

Life Story of the Nassau Grouper

(Contributed by the Wildlife Conservation Society)

The Nassau grouper was once of enormous commercial significance for many coastal Belizean communities. The species, however, has undergone massive declines since the 1960s when, for example, tens of thousands of groupers aggregated at Caye Glory. Like other aggregations, this aggregation was so heavily fished that by 2001, only 21 Nassau groupers were observed at this site.



Nassau grouper in corrals at Caye Glory during the heyday of high catches in the 1960s (Photo credit: Doug Perrine, SeaPics)

The Nassau grouper, which can be found in Bermuda, Florida, and throughout the Caribbean to northern South America, is a long-lived, slow-growing, top predator that feeds on other fishes, and on invertebrates such as lobsters and crabs. They are slow to mature – it can take about 7 years for a grouper to reach sexual maturity and be able to reproduce – and they can live for as long as 29 years, growing up to 4 feet and weighing as much as 60 lbs.

The only time that Nassau groupers reproduce is during the aggregations they form at promontories near channels in the reef for a few days after the full moon only during the months of December to March. During the rest of the year, Nassau groupers are solitary, living in their own separate territories or homes along the reef. Adults leave their home reefs each year to go to the aggregation sites to spawn at these specific times, along specific migratory routes, and then return to their individual homes. Tagging studies have confirmed this behaviour at Glover’s Reef and Lighthouse Reef. Studies have also

shown that the younger groupers ‘learn’ these routes and behaviour from the older, experienced groupers. It is also known that the older, larger, females produces disproportionately more eggs than smaller, younger, females so that keeping large females in the population is extremely important. The generation time is considered to be about 10 years which means that at least 10 years are needed for replacement rates of reproduction when there is no fishing, and much longer when fishing occurs. Although each female can produce millions of eggs in her lifetime, almost all of them will perish in the ocean with only a very small proportion surviving to adulthood.

The fertilized eggs resulting from reproduction at the spawning sites are carried in the currents and develop as fish larvae for one to two months. They then settle out inshore as tiny fish in shallow algal and seagrass beds. As they become juveniles they move to the patch reefs, and as they grow and develop into adult groupers, they then move to the outer reef, where they are most commonly found at depths of 170 to 200 feet.

There used to be many spawning aggregation sites in the Caribbean, but most of them no longer exist because they have been fished out. Only a few remain, mainly in the Bahamas, the Cayman Islands, and Belize. However, even the ones that still exist have far fewer fish than they once did.



Nassau grouper – *Epinephelus striatus*

Fishing the spawning aggregations is the most vulnerable and damaging time to capture groupers, as that is the time when they are reproducing and replenishing their stocks. Just as we protect our lobsters with spawn (or eggs and ‘tarspots’), we also need to protect our Nassau groupers when they are spawning; the eggs they produce will supply the future

fishery. If there are no more aggregations, there will be no more fishery for Nassau grouper.

There is still hope for the recovery of the species if we continue to protect these critical spawning sites. In Belize, 12 of these areas are protected, and in a couple of these where there has been good enforcement, monitoring results have shown that the numbers of aggregating Nassau groupers have been maintained or are showing signs of an increasing trend. Because this fish lives such a long time and needs many years to mature and breed, it will take many more years, however, for them to rebound to their former glory of tens of thousands of groupers, and we must remain committed to their recovery.