

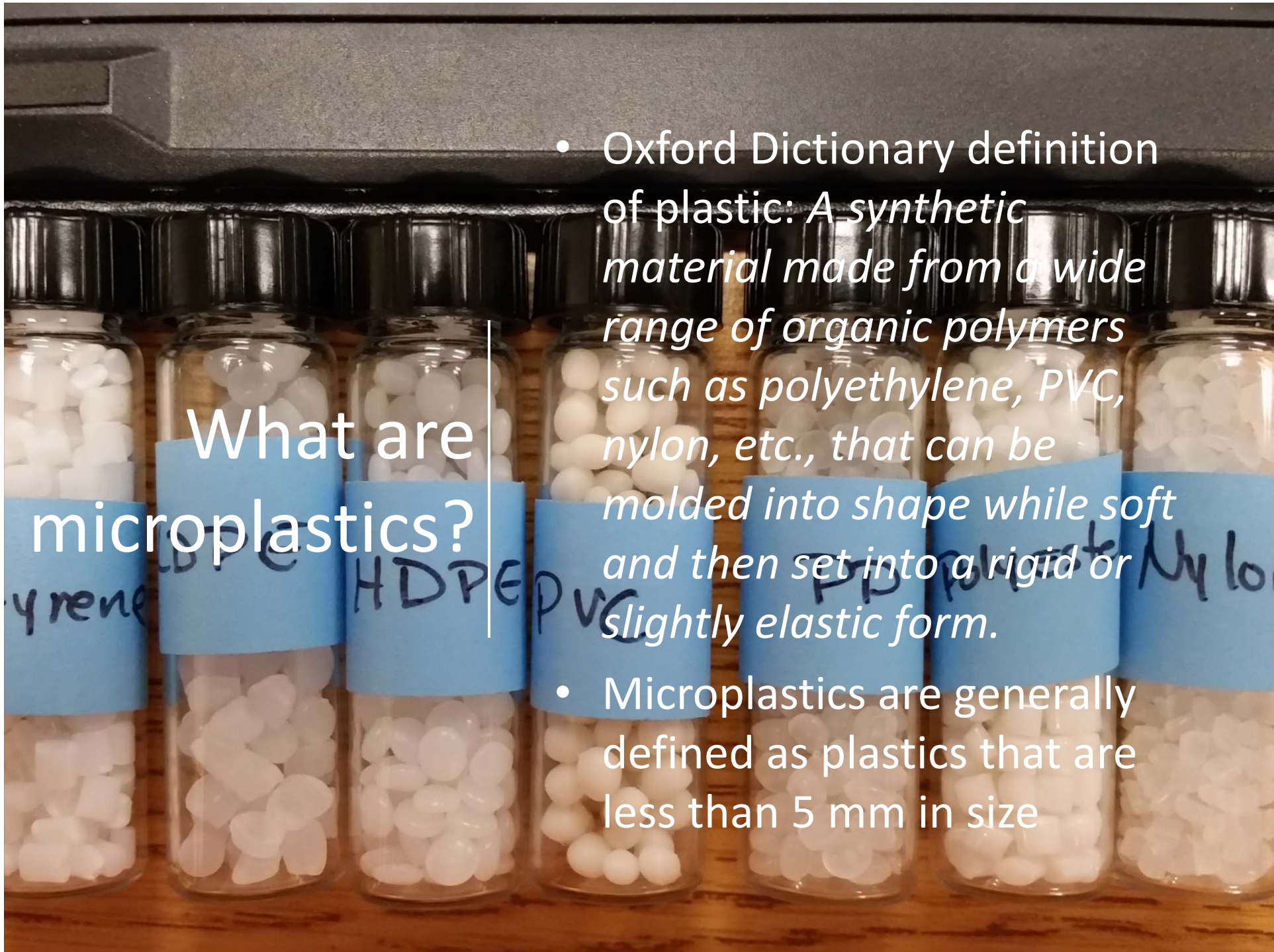


Florida Microplastic Awareness Project: Using Citizen Science to Inspire Behavior Change

Maia McGuire, PhD
Extension Agent

UF | **IFAS Extension**
UNIVERSITY of FLORIDA

Sea Grant
Florida



What are microplastics?

