

## HOUSE OF REPRESENTATIVES STAFF ANALYSIS

**BILL #:** CS/HB 239 Numeric Nutrient Water Quality Criteria  
**SPONSOR(S):** Agriculture & Natural Resources Subcommittee; Williams and others  
**TIED BILLS:** **IDEN./SIM. BILLS:** SB 1490

REFERENCE	ACTION	ANALYST	STAFF DIRECTOR or BUDGET/POLICY CHIEF
1) Agriculture & Natural Resources Subcommittee	12 Y, 3 N, As CS	Kliner	Blalock
2) Federal Affairs Subcommittee			
3) State Affairs Committee			

### SUMMARY ANALYSIS

On December 6, 2010, the United States Environmental Protection Agency (EPA) published final rules establishing numeric nutrient criteria for Florida lakes, streams, rivers, and springs. A portion of the final rule, relating to establishing site-specific alternative criteria, became effective on February 4, 2011, 60 days after publication in the Federal Register, Volume 75, No. 233. The remainder of the final rule becomes effective 15 months after publication, on March 6, 2012.

The bill prohibits state, regional, or local governmental entities from implementing or giving any effect to the federally-promulgated criteria in any program administered by a state, regional, or local governmental entity. The bill does not limit the ability of any state, regional, or local governmental entity to:

- Apply for any pollution discharge permit
- Comply with the conditions of such permits, including NPDES permits
- Implement best management practices, source control or pollution abatement measures for water quality improvement programs “as provided by law”

Notwithstanding the prohibition to give any effect to the EPA criteria, the bill authorizes the Department of Environmental Protection (DEP) to adopt numeric nutrient criteria for a particular surface water body or class of surface waters if the DEP determines that numeric nutrient criteria are necessary to protect aquatic life expected to inhabit those waters, and if the criteria are based on:

Objective and credible data, studies and reports establishing the nutrient levels which the water body may accept or assimilate without exhibiting imbalances of naturally occurring populations of flora and fauna based on a cause and effect relationship between nutrient levels and biological responses.

The criteria may be expressed in terms of concentration, mass loading, waste load allocation, load allocation, and surrogate standards, such as chlorophyll-a, and may be supplemented by narrative statements.

The bill designates DEP-adopted nutrient Total Maximum Daily Loads (TMDLs) that were approved by the EPA as of December 6, 2010, as site-specific numeric nutrient water quality criteria. The site-specific criteria are not effective if the EPA disapproves, approves in part, or conditions its approval of the criteria, unless ratified by the Legislature. The site-specific criteria are subject to s. 403.067, F.S. (Florida Watershed Restoration Act), administrative rules and orders issued thereto, and are subject to s. 120.56(3), F.S., authorizing a substantially affected person to seek an administrative determination of the invalidity of an existing rule. Once approved and effective, the site-specific criteria may be modified, based on objective and credible data, studies and reports, by department rulemaking in accordance with s. 403.804, F.S., after approval by the Environmental Regulations Commission.

The effective date of the bill is July 1, 2011. The bill’s fiscal impact is indeterminate. See Fiscal Comments for details.

# FULL ANALYSIS

## I. SUBSTANTIVE ANALYSIS

### A. EFFECT OF PROPOSED CHANGES:

#### Introduction

#### Water Quality Standards for Surface Waters in Florida

Water quality standards (WQS) are the foundation of the water quality-based pollution control program mandated by the Clean Water Act (CWA). The CWA establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters.<sup>1</sup>

The CWA requires states or the Federal Environmental Protection Agency (EPA) to establish WQS for pollutants flowing into surface waters, and prohibits the discharge of any pollutant from a point source, such as a pipe, man-made ditch, or large animal feeding operation, into navigable waters without a National Pollutant Discharge Elimination System (NPDES) permit. In Florida, the water quality of surface waters is primarily regulated through Florida's implementation of the CWA. The CWA provides incentives to Florida to: (a) adopt CWA-compliant WQS; and (b) administer the federal NPDES program on behalf of the EPA.<sup>2</sup>

Under the CWA, states adopt water quality standards for their navigable waters, and review and update those standards at least every three years. Under the CWA, states determine WQS for surface waters in three steps:

- Part one is establishing the designated uses for each water body, which may be for drinking, recreation and aquatic life propagation, or for agricultural and industrial purposes;
- Part two is establishing water quality criteria, which can be either a numeric or narrative standard that defines the amount of pollutant a water body can contain without impairing the designated use; and
- Part three is establishing an anti-degradation policy to maintain and protect existing uses and high quality waters.

The CWA requires states to submit WQS to the EPA for review and approval.<sup>3</sup>

The EPA Administrator must "promptly prepare and publish" proposed regulations setting forth a revised or new WQS for the navigable waters involved:

- If a revised or new WQS submitted by the state is determined by the Administrator not to be consistent with the applicable requirements , or

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<sup>1</sup>Applicable water quality standards for purposes of the Act are the minimum standards which must be used when the CWA and regulations implementing the CWA refer to water quality standards, for example, in identifying impaired waters and calculating TMDLs under section 303(d), developing NPDES permit limitations under section 301(b)(1)(C), evaluating proposed discharges of dredged or fill material under section 404, and in issuing certifications under section 401 of the Act. 40 CFR 131.21

<sup>2</sup> Under the federal structure established in the U.S. Constitution, states may not be compelled by the Federal Government to enact legislation or take executive action to implement federal regulatory programs. However, Congress can encourage a state to regulate in a particular way by offering incentives -- often in the form of federal funds. Congress may also create a "potential preemption" structure in which states must regulate the activity under state law according to federally approved standards, or have state regulation pre-empted by federal regulation. The Clean Water Act, Clean Air Act, and Safe Drinking Water Act, for example, utilize these techniques. In addition, it is important to note that a state agency in Florida must have legislative authorization to implement a federal law. The Florida Department of Environmental Protection receives federal funds to administer the NPDES permitting program in the state.

<sup>3</sup> This section of the CWA represents the "potential preemption" structure previously mentioned. Apart from receiving federal funds to assist the state in meeting water quality standards approved by the EPA, the state retains local control over its water quality programs, and provides to its NPDES applicants something the federal structure lacks --administrative deadlines for the agency to approve or deny a permit application.

- In any case where the Administrator determines that a revised or new standard is necessary to meet requirements of the CWA.<sup>4</sup>

The Administrator must promulgate any new or revised standards not later than ninety days after publication of the proposed standards, unless prior to such promulgation, the state adopts a revised or new WQS which the Administrator determines to be in accordance with the CWA. After promulgation by the EPA, however, the promulgated rules become the state's WQS until such time as the EPA withdraws the promulgation, again by rule.<sup>5</sup> This may occur if the state proposes and the EPA approves the state's submission.

The CWA also requires that states identify impaired waters not meeting established WQS. In such instances, a state establishes a total maximum daily load, or TMDL, for those impaired waters. A TMDL is a value of the maximum amount of a pollutant that a body of water can receive and still meet WQS.<sup>6</sup> To enforce TMDLs, water quality-based effluent limitations (WQBELs) must be developed and incorporated into NPDES permits for point sources. Each TMDL represents a goal that is implemented by adjusting pollutant discharge requirements in the individual NPDES permits, along with the implementation of nonpoint source controls, such as Best Management Practices.<sup>7</sup> State-established TMDLs and NPDES WQBELs are submitted to the EPA for approval. The EPA may adjust the criteria on either if the federal agency determines the standard does not comply with the CWA.

The threshold limit on pollutants in surface waters (Florida's surface WQS on which TMDLs are based) are set in administrative rule. The state's impaired waters rule contains a table that catalogues over 100 substances, including subparts, with numerical thresholds for surface water classifications, including fresh and marine waters.<sup>8</sup> Generally, a pollutant is expressed in a numerical threshold (e.g., 11mg/L, or 11 milligrams per liter) because certain chemicals (e.g., Benzene, Lead, Mercury), have threshold concentrations above which adverse biological damage is a scientific certainty.

The EPA and the Florida Department of Environmental Protection (DEP) executed a Memorandum of Understanding (MOU) in 2007 delineating the state and federal agencies' mutual responsibilities in the DEP's administration of the federal NPDES program (the approved program). Pursuant to the MOU, the EPA acknowledges that the DEP has no veto authority over an act of the Florida Legislature, and reserves the right to initiate procedures for withdrawal of the state NPDES program approval in the event the state legislature enacts legislation or issues any directive which substantially impairs the DEP's ability to administer the NPDES program or to otherwise maintain compliance with NPDES program requirements. If the approved program were withdrawn, entities requiring a NPDES permit for activities relating to wastewater, stormwater, construction, industry, pesticide application, power generation, and some agricultural activities would need to acquire both federal and state permits.

