

# Citizen scientists collect vital microplastics data—from their yachts

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Mark Bond and Tony Gilbert preparing a S.A.R.A.H. net Credit: Florida International University

The world's oceans are under invasion by a virtually indestructible enemy—plastic. Florida International University (FIU) and the

[International SeaKeepers Society](#) have joined forces to combat this plastic problem.

As part of a new collaborative project, dubbed the [S.A.R.A.H. initiative](#), privately owned yachts become platforms for FIU scientists to conduct [field research](#). Special nets are towed behind the vessels to gather samples of plastic debris in the water. They are designed to collect even the tiniest bits of plastic—that can be smaller than a grain of rice—known as microplastics.

The first expedition to Cuba recently concluded. The samples were full of microplastics and preliminary analysis revealed that the overwhelming majority were polyethelene (used to make plastic grocery bags) and polypropylene (bottle caps and rope).

"Our relationship with SeaKeepers opens up access to areas of the [ocean](#) our researchers wouldn't normally have access to because of the cost," said Mark Bond, an FIU marine scientist and lead on the SeaKeepers partnership. "This means we can spread our research dollars further and get more data to better map the type and scale of contamination."

Every year, an estimated 8 to 12 million tons of plastic makes its way into the sea. From coastlines to the middle of the sea—floating along the tops of waves and hidden deep beneath the surface—it's there in its many forms.

S.A.R.A.H. isn't just a name. It's also an acronym for the process to end this epidemic—sample, aggregate, return, analyze, help. Understanding what types of plastics are in the ocean is key to keeping those plastics out of the ocean.

Because it never decomposes, plastic tends to become a shape-shifter. Tossed around in the ocean or exposed to the elements, larger pieces

break down into microplastics. These little pieces pose a huge problem. Often mistaken for food, they are regularly consumed by marine life. Studies have discovered that fish, seabirds and sea turtles all ingest plastic.

Whether they began as a [plastic bag](#) or bottle, these plastics cannot hide their original forms from the researchers. All plastic is made up of hydrocarbon polymers. These polymers and an assortment of added chemicals are combined in countless ways to create variations of plastic—from polyester clothing to acrylic paints and water bottles. Back in the lab, the samples are tested to pinpoint the type of plastics that are plaguing our oceans and then archived in an online database.

Plastic may be forever, but it doesn't have to be forever in the ocean. Data can be the foundation for future policy decisions that can ensure the ocean is home to more marine life and less [plastic](#).

"If we can paint a picture of what kind of plastics are being found throughout the world's oceans, we can help in the regulation of certain industries," said Tony Gilbert, program director of SeaKeepers. "This has already happened with sunscreen. Some states have banned the sale of sunscreens with chemicals that are bleaching and killing our [coral reefs](#)."

Founded more than two decades ago by a small group of yacht owners, SeaKeepers supports oceanographic research and conservation by inviting scientists to conduct research and education from the yachts. Currently, M/Y Archimedes is participating in the S.A.R.A.H. initiative, collecting samples for FIU researchers as it crosses the Atlantic and passes through the Mediterranean.

In the coming months, the S.A.R.A.H. team anticipates support from the global yachting community to help expand this initiative.

Provided by Florida International University

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