



# MARINE DEBRIS: SOLID WASTE INFRASTRUCTURE & PLANNING SOLUTIONS

Lisa Rider,

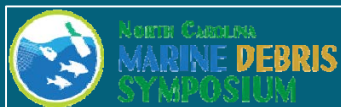
Onslow County  
Solid Waste,  
Assistant  
Director

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NC Marine  
Debris  
Symposium,  
Coordinator

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eXXpedition,  
Amazon Crew  
Member

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Plastic Ocean  
Project,  
President

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Carolina  
Recycling  
Association,  
BOD



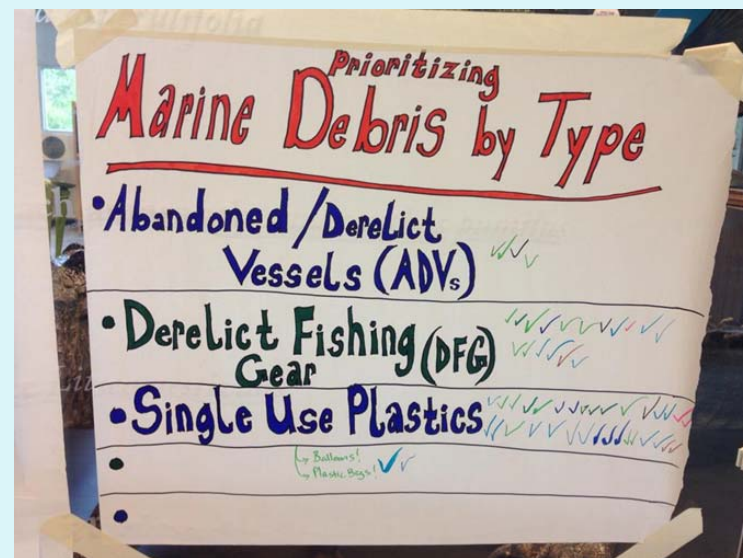
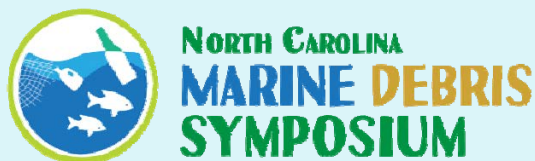
# WHAT IS MARINE DEBRIS?

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 Great Lakes  
(33 U.S.C. § 1956(3))



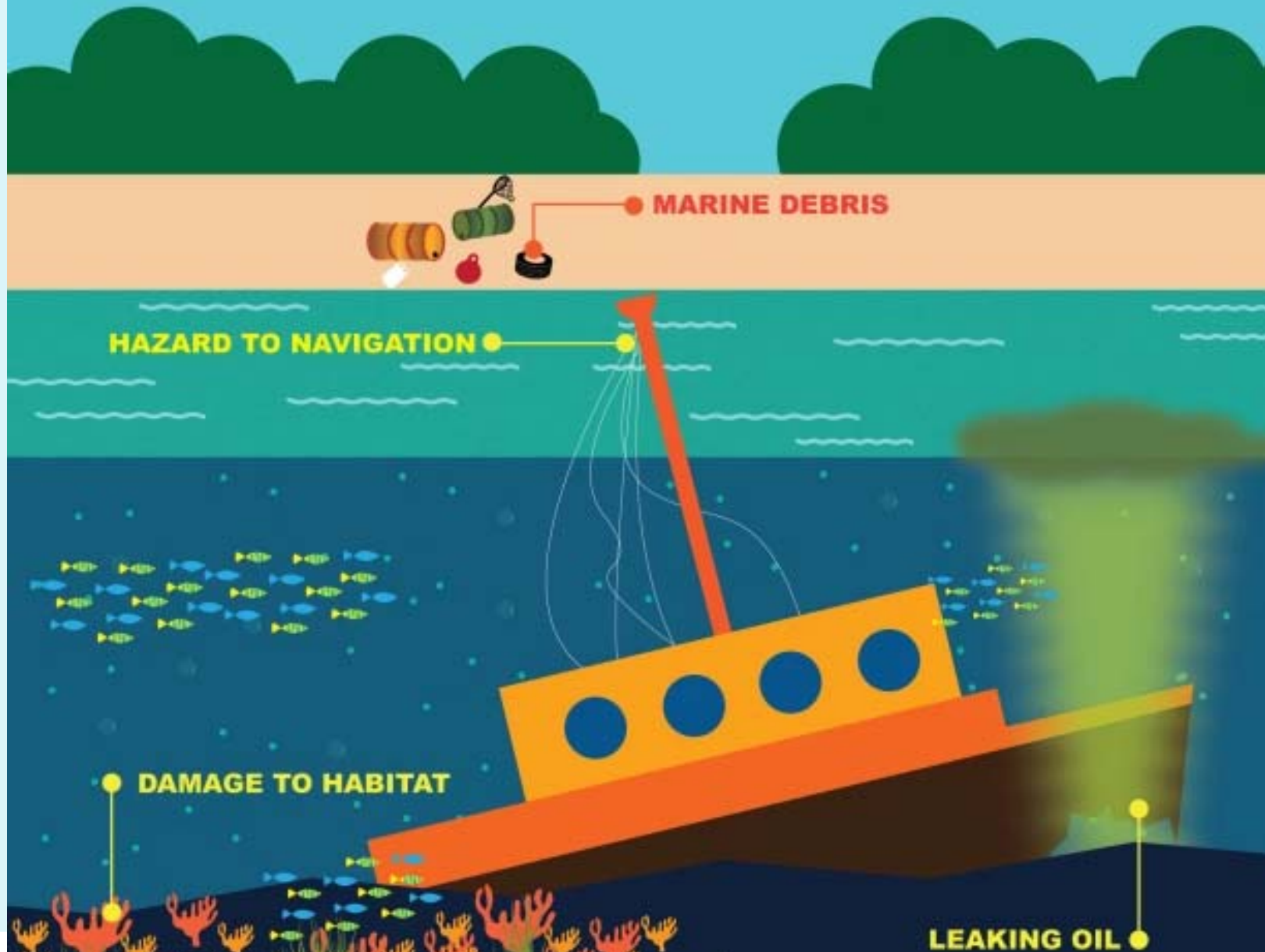
# TYPES OF MARINE DEBRIS

- Abandoned Derelict Vessels (ADV<sub>s</sub>)
- Derelict Fishing Gear (DFG)
- Storm Debris
- Consumer Debris





