Aquarium Cleaning and Storage

This document and others related to Trout in the Classroom can be found on the Grizzly Peak Fly Fishers' website, www.gpff.org, in the "Education" drop-down menu under "Trout in the Classroom Documentation". Included in the documentation is a two-part video showing set up and cleaning of aquaria.

The program coordinator will provide you with all relevant instructions at the beginning of each year's Trout in the Classroom program.

Trout require clean, cold, and well aerated water to survive. Properly cleaned and assembled, your aquarium approximates the critical elements of a healthy natural environment.

Every aquarium kit includes a five-gallon bucket and about 10 to 13 lbs. of gravel as well as equipment that sits in the water in the tank. Everything except the insulating housing needs cleaning.

Depending on your classroom situation, it might be helpful to take your aquarium home for cleaning.

I. Cleaning

1. **Chiller Assembly.** The chiller mechanism has aluminum fins below the fan that dissipate the heat drawn out of the water by the chiller probe. With time, these fins can accumulate dust, making the chiller less efficient. To clean the fins, first unplug the chiller from the controller and remove it from the aquarium. Then slide a thin cloth between all its fins to remove dust buildup

   If you have access to an air compressor, the best way to clean the fins is by blowing compressed air through the fin assembly and over the fan blades. A compressor at a gas station will work just fine.

   Leave the chiller assembly intact. Wash the bottom of the Plexiglas plate and the chiller probe with mild detergent, such as dishwashing detergent. Rinse the plate and probe well and set the assembly aside to dry.

Caution. **Cleaning the internal aquarium parts involves using a bleach solution. Wear eye protection, latex or rubber gloves, and an apron.**
Bleach Solution. Prepare one gallon of bleach solution in your five-gallon bucket by diluting bleach with one gallon of (tap) water. The active ingredient in bleach such as Clorox is sodium hypochlorite. Check the label on your bottle of bleach for the percentage concentration of sodium hypochlorite. It will most likely be 8.25% or 6%. If your bleach is 8.25% sodium hypochlorite, add 3/4 cup of it to a gallon of water. If your bleach contains 6% sodium hypochlorite, add 1 cup of it to a gallon of water. These dilutions need not be precise. They result in hypochlorite solutions of approximately 0.35%.

2. **Aerating Pump.** Unplug the pump and scrub off the residue collected on its exterior, either with water or with dishwashing detergent followed by water.

   Insert the whole pump into the bucket of bleach solution and *cover the bucket with plastic wrap or a piece of cardboard or wood*, then plug the pump in to an outlet socket. Let the pump run in the bleach for a few minutes. (**Be careful, there could be considerable spattering of the bleach solution**.) Unplug the pump and put it in a bucket or sink full of (tap) water. Plug the pump back in and let it run in water for a few minutes (more spattering). Repeat this wash step. Finally, take the pump out of the water and let it run in air for a few minutes. Unplug the pump and let it dry in air.

   Clean the riser tube with the bleach solution, rinse it with water then dry it. If you can, carefully remove the riser tube from the undergravel filter being careful to not to break the connector fins on the bottom. It is not necessary to remove the riser tube if you can clean it in place.

3. **Aquarium Tank.** Scoop the gravel from the aquarium tank and store it in a temporary container (not the 5-gallon bucket). Remove the glass aquarium tank from its foam-board housing and temporarily remove the undergravel filter.

   Aquariums won't fit into most sinks. However, cleaning the aquarium tank can be easily done in a bathtub or, better, outside where rinses can be done with a hose.

   Wash the inside (and outside) of the tank with dishwashing detergent to remove residue from the inner walls. Flush the tank with enough water to remove the detergent. Put the under-gravel filter back in the aquarium and cover it with

bleach solution. Scrub the under-gravel filter and the inner walls of the aquarium with a sponge or cloth wetted with the bleach solution. Let the bleach sit in the tank for 20 minutes.

Take the under-gravel filter out of the bleach solution in the aquarium and rinse it thoroughly with water then set it aside to dry.

Pour all of the bleach solution from the aquarium into the five-gallon bucket. Rinse the insides of the aquarium with lots of water; wipe them dry with towels and set the tank aside to completely dry. There should be no bleach smell left.

