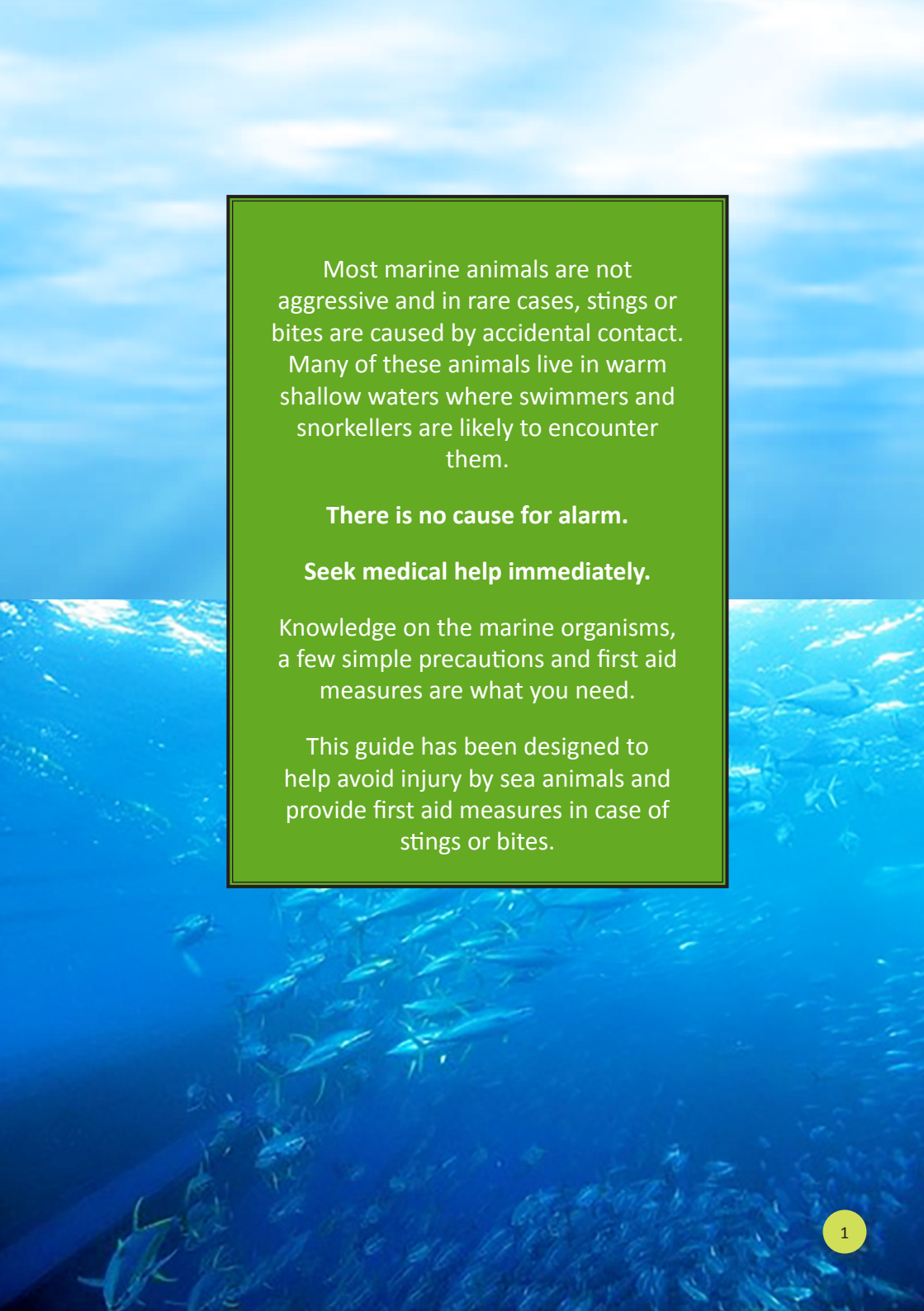




A GUIDE TO **STINGERS** IN THE COASTAL WATERS OF MAURITIUS

- GENERAL INFORMATION
- PRECAUTIONS
- SYMPTOMS AND FIRST AID

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Most marine animals are not aggressive and in rare cases, stings or bites are caused by accidental contact. Many of these animals live in warm shallow waters where swimmers and snorkellers are likely to encounter them.

There is no cause for alarm.

Seek medical help immediately.

Knowledge on the marine organisms, a few simple precautions and first aid measures are what you need.

This guide has been designed to help avoid injury by sea animals and provide first aid measures in case of stings or bites.

