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2018 Annual Report of the Nutrient Scientific Advisory Board to the Secretary of the NC Department of Environmental Quality as required by Session Law 2009-216

July 1, 2018

Executive Summary

During its eighth year serving as a guide to the Division of Water Resources Nonpoint Source Planning Program in implementing existing development stormwater nutrient rule requirements pursuant to [Session Law 2009-216](#), the Nutrient Scientific Advisory Board continued to meet and assist the division. This annual report recaps the year's activities and was assembled by division staff with guidance, review and approval by the board.

The board met nine times over the past year in support of the following rule-related actions:

1. Reviewed nutrient reduction practice documents, providing input on the nutrient credit standards and design specifications for storm drain cleaning and buffers.
2. Provided feedback and endorsement of the Stormwater Nitrogen and Phosphorous Tool (SNAP) which is a stormwater runoff nutrient accounting tool.
3. Redevelopment of the NSAB charter and current membership.
4. Began discussions about establishing a nutrient credit trading framework.

This report summarizes these activities.

More information on the board's activities, charter, meeting summaries and previous annual reports can be found online at: <https://deq.nc.gov/about/divisions/water-resources/planning/nonpoint-source-management/nutrient-scientific-advisory-board>.

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I. Introduction

The Nutrient Scientific Advisory Board (NSAB), serving as a guide to the Division of Water Resources (DWR) Nonpoint Source Planning staff, continued to meet and assist the Division during 2017-2018. This annual report to the Secretary of the Department of Environmental Quality was assembled by division staff with guidance, review and approval by the board.

Session Law 2009-216 established requirements for local governments and state/federal entities in the Jordan Lake watershed to reduce nutrient loading from existing developed lands. It also required the establishment of an advisory board to assist the state to identify, review, and refine strategies to reduce nutrient loading in the existing development community of Jordan Lake watershed and other watersheds that may face similar requirements in the future. Its full duties are listed in [Session Law found in Section VIII](#) below and include advising the Secretary “on any other issue related to management and restoration of nutrient-impaired water bodies”.

In 2010, the Department of Environmental Quality’s Secretary established a 10-member Nutrient Scientific Advisory Board. As specified by legislation, up to six of the board’s members are representatives of local governments in the Jordan Lake watershed, while other members represent the conservation community, water quality science, stormwater engineering expertise and the N.C. Department of Transportation. In 2013, the NSAB added an advisor from the Falls Lake watershed to represent local governments.

Since then, the board has continued to actively assist the division to both better define nutrient reduction needs and improve the tools to reduce nutrient loading from existing developed lands. The remainder of this report provides updates on the board’s activities over the last year.

II. Nutrient Reduction Practices

As they are approved by the division, nutrient reduction practices are added to the set of options local, state and federal parties may use to achieve nutrient load reductions from developed lands.

In 2013, division staff presented a draft Model Program to the NC Environmental Management Commission which identified both currently available and potential nutrient reduction practices. Staff develops new practice documents using the division's credit development process; ever expanding research data; assistance from subject matter experts; discussion, review and advisement by the NSAB; public comment; and submission to DWR director for approval.

Status:

In the past year, the NSAB has discussed draft credit documents for:

- Storm Drain Cleaning
- Riparian Buffer Improvements in Developed Areas

Within the next few months, the NSAB is expected to finalize:

- Storm Drain Cleaning
- Street Sweeping

In the upcoming year, the NSAB is expected to endorse the following nutrient reduction practices, currently in various states of completion:

- Discharging Sand Filters
- Forest Preservation
- Malfunctioning Septic Systems
- Riparian Buffer Improvements in Developed Areas
- Urban Reforestation
- Wastewater Regionalization
- Wastewater Overtreatment

III. Stormwater Nitrogen and Phosphorous Accounting Tool

To support the Jordan Lake Rules for managing nutrients in stormwater, an accounting tool was designed in 2010 to help developers show compliance with new development nutrient export targets in the watershed. The Microsoft Excel-based spreadsheet includes calculations to estimate runoff volume, annual nutrient loading and nutrient load reductions provided by conventional stormwater control measures, or SCMs

In 2016, the NSAB participated in testing an updated version of the accounting tool developed by Nonpoint Source Planning staff, which is now referred to as the Stormwater Nitrogen and Phosphorous Tool, or SNAP (4.0). SNAP supports both New Development and Existing Development stormwater rule compliance. It identifies the user's New Development nutrient export targets depending on variables such

as location to assign unit-area-loading rates and buy-down thresholds in the Jordan, Falls, Neuse and Tar-Pamlico rules. It calculates the amount of treatment required or overtreatment provided per site.

In 2017, many changes were made to the tool which improved usability; added calculations and outputs related to nutrient management and trading; improved error checking and handling; made future updates easier; and updated the internal structure to potentially merge with other tools in the future.

