



Tropical Marine Invertebrates

2019

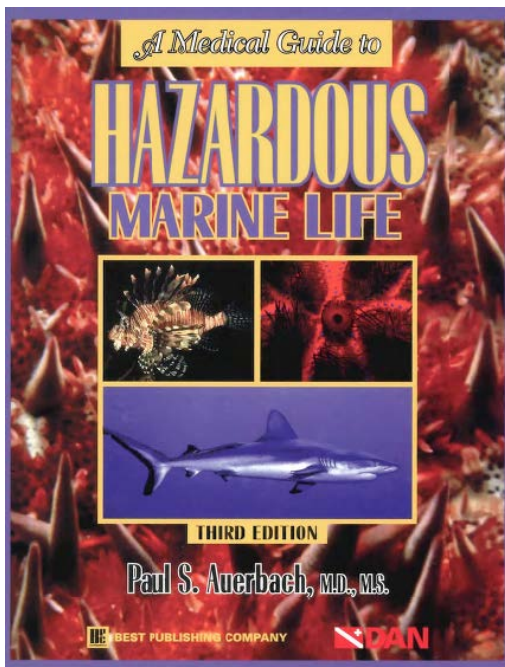
LECTURE 15

Potentially Hazardous Fauna & Flora of Calabash Caye

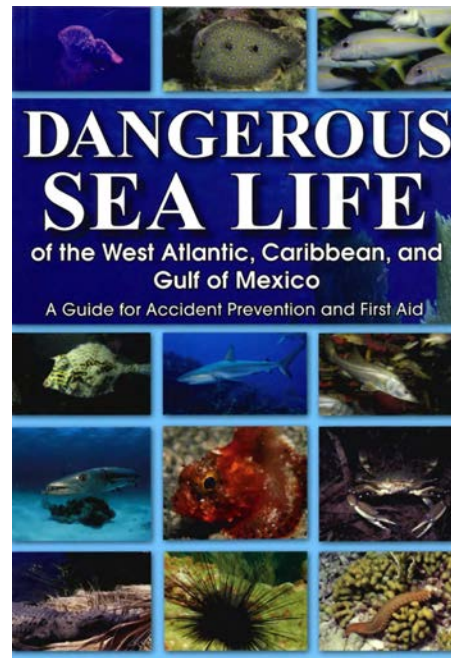
by John R. Finnerty

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Sources



Auerbach (1997)



Iverson & Skinner (2006)

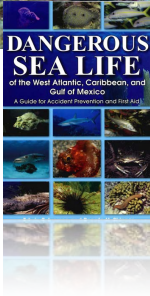
Animals that could bite snorkelers

Moray Eel



spotted moray

green moray



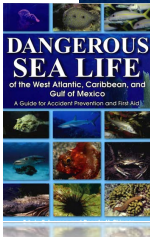
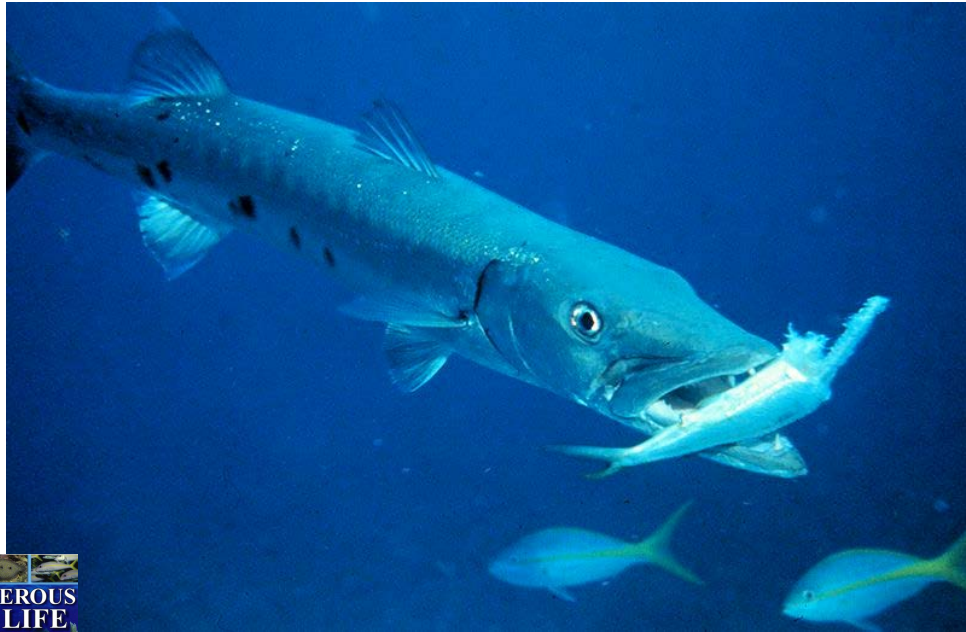
A GREEN MORAY EEL EMERGES FROM A CREVICE
IN A PILLAR CORAL

