

**TRIBAL, STATE, AND TERRITORY
WETLANDS PROGRAM CORE ELEMENT FRAMEWORK**



**U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF WATER
OFFICE OF WETLANDS, OCEANS, AND WATERSHEDS
EPA-843-R-23-002
FEBRUARY 2023**

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ACRONYMS

TERM	ABBREVIATION
Clean Water Act	CWA
Core Element Framework	CEF
Core Element	CE
Environmental Protection Agency	EPA
Floristic Quality Assessment	FQA
Geographic Information System	GIS
Hydrogeomorphology	HGM
Natural Resource Conservation Services	NRCS
Rapid Assessment Method	RAM
Request for Applications	RFA
State Programmatic General Permit	SPGP
Total Maximum Daily Load	TMDL
Water Quality Standards	WQS
Wetland Program Development Grant	WPDG
Wetland Program Plan	WPP

EXECUTIVE SUMMARY

This document is an update to the 2008 *Core Elements of Effective State and Tribal Wetlands Program* document (abbreviated as the Core Element Framework (CEF)). The CEF presents a guide for Tribes and States, including territories, local government agencies, and interstate/intertribal entities (hereinafter, “Tribes and States”), on how to develop, build, refine, and maintain a comprehensive and sustainable wetland program.

This document provides a systematic approach for Tribes and States to develop a comprehensive wetland program based on four core elements: comprehensive monitoring and assessment, development and implementation of a robust regulatory program, a mechanism to allow for voluntary restoration and protection, and development and implementation of water quality standards for wetlands. If Tribes and States base their programs on these fundamental elements and follow the sequencing actions identified for each core element phase, they can create a comprehensive program. Where Tribes and States have a wetland program, they may only need to address a specific element. In this case, this document provides a suite of actions and associated activities that may be selected to address different needs to help Tribes and States further develop their wetland programs.

KEY SUMMARY POINTS

- Tribes and States should use the Core Element Framework (CEF) as the foundation for developing a comprehensive wetland program and a Wetland Program Plan (WPP).
- Tribes and States can use a suite of activities or one activity simultaneously to address specific or multiple needs. The actions and activities outline how a Tribe or State could plan, develop, and implement a program to meet its goals without being overly prescriptive.
- Tribes and States should articulate in the WPPs their goals and actions to accomplish over time, provide metrics for tracking success, and support for decision-making. For example, WPPs can include critical issues, such as climate adaptation and environmental justice.
- Tribes and States may leverage Wetland Program Development Grants (WPDGs) to develop and fund specific actions and activities covered in the CEF. Note, in order to be considered eligible for a grant, the proposal needs to demonstrate a linkage with the CEF.
- Tribes and States are encouraged to work with their partners and interested parties (or develop new partnerships) to formalize agreements and actions to promote outreach, education, and other activities jointly where they align with their needs if part of a WPDG proposal, outreach, education, and partnerships should be linked to one or more of the core elements.
- Tribes and States should use and promote their WPP to publicly communicate their needs and planned actions/activities. If EPA funds a WPP, EPA posts the WPP on a publicly accessible EPA webpage.

SECTION 1: INTRODUCTION

The Environmental Protection Agency (hereafter termed “EPA” or “Agency”), Tribes, and States share a broad goal for managing wetland resources: to protect and restore wetland resources for their economic, environmental, and human health benefits.

In 2008, EPA, Tribes, and States collaboratively developed the CEF, based on decades of wetland program experience. The CEF provides a framework for designing a wetland program using the following core elements:

- Monitoring and assessment;
- Regulatory;
- Voluntary restoration and protection; and
- Water quality standards for wetlands.

Tribes and States can use these core elements to protect their wetland resources and address critical issues, such as environmental justice, Indigenous Knowledge, and climate change.

Additionally, Tribes and States may leverage EPA Wetland Program Development Grants (WPDG) to develop a program or address specific needs. The WPDG is a competitive wetland grant program designed for Tribes and States to pursue short and long-term program-building activities.

Core Element Framework

Tribes and States may use the CEF as the foundation for developing a comprehensive wetland program. Sections 2 through 5 below discuss each core element in further detail and provide general program-building actions and specific activities that Tribes and States can use to build their wetland programs and/or address specific needs.

Different Tribal and State needs can be linked to a specific core element. For example, a Tribe or State may have determined that they have one or more of the following goals:

1. To better understand quantity and quality of wetland resources. (This need could be addressed through monitoring and assessment.)
2. To restore and preserve unique wetland resources. (This need could be addressed through monitoring and assessment, water quality standards, a robust regulatory program, and/or voluntary restoration.)
3. To reduce procedural complexity in administering the wetlands permitting program. (This need could be addressed through the regulatory core element.)
4. To better protect and manage wetland resources. (This need could be addressed via development of water quality standards for wetlands and a robust regulatory program.)

Even though the CEF guides Tribes and States in developing their programs using one or more core elements simultaneously, a Tribe or State should consider how the core elements, individually and collectively, support the specific program development needs. Many actions and activities are interconnected among the different core elements. Accordingly, program-building actions and activities developed under one core element can be used as building blocks to develop other core elements as opportunities and resources allow. In addition, many of the actions and activities in each of the core elements can help identify and address wetland information needs and management decisions. For example, an initial inventory could be conducted under the Monitoring & Assessment Core Element to determine the extent necessary and/or to assess progress in Restoration. Following are some examples.

Monitoring and Assessment Core Element:

- Information needs. Identify:
 - Species diversity and density, including native, culturally significant, and invasive species.
 - Overall health/condition/quality of aquatic resources, including navigable waters, could be evaluated based on functionality.
 - Trends, such as wetland acreage and functional gains and losses over time, land use changes, and potential stressors.
- Information uses/linkages with other core elements. Identify:
 - Potential vulnerabilities (e.g., areas experiencing more significant flood or drought conditions) of climate change on wetland ecosystems, including ecological functions and societal concerns, including populations with environmental justice concerns. Vulnerabilities could be addressed in the regulatory or voluntary restoration and protection core elements. For example, regulatory decisions could ensure protection by limiting development in flood prone areas and requiring mitigation for loss of certain aquatic resources and functions. Voluntary restoration and protection actions could purchase and set aside certain aquatic resource habitats.
 - Opportunities to protect valuable aquatic resources, including wetland restoration, enhancement, creation, or preservation. Solutions can be addressed in the regulatory or voluntary restoration and protection core elements. For example, regulatory decisions could ensure protection by limiting development and requiring mitigation for the loss of certain aquatic resource habitats. Valuable aquatic resource habitats could be purchased and set aside under the voluntary restoration and protection core element.
 - Opportunities for determining whether wetland water quality standards are needed, effective or refined. Opportunities could be addressed in the water quality standards core element. For example, wetlands could be designated as special uses and require adoption of water quality standards.

Regulatory Program Core Element:

- Information needs:
 - Determine if adequate protection and compensation for aquatic resources, including wetlands, is occurring via existing permitting and certification programs.

- Information uses/linkages with other core elements:
 - Determine adequacy of program – is there a need to create, develop, or refine regulatory permitting and certification programs?
 - Use monitoring and assessment data, where possible, to help identify wetlands and other unique habitats to be protected, avoided, and mitigated under a regulatory program, consistent with Clean Water Act (CWA) section 305(b) requirements and support decision-making.
 - Use water quality standards, where appropriate, to support regulatory decisions in protecting aquatic resource habitats and health.

Voluntary Restoration and Protection Program Core Element:

- Information needs:
 - Determine if adequate protection is occurring for aquatic resources, including wetlands.
 - Identify critical wetland ecosystems and address/depict them in habitat conservation plans or other relevant Tribal or State water resource planning documents. Discuss the importance of the system. For example, how do they help with climate adaptation and mitigation? Do they store flood waters or act as a barrier to storm surges associated with severe weather events? How do they recycle nutrients? Are they filtering pollutants? Do they support green infrastructure initiatives/nature-based solutions and nonpoint source control projects?
- Information uses/linkages with other core elements:
 - Determine adequacy of program – create, develop, or refine the voluntary restoration and protection program, as needed.
 - Use monitoring and assessment data and local planning documents to prioritize purchasing and restoring/enhancing aquatic resource habitats.
 - Use data to develop a plan to further communicate the important uses and build partnerships to facilitate science-based restoration and protection activities.

