CORE ELEMENTS OF AN EFFECTIVE STATE AND TRIBAL WETLANDS PROGRAM

This document is for states and tribes interested developing their own Wetlands Program

I. Introduction to Core Elements Framework (CEF)

II. The Core Elements Framework (CEF)

III. Key Definitions (to be added)

IV. Important Additional Resources (to be added)

I. INTRODUCTION

EPA, states, and tribes share a broad goal for their wetlands programs: to protect and restore wetland resources for their economic, environmental and human health benefits. At the federal level, EPA works in partnership with the Corps of Engineers to regulate the discharge of dredge or fill material into the waters of the United States under the CWA Section 404 program, and with other federal agencies and stakeholders to promote sound national wetland policy. In addition to fulfilling a federal role in wetland decision-making, EPA also works with states and tribes to support state and tribal wetland programs. EPA considers supporting the development of state and tribal wetland program goals and program design an on-going priority

At the state and tribal level, wetland programs are found in many different agencies pursuing a range of goals that differ according to their specific priorities and the wide-range of wetland types and functions in their jurisdiction. While each state and tribe has their own wetland goals, there is a common set of program objectives that comprise a comprehensive wetland program. EPA has summarized these common objectives in the Core Elements of Effective State and Tribal Wetlands Programs, also called the Core Elements Framework (CEF).

Drafted in 2008 to support state and tribal wetland program development, the CEF outlines the core elements of a state or tribal wetland program, describes each Core Element, and provides a comprehensive menu of program-building activities for each Core Element. EPA hopes that a clearer definition of Core Elements and collection of concrete actions outlined in the CEF will increase the understanding of what comprises a state and tribal wetland program and encourage more states and tribes to pursue a

strategic approach to wetland program development. The CEF is intended to be fairly comprehensive so that states and tribes can choose from an array of actions that are best suited to their goals and resources. The CEF does not signal an expectation by EPA that states and tribes will simultaneously develop activities under all core elements, nor is there an expectation that *all* state and tribes will pursue the activities under the CEF. The CEF is designed as a menu of activities that states and tribes can draw from to design their own roadmap towards a more comprehensive wetland program. States and tribes will implement the CEF depending on their individual program goals and available resources.

EPA will use the CEF to streamline our current technical assistance approaches and to use our financial resources more efficiently. States and tribes are encouraged to use the CEF to help guide their use of wetland funds as well. EPA plans to continue our existing grant and technical assistance programs to support states and tribes as they pursue wetland program development and work to secure financing for those programs. Securing the necessary financial resources is a fundamental and sometimes challenging aspect of wetland program development. Recognizing the ongoing challenge faced by some states and tribes in securing sustained resources, EPA is providing information and training for states and tribes on common sustainable finance approaches for funding wetland programs. Sustainable Financing for State and Tribal Wetland Programs EXIT Disdaimer

WHAT ARE THE CORE ELEMENTS OF A STATE OR TRIBAL WETLAND PROGRAM?

EPA identifies four core elements that comprise and strengthen effective wetlands programs. The core elements are basic program functions that form the foundation of wetlands management and protection in a state or tribe. These include:

1. **Monitoring and Assessment;**
2. **Regulatory activities including 401 certification;**
3. **Voluntary Restoration and Protection;**
4. **Water Quality Standards for wetlands.**

In the past, EPA has endorsed six core elements of state and tribal wetlands programs: Regulation, Monitoring and Assessment, Restoration, Waters Quality Standards, Public-Private Partnerships, and Coordination among State and Federal Agencies. EPA has also referred to Outreach and Education as an overarching element. EPA streamlined this list to focus on the basic program functions. Partnerships, interagency coordination, and outreach are approaches that remain important and can be crucial to the success of these basic program functions. (See Figure 1.). Integrating wetlands into watershed planning efforts is also an important wetlands program development. Watershed connections and activities related to the approaches are integral in developing effective programs under each of the core elements.

WHAT IS THE CORE ELEMENTS FRAMEWORK?

The Core Elements Framework (CEF) serves as a foundation for enhancing state and tribal program development. It is based on state and tribal wetlands program experience over the past 10-15 years and was developed with state and tribal input.

For each core element the CEF provides a *menu* or table of program building activities. Actions listed in the tables are a suite of activities that a state or tribe can pursue to advance development of that core element. The CEF has four chapters, one for each core element, which include:

1. Definitions: Provides a concise description of each core element: Monitoring and Assessment, Regulatory activities including 401 Certification, Voluntary Restoration and Protection, and Water Quality Standards for Wetlands;

2. Goals and Benefits: Identifies federal goals associated with each core element and provides examples of state and tribal goals (e.g., more habitat for threatened and endangered species, greater protection from storms). This section also includes benefits that states and tribes could enjoy if they pursued each core element (e.g., well-defined restoration priorities that are informed by monitoring and assessment data could protect the most vulnerable wetlands in a watershed);

3. Menu of Program Development Activities: outlines a set of objectives for each core element, key program building actions, and a menu of activities that states and tribes can use to advance wetland program development and gauge progress.

The CEF also includes an introductory chapter and selected references and resources; the latter will be updated over time and case studies will be added. Wetland and watershed connections as well as the important approaches to wetlands program development, are incorporated into each of the core elements' menu of program development activities. Wetlands and Watershed planning EXIT Disclaimer

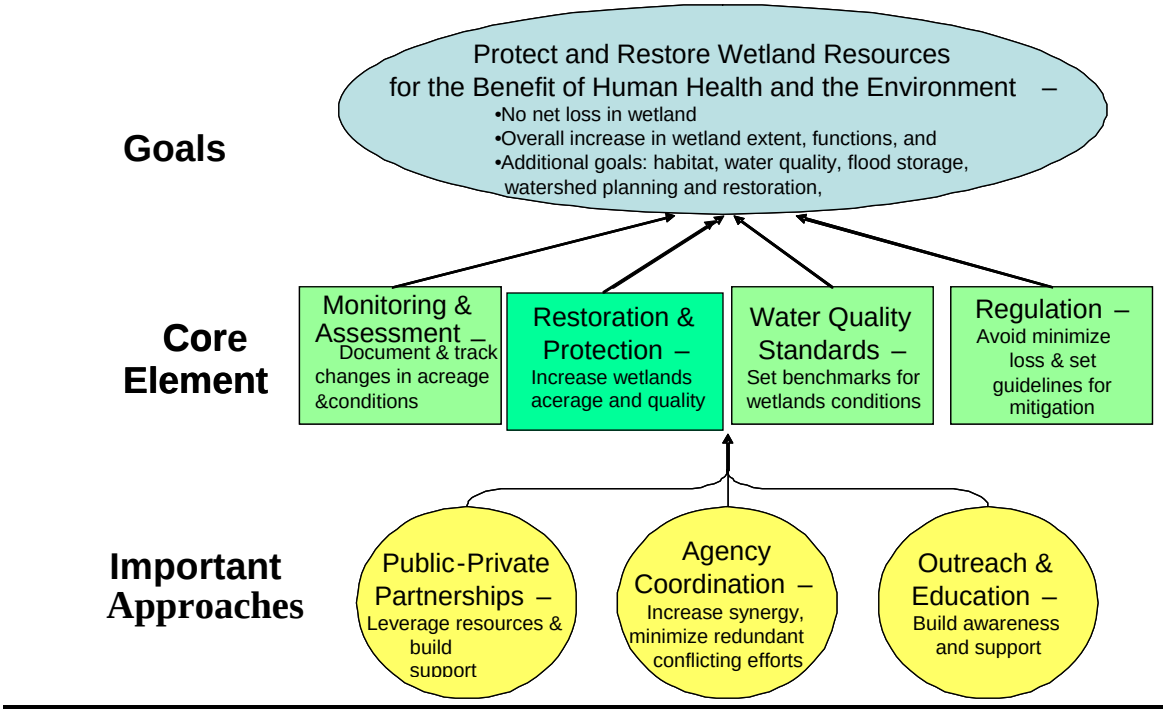
Pursuing activities listed is the CEF can help states and tribes chart a path to meet their overall goals. For example, a state or tribe may have the following goals:

- ***Reduce procedural complexity in the administration of State and Federal wetlands permitting programs.***
- ***Encourage partnerships and provide landowner incentives to conserve and protect wetlands.***

To help meet the first goal, a state or tribe may want to pursue activities under the Regulatory Activities core element and streamline their permitting processes. To achieve the second goal, they may choose to pursue activities under the Voluntary Restoration and Protection core element and begin to build a state-managed wetland conservation

program. As the state or tribe charts a course for reaching their goals, it will become more apparent how and why you would pursue approaches such as interagency partnerships or outreach. For example, if a state decided to pursue a voluntary restoration program linked to privately owned lands, outreach and education efforts targeting private land owners would be essential. Figure 1 illustrates the relationship between state and tribal program goals, the core elements, and key approaches for implementing the elements.

