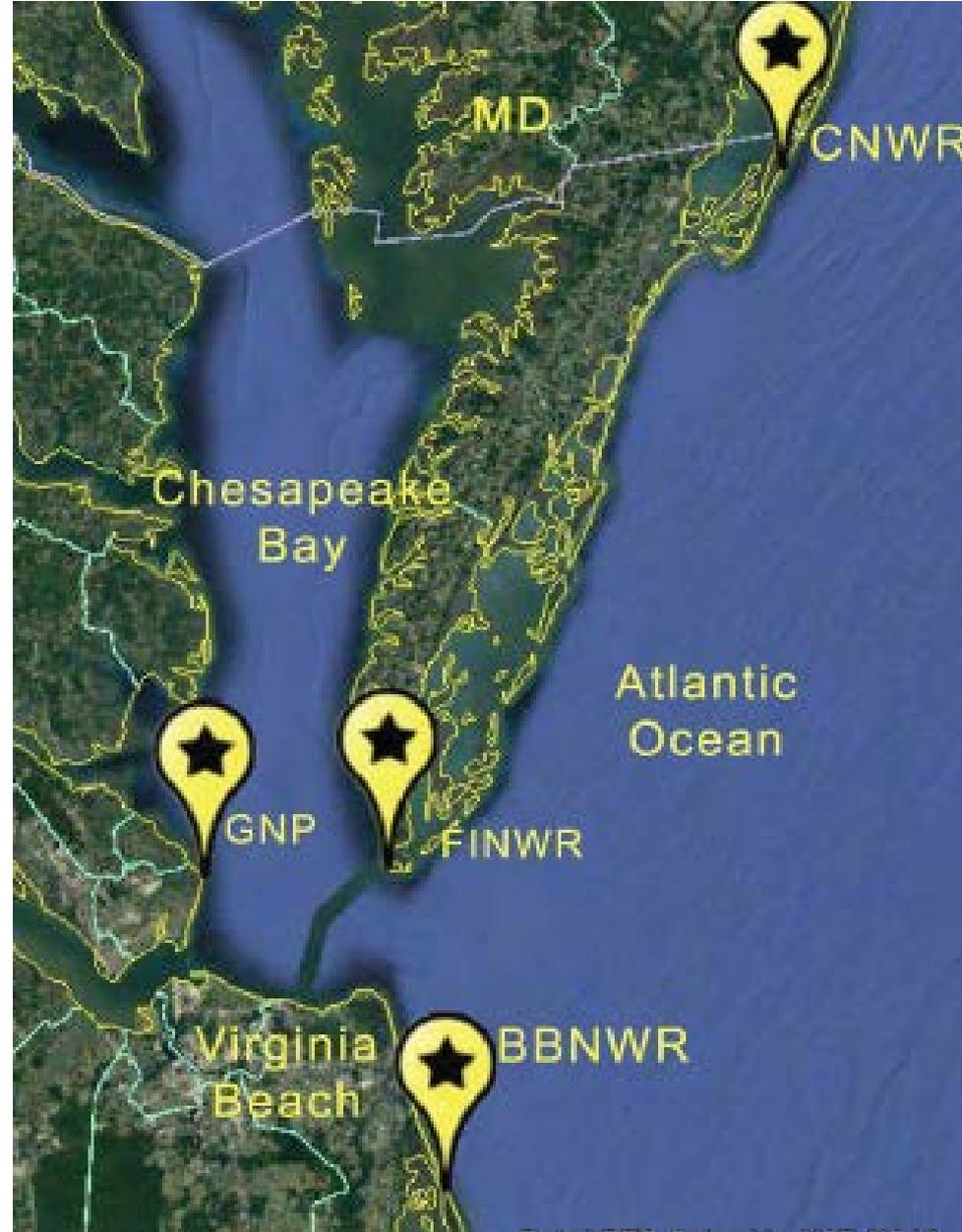
Photo by C. [unclear]



# Monitoring Marine Debris in VA's Coastal Zone

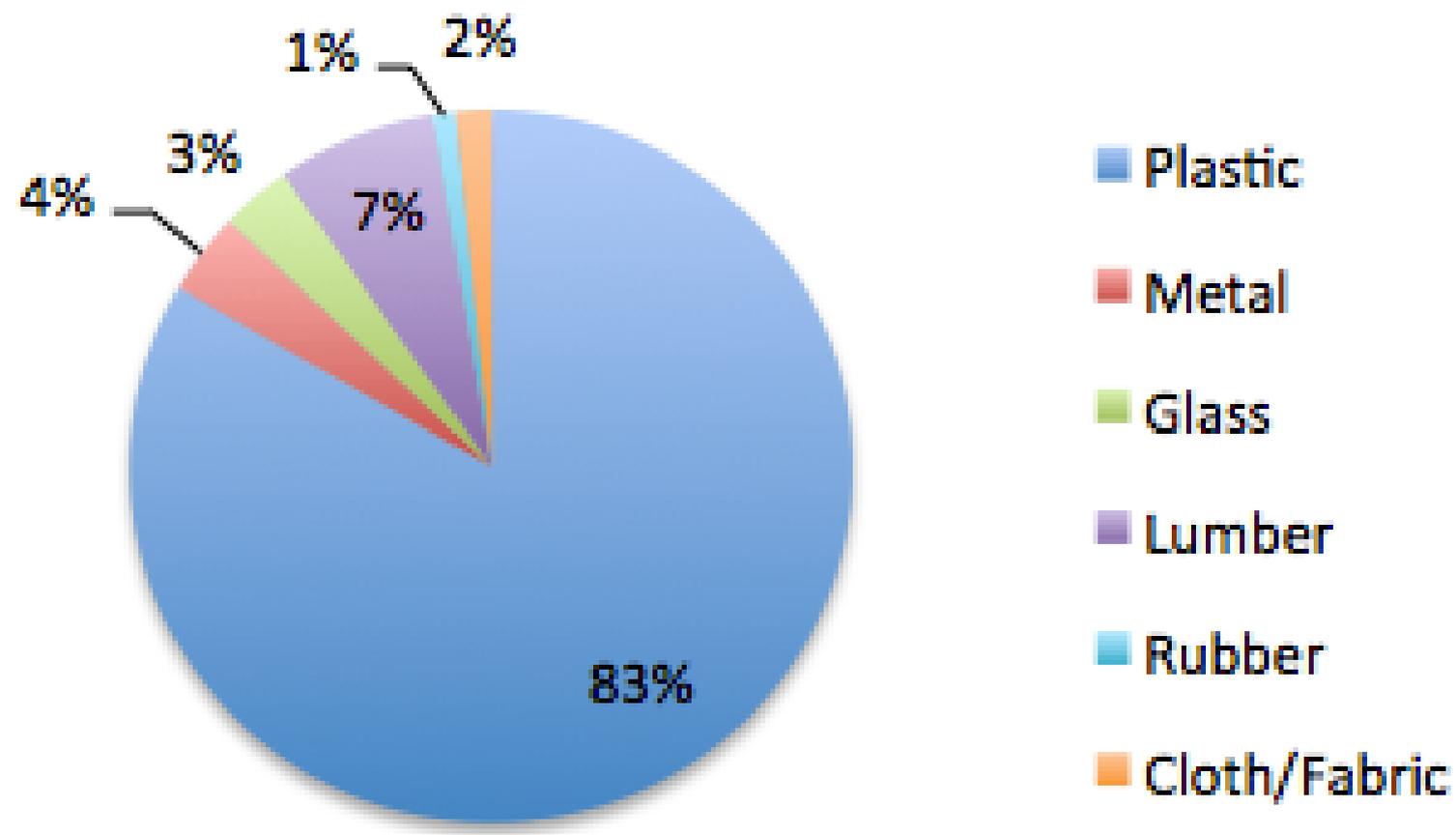
- **30 months, 250 surveys**
  - **1400 volunteer hours**
  - **3 hurricane seasons**
- 

