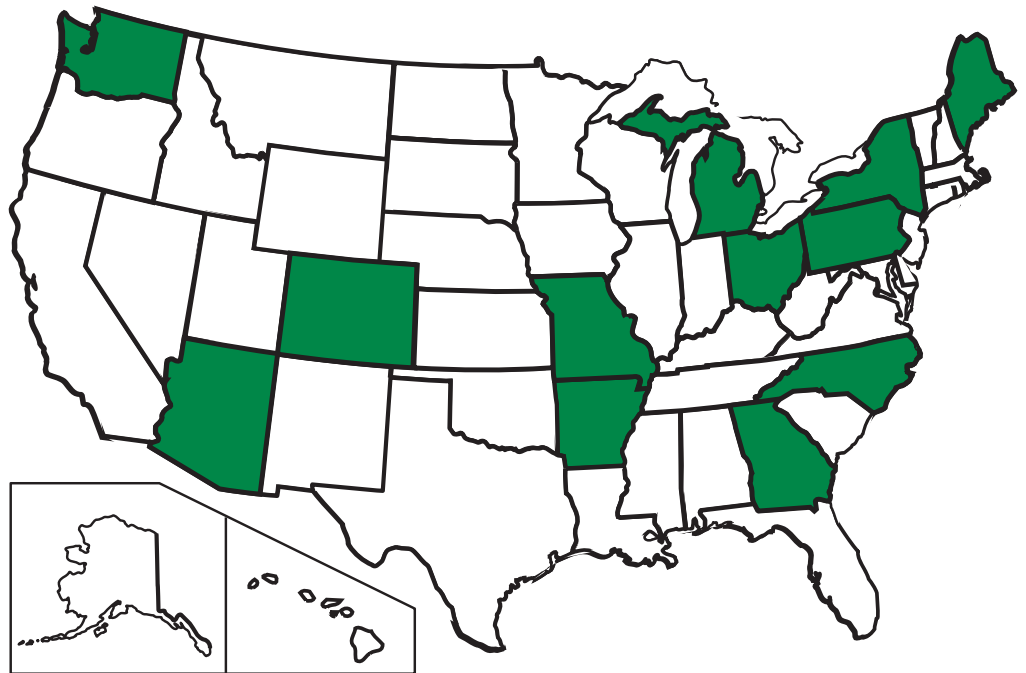


State Wetland Program Evaluation

Phase I



January 2005

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Introduction

Overview

Wetlands in the United States are regulated and protected through a variety of federal, state, and local laws and regulations, as well as through the actions and initiatives of governmental agencies, nongovernmental organizations, universities and schools, and citizens. The efforts of these many groups are often intended to complement each other and many rely upon planning and science in their design and implementation. Other approaches to wetland protection are the result of circumstance and incremental program development that have evolved organically over time.

State wetland programs are no exception. The principle regulatory authority governing the protection of wetlands at the federal level lies with the Clean Water Act (CWA) §404 Program. Section 404 establishes a regulatory and permitting regime, administered jointly by the U.S. Army Corps of Engineers and U.S. Environmental Protection Agency, for dredging and for discharges of fill material into “waters of the United States.”¹ Under the Clean Water Act, states have the authority to enact their own regulatory (and non-regulatory) programs for wetlands and can adopt more stringent limitations than those established under the federal program.²

States take a variety of approaches to wetland regulation and protection. Some utilize a water quality-based approach to wetlands regulation, relying on CWA §401, which authorizes states to determine whether activities permitted by the federal government are in accordance with state water quality laws and regulations. Other states have enacted regulations establishing resource- or habitat-focused permitting regimes in addition to §401 water quality certification. Still others do not have well-developed regulatory programs, instead focusing on restoration, education and outreach, and other non-regulatory mechanisms to protect and restore wetlands in their states. A multitude of reasons explain the differences we see among state wetland programs—history, geography, economics, politics, general attitudes toward wetland resources, as well as state agency funding, resources, and enforcement activity.

Phase I: State Wetland Program Evaluation

This report represents the first phase of a multi-phased study designed to describe and analyze seven “core” components of state wetland programs. The U.S. Environmental Protection Agency (EPA) has identified six core elements of a comprehensive state and tribal wetlands program: regulation (state laws, regulations, and programs), monitoring and assessment, restoration programs and activities, water quality standards, public-private partnerships, and coordination among state and federal agencies.³ In addition to these six areas, ELI’s study also examines state outreach and education activities.

In this first phase, ELI examined a cross-section of states representing various approaches to wetland protection and regulation, as well as geographic diversity. The study examines state-level programs and activities in twelve states:

¹ The term “waters of the United States” is defined as “[a]ll waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; [a]ll interstate waters including interstate wetlands; [a]ll other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce. . . ; [a]ll impoundments of waters otherwise defined as waters of the United States under the definition; [t]ributaries of waters. . . ; [t]he territorial seas; [w]etlands adjacent to waters (other than waters that are themselves wetlands). . . .” “Waters of the U.S. do not include “[w]aste treatment systems, including treatment ponds or lagoons. . . or prior converted cropland.” See 33 C.F.R. § 328.3(a).

² 33 U.S.C. § 1251 *et seq.*; 40 C.F.R. §§ 104-149.

³ See U.S. Environmental Protection Agency, *Core Elements of Comprehensive State and Tribal Wetlands Programs*, at <http://www.epa.gov/owow/wetlands/initiative/fy02elements.html> (last revised Jan. 17, 2003).

INTRODUCTION

Arizona, Arkansas, Colorado, Georgia, Maine, Michigan, Missouri, New York, North Carolina, Ohio, Pennsylvania, and Washington. ELI anticipates conducting additional studies in future years that cover the remaining states. A final report will likely be released summarizing the findings in all 50 states, along with some comparative analysis.

Methodology

In order to allow for the evaluation of state wetland programs in a uniform manner, ELI developed a methodology and format for gathering and organizing information on the core elements of each state program. This methodology allowed the data collected from each state to be as comparable as possible.⁴ For each state, ELI conducted a detailed legal review of the state statutes and regulations that establish and direct the state programs. ELI policy staff conducted additional research using secondary sources and the Internet. Finally, ELI staff conducted phone interviews with program administrators and other relevant individuals. State agency staff reviewed each state summary prior to its inclusion in this report.

⁴ Some state-level wetland activities were not included among the issues covered because they are common to all states. For example, every state's transportation authority operates as a regulated party, applying for permits under CWA §401/§404 and conducting mitigation. Also, most states' park or forest agencies manage some lands with wetlands located on them. Most of the fifty states operate National Pollutant Discharge Elimination System permit programs that regulate point source discharges into waters of the United States, which may include wetlands. These types of state-level regulatory or management activities were not included in the research gathered by ELI. Instead, this study examines the distinguishing features and trends among state wetland activities and programs.

Observations and Analysis

This study examines twelve distinct state wetland programs. Although these programs represent a diversity of approaches and conditions, they cannot be considered a representative sample of the 50 United States on which to draw inferences. However, numerous observations can be made about each of the state programs, as well as their core elements.

I. State Laws, Regulations and Programs

Wetland definitions and delineation

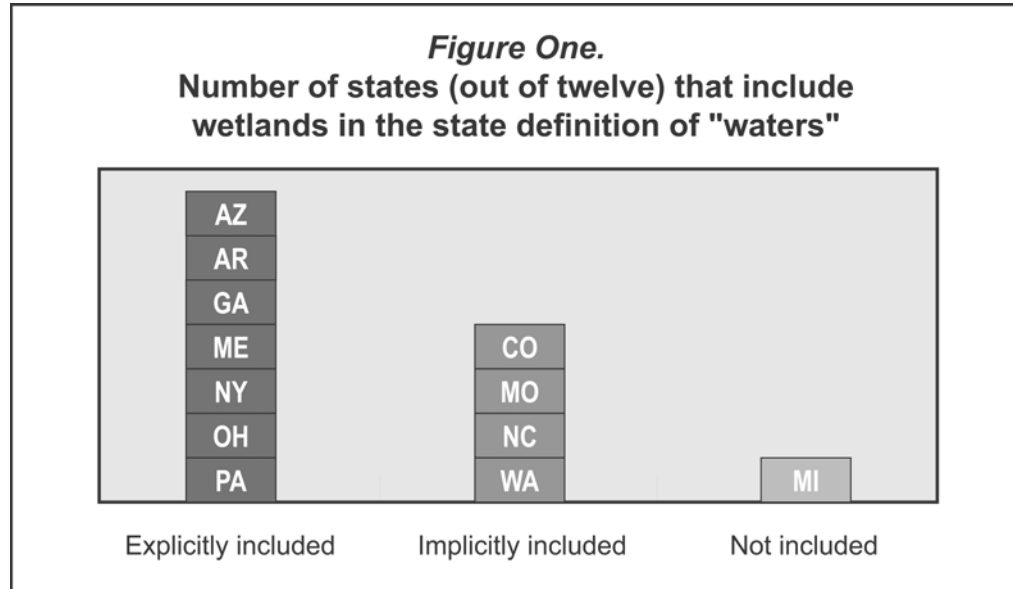
Of the twelve states examined, most¹ do include wetlands in their definitions of “state waters,” albeit some indirectly. In Colorado, for example, wetlands are not explicitly referenced in the definition itself, but separate regulations clarify that wetlands are included in the state definition of waters, stating that “the existing definition of ‘state waters’ is broad enough to include wetlands.”² Maine’s definition of state waters is broader than many and includes wetlands; the definition explicitly includes groundwater connections, as well as all surface waters.³ In North Carolina and Washington State, the states’ definitions of “waters” do not explicitly include wetlands, but court decisions in both states have ruled that wetlands must be included.⁴ See *Figure One*. (next page)

¹ Michigan is the only state examined to not include wetlands in the state definition of “waters” for the purposes of the state’s point discharge program. Wetlands are defined and regulated under the state’s assumed §404 program and Natural Resources and Environmental Protection Act (MICH. COMP. LAWS §§ 324.30301 - 324.30323; MICH. ADMIN. CODE §§ 281.921 - 281.925.).

² 5 COLO. CODE REGS. § 1002-31.27

³ ME. REV. STAT. ANN. tit. 38, § 361-A(7).

⁴ See *Building Industries Associates of Washington v. City of Lacey*, No. 91-2-02895-5. (Thurston County Superior Ct. 1993) and *North Carolina Home Builders Association v. Environmental Management Commission*, No. COA02-99 (N.C. App. Dec. 31, 2002) available at: <http://www.aoc.state.nc.us/www/public/coa/dsheets/020099-1.htm>.



Most of twelve states covered in this study have also adopted one or several definitions of wetlands. Many states' definitions echo that of the Clean Water Act (CWA).⁵ State laws and regulations in Colorado, Georgia, Maine, and New York provide definitions for multiple wetland types that are regulated in the state.⁶ Michigan law defines wetlands consistently with the CWA and supplies further clarification for wetlands that are regulated by the state's §404 program.⁷ North Carolina, one of two of the study's twelve states that has adopted provisions specifically for the protection of isolated wetlands, provides an "isolated wetlands" definition in addition to the state's definition for "wetlands."⁸

All twelve states utilize the delineation methodology outlined in the U.S. Army Corps of Engineers' 1987 *Wetlands Delineation Manual*,⁹ although some states' resource agencies have produced their own delineation manuals. New

⁵ The federal definition of "wetlands" is "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." See 33 C.F.R. § 328.3(b).

⁶ Georgia laws and regulations provide definitions for "coastal marshlands," "vegetated marshlands," "estuarine areas," "freshwater wetlands," "non-forested emergent wetlands," "scrub/shrub wetlands," "forested wetlands," and "altered wetlands." See GA. CODE ANN. § 12-5-282; GA. COMP. R. & REGS. r. 391-3-16-.03(3)(a); GA. CODE ANN. § 50-8-1. Colorado water quality regulations provide definitions for "compensatory wetlands," "constructed wetlands," "created wetlands," and "tributary wetlands." See 5 COLO. CODE REGS. § 1002-31.5. Maine laws for both "organized" and "unorganized/deorganized" areas of the state define "coastal wetlands," "forested wetlands," "floodplain wetlands," "freshwater wetlands," and "peatlands." See ME. REV. STAT. ANN. tit. 38, §§ 480-A; Maine Department of Conservation, Maine Land Use Regulation Commission, *The Commission's Rules and Standards, Chapter 10, Land Use Districts and Standards* (April 1, 2004). New York laws regulating freshwater and tidal wetlands define both, emphasizing vegetation in each definition. N.Y. ENVTL. CONSERV. LAW § 24-0107(1); N.Y. ENVTL. CONSERV. LAW § 25-0103.

⁷ MICH. COMP. LAWS § 324.30301; MICH. ADMIN. CODE § 281.921.

⁸ N.C. ADMIN. CODE tit. 15A, r. 02H.1300.

⁹ U.S. Army Corps of Engineers, Wetlands Research Program Technical Report Y-87-1, *Corps of Engineers Wetlands Delineation Manual* (1987), available at <http://www.saj.usace.army.mil/permit/documents/87manual.pdf>.

York State is less rigorous than that required by the Corps.¹¹ Washington has also created a state delineation manual,¹² but again, its criteria are consistent with the Corps' 1987 *Manual*.¹³

Wetland-related laws and regulations

States utilize a variety of legal approaches to the regulation and protection of wetlands. Some rely on state water quality regulations and CWA §401. See *Box A*. Other states have enacted laws establishing permitting programs for specific resource or habitat types that include wetlands. Still others have adopted laws establishing non-regulatory wetland protection programs. Multiple states have enacted different types of laws in combination, creating a more comprehensive approach to wetland protection in these states. See *Figure Two*.

A water quality focus. Many states rely primarily on water quality laws to regulate wetlands as "waters of the state." In Arizona, Colorado, and Missouri, §401 water quality certification is the sole mechanism by which wetlands are regulated at the state level. North Carolina and Ohio rely on §401 water quality certification, but have also enacted legislation regulating "isolated wetlands." Finally, Washington State relies primarily on §401 water quality certification to regulate wetlands at the state level, but has also adopted several other statutes that authorize additional approaches for state oversight as well (described further below).

Assumption of CWA §404. Michigan is one of two states in the nation (the other is New Jersey), and the only state covered in Phase I of this study, that has assumed authority to administer dredge and fill permits under CWA §404.¹⁵

Box A. Clean Water Act § 401 Water Quality Certification.

Clean Water Act §401(a)(1) states that:

"Any applicant for a Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters, shall provide the licensing or permitting agency a certification from the State in which the discharge originates or will originate, or, if appropriate, from the interstate water pollution control agency having jurisdiction over the navigable waters at the point where the discharge originates or will originate, that any such discharge will comply with the applicable provisions ... In the case of any such activity for which there is not an applicable effluent limitation or other limitation ... the State shall so certify... No license or permit shall be granted until the certification required by this section has been obtained or has been waived ... No license or permit shall be granted if certification has been denied by the State, interstate agency, or the Administrator, as the case may be."

Some states use §401 water quality certification as a regulatory mechanism for the management and protection of wetlands. The basic elements of water quality standards (WQS), including designated uses, criteria, and an antidegradation policy, provide a legal basis for protecting wetland resources through state water quality management programs. Prior to the 1990s, state water quality standards were typically only applied to waters such as rivers, lakes, estuaries, and oceans and were applied tangentially, if at all, to wetlands. Today, standards can play a critical role in state water quality certification by providing the basis for approving, conditioning or denying federal permits and licenses and by providing a benchmark against which to assess the many activities that impact wetlands.¹⁴

¹¹ Personal communication with Pat Reixinger, New York Department of Environmental Conservation (Nov. 12, 2003).

¹² See Washington State Department of Ecology, *Ecology Publication No. 96-94, Washington State Wetlands Identification and Delineation Manual (1997)*, available at <http://www.ecy.wa.gov/pubs/9694.pdf>.

¹³ The 1995 Washington State Legislature enacted a bill requiring the Washington Department of Ecology to adopt a wetland delineation manual that "implements and is consistent with the 1987 manual in use on January 1, 1995 by the U.S. Army Corps of Engineers and the U.S. [Environmental Protection Agency]." See WASH. REV. CODE § 90.58.380.

¹⁴ U.S. Environmental Protection Agency, *National Guidance: Water Quality Standards for Wetlands*, at <http://www.epa.gov/owow/wetlands/regs/quality.html> (July 1990).

¹⁵ Clean Water Act § 404(h); 40 C.F.R. § 231.

A resource focus. Six of the twelve states examined in Phase I have established permitting regimes focused on particular state resources. Maine's Natural Resources Protection Act¹⁶ requires permits for activities in or adjacent to the state's "protected natural resources," which include "a coastal wetland, great pond, river, stream or brook or significant wildlife habitat contained within a freshwater wetland, or . . . [certain] freshwater wetlands."¹⁷ In Georgia, Michigan, and North Carolina, state permitting programs have been established for coastal wetlands.¹⁸ North Carolina has also developed riparian area buffer rules.¹⁹ New York relies on three separate resource-based authorities to protect wetlands. These statutes address, respectively, freshwater wetlands,²⁰ tidal wetlands,²¹ and resources adjacent to the state's navigable waters.²² Pennsylvania has also enacted a resource-based law entitled the Dam Safety and Encroachments Act.²³ The law is designed to regulate dams and reservoirs, water obstructions, and encroachments in Pennsylvania, including wetlands. Finally, Washington has adopted a forest-focused law²⁴ and a water resource-focused law,²⁵ both of which indirectly involve wetland protection.

Local legal authority. Three of the twelve states addressed in Phase I have adopted laws requiring local governments to adopt ordinances that provide wetland regulation and protection and/or incorporate planning criteria into their minimum standards. Although administered locally, state resource agencies in Georgia, Maine, and Washington, are charged with providing guidance and technical assistance to local governments. These statutes may focus on tidal wetlands. In Maine and Washington, planning laws that focus on "shoreland" and "shoreline" areas, respectively, require local governments to implement planning ordinances that protect coastal resources, including wetlands.²⁶

¹⁶ Similar laws apply in areas of the state not included within the jurisdiction of the Natural Resources Protection Act. Maine's "Use Regulation," regulated by the Land Use Regulation Commission, establishes comparable standards in "unorganized" and "deorganized" areas of the state. See ME. REV. STAT. ANN. tit. 12, § 206-A(2).

¹⁷ ME. REV. STAT. ANN. tit. 38, § 480-C(1).

¹⁸ State permitting programs for coastal resources are authorized in Georgia, Michigan, and North Carolina under GA. CODE ANN. § 12-5-280, MICH. COMP. LAWS §§ 324.32301 - 324.32315, and N.C. GEN. STAT. § 113A-100, respectively.

¹⁹ N.C. ADMIN. CODE tit. 15A, r. 02B.0233, 02B.0259.

²⁰ N.Y. ENVTL. CONSERV. LAW § 24, Title 7.

²¹ N.Y. ENVTL. CONSERV. LAW § 25.

²² N.Y. ENVTL. CONSERV. LAW § 15, Title 5.

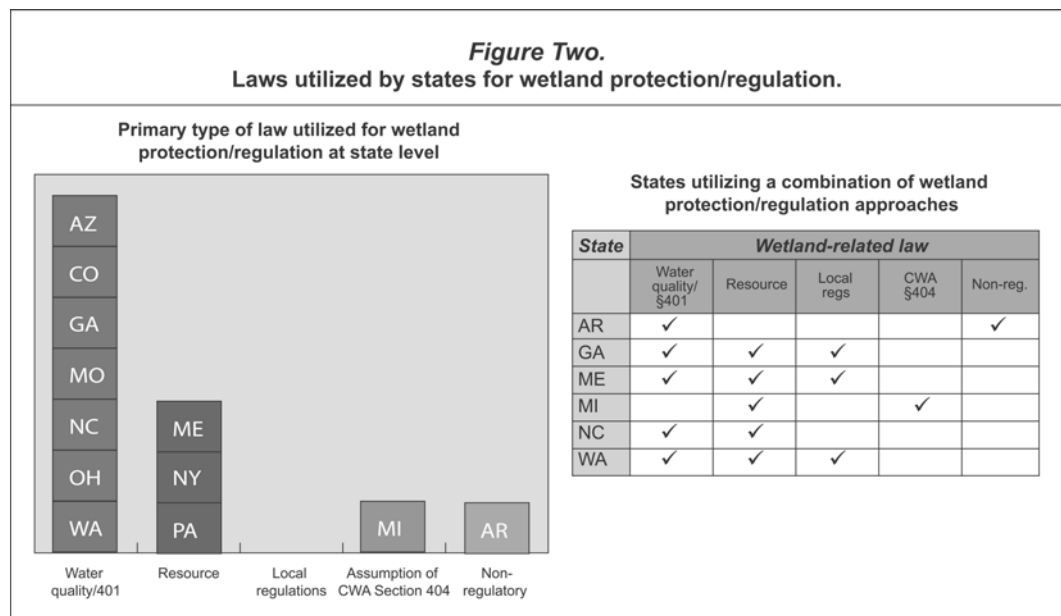
²³ 32 PA. CONS. STAT. §§ 693.1-693.27.

²⁴ WASH. REV. CODE § 76.09; WASH. ADMIN. CODE § 222.

²⁵ WASH. REV. CODE § 77.55; WASH. ADMIN. CODE § 220-110.

²⁶ See ME. REV. STAT. ANN. tit. 38, §§ 435-449 and WASH. REV. CODE § 90.58.

A non-regulatory focus. The State of Arkansas has taken an approach unique among the twelve states covered in Phase I, adopting two laws that seek to protect wetlands through non-regulatory approaches. The Arkansas Wetland Mitigation Bank Act establishes a state mitigation banking program designed to improve cooperative efforts in the restoration and management of wetlands and to encourage a predictable, efficient regulatory framework for environmentally acceptable mitigation.²⁷ The Arkansas Private Wetland and Riparian Zone Creation and Restoration Incentive Act was designed to target private landowners by providing tax credits for the restoration or creation of wetlands and riparian zones.²⁸



²⁷ Arkansas Wetland Mitigation Bank Act, ARK. CODE ANN. §§ 15-22-1001.

²⁸ Arkansas Private Wetland and Riparian Zone Creation and Restoration Incentive Act, ARK. CODE ANN. §§ 26-51-1501.

§401 Certification

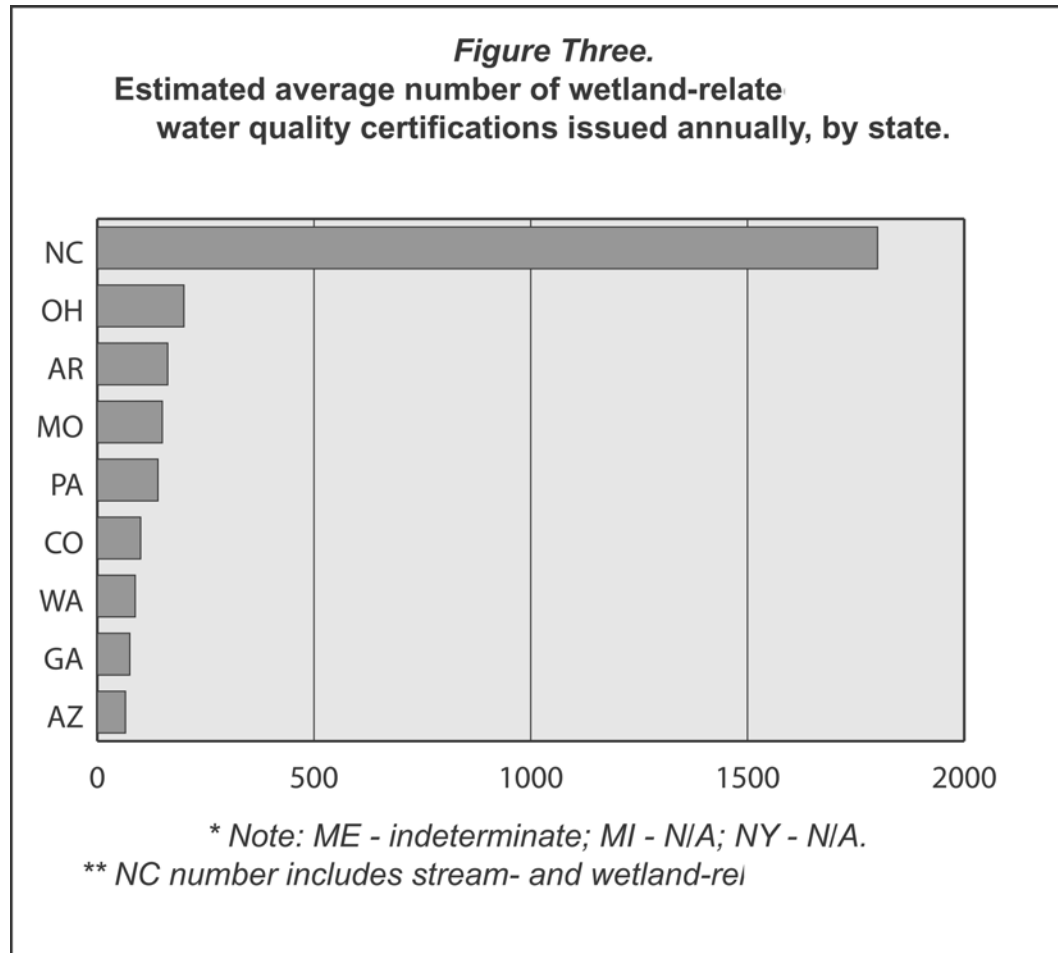


Figure Three shows the number of §401 water quality certifications issued, by state.²⁹

All of the states considered in Phase I of this study have a low percentage of §401 water quality certifications that are outright denied. Permit review staff reported that they often work closely with applicants prior to application submission, providing guidance on state regulations and requirements, alternative locations, designs, and mitigation strategies. Certifications may also be issued with modifications or conditions, such as mitigation or stormwater

²⁹ The numbers depicted in *Figure Three* are based on estimates by state staff and are **not** considered to be exact figures. Note that New York and Michigan are not included, as these states do not use §401 water quality certification to regulate wetlands. Finally, note that the average number of wetland-related §401 certifications issued by the State of Maine could not be determined. Maine issues §401 water quality certification as part of the state's Natural Resources Protection Act permit process. Certifications may also be issued as part of a "permit-by-rule" (PBR) or as part of a permit under Land Use Regulation Commission's (LURC) wetland alteration standards. A PBR or LURC permit includes a water quality certification automatically, though the permitting action may not legally require a water quality certification. Approximately 400 NRPA permits are issued with water quality certifications annually, while up to 2500 PBRs are issued each year. LURC issues roughly 80 permits annually.

management requirements. In Pennsylvania, the Department of Environmental Protection has also conducted targeted education and outreach to inform the state's regulated community on basic permit requirements and permit review procedures, especially those related to wetland identification, delineation, alternatives analysis, and sequencing. These efforts, along with pre-application work, have improved the quality of application submissions, resulting in a low percentage of permit denial.³⁰ State §401 program administrators reported that they rely on various resources in making certification decisions. See *Figure Four*.

Figure Four.
Mechanism of §401 certification decisions.

	Quantitative methodology	Qualitative assessment	Best professional judgment
<i>Arizona</i>		✓	✓
<i>Arkansas</i>		✓	✓
<i>Colorado</i>		✓	✓
<i>Georgia</i>		✓	✓
<i>Maine</i>			✓
<i>Missouri</i>			✓
<i>North Carolina</i>	✓	✓	✓
<i>Ohio</i>	✓	✓	✓
<i>Pennsylvania</i>		✓	✓
<i>Washington</i>	✓	✓	✓
<i>Michigan</i>		N/A	
<i>New York</i>		N/A	

Organization of state activities

The majority of the twelve states studied in Phase I administer wetland regulatory programs and non-regulatory activities through two or more state agencies, although a significant number of the states rely on a single agency for all state-level wetland activities. In Arizona, Georgia, Michigan, North Carolina, and Pennsylvania—states with widely varying economies, ecologies, and wetland program approaches and sizes—state-level wetland-related activities are administered by one main environmental regulatory agency. However, Georgia and North Carolina's wetland programs are operated by multiple divisions within the state environmental agency. Both states administer coastal permitting programs in divisions that are separate from water quality regulatory programs.³¹ Georgia and North Carolina's restoration and watershed planning activities are also under the purview of separate divisions.³²

Another common organization of state activities involves two state resource agencies – one that administers state laws and regulations and one that oversees non-regulatory activities, such as restoration initiatives and landowner stewardship programs. Such is the case in Colorado, Missouri, and Ohio, where water quality regulation is generally overseen by one agency³³ and restoration and landowner partnership programs are administered by another agency.³⁴ Although Maine and New York also divide their state wetland-related programs between two agencies,

³⁰ Personal Communication with Ken Reisinger, Pennsylvania Department of Environmental Protection (Nov. 30, 2004).

³¹ The North Carolina Department of Environment and Natural Resources' [NCDENR] Division of Coastal Management and Georgia Department of Natural Resources' [GDNR] Coastal Resources Division administer the states' coastal permitting programs.

³² NCDENR's Ecosystem Enhancement Program and GDNR's Wildlife Resources Division conduct wetland related restoration and planning activities.

³³ The Colorado Department of Public Health Environment, Missouri Department of Natural Resources, and Ohio Environmental Protection Agency administer these states' water quality regulatory programs.

³⁴ The Colorado Department of Natural Resources, Missouri Department of Conservation, and Ohio Department of Natural Resources administer these states' restoration and landowner stewardship programs.

they use a different approach. Agencies in these states are organized by jurisdiction, rather than by the activities they oversee. Maine divides regulation among “organized” and “unorganized” or “de-organized” areas of the state (Maine Department of Environmental Protection and Maine Land Use Regulation Commission, respectively), while New York gives wetland regulatory authority to the Department of Environmental Conservation in all areas of the state except the Adirondack Park, where the Adirondack Park Agency administers state wetland laws.

In two of the twelve states, wetland-related activities are conducted by multiple state agencies. In Washington, the Department of Ecology is the foremost wetland agency in the state, administering the §401 program and providing guidance and technical assistance to local governments and the regulated community. However, Washington’s Departments of Fish and Wildlife; Natural Resources; and Community, Trade, and Economic Development also conduct wetland-related activities through various state statutes. Arkansas takes a very collaborative approach to wetland activities with the state’s Multi-Agency Wetland Planning Team (MAWPT). The MAWPT includes six state agencies: Natural Heritage Commission, Game and Fish Commission, Department of Environmental Quality, Soil and Water Conservation Commission, Forestry Commission, and University of Arkansas Cooperative Extension Service. Each MAWPT agency conducts individual wetland activities, but also works in partnership on wetland conservation efforts in the state. See *Figure Five*. (next page)

OBSERVATIONS AND ANALYSIS

Figure Five.
State agencies conducting wetland-related activities.

State	Name of Agency(ies)					
Arizona	Department of Environmental Quality					
Arkansas	Department of Environmental Quality	Soil and Water Conservation Commission	Game and Fish Commission	Natural Heritage Commission	Forestry Commission	Univ. of Ark. Coop. Ext. Service
Colorado	Dept. of Public Health and Environment	Department of Natural Resources				
Georgia	Department of Natural Resources					
Maine	Department of Environmental Protection	Land Use Regulatory Commission				
Michigan	Department of Environmental Quality					
Missouri	Department of Natural Resources	Department of Conservation				
New York	Department of Environmental Conservation	Adirondack Park Agency				
North Carolina	Dept. of Env. & Natural Resources					
Ohio	Environmental Protection Agency	Department of Natural Resources				
Pennsylvania	Department of Environmental Protection					
Washington	Department of Ecology	Department of Fish and Wildlife	Department of Natural Resources	Dept. of Community, Trade, & Econ. Devt.		

Agency structure. Almost all of the twelve states³⁵ considered in Phase I administer their programs both in headquarters and regional offices. In states that exclusively utilize a water quality approach to wetland regulation (see *Box A*), §401 water quality certifications are issued from the state's headquarter office (Arizona, Colorado, Missouri, Ohio). States that use another approach, or combination of approaches, to wetland regulation (such as a resource-based permitting program and/or locally administered planning or regulatory programs) conduct activities out of both headquarter and regional offices.

³⁵ Arizona is the only state examined in Phase I that administers all of its wetland-related activities out of the headquarter office. However, some states have multiple agencies involved in wetland-related activities, some operating exclusively out of headquarter offices and others out of regional offices. The Arkansas Soil and Water Conservation Commission operates the state's mitigation banking and restoration tax credit programs out of the agency headquarters in Little Rock, the North Carolina Ecosystem Enhancement Program conducts watershed planning and administers the state's in-lieu-fee program from its Raleigh headquarters, and the Washington Department of Community, Trade, and Economic Development provides technical assistance to local governments on land use planning from its headquarters in the state capital of Olympia.

In many cases, wetland-related activities are an integral part of larger state programs, thus making it difficult to estimate the specific amount of funding or resources devoted to wetland programs. Estimated annual budgets ranged from \$75,000 for Arizona Department of Environmental Quality's \$401 program to as much as \$20.6 million for Washington Department of Ecology's Shoreline and Environmental Assistance Program.³⁶ Similarly, the number of full-time equivalents (FTEs) dedicated to wetland activities varies from state to state, agency to agency, and program to program. The State of Colorado employs 1-¹/₃ FTEs for wetland activities conducted in the Colorado Department of Public Health and Environment and the Colorado Department of Natural Resources. However, volunteer staff are also located throughout the state. On the other hand, North Carolina's Department of Environment and Natural Resources, the primary agency for wetland regulation and conservation in the state, employs more than 80 FTEs to administer wetland-related activities.

Nationwide permits

Nine of the twelve states reviewed in Phase I conduct regular review of the U.S. Army Corps of Engineers' Nationwide Permits (NWP). These states provide comment on Corps regional NWP conditions, and many issue general conditions or denials. Two of the remaining states, Maine and Pennsylvania, instead operate under State Programmatic General Permits (SPGP), and one state, Colorado, certifies all NWPs by state statute (agency staff do not provide review and comment, condition, or deny NWPs).

In Michigan, although the state has assumed authority to administer dredge and fill permits under CWA §404, the Corps retains jurisdiction of traditionally navigable waters (such as the Great Lakes and their adjacent wetlands). NWPs are still applicable in these areas. Michigan provides comments and conditions, as well as some denials, on applicable NWPs. The state also has developed "General Permit Categories for Minor Activities in Wetlands in the State of Michigan."³⁷ Analogous to the federal NWPs, Michigan's General Permits allow the Department of Environmental Quality to evaluate applications on an expedited basis. For the most part, General Permit categories are similar to those found in the Corps' NWPs.³⁸ North Carolina has also created a general permit for wetlands regulated under the state's isolated wetlands rules and buffer rules.^{39, 40}

State programmatic general permits

Both Maine and Pennsylvania operate under an SPGP and therefore do not have applicable NWPs. The SPGPs expedite the Corps' review of certain activities that are subject to federal jurisdiction, but do not preclude permit applications required under state regulations.

Mitigation

Mitigation regulations vary greatly from state to state. Arizona, Arkansas, Colorado, Georgia, and Missouri, all states relying on §401 water quality certification as the primary state-level wetland regulatory mechanism, have not adopted mitigation provisions beyond what is required under CWA §404. However, some of these states have

³⁶ In fiscal year 2003, \$12.4 million was budgeted for SEA Program operations, while \$8.2 million in grants were given to local groups. Personal communication with Andy McMillan, Washington State Department of Ecology (Jan. 22, 2004).

³⁷ Michigan Department of Environmental Quality, *General Permit Categories for Minor Activities in Wetlands in the State of Michigan* (June 14, 2002), available at www.deq.state.mi.us/documents/deq-lwm-wetlands-gp2.pdf.

³⁸ *Id.*

³⁹ North Carolina Department of Environment and Natural Resources, Division of Water Quality, *State General Permit for Impacts to Isolated Wetlands and Isolated Waters*, Permit No. IWGP100000 (Sept. 10, 2003), available at <http://h2o.enr.state.nc.us/ncwetlands/isogp.pdf>.

⁴⁰ North Carolina Department of Environment and Natural Resources, Division of Water Quality, *North Carolina General 401 Water Quality Certifications matching the U.S. Army Corps of Engineers 404 Nationwide, Regional and General Permits*, at <http://h2o.enr.state.nc.us/ncwetlands/certs.html> (last revised Apr. 2, 2003).

developed on their own, or in coordination with federal agencies, mitigation guidance on replacement ratios, site/kind preferences, mitigation banking, and in-lieu-fee mitigation. North Carolina, Ohio, and Washington also rely on §401 water quality certification, but have adopted mitigation regulations in addition to requirements under the federal §404 program. Maine, New York, and Pennsylvania, have adopted resource-based wetland protection laws that include mitigation requirements. These mitigation provisions typically establish a “no net loss” goal, include ratio requirements and site/kind preferences, and may provide language on banking and in-lieu-fee options.

Arkansas and Michigan, two states with extremely different strategies for wetland protection, have established mitigation banking programs. Washington has drafted legislation authorizing the establishment of a state mitigation banking program, however, funding cuts have prevented implementation of the rule to date. Most of the twelve states covered in this review participate on Mitigation Banking Review Teams to some degree.

Two states considered in Phase I have established in-lieu-fee programs. In Pennsylvania, permit applicants impacting one-half acre of wetland or less, and who have no on-site wetland replacement options or alternative mitigation opportunities, may contribute money into the Pennsylvania Wetland Replacement Project, an in-lieu-fee fund managed by the Pennsylvania Department of Environmental Protection.⁴¹ North Carolina has also established the North Carolina Ecosystem Enhancement Program (NCEEP), an in-lieu-fee program that provides an alternative mitigation option to permitted applicants.⁴²

The NCEEP seeks to increase regulatory efficiency and ecological effectiveness by providing a unified, watershed-based approach for all of the state’s aquatic resources planning and mitigation activities. The program consolidates and streamlines state mitigation programs, including the numerous mitigation operations performed by the North Carolina Department of Transportation.⁴³ Washington’s Departments of Ecology and Transportation are also developing a watershed-based mitigation program to guide mitigation projects for unavoidable impacts resulting from transportation activities. The program focuses on improving ecological benefits to watersheds and streamlining the permitting process.⁴⁴

Separate standards and procedures for stream mitigation are uncommon among the twelve states reviewed in Phase I. Maine, North Carolina, and Pennsylvania offer the only examples of states that have adopted regulations or guidelines specifying criteria for stream mitigation.

Enforcement and compliance

In most of the twelve states reviewed in Phase I, wetland-related enforcement activities are administered through state water quality programs. Such is the case in Arizona, Arkansas, Colorado, Georgia, Missouri, North Carolina, Ohio, and Washington. Enforcement tools vary from state to state and may include compliance orders, injunctions, and civil and criminal penalties/prosecution. In most of these states, water quality-related enforcement action at the

⁴¹ See PA DEP, *Public Notice – Pennsylvania Wetland Replacement Project (18 Jan 1996)*, available at <http://www.dep.state.pa.us/dep/deputate/watermgmt/Wc/Subjects/WWEC/general/wetlands/replfd1.htm>.

⁴² The NCEEP was established in 2003 by a Memorandum of Agreement signed by the North Carolina Department of Environment and Natural Resources, North Carolina Department of Transportation, and the US Army Corps of Engineers’ Wilmington District. See Memorandum of Agreement among the North Carolina Department of Environment and Natural Resources and the North Carolina Department of Transportation and the United States Army Corps of Engineers, Wilmington District (2003) (available at http://www.saw.usace.army.mil/wetlands/Policies/EEP_FinalMOA_NCDOT.pdf).

⁴³ North Carolina Department of Environment and Natural Resources, *Wetlands Restoration Program: 2003 Annual Report*, available at <http://h2o.enr.state.nc.us/wrp/publications/2003/03WRPAnnual.pdf> (2003).

⁴⁴ Washington Department of Transportation, Environmental Services, *Watershed Based Mitigation*, at http://www.wsdot.wa.gov/environment/watershed/watershed_mitigation.htm (last revised 2001).

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state level is rarely pursued.⁴⁵ Both Georgia and North Carolina's coastal wetland programs conduct enforcement separately from the states' water quality programs and are quite active, performing regular overflights to locate and investigate possible violations to the state's coastal protection laws.

In Maine, Michigan, New York, and Pennsylvania, enforcement provisions are outlined in the states' wetland-related laws and regulations. Again, typical enforcement mechanisms include civil and criminal penalties/prosecution, abatement orders, and injunctions, but enforcement actions are rarely pursued at elevated levels. See *Figure Six*.

Figure Six.
Enforcement mechanisms.

	Abatement/Compliance Orders, Injunctions	Civil penalties	Civil prosecution	Criminal penalties	Criminal prosecution	Other
AZ	✓	✓		✓	✓	
AR		✓		✓	✓	
CO						✓
GA	✓	✓				
ME	✓	✓	✓			✓
MI	✓	✓	✓	✓	✓	
M O						✓
NY	✓	✓	✓	✓	✓	✓
NC	✓	✓	✓	✓	✓	✓
OH	✓	✓				✓
PA		✓				✓
W A		✓				✓

Tracking systems

All twelve of the states considered in Phase I maintain systems to track their programs to some degree. In Arizona, Colorado, Georgia, and Missouri, a database of project and permit information is maintained for §401 water quality certifications (and coastal wetland permitting in the case of Georgia). In Maine, Michigan,⁴⁶ Pennsylvania, and Washington, tracking systems also include data related to mitigation, monitoring, and assessment.

Other states are currently developing more comprehensive tracking systems. The New York Department of Environmental Conservation maintains a system that tracks state wetland permits, but is also initiating efforts to track wetland-related compliance, delineations, mitigation, and the resource impacts of permits.⁴⁷ Ohio is also in the process of developing a tracking system called the Surface Water Information Management System (SWIMS), which will eventually handle §401 certifications and isolated wetlands permits, in addition to the state's other water permits. SWIMS will track applicant information, acreage, impacts, mitigation actions, fees, annual reporting, permit compliance, preparation of enforcement actions, and other data. All the information will be geographically

⁴⁵ An exception is Washington's Shoreline and Environmental Assistance Program, which has a fairly active enforcement and compliance program. The program's focus is often on isolated wetlands and waters that fall outside federal jurisdiction.

⁴⁶ Michigan's Natural Features Inventory (MNFI) also tracks biological and ecological information on the state's species and habitats. Formerly part of the Michigan Department of Natural Resources, the MNFI is now housed within the Michigan State University Extension. MNFI information is used for a variety of purposes, including informing regulatory agencies of the status and trends of populations, habitats, and ecosystems throughout the state. See Michigan State University Extension, *Michigan Natural Features Inventory*, at <http://web4.msue.msu.edu/mnfi/> (last visited on Aug. 13, 2004).

⁴⁷ The New York Adirondack Park Agency (APA) also maintains a tracking system for activities conducted on APA lands.

referenced, incorporating geographic information system (GIS) data. In the future, SWIMS will also include ambient chemical and biological databases.⁴⁸

Arkansas is currently developing the Arkansas Wetland Information Management System (AWIMS), which utilizes GIS and will include a variety of data fields such as mitigation (based on proposed actions only), individual wetland planning areas, eco-regions and watersheds, congressional districts, counties, §404 permits, acreages, and conservation programs.⁴⁹ Finally, North Carolina maintains a database of project and permit information for §401 water quality certifications and isolated wetlands permits, but is also improving the system to better handle monitoring information. The state's coastal permitting program is in the process of developing a GIS-based system that tracks coastal permits (including monitoring data) and mitigation. These systems will include GIS data. Finally, the NCEEP is also developing a comprehensive information management system that will track wetland type, acreage, permit information, enforcement and compliance actions, performance criteria, and forecasting and debiting functions. NCEEP envisions eventually linking the system to other state and federal information management systems in the state.

II. Water Quality Standards

Three of the twelve states analyzed in Phase I have adopted wetland-specific water quality standards: Colorado, North Carolina, and Ohio. Pennsylvania has also incorporated wetlands into the state's water quality provisions by creating linkages between state wetland regulations and water quality standards. The remaining eight states have not adopted water quality standards, anti-degradation policies, or designated uses specific to wetlands (with the sole exception of Maine, where wetlands are identified in the state's antidegradation policy and designated uses).⁵⁰ See *Figure Seven*. (next page)

⁴⁸ Ohio Env'tl. Prot. Agency, Division of Surface Water, *SWIMS: Surface Water Information Management System*, at <http://www.epa.state.oh.us/dsw/swims/swims.html> (last visited June 18, 2004).

⁴⁹ Personal Communication with Ken Brazil, Arkansas Soil and Water Conservation Commission (Apr. 26, 2004).

⁵⁰ It should be noted that New York has *developed* but not adopted wetland-specific water quality standards.

Figure Seven.
Water quality provisions, by state.

State	Wetland-specific			Non-wetland-specific		
	WQS	Designated uses	Antidegradation policy	WQS	Designated uses	Antidegradation policy
AZ				✓	✓	✓
AR				✓	✓	✓
CO	✓	✓				✓
GA				✓	✓	✓
ME		✓	✓	✓		
MI				✓	✓	✓
MO				✓	✓	✓
NY				✓	✓	✓
NC	✓	✓	✓			
OH	✓	✓	✓			
PA	✓		✓		✓	
WA				✓	✓	✓

III. Monitoring and Assessment

Of the twelve states evaluated in Phase I, Maine is the only state that currently maintains a formal monitoring and assessment program for wetlands.⁵¹ The biological monitoring and assessment program has been under development since 1998. It is administered as part of the Maine Department of Environmental Protection's overall water quality assessment program, which oversees biological assessment and monitoring for streams and rivers.⁵²

Some states have developed and/or adopted one or more wetland assessment methodologies, while others are currently in the development phase. In Arkansas, state agencies are developing a hydrogeomorphic (HGM) classification for the state's wetlands. Regional HGM guidebooks are also being developed in conjunction with the

⁵¹ The Michigan Department of Environmental Quality (MDEQ) has a wetland assessment program, but the program's purpose is to identify and delineate wetlands for regulatory purposes. While there is no formal state wetland monitoring program currently in place, elements of such a program are under development. The MDEQ is developing a comprehensive monitoring and assessment strategy, which will be complete by March 2005. Implementation of the strategy will be dependent on the level of funding provided to the program. Personal communication with Peg Bostwick, Michigan Department of Environmental Quality (Apr. 16, 2004).

⁵² The biological monitoring and assessment program will eventually include water quality impairment assessments and coordinate with the state's watershed and nonpoint source programs. The program conducts basin-wide watershed monitoring and biological assessment, throughout the state, on a rotating five-year schedule. Department staff have worked closely with the U.S. Environmental Protection Agency and other states developing bioassessment methodologies. As of 2004, Maine Department of Environmental Protection (MDEP) has conducted wetland biomonitoring at 126 different sites encompassing 172 sampling events. Today, a database is being developed for the multitude of collected data. MDEP program staff are also developing biocriteria and impairment thresholds. MDEP plans to incorporate the methodology into the state rules for purposes of CWA §303(d) listing and §305(b) reporting. The methodology may also be used for state discharge licensing, stormwater, hydropower licensing, measuring mitigation success, and other regulatory measures. CWA § 104(b)(3) competitive grants for wetlands have supported the program for seven years. See Maine Department of Natural Resources, *Wetland Monitoring and Assessment Program*, at <http://www.maine.gov/dep/blwq/wetlands/monitoring.htm> (last visited Aug. 9, 2004).

U.S. Army Corps of Engineers, making Arkansas the first state in the nation with HGM functional assessment models for all the major forested wetland types in the state. The classification and guidebooks will likely be used for a variety of purposes, including state planning, monitoring, and restoration efforts, state mitigation banks, and other public holdings.⁵³

Although Michigan has not yet adopted an assessment methodology for the purposes of wetland monitoring, the agency is currently developing a rapid functional and value assessment methodology that will be used primarily to evaluate permit applications. In addition, a bioassessment methodology based on indices of biological integrity (IBI) is also under development and will include IBI's for inland forested depressional wetlands and inland herbaceous depressional wetlands.⁵⁴

North Carolina utilizes several wetland assessment methodologies for a variety of purposes. A rating system is used primarily to provide guidance for §401 water quality certification decisions on freshwater wetlands.⁵⁵ In addition, the state is currently involved in the development of an updated functional assessment methodology. The North Carolina Coastal Region Evaluation of Wetland Significance, or NC-CREWS, is a watershed-based wetlands functional assessment model that uses GIS software and data to assess the level of water quality, wildlife habitat, and hydrologic functions of individual wetlands. The primary objective of the NC-CREWS wetland functional assessment tool is to provide users with information about the relative ecological importance of wetlands for use in planning and the overall management of wetlands.⁵⁶ Finally, the state is also developing a functional assessment tool for coastal wetlands that will provide detailed wetland information for resource planning, with the specific objectives of locating high quality mitigation sites and identifying high quality wetlands that should be avoided.⁵⁷

A variety of assessment methodologies are used in wetlands management and protection in Ohio. The Ohio Rapid Assessment Method (ORAM) was developed specifically for regulatory purposes in the late 1990s, with the final version released in February 2001 (Version 5.0).⁵⁸ Bioassessment methodologies are also being utilized more and more by OEPA staff.⁵⁹ Efforts are underway to develop a holistic evaluation for Pennsylvania wetlands as well. The methodology will be used to evaluate wetland integrity and quality on a watershed basis, utilizing reference sites and an EPA-recommended three-tiered protocol.⁶⁰ Finally, Washington State utilizes a quantitative, HGM-based, functional assessment methodology, used mainly for mitigation decision-making.⁶¹

IV. Restoration and Partnerships

Most of the twelve states considered in Phase I conduct restoration-related activities to some extent, although most states do not have a formal wetland restoration program outside of federal programs (i.e., Natural Resources

⁵³ Personal Communication with Elizabeth O. Murray, Arkansas Game and Fish Commission (Sept. 1, 2004).

⁵⁴ Personal communication with Peg Bostwick, Michigan Department of Environmental Quality (Sept. 3, 2004).

⁵⁵ North Carolina Department of Environment, Health, and Natural Resources, *Guidance for Rating the Values of Wetlands in North Carolina* (Jan. 1995), available at <http://h2o.enr.state.nc.us/ncwetlands/wetval.pdf>.

⁵⁶ North Carolina Department of Environment and Natural Resources, Division of Coastal Management, *NC-CREWS: North Carolina Coastal Region Evaluation of Wetland Significance, A Report of the Strategic Plan for Improving Coastal Management in North Carolina* (May 1999), available at <http://dcm2.enr.state.nc.us/Wetlands/NCCREWSDOC.pdf>.

⁵⁷ North Carolina Department of Environment and Natural Resources, Division of Coastal Management *Wetlands: Inventory and Assessment*, at <http://dcm2.enr.state.nc.us/wetlands/inventory.htm> (last revised Sept. 8, 2003).

⁵⁸ Ohio Env'tl. Prot. Agency, *Ohio Rapid Assessment Method for Wetlands v.5.0: User's Manual and Scoring Forms*, at <http://www.epa.state.oh.us/dsw/401/oram50um.pdf> (Feb. 1, 2001).

⁵⁹ Personal communication with Randy Bournique, Ohio Env'tl. Prot. Agency (Nov. 6, 2003).

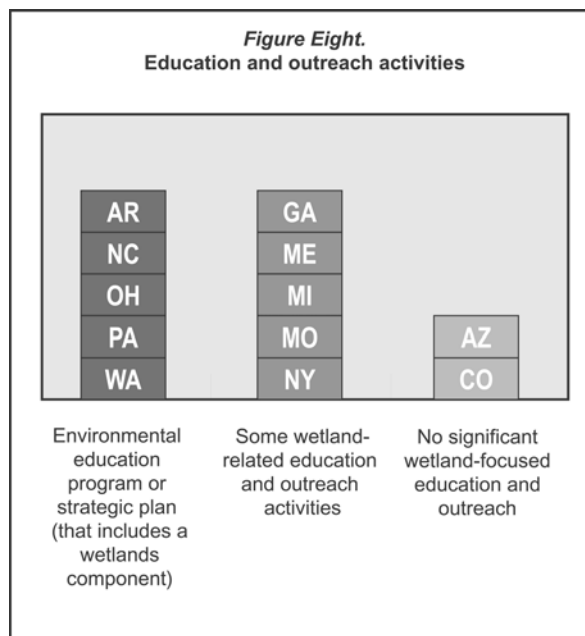
⁶⁰ Personal Communication with Ken Reisinger, Pennsylvania Department of Environmental Protection (Oct. 7, 2004).

⁶¹ Personal communication with Andy McMillan, Washington State Department of Ecology (Jan. 22, 2004).

Conservation Service's Wetland Reserve Program or programs related to the North American Waterfowl Management Plan). The few state-initiated restoration programs are typically landowner stewardship programs. For example, Arkansas' Wetland and Riparian Zones Tax Credit Program provides tax credits to private landowners for the restoration or creation of wetlands and riparian zones.⁶² The Georgia Department of Natural Resources' Wildlife Resources Division operates the Bobwhite Quail Initiative, a voluntary and experimental program that provides private landowners with monetary incentives to restore habitat for bobwhite quail, songbirds, and other farm wildlife, improve water quality, and reduce soil erosion.⁶³

V. Education and Outreach

None of the twelve states reviewed in Phase I administer wetland-specific education and outreach programs. Many of the states do, however, operate broader environmental education programs, of which wetlands may be a component. See *Figure Eight*. For example, the North Carolina Department of Environment and Natural Resources' (NCDENR) Office of Environmental Education (OEE) conducts education and outreach on behalf of NCDENR divisions; serves as a clearinghouse for other state agencies and organizations to distribute educational and outreach materials; and promotes workshops, professional development programs, North Carolina's Environmental Education Centers, and other formal and non-formal environmental education programs and providers. OEE also administers the North Carolina Environmental Education Certification Program. This program recognizes educators who complete a required amount of professional development in environmental education. Many of the workshops that count towards the certification program include education related to wetlands.⁶⁴



⁶² Arkansas Private Wetland and Riparian Zone Creation and Restoration Incentive Act, ARK. CODE ANN. §§ 26-51-1501

⁶³ Georgia Department of Natural Resources – Wildlife Resources Division, *About the Bobwhite Quail Initiative*, at <http://georgiawildlife.dnr.state.ga.us/content/displaycontent.asp?txtDocument=108> (last revised July 29, 2002).

⁶⁴ Personal communication with Janine Nicholson, North Carolina Department of Environment and Natural Resources (Nov. 5, 2004).

Numerous states conduct Project WET (Water Education for Teachers) and Project WILD workshops, which offer interdisciplinary environmental education training for educators and include lessons on aquatic habitat and wildlife.

Other states conduct environmental education activities that are more specific to wetlands. In Maine, the Department of Environmental Protection often gives presentations for scientific/professional meetings, contractors and developers, schools, conservation groups, and others.⁶⁵ Michigan's S404 Program has produced various materials aimed at promoting stewardship among local governments and landowners, provided materials for K-12 wetland education and the general public on their website, and conducted various outreach activities, such as wetland displays and a wetland-related conferences.⁶⁶ The Washington Department of Ecology has developed several tools and educational materials targeting K-12 students and the general public. Curricula and wetland guidebooks (some available in Spanish and English), coloring pages, and posters are distributed for K-12 education. Materials developed for the general public include wetland guidebooks, landowner stewardship guides, and videos. Washington also provides education and outreach to local governments, mostly in the form of technical assistance and training.⁶⁷ Pennsylvania and New York have offered training programs for the regulated community and the general public on the importance of wetlands as well as wetland regulatory requirements.⁶⁸

VI. Coordination with State and Federal Agencies

Each of the twelve states considered in Phase I coordinates to some extent with other state and federal agencies on various issues, typically involving pending permit applications and project reviews or federal conservation and agricultural programs. Most states hold regular meetings among state and federal agency staff to discuss wetland-related issues and projects within the state. State agencies in Maine, Michigan, New York, North Carolina, and Ohio are party to intrastate memoranda of agreement involving wetland practices and/or regulation within the state. Arkansas exemplifies intrastate coordination with its Multi-Agency Wetland Planning Team (MAWPT). The MAWPT includes six state agencies that work in partnership to determine what paths to take towards wetland conservation efforts in the state. Under the MAWPT, numerous initiatives have been launched to help state agencies make better planning and management decisions about wetlands.⁶⁹

⁶⁵ Personal communication with Jeanne DiFranco, Maine Department of Environmental Protection (Aug. 18, 2004).

⁶⁶ Michigan Department of Environmental Quality, *Education and Stewardship*, at http://www.michigan.gov/deq/0,1607,7-135-3313_3687-10507--,00.html (last visited on Aug. 13, 2004).

⁶⁷ Personal communication with Andy McMillan, Washington State Department of Ecology (July 29, 2004).

⁶⁸ Personal communication with Dan Spada, New York Adirondack Park Agency (May 10, 2004); Personal Communication with Ken Reisinger, Pennsylvania Department of Environmental Protection (Oct. 7, 2004).

⁶⁹ Elizabeth O. Murray and Ken Brazil, *For Arkansas, Protection Begins with Multi-Agency Planning*, 25:3 National Wetlands Newsletter, at 1 (2003).

Conclusions and Plans for Continued Study

The twelve states examined in Phase I of this study represent a diversity of approaches to wetland protection. Numerous observations can be made about each of the states and the core elements of their wetland programs. However, the twelve states cannot be considered a representative sample of the wetland programs in all 50 states.

State-level wetland regulation and conservation programs are extremely diverse due to a variety of circumstances — history, geography, economics, politics, general attitudes toward wetland resources, as well as state agency funding, resources, and enforcement activity. All of these factors contribute to the unique nature of the programs observed in each of the twelve states. Although some of the state approaches to wetland protection are the result of well-planned efforts to construct a comprehensive program, others are the result of incremental program development activities that have evolved organically over time.

Phase I of ELL's State Wetland Program Evaluation examines twelve states, chosen for their geographic diversity and program variety. The next phase of the study will examine an additional twelve to fifteen states. ELL hopes eventually to examine state wetland programs in all fifty states, which will allow for statistical analysis and firm conclusions to be drawn.

Appendix A: State Wetland Program Summaries

Arizona

Arkansas

Colorado

Georgia

Maine

Michigan

Missouri

New York

North Carolina

Ohio

Pennsylvania

Washington

Arizona

I. Overview

Arizona is an arid state not generally associated with wetlands. It has, however, witnessed significant wetland loss over the last century,¹ with losses estimated at 90 percent of the state's original wetland acreage. Ephemeral and intermittent streams and discontinuous wetlands, some under the jurisdiction of the Clean Water Act (CWA) and some not, provide important functions to the unique bioregions of the state.²

Arizona does not have a wetlands regulatory program separate from the federal §404 permitting program under the CWA, but state law does outline water quality standards for both "waters of the state" and "navigable waters."³ The Arizona Department of Environmental Quality (AZDEQ) certifies federal permitting decisions for dredging and filling of wetlands under §401 of the CWA.

