

Parameter	Meaning	Environmental Significance
NH₄ (Ammonium)	A form of nitrogen often found in sewage, fertilizer runoff, or decomposition of organic matter.	High levels may indicate pollution from wastewater or agricultural runoff. It can be toxic to aquatic life at high concentrations.
BSK5 (BOD₅)	Biochemical Oxygen Demand over 5 days. It measures how much oxygen bacteria need to break down organic matter in water.	A high BSK5 indicates a lot of organic pollution. More oxygen is consumed, which can harm aquatic life.
Suspended (Suspended Solids)	Particles like silt, organic material, or microorganisms floating in water.	High levels reduce light penetration and can clog fish gills or smother eggs.
O₂ (Dissolved Oxygen)	The amount of oxygen dissolved in water, essential for fish and aquatic life.	Low levels (<5 mg/L) stress or kill aquatic organisms. It's a key indicator of water health.
NO₃ (Nitrate)	Another form of nitrogen, from fertilizers, sewage, or industrial waste.	In excess, it promotes algae growth (eutrophication) and can harm aquatic ecosystems and drinking water safety.
NO₂ (Nitrite)	Intermediate product in the nitrogen cycle. Often found in polluted waters.	Toxic to aquatic organisms, even at low concentrations. Indicates a breakdown in nitrogen processing.
SO₄ (Sulfate)	Naturally occurring or from industrial waste, mining, or detergents.	Generally, not harmful in low concentrations but can affect taste and promote corrosion.
PO₄ (Phosphate)	A nutrient, often from detergents, sewage, and fertilizers.	Excess phosphate leads to algal blooms and eutrophication , causing oxygen depletion and fish kills.
Cl (Chloride)	From natural sources, road salt, or sewage.	High chloride concentrations affect drinking water taste and harm freshwater organisms.

High Value	Means	Problem
NH₄, NO₃, NO₂, PO₄	Nutrient or organic pollution	Algal blooms, toxic effects
BSK5	High organic load	Low oxygen for fish
Suspended	Murky water	Reduced sunlight, sedimentation
Low O₂	Oxygen depletion	Fish and invertebrate stress or death
High Cl	Salinity	Toxic to freshwater life

Parameter	Typical Acceptable Limit	Notes/Source
NH₄ (Ammonium)	< 0.5 mg/L (for drinking water)	High levels toxic to aquatic life; limits vary in surface water. WHO: No specific limit, but low is better.
BSK5 (BOD₅)	< 3 mg/L (for surface water)	Clean water: <3 mg/L; polluted water can exceed 10 mg/L. Lower BOD means less organic pollution.
Suspended Solids	< 25 mg/L (for surface water)	Higher turbidity affects aquatic life and aesthetics. Limits vary with water use.
O₂ (Dissolved Oxygen)	> 5 mg/L	Less than 5 mg/L stresses fish; >6 mg/L is good for most aquatic life.
NO₃ (Nitrate)	< 10 mg/L (as NO ₃ -N for drinking)	WHO limit for drinking water nitrate is 10 mg/L nitrate-nitrogen or 50 mg/L nitrate. Higher causes health risks (e.g., methemoglobinemia).
NO₂ (Nitrite)	< 0.1 mg/L (for drinking water)	Toxic to humans and aquatic life; very low allowable limits.
SO₄ (Sulfate)	< 250 mg/L (for drinking water)	Higher levels cause taste and laxative effects. EPA Secondary Standard.
PO₄ (Phosphate)	< 0.1 mg/L (for surface water)	Higher levels lead to eutrophication. Aim for low to prevent algal blooms.
Cl (Chloride)	< 250 mg/L (for drinking water)	High levels affect taste; aquatic life limits often lower (e.g., <230 mg/L).