United States Environmental Protection Agency

Office of Water
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Narrative Templates for Wetland Water Quality Standards Frequently Asked Questions

Why are wetlands important?

Over 220 million acres of wetlands are thought to have existed before European settlement of the conterminous United States. In the centuries that followed, wetlands were routinely drained or converted to other uses, and today, only 110 million acres of wetlands remain. While the rate of loss of wetlands has decreased in recent decades, the lack of wetlands has exacerbated the impact of climatic events like hurricanes and sea level rise (particularly in coastal areas). Wetlands function as natural sponges that trap and slowly release surface water, rain, snowmelt, groundwater, and flood waters, distributing the water more slowly over the floodplain. This combined water storage and braking action lowers flood heights and reduces erosion. Preserving and restoring wetlands can often provide the level of flood control otherwise provided by expensive dredge operations and levees. The bottomland hardwood–riparian wetlands along the Mississippi River once stored at least 60 days of floodwater. Now they store only 12 days of floodwater because most have been filled or drained.

Wetlands are among the most productive ecosystems in the world, comparable to rain forests and coral reefs. Many animals and plants inhabit wetlands—so much so that they are referred to as "biological supermarkets." Teeming with biological activity, wetland ecosystems provide integral components for animal life, which in turn, attract larger predatory fish, amphibians, reptiles, birds, and mammals. In addition, wetland microbes, plants, and wildlife are part of the global cycles for water, nitrogen, and sulfur. Scientists now know that greenhouse gas regulation may be an additional function that wetlands provide. Wetlands store carbon within their plant communities and soil instead of releasing it to the atmosphere as carbon dioxide. Thus, in addition to being flood buffers and major food web components, wetlands help to moderate global climate conditions.

What are wetlands?

Wetlands are areas where water covers the soil, or is present either at or near the surface of the soil all year or for varying periods of time during the year, including during the growing season. Water saturation (hydrology) largely determines how the soil develops and the types of plant and animal communities living in and on the soil. Wetlands may support both aquatic and terrestrial species. The prolonged presence of water creates conditions that favor the growth of specially adapted plants (hydrophytes) and promote the development of characteristic wetland (hydric) soils.

Wetlands vary widely because of regional and local differences in soils, topography, climate, hydrology, water chemistry, vegetation and other factors, including human disturbance. Indeed, wetlands are found from the tundra to the tropics and on every continent except Antarctica.

Further, wetlands are part of the foundation of our nation's water resources and are vital to the biological, chemical, physical, and hydrological integrity of waterways and downstream communities. Wetlands are a key link between land and water as they trap floodwaters, buffer against storm surges, recharge groundwater supplies, remove pollution, protect downstream waters, and provide fish and wildlife habitat. Wetlands are also economic drivers because of their key role in fishing, hunting, and recreation. Wetlands include swamps, marshes, and bogs (among others), and vary widely because of differences in soils, topography, climate, hydrology, water chemistry, vegetation, and other factors.

What is the purpose of the templates?

The Narrative Templates for Wetland Water Quality Standards (templates) are a customizable tool for states, territories, and authorized tribes (hereafter: *states*) to use to simplify and streamline the development of protective standards that will guide maintenance of the spatial and functional components of wetlands. The templates provide options for wetland-specific terms so regulators can develop water quality standards that best suit the needs of, and conditions in a given wetland, wetland type, or state. Some states have robust wetland-specific water quality standards while many others have limited wetland-specific components in their standards or apply their general surface water quality standards to wetlands. The templates are intended to assist states without robust wetland-specific standards in providing more comprehensive protection for their wetlands by putting wetland-specific standards in place.

How do I use the templates?

The templates are separated into the three components of water quality standards: Designated Uses, Criteria, and Antidegradation. By customizing all three components to the needs of the state and its wetland resources, the user can generate a narrative statement that serves as a wetland-specific water quality standard. To do this, place the cursor over the desired option(s) in the pick list and click to anchor the desired term into the narrative statement—to remove a selected term, simply click on it again. Some pick-lists allow for only one selection from the pick-list, while others allow for multiple selections. Once customized to the needs of the state, the new narrative water quality standard can be exported as a .docx file or copy/pasted. (Note: the options in this tool were intended to be as comprehensive as possible at this time, but are not exhaustive; if an option is not provided, simply include it in the version submitted for EPA approval.)

How do the templates assist in development of water quality standards?

