**6560-50-P**

**ENVIRONMENTAL PROTECTION AGENCY**

**40 CFR Part 131**

**[EPA-HQ-OW-2009-0596; FRL#9678-6]**

**RIN 2040-AF39**

# Water Quality Standards for the State of Florida's Streams and Downstream Protection Values for Lakes: Remanded Provisions

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Proposed rule.

**SUMMARY:** The Environmental Protection Agency (EPA or Agency) is proposing a rule that addresses an order by the U.S. District Court for the Northern District of Florida from February 18, 2012, which remanded to EPA two portions of its numeric water quality standards for nutrients in Florida that were promulgated and published on December 6, 2010. For this proposal, EPA is re-proposing the same numeric nutrient criteria for total nitrogen (TN) and total phosphorus (TP) for Florida streams not covered by EPA-approved State rulemaking, as included in EPA's final rule, with further explanation of how the proposed numeric streams criteria will ensure the protection of the Florida's Class I and III designated uses. EPA is also proposing default approaches available for use when modeling cannot be performed to derive downstream protection values (DPVs) that will ensure the attainment and maintenance of the numeric nutrient criteria that protect Florida's lakes. The default approaches would be applicable to streams that flow into unimpaired lakes, but could also be used for streams that flow into impaired lakes.

**DATES**: EPA will accept public comments on this proposed rule until [Insert date 45 days from date of publication in the **Federal Register**]. Because of EPA's obligation to sign a notice of final rulemaking on or before August 31, 2013 under Consent Decree, the Agency regrets that it will be unable to grant any requests to extend this deadline.

**ADDRESSES**: Submit your comments, identified by Docket ID No. EPA-HQ-OW-2009-0596, by one of the following methods:

1. www.regulations.gov: Follow the on-line instructions for submitting comments.
2. Email: ow-docket@epa.gov
3. Mail to: Water Docket, U.S. Environmental Protection Agency, Mail code: 2822T, 1200 Pennsylvania Avenue, NW, Washington, DC 20460, Attention: Docket ID No. EPA-HQ-OW-2009-0596.
4. Hand Delivery: EPA Docket Center, EPA West Room 3334, 1301 Constitution Avenue, NW, Washington, DC 20004, Attention Docket ID No. EPA-HQ-OW-2009-0596. Such deliveries are only accepted during the Docket's normal hours of operation, and special arrangements should be made for deliveries of boxed information.

*Instructions:* Direct your comments to Docket ID No. EPA-HQ-OW-2009-0596. EPA's policy is that all comments received will be included in the public docket without change and may be made available online at www.regulations.gov, including any personal information provided, unless the comment includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise

protected through www.regulations.gov or e-mail. The www.regulations.gov Web site is an "anonymous access" system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD-ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses. For additional information about EPA's public docket visit the EPA Docket Center homepage at http://www.epa.gov/epahome/dockets.htm.

*Docket:* All documents in the docket are listed in the www.regulations.gov index. Although listed in the index, some information is not publicly available, e.g., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, will be publicly available only in hard copy. Publicly available docket materials are available either electronically in www.regulations.gov or in hard copy at a docket facility. The Office of Water (OW) Docket Center is open from 8:30 a.m. until 4:30 p.m., Monday through Friday, excluding legal holidays. The OW Docket Center telephone number is (202) 566-2426, and the Docket address is OW Docket, EPA West, Room 3334, 1301 Constitution Avenue, NW, Washington, DC 20004. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566-1744.

**FOR FURTHER INFORMATION CONTACT**: For information concerning this rulemaking, contact Mario Sengco, U.S. EPA Headquarters, Office of Water, Mailcode: 4305T, 1200 Pennsylvania Avenue, NW, Washington, DC 20460; telephone numbers: 202-566-2676 or 202-564-1649; fax number: 202-566-9981; email address: sengco.mario@epa.gov.

**SUPPLEMENTARY INFORMATION**: This supplementary information section is organized as follows:

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H. Executive Order 13211 (Actions That Significantly Affect Energy Supply, Distribution, or Use)

I. National Technology Transfer Advancement Act of 1995

J. Executive Order 12898 (Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations)

## I. General Information

*A. Executive Summary*

Florida is known for its abundant and aesthetically beautiful natural resources, in particular its water resources. Florida's water resources are very important to its economy, for example, its $6.5 billion freshwater fishing industry.[1] However, nitrogen and phosphorus pollution has contributed to severe water quality degradation in the State of Florida. In the most recent Florida Department of Environmental Protection (FDEP) water quality assessment report, the *Integrated Water Quality Assessment for Florida: 2012 305(b) Report and 303(d) List Update*[2], FDEP describes widespread water quality impairment in Florida due to nitrogen and phosphorus pollution. FDEP's 2012 report identifies approximately 1,918 miles of rivers and streams (about 14 percent of assessed river and stream miles), 378,435 acres of lakes (about 31 percent of assessed lake acres), 754 square miles (482,560 acres) of estuaries (about 14 percent of assessed estuarine area) and 102 square miles (65,280 acres) of coastal waters (about 1.6 percent of assessed

[1] Florida Fish and Wildlife Conservation Commission. 2010. *The economic impact of freshwater fishing in Florida*. <http://www.myfwc.com/CONSERVATION/Conservation_ValueofConservation_EconFreshwaterImpact.htm.>. Accessed August 2010.

[2] FDEP. 2012. *Integrated Water Quality Assessment for Florida: 2012 305(b) Report and 303(d) List Update.* (May 2012). Florida Department of Environmental Protection, Division of Environmental Assessment and Restoration, Tallahassee, FL. <http://www.dep.state.fl.us/water/docs/2012_integrated_report.pdf>. Accessed August 2012.

coastal waters) as impaired by nutrients. Despite FDEP's intensive efforts to diagnose, evaluate and address nitrogen and phosphorus pollution, substantial and widespread water quality degradation from nitrogen and phosphorus pollution has continued and remains a significant problem.

On January 14, 2009, EPA determined under Clean Water Act (CWA) section 303(c)(4)(B) that new or revised water quality standards (WQS) in the form of numeric water quality criteria are necessary to protect the designated uses from nitrogen and phosphorus pollution that Florida has set for its Class I and Class III waters.[3] The Agency considered 1) the State's documented unique and threatened ecosystems, 2) the large number of impaired waters due to existing nitrogen and phosphorus pollution, and 3) the challenge associated with growing nitrogen and phosphorus pollution associated with expanding urbanization, continued agricultural development, and a significantly increasing population that the U.S. Census estimates is expected to grow over 75% between 2000 and 2030.[4] EPA also reviewed the State's regulatory accountability system, which represents a synthesis of both technology-based standards and point source control authority, as well as authority to establish enforceable controls for nonpoint source activities.

In December 2009, EPA entered into a Consent Decree with Florida Wildlife Federation, Sierra Club, Conservancy of Southwest Florida, Environmental Confederation of Southwest Florida, and St. Johns Riverkeeper, which established a schedule for EPA to propose and promulgate numeric nutrient criteria for Florida's lakes,

[3] Class I is designated for potable water supplies. Class III is designated for recreation, propagation and maintenance of a healthy, well-balanced population of fish and wildlife. F.A.C. Section 62-302.400
[4] U.S. Census Bureau, Population Division, Interim State Population Projections, 2005. <http://www.census.gov/population/projections/SummaryTabA1.pdf>.

springs, flowing waters, estuaries, and coastal waters, as well as downstream protection values (DPVs) to protect downstream lakes and estuaries. The Consent Decree provided that if Florida submitted and EPA approved numeric nutrient criteria for the relevant water bodies before the dates outlined in the schedule, EPA would no longer be obligated to propose or promulgate criteria for those water bodies.

On December 6, 2010 (75 FR 75762), EPA's final rule[5] was published in the Federal Register and codified at 40 CFR §131.43. The final rule established numeric nutrient criteria, or numeric limits on the amount of nitrogen and phosphorus allowed in Florida's waters (i.e., lakes, streams and springs) while still protecting applicable designated uses.

Following the rule's publication, EPA soon received 12 challenges from a range of plaintiffs that included environmental groups, the State Department of Agriculture, the South Florida Water Management District and several industry/discharger groups. The challenges alleged that EPA's determination and final rule were arbitrary, capricious, an abuse of discretion, and not in accordance with the law. The U.S. District Court for the Northern District of Florida consolidated the suits and held oral argument on January 9, 2012.

On February 18, 2012, the court issued its ruling.[6] While upholding EPA's determination and much of its rule, the court invalidated EPA's numeric nutrient criteria for Florida's streams because it found that EPA had either "aimed for the wrong target" or not sufficiently explained what it did in aiming for the right target. The court observed

[5] Federal Register, Vol. 75, No. 233, 75762, December 6, 2010. Water Quality Standards for the State of Florida's Lakes and Flowing Waters.
[6] Florida Wildlife Federation, Inc., et. al. v. Jackson, Case 4:08-cv-00324-RH-WCS, Doc. 351 (N.D.Fla. February 18, 2012).

that Florida's existing narrative criterion states, in relevant part, that "nutrient concentrations of a body of water [must not] be altered so as to cause an imbalance in natural populations of aquatic flora or fauna." Fla. Admin. Code r. 62-302.530(47)(b). Based on that narrative criterion, as implemented by FDEP, the court found that the correct target would be to avoid any *harmful* increase in nutrient levels, as opposed to *any* increase in nutrient levels. The court found that EPA had apparently derived stream numeric nutrient criteria to prevent *any* increase in nutrient levels, and had thus aimed at the wrong target. If EPA had derived stream numeric nutrient criteria to prevent any harmful increase, the court found that EPA had not provided a sufficient explanation for its action. For similar reasons, the court also invalidated EPA's default DPV for streams where the downstream lake is attaining its lake numeric nutrient criteria. Hence, the court ordered EPA to either "sign for publication a proposed rule, or sign for publication a final rule, that sets numeric nutrient criteria for Florida streams" by May 21, 2012. As to the DPV where a lake is attaining its lake numeric criteria, the same order applies unless EPA files a notice by May 21, 2012 that it has decided not to propose or adopt such DPV, with an explanation of that decision.

On May 30, 2012, the court granted EPA's request to extend the deadline for signing a proposed rule to November 30, 2012. The court also ordered that the final rule must be signed for publication by August 31, 2013.

For this proposal, EPA is re-proposing the same numeric nutrient criteria for TN and TP published in EPA's final rule on December 6, 2010 (75 FR 75762), with further explanation on how the proposed streams criteria will ensure the protection of Florida's Class I and III designated uses and how the criteria are an appropriate translation of

Florida's narrative nutrient criterion. This proposal also is consistent with the objective and requirements of the CWA and EPA's implementing regulations at 40 CFR part 131. EPA is also proposing default approaches available for use when modeling cannot be performed to derive DPVs that will ensure the attainment and maintenance of the numeric nutrient criteria that protect the designated uses of Florida's downstream lakes. These default approaches are applicable to streams that flow downstream into unimpaired lakes, but could also be used for streams that flow downstream into impaired lakes.

On June 13, 2012, FDEP submitted new and revised water quality standards for review by the EPA pursuant to section 303(c) of the CWA. These new and revised water quality standards are set out primarily in Rule 62-302 of the Florida Administrative Code (F.A.C.) [Surface Water Quality Standards]. FDEP also submitted amendments to Rule 62-303, F.A.C. [Identification of Impaired Surface Waters], which sets out Florida's methodology for assessing whether waters are attaining State water quality standards. On November 30, 2012, EPA approved the provisions of these rules submitted for review that constitute new or revised water quality standards (hereafter referred to as the "newly-approved state water quality standards").

Among the newly-approved state water quality standards are numeric criteria for nutrients that apply to a set of streams, as that term is specifically defined in the newly-approved state water quality standards. Under the Consent Decree, EPA is relieved of its obligation to propose numeric criteria for nutrients for any waters for which FDEP submits and EPA approves new or revised water quality standards before EPA proposes. Thus, under normal circumstances, EPA would be clearly relieved of its obligation to

propose numeric criteria for nutrients in streams Florida covered in its newly-approved state water quality standards.

However, another provision included in Florida's Rule, specifically subsection 62-302.531(9), F.A.C., casts some doubt as to whether the newly approved state water quality standards will go into effect if EPA proposes and promulgates numeric nutrient criteria for streams not covered by the newly-approved State water quality standards. Therefore, it is unclear whether an EPA proposal to "gap fill", or establish numeric criteria for nutrients for Florida streams that FDEP does not cover in its Rule, would trigger 62-302.531(9), F.A.C. and result in Florida's streams criteria not taking effect.

In addition, due to a recent administrative challenge filed in the State of Florida Department of Administrative Hearings, there is uncertainty as to whether FDEP will be able to implement its newly approved state water quality standards consistent with FDEP's "Implementation of Florida's Numeric Nutrient Standards" (Implementation Document). Thus, EPA approved portions of Florida's new or revised water quality standards subject to the State being able to implement them as provided in its Implementation Document. If, as a result of legal challenge, FDEP is unable to implement its Rule as provided in its Implementation Document, EPA would intend to revisit its November 30, 2012 approval of Florida's new or revised water quality standards. EPA has therefore reserved its authority to withdraw or modify that approval.

In light of the above, EPA seeks comment on finalizing a rule that applies EPA's streams criteria to streams meeting EPA's definition of "stream" that are not covered under Florida's numeric interpretation of narrative nutrient criteria at 62-302.531(2)(c), F.A.C. This would serve to fill gaps in coverage if Florida's streams criteria are in effect,

or apply to all streams if Florida's streams criteria are not in effect for any reason, including those mentioned above.

Finally, as described in EPA's November 30, 2012 approval of Florida's new or revised water quality standards, while EPA believes that the provisions addressing downstream protection will provide for quantitative approaches to ensure the attainment and maintenance of downstream waters consistent with 40 CFR 131.10(b), the provisions themselves, however, do not consist of numeric values. Because EPA is currently subject to a Consent Decree deadline to sign a rule proposing numeric downstream protection values (DPVs) for Florida by November 30, 2012, EPA is proposing numeric DPVs to comply with the Consent Decree. However, EPA has amended its January 2009 determination to specify that numeric criteria for downstream protection are not necessary and that quantitative approaches designed to ensure the attainment and maintenance of downstream water quality standards, such as those established by Florida, are sufficient to meet CWA requirements. As such, EPA will ask the court to modify the Consent Decree consistent with the Agency's amended determination, i.e., to not require EPA to promulgate numeric DPVs for Florida. Accordingly, EPA approved the State's downstream protection provisions subject to the district court modifying the Consent Decree to not require EPA to promulgate numeric DPVs for Florida. If the district court agrees to so modify the Consent Decree, EPA will not promulgate numeric DPVs for Florida. However, if the district court declines to so modify the Consent Decree, EPA would intend to promulgate numeric DPVs for Florida and would also expect to revisit its November 30, 2012 approval of the State Rule's downstream protection provisions to

modify or withdraw its approval. Therefore, EPA has also reserved its authority to do so in its approval document.

