

## A Guide to EPA's Proposed Numeric Nutrient Water Quality Criteria for Florida<sup>1</sup>

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### Introduction

The purpose of this publication is to provide a basic, concise, and understandable description of the United States Environmental Protection Agency's (EPA) proposed numeric nutrient criteria for Florida, the background events that led to its release, some pertinent scientific issues, and implications for the future.<sup>3</sup>

*(Authors' note: This topic is very complex with an intricate and lengthy historical background. Our intent here is to provide highlights and basics. We will present more detailed, comprehensive information in subsequent fact sheets.)*

### What happened on January 14th, 2010?

EPA Administrator Lisa Jackson signed a proposed rule called "Water Quality Standards for the State of Florida's Lakes and Flowing Waters." This

rule was published in the Federal Register on January 26th, 2010.<sup>4</sup>

### What is this rule about?

EPA is proposing "numeric water quality criteria" pertaining to nutrient concentrations to protect aquatic life in lakes and flowing waters, including canals, within the state of Florida. In addition, EPA is proposing regulations to help Florida develop "restoration standards" for impaired waters.

### Is Florida the only state where numeric water quality criteria have been required?

EPA's 1998 "National Strategy for the Development of Regional Nutrient Criteria" encouraged all states and tribes to adopt numeric nutrient water quality criteria as a more effective way to protect water resources from nutrient enrichment

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and to meet specific aspects of the Clean Water Act. A 2008 EPA status report<sup>5</sup> indicated that nineteen states have adopted numeric nutrient standards for some or all of their lakes and reservoirs, and 14 states have adopted numeric nutrient standards for some or all of their rivers and streams.

### **What does "impaired water" mean?**

An impaired water body is one that is polluted to the point where it does not meet its designated use<sup>6</sup>. For example, a lake designated for swimming could become "impaired" if pollution increased to such a degree that it became undesirable or unsafe for people to swim there. Or, a river designated for aquatic life could become impaired if it were polluted to the point at which certain types of fish that used to thrive there could no longer live. Or, an estuary could become impaired if seagrasses could no longer grow in it. As a water body becomes impaired, the existing aquatic ecosystem changes for the worse, fish or wildlife habitat is degraded, and in extreme cases public health may be threatened.

### **How many impaired water bodies does the state of Florida have?**

According to the Florida Department of Environmental Protection's (DEP) 2008 Integrated Water Quality Assessment Report,<sup>7</sup> about 1000 miles of rivers and streams, 350,000 acres of lakes, and 900 square miles of estuaries are impaired by nutrients (nitrogen and/or phosphorus)<sup>8</sup>. The extent of impairment may be eventually found to be higher because not all of Florida's water bodies had been assessed as of 2008. Nutrients were ranked as the fourth major source of impairment for rivers and streams (after dissolved oxygen, mercury in fish, and fecal coliform contamination). For lakes and estuaries, nutrients ranked first and second, respectively.

### **How do nutrients affect Florida's water bodies?**

All living things need nutrients to survive and grow, but elevated nutrient concentrations may impact the designated use of a water body. Many of our natural areas in Florida developed in a limited

nutrient condition. If nutrient concentrations increase in these areas, plant and algal growth can become excessive and affect other living things. A short-term example is when excess nutrients trigger an algal bloom that looks and smells bad, and can result in poor-tasting drinking water. A longer-term example is when sustained algal growth reduces water clarity, which in turn decreases the amount of light reaching a lake bottom. The result can be a decrease in growth of aquatic plants that provide critical fish habitat.

On the other hand, some Florida lakes, streams, and springs are naturally high in phosphorus because these water bodies directly interact with phosphorus-rich bedrock and groundwater. It is important to distinguish a water body that is naturally high in nutrients from those that have become impaired due to excessive inputs of nutrients from human and/or animal sources.

### **Hasn't DEP already established water quality standards for Florida?**

Yes, Florida has had nutrient water quality standards for many years, and DEP has been working to develop numeric nutrient criteria. However, standards previously established by DEP were "narrative" in nature and not "numeric." (See the Further Information section at the end of this document for a historical timeline.)

### **So, what's the difference between "narrative" and "numeric" standards?**

Narrative standards use descriptive language to determine the point at which water quality is no longer supporting the designated use of a particular water body. For example, the Florida narrative standard for nutrients presently indicates that: "In no case shall nutrient concentrations of a body of water be altered so as to cause an imbalance in the natural population of flora or fauna." This language implies that at some as yet undefined concentration of nitrogen and/or phosphorus, it is expected that nutrients could be harmful to the water body, and that reaching these concentrations would cause the water body to become "impaired." This type of narrative standard often results in a water body becoming

impaired before the level of nutrients that cause imbalance is determined.

