

The conch is mostly gone from Florida. Can the Bahamas save the queen?

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The queen of the sea, a monster mollusk that inspired its own republic in Florida but now is as likely to be found in a frying pan or a gift shop as the ocean floor, is in trouble.

A marine preserve in the Bahamas famed for its abundance of queen conchs and intended to help keep the country's population thriving is missing something: young conchs. Researchers studying the no-take park off Exuma, one of hundreds throughout the Caribbean, found that over the last two decades, the number of young has sharply declined as adult conchs steadily matured and died off. The population hasn't crashed yet like it has in the Florida Keys, but in the last five years, the number of adult conchs in one of the Bahamas' healthiest populations dropped by 71 percent.

For the slow-moving slugs that gather by the hundreds to mate, scientists fear a new, unexpected threat may now doom the park's population: old age.

The discovery also raises questions about the effectiveness of marine preserves, long viewed as a solution to reviving over-fished stocks. If one of the Caribbean's oldest and best marine preserves isn't working to replenish one of its biggest exports - now regulated as tightly as lobster - what does that mean for other preserves and how they're managed?

"We can see (the preserve) works for grouper and sharks," said Andrew Kough, lead author of a study published earlier this month and a larval

expert at Chicago's Shedd Aquarium. "But for a lot of the animals you don't consider as much, for example [conch](#) that are tied to a complex life cycle of larval dispersal, it's not working."

To find out why, Kough and a team of researchers set sail this month from Miami aboard a Shedd research boat - imagine the Belafonte minus the mini sub in "The Life Aquatic with Steve Zissou." For 12 days, they'll dive the deep channels surrounding the park in search of young conchs to count and measure. They'll also take DNA samples to determine where the conchs are coming from. If they can trace the path of the young conchs, the hope is they can find a better way to protect them and manage the fishery.

"The babies are either not coming in in high enough numbers to replenish the adults or there's something else going on in the park that's an unintended consequence," Kough said. "There's so many sharks and rays inside the park they could just be chowing down on baby conchs."

In the Florida Keys, the ghost of the conch looms large: in oversized highway replicas, T-shirts and horns. When he took the throne as king of the Conch Republic, treasure hunter Mel Fisher carried a scepter crowned with a [queen conch](#). But in the Caribbean, conch remains a vital part of the economy, and the reason its governments are so concerned.

Conchs used to be prevalent in Florida, too. But decades of overfishing nearly wiped them out. In the mid-1980s the U.S. banned their harvest to save what was left. Yet more than three decades later, they still have not recovered in Florida waters, an inauspicious sign for the Caribbean.

Across the Caribbean, conchs are as good as currency. Almost anyone who can swim can grab one from the [ocean floor](#) and sell it or serve it. Cracked conch or conch salad appears on almost every menu. Their pink-lipped shells line porches and walkways. Countless docks are littered

with piles of discarded shells. They are used for everything from jewelry to bait. Whole industries, from fishermen to exporters, depend on a healthy population.

But regulating them has been uneven. While some islands impose seasons and limits on takes - in the Turks and Caicos conch season starts in October and there are set limits on numbers and size - other have not. Populations have plummeted in Haiti, the Dominican Republic and Honduras, prompting the U.S. to ban their imports.

The Bahamas has taken an aggressive approach. In 2013, the government launched a "Conchservation" campaign to save what it considers a national treasure that once gathered in vast herds along miles of flats and seagrass meadows.

In recent years, Kough said those herds have thinned considerably, driving populations down. In the Berry Islands, he said, previous surveys found the sea bottom littered with conchs, which can live up to 40 years and not only hold an important place in the food chain but graze on algae that can kill seagrass. The last time his team visited, Kough said, they found hardly any big adults.

"The fishermen are going further to get the animals," he said. "We found a lot of sub adults and juveniles as well, but it's the adults that are in decline and that just screams fishing."

Scientists believe a healthy population needs between 50 and 100 adults conchs for every 2.5 acres to sustain itself. The patchier the clusters, the harder it is for populations to find each other and connect.

Working with the Bahamian government, Kough hopes to better understand how the conchs are circulating - or more precisely the baby conchs. About five days after female conchs release their eggs in long

sandy strands, larvae emerge and get caught up in currents. Because the larval stage can last up to a month, the babies can float more than 100 miles. Kough suspects the young conchs from the preserve are winding up in unprotected areas hammered by harvesting.

Although the Bahamas restricts fishing, Kough said tighter measures may be needed. Regulations currently allow the take of any conch with a flared lip, the smooth curve on its rosy shell, which for years has been considered the indication of a mature conch. Scientists now believe the thickness of the shell is a better measure of maturity, triggering a local move to change rules to require shells be at least as thick as a Bahamian penny.

"You don't want to pull up juveniles. You want animals to reproduce," Kough said.

Kough is hoping the team can find some answers by studying currents to map the ocean highways traveled by conch larvae.

"It's a lot more complex because the animals are spending so much time out in the open ocean and outside the boundaries because they're dispersing as larvae," he said. "You can't create a huge ocean open park. Well you could, but how would you enforce that?"

The international community has vowed to protect 30 percent of the world's coastlines by 2030 to keep fisheries sustainable. But, Kough said, the Bahamas is in the difficult position of having within its borders vast flats and shallows not considered shoreline that should be protected but could exhaust limited resources.

"They recognize there's a problem. That's the really important thing," he said. "So they want to take steps to fix it before it turns into something like Florida, where the population just crashed and still hasn't

recovered."

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