A full description of all of EPA's recent actions on Florida numeric nutrient criteria and related implications for EPA's own rules can be found at http://water.epa.gov/lawsregs/rulesregs/florida_index.cfm.

*B. Which Water Bodies Are Affected By This Rule?*

The criteria in this proposed rulemaking apply to a group of inland waters of the United States within Florida. Specifically, these criteria apply to flowing waters (i.e., streams) located outside of the South Florida Region that are designated as either Class I or Class III not covered by the State of Florida's Rule.[7] EPA notes if Florida's Rule will not take effect due to subsection 62-302.531(9), F.A.C., EPA would expect to finalize the criteria in this proposed rulemaking for all flowing waters (i.e., streams) located outside of the South Florida Region that are designated as either Class I or Class III. EPA solicits comment on this potential outcome.

Class I and Class III streams share water quality criteria established to "protect recreation and the propagation and maintenance of a healthy, well-balanced population of fish and wildlife" pursuant to Subsection 62-302.400(4), F.A.C.[8] "Stream", as defined at 40 CFR §131.43(b)(12) means a free-flowing, predominantly fresh surface water in a defined channel, and includes rivers, creeks, branches, canals, freshwater sloughs, and

[7] For purposes of this rule, EPA has distinguished South Florida as those areas south of Lake Okeechobee and the Caloosahatchee River watershed to the west of Lake Okeechobee and the St. Lucie watershed to the east of Lake Okeechobee, hereinafter referred to as the South Florida Region.

[8] Class I waters also include an applicable nitrate limit of 10 mg/L and nitrite limit of 1 mg/L for the protection of human health in drinking water supplies. The nitrate limit applies at the entry point to the distribution system (i.e., after any treatment); see Chapter 62-550, F.A.C., for additional details.

other similar water bodies. EPA notes that as defined at 40 CFR § 131.43(b)(8) and consistent with Section 62-302.200, F.A.C., "predominantly fresh waters" means surface waters in which the chloride concentration at the surface is less than 1,500 milligrams per liter (mg/L).

The definition of stream in the approved water quality standards for purposes of applying the numeric interpretation of the narrative nutrient criterion to streams is less inclusive than as defined at 40 CFR §131.43(b)(12). Florida's stream definition for purposes of applying the numeric interpretation of the narrative nutrient criterion (see Subsection 62-302.200(36), F.A.C) specifically excludes non-perennial water segments; tidally influenced segments; and ditches, canals and other conveyances that are man-made or predominantly channelized or physically altered, are used primarily for water management purposes, and have marginal or poor stream habitat components. Inland flowing waters that meet EPA's definition of stream yet do not meet Florida's definition of stream for purposes of applying the numeric interpretation of the narrative nutrient criterion are designated Class I or Class III waters in Florida water quality standards. If they are not Class I or Class III waters, then this proposed rule would not apply. Additionally, this rule does not apply to wetlands, including non-perennial stream segments that function as wetlands because of fluctuating hydrologic conditions that typically result in the dominance of wetland taxa.

*C. What Entities May Be Affected By This Rule?*

Citizens concerned with water quality in Florida may be interested in this rulemaking. Entities discharging nitrogen or phosphorus to flowing waters of Florida could be indirectly affected by this rulemaking because WQS are used in determining National Pollutant Discharge Elimination System (NPDES) permit limits. Categories and entities that may ultimately be affected include:

| Category | Examples of potentially affected entities |
|---|---|
| Industry | Industries discharging nitrogen and phosphorus to flowing waters in the State of Florida. |
| Municipalities | Publicly-owned treatment works discharging nitrogen and phosphorus to flowing waters in the State of Florida. |
| Stormwater Management Districts | Entities responsible for managing stormwater runoff in Florida. |

This table is not intended to be exhaustive, but rather provides a guide for entities that may be directly or indirectly affected by this action. This table lists the types of entities of which EPA is now aware that potentially could be affected by this action. Other types of entities not listed in the table, such as nonpoint source contributors to nitrogen and phosphorus pollution in Florida's waters may be affected through implementation of Florida's water quality standards program (i.e., through Basin Management Action Plans (BMAPs)). Any parties or entities conducting activities within watersheds of the Florida waters covered by this rule, or who rely on, depend upon, influence, or contribute to the water quality of flowing waters of Florida, may be affected by this rule. To determine whether your facility or activities may be affected by this action, you should carefully examine the language in this proposal. If you have questions regarding the applicability of this action to a particular entity, consult the person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

*D. How Can I Get Copies of This Document and Other Related Information?*

1. *Docket*. EPA has established an official public docket for this action under Docket Id. No. EPA-HQ-OW-2009-0596. The official public docket consists of the document specifically referenced in this action, any public comments received, and other information related to this action. Although a part of the official docket, the public docket does not include Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. The official public docket is the collection of materials that is available for public viewing at the OW Docket, EPA West, Room 3334, 1301 Constitution Ave., NW, Washington, DC 20004. This Docket Facility is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The OW Docket telephone number is 202-566-2426. A reasonable fee will be charged for copies.

2. *Electronic Access*. You may access this Federal Register document electronically through the EPA Internet under the "Federal Register" listings at http://www.regulations.gov. An electronic version of the public docket is available through EPA's electronic public docket and comment system, EPA Dockets. You may use EPA Dockets at http://www.regulations.gov to view public comments, access the index listing of the contents of the official public docket, and to access those documents in the public docket that are available electronically. For additional information about EPA's public docket, visit the EPA Docket Center homepage at http://www.epa.gov/epahome/dockets.htm. Although not all docket materials may be available electronically, you may still access any of the publicly available docket materials through the Docket Facility identified earlier.

## II. Background

*A. Nitrogen and Phosphorus Pollution in the United States and the State of Florida*

Excess loading of nitrogen and phosphorus compounds[9] is one of the most prevalent causes of water quality impairment in the United States. Nitrogen and phosphorus pollution problems have been recognized for decades in the U.S. For example, a 1969 report by the National Academy of Sciences noted that "*[t]he pollution problem is critical because of increased population, industrial growth, intensification of agricultural production, river-basin development, recreational use of waters, and domestic and industrial exploitation of shore properties. Accelerated eutrophication causes negative changes in plant and animal life – harmful, adverse changes that often interfere with use of water, detract from natural beauty, and reduce property values."* [10] Inputs of nitrogen and phosphorus lead to over-enrichment in many of the Nation's waters and constitute a widespread, persistent, and growing problem.[11] Nitrogen and phosphorus pollution in fresh water systems can significantly negatively impact aquatic life and long-term ecosystem health, diversity, and balance.[12] More specifically, high nitrogen and phosphorus loadings can result in harmful algal blooms (HABs), reduced spawning

[9] To be used by living organisms, nitrogen gas must be fixed into its reactive forms; for plants, either nitrate or ammonia (Boyd, C.E. 1979. *Water Quality in Warmwater Fish Ponds*. Auburn University: Alabama Agricultural Experiment Station, Auburn, AL). Eutrophication is defined as the natural or artificial addition of nitrogen and phosphorus to bodies of water and to the effects of added nitrogen and phosphorus (National Academy of Sciences (U.S). 1969. *Eutrophication: Causes, Consequences, Correctives*. National Academy of Sciences, Washington, DC.)

[10] National Academy of Sciences (U.S). 1969. *Eutrophication: Causes, Consequences, Correctives*. National Academy of Sciences, Washington, DC.

[11] GulfBase. 2009. *Bays and Estuaries*. http://www.gulfbase.org/bay/. Accessed April, 2009.; NSTC. 2003. *An Assessment of Coastal Hypoxia and Eutrophication in U.S. Waters*. National Science and Technology Council, Committee on Environment and Natural Resources, Washington, DC. http://coastalscience.noaa.gov/documents/hypoxia.pdf. Accessed July, 2009; USEPA, 2009. National Summary of State Information. U.S. Environmental Protection Agency, Washington, D.C., http://iaspub.epa.gov/waters10/attains_nation_cy.control. Accessed June, 2009.

[12]USEPA, 2006. USEPA. 2006b. *Wadeable Streams Assessment*. EPA 841-B-06-002. U.S. Environmental Protection Agency, Washington, DC; Chesapeake Bay Program, 2009. *Underwater Bay Grasses*. http://www.chesapeakebay.net/baygrasses.aspx?menuitem=14621. Accessed July, 2009.

grounds and nursery habitats, fish kills, and oxygen-starved hypoxic or "dead" zones.[13] Public health concerns related to nitrogen and phosphorus pollution include methanoglobanemia due to impaired drinking water sources from high levels of nitrates, increase in bladder cancer due to possible formation of disinfection byproducts in drinking water, and neurotoxicity and kidney damage due to increased exposure to cyanotoxins produced by harmful algae and cyanobacteria.[14,15] Degradation of water bodies from nitrogen and phosphorus pollution can result in economic costs. For example, given that freshwater fishing in Florida is a significant recreational and tourist attraction generating over six billion dollars annually,[16] degradation of water quality in Florida to the point that sport fishing populations are negatively affected will also negatively affect this important part of Florida's economy. Elevated nitrogen and phosphorus levels can occur locally in a stream or ground water, or can accumulate downstream leading to degraded lakes, reservoirs, and estuaries where fish and aquatic life can no longer survive or spawn and the designated use is no longer supported. For additional information on the sources, impacts (e.g., human health, aquatic life,

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[13] NOAA, 2009. *Harmful Algal Blooms.* National Oceanic and Atmospheric Administration, Silver Spring, MD. http://oceanservice.noaa.gov/topics/coasts/hab/. Accessed April, 2009; Tomasko et al., 2005. Spatial and temporal variation in seagrass coverage in Southwest Florida: assessing the relative effects of anthropogenic nutrient load reductions and rainfall in four contiguous estuaries. *Marine Pollution Bulletin* 50: 797-805.; Selman et al., 2008. *Eutrophication and Hypoxia in Coastal Areas: A Global Assessment of the State of Knowledge*. WRI Policy Note No. 1 World Resources Institute, Washington D.C.; Mississippi Rive/Gulf of Mexico Watershed Nutrient Task Force, 2008. *Gulf Hypoxia Action Plan 2008 for Reducing, Mitigating and Controlling Hypoxia in the Northern Gulf of Mexico and Improving Water Quality in the Mississippi River Basin.* Washington, D.C.

[14] Villanueva, C.M. et al., 2006. Bladder Cancer and Exposure to Water Disinfection By-Products through Ingestion, Bathing, Showering, and Swimming in Pools. *American Journal of Epidemiology* 165(2):148-156.

[15] USEPA. 2009. *What is in Our Drinking Water?*. United States Environmental Protection Agency, Office of Research and Development. < http://www.epa.gov/extrmurl/research/process/drinkingwater.html>. Accessed December 2009.

[16] Florida Fish and Wildlife Conservation Commission. 2010. *The economic impact of freshwater fishing in Florida*. <http://www.myfwc.com/CONSERVATION/Conservation_ValueofConservation_EconFreshwaterImpact.htm>. Accessed August 2010.

environmental) and economic implications of nitrogen and phosphorus pollution, please refer to the December 6, 2010 final rule.[17]

Florida's flat topography causes water to move slowly over the landscape, allowing ample opportunity for nitrogen and phosphorus to be transported offsite and result in eutrophication. Florida's warm and wet, yet sunny, climate further contributes to increased run-off and ideal temperatures for subsequent eutrophication responses.[18] As outlined in EPA's January 2009 determination, water quality degradation resulting from excess nitrogen and phosphorus loadings is a documented and significant environmental issue in Florida. For example, the Florida Department of Environmental Protection (FDEP) *2008 Integrated Water Quality Assessment* notes: "the close connection between surface and ground water, in combination with the pressures of continued population growth, accompanying development, and extensive agricultural operations, present Florida with a unique set of challenges for managing both water quality and quantity in the future. After trending downward for 20 years, phosphorus levels again began moving upward in 2000, likely due to the cumulative impacts of nonpoint source pollution associated with increased population and development. Increasing pollution from urban stormwater and agricultural activities is having other significant effects. In many springs across the State, for example, nitrate levels have increased dramatically (two-fold to three-fold) over the past 20 years, reflecting the close link between surface and ground water."[19] To clarify current nitrogen and phosphorus pollution conditions in Florida, EPA

[17] 75 FR 75762, December 6, 2010. Water Quality Standards for the State of Florida's Lakes and Flowing Waters.
[18] Perry, W. B. 2008. Everglades restoration and water quality challenges in south Florida. *Ecotoxicology* 17:569-578.
[19] FDEP. 2008. Integrated Water Quality Assessment for Florida: 2008 305(b) Report and 303(d) List Update.

analyzed recent STORET (STOrage and RETrieval) data pulled from Florida's Impaired Waters Rule (IWR),[20] which are the data Florida uses to create its integrated reports, and found increasing levels of nitrogen and phosphorus compounds in Florida waters over 12 years (1996-2008). Florida's IWR STORET data indicates that levels of total nitrogen (i.e., State-wide average) have increased by 20% from 1996 to 2008, and total phosphorus levels (i.e., State-wide average) have increased by 40% over the same time period.

The combination of the factors reported by FDEP and listed earlier (including population increase, climate, stormwater runoff, agriculture, and topography) has contributed to significant harmful, adverse effects from nitrogen and phosphorus pollution (nutrient pollution) to Florida's waters.[21] In the most recent Florida Department of Environmental Protection (FDEP) water quality assessment report, the *Integrated Water Quality Assessment for Florida: 2012 305(b) Report and 303(d) List Update*, FDEP describes widespread water quality impairment in Florida due to nitrogen and phosphorus pollution. FDEP's 2012 report[22] identifies approximately 1,918 miles of rivers and streams (about 14 percent of assessed river and stream miles), 378,435 acres of lakes (about 31 percent of assessed lake acres), 754 square miles (482,560 acres) of estuaries (about 14 percent of assessed estuarine area) and 102 square miles (65,280 acres) of coastal waters (about 1.6 percent of assessed coastal waters) as impaired by nutrients. In addition, the same report indicates that 1,108 miles of rivers and streams

[20] IWR Run 40. Updated through February 2010.
[21] FDEP. 2008. Integrated Water Quality Assessment for Florida: 2008 305(b) Report and 303(d) List Update.
[22] FDEP. 2012. Integrated Water Quality Assessment for Florida: 2012 305(b) Report and 303(d) List Update. (May 2012). Florida Department of Environmental Protection, Division of Environmental Assessment and Restoration, Tallahassee, FL. <http://www.dep.state.fl.us/water/docs/2012_integrated_report.pdf>. Accessed August 2012

(about 8 percent of assessed river and stream miles) and 107 square miles (68,480 acres) of lakes (about 5 percent of assessed lake square miles) are impaired due to nutrient pollution.

