

**CRUISE REPORT**  
**FLOWER GARDEN BANKS NATIONAL MARINE SANCTUARY**  
**2006 CORAL SPAWNING CRUISE**  
**AUGUST 12-18, 2006**  
**Submitted by**  
**Emma Hickerson**



Fig. 1. Researchers, film crews, and boat crew. Photo credit: FGBNMS

The Flower Garden Banks research team (Emma Hickerson, G.P. Schmahl, Doug Weaver, Kyle Byers, and Lindsay Kurelja) headed offshore with researchers and film crews to document the annual coral spawning event, which was predicted to occur seven to ten days after the August full moon. As research coordinator, a lot of weight is placed on my ability to predict the spawning event, especially when you have an IMAX sitting on the back deck, or a film crew on board who flew in from France, AND a Smithsonian film crew on board, as was the case this past week.

Thanks to the nature gods, the corals spawned spectacularly on both the seventh and eighth night after the full moon (the eighth being the “bigger” of the two nights). The star and brain corals released their gametes on cue, as did the brittle stars and Christmas tree worms - although there were a lot more Christmas tree worms “going off” than we’ve previously seen, and a lot less brittle stars. The spawn slick on the surface on the 7<sup>th</sup> night after the full moon was spectacular, as the seas were perfectly calm. Dr. Peter Vize, (University of Calgary) brought a team along to conduct spawning surveys and sample coral for reproduction studies.



Fig. 2. A brain coral, *Diploria strigosa*, releases packages of both egg and sperm into the water column. Photo credit: G.P. Schmahl/FGBNMS



Fig. 3. A star coral, *Montastraea franksi*, releases packages of both egg and sperm into the water column. Photo credit: G.P. Schmahl/FGBNMS



Fig. 4. Male ruby brittle stars (*Ophioderma rubicundum*) aggregate on top of a brain coral to synchronously release sperm. Photo credit: G.P. Schmahl/FGBNMS



Fig. 5. A female Christmas tree worm (*Spirobranchus giganteus*) releases eggs into the water column. Photo credit: G.P. Schmahl/FGBNMS



Fig. 6. Flower Garden Banks NMS Research Coordinator, Emma Hickerson, arrives back to the surface after her night dive. The surface of the water is covered with a spectacular slick of coral spawn. Photo credit: G.P. Schmahl/FGBNMS

The big spawning surprise was the spawning of the giant barrel sponges, *Xestospongia muta*. We've had one report of this species spawning at the Flower Garden Banks in the past and seen a photo or two, but never witnessed the event for ourselves. On the morning of the 6<sup>th</sup> night after the full moon, around 9:00 am, we were at the West Flower Garden Bank and there they were - the males puffing out smoky sperm, and the females blowing out eggs - they were the more spectacular of the sexes - it literally looked like a snow drift - there was no current, so the eggs were forming a ring of white all around the sponges.



Fig. 7. A barrel sponge female, *Xestospongia muta*, releases eggs into the water column. A Spanish hogfish juvenile and several bluehead wrasse dart in and out, taking advantage of the abundant food. Photo credit: Emma Hickerson/FGBNMS

A couple of years ago, we caught the beginning of what appeared to be a mass spawning event by encrusting sponges on the morning of the ninth day after the August full moon. This dive happened to be on the edge of the coral cap. We tried unsuccessfully to see if this event would happen again. This year, once again, we made sure to be in the water at the same time, but in the middle of the reef. No sponge spawning. It turns out we were in

the wrong place.... Doug Weaver and Gary Merritt dove out of the zodiak at the edge of the East Flower Garden Bank and came upon a magnificent release of gametes by barrel sponges, and probably encrusting sponges - there was so much spawn over there, that the visibility was reduced from over 100' to about 10'!!! So we had the timing right, but wrong place - for some reason, the edge of the bank appears to be key - that's where we need to be next time.

The dives on the edge of the coral cap are part of an effort to characterize the coral cap area, and define and ground-truth the multibeam bathymetry. The dives have been minimal in number, but have yielded a good bit of information about these areas. Some areas are quite different from the coral cap proper - dominated by *Porites* plates, and *Aplysina* sponges. Some areas have relatively deep grooves edging the banks, that are covered up by large boulder corals and coral ledges. These ledges are great grouper hang-outs. In fact, one of the areas has been nicknamed "Grouper Valley". There's also a depression on the way out to Grouper Valley, which has earned the name "fish bowl". It was on a dive to "Grouper Valley" that Doug Weaver and I (Emma Hickerson) made the most significant observation of the cruise - a five-foot (at least) Goliath Grouper! We were able to obtain the first ever photographic evidence of this species in the Sanctuary - important, as this is an Endangered Species, and warrants special protection and attention.