Video by Paul Riley, *Tropical Marine Invertebrates* (2014)

<https://bumarine.smugmug.com/GREATEST-HITS/Top-BUMP-Videos/i-LfbZjBg>

Animals that could bite snorkelers

Barracuda



Avoid wearing shiny jewelry and carrying wounded or struggling fish in a dive bag or on a spear.

Animals that could bite snorkelers

Needlefish

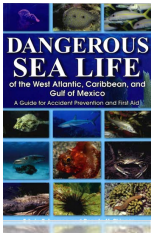


Attracted to light. Avoid holding light near your face.

Animals that could bite snorkelers

American crocodile

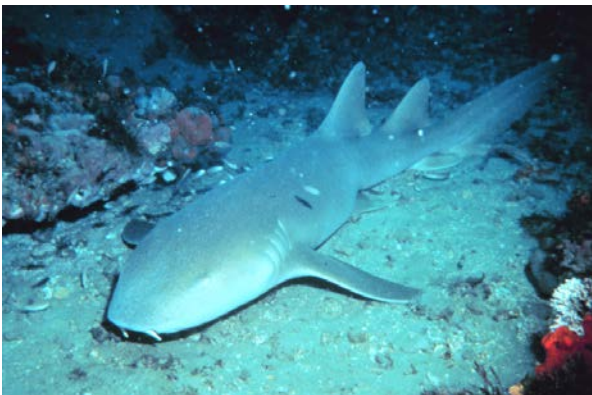
Don't snorkel at night where crocodiles are prevalent.



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.

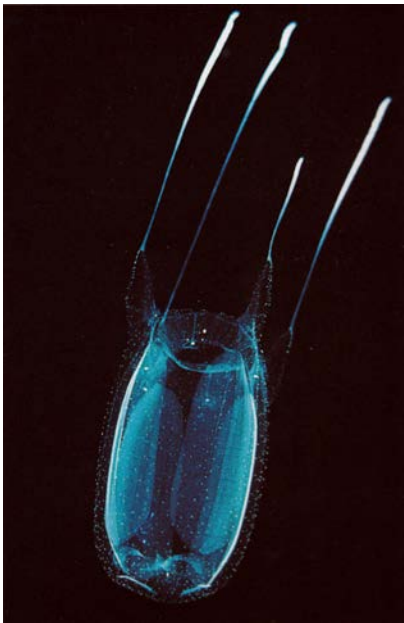
“EFFECT ON DIVERS: Mildly toxic; contact with bare skin can produce sting. May cause redness and welt.”

-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 often found in clumps attached to mangrove roots, sponges, or in reef crevices

Animals that could sting snorkelers

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)