Water Quality Standards Program Core Element:

- Information needs. Identify:
 - Appropriate wetland-specific designated uses to be achieved and protected.
 - Appropriate narrative physical criteria (e.g., fill material not present; no hydrologic alterations.)
 - Appropriate narrative biological criteria (e.g., species composition, population dynamics, structure.)
- Information uses/linkages with other core elements:
 - Use monitoring and assessment data to determine need (and limits) for water quality standards for wetlands.
 - Use regulatory permit conditions and enforcement procedures (e.g., under CWA section 404/401) to ensure attainment of water quality standards.
 - Water quality standards for wetlands can help determine capacity for wetlands to aid in nonpoint source protections and green infrastructure.

EPA encourages Tribes and States to work together and formalize agreements and actions to promote outreach, education, and other activities jointly. Although these partnerships, including public-private partnerships, are not included as one of the core elements, these partnerships can support additional program efficiencies, greater program success, and more resource protection. EPA encourages Tribes and States to explore, develop, and use interagency agreements/partnerships that align with their specific program development needs. EPA encourages Tribes and States to consider how their specific efforts can support (or supplement) other CWA programs, including sections 303 (c) and (d), 305, 319, 401, and 404, and the Safe Drinking Water Act, including source water protection.

Wetland Program Plans (WPPs)

Tribes and States are encouraged to use the CEF to develop WPPs, which are voluntary plans that describe long-term, aspirational wetland program goals, broad-based actions, and specific activities to protect and restore wetland resources and address emerging issues. WPPs articulate what a Tribe or State wants to accomplish over time, provide metrics for tracking success, and support decision-making. Tribes and States can also use the WPP to help publicly communicate their program goals and success stories. Tribes and States can share their WPPs widely to allow the public and potential partners, such as local governments and universities, to understand their wetland program goals and assist in achieving them.

Additionally, WPPs can be used to address evolving wetland issues such as climate adaptation and environmental justice. For example, Tribes and States can identify climate goals to signal how monitoring and assessment activities could be used to obtain information on how coastal wetlands mitigate storm surges associated with climate-induced extreme weather events. Over time, these data can be used to support permit actions under the regulatory core element, wetland restoration priority-setting actions under the voluntary restoration and protection core element, or to develop the narrative wetland water quality standards under the water quality standards core element. The WPP could include actions to assess and mitigate flood impacts on communities with environmental justice concerns.

Wetland Program Development Grants (WPDGs)

Tribes and States can use the WPDGs to develop or refine their programs to protect, manage, and restore wetlands.

The list of activities in the CEF, while not meant to be an exhaustive list, includes actions and activities that can be carried out under a WPP and/or to develop, build, and maintain a wetland program. All applications submitted under a WPDG Request for Applications (RFA) must be for projects that develop or refine Tribal or State wetland programs. Each application should include either list of an action(s) and/or activity(ies) under one or more of the core elements in the CEF that will be implemented or explain how the project tasks fit within the CEF to be eligible for funding under the WPDG competition. If the applicant cannot do so, the project will be considered ineligible and removed from consideration for funding.

The statutory authority for WPDGs is section 104(b)(3) of the CWA, 33 U.S.C. §1254(b)(3). Section 104(b)(3) of the CWA allows these funds to be used only for developing or refining wetland programs by conducting or promoting coordination and acceleration of research, investigations, experiments, training, demonstrations, surveys, and studies relating to the causes, effects (including health and welfare effects), extent, prevention, reduction, and elimination of water pollution. Implementation activities associated with the wetland protection program are not eligible under this program. An implementation project is one that is accomplished through the performance of routine, traditional, or established practices, or a project that is simply intended to carry out a task rather than transfer information or advance the state of knowledge.

Document Sections

The following sections walk through each of the core elements. Section 2 focuses on monitoring and assessment, Section 3 on regulation, Section 4 on voluntary wetland restoration and protection, and Section 5 on water quality standards.

Each section is structured similarly: the first subsection provides an introduction, the second defines the core element, the third provides a menu of activities for developing or enhancing the element, and the fourth, resources and references.

Resource Links

Core Elements Framework:

- EPA *Core Elements of Effective State and Tribal Wetlands Program* document. Accessed at: https://www.epa.gov/sites/default/files/2015-10/documents/2009_03_10_wetlands_initiative_cef_full.pdf

Wetlands Program Plans:

- <https://www.epa.gov/wetlands/developing-state-or-tribal-wetland-program-plan>
- <https://www.epa.gov/climate-adaptation/climate-adaptation-plans>
- <https://www.epa.gov/environmentaljustice/resources-creating-healthy-sustainable-and-equitable-communities>

Wetlands Program Development Grants:

- <https://www.epa.gov/wetlands/wetland-program-development-grants-and-epa-wetlands-grant-coordinators>

SECTION 2: MONITORING AND ASSESSMENT

Introduction

The following sections are to help Tribes and States develop a monitoring and assessment program. First, is a section defining critical elements that characterize a comprehensive monitoring and assessment program. Second, are identified actions and activities to be considered when developing a plan and/or applying for a WPDG. The final section provides additional resource links.

Definition

A monitoring and assessment strategy can be defined as the establishment and operation of appropriate devices, methods, systems, and procedures necessary to monitor, compile, and analyze data on the condition of wetlands on Tribal lands or in a State (adapted from *Elements of a State Water Monitoring and Assessment Program, 2006*). Monitoring is the systematic observation and recording of current and changing conditions, and assessment is using that data to evaluate or appraise wetlands to support planning and decision-making.

Wetlands can be characterized by their extent and functions to determine the overall condition (i.e., health or quality). The wetland's condition can be further analyzed for a site by comparing it to a reference site or Water Quality Standards (WQS). Reference condition is a standard or benchmark of ecological integrity, which is the ability of a system to support and maintain a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization typical of wetlands in the region. In general, the reference site is used to determine the condition of a wetland before the disturbance occurred. Comparisons over time between reference and at-risk or degraded systems can help describe biological responses and patterns in wetland health.

EPA typically uses a three-tier framework to monitor and assess the condition of a wetland, including a landscape assessment (Level 1), rapid assessment (Level 2), or intensive site assessment (Level 3). A *Level 1* (landscape assessment) can be completed using GIS data to inventory and assess landscape disturbance indices to assess wetland conditions. A *Level 2* (rapid assessment) can be achieved using relatively simple metrics to assess wetland conditions. A *Level 3* (intensive site assessment) can be used to provide a more thorough and rigorous measure of wetland condition by gathering direct and detailed measurements of biological taxa and/or hydrogeomorphic functions.

Most Tribes and States draw on one or more of these tiers when designing and implementing their wetlands monitoring programs. For example, assessing the extent of wetland gains and losses on Tribal lands or in a State for a specified baseline (e.g., European Settlement, initiation of a regulatory program, or initiation of a monitoring program) is addressed by a Level I (landscape level) measure, often using GIS or other remote sensing methods. Measurement of condition generally requires Level II or III methods, which may be carried out based on a

statistically random sample of all wetlands or specific wetland types, or of wetlands in a priority geographic area or watershed. The evaluation of an individual site in a timely manner as needed to respond to a permit or license application is typically done using a Level II Rapid Assessment Method (RAM), Floristic Quality Assessment (FQA), or similar method that can be carried out in a matter of hours, rather than days. These methods are scientifically based, but also require application of best professional judgment. Definition of the range of normal chemical, physical, or biological conditions requires Level III monitoring for the parameters of concern over a wide geographic area. Level III includes research-derived, multi-metric indices such as the Hydrogeomorphic Approach or Biological Assessments. They are meant to give detailed information regarding how well a wetland is functioning. This information can help in developing numeric limits and may be used for Tribe or State's water quality standards.

Wetland assessment activities at all three levels can be effectively integrated with other surface water monitoring efforts, such as stream or habitat assessments. For example, a probabilistic survey of wetland conditions can be used to help establish Total Maximum Daily Load (TMDL) for riverine TMDL survey areas. Doing so can provide a more integrated understanding of watershed health and a foundation for developing more effective management approaches.

