

The Assistant Administrator, David P. Ross, signed the following notice on May 22, 2019 for the *Recommended Human Health Recreational Ambient Water Quality Criteria or Swimming Advisories for Microcystins and Cylindrospermopsin* and EPA is submitting it for publication in the *Federal Register* (FR). While we have taken steps to ensure the accuracy of this internet version of the notice, it is not the official version. Please refer to the official version in a forthcoming FR publication, which will appear on the Government Printing Office's FDsys website (<http://fdsys.gpo.gov/fdsys/search/home.action>) and on Regulations.gov (<http://www.regulations.gov>) in Docket No. EPA-HQ-OW-2016-0715. Once the official version of this document is published in the FR, this version will be removed from the internet and replaced with a link to the official version.

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## ENVIRONMENTAL PROTECTION AGENCY

[EPA-HQ-OW-2016-0715; FRL\_XXXX-X]

Recommended Human Health Recreational Ambient Water Quality Criteria or Swimming Advisories for Microcystins and Cylindrospermopsin

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Notice of Availability.

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**SUMMARY:** The Environmental Protection Agency (EPA) announces the release of final *Recommended Human Health Recreational Ambient Water Quality Criteria or Swimming Advisories for Microcystins and Cylindrospermopsin*. These are the recommended concentrations of the cyanotoxins microcystins and cylindrospermopsin in recreational waters protective of human health while swimming or participating in primary contact recreational activities on the water. The recommended values found in this document supplement the 2012 Recreational Water Quality Criteria to provide further public health protection for potentially hazardous conditions found in ambient recreational waters.

This document was released for 90-day public comment in the Federal Register on December 16, 2016. The EPA has considered the comments, revised the draft document, as appropriate, and published this final document to provide recommendations for states and

authorized tribes interested in establishing water quality standards (WQS) under the Clean Water Act (CWA). Alternatively, these same values can be used as the basis for swimming advisories in recreational waters to protect the public. States and authorized tribes may also wish to consider using these values as both WQS and swimming advisory values.

**FOR FURTHER INFORMATION CONTACT:** John Ravenscroft, Health and Ecological Criteria Division, Office of Water (Mail Code 4304T), Environmental Protection Agency, 1200 Pennsylvania Avenue NW, Washington, DC 20460; telephone number: (202) 566-1101; email address: [ravenscroft.john@epa.gov](mailto:ravenscroft.john@epa.gov).

## **SUPPLEMENTARY INFORMATION:**

### **I. General Information**

#### *A. How Can I Get Copies of This Document and Other Related Information?*

1. *Docket.* The EPA has established a docket for this action under Docket ID No. EPA-HQ-OW-2016-0715. Publicly available docket materials are available either electronically through [www.regulations.gov](http://www.regulations.gov) or in hard copy at the Water Docket in the EPA Docket Center, (EPA/DC) EPA West, Room 3334, 1301 Constitution Ave., NW, Washington, DC. The EPA Docket Center Public Reading Room is open Monday through Friday from 8:30 a.m. to 4:30 p.m., excluding legal holidays. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the Water Docket is (202) 566-2426.

2. *Electronic Access.* You may access this Federal Register document electronically from the Government Printing Office under the “Federal Register” listings FDSys (<http://www.gpo.gov/fdsys/browse/collection.action?collectionCode=FR>).

### **II. What are Microcystins and Cylindrospermopsin and Why is the EPA Concerned About Them?**

Microcystins and cylindrospermopsin are toxins that can be produced by a variety of cyanobacteria species. Cyanobacteria, also commonly referred to as blue-green algae, are photosynthetic bacteria that live in many diverse habitats. Under some conditions, cyanobacteria can proliferate to high densities in surface waters, creating a bloom, and produce toxins that are harmful to humans, the environment, and animals. Excessive growth of cyanobacteria in surface waters can lead to situations in which elevated levels of cyanotoxins are more likely, however, exposure to cyanotoxins can occur even when there are no visible signs of a bloom.

Studies indicate that, at certain concentrations, short-term and long-term adverse effects from oral exposure of microcystins and cylindrospermopsin include liver and kidney damage. Additionally, studies demonstrate that recreational exposures to these cyanotoxins can lead to headaches, sore throats, vomiting and nausea, stomach pain, dry cough, diarrhea, blistering around the mouth, and pneumonia.

### **III. Information on the Recommended Recreational Ambient Water Quality Criteria or Swimming Advisories (AWQC/SA) for the Cyanotoxins Microcystins and Cylindrospermopsin**

The EPA's recommended AWQC/SA identify the following concentrations of microcystins and cylindrospermopsin that would be protective of human health given a primary contact recreational exposure scenario: 8 µg/L for microcystins and 15 µg/L for cylindrospermopsin. For both cyanotoxins, the recommended duration and frequency depend on their application as a water quality criterion or a swimming advisory.

