

# How to Save a Fish

By Ned and Anna DeLoach



The 2018 Nassau grouper aggregation in Little Cayman is dominated by 8- to 10-pound teenagers waiting for the big spawning night along with a scattering of old-timers weighing up to 35 pounds.

"The grouper are gone!" I look up from my laptop and blink at Brice Semmens, who is silhouetted against the sand and seas outside our bungalow's sliding glass door. Noticeably in a rush, Brice, a professor of fisheries management and conservation biology at Scripps Institution of Oceanography in San Diego, California, adds, "We're going to take the scooters out to look for them. If they turn up and the current settles, we'll be back to pick you up at 4 o'clock."

*"How do you lose a thousand sizeable fish?"* I'm thinking as the keeper of a very busy schedule dashes off into the glare.

Anna and I are on Little Cayman Island's west end, hoping to dive on one of the last, and largest, Nassau grouper spawning aggregations known to exist. Our timing couldn't be better. We arrived during "grouper moon" — the magical week following the first full moon of the new year, when grouper by the thousands gather at traditional spawning grounds to put their entire reproductive payload into a once-a-year effort.

Just a few decades ago, as many as 80 Nassau grouper aggregations dotted the

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Bahamian and Caribbean seascapes. Today a dozen remains at best; the rest have been fished to extinction. In some cases, 90 percent of a region's annual catch of the rapidly dwindling species is landed during the annual spawn. It is like catching fish in a barrel. The west-end site survives today thanks to a 15-year partnership between the Reef Environmental Education Foundation (REEF) and the Cayman Islands Department of Environment (DOE).

Trying to save edible marine life is a tricky business: Cayman fishers, like others, protect their turf. For a decade and a half REEF and the DOE have banked on science, education and goodwill to win the day. So far, their efforts have paid handsome dividends, tripling the size of the Little Cayman aggregation since protections were put in place during the past decade.

At 4 p.m. Christy Pattengill-Semmens, REEF's Director of Science and Brice's wife, knocks on our door and jubilantly announces, "The grouper are back."



As an adaptation of their highly competitive reproductive strategy, the gonads of male Nassau grouper comprise 10 percent of their weight, more than 20 times greater than that of other Caribbean family members.

When we arrive at the dock the research divers, who have been down twice already that day, have scattered to catch up on chores. With no benches or tank racks, the industrial gray DOE vessel looks every bit the working boat that it is. As the dozen divers return, the once-open deck disappears beneath compartmentalized piles of tanks, wetsuits, flippers, clipboards, assorted jury-rigged gadgetry and a surprising number of scooters used to power researchers along the deep sponge-lined ledge, where early arrivals are beginning to gather.

Typical of February, the wind has been blowing for a week. Although still rough, the seas are forecast to settle before spawning begins. Once the boat is moored, the team

peels off the bouncing platform with precision; Anna and I, following Brice and Christy, are right behind, heading down fast to maximize bottom time in the hundred-foot depth. Through the late-afternoon light we catch our first glimpse of the early arrivals moving like a restless cloud in the open water off the wall. A few of the thousand or so grouper are already showing off the distinctive two-tone pattern displayed by bewitched males anxious for the big event to begin. In the distance, divers busily maneuver around the outskirts of the aggregation, assessing sizes and numbers and searching for tagged fish.

Two days later, just in time for the prime nights of grouper moon, the wind drops, the sea softens, the sun pops out, visibility climbs, and the site's notorious currents wane. "Best conditions in years," we hear from the morning divers, who estimate that there are 6,000 fish, swollen with gametes, waiting for the day to end. On an early-afternoon visit to the site, the water is so clear we can see the fish 100 feet below, milling around in a mass, extending the length of the ridge and spilling far out to sea.

Later, as the sun sets, we descend through the surface of a glass-smooth sea. As we settle, the black-and-white males, now in the most prominent color phase, begin to swirl as they track crisscrossing trails of pheromones leading to swollen females hovering like blimps in the dim light. Within seconds, the males locate their targets and start aggressively nudging, causing the females to bolt horizontally, attracting packs of frenzied males. Females easily shake off smaller subgroups but eventually respond to the pressure, blasting toward the surface with up to 20 suitors in pursuit. At the pinnacle of their rocketing rise, the females release tens of thousands of tiny transparent grouper eggs, which are simultaneously engulfed within colossal clouds of sperm. Groups by the score follow suit until the sea is awash with a new generation.

Traveling back through Grand Cayman with Christy, on our way home, we share a pleasant seaside lunch with Phil Bush and Bradley Johnson from the DOE. Christy relays preliminary results from the first two weeks of work, and the men report on their progress monitoring a remnant aggregation not far from where we sit. It's obvious that strong bonds have been built over 15 years of pulling off the improbable. In a sunny mood, the guardians of the aggregation joke, reminisce, weigh strategies and discuss the years of work ahead.

Explore More

Watch as researchers from REEF and the Cayman Islands DOE study the spawning aggregation of Nassau grouper.

# Grouper Moon - Full Episode



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