A numeric standard defines the maximum nitrogen and/or phosphorus concentration in a water body that will permit that water body to maintain its designated use. A standard expressed numerically may eliminate the need for a case-by-case assessment of risk associated with nutrient enrichment. With a narrowly defined numerically expressed criterion, it is much easier to determine if a problem exists or if a known source of nutrients is a threat.

Here is an example of how a numeric water quality standard would be expressed: "To protect rivers and streams in the Florida panhandle, the yearly average total nitrogen concentration in the river or stream shall not surpass 0.824 ppm\* more than once in a 3-year period." This example standard sets a nitrogen limit for a region of Florida (the panhandle), but it does not get any more specific relative to one river versus another within that region.

\*ppm = parts per million, which is identical to milligrams per liter (mg/L).

### **Both narrative and numeric standards allow some nutrients to exist in a water body. How do we know when we have too much?**

Determining a specific number (nutrient concentration in the water) that protects the designated use of a particular water body (without being over-protective) is challenging for several reasons. One reason is that no two water bodies are exactly the same when it comes to the nutrient concentration standards that will protect them from impairment. In fact, different water bodies will respond differently to the same nutrient inputs. In addition, natural nutrient concentrations can be quite high in many Florida waters.<sup>9</sup> Both of these reasons make it unlikely that just one number could apply to all of Florida.

If water bodies are grouped by their natural nutrient concentrations, and other factors that influence nutrient response are accounted for, then some of the natural variability discussed above can be sorted out. Creating appropriate groupings of water

bodies that share similar natural levels of nutrients and response characteristics is a critical part of establishing nutrient criteria that will appropriately protect the water bodies within the group. (See the Further Information section at the end of this document for details on how numeric nutrient criteria are developed.)

### **What happened to change the way DEP was addressing Florida's water quality issues?**

In July 2008, an organization called Earthjustice, representing the Florida Wildlife Federation, the Conservancy of Southwest Florida, the Environmental Confederation of Southwest Florida, St. John's Riverkeeper, and the Sierra Club filed a lawsuit against EPA. The suit: 1) claimed that there was an unacceptable delay by the federal government in setting limits for nutrient pollution; 2) claimed that EPA had previously determined that numeric nutrient criteria are necessary as described in the Federal Clean Water Act; and 3) further argued that EPA was obligated to promptly propose these criteria for Florida.

### **So, what happened as a result of the lawsuit?**

After EPA assessed the situation, on January 14, 2009, EPA determined that numeric standards were, in fact, needed to meet the requirements of the Clean Water Act. EPA also declared that Florida's existing narrative criteria were insufficient to protect water quality. This determination meant that, despite considerable and ongoing nutrient pollution control efforts by state agencies, water quality degradation remains a significant challenge, especially with Florida's projected population growth and land use changes.

In August 2009, EPA entered into a Consent Decree with the environmental groups to settle the 2008 litigation. (A Consent Decree is a voluntary agreement between the parties in a lawsuit.) EPA committed to propose numeric nutrient standards for lakes and flowing waters in Florida by January 2010, and for Florida's estuarine and coastal waters by January 2011. EPA agreed to establish final standards

by October 2010 for lakes and flowing waters and by October 2011 for estuarine and coastal waters.

### **What did DEP do as a result of the Consent Decree?**

DEP suspended their formal rulemaking process to establish numeric water quality criteria. They are now evaluating EPA's proposed rule and are providing information relevant to deriving numeric criteria. During the past decade, Florida has spent more than \$20 million to more fully understand nutrient pollution and control, and DEP has coordinated closely with EPA on this issue. Florida has more data describing its water quality than any other state, and it has shared these data with EPA. The two agencies have worked closely to analyze and interpret the data as the numeric criteria were developed and will continue to do so throughout the process.

### **What does EPA's proposed rule say?**

The proposed rule is long and detailed. The document (obtainable from EPA's web site at <http://www.epa.gov/waterscience/standards/rules/florida/>) is 196 pages of double-spaced text, footnotes, and 27 data tables. Here are some highlights:

#### **Who will be affected by this rule?**

- Industries discharging pollutants to lakes and flowing waters.
- Publicly owned water treatment facilities.
- Entities responsible for managing stormwater runoff.
- Non-point source contributors to nutrient pollution. (Examples of these are agricultural production, managed landscapes, and urban areas. In short, everyone and everything in Florida.)