Lion fish, Stone fish and Humpbacked scorpion fish



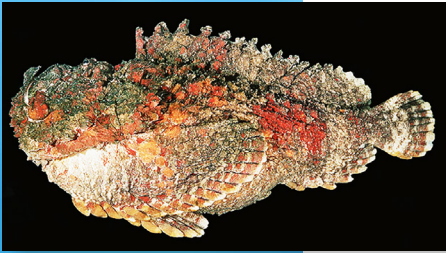
Pterois volitans

Photo by Rebecca Skinner

LION FISH (Laffe volant)

Pterois volitans

- Inhabits shallow and unexposed waters around reefs.
- Has elaborate fan-like pectoral fins and long separated dorsal fins.
- Its long dorsal, pelvic and pectoral spines are venomous, with venom being produced by glands located in grooves within the spines.



Synanceia verrucosa

Photo by John E. Randall
(fishbase.org)

STONE FISH (Laffe laboue)

Synanceia verrucosa

- Inhabits sandy/muddy bottoms.
- Is on average 20-40cm long.
- Extremely well camouflaged.
- Has large fleshy pectoral fins and a row of thirteen stiff dorsal spines with two well-developed venom sacs at the base of each spine.



Scorpaenopsis gibbosa

Photo by Randall, J.E., 1997.

HUMPBACKED SCORPION FISH OR FALSE STONE FISH (Laffe corail)

Scorpaenopsis gibbosa

- Inhabits rocky areas, lagoons, seaward reef flats and slopes and is well camouflaged.
- Is smaller than the stone fish about 17-21cm.
- Has twelve dorsal spines with venom glands at their base.
- A black spot nearly as large as an eye on the inner surface of the pectoral fins near the base of the first 5 rays.

PRECAUTIONS

- Wear thick rubber soled booties, though this will not give full protection.
- Avoid touching any of these fish, either alive or dead. Do not turn over pieces of rocks as a stonefish looks very much like a piece of rock.

SYMPTOMS

- Their sting causes immediate intense pain, nausea, vomiting, diarrhoea, hypotension, neurologic complications, seizures and paralysis.
- The sting of stone fish can, in addition to the above symptoms, cause excruciating pain, respiratory distress, delirium and congestive heart failure or even death although rare cases have been reported.
- The sting from the dorsal spines of the 'Laffe corail' can be painful but does not pose any real danger to the victim.

FIRST AID

- If stung by a lion fish, scorpion fish or stone fish, remove fragments of stinger spines as soon as possible and immerse the affected area in hot water (as hot as you can stand) for about 45 minutes to reduce the effect or deactivate the venom.
- Placing a heat source at a reasonable distance from the wound for 10 -15 minutes may also help to alleviate or completely stop the pain caused by the venom. If necessary, repeat the exercise.
- Do not bandage the wound.
- Seek medical help immediately.

Cones



Conus geographus

Source:

<http://www.theconesnail.com>

GEOGRAPHY CONE (CONE)

Conus geographus

- Inhabits the intertidal zone to deeper waters, found on sand, among rocks or on coral reefs.
- Attacks its prey either by releasing toxins into the water or by firing an extensible poisoned tipped tentacle into its prey. The sting releases powerful venom which can be lethal to humans.

PRECAUTIONS

- Live cones, regardless of their type and size, should not be picked or should only be handled with extreme caution, because they will sting humans.
- Be careful when handling cone snails which seem empty as the animal might have retracted inside. If needs be, handle the shell by the closed end only.



Conus geographus attacking a prey

Photo by J.M. McIntosh and R.M.

Jones, 2001

SYMPTOMS

- Some cone sting causes intense, localized pain, swelling, abdominal colic, vomiting, numbness and tingling.
- The sting of a few of the larger tropical fish-eating species may cause muscle and vocal paralysis, blurred vision, accelerated pulse, uncoordinated movements and respiratory failure that can lead to death.

FIRST AID

- Apply a tight compressive bandage directly onto the affected area without blocking arterial circulation (toes or fingers should stay pink and warm).
- Alternatively, immerse the affected area in water as hot as is tolerable.
- There is no antivenom for a cone sting. Treatment is limited to merely keeping victims alive until the toxins wear off.
- Seek medical help immediately.

Sea urchins (oursins)



Toxopneustes pileolus
Photo by Vincent C.Chen
(EZDive magazine)

FLOWER URCHIN

Toxopneustes pileolus

- Found solitary or in groups on the sea floor, coral reefs, seagrass beds, and rocky or sandy environments at depths of up to 90 m.
- Is considered dangerous, and is capable of delivering extremely painful stings when touched.
- Has numerous and distinctively flower-like small seizing organs (pedicellariae), which are usually pinkish-white to yellowish-white in colour with a central purple dot.
- Possesses short and blunt spines, hidden beneath the pedicellariae.
- The venom is administered through the flower-like globiferous pedicellariae.



