

## Stingray City

by Susan Cocking  
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GEORGETOWN, Grand Cayman Island -- Breath held and lying on the smooth sand bottom, Jessica Harvey holds a large Southern stingray over her head. The ray appears neither nervous nor aggressive. It doesn't try to sting the 13-year-old, nor use its powerful sucking jaws to inflict a hickey.

After a few seconds, it swims away, and she lets it go. After all, there are hundreds of others milling around for her and others to play with.

Jessica is the daughter of world-famous marine artist Guy Harvey, whose research institute, based at Nova Southeastern University's Oceanographic Center in Dania Beach, has just completed one of the first comprehensive biological studies of the effects of interactive marine encounters.

For the past 20 months, Harvey, institute director Mahmood Shivji and graduate students Matt Potenski and Mark Corcoran have been capturing, tagging, measuring, spying and performing DNA analysis on hundreds of Southern stingrays that reside around Grand Cayman Island.

These barbed creatures are a major economic engine of Cayman Islands tourism. As many as 2,000 to 3,000 tourists and residents per day come to North Sound to wade with the rays at a shallow site known as the Sandbar and to snorkel and scuba dive with them at nearby Stingray City.

Although the two sites have been attracting rays and tourists for some 20 years, no one had ever thought to study what effects all that feeding and touching was having on the wild creatures -- that is, until Harvey got involved. His proposal got the blessing -- and some logistical support-- from the Cayman Islands Dept. of the Environment.

"Our role is not to advise them what to do," Harvey said of the DOE. ``We just give them the data."

The data collection phase just wrapped up, and now it's up to Shivji and the graduate students to sift through their findings and prepare a report.

### CHANGE IN BEHAVIOR

But one thing is clear after tagging 329 stingrays, according to Shivji.

"It seems there's a big shift in behavior compared to what [the rays] do naturally," he said. ``These are so conditioned, there is clearly an effect."

The researchers compared the fed stingrays to wild animals captured at four control sites around the island. Not only were the fed animals much tamer, but their feeding and reproductive patterns and social behavior were completely different from their wild cousins.

For example, rays tend to be fairly solitary animals -- sometimes seen in twos or threes but rarely in large schools such as the hundreds packed together at the Sand Bar.

In the wild, they tend to rest during the day and forage for small fish and crustaceans at night. But at the Sand Bar, the fed rays actively munched on squid handouts and whatever else the tourists were giving them all day long. Wild rays have a breeding season, but at the Sand Bar, the scientists found pregnant females every month they went out there.

Potenski said ending the feedings would be disastrous for the rays.

"If they stopped being fed, they'd go back to foraging, then they would just strip [the area] bare," he said.

Timothy Austin with the Cayman Islands DOE said there are no plans to shut down Stingray City or the Sand Bar.

## IMPORTANT FOR TOURISM

"Oh, no. Never," he said. `` It's too important locally as well as a tourist attraction.

Mike Nelson, an underwater photographer and author of the book *Swim With the Rays* helped establish regulated stingray encounters in the Bahamas and Antigua. He applauded the Harvey study.

"Fantastic," he said. `` Well overdue. We should teach people how to interact with the rays -- not the other way around. Here, it's difficult to change habits, but with the new ones, we can make sure the animals are treated right from the start."

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