For additional information regarding the prevalence of nutrient pollution in various water bodies in Florida and negative implications of nutrient pollution in State waters, please refer to the December 6, 2010 final rule.[23]

*B. Statutory and Regulatory Background*

Section 303(c) of the CWA (33 U.S.C. 1313(c)) directs states to adopt WQS for their navigable waters. Section 303(c)(2)(A) and EPA's implementing regulations at 40 CFR part 131 require, among other things, that state WQS include the designated use or uses to be made of the waters and criteria that protect those uses. EPA regulations at 40 CFR §131.11(a)(1) provide that states shall "adopt those water quality criteria that protect the designated use" and that such criteria "must be based on sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use." In addition, 40 CFR §131.10(b) provides that "[i]n designating uses of a waterbody and the appropriate criteria for those uses, the state shall take into consideration the water quality standards of downstream waters and ensure that its water quality standards provide for the attainment and maintenance of the water quality standards of downstream waters."

States are required to review their WQS at least once every three years and, if appropriate, revise or adopt new standards. (*See* CWA section 303(c)(1)). Any new or revised WQS must be submitted to EPA for review and approval or disapproval. (*See*

[23] 75 FR 75762, December 6, 2010. Water Quality Standards for the State of Florida's Lakes and Flowing Waters.

CWA section 303(c)(2)(A) and (c)(3)). In addition, CWA section 303(c)(4)(B) authorizes the Administrator to determine, even in the absence of a state submission, that a new or revised standard is needed to meet CWA requirements. The EPA approved the State of Florida's rules on November 30, 2012. The criteria proposed in this rulemaking protect the uses designated by the State of Florida and implement Florida's narrative nutrient provision at Subsection 62-302-530(47)(b), F.A.C. for the purposes of the CWA, into numeric values that apply to flowing waters not covered by the State's Rule outside of the South Florida Region and DPVs to ensure the attainment and maintenance of the water quality standards of downstream lakes.[24] For a thorough review of the statutory and regulatory background for this proposed rule, refer to the December 6, 2010 final rule.

*C. Water Quality Criteria*

Under CWA section 304(a), EPA periodically publishes criteria recommendations (guidance) for use by states in setting water quality criteria for particular parameters to protect recreational and aquatic life uses of waters. Where EPA has published recommended criteria, states have the option of adopting water quality criteria based on EPA's CWA section 304(a) criteria guidance, section 304(a) criteria guidance modified to reflect site-specific conditions, or other scientifically defensible methods. (*See* 40 CFR §131.11(b)(1)). For nutrient pollution, EPA has published under CWA section 304(a) a series of peer-reviewed, national technical approaches and methods regarding the development of numeric nutrient criteria for lakes and reservoirs,[25]

[24] The criteria finalized in this rulemaking do not address or implement Florida's narrative nutrient provision at Subsection 62-302.530(47)(a), F.A.C. Subsection 62-302.530(47)(a), F.A.C., remains in place as an applicable WQS for CWA purposes.

[25] USEPA. 2000a. *Nutrient Criteria Technical Guidance Manual: Lakes and Reservoirs.* EPA-822-B-00-

rivers and streams,[26] and estuarine and coastal marine waters.[27] For an overview of EPA's recommended approaches for deriving numeric nutrient criteria in Florida lakes and flowing waters, please refer to the December 6, 2010 final rule.[28] EPA believes that numeric nutrient criteria will expedite and facilitate the effective implementation of Florida's existing point and non-point source water quality programs under the CWA in terms of timely water quality assessments, TMDL development, NPDES permit issuance and, where needed, Basin Management Action Plans (BMAPs) to address nitrogen and phosphorus pollution.

*D. EPA Determination Regarding Florida and EPA's Rulemaking*

On January 14, 2009, EPA determined under Clean Water Act (CWA) section 303(c)(4)(B) that new or revised water quality standards (WQS) in the form of numeric water quality criteria are necessary to protect the designated uses from nitrogen and phosphorus pollution that Florida has set for its Class I and Class III waters. EPA's determination is available at the following website: http://www.epa.gov/waterscience/standards/rules/fl-determination.htm

On August 19, 2009, EPA entered into a Consent Decree with Florida Wildlife Federation, Sierra Club, Conservancy of Southwest Florida, Environmental Confederation of Southwest Florida, and St. Johns Riverkeeper, committing to the schedule stated in EPA's January 14, 2009 determination to propose numeric nutrient

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001. U.S. Environmental Protection Agency, Office of Water, Washington, DC.
[26] USEPA. 2000b. *Nutrient Criteria Technical Guidance Manual:Rivers and Streams.* EPA-822-B-00-002. U.S. Environmental Protection Agency, Office of Water, Washington, DC.
[27] USEPA. 2001. *Nutrient Criteria Technical Manual: Estuarine and Coastal Marine Waters*. EPA-822-B-01-003. U.S. Environmental Protection Agency, Office of Water, Washington, DC.
[28] 75 FR, 75762, December 6, 2010. Water Quality Standards for the State of Florida's Lakes and Flowing Waters.

criteria for lakes and flowing waters in Florida by January 14, 2010, and for Florida's estuarine and coastal waters by January 14, 2011, unless the State submits and EPA approves new or revised water quality standards pursuant to section 303(c)(3).[29] The Consent Decree also required that EPA sign a notice of final rulemaking for the respective proposals by October 15, 2010, for lakes and flowing waters, and by October 15, 2011, for estuarine and coastal waters, unless the State submits and EPA approves new or revised water quality standards pursuant to section 303(c)(3). The Consent Decree, which became effective on December 30, 2009, also included a commitment to develop numeric DPVs to protect downstream lakes and estuaries. To review the bases for EPA's determination, and the information it considered in making its determination, please see the December 6, 2010 final rule.

*E. EPA Promulgation of the Final Rule and Subsequent Litigation*

In accordance with the January 14, 2009 determination, the August 19, 2009 Consent Decree, and subsequent revisions to that Consent Decree, EPA signed a notice of final rulemaking establishing numeric nutrient criteria for streams, lakes, and springs in the State of Florida[30] on November 14, 2010. As stated in the final rule at 40 CFR §131.43(f), the rule was scheduled to take effect on March 6, 2012, except for the site-specific alternative criteria (SSAC) provision at 40 CFR §131.43(e), which took effect on February 4, 2011. EPA selected the March 6, 2012 effective date for the criteria part of

[29] Florida Wildlife Federation, Inc., et. al. v. Jackson, Case 4:08-cv-00324-RH-WCS, Doc. 90-2 (N.D.Fla. August 25, 2009).

[30] For purposes of this rule, EPA has distinguished South Florida as those areas south of Lake Okeechobee and the Caloosahatchee River watershed to the west of Lake Okeechobee and the St. Lucie watershed to the east of Lake Okeechobee, hereinafter referred to as the South Florida Region. Numeric criteria applicable to flowing waters in the South Florida Region will be addressed in the second phase of EPA's rulemaking regarding the establishment of estuarine and coastal numeric criteria. (Please refer to Section I.B for a discussion of the water bodies affected by this rule).

the rule to allow time for EPA to work with stakeholders and the Florida Department of Environmental Protection (FDEP) on important implementation issues, to help the public and all affected parties better understand the final numeric nutrient criteria and the basis for those criteria, and for EPA to engage and support, in full partnership with FDEP, the general public, stakeholders, local governments, and sectors of the regulated community across the State in a process of public outreach education, discussion, and constructive planning. 75 FR 75787. The effective date was subsequently extended (77 FR 13497 and 77 FR 39949) such that the current effective date of the rule is January 6, 2013. In addition to this proposal, EPA has proposed to stay the December 6, 2010 Final Rule (75 FR 75762) to November 15, 2013 (See http://water.epa.gov/lawsregs/rulesregs/florida_inland.cfm).

Following the publication of the rule in the Federal Register on December 6, 2010, 12 cases were filed in the U.S. District Court for the Northern District of Florida challenging the rule. The cases, consolidated before Judge Robert Hinkle in the Tallahassee Division of the Northern District, were filed by environmental groups, Florida's State Department of Agriculture, the South Florida Water Management District, and various industry/discharger groups. The challenges alleged that EPA's determination and final rule were arbitrary, capricious, an abuse of discretion, and not in accordance with the law for a variety of reasons. Oral argument in the case was held on January 9, 2012 before Judge Hinkle.

On February 18, 2012, the Court upheld EPA's January 2009 determination and the final numeric nutrient criteria for Florida's lakes and springs, as well as the site-specific alternative criteria (SSAC) provisions and the provisions for calculating DPVs

using either modeling or a default option for an impaired lake that is not attaining its numeric nutrient criteria. See February 18, 2012 Court Order. For EPA's numeric nutrient criteria for flowing waters (i.e., streams) and the default option to calculate DPVs for unimpaired lakes based on ambient stream nutrient concentrations at the point of entry to the lake, the Court found that EPA had not provided sufficient information in its final rule explaining why or how the criteria or DPV protect against harmful increases, as opposed to any increase, in nutrients. The Court observed that EPA's scientific approach to deriving streams criteria (i.e., the reference condition approach), including the criteria's duration and frequency components, "are matters of scientific judgment on which the rule would survive arbitrary-or-capricious review." Order at 63. The Court also found, however, that EPA had not explained in sufficient detail how the streams criteria would prevent a "harmful increase in a nutrient level". Order at 63. In addition, the Court found that EPA had not explained in sufficient detail how exceedances of the default DPV for unimpaired lakes would lead to "harmful effects" in the downstream lake. Order at 63. Thus, the Court invalidated these two aspects of EPA's final rule and remanded them to the Agency for further action.

The Court ordered that the upheld portions of EPA's final rule be codified at 40 CFR §131.43 with the exceptions of the streams criteria and the default DPV for unimpaired lakes. Order at 85. For the exceptions, the Court ordered: "By May 21, 2012, the Administrator must sign for publication a proposed rule, or sign for publication a final rule, that sets numeric nutrient criteria for Florida streams that are not in the South Florida region. By May 21, 2012, the Administrator must sign for publication a proposed rule, or sign for publication a final rule, that sets default downstream-protection criteria

for unimpaired lakes, unless by that date the Administrator has filed a notice that she has decided not to propose or adopt such criteria, together with an explanation of the decision." Order at 85. After the May 21, 2012 deadline was jointly extended by the parties to June 4, 2012, on May 30, 2012, the court granted EPA's request to further extend the deadline for signing a proposed rule to November 30, 2012. The court also ordered that EPA must sign a notice of final rulemaking by August 31, 2013. In accordance with the Court's Order, EPA is proposing numeric nutrient criteria for Florida's streams and three default approaches for deriving DPVs for unimpaired lakes (and impaired lakes) with this proposed rule.

*F. Florida Adoption of Numeric Nutrient Criteria and EPA Approval*

On June 13, 2012, the Florida Department of Environmental Protection (FDEP) submitted new and revised water quality standards for review by the EPA pursuant to section 303(c) of the CWA. These new and revised water quality standards are set out primarily in Rule 62-302 of the Florida Administrative Code (F.A.C.) [Surface Water Quality Standards]. FDEP also submitted amendments to Rule 62-303, F.A.C. [Identification of Impaired Surface Waters], which sets out Florida's methodology for assessing whether waters are attaining State water quality standards. On November 30, 2012, EPA approved the provisions of these rules submitted for review that constitute new or revised water quality standards (referred to in this preamble as the "newly approved state water quality standards"). These newly-approved state water quality standards include provisions that set forth numeric interpretations of the narrative nutrient

criterion in paragraph 62-302.530(47)(b), F.A.C. for streams (Subsection 62-302.531(2)(c), F.A.C) that meet a specific definition (Section 62-302.200(36), F.A.C.).

The numeric interpretation for stream protection in Florida's newly approved water quality standards uses biological information in combination with nutrient thresholds. Stream protection is achieved if (1) various measures of aquatic plant growth (e.g., "floral metrics") indicate "no imbalances" and EITHER (2) a measure of the faunal stream community health called the Stream Condition Index (SCI) is above a certain threshold OR (3) the nutrient thresholds for total phosphorus (TP) and total nitrogen (TN) for the relevant region are met. The nutrient thresholds in Florida's newly approved water quality standards are identical to the "stand-alone" streams criteria in this proposed rule. EPA's approval document is included in the set of materials provided in the docket for this proposed rule (Docket number EPA-HQ-OW-2009-0596, www.regulations.gov).

## III. Numeric Criteria for Flowing Waters and Downstream Protection of Lakes in the State of Florida

### *A. Introduction*

In the December 2010 final rule, using the reference condition approach, EPA promulgated numeric nutrient criteria for Florida's streams based on the concentrations of total nitrogen (TN) and total phosphorus (TP) observed in a sample of least-disturbed streams. EPA set the numeric nutrient criteria so that the annual average concentrations of TN and TP most often observed in reference sites that are known to support the designated uses would not exceed the criteria. The court, however, found that EPA failed to explain "how the 90% mark correlates with a *harmful* increase in nutrients" (as

opposed to *any* increase in nutrients). Order at 65. The court noted that it "may well be that there is a sufficient correlation" that above the criteria concentrations "harmful change is likely." Order at 66. However, the court found that EPA had not adequately explained its decision and remanded to EPA for further action.[31]

In response to the court's remand, EPA has conducted a comprehensive review of available scientific data and information to more fully document the likelihood of harmful change occurring in the natural populations of aquatic flora and fauna of Florida streams at TN and TP concentrations above the proposed numeric nutrient criteria in today's proposal. EPA conducted this review to confirm whether its proposed numeric nutrient criteria are established at TN and TP concentrations sufficient (i.e., necessary) to protect against "harmful" change in the biota.

EPA's review confirmed its original decision that the criteria the Agency published in December 2010 were set at the appropriate levels to protect the applicable designated uses and translate Florida's narrative nutrient criterion for the purposes of the CWA. EPA has re-selected the upper percentile of annual average TN and TP concentrations from its sample of reference sites as the level that the Agency is confident will avoid "harmful" increases in TN and TP, and thus a level at which designated uses are protected in Florida's streams. The reference sites (described more fully in the following sections) are least-disturbed and more closely represent minimally-impacted conditions associated with a natural population of flora and fauna. By selecting a

[31] As set out more fully in a subsequent section, EPA set criteria concentrations at the 90th percentile of the reference condition distribution in four of the five nutrient watershed regions defined in Florida. In the fifth region, known as the West Central region, EPA set criteria concentrations at the 75th percentile of the reference distribution. For ease of reference, where EPA refers to the "upper percentile" or the "90$^{th}$ percentile" in this preamble, unless the reference relates specifically to the basis for the criteria in the four nutrient watershed regions where EPA selected the 90$^{th}$ percentile, EPA is referring to both the 90$^{th}$ percentile that was applied in four regions and the 75$^{th}$ percentile that was applied in the West Central region.

criterion-magnitude that was exceeded only 10% of the time[32] on an annual average basis in the reference sites that were determined to support designated uses, EPA is confident that other streams attaining and maintaining those levels of TN and TP would also support applicable designated uses and not experience harmful change in the biota. EPA is, therefore, proposing TN and TP criteria at the same levels as EPA promulgated in the December 2010 final rule.

