

Manta rays establish shadowy presence in South Florida, as global population threatened

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Giant manta rays radiate menace as they sweep across the ocean surface, their wings reaching a span of up to 29 feet.

But despite their foreboding appearance, these marine phantoms are harmless, except to plankton.

A juvenile population of giant manta rays has been discovered in South Florida, and it's being studied as the federal government draws up plans for protecting the species. While the main threats to manta rays lie in the Pacific Ocean, where they're targeted for use in traditional Chinese medicine, advocates say that peril just increases the significance of the U.S. population.

"This area is super important to protect because it can be a refuge for manta populations around the world," said Jessica Pate, research scientist with the Marine Megafauna Foundation, who pioneered the study of the South Florida population.

"Mantas are just really cool. They have the largest brains of any fish. We think they're highly intelligent. They have social behaviors. One of our researchers found females can form social bonds that last for years."

The National Marine Fisheries Service designated manta rays a threatened species in 2018 and began work on a recovery plan, with a draft expected out this year. As part of that process, the service will consider whether to protect any areas as critical habitat, a designation that would require the manta ray to be taken into account in any federal actions involving that area.

Candidates for critical habitat include a patch of the Gulf of Mexico called the Flower Garden Banks and a stretch of South Florida from Boynton Beach to the St. Lucie inlet near Stuart, both favored by juvenile manta rays.

Young manta rays, which have wing spans of 6-10 feet, can be seen in the Boynton and Jupiter inlets, where scientists think the attractions may include denser concentrations of plankton or the presence of currents that provide a flow of water over their gills, helping them eat or rest.

Pate's group has identified 125 individual manta rays across a study area that runs from Stuart to Fort Lauderdale. They can tell them apart by the unique patterns of spots on their bellies and through scars from encounters with boats or fishing lines.

When scientists study individual Florida panthers, they give them unpoetic designations like "FP 62." But South Florida's manta rays get real names. There's Nemo, Scarface (from a wound from a boat propeller), Sasquatch, Valentina (for a heart-shaped pattern of belly spots), Corazón (Spanish for heart, for another heart-shaped pattern) and Cassiopeia (for belly spots that resemble the constellation).

Calusa Horn, giant manta ray recovery coordinator for the National Marine Fisheries Service, said the agency is studying whether to designate the Gulf or South Florida areas "[critical habitat](#)" but that scientists must first figure out why those areas attract manta rays.

"We couldn't identify what the features were, whether it was shallow water, warm water, all the different environmental variables, what makes that area so important," she said, speaking of the South Florida habitat. "They're just hanging out there, swimming and eating in the inlets, so there has to be something unique about those areas."

Manta rays are filter feeders, drawing in immense quantities of water and straining out zooplankton, tiny animals that float near the ocean's surface, as well as small fish. Unlike related species such as the spotted eagle ray, manta rays lack stingers and are harmless to people. And unlike many other types of fish, which may produce tens of thousands of

eggs, manta rays give birth to live pups, usually just one.

Although the biggest threats to manta rays are overseas, young members of the species face a difficult time off the crowded South Florida coast, where they get hit by boats or caught up in fishing lines. About 25% of manta rays observed off South Florida are entangled or have been entangled in fishing gear, which can cut off their tips of their fins, Pate said.

During snorkeling dives, she has removed fishing gear from them, with the manta rays cooperating in a manner that she says may indicate their understanding that she's trying to help them.

"Multiple times I've had manta rays that have been entangled in fishing lines who will swim very, very slowly beneath me and make small circles and allow me to make 20 dives down to remove the fishing lines," she said. "It's hard to explain that behavior, but that behavior's been seen in whales and dolphins."

The main overseas threats to manta rays come from accidental catch in [fishing gear](#) and their use for medicinal purposes.

A health fad in China has driven demand for their gill rakers, comblike structures that filter plankton from the water. Although there's no evidence of any health benefits, the demand for gill rakers has led to declines of up to 95% in some Pacific manta ray populations, according to the National Marine Fisheries Service. Unscrupulous dealers pitch them as way to cure cancer, improve blood circulation and benefit overall health.

"It became the new hot thing in the traditional Asian medicine market," said Jane Davenport, senior attorney for Defenders of Wildlife, which filed the petition to get manta rays protected as a threatened species.

"The idea is the manta ray is a filter feeder, and if you take those gill structures, then those would be helpful for human consumptions to quote-unquote filter toxins from the body. This is not something that goes back 2,000 years. It's invented. But unfortunately, it's become a really thriving trade."

Another threat may come from climate change. Studies have found warmer oceans can alter the distribution of zooplankton, the tiny animals eaten by manta rays. Climate change also has had a harmful effect on coral reefs, where adult manta rays find food and use as cleaning stations, with small fish eating parasites off the mantas' bodies.

In the meantime, Pate's group plans to continue studying the South Florida population and raising awareness among members of the boating and recreational fishing communities to avoid harming a species that many people didn't even realize was here.

"There's a lack of awareness of their presence here," she said. "Scuba divers don't see them because they're not seen at reefs, they're in shallower water. There's still so much to learn about them and so much we don't know."

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