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November 22, 2019

Via electronic mail only: Kaitlyn.Sutton@dep.state.fl.us

Kaitlyn Sutton

Florida Department of Environmental Protection

2600 Blair Stone Road, M.S. 6511

Tallahassee, FL 32399

Dear Ms. Sutton:

Re: Proposed Rulemaking under the Clean Water Act's Triennial Review of Florida's Water Quality Standards

The Martin County Board of County Commissioners (Martin County) submits this letter as supplemental public comment on the Florida Department of Environmental Protection's (DEP) Triennial Review of the Surface Water Quality Standards in Chapter 62-302, Florida Administrative Code. This supplemental letter has two sections relevant to the Triennial Review. Section I addresses turbidity standards. Section II addresses and reiterates Martin County's position that DEP should adopt qualitative **and** quantitative standards for *Microcystin* and *Cylindrospermopsin*.

I. TURBIDITY STANDARDS

Martin County has been a leader in coral conservation efforts since the inception of Florida's coral program in 2003. This county worked diligently to promote the benefits provided by a healthy coral ecosystem, and the intense need to protect these habitats. The wide-ranging value of a healthy coral reef system to Southeast Florida have been documented by agencies such as the USGS and NGO's like The Nature Conservancy. The proposed standards clearly capture the advanced research that has been conducted to determine the impact of turbidity and sedimentation on stony coral reefs in southeast Florida.

Coral communities face many stressors on a daily basis, and it is typically not a single stressor that causes disease and/or mortality. Rather it is the continual assault by an ever-changing set of stressors including overfishing, nutrient enriched water and elevated turbidity/sedimentation from

coastal construction projects that continually weaken the corals' resiliency and can ultimately lead to mortality.

The Coastal community has long promoted the value of active beach management and the positive impact the program has on the Florida economy. Likewise, the economic benefit of healthy coral communities has been well documented and is indispensable to southeast Florida, and the state as a whole. It would be shortsighted to focus only on potential increases in beach and inlet management project costs resulting from responsible coral conservation and ignore the corresponding benefits from a healthy coral reef system. It should be noted that while there is an immediate and visible cost from construction delays, there is an equal but less visible cost to the offshore ecosystem from irresponsible construction practices and resulting habitat degradation.

While the draft versions of the turbidity criterion and the recommended implementation of that criterion have worthy goals, the stated justification and implementation procedures have room for improvement. Specific comments on elements of these two documents are provided here.

- 1) From the outset there is, at best, a tenuous relationship established between the well documented impacts of turbidity and sedimentation on corals and the unsupported impacts to hardbottom communities north of the St. Lucie Inlet (the northern most limit of the Florida Reef Tract.) Research has identified, with some certainty, the magnitude and duration of turbidity levels that will not result in long term harm to stony corals. There is no corresponding data provided for hardbottom communities.
- 2) While stony corals must exert large amounts of energy to disperse sand grains that become lodged in and on a polyp leaving it in weakened state, no information is given on the corresponding physiological impact to flora and fauna on non-coral rock substrate.
- 3) Section 6.1.1 "Inclusion of Sabellariid Worm Reef Communities" contains no scientific basis for the more restrictive turbidity requirements. North of the Florida Reef Tract, these habitats are found in areas where water temperature is lower, decreasing impacts from burial and where there is higher wave energy, decreasing the chance that prolonged burial will occur. Further this section states that "sabellariid worms are not particularly sensitive to turbidity or suspended sediments".
- 4) Until more definitive, science-based criteria can be developed, this revised turbidity protocol should not apply to hardbottom habitats north of the St. Lucie Inlet. The 29 NTU criteria should remain in place for these areas and be combined with the narrative criteria stating that "there shall be no impairment of normal growth, function, reproduction or recruitment of aquatic life."

The following comments apply only to short term projects as defined in the document, conducted in stony coral habitat areas within the Florida Reef Tract.

- 1) It should be noted, that simply increasing turbidity is not at issue, it is turbidity at or near the resource. There is no allowance for elevated project-associated turbidity levels in areas where there is no stony coral habitat. In this case the 29 NTU + narrative criteria (see #3 above) should be applied. Turbidity levels could also be checked at the nearest down-

current location where they would be subjected to the more stringent turbidity regulation. This type of approach would incorporate the philosophy behind mixing zones currently permitted in an OFW.