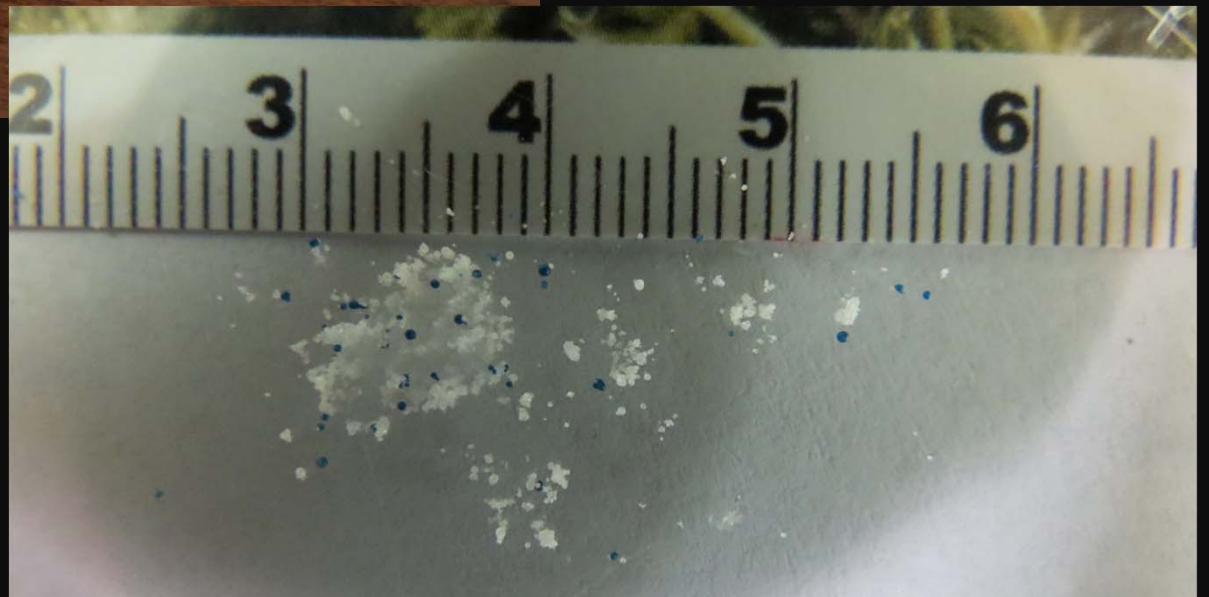
- Oxford Dictionary definition of plastic: *A synthetic material made from a wide range of organic polymers such as polyethylene, PVC, nylon, etc., that can be molded into shape while soft and then set into a rigid or slightly elastic form.*

- Microplastics are generally defined as plastics that are less than 5 mm in size

Secondary microplastics

- Fibers
 - Polyester, nylon, acrylic, polypropylene
 - “Microfiber”
 - Shed from fabrics during washing and drying
- Fragments