II. Regulatory Programs

Wetland definitions and delineation

Arizona's water quality control statute defines "waters of the state" as "all waters within the jurisdiction of [the State of Arizona] including all perennial or intermittent streams, lakes, ponds, impounding reservoirs, marshes, watercourses, waterways, wells, aquifers, springs, irrigation systems, drainage systems, and other bodies or accumulations of surface, underground, natural, artificial, public or private water situated wholly or partly in or bordering on the state."⁴ "Navigable waters," those waters that are protected by state water quality rules and standards, are "the waters of the United States as defined by §502(7) of the CWA."⁵

The state's regulatory definitions echo the federal definitions of waters and wetlands almost exactly. "Surface water" means a water of the United States and includes . . . a water that is currently used, was used in the past, or may be susceptible to use in interstate or foreign commerce; an interstate water, including an interstate wetland; all other waters, such as an intrastate lake, reservoir, natural pond, river, stream (including an intermittent or ephemeral stream), creek, wash, draw, mudflat, sandflat, wetland, slough, backwater, prairie pothole, wet meadow, or playa lake that the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce. . . ; an impoundment of a surface water [as defined here]; a tributary of a surface water [as defined here]; and a wetland adjacent to a surface water [as defined here]."⁶ "Wetlands" are defined as areas that are "inundated or saturated by surface or groundwater at a frequency and duration sufficient to support. . . a prevalence of vegetation typically adapted for life in saturated soil conditions. A wetland includes a swamp, marsh, bog, cienega, tinaja, and similar areas."⁷ Wetland delineation criteria correspond to §404 of the CWA, relying on the U.S. Army Corps of Engineers' 1987 *Wetlands Delineation Manual*.⁸

¹ U.S. Environmental Protection Agency, *Wetlands Loss Index: 1780s to 1990s*, at http://www.epa.gov/iwi/1999sept/iv7_usmap.html (last revised Apr. 2, 2004).

² Tucson Audubon Society, *Tucson Audubon Society: Clean Water Act Example Letter*, at <http://www.tucsonaudubon.org/conservation/cwaletter.htm> (last revised Sept. 2, 2003).

³ ARIZ. REV. STAT. tit. 49.

⁴ *Id.* § 49-201.

⁵ *Id.*

⁶ ARIZ. ADMIN. CODE R-18-11-101(43).

⁷ ARIZ. ADMIN. CODE R-18-11-101(49).

⁸ U.S. Army Corps of Engineers, *Wetlands Research Program Technical Report Y-87-1, Corps of Engineers Wetlands Delineation Manual (1987)*, available at <http://www.saj.usace.army.mil/permit/documents/87manual.pdf>.

Organization of state activities

As previously mentioned, §401 certification is the state's main tool for regulating activities affecting wetlands. The CWA 401 Certification Program is administered by AZDEQ's Hydrologic Support and Assessment Section. Funding for the CWA 401 Certification Program, approximately \$75,000 annually, comes from EPA grants with matches from the state's general funds.⁹ One full-time equivalent works within the program, issuing §401 certifications and providing technical assistance to permit applicants on §401 certification procedures and guidelines. The program is based in the AZDEQ headquarters office in Phoenix.¹⁰

§401 certification program

Actions that require a federal permit, license, or approval that results in a discharge into certain waters of the state, including §404 dredge and fill permits and nationwide permits, require CWA §401 certification in Arizona. Section 401 certification is required solely for navigable waters, extending only to activities conducted within the ordinary high watermark of navigable waters.¹¹ Activities conducted in intermittent or ephemeral streams do not require §401 water quality certification.

AZDEQ staff evaluate proposed projects to ensure compliance with the state's surface water quality standards and for consistency with approved water quality planning and management programs. In general, applicants must show that they will take all possible steps to avoid or minimize potential impacts to wetlands and that they have provided compensatory mitigation for any remaining, unavoidable impacts.¹²

The AZDEQ is authorized to grant, deny, or waive §401 water quality certification and may take into account the following considerations:¹³

- State water quality statutes and regulations;¹⁴
- The Governor's Executive Orders No. 91-6, dated February 14, 1991, which direct state agencies to recognize and consider the protection, maintenance and restoration of riparian areas; and¹⁵
- The AZDEQ's Policy for Protecting Water Quality During Facility Construction, adopted December 12, 1994, which outlines specific procedures for protecting water quality during facility construction.¹⁶

The number of certifications issued annually by the state varies, ranging from 30 to 100 certifications in any given year.¹⁷ Once AZDEQ receives an application and supporting materials, the application is reviewed and conditions are developed

⁹ Personal communication with Chris Varga, Arizona Department of Environmental Quality (Aug. 17, 2004).

¹⁰ Personal communication with Andrew Travers-Cajero, Arizona Department of Environmental Quality (May 12, 2004).

¹¹ ARIZ. REV. STAT. tit. 49-202(C).

¹² Arizona Department of Environmental Quality, *Permits: Dredge and Fill Program*, at <http://www.adeq.state.az.us/environ/water/permits/dredge.html> (last revised Dec. 17, 2003).

¹³ Ariz. Dep't Env'tl. Quality, *ADEQ/WQD Form 404-015, CWA Section 401 Certification Application Form*, available at <http://www.azdeq.gov/environ/water/permits/download/401app2.pdf>.

¹⁴ ARIZ. REV. STAT. tit. 49; ARIZ. ADMIN. CODE R-18-11.

¹⁵ Office of the Ariz. Governor, *Executive Order No. 91-6*, at <http://www.adeq.state.az.us/environ/water/permits/download/91-6.pdf> (1991).

¹⁶ Ariz. Dep't Env'tl. Quality, *supra* note 11.

¹⁷ The large majority of §401 water quality certifications issued in any given year involve ephemeral wetlands and streams.

for the course of the project. AZDEQ staff rely mostly on best professional judgment in these decisions, with some qualitative assessment where deemed necessary.¹⁸

Arizona statutes also grant automatic §401 certification for several types of applications:

- Quarrying, crushing, and screening of nonmetallic minerals in ephemeral waters if certain best management practices¹⁹ are followed within the ordinary high watermark of jurisdictional waters; and
- Corrective actions taken pursuant to Arizona laws and regulations; Comprehensive Environmental Response, Compensation, and Liability Act; Resource Conservation Recovery Act; or other applicable federal laws.²⁰

The statute requires that the department adopt rules specifying what information an applicant would be required to submit in order to make the certification.²¹ AZDEQ has not yet developed those rules and so is limited with respect to the information it may request of applicants.²²

Certifications are tracked in a database that includes basic information such as project name, location, and status.²³

Nationwide permits

Nationwide permits (NWP) are reviewed by AZDEQ as they are revised by the U.S. Army Corps of Engineers – generally every five years. During the review, a determination is made regarding the conditional certification of U.S. Army Corps of Engineers NWP.²⁴ As of April 19, 2002, Arizona had conditionally certified or waived all applicable NWP according to Table One below. Where an NWP is conditionally certified, the conditions are established at the time of certification and published as part of the Corps final approval process.²⁵

¹⁸ Travers-Cajero, *supra* note 10.

¹⁹ Automatic §401 certification is granted for quarrying, crushing, and screening of nonmetallic minerals in ephemeral waters if the following practices are followed within the ordinary high watermark of jurisdictional waters: (1) there is no disposal of construction and demolition wastes and contaminated wastewater; (2) water for dust suppression, if used, does not contain contaminants that could violate water quality standards; (3) pollution from the operation of equipment in the mining area is removed and properly disposed; (4) stockpiles of processed materials containing ten per cent or more of particles of silt are placed or stabilized to minimize loss or erosion during flow events; (5) measures are implemented to minimize upstream and downstream scour during flood events to protect the integrity of buried pipelines; (6) on completion of quarrying operations in an area, areas denuded of shrubs and woody vegetation are revegetated to the maximum extent practicable.

²⁰ ARIZ. REV. STAT. tit. 49-202.

²¹ *Id.* § 49-202(G).

²² Personal Communication with Linda Taunt, Arizona Department of Environmental Quality (Nov. 1, 2004).

²³ Travers-Cajero, *supra* note 10.

²⁴ *Id.*

²⁵ U.S. Army Corps of Engineers Los Angeles District – Arizona Section, *Special Public Notice: Nationwide Permits for Arizona*, at http://www.spl.usace.army.mil/regulatory/AZNWP_2002.doc (Apr. 19, 2002).

Table One. NWP Certifications in Arizona.²⁶

NWP#	In Unique Waters	All Other Waters	NWP#	In Unique Waters	All Other Waters
1	N/A	N/A	23	Individual	Conditionally Certified
2	N/A	N/A	24	N/A	N/A
3	Individual	Conditionally Certified	25	Individual	Conditionally Certified
4	Individual	Conditionally Certified	26	N/A	N/A
5	Individual	Conditionally Certified	27	Individual	Conditionally Certified
6	Individual	Conditionally Certified	28	Conditionally Certified	Conditionally Certified
7	Individual	Conditionally Certified	29	Individual	Conditionally Certified
8	N/A	N/A	30	Conditionally Certified	Conditionally Certified
9	N/A	N/A	31	Individual	Conditionally Certified
10	N/A	N/A	32	Conditionally Certified	Conditionally Certified
11	N/A	N/A	33	Individual	Conditionally Certified
12	Individual	Conditionally Certified	34	Individual	Conditionally Certified
13	Individual	Conditionally Certified	35	N/A	N/A
14	Individual	Conditionally Certified	36	Individual	Conditionally Certified
15	Individual	Conditionally Certified	37	Individual	Individual
16	Individual	Conditionally Certified	38	Individual	Individual
17	Individual	Individual	39	Individual	Conditionally Certified
18	Individual	Conditionally Certified	40	Individual	Conditionally Certified
19	Individual	Conditionally Certified	41	Individual	Conditionally Certified
20	Conditionally Certified	Conditionally Certified	42	Individual	Conditionally Certified
21	Individual	Individual	43	Individual	Conditionally Certified
22	Conditionally Certified	Conditionally Certified	44	Individual	Individual

Mitigation

The State of Arizona has no guidelines, policies, or legislation (beyond CWA §404 requirements) that concern compensatory mitigation for permitted impacts to wetlands or streams, including banking and in-lieu-fee operations. In addition, the state does not participate on a Mitigation Banking Review Team.

Compliance and enforcement

The Arizona Revised Statutes outline enforcement provisions²⁷ for violations to state water quality standards. The AZDEQ may pursue violations to the state's water quality standards, aquifer protections, or AZPDES permits using compliance orders, injunctions, civil penalties, and criminal penalties and/or prosecution.²⁸

²⁶ *Id.*

²⁷ A compliance order specifies the nature of the violation, sets the time period for compliance to be reached (if applicable), and states the right of the offending individual to a hearing. A compliance order becomes final and enforceable within 30 days of receipt of the order, unless the individual requests a hearing. If the individual requests a hearing, the order becomes final when a judge issues a final decision on appeal. If a violation is viewed as an endangerment to public health and welfare, a county attorney or attorney general may request a temporary restraining order, a preliminary injunction, or a permanent injunction. Violators are also subject to civil penalties of up to \$25,000 per day per violation to the state's water quality standards, aquifer protections, or Arizona Pollutant Discharge Elimination System. Finally, criminal penalties and prosecution are also available for violators who act with "criminal negligence," knowing performance, or "extreme indifference" in discharging without a permit, failing to monitor and report discharges, or violating discharge limitations or water quality standards. Depending on the seriousness of the violation, the intent of the violator, and the degree of negligence, the attorney general of the state may seek conviction of a class 2 misdemeanor or a class 2, class 5, or class 6 felony, as well as the obtainment of criminal fines.

²⁸ ARIZ. REV. STAT. tit. 49, art. 4.

III. Water Quality Standards

Arizona's water quality standards (WQS) do not identify criteria specific to wetlands. The state WQS, provided for in the Arizona Revised Statutes and outlined in the Arizona Administrative Code, are both narrative and numeric in nature and include chemical and biological criteria for water quality.²⁹ The regulations do not identify designated uses or antidegradation standards for wetlands, defaulting to designated uses and antidegradation provisions for surface waters.³⁰ It should also be noted that, in the absence of wetland-specific WQS, AZPDES permit and S401 certification decisions rely on surface water criteria and standards.³¹

IV. Monitoring and Assessment

Neither an assessment methodology nor a monitoring program has been developed specifically for wetlands in Arizona. However, state law does mandate water quality monitoring for surface waters, which would include the state's wetlands and streams. The statute also requires the maintenance of a statewide database of groundwater and soil samples.³² Methodologies for other waters have been developed for regulatory purposes – for water quality standards and development of 303(d) lists and 305(b) reports, as well as for support of the state's NPDES program.³³ Arizona's several surface water monitoring and assessment programs are operated under the AZDEQ. These include the Fixed Station Network Monitoring Program, the Clean Lakes Program, the Basin Monitoring Program, the AZDEQ/USGS Cooperative Monitoring Program, and the Bioassessment Program.³⁴

The Fixed Station Network is the core stream monitoring program in the state, working to characterize baseline water quality conditions of Wadeable, perennial streams and to determine long-term trends. There are currently 28 long-term monitoring sites, at which AZDEQ staff collect physical, bacterial, and general water chemistry data four times a year and perform bioassessments and habitat assessments annually. Data is stored in the AZDEQ's Surface Water Quality Database and is available to the public upon request.³⁵

Under the Basin Monitoring Program Arizona's ten major river basins are monitored on a five-year rotating basis—two basins per year over five years. Sampling sites are selected and visited four times per year by AZDEQ staff to collect water quality data. Bioassessments and habitat assessments are performed annually.³⁶

The U.S. Geological Survey (USGS) collaborates with the AZDEQ to perform water quality monitoring on Arizona's larger rivers (the Colorado, Salt, Gila, Verde and Bill Williams Rivers). USGS staff monitor approximately 15 sites, taking

²⁹ ARIZ. ADMIN. CODE R-18-11-101-123.

³⁰ *Id.*

³¹ Travers-Cajero, *supra* note 10; Varga, *supra* note 9.

³² ARIZ. REV. STAT. tit. 49-225.

³³ Personal Communication with Linda Taunt, Arizona Department of Environmental Quality (June 21, 2004).

³⁴ Ariz. Dep't Env'tl. Quality, *Monitoring and Assessment: Monitoring*, at <http://www.adeq.state.az.us/environ/water/assessment/monitoring.html> (last revised Dec. 15, 2003).

³⁵ Ariz. Dep't Env'tl. Quality, *Monitoring and Assessment: Surface Water Monitoring: Fixed Station Network*, at <http://www.adeq.state.az.us/environ/water/assessment/assessment/monitoring.html> (last revised Dec. 16, 2003).

³⁶ Ariz. Dep't Env'tl. Quality, *Monitoring and Assessment: Surface Water Monitoring: Basin Monitoring Program*, at <http://www.adeq.state.az.us/environ/water/assessment/basin.html> (last revised Mar. 2, 2004).

measurements four times per year. The data obtained are the same type as that gathered by the Fixed Station Network and are stored in both AZDEQ and USGS water quality databases.³⁷

The Clean Lakes Program, established in 1991 with the assistance of federal Clean Lakes Program (CWA §314) funding, collects data and information on lake and reservoir water quality and watersheds in order to both determine potential sources of pollution and provide guidance on the improvement of water quality. The program is organized into three levels of assessment: Step I is a reconnaissance survey, Step II involves water quality monitoring and assessment, and Step III includes diagnostic and feasibility studies for water quality improvement.³⁸

The AZDEQ is currently working to develop biological assessment criteria.³⁹ To these purposes, the Bioassessment Program is in the process of developing methods and criteria for assessing biological integrity using macroinvertebrate and algal attributes. The program is being developed on a regional basis and currently focuses on small- and medium-sized perennial waters, though biological criteria may be developed for other waters in the future.⁴⁰

V. Restoration

AZDEQ has no programs, activities, or funding directed toward wetland restoration initiatives. The Arizona Department of Water Resources houses the state's Water Protection Fund Program, which focuses its program and funding towards the restoration of riparian ecosystems.⁴¹

VI. Public/Private Partnerships

AZDEQ has been working with citizen monitoring groups increasingly in recent years. Municipal concerns about water quality has led to an increase in requests to the state for assistance in developing water quality monitoring programs. The state has provided water quality sampling curriculums for numerous groups and may use the collected data for regulatory purposes on some occasions.⁴²

VII. Education and Outreach

The State of Arizona has no programs, activities, or funding directed toward wetland outreach and education.

³⁷ Ariz. Dep't Envtl. Quality, *Monitoring and Assessment: Surface Water Monitoring: ADEQ/USGS Cooperative Monitoring Program*, at <http://www.adeq.state.az.us/environ/water/assessment/usgs.html> (last revised Dec. 16, 2003).

³⁸ Ariz. Dep't Envtl. Quality, *Monitoring and Assessment: Surface Water Monitoring: Clean Lakes Program*, at <http://www.adeq.state.az.us/environ/water/assessment/lakes.html> (last revised Dec. 15, 2003).

³⁹ Taunt, *supra* note 33.

⁴⁰ Ariz. Dep't Envtl. Quality, *Monitoring and Assessment: Surface Water Monitoring: Bioassessment Program*, at <http://www.adeq.state.az.us/environ/water/assessment/bio.html> (last revised Mar. 4, 2004).

⁴¹ Taunt, *supra* note 22.

⁴² Taunt, *supra* note 33.

VIII. Coordination with State and Federal Agencies

AZDEQ staff working in the CWA 401 Certification Program occasionally work with other federal and state agencies, such as the Arizona Game and Fish Department and the U.S. Army Corps of Engineers. Coordination largely revolves around individual certification applications and project reviews.⁴³

IX. Acronyms and Abbreviations

AAC - Arizona Administrative Code

ARS - Arizona Revised Statutes

AZDEQ - Arizona Department of Environmental Quality

AZPDES - Arizona Pollutant Discharge Elimination System

CWA - Clean Water Act

NWPs - Nationwide Permits

USGS - U.S. Geological Survey

WQS - Water Quality Standards

⁴³ Travers-Cajero, *supra* note 10.

Arkansas

I. Overview

Wetlands cover nearly ten percent of Arkansas' land surface. Most of the state's wetlands are associated with the Mississippi River Delta and its major tributaries, but a wide variety of other wetland types exist throughout the state, each possessing important and unique characteristics and resources.¹

The state's wetland regulatory efforts rely heavily on §401 water quality certification. Although the adoption of a more comprehensive regulatory program is not considered feasible, the state does have an extremely proactive non-regulatory effort. The Multi-Agency Wetland Planning Team (MAWPT) is a consortium of Arkansas state agencies that work together on restoration and planning for wetlands conservation. State focus rests on promoting wetland health, assembling wetland inventories, and developing analysis and information management tools. The group operates on the State Wetland Conservation Plan, a comprehensive planning document that outlines objectives and strategies for state wetland initiatives.²

II. Regulatory Programs

Wetland definitions and delineation

Arkansas does include wetlands in its definition of waters of the state. Under the Arkansas Water and Air Pollution Control Act, "waters of the state" include "all streams, lakes, marshes, ponds, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and all other bodies or accumulations of water, surface and underground, natural or artificial, public or private, which are contained within, flow through, or border upon this state or any portion of the state."³ Although wetlands remain undefined, they are inherently included in the definition with the phrase, "marshes. . . and all other bodies or accumulations of water." Arkansas delineates wetlands consistently with §404 of the CWA, in accordance with the criteria outlined in the U.S. Army Corps of Engineers' 1987 *Wetlands Delineation Manual*.⁴

The regulatory definition of waters and wetlands differs from that utilized by the MAWPT in the state's non-regulatory initiatives. The MAWPT website states that "[w]etlands are areas where the periodic or permanent presence of water controls the characteristics of the environment and associated plants and animals. They include marshes, swamps, and similar areas found in flats, in depressions in the landscape, on slopes where groundwater emerges to the land surface, and between dry land and open water along the edges of streams, rivers, lakes, and coastlines."⁵ However, the MAWPT's State Wetland Strategy also asserts that, "[a]n absolute answer to 'What is a wetland?' is not needed to move forward with wetland conservation planning."⁶

¹ Arkansas Multi-Agency Wetland Planning Team, *Wetlands in Arkansas*, at <http://www.mawpt.org/wetlands/> (© 2001).

² Personal Communication with Elizabeth O. Murray, Arkansas Game and Fish Commission (Feb. 27, 2004).

³ ARK. CODE ANN. § 8-4-102 (10).

⁴ U.S. Army Corps of Engineers, Wetlands Research Program Technical Report Y-87-1, Corps of Engineers Wetlands Delineation Manual (1987), available at <http://www.saj.usace.army.mil/permit/documents/87manual.pdf>.

⁵ Arkansas Multi-Agency Wetland Planning Team, *supra* note 1.

⁶ Arkansas Multi-Agency Wetland Planning Team, *Arkansas Wetland Strategy*, available at <http://www.mawpt.org/pdfs/Strategy.pdf>.

Wetland-related statutes and regulations

Arkansas' tool for regulating wetlands is §401 certification. The Arkansas state legislature has also passed two laws establishing a state mitigation banking program and a tax credit program for wetland restoration projects conducted by landowners.

*Arkansas Wetland Mitigation Bank Act.*⁷ The Arkansas Wetland Mitigation Bank Program was established in 1995 to promote wetland protection, improve cooperative efforts in the restoration and management of wetlands, and encourage a predictable, efficient regulatory framework for environmentally acceptable mitigation.⁸ Under the program, the state acquires degraded wetlands, restores wetland functions, and then sells credits to §404 permittees required to provide compensatory mitigation for approved wetland projects. The Arkansas Wetlands Mitigation Bank is administered by the Arkansas Soil and Water Conservation Commission (ASWCC). State law also established a Wetlands Technical Advisory Committee that is comprised of the directors of several state agencies and two public members. The Committee acts as a consultant to the ASWCC in the administration of the program.⁹

ASWCC plans to establish a bank in each of the state's four ecoregions. One bank has been established in southeastern Arkansas and the state's other three ecoregions are currently being surveyed for bank sites. By law, the ASWCC can partner with any entity, but the program is restricted to purchasing land at its appraised value. In the long term, banks will be deeded to other state agencies.¹⁰ The ASWCC follows federal guidance for mitigation banking and has established an *Umbrella Memorandum of Agreement for the Establishment, Development, and Operation of an Arkansas State-Sponsored Wetlands Mitigation Bank Program* with the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service, the U.S. Department of Agriculture's Natural Resources Conservation Service, and the Arkansas Department of Environmental Quality.¹¹

*Arkansas Private Wetland and Riparian Zone Creation and Restoration Incentive Act.*¹² The Arkansas state legislature enacted the Arkansas Private Wetland and Riparian Zone Creation and Restoration Incentive Act in 1995.¹³ The act creates the Wetland and Riparian Zones Tax Credit Program, which is also administered by the ASWCC. The program is designed to target private landowners because most land suitable for wetland restoration, creation, or enhancement is privately owned. The program provides tax credits for the restoration or creation of wetlands and riparian zones. Mitigation or other regulatory actions are not eligible for the program. In a given year, tax credits may not exceed \$5,000 or the amount of individual or corporate income tax owed; however, unused credits may be carried over for up to nine years. Thus, a single project may yield up to \$50,000 in credits over a period of ten years.¹⁴ The state can forgive up to \$500,000 per year, and the MAWPT will approve all meriting applications until the limit is reached. Although participation in the program has grown steadily, to date, the program has not exceeded more than about \$130,000 in any given year.¹⁵

⁷ Arkansas Wetland Mitigation Bank Act, ARK. CODE ANN. §§ 15-22-1001.

⁸ *Id.*

⁹ ARK. CODE ANN. § 15-22-1003.

¹⁰ Personal Communication with Ken Brazil and Kenneth Colbert, Arkansas Soil and Water Conservation Commission (Feb. 25, 2004).

¹¹ *Umbrella Memorandum of Agreement for the Establishment, Development, and Operation of an Arkansas State-Sponsored Wetlands Mitigation Bank Program* (1998) (on file with author).

¹² Arkansas Private Wetland and Riparian Zone Creation and Restoration Incentive Act, ARK. CODE ANN. §§ 26-51-1501.

¹³ *Id.*

¹⁴ Tax credits are not transferable and can be applied at anytime. A fee of three percent of the total approved tax credit (or a minimum of \$100) is required to enroll in the program. See Arkansas Soil and Water Conservation Commission, *Wetland and Riparian Zones Tax Credit Program*, at <http://www.aswcc.arkansas.gov/WetlandTaxCredit.html> (last visited Aug. 9, 2004).

¹⁵ Brazil and Colbert, *supra* note 10.

Eligible restoration or creation projects must conform to specific design criteria and are subject to review by an ASWCC engineer. General standards have been established for all projects, such as those for minimizing soil erosion and water degradation during construction, utilization of best management practices, and complying with all applicable federal, state and local laws. Additionally, criteria for restoration, creation, and enhancement of wetlands or riparian areas have been established. ASWCC staff typically provide technical support on restoration projects, though they are not required to do so by law. Projects must be completed within three years and maintained for at least ten years thereafter.¹⁶

§401 certification program

As previously mentioned, Arkansas relies upon §401 water quality certification as its primary form of wetlands regulation. The §401 program is administered by the Arkansas Department of Environmental Quality (ADEQ) with oversight by the U.S. Environmental Protection Agency (EPA). ADEQ staff make approximately 150 to 175 certifications per year on average, though these numbers have gradually increased in recent years due to the increasing applicability of Nationwide Permits. Most certifications are unconditionally certified, with less than one percent of certifications waived and approximately three to five percent conditionally certified. Approval decisions are based mostly on a combination of qualitative assessment and best professional judgment by ADEQ staff. In making determinations, criteria such as location of the project, the type of waterbody, water quality, type of water body, designated uses, hydrology, and the proposed activity are generally considered.¹⁷

Organization of state activities

The ADEQ administers the §401 program for Arkansas, the state's primary form of wetlands regulation, while the ASWCC heads both the Arkansas Wetland Mitigation Bank Program and the Wetland and Riparian Zones Tax Credit Program. However, numerous state agencies are involved with wetlands issues through the non-regulatory Multi-Agency Wetland Planning Team, including the Arkansas Game and Fish Commission (AGFC), the Arkansas Natural Heritage Commission (ANHC), the Arkansas Forestry Commission (AFC), and the University of Arkansas Cooperative Extension Service (UACES).

Arkansas Department of Environmental Quality. The ADEQ administers the §401 program out of its headquarters office in Little Rock. One-half of a full-time equivalent (FTE) is responsible for reviewing §404 applications for consistency with the state's water quality standards and issuing §401 certifications. These activities are generally funded through a base EPA grant. The ADEQ is also a participating member of the MAWPT.

Arkansas Soil and Water Conservation Commission. The ASWCC administers the Wetlands Mitigation Bank Act and the Arkansas Wetland Tax Credit program among other state wetland activities. The agency coordinates with the MAWPT on the banking and tax credit programs, although they are not required to do so under state law.¹⁸ The ASWCC operates out of one central office in Little Rock, but provides funding to and coordinates with conservation districts throughout the state. Approximately two to four FTEs work on wetland-related activities, including outreach and technical support, restoration program development and research, and administration of the mitigation banking and tax credit programs. ASWCC staff work on a diversity of projects for different areas of the state. Funding for ASWCC programs and activities come from a variety of sources. The banking program is funded by a revolving loan program.¹⁹ The state contributes funds for salaries and bears lost taxes from the issued credits. Federal grants and application fees also support administration of the program.²⁰

¹⁶ If a landowner fails to complete a project within the three-year period for reasons beyond their control, they may obtain a one-year extension. Otherwise, all credits must be repaid and the project will no longer be authorized for tax credit purposes. Participating landowners must maintain records and submit reports on maintenance. Once a restoration project is complete, ASWCC staff inspect and certify the project. Personal Communication with Ken Brazil, Arkansas Soil and Water Conservation Commission (Apr. 26, 2004).

¹⁷ Personal Communication with Steve Drown, Arkansas Department of Environmental Quality (Feb. 26, 2004).

¹⁸ Personal Communication with Ken Brazil, Arkansas Soil and Water Conservation Commission (Apr. 26, 2004).

¹⁹ A sum of \$300,000 was available to set up the first property, and up to \$1 million can be allocated in revolving funds.

²⁰ Brazil and Colbert, *supra* note 10.

Arkansas Game and Fish Commission. In addition to hosting the MAWPT Coordination Office, the AGFC conducts other wetland-related activities, including monitoring wetland-dependent wildlife habitat and assisting private landowners with application to the U.S. Department of Agriculture's Wetland Reserve Program and Conservation Reserve Program, among other habitat-related federal programs. The AGFC also oversees the management of Wildlife Management Areas (WMA) in the state, many of which are wetlands, and operates a wetlands educational center where lectures and other outreach events may be conducted in the field.²¹

Two FTEs work on coordination with federal programs, while one FTE works on MAWPT activities. Each WMA has its own manager. The agency also employs one wetland biologist specifically to conduct research, though other fisheries and waterfowl biologists likely work on wetlands research as well. Agency staff and activities are funded through general state appropriations and federal grants (mostly from the U.S. Fish and Wildlife Service), as well as collections from a state conservation tax, hunting and fishing license fees, enforcement penalties, and license plates.²²

Arkansas Natural Heritage Commission. The ANHC is a member of the MAWPT, but the agency's primary role is to operate the state's nature preserve system. The agency has acquired a total of 60 natural areas through purchase or donation. A fairly significant portion of these protected areas are wetlands, including some unique and rare wetland types. In recent years, the ANHC has acquired larger and more diverse natural areas, sometimes in need of restoration work. ANHC staff develop and implement restoration plans for these areas. They also provide input to other agencies such as the Natural Resources Conservation Service and the U.S. Fish and Wildlife Service on regional baseline conditions or other restoration activities. The ANHC also participates in the state's environmental review process, reviewing project impacts (including §404 projects) on natural areas around the state. ANHC field staff are distributed throughout the state; five part-time land stewards oversee management tasks for the state's natural areas. There are also three full-time land stewards based in Little Rock. Staff activities include outreach and technical assistance, restoration and monitoring, and research and inventory of the state's natural areas. Because wetlands are an integral part of many of ANHC activities, it is difficult to estimate the wetlands-related portion of the agency's approximately \$3 million annual budget. Funding comes from general state appropriations, fees for data services, federal grants for land acquisition and staff needs, and conservation and real estate transfer taxes.²³

Arkansas Forestry Commission. The AFC's mission is to "promote forest resource health, conservation, and stewardship" for the 18.7 million acres of forest in Arkansas, which includes some 2.8 million acres of bottomland forest. The AFC has no wetland regulatory authority, but does participate in various wetland-related agency activities in addition to the MAWPT. Agency staff work with private landowners and provide free technical assistance on restoration projects. The agency also raises hardwood seedlings for restoration projects. The AFC also coordinates with the Natural Resources Conservation Service on restoration programs such as the Conservation Reserve Program, the Environmental Quality Incentives Program, and various Farm Bill activities by conducting compliance checks and providing technical assistance to landowners and conservation organizations. Finally, the AFC conducts tours and workshops for landowners and loggers on topics such as best management practices and managing forested wetlands.²⁴

The AFC has nine district offices and 60 county offices. The AFC employs 32 county foresters that work to some extent on the promotion of restoration and management of wetland and riparian areas on private lands. An estimated \$2 million, approximately 10 percent of the overall agency budget, is spent promoting health, conservation, and stewardship of

²¹ Murray, *supra* note 2.

²² *Id.*

²³ Personal Communication with Tom Foti, Arkansas Natural Heritage Commission (Mar. 10, 2004).

²⁴ Personal Communication with Larry Nance, Arkansas Forestry Commission (Mar. 11, 2004).

forested wetlands. The agency's budget is supported by general and special state revenue, federal grants, and technical assistance funds.²⁵

Multi-Agency Wetland Planning Team. The Arkansas Multi-Agency Wetland Planning Team (MAWPT) originally formed as the result of a 1992 governor's directive to Arkansas agencies to submit one unified grant proposal for the U.S. Environmental Protection Agency's Wetlands Program Development Grant (WPDG). The directive, aimed at minimizing in-state competition for federal grants, led to an enduring partnership among state agencies.²⁶ The MAWPT includes six state agencies: Arkansas Natural Heritage Commission, Arkansas Game and Fish Commission, Arkansas Department of Environmental Quality, Arkansas Soil and Water Conservation Commission, Arkansas Forestry Commission, and University of Arkansas Cooperative Extension Service.²⁷ The agencies work in partnership to determine what paths to take towards wetland conservation efforts in the state.²⁸

MAWPT monies flow through the ASWCC, though AGFC is often the lead agency on grants. Both serve as points of contact on funding. Each member agency has at least one MAWPT representative, though some may have more than others depending on the projects that the team is undertaking at a given time. The WPDG is the main funding source for MAWPT activities and is matched by the State of Arkansas. The total budget for MAWPT activities typically ranges between \$100,000 and \$300,000 annually.²⁹ The state is also responsible for staff time and in-kind services, as well as the staffing and support of a MAWPT facilitator.³⁰ Various other federal and state agencies contribute financial and technical assistance on a somewhat regular basis, but they are not member agencies.³¹

The MAWPT is developing a Wetland Conservation Plan for the state in order to promote voluntary, incentive-based, locally led conservation planning. The Plan has two main components: the *Arkansas Wetland Strategy* and Wetland Planning Area (WPA) Reports. The *Arkansas Wetland Strategy*, which lists policy, watershed, and statewide objectives,³² combines wetland inventory information and state strategy recommendations to: address wetland issues and concerns (i.e. mitigation, BMPs, public outreach, education, etc.); identify priority areas for restoration, protection, and enhancement; and evaluate existing state agency resources, responsibilities, and wetland programs. WPA Reports

²⁵ *Id.*

²⁶ Elizabeth O. Murray and Ken Brazil, *For Arkansas, Protection Begins with Multi-Agency Planning*, 25:3 National Wetlands Newsletter, at 1 (2003).

²⁷ Arkansas Multi-Agency Wetland Planning Team, *Arkansas Multi-Agency Wetland Planning Team*, at <http://www.mawpt.org/> (© 2001).

²⁸ Murray, *supra* note 2.

²⁹ *Id.*

³⁰ Brazil and Colbert, *supra* note 10.

³¹ Murray, *supra* note 2.

³² Policy objectives of the state wetland strategy include the achievement of no net loss and long-term net gain of wetland functions and values in each of the five planning regions. Watershed objectives include characterization of the composition, function, and landscape patterns of wetlands in Arkansas and analysis and identification of priority wetland protection and restoration sites based on the characteristics, distribution, and function of the state's existing wetlands. Finally, the strategy also outlines statewide objectives, including: development of a better understanding of wetland hydrology, composition, structure, functions, and values, as well as techniques for management and restoration through research; an increase in the quantity and quality of wetlands on public lands through coordinated acquisition and improved stewardship; an increase in the level of public and landowner knowledge and benefits from wetland conservation on private lands through education and incentives for wetland protection, restoration, stewardship, and enhancement; support of the creation of urban riparian/wetland greenbelts for education and urban wildlife habitats; an increase in wetland information delivery to local government, the public and schools; the development of administrative and organizational structure for private and public mitigation activities; and development of state capacity for tracking wetland activities and long-term monitoring of wetland restoration and protection efforts (Arkansas Multi-Agency Wetland Planning Team, *Arkansas Wetland Conservation Plan – State Wetland Strategy*, at http://www.mawpt.org/plan/state_strategy.asp (last edited Oct. 8, 2004)).

identify and prioritize emphasis areas within the watershed in order to focus voluntary wetland preservation, restoration, and enhancement efforts.³³

Under the MAWPT, many new initiatives have been launched, including a state wetland inventory, wetland prioritization model based on geographic information systems (GIS), wetland classification and characterization database, wetland planning database, and functional assessment models based on the hydrogeomorphic (HGM) approach.³⁴ These tools help state agencies to make better planning and management decisions about wetlands.³⁵ In general, MAWPT activities include outreach and technical support, restoration initiatives, coordination with federal wetlands programs and initiatives and related research.

Nationwide permits

ADEQ staff review and provide both comment and regional conditions for nationwide permits (NWP) as they are released every five years.³⁶ Section 401 water quality certification has been issued for all nationwide permits (NWP) requiring authorization under §404 of the CWA. However, any activity impact to extraordinary resource waters, ecologically sensitive waters, and natural and scenic waters requires an individual water quality certification.³⁷ In addition, the ADEQ has imposed four regional conditions:

- For NWP#7 (Outfall Structures and Maintenance) and NWP#12 (Utility Activities), intake structures must be constructed with screening in order to prevent the entry of fish;
- For any activities in fens, bogs, groundwater seeps, dune depressional wetlands, or the Cache River and its adjacent wetlands, the permittee must provide the appropriate written notification to the applicable District;
- Mining activities require an individual Department of the Army permit or authorization by a regional general permit (and not authorized under NWP#44 – Mining Activities);
- For NWP#3 (Maintenance), NWP#12 (Utility Activities), NWP#14 (Linear Transportation Projects), NWP#39 (Residential, Commercial, and Institutional Developments), NWP#40 (Agricultural Activities), NWP#41 (Reshaping Existing Drainage Ditches), NWP#42 (Recreational Facilities), and NWP#43 (Stormwater Management Facilities), as well as a particular set of waters identified by the ADEQ, the permittee must provide the appropriate written notification to the applicable District in order to allow for review of effects federally listed threatened and endangered species and their environments.³⁸

Mitigation

Arkansas' mitigation banking program (described above) comprises the bulk of the state's compensatory mitigation regulations and activities. The state also participates in the area's Mitigation Banking Review Team (MBRT) with the U.S. Army Corps of Engineers (Vicksburg, Little Rock, and Memphis Districts), U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, U.S. Department of Agriculture's Natural Resources Conservation Service, and ADEQ, as established

³³ Murray and Brazil, *supra* note 26, at 23.

³⁴ The MAWPT is currently developing HGM Regional Guidebooks for all five wetland planning regions in the state, which will make Arkansas the first state in the nation with HGM Functional Assessment models for all the major forested wetland types in the state. The tool will be used for multiple purposes, including planning and eventually §404 permitting if the methodology is adopted by the U.S. Army Corps of Engineers. Personal Communication with Elizabeth O. Murray, Arkansas Game and Fish Commission (Sept. 1, 2004).

³⁵ Murray and Brazil, *supra* note 26, at 1.

³⁶ Drown, *supra* note 17.

³⁷ Arkansas Pollution Control and Ecology Commission (APCEC), Reg. No. 2.

³⁸ U.S. Army Corps of Engineers, *Arkansas Nationwide Permit Regional Conditions, available at* <http://www.mvm.usace.army.mil/regulatory/Permit/NWP.AR.Reg.Cond.2002.pdf> (2002).

in the Umbrella Memorandum of Agreement for the Establishment, Development, and Operation of an Arkansas State-Sponsored Wetlands Mitigation Bank Program.³⁹

Compliance and enforcement

Because the state's wetlands regulatory program is based on water quality standards, enforcement actions are related to §401 water quality certification issued by the ADEQ. Under Arkansas law, criminal prosecution and penalties and civil penalties may apply for violations to the state's water quality standards. Civil penalties may not exceed \$10,000 per day; criminal penalties may not exceed \$25,000, and violators may be imprisoned for up to one year.⁴⁰ Each day of a violation constitutes a separate offense.⁴¹ The law also outlines a fine of up to \$50,000 and five years imprisonment for violation to the rule and then leaving the state.⁴² Finally, a fine up to \$250,000 and imprisonment for up to 20 years may be invoked for knowingly or recklessly causing pollution that places another person in "imminent danger of death or serious bodily injury."⁴³ However, enforcement actions on §401 are extremely rare in Arkansas and almost never occur.

Tracking systems

ASWCC, in conjunction with the MAWPT, is currently developing the Arkansas Wetland Information Management System (AWIMS) in order to make impact and restoration data readily available online to interested parties, such as state and federal agency regulators, landowners, or environmental groups. The system is being designed to provide maps and geographic information systems (GIS) capability to non-GIS users over the Internet. In addition, program information will be quickly accessible, and can be queried for regulatory and non-regulatory data, including mitigation,⁴⁴ individual wetland planning areas, eco-regions and watersheds, congressional districts, counties, §404 permits, acreages, and conservation programs. AWIMS will be capable of real time updates.⁴⁵ MAWPT grants provided initial funding for the project, and eventually, a partnership of agencies will maintain the database.⁴⁶ The database is nearing completion and is expected to launch in the near future. It is expected to be a powerful tool for regulators, planners, and others interested in wetlands conservation in the state.⁴⁷

III. Water Quality Standards

The State of Arkansas does not have water quality standards (WQS) specific to wetlands. Criteria are narrative, chemical, and biological.⁴⁸ The regulations do not identify designated uses for wetlands, defaulting to open water uses.⁴⁹ The state antidegradation policy is not specific to wetlands either, but does provide that the level of water quality necessary to protect existing uses should be maintained and protected unless degradation is "necessary to accommodate important economic or social development."⁵⁰ A higher level of protection is given to waters designated as "outstanding

³⁹ Umbrella Memorandum of Agreement for the Establishment, Development, and Operation of an Arkansas State-Sponsored Wetlands Mitigation Bank Program (1998) (on file with author).

⁴⁰ See Arkansas Water and Air Pollution Control Act, ARK. CODE ANN. § 8-4-103(b); Ark. Dept. of Pollution Control and Ecology, Reg. No. 7 - Civil Penalties.

⁴¹ ARK. CODE ANN. § 8-4-103(a)(1).

⁴² *Id.* § 8-4-103(a)(2).

⁴³ *Id.* § 8-4-103(a)(3).

⁴⁴ Mitigation information is based on *proposed* actions only (Brazil, *supra* note 16).

⁴⁵ Murray and Brazil, *supra* note 26, at 25.

⁴⁶ Personal Communication with Elizabeth O. Murray, Arkansas Game and Fish Commission (Sept. 1, 2004).

⁴⁷ Brazil, *supra* note 18.

⁴⁸ APCEC, *supra* note 37.

⁴⁹ Designated uses are laid out in APCEC, *supra* note 37, at § 2.302.

⁵⁰ APCEC *supra* note 37, at § 2.201-2.202.

resource waters.”⁵¹ It should also be noted that, in the absence of wetland-specific WQS, NPDES permit and S401 certification decisions rely on surface water criteria and standards.

IV. Monitoring and Assessment

While the state has not officially adopted an assessment methodology for wetlands, the MAWPT is currently undertaking a hydrogeomorphic (HGM) classification of the state’s wetlands in order to produce information about landscape and geomorphic position, water sources, and hydrodynamics. As part of the classification, wetland types are further characterized by wetland class, subclass, and community type. In addition, the HGM classification facilitates functional assessment and has been proposed as one of the tools used by permittees for alternatives analysis and impact assessment.⁵² Regional HGM guidebooks are being developed in conjunction with the U.S. Army Corps of Engineers for all five wetland planning regions in the state, making Arkansas the first state in the nation with HGM functional assessment models for all the major forested wetland types in the state. The guidebooks will likely be used for a variety of purposes, including state planning, monitoring, and restoration efforts, state mitigation banks, and other public holdings.⁵³

Although there is no formal monitoring and assessment program, the ADEQ’s water quality program relies on surface water assessments, including bioassessments and rapid assessments. These types of assessments are used for developing 303(d) lists and 305(b) reports, as well as for support of the state’s NPDES program. Relying on the EPA for guidance, the ADEQ is considering the development of an index of biological integrity for rivers and streams.⁵⁴

V. Restoration

The Arkansas Wetland and Riparian Zones Tax Credit Program (described above) is the state’s main formal restoration program (excluding compensatory mitigation). However, additional initiatives are underway through the MAWPT and the State Wetland Conservation Plan. Following EPA’s three-tiered framework for wetland monitoring and assessment,⁵⁵ MAWPT is working on a project that will create an inventory and analysis of the state’s wetlands and a tool to prioritize lands for restoration. The prioritization tool will be user-friendly and applicable as a landscape assessment GIS tool. Maps are also being developed to show present-day and historical wetlands, as well as HGM classification for the state (also described above). The tools are intended for regulatory use (e.g. siting mitigation banks) and non-regulatory use (e.g. prioritizing lands for restoration).⁵⁶

ASWCC has also funded several types of constructed wetlands for wastewater. While not part of a programmatic effort, the ASWCC supports economically viable opportunities through a loan and grant program. The Wastewater Advisory Committee, composed of ASWCC staff, Arkansas Department of Health staff engineers, and other state agency staff, administers a \$350 million bond program that provides loans and grants to communities for these purposes.⁵⁷

⁵¹ APCEC *supra* note 37, at § 2.203.

⁵² Brazil and Colbert *supra* note 10.

⁵³ Murray *supra* note 46.

⁵⁴ Drown *supra* note 17.

⁵⁵ U.S. Environmental Protection Agency, Env’tl. Prot. Agency Fact Sheet 843-F-02-002(h), Wetland Monitoring and Assessment – A Technical Framework, available at <http://www.epa.gov/owow/wetlands/facts/techfram.pdf>.

⁵⁶ Brazil and Colbert, *supra* note 10.

⁵⁷ Brazil, *supra* note 18.

Various state agencies also coordinate with the U.S. Department of Agriculture on the Wetlands Reserve Program and the Conservation Reserve Program, and other restoration-related programs.⁵⁸

Most notably, the MAWPT has initiated an effort to prioritize lands for restoration and protection (referenced above – see *Multi-Agency Wetland Planning Team*).⁵⁹ Through GIS analysis, priority areas for restoration and protection are identified on a watershed or regional basis. Ranking depends on characteristics such as fundamental structure and proximity of the land to other topographical features.⁶⁰

The methodology generates raster targeted areas for prioritization at a resolution of 100 square feet.⁶¹ The areas prioritized for restoration and protection are then identified and discussed in WPA Reports, which are used by natural resource planners in their conservation efforts. For example, the Wetland Reserve Program currently gives extra points to projects that are being planned in wetland priority areas that have been identified through GIS analysis.⁶² The methodology has been applied in more than half of the state's watersheds. Because the Delta region contains the greatest portion of the state's wetlands, efforts began there and have gradually expanded. Fine-tuning and modifications have allowed costs to decrease since the Delta region was completed, and an Arkansas ecoregion can now be analyzed using these methods for roughly \$50,000. Plans for the state include analyses for the remainder of the state's watersheds.⁶³ MAWPT also anticipates that these decision support tools will be used in siting Arkansas State mitigation banks.⁶⁴

VI. Public/Private Partnerships

In addition to working with landowners through the Arkansas Wetland and Riparian Zones Tax Credit Program, Arkansas also offers additional outreach to landowners on wetland issues. The MAWPT has developed and maintained a *Landowner's Guide to Voluntary Wetlands Programs in Arkansas*.⁶⁵ The state has also worked with corporations such as International Paper on various restoration, land acquisition, and mitigation banking projects.⁶⁶ Finally, MAWPT has worked with state universities on its research initiatives. Most recently, the University of Arkansas at Fayetteville was commissioned to assemble the GIS inventory of the state's wetlands.⁶⁷ MAWPT has also worked with the University of

⁵⁸ U.S. Department of Agriculture Natural Resources Conservation Service, *NRCS Arkansas state web site*, at <http://www.ar.nrcs.usda.gov/> (last visited Aug. 9, 2004).

⁵⁹ The general methodology for the prioritization includes numerous components: collection of the appropriate watershed-scale geographic data on ecosystem components needed for decision-making; review of maps of ecosystem components (with on-the-ground verification as needed); preparation of component overlay maps to investigate relationships between individual wetland components (with on-the-ground verification as needed); development of general wetland goals and objectives of the project, emphasizing measurable or mappable attributes; implementation of GIS-based procedures to generate maps of protection and restoration priorities; review of maps (with on-the-ground verification as needed); synthesis of information into a wetland protection and restoration strategy, based on goals developed for the watershed; and development of a monitoring and evaluation plan for the watershed strategy. See Arkansas Multi-Agency Wetland Planning Team, *The Standard GIS Methodology for Wetland Analysis*, at http://www.mawpt.org/pdfs/Standard_Methodology_of_Analysis.pdf (last visited Mar. 1, 2004).

⁶⁰ Arkansas Multi-Agency Wetland Planning Team, *Arkansas Wetland Conservation Plan: Wetland Planning Area Reports*, at http://www.mawpt.org/plan/area_reports.asp (© 2001).

⁶¹ Personal Communication with Kenneth Colbert, Arkansas Soil and Water Conservation Commission (Mar. 1, 2004).

⁶² Arkansas Multi-Agency Wetland Planning Team, *supra* note 60.

⁶³ Colbert, *supra* note 61.

⁶⁴ Brazil and Colbert, *supra* note 10.

⁶⁵ Arkansas Multi-Agency Wetland Planning Team, *2000-2001 Landowner's Guide to Voluntary Wetland Programs in Arkansas*, available at www.mawpt.org/pdfs/LandGuide.pdf.

⁶⁶ Murray, *supra* note 2.

⁶⁷ Colbert, *supra* note 61.

Arkansas at Monticello to develop *Arkansas Bottomland Hardwood Notes*, an up-to-date resource for professional forest resource managers on the resource ecology, silviculture, and management of Arkansas' bottomland forest.⁶⁸

VII. Education and Outreach

The *Arkansas State Wetland Strategy* articulates three statewide objectives on wetland-related outreach and education: increase the level of public and landowner knowledge and benefits from wetland conservation on private lands through education and incentives for wetland protection, restoration, stewardship, and enhancement; support creation of urban riparian/wetland greenbelts for education and urban wildlife habitats; and increase wetland information delivery to local government, the public, and schools.⁶⁹

In response to these goals, the MAWPT has organized and created various wetland-related educational products and events. For example, the team has conducted teacher workshops on wetlands educational techniques. The MAWPT has also created a Wetlands Function Display that can be used at a variety of locations, such as fairs, conferences, or other community events. The display gives a holistic view of the benefits of wetlands in the landscape. Finally, the MAWPT has also funded the creation of a state educational curriculum for K-12 students on wetlands. The curriculum includes various topics such as tree identification, soils, and geomorphology and is designed such that it may be used in field locations, such as the AGFC's wetland education center. MAWPT representatives have also attended various conferences, given college lectures, and participated in other related events that target citizen groups, local municipalities, and university students.⁷⁰

VIII. Coordination with State and Federal Agencies

The success of the MAWPT exemplifies the intra-state coordination that exists in Arkansas. Since its inception in the 1990s, partnerships amongst the MAWPT agencies have strengthened and endured. While some agencies contribute more than others on specific projects, each agency brings its own perspective and expertise to bear in the state's wetland initiatives. Each MAWPT agency has at least one representative on the team, and the participants meet regularly.⁷¹

The state also regularly coordinates with federal agencies on wetland-related initiatives and issues, as described above. Several MAWPT members also serve on the Wetland Advisory Team that provides comment on federal projects affecting wetlands in the state. Also, (described above) the MAWPT is currently working with the Corps on HGM classification and regional guidebooks. Individual agencies, such as the AGFC and the ADEQ, coordinate regularly with the federal agencies on National Environmental Policy Act issues, §404 comment, §401 program implementation, endangered species matters, and other wetland-related issues.⁷²

⁶⁸ Personal Communication with Larry Nance, Arkansas Soil and Water Conservation Commission (Aug. 30, 2004).

⁶⁹ Arkansas Multi-Agency Wetland Planning Team, *Arkansas Wetland Conservation Plan – State Wetland Strategy*, at http://www.mawpt.org/plan/state_strategy.asp (last edited Oct. 8, 2004).

⁷⁰ Murray, *supra* note 2.

⁷¹ Brazil and Colbert, *supra* note 10.

⁷² Murray, *supra* note 2.

IX. Acronyms and Abbreviations

ACA - Arkansas Code Annotated
ADEQ - Arkansas Department of Environmental Quality
AFC - Arkansas Forestry Commission
AGFC - Arkansas Game and Fish Commission
ANHC - Arkansas Natural Heritage Commission
APCEC - Arkansas Pollution Control and Ecology Commission
ASWCC - Arkansas Soil and Water Conservation Commission
AWIMS - Arkansas Wetland Information Management System
Corps - U.S. Army Corps of Engineers
CWA - Clean Water Act
EPA - U.S. Environmental Protection Agency
FTE - Full-time Equivalent
GIS - Geographic Information System
HGM - Hydrogeomorphic
MBRT - Mitigation Banking Review Team
NWPs - Nationwide Permits
UACES - University of Arkansas Cooperative Extension Service
WMA - Wildlife Management Areas
WPA - Wetland Planning Area
WPDG - Wetlands Program Development Grant
WQS - Water Quality Standards

Colorado

I. Overview

Wetlands cover less than two percent of Colorado's land area, but are recognized for the important environmental and economic functions they provide throughout the state. Rapid population growth, conversion of agricultural lands, increased urbanization, and increased water demand within Colorado are accelerating pressure on the state's remaining wetlands.¹

State-level wetland regulation is conducted through the §401 water quality certification program, run under Colorado's Department of Public Health and Environment. The state has adopted a broad set of regulations that establish procedures for certifying or denying federal licenses and permits in accordance with §401, including required best management practices.² In 1993, Colorado's Water Quality Standards were significantly amended to specifically account for wetlands.³ In 1997, Colorado's Department of Natural Resources created a Wetlands Program to implement non-regulatory wetland restoration and protection efforts. Today, however, wetlands receive moderate emphasis at the state level.

II. Regulatory Programs

Wetland definitions and delineation

Wetlands are not explicitly mentioned in the state's definition of "waters."⁴ "State waters," as defined by the Colorado Water Quality Control Act (CWQCA), are "any and all surface and subsurface waters which are contained in or flow in or through this state, but does not include waters in sewage systems, waters in treatment works of disposal systems, waters in potable water distribution systems, and all water withdrawn for use until use and treatment have been completed."⁵ However, Colorado regulations clarify that wetlands are in fact covered in the state definition of waters. The Colorado Water Quality Control Commission, the agency responsible for CWQCA administration, "considers the existing definition of 'state waters' broad enough to include wetlands."⁶

The CWQCA defines wetlands consistently with the Clean Water Act (CWA). "[W]etlands" include "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions."⁷ The regulations further define several different kinds of wetlands,⁸ including "compensatory wetlands,"⁹ "constructed wetlands,"¹⁰ "created wetlands,"¹¹ and "tributary wetlands."¹²

¹ Colorado Division of Wildlife Wetlands Program, *Colorado Wetlands Initiative: 1997-2000*, available at <http://wildlife.state.co.us/habitat/wetlands/initiative/index.asp>.

² 5 COLO. CODE REGS. § 1002-82

³ *Id.* § 1002-31

⁴ *Id.* § 1002-31.27

⁵ COLO. REV. STAT. § 25-8-103(19)

⁶ 5 COLO. CODE REGS. § 1002-31.27

⁷ *Id.* § 1002-31.5

⁸ *Id.*

⁹ "Compensatory wetlands" means "wetlands developed for mitigation of adverse impacts to other wetlands (e.g. wetlands developed pursuant to section 404 of the federal Act)."

¹⁰ "Constructed wetlands" means "those wetlands intentionally designed, constructed and operated for the primary purpose of wastewater or stormwater treatment or environmental remediation provided under CERCLA, RCRA, or section 319 of the federal Act, if (a) such wetlands are constructed on non wetland sites that do not contain surface waters of the state, or (b) such wetlands are

The state relies on the U.S. Army Corps of Engineers' 1987 *Wetlands Delineation Manual*¹³ for delineating wetlands, but may elect to provide further clarification or refinement regarding wetlands delineation to account for any relevant regional differences or other issues pertaining to the federal delineation manual.¹⁴

Organization of state activities

Two state agencies are directly involved in wetlands issues in Colorado: the Department of Public Health and Environment (CDPHE) and the Department of Natural Resources (CDNR). CDPHE takes an exclusively regulatory approach to wetlands protection, administering the state's §401 water quality certification program and §402 discharge permit program. CDNR takes a non-regulatory approach, utilizing voluntary initiatives to protect wetlands. The agencies infrequently communicate on wetland issues or projects in the state.¹⁵

Colorado Department of Public Health and Environment. The §401 water quality certification program is administered by the Colorado Department of Public Health and Environment, Water Quality Control Division. Approximately one-third of one full-time equivalent (FTE) issues §401 certifications for the state. Program costs are covered by a mixture of state and federal funds. The program is based in the CDPHE headquarters office in Denver.¹⁶

Colorado Department of Natural Resources. The Colorado Department of Natural Resources' Division of Wildlife (CDOW) has a Wetlands Program devoted to the administration of non-regulatory, voluntary wetland initiatives in the state.¹⁷ Nine wetland-related volunteer committees are associated with the program. One FTE, based in CDOW's headquarter office in Denver, works on the Wetlands Program, coordinating statewide and local committee activities and allocating funding among committees and projects throughout the state. The annual budget for the program is approximately \$1.5 million and is supported by proceeds from a state lottery¹⁸ and CDOW license fees, such as waterfowl stamps.¹⁹

constructed on previously existing wetland sites, to the extent that approval or authorization under section 404 of the federal Act has been granted for such construction or it is demonstrated that such approval or authorization is not, or was not, required. This term includes, but is not limited to, constructed swales, ditches, culverts, infiltration devices, catch basins, and sedimentation basins that are part of a wastewater or stormwater treatment system or a system for environmental remediation mandated under CERCLA or RCRA. Compensatory wetlands shall not be considered constructed wetlands. Constructed wetlands are not state waters."

¹¹ "Created wetlands" means "those wetlands other than compensatory wetlands created in areas which would not be wetlands in the absence of human modifications to the environment. Created wetlands include, but are not limited to wetlands created inadvertently by human activities such as mining, channelization of highway runoff, irrigation, and leakage from man-made water conveyance or storage facilities. Wetlands resulting from hydrologic modifications such as on-channel reservoirs or on-channel diversion structures that expand or extend the reach of adjacent classified state waters are not considered created wetlands."

¹² "Tributary wetlands" means "wetlands that are the head waters of surface waters or wetlands within the floodplain that are hydrologically connected to surface waters via either surface or ground water flows. The hydrologic connection may be intermittent or seasonal, but must be of sufficient extent and duration to normally reoccur annually. Tributary wetlands do not include constructed or created wetlands."

¹³ U.S. Army Corps of Engineers, Wetlands Research Program Technical Report Y-87-1, *Corps of Engineers Wetlands Delineation Manual (1987)*, available at <http://www.saj.usace.army.mil/permit/documents/87manual.pdf>.

