

Our Ocean Backyard — *Santa Cruz Sentinel* columns by Gary Griggs, Director, Institute of Marine Sciences, UC Santa Cruz.

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Too Much Plastic

While Captain Charles Moore brought attention to what became known as the Great Pacific Garbage Patch almost 20 years ago, each of us has seen the same plastic debris on our own favorite beach. While some of us have nearly eliminated plastic shopping bags and plastic water bottles from our lives, there is a long list of other common plastic products we use every day. Most of this stuff is used just once so has a relatively short lifetime, things like soft drink bottles, food containers, plastic cups and tableware, milk jugs, detergent or shampoo bottles to name a few.

All the properties that make plastic such a great material for so many uses, lightweight, strong, indestructible and waterproof, are precisely the same properties that make it an increasing concern for the oceans. This stuff stays around a long time.

A walk on the beach anywhere on the planet will bear this out, because plastic floats and travels everywhere. Coastlines from Alaska to Antarctica, from Mauritius to Mexico, and from Taiwan to Tahiti, will each have their own collection of plastic debris, which may have traveled a few feet or a few thousand miles from its original disposal site.

Consider for a minute just two of the most widely used and frequently discarded plastic products, plastic bags and plastic water bottles. It's estimated that people around the Earth use about 500 billion single-use plastic bags every year- a million bags a minute. If you lined these end to end, they would stretch around the Earth at the equator nearly 5000 times. That's a lot of plastic bags ending up somewhere.

On October 1, 2014, Governor Brown signed a bill banning the use of plastic shopping bags, making California the first state to officially prohibit stores from handing them out for free. However, the plastic industry is behind a November ballot measure attempting to overturn the ban.

How about single-use plastic water bottles? While over a billion people around the world don't have access to safe drinking water, they aren't the ones consuming all the bottled water. Most areas where bottled water usage is the highest have very good quality tap water.

The irony in the bottled water industry is that 40% of all the bottled water consumed in the United States is simply filtered tap water, and doesn't have to meet U.S. Public Health Service standards.

In spite of this, and for a variety of reasons (including convenience, unfounded suspicions about tap water quality, and those cute little bottles from Fiji or some other exotic place), Americans, who are almost all fortunate enough to have good quality tap water, consumed 9.7 billion gallons of bottled water in 2012. This water was guzzled from 103 billion plastic bottles, which is 3,250 bottles emptied every second, all year long.

If these bottles sold for just one dollar apiece, we spent almost \$200,000 a minute on bottled water. If gasoline sold for what bottled water does, it would cost you at least \$100 to fill up your tank. Despite the prevalence of recycling programs and convenient containers for disposal, only 1 in 5 bottles are recycled and the rest either end up in a landfill or discarded somewhere.

Looking at the global picture, people around the planet consume about 53 billion gallons of bottled water every year, supporting a \$100 billion industry. In convenient 12-ounce bottles, this amounts to about 560 billion plastic bottles every year and growing. If lined up end to end, this row of bottles would extend around the world at the equator 3500 times. There are a lot of plastic water bottles out there and a bunch of them end up on beaches and in the ocean.

I'm going to make a bold proposal for the city of Santa Cruz. Let's do something really meaningful for the oceans and our coasts and set an example that may encourage others to follow. Let's be the first city in the United States to ban single use plastic water bottles.