

Deadly Worms

Taking on the plague of the bristleworm.

By Scott W. Michael

Q. My husband and I have a 20-gallon reef aquarium that has been running since May 1994. In July of last year I noticed what I later found out were bristleworms. We probably have about a hundred or so of these pesky creatures! We bought a bristleworm trap and an arrow crab, but is there another way we can get rid of these successfully and completely — and never see them again? Also, our gorgonian has suffered major damage at its base, which I suspect is from the bristleworms.

A. The worms you are referring to most likely belong to the family Amphinomidae, and, more specifically, the Eurythoe and/or Hermodicegenera. They are members of the class polychaete, and are known collectively as bristleworms.

Bristleworms get their name from the hair-like structures — known as chaetae — that occur along the sides of their bodies. These bristles are often hollow and barbed, and are prone to breaking off when they come in contact with the jaws of a predatory fish or the fingers of a careless aquarist. In some species they contain venom as well, which can cause further irritation.

Many bristleworms also have powerful jaws that are used for feeding and defense. Because of their ability to sting and bite it is important that you wear thick gloves (e.g., scuba diving gloves) when you handle these worms, or any substrate that might contain them.

Members of the genus Eurythoe are usually the most common bristleworms in reef aquariums. They are introduced with live rock and, to a lesser degree, with live sand. These worms are primarily scavengers that feed on uneaten foods and dead organisms, but they will occasionally attack injured corals.

A more deadly bristleworm, and possibly the cause of the damage to your gorgonian, is the fireworm (Hermodice carunculata). This species attains a maximum length in excess of 12 inches and has powerful jaws that they use to feed on gorgonians, the tissues of hard corals, zoanths, anemones, mushroom anemones, clams and fan worms. Injured cnidarians are particularly vulnerable to fireworm attack, because they release olfactory cues that attract these predators. However, these worms do not restrict their attacks to unhealthy invertebrates, as you have witnessed in your aquarium with your gorgonian. The fireworm is most often introduced into your aquarium with live rock.

So, how do you rid your aquariums of noxious bristleworms? This is one of those problems where the old cliché — prevention is the best cure — really applies.

Preventing Bristleworms

You can help prevent this problem by carefully inspecting live rock before you put it into your aquarium. When shipped, live rock is usually sent "dry" or is covered with damp newspaper. At this time, many of these worms will protrude from holes or crawl on the rock's surface. This is a great opportunity to remove them with a pair of tweezers.

References

Delbeek, J. C. and J. Sprung. 1994. The Reef Aquarium. Ricordea Publ. Coconut Grove, Fl. Pp. 544.

Wilkins, P. and J. Birkholz. 1989. Invertebrates; Tube-, Soft- and Branching Corals Engelbert Pfriem Publishing, Wuppertal. Pp. 134.

It is important that you extract the entire worm when attempting to pull it from a hole. If part of the polychaete breaks off and is left in the rock, it can regenerate the sections that were removed and become an entire worm again! To prevent this from occurring, grasp the worm as close to the base as possible and gently and gradually work it out of the hole.

In the case of larger specimens that are already in the aquarium, you can also attempt to remove them manually. They are most vulnerable to being captured at night (use a flashlight to find them after the aquarium lights have been turned off) or right after the aquarium has had a heavy feeding.

Fireworms are occasionally seen moving about the aquarium during the day. If they are totally exposed snag them

with a fish net. These worms are surprisingly quick when seeking shelter, so you must move rapidly before they slide into the nooks and crannies of the live rock.

Trapping Bristleworms

As you mentioned, there are traps on the market that can be used to catch bristleworms or you can make your own. To do the latter, obtain a piece of PVC pipe (about 8 inches long, 2 inches in diameter) and drill a number of holes in it that are approximately 1/4 inch in diameter (larger holes may be necessary depending on the size of the bristleworms you are attempting to remove).

Once the lights have gone out for the night place a piece of fresh shrimp or scallop in the pipe, cap both ends and then set the pipe on the bottom of your aquarium. In the morning remove the pipe, uncap one end and dispose of the worms that it contains. You will have to use this technique over a period of weeks to make an impact on a large bristleworm population.

Another method recommended by George Smit (in Delbeek and Sprung 1994) for removing smaller worms is to wrap a chunk of fresh seafood in a piece of nylon stocking and place it on the bottom of the aquarium (you may have to weight it down with a piece of rubble). When the worms try to feed on the food their bristles will get stuck in the nylon and they can then be easily removed from the aquarium.

In cases where your aquarium is infested with these worms you may have to take more drastic steps. If you don't have an undergravel filter in your aquarium one of the best ways to reduce the number of polychaetes in your aquarium is to siphon your substrate out into a bucket with a long piece of flexible tubing and then carefully inspect it for worms. Take a plastic cup and scoop some crushed coral out of the bucket, dump it in a casserole dish (or something similar) and remove any worms that you find with a pair of tweezers. After inspecting the small portion of substrate return it to the aquarium and continue your inspection. It is a very laborious task, but it is sometimes the only effective way to reduce a polychaete population that is out of control. Of course, there will still be worms in your live rock, but this is where an effective bristleworm predator comes into play.

Bristleworm Predators

There are several predators that can be employed to help prevent bristleworms from overtaking an aquarium. However, controlling the proliferation of these pests is much easier than eliminating an already existing population.

The most commonly used means of biological control are the arrow crab (*Stenorhynchus seticornis*) and the coral banded shrimp (*Stenopus hispidus*). These crustaceans have been known to grab bristleworms with their claws and tear them into bite-size pieces. Unfortunately, they only eat the occasional polychaete.

There are certain fish species that do a more effective job at bristleworm eradication. For example, many wrasses of the genus *Halichoeres* readily dine on them. One of my favorite bristleworm predators is the tailspot wrasse (*Halichoeres melanurus*). There are other polyphagous (having a varied diet) wrasses from other genera that eat them, including the bird wrasse (*Gomphosus varius*), the snotty Maori wrasse (*Cheilinus oxycephalus*) and the sunset wrasse (*Thalassoma lutescens*).

There are many dottybacks that will eat bristleworms as well. These include Springer's dottyback (*Pseudochromis springeri*), the neon Arabian dottyback (*P. aldabraensis*) and the sunrise dottyback (*P. flavivertex*).

Some sand perches (*Pinguipedidae*) also love to eat these worms. For example, the speckled sand perch (*Parapercis hexophtalma*) and the cylindrical sand perch (*P. cylindrica*) are known to dine on them. However, one of the most popular sand perches in the aquarium trade, the lyretail sand perch (*P. schuinslandi*), feeds mainly on zooplankton, not polychaete worms.

Here's an idea for retailers. Place a polychaete-eating sand perch in each of your rock tanks to help reduce worm numbers on the rock before you sell it to your customers.

Goatfishes, grunts, hawkfishes, sleeper gobies, dragonets and triggerfishes occasionally feed on these noxious worms as well. One drawback to keeping most of these fish in the reef aquarium is that they will eat desirable worms (e.g., fan worms, Christmas tree worms), and sometimes other invertebrates (e.g., crustaceans).

One final note. Small polychaete worms can be very beneficial in the reef aquarium. They are great scavengers, ingesting uneaten foods and feces, and their burrowing activities help to aerate the sand or crushed coral substrate. If you're looking for more information on and photos of polychaete worms see Delbeek and Sprung (1994).