

Tackling Marine Debris in Virginia and the Mid-Atlantic

**Katie Register, Executive Director
Clean Virginia Waterways of Longwood University
November 14, 2018**

Photo: Nat Geo

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 Register, Executive Director, Clean Virginia Waterways

Under the direction of:

Laura McKay, Manager, Virginia Coastal Zone Management Program

Stakeholder facilitation and research by:

Todd Janeski, Virginia Commonwealth University

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



Land-based Sources

60% to 80%



Photo: Clean VA Waterways



Photo: Ocean Conservancy

Water-based Sources

- 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

 AVERAGE LIFE EXPECTANCY



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.

We are using a permanent material for temporary uses

THE GREAT PACIFIC GARBAGE PATCH



"GREAT PACIFIC
GARABAGE PATCH"
CONVERGENCE ZONE

Growing awareness & concern
about plastic pollution.



06.2018

NATIONAL
GEOGRAPHIC

PLANET OR
PLASTIC?

18 billion pounds of
plastic ends up in
the ocean each year.
And that's just the
tip of the iceberg.

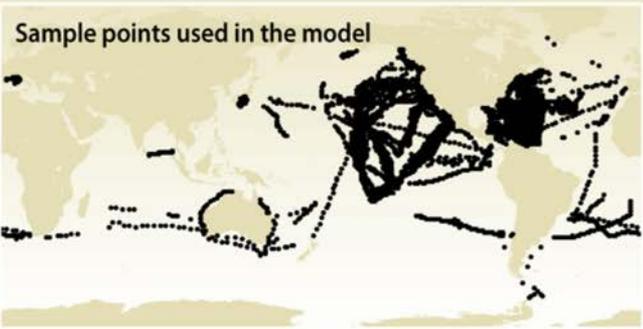
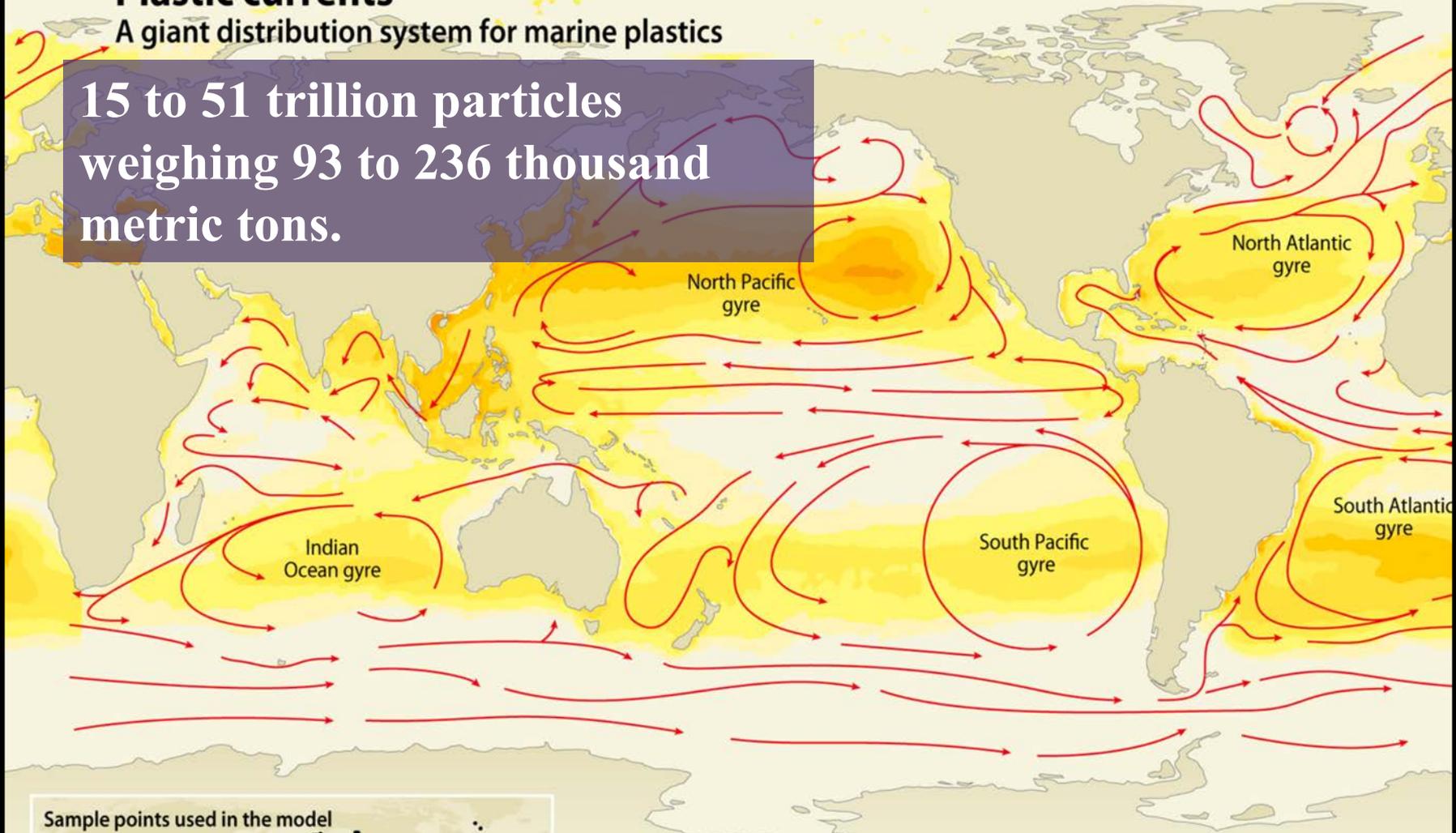
*"Plastics aren't inherently
bad. It's what we do,
or don't do, with them
that counts."*

— SYLVIA EARLE
NATIONAL GEOGRAPHIC
EXPLORER-IN-RESIDENCE

Plastic currents

A giant distribution system for marine plastics

15 to 51 trillion particles
weighing 93 to 236 thousand
metric tons.



