

Filtration, Filtration, Filtration

They are three of the most important watchwords in today's aquarium hobby.

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This nice-looking nano reef incorporates a built-in hang-on-the-back mechanical filter as well as biological filtration in the form of live rock and a sandbed, not to mention an extremely low bioload (no fishes). Pictured is the massive, state-of-the-art filtration system for the Aquarium of the Pacific, which is able to process and recirculate 1 million gallons of saltwater per hour, giving the aquarium's 12,000 marine animals nothing to worry about and their human keepers great peace of mind. It doesn't matter if you keep freshwater, saltwater or brackish aquaria, or whether you managed tens of thousands of gallons at a public aquarium or run a 5-gallon nano on your desktop at work. Filtration in all of its derivations (biological, mechanical and chemical) is critical if you hope to keep the aquatic plants and animals you look after alive and thriving much beyond the shelf life of a container of cottage cheese.

Water Changes

Aquarists in the early days of the hobby, before all of the manufactured filtration devices were mass produced, relied heavily on complete or partial water changes performed with exceptional regularity (for you jokesters out there — I'm talking weekly, not in terms of one's dietary constitution), even daily in many cases. There's still nothing quite as good as regular, partial water changes to iron out the peaks and valleys in your nitrite, nitrate, phosphate, carbon dioxide, calcium and pH levels.

Modern Equipment

Thanks to advances in filtration equipment and science, especially in the reefkeeping realm, good-old water changes have become part of the modern aquarist's maintenance mosaic rather than the whole enchilada. The emergence of live rock, the discovery and understanding of denitrifying bacteria, protein skimming technology, the inclusion of sumps and recirculating flows have helped to ease the burden placed on aquarists while making their prospects for success even greater. Because much of the drudgery has been wrung out of the hobby, the attractiveness of the hobby to newcomers has experienced a definite uptick in recent years.

There have undoubtedly been some who have been a bit chagrined at hearing some of the water-changing horror stories, which have been offered up by some of the hobby's long-time practitioners as cautionary tales to all who dare listen. And like a good campfire ghost story that keeps them out of the woods at night, these aquarium-horror sessions have scared, and continue to scare, away new recruits, or at a minimum keep those on the freshwater side firmly planted in their tanks.

It was only a matter of time. Mini protein skimmers may become a standard in nano marine and reef setups just like they have with virtually all medium-to-large reef setups. Ain't Technology Grand?

The Aquarium of the Pacific in Long Beach, California, has an incredible filtration system that incorporates biological, mechanical and chemical elements that turnover and filter approximately a million gallons of saltwater an hour in order to keep its 12,000 marine animals in residence alive and swimming to their heart's content. And you can bet that the life-support systems keeping the AOP's multi-million-dollar collection of fishes and corals alive has several built-in fail-safes in case something fails here or something fails there (read my blog "Aquarium Redundancies," posted May 8, 2009).

Even nano tanks (those under 30 gallons) are getting into the act. At a recent aquarium show, a well-known protein skimmer manufacturer was demonstrating their new mini protein skimmer designed to produce bubbles and foamate (the sludge that is left behind when the bubbles dissipate) just like the big skimmers do. I could grasp the skimmer cylinder of this unit with one hand. That's how compact it is.

Options

With all of the options available to today's aquarist, water chemistry problems should be minimal, but they are not. Just because you have the latest-and-greatest mechanical filtration equipment as well as employ several filtration methods at a time, you still have to keep on top of maintenance issues when it comes to filtration and water chemistry (click here for a downloadable "Reef Tank Maintenance Schedule").

You should periodically test your water. Don't let your fishes or corals start looking poorly before you realize that there might be a problem. Filters are designed to last, but certain hard-working filter media (such as charcoal, etc.) are not and should be replaced when exhausted. And the protein skimmer collection cup isn't going to empty itself. Not to mention the various PVC pipes, hoses, valves and intakes and outlets that make up most modern aquariums, all of which are prone to periodic clogging, resulting in the degradation of an aquarium's filtration-water-circulation effectiveness at keeping your aquarium water top notch.

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