Figure 1: Relationship between Goals, Core Elements, and Key Approaches



THE USES OF THE CEF

First and foremost, the CEF is a resource for states and tribes, especially those who are actively working to build their wetland programs. The CEF is important for a variety of reasons. It gives more definition to what constitutes an effective wetlands program. It elaborates on program-building actions and next steps that states and tribes can follow to build effective wetlands programs and measure progress toward their goals. States and tribes can increase the pace and/or level of achievement if goals, objectives, suggested

actions, and measures of progress are more explicit. Finally, the CEF provides the basis and reference material for EPA to use when conducting outreach to states and tribes interested in enhancing their wetlands programs, whether through one-on-one conversations, web-based tools, or other methods.

The CEF can be used as a basic planning framework for state and tribes. If states and tribes use the CEF over multiple years, it can guide long-term program building efforts and help avoid a piece-meal approach. Over time, the CEF will provide a structure for organizing and understanding information on the status, accomplishments, opportunities, and challenges facing state and tribal wetlands programs. EPA will use this information to facilitate beneficial state and tribal partnerships, target training and technical assistance, modify EPA Wetland Program Development Grant selection criteria, and prioritize the development of additional tools to support wetlands programs.

The CEF can help states and tribes consolidate, refine, and share information on the current status of their wetland programs. Articulating and widely communicating goals, objectives and key program building activities to other state and tribal environmental programs and non-state/tribal partners may encourage cooperative efforts and integrated decision making across agency programs and community based organizations. For example, by articulating wetland monitoring and assessment goals, many states are beginning to make key connections between wetlands assessment information and other CWA programs, such as state and tribal non-point source management plans developed under the 319 program. State wetland monitoring and assessment programs have also found that articulating a long-term monitoring and assessment plan has encouraged data sharing and more efficiency in wetland data collection efforts.

In general, more fully developed state and tribal wetland programs can significantly enhance existing federal protection efforts. EPA hopes states and tribes will use the CEF to advance development of their wetland programs and that it will contribute to enhancing state and tribal regulatory and/or non-regulatory mechanisms to protect wetlands and watershed health. Environmental Law Institute EXIT Disclaimer

THE CEF CAN BE HELPFUL AT ANY STAGE OF WETLAND PROGRAM DEVELOPMENT

States and tribes are at various levels of readiness to pursue the development of wetland programs. The CEF meets states and tribes where they are programmatically. For each core element the CEF includes a *menu* or table of program building activities. Each core element table is organized into three sections which generally correspond to stages of program development. States and tribes in the beginning stages of developing a program under a core element may want to focus on steps in *Objective 1*; those that have a program under a core element that is already established would be most likely to take the steps under O*bjective 2*, and the steps under *Objective 3* are for those with a substantial

program in place and are ready to use the information in program management decisions.

Each of the core element chapters and program building menus follow this basic format, but each core element also has unique characteristics and challenges that influence the activities included. The Monitoring and Assessment core element is viewed by some as the first step to developing a strong state and tribal wetlands program. Knowing the current status of the health of wetlands within your state or tribe lays the foundation for strong programs under the other core elements. If a state or tribe pursues the Regulatory Activities core element, there are a wide range of starting points and numerous types of regulatory activities to engage in. Some of these may seem exceptionally challenging, but several states have found that developing their own regulatory program has increased permitting efficiency and/or provided more comprehensive protection of wetland resources. The Voluntary Restoration and Protection core element includes many activities that foster partnerships with key state or tribal agencies and non-government organizations that support relevant programs such as wildlife protection programs, watershed initiatives and land acquisition programs. Developing a state or tribal wetland inventory is challenging, but can be an essential foundation for all the core elements, and particularly helpful for pursuing a strategic restoration program. The Water Quality Standards for Wetlands core element requires a long-term investment that typically begins with comprehensive monitoring of wetland resources to gather sufficient data to establish these regulatory benchmarks.

THE CORE ELEMENTS REINFORCE EACH OTHER

Some states and tribes have chosen to pursue a comprehensive statewide wetlands strategy. The findings of the National Wetland Policy forum (1988) and EPA specifically encouraged states to develop comprehensive statewide strategies the early 1990's. These plans have proven useful for some states in pursuing wetland program support and charting a course to develop state wetland programs. Currently, taking on a comprehensive approach to developing a wetland program may not be practical for all states and tribes. The CEF breaks down a comprehensive wetland program into the core elements to help states and tribes understand the various wetland program components and to suggest a variety of program building activities. This enables states and tribes to pursue activities under a core element to help them reach their current state or tribal wetland goals. If a comprehensive statewide approach is practicable it can be an extremely effective way to address all threats to wetlands and mobilize a broad array of programs from the private and government sectors. Statewide Wetland Strategies: A Guide to Protecting and Managing the Resource EXIT Disclaimer

If a state or tribe decides to pursue one core element at a time, it still is important to consider how the core elements can build on one another. For example, building a state monitoring and assessment program will provide state managers the information necessary to report on the condition of wetlands in their state or in a particular watershed. That information, in turn, can be used to prioritize wetland management activities such as restoration and protection, and regulatory decisions related to permitting and

compensatory mitigation. A state or tribe may have a restoration program and may need to develop monitoring protocols to help determine if restoration techniques are successful. Existing state and tribal wetland programs have demonstrated many ways each of the core elements can work together

THE CEF IS NOT A STAND- ALONE DOCUMENT

The CEF is the first step in a larger collaborative effort between EPA and states and tribes known as the Enhancing State and Tribal Programs Initiative (ESTP). Once states and tribes begin to use the CEF as a foundation for program building, EPA will identify ways to direct programmatic support, focus technical assistance to support core element development in state and tribal programs, and better align the Wetland Program Development Grants with state and tribal program enhancement. Under future ESTP tasks, EPA will consolidate existing technical assistance tools and approaches, develop case studies of states and tribes with well-developed core elements, and support peer-to-peer to learning forums to help states and tribes enhance their wetlands programs.

MONITORING AND ASSESSMENT

Definition

A **monitoring and assessment program** is 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 in a state or tribe (adapted from *Elements of a State Water Monitoring and Assessment Program, March 2003*). Monitoring is the systematic observation and recording of current and changing conditions, while assessment is the use of that data to evaluate or appraise wetlands to support decision-making and planning processes. Wetlands can be characterized both by their condition and functions. Wetland condition is the current state as compared to reference standards for physical, chemical, and biological characteristics, while functions represent the processes that characterize wetland ecosystems. Condition and functional wetland assessments are currently lacking in many areas of the country.

EPA refers to a three-tier framework for wetlands monitoring and assessment. Most states and tribes draw on one or more of these tiers when designing and implementing their wetlands monitoring programs.

> Level 1 or landscape assessments rely entirely on GIS data, utilizing landscape disturbance indices to assess wetland condition. This approach involves characterizing the lands that surround wetlands through the use of landscape metrics (e.g., percent forest cover and land use category). Assessment results can provide a coarse gauge of wetland condition within a watershed.
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> Level 2 or rapid assessments use relatively simple metrics to assess wetland condition. They are customarily based on the readily observable hydrogeomorphic and plant community attributes of wetlands. They also can employ the use of a "stressor checklist." Rapid assessment methods typically produce a single score that describes where a wetland generally falls along a gradient of human disturbance and with respect to ecological integrity.
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> Level 3 or intensive site assessments provide a more thorough and rigorous measure of wetland condition by gathering direct and detailed measurements of biological taxa and/or hydrogeomorphic functions. Two examples of the type of indicators that might be used in Level 3 assessment are plant composition/structure and soil organic matter content.