Microplastic concentration*
Kilograms per square kilometre



Surface current



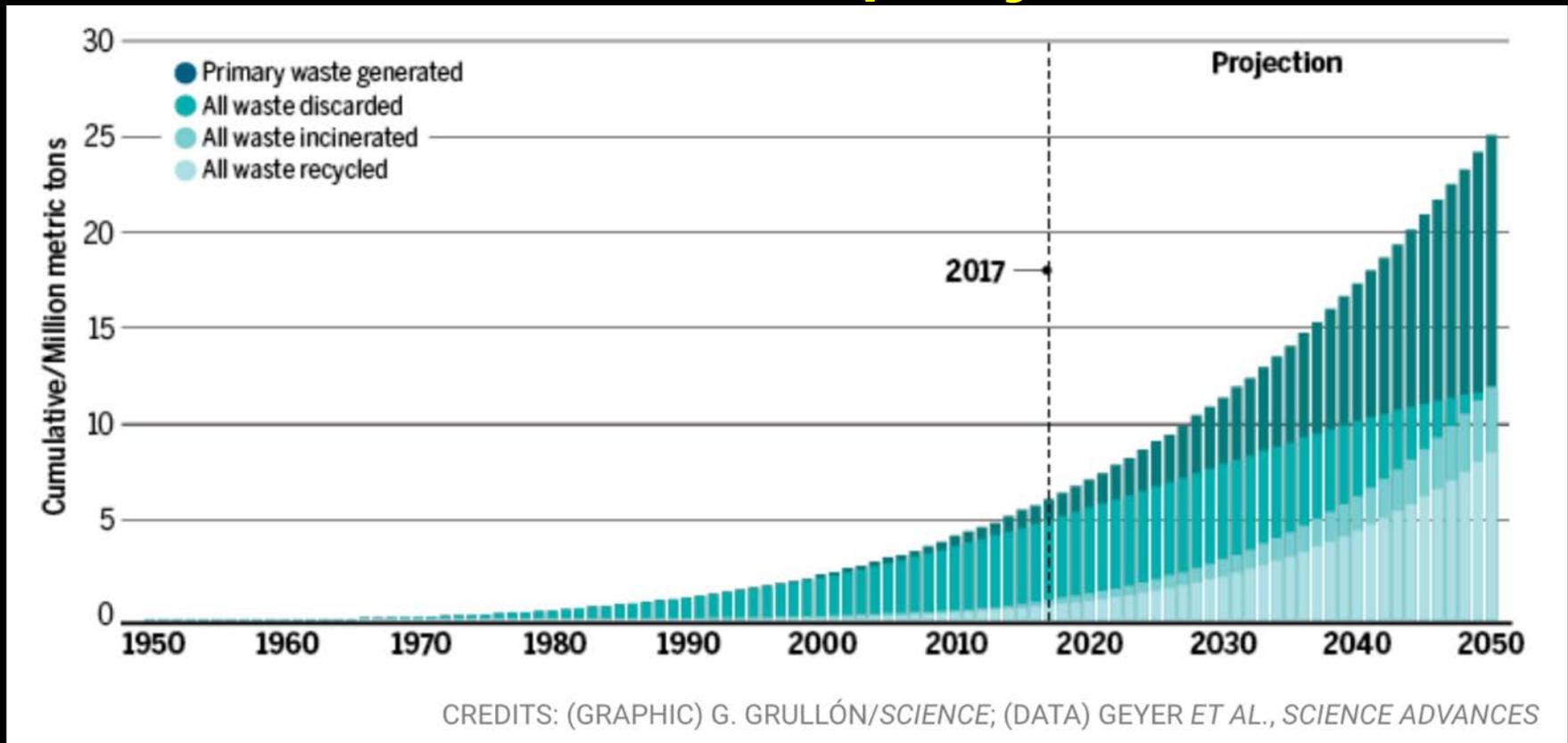
Source: Van Sebille, E., et al., A global inventory of small floating plastic debris, IOP Publishing, 2015; Cooperative Institute for Meteorological Satellite Studies

More plastic coming soon



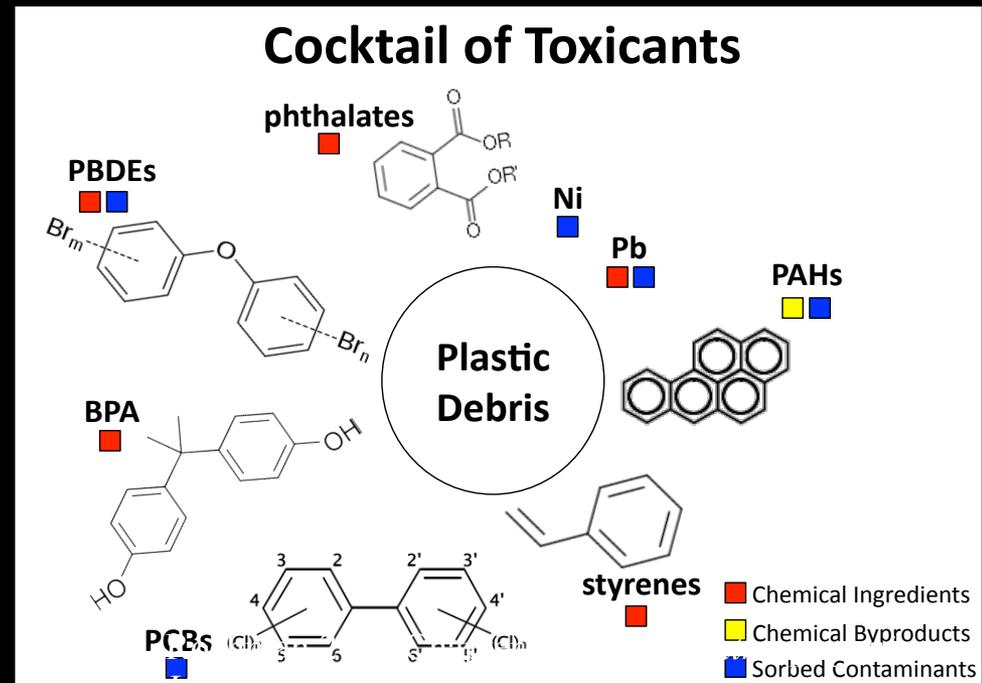
Throwaway Living. 1955. Life Magazine

Plastic waste projections



This chart shows plastic waste. Production of plastic is ~20% higher. Mostly single-use disposables. Fracked gas making production of new plastic less expensive. We can't recycle our way out of this problem.

