

What is Nutrient Pollution?

Nutrient pollution is caused by the overabundance of the nutrients phosphorus and nitrogen in streams, rivers and lakes.

Excessive nitrogen and phosphorus in water can lead to serious problems including:

- Harmful Algal Blooms (HABs) which can be lethal to pets, livestock and wildlife, and lead to health problems in humans.
- Fish kills due to increased aquatic plant growth. After the plants die, the decomposition process uses up oxygen needed by fish.
- Increased costs to treat surface water drinking water supplies.

Nutrient Sources

In North Dakota, we know that the major sources of nutrients are:

- Erosion and runoff from cropland
- Industrial and municipal point sources
- Runoff from animal feeding operations
- Stormwater runoff, i.e., residential fertilizer
- Failing septic systems
- Hydrologic modification, including wetland drainage and stream channelization

Why is a Nutrient Reduction Strategy Needed?

Nutrient enrichment is consistently one of the nation's top causes of water resource impairment. Many of North Dakota's waterbodies are also affected by nutrient pollution. Forty-seven lakes and thousands of miles of streams are impacted due to excessive nutrients. Approximately 2,800 miles of streams are in poor condition due to nitrogen, and more than 3,500 miles are degraded due to phosphorus in North Dakota.

The United States Environmental Agency (EPA) has explicitly outlined that the management of nutrient pollution is best addressed at the state and local levels. However, EPA has intervened where states have not addressed nutrients.

Due to the serious effects of nutrient pollution, more action should be taken to reduce nutrients in our nation's waterways. In some states, nutrient pollution issues have resulted in controversy and lawsuits. To avoid these problems, the North Dakota Department of Health has worked with stakeholders to develop a statewide nutrient reduction strategy.

What is a Nutrient Reduction Strategy?

The goal of a Nutrient Reduction Strategy is to develop and implement cost-effective approaches to reduce the delivery of nutrients via point source discharges and nonpoint source runoff. The strategy plan examines the available data to determine criteria and sets targets. Through stakeholder input, sources are prioritized, and tools are identified to reduce the nutrients being delivered to streams, rivers and lakes from priority sources.

As we move closer to finalizing the Nutrient Reduction Strategy, we anticipate that agency officials, working closely with stakeholders, will develop a strategy that is technically and scientifically defensible, can be reasonably implemented within state and local laws, and includes measures to safeguard public health and reduce economic impacts.

Solutions

To reduce nutrient pollution, the department will work with stakeholders to identify best available technology and expertise to recommend effective best management practices (BMPs) to reduce nutrient runoff.

Some examples of BMPs for each source include, but are not limited to:

- Improving soil health and reducing soil loss through the use of cover crops and reducing tillage.
- Encouraging the use of precision application techniques for fertilizer.
- Implementing manure management systems as required and utilizing manure as a soil amendment.
- Using software tools that aid in identifying land that requires more inputs than generates income. This allows producers to be more profitable and to rest marginal lands.
- Working with industrial and municipal point sources to monitor their discharges, to optimize treatment efficiencies for nutrients and upgrade wastewater treatment plants when necessary.
- Promoting urban soil testing and proper lawn fertilization rates and techniques.
- Educating homeowners about their septic systems and proper maintenance and care.
- Restoring wetland functions where possible and mitigating the effects of drainage and channelization.

It is anticipated that the menu of BMPs will grow as the department and stakeholders work together.

Tracking Progress

The state will implement water quality monitoring programs to track progress towards the nutrient reduction goals. Nutrient issues did not become a problem overnight, and they will not disappear quickly. It will take everyone working together to restore North Dakota's waters and protect our water resources for future generations.

Developing Criteria/Standards

A critical piece to the state Nutrient Reduction Strategy is the establishment of nutrient criteria (i.e., standards). Without criteria it will be impossible to assess nutrient problems, set reduction targets or measure our successes and/or failures. The criteria designate the level of nutrient pollution acceptable for a waterbody, while allowing it to meet its beneficial use designations.

The development of nutrient criteria by North Dakota is driven by four fundamental considerations:

- Protective of the state's water resources and designated beneficial uses.
- Tailored to the unique physiographic characteristics, climate and water resources of our northern plains (prairie) state.
- Technically and scientifically defensible.
- Based on conceptual ecosystem models that reflect cause-and-effect relationships for resource impairment and the loss of beneficial uses.

For more information about the Nutrient Reduction Strategy and/or nutrient criteria development, please visit www.tinyurl.com/NDNutrient or call the Division of Water Quality at 701.328.5210.