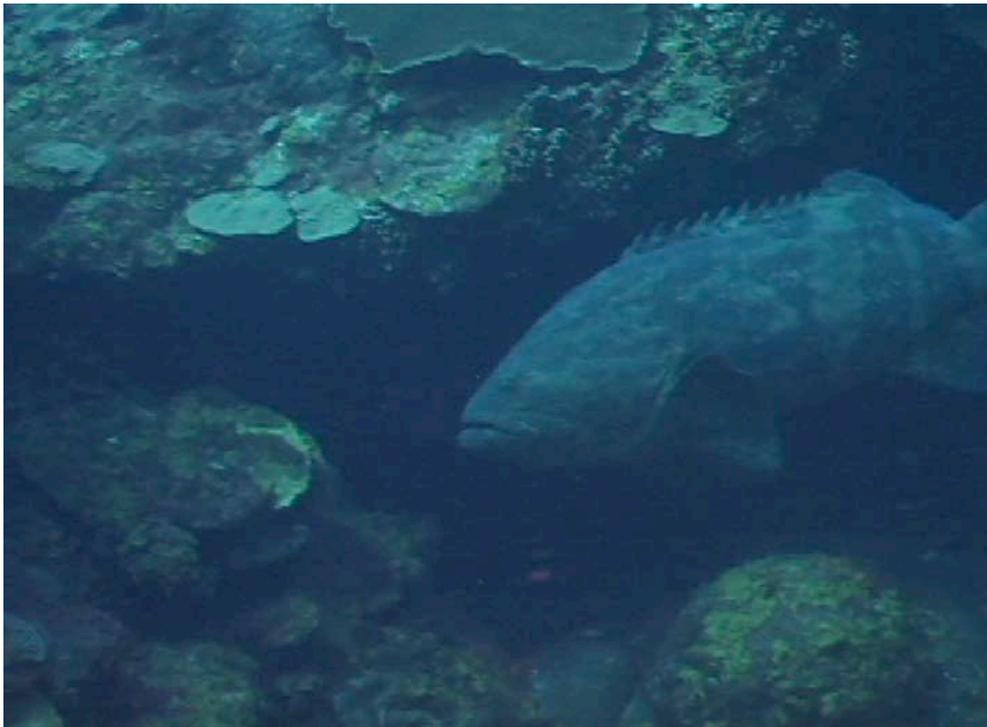


Fig. 8. A 5' goliath grouper – the first photo-documentation of this species in the Sanctuary! Photo credit (frame grab from video): Emma Hickerson/FGBNMS

As mentioned in the first paragraph, we had two separate film crews on board. A team of five Frenchmen arrived from Galatee Productions, to film in HD format for a full-length

feature film. They hope to come back next year to film the spawning for a second time. The film is to be shown in the United States, as well as France. Their photographers were Mark Thurlow and Rene Heuzey. Antoine De Cazotte, Sylvain Champion, and Cyrille Liberman supported the French team.

Bob Cranston and Peter Kragh were both shooting HD format cameras for the Smithsonian Ocean's Hall. They were assisted by Justin Pullen from Oak Hill Scuba, in Austin.

Mark, Bob, and Peter were all out with us last year, with Howard and Michele Hall, shooting the spawning for the Deep Sea 3D IMAX production that is currently being shown around the world.

Both the Galatee and Smithsonian teams were thrilled with the footage they collected during the cruise.

