

Water Quality Parameters that UOWN Measures During the Quarterly Sampling

Parameter	Description	Quality Standards and Screening Levels*
Temperature	Water temperature affects the feeding, reproduction, and metabolism of aquatic animals. Water temperature varies with season, elevation, geographic location, and climatic conditions and is influenced by stream flow, streamside vegetation, groundwater inputs, and water effluent from industrial activities.	Max 90°F, 32°C
Dissolved Oxygen (DO)	Fish, aquatic invertebrates, plants, and aerobic bacteria all require oxygen for respiration. The amount of dissolved oxygen in streams is dependent on the water temperature, the quantity of sediment, the amount of oxygen taken out of the system by respiring and decaying organisms, and the amount of oxygen put back into the system by photosynthesizing plants, stream flow, and aeration. Low dissolved oxygen can indicate high levels of pollution or decaying vegetation. Trout need DO levels in excess of 8mg/liter, striped bass prefer DO levels above 5 mg/l, and most warm water fish need above 2 mg/l.	Daily Average - 5 mg/l Minimum - 4 mg/l
Specific Conductivity	Specific conductivity is the ability of a substance to conduct electricity. Conductivity of water measures the dissolved ions or salts in a stream and can be used as an indicator of pollution. High levels can indicate nutrients or other dissolved chemicals in the water column.	Maximum - 80 μ S/cm
pH	The pH test measures acidity or the activity of hydrogen ions in the water sample. 7 is neutral. Aquatic organisms survive in a narrow range of pH.	6.0 - 8.5
Nitrates (NO ₃ -N)	Nitrogen (N) occurs in several forms in water including nitrate (NO ₃). High nitrate indicates the presence of fertilizers and/or animal waste (including sewage) in the water.	< 1 mg/L = unpolluted >10 mg/L = unsafe for drinking
Phosphates (PO ₄)	Phosphates in the water come from plant and animal matter and wastes. High levels (>0.1 ppm) result in increased plant growth (eutrophic conditions) and oxygen depletion, and indicate a human source from sewage, fertilizers, and industrial waste.	Max. > 0.1 mg/L
Turbidity	Turbidity measures the transparency of the water. Turbid water has suspended sediment, often from runoff of disturbed soils or from upstream stream erosion. Excess sediment can smother habitats and clog gills.	Increase of 25 NTU (Nephelometric Turbidity Units) from upstream
Bacteria	Fecal coliforms or <i>E. coli</i> indicates the presence of animal feces in the water. High levels may indicate the presence of harmful pathogens. Sources of fecal bacteria can include urban and agricultural runoff, and leaking sewer lines and septic systems.	(col or CFU/100ml) 1000 (Nov-Apr) 200 (May-Oct) Max. - 4000 (Nov-Apr)
Macro-invertebrates	The abundance and diversity of macro-invertebrates (crustaceans and insects) in a stream indicates overall water quality. Aquatic organisms are impacted by stresses in the stream, both natural and man-made.	<11 = Poor 11-16 = Fair 17-22 = Good 23+ = Excellent
Visual Survey	The visual survey helps document short and long term changes in the appearance of the stream and surrounding area including bank erosion, riparian zone (vegetation), substrate, flow, clarity, and aquatic organisms.	0-15 = Poor 16-31 = Fair 32-47 = Good 48-56 = Excellent

*based on Georgia water quality standards and known levels of stream impairment for Piedmont streams