



# Shell Day How To

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# Sampling Protocol

- Bucket Sampling
- Pole Sampling
- Hand Sampling
  
- 6 major steps regardless of method used:
  - Measure Temp/Salinity
  - Rinse apparatus used to collect water
  - Rinse bottles 3x
  - Fill Bottle
  - Put on ice in dark
  - Fill out Datasheet

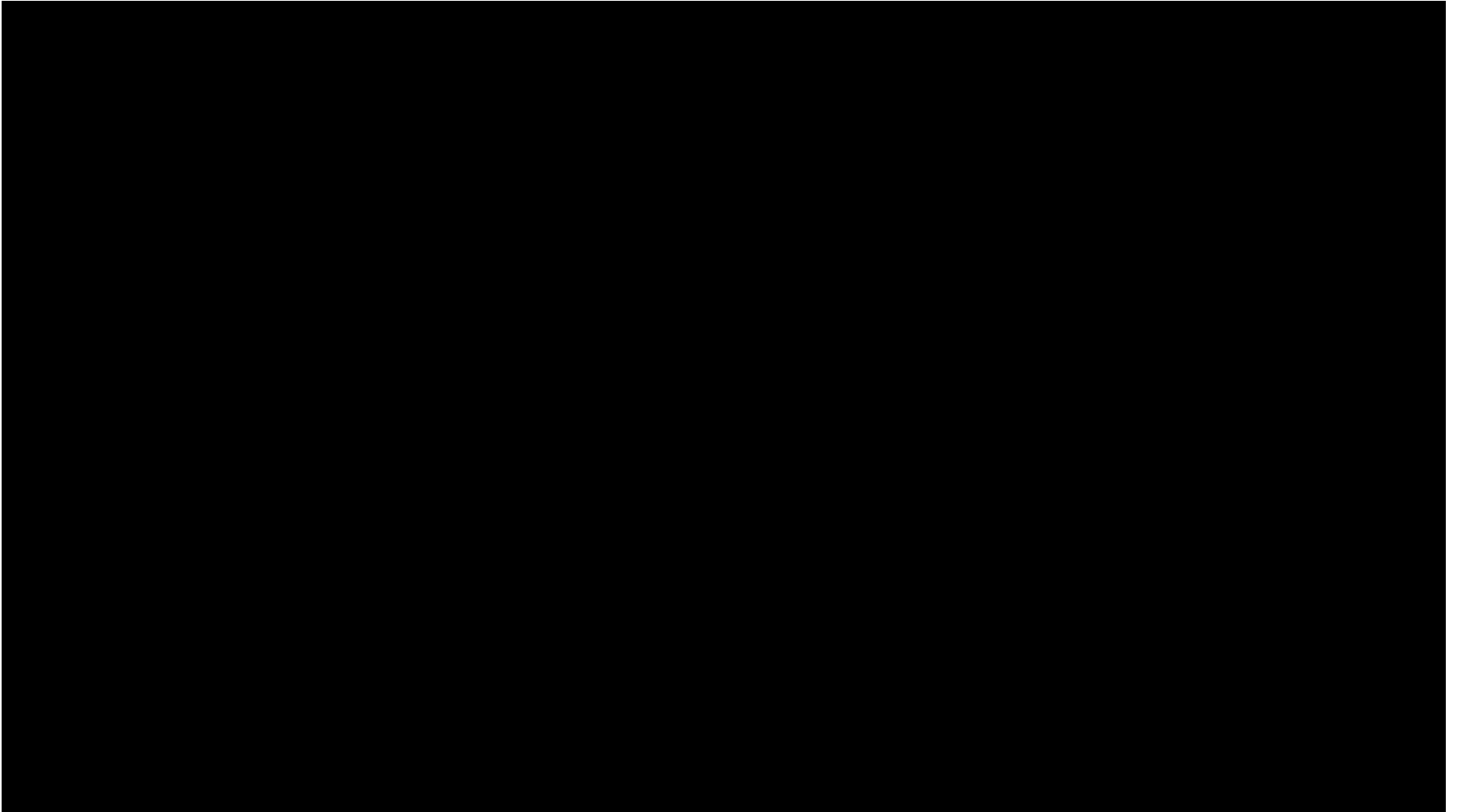
Samples collected at LOW, MID, and HIGH TIDE  
Low and high tides are DUPLICATES!



