

Hydrology Field Sampling Procedures for surface water, groundwater and porewater sampling

I. Preparation of sample bottles

1. Gather either new Nalgene bottles (60 & 125 mL) directly from the manufacturer, or acid washed (10% HCl) for 24 hours followed by 3 rinses with DIW and air dried.
2. Put label tape around each bottle.

II. Calibration of field meters

1. The calibration of the Conductivity meter is checked using two conductivity standards (1 mS/cm and 10 mS/cm) in the laboratory one day prior to the first day of sampling.
2. pH meter is calibrated to 3 pH standards (4.0, 7.0, 10.0) each morning.
3. D.O. meter is calibrated for 15 minutes with the probe in its sleeve each morning.

III. Surface water sampling

1. Submerge conductivity/temperature/salinity probe just below the surface of the water and take readings. Record readings in field note book.
2. Rinse out a plastic beaker with surface water three times and fill for pH reading. Stir probe in sample water for about a minute, then wait about 3 minutes for reading to become stable. Record reading in field notebook.
3. Rinse out the D.O. glass bottle three times with the surface water and then fill completely. Submerge the D.O. probe in the bottle, then wait about 3 minutes for the D.O. reading to stabilize. Record D.O. reading in the field notebook.
4. Rinse out 2 sample bottles (125 mL) with surface water three times, then fill, and. Put 3 mLs of 10% HCl in one bottle for total phosphorus. Put both bottles in an ice chest with ice.
5. Attach a 45 μ m filter to the outlet hose of a peristaltic pump. Use the peristaltic pump to sample the surface water and then push water through the filter. The discharge water from the filter is used to rinse out two sample bottles (60 mL), then fill, cap and store in ice chest. One sample bottle is for dissolved nutrients, the other sample bottle is for alkalinity, stable isotopes of oxygen and hydrogen, and anions.
6. An additional filtered sampled bottle (60 mL) was collected and acidified with about 3 mL of 10% HCl for determinations of cations and store in the ice chest.

IV. Groundwater sampling

1. Measure the depth to groundwater in each well along with the bottom depth of each well with a depth to water meter and record in field notebook.
2. Pump out at least 3 well volumes from the well with a gas powered pump.
3. Monitor the conductivity/temperature/salinity from the discharge hose of the gas powered pump until the readings are stable. Record these readings in the field notebook.
4. Switch from the gas powered pump to the peristaltic pump to sample the well.
5. Rinse the plastic beaker three times with the well water and then fill. Submerge the pH probe in the beaker, stir for about 1 minute, then wait about 3 minutes for the pH to stabilize. Record pH reading in the field notebook.
6. Rinse out the D.O. glass bottle three times with the well water and then fill completely. Submerge the D.O. probe in the bottle, then wait about 3 minutes for the D.O. reading to stabilize. Record D.O. reading in the field notebook.
7. Rinse out 2 sample bottles (125 mL) with well water three times, then fill, and. Put 3 mLs of 10% HCl in one bottle for total phosphorus. Put both bottles in an ice chest with ice.
8. Attach a 45 μ m filter to the outlet hose of a peristaltic pump. Use the peristaltic pump to sample the surface water and then push water through the filter. The discharge water from the filter is used to rinse out 2 sample bottles (60 mL), then fill, cap and store in ice chest. One sample bottle is for dissolved nutrients, the other sample bottle is for alkalinity, stable isotopes of oxygen and hydrogen, and anions.
9. An additional filtered sampled bottle (125 mL) was collected and acidified with about 3 mL of 10% HCl for determinations of cations and stored in the ice chest.

V. Porewater Sampling

1. Attach peristaltic hose to end of porewater sampler and remove at least 3 volumes of water from the sampler.
2. Monitor the conductivity/temperature/salinity from the discharge hose of the pump until the readings are stable. Record these readings in the field notebook.
3. Rinse the plastic beaker three times with the well water and then fill. Submerge the pH probe in the beaker, stir for about 1 minute, then wait about 3 minutes for the pH to stabilize. Record pH reading in the field notebook.
4. Rinse out the D.O. glass bottle three times with the well water and then fill completely. Submerge the D.O. probe in the bottle, then wait about 3 minutes for the D.O. reading to stabilize. Record D.O. reading in the field notebook.
5. Rinse out 2 sample bottles (125 mL) with well water three times, then fill, and. Put 3 mLs of 10% HCl in one bottle for total phosphorus. Put both bottles in an ice chest with ice.
6. Attach a 45 μ m filter to the outlet hose of a peristaltic pump. Use the peristaltic pump to sample the surface water and then push water through the filter. The discharge water from the filter is used to rinse out 2 sample bottles (60 mL), then fill, cap and store in ice chest. One sample bottle is for dissolved nutrients, the other sample bottle is for alkalinity, stable isotopes of oxygen and hydrogen, and anions.
7. An additional filtered sample bottle (125 mL) was collected and acidified with about 3 mL of 10% HCl for determinations of cations and stored in the ice chest.