Monitoring and Assessment Program

In general, a well-designed and executed wetland monitoring and assessment program can be a critical tool for Tribes and States to use to better manage and protect their wetland resources. For example, monitoring and assessment can allow Tribes and States to document baseline conditions that identify wetlands extent, condition, and function. Over time, Tribes and States can detect changes and make appropriate decisions to protect their resources.

EPA recommends that Tribes and States identify their program specific monitoring and assessment needs. After the needs are outlined for the program, program goals can be identified. The program goals can be used to determine which phase to enter. For example, if your goal is to determine the extent and location of wetland resources within a specific area, Phase 1 actions and activities are the starting point. If implementation is the focus, then start with Phase 2. If program refinement or decision-making is the focus, start with Phase 3.

EPA recommends that you design and build your program to address your specific needs, which could result in blending some activities from the same or different phases. The phases are as follows (Tables 1 – 3):

Table 1. Phase 1: Monitoring and Assessment Planning Considerations

Actions	Menu of Activities
<p>a. Identify program decisions and long-term environmental outcome(s) that will benefit from a wetland monitoring and assessment program (i.e., develop a wetland monitoring strategy)</p>	<ul style="list-style-type: none"> • Document program’s long-term environmental goals • Identify programs that may use monitoring data (e.g., CWA section 401 certifications, restoration, permitting programs) • Collaborate with water quality programs in a state/tribe • Identify how wetland data can be used to implement watershed planning and integrated into existing water quality monitoring efforts, other critical issues like environmental justice and climate change, and emerging issues related to aquatic resource health and management
<p>b. Define wetland monitoring goals and objectives, which generate data that serve management decision needs</p>	<ul style="list-style-type: none"> • Coordinate with most relevant partners, for example: federal, state, tribal, and local agencies, universities, regional and national work groups • Examine other sources for monitoring information within the Tribe or State to identify monitoring objectives and goals • Define data needs and uses, including emerging issues
<p>c. Select and integrate multiple designs to meet the full range of decision needs</p>	<ul style="list-style-type: none"> • Determine classification scheme to group the type, class, and size of wetlands • Develop mapping system to be used as part of the sampling design (including how wetland inventory maps will be updated) • Describe site selection process • List/map universe of wetland resources using the National Wetland Mapping Standard from which sites could be selected if available • Determine which data are already available.
<p>d. Select a core set of indicators to represent wetland condition or a suite of functions</p>	<ul style="list-style-type: none"> • Identify indicators that are relevant for established monitoring objectives • Confirm indicators are scientifically defensible • Develop/select field method(s) and timing • Add supplemental indicators, including socio-economic indicators, to provide insight on wetland role in overburdened communities.

Table 2. Phase 2: Monitoring, Data Collection, and Assessments Considerations

Actions	Menu of Activities
<p>a. Ensure the scientific validity of monitoring and laboratory activities</p>	<ul style="list-style-type: none"> • Draft and peer review Quality Management Plan and Quality Assurance Project Plan • Develop Field Operations Manual • Select, prioritize, and peer review candidate site assessment indicators • Review Tribal/State environmental justice policies and data collection requirements • Review Tribal/State climate strategies and data needs at the regional and local level • Train staff in monitoring and assessment techniques
<p>b. Monitor wetland resources as specified in strategy</p>	<ul style="list-style-type: none"> • Conduct pilot monitoring projects (e.g., small-scale projects to test methods, calibrate, enhance reference network) • Develop a schedule for monitoring wetland resources • Engage or expand involvement in National Wetland Condition Assessment or intensification projects • Partner with other programs (e.g., fish, forest, highways), federal agencies, underserved or overburdened communities, academic institutions, or NGOs
<p>c. Establish reference condition</p>	<ul style="list-style-type: none"> • Define reference condition (the gradient from unimpaired to impaired) • Define reference standard condition (e.g., Best Attainable Condition, Least Disturbed Condition, Minimally Disturbed Condition, Historical Condition, Best Professional Judgment) • Determine process for measuring reference standard condition (e.g., reference sites, historical data) • Select reference sites using systematic approach
<p>d. Track monitoring data in a system that is accessible, updated on a timely basis, and integrated with other state or tribal water quality data</p>	<ul style="list-style-type: none"> • Design a data management system that supports program objectives • Administer and update data system so that state or tribal can use it for analysis. Plan for data storage in a location that is accessible to all users • Geo-reference data as it is gathered for reporting • Identify sites to sample repeatedly for a trend network • Integrate with other water quality data systems (e.g., State watershed planning databases)
<p>e. Analyze monitoring data to evaluate wetlands extent and conditions/function or to inform decision-making</p>	<ul style="list-style-type: none"> • Document data analysis and assessment procedures • Develop assessment method to determine condition thresholds relative to reference standard condition (i.e., departure from reference standard condition) • Establish baseline condition • Analyze changes in wetland extent or condition relative to reference conditions and/or in response to climate change • Assess wetlands status and trends (e.g., annual reporting of no net loss, net gain, or CWA section 305(b) reports for wetlands)

Table 3. Phase 3: Refinement and Wetland Management Decision-Making Considerations

Actions	Menu of Activities
<p>a. Evaluate monitoring program to determine how well it is meeting a Tribe/State’s monitoring program objectives</p>	<ul style="list-style-type: none"> • Develop schedule to evaluate monitoring program • Track program reviews • Ensure assessment method(s) are providing the necessary information • Make changes as necessary to the program • Review other wetland program elements (e.g., restoration, regulation, water quality standards) • Modify other aspects of wetland program as needed based on review of monitoring data • Plan for and consider long term needs – frequency of repeated monitoring, covering of cost, etc.
<p>b. Evaluate the environmental consequences of a federal or state/tribal action or group of actions; modify programs as needed based on M&A data</p>	<ul style="list-style-type: none"> • Inform state/tribal wetland permit decisions or determinations of “waters of the tribe” or “waters of the state” • Inform CWA section 401 certification decisions on federal licenses or permits • Inform CWA section 401(a)(2) reviews and objections to discharges from neighboring jurisdictions • Modify licensing/permitting or CWA section 401 certification practices as needed based on assessment information • Demonstrate the use of M&A data in decision making (e.g., list and track) including targeting risk reduction strategies in overburdened communities and mitigation of hazards related to climate change • Make data accessible to EPA and the Corps to help inform their determinations of federal jurisdiction
<p>c. Improve the site-specific management of wetland resources</p>	<ul style="list-style-type: none"> • Incorporate monitoring and analysis into restoration techniques • Establish ecologically meaningful benchmarks for gauging restoration success • Evaluate the performance of compensatory mitigation sites • Evaluate the ecosystem services provided by individual wetlands, consider using screening tools to connect ecosystem services to underserved or overburdened communities • Innovative mapping tool develop and use using the National Wetlands Mapping Standard (e.g., NWI plus and other refinement tools, consider including socio-economic data to reflect underserved or overburdened communities) • Partner with other programs (e.g., fish, forest, highways), federal agencies, academic institutions, underserved/overburdened communities, or NGOs to share information, ideas, technologies
<p>d. Develop geographically defined wetland protection, restoration, and management plans</p>	<ul style="list-style-type: none"> • Identify and prioritize management areas (e.g., identify vulnerable wetlands, prioritize restoration potential underserved or overburdened communities) • Incorporate wetlands into a comprehensive watershed plan that serves Tribal or State water quality management needs and addresses all waters • Evaluate progress toward meeting wetland objectives identified in other projects/programs (e.g., wildlife action plans, climate action plans, and water and equity strategies) • Inform broader watershed activities (e.g., reducing erosion, providing floodplain storage, reducing nutrient loading, reducing risks to underserved/overburdened communities)

Resource Links

EPA Wetland Monitoring and Assessment Information:

- <https://www.epa.gov/wetlands/wetlands-monitoring-and-assessment>

SECTION 3: REGULATORY

Introduction

The following sections are to help Tribes and States develop regulatory programs to protect aquatic resources. First, is a section defining critical elements that characterize a regulatory program. Second, are identified actions and activities to be considered when developing a plan and/or apply for a WPDG. The next section includes examples of how actions and activities were successfully utilized in WPDG Program building projects. The final section provides additional resource links.

