LECTURE 15

Potentially Hazardous Fauna & Flora of Calabash Caye

by John R. Finnerty

Sources

Auerbach (1997)

Iverson & Skinner (2006)
Animals that could bite snorkelers

**Moray Eel**

- green moray
- spotted moray

*A green moray eel emerges from a crevice in a pillar coral*


https://bumarine.smugmug.com/GREATEST-HITS/Top-BUMP-Videos/i-LfbZjBg
Avoid wearing shiny jewelry and carrying wounded or struggling fish in a dive bag or on a spear.

Attracted to light. Avoid holding light near your face.
American crocodile

Don’t snorkel at night where crocodiles are prevalent.

No reports of crocodile attacks are known in south Florida. They are shy and usually not seen in populated areas.

Animals that could bite snorkelers

Sharks

The International Shark Attack File has not recorded a single documented shark attack on a diver in Belize from 1820-2013.

http://www.flmnh.ufl.edu/fish/sharks/scuba/All2.htm
Animals that could sting snorkelers

**True Jellyfishes**
(Phylum Cnidaria / Class Scyphozoa)

**Moon jelly**
*Aurelia aurita*

Common around Calabash, and can be locally very abundant, but have short tentacles and a mild sting.

“**EFFECT ON DIVERS:** Mildly toxic; can sting bare sensitive skin and cause slight itchy rash.”
- Humann & Deloach, *Reef Creature Identification*

Animals that could sting snorkelers

**True Jellyfishes**
(Phylum Cnidaria / Class Scyphozoa)

**Mangrove Upsidedown Jellyfish**
*Cassiopea xamachana*

Common around Calabash. Generally found resting upside down on sandy or muddy bottoms in mangrove bays and lagoons.

“**EFFECT ON DIVERS:** Mildly toxic; contact with bare skin can produce sting. May cause redness and welt.”
- Humann & Deloach, *Reef Creature Identification*
Animals that could sting snorkelers

**Box Jellyfishes**
(Phylum Cnidaria / Class Cubozoa)

**Sea wasp**
_Carybdea alata_

“Occasional” in the Caribbean. “Inhabit shallow water at night, often over reefs. Attracted to light at night; often swarm.”

“**EFFECT ON DIVERS:** Highly toxic; contact with bare skin can produce an intense sting, redness and welts. Pour vinegar on affected area. Severe stings may cause muscle cramps and breathing difficulty; treat for shock and seek medical attention.”

-Humann & Deloach, *Reef Creature Identification*

Animals that could sting snorkelers

**Sea Anemones**
(Phylum Cnidaria / Class Anthozoa)

**Pale clumping anemone**
_Aiptasia sp._

A common species found often found in clumps attached to mangrove roots, sponges, or in reef crevices
Fire coral
(Phylum Cnidaria / Class Hydrozoa)

**Blade fire coral**  
*Millepora complanata*  
Abundant around Calabash, usually in shallow reef tops.

“**EFFECT ON DIVERS:**  
Toxic; contact with bare skin will produce an intense, but usually short-lived, sting. May cause minor redness, welts and rash.”  
-Humann & Deloach, *Reef Creature Identification*
Animals that could sting snorkelers

**Fire coral**
(Phylum Cnidaria / Class Hydrozoa)

**Branching fire coral**
*Millepora alcicornis*

Abundant around Calabash, usually in shallow reef tops.

“**EFFECT ON DIVERS:**
Toxic; contact with bare skin will produce an intense, but usually short-lived, sting. May cause minor redness, welts and rash.”
-Humann & Deloach, *Reef Creature Identification*
Lionfish

Animals that could sting snorkelers

Lionfish

Abundant around Calabash, usually seen hovering around patch reefs and mangrove prop roots.

Contact with the venomous spines results in severe local pain, swelling, and in 1% of cases, tissue necrosis. (Medscape)
Animals that could sting snorkelers

Scorpionfish

Cryptic bottom dwellers seen around Calabash only occasionally, on the reef and in the seagrass, but they are present in the environment even if you don’t see them.

Sting from spines on dorsal, pelvic and anal fins causes puncture wounds, severe pain, swelling and sometimes nausea, vomiting, headache & diarrhea.

Stingray

Common around Calabash, usually seen hovering above soft sediments feeding on benthic invertebrates.

They are not aggressive, but the tail possesses one or more venomous spines. Causes a puncture wound accompanied by sometimes excruciating pain in addition to syncope, nausea, vomiting, diarrhea, diaphoresis, muscle cramps, fasciculations, abdominal pain, seizures, hypotension.” (Medscape)
To minimize the risk of stings:

- Be aware of your surroundings. Look before you reach or step. Don’t reach or step where you can’t see.
- Avoid stepping on the sediment. It is better to be horizontal and hovering than vertical.
- If you must step in the soft sediment, shuffle your feet.
- Keep covered.
- Maintain a safe distance from fishes and invertebrates that can sting.

