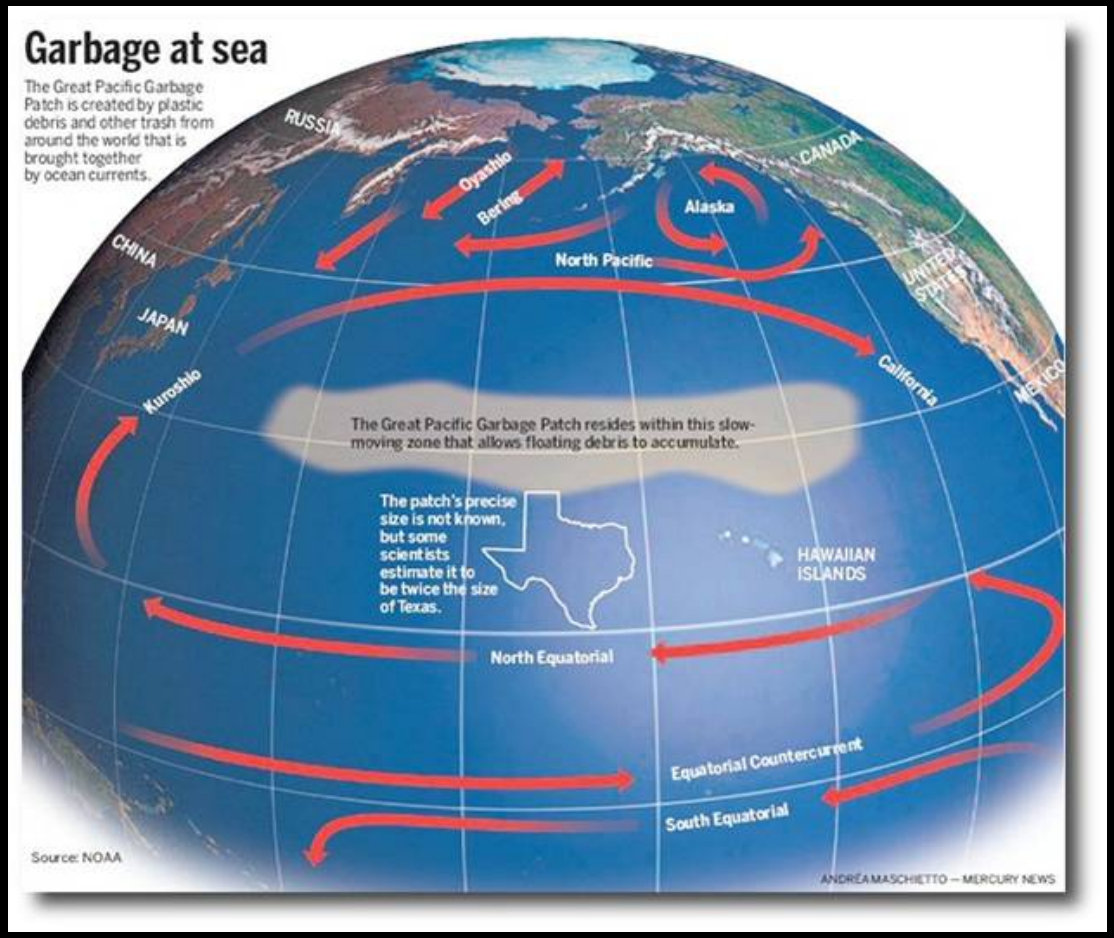
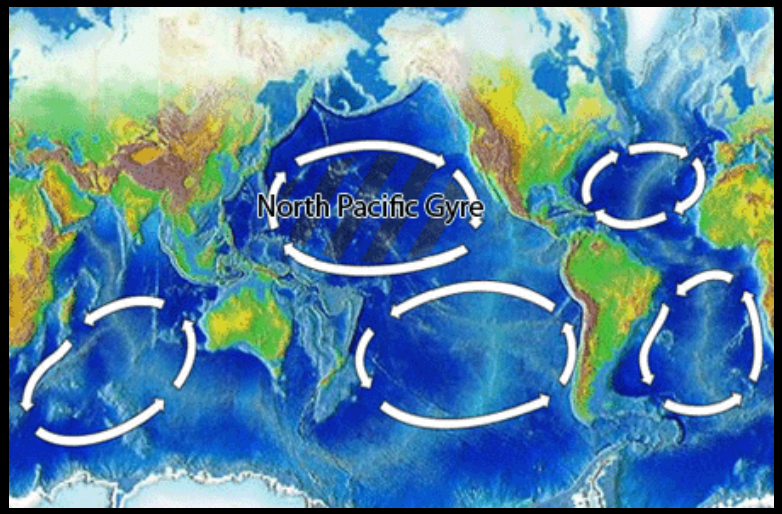
Death by Plastic