Wetlands assessment activities at all three levels can be effectively integrated with other surface water monitoring efforts such as stream or habitat assessments. Doing so can provide a more integrated understanding of watershed health and a foundation for developing more effective management approaches.

Goals and Benefits

Well designed and executed wetland monitoring and assessment programs are a critical tool for states and tribes to better manage and protect wetland resources. They allow states and tribes to

establish a baseline in wetlands extent, condition and function, to detect change, to assess value, and to characterize trends over time. Monitoring and assessment plays a foundational role in the other core elements of wetlands programs. For example, states monitor and assess restoration and mitigation sites compared to reference conditions[1] to determine whether they are meeting performance standards and identify areas in need of improvement. Regulatory programs rely on monitoring to detect whether unauthorized actions are occurring, evaluate alternatives to avoid and minimize impacts, determine whether permit holders comply with conditions in CWA Section 401 certifications or in Section 402, 404, or state and tribal permits, and evaluate the cumulative impacts of permitted actions. Monitoring and assessment can also inform planning and prioritization at both the individual wetland and watershed scales and is a tool to guide state or tribal decision-making. States and tribes can use monitoring and assessment data to determine if water quality standards are being met or to develop wetland-specific water quality standards. Finally, by integrating wetland monitoring data with information on other aquatic resources, monitoring and assessment strategies become an important bridge between wetlands and other water programs within a state or tribe.

Monitoring and assessment programs eventually will help EPA to evaluate progress toward meeting its two overarching national goals of "No Net Loss" in wetlands extent and an "Overall Increase" in wetlands extent, functions, and quality. In addition, effective wetland monitoring and assessment programs enable states and tribes to meet federal Clean Water Act requirements under Section 305(b) to assess the condition of all navigable waters, including wetlands. The §305(b) reports must include, "A description of the water quality of all waters of the United States and the extent to which the quality of waters provide for the protection and propagation of a balanced population of shellfish, fish, and wildlife and allows recreational activities in and on the water" (40 CFR 130.8). In addition, the 2008 Compensatory Mitigation Rule calls for the use of scientifically valid functional and condition assessments for determining the amount and location of compensatory mitigation.

EPA encourages states and tribes interested in comprehensive monitoring and assessment programs to pursue three objectives over time:

1. Develop a monitoring and assessment strategy consistent with *Elements of a State Water Monitoring and Assessment Program for Wetlands* (EPA, 2006) that states and tribes can use to manage wetlands according to their objectives;

2. Implement a sustainable monitoring program consistent with the wetlands monitoring strategy;

3. Incorporate monitoring data into agency decision-making.

The three objectives generally correspond to stages of state or tribal program development in monitoring and assessment. States and tribes in the beginning stages of a monitoring program

[1] 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.

may want to focus on steps in Objective 1; those that have a monitoring program underway would be most likely to take the steps under Objective 2. We recommend that the steps in Objectives 1 and 2 be taken in sequential order. The actions under Objective 3 are a menu of applications for those states and tribes with substantial monitoring data in-hand and ready to use the information in program management decisions.

Program Building Activities Menu

The following actions outline how a state or tribe can engage in developing, implementing, and using a monitoring and assessment strategy to meet its program objectives. These actions are universal to any wetland assessment program, including those that use both functional or condition assessments

Objective 1 (for programs in the earliest stages of monitoring and assessment): Develop a monitoring and assessment strategy consistent with *Elements of a State Water Monitoring and Assessment Program for Wetlands* (EPA, 2006) that states and tribes can use to manage wetlands according to their objectives

Actions†	Menu of Activities†
a. Identify program decisions and long-term environmental outcome(s) that will benefit from a wetlands monitoring and assessment program	• Document program's long-term environmental goals • Identify programs that will ultimately use monitoring data, e.g. track trends, 401 certification, restoration, permitting • Collaborate with water quality programs in a state/tribe • Identify how wetland data can be used to implement watershed planning
b. Define wetlands monitoring objectives and strategies	• 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 state or tribe • Identify monitoring objectives • Define data needs and uses • Coordinate with your state/tribe's Water Quality Monitoring Program to identify shared goals and activities • Examine how to integrate wetlands monitoring strategy into existing water quality monitoring efforts as feasible • Document wetlands monitoring strategy
c. Develop monitoring design, or an approach and rationale for site selection that best serves monitoring objectives (e.g., census, probabilistic survey, rotating basin)	• Determine classification scheme in order to group the type, class, and size of wetlands • Describe site selection process • List universe of wetland resources from which sites could be selected if available • Determine which data are already available.
d. Select a core set of indicators to represent wetland condition or a suite of functions	• Identify indicators that are relevant for established monitoring objectives • Confirm indicators are scientifically defensible • Develop/select field method(s) • Add supplemental indicators if needs dictate and as resources allow

Notes:
† EPA encourages states and tribes to follow "Actions" and "Activities" in Objectives 1 and 2 sequentially.

Objective 2 (for programs prepared to implement a monitoring and assessment plan): Implement a sustainable monitoring program consistent with the wetlands monitoring strategy

Actions†	Menu of Activities†
a. Ensure the scientific validity of monitoring and laboratory activities	• Draft and peer review Quality Management Plan • Draft and peer review Quality Assurance Project Plan • Draft and peer review Field Operations Manual • Select, prioritize, and peer review candidate assessment indicators
b. Monitor wetland resources as specified in strategy	• Identify and train staff to monitor for each indicator • Verify monitoring strategy by conducting sufficient number of pilot monitoring projects (small-scale projects to test methods, calibrate, enhance reference network, etc.) • Develop a schedule for monitoring wetland resources • Track sites that are monitored
c. Establish reference condition	• 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 a systematic approach
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	• Design a data management system that supports program objectives • Administer and update data system so that state or tribe can use it for analysis • Make data system compatible with and regularly update Water Quality Standards • Integrate with other water quality data systems (e.g., state watershed planning databases) • Georeference data as it is gathered for reporting • Identify sites to sample repeatedly for a trend network
e. Analyze monitoring data to evaluate wetlands extent and condition/function or to inform decision-making	• 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 wetland condition • Analyze changes in wetland extent or condition relative to reference conditions • Analyze changes in wetland extent or condition in response to climate change • Regularly report wetlands status and trends (e.g., annual reporting of no net loss, net gain, or 305(b) reports for wetlands)

Notes:
† EPA encourages states and tribes to follow "Actions" and "Activities" in Objectives 1 and 2 sequentially.

Objective 3 (for the most developed programs that already monitor and assess wetlands): Incorporate monitoring data into agency decision-making

Actions	Menu of Activities
a. Evaluate monitoring program to determine how well it is meeting a state/tribe's monitoring program objectives	• Develop schedule to evaluate monitoring program • Track program reviews • Ensure the assessment method is providing the necessary information • Make changes as necessary to the program • Review other wetlands program elements (e.g., restoration, regulation, water quality standards) • Modify other aspects of wetlands program as needed based on review of monitoring data
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	• Inform state/tribal wetland permit decisions • Inform 401 certification decisions on federal actions • Modify permitting or 401 certification practices as needed based on assessment information
c. Improve the site-specific management of wetland resources.	• 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.
d. Develop geographically-defined wetland protection, restoration, and management plans	• Identify and prioritize management areas (e.g. identify vulnerable wetlands, prioritize restoration potential) • Incorporate wetlands into a comprehensive Watershed Plan that serves state and tribal water quality management needs and addresses all waters • Evaluate progress toward meeting wetland objectives identified in other projects/programs, for example: State Wildlife Action Plans • Inform broader watershed activities (e.g., reducing erosion, providing floodplain storage, reducing nutrient loading, etc.)

