

Sampling Trips General

- Check the weather. Don't go out if the winds are >10 mph.
- If applicable, make sure the drone batteries and probe handhelds are sufficiently charged.
- Fill out the [boat authorization spreadsheet](#)
- Launch the pontoon boat according to this checklist.
- Do a gridded drone flight according to the drone checklist
- Do probe and water samples according to the checklist
- Fill out the research journal
- Export the probe data onto the sharepoint
- Upload drone, GoPro, etc pictures to the sharepoint/Drive
- Charge the drone batteries
- Charge the probe handhelds if <50%

Monday Sampling Trip

Vertical Profiles and Water Samples

Packing List

- SOP Binder
- TSSD Binder
- GoPro with floaty case
 - Check the battery, if not full charge or bring the charging cord to charge in the car
- Drones
 - Make there are several fully charged batteries
 - Make sure the remotes are charged

Water Samples

- YETI cooler with ice pack
- 10 Sample bottles
- Towels
- Sharpies
- Dip Sampler
- DI water for Bottle Blank

Probe Samples

- Both probes, with their handhelds and charging cords
 - Check Battery
- Black case with tap and DI water squeeze bottles to wash probes
- Flash drive
- Rubber Bands
- Make sure the poles/booms are out on the lake
- Measuring tape with the weight at the bottom (should be on the pontoon boat)

Pontoon Boat

At Launch

- Check oil, save empty cans, contact Rodney when container is empty
- Check gas
- Make sure battery connection is tight
- Make sure battery is around 14 volts; if it's around 12 volts, the boat likely won't start next time
- Check water stream from engine (to make sure the cooling system is working)
- Before launching, take probe samples off the side of the boat, then rinse probes with tap water
- Don't make a wake in the no wake zone
- Boat drifts right so keep a hand on the wheel to keep it from drifting

Coming Back

- Have someone catch the boat so it doesn't hit the dock
- Tie off the boat on the cleats, ropes going in opposite directions so it doesn't move side to side

Probe Sampling

Take probe samples

- Measure the Depth of the lake using the measuring tape with the weight.
 - Err on the side of caution--the probes should not hit the sediment, so only lower them to within 0.1m of the measured depth, not all the way to the bottom
- For vertical profiles, sample in the SW quadrant of each corral and the NW side of BC6 and BC2 (the two western buoys)
 - Lower the probes at rate of 0.1 meter every second
 - Water sample should be taken with the vertical profiles
- For single probe samples, take a single measurement at each quadrant of the corrals and a single measurement at the two buoys.
 - The depth should be at 0.5 meters in all of the corrals except corral 1. Sample at a depth of 0.3 in corral 1.
- For data tracks, put the probes in continuous mode and set the interval to 10 seconds.
 - Place the weights on the probes.
 - The boat should be going at a speed between 3 mph to 5 mph
- If you need to delete a measurement do delete selected data not all data, but do it in the field to make things cleaner for data entry
- ALWAYS keep the probe guard on
- Don't lower probes into the sediment, esp horizontally, can mess with readings
- After taking the probes off rinse with DI water to prevent fouling and put back in the cal cup with no more than ½" of water in it

Water Samples

While on the water

- Label the sample bottles (Date-Corral Number-Corral Side-Depth-W)
 - Include the time the sample was taken and the sample temperature (take off of the probe)
 - EX: 07192021-C6-SW-D0-W
 - 9:40am 26.5 C
- Triple rinse the the labeled sample bottle and the dip sampler
 - Rinse with the water inside the corral and dump the water out on the outside of the corral
- Take a water sample at BC6 NW
- Take a duplicate of one corral (rotate which corral each week)
- Take a bottle blank
 - Triple rinse the sample bottle with DI water and then fill the sample bottle with DI water.
- Place all of the water samples in the Yeti cooler.

- Make sure the lids are on tight

When leaving

- Take the Dip sampler back with you to the lab for cleaning

Drone Pictures

- Ensure battery is properly connected (no gap)
- Connect phone to controller and launch FreeFlight6, then turn the drone on
- Check the battery status of the drone and controller
- Check the SD card and clear it if there are photos that haven't been deleted (make sure they've been uploaded to the flash drive first though)
- Take a test photo while the drone is on the ground to make sure the camera is working
- Launch the drone and take the following pictures, always with the drone facing North (towards shore) and the camera pointed directly downwards
 - A photo of each of the corrals where the corral fills the entire frame of the photo (elevation ~20ft)
 - A photo with all 5 offshore corrals in frame at the far left side of the image, and a second with the corrals in the center of the image
 - A photo at 400ft of the 5 offshore corrals
 - A photo at 400ft of Corral 1
 - A photo at 400ft of the TSSD effluent
 - A photo at ~200ft taken with the drone over TSSD looking out towards the corrals (South) with the camera angle up so that the effluent, Corral 1, the carp enclosures, and the 5 offshore corrals are all in frame
 - A few photos of the sampling taking place
 - Photos of anything else interesting or unusual that you observe, including close-ups of blooms inside the corrals and unique circulation patterns
- Keep an eye on the drone and controller battery life
- Bring the drone back when the battery drops to 20%, sooner if it is windy or the drone is far away
- Turn the drone off before switching the battery
- Make sure the drone is clean and in good shape before you put it away

