

# Kids' pages

Are you ready to learn about the bay?

Spring 2021



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- Plastic Pollution and Marine Debris
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- Threats to the Tampa Bay Ecosystem
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## Got a Question? Ask a Scientist!

**Q** How much plastic is in Tampa Bay?

**A** Marine pollution, or marine debris, is a large problem because of its many forms.

The two largest forms of pollution in our oceans and Tampa Bay are chemicals and trash, most of which gets washed or blown into our oceans from land.

Marine debris is defined as the man-made products that end up in the ocean. Littering, winds, and poor land waste management all result in debris ending up in our waterways and, even worse, much of this litter is made of some type of plastic material. Some of the most common offenders of marine debris are plastic items such as shopping bags, beverage bottles and caps, cigarette butts, food wrappers, and plastic straws.

Plastic waste is specifically problematic as a pollutant because it has a long lifespan. Larger plastic items such as bags, ropes, and fishing gear can become entangled around marine life. Examples of larger distressed animals include sea turtles, whales, dolphins, fish, and birds. Additionally, animals at every level of the marine food web have been found to ingest plastic, which can have lasting effects on their health and survival.



Microplastics are found at every level in our ecosystem.

Items made from plastic take hundreds of years to break down in our environment. When degrading into smaller pieces, they can leak toxic chemicals and act as a magnet for other toxins in the water, becoming even more hazardous if consumed.

These tiny pieces of plastic, measuring 5mm or less in diameter, are called **microplastics**. There are **primary microplastics**, which include raw plastic such as plastic pellets, microbeads, or nurdles (a very small pellet of plastic that serves as raw material in the producing plastic products). There are also **secondary microplastics**, which are pieces of degraded larger plastic items. Common sources of microplastics in our oceans include rubber tires, road markings, boat paint, synthetic textiles (fibers), personal care products, and plastic pellets.

Unfortunately, Tampa Bay is not exempt from plastic pollution. In 2019, scientists at Eckerd College and the University of South Florida found nearly four billion plastic particles polluting the Tampa Bay estuary.

Sources: Florida Sea Grant, UF Florida Microplastic Awareness Project, Ocean Conservancy, TBERF Technical Memorandum (2018), USFDA, Marine Pollution Bulletin (2019), National Geographic, Canva.



Mark your  
calendars!

## Virtual Microplastics Workshop, May 27, 3-4 pm

Our oceans are gravely impacted by plastic pollution. Persisting in the environment forever, microplastics is one of the most harmful forms of ocean pollution.

In an effort to increase awareness of the presence and effects of microplastics, the Florida Microplastic Awareness Project (FMAP) is engaging volunteers throughout the state in sampling and analyzing local waters for plastic.

Tune in to learn about the facts of plastic pollution and the impact on the environment at Tampa Bay Watch.

Visit [tampabaywatch.org/fmap](http://tampabaywatch.org/fmap) for more information or to register for this free event.

# Expand Your Mind!

## Meet & Greet: Creatures Vulnerable to Plastic Pollution



### FLORIDA MANATEE

*Trichechus manatus latirostris*

Florida manatees are brought closer to human interaction because they rely on nearshore ecosystems for food and shelter; however, this brings them closer to boat strikes and fishing gear entanglement. And the seagrasses that manatees like to eat, which grow close to shorelines, are vulnerable to coastal runoff. Seagrasses often receive immediate impact from agricultural nutrient exposure, which pollutes coastal ecosystems and manatee habitat. Sewage, manure, and fertilizer runoff enters the water and causes algal blooms, some of which is toxic and can kill manatees if consumed.

Sources: USFWS, WWF, NOAA, savethemanatee.org, Canva



### GREEN SEA TURTLE

*Chelonia mydas*

Primary pollution threats to green sea turtles include entanglement and plastic consumption. *Bycatch* is the unintended entanglement of turtles in fishing gear, causing distress, fatigue, and drowning. Turtles may ingest marine debris like fishing line, balloons, plastic bags, and floating oil, mistaking these items for food. Plastic can cause blockages in their intestines or puncture the intestines, causing internal bleeding. Oceana, an advocacy organization, reviewed over 1,800 cases spanning the last decade of plastic consumption and entanglement in marine animals in U.S. waters, and found that turtles comprised 48% of all cases, with green sea turtles having the highest portion of turtle incidents.