The MOU anticipates situations when the EPA resumes authority over an individual permit and instances when DEP-submitted NPDES permits are disapproved by the EPA until the DEP adjusts the permit conditions to include EPA conditions on the permit. If the permit is issued by the DEP, the permit holder may seek an administrative challenge in the Florida Division of Administrative Hearings. If the

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<sup>4</sup> CWA, s. 303(a)(3)(C).

<sup>5</sup> Pursuant to 40 CFR 131.21(c), if EPA finalizes a proposed rule, the EPA promulgated WQS would be applicable WQS for purposes of the CWA until EPA withdraws the federally-promulgated standard. Withdrawing a federal standard would require rulemaking by EPA pursuant to the requirements of the Administrative Procedure Act (5 U.S.C. 551 et seq.).

<sup>6</sup> Generally, the pollutant of concern and a numeric water quality target are, respectively, the chemical causing the impairment and the numeric criteria for that chemical (e.g., chromium) contained in the water quality standard. The TMDL expresses the relationship between any necessary reduction of the pollutant of concern and the attainment of the numeric water quality target. Guidelines for Reviewing TMDLs Under Existing Regulations Issued in 1992, are found at: <http://water.epa.gov/lawsregs/lawguidance/cwa/tmdl/final52002.cfm>

<sup>7</sup> When a water body is classified as impaired, Florida law also authorizes the DEP to adopt a Basin Management Action Plan, or BMAP, for that particular water body. A BMAP is designed to reduce the pollutant concentrations to meet the TMDL. Strategies may include: educational programs, permit limits on wastewater facilities, best management practices, conservation programs, and financial assistance.

<sup>8</sup> Chapter 62-302.530, Florida Administrative Code.

permit is issued by the EPA, the permit holder may seek a federal appeal; however, in the meantime, the permit holder would be required to comply with the federal permit.

### Nutrients and Water Quality

Nutrients, such as nitrogen and phosphorus, are substances that are needed by organisms to live and grow. In aquatic systems, these nutrients feed the growth of bacteria, algae, and other organisms. Nitrogen and phosphorus are essential to the production of plant and animal tissue. Phosphorus is essential to cellular growth and respiration. The DEP has relied on a narrative criterion (described in its impaired waters rule as “an imbalance in natural populations of flora or fauna”) for many years because nutrients are unlike any other pollutant regulated by the CWA.

Natural sources of nitrogen and phosphorus are the atmosphere, soils, and the decay of plants and animals. Unnatural sources include sewage disposal systems (treatment works or septic tanks), overflows of storm and sanitary sewers (untreated sewage), agricultural production and irrigation practices, and runoff from urban areas, neighborhoods, and pastures.

Excessive amounts of nutrients may result in harmful algal blooms, nuisance aquatic weeds, and alteration of the natural community of plants and animals. Dense, harmful blooms of algae can also cause human health problems, fish kills, problems for water treatment plants, and generally impair the aesthetics of waters. Populations of nuisance aquatic weeds can increase in nutrient-enriched waters, which can impact recreational activities like swimming and boating. Increased algal production as a result of increased nutrients can alter plant communities, which in turn can inhibit natural food chain dynamics.

As such, the derivation of specific numeric nutrient criteria to complement the narrative is very complex.<sup>9</sup> Since nutrients are essential to life, a balance must be understood to provide adequate nutrients to sustain aquatic life while not providing excessive nutrients which alter the aquatic ecosystem through species shifts. Each water body can have very different and unique nutrient requirements. In order to best develop thresholds at which a healthy aquatic environment can be sustained, it is best to develop a reliable measure of the biological condition of the water body.<sup>10</sup>

### **Effect of Proposed Changes**

On December 6, 2010, the United States Environmental Protection Agency (EPA) published final rules establishing numeric nutrient criteria for Florida lakes, streams, rivers, and springs (EPA Rule). A portion of the EPA Rule, relating to establishing site-specific alternative criteria, became effective on February 4, 2011, 60 days after publication in the Federal Register, Volume 75, No. 233. The remainder of the EPA Rule becomes effective 15 months after publication, on March 6, 2012.

**Section one** of the bill bars any and all state, regional, or local governmental entities from implementing or giving any effect to the federally-promulgated EPA criteria (EPA criteria), in any program administered by a state, regional, or local governmental entity. The bill does not, however, “limit the ability” of any state, regional, or local governmental entity to:

- Apply for any pollution discharge permit

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<sup>9</sup> The development of protective nutrient criteria is immensely more complicated than that for toxic substances. It must be recognized that nutrients should not be regulated at levels that are artificially lower than those concentrations required for normal ecosystem functioning. If humans were to reduce nutrients below the levels that natural aquatic systems are accustomed to, adverse biological effects (disruption of trophic dynamics, loss of representative taxa) would occur. This would be counter to the CWA charge in Section 101 to “protect the physical, chemical, and biological integrity” of the state’s waters and, coincidentally, against Florida law, which prohibits DEP from conducting remediation for natural conditions. Ideally, nutrients should be managed in a range of concentrations with some consideration of a margin of safety on both the upper and lower bounds of the range. Source: *Draft Technical Support Document -- Development of Numeric Nutrient Criteria for Florida Lakes and Streams*  
[http://www.dep.state.fl.us/water/wqssp/nutrients/docs/tsd\\_nutrient\\_crit.docx](http://www.dep.state.fl.us/water/wqssp/nutrients/docs/tsd_nutrient_crit.docx)

<sup>10</sup> [http://www.dep.state.fl.us/water/wqssp/nutrients/docs/tsd\\_nutrient\\_crit.docx](http://www.dep.state.fl.us/water/wqssp/nutrients/docs/tsd_nutrient_crit.docx), page 11.

- Comply with the conditions of such permits, including NPDES permits
- Implement best management practices, source control or pollution abatement measures for water quality improvement programs “as provided by law”

### *Analysis*

The EPA Rule is promulgated pursuant to applicable sections of the federal Clean Water Act (CWA), and EPA’s implementing regulations at 40 CFR part 131. The CWA requires adoption of water quality standards (WQS) for “navigable waters.”<sup>11</sup> The CWA defines “navigable waters” to mean “the waters of the United States, including the territorial seas.”<sup>12</sup> Whether a particular water body is a water of the United States is a water body-specific determination. Every water body that is a water of the United States requires a WQS under the CWA. The Florida Department of Environmental Protection (DEP) is the primary agency responsible for implementing CWA programs in the state of Florida, including the National Pollution Discharge Elimination System (NPDES) program and the Total Maximum Daily Load (TMDL) program.<sup>13</sup> For the purpose of NPDES permitting, “waters of the state” are synonymous with “waters of the United States.” This means that every water body in the state that is receiving treated wastewater, reclaimed water, stormwater runoff, etc., is affected by the EPA Rule, as is every Type III water body (fishable, swimmable) that fails to meet the WQS for its intended use.

The bill uses the verb “implement” followed by the phrase “give any effect” in the sentence prohibiting state, regional, or local government action regarding the EPA criteria. The common dictionary meaning for the verb “implement” is to carry out, or accomplish, and is often used in statutory and administrative rule construction. The phrase “give any effect” suggests a different standard than “implement” that may be open to subjective interpretation.

*Illustration 1.* Assume subsequent to the bill’s enactment into law, on or after March 6, 2012, the DEP reviews a NPDES permit renewal for an entity discharging into Lake Thirtyweight. Based on the EPA criteria for Lake Thirtyweight, the permit’s water quality-based effluent limits (WQBELs) need to be more protective to allow the entity to continue discharging.

In this situation, the DEP would submit the permit with the state nutrient criteria (narrative criteria) to the EPA for its review. The EPA may disapprove the permit and return the permit to the DEP after replacing the state standard with one acceptable to the EPA. The DEP issues the permit (with the EPA criteria) to the permit holder. The permit holder has two options; comply with the permit conditions, or challenge the permit conditions in the state Division of Administrative Hearings. Under state law, the entity would continue its operations under the conditions of the earlier permit until the challenge is resolved.<sup>14</sup> However, this would not prohibit the EPA from enforcing the permit conditions. Rather than return the permit to the DEP with adjusted criteria, the EPA may simply assume regulatory control over the permit. If, under the bill, the DEP is restricted from implementing federally-promulgated criteria, it is possible that, subsequent to the bill’s effective date, the EPA may withdraw its approval for the state to implement the NPDES program. If this occurs, both point source, and some non-point dischargers will need to acquire both state and federal water quality permits.<sup>15</sup>

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<sup>11</sup> CWA section 303(c)(2)(A).

