

Aquarium Limited Resources

Making a reef aquarium work on limited resources can be possible.

By J. Charles Delbeek

Q. I am 14 years old and have been keeping saltwater aquariums for about eight years. I would like to change an old 20-gallon high aquarium (24 x 12 x 18 inches) into a mini-reef aquarium. I know small aquariums are difficult to maintain, but I do not have enough money to go for a large system. I already have a minifilter, submersible heater and a venturi protein skimmer suitable for a 75-gallon aquarium. The hood has only one light.

Everyone says I need at least two lights, but I'm wondering what ballast, end caps and other things are needed. Some people suggest using three or four lights, but how can they fit them over an aquarium and still open it?

Besides salt and things like that, do I need a substrate? I would like to get about 5 to 10 pounds of large live rock. Would I need actinic lights, and what about filtration? What media goes in the filter — a sponge? How many lights do I need to successfully keep corals?

Can I set this up without spending much more than \$75 to \$100? What corals should I get? I don't just want mushrooms. Can I keep anemones with them?

A. It is unfortunate, but this is not an inexpensive hobby. What you need to understand is that you have to stay within your resources. Because you have limited funds, you need to be realistic as to what you can do and what you will be able to keep. Many of the gadgets and the equipment we use are built especially for aquariums, and because of low volume sales, prices tend to be higher. However, there are short cuts you can take, such as using equipment from other industries that can make things a little bit cheaper.

For example, your reef aquarium lighting. You will be hard pressed to keep much in the way of corals with only one light. You will need at least two regular output fluorescent tubes, and even these will limit what you can keep to the hardier, less light-hungry species.

Doing things cheaper often means being able to improvise, and sometimes you need to build your own equipment. In your case, you could purchase a simple 2-foot shop light fluorescent fixture for about \$25, which you could suspend over your aquarium. Adding some light shades would direct the light downward as opposed to all over the room.

You could also build a simple aquarium hood out of plywood and place the fixture within this. If you can locate the aquarium in a place where it will receive a few hours a day of direct sunlight — without overheating the aquarium — this can add supplemental lighting. As far as tubes to use, I would recommend one daylight fluorescent and one actinic 03, or two full-spectrum tubes, such as the actinic/white from Ultraviolet Resources. A still cheaper option would be to go to a 4-foot fixture instead. This size is the most commonly used in lighting applications in commercial situations, and, as a result, the fixture and tubes tend to be less expensive than 2-foot models.

Many years ago a friend of mine used a 4-foot fixture over a 3-foot aquarium. He just placed potted plants under the ends of the lights that extended past the sides of the aquarium!

I would recommend that you use a substrate of fine sand of about 1 or perhaps 2 inches deep. If you use a coarser substrate (1/8 to 1/4 inch) you should make it 3 inches deep. I would use enough live rock to build a pleasing aquascape about three-quarters the height of the aquarium. I am not sure if 10 pounds will be enough to do this, however, because different types of live rock differ in density quite a bit, and 10 pounds may or may not be enough.

Aquascaping will also prove difficult because your aquarium is high and narrow, a bad combination for a reef aquarium. This makes it difficult to place rocks without creating a "brick wall" effect, and provides poor gas exchange. Be sure to leave as much of the substrate bare as possible. You can help achieve this by careful rock placement and by using support structures under the rocks.

As far as filtration goes, I would just use the skimmer you have and get a powerhead for extra water motion in the aquarium. You can use the minifilter if you like, but you should clean the filter sponge every few days. You can also use it to hold a little carbon.

As for corals, I would recommend button or red button coral (*Cynarina lacrymalis*), donut coral (*Scolymia* sp.), hammer coral (*Euphyllia ancora*), star polyps and mushroom anemones. You will have to experiment with the placement of these corals to find out where they will do best in your aquarium. I am afraid an anemone would not be a good idea for an aquarium as small as yours and as poorly lit. Anemones require a great deal of light and can roam around an aquarium, stinging other inhabitants. The only anemone species that you may be able to keep is *Condylactis gigantea* from Florida.

And I'm afraid you will be hard pressed to do all of this for under \$100, but you will be close. Perhaps you need to do a few more chores around the house!