

Green Aquarium Water

What will get rid of the green aquarium water?

By Stephen M. Meyer

Q. We have a 30-gallon aquarium with two 7-inch fantail goldfish and a 9-inch black moor goldfish. The aquarium has a power filter, and is aquascaped with plastic plants. The water in this aquarium turns green despite weekly partial water changes. The aquarium is not located near direct sunlight, so we don't know what else could be causing this problem. Is there anything you can think of that might help us get rid of the green water?

A. I am always intrigued by the problem of green water in aquariums because the conditions under which it occurs seem to vary so widely. Green water is the result of a bloom of unicellular algae, and is basically the result of two existing conditions — the aquarium is receiving too much light and the water has a high concentration of phosphates. Both of these conditions are necessary for algae, and neither alone is sufficient.

As you have discovered, water changes are not solving the problem in your goldfish aquarium. Many tap water supplies these days have high concentrations of phosphates. And, some municipal water sources have higher levels of nitrates than are found in established aquariums with biological filtration. Under these circumstances, water changes add, not reduce, the nutrients that support algal growth.

There are several strategies you can use to eliminate green water. The first is to try reducing the light reaching the aquarium. Even if your aquarium is not in direct sunlight, the fluorescent light over the aquarium may provide enough energy to support algae. If you leave the light off completely, the aquarium may clear in a few days. Then, you can gradually increase the light duration until the water starts to become green again.

Another possibility is to add live aquatic plants to the aquarium. This really works, assuming you can keep them growing, and the goldfish will benefit from being able to nibble on the plants.

Let me relate a small experiment I ran several years ago. I put a few 10-gallon aquariums outside in full sunlight, where they received eight hours of exposure. Each aquarium had a 1-inch-deep gravel bed and was filled with ordinary tap water. Each aquarium was planted heavily with *Elodea canadensis*.

After several weeks, all the aquariums were still crystal clear even though nutrient-laden pond water was added regularly. The *Elodea* was removed from one aquarium and the water was replaced. It turned green in two days. The *Elodea* was replanted and the water cleared.

Yet another possibility is to install an undergravel filter (or any other form of biological filtration). Many of the bacteria that live in the gravel utilize enough of the nutrients in the water to starve algae. For example, I have goldfish aquariums that get several hours daily of direct sunlight and they are crystal clear even though they lack live plants. Without the undergravel filters, the water in these aquariums will become green.

A final possibility that is guaranteed to work immediately is to install an ultraviolet (UV) sterilizer. This is a very low wattage system that will kill off the algae in a few hours and clear the water. UV units are sold in most good aquarium stores.