Calibration Prep

1. Write a program to print raw analog input values to the Serial Monitor (see next page)

2. Test your flow loop, salinity sensor and Arduino program with tap water

3. Practice copying many data points (say, 100) from the Serial Monitor

Flushing the Flow Loop

Instructions for collecting calibration data include "flush the system". The goal in flushing the system is to remove residual fluid from a preceding test. When flushing the system, use the water sample that you will be using in the *next* test.

Use these steps to flush the system

1. Drain the current fluid from the system
   - With the pump running, turn the 3-way valve so that water from the pump flows to the drain
   - Wait until the pump is no longer sending water to the drain

2. Pour a little water – enough to fill the pump and exit line – while the 3-way valve is in the "drain" position. Wait (a few seconds) for this water to clear the system.

3. Turn the 3-way valve back to the "recirculate" position

4. Pour the flushing water into the fish tank until the tank is 2/3 full.

5. Let the system run for 30 seconds or so, then switch the 3-way valve to the "drain" position.

6. Wait until the pump is no longer sending water to the drain

When changing fluid samples, you should flush the system twice by repeating the preceding steps.

Collecting Calibration Data

Repeat the following steps for each of the four samples. Note that DI water is considered to have 0% salt solution.

1. Choose one of the salinty samples (0%, 0.05%, 0.10%, 0.15%)

2. Flush your flow loop *twice* with DI water to clear out the previous water in the system. Please don't waste the DI water.

3. Flush the system *once* with the sample solution.

4. Fill the system so that the water level in the tank is between 1/2 and 2/3 of the top.

5. With your data collection program running, watch for the data from the Serial Monitor to become approximately steady.

6. Once the system is in steady state, let a large (say 100 or more) readings be printed to the Serial Monitor

7. Copy the data to a file (spreadsheet or text file) on your computer.
    - Uncheck the Autoscroll box in the lower left corner of the Serial Monitor to stop the display.
    - Use a copy/paste operation to copy data from the Serial Monitor to a file on your computer.
    - Check the Autoscroll box to resume normal display of data in the Serial Monitor