Determining the minimum size fishery closures for protecting grouper spawning aggregations

P.I.: Richard S. Nemeth, PhD

Reef fish spawning aggregations are unique life history events that occur at specific places and times. Once discovered by fishermen, these spawning aggregations are extremely vulnerable to over fishing and have been eliminated on many islands throughout the Caribbean. Managers of fishery resources have found that the most effective management tool for protecting critical fish habitat or vulnerable life history periods such as spawning aggregations is through seasonal and permanent fishery closures. Although the approximate location of many spawning aggregations is known, little information is available for the area occupied by fishes during spawning or the migration or movement patterns associated with aggregating species. This lack of information results in the closures often being rejected by local fishermen on the grounds that, the size of the proposed closure is inappropriate.

Detailed information on the movement and migration patterns of the species that are being protected during spawning is critically lacking in the final decision. The spatial and temporal patterns of movement of groupers during spawning aggregations needs to be understood to implement biologically relevant closure boundaries and to justify these boundaries to the fishing community whose livelihoods are being impacted.

Richard Nemeth from the Center for Marine and Environmental Studies at the University of the Virgin Islands will utilize telemetry and an array of receivers mounted on the sea floor to track grouper movements during spawning, but also to get the first ever data on a reforming Nassau spawning population. The ultimate goal of the proposed research is to provide fishery managers the minimum area required to properly protect 3 commercially important grouper species (red hind, Nassau and yellowfin) during their spawning aggregations.

The data generated by this research project will greatly benefit the fishery management agencies with the responsibility for designating fishery closures in an effort to protect the vulnerable grouper spawning aggregations and critical fishery habitats.