

Impacts of Eutrophication

Cut out the cards on the dashed lines and place them in a flow chart to show the relationship between cause-and-effect of this aquatic system. Remember to draw arrows between the boxes. While nutrients are important for the growth and survival of organisms, too many nutrients like phosphorus can cause problems.

<p>Urban Development</p> <p>increased paved surfaces, reduced natural water filtration, use of fertilizers and pesticides</p>	<p>Forestry</p> <p>removal of trees alters water flow and reduces natural water filtration</p>	<p>Septic Systems</p> <p>leaky and non-functional systems</p>	<p>Agriculture</p> <p>use of fertilizers, and pesticides on farmland</p>
<p>Erosion</p> <p>wind and water remove nutrients from soils and rocks, and deposit them into the lake</p>	<p>Cyanobacteria Blooms</p>	<p>Cyanobacteria Die & Decompose</p>	<p>Aggressive Growth</p> <p>aquatic plants grow rapidly with enough phosphorus and sunlight</p>
<p>High Oxygen Levels</p>	<p>External Nutrient Loading</p> <p>phosphorus, and other nutrients are carried by water, sediments and air particles and deposited into the lake from external sources</p>	<p>Internal Nutrient Loading</p> <p>phosphorus in the water settles and collects in lake sediments (P-burial), and is released back into the water (P-release) during low oxygen conditions</p>	<p>Rapid Growth</p> <p>cyanobacteria grow rapidly with enough phosphorus and sunlight</p>



engage with
Nature-Based Solutions

This resource is part of the BC Urban Streams & Watersheds lesson plans, assembled in 2025. Learn more and download additional resources at www.engagewithnbs.ca/for-schools

This material is available to reuse and adapt in your classroom.



<p>High Phosphorus Levels</p>	<p>Bioturbation</p> <p>disturbance of sediments by animals or human activities releases phosphorus into water</p>	<p>Decomposition</p> <p>plants and cyanobacteria die and decompose, using up oxygen and releasing phosphorus into lake sediments</p>	<p>Water Impoundment</p> <p>dams reduce flow of water and nutrients out of the lake, increasing amount of nutrients in the lake</p>
<p>Low Oxygen Conditions</p> <p>conditions unsuitable for fish and aquatic invertebrates</p>	<p>Climate Change</p> <p>heavier winter rains increase nutrient inputs into the lake from run-off</p>	<p>Climate Change</p> <p>warmer temperatures and longer growing seasons improve conditions for algae and aquatic plant growth</p>	<p>Invasive Species</p> <p>invasive plants (Eurasian milfoil) thrive in high phosphorus conditions, outcompeting native plant species</p>
<p>Algae Blocking Sunlight</p> <p>blocking light from reaching aquatic plants</p>	<p>Shorter Food Chains</p> <p>a simpler system</p>	<p>Algae Producing Toxins</p> <p>toxins which can poison aquatic organisms</p>	<p>Algae Uses Up All Nutrients</p> <p>(phosphates and nitrates) in the water</p>
<p>Low Biodiversity in Aquatic System</p>	<p>Aerobic Bacteria Use Up Oxygen in Water</p>	<p>Reduced Recreational Opportunities for People</p>	<p>Lakes Flush Out Phosphorus & Nutrients</p> <p>flushed out via creeks or streams</p>

