

Solutions to Marine Debris

Katie Register

Clean Virginia Waterways

Longwood University

The logo for Clean Virginia Waterways features the text "CLEAN VIRGINIA WATERWAYS" in a bold, blue, sans-serif font, stacked vertically on the left side. To the right of the text is a stylized graphic of three overlapping, horizontal, wavy shapes in shades of blue, resembling water or waves.

**CLEAN
VIRGINIA
WATERWAYS**

Goal: "Trash Free Seas"



Goal: “Trash Free Seas”



Inclusive of all
waterways,
coastal waters
& oceans



Source Reduction Prevention / Changing behaviors

- Educate
- Motivate (incentives, regulation)
- Innovate

Who, What, Where, How



Who, What, Where, How

Government agencies

Nonprofit organizations

Formal (K-12) and informal education

Businesses

Media

Partnerships

Who, **What, Where, How**

Signs @ POPP

(Point of potential pollution)



BRING IT BACK!

Plastic, fishing line and cigarette butts don't belong in the water.

Trash and fishing line cause harm to the environment and to boats. When fishing or boating, please bring all your trash back.

 **BoatU.S. Foundation**
for Boating Safety & Clean Water

 **CLEAN VIRGINIA WATERWAYS**



Help us maintain a clean community and waterways.

Contact Clean Virginia Waterways
tel. 434-395-2602
www.longwood.edu/cleanva

Funded by a grant from BoatU.S. Foundation www.boatus.com

Who, **What, Where, How**

Multiple audiences

¡TRÁELOS DE REGRESO!

Los plásticos, líneas de pescar y colillas de cigarrillos no pertenecen al agua.

Basura y línea de pesca causan daño al medio ambiente y a las embarcaciones. Cuando vaya de pesca o paseo en bote, por favor traiga toda su basura de regreso.



Ayúdenos a mantener
limpia la comunidad
y las vías de agua.

