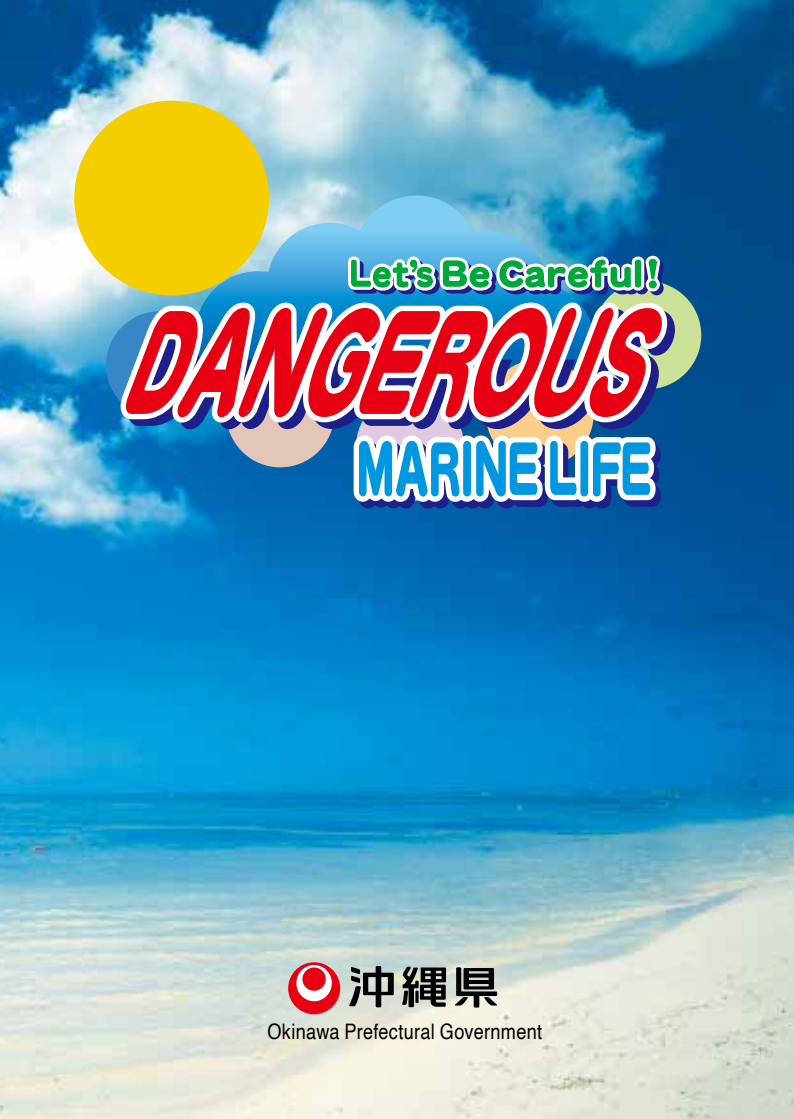


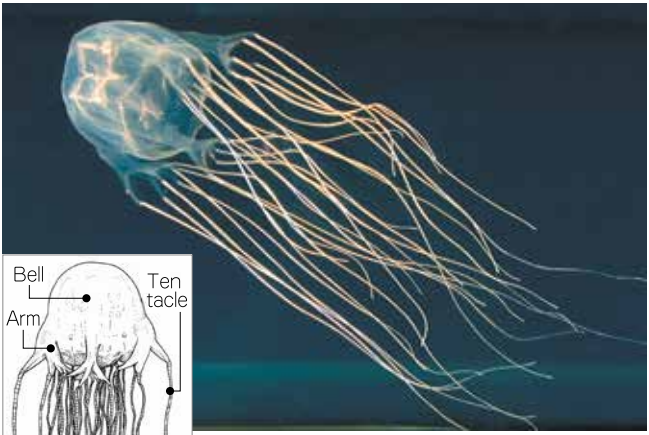

沖縄県

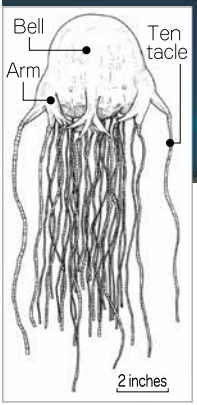
Okinawa Prefectural Government

# Box Jellyfish *(Chironex* spp.*)*

These jellyfish appear from May to October. They are distributed almost everywhere in Okinawa Prefecture. 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.





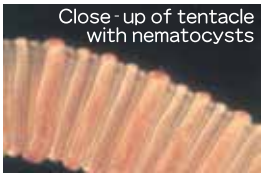



Jellyfish use their tentacles to catch food. Arms arise from each of the four corners of the box-shaped bell, and each arm divides to form as many as 7 long tentacles. Full-grown box jellyfish in Okinawa may have a bell 10 cm (4 inches) tall, and tentacles 150 cm (4.5 feet) long.

