Wetland Program Plans Handbook

A resource to assist states and tribes in developing strategic approaches to achieve comprehensive Wetland Programs

Wetland Program Plans Handbook:

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INTRODUCTION

This handbook is the culmination of a two-year project carried out by the Association of State Wetland Managers to provide states and tribes with information about how to develop Wetland Program Plans. The U.S. Environmental Protection Agency defines Wetland Program plans as:

> …voluntary plans developed and implemented by state agencies and tribes which articulate what these entities want to accomplish with their wetland programs over time. WPPs describe overall program goals along with broad-based actions and more specific activities that will help achieve the goals.

Wetland Program Plans can establish priorities, set short and long term program development goals and provide states and tribes with a blueprint for future action. A wetland plan must be tailored to the unique opportunities and challenges that occur in a given state or on tribal lands. Therefore this document does not provide a recipe for developing a wetland program plan. Rather, it provides information about the different components that can be part of a plan and explores how a state or tribe might develop a plan. Wetland programs vary dramatically from state to state and tribe to tribe around the country. It is up to the state or tribal wetland program staff working with their leadership and partners to determine the process, priorities, and content of their plan.

To carry out this project ASWM convened a workgroup composed of interested states, tribes, and EPA regional and headquarter staff. ASWM held two conference calls to query workgroup members on topics they were interested exploring. These resulted in a series of webinars that were recorded and are available on the ASWM website http://aswm.org/aswm/aswm-webinarscalls/3319-past-wetland-program-plans-project. The webinars covered the topic areas addressed in the handbook and provide additional, supplemental information.

This document is divided into four major sections. The chapters in the overview section cover the planning process. The second section addresses each of the Core Elements that may be part of a wetland program plan: Regulation, Voluntary Restoration, Water Quality Standards for Wetlands, and Monitoring and Assessment. Section three discusses effective communication and the final section addresses program funding. References at the end of sections and appendices provide supplemental information and direct readers to reports, web pages and other resources that provide more information.

Overview

CHAPTER 1: PURPOSE OF STRATEGIC PLANNING

A Wetland Program Plan is a plan for future action. It can serve as a multi-year strategy to support, direct and measure a state or tribes progress towards improving its existing wetland program. Wetland programs carried out by states and tribes have many challenges.

The list of ecological services provided by wetlands is extensive: water quality improvement, flood attenuation, critical wildlife habitat, carbon sequestration, erosion control, etc.. The loss of wetlands therefore impacts the health of rivers, streams and oceans as well as the quality of life for people and communities located near these resources.

However, more than half the nation's wetlands in the lower 48 states have been lost since European settlement – an estimated 100 million acres. An additional 1.9 million were lost between 2008 and 2012 according to a recent study.[1] Wetland protection has always been controversial because wetlands simultaneously contain water and wildlife – both public trust resources -- but they often occur on private land. Experienced wetland program managers are well aware that wetland program implementation is likely to be punctuated by public controversy for a wide variety of reasons.

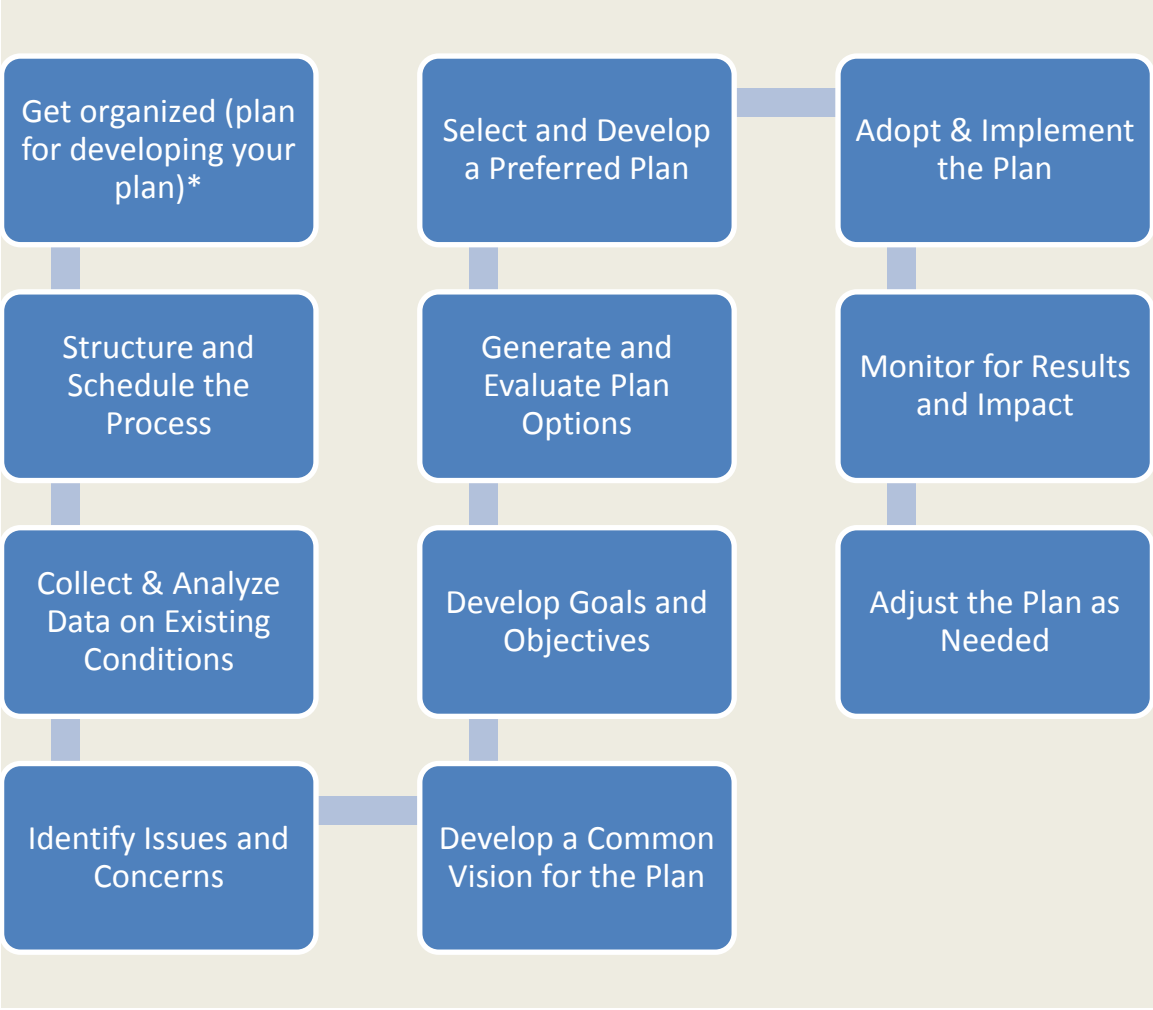
As part of developing a successful wetland program plan, wetland program managers should consider including three approaches to planning: long term planning, strategic planning and strategic thinking. Since definitions of these terms vary among organizations and professionals, we have defined them below as they pertain to this report.

[1] Environmental Working Group. (2013). *Going, Going, Gone! Millions of Acres of Wetlands and Fragile Land Go Under the Plow.* Washigton, D.C.: Cox, C., & Rundquist, S.. Retrieved from http://www.ewg.org/research/going-going-gone.

1. *A long term* plan is a plan of future actions to achieve specific goals based on known needs.
2. *A strategic plan* is a plan used to communicate the organizations goals and the actions needed to achieve those goals.
3. *Strategic thinking* is having the ability to anticipate and respond to sudden changes in circumstances as they happen.

The development or revision of a wetland program plan provides states and tribes with the opportunity to establish future desired actions to build and improve wetland programs. In addition wetland managers frequently express concern over the lack of a coherent communication strategy and a wetland program plan can include actions to address communication challenges. Some states, such as Wisconsin, have used the plan itself as a tool to promote communication. Finally, experienced wetland program managers are aware that unexpected changes will occur and adjustments will need to be made. The planning process provides wetland managers with the opportunity to discuss and provide a framework for responding to new challenges and sudden changes in public policy.

Some common steps to putting together a either a long term or strategic plan include:



* Some items to consider in this step include: time, human & physical needs and capacity; stakeholders; cost and budget.

Strategic thinking enables wetland managers to respond not only to negative challenges but also to recognize opportunities when they occur. The majority of state and tribal wetland program managers are working to coordinate state activities with major federally legislated programs such as the Clean Water Act, the Farm Bill or the North American Wetlands Conservation Act. None of these federal laws either individual nor collectively are sufficient to solve the systemic environmental problems that threaten wetland resources. Over time, states and tribes will need to take proactive actions that go beyond the scope of federal programs.

An integral component of strategic thinking involves an understanding of systems dynamics. This entails recognizing patterns in space and time and identifying "the architecture of causal relationships that shape patterns of behavior."[2] It requires non-linear thinking as most systems interconnect and interplay in indirect as well as direct ways which overlap and influence each other to varying extents. Developing a systems dynamics model can be useful in illustrating how systems are interacting through cause and effect to generate problem patterns over time. This type of model can be very useful in communicating the problem and potential solutions to stakeholders.

One of the first steps to developing a systems dynamics model is to identify feedback loops. Feedback loops occur in two types: positive and negative. If a change in the system causes an additional change in the same direction, this is called a reinforcing loop because it reinforces the original direction. Reinforcing loops can lead to exponential growth unless tempered by a balancing loop. Balancing loops lead to changes in the opposite direction. For example, if a lack of pollution controls causes a wetland to be continually polluted (reinforcing loop) it will become exponentially degraded. However, if a plan or policy is developed to stop the pollution (balancing loop) then the wetland condition will likely cease to degrade. The policy or plans that we develop to confront these reinforcing loops are typically referred to as "levers."[3]

Identification of the best, most effective and most efficient levers to pull is a significant part of the systems dynamics process and is also the step where most of mistakes occur. Failure to strategically recognize system feedback structures and/or to understand how systems interact can lead to unintended and often negative results. Short and long-term effects also need to be anticipated. For example, antibiotics were designed to improve human health and combat illness. However, they have stimulated the evolution of drug-resistant viruses which have made more people sick.[4]

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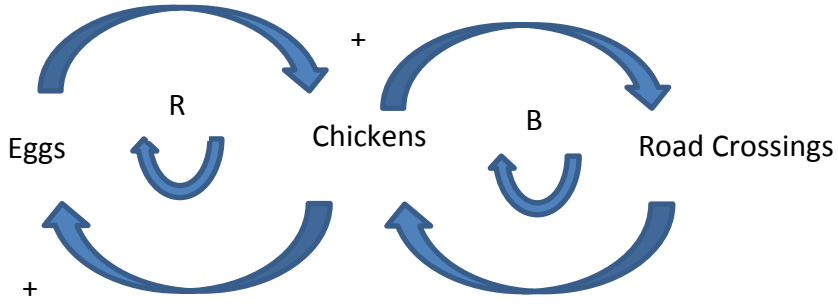
[2] North, K. (n.d.) *A New Understanding of Root Cause – Systems Thinking for Problem Solvers.* Retrieved from http://karlnorth.com/wp-content/uploads/2010/01/systems-thinking-for-problem-solvers-4c.pdf.
[3] Ibid.
[4] Ibid.

A very basic model of this systems dynamics approach is shown below. In this model, the system is the chicken and the egg. Chickens lay eggs which increase the chicken population – this is the reinforcing loop. Over time it could also lead to an overabundance of chickens. However, if the chickens have to cross the road to get to the hatchery, then the road crossing fatalities act as a balancing loop.[5]



Wetland Program Plans provide an opportunity to set the stage for future actions to address known and unknown future challenges. A list of resources is included at the end of this section to provide advice on development of strategic, long term plans.

[5] North, K. (n.d.) A New Understanding of Root Cause – Systems Thinking for Problem Solvers. Retrieved from http://karlnorth.com/wp-content/uploads/2010/01/systems-thinking-for-problem-solvers-4c.pdf

CHAPTER 2: THE U.S. ENVIRONMENTAL PROTECTION AGENCY'S ENHANCING STATE AND TRIBAL PROGRAMS INITIATIVE

In 2007, the U.S. Environmental Protection Agency (USEPA) launched the "Enhancing State and Tribal Programs" (ESTP) initiative.(http://water.epa.gov/grants_funding/wetlands/estp.cfm)

Major areas of activity included:

1) Clearly defining the core elements of a State/Tribal wetlands program,

2) Increasing dialogue between States/Tribes and EPA Regional offices,

3) Providing targeted technical assistance to States and Tribes,

4) Aligning the Wetland Program Development Grants (WPDGs) with a framework that incorporates more clearly defined core elements, and

5) Tracking programmatic progress.

The core elements as well as the array of different actions and activities that can occur under each of the core elements are described on the U.S. Environmental Protection Agency Core Elements of an Effective State and Tribal Wetlands Program Framework website at: http://water.epa.gov/grants_funding/wetlands/cefintro.cfm

A year later the Core Elements Framework (CEF) was established by EPA working with a State and Tribal workgroup. It identified four core elements that comprised a comprehensive wetland program. They are:

1) Monitoring and Assessment,

2) Regulation,

3) Voluntary Restoration and Protection, and

4) Water Quality Standards for Wetlands.

In 2009, the USEPA Wetlands Division sent out a memorandum strongly encouraging states and tribes to develop Wetland Program Plans. Analysis of existing programs had revealed that states with strategic plans found them to be effective in guiding and prioritizing program development. In addition, USEPA recommended linking Wetland Program Plans to work done under Wetland Program Development Grants. Increasingly the U.S. Environmental Protection Agency as well as other federal agencies have been required to demonstrate outputs and outcomes gained from grants in order to support continuation of grant funding by Congress. State and tribal wetland program plans provide both the opportunity for comprehensive

program development and the ability to measure progress in attaining identified goals and objectives over time (outputs and outcomes).

What are Wetland Program Plans?

Wetland Program Plans do not need to be elaborate documents. An effective Plan may be a concise identification of planned actions to help create a focused and sustainable wetland program. Plans should include the following minimum components:

- An overall goal Statement for the program over the time period covered by the Plan.
- An overall timeframe for the plan, with a minimum timeframe of three years and a maximum of six years, starting from the time of Plan submittal to EPA.
- A list of actions consistent with the CEF that the program intends to carry out over the Plan timeframe, and which, if collectively met, will accomplish the overall Plan goal(s).
- An intended schedule for the achievement of each action.
- A listing of more specific activities to be accomplished under each action

Wetland programs can include one or more of the core elements. A state or tribe can add additional elements. Currently, there are Wetland Program Plans that include one or more additional elements such as: technical assistance to landowners; steps to gain sustainable funding; communication strategies and priorities; and other actions that are not always easy to classify, but are determined to be necessary to achieve long term goals.

Existing State and Tribal Wetland Program Plans are available at: http://water.epa.gov/type/wetlands/wpp.cfm

The 2009 memorandum expressing the U.S. Environmental Agency's support for Wetland Program Plans can be found at: http://water.epa.gov/type/wetlands/upload/wetland_program_plan_memorandum.pdf

CHAPTER 3: BENEFITS OF A WETLAND PROGRAM PLAN

A Wetland Program Plan provides states and tribes with a roadmap that describes the goals of the program the specific steps needed to get there. States such as Wisconsin, Montana, Delaware and Oregon that have developed Wetland Program Plans are enthusiastic about the benefits. These accrue in three ways:

1. By bringing people together to develop the plan
2. By implementing the plan
3. By using the plan as a communication tool to gain broad support for wetland protection and conservation efforts

As noted previously, each state and tribe will need to tailor planning and implementation process. The extent of collaboration, the specific core elements addressed, the particular actions identified are highly variable. However, states and tribes that have developed plans as a collaborative process with outside groups (some combination of other agencies and/or interest groups) have identified the following benefits. Developing and implementing a wetlands program plan can:

1) Assign higher priority to actions likely to be most effective by:

- Providing an opportunity to focus and better understand the current state of the resource as well as current threats.
- Identifying specific actions to take to address current and future threats to wetland resources
- Allowing agencies to think ahead to anticipate problems and solutions
- Focusing an agency's efforts and assisting it in setting priorities.

2) Create new and stronger partnerships that will benefit wetland resources by:

- Identifying shared goals with other partners
- Coordinating uncoordinated efforts
- Reducing competition among partners and coordinating use of resources so they go farther
- Making it possible to do projects that are beyond the scope of an individual agency
- Enabling agencies to gain support from unlikely allies
- Building alliances and partnerships to secure funding
- Avoiding duplication that can result from the activities of multiple agencies, and nonprofit organizations
- Empowering agencies and partners to think outside the box to identify solutions.

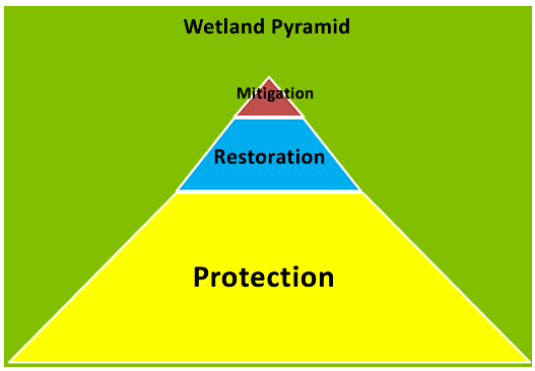
3) Gain Support from stakeholders and the public by:

- Communicating with the administration, elected officials and the public more effectively about program goals and actions
- Providing greater transparency to stakeholders and the public.

In sum, states that have taken a collaborative approach to the development of a plan have discovered the process yield many benefits. Just by thinking broadly, bringing together partners, and sharing expertise and ideas to develop a Wetland Program Plan, new and significant opportunities for wetland protection and restoration have been realized. This process will take time and it is sometimes very difficult, particularly in the early stages. But the benefits have been significant.

Once the plan is done, it serves as a road map to guide future activity. The plan can keep agencies focused on making progress toward completing specific actions to improve the program. In addition a number of states have used the plan itself as a communication tool. Montana and Wisconsin have published colorful pamphlets that describe the goals and future action of wetland agencies. This has been valuable in communicating with the public and elected officials and in providing greater transparency about the goals and actions underway to protect and conserve wetland resources.

In addition a plan can allow agencies to be proactive about developing future solutions with the full support of their leadership. For example a state administration may not be supportive of developing a regulatory permitting program. However, they may support activities that could lay the framework. Then, at a future point in time, if delays in permitting at the federal level, or a disaster occurs or some other event there may be a call for immediate action to regulate dredge and fill in wetlands. A state agency that has laid the groundwork for a regulatory program, perhaps by developing water quality standards for wetlands and/or developing a strong 401 certification program, will be able to respond quickly to the demand for a dredge and fill permitting program. This is in fact what happened in Wisconsin in 2001 following the issuance of the SWANCC Supreme Court decision which left in question federal authority to require dredge and fill permits for activities in isolated wetlands. The state was well positioned to fill the hole in wetland protection.



Near the end of Chapter 1 we discussed dynamic feedback loops and the importance of understanding cause and effect and reinforcing feedback loops that could lead to increasingly negative impacts on wetlands. Development of a wetland plan provides states and tribes with an opportunity to identify the actions that are leading to the loss and degradation of wetlands as well as which activities are most likely to lead to more negative behavior. The example given in Chapter 1 was a wetland that receives pollution again and again. The Wetland Pyramid on the right identifies (very roughly) the relative proportion of

wetlands in a state that exist (protected), could be restored (restoration) or might be created or restored as part of a mitigation plan for a permit (mitigation). Say for example, a state wetland program is putting a lot of energy into improving mitigation practices. Nowadays in general a relatively small number of wetlands are impacted by the permitting process and it follows that the number of wetlands restored or created through mitigation will also be relatively small when compared to the number of wetlands that could be restored or that need continued protection. Is that state program addressing i.e., balancing, the levers most likely to lead to wetland degradation and loss? It is not possible to know without more information. That is why the development of a comprehensive wetland program plan can be beneficial. The example cited is not an argument against directing resources to mitigation, but rather an argument for ensuring emphasis is also placed on efforts that address restoration protection which impact a signification larger number of wetlands, for example those wetlands that were on the receiving end for pollution over and over again. Through a wetland program plan, additional actions can be identified that encourage avoidance and minimization to protect wetlands, while also addressing broader opportunities for voluntary wetland restoration. The wetland plan completed through a collaborative planning process can identify partners and allies to address a comprehensive set of current and future actions to protect and conserve wetland resources.

CHAPTER 4: PLAN DEVELOPMENT: THE IMPORTANCE OF COLLABORATIVE PLANNING

Development of a number of existing Wetland Program Plans has included collaboration with interest groups within and/or outside of the state or tribal wetland agency developing the plan. In fact, collaboration has become an indispensable tool for wetland managers. In a complex environmental, political, economic and regulatory environment, program managers cannot work effectively on wetland-related issues in isolation from other programs and efforts. Collaboration is a process tool, which when utilized effectively, brings together two or more entities to work jointly to identify solutions and create greater outcomes than the partners can independently. Organizations enter into collaborative agreements to achieve their own goals, negotiating among competing interests and brokering coalitions among competing value systems, expectations, and self-interested motivations. Collaboration requires hard work, focused attention, adequate time, and considerable dedication of staff and funding resources by all participants.

