



The Fertilizer Institute

Nourish, Replenish, Grow

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Agricultural Community Comments on EPA's Proposed Water Quality Standards for the State of Florida's Lakes and Flowing Waters Docket ID No. EPA-HQ-OW-2009-0596

The following agricultural groups submit these comments on EPA's proposed Water Quality Standards for the State of Florida's Lakes and Flowing Waters Notice of Proposed Rulemaking (NPRM), published by the Environmental Protection Agency (EPA) in the *Federal Register* on January 26, 2010 (75 *Fed. Reg.* 4174): American Farm Bureau Federation, South Dakota Agri-Business Association, Kansas Agribusiness Retailers Association, Southern Crop Production Association, Wyoming Ag-Business Association, Wyoming Wheat Growers Association, Wyoming Crop Improvement Association, Illinois Fertilizer & Chemical Association, Florida Fertilizer & Agrichemical Association, Indiana Plant Food & Agricultural Chemicals Association, Virginia Agribusiness Council, Missouri Agribusiness Association, Nebraska Agri-Business Association, National Corn Growers Association, Irrigation Association, American Farm Bureau Federation, Agricultural Retailers Association, United Egg Producers, and The Fertilizer Institute.

The foregoing members of the agricultural community – or their members – own and operate facilities located on or near the waters of the United States. Many hold individual and/or general permits for the discharge of pollutants into such waters. Some of these permitted facilities discharge into lakes and rivers in the State of Florida, so these facilities would be directly affected by the proposed federal water quality standards for nutrients. In addition, as regulated entities, agricultural producers have a direct interest in any precedents that the U.S. Environmental Protection Agency (EPA) may establish that may have national implications with respect to nutrient water quality standards.

In these comments, we wish to make three points:

First, EPA's proposed criteria are not set at levels to protect designated uses and are not based on sound science. Therefore, EPA cannot demonstrate that its proposed criteria are necessary to improve water quality or meet the requirements of the Clean Water Act.

Second, the NPRM will impose significant costs on the agriculture industry, and those costs will have widespread impact on the Florida economy as well as on the supply of food.

Finally, given these issues, for agriculture producers, EPA should adopt an alternative approach, relying on nutrient management rather than numeric criteria.

I. EPA's Proposed Criteria Are Not Necessary To Improve Water Quality In Florida.

A. Overview of EPA's Proposal

In the NPRM, EPA is proposing numeric nutrient criteria for Florida lakes, streams, springs and clear streams, and canals. EPA is taking this action because it has determined that federal nutrient criteria in Florida are "necessary to meet the requirements of the Act." Clean Water Act, § 303(c)(4)(B).

For lakes, EPA is proposing chlorophyll *a*, total nitrogen (TN), and total phosphorus (TP) criteria based on the stressor-response approach. Unfortunately, EPA's proposed standards are too broad and do not take into account the diversity of conditions present in Florida's lakes. In addition, even if the chlorophyll *a* criterion is met, which should indicate that the lake is biologically healthy, EPA will consider a lake to be impaired if the TN or TP criterion is not met. As a result, EPA's proposed criteria for lakes are not based on the levels of nutrients needed to protect designated uses.

For streams, neither EPA nor the State of Florida could establish a cause-and-effect relationship between nutrients and algal growth in Florida streams. This fact should lead EPA to the conclusion that it is not possible to establish scientifically defensible criteria, which means narrative standards are appropriate, in accordance with 40 C.F.R. 131.11(b). Instead, EPA is proposing criteria based on the reference approach. By establishing criteria for streams without any consideration of cause-and-effect or consideration of an impairment threshold, EPA's has proposed criteria that are not necessary to protect designated uses.

EPA also is proposing to lower its proposed criteria for streams that discharge into downstream lakes. These downstream protective values (DPVs) are not based on data showing that receiving lakes are impaired. Instead, EPA used the Vollenweider model (which was developed to evaluate deep lakes with long retention times) to calculate the acceptable DPV. This model projects that even unimpacted streams are a threat to downstream lakes. As a result, EPA's proposed established criteria would greatly increase the number of Florida waterbodies considered to be impaired. However, EPA's conclusions and its criteria are not scientifically defensible because the model used is simply not appropriate for many shallow Florida lakes.

For springs and clear streams, EPA is proposing a nitrate-nitrite criterion that EPA asserts is based on experimental laboratory data and field evaluations that show algal growth in response to nitrate-nitrite concentrations. Again, EPA did not establish a defined impairment level or demonstrate a cause-and-effect relationship between the stressor and the response. Thus, EPA's proposed criterion for springs cannot be said to be necessary to protect spring and clear stream designated uses. EPA even suggests that it may apply nitrate-nitrite criterion to all waters in Florida to assist assessment and management and to "identify increasing trends." *75 Fed. Reg.* at 4211. Under the Clean Water Act, water quality standards are established for the purpose of protecting designated uses, not to assist in assessment and management or to identify trends. EPA has no legal basis for establishing a nitrate-nitrite criterion for all Florida waters.

For canals in south Florida, EPA is proposing chlorophyll *a*, TN, and TP criteria that EPA asserts are based on levels found in canals that are meeting their designated uses with respect to nutrients. The proposed numeric criteria for canals, as with the stream criteria, are not based on any defined relationship between nutrient levels and use impairment. As a result, EPA's proposed criterion would regulate canals that are not impaired. EPA has presented no information that would suggest that its proposed criterion for southern canals is necessary to protect their designated uses.

In the NPRM, EPA admits that its proposed lake criteria do not account for natural lake variability (*75 Fed. Reg.* at 4191), and that its proposed streams criteria "may be either more stringent than necessary or not stringent enough to protect designated uses" (*75 Fed. Reg.* at 4192). However, rather than admit that these are fatal flaws for nutrient criteria, EPA attempts to address these deficiencies by proposing that dischargers avoid meeting the criteria through variances, changes in designated uses, or the use of site-specific alternative criteria. Alternatively, EPA suggests dischargers delay meeting the criteria through compliance schedules or new restoration standards. These tools would be difficult to implement and do not make flawed criteria any more scientifically defensible.