¹⁴ See 5 COLO. CODE REGS. § 1002-31.27

¹⁵ Personal communication with Bill Goosmann, Colorado Division of Wildlife (Aug. 23, 2004).

¹⁶ Personal communication with John Hranac, Colorado Department of Public Health and Environment (Aug. 20, 2004).

¹⁷ Colorado Division of Wildlife, *Colorado Wetlands Program*, at <http://wildlife.state.co.us/habitat/wetlands> (last updated June 6, 2004).

¹⁸ Colorado established a state-sponsored lottery in 1983, with proceeds directed toward land conservation in the state. In 1992, the Great Outdoors Colorado (GOCO) Trust Fund was created. GOCO currently receives 50 percent of the lottery proceeds, with a \$35 million cap (proceeds above that are returned to the state's general fund). Colorado also participates in the multi-state Powerball lottery, with proceeds divided amongst GOCO, Conservation Trust Fund, and State Parks. The GOCO Trust Fund is administered by a 15-member Board of Trustees and is used to fund outdoor recreation, wildlife protection, and open space acquisition. State and local government agencies, including special districts, and nonprofit land conservation organizations are eligible to apply for wetland-

§401 certification

Any actions that require a federal permit, license, or approval that results in a discharge into waters of the state, including §404 dredge and fill permits and nationwide permits, require CWA §401 certification. State regulations establish a procedure for making certification determinations. The procedure requires CDPHE staff to consider the state's antidegradation policies, surface and groundwater regulations, water classifications and their assigned water quality standards, applicable effluent limitations or control regulations, stormwater discharge provisions, public comments, and any project-specific conditions.²⁰ Approximately 100 §401 water quality certifications are issued by the CDPHE each year. Project applications are generally approved, although some certifications may be issued with conditions. CDPHE staff rely on a combination of best professional judgment and qualitative assessment as determined by the water quality certification decision-making procedure.²¹

Nationwide permits

In Colorado, all nationwide permits (NWPs) are §401 certified by state statute.²² Although the U.S. Army Corps of Engineers issues statewide regional conditions,²³ CDPHE staff do not review and approve, condition, or deny nationwide permits (NWPs).²⁴

Mitigation

Colorado has not adopted any legislation regulating compensatory mitigation for wetlands. However, inclusion of a mitigation plan is among the state's selected best management practices for applicants seeking §401 water quality certification.²⁵

Compliance and enforcement

Colorado regulations do outline enforcement and compliance procedures for CDPHE's Water Quality Control Division to utilize where necessary. If notified of a water quality violation, the Division may modify the certification, notify federal authorities of the violation, or suspend or revoke §401 certification.²⁶ Typically, however, enforcement for violations to §401 or §404 of the Clean Water Act is handled at the federal level.²⁷

Tracking systems

The Water Quality Control Division does maintain a database that keeps applicant information records, but it does not include data on mitigation, monitoring, or other wetland-related fields.²⁸

related grants, and 25-50 percent matching funds are required. Between 1994 and 2001, GOCO distributed \$240.9 million to 1,419 projects. For example, GOCO has contributed grant funds to the Colorado Wetlands Initiative, a program that conserved approximately 210,000 acres between 1997 and 2004. See The Trust for Public Land, *Funding Profile: Colorado*, at http://www.tpl.org/tier3_cdl.cfm?content_item_id=875&folder_id=706 (©2004).

¹⁹ Goosmann, *supra* note 15.

²⁰ 5 COLO. CODE REGS. § 1002-82.5

²¹ Hranac, *supra* note 16.

²² 5 COLO. CODE REGS. § 1002-82

²³ U.S. Army Corps of Engineers Omaha District, *Public Notice for Final Statewide Regional Conditions for the Nationwide Permit Program in the State of Colorado*, at <http://www.nwo.usace.army.mil/html/od-tl/nwp-rc-may2002.doc> (May 1, 2002).

²⁴ Hranac, *supra* note 16.

²⁵ 5 COLO. CODE REGS. § 1002-82

²⁶ *Id.* § 1002-82.7

²⁷ Hranac, *supra* note 16.

²⁸ *Id.*

III. Water Quality Standards

The State of Colorado has developed wetland-specific water quality standards and use classifications, which are used both for issuing §401 water quality certifications and National Pollution Discharge Elimination System (NPDES) permits. Depending on the applicable wetland classification, either narrative or numeric water quality standards apply.²⁹ Identification of the appropriate water quality classification can be a two-step process. First, an interim classification with numeric standards is applied to wetlands that are tributary³⁰ to other surface waters (except created wetlands,³¹ which are subject only to narrative standards initially). A new classification may then be applied according to procedures outlined in the state's regulations,³² with resulting standards of protection that may be narrative and/or numeric.³³

All wetlands (except constructed wetlands³⁴) are subject to narrative criteria.³⁵ Compensatory³⁶ and tributary wetlands are generally subject to the classification and standards of the segment with which they are associated. Wetlands that are not tributary or created (generally, isolated wetlands) are also initially subject to narrative standards that apply to all surface waters of the state. These wetlands are also subject to protection by the state's ground water quality standards.³⁷

Classifications are made according to designated uses outlined in the state's regulations.³⁸ Colorado does have designated uses for wetlands (except constructed wetlands), based on the functions³⁹ provided by the wetland in question.⁴⁰

IV. Monitoring and Assessment

CDPHE does not have a monitoring and assessment program in place for wetlands, but does have a program for lakes and streams. Basic standards for assessment methodologies are outlined in the state's regulations and involve biological and chemical assessment.⁴¹ Assessment methodologies are mainly used for developing 303(d) lists and 305(b) reports. The program also utilizes citizen monitoring data where it is available. Support for the program comes from U.S. Environmental Protection Agency grants and NPDES permit fees.⁴²

²⁹ 5 COLO. CODE REGS. § 1002-31

³⁰ See *supra* note 12.

³¹ See *supra* note 11.

³² 5 COLO. CODE REGS. § 1002-31.13(1)(e)(v)

³³ *Id.* § 1002-31.27

³⁴ See *supra* note 10.

³⁵ Narrative criteria are outlined in 5 COLO. CODE REGS. § 1002-31.11

³⁶ See *supra* note 9.

³⁷ 5 COLO. CODE REGS. § 1002-31.27

³⁸ *Id.* § 1002-31.13

³⁹ Wetland functions that may warrant site-specific protection include ground water recharge or discharge, flood flow alteration, sediment stabilization, sediment or other pollutant retention, nutrient removal or transformation, biological diversity or uniqueness, wildlife diversity or abundance, aquatic life diversity or abundance, and recreation. Because some wetland functions may be mutually exclusive (e.g., wildlife abundance, recreation), the functions to be protected or restored will be determined on a wetland-by-wetland basis, considering natural wetland characteristics and overall benefits to the watershed. See 5 COLO. CODE REGS. § 1002-31.13(1)(e)(v)

⁴⁰ 5 COLO. CODE REGS. § 1002-31.13

⁴¹ *Id.* § 1002-31

⁴² Hranac, *supra* note 16.

The Colorado Department of Natural Resources has conducted various wetland assessment projects for non-regulatory purposes. For example, CDOW coordinated a study entitled *Characterization and Functional Assessment of Reference Wetlands in Colorado*.⁴³ Participating agencies and organizations included Colorado Geological Survey, the Colorado School of Mines, and Colorado State University. Five reference wetland study sites were identified in the Colorado, Yampa, and Green River basins and were assessed using the hydrogeomorphic approach. The purpose of the study was to offer a starting point from which to create guidebooks for wetland management from a regional perspective. The project was funded by the U.S. Environmental Protection Agency's State Wetlands Grant program.

CDOW's Wetlands Program has also worked in partnership with the Colorado Natural Heritage Program to classify wetlands statewide. The Comprehensive Statewide Wetlands Classification and Characterization (CSWCC) project, initiated in 1999, seeks to utilize data collected by previous vegetation studies of Colorado's wetlands in order to develop a tool for community-based conservation and protection of wetlands.⁴⁴

Finally, CDOW has contracted with the Rocky Mountain Bird Observatory to conduct monitoring and assessment of wetland projects within the Division's Wetlands Program. To date, efforts have not been well directed and project participants are currently working to create a more targeted statewide effort.⁴⁵

V. Restoration and Partnerships

The main goal of CDOW's Wetlands Program is to protect wetlands and wetland-dependent wildlife.⁴⁶ The program was created in 1997 out of the Division's existing waterfowl program, signified by the release of *The Colorado Wetlands Initiative*, a state wetland conservation strategy. The plan emphasizes voluntary, incentive-based mechanisms and partnerships among government natural resource agencies, nongovernmental organizations, private landowners, and citizens for the protection of wetlands. The initial plan for the Wetland Program established the key objective of "protecting 100,000 acres of biologically significant wetlands and associated uplands for wetland-dependent species... by 2005."⁴⁷ Between 1997 and 2004, a reported 210,000 acres of wetlands and their associated uplands, as well as over 200 miles of streams, were protected. The plan has not been updated recently.⁴⁸

The Wetlands Program operates at both the state and local levels. Two state-level committees have been charged with selecting projects for funding – one allocates funds from the GOCO Trust Fund⁴⁹ while the other allocates funds from collected waterfowl stamp revenue. CDOW license fees also supplement selected projects. The GOCO Committee, or Wetlands Initiative Committee, is chaired by the CDOW Wetlands Program Coordinator and includes representatives from Ducks Unlimited, The Nature Conservancy, and Partners for Fish and Wildlife. The Waterfowl Stamp Committee is also chaired by the CDOW Wetlands Program Coordinator and includes representatives from Ducks Unlimited, Partners for Fish and Wildlife, CDOW, U.S. Department of Interior - Bureau of Land Management, and the Rocky Mountain Bird Observatory.⁵⁰

⁴³ Colorado Geological Survey, Colorado Department of Natural Resources, Colorado School of Mines Division of Environmental Science and Engineering, and Colorado State University Department of Earth Resources, *Characterization and functional assessment of reference wetlands in Colorado* (1998).

⁴⁴ Denise Culver and Ric Hupalo, *Comprehensive Statewide Wetlands Classification and Characterization Project*, 11 THE GREEN LINE 4 (Winter 2000), available at <http://coloradoriparian.org/GreenLine/V11-4/Classification.html>.

⁴⁵ Goosmann, *supra* note 15.

⁴⁶ Colorado Division of Wildlife, *supra* note 17.

⁴⁷ Colorado Division of Wildlife Wetlands Program, *supra* note 1.

⁴⁸ Goosmann, *supra* note 15.

⁴⁹ The Trust for Public Land, *supra* note 18.

⁵⁰ Goosmann, *supra* note 15.

At the local level, nine “wetland focus area committees” are located in the state’s major drainages. Originally based committees associated with the Joint Ventures of the North American Waterfowl Management Plan, wetland committees exist in the San Luis Valley, South Platte River, the plains of southeastern Colorado, North Park, South Park, Yampa/White River, Lower Colorado River (“Five Rivers”), Gunnison River, and southwestern Colorado. Committees are composed of volunteers and conduct a variety of activities, including identification of potential restoration and conservation projects, assistance to landowners and others interested in conducting restoration and conservation projects, and education and outreach. Committee membership varies and typically includes local, state, and federal natural resource professionals; citizens; nongovernmental organizations; university professors; landowners; and land trusts. Because of the variation in membership, access to technical expertise and project resources also varies. The Wetlands Program is currently investigating means to improve the ability of committees to implement wetland projects, including increased funding and improved access to wetland project development tools.⁵¹

VI. Education and Outreach

Both CDOW and CDPHE are engaged in various education and outreach activities. However, neither agency has developed wetland-specific education or outreach efforts. For example, CDPHE watershed coordinators conduct education and outreach related to watersheds, but none specific to wetlands.⁵² CDOW has a very well developed education and outreach program, but it does not coordinate effectively with the agency’s Wetlands Program.⁵³

VII. Coordination with State and Federal Agencies

The main role of CDOW’s Wetlands Program is coordination among the program’s statewide partners and the local wetland committees. Statewide partners include the U.S. Fish and Wildlife’s Partners for Fish and Wildlife, Ducks Unlimited, The Nature Conservancy, federal joint ventures, Rocky Mountain Bird Observatory, and the Colorado Natural Heritage Program. Local wetland committees are composed of a variety of members, including local, state, and federal natural resource professionals, citizens, nongovernmental organizations, university professors, landowners, and land trusts.⁵⁴ The CDPHE Water Quality Control Division coordinates with federal agencies such as the Corps on specific §401 certification applications, as the need arises. Occasionally, interagency meetings are held and are attended by various federal agency representatives. Coordination between CDOW and CDPHE is infrequent.⁵⁵

⁵¹ Colorado Division of Wildlife Wetlands Program, *supra* note 1.

⁵² Hranac, *supra* note 16.

⁵³ Goosmann, *supra* note 15.

⁵⁴ *Id.*

⁵⁵ Hranac, *supra* note 16.

VIII. Acronyms and Abbreviations

CCR - Code of Colorado Regulations

CDNR - Colorado Department of Natural Resources

CDOW - Colorado Department of Natural Resources, Division of Wildlife

CDPHE - Colorado Department of Public Health and Environment

CRS - Colorado Revised Statutes

CSWCC - Comprehensive Statewide Wetlands Classification and Characterization

CWA - Clean Water Act

CWQCA - Colorado Water Quality Control Act

FTE - Full-time Equivalent

GOCO - Great Outdoors Colorado

NPDES - National Pollution Discharge Elimination System

NWPs - Nationwide Permits

Georgia

I. Overview

Georgia's total wetland acreage, approximately 7.7 million acres, covers an estimated 20 percent of the state's total land area. This includes more than 378,000 acres of coastal marshlands, comprising one-third of the remaining salt marsh along the U.S. Atlantic coast.¹ Today, these wetlands remain largely pristine due to the Georgia's multi-faceted approach to tidal wetlands protection. The state manages tidal wetlands both through statutory requirements and as property owner, since the large majority of Georgia's coastal marshlands are public land.² However, rapid development is imposing new pressures on the state's tidal and non-tidal wetland resources. Freshwater wetlands are regulated primarily through §401 water quality certification under the Clean Water Act (CWA).

II. Regulatory Programs

Wetland definitions and delineation

Georgia's definition of state waters explicitly includes wetlands. "Waters of the State" is defined as "any and all rivers, streams, creeks, branches, lakes, reservoirs, ponds, drainage systems, springs, wells, wetlands, and all other bodies of surface or subsurface water, natural or artificial, lying within or forming a part of the boundaries of the state which are not entirely confined and retained completely upon the property of a single individual, partnership, or corporation."³

Wetlands are defined in various state statutes. Under the Coastal Marshlands Protection Act, definitions for "coastal marshlands," "vegetated marshlands," and "estuarine areas" are given.⁴ The Georgia Planning Act uses the federal definition of "freshwater wetlands."⁵ In addition, the Georgia Planning Act provides definitions for "non-forested emergent wetlands," "scrub/shrub wetlands," "forested wetlands," and "altered wetlands."⁶

¹ Georgia Dep't of Natural Resources and National Oceanic and Atmospheric Administration, *Coastal Management Program and Final Environmental Impact Statement*, (August 1997) (on file with Georgia Dep't of Natural Resources, Coastal Resources Division).

² Some of Georgia's protected barrier islands are privately held, and Georgia's holdings (as well as Federal holdings) are primarily on the barrier islands, although other state properties exist in coastal counties as well. Personal communication with Chris Canalos, Georgia Dep't of Natural Res. (Dec. 6, 2004).

³ GA. COMP. R. & REGS. r. 391-3-6.03(3)(l).

⁴ "Coastal marshlands" include "[a]ny intertidal marshland area, mud flat, tidal water bottom, or salt marsh in the state of Georgia within the estuarine areas of the state." "Vegetated marshlands" are "areas upon which grow one, but not necessarily all, of the following: salt marsh grass (*Spartina alterniflora*), black needlerush (*Juncus roemerianus*), saltmeadow cordgrass (*Spartina patens*), big cordgrass (*Spartina cynosuroides*), saltgrass (*Distichlis spicata*), coast dropseed (*Sporobolus virginicus*), bigelow glasswort (*Salicornia bigelovii*), woody glasswort (*Salicornia virginica*), saltwort (*Batis maritima*), sea lavender (*Limonium nashii*), sea oxeye (*Borichia frutescens*), silverling (*Baccharis halimifolia*), false willow (*Baccharis angustifolia*), and high-tide bush (*Iva frutescens*)." "Estuarine areas" include "[a]ll tidally influenced waters, marshes, and marshlands lying within a tide elevation range from 5.6 feet above mean tide level and below." GA. CODE ANN. § 12-5-282.

⁵ "Freshwater wetlands" are defined using the federal definition ("... areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.") However, Georgia's definition of freshwater wetlands does not include any areas defined as "coastal marshlands" by the State Coastal Marshlands Protection Act. GA. COMP. R. & REGS. r. 391-3-16-.03(3)(a).

⁶ "Scrub/shrub wetlands" mean "non-forested areas dominated by woody shrubs, seedlings and saplings averaging less than 20 feet in height; these wetlands may intergrade with forested wetlands, non-forested emergent wetlands, and open water." "Forested wetlands" include those "natural or planted forested areas having a dominant tree crown closure of hardwoods, pines, gums, cypress, or any combination of these types. These areas are usually in stream or river floodplains, isolated depressions, and drainways and contain standing or flowing water for a portion of the year..." "Non-forested emergent wetlands" include

Georgia delineates wetlands consistently with §404 of the CWA and in accordance with the criteria outlined in the U.S. Army Corps of Engineers' 1987 *Wetlands Delineation Manual*.⁷

Wetland-related statutes and regulations

Georgia relies on §401 water quality certification to regulate wetlands statewide, but also has additional laws and regulations governing tidal wetlands protection and planning.

§401 water quality certification. Section 401 water quality certification provides protection for both the state's tidal and non-tidal wetlands. Administered by the Environmental Protection Division (EPD) of the Georgia Department of Natural Resources (GA DNR), an average of 70 to 80 certifications are issued annually in the state. All of the project applications received by EPD are approved for certification, although the division may apply conditions or work with permit applicants to modify projects to meet state requirements.⁸ Decision-making is based on a combination of best professional judgment and a quantitative review for consistency with the state's water quality provisions, local ordinances, the Erosion and Sedimentation Act,⁹ and other statutes and provisions.¹⁰

Coastal wetlands protection. Enacted in 1970, Georgia's Coastal Marshlands Protection Act¹¹ (CMPA) created a separate permitting program for tidal wetlands.¹² Under the act, GA DNR's Coastal Resources Division (CRD) regulates all dredging, draining, or other alterations to marshlands. These types of activities are prohibited without first obtaining a "Marsh Permit." In addition, the construction or location of any structure on or over marshlands of the state without a permit is also prohibited.¹³ Activities that are water-related and/or dependent on waterfront access must avoid and minimize impacts to the extent practicable.¹⁴ If a non-marshland alternative site is available, or the project can be satisfied by the use of public facilities, a permit is not usually granted. Provisions for compensatory mitigation are not

"freshwater marshes dominated by a variety of grasses, sedges, rushes, and broadleaved aquatic associated with streams, ponded areas, and tidally-influenced non-saline waters." "Altered wetlands" include "areas with hydric soils that have been denuded of natural vegetation and put to other uses, such as pasture, row crops, etc., but that otherwise retain certain wetlands function and values." GA. CODE ANN. § 50-8-1.

⁷ U.S. Army Corps of Engineers, Wetlands Research Program Technical Report Y-87-1, *Corps of Engineers Wetlands Delineation Manual (1987)*, available at <http://www.saj.usace.army.mil/permit/documents/87manual.pdf>.

⁸ Personal communication with Keith Parsons, Georgia Dep't of Natural Res. (Nov. 4, 2004).

⁹ The Georgia Erosion and Sedimentation Act requires that each county or municipality adopt a comprehensive ordinance establishing procedures governing land-disturbing activities based on the minimum requirements established by the Act. The Erosion and Sedimentation Act is administered by EPD and by local governments. Permits are required for specified "land-disturbing activities," including the construction or modification of manufacturing facilities, construction activities, certain activities associated with transportation facilities, activities on marsh hammocks, and other activities. With certain constraints, permitting authority can be delegated to local governments. Georgia Dep't of Natural Res., Coastal Resources Division, *State Laws Under Federal Consistency - Erosion and Sedimentation Control*, at <http://crd.dnr.state.ga.us/content/displaycontent.asp?txtDocument=100&txtPage=10> (last visited November 10, 2004).

¹⁰ Parsons, *supra* note 8.

¹¹ GA. CODE ANN. § 12-5-280.

¹² The jurisdiction of the Coastal Marshlands Protection Act extends to "coastal marshlands" or "marshlands," which includes marshland, intertidal area, mudflats, tidal water bottoms, and salt marsh area within estuarine area of the state, whether or not the tidewaters reach the littoral areas through natural or artificial watercourses. GA. CODE ANN. § 12-5-282.

¹³ GA. CODE ANN. § 12-5-280.

¹⁴ Exempt activities include routine Georgia Department of Transportation activities, maintenance of navigation of rivers and harbors, railroad activities of public utilities companies, activities of companies regulated by the Public Service Commission, activities incident to water and sewer pipelines, and construction of private docks that do not obstruct tidal flow and meet certain other standards described in the CMPA.

included in the statute; however, coastal permits rarely involve the filling of wetlands.¹⁵ Under fifty permits are issued annually by the CRD, mostly relating to the building of docks or other minor construction activities. Permit applications are usually approved, but often with modifications.¹⁶

In cases where the proposed activity involves construction on state-owned tidal wetlands,¹⁷ a “Revocable License” is normally issued by the CRD. A Revocable License grants permission to use publicly owned lands lying below the ordinary high water mark. The license is required for any activities that would impact tidally influenced waters, salt marshes, intertidal areas, mud flats or tidal waterbottoms in the state’s coastal counties.¹⁸ This includes bank stabilization projects, projects that require a CMPA permit, projects that are specifically exempt from the CMPA, and most activities authorized under the U.S. Army Corps of Engineers’ Nationwide Permits.¹⁹

Activities in the state’s coastal counties also require a determination of “federal consistency.”²⁰ In other words, direct federal activities, federal permits and licenses, and federally-assisted projects may not proceed without a determination or certification that the activity complies with the policies of the Georgia Coastal Management Program. Only activities requiring a federal permit necessitate certification of consistency.²¹

*Comprehensive Planning Act.*²² The Comprehensive Planning Act, which focuses on land use planning at the local level, recognizes the importance of wetlands. At the state level, GA DNR is required to develop minimum standards and procedures for the protection of numerous natural resources, including wetlands.²³ The act also directs the Georgia Department of Community Affairs to incorporate these planning criteria into local government minimum standards and procedures.²⁴ At a minimum, the state must define, identify, and map open water, non-forested emergent wetlands, scrub/shrub wetlands, forested wetlands, and altered wetlands (as defined in “*Wetlands definition and delineation*” section above). Local land use plans must then address several considerations with regards to the wetland classes identified in the database.²⁵ The act applies only to freshwater wetlands for the state, as defined under the Clean Water Act. Coastal marshlands defined under the CMPA are not included.²⁶

¹⁵ In 1992, the CMPA was amended to identify activities normally considered “contrary” to the public interest, including (but not limited to) the filling of tidal wetlands for residential, commercial, and industrial uses, waste or dredge disposal, private roadways, and private parking areas. GA. CODE ANN. § 12-5-288.

¹⁶ Personal communication with Jeannie Butler, Georgia Dep’t of Natural Res. (Nov. 17, 2004).

¹⁷ Most of the state’s 378,000 acres of tidal wetlands belong to the state. Rare exceptions include a crown grant or state grant (i.e. the party has been deeded land either by the King of England or the state). Granted coastal marshlands generally remain in the jurisdiction of the state in order to serve the public interest. Personal communication with Jeannie Butler, Georgia Dep’t of Natural Res. (Jun. 8, 2004).

¹⁸ Federal Consistency provisions are applicable in the eleven coastal counties: Effingham, Chatham, Wayne, Bryan, Liberty, Long, McIntosh, Wayne, Glynn, Brantley, Camden, and Charlton.

¹⁹ Georgia Dep’t of Natural Res., Coastal Resources Division, *When a Revocable License Is Needed, at* <http://crd.dnr.state.ga.us/content/displaycontent.asp?txtDocument=368> (last visited November 10, 2004)

²⁰ Georgia Dep’t of Natural Res., Coastal Resources Division, *A Consistency Certification or Determination is Needed When . . . , at* <http://crd.dnr.state.ga.us/content/displaycontent.asp?txtDocument=101> (last revised July 10, 2003).

²¹ GA. CODE ANN. § 12-5-322.

²² *Id.* § 12-2-8 (b).

²³ These criteria are found at GA. CODE ANN. § 50-8.7.1(b)(2).

²⁴ *Id.* § 12-2-8 (b).

²⁵ GA. COMP. R. & REGS. r.391-3-16-.03(3)(c).

²⁶ “Freshwater wetlands” are defined using the federal definition, but do not include any areas defined as “coastal marshlands” by the CMPA. GA. COMP. R. & REGS. r.391-3-16-.03(3)(a).

Organization of state agencies

The state's wetland regulation and protection programs involve various divisions within the GA DNR. The agency's Environmental Protection Division (EPD) oversees most air, water, and land regulation, including §401 water quality certification for wetlands. However, GA DNR's Coastal Resources Division (CRD) oversees regulation of the CMPA. The Wildlife Resources Division (WRD) also conducts non-regulatory wetland-related activities.

Environmental Protection Division. While technically part of the GA DNR, EPD operates largely as its own agency. The EPD director and GA DNR commissioner both report to the Georgia's Board of Natural Resources and have equal positions.²⁷ EPD oversees §401 water quality certification and water quality regulation, including monitoring, assessment, enforcement, and compliance. EPD also conducts various forms of education and outreach.

In addition to the agency headquarters located in Atlanta, EPD has five regional offices that conduct numerous activities, wetland- and non-wetland-related. Because staff activities are spread among many areas of environmental protection, it is difficult to calculate the amount of staff time devoted specifically to wetlands regulation and protection within EPD. However, the division does employ one full-time staff person specifically for §401 program coordination. It is difficult to estimate the amount of funding devoted to wetland-related programs in the state due to the dispersed nature of EPD staff activities. Funding for the EPD's wetland-related activities generally comes from federal grants, e.g. §319, §104, and §106 funds from the U.S. Environmental Protection Agency. State appropriations are usually used to match federal grants.²⁸

Coastal Resources Division. CRD oversees all regulatory activities pertaining to the CMPA; however, an appointed Marsh/Shore Protection Committee²⁹ ultimately makes all permitting decisions. Division staff assemble and evaluate information required to make a permit decision, but the burden of proof that no viable alternatives exist and that impacts will be minimized is placed on the permit applicant.³⁰ CMPA lists permit public interest decision-making guidelines for the committee related to navigation, erosion, marine life and wildlife, and water quality.³¹

CRD's Marsh and Shore Regulatory Program (MSRP) is based in Brunswick, with a satellite office located in the Savannah area. Approximately four full-time equivalents (FTEs) conduct marsh and beach permitting and assist in compliance matters.³² MSRP's budget, on the order of \$250,000 annually, is funded almost entirely through the Coastal Zone Management Act (administered by NOAA).³³ An additional four FTEs based in an associated CRD program issue the U.S. Army Corps of Engineers' programmatic general permit for private docks coupled with revocable licenses, delineate the state's marsh and beach jurisdiction, and enforce the Coastal Marshlands and Shore Protection Acts. A CRD staff attorney also reviews all applications for revocable licenses and permits. Coastal zone funding also supports CRD's staff attorney and a part of the private dock permitting staff. The state provides 1:1 match on the entire federal coastal zone award. Other CRD activities include §401/§404 permit review through the federal consistency process, and education and

²⁷ Parsons, *supra* note 8.

²⁸ Parsons, *supra* note 8.

²⁹ The Coastal Marshlands and Shore Protection Committee are five person panels authorized by the CMPA and Shore Protection Act to grant or deny permits to conduct activities on Georgia's coastal wetlands and beaches. The chairman of the committees is the GA DNR Commissioner. The other four members of the committees are appointed by the GA DNR's Board of Natural Resources. Three members of the committee are required to reside on Georgia's coast and all members are unpaid (with the exception of reimbursement for travel expenses). Committee membership has been long-term, such that institutional knowledge is maintained.

³⁰ Butler, *supra* note 17.

³¹ GA. CODE ANN. § 12-5-288; 12-5-280 and 12-5-286(g)(1), (2), and (3).

³² Butler, *supra* note 17.

³³ Butler, *supra* note 16.

outreach. Coastal Management Program staff also provide technical assistance to local government planners and resource managers.³⁴

Wildlife Resources Division. GA DNR's Wildlife Resources Division (WRD) regulates hunting, fishing, and the operation of watercraft in Georgia, protects non-game and endangered wildlife, and maintains public education and law enforcement programs for the state's natural resources. Although the WRD does not focus on wetlands specifically, various activities and programs do involve wetland restoration, conservation, and education and outreach. WRD also occasionally lends review to §404 permit applications. The division operates out of the state headquarters, as well as seven regional offices. With a budget of approximately \$37 million annually, WRD is funded by a combination of state appropriations,³⁵ federal grants, and collections from the sale of specialty license plates. The agency employs 675 employees.³⁶ Because wetlands are not typically the primary focus of WRD activities, it is difficult to estimate the amount of FTEs or funding devoted to wetland-related activities.

Nationwide permits

EPD conducts ongoing review of the U.S. Army Corps of Engineers' Nationwide Permits (NWP). First, the division reviews the regional conditioning of NWPs. General conditions include: the requirement of a Pre-Construction Notification for several NWPs; compensatory mitigation specifications; prohibition of NWPs for non-linear projects resulting in bank to bank filling, relocating, and/or culverting of more than 300 feet of stream; and the requirement that all projects must comply with Georgia's Erosion and Sediment Control Act of 1975. In addition to these general conditions, multiple NWPs have received specific conditions as well.³⁷ No NWPs have been denied.³⁸ EPD also conducts a weekly review of applied NWPs. EPD may deny or request the elevation of an NWP, but this rarely occurs.³⁹

Mitigation

Georgia's state laws and regulations do not address wetland or stream mitigation directly. Instead, the state relies on federal requirements for impacts to wetlands and streams. However, GA DNR is party to the region's Mitigation Banking Review Team (MBRT) and has developed *Guidelines on the Establishment and Operation of Wetland Mitigation Banks in Georgia* in conjunction with the U.S. Army Corps of Engineers – Savannah District, U.S. Environmental Protection Agency – Region IV, and U.S. Fish and Wildlife Service – Southeast Region. The guidelines are targeted towards state and federal resource agencies and bank sponsors and seek to provide assistance in developing and establishing mitigation banks while meeting the goals of the Clean Water Act.⁴⁰ An in-lieu-fee program has also been established in Georgia, but does not involve state-level participation.⁴¹

³⁴ Personal communication with Jeannie Butler, Georgia Dep't of Natural Res. (Dec. 15, 2004).

³⁵ State hunting and fishing license fees are deposited into the state's general fund. The Georgia state legislature then appropriates general state funds to the WRD.

³⁶ Personal communication with Ted Hendrickx, Georgia Department of Natural Resources (Nov. 24, 2004).

³⁷ The following NWPs have received additional conditions: NWP#3 - Maintenance; NWP#4 - Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities; NWP#7 - Outfall Structures and Maintenance; NWP#10 - Mooring Buoys; NWP#11 - Temporary Recreational Structures; NWP#12 - Utility Activities; NWP#14 - Linear Transportation Projects; NWP#18 - Minor Discharges; NWP#19 - Minor Dredging; NWP#23 - Approved Categorical Exclusions; NWP#33 - Temporary Construction, Access, and Dewatering; NWP#35 - Maintenance Dredging of Existing Basins; NWP#36 - Boat Ramps; NWP#37 - Emergency Watershed Protection and Rehabilitation; NWP#41 - Reshaping Existing Drainage Ditches; NWP#42 - Recreational Facilities; NWP#43 - Stormwater Management Facilities; and NWA#44 - Mining Activities.

³⁸ U.S. Army Corps of Engineers, Savannah District, *Nationwide Permits Regional Conditions*, at <http://www.sas.usace.army.mil/2002rcnwp4.html> (last visited November 10, 2004).

³⁹ Parsons, *supra* note 8.

⁴⁰ U.S. Army Corps of Engineers, Savannah District, *Guidelines for the Establishment and Operation of Wetlands Mitigation Banks in Georgia*, available at <http://www.sas.usace.army.mil/bankguid.htm>.

⁴¹ The U.S. Army Corps of Engineers Savannah District and the Georgia Land Trust Service Center (GLTSC) have entered into a partnership agreement to provide an in-lieu-fee mitigation option for applicants of the Clean Water Act §404 permitting process.

Compliance and enforcement

Enforcement mechanisms under the state's water quality laws apply to wetlands statewide. Violations to state water quality provisions may result in civil penalties of up to \$50,000 per day of the violation. Penalties may be doubled for violations from the same party within a one-year period.⁴² Violations are typically investigated initially by regional EPD staff, but may proceed to higher levels of investigation depending on the level of compliance.⁴³

Under the CMPA, the CRD maintains a compliance and enforcement program for the state's tidal wetlands as well. Monthly or bimonthly over-flights are made of the Georgia coastline to find potential violations. Jurisdiction is given to the superior court of the county in which the violation occurs. The CMPA outlines enforcement mechanisms that may be used singularly or in combination. These include cease and desist orders, civil penalties of up to \$10,000 per day of the violation, injunctions, and restoration.⁴⁴ The CRD enforcement program is active, with approximately 25 to 30 ongoing actions at any given time. These cases typically involve individuals who are out of compliance with their permit or have not rightfully obtained a permit for the activities they are conducting. Typically, these parties will be fined and ordered to restore the site. In some cases, supplemental environmental projects will be required as well.⁴⁵

Tracking systems

Both the EPD and CRD maintain basic tracking systems for §401/§404, revocable licenses, and CMPA permits, respectively. The databases include basic data such as location, wetland type, and acreage. Mitigation is not included.⁴⁶

III. Water Quality Standards

Georgia does not have water quality standards (WQS) specific to wetlands. Criteria are narrative, chemical, and biological.⁴⁷ The regulations do not identify designated uses for wetlands, defaulting to open water uses: drinking water; recreation; fishing, propagation of fish, shellfish, game, and other aquatic life; wild river; scenic river; and coastal fishing.⁴⁸ The state antidegradation policy is not specific to wetlands either, but does provide that the level of water quality necessary to protect existing uses should be maintained and protected unless degradation is "justifiable to provide necessary social or economic development."⁴⁹ A higher level of protection is given to waters designated as "outstanding resource waters."⁵⁰ It should also be noted that, in the absence of wetland-specific WQS, NPDES permit and §401 certification decisions rely on surface water criteria and standards.

The Georgia Wetlands Trust Fund will be funded by payments from permit applicants for the costs associated with purchasing, managing, and preserving wetlands required for mitigation under the §404 permit application process. The GLTSC serves as a clearinghouse for land trusts and government agencies who can then utilize the wetland trust funds to acquire wetlands for preservation, restoration and management. Georgia Trails and Greenways, *Georgia Wetlands Trust Fund*, at <http://www.serve.com/bike/georgia/trails/corps.html> (last visited November 10, 2004).

⁴² GA. CODE ANN. § 12-5-52(a).

⁴³ Parsons, *supra* note 8.

⁴⁴ GA. CODE ANN. § 12-5-291.

⁴⁵ Personal communication with Jeannie Butler, Georgia Department of Natural Resources (Jun. 8, 2004).

⁴⁶ Parsons, *supra* note 8 and Butler, *supra* note 17.

⁴⁷ GA. COMP. R. & REGS. r. 391-3-6.

⁴⁸ GA. COMP. R. & REGS. r. 391-3-6-.03(4).

⁴⁹ GA. COMP. R. & REGS. r. 391-3-6.03(2)(b).

⁵⁰ GA. COMP. R. & REGS. r. 391-3-6.03(2)(c).

IV. Monitoring and Assessment

While there is no monitoring and assessment program in place for wetlands, EPD's Watershed Planning and Monitoring Program does operate an Ambient Monitoring Unit for streams. The unit conducts monitoring and assessment for wadable streams throughout the state's habitats using the Georgia Bioassessment Protocol. Data is used to support fishery assessments, which are used in compiling §303(d) lists and §305(b) reports. Program staff are currently in the process of developing biocriteria for regulatory purposes as well. Finally, the program also supports EPD's Permitting, Compliance, and Enforcement Program as the need arises. The monitoring program is funded entirely by CWA §106 funds.⁵¹

EPD also coordinates Georgia's Adopt-A-Stream (AAS) Program. The Program is aimed at increasing awareness and providing education about water quality for citizens of the state. In addition, volunteers are provided with training and tools for collecting water quality data.⁵²

V. Restoration and Partnerships

Although Georgia has not created a formal wetland restoration plan or program, the Wildlife Resources Division conducts some restoration-related activities for wetlands, with a focus on habitat preservation, creation, and rehabilitation.⁵³ The Bobwhite Quail Initiative is a voluntary and experimental program to restore habitat for bobwhite quail, songbirds, and other farm wildlife, improve water quality, and reduce soil erosion. Initiated in central Georgia, the program provides landowners with monetary incentives for restoring quail habitat and includes research and monitoring components. Collaborating organizations include the University of Georgia, Georgia Soil and Water Conservation Commission, Georgia Forestry Commission, USDA Natural Resources Conservation Service and Farm Service Agency, and Quail Unlimited.⁵⁴ WRD also provides guidance on other available landowner stewardship programs.⁵⁵

⁵¹ Personal communication with Kristen Sanford, Georgia Dep't of Natural Res. (Nov. 12, 2004).

⁵² Georgia Dep't of Natural Res., Environmental Protection Division, *Georgia Adopt-A-Stream*, at <http://www.riversalive.org/aas.htm#FUNDING%20SOURCES> (last visited Nov. 10, 2004).

⁵³ Hendrickx, *supra* note 36.

⁵⁴ Georgia Dep't of Natural Res., Wildlife Resources Division, *About the Bobwhite Quail Initiative*, at <http://georgiawildlife.dnr.state.ga.us/content/displaycontent.asp?txtDocument=108> (last revised July 29, 2002).

⁵⁵ Georgia Dep't of Natural Res., Wildlife Resources Division, *A Landowner's Guide – Conservation Easements for Natural Resource Protection*, at <http://georgiawildlife.dnr.state.ga.us/content/displaycontent.asp?txtDocument=192> (last revised Aug. 15, 2002).

VI. Education and Outreach

EPD sponsors EEinGEORGIA.org, a collaboration of environmental educators throughout the state, agencies such as the Department of Community Affairs and Department of Education, and educational organizations such as Environmental Education Alliance of Georgia, Georgia Learning Connections, and the Georgia Parent Teacher Association. Initial funding for the program came from the U.S. Environmental Protection Agency. EEinGEORGIA.org provides lesson plans, a directory of environmental education providers and resources for the state, news, and other information. The organization also provides training on various environmental education topics, including Project WET (Water Education for Teachers).⁵⁶

WRD also conducts Project WILD, Project WET, and Outdoor and Wildlife Leadership Schools (OWLS). Although not specifically wetlands-focused, these programs offer interdisciplinary environmental training for educators, including lessons on aquatic habitat and wildlife, conservation, and land use impacts.⁵⁷

VII. Coordination with State and Federal Agencies

Coordination on wetlands regulation and protection occurs within the GA DNR, as well as between state and local or federal agencies. The state's MBRT meets four times a year,⁵⁸ while EPD, Corps, and U.S. Environmental Protection Agency staff coordinate regularly on the §401/§404 regulatory process.⁵⁹ Finally, WRD often works with the Georgia Department of Transportation (GDOT), as well as the USDA Natural Resources Conservation Service and Farm Service Agency, on restoration/mitigation initiatives.⁶⁰

GDOT has begun increasing efforts to integrate environmental considerations into transportation planning in recent years. Working in partnership with the Federal Highway Administration and other state and federal agencies, land trust organizations, and private landowners, GDOT is identifying and protecting high-quality stream areas and wetland sites in its mitigation and restoration efforts.⁶¹

⁵⁶ Georgia Adopt-A-Stream, *Georgia Adopt-A-Stream*, at <http://eeingeorgia.org/net/go/default.aspx?siteid=4863> (last visited November 10, 2004).

⁵⁷ Georgia Dep't of Natural Res., Wildlife Resources Division, *General Info: General/Educators Menu*, at <http://georgiawildlife.dnr.state.ga.us/content/displaynavigation.asp?TopCategory=98> (last visited Nov. 24, 2004).

⁵⁸ Butler, *supra* note 17.

⁵⁹ Parsons, *supra* note 8.

⁶⁰ Hendrickx, *supra* note 36.

⁶¹ Federal Highway Administration, *Georgia Department of Transportation - Building Partnerships to Balance Transportation Planning with Ecosystem Integrity*, at <http://www.fhwa.dot.gov/environment/ecosystems/ga.htm> (last updated June 29, 2004).

VIII. Acronyms and Abbreviations

AAS - Adopt-A-Stream

COMPA - Coastal Marshlands Protection Act

CRD - Coastal Resources Division

CWA - Clean Water Act

EPD - Environmental Protection Division

FTE - Full-time Equivalent

GA DNR - Georgia Department of Natural Resources

GDOT - Georgia Department of Transportation

GLTSC - Georgia Land Trust Service Center

MBRT - Mitigation Banking Review Team

MSRP - Marsh and Shore Regulatory Program

NWP - Nationwide Permit

OWLS - Outdoor and Wildlife Leadership Schools

USDA - United States Department of Agriculture

WET - Water Education Training

WQS - Water Quality Standards

WRD - Wildlife Resources Division

Maine

I. Overview

Maine's wetland resources encompass approximately 25 percent of the state's land area, or four times the wetland acreage of the other five New England States combined. Approximately five million acres of the state's wetlands are freshwater and about 150,500 acres are tidal. Jurisdiction for the state's wetlands is divided between two state agencies: Maine Department of Environmental Protection and the Land Use Regulation Commission. Each agency implements separate but similar laws and regulations that provide protection for wetlands and other aquatic resources.¹

II. Regulatory Programs

Wetland definitions and delineation

Maine includes wetlands in the state definition of "waters." "Waters of the State" means "any and all surface and subsurface waters that are contained within, flow through, or under² or border upon this State or any portion of the State, including the marginal and high seas, except such waters as are confined and retained completely upon the property of one person and do not drain into or connect with any other waters of the State, but not excluding waters susceptible to use in interstate or foreign commerce, or whose use, degradation or destruction would affect interstate or foreign commerce."³

The state provides several definitions of wetlands. Maine's Natural Resources Protection Act⁴ (NRPA), regulated by the Maine Department of Environmental Protection, defines coastal wetlands as "all tidal and subtidal lands, including all areas below any identifiable debris line left by tidal action; all areas with vegetation present that is tolerant of salt water and occurs primarily in a salt water or estuarine habitat; and any swamp, marsh, bog, beach, flat or other contiguous lowland which is subject to tidal action during the maximum spring tide level as identified in tide tables published by the National Ocean Service. Coastal wetlands may include portions of coastal sand dunes."⁵ NRPA defines a forested wetland as "a freshwater wetland dominated by woody vegetation that is 6 meters tall, or taller."⁶ A floodplain wetland includes "lands adjacent to a river, stream or brook that are inundated with floodwater during a 100-year flood event and that under normal circumstances support a prevalence of wetland vegetation typically adapted for life in saturated soils."⁷ Finally, freshwater wetlands are those "freshwater swamps, marshes, bogs and similar areas that are inundated or saturated by surface or groundwater at a frequency and for a duration sufficient to support, and which under normal circumstances do support, a prevalence of wetland vegetation typically adapted for life in saturated soils; and not considered part of a great pond, coastal wetland, river, stream or brook."⁸ The state's wastewater discharge licensing regulations provide a definition for wetlands that corresponds with the federal definition.⁹ Finally, laws pertaining to the areas of the state under the jurisdiction of the Land Use Regulation Commission (LURC) define coastal wetlands, floodplain wetlands, forested wetlands, and freshwater wetlands separately, but the definitions listed are almost

¹ Maine Department of Natural Resources, *Maine's Wetlands: Their Functions and Values*, at <http://www.maine.gov/dep/blwq/docstand/ipwetfv2.htm> (Sept. 1996).

² The state definition of "waters" includes groundwater and so is more inclusive than the federal definition of waters (since the majority of wetlands in the state are connected to either surface or ground waters).

³ ME. REV. STAT. ANN. tit. 38, § 361-A(7).

⁴ *Id.* §§ 480-A

⁵ *Id.* § 480-B(2).

⁶ *Id.* § 480-B(2-C).

⁷ *Id.* § 480-B(2-D).

⁸ *Id.* § 480-B(4).

⁹ Maine Department of Environmental Protection Fact Sheet: Wetlands as Waters of the State (Apr. 5, 2004) (on file with author).

identical to their NRPA counterparts. LURC's rules also include a definition for peatlands, which includes "[f]reshwater wetlands, typically called bogs or fens, consisting of organic soils at least 16 [inches] deep, predominantly vegetated by ericaceous shrubs (heath family), sedges, and sphagnum moss and usually having a saturated water regime."¹⁰

Maine delineates wetlands consistently with the criteria outlined in the U.S. Army Corps of Engineers' 1987 *Wetlands Delineation Manual*.¹¹

Organization of state agencies

Most state-level wetlands regulation and protection is under the jurisdiction of two agencies: the Maine Department of Environmental Protection (MDEP) and the Land Use Regulation Commission (LURC). Maine is unique in its jurisdictional approach to wetlands regulation. The MDEP oversees the implementation of wetland-related statutes and regulations in "organized" areas of the state. LURC is charged with implementing land use rules and protections in "unorganized" and "deorganized" areas of the state. These are areas defined as "townships [and] plantations that have not received [C]ommission approval. . . to implement their own land use controls, municipalities that have organized since 1971 but have not received [C]ommission approval. . . to implement their own land use controls, and all other areas of the State that are not part of an organized municipality except Indian reservations."¹²

Maine Department of Environmental Protection. There are four divisions within the MDEP that work on wetland-related issues. The Land Resource Regulation Division oversees permitting under the state's Natural Resources Protection Act, as well as enforcement, compliance, and mitigation, and is funded mostly by general state appropriations, dedicated fees, and the Coastal Zone Management Program. The Division of Water Resource Regulation is responsible for permitting, compliance, and enforcement related to the state wastewater discharge and National Pollutant Discharge Elimination System (NPDES) programs. This division also issues permits and water quality certifications for dam and hydropower projects. The Division of Environmental Assessment provides scientific information and technical support for the agency's other wetland-related programs, including review and comment for NRPA and LURC permits, §401 water quality certification and NPDES permits, as well as other water quality issues, including bioassessment and monitoring for wetlands throughout the state. This group is funded by both the general state fund and federal agency grants. Finally, the Watershed Management Division oversees watershed management and assessment and §319-related activities. Their monies come from both state general funds and federal agencies.¹³

The MDEP has four regional offices, including the headquarter office in the state capital of Augusta, which serves as both a regional office and the agency's headquarter office. Many regulatory activities are administered by the Augusta office; however, the MDEP's three regional offices also conduct permitting and technical support activities. The regional offices each offer different services, but do generally work with permit applicants to avoid and minimize impacts to protected natural resources. The agency employs approximately 500 staff in total, of which around 35 full-time equivalents (FTEs) work on wetland regulation and about five FTEs are dedicated to wetlands classification, biomonitoring,¹⁴ and watershed management.¹⁵ Major staff activities revolve around permitting, enforcement, monitoring and assessment, §401 water quality certification, outreach and technical support, and mitigation.¹⁶

¹⁰ Maine Department of Conservation, Maine Land Use Regulation Commission, *The Commission's Rules and Standards, Chapter 10, Land Use Districts and Standards* (April 1, 2004).

¹¹ CODE ME. R. 06-096 § 310(2)(B).

¹² ME. REV. STAT. ANN. tit. 12, § 206-A.

¹³ Personal communication with Judy Gates, Maine Department of Environmental Protection (Mar. 24, 2004).

¹⁴ One FTE is dedicated to wetland monitoring, assessment, and water quality standards/criteria development (plus part of another position as the match for a federal grant). The single position is funded through federal §104(b)(3) funds.

¹⁵ Gates, *supra* note 13.

¹⁶ Personal communication with Judy Gates, Maine Department of Environmental Protection (May 13, 2004).

Land Use Regulation Commission. The Maine Legislature created the Land Use Regulation Commission in 1971 to provide planning and zoning authority for the state's townships, plantations, and unorganized areas. The Commission's jurisdiction encompasses approximately 52 percent of the state's land area, much of which is sparsely populated. With more than 10.4 million acres, LURC's jurisdiction holds the largest contiguous unorganized area in the northeastern United States. Traditionally, development has been concentrated along the "fringe" of the jurisdiction, adjacent to more populous areas where services are more accessible.¹⁷ However, today numerous areas are rapidly developing away from the fringe, and LURC has begun targeting certain areas of growth for "prospective zoning."¹⁸

LURC has a total of 23 FTEs working on wetland-related issues in the agency's Planning Division and Permitting and Compliance Division. Staff activities are wide-ranging and include enforcement and permitting, as well as some §401/§404 water quality certification review for larger projects and outreach and technical support on wetlands issues. There are five regional offices throughout the state, including a major office located in Augusta. Much of the permitting and technical support activities occur in the regional offices, where staff work directly with applicants to minimize or avoid impacts to wetlands.¹⁹

The annual budget for the entire agency is approximately \$1.8 million. Because wetlands activities are integrated into most agency activities, it is difficult to estimate the amount devoted specifically to wetlands work. Almost all funds for wetland-related work come from the state's general funds. In the past, small federal grants have been awarded infrequently for specific projects; however, in recent years, no federal grants have been awarded for projects aimed at implementation or development of LURC's wetlands program.²⁰

Wetland-related statutes and regulations

In addition to the protections offered under CWA,²¹ Maine regulates wetlands under four additional sets of statutes and regulations. The Natural Resources Protection Act,²² Mandatory Shoreland Zoning Act,²³ and Waste Discharge Licensing Program²⁴ are implemented by the MDEP in organized areas of the state. The statute that created LURC²⁵ also outlines the rules and measures for land use regulation in "unorganized" and "deorganized" areas of the state.

Natural Resources Protection Act. The Natural Resources Protection Act (NRPA) guides activities in the state's "protected natural resources." The law requires a permit from the Maine Department of Environmental Protection for certain listed activities "located in, on, or over any protected natural resource," or adjacent to "(A) a coastal wetland, great pond, river, stream or brook or significant wildlife habitat contained within a freshwater wetland, or (B) freshwater wetlands consisting of or containing: (1) under normal circumstances at least 20,000 square feet of aquatic vegetation, emergent marsh vegetation or open water, except for artificial ponds or impoundments; or (2) peatlands dominated by shrubs, sedges and sphagnum moss."²⁶ The following activities are covered: (a) dredging, bulldozing, removing or displacing soil, sand, vegetation or other materials; (b) draining or otherwise dewatering; (c) filling, including adding sand or other

¹⁷ Land Use Regulation Commission, *About the Commission*, at <http://www.state.me.us/doc/lurc/about.html> (last visited on Aug. 9, 2004).

¹⁸ Personal communication with Marcia Spencer-Famous, Land Use Regulation Commission (Sept. 10, 2004).

¹⁹ Personal communication with Marcia Spencer-Famous, Land Use Regulation Commission (Apr. 14, 2004).

²⁰ Personal communication with Fred Todd, Land Use Regulation Commission (Apr. 14, 2004).

²¹ The state administers §401 water quality certification and National Pollutant Discharge Elimination System permitting. Personal communication with Jeanne DiFranco, Maine Department of Environmental Protection (Aug. 18, 2004).

²² ME. REV. STAT. ANN. tit. 38, §§ 480-A.

²³ *Id.* §§ 435-449.

²⁴ *Id.* § 413(1).

²⁵ ME. REV. STAT. ANN. tit. 12, § 206-A(2).

²⁶ ME. REV. STAT. ANN. tit. 38, § 480-C(1).

material to a sand dune; or (d) any construction, repair or alteration of any permanent structure.²⁷ Certain types of activities are also specifically exempted under NRPA.²⁸

Multiple regulations that apply to NRPA's provisions have also been adopted. "Permit By Rule" (PBR) regulations identify activities²⁹ that may be conducted in or adjacent to wetlands and waterbodies and provide standards under which the activities may be conducted. The MDEP must be notified of PBR activities, but do not require an individual permit.³⁰ "Wetlands and Waterbodies Protection" rules address the licensing of projects that are not eligible for PBR. These rules contain requirements to avoid impacts, to minimize impacts that are determined to be unavoidable, and to compensate for those impacts, when required.³¹ Regulations have also been adopted for evaluating impacts to existing scenic and aesthetic uses resulting from activities associated with protected natural resources,³² as well as permitting impacts to significant wildlife habitat³³ and sand dune systems.³⁴

Any alterations to freshwater wetlands require a special three-tiered permit review process.³⁵ In addition, the state is required to map freshwater wetlands and periodically review and revise the maps.³⁶ The law also allows local municipalities to assume regulatory authority.³⁷

Mandatory Shoreland Zoning Act. The Mandatory Shoreland Zoning Act (MSZA) requires municipalities to adopt zoning and land use control ordinances to protect shoreland areas. Zoning ordinances outline what types of activities can occur in certain areas.³⁸ Shoreland areas include areas within 75 feet of the high-water line of a stream or within 250 feet of the normal high-water line of any great pond, river or saltwater body; the upland edge of a coastal wetland; or the upland edge of a freshwater wetland³⁹ (except as otherwise provided in the Maine Revised Statute Annotated [MRSA] § 438-A, subsection 2).⁴⁰ Though cities and counties implement the MSZA, the MDEP provides guidance and oversight.

²⁷ *Id.* § 480-C.

²⁸ *Id.* § 480-Q.

²⁹ The following types of activities may be eligible for PBR: activities adjacent to a protected natural resource; placement of permanent intake pipes and water monitoring devices (including drilled wells); replacement of permanent structures; movement of rocks and vegetation; placement of outfall pipes (including ditches and drain tiles); shoreline stabilization using vegetation or riprap; construction of crossings (utility lines, pipes and cables); construction of stream crossings (bridges, culverts and fords); general permits for state transportation facilities; restoration of natural areas (i.e., "undoing" human alteration); fisheries & wildlife habitat creation or enhancement and water quality; improvement projects; piers, wharves and pilings in coastal wetlands; public boat ramps; selected activities in coastal sand dunes; transfers and permit extensions; and one-time renewals of maintenance dredging permits.

³⁰ CODE ME. R. 06-096 § 305.

³¹ *Id.* § 310.

³² *Id.* § 315.

³³ *Id.* § 335.

³⁴ *Id.* § 355.

³⁵ ME. REV. STAT. ANN. tit. 38, § 480-X.

³⁶ *Id.* § 480-I.

³⁷ *Id.* § 480-F.

³⁸ *Id.* § 438-A.

³⁹ Freshwater wetlands include, for purposes of the MSZA, freshwater swamps, marshes, bogs and similar areas, other than forested wetlands, which are: (a) of ten or more contiguous acres, or of less than ten contiguous acres and adjacent to a surface water body, excluding any river, stream or brook, such that, in a natural state, the combined surface area is in excess of ten acres; and (b) inundated or saturated by surface or ground water at a frequency and for a duration sufficient to support, and which under normal circumstances do support, a prevalence of wetland vegetation typically adapted for life in saturated soils. Freshwater wetlands may contain small stream channels or inclusions of land that do not conform to the criteria of this subsection. ME. REV. STAT. ANN. tit. 38, § 436-A(5).

⁴⁰ *Id.* § 435.

Waste discharge licensing. The MDEP also administers the state's waste discharge licensing program. A "discharge" is defined as "any spilling, leaking, pumping, pouring, emptying, dumping, disposing or other addition of any pollutant to water of the [s]tate." Regulated discharges come from municipal, industrial and commercial sources, overboard discharge systems, spray irrigation, salt/sand piles, disposal of contaminated snow, aquatic pesticide use, and the underground injection control program. A discharge may not lower the quality of any water body below its legal classification and must also conform with Maine's antidegradation policy (described below in "III. Water Quality Standards").⁴¹

Use Regulation. The LURC statute, entitled "Use Regulation,"⁴² replaces the MSZA and NRPA in areas of LURC jurisdiction. In these areas, the Commission is authorized to adopt rules to interpret and carry out the statute's requirements. These requirements, entitled "Land Use Districts and Standards," relate to land use standards and planning, as well as standards for identifying special management, protection, and development subdistricts, including wetland protection subdistricts, and the allowable land uses and permitting requirements within such subdistricts. Land use standards also include development standards for wetland alterations and guidelines for timber harvesting near rivers, streams, ponds, wetlands, and tidal waters. Permit review and compensatory mitigation requirements for wetland alterations in wetland protection subdistricts are also outlined.⁴³

Wetland protection subdistricts include surface water bodies and areas meeting the definition of coastal or freshwater wetlands, including wetlands of special significance,⁴⁴ scrub shrub and other nonforested freshwater wetlands, constructed ponds less than ten acres in size which are not fed or drained by flowing waters, and forested freshwater wetlands. LURC must regulate freshwater and coastal wetlands identified by the National Wetlands Inventory, as well as freshwater and coastal wetlands identified during the permit application process by methods described in the Corps' 1987 *Wetlands Delineation Manual*.⁴⁵

§401 certification

Maine does not rely upon §401 certification as the primary mechanism by which the state regulates wetlands. Section 401 water quality certifications are issued as part of the NRPA permit. Certifications may also be issued as part of a PBR or as part of a permit under LURC's wetland alteration standards, where the water quality certification is implied even if it is not necessary for the project being permitted. A PBR or LURC permit includes a water quality certification automatically, though the permitting action may not legally require a water quality certification.⁴⁶

Approximately 400 NRPA permits are issued with water quality certifications annually, while up to 2500 PBRs are issued each year (though not all PBRs require water quality certifications). LURC issues roughly 80 permits annually. Few §401 water quality certifications are denied outright by MDEP or LURC staff. Usually, permittees work with applicants to avoid or minimize damage, or redesign projects where necessary, relying on best professional judgment to assess and issue water quality certifications. Of those denials that do occur, more than half go to applicants whose projects have already been cited for failing to obtain a permit (known as "after-the-fact" permit applications).⁴⁷

⁴¹ ME. REV. STAT. ANN. tit. 38, § 413.

