



Module 3 Water Quality Fact Sheet – Nutrients

Nutrients are necessary for supporting life in an aquatic system. However, an imbalance of nutrients can have an impact on the entire system. Plants require many nutrients to survive, however two nutrients, nitrogen and phosphorous, in combination with sunlight and water temperature tightly control the ability for plants to grow. Nitrogen and phosphorous are of particular concern from a monitoring view point, not only for their impact on plants, but also because high levels of nitrogen and phosphorous released into the environment due to human activities (fertilizers, detergents, burning of fossil fuels, sewage, etc).

Excessive amounts of phosphorous and nitrogen in an aquatic system can trigger phytoplankton blooms, decreases dissolved oxygen levels, and accelerate eutrophication. However the interpretation of nutrient levels must be assessed from a holistic approach, high levels of nitrogen in a system may not necessarily trigger a phytoplankton bloom as there may be other biological factors that cause a quick uptake of the nitrogen in the system. It is important to understand the system before reaching conclusions.

Sources

Nitrogen and phosphorous enter water bodies through several sources, both natural and man-made. Natural sources of nitrogen include the decomposition of organic matter while man-made sources include sewage, fertilizer, livestock waste, burning of fossil fuels, and storm water run-off. Phosphorous also come from plant and animal waste, fertilizer, food processing, industrial waste and run-off.

Expected ranges for nutrients:

Nitrate-Nitrogen

1ppm and below is considered unpolluted

10ppm and above is considered unsafe for drinking water

Phosphorous

0.03ppm and higher sustains plant life

0.1ppm and above could lead to uncontrolled plant growth