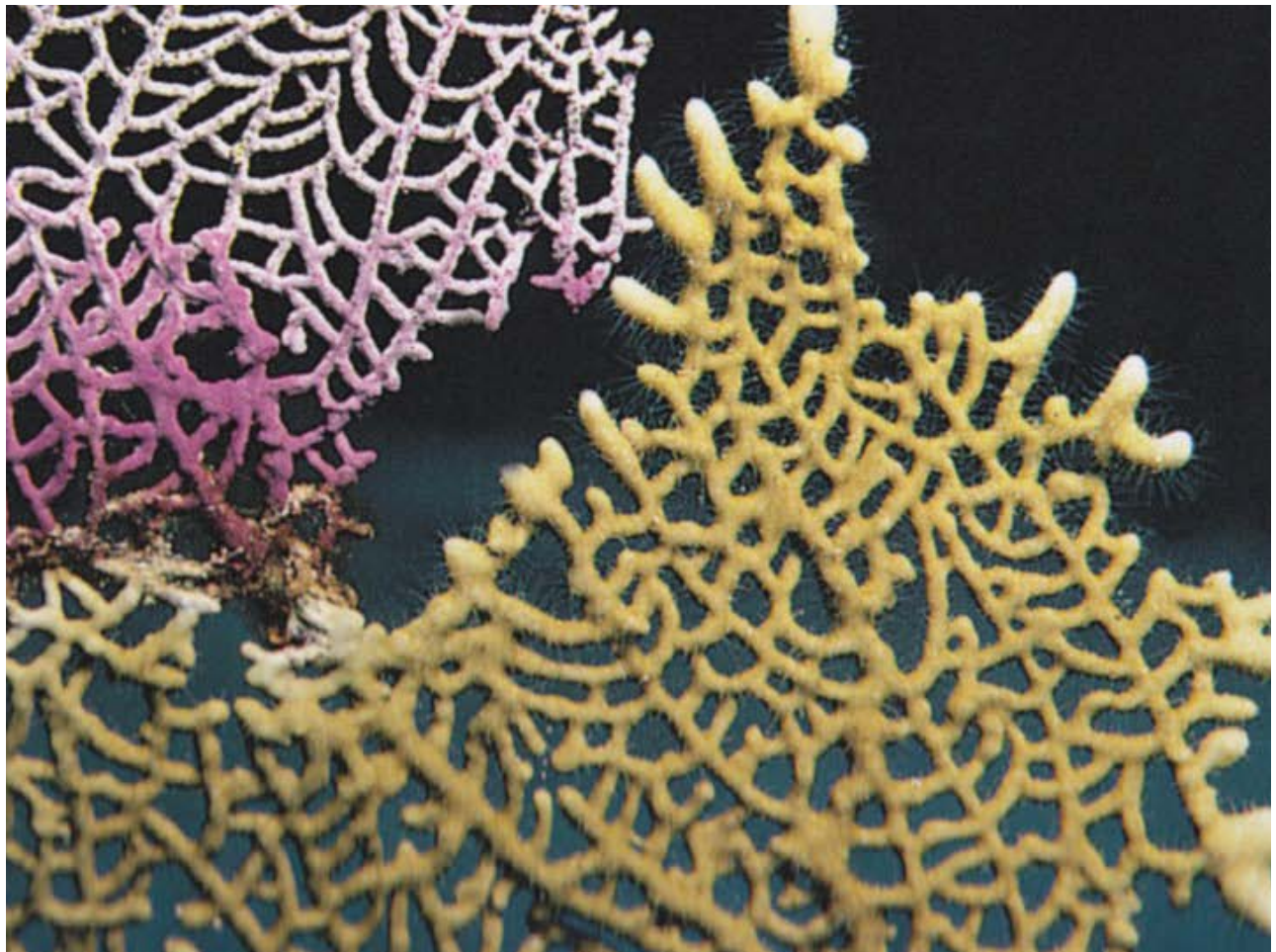
Branching fire coral
Millepora alcicornis

Abundant around Calabash, usually in shallow reef tops.



