Texas Stream Team
Caring for Our Waters

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BEFORE MONITORING

Calibrate Conductivity Meter with Conductivity Standard Solution no more than 24 hours before use. Record Conductivity Standard Solution under *Standard Value* in Meter Calibration box on monitoring form.

1. Using Standard Solution, rinse beaker, thermometer & meter probe TWICE.
2. Hold beaker by top edge and fill to 1.5 oz. level, insert thermometer and meter probe, stir gently to remove bubbles from probe.
3. Read thermometer to nearest 0.5 degree and record *Standard Temp* (°**C**).
4. Hold meter probe ½ inch off bottom, turn meter on and record *Initial Meter Reading*. Continue slowly stirring meter in solution for 2 minutes.
5. If meter is not reading the Standard Solution value, adjust meter until the reading is equal to the standard value.
6. Turn meter off while immersed and record Standard Solution value under *Meter Adjusted To*. Shake excess solution off probe, rinse, and re-place cap.

AT SITE

Record **Field Observations and Comments** before disturbing the water.

Hang the thermometer out of direct sunlight and wait 2-3 minutes before recording **Air Temperature** (°**C**) to nearest 0.5 degree.

Remove sunglasses and check **Water Transparency** while shaded from the sun:

If using a Secchi Disk:

1. Lower Secchi Disk in water until it disappears, mark depth, raise Disk until barely visible and mark depth.
2. Average both depth readings and record to nearest 0.01 meter (1 centimeter).

Measure and record the water's **Total Depth** (meters):

1. Lower disk into water again until cord becomes slack, then raise until straight.

If using a Secchi Tube:

1. Rinse tube TWO TIMES with sample water.
2. Fill with sample water until the bottom image is not visible.
3. Release water until the symbol is just visible.
4. Record turbidity at the bottom of the meniscus.

To collect a **Bucket Grab Sample:**

1. Rinse sampling bucket TWO TIMES and discard rinse water downstream.
2. Collect bucket of water (sample) from a depth of 1 foot under the surface.
3. Keep bucket out of direct sunlight and wind while measuring ALL field parameters.

To measure **Water Temperature:**

1. Gently stir thermometer in bucket sample for 1 ½ minutes.
2. Read thermometer while it is in the water and record *Water Temperature* (°**C**) to the nearest 0.5 degrees.

To measure **Conductivity:**

1. Rinse sample beaker and meter probe TWICE with bucket sample water, discard water downstream.
2. Fill beaker with 1.5 oz. of bucket sample water, insert meter, and remove bubbles. Turn meter on, and read meter while gently stirring for 2 minutes, turn meter off, record reading under *Conductivity* and mark *TDS Tester* option.

To measure **Dissolved Oxygen (DO):**

1. Rinse both sample bottles and caps TWICE in bucket sample water, dispose of rinse water downstream.
2. Fill each bottle and cap below surface, and then check for bubbles.
3. Put on safety goggles and gloves & uncap both bottles.

Fixing the D.O. Sample:

1. Add 8 drops – Manganese Sulfate Solution [pink] to each bottle.

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2. Add 8 drops – Alkaline Potassium Iodine [clear] Cap both bottles, slowly invert 25 times. Allow precipitate to settle below bottle shoulders. Then, invert 10 more times and allow to settle again.
3. Add 8 drops – Sulfuric Acid [red top bottle] Cap both bottles and invert for minimum of 3 minutes. Sample is now "Fixed" and can be finished at home within 6 hours if weather is bad or other conditions warrant.

DO Titration:

1. Rinse vial TWICE with a small portion of fixed solution sample #1. Dispose of rinse solution in Waste Container. Fill vial with fixed solution sample #1 to 20ml line and cap.
2. Fill Titrator with Sodium Thiosulfate Solution. Expel air bubbles from Titrator barrel. The tip base of the green plunger should be on 0 mark. Place Titrator into hole in vial cap. Add 1 drop of Titrator solution to vial and gently swirl to mix, add another drop and swirl again. Repeat until the yellow-brown solution turns a pale straw color.
3. Uncap vial with Titrator still inserted, tilt open, keeping tip suspended above mouth of vial, add 8 drops of Starch Indicator Solution to vial, cap, and swirl to mix.
4. Continue Titration drops and swirls, one drop at a time, until the solution becomes clear.
5. Read and record total number of units at the tip base to nearest 0.1 on scale under *1st titration*. You are measuring amount of Thiosulfate used. Eject remainder of Titrator Solution into vial and dispose of vial solution in Waste Container.
6. Repeat Titration process (steps 1-5) with fixed solution sample #2 and record these results under *2nd titration*. This second result must be within 0.5 mg/L of the 1st titration or you must repeat both tests.
7. Calculate the average of both Titration results to nearest 0.1 mg/L (round up, not down) & record under *Dissolved Oxygen* (mg/L). Rinse both DO bottles, titration vials, and all caps before storing back in kit.

To **measure pH:**

1. Rinse test tube and cap TWICE in bucket sample water.
2. Fill tube with sample water to indicator line.
3. Invert pH Wide Range Indicator bottle a few times, add 10 drops to sample, cap tube, invert 10 times.
4. Insert the tube in Viewer, remove cap, hold up to white background for color comparator, read, and record to nearest 0.1 *su* (standard units).

ENVIRONMENTAL PROBLEMS CALL LIST:

24 hours SPILLS	**800-832-8224**
Texas Commission on Environmental Quality Region 12	**713-767-3500**
Texas Parks and Wildlife	**281-842-8100**
Galveston Bay Action Network www.galvbay.org/gban	Report online or with smartphone app

(white background for color comparison)

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