Research Protocol: Aquatic Respirometer

Setting up the water jacket

1. Fill the water jacket with water, then tip the respirometry cell (MT200) upside down and screw on the water jacket.
2. While still holding the cell upside down, attach the tube running from the pump onto the nozzle on the back of the cell, and make sure the tube already attached to the cell is placed into the tank, since water will flow out through here. Plug the pump in and turn it on, and then flip the cell over and place it down.

Setting up the electrode

1. Remove the electrode jacket from packaging. Then pipet 100 uL of the provided electrolyte solution into the water jacket. Tap the sides of the jacket to dislodge any air bubbles that could cause abnormally high readings.
2. Remove the cap on the electrode, and carefully screw electrode jacket onto the electrode.
3. Screw the electrode into the bottom of the water cell, and then plug the other end into the oxygen meter, in the channel 1 outlet.
4. Plug in the power cord to the meter, and turn on.

Running the oxygen meter

1. Pipet 1000 uL of water from the snail cup into the center of the chamber, and then drop the snail in.
2. Slowly insert the plunger into the center, making sure no water splashes out, and that there are no air bubbles inside the chamber.
3. Use parafilm to seal the top of the plunger, and cover the entire area surrounding the plunger so that no air can enter.
4. Once the chamber is sealed, press “start logging” on the oxygen meter, and then “set point 1”.
5. After 1 hour, press “set point 2” on the oxygen meter, and then “stop logging”.
6. The oxygen meter can then be plugged into with a USB cord to the laptop, and the data saved to the program.

Clean up

1. Put the snail into a cup in the incubator, to keep separate from the snails that haven’t been tested yet.
2. Dump out the water from the chamber, and turn the pump off, unplugging the tubing from the chamber.
3. Turn off and put away the oxygen meter.
4. Unscrew the electrode from the respirometer cell. Carefully remove the electrode jacket and gently rinse with water. Carefully rinse the electrode with water as well. Place both of these on a clean paper towel to dry. Once dry, screw back on the cap to the electrode and place it in its box.