Water quality standards are the foundation of the water quality-based pollution control program mandated by the Clean Water Act. Water quality standards define the goals for a water body by designating its uses, setting criteria to protect those uses, and establishing provisions such as antidegradation policies to protect water bodies from pollutants. Completing the three templates in this tool provides assistance to a state developing water quality standards. After development, the state can then initiate the process[1] of adoption prior to submitting the final version to EPA for approval. (Note: EPA retains the authority to review and approve or disapprove any submitted water quality standard.)

[1] EPA Office of Water, “How Are Standards Developed?” (http://go.usa.gov/cRmh9)

Why are water quality standards for wetlands important?

The Clean Water Act establishes the basic structure for regulating discharges of pollutants into the waters of the United States and establishing water quality standards for surface waters. Set by each state, water quality standards are the foundation for a wide range of programs under the Clean Water Act. Water quality standards establish the environmental benchmark used for measuring the success of Clean Water Act programs, so adequate protection of the beneficial uses of water bodies, such as aquatic life and wildlife, recreation, and sources of drinking water depends on developing and adopting well-crafted water quality standards. The following Clean Water Act programs are informed by water quality standards: Total Maximum Daily Loads (TMDLs) developed under section 303(d), section 305(b) reporting on water quality, section 401 water quality certification, water quality-based effluent limits (WQBELs) in discharge permits issued by the National Pollutant Discharge Elimination System (NPDES) under section 402, and section 404 permitting for the discharge of dredged and fill material[2]. Water quality standards also establish clear goals important for other activities including watershed planning, protection, and restoration.

Water quality criteria may include general statements (narrative) and specific numerical values (i.e., concentrations of contaminants and water quality characteristics). Most state water quality standards already contain many criteria for various water body types and designated use classes that may be applicable to wetlands, including narrative and numeric criteria for the protection of human health and freshwater and saltwater aquatic life. However, wetlands are different from other surface water systems in that they provide different functions and have different vulnerabilities. Without specific recognition of these attributes and functions—along with statements to protect and maintain those attributes and functions—it is possible to lose or impair these features. Wetland-specific standards provide for more robust wetland protection when implementing the Clean Water Act and other resource protection programs.

Why do the templates focus on narrative wetland water quality standards?

Wetlands exist as ecosystems along the margins (land–sea, land–lake, land–river) and in depressional landscapes (e.g., prairie potholes in the Midwest and kettle-hole wetlands in the northern U.S.). By season and location, wetlands experience variable water depth and velocity, soil type and saturation levels, vegetation, nutrient levels, sediment type, and oxygen demand, both within a given wetland and among wetland types. Given the complex spatial and temporal heterogeneities of these unique ecosystems, narrative (rather than numeric) statements may be the best approach for states when first developing water quality standards for wetlands. (An example of a narrative water quality standard: Wetlands shall be free from toxic substances, alone or in combination with other substances, in concentrations that result in acute or chronic toxicity to aquatic life.) The templates for developing narrative water quality standards will be most beneficial to states that are in the early stages of developing wetland-specific standards. Once approved, these narrative standards will allow the state to implement the standards in the full array of Clean Water Act programs. It is important to note that a narrative criterion does not obviate the need to interpret the narrative standard quantitatively in

[2] For further clarification on water quality standards, antidegradation policy, and 404 policy, see Question 13 of Appendix G in the EPA Water Quality Standards Handbook, 2nd Edition (1994): http://go.usa.gov/cmYV9.

permits or TMDLs, as such an approach does not provide the same degree of specificity regarding specific endpoints as compared to a numeric criteria approach.

Why might a state pursue adoption of numeric wetland water quality standards?

