

Converting a Freshwater Fish Tank to a Saltwater Fish Tank

Is it difficult to convert a freshwater fish tank to saltwater?

By Jeremy Gosnell

Q. I have a 72-gallon bowfront fish aquarium with a mixed community of freshwater fish. My daughter loves the color and vibrant nature of saltwater fish and I am thinking of converting over. Is it difficult to convert a freshwater fish aquarium to saltwater? Can I just remove the fish and add a sea salt mix to my existing water?

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A. It is far more difficult to convert a freshwater fish aquarium to saltwater than using the method you described in your question. It certainly would make for an easier conversion if this was possible. To properly change a freshwater fish aquarium to saltwater, it takes more than just a quick removal of fish and additive of a sea salt mix. To properly convert your freshwater fish aquarium I would recommend taking all the fish, substrate and decorations out of the fish aquarium and replacing all your biological and chemical filtration media.

The truth is, saltwater aquarium fish have far different pH and water quality requirements than their freshwater cousins. I would guess when you kept freshwater fish you didn't pay much attention to water parameters such as calcium and alkalinity; though in the saltwater world these play an important role, even in fish-only systems. Saltwater fish live in very stable conditions naturally. Because most of the fish that we keep in our saltwater aquariums are captured from the wild, we must be willing to replicate these conditions in captivity. This means providing the aquarium with substrate that can buffer water pH, alkalinity and calcium in a manner that produces minor fluctuations. On the saltwater side of the hobby we use aragonite sand, crushed coral and live rock to achieve this. These substrates (in the case of the sand and crushed coral), are very dusty, though this dust helps the water buffer to create the right parameters. Most freshwater substrates are chemically inert therefore they don't provide any buffering capabilities. So at the least you would need to replace your aquarium gravel with either crushed coral or aragonite sand.

The next problem would be bacteria die-off. Your aquarium gravel, water, and even the aquarium walls are coated with beneficial bacteria's bio-film. Once the aquarium's water went from fresh to salt the freshwater bacteria could no longer survive and would die-off. While you usually have a cycle when starting a new aquarium, the mass die-off of tons of colonies of freshwater bacteria would quickly cause uncontrollable ammonia and nitrite spikes beyond that of a traditional nitrogen cycle. Removing the aquarium gravel, draining and cleaning the aquarium, and allowing the aquarium to dry would prevent this process.

The next area of concern is your aquarium's filtration. A saltwater aquarium requires far different filtration than freshwater systems. Many aquarists are successful with just live rock and what is called a protein skimmer. Protein skimmers utilize powerful pumps and inject air to create a foam/froth that traps certain ionic particles (algae cells and waste) to create cleaner water. In order to have a successful saltwater aquarium you must employ a protein skimmer. You could consider having only a skimmer and live rock as your filtration though some power filtration (especially something that employs a chemical medium like carbon) would be advisable. My recommendation, and I realize this incurs perhaps unforeseen expenses, would be to purchase all new power filtration for this aquarium. Saltwater aquariums require far more vigorous water movement than freshwater systems and therefore a high output power filter could be of value in helping create the water movement needed.

One thing to consider is whether or not you want your marine aquarium to be a fish-only system or reef aquarium. Many aquarium writers recommend people not start with reef aquariums though I feel it is possible for beginners in the hobby to be successful, even with advanced systems. The key to success with any marine system is to first research what you intend to do, then implement the best system you can, and follow a strict and applicable maintenance schedule. People often ask me what the most valuable investment is when considering a marine aquarium. I always tell them a good book on marine aquarium husbandry will get them farther than the latest and greatest aquarium care gizmo.