**Chincoteague NWR**  
**Back Bay NWR**  
**Fishman Island NWR**  
**Grandview Nature Preserve**



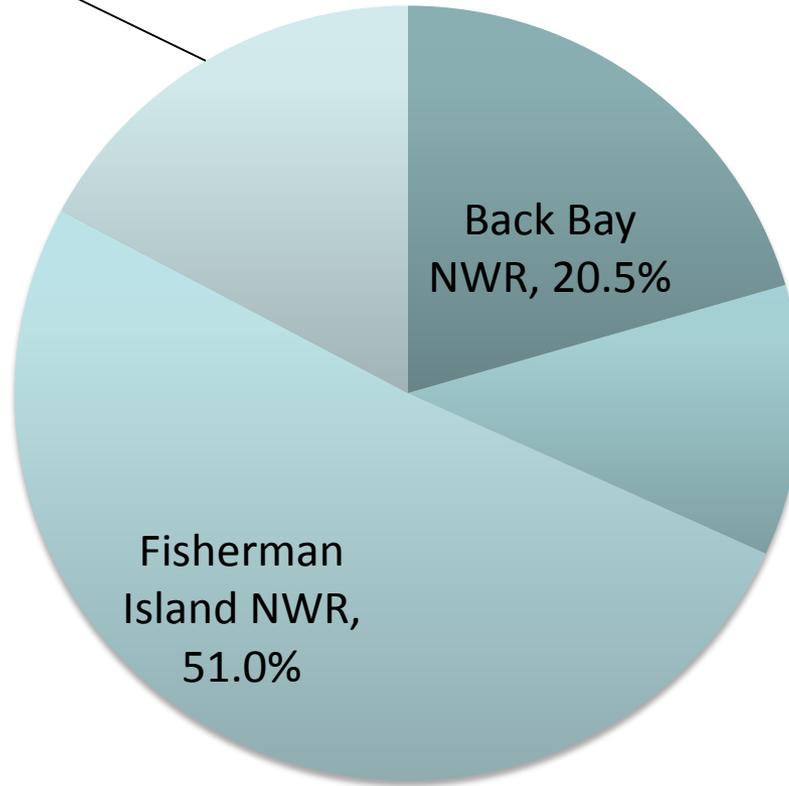


# Sources of Debris by Material

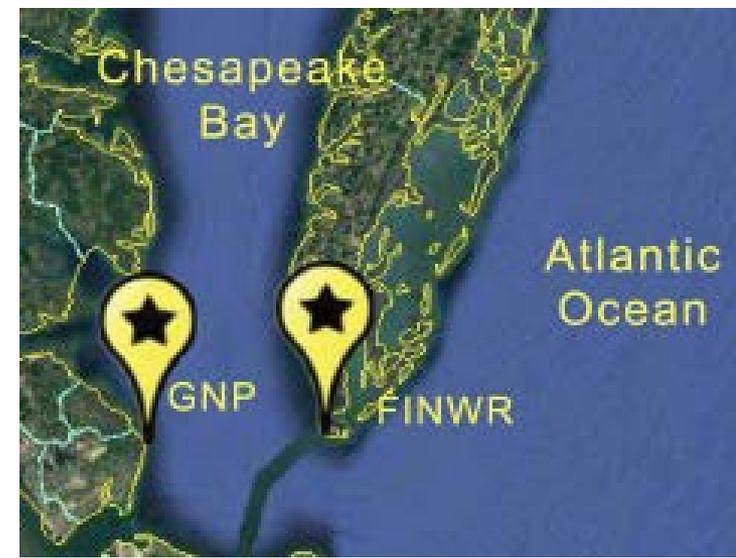


# Debris accumulation

Grandview  
Nature  
Preserve,  
17.2%



Chincoteague  
NWR, 11.3%



# Items found

Rank	Item	Total
1	Bottle/Container Caps	443
2	Balloons Mylar	433
3	Food Wrappers	342
4	Lumber/Building Material	292
5	Plastic Rope/Net	281
6	Cigarettes	256
7	Plastic Beverage Bottles	253
8	Cups	126
9	Alum/Tin cans	126
10	Other jugs	122
11	Plastic Bags	115
12	Fishing Lures & Line	96
13	Straws	85



# Derelict Fishing Gear (DFG)

Item		
Ropes and nets (plastic)	281	
Fishing Lures & Line	96	
Rope/Net Pieces (non-nylon)	49	
Buoys & Floats	38	
<b>Totals</b>	<b>464</b>	<b>+ 68</b>

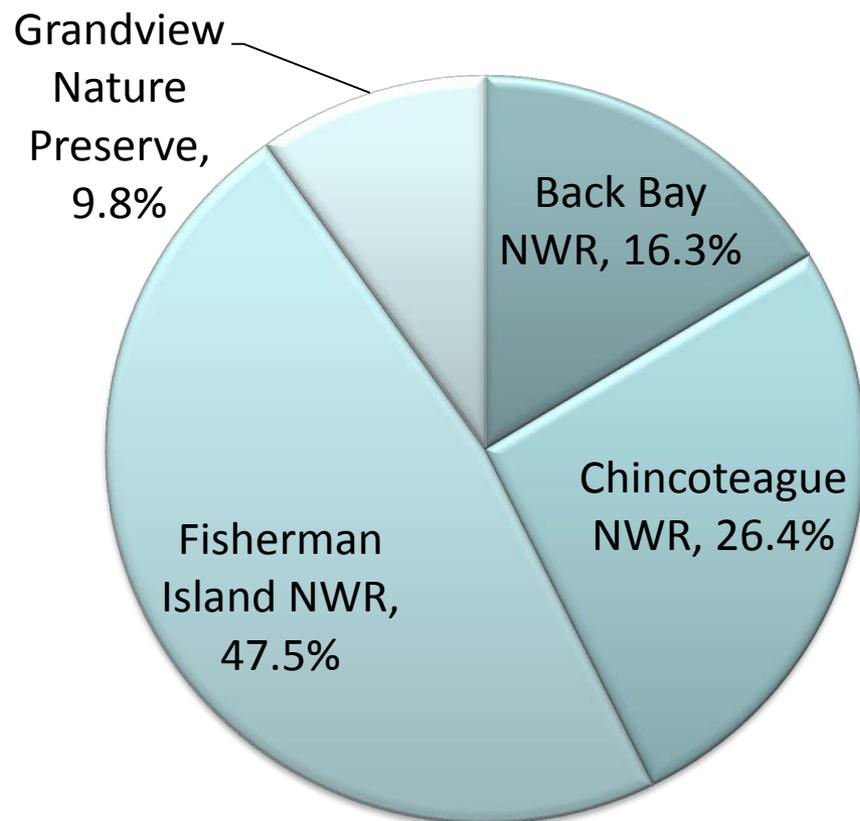
Of these, 63% were found on Fisherman Island.

# Smoking-related Litter

<b>Item</b>	
Cigarettes	256
Cigar tips	47
Lighters	31
<b>Total</b>	<b>334</b>

58% of cigarette butts were found on Fisherman Island.

# Balloon-related Litter



207 of the 436 balloons were found on Fisherman Island.

# Beachy Clean



Two year pilot in VA Beach

Focus:

- Beach Visitors
- Specific actions to ensure clean, safe beaches and waters
  - Don't litter
  - Recycle
  - Cigarette butt litter
  - Pet waste
  - Don't feed the birds

# Beachy Clean



- Partners
  - Clean VA Waterways
  - Hotels & Restaurants
  - City of VA Beach
  - Surfrider Fnd (VB chapter)
  - Navy volunteers

# Beachy Clean



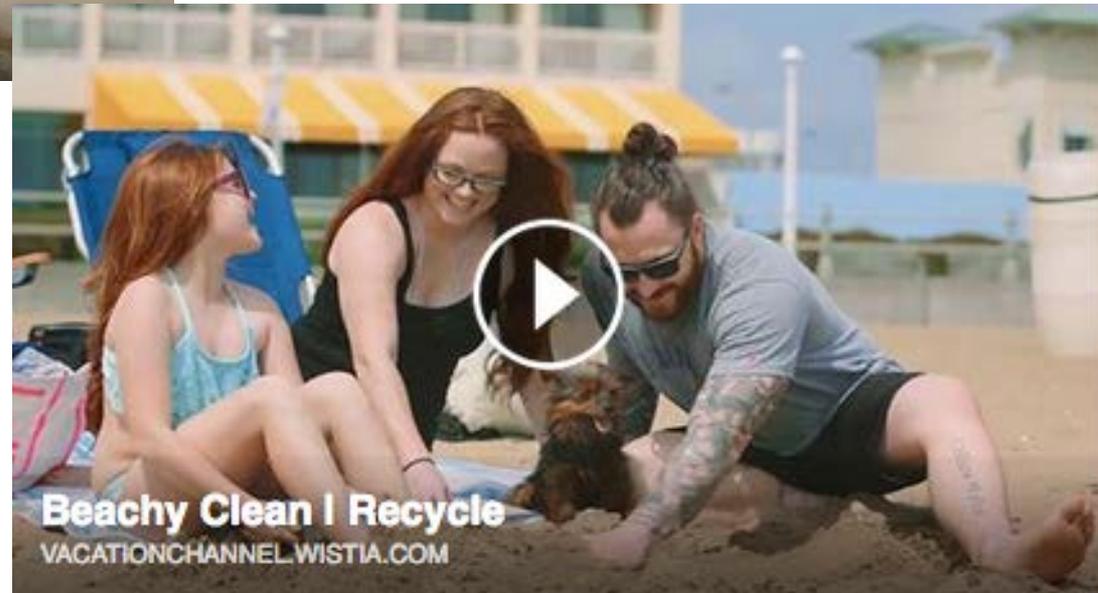
- Hotel lobbies & guest rooms
- Trash cans on beach
- Ash Receptacles on boardwalk
- Trolleys