- 2) The effort to develop an acceptable multiplier that could be applied to background turbidity readings during construction and used to calculate acceptable turbidity exceedances acknowledges the natural variability of marine systems. The methodology outlined to accomplish this is inadequate and will not result in the development of a reliable record of natural variability.
 - a. Multiple sampling events throughout the season(s) when construction is realistically expected to occur would be necessary.
 - b. As many construction projects occur during the fall and winter months, the requirement to avoid sampling when weather fronts are moving through the area obviates the goal of representative samples. A representative sampling of turbidity during these fronts is appropriate.
 - c. Historic wind and wave data could be used to determine what a true representative sample should look like for any given region.
 - d. The data collection methodology to represent the true turbidity variability in a specific region where construction is reasonably expected should be scientifically defensible and be conducted in its entirety one single time. The data collected should then be used in all subsequent construction projects in that area. If the protocol is subjected to review and approval by the Department, the work should be funded through the state's Coral Program.
 - e. Exceedances over the calculated allowable increase in turbidity above background (possibly 1-2 standard deviations) should be allowed during a small percentage of planned construction days. They should be limited to a short duration (e.g. 1 day) and separated by a minimum amount of time (e.g. 1 week).
- 3) Prior to implementation, the Department should apply this criteria to a representative number of projects to determine the efficacy and cost of the proposed methodology. The Department should remain open to modifications to the proposed standards, based on the findings of this study.
- 4) Additional research on turbidity impacts, focusing on both duration and magnitude, should be supported by the Department

II. MICROCYCSTIN and CYLINDROSPERMOPSIN STANDARDS

At the November 6th public workshop in Dania Beach, Florida, DEP staff acknowledged that the agency has decided against adopting the new Environmental Protection Agency's (EPA) water quality standards for *Microcystin* and *Cylindrospermopsin*. In their presentation, DEP staff listed several reasons as to why the agency would not adopt the EPA nutrient criteria, including, but not limited to, the following:

- "EPA recommended cyanotoxin criteria are specifically designed to protect human health" (Slide 74). DEP indicated that protection of human health alone was not sufficient as

wildlife (which would presumably include aquatic life) and other resources should be protected as well. DEP did not feel that the current EPA criteria was protective of the other necessary resources.

- “Data indicate that microcystin concentrations are well below recommended cyanotoxin criteria” (Slide 74)
- “DEP and DOH use visual presence of an algal bloom as one threshold” (Slide 78)

In DEP’s 2016 rulemaking effort, changing criteria was based on a study that analyzed impacts to human health based on fish consumption. Aquatic life was not the focus in that particular DEP funded study.

For the current rulemaking effort, DEP staff stated that current research was lacking on various exposure methods and that “more realistic estimates of cyanotoxin risk to people, pets, livestock, and wildlife would require additional monitoring and research” (Slide 77). The following is a list of recent studies conducted in Florida that address this concern of DEP:

- Fleming LE, Stephan W (2001) Blue green algae, their toxins and public health issues. Report to the Florida Harmful Algal Bloom Taskforce. NIEHS Marine and Freshwater Biomedical Sciences Center, University of Miami, Miami
- Fleming LE, Rivero C, Burns J, Williams C, Bean JA, Shea KA, Shin J (2002) Blue green algal (cyanobacterial) toxins, surface drinking water and liver cancer in Florida. *Harmful Algae* 1:157–168
- Van der Merwe D., Sebbag L., Nietfeld J., Aubel M.T., Foss A.J., Carney E. Acute liver and kidney failure in a dog following exposure to microcystins produced by *Microcystis aeruginosa*. (*J. of Vet. Diag. Invest.* 2012).
- Foss A.J., Miles, C.O., Samdal I.A, Løvberg A.E., Wilkins A.L., Rise F., Atl, J.A.H, McGowan P.C., Aubel M.T. Analysis of free and metabolized microcystins in samples following a bird mortality event. (*Harmful Algae* 2018).
- Brown, A., Foss A., Miller M., Gibson Q.A. Detection of cyanotoxins (microcystins/nodularins) in livers from estuarine and coastal bottlenose dolphins (*Tursiops truncatus*) from Northeast Florida. (*Harmful Algae* 2018)
- Foss A.J. & Aubel M.T. The extraction and analysis of cylindrospermopsin from human serum and urine. (*Toxicon* 2013)
- Philips EJ, Bledsoe E, Cichra M, Badylak S (2003) The distribution of potentially toxic cyanobacteria in Florida. In: Johnson D, Harbison RD (eds) *Proceedings of health effects of exposure to cyanobacterial toxins: State of the Science*. Florida Department of Health and the Center for Disease Control. St. Petersburg, Florida
- Ramani, A., Rein, K., Shetty, K.G. et al. Microbial degradation of microcystin in Florida’s freshwaters. *Biodegradation* (2012) 23: 35. <https://doi.org/10.1007/s10532-011-9484-y>