Contacte Clean Virginia Waterways
tel. 434-395-2602
www.longwood.edu/cleanva

Financiado por una subvención de BoatU.S. Foundation www.boatus.com

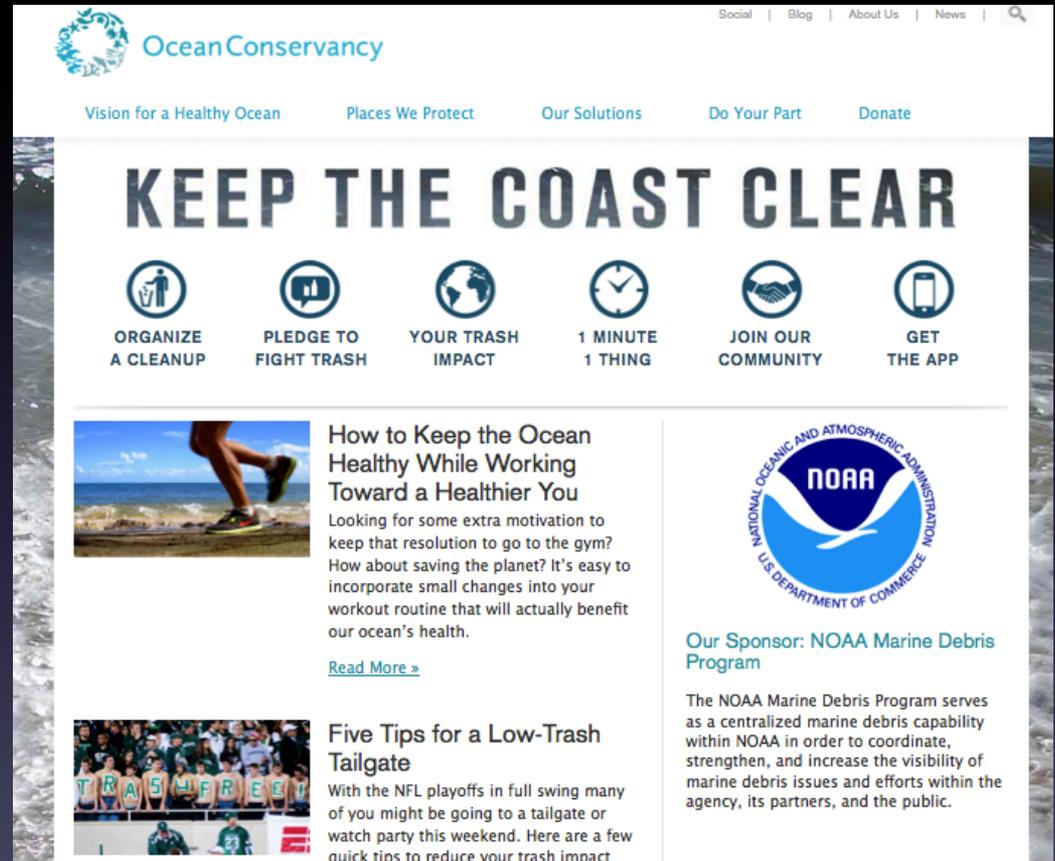
Who, **What, Where, How**

Multiple audiences



Who, What, Where, How

Web-based
Partnership!



The screenshot shows the Ocean Conservancy website homepage. At the top, the Ocean Conservancy logo is on the left, and navigation links for Social, Blog, About Us, and News are on the right. Below the logo, there are links for Vision for a Healthy Ocean, Places We Protect, Our Solutions, Do Your Part, and Donate. The main heading is "KEEP THE COAST CLEAR". Below this heading are six icons with corresponding text: "ORGANIZE A CLEANUP", "PLEDGE TO FIGHT TRASH", "YOUR TRASH IMPACT", "1 MINUTE 1 THING", "JOIN OUR COMMUNITY", and "GET THE APP". The page features two main content blocks. The first block is titled "How to Keep the Ocean Healthy While Working Toward a Healthier You" and includes a photo of a person running on a beach. The second block is titled "Five Tips for a Low-Trash Tailgate" and includes a photo of a group of people holding a sign that says "TRASH FREE". On the right side, there is a section for "Our Sponsor: NOAA Marine Debris Program" featuring the NOAA logo and a description of the program's role in coordinating marine debris efforts.

KEEP THE COAST CLEAR

- ORGANIZE A CLEANUP
- PLEDGE TO FIGHT TRASH
- YOUR TRASH IMPACT
- 1 MINUTE 1 THING
- JOIN OUR COMMUNITY
- GET THE APP

How to Keep the Ocean Healthy While Working Toward a Healthier You

Looking for some extra motivation to keep that resolution to go to the gym? How about saving the planet? It's easy to incorporate small changes into your workout routine that will actually benefit our ocean's health.

[Read More >](#)

