

## Step-by-Step Instructions - Snapshot Day Water Quality Assessment

### STEP 1: Go to Training

Each year Truckee River Snapshot Day organizers provide training for Team Leaders and Team Members. Educators and students are also encouraged to attend. It's mandatory for "first-timers" and useful for the "veterans", as well. Site information and specific training techniques are dynamic and they often evolve over time for this event. **Truckee River Snapshot Day 2019 training will take place at the former Rosewood Lakes Golf Course (6800 Pembroke Dr., Reno, NV 89502 at the Truckee Meadows Parks Foundation offices on Tuesday, May 14<sup>th</sup> from 6p.m. to 8p.m.** Both indoor and outdoor training will take place. This is also the time for you to receive your site binder with all the paperwork you will use, the equipment and materials needed for the day (sample bottles, field meters, etc.). You can also meet other Snapshot Day champions and exchange stories of your field experiences. You never know what SWAG and snacks you could score unless you attend.

### STEP 2: At the site, review safety considerations! Be aware of your surroundings.

- Look for hazards and remove them when possible.
- Communicate with your entire team about safety.
- Collect the "Assumption of Risk" forms and "Photo/video" release forms from the educator at the site

### STEP 3: Collect the water samples. These will be "grab" samples.

Proper technique is everything. Prior training is required. You will have a variety of sample bottles. Don't forget to use the gloves included in your kit.

- Label each bottle with the Site ID, date, and time. Do not remove the cap until you are ready to capture the sample. Some bottles, as you learned in training, contain a preserving acid or other fixative material inside. Do not allow that preservative/fixative to escape the sample bottle. It must mix with the sample in order to adhere to the proper protocol.

You will collect water samples using a representative location in the stream. Do not collect from a still eddy, backwater pool or behind a boulder. Sample as far away from the bank as you can while still being safe. Sometimes this will require using a dipper pole with a collection container at the end. If so, rinse the container 3 times and then collect the water you need. Always dispose of your rinse water downstream of your sample site, as you were taught when trained. Do not rinse a sample bottle if it contains a preservative/fixative (but you already know this because you learned that while being trained). Be careful not to disturb sediment from the bottom of the stream, or if you do, allow the sediment to move downstream before collecting the water sample.

- Take the Bacteria sample first, remembering to use the sterile technique that you learned in training, in order to avoid contaminating the sample. Do not rinse the bacteria sample bottle. Fill only to the 100 ml mark. Immediately place sample on the ice in the cooler.

- Using the remaining bottles, collect the remaining samples, triple-rinsing any collection device (dipper) and the sample bottle that does not contain a preservative. Snug all caps and place the samples in the cooler.

STEP 4: Complete the Field Data Sheet located in your binder.

- **Date**
- **Station ID** (Each site has a unique code. You can find yours near the front of your binder)
- **Creek Name** (also found in your binder)
- **Site Description** (use your own words to describe the site)
- **Team Leader and Team Member names**
- **Observations:** Include the time that the observations are made and circle the best description provided for each of the following:
  - Cloud Cover*
  - Precipitation*
  - Wind*
  - Water Clarity*
  - In-stream Flow*
  - Sample Color*
  - Sample Odor*

STEP 5: Using the equipment provided and following the directions covered in the training, collect field measurements and record them on the data sheet. Be aware of the units of measurement for each parameter. If you have any questions or problems, contact the Snapshot Day Coordinator (Patricia Tierney (775) 622-6842)

- **Air Temperature** (Use a dry thermometer in a shaded location near the stream.)
- **Water Temperature** (Submerge the thermometer in the water for at least one minute and read the temperature while the thermometer is in the water)
- **pH** (Turn on the meter, which has recently been calibrated for you, and submerge the sensor directly into the water. Wait for the reading to stabilize before recording. Turn off the meter and replace the protective covering.)
- **Dissolved Oxygen** (Fill the provided tube to the top with stream water. Place a clear ampoule from the sample kit into the tube, sharp side down. Press the tip of the ampoule against the tube and snap the tip off. Allow the ampoule to fill with sample water. It will turn blue as it fills. Completely invert the ampoule several times to mix. Compare the color in the ampoule to the standards provided in the kit with your back to the sun. Do not wear sunglasses while comparing the colors and pick the best fit, even if it's between two standard colors.)