Primary microplastics

Nurdles and
microbeads

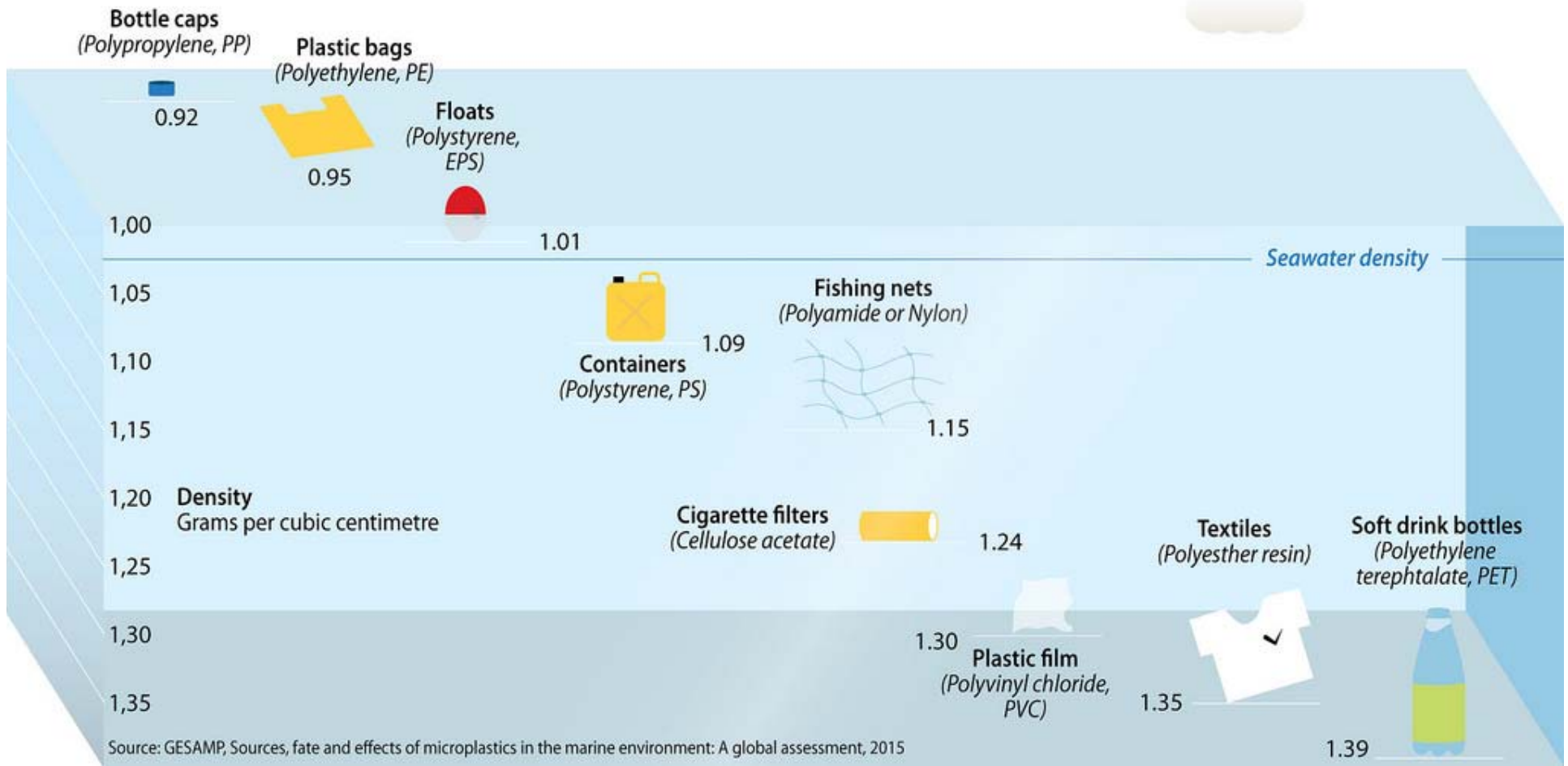
So why do we care about microplastics?

They are in the environment, and seem to be increasing in abundance

They never biodegrade

They are eaten by marine life

Which plastics float and which sink in seawater?





Plastic-related toxins have been found in plankton, whales and dolphins

Phthalates have been measured in plankton and fin whale blubber; metabolites have been found in dolphin urine

● **TOXINS ARE IN THE OCEAN**

PLASTICS ARE IN THE OCEAN



TOXINS REALLY LIKE TO STICK TO PLASTIC...

ANIMALS EAT PLASTIC



TOXINS GET INTO ANIMALS



www.plasticaware.org
#plasticaware
#microplasticawarenessmonth

Microplastics have been found in

- ✓ Tap water
- ✓ Bottled water
- ✓ Beer
- ✓ Sea salt
- ✓ Oysters
- ✓ Mussels
- ✓ Etc....