Impacts-- physical and chemical



Litter

Impacts – Ingestion



Photo: Pam Denmon, FWS



Photos: VA Aquarium & Marine Science Center

Impacts – Entanglement



Photo: Pam Denmon, FWS

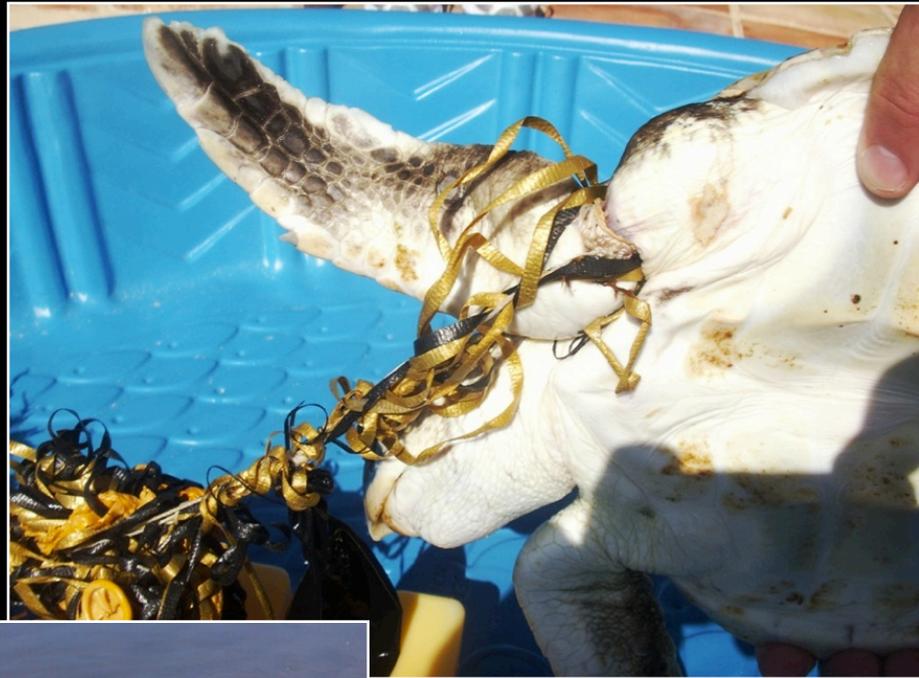


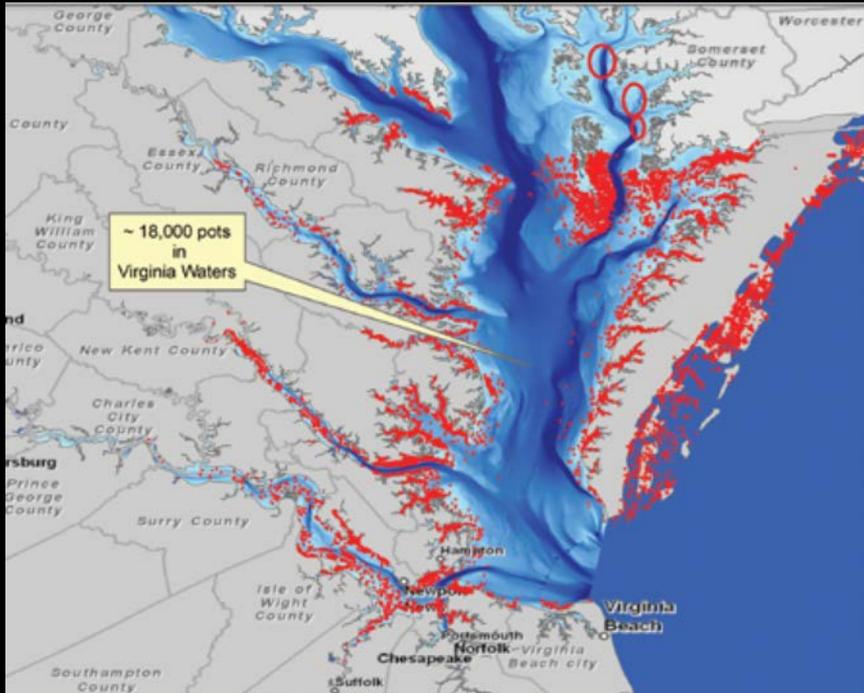
Photo: Virginia Aquarium & Marine Science Center



Photo: Ocean Conservancy



Impacts – Ghost Fishing



Derelict crab pots kill ~900,000 animals each year

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



Photo: VIMS

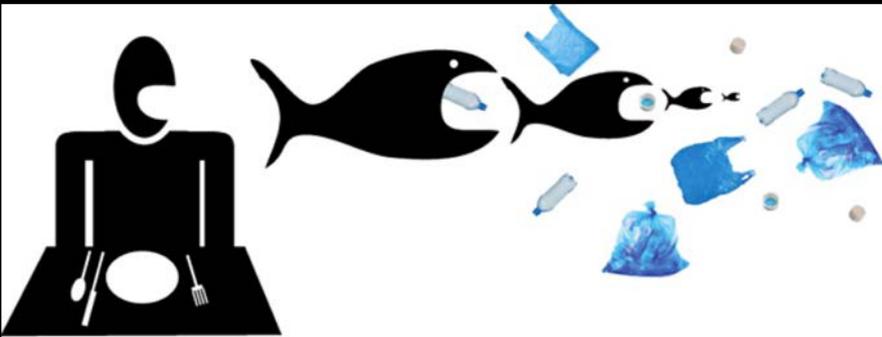
Learn more:

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

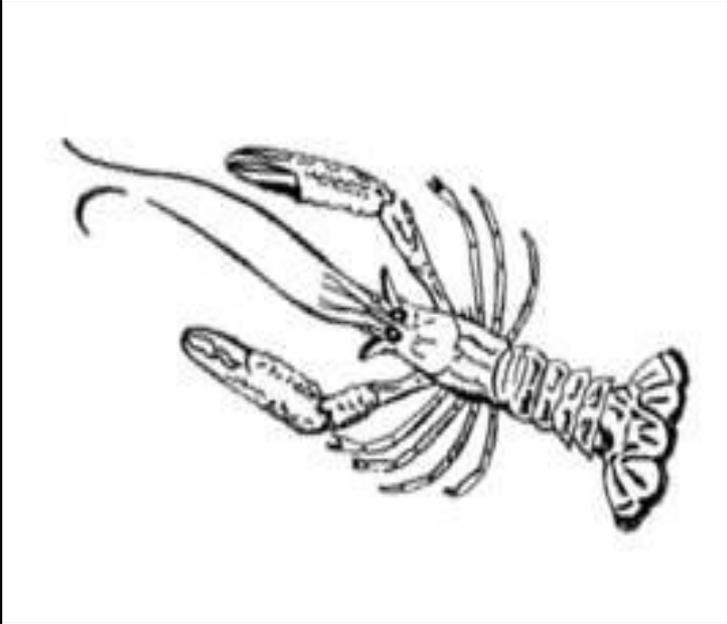
Map: Havens, Bilkovic, Stanhope &. Angstadt. VIMS

Impacts – Health & safety

We Know Plastic Is Harming Marine Life. What About Us?