In its decision, the court, in discussing numeric criteria translating Florida's narrative criterion, stated that "the right target was a criterion that would identify a *harmful* increase in a nutrient level – an increase that, in the language of Florida's narrative criterion, would create an 'imbalance' in flora and fauna." Order at 63. That language could be read as requiring identification of the exact point where harmful change, or imbalance of flora or fauna, occurs as the appropriate level for numeric nutrient criteria. EPA evaluated whether available data allow derivation of criteria with such precision to set the criteria at a level where any increase at all would result in an imbalance of flora and fauna, and therefore impairment of Florida's designated uses. As set out more fully in subsequent sections, EPA concluded the data did not allow derivation of criteria with such precision. In order to derive criteria with such precision, it would be necessary to have sufficient data to precisely model (either statistically or mechanistically) the stressor- response relationship in each stream reach within the State, due to the various confounding factors that introduce variability into that relationship within a given stream reach. Because EPA did not have such data available, EPA was not able to pinpoint the exact level at which any increase in nitrogen and phosphorus

[32] In the West Central Region, EPA selected a criterion-magnitude that was exceeded only 25% of the time on an annual average basis across all sites.

concentrations at all would result in such imbalance and designated use impairment.

In determining appropriately protective criteria, EPA must ensure that such criteria comply with the CWA. The CWA envisions that water quality standards will be developed, based on available scientific knowledge and information, at levels that are sufficient to protect designated uses. See CWA section 303(c)(2)(A). 40 CFR §131.11(a)(1). The record supports EPA's conclusion that its proposed numeric streams criteria are based on sound scientific rationale and will protect Florida's designated uses. If commenters are aware of available data and/or information demonstrating that setting criteria at less stringent levels than those in this proposed rule would be protective of designated uses and protect against harmful increases of TN and TP, or that criteria must be set at more stringent levels in order to protect designated uses and protect against harmful increases of TN and TP, commenters should submit such scientific information and analyses to EPA during the comment period for EPA's consideration.

Finally, EPA's approach to deriving numeric nutrient criteria is consistent with FDEP's approach to interpreting its narrative nutrient criterion and deriving numeric thresholds at the State level. FDEP recently established numeric interpretations of the State's narrative nutrient criterion.[33] FDEP has approached the derivation of numeric TN and TP threshold values for streams in much the same way as EPA by aiming to prevent adverse effects to natural populations of aquatic flora and fauna.[34] To set protective

[33] See FDEP's Rule 62-302.531, F.A.C. at: http://www.dep.state.fl.us/water/wqssp/nutrients/docs/meetings/62_302_final.pdf, accessed on April 27, 2012.

[34] *State of Florida Numeric Nutrient Criteria Development Plan*, Prepared by: Bureau of Assessment and Restoration Support, Division of Environmental Assessment and Restoration, Florida Department of Environmental Protection Tallahassee, FL, March 2009; *Technical Support Document: Development of Numeric Nutrient Criteria for Florida Lakes and Streams*. Florida Department of Environmental Protection, Standards and Assessment Section, June 2009; *Technical Support Document: Development of Numeric Nutrient Criteria for Florida Lakes, Spring Vents and Streams*. Florida Department of

numeric threshold values for streams for TN and TP where the data were not available to ascertain an accurate quantifiable stressor-response relationship for streams, FDEP utilized a reference condition approach similar to the reference condition approach that EPA utilized in the December 2010 final rule. In the absence of a positive showing that some higher level of nutrients still protects designated uses and against harmful change in the biota in a particular stream, or a showing that some lower level of nutrients is needed to protect designated uses and natural populations of biota in a particular stream, both FDEP and EPA have determined that the upper percentile of reference streams is an appropriate and protective level of nutrients to properly protect designated uses and avoid any adverse change in natural populations of aquatic flora or fauna. In addition, EPA included a Site Specific Alternative Criteria ("SSAC") provision in its December 2010 final rule for adoption of alternative criteria if a demonstration could be made that more or less stringent criteria are warranted for individual waters. Similarly, FDEP included a provision in its rule for adoption of SSAC, as well as a provision for adoption of other site-specific interpretations for individual waters.

Along with this proposed rule, EPA is providing a technical support document that discusses in more detail the scientific basis for the proposed criteria for streams and the default options to determine DPVs for unimpaired lakes. The technical support document helps explain how EPA's proposed numeric streams criteria would prevent harmful increases in TN and TP concentrations, which was specifically discussed by the Court in its decision invalidating EPA's numeric streams criteria and default DPV for unimpaired lakes.[35]

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Environmental Protection, Standards and Assessment Section, 2012.

[35] "Technical Support Document for EPA's Proposed Rule for Numeric Nutrient Criteria to Protect

*B. EPA Derivation of Numeric Nutrient Criteria for Streams*

*1. Components of Water Quality Criteria*

Water quality criteria include three components. The first component is "magnitude," the concentration of a pollutant that can be maintained over time in the ambient receiving water without adversely affecting the designated use that the criteria is intended to support. The second component is "duration," or the time period over which exposure is averaged (i.e., the averaging period) to limit the duration of exposure to elevated concentrations. This accounts for the variability in the quality of the ambient water due to variations of constituent inputs, stream flow, and other factors. The third component is "frequency", or how often the magnitude/duration condition may be exceeded, and still protect the designated use. Combining the criterion-magnitude with the duration and frequency prevents the allowance of harmful effects by ensuring compensating periods of time during which the concentration is below the criterion-magnitude. Where criterion-magnitudes are exceeded for short periods of time or infrequently, water bodies can typically recover; that is, designated uses are typically protected. Designated uses are typically not protected when criteria-magnitudes are exceeded for longer periods of time (i.e., for longer than the specified duration) or more frequently (i.e., more often than the allowed frequency). [36]

Use of this magnitude-duration-frequency format allows for some exceedances of the criteria-magnitude concentrations while still protecting applicable designated uses,

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Florida's Streams and the Downstream Protection of Unimpaired Lakes" ("EPA Proposed Rule TSD for Florida's Streams and DPV for Unimpaired Lakes").

[36] Water Quality Standards Handbook: Second Edition, Chapter 3 – Water Quality Criteria. EPA-823-B-94-005a. USEPA. 1994; Technical Support Document for Water Quality-based Toxics Control. Appendix D – Duration and Frequency. EPA/505/2-90-001. USEPA 1991.

which is important for pollutants such as nitrogen and phosphorus because their concentrations can vary naturally in the environment. The duration and frequency values associated with the numeric streams criteria EPA is proposing today are the same as those associated with the numeric criteria in EPA's December 2010 rule. For more information on the basis for these duration and frequency components, see 75 Fed. Reg. 75776-77.

*2. Selection of Target for Numeric Nutrient Criteria*

In evaluating the appropriate endpoint for deriving numeric nutrient criteria, EPA first looked at Florida's applicable designated uses since, as mentioned in the previous sections, water quality criteria must be sufficient to protect the designated uses. CWA 303(c)(2)(A); 40 CFR § 131.11(a)(1). The designated uses established by Florida for its streams include Class I (for potable water supply) and Class III (recreation, propagation and maintenance of a healthy, well-balanced population of fish and wildlife). Fla. Admin. Code 62-302.400. EPA next looked to Florida's narrative nutrient criterion, which represents Florida's determination of what is protective of the Class I and III designated uses.[37] That criterion provides that "in no case shall nutrient concentrations of a body of water be altered so as to cause an imbalance of natural populations of aquatic flora and fauna". Fla. Admin. Code 62-302.530(47)(b). As set out more fully in subsequent sections, in deriving the numeric nutrient criteria to protect against concentrations of TN and TP that will create an imbalance of natural populations of aquatic flora and fauna and, thus, ensure the protection of the designated uses in Florida's streams, EPA used the reference condition approach.

[37] Florida's narrative nutrient criterion also serves to protect their Class II waters for propagation and harvesting of shellfish, which will be covered under EPA's forthcoming rulemaking efforts for estuarine and coastal waters.

Unlike for streams, for Florida's lakes the Agency was able to accurately quantify a stressor-response relationship between TN and TP concentrations and harmful, adverse effects in those waters. EPA used that stressor-response information to derive numeric nutrient criteria, promulgated in the December 2010 final rule, to protect designated uses for Florida's lakes. EPA did not establish the numeric lake criteria exactly at the point where nutrient pollution is demonstrated to adversely affect all lakes at all times, as that would not be protective of all lakes. Rather, EPA established the numeric lake criteria at concentrations that were known to protect against harmful, adverse effects by protecting and maintaining the expected trophic state[38] (by meeting protective chlorophyll-*a* concentrations for either oligotrophic or mesotrophic conditions) for the majority of lakes. At the same time, EPA allows higher concentrations within a given range if there is a positive showing that some higher concentrations of TN and TP still maintain the protective chlorophyll-*a* concentrations, and thus still protect the designated uses in a particular lake.[39] The court upheld EPA's numeric nutrient criteria for Florida's lakes in its February 18, 2012 Order.

For Florida's streams, as stated in the previous section, EPA determined that the scientific data and information available were insufficient to establish accurate quantifiable relationships between TN and TP concentrations and harmful, adverse effects in streams due to confounding factors that affect the chemical and biological responses to nutrient pollution in streams, such as shading from canopy and stream velocity. Thus, in spite of the substantial data collected over many years, EPA could not

[38] Tropic state describes the nitrogen and phosphorus levels and algal state of an aquatic system: oligotrophic (low nitrogen/phosphorus and algal productivity), mesotrophic (moderate nitrogen/phosphorus and algal productivity), and eutrophic (high nitrogen/phosphorus and algal productivity).
[39] Additionally, the SSAC provision at §131.43(e) is also available if it determined that concentrations outside of the range are necessary to protect the designated uses in a particular lake.

use the stressor-response approach to establish the numeric streams criteria at concentrations that protect against harmful adverse effects by protecting and maintaining a given biological response at a protective level measured in streams. Therefore, EPA relied upon the reference condition approach as described in more detail in Section III.C of this preamble to identify TN and TP concentrations that protect the designated uses, and above which harmful, adverse effects are likely to occur in the majority of Florida streams. At the same time, EPA allows alternative criteria be set at higher or lower concentrations through the use of the SSAC provision, if there is a positive showing that higher or lower concentrations of TN and TP are sufficient or necessary to protect the designated uses in a particular stream. The following sections set forth how EPA determined that the numeric streams criteria in today's proposal are set at the appropriate level to protect against a harmful, adverse effects due to increased TN and TP concentrations.

*C. Reference Condition Approach for Developing Numeric Nutrient Criteria for Streams*

The reference condition approach, a long-standing peer-reviewed methodology published by EPA, was designed to develop protective numeric nutrient criteria where reference conditions can be confidently defined.[40] The reference condition approach, which has been well documented, peer reviewed, and developed in a number of different contexts,[41,42,43,44,45,46] is used to derive numeric nutrient criteria that are protective of

[40] USEPA. 2000. Nutrient Criteria Technical Guidance Manual: Rivers and Streams. EPA–822–B–00–002. U.S. Environmental Protection Agency, Office of Water, Washington, DC.; USEPA-SAB. 2011. *Review of EPA's draft Approaches for Deriving Numeric Nutrient Criteria for Florida's Estuaries, Coastal Waters, and Southern Inland Flowing Waters*. U.S. Environmental Protection Agency, Science Advisory Board, Washington, DC.

[41] USEPA. 2000a. *Nutrient Criteria Technical Guidance Manual: Lakes and Reservoirs.* EPA-822-B-00-001. U.S. Environmental Protection Agency, Office of Water, Washington, DC.

applicable designated uses by identifying TN and TP concentrations occurring in least-disturbed, healthy streams that are supporting designated uses. The core scientific basis for EPA's use of the reference condition approach to derive the proposed numeric nutrient criteria for Florida's streams is outlined in EPA's December 2010 final rule[47] and final December 2010 rule TSD.[48] Briefly, EPA screened and evaluated water chemistry data from more than 11,000 samples from over 6,000 sites Statewide. EPA also evaluated biological data consisting of more than 2,000 samples from over 1,100 Florida streams. EPA then selected a reference set of streams where the Agency was confident that designated uses are protected. Finally, EPA selected an upper percentile of the data distribution associated with those reference streams as the stream criterion-magnitude. While developing the December 2010 final rule, EPA met and consulted with FDEP expert scientific and technical staff on numerous occasions as part of an ongoing collaborative process. EPA carefully considered and evaluated the technical approaches and scientific analysis that FDEP presented as part of its July 2009 draft numeric nutrient

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[42] USEPA. 2000b. *Nutrient Criteria Technical Guidance Manual: Rivers and Streams.* EPA-822-B-00-002. U.S. Environmental Protection Agency, Office of Water, Washington, DC.
[43] Stoddard, J. L., D. P. Larsen, C. P. Hawkins, R. K. Johnson, and R. H. Norris. 2006. Setting expectations for the ecological condition of streams: the concept of reference condition. *Ecological Applications* 16:1267 – 1276.
[44] Herlihy, A. T., S. G. Paulsen, J. Van Sickle, J. L. Stoddard, C. P. Hawkins, L. L. Yuan. 2008. Striving for consistency in a national assessment: the challenges of applying a reference-condition approach at a continental scale. *Journal of the North American Benthological Society* 27:860 – 877.
[45] U.S. EPA. 2001. Nutrient Criteria Technical Manual: Estuarine and Coastal Marine Waters. Office of Water, Washington, DC. EPA-822-B-01-003.
[46] USEPA-SAB. 2011. *Review of EPA's draft Approaches for Deriving Numeric Nutrient Criteria for Florida's Estuaries, Coastal Waters, and Southern Inland Flowing Waters*. U.S. Environmental Protection Agency, Science Advisory Board, Washington, DC.
[47] Final rule can be found at: http://edocket.access.gpo.gov/2010/pdf/2010-29943.pdf or 75 Federal Register 75762 (December 6, 2010).
[48] Final rule TSD can be found at: www.regulations.gov, Docket # EPA-HQ-OW-2009-0596.

criteria,[49] as well as FDEP's numerous comments on different aspects of EPA's proposed January 2010 final rule.

In addition, the Agency also received and carefully considered substantial stakeholder input from 13 public hearings in six Florida cities during the 2010 comment period. EPA reviewed and evaluated further analysis and information included in the more than 22,000 comments on the January 2010 proposal and an additional 71 comments on the August 2010 supplemental notice and request for comment. Finally, in reviewing its 2010 application of the reference condition approach for purposes of this proposal, EPA also considered FDEP's current rule, along with the technical approaches and scientific analysis supporting that rule, submitted to EPA on June 13, 2012.[50]

*1. Selection of Reference Sites*

This section summarizes how EPA applied the reference condition approach in developing the December 2010 rule, including how EPA selected the set of reference sites and how it aggregated data associated with those stream segments. EPA classified Florida streams into five stream regions based on similar geographical and watershed characteristics. The proposed numeric streams criteria would apply to five separate stream Nutrient Watershed Regions (NWRs): Panhandle West, Panhandle East, North

[49] FDEP. 2009. *Draft Technical Support Document: Development of Numeric Nutrient Criteria for Florida's Lakes and Streams.* Florida Department of Environmental Protection, Standards and Assessment Section. Available electronically at: http://www.dep.state.fl.us/water/wqssp/nutrients/docs/tsd_nutrient_crit.docx. Accessed October 2010.