# Beachy Clean

PSAs for hotel TVs



# Beachy Clean



- Positive feedback from partners
- Expansion Plans

# Balloon Litter Monitoring

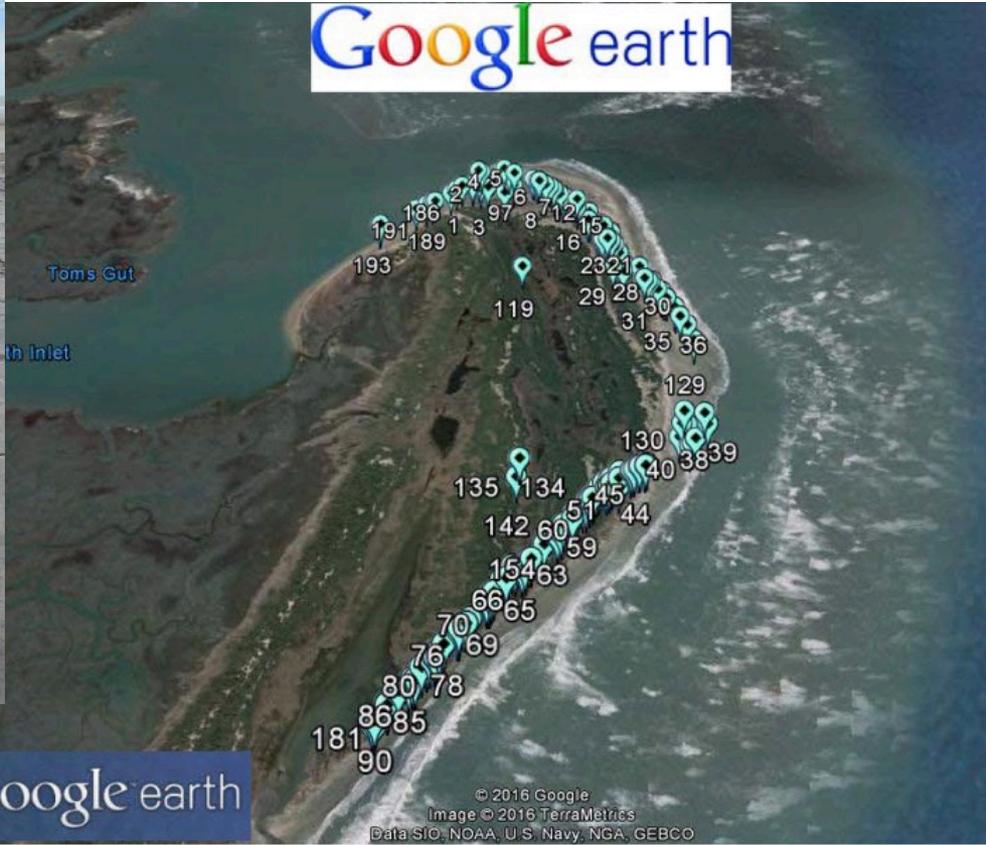


Smith Island  
Hog Island  
Fisherman Island  
Cedar Island  
False Cape State Park



Monitoring will help measure/evaluate the effectiveness of the social marketing campaign.





**June 2016:  
487 balloons on  
Hog Island**

Photos by C. Trapani

Hog Island Bay

Hog Is

Broadwater Broadwater

Rogue Island

### North Hog Island, June 9, 2016 2.75 miles

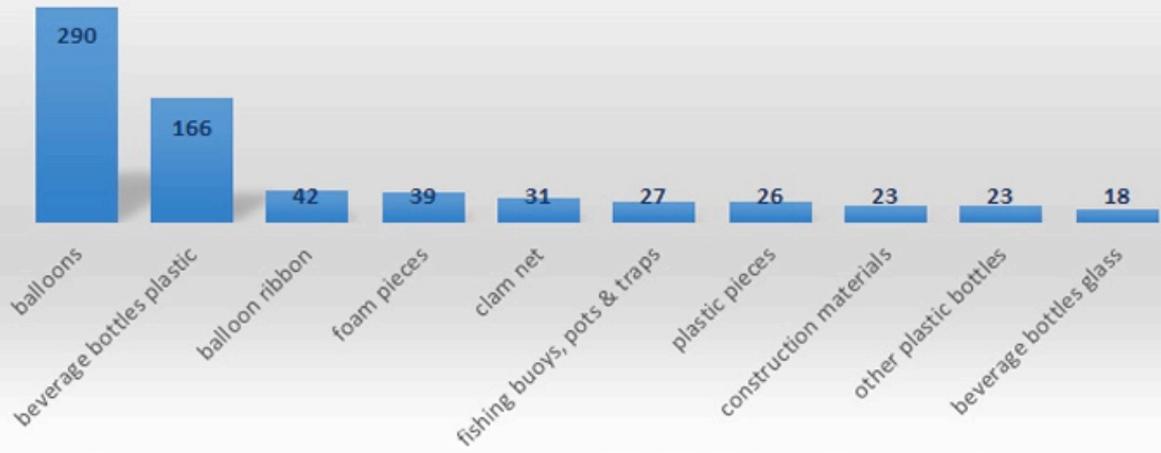


Image © 2016 TerraMetrics

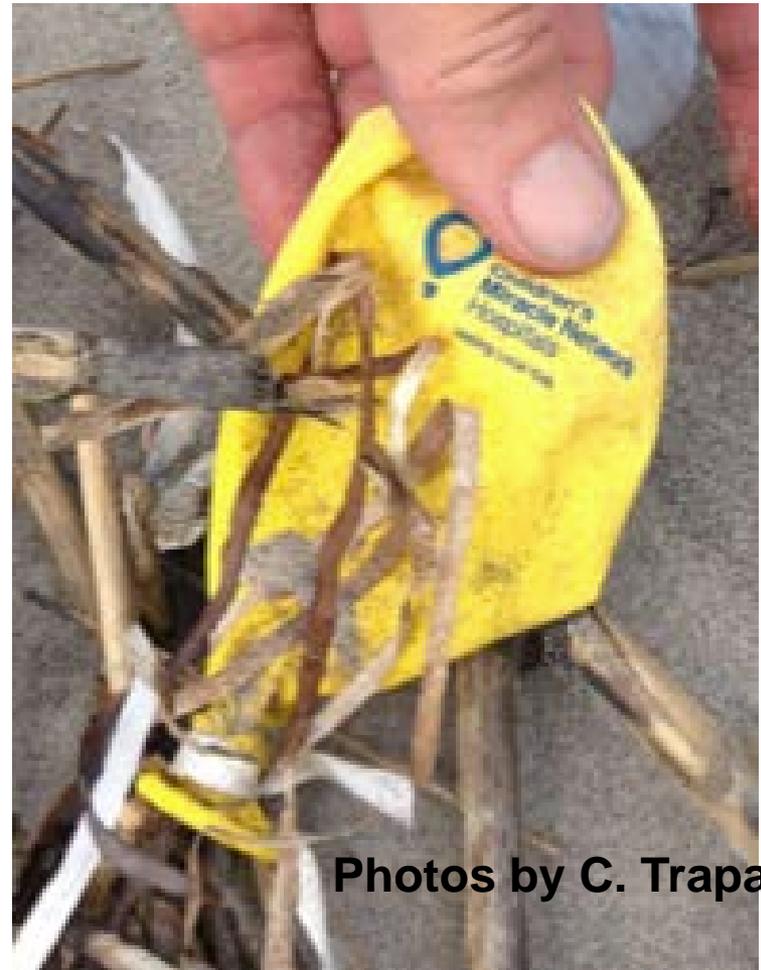
© 2016 Google

Data: SIO, NOAA, U.S. Navy, NGA, GEBCO

Google Earth



# Business & Causes



Photos by C. Trapani

# Celebrations & Memorials



Photos by C. Trapani

# Ecological and Economic Effects of Derelict Fishing Gear in the Chesapeake Bay

2015/2016 Final Assessment Report

Donna Marie Bilkovic<sup>1</sup>, H. Ward Slacum, Jr., Kirk J. Havens<sup>1</sup>,  
Danielle Zaveta<sup>2</sup>, Christopher F. G. Jeffrey<sup>3</sup>, Andrew M. Scheld<sup>1</sup>,  
David Stanhope<sup>1</sup>, Kory Angstad<sup>1</sup>, John D. Evans<sup>4</sup>



Revision 2, Oct. 7, 2016

Prepared for  
Marine Debris Program  
Office of Response and Restoration  
National Oceanic and Atmospheric Administration  
Contract DG1339-10-CO-0034, Task Order 007



## A new study led by VIMS

“Ghost” crab pots are the most common type of DFG in the Bay.

- *“Our study is the first to look at the impacts of derelict fishing gear in both the Maryland & Virginia portions of the Chesapeake Bay.”*

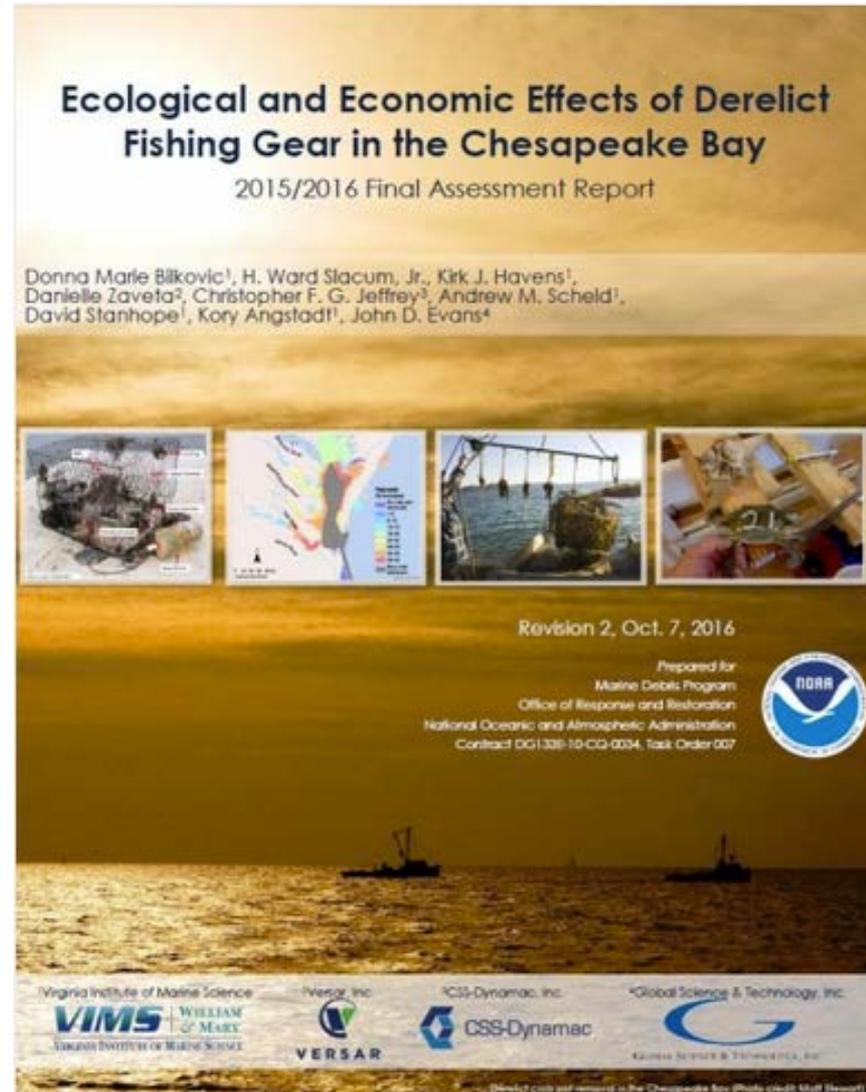
Dr. Donna Marie Bilkovic, VIMS

Comprehensive Bay-wide assessment.