Resources

- Basic Monitoring Fact Sheet at http://www.epa.gov/owow/wetlands/pdf/monitor_pr.pdf (PDF) (4 pp, 58K, About PDF)
- Tribal Case Examples at: http://www.epa.gov/owow/wetlands/initiative/tribalpro.html
- Environmental Law Institute (2005-2007). *State Wetland Program Evaluation: Phases I-IV*. Washington, D.C. Accessed at http://www.eli.org.
- EPA Monitoring Information at http://www.epa.gov/owow/wetlands/monitor

- Tribal Wetland Program Highlights | PDF version (93 pp, 1.8MB, About PDF)
- US EPA (2006). *Elements of a State Water Monitoring and Assessment Program for Wetlands*. Accessed at http://www.epa.gov/owow/wetlands/pdf/Wetland_Elements_Final.pdf (PDF) (12 pp, 90K, About PDF)
- US EPA (2003). *Elements of a State Water Monitoring and Assessment Program*. EPA 841-B-03-003. Washington D.C.

REGULATION

Definition

Wetlands regulatory and permit programs in general consist of a few basic elements: a jurisdictional scope, a method to authorize impacts to aquatic resources and assess proposed authorizations, and a method of assuring compliance. State and tribal wetland and aquatic resource regulatory programs are defined by the authority under which they operate (i.e., Clean Water Act (CWA) §404, CWA §401, State or Tribal law) and how the program is implemented. State and tribal programs regulating aquatic resources fall into four main categories:

- Implementation of a CWA §401 certification program that requires federal permits and licenses to receive certification from the state or tribe in order to be valid; http://www.epa.gov/OWOW/wetlands/regs/sec401.html [1]

- Implementation of a State Programmatic General Permit (SPGP) or a Regional General Permit (RGP). SPGPs and RGPs are general permits issued by the Army Corps of Engineers (Corps) that authorize activities regulated by another entity such as a state or tribe; http://www.epa.gov/owow/wetlands/pdf/spgp.pdf

- Assumption of the CWA §404 permitting authority, so that the state or tribe issues all CWA §404 permits for the discharge of dredge or fill of material into waters of the U.S. within the state's/tribe's jurisdiction; and
  http://www.epa.gov/owow/wetlands/pdf/40cfrPart233.pdf
  http://www.epa.gov/owow/wetlands/pdf/40cfrPart233G.pdf

- Implementation of a state or tribal permitting program under state or tribal laws and regulations independent of EPA or Corps review.

The effectiveness of a state or tribal regulatory program depends on clear definitions, guidelines and regulations, assignment of responsibilities, and procedures that are applied consistently by program staff and understood by the public. This applies to all aspects of the program but is particularly important for compensation, compliance and enforcement as these are highly visible to the public and the regulated community. This chapter covers the four approaches listed above that states and tribes can pursue to provide regulatory protections for wetlands and other aquatic resources. [Please note: that this is not intended to cover all aspects of each of these programmatic approaches, it is a summary highlighting the major components.]

[1] Under CWA §401, a federal agency cannot issue a permit or license that may result in a discharge to waters of the U.S. until the state or tribe where the discharge would originate has waived or granted §401 certification. The central component of the §401 certification program is the state or tribe's decision to grant, grant with conditions, deny or waive certification based on the proposed project's potential to comply with water quality standards, effluent limitation guidelines, new source performance standards, toxic pollutant restrictions, and other appropriate requirements of state or tribal law.

Goals and Benefits

An overarching goal of the federal CWA is to restore and maintain the physical, chemical, and biological integrity of the Nation's waters. A more specific federal goal is "No Net Loss" of wetlands in the CWA §404 regulatory program by first avoiding, then minimizing, and finally compensating for any impacts to aquatic resources caused by the discharge of dredge or fill material into waters of the U.S. This goal has been enhanced with a companion goal that calls for an "Overall Increase" in wetlands extent, functions, and quality for all federal aquatic resource programs. States and tribes may have similar or additional goals which they are trying to achieve with a regulatory program such as preservation of cultural resources.

There are several benefits to states and tribes that take an active role in regulating impacts to aquatic resources. A regulatory program allows states and tribes to manage aquatic resource protection and require restoration of acreage and function/condition to address their goals including increase the number of acres and quality of wetlands. State and tribal regulatory programs can be more protective or more comprehensive than the federal program in various ways including adopting protective standards, covering all aquatic resources in the state, not just waters covered by the Clean Water Act, or utilizing other statutes and regulations such as smart growth requirements. In addition, states and tribes can incorporate other land use regulations, goals and policies into their regulatory program and more effectively manage the resources on a watershed scale. Some regulatory program categories increase overall regulatory efficiency by reducing state/federal redundancy and provides for more effective allocation of state/tribal resources. State and tribal regulatory programs can increase integration and cooperation with state and federal resource programs to more effectively address a range of water related issues such as flood control and wellhead protection.

This chapter covers four categories of regulatory programs, each with varying levels of permit responsibility and control for the state or tribe:

- States and tribes with active CWA §401 certification programs can prohibit or place mandatory conditions or provisions on activities affecting aquatic resources that require federal permits. These conditions are added to the CWA §404 permit issued by the Corps. Certification allows states and tribes to prevent impacts that would violate narrative or numeric water quality standards or other appropriate requirement of state or tribal law (e.g. protection of traditional uses, maintenance of in-stream flow). These certifications can be for individual permits or for general permits such as the Corps' Nationwide General Permits. This authority provides states and tribes with a final say on federally permitted or licensed actions affecting wetlands and other aquatic resources within their jurisdiction without the larger investment of resources necessary to run an independent regulatory program. Many states and tribes have active CWA §401 certification programs. Some states, like North Carolina, have a strong CWA §401 certification program that works together with state mandated regulatory programs to extend state review to resources and activities not regulated under the CWA.

- For states and tribes wanting greater involvement than CWA §401 certification but without assuming the CWA §404 program, SPGPs or RGPs increase efficiency by eliminating some duplication between state and federal permits but without the same

financial or administrative burden of CWA §404 assumption. SPGPs and RGPs are developed in coordination with the Corps CWA §404 program staff and typically allow the state or tribe to review applications and issue permits and provides for a more streamlined permitting process. SPGPs and RGPs 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 and Louisiana has an RGP in the lower portion of the state.

- States and tribes that have pursued assumption of the CWA §404 permitting program report doing so in order to streamline the permit review process, provide more thorough protection of aquatic resources, and achieve consistency in program administration rather than dividing authority between state and federal agencies. In an assumed program, the state or tribe is the permitting authority and provides funding and staffing for the program. While state/tribal assumed programs can be more comprehensive, they only need to be as comprehensive as the federal program. Michigan and New Jersey have assumed the CWA §404 program. For those states/tribes interested in assuming the CWA §404 permitting program there are specific regulations that must be met which can be found at http://www.epa.gov/owow/wetlands/pdf/40cfrPart233.pdf

- States and tribes can develop their own permitting programs to avoid, minimize, and or compensate for impacts to wetlands and other aquatic resources. These programs can cover aquatic resources under federal jurisdiction as well as those not protected as waters of the U.S. A state or tribe may establish their own program in order to have direct authority over aquatic resources and to provide clearer permitting requirements and jurisdictional limits regardless of the status of federal regulatory programs. For example, Florida regulates all alterations to the landscape and aquatic resources, including isolated wetlands that may no longer fall under federal jurisdiction.

Many states and tribes regulate impacts to aquatic resources by implementing multiple programs from more than one category described above. In some cases, different state or tribal offices and sometimes even agencies operate the various regulatory programs described above.

All regulatory programs to varying degrees incorporate some type of avoidance, minimization and compensatory mitigation system for authorized or certified impacts to aquatic resources. This allows states and tribes to avoid and minimize impacts and guide the restoration of aquatic resource systems. For example, a regulatory program can tie mitigation ratios and credits to watershed plans in order to deter impacts to and restore the most valuable, unique, rare, or hard to replace wetlands within a watershed. Such programs demonstrate the value of and encourage development of watershed plans and data which is more readily accomplished at the state or tribal (vs. federal) level. Such efforts can lead to more informed regulatory programs in the future and to better permit decisions.

As discussed earlier, the overall effectiveness and public perception of a state or tribe's regulatory program will depend in large part on how it addresses appropriate compensation, compliance and enforcement for impacts. State and tribal programs can also focus on

compliance monitoring and assistance with other state/tribal or federal programs. This type of collaboration can greatly increase the appearance of an enforcement presence (deterrent), preventing sites from being out of compliance with the permit and helping to avoid violations and unauthorized impacts. Similarly, enforcement efforts that bring underperforming sites into compliance are critical to effective implementation and public perception of any regulatory program. In addition to the direct results of enforcement actions, practice indicates that regular and frequent inspections and appropriate enforcement mechanisms deter permit violations as the perceived risk of being caught increases, thus indirectly increasing the effectiveness of regulations.

