UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
WATER

September 16, 2009

Jerry Brooks, Director
Environmental Assessment and Restoration
Florida Department of Environmental Protection
2600 Blair Stone Road, Mail Stop 3500
Tallahassee, Florida 32399

Dear Mr. Brooks:

The Environmental Protection Agency (EPA) has completed its initial review of the proposed rule revisions to Chapters 62-302 and 62-303 of Florida's water quality standards regulations (July 17, 2009 version). We appreciate the efforts of your staff to meet with us throughout the State's rulemaking process and the opportunities to attend the public workshops and technical advisory workgroup meetings hosted by the Florida Department of Environmental Protection (FDEP).

EPA would like to take this opportunity to provide written comments on the currently proposed revisions. We have included these comments on Florida's proposed rule revisions as an enclosure to this letter for your consideration during the State's current rulemaking process. Prior to the conclusion of your public comment period, we would be happy to discuss our enclosed comments and/or any other issues. Below, I briefly address in summary form the more significant issues, which are further elaborated upon in the enclosure.

Protection of Downstream Water Quality Standards

FDEP's current proposed language for numeric stream and lake criteria relies on the use of a narrative statement to ensure protection of downstream water quality standards (WQS). FDEP is also proposing to include language indicating that best available scientific information will be used to ensure downstream protection. While EPA recognizes the intent of the narrative statement (and Florida's intent to use the best available scientific information to translate this narrative), numeric nutrient water quality criteria for nutrients are necessary in the State of Florida in order to fully satisfy the requirements of the Clean Water Act (CWA). One of those requirements is EPA's regulation at 40 CFR § 131.10(b), which requires states to adopt WQS that provide for the attainment and maintenance of WQS of downstream waters. EPA's analyses of scientific data collected to date in Florida indicate that the proposed in-stream values for total nitrogen (TN) and total phosphorus (TP) may not provide for the attainment and maintenance of WQS of downstream waters. EPA must ensure that the numeric stream and lake criteria provide for the attainment and maintenance of WQS of downstream

waters in either our approval of Florida's WQS adoption or in any future EPA federal promulgation of numeric nutrient criteria for the State of Florida to the extent that scientifically defensible numeric criteria can be developed. We would like to have further technical discussions to explore possible approaches to remedy this situation.

Failure to Place Streams on the Verified List Using Established Criteria

At this time, Florida is proposing to not list streams as impaired in those cases where there are exceedances of the applicable numeric nutrient criteria expressed solely as TN and TP levels. Instead, Florida wishes to base impairment decisions for 303(d) purposes on chlorophyll-a levels and a general biological response threshold. Section 303(d)(1)(A) of the CWA requires that states identify waters for which effluent limits required by Sections 303(b)(1)(A) and 303(b)(1)(B) are not stringent enough to implement **any** WQS applicable to such waters. When numeric criteria for TN and TP are established as applicable criteria for Florida waters, CWA section 303(d)(1)(A) would require the State to identify any waters not meeting those criteria, regardless of whether they are meeting a different criterion such as chlorophyll-a. The better formulation of criteria, involving both causal variables (e.g., TN, TP) and response variables (e.g., chlorophyll-a), is the one proposed for lakes, where a certain chlorophyll-a condition allows for establishing site-specific criteria for TN and TP based on data which establish a scientifically defensible relationship between the chlorophyll-a levels and the associated levels of TP and TN in a particular water, rather than the table values. This formulation applies the same level of protection for NPDES and 303(d) purposes. EPA would like to further explore options with FDEP for expression of streams criteria.

Additional Documentation and Demonstration of Protectiveness Related to:

Adoption of TMDL Nutrient Targets as Site-Specific Alternative Criteria. FDEP has proposed adopting nutrient targets, developed through the TMDL process, as site-specific alternative numeric nutrient criteria for at least 80 waters. These nutrient targets were the basis for existing FDEP nutrient TMDLs that have been approved by EPA. To be approved as site-specific alternative criteria (SSAC), FDEP will need to demonstrate that these TMDL target values are protective of applicable designated uses and are based on sound science. EPA has provided specific recommendations, or a "checklist", within the attached enclosure for FDEP to complete to ensure that the State provides sufficient documentation to support its adoption of these as SSACs as well as EPA's approval of these nutrient SSACs under the CWA.

Numeric Nutrient Criteria for Lakes. EPA continues to question Florida's draft chlorophyll-a threshold values for lakes. Given the various lines of support described, FDEP will need to more clearly establish the underlying scientific record to support these thresholds as protective of aquatic life in lakes throughout Florida in order for EPA to be able to approve this provision. In particular, EPA needs to better understand the basis for a conclusion that the aquatic life designated use is protected when these chlorophyll-a values are met and EPA needs to better understand the basis for a conclusion that a chlorophyll-a level of 9µg/l is protective of Sand-Hill clear lakes in the Panhandle region of Florida.

Biological Condition Indicators Using the Stream Condition Index (SCI) and Lake Vegetation Index (LVI). EPA has concerns regarding Florida's proposed use of indicators of biological health of a waterbody to support the development of SSACs and to make assessment and listing decisions under CWA section 303(d)(1). EPA has asked FDEP for further documentation demonstrating that FDEP's reference sites represent minimally impacted conditions. Specifically, any documentation concerning the possible effect of pesticide use in or near these reference sites, as well as any documentation that historical practices that may have occurred do not continue to affect current conditions, would provide assurance to EPA that the methods for selecting protective thresholds for the SCI and LVI are appropriate.

In addition to these priority comments and the detailed comments in the enclosure, the results of an independent, scientific peer review of the Technical Support Document that presents FDEP's and EPA's numeric nutrient criteria development methodologies were recently submitted to EPA. EPA is providing summarized peer review comments that relate to the enclosed detailed comments wherever appropriate. EPA has not completed its full review of the peer review comments and is still considering how to address the peer review comments in support of its review of FDEP's water quality standards submission and its proposed rule pursuant to the January 14, 2009 determination.