# ABANDONED & SUNKEN VESSELS



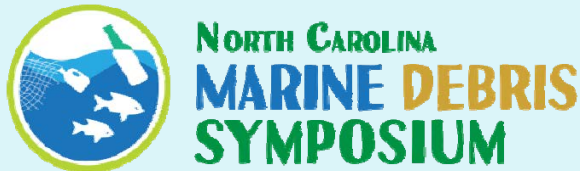


# WHAT ARE WE DOING ABOUT ADVS IN NC?

- Eastern Carolina Council of Governments



- NC Marine Debris Symposium



- NOAA Marine Debris Program



## HOW DOES SOLID WASTE INFRASTRUCTURE PLAY A ROLE IN ADVS?

- Reclaim or Recycle of materials related to ADVs.
  - Collaboration with Marine Salvage Yards.
- Disposal Options available for ADVs.
- Collaboration on Planning for Prevention.
- Incident Related ADV: [1-800-424-8802](tel:1-800-424-8802)

NRC

## DERELICT FISHING GEAR

**Derelict fishing gear (DFG) refers to nets, lines, crab pots, and other recreational or commercial fishing equipment that has been lost, abandoned, or discarded in the marine environment.**





© Andrea Marshall



Photo by Dr. Gilbert Grant



Photo by Eric Vithalani

# WHAT ARE WE DOING ABOUT IT IN NC?

- Education
- Solid Waste Infrastructure
- NC Clean Boaters Program
- NC Clean Marina Program
- NCCF Pickin' Pots
- NC DMF Cleanups
- Working Shoreline Cleanups



- COLLABORATION WITH SOLID WASTE DEPARTMENTS and Local Fishermen



# WHAT ARE WE DOING ABOUT ABANDONED CRAB POTS IN NC?



North Carolina  
Coastal Federation  
*Working Together for a Healthy Coast*





# WHAT ARE WE DOING ABOUT FISHING LINE IN NC?

Photo by Helen Aitken



YOUTH  
OCEAN  
CONSERVATION  
SUMMIT

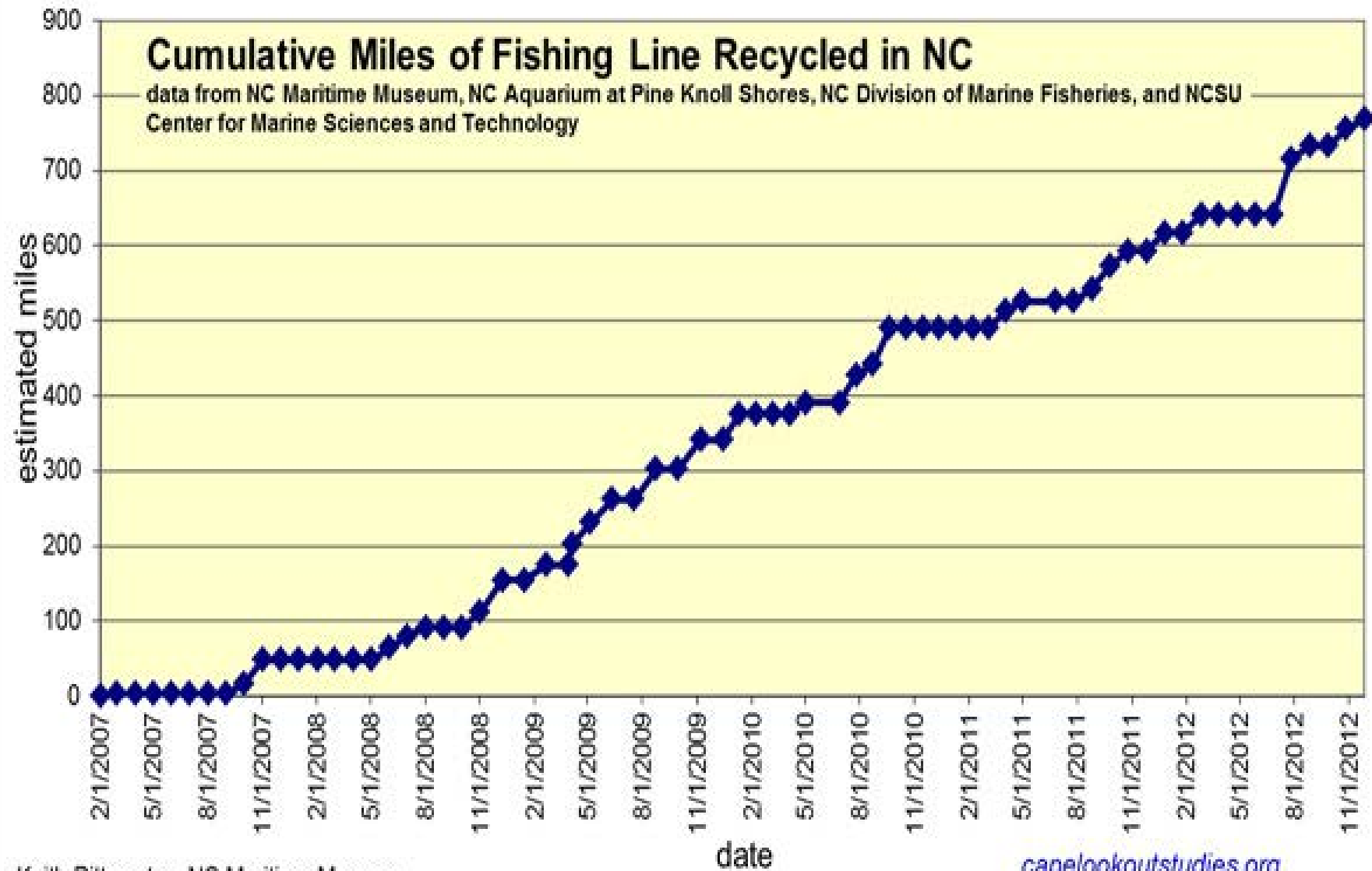


NC STATE UNIVERSITY **CMAST**  
The Center for Marine Sciences and Technology



## Cumulative Miles of Fishing Line Recycled in NC

data from NC Maritime Museum, NC Aquarium at Pine Knoll Shores, NC Division of Marine Fisheries, and NCSU  
Center for Marine Sciences and Technology



