

WATER

Nutrients

Resource Concerns

Soil

Water

Excess Water

Insufficient Water

Water Quality Degradation

Nutrients

Pesticides

Pathogens

Salts

Petroleum and Heavy Metals

Sediment

Elevated Water Temperature

Air

Plants

Animals

Energy

Water Quality Degradation - Nutrients

Nutrients (organics and inorganics) are transported to receiving waters through surface runoff and/or leaching into shallow ground waters in quantities that degrade water quality and limit use for intended purposes.

What is it?

Water bodies require nutrients, such as nitrogen and phosphorus, to be healthy, but too many nutrients can be harmful. Many of our nation's waters, including streams, rivers, wetlands, estuaries, and coastal waters, are affected by excess nutrients. The effect of nutrients for a given water body depends on its ecoregion and the source of nutrients.

Why is it important?

Increased nitrogen and phosphorus levels in water can produce excessive aquatic vegetation and algal blooms resulting in reduced dissolved oxygen, harmful toxins, and increased water temperature. In extreme cases dissolved oxygen may be so low that dead zones, known as hypoxia, exist where most aquatic life cannot survive. Algal blooms can also impart an undesirable taste to potable water that is difficult to remove by water treatment. High ammonia levels are toxic to some freshwater fish species.

What can be done about it?

Management is the key to protecting water quality from excess nutrients. Nutrient management shall specify the source, amount, timing and method of application of nutrients on each field to achieve realistic production goals, while minimizing movement of nutrients and other potential contaminants to surface and/or ground waters. Realistic yield goals shall be established based on soil productivity information, historical yield data, climatic conditions, level of management and/or local research on similar soil, cropping systems, and soil and manure/organic by-products tests. Areas contained within established minimum application setbacks (e.g., sinkholes, wells, or rapidly permeable soil areas) should not receive direct application of nutrients. Nutrients may also be lost due to erosion, runoff, irrigation and drainage, so applicable practices should be installed to address these concerns.

Nutrients at a Glance

Problems / Indicators - Algae blooms, mass death of fish or aquatic organisms, dissolved oxygen concentrations, hypoxia	
Causes	Solutions
<ul style="list-style-type: none"> Overusing fertilizer (both residential and agricultural usage) Soluble nutrients Erosion of nutrient-laden soil Rainfall flowing over cropland, animal feeding operations and pastures, picking up animal waste and depositing it in water bodies Low organic matter 	<ul style="list-style-type: none"> Nutrient management to address the form, rate, placement and timing of nutrient application Cover crops Crop rotations Increased crop diversity Conservation buffers Residue management