WATER QUALITY TEST	Testing for…	Good water quality level	Causes of Poor Level	Problems from Poor Level
pH	H+ ion concentration in water (0-14)	6.5-8.5	Acid rain and snow (from auto and coal burning emissions) Rocks and minerals naturally present in water	Low readings (acidic) kill immature insects and young fish Low reading cause heavy metals to cling to fish gills and cause deformities in young fish
Phosphate (PO4)	Amount of phosphate in water	Low level	• Human waste, animal waste, industrial waste • Human disturbance of land and vegetation (draining of swamps and marshes) – wetlands cannot filter water	Algal bloom – pea-soup green, rotten egg smell, lowest levels of oxygen Fast aging of rivers, lakes (become shallow, plants invade)
Nitrate (NO3)	Amount of nitrates in water	Low level	• Sewage (poorly treated sewage from treatment plants, poorly located or functioning septic systems) • Fertilizers, animal wastes • Ducks and geese	Similar to phosphate
Dissolved Oxygen (DO)	Amount of oxygen in water (Comes from Atmosphere Algae and aquatic plants)	High level	• High water temperature • Slow moving water • Build-up of organic waste – sewage, fertilizer	Change in kinds of aquatic organisms – not as many good ones

Turbidity	The clarity of the water by looking for suspended solids	Low level	Soil erosion, urban runoff Waste discharge Abundant bottom feeders such as carp, algal growth	• Solids absorbs more heat therefore oxygen level decreases • Light cannot reach plants for photosynthesis therefore oxygen level decreases • Solids can clog fish gills, reduce growth rate • Silt can smother eggs and immature forms of aquatic animals
Thermal Pollution	Water temperature	11-20 degrees Celsius; many organisms have adapted to higher temperatures	• Thermal pollution from industries and warm water running off heated streets, parking lots • Cutting down trees that shade river • Soil erosion	• Higher temperature less dissolved oxygen • Plant growth increases, causing plant death, causing more oxygen to be used for decomposition, causing low oxygen levels • Increase in fish diseases • Fewer organisms
Fecal Coliform	Bacteria in the feces of humans and other warm-blooded animals	Low level	• Direct discharge from mammals and birds • Agricultural animals; storm runoff • Poor sewage treatment	Diseases and illnesses entering the body through cuts in skin, or through nose, mouth, ears (typhoid fever, hepatitis, gastroenteritis, ear infections)