Keith Rittmaster, NC Maritime Museum

[capelookoutstudies.org](http://capelookoutstudies.org)

# SHORELINE AND UNDERWATER CLEANUPS



NORTH CAROLINA  
**MARINE DEBRIS**  
SYMPOSIUM





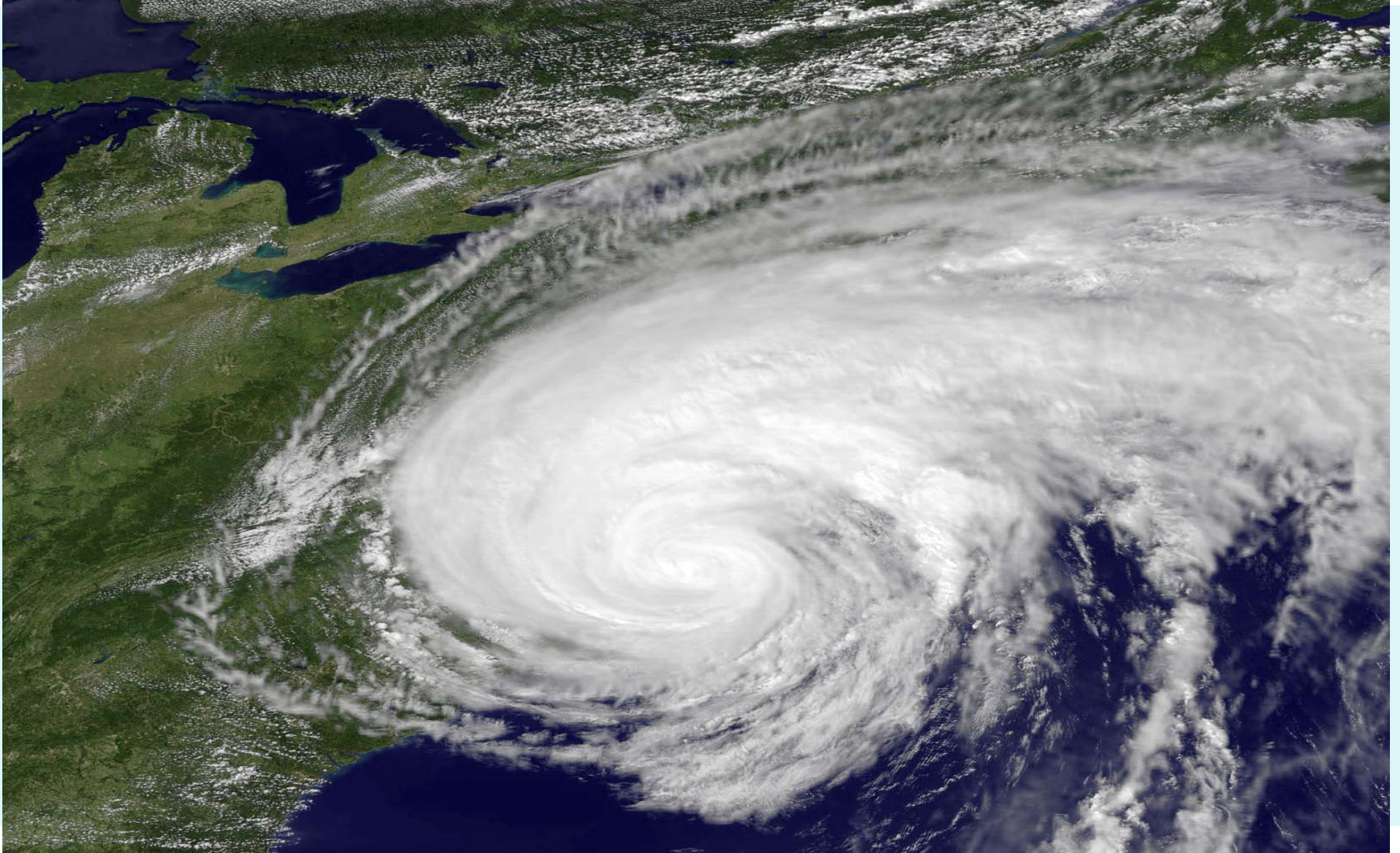
# HOW DOES SW INFRASTRUCTURE PLAY A ROLE?

- Access to Disposal in key locations
- Reclaim and Recycle
  - Monofilament Line Stations
  - Collaboration to Recycle Crab Pots
  - Fishing for Energy





# STORM DEBRIS





## WHAT ARE WE DOING ABOUT IT IN NC?

- **NOAA Storm Debris Plan for NC 2016 “NC Incident Waterway Debris Response Planning” (April 6-7)**
  - Plan/Guide Avail. by the end of May 2016
- **Local Solid Waste and Emergency Services Collaboration**
- **NC Marine Debris Symposium and the Regional SEA-MDI workshops**

# HOW DOES SW INFRASTRUCTURE PLAY A ROLE IN STORM DEBRIS?

- **Plan - WHERE ARE YOU GOING TO PUT IT?**
  - Pre Storm
    - Permit Sites and Update Contracts
    - Assessments and Models
  - Post Storm
    - Call your NC Solid Waste Specialist/LF inspector!!
    - Call 1-800-424-8802 to report ADVs, Oil spills..
    - Collaboration & Communication
    - With direction, use permitted debris sites.



# CONSUMER DEBRIS

## “Throwaway Living”

(Life Magazine 1955)



### Throwaway Living

DISPOSABLE ITEMS CUT DOWN HOUSEHOLD CHORES

The objects flying through the air in this picture would take 40 hours to clean—except that no housewife need bother. They are all meant to be thrown away after use. Many are new; others, such as paper plates and towels, have been around a long time but are now being made more attractive.

