

# An Introduction to Protein Skimmers

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## Why do you need a protein skimmer?

Maintaining good water quality is the single most important factor in establishing a healthy and beautiful marine aquarium. In order to successfully house marine species, the aquarium water needs to be free of toxic substances such as ammonia and nitrite. In an established aquarium, ammonia and nitrite are promptly converted into a less toxic substance called nitrate through a natural process known as [the nitrogen cycle](#).

In low to moderate concentrations, the end product of the nitrogen cycle (nitrate) is not toxic to fish and invertebrates. However, certain marine species, such as corals, are sensitive to even low levels of nitrate. They require excellent water quality with low nitrate levels to thrive. For this reason, many aquarists feel that a [protein skimmer](#) is an absolute necessity for saltwater aquarium systems - especially reef aquariums or those that are heavily stocked with large or carnivorous fish.

## What does a protein skimmer do?

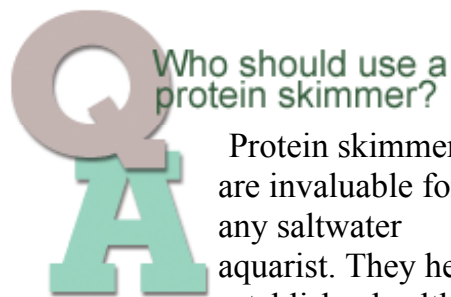
Protein skimmers actively remove waste products from fish, plants, and invertebrates (along with any dead organisms or uneaten food) before it has a chance to break down and compromise water quality. In addition to their primary function of removing organic materials from aquarium water, protein skimmers have many secondary benefits. Through the removal of dissolved waste materials, protein skimmers reduce nitrate buildup, help prevent aggressive algae growth, and improve water clarity to enhance light penetration for a brighter, cleaner, and clearer aquarium. With less waste to process, your existing filter will also be able to function more efficiently, reducing the amount of time you spend on regular aquarium maintenance.

## How does a protein skimmer work?

A protein skimmer works by creating tiny bubbles in a reaction chamber. Organic waste materials adhere to these bubbles through a chemical process called adsorption. The bubbles propel the waste materials up to the surface of the reaction chamber, where dissolved protein and other contaminants are physically removed from the water column and contained in the collection cup.

By generating millions of air bubbles, protein skimmers also replenish oxygen levels in the entire aquarium. Elevated oxygen levels and proper gas exchange help maintain a stable pH by counteracting the pH-lowering effects of carbon dioxide that can occur at night.

Protein skimmers are extremely efficient at removing organic materials from aquarium water. However, their secondary benefits further increase their value by improving the overall health and beauty of your aquarium, making them a worthwhile investment for any marine hobbyist. Always strive to install the biggest skimmer possible that fits within your space and budget. This will increase the skimmer's effectiveness and make maintenance easier.



Who should use a protein skimmer?

Protein skimmers are invaluable for any saltwater aquarist. They help establish a healthy marine environment necessary for all marine organisms.

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