[50] *State of Florida Numeric Nutrient Criteria Development Plan*, Prepared by: Bureau of Assessment and Restoration Support, Division of Environmental Assessment and Restoration, Florida Department of Environmental Protection Tallahassee, FL, March 2009; *Technical Support Document: Development of Numeric Nutrient Criteria for Florida Lakes, Spring Vents and Streams*. Florida Department of Environmental Protection, Standards and Assessment Section, 2012.

Central, West Central and Peninsula (north of Lake Okeechobee, including the Caloosahatchee River Watershed to the west and the St. Lucie Watershed to the east).

To derive numeric nutrient criteria for streams, EPA first identified biologically healthy sites that exhibited the least amount of human disturbance and that were known to support designated uses, i.e., support natural populations of aquatic flora and fauna. EPA applied several screening factors to ensure these sites reflected least-disturbed, biologically healthy conditions. The screening factors included landscape development intensity index (LDI) scores less than 2.0 (an indicator of lower impact surrounding land use), average nitrate concentrations less than 0.35 mg/L (an indicator of lower anthropogenic nitrogen concentrations), exclusion of waters that are identified as water quality-limited for nutrients and/or dissolved oxygen on Florida's EPA-approved CWA section 303(d) list, and an FDEP-derived index of the stream macroinvertebrate community (stream condition index, or SCI) where average scores are greater than 40 (an indicator of a healthy macroinvertebrate community). The result of this rigorous analysis was a set of reference sites that, although not pristine, reflected healthy conditions that were supporting designated uses, and thus free from harmful, adverse effects on natural populations of aquatic flora and fauna due to nutrient pollution. EPA has confidence that these reference sites are supporting designated uses and natural populations of flora and fauna, and, as set out more fully in Section III.C.2, has confidence that if the TN and TP concentrations are attained or maintained at the concentrations that are among the highest observed at these sites, then designated uses and natural populations of aquatic flora and fauna will be protected in other streams. Additionally, as discussed further in Section III.C.3, additional lines of evidence from the available scientific data and information

support EPA's conclusion in that they indicate that harmful, adverse effects are likely to occur to natural populations of aquatic flora and fauna at levels higher than these concentrations.

In remanding EPA's streams criteria, the Court preliminarily concluded that EPA's technical and scientific approaches in deriving streams criteria based on the reference condition approach were defensible. Specifically, the Court reasoned: "Each side criticizes the Administrator's implementation of this approach. Thus, for example, each side criticizes the Administrator's selection of sample streams. The environmental parties criticize the duration and frequency components. These are matters of scientific judgment on which the rule would survive arbitrary-or-capricious review". Order at 63.

*2. Selection of Stream Criterion-Magnitude*

After selecting the reference set of streams, EPA then examined the statistical distributions of the data associated with stream sites that passed all of the screening factors in order to identify an appropriate criterion-magnitude to protect designated uses and natural populations of aquatic flora and fauna. EPA organized the data (TN and TP values) and calculated the geometric mean of the annual geometric mean of TN and TP concentrations for each stream segment that contained reference sites. EPA used all samples from reference sites within a given stream segment in a given year to calculate the annual geometric mean for that stream segment. EPA used the geometric mean of these annual geometric means for each stream segment so that each stream segment represents one average concentration in the distribution of concentrations for each NWR. EPA used geometric means for all averages because concentrations were log-normally

distributed. EPA then identified specific statistics, or percentiles, associated with each stream NWR reference condition data distribution as the stream criterion-magnitude for that region.[51] Based on the effectiveness of the data quality screens in four of five NWRs, EPA has concluded that the 90$^{th}$ percentile of annual average concentrations would be protective. EPA could not use all of the screening factors outlined in Section III.C.1. in order to identify reference sites in the remaining region, the West Central Region, because the use of those screens resulted in the identification of only one stream segment as a reference site. For this reason, EPA utilized only the SCI and 303(d) listed screens to identify reference conditions in the West Central NWR, and this approach does not rely on a quantitative assessment of potential human disturbance through the use of surrounding land cover analysis of stream corridor and watershed land development indices. Because of the use of fewer data screens to identify reference conditions in that NWR and EPA's attendant lower confidence that these sites are least-disturbed conditions that support designated uses and natural populations of aquatic flora and fauna, EPA has determined the 75$^{th}$ percentile of annual average concentrations, rather than the 90$^{th}$ percentile, is the protective criterion-magnitude for that region. For the remaining stream regions, EPA considers the 90$^{th}$ percentile of the annual average concentrations observed in the reference condition distribution as an appropriate concentration to specify the criterion-magnitude because the Agency is confident that

[51] For the West Central region, where reference sites were identified using only the SCI approach, there is less confidence that these sites are least-disturbed and represent minimally-impacted conditions. Unlike in the other NWRs, this approach does not rely on a quantitative assessment of potential human disturbance through the use of surrounding land cover analysis of stream corridor and watershed land development indices, among other things. Therefore, because of the lower confidence level, EPA is proposing the streams criteria in the West Central region using a more conservative percentile of 75% rather than the upper end percentile of 90% of the distribution from the SCI sites.

theses least-disturbed sites more closely represent minimally-impacted, biologically healthy reference conditions, which support the State's Class I and III designated uses.

However, the Court found that EPA did not provide sufficient rationale explaining why it chose the 90th percentile (75th percentile in the West Central) of the reference site data distribution as the stream criterion-magnitude. That is, EPA did not explain why increasing nutrient levels above the upper percentile of annual average concentrations measured in reference condition streams would result in harmful, adverse effects on natural populations of aquatic flora and fauna in Florida's streams. The Court reasoned: "The Administrator apparently concluded only that an increase above this level ordinarily causes a change in flora and fauna—not that it causes a harmful change. If there is a basis in sound science for disapproving a nutrient increase that causes any increase in flora and fauna, not just a harmful increase, the Administrator did not cite it. And even if the Administrator's conclusion was that an increase in nutrients to a level above the 90th percentile ordinarily causes a harmful change in flora and fauna, the Administrator again did not cite a sound science basis for the conclusion." Order at 7.

For all stream regions, EPA could have selected a criterion-magnitude at the 75th percentile of the frequency distribution of concentrations at reference sites, or any lower percentile of the frequency distribution of the general population of a stream class (i.e., "all-streams" population from impaired to least-impacted), to derive the numeric criteria as recommended by EPA's published streams criteria guidance.[52] EPA selected the 90th percentile. EPA found support in an EPA nutrient criteria guidance manual that recommends percentiles from the 75th to the 95th percentile of the frequency distribution

[52] US EPA. 2000b. Nutrient Criteria Technical Guidance Manual: Rivers and Streams. EPA-822-B-00-002. U.S. Environmental Protection Agency, Office of Water, Washington, DC.

of the reference population, where the higher percentile values are "best used to define the criteria when there is great confidence that the group of reference waters truly reflects reference conditions as opposed, for example, to best available condition."[53]

The selection of the 90th percentile reflects EPA's level of confidence that these least-disturbed sites more closely represent minimally-impacted conditions, while not set at the extreme upper end of the distribution (95th or 100th percentile). This is because these highest observed annual average concentrations (i.e., 95th or 100th percentile) have rarely been observed at any reference site and are most likely to be heavily influenced by extreme event factors (e.g., hurricanes, droughts). Thus these highest observed concentrations could be outliers that are not representative of conditions that would typically support designated uses and natural populations of aquatic flora and fauna. Therefore, EPA has less confidence that such highest observed concentrations would continue to be supportive of designated uses and natural populations of aquatic flora and fauna if maintained in all streams at all times.

Alternatively, the selection of a much lower percentile, such as a representation of the central tendency of the distribution (i.e., 50th percentile), would not be appropriate because it would imply that half of the conditions observed at reference sites would not support designated uses and natural populations of aquatic flora and fauna, when EPA's analysis indicates that they do. For the West Central Region, EPA relied on the75th percentile due to the Agency's lower level of confidence as discussed in more detail in the previous section. By setting the criteria at these concentrations, EPA believes the designated uses, i.e., natural populations of aquatic flora and fauna, will be protected

[53] US EPA. 2007. Nutrient Criteria Technical Guidance Manual: Wetlands. EPA-822-R-07-004. U.S. Environmental Protection Agency, Office of Water, Washington, DC.

when these concentrations are attained in the majority of the streams in the regions. For those streams that are shown to accommodate or require higher or lower concentrations, the SSAC provision is provided in EPA's rule as discussed in Section III.C.5.

EPA has concluded, after its reevaluation of the reference condition data set and the resulting reference site data distributions of annual average TN and TP concentrations that EPA continues to have confidence that the upper percentile of annual average nutrient concentrations observed in the reference sites will support designated uses and natural populations of aquatic flora and fauna. As explained in the prior section, based on its evaluation of available scientific data and information, EPA used its best professional judgment and published guidance to conclude that TN and TP concentrations in excess of these values are not likely to protect designated uses and natural populations of aquatic flora and fauna. Additionally, as discussed in a subsequent section, EPA's review of additional lines of evidence from the available scientific data and information, including past scientific analyses, new analyses, and the peer-reviewed scientific literature, all support the conclusion that harmful, adverse effects on natural populations of aquatic flora and fauna from excess nitrogen and phosphorus are more likely to occur if concentrations increase above the proposed streams criteria set at these upper percentiles of reference conditions.

*3. Harmful, Adverse Effects Due to Exceedence of EPA's Proposed Streams Criteria*

Additional lines of evidence from empirical stressor-response analyses and the peer-reviewed scientific literature, which indicate that harmful, adverse effects are likely

to occur to natural populations of aquatic flora and fauna due to exceedances of the proposed streams criteria,[54] support EPA's conclusion that the upper percentile of the reference condition data distribution is the appropriate nutrient criterion-magnitude for Florida's streams.

In developing this proposal, EPA reviewed the empirical, stressor-response analyses between nutrients and different biological response indicators (e.g., algal biomass, SCI) conducted prior to promulgation of the December 2010 final rule, and also reviewed any new analyses. The results of these analyses support the Agency's conclusion that harmful, adverse effects to natural populations of aquatic flora and fauna are likely to occur if TN and TP concentrations increase above the proposed streams criteria.[55]

Three technical support documents[56] in the Agency's original rulemaking record and the technical support document associated with this proposed rule include scientific analyses demonstrating that harmful changes or adverse effects are more likely to happen as TN and TP concentrations increase above EPA's proposed streams criteria.

The effects of TN and TP on an aquatic ecosystem are well understood and documented. There is a substantial and compelling scientific basis for the conclusion that

[54] USEPA. 2000. Nutrient Criteria Technical Guidance Manual: Rivers and Streams. EPA–822–B–00–002. U.S. Environmental Protection Agency, Office of Water, Washington, DC.
[55] *Technical Support Document for EPA's Proposed Rule for Numeric Nutrient Criteria to Protect Florida's Streams and Downstream Lakes*. USEPA, 2012.
[56] *Technical Support Document: Development of Numeric Nutrient Criteria for Florida Lakes and Streams*. Florida Department of Environmental Protection, Standards and Assessment Section, June 2009; *Proposed Methods and Approaches for Developing Numeric Nutrient Criteria for Florida's Inland Waters*. U.S. EPA 2009; *Technical Support Document for U.S. EPA's Proposed Rule for Numeric Nutrient Criteria for Florida's Inland Surface Fresh Waters*. U.S. EPA 2010.

excess TN and TP will have adverse effects on streams.[57,58,59,60,61,62,63,64,65,66,67,68,69,70,71] As discussed in Section II, excess nitrogen and phosphorus in streams, like other aquatic ecosystems, increase vegetative growth (plants and algae), and change the assemblage of plant and algal species present in the system. Notwithstanding the difficulty associated with identifying the TN and TP concentrations that are known to protect against harmful effects by protecting and maintaining a given biological response at a protective level measured in Florida's streams, the available science clearly indicates that adverse responses to nutrient pollution occur.

[57] Biggs, B.J.F. 2000. Eutrophication of streams and rivers: dissolved nutrient–chlorophyll relationships for benthic algae. *Journal of the North American Benthological Society* 19:17–31

[58] Bothwell, M.L. 1985. Phosphorus limitation of lotic periphyton growth rates: an intersite comparison using continuous-flow troughs (Thompson River system, British Columbia). *Limnology and Oceanography* 30:527–542

[59]Bourassa, N., and A. Cattaneo. 1998. Control of periphyton biomass in Laurentian streams (Quebec). *Journal of the North American Benthological Society* 17:420–429

[60] Bowling, L.C., and P.D. Baker. 1996. Major cyanobacterial bloom in the Barwon-Darling River, Australia, in 1991, and underlying limnological conditions. *Marine and Freshwater Research* 47: 643–657

[61] Cross, W. F., J. B. Wallace, A. D. Rosemond, and S. L. Eggert. 2006. Whole-system nutrient enrichment increases secondary production in a detritus-based ecosystem. *Ecology* 87: 1556–1565

[62] Dodds, W.K., and D.A. Gudder. 1992. The ecology of Cladophora. *Journal of Phycology* 28:415–427

[63] Elwood, J.W., J.D. Newbold, A.F. Trimble, and R.W. Stark. 1981. The limiting role of phosphorus in a woodland stream ecosystem: effects of P enrichment on leaf decomposition and primary producers. *Ecology* 62:146–158

[64] Francoeur, S.N. 2001. Meta-analysis of lotic nutrient amendment experiments: detecting and quantifying subtle responses. *Journal of the North American Benthological Society* 20: 358–368

[65] Moss, B., I. Hooker, H. Balls, and K. Manson. 1989. Phytoplankton distribution in a temperate floodplain lake and river system. I. Hydrology, nutrient sources and phytoplankton biomass. *Journal of Plankton Research* 11: 813–835

[66] Mulholland, P.J. and J.R. Webster. 2010. Nutrient dynamics in streams and the role of J-NABS. *Journal of the North American Benthological Society* 29: 100-117

[67] Peterson, B.J., J.E. Hobbie, A.E. Hershey, M.A. Lock, T.E. Ford, J.R. Vestal, V.L. McKinley, M.A.J. Hullar, M.C. Miller, R.M. Ventullo, and G. S. Volk. 1985. Transformation of a tundra river from heterotrophy to autotrophy by addition of phosphorus. *Science* 229:1383–1386

[68] Rosemond, A. D., P. J. Mulholland, and J. W. Elwood. 1993. Top-down and bottom-up control of stream periphyton: Effects of nutrients and herbivores. *Ecology* 74: 1264–1280

[69] Rosemond, A. D., C. M. Pringle, A. Ramirez, and M.J. Paul. 2001. A test of top-down and bottom-up control in a detritus-based food web. *Ecology* 82: 2279–2293

[70] Rosemond, A. D., C. M. Pringle, A. Ramirez, M.J. Paul, and J. L. Meyer. 2002. Landscape variation in phosphorus concentration and effects on detritus-based tropical streams. *Limnology and Oceanography* 47: 278–289

[71] Slavik, K., B. J. Peterson, L. A. Deegan, W. B. Bowden, A. E. Hershey, J. E. Hobbie. 2004. Long-term responses of the Kuparuk River ecosystem to phosphorus fertilization. *Ecology* 85: 939 – 954

For example, excess nitrogen and phosphorus promote the increased growth of opportunistic and short-lived plant species that die quickly, leaving more dead vegetative material available for consumption by lower tropic levels. Excess nitrogen and phosphorus can promote the increased growth of less palatable nuisance algae species that result in less food available for filter feeders. These negative changes can alter the habitat structure by covering the stream or river bed with periphyton (attached algae), and/or clogging the water column with phytoplankton (floating algae), both of which can adversely affect natural or desirable aquatic life. Excess nitrogen and phosphorus can also lead to the increased growth of algae that produce toxins that can be toxic to fish, invertebrates, and humans. Chemical characteristics of the water, such as pH and concentrations of dissolved oxygen (DO), can be affected by excess nitrogen and phosphorus, leading to low DO conditions and hypoxia that cannot support aquatic life. All of these adverse effects change the balance of the natural populations of aquatic flora and fauna expected to occur. In turn, each of these negative changes can lead to other negative changes in the stream community and ecology and, ultimately, to harmful, adverse effects to the overall function of the linked aquatic ecosystem and subsequent failure to support designated uses.

