



# Florida Microplastic

## AWARENESS PROJECT

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**UF** | **IFAS Extension**  
UNIVERSITY of FLORIDA

**Sea Grant**  
Florida

# The Motivation

- Audiences in Florida saw marine debris as a “Great Pacific Garbage Patch” issue (“It’s so horrible for the Pacific...”)



Photo credit: NOAA

- Audiences in Florida were largely unaware about plastics in personal care products
- What better way to get people to change behavior than to have them see for themselves that the problem is in “their” water?

# Overview



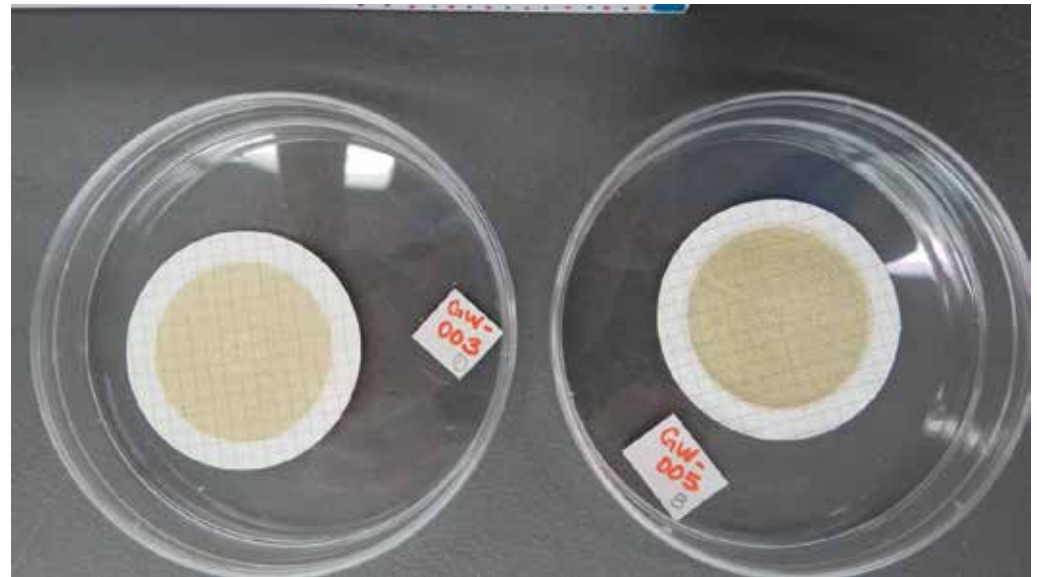
- Funded by a 2015 NOAA Marine Debris Outreach and Education grant (\$16,896 from NOAA, \$17,500 match)
  - \$9,877 of the match is volunteer time (465 hours)
- 15 (16+) “regional coordinators” around Florida
- Volunteers are collecting 1-liter water samples and filtering them, then observing the filters for microplastics

# Sampling protocol

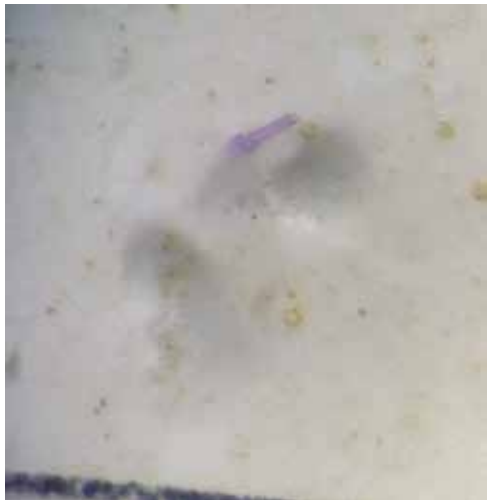
- Volunteers choose their sampling site
- On a calm day (preferably), they collect their sample.