Five Tips for a Low-Trash Tailgate

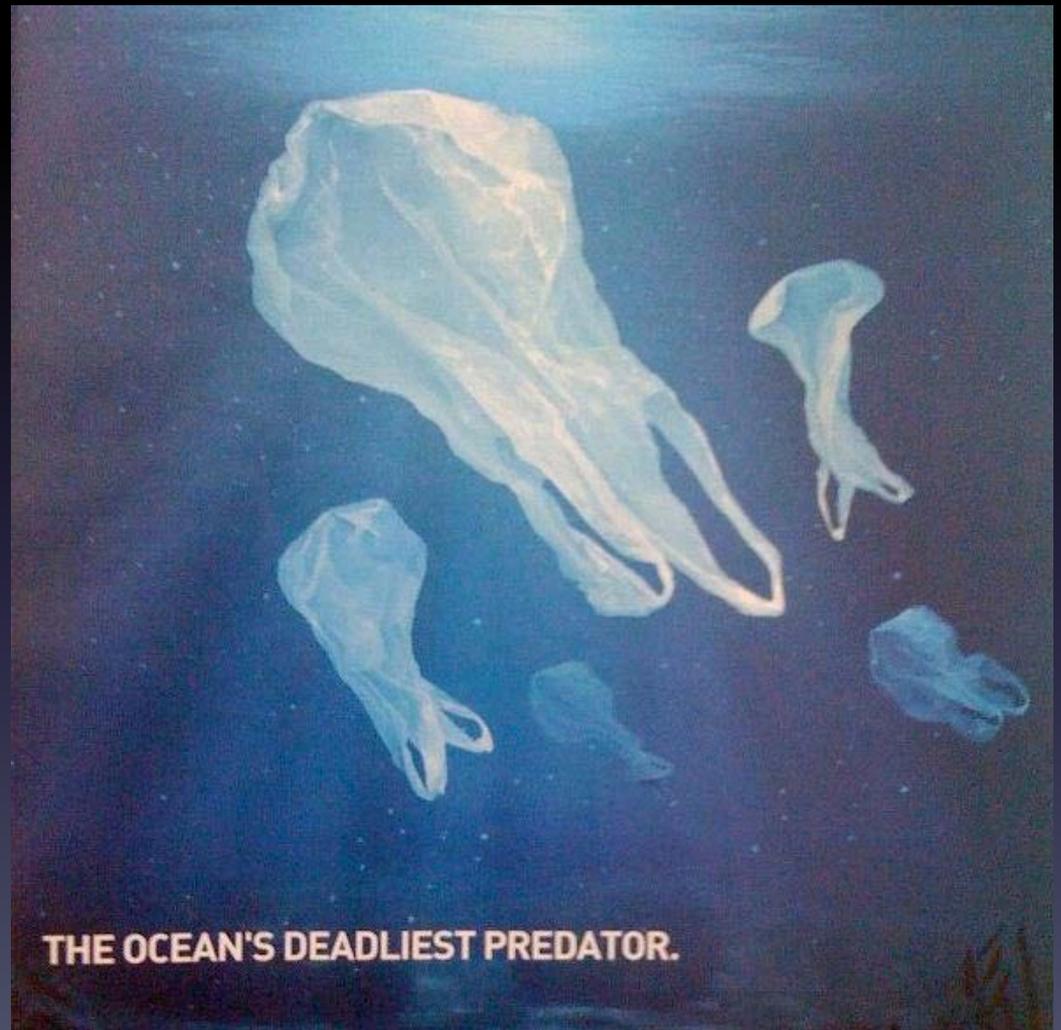
With the NFL playoffs in full swing many of you might be going to a tailgate or watch party this weekend. Here are a few quick tips to reduce your trash impact

Our Sponsor: NOAA Marine Debris Program

The NOAA Marine Debris Program serves as a centralized marine debris capability within NOAA in order to coordinate, strengthen, and increase the visibility of marine debris issues and efforts within the agency, its partners, and the public.