B. EPA's Proposed Criteria Are Not Necessary to Meet the Requirements of the Clean Water Act.

EPA's authority to issue water quality standards in an authorized state is found in section 303(c)(4)(B) of the CWA, which authorizes EPA to issue regulations "setting forth a revised or new water quality standard" in any case where the Administrator of EPA "determines that a new or revised standard is necessary to meet the requirements of the Act."

EPA issued such a determination for Florida on January 14, 2009, in a letter from Benjamin Grumbles, Assistant Administrator, EPA Office of Water, to Michael Sole, Secretary, Florida Department of Environmental Protection (hereinafter EPA Determination). Specifically, EPA determined that numeric nutrient criteria "are necessary to facilitate and expedite the identification of all nutrient impaired waters in Florida; thereby providing necessary protection for the State's designated uses, as required by the CWA." EPA Determination at 4-5. To support its determination, EPA faulted the case-by-case assessment procedure Florida had been following to determine whether there were imbalances in flora or fauna in waters with lower levels of nutrients (waters with higher levels of nutrients are deemed to be impaired). EPA Determination, at 8. *See also 75 Fed. Reg.* at 4175 (EPA determined that Florida's reliance on a case-by-case interpretation of its narrative nutrient criterion in implementing an otherwise comprehensive water quality framework of enforceable accountability was insufficient to ensure protection of applicable designated uses).

Thus, EPA's statutory authority to promulgate water quality standards for Florida is based on the assertion that only state-wide numeric nutrient standards can meet the requirement in the CWA to protect designated uses of water bodies. This assertion is not supported by the facts or the record in this rulemaking.

1. Numeric nutrient criteria are not necessary to protect water quality.

As noted by EPA's Science Advisory Board (SAB), in other contexts EPA has not found numeric nutrient criteria to be necessary to protect water quality:

[T]he way in which EPA used results from mechanistic models to develop nutrient load reduction goals for the Gulf of Mexico (Mississippi River/Gulf of Mexico Watershed Nutrient Task force, 2008), and the way in which it is currently using mechanistic models for nutrient and sediment TMDLs for Chesapeake Bay, does not involve development or use of numeric nutrient criteria. The reason is that these mechanistic models (Scavia et al., 2004; Cerco and Noel, 2004) are load-response models, not empirical stressor-response models, and hence they **obviate the need for numeric nutrient criteria** because they directly link nutrient loads to response variables that represent water quality impairments (e.g., dissolved oxygen, chlorophyll, water clarity and acreage of submerged aquatic vegetation).

1-8-10 Draft Science Advisory Board (SAB) Ecological Processes and Effects Committee Advisory Report (hereinafter Draft SAB Report), at 5 (emphasis added).¹

2. Florida's existing water quality protection program is successful.

The state of Florida currently has a narrative water quality criterion for nutrients: "In no case shall nutrient concentrations of a body of water be altered as to cause an imbalance in natural populations of aquatic flora or fauna." Florida Administrative Code (FAC) 62-302-530(47)(b). Florida currently implements this criterion on a site-specific basis in the context of taking action to improve water quality through limitations in NPDES permits, TMDLs, the development of Basin Management Action Plans, and in identifying impaired waters. In doing so, the state identifies the level of nutrients that would cause an imbalance and then translates that level into site-specific numeric targets.

To identify whether an imbalance exists, FAC 62-303.350 requires the State to evaluate site-specific data on the trophic state, chlorophyll *a* values, and other information such as algal blooms, excessive macrophyte growth, and the state of submerged aquatic vegetation. While the Florida regulations include thresholds for nutrient impairment based on response variables, impairment is confirmed with a site-specific bioassessment. Further, Florida law requires data reasonably demonstrating the pollutant causing the impairment and how the pollutant is associated with the observed biological effect. FAC 62-303-430.

Employing this approach, Florida is able to establish nutrient criteria that are "necessary to protect the [designated] uses," in compliance with 40 C.F.R. 131.2. Further, under this approach, the state's nutrient criteria are based on "sound scientific rationale," in compliance with 40

¹ SAB Report underwent SAB quality review on March 24, 2010, and received support with a few editorial comments. However, the final report has not yet been issued.

C.F.R. 131.11(a).

Narrative standards also have not prevented Florida from developing successful total maximum daily loads for nutrients. In fact, Florida has developed 135 nutrient TMDLs with an additional 39 pending adoption.

Florida's approach has been praised by the SAB:

We agree with the statement in the Florida Department of Environmental Protection's letter of September 4, 2009 (letter from Daryll Joyner, Florida Department of Environmental Protection to Thomas Armitage, Designated Federal Officer, EPA Science Advisory Board Staff Office) indicating that the "most scientifically defensible strategy for managing nutrients within the range of uncertainty is to verify a biological response prior to taking a management action." This risk/performance-based approach to setting nutrient criteria is evident not only in Florida's program, but also in those developed by California and Maine (Florida Department of Environmental Protection, 2009; Maine Department of Department of Environmental Protection, 2009; McLaughlin and Sutula, 2007). Those risk-based linkages are not addressed in either the Guidance or EPA's Nutrient Criteria Technical Guidance documents for Rivers (2000), Lakes/Reservoirs (2000), and Estuaries (2001).

Draft 2010 SAB, at 6.

3. EPA's proposal would allow site-specific criteria development.

While one of EPA's major objections to Florida's narrative standards is that the State implemented those standards on a site-specific basis, EPA's proposal would still allow Florida to adopt site-specific alternative criteria to protect designated uses. *75 Fed. Reg.* at 4217. The process proposed by EPA is similar to Florida's current method of implementing its narrative nutrient criteria by translating them into numeric loads or concentrations on a case-by-case basis. *75 Fed. Reg.* at 4218.

Based on these facts, we respectfully submit that the record does not support EPA's determination that Federal state-wide numeric nutrient criteria in Florida are necessary.

C. EPA's Proposed Criteria Do Not Comply With Federal Water Quality Standards Regulations.

Once EPA makes its determination under section 303(c)(4)(B) and embarks on a rulemaking to promulgate water quality standards in a state, EPA is subject to the requirements of section 303(c) of the CWA and its implementing regulations at 40 C.F.R. part 131. Specifically, state water quality criteria must be "necessary to protect the [designated] uses." 40 C.F.R. 131.2. Criteria also must be based on "sound scientific rationale." 40 C.F.R. 131.11(a). Numeric criteria should be based on EPA's section 304(a) guidance, section 304(a) guidance modified to reflect site-specific conditions, or "other scientifically defensible methods." 40 C.F.R.

