

# Fish Eating Cone Shells, part 2

[The previous article](#) discussed the active and potentially dangerous bubble cone shells, fish eaters capable of using a venomous harpoon to sting fish prey...and possibly sting a person who handles one of these cones carelessly.

As a quick recap, the common name cone shell refers to members of the molluscan family Conidae, and there are several hundred different kinds worldwide. Kwajalein Atoll is home to about 80 different species of cones. Cones are of importance in any discussion of dangerous marine life because many have attractive shells and are likely to be picked up by a diver and also because they are equipped with armament that can be dangerous to humans.

Cones are all carnivores, feeding on other living animals. Most of the species eat different kinds of worms; some eat the animals out of other seashells; and some feed on fish. The cone shell captures prey using its radula, which is the term for the teeth of a snail. In cones, the radular teeth have become quite specialized. Individual radular teeth are elongate and pointed, often with barbs or hooks that make them look something like a whale harpoon. These teeth are held together in a radular sac much like a quiver of arrows and can be delivered to the organ that shoots it into a prey. Furthermore, the tooth being used connects to venom glands that deliver their paralytic neurotoxin up through a tube in the tooth and into the body of the prey.

The most dangerous cone shells to humans are probably the fish eaters, since they tend to be faster and more active (to catch more mobile prey), and they typically have venom evolved to kill or stun fish quickly. And since we are more similar to fish than we are to mollusks or worms—both humans and fish are vertebrate animals—it would seem fish-eating cone shell venom would be more likely to affect us than would the venom of mollusk or worm eaters.

The fish-eating bubble cones we saw last month tend to be thin shelled and have wide apertures, especially at the anterior end of the shell, which is rounder and almost “bubble-shaped.” Several other fish eaters have more standard cone shapes. One of the more dangerous ones is probably the striated cone *Conus striatus*, relatively common on shallow lagoon reefs. By day it lives under



rocks buried in sand, but at night it will come out to hunt sleeping fish. Its large size, sometimes exceeding 4 inches, and relative abundance make it a potential danger.

Another very common lagoon dwelling cone shell is *Conus magus*, which also lives under rocks in sand on shallow reefs by day, emerging at night to hunt. This cone is rather variable in color, but the whitish shell with black or brown markings is usually coated with a brown covering called a periostracum. Two of the common color forms are shown at the top of the next page. It ranges up to close to 3 inches. Again, its relative abundance and easy accessibility makes it potentially more dangerous than many other species.



A less common fish-eating cone shell is *Conus floccatus*. These are sometimes seen on some lagoon reefs and pinnacles, but are most often encountered on the oceanside reef and in surge channels. During the day they will be buried in sand, sometimes underneath rocks. At night, they emerge to hunt. We once found one specimen in the process of eating a small triggerfish at night, and have had specimens in aquaria polish off the fish in the tank one by one. A large specimen measures about 2½ inches. This cone varies considerably in color and pattern; the photos at right and the three across just below show only a few of the variations.



Another uncommon species most divers are not likely to run into is *Conus circumcisus*. These usually live on lagoon pinnacles and are generally seen only at night, and even then pretty rarely. Specimens will sometimes exceed 3 inches in length, and the coloration of the shell is quite variable. The photo at right shows a very spotted one, but often there is less spotting or perhaps more banding around the shell.



The cone at right that might be a form of *Conus circumcissus* (photo at right) or might be a different, possibly unnamed species. This one lacks spots on the main whorl entirely except for the spire. It lives fairly deep on the oceanside dropoff. Only a few living specimens of this form have been found, all at night.



A final fish-eating cone (that we know of) is *Conus catus*, shown at left. We have not heard of anyone being stung by this rather small species. However, it is a rather common cone shell on the intertidal reef flats around Kwaj. It is probably the most likely fish-eating cone shell that a reef walker would encounter.

This article and the previous one should have covered nearly all of the known fish-eating cones from Kwajalein. There are a number of cones that eat other mollusks. These are mostly cones whose

shells bear triangular or tent markings. Most of the remaining cones eat worms. However, there are some whose diet we do not know.

While the fish eaters are probably the most dangerous to humans, it is best to treat all cones shells as potentially venomous. Handle with care. Do not assume a cone shell found lying out in the open, even one found upside down, is necessarily uninhabited. Often a disturbed animal can pull way back into the shell and be invisible in there. It might come out if you carry it around. If handling cone shells, watch them the whole time, and wear gloves if you have them.

Text by: S. Johnson

Photos by: J. and S. Johnson

<http://www.underwaterkwaj.com>