

Let's Be Careful!

# DANGEROUS MARINE LIFE



沖縄県 福祉保健部

Okinawa prefectural Department of Health and Welfare

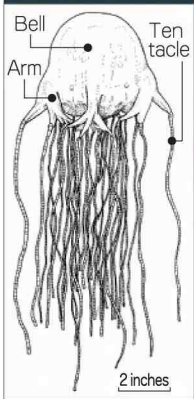
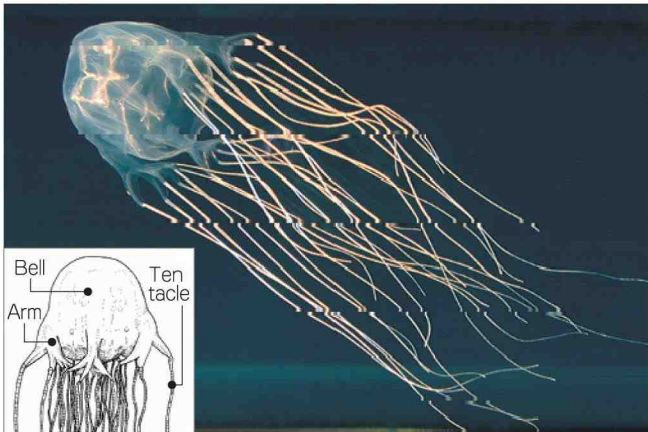
沖縄美ら海水族館  
Okinawa Churaumi Aquarium

• 10,000 copies of this leaflet have been printed, at a cost of 13 yen per copy.

# Box Jellyfish (*Chironex spp.*)

**DANGEROUS**  
**MARINE LIFE**

These jellyfish appear from May to October. Although they are distributed almost everywhere in Okinawa Prefecture, their presence has yet to be confirmed in some places, such as the Kerama Islands. They can be found even in shallow waters, around 50 cm (1.5 feet) deep. Their sting is extremely painful, and shock may occur. So far, three people here have reportedly died from their stings. Injuries are most frequent from July to September, as jellyfish mature and become large.

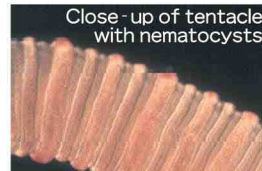


Jellyfish use their tentacles to catch food. Arms arise from each of the four corners of the box-shaped bell, and each arm divides to form as many as 7 long tentacles. Full-grown box jellyfish in Okinawa may have a bell 10 cm (4 inches) tall, and tentacles 150 cm (4.5 feet) long.



The semi-transparent bell makes box jellyfish difficult to see in the water.

The tentacles have thousands of stinging cells (nematocysts) with poisonous darts, which fire when touched, injecting poison into the victim.



When stimulated



Many poisonous darts cause painful stings



Nematocyst (Stinging cell)



Fired Nematocyst with poisonous dart



Welts from Box Jellyfish stings

# First Aid (Box Jellyfish)

- 1 **Immediately Leave the Water  
Do NOT rub Stung Area**
- 2 **Pour Vinegar Liberally on Tentacles**
- 3 **Carefully Remove Inactivated Tentacles**
- 4 **Chill Painful Area with ice or cold water**



In the case of difficulty breathing or cardiac arrest, apply artificial respiration or cardiac massage

## How to Avoid Being Stung

- Swim inside Jellyfish Nets
  - Where there is no Jellyfish Net, wear protective clothing such as a wetsuit, long-sleeved shirt and pants, even socks, to reduce areas of exposed skin
- \* Protective clothing lowers risks but may not completely prevent stings.

## Be Prepared

- Learn First Aid Measures
- Learn Location of nearest Emergency Medical Care Centers

## Why is Vinegar Effective?

- Box Jelly tentacles have thousands and thousands of stinging cells, which may not all explode upon contact. Therefore, in order to avoid exciting any remaining stinging cells and worsening the sting, DO NOT touch or rub the affected area. Follow First Aid Advice. Applying vinegar stops Box Jelly stinging cells from firing. Use only vinegar. (Alcohol, urine or other attempted remedies may cause the stinging cells to explode). (Unfortunately, vinegar only works against Box Jellyfish stings. It has the opposite effect for Portuguese Man of War, poisonous sea anemones, sea wasps, etc., causing their nematocysts to fire!)