131.11(b). In addition, narrative criteria may be established where numeric criteria can not, or to supplement numeric criteria. *Id.*

1. EPA's proposed criteria fail to meet the requirement of scientific defensibility.

The technical flaws in EPA's proposal are too significant to comply with EPA water quality standards regulations. By failing to establish impairment thresholds, EPA's proposed criteria cannot be shown to be "necessary to protect [designated] uses," as required by 40 C.F.R. 131.2. By failing to demonstrate cause-and-effect, by regulating unimpaired waters, and by classifying natural conditions as impaired, these criteria are not based on "sound scientific rationale," as required by 40 C.F.R. 131.11(a). As a result, EPA's proposed criteria are not scientifically defensible, as required by 40 C.F.R. 131.11(b).

For streams, neither the state of Florida nor EPA could identify specific thresholds for establishing numeric TP and TN criteria due to the relative lack of a dose-response relationship. Given that lack of a dose-response relationship, the reference site approach proposed by EPA is likely to result in arbitrary and unnecessary regulatory actions.

EPA cannot show that its proposed numeric criteria are "necessary to protect [designated] uses" because it cannot even demonstrate what effect its proposed criteria will have on a designated use. Absent a showing of a cause-and-effect relationship between the proposed criteria and a biological response in the water body, EPA also cannot demonstrate that its proposed numeric criteria are based on "sound scientific rationale" or "scientifically defensible methods."

In fact, because EPA has not identified the threshold level of nutrients required by a water body, EPA cannot even demonstrate that its proposed nutrient standards will have a beneficial effect on designated uses. Unlike standards for toxic chemicals, it cannot be assumed that increasingly stringent nutrient criteria will produce water quality improvements. There is a threshold at which more stringent nutrient criteria will actually harm water quality because nutrients are essential to a healthy aquatic ecosystem. In order to develop scientifically defensible nutrient criteria for Florida, EPA must first identify the threshold level of nutrients needed to support the designated use of each water body, using site-specific data. The agency has not done so.

Finally, with respect to canals, EPA has no record that canals are not meeting their designated uses. EPA's data do not indicate that canals have any nutrient impairment problems. EPA should not have determined that it was necessary to set canal nutrient standards.

2. EPA's proposed criteria create a conflict between water quality standards and TMDLs.

EPA's proposed nutrient standards for Florida also embrace a new interpretation of EPA's water quality standards regulations in the development of downstream protection values (DPVs). EPA's new interpretation of its water quality standards regulations creates a conflict between section 303(c) of the CWA and section 303(d) of the Act. Accordingly, EPA's proposed DPVs should be withdrawn.

EPA water quality regulations state that designated uses and the criteria to protect those uses must take downstream waters into consideration to provide for attainment and maintenance of downstream waters. 40 C.F.R. 131.10. However, EPA has consistently taken the position that: “adoption of criteria that represent ‘minimally impacted’ conditions and that are sufficiently protective of near field downstream effects should ultimately achieve a far field benefit.” *See* Grubbs 2001, at 17. If it proves to be the case that further reductions are needed to protect downstream waters, those reductions should be based on an allocation of nutrient loadings. “If the cumulative impact of multiple “minimally impacted” conditions in the watershed results in adverse effects on far field estuary conditions, then further nutrient load reduction may be necessary, and would likely be phased in over a period of time **based on specific load reduction targets** for the ultimate receiving water body.” *Id.* (emphasis added).

By changing its interpretation of 40 C.F.R. 131.10, EPA is now creating a conflict between section 303(c) of the Clean Water Act, and section 303(d). Water quality criteria under section 303(c) are set at levels necessary to support designated uses. The regulations implementing that regulation are discussed above. Section 303(d) requires the development of total maximum daily loads for waters that still do not meet water quality standards after technology based effluent limitations have been met. Standards set under section 303(c) are not load allocations. However, as recognized by current EPA guidance in Grubbs 2001, that is what downstream protection values would necessarily be.

Load and waste load allocations that implement TMDLs cannot be set at the state-wide level. Under EPA’s TMDL regulations: “TMDLs shall be established at levels necessary to attain the applicable narrative and numerical WQS” in the particular water quality limited segment. 40 C.F.R. 130.7(c)(1). “Determinations of TMDLs shall take into account critical conditions for stream flow, loading, and water quality parameters” and “[s]ite-specific information should be used wherever possible.” *Id.* However, EPA is proposing statewide downstream protection values that would, in effect, be load allocations. Thus, EPA is not only proposing water quality standards that do not meet the requirements of its water quality standards regulations, it also is proposing loading allocations that do not meet the requirements of its TMDL regulations.

D. EPA’s Proposals Do Not Follow EPA Guidance or SAB Recommendations.

1. EPA’s proposed criteria fail to follow EPA technical and policy guidance.

EPA has issued a variety of guidance documents relating to the development of numeric nutrient criteria. Technical guidance documents include EPA’s 1985 *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Use* (USEPA 1985) (hereinafter National Guidelines), the *Nutrient Criteria Technical Guidance Manual – Rivers and Streams* (USEPA 2000) (hereinafter Rivers and Streams Technical Guidance Manual), and the *Nutrient Criteria Technical Guidance Manual – Lakes and Reservoirs* (USEPA 2000) (hereinafter Lakes and Reservoirs Technical Guidance Manual). More recently, EPA has been developing a guidance called *Empirical Approaches for Nutrient Criteria Derivation* (draft 2009), which is undergoing review by EPA’s Science Advisory Board. In addition, in 2001 and 2003, EPA published recommended water quality criteria for nutrients based on an ecoregion approach under section 304(a) of the Clean Water Act. *See* 66 *Fed. Reg.*

1671 (Jan. 9, 2001); 68 *Fed. Reg.* 557 (Jan. 6, 2003).

EPA also has issued various policy documents, including the *National Strategy for the Development of Regional Nutrient Criteria* (USEPA June 1998) (noticed in the *Federal Register* on June 25, 1998 at 63 *Fed. Reg.* 34648) and the 2001 memorandum from Geoffrey Grubbs to states on the *Development and Adoption of Nutrient Criteria into Water Quality Standards* (hereinafter Grubbs 2001).