In summary, regulatory authority allows a state or tribe to exert direct control over the management of its aquatic resources and to ensure that overarching wetland and watershed goals are met.

Elements of a Regulatory Program
No matter which category or combination of categories of regulatory program(s) a state or tribe pursues, the effectiveness of that program will largely depend on how well the following three basic program elements are addressed:

1. **Definition of the jurisdictional scope of the program** to clarify what activities and aquatic resources are regulated. Jurisdiction may be tied to the CWA and /or independently defined by the state or tribal government;

2. **Administration of regulatory activities,** including a method of authorization and set of standards for assessing proposals that defines what will be accepted, how impacts will be accounted for, and how impacts will be mitigated; and

3. **Evaluation, inspection, and enforcement of regulatory activities to ensure environmental results.**

EPA encourages states and tribes to pursue these three basic objectives whether interested in strengthening their CWA §401 certification program, adopting an SPGP or RGP, developing or enhancing a CWA §404 assumed program, implementing a state or tribal permitting program, or some combination of the above.

Program Building Activities Menu
The following actions and steps help states and tribes assess the foundation and implementation of their regulatory program(s). The meaning of specific actions and steps will vary with the overall structure of the program and depending on whether they are applied to individual or a combination of the four regulatory program categories described in the definitions section. Note: Not all actions are required or appropriate for each regulatory approach. In the last column (Program Categories), we have indicated generally which program category this action is appropriate for – CWA §401 Certification (401), SPGP/RGP, CWA §404 Assumption (404), or State/Tribal permit program (S/T).

ELEMENTS OF A REGULATORY PROGRAM

KEY:
X – These steps form the basics of a successful program.
O – Steps are suggested because they are often found in a successful program, but may not be necessary.
N/A – Step not applicable to this program category.

Objective 1: Clearly Define the Jurisdictional Scope of the Program

Actions	Steps	Program Categories			
		401 Certification	**SPGP\RGP Permits**	**404 Assumption***	**S\T Permit**
a. Provide clear and comprehensive jurisdictional coverage of aquatic resources	Adopt definition of waters of the state or tribe at least as inclusive as CWA (S/T permit program does not need to be as comprehensive as CWA)	X	X	X	X
	Delineate wetlands in a manner that is at least equivalent with the federal program (S/T permit program does not need to be as comprehensive as CWA)	N/A	X	X	X
	Extend state/tribal jurisdiction to aquatic resources that are not "waters of the US" (e.g., isolated wetlands)	N/A	O	O	O
	Base all water related regulatory programs within state/tribe on the same definition of waters of the State	O	O	O	O
b. Clearly identify a comprehensive scope of activities to be regulated	Adopt clear definition of regulated activities that is as extensive as CWA (S/T permit program does not need to be as comprehensive as CWA)	N/A	X	X	X
	Coordinate with other CWA 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)	X	X	X	O
	Extend state/tribal jurisdiction to activities that are not regulated under the CWA (e.g. excavation or ditch maintenance)	N/A	N/A	O	O

* Completion of the CWA §404 actions in this table does not constitute CWA §404 assumption. The requirements for assumption can be found at http://www.epa.gov/owow/wetlands/pdf/40cfrPart233.pdf.

Actions	Steps	Program Categories			
		401 Certification	SPGP\RGP Permits	404 Assumption*	S\T Permit
c. Provide clear guidance to public on how to identify jurisdictional waters and activities	Develop clear, publicly accessible guidance and / or training on how to identify waters of the State for wetlands, streams, and other waters	O	X	X	X
	Develop clear, publicly accessible guidance on what activities in waters of the state require what authorizations	N/A	X	X	X
d. Evaluation	Periodic review of state/tribal program to ensure all potentially regulated activities are addressed, and take appropriate programmatic action	O	X	X	O

Objective 2: Administer Regulatory Activities Efficiently and Consistently

Actions	Steps	Program Categories			
		401 Certification	SPGP\RGP Permits	404 Assumption*	S\T Permit
a. Adopt regulations or rules to implement State/Tribal and/or federal water quality statutes	Adopt guidance to implement statutes as appropriate	X	X	X	X
	Adopt regulations that identify agency goals and responsibilities for all water quality statutes.	O	X	X	X
b. Develop and operate according to a clear and effective set of criteria for reviewing and responding to applications	Develop publicly accessible criteria for applying for and agency review of applications	X	X	X	X
	Establish reasonable timelines for initially responding to applications in regulatory guidelines	O	X	X	X
	Establish reasonable timelines for providing final responses to applications in regulatory guidelines	X	X	X	X
	Develop and implement internal procedures for responding to federal actions on permits	X	N/A	N/A	N/A
c. Actively review proposed impacts to waters of the state	Actively review proposed impacts to waters of the state	X	X	X	X
	Develop standard practices or general authorizations for like projects impacting similar aquatic resources	N/A	O	O	O
d. Adopt and apply comprehensive project review criteria	Adopt 404(b)(1) Guidelines or comparable review criteria for assessing and minimizing impacts	O	X	X	O
	Adopt more stringent review criteria than the 404(b)(1) Guidelines	O	O	O	O

* Completion of the CWA §404 actions in this table does not constitute CWA §404 assumption. The requirements for assumption can be found at http://www.epa.gov/owow/wetlands/pdf/40cfrPart233.pdf.

Actions	Steps	Program Categories			
		401 Certification	SPGP\RGP Permits	404 Assumption*	S\T Permit
e. Coordinate among agencies, programs, and industry groups to reduce duplicative efforts by the programs and the regulated public	Use joint review processes and practices	O	O	O	O
	Develop clear guidelines for roles, responsibilities, and procedures for review of permits for activities that require approval from more than one state / tribal agency	O	O	O	O
	Issue permit/certification decisions conditioned that they must meet the requirements of other agency permit decisions	O	O	O	O
f. Require effective mitigation for authorized impacts	Require effective mitigation for authorized impacts	X	X	X	X
	Require long-term protection at mitigation sites (e.g. restrictive covenant, easement, deed restriction)	O	O	O	O
	Establish minimum requirements and review criteria for mitigation proposals	O	O	O	O
	Require financial assurances for mitigation projects	O	O	O	O
g. Track permit\ certification program activity	Track permit\ certification program activity	X	X	X	X
	Map impact and mitigation sites	O	O	O	O
	Administer and regularly update publicly accessible tracking system for impacts and mitigation	O	O	O	O

Actions	Steps	Program Categories			
		401 Certification	**SPGP\RGP Permits**	**404 Assumption***	**S\T Permit**
h. Track / Evaluate	Program Development: • Adoption of state, tribal, or municipal rules to protect wetlands • Track state/tribal resources receiving protection beyond federal requirements (aquatic resource types and/or activities regulated)	O	O	O	O
	Program Implementation: • # of 401 certifications waived without review • # of applications reviewed • # of permits/certifications issued annually • % applications responded to on schedule • % projects whose impacts changed from initial application to issuance/certification • Ratio of impacted aquatic resources to mitigation required by aquatic resource type (e.g. wetland acres, stream linear feet)	O	O	O	O

Objective 3: Evaluate Regulatory Activities to Ensure Environmental Results

Actions	Steps	Program Categories			
		401 Certification	**SPGP\RGP Permits**	**404 Assumption***	**S\T Permit**
a. **Monitor the implementation of permit / certification conditions**	Track: • % 401 certification conditions that are incorporated into the final permit • % 401 certification or State water quality permit conditions executed	X	N/A	N/A	N/A
	Track: • % post-construction sites monitored for compliance with permit conditions • % post-construction sites in compliance with conditions	O	X	X	X
b. Enforce aquatic resource protections	Develop and implement enforcement and compliance mechanisms to monitor compliance and deter violations	X	X	X	X
	Set timeframe for sites to come into compliance	O	O	O	O
c. Ensure impact assessments and mitigation crediting lead to replacement of aquatic resources with similar structural, functional or condition attributes	Develop or adopt functional or condition assessment methodologies	O	O	O	O
	Establish performance standards and success criteria for mitigation	X	X	X	X
	Evaluate mitigation against reference and pre-impact sites regularly; revise performance standards, review criteria, and/or functional/condition assessment methods accordingly	O	O	O	O
	Coordinate regulatory programs with other entities conducting restoration to share best practices, mitigation/restoration priorities, and/or assessment methodologies	O	O	O	O

* Completion of the CWA §404 actions in this table does not constitute CWA §404 assumption. The requirements for assumption can be found at http://www.epa.gov/owow/wetlands/pdf/40cfrPart233.pdf.