### **What do the proposed numeric nutrient criteria look like?**

Key points:

- This rule applies to "lakes and flowing waters," which are defined as inland surface waters that we either drink (Class I) or use for recreation and aquatic life support (Class III). Estuaries, coastal waters, and wetlands are not included at this time.
- The numeric criteria proposed are designed to support a balanced natural population of flora and fauna in lakes and flowing waters, while also ensuring the attainment and maintenance of the water quality standards for downstream waters. What this statement means is, the numeric criteria for a water body you are looking at (a stream, for instance) were developed with two things in mind: the requirement of the stream itself, plus the requirement of any water body into which the stream flows (like a lake).

See tables 1 through 4 at the end of this document for specific numeric criteria.

### **What is a "restoration" water quality standard?**

Some Florida water bodies have such poor water quality that it will take a long time to rehabilitate them. In these waters, there is a large difference between current water quality and the nutrient concentrations needed to protect aquatic life and re-establish designated use. In these cases, EPA has proposed that Florida could adopt temporary designated uses and criteria that would be the basis for enforceable permit requirements and other control strategies while efforts are incrementally made to achieve the original designated use. Florida would need to demonstrate that the interim uses and criteria, as well as the time frame, are based on a Use Attainability Analysis that focuses on what is attainable and by when. These interim designated uses, criteria, and the applicable time frames would all be incorporated into the State Water Quality Standards on a site-specific basis, as would be any other designated use change or adoption of site-specific criteria.

### **What is meant by "site-specific alternative criteria?"**

A site-specific criterion is a water quality standard that differs from the statewide standard. The site-specific standard meets the regulatory requirement of protecting a water body, but it is tailored to account for site-specific conditions. Site-specific alternative criteria may be more or less stringent than the state standard, but in either case, must be based on sound science.

### **If I want to comment on the rule, what should I do?**

There is a 60-day public comment period within which you can submit written comments to EPA on the proposed rule. Comments must arrive at EPA's offices by March 29, 2010. There are also several public meetings where you can provide oral comments. More information about the public comment period and the location of meetings can be found at <http://www.epa.gov/waterscience/standards/rules/florida/>. If you choose to comment:

- Be ready to explain why you agree or disagree with the proposed rule.
- Suggest alternatives and substitute language for your requested changes.
- Describe any assumptions and provide any technical information and/or data that you used.
- If you estimate potential costs or burdens, explain how you arrived at your estimate in sufficient detail to allow for the estimate to be reproduced.
- Provide specific examples to illustrate your concerns, and suggest alternatives.

### **Just how sensitive are Florida's water bodies to nutrients?**

One way we can answer this question is by comparing the proposed numeric nutrient standards to drinking water standards. For example, the drinking water standard for nitrate-nitrogen is 10 ppm, while the highest total N concentration found in the

proposed rule is about 1.8 ppm. (There is no phosphorus drinking water standard.) This illustrates that some of Florida's aquatic ecosystems are sensitive to nutrients at concentrations much lower than those directly affecting humans.

In the case of Florida's aquatic ecosystems, changes in nutrient concentration of a water body are more likely to cause an imbalance in aquatic life compared with a water body that has a relatively constant high or low nutrient concentration. For example, if plant or algal growth is limited by lack of nitrogen or phosphorus in a lake, that particular lake will have an algae concentration proportional to the amount of available nitrogen or phosphorus. If more of the limiting nutrient is added to the lake, the algal growth will increase. This increase in plant growth can change the composition of the aquatic ecosystem, potentially resulting in impairment.

On the other hand, if nutrient concentrations in a water body are naturally high, the aquatic ecosystem that developed there is supported by and in some respects dependent on these high nutrient concentrations. One result of human habitation in Florida is the importation of nutrients to our watersheds, some of which ultimately end up in water bodies. It does not take much "extra" nutrient to upset the balance and cause ecosystem change.

### **How does EPA's rule differ from what DEP was working on?**

When we compare EPA's proposed rule with the draft rule DEP was developing before the Consent Decree, we find that DEP's numeric criteria are quite similar for lakes and in-stream protection. However, the two agencies differ substantially in some methodologies and approaches to certain aspects of numeric criteria development.

