

“Our Health Is at Risk”

With a lifelong commitment to sustainability, Margaret Spring '82 advocates for a comprehensive approach to curbing plastic pollution.



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James Bressor ⌚ 5 minute read



Alumni Features

Sustainability

Margaret Spring '82 was frustrated.

In late August, after 10 days of tense and ultimately fruitless negotiations over how to combat the global challenge of plastic pollution, the Monterey Bay Aquarium's chief conservation and science officer returned home from a United Nations conference discouraged but also unwilling to say a solution is impossible.

More than 3,000 diplomats, scientists, industry representatives, and activists from 183 countries had met in Geneva for what was supposed to be an important step toward adopting a binding international treaty to stem the flow of plastic entering the natural environment. Spring, an internationally recognized expert on plastic pollution in the ocean, attended on behalf of the International Science Council, of which the National Academies of Sciences, Engineering, and Medicine are members. The August meeting was the sixth round of the Global Plastics Treaty negotiations, which began soon after the National Academies published a report in late 2021 laying out the far-reaching effects of plastics in the ocean. Spring chaired the committee that wrote the report.

However, the meeting hosted by the United Nations Environment Programme produced no positive results. If anything, it revealed a hardening of positions.

“There was a lot of intransigence in Geneva, and we heard about ‘red lines,’” Spring says. “At the same time, I saw government officials stay to negotiate overnight and remain in session for more than 24 hours. There is a desire for an agreement. The scope and ambition of the agreement are where the differences of opinion are.”



Margaret Spring '82

Advocates for a treaty that takes a full life cycle approach—including addressing production and consumption of plastics and the chemical content of plastic products—are in the majority. However, some countries, including the U.S. and several oil-producing nations, remain opposed to capping plastic production or banning certain chemicals from plastics.

Approximately 350 million tons of plastic are thrown away each year, with about half going into landfills and much of it getting incinerated. A large amount also gets released into the environment and finds its way into the ocean. This encompasses everything from nearly invisible nanoplastics that can enter the bloodstream of ocean-dwelling animals to mile-long drift nets that can entangle whales, seals, and other species.

A huge percentage of this plastic pollution involves single-use products and packaging. “These are the little things you touch once and never think about again,” Spring says. Much of this sort of trash easily breaks down into nanoplastics and microplastics in the natural environment.

The nature and scope of the possible harm microscopic plastic fragments may cause in people is unknown, but there is increasing evidence of their presence in human tissues, organs, blood, and breast milk, indicating the effects could be serious. A 2024 *New England Journal of Medicine* report linked the presence of nanoplastics and microplastics in arterial plaque, possibly increasing the risk of heart attack and stroke. The British medical journal *The Lancet* published a paper this year stating that plastics were causing disease “at every stage of the plastics life cycle,” with certain chemicals being the chief concern.

Spring says humans can be exposed to plastic and related chemical pollution multiple ways: ingestion (eating contaminated food or drinking water); inhalation (breathing contaminated air); and dermal contact (absorbing particles through the skin).

“We have numerous studies that show plastic everywhere, from the top of Mount Everest to the bottom of the deepest ocean trench,” she says. “It’s ubiquitous and persistent.”

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A lifetime of environmental awareness

Spring’s passion for conservation issues began as a child growing up in Manhattan’s Washington Heights, near the George Washington Bridge. She remembers seeing raw sewage flowing into the Hudson River as a young girl.

“Then I would go to the beach, and I knew the Hudson River was flowing into this water, so the connection was made early on,” she says.

Spring attended Dartmouth, majoring in archaeology, in part because she didn’t want to attend an urban college. After earning her law degree at Duke, she worked in a private law firm for seven years before being invited back to the U.S. Senate, where she had enjoyed a fellowship. She became the lead counsel on the subcommittee focused on the oceans and atmosphere.

