

UV Sterilizers in Reef Aquariums

Do UV sterilizers kill important crustaceans and deplete the reef aquarium of nutrients?

by *Jeremy Gosnell*

Q. I have a 120-gallon reef aquarium. Everyone at my local fish store keeps telling me that I need an ultraviolet (UV) sterilizer. According to Internet forums, UVs can kill off needed crustaceans and deplete the aquarium of nutrients. Is this true?

Also, will having a UV sterilizer help clean up my cyanobacteria (red slime algae problem) and rid my saltwater fish of parasites?

Allan Maloy
Gilbert, Arizona

A. Well Allan, many reef hobbyists, including myself, have employed UV sterilizers with good results. Sadly, there is a lot of misinformation out there about ultraviolet sterilization. Sorting the good information from the bad can sometimes be an overwhelming task. Most reef aquarium owners consider a UV sterilizer to be in-line with an insurance policy. While it won't prevent negative things (i.e., algae blooms or parasite outbreaks) from happening in your aquarium, it can minimize the effect of those outbreaks and give you a better opportunity to treat the aquarium and hopefully cut down on losses. There are those in the hobby who regard UV sterilization as the be-all and end-all of aquarium equipment, though I believe you can run a successful reef aquarium without one. In the end, attention to detail and being responsible is far more beneficial than a UV sterilizer.

As you have likely read, a UV system works by passing water over an ultraviolet bulb protected by a quartz tube. The UV light kills off most of the bacteria, algae spores and parasites or viruses within the water. Some UV units claim to have a 99 percent or greater kill rate. On paper this sounds very good and it is easy for a misguided aquarist to assume that the UV is going to rid their system of both parasites and algae. The scientific truth is that while the UV will cut down on free floating algae spores and parasites, it cannot rid the system of everything. If algae are growing on a rock or aquarium glass, or a bacteria or parasite has filmed onto substrate, they will not be free floating in the water column. Because of this, they won't pass through the UV light and will not be killed. Also if a parasite is on its saltwater fish host the UV will be ineffective against it until it has fallen off the fish. Even if an ultraviolet light kills 100 percent of the parasites and bacteria that pass through it, plenty will still form on the substrate and aquarium glass. Basically what all this means is that while UV sterilizers can cut down on the numbers of bacteria, algae and parasites in the aquarium, they certainly cannot totally eradicate them.

As for a UV sterilizer depleting needed nutrients and killing off beneficial crustaceans, all of that really depends on how your UV unit is plumbed in with your aquarium. If you are using a refugium and want to be certain that all of the amphipods and copepods that spill out into the aquarium are not killed, then be sure your UV is on its own pump and not returning water to the aquarium using the same line as the refugium. Whenever you dose your aquarium with certain products, turn off the UV sterilizer for eight to 24 hours to make certain the products are given time to work. Ultraviolet light not only kills bacteria and algae but it can also break up chemical compounds rendering them useless.

All in all, Allan, UV sterilizers are popular and effective pieces of aquarium equipment. While I know many reefkeepers who do just fine without one, most of the people I know who keep reef aquariums opt to use one of these units. One thing to remember when using a UV sterilizer is that less flow is better. I normally run these units with a pump or power head that does not exceed 300 gallons per hour. This gives the UV light ample time to rid the water of various microbes during each pass.