Sources: Oceana, NOAA Fisheries, WWF, Canva

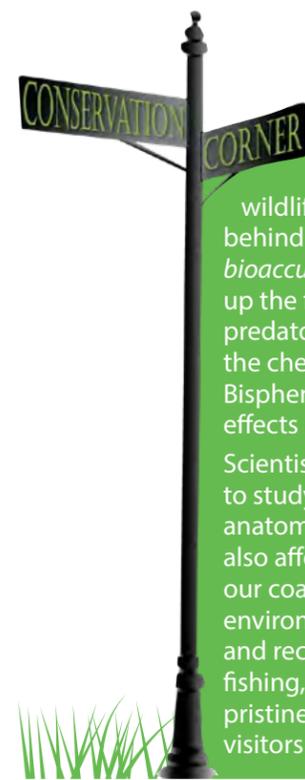


### STRAWBERRY HERMIT CRABS

*Coenobita perlatus*

A 2019 study published in the *Journal of Hazardous Materials* found that plastic beverage bottles are a serious threat to hermit crabs. In searching for new homes, curious hermits often find washed-up plastic debris and move in, believing they've found an indestructible home. However, the bottle's angle allows for entry but no exit due to the slipperiness of its sides. Sadly, in less than a week, trapped crabs expire from dehydration and sun exposure.

Sources: Journal of Hazardous Materials, NRDC, Wikimedia Commons



## Threats to the Tampa Bay Ecosystem

Plastic pollution has detrimental effects on terrestrial and aquatic ecosystems, wildlife, and even human lives. Chemicals left behind from ingested plastics can build up—or *bioaccumulate*—in animal tissue and transfer up the food web, further posing threats to apex predators; humans included. Studies show that the chemicals found in plastic, like the infamous Bisphenol-A (BPA), have negative human health effects in disrupting some biological processes. Scientists and health care professionals continue to study the probable effects of plastic on human anatomy and physiology. Beyond that, pollution also affects human wellbeing as it relates to our coastal economy. Marine debris presents environmental hazards impacting beach tourism and recreation, property values, commercial fishing, and other businesses. Florida relies on pristine estuaries, beaches, and waterways to draw visitors and help support a healthy economy.

Each year, nearly 335 million tons of plastic are produced globally, half of which is expected to be used just once. As a result, the solution of removing plastic from the ocean has extremely difficult.

Despite the complex and growing problem of marine debris, the solution begins with us! Beach cleanups help keep our oceans clean. And as individual environmental stewards, the best option is to buy sustainably and refuse disposable options.

As such a valuable resource, it is essential we aim to eliminate marine debris in order to preserve our oceans. Though the Tampa Bay estuary is affected by marine debris and accumulating microplastics, the community is hard at work contributing to effective waste management programs at all levels.



Sources: Florida Sea Grant, UF Florida Microplastic Awareness Project, Ocean Conservancy, Marine Pollution Bulletin (2019), Canva

## Fun Facts about plastics

- Unlike glass or paper, most plastics can only be recycled once or twice into a new product.
- The Microbead-Free Waters Act of 2015 prohibits the manufacturing of "rinse-off" cosmetic products that contain microbeads, including face wash and toothpaste.
- More than 60 countries have introduced laws to reduce single-use plastic waste.
- Each city and county's recycling guidelines can vary depending on how they handle their waste. Check your local area to learn the recycling do's and don'ts.
- The city of St. Petersburg voted to ban single-use plastic straws and Styrofoam in 2019.
- According to the United Nations, at least 800 species worldwide are affected by marine debris, of which 80 percent is plastic.
- We have produced more plastic in the last 10 years than during the entire last century.

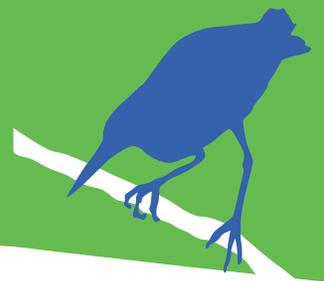
Sources: PEW, UF Florida Microplastic Awareness Project, Ocean Conservancy

## Did You Know...



There is no regulatory requirement for use of the term "biodegradable." If a product claims to be biodegradable, that does not necessarily mean that it is.

Our education programs get kids into the bay!



## Fun Activity for Home: Upcycling Mural

Create a beautiful piece of upcycled art using the plastic pollution you find during your very own beach, backyard, or community clean-up! This is a great way to create a reminder of the good you have done for your local environment.

### Materials:

- Microplastics or other form of plastic marine debris
- Hot glue
- Canvas or cardboard
- Paint, crayons, or markers (optional)

### Instructions:

1. Clean all plastic pieces so they are free of dirt or dust. Dry them thoroughly.
2. If desired, paint any pieces you wish to be a different color. You can also paint the canvas/cardboard a desired background color. Let them dry.
3. Arrange plastic pieces onto canvas/cardboard to create an image or pattern of your liking.
4. Carefully glue each piece to the canvas/cardboard with a hot glue gun.
5. Let sit until the glue is completely dry.
6. For a glossy finish, spray an even layer of clear satin craft sealant over the entire mosaic. Let it dry outside for 24 hours.