Although EPA has developed recommended nutrient criteria under section 304(a), EPA has made it clear that its criteria are merely a starting point and states should use EPA's technical guidance to develop water body specific criteria. In fact, nutrient criteria that fully reflect localized conditions and protect specific designated uses, using the process outlined in the technical guidance manuals, are preferred:

EPA strongly encourages states, territories and authorized tribes to refine these recommendations based on the key elements of nutrient criteria development (historical information, reference conditions, models, consideration of downstream effects, and expert judgment) discussed in EPA's published Technical Guidance Manuals (Lakes and Reservoirs: EPA-822-B00-001; Rivers and Streams: EPA-822-B-00-002). EPA recognizes that states and authorized tribes have several options available to them and recommends the following approaches, in order of preference: (1) Wherever possible, develop nutrient criteria that fully reflect localized conditions and protect specific designated uses using the process described in EPA's Technical Guidance Manuals for nutrient criteria development. Such criteria may be expressed either as numeric criteria or as procedures to translate a state or tribal narrative criterion into a quantified endpoint in state or tribal water quality standards.

Grubbs 2001, at 15. *See also* 68 *Fed. Reg.* at 558 (It is not mandatory or expected that the reference condition so derived [using the 75th percentile of all reference data] be translated directly into a criterion).

EPA's National Guidelines establish the threshold principles that all aquatic water quality criteria must meet. First, the purpose of criteria is to protect aquatic organisms and their uses from unacceptable effects. *See* National Guidelines, at vi. "Criteria should attempt to provide a reasonable and adequate amount of protection with only a small possibility of considerable overprotection or underprotection." National Guidelines, at 5. Proper criteria derivation requires the establishment of a cause-and-effect relationship to ensure that regulation of the pollutant is necessary and will produce the desired effect. National Guidelines at 15- 16, 21. Thus, "[t]he concentrations, durations, and frequencies specified in criteria are based on biological, ecological, and toxicological data, and are designed to protect aquatic organisms and their uses from unacceptable effects." *Id.* at 16. To develop such criteria, adequate data must be available or the criteria should not be developed. *Id.* at 5-6. Specifically, there must be adequate data on pollutant levels that cause an unacceptable adverse effect on any of the specified biological

measurements. *Id.* at 39. For materials that have a threshold effect, the threshold of unacceptable effect must be determined. *Id.* at 8. In addition, “[c]riterion must be used in a manner that is consistent with the way in which they were derived....” National Guidelines, at 7.

EPA’s Rivers and Streams Technical Guidance Manual discusses three general approaches for criteria setting: (1) identification of reference reaches for each stream class based on best professional judgment (BPJ) or percentile selections of data plotted as frequency distributions, (2) use of predictive relationships (e.g., trophic state classifications, models, biocriteria), and (3) application and/or modification of established nutrient/algal thresholds (e.g., nutrient concentration thresholds or algal limits from published literature). Rivers and Streams Technical Guidance Manual, at 13.

Whatever approach is used, however, the Rivers and Streams Technical Guidance Manual makes it clear that establishing a cause-and-effect relationship between nutrients and an adverse response is critical:

When evaluating the relationships among nutrients and algal response within stream systems, it is important to first understand which nutrient is limiting. Once the limiting nutrient is defined, critical nutrient concentrations can be specified and nutrient and algal biomass relationships can be examined to identify potential criteria to avoid nuisance algal levels.

Rivers and Streams Technical Guidance Manual, at 13.

EPA’s proposed nutrient criteria for Florida lakes and flowing waters attempt to employ the first two approaches for the development of various standards: the stressor-response approach (the use of predictive relationships) and the reference approach. However, due to lack of data, lack of a cause-and-effect relationship between nutrient levels and impacts on designated uses, the failure to establish threshold nutrient levels for these water bodies, and the failure to apply the criteria in the manner in which they were developed, these approaches have not followed EPA guidance and have not resulted in the development of scientifically defensible criteria.

As a result, EPA’s criteria fail to follow EPA’s own guidance. Accordingly, we respectfully submit that EPA’s proposed criteria are arbitrary and capricious, in violation of the Administrative Procedure Act. 5 U.S.C. 500 *et. seq.*

2. EPA’s proposed criteria fail to follow SAB recommendations.

EPA’s own SAB highlights these general concerns with EPA’s approach to nutrient criteria in its draft review of EPA’s *Empirical Approaches for Nutrient Criteria Derivation* (draft EPA 2009). Specifically: “The Committee emphasizes that understanding the causative link between nutrient levels and impairment is necessary in order to assure that managing for particular nutrient levels will lead to desired outcomes.” Draft SAB Report, at 4. The SAB elaborated as follows:

Without a mechanistic understanding and a clear causative link between nutrient levels and impairment, there is no assurance that managing for particular nutrient levels will lead to the desired outcome. There are numerous empirical examples where a given nutrient level is associated with a wide range of response values due to the influence of habitat, light levels, grazer populations and other factors. If the numeric criteria are not based upon well-established causative relationships, the scientific basis of the water quality standards will be seriously undermined.

Id.

While the guidance that the SAB currently is reviewing focuses on stressor-response models, the concerns expressed by the SAB regarding the need to establish cause-and-effect apply equally to the reference approach to establishing water quality standards. The SAB states that the most scientifically defensible strategy for managing nutrients within the range of uncertainty is to verify a biological response prior to taking a management action. The SAB further notes that these risk-based linkages are not addressed in either the Guidance or EPA's Nutrient Criteria Technical Guidance documents for Rivers and Streams (2000), Lakes and Reservoirs (2000), and Estuaries (2001). Draft 2010 SAB, at 6.