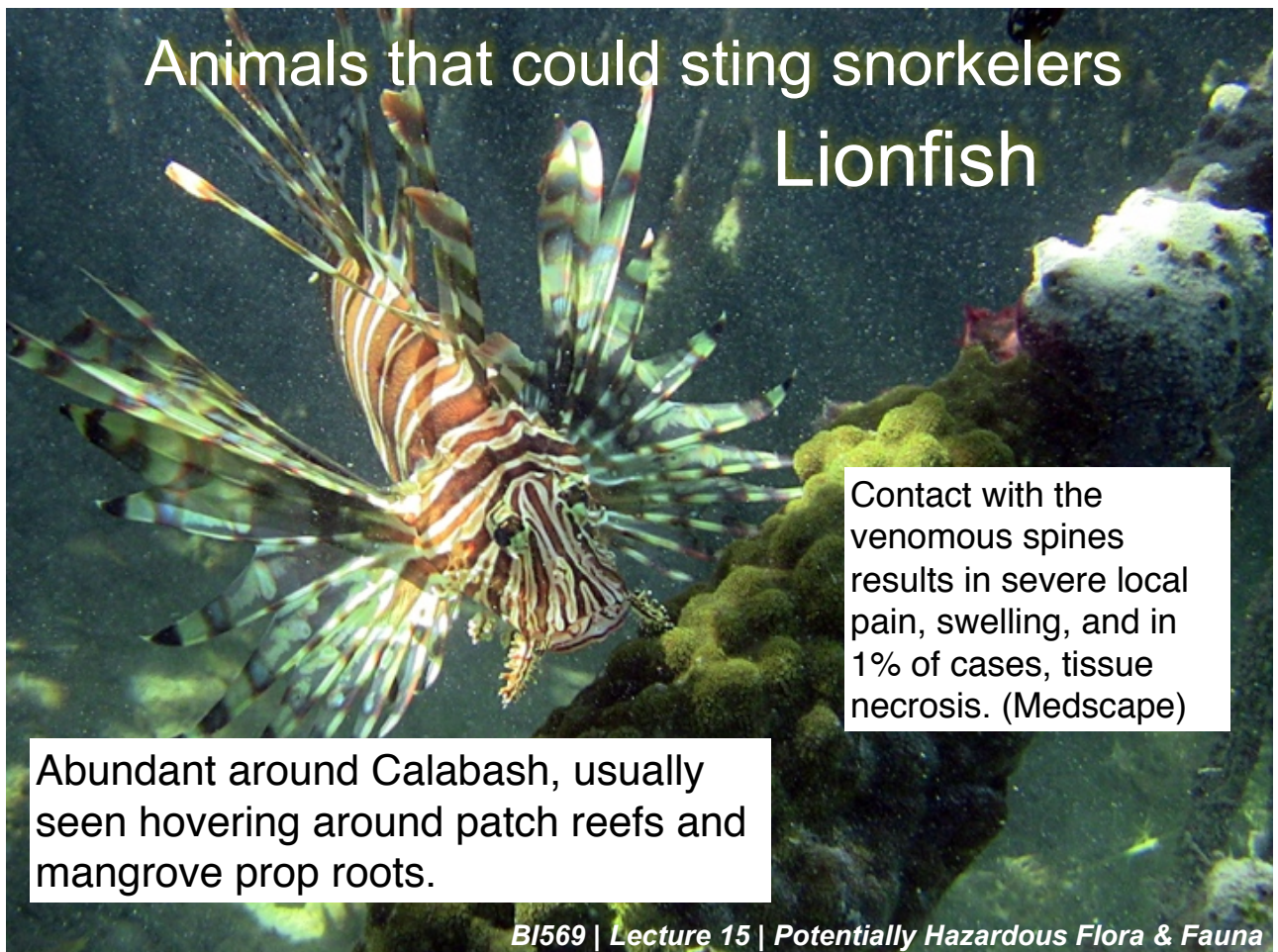
“EFFECT ON DIVERS:
Toxic; contact with bare skin will produce an intense, but usually short-lived, sting. May cause minor redness, welts and rash.”
-Humann & Deloach,
Reef Creature Identification





Animals that could sting snorkelers

Lionfish



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

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

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.

Animals that could sting snorkelers

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

Stingray



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.

CDC Home



Centers for Disease Control and Prevention
CDC 24/7: Saving Lives. Protecting People.™

A-Z Index [A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#) <#>

Parasites - Leishmaniasis

Leishmaniasis

General Information

Epidemiology & Risk Factors

Biology

Disease

Diagnosis

Treatment

Prevention & Control

Resources for Health Professionals

Publications

Additional Resources

Information For

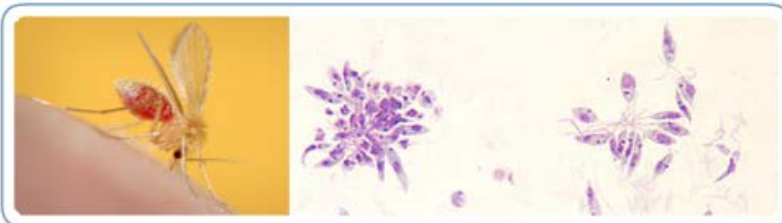
Travelers

Related Links

Parasites A-Z Index

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Leishmaniasis is a parasitic disease that is found in parts of the tropics, subtropics, and southern Europe. It is classified as a **Neglected Tropical Disease (NTD)**. Leishmaniasis is caused by infection with *Leishmania* parasites, which are spread by the bite of phlebotomine sand flies. There are several different forms of leishmaniasis in people. The most common forms are **cutaneous leishmaniasis**, which causes skin sores, and **visceral leishmaniasis**, which affects several internal organs (usually spleen, liver, and bone marrow).

Image: The sand flies that transmit the parasite are only about one third the size of typical mosquitoes or even smaller. On the left, an example of a vector sand fly (Phlebotomus papatasi) is shown; its blood meal is visible in its distended transparent abdomen. On the right, Leishmania promastigotes from a culture are shown. The flagellated promastigote stage of the parasite is found in sand flies and in cultures. (Credit: PHIL, DPDx.)

