

Maintaining An Aquaria and its Organisms

The aquarium you have set up is a very small ecosystem that needs to be managed in order to keep things alive and healthy. The animals are suspension feeders (consuming microscopic stuff out of the water column), grazers (eating micro or macro algae) or predators. If not fed regularly (1-2 x per week), the predators (crabs, sea stars, and fish) will start to eat other animals in the tank. Some predation is likely to happen no matter how well you fed them, but regular feeding will reduce this.

Check the tank daily (5 min or less) --Get into the habit of checking the tank each day.

1. Scan for sick or dead animals and remove them. Remove any rotting algae or other material that has gotten in but does not belong.
2. Make sure the temperature is okay (Water temp. should be between 50-55 °F or 10-12 °C). Make sure the air stones are bubbling and the water pump is working.
3. Check the water level in the living area, and look for leaks or spills.
4. Check to see if water is flowing from the living chamber into the middle back chamber. At the top of each of the 6 return tubes on the white back wall there are paired, smallish holes that let water run into the middle back chamber. These need to be open and unclogged (use small diameter stick or whatever to clear). The slits at the bottom of these return tubes may also get plugged with debris.

Food and feeding (30 minutes or less, once you have the food; 2 x week)

Suspension feeders need plankton or brine shrimp. One plankton/brine shrimp feeding per week would be ideal. One every other week is probably ok and the minimum. Brine shrimp can be raised in the classroom. Plankton tows can be taken from the Charleston docks.

Algae (probably kelp) is best for the urchins. Put in a blade (1 or 2 feet long). Add more only when that is gone and remove it if it begins to rot. Grazing snails will feed on the algal films that start to grow on the glass and are already on the rocks.

Predators will consume minced clam or mussel. Hand feeding the anemones, crabs and fish is fun and goes quickly. Drop a piece or two near the sea stars that feed on meat (see list above). Don't overfeed the tank. You have overfed if you feed in the morning and at the end of the day there are still pieces of the clam or mussel on the tank bottom. The hermit crabs are in the tank to help scavenge most of the leftovers.

Maintaining water quality

The organisms release urine and feces and the filtration system helps abate some of this nutrient enrichment. Over time –weeks to months, nutrients will build up and some organism may become unhappy (e.g. anemones won't open out and show their tentacles).

Replacing some of the seawater or changing it completely can help slow or reverse the process of nutrient enrichment. Remove $\frac{1}{4}$ of the seawater and replace it with new seawater each month. This will help remove ammonia and nitrates and replace minerals and ions the animals utilize.

If **water clarity** is an issue, check the filters and change the fiber wads in each of the six mesh bags in the back chamber. Sometimes it takes a day or two for the water clarity to improve after this procedure.

Routine servicing

Every term (e.g. before Christmas break and before spring break it is a good idea to do the following if it has not been done already.

Replace the fibrous filter material in the six bags in the middle back chamber.

Vacuum the radiator in the right bottom front of the tank frame. Look through those black holes in the front right below the tank and see if dust is clogging the radiator. Dust is best removed with a vacuum cleaner.

Some things that may happen to the tank (from past experience)

Plugs or flow issues

Small slits in the bottom of the water return tubes on the white back wall can become **plugged** with algae or other debris.

The **paired holes at the top** of the same return tubes can become **blocked** with debris.

If the **stopper comes out** of the round hole on the white back wall, mobile animals will move into that back chamber. Filtration will also cease, as water will be pulled through that hole and bypass the filters.

Low flow out of the side chambers into the living area may occur after the tank has been running for a while. If this happens, try opening the (black) flow adjustment valve (mentioned in Tank Setup, stage I; step 6). If flow increases that is fine. If flow does not increase with a fully opened valve, then something is plugging the water pump lines. Please let OIMB know.

Silicone peel - Children love the tank, but in the past when (lunch?) lines have waited along and passed by the tank, the **silicone along the glass metal edges gets pulled and picked away**. Keep an eye out for this and replace it before leaks occur.

The inflow side chambers. Some **mobile animals**, especially snails and seaslugs, but also small seastars, **will crawl into the side chambers** where water is flowing from the pump into the living chamber. Just pick them out and return them to the living area.

Mysterious disappearances – occasionally (usually smallish) organisms vanish. They may be hiding; they may have been eaten; or they may have died and changed form so you don't recognize them. Assuming they have not gotten into the inflow side chambers or disappeared into the hole from a missing stopper (see plugs and flow issues, just above), just keep checking on following days.