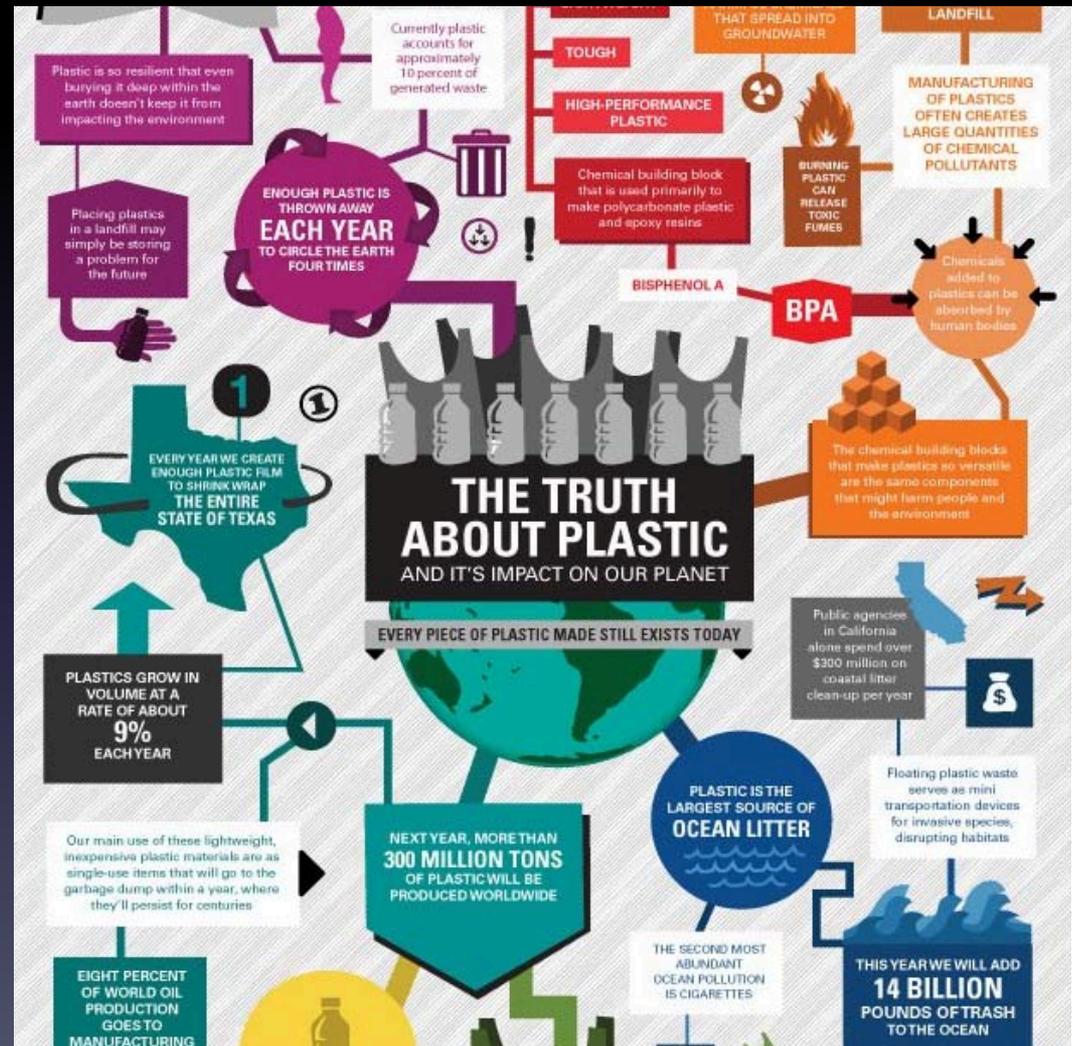
Who, **What, Where, How**

Simple messages



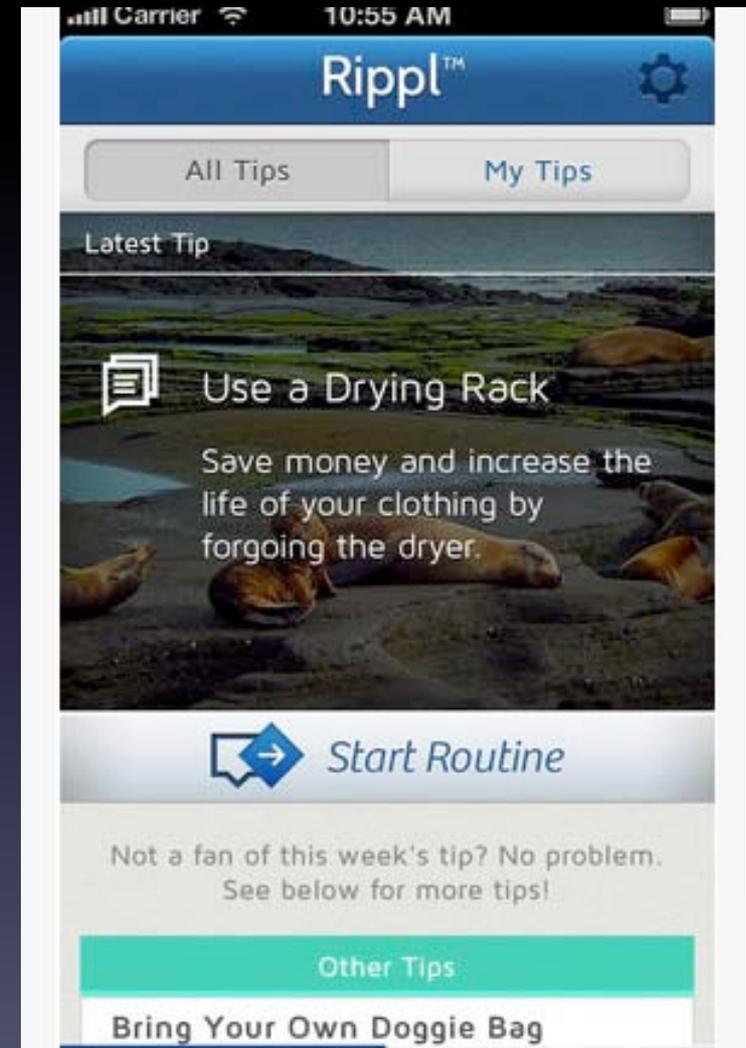
Who, What, Where, How

Complex messages



Who, **What, Where, How**

Apps for phones & iPad



Who, **What, Where, How**




twohandsproject.org

NO EXCUSE FOR SINGLE USE.

