United States Environmental Protection Agency
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# *Draft Recreational Water Quality Criteria*

## Summary

The EPA has released for scientific views the draft document *Recreational Water Quality Criteria* (2012 RWQC). The document contains the EPA's draft ambient water quality criteria recommendations for protecting human health in marine and fresh waters that are designated for primary contact recreation. These recommendations are intended as guidance to states and authorized tribes in developing water quality standards (WQS) to protect swimmers from exposure to water that contains organisms that indicate the presence of fecal contamination. The draft document describes the scientific research and relevant findings, explains how these findings were used to derive criteria, and lists the water quality methods associated with the criteria. The EPA last issued recommended water quality criteria for recreation in 1986.

## Background

The EPA issues ambient water quality criteria recommendations for recreational waters under the authority of the Clean Water Act (CWA) section 304(a). The CWA, as amended by the Beaches Environmental Assessment and Coastal Health (BEACH) Act in 2000, requires the EPA under sections 104(v) and 304(a)(9) to conduct studies associated with pathogens and human health, and to publish new or revised criteria recommendations for pathogens and pathogen indicators based on those studies. The 2012 draft CWA section 304(a) recreational criteria are draft new or revised CWA section 304(a)(9) criteria.

The draft criteria are health-based, draw upon the latest research and science, and are based on epidemiological studies showing a link between illness and fecal contamination in recreational waters. They are based on two bacterial indicators of fecal contamination, E. coli and enterococci. The designated use the draft criteria protect is primary contact recreation, including swimming, bathing, surfing, water skiing, tubing, skin-diving, water play by children, and similar water contact activities where a high degree of bodily contact with the water and immersion and ingestion are likely.

Water quality criteria recommendations are intended as guidance to states, authorized tribes and territories in establishing new or revised WQS. They are not regulations themselves and do not impose legally binding requirements on EPA, states, territories, authorized tribes or the public.

## What are the draft recommendations?

The draft criteria are numeric concentration thresholds that protect the public from exposure to harmful levels of pathogens. The EPA evaluated the available data and determined the designated use of primary contact recreation would be protected if these criteria were adopted into WQS. These draft criteria values are the same as the 1986 criteria recommendations; the EPA has revised its recommendations on some aspects of how the criteria are implemented in water quality management programs.

### *Freshwater Criteria*

**Magnitude**: Culturable E. coli at a geometric mean (GM) of 126 colony forming units (cfu) per 100 millileters (mL) and an statistical threshold value (STV) of 235 cfu per 100 mL measured using *EPA Method 1603*, or any other equivalent method that measures culturable E. coli; culturable enterococci at a GM of 33 cfu per 100 mL and an STV of 61 cfu per 100 mL measured using *EPA Method 1600*, or any other equivalent method that measures culturable enterococci; or both of the above criteria.

**Duration**: For calculating the GM and associated STV, EPA recommends a duration between 30 and 90 days. The duration for calculating the GM and associated STV should not exceed 90 days. It is a component of a water

quality criterion and needs to be explicitly included in a state's WQS. The recreational season may vary by location. Sampling of waterbodies should be representative of meteorological conditions (e.g., wet and dry weather) for the recreational season.

**Frequency**: The EPA recommends a frequency of zero exceedances of the geometric mean and ≤ 25 percent exceedance of the STV during the recreation duration specified. The frequency of exceedance is a component of a water quality criterion and needs to be explicitly included in a state's WQS.

### *Marine Criteria*

**Magnitude**: Culturable enterococci at a GM of 35 cfu per 100 mL and an STV of 104 cfu per 100 mL measured using *EPA Method 1600*, or any other equivalent method that measures culturable enterococci.

**Duration**: For calculating the GM and associated STV, EPA recommends a duration between 30 and 90 days. The duration for calculating the GM and associated STV should not exceed 90 days. It is a component of a water quality criterion and needs to be explicitly included in a state's WQS. The recreational season may vary by location. Sampling of waterbodies should be representative of meteorological conditions (e.g., wet and dry weather) for the recreational season.

**Frequency**: The EPA recommends a frequency of zero exceedances of the GM and ≤ 25 percent exceedance of the STV, during the recreation duration specified. The frequency of exceedance is a component of a water quality criterion and needs to be explicitly included in a state's WQS.

## How are the draft criteria different from the 1986 criteria?

The EPA has developed and validated a molecular testing method called quantitative polymerase chain reaction (qPCR) as a rapid analytical technique for the detection of enterococci in recreational water. For beach monitoring, site-specific criteria could be adopted into state standards measured by *EPA's Enterococcus qPCR method A* based on a site-specific performance characterization.

For states interested in adopting a value for enterococci using *EPA's Enterococcus qPCR method A* into their WQS, EPA recommends a GM criterion of 475 CCE per 100 mL and an STV criterion of 1,000 CCE per 100 mL in freshwaters and marine waters based on its epidemiological study data.

The EPA is introducing a new term, Statistical Threshold Value (STV), as a clarification and replacement for the term Single Sample Maximum (SSM). In addition, there are no longer recommendations for different use intensities (for example higher values for infrequently used beaches) of recreational waters.

The EPA is also providing information on tools for assessing and managing recreational waters, such as predictive modeling and sanitary surveys and tools for developing site-specific criteria. These tools include the continued use of epidemiological studies and the development of quantitative microbial risk assessment.

Analysis of the National Epidemiological and Environmental Assessment of Recreational Water (NEEAR) water quality culture data refined the illness rate estimate for the recommended marine criterion for enterococci. The recommended 2012 RWQC values protect public health similarly in marine and fresh waters (8 illnesses per 1,000 recreators).

## When will EPA publish final criteria?

The EPA will accept comments on the draft document for 60 days upon publication of the notice of availability in the Federal Register (Docket identification No. EPA-HQ-OW-2011-0466). The EPA anticipates publishing final recreational criteria recommendations in the fall of 2012. For more information, go to http://water.epa.gov/scitech/swguidance/standards/criteria/health/recreation/index.cfm.

## For More Information

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