Finally, FDEP has asked if EPA could approve Florida WQS with a delayed effective date (somewhere within a three-year timeframe was originally suggested by FDEP to be consistent with Type III Site-Specific Alternative Criteria data requirements). EPA is currently exploring whether the Agency could approve the State's WQS with such a delayed effective date. EPA will respond to FDEP as soon as possible on this issue.

If you have any questions, please contact me at (202) 566-1566 or have a member of your staff contact Danielle Salvaterra at (202) 564-1631 or Lauren Petter at (404) 562-9272.

Sincerely,

for Denise Keehner, Director
Standards & Health Protection Division

cc: Jim Giattina, Director, Water Protection Division, Region 4

Enclosure: Comments on Florida Department of Environmental Protection's (FDEP) Proposed Revisions to Chapter 62-302 Surface Water Quality Standards and Chapter 62-303 Identification of Impaired Surface Waters

Enclosure

Comments on Florida Department of Environmental Protection's (FDEP) Proposed Revisions to Chapter 62-302 Surface Water Quality Standards and Chapter 62-303 Identification of Impaired Surface Waters

The following comments reflect EPA's review of FDEP's draft proposals as of July 17, 2009. Comments, suggestions, and questions are organized in order of appearance within the proposed water quality regulations. For some of the State's provisions, we are recommending that the State consider specific changes to the rule language. EPA's suggested language revisions are shown as bold, bracketed font. When quoting the State's proposed language, the State's additions are shown underlined while deletions are shown stricken.

Many of EPA's comments are in the form of recommendations and/or requests for more information. Also included with EPA's comments are scientific views resulting from EPA's external scientific peer review of the Technical Support Document. These comments, recommendations, and requests for more information are important for EPA to be able to determine that Florida's new or revised nutrient water quality criteria are protective of aquatic life, are based on sound science, and provide for the attainment and maintenance of downstream WQS, as required by CWA section 303(c)(2)(A) and EPA's WQS regulations at 40 CFR part 131. Some of these recommendations and requests for more information, particularly those regarding Chapter 62-303, "Identification of Impaired Surface Waters", are relevant to Florida's responsibilities and EPA's duties under CWA section 303(d)(1)(A) and 40 CFR part 130.7(b) and (d). EPA appreciates this opportunity to provide the State of Florida with these comments.

A. Chapter 62-302: Surface Water Quality Standards

62-302.200 Definitions

1. FDEP defines a "lake" as a waterbody with "a minimum of two acres of contiguous open water that is free from emergent vegetation."

EPA recommends that FDEP provide greater clarification regarding the currently proposed definition of lake. Which Florida waters will be excluded based on this definition? FDEP has previously stated that the primary reason for this definition is to make the distinction between wetlands and lakes. EPA recommends that FDEP include information that supports this definition as an appropriate means of making this distinction in their supporting documentation.

In addition, EPA suggests that FDEP consider other potential means of making this distinction, such as depth, type of vegetation, or water residence time.

To the extent that this definition of lake, based on size of open water, in fact excludes small, actual lakes (versus wetlands), EPA notes that its January 14, 2009 Determination applies to such lakes.

2. The term "stream" is defined as "a free-flowing, predominantly fresh surface water in a defined channel, and includes rivers, creeks, branches, canals, freshwater sloughs, spring runs, and other similar water bodies."

What does FDEP mean by "free-flowing" and particularly, how does it relate to canals?

3. The definition of water quality standards (62-302.200(39)) now states, "'Water quality standards' shall mean standards composed of designated present and future most beneficial uses (classification of waters), the numerical and narrative criteria applied to the specific water uses or classification, the Florida antidegradation policy, and the moderating provisions, such as Site Specific Alternative Criteria, variances, mixing zones, or exemptions."

General comments regarding this definition:

- Do the "exemptions" above refer to those provided for in 62-4.040? If so, are there likely to be any modifications to that rule, specific to nutrients?

Mixing zone comments:

- In the definition above, EPA recommends adding "policies" or "procedures" after the term mixing zones because otherwise each mixing zone application would require a WQS adoption and approval.
- EPA has provided some preliminary comments to FDEP on its revisions to mixing zones. EPA will follow up with FDEP regarding the July 17th revisions within 62-4., relating to mixing zones that were recently posted on FDEP's Web site.

62-302.531 Numeric Nutrient Criteria: General

1. Specific suggested revisions to 62-302.531(3) include:

> (3) Site Specific Nutrient Criteria: Site specific alternative criteria consist of those adopted pursuant to section 62-302.800**[(1)-(3)]**, F.A.C., or a **[specific]** nitrogen or phosphorus **[target value derived from a]** total maximum daily load promulgated in Chapter 62-304, F.A.C., and **[subsequently]** adopted and approved as a revised water quality standard pursuant to Section 1313(c) U.S.C. **[The determination of site specific alternative criteria based on a previously developed TMDL shall be based on consideration of the factors described in Rule 62-302.800(X).]** Upon approval **[by EPA as new or revised water quality standard pursuant to section 303(c) of the CWA]**, such site specific alternative criteria shall be deemed the applicable criteria for those waterbodies in lieu of the **[corresponding]** criteria identified in sections 62-302.532-62.302.534, F.A.C.

FDEP's rule needs to be clear that the SSAC values, following EPA's approval, only supersede the specific criteria corresponding to that waterbody segment. Specific suggested language revisions have been provided within the excerpt above. EPA

recommends including a new section under 62-302.800 (referred to in the preceding language as (X)) to lay out a process for adopting TMDL targets as SSACs.