“My signature achievement was taking the lead in drafting a bill to reform the entire federal fishery management system. We were able to pass the bill on the floor with no need for a formal vote in both the Senate and the House. That was probably one of the last times that happened. I’m proud to say that law has had a measurable positive impact on the health of our fish stocks.”

Plastic pollution was an issue during her time in the Senate, and she remembers working with senators from both parties who were concerned about plastics in the ocean and Great Lakes.

“It was a bipartisan issue, particularly because of its devastating effects on wildlife through direct ingestion and entanglement,” she says. “Most of my work focused on cleanup. However, plastic pollution starts almost immediately with the creation of the plastic itself. Plastic is made from fossil sources, so you’re making greenhouse gases during the production process. Then you go through the life cycle, and it’s a system we’ve never managed well. We’ve treated plastic as if it were inert, but it’s not. It’s a complex mix of monomers, chemicals, and additives.”

Spring left the Senate and moved to the West Coast—“I married a Californian who couldn’t live on the East Coast anymore”—but was soon back in Washington to serve as chief of staff for the National Oceanic and Atmospheric Administration for four years.

“I helped create a marine debris program and worked to support cleanups in Alaska and Hawaii, but you can never get ahead of it,” she says. “Cleaning up plastic waste in the water may make you feel good, but it will come right back because we’re not addressing the source.”

In 2020, Congress passed the bipartisan Save Our Seas Act 2.0, which included a request for a consensus study on plastic pollution. Spring was asked to chair the National Academies of Sciences' expert committee that wrote the resulting report, *Reckoning with the U.S. Role in Global Ocean Plastic Waste*. It called for an integrated U.S. national policy and research strategy across the plastic life cycle to combat plastic pollution.

Next steps

Behind-the-scenes conversations will continue as nations struggle to agree on a coordinated international response, Spring says. The U.S. government has expressed a desire to do something meaningful, she adds, but has not endorsed a full life cycle approach.

Comprehensive regulation of plastics at the national level would make a significant difference, Spring says. While the U.S. manages its trash better than most nations, plastic in the waste stream is not tracked. Some amount of plastic garbage leaks out of the system—and the U.S. is the largest generator of plastic solid waste.

"That means any percentage of plastic waste in our country entering the environment is going to be a challenge," Spring says.

There hasn't been any significant federal legislation addressing plastic pollution since the passage of the Save Our Seas Act 2.0. Several U.S. states and cities have taken steps, such as eliminating or limiting the use of plastic bags and other single-use plastic items. A few nongovernmental initiatives have been launched, such as the U.S. Plastics Pact, a consortium of more than 800 companies, research institutions, and nonprofit organizations exploring better ways to design, use, and recycle plastic.

Each of these efforts has benefits, Spring says, but their impact is limited.

"Just as federal government leadership was essential in getting mercury out of the waste stream and banning DDT, we need national laws governing the production and management of plastic so companies can focus on compliance," she says.

Coming out of August's contentious meeting, it would have been easy for participants to walk away from future negotiations. Instead, nations agreed to continue discussions. Spring says giving up on an international agreement is not an option.

"I remain somewhat hopeful that we can get there. In Geneva, I saw countries wanting to come to an agreement," she says. "Compromise is tough, but not impossible. Negotiations need to continue because our health is at risk."

How You Can Help



The world manufactures more than 450 million metric tons of plastic each year, nearly a fourfold increase over 35 years ago. Individual action won't reduce that number the way national or international regulations could. However, Spring says every individual can take steps to reduce the volume of plastics entering the waste stream:

- Support companies investing in sustainable packaging and plastic-free alternatives.
- Choose glass, metal, or cardboard alternatives.
- Buy products made from recycled materials.
- Learn what types of plastics your municipality or solid waste district actually recycles. Just because a container carries the recycling logo, that doesn't mean it will get recycled where you live.
- Urge your municipality and local schools to use reusable materials, such as dishes and silverware in cafeterias.
- Learn more about plastic pollution from the [Monterey Bay Aquarium](#).



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