Funded by the NOAA Marine Debris Program.

Also created:

- A Guiding Framework for derelict fishing gear assessments, which can be applied to other fisheries
- Management actions to help reduce the number of new derelict pots



New Projects Underway  
To help advance the VMDRP goals

# Stormwater & Litter

Information exchange for stormwater managers.

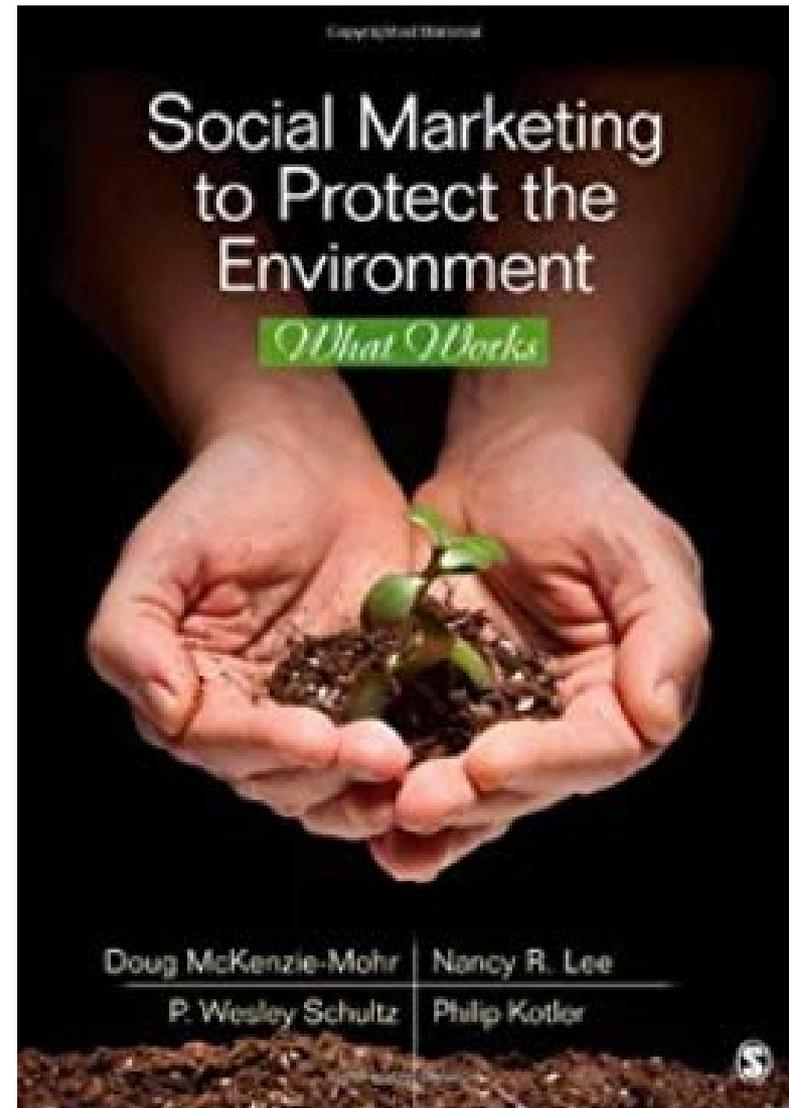
Where land-based litter becomes aquatic



# Social Marketing Workshop

June 2017 in Richmond

- Dr. Doug McKenzie-Mohr
- Build capacity to develop successful social marketing campaigns to address sources of marine debris



# New Projects Underway

- Clam Netting: exploring solutions



**Photo: Pam Denmon, FWS**



# “Dr. Trash”

## Marine Plastic Pollution

- VA Institute of Marine Science
- Full scholarship to support a doctoral student to study marine plastic pollution
- The Freeman Family Fellowship

# Social Marketing Campaign to Reduce Balloon Releases

Funding: NOAA Marine Debris Program + VA Coastal Zone Management Program



# OpinionWorks Credentials

- Measure perceptions, behaviors
- Random samples, focus groups
  - *The Baltimore Sun* polling
  - University of Delaware
    - Ag/Residential response to Water Fee
  - Chesapeake Bay Trust
    - Extensive work assessing stewardship
  - City of Dayton, Ohio
    - Comprehensive survey of resident attitudes
  - West Virginia Department of Health
    - Barriers to cancer screening for low-income women
  - Virginia Cooperative Extension
    - Testing affinity for a sustainable lawn care program

**THE BALTIMORE SUN**  
THURSDAY  
March 10, 2016

**ELECTION 2016 BALTIMORE MAYOR**  
Poll finds 25 percent of likely Democratic voters are still undecided, and support remains soft for some candidates

<b>PUGH</b> 26%	<b>DIXON</b> 24%	<b>WARNOCK</b> 10%	<b>MOSBY</b> 6%	<b>EMBRY</b> 5%	<b>STOKES</b> 3%
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**The question**  
If the Democratic primary for mayor were held today, for whom would you vote? Twenty-five percent said they are undecided.

## Pugh, Dixon virtually tied in primary race

By LUKE BROADWATER AND YVONNE WENZEL  
The Baltimore Sun

State Sen. Catherine E. Pugh and former Mayor Sheila Dixon are locked in a virtual tie in the Democratic race to become Baltimore's next mayor, a new poll for *The Baltimore Sun* and the University of Baltimore shows.

Pugh, whose support has surged in recent weeks, is now favored by 26 percent of likely voters in the Democratic primary. That's two points higher than the 24 percent who back Dixon, who has led the field for months. Businessman David L. Warnock, who has spent more than \$450,000 on television ads, is in third place with 10 percent.

"It's a tight race between the two leaders," said Steve Raabe, president of OpinionWorks, the Annapolis-based firm that conducted the poll. "Sheila Dixon has been matched and potentially overtaken by Catherine Pugh. People who decided recently are going toward Pugh."

City Councilman Nick J. Stanley was in fourth with 6 percent, followed by lawyer Elizabeth Embry with 5 percent and Councilman Carl Stokes with 3 percent. All other candidates in the crowded field of 23 Democrats — including prominent Black Lives Matter activist DelRay McKesson and engineer Calvin Young III — each garnered less than 1 percent.

With seven weeks to go until the April 26 primary, there is time for the race to change. A quarter of Democrats said they are undecided. And even among those who see MAYOR, page 12

### The poll

This poll is a joint venture of *The Baltimore Sun* and the University of Baltimore's College of Public Affairs and Schaefer Center for Public Policy.

**Coming Friday:**  
The presidential primaries

**THE BALTIMORE SUN**  
**ub UNIVERSITY OF BALTIMORE**

## \$535M sought in city TIF aid

Sagamore wants help with infrastructure for Port Covington

By NATALIE SHERMAN  
The Baltimore Sun

The city is being asked to contribute \$535 million to help finance the redevelopment of Port Covington, where billionaire Under Armour CEO Kevin Plank has embarked on a plan to transform the peninsula with offices, homes, shopping, restaurants, parks and a state-of-the-art campus for his growing company.

The city money would help pay for streets, utilities, parks, and highway and transit improvements for the roughly \$1.5 billion project.

Sagamore Development, Plank's private real estate firm, estimates that infrastructure for the project would cost in excess of \$1.2 billion. It plans to seek an added \$274 million in federal and state funds.

Sagamore officials have been meeting privately with city and state leaders for months to build support for its plans on the peninsula south of Interstate 95, jutting into the Patuxent River's Middle Branch. An ad campaign stating "We will build it together" launched this month.