The Great Pacific Garbage Patch

The Great Pacific Garbage Patch is a collection of marine debris in the North Pacific Ocean. Also known as the Pacific trash vortex, the garbage patch is actually two distinct collections of debris bounded by a massive North Pacific Subtropical system of rotating ocean currents (also known as a “gyre”.) The circular currents draw in and trap floating debris, where it remains as it slowly breaks down.





There are 5 ocean gyres, with the Pacific Gyre being the largest plastic accumulation zone. It is estimated that there is 80,000 tons of plastic trapped in the gyre.

On a sailing trip from Hawaii to California in 1997, Oceanographer Captain Charles Moore made a fateful change of course that altered the direction of his life. Attempting to get home in a windless sea, Moore took a shortcut that put him in the middle of a "plastic soup" ocean strewn with plastic litter - bottles, bottle caps, rope, fishing nets and "broken-down bits of former things."

As larger pieces of plastic break down, it is mistaken for food by birds, fish and other marine life.

Only 40% of Albatross birds in the South Pacific survive due to ingesting plastic

As floating plastic degrades, it turns into microplastics that are suspended in ocean waters. Most of the debris in the Great Pacific Garbage Patch remains floating underwater where it can't be seen from the surface.

floating microplastics

Whales and numerous other sea creatures are filter feeders, swimming through water with mouths and gills open as they ingest krill and other small food sources.

As whales feed, microplastics are mistaken for krill. A whale can literally starve to death as they ingest material that provides no nutritional benefits. Larger plastic pieces can lodge themselves into the whale's digestive tract, resulting in a slow and painful death.

Over 100 plastic bags were removed from the belly of a whale that washed up on shore.

Plastic pollution in our oceans has become an issue that can no longer be denied. With the number of whales dying from plastic waste on the rise (not to mention many other marine animals), immediate action must be taken.

