

**Texas Commission on Environmental Quality (TCEQ) Comments on Draft
Human Health Recreational Ambient Water Quality Criteria and/or
Swimming Advisories for Microcystins and Cylindrospermopsin**

Docket ID Number EPA-HQ-OW-2016-0715

Background

The EPA published draft nationally-recommended ambient water quality criteria and/or swimming advisories for microcystins and cylindrospermopsin to protect human health while recreating in freshwater. EPA is publishing these draft recommendations for states to consider for adoption as water quality standards in accordance with Section 303(c) of the Clean Water Act (CWA), or for use as swimming advisory values to implement in state recreational water advisory programs. The EPA published the draft recommendations on December 19, 2016 in accordance with Section 304(a)(1) of the CWA. The 60-day public comment period for the draft criteria and/or advisories began on December 19, 2016 and was extended for 31 days until March 20, 2017. EPA is seeking public comment on the proposed draft criteria and/or advisories, as well as additional scientific views, data and information regarding the technical approach used to develop the draft criteria and/or advisories.

The EPA's proposed draft water quality criteria and/or advisories to protect recreational uses is as follows:

- When used as water quality criteria to be adopted into state water quality standards, the recommendations are:
 - The concentrations of microcystins shall not exceed 4 ug/L more than 10 percent of the days in a recreational season (up to a year).
 - The concentration of cylindrospermopsin shall not exceed 8 ug/L more than 10 percent of the days in a recreational season (up to a year).
- When used as swimming advisories to protect for short-term exposure scenarios, the recommendations are:
 - The concentration of microcystins shall not exceed 4 ug/L in a day.
 - The concentration of cylindrospermopsin shall not exceed 8 ug/L in a day.

Comments on Draft Criteria and/or Advisories

I. General Comments and Overview.

A. The TCEQ requests EPA correct the status of state recreational water guidelines for cyanotoxins and cyanobacteria in Texas.

EPA indicates they have reviewed and compiled publicly available information regarding statewide action levels for use in swimming advisory programs. The information presented for Texas in various portions of Section 2.0 Introduction and Background and Appendix B of EPA's Draft *Human Health Recreational Ambient Water Quality Criteria or Swimming Advisories for Microcystins and Cylindrospermopsin* is incorrect. The TCEQ is not currently aware of any statewide

recreational water guidelines for cyanotoxins and cyanobacteria for use in swimming advisory programs.

B. The TCEQ recommends EPA clarify the type of cyanotoxins applicable to the draft recommendations.

EPA has published recommendations for “microcystin” and “cylindrospermopsin”. Additional clarity is needed to determine if the recommendations apply to “total” microcystin or cylindrospermopsin, any of the known congeners, or if congeners may be used as a surrogates for total toxins. Clarification is especially needed since some of the available analysis methodologies, such as Enzyme-linked immunosorbent assays (ELISA), are non-specific and cannot identify and quantify individual variants. Additional clarification would also assist states when applying the recommended criteria to interpret existing water quality data sets.

C. The TCEQ recommends EPA change the duration of the recreational exposure value used to develop the draft criteria and/or advisories from of 2.7 hours per day to 1.3 hours per day.

The value of 2.7 hours per day was derived from a study that included a small sample size of swimmers. A more reasonable exposure duration of 1.3 hours, based on a larger sample size of swimmers from the Schets et al. (2011) peer-reviewed study cited in EPA’s draft document, is recommended by TCEQ.

When deriving the draft cyanobacteria criteria magnitudes, EPA used 2.7 hours per day as the mean duration of exposure from the 1997 EPA *Exposure Factors Handbook*. While section 4.2.3 of the draft criteria document states that EPA could not use the data in Table 15-66 “Range of the Average of Time Actually Spent in the Water by Swimmers by the Number of Respondents” due to the data resulting in very short duration times that do not seem reasonable, the TCEQ does not believe the 2.7 hours per day is the appropriate value to use. This value was derived from the number of minutes spent at home in an outdoor pool or spa, rather than average of time actually spent in the water by swimmers. The data used is from the 5-11 year old age group that only has a sample size of 15. The Schets et al. (2011) study, cited in EPA’s draft criteria document, interviewed parents of 1,924 children under the age of 15. The sample size from Schets et al. (2011) is much greater than that used in EPA’s recommendation. Schets et al. (2011) found the average duration of swimming at a pool for children under 15 years of age to be 81 minutes. It is the TCEQ’s position that 81 minutes (1.3 hours) is a more reasonable exposure duration, particularly given the small sample size used to determine the 2.7 hours per day value. The TCEQ recommends 81 minutes (1.3 hours) be used as the exposure duration. Additionally, EPA’s Pesticide Program only uses a value of two hours per day in their Swimmers Exposure Assessment Model based on competitive children swimmers, a group that likely spends more time in the water than the average child recreator.