See PROJECT, page 12



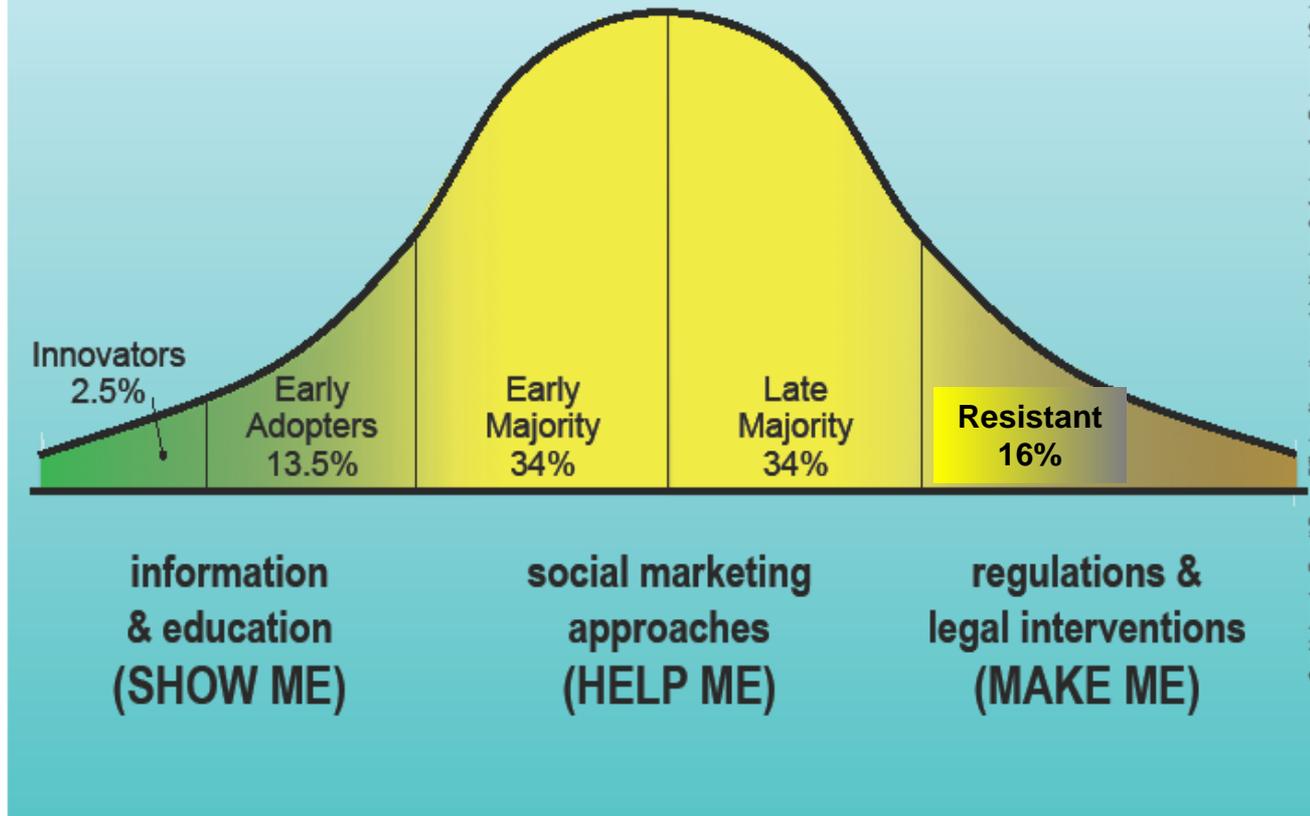
# A Rising Concern: Reducing Balloon Release and Debris Through a Social Marketing Campaign



**Virginia Coastal Zone**  
MANAGEMENT PROGRAM



# Diffusion Approaches: Education, Marketing, and Law



Credit: Nancy R. Lee, University of Washington & Puget Sound Partnership  
Adapted from Everett Rogers, Jay Kassirer, Mike Rothschild, Dave Ward, Kristen Cooley

# Level of Investment to Change Behavior

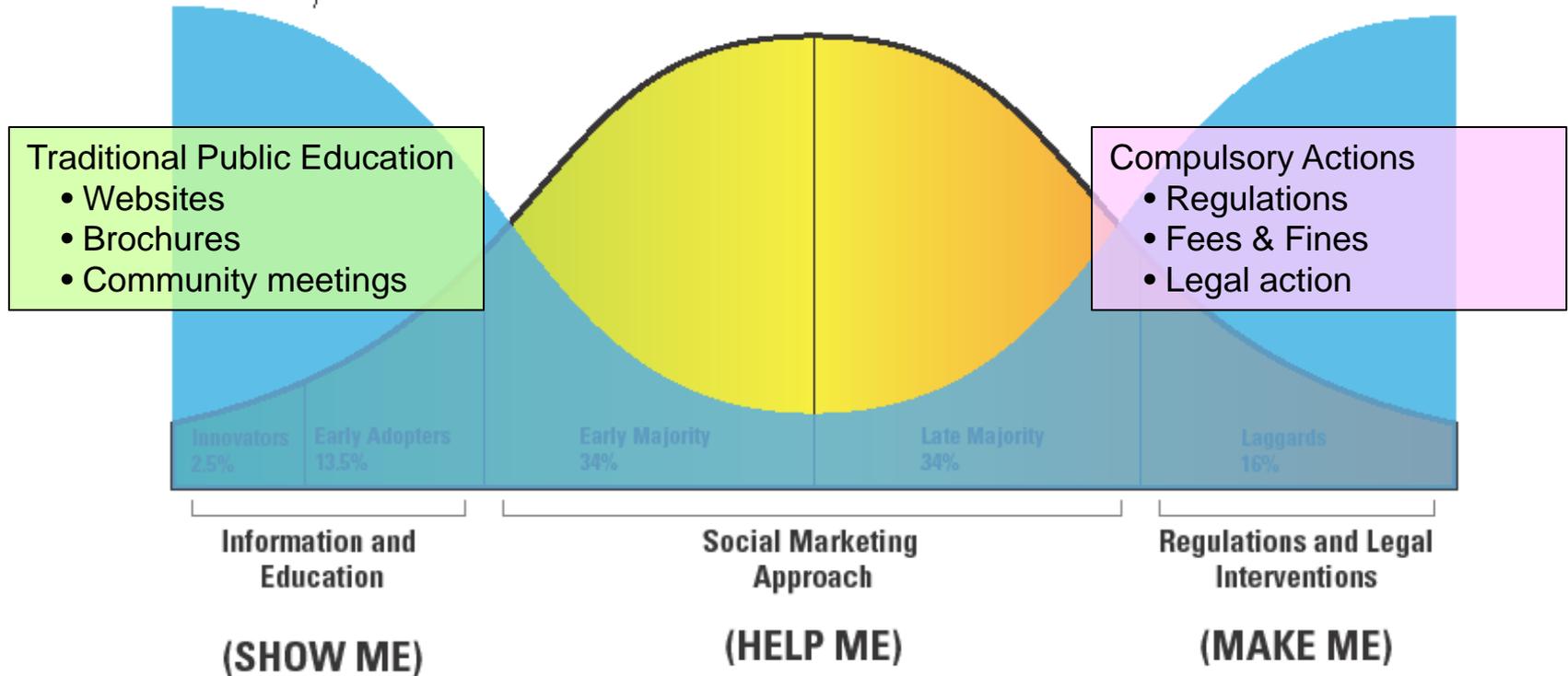
(conceptual)



Credit: Nancy R. Lee, University of Washington & Puget Sound Partnership  
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# Level of Investment to Change Behavior

(conceptual)



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Adapted from Everett Rogers, Jay Kassirer, Mike Rothschild, Dave Ward, Kristen Cooley

# The Social Marketing Process

## Reaching the Help Me Group

1. Know your campaign's purpose and focus
2. Pinpoint your target audience
3. Identify the specific behavior you want the audience to take
4. Assess the barriers to the action
5. Find the benefits and motivators that will overcome those barriers

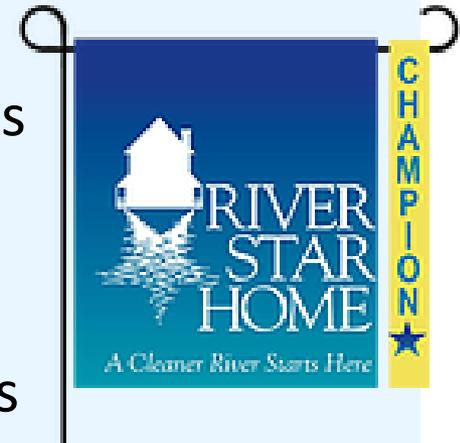
# The Social Marketing Process

## Reaching the Help Me Group

### 6. Refine your messages, incentives, and tools, and determine where and how you will deliver them to the target audience

- Product: Social Marketing Tools, Benefits
- Place: Convenience for the Audience
- Price: Incentives, Rebates
- Promotion: Messages, Delivery Channels

### 7. Evaluate and measure your progress



# Social Marketing Tools

## Reaching the Help Me Group

### Example Tool: Prompts

- Peel-off sticker
- Refrigerator magnet



# Taking Action for Clean Water in Capitol Heights



## Am I contributing to water pollution?

Unfortunately, we all are. Every day, trash, oil, sediment, chemicals and other pollutants collect on our roofs, roads, parking lots and driveways. When it rains, the pollutants travel over these hard surfaces and flow into our creeks and rivers.

## How Can I Help?

There are simple things we can do in our own yards to help reduce pollution in our local creek and the Anacostia River.

Disconnecting your downspout means redirecting your roof runoff away from hard surfaces like streets and driveways and onto planted areas where the water will soak in. This simple action can provide a BIG reduction in the amount of pollution.

## Helping is easy, and it's FREE!

Capitol Heights residents can get **FREE downspout redirectors** including pipe extenders and splash pads, and a **FREE visit from someone who can help you install them.**



Example Tool: Pledge

“Free Upgrade”

A/B Test:

A. Flooding

B. Water quality

50% of homes visited signed the pledge

## Take the Pledge!

We know you care about your home and want the waters to be cleaner. Sign the pledge card and become part of the solution for your community.

