



Land-Based Marine Debris: A Summary

Katie Register, Clean Virginia Waterways
Longwood University
Farmville, Virginia

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Enhance the health of Virginia's water resources through pollution prevention, education and stewardship activities.



CVW Programs

International Coastal Cleanup

Litter Prevention / Marine Debris

Water Conservation/ Rain Barrels

Water Quality Monitoring

Teacher Workshops



Photo: NASA



Marine Debris: defined

...any persistent, manufactured or processed solid material discarded, disposed or abandoned in the marine & coastal environment.

Estimate: 60 to 80% of marine debris is from land

VA Waterways Cleanup

International Coastal Cleanup *in Virginia*

- Remove Trash
- Collect Data



Photo: The Ocean Conservancy



Photos: Clean Virginia Waterways

Marine Debris–

Data helps us understand:

- Sources
- Impacts
- Solutions



Sources

What are the **behaviors** leading to the debris?

What are the behaviors leading to the debris?

1. Shoreline & recreational activities
2. Ocean/waterway activities
3. Smoking-related activities
4. Dumping activities
5. Medical/personal hygiene related activities



Shoreline and recreational activities



Photo: The Ocean Conservancy

Ocean and waterway activities



Photo: The Ocean Conservancy



Smoking-Related Activities



Photos: Clean Virginia Waterways



Dumping Activities



Photo: The Ocean Conservancy



Balloon litter --
unique.





Top Ten Items -- ICC in Virginia, 2009

1. Cigarettes/Cigarette Filters
2. Food Wrappers/Containers
3. Beverage Bottles (plastic) 2 liters or less
4. Beverage Cans
5. Glass Beverage Bottles
6. Bags (Plastic)
7. Cups, Plates, Forks, Knives, Spoons
8. Caps, Lids
9. Straws, Stirrers
10. Bags (Paper)



Top Ten Items -- Plastic

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Items of Special Concern

- **Plastics**

 - Cigarette butts (cigar tips)

 - Plastic bags; Bottles & fast-food related

- **Food & Beverage Related**

- **Entanglement & Ingestion threats**

 - Balloons & ribbons; Plastic Bags

 - Fishing line & nets

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.



Impacts

Entanglement





Entanglement



Photos: The Ocean Conservancy

Habitat destruction



Human health & safety impacts





Economics & aesthetics



Photos: The Ocean Conservancy & Clean VA Waterways

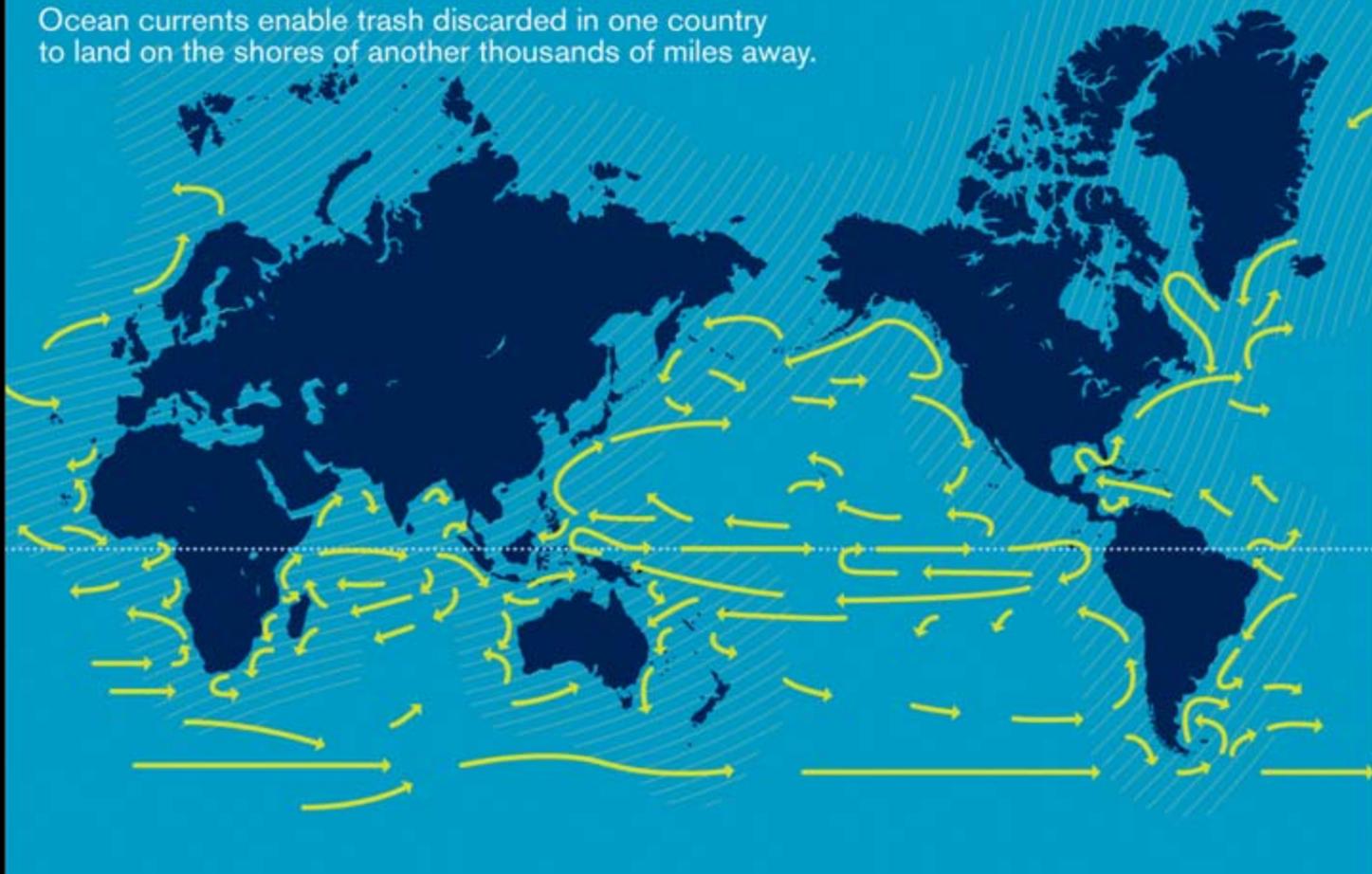
Growing Awareness

- Pacific “Garbage Patch”
- Stormwater Management

THE GREAT PACIFIC GARBAGE PATCH



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



**Albatross chick--
starved to death**

National Geographic,
Oct 2005





Solutions



1. Source reduction

Education

Regulation

Innovation



1. Source reduction

Education

Regulation

Innovation

2. Remedial -- removal



1. Source reduction

Education

Regulation

Innovation

2. Remedial -- removal

3. Point of entry



Stormwater Management

- Municipalities must address pollutants in stormwater
- Oil, plastic, floatables, toxins, dog poop, fertilizer, etc.
- TMDLs for trash -- on their way



Stormwater Management

Source Reduction:

“Institutional” measures

Education, change in behaviors

Receptacles

Market-based incentives



Stormwater Management

Removal:

Skimmers, street cleaners, beach cleaners

volunteer cleanups (land & water)



Stormwater Management

Point of entry:

Structural measures

Trash cages, netting, catch basin inserts, end-of-pipe solutions





Virginia HAS...

Litter Tax on beverages

Funds county-level litter prevention
& recycling

DEQ Recycling & Litter Prevention

DEQ 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”



Thank you

www.longwood.edu/cleanva

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