⁴² ME. REV. STAT. ANN., *supra* note 25.

⁴³ *Id.*

⁴⁴ Wetlands of special significance include: (a) areas enclosed by the normal high water mark of flowing waters, stream channels, and bodies of standing water, except for constructed ponds less than ten acres in size which are not fed or drained by flowing waters; (b) coastal wetlands, together with areas below the high water mark of tidal waters and extending seaward to the limits of the State's jurisdiction; and (c) freshwater wetlands (defined further in the ME. REV. STAT. ANN. tit. 12, § 206-A).

⁴⁵ Maine Department of Conservation, Maine Land Use Regulation Commission, *supra* note 10.

⁴⁶ Gates, *supra* note 16.

⁴⁷ *Id.*

Programmatic General Permits

Maine operates under a statewide Programmatic General Permit (PGP) and therefore does not have applicable Nationwide Permits. The current PGP, effective September 29, 2000, expedites the Corps' review of certain listed activities in Maine's coastal and inland waters and wetlands that are subject to federal jurisdiction. The PGP does not preclude permit applications for other required permits, e.g. NRPA, LURC, local permits, etc.

Three categories of activities are outlined in the PGP.⁴⁸ Category I activities do not require a separate Corps permit and are not required to be reported, although the Corps has the discretion to require individual permit review.⁴⁹ Category II activities must be reviewed by state and federal resource agencies and may proceed only after authorization by the Corps.⁵⁰ Category III activities do not meet the terms and conditions of the PGP and require an individual permit.^{51,52}

Activities authorized under the PGP are subject to a set of general requirements and conditions relating to requirements under other permits, applicability of the PGP, minimization of environmental impacts, discretionary authority of the Corps, work in waters managed under the International Joint Commission or considered National Lands, historic properties, endangered species and EFH, wild and scenic rivers, navigation, federal liability, procedural elements,⁵³ duration of authorization, and previously authorized activities.⁵⁴

Mitigation

Compensatory mitigation on MDEP lands. Wetland compensation is regulated separately by the MDEP and LURC for the lands over which they have jurisdiction. For MDEP lands, the MSRA contains provisions for general mitigation measures, wetland mitigation banking, and in-lieu-fee mitigation, stating that "[the MDEP] may require that compensation include the design, implementation and maintenance of a compensation project or, in lieu of such a project, may allow the applicant to purchase credits from a mitigation bank or to pay a compensation fee."⁵⁵

The state's regulations specify that the goal of compensation is to "achieve no net loss of wetland functions and values."⁵⁶ To this end, the regulations allow for the method, type, and location of compensation to vary. A functional assessment is required in order to better understand the functions of the impacted wetlands. The regulations establish a

⁴⁸ U.S. Army Corps of Engineers New England District, Permit No. GP-39, *Department of the Army Programmatic General Permit – State of Maine (2000)*, available at <http://www.nae.usace.army.mil/reg%5Cmeall.pdf>.

⁴⁹ Category I activities consist of projects occupying less than 4,300 square feet of inland waterway and/or wetland fill and secondary impacts, including: projects covered by State Tier One permits with no cumulative impacts over 15,000 square feet in inland wetlands from previous permits, unauthorized work, and/or other state permits; crossing of perennial waterways designated as Essential Fish Habitat (EFH) for Atlantic salmon; and in-stream work of up to 4,300 square feet of fill below ordinary high water in waterways not designated as EFH for Atlantic salmon and performed in accordance with PBR and LURC permit standards.

⁵⁰ Category II activities include projects of three acres to 4,300 square feet of inland waterway and/or wetland fill and secondary impacts. This encompasses: all temporary and permanent fill and excavation discharges, except for incidental fallback; in-stream work, including crossings with any discharge of fill below ordinary high water in perennial waterways designated as EFH for Atlantic salmon. Time of year restrictions are determined on a case-by-case basis for Category II activities.

⁵¹ These activities are projects of greater than three acres of inland waterway and/or wetland fill and secondary impacts, including all in-stream work exceeding Category II limits and projects requiring an Environmental Impact Statement by the Corps. Impact area for Category III activities includes all temporary and permanent fill and excavation discharges, except for incidental fallback.

⁵² U.S. Army Corps of Engineers New England District, *supra* note 47.

⁵³ Procedural conditions relate to: cranberry bog development; inspections; maintenance; property rights; modification, suspension, or revocation of a permit; restoration; authorization of special conditions by the Corps; false or incomplete information; abandonment; enforcement; and emergency situations. U.S. Army Corps of Engineers New England District, *supra* note 47.

⁵⁴ U.S. Army Corps of Engineers New England District, *supra* note 47.

⁵⁵ ME. REV. STAT. ANN. tit. 38, § 480Z.

⁵⁶ CODE ME. R. 06-096, § 310(5)(C).

preference for mitigation to be located on-site or as close as necessary to offset direct impacts. It may, however, be placed off-site where it will satisfy wetland priority needs as established at the local, regional, or state level. The regulations allow for mitigation requirements to be met through restoration, enhancement, preservation, or creation of wetlands, and more than one type of compensation may be allowed for a single project. The rules also establish replacement ratios: 1:1 for restoration, enhancement, or creation for impacts in wetlands not of special significance;⁵⁷ 2:1 for restoration, enhancement, or creation for impacts in wetlands of special significance; and 8:1 for compensation in the form of preservation. The regulations outline compensation standards related to expertise, finances, persistence, monitoring, maintenance, protection, source waters, and implementation, as well as circumstances under which exceptions are granted. These generally apply only for minimal alterations. Considerations for denial are also outlined for projects causing “unreasonable impacts.”⁵⁸

Although NRPA provides some protection for streams, the “Wetlands and Waterbodies Protection” rules were recently updated to incorporate further protection for streams, rivers, and brooks by requiring applicants to avoid and minimize impacts and to provide compensation for unavoidable impacts. The regulation now applies to “the alteration of a coastal wetland, great pond, freshwater wetland, river, stream, or brook. . . .”⁵⁹ The MDEP is presently working on functional assessments and other mitigation measures specific to streams and rivers.⁶⁰

Mitigation banking regulations require that banking occur in the same watershed as the impacted wetland. Replacement ratios guide the determination of credits for compensation of proposed projects. Other provisions set functional requirements, limitations, required level of expertise for operation, terms and conditions, and application requirements.⁶¹

Though authorized in the NRPA, the state has not adopted in-lieu-fee compensation. There are no foreseeable plans to establish an in-lieu-fee program.⁶²

⁵⁷ All coastal wetlands and great ponds, and some freshwater wetlands (those that have a critically imperiled or imperiled plant community; those with significant wildlife habitat; those located near a coastal wetland, great pond, or stream; emergent marshes; wetlands with a floodplain; peatlands; and rivers, streams, or brooks) are considered wetlands of special significance. CODE ME. R. 0696-4-a.

⁵⁸ CODE ME. R. 06-096, § 310(5)(C).

⁵⁹ *Id.* § 310(2)(A).

⁶⁰ Gates, *supra* note 16.

⁶¹ CODE ME. R. 06-096, § 310(7).

⁶² Gates, *supra* note 16.

Compensatory mitigation on LURC lands. LURC's Wetland Compensation Guidelines, adopted in 1998, are similar to the MDEP's regulations. The guidelines allow for method, type, and location of compensation to vary, depending on wetland priority needs as established at the local, regional, or state level. A functional assessment is required for projects altering more than 500 square feet of a wetland of special significance, for proposed alterations of more than 20,000 square feet, and for alterations to scrub/shrub or forested wetland. If the functional assessment identifies a loss of wetland function, compensation is required. Compensatory mitigation requirements may be met through restoration, enhancement, preservation, or creation of wetlands. Replacement ratios are identical to those set forth by the MDEP. The regulations similarly set forth compensation standards related to expertise, finances, persistence, monitoring, maintenance, protection, source waters, and implementation. Mitigation banking guidelines require that banking occur in the same watershed as the impacted wetland, and additional banking provisions establish replacement requirements, limitations, required level of expertise for operation, terms and conditions, alternatives analyses, and functional assessments.⁶³

Compliance and enforcement

The Land Use Regulation Commission's enforcement provisions are outlined in state law.⁶⁴ State personnel are authorized to conduct investigations of violating activities, site inspections, and examinations where necessary. People found to be in violation are subject to a civil penalty of not more than \$10,000 per day. Additionally, LURC may "institute any appropriate action, injunction, or other proceeding to prevent, restrain, correct, or abate any violation . . . including proceedings to revoke or suspend any [C]ommission permit or approval." Restoration or other compensatory mitigation actions may also be ordered.⁶⁵ Because LURC staff usually work closely with applicants on permits, the number of enforcement and compliance actions necessary is minimized.⁶⁶

Tracking systems

Both the MDEP and the LURC have separate permit tracking databases. The MDEP's system tracks permit applications back to 1968. There is also a state tracking system for resources regulated under the NRPA, including data on wetland loss, mitigation as it is reported annually, project locations, and impacts, as well as all monitoring and restoration data over a period of five years. A third database tracks compliance and enforcement for the state's resources. Staff inspections and site visits are part of each of the systems. As part of an agency-wide initiative to integrate existing data, efforts are underway to combine these three databases.⁶⁷ The LURC's database tracks permits, enforcement actions and progress, and ongoing compliance checks. Commission staff are currently working to incorporate the tracking of wetland loss into the database.⁶⁸

III. Water Quality Standards

Maine has not adopted water quality standards that are specific to wetlands; however, MDEP's Division of Environmental Assessment is currently developing wetland-specific water quality standards and criteria for the state.⁶⁹ At present, the state's water quality standards apply to all 'waters of the state,' as defined in NRPA, which implicitly include wetlands.

⁶³ Maine Land Use Regulation Commission, *Wetland Compensation Guidelines (1998)*, available at <http://www.maine.gov/tools/whatsnew/attach.php?id=2811&an=1>.

⁶⁴ ME. REV. STAT. ANN. tit. 12, § 685-C(8).

⁶⁵ ME. REV. STAT. ANN. tit. 12, § 206-A.

⁶⁶ Spencer-Famous, *supra* note 19.

⁶⁷ Gates, *supra* note 16.

⁶⁸ Spencer-Famous, *supra* note 19.

⁶⁹ Personal communication with Jeanne DiFranco, Maine Department of Environmental Protection (Aug. 18, 2004).

Standards are narrative, chemical, and biological in nature.⁷⁰ The state's antidegradation policy explicitly includes wetlands:

Existing in-stream water uses and the level of water quality necessary to protect those existing uses must be maintained and protected. . . . In making its determination of uses to be protected and maintained, the department shall consider designated uses for that water body and (a) aquatic, estuarine, and marine life present in the water body; (b) wildlife that utilize the water body, (c) habitat, including significant wetlands, within a waterbody supporting existing populations of wildlife or aquatic, estuarine or marine life, or plant life that is maintained by the waterbody; (d) the use of the waterbody for recreation. . . ; and (e) any other evidence that . . . demonstrates ecological significance. . . and . . . demonstrates historical or social significance.⁷¹

IV. Monitoring and Assessment

In 1998, the MDEP began development of a biological monitoring and assessment program for freshwater wetlands.⁷² The program is part of the MDEP's overall water quality assessment program, which oversees biological assessment and monitoring for streams and rivers, and will eventually include water quality impairment assessments and coordinate with the state's watershed and nonpoint source programs. The program conducts basin-wide watershed monitoring and biological assessment, throughout the state, on a rotating five-year schedule.

MDEP staff have worked closely with the U.S. Environmental Protection Agency (EPA) and other states developing bioassessment methodologies, including the federal Biological Assessment of Wetlands Group, the National Monitoring and Assessment Workgroup, and EPA Region I's New England Biological Monitoring and Assessment Workgroup.⁷³ A three-year pilot study was conducted in the Casco Bay watershed to develop monitoring protocols, examine differences in wetland community structure along a gradient of human disturbance, and identify biological indicators to evaluate wetland condition. The project focused on aquatic macroinvertebrates and algae, including collection of associated physical, chemical and habitat data. As of 2004, the MDEP has conducted wetland biomonitoring at 126 different sites encompassing 172 sampling events.⁷⁴

Today, a database is being developed for the multitude of collected data. MDEP program staff are also developing biocriteria and impairment thresholds. MDEP plans to incorporate the methodology into the state rules for purposes of CWA §303(d) listing and §305(b) reporting. Because rule making can be a lengthy process, state staff will likely use the methodology as "a matter of policy" before it is officially adopted. The methodology may also be used for state discharge licensing, stormwater, hydropower licensing, measuring mitigation success, and other regulatory measures.⁷⁵

CWA § 104(b)(3) competitive grants for wetlands have supported the wetland biological monitoring and assessment program for seven years. The state does not currently coordinate with citizen monitoring groups, but staff have discussed developing a program of some sort, beginning with small pilot projects.⁷⁶

⁷⁰ ME. REV. STAT. ANN. tit. 38, § 464 *et al.*

⁷¹ *Id.*

⁷² Maine Department of Natural Resources, *Wetland Monitoring and Assessment Program*, at <http://www.maine.gov/dep/blwq/wetlands/monitoring.htm> (last visited Aug. 9, 2004).

⁷³ Personal communication with Jeanne DiFranco, Maine Department of Environmental Protection (Apr. 20, 2004).

⁷⁴ Maine Department of Natural Resources, *supra* note 75.

⁷⁵ DiFranco, *supra* note 76.

⁷⁶ *Id.*

V. Restoration and Partnerships

Maine has not instituted a formal restoration program apart from the compensatory mitigation programs. The state does not provide formal technical support or outreach to private landowners or coordinate with the U.S. Department of Agriculture on restoration programs, but MDEP staff recently agreed informally with the agency to conduct field surveys for farmers seeking to install ponds on their property. In addition, the state planning office⁷⁷ does employ a restoration coordinator, to which mitigating parties are directed.⁷⁸

MDEP has also participated in the Corporate Wetlands Restoration Partnership (CWRP), a public-private initiative to restore Maine's environmentally valuable wetlands and other aquatic resources. The Maine CWRP was launched in June 2000 and includes state businesses and environmental organizations in addition to several federal agencies.⁷⁹

VI. Education and Outreach

The MDEP has an education and outreach workgroup composed of staff from the Land and Water Resources Regulation Divisions, the Division of Environmental Assessment, and the Watershed Management Division. The group's latest wetland-related campaigns have been associated with stormwater. In the past, efforts have also focused on water quality in general. Efforts are targeted towards Department field personnel, as well as the general public. Finally, the MDEP also has a column that appears in the state's newspapers, *In Our Backyard*, that addresses statewide environmental issues, including wetlands.⁸⁰

Individual staff also conduct numerous wetland-related education and outreach events, such as presentations for scientific/professional meetings, contractors and developers, schools, conservation groups, and others. Department staff also are involved in educational activities such as the Children's Water Festival and the Maine Envirothon.⁸¹

Maine's Land Use Regulation Commission does not currently have an education and outreach plan or program in place, but has published informational handouts for the general public describing LURC activities and why they are important. LURC does envision developing a comprehensive program in the future, if funds and staff time are available.⁸²

VII. Coordination with State and Federal Agencies

The MDEP often works with other state agencies on wetland-related issues. The agency currently holds several memoranda of agreement with other state agencies on permit streamlining, including Maine's Departments of Inland Fisheries and Wildlife, Agriculture, and Transportation, as well as the Maine Forest Service, LURC, and the state's soil and

⁷⁷ Maine's State Planning Office provides information, analysis, and guidance to decision-makers. State law instructs the State Planning Office to conduct economic analysis, including economic forecasting, coordinate the development of the state's economy and energy resources with the conservation of its natural resources, provide technical assistance to towns and regions, and provide technical assistance to the Governor and Legislature by undertaking special studies and plans and preparing policy alternatives. Maine State Planning Office, *Maine State Planning Office*, at <http://www.state.me.us/spo/> (last visited November 10, 2004).

⁷⁸ Gates, *supra* note 16.

⁷⁹ Maritimes and Northeast Pipeline, *Maine Corporate Wetlands Restoration Partnership*, at <http://www.mnp-usa.com/cwrp.html> (last visited Aug. 9, 2004).

⁸⁰ Personal communication with Judy Gates, Maine Department of Environmental Protection (Aug. 9, 2004).

⁸¹ DiFranco, *supra* note 72.

⁸² Personal communication with Marcia Spencer-Famous, Land Use Regulation Commission (Aug. 11, 2004).

water conservation districts.⁸³ Additionally, MDEP dedicates a portion of one FTE, funded by §104(b)(3) funds, to act as a liaison among state agencies coordinating on wetland policy issues. This FTE also facilitates meetings of the Maine Wetland Interagency Team, which consists of representatives from MDEP, Maine Department of Inland Fisheries and Wildlife, State Planning Office, Maine Department of Conservation, and the Maine Department of Transportation.⁸⁴

LURC also works with other state agencies and holds memoranda of agreement (MOA) with MDEP on technical review and hydropower licensing and has been discussing the establishment of an MOA with the Department of Transportation on erosion control. Because the LURC is part of the state's PGP, they often coordinate with the MDEP on related wetland regulatory issues.⁸⁵

Both the MDEP and LURC coordinate regularly with federal agencies such as EPA, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, and National Marine Fisheries Service on permitting, project reviews, and other regulatory issues. Meetings are informal and are generally held several times a year. Site visits are also often conducted jointly.⁸⁶

Maine completed a State Wetland Conservation Plan in December 2001. The plan is being actively implemented by MDEP, LURC, and other state agencies and is revised on a regular basis.⁸⁷

VIII. Acronyms and Abbreviations

CWA - Clean Water Act

CWRP - Corporate Wetlands Restoration Partnership

EFH - Essential Fish Habitat

EPA - U.S. Environmental Protection Agency

FTE - Full-time Equivalent

LURC - Land Use Regulation Commission

MDEP - Maine Department of Environmental Protection

MOA - Memorandum of Agreement

MRSA - Maine Revised Statute Annotated

MSZA - Mandatory Shoreland Zoning Act

NPDES - National Pollutant Discharge Elimination System

NRPA - Natural Resources Protection Act

PBR - Permit By Rule

PGP - Programmatic General Permit

⁸³ Gates, *supra* note 16.

⁸⁴ DiFranco, *supra* note 72.

⁸⁵ Spencer-Famous, *supra* note 18.

⁸⁶ Gates, *supra* note 16; Spencer-Famous, *supra* note 19.

⁸⁷ Gates, *supra* note 16.

Michigan

I. Overview

Although an estimated 50 percent of the state’s wetlands have been lost to agricultural, residential, and industrial development over the last two centuries, Michigan retains approximately 5.5 million acres of wetlands, or about fifteen percent of the state’s area. In 1984, Michigan became the first state to assume authority to administer dredge and fill permits under §404 of the Clean Water Act.¹ The state’s wetland permitting program is administered by the Michigan Department of Environmental Quality (MDEQ) pursuant to Part 303 of the of the state’s Natural Resources and Environmental Protection Act.

In a recent informal review of the two decades old program by the U.S. Environmental Protection Agency (EPA), the agency found “both deficiencies and strengths in Michigan’s legal authorities establishing the approved §404 program and in the program’s administration by the MDEQ.”² While state regulations were found to be consistent with the Clean Water Act, areas of concern included the scope of regulatory jurisdiction, exemptions under state law, state permitting authority and decision-making, and administrative hearings. Overall, however, EPA determined that the state is “doing a good job” in its regulatory operations.³ Changes in both state and federal laws since 1984 have resulted in some inconsistencies, and the MDEQ has proposed program changes to address these issues.⁴

II. Regulatory Programs

Wetland definitions and delineation

Wetlands are not explicitly included in the state’s definition of “waters of the state,” for the purposes of Michigan’s point discharge program.⁵ However, Part 303 of the Michigan Natural Resources and Environmental Protection Act (NREPA)—the law that establishes the state’s wetlands permitting program—defines wetlands as “land characterized by the presence of water at a frequency and duration sufficient to support, and that under normal circumstances does support, wetland vegetation or aquatic life, and is commonly referred to as a bog, swamp, or marsh. . . .”⁶ Part 303 and its implementing regulations limit *regulated* wetlands to those that are any of the following:

- Connected to one of the Great Lakes or Lake St. Clair;
- Located within 1,000 feet of one of the Great Lakes or Lake St. Clair;
- Connected to an inland lake, pond greater than one acre in size, river, or stream;
- Located within 500 feet of an inland lake, pond greater than one acre in size, river, or stream;

¹ New Jersey became the second state to assume regulatory authority under §404 of the Clean Water Act in 1994, *see* 40 C.F.R. § 233.71.

² Preliminary Findings of Informal Review of State of Michigan’s Approved Clean Water Act Section 404 Permit Program, 68 Fed. Reg. 7436-4 (Jan. 7, 2003).

³ *Id.*

⁴ Personal communication with Peg Bostwick, Michigan Department of Environmental Quality (Sept. 3, 2004).

⁵ NREPA Part 31 (Water Resources Protection) defines “waters of the state” as “groundwaters, lakes, rivers, and streams and all other watercourses and waters, including the Great Lakes, within the jurisdiction of this state.” MICH. COMP. LAWS § 324.3101.

⁶ MICH. COMP. LAWS § 324.30301.

- Not connected to one of the Great Lakes or Lake St. Clair, or an inland lake, pond, stream, or river, but are more than 5 acres in size and located in counties with a population of more than 100,000 or where MDEQ has completed a wetland inventory; or
- Not connected to one of the Great Lakes or Lake St. Clair, or an inland lake, pond, stream, or river, and less than 5 acres in size, but the DEQ has determined that these wetlands are essential to the preservation of the state's natural resources and has notified the property owner.⁷

The state utilizes the 2001 *Michigan Department of Environmental Quality Wetland Identification Manual*⁸ for making delineation determinations. The manual satisfies the statutory requirement of NREPA Part 303, which states that a person “may request that the Department of Environmental Quality assess whether the parcel of property or a portion of the parcel is wetland.”⁹ The manual conforms to Michigan’s statutory definition of wetlands, which identifies two key parameters: wetland vegetation and wetland hydrology (as opposed to the current federal method requiring independent evidence of three parameters: hydrophytic vegetation, wetland hydrology, and hydric soils). For the most part, however, the Michigan manual is consistent with the U.S. Army Corps of Engineers’ 1987 *Wetlands Delineation Manual*.^{10,11}

Wetland-related statutes and regulations

*Natural Resources and Environmental Protection Act (NREPA), Part 303.*¹² In 1979, the Michigan legislature passed the Goemaere-Anderson Wetlands Protection Act, which was codified at Part 303 of the NREPA. The Michigan Department of Environmental Quality (MDEQ), formerly the Michigan Department of Natural Resources, assumed administration of the Clean Water Act (CWA) §404 wetlands program in 1984. MDEQ’s Land and Water Management Division, administers the state’s wetland permitting program. To date, primary oversight responsibility for the program remains with the state. The EPA has waived review of all applications except for “major discharges,” which include discharges that are greater than 10,000 cubic yards of fill, discharges that contain toxic materials, and discharges into areas determined to be unique, or where the waterway’s commercial value could be significantly reduced.¹³

While Michigan has been delegated the authority to administer CWA §404, the agency also shares jurisdiction with the U.S. Army Corps of Engineers (Corps) in some areas. The Corps has retained CWA §404 jurisdiction over traditionally navigable waters, including the Great Lakes, connecting channels, and other waters connected to the Great Lakes where navigational conditions are maintained (essentially, those waters covered by §10 of the Rivers and Harbors Act). The Corps also retains jurisdiction in wetlands directly adjacent to these waters. In these areas, both a Corps and a MDEQ

⁷ *Id.* § 324.30301; MICH. ADMIN. CODE § 281.921.

⁸ Michigan Department of Environmental Quality [hereinafter MDEQ], *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan (2001)*, available at www.deq.state.mi.us/documents/deq-water-wetlands-idmanualtitletoc.pdf.

⁹ MICH. COMP. LAWS § 30321(3).

¹⁰ U.S. Army Corps of Engineers, Wetlands Research Program Technical Report Y-87-1, *Corps of Engineers Wetlands Delineation Manual (1987)*, available at <http://www.saj.usace.army.mil/permit/documents/87manual.pdf>.

¹¹ MDEQ, *supra* note 7.

¹² MICH. COMP. LAWS §§ 324.30301 - 324.30323; MICH. ADMIN. CODE §§ 281.921 - 281.925.

¹³ Wilfred Cwikiel, *Living with Michigan Wetlands: A Landowner’s Guide (Tip of the Mitt Watershed Council 1998) (1996)*, available at http://www.michigan.gov/deq/0,1607,7-135-3313_3687-10502--,00.html; Michigan Department of Environmental Quality, *Michigan’s Administration of Section 404*, at <http://www.deq.state.mi.us/documents/deq-lwm-wetlands-404admin.pdf> (last visited Aug. 13, 2004).

permit are required for activities in wetlands.¹⁴ A joint permit application is available, minimizing time and effort for applicants.¹⁵

NREPA Part 303 requires a permit from the state for activities in wetlands that: deposit or allow the placing of fill material; dredge, remove, or allow the removal of soil or minerals; construct, operate, or maintain any use or development; or drain surface water.¹⁶ Permitted activities cannot impose an “unacceptable” disruption to aquatic resource and must be in the public interest, otherwise lawful, necessary to realize the benefits from the activity, and wetland-dependent or without a feasible alternative.¹⁷ Exempt activities include various recreational activities, vegetation clearing, and nearly all agricultural activities associated with ongoing farming operations.¹⁸

As described above, regulations under NREPA apply to contiguous wetlands, or those wetlands found in close proximity to a waterbody and/or having a direct hydrological relationship with the waterbody. Generally, wetlands with any permanent or intermittent surface water connection; within 500 feet of an inland lake, stream, or pond greater than one acre in size; or within 1,000 feet of a Great Lake are considered contiguous.¹⁹ Activities in contiguous wetlands are regulated without regard to the size of the wetland. Noncontiguous wetlands that are isolated from lakes and streams hydrologically are regulated only if they are greater than five acres in size and located in a county with a population greater than 100,000.²⁰ The MDEQ can regulate noncontiguous wetlands of any size, anywhere in the state, if the wetland is determined to be essential to the preservation of natural resources of the state and the landowner is notified of this determination.²¹

Local governments may also elect to regulate such wetlands themselves. NREPA authorizes local units of government to adopt and administer their own wetland regulations, provided they are at least as restrictive as the state regulations.²² Regulation of wetlands of less than five acres is generally reserved for local governments. If a local government receives a permit application for a wetland less than two acres in size, the local government must approve the permit unless it determines that the wetland is essential to the preservation of the community's natural resources by providing one or more broadly-defined wetland functions.²³ Nearly 40 communities had assumed regulating authority as of September 2003. Local governments can go beyond NREPA by implementing wetland protection measures though the state's

¹⁴ *Id.*

¹⁵ Michigan Department of Environmental Quality, *State, Federal and Local Wetland Regulations*, at http://www.michigan.gov/deq/0,1607,7-135-3313_3687-10801--,00.html (last visited on Aug. 13, 2004).

¹⁶ MICH. COMP. LAWS § 324.30304.

¹⁷ MDEQ, *supra* note 15.

¹⁸ MICH. COMP. LAWS § 324.30305.

¹⁹ *Id.* § 324.30301.

²⁰ Governor Jennifer Granholm issued Executive Directive No. 2004-4 on April 21, 2004, Earth Day, to the Michigan Department of Environmental Quality. The directive orders the MDEQ to develop a process “to bring Michigan’s critical non-contiguous wetlands located on public land within the jurisdiction of Part 303.” Essentially, the MDEQ is to develop a process that would subject critical non-contiguous wetlands located on public land to the same permitting criteria and procedures as other wetlands within the jurisdiction of NREPA Part 303. (See Office of the Michigan Governor, *Executive Directive No. 2004-4*, at http://www.michigan.gov/gov/0,1607,7-168-21975_22515-91329--,00.html (2004)). In late July 2004, a draft procedure was sent to the MDNR and the Michigan Department of Transportation (agencies that will be affected due to the focus on public lands). The MDEQ is currently awaiting comment from these agencies.

²¹ MICH. COMP. LAWS § 324.30301.

²² *Id.* § 324.30308.

²³ *Id.* § 324.30309.

numerous planning and zoning acts.²⁴ The state offers some guidance on tools that local municipalities may utilize to increase wetlands protection and stewardship.²⁵

*Shorelands Protection and Management, NREPA Part 323.*²⁶ Some coastal wetlands receive further protection under the Shorelands Protection and Management provisions of NREPA.²⁷ These provisions protect parts of the Great Lakes shoreline that are specifically designated by the Natural Resources Commission as high risk erosion, flood risk, and environmental areas. To be designated, environmental areas (EAs) must be deemed “necessary for the preservation and maintenance of fish and wildlife,” and be “within 1000 feet landward of the ordinary high water mark of lands adjacent to waters affected by levels of the Great Lakes.”²⁸ EAs are designed to protect the natural condition of the area and limit or prohibit human presence. The following activities within EAs require a permit from the MDEQ:

- Dredging, filling, grading, or other alterations of the soil;
- Alteration of natural drainage;
- Alteration of vegetation utilized by fish or wildlife; and
- The placement of permanent structures.²⁹

Exempt activities, also listed in Part 303, relate to: recreation; agriculture and timber operations; maintenance or operation of serviceable structures in existence prior to October 1980; road maintenance; gas or oil pipeline construction, maintenance, and operation; electric transmission and distribution power line construction, maintenance, and operation; construction of iron and copper mining tailings basins and water storage areas; and certain beach maintenance activities.³⁰

Organization of state activities

Most wetland-related activities at the state level are operated by the MDEQ’s Land and Water Management Division (LWMD). The LWMD houses the §404 program, including permitting, outreach and technical support, enforcement, research, and restoration activities related to wetlands.³¹ To a limited extent, other state agencies are involved in various research or restoration initiatives. For example, the Michigan Department of Natural Resources (MDNR) often coordinates endangered species considerations by reviewing MDEQ permits for impacts to wildlife or fisheries. The agency also promotes wetlands restoration to the state’s landowners with various educational materials. The Michigan Department of Agriculture (MDA) is involved in the U.S. Department of Agriculture Conservation Reserve Enhancement Program, of which wetland restoration is a major component.³²

²⁴ MDEQ, *supra* note 14.

²⁵ See, e.g., Tip of the Mitt Watershed Council, *Preserving Michigan’s Wetlands: Options for Local Governments* (1997), available at http://www.michigan.gov/deq/1,1607,7-135-3313_3687-10466--,00.html, and Katherine Ardizzone & Mark Wyckoff, *Filling the Gaps: Environmental Protection Options for Local Governments* (2003), available at http://www.michigan.gov/deq/0,1607,7-135-3313_3677_3696-73358--,00.html.

²⁶ MICH. COMP. LAWS §§ 324.32301 - 324.32315; MICH. ADMIN. CODE §§ 281.21 - 281.24.

²⁷ *Id.*

²⁸ MICH. COMP. LAWS § 324.32301.

²⁹ MICH. ADMIN. CODE § 281.23(6).

³⁰ MICH. COMP. LAWS § 324.30305.

³¹ Personal communication with Todd Losee, Michigan Department of Environmental Quality (Mar. 1, 2004).

³² Personal communication with Rob Zbiciak, Michigan Department of Environmental Quality (Mar. 11, 2004).

Department of Environmental Quality. Many wetland-related activities are performed in the LWMD's ten field offices.³³ Thirty-five regional full-time equivalents (FTEs) work on wetlands permitting, enforcement, and compliance. Seven headquarter FTEs generally provide guidance and technical assistance to district staff, as well as some comment on larger cases. One headquarter staff position is devoted to restoration activities.³⁴ However, approximately 80 FTEs working throughout the LWMD have responsibilities related in some way to the §404 program. These activities include permit evaluation and enforcement, technical support, computer support, clerical technical support, and administrative duties.³⁵ The program is generally funded by a combination of state appropriations, permit application fees, and federal grants from the National Oceanic and Atmospheric Administration, U.S. Department of Agriculture's Natural Resources Conservation Service, and U.S. Environmental Protection Agency, among other agencies.³⁶ The §404 program's annual budget is approximately \$7 million.³⁷ There is currently no dedicated source of funding to support Michigan's state-assumed §404 Program, which is supported primarily by state general funds and permit fees.³⁸

§401 certification program

Because Michigan is a delegated state under §404 of the CWA, §401 water quality certification is not used to regulate wetland-related activities. The agency has proposed a revision of Michigan's surface water quality standards to explicitly recognize wetlands as waters of the state and to address other related wetland issues.³⁹

Nationwide permits

The MDEQ does review and comment on Nationwide Permits (NWP). Because the Corps retains jurisdiction of traditionally navigable waters, NWPs do apply in some areas of the state, such as the Great Lakes and their adjacent wetlands. The review process involves an informal comment period prior to issuing conditions, approvals, or denials of NWPs. The U.S. Army Corps of Engineers' Detroit District sets regional conditions that facilitate the MDEQ's review process.⁴⁰ The MDEQ's current set of NWP conditions, approvals, and denials⁴¹ was released on January 15, 2002.⁴²

³³ The LWMD's ten field offices are: the Cadillac District Office, the Gaylord Field Office, the Grand Rapids District Office, the Jackson District Office, the Kalamazoo District Office, the Lansing District Office, the Saginaw-Bay District Office, the Southeast Michigan District Office, the Upper Peninsula District Office, and the Crystal Falls Field Office. See Michigan Department of Environmental Quality, *Land and Water Management Division (March 2003)*, at <http://www.deq.state.mi.us/documents/deq-ess-guide-gldmguide.pdf>.

³⁴ Losee, *supra* note 31.

³⁵ Michigan Department of Environmental Quality, Program Description (Aug. 16, 2002) (on file with author).

³⁶ Losee, *supra* note 31.

³⁷ MDEQ, *supra* note 35.

³⁸ Bostwick, *supra* note 4.

³⁹ Losee, *supra* note 31.

⁴⁰ Personal communication with Peg Bostwick, Michigan Department of Environmental Quality (Apr. 16, 2004).

⁴¹ The MDEQ granted §401 water quality certification and Coastal Zone Management Act consistency for the following NWPs: NWP#1 - Aids to Navigation; NWP#4 - Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities; NWP#5 - Scientific Measurement Devices; NWP#6 - Survey Activities; NWP#9 - Structures in Fleeting and Anchorage Areas; NWP#16 - Return Water From Upland Contained Disposal Areas; NWP#20 - Oil Spill Cleanup; NWP#21 - Surface Coal Mining Activities; NWP#22 - Removal of Vessels; NWP#24 - State Administered §404 Program; NWP#30 - Moist Soil Management; NWP#31 - Maintenance of Existing Flood Control Facilities; NWP#37 - Emergency Watershed Protection and Rehabilitation; and NWP#40 (part c) - Agricultural Activities. The following NWPs were approved, with conditions: NWP#2 - Structures in Artificial Canals; NWP#3 - Maintenance; NWP#7 - Outfall Structures and Maintenance; NWP#10 - Mooring Buoys; NWP#11 - Temporary Recreational Structures; NWP#12 - Utility Activities; NWP#13 - Bank Stabilization; NWP#14 - Linear Transportation Projects; NWP#18 - Minor Discharges; NWP#19 - Minor Dredging; NWP#27 - Stream and Wetland Restoration Activities; NWP#29 - Single-Family Housing; NWP#32 - Completed Enforcement Actions; NWP#35 - Maintenance Dredging of Existing Basins; NWP#36 - Boat Ramps; NWP#38 - Cleanup of Hazardous and Toxic Wastes; NWP#41 - Reshaping Existing Drainage Ditches; NWP#42 - Recreational Facilities; and NWP#43 - Stormwater Management Facilities. The following NWPs were denied: NWP#15 - U.S. Coast Guard Approved Bridges; NWP#17 - Hydropower Projects; NWP#23 - Approved Categorical Exclusions; NWP#25 - Structural Discharges; NWP#28 - Modification of Existing Marinas; NWP#33 - Temporary Construction, Access, and Dewatering; NWP#34 - Cranberry Production Activities; NWP#39 - Residential, Commercial, and

General permits

As a delegated state, Michigan has issued its own set of “General Permit Categories for Minor Activities in Wetlands in the State of Michigan.”⁴³ The NREPA states that “[t]he department . . . may issue general permits . . . for a category of activities if the department determines that the activities are similar in nature, will cause only minimal adverse environmental effects when performed separately, and will have only minimal cumulative adverse effects of the environment.”⁴⁴ The General Permits allow MDEQ to evaluate applications on an expedited basis without having to go through a public notice process.⁴⁵ For the most part, General Permits categories are similar to many of the Corps’ NWPs. Site inspections are routinely conducted for many projects considered within General Permit categories, and project-specific conditions may be attached if a permit is issued.⁴⁶

Mitigation

The state has extensive guidelines, policies, and regulations that guide wetland mitigation. The state’s regulations provide that mitigation should be considered only after steps have been taken to avoid and minimize impacts from a proposed activity.⁴⁷ Mitigation requirements may be waived if the impacted area is less than one-third of an acre and no reasonable mitigation opportunity exists, or if the basic purpose of the proposed activity is the creation or restoration of wetlands.⁴⁸ Compensatory mitigation requirements can be satisfied through restoration of degraded wetlands (preferred), creation of wetland, acquisition of banking credits, and preservation (under certain permissible circumstances). Mitigation regulations specify that a no-net-loss of wetlands should be achieved and gives a set of ratios⁴⁹ and requirements⁵⁰ to meet this objective. The regulations also outline applicant procedures, opportunities to comment, and submission requirements.⁵¹

The wetland regulations also establish a mitigation banking program for the state.⁵² Administrative rules governing banking took effect in December 1997 and allow for the use of credits from established mitigation banks to fulfill wetland permit requirements. The MDEQ has developed a program that strives to meet several state goals, including:

Institutional Developments; NWP#40 (parts a, b, and d) - Agricultural Activities; and NWA#44 - Mining Activities. The MDEQ also added general conditions which affect most NWPs. Note that NWP#24 (State Administered §404 Program) states that “[a]ny activity permitted by a state administering its own Section 404 permit program pursuant to 33 U.S.C. 1344(g)-(l) is permitted pursuant to Section 10 of the Rivers and Harbors Act of 1899.” The MDEQ granted certification for this NWP.

⁴² U.S. Army Corps of Engineers, *Reissuance of Nationwide Permits and Final Regional Conditions in Michigan Public Notice - File No. 01-200-007-0*, (June 14, 2002), available at http://www.lre.usace.army.mil/functions/rf/html/pnMI_final.pdf.

⁴³ General Permit categories include: Small ponds and shallow water development for wildlife; Simple elevated or floating structures; Walkways; Driveways; Utilities; Oil, gas, and mineral well access roads; Stormwater outfalls; Culverts; Emergency drain maintenance; Septic system replacement; Repairs to serviceable structures; Completed enforcement actions; Emergency spill cleanup; Cleanup of hazardous substances or hazardous and toxic waste; Maintenance dredging of man-made stormwater and wastewater treatment ponds and lagoons; Public road projects; Minor fills; and Restoration of altered wetland areas (See Michigan Department of Environmental Quality, *General Permit Categories for Minor Activities in Wetlands in the State of Michigan* (June 14, 2002), available at www.deq.state.mi.us/documents/deq-lwm-wetlands-gp2.pdf).

⁴⁴ MICH. COMP. LAWS § 30312(1).

⁴⁵ MICH. ADMIN. CODE § 281.923(1).

⁴⁶ Bostwick, *supra* note 40.

⁴⁷ See MICH. ADMIN. CODE § 281.925.

⁴⁸ *Id.*

⁴⁹ Restoration/creation ratios are: 5:1 for rare or imperiled wetlands; 2:1 for forested wetlands and some coastal wetlands; and 1.5:1 for all other wetlands. For preservation of wetlands as a mitigation option, the ratio of preserved wetlands to impacted wetlands should be 10:1.

⁵⁰ Mitigation should be on-site and in-kind where possible and practical. MDEQ permitting staff may adjust ratios if mitigation is to be out-of-kind or for other specific circumstances.

⁵¹ MICH. ADMIN. CODE § 281.925.

⁵² *Id.*, § 281.951 - 281.961.

reducing permit processing time and costs due to increased certainty regarding the availability of adequate mitigation sites; providing for the establishment of new wetlands in advance of losses; consolidating mitigation projects into better designed and managed sites; and encouraging the integration of watershed and mitigation planning.⁵³ The MDEQ has also developed a mitigation banking handbook that guides the establishment of mitigation banks and agreements, provides planning and management considerations, outlines the applicability of banking credits, and establishes a procedure for determining priority wetland restoration areas within the state.⁵⁴ To date, three mitigation banks have been established throughout the state.⁵⁵

In 2001, MDEQ released a comprehensive study to examine and evaluate the quality and success of wetland mitigation projects in Michigan.⁵⁶ The study examined wetland permits issued by MDEQ between 1987 and 1998, and included selected projects in all geographic regions of the state. Findings revealed that “the sophistication of the MDEQ wetland permits varies greatly throughout the state,” and that “MDEQ’s wetland mitigation program has not been successful in producing adequate replacement wetlands.” Factors identified as contributing to the low success rate included: a lack of accurate record keeping; inadequate selection of sites due to the on-site mitigation preference; permit issuance prior to completion of mitigation projects; and high workloads for permitting staff and issuance of incomplete permits. The MDEQ has taken several steps to improve mitigation since 1997. The agency adopted new rules for conducting mitigation banking, developed a mitigation handbook, and adopted the current administrative rules for mitigation, including the call for on-site mitigation only when practical and beneficial to the resource, as well as the requirement of a mitigation plan with a permit application. The rules also require posting of financial assurance unless mitigation is completed in advance of a permitted project and placement of a permanent conservation easement over all mitigation sites. In addition, the agency has created a computerized mitigation tracking system for permitting staff. The study also included additional recommendations for improving the program.⁵⁷

Compliance and enforcement

The NREPA includes a variety of compliance and enforcement measures. EPA’s recent informal review of the state’s regulatory programs found that the state has maintained a “satisfactory enforcement program.”⁵⁸ According to state law,⁵⁹ permit holders are required to submit any requested compliance information to the MDEQ upon request. Furthermore, MDEQ staff may enter the premises of an implicated activity if they have a warrant or some reasonable cause to do so. If a violation is found, the MDEQ may issue a compliance order. Alternatively, MDEQ staff may request the state’s attorney general to commence a civil action for appropriate relief, including injunctive relief. In addition, civil fines of up to \$10,000 for each day of the violation may be imposed. Offenders found guilty of a misdemeanor are subject to a fine of up to \$2,500; however, a person who “willfully or recklessly violates a condition or limitation in a permit . . . or a corporate officer who has knowledge or is responsible for a violation, is guilty of a misdemeanor.” Such offenses are punishable by a fine of \$2,500 to \$25,000 per day of violation and imprisonment of up to one year. A

⁵³ Michigan Department of Environmental Quality, *Wetland Mitigation Banking*, at http://www.michigan.gov/deq/0,1607,7-135-3313_3687-10426--,00.html (last visited on Aug. 13, 2004).

⁵⁴ Michigan Department of Environmental Quality, *MDEQ Wetland Mitigation Banking Handbook (Sept. 2001)*, available at <http://www.deq.state.mi.us/documents/deq-water-wetlands-webhandbook.pdf>.

⁵⁵ Michigan Department of Environmental Quality, *Wetland Mitigation Banking Registry*, at <http://www.deq.state.mi.us/documents/deq-lwm-wetlands-wetlandbankregistry.pdf> (last visited on Aug. 13, 2004).

⁵⁶ Michigan Department of Environmental Quality, *Michigan Wetland Mitigation and Permit Compliance Study - Final Report (Feb. 2001)*, available at <http://www.deq.state.mi.us/documents/deq-lwm-wetlands-MITIGATIONREPORTFINAL09-14-01.pdf>.

⁵⁷ The study made the following recommendations for improvements to the 404 program: an update of MDEQ’s standard mitigation permit conditions; withholding of permit until all mitigation is completed; inspections of mitigation projects with reports of violations; prioritization of mitigation violations; prioritization of mitigation sites; requirement of a water control structure for mitigation projects; and encouragement of mitigation banking as a mitigation option.

⁵⁸ Preliminary Findings of Informal Review of State of Michigan’s Approved Clean Water Act Section 404 Permit Program, 68 Fed. Reg. 7436-4 (Jan. 7, 2003).

⁵⁹ MICH. COMP. LAWS §§ 324.30313 - 324.30317.

subsequent violation is considered a felony and is punishable by a fine of up to \$50,000 and imprisonment of up to two years. The court may also order offenders to restore the wetlands in question. Collected fines go into the state's general funds. Any collected fees are to be deposited into a "land and water management permit fee fund" to support technical assistance and guidance to landowners and other permit applicants, as well as other permitting, compliance, and enforcement activities by the state.⁶⁰

Enforcement is handled by MDEQ's field staff,⁶¹ and complaints are logged into a Complaint Tracking System.⁶² Typical enforcement cases involve people who have not obtained a permit for their activities. If the activity in question is permissible, an after-the-fact permit may be issued with doubled permit application fees. If the activity is not permissible, MDEQ staff will not accept an application and will request the violator to restore the wetlands. Typically, violators will comply voluntarily. If a violation is more serious, MDEQ may negotiate a consent agreement with fines and penalties. Wetland-related enforcement cases may sometimes involve legal action.⁶³ In the limited cases when voluntary compliance cannot be achieved, MDEQ staff will work with the county prosecutors, the state's attorney general, and/or the EPA to prosecute offenders.^{64,65}

Tracking systems

The Coastal and Inland Waters Permit Information System (CIWPIS) is an online database that provides information on all Land/Water Joint Permit applications, including permits for activities regulated under NREPA Part 303, dating back to 1980. The database includes information on new applications, individual files, applications in a specified municipality, applications for activities in a certain waterbody, and active public notices and hearings. Records include applicant information, current review status of the file, date received at MDEQ, proposed location and activity, regulatory authority, and important processing dates.⁶⁶ The system also tracks the amount and type of wetlands being permitted and for which compensatory mitigation is being conducted, as well as monitoring reports, staff inspections, and other information. Mitigation construction and performance are evaluated based on state performance standards and staff inspections.⁶⁷

The Michigan Natural Features Inventory (MNFI) tracks biological and ecological information on the state's species and habitats. Formerly part of the MDNR, the MNFI is now housed within the Michigan State University Extension. MNFI information is used for a variety of purposes, including informing regulatory agencies of the status and trends of populations, habitats, and ecosystems throughout the state.⁶⁸

III. Water Quality Standards

The State of Michigan does not have water quality standards, designated uses, or antidegradation policies specific to wetlands, but there has been a recent push to involve wetlands in water quality monitoring and reporting. MDEQ has

⁶⁰ *Id.*

⁶¹ LWMD plans to add two full time enforcement staff to its §404 Program during the winter of 2004-2005. Bostwick, *supra* note 4.

⁶² MDEQ, *supra* note 35.

⁶³ Bostwick, *supra* note 40.

⁶⁴ Monetary settlements of wetland violations can be significant. A recent widely publicized violation resulted in a restoration order, payment of \$140,000 in fines and penalties, and placement of 68 acres of undisturbed and restored wetlands and upland buffer under a permanent conservation easement. Bostwick, *supra* note 4.

⁶⁵ MDEQ, *supra* note 35.

⁶⁶ Michigan Department of Environmental Quality, *CIWPIS on line*, at <http://www.deq.state.mi.us/ciwpiis> (©2002).

⁶⁷ Losee, *supra* note 31.

⁶⁸ Michigan State University Extension, *Michigan Natural Features Inventory*, at <http://web4.msue.msu.edu/mnfi/> (last visited on Aug. 13, 2004).

proposed a revision of Michigan's surface water quality standards to explicitly recognize wetlands as waters of the state and to address other related wetland issues. Wetland-specific water quality standards will be used both for the purposes of §401 water quality certification and National Pollutant Discharge Elimination System (NPDES) permitting.⁶⁹

IV. Monitoring and Assessment

Monitoring and assessment for wetlands

MDEQ has a wetland assessment program, but the program's purpose is to identify and delineate⁷⁰ wetlands for regulatory purposes. The MDEQ has not yet adopted an assessment methodology for the purposes of wetland monitoring; however, the agency is currently developing a rapid function and value assessment methodology. The methodology will be used primarily to evaluate permit applications.⁷¹

MDEQ, in collaboration with Michigan State University, Grand Valley State University, the U.S. Geological Survey's (USGS) Biological Resources Division, and the Michigan Natural Features Inventory, has also begun developing a bioassessment methodology based on indices of biological integrity (IBI). The effort began as a USGS-funded initiative to develop evaluation methods for coastal restoration projects. The coastal IBI will be used for long-term monitoring and restoration work.⁷² Additional IBI's for inland forested depressional wetlands and inland herbaceous depressional wetlands are also under development.⁷³

While there is no formal state wetland monitoring program in place currently, elements of such a program are under development. The MDEQ is developing a comprehensive monitoring and assessment strategy, which will be complete by March 2005. Implementation of the strategy will be as funding allows. The MDEQ also participates in the Great Lakes Coastal Wetlands Consortium, a collaborative effort with the Great Lakes Commission and other federal agencies and nongovernmental organizations to develop a protocol for long-term monitoring of Great Lakes coastal wetlands. Efforts to complete a state wetland inventory are also underway.⁷⁴

Monitoring and assessment for streams

The MDEQ's Surface Water Quality Assessment Section (SWQAS) monitors water, sediments, and aquatic life to ensure that water quality standards are being met and that surface waters meet designated uses. The monitoring and assessment program primarily uses the five-year rotating basin approach consistent with the NPDES permitting program.⁷⁵ Sampling is typically conducted two years prior to NPDES permit renewal for a particular basin.⁷⁶

Assessment methods, used in developing 303(d) lists and 305(b) reports, include biological surveys, habitat assessments, water and sediment sampling, and/or contaminant levels in fish to evaluate each sampling site. Methods are similar to those developed by the U.S. Environmental Protection Agency for biological assessments of water quality. The MDEQ uses "the principle of independent applicability" in assessing whether or not the sampled site attains state

⁶⁹ Bostwick, *supra* note 40.

⁷⁰ The program relies on the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* (2001).

⁷¹ Bostwick, *supra* note 40.

⁷² *Id.*

⁷³ Bostwick, *supra* note 40.

⁷⁴ Bostwick, *supra* note 40.

⁷⁵ Michigan Department of Environmental Quality, *Assessment of Michigan Waters*, at http://www.michigan.gov/deq/0,1607,7-135-3313_3686_3728---,00.html (last visited on Aug. 13, 2004).

⁷⁶ Personal communication with Gary Kohlhepp, Michigan Department of Environmental Quality (Aug. 13, 2004).

water quality standards. In other words, if the waterbody fails to meet water quality standards for any parameter (e.g. biological, water, fish tissue), the site is determined to not be in attainment.⁷⁷

Citizen monitoring groups. SWQAS works closely with citizen monitoring groups throughout the state. Volunteer data on inland lakes has been utilized by the agency for approximately 30 years. SWQAS, in conjunction with the Michigan Lakes and Streams Association, provides training for inland lake volunteer monitoring organizations on various sampling methods, as well as recording and submitting data. Volunteer data is utilized by the SWQAS for assessment and reporting purposes and verified regularly for quality control. If data quality concerns arise, the SWQAS may provide more training to volunteers.⁷⁸

Since 1998, SWQAS has worked with stream and river monitoring groups. The agency provides training on standard sampling techniques, as well as protocols for data submission. Data must be verified before the SWQAS will utilize any volunteer-collected information for assessment purposes.⁷⁹

In order to receive MDEQ funding, stream monitoring groups are required to receive training and use the agency's procedures and forms for data submission. Approximately \$50,000 is allocated by the SWQAS annually for volunteer monitoring grants. In the future, the SWQAS will be administering the citizen monitoring program through a contract organization.⁸⁰

V. Restoration and Partnerships

The Michigan State Wetland Conservation Plan outlines both short- and long-term goals for the restoration of wetlands. The short-term goal is the restoration of fifty thousand acres of wetlands (one percent of historic losses) by 2010, while the long-term goal (with no specific time frame) is the restoration of 500,000 acres of wetlands (ten percent of historic losses).⁸¹ The State Wetland Conservation Plan, completed in the mid-1990s, lost some momentum when the MDEQ and MDNR split into two separate agencies. While the MDEQ has been working towards the goals informally, efforts to provide detailed tracking of restored acreage in the state have faltered.⁸² However, recent estimates indicate that approximately 19,100 acres of wetland have been restored in Michigan since 1999 through a combination of voluntary, state, federal, and private partnership programs.⁸³

The MDEQ currently has one FTE devoted to conducting wetland restoration activities, liaising with the U.S. Department of Agriculture and other federal agencies and organizations, coordinating restoration and watershed planning projects, and providing related technical assistance, education, and outreach. Because many restoration projects require a permit in the State of Michigan, many of these activities have a regulatory focus. Grants from the EPA have provided the agency with funding for these activities in the past. The agency also provides some restoration program guides for private landowners.⁸⁴

⁷⁷ *Id.*

⁷⁸ *Id.*

⁷⁹ *Id.*

⁸⁰ *Id.*

⁸¹ See Michigan State Wetland Conservation Plan (on file at the Michigan Department of Environmental Quality).

⁸² Zbiciak, *supra* note 32.

⁸³ Bostwick, *supra* note 4.

⁸⁴ *Id.*

The MDEQ has also organized and participates on the Wetland Working Group (WWG), a consortium of state and federal agencies and nongovernmental organizations,⁸⁵ all of which are involved in wetland restoration in the state. The WWG, created in 2001, meets several times a year with the purpose of coordinating wetland restoration efforts in order to prevent duplication of efforts and violations to state and federal regulations. The WWG is a voluntary organization and has no formal funding.⁸⁶

The WWG also supports the MDEQ's Water Division in the evaluation of CWA § 319 grant applications from state watershed planning groups. Through this process, the WWG identifies watershed groups with which they might collaborate on restoration efforts. One recent WWG initiative has been the development of wetland resource maps for watersheds in the state. The WWG has partnered with several watershed planning groups to generate watershed-based GIS maps. These maps show existing wetlands, pre-settlement inventories, hydric soils, and current areas of development and assist in the identification of restoration opportunity areas.⁸⁷

To a limited extent, the state also collaborates with corporations on restoration initiatives. The North American Waterfowl Management Plan Steering Committee for the state includes a few private company representatives. Among other activities, the Steering Committee has obtained North American Wetland Conservation Act (NAWCA) grants for wetland restoration and acquisition.⁸⁸

VI. Education and Outreach

The MDEQ has produced various materials aimed at promoting stewardship among local governments and landowners. These publications, produced in partnership with federal agencies, local organizations, and private groups, include *Preserving Michigan's Wetlands: Options for Local Governments*,⁸⁹ *Living with Michigan Wetlands: A Landowner's Guide*,⁹⁰ and *Filling the Gaps: Environmental Protection Options for Local Governments*.⁹¹ The agency also provides several publications for K-12 wetland education, as well as information for the general public, on their website.⁹²

In 2004, MDEQ increased its focus on outreach activities. The 25th Anniversary of Michigan's Wetland Protection Act was highlighted in various events throughout the year. For example, a wetland display was exhibited at MDEQ's April Earth Day event. In addition, MDEQ sponsored a statewide wetland conference in Traverse City, Michigan, attracting more than 350 participants from a wide range of interest groups. A national wetland conference focusing on Great Lakes wetlands, cosponsored by MDEQ and the Association for State Wetland Managers, is currently being planned for 2006.⁹³

The Department has also encouraged additional outreach activities through the Michigan Wetlands Action Coalition, a network of nongovernmental organizations concerned with wetland issues.⁹⁴

⁸⁵ Members of the WWG include the U.S. Fish and Wildlife Service, the U.S. Department of Agriculture's Natural Resources Conservation Service and Farm Service Agency, the MDEQ, the Michigan Department of Agriculture, the Michigan Department of Natural Resources, and Ducks Unlimited, among other organizations.

⁸⁶ Zbiciak, *supra* note 32.

⁸⁷ *Id.*

⁸⁸ Personal communication with Rob Zbiciak, Michigan Department of Environmental Quality (Mar. 24, 2004).

⁸⁹ Tip of the Mitt Watershed Council, *supra* note 25.

⁹⁰ Wilfred Cwikiel, *Living with Michigan Wetlands (Tip of the Mitt Watershed Council 1998) (1996)*, available at http://www.michigan.gov/deq/0,1607,7-135-3313_3687-10502--,00.html.

⁹¹ Ardizzone & Wyckoff, *supra* note 25.

⁹² Michigan Department of Environmental Quality, *Education and Stewardship*, at http://www.michigan.gov/deq/0,1607,7-135-3313_3687-10507--,00.html (last visited on Aug. 13, 2004).

⁹³ Bostwick, *supra* note 4.

⁹⁴ *Id.*

VII. Coordination with State and Federal Agencies

The MDEQ coordinates with other state agencies, most notably, MDNR. Once part of the same agency, MDEQ and MDNR maintain a relationship, which has been formalized in a memorandum of understanding pertaining to technical guidance for permit review.

The state also coordinates regularly with federal agencies on a variety of wetland-related issues. The MDEQ coordinates with the U.S. Army Corps of Engineers on joint jurisdictional issues, EPA on permit reviews, U.S. Fish and Wildlife Service (FWS) on their Partners for Wildlife Program, and U.S. Department of Agriculture (USDA) on Farm Bill programs.⁹⁵

EPA Region V holds primary responsibility for oversight of Michigan's state administered §404 Program. A memorandum of agreement (MOA) between the State of Michigan and EPA defines the terms of this cooperative state/federal program. The agency also has an MOA with the U.S. Army Corps of Engineers Detroit District regarding the §404 Program. EPA, the Corps, and the FWS all review copies of public notices for major discharges under the state's §404 Program. Special coordination with FWS is necessary when a project has the potential to impact federally listed threatened or endangered species.⁹⁶ MDEQ also holds an MOA with the USDA Natural Resources Conservation Service (NRCS), EPA, Corps, and U.S. Fish and Wildlife Service regarding wetland delineations on agricultural land in Michigan. Under this agreement, the MDEQ retains responsibility for wetland delineations in all areas of the state where it has §404 jurisdiction. The NRCS is responsible for identification of wetlands for purposes of the Food Security Act, while the Corps is responsible for delineation of wetlands in areas where it retains §404 jurisdiction. NRCS staff have assisted in training of LWMD staff in wetland delineation, while LWMD staff have participated in the development of NRCS wetland mapping conventions and on wetland subcommittees of the NRCS State Technical Committee.⁹⁷

Finally, MDEQ works closely with the National Oceanic and Atmospheric Administration through the Michigan Coastal Management Program (MCMP). The MCMP is responsible for consistency reviews under the Coastal Zone Management Act, and also supports a variety of project to protect, restore, and manage coastal wetland resources.

