

# **Manta rays and whale sharks consuming massive amounts of plastics near Indonesia**

November 20 2019, by Bob Yirka

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Various sizes and types of plastic debris found in manta ray vomit material (n =

1) from Nusa Penida, Indonesia. Larger debris are photographed under high (A,B) and low (C) magnification, and smaller debris (D) under high magnification. Credit: *Frontiers in Marine Science* (2019). DOI: 10.3389/fmars.2019.00679

A team of researchers from Australia, the U.S., Indonesia and New Zealand has measured the amount of plastics that manta rays and whale sharks are ingesting off the coast of Indonesia. In their paper published in the journal *Frontiers in Marine Science*, the group describes how they measured the ingestion of plastics by the marine animals.

There is a large amount of plastic in the ocean due to a variety of human activities. In recent years, scientists have been trying to better understand the impacts of the plastic on marine life. In this new effort, the researchers focused on manta rays and [whale sharks](#), and plastics in the ocean off the coast of parts of Indonesia.

The work began after one of the [team members](#) went swimming off the coast of Indonesia and found the waters teeming with plastics. Curious about the impact of so much plastic on marine creatures that sift plankton for their survival, they undertook a study to learn more.

The work involved tossing fine-meshed nets over the side of a boat and trolling to mimic the way mantas and whale sharks feed—they noted the mesh was fine enough to collect both plankton and very tiny bits of plastic. They noted also that they trolled areas that were known to be feeding grounds for both [marine animals](#).

After hauling their nets back to their lab, the researchers separated the plastics trapped in the nets from the plankton. They then counted the number of pieces of plastic in each net. By comparing it with the volume

of water sampled, they were able to arrive at a density measure of plastics in the water. Also, because prior research has shown how much water [manta rays](#) and whale sharks process over a given time period, they were able to calculate how much each was consuming over a given time period.

The researchers report that they found that the mantas were likely consuming approximately 63 pieces of plastic per hour. It was even worse for the whale sharks, which consume on average 137 pieces of plastic per hour. Also, through help from volunteers, they were able to obtain feces and vomit samples for both creatures and report evidence of plastics in feces and vomit from both animals.

**More information:** Elitza S. Germanov et al. Microplastics on the Menu: Plastics Pollute Indonesian Manta Ray and Whale Shark Feeding Grounds, *Frontiers in Marine Science* (2019). [DOI: 10.3389/fmars.2019.00679](#)

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