At the bottom of the picture, to the left of a New York City Department of Sanitation trash can, are some throwaway vases and flowers, popcorn that

a checkered paper napkin, a disposable diaper (seriously suggested as one reason for a rise in the U.S. birth rate) and, behind it, a baby's bib. At top are throwaway wicker wings, foil pans, paper tablecloth, guest towels and a sectional plate. At right is an all-purpose bucket and, scattered throughout the picture, paper cups for beer and highballs. In the basket are throwaway draperies, ash trays, garbage bags, hot pads, mats and a feeding dish for dogs.

My constipation  
worries are  
over!



Milk of Magnesia  
gives more complete  
relief

than single-purpose laxatives which have no effect on the acid indigestion that usually accompanies constipation. For Milk of Magnesia relieves both constipation and acid indigestion. It is a most palatable laxative taken at bedtime works leisurely—without embarrassing urgency. So, when morning comes, you start the day feeling wonderful. Get Phillips' Milk of Magnesia—the best laxative money can buy.

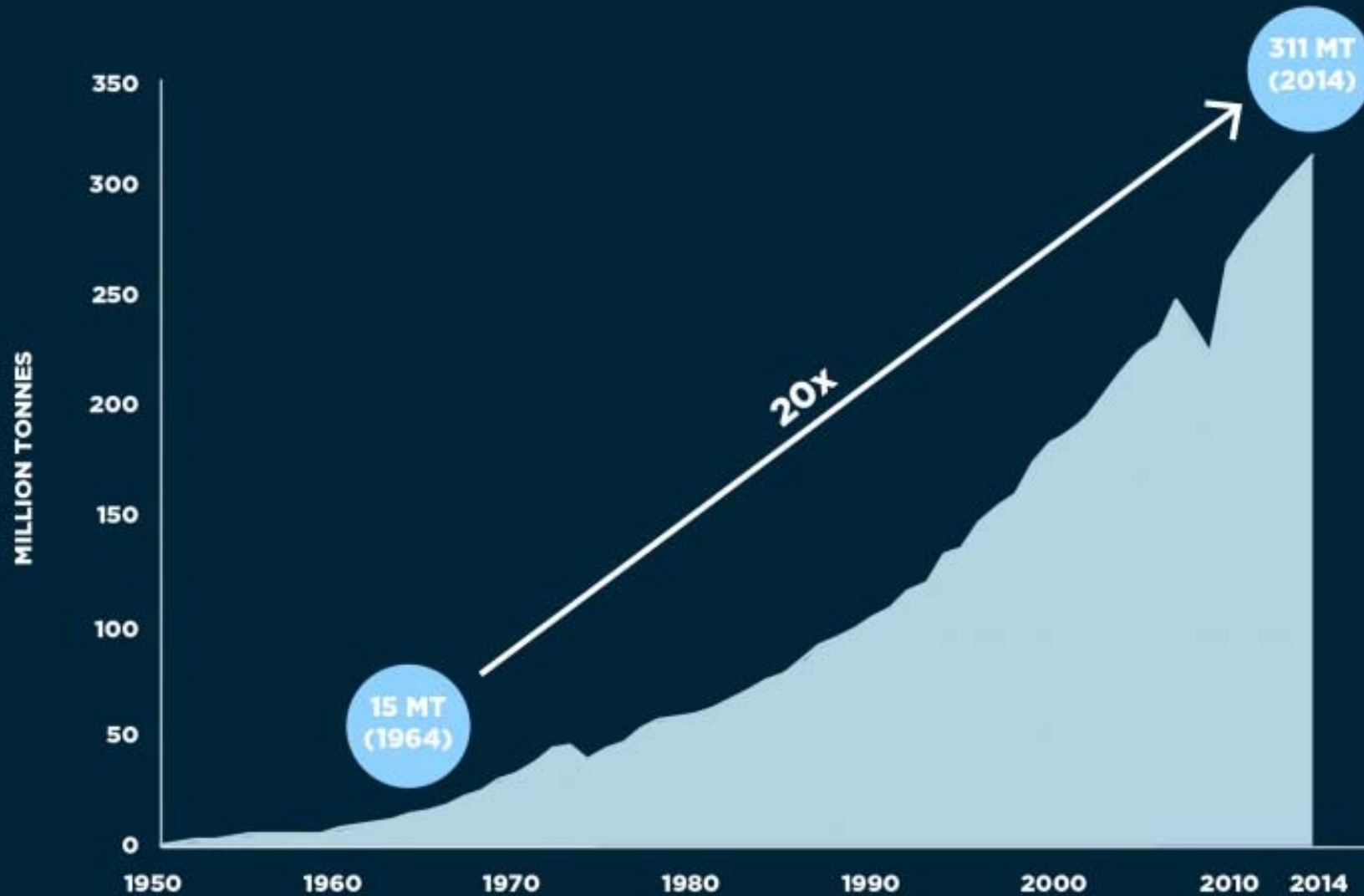
**PHILLIPS'**  
MILK OF MAGNESIA

Liquid or Tablets

The smallest  
4-OUNCE BOTTLE.....\$2.95  
The standard  
12-OUNCE BOTTLE.....\$4.95  
The economy  
36-OUNCE BOTTLE.....\$9.95  
Also available in tablet form  
30 TABLETS.....\$2.95



## PLASTICS PRODUCTION INCREASED TWENTY-FOLD OVER THE LAST 50 YEARS



WORLD ECONOMIC FORUM, ELLEN MACARTHUR FOUNDATION, MCKINSEY & COMPANY,  
A NEW PLASTICS ECONOMY: RETHINKING THE FUTURE OF PLASTICS (2016)  
[HTTP://WWW.WEFORUM.ORG/REPORTS](http://www.weforum.org/reports)

NOTE: Production from virgin petroleum-based feedstock only (does not include bio-based, greenhouse gas-based or recycled feedstock)  
SOURCE: PlasticsEurope, Plastics - the Facts 2013 (2013); PlasticsEurope, Plastics - the Facts 2015 (2015).