*I commit to helping reduce the impact of stormwater runoff in the Anacostia River by completing*  
\_\_\_\_\_ *on my personal property.*

Signature \_\_\_\_\_ Date \_\_\_\_\_

## What Happens Next?

Based on your availability, we will contact you to arrange follow up and installation.

### MORE INFORMATION:

Prince George's Department of Environment Stormwater Management Division: [bit.ly/PGDOESW](http://bit.ly/PGDOESW)  
Stormwater Fee FAQ: [bit.ly/PGDOESWFAQ](http://bit.ly/PGDOESWFAQ) • Rain Check Rebate Program: [bit.ly/PGDOESWREBATES](http://bit.ly/PGDOESWREBATES)

# Baltimore Litter Campaign

## Target Behavior

**Pick up litter when you see it.**



# Baltimore Litter Campaign Focus Group Technique

Dinner table atmosphere

120-minute sessions

Professionally facilitated

Tested:

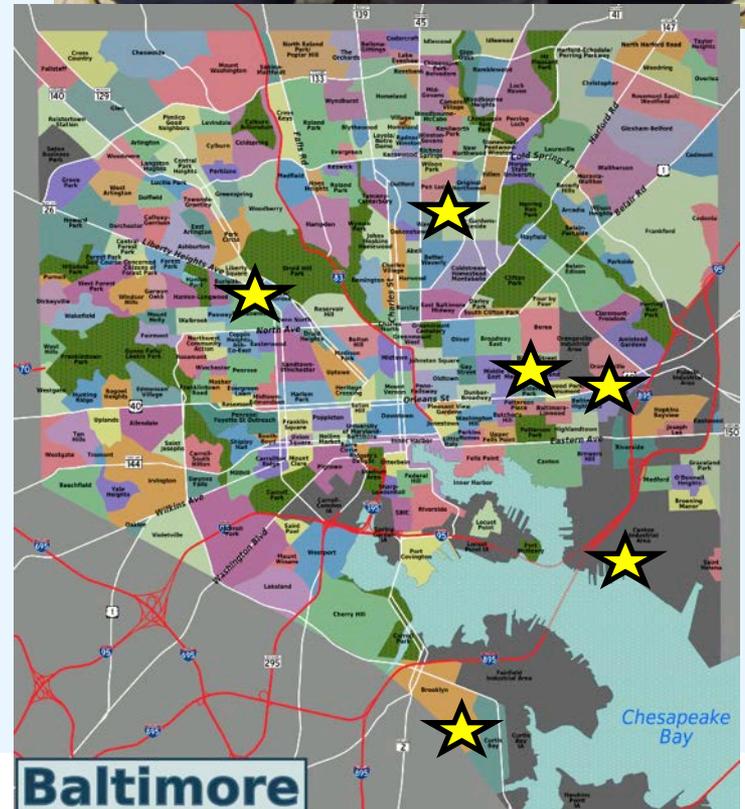
1. Attitudes, Perceptions
2. Expectations, Barriers
3. Messages, Outreach Techniques

Feb & June 2016

5 neighborhoods & Port

Soft, not hard core, litterers

Pick up litter only sometimes, or never



# Baltimore Litter Campaign

## Barriers to Picking up

### Barriers

- 1. Can't touch trash because of rats, disease.**
- 2. Risk of needles.**
- 3. A sense that no one in this neighborhood cares.**
- 4. Hurt someone's livelihood if I pick up.**
- 5. Can't keep up with the volume of trash.**

*"It's like raking leaves on a windy day."*

# Baltimore Litter Campaign

## Context #2: Neighborhood Sense of Self

**Will not throw litter in a neighborhood that is clean.**

*“You throw it where it’s going to make no difference.”*

**More littering in alleys than streets.**

**“Sad” and “embarrassed” for own neighborhood.**

**Wistful, envious.**



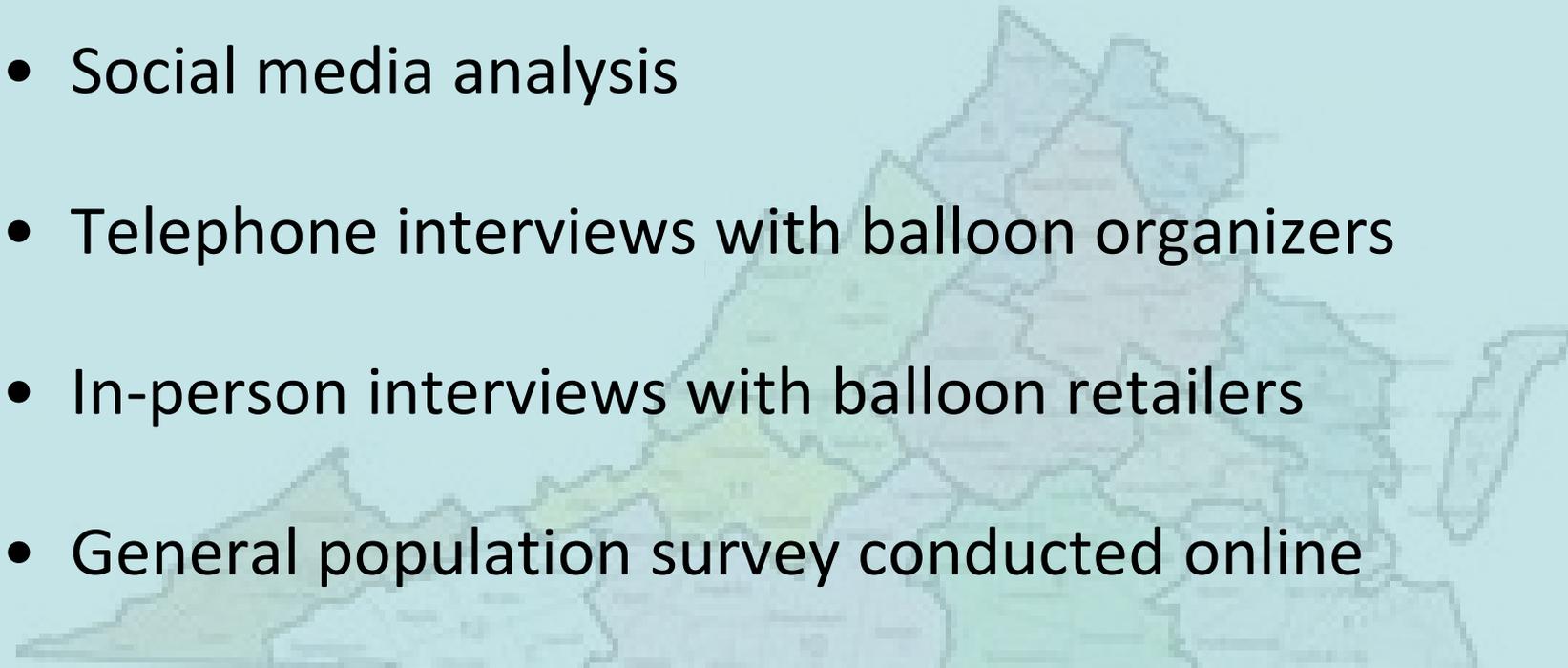
*“I want to be part of that (a neighborhood that is clean and free of litter).”*

# **The Behavior: Mass Balloon Release**

# Target Audience

## A Rising Concern

# Formative Research Methodology

- National media analysis of balloon release events
  - Social media analysis
  - Telephone interviews with balloon organizers
  - In-person interviews with balloon retailers
  - General population survey conducted online
  - Focus groups with organizers and participants
- 

# A Rising Concern

## Focus Group Method

### 5 Groups (Jul, Dec, Jan)

- Richmond (2)
- Virginia Beach (2)
- Roanoke (1)

