



Bringing “Beasties” to the Zoo: A Collaborative Teen Program for Science Investigation and Self-Expression

Tampa’s Lowry Park Zoo collaborated with Community Stepping Stones, a community-based art and science program, and the students of Van Buren Middle School to create a new educational experience. With the grant from Tampa Bay Estuary Program, fifteen students were able to participate in a 10-week after-school



program where they studied advanced topics such as climate change, ocean acidification, and the effects of plastics on the environment. These students developed messaging for Zoo visitors that you can see today in the Zoo’s Manatee & Aquatics Center.

As part of their program, the students visited Mote Marine Laboratory and Aquarium in Sarasota where microbiologists guided them in exploring the biodiversity of Sarasota Bay. They learned about the importance of microscopic plankton and the impact we are having

on these essential microscopic life forms. Even though plankton is invisible to our eyes, they are essential for our survival. Phytoplankton accounts for almost half of the world’s oxygen. Plankton also makes up the very beginning of the food chain that all life depends on. Without these microscopic creatures, our food sources would collapse and there would be no life in the oceans.

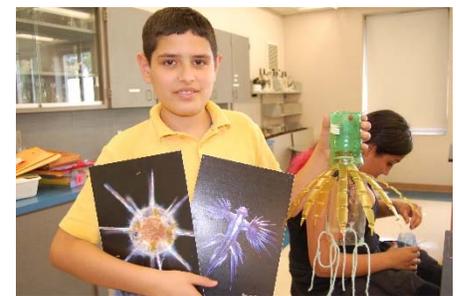
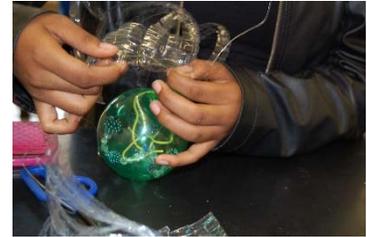
Human activities are negatively impacting plankton and other forms of ocean life. As a species, we are contributing unnaturally large amounts of carbon dioxide into our atmosphere. Although carbon dioxide is a normal part of Earth’s process, from things like animal respiration and decomposition, humans are adding more than our atmosphere can handle. The burning of fossil fuels to provide transportation and energy, and even to make plastic releases carbon dioxide. Some of this ends up in the atmosphere or is absorbed by trees, but a large amount of this excess carbon dioxide ends up in our oceans. Oceans work to regulate our climate and absorb the extra carbon dioxide like a sponge. When this happens, the chemistry of the ocean changes,



affecting all aquatic life. This causes Plankton and other animals with hard shells to grow improperly, which can alter the food chain we all depend on.

Plastic, a product made to last forever, but to be used only once, is affecting the atmosphere as well. Plastic takes a whopping 700 years to decompose! Often times finding its way into our oceans. Our plastic water bottles, bags, and packaging can break down from the sun, wind, and water into microscopic “plankton-sized” pieces. Just as plankton acts as the beginning of our food chain, plastic inadvertently does as well. Just as animals are consumed as a natural part of the food chain, so are plastic particles. These pieces eventually make their way up the food chain, and onto our own dinner plates. The very production of plastic contributes to increasing carbon dioxide levels, which leads to ocean acidification and climate change.

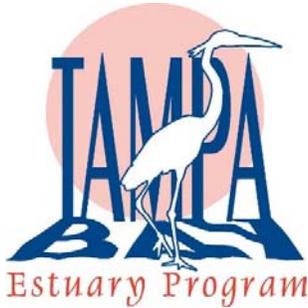
Based on these findings, the students instituted the first-ever recycling program at Van Buren Middle School. During the 10-week program, they collected over 550 pieces of recyclable plastic! With the help of Community Stepping Stones’ instructors, the students created their own imaginary plankton sculptures, lovingly named “Beautiful Beasties”, from their collected plastic. The name is inspired by Antoine van Leeuwenhoek’s research. Considered the father of microbiology, he coined the term “beasties” after observing microscopic life for the first time ever in 1654. The sculptures created by our participants were combined with Community Stepping Stones existing children’s exhibit from 2013. This created the blended presentation currently on display in the Zoo’s Florida Wildlife Center. The Zoo also challenged these students to create informational signage for the exhibit about the topics they studied - climate change, ocean acidification, pollution, and actions we can all take to make a positive difference. Through their experiences, the students were able to better understand and share the relationship between their actions and the health of the environment.



Interested in making a difference? Your small choices can make a big impact in improving our world.

- Just say no to plastic bags. Whether it's choosing not to use one for items you can carry, or bringing your own cloth bags, you can reduce the amount of plastic bags produced.
- Bring your own water bottle. Metal or glass substitutes can be reused and recycled indefinitely, and are also BPA free!
- Choose products that use less plastic packaging.
- Look out for hidden plastics. Many toothpastes and facial washes have exfoliating beads made of plastic. These micro plastics are not filterable and end up in our water supply and food chain.
- Recycle what you use. By recycling, you can reduce the amount of new plastic that needs to be manufactured.

Special thanks to:



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