The NSAB has endorsed the SNAP tool, and after division approval, it will replace the current Jordan/Falls tool and become available for use statewide.

IV. Nutrient Credit Trading Discussion

North Carolina has authorized nutrient credit trading through legislation, and forms of trading are in active use in nutrient watersheds. Staff has been developing a framework to comprehensively explain and potentially improve the current options. The NSAB spent four of the nine meetings this past year discussing trading and has greatly informed the development of the current discussion document, available on the NSAB website. It is the staff's first point of outreach when discussing the trading framework.

V. NSAB Administration

The NSAB was begun in 2010. Since then, membership has changed and questions recently arose from the board about its' charge, responsibility, and decision-making process. The authority of the NSAB is laid out with its establishment in [Session Law 2009-216 found in Section VIII](#) below. In 2017 the NSAB discussed and reviewed these process details and developed a charter using their previously accepted decisions. The charter can be found on the [NSAB website](#).

VI. Next Year

The NSAB will continue to work on several important tasks in the coming year. Division staff expect to seek the board's endorsement of draft credit proposals for noted Nutrient Reduction Practices, the Nutrient Credit Trading Framework, and technical policy decisions to be included in an Existing Development Model Program.

VII. Membership

Nutrient Scientific Board Members

	NSAB Position	Member	Organization
1	Local Government Representative	Sandra Wilbur	City of Durham
2		Allison Weakley	Town of Chapel Hill
3		Brian Burkhart ²	Chatham County
4		David Phlegar	City of Greensboro
5		Josh Johnson	Cities of Mebane and Graham; Towns of Elon and Gibsonville
6		Eric Kulz	Town of Cary
7	Professional or Academic Representative	Michael Burchell ²	NCSU
8	Professional Engineer	Sally Hoyt ³	UNC- Chapel Hill
9	NC DOT Representative	Andy McDaniel	NC DOT
10	Conservation Organization Representative	Peter Raabe ³	American Rivers
11	Falls Lake Watershed Representative ¹	Forrest Westall	Upper Neuse River Basin Association

[Session Law 2009-216](#) (4)(a) listed in Section VIII calls for the establishment of the NSAB and stipulates five to 10 members with expertise or interests listed in the table above.

¹ In 2013 the NSAB chose to add an advisor to the board to represent the interests of Falls Lake Watershed local governments.

In the past year, the Secretary of DEQ appointed four new members to the NSAB:

- ² two are new to the NSAB, and
- ³ two were previous alternates to their positions.

VIII. Establishment, Duties, and Authority of the NSAB

SESSION LAW 2009-216

Section 4.(a) - (c)

AN ACT TO PROVIDE FOR IMPROVEMENTS IN THE MANAGEMENT OF THE JORDAN WATERSHED IN ORDER TO RESTORE WATER QUALITY IN THE JORDAN RESERVOIR.

The General Assembly of North Carolina enacts:

SECTION 4.(a) Scientific Advisory Board for Nutrient-Impaired Waters Established. – No later than July 1, 2010, the Secretary shall establish a Nutrient Sensitive Waters Scientific Advisory Board. The Scientific Advisory Board shall consist of no fewer than five and no more than 10 members with the following expertise or experience:

- (1) Representatives of one or more local governments in the Jordan Reservoir watershed. Local government representatives shall have experience in stormwater management, flood control, or management of a water or wastewater utility.
- (2) One member with at least 10 years of professional or academic experience relevant to the management of nutrients in impaired water bodies and possessing a graduate degree in a related scientific discipline, such as aquatic science, biology, chemistry, geology, hydrology, environmental science, engineering, economics, or limnology.
- (3) One professional engineer with expertise in stormwater management, hydrology, or flood control.
- (4) One representative of the Department of Transportation with expertise in stormwater management.
- (5) One representative of a conservation organization with expertise in stormwater management, urban landscape design, nutrient reduction, or water quality.

SECTION 4.(b) Duties. – No later than July 1, 2012, the Scientific Advisory Board shall do all of the following:

- (1) Identify management strategies that can be used by local governments to reduce nutrient loading from existing development.
- (2) Evaluate the feasibility, costs, and benefits of implementing the identified management strategies.
- (3) Develop an accounting system for assignment of nutrient reduction credits for the identified management strategies.
- (4) Identify the need for any improvements or refinements to modeling and other analytical tools used to evaluate water quality in nutrient-impaired waters and nutrient management strategies.

SECTION 4.(c) Report; Miscellaneous Provisions. – The Scientific Advisory Board shall also advise the Secretary on any other issue related to management and restoration of nutrient-impaired water bodies. The Scientific Advisory Board shall submit an annual report to the Secretary no later than July 1 of each year concerning its activities, findings, and recommendations. Members of the Scientific Advisory Board shall be reimbursed for reasonable travel expenses to attend meetings convened by the Department for the purposes set out in this section.