Diadema setosum

Photo by AFRC

LONG-SPINED BLACK SEA URCHIN

Diadema setosum

- Is found in pools on reef flats, particularly in the vicinity of reef crests.
- Differs from other *Diadema* sp. with five white dots found on its body.
- Has extremely long, hollow and brittle spines. When stepping on the spines, they can easily break into the tissue of the victim and are hard to remove.
- Toxic material is associated with the thin skin covering the spines and is thereby introduced into the tissues of the victim.

PRECAUTIONS

- Wearing gloves and thick soled shoes may offer some protection against the needle sharp spines.
- Wear protective clothing if you plan to swim or dive in infested areas.
- Do not handle sea urchins, either dead or alive, with bare hands.

SYMPTOMS

- Stepping on the spines causes burning sensations, prolonged pain and localised swelling of the affected part.
- The wound sometimes becomes purple due to the secretion of a harmless dye by the urchin.
- Small pieces of the spines remaining in the victim's tissue may cause infection.
- Multiple deep puncture wounds may cause fatigue, nausea, vomiting, weakness, muscle aches, shock, paralysis, and respiratory failure.
- The small seizing organs can remain

alive for several hours, even if they are detached and can cause immediate pain and swelling and may be potentially lethal to humans.

FIRST AID

- Spines and seizing organs should be immediately removed with care from the skin with tweezers.
- Soak the wound in vinegar several times a day or applying a wet vinegar compress may be sufficient. Vinegar dissolves most superficial spines.
- Use hot water bath to alleviate the pain and applying a source of heat to the injury may help in expelling some spines.
- Rarely, a small incision must be made to extract the spine. Care must be taken because the spine is very fragile.
- Any remaining spines and seizing organs should be removed surgically.
- Seek medical help immediately.

Crown-of-thorn starfish



Acanthaster planci
Photo by Georgette Douwma,
(naturepl.com)

Acanthaster planci

- Occurs naturally on coral reefs; colour varies from purplish blue to reddish-gray to green.
- Measures from 25 to 35 cm in diameter and can reach up to 80 cm.
- Has 8-21 arms covered with elongated sharp spines that are pungent with a thick venom producing skin.
- Feeds on coral polyps and is responsible for large areas of dead coral when it occurs in high densities.

- Is a bottom dweller, so any contact with a diver is usually accidental.

PRECAUTIONS

- Avoid contact with the animal and do not try to handle the starfish.

SYMPTOMS

- Contact with the spines may cause extremely painful wounds, swelling, redness, headaches, joint aches, significant bleeding, nausea, vomiting, weakness, numbness, coughing and in rare cases paralysis.
- Symptoms last from 30 minutes to 3 hours.

FIRST AID

- Immerse the affected area in water as hot as the person can tolerate at about 60°C for 30 to 90 minutes. Repeat as necessary to control pain.
- Remove all visible spines using tweezers.
- Do not cover the wound with tape or any type of dressing.
- Seek medical help immediately.

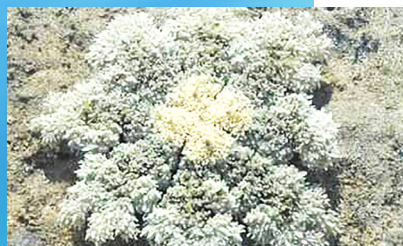
Jelly Fish

JELLY FISH

- Lives in the open sea and occasionally drifts inside the lagoon and is washed ashore.
- For defence and feeding, jellyfish have long tentacles with specialized stinging cells which contain venom.
- The stinging structure consists of a hollow coiled thread with barbs along its length. These nematocysts are concentrated on the tentacles or oral arms. A single tentacle can have hundreds or thousands of nematocysts embedded in the epidermis.



Blue bottle Jelly fish/
Portuguese man o' war (Physalia sp)
 Photo by Mike Theiss
 (National Geographic creative)



Upside down Jelly fish
(Cassiopea sp.)
 Photo by AFRC

- It stings when it comes into contact with a foreign body.

PRECAUTIONS

- Swimmers should wear protective clothing when snorkelling or diving in areas where there are high risks of stings by jelly fish.
- Wear strong canvas boots or thick-soled dive booties with ankle protection.
- Avoid swimming where occurrence of jelly fish is being reported.
- If you are stung, get out of the water calmly without splashing much. This helps prevent more stingers from releasing venom.