These values are based on the exposure of recreating children, due to their higher exposures compared to other age groups. Given that cyanobacterial blooms typically are seasonal events, recreational exposures are likely to be episodic, and may be short-term in nature. If

adopted as a WQS, for impairment assessment and listing purposes, the EPA recommends states and authorized tribes use 10-day assessment periods, not a rolling 10-day period, over the course of a recreation season to evaluate ambient water body condition and recreational use attainment. The 10-day period links the water body assessment period to the adverse health effects observed from ingestion of the toxins over short-term exposures. If toxin concentrations are higher than the criterion magnitude during a 10-day assessment period, then the EPA recommends that states and authorized tribes consider that event an excursion from the recreational criteria. The EPA recommends that when more than three excursions occur within a recreational season and that pattern reoccurs in more than one year, it is an indication the water quality has been or is becoming degraded and a water body may not be supporting the recreational use. The EPA recommends that states and authorized tribes indicate the number of years the pattern of degradation can occur and not impair the recreational use. If adopted as a swimming advisory to protect swimmers at a beach, the EPA recommends these values not be exceeded on any single day.

These recommended AWQC/SA supplement the EPA's 2012 Recreational Water Quality Criteria to provide further public health protection when elevated levels of these cyanotoxins are found in ambient recreational waters. The recommended AWQC/SA are based on the same peer-reviewed science used to develop the EPA's 10-Day Drinking Water Health Advisories for these same cyanotoxins, published in 2015. The criteria document includes information on the latest scientific knowledge related to human health effects from exposure to cyanobacteria and cyanotoxins, discussion of other domestic and international governmental and Agency guidelines for recreational waters, and information on incidents involving exposure of domestic pets and other animals to cyanotoxins.

States and authorized tribes can consider using the recommended cyanotoxin values as swimming advisories in making decisions whether to close, open, or warn about concerns in recreational waters in a manner consistent or similar to their current recreational water advisory programs. The recommended cyanotoxin values in these CWA section 304(a) recommended criteria, even if used as swimming advisories, are not regulations, and thus do not constitute legally binding requirements.

#### **IV. What are Clean Water Act Section 304(a) Water Quality Criteria?**

CWA section 304(a) water quality criteria are recommendations developed by the EPA under authority of the CWA that reflect the latest scientific knowledge on the type and extent of all identifiable effects on health and welfare of aquatic species and human health. CWA section 304(a) recommended criteria do not reflect consideration of economic impacts or the technological feasibility of meeting pollutant concentrations in ambient water.

CWA section 304(a) recommended criteria provide guidance to states and authorized tribes in developing and adopting WQS that protect specific designated uses; in this case recreation. The EPA's water quality criteria recommendations are not regulations. Thus, the EPA's recommended criteria do not constitute legally binding requirements. States and authorized tribes may adopt other scientifically defensible water quality criteria that differ from these recommendations. When adopting new or revised WQS, the states and authorized tribes must adopt criteria that are scientifically defensible and protective of the designated uses of the bodies of water. States and authorized tribes have the flexibility to do this by adopting criteria based on (1) the EPA's recommended criteria, (2) the EPA's criteria modified to reflect local conditions, or (3) other scientifically defensible methods. Cyanotoxins are not part of the 40 CFR

Part 423, Appendix A list of 126 priority pollutants, therefore states and authorized tribes are not required to adopt criteria for these cyanotoxins.

**V. What is the Relationship Between the Water Quality Criterion and your State or Authorized Tribal Water Quality Standards?**

As part of the WQS triennial review process defined in CWA section 303(c)(1), the states and authorized tribes are responsible for maintaining and revising WQS. WQS consist of designated uses, water quality criteria to protect those uses, a policy for antidegradation, and may include general policies for application and implementation. CWA section 303(c)(1) requires states and authorized tribes to review and modify, as appropriate, their WQS at least once every three years.

States and authorized tribes must adopt water quality criteria that protect designated uses. Consistent with the Agency's regulations at 40 CFR 131.11(a), protective criteria must be based on a sound scientific rationale and contain sufficient parameters or constituents to protect the designated uses. Criteria may be expressed in either narrative or numeric form.

The EPA's regulation at 40 CFR 131.20(a) provides that if a state or authorized tribe does not adopt new or revised criteria parameters for which the Agency has published new or updated recommendations, then the state or authorized tribe shall provide an explanation when it submits the results of its triennial review to the Regional Administrator consistent with CWA section 303(c)(1).

## **VI. What Changed Between the Draft and Final Criteria**

Changes in the final criteria document, compared to the December 2016 draft posted for public comment, include revised (higher) values for both microcystins and cylindrospermopsin and modified recommended duration and frequency components. In response to public comments, the Agency did not apply a relative source contribution term in deriving the final recommended criteria. Additionally, the incidental ingestion information for children was updated to reflect a study published in 2017. The updated ingestion rate was the primary factor for the change in the recommended values.

Dated: \_\_\_\_\_.

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David P. Ross,  
Assistant Administrator, Office of Water.