Water Quality

On Mondays and Fridays, we are **required** to check the water quality of all large tanks (i.e., any tank that's not a Tupperware) in the fish room…and any tanks in Nott Hall.

The tanks are designated with a number, which can be found on the sheet of paper sticking either to the tank itself or to the wall near the tank (Census logs).

You will test pH, ammonia, nitrate, nitrite for all tanks. You will also test GH and KH for the freshwater tanks (i.e., Nott Hall cichlid tanks, shiner tanks, large sunfish tank, 'strange' killifish tank)

Here's what you do:

1. Go to Room 245 and find the clear Tupperware containers (similar to what we house the killifish in)
2. Fill these Tupperwares with water from each tank that you'll test and make sure to keep them straight (might want to label them, or arrange them in order on the bench).
3. Using the small syringe (on bench in Room 245), suck up 5ml from the container and squirt into 3-5 glass vials (depending on whether you'll test GH/KH for that tank; if not, you'll have 3 vials).
4. Follow the directions for the test kits (see next couple of pages), and compare against the colored cards hanging from the shelf (or look at the GH/KH worksheet to calculate the value from the # of drops you added to the tube before it changed color)
5. Record both the tank number and the values on the daily checklist.
6. If ammonia or nitrite are > 0 ppm…or if nitrate is > 10 ppm, you need to do a water change.
7. *Please get with Dr. Earley or graduate students if you are unfamiliar with how to do the water changes! We MUST siphon the gravel (i.e., sucking a bunch of water out of the tank isn't enough)*
8. Add appropriate chemicals (e.g., colonize, stress coat, freshwater salt) as needed (again, get with Dr. Earley or graduate students if you have questions about this)

Directions for Testing Ammonia Levels

1. Fill a clean test tube with 5 ml of water to be tested (to the line on the tube).
2. Add 8 drops from Ammonia Test Solution Bottle #1, holding the dropper bottle upside down in a completely vertical position to ensure uniformity of drops added to the water sample.
3. Add 8 drops from Ammonia Test Solution Bottle #2, holding the dropper bottle upside down in a completely vertical position to ensure uniformity of drops added to the water sample.
4. Cap the test tube and shake vigorously for 5 seconds. Do not hold finger over the open end of the tube, as this may affect the test results.
5. Wait 5 minutes for the color to develop.
6. Read the test results by matching the test solution against the Ammonia Test Color Chart. The tube should be viewed against the white area beside the color chart. Color comparisons are best made in a well-lit area. The closest match indicates the ppm (mg/L) of ammonia in the water sample. Rinse the test tube with clean water after each use.

Directions for Testing Nitrite

1. Fill a clean test tube with 5 ml of water to be tested (to the line on the tube).
2. Add 5 drops of Nitrite Test Solution, holding dropper bottle upside down in a completely vertical position to ensure uniformity of drops added to the water sample.
3. Cap the test tube and shake the tube for 5 seconds. Do not hold finger over the open end of the tube, as this may affect test results.
4. Wait five minutes for the color to develop.
5. Read the test results by matching the color of the solution against those on the Nitrite Test Color Chart. The tube should be viewed against the white area beside the color chart. Color comparisons are best made in a well-lit area. The closest match indicates the ppm (mg/L) of nitrite in the water sample. Rinse the test tube with clean water after each use.

Directions for Testing Nitrate
Read thoroughly before testing. DO NOT allow Test Solutions to get into aquarium.
To remove childproof safety cap: With one hand, push red tab left with thumb while unscrewing cap with free hand.

1. Fill a clean test tube with 5 ml of water to be tested (to the line on the tube).
2. Add 10 drops from Nitrate Test Solution Bottle # 1, holding dropper bottle upside down in a completely vertical position to ensure uniformity of drops added to the water sample.
3. Cap the test tube and invert tube several times to mix solution. Do not hold finger over the open end of the tube, as this may affect test results.
4. Vigorously shake the Nitrate Test Solution Bottle # 2 for at least 30 seconds. This step is extremely important to insure accuracy of test results.
5. Now add 10 drops from Nitrate Test Solution Bottle #2, holding dropper bottle upside down in a completely vertical position to assure uniformity of drops to the water sample.
6. Cap the test tube and shake vigorously for one minute. This step is extremely important to insure accuracy of test results.
7. Wait five minutes for the color to develop.
8. Read the test results by matching the color of the solution against those on the Nitrate Test Color Chart. The tube should be viewed against the white area beside the color chart. Color comparisons are best made in a well-lit area. The closest match indicates the ppm (mg/L) of nitrate in the water sample. Rinse the test tube with clean water after each use.

Directions for Testing Carbonate Hardness (KH):

- Read thoroughly before testing. Do not allow Test Solutions to get into aquarium.
- Remove childproof safety cap using one hand to push red tab while unscrewing cap with free hand.
- Rinse a clean test tube with water to be tested.
- Fill the test tube with 5 ml of aquarium water (to the line on the test tube).
- Add Carbonate Hardness Test Solution, one drop at a time. Hold dropper bottle upside down in a completely vertical position to ensure uniform drops. After first drop is added, solution will turn blue (If the water sample contains only 1°dKH, the solution will turn from clear to its yellow endpoint after the first drop is added).
- Cap the test tube and invert several times after each drop. Count the number of drops being added. Do not hold finger over open end of the tube, as this may affect the test results.
- The test is completed when the water in the test tube, after having been shaken, turns from blue to yellow. If you have difficulty discerning the color after the first drop of test solution is added, remove the cap from the test tube and while holding it over a white background, look down through the tube.
- The Carbonate Hardness value is determined by the number of drops of the reagent that must be added to turn the water in the test tube bright yellow. Each drop is equal to 1 °dKH or 17.9 ppm KH.

Directions for Testing General Hardness (GH):

- Read thoroughly before testing. Do not allow Test Solutions to get into aquarium.
- Remove childproof safety cap using one hand to push red tab left while unscrewing cap with free hand.
- Rinse a clean test tube with water to be tested.
- Fill the test tube with 5 ml of aquarium water (to the line on the test tube).
- Add General Hardness Test Solution, one drop at a time. Hold dropper bottle upside down in a completely vertical position to ensure uniform drops. After first drop is added, solution will turn orange (If the water sample contains only 1°dGH, the solution will turn from clear to its green endpoint after the first drop is added).
- Cap the test tube and invert several times after each drop. Keep count of the drops being added. Do not hold finger over open end of the tube, as this may affect the test results.
- The test is completed when the water in the test tube, after having been shaken, turns from orange to green. If you have difficulty discerning the color after the first drop of test solution is added, remove the cap from the test tube and while holding it over a white background, look down through the tube.
- The number of drops of the reagent that must be added to turn the water in the test tube green determines the General Hardness value. Each drop is equal to 1 °dGH or 17.9 ppm GH.