Definition

Tribal and State programs regulating aquatic resources may fall into one or more of the following categories:

- CWA §401 water quality certification program, which requires federally permitted or licensed activities that may result in a discharge into waters of the U.S. to receive a certification or a waiver from the State or Tribe in which the discharge originates <https://www.epa.gov/cwa-401>
- State Programmatic General Permit (SPGP) - is a general permit, under the Army Corps of Engineers (Corps), that allows a Tribe or State to authorize activities that may result in a discharge of dredged or fill material into waters of the U.S. SPGPs are often limited to specific activities, geographic areas, resource types, and/or sizes of impacts. For example, Maryland has an SPGP addressing most impacts of one acre or less.
- CWA §404(g) Tribe and State Assumption is where a Tribe or State may be authorized to issue all CWA §404 permits for the discharge of dredged or fill of material into waters of the U.S. within the Tribe or States' jurisdiction. In an assumed program, the Tribe or State is the permitting authority, provides funding and staffing for the program, and ensures the program is as or more comprehensive than the federal program. Michigan, New Jersey, and Florida have assumed the CWA §404 program.
- Tribes or States may have permitting programs under Tribal or State laws and regulations independent of EPA or Corps review.

Regulatory Program

In general, well-designed and executed wetland regulatory programs can be a critical tool for Tribes and States to use to manage and protect their wetland resources. For example, regulatory programs can enable Tribes and States to regulate development and protect important (or unique) wetland resources by avoiding, minimizing, and compensating for wetland impacts. Programs can cover aquatic resources under federal jurisdiction as well as those not protected as waters of the United States. Tribes or States may establish their program in order to have direct authority over their aquatic resources regardless of the status of federal regulatory programs.

Table 4. Phase 1: Regulatory Planning Considerations

Actions	Menu of Activities
a. Provide clear and comprehensive jurisdictional coverage of aquatic resources	<ul style="list-style-type: none"> • Define “waters of the Tribe or State,” and understand limits of waters of the United States • Make the definition of Tribal or State waters at least as inclusive as CWA (Tribal or State permit program does not need to be as comprehensive as CWA, or they can be more expansive). • Delineate wetlands in a manner that is at least equivalent (or consistent) with the federal program (Tribal or State permit program does not need to be as comprehensive as CWA). • Extend Tribal or State jurisdiction to aquatic resources that are not “waters of the United States” (e.g., isolated wetlands) • Base all water related regulatory programs within a Tribe or State on the same definition of “waters of the Tribe or State” (or even more expansive)
b. Clearly identify a comprehensive scope of activities to be regulated	<ul style="list-style-type: none"> • Adopt clear definition of regulated activities that are regulated under waters of the Tribe or State. (Tribal or State permit program does not need to be as comprehensive as CWA) • Coordinate with other CWA or Tribe or State aquatic regulatory programs to cover all impact types and methods (e.g., quality vs. quantity, point vs. nonpoint source pollution, classes of activities) • Extend Tribal or State jurisdiction to activities that are not regulated under the CWA (e.g., excavation or ditch maintenance)
c. Provide clear guidance to public on how to identify jurisdictional waters and activities	<ul style="list-style-type: none"> • Develop clear, publicly accessible guidance and/or training on how to identify waters of the state/tribe for wetlands, streams, and other waters • Develop clear, publicly accessible guidance on what activities in waters of the state/tribe require which authorizations
d. Evaluation	<ul style="list-style-type: none"> • Periodic review of state/tribal program to ensure all potentially regulated activities are addressed and take appropriate programmatic action (See next table.)

EPA recommends that Tribes and States first identify their program specific regulatory program needs. After the needs are outlined for the program, program goals can be identified. The program goals can be used to determine which phase to enter. For example, if the goal is to develop a comprehensive and/or formal programs, Phase 1 actions and activities are the starting point. If implementation is the focus, then start with Phase 2. If program refinement or decision-making is the focus, then start with Phase 3.

EPA recommends that you design and build your program to address your specific needs, which could result in a blending of some activities from the same phase or of different phases. The phases are as follows (Table 4 – 6):

Table 5. Phase 2: Regulatory Data Collection, and Assessments Considerations

Actions	Menu of Activities
a. Adopt regulations or rules to implement Tribal or State and/or federal water quality statutes	<ul style="list-style-type: none"> • Adopt guidance to implement statutes as appropriate • Adopt regulations that identify agency goals and responsibilities for all water quality statutes
b. Develop and operate according to a clear and effective set of criteria for reviewing and responding to applications	<ul style="list-style-type: none"> • Develop publicly accessible criteria for applying for and agency review of applications • Establish reasonable timelines for initially responding to applications in regulatory guidelines • Establish reasonable timelines for providing final responses to applications in regulatory guidelines • Develop and implement internal procedures for responding to Federal agencies on permits
c. Actively review proposed impacts to the waters of the Tribe or State	<ul style="list-style-type: none"> • Actively review proposed impacts to waters of the state/tribe or waters of the United States • Develop standard practices or general authorizations for like projects impacting similar aquatic resources
d. Adopt and apply comprehensive project review criteria	<ul style="list-style-type: none"> • Adopt 404(b)(1) Guidelines or comparable review criteria for assessing and minimizing impacts • Adopt more stringent review criteria than the 404(b)(1) Guidelines
e. Coordinate among agencies, programs, and industry groups to reduce duplicative efforts by the programs and the regulated public	<ul style="list-style-type: none"> • Use joint internal and external review processes and practices • Develop clear guidelines for roles, responsibilities, and procedures for review of permits for activities that require approval from more than one state/tribal agency • Issue permit decisions with conditions that they must meet the requirements of other agency permit requirements
f. Require effective mitigation for authorized impacts	<ul style="list-style-type: none"> • Tribe or State establishes a “No Net Loss” policy for regulated aquatic resources • Require effective mitigation for authorized impacts • Tribe or State participate in or serve as Co-Chairs of Mitigation Interagency Review Teams • Require long-term protection at mitigation sites (e.g., restrictive covenant, easement, deed restriction) • Establish minimum requirements and review criteria for mitigation proposals • Require financial assurances for mitigation projects
g. Track permit/certification program activity	<ul style="list-style-type: none"> • Track permit/certification program activity • Map impact and mitigation sites • Administer and regularly update publicly accessible tracking system for impacts and mitigation

Table 6. Phase 3: Regulatory Refinement and Wetland Management Decision-Making Considerations

Actions	Menu of Activities
a. Monitor the implementation of permit/certification conditions	<ul style="list-style-type: none"> • Track # of pre-operation inspections performed by the certifying authority under 40 CFR 121.11(a) • Track# of times certifying authority provides support to Federal agency on enforcement/compliance with certification conditions
b. Enforce aquatic resource protections	<ul style="list-style-type: none"> • Develop and implement enforcement and compliance mechanisms to monitor compliance and deter violations • Set timeframe for sites to come into compliance
c. Ensure impact assessments and mitigation crediting lead to replacement of aquatic resources with similar structural, functional or condition attributes	<ul style="list-style-type: none"> • Develop or adopt functional or condition assessment methodologies • Establish performance standards and success criteria for mitigation • Evaluate mitigation against reference and pre-impact sites regularly; revise performance standards, review criteria, and/or functional/condition assessment methods accordingly • Coordinate regulatory programs with other entities conducting restoration to share best practices, mitigation/restoration priorities, and/or assessment methodologies
d. Incorporate the watershed approach into the regulatory decision-making process	<ul style="list-style-type: none"> • Establish methods for determining cumulative impacts to aquatic resources within a watershed • Evaluate cumulative impacts to aquatic resources within a watershed, with consideration given to communities with environmental justice concerns • In addition to required guidelines, use watershed plans to guide permitting and restoration priorities • Consider impacts and benefits to communities with environmental justice concerns within the watershed when setting priority areas for mitigation and enforcement • Use watershed plans to set priority areas for mitigation • Use Special Area Management Plans, as appropriate
e. Perform public education and outreach about wetland protection, regulated waters and activities, and authorization process	<ul style="list-style-type: none"> • Make education/outreach documents or activities available on important programmatic topics such as: <ul style="list-style-type: none"> ○ Importance of aquatic resources ○ Regulatory program requirements ○ How to identify protected waters ○ Listing regulated activities ○ Regulatory program performance ○ Opportunities for public participation in the protection of aquatic resources, such as public notice and comment periods • Make information available through readily accessible outlets (hotline, website, brochures, etc.) and develop approaches to reaching communities with environmental justice concerns
f. Measure Environmental Results	<ul style="list-style-type: none"> • Tribe or State program develops tracking system used for: <ul style="list-style-type: none"> ○ % permitted sites that are inspected per year ○ % permits in compliance ○ % non-compliant sites where enforcement actions taken ○ % non-compliant sites brought into compliance within timeframe ○ # of unauthorized impacts brought into compliance (annual tracking) ○ % mitigation sites monitored ○ % mitigation sites established ○ % mitigation sites meeting performance goals

Resource Links

Clean Water Act section 404

- <https://www.epa.gov/cwa-404/permit-program-under-cwa-section-404>

Clean Water Act section 404(g)

- <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-H/part-233>
- <https://www.ecfr.gov/current/title-40/part-233/subpart-B>

SECTION 4: VOLUNTARY RESTORATION AND PROTECTION

Introduction

The following sections are to help Tribes and States develop a voluntary restoration and protection program. First, is a section defining the critical elements of a voluntary restoration and protection program. Second, are identified actions and activities to be considered when developing a plan and/or applying for a WPDG. The final section provides additional resource links.