Additional suggestions regarding the type of documentation, and associated process for adopting TMDL targets as SSACs, are provided within the comments that are part of the review of 62-302.800 later in this document.

2. Specific suggested revisions to 62-302.531(4) include:

> For waterbodies **[~~not~~]** covered by sections 62-302.532 through 62-302.534, F.A.C., the narrative nutrient criteria in paragraph 62-302.530(47)**[(a)]**, F.A.C., shall continue to apply. **[For all other waterbodies, the narrative nutrient criteria in paragraph 62-302.530(47), F.A.C., shall continue to apply.]**

3. The proposed language for downstream use protection states:

> (6) In no case shall the loading of nitrogen or phosphorus from a Class I or III waterbody cause an exceedance of water quality standards in downstream waterbodies. Best available scientific information, such as mathematical models that account for factors such as system morphology, dilution, hydrologic residence time, and assimilative capacity, shall be used to ensure that upstream concentrations do not exceed the loads necessary to attain the established downstream water quality standards.

As explained in the cover letter regarding protection of WQS of downstream waters, numeric nutrient criteria for streams and lakes must provide for the attainment and maintenance of WQS of downstream waters (terminal lakes and interim lakes that are a part of an estuarine and/or lake watershed and downstream estuaries).

While we acknowledge that FDEP has focused most of its efforts on evaluating what is necessary to support aquatic life in a local context, EPA has seen some indications that the numeric values Florida is moving forward with, for example, for flowing waters, may not provide for the attainment and maintenance of downstream water quality standards. Several of those indications include:

1) the possible conclusion that the benchmark numbers used in an earlier pilot application as a nutrient target for the Lake Okeechobee Tributaries TMDL, were not supportive of the Lake Okeechobee TMDL without intervening treatment structures,
2) in some cases, dissolved oxygen (DO) & nutrient TMDL modeling scenarios require upstream numbers for TN & TP that are somewhat lower than the applicable benchmark numbers in order to attain WQS downstream (of those benchmark numbers),
3) investigations by EPA's ORD Gulf Breeze, using estimated protective loads for estuaries, suggest that for some systems, lower nutrient levels are required in the tributaries, than would be provided by the proposed benchmark numbers, and
4) comparison of benchmark distributions to the "all streams" distributions for corresponding Weaver regions indicates significant overlap between the two

distributions, with the 90th percentile of the benchmark corresponding to relatively high percentiles in the respective "all streams" distribution. This raises a question of protectiveness when there is a higher percentage of downstream nutrient (and nutrient related) impairment than those upstream levels would seem to predict. The extent of downstream impairment would seem to be inconsistent with nutrient levels managed at a high percentile of the "all streams" distribution (corresponding to the 90th percentile of benchmark).
5) In those places in Florida where DO conditions currently exist that may be "naturally" below the state DO criterion, there are some indications that the DO may still be depressed by application of nutrient benchmark levels upstream.

Additional clarification regarding the "best available scientific information" described in 62-302.531(6) is needed. What kinds of data and models qualify? Are there any qualifiers on the types of data/models that can apply?

62-302.532 Numeric Nutrient Criteria: Streams
1. The stream criteria listed in this section are listed as specific annual geometric mean concentrations not to be exceeded. Did FDEP mean to include, not to be exceeded *more than once in any three calendar year period*?

2. The supporting documentation should identify the specific WBIDs used to define the reference population, including the reasons for excluding any. For example, how many reference WBIDs, and which one(s), specifically were removed to yield the TN and TP values for each nutrient region listed in the table for this section?

3. Peer reviewers of the Technical Support Document were generally supportive of FDEP's benchmark approach and screening process. In addition to EPA's comments, peer reviewers expressed concerns over the following:

- FDEP made efforts to reduce variability in the benchmark data set. To what degree did this effort affect the representativeness of the benchmark sites?
- How does the benchmark approach account for far-field effects downstream?

62-302.533 Numeric Nutrient Criteria: Nitrate-Nitrite in Clear Streams
1. The supporting documentation for this criterion should address the following:

- Over what time scale is color for streams being calculated for the 0.35 mg/L nitrate-nitrite criteria? What is the basis for that time scale?
- How are streams with color greater than 40 platinum cobalt units protected with respect to nitrate-nitrite?
- How do the 10% exceedance rate and use of the binomial relate to each other? What is the scientific basis for the 10% exceedance rate?

2. Peer review of the Technical Support Document indicated general support for the approaches employed in deriving nitrate-nitrite criteria. However, a few technical questions were raised:

- How did FDEP conclude that nitrate concentrations below which *Lyngbya* biomass and growth rates are low, still support healthy native plant communities?

- Wouldn't a nitrate-nitrite concentration of 0.23 mg/L be more appropriate and conservative based on the data?

62-302.534 Numeric Nutrient Criteria: Lakes

1. This section includes three lake classifications – two classifications for clear lakes and one for colored lakes. Peer reviewers of the Technical Support Document questioned whether FDEP should consider further sub-classification for lakes to ensure protection of lake systems that may present characteristics of both clear and color lakes depending on the season.

As of the most recent version, the parameter of specific conductivity was revised to alkalinity, for use as a breakpoint classification within clear lakes.

We suggest Florida provide additional documentation to support the use of alkalinity (and specific conductivity where sufficient alkalinity data does not exist) as the basis for distinguishing clear lakes.

2. For references in this section to 3-year increments, should the word "consecutive" be added? Would that reflect Florida's intent?

3. Additional clarification regarding the selection of the chlorophyll-a criteria of 9µg/l and 20µg/l is needed. Peer reviewers of the Technical Support Document questioned the rationale for the selection of a chlorophyll-a criterion of 9µg/l for clear, low conductivity lakes. The data presented seem to show greater support for a criterion of 5 µg/l.

