

Aquarium Wave Makers

Does a powerhead work as well as an aquarium wave maker?

By Jeremy Gosnell

Q. What is the deal with wave makers? I don't understand exactly why they are necessary, or why just using an inexpensive powerhead isn't sufficient for reef fish and corals? I would like to know more about the practice of, "making waves" in the saltwater aquarium and if it really is an essential part of a healthy reef.

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A. Wave making is an essential part of a healthy reef if you are keeping corals and various reef invertebrates. When corals are stressed or get foreign debris on their bodies, they often produce slime to remove the debris or to cope with the stressor. Also, when certain corals make contact with each other they produce chemicals to "attack" their neighbor, causing tissue damage and recession. Strong water movement that mimics the pulling and tugging action of natural waves, works to remove slime released by corals and other chemical compounds they release. In addition to that, water movement can help anemones and other invertebrates sway naturally and capture microscopic or suspended aquarium food particles from the water.

Vigorous water movement also helps with debris suspension. Most reef aquarists don't like the thought of debris getting caught in the sandbed and accumulating. They would prefer that the debris stay suspended in the water column so that it can be removed via a protein skimmer or some other form of filtration. Most reefkeepers agree that water movement, just for the sake of debris suspension, is very important to water quality and overall aquarium health.

Now if you plan only on keeping certain saltwater fish, water movement may not be as crucial. Certain reef fish, however, thrive in areas of the reef that have intense and sporadic wave action. A good example would be the Achilles tang (*Acanthurus achilles*) that inhabits pacific surge zones. Some experts have linked lack of water movement to parasite outbreaks, refusal to feed and other health maladies in the case of saltwater fish like the Achilles tang. Some saltwater fish don't demand this much water movement, and you may be able to use a powerhead instead of a wave maker. Research the species you intend to keep and match your water movement to their needs.

As for simple powerheads working in reef aquariums; I personally don't advocate their use for any water movement application. Powerheads have a very hard and direct flow, strong enough in some instances to damage corals and invertebrates. Another problem with conventional powerheads is that while their flow rate is strong it is not well dispersed and doesn't create the right, gentle type of laminar flow that corals need. In these instances a propeller based unit that has a high gallon per hour flow rate often works best. These units used to carry a high price tag, but now you can find a reliable system for a good price. While a conventional powerhead system would almost certainly need a wave making device, you can often use propeller based systems without one.

In my personal opinion a good wave making device implementing propeller driven wave makers is essential to both reef fish and corals. If you have ever watched waves break over a coral reef and seen the intense amount of undertow and surge created in these situations it becomes easy to envision the importance of replicating that in captivity. When feeding phytoplankton and other additives to reef aquariums it is also important to have high amounts of water movement to assure that all the animals get the microscopic foods.

One thing to remember is that you don't need to spend lots of money to get adequate results in the water movement category. While some systems have external battery backups and processor controlled units, these are expensive and not necessary. Some careful shopping should easily provide you with a good unit at a reasonable price. Checking around various Internet forums could likely yield a used unit that still works as good as new.