Definition

Wetland restoration is the manipulation of a former or degraded wetland's physical, chemical, or biological characteristics to return to its natural functions. Restoration practices include:

- Re-establishment, the rebuilding of a former wetland,
- Rehabilitation, repairing the functions of a degraded wetland,

Wetland protection removes a threat or prevents wetland conditions decline. Voluntary protection, although not required, can secure and protect lands from development through legally binding agreements, such as conservation easements. Conservation easements can be held by Federal, Tribal, State, or local resource agencies, nonprofit conservation organizations, or private land managers. Other types of voluntary yet legally binding instruments to provide protection include title transfers, restrictive covenants, and working with partners, such as landowners and community groups, to develop science-based long-term stewardship plans.

Voluntary restoration and protection refer to activities not required by statutes or regulations. Examples include:

- Land trusts purchasing titles or easements to wetland areas.
- Community groups remove invasive species and plant native vegetation.
- Conservation programs pay landowners to change practices such as cultivation or grazing that alter wetland areas.

Generally, a voluntary restoration and protection plan should communicate how Tribes and States plan to implement, support, or coordinate Tribal, Federal, State, and local restoration and protection efforts. When developing a formal or informal program, it is essential to consider relevant programs' goals, sources of funding, wetland data needs, critical habitat protection priorities, and potential partners. When creating a formal program, consider using legislative actions, executive orders, proclamations, or other legal processes to dedicate regular funding sources for restoration and protection activities.

If possible, connect the program to an official "no net loss of wetlands" Tribal or State goal to potentially improve the chances of receiving sustainable funding. An important use of sustainable funding is to build the capacity of local governments and community groups to conduct effective restoration and protection and provide support for citizen -ed long-term

stewardship activities. Additionally, locating the program in an office or agency within a Tribe or State with dedicated funding may help institutionalize support for the program.

Voluntary Restoration and Protection Program

In general, a well-designed and executed wetland voluntary restoration and protection program can be a critical tool for Tribes and States to use to better manage and protect their wetland resources. For example, a voluntary restoration and protection program can allow Tribes and States to set aside important (or unique) wetland resources. Voluntary restoration and protection are important to maintain critical wildlife habitat, to meet state and tribal watershed goals, to contribute to economic well-being, to protect wetlands with cultural value, to restore or protect wetlands and aquatic resources that are home to plant and animal species traditionally harvested (e.g. wild rice, fish, and waterfowl) and/or protect wetlands that provide plants used for medicinal and ceremonial purposes that are culturally relevant to Tribes and local communities. Voluntary restoration and protection can work in tandem to help stem the loss and create a gain in natural wetlands and their associated functions. Over time, Tribes and States can detect changes and make appropriate decisions to protect their resources.

EPA recommends that Tribes and States first identify their program specific voluntary restoration and protection needs. After the needs are outlined for the program, then program goals can be identified. The program goals can be used to determine which phase to enter. For example, if the goal is to determine program needs or to develop a more comprehensive and/or formal program, Phase 1 actions and activities are the starting point. If implementation is the focus, then start with Phase 2. If program refinement or decision-making is the focus, then start with Phase 3.

EPA recommends that you design and build your program to address your specific needs, which could result in a blending of some activities from the same phase or of different phases. The phases are as follows (Tables 7 – 9):

Table 7. Phase 1: Voluntary Restoration and Protection Planning Considerations

Actions	Menu of Activities
<p>a. Establish or become an active partner in a state or tribal voluntary restoration and protection program</p>	<ul style="list-style-type: none"> • Determine if the state or tribal has a formal “no net loss” of wetland acreage or function policy • Determine if the state or tribal has a formal aquatic resource/wetlands protection and restoration program • Investigate Tribal or State environmental justice policies and demographic mapping information • Examine Tribal or State agencies that have aquatic resource protection and restoration in their mission; consider objectives related to forestry, wildlife management, nonpoint source pollution, equitable access to ecosystem services, natural heritage, flood control, historic preservation, parks and recreation, climate adaptation and coastal zone management • Develop a multi-agency stakeholder group to coordinate restoration/ protection efforts and share wetland restoration priorities; include climate adaptation programs, community based environmental justice organizations, and overburdened or underserved communities • Develop a comprehensive restoration and protection strategy • Consider different partnership models: <ul style="list-style-type: none"> ○ Various programs within one agency ○ Multi-agency body ○ Federal Land Management Agencies ○ Stakeholders ○ Other • Develop formal goals that are consistent or compatible across relevant agencies • Outline benefits or steps to establish “no-net loss of wetland acreage” policy • Evaluate wetland restoration and protection in existing state or tribal watershed planning efforts • Determine inclusion of aquatic resource protection in state or tribal conservation planning • Determine inclusion of aquatic resource protection in state or tribal environmental justice initiatives • Gather information on wetland location, class, and condition/functions and socioeconomic data
<p>b. Collect and enhance wetland information as a foundation for a restoration and protection actions, strategy, or program</p>	<ul style="list-style-type: none"> • Inventory science- based tools used in Tribal or State wetland restoration and conservation planning • Enhance wetland data for informing restoration decisions, consider using various types of Tribal/State specific information such as: <ul style="list-style-type: none"> ○ Aquatic resource mapping data ○ Color-infrared photography

Actions	Menu of Activities
	<ul style="list-style-type: none"> ○ Wetland monitoring and assessment data ○ Field inspection of soil, vegetation, and hydrologic conditions) to identify and prioritize restorable wetlands ○ Functional assessment methods ● Develop a needs assessment for wetland restoration decision making tools (i.e., monitoring protocols, functional assessment, restoration prioritization methods) ● Identify or collect Tribal/State information related to rare, vulnerable, culturally important wetlands ● Identify or collect information on cultural practices that are dependent on wetlands ● Identify and collect information on economic trends, resiliency and activities that are dependent on specific wetland complexes in your Tribe or State ● Pursue other specific information on how wetlands contribute to quality of life in your Tribe or State ● Identify local decision makers and key stakeholders involved in wetland conservation and restoration. ● Identify opportunities for local decisionmakers and key stakeholders to support wetland restoration and protection goals ● Develop a targeted communication strategy for sharing data on restoration priorities, high value wetlands, vulnerable wetlands, and aquatic resources in your Tribe or State with special considerations given to communities with environmental justice concerns. Consider developing communication and outreach products in various languages ● Increase accessibility of Tribal or State data, information and assessment tools used to prioritize areas for protection and restoration ● Establish data sharing partnerships to leverage additional wetlands restoration and protection ● Evaluate gaps and utility in Tribal or State data and assessment tools used to prioritize areas for protection and restoration. Evaluate gaps in information related to overburdened and underserved communities.
<p>c. Consolidate and provide guidance on Tribal and State restoration and protection management techniques and success measures</p>	<ul style="list-style-type: none"> ● Implement communications strategy to share restoration and protection information and priorities with stakeholders ● Provide wetland and aquatic resource data layers to existing state-level GIS and land-use decision making tools ● Develop and promote model approaches to incorporating wetlands protection and restoration in comprehensive watershed plans, e.g., prioritize restoration sites within a watershed ● Actively promote the use of Tribal or State data and assessment tools in Tribal or State conservation plans