SYMPTOMS

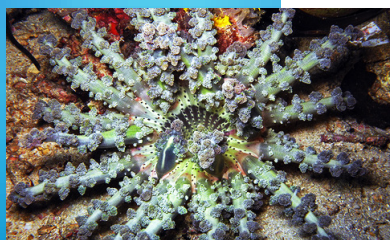
- The sting causes burning sensation and extremely painful rash, itching and raised welts.
- The progressive effects may include nausea, vomiting, diarrhoea, lymph node swelling, abdominal pain, tingling and numbness and muscle spasms.
- Severe reactions can cause difficulty in breathing, coma, and death.

FIRST AID

- Do not scratch the affected body parts.
- Wash the wound with seawater then soak with vinegar for 15-30 minutes to stop the nematocysts from releasing their toxins.

- Do not use fresh water to wash the affected areas, as this will induce further toxin discharges. Do not rub the area, or apply ice or hot water.
- Remove the remaining tentacles with the help of the handle of a fork or spoon, the blunt edge of a knife or tweezers.
- For stings to the eyes, rinse eyes with a commercial saline solution like artificial tears. Dab the skin around the eyes with a towel that has been soaked in vinegar. Do not place vinegar directly into the eyes.
- Seek medical help immediately.

Stinging Sea Anemone



Actinodendron plumosum
Photo by Blogie Robillo
(iNaturalist.org)

STINGING SEA ANEMONE

- Most species stay attached to the surface of a substrate, while some species can float on waters upside down.
- Ranges in size from a few cm to up to 2 m long.
- Has a tree trunk shaped body with tentacles around the mouth.
- Its tentacles have stinging harpoons (nematocysts that inject venom/neurotoxin) that are launched by the creature on the slightest contact, either in self-defence or to capture its prey.
- Is mostly harmless to humans, but some stings can cause serious injuries.
- Not all sea anemones have poisonous spines.
- Contact with humans normally occur

during deep sea diving, or sometimes when a sea anemone gets washed ashore.

PRECAUTIONS

- Avoid handling a live or dead sea anemone unnecessarily.
- Wear protective clothing if you plan to swim or dive in infested areas.
- Wear protective footwear while walking on beach sand.
- Use gloves while cleaning marine animal aquariums.

SYMPTOMS

- Allergic reactions may occur and can sometimes be fatal.
- Severe pain may occur after sting with localised swelling.
- Respiratory distress.
- Bleeding and skin ulceration can cause secondary bacterial or fungal infections to develop.
- Scarring of skin at affected area.

FIRST AID

- Avoid removing the sting or rubbing the stung area with bare hands.
- Remove spines and stingers gently with tweezers taking all care to avoid breakage of the spines.
- Clean the injury with salt water or sea water.
- If nothing is available at the site, rub the area with sand for detaching the stingers.
- Wash the area with soap water.
- Apply local steroid cream to alleviate pain, swelling and itching.

- Use antibacterial ointment to prevent secondary infection at the site.
- Washing the area with vinegar solution is also beneficial.
- In severe form of sea anemone sting, patient may need hospitalization.
- Seek medical help immediately.

Rays

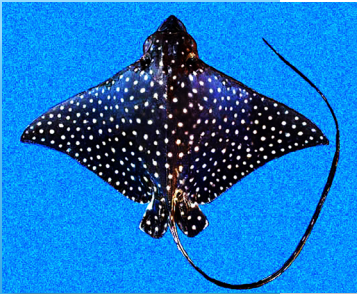


Photo by Ross Robertson.
(<http://biogeodb.stri.si.edu/caribbean/es/gallery/specie/263>)

SPOTTED EAGLE RAY

Aetobatus narinari

- Commonly found in shallow inshore waters such as bays and coral reefs.
- Dorsal surface is dark and is covered with white spots.
- Its tail is longer than that of other rays and may have 2–6 venomous spines, just behind the pelvic fins.
- Spine is rarely used for offence. A sting generally occurs when the victim accidentally steps on the fish.
- Mature spotted eagle rays can reach up to 9 meters in length; the largest have a wingspan of up to 3 meters.

PRECAUTIONS

- Always observe the seafloor and do not intentionally provoke encounters with stingrays.
- Do not swim too close to the seabed to avoid potentially thoraco-abdominal fatal stingray injuries.
- Do not attempt to disengage or disentangle a stingray from a fishing line or net or try to grab a stingray flapping on deck to fling it overboard.
- Do not handle injured rays.

- Diving suits and diving boots will not provide protection against stingray spine lacerations.