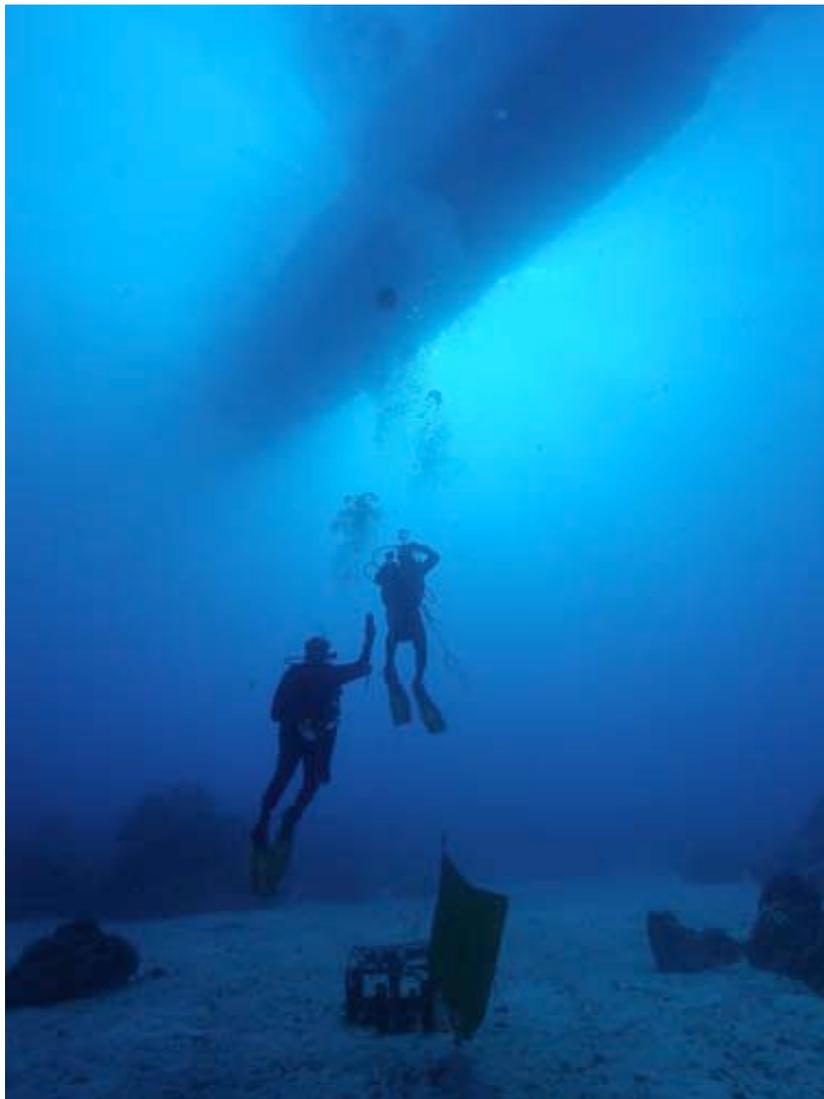


Fig. 9. Rachel Graham and Dan Castellanos deploy an acoustic receiver at the East Flower Garden Bank in nearly 80' of water. The M/V Fling, a one hundred foot vessel, is silhouetted on the surface. Photo credit: Emma Hickerson/FGBNMS

Dr. Rachel Graham and Dan Castellanos, from Wildlife Conservation Society, based in Belize, joined the cruise to attempt to deploy acoustic and satellite tags to whale sharks and manta rays. No whale sharks were encountered, but at least eight individual manta rays were documented - five at the East FGB, and three at Stetson Bank. Dan Castellanos successfully tagged four of the eight mantas, with acoustic tags! Three were tagged at the East Flower Garden Bank, and one at Stetson Bank. Rachel had previously tagged two manta, making the count six animals tagged in total. Acoustic receivers are being maintained on all three banks, and will be downloaded during the coming months, to learn more about the manta rays use of the Flower Garden Banks.



Figs 10. Manta rays were photographed on two separate occasions, gliding directly next to the acoustic receiver. Both these animals were tagged. Photos by Emma Hickerson/FGBNMS



Fig. 11. Moments before a 6' manta ray is tagged with an acoustic tag by Dan Castellanos. Photo by Emma Hickerson/FGBNMS

We continue to monitor recovery from Hurricane Rita last year. This brain coral is around 6' across, and was photographed last year soon after Rita - it had been dislodged from somewhere on the reef, and tumbled down onto the sand patch. When we found it in October, it was completely bleached, and pitted with marks where it had been crushed during the storm. As seen in the photograph on the right, taken last week, the colony is alive, overall, but shows scars where the skeleton was impacted during the storm. We also are monitoring several large barrel sponges that had been "topped" during the hurricane. They too, appear to be recovering quite well.



Fig. 13 and 14. A brain coral dislodged from the reef during Hurricane Rita in 2005. The image on the left was taken around 2 weeks after the storm – the head was bleached and pockmarked with crushed areas from the tumble over the reef. The image on the right was taken during this cruise – the coral is alive, but exhibits scars where the skeleton was crushed during the storm.

Other interesting observations:

- Four Mardi Gras wrasse were collected by Doug Weaver to continue description of the species.
- a couple of people from our boat reported a reddish colored pelagic octopus on the surface, during the spawning event on the 7<sup>th</sup> night after the full moon. Coincidentally, a recreational diver photographed a pelagic octopus whilst hanging on their safety stop.



Fig. 15. A pelagic octopus, possibly a “macrotritopus” paralarva (ID by M. Vecchione). Photo credit: John Prentiss and wife, Linda.

- A sargassum frogfish was seen near the surface at Stetson Bank.
- A pair of stoplight parrotfish were seen spawning at the East Flower Garden Bank
- Ocean triggerfish were schooling at the EFGB.
- The brown encrusting octopus sponge (*Ectoplysia ferox*) appears to have dropped in numbers - they are usually conspicuous at this time of year because they release bright orange spawn before the corals spawn - and none was seen at all. Upon searching, it appears we have lost colonies
- A pycnogonid was photographed at Stetson Bank
- Creole wrasse were spawning at the FGBNMS
- Several small dusky sharks were spotted at the EFGB
- One loggerhead turtle was seen at EFGB

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