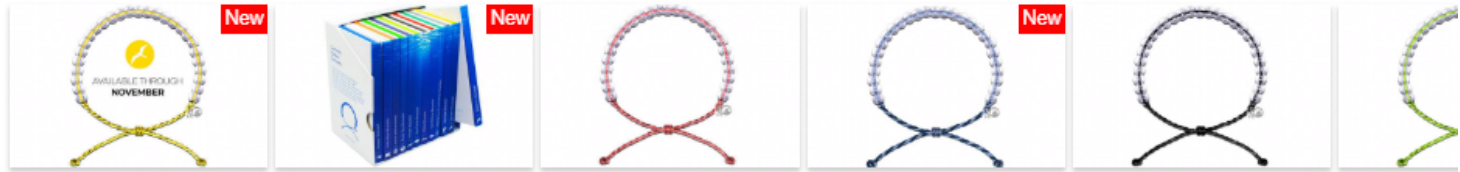


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ADVE

SMARTNEWS *Keeping you current*

Microplastics Found in Human Poop for the First Time

The pesky particles were present in all eight stool samples gathered for pilot study





**Almost every piece of plastic ever
made still exists. Think about what
that means for generations to
come...**

**www.plasticaware.org
#plasticaware**

Reduce Plastic Waste

- About 50 million single use plastic water bottles are disposed of in the US every day
- Over 221,000 were collected in the 2015 International Coastal Cleanup in the US
- Globally, ALL of the 10 top items found in the 2017 ICC are plastic...



Florida Microplastic Awareness Project

www.plasticaware.org

- Funded by a 2015 NOAA Marine Debris Outreach and Education grant
- 27 regional coordinators around Florida
- Volunteers are collecting 1-liter water samples and filtering them, then observing the filters for microplastics
- Tied to larger outreach effort



Florida Microplastic
AWARENESS PROJECT



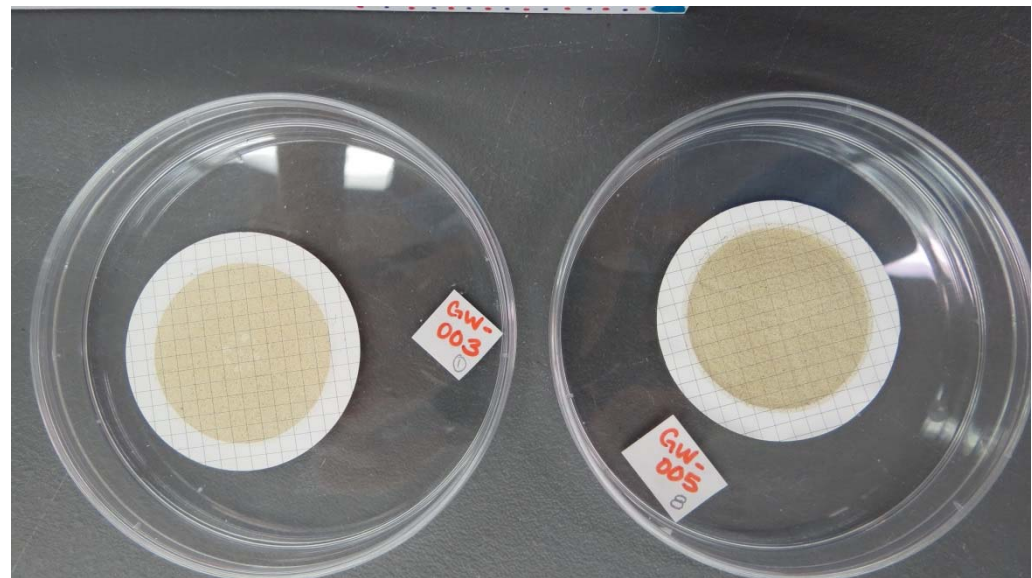
www.MarineDebris.noaa.gov
Keep the sea free of debris

Sampling protocol (check out our YouTube channel!)