In light of this well-established paradigm, EPA reviewed the latest peer-reviewed scientific literature and found many nutrient thresholds where harmful, adverse effects in streams are coincident with or occur above EPA's proposed streams criteria. In these examples, there are regional and site-specific factors (e.g., precipitation, temperature, flow) that may account for the differences in the nutrient threshold concentrations, but, in general, EPA's proposed streams criteria are consistent with the range of thresholds of

harmful, adverse effects documented in the peer-reviewed scientific literature. For example, TN and TP concentrations ranging between 0.659-0.714 mg/L and 0.048-0.071 mg/L, respectively, have been associated with moderate levels of productivity, or mesotrophy, in rivers and streams.[72] Higher concentrations of nutrients lead to eutrophy, which is what numeric nutrient criteria, in general, are intended to prevent. As another example, increases in suspended chlorophyll-*a*, decreases in water clarity, and decreases in macroinvertebrate and fish abundance in Wisconsin rivers and streams were observed over a TN and TP range of 0.5-2.0 mg/L and 0.035-0.150 mg/L, respectively.[73] Adverse increases in productivity (i.e., organic matter supply), also known as eutrophication, can negatively alter the metabolism of aquatic systems and lead to adverse environmental conditions such as depressed dissolved oxygen concentrations that cannot support aquatic life. These conditions, in turn, can harm macroinvertebrate and fish communities, creating changes to the balance of the natural populations of these aquatic fauna. The TN and TP concentrations above which these adverse effects are more likely to occur are coincident with EPA's proposed streams criteria TN and TP concentrations.

Many of the thresholds reported in the latest peer-reviewed scientific literature vary in comparison to the proposed criteria for Florida's streams due to site- and regional-specific factors such as climate and stream flow. However, the nutrient concentrations reported in the literature demonstrate and confirm that harmful, adverse effects occur as TN and TP concentrations increase in streams and are likely to occur as

[72] Dodds, W.K. 2006. Eutrophication and trophic state in rivers and streams. *Limnol. Oceanogr.* 51(1):671-680.

[73] Robertson, D.M., B.M. Weigel, and D.J. Graczyk. 2008. Nutrient concentrations and their relations to the biotic integrity of nonwadeable rivers in Wisconsin. US Geological Survey and US Department of the Interior professional paper 1754; Robertson, D.M., D.J. Graczyk, P.J. Garrison, L. Wang, G. LaLiberte, and R. Bannerman. 2006. Nutrient concentrations ant their relations to the biotic integrity of wadeable streams in Wisconsin. US Geological Survey and US Department of the Interior professional paper 1722.

concentrations increase above the criteria concentrations that EPA has selected for Florida streams. EPA considers the association of the TN and TP concentrations with documented harmful, adverse effects to be compelling and supportive of this proposed rule. For a complete list of comparable nutrient thresholds reported in the scientific literature, see "*EPA Proposed Rule TSD for Florida's Streams and DPVs for Unimpaired Lakes*" (Chapter 1, Scientific Literature).

*4. Additional evidence of harmful effects in Florida streams above EPA's proposed criteria*

In addition to reviewing the peer-reviewed scientific literature mentioned in the prior section, EPA reviewed analyses conducted by FDEP that demonstrated that excess nitrogen and phosphorus adversely affect streams. In its technical support document for deriving numeric nutrient criteria, FDEP stated: "The results of the analyses generally indicate that many of the biological measures evaluated exhibit a statistically significant adverse response to nutrient pollution; however, the relationships between the biological response variables and nutrient levels were confounded by numerous other factors such as color, pH, conductivity, and canopy cover. While DEP believes the effect of nutrients on the biological communities is not clear enough to be used as the sole basis for establishing numeric nutrient criteria, the observed relationships between nutrients and the various biological measures demonstrate the need for nutrient criteria to prevent adverse biological effects in Florida streams. While the analysis in this chapter did not produce numeric thresholds that could be used as water quality criteria, the relationships that were determined, while relatively weak, do support the values derived using the

Nutrient Benchmark Approach. Both the analysis of the Rapid Periphyton Survey (regarding probability of increased algal thickness) and the analysis of the second change point in the stream periphyton response to nutrients indicate that the biological response to nutrient enrichment will generally occur at levels higher than the values generated using the Benchmark Distribution Approach".[74]

EPA has reviewed the available periphyton data in Florida streams and has verified that a harmful, adverse increase in the amount of algal coverage (> 6 mm thick over more than 25% of the stream bottom) will be substantially more likely as concentrations of TN and TP increase above EPA's proposed numeric streams criteria. This adverse biological response represents harmful, adverse changes to the natural populations of aquatic flora that occur as concentrations increase above the protective values in EPA's proposed numeric streams criteria. For more information on the likelihood of increases in the amount of algal coverage at varying concentrations of TN and TP, see "*EPA Proposed Rule TSD for Florida's Streams and DPVs for Unimpaired Lakes*" (Chapter 1, Stressor-Response Relationships).

EPA also reviewed the available stream fauna data, specifically FDEP's multi-metric index of stream macroinvertebrates (e.g., insect larvae, worms), which FDEP developed as an indicator of stream health.[75] The index, called the stream condition index (SCI), is a generic index, indicating the aggregate impact of human disturbance on stream macroinvertebrates. It measures the number and diversity of various invertebrate taxa (i.e., individuals sharing the same general identity) and was not designed to be uniquely

[74] *Technical Support Document: Development of Numeric Nutrient Criteria for Florida Lakes, Spring Vents and Streams*. Florida Department of Environmental Protection, Standards and Assessment Section, 2012, p. 110-111.
[75] *Technical Support Document for EPA's Proposed Rule for Numeric Nutrient Criteria to Protect Florida's Streams and Downstream Lakes*. USEPA, 2012.

responsive to nutrients, but nutrients may contribute to adverse impacts. The SCI score for a given sample can range between 0 and 100, where 0 represents a highly degraded community and 100 represents the highest quality community. EPA re-analyzed Florida-specific stream data and found that stream macroinvertebrate community index scores predictably decrease below a level EPA and FDEP consider biologically healthy as a function of increasing TN and TP concentrations.

Furthermore, when ambient TN or TP concentrations were greater than EPA's proposed criteria, SCI scores indicated that, on average, faunal populations were imbalanced. For example, SCI scores ranged from 30 to 50 when ambient TP concentrations were equivalent to EPA's proposed TP criteria for each of the five stream NWRs. A SCI score of 50 has been identified by scientific experts to be associated with the loss of rare native taxa and with the replacement of some sensitive or ubiquitous taxa by more pollutant tolerant taxa – this is a level where there is some negative change in the natural populations of aquatic fauna, but is still considered a score that represents a biologically healthy condition; whereas a SCI score of 30 has been associated with unbalanced distribution of major groups from what is expected – this is a level where there is a profound harmful change in the natural populations of aquatic fauna.[76]

EPA applied the average SCI of 40 as one of many screening factors in selecting reference sites that were considered to be biologically healthy. EPA believes an average SCI of 40 is a level where there is some negative change in the natural populations of aquatic fauna, but before profound harmful change has occurred.[77] Following the court's

[76] *Technical Support Document for U.S. EPA's Final Rule for Numeric Criteria for Nitrogen/Phosphorus Pollution in Florida's Inland Surface Fresh Waters*. U.S. EPA 2010, pp. 49-51.
[77] *Technical Support Document for U.S. EPA's Final Rule for Numeric Criteria for Nitrogen/Phosphorus Pollution in Florida's Inland Surface Fresh Waters*. U.S. EPA 2010.

remand of the streams criteria, EPA evaluated data in Florida streams and found that when the nutrient concentrations exceed EPA's proposed numeric streams criteria, the SCI score is 45-70% more likely to be less than 50, meaning that it is more likely that there will be some negative change as TN and TP concentrations increase above EPA's proposed streams criteria. In addition, when the nutrient concentrations exceed EPA's proposed numeric streams criteria, the SCI score is 17-34% more likely to be less than 30, meaning that it is more likely that there will be profound harmful change. Thus, the concentrations of EPA's proposed numeric streams criteria represent levels above which harmful change begins to be more likely. This adverse biological response represents harmful, adverse changes to the natural populations of aquatic fauna that occur at concentrations above the protective values in EPA's proposed numeric streams criteria. For more information on the likelihood of SCI scores at varying concentrations of TN and TP, see "*EPA Proposed Rule TSD for Florida's Streams and DPVs for Unimpaired Lakes*" (Chapter 1, Stressor-Response Relationships).

When considered together and in light of the conclusions drawn by FDEP[78], the previous and new analyses all indicate that a predictable harmful, adverse change (i.e., increase in TN and TP concentrations causing imbalance in natural populations of aquatic flora or fauna) would likely occur if levels of TN and TP exceed the proposed streams criteria.

*5. EPA's rule includes the SSAC provision and process to address any uncertainties associated with the reference condition approach*

[78] *Technical Support Document: Development of Numeric Nutrient Criteria for Florida Lakes and Streams*. Florida Department of Environmental Protection, Standards and Assessment Section, June 2009, p. 96.

EPA recognizes the uncertainties associated with setting numeric nutrient criteria based on the reference condition approach. The case law is clear, however, that in protecting human health and the environment, EPA can act in light of scientific uncertainty and choose to act proactively. *American Iron & Steel Institute,* 115 F.3d 979, (D.C. Cir. 1997)("[I]t is within EPA's discretion to decide that in the wake of uncertainty, it would be better to give the values a conservative bent rather than err on the other side."). While it was appropriate for EPA to act to adopt numeric nutrient criteria for streams based on the reference condition approach even in the face of some scientific uncertainty, EPA also recognized that site-specific water quality conditions may make it appropriate to adopt either more or less stringent numeric nutrient criteria for a specific water body or set of water bodies. To address those situations, and as discussed previously in this proposal, EPA's December 2010 final rule authorized and established a specific administrative process for adopting, site-specific alternative criteria ("SSAC").

*D. Proposed Numeric Criteria for the State of Florida's Streams*

EPA is proposing numeric nutrient criteria for TN and TP in five geographically distinct watershed regions of Florida's streams not covered by the State of Florida's Rule classified as Class I or III waters under Florida law (Section 62-302.400, F.A.C.). The proposed TN and TP criteria are listed in Table B-1. The proposed criteria are the same criteria published in EPA's final rule signed on November 14, 2010 and published at 75 FR 75762 (December 6, 2010). For purposes of this proposed rule and in response to the Court's February 18, 2012 order, EPA is proposing these criteria values and explaining how the proposed criteria will ensure the protection of the Florida's Class I and III

designated uses by avoiding harmful changes in TN and TP concentrations that would result in an imbalance of natural populations of aquatic flora or fauna. EPA requests comment on its proposed numeric nutrient criteria for Florida's streams and supporting rationale.

Table B-1. EPA's Proposed Numeric Criteria for Florida Streams not covered by the State of Florida's Rule.

| Nutrient Watershed Region | Instream Protection Value Criteria | |
|---|---|---|
| | TN (mg/L) * | TP (mg/L) * |
| Panhandle West [a] | 0.67 | 0.06 |
| Panhandle East [b] | 1.03 | 0.18 |
| North Central [c] | 1.87 | 0.30 |
| West Central [d] | 1.65 | 0.49 |
| Peninsula [e] | 1.54 | 0.12 |

Watersheds pertaining to each Nutrient Watershed Region (NWR) were based principally on the NOAA coastal, estuarine, and fluvial drainage areas with modifications to the NOAA drainage areas in the West Central and Peninsula Regions that account for unique watershed geologies. For more detailed information on regionalization and which WBIDs pertain to each NWR, see the Technical Support Document.

[a] Panhandle West region includes: Perdido Bay Watershed, Pensacola Bay Watershed, Choctawhatchee Bay Watershed, St. Andrew Bay Watershed, Apalachicola Bay Watershed.

[b] Panhandle East region includes: Apalachee Bay Watershed, and Econfina/Steinhatchee Coastal Drainage Area.

[c] North Central region includes the Suwannee River Watershed.

[d] West Central region includes: Peace, Myakka, Hillsborough, Alafia, Manatee , Little Manatee River Watersheds, and small, direct Tampa Bay tributary watersheds south of the Hillsborough River Watershed.

[e] Peninsula region includes: Waccasassa Coastal Drainage Area, Withlacoochee Coastal Drainage Area, Crystal/Pithlachascotee Coastal Drainage Area, small, direct Tampa Bay tributary watersheds west of the Hillsborough River Watershed, Sarasota Bay Watershed, small, direct Charlotte Harbor tributary watersheds south of the Peace River Watershed, Caloosahatchee River Watershed, Estero Bay Watershed, Kissimmee River/Lake Okeechobee Drainage Area, Loxahatchee/St. Lucie Watershed, Indian River Watershed, Daytona/St. Augustine Coastal Drainage Area, St. John's River Watershed, Nassau Coastal Drainage Area, and St. Mary's River Watershed.

* For a given waterbody, the annual geometric mean of TN or TP concentrations shall not exceed the applicable criterion concentration more than once in a three-year period.

*E. Proposed Numeric Criteria to Ensure the Downstream Protection of the State of Florida's Unimpaired Lakes*

Similar to the Court's opinion regarding EPA's streams criteria, the Court found that EPA had not explained in sufficient detail how exceedances of the default DPV for unimpaired lakes would lead to "harmful effects" in the downstream lake. Order at 70. Thus, the Court invalidated the option for establishing default DPVs to protect unimpaired lakes in EPA's final rule and remanded it to the Agency for further action. Order at 85. This proposed rule provides three options for establishing a default DPV for unimpaired lakes and clarifies that the proposed options would ensure the attainment and maintenance of the numeric lake criteria so as to prevent harmful effects from occurring in a downstream lake.