LIGHTWEIGHT PLASTIC BAGS ARE CHOKING OUR OCEANS. AN ESTIMATED 50-80 MILLION END UP IN OUR ENVIRONMENT EACH YEAR. ONCE THEY ENTER OUR PRECIOUS WATERWAYS THEY DO NOT GO AWAY. PLASTIC BAGS CAN REMAIN FOR CENTURIES POSING THREATS TO WILDLIFE BY ENTANGLEMENT, SUFFOCATION AND ENTERING THE FOOD CHAIN. OUR FOOD CHAIN. DEGRADABLE BAGS ARE NOT THE SOLUTION. PUT AN END TO SINGLE USE PLASTICS. source: environment.gov.au 2002

Who, What, Where, How

Display at Virginia Science Museum

Plastics for Dinner?

Have you noticed how prevalent plastics are in your daily life?

When you see plastic litter strewn aside highways or sidewalks, or see plastic in over-flowing trash cans, you may not think about how those items can end up in stormdrains, creeks, and rivers. Plastics entering storm sewers or blown into water bodies accumulate in the massive, slow rotating ocean current whirlpools, or gyres. As a result, a plastic soup containing small plastic particles is developing in each gyre of the major oceans. These plastic particles are consumed by fishes and other sea life—which in turn can be ingested by humans.

Plastics can move from the Chesapeake Bay to the Atlantic Ocean where water currents carry them to the Sargasso Sea. Over 35,000 floating pellets per square kilometer have been found in the Sargasso Sea. This same ration of plastics was found in the Southern Atlantic. One study found plastic pollution had increased in the south Atlantic by 190% from 1989 to the present.

Plastics make the list twice!
Top 10 Items to Recycle

1. Aluminum	6. HDPE Plastic Bottles
2. PET Plastic Bottles	7. Glass Containers
3. Newspaper	8. Magazines
4. Corrugated Cardboard	9. Mixed Paper
5. Steel Cans	10. Computers

Sea turtles can mistake plastic bags for jellyfish and may choke while attempting to eat them.

Plastic particles found in the ocean resemble colorful confetti. Thousands of these millimeter-sized fragments can emerge in ocean water samples.

Credit: Sea Education Association, Marilou Magliano

Who, **What, Where, How**

Display in airport
bathroom

**REDUCING TRASH
IN A BIG WAY.**

By using Compact® bath tissue, Hartsfield-Jackson Airport eliminated over 90 tons of packaging last year. That's equivalent to the weight of three humpback whales. That's huge.

Brought to you by:

Georgia-Pacific
Hartsfield-Jackson
Atlanta International Airport
United States Postal Service



Marine Debris



NOAA Marine Debris Program | Office of Response and Restoration | NOAA National Ocean Service

Water: Marine Debris

Contact Us Share

You are here: Water » Our Waters » Oceans, Coasts, Estuaries & Beaches » Marine Debris » Marine Debris Prevention Toolkit

Marine Debris Prevention Toolkit

Welcome to the Marine Debris Prevention Toolkit. With just a few clicks, you can find a variety of outreach materials, including video and audio public service announcements, print materials, educational tools, and promotional items that were developed by local governments, state agencies, and nonprofits. Whether you are interested in developing your own marine debris prevention outreach campaign or looking to learn more about marine debris prevention activities, just follow these simple steps:

Step 1: Select the type(s) of tool, audience, marine debris, or location you are interested in or you can just select "all" for any search category.

Step 2: Click on the submit button.

Step 3: Scroll down to view your search results at the bottom of the page. If you would like to refine or change your search, click on the reset button under the search criteria table.

Step 4: Click on the link provided in the search results to view more details about the tool.

Is your Tool missing? Do you want to [add your Tool?](#)



You will need Adobe Reader to view some of the files on this page. See EPA's PDF page to learn more.