States may wish to pursue numeric wetland water quality criteria as a further goal to enhance protection. Numeric water quality criteria are specific numeric values for chemical constituents, physical parameters, or biological conditions that are adopted into state water quality standards. (An example of a numeric water quality standard: The dissolved oxygen content of estuarine wetlands shall not be less than 3 milligrams per liter or 30% of saturation, whichever is higher.) Water quality criteria for the protection of human health are based on the toxicity of a contaminant and the amount of the contaminant consumed through ingestion of water and fish regardless of the type of water body. Therefore, states can directly apply EPA's chemical-specific human health criteria recommendations to wetland water quality standards. EPA also develops chemical-specific numeric water quality criteria recommendations for the protection of freshwater and saltwater aquatic life. The numeric aquatic life criteria, although not designed specifically for wetlands, were designed to be protective of aquatic life and are generally[3] applicable to most wetland types. As in other waters, natural water quality characteristics in some wetlands may be outside the range established for uses designated in state standards for other water bodies. Establishment of wetland-specific numeric water quality standards may necessitate the development of criteria that reflect the natural background conditions in a specific wetland or wetland type, which typically requires years of data collection, research, field testing, and calibration. Numeric criteria are more straightforward in terms of implementation in permits, assessment of waters, and TMDLs and will likely reduce workload on these programs. Examples of some of the wetland characteristics that may fall into this category are dissolved oxygen, pH, turbidity, color, and hydrogen sulfide. Many states have also adopted quantitative expressions, often as index values (e.g., Index of Biological Integrity), for biological characteristics (i.e., flora and fauna) that are indicative of a certain type of system or consistent with a specific degree of condition (i.e., high quality, moderate quality, low quality). These numeric biological criteria can be a powerful tool for monitoring and protecting natural systems, as well as for watershed planning and water resource development. Please see the reference below for Ohio's wetlands water quality standards as an example of such an approach.

How do wetlands mitigate the potential impacts of climate change?

As the link between land and water, wetlands play a vital role in protecting the integrity and resilience of watersheds and their communities. Wetlands provide a wide array of functions including shoreline stabilization, flood protection, carbon sequestration, and erosion control, all of which directly benefit adjacent and downstream waters as well as upland (often populated) areas. As a result of climate change, sea level has been rising faster and coastal storms, erosion, and inundation have caused more frequent and widespread threats to coastal communities—as observed during Superstorm Sandy in 2012. The Old Place Creek wetlands in Staten Island, NY provided significant protection to businesses and homes near Staten Island's north shore against Superstorm Sandy's floodwaters, preventing potentially millions of dollars in additional economic losses. Wetlands within urban areas are particularly valuable, as they can counteract the impacts of hard surfaces that don't absorb storm surge or

[3] An exception to this are pH-dependent criteria, such as ammonia and pentachlorophenol, since wetland pH may be outside the normal range of 6.5–9.0.

rainwater. The 2014 National Climate Assessment identifies coastal recreation and tourism as "the largest and fastest-growing sector of the U.S. service industry, accounting for 85 percent of the $700 billion annual tourism-related revenues."[4] Yet the coastlines of the United States are particularly vulnerable to the complex interactions between a changing climate and physical, human, and ecological factors. Increasingly, climatic events have demonstrated the vulnerability of coastal systems, particularly where storm surge-buffering wetlands have been removed or degraded. Likewise, changing patterns of precipitation and temperature in inland areas only increase the importance and value of the buffering features wetlands provide. Adopting water quality standards for wetlands—in both coastal and inland areas—allows states to protect existing wetlands while also providing a descriptive target to help guide efforts to restore degraded or lost wetlands.

What are some additional resources?

How do I develop wetland water quality standards? U.S. Environmental Protection Agency. http://www.epa.gov/wetlands/how-do-i-develop-wetland-water-quality-standards.

Impacts on Quality of Inland Wetlands of the United States: A Survey of Indicators, Techniques, and Applications of Community Level Biomonitoring Data. 1990. U.S. Environmental Protection Agency. EPA/600/3-90/073.

Kusler, Jon and Jeanne Christie. 2012. Wetland Water Quality Standards for States. Association of State Wetland Managers. http://www.aswm.org/pdf_lib/wwq_standards_for_states.pdf.

Kusler, Jon. 2011. A Discussion Paper on Developing State Water Quality Standards for Wetlands. Association of State Wetland Managers. http://www.aswm.org/pdf_lib/state_water_quality_standards_for_wetlands_061410.pdf.

Melillo, Jerry M., Terese (T.C.) Richmond, and Gary W. Yohe, Eds. 2014. Climate Change Impacts in the United States: The Third National Climate Assessment. U.S. Global Change Research Program, 841 pp. doi:10.7930/J0Z31WJ2.

Methods for Evaluating Wetland Condition modules. U.S. Environmental Protection Agency. http://www.epa.gov/nutrient-policy-data/wetlands-modules.

Nutrient Criteria Technical Guidance Manual—Wetlands. 2008. United States Environmental Protection Agency. EPA-822-B-08-001.

State Wetland Protection: Status, Trends & Model Approaches—A 50-state study by the Environmental Law Institute. 2008. Environmental Law Institute. http://www.eli.org/sites/default/files/eli-pubs/d18__06.pdf.

Study of State Wetland Programs. Environmental Law Institute. http://www.eli.org/freshwater-ocean/state-wetland-programs.