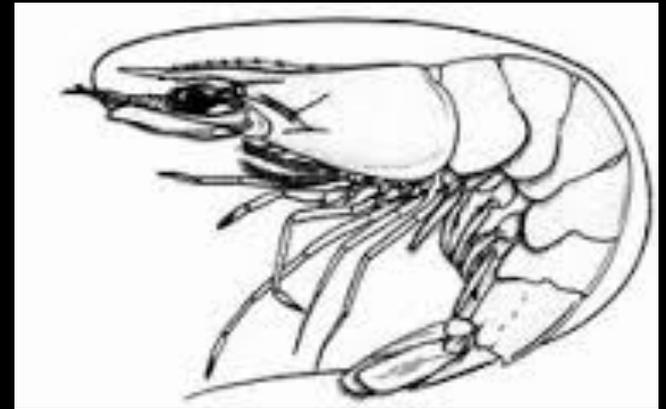


Plastic has been found in...



80% of individuals sampled. -
-Murray and Cowie, 2011

And in salt and BEER too!



63% of individuals sampled
--Devriese et al., 2015



75% of individuals sampled.
--Santana et al., 2016



Food and Agriculture
Organization of the
United Nations

FAO
FISHERIES
AND
AQUACULTURE
TECHNICAL
PAPER

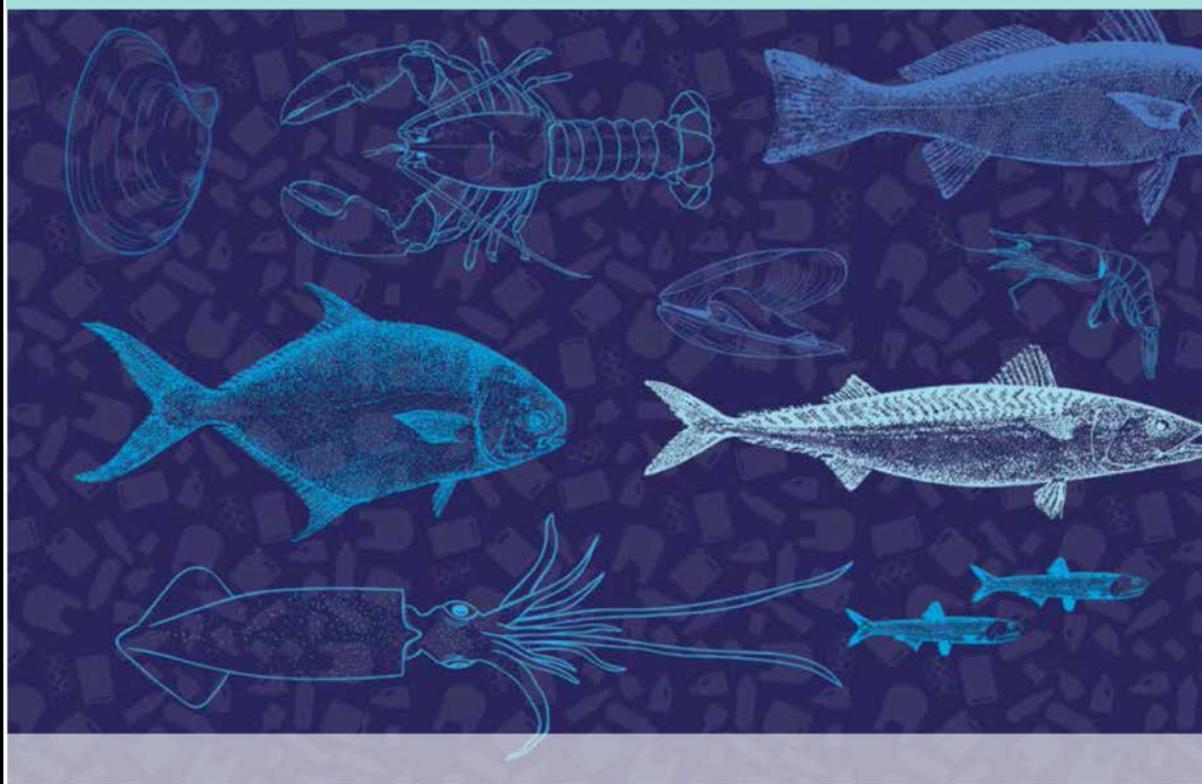
ISSN 2070-7010

615

Microplastics in fisheries and aquaculture

Status of knowledge on their occurrence and implications
for aquatic organisms and food safety

Great
summary of
plastic &
food safety



Impacts – Habitat & Economics



- Loss of habitat for nesting animals.
- Cleanup costs & Loss of tourism \$.

Most Harmful Ocean Trash

1. Fishing gear
2. Plastic bags & utensils
3. Balloons
4. Cigarette butts
5. Bottle caps

Wilcox, et al. (2016). *Marine Policy*.

