

## TOXIC: Garbage Island - Parts 1, 2 and 3

Post by Thomas Morton | Vice  
Wednesday, 10 October 2012 12:38

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### Oh, This is Great - Humans Have Finally Ruined the Ocean



I'm not one of those guys who corners folks at parties to rant at them about biodiesel or calls people "fucking idiots" for being skeptical about global warming. But I should also point out that I'm not one of those Andrew Dice Clay "Fuck the whales" types either.

The problem with all the bravado on both sides of the ecology debate is that nobody really knows what they're talking about. Trying to form opinions on climate change, overpopulation, and peak oil hinges on ginormous leaps of faith based around tiny statistical deviances that even the scientists studying them have a hard time understanding. It gets so convoluted with all the yelling and the politics that sometimes you just want something huge and incontrovertibly awful to come along for everybody to agree on. Something you can show anyone a picture of and go, "See? We're fucked."

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Well, I have just such a thing. There is a Texas-size section of the Pacific Ocean that is irretrievably clogged with garbage and it will never go away. And I have seen it with my own eyes. Case closed. Oh, you want to hear more? OK, fine.

In the middle of the 90s, Charles Moore was sailing his racing catamaran back to California from Hawaii and decided on a lark to cut through the center of the North Pacific Gyre. The Gyre is an enormous vortex of currents revolving around a continuous high-pressure zone—if you

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think of the rest of the Pacific as a gigantic toilet, this zone would be the part where your poop bobs and twirls before being sucked down. Boats typically avoid it since it's essentially one big windless death trap, so when Moore motored through it was just him, his crew, and an endless field of garbage.

As long as it's existed, the middle of the Gyre has been a naturally occurring point of accumulation for all the drifting crap in its half of the ocean. Once upon a time, flotsam circled into the middle of the Gyre and (because up until the past century everything in the world was biodegradable) was broken down into a nutrient-rich stew perfect for fish and smaller invertebrates to chow on. Then we started making everything out of plastic and the whole place went to shit.

The problem with plastic is, unless you hammer it with enough pressure to make a diamond, it never fully disintegrates. Over time plastic will photodegrade all the way down to the individual polymers, but those little guys are still in it for the long haul. This means that except for the slim handful of plastics designed specifically to biodegrade, every synthetic molecule ever made still exists. And except for the small percentage that gets caught in a net or washes up on a shore, every chunk of plastic that's dropped into the Pacific makes its way to the center of the Gyre and is floating there right now.

After watching junk lap against the side of his boat for the better part of a week, Captain Moore decided to convert his boat into a research vessel and make semiannual trips into the Gyre to study the trash. I tagged along on his most recent voyage, joining a divorced, 40-something doctor and a Mexican chemist and mother of two as his crew. It was like a family vacation, but with more science and way more bummers.

The garbage patch is located at one of the most remote points on earth. It takes a solid week of sailing just to get there. Considering how torturous the average daylong car trip gets, you can well imagine the kind of zap job that seven days on a 50-foot boat will do to your brain. You lose sight of land the first day, then you stop seeing other ships, then you stop seeing anything at all except for endless waves and occasionally a seabird, which, after days of nothing but water, becomes as exciting as spotting a UFO. Right at the point where you've come up with a separate song for every bird in the ship's guidebook and have begun integrating them into a full seabird opera, you start seeing the trash.

I had assumed (completely without any basis in research or common sense) that there was

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some contiguous mass of concentrated garbage the captain was steering us toward, but (sadly?) this was not the case. The debris patterns shift with the currents, so you just have to aim the boat in one direction and hope for crap. Every so often we'd spot a few different pieces of garbage floating sort of near one another, but for the most part it was just a steady stream of junk, passing one piece at a time. It was a little underwhelming at first, but keep in mind we were cutting a razor-thin course through one of the biggest expanses of open water on the planet. The fact that we couldn't look out the window for the better part of the trip without seeing some piece of junk bobbing by holds some seriously ugly implications for the rest of the ocean.

The first few times we spotted garbage, we made a big production of stopping the boat and going out to scoop it up. Then we began just picking up whatever trash we could snag from the front of the deck. Then we just grabbed whatever looked interesting.

Some of the flotsam is fun stuff that fell off the side of container ships, like entire crates of hockey masks and Nikes. You might have read about the shipment of rubber duckies that got lost in a storm back in 1992 and have been used by oceanographers to more accurately plot the movement of water currents. I guess that's something of a silver lining to the situation, although it's a lot like thanking AIDS and cholera for all the advances they've provided to epidemiologists.