Specific questions include:

- The draft chlorophyll criteria of 20µg/l and 5µg/l (5ug/l appeared in an earlier draft of Florida's numeric criteria) appeared to have been based on previous Trophic State Index (TSI) thresholds of 60 and 40 for colored and clear lakes, respectively. How are these TSI/chlorophyll-a levels related to aquatic life use protection?
- How are the TN and TP values, derived from the conclusions about the TSI/chlorophyll-a, related to aquatic life use protection?
- Recently, Florida's 5µg/l chlorophyll-a value was revised to 9µg/l for clear lakes. Is 9 protective of all clear lakes or is sub-classification needed to provide protection of Sand-Hill clear lakes in the Panhandle?

4. EPA suggests FDEP check numbering and references to parts of the lake language. Following the July 17th revisions, there appears to be some artifacts from the previous organization of the lakes criteria.

5. Paragraph (2) on page 9 states:

> <u>If there are sufficient data to calculate the annual geometric mean chlorophyll-a and the chlorophyll-a criteria set forth in paragraph (2)(a) above are not exceeded,</u>

then the total phosphorus and total nitrogen criteria shall be the annual geometric mean values of ambient measurements, subject to the following upper and lower limits…

In general, the comments below are intended to gain a better understanding of how the values from these two tables will be implemented in the various water quality programs (i.e., permitting, assessment/listing, TMDLs), so that EPA can better understand the extent to which Florida's regulatory language may need to be more explicit and/or precise.

- Could this procedure be used for one discharger but then subsequently be applied for another discharger at a later date, resulting in different limits? If so, how will the resulting criteria be documented, or readily available to the public? How often can the criteria be modified to reflect higher "allowable" loadings of TN and TP as long as there is no exceedance of the chlorophyll-a value?
- In the second table, the second column heading states, "Calculated criteria may not be lower than." This wording is potentially confusing in a WQS context. Is it appropriate to say that TN and TP "criteria may not be lower than…"? This wording seems to be confusing if the first table says you cannot exceed the same levels referred to in the second table that you cannot be lower than.
- Could a waterbody be listed for exceeding chlorophyll-a, TP, or TN values? Would it be on the planning list and/or verified list?

6. EPA recommends the following revisions, following the second table in 62-302.534:

Ambient geometric means shall be based on data from **[multiple years when]** the chlorophyll-a value is not exceeded, with at least four total measurements **[each year]** and with at least one measurement taken between May and September and one measurement taken between October and April. **[Provisional ambient geometric means may be calculated based on data from a single year, but shall be recalculated based on at least three years of data when the chlorophyll-a value is not exceeded.]** For lakes that discharge to streams, the calculated ambient geometric mean **[values for total phosphorus and total nitrogen]** may not be greater than the criteria applicable to those streams **[and set forth in subsection (1) above. The Secretary shall maintain an administrative record, accessible to the public via the FDEP Web site, of all ambient geometric mean values applicable to specific lakes.]**

7. Subparagraph (c) on page 9 states:

For the purpose of this subsection, color shall be assessed as true color and shall be free from turbidity. In addition, long-term average lake color shall mean a rolling average of up to 7 years based on all available lake color data. If alkalinity data are unavailable, specific conductance data shall be used, with a value of 250 micromhos/cm used to estimate the 50mg/L CaCO3 alkalinity threshold until such time that alkalinity data are available.

We suggest Florida provide additional documentation supporting the conclusion that the long-term average color should be based on 7 years of data and, as was described in the first comment of this section, the use of specific conductivity where sufficient alkalinity data does not exist.

62-302.800 Site Specific Alternative Criteria

1. Are Type I and II SSACs available for nutrients?

EPA understands from FDEP that Type I and Type II SSACs may technically be available for nutrients. We suggest including some discussion of the expected implementation of the various SSAC provisions in FDEP's implementation guidance, except where more specific documentation is requested in the following comments within this section.

2. 62-302.800(2)(d) states, "The provisions of this subsection do not apply to criteria contained in Rule 62-302.500, F.A.C., or criteria that apply to:… 7. Substances, other than nutrients, in concentrations that result in the dominance of nuisance species (subsection 62-302.200(20), F.A.C.)."

EPA suggests revising the wording of the sentence above so that it does not imply that nuisance species, due to nutrients, are allowed for in Type II nutrient SSACs.

3. 62-302.800(3) states:

> (3) Type III Site Specific Alternative Criteria: Upon petition by an affected person or upon the initiation by the Department, the Department may establish site specific alternative criteria for nutrients when an affirmative demonstration is made that the proposed alternative criteria are fully protective of the designated use for a specified portion of waters of the state **[as well as uses downstream.]** Public notice and an opportunity for public hearing shall be provided prior to adopting any order establishing alternative criteria under this subsection.

Does the language above mean that a waterbody can get a Type III SSAC only if it meets all of the criteria for aquatic life use support or is the use of the biological health indices, outlined in 62-302.800(4), the only indication used to demonstrate the criteria are fully protective of the designated use?

A suggested revision to the language above is provided to address protection of downstream uses.

4. 62-302.800(3)(a)1. states:

> The petitioner demonstrates that the waterbody fully supports the designated use for aquatic life pursuant to subsection 62-302.800(4), F.A.C., at two spatially-independent stations representative of the waterbody. **[The SSAC may not exceed**

values necessary to ensure maintenance of downstream water quality standards.] Biological health assessments shall be conducted in the final two years of the water quality sampling period described in paragraph 2 below and shall consist of a minimum of two assessments per station.