Actions	Steps	Program Categories			
		401 Certification	SPGP\RGP Permits	404 Assumption*	S\T Permit
d. Incorporate the watershed approach into the regulatory decision-making process	Establish methods for determining cumulative impacts to aquatic resources within a watershed	O	O	O	O
	Evaluate cumulative impacts to aquatic resources within a watershed	O	O	O	O
	In addition to required guidelines, use watershed plans to guide permitting and restoration priorities	O	O	O	O
	Use watershed plans to set priority areas for mitigation	O	O	O	O
	Use watershed plans to set priority areas for enforcement	O	O	O	O
	Use Special Area Management Plans, as appropriate	O	O	O	O
e. Perform public education and outreach about wetland protection, regulated waters and activities, and authorization process	Make education/outreach documents or activities available on important programmatic topics such as: • 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	O	O	O	O
	Make program information available through readily accessible outlets (hotline, website, brochures, etc.)	X	X	X	X
f. Measure Environmental Results	Track: • % 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	O	O	O	O

Resources

- Basic Regulatory Fact Sheet at: http://www.epa.gov/owow/wetlands/pdf/reg_authority_pr.pdf (PDF) (2 pp, 688K, About PDF)
- The Conservation Foundation (1989). *Recommendations for Comprehensive State Wetlands Programs*. October.
- Environmental Law Institute (2005-2007). *State Wetland Program Evaluation: Phases I-IV*. Washington, D.C. Accessed at http://www.eli.org.
- Tribal Wetland Program Highlights | PDF version (93 pp, 1.8MB, About PDF)
- US Army Corps of Engineers (1996). *Proposed Regulatory Guidance Letter on Programmatic General Permits*. April. Accessed at http://www.epa.gov/owow/wetlands/pdf/spgp.pdf (PDF) (4 pp, 25K, About PDF).
- World Wildlife Fund (1992). *Statewide Wetlands Strategies: A Guide to Protecting and Managing the Resource*. May.

VOLUNTARY RESTORATION AND PROTECTION

Definition

Wetland **restoration** is the manipulation of a former or degraded wetland's physical, chemical, or biological characteristics to return its natural functions.[1]. Restoration practices include:

- **Re-establishment,** the rebuilding a former wetland; and
- **Rehabilitation,** repairing the functions of a degraded wetland (US EPA, 2007a).

Wetlands **protection** is defined as removing a threat or preventing the decline of wetland conditions (US EPA, 2007a). [2]

Restoration and protection efforts can be either regulatory or voluntary. **Regulatory** restoration and protection results from federal, state, tribal, or local laws and regulations that prohibit, condition, or compensate for permitted impacts to existing wetlands. Examples include 401 certification, zoning, permitting programs, and mitigation requirements. The Regulatory core element includes actions to develop the regulatory aspects of wetlands restoration and protection. **Voluntary** restoration and protection refers to activities not required by statutes or regulations. Examples include land trusts purchasing titles or easements to wetland areas, community groups removing invasive species and planting native vegetation, and conservation programs that pay landowners to change practices such as cultivation or grazing that alter wetland areas. While by definition voluntary protection is not required, it can be secured through legally binding agreements, such as conservation easements.

Both regulatory and voluntary wetland restoration play a role in states and tribes broader implementation of Clean Water Act (CWA) and Safe Drinking Water Act programs. For example, CWA Section 319 grants provide funds and technical assistance to state and tribes to develop plans and implement them to promote the reduction of non-point source pollution. Strategic wetland restoration can play an important role in implementation of state and tribal non-point source plans. . In some cases, voluntary restoration and protection can strengthen regulatory programs. For example, states and tribes can share maps of vulnerable or rare wetland resources with regulatory programs so that permit

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[1] Council of Environmental Quality, White House Wetlands Working Group Report. 2000.

[2] The White House Wetlands Working Group (WHWWG) also defines two activities related to but distinct from restoration: e**stablishment (also known as construction or creation):** developing a wetland where one did not previously exist; and e**nhancement:** manipulating the physical, chemical, or biological characteristics of an undisturbed or degraded wetland to heighten, intensify, or improve specific functions such as pollution control, flood water retention, and provision of wildlife habitat. This chapter does not address these activities as they do not return a wetlands to its natural functions as defined above. (US EPA, 2007a).

applications receive heightened review. They can also suggest areas prioritized for restoration as compensatory mitigation sites.

Whether as a stand-alone effort or as a complement to a state/tribal regulatory program, voluntary restoration and protection efforts help stem the loss and create a gain in natural wetlands and their associated functions. Voluntary restoration and protection is the subject of this core element, with particular focus on restoring or protecting natural wetlands to maintain or attain a high level of overall wetland function/condition. Many states and tribes rely on voluntary restoration and protection activities as a basis for their wetlands programs. Voluntary projects achieve important protections while providing opportunities to build partnerships, share data and pool resources with agency, community, and nonprofit groups. Voluntary projects can provide an excellent opportunity to educate the public about the value of water resources. States and tribes with regulatory programs may choose to supplement these efforts with voluntary restoration and protection activities.

Goals and Benefits

States and tribes enjoy numerous benefits of restoration and protection due to the many functions that natural wetland systems perform. Wetland restoration and protection is important to maintain critical wildlife habitat, help meet state and tribal watershed goals, and contribute to economic well-being. To achieve these goals, a number of States have invested in programs that help implement, support or coordinate local restoration efforts. For example, Natural Heritage programs often rely on state support and work though partnerships to protect wetlands as part of their habitat goals.

Wetlands provide critical habitat, breeding grounds, and sources of food for shellfish, fish, birds, amphibians, and other organisms (US EPA, 2007b, 50-51). More than one-third of the threatened and endangered species in the U.S. live exclusively in wetlands and nearly half use wetlands at some point in their life cycle. Consequently, species recovery plans commonly include targeted wetlands protection and restoration to provide habitat for threatened species. Wetlands play a crucial role in many state and tribal fishing economies. Approximately 70 percent of the nation's $111 billion commercial and recreational fishing industry is generated from wetland-dependent species. Wetlands are also preserved to provide feeding and resting grounds for migratory birds and to create habitat corridors for wildlife populations. These services generate state and tribal commercial, recreational, and aesthetic benefits as well.

Wetlands also control erosion, limit flooding, moderate groundwater levels and base flow, assimilate nutrients, protect drinking water sources, and buffer coastal areas from storm surges (US EPA, 2007b, 50-51). States may pursue wetland restoration to improve water quality and comply with Total Maximum Daily Load (TMDL) pollutant allocations in impaired waters and watersheds. Researchers are studying the rate at which different types of wetlands can store nutrients, sediment, and carbon, as well as any unintended consequences of using wetlands to perform these services. Some programs are restoring

wetlands to store floodwaters and reduce the height of peak river flows. Many coastal communities are evaluating their wetlands' ability to absorb storm surges and the potential for wetlands protection and restoration to reduce hurricane damage. These actions illustrate how that wetland restoration and protection can play an important role in helping states and tribes adapt to changing weather patterns potentially including future impacts of global climate change.

It is important to recognize that an accurate and up-to-date inventory of wetlands is very valuable when embarking on a restoration program. If comprehensive data is not available, a program can start with available maps and data and expand from there.

States and tribes can pursue any or all of the following objectives as they develop voluntary restoration and protection efforts:

1. Clearly and consistently define restoration and protection goals throughout state or tribal territory;.

2. Protect wetlands from degradation or destruction;

3. Restore wetland acres, condition, and function; and

4. Track progress over time, document results, and modify practices as appropriate.

Program Building Activities Menu

Most of these program building activities will be relevant and should be linked to existing watershed plans (both quantity and quality focused) and critical environmental area plans. States and tribes can carry out the following actions and measures of progress to achieve their restoration and protection objectives.

