

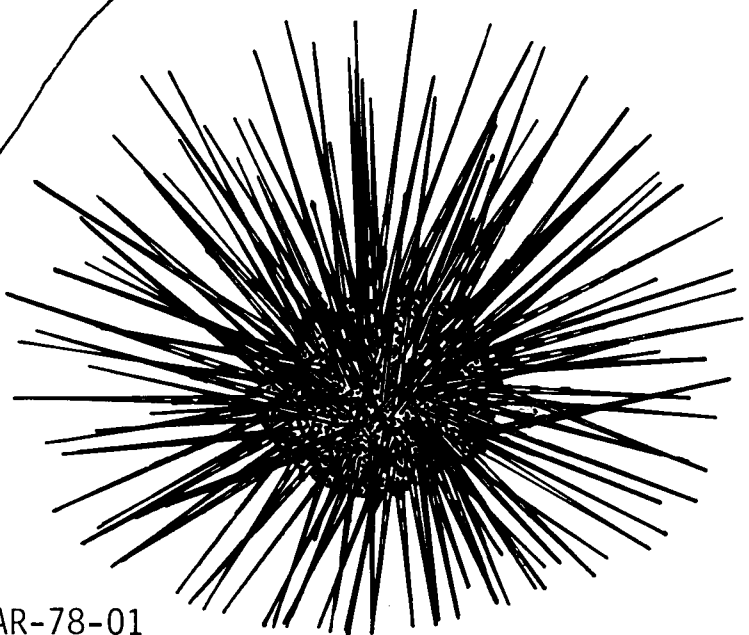
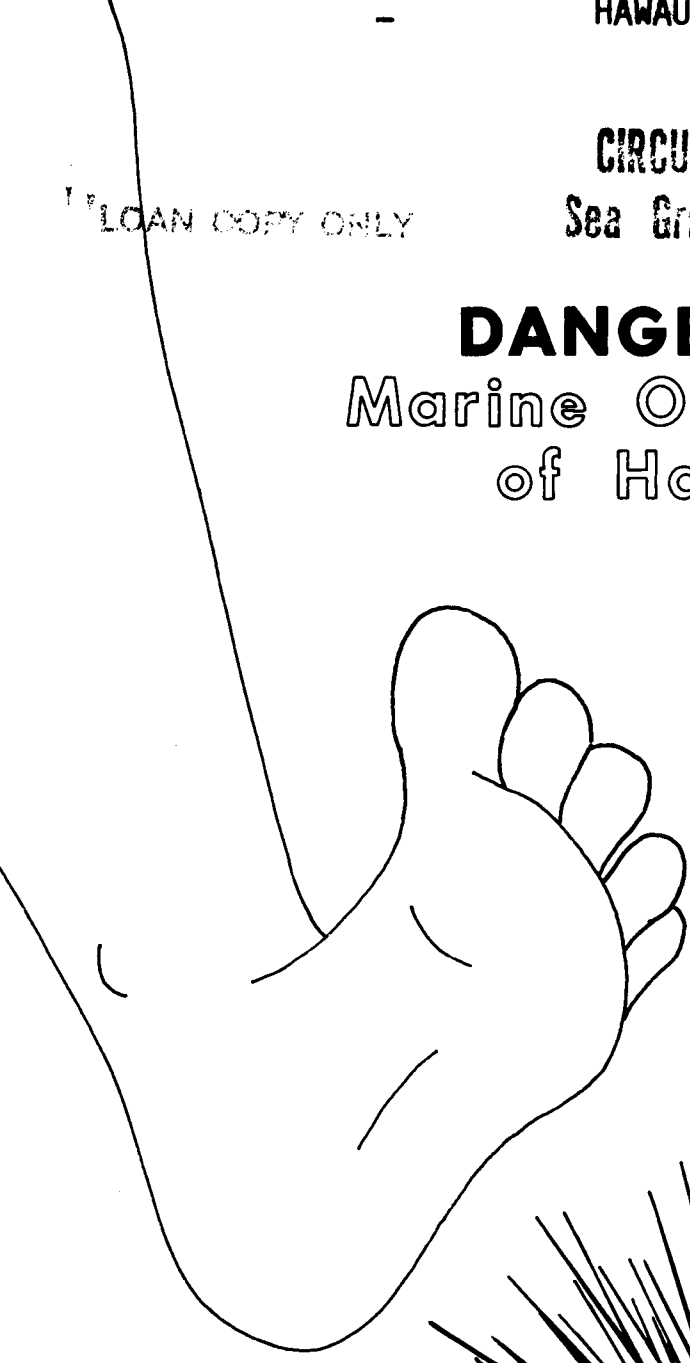
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DANGEROUS Marine Organisms of Hawaii

Athline M. Clark

July 1978



DANGEROUS MARINE ORGANISMS OF HAWAII

by

Athline M. Clark

Sea Grant Advisory Report
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ERRATA

Table of Contents and pg 3:
name of limu misspelled--
Lyngbya majuscula

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INTRODUCTION

The tropical waters of our Hawaiian Islands furnish a fascinating and abundant display of marine life for the diver, fisher, swimmer, and casual beachgoer. Most ocean situations in Hawaii are safe and enjoyable, but every natural environment has its share of homegrown hazards.