<sup>12</sup> CWA section 502(7).

<sup>13</sup> 33 U.S.C. s. 1342 provides for the TMDL program. 33 U.S.C. s. 1313 addresses surface waters that are not “fishable, swimmable” by requiring states to identify the waters and to develop total maximum daily loads for them, with oversight from the EPA. As such, TMDLs can play a key role in watershed management. Each state must identify waters at risk and establish TMDLs to protect those waters. This includes identification of needed load reductions within a watershed from agricultural producers and other nonpoint sources. These load reductions are to be achieved through nonpoint source programs established under CWA s. 319 and the Coastal Zone Act Reauthorization Amendment s. 6217.

<sup>14</sup> This scenario, according to the DEP, is continuing to play out from a case in the 1990s, when the EPA imposed a dioxin standard for the Fenholloway River near Perry, Florida, involving the Buckeye pulp and paper mill. The administrative action is still ongoing and the mill still operates under old permit conditions.

<sup>15</sup> Typically, the EPA does not regulate non-point sources of pollution. However, polluted stormwater runoff is commonly transported through Municipal Separate Storm Sewer Systems (MS4s), from which it is often discharged untreated into local water bodies. To prevent harmful pollutants from being washed or dumped into an MS4, operators must obtain a NPDES permit and develop a stormwater management program. Source: [http://cfpub1.epa.gov/npdes/stormwater/munic.cfm?program\\_id=6](http://cfpub1.epa.gov/npdes/stormwater/munic.cfm?program_id=6)

Under the bill, state, regional, and local government entities may not implement, or give any effect, to the EPA criteria in any regulatory program administered by the governmental entities. This prohibition, however, does not limit the ability of any water management district or any other state, regional, or local governmental entity from applying for any pollution discharge permit or complying with the conditions of such permits, including those issued under the National Pollution Discharge Elimination System, or from implementing best management practices, source control or pollution abatement measures for water quality improvement programs as provided by law; provided, however, that nothing in this section shall be construed to derogate or limit county and municipal home rule authority.<sup>16</sup>

A situation involving a publicly-owned treatment works operating under an NPDES permit, for instance, would resemble the situation provided in Illustration 1. Assume this same local government proposes an amendment to its comprehensive plan requiring vegetation buffers of 50 meters between new construction and certain water bodies, to prevent or reduce nutrient loading from fertilizer use and stormwater runoff not captured by existing detention ponds. It is unclear under the bill's language whether the regulatory action by the local government gives any effect to the EPA criteria.

**Section two** of the bill authorizes the DEP to adopt numeric nutrient criteria for a particular surface water body or class of surface waters if the DEP determines that numeric nutrient criteria are necessary to protect aquatic life reasonably expected to inhabit those waters, and if the criteria are based on:

Objective and credible data, studies and reports establishing the nutrient levels which the water body may accept or assimilate without exhibiting imbalances of naturally occurring populations of flora and fauna based on a cause and effect relationship between nutrient levels and biological responses.

In addition, section two provides the criteria may be expressed in terms of concentration, mass loading, waste load allocation, load allocation, and surrogate standards, such as chlorophyll-a, and may be supplemented by narrative statements.

### *Analysis*

It is unclear how the bill's limited authorization for DEP to adopt water quality criteria necessary "to protect aquatic life reasonably expected to inhabit those waters" will interact with the pre-existing classification of designated use process.

EPA's final rule proposes an alternative regulatory approach the state may consider if meeting numeric criteria for certain water bodies is unattainable; re-designation of water use. Pursuant to the CWA, states establish water quality standards (WQS) in three steps:

- Establish designated uses for each water body, which may be for drinking, recreation and aquatic life propagation, or for agricultural and industrial purposes
- Establish water quality criteria, which can be either a numeric or narrative standard that defines the amount of pollutant a water body can contain without impairing the designated use
- Establish an anti-degradation policy to maintain and protect existing uses and high quality waters

In 2009, the DEP began to refine the current system of designated uses, primarily because certain engineered water systems that were designed for flood control or as conveyances to treatment areas are currently designated as Type III waters, for aquatic life and recreation purposes. The DEP amended its water classification rule, effective August 5, 2010, creating a sub-class of Class III waters. Pursuant to 62-302.400(5), F.A.C.:

Class III-Limited surface waters share the same water quality criteria as Class III except for any site specific alternative criteria that have been established for the waterbody under Rule 62-

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<sup>16</sup> The bill also restates the governmental entities' ability to impose WQS on themselves through applying for and complying with any pollution discharge permit, including a NPDES permit.

302.800, F.A.C. Class III-Limited waters are restricted to waters with human-induced physical or habitat conditions that prevent attainment of Class III uses and do not include waterbodies that were created for mitigation purposes. "Limited recreation" means opportunities for recreation in the water are reduced due to physical conditions. "Limited population of fish and wildlife" means the aquatic biological community does not fully resemble that of a natural system in the types, tolerance and diversity of species present. Class III-Limited waters are restricted to:

(a) Wholly artificial waterbodies that were constructed consistent with regulatory requirements under Part I or Part IV of Chapter 373, Part I or Part III of Chapter 378, or Part V of Chapter 403, F.S.; or

(b) Altered waterbodies that were dredged or filled prior to November 28, 1975. For purposes of this section, "altered waterbodies" are those portions of natural surface waters that were dredged or filled prior to November 28, 1975, to such an extent that they exhibit separate and distinct hydrologic and environmental conditions from any waters to which they are connected.

Rulemaking will be necessary to re-assign any water body to the new sub-class. No specific water body has been yet classified as Class III-Limited.

The bill requires the numeric nutrient criteria adopted by the DEP to be based upon "objective and credible data, studies and reports establishing the nutrient levels which the water bodies may accept or assimilate without exhibiting imbalances of naturally occurring populations of flora and fauna based on a cause and effect relationship between nutrient levels and biological responses." According to the DEP, it is exceptionally difficult to establish objective data establishing a quantitative amount of nutrient which flowing water bodies may accept without exhibiting an imbalance of flora or fauna based on a cause and effect relationship between nutrient levels and biological responses. The EPA and the DEP acknowledge a dose-response methodology for flowing rivers and streams result in scientific results that are not robust.<sup>17 18</sup> It was this realization that led the DEP to adopt a site reference approach with a subsequent biological assessment to determine if the river or stream was impaired or healthy. The DEP determined through extensive laboratory and field test methodologies that such a protective criterion may be determined in lakes, however. It is a very time consuming and expensive endeavor. With an estimated 1,918 miles of rivers and streams, and 378,435 acres of lakes identified as impaired by nutrients, the process takes a very long time.

**Section three** of the bill addresses DEP-adopted nutrient TMDLs that were approved by the EPA as of December 6, 2010. The bill declares these TMDLs (and "associated numeric interpretations of the narrative nutrient criterion, whether total nitrogen, total phosphorus, nitrate/nitrite, or a surrogate nutrient standards, such as chlorophyll a, biological demand, or specific biological metric") to be site-specific numeric nutrient water quality criteria (SSNNWQC), unless the EPA disapproves, approves in part, or conditions its approval of the criteria. If the EPA takes such action, the criteria take effect only upon legislative ratification. In addition, the bill provides that the statutorily-created SSNNWQC are subject to s. 403.067, F.S. (Florida Watershed Restoration Act), administrative rules and orders issued thereto, and are subject to s. 120.56(3), F.S., authorizing a substantially affected person to seek an administrative determination of the invalidity of an existing rule.<sup>19</sup> Once approved and effective, the SSNNWQC may be modified, based on objective and credible data, studies and reports, by department rulemaking in accordance with s. 403.804, F.S.

### *Analysis*

When the EPA finalized their rule, the agency did not include DEP-established nutrient TMDLs as site-specific alternative criteria (SSAC), even though the EPA had previously approved the nutrient TMDLs

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<sup>17</sup> See, DEP's 2009 Draft Nutrient Criteria Technical Support Document, p. 111: "...DEP has invested significant resources ... attempting to derive criteria based on dose-response relationships. However, DEP has concluded that specific thresholds could not be established due to inherent variability within and between streams and the compounding complexity from other factors."