Actions	Menu of Activities
	<ul style="list-style-type: none"> • Provide clear guidance for wetlands restoration to address climate adaptation, flood protection, coastal resiliency. • Develop long-term management plans for protected wetlands. Maintain an inventory of voluntary wetland protection and restoration projects. Consider tracking: <ul style="list-style-type: none"> ○ Large scale conservation programs active in the Tribal/State lands, ○ Demonstrations connecting wetland restoration to regulatory requirements and reporting (e.g., WQS, TMDLs, CZRA) ○ Specific projects demonstrating wetlands' role in landscape scale watershed planning and water quality improvements. ○ Projects that utilized innovative sustainable financing ○ Projects in communities with environmental justice concerns • Develop restoration and management guidance specific to wetland types, locations, census tracts (e.g., urban vs. rural) • Establish ecological benchmarks for gauging restoration success • Establish measures of restoration success, (e.g., adopt functional and/or condition indicators and field methods) • Establish performance standards based on reference wetland site in a relatively undisturbed condition • Through guidance, encourage restoration outcomes that recreate natural self-sustaining systems and reduce the need for ongoing management • Verify restoration techniques with site visits and adapt as necessary • Train restoration partners to use guidance techniques

Table 8. Phase 2: Voluntary Restoration and Protection Data Collection, and Assessments Considerations

Actions	Menu of Activities
<p>a. Increase wetland acreage through restoration (reestablishment)</p>	<ul style="list-style-type: none"> • Develop restoration and management plans for reestablished wetlands consistent with restoration guidance. Consider tracking: <ul style="list-style-type: none"> ○ Acres of wetlands re-established ○ Restoration sites using techniques that comply with guidance ○ Level of function/condition based on indicators • Provide technical assistance to re-establishment projects as needed
<p>b. Improve natural wetland conditions and functions through restoration (rehabilitation)</p>	<ul style="list-style-type: none"> • Develop restoration and management plans for rehabilitated wetlands consistent with restoration guidance. Consider tracking: <ul style="list-style-type: none"> ○ Acres of wetlands rehabilitated ○ Improvement on function/condition indicators ○ Net change in water quality, flood control, or habitat ○ Acres of wetlands rehabilitated, improvement on function/condition indicators, net change in water quality, flood control, habitat access to recreation in underserved communities • Provide technical assistance to restoration projects as needed • Share restoration and protection priorities with partners • Develop restoration and management plans for restored wetlands consistent with restoration guidance. Consider tracking: <ul style="list-style-type: none"> ○ Number of restoration agreements ○ Acres of wetlands restored through partnerships ○ Acres of priority wetlands restored through partnerships • Provide technical assistance to partners as needed
<p>c. Establish and institutionalize long-term protection, through Tribal/State support and assistance using mechanisms such as incentives, purchase of land title or easements to protect wetlands</p>	<ul style="list-style-type: none"> • Develop or identify guidance and resources for protecting Tribal/State wetlands through land acquisition and conservation easements • Identify and promote model local ordinances for open space protection, wetland conservation, flood control, nature-based solutions/green infrastructure • Develop inventory of wetland conservation efforts - Consider tracking: <ul style="list-style-type: none"> ○ Number of partnerships created for wetland protection and restoration ○ Number of stewardship agreements

Actions	Menu of Activities
	<ul style="list-style-type: none"> ○ Acres of wetlands protected through partnerships ○ Acres of vulnerable wetlands protected through partnership ● Develop long-term management plans for protected wetlands. Consider tracking: <ul style="list-style-type: none"> ○ Acres of wetlands protected, with focus on benefits to communities with environmental justice concerns ○ Acres of vulnerable wetlands protected, with a focus on benefits to communities with environmental justice concerns

Table 9. Phase 3: Voluntary Restoration and Protection Refinement and Management Decision-making

Actions	Menu of Activities
<p>a. Track restoration/protection projects over time using short-term and long-term benchmarks of success</p>	<ul style="list-style-type: none"> ● Develop and populate accessible tracking database for restoration/protection sites ● Administer and update tracking database regularly. Consider Tracking: <ul style="list-style-type: none"> ○ % of total acres of restoration/protection sites throughout state or tribal lands that are in database ○ Track projects by watershed or another relevant spatial unit
<p>b. Monitor restoration/protection sites to ensure that they are managed correctly, contribute to meeting water quality goals and ecological health</p>	<ul style="list-style-type: none"> ● Monitor effectiveness of all or a sample of sites representative of wetland class, type, and size using adopted indicators and methods. ● Track acres or numbers of restored/protected wetlands that are comprehensively monitored for ≥ 3 years ● Select subset of indicators (core indicators) to monitor effectiveness of all restoration and protection sites ● Monitor effectiveness of restoration/protection sites using core indicators-Consider: <ul style="list-style-type: none"> ○ Acres or % of restored/protected wetlands monitored for ≥ 3 years using core indicators ○ Acres or % meeting established performance goals based on function/condition indicators ● Update monitoring and performance records regularly ● Regularly report wetland restoration/protection efforts to relevant entities (other agencies, public, etc.)

<p>c. Modify restoration/protection techniques as needed</p>	<ul style="list-style-type: none"> • Develop process to review restoration and protection methods and modify as needed • Develop process to review restoration and protection sites as needed and plan for follow-up site maintenance, restoration, and protection activities, particularly for sites in overburdened or underserved communities
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Resource Links

EPA Wetland Restoration Fact Sheet:

- https://www.epa.gov/sites/default/files/2021-01/documents/wetland_restoration.pdf

EPA Partnering with Land Trusts Fact Sheet:

- https://www.epa.gov/sites/default/files/2021-01/documents/wetlands_protection_partnering_with_land_trusts.pdf

EPA Wetland Program Development Grants [Tribal] Case Studies:

- <https://www.epa.gov/wetlands/wetland-program-development-grants-case-studies>

SECTION 5: WATER QUALITY STANDARDS for WETLANDS

Introduction

The following sections are to help Tribes and States develop water quality standards to protect their wetlands. First, is a section defining critical elements to characterize water quality standards. Second, are identified-actions and activities to be considered when developing a plan and/or apply for a WPDG. The final section provides additional resource links.

Definition

Tribes and States can set water quality standards to protect their wetlands and/or prevent degradation. Water Quality Standards (WQS) regulations at 40 CFR parts 131 and 132 provide specific requirements for development of Tribal and State standards, including specifying appropriate water uses to be achieved and protected, providing appropriate criteria to support those uses, and applying anti-degradation policy to all waters, including wetlands. The regulations also provide Tribes and States with the flexibility to adopt sub-categories of uses and associated criteria to allow for differentiation between types of wetlands, their expected uses, functions, and condition. However, if a Tribe or State fails to adopt standards specific to wetlands, its water quality standards then apply to wetlands. Often these default standards are not relevant to a wetland, e.g., a dissolved oxygen criterion that is inappropriately high for wetland environments. The most adaptive surface water standard is one that relies on narrative criteria rather than numeric criteria due to the high variability in wetlands particularly when compared with flowing waters. Wetland-specific water quality standards can provide robust protection for wetlands and their functions.

Developing defensible water quality standards for wetlands is a data intensive effort and is dependent on wetland monitoring and assessment. Standards can be derived and supported using measurements of wetland function or condition. Due to the unique characteristics of wetlands relative to flowing surface waters, water quality standards for wetlands may differ from traditional standards, e.g., with potentially less emphasis on water chemistry parameters and more emphasis on diversity of vegetation or macroinvertebrate communities. Generally, a suite of measures will be required for wetland water quality standards to protect the full range of wetland functions and/or ecological conditions. As with water quality criteria for other surface waters, criteria for wetlands can be narrative or numeric. Wetland standards may also differ from conventional standards by utilizing additional parts of Tribal or State statutes and regulations that do not apply to instream water quality.

The EPA Water Quality Standards for Wetlands: National Guidance (July 1990 and Appendix D of the Water Quality Standards Handbook Online Edition, 2014) identifies five key steps for developing water quality standards for wetlands: 1) define wetlands as "state waters"; (2) designate uses that protect the structure and function of wetlands; (3) adopt narrative criteria, and appropriate numeric criteria in the standards to protect the designated uses; (4) adopt narrative

biological criteria in the standards; and (5) extend the antidegradation policy and implementation methods. Like other water quality standards, wetland-specific water quality standards are submitted to EPA for approval during the triennial review process.

