

## Status of Reef Fish Spawning Aggregations in Belize

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Belize is blessed with several reef fish spawning aggregation sites. Many of these sites have been fished, particularly for Nassau grouper, since the early 1900s. According to several studies and anecdotal information from fishermen, many of the aggregations showed signs of heavy depletion. It is the goal of the Fisheries Department to promote and manage national fisheries. In response to broad concern about declines in Nassau grouper, a national spawning aggregations working committee (NSPWC) was formed to address the issue. The group includes the Fisheries Department but also includes national and international NGOs. The group has adopted a standardized monitoring protocol and signed a data sharing agreement, in order to monitor the status of spawning aggregations in Belize. After initial assessments conducted in 2000 and 2001, further analysis and broad consultation, involving a broad group of stakeholders, the Government of Belize closed 11 spawning aggregation sites within Marine Reserves in 2003 and simultaneously enacted legislation that offered further protection for Nassau grouper by creating a closed season from December through March. Monitoring has continued at several sites, every January from 2000 to 2005. Additional sites have received more comprehensive monitoring. Analysis of the status and trends for Nassau groupers in Belize, and some other species indicates that populations are exceedingly low, but that protection efforts in some areas may be helping. The analysis further indicates that there are natural intra-annual and inter-annual variations in abundance so monitoring efforts need to be long-term in order to conclusively evaluate trends. We suggest that the precautionary principle be invoked for the management of spawning aggregations in Belize and elsewhere as these fragile systems are crucially important for the maintenance of fish stocks throughout tropical regions.

KEY WORDS: Belize, Spawning aggregations, Nassau grouper, Marine Reserve