### Sea Wasp Anemone (*Phylodiscus semoni*)

- An extremely poisonous anemone, diameter 10-20 cm (4 to 8 inches). Found in shallow lagoons, stinging occurs when carelessly snorkeling or reefwalking at low tide. Injury is long-lasting, especially to the liver, etc., so in cases of stinging the victim should immediately visit a hospital.



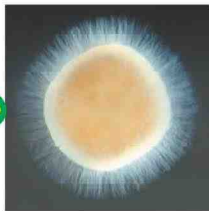
The sea anemone looks a lot like seaweed stuck to a rock.



A close look at the surface reveals numerous spherical packets (1 to 2 mm across) of nematocysts



Unexploded Sphere  
(Before)



Exploded Sphere  
(After)



Victim's Finger

### Fringing Sea Wasp Anemone (*Actinaria villosa*)

- This poisonous anemone is found on the Odo Coast of Itoman City in Southern Okinawa. It has numerous stinging cells on its pale, flesh-colored, finger-like projections.



### Portuguese Man-of-War (*Physalia physalis*)

- Usually floating in open tropical oceans, strong onshore winds sometimes blow these intensely poisonous organisms ashore to bays and beaches. The blue, mauve or violet float (pneumatophore) serves as a sail, with numerous long tentacles each bearing many poison-filled nematocysts dangling way below the surface.



\* NEVER treat with vinegar! Rinse with seawater (not fresh), remove remaining tentacles or spherical packets followed by treatment with ice to suppress swelling and pain.

## CONE SNAILS

- These attractive snails have cone-shaped shells about 10cm (4-5 inches) long, with a reddish-brown, net-like pattern. The poison is a neurotoxin, which causes almost no pain, but results in paralysis leading to danger of drowning. Many deaths have been reported.



← Poisonous harpoon (modified tooth) at end of snail's radula



↑  
Poisonous harpoon is fired from mouth into prey



→  
Stinging Injury. Afterwards, few traces of injury remain.

## SEA SNAKES

- Sea snakes are related to cobras, having strong nerve poison. Stinging results in paralysis. Sea snakes may approach divers, but under no condition should they be touched, bothered or harassed.



Banded sea snake  
(*Hydrophis cyanocinctus*)



Fangs are short but venom is strong.



Banded amphibious sea snake  
(*Laticauda laticaudata*)



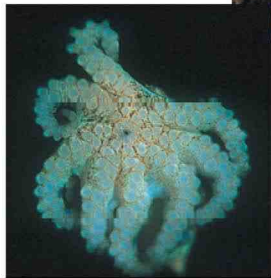
Squeeze out the venom, transport to the hospital immediately.

### Blue-ringed Octopus (*Hapalochlaena spp.*)

- A small pale octopus only 12cm (5 inches) in diameter. When surprised it forms beautiful, bright-blue rings. It lives in rocks and crevices of coral reefs. The sting contains tetrodotoxin, like pufferfish and can be fatal.



When startled the pale octopus forms bright blue rings



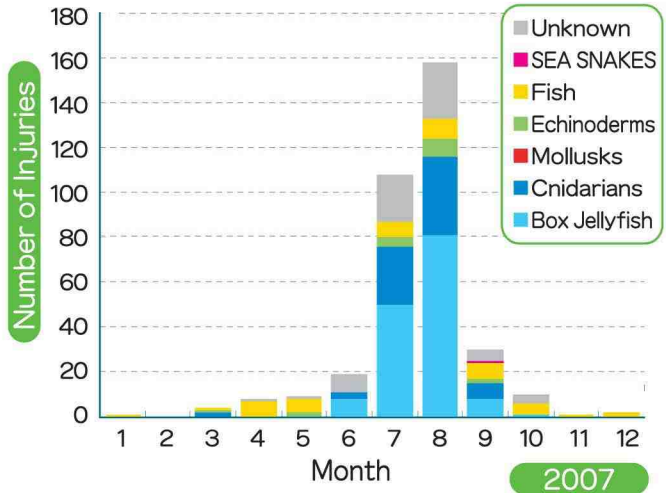
Its bite comes from the mouth located between the arms



Do not attempt to suck venom out (it is poisonous when swallowed). While squeezing out venom proceed quickly to a hospital.