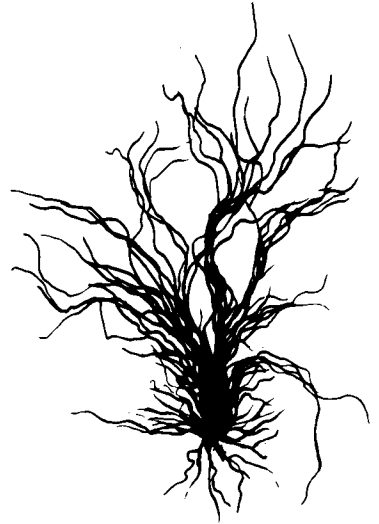
This booklet is meant to provide you with an introduction to sea organisms that are potentially injurious as you encounter them in the water; it is not a guide to what kinds of organisms are safe or unsafe to eat. Information on descriptions, symptoms/injuries, treatment, and preventive measures is provided.

The University of Hawaii Sea Grant Marine Advisory Program is dedicated to the expansion of knowledge about our unique marine environment to make it safe and accessible to all, residents and visitors alike. Use this booklet to familiarize yourself with the potential hazards of some types of sea life so that you can enjoy the ocean with greater pleasure, confidence, and safety.

Lyngbya majurcula

(Limu)

Description. This fine, filamentous blue-green alga (which is often blackish-green) is commonly found tangled with other seaweeds in coral or reef flats, in tidepools, or in deeper subtidal habitats. It can be carried in bulk by waves to swimming areas, notably Laie and Kailua on Oahu and other windward areas. It often forms floating masses of one or a few hundred grams on the surface of Kaneohe Bay.



Symptoms/injuries. When fragments of *Lyngbya majurcula* lodge inside swimmers' suits, they can cause minimal to very severe inflammation of the skin, especially if the person affected is allergic to the alga.

Treatment. A swimmer who has been exposed to this blue-green alga should wash the affected area immediately with soap and water and change swim suits.

Preventive Measures. Swimmers who are allergic to the alga should stay out of the water when it is present in large quantities.

Sponges

(Hu'a-kai or hu'ahu'a-kai)

Description. Common around most shorelines and an important component of most bottom environments, sponges are found to depths of 10,000 m. Sponges occur in a large variety of sizes, shapes, and colors. Body support for the soft structure is provided by minute spicules of lime or glass or by spongin fibers, either separately or in a combination with spicules.

Symptoms/injuries. When handled, sponge spicules lodge under the skin, causing a burning and itching sensation.

Treatment. Several remedies may be used. An example is unseasoned meat tenderizer mixed with alcohol. Apply it as a paste, leave it on for 10 to 20 minutes, and then rinse it off with alcohol. This remedy should not be used on persons allergic to papaya, one of the ingredients present in meat tenderizer. Another remedy is to apply hard liquor, urine, or isopropyl alcohol or a nonirritating powder. Then apply a dilute solution of ammonia or a saturated solution of baking soda (where enough soda has been dissolved in water that the excess settles to the bottom).

Protective Measures. Wear gloves when handling sponges.



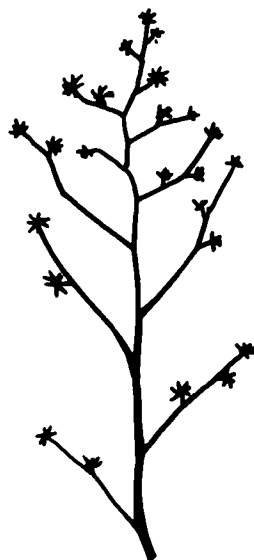
Hydrozoa

Description. Hydrozoa are colonial organisms that are sometimes mistaken for limu. Most are found on artificial habitats such as floats, pilings, submerged lines, boat bottoms, etc., or in areas rich in nutrients such as Kaneohe Bay. There are about 30 species of shallow water hydrozoa ranging in size from 1 mm to 15 cm. Many colonies have a thick main stem and abundant branches that look almost fan-like, or like a tree branch with little fuzzy anemones on the sides and ends of each branch.

Symptoms/injuries. Hydrozoa colonies have microscopic stinging cells like those of the jellyfishes and Portuguese man-of-war. Its sting causes burning and itching and a rash that may last from several hours to several days. It can produce a severe allergic reaction in some people. Swimmers usually get a rash on the chest, abdomen, and legs.

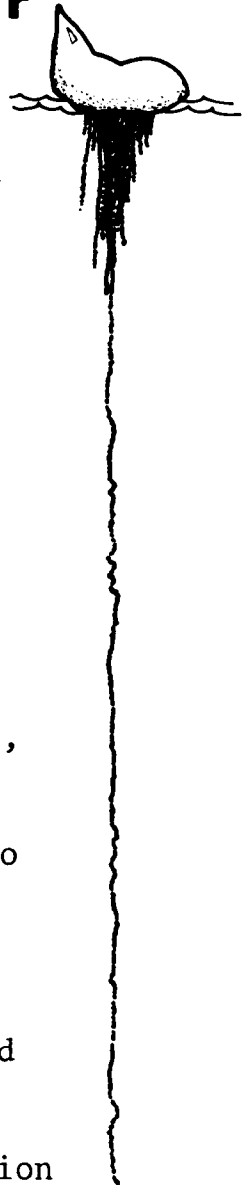
Treatment. Use the treatment described under SPONGES (see page 4).