One difference is that DEP was planning to include a two-tier assessment approach in its rule, with the first tier being numeric nutrient criteria (similar to EPA), and a follow-up second tier that was a biological assessment of the water body. It is uncertain if the two-tier system would have been part of a final rule proposed by the state, but the intent was to have "biological confirmation" that nutrient concentrations above the numeric standard actually

resulted in biological impairment of the water body. One way to look at this is, EPA's numeric criteria are like a "caution light" on a traffic signal, whereas DEP's biological assessment represents confirmation of the presence or absence of water quality impairment.

Another difference between the two rules is that EPA is proposing to use an equation to adjust in-stream total phosphorus criteria to protect downstream lakes, and a different methodology to adjust in-stream total nitrogen criteria to ensure protection of water quality standards for downstream estuaries. DEP's rule prior to the Consent Decree proposed narrative criteria to protect downstream waters using the best available scientific information to translate this narrative.

Lastly, EPA is proposing to set numeric nutrient criteria for canals in south Florida. They would use a statistical distribution approach based on sites meeting designated uses with respect to nutrients identified in four canal regions. DEP did not propose numeric nutrient criteria for south Florida canals in its rulemaking.

### **So, what does all of this mean to Floridians, and what are the implications for the future?**

The intent of the rule is to better protect Florida's water resources from excess nutrient enrichment so these resources can continue to provide the designated uses that we enjoy and depend on. The challenge is that everyone who lives in or visits our state contributes to nutrient enrichment. It may be through a septic tank, a central sewer system, walking a dog, raising and feeding animals, fertilizing lawns and gardens, or managing nutrients on a large farming operation, just to name some examples. We all benefit from protecting water bodies from excess nutrients, but we must also recognize that we are ultimately the source of these nutrients.

Our present regulations say that nutrient enrichment cannot detrimentally affect flora and fauna in aquatic ecosystems. The only thing that would change this statement is a fundamental re-working of the Federal Clean Water Act, which

was implemented in 1972. This action is not likely to happen.

There is no doubt that EPA's water quality goals will be very challenging to meet. At this point, EPA has issued their proposed rule for consideration and comment, but they have not provided insight about how their rules will be implemented. Since these rules have only been proposed at this point, it is difficult to say exactly how the future day-to-day activities of Florida's residents, land and water resource managers, businesses, and utilities will be affected. In the case of wastewater disposal systems like sewage treatment plants and septic tanks, technology exists that would allow us to further reduce nutrients from these sources. For other sources of pollution, the answers are not as clear.

One substantive issue that almost certainly will arise is a "misclassification" of lakes as impaired or not impaired. This occurrence is likely because the baseline or natural concentrations of nutrients across Florida may not be sufficiently captured in the proposed numeric nutrient criteria. Because EPA's approach paints lakes with a broader brush, many lakes with naturally high levels of phosphorus, for example, are likely to be listed as impaired. This result could lead to costly efforts to develop site-specific alternative criteria or even to programs to reduce phosphorus concentrations to less than what naturally occurs.

### **Specifically, what does the proposed rule mean for municipalities?**

Many Florida cities have what are called "Municipal Separate Stormwater Systems" (MS4s, for short) that collect polluted stormwater runoff and discharge it to surface waters belonging to the state. Many of these MS4s are regulated, meaning discharges must be permitted in compliance with the National Pollution Discharge Elimination System (NPDES) just like publicly owned wastewater treatment facilities. EPA's proposed rule could affect municipalities that operate both MS4s and wastewater treatment facilities if meeting the numeric nutrient criteria for the receiving or downstream water body requires that more stringent limits be put in place when their NPDES permit is renewed. More stringent

limits will require additional pollution control measures to be put in place as part of the stormwater management program, which will likely be costly.

### **Specifically, what does the proposed rule mean to agriculture?**

During the next 10 to 20 years, the sustainability of Florida's agricultural production as we know it today will be a hotly debated topic. In the short term, numeric standards are not likely to have a great effect on agriculture. The Florida Watershed Restoration Act (FWRA) of 1999 and subsequent revisions to it govern Florida's Total Maximum Daily Load (TMDL) program. The FWRA specifies that the Best Management Practice (BMP) program administered by the Florida Department of Agriculture and Consumer Services (DACCS)<sup>10</sup> is the method agriculture will use to meet water quality standards.