A suggested revision to the language is provided within the excerpt above. Additional clarification regarding the spatial considerations provided for in the language above is needed. Specific questions include:

- Would both "spatially-independent stations" have to be in the affected portion of the waterbody? Could additional samples be required to demonstrate downstream use support?
- How will the SSAC process address the spatial variation in how nutrients express themselves, since they are often discharged at one location in a stream and express themselves in another?

5. 62-302.800(4) states:

> Biological health assessments are used as an indicator of **[biological integrity consistent with]** designated use support of propagation and maintenance of a healthy, well-balanced population of fish and wildlife (Classes I, II, and III). Biological health assessments will be used by the Department as information to determine if a site specific alternative criterion is appropriate and that the designated use is fully protected."

A suggested revision to the language is provided within the excerpt above. Are Class II waters intended to be included in the list above, since there aren't specific biological health assessments for marine waters listed in this section?

6. Comments on biocriteria:
Biocriteria: Stream Condition Index (SCI)
In Florida's proposed rule, biocriteria are currently linked to nutrient criteria as follows: (1) demonstration of use support to allow for Type III SSAC development, (2) "passing" biocriteria scores are used as a step in the benchmark stream selection process, and (3) biological assessments for impairment listing decisions. (See comments on 62-303.450 for discussion of EPA concerns with Florida's proposed bases for listing waters as impaired).

As discussed between FDEP and EPA during the May 6-8 meeting in Atlanta, EPA has concerns regarding the selection of the percentile of reference used as the SCI threshold as significant uncertainty remains whether these reference sites truly represent minimally disturbed conditions. The quality of the reference sites is a critical factor in selecting a threshold. We request that FDEP provide additional information or further analysis as necessary to document that the reference sites are truly representative of minimally disturbed conditions. For example, EPA needs more information to confirm that human disturbance has been fully accounted for in the human disturbance gradient (HDG) and is

not a factor in the reference sites. Information on the extent of historical human disturbance and the past and present use of pesticides and fertilizers at the reference sites would be helpful. The Land Use Development Index (LDI), a critical component in developing the HDG and selecting reference sites, provides information on current or recently occurring land use but not historic. Based on clarifying discussions with FDEP scientists, there is additional documentation and photographic evidence that will soon be publicly available that should address this information request.

Peer reviews of the Technical Support Document indicated that the data support the use of the SCI as an indicator of nutrient enrichment. However, one reviewer questioned whether the index, as well as the LVI (Lake Vegetation Index) and SDI (Stream Diatom Index), were appropriate indicators of nutrient enrichment given that the indices also respond across a gradient of natural factors. Another reviewer noted that while the SCI would likely be a sensitive indicator to chronic nutrient enrichment, the SCI might only be partially successful in detecting effects of nutrient pollution, specifically in instances where acute nutrient loading (e.g., from a rain-driven event) results in short-lived impacts not detected on the time scales of SCI assessments. EPA is interested in understanding FDEP's views on the latter two comments.

Additionally, EPA guidance on listing waters recommends a balanced approach to address the risk for misidentifying impaired waters as unimpaired, or unimpaired waters as impaired (Section III (G) of the 2004 U.S. EPA Integrated Reporting Guidance). Given the selected threshold is at the low edge of the reference site distribution, EPA remains concerned about the risk of missing impaired waters and inadequately protecting aquatic life uses. EPA would like FDEP to take a closer look at the change in variability at or near the selected threshold. EPA recommends that FDEP provide further explanation as to how they will quantify and address the risk, if any, of missing impairment and discuss with both Regional EPA 303c and 303d programs to support a more fully integrated program.

Based on the outcome of the above analyses and information requests, EPA requests that Florida update its current support document so that it fully explains how the threshold Florida selected protects the designated aquatic life use. The support document needs to articulate how any differences in information (if there are any) have been reconciled.

<u>Biocriteria: Lake Vegetation Index (LVI)</u>
In Florida's proposed rule, this index is currently linked to nutrient criteria as follows: (1) demonstration of use support to allow for Type III SSAC development, and (2) biological assessment for impairment listing decisions.

As discussed between FDEP and EPA during the May 6-8 meeting in Atlanta, EPA has concerns regarding the selection of the percentile of reference used as the LVI threshold for many of the same reasons as previously discussed for the SCI threshold. However, it appears that for the LVI threshold selected there is an even higher probability of classifying an impaired water as attaining designated uses.

The peer reviewers of the Technical Support Document viewed the LVI as a useful line of evidence in determining numeric nutrient criteria, but stated that additional analyses were warranted to strengthen its validity as an indicator of nutrient enrichment. Two specific comments on the LVI are as follows:

- The presence/absence of individual plant species and/or plant community types has little impact on the whole lake species composition of other fauna.
- Invasive aquatic macrophytes will colonize and overgrow even in pristine waters. While nutrients will exacerbate such a situation, invasive nuisance species often do not require excessive nutrients to proliferate and the index will not reflect nutrient loading.

The peer reviewers recommended that FDEP consider regressing the LVI against the TSI, chlorophyll-a, TN, and TP to illustrate a stronger correlation between the LVI and nutrient enrichment.

7. Is the language regarding additional relief options, detailed in 62-302.800(6), applicable for nutrients following SSAC or TMDL values adopted as SSACs?

8. 62-302.800(7)(b) was revised to state:

> (7) Site specific alternative criteria apply to the water bodies, or portions of the water bodies, listed below….
> (b) Numeric Nutrient Site Specific Alternative Criteria also established as Total Maximum Daily Loads under Chapter 62-304. For waterbodies that do not have both Total Phosphorus (TP) and Total Nitrogen (TN) criteria listed in the table below, the criteria for the unlisted parameter shall be the highest annual geometric mean for the unlisted parameter during the period that the Total Maximum Daily Load was calculated.

With regard to the table itself, Florida should provide a concentration column as part of the table listing the individual waterbody segments, so that it is clear what criteria concentration applies to a given waterbody.