Water Quality Standards Academy. U.S. Environmental Protection Agency. https://wcms.epa.gov/wqs-tech/water-quality-standards-academy.

[4] 2014 National Climate Assessment, http://nca2014.globalchange.gov/highlights/regions/coasts

Water Quality Standards for Wetlands: National Guidance (adapted from July 1990 and Appendix D of the Water Quality Standards Handbook: Second Edition, August 1994). U.S. Environmental Protection Agency. http://www.epa.gov/cwa-404/policy-and-guidance.

Water Quality Standards Handbook, An Approach for Evaluating Numeric Water Quality Criteria for Wetlands Protection—Appendix E. 1991. U.S. Environmental Protection Agency. https://wcms.epa.gov/sites/production/files/2014-10/documents/handbook-appendixe.pdf.

Water Quality Standards Handbook, National Guidance: Water Quality Standards for Wetlands—Appendix D. 1990. U.S. Environmental Protection Agency. EPA 440/S-90-011.

Water Quality Standards Handbook, Questions and Answers on Antidegradation—Appendix G. 1985. U.S. Environmental Protection Agency. https://wcms.epa.gov/sites/production/files/2014-10/documents/handbook-appendixg.pdf.

Water Quality Standards Handbook—Chapter 1: General Provisions (40 C.F.R. 131.1–131.6). 2014. United States Environmental Protection Agency. EPA-820-B-14-008.

Wetlands Monitoring and Assessment. U.S. Environmental Protection Agency. http://www.epa.gov/wetlands/wetlands-monitoring-and-assessment.

State wetlands-specific water quality standards links

Colorado

Basic Standards Applicable to Surface Waters of the State
Colorado's code of regulations describing basic standards applicable to surface waters of the state including those specific to "surface waters in wetlands" (see section 1(b)).

Process for Assigning Standards and Granting, Extending, or Removing Temporary Modifications
Colorado's code of regulations describing the process for assigning standards, including "standards for surface waters in wetlands" (see section 1(b)(iv)), as well as for granting, extending, or removing modifications to existing numeric standards.

Iowa

Water Quality Standards (PDF) (29 pp, 143.3K)
Iowa's water quality standards including standards specific to class "B(LW)" waters; lakes and wetlands (see section 61.3(3)(b)).

Minnesota

Wetland Standards and Mitigation
Minnesota's administrative rules on wetland standards and mitigation.

Specific Water Quality Standards for Class 2 Waters of the State; Aquatic Life and Recreation
Minnesota's administrative rules for Class 2 waters (see Subpart 6 for Class "2D" waters; wetlands).

Nondegradation for All Waters
Minnesota's administrative rules to protect all waters from significant degradation from point and nonpoint sources and wetland alterations and to maintain existing water uses and aquatic and wetland habitats.

Nebraska

Water Quality Standards for Wetlands (PDF) (14 pp, 47.5K)
Nebraska's administrative code on water quality standards for wetlands.

North Carolina

Classifications and Water Quality Standards Applicable to Surface Waters and Wetlands (PDF) (133 pp, 960.6K)
North Carolina's water quality standards for surface waters and wetlands.

Northern Cheyenne Tribe

Wetlands Program Plan for the Northern Cheyenne Reservation of Montana (2013–2017) (15 pp, 4.6M)
Designed to further tribal wetland goals and objectives aimed at preserving and protecting key wetland areas for future generations. This document will serve as a guide to fulfill the "no net loss of wetlands" philosophy the tribal agencies have adopted.

Ohio

Wetland Narrative Criteria (PDF) (2 pp, 10K)
Ohio's administrative code describing narrative criteria that apply to wetlands.
Chemical Criteria for Waste Water Discharges to Wetlands (PDF) (1 pg, 8.3K)
Ohio's administrative code describing numeric chemical criteria for waste water discharges to wetlands.
Wetland Antidegradation (PDF) (15 pp, 656.4K)
Ohio's administrative code describing its wetland antidegradation policy.

Washington

Water Quality Guidelines for Wetlands: Using the Surface Water Quality Standards for Activities Involving Wetlands (April 1996)
This guidance document describes Washington's surface water quality standards and how the standards apply to wetlands. It describes how a water quality decision is reached regarding wetlands using the Antidegradation Decision-Making Process (including the role of wetland mitigation).

Wisconsin

Water Quality Standards for Wetlands (PDF) (4 pp, 31.3K)
Wisconsin's administrative code describing water quality standards for wetlands.