

Spring 2009, No. 6

NUTRIENT CRITERIA, STANDARDS, AND TMDLS— WHAT ARE THEY AND WHY SHOULD WE CARE?

Much progress has been made in the USA in the last several decades in protecting and improving water quality. Yet, in some areas of the country there are still a number of water bodies with impairments associated with nutrients: N and P. The most recent national assessment of water quality found that nutrients ranked second as the cause of impairment in lakes, reservoirs, and ponds, and third as the cause of impairment of rivers and streams. Nutrients ranked ninth as the cause of impairment in estuaries and bays and eighth in oceans and near coastal waters.

When N and/or P move from farm fields to streams, rivers, lakes, and other water resources in concentrations higher than normal levels (i.e above current “background” or natural levels), they are considered pollutants. Excessive loads of N and/or P in surface water resources can lead to increased algae growth. Increased growth of algae may increase turbidity or reduce clarity, reduce concentrations of dissolved oxygen, and possibly result in harmful effects on invertebrate populations and the health of higher organisms like fish. We all have heard or read about fish kills that resulted from depleted oxygen levels in aquatic systems, which may have been associated with excessive nutrient loads.

Virtually all of us live “downstream” from someone else. Those who live the farthest downstream may be particularly interested in the good land and water stewardship practices implemented by their upstream friends and neighbors in efforts to protect and preserve water quality.

The U.S. Environmental Protection Agency and its partnering state and tribal water quality agencies are responsible for ensuring that water resources are safe and meeting the quality necessary for their designated uses, which may include domestic consumption. State water quality authorities are responsible for monitoring water quality and for developing nutrient criteria. The nutrient criteria may be used to set water quality standards for protection and preservation of designated water uses. If a waterbody fails to meet established standards and is deemed impaired, it may be subjected to Total Maximum Daily Load (TMDL) regulation. A TMDL is a scientific determination of the maximum amount of a given pollutant that surface water can absorb and still meet the water quality standards that protect human health and aquatic life. Regulation of nutrient discharges can be costly and onerous to many watershed stakeholders. Increasingly, agricultural stakeholders are being blamed as dominant nonpoint source (diffuse) nutrient polluters.

An important and meaningful goal for agricultural producers in 2009 –both crop and livestock – would be to strive to improve or protect water quality in one’s local watershed through implementation of more fertilizer and manure best management practices (BMPs). Keeping more nutrients in fields and out of water resources enhances crop and livestock nutrient use efficiency and effectiveness, stimulates agronomic performance, prevents loss of valuable inputs, and demonstrates good land and water stewardship...to your family, friends, and neighbors.

Look for opportunities to improve agronomic nutrient management, for the local good...and that of our neighbors downstream...today and into the future. Let’s strive for a legacy of nutrient stewardship and water quality protection we can all be proud of.

—CSS—

For more information, contact Dr. Clifford S. Snyder, Nitrogen Program Director, IPNI, P.O. Drawer 2440, Conway, AR 72033-2440. Phone 501-336-8110. Fax 501-329-2318. E-mail: csnyder@ipni.net.

Abbreviations in this article: N = nitrogen; P = phosphorus.