An underwater photograph showing a large, spotted shark swimming in clear blue water. The water is filled with numerous pieces of clear plastic trash, including bags and fragments, floating around the shark. The scene is brightly lit, suggesting sunlight filtering through the water's surface.

PLASTIC

rising to the top of local government concerns

Tim Goncharoff, Zero Waste Programs Manager
Santa Cruz County, Santa Cruz, California

Scientists estimate that by 2050 there might be more plastic in our oceans than fish.

It was 52 years ago that a well-meaning neighbor urgently whispered “Plastics!” into Dustin Hoffman’s ear in *The Graduate*. That prophecy has been borne out, as the endlessly varied and malleable substance

has become ubiquitous in our lives. But that popularity has come with a downside that is becoming ever-more apparent to local governments across the United States.

Since plastic products first came on the scene in the 1950s, production has grown from zero to more than 300 million tons every year. Producers recently announced plans for new plants that would increase production another 40%.



Captain Charles Moore discovered the Great Pacific Garbage Patch in 1997. "We need a global solution" to plastic pollution, he says. "International cooperation."

Since plastic products first came on the scene in the 1950s, production has grown from zero to more than 300 million tons every year.

While many in the environmental community have been ringing the alarm about plastic for some time, public attention first focused on the issue with the discovery of the Great Pacific Garbage Patch by Captain Charles Moore in 1997.

Research following Moore's discovery revealed giant plastic garbage patches in all of the Earth's oceans. And they are not just floating on the surface. Plastic is found throughout the ocean water column, even in the deepest ocean trenches. Plastic is so pervasive that some experts have predicted that by 2050 there will be more plastic in the oceans than fish.

Some argue for better recycling programs, but the recycling industry seems headed in the wrong direction. While

manufacturers tout plastic's recyclability, plastic recycling in the U.S. peaked at about 9%, and is declining rapidly. Compare this to the approximately 70% recycling rates for products like paper and cardboard, and it's easy to understand why so much plastic has ended up littering our landscape and waters, prompting calls for action and outright bans of many plastic products.

China's recent decision to turn away from the recycling business has created a severe disruption in the world of global recycling. As much as 40% of U.S. recyclables were shipped to China prior to the enactment of the Green Fence and National Sword policies which have slowed that flow to a trickle.

"The Chinese waste import restrictions have disrupted recycling programs throughout the United States, and affected tens of millions of tons of scrap and recyclables since they were imposed," said David Biderman, Executive Director, Solid Waste Association of North America. "They are the most important change to these programs in at least a decade."

Recyclers are doing their best to adjust.

"The recycling market is changing, and the industry continues to adjust to China's restrictions on imported recyclables," says Darrell Smith, President, National Waste and Recycling Associa-

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tion (NWRA). “Our members are making significant investments in labor and technology to reduce contamination at facilities, as well as educating customers on smart recycling practices to reduce contamination in the recycling stream.”

Major recyclers have some advantages. They can invest in more sorting equipment, new plants and more staff. They can store materials while waiting for market conditions to improve. And they can chase an ever-shifting and more demanding market.

Waste Management, the largest recycling and solid waste company in the U.S., is a good example.

“While we’ve been shipping into China for years, we also have opened up markets in other parts of Southeast Asia, India, South America and Europe,” said Brent Bell, a Waste Management vice president for recycling. “And so, when the Chinese started restricting the imports, we quickly

shifted that material to some of these alternative markets.”

Smaller communities and waste haulers are having a harder time adjusting. Rural and small-town residents are starting to get squeezed by a change that is wreaking havoc on the global recycling market.

Hannibal, Mo., has stopped accepting most recyclable plastics, such as yogurt containers and shampoo bottles. Sacramento, the capital of recycling leader California, is doing the same. And in Columbia County, N.Y., residents soon will have to pay \$50 a year to dump their materials at one of the county’s recycling centers.

In a number of towns in Florida, city officials have decided to end recycling altogether.

A city spokesman in Deltona said the decision was made because of a drop in demand for raw recycled materials from overseas countries, which has led to increased costs.

A 2012 study determined that 90 west coast communities spend a total of more than \$520 million each year to combat litter.

“As of this year, we were notified that it was going to cost the city to process recycling material,” spokesman Lee Lopez said. “Essentially, the material wouldn’t go overseas. It would wind up going to the landfill anyway.” Other cities are not far behind.

“They’ve already been exploring this. It’s just that the city decided to go ahead and get it done,” Lopez said.



A&W Canada announced a move away from plastic with a sign made from their last 140,000 plastic straws.

Plastic straws' small size and weight mean they slip through sorting machinery, making them hard to recycle.

The problems with the global recycling market have added to longstanding worries about plastic among local governments across the United States. Coastal communities have been long concerned. A 2012 study determined that 90 west coast communities spend a total of more than \$520 million each year to combat litter. The ubiquitous plastic bag was an early target. There are now statewide bans in Hawaii and California, and hundreds of cities and counties across the U.S. have done the same. Styrofoam is close behind, with bans from New York to Washington, D.C. and Miami to San Diego.

Plastic straws have become a recent focus of plastic pollution concern. Their small size and weight mean they

slip through sorting machinery, making them hard to recycle. And straws are one of the most frequently littered items. Cities from Seattle to Santa Cruz, Calif., have banned them outright. Companies from Starbucks to McDonalds have decided to begin phasing them out. A&W Canada has decided to drop them entirely. Susan Senecal, A&W Canada's president and CEO said, "This decision shows our commitment to continuously work toward creating positive change within our own organization."

Despite the progress, the industry's plans to dramatically increase plastic production have local governments looking for more solutions. San Diego recently joined the ranks of cities that

have banned plastic cutlery. Berkeley just enacted a 25-cent fee on single-use cups. And more cities and counties are eyeing persistent sources of problems, from balloons that entangle power lines and choke sea turtles to plastic cigarette filters that clog storm drains. Recent revelations that microplastic fibers from clothing and other textiles are pouring into our rivers, lakes and oceans are prompting efforts from manufacturers to find solutions and scrutiny from local governments of new filtering technologies to capture the tiny plastic particles.


And public health officials have added their voices to the chorus of concern. Studies have found plastic in many samples of drinking water, beer, seafood and even human stool samples. A recent study from the University of Ghent determined that the average person who eats seafood consumes up to 11,000 pieces of plastic every year.

Environmental filmmaker Sir David Attenborough shares the concern.



Despite the progress in banning some plastic, industry plans to dramatically increase plastic production have local governments looking for more solutions.

“We’ve seen albatrosses come back to feed their chicks with nothing in their bellies but plastic. It is one world. And it’s in our care. For the first time in the history of the Earth, one species has the future in the palms of its hands. We must act now.”

Tim Goncharoff can be reached at (831) 454-2970 or tim.goncharoff@santacruz-county.us. 



Numerous African nations have banned plastic bags, including Kenya, Mauritania, Rwanda and Morocco. These children in Nigeria are prepared for the ban now being considered there, with bags courtesy of Santa Cruz County, California.