After Sampling Trip

- Fill out research journal and field logbook
- Upload GoPro and drone pictures to flash drive, and from flashdrive to SharePoint
- Upload Probe data to flash drive and SharePoint
- Fill out Sample Info sheet on the Sharepoint data spreadsheet
- Clean the probes
- Put dip sampler in acid bath

Wednesday Sampling Trip

Single Probe Sample

Packing List

- GoPro with floaty case
- Drones

Probe Samples

- Both probes, with their handhelds and charging cords
 - Check Battery
- Black case with tap and DI water to wash probes
- Rubber Bands
- Make sure the poles/booms are out on the lake
- Measuring tape with the weight at the bottom

Pontoon Boat

At Launch

- Check oil, save empty cans, contact Rodney when container is empty
- Check gas
- Make sure battery connection is tight
- Make sure battery is around 14 volts; if it's around 12 volts, the boat likely won't start next time
- Check water stream from engine (to make sure the cooling system is working)
- Don't make a wake in the no wake zone
- Boat drifts right so keep a hand on the wheel to keep it from drifting

Coming Back

- Have someone catch the boat so it doesn't hit the dock
- Tie off the boat on the cleats, ropes going in opposite directions so it doesn't move side to side

Probe Sampling

Take probe samples

- For single probe samples, take a single measurement at each quadrant of the corrals and a single measurement at the two buoys.
 - The depth should be at 0.5 meters in all of the corrals except corral 1. Sample at a depth of 0.3 in corral 1.
- If you need to delete a measurement click "delete selected data" not "all data", but do it in the field to make things cleaner for data entry
- ALWAYS keep the probe guard on
- Don't lower probes into the sediment, esp horizontally, messes with readings

- After sampling, rinse with DI water to prevent fouling and put back in the cal cup with no more than ½” tap water in it (don’t store the probes in DI water)

Drone Pictures

- Ensure battery is properly connected (no gap)
- Connect phone to controller and launch FreeFlight6, then turn the drone on
- Check the battery status of the drone and controller
- Check the SD card and clear it if there are photos that haven’t been deleted (make sure they’ve been uploaded to the flash drive first though)
- Take a test photo while the drone is on the ground to make sure the camera is working
- Launch the drone and take the following pictures, always with the drone facing North (towards shore) and the camera pointed directly downwards
 - A photo of each of the corrals where the corral fills the entire frame of the photo (elevation ~20ft)
 - A photo with all 5 offshore corrals in frame at the far left side of the image, and a second with the corrals in the center of the image
 - A photo at 400ft of the 5 offshore corrals
 - A photo at 400ft of Corral 1
 - A photo at 400ft of the TSSD effluent
 - A photo at ~200ft taken with the drone over TSSD looking out towards the corrals (South) with the camera angle up so that the effluent, Corral 1, the carp enclosures, and the 5 offshore corrals are all in frame
 - A few photos of the sampling taking place
 - Photos of anything else interesting or unusual that you observe, including close-ups of blooms inside the corrals and unique circulation patterns
- Keep an eye on the drone and controller battery life
- Bring the drone back when the battery drops to 20%, sooner if it is windy or the drone is far away
- Turn the drone off before switching the battery
- Make sure the drone is clean and in good shape before you put it away

After Sampling Trip

- Fill out research journal and field logbook
- Upload GoPro and drone pictures to flash drive, and from flash drive to SharePoint
- Upload Probe data to flash drive and SharePoint
- Clean the probes

Friday Sampling Trip

Data Tracks and Gridded Flights

Packing List

- GoPro with floaty case
- Drones

Probe Samples

- Both probes, with their handhelds and charging cords
 - Check Battery
 - Make sure you have the probe weights
- Black case with tap and DI water to wash probes
- Flash drive
- Rubber Bands
- Make sure the poles/booms are out on the lake
- Measuring tape with the weight at the bottom

Pontoon Boat

At Launch

- Check oil, save empty cans, contact Rodney when container is empty
- Check gas
- Make sure battery connection is tight
- Make sure battery is around 14 volts; if it's around 12 volts, the boat likely won't start next time
- Check water stream from engine (to make sure the cooling system is working)
- Don't make a wake in the no wake zone
- Boat drifts right so keep a hand on the wheel to keep it from drifting

Coming Back

- Have someone catch the boat so it doesn't hit the dock
- Tie off the boat on the cleats, ropes going in opposite directions so it doesn't move side to side

Probe Sampling

Take probe samples

- For data tracks put the probes in continuous mode and set the interval to 10 seconds.
- Place the weights on the probes.
- The boat should be going at a speed between 3 mph to 5 mph

- If you need to delete a measurement do delete selected data not all data, but do it in the field to make things cleaner for data entry
- ALWAYS keep the probe guard on
- Don't lower probes into the sediment, esp horizontally, can mess with readings
- After sampling, rinse probes with DI water to prevent fouling and put back in the cal cup with no more than ½" tap water in it (do not store probes in DI water)

Drone Pictures

After Sampling Trip

- Fill out research journal
- Upload GoPro and drone pictures
- Upload Probe data
- Fill out Sharepoint data
- Clean the probes
- Calibrate all of the sensors on the drones