### Injury Report

- Injuries from poisonous marine animals occur 300 to 400 times per year in Okinawa. The most frequent are stings from box jellyfish, which occur mostly during July and August, the season when the jellyfish are growing large, and coincidentally, when most people are visiting the ocean for recreation. Dangerous marine creatures do not have poison to attack humans, rather, they use their venom for immobilizing prey and for self-defense. Learning about the animals' habits, and being careful when entering the ocean, can lead to greatly reduced occurrence of injuries to humans.



- Cnidarians : Jellyfish, Sea anemones, Corals, etc
- Molluscs : Shellfish, octopus, etc.
- Echinoderms: Urchins, starfish, etc.

## Stonefish

- In addition to being the color and shape of stones and rocks, stonefish stay motionless and therefore, stings often occur when they are carelessly stepped on. They also hide in the rubble and sand in shallow water, so extra caution is necessary to avoid them.



Reef Stonefish (*Synanceia verrucosa*)



Venoms are stored in glands at the base of the dorsal fin spines. Spines are so sharp and strong they can pierce rubber-soled shoes, etc.

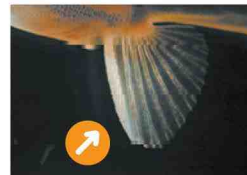


Hiding in the sandy rubble

## Stripe-eel Catfish (*Plotosus lineatus*)



Stings from the highly venomous spines of dorsal and pectoral fins may be fatal. Be extremely careful removing caught fish from hooks.



Poisonous fin spines

## Lionfish (*Pterois spp.*)

- Dorsal, ventral and anal fins all contain venom. Like many poisonous creatures, they move extremely slowly, and even when chased hardly try to escape.



When surprised, the dorsal fins are raised in a threatening gesture.



Remove visible spines and soak in hot water [ at a tolerable temperature of 40–45°C (104–113° F) ] or apply plastic bag of hot water, being careful not to burn the wound area.

**Crown of Thorns Starfish**  
*(Acanthaster planci)*

- Diameter about 30cm (12 inches) , with about 10 to 17 arms bearing poisonous spines. During the daytime they hide under table corals and ledges, so to avoid stings, be careful where you put your hands.



**Diadema Urchins**  
*(Diadema setosum, Echinothrix diadema)*

- Spines break extremely easily, and stings are extremely painful. When broken spines are stuck in your body, have them attended to at a hospital.



**Flower urchin**  
*(Toxopneustes pileolus)*

- About 10 cm (4 inches) in diameter, the surface of this urchin is covered with flower-like pedicellaria. When they close, pedicellaria can inflict a painful sting which may be fatal.



Open pedicellaria



Closed pedicellaria



Remove visible spines and soak in hot water (at a tolerable temperature of 40–45°C (104–113° F) ) or apply plastic bag of hot water , being careful not to burn the wound area.

**For information about dangerous marine animals please contact:**

Department of Health and Welfare (Pharmaceutical Affairs and Sanitation Division)	098 - 866 - 2215
Institute of Health and Environment	098 - 945 - 0083 0781
Hokubu Regional Public Health and Welfare Center	0980 - 52 - 2636
Chubu Regional Public Health and Welfare Center	098 - 938 - 9787
Nanbu Regional Public Health and Welfare Center	098 - 889 - 6799
Chuo Public Health Center	098 - 854 - 1005
Miyako Public Health and Welfare Center	0980 - 72 - 2420
Yaeyama Public Health and Welfare Center	0980 - 82 - 3240