

WATER QUALITY CONDITIONS



MAKING WATER QUALITY CONNECTIONS

| WATER QUALITY CONDITIONS OBSERVED | POSSIBLE ASSOCIATED PROBLEMS | POSSIBLE ASSOCIATED CAUSES |
|---|---|--|
| DECREASE IN DISSOLVED OXYGEN | <p>Temperature increase</p> <p>Organic waste — once part of a living plant or animal (food, leaves, feces, etc.)</p> <p>Chemical runoff — herbicides, pesticides, insecticides</p> <p>Trash</p> <p>Lack of algae and rooted aquatic plants</p> <p>Low water levels</p> | <p>Reduction in vegetation shading body of water; increase in sediment or suspended solids; industrial cooling processes</p> <p>Leaking or failing septic systems; waste from farms and animals (pets and feedlots); discharge from food-processing plants, meat-packing houses, dairies, and other industrial sources; garbage; industrial waste (organic fibers from textile, paper, and plant processing); sewage treatment plants, natural processes; grass, tree, and shrub clippings; urban runoff; agricultural runoff</p> <p>Golf courses; residential lawns; agricultural lands; recreational parks</p> <p>Litter washed into sewer systems</p> <p>Multiple sources of water pollution (e.g., chemicals, toxins)</p> <p>Climatic or weather change</p> |
| FECAL COLIFORM BACTERIA <i>E. COLI</i> ENTEROCOCCI | <p>Organic waste — feces from human beings or other warm-blooded animals</p> | <p>Leaking or failing septic systems; failing sewer systems</p> <p>Direct discharge from mammals and birds with access to waterways or waste entering a body of water as runoff</p> |
| INCREASE IN TEMPERATURE (THERMAL POLLUTION) | <p>Organic waste — once part of a living plant or animal (food, leaves, feces, etc.)</p> <p>Reduction in vegetation shading body of water</p> <p>Industry and power plant discharge</p> <p>Runoff from warmed urban surfaces</p> <p>Suspended solids</p> <p>Flow of water impeded</p> | <p>Natural processes; grass clippings; tree and shrub clippings; unnatural fish or animal kills</p> <p>Shade trees and shrubs removed from stream bank for urban development, irrigation, and industrial and agricultural expansion, exposing the water to direct sunlight</p> <p>Water returned to source is at higher temperature than at initial intake point</p> <p>Impervious land cover such as paved streets, sidewalks, and parking lots</p> <p>Urbanization leading to increased numbers of buildings, homes, and roads on lands, that previously were natural areas and absorbed rain and snowmelt more efficiently</p> <p>Removal of streamside vegetation; overgrazing; poor farming practices and construction causing excessive soil erosion</p> <p>Dams, dikes, and diversions for agricultural, industrial, or municipal practices decrease flow rate of river, absorbing more heat from sunlight</p> <p>Dams created from beavers or log jams</p> |
| TURBIDITY HIGH TOTAL DISSOLVED SOLIDS/ TOTAL SOLIDS | <p>Suspended solids (ranging from clay, silt, and plankton, to industrial wastes and sewage)</p> | <p>Erosion from agricultural fields; construction sites; residential driveways, roads, and lawns; natural and accelerated erosion of stream bank; excessive algae growth</p> <p>Leaves and plant materials</p> <p>Wastewater treatment plant</p> <p>Runoff from urban areas</p> <p>Dredging waterways</p> <p>Waste discharge (garbage, sewage)</p> <p>Excessive population of bottom-feeding fish (such as carp) that stir up bottom sediments</p> |
| EXCESSIVE PHOSPHATES | <p>Human wastes</p> <p>Organic waste — once part of a living plant or animal (food, leaves, feces, etc.)</p> <p>Runoff from fertilized land</p> <p>Industrial waste</p> <p>Detergents</p> <p>Natural events</p> | <p>Leaking or failing septic systems; sewage treatment plants</p> <p>Waste containers leaking; lack of waste storage facilities; animals have direct access to waterways</p> <p>Pet wastes not collected and disposed of appropriately</p> <p>Removal of natural vegetation for farming or construction practices, causing soil erosion</p> <p>Draining swamps and marshes for farmland or commercial/residential development</p> <p>Drained wetlands no longer functioning as filters of silt and phosphorous</p> <p>Agricultural fields; residential lawns; home gardens; golf courses; recreational parks</p> <p>Poorly treated sewage; broken pipes; farms; golf courses; sewage treatment facilities; industrial discharges</p> <p>Household and commercial cleaning agents washing into water and sewage systems</p> <p>Forest fires and fallout from volcanic eruptions</p> |
| EXCESSIVE NITRATE | <p>Runoff from fertilized land</p> <p>Human wastes</p> <p>Animal wastes</p> <p>Organic waste — once part of a living plant or animal (food, leaves, feces, etc.)</p> | <p>Agricultural fields; residential lawns; golf courses; recreational parks</p> <p>Leaking or failing septic systems; sewage treatment facilities</p> <p>Waste containers leaking; lack of waste storage facilities; animals (particularly ducks and geese) that have direct access to waterways</p> <p>Pet wastes not collected and disposed of appropriately</p> <p>Natural processes; grass clippings; tree and shrub clippings; unnatural fish or animal kills</p> |
| PH | <p>Vehicles for transportation</p> <p>Industrial waste</p> <p>Runoff from fertilized land</p> | <p>Improper engine maintenance of vehicles (emissions systems)</p> <p>Industrial or mining drainage; sewage treatment plants</p> <p>Agricultural fields; residential lawns; golf courses; recreational parks</p> |
| PH & ALKALINITY | <p>Acid rain (beginning in neighboring regions)</p> | <p>Excessive air pollution from burning fossil fuels for automobiles, boats, planes, etc.</p> |
| SALINITY | <p>Salt and oil runoff</p> <p>Bodies of salt water mixing with fresh water</p> | <p>Paved roads cannot absorb substances, such as salts used on roads in winter; irrigation water picks up salts in soil</p> <p>Water tables decrease in areas where water is being pumped (used) at levels exceeding replenishment capability</p> |
| HIGH CONDUCTIVITY | <p>Discharges into the water</p> | <p>Failing sewage systems</p> <p>High temperature</p> <p>Water used for irrigation</p> <p>Discharge of heavy metals into the water</p> |
| LOW CONDUCTIVITY | <p>Discharges into the water</p> | <p>Oil spill</p> <p>Low temperature</p> |