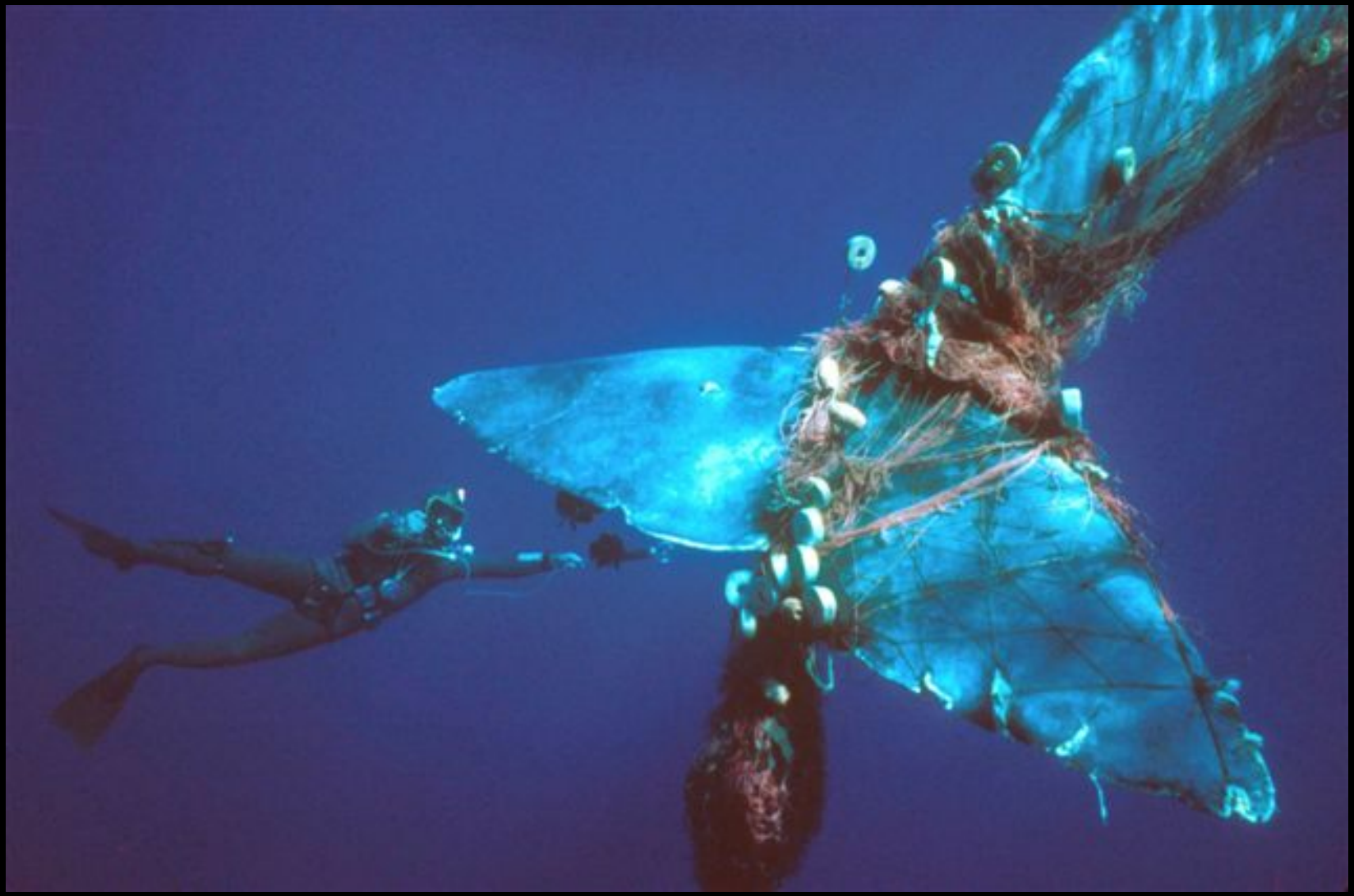
Discarded commercial fishing nets make up almost half of the debris in the Great Pacific Garbage Patch.

Hawaiian Monk Seal pup trapped in fishing nets

Monk seals are one of the most endangered marine mammals in the world, and their population is declining.

There must be strict international agreements on how fishing nets are disposed of.