Before we became equal parts bored and depressed with hauling garbage out of the sea all day, we managed to score a motorcycle wheel, a hard hat, and some children's life preservers with shark bites in them. We also narrowly missed running into what was either a ship's mast or a telephone pole. The majority of our haul, though, was just average crap like Coke bottles and grocery bags. A lot of it seemed to come from Asia, meaning it had to have traveled at least 5,000 miles just for us to find it. The scary, staggering thing to consider while holding this stuff is that only a fifth of it is tossed from boats. Most of it is land-born trash that somehow ended up in a waterway and worked a slow path out to sea. As the captain said a good ten or so times, "The ocean is downstream of everything."

Once we were firmly inside the patch, Captain Moore rigged up a trawl and started taking water samples in little petri dishes. I figured these would be snoozers without a microscope, but when the first one came in it was more horrifying than anything we'd seen floating past.

There were a few water striders and tiny jellyfish here and there, but they were totally overwhelmed by a thick confetti of plastic particles. It looked like a snow globe made of garbage. Based on previous samples, Moore estimated the ratio of plastic to the regular

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components of seawater in what we were pulling up as 6 to 1. As we moved closer to the middle of the Gyre, the ratio got visibly higher, until we started pulling in samples that looked like they contained solely plastic.

Once the plastic confetti gets small enough to fit inside a jellyfish's mouth, it gets sucked in and starts its way up the food chain back to us. As the jellies float out of the debris field, little fish eat them, absorbing all the built-up plastics. Then big fish eat a bunch of little fish, even bigger fish eat a bunch of big fish, and by the time you get to the point where we're hoisting creatures out and eating them, you're looking at entire milk crates' worth of particles built up in their fat. It's the cycle of life reimagined as a dystopian sci-fi cliché. We are eating our own refuse.

Aside from clogging up the digestive tract (biologists in the Pacific have found the bodies of birds who starved to death because their stomachs were completely packed with trash), degraded plastics also have the tendency to sop up foreign chemicals that have leached into the water. There's a whole class of pesticides and solvents called persistent organic pollutants that are basically tailor-made to attach themselves to loose synthetics and wreak havoc on whatever living thing happens to swallow them. The chemist on our boat was studying a pair of the most prevalent of these pollutants in the Pacific water, DDE and DDT. Yep, the same DDT that kills baby eagles. It's also a probable carcinogen with links to diminished sperm counts and developmental retardation. The ocean is brimming with this shit.

This is the part of the trip that weighs heaviest on my mind. It's terrible enough to litter sections of the planet with things that can conceivably be removed—I mean, even oil spills and radioactive dust can be cleaned up to a certain extent. But to fundamentally alter the composition of seawater at one of the farthest points from civilization on the globe is a whole different ballpark of fucking the planet. It's fucking it right up the ass, for good and forever. Without lube.

But wait, here comes the scariest part.

What's worse than this is even when the plastic is free from outside toxins, its components can potentially wreck your body. Bisphenol A is a compound used in things like Nalgene bottles and dildos. It's also a synthetic estrogen and can completely derail the reproductive system. Dr. Frederic vom Saal of the University of Missouri has been studying the effects of bisphenol A on lab mice for the past decade and has noticed ties to its exposure with an absurd suite of health problems including low sperm count, prostate cancer, hyperactivity, early-onset diabetes, breast

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cancer, undescended testicles, and sex reversal. Does the fact that humans can suffer SEX REVERSAL symptoms from inadvertently eating a compound that is used to make dildos qualify as irony?

Vom Saal's research is at the center of a messy dispute because it involves exposure in such infinitesimal quantities and nobody is exactly sure how the endocrine system works. There's also a tricky "magic bullet" sort of quality to his findings, but after talking with him it seemed like even he was a little taken aback that this one chemical could be at the root of almost every major US health crisis of the past 30 years. And even if he's only right on one of the above counts, yeesh.

Still worse than any of this is the possibility that the same chemicals can simultaneously trigger massive disruptions in DNA. "All it takes is one misaligned chromosome and you've got things like Down syndrome," vom Saal says. "If you examine the genetic material in animals exposed to low doses of bisphenol A, it looks like someone fired a shotgun into the chromosomes."

On the outer edge of the Gyre, we ran smack into the white whale of the maritime trash world: a ghost net. Ghost nets are loose tangles of fishing line and nets that float freely across the ocean, snagging anything in their path. They are the langoliers of the sea. Ghost nets have been found that are miles long with oars and sharks' skulls and full turtle skeletons peeking out of their knots. The one we caught wasn't anywhere near that big, but it was easily twice my size, weighed 200 pounds, and housed both a toothbrush and its own school of tropical fish.

There was no way we could tow the massive clump of nets to shore, so we hoisted it onto the back of the ship, attached a GPS tag so that oceanographers could track its movement, and lowered it back into the water. Our camera guy Jake jumped in after it to film it drifting away in a cloud of slaked-off string and plastic. When he hopped back on board it looked like somebody had smeared body glitter across his chest. It was tiny chunks of plastic.

Photos by Jake Burghart