

The Belize Spawning Aggregation Working Group



ANNUAL REPORT

May 2013-June 2014

Goal: *To determine the success of management measures in enhancing Nassau grouper spawning aggregations for Belize*

The Belize Spawning Aggregation (SPAG) Working Group successfully completed its work plan for May 2013-June 2014. The Working Group is a volunteer-based group that meets quarterly and is made up of a network of organizations that are involved in managing and monitoring the Nassau Grouper SPAG sites protected since 2003.

Members

University of Belize -Environmental Research Institute (UB ERI) - Chair
Wildlife Conservation Society (WCS) - Secretary
Fisheries Department
Sarteneja Fishermen Association (SFA)
Belize Audubon Society (BAS)
Placencia Fishermen Co-operative
Belize Federation of Fishers (BFF)
The Nature Conservancy
Hopkins Fishermen Association (HFA)
Belize Fishermen Cooperative Association (BFCA)
Southern Environmental Association (SEA)
Toledo Institute for Development and Environment (TIDE)
Coastal Zone Management Authority and Institute

Monitoring

The Working Group successfully conducted monitoring of the seven protected Nassau grouper SPAG sites during the December 2013-March 2014 spawning season. The sites monitored were: Rocky Point, Sandbore, Emily, Gladden Spit, Northeast Point and Nicholas Caye during 3-8 days after the full moon in each month. UB ERI determined that the Dog Flea site is no longer active. There was no sign of Nassau grouper aggregations for last two years (2012-2013). An active spawning aggregation was observed at the Mauge Caye SPAG site for a second consecutive year. This gives a total of 6 sites monitored during the year. The results of 2014's SPAG monitoring are summarized in the Table 1 below.

There are eight sites being monitored by the Belize SPAG Working Group identified as priority Nassau grouper sites. Figure 1 shows a map of these eight SPAG sites, which are fully protected, no-take SPAG sites. During 2013-14 a total of 6 were monitored in January and 5 in February based on availability of resources for each site.

Table 1 Nassau grouper counts for Dec 2013 to Feb 2014 SPAG season

Month	Full moon	Org.	Site	Sampling period	Max Avg. Count (\pm S.D.)	# of Surveys
Jan	15th	SEA	Gladden Spit	Jan 21-23	49 (max count)	3
		BAS	Sandbore	Jan 21-22	2950 (\pm404)	4
		BFD	Nicholas Cayes	Jan 16-23	110 (\pm 70)	2
		BFD	Rocky Point	Jan 25-27	20 (\pm 7)	2
		UB	Maugre Caye	Jan 19-22	433 (\pm 195)	4
		WCS	Northeast point Glovers	Jan 20-23	1842 (\pm 263)	4
Feb	14th	BAS	Sandbore	Feb 18	62 (\pm 10)	1
		BFD	Nicholas Cayes	Feb 16-20	62 (\pm 14)	3
		BFD	Rocky Point	Feb 15-17	218 (\pm 25)	9
		UB	Maugre Caye	Feb 17-20	124 (\pm 28)	4
		WCS	Northeast point Glovers	Feb 20	400 (\pm0)	2