The perspective of DEP and DACCS is that the FWRA will continue to govern agriculture, regardless of numeric standards imposed by EPA. Agricultural operations that implement appropriate BMPs after filing a notice of intent to do so will receive a presumption of compliance with water quality standards even after acceptance of numeric criteria by DEP. The state of Florida is highly invested in the BMP program, and it is not likely to go away any time soon. However, in the long term, the requirements of the BMP program will likely change as a result of numeric nutrient criteria. With numeric standards, the success of the existing BMP program will be much easier to assess. It is likely that more aggressive and expensive practices will be required. It will be important to document the success of existing BMPs to ensure credit is established for on-going commitments.

### **Further Information**

#### **A timeline describing the development of numeric nutrient criteria in Florida**

- In 1998, EPA initiated their "National Strategy for the Development of Regional Nutrient Criteria." The intent was to assist states and tribes in adopting numerical nutrient criteria into state water quality standards as a more effective means to protect water resources from nutrient enrichment.

- In 2000 and 2001, EPA published technical guidance to develop nutrient criteria in lakes/reservoirs, rivers/streams, and estuaries/coastal waters.
- In July 2004, DEP entered into a development plan with EPA to establish numeric nutrient criteria for Florida.
- In 2007, the plan was revised and mutually agreed upon by EPA to more accurately reflect the evolved strategy and technical approach DEP had developed.
- In 2008, a lawsuit seeking to require EPA to promulgate numeric nutrient water quality standards for Florida waters was filed by the Florida Wildlife Federation in an effort to speed up the process of numeric nutrient development and adoption.
- On January 14, 2009, EPA formally determined that Florida's existing narrative criteria on nutrients in water was insufficient to ensure protection of the state's water bodies as required under the Clean Water Act.
- In August 2009, USEPA entered into a Consent Decree with the Florida Wildlife Federation to settle the 2008 litigation, committing to propose numeric nutrient standards for lakes and flowing waters in Florida by January 14, 2010 and for Florida's estuarine and coastal waters by January 2011, with final standards to be established by October of those years.
- On January 14, 2010, EPA released their proposed numeric nutrient criteria rule, and it was published in the Federal register 12 days later.

#### **How are numeric nutrient criteria developed?**

There are two main approaches to determine numeric nutrient criteria: 1) stressor-response relationship and 2) reference condition.

In the case of a stressor-response relationship, experiments or monitoring of water bodies within a particular group are studied to determine the nutrient

concentration at which an impact on the designated use is no longer acceptable. This method is the most desirable approach because it directly relates the nutrient "stressor" with the undesirable biological "response."

When there is not enough information to determine stressor-response, then a reference approach is used. First, healthy water bodies are identified in a particular region. Then, water quality data from these water bodies are scrutinized, and numeric nutrient criteria are based on the distribution of nutrient concentrations found. In other words, a healthy water body must be under the "threshold" for impairment, whatever that threshold might be.

With the reference approach, it is assumed that biological integrity is protected as judged by the minimally impacted reference conditions, and that increasing nutrient concentrations above reference would unacceptably impact the designated use. Both stressor-response relationships and the reference approach were used by EPA to develop the proposed rule.

Another challenging aspect in the development of numeric nutrient criteria is that the nutrient concentration determined for a particular water body must also protect downstream water bodies. For example, if a stream is flowing into a lake or an estuary, then the nutrient criteria established for the stream must protect not only its designated use, but also the designated use of the downstream lake or estuary.

Determining the nutrient concentration in a stream that will protect downstream uses first requires nutrient criteria to be established for the downstream receiving water body. Next, the volume of stream flow received by the downstream water body as well as the mass of nutrients that might naturally be removed as the water flows down the stream are determined. From this information, a nutrient concentration within the stream that will match the downstream water body nutrient criteria can be determined. The lower of the two criteria (in-stream protection or downstream protection) is used to establish the numeric nutrient criteria for that water body.

All of the data used by EPA to develop the proposed rule can be found at <http://publicfiles.dep.state.fl.us/DEAR/Weaver/>.