With respect to water quality models, the SAB stresses that site-specific data must be used as inputs for the models to be scientifically defensible: "It is possible to use these water quality models to describe exposure (in terms of ambient nutrient concentrations) but in the absence of empirical data, this would not be scientifically defensible." *Id.* at 18. Models must adequately reflect the great variety of site-specific conditions: "Given the many factors that affect streams and rivers, system-specific analysis really provides an assessment of whether altering nutrient concentrations would have the desired effect on the biotic communities present." *Id.* at 20. If site-specific conditions are not taken into account, there is no assurance that criteria will protect designated uses:

For criteria that meet EPA's stated goal of "protecting against environmental degradation by nutrients," the underlying causal models must be correct. Habitat condition is a crucial consideration in this regard (e.g., light [for example, canopy cover], hydrology, grazer abundance, velocity, sediment type) that is not adequately addressed in the Guidance. Thus, a major uncertainty inherent in the Guidance is accounting for factors that influence biological responses to nutrient inputs. Addressing this uncertainty requires adequately accounting for these factors in different types of waterbodies.

Id. at 37.

Unfortunately, the criteria proposed by EPA are state-wide criteria that are based on very broad classifications of lakes and flowing streams in the State of Florida and fail to take into account local conditions, cause-and-effect relationships, and threshold levels.

EPA has signed a consent decree agreeing to finalize this rulemaking by October 15, 2010, to settle a claim against it by the Florida Wildlife Federation, and others (Northern District of Florida, Case No. 4:080cv-00324-RH-WCS). EPA also has asked Science Advisory Board (SAB) to review the Agency's draft *Technical Guidance on Empirical Approaches for Numerical Nutrient Criteria Development*. The SAB's final report was released on April 27, 2010. By rushing through this rulemaking, EPA is not taking the time to consider the advice of its own panel of experts that it has convened on developing nutrient criteria.

The failure to take into account the advice of the SAB would render this rulemaking arbitrary and capricious, in violation of the Administrative Procedure Act.

3. EPA failed to follow its own Peer Review Guidance.

Some of the flaws in EPA's proposed criteria may be attributable to the Agency's use of novel methods of criteria derivation that have not gone through peer review. EPA's use of the SPARROW model to develop downstream protection values for estuaries and the use of the Vollenweider model to develop those values for lakes are novel uses of these models. EPA's own Peer Review Manual states that a scientific or technical work product that "establishes a significant precedent, model, or methodology" should be peer reviewed. Downstream protection values are scientific and technical work products that establish a significant precedent. Moreover, "an application of an existing, adequately peer reviewed methodology or model to a situation that departs significantly from the situation it was originally designed to address is a candidate for peer review." The use of the SPARROW model and the Vollenweider model to establish downstream protective values is a significant departure from the situations they were originally designed to address. Thus, both the concept of downstream protection values and the use of these models to derive those values require peer review. EPA, *Peer Review Handbook 3rd Edition* (EPA/100/B-06/0020), at 29-32; *see also* National Guidelines, at 55 (requiring review of proposed criteria). The failure to follow its own peer review guidance renders EPA's proposed criteria based on downstream protection values arbitrary and capricious, in violation of the Administrative Procedure Act.

II. Costs of EPA's Proposed Criteria.

A. Costs to Agricultural Producers.

In the docket for this NPRM, EPA has included a "Preliminary Estimate of Potential Compliance Costs and Benefits Associated with EPA's Numeric Criteria For Florida," document number EPA-HQ-OW-2009-0596-0170 (hereinafter Preliminary Cost Estimate). This document presents the remarkable conclusion that EPA's proposal will cost a mere \$4.7 to \$10.1 million a year for compliance. However, this cost estimate does not withstand scrutiny.

EPA assumes that its proposed criteria will result in annual costs of less than \$1.3 million to control agricultural runoff. The basis for this low number is EPA's unsupported assumption that only sources located near the 190 water bodies that EPA believes would be considered newly impaired under its proposed rule would have to incur any additional costs. Preliminary Cost Estimate, at 9.

To estimate the costs associated with the NPRM, EPA also assumes full compliance with the draft numeric criteria proposed by the state of Florida in July 2009 and then estimates only the additional costs that would be incurred as a result of the fact that EPA's proposal would lead to a greater number of waters being considered impaired. However, Florida's July 2009 draft criteria are not an appropriate baseline to determine the costs of EPA's proposal.

EPA has provided its own estimate of the costs to agricultural producers to comply with Florida's July 2009 draft criteria. For agricultural operations, EPA estimates that nutrient management would cost \$27.9 million a year, forested buffers would cost \$5.1 million a year, and fencing would cost \$1.9 million a year. Preliminary Cost Estimate, Attachment 1, at 6-4 to 6-5. However, EPA's cost estimate is highly unrealistic because traditional best management practices are unlikely to be sufficient to meet EPA's proposed criteria.

To provide a more realistic cost estimate, the Florida Department of Agriculture and Consumer Services (FDACS) and the University of Florida have prepared a report analyzing the costs of EPA's proposed criteria to the agriculture industry, and to Florida's economy as a whole. See *Economic Impacts and Compliance Costs of Proposed EPA Numeric Criteria for Florida Agriculture*, Budell, et al, Florida Department of Agriculture and Consumer Services, Office of Agriculture Water Policy; Hodges, et al, University of Florida, and Bottcher, Soil and Water Engineering Technology, Inc. (April 22, 2010) (Attachment 1) (hereinafter University of Florida/FDACS Report). The estimates in this report are based on the recognition that EPA's proposed criteria will cause many more water bodies to be considered impaired, affecting all 13.6 million acres of agricultural land in Florida. Further, these estimates are based on modeling that demonstrates that agricultural operations in Florida will not be able to rely solely on typical best management practices to achieve the needed reductions and will have to construct additional treatment/retention facilities.

According to the University of Florida and FDACS, the total initial costs for Florida agriculture to implement the best management practices needed to meet EPA's proposed criteria are between \$855 million and \$3 billion. If those costs are amortized and ongoing operation and maintenance costs are added, the cost to all sectors of Florida agriculture would be between \$271 million and \$974 million annually. The report states the higher ends of the estimates are more likely based on modeling and empirical water quality data. Lost agricultural revenues from taking land out of production to build treatment/retention facilities are estimated to be \$631 million, so the total annual costs to the agriculture industry in Florida would be between \$902 million and \$1.605 billion.