- Water Home
- Drinking Water
- Education & Training
- Grants & Funding
- Laws & Regulations
- Our Waters
 - Drinking Water
 - Ground Water
 - Lakes
 - Oceans, Coasts, Estuaries & Beaches
 - Rivers & Streams
 - Stormwater
 - Wastewater
 - Watersheds
 - Wetlands
 - Where You Live
- Pollution Prevention & Control
- Resources & Performance
- Science & Technology
- Water Infrastructure
- What You Can Do

Tool	Audience	Marine Debris	State
<input checked="" type="checkbox"/> All <input type="checkbox"/> Audio <input type="checkbox"/> Educational Tools <input type="checkbox"/> Games <input type="checkbox"/> Laws / Ordinances <input type="checkbox"/> Power Point Presentations <input type="checkbox"/> Print Materials <input type="checkbox"/> Promotional Items <input type="checkbox"/> Research / Scientific Documents <input type="checkbox"/> Social Media Resources <input type="checkbox"/> Videos	<input checked="" type="checkbox"/> All <input type="checkbox"/> Boaters <input type="checkbox"/> Educators <input type="checkbox"/> Fishermen <input type="checkbox"/> General Public <input type="checkbox"/> Governments <input type="checkbox"/> Industry <input type="checkbox"/> Kids <input type="checkbox"/> Ports / Harbors <input type="checkbox"/> Retailers <input type="checkbox"/> States	<input checked="" type="checkbox"/> All <input type="checkbox"/> Balloons <input type="checkbox"/> Cigarette Butts / Cigar Tips <input type="checkbox"/> Construction Material <input type="checkbox"/> Disaster Debris <input type="checkbox"/> Fishing Line <input type="checkbox"/> General Debris <input type="checkbox"/> Manufacturing and Industrial Debris <input type="checkbox"/> Polystyrene <input type="checkbox"/> Plastics (General) <input type="checkbox"/> Plastic Bags <input type="checkbox"/> Plastic Bottles <input type="checkbox"/> Plastic Pellets <input type="checkbox"/> Straws <input type="checkbox"/> Stormwater Debris	<input checked="" type="checkbox"/> All <input type="checkbox"/> National Programs <input type="checkbox"/> Alabama <input type="checkbox"/> Alaska <input type="checkbox"/> Arizona <input type="checkbox"/> Arkansas <input type="checkbox"/> California <input type="checkbox"/> Colorado <input type="checkbox"/> Connecticut <input type="checkbox"/> Delaware <input type="checkbox"/> District of Columbia <input type="checkbox"/> Florida <input type="checkbox"/> Georgia <input type="checkbox"/> Hawaii

Submit Reset



“Mind the Gap”

Factors that lead to pro-environmental behavior

- **Knowledge & awareness are not enough.** Also need values, emotion, and demographic factors.
- Motivations for participating in environmental stewardship events



“Mind the Gap”

Knowledge + awareness \neq Action

Values....overcoming excuses

Every action adds up



Border of Haiti and Dominican Republic

Legislate/Regulate

- Legislation and policies to
 - Minimize solid waste
 - Increase management
 - Prevent debris from at-sea sources

Market-Based solutions

Guidelines on the Use of Market-Based Instruments to Address the Problem of Marine Litter

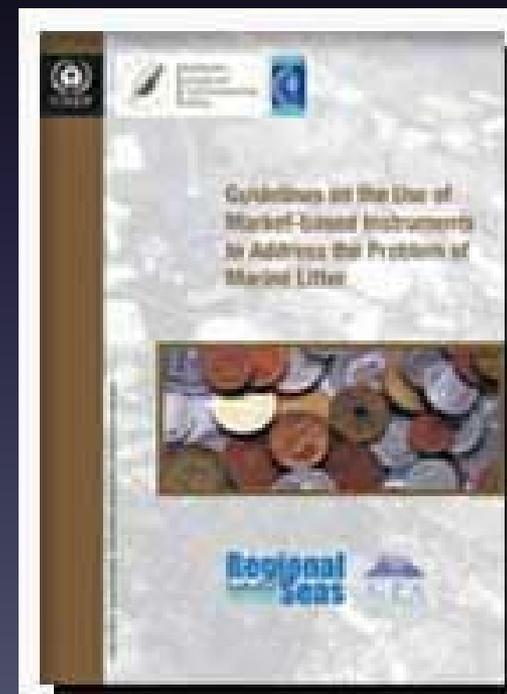
Published by **United National Environmental Programme**. 2009.