**Figure 1.** Map of watershed regions applicable to rivers and streams numeric water quality criteria.

#### Additional Notes:

3. Details can be found from the EPA, <http://www.epa.gov/waterscience/standards/rules/florida/factsheet.html#summary>.
4. See <http://edocket.access.gpo.gov/2010/2010-1220.htm>.
5. See <http://www.epa.gov/waterscience/criteria/nutrient/files/report1998-2008.pdf>.
6. Florida recognizes five designated uses for public water resources; Class I is water used for drinking, Class II is water used to produce shellfish, Class III is water used for recreation (e.g., swimming) and aquatic life support, Class IV is water used for agriculture, and Class V is water used for navigation, utility, and industrial purposes. Each type of water use has specific quality standards that determine if the designated use is being maintained.
7. See [http://www.dep.state.fl.us/water/docs/2008\\_Integrated\\_Report.pdf](http://www.dep.state.fl.us/water/docs/2008_Integrated_Report.pdf).
8. Of the Florida waters listed as "impaired" in DEP's report, these values represent about 5% of the assessed river and stream miles, 23% of the assessed lake acres, and 24% of the assessed square miles of estuaries.
9. Studies at the University of Florida and data collected as part of the LAKEWATCH program indicate a wide range of natural nitrogen and phosphorus concentrations among Florida lakes mainly due to differences in the availability of these nutrients in soils and sediments.
10. See <http://www.floridaagwaterpolicy.com/AtaGlance.html>.

**Table 1.** Numeric criteria proposed for lakes. A lake is a freshwater body that is not a stream or other water course, with some open water free from vegetation above the water surface.

A	B	C	D	E	F
		Baseline criteria		Modified criteria <sup>a</sup>	
	Chlorophyll <i>a</i> (µg/L) <sup>b</sup>	Total N (mg/L)	Total P (mg/L)	Total N (mg/L)	Total P (mg/L)
Colored lakes <sup>c</sup>	20	1.23	0.050	1.23 – 2.25	0.050 – 0.157
Clear lakes, alkaline <sup>d</sup>	20	1.00	0.030	1.00 – 1.81	0.030 – 0.087
Clear lakes, acidic	6	0.500	0.010	0.500 – 0.900	0.010 – 0.030

<sup>a</sup>If chlorophyll *a* is below the criterion in column B and there are representative data to calculate ambient-based, lake-specific, modified TP and TN criteria, then DEP may calculate such criteria within these bounds from ambient measurements to determine lake-specific, modified criteria.

<sup>b</sup>Chlorophyll *a* is an indicator of phytoplankton biomass (microscopic algae) in a water body, with concentrations reflecting the integrated effect of many of the water quality factors that may be altered by human activities.

<sup>c</sup>Colored lakes are distinguished from clear lakes based on the amount of dissolved organic matter they have free from turbidity. Dissolved organic matter concentration is reported in Platinum Cobalt Units (PCU). Colored lakes have values greater than 40 PCU and Clear lakes have values less than or equal to 40 PCU.

<sup>d</sup>Alkaline lakes are distinguished from acid lakes based on their concentration of CaCO<sub>3</sub>. Alkaline lakes have greater than 50 mg/L CaCO<sub>3</sub>, while acid lakes have values less than or equal to 50 mg/L CaCO<sub>3</sub>.

**Table 2.** Numeric criteria proposed for rivers and streams, defined as free-flowing surface waters in defined channels, including rivers, creeks, branches, canals (outside south Florida), and freshwater sloughs.

Watershed region*	In-stream protection value criteria	
	Total N (mg/L)	Total P (mg/L)
Panhandle	0.824	0.043
Bone Valley	1.798	0.739
Peninsula	1.205	0.107
North Central	1.479	0.359

\*See Further Information section for a map of these regions.

**Table 3.** Numeric criteria proposed for springs (the point where underground water emerges onto the land surface, including the spring run) and clear streams (free-flowing clear water other than a spring run):

Nitrate (NO <sub>3</sub> <sup>-</sup> -N) + nitrite (NO <sub>2</sub> <sup>-</sup> -N) shall not surpass a concentration of 0.35 mg/L as an annual geometric mean more than once in a 3-year period, nor surpass as a long-term average of annual geometric mean values. Total N and total P criteria for streams on a watershed basis are also applicable to clear streams.
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**Table 4.** Numeric criteria proposed for south Florida canals. A canal is a trench, the bottom of which is normally covered by water with the upper edges of its two sides normally above water. (Note: All secondary and tertiary canals wholly within Florida's agricultural areas are Class IV waters and thus are not subject to this proposed rule.)

	Chlorophyll <i>a</i> (µg/L)	Total N (mg/L)	Total P (mg/L)
Canals	4.0	1.60	0.042

Applies to all canals within DEP's south Florida bioregion, with the exception of canals within the Everglades Protection Area (EvPA) where the TP criterion of 0.010 mg/L currently applies.