Many Partners Contributing to Solutions



Stormwater & Litter

2018 Workshop of VA's Stormwater Managers

- Prevention of litter
- Interception of litter at stormdrains or “end of pipe” collection
- Need for funding & sharing of BMPs

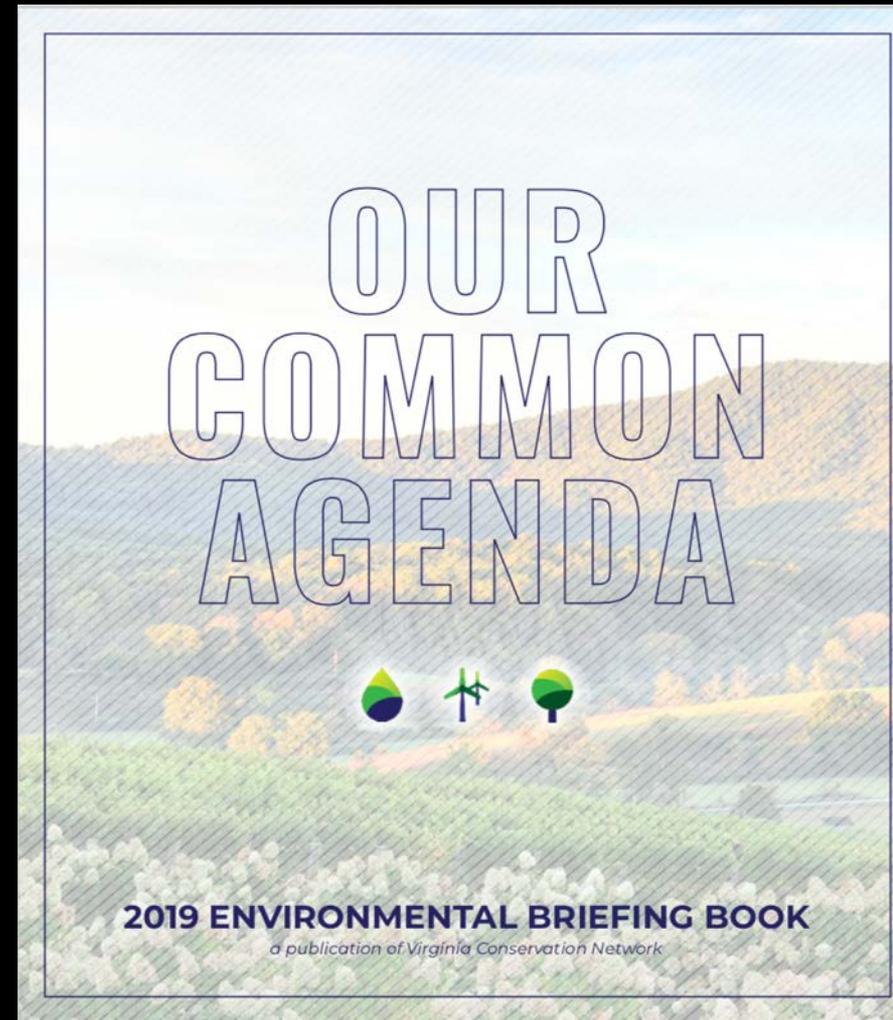
Photo: Clean VA Waterways

- Results: 2 counties created task forces
- Increased interest in local ability to enact policies to reduce litter.
- Interest in raising the Litter Tax to help fund required reduction in plastic pollution in storm water.

VA Conservation Network

Recommendations to VA Legislators:

- Allow local jurisdictions to address single-use littered items
- Raise the Litter Tax (it has been the same since 1977)



A new group formed in 2018 in Virginia:



Litter Free Virginia

[Learn The Facts](#) ▾

[Take Action](#) ▾

[About Us](#) ▾

[Newsletter](#)

A collage of six photographs showing environmental scenes: a yellow balloon hanging from a tree, a stream with a plastic bag, a white plastic bag on grass, a shopping basket, a tree with red flowers, and a white plastic bag with a tree trunk.

#LitterFreeVA

Fighting for common-sense legislation on single-use plastic bags in Virginia!



Clam netting



- Clam growers committed to removing clam nets that wash up on beaches after storms.
- VA CZM is researching recycling of nets.