Due to the significant workload that is to be expected if the approximately 80 segments proposed are submitted as final WQS revisions for EPA review, EPA wants to provide some recommendations to FDEP to ensure that any questions relating to the process and supporting documentation for these TMDL target values adopted as SSACs are addressed prior to state adoption.

Questions that need to be answered include:

1. Does the target nutrient value or associated nutrient value provide full protection of aquatic life in the subject water, based upon the most current available information?
2. Is there adequate supporting documentation to demonstrate full protection of aquatic life?
3. Does it ensure adequate protection of downstream use(s)?
4. Were public participation requirements adequately fulfilled in the process?

Each of these four items is explained in further detail below:

1. Protection of Aquatic Life - Is the target protective of the aquatic life use?
   a) Was protection of aquatic life demonstrated at the time?
   b) Was the target derived, directly or indirectly, from a threshold of impairment?
   c) Is new information available?
   d) Were there initial assumptions? Are they still valid?
      i) Imbalance of flora and fauna
      ii) Nutrient Limitation and Export of Nutrients Downstream
      iii) Delayed Expression
      iv) Nutrient Dynamics (Accurately characterized and related to chlorophyll-a, DO, excess algal biomass, and water clarity?)

2. Supporting Documentation - Since "paragraph (b) SSACs" don't give any sort of specific methodology, as is provided for Type I, II, and III SSACs, the following list provides the type of information we would expect Florida to provide in support of the adoption of TMDL target values as WQS SSACs.

a) For each waterbody, EPA would appreciate the following information, to expedite the review:

a. Date TMDL was submitted to EPA for approval, and approval date by EPA
b. Location information (county name, WBID, other) and map. This information helps both agencies and the public be certain the extent to which the SSAC applies.
c. Prior to the development of a SSAC, what are the applicable numeric nutrient criteria for the given waterbody? Which numeric criteria would still apply (for example if SSAC is only for a TP criterion, what is the non-SSAC based TN criterion)? As discussed above, FDEP's rule needs to be clear that the SSAC values, following EPA's approval, only supersede the specific criteria corresponding to that waterbody segment. Therefore, we suggest FDEP remove the recently added statement to 62-302.800(7)(b) that states "<u>For waterbodies that do not have both Total Phosphorus (TP) and Total Nitrogen (TN) criteria listed in the table below, the criteria for the unlisted parameter shall be the highest annual geometric mean for the unlisted parameter during the period that the Total Maximum Daily Load was calculated.</u>"
d. Short synopsis of why the SSAC is protective of the designated uses and based on a sound scientific rationale.

b) In addition to the above information, to expedite EPA's review, it would be helpful if FDEP would provide additional documentation, such as data summaries and site specific reports, beyond the approved TMDL, that contain sufficient detail for EPA to review and make a decision regarding the appropriateness of the SSAC. Relevant regulatory citations are provided below.

Section 303(d) of the CWA anticipates a level of uncertainty may be present when

establishing TMDLs that is not anticipated when establishing WQS:

(1) TMDLs are approved under section 303(d) of the CWA. Section 303(d)(1)(C) addresses establishing TMDLs even where there is limited information about just what limitations are necessary:

Each State shall establish for the waters identified in paragraph (1)(A) of this subsection . . . the total maximum daily load . . . ***Such load shall be established at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality .***

See also EPA's TMDL regulations at 40 CFR 130.7(c)(1).

(2) SSACs are approved as new or revised water quality standards under section 303(c) of the CWA where those standards are consistent with the requirements of the CWA. EPA's implementing regulations require that:

States must adopt those water quality criteria that protect the designated uses. ***Such criteria must be based on sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use.***

40 CFR 131.11(a)(1)

3. Downstream Use Protection – As stated previously, protection of downstream waters is of particular importance in the case of nutrient pollution. When taking action on FDEP's TMDL targets that will be submitted to EPA as SSACs, EPA needs to have appropriate documentation available from FDEP to determine whether or not these TMDL targets considered downstream use protection in their calculations. In order for EPA to approve these TMDL targets as SSACs, effective for purposes of the CWA section 303(c), protection of downstream uses must be accounted for in the SSAC.

4. Public Participation Requirements – In developing and adopting these SSACs, EPA expects that Florida will follow the public participation requirements necessary for the adoption of all Water Quality Standards under the CWA as stated in 40 CFR 131.20(b).

B. Chapter 62-303: Identification of Impaired Surface Waters

General comment: EPA suggests that anytime the regulations provide a list of ways to determine if the waterbody goes on a certain list that Florida include an "or" between each item. For example, there is no "or" between (1) and (2) within 62-303.351. Alternatively, instead of "or" between each item, saying "any of the following…" would also accomplish the same thing.

62-303.310 Evaluation of Aquatic Life Use Support

1. 62-303.310(1) states, "Exceeds applicable aquatic life-based thresholds as outlined in section 62-303.320, F.A.C."

- Are the thresholds outlined in 62-303.320 intended to include the numeric nutrient criteria provided in 62-302.531 through .534 (chlorophyll-a, TN, and TP values for inland waters)? It seems like adding a reference to 62-302.531 through .534 in 62-303.320 would address this question.

62-303.330 Biological Assessment

1. Should BioRecon scores also be included in 62-302 to be consistent with 62-303? If FDEP adds BioRecon to the 62-302 regulations, the definition should be consistent between 62-302 and 62-303.

2. 62-303.330(3) states that "A water segment shall be included on the planning list using biological health assessments if it meets any of the following conditions, which constitute a failed biological health assessment score…"

Could FDEP clarify how the different assessment methodologies (planning list versus the verified list versus delisting) work for the biological health assessments? For example, if there are two biological scores, one below 40 and the other at 40 or above, a waterbody is added to the planning list. However, the waterbody would not be added to the verified list if the average is at 40 or above. Also, given the wording in 303.720(2)(b), it is not clear whether a waterbody could be delisted if the average is at 40 or above. EPA recommends that FDEP clarify the use of averaging for the verified list and delisting and consider a provision to require listing on the verified list if the failing score is below a certain threshold.