Primary Benefits of Collaboration:

- Better Information
- Better Integration
- Conflict Prevention
- Improved Fact-Finding
- Increased Social Capital
- Easier Implementation
- Enhanced Environmental Stewardship
- Reduced Litigation

Collaborative Wetland Activities:

- Creation of networks to share information, mobilize support for funding, channel community concerns and incorporate wetlands protection and recovery more fully into local government processes
- Joint mapping, assessment, classification, restoration planning and education project support
- Coordinated communications (increased reach and frequency, shared messaging)
- Joint development of tools and training
- Joint problem solving/ Sharing of lessons learned
- Jointly work to develop the organizational capacity of partner organizations
- Joint application for funding/grant writing (incl. increased access as a result of partnerships)
- Pooled funding/Savings through economies of scale – shared services, joint purchasing, etc.
- Joint development and evaluation of pilot programs and projects
- Development of common understanding, definition of problems, language, culture, assumptions
- Shared efforts to encourage wetland-friendly legislative actions
- Expansion of audience
- Shared voice/negotiating power/creation of common talking points
- Collaborative education and outreach, including coordinated awareness and behavior change activities, joint media buys and shared evaluation efforts
- Broader and better supported stakeholder engagement (often through process supports) Development of shared protocols (inspections, data collection, monitoring, analysis, reporting)
- Development of shared mapping efforts, including watershed/regional connections
- Development of template ordinance
- Shared services (accountant, legal staff, facilitation, etc.)
- Compiling available information

Examples of Collaborative Wetland Management:

- Great Lakes Regional Collaboration Habitat/Wetlands Initiative http://glrc.us/documents/CallToAction06-19-2008.pdf
- Orange County Wetlands Task Force http://scwrp.org/taskforce_orange.htm

Understanding When Collaboration Makes Sense and How to Create Collaborative Success

Creating effective collaborations is hard work. Most studies of collaborations list the inability to invest sufficient staff time and organizational resources as one of the greatest barriers to collaborative success. However, there are many guidance documents that can help you develop effective collaborative processes, as well as identify under what circumstances a full collaborative approach may not be the best option for your program and its potential partners. Considerations include the socio-economic and political environment in which the collaboration must function, the governance and structure of the collaboration, leadership, resources, and social capital between members.

Assessing your Collaboration:
To take the pulse of your collaboration, there is a very useful, user-friendly collaboration assessment tool that you can use to start thinking about whether collaboration may be a good tool for a specific effort. The tool in Mattessich et al (2001) provides a formal scoring system that allows you to identify benchmarks for your collaboration and tracking of progress towards collaborative goals over time. Initial findings by Zollitsch (2012) indicate that the structures of environmental collaborations may change in predictable ways over time, with the implication that investment of specific resources at key points in a collaborations evolution may produce greater outcomes. Consequently, understanding where you are and where you want to go is very important in your collaboration planning process.

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Assessing Collaboration

- Mattessich et al. (2001). Collaboration: What makes it work? Second Edition. St. Paul, MN: Amherst Wilder Foundation.

- Wilder Collaboration Factors Inventory – A Free tool to assess how your collaboration is doing on 20-research-tested success factors. http://www.wilder.org/wilder-research/research-services/pages/wilder-collaboration-factors-inventory.aspx

Considerations for Individual Core Elements

BEGIN ANYWHERE

The framework developed by the U.S. EPA for wetland program plans envisions a focus on one or more of four "core essential elements" of a state or tribal wetland program.[6] These include:

- Regulatory activities, including 401 certification;
- Voluntary restoration and protection;
- Water quality standards for wetlands ; and,
- Monitoring and assessment.

These common elements were defined with state and tribal input, and provide a logical and comparable framework for planning and discussion. However, this framework is also highly flexible. EPA encourages but does not mandate inclusion of all of these elements in a state program strategy. On the other hand, states and tribes have added other elements that are key to their individual needs, such as education, climate change adaptation, or cultural concerns.

In the long term development of state/tribal programs, there is no single starting point. Many states have a long history of stewardship and restoration associated with the management of fish and wildlife habitat. Other states began to work with wetland regulations well before the federal government in order to address development pressure on natural systems. Moreover, all of the wetland program elements discussed here are interrelated to a degree, and often one need will logically follow another. For example, a state may identify the need for wetland restoration to protect water quality, to provide habitat, or through mitigation requirements associated with permitting programs. Thus, these elements are presented in no particular order. State and tribal strategic planners are encouraged to select those options that resonate with resource managers and the public – providing the best potential to address their current wetland needs.

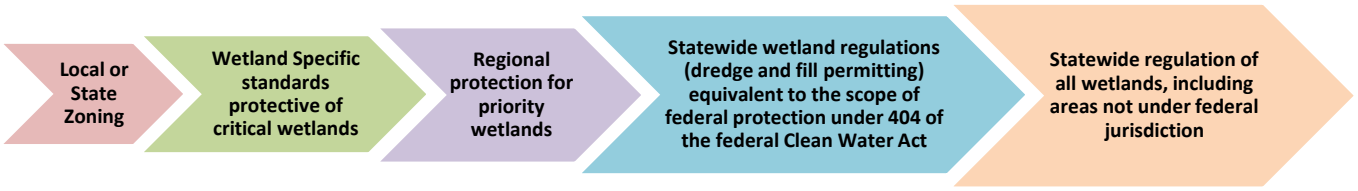
[6] EPA provides detailed information regarding development of the core essential elements of a state or tribal wetland program here.

CHAPTER 5: REGULATION

Some states view the regulation of wetland alteration (dredge and fill) as the foundation of a state wetland program, and build other components - e.g. mapping, wetland assessment methods, and mitigation – to address regulatory needs. In other states, regulation has been viewed as the culmination of program development, making use of state expertise to ensure protection of identified essential resources. There are examples of successful regulatory programs that have evolved from either direction.

Because wetland/dredge and fill regulations are in effect nationally under §404 of the Clean Water Act (33 U.S.C. §1251 et seq.) most state regulatory programs are coordinated to some degree with the permitting program administered by the U.S. Army Corps of Engineers (Corps). For those states that have not previously administered a regulatory program, an initial consideration may be the extent of responsibility that the state wishes to assume relative to the federal program, as discussed below. States or tribes that are currently regulating wetland alteration may wish to consider modification or expansion of state and tribal responsibilities.

Options for state/tribal regulatory programs: level of resource protection provided
Particular needs of a state or tribe may be met by a range of regulatory options. Generally speaking, more advanced regulatory approaches provide more comprehensive regulatory protection, but are also more costly to administer and require greater expertise. Each state will need to evaluate public interest, need for wetland protection (based on both rarity of resources and development pressure), and available financial support. A general continuum of basic to more advanced programs may be described as follows.



- ***Local or state zoning***. Basic protection for wetlands may be provided by zoning provisions that limit defined land uses in wetlands, or that require setbacks from wetlands.

- ***Wetland specific standards protective of critical wetlands***. Wetland water quality standards in use by a state or tribe may identify critical wetland areas – such as habitat for rare species, special cultural areas, or groundwater recharge areas – and provide additional protection for defined wetlands.

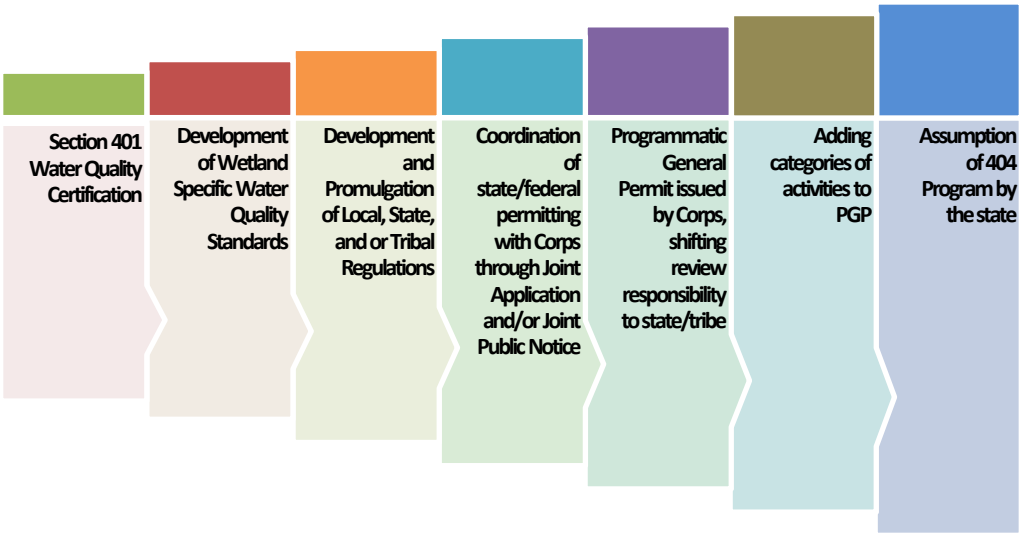
- ***Regional protection for priority wetlands.*** In some states and tribes, regulation is carried out only in specified geographic areas – such as wetlands within the defined boundary of a Coastal Zone Management Program. Other states regulate only wetlands above a specific size (acreage), or of a particular type (e.g. vernal pools), as defined in state laws and regulations.

- Statewide wetland regulations (dredge and fill permitting) equivalent to the scope of federal protection under §404 of the federal Clean Water Act. State or tribal regulation may provide protection for generally the same wetlands regulated under federal law, but with provisions that are specific to the state. Criteria for permit issuance, and conditions applied to permits are developed by the state to meet their particular resource needs. States and tribes may also regulate actions that are not regulated under the Clean Water Act, such as placement of structures over the wetland, or alteration of vegetation.

- ***Statewide regulation of all wetlands, including areas not under federal jurisdiction.*** Since implementation of the federal Clean Water Act, Supreme Court and other legal decisions since implementation of the federal Clean Water Act have gradually limited the waters and activities subject to §404 permit requirements. Some states and tribes have taken action to regulate all state or tribal wetland areas, including isolated wetlands not protected by federal law (e.g. some prairie potholes).

Options for state/tribal regulatory programs: scope of state responsibility

The range of options for a state or tribal regulatory program generally provide for a relatively easy entry into the permit review process by allowing the state to assume a comfortable level of ***state responsibility*** and involvement in the federal Clean Water Act permit process from the perspective of federal agencies. The following approaches to regulation may be considered, starting with minimal state cost, staffing needs, and overall responsibility for resource protection and decision making.



- ***Section 401 Water Quality Certification.*** All states have the authority under §401[7] of the Clean Water Act to review federal permit actions, and to determine whether the proposed action is acceptable under state water quality standards and other appropriate regulations. A state may object to issuance of a federal permit or license that does not meet state criteria. Many states depend primarily on §401 to control alteration of wetlands.

- ***Development of Wetland Specific Water Quality Standards.*** While state water quality standards may be generally applicable to wetlands as well as other waters, states can specify more specific standards to protect wetlands. For example, criteria that protect wetlands from hydrologic modification may be included. Some states include other provisions related to the alteration of wetlands, parallel the Clean Water Act's Section 404(b)(1) guidelines, in water quality standards.

- ***Development and Promulgation of Local, State, and or Tribal Regulations.*** A wide range of regulations governing the alteration of wetlands may be promulgated by a state or tribe, relying on the state's land use management authority and public trust interest in aquatic resources. Depending on state constitutional provisions, the state may also own the bottomland of wetlands in open water areas, and may exert an ownership interest in those areas.

  State, local, and tribal regulations may parallel provisions of the federal Clean Water Act in protecting wetlands from avoidable alteration or destruction, or may be somewhat more or less inclusive, depending on the priorities of the state or tribe.

[7] Link to EPA information regarding §401 water quality certification::
http://water.epa.gov/lawsregs/guidance/cwa/waterquality_index.cfm

- ***Coordination of state/federal permitting with Corps through Joint Application and/or Joint Public Notice.*** In order to reduce duplication between state or tribal and federal agencies, and to assist the public, state and federal permitting actions may be coordinated. State and federal agencies may develop a joint permit application form, which may be submitted to either agency. They may use a joint public notice to seek public review. Agency staff may also seek to encourage permitting decisions, including required permit conditions such as mitigation. They may also share mitigation banks.

- ***Programmatic General Permit issued by Corps, shifting review responsibility to state/tribe.*** Where state or tribal authority is at least equivalent to federal authority for specified actions, the Corps may issue a state Programmatic General Permit (PGP or SPGP), under which approval and issuance of the permit depends primarily on review by the state program. This in effect shifts responsibility for decisions on specific project categories to the state. Larger projects will still require both state and federal review. The overarching general permit document (agreement) must be renegotiated and reissued every 5 years.

- ***Adding categories of activities to PGP.*** As states gain regulatory experience, and the relationship between state and federal agencies matures, the Corps may add more categories to the PGP, thereby relying to a greater extent on the state agency. Expansion of a PGP may be considered as a step in a wetland program plan.

- ***Assumption of 404 Program by the state.*** In 1977, Congress added provisions to Section 404, allowing a state to assume full responsibility for the 404 permit program, except in traditionally navigable interest commerce waters (typically, the oceans, the Great Lakes, and large rivers such as the Mississippi or Ohio). Since then, only two states have been approved to administer the 404 program, but interest continues among states and tribes that wish to further reduce duplication, and to rely to a greater extent on state water programs and environmental criteria.

Any of these steps in development of a regulatory program may be considered in a State Tribal Wetland Program Plan. Any addition, revision, or expansion of a program requires multiple actions, including assessment of state needs and priorities; drafting of potential regulatory language and guidance; providing for input from stakeholders as regulations are developed; development of administrative materials such as permit forms; development of decision making tools such as assessment methods; development of computerized tracking systems; and staff training, among others. Many of these actions apply to more than one step, and will help to build agency capacity to the level that is desired in the long term. Even states with robust regulatory programs may continually work toward improving program implementation. Any of these actions as well as incremental changes and improvements may be included in a State/Tribal Wetland Plan.

Examples of regulatory elements and specific actions in approved state and tribal program plans

- Explore the feasibility; find sites and sponsors of In Lieu Fee Programs and Mitigation Banks. [NM]
- Develop a proactive, systematic approach to locate and pursue large, unreported violations on a landscape-level scale. [NH]
- Identify opportunities to streamline permit procedures and forms. [NH]
- Solicit legislative authorization to commence development of a professional wetland delineator certification program. [FL]
- Nebraska will continue to play a role in advocating for the importance of wetlands by providing input into federal regulatory actions (e.g., Clean Water Act), federal policies (e.g., the Farm Bill), and local decision making (such as community planning). [NE]
- Provide annual training on wetland assessment procedures (Ohio Rapid Assessment Method for Wetlands, Vegetation Index of Biotic Integrity, Amphibian Index of Biotic Integrity, etc.) to Ohio EPA staff and the general public, including other state and federal agencies and private environmental professionals. [OH]
- Implement Section 401 Clean Water Act permitting. [Hualapai Tribe]
- Draft Phase 1 regulations for the discharge of dredge and fill material that complement the USEPA/Corps' 404 (b)(1) Guidelines and the federal Compensatory Mitigation Rule. [CA]
- Department of State Lands submittal to EPA for assumption of the CWA 404 permitting authority and if feasible, implementation of 404 assumption. [OR]

General considerations and challenges

States and tribes that are planning for establishment or modification of a wetland regulatory program will need to weigh numerous concerns, opinions, and opportunities. Most permit programs require ongoing adjustments to address both social and scientific concerns.

The following list of issues may help to guide thinking during strategic planning.

- **Political support**. How strong is support for, or at least acceptance of, regulation among various interest groups? Should the strategic plan include additional education and consensus building?

- **Cost, staff needs, and financial support**. The cost of different levels of regulation varies greatly. Providing comments through a 401 water quality certification program can be much less costly, for example, than administering a full permit program. Do not

overlook the cost of enforcement, which can be much higher per case than review and issuance of a permit. Development of a realistic budget and identification of funding needs and sources are a critical strategic element.

- **Priority wetlands and associated aquatic resources**. Given the available level of financial and political support, and realistic program expectations, where should regulatory efforts be focused? Is expanded protection needed for particular types of wetlands, or to support maintenance of certain ecological services? For example, is a new initiative needed to provide coastal protection or flood storage in the context of sea level rise? Are there gaps in resource protection resulting from federal regulatory changes?

- **Scope of jurisdiction**. What wetlands will be protected by the program, in terms of size, type, and/or location? How will regulated wetlands be identified? Is development of a mapping system a strategic need?

- **Leveraging protection through cooperation with other programs**. Many states work with transportation agencies to coordinate needed planning and construction, while freeing up federal permitting resources to focus on other issues. State wetland programs may also draw on the expertise of state fish and wildlife biologists, nonpoint source managers, or state floodplain engineers. Coordinated efforts make sense in terms of resource management and best use of limited staff resources. Strategic plans may examine new relationships among existing agencies and organizations.

- **Staff training**. Regulatory staff need multiple kinds of expertise. They must be able to exercise sound judgment regarding proposed impacts based on their knowledge of aquatic resources, and on any specialized assessment tools or models developed to support the regulatory program. In addition, they need to understand legal issues, regulatory criteria, and potentially the handling of enforcement. Staff may be asked to use technical mapping equipment including GIS and GPS, and to maintain regulatory databases. Skills in working with private citizens who may be unfamiliar with permit requirements are also important.

  The success of a regulatory program thus often rests with the strength of staff recruitment and training. Joint training with partnering agencies may be essential where regulatory responsibilities are shared.

- **Program evaluation and reporting.** Program evaluation provides a feedback loop for measuring program success which can in turn lead to identification of future action. In addition, in anticipation of permits where budgets are tight or there is a need to provide information on program accomplishments, annual reports can be very valuable in gaining and retaining program support.

Some pros and cons of state regulatory programs

Why regulate wetland alteration? Given that the Clean Water Act provides national protection for wetlands, the need for state, tribal, and local regulations is frequently questioned. Wetland regulations are frequently controversial – yet at least 20 states issue permits for dredge and fill activities in wetlands and others carry out 401 certification federal permit review to varying extents.

The cited benefits of state or tribal wetland regulation include the following.

- In a state or tribal wetland program, staff with expertise in local resource needs will use professional judgment to allow, prohibit, or condition alteration of wetland resources. Their knowledge of priority state issues and related state aquatic programs, backed by support by the administration and the state legislature, results in relatively strong protection of wetland resources.

- State programs are frequently more efficient than federal programs, relying on local staff and local offices to provide a prompt permitting decision. State permit programs often integrate multiple regulatory reviews (e.g. coastal zone, floodplain) to further streamline regulations.

- Many state regulations fill gaps in federal law, protecting small but locally significant wetland areas, or activities that are not regulated under the Clean Water Act. State laws may protect ecosystem services that are not a focus of federal law.

- Integration of state and federal dredge and fill permitting can integrate federal and state perspectives and expertise leading to greater overall efficiency, profitability and accountability benefiting permit applicants and the public at large.

On the other hand, state regulatory programs are costly to operate, can be complex and controversial, and are to an extent duplicative of federal requirements. In making a decision regarding whether to regulate wetland impacts, and the desired scope of regulation, a state will need to balance all of these factors to define program goals, and strategic steps to achieve those goals.

CHAPTER 6: VOLUNTARY RESTORATION AND PROTECTION

The restoration of wetlands by public and private agencies and organizations, and the long term protection of wildlife refuges and wetland natural areas, are some of the most positive and enthusiastically embraced aspects of wetland management. States and tribes have a significant opportunity to facilitate these activities, either directly or with technical support and interagency coordination. Strategic plans may be useful in defining common goals, and in defining shared roles and responsibilities.

What is voluntary restoration? This handbook broadly addresses those activities that are undertaken by individuals and agencies on a voluntary basis to restore, enlarge, or improve wetlands to support a wide range of ecological functions. Project goals associated with voluntary restoration may include habitat management, water management, flood attenuation recreation, and other objectives.

By contrast, wetlands are commonly restored to provide compensatory mitigation (replacement) of wetlands as a condition of a permit for actions that result in the loss of wetlands (e.g. construction of buildings, roads etc.). This section does not address wetland compensatory mitigation that is mandatory under a permit process. Compensatory mitigation must be consistent with legally defined standards and specific permit conditions, and thus is subject to a different process than voluntary restoration.

Conservation organizations may use the terms wetland ***restoration, creation or establishment, enhancement, and maintenance***, and wetland management programs may include elements of all of these actions. There are many valid definitions for these terms. For reasons of clarity in tracking wetland losses and gains, a federal interagency committee adopted consistent definitions, which are adapted as follows for use in this document.

Wetland Restoration**:** the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded wetland.

Restoration practices are sometimes more specifically defined to include:

- ***Re-establishment***, the rebuilding of a former wetland; and
- ***Rehabilitation***, repairing the functions of a degraded wetland.

Wetland Establishment (Creation): the manipulation of physical, chemical, or biological characteristics to develop a wetland that did not previously exist.

Wetland Enhancement**:** the manipulation of the physical, chemical, or biological characteristics of a wetland (undisturbed or degraded) site that heighten, intensify, or improve specific function(s) or for a purpose such as water quality improvement, flood water retention or wildlife habitat. Enhancement results in a change in wetland function(s) and can lead to a decline in other wetland function(s), but does not result in a gain in wetland acres.

Wetland Maintenance: the removal of a threat to or preventing decline of, wetland conditions by an action in or near a wetland. Based on the comment received during preparation of this handbook, we would clarify that wetland maintenance can refer to the repair or replacement of structures that are already in place, such as dikes or berms, water control structures, or habitat structures. It can also refer to regular modification of hydrology (that is, raising or lowering water levels to achieve management goals), replanting of vegetation, or removal of unwanted vegetation.

Potential state and tribal roles in restoration and protection

The elements of a state wetland restoration plan will depend largely upon identified needs for habitat improvement, management of water quantity and water quality, and on public interest. An inventory of existing wetland restoration programs supported by state or federal agencies, or non-governmental organizations is a good starting point. Are these programs sufficient to meet state needs? Is better coordination among these efforts needed? How successful are restoration programs – is monitoring needed? Could technical assistance improve program success? Are existing restoration efforts addressing state priorities?

Similar questions may be asked about existing protection and conservation programs. What options exist to protect high value wetlands? How are these efforts coordinated to achieve maximum benefit?

Depending on the answers to these and similar questions, a state or tribe may decide that wetland restoration program elements could include the following categories of roles and actions.

Identification of wetland status and trends, and definition of restoration and protection priorities. If information needed to set priorities is lacking, this is a logical starting point. Multiple stakeholders may contribute to the definition of restoration priorities for their own program areas – that is, the protection of habitat for endangered species may be significantly different than protection of a wetland to provide stormwater management. In other cases, however, goals may align – restoration to provide flood storage in riparian areas may also enhance wildlife corridors.

