

Water Quality Parameters

Parameter	Pollution Problem	Possible Causes
Water Temperature Change	<ul style="list-style-type: none"> -Aquatic organisms have narrow optimal temperature ranges -Oxygen is not as soluble in warm water as it is in colder water, low DO levels can stress organisms -Warmer temperatures can increase toxicity of some pollutants, and can increase solubility of solid pollutants 	<ul style="list-style-type: none"> -Shade or loss of shade -Release of water from standing water (temperature increases) -Wastewater discharges (temperature increases)
pH	<ul style="list-style-type: none"> -Aquatic organisms sensitive to low or high pH -Affects reproductive portion of growth cycle -Can affect toxicity of elements or other substances in water 	<ul style="list-style-type: none"> -Algal blooms -Industrial processes release acids and bases
Dissolved Oxygen	<ul style="list-style-type: none"> -Low levels of dissolved oxygen can be harmful to aquatic organisms that require dissolved oxygen for respiration -Levels are affected by temperature, salinity, and atmospheric pressure 	<ul style="list-style-type: none"> -Rapid decomposition of organics (dead algae, manure, shoreline vegetation, sewage) by microbes consumes oxygen -Nitrification of ammonia in fertilizers by aquatic microbes -Stagnation, lack of turbulence or movement in a waterway -Respiration of aquatic plants and algae can cause low levels of dissolved oxygen over different periods of a day
Turbidity	<ul style="list-style-type: none"> -Many fish need clear water to spot prey -Suspended sediments can smother fish eggs & aquatic insects -High levels of sediment decreases light penetration, which is needed for photosynthesis 	<ul style="list-style-type: none"> -Sediment from erosion -Road building, construction, agriculture, logging, anything that removes vegetation and causes sediment to be washed into a waterway
<i>E. coli</i>	<ul style="list-style-type: none"> -Associated with fecal matter of warm blooded animals -Presence of large amounts can indicate presence of pathogens such as typhoid, cholera, Hepatitis A -Ingestion of pathogens found with <i>E. coli</i>, and some strains of <i>E. coli</i> could lead to gastrointestinal distress and eye, nose and throat infections 	<ul style="list-style-type: none"> -Raw sewage from Combined Sewer Overflows during heavy rains -Feces from animals utilizing streams for wading, drinking and cooling -Raw sewage from malfunctioning sanitary sewage systems -Illegal straight pipes -Illegal sewage pump-outs from boats and watercraft
Nitrite	<ul style="list-style-type: none"> -High levels in the body oxidize hemoglobin in the blood, causing oxygen to be improperly transported through the body. 	<ul style="list-style-type: none"> -Sewage and fertilizer -Intermediate product in Nitrification
Nitrate	<ul style="list-style-type: none"> -Can cause excessive algal growth 	<ul style="list-style-type: none"> -Over-fertilized fields -Runoff from agriculture, lawns, golf courses
Orthophosphate	<ul style="list-style-type: none"> -Can support rapid algal growth rates (algal decomposition can consume oxygen and produces odors and toxins) 	<ul style="list-style-type: none"> -Sewage and fertilizer (agricultural runoff) -Enriched groundwater, suspended sediments -Runoff from parking lots
Total Phosphate	<ul style="list-style-type: none"> -Can support rapid algal growth rates (algal decomposition can consume oxygen and produces odors and toxins) 	<ul style="list-style-type: none"> -Detergents and fertilizer (agricultural runoff) -Enriched groundwater -Suspended sediments -Runoff from parking lots