SYMPTOMS

- Victims of stingray injuries suffer from nausea, weakness, unconsciousness, vomiting, diarrhoea, convulsions, respiratory distress, extreme pain at the wound, muscle cramps, and a laceration at the puncture site.
- Profuse bleeding for a long time after the initial puncture may occur.
- Most stingray injuries are nonfatal, confined to the extremities, and heal without complications.

FIRST AID

- Bathe wound in seawater and gently remove pieces of spine. Do not remove pieces of spine from the neck, chest or abdomen.
- Apply pressure above the wound if it is bleeding.
- Soak wound in hot water (optimum temperature of 45 °C taking care not to cause burns and for a duration of not more than 90 minutes) to ease the pain. The hot water inactivates any remaining venom.
- Clean the wound with soap and water. Apply dressing. Do not tape it closed.
- Seek medical help immediately.

Stinging coral



Millepora sp.
Source: FWC Fish and Wildlife
Research Institute

FIRE CORALS (*Millepora spp*)

- Are not true corals and are more closely related to jellyfish and other stinging sea anemones.
- Are sessile creatures attached to rocks, coral, seaweed, or pilings. Most fire corals have visible stingers.
- Painful stings are released from a cnidoblast on its surface. These are used to stun their prey.

PRECAUTIONS

- Divers should stay far enough from the reef to avoid even accidental contact. Many apparently benign reefs conceal fire coral.
- Wearing a full wetsuit, or even a thin lycra dive skin, will help protect a diver swimming in an area with fire coral.

SYMPTOMS

- An immediate burning sensation or a stinging pain develops within 5-30 minutes following skin contact.
- A rash with raised red patches or vesicles appears, and itching develops.
- Lymph gland swelling may occur over time.
- Nausea and vomiting have been rarely reported.
- Fire coral cuts are treated like all other coral cuts.

FIRST AID

- Rinse with seawater. Avoid fresh water because it will increase pain.
- Apply vinegar or alcohol. This treatment

can inactivate the toxin.

- Remove any parts of the fire coral with tweezers or with tape after treating with vinegar or alcohol; this will help remove the toxin that causes the symptoms.
- Immobilize the extremity because movement may cause the toxin to spread.
- Seek medical help immediately.

Sea snakes



Laticauda laticauda
Photo by Harikrishnan S.
(iNaturalist.org)

SEA SNAKES

- Sea snake venom is more toxic than that of land snakes, however these animals pose little risk as they bite only when provoked. Even then they tend not to use their venom.
- The venom is used for quickly immobilising its prey and not for defence.

LATICAUDA SPP.

- Are usually found in shallow water due to their need to breathe air and also swim near the bottom for feeding.
- Have laterally compressed tails for swimming and have valves over their nostrils which are closed underwater.
- They differ from eels in that they don't have gill slits and have scales.
- The neck is slender and uniform in size only slightly compressed. The body is elongated and rounded. They can grow up to 2m.
- The head is short, rounded and slightly distinct from the neck.

PRECAUTIONS

- Avoid handling the sea snake unnecessarily.
- Wear protective clothing if you plan to swim or dive in infested areas. The venom is injected by fangs. Fangs of most species are not long enough to penetrate through a wetsuit.
- Wear protective footwear while walking on beach sand.

SYMPTOMS

- A bite from a sea snake does not cause pain initially and may appear as a small pin prick.
- The bite rarely shows a reaction. The person who is bitten by the sea snake won't usually see redness, bruising, or other signs at the location of the bite, even if venom was injected.
- As sea snake venoms are neurotoxins, the typical symptoms of sea snake bites begin within three hours and include: painful muscles, paralysis, joint aches, blurred vision, difficulty in swallowing or speaking, excessive saliva production, vomiting, droopy eye lids.

FIRST AID

- Move the individual away from the water or incident spot.
- Make a note of the exact time of the incident and notify the emergency medical personnel accordingly.
- Use pressure bandage to immobilize the affected site.
- There is no benefit in suctioning or cutting the bite area.
- Seek medical help immediately.

Crucial steps to be followed after being stung or bitten:

- Immediately call the emergency medical services for assistance and treatment.
- Do not administer any medication unless advised by a medical practitioner.

PUBLIC HOSPITALS:

The Casualty Department operates round the clock
in all Public Hospitals.

For Emergencies, call on 114

COMMUNITY HEALTH CENTRES:

Opening Hours:

Monday to Friday: 8:00 hrs to 16:00hrs

Saturday: 8:00 hrs to 12:00 hrs

AREA HEALTH CENTRES

Opening Hours:

Monday to Friday: 8:00hrs to 18:00hrs

Saturday, Sunday & Public holidays: 8:00hrs to 12:00hrs