***Definition of statewide or tribal priorities and goals for wetland restoration and preservation, by geographic area or ecological type*.** Determining goals and priorities is a challenging task, and one that will require input from multiple interest groups to be most effective. Each interest group may have its own priorities, especially groups that work in only a particular geographic region. However, a cooperative process may help to determine where priorities overlap, and how individual program goals add up to statewide goals.

Note that the initial strategic element in the State/Tribal Wetland Program Plan in this instance is simply to establish the workgroup or committee to do this work, and to define its charge. Future iterations of the Wetland Program Plan may include the goals defined by the workgroup.

Formation of a coalition of partners and interest groups. A number of states have formed ongoing restoration partnerships to facilitate restoration and preservation. These groups can share technical information, support projects of mutual interest, and cooperatively promote public funding and support for voluntary wetland restoration. Partners can encompass state, tribal, federal, and local agencies – including not only habitat and wildlife agencies, but transportation and floodplain managers, watershed managers, agricultural and forestry agencies, and other "unexpected" partners. Non-governmental organizations can include conservation groups such as Ducks Unlimited and Trout Unlimited, land conservancies, nature associations, and so on.

Provide technical training and support. Technical assistance and training are costly, but often essential to improved wetland conservation. States and tribes can organize training – either based on their agency's expertise, or in cooperation with academic institutions or other agencies that can provide training. In some states, on the ground technical support can be provided for demonstration projects. Many long established wetland restoration programs draw upon multiple agencies and non-profit organizations to provide expertise.

***Evaluate and report on project and program success*.** Given funding constraints, the evaluation of project success is often limited. However, the cooperative evaluation of restoration and preservation efforts – including an assessment of progress toward defined goals – is essential to support future efforts, and to adjust methods and approaches to improve success. Monitoring and assessment are essential tools for adaptive management.

Directly participate in wetland restoration or preservation to meet identified state/tribal goals. Many states and tribes directly undertake restoration and protection projects. They may carry out wetland restoration and enhancement on public lands to: meet habitat goals; support floodplain restoration projects through stormwater or floodplain management programs; provide protection of water quality by establishing filter strips or similar projects through non-point source programs; provide expertise in carrying out federal programs such as the Wetland Resource Program or the North American Conservation Act; obtain easements over critical rare habitat types, or wetlands with special cultural significance; or directly participate in many similar efforts. This work may be carried out directly by the state or tribe, or in partnership with other stakeholders funded in part by the state.

Provide public education and information. Non-governmental organizations, local agencies, and private landowners may be interested in wetland protection or restoration, but lack the information to proceed. States and tribes can provide information that will link these groups to additional resources; provide technical information – including cautions regarding unintended consequences, and potential permit requirements; and generally facilitate and encourage

voluntary efforts. Materials produced by the Wisconsin Department of Natural Resources[8] are excellent examples.

Develop new restoration methods, or improve on existing methods or preservation programs. More experienced or advanced state and tribal programs may wish to experiment with more difficult restoration procedures – such as those to restore forested wetlands or peatlands. They may consider development of new methods to provide legal protections – a range of conservation easement models have been developed in various parts of the country.

Incorporate wetland restoration and preservation into state and tribal watershed management plans. States and tribes that have developed the expertise needed to identify and guide wetland restoration and protection needs and tools are encouraged to participate directly in watershed planning. Important wetlands should not only be protected in their own right, but the restoration of wetlands has the potential to contribute significantly to watershed goals. In some instances, wetland restoration may be a key component in maintaining the integrity of watershed functions. There are a number of federal programs that provide funds for wetland restoration and watershed plans that can support locating restoration projects where they will provide significant benefits.

Explore new or developing issues. Strategic planning can be about thinking about future needs, and also about responding efficiently to new or unexpected issues. Climate change adaptation and mitigation fit into both categories – climate change responses will be a long term process, but some immediate needs are already apparent. For example, approaches to restoration of wetland habitat damaged by the combination of sea-level rise and extreme storm events are already a concern in some southern and east coast states. States and tribes may also need to respond to unexpected emergency situations – such as a major oil spill that contaminated wetlands adjacent to the Kalamazoo River in Michigan in 2008.

State and tribal wetland managers will be better prepared to address new or unexpected threats if they have developed general expertise in wetland restoration, and also if they have built networks with other knowledgeable agencies and organizations.

[8] Link to Wisconsin DNR wetland restoration materials: http://dnr.wi.gov/topic/wetlands/restoration.html

Examples of restoration actions from existing approved state and tribal plans

- Develop an active wetland and riparian restoration program on the more than 5 million acres of state-owned and state-managed lands. [MT]
- Utilize GIS tools to identify and prioritize wetlands for protection and restoration efforts. [GA]
- Promote the preservation of wildlife habitat, wildlife corridors and wetlands consistent with the Wildlife Action Plan. [NM]
- Continue to refine information that provides economic justification and other value, including cultural/traditional and aesthetic for restoring wetlands. [NM]
- Evaluate need for buffer protection associated with water quality, flood control and other functions and values. [NH]
- Reduce Barriers to Improve State Property Tax Structure for Wetland Conservation. [WI]
- Translate Wetland Ecosystem Services into Dollars for the Upper St. Croix Watershed Project. [WI]
- Development of trial wetland restoration project targeting vernal pool habitat. [OH]
- Provide clear guidance on appropriate restoration and management techniques and success measures. [NE]
- Develop a tracking system for wetland conservation activities. [NE]
- Work with counties to enroll properties in ODFW‟s Wildlife Habitat Conservation and Management Program. [OR]

Common Issues and Challenges

Voluntary restoration and preservation of wetlands are typically viewed as positive actions, "feel-good" steps when undertaken in cooperation with private landowners. However, some issues can arise. Planners should be aware of the following.

- **Conflicting resource or land management goals**. While many restoration projects can provide multiple wetland functions and benefits when completed, others may favor one type of wetland or wetland function over others. For example, impoundment of a stream may be beneficial to waterfowl, but detrimental to some fish habitat and plant communities. Expansion of wetlands to provide stormwater treatment may result in degradation of the existing aquatic system. Those interested in preservation of open space may also discover opposition from development interests. Restoration strategies should recognize the potential for conflict, and establish a means to address it through interagency workgroups or other means.

- **Difficult to restore wetland types.** Some types of wetlands can be difficult to re-establish once altered. These can include forested wetlands, peatlands, and other types that are highly sensitive to hydrologic alterations. It may be difficult to restore *any* type of wetland if surrounding land use changes limit the available water supply. Strategic planning should include consulting with experts in restoration techniques.

- **Permitting requirements.** Restoration planners may be surprised to learn that permits are frequently required for wetland restoration. This is because restoration often involves some form of construction (e.g. dikes, blocking of streams) or filling of portions of wetlands to build dams to hold water that trigger state, tribal, and/or federal permit requirements. Strategic plans should include support for the permit process.

- **Changing climatic conditions.** Traditionally, restoration of the type of wetland that existed historically on a site has been considered the most effective approach, because it replaces what "belongs" on site. However, as climatic conditions change, it may be more effective to consider projected future conditions when planning for restoration of sustainable wetland areas. Strategic plans provide an opportunity to address adaptive management and other means of adding flexibility to project plans.

Cost. There is no doubt that cost is one of the most significant limiting factors in wetland restoration and preservation. Collaboration among multiple interest groups is the most common way to address this need, sharing costs and staff expertise. It is also important to demonstrate program success – by monitoring and reporting on completed projects – in order to support future agency funding.

CHAPTER 7: WATER QUALITY STANDARDS FOR WETLANDS

The Clean Water Act, along with state and tribal laws, provide for development of **water quality standards** – criteria that define physical, chemical, and biological condition that is desired or expected in state or tribal waters. These standards serve a number of purposes.

- Standards can be used to determine whether state and tribal waters are meeting expectations, and whether certain waters are degraded and in need of cleanup or protection.
- Standards are applied in making decisions for discharge permits under the NPDES program.
- States are also authorized to certify whether federal permit actions (including dredge and fill permits under §404) are consistent with state water quality standards, under §401 of the federal clean water act, and can object to or set conditions on federal actions to avoid degradation of state waters.

Generally speaking, the development of specific criteria for wetlands has lagged behind establishment of standards for other types of waters. States and tribes have addressed this gap in different ways. Some have adjusted overall state standards so that they clearly apply to wetlands as well as other waters. Others have developed wetland specific water quality standards, considering the special needs of wetlands. In some instances, criteria for physical alteration under dredge and fill permits are also incorporated into standards.

Common elements of a wetland water quality standards program

The following potential elements of a wetland water quality standards element are based on the fundamental requirements for water quality standards, as defined by the EPA[9].

Ensure that wetlands are defined as "waters" within the state or tribal water quality program. This step includes adoption of a definition of wetlands within the standards and associated policy or regulations. The legal definition of waters should be at least as inclusive as the Clean Water Act definition.

Develop wetland-specific water quality standards. This step will require definition of wetland types or classes, and a description of the desired condition or function for each type. Defining condition and/or function may require gathering of monitoring information and/or analysis of existing data. Standards should establish *designated uses* (e.g. fish habitat, recreational use, cultural protection) for wetlands. It may be desirable to establish different designated uses for different types of wetlands. Many states have also applied relevant designated uses for other waters to wetlands.

[9] Link to EPA information regarding water quality standards requirements: http://water.epa.gov/grants_funding/wetlands/quality.cfm

***Narrative criteria are then established to describe the condition or functions that are expected to achieve each designated use*.** Narrative criteria may describe the structure and species composition of a wetland type. They may also define condition – often in a "free from" format, e.g. free from oils and grease, free from fill material; no hydrological alteration.) Narrative standards should be well documented, including procedures for determination of compliance with the standards.

Numerical standards are established to define quantitative criteria for specific chemical, physical, and biological parameters. Numerical standards are often difficult to define for wetlands, given the extreme range in "normal" condition for wetlands. For example, unlike many other surface waters, it is typical that many types of wetlands exhibit low dissolved oxygen. Normal pH also varies significantly. For this reason, many wetland water quality standards currently rely heavily on narrative criteria. However some states have established their own numerical standards. For example, no net loss of wetlands or a numerical standard.

Develop antidegradation policies that protect designated uses, and prohibit lowering the quality of outstanding wetlands. Antidegradation policies can be a component of the water quality standards themselves, and of implementing regulations such as dredge and fill permits.

***Incorporate wetland specific water quality standards into decision making*.** Established wetland water quality standards should be applied in making decisions regarding §401 water quality certifications, and more specifically in setting criteria for discharge permits issued under the National Pollutant Discharge Elimination System (NPDES), and in dredge and fill programs. Note that the Section 404(b)(1) Guidelines – the criteria for issuance of §404 permits – specifically prohibit the violation of state water quality standards.

Link water quality standards to monitoring and assessment programs, and to program reports to the U.S. Environmental Protection Agency. Development of defensible water quality standards for wetlands is a data intensive effort and is likely to be dependent on a successful wetland monitoring and assessment program. Standards can be derived and supported using measurements of wetland function or condition.

Data collected through state water monitoring programs is generally summarized in a national report through EPA's integrated reporting system.[10] This biennial report provides a state by state assessment of water quality (the 305(b) report), and a list of waters that do not meet standards (the 303(d) list).

Due to the unique characteristics of wetlands relative to flowing surface waters, water quality standards (WQS) 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

[10] Information on EPA's integrated reporting system: http://www.epa.gov/waters/ir/about_integrated.html

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 includes 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. These steps form the basis for many of the program development actions in the table below. Like other water quality standards, wetlands-specific WQS can be submitted to EPA for approval during the triennial review process.

Typical elements of wetland water quality standards elements in approved state and tribal program plans:

- Develop appropriate wetland specific designated uses for one wetland subclass (riverine). [NM]
- Review Anti-Degradation Implementation Policy to determine if additional language that protects wetlands functions, condition and hydrologic regime is appropriate. [NM]
- Amend the surface water Antidegradation rule to recognize Category 3 wetlands as “Superior High Quality Waters” to allow designation of the best wetlands in the state as “Outstanding State Resource Waters”. [OH]
- Hold stakeholder meetings on Phase 2 wetland beneficial uses, water quality objectives and implementation program. [CA]
- Coordination with COE for development of federal Regional General Permits (RGPs) and state General Permits (GPs). [OR]
- Collect data on mercury, methyl mercury and methylation potential in riparian wetlands. [OR]

Common issues and challenges

Lack of technical information and data. Many states and tribes have not developed all potential components of wetland specific water quality standards simply due to the lack of technical information – e.g. acceptable numeric criteria for many parameters – or monitoring data within state or tribal boundaries. The strategic plan may focus initially on aspects of standards that demand less specific data, e.g. definition as waters, narrative criteria, and designated uses. If numeric criteria are a goal, then a strategic plan may need to include a suitable research and monitoring program.

Lack of understanding of wetland issues by water program managers, and lack of knowledge of water quality standards requirements by wetland managers. It is advisable for water program and wetland program experts to work together to develop wetland specific standards. Those who are familiar with the technical requirements of written standards can help to guide wetland managers, who in turn can point out issues specific to wetlands (e.g. extremes of pH and dissolved oxygen; problems associated with alteration of the hydrologic regime). It is important to recognize that wetland and water quality standard experts use different terminology to describe similar, but not identical concepts. For example, wetland function could be used as designated uses, but only after discussion and vetting by water quality staff.

Concern about added layers of state or tribal regulation. Additions to state water quality standards are likely to receive attention from those entities that are subject to water pollution control (NPDES) permits, in addition to wetland permits. There may be concerns regarding increased regulation of stormwater or other discharges to wetlands. Strategic planning should recognize the need to clearly define goals, and to work with these entities throughout the process.

CHAPTER 8: MONITORING AND ASSESSMENT

Effective wetland monitoring and assessment requires considerable expertise, careful planning, and can be very costly. On the other hand, it is an important component of virtually all other wetland management core elements. Thus, it is important to consider monitoring and assessment as an individual component of a state or tribal program plan, and to think carefully about the strategic steps needed to build expertise in this area. It is also essential to evaluate the implementation of linking this component to decision-making, evaluation and reporting in the other core essential elements.

Wetland managers frequently comment that they are "data rich, and analysis poor". Scientists who set out to evaluate wetlands may be initially uncertain of what information to collect, or what questions to ask. It is not unexpected that data collected in an effort to evaluate wetland condition may not all have equal utility in implementing the other core elements. However, careful strategic planning can help to link data collection and monitoring to assessment tools that minimize expenditures and improve decision making. Effective monitoring and assessment depends to a significant extent on asking the right questions, and gathering the right information to answer those questions. In other words, part of the plan should be to define ultimate use of the data that is gathered.

What activities are included in wetland monitoring and assessment?

Wetland monitoring – like other water quality monitoring – is the process of evaluating the condition or quality of wetlands, including physical, chemical, and biological characteristics. Wetland monitoring can support comparisons of different wetlands, support evaluation of the outcome of wetland management programs, or define changes in wetland condition over time.

Wetland assessment is included in this category to address scientific evaluation using methods other than direct monitoring such as: mapping; use of mapping and other remote sensing methods to determine wetland function or condition; modeling of past or future condition; and so on. Given the scope of wetland resources in many states, broader assessment tools are more practical on a large scale than site specific monitoring efforts for many purposes, although both approaches have a role.

The EPA has developed an effective framework to organize the multiple activities that can be incorporated into state, tribal or other monitoring and assessment programs.[11] This framework, illustrated below, organized assessment and monitoring into three levels:

[11] Link to information regarding the EPA wetland monitoring framework:
http://water.epa.gov/type/wetlands/upload/2006_04_19_wetlands_Wetland_Elements_Final.pdf

- Level 1 – Landscape Assessment - relies primarily on mapping, remote sensing, and modeling to evaluate wetlands on a regional, statewide, or watershed scale. This approach provides a "big picture" that can be very useful for explaining state/tribal wetland condition to the public, and for tracking changes over time.

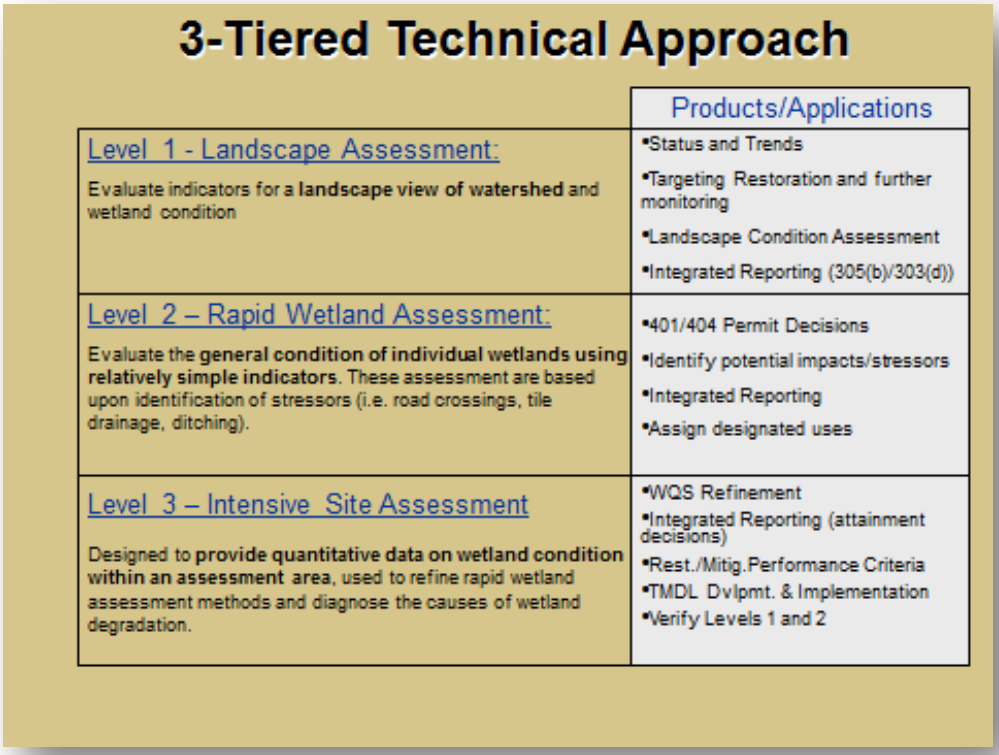
- Level 2 – Rapid Wetland Assessment – refers to on-the-ground site specific work that can be done quickly and in a single visit. As such, rapid assessment methods rely heavily on readily visible indicators of wetland condition, on identification of local stressors (e.g. land use, wetland alteration) which impact condition, and on best professional judgment to fill in gaps. This type of assessment can support regulatory decision making, decisions regarding restoration or preservation, and similar needs.

- Level 3 – Intensive Site Assessment – includes more traditional, longer term scientific investigations. Detailed chemical, physical, and biological information may be gathered over time, using traditional scientific methods. Intensive assessment may often be conducted by third parties as academic research, but results can be evaluated to develop more rapid indicators or indices.

Note that these three levels of monitoring and assessment are interrelated – each level is used to support the other, and feedback from each level can help to validate other studies. For example, mapping information may be used to plan statistically valid intensive site assessments, and the information from both level 1 and level 3 may be used to construct a rapid assessment method for a given geographic area.

Federal agencies have produced a significant amount of technical information that supports each of these three levels. Strategic planners may wish to begin with EPA's *Elements of a State Wetland Monitoring Strategy* [12] and to consult other reference and sources of information at the end of this section. Technical information is also available through the EPA research program in Corvallis.

[12] Link to EPA Elements of a State Wetland Monitoring Strategy:
http://water.epa.gov/type/wetlands/upload/2006_04_19_wetlands_Wetland_Elements_Final.pdf



Considerations in designing a state or tribal monitoring and assessment strategy

Existing monitoring programs. State or tribal water quality programs may have previously developed a wetland monitoring and assessment strategy as a component of broader state water monitoring strategies requested by EPA through §106 monitoring programs. If this is the case in your state or tribe, then this element of the State Wetland Strategic Plan may simply summarize the existing strategy, provide needed updates (e.g. climate change considerations), and further define steps needed to implement the plan and an appropriate timeline.

You may also wish to use the state or tribal Wetland Program Plan to explain and document the linkages between wetland monitoring and assessment activities, and other wetland program elements. For example, monitoring data may be analyzed to support development of water quality standards, to assist in permitting or in other decision, to help define restoration priorities, or to evaluate the success of restoration and protection programs. In other words, the strategic plan can help to clarify both the purpose of monitoring and document use of results.

In new monitoring programs. For states and tribes that do not yet have a comprehensive monitoring plan – which likely include the majority of programs nationally – staff will want to carefully consider the following.

- *What are the monitoring and assessment goals?* That is, what programmatic questions do you need to answer? Is the extent of wetland resources within state or tribal boundaries well defined? Can the current condition and function of state or tribal wetlands be described to policy makers and to the public? Do the responsible agencies understand the extent of wetland loss or degradation, causes and consequences?

  Is support needed for land use decision making? For water management purposes? To support decisions regarding permits for wetland alteration? Does the state or tribe need to know more about the success of wetland restoration or management programs? Is there a focus on management of priority watersheds? Restoration of scarce wetlands?

The ultimate goals of monitoring and assessment programs may include contributing to evaluation of overarching national goals – no net loss of wetlands in the short term, and an increase in wetland area and condition in the long term.

- Do the state or tribe and its partners have the expertise necessary to design and implement the desired monitoring? If not, the strategy may focus on building the needed methods and expertise.

- What resources - including staff, funding, and equipment – can the state or tribe and their partners bring to the monitoring and assessment effort? Resource needs – from sampling equipment to Geographic Information System software – may be significant. As a result, choices may have to be made regarding priority projects. It is typical that a monitoring and assessment program is developed over a period of many years.

State and tribal staff who are experienced in development of related water monitoring programs, college and university research staff, federal agencies with monitoring experience (USGS, NOAA, USFWS, and others), as well as EPA may be able to provide input and assistance.