# Things you'll need for sampling

- A way to collect your water: Bucket, Pole, etc.
- Sample bottles
- Instruments for measuring temperature and salinity
- Datasheet
- Sampling protocols
- Cooler with ice
- Pen/Pencil
- Camera? Take lots of pictures for us! We'd love to see your field sites

# Video



# Bucket Sampling

1) If using a multiparameter datasonde, measure temperature and salinity as per your normal measurements (and other parameters) in the water body ~15cm below the water surface. Record the data and time on the datasheet.

2) Fill bucket

- Fill bucket  $\frac{1}{4}$  full to rinse bucket with site water
  - o Take care not to stir up any sediments if sampling very shallow sites
  - o If wading into your site, take care to fill the bucket upstream of where you are standing
- Swirl water around in bucket to rinse.
- Dump rinse water downstream of where you will be sampling
- Fill bucket with site water,  $\frac{1}{2}$  to  $\frac{3}{4}$  full.
- Note the time the water was collected from the field site.
- Set bucket on dock, pier, ground, etc.

3) If using another method for temperature and salinity, measure temperature and salinity in the bucket. Record the data and time on the datasheet.

4) Rinse sample bottle

- Keep the cap on the bottle, put sample bottle into bucket until the entire bottle is submerged.
- Open the bottle underwater with the mouth ~10cm from the surface of the bucket.
- Dump out half of the water, put cap on bottle, shake bottle to rinse and dump out water. Do not dump the rinse water back in the bucket.
- Repeat bottle fill and rinse two more times.

5) Fill sample bottle

- Keep the cap on the bottle, put sample bottle into bucket until the entire bottle is submerged.
- Open the bottle underwater with the mouth ~10cm from the surface of the bucket.
- Dump out a small amount of water to leave a little headspace at the top of the sample bottle.
- Cap bottle, place on ice in a cooler.
- If collecting a duplicate sample, repeat the bottle rinse and fill for the second bottle (#4 and #5).

6) Fill out the rest of the data on datasheet: be sure to record time of sample collection, bottle numbers, temperature, salinity, tidal stage, and any other ancillary measurements.

# Hand Sampling

- **Hand Sampling Protocol**

1) If using a multiparameter datasonde, measure temperature and salinity as per your normal measurements (and other parameters) in the water body ~15cm below the water surface. Record the data and time on the datasheet.

2) If using another method for temperature and salinity, measure temperature and salinity in the water body ~15 cm below the water surface. Record the data and time on the datasheet.

3) Rinse sample bottle

- Keep the cap on the bottle, put sample bottle into the water body until the entire bottle is submerged.
- Open the bottle underwater with the mouth ~15cm from the surface of the water.
- Dump out half of the water, put cap on bottle, shake bottle to rinse and dump out water downstream of where you are sampling.
- Repeat bottle fill and rinse two more times.

4) Fill sample bottle

- Keep the cap on the bottle, put sample bottle into the water body until the entire bottle is submerged.
- Open the bottle underwater with the mouth ~15cm from the surface of the water body.
- Dump out a small amount of water to leave a little headspace at the top of the sample bottle.
- Cap bottle, place on ice in a cooler.
- If collecting a duplicate sample, repeat the bottle rinse and fill for the second bottle (#3 and #4).

5) Fill out the rest of the data on datasheet: be sure to record time of sample collection, bottle numbers, temperature, salinity, tidal stage, and any other ancillary measurements.