EPA is proposing default DPV approaches for TN and TP that would provide for the attainment and maintenance of downstream water quality standards for Florida's unimpaired lakes pursuant to 40 CFR §131.10(b) when modeling approaches are unavailable. For this proposed rule, EPA is providing for public comment three default approaches available for use when modeling cannot be performed to derive DPVs that ensure the attainment and maintenance of the numeric lake criteria that, in turn, protect the designated uses in Florida's lakes. The default approaches would be applicable to streams that flow into unimpaired lakes, but could also be used for streams that flow into impaired lakes. The default approaches would supplement EPA's promulgated DPVs for the protection of downstream lakes, which are codified at 40 CFR §131.43(c)(2)(ii), consistent with the February 18, 2012 Court order. Order at 85.

Briefly, EPA's final rule provided that DPVs apply to tributary streams at the point of entry to the lake, also referred to as the pour point. The final rule specified that where sufficient data and information are available, DPVs may be established through application of the BATHTUB model. See 40 CFR §131.43(c)(2)(ii)(B). EPA's final rule also specifically authorizes FDEP or EPA to use a model other than BATHTUB when either FDEP or EPA determines that it would be appropriate to use another scientifically defensible modeling approach that results in the protection of downstream lakes. 40 CFR §131.43(c)(2)(ii)(B). A lake-specific DPV derived through such modeling provides the most refined DPV for a stream at the pour point. Where sufficient information is not available to derive TN and/or TP DPVs using water quality modeling and the lake does not attain the applicable TN, TP, and/or chlorophyll-*a* criteria or is un-assessed, criteria values for TN and/or TP that apply to that lake are to be used as the default DPVs. 40 CFR §131.43(c)(2)(ii)(D). See id. EPA believes that this approach, which the Court upheld, is protective because the TN and TP concentrations entering the lake are unlikely to need to be lower than the criterion concentration necessary to be protective of the lake itself.

In the final rule, water quality modeling was EPA's preferred approach for the derivation of DPVs. Water quality modeling is the most rigorous and most data-demanding method and results in the most refined DPVs. The default methods were intended only for use where there is insufficient data to use a model. While using a default option to develop DPVs requires less data, it also generally leads to more stringent criteria to account for the uncertainties associated with these less refined approaches.

The rule proposed today provides three options for a default DPV that would apply in cases when there are insufficient data to use a water quality model for any unimpaired lake for which EPA has promulgated numeric nutrient criteria. The three default options EPA is proposing are not intended to supersede or limit the two approaches EPA provided in the final rule, codified at 40 CFR §131.43(c)(2)(ii), which were upheld by the Court. Order at pp. 69-70, 85. Rather, the default options are intended to provide flexibility in deriving a DPV in the situation where there is not sufficient information to develop a DPV using a water quality model. Thus, EPA views the proposed DPV options as supplemental to EPA's other established approaches for deriving DPVs. All three options for default DPVs are designed to ensure that the unimpaired lake criteria would be attained and maintained when the inflowing stream's TN and TP concentrations meet the DPV at the pour point.

The first proposed default option simply utilizes the downstream lake criteria as the DPV applicable at the pour point to the lake. EPA refers readers to 40 CFR §131.43(c)(1) for the applicable TN and TP lake criteria, which would serve as the DPV. EPA believes that this proposed option is protective because it is unlikely that the TN and TP concentrations entering the lake need to be lower than the criterion concentration necessary to be protective of the lake itself.

The second proposed default option uses Florida-specific stream and lake data to empirically link the DPV to the attainment and maintenance of Florida's lake criteria in each of the three lake classes. This option utilizes Florida's extensive stream and lake data to compute a linear regression model, which relates the inflowing stream TN and TP concentrations to the TN and TP concentrations in the downstream lake. EPA developed

a linear regression model for each of the three lake classes based on EPA's lake dataset provided in the final rule and Florida's stream data from its statewide water quality database[79].

The linear regression equation is used to predict what the inflowing stream's TN and TP concentrations need to be in order for the lake concentrations to meet the lake criteria EPA established in the December 6, 2010 final rule. EPA's calculated TN and TP DPVs for each lake class using this approach are provided in Table C-1. The approach is described in further detail in the *EPA Proposed Rule TSD for Florida's Streams and DPVs for Unimpaired Lakes*.

For this proposed option, in circumstances where additional lake and stream data are available, the linear regression equation could be updated using this new data and used to calculate default DPVs that are reflective of newer, more site-specific information.

Table C-1. EPA's proposed DPVs for each lake class using the second default approach.

| | Default Option 2 | |
|---|---|---|
| Lake Class | TN DPV (mg/L) | TP DPV (mg/L) |
| Colored Lakes | 1.59 | 0.11 |
| Clear, High Alkaline Lakes | 1.40 | 0.09 |
| Clear, Low Alkaline Lakes | 0.87 | 0.06 |

The third proposed default option utilizes stream data that is spatially linked to and temporally coincident with the downstream lake when it is attaining the applicable lake criteria. This proposed option is a reference condition-based DPV approach that is

[79] IWR Run 40.

conditioned upon the downstream lake attaining all applicable numeric nutrient criteria, TN, TP, and chlorophyll-*a*, including the duration and frequency components of the applicable lake criteria. To compute a reference condition-based DPV, the period of record during which the downstream lake was attaining all applicable criteria must be determined. At a minimum, and pursuant to 40 CFR §131.43(c)(1), the lake must not exceed any applicable numeric nutrient criteria, which are expressed as annual geometric means, more than once in a three-year period. If this condition is met, then a DPV for that lake can be computed using TN and TP data from the stream discharging into the lake coincident in time with the period of record when the lake was attaining all applicable numeric nutrient criteria. Because of the hydrologic link between streams and lakes, it follows that nitrogen and phosphorus concentrations in the stream would be sufficient to meet the lake criteria provided that the lake was meeting all applicable numeric nutrient criteria. In general, this approach is less refined compared to the modeling approach EPA promulgated at 40 CFR §131.43(c)(1)(ii)(B) because it does not incorporate the water quality parameters and data that would be necessary to derive a site-specific DPV, for either TN or TP, using a water quality model such as BATHTUB. Nonetheless, EPA believes that the data and information that would support this third approach, in the absence of additional data that would support modeling, is still sufficient to ensure the protection of the downstream lake because of the hydrologic linkage between the stream and downstream lake. A DPV calculated under this option may be more stringent than a DPV calculated using a water quality model. This default approach is intended to ensure that water quality standards are not only restored when found to be impaired, but are maintained when found to be attained, consistent with the Clean Water Act. Higher levels

of TN and/or TP may be allowed in watersheds where it is demonstrated that such higher levels will fully protect the lake's water quality standard. To the extent that it is determined that the default DPV for a given lake tributary is over protective, applying a water quality model as set out in EPA's preferred approach will result in a more refined definition of the DPV for that tributary.

As discussed earlier, the calculation of the DPV using the three default options requires that the lake criteria be explicitly considered. The applicable numeric lake criteria can be found at 40 CFR §131.43(c)(1). EPA recognizes that lake criteria may be modified pursuant to the modified lake criteria provision at 40 CFR §131.43(c)(1)(ii). Where lake criteria are modified in accordance with this provision, the modified criteria would be the applicable criteria in any of the three default DPV approaches. The duration and frequency components of DPV magnitudes computed using the proposed default approaches would be an annual geometric mean not to be exceeded more than once over a three-year period. These components of the proposed approaches align with the duration and frequency of both the numeric lake criteria, codified at 40 CFR §131.43(c)(1), and the streams criteria which are proposed to be codified at 40 CFR §131.43(c)(2).

As in the final rule, protection of downstream lakes using the options described in this proposed rule is accomplished through establishment of a DPV. The applicable criteria for streams that flow into downstream lakes include both the instream criteria for TN and TP and the DPV, which is a concentration or loading value at the point of entry of a stream into a downstream lake that ensures the attainment and maintenance of the numeric lake criteria. EPA selected the point of entry into the lake as the location to

measure water quality because the lake responds to the input from the pour point, and all contributions from the stream network above this point in a watershed affect the water quality at the pour point. When a DPV is exceeded at the pour point, the waters that collectively comprise the network of streams in the watershed above that pour point are considered to not attain the DPV for purposes of CWA section 303(d). The State may identify these impaired waters as a group rather than individually.

Contributions of TN and/or TP from sources in stream tributaries upstream of the pour point are accountable to the DPV because the water quality in the stream tributaries must result in attainment of the DPV at the pour point into the lake. The spatial allocation of load within the watershed is an important accounting step to ensure that the DPV is achieved at the point of entry into the lake. How the watershed load is allocated may differ based on watershed characteristics and existing sources (e.g., areas that are more susceptible to physical loss of nitrogen; location of towns, farms, and dischargers), so long as the DPV is met at the point of entry into the downstream lake. Where additional information is available, watershed modeling could be used to develop allocations that reflect hydrologic variability and other water quality considerations. For protection of the downstream lake, what is important is an accounting for nutrient pollution loadings on a watershed scale that results in meeting the DPV at the point of entry into the downstream lake.

As in the December 6, 2010 final rule, this proposal provides that additional DPVs may be established in upstream locations to represent sub-allocations of the total allowable loading or concentration. Such sub-allocations may be useful where there are differences in hydrological conditions and/or sources of TN and/or TP in different parts

of the watershed. In addition to the explanations provided earlier, EPA refers the reader to its technical support document associated with the December 6, 2010 final rule for specific information supporting how harmful, adverse effects are more likely to occur in lakes at TN and TP concentrations above the established numeric lake criteria (Chapter 2, Derivation of EPA's Numeric Nutrient Criteria for Lakes).

EPA requests comment on the three proposed default approaches, including whether implementation of DPVs calculated using the default approaches would ensure the attainment and maintenance of the downstream numeric lake criteria in Florida's unimpaired lakes. The proposed default DPV approaches and DPVs are aimed at the protection of unimpaired lakes. However, EPA recognizes that the second and third options may also be appropriate for the protection of impaired lakes and offer additional flexibility to the default DPV approach for impaired lakes, which is codified at 40 CFR §131.43(c)(2)(ii)(D). EPA requests comment on applying the second and third default DPV options to impaired lakes as well as unimpaired lakes. In addition, EPA requests comments on whether the Agency should promulgate default DPV values in addition to default DPV approaches to be used in situations when modeling is unavailable.

*F. Applicability of Criteria When Final*

EPA proposes that the numeric nutrient criteria for Florida's streams not covered by Florida's Rule and the DPVs for unimpaired lakes described in this rule be effective for CWA purposes 60 days after EPA publishes final criteria, and apply in addition to any other criteria for Class I or Class III waters already adopted by the State and submitted to

EPA (and for those adopted after May 30, 2000, approved by EPA). EPA requests comment on this proposed effective date.

In addition to this proposal, EPA has proposed to stay the December 6, 2010 final rule[80] (75 FR 75762) to November 15, 2013 (See http://water.epa.gov/lawsregs/rulesregs/florida_inland.cfm). This date should closely coincide with the effective date of this proposed rule, which is approximately 60 days following the publication of the final rule (i.e., shortly after August 31, 2013).

For water bodies that Florida has designated as Class I and III, any final EPA numeric nutrient criteria will be applicable CWA water quality criteria for purposes of implementing CWA programs including permitting under the NPDES program, as well as monitoring and assessment, and establishment of TMDLs. The proposed criteria in this rule, when finalized, would be subject to Florida's general rules of applicability to the same extent as are other State-adopted and/or federally-promulgated criteria for Florida waters. Furthermore, states have discretion to adopt general policies that affect the application and implementation of WQS (40 CFR 131.13). There are many applications of criteria in Florida's water quality programs. Therefore, EPA believes that it is not necessary for purposes of this proposed rule to enumerate each of them, nor is it necessary to restate any otherwise generally applicable requirements.

It is important to note that no existing TMDL for waters in Florida will be rescinded or invalidated as a result of finalizing this proposed rule, nor will this proposed rule when finalized have the effect of withdrawing any prior EPA approval of a TMDL in Florida. Neither the CWA nor EPA regulations require TMDLs to be completed or

[80] Federal Register, Vol. 75, No. 233, 75762, December 6, 2010. Water Quality Standards for the State of Florida's Lakes and Flowing Waters.

revised within any specific time period after a change in water quality standards occurs. TMDLs are typically reviewed as part of states' ongoing water quality assessment programs. Florida may review TMDLs at its discretion based on the State's priorities, resources, and most recent assessments. NPDES permits are subject to five-year permit cycles, and in certain circumstances are administratively continued beyond five years. In practice, States often prioritize their administrative workload in permits. This prioritization could be coordinated with TMDL review. Because current nutrient TMDLs were established to protect Florida's waters from the effects of nitrogen and phosphorus pollution, the same goal as EPA's numeric nutrient criteria, the Agency believes that, absent specific new information to the contrary, it is reasonable to presume that basing NPDES permit limits on those TMDLs will result in effluent limitations as stringent as necessary to meet the federal numeric nutrient criteria.

## IV. Under What Conditions Will Federal Standards Be Either Not Finalized or Withdrawn?

Under the CWA, Congress gave states primary responsibility for developing and adopting WQS for their navigable waters. (*See* CWA section 303(a)-(c)). EPA is proposing numeric nutrient criteria for flowing waters outside the South Florida Region not covered by the State of Florida's Rule and DPVs for unimpaired lakes to meet the Agency's obligations under the Consent Decree. EPA notes if Florida's Rule will not take effect due to subsection 62-302.531(9), F.A.C., EPA would expect to finalize the criteria in this proposed rulemaking for all flowing waters (i.e., streams) located outside of the South Florida Region that are designated as either Class I or Class III. EPA solicits

comment on this potential outcome. EPA recognizes that Florida has exercised the option to adopt and submit to EPA numeric nutrient criteria for some of the State's Class I and many of the State's Class III waters and EPA has approved those criteria as consistent with CWA section 303(c) and implementing regulations at 40 CFR part 131. Consistent with CWA section 303(c)(4), EPA does not intend to proceed with the final rulemaking for those waters for which EPA has approved Florida's criteria, provided that the newly approved State water quality standards will be allowed to go into effect, FDEP will be allowed to implement them consistent with their Implementation Document, and, with respect to numeric DPVs, that the district court modifies the Consent Decree consistent with EPA's amended Determination that numeric DPVs are not necessary to meet CWA requirements in Florida.

EPA is not obligated under the Consent Decree to promulgate regulations setting forth numeric nutrient criteria in all Class I and III lakes and flowing waters if the State of Florida submits and EPA approves new or revised WQS for these waterbodies. EPA approved revisions on November 30, 2012 and is in discussions with Florida regarding waters not covered by the State's numeric nutrient criteria.

