

# Water Quality Standards Handbook

## Chapter 3: Water Quality Criteria

*The WQS Handbook does not impose legally binding requirements on the EPA, states, tribes or the regulated community, nor does it confer legal rights or impose legal obligations upon any member of the public. The Clean Water Act (CWA) provisions and the EPA regulations described in this document contain legally binding requirements. This document does not constitute a regulation, nor does it change or substitute for any CWA provision or the EPA regulations.*

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## Chapter 3: Water Quality Criteria

([40 CFR 131.11](#))

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## Introduction

The [Clean Water Act \(CWA\)](#) and [40 CFR Part 131](#) require states and authorized tribes<sup>1</sup> to adopt water quality standards (WQS) consisting of three key components: designated uses, [water quality criteria](#), and an antidegradation policy<sup>2</sup>. This chapter describes ambient water quality criteria (AWQC). Specifically, Sections 3.1 and 3.2 provide background information on criteria and the general forms criteria can take. Section 3.3 describes human health criteria and the EPA's recommendations for developing such criteria. Section 3.4 describes criteria to protect recreation. Section 3.5 describes aquatic life criteria and the EPA's recommendations for developing such criteria. Section 3.6 describes nutrient (e.g., nitrogen and phosphorus) criteria, and Sections 3.7 through 3.12 describe special considerations for biological criteria, hydrologic flow, sediment, temperature, wildlife, and wetlands. Section 3.13 provides a discussion of special considerations for priority pollutants. Section 3.14 describes criteria to protect agricultural and industrial designated uses.

### 3.1 Water Quality Criteria

Under Section 303(c)(2)(A) of the [CWA](#), states and authorized tribes are responsible for adopting water quality standards that "...consist of the designated uses of the navigable waters involved and the water quality criteria for such waters based upon such uses." These standards shall "...protect the public health or welfare, enhance the quality of water and serve the purposes of this Act." 40CFR 131.3(b) further defines criteria as "...elements of State water quality standards, expressed as constituent concentrations, levels, or narrative statements, representing a quality of water that supports a particular use. When criteria are met, water quality will generally protect the designated use." Water quality criteria represent the conditions (e.g., concentrations of particular chemicals, levels of certain parameters) sufficient to restore and maintain the chemical, physical, and biological integrity of water bodies and protect applicable designated uses. Generally, criteria provide for the protection and propagation of fish, shellfish, and wildlife as well as

#### Toxic and Priority Pollutants

Section 307(a)(1) of the Clean Water Act establishes a list of **toxic pollutants**, originally contained in a House of Representatives committee report and subsequently promulgated by the EPA at [40 CFR 401.15](#). When this chapter refers to toxic pollutants, it is referring specifically to the pollutants regulated under CWA section 307(a)(1). When the chapter refers to **pollutants with toxic effects** it is including all pollutants that may have toxic properties, not just those specifically regulated under CWA section 307(a)(1).

To prioritize action on the pollutants on the toxic pollutant list and to make the list more usable, the EPA created its list of **priority pollutants**, at [40 CFR Part 423, Appendix A](#). The priority pollutant list identifies, among other things, individual chemical names, as opposed to the toxic pollutant list which identified general classes of pollutants. In this chapter, the terms priority pollutants and toxic pollutants are used interchangeably.

For more information see section 3.13 of this chapter and <https://www.epa.gov/eg/toxic-and-priority-pollutants-under-clean-water-act>.

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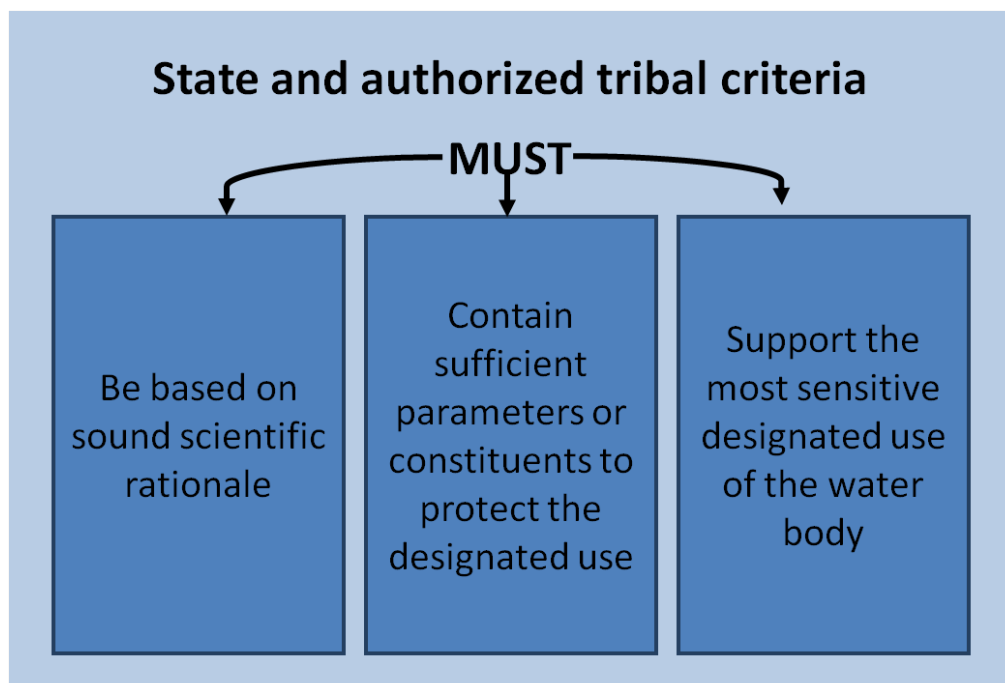
<sup>1</sup> Throughout this document and the [CWA](#), the term "states" means the fifty states, the District of Columbia, the Commonwealth of Puerto Rico, the United States Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands. The term "authorized tribes" means those federally recognized Indian tribes with authority to administer a CWA WQS program.