- **Electrical Conductivity** (Move slightly upstream of the main sampling site to take the reading. Remove the cap from the conductivity meter and place sensor into the stream. Keeping the sensor in the water, take the reading once it has stabilized. If you are unable to safely submerge the hand-held meter directly into the stream, collect a clean sample, rinsing your collection container at least 3 times downstream, and submerge the sensor into the collected sample. Don't forget to replace the cap on the meter and turn it off once you've recorded the reading.)

***(Put all equipment and materials away. Keep your data sheets, and ensure they are complete to this point before moving to the next step.)***

#### STEP 6: Visually Assess and Record the Stream Condition

Survey stream reaches are typically 100 meters (~300 feet) in length and are selected according to the terrain and accessibility on the sampling day. Protocol and data sheets are provided. Observers are looking for inputs into the stream (pipes, tributaries), type of input (seep/spring, industrial, stormwater runoff, etc.), and condition of the water (color, flow, odor, etc.). Sometimes these conditions are not present at the site. If they are observed, there are sections on the Stream Walk form (2 pages), including a place to make a drawing of the stream section to illustrate the observations.

- Record the information on the form provided.
- Describe the starting point at a point approximately 100 meters downstream from your sampling location. Often there will be natural or manmade landmarks or barriers that will bracket your visual assessment area. Include the lat/long GPS coordinates of the starting point, if possible.
- Take a photo of the starting point, looking upstream.
- Take a photo of the stream bed from the starting point.
- Take a photo looking across the stream.
- While walking upstream towards the sampling point, observe the stream and note any other waters that enter the stream. Examples are listed on the form. Use the map on the back of the form to draw the stream reach and mark observations there. Provide written descriptions to clarify.
- Dominant vegetation should be noted. If the specific types of vegetation are not known by name, they can be described in detail and photographed. Be sure to include close up photos and at distance photos for possible identification after the fact. Estimate the percent of native vegetation and the percent of non-native vegetation if a team member is familiar with the plant types.
- Estimate the overall width of the vegetation on both sides of the stream, along the shoreline. If vegetation is absent, describe what is in its place.
- Using the Land use Observation Codes on the form, record the primary land uses and/or activities that are occurring within the reach of stream that you are surveying.

- Note any obstacles that may be possible barriers to fish passage. Dams (natural or manmade) are typically the biggest barrier to fish passage. Sedimentation and low flow water elevations may also prevent fish passage.
- Identify diversions and note on the form. Is the water being taken from the stream in the survey reach? If so, describe, to the best of your ability.
- Record any shore or stream modifications that are observed. This could include artificial hardening, stream crossings, devegetation, etc.
- Has the stream been artificially channelized in the survey section?
- Is the bank eroded? Has excessive sediment been deposited in the stream bed or along the shoreline?
- Once you have reached your end point (100 meters upstream), take a photo from there, looking downstream.
- From the end point, take a photo of the stream bed.
- From the end point, take a photo looking across the stream.
- Don't forget to take photos of your team members as they complete the field study tasks and get a group photo of everyone. Location ID signs will be included in each kit and can be held by a team member in the picture to help identify the site of the photograph.

**STEP 7: Return to your meeting location.**

- Check to make sure that all of the forms have been completed properly.
- Look at the sample bottles and make sure that they are labeled with the Station ID, Team Leader Name, Date and Time.
- Complete the "chain of Custody" forms for the lab samples, as directed.
- Review the "Check Out" form and follow the directions to return equipment and materials, according to the directions of the current Snapshot Day coordinator.
- Complete the Snapshot Day evaluation form.
- Meet with your coordinator to hand off iced samples and the bin of equipment and materials.

**\* COMMENTS:** You will need to bring a cooler (that can hold two half gallon plastic bottles) with ice to your site on the day of the event. We recommend you bring a cell phone to take photos that can be emailed to the coordinator at the end of the day.




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This concludes the Snapshot Day field study experience.

Thank you for your participation and expertise.

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