<sup>18</sup> EPA final rule, Federal Register, Vol. 75, No. 233, p. 75777.

<sup>19</sup> The Florida Watershed Protection Act provides authority for several regulatory programs, including the state TMDL program, DEP responsibilities pursuant to s. 303(d) of the CWA (assessing, listing, and reporting to the EPA all surface waters in the state that do not comply with CWA standards), BMAPs, agricultural BMPs, and water quality credit trading.

pursuant to federal regulation.<sup>20</sup> Instead, the EPA Rule provides a procedure for the state (or any entity) to submit these, and any other nutrient TMDL, to the EPA for consideration as a SSAC for a water body or segment. As stated in the final rule, one reason for not accepting the previously-approved TMDLs is the chance that, in the space of time between EPA approval of the TMDL and the promulgation of the EPA Rule, advances in technology or science may allow for a TMDL that is even more protective of the designated use than the original. See Federal Register, Volume 75, No. 233, pp. 75786, 75787.

Pursuant to state law regarding adoption of a TMDL for a water body, the DEP coordinates with applicable local governments, water management districts, the Department of Agriculture and Consumer Services, other appropriate state agencies, local soil and water conservation districts, environmental groups, regulated interests, and affected pollution sources. The parties determine the information required, accepted methods of data collection and analysis, and quality control/quality assurance requirements. The TMDL is adopted pursuant to the DEP Secretary's rulemaking authority and is subject to administrative challenge under the Florida Administrative Procedures Act (APA). Afterward, the TMDL is submitted to the EPA for review and approval. According to the DEP, Florida has adopted 135 nutrient TMDLs.

Under the bill, DEP-developed nutrient TMDLs that were approved by the EPA before December 6, 2010, are designated as site-specific nutrient water quality criteria (SSNNWQC). According to the DEP, all 135 nutrient TMDLs were EPA-approved on or before December 6, 2010, which, if the bill is enacted, will result in 135 SSNNWQCs. The bill provides the SSNNWQC are not effective if the EPA disapproves, approves in part, or conditions approval of the SSNNWQC. The DEP must adopt the SSNNWQC in administrative rule because the bill subjects the statutorily-created criteria to s. 120.56(3), F.S., the APA provision for an invalid rule challenge. In addition, the bill subjects the SSNNWQC to the Florida Watershed Protection Act and any constituent rules promulgated or orders issued thereto. If challenged, the proposed SSNNWQC is ineffective pending resolution of the administrative action.<sup>21</sup> Therefore, the TMDL criteria, previously subject to administrative rule challenge, may now be subject to an additional administrative challenge, this time as a SSNNWQC.

After the SSNNWQC are adopted by rule, the DEP may submit the criteria to the EPA for consideration as a SSAC. If the EPA responds with anything less than an unqualified approval, the criteria are no longer effective as a SSNNWQC, unless the Florida Legislature ratifies the rule criteria.<sup>22</sup> If the EPA approves the criteria, any subsequent modification of the SSNNWQC shall not be pursuant to the DEP Secretary's rulemaking authority, but shall instead require the review and approval of the Environmental Regulation Commission (ERC). The ERC, in exercising its authority pursuant to s. 403.804, F.S., shall consider scientific and technical validity, economic impacts, and relative risks and benefits to the public and the environment. This layer of review is in addition to any administrative challenge that may follow promulgation.

The bill does not provide the DEP with specific rulemaking authority. Providing the DEP's existing rulemaking authority is sufficient, the SSNNWQC will be subject to s. 120.541, F.S., requiring a statement of estimated regulatory costs. Section 120.541(2)(a), F.S., reads as follows:

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<sup>20</sup> 40 CFR s. 130.7

<sup>21</sup> Subsection (14) of s. 403.067, F.S., provides: In order to provide adequate due process while ensuring timely development of total maximum daily loads, proposed rules and orders authorized by this act shall be ineffective pending resolution of a s. 120.54(3), s. 120.56, s. 120.569, or s. 120.57 administrative proceeding. However, the department may go forward prior to resolution of such administrative proceedings with subsequent agency actions authorized by subsections (2)-(6), provided that the department can support and substantiate those actions using the underlying bases for the rules or orders without the benefit of any legal presumption favoring, or in deference to, the challenged rules or orders.

<sup>22</sup> Legislative ratification of rules has not proven to be an automatic process. On February 23, 2006, Florida's Environmental Regulation Commission approved an amendment to the DEP's wetland delineation rule. According to DEP, this rule change was in response to legislative direction in HB 759 in the 2005 Session, to streamline State and Federal permitting programs and was included in the department's October 3, 2005 report to the Legislature required by HB 759. The rule amendment changes the status of gallberry and slash pine from being indicators of upland areas to being neutral. Under chapter 373, F.S., the rule amendment does not become effective until formally ratified by the Florida Legislature. Despite successive bill filings in 2006, 2007, and 2009, the Legislature has not ratified the rule amendment.

- (2) A statement of estimated regulatory costs shall include:
- (a) An economic analysis showing whether the rule directly or indirectly:
1. Is likely to have an adverse impact on economic growth, private sector job creation or employment, or private sector investment in excess of \$1 million in the aggregate within 5 years after the implementation of the rule;
  2. Is likely to have an adverse impact on business competitiveness, including the ability of persons doing business in the state to compete with persons doing business in other states or domestic markets, productivity, or innovation in excess of \$1 million in the aggregate within 5 years after the implementation of the rule; or
  3. Is likely to increase regulatory costs, including any transactional costs, in excess of \$1 million in the aggregate within 5 years after the implementation of the rule.

Pursuant to s. 120.541(3), F.S., proposed rules which will have an adverse impact of more than \$1 million over 5 years must be submitted to the Florida Legislature for ratification before rule may go into effect. Considering the historic costs for surface water restoration, the DEP rules are likely to meet or exceed this threshold. An exception to paragraph (2)(a) applies for the adoption of emergency rules pursuant to s. 120.54(4) or the adoption of federal standards pursuant to s. 120.54(6). Neither exception appears to apply in this case.

## **Additional Background Information**

### History of Florida's Development of Numeric Nutrient Criteria

In recognition of the need to more proactively address impairment of state waters due to nutrients, the DEP implemented a detailed, EPA-approved plan for the development of numeric nutrient criteria and recently proposed revisions to Chapter 62-302, FAC (Water Quality Standards) and Chapter 62-303, FAC (Impaired Waters Rule) to establish numeric nutrient criteria for lakes and streams. DEP selected the "dose-response" approach (investigating the effects of nutrients on biological communities) as the primary method for the development of scientifically defensible numeric nutrient criteria, and has invested significant resources in:

- the development of biological assessment tools
- the documentation of minimally disturbed reference conditions
- the collection of large amounts of water quality and nutrient data
- conducting a variety of studies to link nutrients to adverse effects on valued ecological attributes

This process has required extensive methods development, staff training, and Quality Assurance oversight to ensure the defensibility of the resulting products. The elements of this development and assessment process to date include such components as habitat assessment for streams and lakes, benthic invertebrate indices for streams and lakes, a vegetation index for lakes, and a periphyton index for streams. These activities represent significant investments in staff time and contractual services, with recent and planned funding associated with nutrient criteria development in Florida totaling nearly \$20 million dollars.<sup>23</sup>

While the approved plan called for adoption of the criteria by the end of 2010, DEP accelerated its efforts to adopt numeric nutrient criteria in response to the EPA's January 14, 2009, determination that numeric nutrient water quality criteria are necessary in Florida to implement the Clean Water Act. As part of a settlement agreement with EarthJustice, discussed later in this analysis, EPA was obligated to promulgate numeric nutrient criteria for Florida streams and lakes by a date certain, unless EPA approved criteria proposed by the DEP prior to that date.<sup>24</sup> The DEP did not formally propose

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<sup>23</sup>The DEP's *Florida Numeric Nutrient Criteria History and Status Summary*. This document, and other documentation of nutrient criteria study results, including statistical analyses and interpretation, are found at: <http://www.dep.state.fl.us/water/wqssp/nutrients/>

<sup>24</sup> The determination letter established a schedule for criteria development, with criteria for lakes and streams due by January 14, 2010, and criteria for estuaries due by January 14, 2011. Due to approved extensions of time, the due dates were extended. The EPA numeric nutrient criteria for Florida's inland waters (except for south Florida) will be effective March 6, 2012. The EPA will propose numeric

alternative criteria to the EPA prior to the final promulgation by the EPA, and the EPA established numeric nutrient criteria for lakes, streams, rivers, and springs, effective March 6, 2012.

