**Field methods**

Following the packing list to fill the coolers with supplies for the field (do this the Friday before our Monday scheduled trips). Each station sampled will get its own bag of supplies. Large coolers get ice packs. Small cooler gets dry ice. (Dry ice is on first floor) If there is no dry ice, Toft’s sells dry ice, so does Kroger.

In the field, at each site visited, write down in the log book the time arrived at the station and fill in appropriate parameters measured by the handheld YSI sonde. Take measurements of light fields, every 0.5 m using the Li-Cor light meter until 0. Repeat. Write these down in the log book. No need to take light field measurements at the Bridge site due to shading by the bridge deck (too dark to get good data)

Collecting water. Use the Van Dorn bottle to collect water samples at a depth of one meter. Use three separate casts to fill 3 separate 1 L amber bottles (for chlorophylls mostly). When you fill a bottle, rinse the bottles by adding a small volume of water, capping the bottle, shaking it and pouring the contents overboard. Repeat two more times, then fill bottle completely. Store the bottles as threesomes in bags.

At Muddy Creek, ODNR1, ODNR4 and Bells, two additional sterivex samples must come from the water just above the sediment. There is a spare bottle in the coolers for temporary storage of the water, which can be rinsed in between stations.

Water for nutrient analysis. Take two (250 mL) nutrient bottle and fill the ‘Total Nutrients’ bottle with water from two of the bottles filled above. (Rinse bottles as above) For ‘Dissolved Nutrients,’ fit a 0.2 um Sterivex cartridge filter on the end of a 60 mL syringe filled with water from the same bottle the Total Nutrient sample was taken (Rinse bottle with small amount of filtered water). Push the water into the 60 mL Dissolved Nutrients bottle. Place both nutrient bottles in the cooler (wet ice is OK for this). Leave a small amount of room in bottle for freezing (bottle should have at least 50mL).

Water for toxin analysis. For ‘Total Toxin’ pour a small volume of whole water from one of the chlorophyll bottles above so that the glass vial is **half** full, cap the vial and place in the cooler. (Over filling can cause the frozen bottles to break) For dissolved toxin, use a Sterivex filter and syringe to push through a small volume into the Dissolved Toxin vial. Fill halfway, cap and put in the cooler. Keep samples in the same Ziploc bag as the nutrient samples.

Sterivex filters for DNA and RNA. At each station, prepare a series of filters with 120-180 mL of water filtered through them using the 60 mL syringes. Some stations only need three filters, others need 6 or more. Label each with the date, station and volume filtered (very important!). Volume will vary depending on turbidity of water. (Some may only be able to push 30mL through) Remove as much water from filter as possible by pushing air through the Sterivex. When the filter is prepared, cap the Luer lock end with the white screw cap and plug the nipple end with clay. IMMEDIATELY toss onto dry ice to quick freeze the sample. Given the time and tedium it takes to do this filtering, you might dedicate one person at each station to do this, and rotate at the next station. Tough luck for the guy who gets the 10 filter station. Write down volume filtered in field book.

At Muddy Creek, ODNR1, ODNR4, and Bells, two of the sterivex samples are taken from just above the sediment (or as deep as you can go for Bells).

Water samples for viruses. Single one liter samples are drawn at each station for Katelyn’s virus project. Square liter polycarbonate bottles are packed for cruises in which such sampling is done. Fill these bottles as much as possible.

EPA sampling. Bottles will be filled according to EPA protocols and forms filled out accordingly. We’ll go over that separately

Sediment sampling. At Muddy Creek, ODNR1, and ODNR4, you will need to use the sediment sampler to take a sample of the surface of the sediment. Fill the 50mL falcon tube with ~25mL of sediment, removing any water. Fill the rest of the 50mL falcon with 95% ethanol.

Back in the lab. After the stop at Toft’s for ice cream and the 1 hour drive back to the lab, store samples **immediately** upon arrival. First, the Sterivex filters are put in labeled boxes in the -80 freezer. Nutrient samples and toxin samples are put in large bag marked by date and put in a -20 freezer. Next filter for chlorophylls – depending on the ‘greenness’ of the water, filter 5 or 10 mL volumes, using pipettes, onto 25mm 0.2 um polycarbonate filters, and freeze individually in test tubes labeled with station, date and **volume filtered** (very important). Record time of processing.

Lugol’s samples. For microscopy of phytoplankton, preserve 10 mL volumes from each site in Lugol’s solution. Fill a 15 mL Falcon tube (same tubes as the chlorophyll filters) with a water sample, and add Lugol’s iodine so the water is yellow/orange in color (urine color is fine). Store at room temperature away from direct strong light.

Other field-related duties may emerge as the summer develops, but these are the major activities on sampling days.