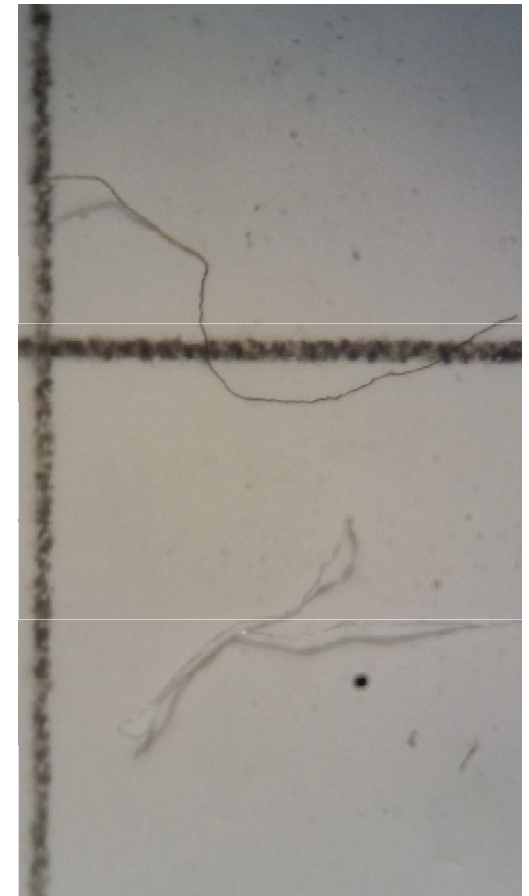
- Volunteers choose their sampling site
- On a calm day (preferably), they collect their sample.



- 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.



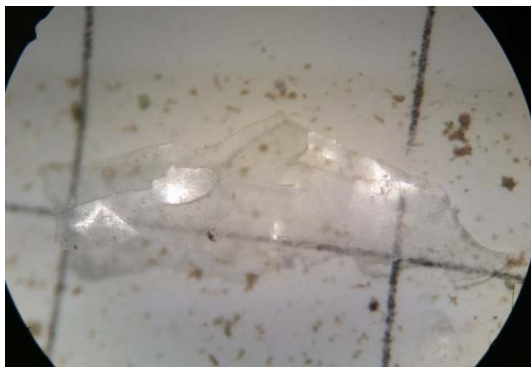
- Filters are placed in petri dishes for observation through a dissecting microscope (30-40 X). Fibers are tested by heating over a flame.



What have we learned?