### Development of the DEP Plan

The DEP started developing numeric nutrient criteria nearly ten years earlier. In 1999, the DEP's Division of Water Resource Management initiated the implementation of a watershed approach for surface water protection patterned after EPA guidance (EPA, 1991, 1995), including the prioritization of water bodies for TMDL development.<sup>25</sup> The DEP drew guidance from the EPA's *Nutrient Criteria Technical Guidance Manual: Rivers and Streams* (Buck et al., 2000), which describes three general approaches for the development of numeric nutrient criteria for streams: the observed dose-response relationship, the "reference site" methodology, and the "all streams" approach.

- Observed dose-response -- Establishes a cause/effect relationship between nutrients and valued ecological attributes, and is linked to maintaining designated uses.
- Reference site -- In the absence of data quantitatively describing biological dose-response relationships, the EPA recommends this as the next best alternative, setting criteria based on an inclusive distribution of values obtained from minimally disturbed reference sites in a designated ecoregion (based on climate and geology) and recommends projection of an upper percentile value to represent a level of nutrient concentration that will inherently protect aquatic life.
- All-streams -- For use in situations where sufficient known reference sites are unavailable, either absent or not identifiable. This approach is often referred to as the "all streams" approach, and involves establishing criteria using a lower distribution (e.g., 5th to 25th percentile) of a pool of sites of undetermined ecological quality, as long as the pool is sufficiently large enough to represent all waters and can be presumed to reasonably reflect the full range of ambient conditions with a disturbance gradient from least to most impacted.

The DEP Plan distinguished the first option, the observed dose-response, as the preferred methodology.<sup>26</sup> These thresholds helped to expedite the assessment of Florida's waters, but they were set for variables that measure the response to nutrient over enrichment, rather than concentrations of nutrients. The DEP Plan expressed support for the reference site approach, although that option does not definitively demonstrate that exceeding the threshold established by the distribution of reference sites results in harm (impairment) to the aquatic life in a particular water body. Multiple factors can strongly influence the expression of biological responses to nutrients across water bodies, such as water velocity, residence time, availability of the other nutrient, presence of grazers, availability of light (due to tree cover and/or water transparency), and availability of suitable habitat. The DEP found that additional stressors (e.g., degraded habitat, unfavorable hydrology) often influence biological impairments more than the actual concentration of nutrients at a given point. The DEP discounted option three, the all-streams approach, as having limited defensibility in the state.

Pursuant to the CWA, there are three paths to develop protective numeric criteria (40 CFR 131.11). Numeric criteria may be established based upon (1) EPA-published Section 304(a) guidance, or (2) 304(a) guidance modified to reflect site-specific conditions, or (3) by use of other scientifically defensible methods. The DEP drew from EPA guidance documents and, from its own experience and knowledge gained from field and laboratory testing, fashioned a methodology which incorporated site-

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nutrient criteria for Florida's estuaries, flowing waters in south Florida (including canals), and the downstream protection values for flowing waters into estuaries on or before November 14, 2011. The deadline for promulgating a final rule is August 15, 2012.

<sup>25</sup> Pursuant to the CWA, s. 304(a), the EPA publishes and periodically revises guidance documents to accurately reflect the latest scientific knowledge on the effects of pollution on life and the environment.

<sup>26</sup> The DEP Plan implemented this approach as a quantified translation of its narrative criteria in two ways. For point sources (e.g., wastewater facilities discharging to surface waters), the DEP interpreted the narrative criterion on a site-specific basis and established numeric permit limits for nutrients. To better address nutrient impairment from nonpoint (non-regulated) sources, the DEP revised the Impaired Waters Rule to include numeric nutrient impairment thresholds. Criteria utilize trophic state indices. For streams, Chapter 62-303.351(2), F.A.C., denotes an imbalance if annual mean chlorophyll a concentrations are greater than 20 ug/l or if data indicate annual mean chlorophyll a values have increased by more than 50% over historical values for at least two consecutive years. For lakes, the criteria were dependent upon lake color and variations of the TSI over time.

specific verifications. In 2002, the DEP submitted to the EPA its initial *DRAFT Numeric Nutrient Criteria Development Plan*. The DEP and the EPA reached mutual agreement on the Plan on July 7, 2004.<sup>27</sup> The DEP revised its Plan in September, 2007, to reflect an evolved strategy and technical approach, and again received agreement from the EPA on September 28, 2007.<sup>28</sup> From 2002 through 2009, the DEP conducted 22 meetings with a group of scientists and experts that formed the Nutrient Technical Advisory Committee (TAC). TAC experts came from a variety of backgrounds, including environmental groups, the EPA, environmental and economic consultants, and representatives from state and local governments.

### Comparing the DEP's Plan with the EPA Final Rule

The DEP's 2007 Plan (which was approved by the EPA) and the 2009 Plan do not differ in conceptual approach. The 2009 Plan, however, demonstrated refinement in several areas. For instance, the 2007 Plan also classified lakes by color (or lack thereof), but the 2009 Plan reflected refinements in biological response by incorporating alkalinity levels in specific water bodies. Not reflected in the 2007 Plan, the 2009 Plan incorporated refinements in its stream assessment to develop a final nutrient standard for spring runs. The DEP kept the 2007-established schedule for completing the nutrient rule by the end of 2010.

### *Florida's Rivers and Streams*

For rivers and streams, the DEP determined there was insufficient robust data to develop a scientifically-defensible method establishing a cause-effect relationship between nutrients and biological health endpoints. EPA guidance states that the next best plan involves a reference site distributional approach. The EPA recommends setting criteria based on an inclusive distribution of values obtained from reference sites in a designated ecoregion (based on climate and geology, etc.).<sup>29</sup> The DEP expanded this approach by identifying streams that were minimally affected by human disturbance and nutrients, and also by documenting the existence of "full aquatic life full use support" (using Stream Condition Index methods).<sup>30</sup> According to published EPA guidance, reference reaches may be identified for each class of streams within a state based on best professional judgment. DEP expanded beyond EPA's best professional judgment approach regarding selection of reference streams, and developed an extremely rigorous, multi-step process to ensure that the sites eventually selected truly represented minimal human disturbance and full designated use support.

The DEP's Nutrient Benchmark Site Distributional Approach for nutrient criteria development includes the following:

- Use of the 90th percentile of nutrient concentrations (75th percentile for Bone Valley streams) derived from a distribution of minimally disturbed streams is inherently protective of aquatic life, including biota inhabiting downstream waters

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<sup>27</sup> The DEP's *Florida Numeric Nutrient Criteria History and Status Summary*. The DEP's approach conceptualized establishing ecological sub-regions as a starting point for regionalization efforts it saw as necessary to establish nutrient criteria.

<sup>28</sup> The DEP's 2007 Plan utilized EPA guidance and proposed the development of regional nutrient criteria for streams based upon the "reference site" approach to determine nutrient characteristics at minimally-disturbed, biologically healthy sites. The Florida-derived bioassessment methods, the Stream Condition, Lake Condition, and Lake Vegetation Indices, were also considered. Additionally, DEP began using a rapid periphyton survey methodology for streams in early 2007 and initiated the development of phytoplankton and periphyton indices for lakes and streams, respectively. The EPA's 2007 letter memorializing the mutual agreement with the DEP may be accessed here: <http://www.dep.state.fl.us/water/wqssp/nutrients/docs/epa-092807.pdf>

<sup>29</sup> A memorandum from the Director of the EPA's Office of Science and Technology, Geoff Grubbs (2001), indicated that states are allowed the flexibility to develop and adopt nutrient criteria other than those currently proposed by EPA for water body types in specific Nutrient Ecoregions which were aggregated from Level III (EPA, 1998). As proposed, the EPA criteria recommendations that would include Florida do not fully reflect localized conditions or specific water body designated uses within the state. The DEP Plan proposes to undertake activities to develop criteria for lakes, streams, estuaries, coastal waters (and wetlands) within the state, based on state-specific, subregional data. Upon issuance of §304(a) Ecoregional Nutrient Criteria Recommendations, and since that time, EPA has encouraged states to refine their approach where possible in order to reflect more state-specific data and conditions. DEP Plan, pages 1, 2.