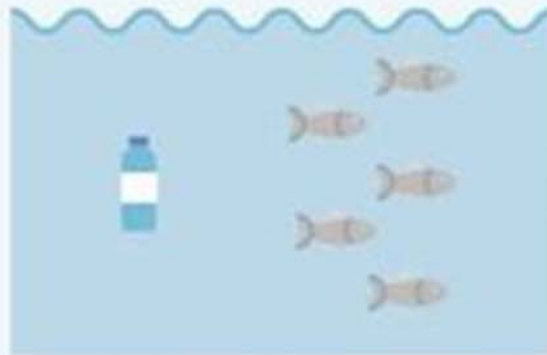
## PLASTICS PRODUCTION

# 2014



311 MT

## RATIO OF PLASTICS TO FISH IN THE OCEAN¹ (BY WEIGHT)

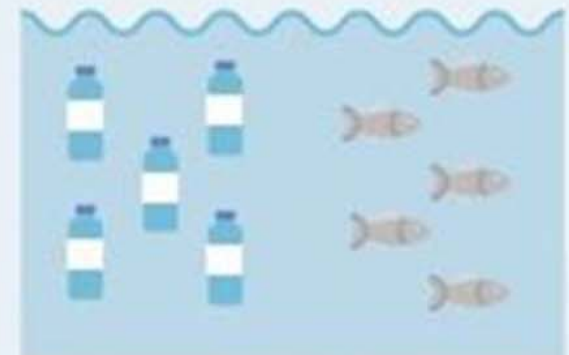


1:5

# 2050



1,124 MT



>1:1

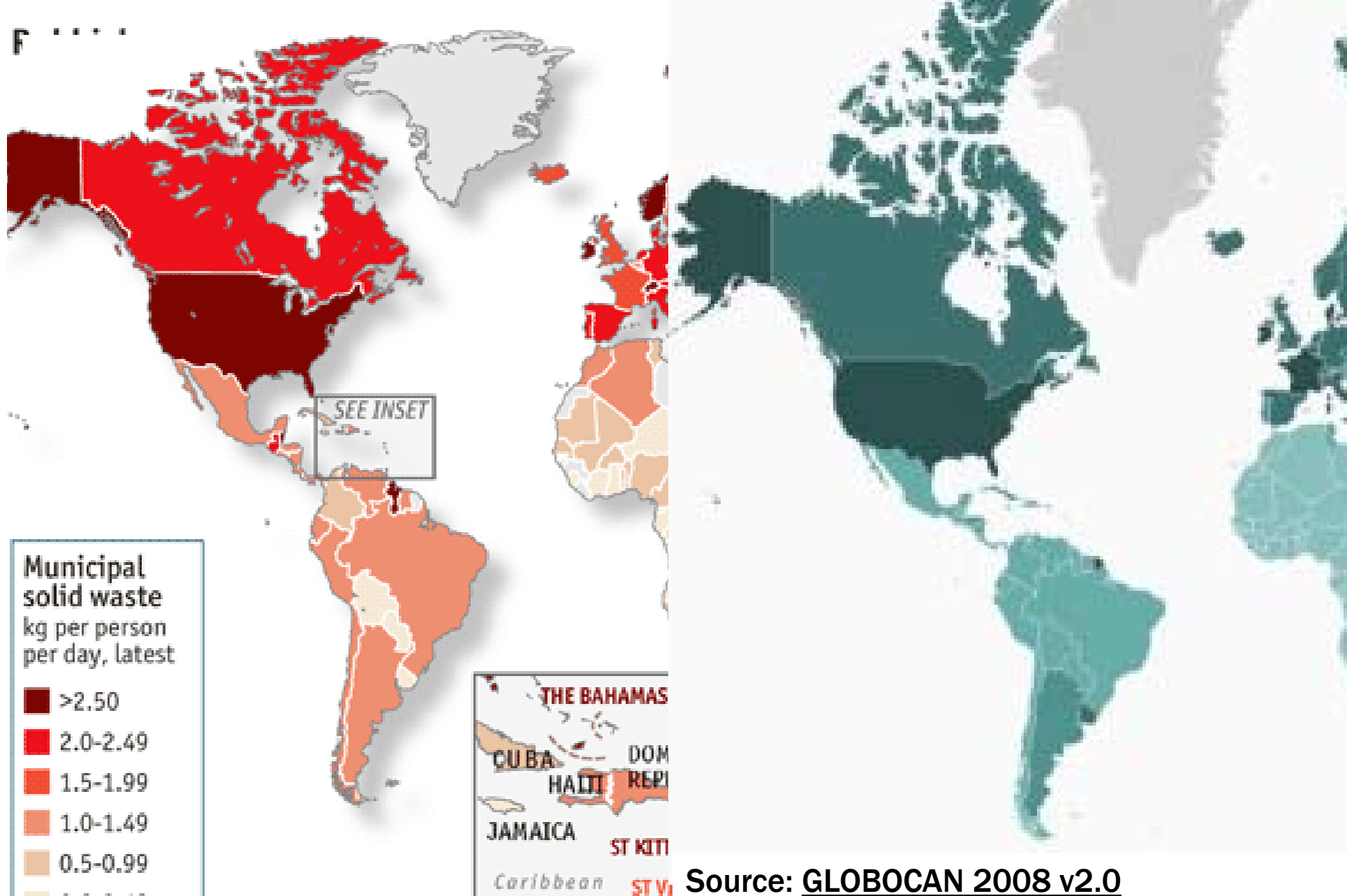
Source: Plastics Europe; ICIS Supply and Demand; IEA World Energy Outlook (2015) global GDP projection 2013–2040, assumed to continue to 2050; Ocean Conservancy and McKinsey Center for Business and Environment, *Stemming the Tide: Land-based strategies for a plastic-free ocean* (2015); J. R. Jambeck et al., 'Plastic waste inputs from land into the ocean', *Science* (13 February 2015);