4. **Gravel.** Carefully dump the gravel into the bucket containing the bleach solution. It may be easier to use a two-gallon container (not provided) for rinsing the gravel.

   With a large spoon or your gloved hand, *gently* stir the gravel in the bleach solution.

   The next step is to rinse the gravel. The idea here is to remove bleach and any residual biological matter, especially dead eggs, from the gravel.

   Carefully and slowly drain the bleach solution from the bucket into a drain for disposal. Catch any gravel that might fall out of the bucket by putting a strainer (not provided) under the lip of the bucket. Set the bucket upright and put any gravel caught by the strainer back into it. For the first rinse, add water to the bucket just enough to cover the gravel. Stir the gravel in the water. Then drain the water from the gravel. Repeat five times.

   Finally, if possible, insert a hose into the bottom of the bucket under the gravel and flood wash the gravel by slowly turning on the water and letting it overflow into a drain. When the water above the gravel is clear, stop and drain the water completely.

   The gravel must be dry before you store it. There are two ways for doing this.

   Gravel Drying Method 1: This method is by far the easier of the two. Spread the gravel on a large rimmed baking sheet, preferably not made of aluminum. You can line the sheet with parchment paper if you like; don't use aluminum foil. *Aluminum can be toxic to fish eggs*. Then simply bake the gravel in an

oven set at about 250°F for an hour or so or until it is dry. Use a spoon or spatula to stir the gravel to ensure complete drying.

Gravel Drying Method 2: Take a large, clean bath towel and spread it out on a level surface. Spread the gravel on the towel. Move the gravel around on the towel to dry, rubbing the top of the gravel with the dry towel edges. Let the gravel sit exposed to air (in the sun is best) for a short time. Move the gravel to a dry second towel by putting one edge of the second towel under an edge of the towel holding the gravel. Roll the gravel to the new towel by raising the opposite side of the wet towel. Spread the gravel out on the second towel and roll it back and forth to expose and dry the bottom gravel. You can sense moisture with your hand as you spread the gravel out on the towel. Use a third dry towel if necessary.

When the gravel is dry, bag it by shoveling it with a clean spoon, spatula, or other such implement into the bag supplied (do not use a plastic bag). At the end of a year's program the gravel should be thoroughly dried and then bagged for storage. Be sure to remove any remaining (dead) eggs, egg sacs, or other biological materials that make it through the gravel cleaning process.

II. Storage

• Place the **undergravel filter** and the **riser tube** in the aquarium tank.

• Wipe the **thermometer** probe with a damp cloth. Turn off the thermometer by holding down the **power button** (PWR) for 5 seconds or more. Put the thermometer in a Ziploc bag and place it in the aquarium tank.

• Disconnect the **controller** from the **power supply** (the **chiller** was disconnected in Step 1). Wipe the controller's temperature probe with a damp cloth. Wrap the cords neatly and secure them with a bag tie(s). Put the controller, along with its **screwdriver** into a Ziploc bag. Place the controller, power supply, and chiller in the aquarium tank. Lay the chiller on its side.

• Wrap the cord from the **aerator pump** neatly and secure it with a bag tie. Put the pump, along with its air intake tube and suction cup holder, in a Ziploc bag and place them in the tank.

• Leave the **USB charger plug** attached to the cables from the **LED lights** and move them to inside the tank.

• Cover the top of the **aquarium tank** with plastic wrap and place it into its foam-board **housin**g. Place the lid on the top of the housing.

• Remove the **battery** from the bucket **aerator**. Put it, the plastic tube (~15" long) and its fritted air stone in a Ziploc bag and place them in the bucket.

• Put the bagged **gravel** in the five-gallon **bucket**.

• Put the **net**, **baster**, **plastic gravel cleaner** (if you have one), and all associated **tubing** in the bucket.

Your coach will pick up your tank and equipment for storage until you return for the following year's TIC program.

You will be getting back the same equipment you have been using if you continue with the TIC program. So, make sure your equipment is cleaned to your satisfaction and was working properly at the end of this year's program.