Preventive Measures. Try not to brush against the undersides of floats, etc.



Portuguese man-of-war

(Pa'malau)



Description. The Portuguese man-of-war is a transparent, gas-filled, bluish-purple float which may be as wide as 5 cm, with numerous short tentacles and one very long extending tentacle which can reach 2 m. The tentacles discharge a harmful toxin. The man-of-war floats on the surface of the water, drifting with the wind (compare with JELLYFISHES). It is found in the open ocean seasonally and is carried by waves to the beaches. Locally, it is seen most often on the windward shores when a strong onshore wind or tradewinds are present.

Symptoms/injuries. The man-of-war produces the same kind of sting as the jellyfish, with reactions ranging from prickling and stinging sensations to severe distress. Some persons may have a severe allergic reaction to the sting, including an asthma-like attack.

Treatment. Use the treatment described under SPONGES (see page 4). Do not use the popular method of rubbing sand on the affected area; this only increases the irritation. Tentacles should be carefully removed. Old Hawaiian remedies include the direct application of urine or green papaya (if the person is not allergic to papaya).

Preventive Measures. These creatures should be avoided in the water and should never be touched when they are washed up on the beach. The stinging tentacles remain toxic for many hours after the organism is dead.

Jellyfishes

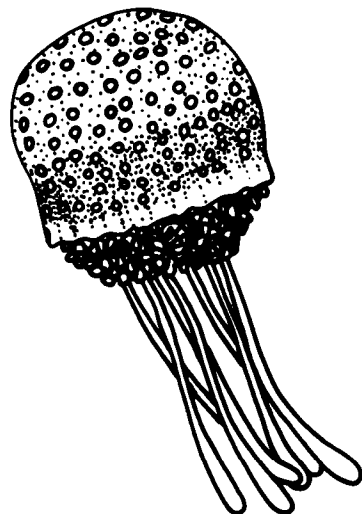
(Pololia)

Description. Jellyfishes are self-propelling creatures (compare with PORTUGUESE MAN-OF-WAR) ranging in size from 11 mm to 30 cm or more in diameter. They are found in calm bays as well as in the open ocean. Open ocean forms are occasionally swept to nearshore waters by storms. Most jellyfishes are difficult to see because of their transparency. The "upside-down jellyfish" (*Cassiopea*) lies on its bell on sandy bottoms and is common in areas such as the Hilton Hawaiian Village lagoon and Kaneohe Bay. When disturbed small fragments of its tentacles break off causing stings.

Symptoms/injuries. A jellyfish sting produces prickling and stinging sensations. Sometimes blisters occur. In cases where people have severe stings or allergic reactions, if signs of difficult or irregular breathing and cardiac irregularities are present, seek emergency aid immediately.

Treatment. Use the treatment described under SPONGES (see page 4). Old Hawaiian remedies include the direct application of urine or green papaya (if the victim is not allergic to papaya).

Preventive Measures. Contact or handling should be avoided if possible.



Sea anemones

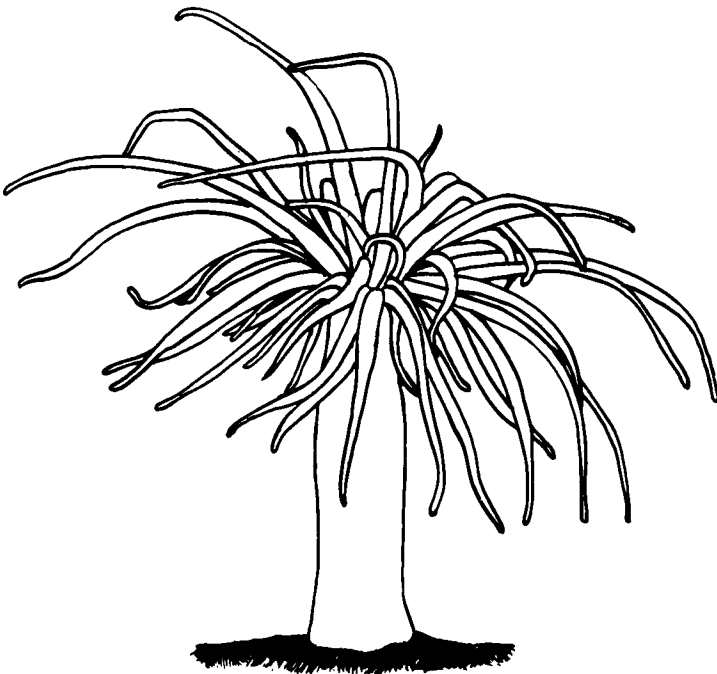
(Okōle-emiemi, ōkole-hāwele, and others)

Description. Several species of these small creatures can be found anchored in rocks or sand at most depths, but more often either at or below the low-water mark. Sea anemones range in size from 1 mm to 15 cm. Most species are pale in color or translucent with opaque white tentacles. Its stinging cells contain microscopic barbed spines.