<sup>2</sup> The CWA specifies that WQS must consist of designated uses and criteria to protect such uses. In 1987, Congress amended the CWA to recognize that antidegradation requirements are also part of water quality standards (see section 303(d)(4)(B)). EPA's regulation at 40 CFR 131.3(i) provides that WQS "are provisions of State or Federal law" that consist of designated uses and water quality criteria. 40 CFR §§131.5(a)(3), 131.6(d), and 131.12 further reinforce that antidegradation requirements are part of WQS.

recreation in and on the water. If a criterion is exceeded, the water quality may pose a human health or ecological risk, and protective or remedial action may be needed.

To provide scientific guidance to states and authorized tribes, the EPA publishes, and from time to time revises, criteria for water quality under Section 304(a) that accurately reflect the latest scientific knowledge. The EPA's [Section 304\(a\) national criteria recommendations](#) (sometimes referred to as "304(a) criteria") provide quantitative concentrations or levels and/or qualitative measures of pollutants that, if not exceeded, will generally ensure adequate water quality for protection of a designated use. The EPA's supporting documentation for 304(a) criteria recommendations also includes evaluations of available scientific data on the effects of the pollutants such as effects on public health and welfare, aquatic life, and recreation. The EPA develops 304(a) criteria recommendations based on the best available science, scientific literature review, established procedures for risk assessment, EPA policies, external scientific peer review, and public input. Because the purpose of the EPA's 304(a) criteria recommendations, as set out in the CWA, is solely to identify levels of pollutants in water that will ensure adequate water quality protection of designated uses, the recommendations are made independent of other considerations. The EPA's 304(a) criteria recommendations do not impose legally binding requirements. Therefore, they do not substitute for the CWA or regulations, and they are not regulations themselves.

In accordance with [40 CFR 131.11](#), states and authorized tribes must adopt water quality criteria that "...protect the designated use." The EPA recommends that states and authorized tribes consider the Agency's national recommended water quality criteria when developing their criteria. However, states and authorized tribes may adopt, where appropriate, other scientifically defensible criteria that differ from the EPA's recommendations (Section 3.2.1 of this chapter describes the options for states in deriving numeric water quality criteria). Per 40 CFR 131.11(a)(1), state and authorized tribal criteria must meet the requirements presented in Figure 3.1.



**Figure 3.1: Requirements of State and Authorized Tribal Criteria under 40 CFR 131.11(a)(1)**

While most 304(a) criteria recommendations represent specific levels of chemicals in the water that are not expected to pose significant human health or ecological risks, certain pollutants primarily exert their toxic effects by accumulating in fish tissue. For such cases, a fish tissue-based criterion may be appropriate. Water column-based criteria can be derived from fish tissue-based criteria using chemical-specific translation methods. As an example, the EPA's [\*Final Aquatic Life Ambient Water Quality Criteria for Selenium – Freshwater \(2016\)\*](#) includes both fish tissue-based components as well as a translation to water column-based components. It also includes methods that a state or authorized tribe can use to derive a site-specific water column translation of the fish tissue component. Another example of a chemical-specific translation method can be found in the EPA's [\*Guidance for Implementing the January 2001 Methylmercury Water Quality Criterion \(2010\)\*](#).

Under Section 303(c) of the CWA, the EPA reviews and approves or disapproves state and authorized tribal WQS to ensure that the above requirements, among others, are met. The EPA recommends states and authorized tribes develop a record describing the scientific justification for their adopted criteria and the public participation process. If a state or authorized tribe relies on 304(a) criteria recommendations (or other up-to-date EPA guidance documents), they may reference and rely on the data in those documents and may not need to create duplicative or new material for inclusion in their records. However, where the state or authorized tribe adopts site-specific criteria or uses an approach that differs from that of the EPA's current recommendations, the approach must meet the requirements of 40 CFR 131.11(a) and should be clearly documented and transparent. In the case where a state has chosen not to adopt a new criterion or update a criterion for a parameter for which the EPA has provided new or updated CWA section 304(a) criteria recommendations, the EPA's provision at 40 CFR 131.20(a) requires states and authorized tribes to provide an explanation for why it is choosing not to adopt new or revised criterion at that time. This explanation must be provided to the EPA when the state submits the results of its triennial review, consistent with 40 CFR 131.20(c). This explanation, while not approved or disapproved by the EPA, is an important method for a state or authorized tribe to use to explain its rationale to the public and be transparent in its decision-making process. Please see [Chapter 7](#) of this Handbook for additional information on the requirements at 40 CFR 131.20.

The EPA recommends that states and authorized tribes coordinate with the EPA before beginning activities to adopt new or revised WQS long before they formally submit the WQS for EPA review. Reasons for early coordination with the EPA include the following:

- Early identification of potential areas of scientific or programmatic concern that require resolution between the EPA and the state or authorized tribe, or with the federal agencies responsible for any relevant threatened or endangered species.
- Discussion and resolution of any such concerns before the EPA receives a formal review request from the state or authorized tribe.
- Increased likelihood that state or authorized tribal WQS meet the requirements of the CWA and 40 CFR 131 at the time of submission to the EPA.

While not a regulatory requirement, states and authorized tribes may send draft WQS to the EPA for early feedback. The EPA will then provide comments on the proposed revisions to assist the state or authorized tribe in developing WQS that are approvable. Coordination between the state or authorized tribe and the EPA throughout the review process may assist in the EPA's timely review of state and authorized tribal WQS.