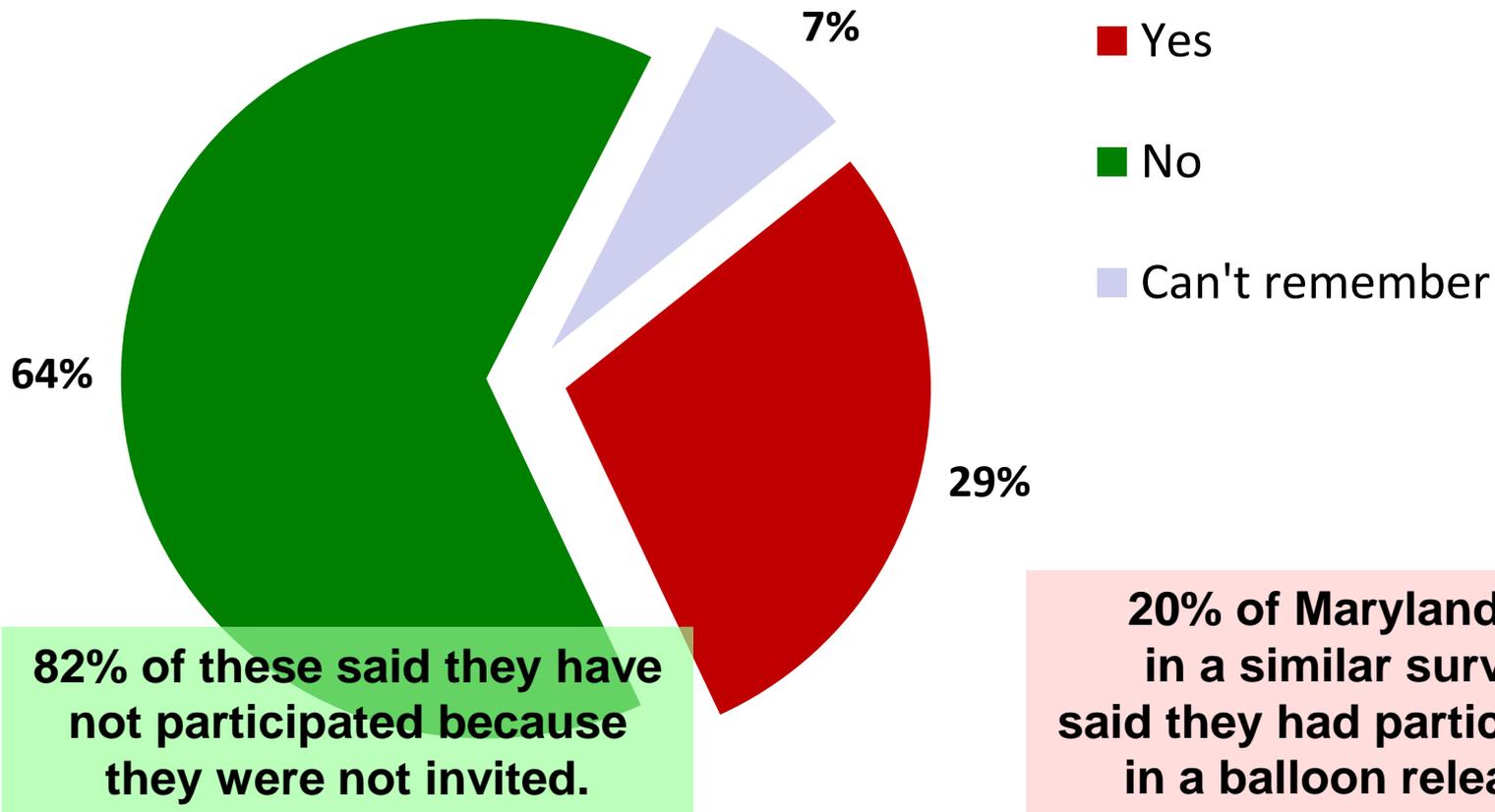


120-minute sessions, professionally facilitated

### Tested:

1. Experiences, Emotions
2. Counter-Messaging, Images
3. Alternatives, Trusted Messengers

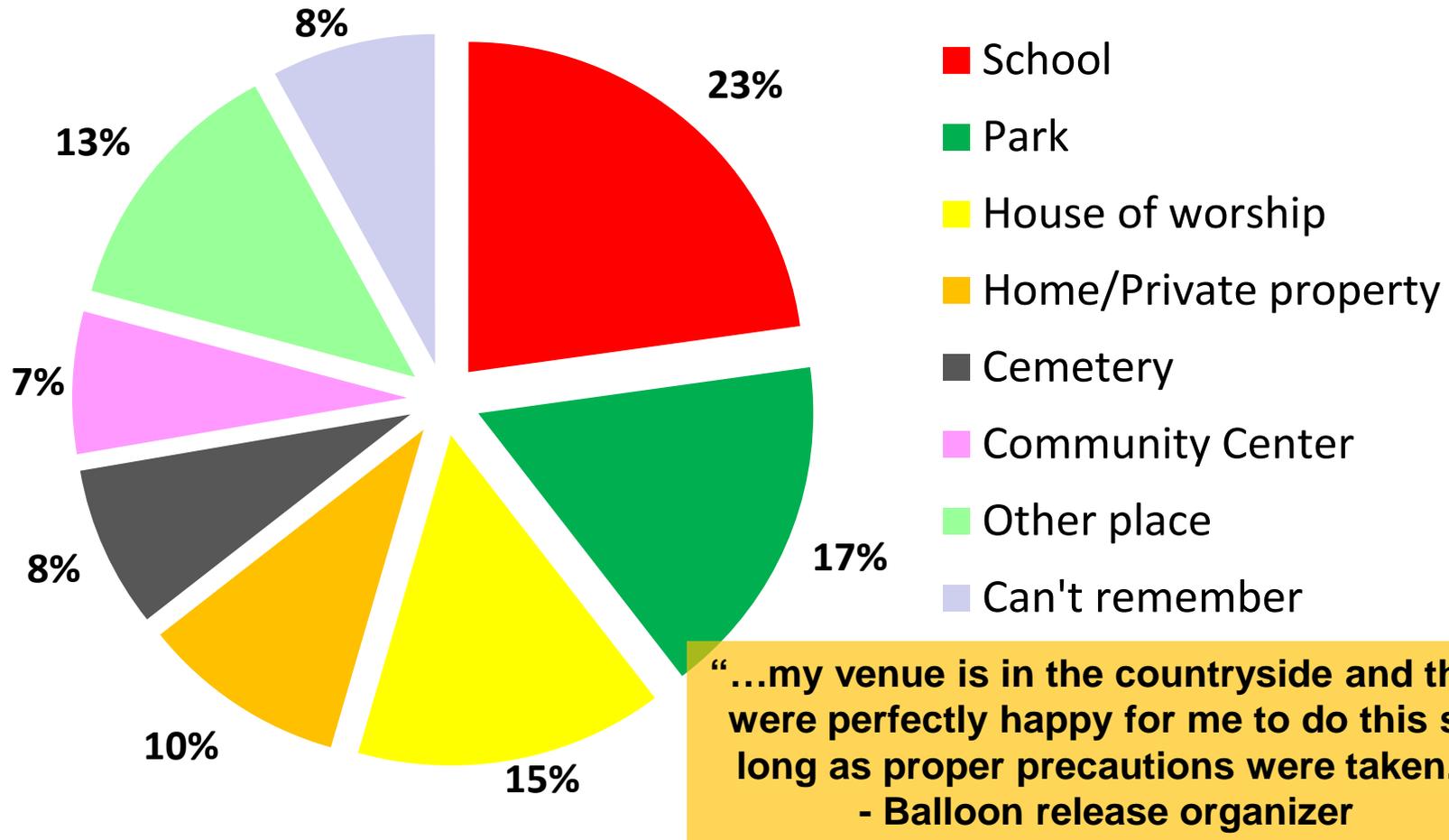
# A Rising Concern Have Taken Part in a Balloon Release



“In the last 10 years or so have you taken part in an event or ceremony where balloons were released, for example at a wedding, at school, at a memorial service, to call attention to a cause, or something like that?”

# A Rising Concern

## Location Where Balloon Release Took Place



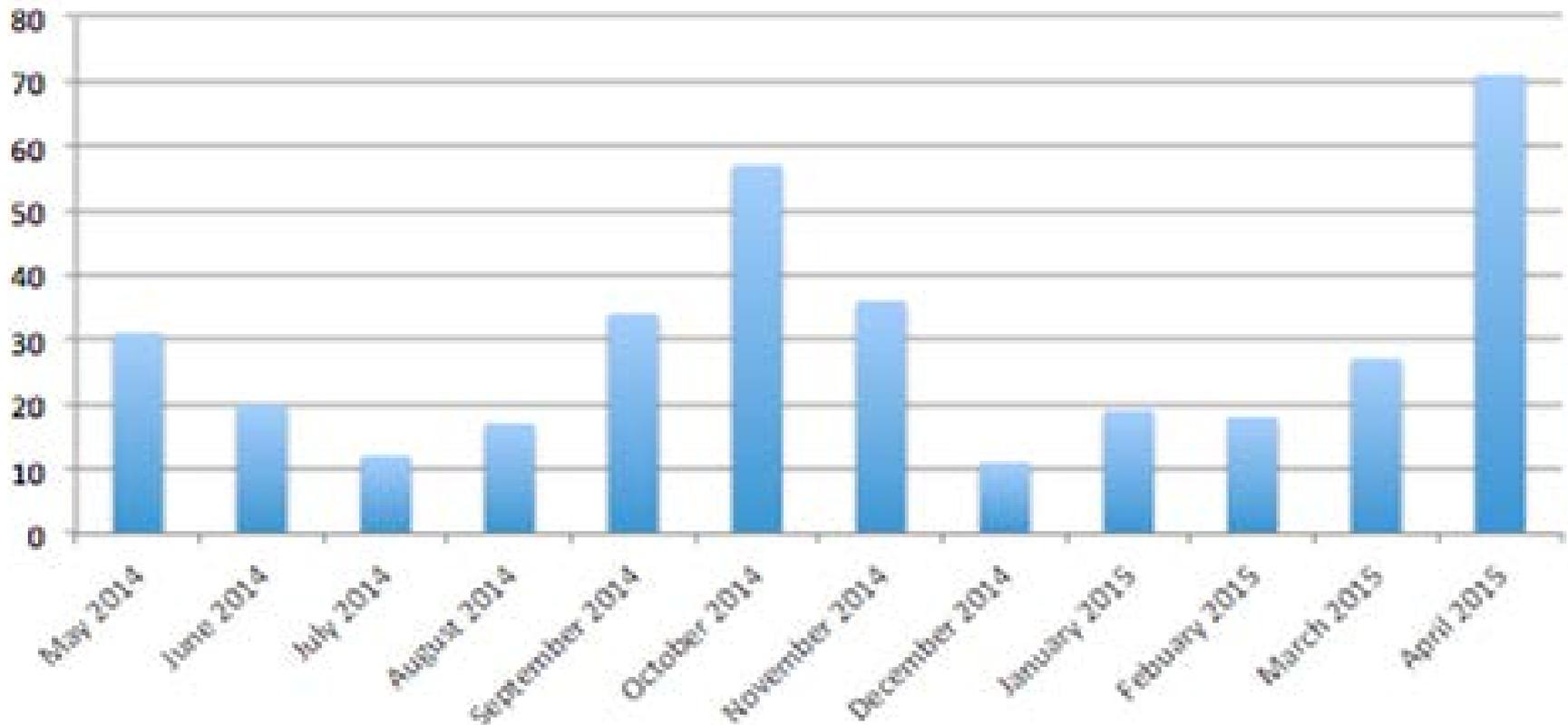
“That most recent time, where did the balloon release take place?”

