Coral found to prefer eating microplastic to natural food

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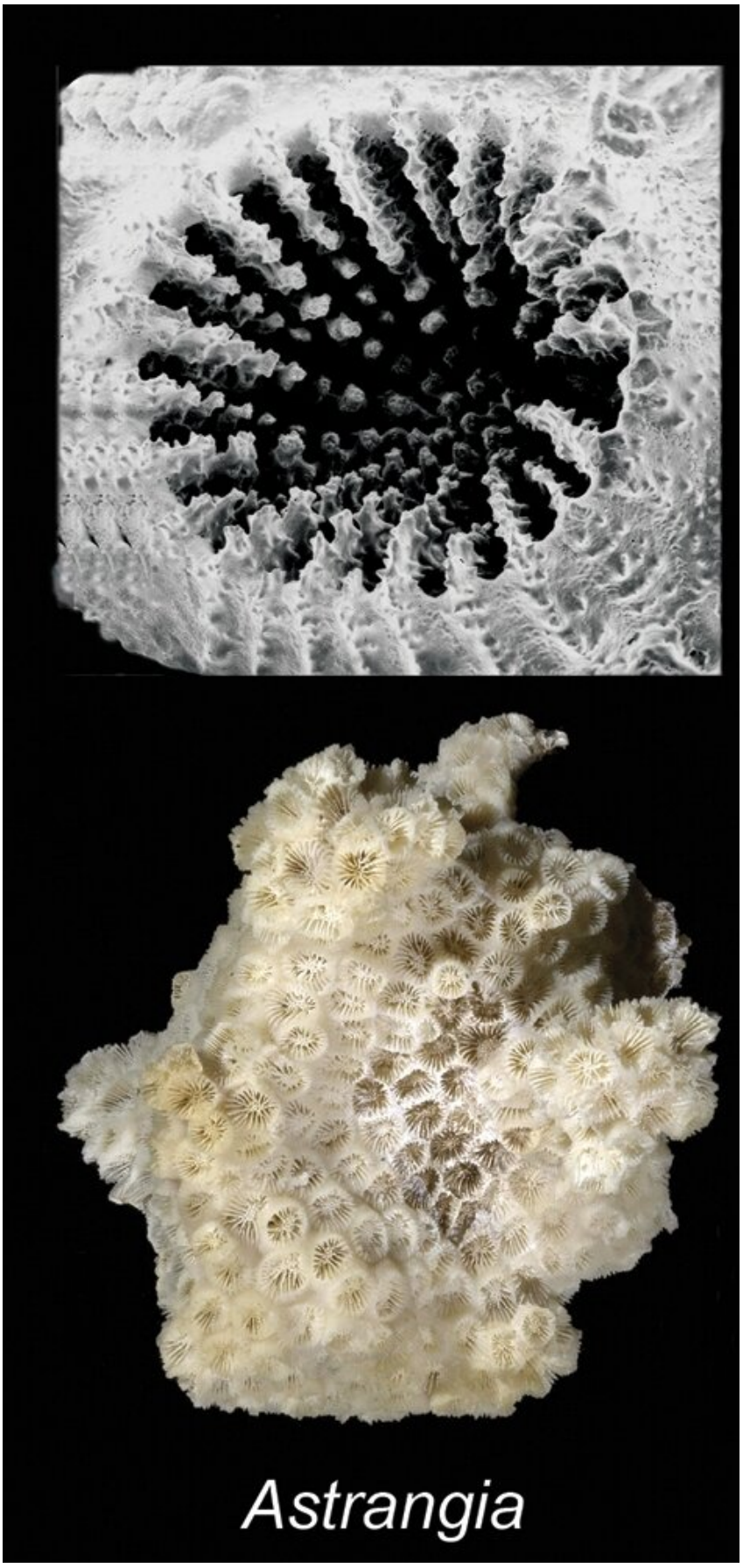
Astrangia

Astrangia. Credit: Stephen Cairns et al. An illustrated key to the genera and subgenera of the Recent azooxanthellate Scleractinia (Cnidaria, Anthozoa), with an attached glossary, *ZooKeys* (2012). DOI: 10.3897/zookeys.227.3612. Creative Commons Attribution 3.0 Unported license

A team of researchers from Boston University, Roger Williams University, the New England Aquarium, Boston Children's Hospital and Harvard Medical School and UMass Boston, reports that one type of coral prefers to eat microplastics over natural food. In their paper published in *Proceedings of the Royal Society B*, the group describes experiments they conducted with *Astrangia poculata*, a type of coral, and what they found.

In recent years, there have been many reports describing the damage that plastics are doing to the environment—whether in landfills, atop high mountains or in the deepest part of the ocean. It seems plastics have made their way to every part of the planet. And now, that list includes tiny coral polyps.

As part of their study of corals and how they are faring in the face of warmer and more acidified oceans, the researchers collected several specimens of A. poculata—they live just off the eastern coast of the United States. The specimens the team collected were found off the coast of Rhode Island, near the city of Providence. The site was selected due to its proximity to a large urban area, which meant there was a lot of plastic in the water. The researchers focused on microplastics, tiny bits smaller than five millimeters across. They suspected it could wind up inside of corals.

Back in their lab, the researchers cut open the specimens and discovered that every single polyp contained at least 100 bits of microplastic—the first recorded instance of coral consuming plastic in the wild. Next, the team dumped microbeads into tanks of lab-raised coral along with their normal food, shrimp eggs. When they later cut the corals open, they found that there was twice as much plastic in their polyps as there were shrimp eggs. The researchers claim this shows the coral has a strong preference for plastic bits over natural food.

In a follow-up experiment, the researchers dunked a batch of plastic beads into the ocean, which allowed bacteria to form a biofilm on them. They then laced the biofilm with *E. coli* and fed the beads to lab-raised corals. The team reports that even though the corals spit out the beads two days later, they all died from *E. coli* infections. The team suggests this finding indicates that a lot of coral might be dying from infections carried by plastics.

More information: Randi D. Rotjan et al. Patterns, dynamics and consequences of microplastic ingestion by the temperate coral, Astrangia poculata, *Proceedings of the Royal Society B: Biological Sciences* (2019). DOI: 10.1098/rspb.2019.0726