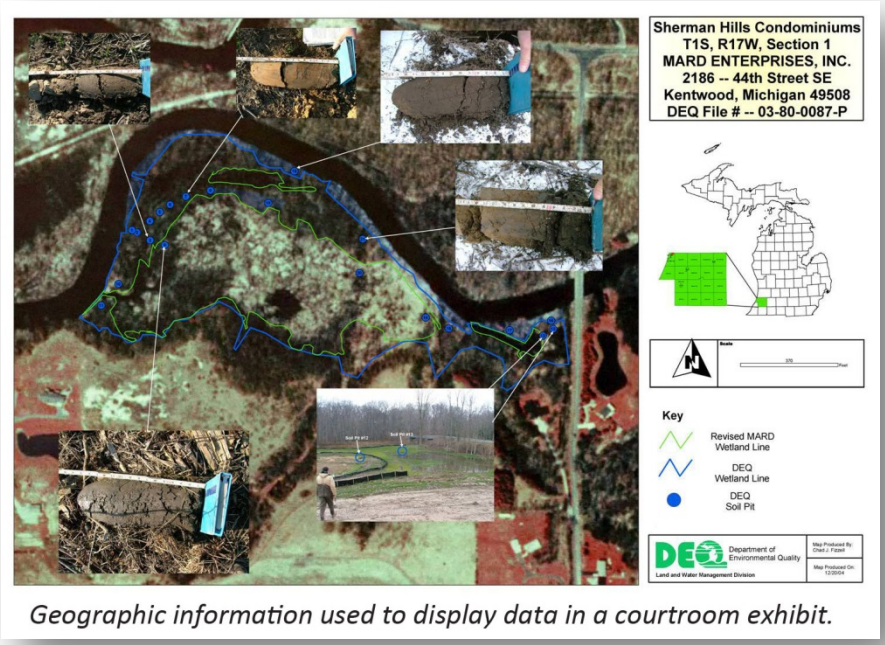
Examples of wetland monitoring and assessment programs program elements

Level 1 – Landscape Level Assessment. If state and tribal questions focus on the extent and condition of state or tribal resources on a broad scale, strategic elements may include updating or analysis of National Wetland Inventory (NWI) maps, or similar sources of data. Some states are also adding geographic information to existing NWI map databases to enable a landscape level assessment of wetland function to support multiple programs.

Level 1 program elements may also include development of staff expertise in use of map resources. For example, in regulatory programs, map analysis may provide a practical means to assess cumulative impacts on local resources. Mapping may also be used to help define restoration priorities and other management needs. The benefits of mapped and landscape level information for local planning cannot be overstated. Providing a clear image of past and current wetland resources, and potential for future gains, can do a great deal to encourage understanding and to stimulate wetland planning at the local and watershed scale.

Other program elements may include building geographic information through acquisition of related map layers – e.g. soils information, digital elevation, or the location of special wetland resources (e.g. designated habitat for listed species, coldwater streams, rare wetland types, public lands). ASWM is supporting mapping in cooperation with the U.S. Fish and Wildlife Service through its "**Wetlands One Stop**" mapping initiative[13]. Some states and tribes also provide geographic information to the public through interactive on-line systems.

Formation of partnerships with other state mapping organizations may be an important program element. The Wetland Mapping Consortium[14] encourages consistent national mapping as defined in the National Wetland Mapping Standards[15], and shares information about innovative techniques and application of GIS data. Regional wetland planning in areas such as the Chesapeake Bay, the Great Lakes, the Gulf of Mexico, and the Mississippi River Basin all rely on the ability to summarize and convey information through accurately mapped wetland and aquatic resources.



Geographic information used to display data in a courtroom exhibit.

[13] Link to "One Stop Mapping" information through ASWM: http://aswm.org/wetland-science/wetlands-one-stop-mapping

[14] Link to information regarding the National Wetland Mapping Consortium: http://aswm.org/wetland-science/wetlands-one-stop-mapping/3437-future-wetland-mapping-consortium

[15] Link to information regarding national mapping standards: http://aswm.org/wetland-science/wetlands-one-stop-mapping/3433-wetland-subcommittee-of-the-federal-geographic-data-committee

Level 2 – Rapid Site Assessment Methods (RAMs). Rapid site assessment has been utilized for many years in regulatory programs to obtain a quick, but objective, evaluation of existing site conditions, thereby supporting a decision regarding the likely impact of site loss or alteration.

Rapid site assessments may also be useful in evaluating sites for wetland restoration, management, or protection, or in evaluating the success of restoration mitigation or management.

A number of RAM's have been developed nationally (see references). It is suggested that those interested in this approach begin by evaluating existing tools. Those using a RAM are expected to be able to produce a single score, or group of scores, of a site within a relatively short timeframe (hours) by looking for established indicators and characteristics. The score can then be compared with a disturbance gradient for the geographic area in question, demonstrating the extent of disturbance compared to similar wetlands.

Development of a Rapid Assessment Method, is a technical process that involves: gathering of information to define locally effective indicators that can quickly differentiate between stressed or altered and intact wetlands; testing of proposed indicators in the field; and developing a method to interpret results. Each of these steps may be an element of a state or tribal strategy. The initial development of a RAM is time and labor intensive. However, once developed it may be indispensable in making rapid and objective decisions.

Other rapid site assessment methods may be developed for specific purposes. These include plant community evaluations, such as the Floristic Quality Assessment Method used in a number of states;[16] assessments based on hydrogeomorphic features;[17] and inclusion of stressor checklists.[18] Steps taken in the development of any of these methods are appropriate actions in a strategic wetland program plan.

Level 3 – Intensive Site Assessments Methods. This level of monitoring is also site-specific, but involves more rigorous data collection than a rapid assessment. Sampling may include biological measures, including inventories of species that are present, potentially over a longer period of time. Sampling may be planning to support indices of biological integrity (IBI's) — that allow for comparison among sites or over time. Physical and chemical information is often based on the hydrogeomorphic functions of the site.

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[16] Michigan example of Floristic Quality Assessment: http://www.michigandnr.com/publications/pdfs/HuntingWildlifeHabitat/FQA_text.pdf

[17] Oregon example of assessment method: http://www.oregon.gov/dsl/WETLAND/Pages/hgm_guidebook.aspx

[18] Ohio level 2 and 3 example using stressor checklists: http://www.epa.state.oh.us/portals/35/wetlands/L919ReportVol_1_EcologAssessUrbanWTLDs.pdf

Level 3 monitoring may be thought of in terms of a "research" level. Not only is a detailed evaluation of the site provided, but the analysis of that information can be used to identify indicators used in rapid assessment, and to verify rapid assessment methods.

Participation in national or regional wetland monitoring programs and workgroups.

Participation in cooperative national or regional workgroups or monitoring projects can increase state/tribal expertise in any or all levels of monitoring, allow for input into regional or national monitoring plans, and ensure understanding of and access to collected data. State and tribal planners may want to consider involvement in regional and national workgroups. Some examples include:

- **The National Wetland Condition Assessment (NWCA).** Wetlands are one component of EPA's National Aquatic Resource Surveys. Under this program, EPA and partners complete a statistically valid sampling of various types of waters (e.g. lakes, rivers and streams, coasts, and wetlands) on a national basis. Each type of water is resampled every 5th year. The first NWCA[19] was carried out in 2011, and results are expected to be released by early 2014. Wetland Program Plans may anticipate participation in future surveys, or use of the report to provide public information and support other program elements.

- **National Wetland Monitoring Assessment Work Group.** The mission of the National Wetland Monitoring and Assessment Work Group is to help states and tribes build their capacity to sustain and improve the quantity and quality of the nation's wetlands. The goals of the Work Group are: 1) The development and implementation of monitoring and assessment tools and programs that are integrated into a state or tribe's overall water quality monitoring strategies; and 2) to ensure that assessment related science is integrated into state and tribal wetland programs. The goals of the Work Group are aligned with EPA's Core Elements Framework which outlines the components of comprehensive state and tribal wetland programs.

- **Mid-Atlantic Wetland Workgroup (MAWWG).**[20] To quote the MAWWG website, the primary goal of this group is to, "support a forum in which to facilitate the development and implementation of wetland monitoring strategies, including elements of a comprehensive wetland monitoring program, that meet the needs of the mid-Atlantic states (i.e., wetland monitoring programs to be implemented at the state level)." MAWWG participants represent federal and state regulatory personnel and scientists from the following states: Delaware, Maryland, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Virginia, and West Virginia.

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[19] Link to information regarding national wetland condition assessment: http://water.epa.gov/type/wetlands/assessment/survey/index.cfm

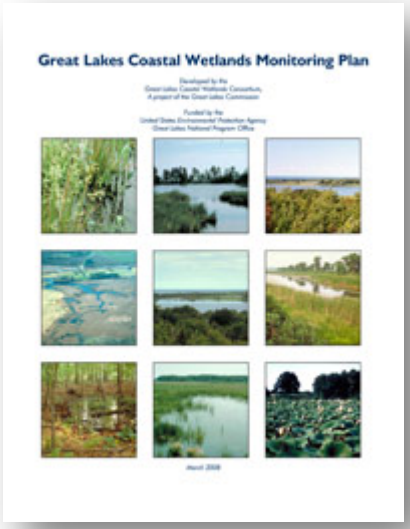
[20] Link to Mid-Atlantic Wetland Workgroup: http://www.mawwg.psu.edu/

- **Great Lakes Coastal Wetlands Consortium[21].** Funded by the EPA Great Lakes National Program Office as part of the Great Lakes Restoration Initiative, this project will establish a basin-wide coastal wetland monitoring program. Fish, invertebrate, bird, amphibian, and plant communities, along with chemical and physical variables, will be assessed in the majority of coastal wetland areas throughout the Great Lakes basin.

  The program will produce information on the status and trends of Great Lakes coastal wetlands, and enable managers to identify the highest quality, most degraded and most threatened coastal wetlands in both the United States and Canada. Multiple experienced scientists - representing a number of academic and other institutions from six states and provinces, along with the U.S. EPA and Environment Canada - are cooperating in this effort.

- **San Francisco Bay Area – Wetland Regional Monitoring Program (WRMP).[22]** The WRMP is one component of the San Francisco Bay Wetlands Restoration Program, defined as follows in the Charter:

  "Foster the development of a regional wetlands monitoring program. The program provides a forum where wetlands monitoring issues are regularly shared and discussed. Components of the monitoring program include the development of standardized wetlands monitoring protocols and the provision of a publicly available, project mapping website. This forum advances our understanding of habitat project successes and failures."



The recognition of regional and national monitoring workgroups in state and tribal wetland program plans provides a way to extend scientific knowledge, strategic thinking and practical application of monitoring and assessment data beyond political boundaries. These groups encourage collaboration in order to achieve wider goals, while participants share expertise among agencies and organizations.

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[21] Link to Great Lakes Coastal Wetland Consortium: http://www.glc.org/wetlands/.

[22] Link to San Francisco Bay, Wetland Regional Monitoring Program: http://wrmp.org/index.html.

Reporting. Some of the value of monitoring and assessment is lost unless results are analyzed, summarized, and reported. The U.S. EPA requires a biennial report on the condition of the nation's waters, including wetlands. Known as the §305(b) report (after the applicable Clean Water Act requirement), this report can be used not only to transmit information to Congress, but to the general public in a state or tribe.[23] In developing a monitoring and assessment strategy, state and tribal planners should consider the best means to provide data that is provided to the public through national and state/tribal reporting processes.

[23] Link to EPA information regarding Section 305(b) report requirements: http://water.epa.gov/lawsregs/guidance/cwa/305b/index.cfm

Typical elements and actions related to monitoring and assessment in approved wetland program plans:

- Review USA RAM, existing state specific RAM's and NH Method to develop a protocol for Level II wetland monitoring. [NH]
- Develop a strategy to provide quality assurance for wetland monitoring procedures. [NH]
- Evaluate use of vegetative indicators to supplement condition assessments (such as floristic quality assessment index) [ME]
- Conduct surveys and monitoring of wetland habitats and species associated with proposed or potential restoration and conservation projects, as a proactive support effort for In Lieu Fee mitigation. [ME]
- Obtain baseline data for wetlands that may be impacted by hydraulic fracturing for shale gas extraction. Assess the effects of mine dewatering/groundwater lowering and the impacts of associated discharges into wetlands. [NC]
- Provide leadership for the establishment of a regional wetland monitoring network in the Southeast. [NC]
- Investigate alternative funding sources for NC's wetland monitoring program. [NC]
- Participate in the National Wetland Condition Assessment and conduct intensification study along Lake Michigan. [WI]
- Conduct wetland change analysis in southeastern Wisconsin. [WI]
- Monitor wetland size and abiotic characteristics of 27 wetlands alternating a set of nine every year (each wetland every 3 years. [Hualapai Tribe]
- Provide a standardized base map of California's wetlands and other aquatic resources, maintained by DFG, for use by all local, state, and federal agencies. [CA]
- Create definitions and guiding principles to differentiate between unique wetlands (bogs, estuaries, riparian), high value wetlands (near pristine), moderate (partially degraded) value wetlands, and low value (highly degraded) wetlands. [Coquille Tribe]
- Survey and identify wetland resources on Tribal Trust Lands; map location and prioritize need for further monitoring and assessment. [Cocquille Tribe]
- Ensure the scientific validity of monitoring activities, draft peer review quality management plan, and coordinate with the Tribe's Quality Assurance Project Plan. [Cocquille Tribe]
- Investigate the utility of enhancing NWI maps with LLWW descriptors and/or the feasibility of incorporating ORWAP results that could identify wetlands types and provide functional assessments profiles over broad geographic areas or across wetland types. [OR]
- Build a monitoring infrastructure to characterize the short-term variability and long-term changes associated with a variety of estuarine wetland and watershed attributes and processes. [OR]

Common issues and challenges associated with wetland monitoring and assessment

Even though monitoring and assessment support and strengthen almost every component of state and tribal wetland programs, implementation is limited. Some of the reasons are listed below - the greatest being time, cost, and needed expertise. Government policy makers sometimes indicate that they have a difficult time justifying expenditures for monitoring, rather than for "getting something done." Strategic planning can help to overcome this common perspective by demonstrating the necessity of gathering objective information to support other program elements and to make wise decisions. Ultimately, programs supported by scientific evaluation are more cost effective through selection of sound on the ground restoration and management projects, making efficient, consistent regulatory decisions, and documenting success.

The following challenges should be considered in order to demonstrate the cost effectiveness of monitoring strategies.

- **Cost, time, and expertise.** It cannot be disputed that monitoring is expensive. Therefore, the purpose of monitoring programs should be carefully defined. Monitoring and assessment efforts can be built over time as experience increases; starting small with pilot programs is an efficient way to begin. Partnerships with other organizations, including academic research programs, can also help to limit agency costs. States and tribes may also wish to consider a volunteer monitoring program[24].

  Strategic plans should clearly define the products and benefits of monitoring. Among these are increased staff expertise which may be applied in other program areas.

- **The scope and variability of wetland resources.** A site-specific sampling program for a tidal marsh is much different than one for a peat bog. There are numerous ecological wetland types in the nation, and not all will fit neatly into a single monitoring effort. A strategic plan should consider how these differences will be accommodated. States and tribes may wish to focus initially on particular types of wetlands, or on the wetlands in a limited geographic area (e.g. a small watershed).

- **Limited basic research.** A great deal of information about some common wetland types is not difficult to obtain. However, states and tribes may not be able to find the information they need regarding many rarer wetland systems. Basic research questions and needs should be defined for research agencies in order to rectify gaps over time.

[24] Link to EPA information regarding volunteer monitoring of wetlands: http://water.epa.gov/type/wetlands/assessment/volmonitor.cfm

- **Poorly defined monitoring goals and design.** Significant effort is needed to design a sampling program that will provide the accurate and useful information needed to answer research questions.. Assistance from experienced research staff may be needed initially. A poorly designed monitoring plan may not provide data that is statistically valid; may fail to collect information on a key parameter; or may otherwise result in failure to achieve needed results. During strategic planning, technical assistance in sampling design should be included in steps necessary to achieve monitoring goals.

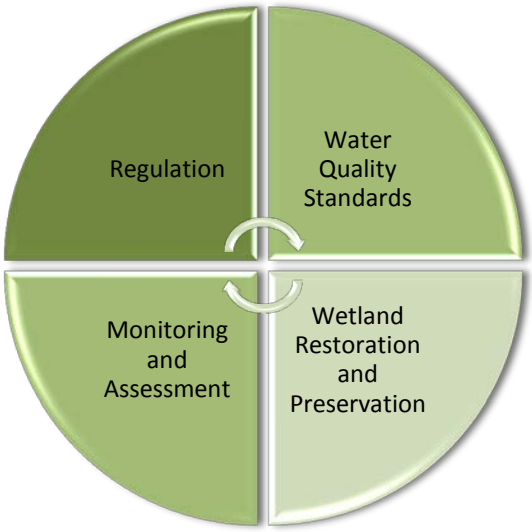
- **Lots of data, not much analysis.** As noted above, many programs eventually find themselves in this position. States and tribes should fully explore the possible opportunities for analysis of data. In some instances, the data collected for one purpose may simply prove to be valuable for other reasons, given enough time for analysis. However, strategic planning should propose sufficient time and staff expertise to carry out anticipated analytical tasks, report preparation, and dissemination of results.

CHAPTER 9: INTEGRATION WITH OTHER STATE AND TRIBAL PROGRAMS

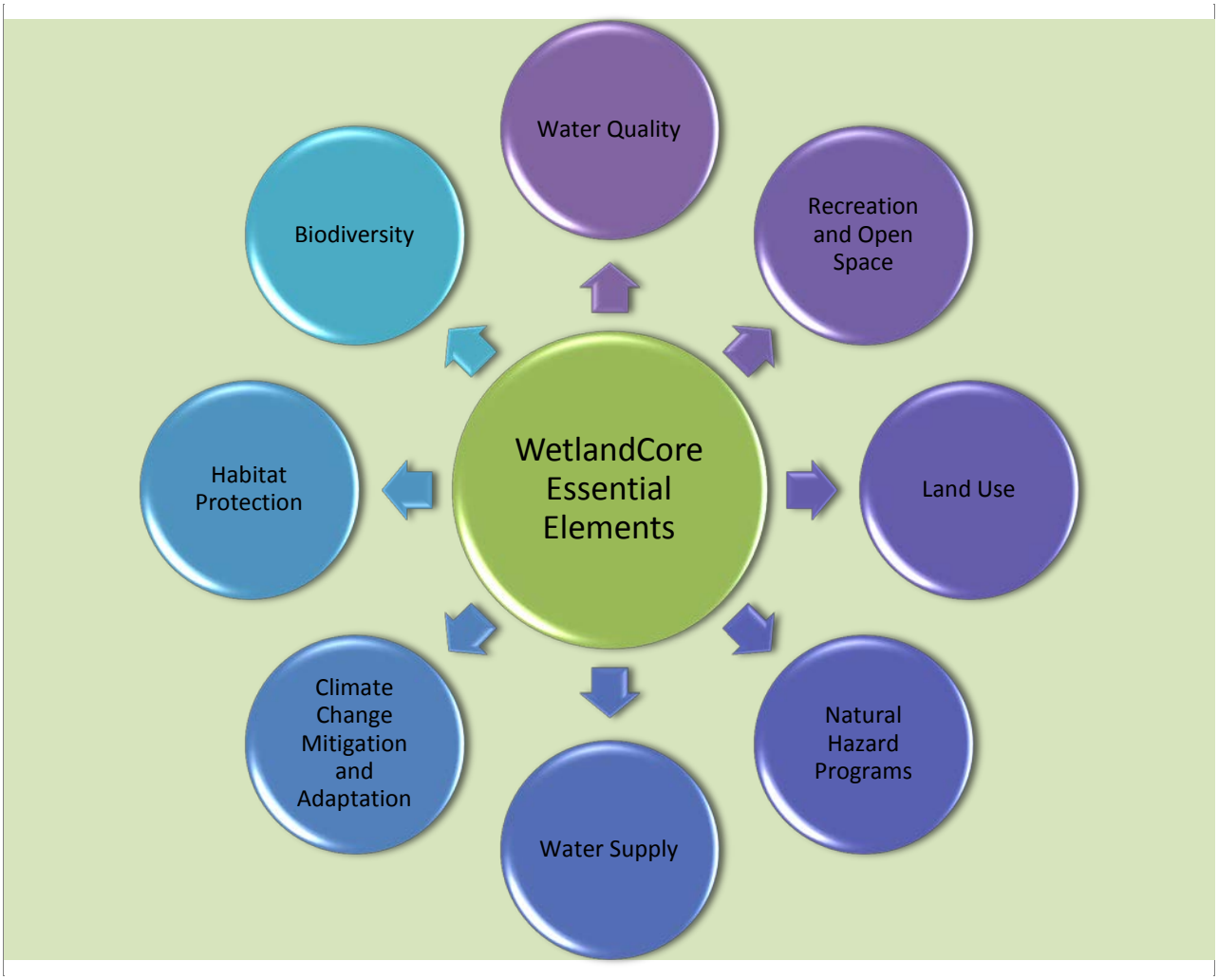
The core elements of a state or tribal wetland program – including all elements added by the state or tribe – are interrelated and build on one another. The wetland program plan should acknowledge the links between core elements and encourage integrated strategies for advancing each element.

Equally important is linking wetland management to the broader management of aquatic resources, protection of fish and wildlife habitat, land use management, and related programs. Wetlands are, almost by definition, found at the interface of land and water, or at the intersection of various aquatic systems. They both influence and are influenced by these systems, and thus are often a linchpin needed to maintain the integrity of larger terrestrial and aquatic systems.

Program integration goes beyond the basic recognition of other program areas. Wetland managers are often experts at working with multiple disciplines and across the boundaries of



organization charts to achieve multiple goals. Wetland program strategies should explore and demonstrate opportunities and common needs for a range of policy makers, managers, stakeholders and the public.