# Pole Sampling

- **Pole Sampling Protocol**

- 1) If using a multiparameter datasonde, measure temperature and salinity as per your normal measurements (and other parameters) in the water body ~15cm below the water surface. Record the data and time on the datasheet.
- 2) If using another method for temperature and salinity, measure temperature and salinity in the water body ~15 cm below the water surface. Record the data and time on the datasheet.
- 3) Rinse the sampling pole:
  - Extend the rod. Do not extend the pole too far when sampling high velocity streams. You'd be surprised at how much force there can be on the pole. To avoid damaging (bending) the pole, it is recommended that you leave at least 1-foot unextended. You can mark this limit on the pole with a permanent marker.
  - Rinse the clamp end of the rod by dunking it into the waterbody you wish to sample. This will reduce the possibility of contamination from the previous station (or contamination from the trunk of your car!).
- 4) Rinse the bottles:
  - Place a new sample bottle in the clamp and squeeze the clamp closed.
  - Remove the cap from the bottle. Place the cap in a secure, clean location where it cannot become contaminated.
  - Rotate the rod until the bottle is upside down.
  - Carefully, immerse the bottle in the waterbody and then rotate the rod to fill the bottle (see figure 1). Only partially fill the bottle.
  - Remove from the water.
  - Gently swirl.
  - Discard the water in the bottle downstream and away from where you are sampling.
  - Repeat two additional times for a total of 3 rinses.
- 5) Collect your sample:
  - Immerse the bottle to the desired depth and then rotate the rod to fill the bottle (see figure 1). Once the bottle is full, remove it from the water. Remove the bottle from the clamp. Pour off a small amount of water to leave headspace at the top of the sample bottle. Cap the bottle.
- 6) Place your sample into a cooler of wet ice. Ensure melting ice water does not contaminate your sample. Keep the ice level below the threads of the cap. Ideally, place your sample into a zip top bag and then into the ice.
- 7) Record the time of sample collection on the Field Data Sheet.
- 8) Repeat for the remaining bottles.
- 9) Fill out the rest of the data on datasheet: be sure to record time of sample collection, bottle numbers, temperature, salinity, tidal stage, and any other ancillary measurements.







**Notes/Observations:**

**Station Characteristics: (Circle One)**

Upper Estuary	Lower estuary
Mid Estuary	Coastal Ocean

**Substrate Type**

**Temp/Salinity Method**

**Sonde Make/Model**

**Date of last sonde calibration**

**RELINQUISHED BY: (SIGNATURE)**

**Date/Time**

**RECEIVED BY: (SIGNATURE)**

**Date/Time**

**Temp/salinity method:**

e.g., sonde, multi-parameter sonde, thermometer, refractometer

**Substrate Type:**

e.g., Sand, Mud, Rock, Algae, Unknown

**Sonde Make/Model:**

e.g., YSI EXU 2, Eureka Manta, Hydrolab

**Current Weather:**

e.g., Partly cloudy, mostly sunny, rain, fog

**Sea State:**

e.g., 0= Calm-Glassy (0 meters)  
1= Calm- Rippled (0-0.1 meters)  
2= Smooth- Wavelet (0.1-0.5 meters; 0.33 -1.65 feet)  
3= Slight (0.5-1.25 meters; 1.65 - 4.125 feet)  
4= Moderate (1.25-2.5 meters; 4.125-8+feet)

# Important considerations that YOU need to plan for!

- Tides are not the same across the whole region. You will need to determine what the best time to go in the field to collect your samples for low tide, mid-tide, and high tide.
- If there is rain, **WE WILL STILL SAMPLE!** Please be safe going out in the field in the rain, and be smart about inclement weather (e.g. thunder and lightning). We want Shell Day to happen, but more so, we want everyone to be safe!

# Tips and tricks

- If you have access to latex or nitrile gloves, we encourage you to wear them to minimize contamination of your sample.
- Try to keep your datasheet as dry as possible.
- Make sure your samples stay ON ICE, and IN THE DARK until they are returned to the lab
- The boxes are small on the datasheet – try not to use a fat tipped pen like a sharpie
- Make sure you know the plan for how your samples and data sheets will make it back to a partnering laboratory.

# In case you were wondering:

More than 50 groups are participating in Shell Day!



We're still missing sites from some organizations, so please send your site information on to your regional coordinator!

# THANK YOU!!!!