⁹⁵ Losee, *supra* note 31.

⁹⁶ Bostwick, *supra* note 4.

⁹⁷ MDEQ, *supra* note 35.

VIII. Acronyms and Abbreviations

CIWPIS - Coastal and Inland Waters Permit Information System
Corps - U.S. Army Corps of Engineers
CWA - Clean Water Act
EAs - Environmental Areas
EPA - U.S. Environmental Protection Agency
FTE - Full-time Equivalent
FWS - U.S. Fish and Wildlife Service
IBI - Indices of Biological Integrity
LWMD - Land and Water Management Division
MAC - Michigan Administrative Code
MCL - Michigan Compiled Laws
MCMP - Michigan Coastal Management Program
MDA - Michigan Department of Agriculture
MDEQ - Michigan Department of Environmental Quality
MDNR - Michigan Department of Natural Resources
MNFI - Michigan Natural Features Inventory
MOA - Memorandum of Agreement
NAWCA - North American Wetland Conservation Act
NAWMP - North American Waterfowl Management Plan
NPDES - National Pollutant Discharge Elimination System
NRCS - Natural Resources Conservation Service
NREPA - Natural Resources and Environmental Protection Act
NWPs - Nationwide Permits
SWQAS - Surface Water Quality Assessment Section
USDA - U.S. Department of Agriculture
USGS - U.S. Geological Survey
WWG - Wetland Working Group

Missouri

I. Overview

Originally, the State of Missouri was comprised of 4.8 million acres of wetlands, or about eleven percent of the state's land area. Studies conducted in the 1990s estimated the state's wetland acreage at approximately 643,000 acres, less than two percent of the state's land area.¹ Various state activities are underway in order to protect and regulate the state's remaining wetland acreage. The primary form of wetland regulation in Missouri is water quality certification under §401 of the Clean Water Act (CWA). The state is also proactive in partnering with federal agencies on restoration and conservation programs. State and federal restoration activities have contributed thousands more wetland acres since the late 1990s.²

II. Regulatory Programs

Wetland definitions and delineation

The Missouri Clean Water Law implicitly includes wetlands in its definition of state waters. "Waters of the state" means "[a]ll rivers, streams, lakes and other bodies of surface and subsurface water lying within or forming a part of the boundaries of the state which are not entirely confined and located completely upon lands owned, leased or otherwise controlled by a single person or by two or more persons jointly or as tenants in common and includes waters of the United States lying within the state."³ By including "Waters of the United States" in the definition, the statute covers certain types of wetlands, albeit indirectly.⁴

The state's regulatory definition for wetlands is also consistent with the federal definition: "[t]he term 'wetlands' means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."⁵ The state relies upon the U.S. Army Corps of Engineers' 1987 *Wetlands Delineation Manual*⁶ for delineating wetlands.⁷

Organization of state activities

Missouri Department of Natural Resources. The state regulates wetlands primarily through CWA §401 water quality certification, which is administered by Missouri Department of Natural Resources' (MODNR) §401 Water Quality

¹ Missouri Department of Natural Resources, *Missouri Water Quality Report*, at http://www.dnr.mo.gov/wpscd/wpcp/waterquality/2002_305b.pdf (2002).

² Personal Communication with Kevin Dacey, Missouri Department of Conservation (Nov. 1, 2004).

³ Mo. REV. STAT. § 644.016(26) and 10 Mo. CODE REGS. ANN. 20-2.010 (82).

⁴ "Waters of the United States" means "All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; All interstate waters including interstate wetlands; All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce. . . ; All impoundments of waters otherwise defined as waters of the United States under the definition; [t]ributaries of waters. . . ; The territorial seas; [and] Wetlands adjacent to waters (other than waters that are themselves wetlands) . . ." 33 C.F.R. § 328.3.

⁵ Mo. CODE REGS. ANN. tit. 10, § 20-7.031.

⁶ U.S. Army Corps of Engineers, *Wetlands Research Program Technical Report Y-87-1, Corps of Engineers Wetlands Delineation Manual* (1987), available at <http://www.saj.usace.army.mil/permit/documents/87manual.pdf>.

⁷ Mo. CODE REGS. ANN. tit. 10, § 20-7(1)(F).

Certification Unit.⁸ Funding for the program, approximately \$150,000 annually, comes from permit fees and U.S. Environmental Protection Agency (EPA) grants.⁹ Two full-time equivalents (FTEs) work in the unit, primarily on issuance of §401 water quality certifications, although additional activities sometimes include assistance to permit applicants and enforcement referrals. The program is based in the MODNR headquarters office in Jefferson City.¹⁰

Other MODNR offices cover wetland-related activities, but not on a regular basis. The agency's Water Quality Monitoring and Assessment Unit, the program that conducts stream monitoring and assessment activities, occasionally lends review to permits for discharges to waters of the state.¹¹ The Water Resources Program conducts research activities such as the development of methodologies to determine the flooding regimes of riparian wetlands, the study of remote sensing in order to identify wetland resources, and the research of urban wetlands in the state.¹² The Communications and Education Office offers a variety of environmental education courses and materials on water resources, including wetlands.¹³ Finally, the §319 program occasionally funds constructed wetland projects aimed at watershed protection.¹⁴

Missouri Department of Conservation. The Missouri Department of Conservation (MDC) partners with various federal agencies on wetland restoration programs. MDC Wetland Biologists partner with U.S. Department of Agriculture - Natural Resources Conservation Service (NRCS) staff to form Wetland Emphasis Teams (WETs). WETs provide technical assistance to private landowners on implementing wetland restoration programs. The agency employs five wetland biologists dedicated to delivering wetland expertise and technical assistance to private landowners. The biologists are funded under a cost-share agreement between the U.S. Department of Agriculture (USDA) and the MDC. In addition, many more within the agency's headquarter and regional offices work indirectly on wetland restoration programs by providing administrative support and coordination among federal agencies, state agencies, and landowners.¹⁵

§401 certification

As in other states, any actions that require a federal permit, license, or approval that result in a discharge into waters of the state, including §404 dredge and fill permits and nationwide permits, require CWA §401 certification. MODNR staff evaluate proposed projects to ensure compliance with the state's water quality standards. In general, applicants must show that they will take all possible steps to avoid or minimize potential impacts to wetlands and that they have provided compensatory mitigation for any remaining, unavoidable impacts.¹⁶

Approximately one thousand §401 water quality certifications are issued by the MODNR each year,¹⁷ of which about fifteen percent are wetland-related (the remainder involve impacts to streams).¹⁸ The majority of project applications are approved, with less than 3 percent denied on average annually. These denials are usually due to incomplete applications. MODNR staff rely on best professional judgment in assessing proposed projects.¹⁹

⁸ The 401 Water Quality Certification Unit is run under the MODNR Water Protection and Soil Conservation Division, Water Protection Program, Permit and Engineering Section.

⁹ Personal Communication with Kevin Mohammadi, Missouri Department of Natural Resources (Aug. 18, 2004).

¹⁰ Personal Communication with Scott Hamilton, Missouri Department of Natural Resources (Aug. 12, 2004).

¹¹ Personal Communication with Scott Goodin, Missouri Department of Natural Resources (Aug. 17, 2004).

¹² Missouri Department of Natural Resources, *Wetlands*, at <http://www.dnr.mo.gov/geology/wrp/wetlands.htm> (last revised Jul. 8, 2004).

¹³ Personal Communication with Joe Pitts, Missouri Department of Natural Resources (Aug. 19, 2004).

¹⁴ Personal Communication with Becky Shannon, Missouri Department of Natural Resources (Aug. 19, 2004).

¹⁵ Personal Communication with Kevin Dacey, Missouri Department of Conservation (Aug. 19, 2004).

¹⁶ Hamilton, *supra* note 10.

¹⁷ In fiscal year 2003, 917 certifications were issued.

¹⁸ Personal Communication with Don Boos, Missouri Department of Natural Resources (Oct. 14, 2004).

¹⁹ Hamilton, *supra* note 10.

Nationwide permits

The §401 Water Quality Certification Unit conducts regular reviews of the U.S. Army Corps of Engineers' nationwide permits (NWP), providing comment on the NWPs themselves and the Corps districts' regional conditions. Conditions, denials, and approvals for §401 water quality certification are then issued. The Corps did not accept MODNR's conditions to the most recent renewal of NWPs in 2001, requiring the state to certify every project individually. In January 2004, the State received approval on 16 of the Corps' 44 NWPs, including the majority of the most commonly issued ones.^{20,21}

Mitigation

Missouri has not adopted legislation regarding compensatory mitigation for wetlands. The state has, however, published mitigation guidelines – *State of Missouri Aquatic Resources Mitigation Guidelines*²² – for mitigation required under §401/§404 of the Clean Water Act. The guidelines, issued by the MODNR in 1998, were developed in conjunction with the state's Departments of Conservation and Transportation, as well as the U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, and NRCS. The guidelines outline acceptable amounts and forms of mitigation for compliance with the Clean Water Act, National Environmental Policy Act, Executive Order 11000 on the protection of wetlands, and Missouri water laws and regulations. Specifically, the guidelines address avoidance and minimization of impacts; mitigation site, type, and method;²³ replacement ratios;²⁴ and planning.²⁵

Both the MODNR and the MDC are members of the region's Mitigation Banking Review Team (MBRT). The MBRT is chaired by the Missouri NRCS and includes representatives from the U.S. Army Corps of Engineers (St. Louis, Little Rock, Rock Island, Kansas City, and Memphis Districts), U.S. Environmental Protection Agency Region VII, and U.S. Fish and Wildlife Service. The MBRT was established with the specific purpose of reviewing and seeking consensus on banking instruments and final plans for the restoration, monitoring, and management of wetland banks. Either the NRCS or the Corps can initiate MBRT meetings. Other MBRT participants, such as Agricultural Conservation Innovation Center representatives, mitigation bankers, and landowners can request a meeting by contacting either NRCS or the Corps.²⁶

²⁰ The agency has issued authorization (with conditions) for the following NWPs: NWP#3 - Maintenance; NWP#4 - Fish and Wildlife Harvesting, Enhancement and Attraction Devices and Activities; NWP#5 - Scientific Measurement Devices; NWP#6 - Survey Activities; NWP#7 - Outfall Structures and Maintenance; NWP#12 - Utility Line Activities; NWP#13 - Bank Stabilization; NWP#14 - Linear Transportation Projects; NWP#18 - Minor Discharges; NWP#27 - Stream and Wetland Restoration Activities; NWP#33 - Temporary Construction, Access and Dewatering; NWP#36 - Boat Ramps; NWP#40 - Agricultural Activities; NWP#41 - Reshaping Existing Drainage Ditches; NWP#42 - Recreational Facilities; NWP#43 - Storm Water Management Facilities. See Missouri Department of Natural Resources, *401 Water Quality Certification*, at <http://www.dnr.mo.gov/wpscd/wpcp/401/wpcp-401.htm> (last revised Jun. 15, 2004).

²¹ Boos, *supra* note 18.

²² Missouri Department of Natural Resources, *State of Missouri Aquatic Resources Mitigation Guidelines*, at http://www.dnr.state.mo.us/wpscd/wpcp/401/mitigation_guidelines.pdf (1998).

²³ On-site mitigation is preferred except: where it is impractical, where it does not adequately replace lost functions, or where it is determined that off-site mitigation is environmentally preferable given the type of wetland impacted and historic losses in the watershed. Off-site mitigation should be adjacent to the impacted site and/or in the same watershed, except where it is demonstrated to be impractical. In-kind mitigation is also preferred, except where it is impractical. Acceptable mitigation methods include restoration (preferred), creation, enhancement, preservation, mitigation of non-wetland aquatic resources, in-lieu-fee, and banking. The guidelines outline circumstances under which each of these mitigation methods are acceptable.

²⁴ Replacement ratios for compensatory wetlands to impacted wetlands (as classified by Cowardin et al.'s *Classification of Wetlands and Deepwater Habitats*) include the following: 1.0:1.5 for farmed wetlands; 1.0:3.0 for emergent; 1.5:3.0 for shrub-scrub wetlands; 2.0:4.0 for wooded wetlands; and 1.0:1.0 for open water. Stream mitigation ratios are determined on a case-by-case basis.

²⁵ Missouri Department of Natural Resources, *supra* note 22.

²⁶ Missouri Levee and Drainage Ditch Association, *Agricultural and Wetland Mitigation Banks*, at <http://www.mldda.org/wetlandbank.htm> (last visited Aug. 20, 2004).

Compliance and enforcement

Although CWA enforcement is generally handled at the federal level, state water quality compliance and enforcement laws²⁷ apply to wetlands because they are considered “waters of the state.” Water quality enforcement is handled MODNR’s Water Protection Program, under the Water Protection Branch of the agency. Although MODNR’s Water Protection Program has several tools, including administrative penalties, available for water quality enforcement,²⁸ MODNR staff report that situations where wetland-related enforcement action is necessary rarely arise.²⁹

Tracking systems

The MODNR Water Quality Certification Unit maintains a relatively simple database of permit information, including applicant information, site location, and whether or not mitigation was performed for the project. Mitigation plans are referenced in the database, but are maintained in hard copy on file.³⁰

III. Water Quality Standards

Missouri has not adopted wetland-specific water quality standards (WQS). However, wetlands are subject to the state’s open water WQS, designated uses, and antidegradation policies, as they are included in the definition of waters of the state. The state has defined beneficial uses specifically for wetlands,³¹ but to date it has not applied them to any waters of the state. State water quality criteria are chemical, physical, and biological in nature and relate to wetland functions such as flood control, fish and wildlife habitat, and minimum stream flows.³² The state’s antidegradation standards outline three tiers of waters for which water quality and uses must be maintained.³³ Tier I includes waters that “maintain a level of water quality that protect[s] public health and existing in-stream water uses. . . .”³⁴ Tier II applies to waters that “maintain a level of water quality better than applicable water quality criteria.” For these waters, “[e]xisting levels of water quality shall be fully maintained and protected unless lowered water quality is necessary to allow important economic and social development in the area.”³⁵ Water quality may not be lowered for Tier III waters under any circumstances. These waters are listed in the state’s regulations and include outstanding state or national resource waters.³⁶ Approximately 270 acres of wetlands, or 0.04 percent of the state’s total wetland acreage, are listed as outstanding state resource waters.³⁷

Because wetland-specific numeric and narrative criteria have not yet been developed by MODNR, staff rely on best professional judgment in issuing National Pollutant Discharge Elimination System (NPDES) permits and §401 water quality certifications. In general, discharges to wetlands are not allowed in NPDES permitting.³⁸ For §401 water quality certification decisions, MODNR staff refer to antidegradation standards and general water quality criteria for waters of the state.³⁹

²⁷ Mo. CODE REGS. ANN. tit. 10, § 20-3.010.

²⁸ *See id.*

²⁹ Mohammadi, *supra* note 9.

³⁰ Hamilton, *supra* note 10.

³¹ Mo. CODE REGS. ANN. tit. 10, § 20-7.031 (1)(C)(12).

³² *Id.* § 20-7.031 (1)(C).

³³ *Id.* § 20-7.031 (2).

³⁴ *Id.* § 20-7.031(2)(A).

³⁵ *Id.* § 20-7.031(2)(B).

³⁶ *Id.* § 20-7.031(2)(C).

³⁷ Goodin, *supra* note 11.

³⁸ Personal Communication with Peter Good, Missouri Department of Natural Resources (Aug. 17, 2004).

³⁹ Hamilton, *supra* note 10.

Future revision of the state's WQS include plans to classify wetlands in conformance with existing methods, designate appropriate beneficial uses for each wetland category, develop specific numeric criteria where appropriate, and assemble a state wetland inventory that includes data on location, type, unique characteristics, and other information. Although MODNR staff have expressed interest in moving forward with the inclusion of wetlands in the state's water quality standards, the issue is not a priority for the agency due to staff shortages and heavy workloads.⁴⁰

IV. Monitoring and Assessment

The MODNR has not established a monitoring and assessment program for wetlands, but the agency's Water Protection and Soil Conservation Division does have a Water Quality Monitoring and Assessment Unit in place for rivers and streams. Several assessment methodologies have been developed for regulatory purposes. For example, the MODNR's "2004 Listing Method," which relies on chemical and biological criteria, was developed specifically for the purpose of compiling §303(d) lists and §305(b) reports. The state also utilizes a standard operating procedure for conducting rapid visual and qualitative benthic examination of streams and a standard low flow assessment as screening methodologies for impaired water quality assessment. The program is funded by the grants from the U.S. Environmental Protection Agency.⁴¹

The agency's monitoring program collects data for several purposes: to characterize reference conditions, habitats and biological communities; to better understand processes, flows, and impacts to water quality; to check for compliance; and to monitor the effectiveness of water pollution control activities. MODNR coordinates with several agencies in the collection of data, including the U.S. Army Corps of Engineers, MDC, EPA, and U.S. Geological Survey, among other state and federal agencies and universities.⁴² The program, in conjunction with the Missouri Department of Conservation, also works with the Missouri Stream Team, a volunteer monitoring group. The two state agencies provide volunteers with training on data collection and submission. Volunteer-collected data is used at the screening level, supplementing the state's monitoring and assessment data. The stream monitoring and assessment program also works with the MODNR §319 program to address monitoring needs and potential projects.⁴³

V. Restoration and Partnerships

Most of the state's restoration activities are conducted by the MDC, in partnership with federal agencies such as the NRCS and the U.S. Fish and Wildlife Service (FWS). The MDC has built significant and enduring partnerships with federal agencies. Missouri is often cited as a model state for wetland-related programs such as NRCS' Wetland Reserve Program, Emergency Watershed Protection Program, and Conservation Reserve Program, as well as the FWS' Partners for Fish and Wildlife Program.⁴⁴

MDC provides "one-stop shopping" for landowners looking to develop wetlands on their lands. Regional wetland teams provide landowner assistance and technical expertise on restoration and have been successful at obtaining buy-in from landowners throughout the state. The MDC has also helped produce various outreach materials targeting landowners, including a pamphlet on the NRCS Wetland Reserve Program and a 17-minute video on wetland restoration. The agency

⁴⁰ Personal Communication with Scott Goodin, Missouri Department of Natural Resources (Aug. 25, 2004).

⁴¹ Goodin, Scott *supra* note 11.

⁴² Missouri Department of Natural Resources, *supra* note 1.

⁴³ Personal Communication with John Ford, Missouri Department of Natural Resources (Aug. 17, 2004).

⁴⁴ Dacey, *supra* note 15.

produces a newsletter, *The Gander*, which provides seasonal information to landowners and the general public on various environmental issues, including those related to wetlands.⁴⁵

The MODNR's Watershed Protection Section (the §319 program) has also administered various grants for wetland construction and wetland-related outreach and education and has provided planning targeted at watershed protection.⁴⁶

VI. Education and Outreach

MODNR conducts a diversity of education and outreach activities. The agency's Communications and Education Office offers workshops and college courses and distributes educational material. While there are no wetland-focused activities or materials, water-related materials and workshops often include wetland information. The Communications and Education Office focuses its efforts on K-12 teachers, using limited resources to distribute information to a wider audience of children.⁴⁷ The office organizes Big River Systems Educational Workshops and River Cleanup Events, Water Education Training (Project WET) workshops, and various 1-credit college courses and distributes educational materials and curricula.⁴⁸

VII. Coordination with State and Federal Agencies

Missouri state agencies do coordinate to some extent on wetland issues. For example, the Department of Transportation, MODNR, and MDC recently established a wetland mitigation team to develop more efficient and biologically effective methods for mitigating road impacts. The MODNR and MDC also coordinate on other issues, such as training for citizen monitoring groups for streams and rivers, as well as education and outreach. State agencies also coordinate with the federal agencies on both regulatory and non-regulatory issues. For example, MODNR staff often do site visits in conjunction with the FWS, U.S. Army Corps of Engineers, and EPA.⁴⁹ As previously mentioned, the MDC has built strong partnerships with the USDA and the FWS on conservation and restoration programs.

The State of Missouri developed a State Wetland Conservation Plan in the 1990s. The MODNR Water Resources Program is responsible for administering the plan, which encourages the protection and restoration of wetlands and the provision of technical assistance to other agencies involved in wetland issues. Goals of the plan include the following: the investigation of methods that will aid in the collection of data, management, restoration, and protection of wetlands; the creation and submission of proposals to secure resources to support wetland protection; the study of reports, studies, and proposed projects that relate to wetlands; and the development of projects for the advancement of wetland sciences. The plan also calls for the creation of a State Wetland Coordinator position in MODNR.⁵⁰ Although the plan has been in existence for over a decade, it has not been fully implemented.⁵¹

⁴⁵ *Id.*

⁴⁶ Shannon, *supra* note 14.

⁴⁷ Pitts, *supra* note 13.

⁴⁸ Missouri Department of Natural Resources, *Media Center – Communications and Education Office*, at <http://www.dnr.state.mo.us/oac/communications.htm> (last revised Jul. 21, 2004).

⁴⁹ Hamilton, *supra* note 10.

⁵⁰ Missouri Department of Natural Resources, *supra* note 12.

⁵¹ Personal Communication with Karen Rouse, Missouri Department of Natural Resources (Aug. 17, 2004).

VIII. Acronyms and Abbreviations

CSR - Code of State Regulations

CWA - Clean Water Act

EPA - U.S. Environmental Protection Agency

FTEs - Full-time equivalents

FWS - U.S. Fish and Wildlife Service

MBRT - Mitigation Banking Review Team

MDC - Missouri Department of Conservation

MODNR - Missouri Department of Natural Resources

MRS - Missouri Revised Statutes

NPDES - National Pollutant Discharge Elimination System

NRCS - U.S. Department of Agriculture, Natural Resources Conservation Service

NWPs - Nationwide Permits

USDA - U.S. Department of Agriculture

WET - Water Education Training

WETs - Wetland Emphasis Teams

WQS - Water Quality Standards

New York

I. Overview

The New York State Constitution specifically mandates the protection and conservation of wetlands, stating, “The policy of the state shall be to conserve and protect its natural resources and scenic beauty . . . The legislature, in implementing this policy, shall include adequate provision for . . . the protection of agricultural lands, wetlands and shorelines, and the development and regulation of water resources.”¹ Thus, the state takes a habitat approach to wetlands protection, with a marginal focus on water quality. The primary regulatory agency with respect to wetlands is the New York State Department of Environmental Conservation; however, the Adirondack Park Agency oversees wetland regulation within the boundaries of Adirondack Park.

II. Regulatory Programs

Wetland definitions and delineation

New York law defines waters as follows: “Waters’ shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial limits of the state of New York, and all other bodies of surface or underground water, natural or artificial, inland or coastal, fresh or salt, public or private, which are wholly or partially within or bordering the state or within its jurisdiction.”²

State law offers further definition of wetlands. The statutes emphasize vegetation in their definitions for freshwater and tidal wetlands, which are offered in separate statutes. Freshwater wetlands are defined as “lands and submerged lands commonly known as marshes, swamps, sloughs, bogs, and flats which support wetland vegetation,”³ with further provisions for what constitutes wetland vegetation. The law does also require the presence of “seasonal or permanent flooding or sufficiently water-logged soils” to determine whether facultative vegetation should be considered as wetland vegetation and describes instances where an area is considered a wetland, although wetland vegetation may be absent: (a) permanently wet conditions which contain dead upland vegetation; (b) areas substantially enclosed by wetlands; and (c) the waters which overlie any wetland area.⁴

Additional provisions are given to freshwater wetlands falling inside the Adirondack Park, a six million acre patchwork of public and private land protected under state law. Within the boundaries of the park, “wetlands” are defined as “any land which is annually subject to periodic or continual inundation by water and commonly referred to as a bog, swamp, or marsh. . . .”⁵

“Tidal wetlands” are defined as “those areas which border on or lie beneath tidal waters, such as, but not limited to, banks, bogs, salt marsh, swamps, meadows, flats or other low lands subject to tidal action, including those areas now or formerly connected to tidal waters,” and “all banks, bogs, meadows, flats, and tidal marsh subject to such tides, and upon which grow or may grow some or any of the following: salt hay, black grass, saltworts, sea lavender, tall cordgrass, hightide bush, cattails, groundsel, marsh mallow, and the intertidal zone including low marsh cordgrass.”⁶

¹ N.Y. CONST. Art. XIV, § 4.

² N.Y. ENVTL. CONSERV. LAW § 15-0107(4).

³ *Id.* § 24-0107(1).

⁴ *Id.*

⁵ N.Y. ENVTL. CONSERV. LAW § 24-0801; NY Executive Law § 801(68).

⁶ *Id.* § 25-0103.

Delineation criteria differ from that of §404 of the CWA (outlined in the U.S. Army Corps of Engineers' 1987 *Wetlands Delineation Manual*⁷), again emphasizing, but not limited to, vegetation. Although New York State wetland delineation criteria rely primarily on vegetation parameters, delineation techniques do parallel those offered in the Corps' *Manual*, and soil and hydrological classifications can be used if needed.⁸ Generally, criteria are similarly stringent, but the amount of documentation required by New York State is less rigorous.⁹

Wetland-related statutes and regulations

The State of New York identifies and protects wetlands under the following state laws:

- Freshwater Wetlands outside of Adirondack Park (NY ECL Article 24, Title 7);
- Freshwater Wetlands within Adirondack Park (NY ECL Article 24, Title 8; NY ECL Article 27);
- Freshwater Wetlands subject to local control (NY ECL Article 24, Title 5);
- Tidal Wetlands (NY ECL Article 25); and
- Wetlands adjacent to any of the state's navigable waters (NY ECL Article 15, Title 5).

The Freshwater Wetlands Act. The Freshwater Wetlands Act (NYECL Article 24) was enacted in 1975 by the state legislature in response to rapidly increasing wetland losses throughout the state. Under the act, jurisdiction belongs to two state agencies. The New York State Department of Environmental Conservation (NYS DEC) manages and protects wetlands for the majority of the state. The Adirondack Park Agency (APA) oversees wetlands falling within boundaries of the Adirondack Park.¹⁰ Local municipalities may also assume control under the act, provided that local wetlands laws or ordinances are at least as protective as state law and do not affect activities exempted from permit requirements by the state.¹¹ Local assumption of wetlands regulation authority is uncommon; only three municipalities in New York have assumed the program to date.^{12,13} Aside from defining wetlands (see *Wetlands Definitions and Delineation* section above), the Freshwater Wetlands Act outlines size thresholds for protection, classifies wetlands based on functions and benefits, and describes permitted activities in classified wetlands.¹⁴

With the exception of Adirondack Park, NYS DEC all regulates activities affecting wetlands that are greater than 12.4 acres in size and those less than 12.4 acres if they are deemed of "unusual importance."¹⁵ The regulated area includes the wetlands themselves as well as a protective buffer or "adjacent area" extending 100 feet landward of the wetland boundary. The adjacent area can also be extended "where necessary to protect and preserve the wetland."¹⁶ Jurisdiction over wetlands that are less than 12.4 acres in size and not of "unusual importance" is up to the discretion of local

⁷ U.S. Army Corps of Engineers, Wetlands Research Program Technical Report Y-87-1, *Corps of Engineers Wetlands Delineation Manual (1987)*, available at <http://www.saj.usace.army.mil/permit/documents/87manual.pdf>.

⁸ New York State Department of Environmental Conservation, *Freshwater Wetlands Delineation Manual (1995)*, available at <http://www.dec.state.ny.us/website/dfwmr/habitat/wdelman.pdf>.

⁹ Personal communication with Pat Reixinger, New York Department of Environmental Conservation (Nov. 12, 2003).

¹⁰ New York State Department of Environmental Conservation [hereinafter NYDEC], *Programs to Conserve Wetlands*, at <http://www.dec.state.ny.us/website/dfwmr/habitat/fwwprog4.htm> (last revised Mar. 9, 2004).

¹¹ N.Y. ENVTL. CONSERV. LAW § 24-0501.

¹² As of July 2004, the Town of Union, the Town of Hempstead, and the Village of South Hampton have assumed responsibility for carrying out the provisions of the Freshwater Wetlands Act.

¹³ Reixinger, *supra* note 9.

¹⁴ NYDEC, *supra* note 10.

¹⁵ N.Y. ENVTL. CONSERV. LAW § 24-0507.

¹⁶ *Id.* § 24-0701.

governments.¹⁷ Finally, wetlands under the state's jurisdiction must be mapped according to the Freshwater Wetlands Act. This allows for landowners, regulators, and other interested parties to see and understand jurisdictional boundaries. The process of generating these maps involves public comment to ensure accuracy and, in recognition of wetlands as a dynamic resource, periodic amendments as necessary.¹⁸ Within Adirondack Park boundaries, the APA regulates activities affecting wetlands greater than one acre in size or located adjacent to a body of water, including a permanent stream, with which there is free interchange of water at the surface, in which case there is no size limitation.¹⁹ Mapping of wetlands under APA's jurisdiction is ongoing.²⁰

Regulated freshwater wetlands are classified according to Part 664 Title 6 of the New York State Codes, Rules, and Regulations (NYCRR) – Wetlands Mapping and Classification regulations. The rules guide the classification of wetlands during the mapping process described above. Classification categories range from Class I wetlands, which provide the most benefits, to Class IV wetlands, which provide the fewest.²¹ Obtaining a permit to alter a Class I wetland is more difficult than a permit to alter a Class IV wetland. Thus, wetland classifications are important to the regulatory process and are subject to public comment during the mapping process.²² Procedures, systems, and explanations for classification are described in the NYCRR.²³ Inside the Adirondack Park, wetlands are assigned value ratings according to their vegetation covertype and other wetland characteristics.²⁴ Value ratings within the park are considered in permitting in the same manner.²⁵

The Freshwater Wetlands Act regulates activities that can be performed in freshwater wetlands subject to jurisdiction. Actions requiring a permit include: the construction of buildings, roadways, septic systems, bulkheads, dikes or dams; placement of fill, excavation or grading; modification or restoration of existing structures; drainage (except for agriculture) or otherwise altering water levels; clear-cutting of trees; drilling wells; applying pesticides; and any other activity which substantially impairs freshwater wetland functions or the benefits they provide. Activities that are exempt from permit requirements include: normal agricultural activity (except filling), recreational activity, routine building maintenance, selective cutting of trees, and the continuation of an already lawful land use.²⁶

The Tidal Wetlands Act. NYECL Article 25, the Tidal Wetlands Act, outlines measures specifically for tidal wetlands, which are regulated by the NYS DEC.²⁷ Unlike freshwater wetlands, the rules do not set size thresholds or classifications for regulated tidal wetlands (see *Wetlands Definitions and Delineation* section above for a regulatory definition of tidal wetlands). Tidal wetlands are required to be mapped according to similar procedures as those conducted under the Freshwater Wetlands Act, and nearly all activities that will alter wetlands or the adjacent areas require permits. The only exempt actions are those that continue lawfully existing uses, do not alter lands or wetlands, and do not change existing structures.²⁸

¹⁷ *Id.* § 24-0507.

¹⁸ New York State Department of Environmental Conservation, *A Brief Description of the Freshwater Wetlands Act and What it Means to Wetlands Landowners*, at <http://www.dec.state.ny.us/website/dfwmr/habitat/wetdes.htm> (last revised June 17, 2003).

¹⁹ N.Y. ENVTL. CONSERV. LAW § 24-0801; NY Exec. Law § 801(68).

²⁰ Personal communication with Pat Reixinger, New York Department of Environmental Conservation (Aug. 11, 2003).

²¹ N.Y. COMP. CODES R. & REGS. tit. 6, § 664.

²² NYS DEC, *supra* note 18.

²³ N.Y. COMP. CODES R. & REGS. tit. 6, § 664.

²⁴ *Id.* tit. 9, § 578.5.

²⁵ *Id.* § 578.10.

²⁶ N.Y. ENVTL. CONSERV. LAW § 24-0701; N.Y. COMP. CODES R. & REGS. tit. 6, § 663.4(d).

²⁷ New York Department of Environmental Conservation, *Tidal Wetlands Permit Program: Introduction*, at <http://www.dec.state.ny.us/website/dcs/tidalwet/index.html> (last visited on Apr. 22, 2004).

²⁸ N.Y. ENVTL. CONSERV. LAW § 25-0401(2); 6 NYCRR § 661.5.

Water Resources Law. NYECL Article 15, Title 5, states that, without a permit, excavation or placement of fill is prohibited in “any of the navigable waters of the state, or in marshes, estuaries, tidal marshes and wetlands that are adjacent to and contiguous at any point to any of the navigable waters of the state and that are inundated at a mean high water level or tide. . . .”²⁹ The statute specifically exempts emergency procedures, general NYS DEC activities relating to flood control, general New York State Department of Transportation activities relating to canals, or other state agencies or organizations that have relevant memoranda of understanding with the NYS DEC.³⁰ The corresponding state regulations, Title 6 of the NYCRR, Part 608, also exempt particular agricultural activities, including the crossing of protected streams by livestock or wheeled farming equipment and the withdrawal of irrigation water in a manner which does not otherwise alter the stream.³¹ The permitting program is administered by the NYS DEC. Permit applications are submitted to regional administrators and, depending on the proposed project, must include various plans, reports, and maps, as well as S401 certification where applicable.³² Applicable permits regulate two levels of protection for the state’s streams. Stream protection permits apply to disturbances of streambeds and banks; about 2,000 of these permits are issued each year. Navigable water permits offer a higher level of protection; approximately 5,300 of these permits are issued annually. There is typically no mitigation associated with these permits since most impacts involve stream crossings or other activities that have a minimal effect on the land’s function.³³

Organization of state agencies

The two agencies regulating wetlands activities at the state level, the Department of Environmental Conservation and the Adirondack Park Agency, have similar roles in wetlands protection and management, albeit in different jurisdictions (discussed above). The Department of Environmental Conservation regulates all wetlands within the jurisdiction of the state’s wetland-related laws, with the exception of those lying within Adirondack Park. APA regulates wetlands lying within the park boundaries.³⁴

Department of Environmental Conservation. Within the DEC, the Division of Fish, Wildlife, and Marine Resources (DFWMR) has primary responsibility for wetlands. Thus, regulatory approaches are very habitat-focused, with less emphasis on water quality. Staff from the DFWMR’s Bureau of Habitat and Wildlife conduct a variety of wetland-related activities, including permitting, enforcement, monitoring, outreach and technical support, restoration initiatives, management of state-owned wetlands, and mapping of jurisdictional wetlands. Nine regional offices and four suboffices handle permit review and delineation tasks. Because freshwater wetlands, tidal wetlands, and streams are just three of many types of habitat being handled by DFWMR staff, there is no specific “wetlands program.”³⁵ Wetland-related activities are spread among many areas of habitat protection and different divisions within the DEC; therefore, it is difficult to calculate the amount of staff time or funding devoted specifically to wetlands management and protection within the agency. However, based on daily staff activity, approximately 14.2 FTEs work on regulatory activities such as wetland delineation, permit review, compliance and enforcement, mapping, and program administration. This estimate does not include non-regulatory activities or broader conservation efforts.³⁶

Funding for the DEC’s wetlands-related activities comes from a diversity of sources. General state funds support a few employees. The state also has a Conservation Fund, which includes dedicated funding from the sale of sporting licenses and dedicated state appropriations to the DFWMR. The Conservation Fund supports both staff that conduct habitat protection work and management programs that benefit wetlands and wetland-related fish and wildlife. Federal grants

²⁹ *Id.* § 15, Title 5.

³⁰ *Id.*

³¹ N.Y. COMP. CODES R. & REGS. tit. 6, § 608.

³² *Id.*

³³ Personal communication with Pat Reixinger, New York Department of Environmental Conservation (June 17, 2004).

³⁴ Reixinger, *supra* note 9.

³⁵ *Id.*

³⁶ Personal communication with Pat Reixinger, New York Department of Environmental Conservation (Dec. 23, 2003).

are integral to many of the agency's initiatives. For example, funds from the Federal Aid in Wildlife Restoration Act and the Federal Aid in Sport Fish Recreation Act, commonly known as the Pittman-Robertson and the Dingell-Johnson Acts respectively, support employees working in stream protection, habitat protection, and other wetland-related activities.³⁷

Other NYS DEC divisions working on wetland-related activities include the Division of Environmental Permits, Division of Law Enforcement, and the Division of Legal Affairs. The Division of Environmental Permits (DEP) is responsible for coordinating and processing wetlands permits, along with a suite of other agency permits administered under the Uniform Procedures Act.³⁸ DEP conducts screening for the presence of natural heritage, cultural, and historic resources; ensures compliance with the State Environmental Quality Review Act,³⁹ and screens for applicability of other regulatory programs. On certain minor projects negotiated regionally with DFWMR staff, DEP administers general permits for impacts to wetlands and protected streams. DEP provides the state with "one stop shopping" for permit applications and inquiries. The Division of Law Enforcement and the Division of Legal Affairs provide DFWMR with assistance on enforcement, compliance, and other legal issues.⁴⁰

Adirondack Park Agency. The APA is primarily a land use regulatory agency. The agency administers two wetlands laws, the Freshwater Wetlands Act and the Adirondack Park Agency Act, and has lower jurisdictional thresholds. Thus, their regulation of wetlands can be more inclusive than that of the NYS DEC. Almost all wetland-related activities within the APA are conducted by the Resource Analysis and Scientific Services (RASS) Unit. The RASS Unit is responsible for wetland mapping, field delineations, resource analysis, enforcement, education and outreach, technical support, and review of projects on public and private lands. The APA's Planning Division does share some mapping work, but the RASS is the agency's primary unit for wetlands management and protection.⁴¹

The APA oversees approximately six million acres of land, nearly 20 percent of the state. However, development pressures in the park are much less intense than in other parts of the state. Projects are reviewed case-by-case, and staff develop skills and training as needed. The agency is relatively small, with approximately 2-2.5 full-time equivalents (FTEs) working on wetland-related activities out of one central office.⁴² Funding for the agency's wetland-related programs and initiatives comes from general state appropriations and federal grants. Since the early 1990s, the APA has received thirteen U.S. Environmental Protection Agency (EPA) Wetland Protection Grants. These grants have ranged from \$36,000 for data collection and research to over \$500,000 for projects that span up to five years to. The agency also relies upon volunteer help whenever possible.⁴³

Mitigation

New York does not have a state law explicitly establishing a mitigation program. Mitigation is, however, addressed in the state's regulations (Title 6 of the NYCRR, Part 661 and 663). In order to receive a permit under the Freshwater or Tidal Wetlands Acts, an applicant must demonstrate that impacts to the wetland cannot be avoided, that the unavoidable impacts have been minimized to the fullest extent, and finally, that they will fully compensate for or replace "any remaining loss of wetland acreage and function unless it can be shown that the losses are inconsequential or that,

³⁷ Reixinger, *supra* note 9.

³⁸ N.Y. COMP. CODES R. & REGS. tit. 6, § 621.

³⁹ The State Environmental Quality Review Act (SEQRA) requires all New York state and local government agencies to consider environmental impacts equally with social and economic factors during discretionary decision-making. N.Y. COMP. CODES R. & REGS. tit. 6, § 617.

⁴⁰ Reixinger, *supra* note 20.

⁴¹ Personal communication with Dan Spada, New York Adirondack Park Agency (May 10, 2004).

⁴² *Id.*

⁴³ Personal communication with Judith Smith, New York Adirondack Park Agency (May 14, 2004).

on balance, economic or social need for the project outweighs the losses.”⁴⁴ Compensatory mitigation for ‘unavoidable impacts’ to a wetland must occur on or in the vicinity of the proposed project, must fall under the authority of the regulating agency after the mitigative measures have been completed, and must provide substantially equal or increased benefits to those of the lost wetland.⁴⁵

The NYS DEC has developed general mitigation guidelines for its regulating staff. The guidelines do not prescribe a “cookbook” approach for wetlands mitigation, but instead offer a framework for decision-making related to wetlands regulation and enforcement.⁴⁶ Guiding principles include the following:

- Priority requirements are to first avoid and then minimize project impacts;
- Compensatory mitigation should preferably be on-site and in-kind;
- The preferred order of mitigation approaches is wetland restoration, then creation, then enhancement;
- Mitigation proposals should be based on plans containing clear specific detail, short and long term goals, and measurable performance criteria;
- Replacement at a 1:1 ratio is desirable;
- Mitigation should be sustainable and must persist over time without intensive, long term maintenance;
- Projects should be monitored for an appropriate period of time, as determined on a case-by-case basis;
- Mitigation should be completed prior to or concurrent with the permitted project; and
- Joint mitigation projects and mitigation banking can be considered by permitting staff.⁴⁷

The DEC is also involved in mitigation banking efforts. The agency issued a memorandum to its field staff advising them to consider banking as mitigation option equivalent to other off-site mitigation for freshwater wetlands.⁴⁸ NYS DEC does not support the use of banks for tidal wetlands. The state is also an active participant on the Mitigation Bank Review Team that covers activities in the New York and Buffalo Districts of the U.S. Army Corps of Engineers. However, the state feels that a formal, state-level banking program is not currently viable or necessary given the current demand for compensatory mitigation in the state.⁴⁹

The APA generally reviews mitigation plans as part of the wetlands permitting process in cases where impacts to wetlands cannot be avoided, as well as mitigation resulting from enforcement activities. In 1995, the agency adopted general mitigation guidelines that, similar to the DEC guidelines, recognize banking and in-lieu-fee as mitigation options, but do not prescribe specific methods for either.⁵⁰

Compliance and enforcement

Enforcement is decentralized in New York State, with regional offices responsible for enforcement in their areas. DFWMR staff assist the NYS DEC’s Division of Environmental Enforcement by providing technical guidance on wetlands impacts

⁴⁴ New York Department of Environmental Conservation, *Freshwater Wetlands Regulation - Guidelines on Compensatory Mitigation*, at <http://www.dec.state.ny.us/website/dfwmr/habitat/wetmit.pdf> (Oct. 26, 1993).

⁴⁵ N.Y. COMP. CODES R. & REGS. tit. 6, § 663.

⁴⁶ NYDEC, *supra* note 44.

⁴⁷ *Id.*

⁴⁸ Memorandum from Patricia Riexinger, New York Department of Environmental Conservation, Division of Fish, Wildlife and Marine Resources, Bureau of Habitat, to Natural Resource Supervisors, New York Department of Environmental Conservation (Dec. 24, 2002) (on file with author).

⁴⁹ Riexinger, *supra* note 9.

⁵⁰ Spada, *supra* note 41.

and remediation. DFWMR staff also often undertake informal action for minor infractions by working directly with landowners to fix problems, particularly with non-compliance with permit conditions. Wetlands enforcement cases in New York are pursued when violations are identified and the underlying facts warrant enforcement, which occurs infrequently.⁵¹ Penalties and fines are directed into the state's general fund.⁵²

Sanctions under the Tidal and Freshwater Wetlands Acts are defined separately under NYECL Article 71 (Title 23 for freshwater wetlands and Title 25 for tidal wetlands) but are largely similar. Enforcement tools for both tidal and freshwater wetlands include summary abatement orders, consent orders, and administrative, civil and criminal penalties.⁵³

A summary abatement order is a strong tool that requires immediate cessation of the violating activity and that may also order restoration. Within fifteen days, a hearing is held where challenges to the order can be made. The summary abatement order is typically used only if substantial environmental harm or imminent danger can be demonstrated. As a result, the summary abatement order is used rarely.⁵⁴

Civil sanctions may also be issued. For freshwater and tidal wetlands, a consent order may be issued with penalties, the requirement to cease and desist the violation activity, and restoration where appropriate. For freshwater wetlands, penalties of up to \$3,000 per violation may be imposed.⁵⁵ For tidal wetlands, monetary penalties can reach a maximum of \$10,000 per violation. Each day the violation continues is considered a new violation subject to penalty.⁵⁶ If the matter cannot be resolved with a consent order, a hearing may be held, where these sanctions may also be imposed.⁵⁷

Certain tidal and freshwater wetland offenses may also be considered violations to NYECL Article 15, which applies to the excavation or placement of fill in navigable waters or their adjacent wetlands. Under NYECL Article 71, violations to NYECL Article 15 are considered a misdemeanor and are subject to a fine of up to \$10,000 and/or a civil penalty of up to \$5,000.⁵⁸

Criminal penalties can also be issued and take a tiered approach. A violation to freshwater wetlands can result in a fine of \$500 to \$1,000 and up to 15 days imprisonment for the first punishable offense. Second and subsequent offenses constitute misdemeanors, which are punishable by a fine of \$1,000 to \$2,000 and/or imprisonment of 15 days to 6 months. The statute specifically authorizes each day of a continuing offense to be treated as a separate and distinct offense. A court may, in lieu of criminal fines or conviction, order restoration of the wetland to its prior condition.⁵⁹ For a violation to a tidal wetland, monetary penalties can include a criminal fine of \$500 to \$5,000 for a first offense. Subsequent offenses, which are considered misdemeanors, may be subject to a criminal fine of \$1,000 to \$10,000. Criminal sanctions may also include a prison term of 15 days to six months for multiple offenders. Violators may be ordered to cease and desist and to restore damaged wetlands.⁶⁰

⁵¹ Personal communication with Richard Sherman, New York Department of Environmental Conservation (Jan. 15, 2004).

⁵² Reixinger, *supra* note 9.

⁵³ Sherman, *supra* note 51.

⁵⁴ *Id.*

⁵⁵ N.Y. ENVTL. CONSERV. LAW § 71, Title 23.

⁵⁶ *Id.* § 71, Title 25.

⁵⁷ Sherman, *supra* note 51.

⁵⁸ N.Y. ENVTL. CONSERV. LAW § 71-1107.

⁵⁹ *Id.* § 71-2303(2).

⁶⁰ *Id.* § 71-2503.

While criminal enforcement mechanisms are available, they are rarely invoked.⁶¹ Because most offenders perform violating activities inadvertently or unintentionally, a more typical resolution is for regional permitting staff to informally notify the offending individual and request that the unlawful activity cease. If the violator does not comply, a notice ticket is issued.⁶² If noncompliance continues, greater levels of enforcement are sought. A consent order, which often includes a penalty and an order for restoration, gives people an opportunity to resolve the situation before moving to more serious criminal and civil sanctions. Because circumstances vary so widely from case to case there is no typical sanction that is issued.⁶³

Nationwide permits

Ongoing review of the U.S. Army Corps of Engineers' Nationwide Permits (NWP) is an important task for NYS DEC staff. The lead liaison for coordinating comments on NWPs is in the DEP, though the DFWMR also participates. Multi-agency meetings are regularly held among DEC, Corps, APA, EPA, U.S. Fish and Wildlife Service (FWS), and New York Department of State staff to discuss NWP re-authorizations.

A 2002 memorandum to Corps regulatory staff in the New York and Buffalo Districts clearly outlines the state's decisions on §401 Certification for NWPs.⁶⁴ Several NWPs do not require the state's §401 Certification because they are authorized only under §10 of the Rivers and Harbors Act of 1899.⁶⁵ Several NWPs have been denied water quality certification altogether (NWP#15 - U.S. Coast Guard Approved Bridges; NWP#16 - Return Water from Upland Contained Disposal Areas; NWP#17 - Hydropower Projects; NWP#21 - Surface Coal Mining Activities; NWP#29 - Single-Family Housing; NWP#34 - Cranberry Production Activities; NWA#44 - Mining Activities). Of those remaining NWPs remaining, certification is provided but accompanied by a set of general conditions, including the following:

- A monitoring requirement;
- An exclusion for activities that may jeopardize endangered or threatened species or destroy or adversely modify critical habitat;
- An exclusion for activities occurring in sites identified as "Priority Natural Heritage Sites;"
- A state approval requirement for activities involving state-owned lands;
- An exclusion for any activities involving tidal wetlands, with the exception of NWP#4, 5, 6 and 20;
- An exclusion for any activities in "Wild, Scenic, and Recreational Rivers" listed under the National Rivers Inventory;
- An application of the most restrictive conditions when NWPs are used in combination; and
- An exclusion for activities involving utility lines and major electric generating facilities

⁶¹ Sherman, *supra* note 51.

⁶² Reixinger, *supra* note 9.

⁶³ Sherman, *supra* note 51.

⁶⁴ Letter from William R. Adriance, Chief Permit Administrator, New York Department of Environmental Conservation, to Richard Tomer, Chief, Regulatory Branch, U.S. Army Corps of Engineers New York District, and Paul G. Leuchner, Chief, Regulatory Branch, U.S. Army Corps of Engineers Buffalo District (March 15, 2002) (*available at* www.dec.state.ny.us/website/dcs/statewidedecisions/nationwidecert1.pdf).

⁶⁵ The following NWPs do not require §401 certification: NWP#1 - Aids to Navigation; NWP#2 - Structures in Artificial Canals; NWP#8 - Oil and Gas Structures; NWP#9 - Structures in Fleeting and Anchorage Areas; NWP#10 - Mooring Buoys; NWP#11 - Temporary Recreational Structures; NWP#24 - State Administered §404 Program; NWP#28 - Modification of Existing Marinas; NWP#35 - Maintenance Dredging of Existing Basins.

Several others also have additional special conditions that are specific to the activity authorized under the individual NWP.⁶⁶

Tracking systems

The DEP provides a comprehensive one-stop shopping system for permits under the Uniform Procedures Act (UPA). UPA permits are issued for any activities that require a permit under the NYECL.⁶⁷ DEP's tracking system, Department Application Review Tracking (DART), manages the administrative aspects of permit processing, as well as monitoring permits for compliance with statutory frameworks. In 2003-2004, DEP issued more than 1475 wetland permits, 2260 excavation/fill permits in navigable waters, and 1560 protection of stream permits.⁶⁸ There is currently no system in place to track either the impacts of individual wetland permits or the mitigation associated with permitted projects. At present, an initiative is underway to facilitate the tracking of wetland-related compliance, delineations, mitigation, and the resource impacts of permits. Plans include connecting to the already-established DART system and building capacity for an electronic data collection system.⁶⁹

The APA has two comprehensive systems in place to track wetlands activities. The Master Action Database (MAD) is an in-house network that can be accessed by all APA staff at their personal computers and is cross-referenced to a set of paper files available at the APA's central office. MAD tracks various elements of wetland projects being conducted within the park. The Resource Analysis Tracking System is used by the RASS Unit on a daily basis to track all wetland-related activities, including general activities such as phone conversations and site visits. The Resource Analysis Tracking System is cross-referenced to the Master Action Directory, as the activities tracked by the two systems often overlap.⁷⁰

Watershed programs

Although the DEC's Bureau of Habitat (in the DFWMR) and the Bureau of Water Assessment and Management (in the Division of Water) do not formally coordinate, funding appropriated to watershed restoration supports estuary restoration and other wetland-related projects.⁷¹ Watershed planning is being conducted in different areas of the state, and wetlands staff do recognize the connection between wetlands and watershed initiatives, and various efforts⁷² are underway. Due to statutory limitations, watershed considerations are slowly being integrated into wetland regulation. Though formal measures are not yet in place, DEC staff envision planning that supports permitting, regulatory, and restoration/mitigation efforts in the future.⁷³

⁶⁶ Adriance and Tomer, *supra* note 64.

⁶⁷ New York State Department of Environmental Conservation, *Division of Environmental Permits*, at <http://www.dec.state.ny.us/website/dcs> (April 30, 2004).

⁶⁸ Reixinger, *supra* note 20.

⁶⁹ Reixinger, *supra* note 9.

⁷⁰ Spada, *supra* note 44.

⁷¹ New York State Department of Environmental Conservation, *Bureau of Water Assessment and Management*, at <http://www.dec.state.ny.us/website/dow/bwam/index.html> (last visited Nov. 11, 2004).

⁷² Using State Wildlife Grant funds, DFWMR is launching, in coordination with a suite of partners, watershed-based natural resources conservation planning efforts in the Salmon River, Allegany, Nissiquogue, and East Fishkill watersheds. In addition, DFWMR acquired EPA funds to develop a conservation plan for the Great Swamp watershed. This is being completed through a contract with The Nature Conservancy. Wetlands protection and restoration are also a strong component of watershed protection for the New York City drinking water reservoir watersheds. Barrier removal and mitigation is being approached on a watershed basis. Wetlands are protected, mapped, restored, and managed under grants, studies, and projects implemented through the Hudson River Estuary Plan.

⁷³ Reixinger, *supra* note 9.

III. Water Quality Standards

New York has developed but not yet adopted water quality standards (WQS) specific to wetlands. However, state regulations do provide for the assignment of “discharge restriction categories” to certain surface waters or groundwaters, which may include “significant recreational or ecological waters.” These are waters where quality is critical to maintaining the value for which the waters are distinguished, including groundwaters and surface waters that are both tributaries to and within Class I freshwater wetlands, intertidal marsh wetlands, and coastal fresh marsh tidal wetlands, as defined in the in Title 6 of the NYCRR.⁷⁴ Anti-degradation standards for the state’s waters have been adopted, although designated uses and anti-degradation standards specific to wetlands have not been developed.⁷⁵

§401 Certification

Section 401 certification for federal §404 permits is not a primary means of wetlands regulation or protection. New York water quality standards focus on resources other than wetlands and are not habitat-oriented. In addition, the state’s wetland regulatory programs are habitat-oriented and do not focus on water quality. Bureau of Habitat staff do recognize §401 certification as a wetlands regulatory tool, but the regulatory infrastructure is simply not in place to incorporate §401 certification into wetlands management. WQS specific to wetlands were developed at one time, but have never been adopted into the regulatory infrastructure.⁷⁶

IV. Monitoring and Assessment

Monitoring and assessment for wetlands

At present, New York State has not adopted an assessment methodology for wetlands. However, the agency has begun been working with the University of Albany, using EPA grant funds, to develop wetland-monitoring capacity for purposes of 305(b) reporting.⁷⁷

NYS DEC conducted a study of the status and trends of wetlands in the state between the mid-1980s and the mid-1990s. The purpose of the study was to determine changes⁷⁸ in the wetlands resource and to understand the factors causing those changes.⁷⁹ DEC plans to update this study for the period of time between the mid-1990s to the mid-2000s.⁸⁰

The APA has also recently completed a study of the status and trends of the area’s wetlands under an EPA grant. The agency also occasionally uses consultants for monitoring and assessment, mostly for regulation or enforcement purposes, and collects data for data layer buildup in a geographic information system. However, monitoring and assessment do not receive much focus overall.⁸¹

⁷⁴ N.Y. COMP. CODES R. & REGS. tit. 6, § 701.20.

⁷⁵ Reixinger, *supra* note 9.

⁷⁶ *Id.*

⁷⁷ Reixinger, *supra* note 20.

⁷⁸ The study indicated a net gain in freshwater wetlands in the Lake Plains region for the period, almost exclusively due to reverting agricultural lands. Outside the Lake Plains region, a “no net loss” of wetlands was determined for most other areas of the state, with the exception of Hudson valley, where a net loss of wetlands was determined.

⁷⁹ New York State Department of Environmental Conservation, *Freshwater Wetlands Status and Trends*, at <http://www.dec.state.ny.us/website/dfwmr/habitat/fwwprog3.htm> (last revised June 7, 2003).

⁸⁰ Reixinger, *supra* note 20.

⁸¹ Spada, *supra* note 41.

Monitoring and assessment for streams

NYS DEC's Division of Water conducts multiple monitoring programs. The Statewide Waters Monitoring Program, which includes an ambient water quality monitoring program for rivers and streams in the state, conducts the Rotating Integrated Basin Studies (RIBS). The RIBS sampling program incorporates both numeric and narrative monitoring efforts using a rotating strategy in which all major drainage basins in the state are monitored once during a five-year period. The Division's Stream Biomonitoring Program and the Toxicity Testing Program also evaluate the viability of aquatic populations and overall ecosystem health. Biological monitoring includes an assessment of the community, composition of the resident invertebrates, and toxicity testing. Information produced during stream assessments feeds into listing for CWA §§303(d) and 305(b).

RIBS. In order to address the various monitoring objectives and the rotating cycle, component networks within the RIBS Program are designed around three separate yet interdependent monitoring strategies:

- The Screening Network provides a narrative assessment of water quality at a large number of sampling sites with minimal resources (biological sampling provides assessments of a large number of representative and varied sites within targeted basins);
- The Intensive Monitoring Network employs more frequent, comprehensive and integrated multi-media sampling (water chemistry, bottom sediment chemistry, toxicity testing, macroinvertebrates, fish, habitat assessments) to provide more detailed water quality data and information for a smaller number of waterbodies in a selected drainage basin;
- The Routine Trend Monitoring Network is designed to provide long-term trends, basic water quality characteristics, and establish baseline conditions by continuous sampling of water quality and conditions at fixed sites across the state.

The water quality data and information generated by the RIBS program are used to support many monitoring and assessment functions within the NYS DEC Division of Water. Specifically, RIBS information and data are used in the compilation of the Waterbody Inventory/Priority Waterbody List and the §305(b) Water Quality Report and §303(d) List of Impaired Waters of the State.⁸²

V. Restoration and Partnerships

Although there is no formal, state-level restoration program, there are many initiatives in which multiple agencies and organizations collaborate and contribute funding.⁸³ A primary example is the wetlands restoration initiative underway in the Northern Montezuma Focus Area, where an array of funding sources and conservation programs are being used for the acquisition and restoration of thousands of acres of wetlands. NYS DEC's Bureau of Wildlife administers the initiative under the auspices of the North American Waterfowl Management Plan. Collaboration also includes numerous state, local, and federal government agencies, nongovernmental organizations, landowners, and other constituent groups. Another major effort is underway on the Niagara River. NYS DEC is collaborating with the New York Office of Parks, Recreation and Historic Preservation to restore hydrology on marshes adversely affected by power generation. Wetlands are also being restored in the Lake Champlain Basin, Long Island Sound, Hudson River Estuary, Susquehanna basin, and on a medley of state-owned lands throughout the state.⁸⁴ There are also restorations associated with remediation projects and superfund clean-ups. Success criteria and monitoring regimes are built into individual projects.⁸⁵

⁸² Personal communication with Margaret Novak, New York Department of Environmental Conservation (Aug. 13, 2004).

⁸³ Reixinger, *supra* note 9.

⁸⁴ Reixinger, *supra* note 20.

⁸⁵ Reixinger, *supra* note 9.

