

# Great Salt Lake Sampling Protocol

## Materials you will need:

- Hand vacuum pump
- 1000mL plastic filter flask
- Vacuum tubing
- 0.2um sterile filter funnels (one for each planned sample)
- 15mL falcon tubes
- 91% Isopropyl Alcohol
- Lighter
- Tweezers
- Gloves
- GPS unit
- Notebook and Sharpie
- Small scoopula
- Cooler with Ice (Ice can be found in the Micro Prep lab down the hall)

## At each sample location you will collect the following:

1. Minimum 15mL Salt Lake water
2. Minimum 15mL of Salt Lake sediment
3. Filter membrane that has had at least 50mL Salt Lake water passed through it

## Notes:

- Any person handling sampling equipment needs to wear gloves!
- Be sure to sterilize sampling equipment (scoopula, tweezers) right before taking a sample!

## Step 1:

Make sure you have all the necessary equipment before heading to your site(s).

## Step 2:

Once you have arrived at your site, put on gloves.

Note in the image that this random person is wearing gloves.



### **Step 3:**

Taking a sample of the water column...

Take a 15mL or 50mL sample of surface water directly into a sterile Falcon tube. Try your best to exclude big chunks of organic matter (i.e., flies or rotten brine shrimp) and mineral material (i.e., sand) from the sample. Do NOT leave any air bubbles. These will impact the dissolved oxygen content of the water sample.

Fill it to the top. Cap the tube under water if possible.

LABEL YOUR TUBE with the site ID!



### **Step 4:**

Taking a sediment sample...

Since this requires the use of a scoopula, that needs to be sterilized first. Do this by dunking the scoopula in 91% isopropyl alcohol for a few seconds and then lighting it on fire. Don't burn yourself.

Once sterile, use it to scoop 15mL of sediment (from under water at your sampling location) into a sterile Falcon tube.



What's that you see on the tube!?

Oh, it's a LABEL!

Yes, that's right. Label the tube with the same site ID that you used for the water column sample.



## Step 5:

Taking a water filter sample...

Assemble the filter apparatus as shown. Hook the vacuum tube up to the hand-pump, hook the other end to the side of the filter flask. Insert the rubber stopper into the top of the filter flask with the funnel adaptor inserted into the stopper hole.



Using clean technique, attach a sterile filter funnel firmly onto the funnel adaptor and add 50 mL of sample water to the funnel. Try to avoid particulate matter (sand, dead brine shrimp, etc) in the water you add to the filter funnel.



Pump the hand-vacuum SLOWLY, giving time between each stroke for the chamber to refill.

Once all the water has run through the filter, carefully replace the filter cap and press the vacuum release valve on the hand pump. Then detach the capped filter funnel and keep it safe while you prepare a 15mL Falcon tube. "Prepare" includes LABELING!

Next step will use tweezers, so STERILIZE them as with the scoopula.

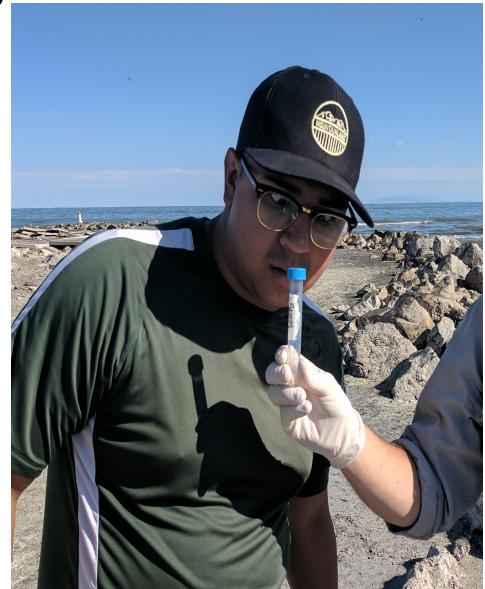
One person should carefully (out of strong winds!) hold the filter funnel and remove the plastic funnel to expose the filter membrane.



A second person should take the STERILE tweezers and gently ROLL the filter membrane around them so it can be inserted into the prepared sterile Falcon tube.



Insert the rolled-up filter membrane into the Falcon tube and cap it off.



You should now have three tubes from the site, all with the same label (The site ID). The prefix we use for Salt Lake project is "SL" so site 1 is "SL001" Check with the lab notebook to see what site IDs have already been used.

## STEP 6:

Record GPS coordinates...

These site IDs don't mean much without some knowledge about where they came from. So, turn on the GPS unit, wait a minute for it to acquire satellite positions and then press "MARK" to see the Latitude and Longitude of your site.

Open your field notebook and write down the site ID along with Lat and Lon coordinates.



Each physical location you visit on the lake can have 2-3 samples taken from the nearby area. Make sure to record the exact GPS locations, even if sampling sites are only a few hundred feet apart, and be sure to give them new Site IDs if you do multiple collections from the same general area.

## STEP 7:

Put them on ice...

Don't stick samples directly into the cooler. That's not very clean. Put them all in a secondary receptacle (or ziplock bag) and then place them in the cold cooler for transportation.



## STEP 8:

Back at the lab...

Once you return to the lab there are a few tasks to complete before you are finished.

- Put the Water Samples and Sediment Samples into the left refrigerator.
- Put the Filter Membrane Samples into the lab freezer
- Copy all GPS info from the field notebook into the main lab notebook (There is a space designated for GSL sample information in the lab notebook...follow that existing format)
- Clean up all the equipment. Rinse off rotten brine shrimp residue, salt, etc. Return everything to where you found it.