B. Costs to the Fertilizer Industry

For industrial dischargers, EPA assumes that most facilities would not incur additional costs under the proposed rule because EPA has inappropriately assumed Florida's draft criteria represent the baseline. In fact, EPA states that there are only five dischargers (all in the South region) that may incur costs under the proposed rule. Preliminary Cost Estimate, at 8. For those dischargers, EPA assumes that reductions will be achieved through best management practices, product substitution, process modifications, or process optimization rather than treatment. *Id.*

EPA does not provide an estimate of compliance costs for industrial facilities, but simply picks \$25,000 a year as an illustrative number to reach illustrative annual costs to the industrial and general-permitted dischargers of \$125,000. This number is not supported by any data or analysis and should not be presented in the cost estimate.

EPA also does not provide an estimate of the costs industrial dischargers would have to incur to meet Florida's proposed standards, instead again using \$25,000 per year per source as an illustrative cost, with no analysis to support it. This assumption results in total annual costs for industrial dischargers of \$2.9 million. Preliminary Cost Estimate, Attachment 1, at 4-8.

Looking at the costs to the fertilizer industry alone demonstrates that EPA grossly underestimates the cost of compliance with its proposed criteria.

The Florida Phosphate Industry has prepared an assessment of the financial impact of meeting EPA's proposed instream protection value criteria for streams on both phosphate mining and phosphate fertilizer production facilities. See "Assessment of Financial Impact on Phosphate Mining and Mineral Processing: Complying with EPA's Proposed Nutrient Water Quality Standards for Florida," (ENVIRON, April 2010) (Attachment 2). For the purpose of its analysis, the Florida Phosphate Industry assumed that the industry would have to meet limits of 1.479 mg/L TN and 0.359 mg/L TP. These are the limits proposed for the North Central ecoregion, but they fall roughly in the middle of the sets of limits proposed by EPA for the four separate ecoregions in Florida (the proposed limits are higher for the Bone Valley, but lower for the Panhandle and the Peninsula). The analysis is conservative in that it does not assume compliance with more stringent downstream protection values.

Although no technology may be able to ensure compliance during a tropical storm or a hurricane, to consistently meet these instream protection values in stormwater discharges from phosphate mining, the Florida Phosphate Industry has determined that facilities would likely utilize reverse osmosis and deep well injection. For stormwater discharges from phosphate fertilizer production facilities, the Florida Phosphate Industry has determined that facilities would likely utilize a multi-step treatment option including chemical precipitation, filtration, breakpoint chlorination, and dechlorination. The estimated capital costs to the Florida fertilizer industry to install these technologies are \$1.35 billion. The estimated annual operation and maintenance costs associated with these technologies are \$40 million a year. These estimated fertilizer industry costs do not include any lost revenues associated with a reduction in demand for fertilizer that may be associated with the proposed criteria. However, given the severe impacts on the agriculture industry in Florida, a reduction in demand for fertilizer may occur.

C. Costs to Florida

EPA also fails to accurately estimate the costs to the state of Florida of implementing EPA's proposed criteria. With far more water bodies being considered impaired, Florida will have to develop far more total maximum daily loads, Basin Management Action Plans, and Site Specific Alternative Criteria. And, if EPA's criteria apply to waterbodies without any confirmation that the waterbody is biologically impaired, the costs of implementing EPA's proposed criteria will be even higher, for no increased environmental benefit. As Florida states:

Spending resources reducing nutrients when either the site is biologically healthy or when some other factor is responsible for biological degradation (*e.g.*, habitat or hydrology) would waste limited restoration resources with no environmental benefit. Additionally, spending resources processing site specific criteria every time a biologically healthy site does not attain the criteria would waste resources with no environmental benefit. Therefore, DEP strongly believes that biological confirmation and stressor identification must part of any criteria for streams, especially given the relative lack of a dose-response relationship and the limitations of the reference site approach.

Florida Department of Environmental Protection, Review of Proposed Criteria for the Protection of Streams and Springs/Clear Streams (draft March 12, 2010), at 43, http://www.dep.state.fl.us/water/wqssp/nutrients/docs/federal/fdep_comments_streams_criteria.pdf

D. Estimated Benefits

EPA estimates the benefits of its proposal to be only between \$2.3 and \$2.6 million a year, based on an estimate of “willingness to pay.” Preliminary Cost Estimate, at 13.

This meager level of benefits further undercuts EPA’s rationale for taking federal action. On January 14, 2009, EPA determined that numeric nutrient criteria “are necessary to facilitate and expedite the identification of all nutrient impaired waters in Florida; thereby providing necessary protection for the State’s designated uses, as required by the CWA.” However, EPA’s analysis of the costs and benefits of its proposed regulations imply that they would not do very much. That conclusion, of course, begs the question of why EPA is taking federal action at all. If EPA’s regulations will have so little impact, the Agency cannot support its determination that federal nutrient criteria for Florida are necessary.

Any benefits to the environment also should be offset by the environmental harm that will be caused by compliance with EPA’s proposed criteria. The Florida Fertilizer Industry study, discussed above, notes that the energy and air emissions impacts from implementing nutrient control measures will result in increased energy use and air emissions, 2.12 billion tons a year in CO₂ emissions.

E. Broader Economic Impacts of EPA’s Proposed Rule.

1. The economic burden of compliance will have a ripple effect throughout Florida’s economy.

The dramatic impact of the proposed rule on Florida agriculture will have a significant impact on Florida’s economy as a whole, resulting in lost revenues in other sectors, lost jobs, and increased food costs.

As of April 16, 2010 unemployment in Florida is at 12.3 percent

(<http://www.bls.gov/news.release/pdf/laus.pdf>). This proposed rule will increase the percentage of people unemployed, at a time of record unemployment. The University of Florida and FDACS estimate the direct loss of employment in the agricultural sectors at 7,780 full-time and part-time jobs. Due to secondary impacts on agricultural suppliers, they estimate the Florida economy will lose a total of 14,545 jobs. These impacts on employees and agriculture suppliers are estimated to reduce the output of Florida's economy by \$1.148 billion annually. University of Florida/FDACS Report, at 8.