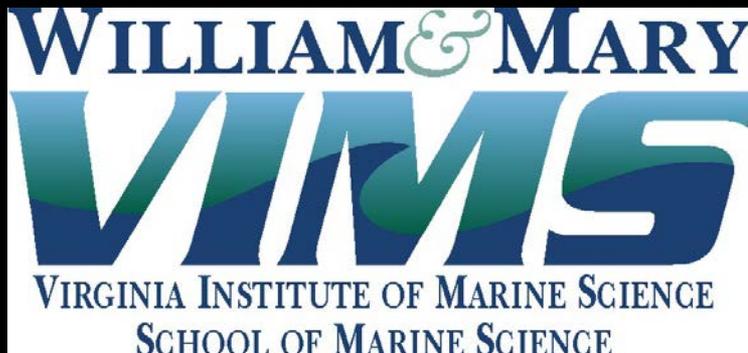
Photo: Clean VA Waterways

Shotgun wads

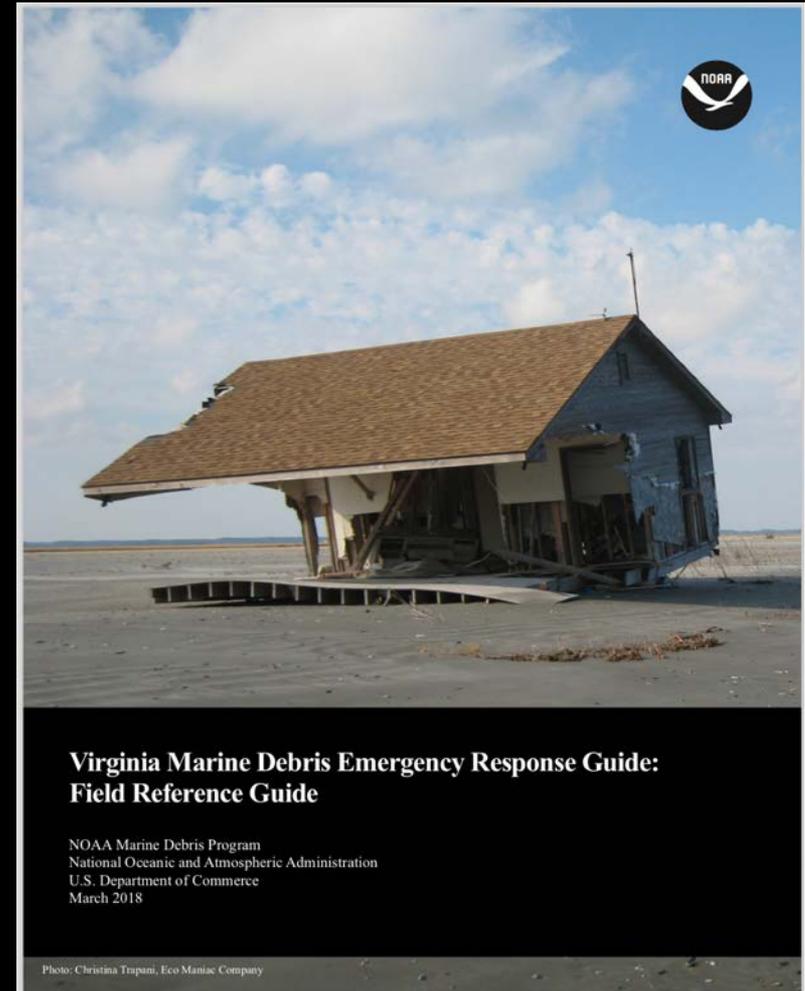
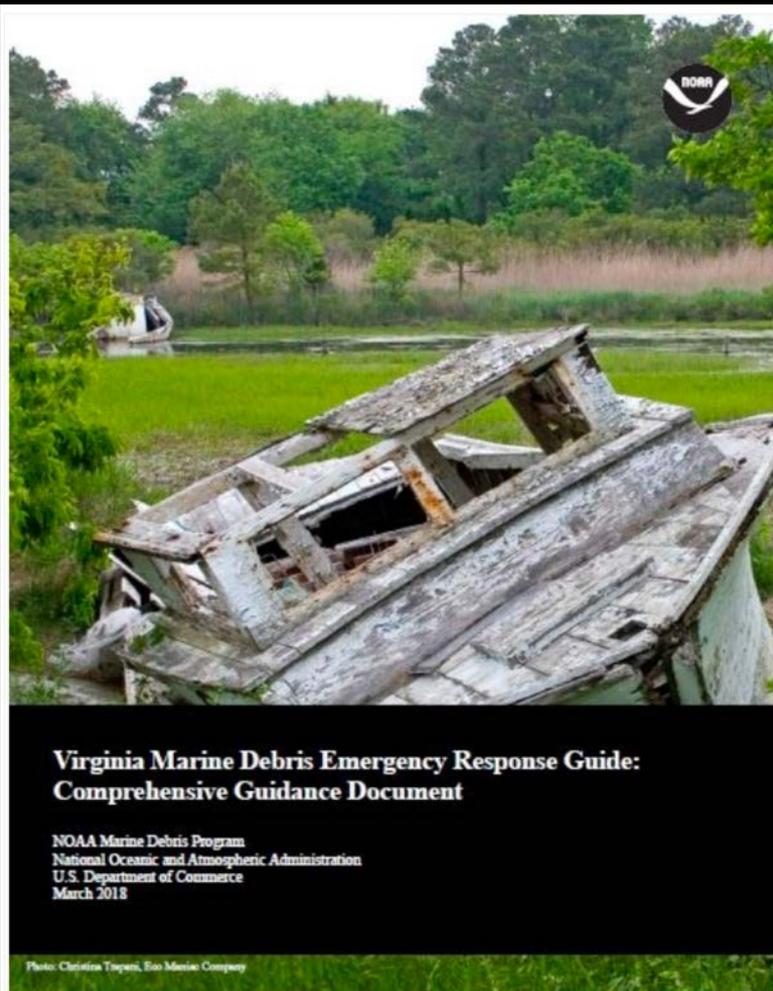
- VIMS: using biodegradable plastic to decrease plastic pollution in marshes.
- GreenOps Ammo sells ammo with biodegradable wads
 - www.greenopsammo.com/



A shotgun wad



Virginia Marine Debris Emergency Response Guide



Reducing use of plastic straws

- Universities
- Parks
- VA Beach “Keep It Beachy Clean”
- Virginia Green program

*We are going
STRAW-FREE
for Earth Day!*



THANKS!