There are many opportunities to interweave wetland management with other resource programs of importance to a state or tribe and their partners, to the benefit of all stakeholders. Explicitly defining these links in a Wetland Program Plan will encourage collaboration. The following are but a few examples.

Water quality

- Inclusion of wetland issues in §319 nonpoint source programs, and specifically in development of watershed plans. Restoration of wetlands can increase protection of other waters through wetland restoration, establishment of artificial wetlands as filter strips and other measures.

- Consideration of wetlands creation, restoration and protection in TMDL programs to reduce or manage nonpoint source loading.

- Inclusion of wetlands in integrated program reporting, and listing of impaired waters.

Water management and protection of water supplies

- Use of constructed wetlands for treatment of concentrated stormwater, and natural wetlands as appropriate for stormwater storage and infiltration.

- Groundwater recharge and protection of drinking water recharge areas.

Protection from Natural Hazards

- Integration of wetland and floodplain management programs such as wetland restoration to increase storage potential.

- Protection of coastal areas from storm surges, or from winter ice damage (Great Lakes).

Habitat Management

- Provision of critical habitat for waterfowl and other wildlife, including birds, reptiles amphibians, mammals, and other groups.

- Provision of habitat corridors, linking other aquatic and natural areas.

Biodiversity

- Protection of rare community types, such as bogs and fens, vernal pools, and Carolina bays.
- Preservation of a significant percentage of rare plant and animal species in the U.S.

Land Use

- Watershed planning and management on the local level.

- Consideration of wetland functions in agricultural and silvicultural areas, including water storage, evapotranspiration for local rainfall, greenbelts along stream systems, and for some types of timber production.

- Enhancement of residential areas, or buffers between differing land use types (e.g. urban and industrial).

Recreation and open space

- Significant economic contributions through hunting and fishing, birdwatching, canoeing and kayaking, and other activities.

- Opportunities for combined open space, education, and water management in urban areas.

- Essential links in greenways and habitat corridors.

Climate Change

- Sequestration of carbon to offset production of greenhouse gases.

- Adaptation to changing climate conditions, by providing a buffer from more intense storm events, or droughts, or against sea level rise.

- Provision of migratory pathways for plants and animals responding to changing climatic conditions.

Examples of elements and actions from approved state and tribal wetland program plans to encourage program integration.

- Development of Oregon's Integrated Water Resource Strategy, which will provide an action agenda for the State to follow and which takes into consideration water quantity, water quality, and ecological needs. [OR]

- Collaborate with North Carolina Department of Water Quality Planning Section to evaluate opportunities for incorporation of wetland monitoring and assessment data into basin-wide plans and TMDL development. [NC]

- Work with the Wisconsin Initiative on Climate Change Impacts and FWS Great Lakes Landscape Conservation Cooperative to understand and quantify wetland impacts to recommend adaptation strategies. [WI]

- Conduct a pilot project to restore wetlands in the Rock River basin as an adaptation strategy to minimize climate change impacts from flooding. [WI]

- Periodic reviews of tribal program to ensure all potentially regulated activities are addressed, and take appropriate programmatic action. Program evaluations done annually during grant final reporting to assess effectiveness of program. [Pyramid Lake Paiute Tribe]

- Maintain support for ODOT/DOT Oregon Transportation Investment Act program and collaboration with ODOT on transportation related infrastructure improvements. [OR]

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- State and Tribal Wetland Program Plans. On line information provided by the U.S. Environmental Protection Agency, including links to approved state and tribal plans. http://water.epa.gov/type/wetlands/wpp.cfm

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Developing Strategic Communication Plans

CHAPTER 10: INTRODUCTION TO STRATEGIC COMMUNICATIONS PLANNING

Communication is a critical component of any strategic planning process. If objectives, methodologies and results are not clearly communicated and understood (either to your team or interested stakeholders), your plan and your efforts will risk the development of attitudes and understanding which are driven by individual or group self-informed perceptions versus what was actually intended. The best wetland program plans in the world can completely fail if communication is not strategically planned.

Strategic communication planning is a step-by-step process used to identify and prepare for the key elements of your communications efforts. In sum, a communication plan focuses on: developing succinct documentation of why you are communicating; what you want to achieve with the communications; to whom you plan to communicate specific messages; how these communications will be resourced; plans for responding to communication obstacles and emergencies; how you will evaluate your communication efforts; and how you will work to modify the plan in response to results of that evaluation.

When you develop a strategic communications plan, you generate:

- a foundation on which to base decisions and create ideas,
- a means of focusing on where you want to be and what needs to be done to get there,
- a tool for discovering opportunities, optimizing challenges and initiating change, and
- a means of monitoring your communications efforts.

A communication plan should be consistent with your program/agency's overarching mission and values. The plan should take into consideration wetland issues and environmental problems in the context of social dynamics - the importance of perceptions, beliefs, behaviors and motivations by target audience group and characteristics (e.g. age, gender, education,

income) - and your agency's institutional background and organizational capacity to implement the strategy.

A communication plan usually contains, at a minimum, the following components:

- A succinct, agreed-upon description of your program or project
- The purpose for your communications
- Specific communication objectives
- Description of target groups
- Selected communication tools and justifications
- Responsible parties
- Timeline
- Budget for communication activities
- An evaluation plan

The following sections lead you through the considerations and content for each section of the strategic communications planning process. For each step, a set of questions is provided to help steer the development of the plan.

Step 1: Identify the Purpose and Goals for Your Communications

First, you will want to clarify what you are seeking to communicate. Common reasons for a Wetland Program to require communications include:

- Becoming known, or better known, in the community
- Announcing events
- Increasing awareness of wetland-related issues
- Educating the public/stakeholders about specific issues your program addresses
- Promoting a specific project, report or effort
- Encouraging some type of action
- Recruiting participation, volunteers, legislative support for your program(s)
- Rallying support for wetland-related causes
- Promoting community participation
- Changing behavior
- Asking for input on programs, project and plans
- Building consensus
- Celebrating honors and victories
- Countering arguments, mistakes, lies or misrepresentations that undermine program goals
- Resolving conflict
- Dealing with an organizational crisis that is public knowledge

Keeping the purpose (sometimes referred to as driving forces) you have identified in mind, you can now develop goals and objectives for your communications. Goals are general statements that express the broad focus of your effort. Make sure that your goals link back to the purpose.

For example, in response to recent loss of dozens of acres of wetland in X County, a goal of your wetland project might be to protect and restore local wetlands. You've decided that outreach is needed to increase public awareness about the importance of local wetlands to the community and increase community involvement in protecting and restoring them. Clear goals will help in the next step of creating your communications plan, the development of specific measurable objectives to support the goals.

Many people get hung up on the terminology when setting their goals. The important thing to remember is that it is a hierarchy: you move from the broad (goals or mission statements) to the specific (objectives and tasks). Each subsequent level should answer the question "How?" from the previous level. For example, if your goal is to restore wetland functions in a specific area, the next level down should answer "How would you restore these functions?"

Planning Questions

Identifying the Purpose of Communications

- What action is our program taking that warrants the development of a communication strategy?
- What communication issue is our program is responding to?
- What do we want to accomplish by communicating this information?

Step 2: Determine your Specific Communication Objectives

Your objectives are an essential component of a successful communications strategy. A communication objective describes an intended result of the communication activity (not the process itself). They should be very specific and aimed at increasing knowledge, influencing attitudes, and changing practices of intended beneficiaries with regard to a particular action.

Objectives are made up of the following components:

- The communication *action*
- *Who* will carry out the action
- *How* the action will be carried out
- What *resources* will be needed to implement the action
- *When* the action will be accomplished
- How progress/impact will be *measured*

Strategic planners advocate using the "S.M.A.R.T. model" when developing objectives. This well-established guidance states that objectives should be *specific*, with only one action word per objective. They should be *measurable*, meaning that they result in something tangible. They should be *acceptable* (people are committed to it). They should be realistic, meaning that it is

politically feasible and resources are available and prepared to take it on. Finally, the objective should be *time-bound*, providing a description of when the objective will be accomplished.

Communication Objective Examples:

- Contact at least 10 of the 25 hardware stores and gardening businesses in X county between March and July 2014, inviting them to provide in-kind products and services to X restoration projects.
- Enhance stakeholder understanding of the draft restoration plan being developed and the process being used to develop it between January 1, 2014 and December 31, 2015.
- Share lessons learned from X project with other wetland program managers at quarterly conference.
- Provide outreach to minimize concerns from local farmers about a new effort to stabilize and enhance stream banks along X stream (an active agricultural area) before project implementation begins on June 1, 2014.
- Provide training for 30 town clerks on requirements for applying for dredge and fill permits when filling wetlands for a construction project.

It is important to remember that as you progress through the phases of developing and implementing an outreach campaign, your outreach objectives and activities will change. As the target audience becomes aware of the issues, you'll focus your efforts toward action. For example, during the early stages of the planning process, it might be necessary to generate basic awareness of wetland issues and define remediation; but as problems are identified, your objectives will focus on educating the target audiences on the causes of the problems and the potential solutions. Finally, your objectives will change to motivating action by the target audience to reduce adverse impacts to wetlands.

Once you have developed your objectives, you will need to prioritize them. When planning your communication objectives and priorities, it is advisable to strategically involve stakeholders (representatives of those you are seeking to reach) in the process of developing, implementing and evaluating the communication actions.

Planning Questions

Determining your Communication Objectives

- Are objectives consistent with our communication goals?
- Are objectives specific, with time limits and measurable components?
- Will the objectives be accepted and understood by the people that will be affected by them?
- Will we be able to evaluate whether the objectives were accomplished?
- Do I have the resources to accomplish the identified objectives?

Step 3: Identify your Audience

Determine who you are trying to reach. Now identify and list your different audiences. This is called segmenting your audience. Once you know your audiences, you can target your messages to address the specific needs of those audiences. Determine how your audiences are grouped. Keep in mind that the demographics, knowledge and concerns of your audiences play an important role in determining your key messages.

Take into consideration:

- Demographics (age, gender, race, ethnicity, background, income, etc.)
- Geography (neighborhood, town, region, state, etc.)
- Occupation (people in a particular field of work, position, etc.)
- Political Views (political party, stand on specific issues, etc.)
- Knowledge (novice on wetland issues, need to counter current understanding, adding information to strong knowledge basis)
- Behavior patterns (may target a group of developers who have not adopted a new practice)
- Attitudes (are you trying to change someone's mind or simply reinforce existing attitudes and perceptions by providing them with communication resources?)

Some of the more common target audiences for wetland programs include:

- Local, state and federal elected officials
- Government employees (including program/agency administrator peers)
- Homeowners/private property owners
- NGOs/NPOs
- The legal community
- The agricultural community
- Consultants/contractors
- The silviculture community
- Other businesses

Each of these audiences impacts wetlands differently and likely place different values on wetland resources. Finding out what's important to each of your target audiences will help you craft messages that will resonate with them most effectively. A recommended practice is to work to change the perceptions, knowledge and/or behaviors of the individuals or groups within your target audiences who are most likely to adopt the new behavior and then let them spread the message or behavior in their own spheres of influence. In communications rhetoric, this portion of your target audience is referred to as the "low hanging fruit."

Planning Questions

Identifying your Audience

- Who is involved, affected, interested?
- Is there an obvious audience?
- Are there others who may be affected?
- Are there traditionally underrepresented groups that need to be reached?
- What information does each stakeholder already have?
- What information does each stakeholder need?
- What are their concerns?
- How is each stakeholder likely to react?

Once you have determined your target audience(s), think about the characteristics of that audience, refine the communications objectives for that audience and identify any specific challenges or opportunities related to communicating with that audience. Table 1 provides a worksheet that allows you to capture this information and use it in the next step, developing messages for each target audience.

Conducting at least a rudimentary analysis of the target audience is a task that is often ignored, but such an oversight can render the rest of the outreach plan useless. To develop an effective message that resonates with the audience, find out what they think about the issues and what messages might engage and motivate them. According to EPA recommendations for developing messages for citizens about water quality,[25] at a minimum, you should try to answer the following questions: What are the demographics of the audience? What is the knowledge base of the audience regarding watershed issues? How does the audience receive information? How do members of the audience communicate among themselves? Does the audience think there

[25] U.S. Environmental Protection Agency, (2003). Getting in Step: A Guide for Conducting Watershed Outreach Campaigns. http://cfpub.epa.gov/npstbx/files/getnstepguide.pdf

is a problem? If so, who do they think is responsible? How does the audience perceive your organization?

Table 1. Worksheet to Documenting Communication Needs for Specific Target Audiences

Overall Communication Objective:				
Target Audience	**Audience Characteristics**	**Communication Objectives**	**Specific Challenges**	**Specific Opportunities**

There are many possible sources and options for collecting this information, if you do not already have it. Some of these can be very expensive and time consuming. Your selection should be based on your need for information, the scale of the project and the resources you have available to conduct information gathering. If you cannot afford to conduct your own research about your target audience, at a minimum identify other campaigns targeted at the audience by other organizations or municipalities and learn how they collected information.

The most common sources of information used to help learn about your target audience and how to develop messages that resonate with them are:

- Databases, public agencies and trade associations
- Surveys (mail, telephone, email, web)
- Personal contact
- Focus groups/community discussions
- Observation
- Community cultural assessments

For detailed information about the pros and cons of each of these methods, a useful resource is EPA's *Getting in Step: A Guide for A Guide for Conducting Watershed Outreach Campaigns*, which can be downloaded from http://cfpub.epa.gov/npstbx/files/getnstepguide.pdf.

A flaw of many communication plans is what one might call "target audience creep." This happens when a plan continues to expand the number of target audiences it is trying to reach with only one message or method. Most audiences you will be reaching out to have different needs. For example, to be effective, communications sent to conservation organizations, farmers and residential home owners most likely require different approaches, messages and delivery mechanisms. As you develop your communication plan, make sure that you divide up those you are seeking to reach into appropriately small divisions of target audience groups. To assist you in this process, it may be useful to use a logic model tool. Based on the outcomes you are seeking to achieve, developing a logic model for your planned communication outcomes

allows you to identify the target audience(s) that need to be reached, their barriers to change, opportunities that exist for reaching each audience, and which messages and mechanisms are best suited to addressing their needs. Whether or not you take the time to work through this planning process can spell the difference between success and failure for your communications plan.

Step 4: Plan and Design your Message

Once you have defined the purpose, objectives and target audience(s) for your communications, it is time to craft your communication message. A message is a simple, clear idea that summarizes the essence of a program, project, initiative or action. It should serve as a guiding principle for each communication, from the content of written materials, to the talking points for interviews or the content of a public service announcement.

Planning Questions

Planning and Design Questions

- What does the audience need and want to know?
- When do we need to communicate?
- What is the regular or preferred channel for reaching this audience?
- For this specific audience and message, what is the most effective way to get our message across?

To plan out the message for each audience, fill out a Planning and Design Worksheet for each target audience:

Table 2. Planning and Design Worksheet for Each Target Audience

Target Audience:					
Communication Objective	**Primary Message(s)**	**Constraints**	**Materials**	**Communication Channels**	**Potential Partners**

When developing your message, take into consideration content, mood, and language:

Content: Craft your message with your audience in mind. Perhaps the most important thing to keep in mind at this stage is that **you are not your target audience**. Just because something makes sense or "speaks" to you does not mean it will have the same meaning to or impact on your target audience. Increase effectiveness by tying messages in with what you have learned

about your target audience. Of specific help may be the use of focus groups or pre-testing of messages with several members of the target audience to help you identify the most effective way of conveying your message. This work can be conducted by your staff, but in many cases programs opt to hire a marketing firm to test messages and advise between different communication mechanisms.

Mood: Consider what emotions you want to appeal to. The mood of the message will play a large role in determining how people react to the message itself. If the mood is too extreme, people won't pay much attention to it. It may take some experience to learn how to strike the right balance. Keeping a positive tone will usually reach more people than evoking negative feelings such as anger or fear.

Language: There are two language-associated aspects to messaging. First, there is the actual language. While many Americans speak and read English as their first language, many others do not. Translation may be an important element to ensuring your message is received by a target audience. The other aspect of language is the *kind* of language you use: formal or informal; simple or complex; referring to popular ideas or figures, or to obscure ones. You should use plain, straightforward language that expresses what you want to say simply and clearly.

A Closer Look at Values-Based Communications: An important consideration when communicating with non-technical audiences relates to messaging and personal values. The environmental community has relied most often on scientific messages to convey its needs. However, research indicates that most humans act more from emotion than from rational thought. Emotional responses often stay with us longer than intellectual ones. When you have the need to communicate with an audience that does not understand the technical aspects of wetland issues, does not share the desire to conserve wetlands or simply does not know much about the environment at all, it may be time to consider employing values-based communications.

Values-based communications:

- Bases messaging on the target audience's values
- Uses appropriate language
- Does not use jargon, rather invokes desired values/concerns
- Makes an emotional appeal
- Answers the question: "Why should I care?" and
- Is informed by public opinion research

Step 5: Select a Communication Method

Once you have identified the key messages you want to communicate, you need to determine the vehicle to deliver your messages. What are the best possible channels to select for getting your message out and understood by each target audience?

Planning Questions

Selecting a Communication Method

- What does your intended audience read, listen to, watch, and/or engage in?
- What are the best possible channels to select for getting your message out and understood by each audience?
- What will your budget allow?
- Do you have the people to make it possible?
- What is the likelihood that the results will be worth the expense?
- Who will lose/gain what by the use of financial/staff resources?
- What will your timeline accommodate?

There are a wide range of tools available to you. A sampling of these mechanisms and methods is listed in Table 3.

Table 3. Mechanisms and Methods for Conducting Communications Activities[26]

Mechanisms	Methods
Face-to-face meetings with key stakeholders	Fact sheets
Social Media and Electronic Communication Tools: Including Twitter, Facebook, Blogs and Discussion Forums, YouTube, Flickr, Google+, Foursquare, widgets, podcasts, and RSS feeds	Presence at local events, conferences, other functions
Celebrations/Special Events	Mailings
Focus groups	Presentations
Media (broadcast and cable TV, ads, news releases, press conference)	Telephone calls
Emails	Responsiveness summaries
On-site activities	Exhibits
Public hearings and meeting	Brochures/posters
Open House	Translation of documents into other languages
Workshops	Newsletters
Website	Letters to the Editor
Word of mouth	News stories, columns and reports

[26] ***Note: For internal messages***, remember to capitalize on listservs, internal newsletters, committee/staff meetings, conferences, training sessions, and other communication opportunities to reach your audiences.

While word of mouth efforts may work and be cost-effective, a full broadcast media campaign may be required to communicate an outreach message to a large audience. Understand what you have available in your budget and then make your plans. Remember that it may be possible to get materials, air time, and other goods and services from individuals, businesses, and other organizations or institutions which may increase the resources available for your communications activities.

Step 6: Determine Timing

Once you have identified your needs and resources, determine when your communication will be best received. Determining the best timing involves thinking about which audiences prefer to be reached on weekdays or weekends, mornings or evenings, at work or at home. Timing also includes taking into consideration political cycles, the work responsibilities and activities of each target audience, and the time of year that makes the most sense, keeping in mind your project deadlines and access to resources and communication opportunities.

Planning Questions

Determining Timing

- When is the best time of the year, month, week, and/or day to reach your target audience(s)?
- Are there any opportunities or barriers to maximize/avoid in terms of timing?
- What is a realistic timeframe within which to accomplish these tasks, considering other work requirements, resources and staffing?

Step 7: Creating Your Action Plan

After determining the timing for each communication element, it is time to create the action steps associated with each objective. There will likely be more than one action step per objective. These steps are usually sequential and time-bound. For some objectives, this may instead require the documentation of procedures or functions.

Example of Action Steps:

Objective 1.1: By March 31, 2014, our program will have a stakeholder engagement working group in place to support work in X watershed.

1.1.1 Clarify public notification procedures (7/15)
1.1.2. Develop a stakeholder meeting process (7/31)
1.1.3 Develop newspaper announcements inviting participation (8/30)
1.1.4 Meet with leaders of target groups for one-on-one invitations (8/30)

1.1.5 Post invitations for participation on all program web and social media outlets (10/1)
1.1.6 Hold initial stakeholder meeting (11/15)
1.1.7 Hold second stakeholder meeting (1/15)
1.1.8 Evaluate stakeholder recruitment process (3/1)

When developing action steps and assigning milestone dates to the plan, it is important to think of what requirements your program will have to meet. Make sure to take into consideration reporting timelines, but more so the inevitable delays and complications that will likely occur during implementation. Allow realistic time to accomplish tasks in order to still meet your programs needs and requirements.

Step 8: Plan for Obstacles and Emergencies

Crisis planning should be part of any communication plan. Although there are always situations and circumstances that cannot be predicted, it is important to cover as many situations and circumstances as possible in the plan. This part of the planning process should document who is responsible for what. For example, you should document who deals with the media, who corrects errors, who decides when changes need to be made to strategies or materials, and who approves such changes.

Planning Questions

Planning for Obstacles and Emergencies

- What could go wrong? List as many scenarios as possible and think about them.
- Who is responsible for what parts of the plan?
- Who is the go-to person when there is a question or a concern?
- Who can speak for your organization/about the plan?
- What is the process for responding if we receive complaints/bad press/misrepresentation from other parties?

Step 9: Strategize How to Spread Your Message – Partnering and Capitalizing

Partnerships with other organizations and the media can work to your advantage, providing you with reach and networks that you might otherwise not be able to access. Brainstorm about whom you and your planning team members know, what resources other organizations might be able to contribute and what connections colleagues may have with the media. If another organization is putting out a newsletter or holding an event, tie in where appropriate. See if you can secure in-kind donations of air time for public service announcements. You may even want

to explore options such as providing some service to other organizations in exchange for assistance with your communications activities.

Planning Questions

Partnering and Capitalizing

- What current or potential partners could assist with our communication efforts?
- What resources or access could we secure from these partners?
- What colleagues do we know who have connections with the media, etc.?
- What would our organization be able to offer in exchange for communications support?