62-303.350 Evaluation of Nutrient Criteria

1. Is the phrase "annual mean chlorophyll-a values" within paragraph (1) of this section intended to include all waterbody types with chlorophyll-a thresholds, including estuaries?

62-303.351 Nutrients in Freshwater Streams

1. 62-303.351(1) states that a waterbody will be included on the planning list if "[a]n applicable annual geometric mean numeric nutrient criterion in subsection 62-302.532, F.A.C., is exceeded during at least two calendar years during the planning period."

How long is the planning period defined as? Please ensure this is consistent with the language in 62-302.

62-303.352 Nutrients in Freshwater Lakes

1. 62-303.532(1) states a waterbody will be included on the planning list if "[a]n applicable nutrient criterion contained in subsection 62-302.535(2), F.A.C., is exceeded during at least two calendar years during the planning period." Please ensure this is consistent with the language in 62-302.

62-303.420 Aquatic Life-Based Water Quality Criteria Assessment

1. For making verified list decisions, are the numeric nutrient criteria provided in 62-302.532 and .534 (meaning chl, TN, and TP values for inland waters) considered part of the aquatic life-based water quality assessment section or are the numeric nutrient criteria only addressed in 62-303.450 along with the nitrate-nitrite criteria and previous IWR chlorophyll-a thresholds?

2. 62-303.420(1)(b) was revised as follows:

> If the Department has information suggesting that the values not meeting the DO criterion are due to natural background conditions, ~~including information about the in-stream concentrations of TN, TP, and BOD relative to comparable reference waters for waterbodies with values below the DO criterion,~~ it is the Department's intent to support that conclusion through the use of biological health ~~bioassessment~~ procedures referenced in rule ~~section~~ 62-303.330, F.A.C. The waterbody ~~water body~~ or segment shall not be included on the verified list for DO ~~the parameter of concern~~ if two or more independent biological health assessments ~~bioassessments~~ indicate compliance with section 62-303.330, F.A.C., and the waterbody meets applicable numeric nutrient criteria in sections 62-302.531 through 62-302.534, F.A.C, and does not contain elevated levels of Biological Oxygen Demand. ~~are conducted and no failures are reported.~~ To qualify as temporally independent samples, each biological health assessment shall be conducted at least three months apart. In addition, the biological health assessments shall be conducted at the same location or immediately downstream of where the samples were taken that led to placement on the planning list. These biological health assessments shall be conducted subsequent to the collection of samples that led to the placement on the planning list. Biological health assessments collected at the same location less than three months apart shall be considered to be one sample, with the mean value used to represent the sampling period. ~~To be treated as independent bioassessments, they must be conducted at least two months apart, within the assessed segment downstream of where the samples were measured, and after the samples were measured~~."

Additional clarification and further discussion regarding the revisions above is needed. Specific questions and comments include:

- Florida may intend these changes to allow biological assessments and attainment of numeric nutrient criteria (90th percentile of benchmarks) to demonstrate natural background conditions. That may be problematic because it is EPA's understanding that the benchmark numbers represent levels of nutrients that protect designated uses; they do not represent natural conditions. In order to support such a use of the benchmark numbers, Florida would have to demonstrate that the values approximate natural background conditions.
- Florida may intend these changes to allow assessment of the DO criteria based on a standard other than attainment of the statewide criteria or representation of

natural background conditions. If so, the changes appear to revise the state DO standard, applying the analysis used to determine whether provisions of the IWR constituted new or revised water quality standards. While such a revision may be protective of designated uses, under the IWR analysis, it appears EPA may need to review this provision as a revision to the DO standard.

- Is there documentation showing the above requirements (2 or more passing biological scores, meeting criteria in sections 62-302.531 through 62-302.534, and non-elevated levels of BOD) are strongly correlated with DO?
- What is meant by "elevated levels of Biological Oxygen Demand"? What is the value corresponding to this threshold? What is the basis for that threshold value?

62-303.430 Biological Impairment

1. Specific suggested revisions to 62-303.430(3) include:

> If there were **[~~less~~ fewer]** than two failed biological health assessments ~~bioassessments~~ during the last five years preceding the planning list assessment, the Department will conduct an additional biological health assessment ~~bioassessment~~. If the previous failed biological health assessment ~~bioassessment~~ was a BioRecon, then an SCI will be conducted. ~~Failure of this additional bioassessment shall constitute verification that the water is biologically impaired~~.

Please clarify why the following language, "Failure of this additional bioassessment shall constitute verification that the water is biologically impaired" was stricken from the regulatory language.

2. The phrase "other scientifically credible methods or procedures" was added to 62-303.430(4) for marine waters. The language now states:

> If the water was listed on the planning list based on other information specified in subsection ~~rule~~ 62-303.330(4), F.A.C., indicating biological impairment, the Department will conduct a minimum of two biological health assessments ~~bioassessment~~ in the water segment, conducted in accordance with the methodology in rule 62-303.330, F.A.C., to verify whether the water is impaired. For predominantly fresh water streams, these biological health assessments ~~bioassessment~~ shall be ~~an~~ SCIs. Failure of these ~~this~~ biological health assessments ~~bioassessment~~ shall constitute verification that the water is biologically impaired. If available, other scientifically credible methods or procedures may be used to conduct biological health assessments in predominantly marine waters to verify that the water is biologically impaired.

Please provide examples of "other scientifically credible methods or procedures" for marine waters.