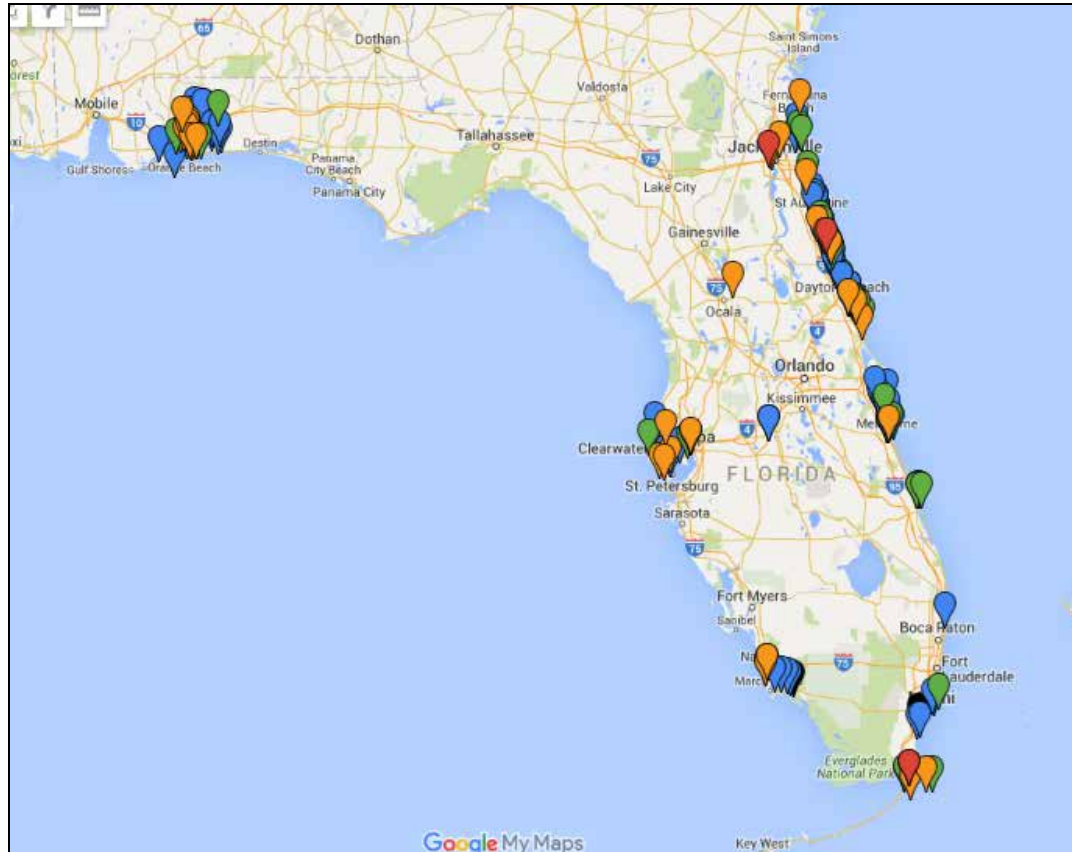
- The samples can sit (and preferably should sit for at least a few days) before being filtered.
- Samples are filtered through 0.45 micron gridded 47-mm filters.



- Filters are placed in petri dishes for observation through a dissecting microscope (30-40 X).
- Plastic fibers can be confirmed using a hot needle.



- Data and volunteer time are entered online.
- Data are entered into a spreadsheet and uploaded into Google Maps.