Zika Virus

- Zika Virus Home
- About Zika -
 - Overview
 - What You Need to Know
 - Questions About Zika
 - What CDC is Doing +
 - Prevention +
 - Transmission +
 - Symptoms, Testing, & Treatment +
 - Areas with Zika +
 - Mosquito Control +
 - Health Effects & Risks +
 - Pregnancy +
 - Information for Specific Groups +

CDC > Zika Virus Home

About Zika



Language: English

What we know

- Zika is spread mostly by the bite of an infected *Aedes* species mosquito (*Ae. aegypti* and *Ae. albopictus*). These mosquitoes bite during the day and night.
- Zika can be passed from a [pregnant woman](#) to her fetus. Infection during pregnancy can cause certain birth defects.
- There is no vaccine or medicine for Zika.
- Local mosquito-borne Zika virus transmission has been reported in the continental United States. [Learn more.](#)



OVERVIEW

How Zika spreads, symptoms, risks, prevention and more...

WHAT YOU NEED TO KNOW

Top 5 things everyone needs to know about Zika.

QUESTIONS ABOUT ZIKA

Top questions about Zika...

WHAT CDC IS DOING

CDC's response to Zika: tracking, training, teaching, testing...

Terrestrial Plants

Poisonwood (*Metopium toxiferum*)



"*Metopium toxiferum* (Poisonwood, Florida Poison tree, 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*)

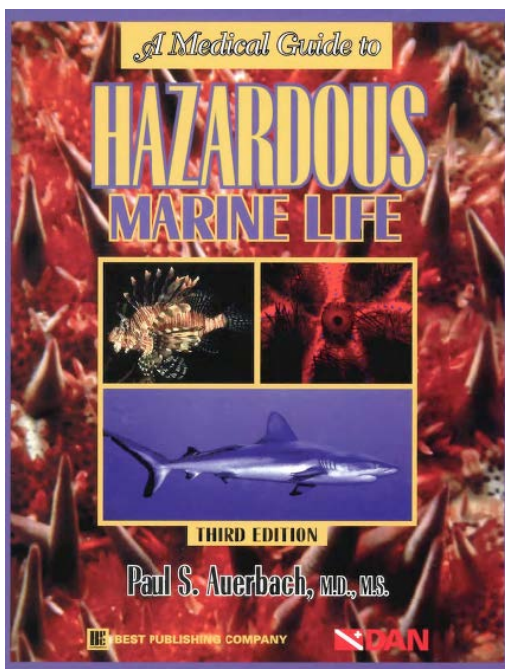


“Coconuts falling from their trees and striking individuals cause serious injury to the back, neck, shoulders and head. They can potentially be fatal (Barss 1984).

Barss, P. (November 1984). "Injuries due to falling coconuts". *The Journal of Trauma*. 24 (11): 990–991. doi: 10.1097/00005373-198411000-00012. ISSN 0022-5282. PMID 6502774.

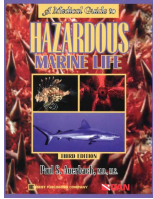
Advice: Avoid walking under a coconut tree, and certainly don't linger under a coconut tree. *Don't even ponder the notion of climbing a coconut tree.*

Importance of cleaning wounds



Auerbach (1997)

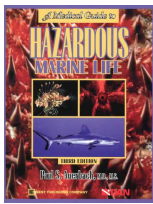
“Wounds that are acquired in the marine environment are often contaminated with seawater, sand, bacteria from the surface of a marine animal, venoms, slimes, and other organic matter. To minimize the infection risk, all wounds should be cleaned as soon as possible.”



Treating Marine Wounds

Control the bleeding

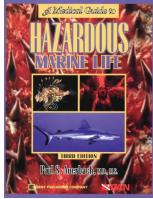
- If the wound is actively bleeding, **first control the bleeding.**
- “Apply pressure directly over the area that is bleeding. You can accomplish this by using a thick folded cloth under the palm or heel of your hand or a stack of gauze squares under and elastic wrap.”
- “If the bandage soaks through, 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.”



Treating Marine Wounds

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.**”



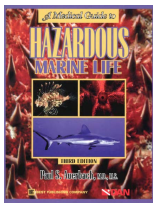
Treating Marine Wounds

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...”



Treating Marine Wounds

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.”**