<sup>30</sup> DEP Draft Nutrient Criteria Technical Support Document, p. 98.

- Documentation of healthy biological communities directly demonstrates that aquatic life uses are fully met within the associated range of nutrients

The DEP noted one disadvantage of using the benchmark approach: it does not identify the specific nutrient levels at which biological impairment occurs. For this reason, it cannot be concluded on its face that adverse effects on aquatic life actually occur at concentrations above these values. Therefore, the DEP's methodology included a multi-step verification process which culminated with an extensive field examination process.

The criteria listed in the tables below express annual geometric means that cannot be exceeded more than once every three years.

<b>Numeric Criteria for Florida Streams Total Phosphorus (mg/L)</b>			
Nutrient Watershed Region	EPA	DEP	
		75 <sup>th</sup> %	90 <sup>th</sup> %
Panhandle West	0.06	0.043	<b>0.069</b>
Panhandle East	0.18	0.066	<b>0.101</b>
North Central	0.30	0.216	<b>0.322</b>
Peninsula	0.12	0.088	<b>0.116</b>
West Central	0.49	<b>0.415</b>	0.559

<b>Numeric Criteria for Florida Streams – Total Nitrogen (mg/L)</b>			
Nutrient Watershed Region	EPA	DEP	
		75 <sup>th</sup> %	90 <sup>th</sup> %
Panhandle West	0.67	0.63	<b>0.82</b>
Panhandle East	1.03	1.13	<b>1.73</b>
North Central	1.87	1.13	<b>1.73</b>
West Central	1.65	1.13	<b>1.73</b>
Peninsula	1.54	1.13	<b>1.73</b>

### Florida's Lakes

As previously stated, according to the DEP the most comprehensive and scientifically defensible approach to developing numeric nutrient criteria for surface waters is to establish cause and effect relationships between nutrients (stressors) and valued ecological attributes. Chapters 9 and 10 of DEP's *Nutrient Criteria Technical Support Document* provides justification for use of chlorophyll a as an indicator of designated use support, primarily as a measure of excessive algal growth, which can result in imbalances of natural populations of flora or fauna. Additionally, the Lake Vegetation Index (LVI) is a direct assessment of the floral community and can therefore be used to demonstrate use support.

The DEP evaluated responses in both chlorophyll a and the LVI to total phosphorus and total nitrogen concentrations. Lakes were initially categorized based on color categories previously adopted in Florida's Impaired Waters Rule. Lakes with color less than or equal to 40 platinum cobalt units (PCU) were categorized as clear, and lakes with color greater than 40 PCU were categorized as colored. Based upon recommendations from the Nutrient TAC, the DEP evaluated whether there were any differences in the relationships between nutrients and chlorophyll a in clear lakes with specific conductance values above and below 100  $\mu$ mhos/cm.<sup>31</sup> The specific conductance threshold was

<sup>31</sup> Conductivity is a measure of the ability of water to pass an electrical current. Conductivity in water is affected by the presence of inorganic dissolved solids such as chloride, nitrate, sulfate, and phosphate anions (ions that carry a negative charge) or sodium, magnesium, calcium, iron, and aluminum cations (ions that carry a positive charge). Organic compounds like oil, phenol, alcohol, and sugar do not conduct electrical current very well and therefore have a low conductivity when in water. Conductivity in streams and rivers is affected primarily by the geology of the area through which the water flows. Streams that run through areas with clay soils tend to have higher conductivity because of the presence of materials that ionize when washed into the water. Ground water inflows can have the same effects depending on the bedrock they flow through. Discharges to streams can change the conductivity depending on their make-up. A failing sewage system would raise the conductivity because of the presence of chloride, phosphate, and nitrate; an

designed to capture lakes that receive input from calcareous aquifer sources, which naturally contain higher levels of phosphorus than do lakes that receive most of their water from (low conductivity) rainfall.

Color primarily affects lake response to nutrients by limiting light at very high color levels, but color is also an indirect indication of the source of the water reaching the lake. High water color (> 40 PCU), which is imparted from breakdown of natural leaf litter, indicates that a lake is influenced by surface water runoff from forests and wetlands, and would contain higher natural nutrient levels than a rainfall driven system. Low color lakes (< 40 PCU) derive their water primarily from rainfall, unless high alkalinity is also present, meaning higher phosphorus Floridan aquifer groundwater has influenced the system.

After dividing lakes into categories of color and alkalinity, the DEP determined statistically strong, dose-response relationships between nutrients and chlorophyll a (an indicator of algal biomass or primary productivity). The DEP then used multiple lines of evidence, including paleolimnology, fisheries success, expert opinion, lack of harmful algal blooms, and user perception, to determine chlorophyll a levels that would be protective of designated uses. The DEP concluded that a chlorophyll a level of 20 ug/L would protect human and aquatic life uses in both colored lakes and in clear, high alkalinity lakes. For clear, low alkalinity lakes, the protective chlorophyll a threshold was set at 9 ug/L.

Because algal response is influenced by factors other than nutrients (grazing, macrophyte nutrient uptake, water retention time), the DEP contends the most scientifically defensible strategy for managing nutrients within the range of uncertainty is to verify a biological response prior to taking management action. If data demonstrate that a given lake is biologically healthy and does not experience excess algal growth (e.g., < 20 µg chlorophyll a/L in a colored lake or high conductivity clear lake) despite having nutrient concentrations within the range of uncertainty, then no nutrient reductions are needed.

Lakes Criteria					
Lake Type	DEP Response (Chl-a ug/L)	EPA Response (Chl-a ug/L)	Stressor	DEP	EPA
Clear/Low Alkalinity	9	6	TP (mg/L)	0.015 - 0.043	0.01 (0.01 – 0.03)
			TN (mg/L)	0.85 - 1.14	0.51 (0.51 – 0.93)
Clear/High Alkalinity	20	20	TP (mg/L)	0.030 - 0.087	0.03 (0.03 – 0.09)
			TN (mg/L)	1.0 - 1.81	1.05 (1.05 – 1.91)
Colored	20	20	TP (mg/L)	0.05 - 0.157	0.05 (0.05 – 0.16)
			TN (mg/L)	1.23 - 2.25	1.27 (1.27 – 2.23)

### Florida's Spring Runs

Similar to the methods being used to establish numeric nutrient criteria for lakes and streams, the DEP utilized multiple lines of evidence taken from the results of different types of research as well as

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oil spill would lower the conductivity. The basic unit of measurement of conductivity is the mho or siemens. Conductivity is measured in micromhos per centimeter (µmhos/cm) or microsiemens per centimeter (µs/cm). Distilled water has a conductivity in the range of 0.5 to 3 µmhos/cm. The conductivity of rivers in the United States generally ranges from 50 to 1500 µmhos/cm. Studies of inland fresh waters indicate that streams supporting good mixed fisheries have a range between 150 and 500 µmhos/cm. Conductivity outside this range could indicate that the water is not suitable for certain species of fish or macroinvertebrates. Industrial waters can range as high as 10,000 µmhos/cm. Source: <http://water.epa.gov/type/rsl/monitoring/vms59.cfm>

empirical data available from various monitoring programs to develop nitrate criteria for clear streams, including springs. The DEP focused on developing nitrate-nitrite criteria for springs and clear streams (< 40 PCU), rather than phosphorus, for four distinct reasons:

- Increases in nitrate-nitrite concentrations are nearly omnipresent in areas where anthropogenic loading to the land's surface has occurred
- Once in the ground water, de-nitrification is negligible and nitrate-nitrite appears to be transported as a conservative solute
- Although Florida's geology is naturally rich in phosphorus, there does not appear to be a trend of increasing phosphorus concentrations in spring discharges. While nitrate-nitrite concentrations have increased significantly in most spring discharges, phosphorus concentrations have remained relatively constant over the past 50 years
- Since springs are naturally rich in phosphorus, the majority of Florida springs are likely to have been historically nitrogen limited

Through extensive laboratory experiments, in situ field surveys, TMDL development activities for the Wekiva River and Rock Springs Run, studies, and using data derived from nutrient gradient studies of Rapid Periphyton Survey (algal responses to nutrients and other variables), the DEP derived a 0.35 mg/L nitrate-nitrite criterion for spring runs.<sup>32</sup> At monthly concentrations below 0.35 mg/L, the DEP obtained high confidence (95% Confidence Interval) that adverse responses will not be observed.

