



Department of Environment Marine Research News

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Cayman **SHARK** study

Who is involved?

Rupert Ormond from **Save Our Seas**, Mauvis Gore and Ollie Dubock from **Marine Conservation International** and Edd Brooks from the **Cape Eleuthera Institute** are working with **Department of Environment (DoE)** to study shark populations in the Cayman Islands. This is a baseline study aimed at assessing species diversity, abundance, and management needs.

Shark team in action:



Left: Mauvis Gore. Above: Tim Austin and Edd Brooks.

How do you study sharks?

Catch and release fishing:

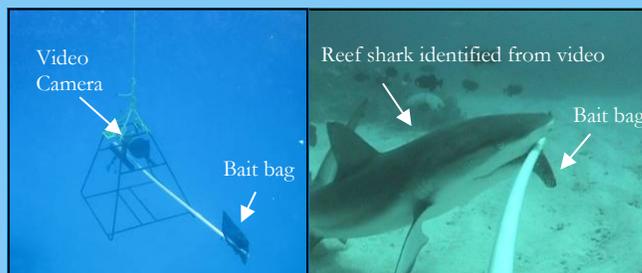
Sharks are tagged, measured and DNA sampled.



Left: Ollie Dubock holding a reef shark in tonic immobility ("hypnotised" on its back). Right: Releasing the tagged shark.

Baited Remote Underwater Videos (BRUVs):

Sharks are caught on tape as they investigate bait.



Left: BRUV being lowered. Right: footage from the BRUV. BRUV videos can be seen on the project facebook group (see below).

How dangerous are sharks to people?



Left: hooked reef shark (tagged and released during our research). Right: Cayman reef shark with chop wounds to the head and stomach, suggesting that it was accidentally hooked but killed rather than released.

Worldwide, about 5 deaths are caused by sharks each year—many of these cases of mistaken identity in areas where underwater visibility is poor. Though often feared and misunderstood, Caribbean sharks are shy and graceful fish-eaters which are far less dangerous to humans than bees (which cause about 100 deaths annually), falling coconuts (150 deaths), and toasters (800 deaths).

...and people to sharks?

More than 25 million sharks are killed each year and many shark populations have declined to less than 10% of their former numbers. This project aims to assess and reduce threats to sharks in the Cayman Islands.

How can I help?

- ◆ Use **non** stainless steel circle hooks when fishing. These are less likely to gut-hook and kill sharks. If you catch a shark, cut your line close to the hook and release the shark unharmed.
- ◆ Report shark sightings to Department of Environment.
- ◆ Join our "Sharks & Cetaceans: the Cayman Islands" facebook group for more information.

Photos: Ollie Dubock

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Tangled turtle rescue

This hawksbill turtle (*photos below*) became tangled in discarded fishing line at the Sundivers “Turtle Reef” dive site in West Bay. Entangled turtles usually die from injuries caused by loops of line tightening around their flippers—or drown when they cannot break lines to reach the surface—but this turtle was luckier. Fishing line had already wrapped around the flippers but divers found the turtle on the reef at a depth of 60 ft and were able to free it. ***If you see a tangled or hooked turtle, please call DoE (contact details below).***



Photo: Graham Harris



Photo: Graham Harris



Photo: Gary Redfern

Left and center: Cutting the line: Bryan Andryszak, Ollie Dubock, and Gary Redfern. Holding the turtle: DoE Research Officer Janice Blumenthal. Photographing the rescue: Graham and Angela Harris. **Right:** line removed from around the turtle.

Lost and discarded fishing line kills

In the Cayman Islands, entanglement in lost fishing line is one of the leading causes of severe injury and death for turtles. Department of Environment and Cayman Wildlife Rescue are partnering in an awareness campaign to aimed at reducing this threat. **How to help:**



Photo: Joanna Humphries

Above: Diver collecting lost line.

Fishers: use responsible practices

- ◆ Never discard tangled fishing line into the sea.
- ◆ Do not leave lines unattended.
- ◆ Use non-stainless circle hooks. These degrade more quickly than stainless steel and are less likely to gut hook an animal.
- ◆ Do not rip out hooks or leave hooked animals in the wild. Call us to assist with hook removal, rehabilitation, and release.
- ◆ Contact us with questions, comments, and suggestions.

Divers and snorkellers: collect lost fishing lines

- ◆ Prevent entanglements: collect lost fishing line onshore, nearshore, and on the reef.
- ◆ Carry a dive knife or scissors to cut lines (do not pull as this may damage tangled corals and sponges).
- ◆ Spread the word to other divers about the importance of collecting lost line and contact us for information on arranging a fishing line clean-up.
- ◆ Report injured or dead wildlife (contacts below).



For **injured or dead turtles** call DoE
 Grand Cayman: 949-8469 or 916-4271
 Cayman Brac: 926-0136 or 926-2342
 Little Cayman: 916-7021 or 926-2342
General: 949-8469 or DoE@gov.ky



For **other injured wildlife**, call
Cayman Wildlife Rescue
 Hotline: 917-BIRD(2473)
 Website: <http://www.caymanwildlife.org/CWR/>
 Email: caymanwildliferescue@gmail.com

Grouper Moon 2010 — DoE and REEF gearing up!

What is a Nassau grouper spawning aggregation (SPAG)?