– Microplastics are found in Florida waters

- Mostly as fibers
- Fragments
- Very few microbeads
- Film



QUICK FACTS

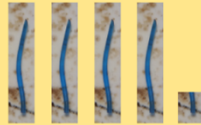


FROM SUMMER 2017–2019,

4.2

average number of
microplastics per liter

PIECES OF PLASTIC



FIBERS

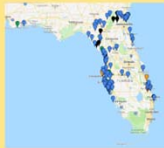
79%

of the microplastics
reported were fibers

>300

SAMPLES

one-liter water samples from
fresh and saltwater locations
have been analyzed



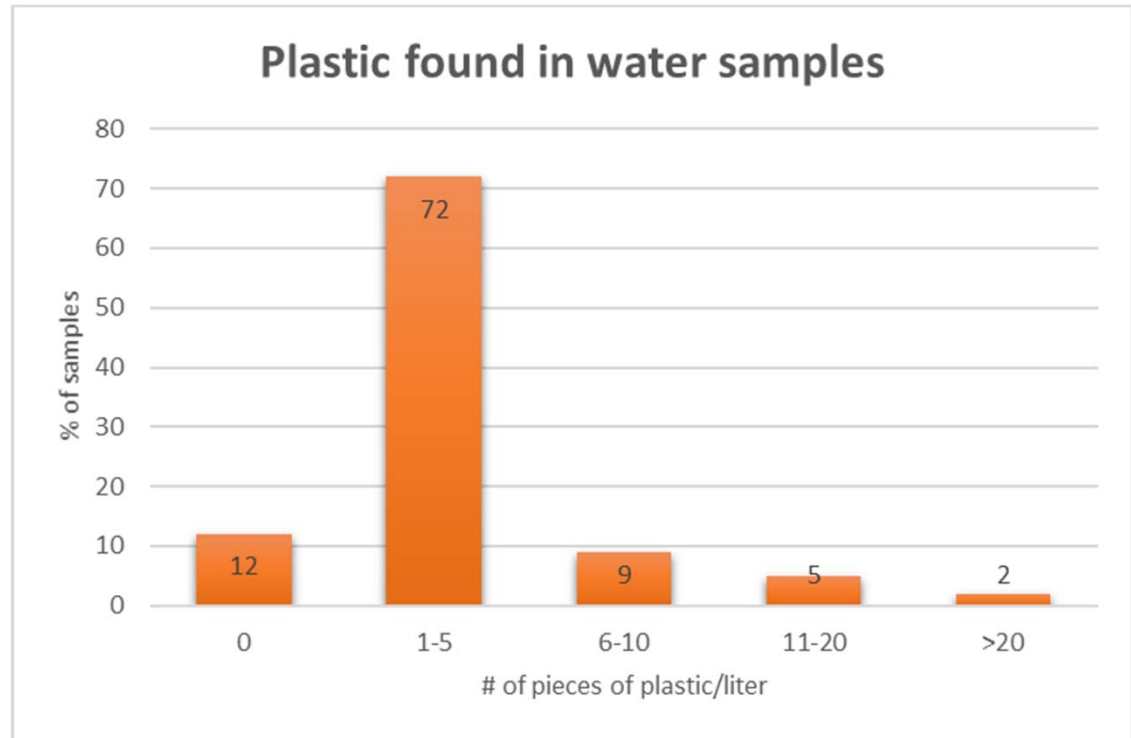
NATURAL FIBERS

60%



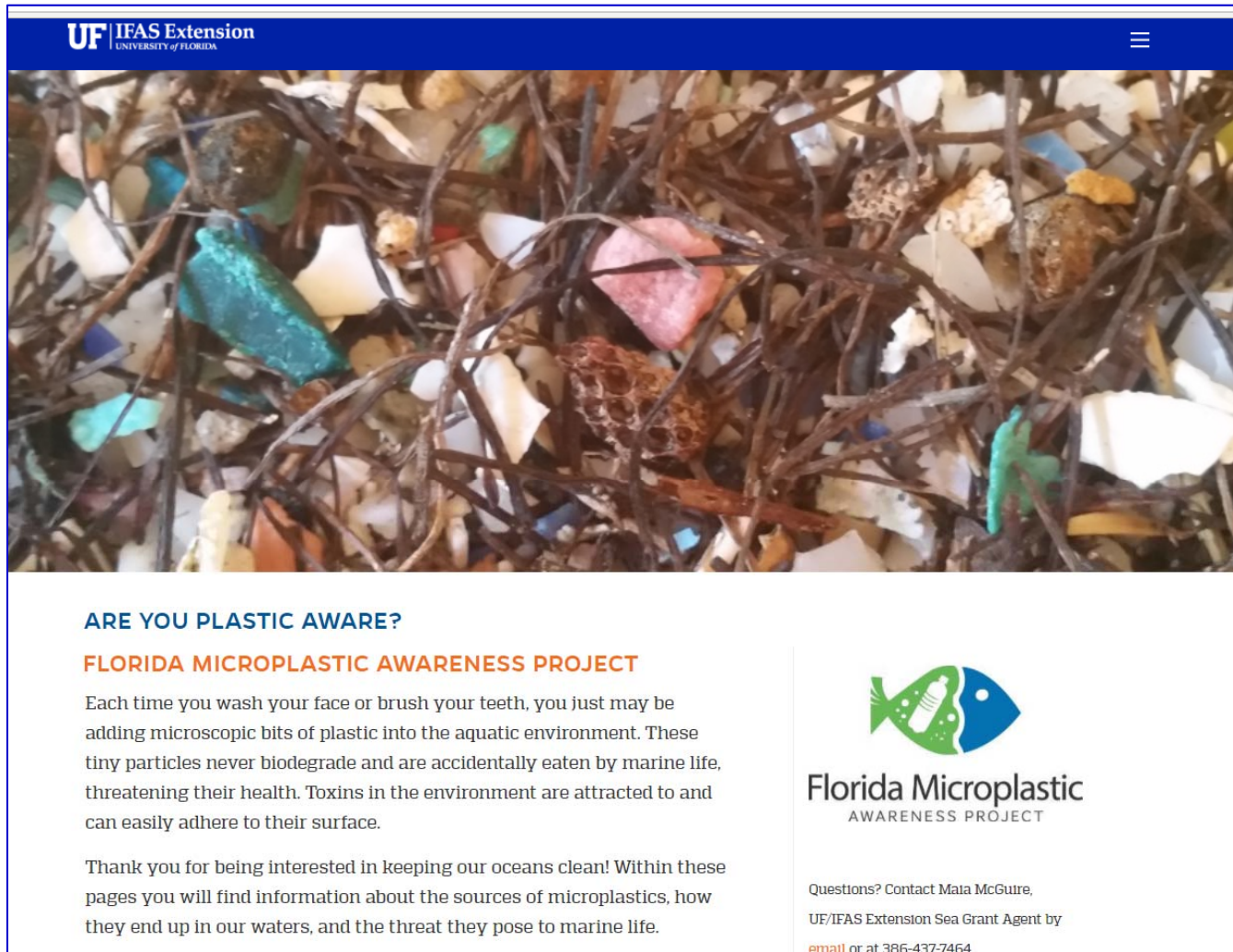
of all fibers tested were
natural. Color cannot be
used to distinguish between
natural and synthetic fibers.