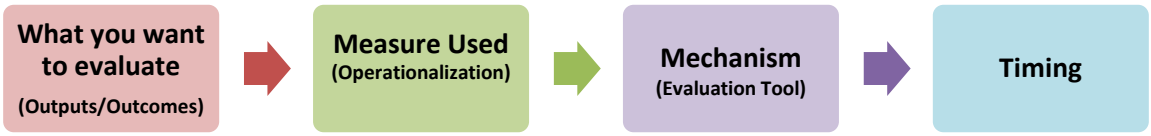
Step 10: Develop Evaluation Mechanisms

Evaluation is a tool that allows you to determine what is working, what is not, and the impact of your communications work. An evaluation plan provides you with the ability to monitor the outputs and outcomes of implemented communication activities. The success of your communication plan depends in large part on how well they are conceived, planned, implemented, and adapted. Evaluation should be incorporated throughout this process, with a commitment to adapting plans as evaluation feedback indicates efforts could be improved.

Although evaluation is the final step in a multistep process, it starts at the beginning of the project. Evaluation tools must be built into your outreach campaign at the beginning and along every step of the way to ensure that accurate feedback is generated. Be on the lookout for evaluation opportunities when creating formats or deciding on a distribution method.

- **Process evaluation:** Includes indicators related to the execution of the outreach program itself (activity indicators). For example, what effect did the effort have on the process? Did people attend the meetings? Did the message get to the media?
- **Impact evaluation:** Includes indicators related to achievement of the goals/objectives of the program. These could be social indicators (behavior-based) or environmental indicators. For example, did the audience adopt the new behavior?
- **Context evaluation:** Includes indicators related to how the project functions in the community as a whole, how the community perceives the project, and the economic and political ramifications of the project. Context indicators can provide some background and perspective on why certain approaches appear to be working well while others are not. For example, was the effort well received by the public?

Designing your Evaluation Process



Once you have determined the type(s) of evaluation you want to conduct, you will need to determine what measures you are going to use to evaluate your progress towards achieving your objectives. Evaluating success is not difficult if you initially develop concrete, measurable objectives against which your achievements can be compared. You will be measuring two types of results: communication outputs and communication outcomes.

- **Outputs**: A communication plan's outputs refer to the specific activities and/or products developed and delivered during the course of the plan. These may include documents produced, meetings held, conferences coordinated, webinars delivered, media contacts made, white papers distributed, etc. Outputs refer to what you produce, but do not measure the impacts they have had on their target audience or the environment.
- **Outcomes:** Communication plan outcomes, on the other hand, measure the changes that have occurred as a result of your efforts. These may be behavior changes, increases in knowledge, more stakeholder engagement, greater participation in restoration activities, or even changes in water quality measures. In many cases, you will want to develop short, medium, and long-term outcomes. The short-term outcomes should be measurable by the end of the plan period. Medium and long-term goals may extend beyond the plan period.

Examples of common outcomes include:

- Increased awareness of technical issues or recommended practices
- Changed attitudes
- Reduced constraints (barriers) to behavior change
- Increased capacity to engage stakeholders
- Increased capacity to support appropriate practices
- Increased adoption of practices

As you can see, many of these indicators measure change from the start date. Consequently, as you develop your evaluation plans, make sure to determine if you need to develop baseline data in order to capture measures of change. If baseline measures are required, utilize the same measure to gather baseline measures as you will to capture additional data as the communication plan progresses.

In order to evaluate your communication plan's outcomes, you will likely use both social and environmental indicators:

- **Social indicators** are measures that describe the capacity, skills, awareness, knowledge, values, beliefs, and behaviors of individuals or groups of people that are expected to lead to water quality improvement.
- **Environmental indicators** are measures that describe changes to the watershed or water quality environment that can be correlated to specific actions or activities.

Once you have identified your plan's outputs and outcomes and the types of indicators that will be employed, you will need to determine what measures you are going to use. There are often many different ways you can measure each output or outcome. For example, when measuring changes in stakeholder participation, you could measure the percent increase in participation in local meetings, the number of new businesses that have joined the program as partners, or even the change in number of volunteer hours that have been donated to streamside plantings since the start of the program. Decisions about which measures to select are usually made based on a combination of identifying common measurement practices by other wetland programs, recommendations in the literature, and feasibility.

Once you have determined your evaluation measures, you will need to determine by what means you will capture these measures. There are many different tools that can be used to conduct evaluations. Common tools include paper and online surveys, interviews, focus groups, intercept surveys, website hit counters and web traffic report tools. Different tools have strengths and weaknesses for gathering information. Be careful to match the collection tool to the measures you are trying to collect and then use best practices for analysis.

As the project progresses, compare your evaluation results with expected results. Interpret your findings taking into consideration the context, aspirations, opportunities and barriers that have been part of the project during the evaluation period. These findings can be used to: measure the success of your planned communication activities; provide benchmark measures to compare with future measures; and/or determine any changes that need to be made to the plan. Your communications team should then identify any desired modifications to objectives, target audiences, mechanisms, methods, timelines, responsible parties and/or budget based on findings.

Planning Questions

Evaluation

- What outputs and outcomes do you want to measure and track over time?
- What are the best measures to capture this information?
- What methods, timeline and human resources will be used to gather this information?
- How will this information be analyzed and by whom?
- How will evaluation findings be used to inform communications plans in the future?

Step 11: Compile the Communication Plan Document & Get Everyone on the Same Page

When you have developed all the components of your plan, be sure to take the time to put them into a formal document that is approved by the decision-makers in your organization. The document should be easy to read and accessible to all. All staff and program partners should know that you have a communications plan, the parts that are relevant to them, and receive training on elements of the plan that are associated with their job description. Make sure that everyone understands the point people designated as spokespersons for your organization and note if there are different people serving as points of contact for different elements of the plan. Staff should understand what they can and cannot say to the media and stakeholders if your plan includes any restrictions. Staff should also be able to direct media to press resources (e.g. press kit), if your program develops one.

Planning Questions

Developing the Plan Document and Training

- Are all the plan components contained in one electronic document?
- Is there a table of contents indicating where different parts of the plan are located in the document?
- What methods will you use to train staff/program partners on your communication plan and who is responsible for different components of the plan?
- What do different staff/partners have permission to speak about with the media, etc. and what are they not allowed to discuss? Who can represent the organization and/or plan?
- How will you incorporate the work required to implement the communication plan into staff/partner job descriptions?

Step 12: Implement Communication Plan

When you move to plan implementation, attention should be paid to implementing activities in accordance with the plan. Regular monitoring of project milestones should be conducted, with assessment of what is being done and not in the plan. If something in the plan is not being done, staff should assess what can be done to implement that work. Clearly, circumstances and resources change, requiring modifications. Should modifications be required, the plan should be adapted to include and measure these new plans. For any large changes that affect overall outcomes or allocation of resources, decision makers should likely be consulted and approve the changes. Staff should be provided with an update and a copy of the revised communication plan when changes are made. The plan should also be kept up to date with current contact information if staffing responsibilities change.

Planning Questions

Implementation

- Are the key elements of the plan being implemented within the documented timeframes? If not, what can be done to move towards implementation?
- Are the people and contact information in the plan being kept up-to-date?
- Are the planned evaluation activities being completed?

Step 13: Utilize Evaluation Results to Modify the Communication Plan over Time

Every good planning process includes a built-in feedback loop. Implementing the evaluation plan should produce results and findings about your communication efforts. Utilize these results in the ongoing planning process and modify your plans to increase effectiveness, efficiency and cost-savings as appropriate. A best practice for incorporating evaluation feedback into communication plans is to set review deadlines and a timeline for updating the plan on a regular, predictable schedule so that the necessary time to complete the work is included in job descriptions and resourced appropriately.

Planning Questions

Plan Modification in Response to Evaluation Results

- Did we implement the strategies identified in our communications plan as we intended (as outlined in our plan) during the year?
- If not, what strategies were used that were different from the original plan? Why?
- What progress has been made to help reach the long-term goal(s)?
- What is our timeline for revisiting the plan?
- Is the plan review process included in the work calendar of staff involved in this process?
- Are we on track for having evaluation results for each part of the plan?
- What improvements can we make to our plan/communication activities to improve our efficiency/effectiveness/save money based on the evaluation findings?
- Are there any changes/revisions needed to the plan?
- How will these changes be incorporated into the document? On what time schedule?

TEMPLATE WETLAND PROGRAM

STRATEGIC COMMUNICATIONS PLAN

Date last revised: _____

Name of Program:
Primary Contact Person for Communication Plan:
Contact Information:
Description of your program or project: (May want to include the program strengths and weaknesses (results of SWOT Process)
Purpose of your communications
Specific Communication Objectives

Description of Target Groups

Objective	Target Audience	Description of Target Audience

Selected Communication Tools

Objective	Target Audience	Selected Communication Tools	Justification for Selection

Responsible Parties and Timelines

Communication Objective	Specific Task to be Completed	Dates for a) Initiating, task, b) interim achievements, and c) completion	Responsible Party

Budget for Communication Activities

Plan Item	Expense Items	Expense Amount	Source

Evaluation Plans

Plan Objective	Evaluation Measure(s)	Evaluation Method	Timeline	Responsible Party

Developing Communications and Outreach Plans

- Best Practices in Strategic Communications Planning (NWGC)
  http://www.nwcg.gov/teams/wfewt/archive/bp/comm-planning.pdf

- Communication Strategies Factsheet – Superfund
  http://www.epa.gov/superfund/community/pdfs/toolkit/comstrats.pdf

- Getting in Step Guide for Conducting Watershed Outreach Campaigns
- http://cfpub.epa.gov/npstbx/files/getnstepguide.pdfInformation and Education Plan (Section 3.5.3.4) in the Watershed Management Plan for the Huron River in the Ann Arbor-Ypsilanti Metropolitan Area
  http://www.hrwc.org/wp-content/uploads/2011/11/Middle_Huron_WMP-2011.pdf

- Wetlands Outreach: Getting the Message Out – New Techniques and New Partners for the Millennium
  http://aswm.org/pdf_lib/outreach.pdf

Developing Communications Goals and Objectives

- Example of Developing Communication Objectives
  http://www.partnershipsforolderadults.org/resources/resource.aspx?resourceGUID=147393e0-4131-47f5-867a-15e0a99aac56&sectionGUID=899bfe89-5bce-4ef2-85a1-ec298a4311a5

- Getting in Step Guide for Conducting Watershed Outreach Campaigns
  http://cfpub.epa.gov/npstbx/files/getnstepguide.pdf

Identifying Your Target Audience

- Getting in Step Guide for Conducting Watershed Outreach Campaigns
  http://cfpub.epa.gov/npstbx/files/getnstepguide.pdf

- Identifying and Reaching your Target Audience (ICLEI)
  http://www.icleiusa.org/action-center/engaging-your-community/outreach-and-communications-guide/identifying-reaching-your-target-audience

Selecting Communication Tools

- Getting in Step Guide for Conducting Watershed Outreach Campaigns
  http://cfpub.epa.gov/npstbx/files/getnstepguide.pdf

- Types of Communication Medium
  http://www.communicationtoolbox.com/types_of_communication_medium.html

Evaluating Communication Plans

- Are We There Yet? A Communications Evaluation Guide (The Communications Network)
  http://dev.comnetwork.org/resources/downloads/AreWeThereYet.pdf

- Evaluating Communication Campaigns http://www.owlre.com/wordpress/wp-content/uploads/2008/01/factsheet_owlre_campaign.pdf

- Getting in Step Guide for Conducting Watershed Outreach Campaigns
  http://cfpub.epa.gov/npstbx/files/getnstepguide.pdf

Using Social Media

- EPA's use of social media:
  http://epa.gov/epahome/socialmedia.html

- Nonprofits Driving Behavior with Social Media
  http://www.forbes.com/sites/rogerdooley/2013/06/20/non-profits-social-media/

- Procedures for the use of social media at EPA
  http://www.epa.gov/irmpoli8/policies/representing.pdf

- Using Social Media for Social Good (PowerPoint Presentation with great 2013 statistics)
  http://www.slideshare.net/juliagulia77/say-media-presentation-nonprofits-and-social-media-julia-campbell

Examples of social media on wetland websites:

- Nebraska
  http://www.outdoornebraska.ne.gov/wildlife/programs/wetlands/

Undertaking Social Marketing (Initiating Behavior Change)

- Developing a Communications Plan: A Roadmap to Success. Brush, L. (1996) Huron River Watershed Council.

- EPA Social Marketing Website
  http://www.epa.gov/smm/web-academy/2010/may10.htm

- Social Marketing: A Community-based Approach (PowerPoint Presentation) – P.W. Schultz (2010) http://www.epa.gov/smm/web-academy/2010/pdfs/schultz5-10.pdf

- Social Marketing: Influencing Behaviors for Good – Lee (2008)
  http://www.epa.gov/owow/NPS/outreach2009/pdf/051209_0930_Lee_handout.pdf

Program Funding

States and tribes frequently identify program funding as one of the most significant challenges they face in carrying out existing Wetland Program Plans. Many times actions identified in Wetland Program Plans will require additional staff and resources. Good budgeting requires more than identifying the funding needed to run a program. The benefits of a program need to be communicated to decision-makers and elected officials so that commitment to support funding will be gained from those decision makers and elected officials well in advance of formal budget approval.

In short, a Wetland Program Plan should include developing a multi-year funding strategy with goals, benefits, and outcomes that are folded into a communication plan. People in leadership positions need information to make informed decisions about funding. People running wetland programs are in the position to provide that information.

A primary objective of a funding communication plan will be to have the funding and other resources required to carry out the Wetland Program Plan. This should include receiving funding from more than one source. For example state wetland regulatory programs are often funded from three or four sources including:

1) permit fees,
2) the state's general fund,
3) one or more U.S. Environmental Protection Agency grant programs,
4) penalties received from enforcement actions, or
5) funds forwarded from other parts of state and local government.

There is a great deal of variation in the amount of funding individual states receive from any of these sources. For example in state regulatory programs state permit fees vary from nothing ($0) in some states to tens of thousands of dollars in others. Some states have flat fees while others have a sliding scale. However, permit fees alone are not a good basis for funding an entire program because the number of permits applied for is not the same from one year to the next. A period of recession in a state generally leads to a reduction in the permits needed for homes, roadways, etc. This in turn can lead to a drastic reduction in permit fees received. Also, funding available from federal grant programs can vary from one year to the next. State

administrations and legislatures change and new players will require information about the benefits that accrue to the state and its citizens in order to continue support for wetland programs. Therefore, funding for a wetlands program requires funding from multiple sources to be sustainable through likely changes in individual funding streams.

States, tribes and other entities developing a funding communication plan can take the following steps:

- Know what the funding needs are. This should include current and future funding as well as any known areas of future need and growth. It should also anticipate the potential costs of ramping up a wetland program to respond to disasters such as floods, hurricanes, earthquakes and wildfires which all require emergency permitting.

- Develop a communication strategy to share the needs and benefits of the program with decision makers and elected officials. It is important to focus on benefits that people can understand and relate to. For example if a communication plan focuses on staffing needs without articulating short and long term benefits, it is likely to be challenging to gain long term support.

- Diversify. Individual state programs are or have been funded by: permit fees, the state's general fund, lottery sales, special fees such as real estate transfer fees, and other dedicated sources of funding.

- Identify potential federal sources including the U.S. Environmental Protection Agency, the National Oceanic and Atmospheric Administration, the Department of Interior and the Federal Highways Administration. Contracts are also possible with other agencies who may not have grant funding authority such as the U.S. Army Corps of Engineers.

- Collaborate with other state and local agencies to achieve common goals. State highway departments have funded permitting staff in a number of states to reduce the average processing time for permitting because state highway departments apply for a large number of permits. Multiples state and local agencies have pooled funding to purchase imagery for mapping and developing GIS data to support informed decision-making.

- Have ideas for funding ready when the opportunity arises. A request may come from within a state administration for recommendations on how to meet shortfalls in funding. This is a chance to recommend increases in permit fees, joint acquisition of imagery, new real estate transfer fees or even taxes. It is also an opportunity to identify incentive programs to encourage activities that will reduce future costs such as discouraging development in floodplains. Be ready.

- Become educated about what the leading influences on funding environmental programs and wetland programs in particular are likely to be in your state both by reviewing research on the topic and gaining an understanding of the decision-making framework within the state.

State administrations and legislatures have many difficult decisions to make regarding the allocation of funds to best benefit the citizens of the states. There are good reasons to spend some of these resources on protecting and conserving wetland resources. But upper level management, elected officials and the general public will not understand the benefits of funding wetland programs unless this information is provided by state agencies or other interest groups in the state interested in wetland protection and conservation. It is logical for the development of this information to be part of a Wetland Program Plan.

Section References

An excellent resource for exploring these and other concepts is the University of North Carolina Environmental Finance Center and in particular the Sustainable Financing for State and Tribal Wetland Programs website at: http://www.efc.unc.edu/projects/wetlands/. Pages of interest include:

- Compendium of Federal Funding Sources for State and Tribal Wetlands Programs, Volume I: National Sources, Released October 10, 2008 http://www.efc.unc.edu/publications/2008/wetlands/CompendiumofWetlandsFederalFundingSourcesNationalPrograms.pdf

- How wetland programs pay for regulatory activities http://www.efc.unc.edu/publications/2011/WetlandRegulatoryActivityFinance.pdf

- State by State Wetland Permit Fees http://www.efc.unc.edu/publications/2011/WetlandPermitFees.pdf

- Sustainable Financing for State and Tribal Wetland Programs http://www.efc.unc.edu/projects/wetlands/

- Wetland Program Financial Planning http://www.efc.unc.edu/publications/2008/wetlands/WetlandsFinancialPlanning.pdf

- Wetland Program Plans as a Sustainable Finance Toolhttp://efc.web.unc.edu/2013/04/02/wetland-program-plans-as-a-sustainable-finance-tool/

Other Useful Web Pages and Studies on Environmental Program Financing

- Does More Federal Environmental Funding Increase or Decreases States' Efforts http://onlinelibrary.wiley.com/doi/10.1002/pam.20547/abstract

- How to Pay: Challenges and Solutions of Environmental Protection - ICMA Webcast Materials
  http://icma.org/en/icma/knowledge_network/documents/kn/Document/2613/How_to_Pay_Challenges_and_Solutions_of_Environmental_Protection__ICMA_Webcast_Materials

- Local Government Environmental Assistance Network
  http://www.lgean.org/financing.cfm

- New England Environmental Finance Center http://efc.muskie.usm.maine.edu/

- Policy Influence and Policy Responsiveness in State Pollution Control
  http://onlinelibrary.wiley.com/doi/10.1111/j.1541-0072.1994.tb02178.x/abstract

- Responses to Federal Devolution: Measuring State Environmental Efforts
  http://www.jstor.org/discover/10.2307/4355151?uid=3739712&uid=2&uid=4&uid=3739256&sid=21102772643541

- University of Maryland Finance Center http://www.efc.umd.edu/

Conclusion

Wetland Program Plans can establish priorities, set short and long term program development goals and provide states and tribes with a blueprint for future action. It can serve as a multi-year strategy to support, direct and measure a state or tribes progress towards improving its existing wetland program and ultimately the quality and quantity of wetland resources.

A wetland plan must be tailored to the unique opportunities and challenges that occur in a given state or on tribal lands. Wetland programs vary dramatically from state to state and tribe to tribe around the country. It is up to the state or tribal wetland program staff working with their leadership and partners to determine the process, priorities, and content of their plan.

The strategic thinking that is encouraged through wetland program planning enables wetland managers to respond not only to negative challenges but also to recognize opportunities when they occur. Wetland Program Plans provide a chance to set the stage for identifying actions to take to address known challenges and anticipate future problems.

States that have completed Wetland Program Plans have benefited by 1) focusing efforts on actions most likely to benefit wetland resources, 2) creating new and stronger partnerships, and 3) gaining support from stakeholders, elected officials and the public.

Those states that have benefited the most from strategic planning have embraced a collaborative planning process. They have developed plans which include specific actions that can be tracked to evaluate success. They have recognized that effective communication is a key component in a successful plan and have included actions to share their plan, its goals and the reasons it is important with elected officials, stakeholders and the general public. They have included the development of a future funding strategy in their planning effort.

Ultimately protection and conservation of wetland resources requires the broad support of the citizens of a state or tribe. The must understand what's at risk, why is it important, and what will it take to fix it. A Wetland Program Plan provides the opportunity to articulate the answers to these questions and the steps that can be taken to ensure current and future generations enjoy the benefits of diverse, high quality wetland resources.

APPENDICES

APPENDIX A: CASE STUDIES

Core Elements: *Monitoring and Assessment, Regulation, Voluntary Restoration Program, Water Quality Standards for Wetlands*

Overview.

Oregon's Wetland Program Plan (WPP) focuses on wetland protection and restoration strategies. The WPP outlines short-term and long-term objectives. The plan was developed under a 2010 EPA development grant by the Wetlands and Waterways Conservation Division of Oregon Department of State Lands. It was approved for the 2011-2016 time period. It is used as a communications tool designed to help partners stay informed and connected to wetland conservation and restoration planning.

Title or Type of Wetland Program Plan: Oregon Wetland Program Plan, 1st Edition, December 2011

Timeframe of Plan or Action Plan: 2011-2016. Oregon's five-year WPP will be updated every three years. A companion five-year strategy was also developed as part of the process: *Wetland Monitoring and Assessment Strategy for Oregon* (2012).

Contacts/Agency: Oregon Department of State Lands, Kathy Verble, Acting Wetlands Program Manager, 775 Summer Street, NE, Suite 100, Salem, OR 97301, 503-986-5295, kathy.verble@state.or.us.