Symptoms/injuries. Although not true of most species, a sting by some sea anemones can produce localized itching and burning which vary from a prickly sensation to severe pain. Nausea, fever, and headache are allergic reactions which sometimes result.

Treatment. Use the treatment described under SPONGES (see page 4).

Preventive Measures. Wear gloves and watch where you put your hands.



Palythoa toxica

(Limu make O hana)

Description. *Palythoa toxica* occurs in colonies of attached anemone-like animals which average 5 mm in diameter. The oral disk is brown, often with random patterns of white spots around the mouth. It is found in surge pools at Lanai Lookout, Blowhole (Oahu), and the Hana district (Maui).



Symptoms/injuries. The strong toxin of this species penetrates quickly and, if in contact with an open lesion, may require immediate hospitalization.

Treatment. Use the treatment described under SPONGES (see page 4). Consult a physician immediately.

Preventive Measures. Do not touch these animals.

Corals

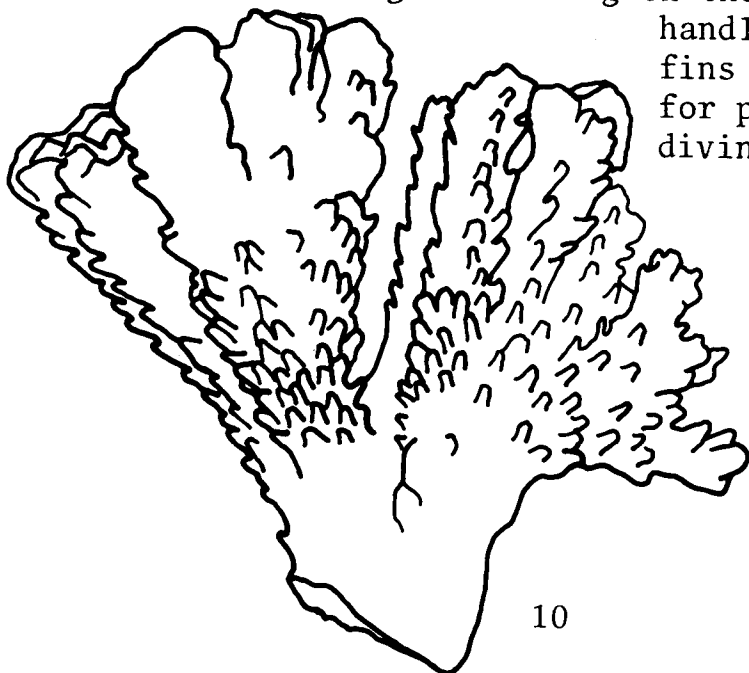
(Ko'a)

Description. Live coral grows down to depths of about 80 m. The common stony coral is covered with slime and has many polyps with razor-sharp edges. Colors range from shades of white and brown to pastel pinks and yellows. Pieces of coral can lodge in a cut (contrary to popular myth, the coral does not grow in the cut), making it slow to heal and prone to bacterial infection. All types of coral have stinging cells that can cause irritation.

Symptoms/injuries. Although a cut may seem clean and insignificant, local infections can result. Tiny pieces of coral embedded in the cut can often produce inflammation and tenderness, leading to a festering sore and spreading infection.

Treatment. Clean the cut thoroughly using hydrogen peroxide to remove the coral debris. Apply antiseptic or antibiotic powder or ointment as soon as possible. Update anti-tetanus immunization as necessary. For irritation, see the treatment described under SPONGES (see page 4).

Preventive Measures. Wear tabis (reef slippers) or sneakers when wading or walking on the reef, gloves when handling coral, and fins with a full heel for protection when diving.



Fireworms

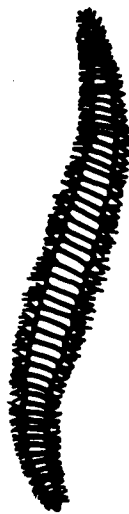
('Aha huluhulu)

Description. The fireworm or "bristle-worm" is a segmented worm that lives in dead coral heads or under rocks and is found mainly on reef flats. Fireworms are white to salmon-colored with thin, white bristles on the sides of the body. They range in size from 1 to 10 cm.

Symptoms/injuries. The fireworm's thin, sharp bristles can penetrate even very tough skin. Because the bristles are tiny and curved, they are almost impossible to remove once they lodge under the skin. Burning, itching, or stinging results, and often the skin will swell and the individual punctures become inflamed. Toxin may be present in the bristles; however, this has not been established.

Treatment. Use the treatment described under SPONGES (see page 4). Sometimes the tiny bristles can be removed with adhesive tape.

Preventive Measures. Be careful when turning over rocks in shallow water. Wear gloves for protection.