The EPA's Final Rule criteria threshold established for spring runs is identical to the DEP's threshold.

#### *Site Specific Alternative Criteria for Florida Waters*

Nutrient dynamics are complex and the impacts are site-specific, and there will always be cases where statewide criteria are over-protective for specific water bodies. To address this possibility, the DEP developed rule language for a new process for developing Site Specific Alternative Criteria (SSAC) for nutrients. This new "Type III" SSAC process would require a demonstration that the SSAC is fully protective of designated uses based on the SCI and LVI, for streams and lakes, respectively. Under the draft rule, a Type III SSAC would be adopted if two spatially and temporally independent biological health assessments indicated that the existing nutrient regime supported healthy biota. To ensure that the SSAC is also protective of downstream waters, DEP also added a requirement that all downstream waters attain water quality standards related to nutrients.

The DEP Plan included previously adopted nutrient TMDLs (adopted in Chapter 62-304, FAC) as SSACs, because the TMDLs:

- Establish site specific and sensitive responses to nutrient enrichment for a particular area
- Use data appropriate for a site specific assessment
- Establish a protective endpoint equivalent to numeric criteria
- Reflect geographically explicit protective conditions, and are more appropriate than a statewide criterion because it would be counter-productive for statewide nutrient criteria to supersede the TMDL.

The DEP designed the recommended revisions to Chapter 62-303 (Impaired Waters Rule) to implement the proposed revisions to Chapter 62-302. The revisions would have allowed the DEP to assess waters for nutrient impairment using the numeric nutrient criteria in addition to the current narrative nutrient impairment thresholds in the IWR, and to assess waters for biological impairment using the new SCI and LVI thresholds. Both rules are still in draft stages.<sup>33</sup>

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<sup>32</sup> During the development of the TMDL for these water bodies, protective nutrient concentration targets were derived using periphyton and water quality data collected from the Suwannee River and two tributaries, the Withlacoochee River and Santa Fe River (Hornsby et al. 2000). These data were considered applicable to the Wekiva River and Rock Springs Run since the Suwannee River is heavily influenced by spring inflow, and in the absence of anthropogenic inputs, the algal communities would be expected to be generally similar in composition to those in the Wekiva River and Rock Springs Run. DEP's *Nutrient Criteria Technical Support Document*, Chapter 4.

<sup>33</sup> See Surface Water Draft Rules at [http://www.dep.state.fl.us/water/rules\\_dr.htm](http://www.dep.state.fl.us/water/rules_dr.htm)

The EPA did not include Florida's water bodies with previously-approved nutrient TMDLs as SSAC under the Final Rule. As such, the DEP will be required to submit the TMDLs again to the EPA for consideration as SSAC under the Final Rule.

### *Downstream Protection of Florida Waters*

The DEP could discern no defensible method to quantitatively describe the maximum nutrient concentrations allowed for the protection of downstream waters. According to the DEP, there exists no adequate, statewide calibrated model that could be used to numerically determine, without great uncertainty, protective nutrient loads for downstream lakes or estuaries. With no scientifically defensible solution to rely upon, the DEP proposed a narrative statement to ensure downstream waters protection.

The EPA did not include Florida's downstream protection methodology in the final rule. Instead, the EPA promulgated an equation to adjust in-stream total phosphorus criteria to protect downstream lakes.

EPA's final rule proposes an alternative regulatory approach the state may consider if meeting numeric criteria for certain water bodies is unattainable; re-designation of water use. Pursuant to the CWA, states establish water quality standards (WQS) in three steps:

- Establish designated uses for each water body, which may be for drinking, recreation and aquatic life propagation, or for agricultural and industrial purposes
- Establish water quality criteria, which can be either a numeric or narrative standard that defines the amount of pollutant a water body can contain without impairing the designated use
- Establish an anti-degradation policy to maintain and protect existing uses and high quality waters

In 2009, the DEP began to refine the current system of designated uses, primarily because certain engineered water systems that were designed for flood control or as conveyances to treatment areas are currently designated as Type III waters, for aquatic life and recreation purposes. The DEP amended its water classification rule, effective August 5, 2010, creating a sub-class of Class III waters. Pursuant to 62-302.400(5), F.A.C.:

Class III-Limited surface waters share the same water quality criteria as Class III except for any site specific alternative criteria that have been established for the waterbody under Rule 62-302.800, F.A.C. Class III-Limited waters are restricted to waters with human-induced physical or habitat conditions that prevent attainment of Class III uses and do not include waterbodies that were created for mitigation purposes. "Limited recreation" means opportunities for recreation in the water are reduced due to physical conditions. "Limited population of fish and wildlife" means the aquatic biological community does not fully resemble that of a natural system in the types, tolerance and diversity of species present. Class III-Limited waters are restricted to:

- (a) Wholly artificial waterbodies that were constructed consistent with regulatory requirements under Part I or Part IV of Chapter 373, Part I or Part III of Chapter 378, or Part V of Chapter 403, F.S.; or
- (b) Altered waterbodies that were dredged or filled prior to November 28, 1975. For purposes of this section, "altered waterbodies" are those portions of natural surface waters that were dredged or filled prior to November 28, 1975, to such an extent that they exhibit separate and distinct hydrologic and environmental conditions from any waters to which they are connected.

Rulemaking will be necessary to re-assign any water body to the new sub-class. No specific water body has been yet classified as Class III-Limited.

### Snapshot Comparison of the EPA's Final Rule and the DEP Plan

In general, the quantitative values promulgated by the EPA for lakes and streams were similar to those in the DEP's NNC Plan, and the value reached for springs was identical. In key areas related to implementation, however, there are significant differences in the two approaches.

- The DEP's multi-tiered approach (numerical criteria with follow-up biological assessment) was not adopted by the EPA. The DEP demonstrated that some water bodies with nutrient thresholds that exceed the value of undisturbed reference waters have healthy biota and do not need restoration. The DEP's intent was to have "biological confirmation" that nutrient concentrations above the numeric standard actually resulted in biological impairment of the water body.
- The EPA rejected the DEP's approach to protect downstream lake values by using the narrative criteria, and instead promulgated an equation to adjust in-stream total phosphorus criteria to protect downstream lakes. This will likely result in more stringent instream values.
- The EPA did not accept Florida's existing nutrient TMDLs as meeting CWA WQS under the rule, even though the TMDLs have already been approved by the EPA. As a result, the DEP must re-establish to the EPA that water bodies with approved TMDLs comply with provisions of the CWA.

### Cost of Compliance with the Final Rule

The fiscal impact of the EPA's rule on industrial dischargers, municipal wastewater and urban stormwater facilities, agriculture, and the regulatory agencies is unclear. EPA-generated annualized cost estimates to achieve the numeric criteria (\$130-\$150 million) differ dramatically from estimates provided by the DEP (\$5.7 - \$8.4 billion). The difference in cost estimates is largely due to the different baselines utilized by the two entities: the EPA based its cost estimates on the difference between the EPA criteria and the criteria in the draft DEP Plan. A study commissioned by the Florida Water Environment Association Utility Council in November, 2010, estimates that wastewater utilities alone will spend between \$24 billion and \$51 billion in capital costs for additional wastewater treatment facilities and incur increases in annual operating costs between \$4 million and \$1 billion to comply with the federal numeric nutrient criteria. According to the commissioned study, the EPA's cost estimate inadequately accounted for existing baseline conditions, failed to address all direct costs, and did not consider all indirect costs to businesses and the public, including the costs of uncertainty. If the EPA enforces "end-of-pipe" criteria (requiring all discharger effluent levels to be at or below the federally-promulgated standards), the total annual costs could range from \$3.1 to \$8.4 billion (based on the estimated fifth and ninety-fifth percentile of costs). Even if EPA enforces criteria to less strict BMPs and Limit of Technology standards in which effluent is not at or below the federal standard, then the annual costs could range from \$1.0 to \$3.2 billion (based on the estimated fifth and ninety-fifth percentile of costs in this scenario).

Because the numeric nutrient criteria is water body-specific, the expected costs for compliance will be largely site-specific and contingent upon the level of impairment. The EPA only just published guidance documents detailing how the rule is to be implemented and cost estimates have not yet been updated.