Pursuant to 40 CFR §131.21(c), if EPA does finalize this proposed rule, the EPA-promulgated WQS would be applicable WQS for purposes of the CWA until EPA withdraws the federally-promulgated standard. Withdrawing the Federal standards for the State of Florida would require rulemaking by EPA pursuant to the requirements of the Administrative Procedure Act (5 U.S.C.551 *et seq*.). EPA would undertake such a rulemaking to withdraw the Federal criteria when EPA is assured that numeric nutrient

criteria that fully meet the requirements of section 303(c) of the CWA and EPA's implementing regulations at 40 CFR part 131 are in effect.

Among the newly-approved state water quality standards are numeric criteria for nutrients that apply to a set of streams, as that term is specifically defined in the newly-approved state water quality standards. Under the Consent Decree, EPA is relieved of its obligation to propose numeric criteria for nutrients after FDEP submits and EPA approves new or revised water quality standards. Thus, under normal circumstances, EPA would be clearly relieved of its obligation to propose numeric criteria for nutrients Florida covered in its newly-approved state water quality standards. EPA notes that a provision included in Florida's Rule, specifically subsection 62-302.531(9), F.A.C., casts some doubt as to whether the newly approved state water quality standards will go into effect if EPA proposes and promulgates numeric nutrient criteria for streams not covered by the newly approved State water quality standards. Therefore, it is unclear whether an EPA's proposal to "gap fill", or establish numeric criteria for nutrients for Florida streams that FDEP does not cover in its Rule, would trigger 62-302.531(9), F.A.C. and result in Florida's streams criteria not taking effect.

In addition, due to a recent administrative challenge filed in the State of Florida Department of Administrative Hearings, there is uncertainty as to whether FDEP will be able to implement its newly approved state water quality standards consistent with FDEP's "Implementation of Florida's Numeric Nutrient Standards" (Implementation Document). Thus, EPA approved portions of Florida's new or revised water quality standards subject to the State being able to implement them as provided in its Implementation Document. If, as a result of legal challenge, FDEP is unable to

implement its Rule as provided in its Implementation Document, EPA would intend to revisit its November 30, 2012 approval of Florida's new or revised water quality standards. EPA has therefore reserved its authority to withdraw or modify that approval.

In light of the above, EPA seeks comment on finalizing a rule that applies EPA's streams criteria to streams meeting EPA's definition of "stream" that are not covered under Florida's numeric interpretation of narrative nutrient criteria at 62-302.531(2)(c), F.A.C. This would serve to fill gaps in coverage if Florida's streams criteria are in effect, or apply to all streams if Florida's streams criteria are not in effect for any reason, including those mentioned above. EPA's understanding is that it is obligated to propose numeric criteria in streams not covered by 62-302.531(2)(c) F.A.C. under the consent decree. EPA acknowledges that it is possible that there may be approaches that are similarly protective of designated uses in a subset of the uncovered Class III waters and seeks comment on alternatives.

Finally, as described in EPA's November 30, 2012 approval of Florida's new or revised water quality standards, while EPA believes that the provisions addressing downstream protection will provide for quantitative approaches to ensure the attainment and maintenance of downstream waters consistent with 40 CFR 131.10(b), the provisions themselves, however, do not consist of numeric values. Because EPA is currently subject to a Consent Decree deadline to sign a rule proposing numeric downstream protection values (DPVs) for Florida by November 30, 2012, EPA is proposing numeric DPVs to comply with the Consent Decree. However, EPA has amended its January 2009 determination to specify that numeric criteria for downstream protection are not necessary and that quantitative approaches designed to ensure the attainment and

maintenance of downstream water quality standards, such as those established by Florida, are sufficient to meet CWA requirements. As such, EPA will ask the court to modify the Consent Decree consistent with the Agency's amended determination, i.e., to not require EPA to promulgate numeric DPVs for Florida. Accordingly, EPA approved the State's downstream protection provisions subject to the district court modifying the Consent Decree to not require EPA to promulgate numeric DPVs for Florida. If the district court agrees to so modify the Consent Decree, EPA will not promulgate numeric DPVs for Florida. However, if the district court declines to so modify the Consent Decree, EPA would intend to promulgate numeric DPVs for Florida and would also expect to revisit its November 30, 2012 approval of the State Rule's downstream protection provisions to modify or withdraw its approval. Therefore, EPA has also reserved its authority to do so in its approval document.

## V. Statutory and Executive Order Reviews

### *A. Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review*

Under Executive Order (EO) 12866 (58 FR 51735, October 4, 1993), this action is a "significant regulatory action." Accordingly, EPA submitted this action to the Office of Management and Budget (OMB) for review under Executive Orders 12866 and 13563 (76 FR 3821, January 21, 2011) and any changes made in response to OMB recommendations have been documented in the docket for this action.

### *B. Paperwork Reduction Act*

This action does not impose an information collection burden under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 et seq. Burden is defined at 5 CFR §1320.3(b). It does not include any information collection, reporting, or record-keeping requirements.

*C. Regulatory Flexibility Act*

The Regulatory Flexibility Act (RFA) generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impacts of this action on small entities, small entity is defined as: (1) A small business as defined by the Small Business Administration's (SBA) regulations at 13 CFR §121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise that is independently owned and operated and is not dominant in its field.

Under the CWA WQS program, states must adopt WQS for their waters and must submit those WQS to EPA for approval; if the Agency disapproves a state standard and the state does not adopt appropriate revisions to address EPA’s disapproval, EPA must promulgate standards consistent with the statutory requirements. EPA also has the authority to promulgate WQS in any case where the Administrator determines that a new

or revised standard is necessary to meet the requirements of the Act. These state standards (or EPA-promulgated standards) are implemented through various water quality control programs including the NPDES program, which limits discharges to navigable waters except in compliance with an NPDES permit. The CWA requires that all NPDES permits include any limits on discharges that are necessary to meet applicable WQS.

Thus, under the CWA, EPA's promulgation of WQS establishes standards that the State implements through the NPDES permit process. The State has discretion in developing discharge limits, as needed to meet the standards. This proposed rule does not itself establish any requirements that are applicable to small entities. As a result of this action, the State of Florida will need to ensure that permits it issues include any limitations on discharges necessary to comply with the standards established in the proposed rule. In doing so, the State will have a number of choices associated with permit writing. While Florida's implementation of the rule may ultimately result in new or revised permit conditions for some dischargers, including small entities, EPA's action, by itself, does not impose any of these requirements on small entities; that is, these requirements are not self-implementing. Thus, I certify that this rule will not have a significant economic impact on a substantial number of small entities.

*D. Unfunded Mandates Reform Act*

This proposed rule contains no Federal mandates under the regulatory provisions of Title II of the Unfunded Mandates Reform Act for state, local, or tribal governments or the private sector. The State may use these resulting water quality criteria

in implementing its water quality control programs. This proposed rule does not regulate or affect any entity and, therefore, is not subject to the requirements of sections 202 and 205 of UMRA.

EPA determined that this proposed rule contains no regulatory requirements that might significantly or uniquely affect small governments. Moreover, WQS, including those promulgated here, apply broadly to dischargers and are not uniquely applicable to small governments. Thus, this proposed rule is not subject to the requirements of section 203 of UMRA.

*E. Executive Order 13132 (Federalism)*

This action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. EPA's authority and responsibility to promulgate Federal WQS when state standards do not meet the requirements of the CWA is well established and has been used on various occasions in the past. The proposed rule will not substantially affect the relationship between EPA and the states and territories, or the distribution of power or responsibilities between EPA and the various levels of government. The proposed rule will not alter Florida's considerable discretion in implementing these WQS. Further, this proposed rule will not preclude Florida from adopting WQS that EPA concludes meet the requirements of the CWA, after promulgation of the final rule, which would eliminate the need for these Federal

standards and lead EPA to withdraw them. Thus, Executive Order 13132 does not apply to this proposed rule.

Although section 6 of Executive Order 13132 does not apply to this action, EPA had extensive communication with the State of Florida to discuss EPA's concerns with the State's water quality criteria and the Federal rulemaking process. In the spirit of Executive Order 13132, and consistent with EPA policy to promote communications between EPA and state and local governments, EPA specifically solicits comment on this proposed rule from State and local officials.

*F. Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments)*

Subject to the Executive Order 13175 (65 FR 67249, November 9, 2000) EPA may not issue a regulation that has tribal implications, that imposes substantial direct compliance costs, and that is not required by statute, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by tribal governments, or EPA consults with tribal officials early in the process of developing the proposed regulation and develops a tribal summary impact statement.

During its previous rulemaking and development of water quality standards for Florida's lakes and flowing waters, EPA concluded that the rule[81] may have tribal implications. Ultimately, however, EPA felt that the rule would neither impose substantial direct compliance costs on tribal governments, nor preempt Tribal law. Therefore, EPA met with the Seminole Tribe on January 19, 2010 and requested an

[81] 75 FR 75762, December 6, 2010. Water Quality Standards for the State of Florida's Lakes and Flowing Waters.

opportunity to meet with the Miccosukee Tribe to discuss EPA's rule, although a meeting was never requested by the Tribe.

Because this current proposal re-proposes the same numeric nutrient criteria with further explanation on how the criteria will ensure the protection of the Florida's designated uses by avoiding harmful changes in nutrient levels, and provides for the same approaches for determining DPVs as in the final rule with some additional flexibility, EPA determined that tribal consultation will not be needed. However, EPA will specifically solicit additional comment on this proposed rule from tribal officials during the public comment period.

*G. Executive Order 13045 (Protection of Children From Environmental Health and Safety Risks)*

This action is not subject to EO 13045 (62 FR 19885, April 23, 1997) because it is not economically significant as defined in EO 12866, and because the Agency's promulgation of this rule will result in the reduction of environmental health and safety risks that could present a disproportionate risk to children.

*H. Executive Order 13211 (Actions That Significantly Affect Energy Supply, Distribution, or Use)*

This rule is not a "significant energy action" as defined in Executive Order 13211, "Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use" (66 FR 28355 (May 22, 2001)), because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy.

*I. National Technology Transfer Advancement Act of 1995*

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 ("NTTAA"), Public Law 104–113, section 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. The NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

This proposed rulemaking does not involve technical standards. Therefore, EPA is not considering the use of any voluntary consensus standards.

*J. Executive Order 12898 (Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations)*

Executive Order (EO) 12898 (59 FR 7629, Feb. 16, 1994) establishes Federal executive policy on environmental justice. Its main provision directs Federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States.

EPA has determined that this proposed rule does not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it will afford a greater level of protection to both human health and

the environment if these numeric nutrient criteria are promulgated for Class I and Class III waters in the State of Florida.

**List of Subjects in 40 CFR Part 131**

Environmental protection, Florida, Nitrogen and phosphorus pollution, Nutrients, Water quality standards.

Dated: November 30, 2012

**Lisa P. Jackson,**

Administrator.

For the reasons set out in the preamble, 40 CFR part 131 is proposed to be amended as follows:

**PART 131 – WATER QUALITY STANDARDS**

1. The authority citation for part 131 continues to read as follows:

**Authority**: 33 U.S.C. 1251 *et seq*.

**Subpart D-[Amended]**

2. Section 131.43 is amended by:

a. Revising (c)(2)(i).

b. Revising paragraph (c)(2)(ii)(C).

The revisions read as follows:

**§ 131.43 Florida.**

* * * * *

(c) * * *

(2) *Criteria for streams*.

(i) The applicable instream protection value (IPV) criteria for total nitrogen (TN) and total phosphorus (TP) for streams within each respective nutrient watershed region are shown on Table 2.

Table 2:

| Nutrient Watershed Region | Instream Protection Value Criteria | |
|---|---|---|
| | TN (mg/L) * | TP (mg/L) * |

| | | |
|---|---|---|
| Panhandle West [a] | 0.67 | 0.06 |
| Panhandle East [b] | 1.03 | 0.18 |
| North Central [c] | 1.87 | 0.30 |
| West Central [d] | 1.65 | 0.49 |
| Peninsula [e] | 1.54 | 0.12 |

Watersheds pertaining to each Nutrient Watershed Region (NWR) were based principally on the NOAA coastal, estuarine, and fluvial drainage areas with modifications to the NOAA drainage areas in the West Central and Peninsula Regions that account for unique watershed geologies. For more detailed information on regionalization and which WBIDs pertain to each NWR, see the Technical Support Document.

[a] Panhandle West region includes: Perdido Bay Watershed, Pensacola Bay Watershed, Choctawhatchee Bay Watershed, St. Andrew Bay Watershed, Apalachicola Bay Watershed.

[b] Panhandle East region includes: Apalachee Bay Watershed, and Econfina/Steinhatchee Coastal Drainage Area.

[c] North Central region includes the Suwannee River Watershed.

[d] West Central region includes: Peace, Myakka, Hillsborough, Alafia, Manatee, Little Manatee River Watersheds, and small, direct Tampa Bay tributary watersheds south of the Hillsborough River Watershed.

[e] Peninsula region includes: Waccasassa Coastal Drainage Area, Withlacoochee Coastal Drainage Area, Crystal/Pithlachascotee Coastal Drainage Area, small, direct Tampa Bay tributary watersheds west of the Hillsborough River Watershed, Sarasota Bay Watershed, small, direct Charlotte Harbor tributary watersheds south of the Peace River Watershed, Caloosahatchee River Watershed, Estero Bay Watershed, Kissimmee River/Lake Okeechobee Drainage Area, Loxahatchee/St. Lucie Watershed, Indian River Watershed, Daytona/St. Augustine Coastal Drainage Area, St. John's River Watershed, Nassau Coastal Drainage Area, and St. Mary's River Watershed.

[*] For a given water body, the annual geometric mean of TN or TP concentrations shall not exceed the applicable criterion concentration more than once in a three-year period.

(ii) *Criteria for protection of downstream lakes*.

(A) * * *

(B) * * *

(C) When the State or EPA has not derived a DPV for a stream pursuant to paragraph (c)(2)(ii)(B) of this section, and where the downstream lake attains the applicable chlorophyll-*a* criterion and the applicable TP and/or TN criteria, then the DPV for TN and/or TP will be determined using any of the following options: For the first option, the DPV for TN and/or TP applicable at the pour point to the lake is the applicable TN and/or TP criteria for the downstream lake codified in 40 CFR §131.43(c)(1), similar to paragraph (c)(2)(ii)(D) of this section. For the second option, the DPV for TN and/or TP applicable at the pour point of the receiving lake is found in Table 3.

Table 3:

| | Default Option 2 | |
|---|---|---|
| Lake Class | TN DPV (mg/L) | TP DPV (mg/L) |
| Colored Lakes | 1.59 | 0.11 |
| Clear, High Alkaline Lakes | 1.40 | 0.09 |
| Clear, Low Alkaline Lakes | 0.87 | 0.06 |

For the third option, the DPV for TN and/or TP applicable at the pour point to the lake is computed using TN and TP data from the stream discharging into the lake coincident in time with the period of record when the lake was attaining all applicable nutrient criteria pursuant to 40 CFR §131.43(c)(1). These default approaches supplement EPA's promulgated DPVs for the protection of downstream lakes in paragraphs (c)(2)(ii)(B) and (D) of this section.

[FR Doc. 2012-30114 Filed 12/17/2012 at 8:45 am; Publication Date: 12/18/2012]