Objective 1: Clearly and consistently define restoration and protection goals throughout state or tribal territory

Key Actions	Program Building Activities
a. Establish goals that are consistent or compatible across relevant agencies	Coordinate with relevant agencies that outline restoration/protection goals and strategies and timeframes Develop multi-agency body to coordinate restoration/ protection efforts Gather information on wetland location, class and condition/functions Set restoration goals based on agency objectives and available information .

b. Consider watershed planning, wildlife habitat, and other objectives when selecting restoration/ protection sites	Identify rare, vulnerable, or important wetlands and prioritize for restoration/protection Apply tools (GIS, color-infrared photography, mapping, modeling, field inspection of soil, vegetation, and hydrologic conditions) to identify and prioritize restorable wetlands, Integrate restoration/protection efforts on a watershed or landscape scale, e.g., prioritize restoration sites within a watershed Share priorities with other organizations involved in wetland protection and restoration, e.g., wildlife bureaus, agriculture/conservation agencies, land trusts, mitigation banks Share priorities with other water quality protection programs,e.g., identify riparian restoration projects that would reduce sediment and nutrient loadings to streams and implement TMDLs
c. Provide clear guidance on appropriate restoration and management techniques and success measures	Develop restoration and management guidance specific to wetland types and location (e.g. urban vs. rural) 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

Objective 2: Protect wetlands from degradation or destruction

Actions	Program Building Activities
a. Establish partnerships to leverage additional protection	Share protection priorities with partners Develop management plans for protected wetlands. Consider tracking: • Number of stewardship agreements • Acres of wetlands protected through partnerships • Acres of vulnerable wetlands protected through partnerships
b. Establish and Institutionalize long term protection, using mechanisms such as incentives, purchase of land title or easements to protect wetlands	Develop management plans for protected wetlands. Consider Tracking: • Acres of wetlands protected • Acres of vulnerable wetlands protected

Objective 3: Restore wetland acres, condition, and function

Actions	Program Building Activities
a. Increase wetland acreage through restoration (re-establishment)	Develop restoration and management plans for re-established wetlands consistent with restoration guidance. Consider Tracking: • 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
b. Improve natural wetland conditions and functions through restoration (rehabilitation)	Develop restoration and management plans for rehabilitated wetlands consistent with restoration guidance. Consider Tracking: • Acres of wetlands rehabilitated • Improvement on function/condition indicators • Net change in water quality, flood control, or habitat Provide technical assistance to restoration projects as needed
c. Establish partnerships to leverage more restoration	Share restoration and protection priorities with partners Develop restoration and management plans for restored wetlands consistent with restoration guidance. Consider Tracking: • Number of restoration agreements • Acres of wetlands restored through partnerships • Acres of priority wetlands restored through partnerships Provide technical assistance to partners as needed

Objective 4: Monitor and track progress over time, document results, and modify practices as appropriate

Actions	Program Building Activities
a. Track restoration/protection projects	Develop and populate accessible tracking database for restoration/protection sites Administer and update tracking database regularly • Consider % of total acres of restoration/protection sites throughout state or tribal territory that are in database • Track projects by watershed or other relevant spatial unit
b. Monitor restoration/protection sites to ensure that they are implemented and managed correctly and linked to relevant watershed planning efforts	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 • 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.)
c. Modify restoration/protection techniques as needed	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.

Resources

- Basic Restoration Fact Sheet at: http://www.epa.gov/owow/wetlands/pdf/restoration_pr.pdf (PDF) (2 pp, 402K, About PDF)
- Working with Land Trusts Fact Sheet at: http://www.epa.gov/owow/wetlands/pdf/landtrust_pr.pdf (PDF) (2 pp, 406K, About PDF)
- Tribal Case Examples at: http://www.epa.gov/owow/wetlands/initiative/tribalpro.html
- Environmental Law Institute (2005-2007). *State Wetland Program Evaluation: Phases I-IV*. Washington, D.C. Accessed at http://www.eli.org.

- Federal Interagency Stream Restoration Working Group. (1999) *Stream Corridor Restoration: Principles, Process, and Practices.* http://www.nrcs.usda.gov/technical/stream_restoration/newgra.html
- 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. Accessed at http://www.epa.gov/owow/wetlands/pdf/restdocfinal.pdf (PDF) (102 pp, 647K, About PDF).
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- Kusler, Jon. (2004). Multi-Objective Wetland Restoration in Watershed Contexts. http://www.aswm.org/propub/restoration.pdf (PDF) (108 pp, 1.4MB, About PDF)
- Kusler, Jon. (2006a). *Common Questions: Wetland Restoration, Creation, and Enhancement. http://www.aswm.org/propub/20_restoration_6_26_06.pdf (PDF)* (17 pp, 333K, About PDF)
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- 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 (PDF)* (72 pp, 462K, About PDF)
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- Society of Wetland Scientists (2000). *Position Paper on the Definition of Wetland Restoration*. 3pp.
- Tribal Wetland Program Highlights | PDF version (93 pp, 1.8MB, About PDF)
- US EPA (2000). *Principles for the Ecological Restoration of Aquatic Resources.* EPA841-F-00-003. Office of Water (4501F), Washington, DC. 4 pp.
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- United States Geological Survey Water Supply Paper 2425. *Restoration, Creation, and Recovery of Wetlands: National Water Summary on Wetland Resources*, Mary Kentula, 1999. http://water.usgs.gov/nwsum/WSP2425/restoration.html

WATER QUALITY STANDARDS for WETLANDS

Definition

Water quality standards are the foundation of the water quality-based pollution control program mandated by the Clean Water Act (CWA). They define the goals for a water body by designating its highest attainable uses, setting criteria that reflect the current and evolving body of scientific information to protect those uses, and establishing provisions to protect water bodies from further degradation. Federal regulations (40 CFR part 230.3) implementing the CWA include wetlands as "waters of the U.S." and therefore require water quality standards. Water quality standards developed specifically for wetlands help ensure that the provisions of the Clean Water Act, which apply to all surface waters, are consistently applied to wetlands; they also provide a more relevant scientific basis for applying these provisions. Water quality standards (WQS) regulations at 40 CFR Parts 131 and 132 provide specific requirements for development of state and tribal 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 regulation also provides states and tribes 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.

Historically, wetlands-specific standards have been underutilized by states and tribes as a means of protecting the resource, although a number of states apply their narrative surface water quality standards to wetlands. If a state or tribe fails to adopt standards specific to wetlands, its water quality standards, which typically apply to "all waters of the State" by default, apply to wetlands as well. 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.

Developing defensible water quality standards for wetlands is a data intensive effort and is dependent on a successful wetland monitoring and assessment program. 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 WQS to protect the full range of wetland functions and/or ecological condition. 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 State statutes and regulations that do not apply to instream water quality.

The EPA 1990 guidance on WQS for wetlands states 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, wetlands-specific WQS are submitted to EPA for approval during the triennial review process. These steps form the basis for many of the program development actions in the table below.

Goals and Benefits

WQS for wetlands can provide a more rigorous and appropriate foundation for protecting and enhancing state or tribal wetland resources. Wetland WQS can provide the basis for actions leading to an "overall increase" in wetland function and condition, one of EPA's national wetland goals. They also provide the scientific basis for a variety of actions to protect and restore wetlands, such as:

- **Permitting –** Standards provide a clear basis for making water quality based permitting decisions under CWA Sections 402 and 404 and other state and tribal programs;

- **Water quality certification** – Standards are the basis for states and tribes to approve, condition, or deny certifications under CWA Section 401 programs. Wetlands-specific WQS provide a stronger basis for 401 certifications and conditions;

- **Monitoring, Assessment and Reporting –** Standards provide a benchmark against which monitoring data can be used to assess and report on wetlands function and/or condition (i.e.,303(d)305(b) integrated reports;

- **Restoration and Protection –** States and tribes can use standards as a basis for guiding restoration and protection efforts and gauging their effectiveness.