In 2016, EPA developed multiple templates to assist the nation in developing wetland water quality standards. The templates address three components of a water quality standard: designated uses, criteria, and antidegradation. The templates also provide wetland-specific terms and language so regulators can tailor standards to suit the needs of the wetland and their State, authorized Tribe, or Territory. Once developed, the Tribe or State may submit the wetland water quality standards to EPA for review and approval.

In general, water quality standards designed for wetlands can be a critical tool for Tribes and States to use to better manage and protect their wetland resources. For example, water quality standards specifically for wetlands (vs. adopting existing water quality standards developed for other surface water) can provide a more rigorous and appropriate foundation for protecting and enhancing Tribal or State wetlands. Wetland water quality standards can provide the basis for actions leading to an “overall increase” in wetland function and condition that some Tribes and States have as goals. They also provide the scientific basis for a variety of actions to protect and restore wetlands, such as permitting as standards provide a clear basis for making water quality-based permitting decisions under CWA sections 402 and 404 and other Tribal and State programs.

Water Quality Standards for Wetland Programs

EPA recommends that Tribes and States first establish narrative criteria when developing water quality standards for their resources. Where feasible, Tribes and States could develop numeric criteria to target specific pollutants and other parameters that could impact wetland functions.

EPA recommends that Tribes and States first identify their program-specific water quality standard capabilities and needs. After the capabilities are assessed and needs are outlined for the program, then program goals can be identified. The program goals can be used to determine which phase to enter. For example, if your goal is to develop water quality standards specifically for wetlands, Phase 1 actions and activities are the starting point. If implementation is the focus, then start with Phase 2. If program refinement or decision-making is the focus, then start with Phase 3.

EPA recommends that you design and build your program to address your specific needs, which could result in blending some activities from the same or different phases. The phases are as follows (Tables 10 – 13):

Table 10. Phase 1: Water Quality Standards for Wetlands Planning Considerations

Actions	Menu of Activities
<p>a. Adopt an appropriate definition of “waters” that includes wetlands</p>	<ul style="list-style-type: none"> • Include wetlands in State/Tribal legal definition of “waters” • Ensure “wetlands” definition is at least as inclusive as the CWA definition • Ensure legal definition of “waters of the Tribe or State” is at least as inclusive as the CWA definition • Remove any regulatory language excluding defined wetlands from water quality standards
<p>b. Ensure the appropriate wetlands definition is included in water quality standards</p>	<ul style="list-style-type: none"> • Include appropriate definition of “wetlands” in Tribal or State policy or regulations authorizing water quality standards program (e.g., wetland size, type, ownership)

Table 11. Phase 2: Wetland-specific Water Quality Standards Data Collection and Assessment Considerations

Actions	Menu of Activities
<p>a. Collect and analyze monitoring data and other information that will become basis of wetland water quality standards</p>	<ul style="list-style-type: none"> • Define wetland types/classes (e.g., HGM, Cowardin or both) • Identify and map wetlands that will be monitored for water quality standards • Establish reference conditions for defined wetland types in terms of functional/condition performance and other physical and biological measurements • Assess and document the gaps in the Tribal and State wetland protection and restoration efforts, and the consequences of failure to protect water quality and hydrologic integrity • After the gaps in protection are identified, a Tribal and State can then begin to develop a plan for filling the gaps. Consider tailoring the Tribes’ and States’ existing monitoring and assessment activities to support better protection. Answer the following questions: a) Do functions of specific wetland types need to be documented? b) What is a logical strategy for developing future, strengthened wetland standards? and c) Does the information needed already exist or should additional monitoring or studies be conducted? • An analysis should be made of existing Tribal or State authorities. Sometimes authorities exist in Tribal and State law that has not been fully utilized. Tribes and States should assess what new authorities (if any) are needed to fill the gaps. • Develop a plan for more comprehensive protection by including both regulatory and non-regulatory components such as working with NRCS, local watershed groups, etc. • Form an advisory group consisting of experts from pollution control, flooding, stormwater, transportation, forestry, fish & wildlife, natural hazards and other agencies to help with

Actions	Menu of Activities
	<p>development and implementation of a strategic plan.</p> <ul style="list-style-type: none"> • Conduct scientific studies to support water quality criteria to protect designated uses and determine if there are sufficient parameter or constituents to protect the designated uses. Monitor and maintain the biological, physical and chemical conditions of reference wetlands, specifically: base flow, flow regime, wetland hydroperiod; chemical, nutrient, dissolved oxygen regime of the wetland; conditions favorable to protection and propagation of threatened, endangered, and at-risk species; conductivity; floristic quality; integrity of species diversity, abundance, zonation; normal movement of fauna; pH of wetland waters; salinity (if applicable); size shape; soil type horizon structure; water currents, erosion, or sedimentation patterns; water levels or elevations; and water temperature variations.
<p>b. Establish appropriate wetland specific designated uses to be achieved and protected</p>	<ul style="list-style-type: none"> • Identify appropriate designated uses for different wetland types taking into consideration the use and value of a wetland for base flow discharge, flood flow attenuation, groundwater recharge, indigenous floral fauna diversity & abundance, nutrient cycling, organic carbon export/cycling, protection of downstream water quality, fish and wildlife habitats, cultural and traditional uses, recreational purposes, resilience against climatic effects, sediment/shoreline stabilization, and surface water storage. <ul style="list-style-type: none"> o Monitor designated uses o Map where designated uses apply
<p>c. Adopt appropriate wetland specific designated uses to be achieved and protected</p>	<ul style="list-style-type: none"> • Incorporate designated uses into Tribal and State administrative regulations, guidance, or statutes. Tribes and States may best adopt designated uses as administrative regulations with some requirements (e.g., permit guidance) issued as guidance. • Develop an outreach and communication strategy to ensure Tribal and State government and the public (incl the regulated community) understand the purpose, importance, and benefits of more comprehensive and coordinated protection.
<p>d. Establish narrative criteria where numeric criteria cannot be established or to supplement numeric criteria that qualitatively describe the condition or suite of functions that must be achieved to support a designated use</p>	<ul style="list-style-type: none"> • Establish narrative physical criteria (e.g., fill material not present, no hydrologic alterations) • Establish narrative biological criteria (e.g., species composition, population dynamics, structure) • Develop General Requirements • Determine Aesthetic Qualities language • Develop Protection of Cultural and Traditional Uses language • Develop Downstream Protection language • Monitor and maintain the biological, physical and chemical conditions of reference wetlands,

Actions	Menu of Activities
	<p>specifically: base flow, flow regime, wetland hydroperiod; chemical, nutrient, dissolved oxygen regime of the wetland; conditions favorable to protection and propagation of threatened, endangered, and at-risk species; conductivity; floristic quality; integrity of species diversity, abundance, zonation; normal movement of fauna; pH of wetland waters; salinity (if applicable); size shape; soil type horizon structure; water currents, erosion, or sedimentation patters; water levels or elevations; and water temperature variations</p> <ul style="list-style-type: none"> • Develop technical documents to support the narrative criteria with numerical data; this document describes the types of narrative and numerical data that will be used in determining attainment of the standard
<p>e. Adopt narrative criteria that qualitatively describe the condition or suite of functions that must be achieved to support a designated use</p>	<ul style="list-style-type: none"> • Incorporate narrative criteria into state/tribal administrative regulations, guidance, or statutes. Tribes and States may best adopt narrative criteria as administrative regulations with some requirements (e.g., permit guidance) issued as guidance.
<p>f. Establish numeric criteria representing wetland specific values for chemical, physical, and biological parameters that may not be exceeded, must be exceeded, or some combination to protect or restore designated uses</p>	<ul style="list-style-type: none"> • Establish numeric criteria for biological attributes based on wetland type and location (e.g., plant or macroinvertebrate indices, algae) • Establish numeric criteria for chemical constituents based on wetland type and location (e.g., nutrients) • Establish numeric criteria for physical parameters based on wetland type and location (e.g., buffer characterizations, microhabitats) • Review the numeric water quality criteria in Tables 1-6 (EPA's Section 304a National Recommended Water Quality Criteria). • Determine if omitting a criterion for some or all of its wetlands is needed. • Determine if any adjustments need to be made to any or some of the criterion values before adopting them into the Tribal or State water quality standards.
<p>g. Adopt numeric criteria representing wetland specific values for chemical, physical, and biological parameters that may not be exceeded, must be exceeded, or some combination to protect or restore designated uses</p>	<ul style="list-style-type: none"> • Incorporate numeric criteria into state/tribal administrative regulations, guidance, or statutes. Tribes and States may adopt numeric criteria as administrative regulations with some requirements (e.g., permit guidance) issued as guidance.
<p>h. Better define Tribal and State antidegradation policies for wetlands, requiring full protection of existing uses (functions and/or condition), maintenance of functions/condition in high quality wetlands, and a prohibition against lowering functions/conditions in outstanding national resource waters</p>	<ul style="list-style-type: none"> • Include wetlands in antidegradation policies • Include restoration potential of wetlands in antidegradation policies • Administer and enforce antidegradation policies for wetlands • Develop measures to ensure antidegradation is being applied successfully in a manner specific to wetlands

