**NaGISA Water Analysis (Collection Protocol)**

***Please write any corrections to protocol on this sheet.***

***Please alert an Extern of any broken/missing equipment.***

**GPS**

1. Turn on the GPS by holding the bottom right light bulb button.
2. Link to the satellite.
3. Go to the screen with the latitude and longitude coordinates by tapping the top right button several times.
4. Record the coordinates for each quadrat.
5. Turn off the GPS by holding the bottom right light bulb button.

**Dissolved Oxygen CHEMets Kit**

1. Check that the date on ampoules in within a year.
2. Get water from the ocean using the vial *(go out far and try to get water without bubbles)* and fill to the 25 ml line.
3. Break ampoule in the vial, swirl for 10 seconds.
4. Invert back and forth until color changes.
5. Compare to color table.
6. Record data in ppm (parts per million).

**LaMotte Dissolved Oxygen Test Kit – procedures in the kit**

***Please be careful with the plastic tubes holding the syringes- they break very easily.***

1. Check date on box is within a year.
2. Read safety first card thoroughly. *(front and back)*
3. Read the included test kit manual and follow instructions.
   1. *Short form instructions are on the back for a quick reference to protocol.*
4. Record all findings on the sheet provided.

**Refractometer Salinity**

1. Clean the refractometer.
2. Place a drop of water on the blue glass and close to the top.
3. Look through the scope and record the salinity. *(left side value)*
4. Clean the refractometer with a rag and clean water *(from the bathroom sink)* to remove the salt.

**Temperature**

1. Get the thermometer.
2. Go out far in the water.
3. Hold the thermometer underwater for at least 20 seconds.
4. Record temperature in degrees Celsius ***and*** degrees Fahrenheit.

**Salinity Titration Test Kit – procedures in the kit**

***Please be careful with the plastic tubes holding the syringes- they break very easily.***

1. Check date on box is within a year.
2. Read safety first card thoroughly. *(front and back)*
3. Read the protocols. *(the one page procedure is the specific instructions and the packet is a more general pictographic one)*
4. Record all findings on the sheet provided.

**NaGISA Water Analysis (Analysis Protocol)**

***Please write any corrections to protocol on this sheet.***

***Please alert an Extern of any broken/missing equipment.***

To begin water analysis, calibrate the probes. You will only be using the Turbidity, Salinity and Dissolved Oxygen.

Plug the LabPro into the computer under the Logger Pro program. Use the connector with the square plug for the LabPro and the regular USB plug for the computer.

**Turbidity**

1. Connect the turbidity sensor to the Lab Pro. (green box)
2. Start Logger Pro 3.6.0, select new from the menu. Select it again and the Turbidity sensor should now be identified.
3. Calibrate the sensor (Hover over “**Calibrate”** and click LabPro: 1CH1: Turbidity)
   * 1. Let the Turbidity sensor warm up for five to ten minutes in order to establish a stable voltage.
     2. Place the 100 NTU Turbidity Standard cuvette and gentle invert it a few times to mix up anything that could have settled. (**DO NOT SHAKE: This will cause bubble that will affect your readings)**
     3. Align the arrow on the cuvette with the arrow inside the sensor.
     4. Close the lid.
     5. Click “**Calibrate Now”**
     6. Enter **100** as the value for NTUs in the **First Calibration Point,** press enter.
     7. Remove the Turbidity Standard (100 NTU cuvette) from the sensor.
     8. Fill the empty cuvette with distilled water to the line. Make sure the meniscus is touching the top of the designated line.
     9. Align the arrow on the cuvette with the arrow inside the sensor.
     10. Close the lid.
     11. Enter **0** as the value for NTUs in the **Reading 2**, press enter.
4. Dump out the distilled water and fill it with the test sample water.
5. Click **“Experiment”**, then **“Start Collection”**
6. Wait for the registering value to level out and that will be your data. Do not wait too long or the suspended sediment will settle to the bottom.
7. When finished, (after 2 or 3 minutes or whenever the NTU value stabilizes), click **“Experiment”**, then **“Stop Collection”**, then “**Clear Latest Run”**.
8. After recording the data, repeat from Step 4.

**Salinity**

1. Connect the salinity probe to the Lab Pro.
2. Select new from **“File”**. Select it again and the Turbidity sensor should now be identified.
3. Salinity probe does not require calibration, you may now use it to test the water sample.
4. Rinse the tip of the probe with distilled water.
5. Insert the tip into the sample and gentle swirl.
6. Once the reading stabilizes, that will be your data.

**Dissolved Oxygen (optional)**

1. Get the CHEMets Kit.
2. Put on gloves and safety goggles.
3. Fill the sample cup with 25 mL of the first sample that will be tested.
4. Place the ampoule, tip first, into the sample cup. Carefully break the tip of the ampoule. The ampoule will fill with the sample. (There will be a bubble at the top)
5. Invert the ampoule several times. **DO NOT SHAKE** (the bubble will flow from end to end).
6. Dry the ampoule using a paper towel. Let the ampoule stand for 2 minutes before matching the sample.
7. Using the color standards, carefully match the ampoule with the first sample to one of the standards to find the best match.
8. Repeat steps 3-7 for each depth that has a sample.