The data...



FMAP website

www.plasticaware.org



The screenshot shows the top of the FMAP website. At the top left is the logo for UF IFAS Extension, University of Florida. Below the logo is a large image of a bird's nest filled with twigs and various pieces of microplastic debris, including small white, blue, and red fragments. Below the image, the text reads: "ARE YOU PLASTIC AWARE?" followed by "FLORIDA MICROPLASTIC AWARENESS PROJECT". A paragraph explains that washing face or brushing teeth adds microscopic plastic to the aquatic environment, which is harmful to marine life. A second paragraph thanks visitors and offers more information. On the right side of the content area is the Florida Microplastic Awareness Project logo, which features a stylized fish with a green body and blue tail, and a white plastic bottle inside its body. Below the logo is the text "Florida Microplastic AWARENESS PROJECT". At the bottom right, contact information is provided: "Questions? Contact Maia McGuire, UF/IFAS Extension Sea Grant Agent by email or at 386-437-7464".

UF IFAS Extension
UNIVERSITY OF FLORIDA

ARE YOU PLASTIC AWARE?
FLORIDA MICROPLASTIC AWARENESS PROJECT

Each time you wash your face or brush your teeth, you just may be adding microscopic bits of plastic into the aquatic environment. These tiny particles never biodegrade and are accidentally eaten by marine life, threatening their health. Toxins in the environment are attracted to and can easily adhere to their surface.

Thank you for being interested in keeping our oceans clean! Within these pages you will find information about the sources of microplastics, how they end up in our waters, and the threat they pose to marine life.

Florida Microplastic
AWARENESS PROJECT

Questions? Contact Maia McGuire,
UF/IFAS Extension Sea Grant Agent by
email or at 386-437-7464

The Pledge



bit.ly/plasticpledge

8 ways to reduce plastic waste

- Read labels and avoid personal care products that contain polyethylene
- Use paper or reusable shopping bags
- Avoid using plastic drinking straws
- Bring your own reusable water bottle
- Bring your own washable hot (or cold) drink cup
- Use foil or a washable container as a "to go" box at restaurants or when packing lunches
- Recycle as many plastic items as possible
- Choose natural fabrics instead of synthetics

Take our pledge at <http://bit.ly/plasticpledge>

#plasticaware #MicroplasticAwarenessMonth

Recycling
hint: "If in
doubt, throw
it out"



“The Pledge” so far...

- Sept 2015 through April 2019
 - 2,468 pledges (average 3.9 behavior changes pledged)
 - 972 valid e-mail addresses provided for follow-up
 - 299 follow-up surveys completed
 - Average of 3.5 behavior changes reported





Questions?

Maia McGuire
UF/IFAS Extension Flagler County
150 Sawgrass Road
Bunnell, FL 32110

386-437-7464

mpmcg@ufl.edu

<http://sfyl.ifas.ufl.edu/flagler/marine-and-coastal/>

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