Another asset to Florida's economy that will be negatively affected is its fertilizer mines and manufacturing sites. Nationwide, phosphatic fertilizer manufacturing provides a total economic contribution of \$21.2 billion and almost 90,000 jobs, of which \$6.6 billion and 7,410 jobs were direct. The sector purchased a significant amount of goods and services from the domestic mining, trucking, and rail sectors. This economic activity is predominantly located in states with phosphate mines and production plants. The states with the most economic activity in this sector included Florida (with half of the direct contribution), North Carolina, Idaho and Louisiana. See J. Plewes, A. Smith, *Economic Contributions of the U.S. Fertilizer Manufacturing Industry*, CRA International (Aug. 2009) (attached). Given the importance of the fertilizer industry to the economy, the increased costs of fertilizer production resulting from the costs of complying with EPA's proposed standards will also have an adverse impact on suppliers and employees in Florida, and on the Florida economy as a whole.

2. 2. EPA proposed nutrient standards will result in increased food prices and reduced food supply, both nationally and globally.

Phosphorus is one of the three macronutrients plants require to grow; no other nutrients can be substituted for phosphorus. Given the costs of compliance, the proposed rule may effectively shut down these mines, and in turn block access to 75 percent of phosphorus reserves in the U.S. This supply shock would drastically increase the price of phosphate fertilizer and in turn the cost of food as the costs of food production are tightly linked to the costs of the nutrients needed to grow the food. Fertilizer typically accounts for an average of 27 percent of total crop production operating costs for major crops like corn, soybeans, wheat, cotton, rice, sorghum, barley, and oats. These costs can range from a high of 41 percent for corn to approximately 13 percent for soybeans and cotton. Economic Research Service, USDA. *U.S. and Regional Costs Returns Estimates*.

The impact on the food supply will be felt in the United States due to the impacts on Florida agriculture. While Florida agriculture represents 2.5 percent of total domestic agriculture, it represents 68.1 percent of the domestic production of oranges and 26.2 percent of the domestic production of tomatoes. (<http://www.ers.usda.gov/StateFacts/FL.htm>) This illustrates the importance of Florida agriculture to specialty crop production. Because Florida produces more than two-thirds of the country's oranges, the supply shock could not be absorbed by other states.

The impact on food supply also will be felt globally. There are only five countries in the world that produce 90 percent of the global phosphate production including the U.S. See J. Elser, S. White, *Peak Phosphorus*, (Foreign Policy, April 20, 2010). Available at http://www.foreignpolicy.com/articles/2010/04/20/peak_phosphorus?print=yes&hidecomments=

[yes&page=full](#). There are only 12 domestic phosphate mines in the U.S., with Florida providing 75 percent of the phosphorus used by U.S. farmers and representing about 25 percent of world production. With only five countries in control of such an essential nutrient to food production, eliminating the majority of supply from one of those five countries could have profound detrimental implications on global food supply.

The U.S. Department of State (USDS) asserts that ensuring global food security will only become more challenging in the future as demand for food is projected to increase by 50 percent over the next 20 years. Furthermore, they state that currently one billion people suffer from chronic hunger. Amongst the solutions to combat this global problem is improved productivity in agriculture. Specifically, USDS points to U.S. investments increasing access to agricultural inputs, such as “seed, feed, fertilizer and irrigation systems at the right time, right price and in the right amounts.” In addition, USDS notes that “in many cases, technologies and practices can be a win-win for increasing farmer incomes and for protecting the environment.” *USDS Global Hunger and Food Security Initiative*, <http://www.state.gov/s/globalfoodsecurity/129952.htm>.

We agree with USDS that we must achieve increased production in agriculture to combat global hunger and rising food prices. It was as recently as 2008 that commodity prices dramatically spiked above all existing projections; food and fertilizer riots ensued in several developing nations given the resulting price impact on basic foodstuffs.

F. EPA must provide a full Regulatory Impact Analysis For This Proposal.

As demonstrated above, EPA’s proposed criteria will have profound economic impacts in Florida, across the United States, and even globally. To fully understand these impacts and to comply with Executive Order 12866, the Unfunded Mandates Reform Act of 1995, and the Regulatory Flexibility Act, EPA must provide a more detailed analysis of costs, benefits, and alternatives. This analysis must apply an appropriate baseline, must analyze all aspects of EPA’s proposal, including the proposed downstream protection values, and must evaluate the effects of this proposal on all effected parts of the economy as well the cost and supply of food.

III. Recommendations.

A. Recommendations For Criteria Development.

As noted above, EPA’s Science Advisory Board has advised EPA that “[n]umeric nutrient criteria developed and implemented without consideration of system specific conditions (e.g., from a classification based on site types) can lead to management actions that may have negative social and economic and unintended environmental consequences without additional environmental protection.” Draft SAB Report, at 37.

To prevent these unintended consequences, EPA must adhere to the following principles when developing numeric nutrient criteria in Florida or elsewhere.

First, EPA demonstrate why imposing federal numeric criteria state-wide would be more consistent with the Clean Water Act than allowing a state to continue to protect water quality

through its water quality management program. If EPA cannot make this demonstration, the federal criteria cannot be considered necessary, which is the statutory predicate for promulgating federal standards under section 303(c)(4)(B) of the Clean Water Act.

Second, any federal criteria must meet the requirements of EPA's water quality standards regulations. This means the criteria must be set at a level that is necessary to protect designated uses (40 C.F.R. 131.2), must be based on a "sound scientific rationale," (40 C.F.R. 131.11(a)), and must be developed using "scientifically defensible methods" (40 C.F.R. 131.11(b)). Accordingly, for specific waterbodies, EPA must establish on a cause-and-effect relationship between the nutrient being controlled and the biological response that affects the designated use. In addition, for each waterbody, EPA must establish the threshold below which additional nutrient reductions will result in harm.

Third, EPA must not control of nutrients below natural background levels.

Fourth, EPA must not base its criteria on inappropriate models.

Fifth, criteria should apply only if the specific nutrient is affecting plant growth.

Sixth, criteria must set a level of protectiveness, not a load allocation. Specifically, federal criteria must not usurp site-specific determinations of what concentration or loading of nutrients is protective, including determinations made through the TMDL process.

Seventh, if EPA intends to apply its federal criteria in upstream states, it must fully engage those states in its rulemaking process.

Eighth, EPA must recognize that federal criteria will be directly incorporated into permits, and therefore EPA's cost estimate must fully account for the costs of implementing its proposed standards, to dischargers, to agriculture, to city storm sewer systems, and to the State as a whole. Because nutrients are critical for food production, EPA's economic analysis also must include the adverse economic impacts from reduced food production resulting from reductions in fertilizer use implemented as a management practice.