Cone shells

(Pupu)

Description. Cone shells are conical, usually with brown or black patterns on the shell. They generally lack the glossy sheen and brilliance of color exhibited by many other types of shells. Ranging in size from 1 to 10 cm they are found in crevices or buried in the sand on the undersides of dead coral and boulders. Cone shells have a poison dart-like mechanism which is used to sting or kill its prey. The toxic effect may vary in intensity. The venom of many cones is not injurious to humans, but all of those found in tropical waters have dart-like mechanisms. Five tropical species have been proven to be deadly to man.

Symptoms/injuries. The pain from a puncture can range from minimal to extreme. The effect of the poison can be either local stinging or numbness with inflammation, to possibly paralysis, coma, or death (rarely). Vomiting may occur shortly after the injury and can last from 2 to 4 days.

Treatment. The affected area should be soaked in very hot (not scalding) water for 15 to 90 minutes. Because these toxins can be extremely dangerous, the victim should be treated at the nearest emergency medical facility. Update anti-tetanus immunization as necessary.

Preventive Measures. Great caution should be used when collecting live cone shells. They should be picked up carefully by the blunt end and carried in a plastic bag filled with water. A moment of carelessness could prove to be very painful.



Octopi

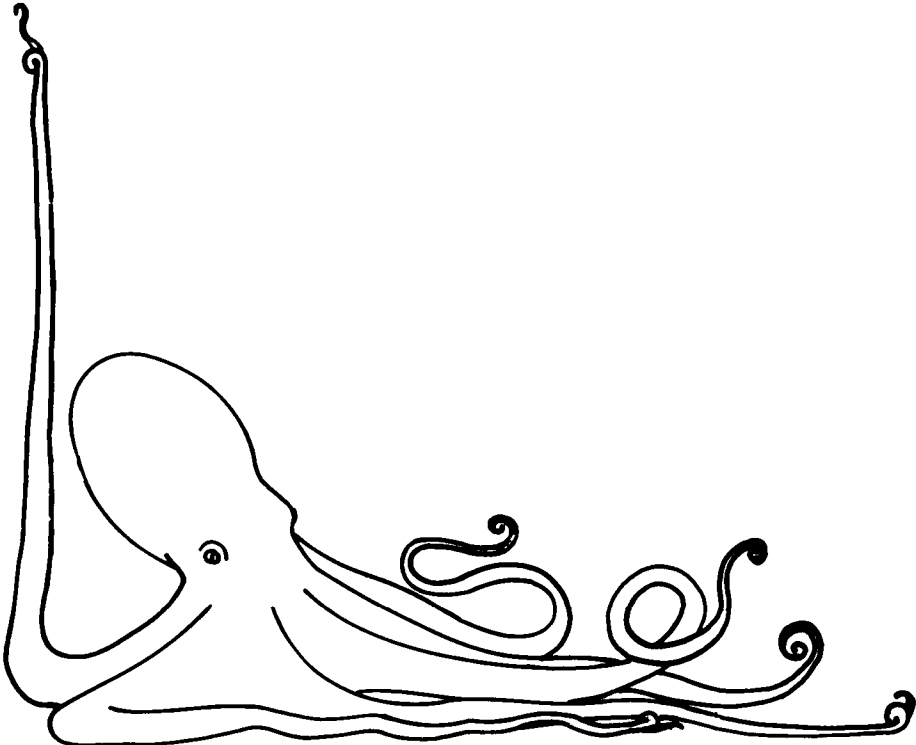
(He'e)

Description. The true octopus, often called "squid" locally, has a rounded sac-like body and eight tentacles. This timid creature hides in holes or on the sandy bottom, but is capable of inflicting a bite with its beak, which is located at the center of the body on the underside. There are two species of octopi common in Hawaii, the day "squid" and the night "squid."

Symptoms/injuries. An octopus bite can produce a skin wound with possible bleeding. A toxin from the octopus' salivary glands may be injected into the victim when bitten. The injected toxin may cause a painful irritation similar to that produced by a bee sting.

Treatment. Use the treatment described under CORALS (see page 10). Update anti-tetanus immunization as necessary.

Preventive Measures. Be careful of the beak when handling octopi.



Sea urchins

(Wana, 'ina, etc.)

Description. There are two types of commonly encountered sea urchins which are potentially dangerous to humans. The first, sometimes called wana, is a sea urchin which has long, brittle, needle-sharp spines. It is black or violet-black in color, sometimes with bands of white on the spines. Wana grow up to 25 cm in diameter and are found at most depths either in crevices or in the open. The second type is 'ina, an oval-shaped sea urchin with shorter, thickened spines. It is usually black, greyish-green or pinkish in color, and live in holes along the shoreline.

Symptoms/injuries. Spines from wana usually break off and remain embedded in the flesh, causing an immediate throbbing pain. The pain can last for hours and if the spines are not removed an infection may develop. The puncture wounds are characteristically blue-black in color.

The 'ina also has spines which cause wounds from puncturing if contacted directly but the spines are strong and do not usually break off.

Treatment. Use the hot water treatment described under CONE SHELLS (see page 12). Other remedies include direct application of undiluted vinegar (very effective) or the application of urine. See a physician for the removal of long, embedded spines. Wounds from long spines may require anti-tetanus immunication. All wounds should be kept clean to prevent infection.