Outreach and technical assistance to landowners are usually deferred to local governments, soil and water conservation districts, nongovernmental organizations and federal agencies, but state agencies do participate in some multi-agency initiatives.⁸⁶ For example, New York has a very active and successful Wetlands Reserve Program (WRP) with the USDA Natural Resources Conservation Service (NRCS). One of the first nine states to implement the WRP, interest from landowners has been great. NRCS has entered into more than 590 contracts (easements and restoration options) on 26,800 acres of land in New York.⁸⁷ NRCS works with the NYS DEC, FWS, the USDA Farm Service Agency, U.S. Army Corps of Engineers, The Nature Conservancy, EPA, Farm Bureau, New York State Department of Agriculture and Markets, Soil and Water Conservation Districts, and the Cornell Cooperative Extension Service on wetland restoration through the State Technical Committee. Other organizations are involved in implementing WRP projects, including the Great Swamp Conservancy, Mohawk and Oneida Indian Nations, Ducks Unlimited, local units of government, and colleges. These agencies and organizations work together on program development and implementation, planning, and wetland construction, as well as public relations and educational activities.⁸⁸

A corporate wetland restoration program is also in its nascent stages of development in New York under the Coastal America Program,⁸⁹ a partnership of federal agencies, state and local governments, and private organizations that seek to protect, preserve, and restore the nation's coasts, including estuarine wetlands.⁹⁰

VI. Education and Outreach

The NYS DEC currently does not have a strategic education and outreach program in place specifically for wetlands.⁹¹ The state does conduct Project WET and Project Wild, which do include materials on wetlands and streams. Additionally, wetlands are one of the many natural resources NYS DEC includes in its comprehensive and broad-scale education efforts, which include summer environmental education camps, publication of the award-winning magazine *The Conservationist*, and outreach at the State Fair and numerous outdoor expos, among other opportunities.⁹²

The Adirondack Park Agency has multiple outreach efforts. Training programs focus on information transfer to local governments. For example, training is offered on various wetlands-related topics such as wetland recognition, project review, soils, wastewater treatment systems, and code development for municipalities. During these sessions, APA staff provide information about the importance of wetlands and wetlands protection both at the state and local level. The APA also provides training to some citizen monitoring groups. For example, the APA has recently provided the Boquet River Association with training on invasives monitoring.⁹³

VII. Coordination with State and Federal Agencies

Besides the NYS DEC and APA, multiple state agencies conduct activities that are related to or affect wetlands. The New York Department of Transportation (NYDOT) also works on projects that affect wetlands in the state. In fact, the NYDOT has entered into a few Memoranda of Understanding/Memoranda of Agreement with other local and state agencies on

⁸⁶ *Id.*

⁸⁷ USDA Natural Resources Conservation Service, *New York Wetlands Reserve Program*, at <http://www.nrcs.usda.gov/programs/wrp/states/ny.html> (last updated Jan. 12, 2001).

⁸⁸ *Id.*

⁸⁹ Reixinger, *supra* note 9.

⁹⁰ Coastal America, *What Is Coastal America?*, at <http://www.coastalamerica.gov/text/moreinfo.html>, (last updated Apr. 5, 2002).

⁹¹ Personal communication with Pat Reixinger, New York Department of Environmental Conservation (June 17, 2004).

⁹² Reixinger, *supra* note 20.

⁹³ Spada, *supra* note 41.

wetland-related activities, including one with the New York City Department of Environmental Protection regarding New York City watershed activities,⁹⁴ two with the NYS DEC on wetland boundary determinations and wetland and stream permitting,⁹⁵ and one with the APA and NYS DEC on invasive plant issues in the Adirondack Park.⁹⁶ New York's Office of Parks, Recreation and Historic Preservation is steward of many wetlands on state parklands and helps to manage these resources. Finally, the New York Natural Heritage Program recently completed a biological assessment of all park lands, providing guidance on how best to protect natural communities, including wetlands, of statewide importance.⁹⁷

Interagency meetings are held at least three times a year to discuss various wetland- and stream-related issues, such as regulation, restoration, and outreach, in addition to the NWP re-authorization meetings held throughout the year (described above in *Nationwide Permits* section above). Participating agencies include: NYS DEC; APA; EPA; FWS; NRCS; National Marine Fisheries Service; U.S. Army Corps of Engineers; NYDOT; Office of General Services; Canal Corporation; Department of Agriculture and Markets; Office of Parks, Recreation, and Historic Preservation; Department of States; and Soil and Water Committee. In addition, Native American tribes and local governments often participate.⁹⁸ The Corps, APA and NYS DEC often hold joint field trips as well.⁹⁹

State Wetlands Conservation Plan. In 1990, a State Wetlands Conservation Plan was developed under a Wetlands Program Development Grant from the Environmental Protection Agency. The plan was never adopted by the governor and has not been updated since 1990; however, the plan has served to establish guidance that still influences state activities and to foster relationships with local, state, and federal partners.¹⁰⁰

⁹⁴ Memorandum of Understanding between the New York Department of Transportation and the New York City Department of Environmental Protection, (available at <http://www.dot.state.ny.us/eab/epm/4bbattac.pdf>).

⁹⁵ Memorandum of Understanding Between the New York State Department of Transportation and the New York State Department of Environmental Conservation Regarding Wetland Boundary Delineations (Feb. 2001), available at <http://www.dot.state.ny.us/eab/epm/4anattac.pdf>; and Memorandum from G.R. McVoy, New York Department of Transportation Environmental Analysis Bureau, to Regional Landscape Environmental Managers Regions 4, 5, 8, and 11, and Regional Environmental Contacts Regions 1, 2, 3, 6, 7, 9, 10 (Feb. 19, 1997) (available at <http://www.dot.state.ny.us/eab/epm/4-a-p.pdf>).

⁹⁶ Spada, *supra* note 41.

⁹⁷ Reixinger, *supra* note 20.

⁹⁸ Reixinger, *supra* note 9.

⁹⁹ Spada, *supra* note 41.

¹⁰⁰ Reixinger, *supra* note 9.

VIII. Acronyms and Abbreviations

APA - Adirondack Park Agency

CWA - Clean Water Act

DART - Department Application Review Tracking

DEC - New York State Department of Environmental Conservation

DEP - Division of Environmental Permits

DFWMR - Division of Fish, Wildlife, and Marine Resources

EPA - U.S. Environmental Protection Agency

FTE - Full-time Equivalent

FWS - U.S. Fish and Wildlife Service

MAD - Master Action Database

NRCS - USDA Natural Resources Conservation Service

NWPs - Nationwide Permits

NYCRR - New York State Codes, Rules, and Regulations

NYDOT - New York Department of Transportation

NYECL - New York Environmental Conservation Law

NYS DEC - New York State Department of Environmental Conservation

RASS - Resource Analysis and Scientific Services

RIBS - Rotating Integrated Basin Studies

SEQRA - State Environmental Quality Review Act

UPA - Uniform Procedures Act

USDA - United States Department of Agriculture

WI/PWL - Waterbody Inventory / Priority Waterbody List

WQS - Water Quality Standards

WRP - Wetlands Reserve Program

North Carolina

I. Overview

With approximately five million acres of wetland area, North Carolina contains an abundance of wetland resources. However, historical data indicates that the state had nearly 7.5 million acres of wetland in pre-settlement times. About 34 percent of the state's wetland areas have been impacted over the past century by rapid urban and agricultural development,¹ with the most extensive losses occurring in the last 30 years.²

Today, the rapidly growing state has adopted numerous regulatory controls to protect wetlands. The state relies primarily on §401 water quality certification under the Clean Water Act (CWA) for wetlands regulation, but has also implemented similar protections for isolated wetlands and waters, as well as stream buffers in selected river basins. Additional wetland provisions apply in the state's coastal counties. Finally, North Carolina has initiated an integrated mitigation and in-lieu-fee program with a watershed focus. Through these programs, along with education, restoration, and water quality initiatives, North Carolina seeks to effectively replace unavoidable wetland losses in the state.

II. Regulatory Programs

Wetland definitions and delineation

North Carolina's definition of waters does not include wetlands explicitly, stating that "[w]aters' means any stream, river, brook, swamp, lake, sound, tidal estuary, bay, creek, reservoir, waterway, or other body or accumulation of water, whether surface or underground, public or private, or natural or artificial, that is contained in, flows through, or borders upon any portion of this State, including any portion of the Atlantic Ocean over which the State has jurisdiction."³ However, a 2002 North Carolina Court of Appeals decision made clear that this definition includes wetlands, ruling that the state had authority to adopt regulations protecting wetlands.⁴

State regulations further define "wetlands" to be "waters' as defined [above] and areas that are inundated or saturated by an accumulation of surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas." Wetlands classified as waters of the state are restricted to waters of the United States, as defined in the Federal Code of Regulations.⁵ Despite the exclusion of wetlands not subject to federal jurisdiction, North Carolina still regulates "isolated wetlands," which are defined to be "those waters which are inundated or saturated by an accumulation of surface or ground water at a frequency and duration to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil

¹ N. C. Division of Environmental Management, *Status and Trends of Wetlands in North Carolina: A Report to the N.C. Legislative Study Commission on Wetlands Protection*, Report No. 91-01 (1991).

² U.S. Environmental Protection Agency, *Status and Trends*, at <http://www.epa.gov/OWOW/wetlands/vital/status.html> (last revised Jan. 17, 2003).

³ N.C. GEN. STAT. § 143-212(6).

⁴ Because the Supreme Court declined to hear the case, the decision is final in North Carolina. See *North Carolina Home Builders Association v. Environmental Management Commission*, No. COA02-99 (N.C. App. Dec. 31, 2002) available at: <http://www.aoc.state.nc.us/www/public/coa/dsheets/020099-1.htm>.

⁵ N.C. ADMIN. CODE tit. 15A, r. 02B.0202.

conditions and under normal circumstances have no visible surface water connection⁶ to downstream waters of the state.”⁷

The state relies on the U.S. Army Corps of Engineers’ 1987 *Wetlands Delineation Manual*⁸ for making wetland delineation determinations.

Wetland-related statutes and regulations

North Carolina relies primarily on §401 water quality certification to regulate wetlands, but also has three additional sets of laws and regulations directed at wetland protection: rules on discharges to isolated wetlands and isolated waters,⁹ the North Carolina Coastal Area Management Act,¹⁰ and riparian buffer protection rules.¹¹

§401 Water Quality Certification and Isolated Wetlands Regulations. As previously stated, North Carolina relies upon §401 water quality certification as its primary form of wetlands regulation. The North Carolina Department of Environmental Quality (NCDENR) Division of Water Quality administers the §401 program. The state’s water quality certification regulations outline application and review procedures and public notice and public hearing procedures.¹²

In 2001, the state adopted similar rules pertaining to discharges into isolated wetlands, which are also implemented by the Division of Water Quality (DWQ).¹³ The isolated wetlands rules state that “[i]f the U.S. Army Corps of Engineers or Natural Resources Conservation Service determine that a particular water is isolated and not regulated under Section 404 of the Clean Water Act, then discharges to that water shall be covered by these Rules.”¹⁴ Permits may be issued for authorized activities that do not alter existing uses. Permit exemptions are listed in the regulations.¹⁵ The regulations also describe the required application process, public notice and public hearing procedures, and application review and decision-making.¹⁶

The DWQ issues approximately 1,800 certifications per year on average, including permits for isolated wetlands.¹⁷ Most certifications applications are approved, though site-specific conditions, such as mitigation or stormwater management requirements, are often attached. State regulations outline a qualitative application review process for permitting staff, including measures for avoidance and minimization of impacts.¹⁸ In addition, numerical onsite stormwater management requirements and criteria for cumulative impacts on downstream water quality are considered in certification decisions.¹⁹

⁶ Visible surface water connection may include but is not limited to a connection to other surface water via: (1) contiguous wetlands; (2) intermittent or perennial streams; and (3) ditches with intermittent or perennial flow. *Id.* 15A, r. 02H.1300.

⁷ *Id.*

⁸ U.S. Army Corps of Engineers, Wetlands Research Program Technical Report Y-87-1, *Corps of Engineers Wetlands Delineation Manual (1987)*, available at <http://www.saj.usace.army.mil/permit/documents/87manual.pdf>.

⁹ N.C. ADMIN. CODE tit. 15A, r. 02H.1300.

¹⁰ N.C. GEN. STAT. § 113A-100; *Id.* 07H.

¹¹ N.C. ADMIN. CODE tit. 15A, r. 02B.0233, 02B.0259.

¹² *Id.* 02H.0500.

¹³ *Id.* 02H.1300; N.C. GEN. STAT. § 143-21.

¹⁴ N.C. ADMIN. CODE tit. 15A, r. 02H.1301.

¹⁵ *Id.*

¹⁶ *Id.* 02H.1300.

¹⁷ Isolated wetlands permits account for only approximately one percent of the total number of wetland permits issued each year.

¹⁸ N.C. ADMIN. CODE tit. 15A, r. 02H.1300, 02H.0500.

¹⁹ Personal communication with John Dorney, North Carolina Department of Environment and Natural Resources (Aug. 19, 2004).

Coastal Area Management Act. North Carolina's Coastal Area Management Act (CAMA) pertains to the state's 20 coastal counties. Under the act, developments²⁰ in "Areas of Environmental Concern" (AECs) require a separate permit from NCDENR's Division of Coastal Management (DCM).²¹ AECs are natural areas that may be easily impacted by erosion or flooding or that may have important environmental, social, or economic value to the state. Almost all coastal waters are classified as an AEC, including coastal wetlands.²² Certain permit exemptions are also listed in the CAMA, including: road maintenance within a public right-of-way; utility maintenance on projects that already have CAMA permits; energy facilities covered by other laws; agricultural or forestry production that doesn't involve the excavation or filling of estuarine or navigable waters or coastal marshland; agricultural or forestry ditches less than 6 feet wide and 4 feet deep; emergency maintenance and repairs when life and property are in danger; and the construction of an accessory building usually found with an existing structure, if no filling of estuarine or navigable waters or coastal marshland is involved.²³

The DCM issues approximately 40 to 50 wetland-related CAMA permits a year. The vast majority of applications are approved. However, approval is not always a straightforward process. Permitting staff often work with applicants to modify their original applications so that they meet approval under the state's standards. Staff may also condition permits as necessary.²⁴

Riparian Area Buffer Rules. In 1997, North Carolina adopted rules creating a 50-foot wide riparian buffer along waterways in the Neuse river basin. Similar rules were adopted for the Tar-Pamlico river basin in 2000 and for the Randleman Lake basin in 2001. NCDENR's Division of Water Quality implements the rules. The buffers include all areas within 50 feet of intermittent or perennial streams, lakes, ponds, or estuaries. Ditches, ephemeral streams, and wetlands are not buffered.²⁵ The buffer rules, part of a larger effort to reduce nutrient loading in the basin, are more stringent than the state's other wetland regulations.²⁶ The rules protect and maintain the designated buffer areas, creating two zones: Zone One, the inner 30 feet, is to remain undisturbed (with the exception of certain activities); and Zone Two, the outer 20 feet, must remain vegetated (with the exception of certain activities). Specific activities are identified in the rule as "exempt," "allowable," "allowable with mitigation," or "prohibited."²⁷ The rules include a buffer mitigation rule that defines the application process for activities identified as "allowable with mitigation," as well as a delegation rule that describes the criteria and process for local governments to obtain authority to implement the buffer rules within their jurisdictions.²⁸

²⁰ "Developments" include activities such as dredging or filling of wetlands or other coastal waters and construction of marinas, piers, docks, bulkheads, oceanfront structures, and roads. See North Carolina Department of Environment and Natural Resources, Division of Coastal Management, *CAMA Permits: Will My Project Require a Permit?*, at <http://dcm2.enr.state.nc.us/permits/aecs.htm> (last revised Oct. 29, 2002).

²¹ N.C. GEN. STAT. § 113A-100; N.C. ADMIN. CODE 07H.

²² "Coastal wetlands" are defined as "any salt marsh or other marsh subject to regular or occasional flooding by tides, including wind tides (whether or not the tide waters reach the marshland areas through natural or artificial watercourses), provided this shall not include hurricane or tropical storm tides. Coastal wetlands contain some, but not necessarily all, of the following marsh plant species: *Spartina alterniflora* (Salt Marsh Cordgrass), *Juncus roemerianus* (Black Needlerush), *Salicornia spp.* (Glasswort), *Distichlis spicata* (Salt or Spike Grass), *Limonium spp.* (Sea Lavender), *Scirpus spp.* (Bulrush), *Cladium jamaicense* (Saw Grass), *Typha spp.* (Cattail), *Spartina patens* (Salt Meadow Grass or Hay), *Spartina cynosuroides* (Salt Reed or Giant Cordgrass). The coastal wetlands AEC includes any contiguous lands designated by the Secretary of ENR pursuant to G.S. 113-230 (a)." N.C. ADMIN. CODE 07H.0205.

²³ North Carolina Department of Environment and Natural Resources, *supra* note 20.

²⁴ Personal communication with Doug Huggett, North Carolina Department of Environment and Natural Resources (Aug. 20, 2004).

²⁵ N.C. ADMIN. CODE tit.15A, r. 02B.0233.

²⁶ Dorney, *supra* note 19.

²⁷ Examples of "exempt" activities include driveway and utility crossings of certain sizes through Zone One, and grading and revegetation in Zone Two. "Allowable" and "allowable with mitigation" activities require review by the division and include activities such as new ponds in drainage ways and water crossings.

²⁸ North Carolina Department of Environment and Natural Resources, Division of Water Quality, *Non Point Source Management Program: Buffer Rules*, at http://h2o.enr.state.nc.us/nps/buffer_rules.htm (last visited Sept. 16, 2004).

Organization of state agencies

In 1997, the NCDENR developed a statewide plan to improve and simplify North Carolina's wetland and stream protection policies, known as the *Statewide Wetland and Stream Management Strategy*. The plan outlines a planning process to guide stream and wetlands protection efforts.²⁹ The majority of wetland-related, state-level activities in North Carolina are overseen by the NCDENR, although other key state agencies, such as the North Carolina Department of Transportation, are integrally involved in mitigation and other wetland-related activities. Within the NCDENR, the Divisions of Coastal Management and Water Quality oversee most wetland-related regulatory activities. The NCDENR's Ecosystem Enhancement Program focuses on aquatic resource planning and mitigation.

Division of Water Quality. As the division administering the state's \$401 water quality certification program, buffer rules, and isolated wetlands program, the DWQ is the foremost wetlands regulatory authority in the state. Approximately 40 full-time equivalents (FTEs) work in the division's wetland programs, with about half in the Raleigh headquarters, and half in seven regional offices located throughout the state. Headquarter staff receive all applications for processing, but for more involved cases, field staff conduct site visits and provide input on permit decision-making. Field staff also review existing permits for compliance and issue certifications as well. Additional DWQ activities include enforcement, monitoring and assessment, technical assistance to mitigation parties,³⁰ and policy development. The division's annual budget averages about \$1.8 million and is derived from a combination of state general funds, \$401 certification and isolated wetland permit application fees, U.S. Environmental Protection Agency grants, and funding from other state agencies.³¹

Division of Coastal Management. The Division of Coastal Management is charged with protecting and managing coastal resources for the state's 20 coastal counties. DCM does this primarily through administration of the Coastal Area Management Act, which includes protections for coastal wetlands. The Division completed a wetlands conservation plan in the early 1990s in order to provide detailed wetland information to local, state and federal governments, businesses, nonprofit organizations and the public, so they can make better resource management decisions.³² In addition to wetlands, DCM regularly manages issues relating to coastal hazards, beach erosion and maintenance, beach and waterfront access, coastal development, and other issues.³³

The division employs some 62 FTEs in total, divided amongst the CAMA regulatory section, the land-use planning section, and the North Carolina National Estuarine Research Reserve. Two FTEs, located in the land-use planning section, are devoted exclusively to wetlands activities, though wetland conservation is an integral part of most division activities. Thus, it is difficult to specify the amount of resources devoted specifically to wetlands. The regulatory section is responsible for all permitting, compliance, and enforcement. The Research Reserve serves as a clearinghouse for coastal science and conducts various types of research and outreach and education. The planning section's activities vary, but often include rule development and CAMA land-use planning, as well as coastal wetland mitigation issues as they arise.³⁴

²⁹ North Carolina Department of Environment and Natural Resources, *North Carolina's Statewide Wetland and Stream Management Strategy*, at <http://h2o.enr.state.nc.us/ncwetlands/swsms.html> (last visited Sept. 16, 2004).

³⁰ The DWQ has produced several technical manuals to guide mitigation activities. Manuals provide assistance on topics such as mitigation design and permitting.

³¹ Dorney, *supra* note 19.

³² North Carolina Department of Environment and Natural Resources, Division of Coastal Management, *Wetlands: Conservation Plan*, at <http://dcm2.enr.state.nc.us/Wetlands/conserv.htm> (last revised Sept. 8, 2003).

³³ North Carolina Department of Environment and Natural Resources, Division of Coastal Management, *Division of Coastal Management*, at <http://dcm2.enr.state.nc.us/> (last visited Sept. 16, 2004).

³⁴ Huggett, *supra* note 24.

The planning section also maintains DCM's inventory and geographic information system (GIS) data for wetland types, functions, and potential restoration sites in the CAMA counties.³⁵

The DCM's central office, which also serves as a regional office, is located in Morehead City, North Carolina. The division's other three regional offices are located in Washington, Elizabeth City, and Wilmington. Some DCM staff are also located in the NCDENR's headquarters in Raleigh.³⁶ The division's annual budget for Fiscal Year 2003 was \$7,540,000, supported by Coastal Zone Management Act and National Estuarine Research Reserve grants from the National Oceanic and Atmospheric Administration and state and other matching funds.³⁷

Ecosystem Enhancement Program. The North Carolina Ecosystem Enhancement Program (NCEEP) was established in 2003 by a Memorandum of Agreement (MOA)³⁸ signed by the NCDENR, North Carolina Department of Transportation (NCDOT), and the US Army Corps of Engineers' Wilmington District.³⁹ The NCEEP was created for the purpose of consolidating the state's existing environmental mitigation program, the North Carolina Wetlands Restoration Program,⁴⁰ and the NCDOT's mitigation programs.⁴¹ By providing a unified, watershed-based approach for all of the state's aquatic resources planning and mitigation activities, the NCEEP seeks to increase regulatory efficiency and ecological effectiveness.⁴² The NCEEP administers two main programs: an in-lieu-fee program that provides an alternative mitigation option to permitted applicants and a mitigation program that offsets all of the NCDOT's permitted off-site impacts to wetlands.⁴³

Approximately 40 staff currently work in the NCEEP. However, the program relies upon consultants for many of its activities. At full capacity, the NCEEP will eventually staff about 60 FTEs. The NCEEP is expected to be fully staffed by August 2005.⁴⁴ Most of the agency is based in Raleigh, although a few staff are located in other regions of the state. The agency conducts monitoring, restoration project management, watershed planning, and other related research. Most funding comes from the NCDOT, approximately \$95 million annually, though the amount varies depending on expected projects for the agency. In-lieu fee payments,⁴⁵ state general appropriations,⁴⁶ and federal grants contribute to the budget in varying amounts as well.⁴⁷

³⁵ North Carolina Department of Environment and Natural Resources - Division of Coastal Management, *Wetlands: Restoration*, at <http://dcm2.enr.state.nc.us/wetlands/restore.htm> (last revised Sept. 8, 2003).

³⁶ Huggett, *supra* note 24.

³⁷ Personal communication with Steve Underwood, North Carolina Department of Environment and Natural Resources (Aug. 27, 2004).

³⁸ The NCEEP MOA resulted from several Process Improvement Workshops sponsored by the NCDOT over a two-year period. The workshops were designed to evaluate and recommend improvements to the existing §404 permitting process and involved all relevant state and federal agencies.

³⁹ Memorandum of Agreement among the North Carolina Department of Environment and Natural Resources and the North Carolina Department of Transportation and the United States Army Corps of Engineers, Wilmington District (2003) (*available at* http://www.saw.usace.army.mil/wetlands/Policies/EEP_FinalMOA_NCDOT.pdf).

⁴⁰ The NCDENR's North Carolina Wetlands Restoration Program (NCWRP), the NCEEP's precursor, was created by state legislature in 1996 as a non-regulatory program with a mandate to improve the ecological effectiveness of compensatory mitigation through the use of watershed planning to identify and implement mitigation projects and to act as an in-lieu-fee provider available throughout North Carolina.

⁴¹ North Carolina Department of Environment and Natural Resources, *Wetlands Restoration Program: 2003 Annual Report*, *available at* <http://h2o.enr.state.nc.us/wrp/publications/2003/03WRPAnnual.pdf> (2003).

⁴² National Research Council, *Compensating for Wetland Losses Under the Clean Water Act* (2001).

⁴³ Personal communication with Suzanne Klimek, North Carolina Ecosystem Enhancement Program (Nov. 12, 2004).

⁴⁴ Personal communication with Ron Ferrell and Suzanne Klimek, North Carolina Ecosystem Enhancement Program (Jan. 30, 2004).

⁴⁵ In-lieu-fee payments include those required for §401/404 permits, nutrient offset payments, and riparian buffer payments.

⁴⁶ The Wetlands Trust Fund was established by the North Carolina General Assembly as a repository to restore, create, enhance, and preserve wetlands and riparian areas. The fund includes an account for wetland restoration, funded by the state, and accounts for

Nationwide and general permits

The State of North Carolina regularly reviews and issues §401 water quality certifications for the U.S. Army Corps of Engineers' nationwide permits (NWP). Most NWPs have been conditionally approved, while others have been denied or unconditionally approved.⁴⁸ Written notification and submission of an application fee may be required for some conditioned NWPs. If applicants cannot meet the conditions of the applicable NWP, they may still apply for an individual permit.⁴⁹

The state has also issued a general permit for isolated wetlands. Under the isolated wetland rules and general permit, impacts to the following do not require a permit, as long as they meet water quality standards and protect existing uses (as outlined in 15A NCAC 2H .1305): less than 150 linear feet of isolated stream; less than one-third acre of isolated surface waters; less than one-third acre of isolated wetlands east of Interstate-95; or less than one-tenth acre of isolated wetland west of Interstate-95. The general permit requires written application and approval from DWQ for impacts above these thresholds but less than one acre of isolated wetland or 500 feet of isolated streams. Impacts above the above thresholds require individual permits following public notice. The general permit outlines requirements for impact reports, on-site stormwater management, compensatory mitigation, sedimentation and erosion control, and compliance with state water quality standards, as well as compliance, reporting, and public comment provisions.⁵⁰ Buffer rules are applicable to all projects and require written concurrence for buffer and/or stream or wetland impacts.⁵¹

Mitigation and restoration

North Carolina has built a comprehensive mitigation and restoration program for the state and operates a statewide in-lieu-fee program designed to consolidate wetland and watershed mitigation and restoration efforts. Both NCEEP and the DWQ are lead state agencies for mitigation-related activities in North Carolina. DWQ is responsible for implementing the state's regulations pertaining to mitigation and works with applicants throughout the permit process, while the NCEEP provides high quality options for mitigating parties.⁵² Numerous other state and federal agencies participate in

wetland mitigation and riparian buffer mitigation, both funded by in-lieu-fee payments. See North Carolina Department of Environment and Natural Resources, *supra* note 41. The NCEEP also occasionally receives monies from the Clean Water Management Trust Fund (CWMTF), a state-level group that provides grants to local governments, state agencies, and conservation groups for projects that address water quality problems in the state. At the end of each fiscal year, 6.5 percent of the unreserved credit balance in the state's general funds is allocated to the CWMTF for these purposes. Projects must enhance or restore degraded waters, protect unpolluted waters, and/or contribute toward a network of riparian buffers and greenways for environmental, educational, and recreational benefits. See North Carolina Clean Water Management Trust Fund, *North Carolina Clean Water Management Trust Fund*, at <http://www.cwmtf.net/> (Sept. 1, 2004).

⁴⁷ Personal communication with Suzanne Klimek, North Carolina Ecosystem Enhancement Program (Aug. 24, 2004).

⁴⁸ The state has issued approval for the following NWPs: NWP#1 - Aids to Navigation, NWP#2 - Structures in Artificial Canals, NWP#9 - Structures in Fleeting and Anchorage Areas, NWP#10 - Mooring Buoys, NWP#11 - Temporary Recreational Structures, NWP#24 - State Administered 404 Program (N/A), and NWP#28 - Modification of Existing Marinas. Three NWPs have been denied outright (individual §401 water quality certifications are required for these activities): NWP#8 - Oil and Gas Structures, NWP#21 - Surface Coal Mining Activities, and NWP#34 - Cranberry Production Activities. Varying sets of conditions have been issued for remaining NWPs.

⁴⁹ Dorney, *supra* note 19.

⁵⁰ North Carolina Department of Environment and Natural Resources, Division of Water Quality, *State General Permit for Impacts to Isolated Wetlands and Isolated Waters*, Permit No. IWGP100000 (Sept. 10, 2003), available at <http://h2o.enr.state.nc.us/ncwetlands/isogp.pdf>.

⁵¹ North Carolina Department of Environment and Natural Resources, Division of Water Quality, *North Carolina General 401 Water Quality Certifications matching the U.S. Army Corps of Engineers 404 Nationwide, Regional and General Permits*, at <http://h2o.enr.state.nc.us/ncwetlands/certs.html> (last revised Apr. 2, 2003).

⁵² Due to the stringency of the Coastal Area Management Act, the DCM does handle compensatory mitigation issues as regularly as the NCEEP and the DWQ.

the state's collaborative efforts through the Mitigation Banking Review Team (MBRT) and the Program Assessment and Consistency Group, a state-level group that operates similarly to the MBRT and created in order to support the NCEEP.⁵³

Regulations pertaining to mitigation. The state's water quality certification regulations outline acceptable forms of compensatory mitigation for unavoidable losses of wetlands that are considered "waters of the state." Participation in the state's restoration program is preferred, when possible. Project-specific restoration, creation, enhancement, or preservation projects are also acceptable methods of mitigation. The regulations specify that, when practical, mitigation should take place within the same river basin and physiographic province of the impacted wetlands, and within the same water supply watershed for some classes of waters. In-kind mitigation is also preferred where practical. The regulations also detail exceptions⁵⁴ and replacement ratios.^{55,56}

The regulations governing isolated wetlands and waters also specify compensatory mitigation requirements. Again, participation in the state's restoration program is preferred, when possible, followed by project-specific restoration. Creation and preservation projects are also acceptable methods of mitigation. The regulations state that, when practical, mitigation should take place within the same river basin and physiographic province. In-kind mitigation is also preferred, where practical, unless other types of mitigation provide greater environmental benefit. The regulations also present exceptions⁵⁷ and replacement ratios.^{58,59}

The state's buffer rules specify mitigation requirements as well, which may be determined by the DWQ or the local delegated authority. Several mitigation methods are offered, including payment of a fee to the state's Riparian Buffer Restoration Fund, donation of property, or restoration or enhancement of an otherwise unprotected riparian buffer. Impacts to Zone One (the inner zone) of the buffer must be mitigated at a 3:1 ratio, while impacts to Zone Two (the outer zone) must be mitigated at a 1.5:1 ratio. Wetland impacts, however, must be mitigated according to the rules outlined in the state's water quality certification regulations. Riparian buffer mitigation must be located in the same Nutrient Management Zone. Detailed procedures and requirements are listed in the rules.⁶⁰

State laws and regulations outline requirements for private mitigation banks as well. Banks must be consistent with the state's Basinwide Restoration Plans and must be located within an area that is identified as a priority for restoration by the plan. The state may provide comments through the Mitigation Bank Review Team. Mitigation banking credits must follow state regulations (described above).⁶¹

⁵³ Klimek, *supra* note 47.

⁵⁴ Mitigation is not required for Class WL wetlands of less than one acre.

⁵⁵ Mitigation in the form of restoration is to be conducted based on the following ratios (acres restored to acres lost): 4:1 for wetlands located within 150 feet of the mean high water line or normal water level of any perennial or intermittent water body; 2:1 for wetlands located between 150 feet and 1,000 feet from the mean high water line or normal water level of any perennial or intermittent water body; 2:1 for linear projects impacting less than three acres; and 1:1 for all other wetlands. For mitigation in the form of creation, restoration replacement ratios should be multiplied by 1.5; for enhancement, ratios should be multiplied by two; and for preservation, ratios should be multiplied by five. Note that these ratios do not apply to certain approved mitigation sites (e.g. banks) with approved credit/debit ratios.

⁵⁶ N.C. ADMIN. CODE tit.15A, r. 02H.0506(h).

⁵⁷ Mitigation is not required for activities impacting less than one acre of isolated and other wetlands.

⁵⁸ Mitigation in the form of restoration is to be conducted on a 2:1 ratio (acres restored to acres lost). For mitigation in the form of creation, restoration replacement ratios should be multiplied by 1.5; for enhancement, ratios should be multiplied by two; and for preservation, ratios should be multiplied by five. Note that these ratios do not apply to certain approved mitigation sites (e.g. banks) with approved credit/debit ratios.

⁵⁹ N.C. ADMIN. CODE tit.15A, r. 02H .1300.

⁶⁰ *Id.* 02B.0242.

⁶¹ *Id.* 02R.0302.

Ecosystem Enhancement Program. The NCEEP's primary goals are to provide high quality, up-front compensatory mitigation for unavoidable impacts to aquatic resources and to incorporate compensatory mitigation projects into comprehensive watershed restoration initiatives. The approach is intended to increase the ecological effectiveness of compensatory mitigation and to provide a more cost effective and predictable mechanism for permittees who are compensating for unavoidable impacts. The NCEEP strategy involves the development of Watershed Restoration Plans (WRPs), including the identification of Targeted Local Watersheds (TLWs) (14-digit hydrologic units) within each 8-digit U.S. Geological Survey Cataloging Unit in the state.⁶² The strategy also calls for the implementation of mitigation and restoration projects that provide the greatest ecological benefits, are the most cost effective, and meet the goals established for each watershed.⁶³

The NCEEP operates the state's in-lieu-fee program,⁶⁴ accepting payments and performing mitigation on behalf of permit applicants who must compensate for impacts to wetlands or riparian buffers.⁶⁵ By consolidating the mitigation requirements of multiple small projects, the NCEEP is able to implement large-scale watershed restoration efforts that address significant water quality problems.⁶⁶

The NCEEP seeks to establish synergies between their projects, private mitigation projects, and non-mitigation watershed projects in order to maximize ecological benefits.⁶⁷ State regulations dictate that mitigation banks must be located within TLWs or otherwise be proven to be consistent with WRPs.⁶⁸ Through the local watershed planning process, the NCEEP seeks to identify potential non-mitigation watershed projects and funding sources that will compliment mitigation efforts in order to improve overall watershed health.⁶⁹

By August 2005, the NCEEP is projected to be carrying out approximately 90 percent of the state's compensatory wetland mitigation. By 2014, the NCEEP aims to have restoration projects in place seven years before the impacts they are compensating for are permitted.⁷⁰

⁶² In 1998, the NCWRP completed Watershed Restoration Plans (WRPs) for the 17 major river basins in the state. The WRPs include restoration goals, narrative overviews of the basins, priority sub-basin maps with water quality information, watershed boundaries, land cover data, information on existing water quality problems, descriptions of priority sub-basins, and wetland impact information. See North Carolina Wetlands Restoration Program, *NCWRP Watershed Restoration Plans*, at <http://h2o.enr.state.nc.us/wrp/plans/wetrip.htm> (last revised Jan. 25, 2004). The NCEEP's Watershed Needs Assessment Team (WNAT), an interagency group composed of representatives from several state and federal agencies, developed a "screening methodology" to identify Targeted Local Watersheds (TLWs) in which to concentrate planning and restoration activities. Once TLWs have been identified through the screening methodology, the NCEEP will work with local governments, NGOs, and other stakeholders to complete local watershed plans in selected TLW areas throughout the state. See North Carolina Wetlands Restoration Program, *Guide to the North Carolina Wetland Restoration Program's Watershed Restoration Strategy* (April 2001), available at <http://h2o.enr.state.nc.us/wrp/pdf/restplans/Planning%20Guide.pdf>.

⁶³ Watershed Needs Assessment Team, Report to the Mitigation Coordination Group (2003) (on file with author).

⁶⁴ N.C. ADMIN. CODE tit. 15A, r. 02R.400.

⁶⁵ The NCWRP uses the following fee schedule to determine how much a permit applicant must pay into the DENR Wetlands Trust Fund to fulfill their compensatory mitigation requirements: for impacts to surface waters other than wetlands, the cost is currently \$205 per linear foot of stream; for impacts to wetlands, the cost is \$12,000 per acre for non-riparian wetlands and \$24,000 per acre for riparian wetlands; for impacts to salt water wetlands, the cost is \$120,000 per acre. Fees, which may be adjusted annually to represent actual mitigation costs and to account for inflation, are based on the acres and types of compensatory mitigation specified in the approved certifications issued by the DWQ and on the permits or authorizations issued by the Corps. See North Carolina Ecosystem Enhancement Program, *EEP Schedule of Fees*, at <http://www.nceep.net/pages/fee.htm> (last visited Dec. 3, 2004).

⁶⁶ N.C. GEN. STAT. §143-214.8-143-214.13.

⁶⁷ Ferrell and Klimek, *supra* note 44.

⁶⁸ North Carolina Wetlands Restoration Program, *supra* note 62.

⁶⁹ Ferrell and Klimek, *supra* note 44.

⁷⁰ *Id.*

Stream mitigation standards and procedures. North Carolina does have stream mitigation guidelines that differ from the state's wetland mitigation guidelines. The NCDENR DWQ created the joint federal-state guidelines in conjunction with the U.S. Army Corps of Engineers – Wilmington District, U.S. Environmental Protection Agency – Region IV, U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS), and the North Carolina Wildlife Resources Commission.⁷¹ The guidelines account for the differences in impacts to fluvial systems and generally apply to non-tidal waters.⁷²

Compliance and enforcement

Water quality, isolated wetlands, and buffers. North Carolina General Statutes (NCGS) give the state authority for enforcing water quality and isolated wetlands standards. The NCDENR has the authority to assess violations to state wetland laws, though local governments may administer and enforce violations of their respective programs if programs conform to state statutes. Civil penalties, criminal penalties, and injunctive relief are outlined in the NCGS.

Civil penalties of up to \$25,000 per day may be applied for violations to state wetland and water quality laws, although penalties may not exceed \$10,000 per day unless another violation has been documented within five years preceding the violation.⁷³ The following factors must be considered in assessing civil penalties: the degree and extent of harm to the natural resources of the State, to the public health, or to private property resulting from the violation; the duration and gravity of the violation; the effect on ground or surface water quantity or quality or on air quality; the cost of rectifying the damage; the amount of money saved by noncompliance; whether the violation was committed willfully or intentionally; the prior record of the violator in complying or failing to comply with programs over which the Environmental Management Commission has regulatory authority; and the cost to the State of the enforcement procedures.⁷⁴ Enforcement proceedings begin with a notice of violation to the responsible party. If the penalty is not paid within 30 days, civil action is instituted.⁷⁵ Injunctive relief may be sought by the state to halt the activities in question.⁷⁶

Criminal penalties⁷⁷ are also outlined in the NCGS. "Negligence" violations to the state's wetland and water quality laws are punishable by a sentence of Class 2 misdemeanor, which may include a fine of up to \$15,000 per day of the violation (but not to exceed \$200,000 over 30 days). A person who "knowingly and willfully" commits water quality or wetland violations may be found guilty of a Class I felony, which may include a fine of up to \$100,000 per day of the violation (but not to exceed \$500,000 over 30 days). Knowing violations that subject others to serious injury or death are punishable by a sentence of Class C felony, which may include a fine of up to \$250,000 per day of the violation (but not to exceed \$1,000,000 total over 30 days).⁷⁸

Most enforcement cases are resolved through correspondence between DWQ staff and the responsible party. Once the DWQ becomes aware of a violation, a Notice of Violation outlining the nature of the offense and the expectations for remediation is sent to the party(ies) responsible. DWQ staff usually work with the violating individual to resolve the

⁷¹ Personal Communication with John Dorney, North Carolina Department of Environment and Natural Resources (Aug. 23, 2004).

⁷² U.S. Army Corps of Engineers, *Stream Mitigation Guidelines (April 2003)*, available at <http://www.saw.usace.army.mil/wetlands/Mitigation/Documents/Stream/STREAM%20MITIGATION%20GUIDELINE%20TEXT.pdf>.

⁷³ N.C. GEN. STAT. § 143-215(6A).

⁷⁴ *Id.* 143B-282.1(b).

⁷⁵ *Id.* 143-215(6A).

⁷⁶ *Id.* 143-215(6C).

⁷⁷ Certain activities relating to natural disaster, emergencies, third parties, requirements of other environmental statutes and regulations, and some violations to permit limitations are exempt from criminal penalty.

⁷⁸ N.C. GEN. STAT. § 143-215(6B).

matter, and in many cases, a penalty may be assessed. If a resolution cannot be obtained from these procedures, the State Bureau of Investigation and Attorney General may become involved and civil or criminal actions may be initiated.⁷⁹

Coastal Area Management Act. DCM is responsible for enforcing permits issued under CAMA. Enforcement mechanisms include penalty and civil prosecution, if warranted. DCM staff monitor projects that have received major or general permits to make sure they are being carried out in compliance with state rules. Site inspections and aerial surveillance are also conducted routinely by DCM staff, allowing unpermitted activity to be assessed on a regular basis. The division employs a compliance coordinator who provides tracking information and technical advice and often works with the Corps on enforcement activities. If a violation occurs, DCM initiates enforcement action by issuing a violation notice and cease and desist order. In some cases, an after-the-fact permit may be applicable. Otherwise, restoration may be required along with a civil penalty of up to \$2,500 per day of the violation. The division issues approximately 150 violation notices each year, and most penalties are between \$150 and \$500. Collected penalties go to the state's General Fund and are redirected to local school boards.⁸⁰ Most enforcement actions, including collection of assessed penalties and required restoration, are resolved within weeks. Occasionally, cases may proceed to the next level of enforcement when DCM will refer to the North Carolina Attorney General's Office.⁸¹ These cases may take several months or years to complete.⁸²

Tracking systems

DWQ has maintained a database that tracks certifications and isolated wetlands permits since 1995 and has data going back to the early 1980s. The system tracks information such as type of wetland impacted, geographical location and associated river basin, dates, amount and type of mitigation, fees paid, and other application information. Data is derived from permit applications and site inspections. Applicants are required to submit monitoring data for mitigation projects for a minimum of five years; however, the current system does not track this data efficiently. Currently, the DWQ is revising the tracking system under a grant from the U.S. Environmental Protection Agency. The improved system will better handle monitoring information and will be available online.⁸³

DCM is in the process of developing two databases: one to track coastal permits and one to track mitigation. Both projects are in preliminary stages of development, and DCM expects to eventually merge the two into one system. The permit tracking system includes all CAMA permits, including those involving wetlands. Data comes from a variety of sources, including permit applications, site inspections, and review of known violations. The system includes information on the type of activity, habitat, water classification, erosion rate, and numerous other data.⁸⁴ The mitigation tracking system will focus on restoration, creation, preservation and enhancement data collected from mitigation plans (required for each mitigation site), including wetland types and acreages. Monitoring data (also required by the permit applicant) and, in some cases, GIS data, also feed into the mitigation tracking system. Both systems will support internal division tracking of project sites and permits, as well provide the state with data to evaluate its progress towards the goal of no net loss.⁸⁵

NCEEP is also in the process of developing a comprehensive information management system in order to make program operation more efficient. Numerous elements will be tracked in the system, including wetland type, acreage, permit

⁷⁹ Personal communication with Danny Smith, North Carolina Department of Environment and Natural Resources (Oct. 1, 2004).

⁸⁰ North Carolina Department of Environment and Natural Resources, Division of Coastal Management *CAMA Rules & Policies: Enforcement*, at <http://dcm2.enr.state.nc.us/Rules/enforce.htm> (last visited Sept. 13, 2004).

⁸¹ See North Carolina Department of Environment and Natural Resources, Division of Coastal Management, *Division of Coastal Management - Process Flowchart*, at <http://www.enr.state.nc.us/admin/pdf/dcmenflo.pdf> (last visited Sept. 17, 2004).

⁸² Huggett, *supra* note 24.

⁸³ Dorney, *supra* note 19.

⁸⁴ Personal communication with Becky Burcham, North Carolina Department of Environment and Natural Resources (Aug. 31, 2004).

⁸⁵ Personal communication with Melissa Carle, North Carolina Department of Environment and Natural Resources (Aug. 31, 2004).

information, enforcement and compliance actions, performance criteria, and forecasting and debiting functions. Information will come from a variety of sources such as permits, data submission requirements, and other data. The system, being developed under a Federal Highway Administration grant, is currently in the first of at least three stage of development. NCEEP envisions eventually linking the system to other information management systems in the state, including those operated by the DWQ, DCM, and Corps.⁸⁶

III. Water Quality Standards

North Carolina has adopted water quality standards (WQS) and designated uses specific to wetlands. WQS are based on narrative criteria relating to water chemistry, visual assessment, hydrology, flora and fauna, and water level.⁸⁷ Wetland classifications have been made for freshwater⁸⁸ and tidal wetlands,⁸⁹ as well as “unique” wetlands of “exceptional state or national ecological significance.”^{90,91} Water quality standards and associated designated uses relate to flood control, hydrologic functions, sediment trapping, water quality and pollution control, shoreline protection, and habitat.⁹²

IV. Monitoring and Assessment

Monitoring and assessment for wetlands

North Carolina has several wetland assessment methodologies for differing purposes. For example, state regulations require the adoption of a wetland evaluation system for assessment of existing uses.⁹³ The DWQ has released several versions of *Guidance for Rating the Values of Wetlands in North Carolina*, most recently updated in 1995. The rating system is primarily used to provide guidance for §401 water quality certification decisions on freshwater wetlands.⁹⁴ At present, an interagency team of representatives from the NCDENR, U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, Federal Highway Administration, and U.S. Fish and Wildlife Service is developing an updated functional assessment method to replace the 1995 version.⁹⁵ The method is entitled the *North Carolina Wetland Assessment Method* and is projected for use in mid-2005. The method could be used by DWQ and Corps staff for permit decision-making and to allow flexible wetland mitigation. The functional assessment methods may also be used by the NCEEP to guide planning efforts.⁹⁶

⁸⁶ Personal communication with Donnie Brew, Federal Highway Administration (Oct. 1, 2004).

⁸⁷ N.C. ADMIN. CODE tit.15A, r. 02B.0231.

⁸⁸ Freshwater wetlands are classified as Class WL (waters that meet the definition of wetlands found in tit.15A, r. 2B.0202), except those designated as Class SWL (waters that meet the definition of coastal wetlands as defined by tit.15A, r. 2H.0205, are landward of the mean high water line, and wetlands contiguous to estuarine waters as defined by tit.15A, r. 2H.0206).

⁸⁹ Tidal salt waters are designated as Class SWL (waters that meet the definition of coastal wetlands as defined by tit.15A, r. 2H.0205, are landward of the mean high water line, and wetlands contiguous to estuarine waters as defined by tit.15A, r. 2H.0206).

⁹⁰ Unique wetlands (UWL) include “wetlands of exceptional state or national ecological significance which require special protection to maintain existing uses. These wetlands may include wetlands that have been documented to the satisfaction of the [North Carolina Environmental Management Commission] as habitat essential for the conservation of state or federally listed threatened or endangered species.”

⁹¹ N.C. ADMIN. CODE tit.15A, r. 02B .0101.

⁹² *Id.* 02B .0231.

⁹³ *Id.* 02B .0103.

⁹⁴ North Carolina Department of Environment, Health, and Natural Resources, *Guidance for Rating the Values of Wetlands in North Carolina (Jan. 1995)*, available at <http://h2o.enr.state.nc.us/ncwetlands/wetval.pdf>.

⁹⁵ Dorney, *supra* note 19.

⁹⁶ Ferrell and Klimek, *supra* note 44.

At present, the state's wetland monitoring and assessment program is separate from the surface water quality monitoring program. Functional assessment data does contribute to the compilation of the state's §305(b) report, but not the §303(d) list. The DWQ hopes to more fully integrate the wetland and surface water quality monitoring and assessment programs in the future.⁹⁷

The North Carolina Coastal Region Evaluation of Wetland Significance, or NC-CREWS, is a watershed-based wetlands functional assessment model that uses GIS software and data to assess the level of water quality, wildlife habitat, and hydrologic functions of individual wetlands. The primary objective of the NC-CREWS wetland functional assessment is to provide users with information about the relative ecological importance of wetlands for use in planning and the overall management of wetlands.⁹⁸

Finally, an interagency group composed of representatives from the DCM, DWQ, U.S. Environmental Protection Agency, Corps, U.S. Fish and Wildlife Service, and National Marine Fisheries Service is developing a functional assessment of coastal wetlands. The final product will include GIS data layers inventorying coastal wetland functions, biological components, and high quality wetlands. Data for the assessment comes from a variety of sources, including aerial photos, infrared images, and field inspections. National Wetland Inventory maps, NRCS county soil surveys, and landsat imagery are all data sources being used to develop GIS data.⁹⁹ The assessment is being conducted in order to develop detailed wetland information for resource planning, with the specific objectives of identifying high quality wetlands that should be avoided in NCDOT and other projects and locating high quality mitigation sites.¹⁰⁰ The interagency team has suggested improvements to the method that are currently being implemented and has developed an approach that could expand wetland mapping and wetland functional assessment across the state.¹⁰¹

Monitoring and assessment for streams

North Carolina has developed multiple monitoring and assessment protocols for lakes, streams, and rivers. The DWQ's Environmental Sciences Section houses a Biological Assessment Unit, Aquatic Toxicology Unit, and Ecosystems Unit, all of which collect data and produce reports for regulatory purposes (basin-wide assessments, §303(d) lists, and §305(b) reports, stream classification, etc.). Funding for the monitoring and assessment programs comes from a variety of sources, including National Pollution Discharge Elimination System permit fees, state appropriations, and §106 funding from the U.S. Environmental Protection Agency (EPA). The NCEEP also contributes funding for watershed monitoring and assessment.¹⁰²

Methodologies include rapid bioassessment procedures and various types of toxicity testing. Bioassessment methodologies were developed by the state previous to the EPA's rapid bioassessment protocols.¹⁰³ The Biological Assessment Unit employs a Standard Operating Procedure (SOP) emphasizing benthos macroinvertebrates, but also uses

⁹⁷ Dorney, *supra* note 19.

⁹⁸ North Carolina Department of Environment and Natural Resources, Division of Coastal Management, *NC-CREWS: North Carolina Coastal Region Evaluation of Wetland Significance, A Report of the Strategic Plan for Improving Coastal Management in North Carolina (May 1999)*, available at <http://dcm2.enr.state.nc.us/Wetlands/NCCREWSDOC.pdf>.

⁹⁹ North Carolina Department of Environment and Natural Resources, Division of Coastal Management *Wetlands: Inventory and Assessment*, at <http://dcm2.enr.state.nc.us/wetlands/inventory.htm> (last revised Sept. 8, 2003).

¹⁰⁰ Huggett, *supra* note 24.

¹⁰¹ Personal communication with John Dorney, North Carolina Department of Environment and Natural Resources (Nov. 26, 2004).

¹⁰² Personal communication with Trish MacPherson, North Carolina Department of Environment and Natural Resources (Sept. 2, 2004).

¹⁰³ *Id.*

SOPs for the collection of fish community and fish tissue data.¹⁰⁴ At present, a rapid stream functional assessment methodology is being developed under a joint state and federal initiative.¹⁰⁵ Toxicity tests are also continually being developed by the Aquatic Toxicology Unit.¹⁰⁶

The Ecosystems Unit operates the Ambient Monitoring System, a network of stream, lake, and estuarine stations strategically located for the collection of physical and chemical water quality data. The network includes over 400 locations throughout the state. This information, along with biological data, is used in the development of Basinwide Water Quality Management Plans.¹⁰⁷

Citizen monitoring programs

The NCDENR operates Stream Watch, a project designed to encourage citizen groups to adopt a waterway for monitoring. Currently, more than 200 local groups monitor approximately 37,000 miles of waterways with state support. Local groups can include elementary school students, scout troops, businesses, and retirement groups, and range in size from a few members to several hundred members.¹⁰⁸

Volunteers conduct biological, chemical, sediment, stream flow, and invasive species monitoring and also report unusual or illegal activity. Volunteers also become involved in the permit process by providing comment on existing or proposed policies. Other Stream Watch activities may include producing stream inventories, participating in educational or recreational events and stream improvement, and working with local governments and businesses on land use planning, open space and water conservation issues, and pollution prevention.¹⁰⁹

V. Restoration Partnerships

Various wetland-related landowner assistance programs exist in the State of North Carolina. The Agricultural Cost Share Program, administered by the North Carolina Division of Soil and Water Conservation, provides farmers up to 75 percent of the cost of implementing best management practices that reduce sources of agricultural nonpoint source pollution.¹¹⁰ Although the program is not aimed expressly at wetlands, streambank stabilization, restoration of riparian buffers, and construction of wetlands are listed among the recommended best management practices.¹¹¹ North Carolina Partners is administered cooperatively by the U.S. Fish and Wildlife Service, North Carolina Wildlife Resources Commission, NRCS, and Ducks Unlimited. The program is designed to assist private landowners in developing, restoring, or enhancing

¹⁰⁴ North Carolina Department of Environment and Natural Resources, Division of Water Quality, *Standard Operating Procedure Biological Monitoring, Stream Fish Community Assessment and Fish Tissue* (Mar. 2001), available at <http://www.esb.enr.state.nc.us/BAUwww/IBI%20Methods%202001.pdf>.

¹⁰⁵ Dorney, *supra* note 19.

¹⁰⁶ Personal communication with Sandy Mort, North Carolina Department of Environment and Natural Resources (Sept. 2, 2004).

¹⁰⁷ North Carolina Department of Environment and Natural Resources, Division of Water Quality, *Ecosystems Unit*, at <http://www.esb.enr.state.nc.us/EU.html> (Nov. 25, 2003).

¹⁰⁸ North Carolina Stream Watch, *North Carolina Stream Watch*, at http://www.ncwater.org/Education_and_Technical_Assistance/Stream_Watch/index.html (last visited Sept. 24, 2004).

¹⁰⁹ North Carolina Stream Watch, *North Carolina Stream Watch – Activities*, at http://www.ncwater.org/Education_and_Technical_Assistance/Stream_Watch/activities.html (last visited Sept. 24, 2004).

¹¹⁰ North Carolina Department of Environment and Natural Resources, Division of Soil and Water Conservation, *Agriculture Cost Share Program*, at <http://www.enr.state.nc.us/DSWC/pages/agcostshareprogram.html> (last visited Sept. 24, 2004).

¹¹¹ North Carolina Department of Environment and Natural Resources, Division of Soil and Water Conservation, *NC Agriculture Cost Share Program – Water Quality Improvement Purposes of Approved BMPs*, at <http://www.enr.state.nc.us/DSWC/pages/BMP's.html> (last visited Sept. 24, 2004).

habitat, including wetlands, in order to maintain and increase waterfowl and migratory birds. Technical assistance and a small cost-share are available for participating landowners.¹¹²

VI. Education and Outreach

North Carolina adopted the Environmental Education Act in 1973 and produced the *Master Plan for Environmental Education* in 1974, which set the state's overall goals and strategies for environmental education. NCDENR's Office of Environmental Education (OEE) was formed in 1990.¹¹³ OEE conducts education and outreach on behalf of NCDENR divisions; serves as a clearinghouse for other state agencies and organizations to distribute educational and outreach materials; and promotes workshops, professional development programs, North Carolina's Environmental Education Centers, and other formal and non-formal environmental education programs and providers. OEE targets multiple groups, including schools, colleges, government agencies, Environmental Education Centers, citizen groups, business and industry, libraries, and the general public. Funding for these various programs comes from a combination of state appropriations, federal grants, and foundation donations.¹¹⁴

With respect to wetlands, several programs and resources are offered through the OEE. For example, *We All Live Downstream* is a classroom presentation on pollution prevention given by state zoo staff for K-6 students. *Estuary Live* is a live, interactive, Internet field trip offered by the North Carolina Coastal Reserve.¹¹⁵ Other programs focus on salt marshes and other aquatic resources. Various wetland education programs feature field trips and educator workshops for teachers, students, and the general public.¹¹⁶

OEE also administers the North Carolina Environmental Education Certification Program. This program recognizes educators who complete a required amount of professional development in environmental education. Many of the workshops that count towards the certification program include education related to wetlands. These wetland workshops and resources are also promoted through the state's *Discover Your Ecological Address* program, which includes a web site with links to various wetland-focused environmental education resources and programs.¹¹⁷

VII. Coordination with State and Federal Agencies

Most aspects of North Carolina's numerous wetland-related programs and efforts have involved significant collaboration among federal and state entities. The North Carolina Wetlands Partnership, for example, was established in 1997 to "promote the values of wetlands, riparian buffers, and watersheds."¹¹⁸ Partners to the Memorandum of Understanding include the NRCS; U.S. Environmental Protection Agency – Region IV; U.S. Fish and Wildlife Service; U.S. Army Corps of

¹¹² U.S. Fish and Wildlife Service, *North Carolina Partners*, at <http://manteowildlife.fws.gov/ncpartners.html> (last revised Aug. 29, 2001).

¹¹³ North Carolina Department of Environment and Natural Resources – Office of Environmental Education, *The North Carolina Environmental Education Plan*, at <http://www.ee.enr.state.nc.us/EE%20PLAN/1%20Principles%20and%20Concepts.htm> (last visited Sept. 24, 2004).

¹¹⁴ Personal communication with Janine Nicholson, North Carolina Department of Environment and Natural Resources (Nov. 5, 2004).

¹¹⁵ *North Carolina Wetlands Environmental Education Programs*, North Carolina Department of Environment and Natural Resources – Office of Environmental Education, at <http://www.ee.enr.state.nc.us/ecoadr/WetlandsPrograms.htm> (last visited Sept. 24, 2004).

¹¹⁶ The following workshops are offered through divisions within the NCDENR: NC Project WET (Water Education for Teachers), Project WILD Aquatic, Environmental Education Learning Experiences (EELs), and *WOW! Wonders of Wetlands*. Nicholson, *supra* note 114.

¹¹⁷ Nicholson, *supra* note 114.

¹¹⁸ North Carolina Department of Environment and Natural Resources, *North Carolina Wetlands Partnership*, at <http://dcm2.enr.state.nc.us/ncwp/index.htm> (last visited Sept. 24, 2004).

Engineers – Wilmington District; the North Carolina Conservation Tax Credit Program; several divisions within the NCDENR, including the OEE, DCM, DWQ, and the Divisions of Forest Resources, Marine Fisheries, Parks and Recreation, Water Resources, and Soil and Water Conservation; and various private and nonprofit partners.¹¹⁹ Several other entities, including the North Carolina Wildlife Resources Commission, NCDOT, National Marine Fisheries Service, Corps, and Federal Highway Administration, have been involved in the NCEEP and other of the state's wetland-related initiatives in the state as well.

