



Actions to Help States Address Barriers to Numeric Nutrient Criteria Implementation (2012–2014)

In October 2011, EPA initiated a workgroup of state and EPA experts to explore ways in which EPA and states could work together to identify and remove the barriers that have been preventing implementation of numeric nutrient criteria (NNC). The workgroup's goal was to define a set of actions that would make it easier for states to adopt and implement NNC. The EPA–state workgroup identified several of the highest priority barriers to NNC implementation, and options to help EPA address those barriers. In response, EPA began to take a number of specific state-requested actions.

The Problem

Excess nitrogen and phosphorus entering our surface waters can cause harmful algae blooms and fish kills, resulting in widespread losses of revenue from recreation (beach closures), fisheries losses, and the need for more drinking water treatment. The results are decreased quality of our nation's waters, increased public health risks, and higher treatment costs from contamination of drinking water supplies.

These pollutants enter the environment from urbanization and stormwater runoff, municipal wastewater discharges, air deposition, and agricultural livestock and row-crop activities. As the United States population grows, pollution from excess nitrogen and phosphorus (nutrient pollution) is expected to grow as well. Our population is expected to increase from about 300 million people in 2008 to 435 million people by 2050. (U.S. Census Bureau 2008, 2009). As a result, the rate and impact of nitrogen and phosphorus pollution will noticeably accelerate.

The Challenge

EPA and the states have made major strides in implementing and accomplishing the principles of the Clean Water Act, passed 40 years ago. Despite this progress, there is more to do.

For the past decade, EPA and states have been working hard to control nutrient pollution. The Agency's focus has been to support states' development and implementation of NNC. However, for a number of reasons, states have been unable to achieve broad-scale success. EPA's and the states' concerns about the problem are intensifying, since the successes to date will likely be outpaced by the rapidly increasing population and the resulting increase in the rate and impact of nitrogen and phosphorus pollution.

Current Efforts

To date, few states have established NNC for nitrogen and phosphorus for all their waters. In response, EPA has identified support for state adoption of NNC as a priority and one of its critical next steps. This decision is described in EPA's March 16, 2011 memorandum, *Working in Partnership with States to Address Phosphorus and Nitrogen Pollution through Use of a Framework for State Nutrient Reductions*, available on-line at <http://go.usa.gov/26hC>.

Top Barriers and Actions to Address Them

The following Barriers and Actions have received the support of our state partners. Sections are divided into water protection programs implemented by EPA and the States. Within each program, we list the major obstacles identified by the states as preventing adoption and implementation of NNC, and the accompanying actions that the Agency intends to undertake.

Water Quality Standards Program

BARRIER: Difficulty using variances as a tool to achieve incremental improvements

States cannot fully use variances to achieve water quality standards without case-specific assistance on a number of issues such as timing, requirements for justification, and the public

perception that this approach side-steps the intention of water quality standards.

EPA ACTIONS:

- * Continue to collaborate with states and regions to most effectively use variances;
- * Propose to revise the Water Quality Standards Regulation (submitted 2011, pending OMB review);
- * Revise the Water Quality Standards Handbook (2012–2013); and
- * Provide answers to frequently asked questions on multiple discharger variances (2013). Available at <http://go.usa.gov/26p3>.

BARRIER: Challenge associated with the costs and the temporal and spatial variability of the causal parameters TN and TP

Stakeholders lack confidence in the link between TN/TP criteria and their associated responses, and want to use shifts in a suite of response parameters to confirm a nutrient-caused environmental problem exists before imposing costly controls.

EPA ACTIONS:

- * Help states to integrate chemical and biological response parameters into their TN/TP criteria (2013 forward);
- * Organize a workshop/panel for scientific evaluation of methods to integrate chemical and biological response parameters into TN/TP criteria (i.e., bioconfirmation) (completed April 2013); and
- * Develop cost estimates of nutrient controls and pollution impacts (2013).

Assessment, Listing, Total Maximum Daily Load (TMDL), and Nonpoint Sources Programs

BARRIER: Challenges in streamlining TMDL development

States and dischargers in general want to apply adaptive management approaches to implement nutrient TMDLs, but have not always been able to effectively utilize such approaches. Also, TMDLs are resource-intensive to develop and take significant time to implement and to generate improvements.

EPA ACTION:

- * Continue working with states to build

understanding of opportunities to use adaptive management concepts for mixed-source TMDLs (2013).

BARRIER: Inability to reduce nonpoint source loads of nitrogen and phosphorus

Unlike states, EPA and citizens cannot enforce nonpoint source reductions under the Clean Water Act. Additionally, some states have expressed the view that trading is constrained because nonpoint source TMDL allocations must be met before generating credits for trading with permitted point sources.

EPA ACTIONS:

- * Collaborate with US Department of Agriculture (USDA) to better quantify the environmental results of targeting suites of agricultural conservation practices/BMPs in priority watersheds (beginning 2013);
- * Collaborate with US Department of Agriculture (USDA) to implement the National Water Quality Initiative, Mississippi River Basin Initiative, and other collaborative efforts to build partnerships at state and local levels that leverage USDA resources for conservation practices to reduce nutrients and other impairments (continue in 2013);
- * Continue and improve implementation of the CWA Section 319 grant program with a focus on protecting and restoring impaired waters, including those impaired by nutrients, through implementation of watershed-based plans (2014).
- * Address the challenges of manure management by engaging large animal growers and poultry integrators in sustainability agreements and practices that reduce nutrient pollution (begin in 2013); and
- * Develop, compile, and share tools that facilitate identification of specific solutions to targeting the reduction of nonpoint source loads (2013).

Permits, Technology, and Compliance Programs

BARRIER: Problems implementing water quality-based limits

It may not be feasible for some dischargers to meet water quality-based effluent limits

(WQBELs) in the immediate term.

EPA ACTION:

- * Develop a compendium of nutrient removal efficiencies.

BARRIER: Lack of training and tools for permit writers

Permit writers often lack a translator tool to help in deriving numeric nutrient WQBELs from narrative criteria; in addition, there is also no specific guidance or training for developing WQBELs when water quality criteria are measured by the protection of aquatic life rather than by actual chemical concentrations.

EPA ACTION:

- * Continue effort to develop training materials to aid permit writers in the development of WQBELs in NPDES permits to address nutrient pollution (2013).

BARRIER: Difficulty setting case-specific effluent limit expressions for nutrients

Because regulations generally require the use of daily, weekly, or monthly effluent limits—unless impracticable—permitting authorities find it burdensome and difficult to justify the use of annual water quality-based effluent limits for nutrients on a case-by-case basis.

EPA ACTION:

- * Develop training materials to aid permit writers in the development of WQBELs for nutrient pollution, which will identify circumstances where annual or seasonal limits may be appropriate (2013).

Outcomes

As a result of these actions, EPA hopes to see broader adoption and implementation of NNC across the states, and a subsequent reduction in nitrogen and phosphorus pollution in our surface waters. The Agency is keenly aware that the pervasive and pernicious effects of nutrient pollution cannot be entirely solved simply by removing the barriers to state implementation of NNC. However, EPA expects these actions will result in meaningful reductions in nutrient pollution entering our water bodies and will establish a foundation that can be expanded with

future efforts.

For More Information

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