Institute for European Environmental Policy, Brussels, Belgium

- Patrick ten Brink
- Samuela Bassi
- Indrani Lutchman
- Stefan Speck

Sheavly Consultants, Virginia Beach, Virginia, USA

- Katie Register
- Seba Sheavly
- Chris Woolaway



Economic instruments

Market-based instruments -- MBI

Use market forces (prices) to

- encourage waste reduction from the source
- changes in behavior
- encourage remedial removal efforts

Carrots & sticks

- Incentives
- Disincentives

Basic principles behind MBIs

Polluter Pays Principle (PPP)

The user/beneficiary pays principle

Full cost recovery principle



Economic instruments are designed to change the cost or price of our actions.

- **Goods** *plastic bags, bottles*
- **Services** *waste collection*
- **Activity** *illegal dumping*
- **Input** *materials*
- **Output** *pollution*

Goals

1. Incentives

Encourage a change of behavior

Goals

1. Incentives

Encourage a change of behavior

2. Raise revenue

\$ can be earmarked for:

- Education
- Infrastructure
- Strengthen monitoring & enforcement
- Cleanups

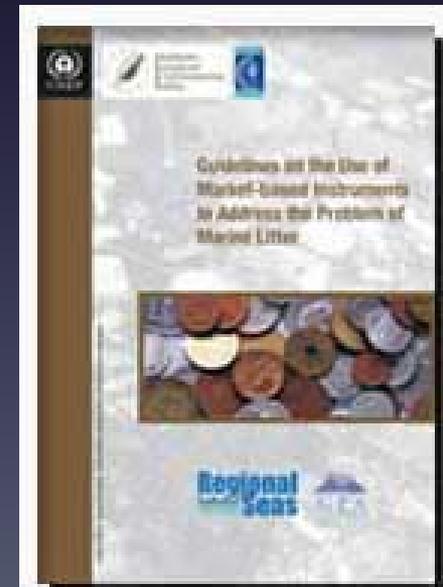


Economic instruments

- Taxes, charges, fees
- Fines, penalties
- Subsidies and incentives

Which to use?

- Are conditions favorable?
- Could an MBI potentially be effective?
- Guidelines & case studies





Factors to consider in selecting the best economic instrument

- the type and sources of litter
- economic & environmental impact of the litter
- available waste management infrastructure
- political will / possible opposition
- capacity to enforce and many other factors.

Things to avoid

- Unacceptable social impacts
- Perverse incentives, such illegal dumping
- Unintended impacts



“Bans” & “Command & Control”

- “Bans” affect the market, but are not MBI -
- consumer has no choice

MBI - part of an integrated strategy

- Education & outreach
- Laws & policies
- Enforcement (!)
- Adequate support infrastructure



Innovation: A second plastic revolution

Smarter use.

Smart plastics of the future: biodegradable? Non-toxic? “Waste as a resource”

Remove barriers.

Make it easier to do the right thing

Changing materials, new “normals”

Beyond prevention: Interception



Collecting
trash at
stormdrain or
end of pipe



Stormwater BMPs

- Reduce discharge of solid waste into waterways
- Trash TMDLs

Beyond prevention: Removal (remedial)

- Skimmers
- Street cleaners
- Beach cleaners

Beyond prevention: Removal (remedial)

Volunteer cleanups

- Using what we find to understand sources, impacts
- Band-aid, not cure
- Cleanups as gateway drug for more involvement

PASSION





Summary:

1. Source reduction

Education

Regulation (market-based tools)

Innovation

2. Interception @ Point of entry

3. Remedial -- removal



Virginia HAS...

Litter Tax on beverages

Funds county-level litter prevention
& recycling

DEQ Recycling & Litter Prevention

Virginia Naturally



Virginia HAS...

Educational Tools

NGOs

Keep VA Beautiful

Clean VA Waterways

Regional cleanups

VA Council for Litter Prevention &
Recycling



Virginia NEEDS...

Survey of efforts (VA & other states)

Gap Analysis

Comprehensive plan

Easy to access “Toolbox”



Katie Register,
Clean Virginia Waterways
Longwood University
434.395.2602
registerkm@longwood.edu