

Bringing Spawning Aggregations into the Classroom

Llevar Agregaciones de Desove en el Aula

Présentez Agrégations de Frai dans la Salle de Classe

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ABSTRACT

The Grouper Moon Project is a collaborative conservation program between Reef Environmental Education Foundation (REEF) and Cayman Islands Department of the Environment (CIDOE) studying Nassau Grouper (*Epinephelus striatus*). Since 2002, the project has conducted field research and outreach associated with spawning aggregations in the Cayman Islands. In 2011, REEF created and implemented an education program designed to integrate Grouper Moon research into K-12 school classroom activities. The program aims to highlight the ecological, cultural, and economic importance of spawning aggregations to the Caymanian community, and to help build support for the value of Nassau Grouper beyond a fishery resource. Through both structured classroom activities and free-form discussions with visiting scientists, the program presents a multi-faceted view of the Nassau Grouper through a series of interdisciplinary activities. The program was piloted during the 2011/2012 school year with two classrooms and it culminated with live-feed Internet video sessions during which students engaged with scientists while underwater at the spawning aggregation site. These real-time interactions allowed students to experience the excitement of ongoing spawning aggregation research and witness, first hand, a large and active aggregation. We are currently working to expand the program to additional Caymanian schools and other regions of the Caribbean.

KEY WORDS: Grouper moon, Nassau grouper, education, REEF, Cayman Islands

PROJECT OVERVIEW AND PILOT YEAR OUTCOMES

The Grouper Moon Project is a collaborative research effort between Reef Environmental Education Foundation (REEF) and the Cayman Islands Department of the Environment (CIDOE). The research focuses on spawning aggregations of the endangered Nassau Grouper (*Epinephelus striatus*) in the Cayman Islands. Little Cayman has one of the largest (and one of just a few) known spawning aggregations of Nassau Grouper in the Caribbean. Over 4,000 grouper amass in one location for 7 – 10 days following winter full moons. Since 2002, REEF and our partners at CIDOE, Scripps Institution of Oceanography, and Oregon State University have used a variety of research techniques from diver surveys to state-of-the-art technology in order to study this natural phenomenon. The research results to date have aided conservation efforts for the species in the Cayman Islands.

In 2011, REEF began developing and implementing an education component to the Grouper Moon Project. This Grouper Education Program (GEP) focuses on bringing Nassau Grouper into Caymanian elementary and high school classrooms through a series of innovative lesson plans and live underwater video feeds that connect students in the classroom with scientists in the field. The primary goal of this program is to raise student's awareness of the important role the Nassau Grouper plays in Caribbean reef communities. We anticipate that efforts to build support for the value of Nassau Grouper beyond a fishery resource will ultimately bolster support for recovery efforts aimed at the species.

The GEP presents a multi-faceted view of Nassau Grouper through hands-on, experiential activities. The curriculum subscribes to the philosophy that students learn best when they are actively engaged in their own learning. Our activities are designed to encourage students to construct their own understanding of the subject matter, rather than treating them as passive learners. Key curricular concepts include the historical role of the species in artisanal fisheries throughout the Caribbean region, the grouper's importance as a top reef predator, its role in tourism-based revenue in the Cayman Islands, and the conservation challenges facing Nassau Grouper given steep declines in populations.

Our curriculum begins with a series of pre-activities that focus on developing the students' understanding of the coral reef ecosystem (Figure 1). These lessons provide students with a multi-faceted view of the grouper's vital role in the reef ecosystem. *What makes a healthy coral reef? Why are the Nassau Grouper an important part of the reef ecosystem?* These are two of the primary guiding questions that are explored during the pre-activities and serve as the focus of other GEP activities. Our program has been designed for two specific age groups: the intermediate primary classroom and the upper high school classroom. Each curriculum covers similar content, albeit at a level that is developmentally appropriate for each age group. These activities lead up to the highlight of our program, the live-feed video sessions that take place at the research site on Little Cayman (Figure 2). Using underwater communication technologies, students are able to engage with REEF and CIDOE scientists live from the spawning aggregation on the west end of Little Cayman. This interaction allows us to bring real-world field science into the classroom. The GEP concludes with wrap-up discussions where we reflect on the learning activities and brainstorm future action projects to encourage students to share their knowledge of Nassau

Grouper with their communities. One such action project at the end of the pilot year involved several classrooms writing letters to Caymanian government officials that encouraged strengthening protections for Nassau Grouper.

ACKNOWLEDGEMENTS

The GEP was developed to complement the research and scientific efforts of the Grouper Moon Project (www.REEF.org/groupermoon). Activities were developed in consultation with teachers, Verity Redrup and Brenda Bryce, at Cayman Prep and High School on Grand Cayman, and Cynthia Shaw, author of the youth fictional book, *Grouper Moon*. The education program of the Grouper Moon Project is supported by the Disney Worldwide Conservation Fund.



Figure 1. Students at Cayman Prep play a food web game.



Figure 2. Grouper Moon scientists, Christy Pattengill-Semmens and Brice Semmens, conduct a live video feed from the Nassau Grouper spawning aggregation on Little Cayman to classrooms on Grand Cayman and Cayman Brac. Photo by Josh Stewart.