# The geeky data part

- Since Sept 1, 2015 (as of April 14, 2016)
  - 15+ regional coordinators trained
  - 140 volunteers entered time (>590 hours)
  - 395 samples collected/analyzed (178 locations); 91% contained plastic
  - Average of 8 pieces of plastic/liter
    - 83% of plastic is fibers
    - 9% is fragments
    - 6% is microbeads
    - 2% is film



# FMAP website

www.plasticaware.org

The screenshot displays the FMAP website interface. At the top left is the University of Florida IFAS Extension logo. The main header features the text "SOLUTIONS for your LIFE" and the Sea Grant Florida logo. A dark blue navigation bar contains "Home" and "About Sea Grant" links, a "GO" button, and a search input field. A vertical sidebar on the left lists various topics with orange arrow icons: Clean Marina, Climate Change, Education, Horseshoe Crabs, Manatees, Marine Debris (with a sub-link for Microplastics), Marine Invasives, Newsletters, Right Whales, Sea Oats, Volunteering, and Watersheds. The main content area is titled "Be Plastic Aware!" and features a large image of microplastics. At the bottom, a footer contains links for "Microplastics Home", "Get Involved", "K-12 Resources", and "Multimedia & Outreach Materials".

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# Outreach materials




Florida Microplastic  
AWARENESS PROJECT

## VOLUNTEER MANUAL



www.marinedebris.noaa.gov  
Keep the sea free of trash

[www.plasticaware.org](http://www.plasticaware.org)  
Revised: 10/23/15



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## PLEASE DON'T TRASH OUR OCEAN!

Single use plastic items like straws, shopping bags and water bottles/caps are some of the most common items found during beach cleanups. These plastic items do not decompose. They only break down into smaller and smaller pieces of plastic.

Please avoid using single-use plastics. Say "no straw please" and carry a reusable water bottle and shopping bags.

Some fabrics are made of plastic. Look for natural fiber fabrics (cotton, rayon) rather than synthetics (microfiber, polyester, nylon, polypropylene). Every time we wash synthetic fabrics, tiny plastic fibers go down the drain. This is the #1 type of microplastic found in the ocean.

In the ocean, plastic items are eaten by animals like sea turtles and birds. If animals eat enough plastics, they can starve to death.

Learn more at [www.plasticaware.org](http://www.plasticaware.org)



## PLEASE DON'T PUT PLASTICS DOWN THE DRAIN!

Plastic (polyethylene) "microbeads" can be in toothpastes, facial scrub, deodorants, makeup etc.

**Microbead Ingredients:** glycerin, hydrated silica, sodium laurethylsulfate, propylene glycol, PEG-4, water, zinc, lactate, triclosan phosphate, sodium lauryl sulfate, sodium phenoxy isopropanol, sodium saccharin, sodium gluconate, hydroxyethyl acrylate, PEG-1500.

Toothpaste label showing polyethylene glycol



Plastic microbeads from facial scrub (used to exfoliate skin)

When microbeads go down the drain, they do not get removed in the wastewater treatment system. They can end up in the ocean. Toxins in the ocean can stick to the surface of the plastics. Plankton, fish and shellfish can eat them.

Learn more at [www.plasticaware.org](http://www.plasticaware.org)



Microscopic plastic fiber and pieces found in coastal Florida waters.



# Lessons learned?

- Keep it simple
- Flexibility is important
- You will need to pester people to remind them to enter their data/time
- Let samples sit...
- Use a ring with a separatory funnel, not a clamp...



# A model for other areas?

- Hopefully!
- Relatively low-cost
- Relatively easy for volunteers (lots of flexibility)
- Impact easy to visualize
- Lots of media coverage about plastics/microbeads in 2015 (the time is right!)

# Funding needs

- Individual set of supplies (including dissecting microscope): approx. \$650 (cheaper if buying quantities). I'm happy to send a spreadsheet of materials to anyone who is interested.



# It's been a team effort...



- Sam Mason (SUNY Fredonia)
- Abby Barrows (Marine & Environmental Research Institute/Adventurers & Scientists for Conservation)
- Rick O'Connor, Chris Verlinde, Laura Tiu, Lara Milligan, Katie Fortescue, Dave Graff, Shelly Krueger, Lisa Krimsky, Sarah Egner, LeRoy Creswell, Holly Abeels, David Griffis, Chad Truxall, Kenneth Rainer, Jennie Busey, Margaret Johnson
- All our FMAP volunteers!