### The EPA is Sued over Florida's Narrative Criteria

On July 17, 2008, five environmental groups (the Florida Wildlife Federation, Sierra Club, Conservancy of Southwest Florida, Environmental Confederation of Southwest Florida, and St. Johns Riverkeeper) sued the EPA, alleging failure on the part of the federal agency to comply with the CWA. These groups initially alleged that the EPA's 1998 National Strategy for the Development of Regional Nutrient Criteria was a necessity determination, pursuant to s. 303(c)(4)(B) of the CWA, requiring the EPA to promulgate numeric nutrient rules for Florida. Their amended complaint asserted the 1998 Clean Water Action Plan, coauthored with the U.S. Department of Agriculture, was the necessity determination. The EPA initially defended the suit and contested the plaintiffs' arguments. However, in an EPA internal memorandum from December, 2008, the writer warned that a judicial finding in favor of the plaintiffs could result in the EPA being required to promulgate numeric nutrient rules for the other 49 states. The internal memorandum proposes a strategy to avoid this possibility: if the EPA issues a s. 303(c)(4)(B)

necessity determination, that may be used as a basis to settle the lawsuit and request a dismissal from the court.<sup>34</sup>

On January 14, 2009, the EPA placed the DEP on formal notice that numerical criteria for nutrients were necessary for compliance with the CWA. This notice triggered a deadline of one year for the EPA to develop numeric nutrient criteria for Florida's surface waters and 24 months to develop numeric criteria for coastal waters, unless the state proposed criteria acceptable to the EPA before final promulgation. On August 19, 2009, the EPA entered into a consent decree to settle the lawsuit filed by the five environmental groups. The EPA committed to propose numeric nutrient standards for inland waters (lakes and flowing waters), as well as for estuarine and coastal waters, by certain dates.<sup>35</sup> The DEP did not formally submit numeric nutrient criteria to the EPA before the deadline.

In drafting the proposed rule, the EPA had the benefit of more than seven years of DEP data and analysis, DEP's nutrient plans, as well as technical support documentation. The DEP maintained contact with the EPA while the EPA formulated the proposed rule.

On January 14, 2010, EPA Administrator Lisa Jackson signed EPA's rule proposing numeric nutrient criteria for Florida's fresh waters. Ten months later, on November 14, 2010, Administrator Jackson signed the final rule adopting numeric nutrient criteria for Florida's fresh waters. On December 6, 2010, the EPA published its final administrative rule. Fifteen months from the publication date, the established numeric water quality standards for nutrients in Florida's inland lakes and flowing waters take effect.

### Legal Challenges to the EPA's Final Rule

Several parties, representing the environment, state and local governments, water utilities, wastewater, stormwater, agriculture, and fertilizer industries, have challenged the EPA-promulgated numeric nutrient rules in federal court.<sup>36</sup> With the exception of the challenge filed by environmental groups, the complaints share a common theme; that the EPA's actions are arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law; in excess of statutory jurisdiction, authority, or limitations, or short of statutory authority; or without observance of procedures required by law.<sup>37</sup> EarthJustice, representing the environmental groups, is challenging the portion of the Final Rule providing a watershed approach to Site Specific Alternative Criteria.

The legal challenges were filed in federal courts located in Tallahassee and in Pensacola, Florida. To date, the Pensacola cases were transferred to Tallahassee and may be consolidated. The EPA has not yet established which documents will comprise the administrative record for the case.

## B. SECTION DIRECTORY:

**Section 1** creates s. 403.0675, F.S., prohibiting state and local governments from implementing or giving any effect to the EPA-promulgated numeric nutrient criteria in any state or local government

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<sup>34</sup> Only 15 months earlier, the EPA agreed with Florida's methodology and plan to finalize numeric nutrient rules by the end of 2010. The DEP was not a party to the lawsuit, however, several groups representing utilities, local governments, and agriculture in the state intervened.

<sup>35</sup> The EPA numeric nutrient criteria for Florida's inland waters (except for south Florida) will be effective March 6, 2012. The EPA will propose numeric nutrient criteria for Florida's estuaries, flowing waters in south Florida (including canals), and the downstream protection values for flowing waters into estuaries on or before November 14, 2011. The deadline for promulgating a final rule is August 15, 2012.

<sup>36</sup> The State of Florida v. Jackson, Case No. 03:10-cv-503-RV-MD; The Mosaic Company, Inc., v. Jackson, Case No. 03:10-cv-506-RV-EMT; The Fertilizer Institute v. U.S. EPA, Case No. 03:10-cv-507-RS-MD; CF Industries, Inc., v. Jackson, Case No. 03:10-cv-513-MCR-MD; Destin Water Users, Inc., South Walton Utility Co., Inc., Emerald Coast Utilities Authority, City of Panama City, Okaloosa County Board of County Commissioners v. Jackson, Case No. 03:10-cv-532-MCR-EMT; Florida League of Cities, Inc., and Florida Stormwater Association, Inc., v. Lisa P. Jackson, Case No. 3:11-cv-11; Florida Pulp and Paper Association Environmental Affairs, Inc., Southeast Milk, Inc., and Florida Fruit and Vegetable Association v. Lisa Jackson, Case No. 3:11-cv-47-MCR/EMT; Florida Wildlife Federation v. EPA, Case No. 04:10-cv-511-SPM-WCS (filed prior to promulgation); Florida Wildlife Federation v. Jackson, Case No. 04:08-cv-324-RH-WCS (filed before the issuance of the Determination Letter).

<sup>37</sup> Citing 5 U.S.C. s. 706(2)(A)(C) and (D).

regulatory program; authorizing the DEP to promulgate numeric nutrient criteria; designating certain existing TMDLs as site-specific numeric nutrient water quality criteria under certain situations; providing authority to modify such criteria.

**Section 2** provides an effective date of July 1, 2011.

## II. FISCAL ANALYSIS & ECONOMIC IMPACT STATEMENT

### A. FISCAL IMPACT ON STATE GOVERNMENT:

#### 1. Revenues:

See, Section D, FISCAL COMMENTS

#### 2. Expenditures:

See, Section D, FISCAL COMMENTS

### B. FISCAL IMPACT ON LOCAL GOVERNMENTS:

#### 1. Revenues:

See, Section D, FISCAL COMMENTS

#### 2. Expenditures:

See, Section D, FISCAL COMMENTS

### C. DIRECT ECONOMIC IMPACT ON PRIVATE SECTOR:

See, Section D, FISCAL COMMENTS

### D. FISCAL COMMENTS:

The fiscal impact of this bill is indeterminate overall, and contingent on actions by the EPA and other affected parties after the bill goes into effect. Public and private entities requiring new or renewal NPDES permits on or after March 6, 2012, when the federal criteria is effective, will need to comply with the federally-promulgated criteria associated with the affected water body. If the DEP issues the permits or renewals, some delay in the permitting process may occur due to the fact that (a) the bill prohibits the DEP from implementing the federal criteria, and (b) the EPA is not likely to approve an NPDES permit with a water-quality based effluent limit that does not comply with the EPA criteria. There is a possibility the DEP may face an administrative challenge to each NPDES permit the DEP issues after March, 2012.

If the EPA assumes authority of the NPDES permitting program, state and local jobs associated with that program may be lost as federal funding for the program is withdrawn along with the program. Private and public entities requiring NPDES permits will need to seek those permits from the EPA, and will be required to seek any and all state water-quality permits as well.

DEP rulemaking authority is provided for implementation of certain portions of the bill. According to DEP estimates in the recent past, costs associated with rulemaking start around \$10,000, not including costs associated with legal challenges. It is not known yet if state regulators will need to revise existing rules regarding Basin Management Action Plans or Best Management Practices.

### **III. COMMENTS**

#### **A. CONSTITUTIONAL ISSUES:**

##### **1. Applicability of Municipality/County Mandates Provision:**

This bill does not appear to require counties or municipalities to take an action requiring the expenditure of funds, reduce the authority that counties or municipalities have to raise revenue in the aggregate, nor reduce the percentage of state tax shared with counties or municipalities.

##### **2. Other:**

None noted.

#### **B. RULE-MAKING AUTHORITY:**

The bill authorizes the DEP to promulgate rules establishing numeric nutrient criteria for surface waters and provides specific conditions thereto. The bill also provides DEP rulemaking authority designating certain water bodies' TMDLs as sight-specific numeric nutrient water quality criteria.

#### **C. DRAFTING ISSUES OR OTHER COMMENTS:**

None.

### **IV. AMENDMENTS/ COMMITTEE SUBSTITUTE CHANGES**