Actions	Menu of Activities
	<ul style="list-style-type: none"> • Develop general policies addressing implementation issues (e.g., low flows, variances, mixing zones). Tribes and States must not only adopt water quality standards for “waters of the United States.” but must assess waters and review and revise water quality standards (CWA section 303(c))
<p>i. Draft and finalize water quality standard regulations</p>	<ul style="list-style-type: none"> • Examine the regulations and WQS of other Tribes and States such as Wisconsin, Minnesota, Ohio, and North Carolina • Consider EPA's 1990 recommendations for state wetland water quality regulations; consider the draft regulations in Appendices A and B of the templates • Anticipate and plan for EPA approval of your water quality standards for wetlands at a future date. The Tribal or States regulations should be structured so that it is possible for only the 'standards' portion of the state's program to be forwarded to EPA for review and approval. • Determine if adopting such regulations can be done in stages, such as administrative regulations, or as a comprehensive approach such as adopting wetland water quality standards and a new permitting authority all at once

Table 12. Phase 3: Refinement and Wetland Specific Water Quality Standards Decision Making Considerations

Actions	Menu of Activities
<p>a. Use wetland water quality standards as basis for regulatory decisions</p>	<ul style="list-style-type: none"> • Use wetland water quality standards (as part of the Tribe or State’s water quality requirements) to develop CWA section 401 certification decisions • Base permit decisions, including mitigation requirements, on wetland water quality standards • Track wetland impacts avoided or mitigated based on wetland water quality standards, via permitting actions
<p>b. Use wetland water quality standards as basis for evaluating restoration/protection projects and mitigation/compensation projects</p>	<ul style="list-style-type: none"> • Use wetland water quality standards in restoration guidelines • Track restoration/protection projects that are monitored for compliance with wetland water quality standards • Track restoration/protection sites that meet wetland water quality standards • Identify remedial measures for sites that do not meet wetland water quality standards
<p>c. Incorporate wetland water quality standards into monitoring and assessment program</p>	<ul style="list-style-type: none"> • Update monitoring strategy and methods based on wetland water quality standards • Track acres monitored for compliance with wetland water quality standards • Regularly report on wetland status and trends relative to wetland water quality standards
<p>d. Develop geographically defined wetland protection, restoration, and management plans</p>	<ul style="list-style-type: none"> • Identify and prioritize management areas (e.g., identify vulnerable wetlands, prioritize restoration potential underserved or overburdened communities) • Incorporate wetlands into a comprehensive Watershed Plan that serves Tribal and State water quality management needs and addresses all waters • Evaluate progress toward meeting wetland objectives identified in other projects/programs (e.g., wildlife action plans, climate action plans, and water and equity strategies) • Inform broader watershed activities (e.g., reducing erosion, providing floodplain storage, reducing nutrient loading, reducing risks to underserved/overburdened communities)

APPENDIX A: EPA WEBSITE RESOURCES

EPA Basic Information about Wetland Restoration and Protection:

- <https://www.epa.gov/wetlands/basic-information-about-wetland-restoration-and-protection>

EPA Core Elements of Effective State and Tribal Wetlands Program document.

- https://www.epa.gov/sites/default/files/2015-10/documents/2009_03_10_wetlands_initiative_cef_full.pdf

EPA National Guidance Water Quality Standards for Wetlands:

- <https://www.epa.gov/cwa-404/national-guidance-water-quality-standards-wetlands>

EPA Partnering with Land Trusts Fact Sheet:

- https://www.epa.gov/sites/default/files/2021-01/documents/wetlands_protection_partnering_with_land_trusts.pdf

EPA Templates for Developing Wetland Water Quality Standards:

- <https://www.epa.gov/wqs-tech/templates-developing-wetland-water-quality-standards>

EPA Wetland Monitoring and Assessment Information:

- <https://www.epa.gov/wetlands/wetlands-monitoring-and-assessment>

EPA Wetlands Program Development Grants:

- <https://www.epa.gov/wetlands/wetland-program-development-grants-and-epa-wetlands-grant-coordinators>

EPA Wetland Program Development Grants [Tribal] Case Studies:

- <https://www.epa.gov/wetlands/wetland-program-development-grants-case-studies>

EPA Wetland Program Plans:

- <https://www.epa.gov/wetlands/developing-state-or-tribal-wetland-program-plan>
- <https://www.epa.gov/climate-adaptation/climate-adaptation-plans>
- <https://www.epa.gov/environmentaljustice/resources-creating-healthy-sustainable-and-equitable-communities>

EPA Wetland Restoration Fact Sheet:

- https://www.epa.gov/sites/default/files/2021-01/documents/wetland_restoration.pdf

APPENDIX B: BIBLIOGRAPHIC RESOURCES LINKS

Environmental Law Institute (2005-2007). *State Wetland Program Evaluation: Phases I-IV*. Washington, D.C. Accessed at <http://www.eli.org>.

EPA (2000). *Principles for the Ecological Restoration of Aquatic Resources*. EPA841-F-00-003. Office of Water (4501F), Washington, DC. 4 pp.

EPA (2007a). *River Corridor and Wetland Restoration*. Accessed at <http://www.epa.gov/owow/wetlands/restore/>

EPA (2007b). Chapter 3: Water in *EPA's Report on the Environment: Science Report*. EPA/600/R-07/045. External Review Draft. May. Accessed at <http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=140917>.

EPA Tribal Wetland Program Highlights, (EPA843-R-99-002) <https://archive.epa.gov/water/archive/web/html/tribalpro.html>

Federal Interagency Stream Restoration Working Group. (2001). *Stream Corridor Restoration: Principles, Process, and Practices*.

Interagency Workgroup on Wetland Restoration (2003). *An Introduction and User's Guide to Wetland Restoration, Creation, and Enhancement*. National Oceanic and Atmospheric Administration, Environmental Protection Agency, Army Corps of Engineers, Fish and Wildlife Service, Natural Resources Conservation Service. Kentula, Mary E., et al. *Wetlands: An Approach to Improving Decision-Making in Wetland Restoration and Creation*. 1992. Island Press.

Kentula, Mary E. (1999). United States Geological Survey Water Supply Paper 2425. *Restoration, Creation, and Recovery of Wetlands: National Water Summary on Wetland Resources*, <http://water.usgs.gov/nwsum/WSP2425/restoration.html>

Kusler, Jon. (2004). Multi-Objective Wetland Restoration in Watershed Contexts. <http://www.aswm.org/propub/restoration.pdf>

Kusler, Jon. (2006a). Common Questions: Wetland Restoration, Creation, and Enhancement. http://www.aswm.org/propub/20_restoration_6_26_06.pdf

Kusler, Jon. (2006b). *Common Questions: A Guide for Legislators: Wetland Protection and Restoration*. http://www.aswm.org/propub/1_legislator_6_26_06.pdf

Kusler, Jon. (2006c). *Developing Performance Standards for the Mitigation and Restoration of Northern Forest Wetlands*. http://www.aswm.org/propub/jon_kusler/forested_wetlands_080106.pdf

Kusler, Joan and Mary E. Kentula. (1990). *WETLANDS CREATION AND RESTORATION: The Status of the Science*, 600pp. Society of Wetland Scientists (2000). *Position Paper on the Definition of Wetland Restoration*. 3pp. <http://www.aswm.org/propub/pubs/other/ip0450.htm>