Preventive Measures. Always wear protective clothing such as tabis with thick soles, gloves, etc., when diving or walking on reef flats. Avoid touching the reef or sticking hands in crevices without looking. No attempt should be made to handle sea urchins if you do not know them.



Crown of thorns starfish

(Hoku'kai)

Description. The crown of thorns starfish, *Acanthaster planci*, which grows to a size of 40 cm or larger, lives on corals and feeds on coral polyps. It is greenish-red in color and can be found on reef flats or patch reefs to depths of 80 m.

Symptoms/injuries. A puncture from the crown of thorns starfish's short, sharp, poison-coated spines produce immediate and severe pain, with signs of inflammation. Vomiting may occur shortly after the injury and can last from 2 to 4 days.

Treatment. Remove loose spines, but get medical treatment for embedded spines. These must be pulled out straight or they will break off at the tips and remain under the skin. Use treatment described under SEA URCHINS (see page 14). Update anti-tetanus immunization as necessary.

Preventive Measures. Use extreme caution when handling crown of thorns starfish. Wear gloves or other protective material.



Crabs

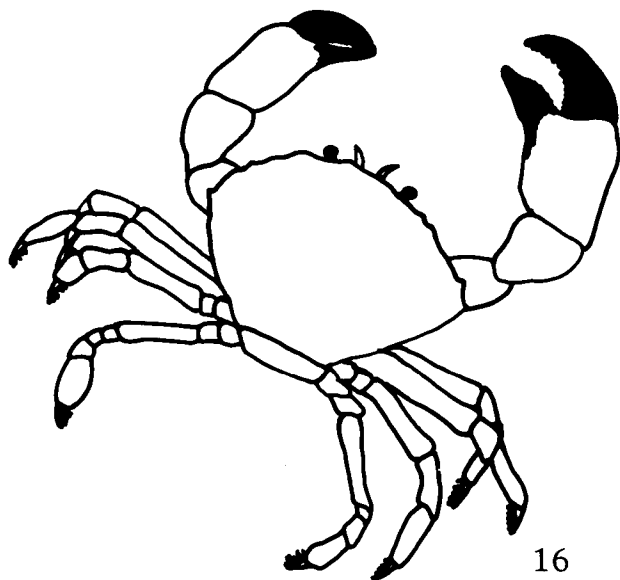
(Papa'i)

Description. Crabs are one of the most varied types of marine organisms. They vary in size, shape, and color and live in a great diversity of habitats-- from tidal zones to reef flats and ocean bottoms. Many crabs are potentially harmful because of their pinchers. The larger the crab the more harm its pinchers can do.

Symptoms/injuries. Crab pinchers are capable of gripping parts of the body, producing a deep and painful wound. Large crabs have been known to amputate fingers.

Treatment. Wash wound with soap and water and watch for infection. If wound is serious, consult a physician.

Preventive Measures. Be careful of pinchers when handling crabs.



Sharks

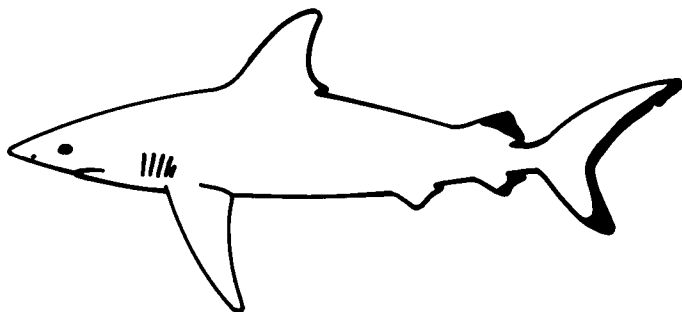
(Mano)

Description. These well-known ocean predators are found in a variety of habitats and depths in the waters surrounding the Hawaiian Islands. Although only black tips usually venture inside protective reefs, their presence is rare, thus posing little danger to inshore swimmers. Sharks are usually grey in color and range in size from the small 1.5-m black tip to the 10-m tiger shark. Sharks seen most often here include the sand bar, tiger, hammerhead, grey reef, and white tip.

Symptoms/injuries. A shark bite can be mutilating, producing severe bleeding and possible fracture or amputation. Rough denticles on the shark's skin can cause abrasion and additional superficial wounds.

Treatment. Control the bleeding by applying pressure and elevate the wounded area. If shock symptoms are present, lie the person down, maintain body heat, and elevate legs if possible. Obtain emergency medical treatment immediately. Get anti-tetanus immunization as necessary.

Preventive Measures. Although only one known death from shark bite has occurred in Hawaii since 1959, this unpredictable creature should be avoided at all times. Divers should not tow speared fish for long distances in water; surfers should return to shore if a shark is sighted, especially during dawn and dusk when sharks venture inshore to feed. Avoid cloudy or murky waters, especially near sewage outfalls and garbage dumps.