¹¹⁹ North Carolina Department of Environment and Natural Resources, *North Carolina Wetlands Partnership, Partners to the Memorandum of Understanding*, at <http://dcm2.enr.state.nc.us/ncwp/partners.htm> (last visited Sept. 24, 2004).

VIII. Acronyms and Abbreviations

AEC - Area of Environmental Concern
CAMA - Coastal Area Management Act
CFR - Certified Federal Register
CWA - Clean Water Act
CWMTF - Clean Water Management Trust Fund
DCM - Division of Coastal Management
DWQ - Division of Water Quality
EPA - U.S. Environmental Protection Agency
FTE - Full-time Equivalent
GIS - Geographic Information Systems
MOA - Memorandum of Agreement
NCAC - North Carolina Administrative Code
NC-CREWS - North Carolina Coastal Region Evaluation of Wetland Significance
NCDENR - North Carolina Department of Environment and Natural Resources
NCDOT - North Carolina Department of Transportation
NCEEP - North Carolina Ecosystem Enhancement Program
NCGS - North Carolina General Statutes
NRCS - Natural Resources Conservation Service
NWPs - Nationwide Permits
OEE - Office of Environmental Education
MBRT - Mitigation Banking Review Team
SOP - Standard Operating Procedure
TLW - Targeted Local Watershed
WNAT - Watershed Needs Assessment Team
WQS - Water Quality Standards
WRPs - Watershed Restoration Plans

Ohio

I. Overview

The State of Ohio is rich in wetland resources, with more than 400,000 acres located within the state's boundaries. However, in pre-settlement times, the state boasted more than 5,000,000 acres of wetlands, many of which were extremely large in area. Ohio has lost approximately 90 percent of its original wetland acreage to agricultural, residential, and industrial development over the last century.¹ Today, Ohio relies primarily on §401 water quality certification under the Clean Water Act (CWA) to regulate impacts to wetlands. The state enacted the Isolated Wetlands Law in July 2001 in reaction to the *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers (SWANCC)* decision that cast doubt on federal jurisdiction over some intrastate isolated wetlands. Administered by the Ohio Environmental Protection Agency's Division of Surface Water, these two laws govern the bulk of wetlands-related activities at the state level. The Ohio Department of Natural Resources also conducts many non-regulatory activities concerning wetlands, including restoration, education and outreach, and research.

II. Regulatory Programs

Wetland definitions and delineation

Ohio explicitly includes "wetlands" in its definition of waters. "Surface waters of the state" or "water bodies" mean "all streams, lakes, reservoirs, ponds, marshes, wetlands, or other waterways which are situated wholly or partially within the boundaries of the state, except for those private waters which do not combine or effect a junction with natural surface or underground waters."²

Ohio defines 'wetlands' in accordance with the CWA by referring to the U.S. Army Corps of Engineers' 1987 *Wetlands Delineation Manual*. "Wetlands" are "those areas that are inundated or saturated by surface or ground water at a frequency and duration that are sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. . . [including] swamps, marshes, bogs, and similar areas that are delineated in accordance with the 1987 United States Army Corps of Engineers Wetland Delineation Manual and any other procedures and requirements adopted by the United States Army Corps of Engineers for delineating wetlands."³

Wetland-related statutes and regulations

As previously mentioned, Ohio primarily regulates wetlands through §401 water quality certifications to federal §404 permits. In addition to the state's §401 program, Ohio enacted the Isolated Wetland Law in response to post-SWANCC uncertainty regarding federal jurisdiction over isolated wetlands. The statute makes it illegal for a person to "engage in the filling of an isolated wetland" or to "discharge dredged material into isolated wetlands" without a permit.⁴ "Filling" is further defined as "the addition of fill material into a wetland for the purpose of creating upland, changing the bottom elevation of the wetland, or creating impoundments of water,"⁵ while "dredged material" means "material that is excavated or dredged from isolated wetlands."⁶

¹ Ohio Department of Natural Resources and Ohio Environmental Protection Agency, *Ohio Wetland Restoration and Mitigation Strategy Blueprint*, at <http://www.dnr.state.oh.us/wetlands/pdf/owrmsb.pdf> (Aug. 5, 1999).

² OHIO ADMIN. CODE § 3745-1-02(77).

³ *Id.* § 3745-1-02(90).

⁴ OHIO REV. CODE ANN. § 6111.021; 6111.028.

⁵ *Id.* § 6111.02.

⁶ *Id.* § 6111.028.

The Isolated Wetland Law, which became effective on July 17, 2001, establishes three tiers of regulation. Three categories of wetlands, which are consistent with three wetland categories outlined in the state's water quality standards, are defined according to their ecological significance, with Category One wetlands having the lowest ecological significance and Category Three wetlands having the highest.⁷ Wetland categories are determined through application of the *Ohio Rapid Assessment Method for Wetlands (ORAM), Version 5.0*. The three categories are associated with different levels of review, different criteria for approval or disapproval of a permit, and different mitigation requirements. The stringency of regulation increases with ecological significance.⁸ Level One review is the least rigorous and applies to Category One or Category Two isolated wetlands of one half acre or less.⁹ Level Two review applies to Category One isolated wetlands of greater than one-half acre or Category Two isolated wetlands larger than one half acre but smaller than three acres.¹⁰ Level Three, the most rigorous level of review, applies to Category Two isolated wetlands larger than three acres and all Category Three isolated wetlands.¹¹ It should be noted that there are no minimum size thresholds for isolated wetlands that fall outside the jurisdictional boundaries of §401/§404—all are included under the Isolated Wetland Law. The only exemption concerns isolated wetlands that were created by coal mining activities and that are being returned to mining activity.¹²

Organization of state agencies

Both the §401 and isolated wetlands programs fall under the regulatory authority of the Ohio Environmental Protection Agency (OEPA). The Ohio Department of Natural Resources (ODNR) also conducts some state non-regulatory and management activities such as research, habitat and restoration initiatives, and outreach.¹³

Ohio Environmental Protection Agency. The Ohio Environmental Protection Agency's Division of Surface Water (DSW) oversees a variety of activities related to wetlands, including permitting, §401 certification, enforcement, monitoring and assessment, outreach and technical support, restoration, and research. While there are district offices in place, most regulatory activities are conducted out of the Columbus-based headquarter office.¹⁴

Seven full-time equivalents (FTEs) (six staff positions and one manager position) are devoted to permitting activities. These staff are funded by federal grants, mostly conferred from the U.S. Environmental Protection Agency. Four FTEs (three staff positions and one manager position), supported by the state's General Revenue Funds, provide technical assistance and conduct research. Both groups work on issues related to mitigation, restoration, and outreach. Fees from §401 certifications and isolated wetland permits and penalties and reimbursements from enforcement actions also support DSW activities. In addition, Wetland Program Development Grants from the U.S. Environmental Protection Agency have been utilized for research. Finally, under a memorandum of understanding, the Ohio Department of Transportation (ODOT) provides funding specifically for one FTE to review permits for proposed ODOT projects. In fiscal year 2003, the OEPA's wetland-related program budget was approximately \$1,600,000, with about half devoted to wetland permitting.¹⁵

Ohio Department of Natural Resources. The Ohio Department of Natural Resources conducts numerous wetland-related activities, most of which are non-regulatory in nature: §404 permit reviews under the Fish and Wildlife Coordination Act;

⁷ OHIO ADMIN. CODE § 3754-1-54.

⁸ OHIO REV. CODE ANN. § 6111.02(A).

⁹ *Id.* § 6111.022.

¹⁰ *Id.* § 6111.023.

¹¹ *Id.* § 6111.024.

¹² *Id.* § 6111.021(B).

¹³ *Id.*

¹⁴ Personal communication with Randy Bournique, Ohio Env'tl. Prot. Agency (Nov. 6, 2003).

¹⁵ *Id.*

outreach and technical support for restoration; research and monitoring of populations, wetlands habitat, and wildlife; and restoration initiatives, including the administration of grants for restoration. Most restoration activities are conducted at the regional level. The state is broken into five administrative districts, each with its own private lands biologist and wildlife specialist. Because many of ODNR's activities target and affect multiple types of habitat, it is difficult to estimate the number of FTEs working on wetland-related activities in the agency.

Correspondingly, it is also difficult to estimate the annual budget that ODNR devotes to wetlands activities. The normal spending authority for restoration, including the general maintenance of existing structures, is approximately \$900,000 per year, of which \$6-800,000 is normally used. This funding comes from numerous sources. Funding from the U.S. Fish and Wildlife's (FWS) Duck Stamp Program supports restoration, acquisition and research activities. Other federal grants such as North American Wetlands Conservation Act have also contributed in the past. Fees for general hunting licenses fund some staff salaries, and some monies are also received from a state income tax check-off.¹⁶

§401 certifications and isolated wetlands permits

The OEPA's DSW, which oversees both the §401 certification and isolated wetlands programs, typically issues about 200 §401 certifications and isolated wetlands permits in a given year. In 2003, the agency issued fewer certifications and permits than usual: 104 §401 certifications and 49 isolated wetlands permits. Certifications are rarely waived—the vast majority of certifications are approved, with less than two percent denied outright. However, approval is not a straightforward process. Usually, permitting staff work with applicants to modify their original applications so that they may meet approval, or if it is clear that an applicant will never be approved, permitting staff may suggest that the applicant withdraw their submission.¹⁷

Section 401 certification and isolated wetlands permitting decisions are determined by a combination of factors. The Ohio Administrative Code outlines detailed requirements for regulatory review (see *Wetland-related statutes and regulations* section above). A quantitative methodology, the *Ohio Rapid Assessment Method*, is used to classify wetlands and determine the level of regulation and review the permit application will receive. However, qualitative assessment and best professional judgment also often factor into the decision.¹⁸

Nationwide permits

The State of Ohio has applied various conditions its §401 water quality certifications to the U.S. Army Corps of Engineers' Nationwide Permits (NWP). Under the state's approach, the Corps must present a provisional NWP, which is valid only after the OEPA grants approval or waives review. Generally, the OEPA corresponds with the regional Corps district for general conditions.¹⁹

No NWPs have been denied outright. A 2002 letter from the OEPA to Corps headquarters clearly outlines the state's decisions on §401 certification for discharges of dredged or fill material to various waters of the state under NWPs. A set of special conditions and limitations apply to all NWPs for the state's wetlands:

- Temporary or permanent impacts to Category Three wetlands are prohibited;
- Temporary or permanent impacts to Category One and Two wetlands for any single and complete project are limited to a maximum total of one-half acre (except for NWP#21 - Surface Coal Mining and NWP#27 – Stream and Wetland Restoration Activities); and

¹⁶ Personal communication with Steve Barry, Ohio Dep't of Natural Res. (Feb. 3, 2004).

¹⁷ Bournique, *supra* note 14.

¹⁸ *Id.*

¹⁹ *Id.*

- Wetland mitigation shall adhere to the requirements set forth in Ohio EPA's Wetland Water Quality Standards (in the event that suitable mitigation cannot be located on-site or within the watershed, mitigation may be located outside of the watershed if there are significant ecological reasons to do so).²⁰

A set of general conditions and limitations specifically for streams are also outlined in the letter. These concern such aspects as impact size limitations, exclusions for specially designated streams, stream reconstruction provisions, off-site and on-site stream or buffer improvements and mitigative measures, and compensatory mitigation for linear projects. Finally, a set of conditions that apply generally to both wetlands and streams include: calculation of length of impacts; combination of NWP's; permittee responsibilities for other local, state, and federal regulations and permits; requirements for the development of stormwater ponds; and a lengthy list of best management practices.²¹ The letter also lists conditions specific to activities authorized under some individual NWP's.²²

Mitigation

Ohio state regulations specifically address wetlands mitigation, outlining provisions for each of the three categories of wetlands defined in the Isolated Wetlands Law and the state's water quality standards. Rule 3754-1-50 of the Ohio Administrative Code (OAC) defines compensatory mitigation as "the final step in the alternatives analysis . . . [meaning] restoration, creation, enhancement, or, in exceptional circumstances, preservation of wetlands expressly for the purpose of compensating for unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization have been achieved."²³ An "alternatives analysis," outlined separately for each of the three wetland categories, is meant to occur in conjunction with applications for S401 water quality certifications, permits to install, or Ohio National Pollutant Discharge Elimination System (NPDES) permits. Each of the three categories' alternative analyses list rules for avoidance and minimization of impacts to wetlands and compensatory mitigation as a final alternative. The OAC's compensatory mitigation rules for wetlands include a prescribed set of mitigation ratios, replacement categories and mitigation location requirements. The rules also require ecological monitoring of mitigation sites for a period of at least five years, along with the submission of an annual report detailing monitoring results.²⁴

On-site and in-kind mitigation is required where its impracticability cannot be demonstrated. Off-site mitigation, if appropriate, should be located within the U.S. Army Corps of Engineers district for Category One impacted wetlands and within the immediate watershed for Category Two and Three impacted wetlands. Specific provisions also exist for linear projects (e.g., highways) in wetlands that allow mitigation to occur outside the watershed of the impacted wetland where deemed acceptable by the OEPA.²⁵

Mitigation ratios vary according to the category of wetland, whether the mitigation is on- or off-site, and whether the impacted wetland is forested or non-forested. See Table One below.²⁶

²⁰ Letter from Christopher Jones, Director, Ohio Env'tl. Prot. Agency, to Chief of Engineers, U.S. Army Corps of Engineers Headquarters (May 22, 2002) (available at http://www.epa.state.oh.us/dsw/401/2002cer1_05222002.pdf).

²¹ *Id.*

²² The following individual NWP's have conditions to specific activities that they authorize: NWP#3 - Maintenance; NWP#4 - Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities; NWP#5 - Scientific Measurement Devices; NWP#7 - Outfall Structures and Maintenance; NWP#12 - Utility Activities; NWP#13 - Bank Stabilization; NWP#14 - Linear Transportation Projects; NWP#16 - Return Water From Upland Contained Disposal Areas; NWP#18 - Minor Discharges; NWP#19 - Minor Dredging; NWP#21 - Surface Coal Mining Activities; NWP#23 - Approved Categorical Exclusions; NWP#27 - Stream and Wetland Restoration Activities; NWP#31 - Maintenance of Existing Flood Control Facilities; NWP#32 - Completed Enforcement Actions; NWP#33 - Temporary Construction, Access, and Dewatering; NWP#36 - Boat Ramps; NWP#40 - Agricultural Activities; NWP#41 - Reshaping Existing Drainage Ditches; NWP#42 - Recreational Facilities; NWP#43 - Stormwater Management Facilities; and NWP#44 - Mining Activities.

²³ OHIO ADMIN. CODE § 3745-1-50.

²⁴ *Id.* § 3745-1-54.

²⁵ *Id.*

²⁶ *Id.*

<i>Wetland Category</i>	<i>On-site Mitigation Ratio</i>	<i>Off-site Mitigation Ratio</i>
1	1.5:1.0, non-forested and forested	1.5:1.0, non-forested and forested
2	1.5:1.0, non-forested 2.0:1.0, forested	2.0:1.0, non-forested 2.5:1.0, forested
3	2.0:1.0, non-forested 2.5:1.0, forested	2.5:1.0, non-forested 3.0:1.0, forested

Replacement categories also depend on the category of wetland being impacted. Category One and Two wetlands can be replaced by Category Two and Three wetlands. Category Three wetlands can be replaced only by Category Three wetlands.²⁸

Alternative mitigation options. If restoration is not possible, alternative compensatory mitigation techniques (including banking, enhancement, and preservation) may be approved on a case-by-case basis. Enhancement, considered most favorably if enhanced wetlands are located next to the wetlands being impacted, must be accompanied by at least one acre of restored or created wetlands for each acre of impacted wetland. The rules provide a formula for determining the ratio for enhanced wetlands.²⁹

Preservation of wetlands, the purchase of wetland for management and/or enhancement by the responsible party, is considered an acceptable form of mitigation only in exceptional circumstances. The wetlands to be preserved must be of very high ecological significance. In addition, other relevant state agencies must agree with the decision and the preserved wetlands must be deeded to the responsible party for management and/or enhancement in accordance with an approved plan, prior to any filling of wetlands at the project site. As with enhancement, preservation must be accompanied by at least one acre of restored or created wetlands for each acre of impacted wetland, unless the OEPA director deems otherwise.³⁰

Banking is also mentioned as a mitigation option in the rules, where deemed acceptable by the OEPA.³¹ In addition, Ohio state laws outline mitigation banking requirements specific to isolated wetlands (in addition to rule 3745-1-54 described above). Both Level One review and Level Two review (see *Wetland-related statutes and regulations* section above for levels of review for isolated wetlands) list banking as an equivalent option to on-site and off-site mitigation. Level Three review sets a preferred order for mitigation alternatives, with practicable on-site mitigation being the most preferable, followed by off-site mitigation within the same watershed, mitigation banking if the impacted wetland falls within the bank's service area, and finally, mitigation in a location outside the impacted isolated wetland's watershed, if

²⁷ *Id.*

²⁸ *Id.*

²⁹ OHIO ADMIN. CODE § 3745-1-54 states that the following equation must be used to calculate the required number of wetlands to be enhanced: $E = [(LMR - 1) \times 2] \times N$; where E = minimum number of acres of wetlands required to be enhanced, LMR = left side of mitigation ratio (see *Table One - OAC Mitigation Ratios* above), and N = number of acres of impacted wetlands. For example, if off-site mitigation is to be conducted for two acres of Category Three forested wetlands, a proposed mitigation plan could be two acres of restored or created wetlands and eight acres of enhanced wetlands.

³⁰ OHIO ADMIN. CODE § 3745-1-54 states that the following equation must be used to calculate the required number of wetlands to be preserved: $P = [(LMR - 1) \times 2] \times N$; where P = minimum number of acres of wetlands required to be preserved, and all other variables are the same as those listed in the enhancement equation above. Thus, if on-site mitigation is to be conducted for five acres of Category Two forested wetlands, a proposed mitigation plan could be five acres of restored or created wetlands and ten acres of preserved wetlands.

³¹ OHIO REV. CODE ANN. § 6111.027.

substantially greater ecological benefit can be demonstrated. Provisions for isolated wetlands also establish a list of approved mitigation banking sites, as well as a set of mitigation banking ratios (all other mitigation is subject to rule 3745-1-54 of the OAC). See Table Two below.³²

<i>Wetland Category</i>	<i>Mitigation Bank Ratio</i>
1	2.0:1.0, non-forested and forested
2	2.0:1.0, non-forested 2.5:1.0, forested
3	See rule 3745-1-54 of the OAC, or Table One above.

Led by the U.S. Army Corps of Engineers, both the OEPA and the ODNR participate on the area's Mitigation Banking Review Team (MBRT), along with the U.S. Environmental Protection Agency (USEPA), U.S. Fish and Wildlife Service, and Natural Resources Conservation Service.³⁴ The four Corps districts with jurisdiction in the state are the Buffalo District, the Pittsburgh District, the Huntington District, and the Louisville District. There are currently no mitigation banks in the Louisville District. The MBRT follows the *Federal Guidance for the Establishment, Use and Operation of Mitigation Banks* (effective December 1995) in overseeing the siting, monitoring, and approval of mitigation sites in the state.³⁵

Stream mitigation provisions are also not specified in Ohio state laws and regulations, although measures are currently being drafted by OEPA staff and are expected to be added to the rules in 2005.³⁶

Ohio Wetland Restoration and Mitigation Strategy Blueprint. The OEPA and ODNR, working together under a USEPA Wetlands Program Development Grant, released the Ohio Wetland Restoration and Mitigation Strategy Blueprint in 1999.³⁷ The Blueprint was developed in response to the desire of OEPA and ODNR to develop a state restoration and mitigation policy and identify high quality wetlands. The Blueprint also builds off a set of restoration and mitigation policy recommendations and goals set earlier in the 1990s by the Ohio Wetlands Task Force (OWTF), a group comprised of representatives from business, agricultural, environmental, and conservation groups. The Blueprint lays out both a model for identification of high priority areas for protection, restoration, and mitigation and a strategy for implementation of a state wetland mitigation banking policy and state restoration goals.³⁸

Compliance and enforcement

Three enforcement options are available for the OEPA Enforcement and Compliance Program when DSW staff are unable to resolve continuing compliance issues. First, the director may issue a Director's Final Finding Order (DFFO), which may be a unilateral or negotiated administrative order. Second, DFFO may be issued with a civil penalty of up to \$10,000 per day. This action usually involves some negotiation with the responsible party. Third, judicial enforcement can be sought by OEPA attorneys or by the Attorney General's office.³⁹ It is rare for OEPA to seek enforcement through the mechanisms described above – approximately five wetland-related DFFOs and only one wetland-related injunction/civil penalty were issued last year. More typically, when DSW staff receive a complaint, they work with the Corps, both to make sure the action is not already permitted under a NWP and to give the Corps the opportunity to take the lead on enforcement

³² OHIO REV. CODE ANN. § 6777.02.

³³ *Id.*

³⁴ Ohio Dep't of Natural Res., *Wetland Mitigation Banking*, at <http://www.dnr.state.oh.us/wetlands/banking.htm> (last visited June 18, 2004).

³⁵ Bournique, *supra* note 14.

³⁶ *Id.*

³⁷ Ohio Dep't of Natural Res. & Ohio Env'tl. Prot. Agency, *supra* note 1.

³⁸ Bournique, *supra* note 14.

³⁹ *Id.*

action if it is deemed necessary. Typically, the Corps issues an after-the-fact permit.⁴⁰ DSW has recently begin to post all enforcement actions on their website, including summaries of the listed actions and associated documents.⁴¹

In 2000, the USEPA initiated a general review of OEPA enforcement programs, including solid waste, hazardous waste, surface water and air. The final report, released in February 2003, concluded that "Ohio maintains an active environmental enforcement presence" and acknowledged various program improvements, including reduced time taken to resolve cases, collection of significant penalties, and improved tracking of environmental improvements.⁴² In the state's 2003 *Enforcement Report*, emphasis is placed on continuous improvement and building on the effectiveness and efficiency acknowledged in the USEPA's report. The 2003 report highlights improvements and goals for all OEPA programs. Goals specific to the DSW only briefly touch on illegal fills of wetlands as a regulatory area with possible need of enforcement action. The report cites 3,200 linear feet of stream mitigation achieved through enforcement action in 2003, but quotes no number for the illegal fill of wetlands in the same year.⁴³ (Note: the previous year's enforcement report cites that 39.06 acres of illegally filled wetlands were addressed through enforcement action in 2002).⁴⁴

Tracking systems

DSW is in the process of developing a tracking system called the Surface Water Information Management System (SWIMS). While the first phase of SWIMS development focuses on NPDES and Permit-to-Install applications and activities,⁴⁵ the system is being designed to handle most water permits, including §401 certifications and isolated wetlands permits. SWIMS tracks applicant information, acreage, impacts, mitigation action, fees, annual reporting (applicants are required to submit an annual report every year for five years),⁴⁶ permit compliance, effluent quality data as reported by permit holders during the last 20 years, and preparation of enforcement actions. All information will be geographically referenced, incorporating geographic information system (GIS) data. In the future, SWIMS will also include ambient chemical and biological databases. The system can be continually updated by the regulated community. Using a type of software called SWIMware, available both online and on CD-ROM, permittees will be able to electronically submit data and reports to the system.⁴⁷

III. Water Quality Standards

On May 1, 1998, the State of Ohio adopted both wetland water quality standards and a wetland anti-degradation rule.⁴⁸ Water quality standards have two distinct parts: designated uses and numerical or chemical criteria designed to protect and measure attainment of the uses.⁴⁹ All wetlands, as defined by the OAC, have been assigned a "wetland designated use."⁵⁰ Wetland-specific water quality standards give narrative criteria with chemical defaults. The OAC outlines criteria

⁴⁰ *Id.*

⁴¹ Ohio Env'tl. Prot. Agency, Division of Surface Water, *Enforcement and Compliance Program*, at <http://www.epa.state.oh.us/dsw/enforcement/enf.html> (last visited June 18, 2004).

⁴² Ohio Env'tl. Prot. Agency, *2002 Enforcement Report*, at <http://www.epa.state.oh.us/pic/2002enf.pdf> (Apr. 2003).

⁴³ Ohio Env'tl. Prot. Agency, *2003 Enforcement Report*, at <http://www.epa.state.oh.us/pic/2003enf.pdf> (Apr. 2004).

⁴⁴ Ohio Env'tl. Prot. Agency, *supra* note 42.

⁴⁵ Ohio Env'tl. Prot. Agency, Division of Surface Water, *SWIMS: Surface Water Information Management System*, at <http://www.epa.state.oh.us/dsw/swims/swims.html> (last visited June 18, 2004).

⁴⁶ Bourmiquet, *supra* note 14.

⁴⁷ Ohio Env'tl. Prot. Agency, *supra* note 45.

⁴⁸ Ohio Env'tl. Prot. Agency, *Amphibian Index of Biotic Integrity (AmphIBI) for Wetlands*, at http://www.epa.state.oh.us/dsw/wetlands/2002_Amphibian_report_final_rev.pdf (Apr. 24, 2002).

⁴⁹ OHIO ADMIN. CODE § 3745-1-07.

⁵⁰ *Id.* § 3745-1-53.

that are applicable to all waters of the state, as well as additional narrative criteria applicable specifically to wetlands, which include:

- Protection of the hydrology necessary to support biological and physical characteristics in order to prevent adverse impacts to water currents, erosion or sediment patterns; natural water temperature variations; chemical, nutrient and dissolved oxygen regimes of the wetland; movement of aquatic fauna; pH; and water levels or elevations (including those resulting from ground water recharge and discharge);
- Protection of the water quality necessary to support existing habitats and populations of wetland flora and fauna in order to prevent adverse impacts on food supplies for fish and wildlife; reproductive and nursery areas; and dispersal corridors;
- Protection of the water quality necessary to prevent conditions conducive to the establishment or proliferation of nuisance organisms; and
- Prevention of conditions that might have an adverse impact on wetland-dependent recreational opportunities.⁵¹

It should be noted that state regulations outline numeric chemical criteria for wastewater discharges to wetlands separately. The criteria, associated with the “warmwater aquatic life habitat use” designation, apply at “end of pipe.” These regulations also include an option to request alternative criteria, which the director may approve if the alternative criteria are not deemed to be injurious to either the wetland’s designated use or its assigned category.⁵²

Ohio adopted antidegradation rules specific to wetlands on July 1, 2003.⁵³ The provisions, outlined in OAC §3745-1-54, require that the wetland designated use be maintained and protected in order to prevent loss of wetland acreage or functions. Antidegradation provisions seek to protect a suite of wetland functions, including: groundwater exchange, nutrient removal and/or transformation, sediment and/or contaminant retention, water storage, sediment stabilization, shoreline stabilization, maintenance of biodiversity, recreation, education and research, and habitat for threatened or endangered species. Other considerations include the regional significance of the wetland and other indirect environmental impacts. Wetlands are regulated according to category, which are determined using ORAM (again, Category One wetlands have a lower ecological significance and Category Three wetlands have a higher ecological significance). Review, authorization, and mitigation provisions (described previously) are also outlined in the regulations.⁵⁴

⁵¹ *Id.* § 3745-1-51.

⁵² *Id.* § 3745-1-52.

⁵³ *Id.* § 3745-1-05. Ohio antidegradation provisions describe the conditions under which water quality may be lowered in surface waters, including wetlands, while maintaining and protecting existing beneficial uses. If existing water quality is better than that required to protect existing beneficial uses, it must still be maintained unless important economic or social development is at stake. Even so, existing beneficial uses must still be protected. See Ohio Env'tl. Prot. Agency, Division of Surface Water, *A Guide to Ohio EPA's Antidegradation Rule - effective July 1, 2003*, at http://www.epa.state.oh.us/dsw/rules/antidegguide_2003.html (last visited June 18, 2004).

⁵⁴ OHIO ADMIN. CODE § 3745-1-54.

IV. Monitoring and Assessment

Monitoring and assessment for wetlands

A variety of assessment methodologies are used in wetlands management and protection in Ohio. The Ohio Rapid Assessment Method (ORAM) was developed specifically for regulatory purposes in the late 1990s, with the final version released in February 2001 (Version 5.0).⁵⁵ The state's water quality standards require permit applicants to use "an appropriate wetland evaluation methodology acceptable to the director" to determine a wetland's category.⁵⁶ ORAM provides "a relatively fast and easy method for determining the appropriate category of a particular wetland" for both §401 certification and isolated wetland permits.⁵⁷ OEPA staff are primarily responsible for the development of the methodology, though there has been a great deal of interaction between federal agencies and OEPA staff, as well as liberal borrowing and sharing with other states.

Bioassessment methodologies are also being utilized more and more by OEPA staff.⁵⁸ Ohio began working on the development of biocriteria with the intention of developing Indices of Biotic Integrity (IBI) for the state; evaluating ecological integrity of wetlands using vascular plants, macroinvertebrate organisms, and amphibians; and re-calibrating the ORAM using the IBIs.⁵⁹ With support from USEPA Wetland Program Development Grants, DSW has developed various bioassessment methodologies for use in the state of Ohio and has published reports on Vegetation Indices of Biotic Integrity, the Amphibian Index of Biotic Integrity, and the Floristic Quality Assessment Index.⁶⁰ These bioassessment methodologies are more intensive and have been used for various non-regulatory purposes.⁶¹ Although there is currently no formal monitoring program in place for wetlands, DSW is conducting a wetland-based ambient monitoring pilot project in the Cuyahoga region.⁶²

Monitoring and assessment for streams

The state has not formally adopted an assessment methodology for streams, although a variety of standardized procedures are used.⁶³ Ohio has developed a system using ambient biological monitoring of fish and macroinvertebrate assemblages to assess stream quality. Methodologies include the Invertebrate Community Index, the Index of Biological Integrity, and the Modified Index of Well Being. OEPA has also developed a rapid qualitative measure of a stream's ability to support levels of aquatic life – the Qualitative Habitat Evaluation Index.⁶⁴ For the most part, procedures are rigorous and data intensive, relying on chemical water quality parameters and biological criteria. Methodologies have been developed for regulatory purposes – for water quality standards and development of 303(d) lists and 305(b) reports, as well as for support of the state's NPDES program.⁶⁵

The OEPA's monitoring program conducts statewide biological and water quality monitoring using a five-year basin approach. The state is divided into 25 hydrologic units, which are assigned to five basins with respect to each of the five OEPA districts. In a given year, monitoring is conducted within five of the hydrologic units and within each of the five

⁵⁵ Ohio Env'tl. Prot. Agency, *Ohio Rapid Assessment Method for Wetlands v.5.0: User's Manual and Scoring Forms*, at <http://www.epa.state.oh.us/dsw/401/oram50um.pdf> (Feb. 1, 2001).

⁵⁶ OHIO ADMIN. CODE § 3745-1-54(B)(2)(a).

⁵⁷ Ohio Env'tl. Prot. Agency, *supra* note 55.

⁵⁸ Bournique, *supra* note 14.

⁵⁹ Ohio Env'tl. Prot. Agency, *supra* note 48.

⁶⁰ Ohio Env'tl. Prot. Agency, *Wetland Bioassessment Program*, at http://www.epa.state.oh.us/dsw/wetlands/wetland_bioassess.html (last visited June 18, 2004).

⁶¹ Personal communication with John Mack, Ohio Env'tl. Prot. Agency (Nov. 24, 2003).

⁶² *Id.*

⁶³ Bournique, *supra* note 14.

⁶⁴ Ohio Env'tl. Prot. Agency, *supra* note 48.

⁶⁵ Personal communication with Jeff DeShon, Ohio Env'tl. Prot. Agency (Nov. 24, 2003).

OEPA districts. The monitoring cycle for each unit lasts five years. The approach is structured to allow environmental feedback to inform water quality management adjustments and to monitor the status and trends of the state's waters.⁶⁶ At present, the monitoring and assessment program endeavors to coordinate with watershed and §401/isolated wetland program efforts, though in an informal capacity.⁶⁷

Monitoring is conducted through biosurveys, an interdisciplinary monitoring effort coordinated on a waterbody or watershed scale. Biological, chemical, and physical monitoring and assessments are conducted at 300-400 sampling sites across the state in any given year. The biosurveys are intended to determine: the extent to which use designations assigned in the Ohio Water Quality Standards (WQS) are either attained or not attained; whether or not use designations assigned to a given water body are appropriate and attainable; and whether or not any changes in key ambient biological, chemical, or physical indicators have taken place over time, particularly before and after the implementation of point source pollution controls or best management practices. Once the five-year cycle of monitoring is complete, data is analyzed and reported and, finally, a Technical Support Document is produced. The data is eventually incorporated into a variety of documents, including Water Quality Permit Support Documents, Water Quality Management Plans, Nonpoint Source Assessments, Water Resource Inventories (305[b] report), and lists of impaired or threatened waters (303[d] list). Information gathered through this approach forms a comprehensive database that is used to address state and program issues. Periodically, a technical bulletin providing in-depth analysis of particular issues is produced by OEPA staff.⁶⁸ The program is supported primarily by federal funding through §319, as well as §106 grants and other project-specific grants.⁶⁹

Citizen monitoring programs

In March 2003, the state passed the Credible Data Bill.⁷⁰ The legislation establishes requirements for credible data, including training, experience and data collection plans for qualified data collectors. Under the bill, a computerized database will be established for all credible data submitted to the OEPA.⁷¹ To date, the state coordinates with volunteer monitoring programs mostly in a non-regulatory capacity, although this may change as the Credible Data Bill is enacted by the OEPA Director.⁷²

The ODNR's Division of Natural Areas and Preserves has worked with volunteers on the Ohio Stream Quality Monitoring Project since 1983. The project uses biological testing to compile information on 20 of the state's scenic rivers and streams. More than 5,000 trained volunteers record collected data by filling out assessment forms that contribute to a cumulative index for each sampling location. Data is compiled into a yearly report that is used to assess the status and trends of different stream stations. An environmental education opportunity, volunteers come from scouting groups and school classes, as well as conservation groups, fishing and hunting clubs, and senior citizens.⁷³

⁶⁶ Ohio Env'tl. Prot. Agency, *Statewide Biological and Water Quality Monitoring & Assessment*, at <http://www.epa.state.oh.us/dsw/bioassess/ohstrat.html> (last visited June 18, 2004).

⁶⁷ DeShon, *supra* note 65.

⁶⁸ Ohio Env'tl. Prot. Agency, *Statewide Biological and Water Quality Monitoring & Assessment*, at <http://www.epa.state.oh.us/dsw/bioassess/ohstrat.html> (last visited June 18, 2004).

⁶⁹ DeShon, *supra* note 65.

⁷⁰ H.B. 43, 125th Gen. Assem. (Ohio 2003) available at http://www.legislature.state.oh.us/bills.cfm?ID=125_HB_43

⁷¹ Ohio Legislative Service Commission, *Fiscal Note & Local Impact Statement*, at <http://www.lbo.state.oh.us/fiscal/fiscalnotes/125ga/HB0043IN.HTM> (last revised March 5, 2003).

⁷² DeShon, *supra* note 65.

⁷³ Ohio Dep't of Natural Res., *Ohio Stream Quality Monitoring Project*, at <http://www.ohiodnr.com/dnap/monitor/default.htm> (last revised May 25, 2004).

Watershed programs

Each basin in Ohio has been assigned a Total Maximum Daily Load (TMDL) team, which includes a §401 certification coordinator. This person brings wetland information and permitting issues to bear as the team addresses water quality goals and issues in the basin. The DSW also allocates \$319 funding to watershed coordinators external to OEPA that foster public involvement and education in watershed issues.⁷⁴

There are 38 locally led, state-funded watershed groups in Ohio, covering about 43 percent of the state's area. Local program coordinators, usually from the communities they lead, develop comprehensive restoration plans (working alongside TMDL rules). The plans cover a suite of issues, including wetlands. Plans seek to preserve existing wetlands and implement best management practices for agriculture, mitigation, and other restoration-related activities.

These groups do not have regulatory authority. Instead they seek to implement mitigation or restoration projects that align with the watershed plans. While a few projects are proactive initiatives, most wetland-related activities are a reaction to ODNR or OEPA requests, which come from a stockpile of needs. In an effort to align resources and strategically place wetlands in the landscape, OEPA is presently in the early stages of developing a database of mitigation and restoration projects in order to allow local groups to review project possibilities.⁷⁵

V. Restoration and Partnerships

In 1994, the OWTF report on Ohio wetlands programs recommended the adoption of a statewide goal of restoring 400,000 acres of wetlands by 2010.⁷⁶ While both the ODNR and the OEPA conduct activities related to the restoration of wetlands, neither is pursuing this goal directly.

OEPA primarily manages the regulatory aspects of wetlands management and protection, focusing on mitigation or encouraging constructed wetlands for stormwater/wastewater treatment. Funding to OEPA from the USEPA's Clean Water State Revolving Fund loan program has supported both point and nonpoint source projects through a newly developed Water Resource Restoration Sponsor Program (WRRSP). The WRRSP offers communities very low interest rates on loans for wastewater treatment plant improvements if the communities also sponsor projects that restore or protect water resources.⁷⁷

Most state restoration activities are through the ODNR, which handles habitat, wildlife, and endangered species, among other wetland-related issues.⁷⁸ The ODNR Division of Wildlife has worked on wetland restoration intensively since the 1980s and has its own division-wide goal of restoring 5,000 acres over the ten year period between 2001 and 2010. The goal, part of the Division's strategic plan, is habitat-focused and specific to wetlands, including restoration on public and private grounds. Three main focus areas—Killbuck, West Lake Erie Marshes, and Mosquito Creek Grand River—were selected after a 1983 inventory and evaluation of state lands that examined historic conditions, present status, and where success would be most likely to occur.⁷⁹

⁷⁴ Bournique, *supra* note 14.

⁷⁵ Personal communication with John Kessler, Ohio Env't. Prot. Agency (Nov. 11, 2003).

⁷⁶ U.S. Fish and Wildlife Service, *Partners for Fish and Wildlife, Ohio*, at <http://partners.fws.gov/pdfs/OH-needs.pdf> (last visited June 18, 2004).

⁷⁷ U.S. Environmental Protection Agency, *EPA Clean Water State Revolving Fund, Activity Update: Ohio's Restoration Sponsor Program Integrates Point Source and Nonpoint Source Projects*, at http://www.epa.gov/owmitnet/cwfinance/cwsrf/ohio_wrrsp.pdf (last revised June 2002).

⁷⁸ Bournique, *supra* note 14.

⁷⁹ Barry, *supra* note 16.

Most ODNR restoration occurs in conjunction with the North American Waterfowl Management Plan (NAWMP), a continent-wide initiative involving the efforts of Canadian, Mexican, and American federal agencies; state and provincial agencies; private landowners; corporations; and nongovernmental organizations. In Ohio, NAWMP activities are funded by a variety of sources: grants through the North American Wetlands Conservation Act; some state funds; fees collected from the required purchase of a wetland conservation stamp by waterfowl hunters; as well as general federal aid programs for wildlife restoration.⁸⁰ Over 18,000 wetland acres have been protected, restored, or enhanced through this program in Ohio, including the return of retired cropland to native grassland and the protection of coastal wetlands, floodplains, and streams.⁸¹

ODNR also has a very active private lands program. With many opportunities available to private landowners, the Division of Fish and Wildlife has eight private land biologists on staff to assist landowners in choosing the appropriate federal or state program.⁸² Furthermore, ODNR funds Ducks Unlimited to provide additional technical assistance in northwestern Ohio. ODNR's private land biologists work closely with U.S. Department of Agriculture (USDA) staff to provide technical assistance to landowners and to prioritize lands for restoration.⁸³ ODNR's cost share program supplements multiple USDA programs in order to minimize landowners' expenses, including the Wetlands Reserve Program and the Forestry Incentives Program.⁸⁴ Under the private lands cost share program, the state can cover the costs of as much as 100 percent of the restoration – up to \$1,500 per acre if the restored wetlands are maintained for at least 20 years or \$700 per acre if the restored wetlands are maintained for at least ten years. Two hundred thousand dollars are budgeted annually for the program (\$160,000 from the sale of the state waterfowl stamp and \$40,000 from Ducks Unlimited).⁸⁵

Other plans and programs associated with ODNR restoration efforts include the Statewide Comprehensive Outdoor Recreation Plan, Natural Areas and Scenic Rivers Preservation, Nongame and Endangered Species Management, and Floodplain Management. Land managing divisions within the agency have been directed to preserve and enhance wetland functions in order to accomplish the goals and objectives of these plans and programs. This is to be accomplished by inventorying and delineating wetlands and controlling recreational uses and facility developments to the extent that the law allows.⁸⁶

In contrast to the state's stringent monitoring requirements for mitigated wetlands, monitoring of restored wetlands is generally not conducted in Ohio unless state, federal, or university funding is provided to do so. The need for a monitoring mechanism for restored wetlands has been recognized by ODNR staff, but has not yet been developed.⁸⁷

VI. Education and Outreach

OEPA has prepared a statewide strategic plan for general environmental education and outreach called *Environmental Education 2000*. The plan, revised every five years, covers all environmental education and outreach issues in the state, from siting nature centers to obtaining funding. The plan targets three audiences: students and teachers (kindergarten through college), the general public, and the regulated community (including public and private sector entities). The

⁸⁰ *Id.*

⁸¹ U.S. Fish and Wildlife Service, *North American Waterfowl Management Program—Ohio*, at <http://midwest.fws.gov/NAWMP/ohio.html> (last visited June 18, 2004).

⁸² Personal communication with Luke Miller, Ohio Dep't of Natural Res. (Nov. 24, 2003).

⁸³ *Id.*

⁸⁴ Barry, *supra* note 16.

⁸⁵ Miller, *supra* note 82.

⁸⁶ Ohio Dep't of Natural Res., *ODNR Directive*, at <http://www.dnr.ohio.gov/policy/wetlandsdirective.htm> (last revised Dec. 5, 1999).

⁸⁷ Barry, *supra* note 16.

Ohio Environmental Education Fund comes from a combination of collected penalties for air and water violations and general state funds. The program does not target wetland-related issues specifically, but does conduct some workshops for K-12 students and teachers and landowners on various issues (e.g. invasive species, riparian corridors, etc.) and publishes relevant fact sheets and brochures.⁸⁸ Additionally, wetland-related grants are given annually.⁸⁹

OEPA's §401 program provides technical assistance and participates in conferences on regulatory issues, but address these needs as they arise, rather than through a strategic plan or program. Most of these efforts are directed toward governmental regulators on some level (local municipalities, soil and water conservation districts, other state agencies), but environmental organizations and other interested individuals are often involved as well.⁹⁰

ODNR also participates in some wetlands-related education and outreach activities through the state's *Aquatic Project WILD* and *Project WET* programs. Though not specifically wetlands-focused, these programs offers interdisciplinary environmental training for educators to teach K-12 students, including lessons on aquatic habitat and wildlife, conservation, and land use impacts. A state-compiled booklet, *Ohio's WILD Wetlands*, offers numerous activities for teachers to conduct both in and outside the classroom.⁹¹

VII. Coordination with State and Federal Agencies

Intra-state coordination on wetlands management and protection occurs to some extent in Ohio. Memoranda of understanding demonstrate this fact; one MOU between the OEPA and the ODNR concerns coastal zone §401 certification, while a MOU between the ODOT and OEPA deals with permit review for ODOT projects. Coordination primarily occurs between OEPA and ODNR as the two foremost agencies working in wetlands issues in the state.⁹²

The state also works often with federal agencies, meeting regularly with U.S. Army Corps of Engineers, USDA, and FWS staff. OEPA coordinates with Corps districts on §401/§404 issues, including individual permits and certifications on a project-by-project basis. Meetings are also held regularly to discuss general programmatic issues as well as specific projects. For example, OEPA, ODNR, and the Corps are currently working to consolidate the permit application process for coal mining operations.⁹³

⁸⁸ Personal communication with Carolyn Watkins, Ohio Env'tl. Prot. Agency (July 22, 2004).

⁸⁹ Some examples of past grants include: \$50,000 for the restoration of wetlands as part of an education program; \$5,000 for the development of a CD-ROM on regional wetland ecology; \$2,300 to facilitate the study of native wetland species by high school students by construct bridge paths to wetlands; \$47,000 for the development of wetland forest and prairie ecosystem guides; \$50,000 for a series of community-level interactive educational workshops, written educational material, televised public service announcements, and activities to enhance the capacity of land trusts to conserve wetlands; \$43,000 for the development of a curriculum for high school wetlands education; \$48,000 to design a university-level class on environmental engineering for constructed wetlands.

⁹⁰ Bournique, *supra* note 14.

⁹¹ Personal communication with Jen Dennison, Ohio Dep't of Natural Res. (June 22, 2004).

⁹² Bournique, *supra* note 14.

⁹³ Personal communication with Randy Bournique, Ohio Env'tl. Prot. Agency (Aug. 2004).

VIII. Acronyms and Abbreviations

CWA - Clean Water Act

DFFO - Director's Final Finding Order

DSW - Division of Surface Water

FTE - Full-time Equivalent

FWS - U.S. Fish and Wildlife Service

GIS - Geographic Information System

IBI - Indices of Biotic Integrity

MBRT - Mitigation Banking Review Team

NAWMP - North American Waterfowl Management Plan

NPDES - National Pollutant Discharge Elimination System

NWPs - Nationwide Permits

OAC - Ohio Administrative Code

ODNR - Ohio Department of Natural Resources

ODOT - Ohio Department of Transportation

OEPA - Ohio Environmental Protection Agency

OWTF - Ohio Wetlands Task Force

SWANCC - *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*

SWIMS - Surface Water Information Management System

TMDL - Total Daily Maximum Load

USDA - U.S. Department of Agriculture

USEPA - U.S. Environmental Protection Agency

WRRSP - Water Resource Restoration Sponsor Program

Pennsylvania

I. Overview

According to the National Wetland Inventory, the Commonwealth of Pennsylvania contains more than 400,000 acres of wetlands. Though the state has experienced significant loss of wetland acreage over the last century, studies¹ show that, in the early 1980s, Pennsylvania began achieving a net annual gain of wetland acreage.² Pennsylvania's 1988 Wetland Protection Action Plan set forth an agenda for the state to strengthen its wetlands protection programs by increasing public awareness about the importance of wetland resources and by identifying opportunities to improve regulation, policies, and programs. The majority of the plan's goals have been completed or addressed, including the development of a comprehensive regulatory framework, the formal adoption of a wetland delineation process, the development of a compliance and enforcement manual, the designation of a wetland coordinator for the state, the creation of education and outreach programs, the completion of National Wetland Inventory maps, and an increase in staff resources to support the implementation of these programs.³ Pennsylvania's various regulatory and non-regulatory programs and strategies have led to the achievement of no net loss and, over the past several years, a statewide net gain in wetland acreage.⁴

II. Regulatory Programs

Wetland definitions and delineation

Wetlands are included in Pennsylvania's definition of waters under the Dam Safety and Encroachments Act.⁵ The act defines a "body of water" as "[a]ny natural or artificial lake, pond, reservoir, swamp, marsh, or wetland."⁶ Corresponding rules and regulations, given under Chapter 105 of Pennsylvania Code Title 25, define "regulated waters of [Pennsylvania]" to be "[w]atercourses, streams, or bodies of water and their floodways wholly or partly within or forming part of the boundary of this Commonwealth."⁷ "Wetlands" are also defined in Chapter 105⁸ as "[a]reas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs and similar areas."⁹ Wetland delineation in the state is conducted in accordance with

¹ A 1987 study by the National Wetlands Inventory (NWI), *Mid-Atlantic Wetlands, A Disappearing Natural Treasure*, estimates that Pennsylvania lost 28,000 acres of wetlands between 1956 and 1979. A 1994 NWI study concludes Pennsylvania gained 4,683 acres of wetland within the Chesapeake Bay watershed between 1982 and 1989, indicating a significant shift to a gain of wetland resources for the first time. See Ecological Services Northeast Region, U.S. Fish and Wildlife Service, *Mid-Atlantic Wetlands, A Disappearing Natural Treasure (1987)* and Ecological Services Northeast Region, U.S. Fish and Wildlife Service, *Recent Wetland Status and Trends in the Chesapeake Watershed (1982-1989) (1994)*.

² Pennsylvania Department of Environmental Protection [hereinafter PA DEP], *Wetlands Net Gain Strategy (1998)*, at <http://www.dep.state.pa.us/dep/deputate/watermgmt/Wc/Subjects/WWEC/GENERAL/WETLANDS/NetGain.htm>.

³ Personal Communication with Ken Reisinger, Pennsylvania Department of Environmental Protection (Oct. 7, 2004).

⁴ PA DEP, *supra* note 2.

⁵ Wetlands are also included in the state's surface water quality definitions. "Surface waters" are defined as "[p]erennial and intermittent streams, rivers, lakes, reservoirs, ponds, wetlands, springs, natural seeps and estuaries, excluding water at facilities approved for wastewater treatment such as wastewater treatment impoundments, cooling water ponds and constructed wetlands used as part of a wastewater treatment process." 25 PA. CODE § 93.1.

⁶ 32 PA. CONS. STAT. § 693.3.

⁷ 25 PA. CODE § 105.1.

⁸ This definition for wetlands is also provided in the state's surface water quality standards. PA. CODE, *supra* note 5.

⁹ PA. CODE, *supra* note 7.

the criteria outlined in the U.S. Army Corps of Engineers' 1987 *Wetlands Delineation Manual* and a 1992 Corps memorandum entitled *Clarification and Interpretation of the 1987 Manual*.¹⁰

Wetland-related statutes and regulations

In Pennsylvania, wetlands have been regulated since 1980 under the Dam Safety and Encroachments Act.¹¹ The purpose of the act, implemented by the Pennsylvania Department of Protection (PADEP), is "to protect the health, safety, and welfare of the people and property [of Pennsylvania and] . . . the natural resources, environmental rights, and values secured by the Pennsylvania Constitution . . . [to] conserve the water quality, natural regime, and carrying capacity of watercourses . . . , [and to] [a]ssure proper planning, design, construction, maintenance, and monitoring of water obstructions and encroachments, in order to prevent unreasonable interference with waterflow and to protect navigation."¹² Regulatory provisions designed to achieve these purposes are outlined in Pennsylvania Code Title 25, Chapter 105 and include permitting criteria and wetland mitigation and replacement requirements.

Approximately 700 individual permits¹³ are issued under Chapter 105 each year. Only about 20 percent of all individual permits are wetland-related; the remaining 80 percent of the permits are issued primarily for stream-related activities. In fact, the state's regulatory program permits impacts to an average of less than 100 acres of wetland per year.¹⁴ The state permitting process under Chapter 105 includes §401 water quality certification for those projects that require federal review and approval under Clean Water Act §404.

PADEP permit review staff work closely with applicants prior to application submission, providing guidance on state regulations and requirements and emphasizing the need to explore and provide alternative locations, designs, and mitigation strategies to avoid and minimize impacts. In addition, PADEP has conducted targeted education and outreach for more than fifteen years, informing the regulated community throughout the state of basic permit requirements (especially those related to wetland identification and delineation and alternatives analysis) and mitigation sequencing (avoidance, minimization, compensation). Education and outreach efforts and pre-application work have resulted in the improved quality of application submissions. Most permit applicants are able to meet regulatory requirements and avoid and minimize impacts prior to application submission, resulting in a low percentage of permit denial.¹⁵

In permit decision-making, PADEP staff utilize information provided in the Chapter 105 permit application, which includes an environmental assessment and information similar to the federal §404b(1) guidelines, comments from other state and federal agencies and the general public, and best professional judgment.¹⁶ In addition, state regulations include special permitting criteria for "exceptional value wetlands."¹⁷

¹⁰ See PA DEP, *Statement of Policy 105.451 – Identification and Delineation of Wetlands (5 December 1995)*, available at <http://www.dep.state.pa.us/dep/deputate/watermgmt/Wc/Subjects/WWEC/general/wetlands/policy.htm>.

¹¹ 32 PA. CONS. STAT. §§ 693.1–693.27.

¹² 32 PA. CONS. STAT. § 693.2.

¹³ In addition to individual permits, PA DEP and county conservation districts issue approximately 3,500 general permits under Chapter 105 annually. Most general permits cannot be used to impact wetlands. Where projects that impact wetlands are authorized by general permit, mitigation and wetland replacement is required. Personal Communication with Ken Reisinger, Pennsylvania Department of Environmental Protection (Nov. 30, 2004).

¹⁴ Reisinger, *supra* note 3.

¹⁵ Reisinger, *supra* note 13.

¹⁶ Reisinger, *supra* note 3.

¹⁷ 25 PA. CODE § 105.18(a).

Organization of state activities

The Pennsylvania Department of Environmental Protection (PADEP) conducts most state-level regulatory and non-regulatory activities related to wetlands. Within PADEP, the Division of Waterways, Wetlands, and Erosion Control (WWEC) leads the agency's wetland-related activities and is responsible for statewide program development and oversight, policy and guidance development, coordination with federal agencies, and legislative and regulatory initiatives. In an effort to integrate wetland protection into other state programs, WWEC also coordinates with other PADEP offices that issue environmental permits. For example, WWEC may contribute review and comment on permits being issued by the Office of Mineral Resources Management that involve wetlands.¹⁸

Soil and Waterways Sections (SWS) within PADEP's six regional offices review and issue permits and §401 certifications, oversee enforcement and compliance activities, and conduct outreach, technical support, and restoration-related activities. SWS staff process permits related to wetlands as well as those associated with stream impacts and land development. Thus, it is difficult to calculate the precise amount of staff time or funding devoted specifically to wetlands regulation and protection. When considering all the regulatory and non-regulatory efforts, PADEP estimates 50 to 60 full-time equivalents conduct wetland-related activities throughout the state. Program funding is derived mostly from state general appropriations, though permit application fees and enforcement penalties also offset program costs to a limited extent.¹⁹

State programmatic general permits

Since 1995, Pennsylvania has operated under a §404 State Programmatic General Permit (SPGP). Permit applications for work in wetlands, rivers, streams, and other waters are reviewed and processed by PADEP or the delegated county conservation district. If the project qualifies, an SPGP may be issued by the state, with no additional federal review. In accordance with the terms and conditions of the SPGP, those applications for projects that have the potential for significant environmental impacts are forwarded to the Corps for review.²⁰

The current SPGP, effective July 2001, applies to "the discharge of dredged or fill materials and/or the placement of structures, that are components of a single and complete project, including all attendant features both temporary and or permanent, which individually or cumulatively result in direct or indirect impacts to 1.0 acre or less of waters of the U.S., including jurisdictional wetlands, for specific categories of activities as regulated by Section 404 of the [Clean Water Act] or Section 10 of the River and Harbor Act of 1899. Discharges of dredged or fill materials and/or the placement of structures that comply with all terms, conditions, and processing procedures contained in the [SPGP], and have only minimal individual or cumulative environmental impacts, are authorized." Some activities not regulated by §404 of the Clean Water Act (CWA) or §10 of the River and Harbor Act have general permits that correspond to activities regulated under the state's Dam Safety and Encroachments Act.²¹ Other activities are not eligible for SPGP authorization and must be submitted to the Corps for §404 permit review.²²

¹⁸ Reisinger, *supra* note 3.

¹⁹ *Id.*

²⁰ PA DEP, *Pennsylvania State Programmatic General Permit #2 (1 July 2001)*, available at <http://www.dep.state.pa.us/dep/deputate/watermgt/Wc/Subjects/WWEC/GENERAL/WETLANDS/PASPGP-2%20FINAL6-8-01.doc>.

²¹ The following activities are authorized by PADEP Chapter 105.12 Waivers, or Chapter 105.441-449 General Permits and Waiver Letters of Maintenance, provided they are implemented as described in the applicable PADEP authorization: PADEP General Permit #10 - Abandoned Mine Reclamation; PADEP Waiver #3 - Aerial Crossings; PADEP Waiver #5 - Acid Mine Drainage; PADEP Waiver #13 - Abandoned Railroad Bridges and Culverts; PADEP Waiver #15 - Abandoned Mines; and Waiver Letters of Maintenance for Channel Cleaning at Bridges and Culverts and Bridge and Culvert Repair. PA DEP, *supra* note 20.

²² PA DEP, *supra* note 20.

Three categories of activities are outlined in the SPGP.²³ In general, Category I activities are reviewed by either PADEP or the delegated county conservation district and do not require notification to the Corps. An SPGP may be issued if the project complies with all applicable regulations and requirements. Category II activities, also reviewed by PADEP staff or the delegated county conservation district, require notification to the Corps. The Corps and federal agencies may review and provide comments on the project or require an individual permit application if the project involves unique circumstances or concerns. Category III activities require individual project review by the Corps and full federal coordination prior to issuing the federal permit. Activities authorized under the SPGP are subject to a comprehensive set of state and federal general requirements, procedural conditions, and best management practices, described at length in the permit document. Application procedures and requirements are outlined as well.²⁴

Mitigation

Chapter 105 lists “wetland replacement criteria” that outline acreage and functional replacement requirements,²⁵ as well as siting requirements.²⁶ In addition, the regulations cite PADEP guidelines, entitled *Design Criteria for Wetlands Replacement*. The guidelines, written to provide “design, flexibility, and utilization of the best available technology in environmental engineering,” give a general overview of mitigation objectives and provide guidance for site selection and construction.²⁷

PADEP established the Pennsylvania Wetland Replacement Project (PWRP) in 1996. Through the PWRP, permit applicants who are impacting one-half acre of wetland or less and have no on-site wetland replacement options or alternative mitigation opportunities may contribute money into a PADEP-managed in-lieu-fee fund. Monies from the fund are then used to support the restoration of wetlands on private lands within the watershed. Individual landowners, watershed associations, conservation organizations, sportsmen organizations, or other groups may propose potential projects for the PWRP.²⁸ PADEP staff conduct on-site assessments in cooperation with landowners, provide project design assistance and construction oversight, and conduct annual site visits to quantitatively monitor project success. Since 1996, approximately 450 permit applicants have contributed to the PWRP, offsetting approximately 80 acres of impacted wetland. In addition, approximately 475 individually authorized permit actions, involving less than 0.05 acres of wetland each, have contributed a cumulative total of 13 restored acres of wetland statewide. These “de-minimus” impacts are also replaced by PADEP through the PWRP. During the life of the PWRP, PADEP has assisted, funded, or participated in the restoration of roughly 110 acres of wetland.²⁹

The state also participates on the Mitigation Banking Review Team (MBRT), along with the U.S. Fish and Wildlife Service (FWS), U.S. Environmental Protection Agency (EPA), Pennsylvania Department of Transportation (PennDOT), Pennsylvania Fish and Boat Commission, Natural Resources Conservation Service (NRCS), Federal Highway Administration, and the Baltimore, Philadelphia, and Pittsburgh Districts of the U.S. Army Corps of Engineers. The MBRT established 33 wetland mitigation banking service areas, emphasizing a watershed approach in banking-related

²³ *Id.*

²⁴ *Id.*

²⁵ Acreage and functions and values must be replaced at a minimum of 1:1 (replacement acres to acres affected), but PADEP may require a higher ratio depending on the circumstances of the project and the wetlands being affected. For activities constructed without a permit and for which mitigation cannot be achieved, the required replacement ratio is 2:1 (replacement acres to acres affected), but, again, PADEP may require a higher ratio depending on the circumstances of the project and the wetlands being affected. 25 PA. CODE § 105.20(a).