In addition, wetlands WQS provide the basis for decisions in other programs that affect wetlands such as the Total Maximum Daily Loads and nonpoint source pollution control programs. States and tribes can successfully adopt and apply WQS for wetlands by pursuing the following objectives:

1. Ensure that wetlands are treated as waters within state and tribal water quality programs

2. Develop wetland-specific water quality standards; and

3. Incorporate wetland-specific water quality standards into agency decision-making.

Program Building Activities Menu

The following actions and measures of progress provide more specific guidance for states and tribes interested in developing, adopting, and incorporating water quality standards into their wetlands programs.

Objective 1: Ensure that wetlands are treated as waters within state and tribal water quality programs

Actions	Menu of Activities
a. Adopt an appropriate definition of wetlands	• Include wetlands in state/tribal legal definition of waters • Ensure legal definition of waters is at least as inclusive as the CWA definition. • Remove any regulatory language excluding defined wetlands from water quality standards
b. Ensure the appropriate wetlands definition is included in WQS	• Include appropriate definition of wetlands in state/ tribal policy or regulations authorizing water quality standards program (e.g., wetland size, type, ownership)

Objective 2: Develop wetland-specific water quality standards

Actions	Menu of Activities
a. Gather and analyze monitoring data and other information that will become basis of water quality standards	• Define wetland types/classes • Establish reference conditions for defined wetland types in terms of functional/condition performance and other physical measurements
b. Establish and adopt appropriate wetland-specific designated uses to be achieved and protected	• Establish designated uses for different wetland types (e.g., recreation, wildlife habitat,) • Map where designated uses apply
c. Establish and adopt narrative criteria that qualitatively describe the condition or suite of functions that must be achieved to support a designated use	• Establish narrative physical criteria (e.g., fill material not present; no hydrologic alterations) • Establish narrative biologic criteria (e.g., species composition, population dynamics, structure) • 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
d. Establish and 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	• 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, micro habitats)
e. Better define state/tribal 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	• 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

Objective 3: Incorporate wetland-specific water quality standards into agency decision-making

Actions	Menu of Activities
a. Use water quality standards as basis for regulatory decisions	• Base 401 certifications on wetland WQS • Base state/tribal permit decisions, including mitigation requirements, on WQS • Track wetland impacts avoided or mitigated based on WQS, via permitting actions
b. Use water quality standards as basis for evaluating restoration/protection projects and mitigation/compensation projects	• Use water quality standards in restoration guidelines • Track restoration/protection projects that are monitored for compliance with water quality standards • Track restoration/protection sites that meet water quality standards • Identify remedial measures for sites that do not meet wetland WQS
c. Incorporate water quality standards into monitoring and assessment program	• Update monitoring strategy and methods based on water quality standards • Track acres monitored for compliance with water quality standards • Regularly report on wetlands status and trends relative to water quality standards

Resources

The Program Activities Menu above provides a suite of actions for developing wetland-specific water quality standards. The references below have been compiled in an effort to offer additional resources to states and tribes interested in developing or improving wetland-specific water quality standards. This list is not intended to promote any one technical approach or pathway over another but rather to serve as a source of both current and historic information that may be considered by states and tribes along with other relevant information. While some of these materials are dated, they can still offer helpful background or principles for consideration.

EPA Resources

1) Wetland-specific Water Quality Standards Information

- ***Water Quality Standards for Wetlands: National Guidance*** (July 1990 and Appendix D of the Water Quality Standards Handbook: Second Edition, August 1994)
  This document provides program guidance to States on how to apply water quality standards (WQS) to wetlands. This guidance reflects the level of achievement EPA expected States to accomplish by the end of FY 1993. Phase 1 activities presented in this guidance include the development of WQS elements for wetlands based upon existing information and science. Phase 2 involves the further refinement of these basic elements using new science and program developments.
- ***Nutrient Criteria Technical Guidance Manual: Wetlands*** (June 2008)
  This document describes elements of wetland nutrient criteria development including: classification of wetlands, monitoring program sampling design, and three methods for developing nutrient criteria. These methods are: using reference systems, refining classification systems using models and/or examining system biological attributes, and using or modifying published nutrient and vegetation, algal, and soil relationships as criteria. It focuses on developing numeric criteria for wetland systems in an ecoregion.
- ***An Approach for Evaluating Numeric Water Quality Criteria for Wetlands Protection (PDF)*** (51 pp, 2.8MB) (July 1991 and Appendix E of the Water Quality Standards Handbook: Second Edition, August 1994)
  This report provides an overview of the need for standards and criteria for wetlands and a description of the national numeric aquatic life criteria. It provides a possible approach for detecting wetland types that might not be protected by direct application of national numeric criteria and for making modifications based on site-specific guidelines.
- ***Questions and Answers on Antidegradation (PDF)*** (17 pp, 1.3MB) (August 1985 and Appendix G of the Water Quality Standards Handbook: Second Edition, August 1994)
  This document provides guidance on the antidegradation policy component of water quality standards and its application. The document begins with the text of the policy as stated in the water quality standards regulation, 40 CFR 131.12 (40 FR 51400, November 8, 1983), the portion of the Preamble discussing the antidegradation policy, and the response to comments generated during the public comment period on the regulation. The document then uses a question-and-answer format to present information about the origin of the policy, the meaning of various terms, and its application in both general terms and in specific examples. Question #13 addresses the application of antidegradation policy in the case of wetland fill permits under Clean Water Action Section 404.

2) General Water Quality Standards Information

- ***Water Quality Standards Handbook: Second Edition*** (August 1994)
  Provides guidance issued in support of the Water Quality Standards Regulation (40 CFR 131, as amended).
- ***Water Quality Standards Academy***
  To support water quality standards development, EPA offers the Water Quality Standards Academy which presents classroom-based and online courses, along with occasional satellite broadcasts. Online training models and information on classroom courses can be accessed at this website.

3) Linkage with Clean Water Act Section 401

- ***Clean Water Act Section 401 Water Quality Certification: A Water Quality Protection Tool for States and Tribes (PDF)*** (49 pp, 447.4K) (Interim Draft, April 2010)
  This document includes a discussion of water quality standards as a basis for 401 certification decisions. It highlights wetland-specific water quality standards as way to ensure comprehensive consideration of wetlands in the 401 certification process (see p. 19).

4) Linkage with Monitoring and Assessment

- ***Impacts on Quality of Inland Wetlands of the United States: A Survey of Indicators, Techniques, and Applications of Community Level Biomonitoring Data*** (Excerpts from Report #EPA/600/3-90/073, now out of print)
  This report describes how (a) existing resource data might be applied in the designation of "uses" for wetlands, (b) ambient biological criteria for wetlands might be developed or modified, and (c) wetlands might be periodically sampled (and data interpreted) to estimate their relative ecological condition, compliance with biological criteria, or need for restoration. Because of the lack of appropriate comparative studies of wetlands, the report does not provide biocriteria for wetlands, evaluate or prioritize potential indicators of wetland condition, nor endorse specific techniques for wetland biomonitoring and data analysis. Its intended use is mainly as a technical source document for future design, testing, and reporting of indicators.
- ***EPA's Wetlands Monitoring and Assessment Homepage***
  A necessary foundation for development of wetland-specific water quality standards is an understanding of existing wetland types and characterization of desired quality/condition. This is usually achieved through wetlands monitoring and assessment.
- ***Methods for Evaluating Wetland Condition*** (March 2002 – December 2008)
  These modules are a starting point to help states and tribes establish biological and nutrient water quality criteria specifically refined for wetlands. They provide information that will help states and tribes develop biological assessment methods to evaluate both the overall ecological condition of wetlands and nutrient enrichment.

Non-EPA Resources

1) Information on Existing State Wetland-specific Water Quality Standards

- Environmental Law Institute
  - ***State Wetland Program Evaluations: Phases I – IV*** (2005-2007)

This set of reports details findings of a multi-phase study designed to describe and analyze seven components of state wetland programs – including water quality standards. Seven states with wetland-specific elements to their water quality standards are identified and a short overview of each program is provided.

- ***State Wetland Protection: Status, Trends, and Model Approaches*** (March 2008)
  Section III provides a summary of states with wetland-specific water quality standards including a table which breaks out which elements (designated uses, criteria, and/or antidegradation) those states have developed.

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

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