Stingrays

(Lupe and hihimanu)

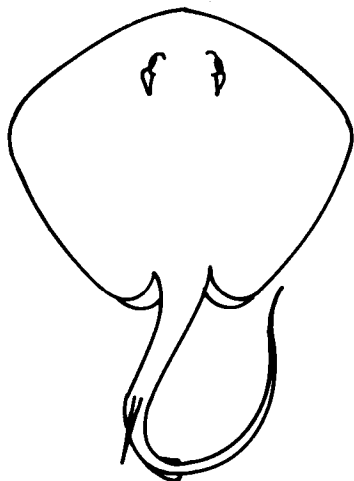
Description. Stingrays have a triangular black or sand-colored body with a width of 2 m or more, and a long, whip-like, barbed tail. They are sometimes found settled and well camouflaged in sandy areas.

Eagle rays are a type of stingray. They also have one or more spines on the tail. Although the barbs cannot be inflected by a whip of the tail, they are dangerous if stepped on. Eagle rays have a triangular body up to 1 m wide and can be distinguished from other stingrays by the numerous round, white spots on the dark back.

Symptoms/injuries. When a stingray is stepped on or otherwise disturbed, it recoils its tail and punctures the offender with a venomous spine. A stingray wound produces lacerations and severe pain. Because of the poison discharged, abdominal, chest, head, or neck punctures can be very serious.

Treatment. Use the hot water treatment described under CONE SHELLS (see page 12). Clean the puncture area as described under CORALS (see page 10). As with sea urchins and crown of thorns starfish, do not touch the embedded spines; have a physician remove them. Obtain anti-tetanus immunization as necessary.

Preventive Measures. Beachgoers should shuffle their feet as they walk in shallow, sandy areas.



Great Barracuda

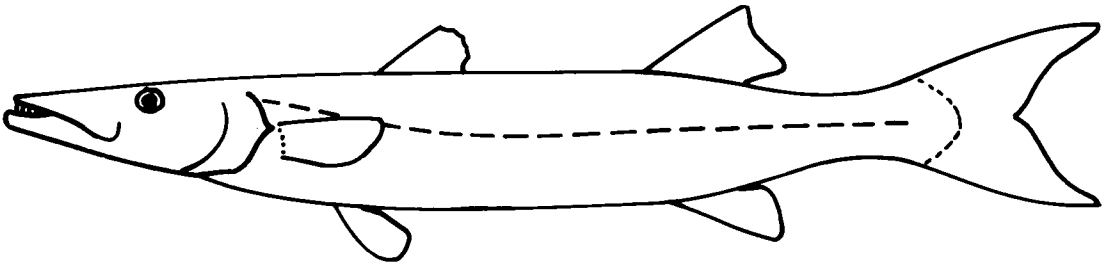
(Kaku)

Description. Barracuda are the only well-known, long-jawed, large-toothed silver fish found in Hawaiian waters. There are two species--the larger reaches a length of 2 m, while the smaller grows to only 60 cm. These smaller fish cause no trouble to swimmers and divers. They are found in a wide range of habitats. Juvenile great barracuda swim in schools in inshore waters. The adults are solitary and are attracted to bright-colored objects and speared fish.

Symptoms/injuries. A barracuda bite produces a wound with straight lacerations, unlike the curved and ragged gashes caused by sharks. Nerves, blood vessels, and tendons may be damaged. Bleeding may be profuse, and symptoms of shock (paleness; cold skin; dilated pupils; weak but rapid pulse, disorientation, and sometimes fainting) may appear.

Treatment. If bleeding or shock symptoms are present, use treatment described under SHARKS (see page 17). Obtain emergency help from a physician. Update anti-tetanus immunization as necessary.

Preventive Measures. In clear, local waters barracuda usually flee or hover but do not attack. There are no recorded incidents of attack in Hawaiian waters. Bathers should use caution when barracuda are in the area because excessive splashing will attract their attention.



Needlefishes

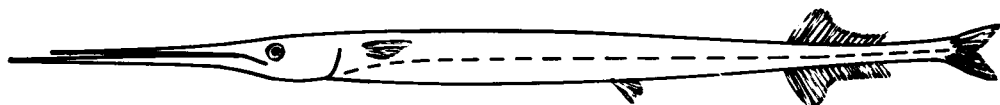
('Aha'aha or auau)

Description. The needlefish is a slender, silvery, elongated fish with a long, pointed beak. It varies in size from less than 45 cm to 2 m. An inshore fish, it tends to stay near the surface of the water.

Symptoms/injuries. The needlefish can drive its beak like a spear through an object in its path producing a deep puncture, frequently with portions of the beak embedded under the skin. At least one case of death by needlefish puncture has been reported in Hawaii.

Treatment. Do not attempt to remove embedded portions of the needlefish's beak; obtain emergency medical help. Update anti-tetanus immunization as necessary.

Preventive Measures. At night, bright light can confuse the needlefish, often causing it to react by moving toward instead of away from the stimulus. Torch fishermen and night divers should erect a shield between themselves and their light source.