²⁶ Regulations require that mitigation must occur adjacent to the impact site, unless an alternative site is approved by the PADEP. Alternative sites should be located in the same watershed or coastal zone as the impacted wetland. 25 PA. CODE § 105.20(a).

²⁷ 25 PA. CODE § 105.20(a).

²⁸ See PA DEP, *Public Notice – Pennsylvania Wetland Replacement Project (18 Jan 1996)*, available at <http://www.dep.state.pa.us/dep/deputate/watermgmt/Wc/Subjects/WWEC/general/wetlands/replfd1.htm>.

²⁹ Reisinger, *supra* note 13.

decision-making.³⁰ At present, PennDOT is the only organization in the state that operates wetland mitigation banks. WWEC staff do not believe a strong market for private mitigation banking exists in Pennsylvania due to the low level of wetland impacts permitted.³¹

Stream mitigation differs to some extent from that required for wetlands. Although there are no specific criteria cited in state regulations (as is the case for wetlands), stream mitigation is required under the rules' broader mitigation requirements. Avoidance and minimization of impacts and alternatives analysis are standard requirements applicable for all permits applications. In cases where adverse environmental impacts cannot be avoided or minimized, compensatory actions may include stream bank fencing, riparian protection, or fish and stream habitat enhancement.³²

Compliance and enforcement

Each PADEP regional office supports a compliance and enforcement specialist and a complaint coordinator. These specialists work with permitting staff to conduct site visits and collect technical information for possible violations. Major violations are coordinated with the U.S. Army Corps of Engineers to determine compliance with the federal requirements. For purposes of program efficiency, one agency (PADEP or the Corps) may be designated to act as the lead agency in enforcement cases.³³

If a violation is found, restoration is typically requested of the responsible party. In cases where the violation cannot be resolved through restoration of the site, the responsible party may submit a permit application for review by the Corps and PADEP. If the activity in question meets all requirements, a permit may be issued; however, wetland replacement requirements are doubled. Additionally, fines and penalties may be assessed depending on the severity of the violation. If the activity does not meet permit requirements, PADEP can require removal of the project and full site restoration, with fines and penalties. Although minor violations occasionally occur, major wetland violations in Pennsylvania have been rare over the past ten years. PADEP has developed a compliance and enforcement manual to guide assessments and actions for enforcement cases. The manual includes procedures for resolving enforcement actions, as well as guidance for calculating fines and penalties.³⁴

Tracking systems

The PADEP operates the statewide Environmental Facility Application Compliance Tracking System (EFACTS), which tracks information on permits, compliance, and project information such as type of wetland impacted, location, size, and mitigation. EFACTS generally seeks to accomplish the following objectives:

- Provide department-wide information on the multiple programs that regulate facilities;
- Provide information to the public on permits issued by DEP and the status of pending permit applications;
- Determine compliance rates for PADEP programs so they can be tracked and compared year to year;
- Provide accurate, up-to-date information on permit compliance;
- Document the steps taken to achieve compliance (environmental audits and management systems, permits, inspections, notices of violation, orders, etc.);
- Use this information as a management tool within DEP to identify noncompliance problems and how the agency plans to address them; and

³⁰ Reisinger, *supra* note 3.

³¹ Reisinger, *supra* note 13.

³² *Id.*

³³ *Id.*

³⁴ Reisinger, *supra* note 3.

- Help document pollution prevention efforts as a strategy for compliance.³⁵

The system, which relies mostly on permit application information, is online and accessible to the public. At present, PADEP is revising the site in order to increase the tracking and reporting capabilities for the wetland program.³⁶

III. Water Quality Standards

Pennsylvania incorporated wetlands protection into the state's water quality standards in 1994, creating regulatory linkages between Chapter 105 wetland regulations and Chapters 93 and 96³⁷ water quality provisions. Chapters 93 and 96 include standard definitions for surface waters and wetlands,³⁸ and water quality regulations state that "[f]unctions and values of wetlands shall be protected pursuant to Chapters 93 and 105 (relating to water quality standards and dam safety and waterway management)."³⁹ Chapter 93 refers to statewide water uses that must be protected, including aquatic life uses, water supply uses, recreational uses, and navigation. Protection for "high quality waters"⁴⁰ and "exceptional value waters"⁴¹ are also included. Water quality standards criteria are narrative, chemical, and biological. Chapter 96 cites the functions and values in Chapter 105 as the narrative quality that must be protected for wetlands and identifies the permitting and mitigation requirements of Chapter 105 as anti-degradation measures for wetlands.⁴²

IV. Monitoring and Assessment

Efforts are underway to develop a holistic evaluation for wetlands in the state. PADEP, Pennsylvania State University, EPA Region III, and EPA Headquarters are currently working collaboratively to develop a wetland assessment methodology. The methodology will be used to evaluate wetland integrity and quality on a watershed basis, utilizing reference sites and a standard three-tiered protocol. The protocol has been completed and implementation of the assessment methodology will commence in 2005. As the assessment methodology evolves, PADEP will explore ways to integrate the protocol with the state's water quality assessment programs, §305(b) reports, and other regulatory and non-regulatory processes. Funding is being provided by EPA (Region III and Headquarters).⁴³

³⁵ PA DEP, *eFACTS*, at http://www.dep.state.pa.us/efacts/about_efacts.asp?varinfo=obj (last revised Oct. 27, 2004).

³⁶ Reisinger, *supra* note 3.

³⁷ Water quality standards and anti-degradation policies are found in Chapter 93 of the Pennsylvania Code, while requirements for the implementation of water quality standards are found in Chapter 96.

³⁸ Wetlands are also included in the state's surface water quality definitions. "Surface waters" are defined as "[p]erennial and intermittent streams, rivers, lakes, reservoirs, ponds, wetlands, springs, natural seeps and estuaries, excluding water at facilities approved for wastewater treatment such as wastewater treatment impoundments, cooling water ponds and constructed wetlands used as part of a wastewater treatment process." 25 PA. CODE § 93.1.

³⁹ 25 PA. CODE § 96.3.

⁴⁰ "Exceptional value waters" include those surface waters that are of exceptional ecological significance; are located in a National Wildlife Refuge, a State Game Propagation and Protection Area, a designated state park natural area or state forest natural area, a national natural landmark, federal or state wild river, federal wilderness area or national recreational area; are an outstanding national, state, regional or local resource water; are surface waters of exceptional recreational significance; achieve a score of at least 92 percent (or its equivalent); or are designated as a "wilderness trout stream" by the Pennsylvania Fish and Boat Commission. 25 PA. CODE § 93.4(b).

⁴¹ "High quality waters" include those surface waters meeting certain biological and chemical qualifications, as required by state regulations. 25 PA. CODE § 93.4(b).

⁴² 25 PA. CODE § 96.

⁴³ Reisinger, *supra* note 3.

V. Restoration

In an effort to move beyond its regulatory role and incorporate a more proactive restoration program, PADEP initiated the *Wetlands Net Gain Strategy*. The strategy seeks to move beyond the goal of “no net loss” to a net gain of wetland acreage⁴⁴ by taking a watershed-based, community-focused approach. The strategy includes the implementation of best management practices for the restoration, creation, and protection of wetlands to meet the needs of individual watersheds. Data management, monitoring, and coordination, site prioritization, and education and outreach are discussed in the strategy as well.⁴⁵

The strategy recognizes both regulatory and non-regulatory mechanisms to achieve its objectives. Regulatory mitigation requirements have led to achievement of the no net loss goal in the permitting program. Achievement of the goal of a net gain of wetland acreage relies on the implementation of federal programs such as Partners for Wildlife (FWS) and Wetland Reserve Program (NRCS). Other programs, such as §319 and Growing Greener Grants,⁴⁶ have also contributed to the *Wetlands Net Gain Strategy* goals. Since 1990, 4,660 acres of wetlands have been restored through regulatory and non-regulatory efforts, resulting in a net gain of 3,765 acres of wetlands in the state.⁴⁷

The state is required to evaluate the effectiveness of the strategy on an annual basis. This includes an interagency meeting to evaluate program implementation, to develop new initiatives and partnerships, and to make recommendations improve the program. Functional wetland gains are tracked geographically within watersheds and by community type. Wetland restoration and enhancement efforts are tracked by the PADEP (both through the PWRP and mitigation/permit activities), Partners for Wildlife, Wetland Reserve Program, and Bureau of Abandoned Mine Reclamation.⁴⁸

VI. Public/Private Partnerships

Pennsylvania has instituted various landowner partnership programs that have yielded relatively successful results. As previously mentioned, the PWRP has helped the state maintain a no net loss of wetland acreage. The program, widely considered a success, has involved dozens of willing and dedicated landowners over the eight years of its existence. The Growing Greener Fund has contributed millions of dollars to watershed restoration and protection, including the construction and restoration of wetlands. PADEP also seeks to coordinate with U.S. Department of Agriculture programs such as the Wetland Reserve Program and the Conservation Reserve Program.⁴⁹

⁴⁴ The strategy also includes specific goals for the Chesapeake Bay Watershed. In the Chesapeake 2000 Agreement, Pennsylvania committed to restoring 25,000 acres of tidal and non-tidal wetlands in the Chesapeake Bay Watershed by the year 2010. As part of the goal, the state established a time line of 400 acres of non-tidal wetlands restored each year.

⁴⁵ Pennsylvania Department of Environmental Protection, *Wetlands Net Gain Strategy*, at <http://www.dep.state.pa.us/dep/deputate/watermgmt/Wc/Subjects/WWEC/GENERAL/WETLANDS/NetGain.htm> (1998).

⁴⁶ Growing Greener grant funds are used to support wetland conservation activities throughout the state. These activities are implemented through local initiatives as part of the PADEP's focus on comprehensive watershed management.

⁴⁷ PA DEP, *supra* note 2.

⁴⁸ *Id.*

⁴⁹ Reisinger, *supra* note 3.

VII. Education and Outreach

The state's 1988 Wetland Protection Action Plan recognized the need for greater outreach and education on the importance of wetlands and included a specific education and outreach program goal. Throughout the late 1980s and mid-1990s, PADEP made intensive efforts to educate the public and the regulated community about wetlands, water resources, and their importance to water quality and the environment. Numerous workshops and seminars were conducted in partnership with other state and federal agencies and private interests. In recent years, these efforts have slowed for various reasons, including saturation of the audience and increased availability of information from other sources. However, PADEP continues to participate in seminars and workshops on wetlands and other environmental issues, as well as semi-annual training sessions for the public and private sector. Topics may include wetland functions and values, identification and delineation, permitting, and statewide policies.⁵⁰

The state also requires an environmental science component in the public school curriculum. PADEP and other state agencies have provided numerous education modules, curricula, and other materials on water quality and wetlands protection to support the educational requirement.⁵¹

VIII. Coordination with State and Federal Agencies

PADEP coordinates with multiple state agencies in the permit review process, particularly in gathering information to be used in permit decision-making. For example, Pennsylvania Game Commission and Pennsylvania Bureau of Forestry may provide information on threatened and endangered plant and animal species.⁵²

PADEP also regularly coordinates with the federal natural resource agencies. Aside from joint site visits and interagency review for selected permit cases, a monthly Environmental Review Committee (ERC) meeting is held to discuss permit applications that require more intensive review and coordination. The ERC includes staff from the Pennsylvania Fish and Boat Commission, U.S. Army Corps of Engineers, National Marine Fisheries Service, FWS, and EPA.⁵³

⁵⁰ *Id.*

⁵¹ *Id.*

⁵² *Id.*

⁵³ *Id.*

IX. Acronyms and Abbreviations

CWA - Clean Water Act

EPA - U.S. Environmental Protection Agency

ERC - Environmental Review Committee

FWS - U.S. Fish and Wildlife Service

MBRT - Mitigation Banking Review Team

NRCS - Natural Resources Conservation Service

NWI - National Wetlands Inventory

PADEP - Pennsylvania Department of Environmental Protection

PennDOT - Pennsylvania Department of Transportation

PWRP - Pennsylvania Wetland Replacement Project

SPGP - State Programmatic General Permit

SWS - Soil and Waterways Section

WWEC - Division of Waterways, Wetlands, and Erosion Control

Washington State

I. Overview

Washington State wetlands law and regulation is a true patchwork that has evolved from various historical events, political movements, and local, state and tribal, and federal influences. These factors have produced a multifaceted state approach to wetlands regulation, management, and protection. The state has passed numerous laws that affect wetlands and involve different state agencies. While much of the focus lies on empowering local municipalities to oversee land use and development and to regulate wetlands locally, the state also plays many active roles in regulating wetlands.

At the state level, the most influential regulation is related to water quality certification under §401 of the Clean Water Act. The state's primary role in wetlands regulation and protection involves filling gaps in federal jurisdiction over wetlands by using state authorities in water quality laws. The state also plays a significant role in assisting local governments in the development of comprehensive growth management plans, shoreline master programs, and regulations and ordinances.

II. Regulatory Programs

Wetland definitions and delineation

The Washington State Water Pollution Control Act defines state waters without explicit reference to wetlands, stating "waters of the state" . . . shall be construed to include lakes, rivers, ponds, streams, inland waters, under ground waters, salt waters, and all other surface waters and water courses within the jurisdiction of the state of Washington."¹ However, a 1993 Superior Court decision made clear that this definition includes wetlands, ruling that all wetlands "bigger than puddles" are included as "waters of the state."² Amendments to state water quality standards adopted in 1997 made the inclusion of wetlands more explicit, stating that "surface waters of the state include lakes, rivers, ponds, streams, inland waters, saltwaters, wetlands, and all other surface waters and water courses within the jurisdiction of the state of Washington."³

Washington's water quality standards define "wetlands" as "areas that are inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from nonwetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands may include those artificial wetlands intentionally created from nonwetland areas to mitigate the conversion of wetlands."⁴

State wetland delineation criteria reference the U.S. Army Corps of Engineers' 1987 *Wetlands Delineation Manual*.⁵ In fact, the 1995 Washington State Legislature enacted a bill requiring the Department of Ecology to adopt a wetland

¹ WASH. REV. CODE § 90.48.020.

² See *Building Industries Associates of Washington v. City of Lacey*, No. 91-2-02895-5. (Thurston County Superior Ct. 1993)

³ WASH. ADMIN. CODE § 173-201A-010(2).

⁴ *Id.* § 173-201A-020.

⁵ U.S. Army Corps of Engineers, *Wetlands Research Program Technical Report Y-87-1, Corps of Engineers Wetlands Delineation Manual (1987)*, available at <http://www.saj.usace.army.mil/permit/documents/87manual.pdf>.

delineation manual that “implements and is consistent with the 1987 manual in use on January 1, 1995 by the U.S. Army Corps of Engineers and the U.S. [Environmental Protection Agency].”⁶ The *Washington State Wetlands Identification and Delineation Manual* was completed in March 1997. The document is intended for use “in determining wetland areas when applying state and local government regulations. . . .”⁷

Wetland-related statutes and regulations

The State of Washington provides wetlands protection under numerous state laws, none of which provide wetlands protection as their primary purpose:

- State Water Pollution Control Act;⁸
- The Growth Management Act;⁹
- The Shoreline Management Act;¹⁰
- The State Hydraulic Code;¹¹ and
- The Forest Practices Act.¹²

In general, the state emphasizes a local approach to wetlands protection and regulation. Most state laws authorize local municipalities to plan and regulate their lands, including wetlands, with state agencies often playing an advisory role. The largest state role in regulation falls under the water quality provisions of the State Water Pollution Control Act, described below; however, the most influential wetland-related regulation in the state comes at the local level, as land use management is generally perceived as the most effective mechanism for protecting wetland functions and values.¹³

*State Water Pollution Control Act.*¹⁴ The State Water Pollution Control Act (SWPCA) was passed in 1945 to protect water quality, wildlife, and public health. The act is administered by the Department of Ecology (Ecology) and includes state surface and groundwater quality standards, an antidegradation policy, sediment management provisions, and permitting and certification requirements. The SWPCA implements parts of the Clean Water Act such as National Pollutant Discharge Elimination System permit requirements and §401 water quality certifications.¹⁵ Of the provisions of the SWPCA, the state surface water quality standards and antidegradation policy are the most relevant in state wetland regulation and encompass the state’s most prominent role in the protection and regulation of Washington wetlands.¹⁶ However, this law only regulates direct impacts to wetlands, such as filling or stormwater discharge. Protection of wetland functions through the use of buffers and methods of land use management is accomplished at the local level.¹⁷

⁶ WASH. REV. CODE § 90.58.380, available at <http://www.leg.wa.gov/RCW/index.cfm?section=90.58.380&fuseaction=section>

⁷ Washington State Department of Ecology, *Ecology Publication No. 96-94, Washington State Wetlands Identification and Delineation Manual (1997)*, available at <http://www.ecy.wa.gov/pubs/9694.pdf>.

⁸ WASH. REV. CODE § 90.48; WASH. ADMIN. CODE § 173-201A.

⁹ WASH. REV. CODE § 36.71A; WASH. ADMIN. CODE § 365-190.

¹⁰ WASH. REV. CODE § 90.58; WASH. ADMIN. CODE § 173-22; § 173-27; § 173-26 (pending).

¹¹ WASH. REV. CODE § 77.55; WASH. ADMIN. CODE § 220-110.

¹² WASH. REV. CODE § 76.09; WASH. ADMIN. CODE § 222.

¹³ Personal communication with Andy McMillan, Washington State Department of Ecology (Jan. 14, 2004).

¹⁴ WASH. REV. CODE § 90.48; WASH. ADMIN. CODE § 173-201A.

¹⁵ Washington State Department of Ecology, *Wetland Regulations Guidebook (1994)*, *Ecology Publication No. 88-5*, available at <http://www.ecy.wa.gov/pubs/8805.pdf>.

¹⁶ McMillan, *supra* note 13.

¹⁷ Personal communication with Andy McMillan, Washington State Department of Ecology (Nov. 6, 2004).

*Growth Management Act.*¹⁸ The Washington State legislature passed the Growth Management Act (GMA) in 1990 to address the problem of uncoordinated and unplanned growth in the state. The GMA relies on a “bottom up” planning process that requires local municipalities to adopt development regulations based on the best available science. Additionally, local governments must designate and protect “critical areas,” including wetlands and fish and wildlife conservation areas.¹⁹ Goals of the act guide the development and adoption of comprehensive plans and development regulations for the cities and counties of the state. All cities and counties in the state require permits for activities in or near designated critical areas. Incentive and acquisition programs designed to protect wetlands are common among local governments as well.²⁰ It should be noted that the GMA gives planning authority to local municipalities and counties—not the state. However, the Washington Department of Community, Trade, and Economic Development is charged with providing guidance for cities and counties in making critical area designations and designing programs to protect their functions.²¹

*Shoreline Management Act.*²² Recognizing the importance and fragility of the state’s shoreline areas, the state legislature passed the Shoreline Management Act (SMA) in 1971.²³ “Shoreline areas” include all marine waters and their associated wetlands²⁴ (together with the lands underlying them), all lakes and reservoirs equal to or greater than 20 acres in size and their associated wetlands, and all streams and river segments with a mean annual flow greater than 20 cubic feet per second, and their associated wetlands.²⁵ Since approximately 30 percent of the state’s freshwater wetlands and all of the tidal wetlands are under SMA jurisdiction, the act is significant to the state’s wetland protection strategy.²⁶

Another locally focused statute, the SMA requires local governments to prepare shoreline master programs for all shorelines within their jurisdiction.²⁷ Local governments are the regulating authority under the SMA and are responsible for issuing permits for substantial development, conditional uses, and variances that are in conformance with the local shoreline master program.²⁸ However, the Washington State Department of Ecology is involved in SMA regulation in three ways. First, Ecology is responsible for determining which wetlands are within the jurisdiction of the law.²⁹ Second, the agency has authority to review and either approve or appeal local government permitting decisions under the SMA.³⁰ In its review of these permits, Ecology considers the language in the local shoreline master program, the policies of the SMA, and its understanding of the project impacts to the wetland.³¹ Third, the agency is involved in the development and approval of local shoreline master programs, which contain the goals, policies, and regulations used by cities and counties to guide their shoreline permit decisions. Ecology’s recently updated rules establish planning and regulatory

¹⁸ WASH. REV. CODE § 36.71A; WASH. ADMIN. CODE § 365-190.

¹⁹ WASH. REV. CODE § 36.70A.172.

²⁰ Washington State Department of Ecology, *supra* note 15.

²¹ WASH. ADMIN. CODE § 365-190. See also State of Washington Department of Community, Trade, and Economic Development, *Critical Areas Assistance Handbook, Protecting Critical Areas Within the Framework of the Washington Growth Management Act (2003)*, available at www.cted.wa.gov/DesktopDefault.aspx?TabId=726

²² WASH. REV. CODE § 90.58; WASH. ADMIN. CODE § 173-22; § 173-27; § 173-26 (pending).

²³ Washington State Department of Ecology, *How Ecology Regulates Wetlands (1998)*, Ecology Publication No. 97-112, available at <http://www.ecy.wa.gov/pubs/97112.pdf>.

²⁴ “Associated wetlands” means “those wetlands which are in proximity to and either influence or are influenced by tidal waters or a lake or stream subject to the SMA” (Washington State Department of Ecology, *supra* note 15.)

²⁵ WASH. REV. CODE § 90.58.030.

²⁶ Washington State Department of Ecology, *supra* note 23.

²⁷ WASH. REV. CODE § 90.58.080.

²⁸ *Id.* § 90.58.140.

²⁹ WASH. REV. CODE § 90.58.030(2)(f); WASH. ADMIN. CODE § 173-22.

³⁰ WASH. REV. CODE § 90.58.140(3); WASH. ADMIN. CODE § 173-27.

³¹ Washington State Department of Ecology, *supra* note 23.

standards for future shoreline development and uses, requirements for protection and restoration of shoreline ecological functions, and guidance on the limitations of regulatory authority and shorelines and GMA integration.³²

*State Hydraulic Code.*³³ The State Hydraulic Code regulates construction and other work in state waters with the purpose of protecting fish life in all marine and fresh waters of the state. While not directly aimed at the protection of wetlands, the Hydraulic Code applies to all activities that affect the bed or flow within the ordinary high water line of state waters, which often include wetlands.³⁴ Such activities require a permit called a Hydraulic Project Approval (HPA), which is obtained from the Washington State Department of Fish and Wildlife (WDFW).³⁵ The Department has adopted a set of agency rules to guide its administration of the Code, including a set of wetland protection and restoration policies. These policies include the adoption of a “No Net Loss and Long-Term Gain” goal, emphasizing mitigation sequencing, wetland replacement ratios,³⁶ wetland buffer recommendations, transfer of development rights, encouragement of restoration³⁷ and creation, mitigation banking,³⁸ monitoring and assessment, and other considerations such as watershed planning and cumulative effects.³⁹

*Forest Practices Act.*⁴⁰ Wetland provisions of the Clean Water Act and the SWPCA are implemented on state and private forestlands through the Forest Practices Act, which focuses on maintaining functions important to the forest ecosystems of the state. Anyone proposing timber harvest or other classes of “forest practices” must submit a forest practices application to the Washington State Department of Natural Resources (WADNR).⁴¹ Protection measures are specific to forested and non-forested wetlands. For forested wetlands, provisions restrict harvest timing (dry periods only) and methods (low ground disturbance). For non-forested wetlands, wetlands must be classified and wetland management zones must be created to protect wetland functions in the forest landscape.⁴² Wetlands management zones are based on wetlands size categories of one-quarter to one-half acre, one-half acre to five acres, and greater than five acres.⁴³

Though the WADNR is the permitting agency, other state and local agencies may be involved in administration of the Forest Practices Act. For example, Ecology is authorized to take action regarding water pollution through the state’s water quality laws. Additionally, the WDFW may also be involved through administration of the State Hydraulic Code.

³² WASH. ADMIN. CODE § 173-26.

³³ WASH. REV. CODE § 77.55; WASH. ADMIN. CODE § 220-110.

³⁴ Jurisdiction extends to the ordinary high water mark, adjacent wetlands that could change the bed or flow of waters of the state, or activities on adjacent uplands that could affect the bed or flow of waters of the state. Generally, wetlands covered under an HPA would include submerged and emergent wetlands below ordinary high water mark and wetlands above ordinary high water mark whose alteration could affect the bed or flow of waters of the state. An HPA is not required for activities affecting isolated wetlands unless it could be clearly demonstrated that their removal would change the bed or flow of streams, lakes, ponds, marine or estuarine areas. Personal communication with Bob Zeigler, Washington State Department of Fish and Wildlife (Sept. 2, 2004).

³⁵ WASH. REV. CODE § 77.55.100.

³⁶ Prescribed wetland replacement ratios are: 1:1 (restored to impacted) if the mitigation site is fully functional prior to impact; 2:1 if compensation is concurrent; and greater than 2:1 if the project involves sensitive wetlands, difficult-to-replace wetlands, subbasins with greater than ten percent impervious surface, or temporal and geographic losses in replacement.

³⁷ Strategies include encouraging restoration through landowner incentive programs such as the Natural Resources Conservation Service’s Wetland Reserve Program, WDFW acquisition or cooperation with land trusts, and the transfer of development rights.

³⁸ When developing or regulating mitigation banks, unavoidable impacts to resources should be compensated for in the following order: on site; within the same sub-basin, or in the same Water resource Inventory Area, unless the WDFW determines that greater habitat function could be provided through other methods.

³⁹ Washington State Department of Fish and Wildlife, *Protecting and Restoring Wetlands, Policy 5211*, (on file with author).

⁴⁰ WASH. REV. CODE § 76.09; WASH. ADMIN. CODE § 222.

⁴¹ WASH. REV. CODE § 76.09.050.

⁴² WASH. ADMIN. CODE § 222-16-035.

⁴³ Washington State Department of Ecology, *supra* note 23.

Finally, local governments who have established a memorandum of agreement have authority on lands to be converted to non-forestry uses, as well as lands platted after 1960.⁴⁴

Organization of state agencies

Under the State Water Pollution Control Act, the Growth Management Act, the Shoreline Management Act, the State Hydraulic Code, and the Forest Practices Act, four state agencies play some role in state wetlands regulation in addition to local municipalities: the departments of Ecology, Natural Resources, Fish and Wildlife, and Community, Trade, and Economic Development.

Department of Ecology. The Washington State Department of Ecology is the lead agency for wetland activities in the state, managing §401 water quality certification for the state and providing technical assistance and guidance to local governments and the regulated community. The primary wetlands group within Ecology is the Shorelands and Environmental Assistance (SEA) Program. Though Ecology does have a separate Water Quality Program, the group does not deal directly with wetlands.⁴⁵

The SEA Program evolved from a hodgepodge of separate programs. In the early 1980s, Washington State did not have any regulatory authority to protect wetlands beyond what was provided at the federal level. Federal agencies began encouraging states to use water quality laws for these purposes, and in the late 1980s, the U.S. Environmental Protection Agency provided funding to the state to develop a §401 water quality certification program.⁴⁶

The Shorelands Program also began to develop in the 1980s. In 1983, the National Oceanic and Atmospheric Administration provided Ecology with some funding for a wetlands program under the SMA, offering additional protection measures to about half of the state's wetlands. In 1990, SMA wetlands programs began to combine with GMA regulations, under which, again, cities and counties provide regulatory measures with state guidance. All local municipalities adopted some sort of regulatory measures, but approaches and stringency varied across the state.⁴⁷

The SEA Program has 16 staff, nine of which are located in the state's four regional offices. Regional staff duties include issuing §401 certifications, offering consultation for shoreline permits involving wetlands, and providing technical assistance to regulating local municipalities. Seven SEA Program staff work at the state headquarters on various activities, including policy development, regulatory work, work with the legislature, regulation revision, and the issuance of policy guidance, among other activities. One staff position is dedicated solely to wetland stewardship, i.e. working with landowners and other agencies on wetland preservation and restoration through non-regulatory means and coordinating with federal and local programs on funding and other related issues. Staff also work on research and development. New tools and approaches for assessing wetlands in the watershed scale and technical tools such as hydrogeomorphic (HGM) assessment are under development. Two positions, funded under CWA §104, are dedicated to evaluating mitigation in the state and developing a wetlands mitigation and compliance monitoring program. The SEA Program also conducts some enforcement, monitoring, and restoration activities.

The SEA program's annual budget fluctuates from year to year, but has been shrinking in recent years.⁴⁸ In fiscal year 2003, \$12.4 million was budgeted for operations, while \$8.2 million in grants were given to local groups.⁴⁹ Program

⁴⁴ *Id.*

⁴⁵ McMillan, *supra* note 13.

⁴⁶ *Id.*

⁴⁷ In the mid-1990s, the business community began to express difficulty in complying with such varying measures. Although there was discussion of the adoption of a statewide rule, one was never developed. Instead, a rule was adopted requiring local governments to use "best available science" in making regulatory provisions and planning. This measure increased the influence of Ecology in local wetlands regulation because the agency is an often used source of best available science (McMillan, *supra* note 13).

⁴⁸ McMillan, *supra* note 13.

funding is derived from general state appropriations, some dedicated appropriations, federal grants, and funds from other state agencies.⁵⁰

Department of Fish and Wildlife. The Washington State Department of Fish and Wildlife and its parent agencies have had varying involvement in wetlands issues in the state over the last century. In 1947, the Washington Department of Game and the Department of Fisheries (the predecessor of the current WDFW) began jointly administering permits to protect fish life (Hydraulic Project Approvals).⁵¹ However, despite a priority on wetlands protection by staff habitat biologists, the agency's involvement with wetlands through the years has been reduced by a variety of political and economic influences.⁵²

In 2001, the WDFW eliminated its wetland section in a two percent budget cut.⁵³ Presently, agency staff are involved in wetland issues indirectly. For example, area habitat biologists investigate Hydraulic Project Approvals under the State Hydraulic Code for effects on state waters, which include wetlands. The WDFW has also acquired some wetland parcels and restored some estuarine wetlands on agency land with monies from the state's duck stamp. Some staff serve on transportation mitigation project subcommittees, occasionally provide comment on Corps permit notices, and get involved with local wetland issues, but little is required legally.⁵⁴

Because agency staff activities do not include work directly related to wetlands, it is difficult to track the number of full-time equivalents (FTEs) or funding allocated to working on wetlands issues in the agency. Many area habitat biologists have seen a vast reduction in the amount of wetlands-related work over the past decade.⁵⁵

Department of Natural Resources. The Washington State Department of Natural Resources is separated into regulatory and non-regulatory divisions. While the regulatory part of the agency deals largely with the forest industry, it also addresses wetland-related issues through the Forest Practices Act.⁵⁶ Under the FPA, the WADNR requires environmental compliance on all agency lands, including requiring all lessees to have environmental permits such as Hydraulic Project Approvals, §401 certifications, and other wetland-related permits.⁵⁷

The non-regulatory part of the WADNR operates in a proprietary manner, overseeing both uplands and aquatic lands. The uplands, some of which do include wetlands, are managed consistently with regulatory requirements primarily to generate revenue for trust beneficiaries. Some wetlands have been designated as "special natural areas" and are managed to maintain their unique environmental conditions. The WADNR also manages over 2.5 million acres of aquatic lands in the state, again playing a largely proprietary role by leasing lands for various uses. Aquatic lands, defined as navigable waters, do not often include what are considered to be traditional wetlands, but can sometimes include wetland areas and are frequently adjacent to wetlands.⁵⁸

Department of Community, Trade, and Economic Development. The Washington State Department of Community, Trade, and Economic Development (CTED) administers the state's Growth Management Service Program that provides technical assistance to local governments and citizens about land use planning and implementation of the GMA, including the

⁴⁹ Personal communication with Andy McMillan, Washington State Department of Ecology (Jan. 22, 2004).

⁵⁰ McMillan, *supra* note 13.

⁵¹ Personal communication with Bob Zeigler, Washington State Department of Fish and Wildlife (Jan. 7, 2004).

⁵² *Id.*

⁵³ Personal communication with Bob Zeigler, Washington State Department of Fish and Wildlife (Jan. 6, 2004).

⁵⁴ Zeigler *supra* note 51.

⁵⁵ Personal communication with Bob Zeigler, Washington State Department of Fish and Wildlife (Jan. 8, 2004).

⁵⁶ Personal communication with Loren Stern, Washington State Department of Natural Resources (Sept. 15, 2004).

⁵⁷ Washington State Department of Ecology, *supra* note 15.

⁵⁸ Personal communication with Loren Stern, Washington State Department of Natural Resources (Jan. 5, 2004).

designation and protection of critical areas and their functions and values. Critical areas include wetlands, fish and wildlife conservation areas, and geologically unstable areas, including tsunami-prone areas, earthquake areas, floodplains and flood-prone areas, and critical aquifer recharge areas. CTED, along with other state agencies, also review critical area ordinances in draft form (the GMA requires 60-day submittal notice before adoption can take place) and provide technical assistance and formal comment. If approved to do so by the Governor's office, CTED and other state agencies can also appeal ordinances if they are found to be out of compliance with the GMA.⁵⁹

The agency does not have field or regional offices, but staff planners are assigned to local municipalities to provide technical assistance on land use planning and implementation of the GMA. In all, 14 planners are assigned to 36 counties in the state.⁶⁰ While wetlands are not the sole focus of CTED planners' activities, all planners will work with wetlands issues to some degree. Agency funding for these purposes comes mostly from general state appropriations and federal grants, with most monies allocated to grant and loan programs for local governments.⁶¹

§401 certification

Section 401 certification is the primary mechanism of wetlands regulation at the state level, although local government regulation is the primary mechanism in the state overall.⁶² The State's surface water quality standards and antidegradation policy apply to all waters of the state, which include all wetlands. The primary mechanism for implementing these provisions is certification pursuant to §401 of the CWA. However, for activities that fall outside the purview of the §404 program, the state may use other state water quality permitting processes such as wastewater discharge permits, short-term water quality modifications, and administrative orders (an enforcement rule).⁶³ In fact, the state has announced that any project that calls for filling or altering a wetland determined by the Corps to be isolated will still be subject to regulation by the state via administrative order.⁶⁴ While these wetlands are exempt from §401/§404, they are still included in the state's definition 'wetlands.' The order is used for isolated wetlands to ensure compliance with state law, requiring mitigation and other regulatory measures.⁶⁵

An average of 75 to 100 §401 certifications are issued in any given year, including certifications for wetland and in-stream activities. Most certification decisions are approved; few are waived or denied outright. Denials are mostly based on whether or not regional and federal criteria have been met.⁶⁶ Ecology staff rely on a combination of quantitative and qualitative assessment and best professional judgment in making §401 certification decisions, depending on the type of wetland and the extent of the proposed impact.⁶⁷

⁵⁹ Personal communication with Chris Parsons, Washington Department of Community, Trade and Economic Development (Jan. 27, 2004).

⁶⁰ Washington State has 36 counties, but only 26 are growing at a rate fast enough to require these actions under the GMA.

⁶¹ Parsons, *supra* note 59.

⁶² McMillan, *supra* note 13.

⁶³ Washington State Department of Ecology, *supra* note 23.

⁶⁴ Washington State Department of Ecology, *Focus Sheet: Isolated Wetlands – Changes in the Regulatory Process (2001)*, Ecology Publication No. 00-06-020, available at <http://www.ecy.wa.gov/pubs/0106020.pdf>.

⁶⁵ McMillan, *supra* note 13.

⁶⁶ Personal communication with Loree Randall, Washington State Department of Ecology (Jan. 20, 2004).

⁶⁷ McMillan, *supra* note 13.

Nationwide permits

Washington State has applied various conditions to the U.S. Army Corps of Engineers' Nationwide Permits (NWP), while others have been partially denied or denied altogether.⁶⁸ Regional conditions that apply to all NWPs include:

- Non-application in mature forested wetlands or bog and bog-like wetlands;⁶⁹
- Allowance of authorized inspections by Corps representatives;
- Non-application in the Commencement Bay Study Area for NWP#12 - Utility Line Activities, NWP#13 - Bank Stabilization, NWP#14 - Linear Transportation Crossings, NWP#23 - Approved Categorical Exclusions, NWP#29 - Single-Family Housing, NWP#39 Residential, Commercial, and Institutional Developments, NWP#40 - Agricultural Activities, NWP#41 Reshaping Existing Drainage Ditches, NWP#42 - Recreational Facilities, and NWP#43 - Stormwater Management Facilities;
- Within the boundaries of the Mill Creek Special Area Management, application of the following NWPs in those areas designated as "Developable Wetlands" only: NWP#14- Linear Transportation Crossings; NWP#23 - Approved Categorical Exclusions; NWP#29 - Single-Family Housing; NWP#33 - Temporary Construction, Access and Dewatering; NWP#39 - Residential, Commercial, and Institutional Developments; NWP#40 - Agricultural Activities; NWP#41 - Reshaping Existing Drainage Ditches; NWP#42 - Recreational Facilities; NWP#43 - Stormwater Management Facilities; and
- Various construction activity prohibitions to protect bald eagles.

Mitigation

In 1996, the state legislature passed the Aquatic Resources Mitigation Act which states that "it is the policy of the state to authorize innovative mitigation measures by requiring state regulatory agencies to consider mitigation proposals for infrastructure projects that are timed, designed, and located in a manner to provide equal or better biological functions and values compared to traditional on-site, in-kind mitigation proposals."⁷⁰ The *State of Washington Alternative Mitigation Policy Guidance for Aquatic Permitting Requirements from the Departments of Ecology and Fish and Wildlife*, published in 2000, provides interagency policy guidance for evaluating aquatic mitigation alternatives. The guidance is intended to represent consensus on mitigation policy among the agencies responsible for evaluating, approving, implementing, and enforcing aquatic resource mitigation. Ecology is also developing a *Wetland Compensatory Mitigation Guidance Document* to provide clear guidance on requirements and expectations for compensatory mitigation

⁶⁸ The following NWPs have been approved: NWP#4 - Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities; NWP#5 - Scientific Measurement Devices; NWP#6 - Survey Activities; NWP#15 - U.S. Coast Guard Approved Bridges; NWP#19 - Minor Dredging; NWP#20 - Oil Spill Cleanup; NWP#22 - Removal of Vessels; NWP#30 - Moist Soil Management; NWP#31 - Maintenance of Existing Flood Control Facilities. The following NWPs have been partially denied: NWP#3 - Maintenance; NWP#7 - Outfall Structures and Maintenance; NWP#12 - Utility Activities; NWP#13 - Bank Stabilization; NWP#14 - Linear Transportation Projects; NWP#18 - Minor Discharges; NWP#23 - Approved Categorical Exclusions; NWP#25 - Structural Discharges; NWP#27 - Stream and Wetland Restoration Activities; NWP#29 - Single-Family Housing; NWP#32 - Completed Enforcement Actions; NWP#33 - Temporary Construction, Access, and Dewatering; NWP#34 - Cranberry Production Activities; NWP#36 - Boat Ramps; NWP#38 - Cleanup of Hazardous and Toxic Wastes; NWP#39 - Residential, Commercial, and Institutional Developments; NWP#40 - Agricultural Activities; NWP#42 - Recreational Facilities. The following NWPs have been denied: NWP#16 - Return Water From Upland Contained Disposal Areas; NWP#17 - Hydro Power Projects; NWP#21 - Surface Coal Mining Activities; NWP#37 - Emergency Watershed Protection and Rehabilitation; NWP#41 - Reshaping Existing Drainage Ditches; NWP#43 - Stormwater Management Facilities.

⁶⁹ This regional condition does not apply for NWP#3 - Maintenance; NWP#20 - Oil Spill Cleanup; NWP#32 - Completed Enforcement Actions; and NWP#40 - U.S. Department of Agriculture Program Participant.

⁷⁰ WASH. REV. CODE § 90.74.

specific to wetlands. The state's Department of Transportation has also published mitigation guidelines, entitled *Success Standards for Wetland Mitigation Projects – A Guideline*.⁷¹

The 1998 Washington State Legislature passed a wetland mitigation banking law that directed consistency with federal guidance on mitigation banking.⁷² The bill provided for two FTEs over two years to develop state regulations for mitigation banking and one FTE after the regulations were adopted.⁷³ A draft rule for the certification of mitigation banks was developed and, in November 2001, issued for comment. However, funding cuts have prevented implementation of the rule to date. The proposed rule was withdrawn on May 30, 2002. In June 2002, the wetland mitigation banking program was placed on hold because the staff position that was leading the rulemaking effort was cut due to budget shortfalls.⁷⁴ The 2004 Washington Legislature funded a one-year project to develop a pilot rule and work with banking interests to review mitigation bank proposals under the pilot rule. Ecology will report back to the legislature on these efforts in 2005.⁷⁵ The state's business community is a major supporter of mitigation banking, and it is expected that there will be future initiatives within the state to implement a banking program. While there also exists potential for an in-lieu-fee program of some sort, the state has not formally pursued this option as of yet.⁷⁶

The Washington State Department of Transportation (WSDOT) is collaborating with the WDFW and the Department of Ecology to develop a "Watershed-Based Mitigation" program to guide mitigation projects for unavoidable impacts of transportation projects. The program focuses on improving ecological benefits to watersheds and streamlining the permitting process.⁷⁷ Through a "watershed characterization" process, the WSDOT assesses current conditions in watersheds and identifies possible mitigation sites to maximize ecological benefit to the watershed, achieve locally defined watershed recovery priorities, and reduce mitigation costs. The process involves an interdisciplinary team of scientists who make extensive use of geographic information systems technology. The team generates a list of potential mitigation sites in the impact area's watershed, which is then subjected to a cost-benefit analysis before a final decision on the location of mitigation projects.⁷⁸

Compliance and enforcement

Each Washington State agency is responsible for enforcing its own regulatory program. Ecology enforces the SWPCA, and has joint enforcement authority with local municipalities for the SMA. Local governments are responsible for enforcing the GMA, while the WDFW and the WADNR are responsible for enforcing Hydraulic Project Approvals and the FPA, respectively.

Ecology's SEA Program has a very small enforcement component and program staff usually play an advisory role for other enforcing groups (e.g. the Corps, Ecology's water quality program). Ecology has placed a priority on enforcing

⁷¹ Washington State Department of Transportation, *Success Standards for Wetland Mitigation Projects – A Guideline* (1999), available at http://www.wsdot.wa.gov/environment/biology/docs/success_guidelines.pdf.

⁷² WASH. REV. CODE § 90.84.

⁷³ McMillan, *supra* note 13.

⁷⁴ Wash. St. Reg. 02-12-058.

⁷⁵ Washington Department of Ecology, *Wetland Mitigation Banking Rule Withdrawn*, at <http://www.ecy.wa.gov/programs/sea/wetmitig/index.html> (last visited July 27, 2004).

⁷⁶ McMillan, *supra* note 17.

⁷⁷ Washington Department of Transportation, Environmental Services, *Watershed Based Mitigation*, at http://www.wsdot.wa.gov/environment/watershed/watershed_mitigation.htm (last revised 2001).

⁷⁸ Washington Department of Transportation, *Identification of Mitigation Sites Through Watershed Characterization*, available at http://www.wsdot.wa.gov/environment/streamlineact/subcommittee_docs/watershed_characterization_overview.pdf (last visited July 24, 2004).

provisions that protect isolated wetlands, since these areas fall outside of federal jurisdiction.⁷⁹ Administrative orders and civil penalties of up to \$10,000 per day, per violation are available.⁸⁰ Typically, however, Ecology issues a Notice of Violation to assess the nature of the violation and the reason for its occurrence. Depending on the offender's response and the egregiousness of the violation, an administrative order may be issued with a civil penalty. Any issued penalty can be appealed.⁸¹ Approximately 15 to 20 administrative orders are issued each year, the bulk of which relate to isolated wetlands permitting.⁸²

Tracking systems

The SEA Program has recently installed a state aquatic resource database in order to track permits, mitigation, enhancement, preservation, enforcement and corrective actions, and other wetland-related categories. The system includes follow-ups and site inspections and gives reminders for benchmarks that wetland projects should have achieved. The system, created in response to a steadily deteriorating and outdated tracking system, went online in January 2004.⁸³

III. Water Quality Standards

While Washington State has not developed water quality standards specific to wetlands, the state's water quality standards and antidegradation policy apply to all 'waters of the state,' which include wetlands. Standards are both narrative and chemical and are associated largely with fish and wildlife habitat. Designated uses have not been developed specifically for wetlands either; however, the designated uses that apply to all surface waters of the state not specifically listed in the regulations include salmon and trout spawning, noncore rearing, and migration; primary contact recreation; domestic, industrial, and agricultural water supply; stock watering; wildlife habitat; harvesting; commerce and navigation; boating; and aesthetic values.⁸⁴ Protection is not limited to only those uses listed, because the antidegradation policy makes it clear that all existing beneficial uses of a waterbody are to be protected, not just those listed specifically in the standards.⁸⁵

IV. Monitoring and Assessment

While there is no state standard assessment methodology or state monitoring program in place, the Department of Ecology has two assessment methodologies for wetlands. The methodologies are mostly used for guidance or in constructing best professional judgment for regulatory decision-making. They are not used for purposes of constructing CWA §303(d) lists or §305(b) reports.⁸⁶

One is a quantitative, HGM-based, functional assessment methodology. Working in conjunction with the U.S. Army Corps of Engineers, Ecology began development of the methodology, which is used mainly for mitigation decision-making, under the *Washington State Wetland Function Assessment Project* in 1997. Ecology has no plans to develop HGM guidebooks for the region.⁸⁷ The other assessment methodology, the *Washington State Wetland Rating System*, is

⁷⁹ McMillan, *supra* note 13.

⁸⁰ WASH. REV. CODE § 90.48.144.

⁸¹ Randall, *supra* note 66.

⁸² McMillan, *supra* note 13.

⁸³ *Id.*

⁸⁴ WASH. ADMIN. CODE § 173-201A-600.

⁸⁵ *Id.* § 173-201A-310.

⁸⁶ McMillan, *supra* note 49.

⁸⁷ *Id.*

designed as a rapid screening tool for use by agencies and local governments in categorizing wetlands for protection and management. The methodology was developed in conjunction with a variety of Washington State agencies and local governments, and separate systems have been developed for Eastern Washington⁸⁸ and Western Washington.⁸⁹ The Washington Department of Transportation also uses a qualitative tool based on best professional judgment for rapid documentation of linear projects, called *Wetland Functions Characterization Tool for Linear Projects*.⁹⁰

Until better methods are developed, Ecology continues to rely mainly on best professional judgment combined with best available science in assessing wetland function for regulatory decisions. Ecology may also use established methods such as Wetland Evaluation Technique and the Habitat Evaluation Procedure, but it does not rely on such procedures to measure wetland functions.⁹¹

V. Restoration

Washington State Department of Ecology contributes to wetland restoration initiatives apart from those required as compensatory mitigation. With a focus on developing online guidance for local governments, Ecology plans to work with local governments to try to implement restoration initiatives as part of comprehensive land use and shoreline planning. This entails a series of basin-wide analyses that look at various characteristics, including wetlands. Initially, mitigation siting was going to be integrated, but budget shortfalls have prevented this from happening. The guidance tool provides technical assistance in creating, locating, and designing regulations and ordinances that would provide wetlands protection. Funding for this initiative is provided through state appropriations.⁹²

In addition, Ecology works with local partners (cities, counties, conservation districts, diking districts, non-profit groups) to develop non-regulatory restoration projects. The agency plays a significant role in obtaining federal funding for various local restoration initiatives. Ecology also provides technical assistance on project design and monitoring.

VI. Public/Private Partnerships

State staff provide little direct assistance to private landowners. Ecology employs one FTE who works specifically on issues related to land stewardship. However, the focus in Washington State is more on providing technical support and outreach to municipalities, which in turn work directly with local landowners. The state occasionally coordinates with the USDA Natural Resources Conservation Service on individual restoration initiatives, as well as corporations such as Quadrant, Weyerhaeuser, and other timber companies on private restoration projects.⁹³ Finally, state agencies do not generally coordinate with citizen monitoring groups, though there are several operating within the state. Ecology has provided training for these groups in the past, but there is no formal support.⁹⁴

⁸⁸ Washington State Department of Ecology, *Washington State Wetland Rating System for Eastern Washington - Revised (2004)*, Ecology Publication No. 02-06-019, available at <http://www.ecy.wa.gov/pubs/0406015.pdf>.

⁸⁹ Washington State Department of Ecology, *Draft Washington State Wetland Rating System for Western Washington – Revised (2004)*, Ecology Publication No. 04-06-014, available at <http://www.ecy.wa.gov/pubs/0406014.pdf>.

⁹⁰ Washington Department of Transportation, *Wetland Functions Characterization Tool for Linear Projects (2000)*, available at <http://www.wsdot.wa.gov/environment/biology/docs/bpjtool.pdf>.

⁹¹ Washington State Department of Ecology, *How Ecology Regulates Wetlands (1998)*, Ecology Publication No. 97-112, available at <http://www.ecy.wa.gov/pubs/97112.pdf>.

⁹² Personal communication with Stephen Stanley, Washington State Department of Ecology (Jan. 7, 2004).

⁹³ *Id.*

⁹⁴ McMillan, *supra* note 49.

VII. Education and Outreach

The Department of Ecology created a strategic plan for outreach and education in the state in the early 1990s, and as a result, several tools and educational materials were developed. SEA Program staff continue to maintain these tools, but there is no plan to continue developing new materials. Materials target K-12 and general public audiences. Numerous curricula and wetland guidebooks (some available in Spanish and English), coloring pages, and posters are distributed for K-12 education. Materials developed for the general public include wetland guidebooks, landowner stewardship guides, and videos. Local governments also receive outreach and education from the SEA Program, mostly in the form of technical assistance and training.⁹⁵

VIII. Coordination with State and Federal Agencies

Washington State agencies coordinate on various issues related to wetlands. For example, Ecology and the Washington State Department of Transportation have implementation agreements on WSDOT requirements for both water quality permits and mitigation banking. As mentioned previously, the administration of the FPA is also shared among multiple state agencies (the WADNR, WDFW, and Ecology).⁹⁶ The WSDOT also works with state agencies on its watershed-based mitigation initiative, including Ecology and the WDFW.⁹⁷

A State Wetland Conservation Plan, entitled the State Wetland Integration Strategy, was completed in the 1990s. In writing the plan, Ecology staff enlisted a stakeholder input process, but reaching consensus proved very difficult. The plan was utilized for two to three years, but is now considered outdated.⁹⁸

There is some coordination between the state and federal levels on wetlands issues. For example, Ecology's SEA Program coordinates often with both the U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency. However, state coordination with the U.S. Fish and Wildlife Service and the Natural Resources Conservation Service is virtually non-existent.⁹⁹

⁹⁵ Personal communication with Andy McMillan, Washington State Department of Ecology (July 29, 2004).

⁹⁶ McMillan, *supra* note 49.

⁹⁷ Washington Department of Transportation, *supra* note 77.

⁹⁸ *Id.*

⁹⁹ McMillan, *supra* note 49.

IX. Acronyms and Abbreviations

CTED - Washington State Department of Community, Trade, and Economic Development

CWA - Clean Water Act

Ecology - Washington State Department of Ecology

FTE - Full-time equivalent

GMA - Growth Management Act

HGM - Hydrogeomorphic

HPA - Hydraulic Project Approval

NWPs - Nationwide Permits

RCW - Revised Code of Washington

SEA - Shorelands and Environmental Assistance

SMA - Shoreline Management Act

SWPCA - State Water Pollution Control Act

WAC - Washington Administrative Code

WADNR - Washington State Department of Natural Resources

WDFW - Washington State Department of Fish and Wildlife

WSDOT - Washington State Department of Transportation

Appendix B: Acronyms and Abbreviations

AAC - Arizona Administrative Code

AAS - Adopt-A-Stream

ACA - Arkansas Code Annotated

ADEQ - Arkansas Department of Environmental Quality

AEC - Area of Environmental Concern

AFC - Arkansas Forestry Commission

AGFC - Arkansas Game and Fish Commission

ANHC - Arkansas Natural Heritage Commission

APA - Adirondack Park Agency

APCEC - Arkansas Pollution Control and Ecology Commission

ARS - Arizona Revised Statutes

ASWCC - Arkansas Soil and Water Conservation Commission

AWIMS - Arkansas Wetland Information Management System

AZDEQ - Arizona Department of Environmental Quality

AZPDES - Arizona Pollutant Discharge Elimination System

CAMA - Coastal Area Management Act

CCR - Code of Colorado Regulations

CDNR - Colorado Department of Natural Resources

CDOW - Colorado Department of Natural Resources, Division of Wildlife

CDPHE - Colorado Department of Public Health and Environment

CFR - Certified Federal Register

CIWPIS - Coastal and Inland Waters Permit Information System

CMPA - Coastal Marshlands Protection Act

Corps - U.S. Army Corps of Engineers

CRD - Coastal Resources Division

CRS - Colorado Revised Statutes

CSR - Code of State Regulations

CSWCC - Comprehensive Statewide Wetlands Classification and Characterization

CTED - Washington State Department of Community, Trade, and Economic Development

CWA - Clean Water Act

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CWMTF - Clean Water Management Trust Fund
CWQCA - Colorado Water Quality Control Act
CWRP - Corporate Wetlands Restoration Partnership
DART - Department Application Review Tracking
DCM - Division of Coastal Management
DEC - New York State Department of Environmental Conservation
DEP - Division of Environmental Permits
DFFO - Director's Final Finding Order
DFWMR - Division of Fish, Wildlife, and Marine Resources
DSW - Division of Surface Water
DWQ - Division of Water Quality
EAs - Environmental Areas
Ecology - Washington State Department of Ecology
EFH - Essential Fish Habitat
EPA - U.S. Environmental Protection Agency
EPD - Environmental Protection Division
ERC - Environmental Review Committee
FTE - Full-time Equivalent
FWS - U.S. Fish and Wildlife Service
GA DNR - Georgia Department of Natural Resources
GDOT - Georgia Department of Transportation
GIS - Geographic Information System
GLTSC - Georgia Land Trust Service Center
GMA - Growth Management Act
GOCO - Great Outdoors Colorado
HGM – Hydrogeomorphic
HPA - Hydraulic Project Approval
IBI - Indices of Biological Integrity
LURC - Land Use Regulation Commission
LWMD - Land and Water Management Division
MAC - Michigan Administrative Code
MAD - Master Action Database

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MBRT - Mitigation Banking Review Team
MCL - Michigan Compiled Laws
MCMP - Michigan Coastal Management Program
MDA - Michigan Department of Agriculture
MDC - Missouri Department of Conservation
MDEP - Maine Department of Environmental Protection
MDEQ - Michigan Department of Environmental Quality
MDNR - Michigan Department of Natural Resources
MNFI - Michigan Natural Features Inventory
MOA - Memorandum of Agreement
MODNR - Missouri Department of Natural Resources
MRS - Missouri Revised Statutes
MRSA - Maine Revised Statute Annotated
MSRP - Marsh and Shore Regulatory Program
MSZA - Mandatory Shoreland Zoning Act
NAWCA - North American Wetland Conservation Act
NAWMP - North American Waterfowl Management Plan
NCAC - North Carolina Administrative Code
NC-CREWS - North Carolina Coastal Region Evaluation of Wetland Significance
NCDENR - North Carolina Department of Environment and Natural Resources
NCDOT - North Carolina Department of Transportation
NCEEP - North Carolina Ecosystem Enhancement Program
NCGS - North Carolina General Statutes
NPDES - National Pollution Discharge Elimination System
NRCS - Natural Resources Conservation Service
NREPA - Natural Resources and Environmental Protection Act
NRPA - Natural Resources Protection Act
NWI - National Wetlands Inventory
NWPs - Nationwide Permits
NYCRR - New York State Codes, Rules, and Regulations
NYDOT - New York Department of Transportation
NYECL - New York Environmental Conservation Law

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NYS DEC - New York State Department of Environmental Conservation
OAC - Ohio Administrative Code
ODNR - Ohio Department of Natural Resources
ODOT - Ohio Department of Transportation
OEE - Office of Environmental Education
OEPA - Ohio Environmental Protection Agency
OWLS - Outdoor and Wildlife Leadership Schools
OWTF - Ohio Wetlands Task Force
PADEP - Pennsylvania Department of Environmental Protection
PBR - Permit By Rule
PennDOT - Pennsylvania Department of Transportation
PGP - Programmatic General Permit
PWRP - Pennsylvania Wetland Replacement Project
RASS - Resource Analysis and Scientific Services
RCW - Revised Code of Washington
RIBS - Rotating Integrated Basin Studies
SEA - Shorelands and Environmental Assistance
SEQRA - State Environmental Quality Review Act
SMA - Shoreline Management Act
SOP - Standard Operating Procedure
SPGP - State Programmatic General Permit
SWANCC - *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*
SWIMS - Surface Water Information Management System
SWPCA - State Water Pollution Control Act
SWQAS - Surface Water Quality Assessment Section
SWS - Soil and Waterways Section
TLW - Targeted Local Watershed
TMDL - Total Daily Maximum Load
UACES - University of Arkansas Cooperative Extension Service
UPA - Uniform Procedures Act
USDA - U.S. Department of Agriculture
USEPA - U.S. Environmental Protection Agency

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USGS - U.S. Geological Survey
WAC - Washington Administrative Code
WADNR - Washington State Department of Natural Resources
WDFW - Washington State Department of Fish and Wildlife
WET - Water Education Training
WETs - Wetland Emphasis Teams
WI/PWL - Waterbody Inventory / Priority Waterbody List
WMA - Wildlife Management Areas
WNAT - Watershed Needs Assessment Team
WPA - Wetland Planning Area
WPDG - Wetlands Program Development Grant
WQS - Water Quality Standards
WRD - Wildlife Resources Division
WRP - Wetlands Reserve Program
WRPs - Watershed Restoration Plans
WRRSP - Water Resource Restoration Sponsor Program
WSDOT - Washington State Department of Transportation
WWEC - Division of Waterways, Wetlands, and Erosion Control
WWG - Wetland Working Group

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