Commercial fishing nets tangled in the tail of a whale



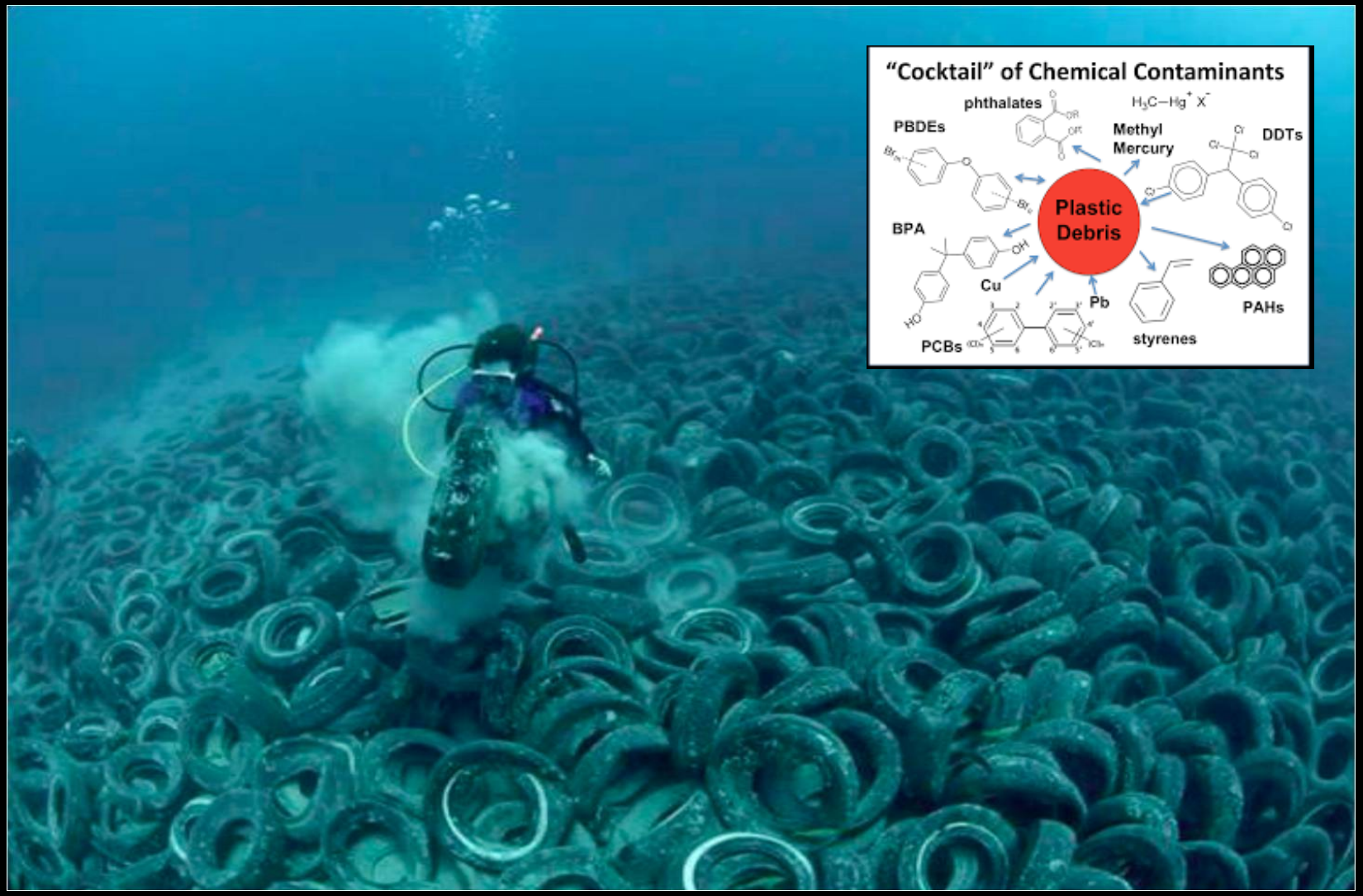
Unfortunately, it is nearly impossible to cut netting free from the larger sea creatures.

Sensitive coral reefs are also at great risk. A new study based on four years of diving on 159 reefs in the Pacific shows that reefs in four countries — Australia, Thailand, Indonesia and Myanmar — are heavily contaminated with debris. Plastic bags cling to the coral, especially branching coral. And where it clings, it sickens or kills.

A surfer off the coast of Myanmar

Myanmar has been facing considerable challenges with the management of waste as a result of increasing income and consumption levels, urban population growth, and lack of effective waste treatment and disposal options.

Beneath the surface lie tons of trash on the ocean floor that will take hundreds to a thousand years to decompose.



