

### **Lab Y5: Taking field measurements**

#### **Objectives.**

Students will be able to:

- o Calibrate a multimeter
- o Design and perform a field study
- o Analyze and explain trends seen in collected field data
- o Explain the types of stormwater ponds, why they are important and how they are maintained.

#### **Background**

Stormwater ponds play a very important role in the control of flooding and in the reduction of pollutant loads into our natural bodies of water. In the weirs lab you learn about controlling flowrates in ponds and in this lab you will explore water quality in ponds. You will be provided with a multimeter probe that gives measurements for temperature (°C), pH, turbidity (NTU - measure of particles in water or the cloudiness of a water or the amount of Total Suspended Solids (TSS which is reported in mg/L), specific conductivity ( $\mu\text{S}/\text{cm}$  – measure of ionic charge in water or the Total Dissolved Solids (TDS which is reported in mg/L), and Dissolved Oxygen (mg/L). As a field exercise you will:

1. select a site to be studied and describe your site (e.g. Google Maps, location, type of development close by)
2. constrain your study in terms of locations at your site to test, and depths at each location to test. Do at least 3 locations and 3 depths per location. Record the time of day.
3. conduct your sampling study.
4. present and analyze your results.

#### **You are given**

HYDROLAB unit along with a guard column, and a storage column. This will be calibrated during the lab period and you will be allowed to take the meter with you. Exercise care and caution when handling the meter. When you are finished sampling replace the probes into the storage cup and ensure that they are immersed in the storage solution provided in class. Always ensure that the guard column is attached when you immerse the probe in the sample site.

Use the GPS unit to record your sample locations.

#### **Discussion**

1. What is the difference between a stormwater retention pond and a stormwater detention pond?
2. What kind of pollutants get collected in stormwater ponds?
3. Describe your site (location (use google maps if you can find it), size, presence of vegetation, fountains etc.).
4. Describe your sampling plan.
5. Present your data collected, use graphs to show trends.
6. Discuss your collected data.
7. What other measurements do you think are important for communities to know about the health of “their stormwater pond”?
8. At your sampling site, how is the pond maintained?