62-303.450 Evaluation of Nutrient Criteria

1. 62-303.450(1) was revised to state:

A stream or estuary ~~A water~~ shall be placed on the verified list for impairment due to nutrients if it meets the thresholds in rule 62-303.351(3) and 62-303.353, F.A.C., and there are sufficient data from the last five years preceding the planning list assessment~~, combined with historical data (if needed to establish historical chlorophyll a levels or historical TSIs),~~ to meet the data sufficiency requirements of subsection ~~rule~~ 62-303.350(2), F.A.C. If there are insufficient data, additional data shall be collected as needed to meet the requirements. Once these additional data are collected, the Department shall determine if there is sufficient information to develop a site-specific threshold for streams or estuaries that better reflects conditions beyond which an imbalance in flora or fauna occurs in the water segment. If there is sufficient information, the Department shall re-evaluate the data using the site-specific thresholds. If there is insufficient information, the Department shall re-evaluate the data using the thresholds provided in rules 62-303.351(3) and 62-303.353, F.A.C., for streams~~, lakes,~~ and estuaries~~, respectively~~. In any case, the Department shall limit its analysis to the use of data collected during the five years preceding the planning list assessment and the additional data collected in the second phase. If alternative thresholds are used for the analysis, the Department shall provide the thresholds for the record and document how the alternative threshold better represents conditions beyond which an imbalance in flora or fauna is expected to occur.

The following are questions and comments EPA has regarding the provision above. In general, the questions are intended to gain a better understanding of how the "Evaluation of Nutrient Criteria" section is intended to be used.

- What is meant by "sufficient data"? Is the purpose of this paragraph to address historical data, utilized to date in IWR decisions, prior to the development of the numeric nutrient criteria?
- What is the difference in how an estuary is placed on the planning versus verified list? Is the only difference how frequently it meets the requirements of 62-303.353 (i.e., how to get on the planning list)?
- EPA suggests limiting this provision to waters where only the narrative applies and placing the reference to the stream nitrate criteria in a separate section to provide additional clarity.

2. 62-303.450(3) states: "The thresholds for impairment due to nutrients used under this section are not required to be used during development of wasteload allocations or TMDLs."

It appears that this language is an artifact of the previous IWR thresholds for chlorophyll-a values for rivers/streams and estuaries. If so, EPA suggests that FDEP delete this language or at least limit to estuaries under subsection (1). If not, then EPA would like additional clarification as to what this provision is intended to address.

3. 62-303.450(4) states, "Streams shall be included on the verified list for nutrients if the number of samples that do not meet the applicable nitrate-nitrite criteria for streams

pursuant to paragraph 62-302.535(1)(b), F.A.C., is greater than or equal to the number listed in Table 3 of section 62-303.420, F.A.C., for the given sample size."

As stated in the 62-302 comments, the language between the two rules is inconsistent. How do these two components correspond to one another? Additional information on the use of a 10% exceedance rate versus the binomial is provided below.

A binomial frequency test is fundamentally different from a (parametric) test on the geometric mean. For any given criterion, it is possible to outline scenarios where a waterbody would fail the frequency test but pass the geometric mean, and vice -versa.

A frequency test is common for "conventional" pollutants (e.g., low DO, ammonia) where we assume that the system can recover from some small frequency of exceedance of the criterion, usually 10%. Also, the fact of exceedance is considered at least equally important to the quantity of exceedance in a one-time event. Nutrients don't have much effect in a one-time occurrence; eutrophication requires more chronically elevated nutrients in order to develop. Therefore, the annual geometric mean could be a better expression of the potential of nutrients to cause algal growth and eutrophication problems.

4. Based on the latest version of the proposed regulations (July 17, 2009), a stream will only be included on the verified list for nutrients if applicable nitrate-nitrite or annual mean chlorophyll-a concentrations are exceeded. Exceeding applicable numeric nutrient criteria for TN and TP for streams is not identified as a means by which to place streams on the verified list.

EPA recommends that FDEP revise the proposed rule language to require that waterbodies are included on the verified list when applicable numeric nutrient criteria for TN and TP are exceeded.

- Section 303(d)(1)(A) of the CWA requires states to identify (i.e., list) waters for which effluent limitations required by sections 301(b)(1)(A) and 301(b)(1)(B) are not stringent enough to implement **any** water quality standard. A policy and legal concern in limiting criteria from fully functioning in the assessment and listing application arises from the CWA and corresponding regulations that specify listing waters as impaired based on "**any** water quality standard applicable to such waters."
- Please refer to EPA's cover letter regarding the placement of streams on the verified list using established criteria.
- From a technical perspective, the current chlorophyll-a threshold from the IWR is considered a "one-sided" standard for determining impairment and may not reflect a fully protective level. Another technical concern is the temporal correspondence of conditions reflected by stressor and response measurements: the effect of elevated TN and TP can be delayed and it is possible that expected response has not yet been observed.

62-303.720 Delisting Procedure

1. 62-303.720(2)(j) was revised to state:

> For waters listed based on nutrient impairment using annual average criteria, the water shall be delisted if it does not meet the listing thresholds in Rule 62-303.450, F.A.C., or the **[waterbody meets the]** applicable numeric nutrient criteria in sections 62-302.531 through 62-302.534, F.A.C., for three consecutive years. Waterbodies previously added to the verified list based solely on subsection 62-303.450(4), F.A.C., shall be delisted if the number of samples that exceed the applicable nitrate-nitrite criteria for streams pursuant to paragraph 62-302.533, F.A.C., is less than or equal to the number listed in Table 4 below for the given sample size.

It appears some wording is missing specific to the applicable numeric nutrient criteria in 62-302 so the phrase "waterbody meets the" shown above reflects a suggested revision.

Within the phrase "annual average criteria," does average refer to geometric mean?