## WHERE IS IT COMING FROM?

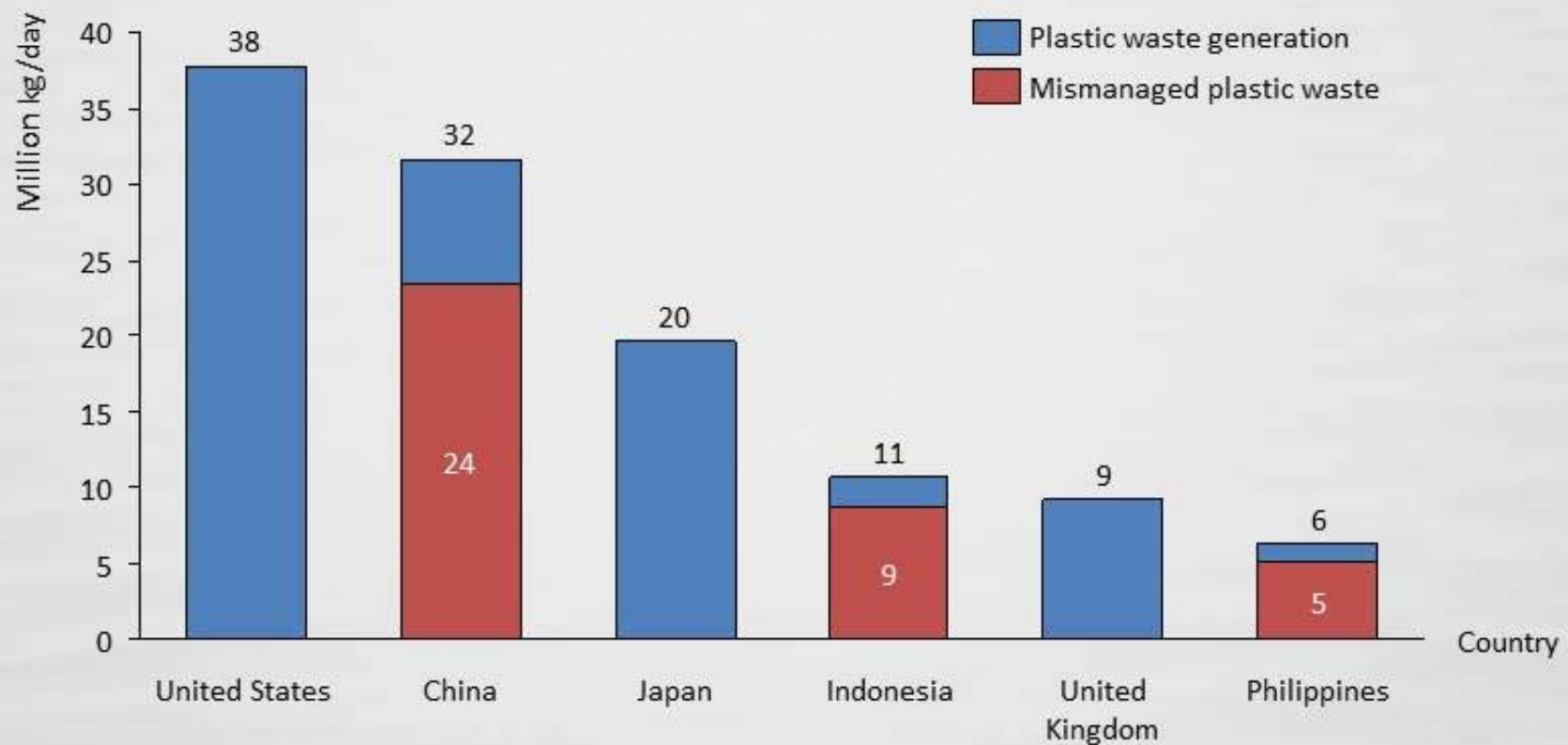
- **Intentional Litter**
- **Unintentional Litter**
- **Improper / Not Enough  
SW infrastructure**