Coverage Provides Partial Protection Against Marine Stings

- Wetsuit, full-length, neoprene 2-3 mm
- Not lycra
- Not a shorty
- Neoprene hood
- Neoprene booties with rubber tread
- Gloves
Biting insects
No-see-ums

Small (1-2 mm) biting midges that are extremely common at Calabash & can be infuriating.

Biting insects
Mosquitos
To minimize the risk of insect bites:

- Wear long pants and long shirts, especially at dawn and dusk. A lightweight hoodie can very helpful for keeping no-see-ums off your head (which is particularly infuriating).
- Use insect repellent containing 30% DEET, 30% oil of lemon eucalyptus, or 20% picaridin, all of which were found effective in a June 2017 test by Consumer Reports.
- Some former students advocated baby oil as a physical barrier to no-see-ums.
- Keep doors and windows closed.
- Use your bug tent.
- Use your fan.
- If an insect bite takes a long time to heal or becomes infected, see your doctor upon returning home.
**Terrestrial Plants**

**Poisonwood (Metopium toxiferum)**

"*Metopium toxiferum* (Poisonwood, Florida Poisontree, Hog Gum) is a species of flowering tree in the *cashew* or *sumac* family, *Anacardiaceae*, that is native to the American neotropics. It produces the irritant urushiol much like its close relatives *poison sumac* and *poison oak*. It is related to *Metopium brownei*, the Black Poisonwood.

This tree grows abundantly in the Florida Keys and can also be found in various ecosystems in southern Florida. Its range extends from Florida and The Bahamas south through the Caribbean."

(Verbatim from multiple internet sources.)

**Advice:** Avoid touching any plant that you don’t know to be safe to touch.
Terrestrial Plants
Coconut (Cocos nucifera)

“Coconuts falling from their trees and striking individuals cause serious injury to the back, neck, shoulders and head. They can potentially be fatal (Barss 1984).


Advice: Avoid walking under a coconut tree, and certainly don’t linger under a coconut tree.

Don’t even ponder the notion of climbing a coconut tree.

Importance of cleaning wounds

“A Medical Guide to HAZARDOUS MARINE LIFE

Third Edition

Paul S. Auerbach, M.D.

Burr & Burton Publishing Company

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“Wounds that are acquired in the marine environment are often contaminated with seawater, sand, bacteria from the surface of a marine animal, venoms, slimes, and other organic matter. To minimize the infection risk, all wounds should be cleaned as soon as possible.”

Auerbach (1997)
Control the bleeding

- If the wound is actively bleeding, **first control the bleeding**.

  - “Apply pressure directly over the area that is bleeding. You can accomplish this by using a thick folded cloth under the palm or heel of your hand or a stack of gauze squares under and elastic wrap.”

  - “If the bandage soaks through, unwrap it and make certain that it is positioned over the bleeding site. Almost all bleeding stops with direct pressure. After you begin to apply pressure, don’t peek underneath (don’t release pressure) for at least 10 minutes to give the blood a chance to begin to clot, blood vessels to contract, the bleeding to cease.”

Clean the wound

- **Irrigate the wound** with at least a liter of the cleanest disinfected **fresh water** available. Tap water or bottled drinking water is fine. If sterile saline solution or sterile water is available, it should be used. There is no absolute need to add a disinfectant to the irrigating solution. The addition of povidone-iodine (Betadine) to the irrigation fluid is not harmful to the tissues if it does not exceed a 5 to 10% concentration, and it may help to kill bacteria. Never add solvents.”

  - “Ocean water should not be used because it can be laden with marine bacteria.”
Treating Marine Wounds

Clean the wound

To effectively irrigate (and clean) a wound, good technique is important, as the force of the fluid applied to the wound must be sufficient to dislodge debris and bacteria while not damaging the sensitive tissues. An 18-gauge plastic intravenous catheter (without the needle) attached to a 12 mL syringe will eject a stream that delivers a pressure of 10 to 20 pounds per square inch, which is desirable.

Detoxify stings

Fire coral, anemone, hydroid, and jellyfish (coelenterate) stings should be detoxified with low-concentration acetic acid (vinegar) before the application of fresh water...

Remove foreign material

“Remove all obvious fragments of “foreign” material, such as coral, seaweed, sand, and fish spines.”

Scrub the wound

“Scrub the wound vigorously with soap and water. Although scrubbing the interior of a wound is generally not recommended for routine cuts, it is important if the wound has been acquired in a marine setting, since it is so important to remove organic (living) debris. Do not pour isopropyl (rubbing) alcohol, full strength antiseptics, or full-strength hydrogen peroxide directly into a wound.

“Rinse the wound thoroughly.”