B. Recommended Alternative Approach to Address Nutrients Used in Food Production.

"One size fits all" policies, such as that in the proposed rule, will disproportionately affect a large population while creating little extra environmental benefit. Targeted policies, such as current TMDLs in Florida with BMP implementation, and realistic water quality goals for phosphorus mines can achieve identical environmental goals with significantly less aggregate affects on agriculture, the economy and the food supply.

The current proposed rule cannot be reconciled with USDS recommendations for food security with such blanket, far reaching regulations. We respectfully request EPA to reconsider the means to achieve water quality goals. We advocate smart and targeted policies to address water quality without placing the economic burden on Florida farmers and industries which accompany

farming (*e.g.* mining, processing, transportation, *etc.*). Such smart and well targeted policies can achieve environmental and food security goals, and can support both USDS and EPA goals.

To control nutrient loss from agricultural operations, we support the use of a scientific and peer-reviewed set of fertilizer BMPs known as 4R nutrient stewardship. The 4R nutrient stewardship concept was developed as a result of a collaborative effort between The Fertilizer Institute (TFI), the International Plant Nutrition Institute (IPNI), the Canadian Fertilizer Institute and the International Fertilizer Industry Association (IFA). It promotes the use of the right fertilizer source, applied at the right rate, right time and in the right place.

Right Source: Match the fertilizer source and product to crop need and soil properties.

Right Rate: Match the amount of fertilizer applied to the crop needs. Utilize soil testing, plant analysis, realistic yield goals, nutrient uptake budgets, fertilizer applicator calibration, variable rate technology and accurate record keeping.

Right Time: Make nutrients available when the crop needs them. Nutrients are used most efficiently when their availability is synchronized with crop demand.

Right Place: Apply nutrients where crops can use them. Crop, cropping system and soil properties dictate the most appropriate method of application.

The application of these scientific principles may differ widely depending on the specific cropping system under consideration. Each component of 4R nutrient stewardship is characterized in different ways to optimize productivity and minimize environmental impairment. This approach, when paired with site-specific conservation practices, can represent a holistic way for agricultural producers to limit nutrients losses while optimizing productivity.

In addition to being supported by TFI, IPNI, CFI and IFA, 4R nutrient stewardship has been endorsed by other agricultural stakeholders, including the Association of American Plant Food Control Officials and the Conservation Technology Information Center. The 4R nutrient stewardship concept was also accepted by the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service for placement within its revised national 590 standard for nutrient management.

The 4R program is consistent with Florida's watershed approach to water quality management. The Florida Watershed Restoration Act (FWRA) (403.067 F.S.) provides the statutory authority to address point and nonpoint source pollution. FDEP and Florida Department of Agriculture and Consumer Services (FDACS) have created TMDLs for the many watersheds in Florida and have established a method to assess their efficacy. The TMDLs account for seasonal variation, include a margin of safety, and can be based on water quality goals not yet attained to strive for cleaner waters. TMDL implementation employs farmers to voluntarily implement BMPs that are crop and region specific. This achieves maximum pollutant reduction while taking into account environmental, economic and technological feasibility. If voluntary BMPs are still not achieving water quality goals, FDEP and FDACS can implement mandatory BMPs – ensuring such pollutants are reduced. BMPs are based on regional agricultural practices and they can be further

refined to be site-specific by utilizing technical advisors to assess and implement a management plan.

A plan that engages stakeholders to implement 4R nutrient stewardship will result in healthy aquatic ecosystems such as that in Tampa Bay and will avoid imposing negative consequences on agriculture, which may otherwise come as a result of the current proposed rule. Furthermore, such restrictions on nutrients may have unintended consequences such as reducing carbon sequestration (from less productive fields) and inefficient irrigation (from less water use efficiency by the plant), a formidable issue in the face of climate change.

We request EPA to consider the efficacy of the 4R system in conjunction with site-specific parameters. As FDEP and FDACS have already endorsed and codified such practices, water quality attainment can be achieved quickly without alarming stakeholders. The FWRA allows farmers to utilize a comprehensive nutrient management plan that considers economic and environmental feasibility with the ability to amend in case it fails to produce results. A “one size fits all” agricultural mandate to limit nutrient use without considering site-specific parameters, nutrient synergies, and the economic viability of farming in Florida will force agriculture out of Florida while having minimal beneficial effects for the environment.

Sincerely,



William C. Herz
Vice President of Scientific Programs

The Undersigned Organizations Support These Comments

Abitibowater
Agricultural Retailers Association
American Coke and Coal Chemicals Institute
American Farm Bureau Federation
American Forest and Paper Association
American Iron and Steel Institute
CF Industries, Inc.
Federal Water Quality Coalition
Florida Fertilizer & Agrichemical Association
Florida Home Builders Association
Florida Nursery, Growers and Landscape Association
Florida Sugar Cane League
Georgia Pacific
Glatfelter
Graphic Packaging International, Inc.
GROWMARK, Inc.
Illinois Fertilizer & Chemical Association

Indiana Plant Food & Agricultural Chemicals Association
Irrigation Association
Kansas Agribusiness Retailers Association
MeadWestvaco Corp.
Mid America CropLife Association
Missouri Agribusiness Association
National Association of Homebuilders
National Cattlemen's Beef Association
National Corn Growers Association
National Council of Farmer Cooperatives
National Pork Producers Council
Nebraska Agri-Business Association
Newpage Corporation
Packaging Corporation of America
Ponderay Newsprint Company
Port Townsend Paper Corporation
Rayonier Inc
Sanitation Districts of Los Angeles County
Smurfit-Stone Container Corporation
Sonoco Products Company
South Dakota Agri-Business Association
Southern Crop Production Association
The Alabama Pulp & Paper Council
The Fertilizer Institute
The Georgia Paper and Forest Products Association
United Egg Producers
United States Steel Corporation
Virginia Agribusiness Council
White Springs Agricultural Chemicals, Inc. D/B/A Pcs Phosphate- White Springs
Wyoming Ag-Business Association
Wyoming Crop Improvement Association
Wyoming Wheat Growers Association