# Global Solid Waste Per Capita

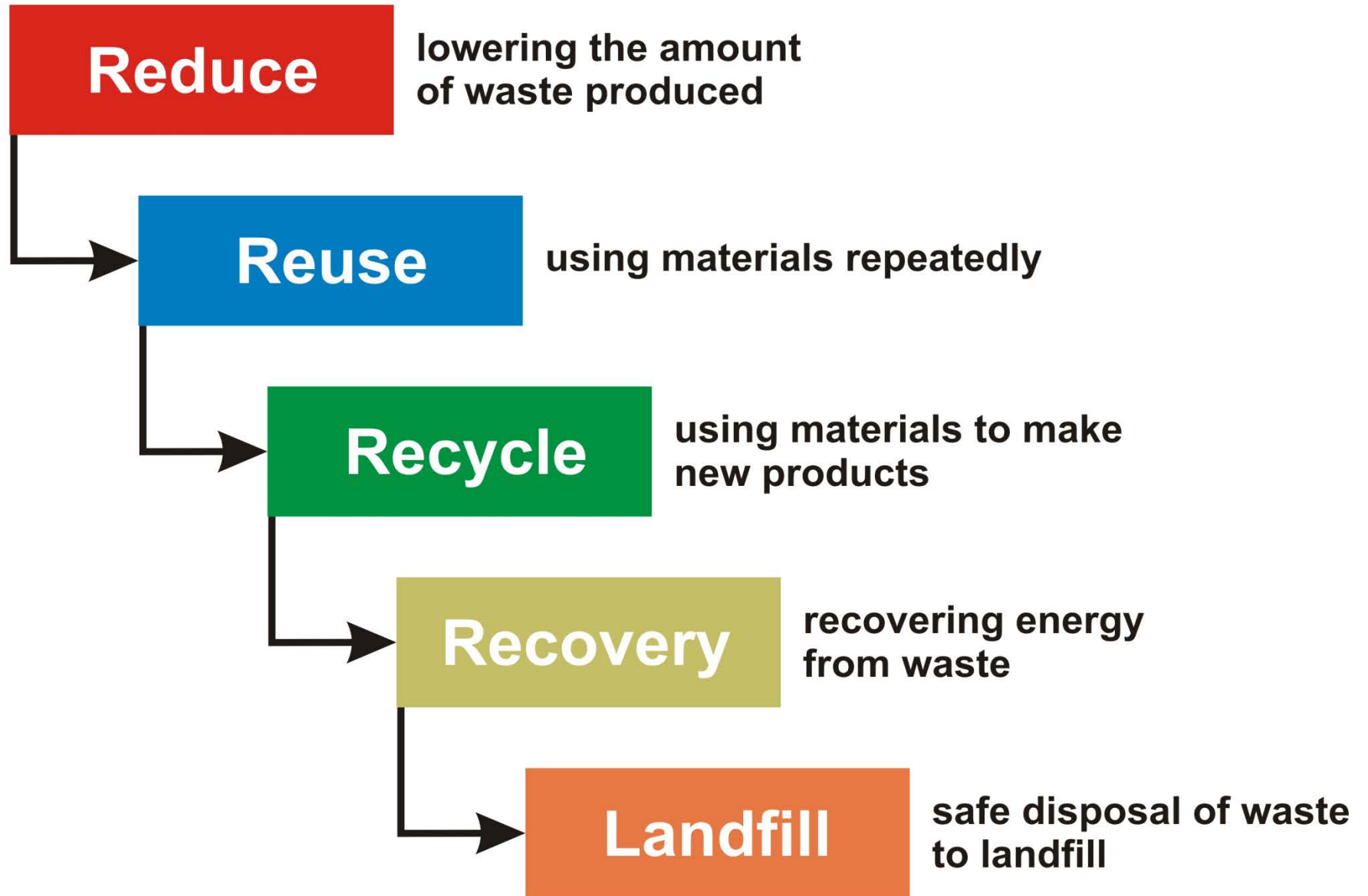


# WASTE MANAGEMENT EFFICACY IS THE KEY INDICATOR

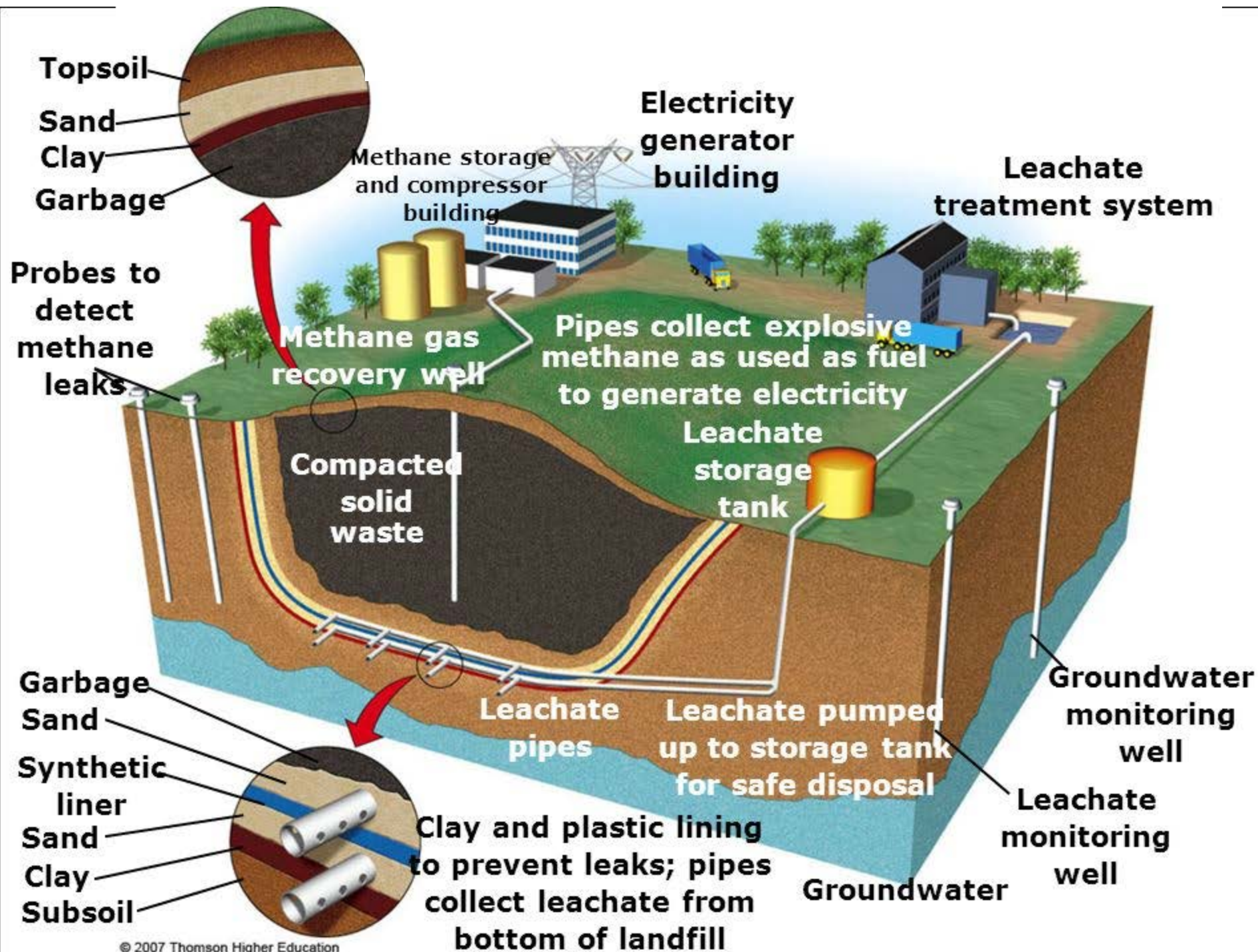
Plastic waste generation and management



## Most favoured option



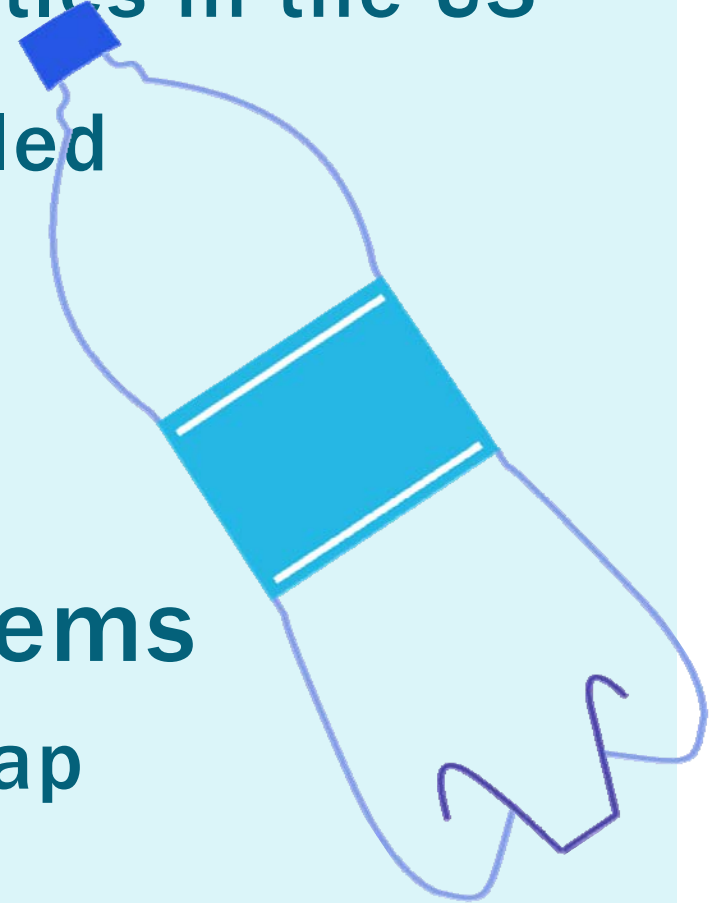
Least favoured option





# WATER BOTTLES

- 50 Billion plastic water bottles in the US
- 20 % (water bottles) Recycled
- 80% Landfill or Ocean!
- When Heated,  
can cause health problems
- Costs 1,000 X more than Tap



# LET'S TALK COFFEE



- 25 Billion Polystyrene Cups/yr (US)
- 2014 Enough K-cups to Wrap the Earth 10.5 x (up to 12 now and growing)



- K-cups are \$50/lb!!
- <https://vimeo.com/116606409>























*North Pacific Gyre. Illustration: NOAA*

## 5 OCEAN GYRES



*Plastic soup. Photo: Charles Moore*









*Plastic found in Rainbow Runner fish guts. Photo Source: Algalita Marine Research Foundation*





we're at the bottom of the food chain



# WHAT ARE WE DOING ABOUT IT IN NC?

- Cleanups
- Planning
- Research
- Enforcement
- Education
- Infrastructure
- Technology



# CLEANUPS COLLABORATION – BMP DEVELOPMENT





# FACILITATED WORKSHOPS / PLANNING WORKGROUPS



**North Carolina Marine Debris Symposium**



# COLLABORATIVE LOCAL, REGIONAL, AND GLOBAL RESEARCH

**eXXpedition**  
MAKING THE UNSEEN SEEN



 **The Plastic  
Ocean Project**

**SONOCO**  
**RECYCLING**

**Carolina  
Recycling  
Association** 



# LOCAL, REGIONAL , AND GLOBAL CITIZEN SCIENCE





# TRACKING

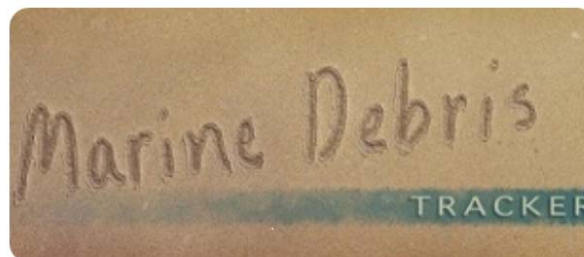
**CALLING ALL CITIZENS!**

Do you want to help track marine debris?  
