



## Peeping on the sex life of coral

LADDIE ATKINS/FILE PHOTO, 1999

**SYNCHRONICITY:** Tiny iridescent seeds rise from coral reefs in the Keys and Caribbean on the same night.

# Seedlings collected in hopes of restoring reefs

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HORSESHOE REEF, OFF KEY LARGO - Birds do it, bees do it, and even coral reefs in the Keys do it. During the past few nights, Keys coral produced millions of tiny seedlings that scientists collected hoping to use them to restore some of the region's most badly damaged reefs.

"This is the best and, in my opinion, only way to do it," said Margaret Miller, an ecologist with the National Oceanic & Atmospheric Administration's Southeast Fisheries Science Center, based in Miami.

Once a year, after the August full moon and well toward midnight, coral from the Keys' reefs to the Caribbean basin get it on.

Millions of tiny iridescent seeds rise from the reef, and the same species throughout the Keys and the Caribbean spawn on the same night, a synchronicity that researcher Alina Szmant describes as "one of the mysteries of nature we'd love

to understand."

This year, researchers culled and mixed spawn from one of the Keys' most threatened reef species, Elkhorn coral, a "branching" coral that resembles antlers in adulthood.

Earlier attempts to cultivate Elkhorn spawn fell flat after researchers discovered that Elkhorn growing together were part of the same animal and could not self-fertilize. Last year, for unknown reasons, the Elkhorn did not even spawn.

The health of Florida's Elkhorn has researchers concerned. Together with staghorn, another branching coral less prevalent in Florida, Elkhorn's presence in the Keys and the Caribbean basin has plunged an estimated 90 percent in the past two decades. Both species are so sparse that NOAA Fisheries, a federal agency, considers them candidates for the endangered species list.

### A KEY SIGN

Myriad afflictions kill coral reefs, among them algal blooms, dozens of diseases, and rising ocean temperatures, which were responsible for wide-

spread coral "bleaching" and deaths in the Keys five years ago. Coral health is considered a key sign of an ocean's overall health, and reefs provide fish and other sea creatures invaluable cover from predators. Szmant, a marine biologist from the University of North Carolina, is hoping the fruit of her research helps to restore the Keys' embattled reefs. She also believes that the current coral in the Keys, having survived the die-offs and hurricane in 1998, are of harder stock. "These corals are the redwoods of the coral world," Szmant said. "We're working with the survivors."

It took years for Szmant to nail down the exact timing of Florida's coral spawn. She knew from tissue samples that eggs and sperm were present in the coral in early August, and absent by month's end. Finally, a decade or so ago, after exhaustively narrowing the process down, she determined that Elkhorn coral usually spawn two to five nights after the full moon, and that Montastraea, or "star" coral, also prevalent in the Keys, spawn one to three nights after that.

To collect the spawn, Szmant and her team of divers tie cone-shaped nets above live coral, securing them to lifeless coral skeletons that the live coral grows on. Every night for about a week they go out to the reefs, about four miles off Key Largo's ocean side, dive down with flashlights, and wait.

The spawn usually takes place after 9:30 p.m., with the coral forming bundles of eggs and sperm -- in the case of Elkhorn, eight eggs and two million sperm per bundle -- and releasing them rapidly for about a half hour to 45 minutes.

### REEF 'GOES CRAZY'

For nearby divers, the effect is transfixing. The rising bundles look like tiny pink pearls. Swimming among them is like floating in a snow globe or a large glass of champagne. Tiny water-bound worms often spawn during the same time, casting off phosphorescent light as they go. "The reef just goes crazy," said Cheva Heck, spokeswoman for the Florida Keys National Marine Sanctuary.

It is during this transitory wonderland that the researchers must do their most crucial work: collecting the spawn with basic implements like mosquito head nets and Tupperware and Rubbermaid containers. The spawn is ferried back to the house Szmant rents in Key Largo, and mixed in buckets and containers in the garage. After three nights, the fertilized spawn begin to swim, and a few days later begin their descent to seek out a place to grow.

Some settle on tiles set at the bottom of buckets, and are kept for research. Others, like star coral, which spawned plentifully this year, are brought to Carysfort Reef, a once thriving patch that surrounds a Coast Guard lighthouse, and Molasses Reef, a site damaged by a 400-foot freighter carrying chicken feed that ran aground in 1984.

For all the anticipation surrounding the Elkhorn coral's spawn, not enough collected eggs and sperm fertilized to help restore its depleted reefs. The larvae that did grow is being kept for research.

Next year, the divers, ever hopeful, will be out gathering samples again.

"It's a drudgerous process, but it's why I keep beating my head against the wall," Miller said. "The only way we can help the reef to renew is to figure out how to get the coral colonies back."

### CORAL REEF SPAWNING



SOURCE: The research of Alina Szmant, a marine biologist at the University of North Carolina at Wilmington

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