

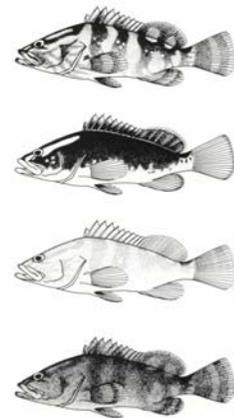
Information Circular No 5: The Belize Spawning Aggregation Working Group

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Shown at right: Four color-phase changes of the Nassau Grouper, *Epinephelus striatus*.



Update for the 2007 Nassau Grouper Spawning Season

Monitoring data for the period 2003 – 2007 show that the maximum counts for Nassau groupers at the spawning sites have not increased, or have significantly declined, over the past five years (see table below). Dr. Enric Sala of the Scripps Oceanographic Institute, who has been conducting research at Glover's Reef since 1998, gave a presentation in Belize City in January 2007 and showed the sharp decrease in numbers of Nassau grouper at the Northeast Point at Glover's Reef. He emphasized the need for strong protective measures, as the species could become locally extinct at this site within the next seven years if no action is taken. Dr. Sala's research in Belize is partially supported by the Wildlife Conservation Society and the Summit Foundation. The Spawning Aggregation Working Group is currently finalizing a submission of recommendations to the Fisheries Administrator outlining measures that should be implemented as soon as possible in an effort to halt the decline in Nassau grouper populations at the spawning sites.

Maximum Nassau Grouper Counts for 2003 – 2007

Site	2003	2004	2005	2006	2007
Rocky Point	0	200	200	0 ¹	N/A
Dog Flea Caye, Turneffe	1,500	100 ³	-	2 ²	N/A
Sandbore, Lighthouse	1,800	2,500	1,800	1,205 ⁴	1,495
Caye Glory	1,000	1,000	350	7 ⁵	69
NE Pt., Glover's	2,400	1,700	2,240	3,000	800
Gladden Spit	250	450	360	239 ⁶	255 ⁶
Nicholas Caye	52	~50	80	48	80

(¹ Only one dive; ² Site only monitored in February; ³ Site only monitored in January; ⁴ Probably missed peak spawning due to bad weather; ⁵ Different dive team used and precise location in question; ⁶ One dive, after the last quarter moon)

Recent Research on Black Grouper

Mito Paz of Green Reef Environmental Institute and George Sedberry of Marine Resources Research Institute in South Carolina, US, have completed research sponsored by NOAA related to spawning of black grouper (*Mycteroperca bonaci*) in Belize. The researchers identified 30 sites at which black grouper had been caught or observed, some of them being well known aggregation locations that had been fished for 50 years or more. By visiting each site during peak spawning months and at other times from 2001-2003 and 2005-2006, they confirmed the presence of black grouper at 24 sites and then conducted detailed observations during spawning at 22 such sites. Some highlights of the research findings include the following:

- Black groupers are generally solitary during most months of the year, but form many small aggregations as spawning approaches.
- Courtship behaviour and spawning were most often seen in December through April, with the peak occurring in the February and March period.
- Courtship behaviour was often observed between the full and last quarter moon, but actual spawning occurred after the last quarter moon.
- Aggregations formed at depths between 20 and 45 m, and ranged in size from 25 to about 200 fish, with a few larger ones of about 375 fish.
- Spawning took place along a variety of reef formations, such as elbows, promontories, and linear shelf-edge reef.



Black Grouper (Photo: Mito Paz)

- In Belize, black grouper is sought by spear and hand line fishermen, but ranks behind red hind, Nassau and tiger grouper in landings and desirability.
- Of the 22 sites where courting and spawning black grouper were observed, 3 are in no-take marine protected areas and 16 are in MPAs legislated as year-round no-take spawning aggregation sites.

Thus, Belize's MPAs provide some protection to black grouper during their spawning aggregations.

Fish Spawning Aggregation Web-based Database

The Nature Conservancy's Mesoamerican Reef Program (<http://www.tncmar.net/>) and the Spawning Aggregation Working Group are pleased to report that the final web-based database system to store the monitoring data collected at the various sites is now online. Led by TNC consultant Dr. Alejandro Imbach, all previous individual databases have been consolidated into one secure, centralized online database that is accessible to signatories of the Data Sharing Agreement for data entry and analysis.

Dr. Imbach also trained the monitoring team members in the use of the database and the generation of reports. This development marks a great step forward in the improved management and conservation of fish spawning aggregations in Belize.



(Photo: Sergio Hoare)

If you would like more information about the Nassau Grouper, the Belize Spawning Aggregation Working Group, or anything mentioned in this newsletter, please contact Roberto Pott, Chairperson, Spawning Aggregation Working Group, at the Belize Audubon Society, 12 Fort Street, P.O. Box 1001, Belize City, Belize, Central America. Tel: (501) 223-5004/4987/4988, Fax: (501) 223-4985, E-mail: marineparks@belizeaudubon.org.