There's an app for that...  
*Marine Debris Tracker*

Scan to download to your Smartphone!

Android iPhone

© 2014 GUSTAVO SANCHEZ



Tracking with: Marine Debris Items  
590,365 items logged by users so far!

**Start Tracking**

Change List

Top Trackers

GSTC Citizen Science	181,990 items
takeittothestreets	95,778 items
OldMarketPhoto	81,881 items
itstartswithme	38,875 items
treehuggerlisa	33,820 items
muvemiami	23,041 items
OurTernRozalia	13,511 items
saunieindiego	12,178 items
clean coast	8,011 items
Flotsam Diaries	7,969 items



View and Submit

**0** Items

Lat,Lng =  
(34.81849670410156,-77.53804016113281)

Accuracy < 6000m

- Top Items ▼
- PLASTIC ▼
- METAL ▼
- GLASS ▼
- RUBBER ▼
- CLOTH ▼
- PAPER & LUMBER ▼
- FISHING GEAR ▼





EDUCATION!



# INFRASTRUCTURE

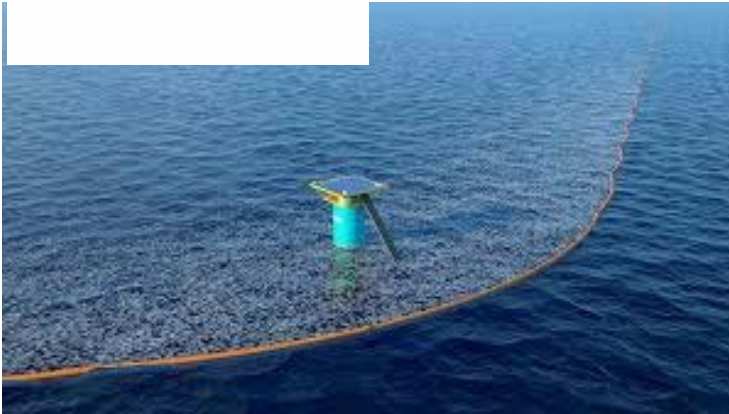
- More Access to Disposal!
- Properly Fitted Collection Vehicles
- Carts (w/lids) instead of Bins!
- Covered Loads
- More Access to Disposal
  - Twin the Bin
  - CWR Grants – DEACS
  - Away from Home Access...





THE OCEAN<sup>®</sup>  
CLEANUP

# TECHNOLOGY



The  
Ocean  
Cleanup

Do - It - Yourself Recycling/Manufacturing



PRECIOUS  
PLASTIC



Plastics to  
Oil

# HOW DOES SW INFRASTRUCTURE PLAY A ROLE IN CONSUMER DEBRIS?





## WHAT CAN YOU DO, PERSONALLY?

- Vote with your wallet!
- Pickup Debris!

“Every time you spend money,  
you’re casting a vote for the kind  
of world you want.”

- Anna Lappe

FOR MORE INFO...



NORTH CAROLINA  
MARINE DEBRIS  
SYMPOSIUM



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