

Goliath Grouper Hunted?

Those of us who dive Jupiter have always been fascinated by the abundance of Goliath Grouper (*Epinephelus itajara*) and by their colossal size. Some are VW Bugs with fins! We chuckle as our dive buddies jump after being “thumped” (an audible boom produced when the fish manipulates his swim bladder). But what do you truly know about these behemoths? We have all witnessed for ourselves that they are the largest grouper in the Atlantic (second largest in the world). We know that they are a protected species. But did you know that in the late 1980’s they were considered commercially extinct. In 1990, a US fishing ban was placed on Goliath Grouper, in federal and state waters of Florida, the Gulf states, southeast Atlantic, and US. Caribbean. Killing or

Dr. Sarah Frias-Torres examines a speared Goliath Grouper on Zion Train off of Jupiter, Florida

possession of Goliath Grouper carries a \$1,500 penalty per fish, with the possibility of additional penalties depending on fishing gear used or attempts to transfer, purchase or trade the fish (You can read litigation and penalty schedules in this web site from the NOAA office of law enforcement: <http://www.gc.noaa.gov/docs.html> Go to the link "civil penalty schedules" and click "southeast region.") Goliath Grouper are still commercially fished in waters outside the US if they can be found. It is believed that they have been eradicated in the waters off west Africa.

Those of us who have dove *Hole in the Wall* can attest to the spawning aggregations. Did you know that it is believed that Goliath Groupers are protogynous hermaphrodites (individuals maturing as females and some becoming males as they grow in size)? Gametes are released into the water column for fertilization and the current disperses the eggs. Somehow the juveniles make their way to Mangrove marshes and spend five to six years maturing before heading out to sea. Growth during their juvenile phase is fast (an estimated 6 inches per year). As they mature, this growth rate slows and slows and slows. Like most fish, Goliath Grouper never stop growing in size. They just grow at slower rates the more mature they become.

Current research (stomach content analysis and isotope analyses) has determined that Goliath Grouper feed on invertebrates—mostly shrimp and crabs. They also feed upon lobster, gastropods (marine snails) and poisonous or venom-spined slow moving fish—pufferfish, stingrays, etc. As a testimony to our industrial age and our slow response to cleaning up or reducing pollutants, Goliath Grouper accumulate toxic chemicals in their tissues very quickly in areas closest to human impact (mangrove marshes along the intercoastal, for example). Methyl mercury, a key toxin found in Goliath Grouper, has neurological and cardiovascular effects on humans—loss of memory, cognitive behavior, coordination, etc. In addition to these pollutants, the poisons and toxins naturally occurring in their prey species accumulate in their tissues—a process referred to as bioaccumulation. The long and the short of it, the Goliath Grouper we interact with on our dives are not safe to eat.

Though we interact with Goliath Grouper on nearly every dive out of Jupiter, we do not know how many remain in Florida waters. We rarely see them on *Breakers* out of Riviera Beach, for example. We simply do not know enough about the biology and ecology of this species. You can help. Ocean Research & Conservation Association (ORCA) [<http://www.teamorca.org>] is currently conducting research on the Goliath Grouper aggregation and ask for diver input. There is a questionnaire on their website that will assist them during this research. You can also take the Goliath Grouper Myth quiz to find out your Goliath Grouper IQ.



Photo by Jeri L. Curley