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

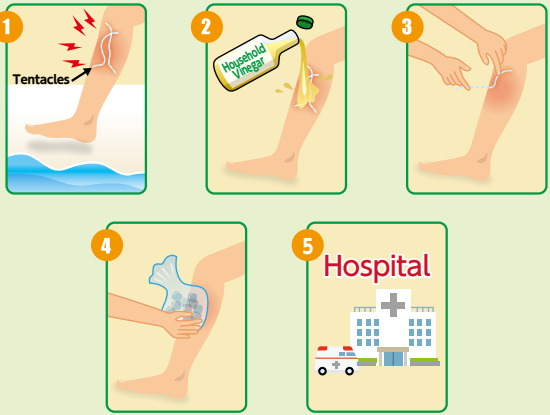
Nematocyst (Stinging cell)

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 (4-6% acetic acid) Liberally on tentacles
③ Carefully Remove Inactivated Tentacles
④ Chill Painful Area with ice or cold water
⑤ Go to the hospital




In the case of difficulty breathing or cardiac arrest, apply articifial 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
*(Phyllodiscus 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 kidney, etc., so in cases of stinging the victim should immediately visit a hospital.

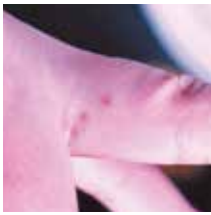
The sea anemone looks a lot like seaweed stuck to a rock.

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



Unexploded Sphere (Before)

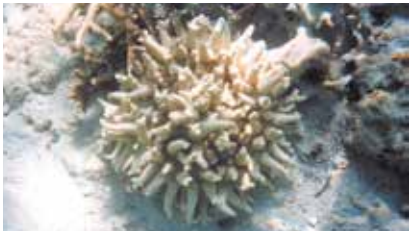
Exploded Sphere (After)



Victim's Finger

## Fringing Sea Wasp Anemone (*Actineria 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.

FIRST AID

* 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 10 cm (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.

Amboina Cone shell
*(Conus (Gastridium) geographus)*



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

Posionous 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)*

FIRST AID

To clean, transport to the hospital immediately.

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

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

When startled, the pale octopus forms bright blue rings

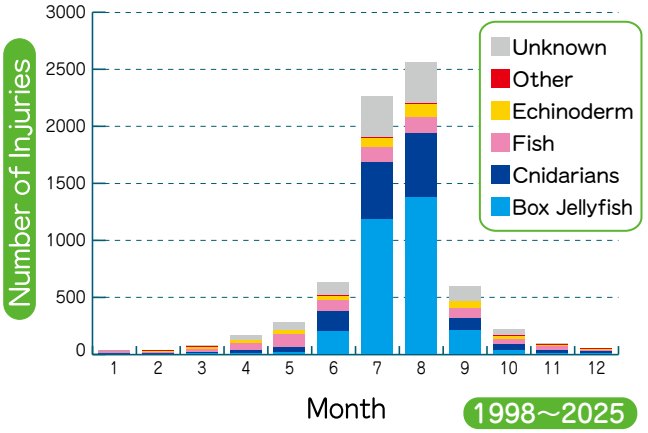
Its bite comes from the mouth located between the arms

FIRST AID

Do not attempt to suck venom out (it is poisonous when swallowed). To clean, transport to the hospital immediately.

## Injury Report

- Injuries from poisonous marine animals occur 100 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.
- Fish : Stonefish, Lionfish, etc.
- Echinoderms : Urchins, starfish, etc.
- Other : Sea snakes, Cone snails, 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.

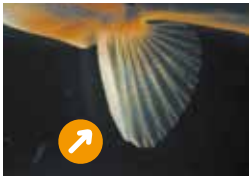
Reef Stonefish *(Synanceia verrucosa)*

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.

**FIRST AID**

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

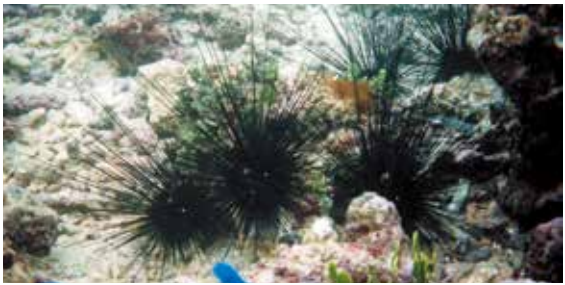
## Crown of Thorns Starfish
*(Acanthaster planci)*

- Diameter about 30 cm (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

FIRST AID

Remove visible spines and soak in hot water〔at a tolerable temperature of 40－45 ℃(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:**

| | |
|---|---|
| Pharmaceutical Affairs and Community Health Division | 098-866-2055 |
| Institute of Health and Environment | 098-987-8223 |
| Hokubu Public Health Center | 0980-52-2636 |
| Chubu Public Health Center | 098-938-9787 |
| Nanbu Public Health Center | 098-889-6799 |
| Miyako Public Health Center | 0980-72-3501 |
| Yaeyama Public Health Center | 0980-82-3243 |


Web Site