Petroleum and plastic chemicals dissolve into the water as they decompose. The chemicals last forever, and can affect the growth and development of marine organisms.

What can we do??

•First, we must acknowledge that a serious problem exists, and educate ourselves on how and why we got to this point.

•As a culture, we are addicted to plastic. Our focus should be aimed at mending a broken system by shifting the way we think about the human impact on the environment.

• We need to take responsibility for our actions as individuals, and change our attitude and lifestyle. Utilize a re-usable container for water rather than a plastic water bottle, and refrain from plastic bags when possible! These 2 items are in abundance in the garbage patch.

Charles Moore on an island in the South Pacific. Some of the debris on the outer edges of the Great Pacific Garbage Patch makes it's way to the shoreline on many islands.

Americans use **100 billion** plastic bags every year!

California and Hawaii have banned single use plastic bags. Multiple U.S. cities and counties have also banned or imposed a fee on grocery bags. Bring your own bag to the store! Plastic bag use is a direct & simple way we can contribute to the solution.

From the time groceries are bagged until they're discarded, they are used for an average of 12 minutes.

How does the plastic get to the ocean in the first place?

As trash is transported to landfills, lightweight plastics can easily be blown off of the trucks as well as at the landfill site. From there, it clutters around drains and enters rivers that lead to the ocean. Tourists visiting coastal beaches and high-density urban populations near the coastlines also contribute to improper trash disposal. Microplastics can even be found in lakes, rivers, and ground water that are nowhere near the ocean.

Will technology save us?

Boyan Slat, a 24 year-old engineer from the Netherlands, developed a device to trap floating debris in the garbage patch. It utilizes sophisticated equipment to monitor weather conditions, function and position, and adjustments can be made by remote control from the mainland. Still in the testing phase, there have been challenges and setbacks . But Slat anticipated there would be unforeseen issues and remains optimistic about the effectiveness of his invention. He hopes to build 60 collection devices that will remove 50 percent of floating debris in the garbage patch within five years.

“It’s kind of like a giant Pac-Man,” Slat said as he described the giant floating, long U-shaped barrier. “It’s driven by the wind and the waves, and then we are able to corral the plastic.”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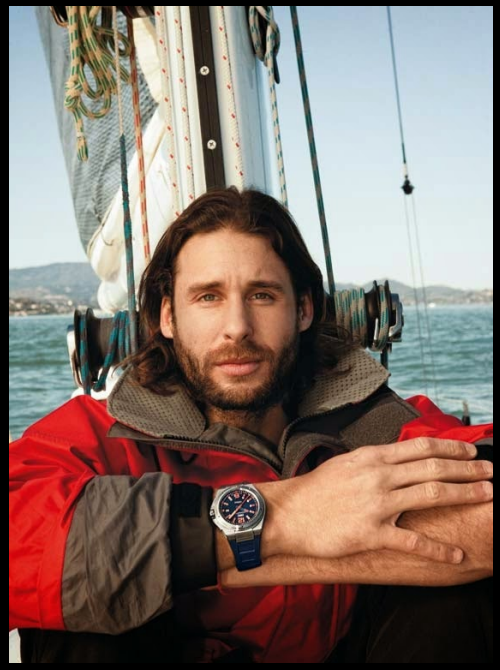
Raising Awareness is critical

Adventurer/environmentalist David de Rothschild set sail on a 60 foot catamaran called Plastiki, made buoyant using 12,500 discarded plastic bottles. He traveled from the California coast to Australia, sailing through the Great Pacific Garbage Patch. His story is known worldwide, and continues to give nature a voice to raise awareness.



”Here it was this amazingly disgusting manifestation of modern consumerism swirling across our oceans. Maybe it isn’t plastic that we should blame, but more our inability to understand and use it, and more importantly, how we dispose of it.”

David de Rothschild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"Our actions over the next 10 years will determine the state of the ocean for the next 10,000 years."

Sylvia Earle, National Geographic Marine Biologist

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