# A Rising Concern

## Month When Balloon Release Took Place

### Balloon releases by month, USA.

May 1, 2014 to April 30, 2015

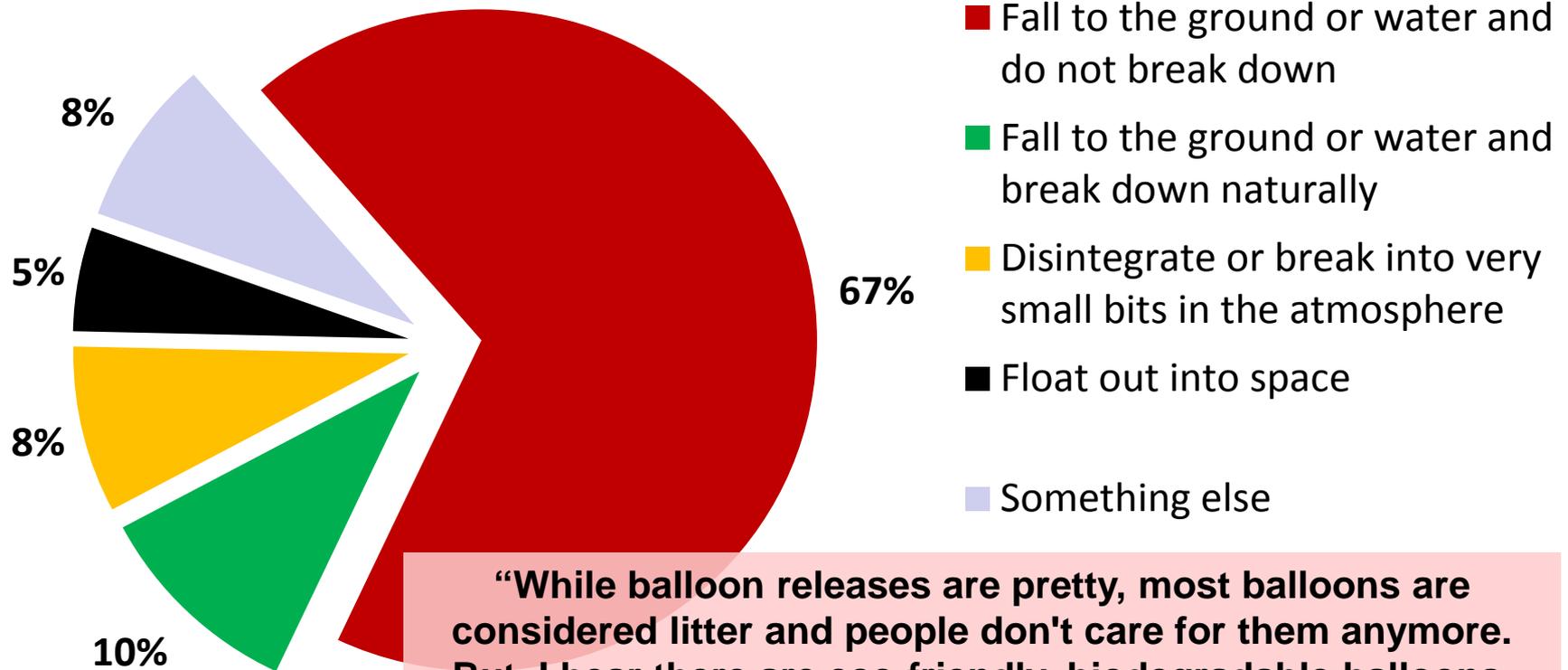


Noting this seasonality is important to outreach campaign design.

## A Rising Concern

# What Happens to Balloons When Released

*Impressions of People Who Participated in a Balloon Release*



**“While balloon releases are pretty, most balloons are considered litter and people don't care for them anymore. But, I hear there are eco-friendly, biodegradable balloons, in which case it would be great!”**  
- Balloon event organizer

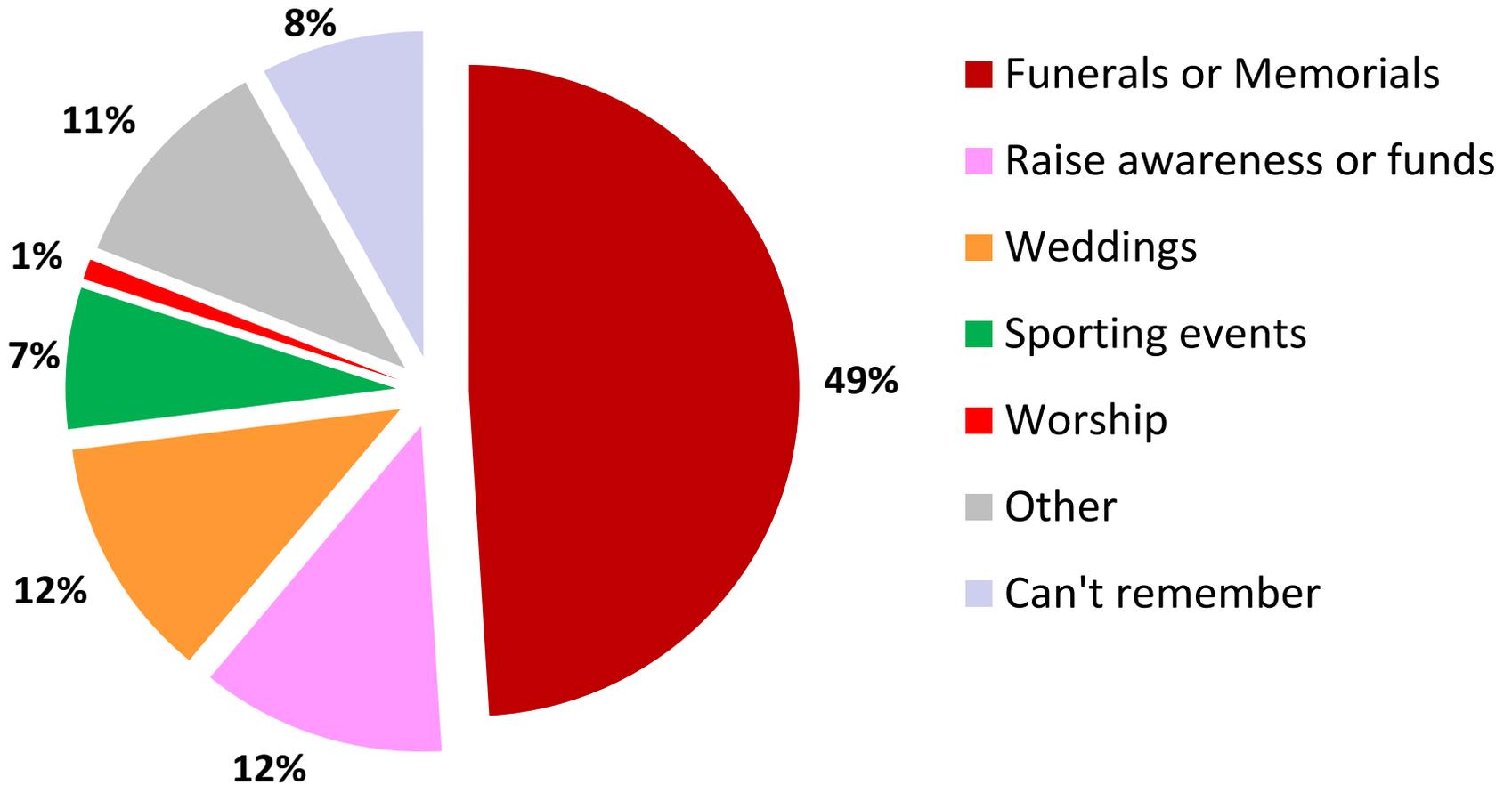
“Which of these best describes what happens to balloons when they are released into the air?”



Why?

# A Rising Concern

## Reasons for Balloon Releases



Survey tracked closely with news analysis.

**“Serenity”**

**“A sense of togetherness”**

**“Awesome!”**

**“Beautiful tribute to a life lost”**

**“Excitement”**

**“Freedom”**

**“Connected to the woman who had left us”**

**“A sense of peace”**

**“Release”**

**“Relief/Closure”**

**“Touching”**

**“Wonderful”**



# Counter-Messaging

# A Rising Concern Wildlife Impact



**Mixed impact on audience.  
Some strongly moved. Others not.  
Species affinities come into play.**

# A Rising Concern Litter Impact



**High impact for some in audience.  
But remember, they tend to minimize  
their own contribution: “I just did it once.”  
“It was only five balloons.”**

**16-20% of Power Outages Due to Balloons**  
**Unexpected Level of Concern by Audience**

**It is illegal to release 50+ balloons in Virginia.  
Just knowing that deters many law-abiding citizens.**

Target Audiences:  
College students & wedding  
planners

Now...  
marine debris reduction  
in the mid-Atlantic