FOR SKIPPING THE STRAW

Virginia Beach

BeachyCleanVB.org

#KeepItBeachyCleanVB

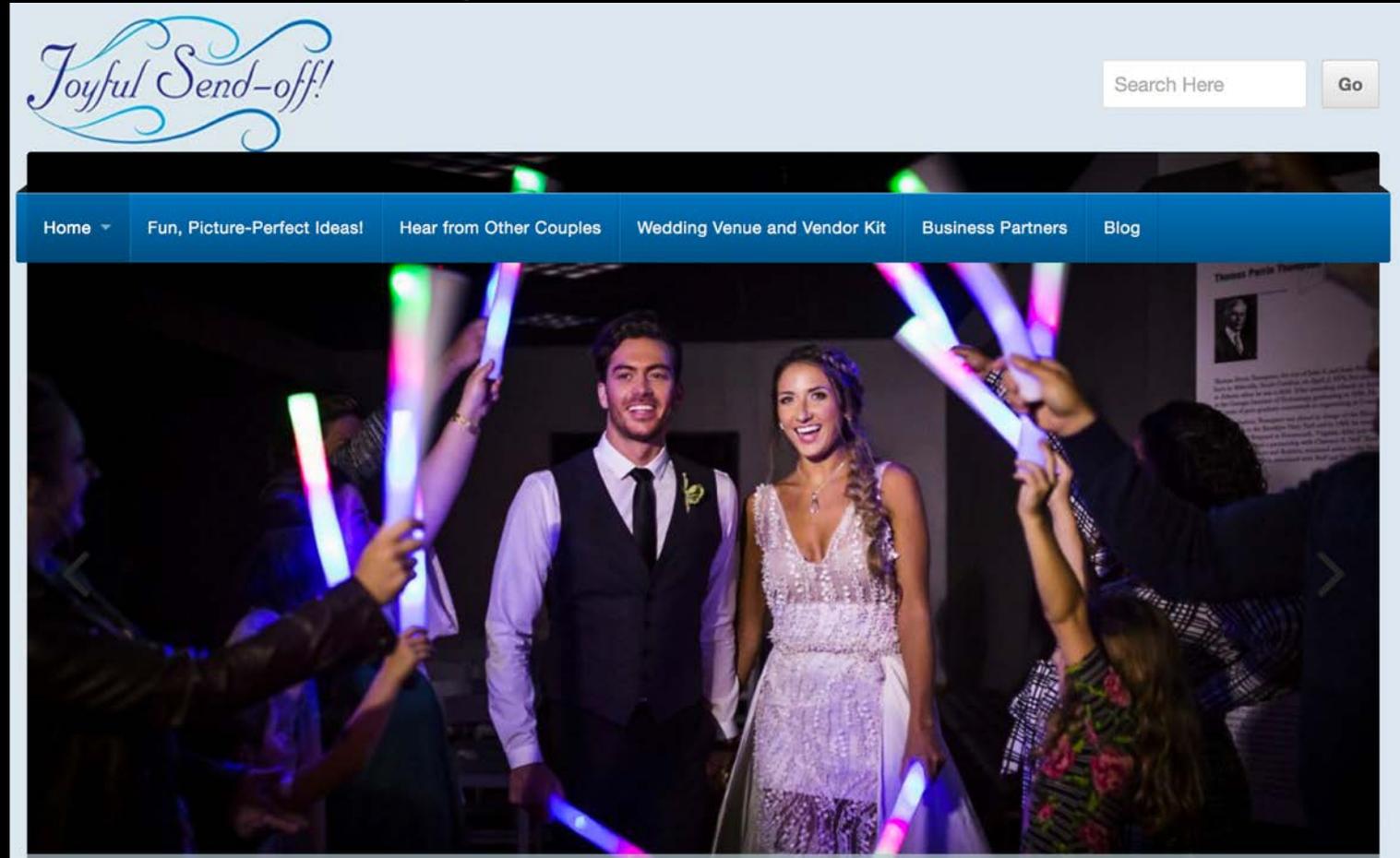
#StrawFreeVB

Reducing Balloon Litter



Photo: Clean VA Waterways

Joyful Send-off



Community-Based Social Marketing methods to influence behavior.
Target: reduce balloon releases at weddings & ceremonies.

New Web Site: PreventBalloonLitter.org

Prevent Balloon Litter

Information and resources for the prevention of balloon litter

[Home](#) [About Us](#) [The Problem with Balloon Litter](#) [Sources of Balloon Litter](#) [Alternatives to Balloon Releases](#) [Resources](#)



Sources of Balloon Litter

Where does balloon litter come from and



Impacts on Wildlife

Balloon litter can harm wildlife.



Resources About Balloon Litter

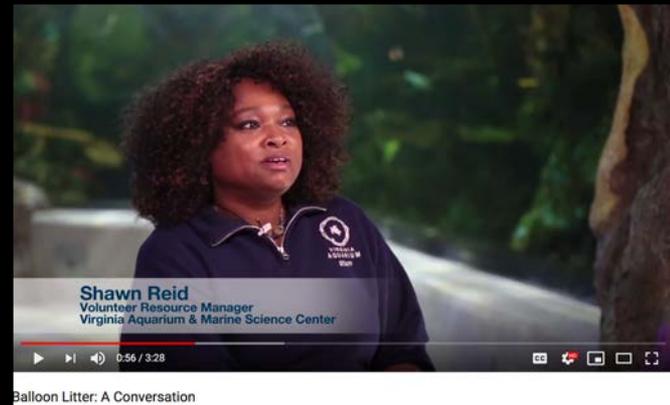


Alternatives to Balloon Releases

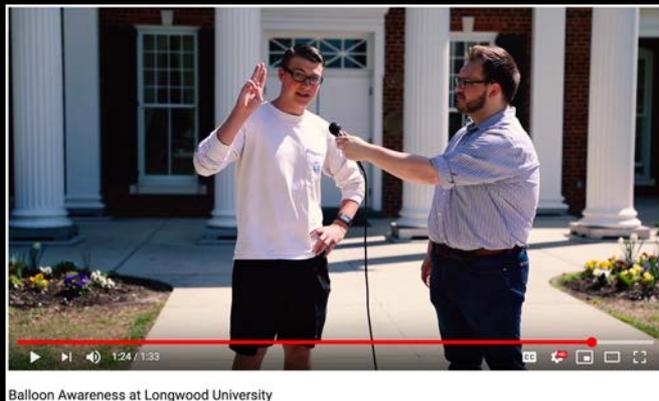
Videos to support balloon-litter prevention



VA CZM Program & CVW



VA CZM Program & CVW



Longwood University & CVW



ATTN: Media

Available on CVW YouTube

Monitoring VA's Remote Coastal Beaches 2013-2017

- **11,441** balloon litter items documented
- Up to 272 per mile
- **#1** most frequently found item

From "Balloon Litter on Virginia's Remote Beaches. 2018. VA CZM Program

Balloon Litter on Virginia's Remote Beaches

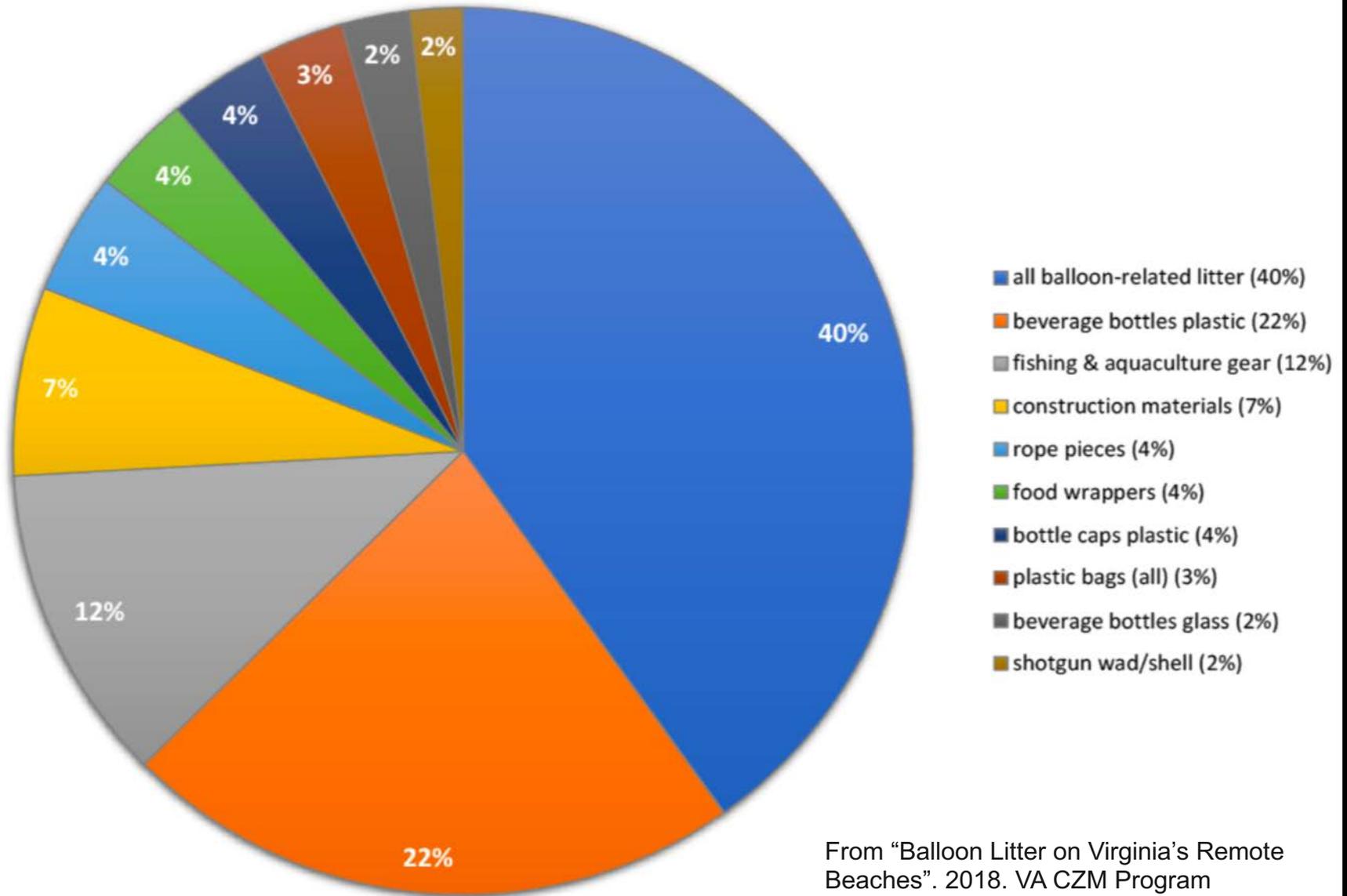
Results of Monitoring from 2013 through 2017