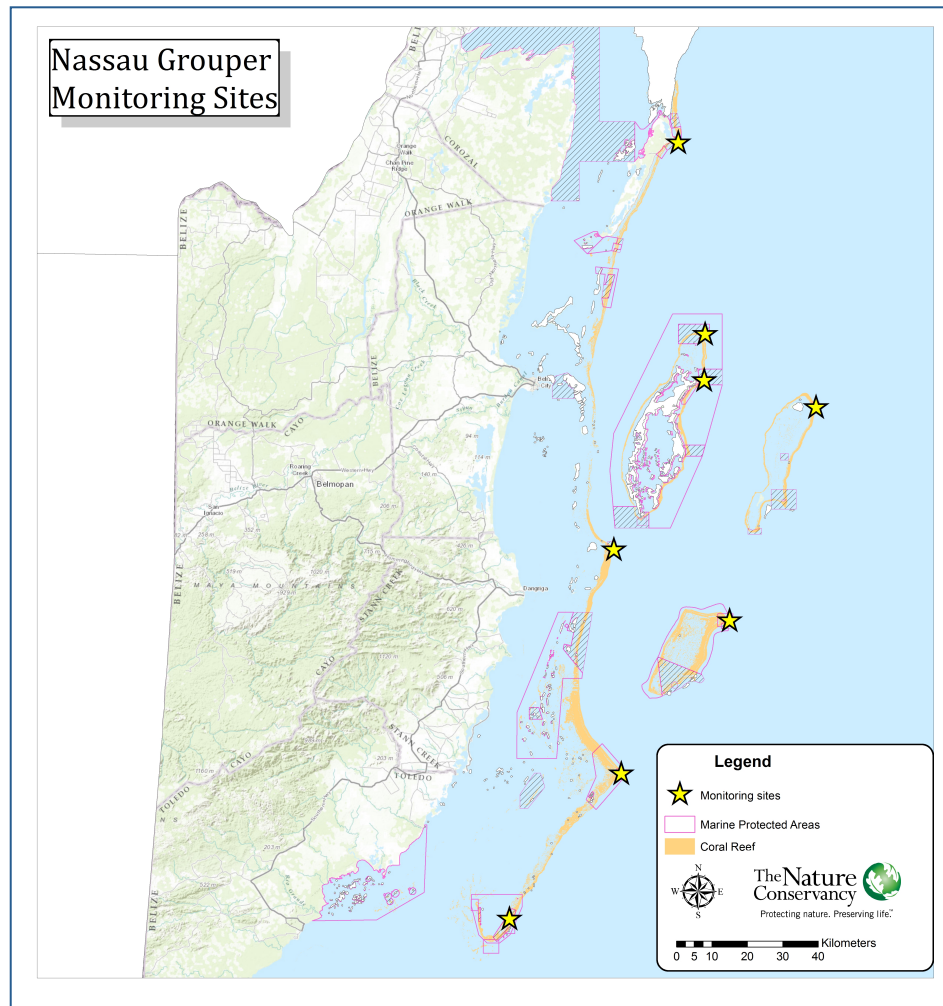


Figure 1 Map of the eight Nassau grouper SPAG sites monitored annually

Meetings

The Belize SPAG Working Group held four regular meetings during July 2013-June 2014 to work on implementation of our annual work plan and discuss annual monitoring activities. The Working Group once again reviewed membership and engaged the fishing sector to obtain more active participation of fishers at meetings. During the year there was regular attendance by at least four of the five of the fishing organizations represented on the group. These members have volunteered their time and expertise to assist with SPAG monitoring and public awareness in the coming season by contributing articles for the next newsletter.

Database/Data Analysis

The SPAG Database continued to be maintained and updated by ERI with quality control checks during the year to correct any inconsistencies in the data. Also members were actively encouraged and urged to update the database with the most recent data collected for 2014 to ensure production of SPAG statistics reports. A summary report for the current SPAG season is produced and available online to show monitoring findings across the 8 SPAG sites. All SPAG data have been entered for 2014.

Education and Public Awareness

During December 2013-March 2014, WCS supported the broadcasting of the TV spot on Love TV, Channel 5 and Channel 7. Two hundred (200) copies of the newsletter were printed for distribution to the Fisheries Department, Belize Fishermen Cooperative Association, Belize Federation of Fishers, Hopkins Fishermen Association and Sarteneja Fishermen Association. Education and Public Awareness activities completed this year also included updating and uploading of news items and articles to the website and the Facebook page, the production of the annual newsletter and an annual report for the Working Group. WCS also published two articles in the Reporter newspaper - one on the importance of the spawning aggregation sites, and one on the Spawning Aggregation Working Group.

Monitoring Costs

Working Group members were asked to provide summaries of what their monitoring efforts cost. Based on feedback from all members, direct monitoring costs varied based on the site but ranged between \$1950-\$7253 monthly. This includes only expenses such as stipends, accommodations, meals and fuel for boat. In-kind costs such as equipment, boat support and maintenance, staff salaries and technical support were not included in the cost figures.

The total cost to monitor all SPAG sites for the season (December 2013- March 2014) was approximately \$50,811.82. WCS also supported special night patrols at the Glover's Reef site. This included costs to cover fuel, overtime, accommodation and meals for patrol

officers at \$7,984 (or \$3,992/month). The figures demonstrate that members of the Working Group continuously make significant investment into the monitoring and management of the Nassau SPAG sites.

Table 2 Monthly SPAG monitoring costs

SPAG Site	Direct costs (monthly)
Rocky Point	\$2206.00
Sandbore	\$4236.91
Maugre Caye	\$3995.00
Emily	\$2910.00
Northeast Point	\$7,253.00
Gladden Spit	\$2855.00
Nicholas Caye	\$1950.00
TOTAL MONTHLY	\$25,405.91
ANNUAL COST	\$25,405.91 x 2 = \$50,811.82

Enforcement Monitoring

Finally under Enforcement Monitoring, the Fisheries Department once again collaborated with the Coast Guard to conduct enforcement monitoring at the SPAG sites during the spawning season. This was in the form of regular day patrols and special night patrols in areas in the south such as Glover's Reef.

Acknowledgements

The Belize SPAG Working Group would like to thank all the organizations, staff, students, fishers and media houses that helped make 2013-14 a successful monitoring period and for providing support for the management of the Nassau Grouper SPAGS sites.