D. The TCEQ recommends EPA change the relative source contribution (RSC) used to develop the draft criteria and/or advisories.

The EPA proposes use of an RSC of 80 percent in the calculation of values for microcystins and cylindrospermopsin to account for dermal and inhalation exposures, exposure to contaminated fish and shellfish, or drinking water. Sections 7.5.1.1 and 7.5.1.2 (Inhalation of Cyanotoxins, Dermal Absorption) of the draft criteria document state that inhalation and dermal exposures are negligible compared to incidental ingestion while recreating. The draft document does not discuss exposure to microcystins or cylindrospermopsin via fish or shellfish. The use of an RSC of anything less than 1 in the draft criteria cannot be justified because there is not information to suggest that there is any significant exposure to microcystins and/or cylindrospermopsin via other routes of exposure, such as dermal exposure, inhalation, ingestion of fish/shellfish, or drinking water.

E. The TCEQ recommends EPA incorporate the results of the 2012 National Lakes Assessment (NLA) into the draft recommendations.

The draft criteria and/or advisories include pertinent results from the 2007 NLA only. EPA should update the criteria and/or advisories with results from the 2012 NLA. TCEQ participated in the Texas portion of the study, which included measurements for cyanobacteria cell counts and cyanotoxins. Incorporating the results of the 2012 NLA would help ensure the recommendations were reflective of the most current and readily available science, particularly regarding the extent and occurrence of cyanobacteria and cyanotoxins. Availability of the results of the 2012 NLA was published in the December 8, 2016 edition of the Federal Register.

II. Lack of Implementation Guidance for Incorporation of the Criteria into Water Quality Management Programs of the Clean Water Act, or Public Health Advisories.

A. The TCEQ recommends EPA provide implementation guidance to accompany the draft criteria and/or advisories.

Additional guidance is needed to implement these criteria, particularly for the purposes of swimming advisories, and in water quality management programs such as monitoring, assessment, total maximum daily load (TMDL) development and wastewater permitting. Use of EPA's recommendations as swimming advisories would require extensive coordination with multiple agencies who are tasked with the protection of natural resource and public health. EPA should consider existing state resources and authorities, and provide sufficient guidance to adequately describe monitoring activities to determine if target cyanotoxins are present in recreational waters. If toxin concentrations exceed allowable recommendations, guidance should be provided to suggest communication activities that adequately inform the public of swimming risk.

Additionally, it is unclear how states will implement these recommendations as water quality standards in management programs such as TMDL and wastewater permitting. The causal relationship between nutrients and production of cyanotoxins by cyanobacteria has not been well-established, and is likely influenced

by multiple confounding factors such as available forms of nutrients, environmental conditions, and competition within the algal community. Characterization of this relationship will require significant amounts of site-specific data and modeling. If a framework to determine reasonable potential for causal pollutant(s) in discharge cannot be developed with available science, EPA should provide states with available tools to mitigate and respond to cyanobacteria bloom and toxin formation, as well as internal nutrient cycling in recreational surface waters. For example, EPA provided suggestions for public water supplies in *Recommendations for Public Water Systems to Manage Cyanotoxins in Drinking Water*, to accompany health advisories for drinking water published by EPA in 2015. The suggestions provide guidance for public water supplies to determine appropriate mitigation and response strategies. Similar suggestions are also needed to accompany EPA's recommendations for draft recreational water criteria and/or advisories.

B. The TCEQ recommends the EPA provide descriptions and explanations for the availability and acceptability of analytical methods to determine microcystin and cylindrospermopsin in water.

Since EPA does not have approved methods under 40 Code of Federal Regulations Section 136 for determining microcystin and cylindrospermopsin, EPA's draft document should be revised to provide additional detail and clarity regarding methods and modifications that would be acceptable to implement EPA's recommended criteria for water quality standards and advisory purposes. TCEQ has particular concerns regarding the accreditation status of such methods under the National Environmental Laboratory Accreditation Program. Since 2008, TCEQ has been required by state statute to limit acceptance of environmental data to only data generated by a laboratory accredited under the Texas Laboratory Accreditation Program. Unless the results for microcystin and cylindrospermopsin are determined by an accredited laboratory, these requirements and lack of specificity by EPA may limit the agency's ability to implement the recommendations, if adopted.