A report from Clean Virginia Waterways of Longwood University to the Virginia Coastal Zone Management Program for the FY16 Task 94.03 Grant

August 2018

Top Ten Marine Debris Items



From "Balloon Litter on Virginia's Remote Beaches". 2018. VA CZM Program

Protocol for monitoring to support future research



Balloon Litter Monitoring and Assessment for the Coastal Environment

By Kathryn O'Hara, Christina Trapani and Katie Register



July 2018

A protocol for monitoring balloon-related litter from Clean Virginia Waterways of Longwood University to the Virginia Coastal Zone Management Program for the FY17 Task 94.03 Grant.

Expanding *Joyful Send-off* into the Mid-Atlantic Region

- Increase behavior change
- NY, NJ, DE, MD & VA
- NOAA Marine Debris Program grant & match from partners
- MARCO (Mid-Atlantic Regional Council on the Ocean) is lead on this project

NOAA Marine Debris Collaborative Portal for the Mid-Atlantic

New!

MID-ATLANTIC

Marine Debris Collaborative

HOME ABOUT

WELCOME LOCATIONS DETAILS

Project Status
Conceptual Proposed Ongoing Complete

midatlantic-mdc.diver.orr.noaa.gov/home

2019 Mid-Atlantic Marine Debris Summit

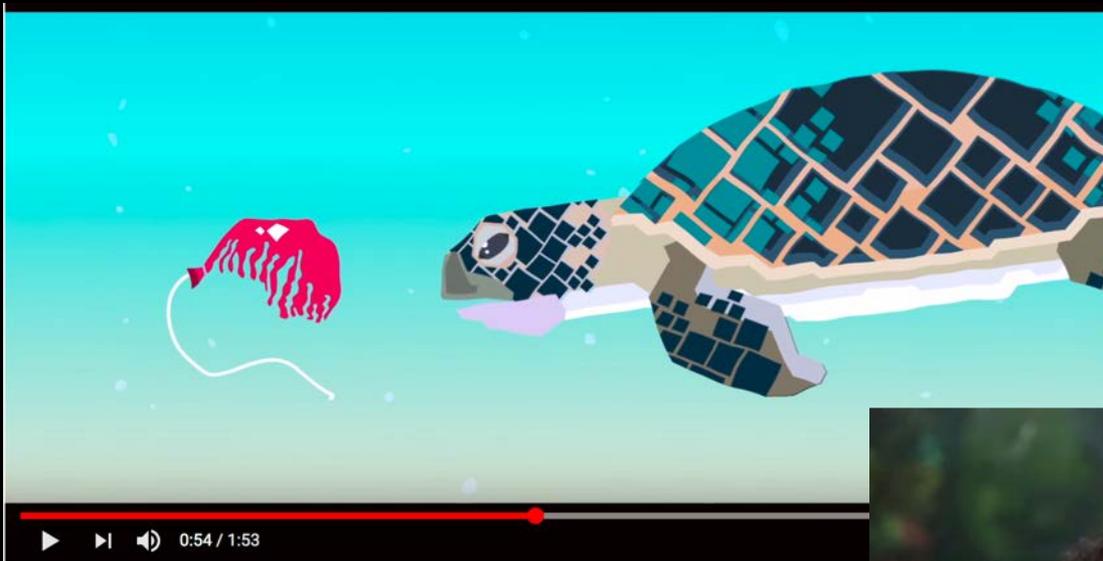
Spring 2019 in Northern Virginia



Watch, like & share the videos

on the **Clean Virginia Waterways** of Longwood Univ. YouTube Channel!

<https://www.youtube.com/channel/UC79VQJ1IkeGbKJDT-6owRyw>



▶ ⏪ 🔊 0:54 / 1:53

Balloon Litter: Say No to Letting It Go!



Shawn Reid
Volunteer Resource Manager
Virginia Aquarium & Marine Science Center

▶ ⏪ 🔊 0:56 / 3:28



Balloon Litter: A Conversation

Thank You!

The logo for Clean Virginia Waterways features the text "CLEAN VIRGINIA WATERWAYS" in a bold, sans-serif font. To the right of the text is a stylized graphic of three white, curved lines that resemble a boat's wake or a river's flow, set against a dark blue background.

**CLEAN
VIRGINIA
WATERWAYS**

**Katie Register, Executive Director
Clean Virginia Waterways of Longwood University
434-395-2602 registerkm@longwood.edu
www.longwood.edu/cleanva
facebook.com/Clean.VA.Waterways/**