Planning Process: In 2004, the Oregon Department of State Lands (DSL) and Department of Land Conservation and Development (DLCD) jointly published a Wetland Planning Guidebook to help city planners, wetland managers and others in their coordinated land use and riparian areas planning. In 2010, the Department of State Lands and its partners identified various wetland objectives and strategies for regulation, monitoring, assessment, water quality and

voluntary restoration. Several other state agencies contributed to the development of this plan, including the Department of Environmental Quality, Department of Fish and Wildlife, Watershed Enhancement Board, Department of Land Conservation and Development, Water Resources Department; Parks and Recreation Department and the South Slough National Estuarine Research Reserve. Federal agencies included the US Forest Service and their Pacific Northwest Research Station, Natural Resources Conservation Service, Army Corps of Engineers, and the Environmental Protection Agency, Region 10. Oregon was the first state in the region to submit an approved WPP.

Integration of Core Elements from EPA's ESTP Initiative: Objectives and action plan steps are laid out in the plan for each of the four core elements: 1) Monitoring and Assessment; 2) Regulatory; 3) Voluntary Wetland Restoration & Protection; and 4) Water Quality Standards for Wetlands.

As part of the planning process, Oregon developed a five-year companion strategy, *Wetland Monitoring and Assessment Strategy for Oregon* (2012), which supports the objectives in the WPP. This five-year strategy serves as a significant action plan for Monitoring and Assessment, a Core Element of the ESTP Initiative.

The Wetland Monitoring and Assessment Strategy identified the need for a strong wetlands monitoring program, citing several past reports on wetlands in Oregon as well as national findings that wetland monitoring plays a significant role in monitoring the effects of climate change on water resources (2011). The objectives outline the need to 1) establish a wetland monitoring work group; 2) develop and refine wetland assessment methods; 3) assess and report on Oregon's wetlands; 4) evaluate the effectiveness of wetlands conservation and restoration efforts; 5) apply wetland monitoring and assessment information to natural resource management agencies and the public. The strategy recommends taking a multi-level approach, including rapid assessments, landscape assessments and intensive site assessments.

Monitoring & Assessment: The main objectives of the "Monitoring & Assessment" element of the WPP are to develop and maintain a wetland monitoring and assessment coordinated framework for Oregon; to monitor the status of wetlands in the state of Oregon consistent with *Elements of a State Water Monitoring and Assessment Program for Wetlands* (EPA 2006) by using EPA's three-tier approach; and to provide decision-makers with the best possible information on the extent, type, and health of our state's wetlands and the ecosystem services they provide. Aspects of the monitoring and assessment element include these action steps:

- Collaborate with State & Federal aquatic resource partners
- Develop a five-year monitoring strategy
- Establish an Oregon Wetlands Monitoring Work Group
- Evaluate and develop monitoring standards
- Integrate wetland monitoring efforts with other aquatic resource monitoring
- Establish a data management approach for coordinated data standards, storage, management, and dissemination of monitoring and assessment data

- Collaborate with and support the Institute for Natural Resources, the Wetlands Conservancy, and Oregon State University in the continued development of the Oregon Wetlands Portal to integrate and share wetland information and provide online wetland tools, such as the support tool for applying the Oregon Rapid Wetland Assessment Protocol (ORWAP)
- Develop Rapid Assessment and Intensive Site Assessment tools, methods

Regulatory: The goal of the regulatory program is to avoid and minimize wetland losses, preserve wetland functions, and replace unavoidable or unauthorized losses with sustainable wetlands of at least equal size and functionality. The objectives are to continue development of strong and effective state regulatory programs by efficiently utilizing regulations, policies and technological advances, collaborating and streamlining, improving mitigation successes, developing tools, improving data management to maximize efficiency and assist in decision-making, strengthening enforcement efforts, providing outreach and tracking and evaluating program activities and environmental results. Action steps to accomplish these objectives include these steps:

- Move from an acreage based compensatory wetland mitigation based approach to functions-based replacement within an eco-system rubric
- Explore applicable options to enable electronic web-based regulatory activities
- Develop Removal-Fill guide to help applicants
- Develop Department of Environmental Quality Internal Management Directives for the Permit Writers' Manual in order to provide guidance and tools for staff
- Develop and implement General Permits (GPs)
- Participate in the Governor's Regulatory Streamlining and Simplification Project

Actions have also been taken as part of Oregon's Integrated Water Resource Strategy, which will provide an action plan that considers water quantity, water quality and ecological factors.

Voluntary Restoration & Protection: The goal of the Voluntary Restoration & Protection element is to maintain, improve and increase healthy wetland ecosystems through protection and restoration. The action plan outlines steps to build and maintain strong partnerships with local, state, federal, nonprofit organizations and private landowners for habitat restoration and conservation. This element of the WPP suggests taking a watershed or landscape-level approach to restoration planning.

Water Quality Standards for Wetlands: Oregon participated in the Association of State Wetland Managers' work group on Water Quality Standards for Wetlands in 2012. The goal of this element is to restore, maintain and enhance the quality of Oregon's wetlands in accordance with the Clean Water Act as well as to work with Oregonians for a healthy, sustainable environment. In order to achieve this goal, action steps are outlined within the WPP, briefly listed below:

- Participate in the National Wetlands Condition Assessment and the National Wetlands Monitoring and Assessment Work Group
- Collaborate with monitoring partners to identify wetland monitoring designs and indicators
- Collect water quality, sediment and tissue data in perennial wetlands to assess risks from toxic contaminants to aquatic life uses.
- Develop potential bio-criteria for wetland condition assessments.

Improved Wetland Mapping: The WPP describes several action steps to improve wetland mapping in Oregon. These include development of Landscape Assessment tools, participation in the National Wetlands Mapping Consortium and continued wetland mapping efforts. The wetland program also plans to investigate the utility of enhancing NWI maps with LLWW descriptors. The state also plans to update and restructure the Oregon Statewide Wetland Inventory (SWI) and to develop a DSL online wetland mapping tool.

Interagency Coordination or Collaboration: Oregon's Monitoring and Assessment strategy action plan includes several instances of interagency coordination and collaboration with other natural resource management partners. In addition, the Regulatory element of the action plan includes steps to update the interagency Wetland Delineation Report Guidance, which will involve the U.S. Environmental Protection Agency, Corps of Engineers and Department of State Lands.

Communications and Outreach: In each element of the WPP, there are opportunities for education and outreach. The WPP outlines action steps to provide outreach, education and technical assistance to the public to promote sustainable protection and the best use of Oregon's water resources. For example, the state plans to develop online training platforms for local government staff for Wetland Land Use protocols and the local wetland inventory (2013-2014). A number of relationship-building activities are planned.

Related Links:

Wetland Planning Guidebook http://www.oregon.gov/dsl/WETLAND/docs/wet_plan_guide.pdf
Monitoring and Assessment Strategy (2012)
http://www.oregon.gov/dsl/WETLAND/docs/oregon_monitoring_assessment_strategy.pdf

Full Wetland Program Plan:
http://www.oregon.gov/dsl/WETLAND/docs/oregon_wetland_program_plan.pdf

Case Study: Rhode Island

Core Elements: *Monitoring and Assessment, Regulation, Voluntary Restoration Program*

Overview.

The main objective of Rhode Island's Wetland Program Plan (WPP), which the state submitted to EPA in 2011, was to improve the state's Freshwater Wetlands Program.

Prior to development of this WPP, Rhode Island had developed its wetland monitoring and assessment protocols for its Freshwater Wetlands Monitoring and Assessment Plan (2006) with a five-year timeline. This previous plan for monitoring and assessment reflected recommendations from an earlier report on wetland mapping opportunities in the state ("Options for Mapping Rhode Island's Wetlands," 2001).

Title or Type of Wetland Program Plan: Wetland Program Core Elements Plan

Timeframe of Action Plan: 2011-2013

Contacts/Agency: Rhode Island Freshwater Wetlands Program, Department of Environmental Management, Russell Chateauneuf, Chief, Groundwater and Wetlands Protection Program, 235 Promenade Street, Providence, RI 02908-5767, 401-222-4700 x7700, russ.chateauneuf@dem.ri.gov.

Planning Process: Rhode Island Freshwater Wetlands Program established a small work group. The WPP contains an action plan to improve the state's wetland program. It brought together the objectives and built on the existing framework of the state's Monitoring & Assessment Program (and earlier plan), along with the state's 2010 Wetland Rules, which served as a basis for much of the outreach and public education elements of this plan. The WPP contains an action plan to improve the state's wetland program. It brought together the objectives and built on the core elements of the state's wetland program, including the state's new wetland rules and regulations (2010), which served as a basis for much of this plan. There is a strong focus on Monitoring & Assessment, although it also addresses Regulation and Voluntary Restoration. For information on the state's Wetland Rules, visit this website: http://www.dem.ri.gov/pubs/regs/index.htm#WR

The Rhode Island Freshwater Wetlands Program compiled the Wetland Program Plan. All of these changes will require outreach and education efforts to inform the public about the state's new Wetland Rules and the importance of protecting wetlands in general.

Core Elements from EPA's ESTP Initiative: Objectives and action plan steps are laid out in the plan for three of the four core elements: 1) Regulation, 2) Monitoring and Assessment and 3) Restoration & Protection.

Monitoring & Assessment: One of the strongest aspects of the Freshwater Wetlands Program is its monitoring and assessment program. A major goal of this core element is to assess the state's wetlands condition and to understand cumulative impacts of human use on wetlands. The action steps outlined in the Wetland Program Plan build on the existing and ongoing Monitoring and Assessment Plan (2006), as well as projects conducted for the Rhode Island Natural History Survey and other collaborative projects with the New England Interstate Water Pollution Control Commission (2006). The action plan outlines these action steps:

- Complete the Wetland Pilot Demonstration Grant project – validate impervious surface analysis
- Explore use of the Floristic Quality Assessment Index as a tool (2011-2012)
- Update the Freshwater Wetlands Monitoring and Assessment Plan (2006)
- Convene meetings of the wetland programs, advisors and staff; evaluate progress
- Identify new monitoring needs
- Identify sustainable financing for monitoring program
- Draft Monitoring & Assessment Plan (2013)
- Integrate this plan with the RI Surface Water Monitoring Strategy (2005)
- Coordinate collaborative efforts for monitoring and assessment

The robust plan for the Monitoring and Assessment Program Plan includes coordinating with the state's GIS lab to improve wetland mapping; developing biological indicators; developing an annual assessment project; and incorporating the findings with data that is available on the Department of Environmental Management (DEM) website. For more information about Rhode Island's Freshwater Wetlands Monitoring and Assessment activities, see this webpage: http://www.dem.ri.gov/programs/benviron/water/wetlands/monitor.htm

Regulation: Within this core element, the WPP outlines several action steps to avoid and minimize alterations and losses of wetlands, with the goal of protecting their important functions and values they provide and to facilitate effective restoration. In 2011, the Freshwater Wetlands program reported on permit compliance, developed related guidance and training documents, and continued research on wetland mitigation as part of a multi-phase mitigation research project. A secondary objective is to improve the information sharing for wetland permits at the local/municipal level. The WPP describes these action steps, listed below, with the goal of developing guidance and methods to improve wetland protection and the regulatory program:

- Publicize the Wetlands BMP manual
- Implement the RI Stormwater Installation and Design Manual
- Conduct trainings on stormwater manual
- Coordinate the Wetlands/Water Quality Restoration Team

A fourth regulatory set of activities includes modifying regulations to facilitate restoration efforts to include "connectivity projects." The Freshwater Wetlands Program convened a work group in 2011, identified proposed regulatory changes in 2012 and intends to draft and implement changes through rulemaking in 2013.

Improved Wetland Mapping: The Freshwater Wetlands Program is actively coordinating with the DEM Office of Water Resources to complete a wetlands dataset, although the costs involved with developing color maps remains a constraint. Due in part to this constraint, the Freshwater Wetlands Program relies on the U.S. Fish & Wildlife National Wetland Inventory (NWI) maps for Rhode Island, which were completed / updated in 2009. For more about wetland mapping in Rhode Island, see this webpage: http://www.dem.ri.gov/programs/benviron/water/wetlands/wetldocs.htm#mapping

Voluntary Restoration & Protection: The goals of this element are 1) to restore the quantity and quality of wetlands and their functions and values; and 2) to develop a freshwater wetland restoration strategy in collaboration with other voluntary restoration initiatives. There is increased interest in collaborative restoration, e.g. Save the Bay, Narragansett Bay Estuary Program. In 2011, the Freshwater Wetlands Program developed this strategy as well as an inventory on completed wetland restoration projects. In 2011 and 2012, it reported on vernal pool mapping projects. An important part of this action plan includes an enhanced data system with methods to track and report on restoration outcomes. Another aspect of the restoration and protection element outlined these action steps to identify potential wetland restoration opportunities:

- Research the past records of various programs (land management, open space, etc.) to identify potential restoration opportunities
- Collaborate through the RI Habitat Restoration Team (2011-2013)

Interagency Coordination: The WPP makes reference to several collaborations within the Rhode Island Department of Environmental Management. For example, there are action steps that involve coordination with the state's Stormwater Program, Habitat Restoration Team, DEM's Water Resource Office and other initiatives, including nonprofit organizations.

Education & Outreach: The Freshwater Wetlands Program offers information on wetlands' functions, values, identification and regulations on the DEM website here: http://www.dem.ri.gov/topics/wetlands.htm In the past, it has also presented workshops on wetland issues for municipal officials (2008) and wetland consultants (2009). There is no specific mention of education and outreach as part of the WPP, however, it is clearly part of the state's wetland program to involve education and outreach.

Related Links:

Full Wetland Program Plan: http://water.epa.gov/type/wetlands/upload/ri_wpp.pdf

Case Study: Utah

Core Elements: *Monitoring and Assessment, Regulation, Voluntary Restoration Program, Water Quality Standards for Wetlands*

Overview.

Several state agencies involved with Utah's wetlands program developed a Wetland Program Plan in 2011. It serves as a joint plan and a communications tool—mapping out the strategy and framework for the components of the state's wetlands program. The purpose of the WPP is to guide the wetland monitoring and assessment activities for Utah's Geological Survey and Utah Division of Water Quality, and to act as a collaborative planning tool between the various agencies involved at the state and federal level. Ultimately the WPP will be incorporated into a comprehensive statewide Wetland Conservation Strategy for Utah. The objectives and action items described in the plan address the four elements of EPA's Core Elements Framework. One unique aspect of this WPP is a chart and matrix that combines the major objectives and actions.

Title or Type of Wetland Program Plan: Utah's Wetland Program Plan (Version 1)

Timeframe of Plan or Action Plan: 2011-2016

Contacts/Agency: Toby Hooker, Utah Department of Natural Resources and Utah Geological Survey; Jodi Gardberg, Utah Division of Water Quality and Department of Environmental Quality

Planning Process: The Utah Geological Survey (UGS) and the Utah Division of Water Quality (UDWQ) are coordinating on a comprehensive strategy for monitoring and managing wetlands. The WPP is organized into major projects for each year of the timeframe, integrating the four core elements, addressed in each project's objectives. As part of planning process, UGS and UDWQ will meet with state and federal agencies and nongovernmental wetlands groups/teams to clearly define the state's overall wetlands monitoring goals.

Core Elements from EPA's ESTP Initiative: The four core elements are 1) Monitoring and Assessment; 2) Regulatory; 3) Voluntary Wetlands Restoration and Protection; and 4) Water Quality Standards for Wetlands. Each of these elements is addressed in the major projects

planned and outlined in the WPP. The plan is organized by project and by core element. Thus, it details the strategy and the objectives within each element for each year—by project.

Monitoring & Assessment: Two major goals of Utah's Wetlands Program are to develop a sustainable strategy to map Utah's remaining wetlands and to evaluate the extent and condition of spring-fed wetlands. In 2011, Utah began to evaluate the ability of two Rapid Assessment Methods (RAM) to measure wetland condition and adapt a RAM model to the Great Salt Lake wetlands. These action steps were outlined for 2011:

- Expand hydrogeomorphic (HGM) reclassification of currently available National Wetlands Inventory (NWI) data for GSL wetlands
- Characterize the quantity and quality of desert-basin spring-fed wetlands in Snake Valley, and relate the wetland hydrologic functions that support wetland condition to wetland-associated wildlife habitat and other ecosystem services
- Compile and evaluate 2011 GSL impounded wetland data to evaluate the effects of flooding on water quality indicators
- Design a survey to report the ecological condition of GSL impounded wetlands (50 randomly selected sites)
- Develop a Sampling Analysis Plan and Standard Operating Protocols for GSL impounded wetlands

Regulatory: Utah's WPP outlines important objectives and action steps to adopt regulation or rules to implement state water quality standards. These action steps were outlined for 2011:

- Benchmark with effective 401 programs developed by other states and develop draft rules for Utah's 401 certification program
- Develop rules or guidance that identify UDWQ's goals and responsibilities for the 401 certification program
- Develop procedures to operate according to a clear and effected set or criteria for reviewing and responding to applications
- Coordinate among agencies, programs and industry groups to reduce duplicative efforts by the programs and regulated public, including review of 404/401 programs

Voluntary Restoration & Protection: The primary goal is to define restoration and protection goals clearly and to establish compatible goals across the agencies and nongovernmental partners. One of the action steps is to develop pilot projects focused on RAM development.

Water Quality Standards for Wetlands: These action steps were outlined for the five-year timeframe:

- Initiate Great Salt Lake's Willard Spur Research Program designed to establish defensible protections (site specific numeric criteria, anti-degradation protection clauses and beneficial use changes) for the Willard Spur wetlands
- Benchmark with effective 401 programs developed by other states and develop draft rules for Utah's 401 certification program

- Gather and analyze monitoring data and other information as basis for WQS
- Establish Reference Condition for defined wetland types Establish and adopt wetland specific designated uses to be achieved and protected
- Establish and map designated uses for different wetland types for GSL wetlands
- Establish and adopt narrative criteria that quantitatively describes the condition or suite of functions that must be achieved to support a designated use
- Establish narrative biological criteria for GSL Wetlands
- Develop technical documents to support the narrative criteria with numeric criteria for GSL wetlands 11
- Establish Reference Condition for defined wetland types
- Establish and map designated uses for different wetland types for Great Salt Lake (GSL) wetlands
- Establish narrative biological criteria for GSL Wetlands

Interagency Coordination and Collaboration: The WPP describes several instances of interagency coordination, including meetings with state and nongovernmental partners to coordinate discussion about wetland restoration and protection. In addition to the state agencies listed above, the Utah Reclamation Mitigation and Conservation Commission is also working toward developing state-wide wetland conservation plans. The Commission entered into an agreement with The Nature Conservancy, Utah Division of Wildlife Resources, U.S. Department of the Interior, Bureau of Reclamation, Bureau of Land Management, and U.S. Fish and Wildlife Service for acquisition and management at the Utah Lake Wetland Preserve.

Utah Reclamation Mitigation and Conservation Commission:
http://www.mitigationcommission.gov/wetlands/wetlands_ulwp.html

Full Wetland Program Plan is available here:
http://water.epa.gov/type/wetlands/upload/utah_wpp.pdf

Case Study: Virginia

Core Elements: *Monitoring and Assessment, Regulation, Voluntary Restoration Program, Water Quality Standards for Wetlands*

Overview.

Virginia's Department of Environmental Quality, in collaboration with Virginia Institute of Marine Science and Center for Coastal Resource Management, submitted the Wetland Program Plan (WPP) to the Environmental Protection Agency (EPA) in 2011. The WPP provides a framework to improve its wetland programs over a five-year period (2011-2015). The plan also incorporates local government involvement via an agreement with the Chesapeake Bay Program (2008). In addition, the plan is also on the EPA webpage here: http://water.epa.gov/type/wetlands/upload/virginia_wpp.pdf

Title or Type of Wetland Program Plan: Comprehensive Wetland Program Plan – Commonwealth of Virginia

Timeframe of Plan or Action Plan: 2011-2015

Contacts/Agency: Dave Davis, Virginia Department of Environmental Quality

Planning Process: Virginia's Department of Environmental Quality – Wetlands Program developed a Wetland Program Plan to assess the management of wetland resources in the state and to identify opportunities to improve the program. The WPP was designed as a communications tool. It outlines the existing goals of the wetlands program and the action steps to achieve those goals. The U.S. Environmental Protection Agency (EPA) provided guidance during the process of developing the WPP.

Core Elements from EPA's ESTP Initiative: Virginia's Wetland Program Plan addresses all four core elements, but also includes three additional sections: Planning & Sustainability, Information Acquisition and Outreach & Education. Under its Planning & Sustainability section, the plan addresses impacts from sea level rise when discussing its strategy for managing coastal and tidal wetland losses.

Monitoring & Assessment: The primary objectives are to strengthen the monitoring and assessment element through the incorporation of new data, the integration into the overall water quality program and processes to better inform decision-making. This includes an objective to re-calibrate wetland assessment models. This effort is underway by DEQ and the Center for Coastal Resources Management (CCRM) at Virginia Institute of Marine Science (VIMS). The assessment method has three levels of data collection. A secondary objective is to update the Monitoring and Assessment Strategy (2011-2013).

Regulatory: The main objectives are to provide the ability to make better permitting decisions relative to cumulative impacts; preserve wetland function by evaluating wetland condition over time; avoid and minimize wetland loss; evaluate performance of compensatory wetland mitigation in replacing wetland acreage and function and evaluate the effectiveness of our regulatory program. Several action items are listed to achieve these objectives:

- Geo-locate preserved wetlands and evaluate the completeness of DEQ wetland permit records for preserved wetlands.
- Track unpermitted wetland impacts.
- Work with the VDOT to enhance the Wetland Dataviewer to accommodate VDOT permit review and NEPA documentation needs.
- Enhance effectiveness of mitigation bank tracking, evaluation and guidance.
- Develop a VMRC general permit for living shorelines.
- Continue to assess the effectiveness of tidal wetland management activities.

Voluntary Restoration & Protection: The main goal of this element is to identify the amount of nonregulated restoration activities counted towards the attainment of a net resource gain. There is one objective and action to be taken to achieve this goal: Develop and implement a voluntary wetland restoration tracking system. This project is underway.

Water Quality Standards for Wetlands: The main goal of this element is to develop wetland quality narrative standards, which will improve the quality of wetlands in the state. The Center for Coastal Resources Management has begun the process of assessing the relationship between nontidal wetlands and ambient water quality. A prototype is underway (2012-2015).