Surgeonfishes

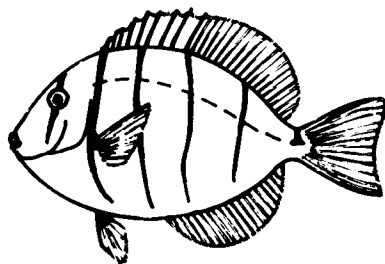
(Kala, manini, etc.)

Description. Surgeonfishes are distinguished from other typical fishes primarily by their high forehead, either with or without a horn. They have a deep body and small mouth. Surgeonfish represent one of the most abundant families of Hawaiian fishes. They are found mainly on reef flats and in nearby deeper waters. Their colors vary greatly among individual species. Surgeonfishes have a lateral, modified scale or lancet on the tail that is bared when the fish bends its tail.

Symptoms/injuries. A tail lancet can inflict a wound, sometimes leaving portions of the scale embedded.

Treatment. Use the hot water treatment described under CONE SHELLS (see page 12). Embedded scales should be removed by a physician.

Preventive Measures. When handling surgeonfishes, be careful of the tail lancet.



Scorpionfishes

(Nohu)

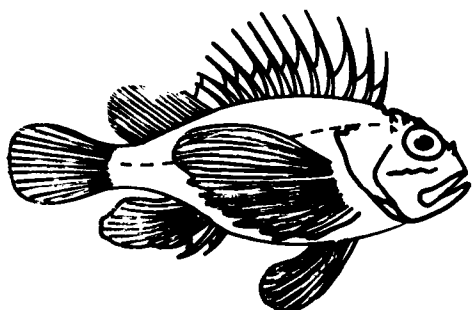
Description. Scorpionfishes in Hawaii do not include the most venomous group called stonefishes, but they still are capable of inflicting injury. They range in size from 2 to 45 cm. In both form and color, the scorpionfish blends so well with its surroundings that it could well be passed over unobserved. Some have a remarkable resemblance to any of the odd pieces of eroded coral or reef rocks near which they sit motionless. Their sharp spines are often covered by loose skin.

A smaller variety of the scorpionfish is the lionfish or turkeyfish, which grows to a length of 17 cm and can be found perched in crevices of overhangs and rocks. It has toxic spines, especially in the dorsal fins, which are capable of producing injury.

Symptoms/injuries. A wound produced by the scorpionfish's sharp spines can cause intense shooting and throbbing pain that can last for hours. More serious complications include possible convulsions and cardiorespiratory failure, but this is very rare in Hawaii.

Treatment. Use the hot water treatment described under CONE SHELLS (see page 12). Obtain emergency medical help immediately.

Preventive Measures. Wear thick-soled shoes and other protective clothing when walking or swimming on reefs. All types of scorpionfishes should be handled with care.



Moray eels

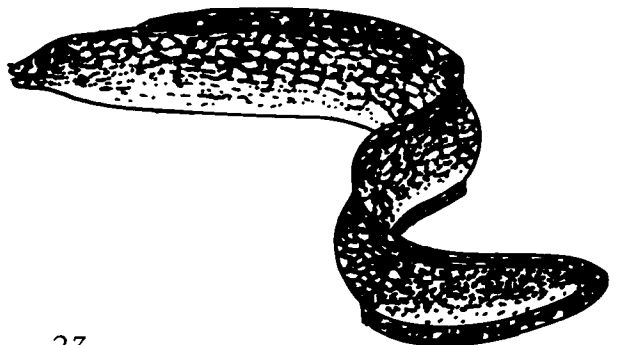
(Puhi)

Description. Moray eels have lithe, hard bodies and are tough-skinned and savage-fanged, but are nevertheless colorful with typical patterns of large, blackish spots on a white ground, bands of zebra-like stripes, or specks of dark, star-shaped spots over the body. Other morays have clouded, pearl-like, or yellow colorations. Moray eels range in length from 20 cm to 2 m, live in holes in the reef, and are often encountered with their heads protruding from the holes.

Symptoms/injuries. The sharp teeth of the moray eel can inflict a ragged wound, often producing much bleeding and requiring immediate medical treatment. Nerve, muscle, and tendon injury can result. As with other fishes, the bite itself is not toxic, but the teeth may be covered with bacteria that can cause infection.

Treatment. Use the treatment described under SHARKS (see page 17).

Preventive Measures. Moray eels usually do not attack unless provoked, although a few surprise attacks have been reported. Divers should be wary of sticking their fingers, arms, or legs in hidden crevices of the reef.



Mycobacterium balnei

Description. *Mycobacterium balnei* is a microorganism that occurs on fishes and in aquarium water containing contaminated fishes. This microorganism causes a common (and potentially severe) infection called "Fish Handlers Disease." Those infected are usually fishermen and people who handle and clean fish tanks regularly.

Symptoms/injuries. The *Mycobacterium balnei* bacteria grow in cuts and skin abrasions, producing swollen lumps or inflamed lesions. These are difficult to distinguish from other severe skin conditions unless a biopsy is taken. If left untreated, scarring can result. Some researchers believe that Orientals and Polynesians are especially susceptible to this type of infection.

Treatment. When symptoms appear, consult a physician immediately.

Preventive Measures. Avoid direct contact with fishes and aquarium water when hands have cuts or skin abrasions.

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