- Steidinger KA, Landsberg JH, Tomas CR, Burns JW (1999) Harmful algal blooms in Florida. Florida Marine Research Institute, St. Petersburg, FL. Unpublished technical report submitted to the Florida Harmful Algal Bloom Task Force
- Williams CD, Aubel MT, Chapman AD, Aiuto PE (2007) Identification of cyanobacterial toxins in Florida's Freshwater systems. *Lakes Reserv Manag* 23:144–152
- D. L. Bigham, M. V. Hoyer & D. E. Canfield Jr. (2009) Survey of toxic algal (microcystin) distribution in Florida lakes, *Lake and Reservoir Management*, 25:3, 264-275, DOI: [10.1080/07438140903136555](https://doi.org/10.1080/07438140903136555).

In addition to the studies listed above, there have been numerous studies conducted elsewhere in the United States that address risks to livestock, human health, and recommendations for management. As stated in Martin County's previous letter submitted to DEP on May 30, 2019, incorporated by reference herein, over 20 states have taken management action to adopt recreational water guidelines for cyanotoxins and/or cyanobacteria.

At the November 6th presentation, DEP staff indicated that for areas sampled by DEP "[d]ata indicate that Microcystin concentrations are well below recommended cyanotoxin criteria" presumably to show that Microcystin standards are not warranted. Based on Martin County's staff observations during the 2016 algal blooms, however, DEP operations did not sample within bloom scum layers, opting instead to sample on the edges of the plume or in visually non-affected waters. This sample protocol seemed to have differed from *DEP-SOP-001/01 FS 7000 General Biological Community Sampling, Section 2.6*, which provides that "algal scum layer sample" should be collected for the purpose of being "representative of a potential recreational exposure." Had DEP followed this SOP, the results presented in Slide 75 may have been significantly different. DEP staff did not indicate in their presentation the methodology used to reach the conclusion that bloom conditions in Florida in 2019 were mostly below the EPA recommended criterion for Microcystin. Martin County asks that DEP further clarify this discrepancy, that the "algal scum layer samples" also be included in future sampling and reporting, consistent with DEP-SOP-001/01 FS 7000. Relevant for this rulemaking effort, unless DEP can evidence its consistency with DEP-SOP-001/01 FS 7000, its conclusion on slide 75 should not be a basis for excluding a Microcystin standard.

DEP currently utilizes a reactive approach to management and an "if you see it, stay out of it" visual recommendation for cyanobacteria. A visual cyanobacteria criterion alone does little to address cyanotoxin risk to people, pets, livestock, and wildlife, as not all blooms are immediately visible to the human eye and changing weather patterns can quickly alter the appearance of a bloom on the water's surface. A visual criterion alone has not prevented people and pets from cyanotoxin exposure simply because toxins are not visible. Therefore, Martin County believes that a qualitative and quantitative approach to cyanotoxin management would reduce the risk of exposure to cyanotoxins, and recommends that, in addition to the current visual criterion, DEP include in its proposed rulemaking for Rule 62-302.530, Florida Administrative Code, the EPA *Human Health*

Recreational Ambient Water Quality Criteria or Swimming Advisories Criteria (AWQC/SA) for Microcystins and Cylindrospermopsin.

As a local government with Class III waters, an aquatic preserve, and designated Outstanding Florida Waters, Martin County needs to be able to effectively communicate with the public about the quality of the water that is of vital importance to the health and well-being of its residents, visitors, and the sustainability of the overall economy. Our residents and visitors expect a consistent, science-based level of protection in our surface waters. Martin County believes that surface water quality standards are vital in achieving those protections.

We look forward to working with DEP on surface water criteria rulemaking efforts. Should you or anyone on your staff have any questions or concerns, please do not hesitate to contact me.

Sincerely,



Don Donaldson, P.E.
Deputy County Administrator