Nassau grouper live a solitary life for 340 days of the year but around the full moon in January, February, and sometimes March they come together at spawning aggregation (“SPAG”) sites to breed (“spawn”). Spawning takes place *only* on SPAGs and it will not occur at all if population sizes drop too low. SPAGs have advantages (e.g. it is easy for solitary fish to find mates) but during spawning all the adult grouper from a very large area are gathered in one spot. This means that overfishing on SPAGs can quickly wipe out entire populations.

What is the status of Caribbean SPAGs?

Only a handful of Nassau grouper spawning aggregations in the Caribbean have escaped extinction. In the Cayman Islands, a new SPAG was discovered in Little Cayman in January 2001 and approximately 2,000 fish were caught while spawning. The next year, 5,200 fish were observed on the SPAG prior to fishing. Then hook and line fishing removed 1,934 fish over a nine day period. Nassau grouper take more than eight years to reach maturity so this catch was not sustainable. Realising that the Little Cayman spawning aggregation would soon be driven to extinction, in 2003 government enacted an eight year ban on taking grouper from designated SPAG sites in the Cayman Islands.

What is the Grouper Moon Project?

Since 2002, DoE and REEF (www.reef.org) have partnered in the Grouper Moon Project, assessing the status and management needs of Nassau grouper in the Cayman Islands. Methods include counting and estimating abundance of fish, measuring fish with underwater lasers and videos, deploying satellite drifter buoys to track possible patterns of recruitment for larval grouper, and using ultrasonic tags and hydrophones to track movements of adult fish. In 2010, the team will be monitoring the Little Cayman SPAG for the 9th year, surveying newly-discovered SPAGs in Cayman Brac and Grand Cayman, and searching for new spawning sites.

How can I help?

- ◆ Know the Marine Conservation Law on grouper size limits and areas closed to fishing. Marine parks brochures with this information are available on the DoE website, from our office, or in the islands pages of the phone book.
- ◆ Protect reef communities—Nassau grouper need healthy habitats and populations of reef fish (their prey) to survive.
- ◆ Don't target Nassau grouper while fishing and don't buy or sell grouper in restaurants or supermarkets (check the Cayman Sea Sense program <http://www.nationaltrust.org.ky/seasense.html> for recommendations on sustainable seafood).
- ◆ Learn more and see photos and videos of project at http://www.reef.org/programs/grouper_moon.
- ◆ Support and sponsor the Grouper Moon project. Many thanks to all those who have assisted over the years!



1st image: solitary Nassau grouper on the reef in its normal (non-breeding) colour-phase. 2nd: Nassau grouper on the Little Cayman SPAG (in spawning colouration). 3rd: Nassau grouper caught during spawning in 2002. 4th: DoE diver videoing the SPAG. Photos: DoE.

DoE sighting program – highlights

WHITE WHALE?

At the end of October “mini Moby Dick”—what appeared to be a tiny white whale—washed ashore in Spotts, Grand Cayman. Researchers from DoE and Marine Conservation International identified the animal as a pygmy sperm whale (*Kogia breviceps*). Pygmy sperm whales are typically dark grey but the top layer of skin is very thin and is frequently shed and replaced to keep the body streamlined. Loss of this layer of skin after death gave the stranded animal its unusual white appearance.

Pygmy sperm whales are among the smallest whales, reaching a maximum length of only 11.5 ft. They can be distinguished from the similar dwarf sperm whale by the smaller size of the dorsal fin (which has a height of less than 5% of the body length). Often thought to resemble sharks, pygmy sperm whales have up to 32 curving teeth in the lower jaw which fit into sockets in the toothless upper jaw. They travel in small groups of up to 6 animals and are believed to live mainly in the open sea, diving to depths as great as 1,000 ft in search of prey such as squid and fish. Like squid (but unlike other cetaceans) pygmy and dwarf sperm whales can release clouds of “ink” to confuse their predators!

Pygmy sperm whales are shy and rarely seen at sea so it is important to gather data from strandings. In addition to documenting this stranding, DoE collected measurements, DNA, and teeth (for aging) to aid in understanding biology of this rare species. Many thanks to the members of the public who called us to report this rare event.



Center: Pygmy sperm whale on the beach in Grand Cayman. Total length was 11.2 ft. **Top:** tiny dorsal fin, diagnostic of the species. **Bottom:** sharp curving teeth, found only in the lower jaw. Photos: Mark Orr

Please report your sightings: DoE@gov.ky or 949-8469

DoE asks the public to report sightings of whales, dolphins, sharks, large turtles (>3 ft shell length), manta rays, and other large marine animals to our sightings database! Where possible, please include photos. For more information, join our new facebook group: “Sharks & Cetaceans: the Cayman Islands.”

Coming soon...

- ◆ **Coral bleaching.** DoE is currently conducting a follow-up survey to assess recovery of our reefs from the 2009 coral bleaching event. Results in an upcoming newsletter.
- ◆ **Fish count!** DoE will soon begin our 2010 reef fish survey. This involves monitoring species diversity and biomass for reef fish species around Grand Cayman, Cayman Brac, and Little Cayman—within & outside marine parks.
- ◆ **DoE’s “Environment Break”** is live on CITN and online via <http://www.cayman27.com.ky/news/daybreak>. See recent features on mapping marine and terrestrial habitats from satellite imagery and aerial photography.
- ◆ **For more information** on ongoing and upcoming projects, visit our website at www.DoE.ky.

EMAIL DOE@GOV.KY OR CALL 949-8469 (OFFICE HOURS OR FOR EMERGENCY CONTACT NUMBERS)

~Questions, comments or suggestions for the newsletter? Contact Janice Blumenthal at DoE~