Interagency Coordination and Collaboration: The WPP describes several instances of interagency coordination and collaboration. Collaborating agencies and partners include the Virginia Institute of Marine Science, Virginia Department of Game and Inland Fisheries, Department of Conservation and Recreation, NRCS, FWS, NOAA-National Marine Fisheries Service and Virginia Department of Historic Resources.

Planning & Sustainability: The WPP describes objectives and goals for long-term sustainability. One such goal is to promote the use of living shorelines and improve quality of services through communication efforts. There are two main objectives for this area of the plan: 1) Develop community-scale comprehensive coastal resource management plans (CCRMP) and 2) Establish and maintain a process for improved communication among state, federal, local non-governmental and governmental partners managing or working in wetlands.

Information Acquisition: The WPP identifies the importance of providing accurate and timely data for continued enhancement of the Wetland Dataviewer, a tool that allows users to access NWI data for Virginia wetlands by county or municipality. For more information about this tool, click here. This tool is critical to tracking the wetland gains and losses in the state, applicable to Regulation, Voluntary Protection and Monitoring & Assessment action items in the plan.

Outreach & Education: The WPP outlines several objectives to provide outreach education to better inform the public and resource management decision-makers. For example, Virginia DEQ updated and expanded the *Public Guide to the Wetland Permitting Process in Virginia* (2012) and other print materials. See http://www.deq.state.va.us/Programs/Water/WetlandsStreams.aspx for these publications. The DEQ is also working to improve the information presented on its website and maintains communication with local government decision-makers on wetlands issues.

Case Study: Vermont

Core Elements: *Monitoring and Assessment, Regulation, Voluntary Restoration Program, Water Quality Standards for Wetlands*

Overview.

The main objective of Vermont's Wetland Program Plan (WPP), which the state submitted to EPA in 2001, was to plan the implementation of the state's new Wetland Rules (September 15, 2010). Vermont participated in the National Wetland Condition Assessment in 2011 and in preparation for that, the state's wetland program refined its wetland monitoring and assessment protocols. The WPP contains an action plan to improve the state's wetland program. It brought together the objectives and built on the core elements of the state's wetland program, including the state's revised Wetland Rules, which served as a basis for much of the outreach and public education elements of this plan. For information on the state's Wetland Rules, visit this website: http://www.vtwaterquality.org/permits/htm/pm_cud.htm

A small work group at Vermont Department of Environmental Conservation (DEC) compiled the Wetland Program Plan. At the same time, Vermont's wetland program has also been developing the state's water quality standards and anti-degradation policy, which are parts of this WPP. Some aspects of the wetland program have been reorganized. For example, the Center for Clean and Clear is now the Ecosystem Restoration Program within the Water Quality Division. The wetlands program will take the lead in coordinating the wetland restoration and conservation efforts going ahead, as part of this plan. All of these changes will require outreach and education efforts to inform the public about the state's new Wetland Rules and the importance of protecting wetlands in general.

Title or Type of Wetland Program Plan: Strengthening Core Elements of a Comprehensive Wetlands Program in Vermont

Timeframe of Plan or Action Plan: 2011-2015 (To be updated every 5 years)

Contacts/Agency: Vermont Department of Environmental Conservation. Alan Quackenbush, Wetlands Program Manager, is the lead contact for the WPP. (Add contact info here)

Planning Process: Vermont Department of Environmental Conservation established a small work group within the wetlands program. The WPP contains an action plan to improve the state's wetland program. It brought together the objectives and built on the core elements of the state's wetland program, including the state's revised Wetland Rules, which served as a basis for much of the outreach and public education elements of this plan.

This plan includes the four core elements identified by the U.S. Environmental Protection Agency (EPA) as part of their ESTP Initiative. These are 1) monitoring and assessment; 2) regulatory; 3) voluntary restoration and protection; and 4) water quality standards for wetlands.

Core Elements from EPA's ESTP Initiative: Objectives and action plan steps are laid out in the plan for each of these core elements.

Monitoring & Assessment: An integrated approach is applied to monitoring and assessment. There is an emphasis on monitoring and assessment in the WPP. For example, there is a plan for improved wetlands mapping (Geographic Information Systems mapping). Monitoring and assessment information is integrated into the Ecosystem Restoration Program and available on that webpage. Aspects of the monitoring and assessment element include these action steps:

- Participation in the National Wetlands Condition Assessment with field sampling of 8 sites in 2011
- Establish criteria for selecting long-term monitoring sites 2011-2012; establish long-term monitoring sites; monitor and assess in 2012-2015.
- Conduct the Rotational Basin Wetlands Assessment; select and assess 20 to 25 wetlands per year as part of the basin assessment project (2012-2015)
- Refine and calibrate the Vermont Rapid Assessment Method (VRAM)
- Revise the Quality Assurance Project Plan as needed
- Conduct sampling and assessments (2011-2015)
- Complete final report in the Integrated 305(b)/303(d) Report in 2012 and 2014.

The Wetland Program Plan outlines the action steps to integrate the Wetlands Monitoring and Assessment activities with traditional Water Quality Division monitoring and assessment projects (wadeable streams, lakes and ponds). The plan lays out these steps:

- Revise Vermont's Water Quality Monitoring Strategy to include updated information on the wetland monitoring and assessment activities
- Decide on new / revised sampling design and methods (Water Quality Division and information gained in the National Wetland Condition Assessment)
- Refine the VRAM as a tool to help define Tier 2.5 type wetlands in Water Quality Standards (2011-2015).

Regulatory: The goal of the regulatory program is to manage the program effectively and efficiently to protect Vermont's significant wetlands and to achieve no net loss of wetland functions and values. A key objective is to make the necessary changes in the Wetland Program to reflect the new Wetland Rules and related resources available to the regulated community. A

public outreach component is included with the regulatory element, in order to build public support for wetlands protection and regulations. Forms and reference materials related to these action steps are available for the public on the VT DEC's wetland permitting webpage: http://www.vtwaterquality.org/permits/htm/pm_cud.htm Action steps to adopt regulations and rules to reflect the statutes include these steps:

- Revise the application form and guidance 2011-2013
- Identify and map significant wetlands 2011-2015
- Finalize draft of wetlands permit for public review and comment in 2011
- Refine Functions and Values Checklist in 2011
- Develop and refine VRAM checklist (tested in 2011 field season)
- Develop a system or process to ensure regular compliance monitoring of permit conditions and restoration projects 2013-2015.

Actions will also be taken to perform public education and outreach about wetland protection and regulations. The plan outlines several action steps, including a new guidance for the general public on the new Wetland Rules (2011), reflecting the state changes and wetlands' value, importance and identification. The Wetlands Program directs the program staff to revise handouts, materials and provide ongoing guidance for consultants and the regulated community on the application and review procedures in order for them to conform to the new rules. In addition, the state held a series of workshops in 2011 and 2012 for interested towns on the new rules, and updated its website. A third tier of the regulatory framework within the WPP outlines action steps to work cooperatively with federal partners for a unified regulatory approach.

Improved Wetland Mapping: The WPP describes several action steps to improve wetland mapping in Vermont. These include developing standards and methodologies for adding to and/or revising Vermont Significant Wetland Inventory (VSWI) maps. Currently the goal of the VSWI maps is to identify the general location of significant wetlands in the state—and is not meant to be relied upon for permitting purposes. The state intends to integrate permit information into wetland mapping and to develop a means for the public to submit wetland delineation information electronically with the goal of improving the VSWI maps. For more information about the VSWI mapping program and activities, see this webpage: http://www.vtwaterquality.org/wetlands/htm/wl_vermontsigwetinvmaps.htm

Voluntary Restoration & Protection: The goal of the Voluntary Restoration & Protection element is to increase wetland acreage through restoration and promote sound wetland stewardship on both public and private lands. The WPP outlines action steps to establish consistent and compatible goals across relevant agencies and to establish partnerships. VT DEC makes publications and reference materials for landowners and the regulated community available on this webpage (wetland publications): http://www.vtwaterquality.org/cfm/ref/ref_wetlands.cfm

Water Quality Standards for Wetlands: The plan refers to development of Water Quality Standards for Wetlands. A goal is to understand and address the relationship between wetlands

and the Vermont Water Quality Standards to ensure that wetlands are treated as waters within the state water quality programs. In order to achieve this goal, action steps are outlined within the WPP, briefly listed below:

- Review existing information to help establish the relationship between wetlands and water quality standards—as well as "waters of the state" and the anti-degradation policy
- Participate in Water Quality Division anti-degradation policy work group
- Provide a framework for wetlands in the new anti-degradation policy
- Continue discussion with Natural Resources Board Water Panel and the Water Quality Division staff on need to include wetlands in Vermont's Water Quality Standards

In addition to addressing this relationship, the plan outlines steps to use 401 Certification in the context of 404 projects. There is a need to develop a more transparent process for 401 water quality certification including information required for the anti-degradation evaluation process.

Interagency Coordination: One of the three tiers of the regulatory framework of the WPP outlines action steps to work cooperatively with federal partners for a unified regulatory approach. Vermont DEC and EPA Region 1 established an In-Lieu fee Interagency Review Team. This team will take part in approving projects and selecting sites (2011-2015). The state will evaluate the effectiveness of the In-Lieu Fee Program (2013-2015). It participated in the VT General Permit discussion for the 2012 renewal, including changes reflecting the anti-degradation policy.

Education & Outreach: The state's Wetland Program offers ongoing guidance and information to the public and regulated community on wetland functions, values and identification, as well as regulatory information. The DEC website has wetland fact sheets and presentations on the new Wetland Rules and wetland delineation information available for download at this website: http://www.vtwaterquality.org/wetlands/htm/wl_factsheets-index.htm

Within the **Voluntary Restoration & Protection** element, interagency coordination is emphasized in the plan, which outlines these action steps:

- Convene meeting of partners and hold quarterly coordination meetings on restoration efforts (2011-2015)
- Identify projects through working with the rivers program, watershed planners, federal partners –and identify opportunities for voluntary restoration
- Develop a wetland restoration funding directory (local, state, federal, private)

In summary, the WPP outlines clear action steps and benchmarks for achieving the goals and objectives for the state's Wetland Program. It connects the wetlands program to other statewide water strategies and programs, integrates approaches and utilizes interagency coordination. There is a major focus on implementing the state's new Wetland Rules. Some details on conservation and restoration partnerships are more generally, but the plan outlines these as important steps for collaboration to achieve its goals.

Case Study: Wisconsin

Core Elements: *Monitoring and Assessment, Regulation, Voluntary Restoration Program, Water Quality Standards for Wetlands*

Overview.

The state of Wisconsin wrote a wetland program plan in 2001. It was a plan authored primarily by Wisconsin DNR that expired in 2006. When the state's wetland program staff began the process of revising the 2001 plan, they took a collaborative approach. The state's wetland program identified potential partners—about 15 partners at first, and created a Wetland Team with a shared vision to Protect, Restore and Explore Wisconsin wetlands. It took the Wetland Team a year and a half to complete the 2008 revision, *Reversing the Loss*, a collaborative effort for the whole state of Wisconsin; this was not solely a project of Wisconsin DNR.

By involving all of the members of the team, Wisconsin DNR strengthened its strategic planning tool by including actions that other team members could take on. For instance, some of the partners might take a lead role in working with local government or education and outreach, while other partners might play a part in monitoring and research activities, or mapping. The state then can concentrate on other areas identified in the plan, such as regulation, monitoring and assessment. The Wetland Team decided to use a broad approach with a main wetland program plan and to supplement it with subsequent two-year action plans. This collaborative approach is a good example of a process that created an effective Wetland Program Plan.

Title or Type of Wetland Program Plan: Wisconsin's Wetland Strategy: Reversing the Loss – and Wetland Team Action Plan(s)

Timeframe of Action Plans: 2011-2012, 2013-2014

Contacts/Agency: Wisconsin Department of Natural Resources, Wetland Team

Planning Process: The Wetland Team decided to use a broad approach with a main wetland program strategy (Reversing the Loss) and to supplement it with subsequent two-year action plans. For additional background on this collaborative process, visit this webpage: http://dnr.wi.gov/topic/wetlands/success.html

Reversing the Loss: A Collaborative Strategy—the basis for the Action Plans. "Reversing the Loss: A Strategy to Protect, Restore and Explore Wisconsin Wetlands" is a public-friendly brochure-like document used for public outreach and education, as well as rationale for defending for the state's wetland program when called under fire from state legislators. The Wisconsin Wetland Team included a long list of partners ranging from state agencies (Wisconsin DNR, Department of Transportation, Department of Agriculture, etc.), federal agencies (U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish & Wildlife Service, etc.), nonprofit organizations (Wisconsin Wetlands Association, Ducks Unlimited, etc.) and various other entities, e.g. Southeast Wisconsin Planning Commission, and individuals. For a direct link to Reversing the Loss, click here.

Action Plans. Each action plan lays out the priorities for the Wetland Team for a two-year period and reflects on the main goals and objectives of the 2008 *Reversing the Loss* Wetland Strategy. The action plan for the 2011-2012 timeframe and incorporated the four core elements from EPA's Initiative, in addition to several other priority areas. Since Wisconsin DNR established water quality standards for wetlands in 1991, the state did not need to include development of those standards (since they are already exist). Instead, the wetland team identified other areas for the action plan: prevention and control of invasive species, increased wetland ecosystem resiliency and wetland conservation partnerships. This allows room for addressing future or new concerns, such as climate change. To see Reversing the Loss and the Action Plan 2011-2012, visit: http://dnr.wi.gov/wetlands/strategy.html

The 2013-2014 Action Plan lays out the Wetland Team Priorities and Action Plan. This plan includes the four core elements identified by the U.S. Environmental Protection Agency (EPA) as part of their ESTP Initiative, which have been further incorporated into an additional three priorities. Initially, these are 1) monitoring and assessment; 2) regulatory; 3) voluntary restoration and protection; and 4) water quality standards for wetlands. In addition, there are three other areas of the Action Plan: 1) Increase wetland conservation on private lands, which is a further incorporation of the Core Element Voluntary Restoration and Protection; 2) Prevent and control wetland invasive species, which is further incorporation of the Core Elements Monitoring & Assessment –and Voluntary Restoration; and 3) Increase wetland ecosystem resiliency, a further incorporation of the Core Element Monitoring and Assessment. For the 2013-2014 Action Plan, go to: http://dnr.wi.gov/topic/wetlands/documents/2013-2014teamprioritiesactionplandec2012.pdf

Core Elements from EPA's ESTP Initiative: Objectives and action plan steps are laid out in the plan for each of these core elements. The Action Plan is organized a little differently from other states' wetland program plans because it is based on the 2008 Strategy, which was completed before the ESTP Initiative was put in place. Nonetheless, each of the action plan's priorities for the Wetland Team address the core elements as well as the original goals and objectives provided in the 2008 Strategy. The WPP is broken down differently than some other plans in that the Core Elements are addressed in multiple aspects of the Action Plan(s). Two examples are provided below, but in fact, all four core elements are addressed in the full plan (*Reversing the Loss* and related Action Plans).

Monitoring and Assessment: The first priority in the current Action Plan (2013-2014) is to monitor and assess the status of Wisconsin's wetlands. This priority shall address two goals out of the Reversing the Loss strategy and EPA Core Element – Monitoring and Assessment. Some of the action steps are outlined below:

- Develop methods to monitor reference wetlands
- Prepare annual report to track wetland gains and losses
- Map and digitize WI Wetland Inventory for 6 counties; incorporate data into NWI
- Conduct wetland change analysis for specific wetlands
- Analyze field data to complete the Wisconsin Intensification Study
- Develop biological indicators to assess wetland condition

Voluntary Restoration & Protection: The Wetland Team priority that addresses this core element also addresses Reversing the Loss Strategy goals 3, 4, 5 and 7—namely to develop a watershed approach for wetland restoration and protection using inventory and assessment data, and to increase wetland conservation on private lands. Action steps are outlined below:

- Apply watershed approach tools to wetlands within target watersheds
- Incorporate wetlands protection and restoration into DNR watershed and TMDL plans
- Assess the dollar value of wetland ecosystems
- Use watershed approach for Wetland Compensatory Mitigation Program
- Participate in EPA's Healthy Watersheds Initiative Pilot project
- Develop outreach and marketing strategies for wetlands conservation opportunities
- Reduce barriers and increase incentives for wetlands conservation
- Prevent and control wetland invasive species
- Develop Best Management Practices for invasive species control

Communications & Outreach: "Reversing the Loss" was developed strategically to be used as a communications and outreach tool. The colorful brochure is designed to reach a broader audience, including the general public, not solely wetland professionals involved in a planning work group. As a Wetland Program Plan, it stands out as an useful example to other states developing similar communications and outreach or marketing materials to connect the state's wetland program with the public, related interests in recreation and protecting the environment (in general and specific to wetlands). It also offers an opportunity to include buy-in from collaborative partners in local, state, federal, nonprofit organizations and private nongovernmental interests, along with many individuals in the spirit of planning and shared goals for wetlands restoration.

Related Links:

Reversing the Loss (black and white print version):
http://dnr.wi.gov/topic/wetlands/documents/ReversingLoss08_gs.pdf

Color version: http://dnr.wi.gov/topic/wetlands/documents/ReversingLoss08_FINAL.pdf

Wisconsin Wetland Strategy: http://dnr.wi.gov/topic/wetlands/strategy.html

APPENDIX B: ADDITIONAL RESOURCES

Memorandum on Building State and Tribal Wetland Programs: Core Elements Framework, Wetland Program Development Grants Changes and Wetland Program Plans, October 2009.
http://water.epa.gov/type/wetlands/upload/wetland_program_plan_memorandum.pdf

Core Elements of an Effective State and Tribal Wetlands Program Framework, U.S. Environmental Protection Agency webpage
http://water.epa.gov/grants_funding/wetlands/cefintro.cfm

Wetland Program Plans: A Strategic Tool for States & Tribes
http://aswm.org/pdf_lib/wetland_program_plans.pdf

Wetland Program Plans, Association of State Wetland Managers webpage
http://aswm.org/wetland-programs/wetland-program-plans

Recorded Webinars

Tuesday, June 18 – 2:00 p.m. EST

Regulation: Oregon's State Regulatory Program for Wetlands and Waterways Conservation, Bill Ryan, Assistant Director, Wetlands and Waterway Conservation Division, Oregon Department of State Lands

The presentation discusses an outline of the existing regulatory program, the process Oregon Department of State Lands followed to develop the regulatory element of the strategic plan, and recent program improvement and regulatory streamlining efforts.

State and Regional Wetland Restoration Strategies

State Wetland Restoration Programs, Jeanne Christie, Association of State Wetland Managers

Restoration Programs are one of the four core elements identified in the U.S. Environmental Protection Agencies Enhancing State and Tribal Programs Initiative. Historically, the majority of voluntary restoration program activities have occurred through large federal programs such as the North American Waterfowl Conservation Act, Partners for Wildlife and the Wetlands Reserve Program. However, states and tribes can play important roles in the implementation of these programs as well as developing and implementing state programs. Jeanne will provide an overview of how current state wetland program plans address the wetland restoration core element.

Targeting Wetland Restoration Outreach, Matt Meersman, Friends of the St. Joe River Association

Matt Meersman, President of the Friends of the St. Joe River Association, will highlight a project identifying high priority wetlands and restoration sites based on water quality functional data. Not all wetlands are created equal; this project is providing information to support a strategic

approach to restoration and protection in one of the largest watersheds of the Great Lakes. You will learn about a process that is helping watershed groups promote wetland restoration/protection to individual landowners and assisting local communities in planning for future development while minimizing the negative impacts on water quality.

Tuesday, February 19 – 1:30 p.m. EST, 12:30 CST, 11:30 MST and 10:30 PST

Your Wetland Program Plan as a Sustainable Finance Tool, Glenn Barnes, Environmental Finance Center, University of North Carolina

This session will examine how your wetland program plan can be an important tool to gain support for sustainable financing for your program activities. First, we will examine how finance can be integrated into wetland program plans, including examples from actual plans. Then, we will discuss how wetland program plans can be crafted to increase the likelihood of securing appropriated funds and grants.

Tuesday, September 18 – 2:00 p.m. EST

Assessment and Monitoring: Identifying common characteristics of a good assessment and monitoring plan

Maine Wetland Monitoring and Assessment Strategy – Jeanne DiFranco, Maine Department of Environmental Protection

Colorado's Wetland Program Plan: Monitoring and Assessment – Joanna Lemly, Colorado Natural Heritage Program (Wetland Program Plan 2011-2015)

Tuesday, October 16 – 2:00 p.m. EST

Communication (General) – Using a WPP as an effective communication tool. Identifying other successful communication approaches that have been used

Discussion on Outreach and Communication in Wetland Program Plans – Dave Davis, Virginia Department of Environmental Quality

Advancing Blended Value – Joe Starinchak, U.S. Fish and Wildlife Service

Tuesday, October 23 – 2:00 p.m. EST

Water Words That Work - Make a splash with your communications! Relearn the language that everyday citizens use and you'll become more confident and successful as you set out to enlighten the uninformed and persuade the undecided to take a stand or take action on behalf

of our rivers, lakes, and oceans. Presented by Erik Eckl , Water Words That Work

Tuesday, November 20 – 2:00 p.m. EST

Water Quality Standards for Wetlands: Identifying common characteristics of a good WQS plan

California Wetland and Riparian Area Protection Policy – Bill Orme, California State Water Resources Control Board

Assessing the Criteria for Water Quality Standards for Wetlands in New Mexico – Shelly Barnes, New Mexico Environment Department

Exploring the Need and Feasibility of Modifying Montana's Water Quality Standards to Improve the Protection of Wetlands and Water Quality – Randy Apfelbeck, Montana Department of Environmental Quality

Tuesday, December 18 – 2:00 p.m. EST

Communication with State Legislatures

Minnesota Wetland Protection and Restoration Programs – Rep. Rick Hansen, Minnesota House of Representatives